ENGINEERING REVIEW

Transmittal Items

Primary Mandatory Items

- [ ] 1. Engineering Review Universal Application
- [ ] 2. Review fee (refer to fee schedule)
- [ ] 3. Construction plans/documents*
- [ ] 4. Drainage Report*
- [ ] 5. Traffic Impact Study*
- [ ] 6. Stormwater Operations and Maintenance Manual*

All construction documents must be stamped and signed by a Licensed Professional Engineer (PE) prior to submittal.

All construction documents must be in PDF format, with a separate PDF for each document. Do not combine into one PDF document.

*Contact Community & Economic Development - Engineering Review to determine if this item is required.

Community & Economic
Development Department
www.adcogov.org

ADAMS COUNTY
COLORADO

4430 South Adams County Parkway
1st Floor, Suite W2000
Brighton, CO 80601-8204
PHONE 720.523.6800
FAX 720.523.6998

Engineering Review Application

Application Type:

Construction Documents	Subdivision
Erosion and Sediment Control Plans	X Other – EGR (associated with OGF)

Have you attended a Conceptual Review? YES X NO [ ]

If Yes, please list PRE#: **2025-00045**

APPLICANT

Name(s): John Piekara Company: Extraction Oil & Gas Inc.

Address: 555 17th St, Suite 3700

City, State, Zip: Denver, CO 80202

Phone #: 3032947824 Email: jpiekara@civiresources.com

OWNER

Name(s): State Land Board c/o Steve Freese Phone #: 3039052808

Address: 1127 Sherman Street - Suite 300

City, State, Zip: Denver, CO 80203

2nd Phone #: [ ] Email: steve.freese@state.co.us

TECHNICAL REPRESENTATIVE (Consultant, Engineer, Surveyor, Architect, etc.)

Name: Jake Edmunds Company: 609 Consulting

Address: 1095 Saberton Avenue

City, State, Zip: Sheridan, WY 82801

Phone #: 3076740609 Email: jedmunds@609consulting.com

DESCRIPTION OF SITE

Address: E. 120th Ave (pending street number)

City, State, Zip: Commerce City, CO 80022

Area (acres or square feet): 17.03 ac

Tax Assessor Parcel Number 0156900000077

Existing Zoning: A-3

Existing Land Use: agriculture

Proposed Land Use: agriculture

I hereby certify that I am making this application as owner of the above described property or acting under the authority of the owner (attached authorization, if not owner). I am familiar with all pertinent requirements, procedures, and fees of the County. I understand that the Application Review Fee is non-refundable. All statements made on this form and additional application materials are true to the best of my knowledge and belief.

Name: John Piekara Date: 12/11/2025

Owner's Printed Name

Name: 

Owner's Signature

COLORADO
Department of Public Health & Environment

CERTIFICATION TO DISCHARGE
UNDER
CDPS GENERAL PERMIT COR400000
STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY

Certification Number: **COR401178**

This Certification to Discharge specifically authorizes:

Owner Civitas Resources
Operator Civitas Resources
to discharge stormwater from the facility identified as

East Wattenberg Gas Field

To the waters of the State of Colorado, including, but not limited to:

South Platte River

Facility Activity :	OilGas
Disturbed Acres:	2880 acres
Facility Located at:	CR 7 and CR 52 Erie 80516 Weld County Latitude 40.088295 Longitude -104.999135
Specific Information (if applicable):	

Certification is issued: 4/12/2024
Certification is effective: 4/1/2024
Expiration date of general permit: 3/31/2029

This certification under the general permit requires that specific actions be performed at designated times. The certification holder is legally obligated to comply with all terms and conditions of the COR400000 permit.

This certification was approved by:
Andrew Sayers-Fay Permits Section Manager
Clean Water Program
Water Quality Control Division

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ARAPAHOE COUNTY
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LEGEND

- HIGHWAY
- INTERSTATE
- EAST PROJECT AREA
- COUNTY BOUNDARY
- TOWNSHIP AND RANGE LINES

0 4 8
Miles

N

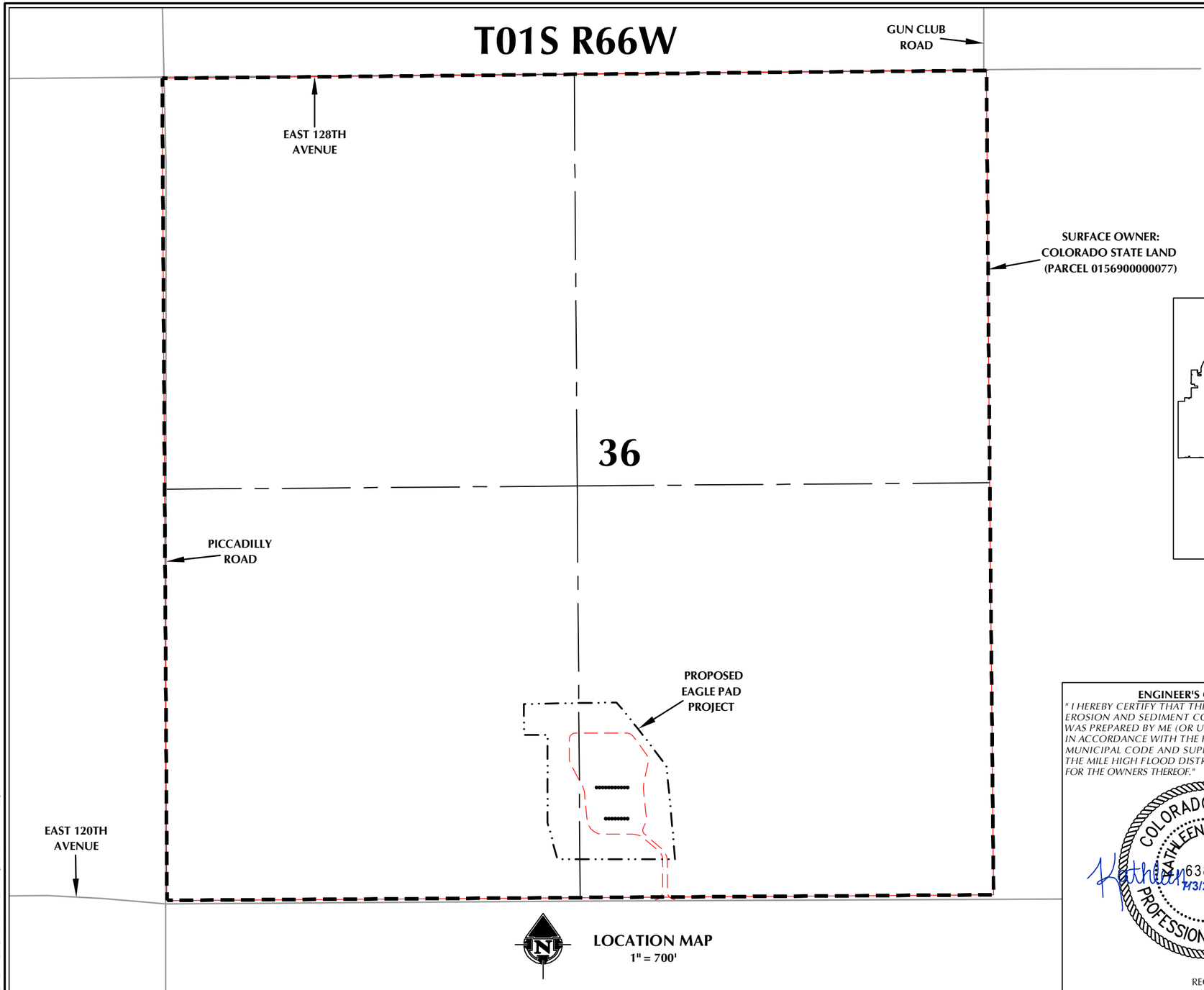
FIGURE 1
STORMWATER MANAGEMENT PLAN PERMIT BOUNDARY
EAST WATTENBERG GAS FIELD
WELD COUNTY, COLORADO

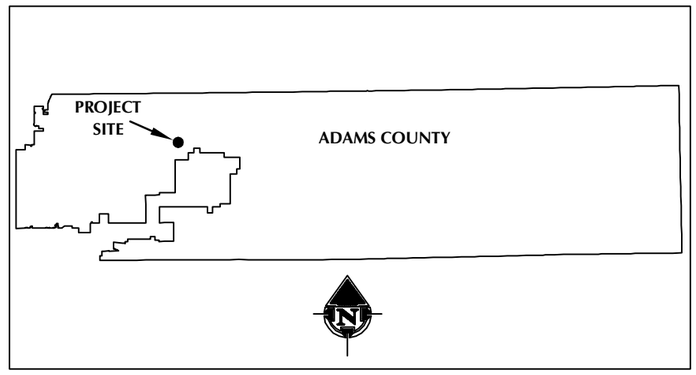
ENCANA OIL & GAS (USA) INC.

P:\Encana\GIS\MXD\SWMP_032814\SWMP_EAST_PROJECT_AREA.mxd

EAGLE PAD
GRADING, EROSION AND SEDIMENT CONTROL PLAN

LOCATED IN SECTION 36, T1S, R66W, 6TH P.M.
ADAMS COUNTY, COLORADO





VICINITY MAP

ENGINEER'S CERTIFICATION

" I HEREBY CERTIFY THAT THIS FINAL PLAN FOR THE GRADING, EROSION AND SEDIMENT CONTROL DESIGN OF EAGLE PAD WAS PREPARED BY ME (OR UNDER MY DIRECT SUPERVISION) IN ACCORDANCE WITH THE PROVISIONS OF ADAMS COUNTY MUNICIPAL CODE AND SUPPLEMENTAL REQUIREMENTS OF THE MILE HIGH FLOOD DISTRICT STORM DRAINAGE CRITERIA FOR THE OWNERS THEREOF."

COLORADO LICENSED
KATHLEEN M. GOLES
63868
7/3/2025
PROFESSIONAL ENGINEER

KATHLEEN M. GOLES
REGISTERED PROFESSIONAL ENGINEER
STATE OF COLORADO NO. 63868

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1 - COVER SHEET
2 - NOTES
3 - CONSTRUCTION PHASE SITE PLAN
4 - CROSS SECTIONS
5 - PRODUCTION PHASE SITE PLAN
6 - OUTLET DETAILS
7 - BMP TYPICALS (A)
8 - BMP TYPICALS (B)

GENERAL NOTES:

1. THIS GRADING, EROSION AND SEDIMENT CONTROL PLAN WAS PREPARED FOLLOWING ADAMS COUNTY DEVELOPMENT STANDARDS & REGULATIONS WITH ADDITIONAL DESIGN GUIDANCE PROVIDED BY MILE HIGH FLOOD DISTRICT.
2. DISCLAIMER: THIS PLAN REPRESENTS AN APPROXIMATE LOCATION OF SEDIMENT AND EROSION CONTROL FEATURES; EXACT LOCATION MAY VARY DEPENDING UPON EXISTING EASEMENTS, PIPELINES, FLOWLINES, AND SETBACK REQUIREMENTS.
3. ORIGINAL DOCUMENT SIZE: 11" X 17"

609 CONSULTING, LLC

LOVELAND OFFICE
6706 North Franklin Avenue
Loveland, Colorado 80538
Phone 970-776-4331

SHERIDAN OFFICE
1095 Saberton Avenue
Sheridan, Wyoming 82801
Phone 307-674-0609

Prepared For:

CIVITAS
Extraction Oil & Gas, Inc.

EAGLE PAD
GRADING, EROSION AND SEDIMENT CONTROL PLAN
COVER SHEET

SCALE:	VARIES	PAGE:	1 OF 8
JOB NUMBER:	24-118	DATE:	7/3/25
DRAFTED BY:	KMG	REVISED:	

K:\CIVITAS RESOURCES\2024\2024_118_EAGLE_T1S_R66W_SEC_36\GESC\EAGLE_GESC.dwg, 6/26/2025 1:16:40 PM, kgoles

MAINTENANCE STANDARD NOTES

1. MAINTAIN AND REPAIR CMS ACCORDING TO APPROVED EROSION CONTROL PLAN (CIVIL DRAWING) TO ASSURE THEY CONTINUE PERFORMING AS ORIGINALLY INTENDED.
2. CMS/BMPS REQUIRING MAINTENANCE OR ADJUSTMENT SHALL BE REPAIRED IMMEDIATELY AFTER OBSERVATION OF THE FAILING BMP.
3. CMS SHALL BE CLEANED WHEN SEDIMENT LEVELS ACCUMULATE TO HALF THE DESIGN UNLESS OTHERWISE SPECIFIED.
4. SWMP AND EC PLAN SHALL BE CONTINUOUSLY UPDATED TO REFLECT NEW OR REVISED CMS/BMPS DUE TO CHANGES IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE, TO ACCURATELY REFLECT THE ACTUAL FIELD CONDITIONS. A NOTATION SHALL BE MADE IN THE SWMP, INCLUDING DATE OF CHANGES IN THE FIELD, IDENTIFICATION OF THE CMS REMOVED, MODIFIED OR ADDED, AND THE LOCATIONS OF THOSE CMS. UPDATES MUST BE MADE WITHIN 72-HOURS FOLLOWING THE CHANGE.
5. MAINTAIN VEHICLE TRACKING CONTROL (VTC), IF SEDIMENT TRACKING OCCURS, CLEAN-UP IMMEDIATELY. SWEEP BY HAND OR THE USE STREET SWEEPERS (WITH VACUUM SYSTEM). FLUSHING OFF PAVED SURFACES WITH WATER IS PROHIBITED.
6. CWA MUST BE CLEANED ONCE WASTE ACCUMULATION REACHES ¾ OF THE WET STORAGE CAPACITY OF THE STRUCTURE. LEGALLY DISPOSED OF CONCRETE WASTE. DO NOT BURY ON-SITE.
7. CLEAN-UP SPILLS IMMEDIATELY AFTER DISCOVERY OR CONTAIN UNTIL APPROPRIATE CLEANUP METHODS CAN BE EMPLOYED. FOLLOW MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP, ALONG WITH PROPER DISPOSAL METHODS. RECORDS OF SPILLS, LEAKS, OR OVERFLOWS THAT RESULT IN DISCHARGE OF POLLUTANTS MUST BE DOCUMENTED AND MAINTAINED.
8. REMOVE SEDIMENT FROM STORM SEWER INFRASTRUCTURE (PONDS, STORM PIPES, OUTLETS, INLETS, ROADSIDE DITCHES, ETC.), AND RESTORE VOLUME CAPACITY UPON COMPLETION OF PROJECT OR PRIOR TO INITIAL ACCEPTANCE OF PUBLIC IMPROVEMENTS (IF APPLICABLE). DO NOT FLUSH SEDIMENT OFFSITE, CAPTURE ON-SITE AND DISPOSED OF AT AN APPROVED LOCATION.

GENERAL CONSTRUCTION NOTES

1. A PRE-CONSTRUCTION MEETING IS REQUIRED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. TO SCHEDULE A PRE-CONSTRUCTION MEETING CONTACT THE ADAMS COUNTY CONSTRUCTION INSPECTOR SUPERVISOR AT 720-523-6965.
2. ALL CONCRETE CURB, GUTTER AND WALK MUST BE POURED MONOLITHICALLY USING 4,500 PSI CONCRETE WITH FIBER MESH.
3. ALL MATERIAL SUBMITTALS MUST BE APPROVED, STAMPED AND SIGNED, BY THE ENGINEER OF RECORD AND, SUBMITTED TO THE ADAMS COUNTY CONSTRUCTION INSPECTOR FOR APPROVAL PRIOR TO CONSTRUCTION/INSTALLATION.
4. THE CONTRACTOR IS REQUIRED TO SUBMIT COPIES OF ALL CONCRETE AND ASPHALT TICKETS TO THE ADAMS COUNTY CONSTRUCTION INSPECTOR.
5. THE CONTRACTOR IS RESPONSIBLE FOR ALL QUALITY CONTROL TESTING AND, IS REQUIRED TO SUBMIT ALL TEST RESULTS TO THE ADAMS COUNTY CONSTRUCTION INSPECTOR.
6. THE CONTRACTOR IS REQUIRED TO REMOVE A MINIMUM OF TWO (2) FEET OF EXISTING ASPHALT FOR ALL CURB AND GUTTER REPLACEMENT.
7. ALL UTILITY CUTS IN EXISTING STREETS ARE REQUIRED TO BE BACKFILLED WITH FLOWFILL AND, PATCHED WITH A MINIMUM OF 9-INCH ASPHALT PATCH.
8. A COPY OF THE GEOTECHNICAL REPORT SPECIFYING THE PAVEMENT THICKNESS DESIGN MUST BE SUBMITTED FOR REVIEW.
9. PERMITS WILL BE REQUIRED FOR THE INSTALLATION OF ALL UTILITIES. THE DEVELOPER/CONTRACTOR/ENGINEER, MUST SUPPLY THE LINEAL FOOTAGES AND THE NUMBER OF SERVICE CUTS REQUIRED FOR ALL UTILITIES.
10. PERMITS WILL BE REQUIRED FOR THE INSTALLATION OF ALL CONCRETE AND ASPHALT FACILITIES. PRIOR TO THE ISSUANCE OF THESE PERMITS, THE DEVELOPER/CONTRACTOR/ENGINEER, MUST SUPPLY THE SQUARE YARDAGE/SQUARE FOOTAGES OF ALL CONCRETE AND ASPHALT BEING INSTALLED.
11. THE SIA MUST BE COMPLETED WITH APPROPRIATE COLLATERAL, ALONG WITH THE PROPOSED PLAT, PRIOR TO THE ISSUANCE OF ANY ROW ACCESS/CONSTRUCTION PERMIT.
12. NO C.O.'S WILL BE ISSUED FOR ANY BUILDING CONSTRUCTION UNTIL ALL ROW IMPROVEMENTS HAVE BEEN COMPLETED AND HAVE BEEN GRANTED PRELIMINARY ACCEPTANCE.
13. UPON COMPLETION OF ALL CONSTRUCTION, A DRAINAGE CERTIFICATION LETTER, AND APPROPRIATE AS-BUILT CONSTRUCTION DRAWINGS AND INFORMATION WILL BE REQUIRED. THIS LETTER WILL BE STAMPED AND SIGNED BY THE ORIGINAL DESIGN ENGINEER.

PERFORMANCE STANDARD NOTES

1. STORMWATER RUNOFF FROM DISTURBED AREAS MUST FLOW TO AT LEAST ONE (1) CM TO MINIMIZE SEDIMENT IN THE DISCHARGE. DO NOT ALLOW SEDIMENT TO LEAVE THE SITE. THE BEST WAY TO PREVENT SEDIMENT OR POLLUTANTS FROM ENTERING THE STORM SEWER SYSTEM IS TO STABILIZE THE SITE AS QUICKLY AS POSSIBLE, PREVENTING EROSION AND STOPPING SEDIMENT RUN-OFF AT ITS SOURCE.
2. PHASE CONSTRUCTION TO MINIMIZE DISTURBED AREAS, INCLUDING DISTURBANCE OF STEEP SLOPES (I.E., THE ENTIRE PROJECT SITE SHOULD NOT BE DISTURBED IF CONSTRUCTION WILL ONLY BE OCCURRING IN ONE SECTION OF THE SITE). LIMIT SOIL EXPOSURE TO THE SHORTEST POSSIBLE PERIOD OF TIME. PROTECT NATURAL FEATURES AND EXISTING VEGETATION WHENEVER POSSIBLE. REMOVAL OF EXISTING VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATIONS. MAINTAIN PRE-EXISTING VEGETATION (OR EQUIVALENT CMS) FOR AREAS WITHIN 50 HORIZONTAL FT OF RECEIVING WATERS.
3. SOIL COMPACTION MUST BE MINIMIZED FOR AREAS WHERE INFILTRATION CMS WILL OCCUR OR WHERE FINAL STABILIZATION WILL BE ACHIEVED THROUGH VEGETATIVE COVER.
4. ALL SOIL IMPORTED TO OR EXPORTED FROM THE SITE SHALL BE PROPERLY COVERED TO PREVENT THE LOSS OF MATERIAL DURING TRANSPORT.
5. DUST EMISSIONS RESULTING FROM GRADING ACTIVITIES OR WIND SHALL BE CONTROLLED.
6. INSTALL CONSTRUCTION FENCE (ORANGE) TO PROTECT WETLANDS AND OTHER SENSITIVE AREAS AND TO PREVENT ACCESS, AND TO DELINEATE THE LIMITS OF CONSTRUCTION. DO NOT USE SILT FENCE TO PROTECT WETLANDS SINCE TRENCHING MAY IMPACT THESE AREAS.
7. CMS INTENDED TO CAPTURE OVERLAND, LOW VELOCITY SHEET FLOW AT A LEVEL GRADE SHALL ONLY BE INSTALLED ALONG CONTOURS.
8. INSTALL CMS, SUCH AS CHECK DAMS, PERPENDICULAR TO THE CONCENTRATED FLOWS TO REDUCE FLOW VELOCITY.
9. STORM DRAIN INLETS WITHIN AND ADJACENT TO THE CONSTRUCTION SITE MUST BE PROTECTED. ANY PONDING OF STORMWATER AROUND INLET PROTECTION MUST NOT CAUSE EXCESSIVE FLOODING OR DAMAGE ADJACENT AREAS OR STRUCTURES.
10. INSTALL VEHICLE TRACKING CONTROL (VTC) TO ENTER/EXIT UNPAVED AREA. DO NOT USE RECYCLED CRUSHED CONCRETE OR ASPHALT MILLINGS FOR VEHICLE TRACKING PADS.
11. STRAW BALES SHALL NOT BE USED FOR PRIMARY EROSION OR SEDIMENT CONTROL (I.E., STRAW BALES MAY BE USED FOR REINFORCEMENT BEHIND ANOTHER BMP SUCH AS SILT FENCE).
12. OUTLETS SYSTEMS (SUCH AS SKIMMER OR PERFORATED RISER PIPE) SHALL BE INSTALLED TO WITHDRAW WATER FROM OR NEAR THE SURFACE LEVEL WHEN DISCHARGING FROM BASINS. WATER CANNOT DRAIN FROM THE BOTTOM OF THE POND.
13. TEMPORARY STABILIZATION MUST BE IMPLEMENTED FOR EARTH DISTURBING ACTIVITIES ON ANY PORTION OF THE SITE WHERE LAND DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED (FOR MORE THAN 14 CALENDAR DAYS). TEMPORARY STABILIZATION METHODS EXAMPLES: TARPS, SOIL TACKIFIER, AND HYDROSEED. TEMPORARY STABILIZATION REQUIREMENT MAY EXCEED THE 14-DAY SCHEDULE WHEN EITHER THE FUNCTION OF THE SPECIFIC AREA REQUIRES IT TO REMAIN DISTURBED, OR PHYSICAL CHARACTERISTICS OF THE TERRAIN AND CLIMATE PREVENT STABILIZATION AS LONG AS THE CONSTRAINTS AND ALTERNATIVE SCHEDULE IS DOCUMENTED ON THE SWMP, AND LOCATIONS ARE IDENTIFIED ON THE EC PLAN (SITE MAP).
14. RUNOFF FROM STOCKPILE AREA MUST BE CONTROLLED. SOILS THAT WILL BE STOCKPILED FOR MORE THAN 30 DAYS SHALL BE PROTECTED FROM WIND AND WATER EROSION WITHIN 14 DAYS OF STOCKPILE CONSTRUCTION. INSTALL CMS/BMPS 5 FT AWAY FROM THE TOE OF THE STOCKPILE'S SLOPE.
15. WATER USED TO CLEAN CONCRETE TRUCKS SHALL BE DISCHARGED INTO A CONCRETE WASHOUT AREA (CWA). THE PREDEFINED CONTAINMENT AREA MUST BE IDENTIFIED WITH A SIGN AND SHALL ALLOW THE LIQUIDS TO EVAPORATE OR DRY OUT. CWA DISCHARGES THAT MAY REACH GROUNDWATER MUST FLOW THROUGH SOIL THAT HAS BUFFERING CAPACITY PRIOR TO REACHING GROUNDWATER. THE CONCRETE WASHOUT LOCATION SHALL NOT BE IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT AND WOULD RESULT IN BUFFERING CAPACITY NOT BEING ADEQUATE, SUCH AS NEAR NATURAL DRAINAGES, SPRINGS, OR WETLANDS. IN THIS CASE, A LINER UNDERNEATH IS NEEDED FOR AREAS WITH HIGH GROUNDWATER LEVELS. CWA SHALL NOT BE PLACED IN LOW AREAS, DITCHES OR ADJACENT TO STATE WATERS. PLACE CWA 50 FT AWAY FROM STATE WATERS.
16. WASTE, SUCH AS BUILDING MATERIALS, WORKERS' TRASH AND CONSTRUCTION DEBRIS, MUST BE PROPERLY MANAGED TO PREVENT STORMWATER POLLUTION.
17. INSTALL STABILIZED STAGING AREA (SSA) TO STORE MATERIALS, CONSTRUCTION TRAILERS, ETC.
18. IF CONDITIONS IN THE FIELD WARRANT ADDITIONAL CMS/BMPS TO THE ONES ORIGINALLY APPROVED ON THE SWMP OR EC PLAN (CIVIL DRAWING), THE LANDOWNER OR CONTRACTOR SHALL IMPLEMENT MEASURES DETERMINED NECESSARY, AS DIRECTED BY THE COUNTY.
19. PERMANENT CMS/BMPS FOR SLOPES, CHANNELS, DITCHES, OR DISTURBED LAND AREA SHALL BE PERFORMED IMMEDIATELY AFTER FINAL GRADING. CONSIDER THE USE EROSION CONTROL BLANKETS ON SLOPES 3:1 OR STEEPER AND AREAS WITH CONCENTRATED FLOWS SUCH AS SWALES, LONG CHANNELS AND ROADSIDE DITCHES.
20. THE DISCHARGE OF SANITARY WASTE INTO THE STORM SEWER SYSTEM IS PROHIBITED. PORTABLE TOILETS MUST BE PROVIDED, SECURED AND PLACED ON PERMEABLE SURFACES, AWAY FROM THE CURBSIDE, STORM INLETS AND/OR DRAINAGE WAYS.
21. REMOVE TEMPORARY CMS/BMPS ONCE FINAL STABILIZATION IS REACHED, UNLESS OTHERWISE AUTHORIZED.
22. FINAL STABILIZATION MUST BE IMPLEMENTED. FINAL STABILIZATION IS REACHED WHEN ALL SOIL DISTURBING ACTIVITIES HAVE BEEN COMPLETED, AND EITHER A UNIFORM VEGETATIVE COVER HAS BEEN ESTABLISHED WITH AN INDIVIDUAL PLANT DENSITY OF AT LEAST 70% OF PRE-DISTURBANCE LEVELS, OR EQUIVALENT PERMANENT ALTERNATIVE METHOD HAS BEEN IMPLEMENTED.
23. PROVIDE SPILL PREVENTION AND CONTAINMENT MEASURES FOR CONSTRUCTION MATERIALS, WASTE AND FUEL STORAGE AREAS. BULK STORAGE (55 GALLONS OR GREATER) OF PETROLEUM PRODUCTS AND LIQUID CHEMICALS MUST HAVE SECONDARY CONTAINMENT, OR EQUIVALENT PROTECTION, IN ORDER TO CONTAIN SPILLS AND TO PREVENT SPILLED MATERIAL FROM ENTERING STATE WATERS.
24. REPORT SPILLS OR RELEASES OF CHEMICAL, OIL, PETROLEUM PRODUCT, SEWAGE, ETC., WHICH MAY REACH THE STORM SEWER OR ENTER STATE WATERS WITHIN 24-HOURS FROM TIME OF DISCOVERY. GUIDANCE AVAILABLE AT HTTPS://CDPHE.COLORADO.GOV/REPORT-CONCERN-EMERGENCY STATE OF COLORADO SPILL-LINE: 1-877-518-5608. ADAMS COUNTY STORMWATER HOTLINE: SWQ@ADCOGOV.ORG; PUBLIC WORKS 720-523-6875 OR PUBLICWORKS@ADCOGOV.ORG AND ADAMS COUNTY PUBLIC HEALTH DEPARTMENT AT 303-288-6816

GENERAL NOTES

1. ALL CONSTRUCTION PROJECTS, REGARDLESS OF THE SIZE, SHALL INSTALL, MAINTAIN AND REPAIR STORMWATER POLLUTION CONTROL MEASURES (CMS) TO EFFECTIVELY MINIMIZE EROSION, SEDIMENT TRANSPORT, AND THE RELEASE OF POLLUTANTS RELATED TO CONSTRUCTION ACTIVITY. CMS EXAMPLES INCLUDE SEDIMENT CONTROL LOGS (SCL), SILT FENCE (SF), DIKES/SWALES, SEDIMENT TRAPS (ST), INLET PROTECTION (IP), OUTLET PROTECTION (OP), CHECK DAMS (CD), SEDIMENT BASINS (SB), TEMPORARY/PERMANENT SEEDING AND MULCHING (MU), SOIL ROUGHENING, MAINTAINING EXISTING VEGETATION AND PROTECTION OF TREES. CMS MUST BE SELECTED, DESIGNED, ADEQUATELY SIZED, INSTALLED AND MAINTAINED IN ACCORDANCE WITH GOOD ENGINEERING, HYDROLOGIC AND POLLUTION CONTROL PRACTICES. CMS/BMPS INSTALLATION AND MAINTENANCE DETAILS SHALL CONFORM TO MILE HIGH FLOOD DISTRICT'S URBAN DRAINAGE FLOOD CONTROL CRITERIA MANUAL VOLUME 3, OR THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARDS & SPECIFICATIONS (GREEN BOOK). CMS MUST FILTER, SETTLE, CONTAIN OR STRAIN POLLUTANTS FROM STORMWATER FLOWS IN ORDER TO PREVENT BYPASS OF FLOWS WITHOUT TREATMENT. CMS MUST BE APPROPRIATE TO TREAT THE RUNOFF FROM THE AMOUNT OF DISTURBED AREA, THE EXPECTED FLOW RATE, DURATION, AND FLOW CONDITIONS (I.E., SHEET OR CONCENTRATED FLOW). CMS/BMPS SHALL BE SPECIFIED IN THE SWMP (IF APPLICABLE), AND THE LOCATIONS SHOWN ON THE EC PLAN.
2. PRIOR TO CONSTRUCTION, PROJECTS DISTURBING 1 OR MORE ACRES OF LAND, OR ANY PROJECT BELONGING TO A COMMON PLAN OF DEVELOPMENT DISTURB 1 OR MORE ACRES, MUST OBTAIN:
   - A GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES, FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, AND
   - AN ADAMS COUNTY STORMWATER QUALITY PERMIT WITHIN THE UNINCORPORATED ADAMS COUNTY MS4 AREA.
3. PERMITTED PROJECTS SHALL DEVELOP A STORMWATER MANAGEMENT PLAN (SWMP), AKA EROSION AND SEDIMENT CONTROL PLAN (ESCP), IN COMPLIANCE WITH CDPHE MINIMUM REQUIREMENTS. THE APPROVED SWMP, INCLUDING EROSION CONTROL (EC) PLAN (SITE MAP), SHALL BE KEPT ON SITE AND ALWAYS UPDATED. THE QUALIFIED STORMWATER MANAGER IS RESPONSIBLE FOR IMPLEMENTING THE SWMP AND CMS (AKA BMPS) DURING CONSTRUCTION.
4. PERMITTED PROJECTS SHALL PERFORM REGULAR STORMWATER INSPECTIONS EVERY 7 CALENDAR DAYS; OR EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY PRECIPITATION OR SNOWMELT EVENT THAT CAUSES SURFACE EROSION. INSPECTION FREQUENCY CAN BE REDUCED FOR POST-STORM EVENT INSPECTIONS AT TEMPORARILY IDLE SITES AND FOR STORMWATER INSPECTIONS AT COMPLETED SITES WAITING FOR FINAL STABILIZATION. INSPECTION REPORTS MUST IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE.
5. TRACKING OF DIRT ONTO PAVED PUBLIC OR PRIVATE PAVED ROADS IS NOT ALLOWED. THE USE OF DIRT RAMPS TO ENTER/EXIT FROM AN UNPAVED INTO A PAVED AREA IS PROHIBITED. VEHICLE TRACKING CONTROLS SHALL BE IMPLEMENTED, OTHERWISE ENTRANCE AREA MUST DRAIN THROUGH A CM TOWARDS THE PRIVATE SITE.
6. TRUCKLOADS OF FILL MATERIAL IMPORTED TO OR CUT MATERIAL EXPORTED FROM THE SITE SHALL BE PROPERLY COVERED TO PREVENT LOSS OF THE MATERIAL DURING TRANSPORTATION ON PUBLIC ROW. HAUL ROUTES MUST BE PERMITTED BY THE COUNTY. NO MATERIAL SHALL BE TRANSPORTED TO ANOTHER SITE WITHOUT APPLICABLE PERMITS.
7. CONTROL MEASURES DESIGNED FOR CONCRETE WASHOUT WASTE MUST BE IMPLEMENTED. THIS INCLUDES WASHOUT WASTE DISCHARGED TO THE GROUND AND WASHOUT WASTE FROM CONCRETE TRUCKS AND MASONRY OPERATIONS.
8. TEMPORARY CMS/BMPS SHALL BE REMOVED AFTER THE SITE HAS REACHED FINAL STABILIZATION.
9. DEWATERING OPERATIONS DISCHARGING OFF-SITE INTO ANY WATERS CONVEYANCE SYSTEMS INCLUDING WETLANDS, IRRIGATION DITCHES, CANALS, RIVERS, STREAMS OR STORM SEWER SYSTEMS, REQUIRE A STATE CONSTRUCTION DEWATERING PERMIT.
10. PERMITTED PROJECTS SHALL KEEP THE CDPHE'S STORMWATER DISCHARGE PERMIT, STORMWATER MANAGEMENT PLAN (SWMP) AND INSPECTION LOGS AVAILABLE ON-SITE THROUGHOUT THE DURATION OF THE PROJECT, AND FOR AN ADDITIONAL 3 YEARS AFTER PERMIT CLOSE-OUT.
11. PERMITTED LANDOWNER AND/OR CONTRACTOR SHALL CLOSE THE STATE AND CITY/COUNTY PERMIT ONCE FINAL STABILIZATION IS REACHED. STORMWATER INSPECTIONS SHALL CONTINUE UNTIL INACTIVATION NOTICE IS FILED WITH CDPHE.

COLORADO LICENSED
KATHLEEN M. GOLES
63868
7/3/2025
PROFESSIONAL ENGINEER

GENERAL NOTES:

LOVELAND OFFICE
6706 North Franklin Avenue
Loveland, Colorado 80538
Phone 970-776-4331

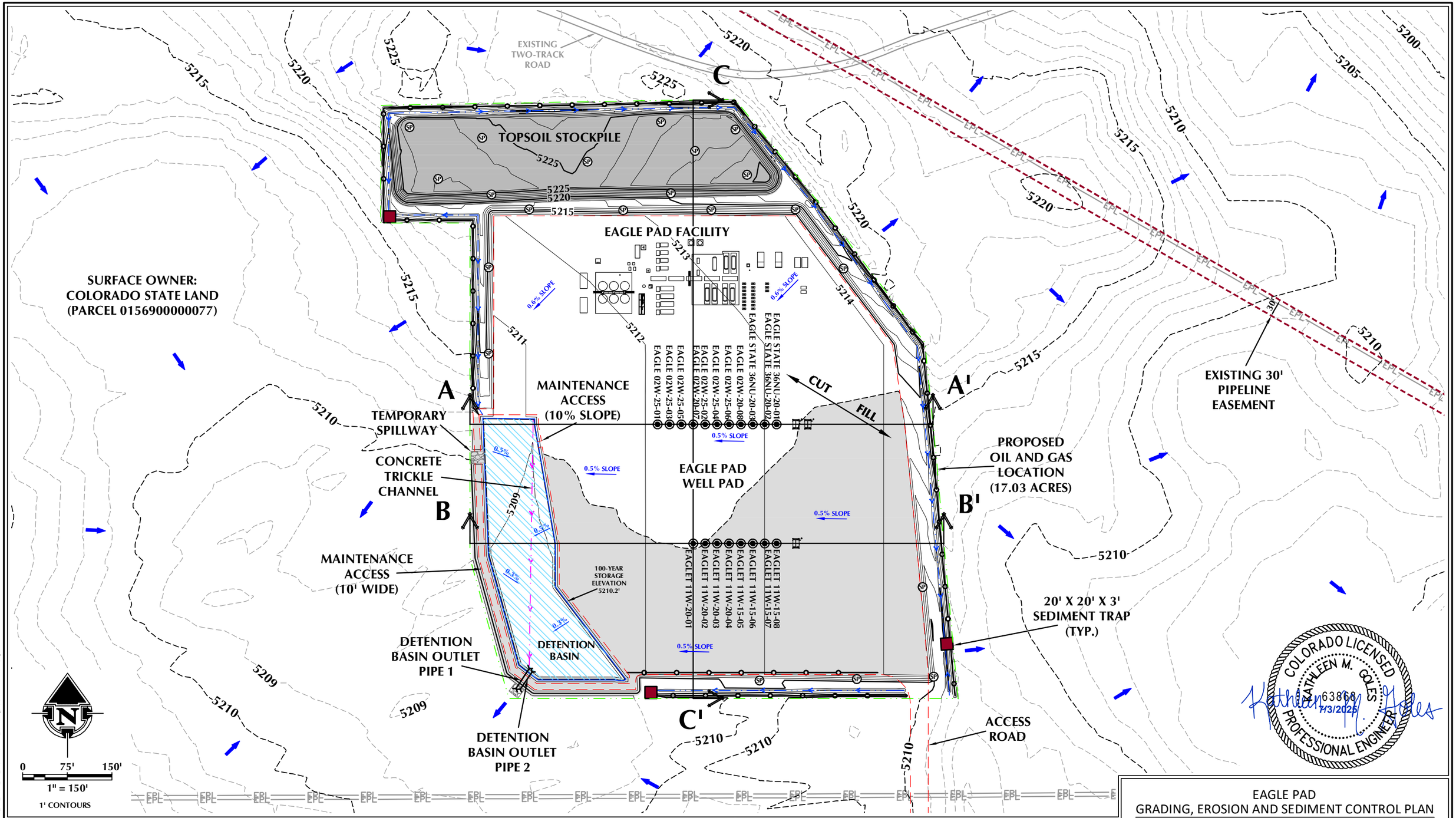
SHERIDAN OFFICE
1095 Saberton Avenue
Sheridan, Wyoming 82801
Phone 307-674-0609

609 CONSULTING, LLC

Prepared For:
CIVITAS
Extraction Oil & Gas, Inc.

EAGLE PAD
GRADING, EROSION AND SEDIMENT CONTROL PLAN
NOTES

SCALE:	N/A	PAGE:	2 OF 8
JOB NUMBER:	24-118	DATE:	7/3/25
DRAFTED BY:	KMG	REVISED:	



COLORADO LICENSED
KATHLEEN M. GOLES
63868
7/3/2025
PROFESSIONAL ENGINEER

LEGEND

- EXISTING CONTOUR
- EXISTING ROAD
- EXISTING PIPELINE
- PROPOSED OIL AND GAS LOCATION
- PROPOSED CONTOUR
- PROPOSED ACCESS ROAD/PAD
- PROPOSED WELL
- STORMWATER DRAINAGE
- EASEMENT/ROW
- PROPOSED DIVERSION DITCH
- PROPOSED CONCRETE TRICKLE CHANNEL
- PROPOSED BERM / OFF-SITE FLOW DEFLECTION
- PROPOSED CULVERT PROTECTION / RIPRAP
- PROPOSED SEDIMENT TRAP WITH PROTECTED OUTLET
- PROPOSED SLOPE PROTECTION
- 100-YEAR STORMWATER STORAGE FOOTPRINT

GENERAL NOTES:

1. DISCLAIMER: THIS PLAN REPRESENTS AN APPROXIMATE LOCATION OF SEDIMENT AND EROSION CONTROL FEATURES; EXACT LOCATION MAY VARY DEPENDING UPON EXISTING EASEMENTS, PIPELINES, FLOWLINES, AND SETBACK REQUIREMENTS.
2. ELEVATIONS ARE BASED ON NAVD88 (GEOID18).
3. SLOPE PROTECTION USED FOR TEMPORARY EROSION CONTROL ON CUT/FILL SLOPES AND SOIL STOCKPILES.

609 CONSULTING, LLC
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6706 North Franklin Avenue
Loveland, Colorado 80538
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SHERIDAN OFFICE
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Phone 307-674-0609

Prepared For:
CIVITAS
Extraction Oil & Gas, Inc.

EAGLE PAD
GRADING, EROSION AND SEDIMENT CONTROL PLAN
CONSTRUCTION PHASE SITE PLAN

SCALE:	1" = 150'	PAGE:	3 OF 8
JOB NUMBER:	24-118	DATE:	7/3/25
DRAFTED BY:	KMG	REVISED:	

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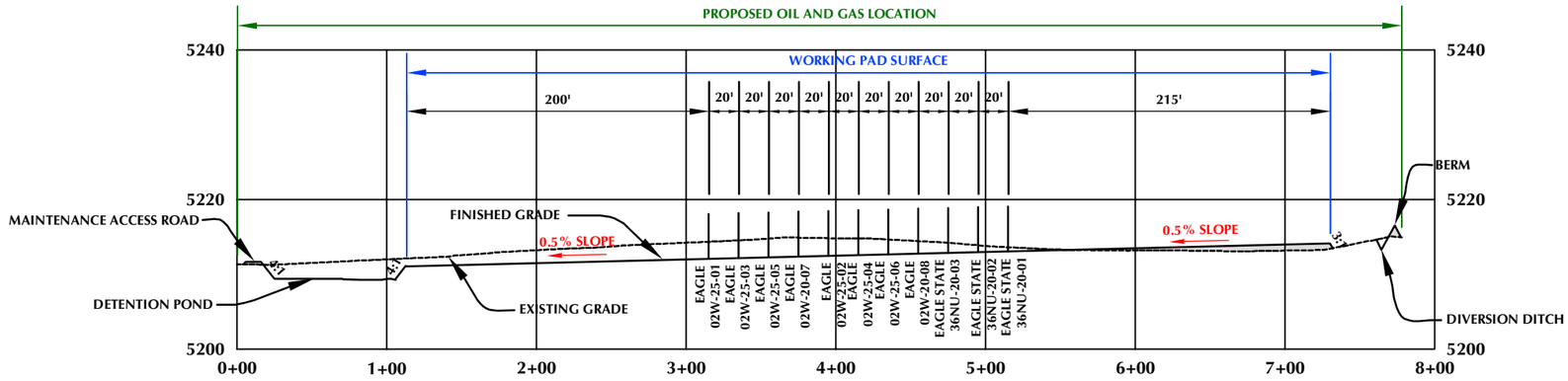
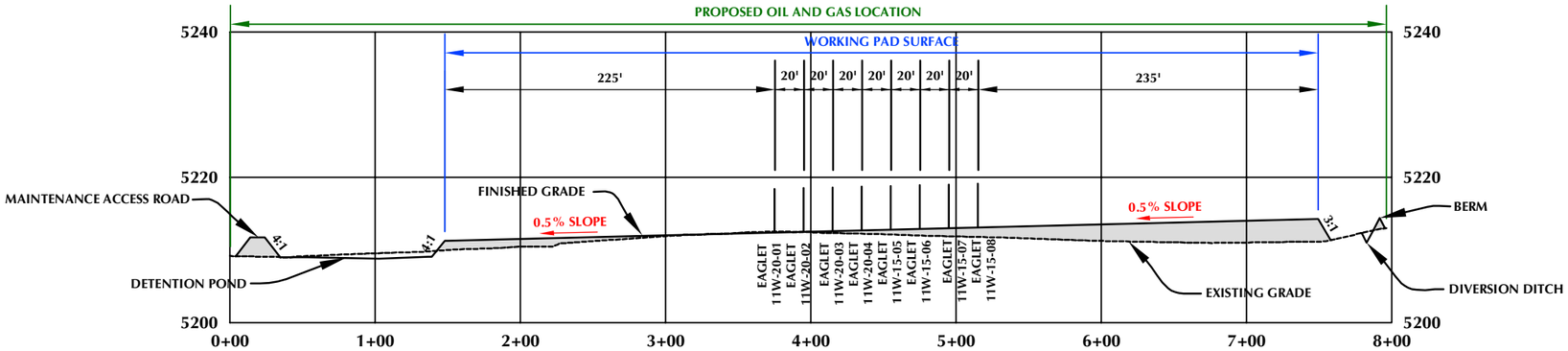
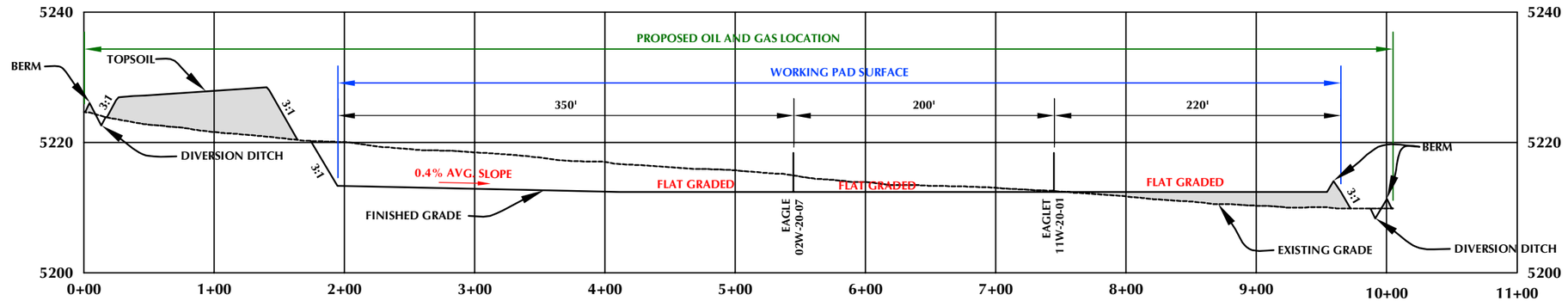


CROSS SECTION A-A'



CROSS SECTION B-B'



CROSS SECTION C-C'

HORIZONTAL 0 50' 100' 1" = 100'

VERTICAL 0 10' 20' 1" = 20'

GENERAL NOTES:

1. ELEVATIONS ARE BASED ON NAVD88 (GEOID18).

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7/3/2025
PROFESSIONAL ENGINEER

EAGLE PAD
GRADING, EROSION AND SEDIMENT CONTROL PLAN
CROSS SECTIONS

SCALE:	1" = 100'	PAGE:	4 OF 8
JOB NUMBER:	24-118	DATE:	7/3/25
DRAFTED BY:	KMG	REVISED:	

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EXISTING TWO-TRACK ROAD

SEEDED TOPSOIL STOCKPILE (FOR FINAL REC)

EAGLE PAD FACILITY

SURFACE OWNER:
COLORADO STATE LAND
(PARCEL 0156900000077)

EXISTING 30' PIPELINE EASEMENT

PROPOSED OIL AND GAS LOCATION (17.03 ACRES)

PRODUCTION PHASE OPERATIONAL AREA (6.52 ACRES)

SPILLWAY

MAINTENANCE ACCESS (10% SLOPE)

EAGLE PAD WELL PAD

SPOIL PILE

CUT

FILL

CONCRETE TRICKLE CHANNEL

100-YEAR STORAGE ELEVATION 5211.3'

DETENTION BASIN

DETENTION BASIN OUTLET PIPE 1

DETENTION BASIN OUTLET PIPE 2

MAINTENANCE ACCESS (12' WIDE)

ACCESS ROAD

0.6% SLOPE

0.5% SLOPE

CUT SLOPE

0.4%

0.7%

0 75' 150'
1" = 150'
1' CONTOURS

COLORADO LICENSED
KATHLEEN M. GOLES
63868
7/3/2025
PROFESSIONAL ENGINEER

LEGEND

- EXISTING CONTOUR
- EXISTING ROAD
- EXISTING PIPELINE
- PROPOSED OIL AND GAS LOCATION
- PROPOSED CONTOUR
- PROPOSED ACCESS ROAD/PAD
- PROPOSED WELL
- STORMWATER DRAINAGE
- EASEMENT/ROW
- PROPOSED CONCRETE TRICKLE CHANNEL
- PROPOSED BERM / OFF-SITE FLOW DEFLECTION
- PROPOSED CULVERT PROTECTION / RIPRAP
- RECLAMATION BOUNDARY
- PROPOSED PERMANENT SEEDING
- 100-YEAR STORMWATER STORAGE FOOTPRINT

GENERAL NOTES:

1. DISCLAIMER: THIS PLAN REPRESENTS AN APPROXIMATE LOCATION OF SEDIMENT AND EROSION CONTROL FEATURES; EXACT LOCATION MAY VARY DEPENDING UPON EXISTING EASEMENTS, PIPELINES, FLOWLINES, AND SETBACK REQUIREMENTS.
2. ELEVATIONS ARE BASED ON NAVD88 (GEOID18).
3. RECLAIMED AREA WILL BE RE-SEEDED AND RE-VEGETATED.

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Prepared For:
CIVITAS
Extraction Oil & Gas, Inc.

EAGLE PAD
GRADING, EROSION AND SEDIMENT CONTROL PLAN
PRODUCTION PHASE SITE PLAN

SCALE:	1" = 150'	PAGE:	5 OF 8
JOB NUMBER:	24-118	DATE:	7/3/25
DRAFTED BY:	KMG	REVISED:	

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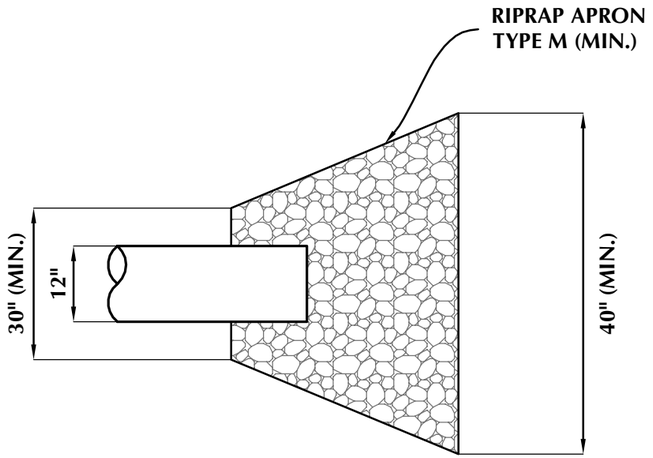
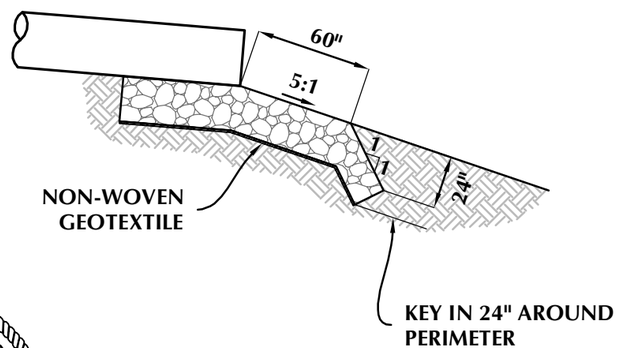
OUTLET PROTECTION

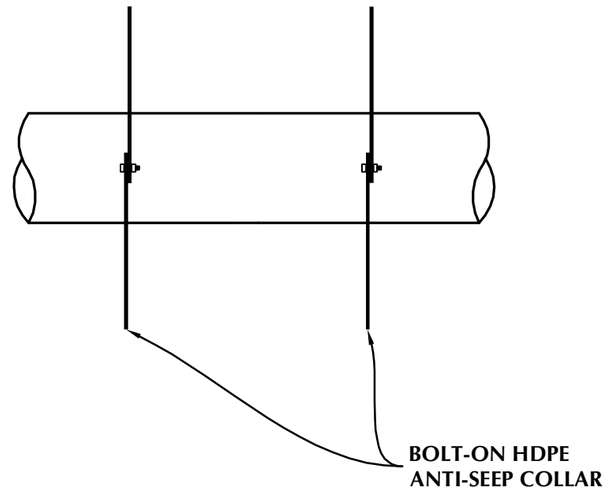
SCALE: NTS

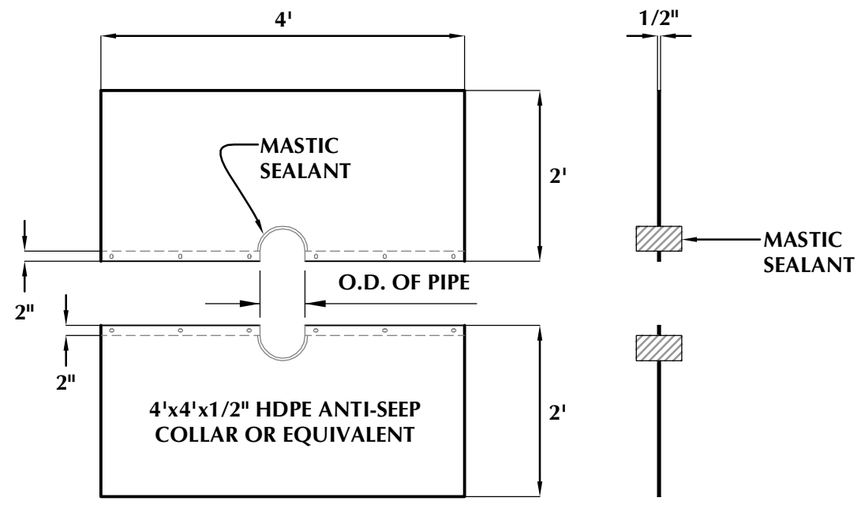




ANTI-SEEP COLLAR

SCALE: NTS





COLORADO LICENSED
KATHLEEN M. GOLES
63868
7/3/2025
PROFESSIONAL ENGINEER

GENERAL NOTES:

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Prepared For:

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Extraction Oil & Gas, Inc.

EAGLE PAD
GRADING, EROSION AND SEDIMENT CONTROL PLAN
OUTLET DETAILS

SCALE:	VARIES	PAGE:	6 OF 8
JOB NUMBER:	24-118	DATE:	7/3/25
DRAFTED BY:	KMG	REVISED:	

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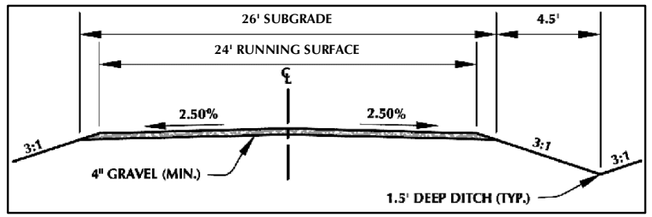
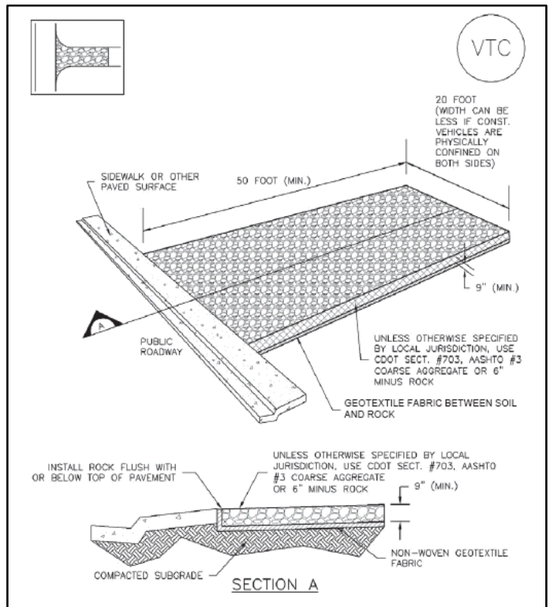


CROSS-SECTION
NTS



VTC - 1. AGGREGATE VEHICLE TRACKING CONTROL

Temporary and Permanent Seeding (TS/PS)

TS/PS

ADAMS COUNTY, COLORADO

SEED MIX	APPLICATION RATE (lbs/acre)
PBSI Dryland Aggressive Mix	25
(20%) Green Needlegrass, Lodorm	
(20%) Slender Wheatgrass, Native	
(20%) Western Wheatgrass, Native	
(20%) Pubescent Wheatgrass, Luna	
(20%) Intermediate Wheatgrass, Oahe/Rush	
PBSI Native Prairie Mix	15
(25%) Blue Grama	
(10%) Buffalograss	
(20%) Green Needlegrass	
(20%) Sideoats Grama	
(25%) Western Wheatgrass	
PBSI Native Sandyland Mix	15
(20%) Yellow Indiangrass	
(10%) Little Bluestem	
(10%) Indian Rice Grass	
(10%) Sideoats Grama	
(10%) Sand Lovegrass	
(10%) Prairie Sandreed	
(20%) Switchgrass	
PBSI Premium Irrig. Pasture Mix #1	25
(75%) Meadow Bromegrass, Paddock/Fleet	
(25%) Orchardgrass, Elsie/Megabite/Paiute	

Notes:
lbs/acre = pounds per acre
% = percent

COLORADO LICENSED
KATHLEEN M. COLES
63868
7/3/2025
PROFESSIONAL ENGINEER

Kathleen M. Coles

GENERAL NOTES:

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Prepared For:
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Extraction Oil & Gas, Inc.

EAGLE PAD
GRADING, EROSION AND SEDIMENT CONTROL PLAN
BMP TYPICALS (A)

SCALE:	VARIES	PAGE:	7 OF 8
JOB NUMBER:	24-118	DATE:	7/3/25
DRAFTED BY:	KMG	REVISED:	

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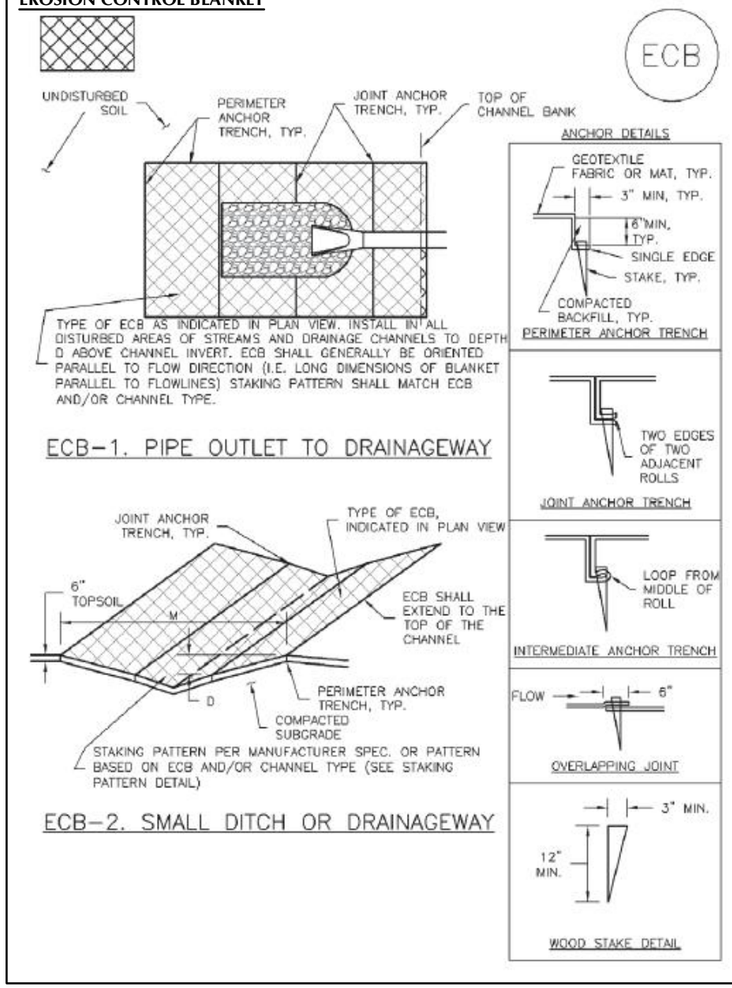
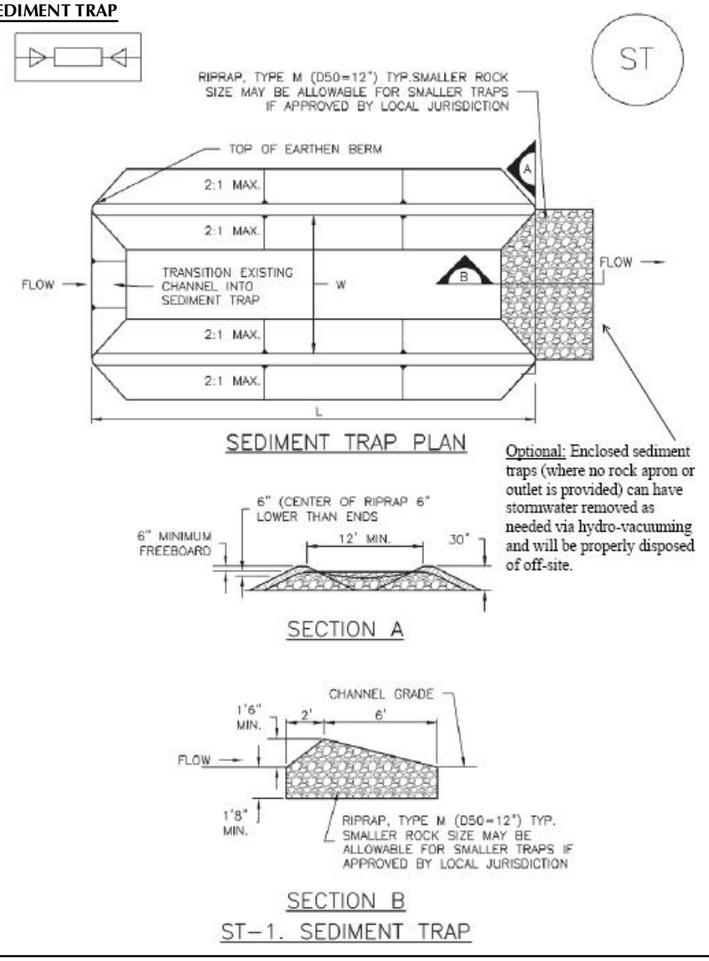
EROSION CONTROL BLANKET



SEDIMENT TRAP



COLORADO LICENSED
KATHLEEN M. GOLES
43863
7/3/2025
PROFESSIONAL ENGINEER

GENERAL NOTES:

609 CONSULTING, LLC
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Prepared For:
CIVITAS
Extraction Oil & Gas, Inc.

EAGLE PAD
GRADING, EROSION AND SEDIMENT CONTROL PLAN
BMP TYPICALS (B)

SCALE:	VARIES	PAGE:	8 OF 8
JOB NUMBER:	24-118	DATE:	7/3/25
DRAFTED BY:	KMG	REVISED:	

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OPERATIONS PLAN - OIL AND GAS FACILITY

EAGLE PAD

SECTION 36, TOWNSHIP 1 SOUTH, RANGE 66 WEST OF THE 6TH P.M.
COUNTY OF ADAMS, STATE OF COLORADO

CONTACTS:

PROPERTY OWNER: STATE OF COLORADO
0156900000077
1127 NORTH SHERMAN STREET, SUITE 300
DENVER, CO 80203

APPLICANT/OPERATOR: EXTRACTION OIL & GAS, INC.
A WHOLLY-OWNED SUBSIDIARY OF CIVITAS RESOURCES, INC.
555 17TH STREET, SUITE 3700
DENVER, CO 80202

ENGINEER/CONSULTANT: 609 CONSULTING, LLC
1095 SABERTON AVENUE
SHERIDAN, WY 82801
JAKE EDMUNDS
(307) 674-0609

ADAMS COUNTY: PLANNING & DEVELOPMENT
4430 SOUTH ADAMS COUNTY PARKWAY
BRIGHTON, CO 80601
(702) 523-6800

ADAMS COUNTY SHERIFF'S DEPARTMENT
GENE CLAPS, ADAMS COUNTY SHERIFF
(303) 654-1850

BRIGHTON FIRE PROTECTION DISTRICT
(303) 659-4101

LEGAL DESCRIPTION:

SECTION 36, TOWNSHIP 1 SOUTH, RANGE 66 WEST OF THE 6TH P.M., COUNTY OF ADAMS, STATE OF COLORADO.

EXISTING ZONING: A-3

GENERAL CONSTRUCTION NOTES

1. A PRE-CONSTRUCTION MEETING IS REQUIRED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. TO SCHEDULE A PRE-CONSTRUCTION MEETING CONTACT THE ADAMS COUNTY CONSTRUCTION INSPECTOR SUPERVISOR AT 720-523-6965.
2. ALL CONCRETE CURB, GUTTER AND WALK MUST BE POURED MONOLITHICALLY USING 4,500 PSI CONCRETE WITH FIBER MESH.
3. ALL MATERIAL SUBMITTALS MUST BE APPROVED, STAMPED AND SIGNED, BY THE ENGINEER OF RECORD AND, SUBMITTED TO THE ADAMS COUNTY CONSTRUCTION INSPECTOR FOR APPROVAL PRIOR TO CONSTRUCTION/INSTALLATION.
4. THE CONTRACTOR IS REQUIRED TO SUBMIT COPIES OF ALL CONCRETE AND ASPHALT TICKETS TO THE ADAMS COUNTY CONSTRUCTION INSPECTOR.
5. THE CONTRACTOR IS RESPONSIBLE FOR ALL QUALITY CONTROL TESTING AND, IS REQUIRED TO SUBMIT ALL TEST RESULTS TO THE ADAMS COUNTY CONSTRUCTION INSPECTOR.
6. THE CONTRACTOR IS REQUIRED TO REMOVE A MINIMUM OF TWO (2) FEET OF EXISTING ASPHALT FOR ALL CURB AND GUTTER REPLACEMENT.
7. ALL UTILITY CUTS IN EXISTING STREETS ARE REQUIRED TO BE BACKFILLED WITH FLOWFILL AND, PATCHED WITH A MINIMUM OF 9-INCH ASPHALT PATCH.
8. A COPY OF THE GEOTECHNICAL REPORT SPECIFYING THE PAVEMENT THICKNESS DESIGN MUST BE SUBMITTED FOR REVIEW.
9. PERMITS WILL BE REQUIRED FOR THE INSTALLATION OF ALL UTILITIES. THE DEVELOPER/CONTRACTOR/ENGINEER, MUST SUPPLY THE LINEAL FOOTAGES AND THE NUMBER OF SERVICE CUTS REQUIRED FOR ALL UTILITIES.
10. PERMITS WILL BE REQUIRED FOR THE INSTALLATION OF ALL CONCRETE AND ASPHALT FACILITIES. PRIOR TO THE ISSUANCE OF THESE PERMITS, THE DEVELOPER/ CONTRACTOR/ENGINEER, MUST SUPPLY THE SQUARE YARDAGE/SQUARE FOOTAGES OF ALL CONCRETE AND ASPHALT BEING INSTALLED.
11. THE SIA MUST BE COMPLETED WITH APPROPRIATE COLLATERAL, ALONG WITH THE PROPOSED PLAT, PRIOR TO THE ISSUANCE OF ANY ROW ACCESS/CONSTRUCTION PERMIT.
12. NO C.O.'S WILL BE ISSUED FOR ANY BUILDING CONSTRUCTION UNTIL ALL ROW IMPROVEMENTS HAVE BEEN COMPLETED AND HAVE BEEN GRANTED PRELIMINARY ACCEPTANCE.
13. UPON COMPLETION OF ALL CONSTRUCTION, A DRAINAGE CERTIFICATION LETTER, AND APPROPRIATE AS-BUILT CONSTRUCTION DRAWINGS AND INFORMATION WILL BE REQUIRED. THIS LETTER WILL BE STAMPED AND SIGNED BY THE ORIGINAL DESIGN ENGINEER.

VICINITY MAP

0 1000' 2000'

1" = 2000'

SHEET INDEX

OPERATIONS PLAN	
SHEET NO.	SHEET NAME
SHEET-1	COVER SHEET
SHEET-2	IMPACT AREA MAP
SHEET-3	IMPACT AREA MAP
SHEET-4	CONSTRUCTION LAYOUT SITE PLAN
SHEET-5	DRILLING LAYOUT SITE PLAN
SHEET-6	COMPLETIONS LAYOUT SITE PLAN
SHEET-7	PRODUCTION LAYOUT SITE PLAN
SHEET-8	SIGNAGE PLAN

WELLS

1	EAGLE 02W-25-01
2	EAGLE 02W-25-03
3	EAGLE 02W-25-05
4	EAGLE 02W-20-07
5	EAGLE 02W-25-02
6	EAGLE 02W-25-04
7	EAGLE 02W-25-06
8	EAGLE 02W-20-08
9	EAGLE STATE 36NU-20-03
10	EAGLE STATE 36NU-20-02
11	EAGLE STATE 36NU-20-01
12	EAGLET 11W-20-01
13	EAGLET 11W-20-02
14	EAGLET 11W-20-03
15	EAGLET 11W-20-04
16	EAGLET 11W-15-05
17	EAGLET 11W-15-06
18	EAGLET 11W-15-07
19	EAGLET 11W-15-08

CERTIFICATE OF APPROVAL BY THE DEPARTMENT OF PLANNING & DEVELOPMENT

DEPARTMENT OF PLANNING & DEVELOPMENT DIRECTOR

ECMC PERMIT NO: _____

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Prepared For:
CIVITAS
Extraction Oil & Gas, Inc.

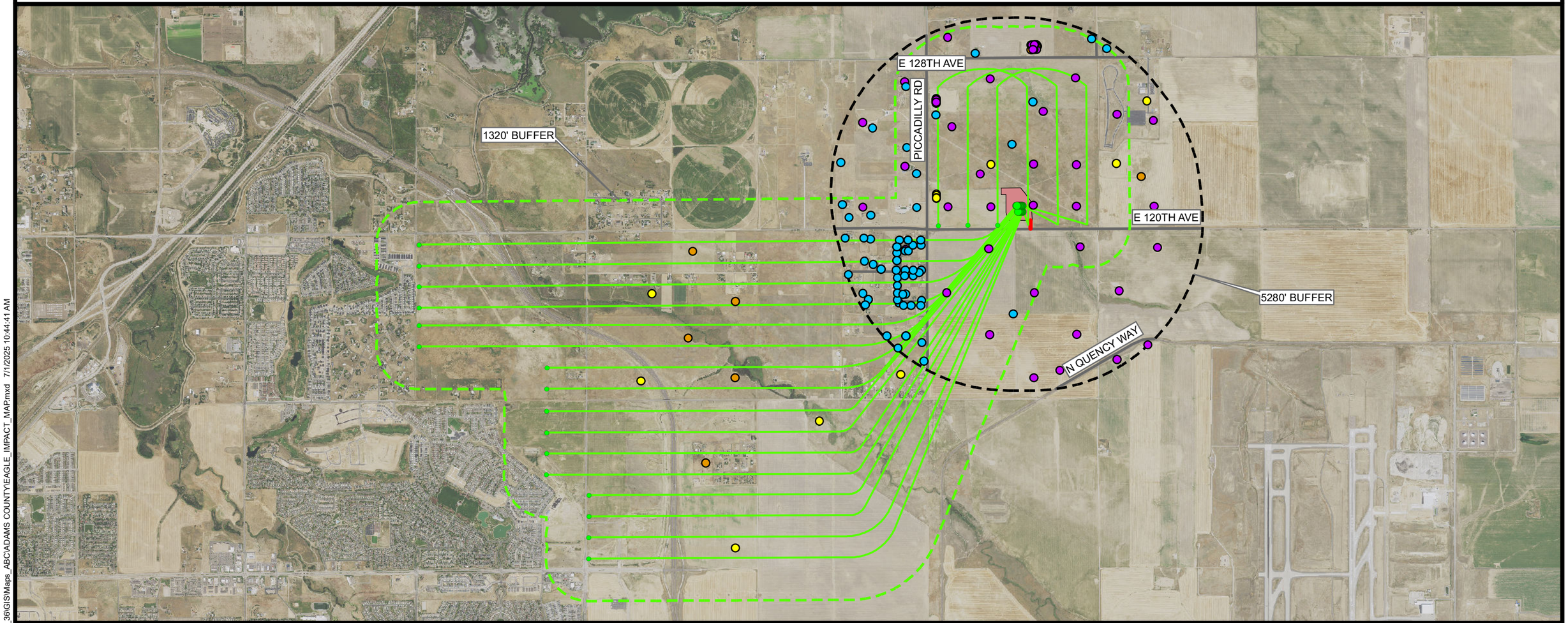
EAGLE PAD
COVER SHEET

DATE:	7/3/25	SHEET:	1 OF 8
SURVEY DATE:	6/10/25	DRAFTED BY:	KMG

IMPACT MAP

EAGLE PAD

S 1/2 SECTION 36, TOWNSHIP 1 SOUTH, RANGE 66 WEST, 6TH P.M., ADAMS COUNTY, COLORADO



Legend

- WELL - PROPOSED
- BOTTOM HOLE - PROPOSED
- WELL PATH - PROPOSED
- PROPOSED OIL AND GAS LOCATION
- PROPOSED OIL AND GAS LOCATION BUFFER
- WELL BORE BUFFER
- EXISTING WATER WELL
- ECMC OIL AND GAS WELL
- ABANDONED OIL AND GAS WELL
- SHUT-IN OIL AND GAS WELL
- PROPOSED ACCESS ROAD
- EXISTING ROAD

NOTE:
WELL LOCATIONS DERIVED FROM ENERGY AND CARBON MANAGEMENT COMMISSION (ECMC)(cogcc.state.co.us).
THE ESTIMATED DISTANCES FROM PROPOSED BORE LOCATIONS TO THE NEAREST EXISTING WELL SURFACE LOCATIONS ARE BASED ON ECMC DATA.

Prepared For:

CIVITAS
Extraction Oil & Gas, Inc.

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N

NAD83 CO-Nft
Scale: 1" = 3,000ft

SHEET 2 OF 8

Drawn by: KMG Date: 3 Jul 2025
Revised: Date:

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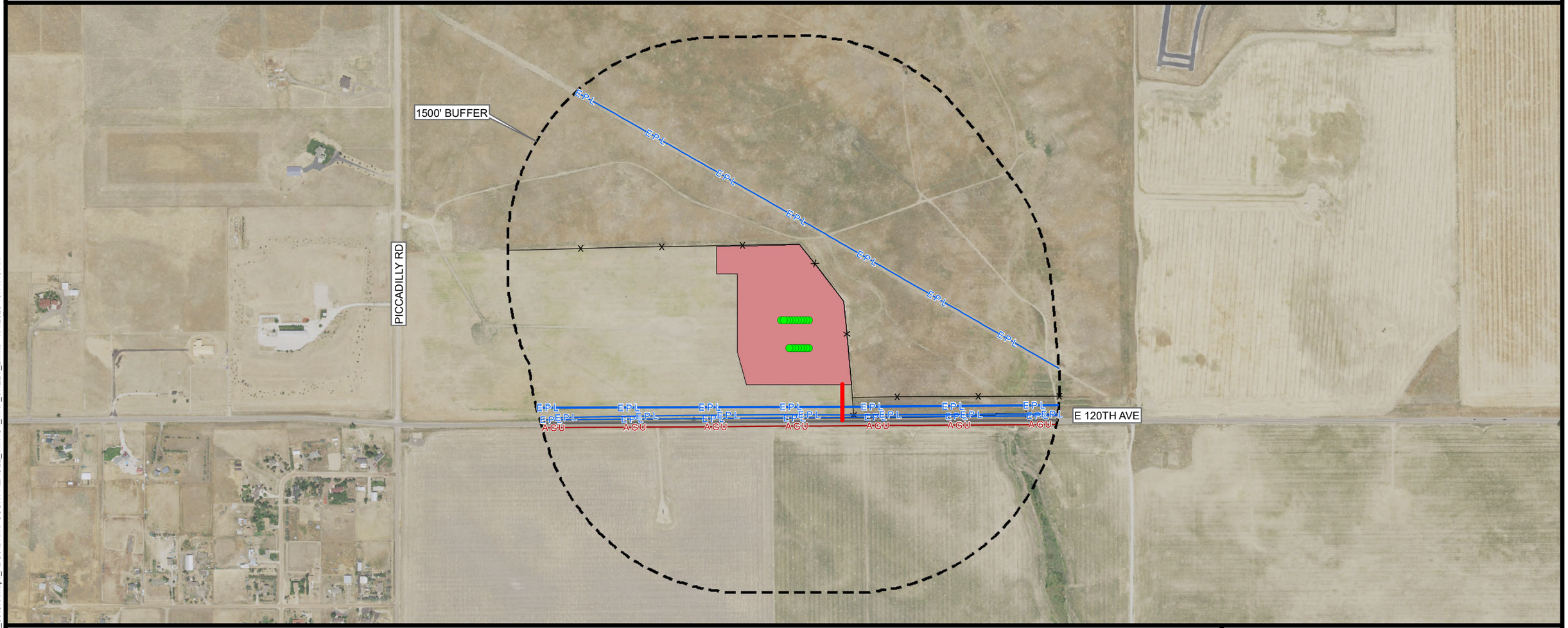
IMPACT MAP

EAGLE PAD

S 1/2 SECTION 36, TOWNSHIP 1 SOUTH, RANGE 66 WEST, 6TH P.M., ADAMS COUNTY, COLORADO



Legend

- WELL - PROPOSED
- PROPOSED OIL AND GAS LOCATION
- PROPOSED OIL AND GAS LOCATION BUFFER
- PROPOSED ACCESS ROAD
- EXISTING ROAD
- EXISTING FENCE
- A-G-U EXISTING ABOVE GROUND UTILITY
- E-P-L EXISTING PIPELINE

NOTE:
THIS MAP IS A COMPILATION OF PUBLICLY AVAILABLE DATA. THE ACCURACY AND COMPLETENESS OF SAID DATA HAS NOT BEEN VERIFIED BY 609 CONSULTING, LLC. EXISTING CONDITIONS MAY DIFFER FROM WHAT IS SHOWN.

Prepared For:

CIVITAS
Extraction Oil & Gas, Inc.

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SHERIDAN OFFICE
1095 Saberton Avenue
Sheridan, Wyoming 82801
Phone 307-674-0609

N

NAD83 CO-Nft

SHEET 3 OF 8

Drawn by: KMG Date: 3 Jul 2025
Revised: Date:

Scale: 1" = 700ft

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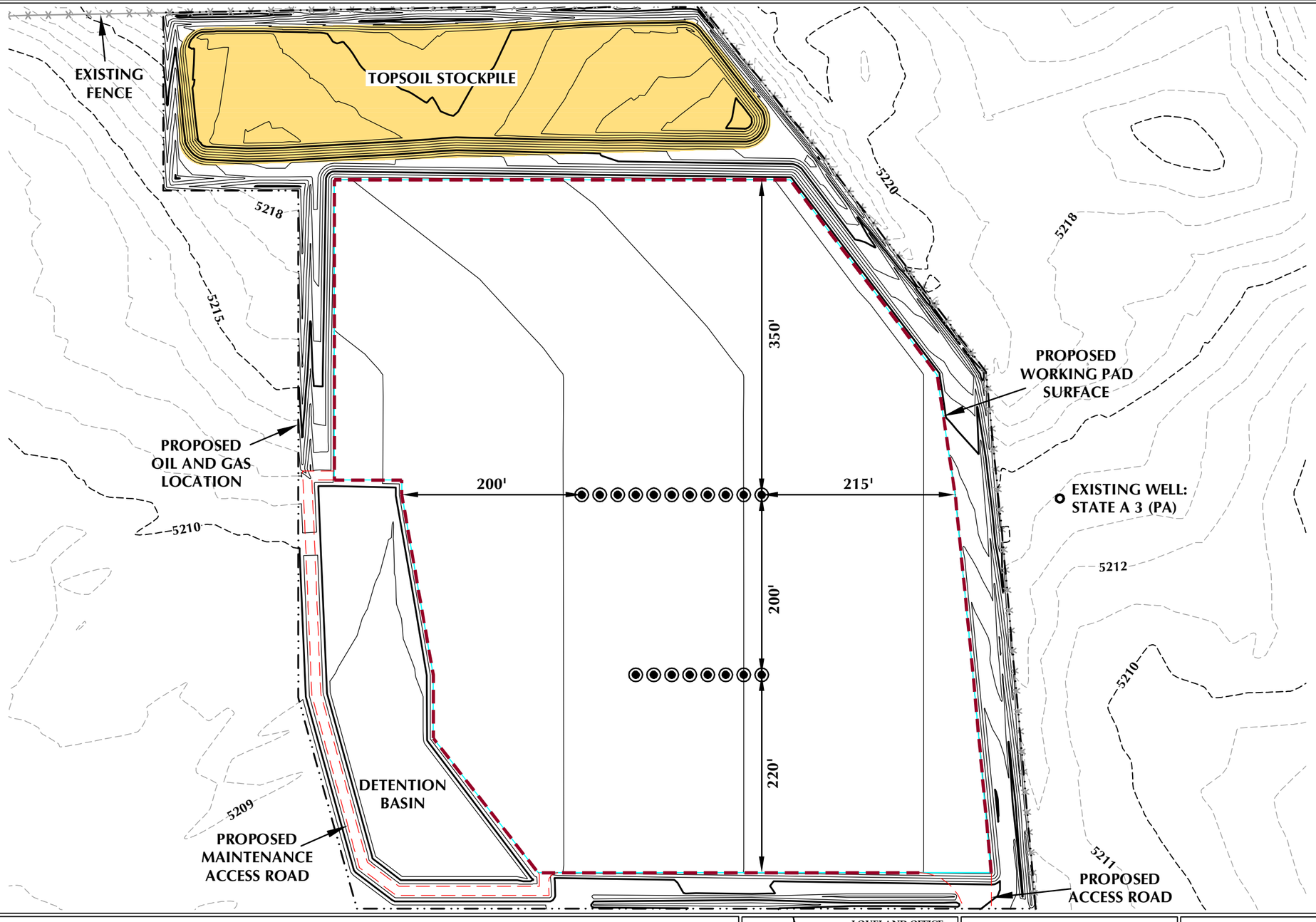
CONSTRUCTION LAYOUT SITE PLAN

EAGLE PAD

SE1/4 SW1/4 & SW1/4 SE1/4 SECTION 36, TOWNSHIP 1 SOUTH, RANGE 66 WEST, 6TH P.M., ADAMS COUNTY, COLORADO



COLORADO LICENSED
JAKE EDMUNDS
49917
7/3/25
PROFESSIONAL ENGINEER

LEGEND

- PROPOSED WELL
- EXISTING WELL
- PROPOSED ACCESS ROAD
- PROPOSED OIL AND GAS LOCATION (17.03 ACRES)
- PROPOSED WORKING PAD SURFACE (10.65 ACRES)
- SOUND WALLS
- EXISTING 1' CONTOUR
- PROPOSED 1' CONTOUR
- EXISTING FENCE

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Prepared For:

CIVITAS
Extraction Oil & Gas, Inc.

EAGLE PAD
CONSTRUCTION LAYOUT SITE PLAN

DATE:	7/3/25	SHEET:	4 OF 8
SURVEY DATE:	6/10/25	DRAFTED BY:	KMG

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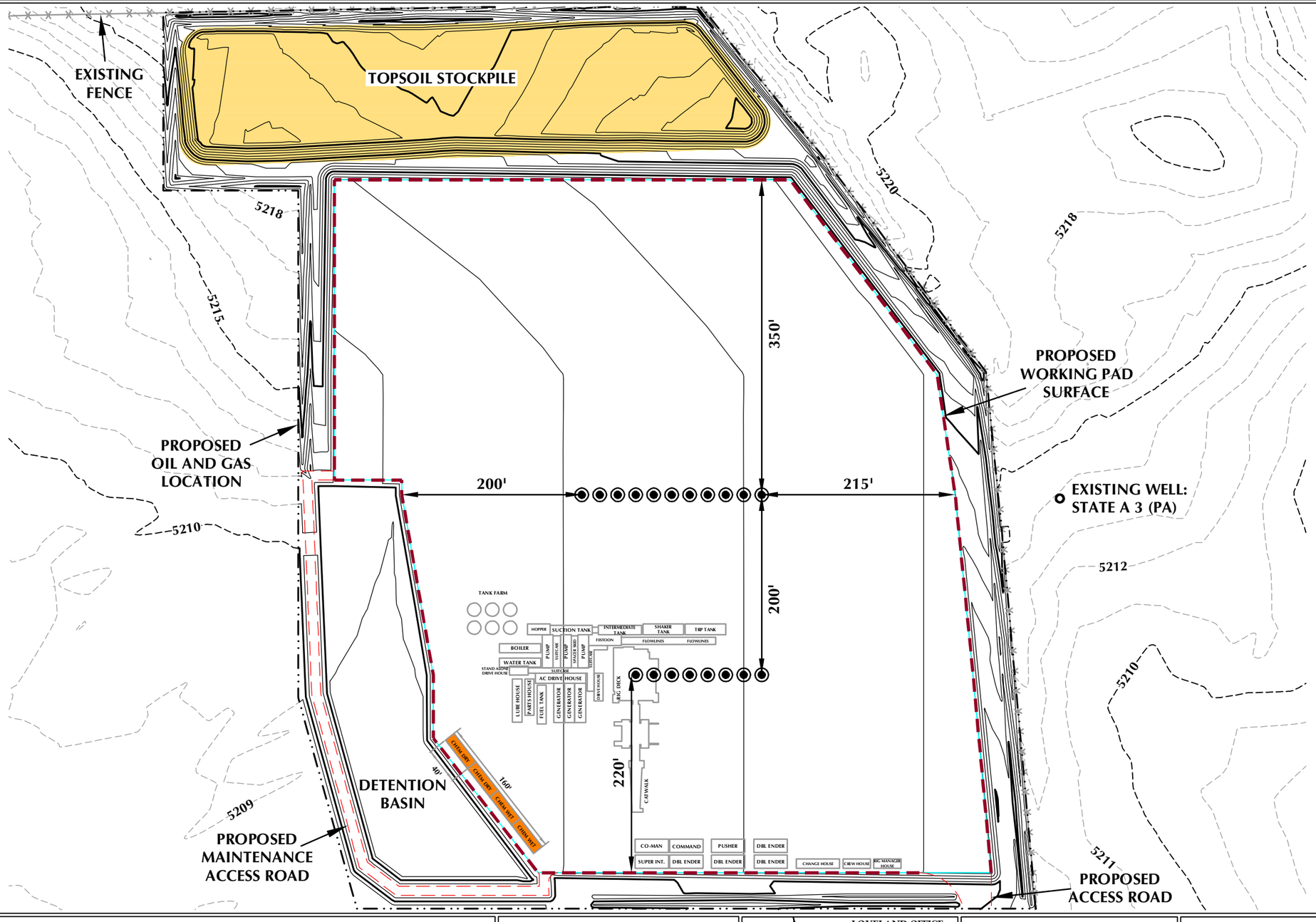
DRILLING LAYOUT SITE PLAN

EAGLE PAD

SE1/4 SW1/4 & SW1/4 SE1/4 SECTION 36, TOWNSHIP 1 SOUTH, RANGE 66 WEST, 6TH P.M., ADAMS COUNTY, COLORADO



COLORADO LICENSED
JAKE EDMUNDS
49917
PROFESSIONAL ENGINEER
7/3/25

LEGEND

- PROPOSED WELL
- EXISTING WELL
- PROPOSED ACCESS ROAD
- PROPOSED OIL AND GAS LOCATION
- PROPOSED WORKING PAD SURFACE
- SOUND WALLS
- EXISTING 1' CONTOUR
- PROPOSED 1' CONTOUR
- EXISTING FENCE

NOTE:

- RIG PROFILE IS APPROXIMATE AND SUBJECT TO MODIFICATION DUE TO SPECIFIC CIRCUMSTANCES.

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Prepared For:

CIVITAS
Extraction Oil & Gas, Inc.

EAGLE PAD
DRILLING LAYOUT SITE PLAN

DATE:	7/3/25	SHEET:	5 OF 8
SURVEY DATE:	6/10/25	DRAFTED BY:	KMG

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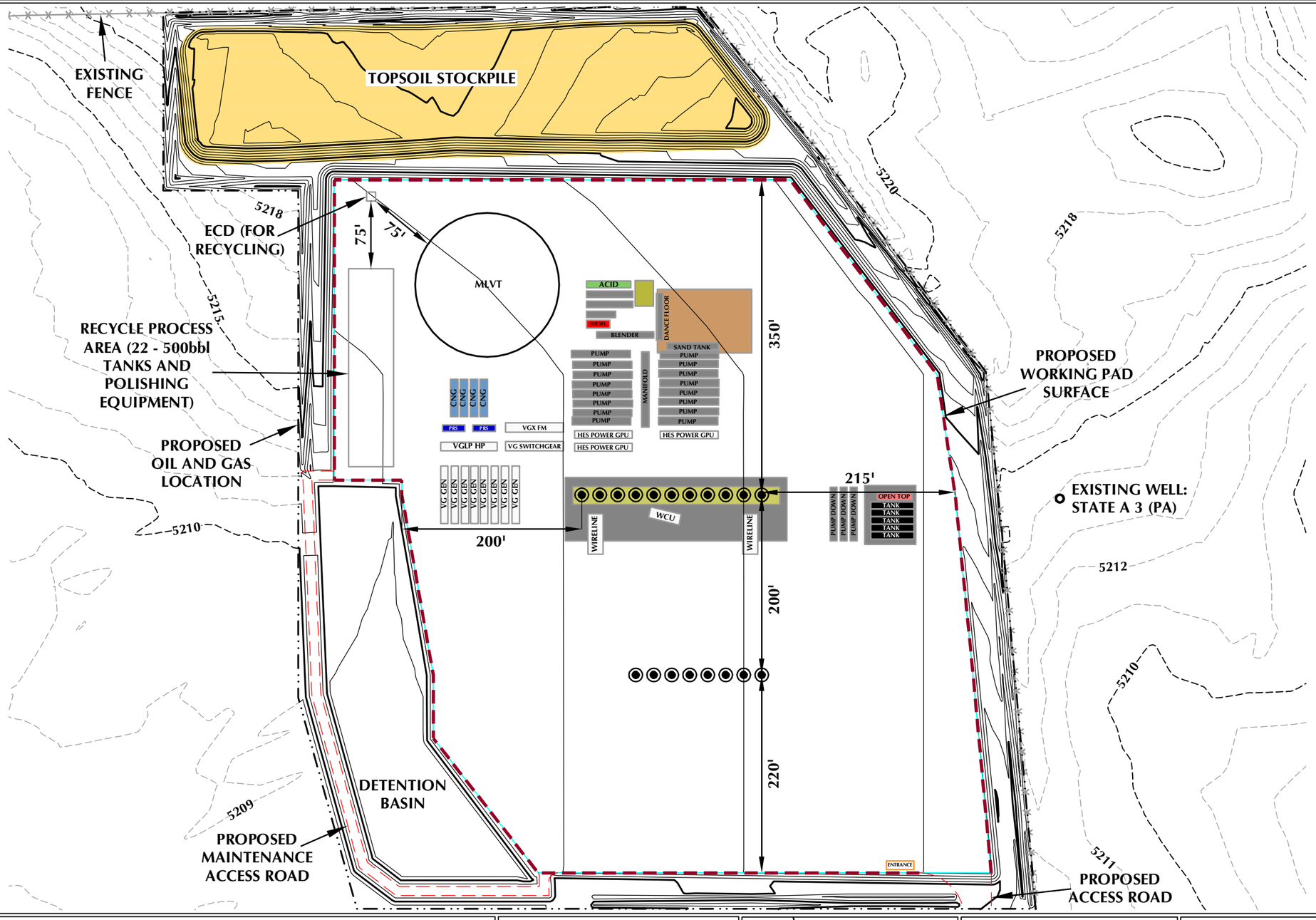
COMPLETIONS LAYOUT SITE PLAN

EAGLE PAD

SE1/4 SW1/4 & SW1/4 SE1/4 SECTION 36, TOWNSHIP 1 SOUTH, RANGE 66 WEST, 6TH P.M., ADAMS COUNTY, COLORADO



COLORADO LICENSED
JAKE EDMUNDS
49917
7/3/25
PROFESSIONAL ENGINEER

LEGEND

- PROPOSED WELL
- EXISTING WELL
- PROPOSED OIL AND GAS LOCATION
- PROPOSED WORKING PAD SURFACE
- EXISTING 1' CONTOUR
- PROPOSED 1' CONTOUR
- CNG
- DIESEL
- DANCE FLOOR
- OPEN TOP
- FRAC SHACK
- EQUIPMENT - OTHER
- EQUIPMENT - UN
- DESIGNATED AREA
- ACID
- PRS
- VG GEN
- ENTRANCE
- SOUND WALLS
- EXISTING FENCE
- PROPOSED ACCESS ROAD

NOTE:

- COMPLETIONS LAYOUT IS APPROXIMATE AND SUBJECT TO MODIFICATION DUE TO SPECIFIC CIRCUMSTANCES.

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CIVITAS
Extraction Oil & Gas, Inc.

EAGLE PAD
COMPLETIONS LAYOUT SITE PLAN

DATE: 7/3/25	SHEET: 6 OF 8
SURVEY DATE: 6/10/25	DRAFTED BY: KMG

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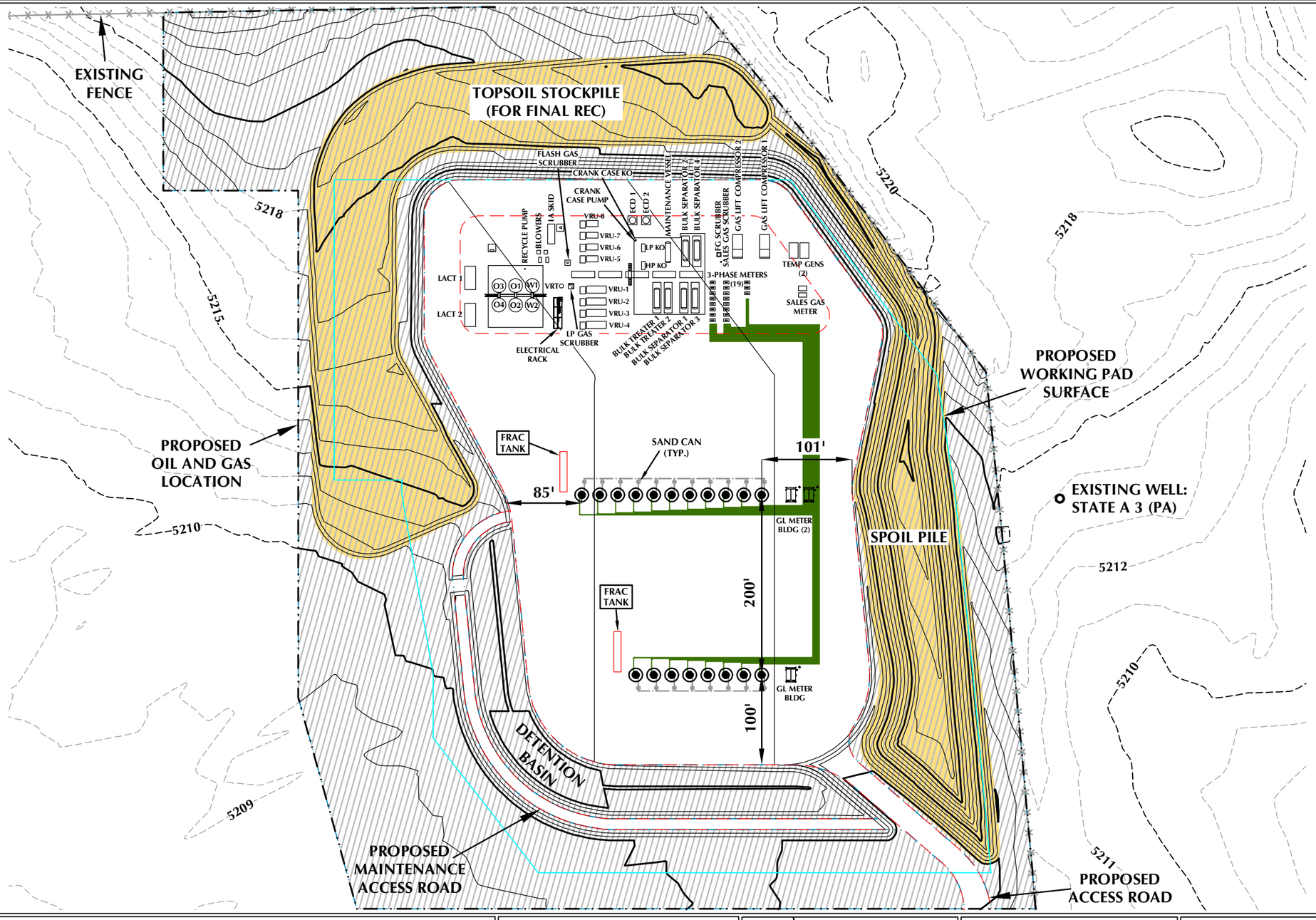
PRODUCTION LAYOUT SITE PLAN

EAGLE PAD

SE1/4 SW1/4 & SW1/4 SE1/4 SECTION 36, TOWNSHIP 1 SOUTH, RANGE 66 WEST, 6TH P.M., ADAMS COUNTY, COLORADO



NOTES:

1. SEE SEED MIX IN THE DRAINAGE REPORT INCLUDED WITH THE ENGINEERING DOCUMENTS.
2. TENTATIVE SCHEDULES FOR PRE-PRODUCTION OPERATIONS ARE INCLUDED IN THE WRITTEN NARRATIVE.

COLORADO LICENSED
JAKE EDMUNDS
49917
7/3/25
PROFESSIONAL ENGINEER

LEGEND

- PROPOSED WELL
- EXISTING WELL
- PROPOSED OIL AND GAS LOCATION (17.03 ACRES)
- PROPOSED WORKING PAD SURFACE (10.65 ACRES)
- RECLAMATION AREA (10.51 ACRES)
- UNRECLAIMED AREA (6.52 ACRES)
- PROPOSED ACCESS ROAD
- PROPOSED FLOWLINE
- PROPOSED PIPELINE
- EXISTING 1' CONTOUR
- PROPOSED 1' CONTOUR
- EXISTING FENCE

NOTE:

- WELLHEADS AND FACILITY EQUIPMENT WILL REMAIN PERMANENT AFTER FLOWBACK IS COMPLETE. SAND CANS AND FRAC TANKS ARE TEMPORARY AND WILL BE REMOVED FOLLOWING FLOWBACK OPERATIONS

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EAGLE PAD
PRODUCTION LAYOUT SITE PLAN

DATE:	7/3/25	SHEET:	7 OF 8
SURVEY DATE:	6/10/25	DRAFTED BY:	KMG

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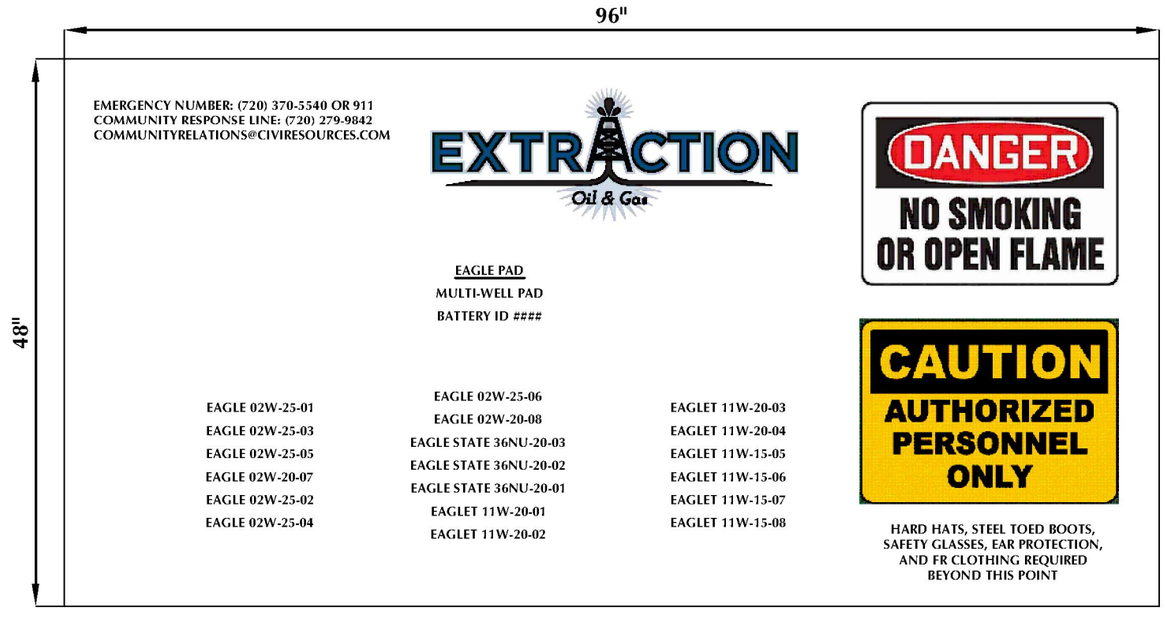
SIGNAGE PLAN
EAGLE PAD
S 1/2 SECTION 36, TOWNSHIP 1 SOUTH, RANGE 66 WEST, 6TH P.M., ADAMS COUNTY, COLORADO



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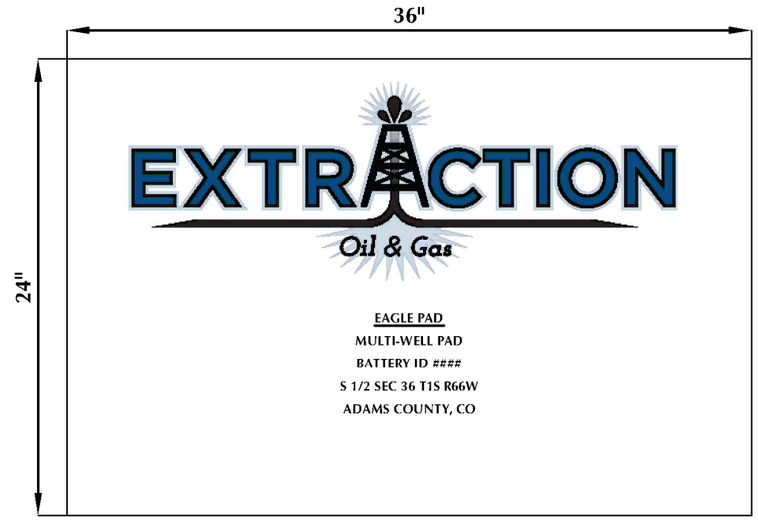
LOCATION: PLACED AT FACILITY ENTRANCE



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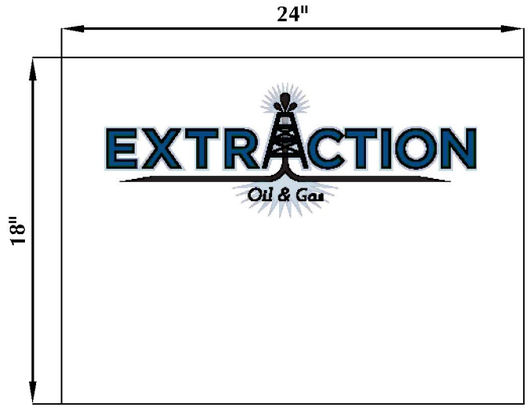
LOCATION: PLACED AT EACH BATTERY



SCALE: NTS
SIZE : 24" X 18"
MATERIAL: WHITE MAX METAL W/ UV LAMINATE AND CONSTRUCTED
ANGLE IRON FRAMES
LOCATION: PLACED AT EACH WELL HEAD

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CIVITAS
CRESTONE PEAK RESOURCES, LLC
555 17TH STREET, SUITE 3700
DENVER, CO 80202

EAGLE PAD
SIGNAGE PLAN

DATE:	7/3/25	SHEET:	8 OF 8
SURVEY DATE:	6/10/25	DRAFTED BY:	KMG

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Preliminary Drainage Report for Eagle Pad

Prepared for:

Extraction Oil & Gas, Inc.

A Wholly-Owned Subsidiary of Civitas Resources, Inc.

555 17th Street

Suite 3700

Denver, Colorado 80202

Submitted to:

Adams County Planning & Development Department

4430 South Adams County Parkway

1st Floor, Suite W2000

Brighton, Colorado 80601

July 2025

609 Consulting, LLC

Engineering, Surveying, Consulting & Design

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Letter of Transmittal

To: Adams County Planning & Development Department
4430 South Adams County Parkway
1st Floor, Suite W2000
Brighton, Colorado 80601

cc: Mr. John Piekara, Extraction Oil & Gas, Inc.
Mr. Jeff Annable, Extraction Oil & Gas, Inc.

From: Ms. Kathleen Goles, PE
609 Consulting
1095 Saberton Avenue
Sheridan, Wyoming 82801

Date: July 3, 2025

Subject: Eagle Pad - Preliminary Drainage Report

To Adams County Planning & Development Department:

On behalf of Extraction Oil & Gas, Inc., a wholly-owned subsidiary of Civitas Resources, Inc., we are pleased to submit the Preliminary Drainage Report for Eagle Pad. The purpose of this report is to discuss and summarize the stormwater drainage analysis and design performed for the proposed Eagle Pad well pad and production facility. The proposed project will be located in the south half of Section 36 of Township 1 South, Range 66 West in Adams County, Colorado.

The drainage analysis and design were prepared referencing the Adams County Development Standards & Regulations as well as the Mile High Flood District (MHFD) Urban Storm Drainage Criteria Manual. We believe the analysis and design satisfy all Adams County drainage requirements.

We greatly appreciate your time and consideration in reviewing this submittal. We look forward to your review and comments. Please contact us with any questions you may have.

Respectfully,

Kathleen M. Goles

Kathleen Goles
Registered Professional Engineer
State of Colorado No. 63868

ENGINEER CERTIFICATION OF DRAINAGE REPORT

I hereby certify that this report (plan) for the Preliminary Drainage design of Eagle Pad was prepared by me or under my direct supervision in accordance with the provisions of Adams County Storm Drainage Design and Technical Criteria for the owners thereof. I understand that Adams County does not and will not assume liability for drainage facilities designed by others.

7/3/25

Date

Kathleen Goles
Registered Professional Engineer
State of Colorado No. 63868

DEVELOPER CERTIFICATION OF DRAINAGE FACILITIES

Extraction Oil & Gas, Inc., a wholly-owned subsidiary of Civitas Resources, Inc., hereby certifies that the drainage facilities for Eagle Pad shall be constructed according to the design presented in this report. I understand that Adams County does not and will not assume liability for the drainage facilities designed and/or certified by my engineer. I understand that Adams County reviews drainage plans pursuant to Colorado Revised Statues Title 30, Article 28; but cannot, on behalf of Eagle Pad, guarantee that final drainage design review will absolve Extraction Oil & Gas, Inc., a wholly-owned subsidiary of Civitas Resources, Inc., and/or their successors and/or assigns the future liability for improper design. I further understand that approval of the Final Plat and/or Final Development Plan does not imply approval of my engineer's drainage design.

11/19/2025

Date

Extraction Oil & Gas, Inc.
A wholly-owned subsidiary of Civitas Resources, Inc.

Name of Developer

Authorized Signature

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1.2 Project Location 1
1.3 Drainage Summary 3
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2.1 Historic Runoff 3
2.2 Design Flow 4
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APPENDICES

Appendix A: Drainage Plan
Appendix B: Drainage Report and Drainage Plan Checklist
Appendix C: NRCS Web Soil Survey – Soils Report
Appendix D: FEMA Flood Insurance Rate Map FIRMette
Appendix E: UD-Rational Spreadsheet Calculations
Appendix F: MHFD-Detention Spreadsheet Calculations
Appendix G: Conveyance Calculations for Diversion Ditch Design

1.0 PROJECT DESCRIPTION AND LOCATION

Extraction Oil & Gas, Inc. is proposing the construction and development of an oil/gas well pad and production facility, Eagle Pad, located in the south half of Section 36, Township 1 South, Range 66 West in Adams County, Colorado. Per the requirements outlined in the Adams County Development Standards & Regulations and through a direct request from Adams County, this report was prepared to discuss the analysis and design of stormwater drainage at the proposed project site. The Drainage Plan, developed in conjunction with this report, can be found in Appendix A. A Drainage Report and Drainage Plan Checklist provided by Adams County can be found in Appendix B.

1.1 Project Description

The proposed project consists of the construction and operation of the Eagle Pad well pad and production facility containing infrastructure and operations for 19 oil/gas wells. The Energy & Carbon Management Commission (ECMC) Proposed Oil and Gas Location will have a permitted disturbance area of 17.03 acres during the construction phase which includes topsoil stripping and pad earthwork, well drilling and hydraulic fracturing, installation of permanent pipelines and facilities, and setup of temporary equipment and a modular large volume tank (MLVT) area. Construction phase grading and layout for the well pad and facility can be found in Appendix A.

Once all wells have been drilled and completed, portions of the Proposed Oil and Gas Location will be reclaimed back to existing grade and re-seeded during interim reclamation. The remaining operational area during the production phase will be approximately 6.52 acres. Production phase grading and layout for the well pad and facility can be found in Appendix A.

1.2 Project Location

The Eagle Pad is located on property owned by Colorado State Land (Parcel 0156900000077). The project area is approximately 0.4 miles east of Piccadilly Road and 0.1 miles north of East 120th Avenue. A proposed access road running north from East 120th Avenue will provide access to the project area. Figure 1 shows the location of Eagle Pad.

Soils data for the project area were taken from NRCS Soil Data Viewer. The project area is comprised of Blakeland-Truckton association and Truckton loamy sand (0 to 3 percent slopes) with a Hydrologic Soil Group (HSG) classification of Group A soils and Ascalon sandy loam (0 to 3 percent slopes) with a HSG classification of Group B soils. The soils report for the project area can be found in Appendix C. Eagle Pad will be constructed on undeveloped rangeland. According to the 2019 National Land Cover Database, the project area is cultivated crops.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (Panel 08001C0365H, Effective Date: 3/5/2007), the proposed project is in an area of minimal flood hazard (Zone X) and is therefore determined to be outside the 500-year floodplain. The corresponding FIRMette displaying the flood zone classification at the project site can be found in Appendix D.

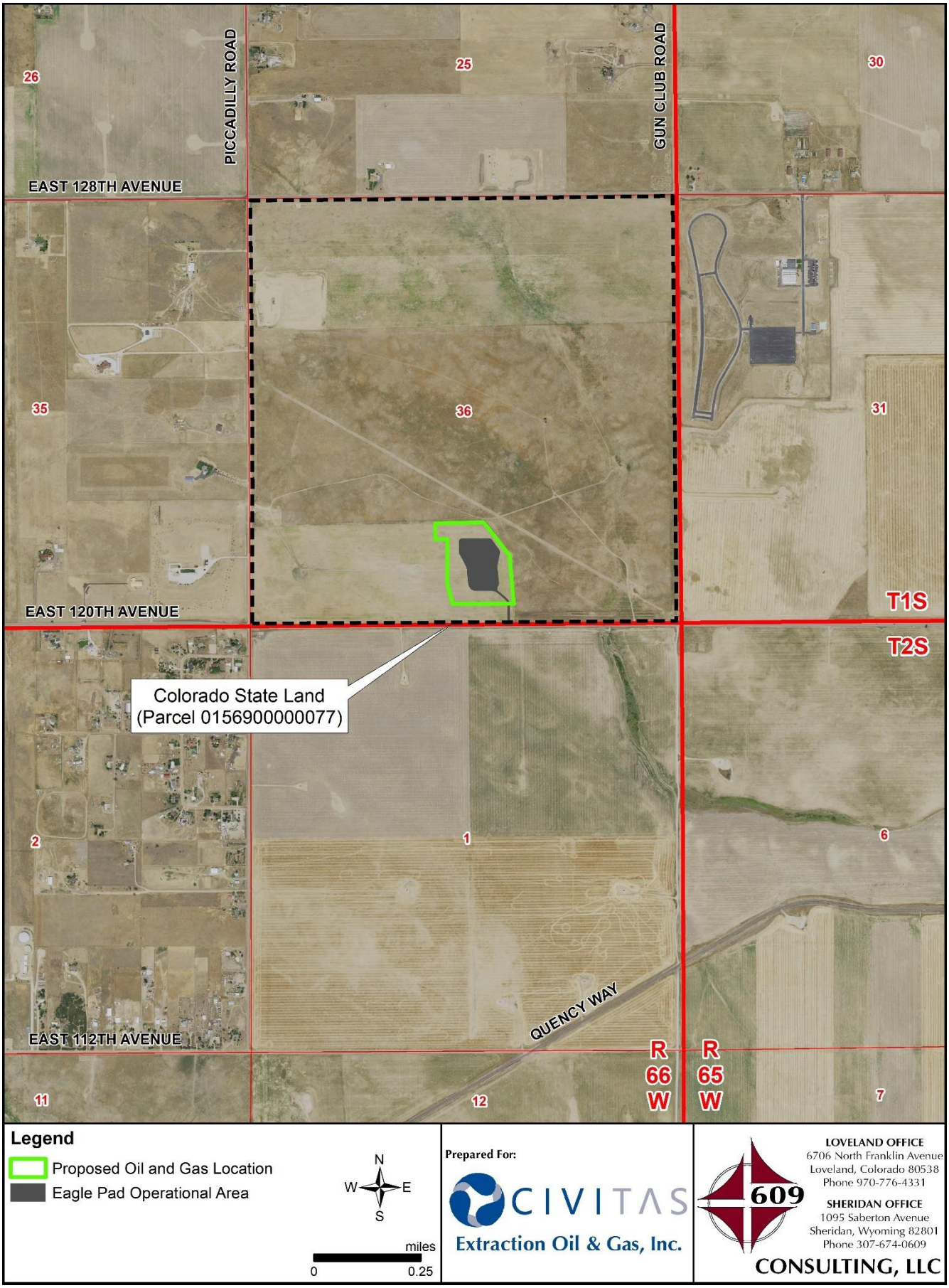

Figure 1. Project Location

1.3 Drainage Summary

Eagle Pad lies within the *Barr Lake* Hydrologic Unit Code Level 12 (HUC 12): 101900030501. The HUC 12, approximately 14.0 square miles in area, consists of predominately agricultural lands that drain to Barr Lake. Currently, there has not been a master drainage plan developed for this area.

Historically, stormwater from the proposed location drains from the north to the south/southwest into a low spot. If the stormwater leaves the low spot before fully infiltrating, it will eventually flow into a drainage that drains north, then northwest towards Barr Lake.

2.0 HYDROLOGIC ANALYSIS

The following sections outline the methods used and corresponding results for the hydrologic analysis of the project site and drainage design including historic runoff, design flow, and stormwater volume.

2.1 Historic Runoff

Historic runoff, calculated assuming the site is undeveloped with a 2.0 percent imperviousness, was calculated for the proposed project site. The rational method was chosen to estimate historic peak flows. As discussed in the Mile High Flood District (MHFD) manual *Urban Storm Drainage Criteria Manual Volume I* (USDCM VI), it is acceptable to use the rational method for design storm analysis of catchments that are not complex and are 90 acres or less in size.

The MHFD spreadsheet model *Peak Runoff Prediction by the Rational Method Version 2.00* (UD-Rational) was used to calculate peak flows using the rational method. One-hour point rainfall data were obtained from the Adams County Development Standards & Regulations using the NOAA Atlas 14 Point Precipitation Frequency Estimates. One-hour point rainfall data are summarized in Table 1.

Table 1. Point Rainfall Data (NOAA Atlas 14 Point Precipitation Frequency Estimates)

Storm Event Frequency	One-Hour Point Rainfall, in
2-year	1.00
5-year	1.42
10-year	1.68
50-year	2.35
100-year	2.71

Historic peak flows were calculated for the Proposed Oil and Gas Location. Overland flow length, overland flow slope, channelized flow length, and channelized flow slope parameters were estimated using field survey, LiDAR, and imagery. HSG was derived from an area-weighted average using NRCS Soil Data Viewer. USDCM VI was referenced for the recommended conveyance factor (K). Computed Time of Concentration (T_c) was used since historic conditions have an imperviousness of less than 20 percent. Historic peak flow estimates calculated using the rational method are summarized in Table 2 and spreadsheet model inputs and results can be found in Appendix E.

Table 2. Historic Peak Flow Estimates Using the Rational Method

Storm Event Frequency	Historic Peak Flow, cfs
2-year	0.1
5-year	0.2
10-year	0.9
50-year	6.2
100-year	11.9

2.2 Design Flow

Design flows for Eagle Pad were calculated for stormwater derived within the project disturbance area (on-site) as well as the broader drainage to and around the project area. Both the construction phase and the production phase were analyzed and used to aid in the hydraulic design.

The rational method was chosen to estimate peak flows for the proposed diversion ditches, sediment traps, and detention basin areas. Locations for peak flow calculations are summarized in Table 3. Outlets and drainage area delineations and their corresponding time of concentration routes during the construction phase are shown in Figure 2 and Figure 3, respectively. The outlet and drainage area delineation and their corresponding time of concentration route during the production phase are shown in Figure 4 and Figure 5, respectively.

Table 3. Summary of Outlets and Drainage Areas

Outlet	Description	Total Drainage Area, acre	
		Construction Phase	Production Phase
ST1	Sediment Trap #1	0.36	-
ST2	Sediment Trap #2	0.39	-
ST3	Sediment Trap #3	2.50	-
DB	Detention Basin Area	13.10	9.29

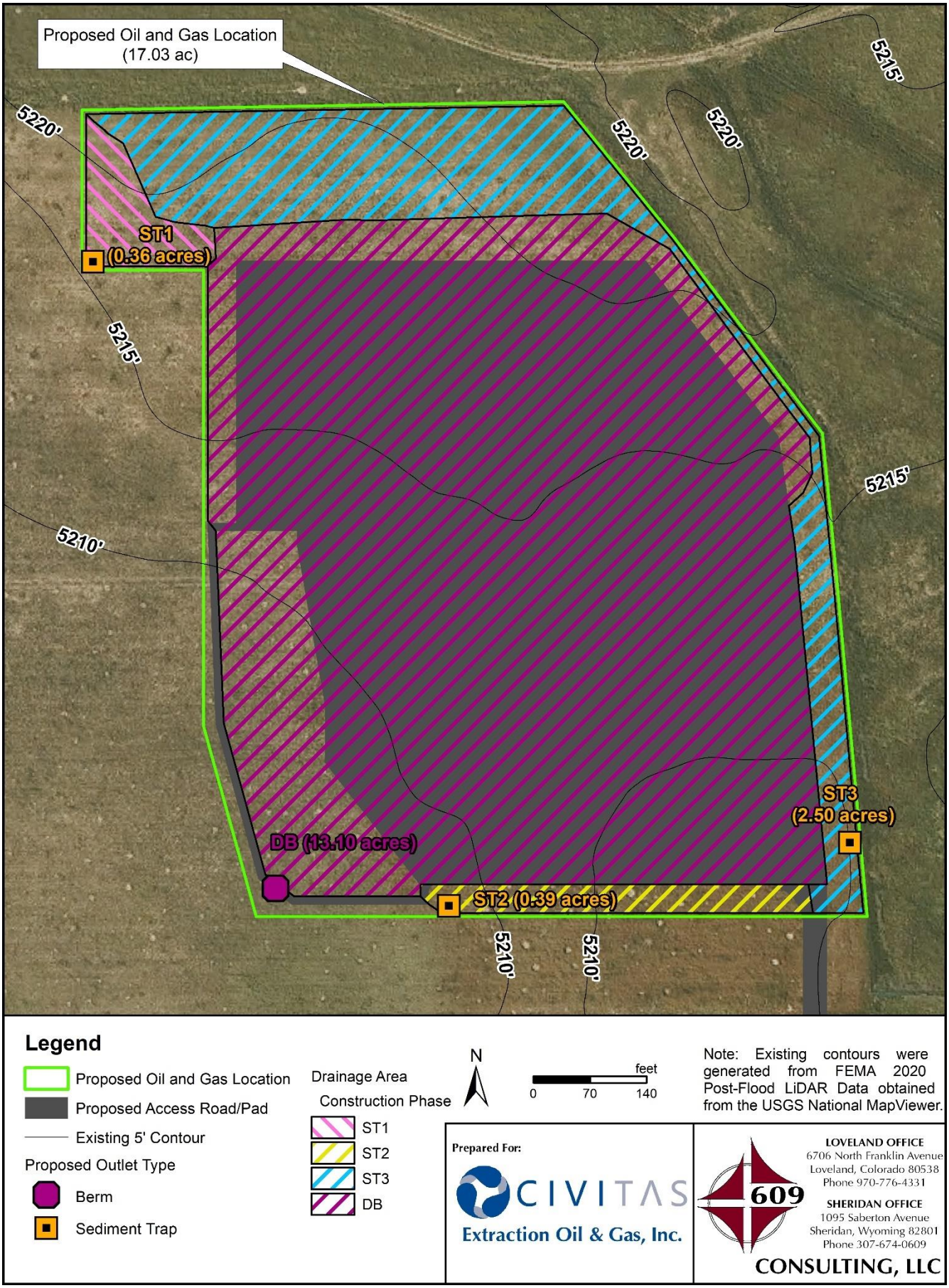

Figure 2. Construction Phase Outlets and Drainage Areas

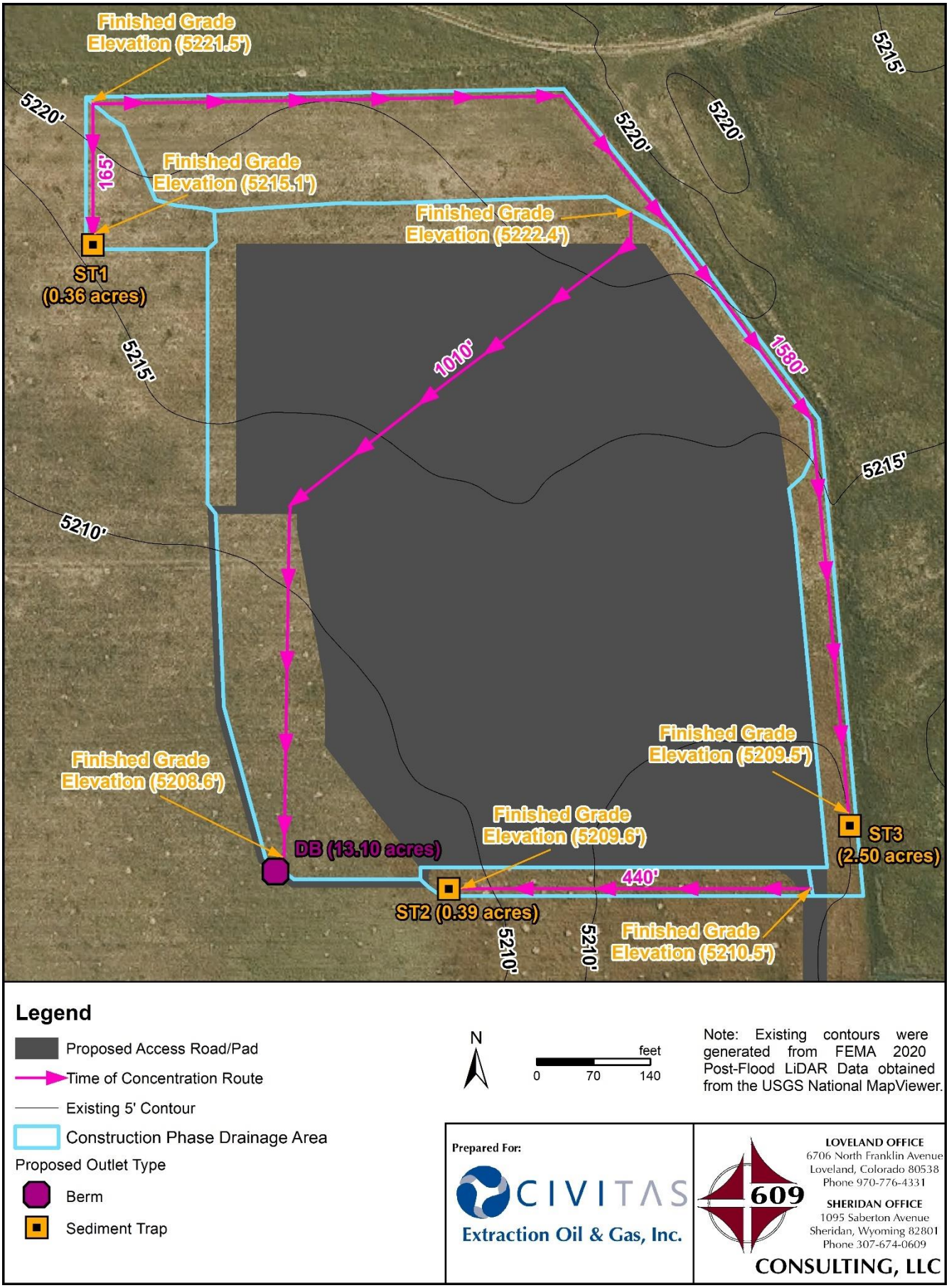

Figure 3. Construction Phase Time of Concentration Routes

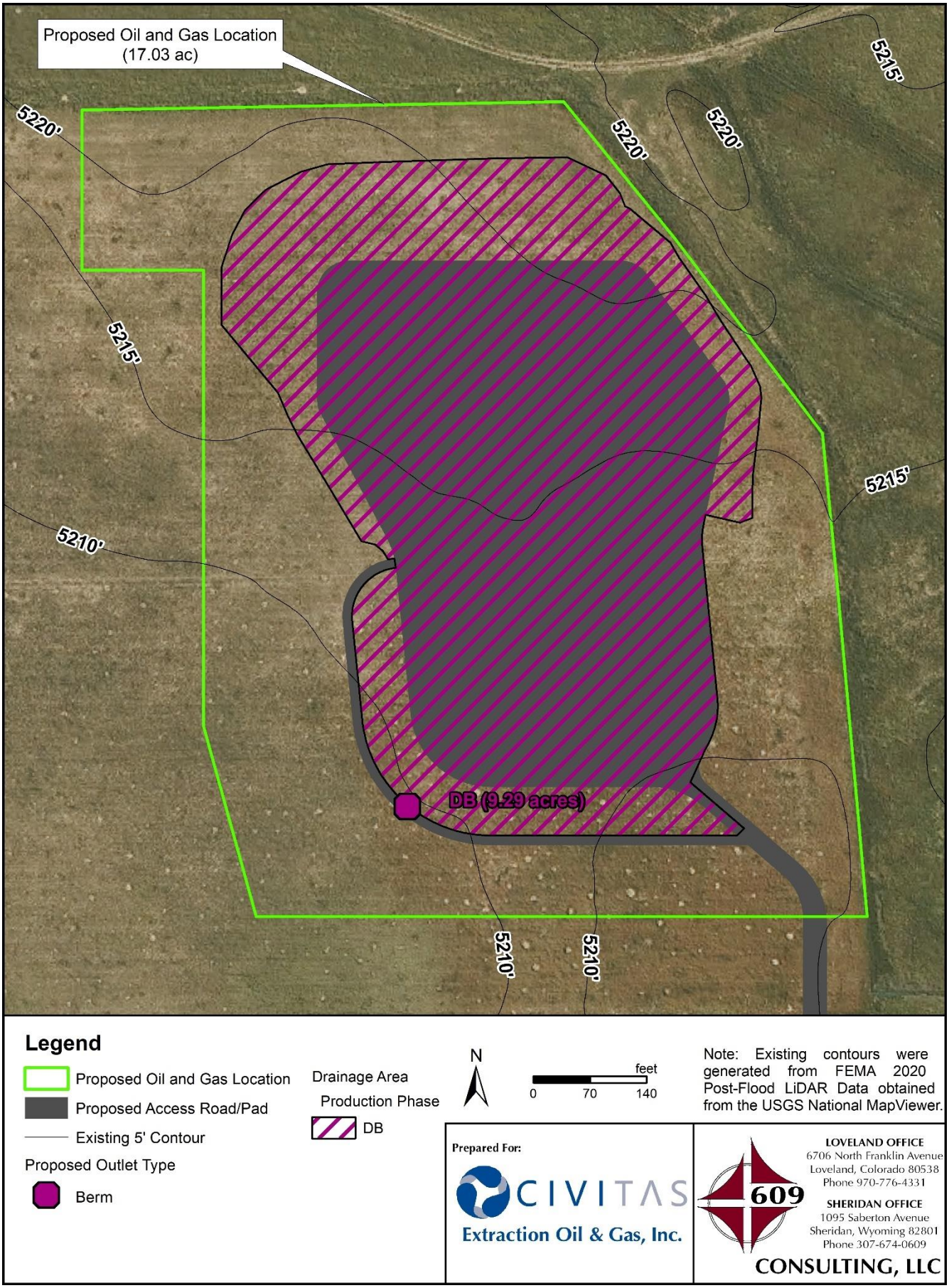

Figure 4. Production Phase Outlet and Drainage Area

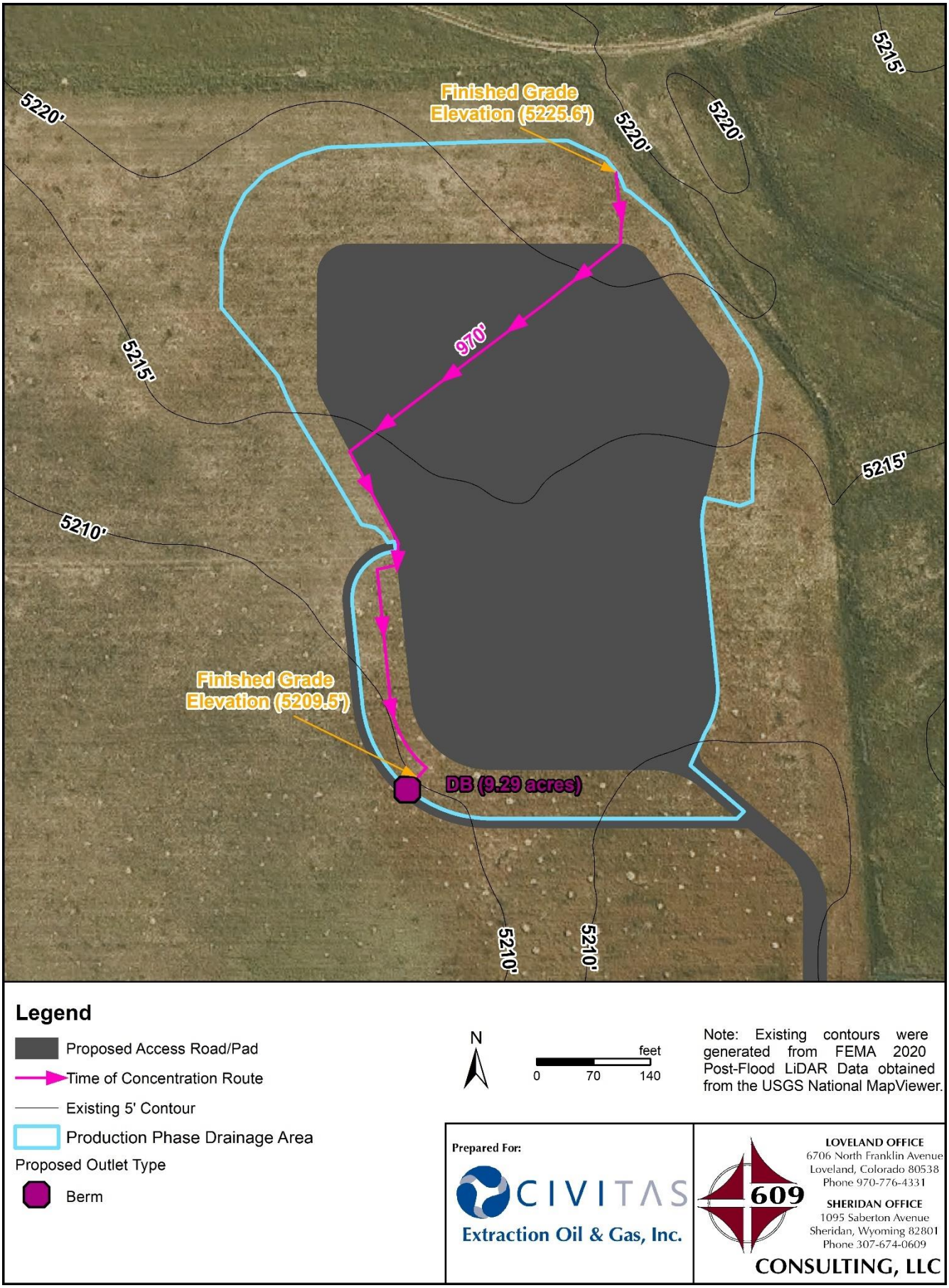

Figure 5. Production Phase Time of Concentration Route

UD-Rational was used to calculate peak flows using the rational method. Drainages were delineated using the on-site drainage design and grading. Overland flow length, overland flow slope, channelized flow length, and channelized flow slope parameters were estimated using field survey, LiDAR data, and imagery. Computed T_c was used for outlets with imperviousness less than 20 percent. Calculations for area-weighted averages of percent imperviousness are found in Table 4. Peak flow estimates calculated using the rational method are summarized in Table 5. UD-Rational inputs and results can be found in Appendix E.

Table 4. Imperviousness Calculations

Outlet	Phase	Total Area, acre	Open (2% Imperv), acre	Gravel (40% Imperv), acre	Weighted Imperviousness	
					acre	%
ST1	Construction	0.36	0.36	0.00	0.01	2.0
ST2	Construction	0.39	0.36	0.03	0.02	4.9
ST3	Construction	2.50	2.48	0.02	0.06	2.3
DB	Construction	13.10	2.45	10.65	4.31	32.9
	Production	9.29	3.09	6.20	2.54	27.4

Table 5. Peak Flow Estimates

Outlet	Phase	Calculated Peak Flow, cfs				
		2-year	5-year	10-year	50-year	100-year
ST1	Construction	<0.1	<0.1	<0.1	0.1	0.5
ST2	Construction	<0.1	<0.1	0.1	0.7	1.0
ST3	Construction	<0.1	0.1	0.1	0.8	1.9
DB	Construction	4.6	7.0	9.3	18.6	25.1
	Production	2.7	4.0	5.2	10.4	14.7

2.3 Stormwater Volume

In accordance with Adams County Development Standards & Regulations requirements, stormwater falling on the project area will be detained and released at reduced flow rates. The maximum allowable release rates for the 1-hour, 5-year and 100-year storm events were determined by using *Table 9.16—Allowable Release Rates (cfs/acre)*. Using Group A soils as the dominant soil group, a release rate of 0.07 cfs/acre is acceptable during the 5-year storm event and 0.50 cfs/acre is acceptable during the 100-year storm event.

The MHFD spreadsheet model *Detention Basin Design Workbook Version 4.04* (MHFD-Detention) was used to calculate storm runoff volumes. One-hour point rainfall data for the project area (Table 1) were used within MHFD-Detention. Watershed parameters including area, length, and slope as well as imperviousness and soil type were calculated based on the site design and site characteristics. Table 6 shows storm runoff volumes (without accounting for releases) calculated for the stormwater storage area. MHFD-Detention inputs and results can be found in Appendix F.

Table 6. Calculated Storm Runoff Volumes

Outlet	Phase	Storm Runoff Volume, acre-ft						
		WQCV	EURV	2-year	5-year	10-year	50-year	100-year
DB	Construction	0.175	0.443	0.259	0.424	0.571	1.239	1.680
	Production	0.111	0.250	0.132	0.224	0.291	0.720	1.005

3.0 HYDRAULIC ANALYSIS AND DRAINAGE DESIGN

Criteria presented in the MHFD Urban Storm Drainage Criteria Manual outline the capacity, velocity, and slope requirements involved with drainage design and stormwater conveyance. The following sections describe the design recommendations for storage and conveyance during the construction phase and production phase. The recommended drainage design is shown in the Drainage Plan which can be found in Appendix A.

3.1 Stormwater Storage - Construction Phase

During the construction phase, stormwater from the well pad and facility will drain to the detention basin outlet (DB) located on the southwest corner of the detention basin. During the 5-year event, stormwater will pond to a maximum depth of 0.7 feet. During the 100-year event, stormwater will pond to a maximum depth of 1.6 feet creating a total storage of 1.382 acre-feet.

The outlet consists of two 12-inch diameter high-density polyethylene (HDPE) pipes. One pipe will have an orifice cap to control release rates and drain times for smaller events. The orifice cap will have a 2.8-inch diameter orifice at the invert of the outlet pipe, located at the bottom of the detention basin. The second pipe will be located adjacent to the first and positioned at the ponding depth of the WQCV (0.4 feet above the bottom of the detention basin). The second pipe will have no orifice cap. Anti-seep collars should be used to prevent seepage through the berm and outlet slopes should be protected using geotextile fabric or riprap in order to prevent erosion along the embankment.

It will take approximately 40 hours to drain 99 percent of the WQCV with outflow controlled by the orifice cap on the first pipe. During the 5-year and 100-year events, outflows will be controlled by the second pipe (no orifice cap). A total peak outflow of 0.3 cfs will occur during the 5-year event, which is less than the acceptable release rate of 0.07 cfs/acre during the 5-year event (0.07 cfs/acre * 13.10 acres = 0.9 cfs). A total peak outflow of 3.3 cfs will occur during the 100-year event, which is less than the acceptable release rate of 0.50 cfs/acre during the 100-year event (0.50 cfs/acre * 13.10 acres = 6.6 cfs).

A temporary emergency spillway will be installed along the western edge of the detention basin where detained stormwater will back up to the spillway during the 100-year event. The spillway will be located at-grade or in slight cut which will eliminate the need for a cutoff wall. The spillway was designed with a minimum crest width of 20.1 feet, 4:1 side slopes, and a crest invert elevation at 5210.2 feet (1.6 feet above the outlet invert). A berm height of 1.5 feet at the spillway will provide more than the required freeboard. The spillway is able to convey the developed 100-year peak flow at a depth of 0.5 feet.

Stormwater storage volumes, outlet sizing, and spillway design details for the construction phase can be found in Appendix A. Supporting calculations using MHFD-Detention can be found in Appendix F.

3.2 Stormwater Storage - Production Phase

During the production phase, stormwater from the reclaimed well pad and facility will drain to the detention basin outlet (DB) located on the southwest edge of the detention basin. During the 5-year event, stormwater will pond to a maximum depth of 1.0 feet. During the 100-year event, stormwater will pond to a maximum depth of 1.8 feet creating a total storage of 0.730 acre-feet.

The outlet consists of two 12-inch diameter HDPE pipes. One pipe will have an orifice cap to control release rates and drain times for smaller events. The orifice cap will have a 1.4-inch diameter orifice at the invert of the outlet pipe, located at the bottom of the detention basin. The second pipe will be located adjacent to the first and positioned at the ponding depth of the WQCV (0.8 feet above the bottom of the detention basin). The second pipe will have no orifice cap. Anti-seep collars should be used to prevent seepage through the berm and outlet slopes should be protected using geotextile fabric or riprap in order to prevent erosion along the embankment.

It will take approximately 40 hours to drain 99 percent of the WQCV with outflow controlled by the orifice cap on the first pipe. During the 5-year and 100-year events, outflows will be controlled by the second pipe (no orifice cap). A total peak outflow of 0.2 cfs will occur during the 5-year event, which is less than the acceptable release rate of 0.07 cfs/acre during the 5-year event (0.07 cfs/acre * 9.29 acres = 0.7 cfs). A total peak outflow of 2.9 cfs will occur during the 100-year event, which is less than the acceptable release rate of 0.50 cfs/acre during the 100-year event (0.50 cfs/acre * 9.29 acres = 4.6 cfs).

An emergency spillway will be installed along the western edge of the detention basin where detained stormwater will back up towards and nearly reach the spillway during the 100-year event. The spillway was designed with a minimum crest width of 9.5 feet, 4:1 side slopes, and a crest invert elevation at 5211.4 feet (1.9 feet above the outlet invert). A berm height of 1.6 feet at the spillway will provide more than the required freeboard. The spillway is able to convey the developed 100-year peak flow at a depth of 0.5 feet. A concrete cutoff wall will provide scour protection at the spillway.

Stormwater storage, outlet sizing, and spillway design details for the production phase can be found in Appendix A. Supporting calculations using MHFD-Detention can be found in Appendix F.

3.3 Ditches

Diversion ditches and berms will be used to collect and direct on-site stormwater to outlets, deflect and redirect off-site flow around the disturbance area, and detain on-site stormwater. Temporary diversion ditches will collect and drain on-site stormwater to sediment traps and outlets. Treated stormwater will exit the sediment traps onto undisturbed ground where the natural contours will drain away from the project area. Peak flows used for ditch design are summarized in Table 5. Manning's equation was used to calculate conveyance based on a typical temporary diversion ditch design. Per recommendations from the MHFD Urban Storm Drainage Criteria Manual, all temporary diversion ditches were designed with slopes between 0.5 percent and 2.0 percent except where existing topography dictated otherwise. The typical design using a minimum slope of 0.5 percent was found to convey 5.6 cfs at a depth of 1.0 feet and 16.5 cfs at a depth of 1.5 feet (maximum capacity assuming 2:1 ditch slope is carried onto pad). The typical design at a depth of 1.0 feet will adequately convey the largest 100-year peak flow in a temporary ditch, ST3 (1.9 cfs). Manning's calculations for temporary ditch conveyance can be found in Appendix G.

3.4 Sediment Traps

Sediment traps and outlets will be installed at the end of the temporary diversion ditches during the construction phase. In order to provide additional capture volume and treatment, the sediment traps are designed to be oversized when possible. Three 20 feet by 20 feet by 3 feet deep sediment traps are recommended for this project. Typical sediment trap details are included with the Drainage and Erosion Control Plan found in Appendix A.

4.0 SITE MAINTENANCE AND UPKEEP

The Extraction Oil & Gas, Inc. site monitoring program ensures site conditions stay in compliance. Sedimentation, culvert and access road condition, vegetation health, and several other safety and maintenance items are routinely monitored and evaluated to ensure the site is in workable and drainable order.

In addition to monitoring during regular operations, a formal monitoring plan has been developed for the project site. During the construction phase, the site will be inspected a minimum of every 14 calendar days as well as following rain or snowmelt events that are able to cause surface erosion. After the construction phase, areas not needed for production operations within the disturbance area will be reclaimed and site inspections will occur at a minimum of every 30 calendar days until the site is fully stabilized. Once the site is stabilized and has achieved interim reclamation standards, inspections will occur annually. More frequent, informal inspections will continue to occur during routine operations.

Routine maintenance and required repairs of access roads, culverts, ditches, berms, and outlet structures will be handled by the operations team. Cleaning and removal of sediment and debris from ditches, culverts, and outlets, as well as vegetation maintenance and specific manufacturer maintenance, will also be handled by the operations team during regular operations and maintenance checks.

5.0 CONCLUSION

The information and analysis presented in this report display the adequacy and effectiveness of the design and planning associated with the Eagle Pad Drainage Plan. The design protects public health, safety, and general welfare and has no adverse impacts on public rights-of-way or off-site properties. Furthermore, the report demonstrates that the design adheres to Adams County Development Standards & Regulations as well as the Mile High Flood District (MHFD) Urban Storm Drainage Criteria Manual.

6.0 REFERENCES

Adams County Colorado Mapping. Adams County, Colorado. https://gisapp.adcogov.org/Html5Viewer/index.html?viewer=AdvancedExt.Advanced_HTML

Adams County Development Standards & Regulations. December 8, 2020. Adams County, Colorado.

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Urban Storm Drainage Criteria Manual: Volume 1 - Management, Hydrology, and Hydraulics. September 1969. Revised August 2018. Mile High Flood District. https://mhfd.org/resources/criteria-manual

Urban Storm Drainage Criteria Manual: Volume 2 - Structures, Storage, and Recreation. September 1969. Revised September 2017. Mile High Flood District. https://mhfd.org/resources/criteria-manual

Urban Storm Drainage Criteria Manual: Volume 3 - Stormwater Quality. September 1992. Revised October 2019. Mile High Flood District. https://mhfd.org/resources/criteria-manual

Web Soil Survey. Natural Resources Conservation Service. https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

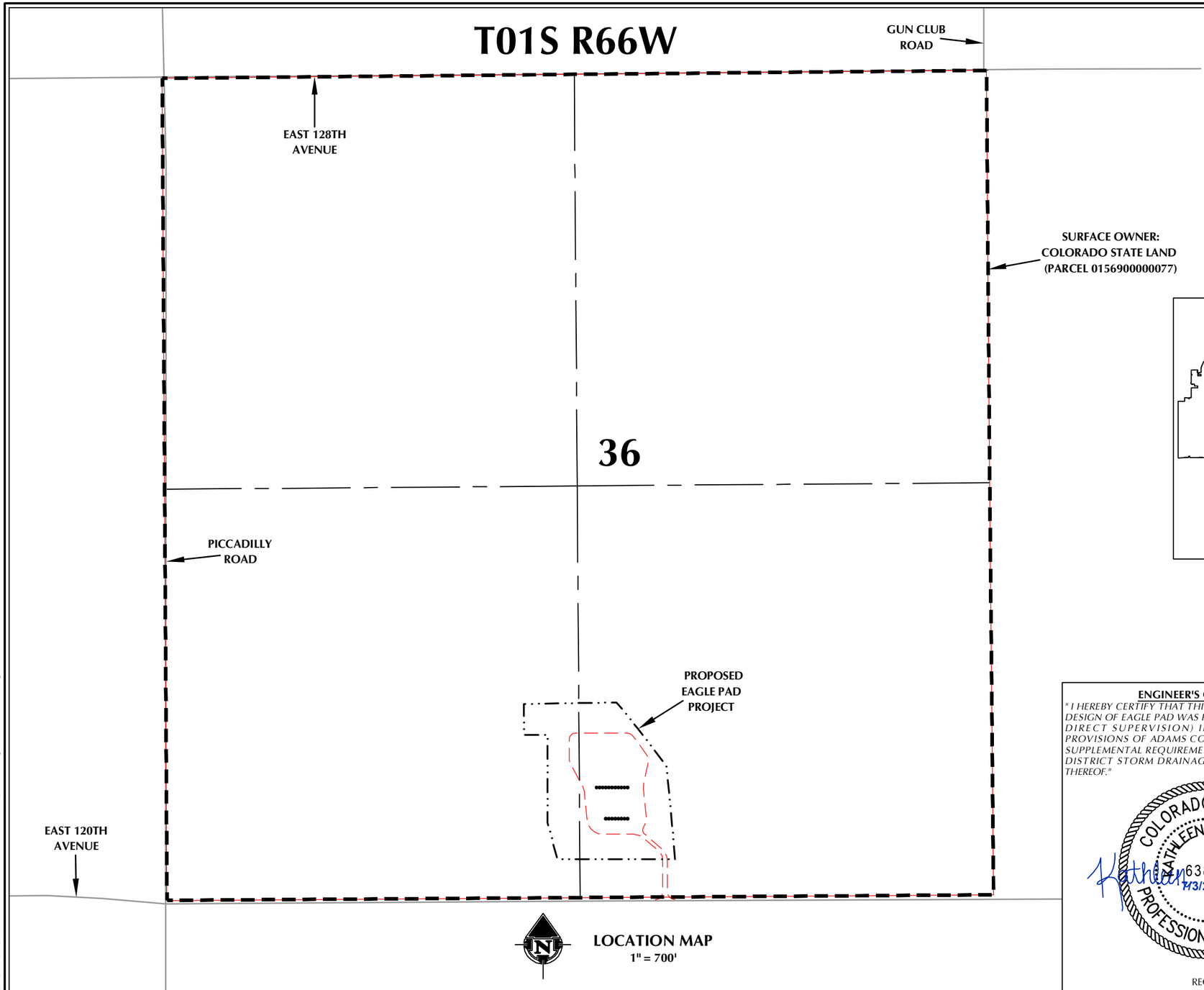
APPENDICES

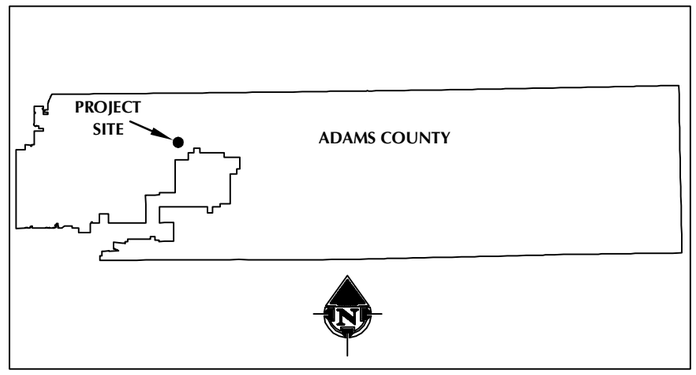
Appendix A:

Drainage Plan

EAGLE PAD
DRAINAGE PLAN

LOCATED IN SECTION 36, T1S, R66W, 6TH P.M.
ADAMS COUNTY, COLORADO





VICINITY MAP

ENGINEER'S CERTIFICATION

" I HEREBY CERTIFY THAT THIS FINAL PLAN FOR THE DRAINAGE DESIGN OF EAGLE PAD WAS PREPARED BY ME (OR UNDER MY DIRECT SUPERVISION) IN ACCORDANCE WITH THE PROVISIONS OF ADAMS COUNTY MUNICIPAL CODE AND SUPPLEMENTAL REQUIREMENTS OF THE MILE HIGH FLOOD DISTRICT STORM DRAINAGE CRITERIA FOR THE OWNERS THEREOF."

COLORADO LICENSED
KATHLEEN M. GOLES
63868
7/3/2025
PROFESSIONAL ENGINEER

KATHLEEN M. GOLES
REGISTERED PROFESSIONAL ENGINEER
STATE OF COLORADO NO. 63868

PAGE INDEX

1 - COVER SHEET
2 - SITE OVERVIEW
3 - CONSTRUCTION PHASE SITE PLAN
4 - PRODUCTION PHASE SITE PLAN
5 - DETENTION BASIN - CONSTRUCTION PHASE
6 - DETENTION BASIN - PRODUCTION PHASE
7 - OUTLET DETAILS
8 - BMP TYPICALS (A) AND CONSTRUCTION NOTES
9 - BMP TYPICALS (B)

GENERAL NOTES:

1. THIS DRAINAGE AND EROSION CONTROL PLAN WAS PREPARED FOLLOWING ADAMS COUNTY DEVELOPMENT STANDARDS & REGULATIONS WITH ADDITIONAL DESIGN GUIDANCE PROVIDED BY MILE HIGH FLOOD DISTRICT.
2. DISCLAIMER: THIS PLAN REPRESENTS AN APPROXIMATE LOCATION OF DRAINAGE AND EROSION CONTROL FEATURES; EXACT LOCATION MAY VARY DEPENDING UPON EXISTING EASEMENTS, PIPELINES, FLOWLINES, AND SETBACK REQUIREMENTS.
3. ORIGINAL DOCUMENT SIZE: 11" X 17"

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Prepared For:

CIVITAS
Extraction Oil & Gas, Inc.

EAGLE PAD DRAINAGE PLAN
COVER SHEET

SCALE:	VARIES	PAGE:	1 OF 9
JOB NUMBER:	24-118	DATE:	7/3/25
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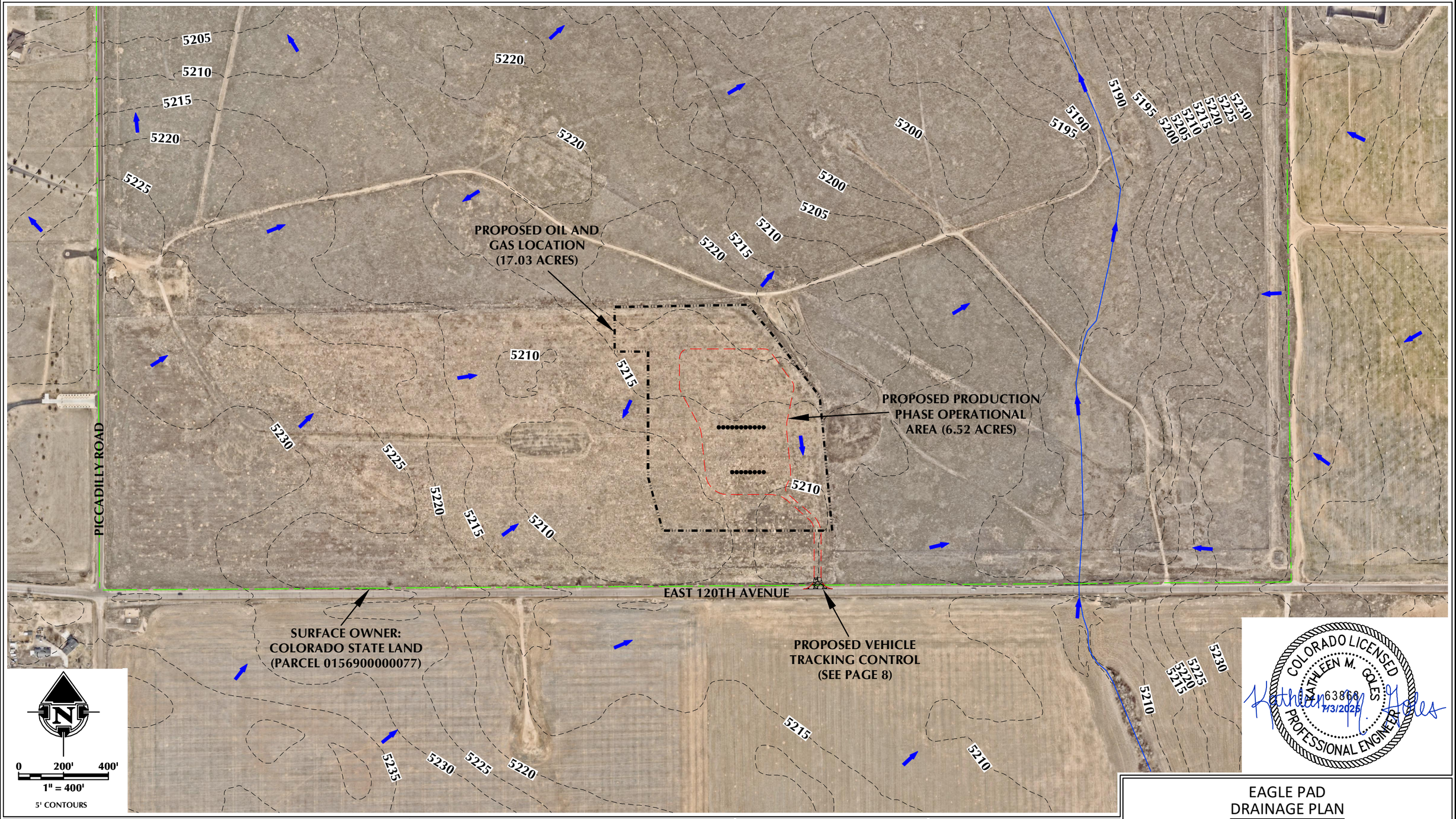

LEGEND

- EXISTING CONTOUR
- EXISTING IRRIGATION DITCH/DRAINAGEWAY/POND
- PROPOSED OIL AND GAS LOCATION
- PROPOSED ACCESS ROAD/PAD
- STORMWATER DRAINAGE
- PROPERTY LINE
- PROPOSED VEHICLE TRACKING CONTROL

GENERAL NOTES:

1. DISCLAIMER: THIS PLAN REPRESENTS AN APPROXIMATE LOCATION OF DRAINAGE AND EROSION CONTROL FEATURES; EXACT LOCATION MAY VARY DEPENDING UPON EXISTING EASEMENTS, PIPELINES, FLOWLINES, AND SETBACK REQUIREMENTS.
2. ELEVATIONS ARE BASED ON NAVD88 (GEOID18).

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EAGLE PAD DRAINAGE PLAN
SITE OVERVIEW

SCALE:	1" = 400'	PAGE:	2 OF 9
JOB NUMBER:	24-118	DATE:	7/3/25
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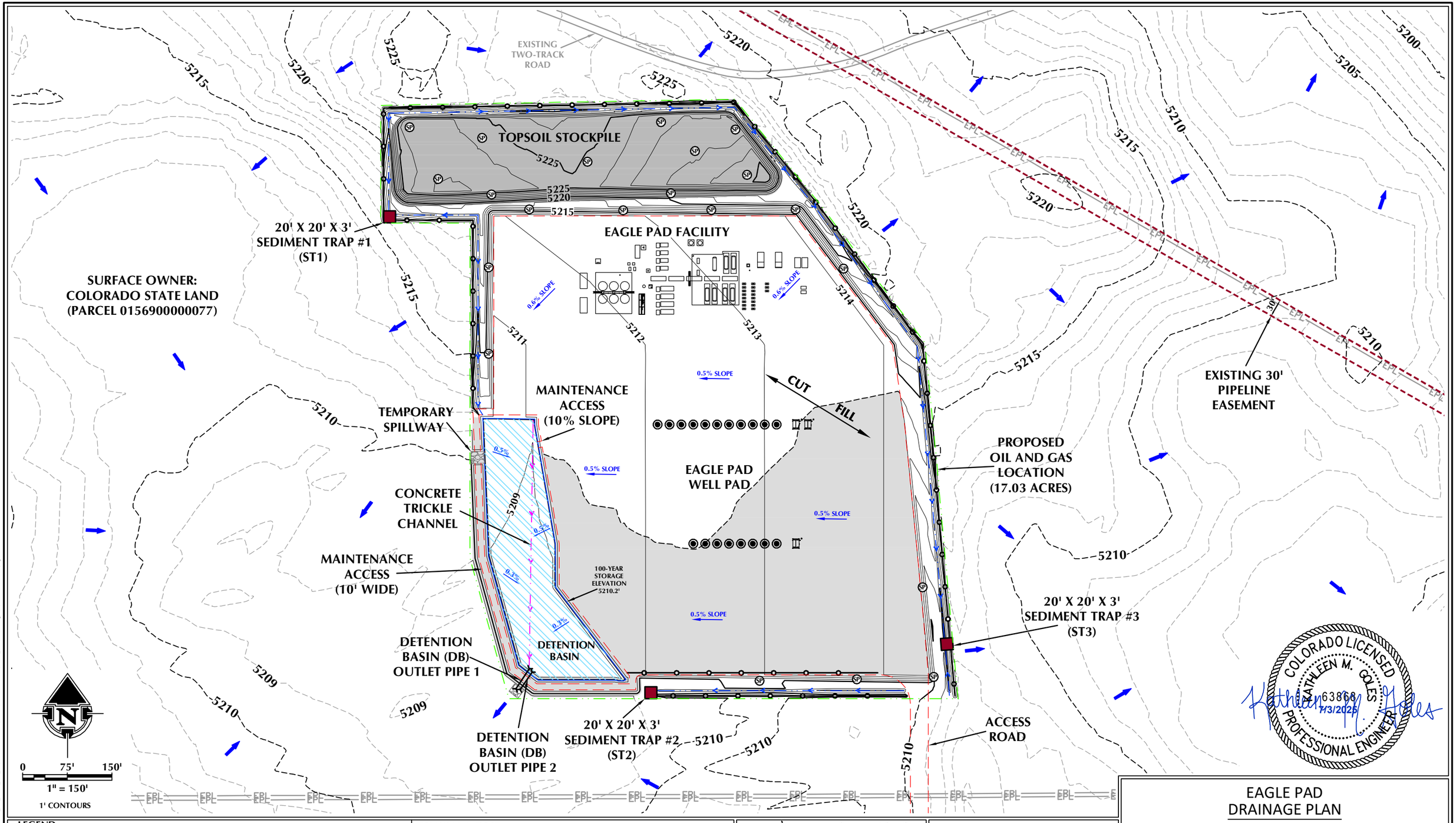

LEGEND

- EXISTING CONTOUR
- EXISTING ROAD
- EXISTING PIPELINE
- PROPOSED OIL AND GAS LOCATION
- PROPOSED CONTOUR
- PROPOSED ACCESS ROAD/PAD
- PROPOSED WELL
- STORMWATER DRAINAGE
- EASEMENT/ROW
- PROPOSED DIVERSION DITCH
- PROPOSED CONCRETE TRICKLE CHANNEL
- PROPOSED BERM / OFF-SITE FLOW DEFLECTION
- PROPOSED CULVERT PROTECTION / RIPRAP
- PROPOSED SEDIMENT TRAP WITH PROTECTED OUTLET
- PROPOSED SLOPE PROTECTION
- 100-YEAR STORMWATER STORAGE FOOTPRINT

GENERAL NOTES:

1. DISCLAIMER: THIS PLAN REPRESENTS AN APPROXIMATE LOCATION OF DRAINAGE AND EROSION CONTROL FEATURES; EXACT LOCATION MAY VARY DEPENDING UPON EXISTING EASEMENTS, PIPELINES, FLOWLINES, AND SETBACK REQUIREMENTS.
2. ELEVATIONS ARE BASED ON NAVD88 (GEOID18).
3. SLOPE PROTECTION USED FOR TEMPORARY EROSION CONTROL ON CUT/FILL SLOPES AND SOIL STOCKPILES.

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EAGLE PAD DRAINAGE PLAN
CONSTRUCTION PHASE SITE PLAN

SCALE:	1" = 150'	PAGE:	3 OF 9
JOB NUMBER:	24-118	DATE:	7/3/25
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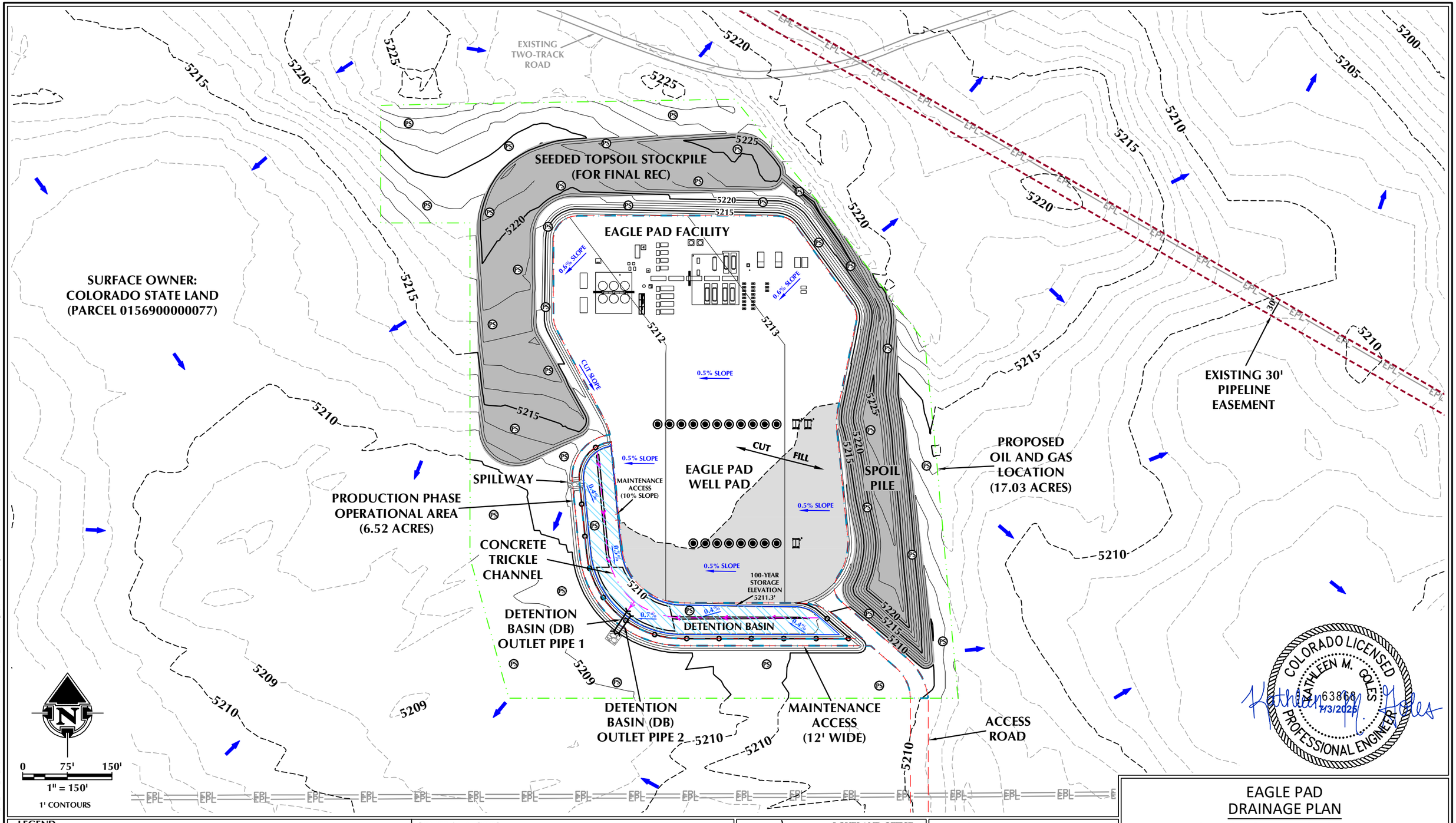

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LEGEND

- EXISTING CONTOUR
- EXISTING ROAD
- EXISTING PIPELINE
- PROPOSED OIL AND GAS LOCATION
- PROPOSED CONTOUR
- PROPOSED ACCESS ROAD/PAD
- PROPOSED WELL
- STORMWATER DRAINAGE
- EASEMENT/ROW
- PROPOSED CONCRETE TRICKLE CHANNEL
- PROPOSED BERM / OFF-SITE FLOW DEFLECTION
- PROPOSED CULVERT PROTECTION / RIPRAP
- RECLAMATION BOUNDARY
- PROPOSED PERMANENT SEEDING
- 100-YEAR STORMWATER STORAGE FOOTPRINT

GENERAL NOTES:

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2. ELEVATIONS ARE BASED ON NAVD88 (GEOID18).
3. RECLAIMED AREA WILL BE RE-SEEDED AND RE-VEGETATED.

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EAGLE PAD DRAINAGE PLAN
PRODUCTION PHASE SITE PLAN

SCALE:	1" = 150'	PAGE:	4 OF 9
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DETENTION BASIN (DB) - CONSTRUCTION PHASE

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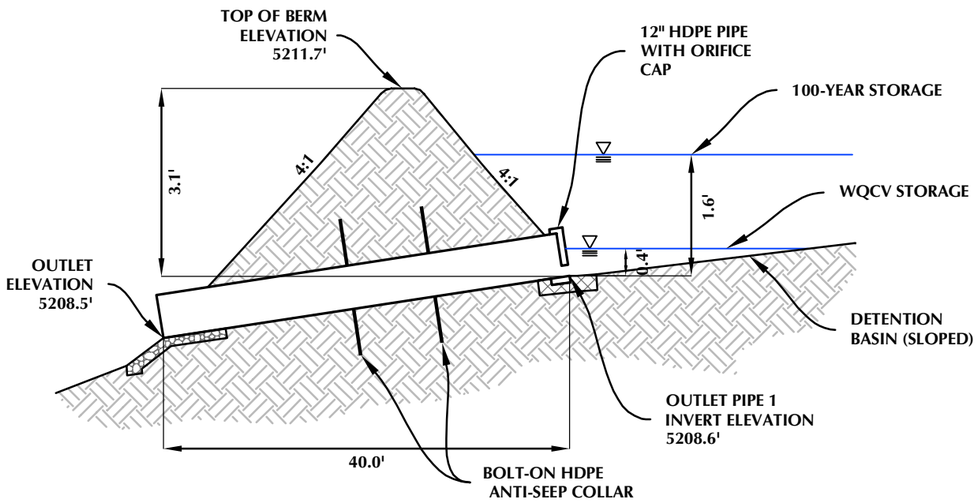

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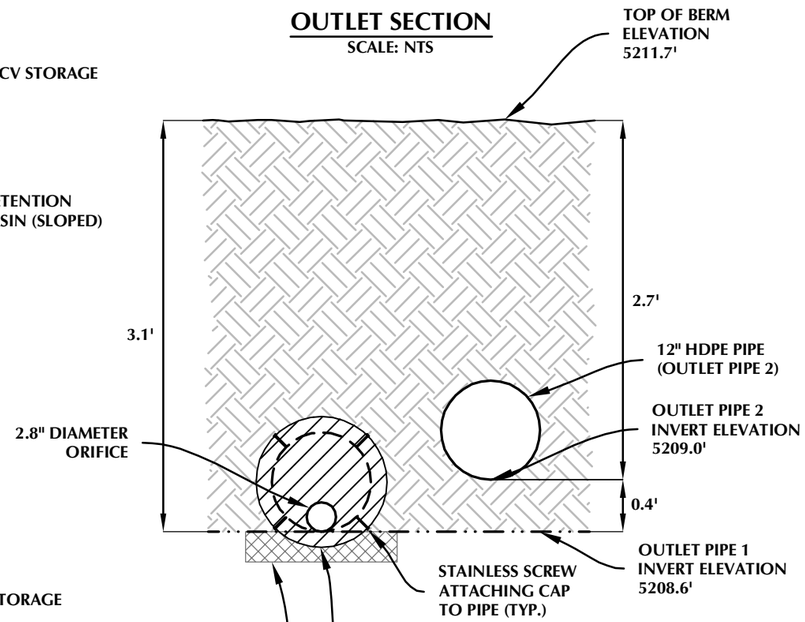

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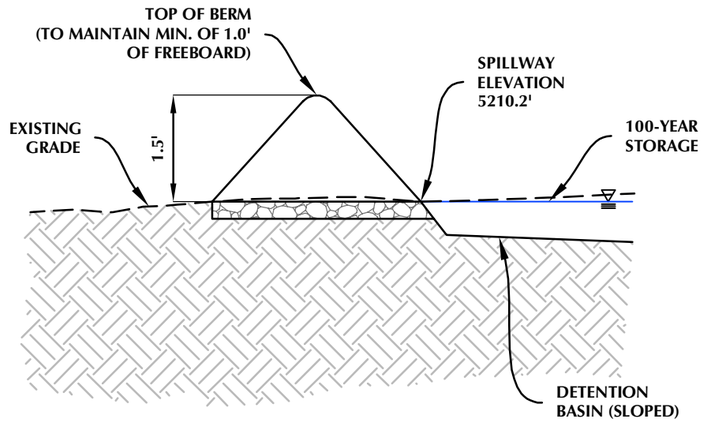

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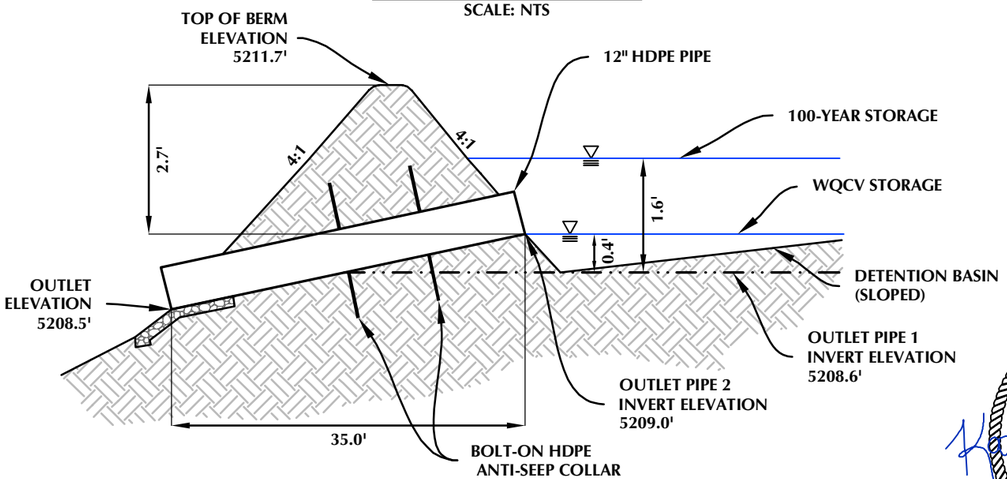

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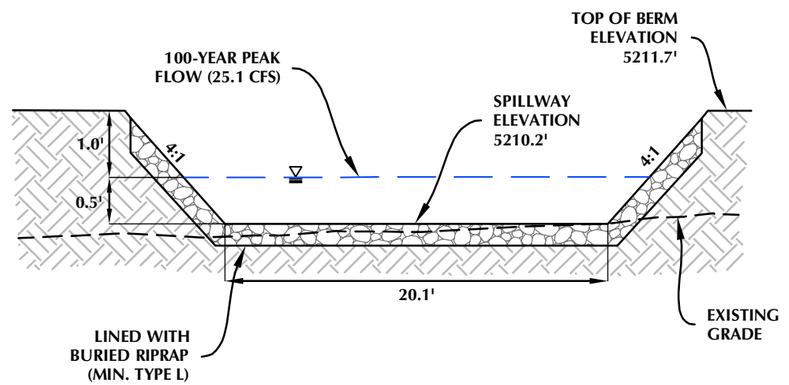

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EAGLE PAD
DRAINAGE PLAN
DETENTION BASIN - CONSTRUCTION PHASE

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DETENTION BASIN (DB) - PRODUCTION PHASE

OUTLET PIPE 1 PROFILE
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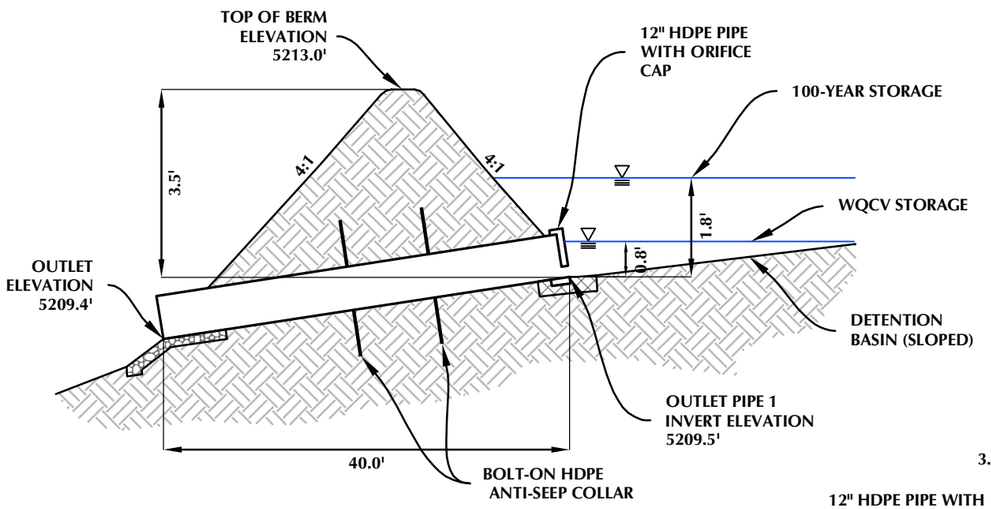

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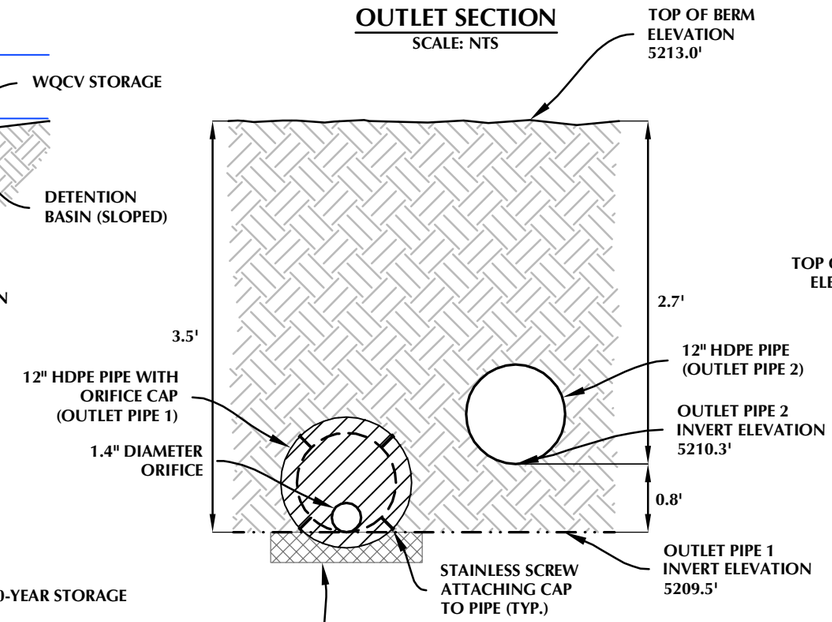

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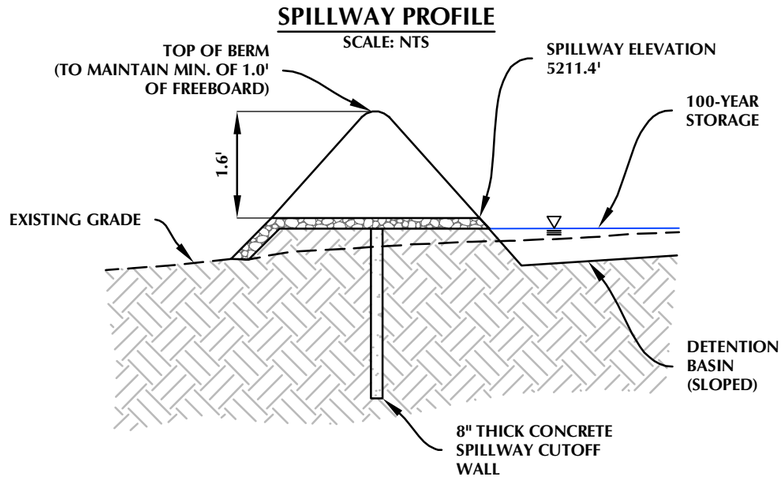

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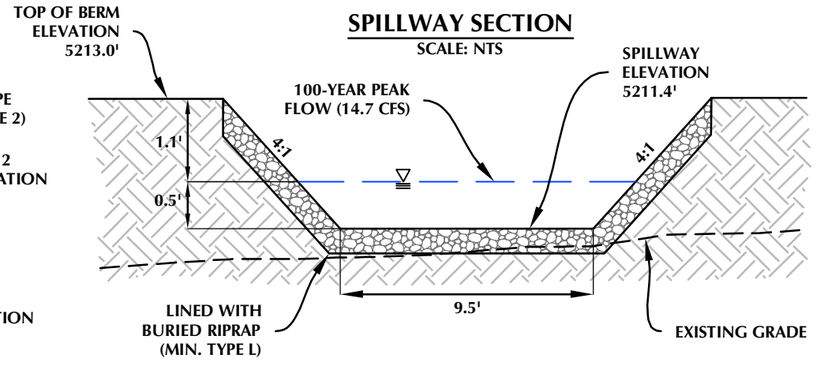

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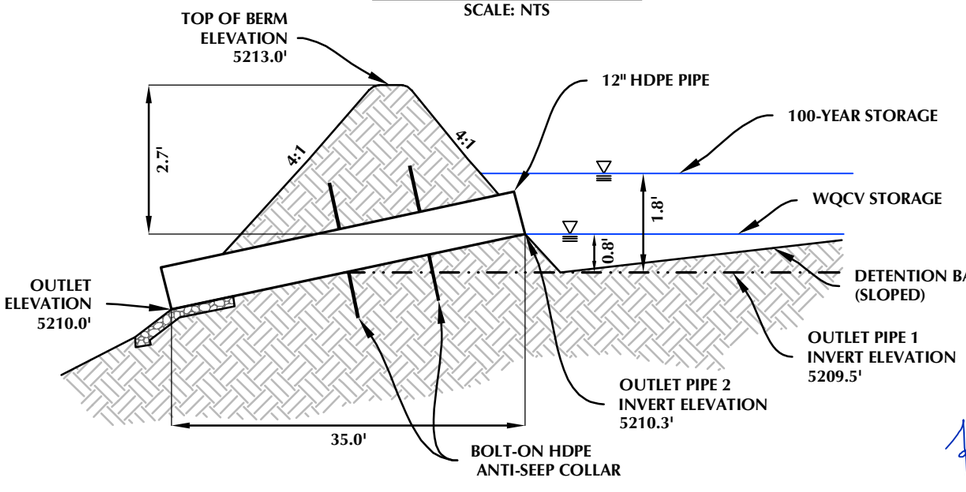

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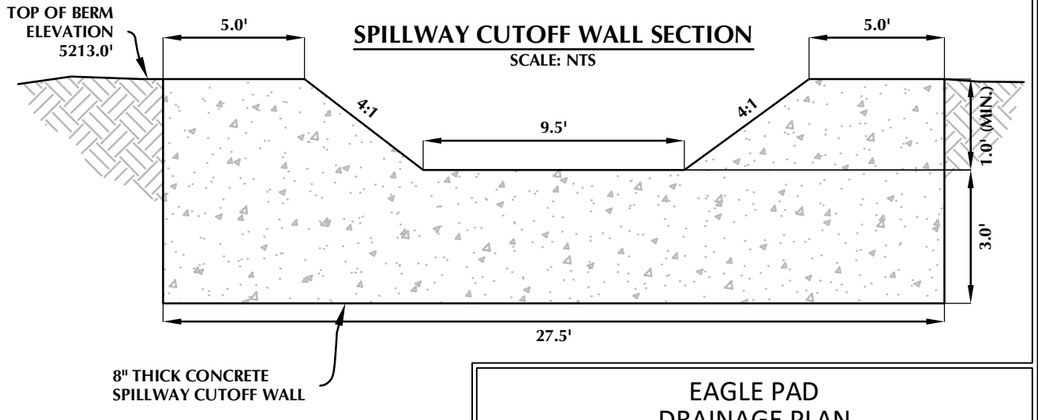

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EAGLE PAD
DRAINAGE PLAN
DETENTION BASIN - PRODUCTION PHASE

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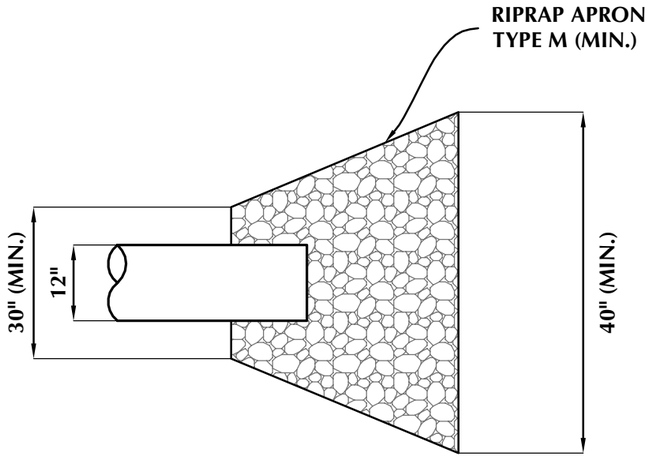
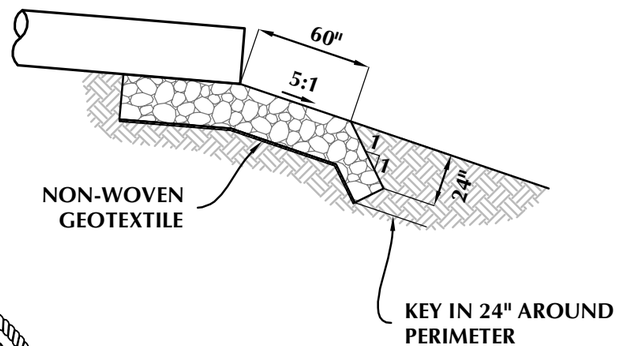
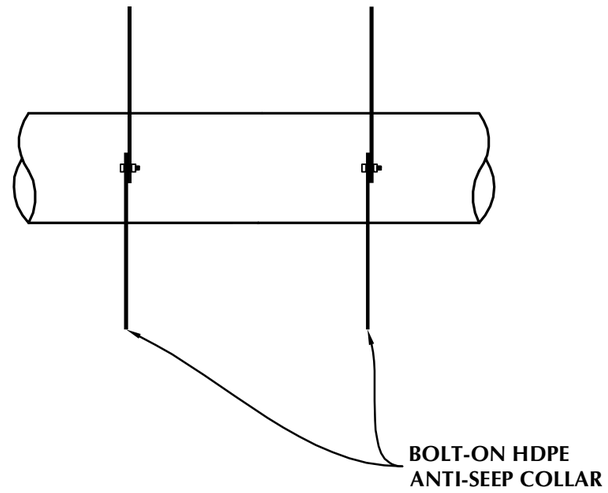
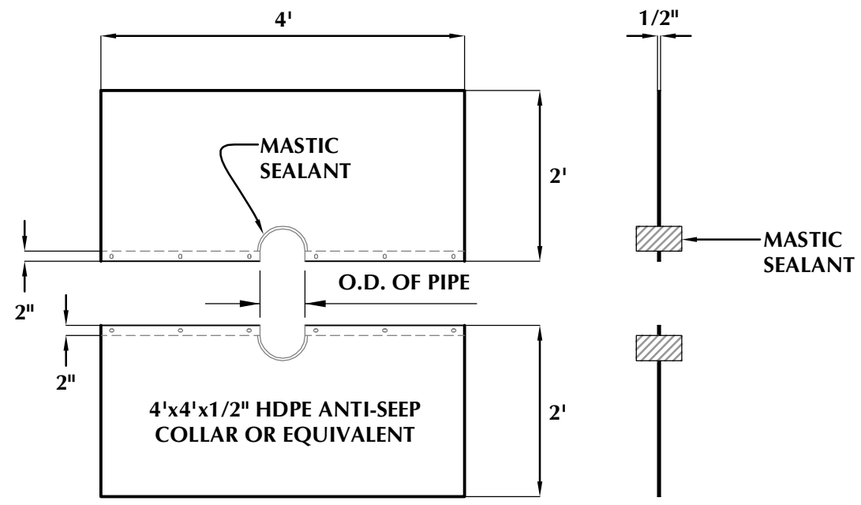




ANTI-SEEP COLLAR

SCALE: NTS





COLORADO LICENSED
KATHLEEN M. COLES
63868
7/3/2025
PROFESSIONAL ENGINEER

GENERAL NOTES:

609 CONSULTING, LLC

LOVELAND OFFICE
6706 North Franklin Avenue
Loveland, Colorado 80538
Phone 970-776-4331

SHERIDAN OFFICE
1095 Saberton Avenue
Sheridan, Wyoming 82801
Phone 307-674-0609

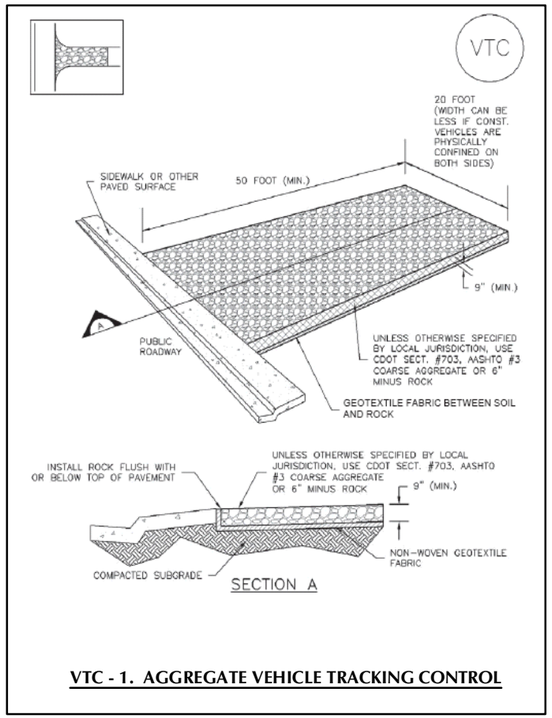
Prepared For:

CIVITAS
Extraction Oil & Gas, Inc.

EAGLE PAD
DRAINAGE PLAN
OUTLET DETAILS

SCALE:	VARIES	PAGE:	7 OF 9
JOB NUMBER:	24-118	DATE:	7/3/25
DRAFTED BY:	KMG	REVISED:	

K:\CIVITAS RESOURCES\2024\2024_118_EAGLE_T1S_R66W_SEC_36\DRAINAGE STUDY\DWG - DRAINAGE PLAN\EAGLE_COMBINED.dwg, 7/2/2025 4:50:52 PM, kgoles



VTC - 1. AGGREGATE VEHICLE TRACKING CONTROL

ADAMS COUNTY GENERAL CONSTRUCTION NOTES

1. A PRE-CONSTRUCTION MEETING IS REQUIRED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. TO SCHEDULE A PRE-CONSTRUCTION MEETING CONTACT THE ADAMS COUNTY CONSTRUCTION INSPECTOR SUPERVISOR AT 720-523-6965.

2. ALL CONCRETE CURB, GUTTER AND WALK MUST BE POURED MONOLITHICALLY USING 4,500 PSI CONCRETE WITH FIBER MESH.

3. ALL MATERIAL SUBMITTALS MUST BE APPROVED, STAMPED AND SIGNED, BY THE ENGINEER OF RECORD AND, SUBMITTED TO THE ADAMS COUNTY CONSTRUCTION INSPECTOR FOR APPROVAL PRIOR TO CONSTRUCTION/INSTALLATION.

4. THE CONTRACTOR IS REQUIRED TO SUBMIT COPIES OF ALL CONCRETE AND ASPHALT TICKETS TO THE ADAMS COUNTY CONSTRUCTION INSPECTOR.

5. THE CONTRACTOR IS RESPONSIBLE FOR ALL QUALITY CONTROL TESTING AND, IS REQUIRED TO SUBMIT ALL TEST RESULTS TO THE ADAMS COUNTY CONSTRUCTION INSPECTOR.

6. THE CONTRACTOR IS REQUIRED TO REMOVE A MINIMUM OF TWO (2) FEET OF EXISTING ASPHALT FOR ALL CURB AND GUTTER REPLACEMENT.

7. ALL UTILITY CUTS IN EXISTING STREETS ARE REQUIRED TO BE BACKFILLED WITH FLOWFILL AND, PATCHED WITH A MINIMUM OF 9-INCH ASPHALT PATCH.

8. A COPY OF THE GEOTECHNICAL REPORT SPECIFYING THE PAVEMENT THICKNESS DESIGN MUST BE SUBMITTED FOR REVIEW.

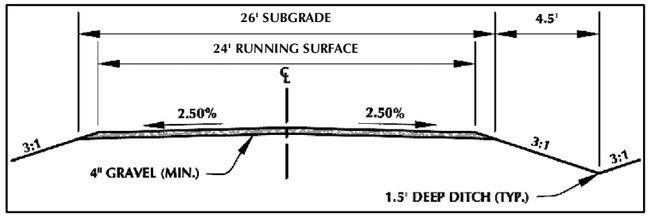
9. PERMITS WILL BE REQUIRED FOR THE INSTALLATION OF ALL UTILITIES. THE DEVELOPER/CONTRACTOR/ENGINEER, MUST SUPPLY THE LINEAL FOOTAGES AND THE NUMBER OF SERVICE CUTS REQUIRED FOR ALL UTILITIES.

10. PERMITS WILL BE REQUIRED FOR THE INSTALLATION OF ALL CONCRETE AND ASPHALT FACILITIES. PRIOR TO THE ISSUANCE OF THESE PERMITS, THE DEVELOPER/CONTRACTOR/ENGINEER, MUST SUPPLY THE SQUARE YARDAGE/SQUARE FOOTAGES OF ALL CONCRETE AND ASPHALT BEING INSTALLED.

11. THE SIA MUST BE COMPLETED WITH APPROPRIATE COLLATERAL, ALONG WITH THE PROPOSED PLAT, PRIOR TO THE ISSUANCE OF ANY ROW ACCESS/CONSTRUCTION PERMIT.

12. NO C.O.'S WILL BE ISSUED FOR ANY BUILDING CONSTRUCTION UNTIL ALL ROW IMPROVEMENTS HAVE BEEN COMPLETED AND HAVE BEEN GRANTED PRELIMINARY ACCEPTANCE.

13. UPON COMPLETION OF ALL CONSTRUCTION, A DRAINAGE CERTIFICATION LETTER, AND APPROPRIATE AS-BUILT CONSTRUCTION DRAWINGS AND INFORMATION WILL BE REQUIRED. THIS LETTER WILL BE STAMPED AND SIGNED BY THE ORIGINAL DESIGN ENGINEER.



CROSS-SECTION
NTS

Temporary and Permanent Seeding (TS/PS)

TS/PS

ADAMS COUNTY, COLORADO

SEED MIX	APPLICATION RATE (lbs/acre)
PBSI Dryland Aggressive Mix	25
(20%) Green Needlegrass, Lodorm	
(20%) Slender Wheatgrass, Native	
(20%) Western Wheatgrass, Native	
(20%) Pubescent Wheatgrass, Luna	
(20%) Intermediate Wheatgrass, Oahe/Rush	
PBSI Native Prairie Mix	15
(25%) Blue Grama	
(10%) Buffalograss	
(20%) Green Needlegrass	
(20%) Sideoats Grama	
(25%) Western Wheatgrass	
PBSI Native Sandyland Mix	15
(20%) Yellow Indiangrass	
(10%) Little Bluestem	
(10%) Indian Rice Grass	
(10%) Sideoats Grama	
(10%) Sand Lovegrass	
(10%) Prairie Sandreed	
(20%) Switchgrass	
PBSI Premium Irrig. Pasture Mix #1	25
(75%) Meadow Bromegrass, Paddock/Fleet	
(25%) Orchardgrass, Elsie/Megabite/Paiute	

Notes:
lbs/acre = pounds per acre
% = percent

COLORADO LICENSED
KATHLEEN M. GOLES
63868
7/3/2025
PROFESSIONAL ENGINEER

GENERAL NOTES:

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Phone 307-674-0609

Prepared For:
CIVITAS
Extraction Oil & Gas, Inc.

EAGLE PAD
DRAINAGE PLAN
BMP TYPICALS (A) AND CONSTRUCTION NOTES

SCALE:	VARIES	PAGE:	8 OF 9
JOB NUMBER:	24-118	DATE:	7/3/25
DRAFTED BY:	KMG	REVISED:	

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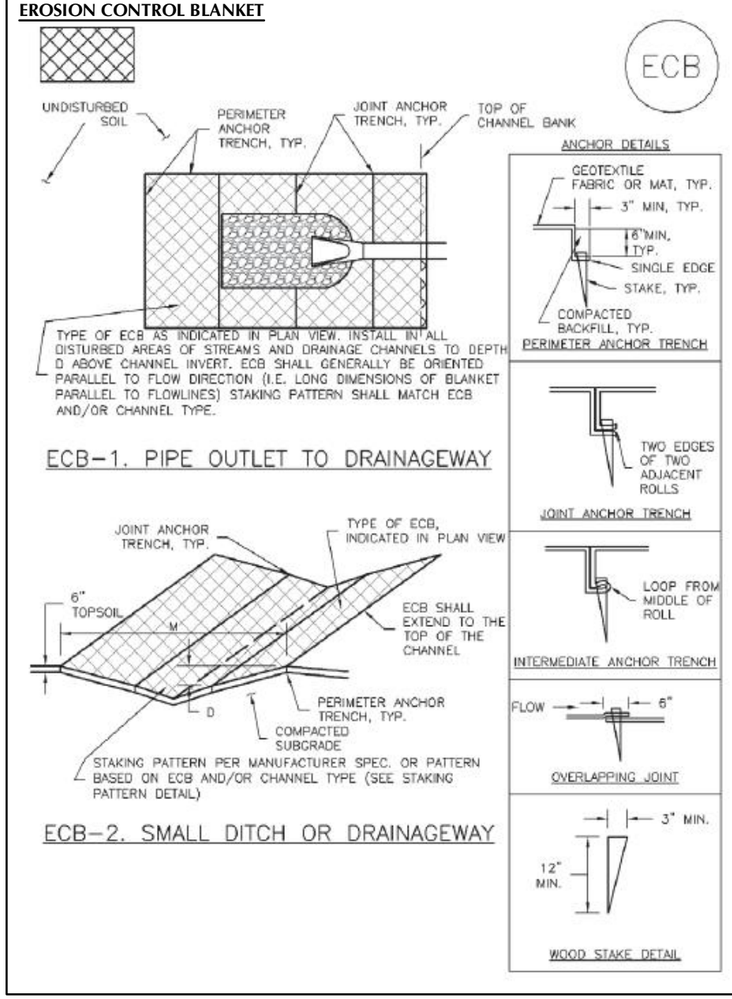
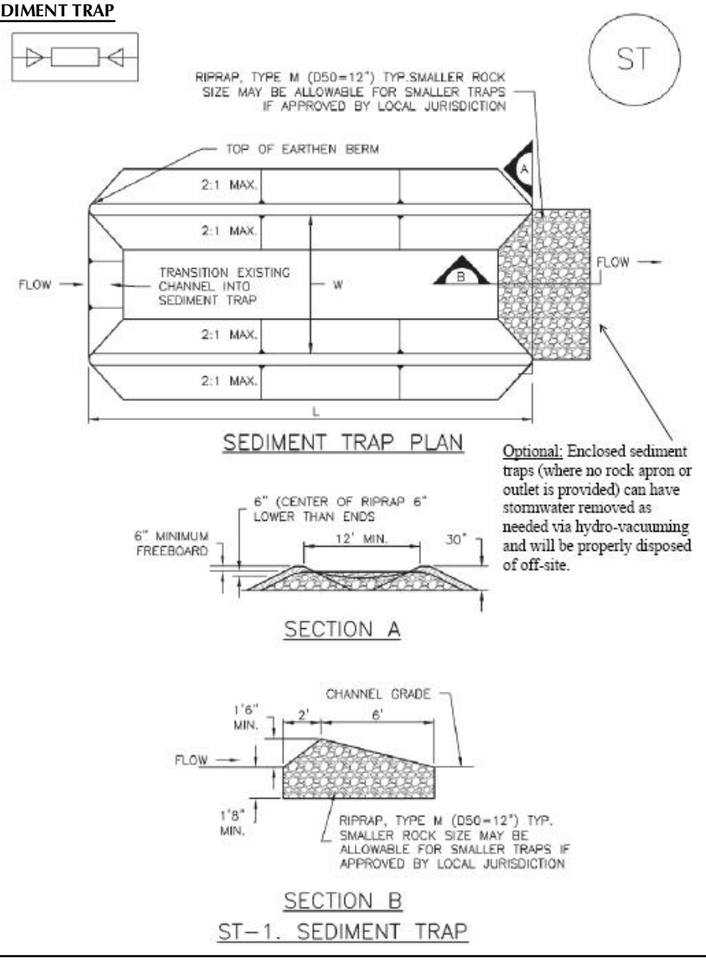
EROSION CONTROL BLANKET



SEDIMENT TRAP



ST-1. SEDIMENT TRAP

COLORADO LICENSED
KATHLEEN M. GOLES
63868
7/3/2025
PROFESSIONAL ENGINEER

GENERAL NOTES:

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Sheridan, Wyoming 82801
Phone 307-674-0609

Prepared For:
CIVITAS
Extraction Oil & Gas, Inc.

EAGLE PAD
DRAINAGE PLAN
BMP TYPICALS (B)

SCALE:	VARIES	PAGE:	9 OF 9
JOB NUMBER:	24-118	DATE:	7/3/25
DRAFTED BY:	KMG	REVISED:	

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Appendix B:

Drainage Report and Drainage Plan Checklist

Level 2 – Storm Drainage Report				
Item No.	Submitted[1]	County Use Only		
		Rejected	N/A	
1.	X	☐	☐	Signed certification statements of the Engineer and Developer.
2.	X	☐	☐	Description of project location.
3.	X	☐	☐	Description of pre-development site conditions.
4.	X	☐	☐	Description of proposed development, including description of proposed developed site.
5.	X	☐	☐	Description of proposed stormwater improvements, including conveyance, stormwater quantity control facilities, and stormwater quality control facilities.
6.	X	☐	☐	Description of the design method utilized, names of any computer software routines utilized in the design process, and reference any design standards utilized (other than Adams County ordinances).
7.	X	☐	☐	Preliminary hydrological and hydraulic analysis, including pre-development and post-development runoff hydrographs for the project site.
8.	X	☐	☐	Preliminary sizing of storage facilities proposed for stormwater quantity and/or quality control.
9.	X	☐	☐	Preliminary report addressing potential erosion and sedimentation impacts during construction, and general proposals for the mitigation of these impacts. Address erosion control during and after construction.
10.	X	☐	☐	Vicinity Map - including Section, Township, and Range
11.	X	☐	☐	Professional Engineer's Seal – including signature and date.
12.	X	☐	☐	Downstream and adjacent property Drainage Impact Analysis and Mitigation Measures.
13.	X	☐	☐	Pre-development and post-development basin maps, showing boundaries of project, any off-site contributing drainage basins, on-site drainage basins, time of concentration routes, approximate locations of all major drainage structures within the basins, and the course of stormwater originating from the subject property and extending all the way to the nearest receiving body of water (lakes, creeks, etc.). All basin maps shall be legible and at a specified scale.
14.	X	☐	☐	Other resource material such as soils maps, isopluvial maps, nomographs, charts, figures, tables, etc.
15.	☐	☐	☐	Surface/subsurface soil test results and test locations (when retention/infiltration is proposed).
16.	X	☐	☐	Identify all easements.
17.	X	☐	☐	Include runoff summary table at design points.
18.	X	☐	☐	Indicate proposed drainage improvements.
Developer's Comments (please reference the item number for each comment) 15. Retention/infiltration is not being proposed.				
County's Comments				

[1] To be checked by the Developer. If a "submitted" box is not checked, the Applicant must explain (in comment box above) or the application may be rejected for insufficient information.

Level 2 – Storm Drainage Plan

Item No.	Submitted[1]	County Use Only		
		Rejected	N/A	
1.	X	☐	☐	Sheet Size – 24" x 36" or 11" x 17"
2.	X	☐	☐	Project Title Sheet
3.	X	☐	☐	Project Site Plan
4.	X	☐	☐	Title Block – include name and address of proposed project/development.
5.	X	☐	☐	Drawing Information • North arrow indicator • Section-Township-Range • Drawing Scale • Symbol Legend
6.	X	☐	☐	Drawing Scale – plan view must be drawn at a scale legible enough for review. Must use standard engineering scale.
7.	X	☐	☐	Topography – include contour lines at a maximum of 2' intervals with source to datum identified. Extend past the project limits as appropriate to show downstream effects.
8.	X	☐	☐	Utilities - existing and proposed, with easements identified.
9.	X	☐	☐	Site Layout – including property boundaries, dimensions, area (in square feet or acres), adjoining street names and right-of-way widths
10.	X	☐	☐	Drainage Structures - including existing and proposed structures (pipes, catch basins , channels, ponds, irrigation ditches, etc.) and impervious surfaces (parking lots, driveways, patios, buildings, etc.)
11.	X	☐	☐	Natural Features – including drainage channels, wetlands, water bodies, areas of natural vegetation, and flood plains.
12.	X	☐	☐	Proposed Conveyance Structures – including approximate plans for collection and conveyance of stormwater through the project site. As a minimum, show by flow arrows the direction of proposed stormwater flow and indicate the method for conveyance (pipe, ditch, overland flow, etc.)
13.	X	☐	☐	Preliminary Road Layouts – including existing grade and proposed finished grade.
14.	X	☐	☐	Erosion and Sedimentation Control – including location and type of erosion and sedimentation control measure proposal.
15.	X	☐	☐	General Construction Notes – include notes for clarification (see Attachment ___ for County Examples.)
16.	X	☐	☐	Professional Engineer's Seal – including signature and date.

Developer's Comments (please reference the item number for each comment)

County's Comments

[1] To be checked by the Developer. If a "submitted" box is not checked, the Applicant must explain (in comment box above) or the application may be rejected for insufficient information.

Appendix C:

NRCS Web Soil Survey – Soils Report

Hydrologic Soil Group—Adams County Area, Parts of Adams and Denver Counties, Colorado
(Eagle Pad)

Map Scale: 1:2,270 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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 21, Aug 29, 2024

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

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AsB	Ascalon sandy loam, 0 to 3 percent slopes	B	5.1	30.0%
Bt	Blakeland-Truckton association	A	6.2	36.3%
TtB	Truckton loamy sand, 0 to 3 percent slopes	A	5.7	33.6%
Totals for Area of Interest			**17.0**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

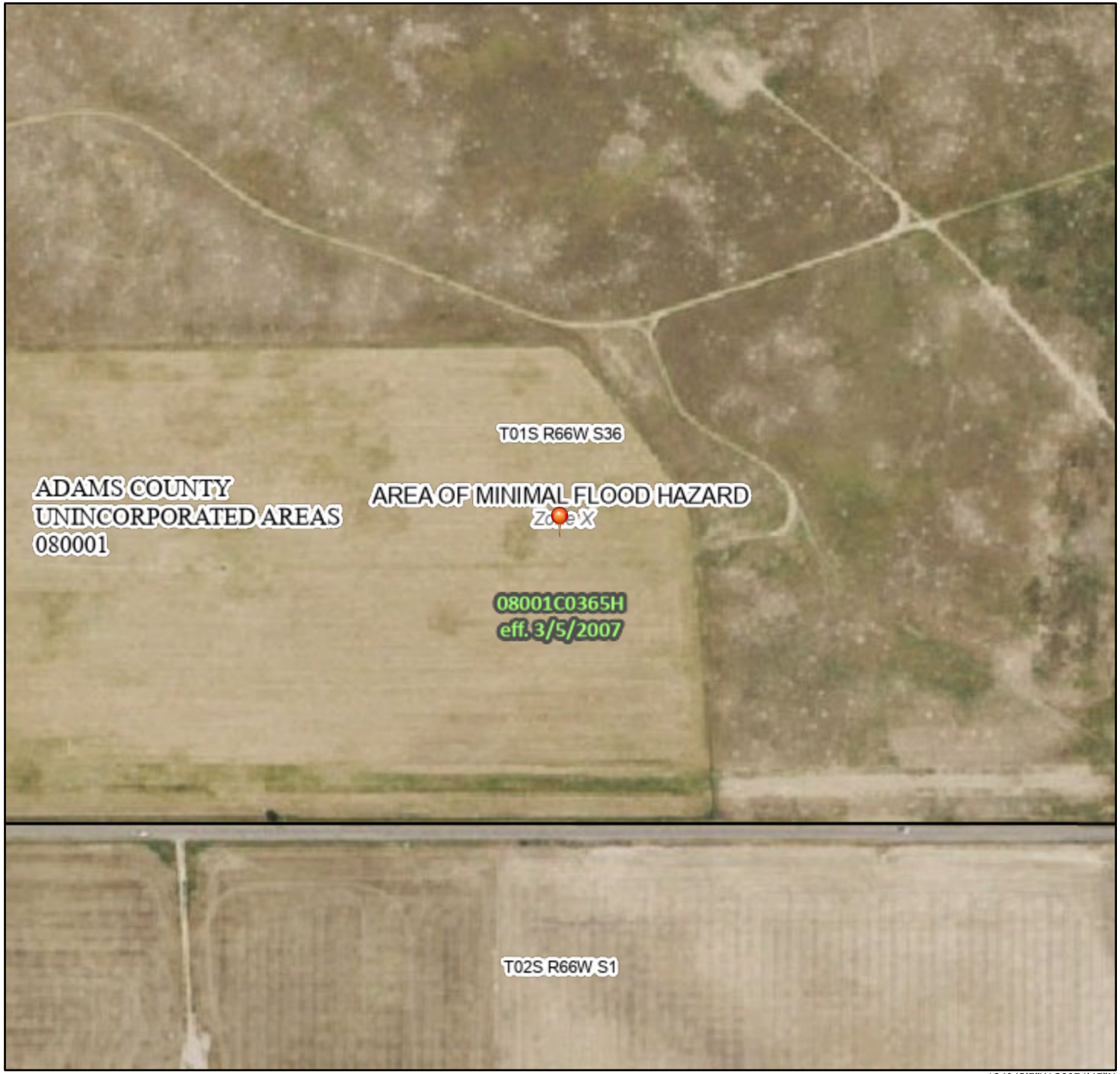
Appendix D:

FEMA Flood Insurance Rate Map FIRMette

National Flood Hazard Layer FIRMette

FEMA

104°43'43"W 39°55'13"N



Feet

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

1:6,000

104°43'5"W 39°54'45"N

Basemap Imagery Source: USGS National Map 2023

Legend

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

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

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

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

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

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/19/2025 at 8:12 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

Appendix E:

UD-Rational Spreadsheet Calculations

Calculation of Peak Runoff using Rational Method

Designer: KMG
Company: 609 Consulting
Date: 6/23/2025
Project: Eagle Pad
Location: S36 T1S R66W Adams County, CO

Version 2.00 released May 2017

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L_i}}{S^{0.33}}$$

$$t_t = \frac{L_t}{60K\sqrt{S_t}} = \frac{L_t}{60V_t}$$

Computed $t_c = t_i + t_t$

Regional $t_c = (26 - 17i) + \frac{L_t}{60(14i + 9)\sqrt{S_t}}$

$t_{minimum}$ = 5 (urban)
$t_{minimum}$ = 10 (non-urban)

Selected $t_c = \max\{t_{minimum}, \min(\text{Computed } t_c, \text{Regional } t_c)\}$

Select UDFCD location for NOAA Atlas 14 Rainfall Depths from the pulldown list OR enter your own depths obtained from the NOAA website (click this link)

	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
1-hour rainfall depth, P1 (in) =	1.00	1.42	1.68		2.35	2.71	
	a	b	c				
Rainfall Intensity Equation Coefficients =	28.50	10.00	0.786				

$$I(in/hr) = \frac{a * P_1}{(b + t_c)^c}$$

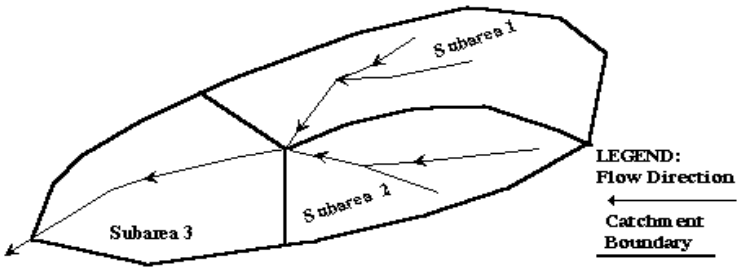
$$Q(cfs) = CIA$$

Subcatchment Name	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C							Overland (Initial) Flow Time					Channelized (Travel) Flow Time							Time of Concentration			Rainfall Intensity, I (in/hr)							Peak Flow, Q (cfs)						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	Overland Flow Length L_i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S_i (ft/ft)	Overland Flow Time t_i (min)	Channelized Flow Length L_t (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S_t (ft/ft)	NRCS Conveyance Factor K	Channelized Flow Velocity V_t (ft/sec)	Channelized Flow Time t_t (min)	Computed t_c (min)	Regional t_c (min)	Selected t_c (min)	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
Oil and Gas Location - Historic	17.03	A	2.0	0.01	0.01	0.01	0.01	0.04	0.13	0.27	500			0.015	38.64	470			0.015	7	0.86	9.14	47.78	32.55	32.55	1.5	2.1	2.5		3.5	4.1		0.1	0.2	0.3		2.5	8.7	
				0.01	0.01	0.03	0.09	0.13	0.22	0.35					38.57								47.71		47.71	1.2	1.7	2.0		2.8	3.2		0.1	0.2	0.9		6.2	11.9	
ST1 - Construction Phase	0.36	A	2.0	0.01	0.01	0.01	0.01	0.04	0.13	0.27	0			0.039	0.00	165			0.039	10	1.97	1.39	1.39	27.16	10.00	2.7	3.8	4.5		6.4	7.3		0.0	0.0	0.0		0.1	0.3	
				0.01	0.01	0.01	0.01	0.04	0.13	0.27					0.00								1.39		1.39	4.2	6.0	7.1		9.9	11.4		0.0	0.0	0.0		0.1	0.5	
ST2 - Construction Phase	0.39	B	4.9	0.02	0.03	0.10	0.28	0.36	0.45	0.55	0			0.002	0.00	440			0.002	10	0.45	16.40	16.40	42.10	16.40	2.2	3.1	3.7		5.1	5.9		0.0	0.0	0.1		0.7	1.0	
				0.03	0.04	0.10	0.28	0.36	0.45	0.55					0.00								16.40		16.40	2.2	3.1	3.7		5.1	5.9		0.0	0.0	0.1		0.7	1.0	
ST3 - Construction Phase	2.50	A	2.3	0.01	0.01	0.01	0.01	0.04	0.13	0.27	0			0.008	0.00	1580			0.008	10	0.89	29.44	29.44	57.19	29.44	1.6	2.3	2.7		3.7	4.3		0.0	0.0	0.1		0.4	1.4	
				0.01	0.01	0.02	0.05	0.09	0.18	0.31					0.00								29.44		29.44	1.6	2.3	2.7		3.7	4.3		0.0	0.1	0.1		0.8	1.9	
DB - Construction Phase	13.10	A	32.9	0.20	0.21	0.22	0.25	0.31	0.37	0.47	300			0.014	24.95	710			0.014	10	1.18	10.00	34.95	27.76	27.76	1.6	2.3	2.8		3.9	4.4		4.2	6.4	8.0		15.5	21.3	
				0.22	0.23	0.26	0.32	0.37	0.43	0.52					24.33								34.33		27.76	1.6	2.3	2.8		3.9	4.4		4.6	7.0	9.3		18.6	25.1	
DB - Production Phase	9.29	A	27.4	0.16	0.17	0.18	0.21	0.26	0.32	0.43	300			0.017	24.54	670			0.017	10	1.30	8.56	33.11	28.01	28.01	1.6	2.3	2.7		3.8	4.4		2.4	3.6	4.5		9.2	13.3	
				0.17	0.19	0.20	0.25	0.29	0.36	0.46					24.01								32.57		28.01	1.6	2.3	2.7		3.8	4.4		2.7	4.0	5.2		10.4	14.7	

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: KMG
Company: 609 Consulting
Date: 6/23/2025
Project: Eagle Pad
Location: S36 T1S R66W Adams County, CO



Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

Subcatchment Name
Oil and Gas Location - Historic

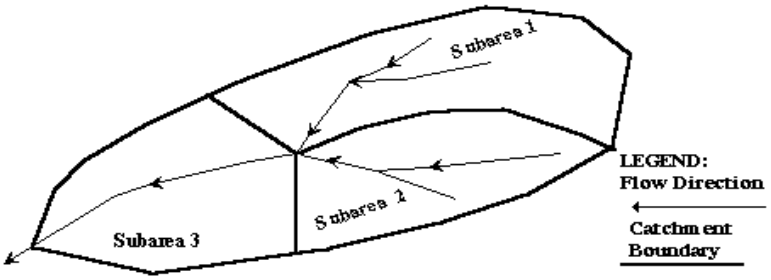
See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
A Soils	11.91	A	2.0	0.01	0.01	0.01	0.01	0.04	0.13	0.27
B Soils	5.12	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54
Total Area (ac)	17.03		Area-Weighted C	0.01	0.01	0.03	0.09	0.13	0.22	0.35
			Area-Weighted Override C	0.01	0.01	0.03	0.09	0.13	0.22	0.35

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: KMG
Company: 609 Consulting
Date: 6/23/2025
Project: Eagle Pad
Location: S36 T1S R66W Adams County, CO



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Subcatchment Name
ST1 - Construction Phase

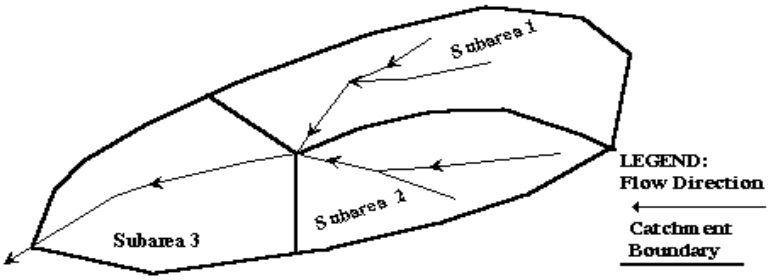
See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
A Soils	0.36	A	2.0	0.01	0.01	0.01	0.01	0.04	0.13	0.27
Total Area (ac)	**0.36**		**Area-Weighted C**	**0.01**	**0.01**	**0.01**	**0.01**	**0.04**	**0.13**	**0.27**
			Area-Weighted Override C	**0.01**	**0.01**	**0.01**	**0.01**	**0.04**	**0.13**	**0.27**

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: KMG
Company: 609 Consulting
Date: 6/23/2025
Project: Eagle Pad
Location: S36 T1S R66W Adams County, CO



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Subcatchment Name
ST2 - Construction Phase

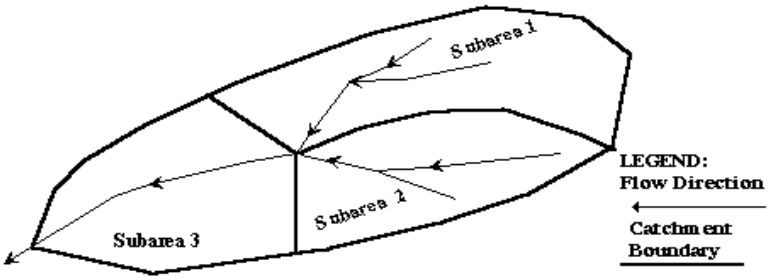
See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
B Soils	0.36	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54
B Soils	0.03	B	40.0	0.29	0.32	0.38	0.50	0.55	0.61	0.68
Total Area (ac)	**0.39**		**Area-Weighted C**	**0.03**	**0.04**	**0.10**	**0.28**	**0.36**	**0.45**	**0.55**
			Area-Weighted Override C	**0.03**	**0.04**	**0.10**	**0.28**	**0.36**	**0.45**	**0.55**

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: KMG
Company: 609 Consulting
Date: 6/23/2025
Project: Eagle Pad
Location: S36 T1S R66W Adams County, CO



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Subcatchment Name
ST3 - Construction Phase

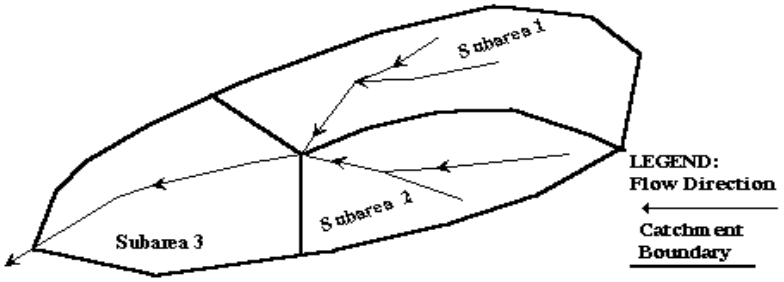
See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
A Soils	2.11	A	2.0	0.01	0.01	0.01	0.01	0.04	0.13	0.27
B Soils	0.37	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54
B Soils	0.02	B	40.0	0.29	0.32	0.38	0.50	0.55	0.61	0.68
Total Area (ac)	**2.50**		**Area-Weighted C**	**0.01**	**0.01**	**0.02**	**0.05**	**0.09**	**0.18**	**0.31**
			Area-Weighted Override C	**0.01**	**0.01**	**0.02**	**0.05**	**0.09**	**0.18**	**0.31**

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: KMG
Company: 609 Consulting
Date: 6/23/2025
Project: Eagle Pad
Location: S36 T1S R66W Adams County, CO



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Cells of this color are for optional override values
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Subcatchment Name
DB - Construction Phase

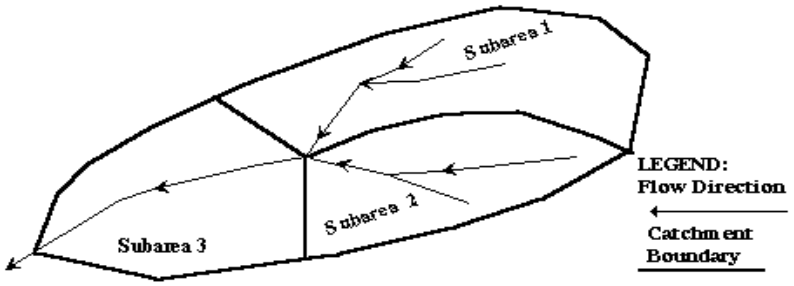
See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
A Soils	1.66	A	2.0	0.01	0.01	0.01	0.01	0.04	0.13	0.27
A Soils	7.49	A	40.0	0.25	0.27	0.28	0.32	0.37	0.42	0.51
B Soils	0.79	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54
B Soils	3.16	B	40.0	0.29	0.32	0.38	0.50	0.55	0.61	0.68
Total Area (ac)	**13.10**		**Area-Weighted C**	**0.22**	**0.23**	**0.26**	**0.32**	**0.37**	**0.43**	**0.52**
			Area-Weighted Override C	**0.22**	**0.23**	**0.26**	**0.32**	**0.37**	**0.43**	**0.52**

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: KMG
Company: 609 Consulting
Date: 6/23/2025
Project: Eagle Pad
Location: S36 T1S R66W Adams County, CO



Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

Subcatchment Name
DB - Production Phase

See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
A Soils	2.58	A	2.0	0.01	0.01	0.01	0.01	0.04	0.13	0.27
A Soils	5.34	A	40.0	0.25	0.27	0.28	0.32	0.37	0.42	0.51
B Soils	0.51	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54
B Soils	0.86	B	40.0	0.29	0.32	0.38	0.50	0.55	0.61	0.68
Total Area (ac)	**9.29**		**Area-Weighted C**	**0.17**	**0.19**	**0.20**	**0.25**	**0.29**	**0.36**	**0.46**
			Area-Weighted Override C	**0.17**	**0.19**	**0.20**	**0.25**	**0.29**	**0.36**	**0.46**

Appendix F:

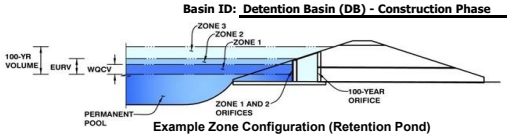
MHFD-Detention Spreadsheet Calculations

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.04 (February 2021)

Project: Eagle Pad

Basin ID: Detention Basin (DB) - Construction Phase



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	**EDB**	
Watershed Area =	13.10	acres
Watershed Length =	1,010	ft
Watershed Length to Centroid =	300	ft
Watershed Slope =	0.014	ft/ft
Watershed Imperviousness =	32.9%	percent
Percentage Hydrologic Soil Group A =	69.8%	percent
Percentage Hydrologic Soil Group B =	30.2%	percent
Percentage Hydrologic Soil Groups C/D =	0.0%	percent
Target WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	User Input	

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

			Optional User Overrides	
Water Quality Capture Volume (WQCV) =	0.175	acre-feet		acre-feet
Excess Urban Runoff Volume (EURV) =	0.443	acre-feet		acre-feet
2-yr Runoff Volume (P1 = 1 in.) =	0.259	acre-feet	1.00	inches
5-yr Runoff Volume (P1 = 1.42 in.) =	0.424	acre-feet	1.42	inches
10-yr Runoff Volume (P1 = 1.68 in.) =	0.571	acre-feet	1.68	inches
25-yr Runoff Volume (P1 = 1.69 in.) =	0.662	acre-feet		inches
50-yr Runoff Volume (P1 = 2.35 in.) =	1.239	acre-feet	2.35	inches
100-yr Runoff Volume (P1 = 2.71 in.) =	1.680	acre-feet	2.71	inches
500-yr Runoff Volume (P1 = 3.14 in.) =	2.126	acre-feet		inches
Approximate 2-yr Detention Volume =	0.245	acre-feet		
Approximate 5-yr Detention Volume =	0.376	acre-feet		
Approximate 10-yr Detention Volume =	0.499	acre-feet		
Approximate 25-yr Detention Volume =	0.533	acre-feet		
Approximate 50-yr Detention Volume =	0.734	acre-feet		
Approximate 100-yr Detention Volume =	0.898	acre-feet		

Define Zones and Basin Geometry

Zone 1 Volume (WQCV) =	0.175	acre-feet
Zone 2 Volume (100-year - Zone 1) =	0.724	acre-feet
Select Zone 3 Storage Volume (Optional) =		acre-feet
Total Detention Basin Volume =	0.898	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	

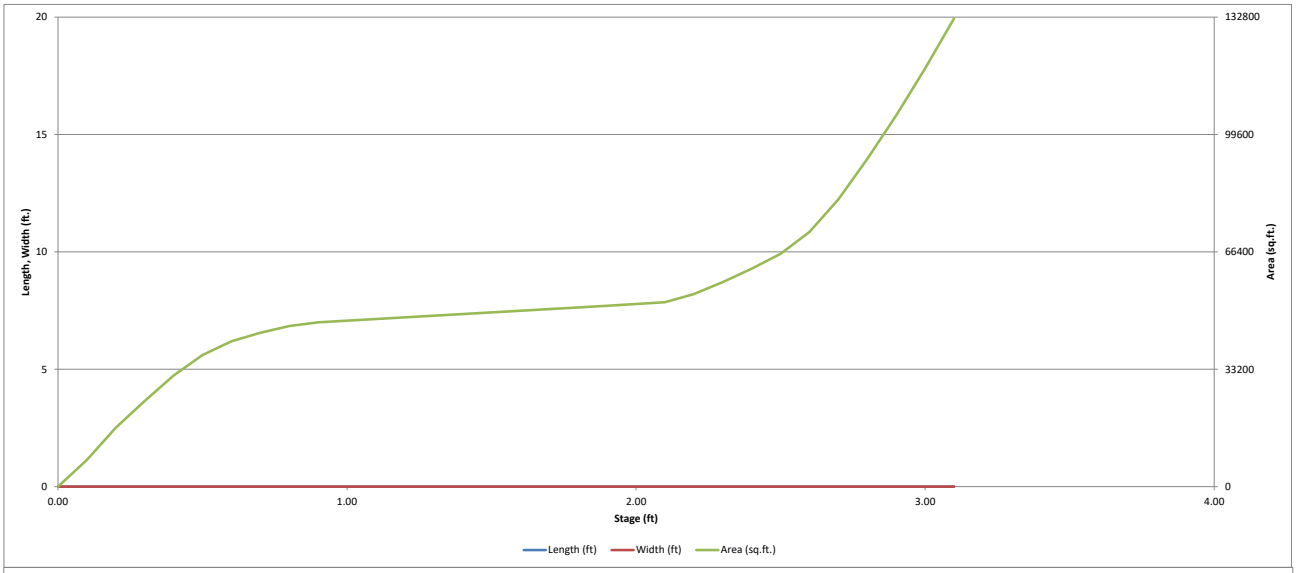
Initial Surcharge Area (A_{ISV}) =	user	ft^2
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user	ft^2
Volume of Basin Floor (V_{FLOOR}) =	user	ft^3
Depth of Main Basin (H_{MAIN}) =	user	ft
Length of Main Basin (L_{MAIN}) =	user	ft
Width of Main Basin (W_{MAIN}) =	user	ft
Area of Main Basin (A_{MAIN}) =	user	ft^2
Volume of Main Basin (V_{MAIN}) =	user	ft^3
Calculated Total Basin Volume (V_{total}) =	**user**	acre-feet

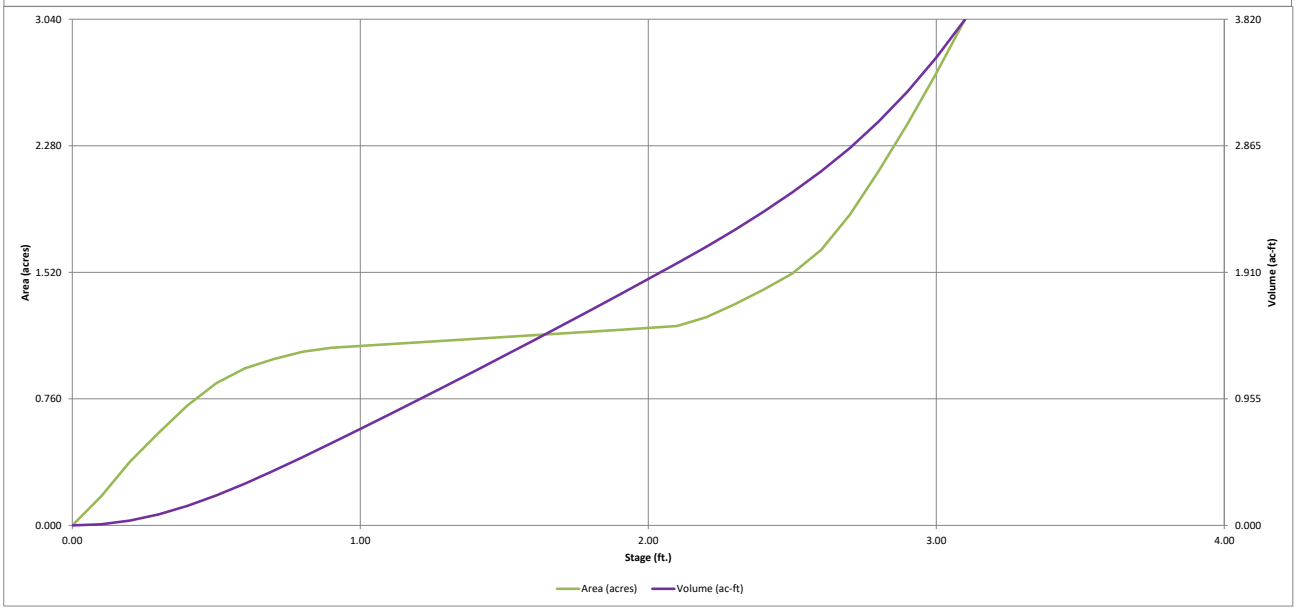
Depth Increment = 0.10 ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	--	0.00	--	--	--	0	0.000		
5208.7	--	0.10	--	--	--	7,578	0.174	377	0.009
5208.8	--	0.20	--	--	--	16,669	0.383	1,589	0.036
5208.9	--	0.30	--	--	--	24,223	0.556	3,633	0.083
5209.0	--	0.40	--	--	--	31,407	0.721	6,415	0.147
5209.1	--	0.50	--	--	--	37,235	0.855	9,847	0.226
5209.2	--	0.60	--	--	--	41,105	0.944	13,764	0.316
5209.3	--	0.70	--	--	--	43,508	0.999	17,995	0.413
5209.4	--	0.80	--	--	--	45,434	1.043	22,442	0.515
5209.5	--	0.90	--	--	--	46,487	1.067	27,038	0.621
5209.6	--	1.00	--	--	--	46,949	1.078	31,709	0.728
5209.7	--	1.10	--	--	--	47,413	1.088	36,428	0.836
5209.8	--	1.20	--	--	--	47,879	1.099	41,192	0.946
5209.9	--	1.30	--	--	--	48,345	1.110	46,003	1.056
5210.0	--	1.40	--	--	--	48,813	1.121	50,861	1.168
5210.1	--	1.50	--	--	--	49,283	1.131	55,766	1.280
5210.2	--	1.60	--	--	--	49,753	1.142	60,718	1.394
5210.3	--	1.70	--	--	--	50,225	1.153	65,717	1.509
5210.4	--	1.80	--	--	--	50,698	1.164	70,763	1.624
5210.5	--	1.90	--	--	--	51,172	1.175	75,856	1.741
5210.6	--	2.00	--	--	--	51,647	1.186	80,997	1.859
5210.7	--	2.10	--	--	--	52,158	1.197	86,187	1.979
5210.8	--	2.20	--	--	--	54,450	1.250	91,518	2.101
5210.9	--	2.30	--	--	--	57,860	1.328	97,133	2.230
5211.0	--	2.40	--	--	--	61,671	1.416	103,110	2.367
5211.1	--	2.50	--	--	--	65,886	1.513	109,488	2.513
5211.2	--	2.60	--	--	--	72,057	1.654	116,385	2.672
5211.3	--	2.70	--	--	--	81,295	1.866	124,052	2.848
5211.4	--	2.80	--	--	--	92,714	2.128	132,753	3.048
5211.5	--	2.90	--	--	--	105,041	2.411	142,640	3.275
5211.6	--	3.00	--	--	--	118,277	2.715	153,806	3.531
5211.7	--	3.10	--	--	--	132,421	3.040	166,341	3.819

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.04 (February 2021)



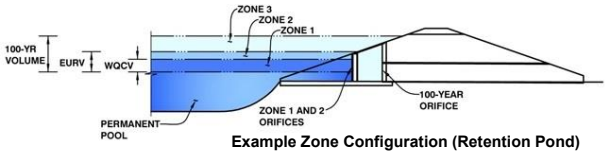


DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.04 (February 2021)

Project: **Eagle Pad**

Basin ID: **Detention Basin (DB) - Construction Phase**



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	0.44	0.175	
Zone 2 (100-year)	1.16	0.724	
Zone 3			
Total (all zones)		0.898	

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth = ft (distance below the filtration media surface)

Underdrain Orifice Diameter = inches

Calculated Parameters for Underdrain

Underdrain Orifice Area = ft^2

Underdrain Orifice Centroid = feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Invert of Lowest Orifice = ft (relative to basin bottom at Stage = 0 ft)

Depth at top of Zone using Orifice Plate = ft (relative to basin bottom at Stage = 0 ft)

Orifice Plate: Orifice Vertical Spacing = inches

Orifice Plate: Orifice Area per Row = inches

Calculated Parameters for Plate

WQ Orifice Area per Row =	N/A ft^2
Elliptical Half-Width =	N/A feet
Elliptical Slot Centroid =	N/A feet
Elliptical Slot Area =	N/A ft^2

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (optional)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected	
Invert of Vertical Orifice =	0.0	0.4	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice =	0.4	1.6	ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter =	2.8	12.0	inches

Calculated Parameters for Vertical Orifice

	Not Selected	Not Selected	
Vertical Orifice Area =	0.04	0.79	ft^2
Vertical Orifice Centroid =	0.12	0.50	feet

User Input: Overflow Weir (Dropbox with Flat or Sloped Grate and Outlet Pipe OR Rectangular/Trapezoidal Weir (and No Outlet Pipe)

	Not Selected	Not Selected	
Overflow Weir Front Edge Height, Ho =			ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length =			feet
Overflow Weir Grate Slope =			H:V
Horiz. Length of Weir Sides =			feet
Overflow Grate Type =			
Debris Clogging % =			%

Calculated Parameters for Overflow Weir

	Not Selected	Not Selected	
Height of Grate Upper Edge, H_t =			feet
Overflow Weir Slope Length =			feet
Grate Open Area / 100-yr Orifice Area =			
Overflow Grate Open Area w/o Debris =			ft^2
Overflow Grate Open Area w/ Debris =			ft^2

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Not Selected	Not Selected	
Depth to Invert of Outlet Pipe =			ft (distance below basin bottom at Stage = 0 ft)
Circular Orifice Diameter =			inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

	Not Selected	Not Selected	
Outlet Orifice Area =			ft^2
Outlet Orifice Centroid =			feet
Half-Central Angle of Restrictor Plate on Pipe =	N/A	N/A	radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage=	1.6	ft (relative to basin bottom at Stage = 0 ft)
Spillway Crest Length =	20.1	feet
Spillway End Slopes =	4.0	H:V
Freeboard above Max Water Surface =	0.5	feet

Calculated Parameters for Spillway

Spillway Design Flow Depth=	0.5	feet
Stage at Top of Freeboard =	2.6	feet
Basin Area at Top of Freeboard =	1.7	acres
Basin Volume at Top of Freeboard =	2.7	acre-ft

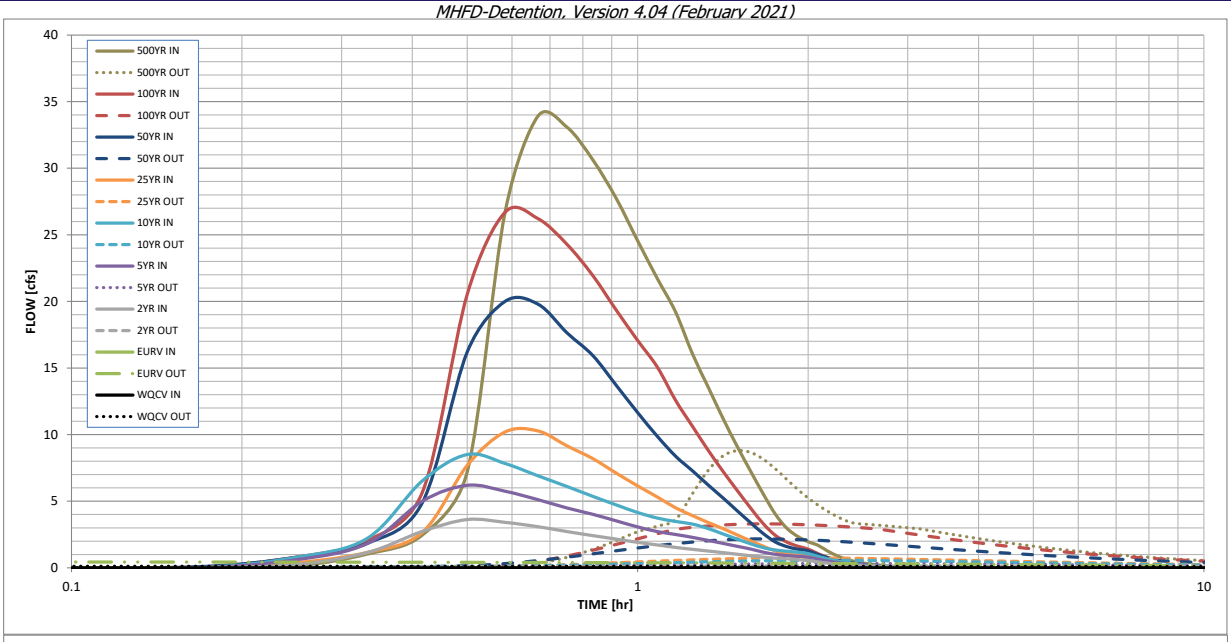
Routed Hydrograph Results

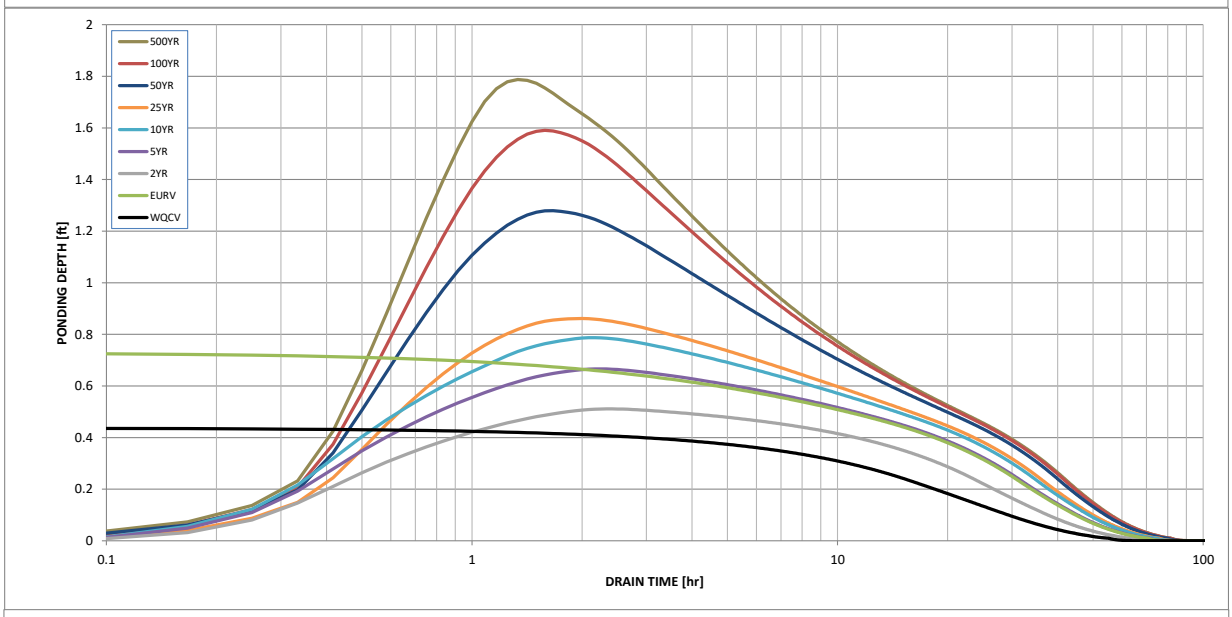
The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).

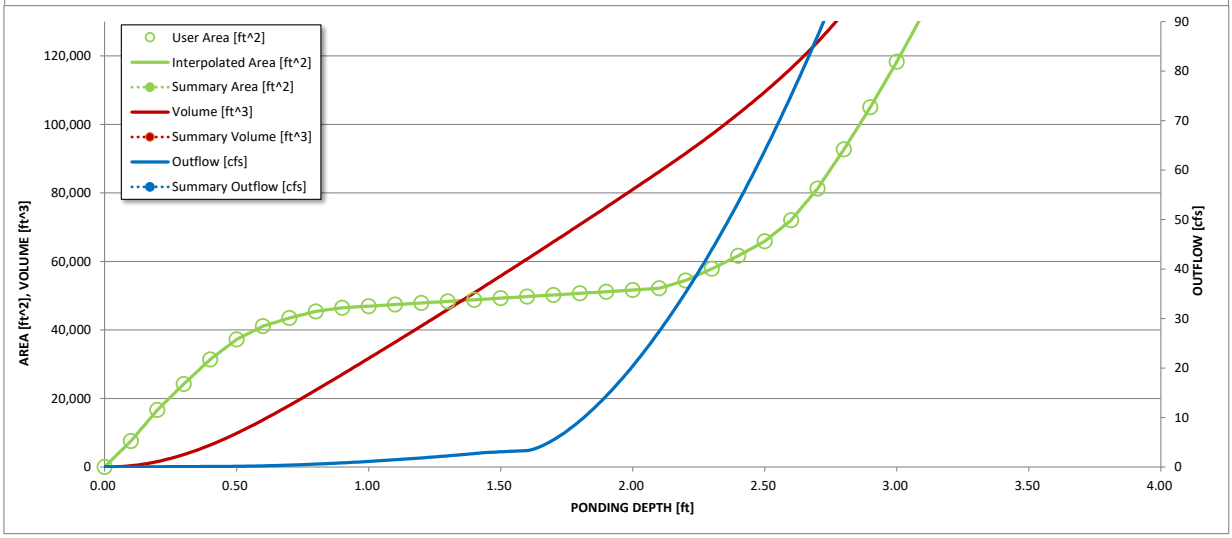
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
One-Hour Rainfall Depth (in) =	N/A	N/A	1.00	1.42	1.68	1.69	2.35	2.71	3.14
CUHP Runoff Volume (acre-ft) =	0.175	0.443	0.259	0.424	0.571	0.662	1.239	1.680	2.126
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	0.259	0.424	0.571	0.662	1.239	1.680	2.126
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	0.1	0.3	1.3	3.4	11.0	16.3	22.0
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.01	0.02	0.10	0.26	0.84	1.24	1.68
Peak Inflow Q (cfs) =	N/A	N/A	3.6	6.2	8.5	10.3	20.0	26.7	33.9
Peak Outflow Q (cfs) =	0.1	0.4	0.2	0.3	0.6	0.7	2.2	3.3	8.8
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	1.2	0.4	0.2	0.2	0.2	0.4
Structure Controlling Flow =	Vertical Orifice 2	Vertical Orifice 2	Vertical Orifice 2	Vertical Orifice 2	Vertical Orifice 2	Vertical Orifice 2	Vertical Orifice 2	Vertical Orifice 2	Spillway
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	33	42	38	43	44	44	43	42	40
Time to Drain 99% of Inflow Volume (hours) =	**40**	49	46	50	52	52	52	51	49
Maximum Ponding Depth (ft) =	0.4	0.7	0.5	0.7	0.8	0.9	1.3	1.6	1.8
Area at Maximum Ponding Depth (acres) =	0.77	1.01	0.86	0.98	1.03	1.06	1.11	1.14	1.16
Maximum Volume Stored (acre-ft) =	0.177	0.443	0.235	0.374	0.494	0.578	1.023	1.382	1.601

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.04 (February 2021)







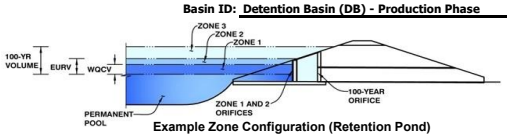
S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.04 (February 2021)

Project: Eagle Pad

Basin ID: Detention Basin (DB) - Production Phase



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	**EDB**	
Watershed Area =	9.29	acres
Watershed Length =	970	ft
Watershed Length to Centroid =	300	ft
Watershed Slope =	0.017	ft/ft
Watershed Imperviousness =	27.4%	percent
Percentage Hydrologic Soil Group A =	85.3%	percent
Percentage Hydrologic Soil Group B =	14.7%	percent
Percentage Hydrologic Soil Groups C/D =	0.0%	percent
Target WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	User Input	

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

			Optional User Overrides	
Water Quality Capture Volume (WQCV) =	0.111	acre-feet		acre-feet
Excess Urban Runoff Volume (EURV) =	0.250	acre-feet		acre-feet
2-yr Runoff Volume (P1 = 1 in.) =	0.132	acre-feet	1.00	inches
5-yr Runoff Volume (P1 = 1.42 in.) =	0.224	acre-feet	1.42	inches
10-yr Runoff Volume (P1 = 1.68 in.) =	0.291	acre-feet	1.68	inches
25-yr Runoff Volume (P1 = 1.69 in.) =	0.341	acre-feet		inches
50-yr Runoff Volume (P1 = 2.35 in.) =	0.720	acre-feet	2.35	inches
100-yr Runoff Volume (P1 = 2.71 in.) =	1.005	acre-feet	2.71	inches
500-yr Runoff Volume (P1 = 3.14 in.) =	1.320	acre-feet		inches
Approximate 2-yr Detention Volume =	0.134	acre-feet		
Approximate 5-yr Detention Volume =	0.205	acre-feet		
Approximate 10-yr Detention Volume =	0.269	acre-feet		
Approximate 25-yr Detention Volume =	0.296	acre-feet		
Approximate 50-yr Detention Volume =	0.419	acre-feet		
Approximate 100-yr Detention Volume =	0.531	acre-feet		

Define Zones and Basin Geometry

Zone 1 Volume (WQCV) =	0.111	acre-feet
Zone 2 Volume (100-year - Zone 1) =	0.421	acre-feet
Select Zone 3 Storage Volume (Optional) =		acre-feet
Total Detention Basin Volume =	0.531	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	

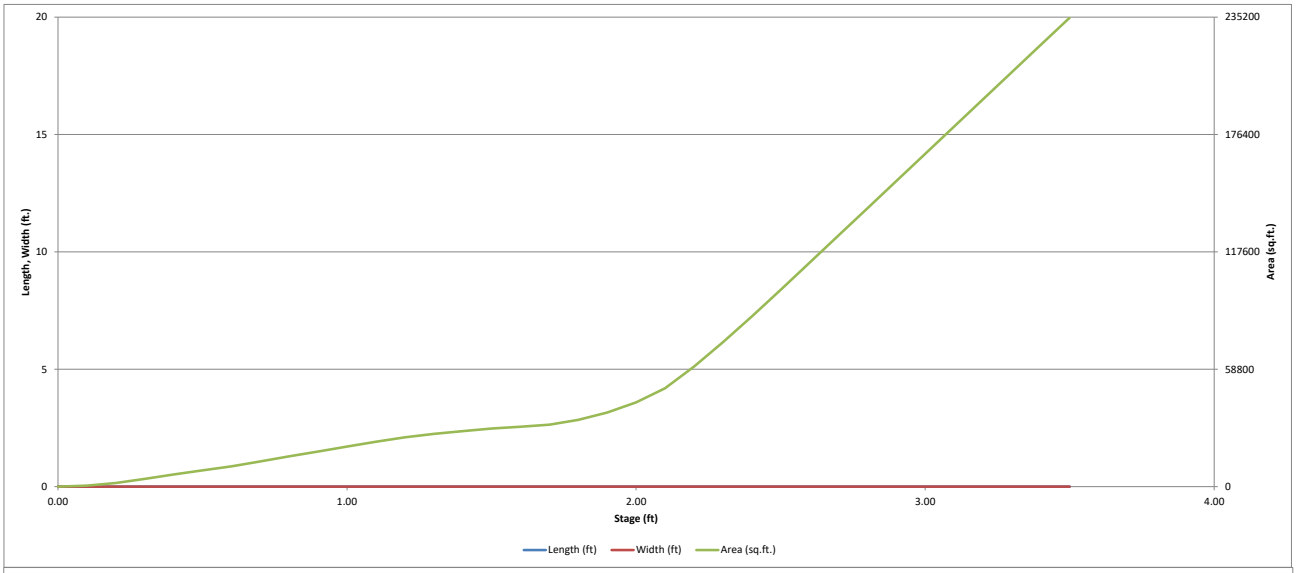
Initial Surcharge Area (A_{ISV}) =	user	ft^2
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user	ft^2
Volume of Basin Floor (V_{FLOOR}) =	user	ft^3
Depth of Main Basin (H_{MAIN}) =	user	ft
Length of Main Basin (L_{MAIN}) =	user	ft
Width of Main Basin (W_{MAIN}) =	user	ft
Area of Main Basin (A_{MAIN}) =	user	ft^2
Volume of Main Basin (V_{MAIN}) =	user	ft^3
Calculated Total Basin Volume (V_{total}) =	**user**	acre-feet

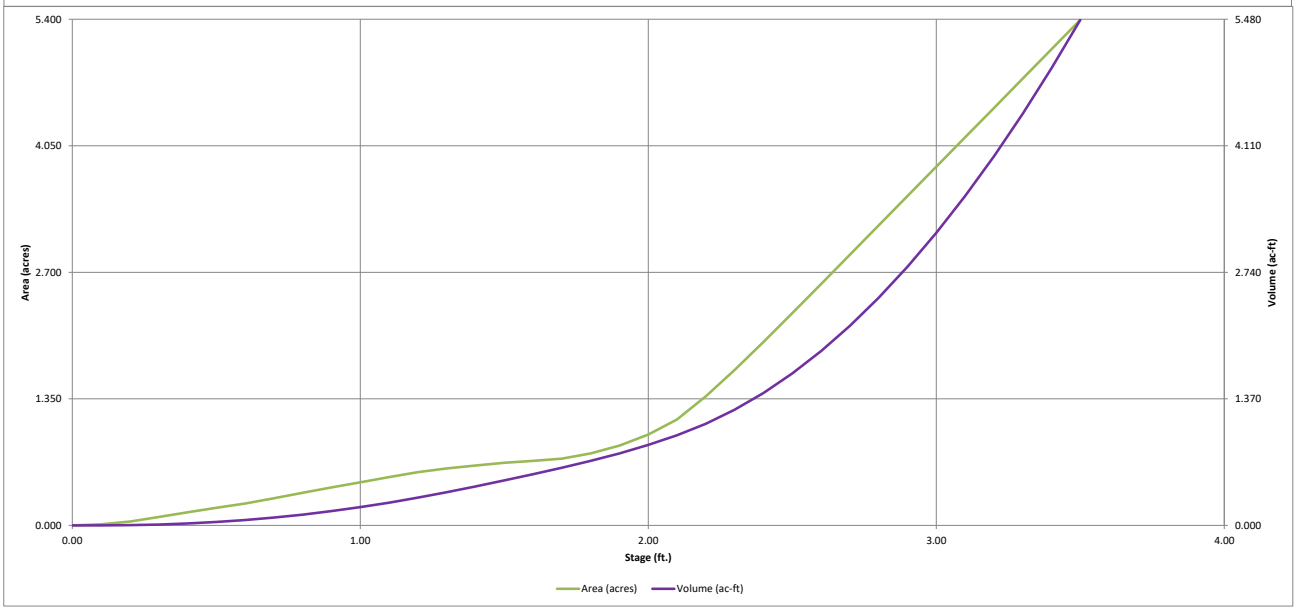
Depth Increment = 0.10 ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	--	0.00	--	--	--	0	0.000		
5209.6	--	0.10	--	--	--	503	0.012	25	0.001
5209.7	--	0.20	--	--	--	1,793	0.041	140	0.003
5209.8	--	0.30	--	--	--	3,874	0.089	423	0.010
5209.9	--	0.40	--	--	--	6,101	0.140	922	0.021
5210.0	--	0.50	--	--	--	8,172	0.188	1,635	0.038
5210.1	--	0.60	--	--	--	10,186	0.234	2,553	0.059
5210.2	--	0.70	--	--	--	12,615	0.290	3,693	0.085
5210.3	--	0.80	--	--	--	15,179	0.348	5,083	0.117
5210.4	--	0.90	--	--	--	17,623	0.405	6,723	0.154
5210.5	--	1.00	--	--	--	20,048	0.460	8,606	0.198
5210.6	--	1.10	--	--	--	22,467	0.516	10,732	0.246
5210.7	--	1.20	--	--	--	24,725	0.568	13,092	0.301
5210.8	--	1.30	--	--	--	26,451	0.607	15,651	0.359
5210.9	--	1.40	--	--	--	27,827	0.639	18,365	0.422
5211.0	--	1.50	--	--	--	29,083	0.668	21,210	0.487
5211.1	--	1.60	--	--	--	30,022	0.689	24,165	0.555
5211.2	--	1.70	--	--	--	31,024	0.712	27,218	0.625
5211.3	--	1.80	--	--	--	33,421	0.767	30,440	0.699
5211.4	--	1.90	--	--	--	37,119	0.852	33,967	0.780
5211.5	--	2.00	--	--	--	42,187	0.968	37,932	0.871
5211.6	--	2.10	--	--	--	49,255	1.131	42,504	0.976
5211.7	--	2.20	--	--	--	60,042	1.378	47,969	1.101
5211.8	--	2.30	--	--	--	72,280	1.659	54,585	1.253
5211.9	--	2.40	--	--	--	85,225	1.956	62,460	1.434
5212.0	--	2.50	--	--	--	98,595	2.263	71,651	1.645
5212.1	--	2.60	--	--	--	112,180	2.575	82,189	1.887
5212.2	--	2.70	--	--	--	125,806	2.888	94,089	2.160
5212.3	--	2.80	--	--	--	139,435	3.201	107,351	2.464
5212.4	--	2.90	--	--	--	153,066	3.514	121,976	2.800
5212.5	--	3.00	--	--	--	166,699	3.827	137,964	3.167
5212.6	--	3.10	--	--	--	180,335	4.140	155,315	3.566
5212.7	--	3.20	--	--	--	193,974	4.453	174,031	3.995
5212.8	--	3.30	--	--	--	207,617	4.766	194,110	4.456
5212.9	--	3.40	--	--	--	221,263	5.079	215,554	4.948
5213.0	--	3.50	--	--	--	234,915	5.393	238,363	5.472

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.04 (February 2021)



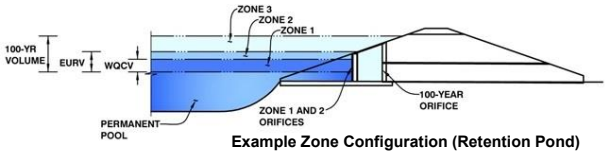


DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.04 (February 2021)

Project: **Eagle Pad**

Basin ID: **Detention Basin (DB) - Production Phase**



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	0.79	0.111	
Zone 2 (100-year)	1.57	0.421	
Zone 3			
Total (all zones)		0.531	

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth = ft (distance below the filtration media surface)

Underdrain Orifice Diameter = inches

Calculated Parameters for Underdrain

Underdrain Orifice Area = ft^2

Underdrain Orifice Centroid = feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Invert of Lowest Orifice = ft (relative to basin bottom at Stage = 0 ft)

Depth at top of Zone using Orifice Plate = ft (relative to basin bottom at Stage = 0 ft)

Orifice Plate: Orifice Vertical Spacing = inches

Orifice Plate: Orifice Area per Row = inches

Calculated Parameters for Plate

WQ Orifice Area per Row =	N/A ft^2
Elliptical Half-Width =	N/A feet
Elliptical Slot Centroid =	N/A feet
Elliptical Slot Area =	N/A ft^2

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (optional)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected	
Invert of Vertical Orifice =	0.0	0.8	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice =	0.8	1.9	ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter =	1.4	12.0	inches

Calculated Parameters for Vertical Orifice

	Not Selected	Not Selected	
Vertical Orifice Area =	0.01	0.79	ft^2
Vertical Orifice Centroid =	0.06	0.50	feet

User Input: Overflow Weir (Dropbox with Flat or Sloped Grate and Outlet Pipe OR Rectangular/Trapezoidal Weir (and No Outlet Pipe)

	Not Selected	Not Selected	
Overflow Weir Front Edge Height, Ho =			ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length =			feet
Overflow Weir Grate Slope =			H:V
Horiz. Length of Weir Sides =			feet
Overflow Grate Type =			
Debris Clogging % =			%

Calculated Parameters for Overflow Weir

	Not Selected	Not Selected	
Height of Grate Upper Edge, H_t =			feet
Overflow Weir Slope Length =			feet
Grate Open Area / 100-yr Orifice Area =			
Overflow Grate Open Area w/o Debris =			ft^2
Overflow Grate Open Area w/ Debris =			ft^2

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Not Selected	Not Selected	
Depth to Invert of Outlet Pipe =			ft (distance below basin bottom at Stage = 0 ft)
Circular Orifice Diameter =			inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

	Not Selected	Not Selected	
Outlet Orifice Area =			ft^2
Outlet Orifice Centroid =			feet
Half-Central Angle of Restrictor Plate on Pipe =	N/A	N/A	radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage=	1.9	ft (relative to basin bottom at Stage = 0 ft)
Spillway Crest Length =	9.5	feet
Spillway End Slopes =	4.0	H:V
Freeboard above Max Water Surface =	0.5	feet

Calculated Parameters for Spillway

Spillway Design Flow Depth=	0.5	feet
Stage at Top of Freeboard =	2.9	feet
Basin Area at Top of Freeboard =	3.6	acres
Basin Volume at Top of Freeboard =	2.9	acre-ft

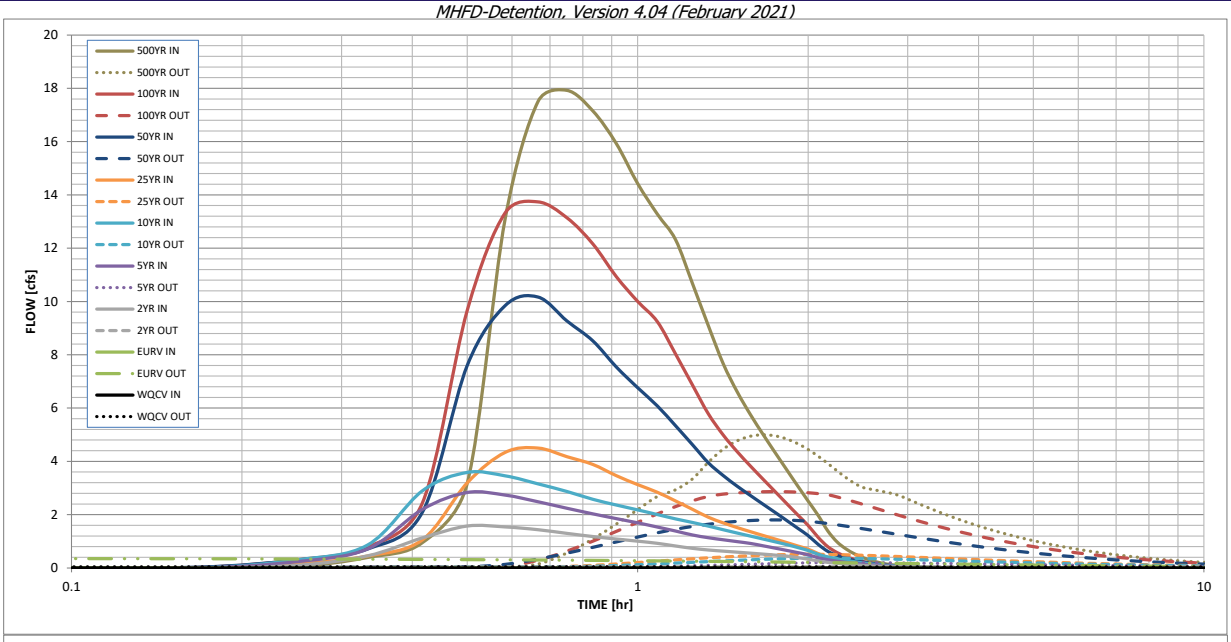
Routed Hydrograph Results

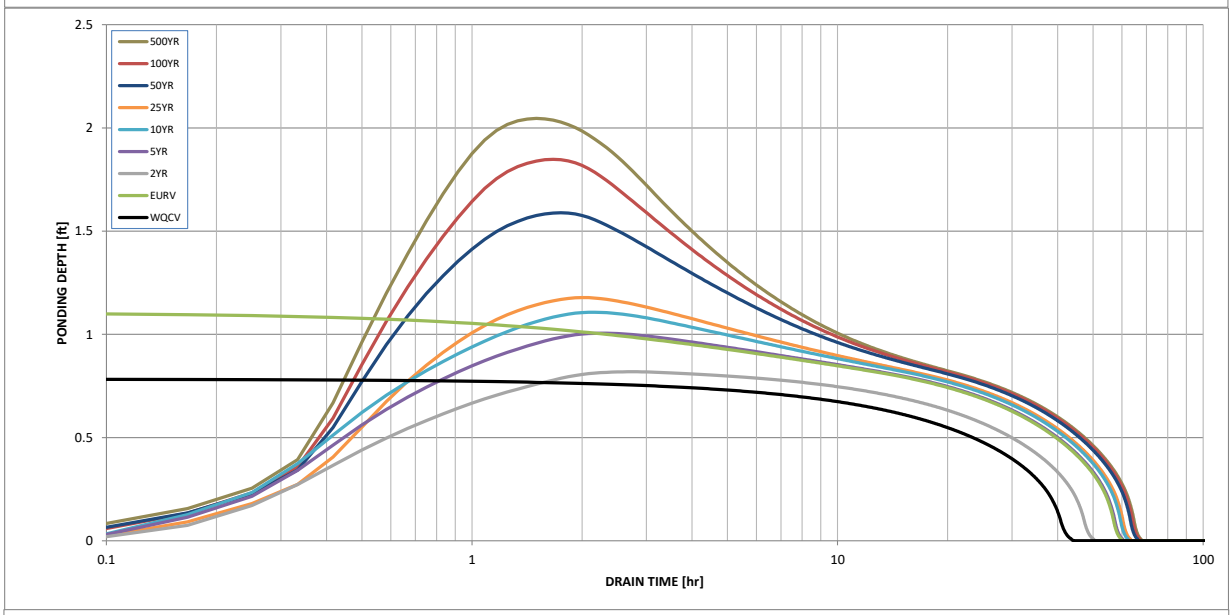
The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).

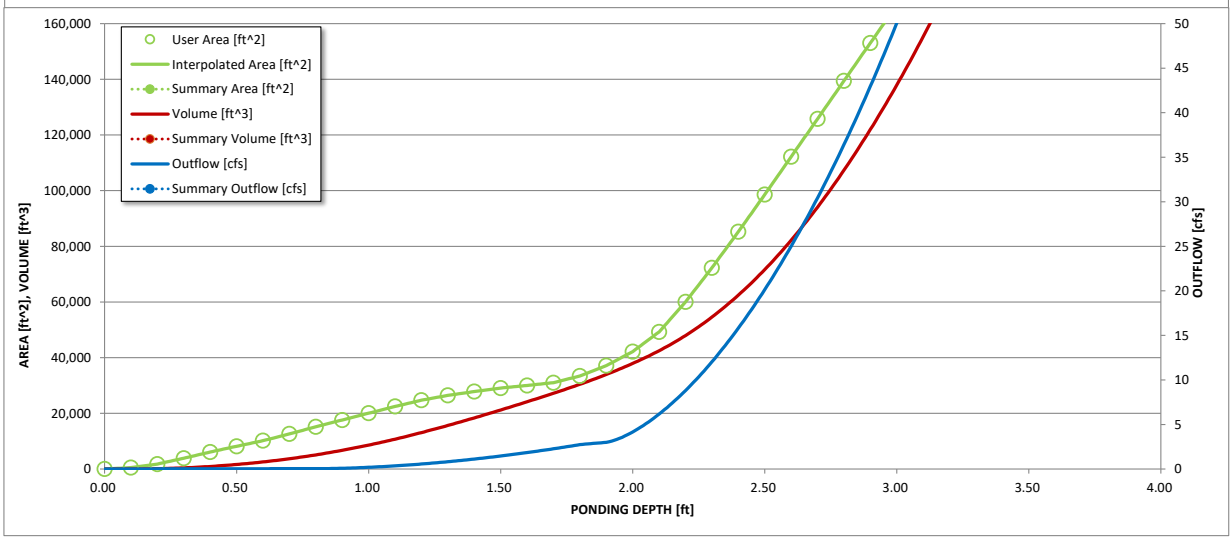
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
One-Hour Rainfall Depth (in) =	N/A	N/A	1.00	1.42	1.68	1.69	2.35	2.71	3.14
CUHP Runoff Volume (acre-ft) =	0.111	0.250	0.132	0.224	0.291	0.341	0.720	1.005	1.320
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	0.132	0.224	0.291	0.341	0.720	1.005	1.320
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	0.0	0.2	0.2	1.0	6.0	9.2	13.0
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.01	0.02	0.02	0.11	0.65	0.99	1.40
Peak Inflow Q (cfs) =	N/A	N/A	1.6	2.8	3.6	4.5	10.2	13.7	17.9
Peak Outflow Q (cfs) =	0.0	0.4	0.0	0.2	0.4	0.5	1.8	2.9	5.0
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	1.3	1.7	0.5	0.3	0.3	0.4
Structure Controlling Flow =	Vertical Orifice 1	Vertical Orifice 2	Vertical Orifice 2	Vertical Orifice 2	Vertical Orifice 2	Vertical Orifice 2	Vertical Orifice 2	Vertical Orifice 2	Spillway
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	39	52	45	53	54	54	52	50	47
Time to Drain 99% of Inflow Volume (hours) =	**40**	55	47	56	58	58	59	58	57
Maximum Ponding Depth (ft) =	0.8	1.1	0.8	1.0	1.1	1.2	1.6	1.8	2.0
Area at Maximum Ponding Depth (acres) =	0.34	0.52	0.35	0.46	0.52	0.55	0.68	0.80	1.03
Maximum Volume Stored (acre-ft) =	0.113	0.252	0.120	0.198	0.246	0.284	0.541	0.730	0.911

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.04 (February 2021)





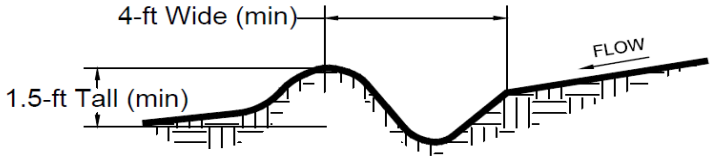


S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

Appendix G:

Conveyance Calculations for Diversion Ditch Design

Temporary Diversion Ditch Design (Typical)



INSTALLATION NOTES:

1. DIVERSION SWALE SHALL SLOPE BETWEEN 0.50% AND 8% TO A STABILIZED OUTLET SUCH AS A SEDIMENT TRAP.
2. ALL BERMS MUST BE FULLY COMPACTED SO THAT THERE IS NO LOOSE SOIL.
3. BERM HEIGHT SHALL BE A MINIMUM OF 18"
4. TEMPORARY DIVERSION SWALE SIDE SLOPES SHALL BE ~2:1 OR FLATTER

Estimated Capacity of Temporary Diversion Ditch Design (Typical)

Depth of 1ft*

n=	0.022	
A=	2	ft^2
P=	4.5	ft
Minimum S=	0.005	ft/ft

$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$$

Calculated Q= 5.6 cfs
Calculated V= 2.79 fps

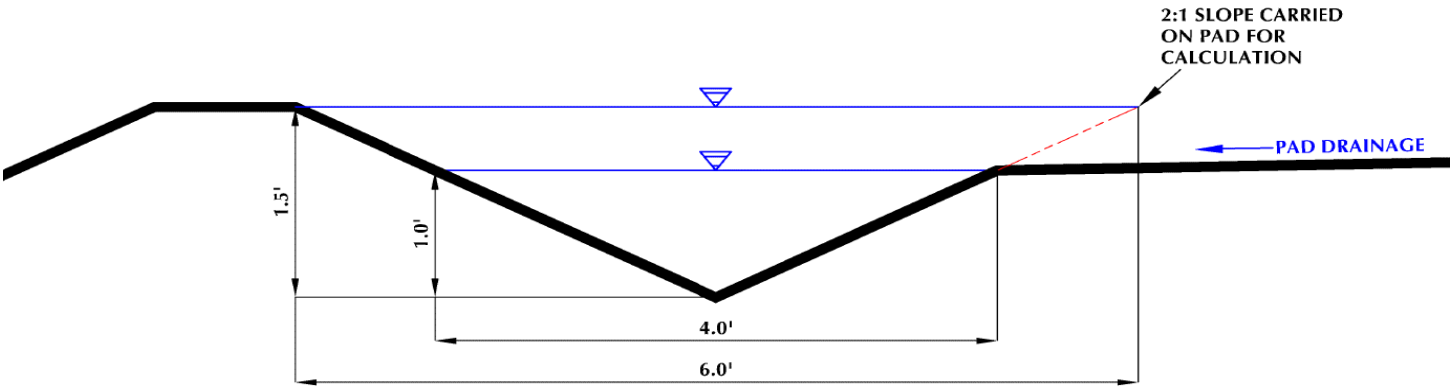
Depth of 1.5ft*

n=	0.022	
A=	4.5	ft^2
P=	6.7	ft
Minimum S=	0.005	ft/ft

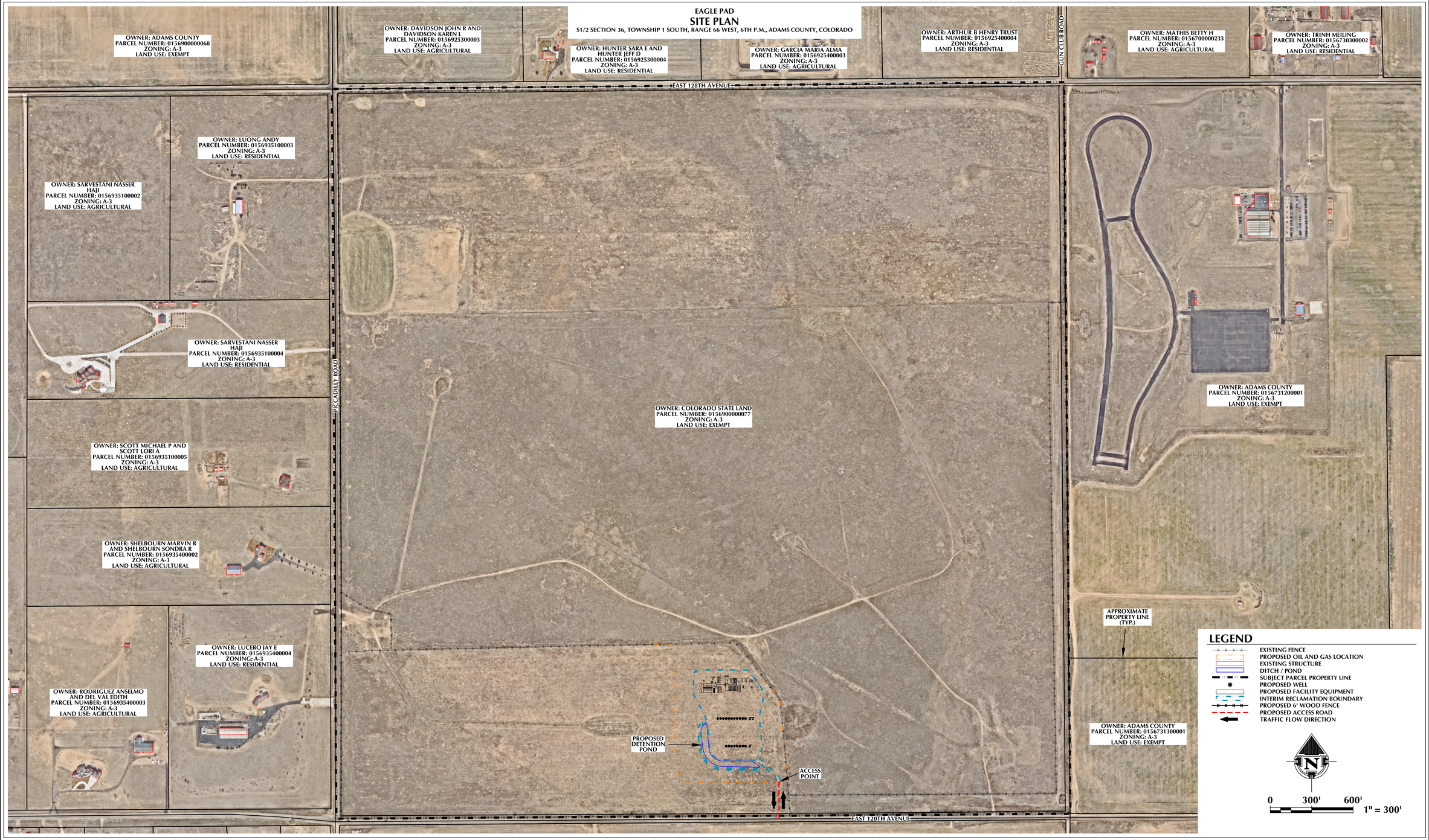
$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$$

Calculated Q= 16.5 cfs
Calculated V= 3.67 fps

* channel shape simplified to triangular geometry for conservative calculations



EAGLE PAD
SITE PLAN
S1/2 SECTION 36, TOWNSHIP 1 SOUTH, RANGE 66 WEST, 6TH P.M., ADAMS COUNTY, COLORADO



LEGEND

- EXISTING FENCE
- PROPOSED OIL AND GAS LOCATION
- EXISTING STRUCTURE
- DITCH / POND
- SUBJECT PARCEL PROPERTY LINE
- PROPOSED WELL
- PROPOSED FACILITY EQUIPMENT
- INTERIM RECLAMATION BOUNDARY
- PROPOSED 6' WOOD FENCE
- PROPOSED ACCESS ROAD
- TRAFFIC FLOW DIRECTION

N

0 300' 600' 1" = 300'

NOTES:

- PUBLICLY AVAILABLE DATA SOURCES HAVE NOT BEEN INDEPENDENTLY VERIFIED BY 609 CONSULTING, LLC.
- ORIGINAL DOCUMENT SIZE: 24" x 36"
- PARKING: DURING PRE-PRODUCTION ACTIVITIES PARKING CAN OCCUR ANYWHERE NEAR THE PERIMETER OF THE OIL AND GAS FACILITY AT A SAFE DISTANCE FROM ONGOING OPERATIONS.
- SANITATION: PORTABLE SANITATION FACILITIES WILL BE LOCATED NEAR THE PERIMETER OF THE OIL AND GAS FACILITY BEHIND SOUND WALLS.

609 CONSULTING, LLC

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Loveland, Colorado 80538
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1095 Saberton Avenue
Sheridan, Wyoming 82801
Phone 307-674-0609

Prepared For:

CIVITAS
Extraction Oil & Gas, Inc.

DRAWING REVISIONS

REV.	DATE	DESCRIPTION
1	7/3/25	CONCEPTUAL REVIEW

EAGLE PAD
SITE PLAN

DATE: 7/3/25

SURVEY DATE: 6/10/25

SHEET NO: 1 1 OF 1

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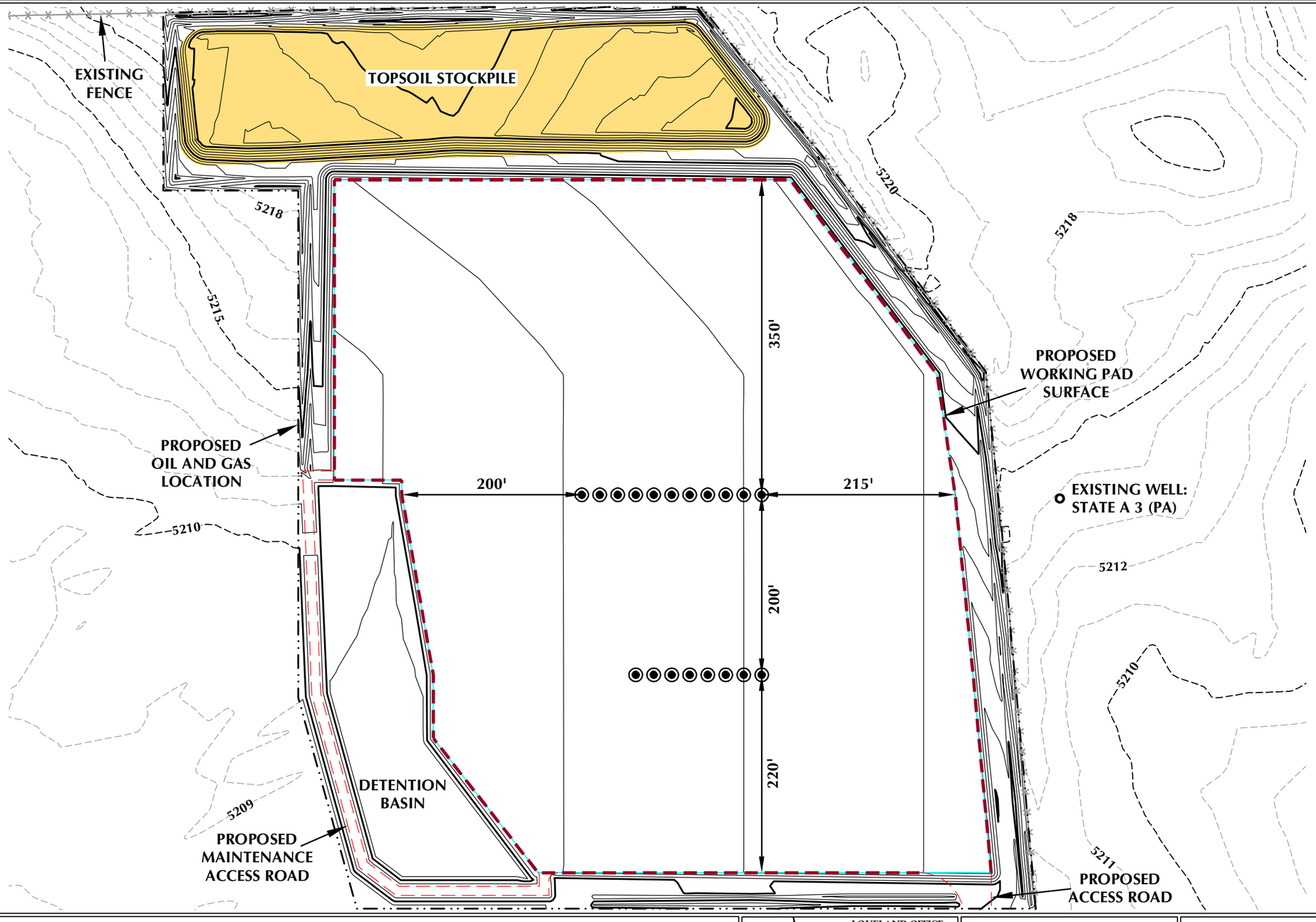
CONSTRUCTION LAYOUT SITE PLAN

EAGLE PAD

SE1/4 SW1/4 & SW1/4 SE1/4 SECTION 36, TOWNSHIP 1 SOUTH, RANGE 66 WEST, 6TH P.M., ADAMS COUNTY, COLORADO



COLORADO LICENSED
JAKE EDMUNDS
49917
7/3/25
PROFESSIONAL ENGINEER

LEGEND

- PROPOSED WELL
- EXISTING WELL
- PROPOSED ACCESS ROAD
- PROPOSED OIL AND GAS LOCATION (17.03 ACRES)
- PROPOSED WORKING PAD SURFACE (10.65 ACRES)
- SOUND WALLS
- EXISTING 1' CONTOUR
- PROPOSED 1' CONTOUR
- EXISTING FENCE

609 CONSULTING, LLC

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Loveland, Colorado 80538
Phone 970-776-4331

SHERIDAN OFFICE
1095 Saberton Avenue
Sheridan, Wyoming 82801
Phone 307-674-0609

Prepared For:

CIVITAS
Extraction Oil & Gas, Inc.

EAGLE PAD
CONSTRUCTION LAYOUT SITE PLAN

DATE:	7/3/25	SHEET:	4 OF 8
SURVEY DATE:	6/10/25	DRAFTED BY:	KMG

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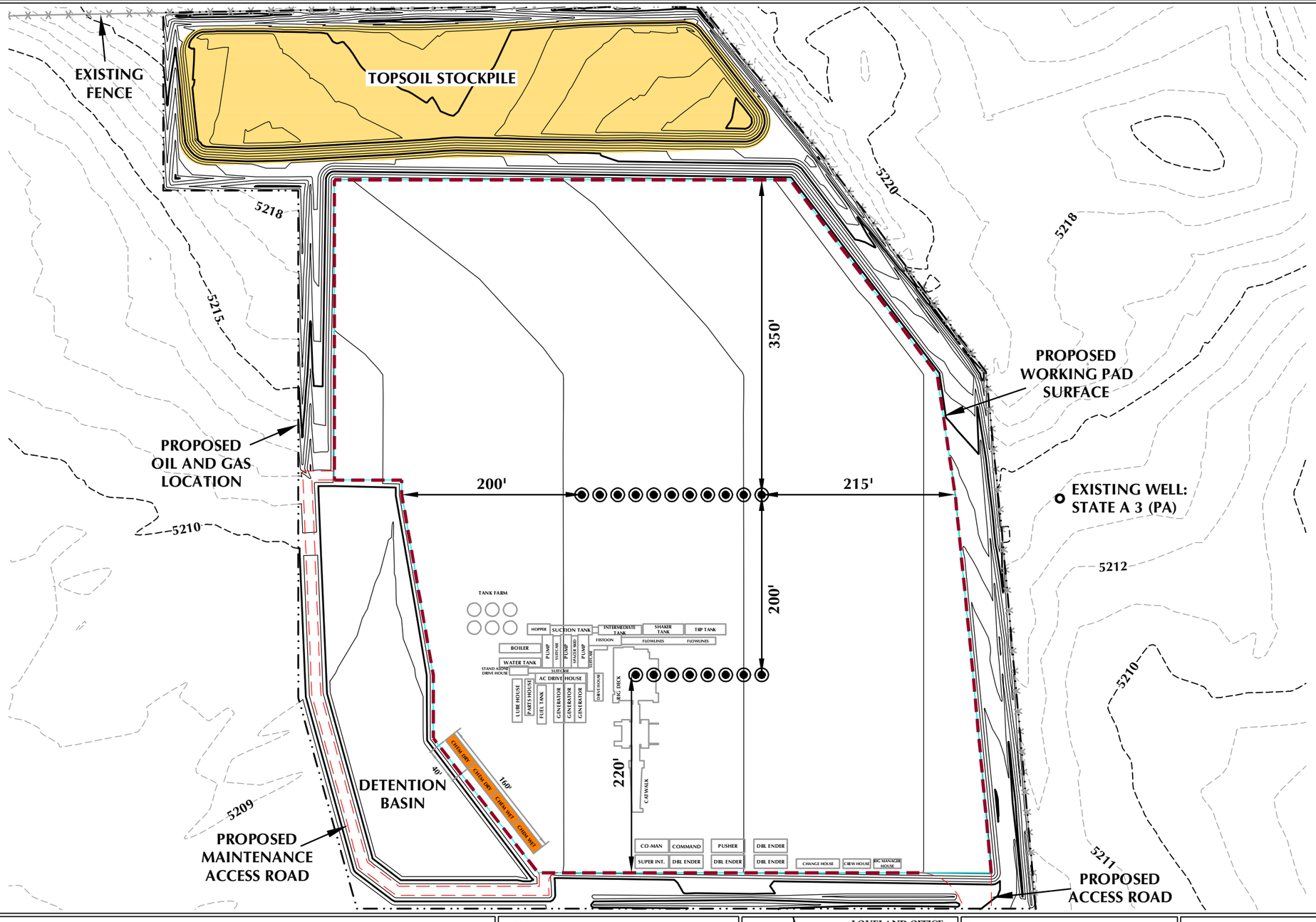
DRILLING LAYOUT SITE PLAN

EAGLE PAD

SE1/4 SW1/4 & SW1/4 SE1/4 SECTION 36, TOWNSHIP 1 SOUTH, RANGE 66 WEST, 6TH P.M., ADAMS COUNTY, COLORADO



COLORADO LICENSED
JAKE EDMUNDS
49917
PROFESSIONAL ENGINEER
7/3/25

LEGEND

- PROPOSED WELL
- EXISTING WELL
- PROPOSED ACCESS ROAD
- PROPOSED OIL AND GAS LOCATION
- PROPOSED WORKING PAD SURFACE
- SOUND WALLS
- EXISTING 1' CONTOUR
- PROPOSED 1' CONTOUR
- EXISTING FENCE

NOTE:

- RIG PROFILE IS APPROXIMATE AND SUBJECT TO MODIFICATION DUE TO SPECIFIC CIRCUMSTANCES.

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EAGLE PAD
DRILLING LAYOUT SITE PLAN

DATE:	7/3/25	SHEET:	5 OF 8
SURVEY DATE:	6/10/25	DRAFTED BY:	KMG

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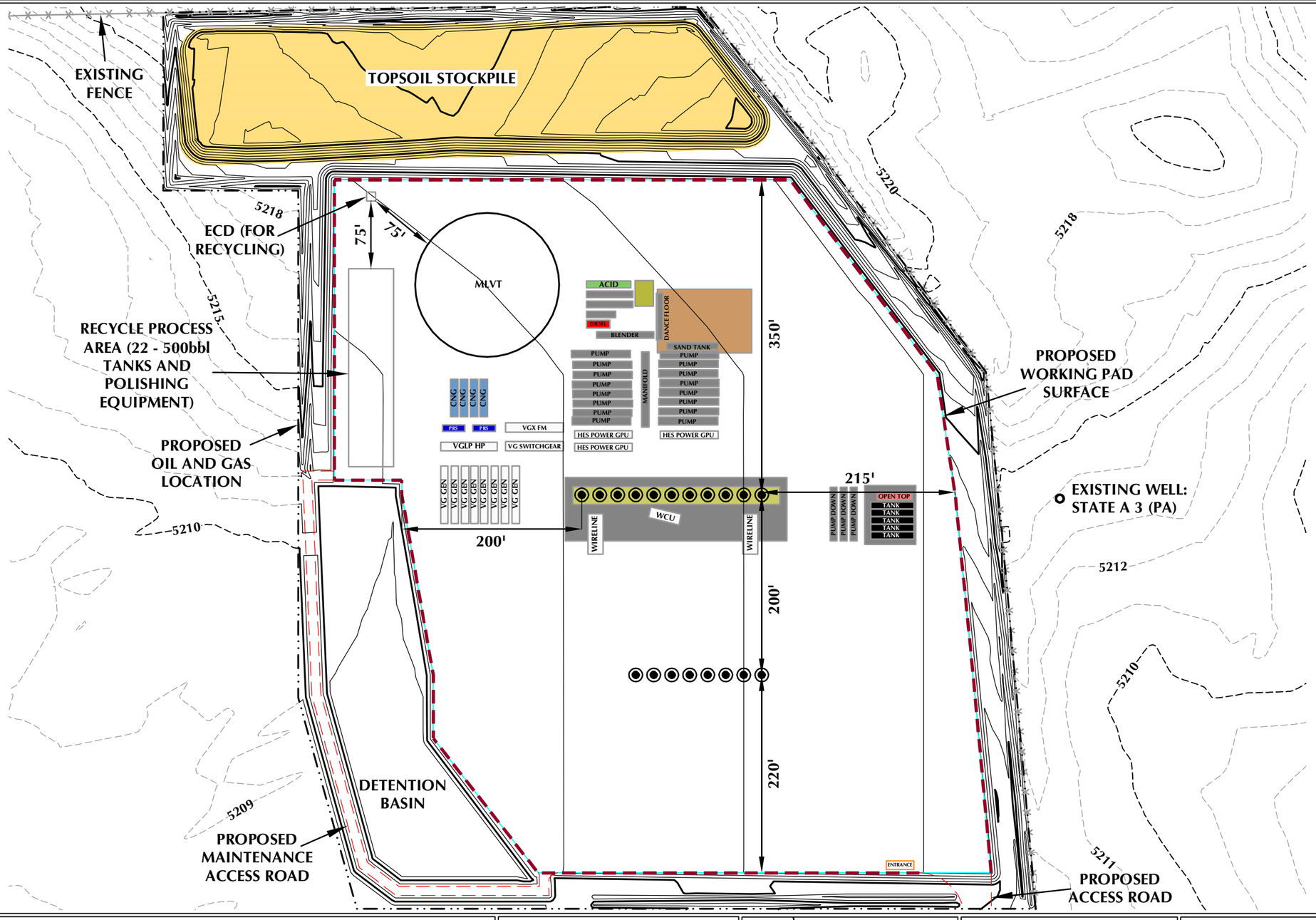
COMPLETIONS LAYOUT SITE PLAN

EAGLE PAD

SE1/4 SW1/4 & SW1/4 SE1/4 SECTION 36, TOWNSHIP 1 SOUTH, RANGE 66 WEST, 6TH P.M., ADAMS COUNTY, COLORADO



COLORADO LICENSED
JAKE EDMUNDS
49917
7/3/25
PROFESSIONAL ENGINEER

LEGEND

- PROPOSED WELL
- EXISTING WELL
- PROPOSED OIL AND GAS LOCATION
- PROPOSED WORKING PAD SURFACE
- EXISTING 1' CONTOUR
- PROPOSED 1' CONTOUR
- CNG
- DIESEL
- DANCE FLOOR
- OPEN TOP
- FRAC SHACK
- EQUIPMENT - OTHER
- EQUIPMENT - UN
- DESIGNATED AREA
- ACID
- PRS
- VG GEN
- ENTRANCE
- SOUND WALLS
- EXISTING FENCE
- PROPOSED ACCESS ROAD

NOTE:

- COMPLETIONS LAYOUT IS APPROXIMATE AND SUBJECT TO MODIFICATION DUE TO SPECIFIC CIRCUMSTANCES.

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Extraction Oil & Gas, Inc.

EAGLE PAD
COMPLETIONS LAYOUT SITE PLAN

DATE: 7/3/25	SHEET: 6 OF 8
SURVEY DATE: 6/10/25	DRAFTED BY: KMG

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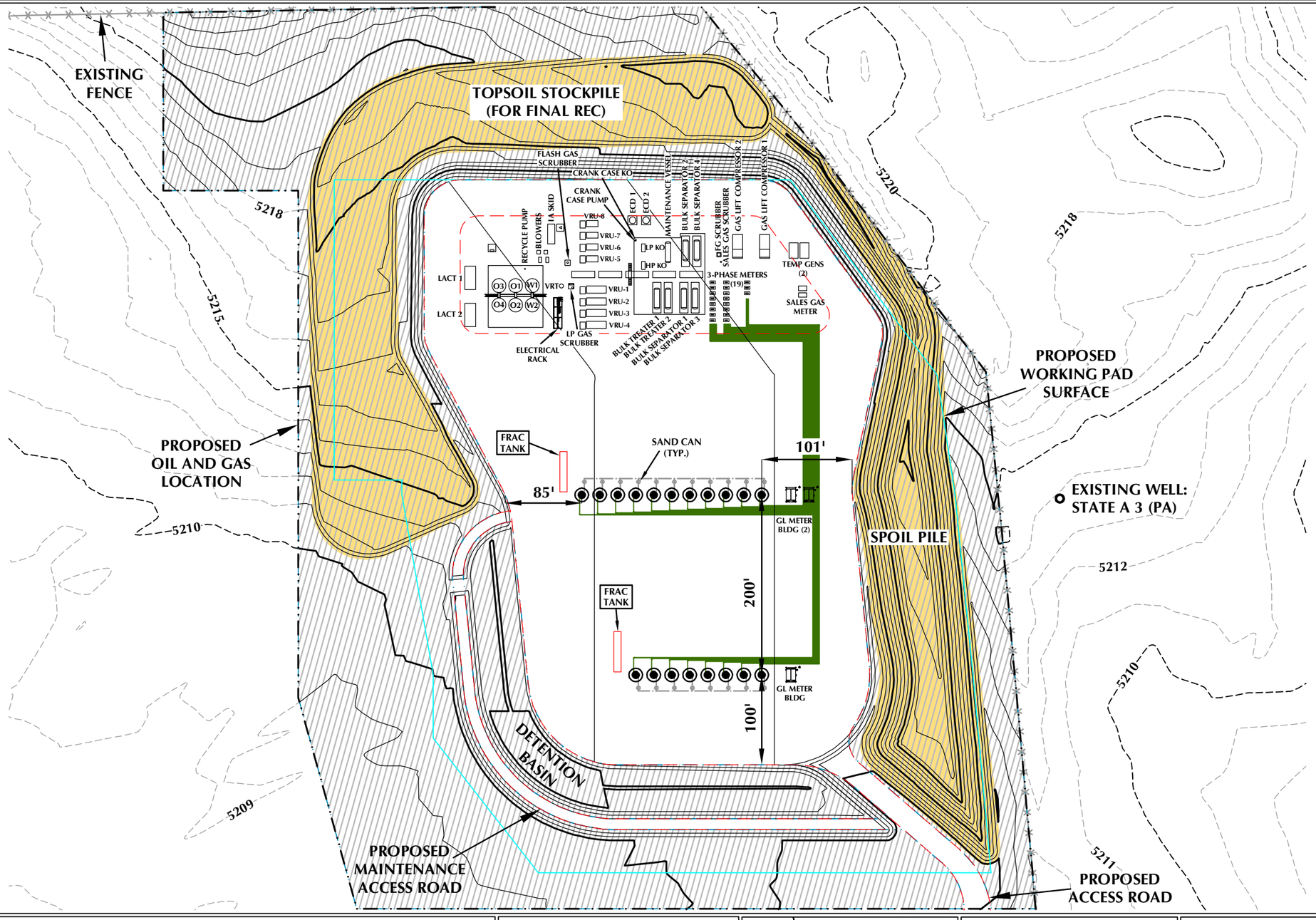
PRODUCTION LAYOUT SITE PLAN

EAGLE PAD

SE1/4 SW1/4 & SW1/4 SE1/4 SECTION 36, TOWNSHIP 1 SOUTH, RANGE 66 WEST, 6TH P.M., ADAMS COUNTY, COLORADO



NOTES:

1. SEE SEED MIX IN THE DRAINAGE REPORT INCLUDED WITH THE ENGINEERING DOCUMENTS.
2. TENTATIVE SCHEDULES FOR PRE-PRODUCTION OPERATIONS ARE INCLUDED IN THE WRITTEN NARRATIVE.

COLORADO LICENSED
JAKE EDMUNDS
49917
7/3/25
PROFESSIONAL ENGINEER

LEGEND

- PROPOSED WELL
- EXISTING WELL
- PROPOSED OIL AND GAS LOCATION (17.03 ACRES)
- PROPOSED WORKING PAD SURFACE (10.65 ACRES)
- RECLAMATION AREA (10.51 ACRES)
- UNRECLAIMED AREA (6.52 ACRES)
- PROPOSED ACCESS ROAD
- PROPOSED FLOWLINE
- PROPOSED PIPELINE
- EXISTING 1' CONTOUR
- PROPOSED 1' CONTOUR
- EXISTING FENCE

NOTE:

- WELLHEADS AND FACILITY EQUIPMENT WILL REMAIN PERMANENT AFTER FLOWBACK IS COMPLETE. SAND CANS AND FRAC TANKS ARE TEMPORARY AND WILL BE REMOVED FOLLOWING FLOWBACK OPERATIONS

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Extraction Oil & Gas, Inc.

EAGLE PAD
PRODUCTION LAYOUT SITE PLAN

DATE:	7/3/25	SHEET:	7 OF 8
SURVEY DATE:	6/10/25	DRAFTED BY:	KMG

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Operations and Maintenance Manual for Eagle Pad Storm Drainage Facility

Prepared for:

Extraction Oil & Gas, Inc.

A Wholly-Owned Subsidiary of Civitas Resources, Inc.

555 17th Street

Suite 3700

Denver, Colorado 80202

Submitted to:

Adams County Community and Economic Development Department

4430 South Adams County Parkway

1st Floor, Suite W2000

Brighton, Colorado 80601

July 2025

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PROJECT OVERVIEW

Extraction Oil & Gas, Inc. is proposing the construction and development of an oil/gas well pad and production facility, Eagle Pad, with an associated storm drainage facility. This project is located in the south half of Section 36, Township 1 South, Range 66 West in Adams County, Colorado. This manual was prepared to discuss the operations and maintenance for the storm drainage facility at the proposed site. The Storm Drainage Facilities Operation and Maintenance Manual Checklist provided by Adams County can be found enclosed with this manual.

Construction of the project is anticipated to begin in Q4 of 2026. The contacts for the storm drainage facility can be found below:

Owner
John Piekara
Extraction Oil & Gas, Inc.
(303)-294-7824
555 17th Street, Suite 3700
Denver, Colorado 80202

Project Manager
Jake Edmunds
609 Consulting, LLC
(307)-674-0609
1095 Saberton Avenue
Sheridan, Wyoming 82801

Project Description

The proposed storm drainage facility consists of a detention basin during each of the two phases of the project (construction phase and production phase). During the construction phase, stormwater from the Eagle Pad production facility and well pad will drain to the detention basin located west of the well pad. During the production phase, stormwater from the Eagle Pad production facility and reclaimed well pad will drain to the detention basin located west and south of the reclaimed well pad. The purpose of these detention basins is to manage stormwater quantity and quality. They are designed to control the release time of smaller storm events, allowing sediment time to settle out to improve the water quality. Additionally, the designs will regulate peak release rates of larger storm events to prevent downstream flooding and erosion. Outflow from the detention basins will be directed southwest toward a natural low-lying area.

During both phases, stormwater will be directed into the detention basins via the slope of the pad and the cut slope on the west side of the production facility. Off-site runoff will be routed around the site by external berms and/or spoil piles. Additionally, three sediment traps will treat runoff from the topsoil stockpile and fill slopes during the construction phase. For all of these drainage features, routine operations, maintenance, and inspections will be performed to ensure the site is in workable and drainable order. Overall, the site will have no adverse impacts on public rights-of-way or off-site properties.

Project Location

Eagle Pad is located on property owned by Colorado State Land (Parcel 0156900000077). The site can be accessed by, starting in Brighton, CO, taking Exit 22 off of Interstate 76 to Bromley Lane/East 152nd Avenue and proceeding in an easterly direction for 0.9 miles to Piccadilly Road. Exit right onto Piccadilly Road and continue south for 4.0 miles to East 120th Avenue. Exit left and continue east for 0.6 miles to the proposed access road to the north, which will lead to the proposed location. Figure 1 shows the location of Eagle Pad.

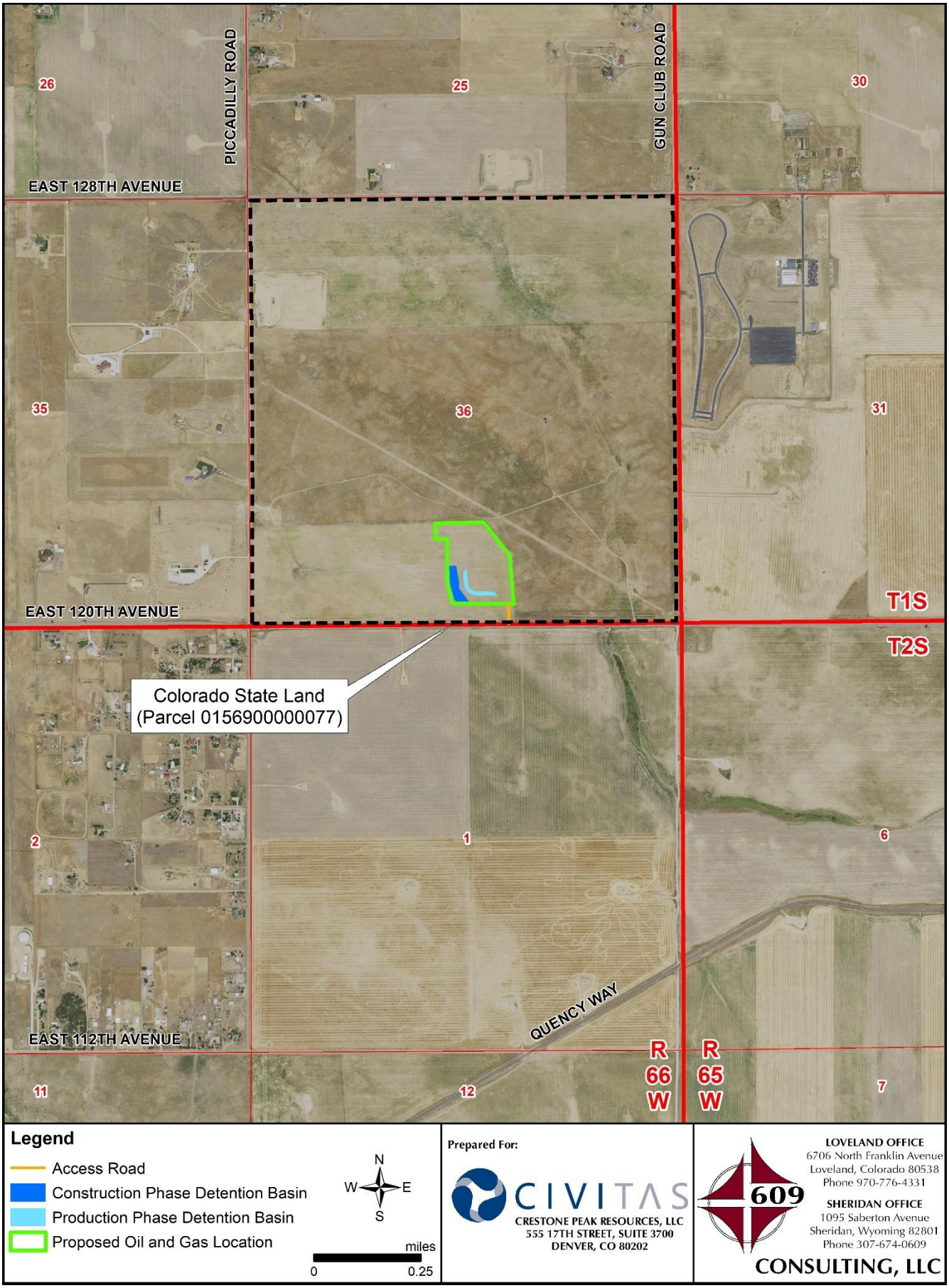

Figure 1. Project Location

During the construction phase, a 10-foot wide maintenance access road will surround the perimeter of the detention basin with a segment leading down into the basin at a 10% slope. This access point will be located on the western edge of the well pad. During the production phase, a 12-foot wide maintenance access road will surround the detention basin with a segment leading down into the basin at a 10% slope. This access point will be located on the western edge of the reclaimed well pad. These access points during both phases will be constructed with compacted gravel for durability and ease of access.

Project Data Sheet

The detention basins were designed in accordance with *Adams County Development Standards & Regulations* requirements. The maximum allowable release rates for the 1-hour, 5-year and 100-year storm events were determined by using *Table 9.16—Allowable Release Rates (cfs/acre)* with Group A soils as the dominant soil group. The major features of the proposed detention basins are summarized in Table 1.

Table 1. Detention Basin Features

	Phase	Catchment Area (ac)	Weighted Imperviousness		Off-Site Flow	100-yr Storage Volume (ac-ft)	Available Storage Volume (ac-ft)	Orifice Sizes (in)		Design Release Rate (cfs)	
			ac	%				WQCV	100-yr	5-yr	100-yr
DB	Construction	13.10	4.31	32.9	N/A	1.382	3.819	2.8	12.0	0.3	3.3
	Production	9.29	2.54	27.4	N/A	0.730	5.472	1.4	12.0	0.2	2.9

STORM DRAINAGE FACILITY OPERATIONS

Normal Operations

Day-to-day operations of the Eagle Pad detention basin will be conducted by the Extraction Oil & Gas, Inc. operations team. This will include the following:

- Regular inspections for signs of damage, erosion, or debris accumulation
- Debris removal
- Vegetation management within the basin and along the slopes
- Sediment monitoring and removal
- Outlet structure maintenance
- Record keeping of inspections, maintenance activities, and repairs

Emergency Action Plan

In the event of extreme weather conditions, the following steps will be taken:

1. Assessment and communication: the weather conditions will be continually monitored, and the detention basin will be assessed for water level, presence of debris, and potential for flooding. Local emergency services and relevant government bodies will be contacted if necessary.
2. Ensuring safety: the perimeter of the basin will be secured against unauthorized access with warning signs and barricades if necessary.
3. Debris removal and water level monitoring: plans will be made to remove debris once the storm subsides and water levels recede.

4. Long-term assessment: any damage to the basin, outlet structure, or spillway structure will be evaluated and addressed. A thorough inspection of the basin will be conducted, and the effectiveness of the emergency action plan will be assessed.

Emergency, 24-hour contact phone numbers are included in Table 2.

Table 2. Emergency Contacts

Name	Emergency/Cell
Civitas Resources EHS on-call Emergency Number	720-927-1813
Emergency Management Director- Lisa David	Cell 307-689-0000
EHS Safety- Chris Burton	Cell 720-315-9387
EHS – Environmental- Luke Kelly	Cell 720-315-8934

STORM DRAINAGE FACILITY MAINTENANCE

Maintenance Plan

Routine maintenance and required repairs of access roads, ditches, berms, and outlet structures will be handled by the operations team. Cleaning and removal of sediment and debris from ditches and outlets, as well as vegetation maintenance and specific manufacturer maintenance, will also be handled by the operations team during regular operations and maintenance checks. Day-to-day maintenance includes the following:

- Visual inspection: check for trash, debris, and excessive vegetation growth. Look for signs of erosion or damage to drainage facilities. Ensure inlets/outlets of the detention basin outlet structure are not clogged.
- Debris and litter removal
- Vegetation management: regularly mow and trim vegetation to prevent it from interfering with water flow or causing erosion.
- Sediment removal: monitor for sediment accumulation, especially at sediment traps and detention basin outlet structures. Remove sediment when it starts to interfere with drainage facilities' operations.

Unscheduled Maintenance

Assessment and repair will be performed for any unexpected deficiencies found in the drainage features, regardless of the regular maintenance schedule. These unexpected deficiencies include but are not limited to the following:

- Post-storm inspections: after storm events, the drainage features should be inspected for damage, erosion, debris, or sediment accumulation.
- Structural damage: structural damage, such as cracks or erosion, should be repaired as soon as possible to prevent further deterioration.
- Outlet obstruction: clogged outlets or inlets should be cleared promptly to ensure proper drainage and prevent flooding.
- Sediment removal: sediment should be removed once it has accumulated enough to cause drainage problems.

STORM DRAINAGE FACILITY INSPECTIONS

Routine Inspections

Routine inspections of access roads, ditches, berms, and outlet structures will be performed during daily operations. This includes a brief, but thorough, visual inspection of all drainage features to ensure they are in working order and no damage or obstructions are present. These inspections will be handled by the operations team.

Periodic Inspections

In addition to monitoring during regular operations, a formal monitoring plan has been developed for the project site. During the construction phase, the site will be inspected a minimum of every 14 calendar days as well as following rain or snowmelt events that are able to cause surface erosion. After the construction phase, site inspections will occur at a minimum of every 30 calendar days until the site is fully stabilized. Once the site is stabilized and has achieved interim reclamation standards, inspections will occur annually. More frequent, informal inspections will continue to occur during routine operations. An Inspection Report Form is enclosed with this manual and is to be completed by the persons performing the periodic inspections.

Enclosures:

Storm Drainage Facilities Operation and Maintenance Manual Checklist
Inspection Report Form

Storm Drainage facilities Operation and Maintenance Manual				
Item No.	Submitted[1]	County Use Only		
		Rejected	N/A	
				General Manual Requirements:
1.	☒	☐	☐	Provide a brief introduction to the O&M Manual including a general statement on the overall purpose of facility operation and maintenance.
2.	☒	☐	☐	Location and Access - provide name of stream/tributary/lake that the facility discharges to, name of nearest city/town, traveling directions to facility, and location of maintenance access roads. Include a vicinity map.
3.	☒	☐	☐	Purpose of Facility - describe purpose of facility, e.g. include peak rate runoff control, water quality, etc.
4.	☒	☐	☐	General Description – give a general description of facility, e.g. include detention basin, retention basin, etc.
5.	☒	☐	☐	Ownership – provide name, address, and telephone number of facility owner.
6.	☒	☐	☐	Project History – describe development for which facility was constructed, date of construction, original project engineer and Contracting Officer, and any significant modifications that have taken place during the life of the facility.
7.	☒	☐	☐	Project Data Sheet - list all major features of the facility in an easy-to-follow tabular format including catchment area, impervious area, off-site contribution of runoff, storage volume, orifice sizes, and designed release rates.
				Facility Operations:
8.	☒	☐	☐	Normal Operation - provide detailed operating instructions or procedures for normal “day-to-day” operation
9.	☒	☐	☐	Emergency Action Plan - provide special operating procedures to be followed during emergency conditions resulting from extreme weather conditions or from structural failure of the facility. Include 24-hour emergency contact telephone numbers.
				Facility Maintenance (detailed information and instructions on performing periodic maintenance of the facility):
10.	☒	☐	☐	Regularly Scheduled Maintenance - provide information on maintenance tasks performed on a regularly scheduled basis.
11.	☒	☐	☐	Monitored Maintenance - provide information on periodic surveillance of facility and making needed repairs and modifications.
12.	☒	☐	☐	Maintenance Plan – in its own section of the O&M Manual, identify and list all regularly scheduled and monitored maintenance in detail (to allow the new personnel to understand the tasks and experienced personnel to verify properly performed work).
13.	☒	☐	☐	Unscheduled Maintenance - a section shall be provided in the maintenance plan which gives instructions for dealing with unscheduled maintenance to allow for repair or rehabilitation of unexpected deficiencies.

ATTACHMENT #14 CONTINUED

				Facility Inspection (specifies required frequency intervals for inspections and includes an inspection checklist and report form):
14.	☒	☐	☐	Routine Inspections - a brief but frequent, visual inspection of the major features of the facility, e.g. weekly, monthly.
15.	☒	☐	☐	Periodic Inspection - a periodic inspection is a more detailed inspection, during which all features and equipment at the facility are evaluated at regularly scheduled intervals. A checklist should be provided to ensure that all critical features are examined.
16.	☒	☐	☐	Inspection Report Form - a simple form, to be completed by the persons performing the periodic inspection, reporting the date of inspection, person performing inspection, findings, inspection checklist.

Developer's Comments (please reference the item number for each comment)

County's Comments

[1] To be checked by the Developer. If a "submitted" box is not checked, the Applicant must explain (in comment box above) or the application may be rejected for insufficient information.

Inspection Report Form

General Information	
Project Site	
Date of Inspection	
Inspector's Name and Contact Information	

Inspection Checklist		
	✓	Notes
Detention Basin Outlet Structure		
Detention Basin Spillway		
Detention Basin Slopes		
Perimeter Ditches/Berms		
Sediment Traps		

Inspection Summary
Key Observations and Findings
Suggested Actions and Recommendations

Stormwater Management Plan For Eagle Pad

Prepared for:

Extraction Oil & Gas, Inc.

A Wholly-Owned Subsidiary of Civitas Resources, Inc.

555 17th Street

Suite 3700

Denver, Colorado 80202

July 2025

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APPENDICES

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Appendix D: CDPS General Permit Certification

Appendix E: Site-Specific Stormwater BMPs

1.0 INTRODUCTION

This Stormwater Management Plan (SWMP) is being prepared for the Eagle Pad project on behalf of Extraction Oil & Gas, Inc. ("Extraction"), a wholly-owned subsidiary of Civitas Resources, Inc. The project consists of the construction and development of an oil/gas well pad and production facility located in the south half of Section 36, Township 1 South, Range 66 West in Adams County, Colorado.

The purpose of this report is to develop a site specific SWMP using Stormwater Best Management Practices (BMPs) to control stormwater runoff in a manner that minimizes erosion, transport of sediment offsite, and site degradation. This SWMP shall comply with the Energy & Carbon Management Commission (ECMC) Rule 1002.f and Rule 304.c.(15) and will accompany Form 2A.

This report will discuss the stormwater impacts that may occur during the different development phases (Construction and Production) of the project and will detail the various stormwater BMPs that will be used to minimize erosion, transport of sediment offsite, and site degradation. This SWMP is intended to be a living document which should be updated routinely as site conditions change.

2.0 PROJECT DESCRIPTION AND LOCATION

2.1 Project Description

The proposed project consists of the construction and operation of the Eagle Pad well pad and production facility containing infrastructure and operations for 19 oil/gas wells. The ECMC Proposed Oil and Gas Location will have a permitted disturbance area of 17.03 acres during the construction phase which includes topsoil stripping and pad earthwork, well drilling and hydraulic fracturing, installation of permanent pipelines and facilities, and setup of temporary equipment and a modular large volume tank (MLVT) area.

Once all wells have been drilled and completed, portions of the Proposed Oil and Gas Location will be reclaimed back to existing grade and re-seeded during interim reclamation. The remaining un-reclaimed area during the production phase will be approximately 6.52 acres.

2.2 Project Location

The Eagle Pad is located on property owned by Colorado State Land (Parcel 0156900000077). The project area is approximately 0.4 miles east of Piccadilly Road and 0.1 miles north of East 120th Avenue. A proposed access road running north from East 120th Avenue will provide access to the project area. Eagle Pad will be constructed on undeveloped rangeland. According to the 2019 National Land Cover Database, the project area is cultivated crops. A map of the proposed Eagle Pad can be found in Appendix A.

Historically, stormwater from the proposed location drains from the north to the south/southwest into a low spot. If the stormwater leaves the low spot, it will eventually flow into a drainage that drains north, then northwest towards Barr Lake.

Soils data for the project area were taken from NRCS Soil Data Viewer. The project area is comprised of Blakeland-Truckton association, Truckton loamy sand (0 to 3 percent slopes), and Ascalon sandy loam (0 to 3 percent slopes). The Blakeland-Truckton association and Truckton loamy sand have a Hydrologic Soil Group (HSG) classification of Group A with K soil erosion factors of 0.10 and 0.17, respectively, which consists of soils having a high infiltration rate and a low runoff potential. The Ascalon sandy loam has a HSG classification of Group B soils with a K soil erosion factor of 0.17, which consists of soils having a moderate infiltration rate and a low runoff potential. The K soil erosion factor is an index ranging from 0.02 to 0.64, which quantifies the relative susceptibility of the soil to sheet and rill erosion. The following table is a summary of K soil erosion factors with typical soil descriptions.

Table 1. Summary of K Soil Erosion Factors with Typical Soil Descriptions

K Factor	Types of Soil	Susceptibility to Erosion
0.02 to 0.25	Sands, Clays, Sandy Clays	Low
0.25 to 0.40	Loams, Sandy Loams, Sandy Silts	Moderate
0.40 to 0.64	Silts	High

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (Panel 08001C0365H, Effective Date: 3/5/2007), the proposed project is in an area of minimal flood hazard (Zone X) and is therefore determined to be outside the 500-year floodplain. The corresponding FIRMette displaying the flood zone classification at the project site can be found in Appendix B.

2.3 Proposed Development

The proposed project consists of the construction of the Eagle Pad well pad, production facility, and access roads. The project will have two phases: a construction phase and a production phase. The construction phase well pad will have a larger disturbance area to facilitate drilling and completions operations. The production phase well pad will have a smaller disturbance area to facilitate gathering and production operations.

During the construction phase, the Proposed Oil and Gas Location will have a permitted disturbance area of 17.03 acres which includes topsoil stripping and pad earthwork, well drilling and hydraulic fracturing, installation of permanent pipelines and facilities, and setup of temporary equipment and a MLVT area. Once all wells have been drilled and completed, portions of the Proposed Oil and Gas Location will be reclaimed back to existing grade and re-seeded during interim reclamation. The remaining operational area during the production phase will be approximately 6.52 acres.

It is anticipated that heavy construction equipment will construct the access road and working pad surface of this project. Construction of the access road and working pad surface during both phases will consist of:

- Clearing and grubbing of existing vegetation
- Stripping and stockpiling of overlying topsoil
- Grading the working pad area, stormwater diversion ditches, berms, and sediment control structures
- Installing stormwater detention structures
- Installing construction BMPs
- Installing stormwater BMPs

Topsoil piles and excess spoils piles (if any) will be separated and protected from erosion, offsite sediment transport, and degradation. Further site development will consist of:

- Mobilization/demobilization of construction equipment
- Drilling, development, and completion of oil/gas wells
- Installing production facility equipment, utilities, and pipelines

Site development may vary depending on the site-specific conditions.

2.4 Site Specific Construction Requirements

Prior to commencement of any ground disturbance activity, perimeter BMPs will be installed to protect downstream lands from sediment pollution. Once the work area is secure, the access road and well pad will be stripped of topsoil to a depth consistent with the grading plan. Topsoil will be stockpiled separately, then the site will be graded, redistributing material across the site between cut and fill areas to achieve pad finish grade elevations. During this process, fill areas will be properly compacted to ensure working pad surface integrity and proper stabilization. Construction water may be used to assist with compaction as well as minimize dust. All excess material (if any) will be separated and stockpiled. The contractor will place gravel road base on both the pad surface and access road to a compacted depth as shown on the grading plan to provide additional stabilization. All disturbed soil stockpiles and cut/fill slopes will receive slope protection as temporary erosion control during the construction phase. Once all wells have been drilled and completed, portions of the Proposed Oil and Gas Location will be reclaimed back to existing grade and stabilized with drill seed and mulch and any additional stormwater BMPs will be installed.

3.0 DISTURBANCE REDUCTION & RECLAMATION

3.1 Disturbance Reduction and Interim Reclamation

Once all drilling and completion activities are complete, the working pad surface size will be reduced to minimize the site disturbance during the production phase. A sufficient amount of working pad surface must remain to ensure a safe working environment for continued oil and gas production operations. All areas needed for ongoing operations will be stabilized for the long-term life of the well pad. All unused portions of the project area will be reclaimed as described below, and in accordance with the interim reclamation plan.

3.2 Reclamation

Developed areas to be reclaimed will be stripped of topsoil, cross-ripped to 18" (compaction alleviation), and graded to pre-disturbed conditions. Surface treatment will consist of reapplying the topsoil, seeding, and mulching. Reclaimed areas will be restored to as nearly as practicable to the site's original condition. The reclaimed areas will be monitored until final stabilization is achieved. All reclamation shall be completed within three (3) months on crop land and twelve (12) months on non-crop land.

The operator will seed using a seed mix specified by the surface owner. Seeding will be applied at the optimum seeding methodology. A typical seed mix and application rates can be found in Appendix C.

Successful reclamation of the well site and access road will be considered completed when:

1. All construction activities are complete.
2. All working pad surface areas are stabilized from compaction and erosion for the remainder of the project.
3. All seeded and mulched areas have achieved a desirable vegetation density when:
    i. On Crop Land: Reclamation has been performed as per Rules 1003 & 1004 and observation by the Director over two (2) growing seasons has indicated no significant unrestored subsidence.
    ii. On Non-Crop Land: Reclamation has been performed as per Rules 1003 & 1004 and disturbed areas have been either built on, compacted, paced, or otherwise stabilized in such a way as to minimize erosion to the extent practicable, or a uniform vegetative cover has been established that reflects the pre-development or reference area forbs, shrubs, and grasses with a total plant cover of at least eighty percent (80%) of pre-development or reference area levels, excluding noxious weeks, as determined by the Director through visual appraisal.
4. Disturbances resulting from flow line installations shall be deemed adequately reclaimed when the disturbed area is reasonably capable of supporting the pre-development land use.
5. A final reclamation inspection has been completed by the Director, or a representative appointed by the Director, there are no outstanding compliance issues relating to commission rules, regulations, orders, permit conditions or the act, and the Director has notified the operator that final reclamation has been approved. A Sundry Notice Form 4 will be submitted by the operator when final stabilization has been achieved. The sundry notice will describe the final reclamation procedures and mitigation measures and any changes in the landowner's designated final land use (if applicable).

3.3 Abandonment

Once the operator has made the decision to no longer operate production operations on a well, it will be plugged and abandoned (P&A). All equipment associated with the well will be removed from the location. If the well pad and access road is no longer needed, it will be reclaimed and recontoured to its pre-disturbed conditions and/or in accordance with the surface owner's requirements.

4.0 SWMP REQUIREMENTS

Extraction has a field-wide master SWMP that covers their construction activities within this area. Also, construction activities within this area are covered under and governed by the CDPS General Permit for Discharges Associated with Construction Activity (Permit No. COR401178). The CDPS General Permit can be found in Appendix D.

Stormwater BMPs will be employed in accordance with good engineering, hydrologic, and pollution control practices in order to prevent pollution in stormwater discharges associated with the development of the Eagle Pad project. All personnel, including applicable contractors, shall comply with the contents of this SWMP.

All information and conditions represented in this SWMP are estimated and intended as a preliminary plan. As stated previously, this SWMP is intended to be a living document which should be updated routinely as site conditions change. Actual placement of BMPs may vary based on actual conditions encountered at the site.

4.1 Qualified Stormwater Management Plan Manager

The Qualified SWMP Manager (QSM) has the authority to dedicate the financial and human resources needed to install & implement SWMP control measures, conduct inspections, keep records, report incidents, and make repairs and/or changes in design. The following person has been assigned as the QSM.

Mr. Luke Kelly, Manager
650 Southgate Drive
Windsor, CO 80550
Cell: (720) 315-8934

4.2 State-wide SWMP Requirements

Site inspections must be conducted in accordance with the following requirements. The required inspection schedules are a minimum frequency and do not affect the permittee's responsibility to implement control measures in effective operating condition as prescribed in the SWMP. Proper maintenance of control measures may require more frequent inspections. Site inspections shall start within 7 calendar days of the commencement of construction activities on site.

The person(s) inspecting the site may be on the permittee's staff or a third-party contractor hired to conduct stormwater inspections under the direction of the permittee(s). The permittee is responsible for ensuring that the inspector is a qualified stormwater manager.

4.2.1 Site Inspections Frequency

Permittees must conduct site inspections at least once every seven (7) calendar days for sites that discharge to a water body designated as an "Outstanding Water" by the Water Quality Control Commission. Otherwise, permittees must conduct site inspections in accordance with the following minimum frequencies:

a. At least one inspection every seven (7) calendar days; or
b. At least one inspection every fourteen (14) calendar days, if post-storm event inspections are conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. Post-storm inspections may be used to fulfill the 14-day routine inspection requirement.
c. When site conditions make the schedule required in this section impractical, the permittee may petition the Division to grant an alternate inspection schedule. The alternative inspection schedule may not be implemented prior to written approval by the Division and incorporation into the SWMP.

4.2.2 Reduced Inspection Frequency

The permittee may perform site inspections at the following reduced frequencies when one of the following conditions exist:

1. Post-Storm Inspections at Temporarily Idle Sites
   For permittees choosing to combine 14-day inspections and post-storm-event-inspections, if no construction activities will occur following a storm event, post-storm event inspections must be conducted prior to recommencing construction activities, but no later than 72 hours following the storm event. The delay of any post-storm event inspection must be documented in the inspection record. Routine inspections must still be conducted at least every 14 calendar days.
2. Inspections at Completed Sites/Areas
   When the site, or portions of a site, are awaiting establishment of a vegetative ground cover and final stabilization, the permittee must conduct a thorough inspection of the stormwater management system at least once every 30 days. Post-storm event inspections are not required under this schedule. This reduced inspection schedule is allowed if all of the following criteria are met:
   i. All construction activities resulting in ground disturbance are complete
   ii. All activities required for final stabilization, in accordance with the SWMP, have been completed, with the exception of the application of seed that has not occurred due to seasonal conditions or the necessity for additional seed application to augment previous efforts
   iii. The SWMP has been amended to locate those areas to be inspected in accordance with the reduced schedule allowed for in this paragraph

4.2.3 Inspections Exclusions

Inspections are not required for sites that meet the following conditions:

1. Construction activities are temporarily halted; or
2. Snow cover exists over the entire site for an extended period of time and there is no snowmelt (only applies to the routine 7-day, 14-day and monthly inspections, as well as the post-storm-event inspections).

When the permittee has an inspection exclusion, the following information must be documented in accordance with permit requirements:

1. Dates when construction activities began & ended; or
2. Dates when snow cover existed and date when snow melt began.

4.3 SWMP Inspection Scope

When conducting a SWMP site inspection:

1. Visually verify whether all implemented control measures are in effective operational condition and are working as designed in their specifications to minimize pollutant discharges.
2. Determine if there are new potential sources of pollutants.
3. Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges.
4. Identify all areas of non–compliance with the permit requirements and, if necessary, implement corrective action(s).

The following areas, if applicable, must be inspected for evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system or discharging to state waters:

1. All disturbed areas
2. Ditches, berms, and any areas with stormwater mitigation
3. Site perimeter
4. Spill containment areas
5. Topsoil & material stockpiles
6. All locations where stormwater has the potential to discharge offsite
7. Locations where vehicles enter/exit the working pad surface

The permittee must keep a record of all SWMP inspections conducted for each permitted site. Inspection reports must identify any incidents of non-compliance with the terms and conditions of this permit. Inspection records must be retained and signed in accordance with the SWMP. At a minimum, the inspection report must include:

1. Facility Name
2. Inspector's name, title, and company
3. Date of inspection
4. Weather conditions at the time of inspection
5. Phase of construction at the time of inspection
6. Estimated acreage of disturbance at the time of inspection
7. Location(s) and identification of discharges of sediment or other pollutants from the site
8. Location(s) and identification of control measures needing maintenance
9. Location(s) and identification of inadequate control measures
10. Location(s) and identification of additional control measures needed that were not in place at the time of inspection
11. Location(s) of discharges of sediment or other pollutants from the site
12. Description of inspection frequency and any deviations from the minimum inspection schedule

This would include documentation of division approval for an alternate inspection schedule. Location and description of corrective action(s) that have been taken, or where a report does not identify any incidents requiring corrective action, the report shall contain a statement.

5.0 SITE-SPECIFIC SWMP REQUIREMENTS

The following are the site-specific SWMP BMPs. Included with each BMP is its description, applicability, limitations, and location. More information on each site-specific stormwater BMP can be found in Appendix E.

5.1 Berm

Description

A berm is a mound of compacted soil. The top is at a specified width and the side slopes are at a specified slope. Berms may be constructed from either excavated topsoil or subsoil. Berms may be used to collect and direct on-site stormwater to sediment traps and outlets, store on-site stormwater, and deflect/redirect off-site runoff around the disturbance area.

Applicability
Berms help contain and divert runoff. Berms may be used for the upslope of cut or fill slopes to contain or divert surface water. Usually, berms will surround the perimeter of the working pad surface or spill containment area.

Limitations
Berms must be regularly maintained sometimes several times a year depending on site conditions. Berms will erode if they are not properly maintained, compacted, and/or stabilized with vegetation or road base. Berms will fail if they are constructed with hydro-sensitive material. Berms which are downstream to surface drainage will require a ditch or additional protection to prevent erosion. Drive-over berms installed through a pad entrance will require a larger width and increased maintenance to remain effective. Depending on the berm material, stabilization such as erosion control blankets, road base, or liners may be needed.

Location
External ditches and berms will be constructed along the perimeter of the Eagle Pad project site to ensure that runoff remains on-site and is diverted to the sediment traps and detention basin area.

5.2 Ditch

Description
A ditch consists of a sub-grade drainage channel. The bottom is at a specified width and the side slopes are at a specified slope. Ditches will have a specified channel slope and discharge to the sediment traps or the detention basin area. Typically, ditches are constructed with an earthen channel. The purpose of a ditch is to collect and divert surface water. Typically, ditches will collect and divert off-site surface water around the perimeter of the well site, and, collect and divert on-site surface water from the bottom of cut and fill slopes to sediment control devices.

Applicability
Ditches help to collect and divert runoff. On-site ditches will be placed around the perimeter of the pad and soil stockpiles to divert on-site surface water to the sediment traps or detention basin area. Diversion ditches and berms will be used to collect and direct on-site stormwater to outlets, deflect and redirect off-site runoff around the disturbance area, and store on-site stormwater.

Limitations
Ditches must be regularly maintained sometimes several times a year depending on site conditions. Ditches may erode and fill in if they are not properly maintained, compacted, and/or stabilized with vegetation or road base. Ditches will fail if they are not properly sloped or not deep enough to contain the diverted runoff. Ditches that cross roads must have a stabilized low water crossing or culvert. Ditches concentrate flows and increase runoff velocities. Ditches must be released into an appropriate outlet structure or they can become a source of erosion. Ditch outlet structures must release into downstream historical drainages. Ditches with steep slopes and increased velocities will require check dams and stabilization such as erosion control blankets, road base, or liners.

Location

External ditches and berms will be constructed around the perimeter of the Eagle Pad project site to ensure that runoff remains on-site and is diverted to sediment traps and the detention basin area. Temporary diversion ditches will collect and drain on-site stormwater to sediment traps and outlets. Treated stormwater will exit the sediment traps onto undisturbed ground where the natural contours will drain away from the project area. Ditches shall have a minimum slope of 0.5%, 12" depth minimum, and 2:1 slope.

5.3 Sediment Trap

Description

A sediment trap consists of a sub-grade excavation that captures and detains runoff, storing sediment and releasing runoff. Sediment traps are designed to capture drainage from disturbed areas and allow sediment to settle prior to being discharged. In order to provide additional capture volume and treatment, sediment traps are designed to be oversized when possible.

Applicability

Sediment traps help prevent the transport of sediment offsite during construction activities and slope stabilization periods. Sediment traps are used as outlet structures for on-site drainage ditches.

Limitations

Sediment traps must be regularly inspected and maintained, especially during construction activities. Sediment traps may fail by being filled in if they are not properly maintained. Sediment traps could also erode if they are not properly compacted and the outlet is not properly stabilized.

Location

Three 20 feet by 20 feet by 3 feet deep sediment traps are recommended for this project during the construction phase. Sediment traps will be reclaimed during the production phase.

5.4 Stormwater Detention Basin

Description

Stormwater detention basins capture runoff in a large area allowing sediment to settle prior to flows being released. By detaining on-site stormwater, flows are released more slowly than without the control structure. During both the construction and production phase, an engineered stormwater detention basin area will hold stormwater from the required 100-year storm event and control release rates through an outlet pipe and emergency spillway. As an additional erosion and sediment control measure, the outlet pipe will discharge to a riprap pad surrounded with straw wattles to slow the velocity and minimize sediment before outflows are released off site.

Applicability

The stormwater detention area is designed to be site-specific and are appropriate for detaining stormwater from the project area.

Limitations

Stormwater detention basins only provide peak flow reduction and do little to control stormwater volume. Stormwater detention basins have limited water quality treatment capacity.

Location

During the construction phase, stormwater from the well pad and production facility will drain to the stormwater detention basin located west of the well pad. The outlet will consist of two 12-inch diameter high-density polyethylene (HDPE) pipes. One will have an orifice cap to control release rates and one will have no orifice cap. Anti-seep collars should be used to prevent seepage through the berm and outlet slopes should be protected using geotextile fabric or riprap in order to prevent erosion along the embankment.

During the production phase, stormwater from the reclaimed well pad and production facility will drain to the stormwater detention basin located west and south of the reclaimed well pad. The outlet will consist of two 12-inch diameter HDPE pipes. One will have an orifice cap to control release rates and one will have no orifice cap. Anti-seep collars should be used to prevent seepage through the berm and outlet slopes should be protected using geotextile fabric or riprap in order to prevent erosion along the embankment.

5.5 Riprap Apron

Description

Riprap aprons are runoff energy dissipation devices usually constructed from rip-rap at the end of culverts and pipe outlets. Riprap aprons are specified by rip-rap gradations, length, and width. The purpose of riprap aprons is to reduce the stormwater runoff velocities from ditches and culverts and spread out the runoff as it is released.

Applicability

Riprap aprons are used at the end of ditches and culverts. Riprap aprons help to reduce areas susceptible to erosion.

Limitations

Riprap aprons must be regularly maintained especially during construction activities. Riprap aprons are not sediment traps and if allowed to silt in they may become a source of erosion. Riprap aprons may fail if they are undersized or not property placed.

Location

This site will have riprap aprons located at the outlet of the pipe outlets for the stormwater detention basins during both the construction and production phases.

5.6 Sediment Control Logs

Description

Sediment control logs are a manufactured tubular sediment collection device sometimes referred as “straw wattles.” Sediment control logs are at a specified diameter and must be installed according to the manufacturer’s recommendations and specifications. The purpose of the sediment control logs is to capture sediment preventing it from leaving the site while releasing the stormwater runoff.

Applicability

Sediment control logs help prevent the transport of sediment offsite during the slope stabilization and revegetation periods. Sediment control logs are often placed along contour lines in short repeating intervals perpendicular to cut/fill slopes. Sediment control logs are also commonly used at the bottom of material stockpiles. Sediment control logs cannot be used as runoff diversion devices. Sediment control logs may be used as ditch check dams and storm drain inlet control devices.

Limitations

Sediment control logs must be regularly maintained especially during construction activities and slope stabilization periods. Sediment control logs have a limited sediment capture zone area and multiple lines will be needed for longer slopes. Sediment control logs must be placed in a trench which could cause slope damage while doing maintenance using heavy machinery. Sediment control logs may be difficult to install on rocky slopes.

Location

Straw wattles may be placed around the perimeter of stockpiles during both the construction and production phases to further control erosion and minimize sediment transport.

5.7 Seeding and Mulching

Description

Seeding and mulching assumes the preparation of a seedbed with topsoil, selection of an appropriate native seed mixture, proper planting techniques, and protection mulching of the seeded area. The purpose of seeding and mulching is to stabilize slopes and prevent erosion control and sediment transport from the site. Seeding also absorbs the impact of raindrops, reduces the velocity of runoff, reduces runoff volumes by increasing water permeation into the soil, binds soil with roots, protects soil from wind, improves wildlife habitat, and enhances natural beauty.

Applicability

Seeding and mulching is used for slope stabilization and erosion control on all disturbed slopes, berms, ditches, and material stockpiles during construction following interim reclamation efforts. Operator will seed with a mix specified by the surface owner. Seeding will be applied at the optimum seeding methodology. Typical seed mix and application rates can be found in Appendix C.

Limitations

Without proper seedbed preparation and seed mix, seeding and mulching will fail. Seeding and mulching takes time to develop and slopes will need to be protected and regularly maintained. Noxious weeds transported onsite may become a site nuisance and a hazard to private property and may try to establish themselves in seedbed areas.

Location

Permanent seeding will be applied to all topsoil stockpiles and reclaimed areas during the production phase.

5.8 Vehicle Tracking Control

Description

Vehicle tracking control provides stabilization to access points of construction sites where trucks enter and exit from paved roads. It reduces sediment tracking from vehicles (mud or dirt) from the construction site onto the paved road.

Applicability

When a construction site has frequent heavy vehicle traffic exiting to a paved road, vehicle tracking control should be implemented. It is particularly important when dust and mud are especially prevalent from rain events and/or construction activities.

Limitations

Without proper maintenance, vehicle tracking control can become less effective if it is clogged with mud and debris, especially after rain.

Location

Vehicle tracking control will be implemented where the proposed access road intersects East 120th Avenue.

6.0 SITE MAINTENANCE AND UPKEEP

The Extraction site monitoring program ensures site conditions stay in compliance. Sedimentation, culvert and access road condition, vegetation health, and several other safety and maintenance items are routinely monitored and evaluated to ensure the site is in workable and drainable order.

Routine maintenance and required repairs of access roads, culverts, ditches, berms, and outlet structures will be handled by the operations team. Cleaning and removal of sediment and debris from ditches, culverts, and outlets, as well as vegetation maintenance and specific manufacturer maintenance, will also be handled by the operations team during regular operations and maintenance checks.

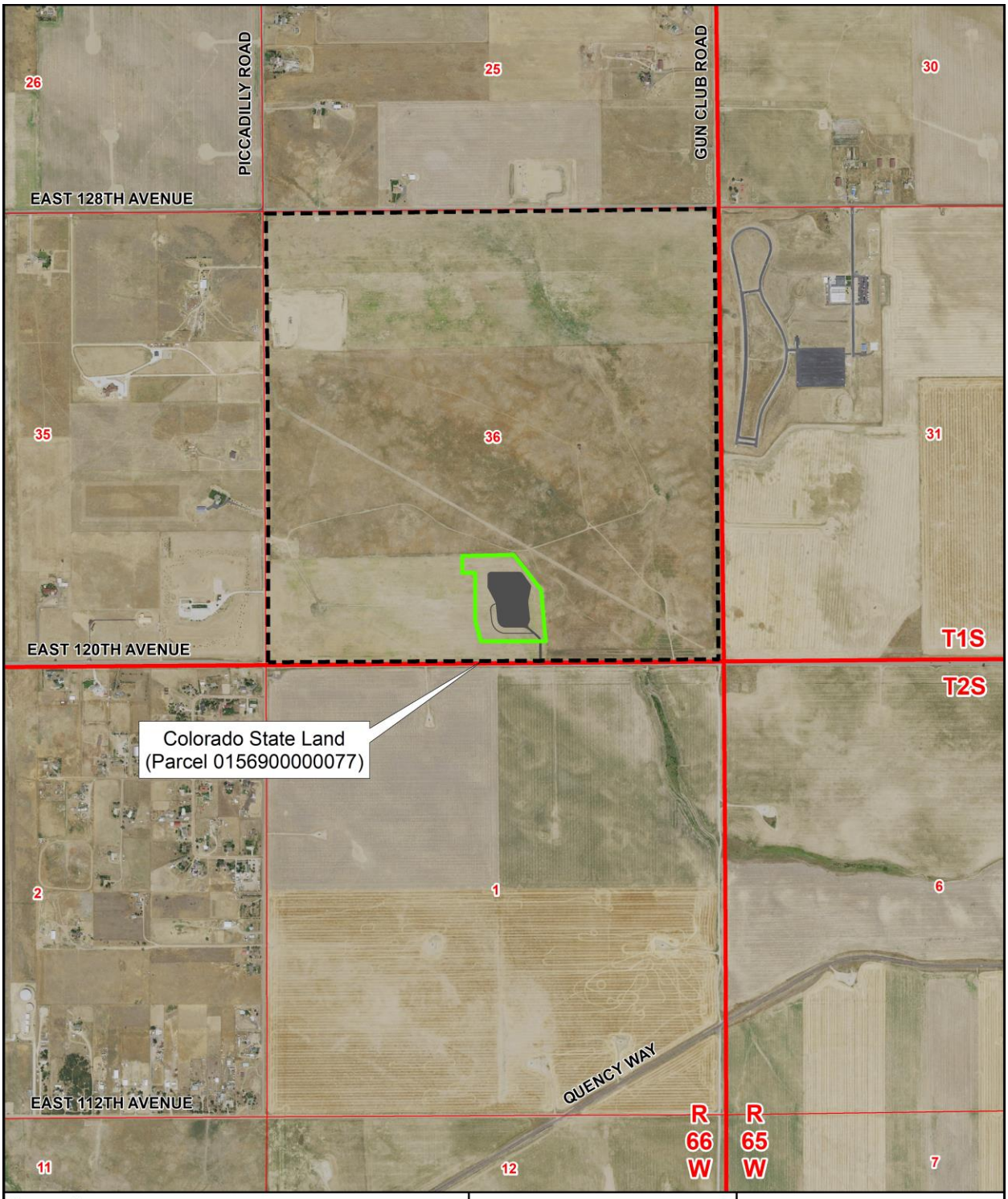
7.0 CONCLUSION

The information and analysis presented in this SWMP display the adequacy and effectiveness of the design and planning associated with the Eagle Pad. The design protects public health, safety, and general welfare and has no adverse impacts on public rights-of-way or off-site properties.

APPENDICES

Appendix A:

Project Location



Legend

- Proposed Oil and Gas Location
- Eagle Pad Operational Area

N
W E
S

0 0.25 miles

Prepared For:

CIVITAS
Extraction Oil & Gas, Inc.

609 CONSULTING, LLC

LOVELAND OFFICE
6706 North Franklin Avenue
Loveland, Colorado 80538
Phone 970-776-4331

SHERIDAN OFFICE
1095 Saberton Avenue
Sheridan, Wyoming 82801
Phone 307-674-0609

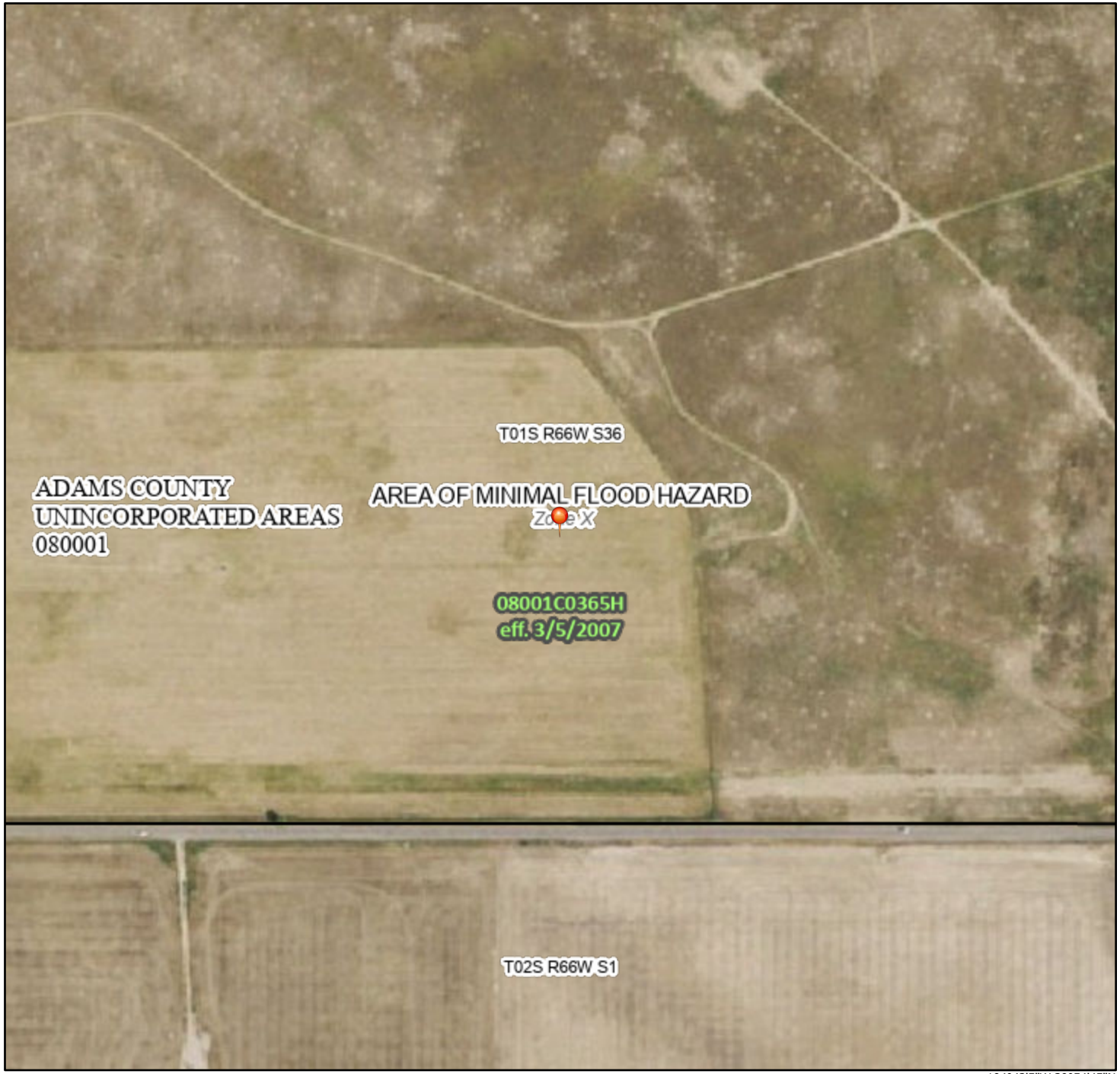
Appendix B:

FEMA Flood Insurance Rate Map FIRMette

National Flood Hazard Layer FIRMette

FEMA

104°43'43"W 39°55'13"N



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

1:6,000

104°43'5"W 39°54'45"N

Basemap Imagery Source: USGS National Map 2023

Legend

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

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

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

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

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

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/19/2025 at 8:12 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

Appendix C:

Seed Mix

Table 4
Seed Mix and Application Rates

ADAMS COUNTY, COLORADO

SEED MIX	APPLICATION RATE (lbs/acre)
PBSI Dryland Aggressive Mix	**25**
(20%) Green Needlegrass, Lodorm	
(20%) Slender Wheatgrass, Native	
(20%) Western Wheatgrass, Native	
(20%) Pubescent Wheatgrass, Luna	
(20%) Intermediate Wheatgrass, Oahe/Rush	
PBSI Native Prairie Mix	**15**
(25%) Blue Grama	
(10%) Buffalograss	
(20%) Green Needlegrass	
(20%) Sideoats Grama	
(25%) Western Wheatgrass	
PBSI Native Sandyland Mix	**15**
(20%) Yellow Indiangrass	
(10%) Little Bluestem	
(10%) Indian Rice Grass	
(10%) Sideoats Grama	
(10%) Sand Lovegrass	
(10%) Prairie Sandreed	
(20%) Switchgrass	
PBSI Premium Irrig. Pasture Mix #1	**25**
(75%) Meadow Bromegrass, Paddock/Fleet	
(25%) Orchardgrass, Elsie/Megabite/Paiute	

Notes:
lbs/acre = pounds per acre
% = percent

Appendix D:

CDPS General Permit Certification

COLORADO
Department of Public Health & Environment

CERTIFICATION TO DISCHARGE
UNDER
CDPS GENERAL PERMIT COR400000
STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY

Certification Number: **COR401178**

This Certification to Discharge specifically authorizes:

Owner Civitas Resources
Operator Civitas Resources
to discharge stormwater from the facility identified as

East Wattenberg Gas Field

To the waters of the State of Colorado, including, but not limited to:

South Platte River

Facility Activity :	OilGas
Disturbed Acres:	2880 acres
Facility Located at:	CR 7 and CR 52 Erie 80516 Weld County Latitude 40.088295 Longitude -104.999135
Specific Information (if applicable):	

Certification is issued: 4/12/2024
Certification is effective: 4/1/2024
Expiration date of general permit: 3/31/2029

This certification under the general permit requires that specific actions be performed at designated times. The certification holder is legally obligated to comply with all terms and conditions of the COR400000 permit.

This certification was approved by:
Andrew Sayers-Fay Permits Section Manager
Clean Water Program
Water Quality Control Division

Appendix E:

Site-Specific Stormwater BMPs

Extraction will implement the following site-specific stormwater BMPs:

- **Berms**: External ditches and berms will be constructed along the perimeter of the Eagle Pad project site to ensure that runoff remains on-site and is diverted to the sediment traps and detention basin area.
- **Ditches**: External ditches and berms will be constructed around the perimeter of the Eagle Pad project site to ensure that runoff remains on-site and is diverted to sediment traps and the detention basin area. Temporary diversion ditches will collect and drain on-site stormwater to sediment traps and outlets. Treated stormwater will exit the sediment traps onto undisturbed ground where the natural contours will drain away from the project area. Ditches shall have a minimum slope of 0.5%, 12" depth minimum, and 2:1 slope.
- **Sediment Trap**: Three 20 feet by 20 feet by 3 feet deep sediment traps are recommended for this project during the construction phase. Sediment traps will be reclaimed during the production phase.
- **Stormwater Detention Basin**:
    - During the construction phase, stormwater from the well pad and production facility will drain to the stormwater detention basin located west of the well pad. The outlet will consist of two 12-inch diameter high-density polyethylene (HDPE) pipes. One will have an orifice cap to control release rates and one will have no orifice cap. Anti-seep collars should be used to prevent seepage through the berm and outlet slopes should be protected using geotextile fabric or riprap in order to prevent erosion along the embankment.
    - During the production phase, stormwater from the reclaimed well pad and production facility will drain to the stormwater detention basin located west and south of the reclaimed well pad. The outlet will consist of two 12-inch diameter HDPE pipes. One will have an orifice cap to control release rates and one will have no orifice cap. Anti-seep collars should be used to prevent seepage through the berm and outlet slopes should be protected using geotextile fabric or riprap in order to prevent erosion along the embankment.
- **Riprap Apron**: This site will have riprap aprons located at the outlet of the pipe outlets for the stormwater detention basins during both the construction and production phases.
- **Sediment Control Logs**: Straw wattles may be placed around the perimeter of stockpiles during both the construction and production phases to further control erosion and minimize sediment transport.
- **Seeding and Mulching**: Permanent seeding will be applied to all topsoil stockpiles and reclaimed areas during the production phase.
- **Vehicle Tracking Control**: Vehicle tracking control will be implemented where the proposed access road intersects East 120th Avenue.

Berm (B)

Description

A berm is a ridge of compacted soil located at the top or base of a sloping disturbed area to contain or divert surface water runoff. Berms may be constructed from compactable soils sufficiently impermeable to retain water. Typically berms will be constructed using subsoils.

The purpose of a berm is to control runoff velocity, divert on-site surface runoff into a sediment trapping device, divert clean water away from disturbed areas, provide secondary containment, and to provide a safe slope barrier for vehicle traffic.

Applicability

Berms are usually appropriate for drainage basins smaller than five acres, but with modifications they can be capable of servicing areas as large as ten acres. With regular maintenance, the life span of earthen berms can last throughout the life of a project. Berms can used at, but are not limited to, the following applications:

- Along the outside shoulder of an in-sloped road to ensure runoff from the roadway drains inward and to protect the fill slope from continual disturbance during road blading and maintaining;
- Up slope of cut or fill slopes to divert flows away from disturbed areas;
- Down slope of cut or fill slopes to divert on-site runoff into a stabilized outlet or sediment trapping device;
- Along the outside shoulder of a road to provide vehicle safety or;
- Secondary containment around pollutant sources.

Limitations

- Berms may erode if not properly maintained, compacted, and or stabilized with vegetation. Berms which are adjacent to concentrated flows may require other means of stabilization.
- If a berm crosses a vehicle roadway or entrance, it needs to be compacted and widened to create a drive over that ensures simultaneous function of the berm and road. Wherever possible, berms should be designed to avoid crossing vehicle pathways.

Design Criteria

See figure B-1 for design criteria.

Construction Specifications

- Prior to berm construction, remove all trees, brush, stumps, and other objects in the path of the berm. Fill will typically consist of subsoil excavated during the construction of nearby roads or well pads.
- All berms shall have positive drainage to a stabilized outlet so runoff does not collect in ponds on the up-slope side of the berm, but instead flows along the berm until it reaches a stabilized outlet. Field location should be adjusted as needed. The stabilized outlet may be a well-vegetated area, a well pad detention pond, or a sediment control such as a silt fence or sediment trap where sediment can settle out of the runoff before being discharged.
- Berms should be constructed prior to commencement of major up-slope land disturbance. This will maximize the effectiveness of the structure as a stormwater control device.
- Berms used as secondary containment must be compacted and sufficiently impervious to retain liquids until the next routine inspection.

Maintenance Considerations

The frequency of inspections shall be in accordance with the Stormwater Management Plan (SWMP). Berms should be inspected for evidence of erosion or deterioration. Berms should also be maintained at or above the minimum required height. Any decrease in height due to settling or erosion, which impacts the effectiveness of the BMP, shall be repaired.

Removal

Berms should remain in place and in good condition until all up-slope disturbed areas are permanently stabilized. There is no need to remove a berm upon stabilization, provided the berm is stabilized and functioning properly.

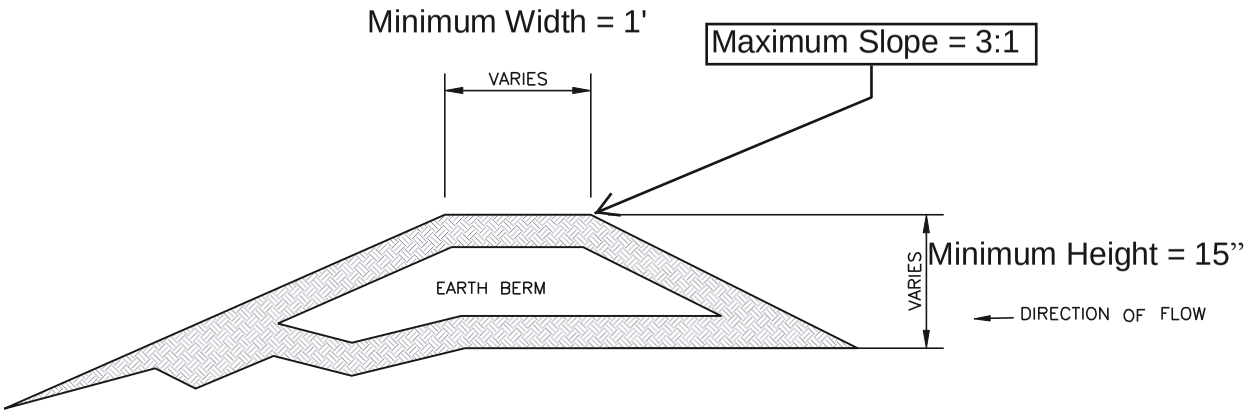
References

United States Environmental Protection Agency (EPA), *National Pollutant Discharge Elimination System (NPDES). Construction Site Storm Water Runoff Control.* Washington, D.C., February, 2003. http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm

New York State Department of Environmental Conservation, *New York Guidelines for Erosion and Sediment Control*. New York. August 2005.http://www.dec.ny.gov/chemical/29066.html

Urban Drainage and Flood Control District, *Volume 3 Stormwater Quality*. Denver, CO, November 2015. http://udfcd.org/volume-three

FIGURE B-1
Earth Berm



Notes:
1. Soil must be compactable and sufficiently impervious to retain/deflect stormwater.
2. Earthen Berms must be compacted to be effective.

SCALE: NOT TO SCALE

Culvert Protection (CP)

Description

Culvert protection may be required at the inlet (upstream side) of the culvert and/or the outlet (downstream side) of the culvert. Protection helps to reduce erosion from culverts with concentrated, high velocity flows.

Culvert inlet protection involves placing boulders, riprap, gabions, rock retaining walls, slash, and/or any other protection at the inlet pipes. Riprap, or other energy-dissipating devices, will reduce the velocity of stormwater flows and thereby prevent erosion and help protect the inlet structure.

Culvert outlet protection involves placing structurally lined aprons or other appropriate energy-dissipating devices, such as large boulders or plunge pools, at the outlets of the pipes. Lined aprons or other appropriate energy-dissipating devices will reduce the velocity of stormwater flows and thereby prevent scour at stormwater outlets, protect the outlet structure, and minimize potential for erosion downstream.

Applicability

Riprap inlet protection should be used where velocities and energies at the inlets of culverts are sufficient to erode the inlet structure. Riprap may also be used to help channel the stormwater into the inlet of the culvert.

Culvert outlet protection should be used where discharge velocities and energies at the outlets of the culverts or channels are sufficient to erode the next downstream reach.

Limitations

Rock aprons at the culvert outlets should not be placed on slopes steeper than 10 %. Runoff from pipe outlets at the top of cut/fills or on slopes steeper than 10% should be routed using slope drains or riprap chutes to a rock apron at the toe of the slope. Otherwise, the flow will re- concentrate and gain velocity as the flow leaves the apron.

Design Criteria

See Figure CP-2 and Table CP-1 for design criteria.

Culvert Inlet Protection

Riprap, gabions, or rock retaining walls at culvert inlets shall be designed according to RIPRAP (R) or RETAINING WALL (RW).

Culvert Outlet Protection

Gabions or rock retaining walls at culvert outlets shall be designed according to RETAINING WALL (RW). Riprap aprons at culvert outlets shall be designed as follows:

Tail-water depth: The depth of tail-water immediately below the pipe outlet must be determined for the design capacity of the pipe. If the tail-water depth is less than half the diameter of the outlet pipe, and the receiving stream is wide enough to accept divergence of the flow, it shall be classified as a minimum tail-water condition. If the tail-water depth is greater than half the pipe diameter and the receiving stream will continue to confine the flow, it shall be classified as a maximum tail-water condition. Pipes out-letting onto flat areas with no defined channel may be assumed to have a minimum tail-water condition.

Riprap apron size and D50 size: The apron length (LA) and the D50 size of the riprap will be determined using Table CP-1 according to the design flow and weather there is a minimum or maximum tail-water condition. The apron width (W) shall then be determined as (W=d+0.4LA) where d is the diameter of the culvert. If the pipe discharges directly into a well-defined channel, the apron shall extend across the channel bottom and up the channel banks to an elevation one foot above the maximum tail-water depth or to the top of the bank, whichever is less. The upstream end of the apron, adjacent to the pipe, shall have a width of two times the diameter of the outlet pipe.

Riprap materials: The outlet protection may be done using rock riprap or grouted riprap. Riprap shall be composed of a well-graded mixture of stone size such that 50% of the pieces, by weight, shall be larger than the D50 size determined from Table CP-1. A well-graded mixture, as used herein, is defined as a mixture composed primarily of larger stone sizes, but with a sufficient mixture of other sizes to fill the smaller voids between the stones. The diameter of the largest stone size in such a mixture shall be 1.5 times the D50 size. All grout for grouted riprap must be 1-part Portland cement for every 3-parts sand, mixed thoroughly with water.

Filter: If a filter cloth or gravel is used, it should be designed according to RIPRAP (R).

Apron thickness: The minimum thickness of the riprap layer shall be 1.5 times the maximum stone diameter for a D50 of 15 inches or less and 1.2 times the maximum stone size for a D50 greater than 15 inches.

Riprap stone quality: Stone for riprap shall consist of field stone or rough un-hewn angular stone. The stone shall be hard and angular and of a quality that will not disintegrate with exposure to water or weathering. The specific gravity of the individual stone shall be at least 2.5. Site rock or site boulders may be used providing it has a density of at least 150 pounds per cubic foot and does not have any exposed steel or reinforcing bars

Construction Specifications

Culvert Inlet Protection

- Riprap, gabions, or rock retaining walls at culvert inlets shall be constructed in accordance to RIPRAP (R) or RETAINING WALL (RW).
- After installation of a culvert, examine the stream channel for the amount of debris, logs, and brushy vegetation present. In channels with large amounts of debris, consider using oversized pipes.
- Boulders should be dry-stacked around the culvert inlet and up the slope to the edge of the road.

Culvert Outlet Protection

Gabions or rock retaining walls at culvert outlets shall be designed according to RETAINING WALL (RW). Riprap aprons at culvert outlets shall be constructed according to CP-2 and the following:

- Prepare the sub-grade for the riprap to the required lines and grades. Any fill required in the sub-grade shall be compacted to a density of approximately that of the surrounding undisturbed material.
- If a pipe discharges into a well-defined channel, the channel's side slopes may not be steeper than 2:1.
- Construct the apron to the design length and width with no slope (Figure CP-2). The invert elevations must be equal at the receiving channel and the apron's downstream end. No over-fall at the end of the apron is allowed. The elevation of the downstream culvert outlet and of the apron shall be equal to the elevation of the receiving channel or adjacent ground. The outlet protection apron shall be located so there are no bends in the horizontal alignment.
- Line the apron with riprap, grouted riprap, or concrete. Riprap should be the appropriate size thickness and design. See RIPRAP (R) for the placement of riprap.
- If a culvert outlet discharges at the top of cut/fills or on slopes steeper than 10%, one of the following options is suggested:
    1. Transition the culvert to a slope drain according to SLOPE DRAIN (SD). The slope drain shall convey stormwater to the bottom of the slope where the riprap apron, as designed above, shall prevent erosion at the slope drain outlet.
    2. Line the slope below the culvert outlet with a riprap channel to convey stormwater to the bottom of the slope where a riprap apron, as designed above, shall prevent erosion at the bottom of the slope. The riprap channel shall be designed according to the table in the RIPRAP (R) construction specification based on depth of flow and slope. The riprap channel shall dip into the slope such that all water is contained within the channel, flows to the riprap outlet apron at the base of the slope, and does not spill over the sides onto unprotected soil.

Maintenance Considerations

The frequency of inspections should be in accordance with the Stormwater Management Plan (SWMP). Inspect for debris at the entrance to culverts and within culverts. Inspect riprap at culvert inlets for damage and dislodged stones. The maintenance needs are usually very low for properly installed riprap aprons at culvert outlets. However, inspect for evidence of scour beneath riprap at outlet aprons or for dislodged stones. Anything found to reduce the effectiveness of the culvert or culvert outlet protection should be repaired immediately.

References

Keller, Gordon and James Sherar, *Low-Volume Roads Engineering, Best Management Practices Field Guide.* United States Department of Agriculture (USDA), Forest Service, US Agency of International Development (USAID), 2003. http://www.blm.gov/bmp/field%20guide.htm

New York State Department of Environmental Conservation, *New York Guidelines for Erosion and Sediment Control*. New York. August 2005. http://www.dec.ny.gov/chemical/29066.html

TABLE CP-1
Outlet Protection Design

Riprap Aprons for Low Tailwater (downstream flow depth <0.5 X pipe diameter)																
Culvert Diameter	Lowest Value			Intermediate values to interpolate from									Highest value			
	Q	L_A	D_{50}	Q	L_A	D_{50}	Q	L_A	D_{50}	Q	L_A	D_{50}	Q	L_A	D_{50}	
	Cfs	Ft	In	Cfs	Ft	In	Cfs	Ft	In	Cfs	Ft	In	Cfs	Ft	In	
12"	4	7	2.5	6	10	3.5	9	131	6	12	16	7	14	17	8.5	
15"	6.5	8	3	10	12	5	15	16	7	20	18	10	25	20	12	
18"	10	9	3.5	15	14	5.5	20	17	7	30	22	11	40	25	14	
21"	15	11	4	25	18	7	35	22	10	45	26	13	60	29	18	
24"	21	13	5	35	20	8.5	50	26	12	65	30	16	80	33	19	
27"	27	14	5.5	50	24	9.5	70	29	14	90	34	18	110	37	22	
30"	36	16	6	60	25	9.5	90	33	15.5	120	38	20	140	41	24	
36"	56	20	7	100	32	13	140	40	18	180	45	23	220	50	28	
42"	82	22	8.5	120	32	12	160	39	17	200	45	20	260	52	26	
48"	120	26	10	170	37	14	220	46	19	270	54	23	320	64	37	
Riprap Aprons for High Tailwater (downstream flow depth <0.5 X pipe diameter)																
Culvert Diameter	Lowest Value			Intermediate values to interpolate from									Highest value			
	Q	L_A	D_{50}	Q	L_A	D_{50}	Q	L_A	D_{50}	Q	L_A	D_{50}	Q	L_A	D_{50}	
	Cfs	Ft	In	Cfs	Ft	In	Cfs	Ft	In	Cfs	Ft	In	Cfs	Ft	In	
12"	4	8	2	6	18	2.5	9	28	4.5	12	36	7	14	40	8	
15"	7	8	2	10	20	2.5	15	34	5	20	42	7.5	25	50	10	
18"	10	8	2	15	22	3	20	34	5	30	50	9	40	60	11	
21"	15	8	2	25	32	4.5	35	48	7	45	58	11	60	72	14	
24"	20	8	2	35	36	5	50	55	8.5	65	68	12	80	80	15	
27"	27	10	2	50	41	6	70	58	10	90	70	14	110	82	17	
30"	36	11	2	60	42	6	90	64	11	120	80	15	140	90	18	
36"	56	18	2.5	100	60	7	140	85	13	180	104	18	220	120	23	
42"	82	15	2.5	120	50	60	160	75	10	200	96	14	260	120	19	
48"	120	20	2.5	170	58	7	220	85	12	270	105	16	320	120	20	

FIGURE CP-1
Typical Inlet Protection

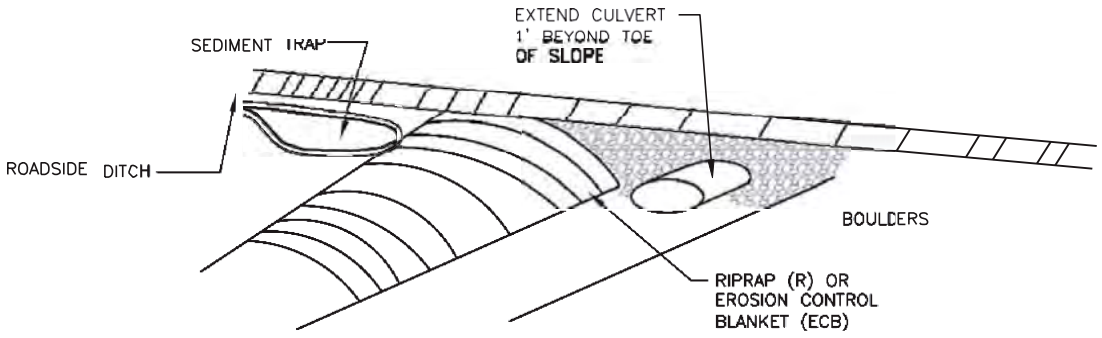


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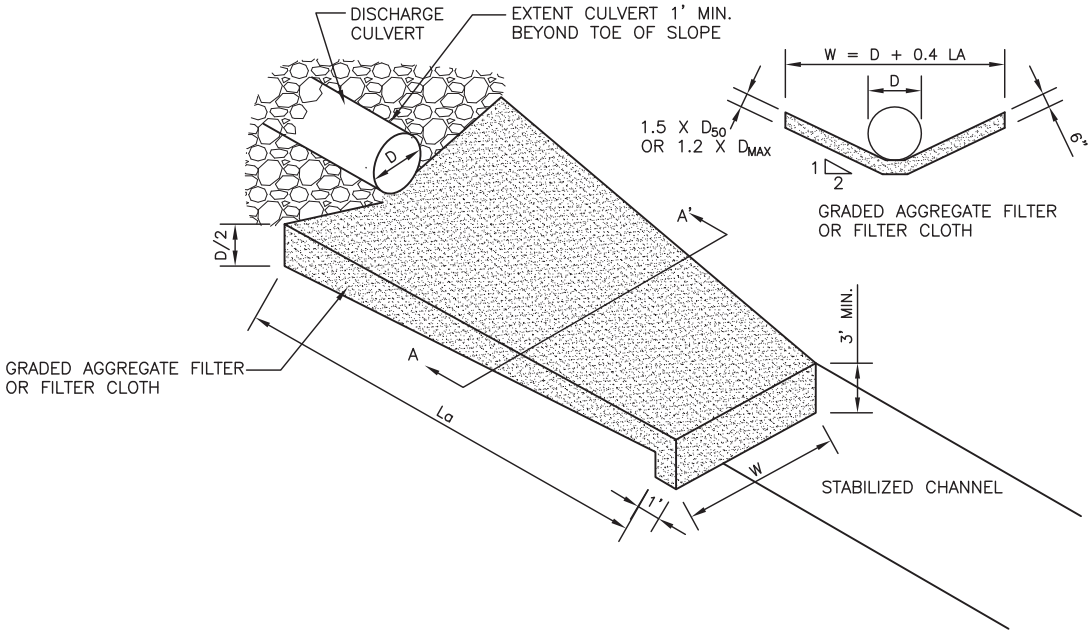
FIGURE CP-2
Typical Outlet Protection



Ditch and Berm (DB)

Description

A ditch and berm (also known as Earthen Dike and Drainage Swale) is a drainage with a parabolic or V-shaped cross-section and a supporting ridge on the lower side that is constructed across the slope. The purpose of a ditch and berm is to prevent off-site stormwater runoff (runon) from entering a disturbed area, to prevent sediment laden storm runoff from leaving the construction site or disturbed area, to prevent flows from eroding slopes, and to direct sediment laden flows to a trapping device.

Applicability

Ditch and berms can be designed for temporary or permanent use. Regardless of timeframe, a ditch and berm should be sufficiently constructed throughout to minimize the potential for failure. Ditch and berms may be used for, but are not limited to:

- The up slope of cut or fill slopes to convey or divert flows away from disturbed areas;
- The down slope of cut or fill slopes to divert on-site runoff to a stabilized outlet or sediment trapping device;
- At the outer edge of a location to ensure that runoff remains on the pad and is diverted to a designated water collection system, such as a sediment trap, pond, etc. (if applicable);
- Where runoff from higher areas has potential for causing erosions, or interfering with, or preventing the establishment of vegetation on lower areas;
- Where the length of slopes need to be reduced so soil loss will be kept to a minimum;
- At the perimeter of a site or disturbed area.

Limitations

- The area around the ditch and berm that is disturbed by its construction must be stabilized (with vegetation or other erosion control) so it is not subject to similar erosion as the steep slope the channel is built to protect. Overburden needs to be sufficiently compacted upon initial ditch construction.
- To alleviate erosion capability, ditch and berms must be directed into a stabilized outlet or well-vegetated area or to sediment trapping devices, where erosion sediment can be settled out of the runoff before being discharged into surface waters.
- Temporary ditch and berms should be designed to avoid crossing vehicle pathways. If a ditch needs to cross a vehicle pathway a culvert and or similar BMPs must be utilized.
- Ditch and berms should be used with caution on soils subject to slippage.

Design Criteria

See Figures ED-1, DS-1, DS-2, DS-3, DS-4 and/or DS-5 for design criteria and installation details.

Construction Specifications

- All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the ditch and berm. Ideally the ditch will be cut in a location that avoids obstructions and or objects as to avoid additional disturbance.
- All ditch and berms shall have uninterrupted positive grade to an outlet.
- All ditch and berms shall be parabolic or V-shaped if possible.
- The ditch and berm shall be excavated or shaped to line, grade, and cross section as required to meet the specific criteria, depending on ditch design (see ED/DS Diagram).
- All ditch and berms must be cut to a minimum depth of 15 inches from the top of the ditch to the bottom center.
- The side slopes must be 3:1 to ensure ease of maintenance, minimize erosion, and allow the ditch to adequately disperse flow.
- All ditch and berms must have a minimum width of 7.5 feet from ridge to ridge.
- In the event of an excavated ditch and berm, all overburden needs to be sufficiently compacted along the ditch edge.
- Rills shall be compacted as needed to prevent unusual settlement that would interfere with the proper functioning of the ditch and berm.
- All earth that is removed and not needed in the construction process shall be spread or disposed of on the well pad side so it will not interfere with the functioning of the ditch and berm.
- Stabilization BMPs shall be incorporated into all ditch and berms immediately after the ridge and channel are constructed in order to minimize erosion, degradation, and sediment deposition from the ditch. Permanent ditch and berms must be seeded or hydro seeded and mulched or covered with erosion control blanketing according to SEEDING (S) and MULCHING (M) or EROSION CONTROL BLANKET (ECB) along with any disturbed areas that drain into the ditch and berm.
- Diverted runoff from a disturbed area shall be conveyed to a sediment trapping device.
- Diverted runoff from an undisturbed area shall outlet to a sediment trapping device or into an undisturbed stabilized area at non-erosive velocities. Vegetative outlets shall be installed before ditch and berm construction, if needed, to ensure establishment of vegetative cover in the outlet channel.

Location

Ditch and berms are usually located above or below cut or fill slopes. Exact ditch and berm location shall be determined by considering outlet conditions, topography, land use, soil type, length of slope, and the development layout. Where possible on shallow slopes, a vegetative buffer strip should be left between the edge of the cut or fill slope and the ditch and berm. See VEGETATIVE BUFFER (VB).

For clay vegetated channels. Ditch and berms are usually not applicable below high sediment producing areas unless structural measures, designed to prevent damaging accumulations of sediment in the channels, are installed with or before the ditch and berm.

Maintenance Considerations

The frequency of inspections should be in accordance with the Stormwater Management Plan (SWMP). Channels should be cleared of sediment and repairs made when necessary. Maintain ditch and berm capacity, ridge height, especially if high-sediment yielding areas are in the drainage area above the ditch and berm. Redistribute the sediment as necessary to maintain the capacity of the ditch and berm.

Removal

Temporary ditch and berms shall remain in place only until the disturbed areas are re-graded and prepared for permanent stabilization. Permanent ditch and berms shall remain in place until final reclamation (abandonment).

References

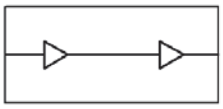
United States Environmental Protection Agency (EPA), *National Pollutant Discharge Elimination System (NPDES). Construction Site Stormwater Runoff Control.* Washington, D.C., February, 2003. http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm

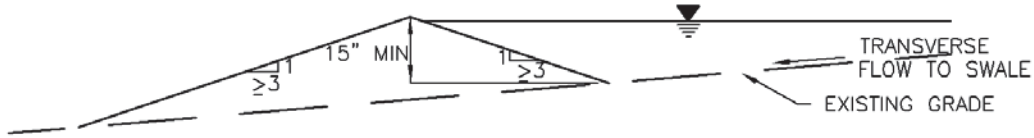
New York State Department of Environmental Conservation, *New York Guidelines for Erosion and Sediment Control*. New York. August 2005. http://www.dec.ny.gov/chemical/29066.html

United States Department of Agriculture (USDA), Natural Resources Conservation Services (NRCS), *Field Office Technical Guide.* 2002. http://www.nrcs.usda.gov/technical/efotg/

Urban Drainage and Flood Control District, *Volume 3 Stormwater Quality*. Denver, CO, November 2015. http://udfcd.org/volume-three

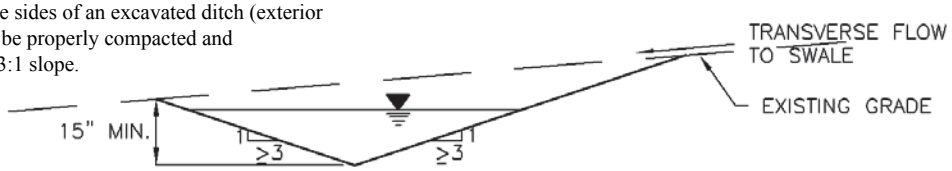
Earth Dikes and Drainage Swales (ED/DS)





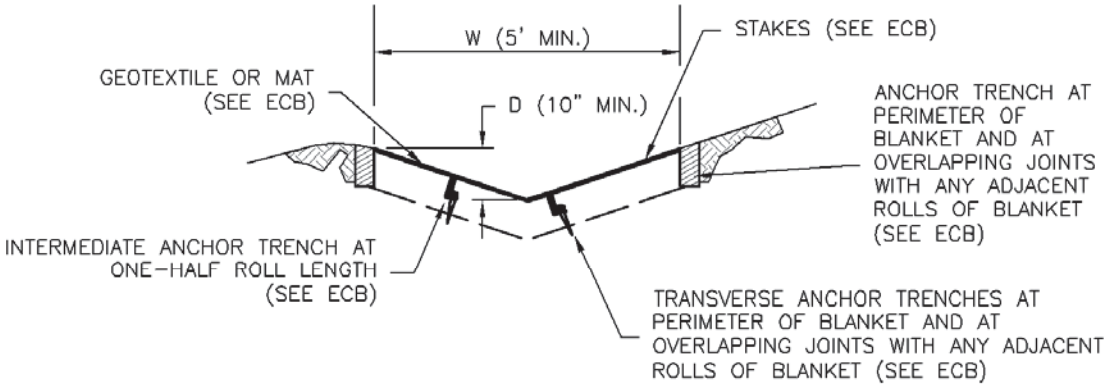
ED–1. COMPACTED UNLINED EARTH DIKE FORMED BY BERM

Optional: An interior berm is optional if all overburden generated during the constuction phase is removed and properly stored on location. All overburden that remains along the sides of an excavated ditch (exterior & interior) must be properly compacted and constructed at a 3:1 slope.



DS–1. COMPACTED UNLINED EXCAVATED SWALE

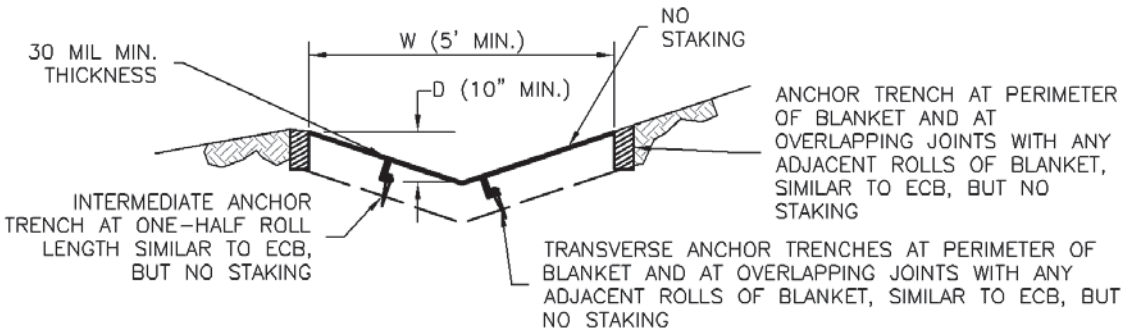
DS–2. COMPACTED UNLINED SWALE FORMED BY CUT AND FILL



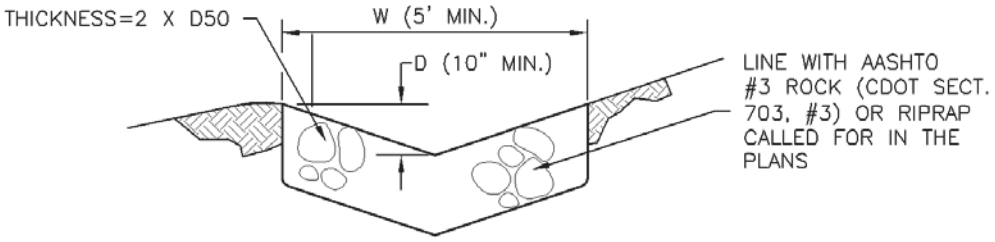
DS–3. ECB LINED SWALE (CUT AND FILL OR BERM)

Note: Excavated or fill material used to create a ditch and berm must be compacted.
Note: Locations with site-specific engineered ditch and berm desgins will be followed in lieu of this standard design and will be documented in the site-specific SWMP diagram and/or applicable documentation.

Earth Dikes and Drainage Swales (ED/DS)



DS-4. SYNTHETIC LINED SWALE



DS-5. RIPRAP LINED SWALE

EARTH DIKE AND DRAINAGE SWALE INSTALLATION NOTES

1. SEE SITE PLAN FOR:
   - LOCATION OF DIVERSION SWALE
   - TYPE OF SWALE (UNLINED, COMPACTED AND/OR LINED).
   - LENGTH OF EACH SWALE.
   - DEPTH, D, AND WIDTH, W DIMENSIONS.
   - FOR ECB/TRM LINED DITCH, SEE ECB DETAIL.
   - FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, D50.

2. SEE DRAINAGE PLANS FOR DETAILS OF PERMANENT CONVEYANCE FACILITIES AND/OR DIVERSION SWALES EXCEEDING 2-YEAR FLOW RATE OR 10 CFS.

3. EARTH DIKES AND SWALES INDICATED ON SWMP PLAN SHALL BE INSTALLED PRIOR TO LAND-DISTURBING ACTIVITIES IN PROXIMITY.

4. EMBANKMENT IS TO BE COMPACTED TO 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D698.

5. SWALES ARE TO DRAIN TO A SEDIMENT CONTROL BMP.

6. FOR LINED DITCHES, INSTALLATION OF ECB/TRM SHALL CONFORM TO THE REQUIREMENTS OF THE ECB DETAIL.

7. WHEN CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION SWALE, INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12 INCHES.

Note: Excavated or fill material used to create a ditch and berm (dike/swale) must be compacted.

Earth Dikes and Drainage Swales (ED/DS)

EARTH DIKE AND DRAINAGE SWALE MAINTENANCE NOTES

1. INSPECT BMPs ACCORDING TO THE APPLICABLE SWMP SCHEDULE AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SWALES SHALL REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION; IF APPROVED BY LOCAL JURISDICTION, SWALES MAY BE LEFT IN PLACE.

5. WHEN A SWALE IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROIIA DOUGLAS COUNTY, COLORADO ANO THE CITY OF COLORADO SPRINGS, COLORADO, NOT AVAILABLE IN AUTOCAD)

Land Grading (LG)

Description

Grading involves reshaping the ground surface to planned grades. Grading provides more suitable topography for well pads and pipelines and helps to control runoff, soil erosion, and sediment during and after construction in these areas. Land grading includes the following.

- Proper cut and fill techniques to ensure roads and well pads remain stable over time.
- Road crowning or sloping to properly route stormwater off of the roadway.
- Surfacing of roads or well pads with gravel to avoid mud, rutting, and large quantities of sediment that will wash away during storms.

Applicability

- The construction and maintenance of any road or well pad, but particularly those located on steep topography or easily erodible soils.
- Surface gravel areas with "soft" soils sections, steep grades, highly erosive soils, or where all-weather access is needed. Gravel may be used as "fill" material in ruts or as a full structural section over the entire road or well pad.

Limitations

- Improper cut and fill slopes that disrupt natural stormwater patterns might lead to poor drainage, high runoff velocities, and increased peak flows during storm events.
- Rutting and wash boarding may develop if surface gravel is not designed properly or if road or well pad is not sloped properly.
- Flat-blading to maintain the roadway must be done properly to avoid changes in gravel thickness, road slope, and road grade.

Design Criteria

Land grading should be based upon well pad and pipeline layouts that fit and utilize existing topography and desirable natural surroundings to avoid extreme grade modifications. Clearing and grading should only occur at those areas necessary for well pad activity and equipment traffic. Maintaining undisturbed temporary or permanent buffer zones in the grading operation

provides a low cost sediment control measure that will help reduce runoff and off-site sedimentation.

Slope Failures

Landslides and failed cuts and fills can be a major source of sediment. Slope failures can close the roads or require major repairs and can greatly increase maintenance costs. Slope failures or landslides typically occur where a slope is overly steep, where fill material is not compacted, or where cuts in natural soils encounter groundwater or zones of weak material. Good road location can often avoid landslide areas and reduce slope failures. When failure does occur, the slide area should be stabilized by removing the slide material, flattening the slope, adding drainage, or using structures as discussed below. Designs are typically site specific and may require input from geotechnical engineers and engineering geologists. Failures that occur typically impact operations and can be costly to repair. Failures near streams and channel crossings have an added risk of impact to water quality.

Road Slope (See Figure LG-1 for details).

All roads should be designed with one of the following three slope types:

1. Out-sloped roads minimize the concentration of water and minimize road width by avoiding the need for an inside ditch, but may require roadway surface and fill slope stabilization. Out-sloped roads with clay rich, slippery road surface materials often require surface stabilization with gravel or limited use during rainy periods to assure traffic safety. Roads with over 10% to 12% grades and on steep hill slope areas, out- sloped roads are difficult to drain and can feel unsafe.
2. In-sloped roads are the best method to control surface water. However, in-sloped roads also concentrate water and require a system of ditches and turnouts or cross draining culverts.
3. Crowned roads are appropriate for higher standard, two lane roads on gentle grades. They may or may not require roadside ditches, turnouts, and/or cross drains. It is difficult to create and maintain a crown on a narrow road, so generally in-sloped or out-sloped road drainage is more effective.

Construction Specifications

Cut and Fill Slopes

- All areas to be disturbed (both cut and fill) shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots, or other objectionable material.
- Fill material shall be free of brush, logs, stumps, roots, or other objectionable material that would interfere with, or prevent construction or satisfactory fills. This material can be set aside and later used at the toe of fill slopes as filter berms.
- Table LG-1 presents a range of commonly used cut and fill slope ratios appropriate for the soil and rock types described. Vertical cut slopes should not be used unless the cut is in rock or very well-cemented soil. Ideally, both cut and fill slopes should be constructed with a 2:1 or flatter slope to promote growth of vegetation, but cut slopes in dense, sterile soils or rocky material are often difficult to vegetate. All cut & fill slopes will be constructed according to the engineered diagrams when applicable.

- All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence, or other related problems.
- Topsoil required for the establishment of vegetation shall be stockpiled in the amount necessary to complete finished grading of all exposed areas.

Road Slope (See Figure LG-1).

- Compact soil or road base material to direct runoff.
- If crowning a road, runoff is directed to both sides of the road requiring two roadside ditches, unless runoff will drain directly to well-stabilized areas.
- If using an in-slope design, runoff will be directed toward the hillside and requires a roadside ditch with periodic turnouts or cross drain culvert installation.
- If using an out-slope design, ensure a moderate road slope with dense vegetative cover.

Surface Gravel

- Ideally, aggregate surfacing material is (1) hard, durable, and crushed or screened to a minus 2-inch size; (2) well graded to achieve maximum density; (3) contains 5-15% clayey binder to prevent raveling; and (4) has a plasticity index of 2 to 10.
- Gravel thickness should be at least twice the diameter of the largest stone with a minimum thickness of 4 inches. Gravel thickness can be reduced with the use of geotextile or geo-grid sub-grade reinforcement when gravel is placed over very weak soils. Also, geotextile layers are useful over soft soils to separate the gravel from the soil, keep it uncontaminated, and extend the useful life of the gravel.
- Compact the aggregate during construction and maintenance to achieve a dense, smooth surface and thus reduce the amount of water that can soak into the road or well pad.
- "Spot" stabilize local wet areas and soft areas with 4 to 6 inches of coarse rocky material, add more as needed.
- Blend coarse aggregate and fine clay-rich soil (when available) with 5% to 15% fines for binder to produce a desirable composite roadway material that is coarse yet well graded.

Maintenance Considerations

The frequency of inspections should be in accordance with the Stormwater Management Plan (SWMP). Inspect cut and fill slopes for rills or other indications of erosion. Maintain all crowns, out slopes, in slopes, and surface gravel.

References

United States Environmental Protection Agency (EPA), *National Pollutant Discharge Elimination System (NPDES). Construction Site Stormwater Runoff Control.* Washington, D.C., February 2003. http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm

Horizon Environmental Services, Inc, *Guidance Document Reasonable and Prudent Practices for Stabilization (RAPPS) of Oil and Gas Construction Sites.* April 2004.

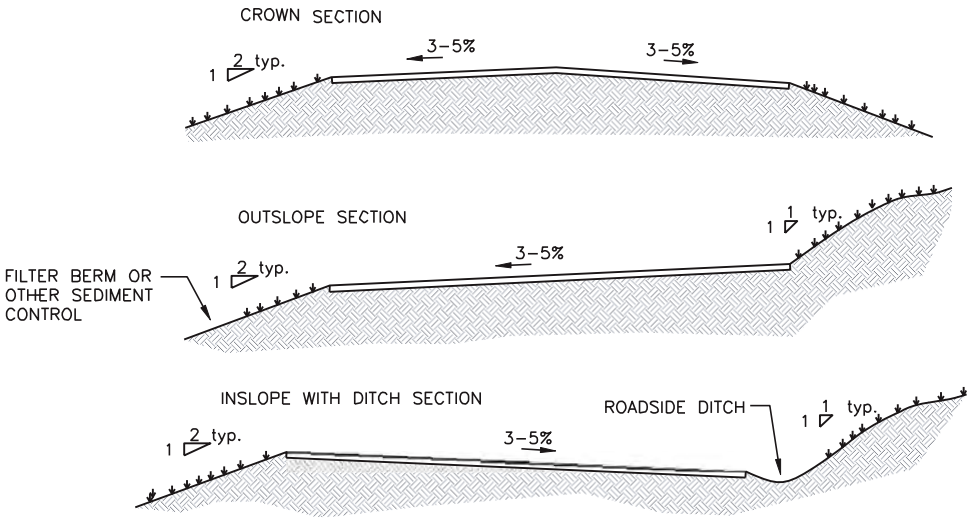
Keller, Gordon and James Sherar, *Low-Volume Roads Engineering, Best Management Practices Field Guide.* United States Department of Agriculture (USDA), Forest Service, US Agency of International Development (USAID), 2003. http://www.blm.gov/bmp/field%20guide.htm

New York State Department of Environmental Conservation, *New York Guidelines for Erosion and Sediment Control*. New York. August 2005. http://www.dec.ny.gov/chemical/29066.html

TABLE LG-1
Stable Slope Ratios for Various Conditions

Soil/Rock Condition	Slope Ratio (Hor:Vert)
Most rock	1/4: 1 to 1/2: 1
Very well cemented soils	1/4: 1 to 1/2: 1
Most in-place soils	3/4: 1 to 1: 1
Very fractured rock	1: 1 to 1 1/2: 1
Loose coarse granular soils	1 1/2: 1
Heavy clay soils	2: 1 to 3: 1
Soft clay rich zones or wet seepage areas	2: 1 to 3: 1
Fills of most soils	1 1/2: 1 to 2: 1
Fills of hard, angular rock	1 1/3: 1
Low cuts and fills (<10 ft high)	2: 1 or flatter (for revegetation)

FIGURE LG-1
Typical Road Surface Drainage Options



SCALE: NOT TO SCALE

Mulching (M)

Description

Mulching is a temporary erosion control practice in which materials such as grass, hay, wood chips, wood fibers, straw, or gravel are placed on exposed or recently planted soil surfaces. Mulching stabilizes soils by minimizing rainfall impact and reduces stormwater runoff velocity. When used in combination with seeding or planting, mulching can aid plant growth by holding seeds, fertilizers, and topsoil in place, preventing birds from eating seeds, retaining moisture, and insulating plant roots against extreme temperatures.

Mulch matting is materials such as jute or other wood fibers that are formed into sheets and are more stable than loose mulch. Jute and other wood fibers, plastic, paper, or cotton can be used individually or combined into mats to hold mulch to the ground. Netting can be used to stabilize soils while plants are growing, although netting does not retain moisture or insulate against extreme temperatures. Mulch binders consist of asphalt or synthetic materials that are sometimes used instead of netting to bind loose mulch.

Applicability

Mulching is often used after (or in combination with) seeding to help aid in the establishment of vegetation. Hydraulic application of mulch is often used in steep areas (up to 1:1) where regular mulching is difficult because of environmental constraints. Mulch matting, with net or anchoring to hold it in place, can also be used on steep slopes or in critical areas such as waterways. Mulch can last for one to two years and is most effective when used on an area less than two acres in size.

Limitations

- Mulching, matting, and netting might delay seed germination because the cover changes soil surface temperatures.
- The mulches are subject to erosion and may be washed away in a large storm.
- Maintenance is necessary to ensure that mulches provide effective erosion control.

Design Criteria

See Table M-1 and M-2 for mulch materials and application rate details.

Construction Specifications

Site Preparation

- Prior to mulching, install the necessary temporary or permanent erosion control practices and drainage system within or adjacent to the area to be mulched.
- Slope, grade, and smooth the side to fit the needs of the selected mulch products.
- Remove all undesirable stones and other debris to meet the needs of the anticipated land use and maintenance required.

Mulching and Anchoring

- Select the appropriate mulch and application rate that will best meet the need and availability of material. When possible, organic mulches should be used for erosion control and plant establishment. See Table M-1 for suggested materials and application rates. Other materials include hydraulic mulch products with 100% post-consumer paper content and yard trimming composts. All materials should be free of seed.
- Apply mulch after soil amendments and planting is accomplished or simultaneously if hydro-seeding is used. See Table M-1 for installation guidelines.
- Use a mulch crimper to apply and anchor mulch. A crimper should have approximately 6-inch cleats with perpendicular, dull, disc blades. If a crimper is unavailable the Contractor shall apply the mulch and anchor it to the soil using one of the methods described in Table M-2. The mulch should be anchored the same day as the mulch application. Materials that are heavy enough to stay in place (for example, bark or wood chips on flat slopes) do not need anchoring. Mulches may or may not require a binder, netting, or tacking. Mulch binders should be applied at rates recommended by the manufacturer. Effective use of netting and matting material requires firm, continuous contact between the materials and the soil.

Hydraulic Mulching

- For steep slopes or other areas where hydraulic application of mulch is desired, a high-quality type of hydraulic matrix known as a Bonded Fiber Matrix (BFM) may be used. A BFM refers to a continuous layer of elongated wood fiber strands that are held together by a water-resistant bonding agent to form a water-absorbing crust.
- A typical construction specification for wood fiber mulch (hydro-mulch) is as follows: Biodegradable green-dyed wood-cellulose-fiber mulch, which is nontoxic, free of plant growth- or germination-inhibitors, with maximum moisture content of 15% and a pH range of 4.5 to 6.5.
- A typical construction specification for weed-free-straw non-asphaltic tackifier is as follows: Organic derivative vegetative gum tackifier recommended by fiber-mulch manufacturer for a slurry application, which is nontoxic and free of plant growth-or germination-inhibitor.

- Hydraulic application of BFM must be done when no rainfall is expected, preferably within a 24-hour time period. Mix BFM in a hydraulic application machine (such as a hydro-seeder or a mulch blower) and then apply to the slope as a liquid slurry. The slurry must be constantly agitated to keep the proper application rate and achieve uniform effective coverage. The minimum application rate shall be 2,000 pounds per acre with a typical application rate between 3,000 and 4,000 pounds per acre.

Maintenance Considerations

The frequency of inspections should be in accordance with the Stormwater Management Plan (SWMP). Areas should be identified where mulch has loosened or been removed. Such areas should be re-seeded (if necessary) and the mulch cover replaced. If washout, breakage, or erosion occurs, surfaces should be repaired, re-seeded, and re-mulched, and new netting should be installed. Inspections should be continued until vegetation is firmly established.

Removal

Anchor netting and any other artificial mulch material should be removed when protection is no longer needed and then disposed of in a landfill.

References

United States Environmental Protection Agency (EPA), *National Pollutant Discharge Elimination System (NPDES). Construction Site Stormwater Runoff Control*. Washington, D.C., February 2003. http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm

Horizon Environmental Services, Inc, *Guidance Document Reasonable and Prudent Practices for Stabilization (RAPPS) of Oil and Gas Construction Sites.* April 2004

New York State Department of Environmental Conservation, *New York Guidelines for Erosion and Sediment Control*. New York. August 2005. http://www.dec.ny.gov/chemical/29066.html

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), *Field Office Technical Guide.* 2002. http://www.nrcs.usda.gov/technical/efotg/

Table M-1
Typical Mulching Materials and Application Rates

Material	Rate per Acre	Requirements	Notes
Organic Mulches			
Straw	1-2 tons	Dry, unchopped, unweathered; certified weed free	Spread by hand or machine; must be tacked or tied down
Wood fiber or wood cellulose	1/2 - 1 ton		Use with hydroseeder, may be used to tack straw. Do not use in hot dry weather.
Wood Chips	5 - 6 tons	Air dry. Add fertilizer N. 12 lb/ton	Apply with blower, chip handler, or by hand. Not for fine turf areas.
Bark	35 yd^3	Air dry, shredded, or hammermilled, or chips.	Apply with mulch blower, chip handler, or by hand. Do not use asphalt tack.
Nets and Mats			
Jute net	Cover area	Heavy, uniform; woven of single jute yarn. Used with organic mulch	Withstands water flow
Excelsior (wood fiber) mat	Cover area		

Table M-2
Mulch Anchoring Guide

Anchoring Method or Material	Kind of Mulch to be Anchored	How to Apply
1. Mulch netting	Hay or straw	Staple the light-weight paper, jute, wood fiber, or plastic nettings to soil surface according to manuracturer's recommendations. Should be biodegradable. Most products are not suitable for foot traffic.
2. Wood cellulose fiber	Hay or straw	Apply hydroseeder immediately after mulching. Use 500 lbs. Wood fiber per acre. Some products contain an adheisive material, possibly advantageous.
3. Mulch anchoring tool/Crimper	Hay or straw	Apply mulch and pull a mulch anchoring tool (blunt, straight discs) over mulch as near to the contour as possible. Mulch material should be "tucked" into soil surface about 3".
4. Chemical	Hay or straw	Apply Terra Tack AR 120lbs./ac. In 480 gal. of water (#156/sec.) or Aerospray 70 (60gal./ac.) according to manufacturer's instructions. Avoid application during rain. A 24-hour curing period and a soil temperatire higher than 45 deg. Ferhenheit are required.

Riprap (R)

Description

Riprap is a permanent, erosion resistant layer made of stones or boulders. It is intended to stabilize areas subject to erosion and protect against scour of the soil caused by concentrated, high velocity flows.

Applicability

Riprap can be used for areas subject to erosion or weathering, particularly where conditions prohibit the establishment of re-vegetation or where flow velocities exceed 5 feet per second.

Riprap can be used in, but is not limited to:

- Cut and fill slopes;
- Channel side slopes and/or bottoms;
- Inlets and outlets to culverts, slope drains, and sediment traps; and
- Roadside ditches.

Limitations

Riprap is limited by steepness of slope, because slopes that are greater than 1.5:1 have potential riprap loss due to erosion and sliding. When working within flowing streams, measures should be taken to prevent excessive turbidity and erosion during construction. Bypassing base flows or temporarily blocking base flows are two possible methods.

Design Criteria

Gradation

A well-graded mixture of rock sizes should be used instead of one uniform size (with the exception of dry stacking boulders). Fifty percent by weight should be larger than the specified design size. The diameter of the largest stone size in such a mixture should be 1.5 times the D50 size with smaller sizes graded down to one inch. When dry stacking up a slope, boulders may be uniform in size or may get gradually smaller as the boulders are placed up the slope.

Quality

Riprap must be durable so freeze/thaw cycles do not decompose it in a short time. They should be angular and not subject to breaking down when exposed to water or weathering.

Size

The sizes of stones used for riprap protection are determined by the purpose and specific site conditions:

- **Slope Stabilization:** Riprap stone for slope stabilization not subject to flowing water should be sized for the proposed grade. The gradient of the slope to be stabilized should be less than the natural angle of the repose of the stone selected. Angles of the repose of riprap stones may be estimated using Figure R-1. Riprap used for surface stabilization of slopes does not add significant resistance to sliding or slope failure and should not be considered a retaining wall. Slopes approaching 1.5:1 may require special stability analysis. The inherent ability of the soil must be satisfactory before riprap is used for surface stabilization.
- **Outlet Protection.** Design criteria for sizing stone and determining dimensions of riprap aprons are presented in CULVERT PROTECTION (CP).
- **Stream Bank Protection.** If the shear stress is estimated, riprap stone for stream bank protection can be selected from the gradations in Table R-1, below. The shear stress can be estimated from the depth of flow and the channel slope (see note for Table R-1). The riprap should extend 2 feet below the channel bottom and be keyed into the bank both at the upstream end and downstream end of the proposed work or reach.

Filter Material

Filter material is sometimes used between riprap and the underlying soil surface to prevent soil from moving through the riprap. Filter cloth material or a layer of sand and/or gravel is usually used for the filter.

The design of a sand/gravel filter blanket is based on the ratio of particle size in the overlying filter material to that of the base material in accordance with the criteria below. Multiple layers (each a minimum of 6-inches thick) may be designed to affect a proper filter if necessary. A sand/gravel filter blanket should have the following relationship for a stable design.

The design of a synthetic filter fabric, which may be used with or in place of gravel filters, is as follows:

- Filter fabric covering a base containing 50 percent or less by weight of fine particles (#200 sieve size).
- Total open area of filter fabric should not exceed 36%.
- Filter fabric covering other soils.
- Equivalent opening size (EOS) is no larger than 0.21 mm (#70 sieve size).
- Total open area of filter fabric should not exceed 10%.
- *EOS- Equivalent opening size compared to a U.S. standard sieve size.

No filter fabric should have less than 4% open area or an EOS less than U.S. Standard Sieve #100 (0.15 mm). The permeability of the fabric must be greater than that of the soil. The fabric may be

made of woven or non-woven monofilament yarns and should meet the following minimum requirements:

- Thickness 20-60 mils
- Grab strength 90-120 lbs
- Conform to ASTM D-1682 or ASTM D-177

Construction Specifications

See Figure R-2 for riprap slope stabilization and stream bank protection. See Figure R-3 for dry stacking boulders. See SEDIMENT TRAP (ST) for a detail of a riprap lined channel leading into a sediment trap. For culvert outlet protection, construct according to CULVERT PROTECTION (CP).

Sub-Grade Preparation

Prepare the sub-grade for riprap to the required lines and grades. Compact any fill required in the sub-grade to a density approximating that of the undisturbed material or overfill depressions with riprap. Remove brush, trees, stumps, and other objectionable material. Cut the sub-grade sufficiently deep so the finished grade of the riprap will be at the elevation of the surrounding area. Channels should be excavated sufficiently to allow placement of the riprap in a manner such that the finished inside dimensions and grade of the riprap meet design specifications.

Sand/Gravel Filter Basket

If using a granular filter, spread filter stone in a uniform layer to the specified depth. Where more than one layer of filter material is used, spread the layers with minimal mixing.

Synthetic Filter Fabric

If using a filter fabric, place the cloth directly on the prepared foundation. Where large stones are to be placed, a 4-inch layer of fine sand or gravel is recommended to protect the filter cloth. Filter fabric is not recommended as a filter on slopes steeper than 2:1.

Stone Placement

Place riprap so it forms a dense, well-graded mass of stone with a minimum of voids. The desired distribution of stones throughout the mass may be obtained by selective loading at the quarry and controlled dumping during the final placement. Place riprap through chutes or other methods that cause segregation of stone sizes. If a filter is used, be careful not to lodge the underlying base filter or damage the filter cloth when placing the stones. If damage occurs, remove the riprap and repair the filter.

The toe of the riprap should be keyed into a stable foundation at its base as shown in Figure R-2 if required for slope stabilization and stream bank protection. The finished slope should be free of pockets of small stones or clusters of large stones. Hand placing may be necessary to achieve proper distribution of stone sizes to produce a relatively smooth, uniform surface. The finished grade of the riprap should blend with the surrounding area.

Maintenance Considerations

The frequency of inspections should be in accordance with the Stormwater Management Plan (SWMP). If riprap has been damaged or dislodged, repairs should be made to prevent a progressive failure. If repairs are needed repeatedly at one location, the site should be evaluated to determine if the original design conditions have changed. Channel obstructions such as trees and sediment bars can change flow patterns and cause erosive forces that may damage riprap. Control of weed and brush growth may be needed in some locations.

Removal

Riprap is generally not removed. If it is anticipated that riprap shall be removed from a location, removal generally occurs during pullback/reduction methods.

References

United States Environmental Protection Agency (EPA), *National Pollutant Discharge Elimination System (NPDES). Construction Site Stormwater Runoff Control*. Washington, D.C., February 2003. http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm

New York State Department of Environmental Conservation, *New York Guidelines for Erosion and Sediment Control*. New York. August 2005. http://www.dec.ny.gov/chemical/29066.html

TABLE R-1
Riprap Gradations

Unit shear stress (lb/ft^2)	D_{50}	d_{max}	Minimum blanket thickness (inches)
0.67	2	4	6
2	6	9	14
3	9	14	20
4	12	18	27
5	15	22	32
6	18	27	32
7.8	21	32	38
8	24	36	43

Unit shear stress calculated as T=y*d*s where:

T=shear stress in lb/ft^2

y=unit weight of water, 62.4 lb/ft^2

d=flow depth in ft

s=channel gradient in ft/ft

FIGURE R-1
Angles of Repose of Riprap Stones

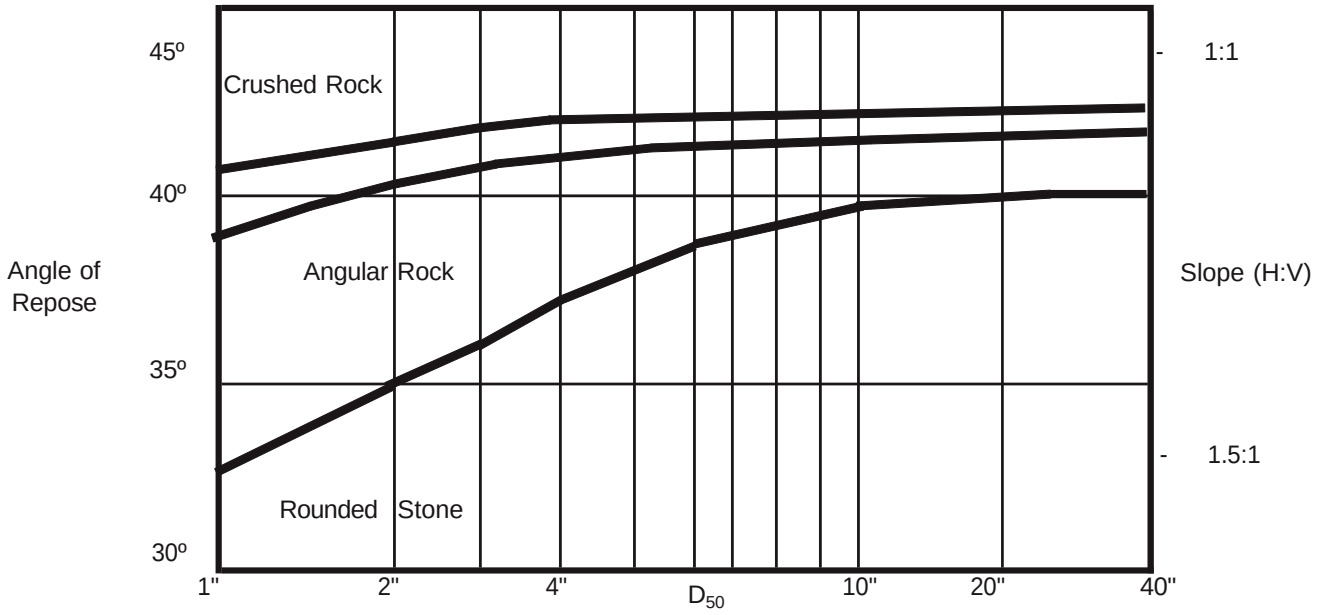


Figure R-2
Typical Riprap Slope Protection
Detail

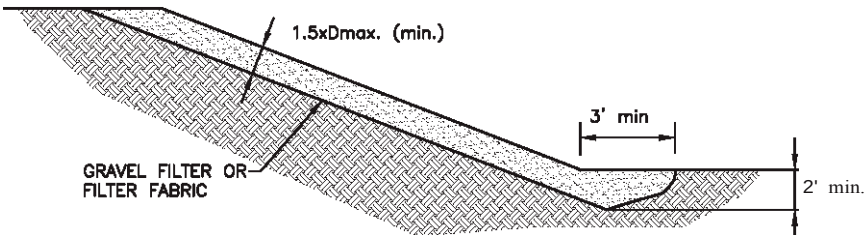
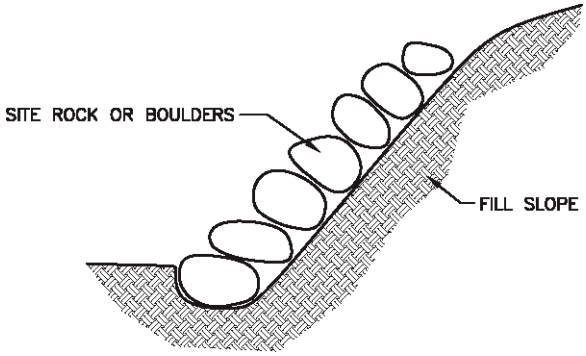


Figure R-3
Typical Boulder Drystack
Detail



SCALE: NOT TO SCALE

Sediment Basin (SB)

Description

Sediment basins can be used to temporarily pond and capture eroded or disturbed soil transported in stormwater runoff. Sediment basins are designed to capture runoff in a large pool or pond and allow sediment to settle from runoff prior to discharge from a location. The pool is dewatered through a single riser and drainage hole leading to a suitable outlet on the downstream side of the embankment or through the gravel of a rock dam. The water is released more slowly than it would be without the control structure. Many sediment basins are constructed in a location where it will remain after post-construction to serve as a permanent means of sediment settling.

Applicability

Sediment ponds are usually used for drainage areas greater than 2 acres. They can be temporary or permanent. Sediment ponds designed to be used for up to 3 years are usually described as temporary. Those designed for longer service are considered permanent. Temporary sediment basins can be converted into permanent stormwater runoff management ponds, but they must meet all regulatory requirements for wet ponds.

Limitations

Do not use a sediment pond with an earthen embankment or a rock dam in an area of continuously running water (live streams). Do not use a sediment pond in an area where failure of the earthen or rock dam will result in loss of life or damage to homes or other buildings. Do not use sediment basins in areas where failure will prevent the use of public roads or utilities.

Design Criteria

Investigate potential sites for sediment ponds during the initial site evaluation. Construct the ponds before any grading takes place in the drainage area. Ponds should take into account basin storage volume, geometry, dam embankment, and inflow structure (See Table SB-1). For permanent structures, a qualified professional engineer experienced in designing dams should complete the basin design.

Construction Specification

A sediment pond is constructed by excavation or by erecting an earthen embankment across a low area or drainage swale. Some sediment ponds are designed to drain completely during dry periods. Others are constructed so a shallow pool of water remains between storm events. See Diagram SD and Table SB for installation details.

Maintenance Considerations

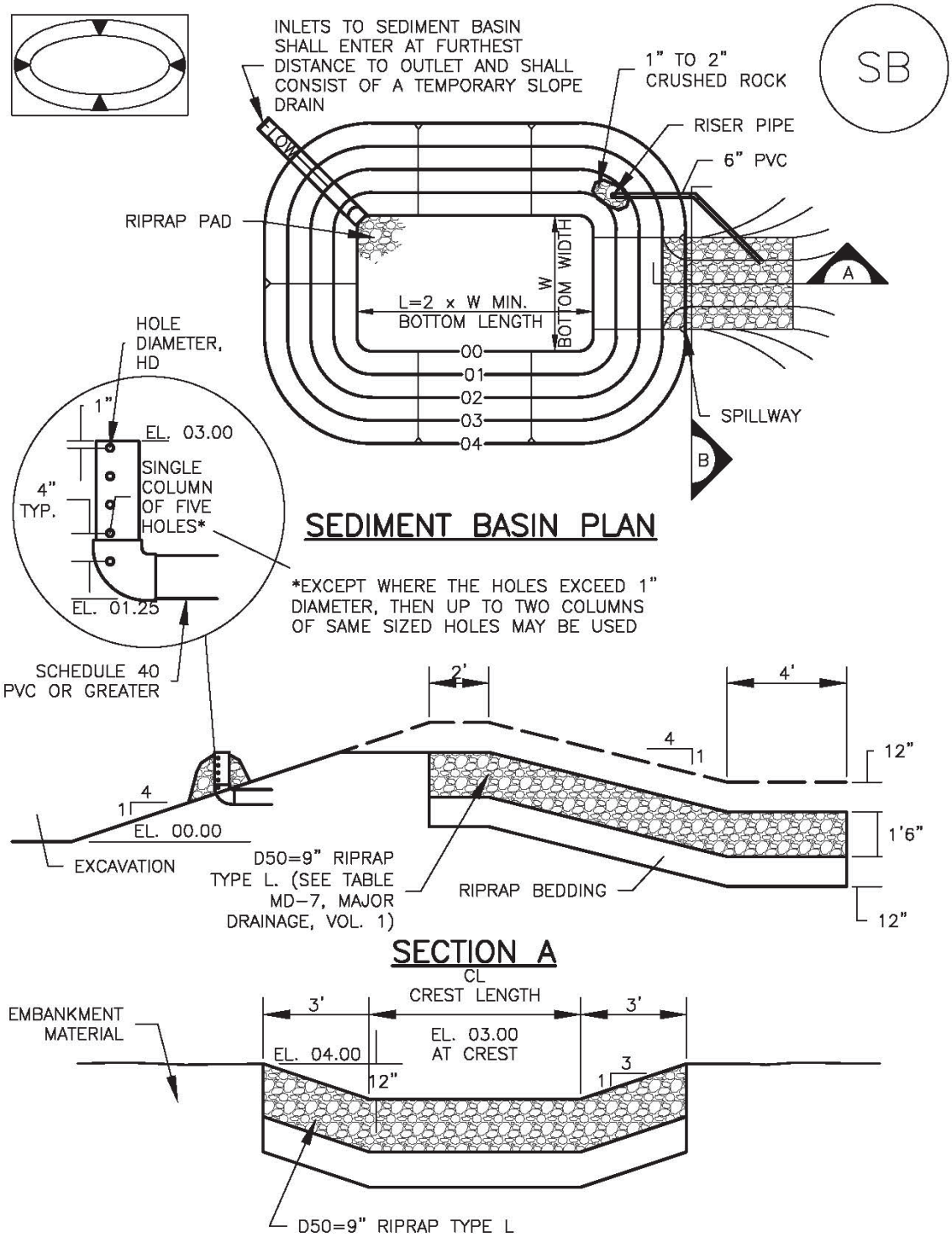
The frequency of inspections should be in accordance with the Stormwater Management Plan (SWMP) to ensure proper drainage from the collection pool and determine the need for structural repairs. Replace material eroded from earthen embankments or stones moved from rock dams immediately. Locate sediment basins in an area that is easily accessible to maintenance crews for removal of accumulated sediment. Remove sediment from the basin when the storage capacity has reached approximately 50%. Remove trash and debris from around dewatering devices promptly after rainfall events.

References

United States Environmental Protection Agency (EPA), *National Pollutant Discharge Elimination System (NPDES). Construction Site Stormwater Runoff Control*. Washington, D.C., February 2003. http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm

Urban Drainage and Flood Control District, *Volume 3 Stormwater Quality*. Denver, CO, November 2015. http://udfcd.org/volume-three

Sediment Basin (SB)



Note: Excavated or fill material used to create a sediment basin must be compacted.

Sediment Basin (SB)

TABLE SB–1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN			
Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (in)
1	12 ½	2	9/32
2	21	3	13/16
3	28	5	½
4	33 ½	6	9/16
5	38 ½	8	21/32
6	43	9	21/32
7	47 ¼	11	25/32
8	51	12	27/32
9	55	13	7/8
10	58 ¼	15	15/16
11	61	16	31/32
12	64	18	1
13	67 ½	19	1 1/16
14	70 ½	21	1 1/8
15	73 ¼	22	1 3/16

SEDIMENT BASIN INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - –LOCATION OF SEDIMENT BASIN.
   - –TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
   - –FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
   - –FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.

2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.

3. SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND–DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS AS A STORMWATER CONTROL.

4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.

5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.

6. PIPE SCH 40 OR GREATER SHALL BE USED.

7. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

Sediment Basin (SB)

SEDIMENT BASIN MAINTENANCE NOTES

1. INSPECT BMPs IN ACCORDANCE WITH THE APPLICABLE SWMP FREQUENCY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E.. TWO FEET BELOW THE SPILLWAY CREST).

5. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.

6. WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Sediment Trap (ST)

Description

Sediment traps are traps formed by excavation of an area or by placing an earthen embankment across a low area or drainage swale. Sediment traps are designed to capture drainage from disturbed areas and allow settling of sediment prior to discharge from a location.

Applicability

Sediment traps are generally temporary control measures used at the outlets of stormwater diversion structures, channels, slope drains, construction site entrance wash racks, or any other runoff conveyance that discharges waters containing erosion sediment and debris. Sediment traps should be used for drainage areas of five acres or less. Sediment traps shall remain in place until the upstream disturbed area is stabilized. Traps may be located in a series to accommodate larger drainage areas and allow for backup control in case one trap fails.

Limitations

- Regular maintenance is needed to remove sediment. Traps should be located near roads or where accessible to remove sediment.
- Although sediment traps allow eroded soils to settle, due to the short detention periods for stormwater, traps typically do not remove fine particles such as silts and clays.
- Water may remain in sediment traps for extended periods causing mosquitoes and other insects to gather. Locate the trap in a sunny spot if possible.
- Never construct a sediment trap on a live flow stream or in wetlands.

Design Criteria

Traps should be located at points of discharge from disturbed areas. The location will be determined by the natural terrain, drainage pattern of the runoff, and the accessibility for maintenance. Sediment traps should not be located in areas where their failure due to stormwater runoff excess can lead to further erosive damage of the landscape. Alternative diversion pathways should be designed to accommodate these potential overflows. Sediment trap locations should also allow for easy maintenance access for the periodic removal of accumulated sediment.

Construction Specifications

See Figure ST for installation details.

- Sediment traps, along with other perimeter controls, shall be installed before any land disturbance takes place in the drainage area.
- Traps should be located above the floodplain, where possible. If there are space constraints, several small sediment traps may be constructed in series.
- Area under embankment shall be cleared, grubbed, and stripped of any vegetation and root mat. The pool area shall be cleared.
- The fill material for the embankment shall be free of roots and other woody vegetation as well as over-sized stones, rocks, organic material, or other objectionable material.
- The sediment trap must have a minimum depth of 2.5 feet from the bottom of the trap to the top of the earthen berm. The sediment trap must also have a minimum width of 12 feet measured from berm-to-berm. Sizes vary on a site-specific basis.
- The sides of the sediment trap must be 2:1 to minimize erosion and ensure sufficient pooling of stormwater runoff.
- The berm of the sediment trap must be compacted or similar BMPs implemented.
- Stabilization of the embankment should be performed as soon as possible after construction of the sediment trap. This includes sufficient compaction, slope grade, or similar stabilization BMPs.
- The top of the earthen berm shall be, at minimum, 6 inches higher than the center of the outlet. The spillway must consist of Type M riprap (D50) 12 inches in size, at minimum, and extend 8 feet beyond the outlet. Smaller rock may be allowable for smaller traps if approved by local jurisdiction. Alternatives to a Type M riprap spill way include, but are not limited to, the combination of an erosion control blanket and wattles, a series of wattles, and/or Silt Soxx on properly compacted spillways.
- Sediment traps may be used in conjunction with the perimeter ditch in order to slow down the velocity of the water moving through the ditch and provide the sediment an intermediate location whereby it can fall/settle out of the water. In this instance, the trap(s) is/are placed in-line with the perimeter ditch with an outlet/spillway directing water either offsite (perpendicular to the ditch), or to continue on into the ditch downgradient of the sediment trap.
- In the event that an outlet is not constructed (enclosed design), sediment traps may be cleaned via hydro-vacuuming as needed and stortmwater will be properly disposed of off-site as described in the SWMP.
- Seeding of sediment trap embankments can be conducted if the life expectancy of a trap exceeds 12 months (1 year).

Maintenance Considerations

The frequency of inspections should be in accordance with the Stormwater Management Plan (SWMP). The primary maintenance consideration for temporary sediment traps is the removal of accumulated sediment from the basin to ensure the continued effectiveness of the sediment trap. Sediments should be removed when the trap reaches approximately 50% sediment capacity. Inspectors should also ensure that the trap is draining properly (if applicable) and check the structure for damage from erosion.

Removal

The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.

References

Colorado Department of Transportation (CDOT), *Erosion Control and Stormwater Quality Guide.* 2002. http://www.coloradodot.info/programs/environmental/water-quality/documents/erosion-storm-quality

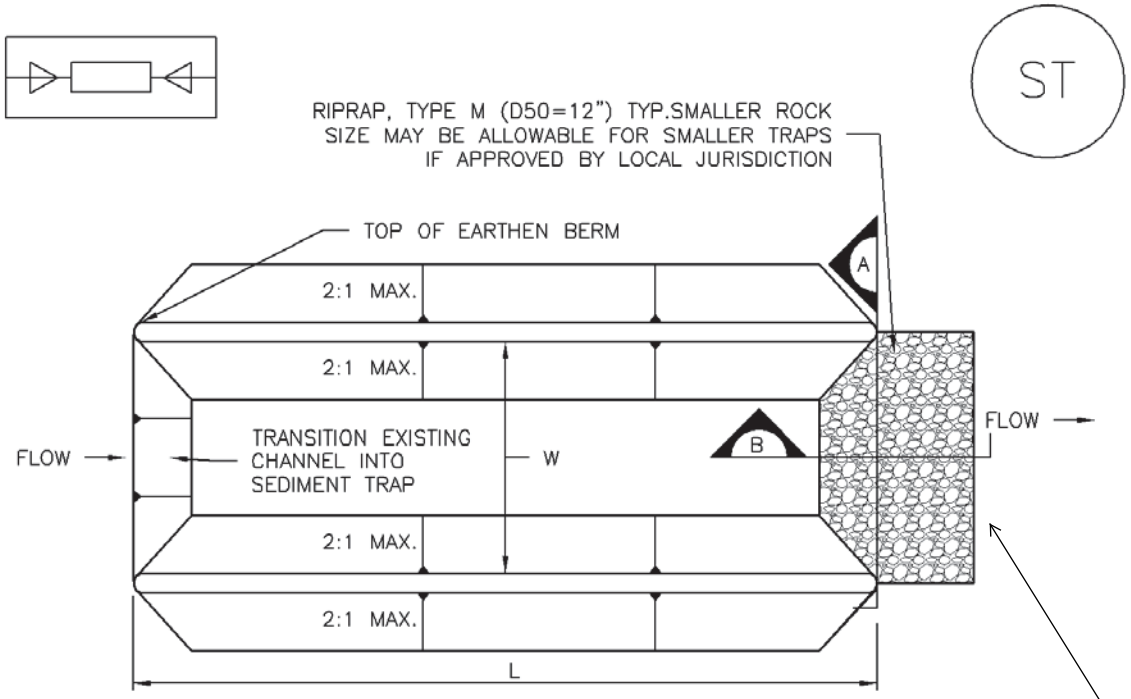
Colorado Department of Transportation (CDOT), *Erosion Control and Stormwater Quality Field Guide.* 2011. https://www.codot.gov/programs/environmental/water-quality/documents/CDOT%20Pocket%20Guide%20122211.pdf

Fank and Pat Pfister. *Stormwater - Sediment Trap.* 2011. http://forum.sws.org/eve/forums/a/tpc/f/2756008642/m/6897034506

Horizon Environmental Services, Inc, *Guidance Document Reasonable and Prudent Practices for Stabilization (RAPPS) of Oil and Gas Construction Sites.* April 2004

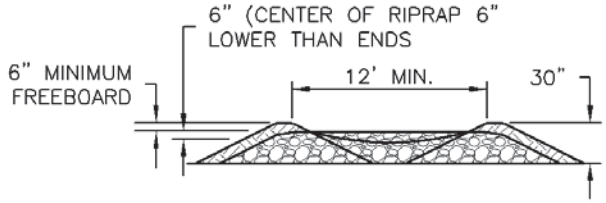
Urban Drainage and Flood Control District, *Volume 3 Stormwater Quality*. Denver, CO, November 2015. http://udfcd.org/volume-three

Sediment Trap (ST)

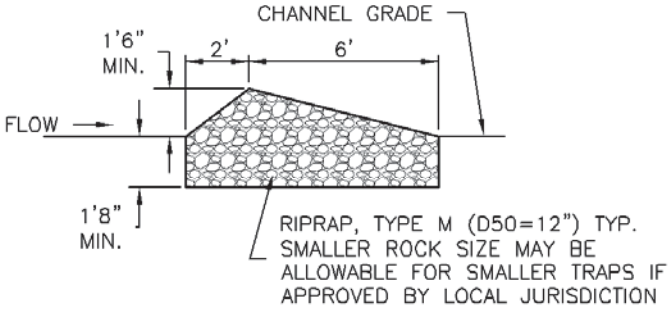


SEDIMENT TRAP PLAN

Optional: Enclosed sediment traps (where no rock apron or outlet is provided) can have stormwater removed as needed via hydro-vacuuming and will be properly disposed of off-site.



SECTION A

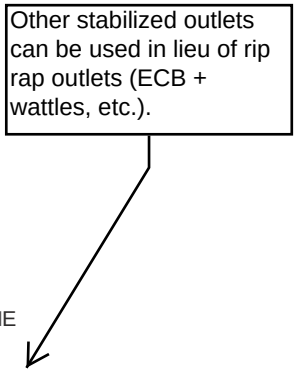


SECTION B

ST–1. SEDIMENT TRAP

Note: Excavated or fill material used to create a sediment trap must be compacted.
Note: Locations with site-specific engineeried sediment trap desgins will be followed in lieu of this standard design and will be documented in the site-specific SWMP diagram and/or applicable documentation.

Sediment Trap (ST)



SEDIMENT TRAP INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   -LOCATION, LENGTH AND WIDTH OF SEDIMENT TRAP.

2. ONLY USE FOR DRAINAGE AREAS LESS THAN 5 ACRES.

3. SEDIMENT TRAPS SHALL BE INSTALLED PRIOR *TO* ANY UPGRADIENI LAND-DISTURBING ACTIVITIES.

4. SEDIMENT TRAP BERM SHALL BE CONSTRUCTED FROM MATERIAL FROM EXCAVATION. THE BERM SHALL BE COMPACTED.

5. SEDIMENT TRAP OUTLET *TO* BE CONSTRUCTED OF RIPRAP, TYPE M (050=12") TYP.SMALLER ROCK SIZE MAY BE ALLOWABLE FOR SMALLER TRAPS IF APPROVED BY LOCAL JURISDICTION.

6. THE TOP OF THE EARTHEN BERM SHALL BE A MINIMUM OF 6" HIGHER THAN THE TOP OF THE RIPRAP OUTLET STRUCTURE.

7. THE ENDS OF THE RIPRAP OUTLET STRUCTURE SHALL BE A MINIMUM OF 6" HIGHER THAN THE CENTER OF THE OUTLET STRUCTURE.

SEDIMENT TRAP MAINTENANCE NOTES

1. INSPECT BMPs IN ACCORDANCE WITH THE APPLICABLE SWMP FREQUENCY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE FOLLOWING A STORM THA CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

J. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITPTEO UPON DISCOVERY OF THE FAILURE.

4. REMOVE SEDIMENT ACCUMULATED IN TRAP AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN THE SEDIMENT DEPTH REACHES)2 THE HEIGHT OF THE RIPRAP OUTLET.

5. SEDIMENT TRAPS SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED.

6. WHEN SEDIMENT TRAPS ARE REMOVED. THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED.

(DETAILS ADAPTED FRDM DOUGLAS COUNTY, COLORIIDO, NOT AVAILABLE N AUTOCAO)

Seeding (S)

Description

Seeding involves planting seed to establish a vegetative cover in disturbed areas that will be inactive for an extended period. Seeding establishes vegetation that reduces erosion and sediment displacement by stabilizing disturbed areas in a manner that is economical, adaptable to site conditions, and allows selection of the most appropriate plant material.

Seeding also:

- Absorbs the impact of raindrops;
- Reduces the velocity of runoff;
- Reduces runoff volumes by increasing water permeation into the soil;
- Binds soil with roots;
- Protects soil from wind;
- Improves wildlife habitat; and
- Enhances natural beauty.

Applicability

Seeding is most effective on slopes no steeper than 2:1. Seeding may be used as a permanent control or a temporary control in areas where exposed soil surfaces are not to be re-graded for periods longer than 30 days. Such areas include denuded areas, soil stockpiles, berms, temporary road banks, etc.

Limitations

The effectiveness of seeding can be limited by:

- High erosion potential during establishment.
- The need for stable soil temperature and soil moisture content during germination and early growth.
- The need to re-seed areas that fail to establish.
- Limited seeding times depending on the season.

Proper seedbed preparation and the use of quality seed are important in this practice. Failure to carefully follow sound agronomic recommendations will often result in an inadequate stand of vegetation that provides little or no erosion control.

Seeding does not immediately stabilize soils. Prior to seeding, install necessary erosion and sediment control practices such as diversions, straw bales, and basins until vegetation is established.

Design Criteria

Successful plant establishment can be maximized with proper planning; consideration of soil characteristics; selection of plant materials that are suitable for the site; adequate seedbed preparation, liming, and fertilization; timely planting; and regular maintenance.

When to Seed

Areas to be stabilized with vegetation must be seeded or planted one to four months after grading is completed unless temporary stabilization measures are in place. Temporary stabilization measures should be installed through "no growth" periods during winter months until the weather can support seed growth.

Seed Mix

Climate, soils, and topography are major factors that dictate the suitability of plants for a particular site. Vegetation that has adapted to the site, has strong roots, and provides good ground cover should be used. Although a native seed mix is best, some grasses such as Vetiver have been used extensively worldwide because of their strong deep roots, adaptability, and non- invasive properties.

Construction Specifications

- Seeding does not immediately stabilize soils. Temporary erosion and sediment control measures should be in place to prevent off-site transport of sediments from disturbed areas until vegetation is established.
- Vegetation should not be established on slopes that are unsuitable due to inappropriate soil texture, poor internal structure or internal drainage, volume of overland flow, or excessive steepness, until measures have been taken to correct these problems.
- If the area has been recently loosened or disturbed, no further roughening is required. When the area is compacted, crusted, or hardened, the soil surface shall be loosened by disking, raking, harrowing, or other acceptable means to ensure good water infiltration and root penetration (see SOIL ROUGHENING [SR]).
- The soil on a disturbed site may need to be modified to provide an optimum environment for seed germination and seedling growth. To maintain a good stand of vegetation, the soil must meet certain minimum requirements as a growth medium. If any of the below criteria cannot be met then topsoil shall be applied. The existing soil must have these characteristics:
    1. Enough fine-grained material to maintain adequate moisture and nutrient supply.

2. Sufficient depth of soil to provide an adequate root zone. The depth to rock or impermeable layers such as hard-pans shall be 12 inches or more, except on slopes steeper than 2:1 where the addition of soil is not feasible.
3. A favorable pH range for plant growth. If the soil is so acidic that a pH range of 6.0 to 7.0 cannot be attained by addition of pH-modifying materials, then the soil is considered an unsuitable environment for plant roots and further soil modification would be required.
4. Freedom from toxic amounts of materials harmful to plant growth.
5. Freedom from excessive quantities of roots, branches, large stones and clods of earth, or trash of any kind. Clods and stones may be left on slopes steeper than 3:1 if they do not significantly impede good seed-soil contact.

- Add fertilizer and/or lime, if necessary. Lime and fertilizer may be incorporated into the top 2 to 4 inches of the soil if possible. The addition of lime is equally as important as applying fertilizer. Lime will modify the pH and supply calcium and magnesium. Its effect on pH makes other nutrients more available to the plant.
- The appropriate seed shall be evenly applied with a broadcast seeder, drill, cultipacker or hydro-seeder. Seeding depth should be \1 to Yz inch.
- If necessary, apply mulch according to MULCHING (M). The mulch will hold moisture and modify temperature extremes and prevent erosion while seedlings are growing.

Maintenance Considerations

The frequency of inspections should be in accordance with the Stormwater Management Plan (SWMP). Vegetation is considered established when a density of at least 70% of pre-disturbance levels has been reached throughout the area. Seeded areas should be inspected for failure and any necessary repairs and re-seeding should be made prior to the next growing season.

References

United States Environmental Protection Agency (EPA), *National Pollutant Discharge Elimination System (NPDES). Construction Site Stormwater Runoff Control*. Washington, D.C., February 2003. http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm

Horizon Environmental Services, Inc, *Guidance Document Reasonable and Prudent Practices for Stabilization (RAPPS) of Oil and Gas Construction Sites.* April 2004.

Keller, Gordon and James Sherar, *Low-Volume Roads Engineering, Best Management Practices Field Guide.* United States Department of Agriculture (USDA), Forest Service, US Agency of International Development (USAID), 2003. http://www.blm.gov/bmp/field%20guide.html

Soil Roughening (SR)

Description

Soil (surface) roughening is an erosion control practice that involves tracking, scarifying, imprinting, or tilling a disturbed area to provide temporary stabilization of disturbed areas. Surface roughening creates variations in the soil surface that help to minimize wind and water erosion. Depending on the technique used, surface roughening may also help establish conditions favorable to establishment of vegetation.

Applicability

Soil roughening is most effective for areas of one acre or less, or in conjunction with other sediment controls on larger locations, and works well for the following applications:

- Any slope, but particularly fill slopes greater than 3:1;
- Areas with highly erodible soils; and
- Soils that are frequently disturbed

Limitations

- Soil roughening is not appropriate for rocky slopes.
- Soil compaction might occur when roughening with tracked machinery.
- Soil roughening is of limited effectiveness in anything more than a gentle or shallow depth rain.
- If roughening is washed away in a heavy storm, the surface will have to be re-roughened.

Design Criteria

The selection for the appropriate method of soil roughening depends on the type of slope. Steepness, mowing requirements, and/or a cut or fill slope operation are all factors considered in choosing a roughening method. See Figure SR-1 and Figure SR-2 for design criteria and installation details.

Construction Specifications

- To slow erosion, roughening should be done as soon as possible after grading activities have ceased (temporarily or permanently) in an area.
- All cut and fill slopes should be roughened whenever possible.

- Do not blade or scrape the final fill slope face.
- Excessive compacting of the soil surface should be avoided during roughening, and areas should be seeded as soon as possible after roughening is completed.

Maintenance Considerations

The frequency of inspections should be in accordance with the Stormwater Management Plan (SWMP). Roughening might need to be repeated after storm events.

References

United States Environmental Protection Agency (EPA), *National Pollutant Discharge Elimination System (NPDES). Construction Site Stormwater Runoff Control*. Washington, D.C., February 2003. http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm

Horizon Environmental Services, Inc, *Guidance Document Reasonable and Prudent Practices for Stabilization (RAPPS) of Oil and Gas Construction Sites.* April 2004.

New York State Department of Environmental Conservation, *New York Guidelines for Erosion and Sediment Control*. New York. August 2005. http://www.dec.ny.gov/chemical/29066.html

FIGURE SR-1
Corrugation/Grooving

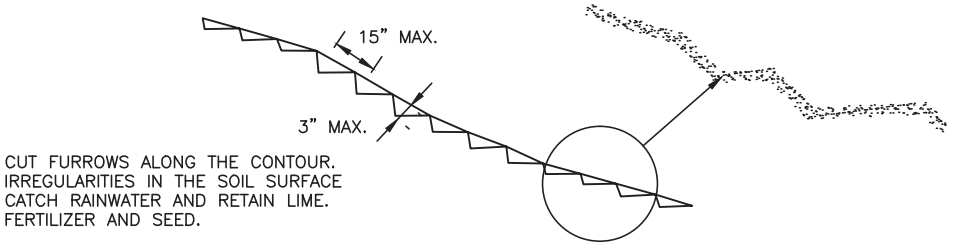
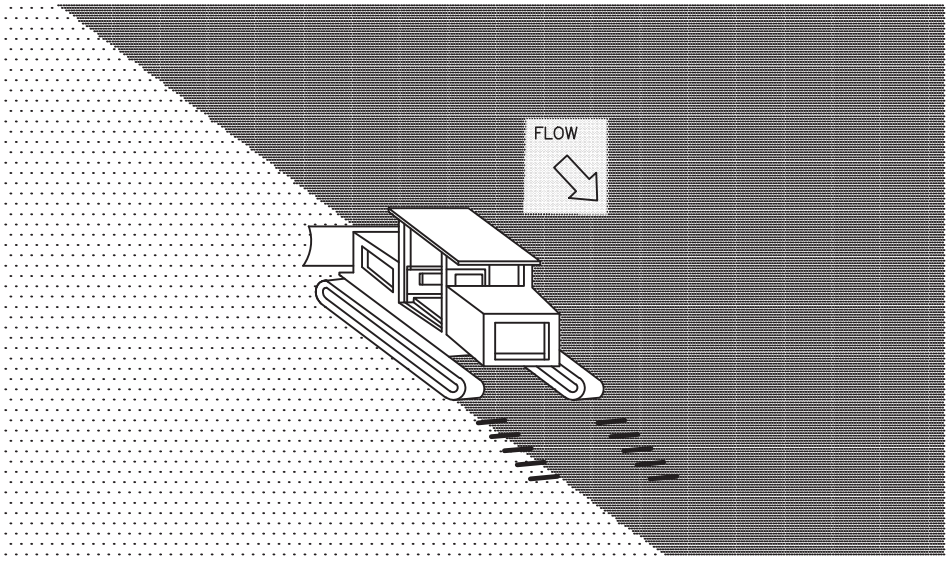


FIGURE SR-2
Tracking



SCALE: NOT TO SCALE

Tracking Pad (TP)

Description

A stabilized construction entrance (i.e., tracking pad) is a pad of gravel where construction traffic leaves a site. The purpose of a stabilized access to a site is to minimize the amount of tracked mud that leaves a site. As a vehicle drives over the gravel tracking pad, mud and sediment are removed from the vehicle's wheels and off-site transport of soil is reduced. The gravel tracking pad also reduces erosion and rutting in the soil beneath the stabilized structure. The filter fabric separates the gravel from the soil below, preventing the gravel from being ground into the soil. The fabric also reduces the amount of rutting caused by vehicle tires by spreading the vehicle's weight over a larger soil area than just the width of the tire. Tracking pads are generally used in conjunction with stabilization material such as surface armor, road base, etc.

Applicability

Typically, stabilized construction accesses are installed at locations where construction traffic leaves or enters an existing paved road. However, the applicability of the site access stabilization should be extended to any roadway or entrance where vehicles will enter or leave the site.

Limitations

- Although stabilizing construction access is a good way to help reduce the amount of sediment leaving a site, some soil may still be deposited from vehicle tires onto paved surfaces. To further reduce the chance of these sediments polluting stormwater runoff, sweeping of the paved area adjacent to the stabilized site access is recommended.
- Site traps or other secondary sediment controls may be needed to capture sediment that accumulates at the pad and may run off during storm events.

Design Criteria

Construct all tracking pads on a level surface. Where feasible, grade the tracking control towards the construction site in order to reduce off-site runoff. There are several different types of stabilized tracking pads including:

1. **Aggregate Vehicle Tracking Control:** This type of tracking pad consists of a coarse-aggregate surfaced pad underlain by a geotextile to minimize compaction of tracking material. This tracking pad can be effective at removing sediment from vehicle tires when properly maintained and refreshed.

2. **Aggregate Vehicle Tracking Control with Was Rock:** This type of tracking pad may consists of a coarse-aggregate surface similar to VTC-1, with the addition of a sediment trapping device, and the optional installation of a geotextile. A concrete or steel rack is utilized for shaking and washing purposes and to dispose of sediment and/or sediment laden water in a designated location (if applicable). This is the most common vehicle tracking control and when properly maintained can be effective at removing sediment from vehicle tires.
3. **Vehicle Tracking Control with Construction Mat:** This type of tracking pad may be appropriate for locations with a small access and low traffic volume over vegetated areas. Although this application does not typically remove sediment from vehicles, it helps protect existing vegetation and provides a stabilized entrance.

Maintenance Considerations

The frequency of inspections should be in accordance with the Stormwater Management Plan (SWMP). Stabilization of site accesses should be maintained until the remainder of the construction site has been fully stabilized. Stone and gravel might need to be periodically added to each stabilized construction site access to keep the access effective. Soil that is tracked off site should be swept up immediately and properly disposed of.

References

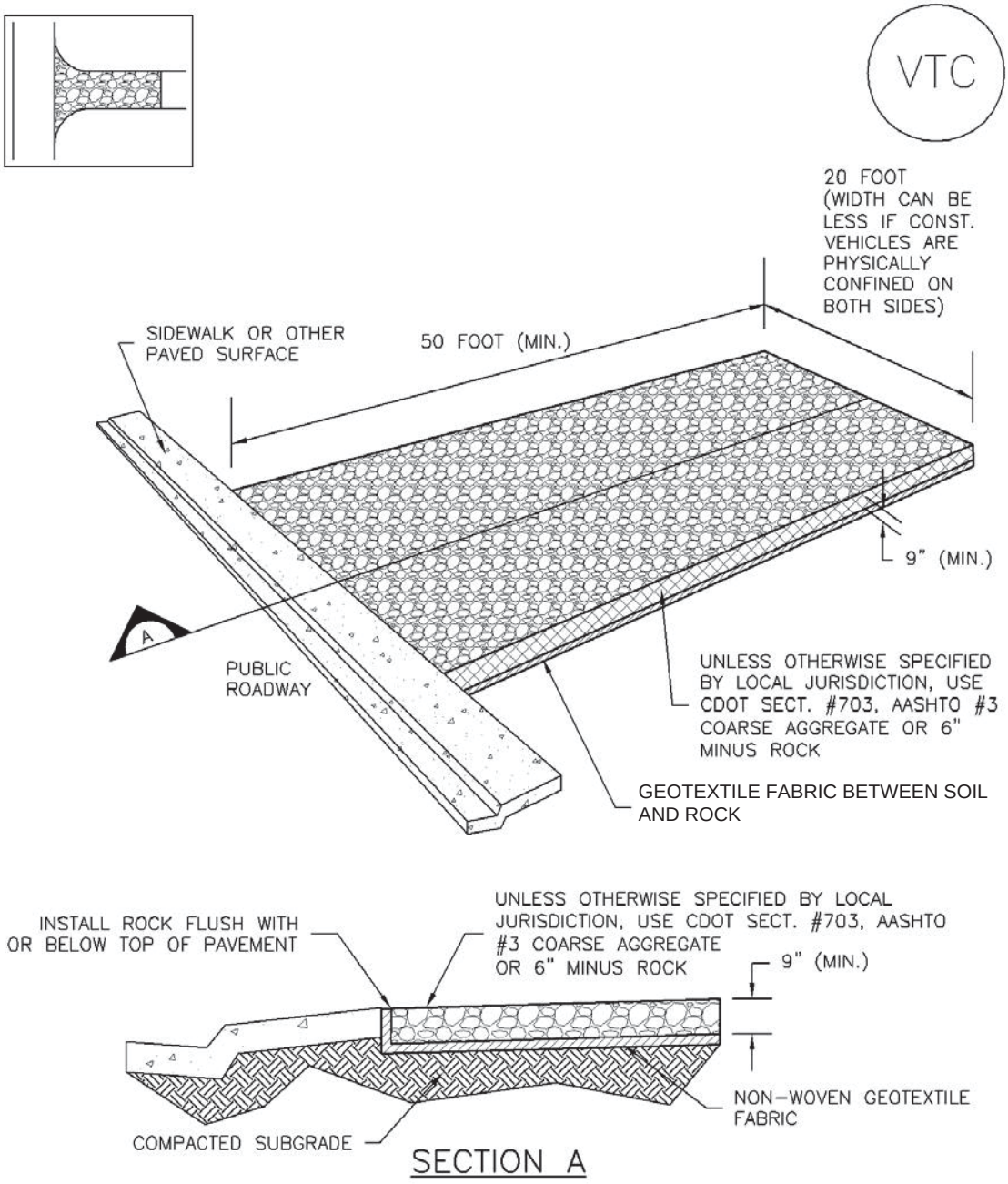
Colorado Department of Transportation (CDOT), *Erosion Control and Stormwater Quality Guide*. 2002. http://www.coloradodot.info/programs/environmental/water- quality/documents/erosion-storm-quality

United States Environmental Protection Agency (EPA), *National Pollutant Discharge Elimination System (NPDES). Construction Site Stormwater Runoff Control*. Washington, D.C., February 2003. http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm

Horizon Environmental Services, Inc, *Guidance Document Reasonable and Prudent Practices for Stabilization (RAPPS) of Oil and Gas Construction Sites.* April 2004.

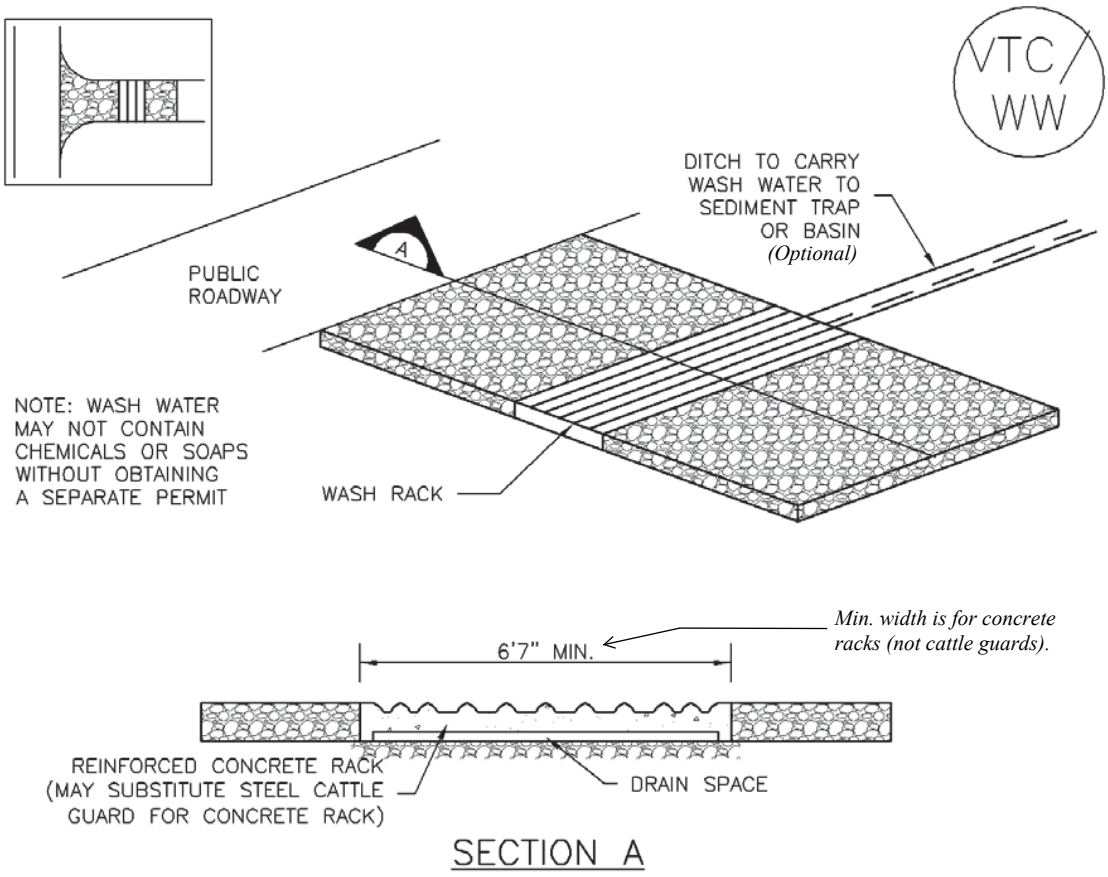
Urban Drainage and Flood Control District, *Volume 3 Stormwater Quality*. Denver, CO, November 2015. http://udfcd.org/volume-three

Vehicle Tracking Control (VTC)



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

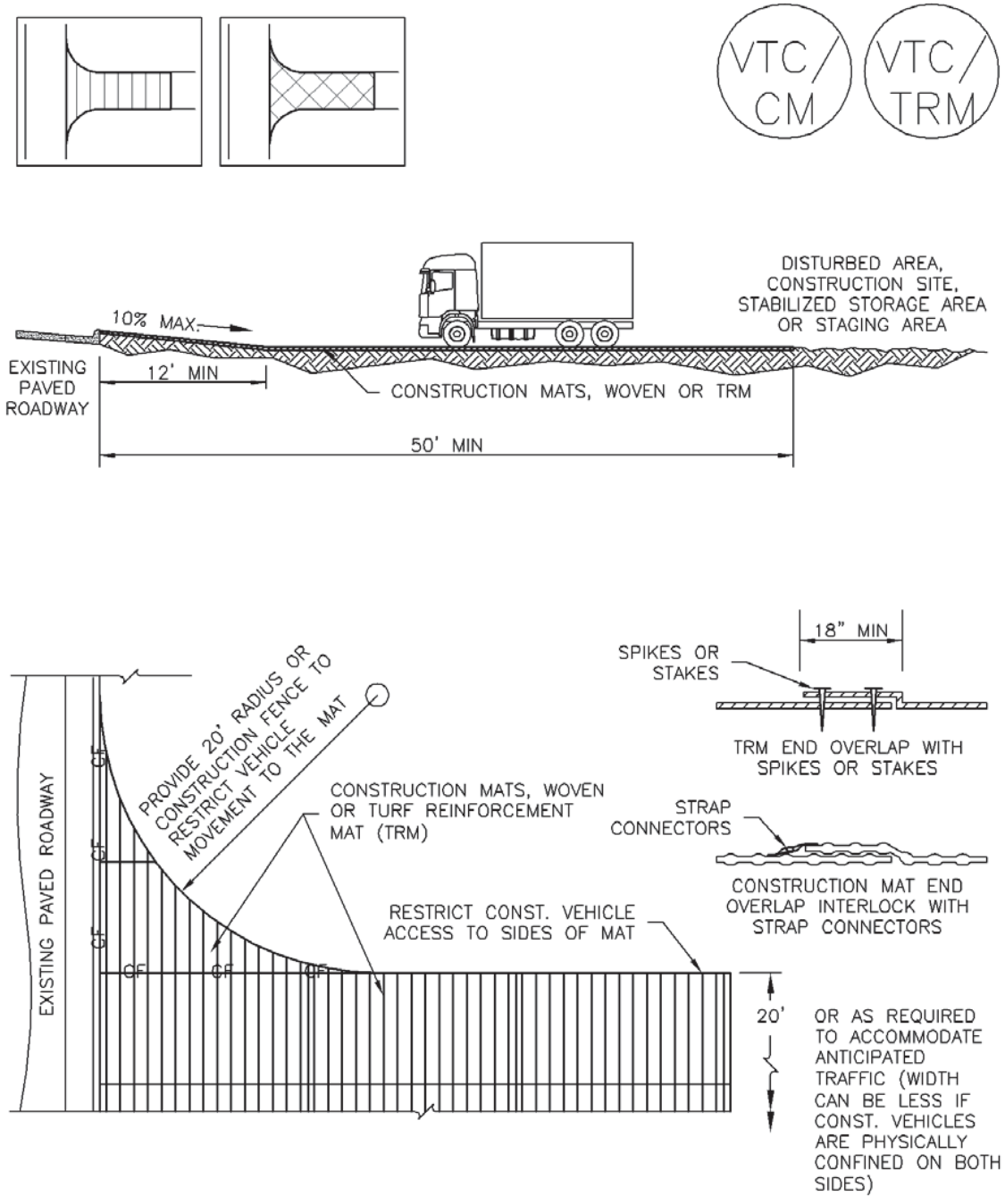
Vehicle Tracking Control (VTC)



VTC–2. AGGREGATE VEHICLE TRACKING CONTROL WITH WASH RACK

Note: Locations which use a steel cattle guard for tracking control purposes do no require the use of a ditch and sediment trap combination to control sediment and/or stormwater. All cattle guards will be inspected in accordance with the SWMP and cleaned out once 50% capacity is reached.
Note: Cattle guards may be used in series if additional tracking control is required.

Vehicle Tracking Control (VTC)



VTC–3. VEHICLE TRACKING CONTROL W/ CONSTRUCTION MAT OR TURF REINFORCEMENT MAT (TRM)

Vehicle Tracking Control (VTC)

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   -LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
   -TYPE OF CONSTRUCTION ENTRANCE(S)/EXITS(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).

2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.

3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.

4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.

6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

1. INSPECT BMPs IN ACCORDANCE WITH THE APPLICABLE SWMP FREQUENCY, AND MAINTEN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.

5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)

Wattles (W)

Description

A wattle (also called a Sediment Control Log) consists of straw, flax, or other similar synthetic materials bound into a tight tubular roll. When wattles are placed at the toe and on the face of slopes, they intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide removal of sediment from the runoff. By interrupting the length of a slope, wattles can also reduce erosion.

Applicability

Wattles may be a suitable BMP choice:

- Along the top, face, and at the grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow;
- At the end of a downward slope where it transitions to a steeper slope;
- Along the perimeter of a project;
- At the overflow location of sediment traps;
- As check dams in unlined ditches; and/or
- Around temporary stockpiles.

Limitations

- Wattles are not effective unless trenched and staked properly.
- The maximum allowable drainage area per 100 lineal feet of wattles installed along the contour is approximately 0.25 acres with a disturbed slope length of up to 150 feet and a slope gradient no steeper than 3:1. Longer and steeper slopes require additional measures (i.e. larger diameter wattles, stacked wattles, etc.).
- Difficult to move once saturated.
- If not properly staked and trenched in, wattles could be transported in high flows.
- Wattles have a very limited sediment capture zone.
- Wattles should not be used on slopes subject to creep, slumping, or landslide.
- Wattles should not be used where periodic road or surface maintenance activities are expected.

- If wattles are installed in an area that experiences concentrated flow, "J-hook" installation may be appropriate to force runoff to pond and evaporate or infiltrate multiple areas rather than concentrate and cause erosive conditions parallel to the BMP.

Design Criteria

See Figures SCL-1, SCL-2, and SCL-3 for design criteria.

Construction Specifications

Wattles should be either prefabricated rolls or rolled tubes of erosion control blankets. A minimum diameter of 9" is required for prefabricated rolls. If using erosion control blankets, roll the length of erosion control blanket into a tube with a minimum of 8 inches in diameter and bind the roll at each end and every 4 feet along the length of the roll with jute-type twine.

Locate wattles on a level contour and spaced as follows:

- Slope inclination of 4:1 or flatter: Fiber rolls should be placed at a maximum interval of 20 feet.
- Slope inclination between 4:1 and 2:1: Fiber rolls should be placed at a maximum of 15 feet.
- Slope inclination 2:1 or greater: Fiber rolls should be placed at a maximum interval of 10 feet.
- Turn the ends of the wattles upslope to prevent runoff from going around the roll.
- Stake the wattles into a trench with a depth of 1/3 the wattle diameter and a trench width equal to the diameter of the wattle.
- Drive stakes at the end of each wattle and space 4 feet maximum on center.
- If more than one wattle is placed in a row, the rolls should be overlapped, not abutted.
- Cross stake the ends of the wattles and throughout as necessary to minimize the potential of a wattle to be lifted and/or removed from location.

Maintenance Considerations

The frequency of inspections should be in accordance with the Stormwater Management Plan (SWMP). Repair or replace split, torn, unraveling, or slumping rolls. If the wattle is used as a sediment capture device, or as an erosion control device to maintain sheet flows, sediment that accumulates must be periodically removed in order to maintain wattle effectiveness. Sediment should be removed when sediment accumulation reaches half the distance between the top of the wattle and the adjacent ground surface.

Removal

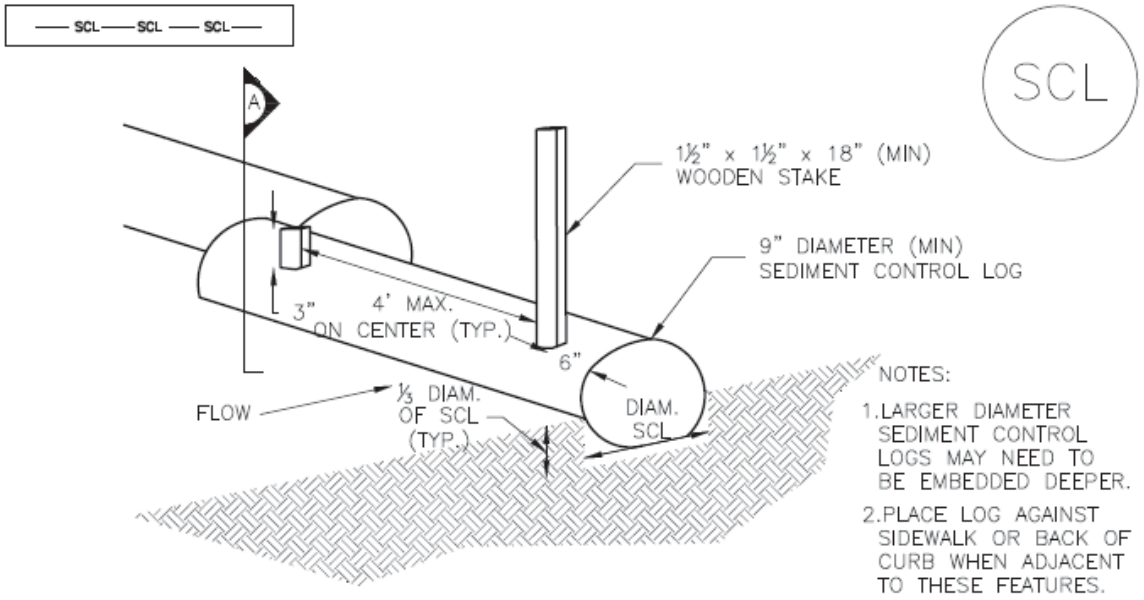
Wattles are typically left in place until final stabilization. If wattles are removed, collect and dispose of sediment accumulation, and fill and compact holes, trenches, depressions, or any other ground disturbance to blend with adjacent ground.

References

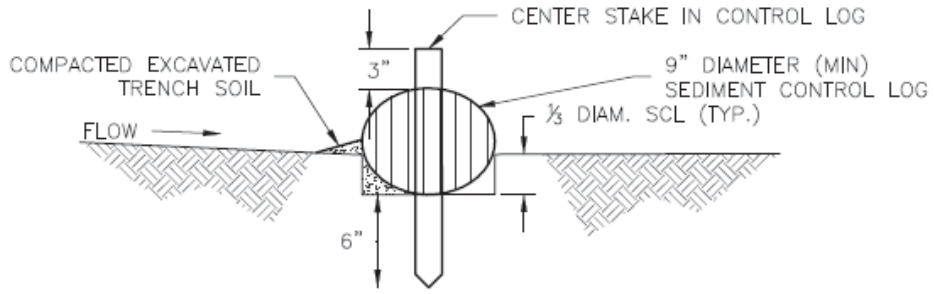
California Stormwater Quality Association (CASQA). 2003. Stormwater Best Management *Practice Handbook: Construction.* https://www.casqa.org/store/products/tabid/154/p-167-construction-handbookportal-initial-subscription.aspx

Urban Drainage and Flood Control District, *Volume 3 Stormwater Quality*. Denver, CO, November 2015. http://udfcd.org/volume-three

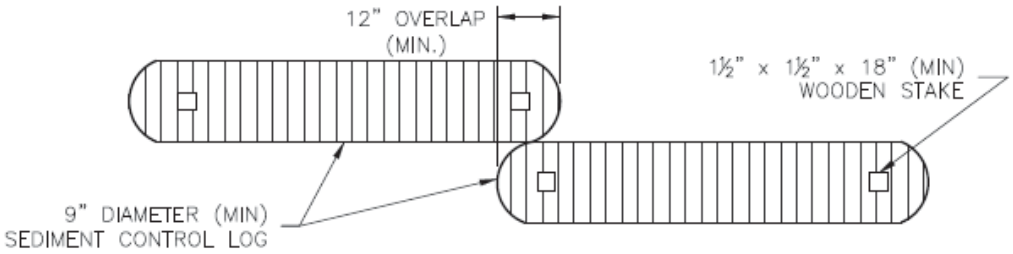
Sediment Control Log (SCL)



TRENCHED SEDIMENT CONTROL LOG



SECTION Ⓐ
TRENCHED SEDIMENT CONTROL LOG

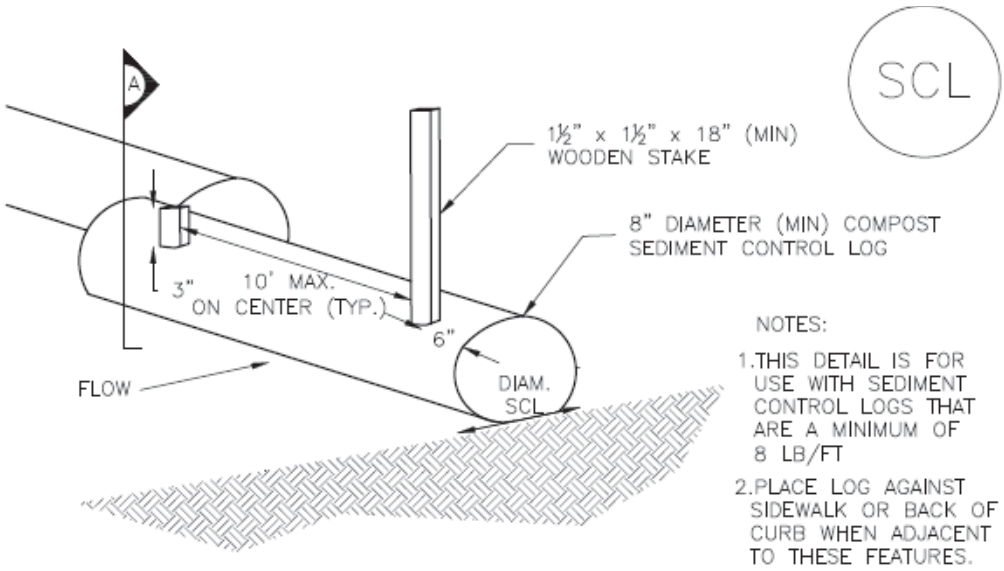


LOG JOINTS

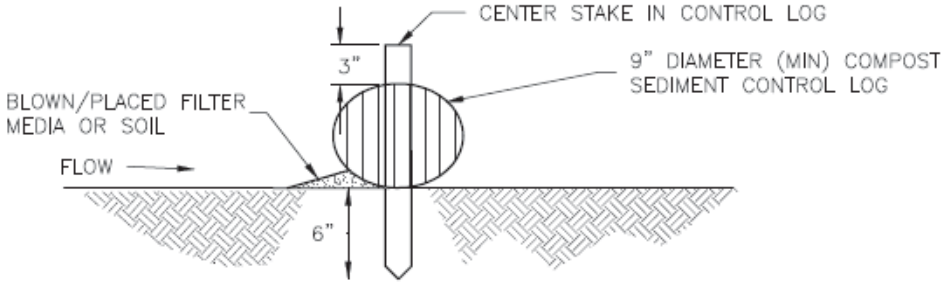
SCL–1. TRENCHED SEDIMENT CONTROL LOG

Note: Wattles may be cross-staked at the ends and throughout to prevent lifting of wattles off stakes.

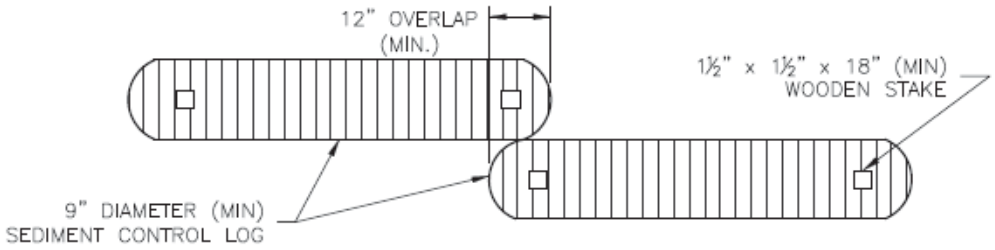
Sediment Control Log (SCL)



COMPOST SEDIMENT CONTROL LOG (WEIGHTED)



SECTION (A)
COMPOST SEDIMENT CONTROL LOG

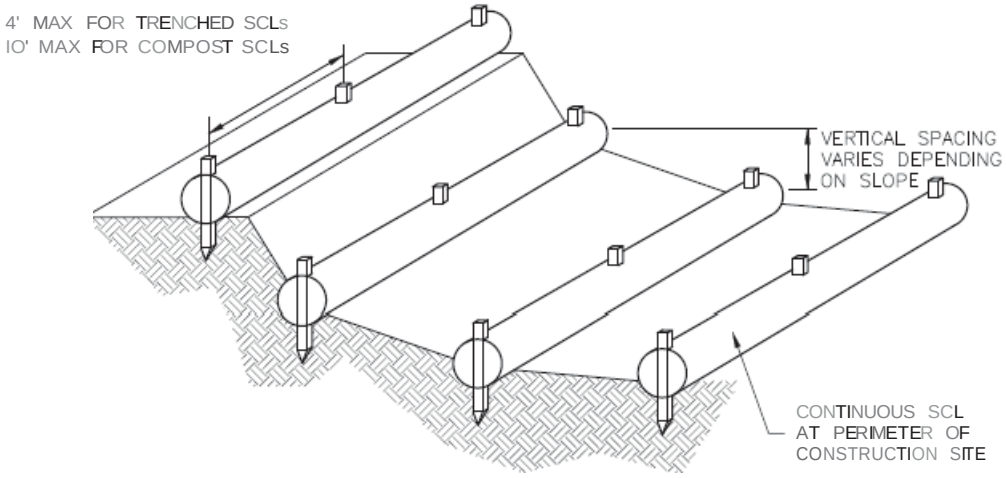


LOG JOINTS

SCL–2. COMPOST SEDIMENT CONTROL LOG (WEIGHTED)

Note: Wattles may be cross-staked at the ends and throughout to prevent lifting of wattles off stakes.

Sediment Control Log (SCL)



SCL-3. SEDIMENT CONTROL LOGS TO CONTROL SLOPE LENGTH

Sediment Control Log (SCL)

SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.

2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADIENT LAND-DISTURBING ACTIVITIES.

3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.

4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS.

5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY Y.i OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING. COMPOST LOGS THAT ARE 8 LB/FT *DO* NOT NEED TO BE TRENCHED.

6. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL OR FILTER MATERIAL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER OR BLOWN IN PLACE.

7. FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED. COMPOST LOGS SHOULD BE STAKED 1O' ON CENTER.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

1. INSPECT BMPs ACCORDING TO THE APPLICABLE SWMP FREQUENCY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.

5. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. COMPOST FROM COMPOST LOGS MAY BE LEFT IN PLACE AS LONG AS BAGS ARE REMOVED AND THE AREA SEEDED. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM *TOWN* OF PARKER, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY Of AURORA. COLORADO, NOT AVALABLE IN AVTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

TETRA TECH

To:	John Piekara, Civitas Resources
From:	Lily Vagelatos, PE, Tetra Tech Bill Zahniser, PE, Tetra Tech
Date:	December 9, 2025
Subject:	Eagle Pad Oil and Gas Development, Traffic Impact Study

Extraction Oil & Gas, Inc. (Extraction, a subsidiary of Civitas Resources, Inc.) is planning development of the Eagle Pad located north of Esat 120th Avenue (E. 120th Ave.) and east of Picadilly Road, in the southeast ¼ of Section 36, Township 1 South, Range 66 West (**Figure 1**). Extraction has contracted services from Tetra Tech Inc. (Tetra Tech) to provide a traffic impact study for the proposed oil and gas development. This impact study has been developed based on recently collected traffic surveys, a desktop review of the area, and information provided to Tetra Tech by Extraction for their development plans.

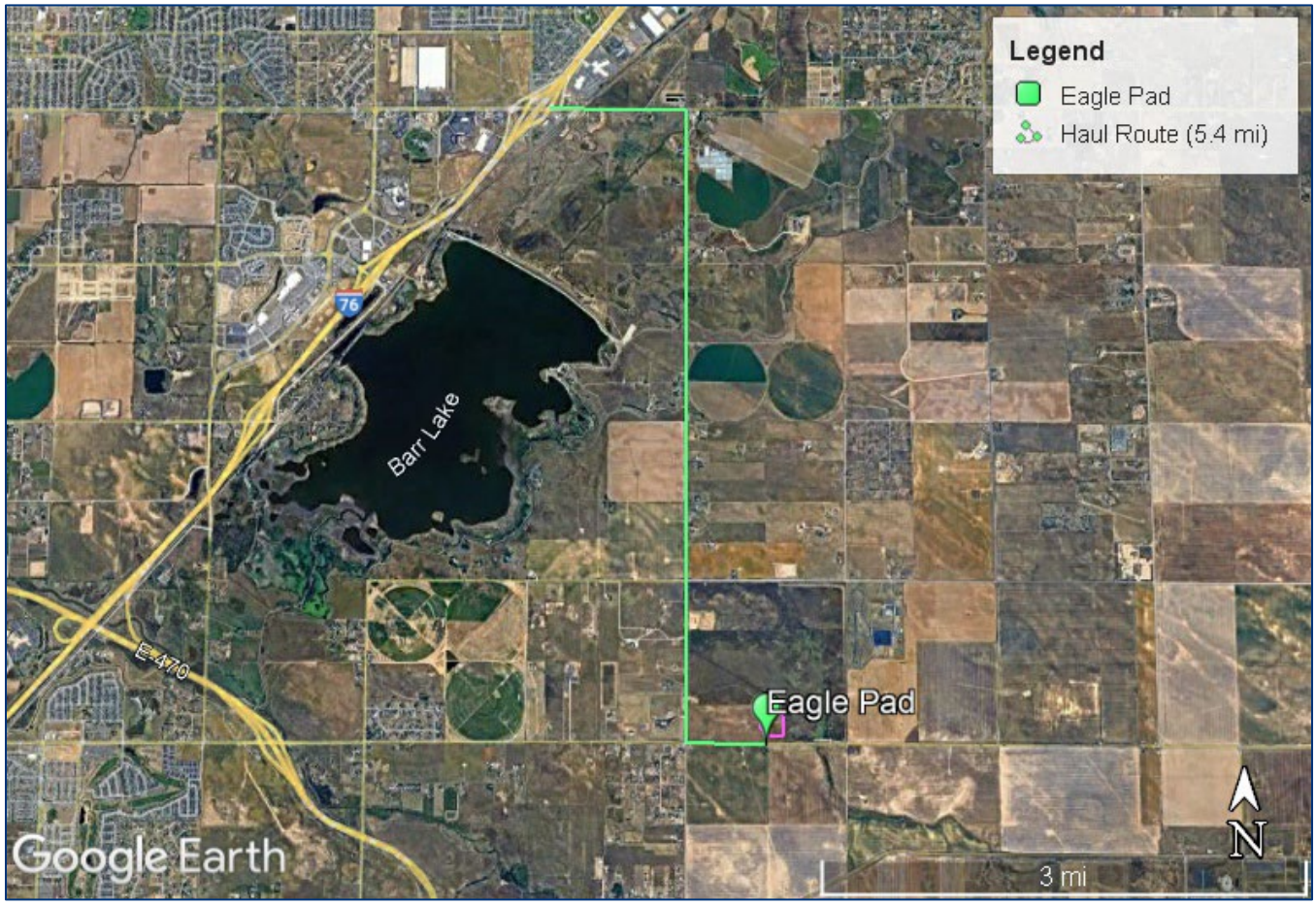


Figure 1. Site location and traffic route.

1.0 CURRENT CONDITIONS

The proposed location for the development is a vacant, privately owned, land parcel in Adams County, Colorado. The main access will be from E. 120th Ave., approximately 0.5 miles east of the intersection with Picadilly Road. Vehicles accessing the development will use the following haul route:

- Interstate Highway 76 (I-76) to Exit 22 – I76 is maintained by the Colorado Department of Transportation (CDOT) and is not included in this study.
- Eastbound E. 152nd Ave. to Picadilly Road
  - Approximately 1 mile
  - 2 lane paved rural arterial roadway, with no median and gravel shoulders.
- Southbound Picadilly Road to E. 120th Ave.
  - Approximately 4 miles
  - 2 lane paved rural arterial roadway, with no median and gravel shoulders.
- Eastbound E. 120th Ave. to site access
  - Approximately 0.5 miles
  - 2 lane paved principal arterial roadway, with no median and gravel shoulders.

Traffic leaving the development will return to I-76 by the same route.

1.1 STUDY INTERSECTIONS

During an August 12th call with Extraction and Adams County, six intersections were identified along the haul route and in the vicinity of the development to be included in this study (**Figure 2**). A summary description of the study intersections is provided below:

1. **Study Intersection 1** is a T intersection located at E. 152nd Ave. and Picadilly Road. E. 152nd Ave. is a two lane, paved, rural arterial roadway, and is not stop controlled at Study Intersection 1. Picadilly Road is a two lane, paved, rural arterial roadway and the northbound lane is stop controlled at E. 152nd Ave. The speed limit on E. 152nd Ave. and Picadilly Road is 55 miles per hour (MPH). No auxiliary turn lanes are present at this location.
2. **Study Intersection 2** is a T intersection located at Picadilly Road and the site access to the Warbler Oil and Gas Pad, another Civitas Resources facility that uses an overlapping portion of the same haul route. Picadilly Road has the same geometry, speed limit, and classifications at this location as at Study Intersection 1. Picadilly Road is not stop controlled at Study Intersection 2. The Warbler pad site access is a gravel driveway and is stop controlled at Picadilly Road.
3. **Study Intersection 3** is a T intersection located at Picadilly Road and E. 144th Ave. Picadilly Road has the same geometry, speed limit, and classifications at this location as at Study Intersection 1. Picadilly Road is not stop controlled at Study Intersection 3. E. 144th Ave. is a two-lane gravel road that is presumably stop controlled at Picadilly Road; however, a stop sign is not currently present at this location.

4. **Study Intersection 4** is a four-way intersection at Picadilly Road and E. 128th Ave. Picadilly Road has the same geometry, and classifications at this location as at Study Intersection 1. E 128th Ave. is a two lane, paved, section line arterial roadway, with a speed limit of 55 MPH and is not stop controlled at Study Intersection 4. Picadilly Road is stop controlled at Study Intersection 4 both north- and southbound. The speed limit on Picadilly Road decreases to 40 MPH south of Study Intersection 4.
5. **Study Intersection 5** is a four-way intersection at Picadilly Road and E. 120th Ave. Picadilly Road has the same geometry, and classifications at this location as at Study Intersection 1. E 120th Ave. is a two lane, paved, principal arterial roadway, with a speed limit of 55 MPH and is not stop controlled at Study Intersection 5. Picadilly Road is stop controlled at Study Intersection 5 both north- and southbound. South of Study Intersection 5, Picadilly Road transitions to a 2 lane gravel roadway.
6. **Study Intersection 6** is a stop light controlled four-way intersection at E. 120th Ave. and Tower Road. E. 120th Ave. has the same geometry, and classifications at this location as at Study Intersection 5, but with a speed limit of 45 MPH. Tower Road is a two lane, paved, minor arterial roadway, with a speed limit of 55 MPH. The Eagle Pad haul route will not pass through Study Intersection 6, but this intersection was studied for purpose of evaluating alternative route considerations at the request of Adams County.

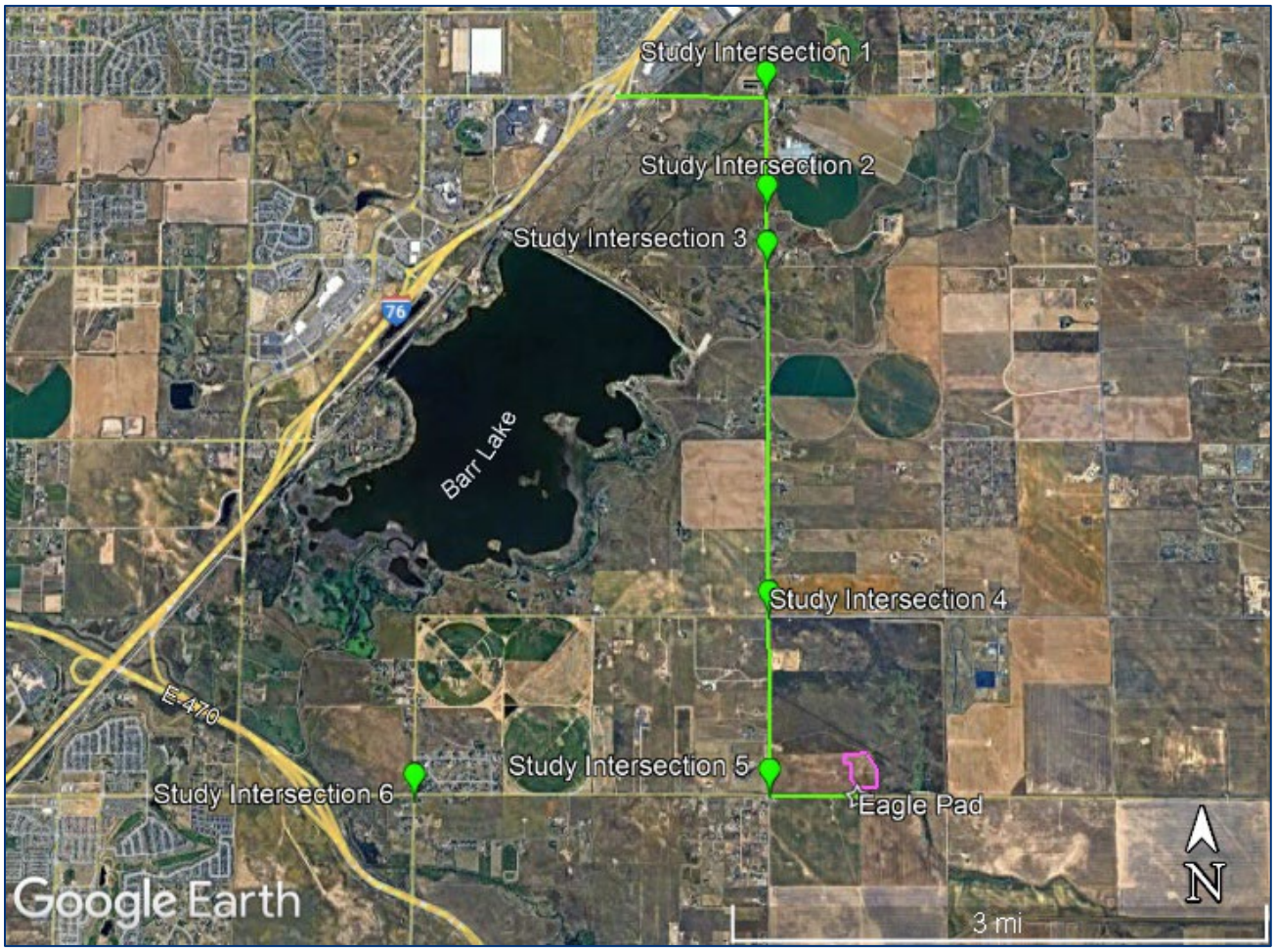


Figure 2. Study intersections.

1.2 TRAFFIC COUNT SURVEY

Traffic count surveys were performed at each intersection. **Table 1** presents a summary of the data collected over a 48-hour period. Full traffic count reports are provided as **Attachment A**.

Tetra Tech used the traffic survey data to calculate the existing use of the study roadways. The numbers and types of vehicles moving through each intersection were converted to the number of Equivalent Single Axle Loads (ESALs) that the paved roads are currently supporting. An ESAL is a standardized unit of 18,000-pounds (80 kN) single axle loads that is used for pavement design and for evaluating the damaging effect of vehicle loads on pavement. ESALs let engineers convert a mixed stream of vehicles (light cars, 2-axle trucks, multi-axle semis, buses etc.) into a single common measure of pavement wear and damage. ESALs were calculated using methods consistent with CDOT design standards and are summarized along with the vehicle counts in **Table 1**.

Tetra Tech also used the traffic count data to estimate Peak Hour Factors (PHF) for each lane direction at each intersection. PHF is an index used in traffic impact studies to describe how traffic is distributed within the busiest hour. It compares the total volume in the peak hour to the highest short-interval flow within that hour (15-minute intervals for this study). PHF are an important metric for signal timing and level of service (LOS) calculations. A PHF of 1.0 indicates that the flow of traffic is constant or uniform across the hour. PHF values less than 1 are indicative of traffic flowing in concentrated or shorter intervals. The calculated PHFs for the surveyed traffic conditions are included in **Table 1**.

Table 1. Existing Peak-Hour Traffic Volumes at Study Intersections, September 16 and 17, 2025

Travel Direction	Left, Veh (ESAL)	Through, Veh (ESAL)	Right, Veh (ESAL)	Peak Hour Factor	Heavy Vehicle Percentage
Study Intersection 1: E. 152nd Ave. (E/W) and Picadilly Road (N)[1]					
Eastbound	--	285 (10)	68 (2)	0.90	2.4%
Westbound	13 (0)	157 (2)	--	0.81	0.0%
Northbound	147 (3)	--	17 (0)	0.83	1.2%
Study Intersection 2: Warbler Site Access (W) and Picadilly Road (N/S)[1]					
Westbound	0 (0)	--	0 (0)	0.38	0.0%
Northbound	--	171 (3)	0 (0)	0.83	1.1%
Southbound	0 (0)	74 (2)	--	0.91	2.0%
Study Intersection 3: E. 144th Ave. (W) and Picadilly Road (N/S)[2]					
Westbound	0 (0)	--	0 (0)	0.38	0.0%
Northbound	--	168 (3)	0 (0)	0.79	1.2%
Southbound	0 (0)	73 (2)	--	0.89	2.0%
Study Intersection 4: E. 128th Ave. (E/W) and Picadilly Road (N/S)					

Travel Direction	Left, Veh (ESAL)	Through, Veh (ESAL)	Right, Veh (ESAL)	Peak Hour Factor	Heavy Vehicle Percentage
Eastbound	131 (3)	11 (0)	1 (0)	0.81	1.4%
Westbound	1 (0)	43 (0)	25 (0)	0.59	0.0%
Northbound	0 (0)	15 (0)	1 (0)	0.74	0.0%
Southbound	1 (0)	7 (1)	62 (1)	0.86	2.1%
Study Intersection 5: E. 120th Ave. (E/W) and Picadilly Road (N/S)					
Eastbound	7 (0)	101 (6)	15 (0)	0.60	3.1%
Westbound	3 (0)	131 (3)	11 (0)	0.80	1.4%
Northbound	25 (1)	2 (1)	1 (0)	0.78	3.6%
Southbound	5 (0)	4 (0)	3 (0)	0.63	0.0%
Study Intersection 6: E. 120th Ave. (E/W) and Tower Road (N/S)					
Eastbound	24 (0)	94 (2)	404 (7)	0.85	0.9%
Westbound	23 (0)	125 (5)	2 (0)	0.81	2.4%
Northbound	594 (9)	125 (2)	34 (1)	0.96	0.9%
Southbound	0 (0)	74 (1)	44 (0)	0.83	0.9%

Notes:
Veh – vehicles. ESAL – Equivalent Single Axle Load. The Colorado Department of Transportation (CDOT) has created a generalized average set of ESALs based on dividing vehicle classification into three bins. ESALs used in this table are from CDOT 2024 Table H.2 for Flexible Pavement. Passenger cars and pickups (less than 20 ft long) = 0.003 ESAL, single unit trucks (20 – 40 ft long) = 0.249 ESAL, combination trucks (greater than 40 ft long) = 1.087 ESAL.
PHF = Hourly volume / (4 x Highest 15-minute volume).
Values presented are averages of counts collected September 16 and 17, 2025. Peak-hour varies between days and intersections.

1. Study intersection is a T and does not covey traffic in all travel directions.
2. The intersection of E. 144th Ave. and Picadilly Road is offset east/west. Traffic counts were collected at the intersection of the southern, busier intersection location.

1.3 CURRENT LEVEL OF SERVICE

Using the turning movement data collected, Study Intersections 1 through 5 were evaluated for baseline level of service (LOS). Study Intersection 6 is a stoplight-controlled intersection, and as such was not included with the other intersections for LOS analysis as signal timing for that intersection is not available. The LOS is a measure of the delay that an average vehicle will experience after approaching the intersection. The LOS analysis provides a standardized means of describing transportation facility operation by assigning a letter grade to it. As shown in **Table 2**, LOS ranges from A to F with LOS A representing the best conditions (free flow) and LOS F representing the worst conditions (most congested). All procedures that were used in these analyses came from the Highway Capacity Manual (HCM) guidelines for determining LOS. Per the guidelines, the delay must be analyzed for each movement of the intersection independently. If several movements share a lane, the capacities are calculated separately then combined into a shared movement capacity that is used

in the delay equation in place of movement capacity. Intersection LOS was analyzed using Highway Capacity Software (HCS) 2022.

Table 2. LOS Definitions

LOS	Signalized Intersection Delay (seconds)	Unsignalized Intersection Delay (seconds)
A	0-10	0-10
B	11-20	11-15
C	21-35	16-25
D	36-55	26-35
E	56-80	36-50
F	>80	>50

The worst existing LOS along the haul route is C for northbound traffic on Picadilly Road at Study Intersection 1, with a control delay of 15.4 seconds. All other existing condition LOSs were A or B (**Table 3**). **Attachment B** provides the modeled HCS result for all intersections and turning movements.

Table 3. Existing LOS Summary

Study Intersection	Approach	Existing LOS	Delay (sec)
1. 152nd Ave./Picadilly Rd. [1]	Westbound	A	0.7
	Northbound	C	15.4
2. Warbler Access/Picadilly Rd. [1]	Southbound	A	0.0
3. 144th Ave./Picadilly Rd. [1]	Southbound	A	0.0
4. 128th Ave. /Picadilly Rd.	Eastbound	A	7.1
	Westbound	A	0.1
	Northbound	B	12.7
	Southbound	A	9.5
5. E. 120th Ave./Picadilly Rd.	Eastbound	A	0.5
	Westbound	A	0.2
	Northbound	B	10.9
	Southbound	B	10.4

Notes: 1.) For T-Intersections, LOS is only calculated for impacted left turn movements.

1.4 SIGHT DISTANCE EVALUATIONS

Sight distance is an important measure to determine the safety of a vehicle entering a roadway. Stopping sight distance (SSD) is the minimum distance a vehicle driver needs to be able to see to have room to stop

before colliding with an object in the roadway. Insufficient sight distance can adversely affect the safety or operations of a roadway or intersection. A desktop evaluation of sight distance measurements was made using Google Earth at the proposed Eagle Pad access. The posted traffic speed limit along E. 120th Ave. is 55 miles per hour (mph). Using the CDOT State Highway Access Code (SHAC) (Colorado Department of Transportation, 2002), the design stopping distance for a 55-mph road is 550 feet. The stretch of E. 120th Ave. with the proposed site access, is straight, relatively flat and there are no trees or obstructing structures. Using street view in Google Earth, the SSD of 550 feet is clear both east- and westbound toward the access (**Attachment C**).

Another important measure of sight distance is the entering sight distance. Guidelines for measuring these distances can also be found in the State Highway Access Code. Entering sight distance is the sight distance a vehicle entering a roadway needs to safely make the movement. Section 4.3 of the SHAC provides a list of required entering sight distance values for varying types of entering vehicles. An entering sight distance of 935 feet is required for multi-unit trucks for a two-lane roadway at 55 mph, such as E. 120th Ave. Again, using street view in Google Earth, the entering sight distance of 935 feet is clear both east- and westbound looking out from the proposed access (**Attachment C**).

2.0 EAGLE PAD DEVELOPMENT PLAN

Extraction is in the process of permitting the drilling and completion of up to fifteen horizontal wells and the installation of related surface production equipment on one well pad that will be serviced by a new access road from E. 120th Ave. They are also planning the construction of a product pipeline at this location to reduce the number of product trucks accessing the site. The installation of this pipeline is projected to eliminate as many as 49,612 tanker truck and facility service rig trips over the projected 30-year life of the facility. Construction, drilling and completion phases of the project are considered to be a temporary use, and do not factor into long term changes to the site access. Once completed, it is anticipated that one to two operators will access the site daily in light duty trucks to check equipment.

2.1 TRAFFIC FORECASTS

Extraction has provided traffic estimates and durations for each phase of the project. The duration of each phase is dependent on the number of wells drilled. The traffic data provided in **Table 4** conservatively assumes all fifteen proposed wells are drilled and completed in a single occupation. This condition is representative of the maximum possible traffic use.

Table 4. Estimated Traffic Volumes and Durations

Phase	Duration (Days)	Truck[1] Trips, Total (ESAL)	Average Truck Trips per Day (ESAL)	Light Duty Crew Traffic, Trips per Day	Total Trips per Day (ESAL)	Peak Hour Vehicles (ESAL)[2]
Pad Construction	40	1,802 (1,959)	45 (49)	10 (0.03)	55 (49)	11 (5)
Drilling	82	1,968 (2,139)	24 (26)	36 (0.11)	60 (26)	24 (3)
Completions[4]	133[3]					
Completions	68	12,240 (13,305)	180 (196)	66[3] (0.20)	164 (107)	49 (11)
Mill Out/Tubing	65	650 (707)	10 (11)			
Facility Construction	70	80 (87)	1.1 (1.2)			
Flowback[4]	60	5,246 (5,702)	87 (95)	2 (0.01)	89 (95)	10 (10)
Interim Reclamation	60	966 (1,050)	16 (18)	10 (0.03)	26 (18)	8 (2)
Production[5]	15-30 years	--	--	2 (0.01)	2 (0.01)	2 (0)

Notes:

ESAL – Equivalent Single Axle Load. ESALs used in this table are from CDOT 2024 Table H.2 for Flexible Pavement. Passenger cars and pick ups (less than 20 ft long) = 0.003 ESAL, single unit trucks (20 – 40 ft long) = 0.249 ESAL, combination trucks (greater than 40 ft long) = 1.087 ESAL.

1. Extraction indicated that the majority of the truck traffic for the project will be Class 8 through 13 combo units (1.087 ESAL), but that there may be some Class 4 through 7 single unit trucks (0.249 ESAL). To be conservative, all ESAL calculations assume combo units for the total volumes.
2. Truck traffic distributed evenly throughout the shift for a given activity. Assume 24-hour shifts for drilling and completions, and 10-hour shifts for all other activities. Crew traffic distributed at shift changes. 3 shifts for drilling and completions, 2 shifts for all other activities.
3. Facilities construction is anticipated to occur in parallel to completions and the mill out/tubing → the total completions duration shown is the amount of time for completions plus the mill out/tubing phases. Crew traffic is indicative of peak overlapping phases and accounts for facility construction activities that occur in parallel.
4. Only produced water will be trucked offsite during flowback.
5. Actual amount may vary depending on actual years of operation. Extraction anticipates approximately 240 light duty vehicles per year.

2.2 PROPOSED LEVEL OF SERVICE

Analysis was performed for LOS during the highest peak hour traffic generating period of the pre-production stages. The highest peak hour count occurs during the Completions stage. Using the highest impact portion of the pre-production phase of the Project is conservative as it will consider the worst possible LOS that local motorists will experience during development of the Project. The completions stage will occur during a 133-day period assuming a single occupation. The entire pre-production development will occur over the course of around a single year. The production phase impacts to LOS, once the pad has been developed, will be negligible (two light duty vehicles per day).

LOS was analyzed for the maximum peak hour volume using the existing conditions plus the 49 vehicles of peak hour traffic anticipated for the maximum completions phases (**Table 4**). In addition, the percentage of heavy vehicles was adjusted to account for the number of multi-axel vehicles. The results of the LOS analysis show the impact of project traffic on LOS will be minimal (**Table 5**).

Table 5. Comparison of Existing Average LOS and Maximum Proposed LOS at Study Intersections.

Study Intersection	Approach	Existing LOS	Delay (sec)	Proposed LOS	Delay (sec)	Change
1. 152nd Ave./Picadilly Rd. [1]	Westbound	A	0.7	A	0.7	None
	Northbound	C	15.4	C	18.2	2.8 sec
2. Warbler Access/Picadilly Rd. [1]	Southbound	A	0.0	A	0.0	None
3. 144th Ave./Picadilly Rd. [1]	Southbound	A	0.0	A	0.0	None
4. 128th Ave. /Picadilly Rd.	Eastbound	A	7.1	A	7.1	None
	Westbound	A	0.1	A	0.1	None
	Northbound	B	12.7	B	14.2	1.5 sec
	Southbound	A	9.5	B	12.2	A → B 2.7 sec
5. E. 120th Ave./Picadilly Rd.	Eastbound	A	0.5	A	0.5	None
	Westbound	A	0.2	A	0.2	None
	Northbound	B	10.9	B	11.2	0.3 sec
	Southbound	B	10.4	B	11.7	1.3 sec

Notes: 1.) For T-Intersections, LOS is only calculated for impacted left turn movements.
Study Intersection 6 is a signalized intersection and is not included in the LOS evaluation for this study because timing information is not available.

The most significant impacts modeled are for northbound vehicles making a left from Picadilly Road onto westbound 152nd Ave (the LOS rating of C remained the same, but the stop delay increased slightly), and for southbound vehicles making a left from Picadilly Road onto eastbound 128th Ave (the LOS dropped from A to

B, and the delay increased by 2.7 seconds). **Attachment B** shows the HCS Results Summary for the proposed condition.

The Adams County Access Design and Traffic Requirements (Adams County, 2020) Section 8-20-06-06-02 defines the threshold acceptable LOS as C during off-peak hours and not less than D for peak hours. The intersection of 152nd Ave. and Picadilly Road meets this criterion for the proposed condition during the most heavily traveled portion of the pre-production phase of the Project.

2.3 AUXILARY LANE REQUIREMENTS

An auxiliary lane analysis was performed for Study Intersection 1, Study Intersection 5 and the Proposed Access for the production phase of development. The production phase trip estimates were used for this analysis, which is standard practice due to the temporary nature of the pre-production phase. The Adams County Access Design and Traffic Requirements (Adams County, 2020) Section 8-01-08-02 presents the criteria for auxiliary turn lanes as described below:

- A left turn lane with storage length plus taper length is required for any access with a projected peak hour left ingress turning volume greater than 25 vph. **If the posted speed is greater than 40 mph, a deceleration lane and taper is required for any access with a projected peak hour left ingress turning volume greater than 10 vph.** The taper length will be included within the deceleration length.
- A right turn lane with storage length plus taper length is required for any access with a projected peak hour right ingress turning volume greater than 50 vph. **If the posted speed is greater than 40 mph, a right turn deceleration lane with taper is required for any access with a projected peak hour right ingress turning volume greater than 25 vph.** The taper length will be included within the deceleration length.
- **A right turn acceleration lane with taper is required for any access with a projected peak hour right turning volume greater than 50 vph when the posted speed on the highway is greater than 40 mph and the highway has only one lane for through traffic in the direction of the right turn.** A right turn acceleration lane is not required on multi-lane highways of this category. The taper length will be included within the required acceleration length
- A left turn acceleration lane with transition taper may be required if it would be a benefit to the safety and operation of the roadway. A left turn acceleration lane is generally not required where: the posted speed is less than 45 mph, or the intersection is signalized, or the acceleration lane would interfere with the left turn ingress movements to any other access.

Table 6 presents a summary of the auxiliary turn lane evaluation for the proposed haul route.

Table 6. Auxiliary Turn Lane Evaluation.

Movement	County Auxiliary Lane Warrant	Current Conditions	Proposed Conditions
Study Intersection 1			
Eastbound, right turn	25	**68**	**70**
Northbound, left turn (stop controlled)	--	147	149
Study Intersection 5			
Southbound, left turn (stop controlled)	--	5	7
Westbound, right turn	25	11	13
Proposed Site Access			
Eastbound, left turn	10	0	2
Northbound, right turn (stop controlled)	50	0	2

As discussed previously, because hydrocarbons will be piped from this facility, once build-out is complete there will only be one to two peak-hour trips each day. This project trip estimation falls below the County's thresholds for all potential turn lane movements. Existing conditions at Study Intersection 1 already exceed the county threshold for a right turn deceleration lane, but project related traffic will not trigger any new lane warrants along the haul route.

3.0 CONCLUSIONS

Based on the details above, Tetra Tech anticipates that the Eagle Pad will have a minor impact on traffic volume during the construction and development period of the project. After completion of the construction build-out phase, there should be minimal impacts to traffic along the proposed haul road.

The proposed access will meet safety requirements for both the driving public and the development traffic. There is adequate visibility for inbound and outbound project traffic to negotiate the access and make full turn movements. Traffic throughout the construction and development phase of the project is anticipated to exceed the county warrant for a left turn auxiliary deceleration lane (10 vehicles per hour during the peak hour); however, due to the temporary nature of the impact (less than a year) construction of an auxiliary lane would be potentially be more disruptive to the driving public. Tetra Tech recommends a traffic control plan with additional signage during the peak periods of traffic.

4.0 REFERENCES

Adams County. (2020, December 8). Chapter 8 - Access Design and Traffic Requirments. *Adams Couty Development Standards and Regulations*. Colorado, USA.

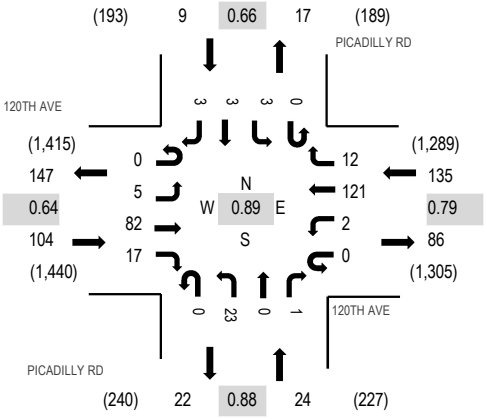
Colorado Department of Transportation. (2002). State Highway Access Code. Transportation Commission and Office of Transportation Safety.

ATTACHMENT A: 48-HOUR TURN MOVEMENT COUNTS

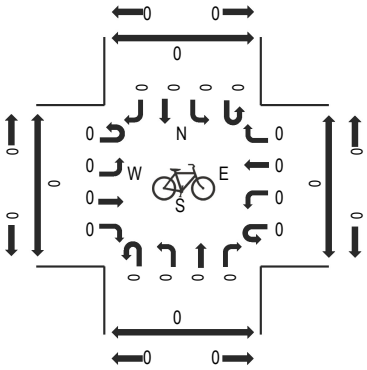
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 PICADILLY RD & 120TH AVE AM
Date: Tuesday, September 16, 2025
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

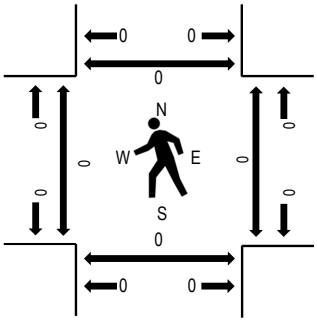
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	120TH AVE Eastbound				120TH AVE Westbound				PICADILLY RD Northbound				PICADILLY RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
12:00 AM	0	0	2	1	0	0	3	1	0	0	0	0	0	0	0	0	7	25	0	0	0	0
12:15 AM	0	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	4	22	0	0	0	0
12:30 AM	0	0	1	0	0	0	6	1	0	0	0	0	0	0	0	0	8	24	0	0	0	0
12:45 AM	0	0	1	0	0	0	5	0	0	0	0	0	0	0	0	0	6	18	0	0	0	0
1:00 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	4	12	0	0	0	0
1:15 AM	0	1	0	0	0	0	2	1	0	0	1	0	0	0	0	1	6	9	0	0	0	0
1:30 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	5	0	0	0	0
2:15 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	9	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0
2:45 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	14	0	0	0	0
3:00 AM	0	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0	5	19	0	0	0	0
3:15 AM	0	0	2	0	0	0	1	0	0	0	0	0	0	1	0	0	4	27	0	0	0	0
3:30 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	3	32	0	0	0	0
3:45 AM	0	0	5	0	0	0	1	1	0	0	0	0	0	0	0	0	7	53	0	0	0	0
4:00 AM	0	0	8	0	0	0	4	0	0	0	0	0	0	1	0	0	13	72	0	0	0	0
4:15 AM	0	0	5	0	0	0	3	0	0	0	0	0	0	1	0	0	9	92	0	0	0	0
4:30 AM	0	0	17	0	0	0	7	0	0	0	0	0	0	0	0	0	24	134	0	0	0	0
4:45 AM	0	0	16	0	0	0	5	0	0	0	0	0	0	5	0	0	26	196	0	0	0	0
5:00 AM	0	0	14	0	0	0	7	2	0	2	0	0	0	7	0	1	33	221	0	0	0	0
5:15 AM	0	0	39	2	0	0	8	0	0	2	0	0	0	0	0	0	51	231	0	0	0	0
5:30 AM	0	0	61	0	0	0	14	0	0	1	2	0	0	8	0	0	86	231	0	0	0	0
5:45 AM	0	0	36	1	0	0	11	0	0	0	1	0	0	0	1	1	51	218	0	0	0	0
6:00 AM	0	1	17	0	0	0	13	3	0	2	0	0	0	5	0	2	43	236	0	0	0	0
6:15 AM	0	2	25	1	0	0	21	0	0	0	1	0	0	1	0	0	51	269	0	0	0	0
6:30 AM	0	1	30	2	0	0	33	3	0	2	0	1	0	1	0	0	73	271	0	0	0	0
6:45 AM	0	2	21	2	0	1	34	1	0	3	0	1	0	2	1	1	69	269	0	0	0	0
7:00 AM	0	1	20	4	0	1	43	2	0	2	0	1	0	2	0	0	76	272	0	0	0	0
7:15 AM	0	2	20	4	0	0	19	1	0	6	0	0	0	0	1	0	53	253	0	0	0	0
7:30 AM	0	1	13	3	0	1	35	7	0	8	0	0	0	1	0	2	71	241	0	0	0	0
7:45 AM	0	1	29	6	0	0	24	2	0	7	0	0	0	0	2	1	72	215	0	0	0	0
8:00 AM	0	2	12	2	0	0	29	2	0	5	1	1	0	1	0	2	57	191	0	0	0	0
8:15 AM	0	0	19	2	0	0	18	0	0	1	1	0	0	0	0	0	41	197	0	0	0	0

8:30 AM	0	1	21	3	0	0	15	0	0	1	2	1	0	0	1	0	45	188	0	0	0	0
8:45 AM	0	1	17	2	0	0	21	1	0	4	1	0	0	1	0	0	48	190	0	0	0	0
9:00 AM	0	2	20	2	0	0	24	2	0	7	1	0	0	1	2	2	63	173	0	0	0	0
9:15 AM	0	1	14	1	0	0	13	1	0	2	0	0	0	0	0	0	32	150	0	0	0	0
9:30 AM	0	0	16	1	0	1	16	0	0	4	1	1	0	1	1	5	47	152	0	0	0	0
9:45 AM	0	2	11	2	0	0	8	1	0	3	1	0	0	1	0	2	31	136	0	0	0	0
10:00 AM	0	0	12	0	0	0	23	1	0	3	0	0	0	0	0	1	40	145	0	0	0	0
10:15 AM	0	0	8	4	0	0	15	1	0	2	1	0	0	1	1	1	34	121	0	0	0	0
10:30 AM	0	0	10	0	0	0	18	0	0	0	1	0	0	1	1	0	31	128	0	0	0	0
10:45 AM	0	1	11	5	0	0	17	1	0	1	1	0	0	0	2	1	40	137	0	0	0	0
11:00 AM	0	0	7	0	0	0	5	0	0	0	2	0	0	0	1	1	16	118	0	0	0	0
11:15 AM	0	2	9	2	0	0	16	1	0	3	1	0	0	1	4	2	41	145	0	0	0	0
11:30 AM	0	2	16	0	0	1	11	1	0	3	1	2	0	2	1	0	40	148	0	0	0	0
11:45 AM	0	0	10	1	0	0	6	0	0	1	1	0	0	0	1	1	21	142	0	0	0	0
12:00 PM	0	1	17	2	0	0	10	2	0	4	1	1	0	2	2	1	43	164	0	0	0	0
12:15 PM	0	1	14	5	0	0	18	0	0	3	0	0	0	1	1	1	44	166	0	0	0	0
12:30 PM	0	2	11	3	0	0	14	0	0	2	1	0	0	1	0	0	34	163	0	0	0	0
12:45 PM	1	0	17	4	0	0	10	0	0	6	1	1	0	1	2	0	43	172	0	0	0	0
1:00 PM	0	0	22	1	0	0	14	2	0	2	0	0	0	1	1	2	45	177	0	0	0	0
1:15 PM	0	1	16	1	0	0	16	1	0	0	0	0	0	2	4	0	41	180	0	0	0	0
1:30 PM	0	0	23	3	0	0	10	1	0	2	2	0	0	2	0	0	43	176	0	0	0	0
1:45 PM	0	0	15	3	0	0	20	2	0	0	1	0	0	3	4	0	48	188	0	0	0	0
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4:15 PM	0	2	22	3	0	0	18	1	0	6	0	0	0	1	1	1	55	225	0	0	0	0
4:30 PM	0	2	22	3	0	1	21	0	0	5	0	0	0	0	1	0	55	211	0	0	0	0
4:45 PM	0	0	21	2	0	0	28	0	0	1	2	0	0	0	2	1	57	208	0	0	0	0
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6:30 PM	0	1	10	5	0	0	15	1	0	3	0	0	0	0	0	1	36	120	0	0	0	0
6:45 PM	0	0	5	5	0	0	15	1	0	0	0	0	0	0	2	1	29	117	0	0	0	0
7:00 PM	0	1	7	1	0	0	8	0	0	2	2	0	0	0	0	2	23	106	0	0	0	0
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7:30 PM	0	1	18	2	0	0	7	0	0	3	0	0	0	1	1	0	33	109	0	0	0	0
7:45 PM	0	1	8	1	0	0	2	0	0	2	0	0	0	2	1	1	18	101	0	0	0	0
8:00 PM	0	0	14	1	0	0	9	0	0	2	0	0	0	1	0	1	28	104	0	0	0	0
8:15 PM	0	0	14	4	0	0	8	0	0	2	0	0	0	2	0	0	30	92	0	0	0	0
8:30 PM	0	1	14	1	0	0	2	0	0	1	0	0	0	5	1	0	25	79	0	0	0	0
8:45 PM	0	0	14	1	0	0	2	1	0	1	0	1	0	1	0	0	21	67	0	0	0	0
9:00 PM	0	0	10	1	0	1	3	0	0	0	0	0	0	0	0	1	16	61	0	0	0	0
9:15 PM	0	0	12	1	0	0	3	0	0	1	0	0	0	0	0	0	17	57	0	0	0	0
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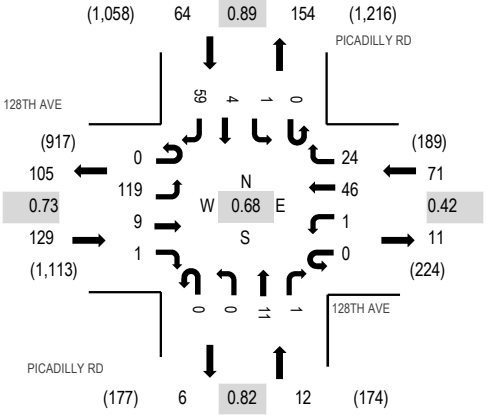
9:45 PM	0	0	6	0	0	1	5	0	0	2	0	0	0	0	1	0	15	74	0	0	0	0
10:00 PM	0	0	2	0	0	0	6	3	0	0	1	0	0	0	0	0	12	69	0	0	0	0
10:15 PM	0	0	4	1	0	0	1	1	0	1	0	0	0	0	0	0	8	63	0	0	0	0
10:30 PM	0	0	2	2	0	0	31	3	0	0	0	0	0	0	1	0	39	60	0	0	0	0
10:45 PM	0	0	2	0	0	0	5	1	0	0	0	0	0	1	1	0	10	25	0	0	0	0
11:00 PM	0	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	6	18	0	0	0	0
11:15 PM	0	0	2	1	0	0	2	0	0	0	0	0	0	0	0	0	5		0	0	0	0
11:30 PM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	4		0	0	0	0

11:45 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0
Count Total	1	61	1,207	171	0	11	1,193	85	0	168	43	16	0	82	58	53	3,149	0	0	0	0
Peak Hour	0	5	82	17	0	2	121	12	0	23	0	1	0	3	3	3	272	0	0	0	0

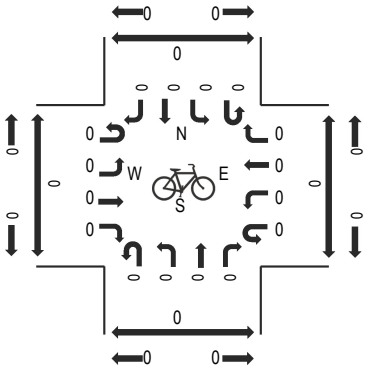
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 PICADILLY RD & 128TH AVE AM
Date: Tuesday, September 16, 2025
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

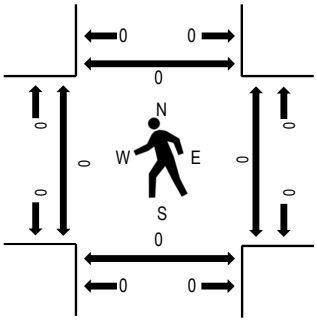
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	128TH AVE Eastbound				128TH AVE Westbound				PICADILLY RD Northbound				PICADILLY RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
12:00 AM	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4	10	0	0	0	0
12:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	11	0	0	0	0
12:30 AM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	16	0	0	0	0
12:45 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	16	0	0	0	0
1:00 AM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	14	0	0	0	0
1:15 AM	0	2	0	0	0	0	0	0	0	0	3	0	0	0	0	1	6	14	0	0	0	0
1:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	10	0	0	0	0
1:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	0	0	0	0
2:00 AM	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	2	5	8	0	0	0	0
2:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	6	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	10	0	0	0	0
3:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	13	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	4	17	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	21	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	34	0	0	0	0
4:00 AM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	4	7	49	0	0	0	0
4:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	6	8	74	0	0	0	0
4:30 AM	0	6	2	0	0	0	1	0	0	0	0	0	0	0	0	6	15	94	0	0	0	0
4:45 AM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5	9	19	113	0	0	0	0
5:00 AM	0	6	0	0	0	0	1	0	0	0	2	0	0	1	8	14	32	132	0	0	0	0
5:15 AM	0	6	0	0	0	0	1	0	0	0	0	0	0	0	1	20	28	142	0	0	0	0
5:30 AM	0	12	0	0	0	0	1	0	0	0	2	0	0	1	7	11	34	154	0	0	0	0
5:45 AM	0	14	2	0	0	0	2	2	0	0	1	0	0	0	3	14	38	176	0	0	0	0
6:00 AM	0	10	1	0	0	0	2	1	0	0	4	0	0	2	5	17	42	200	0	0	0	0
6:15 AM	0	8	4	0	0	0	0	0	0	0	3	0	0	1	1	23	40	226	0	0	0	0
6:30 AM	0	12	1	0	0	0	2	0	0	0	2	1	0	1	2	35	56	244	0	0	0	0
6:45 AM	0	14	7	0	0	0	4	0	0	0	1	3	0	2	4	27	62	245	0	0	0	0
7:00 AM	0	12	14	0	0	0	2	1	0	0	2	1	0	7	1	28	68	229	0	0	0	0
7:15 AM	0	8	11	0	0	0	6	0	0	0	2	0	0	9	1	21	58	197	0	0	0	0
7:30 AM	0	9	2	0	0	0	1	1	0	0	5	0	0	7	3	29	57	161	0	0	0	0
7:45 AM	0	14	6	0	0	0	2	0	0	0	3	0	0	4	3	14	46	139	0	0	0	0
8:00 AM	0	14	0	0	0	0	0	1	0	0	3	1	0	1	1	15	36	124	0	0	0	0
8:15 AM	0	5	0	0	0	0	0	1	0	0	1	0	0	3	0	12	22	137	0	0	0	0

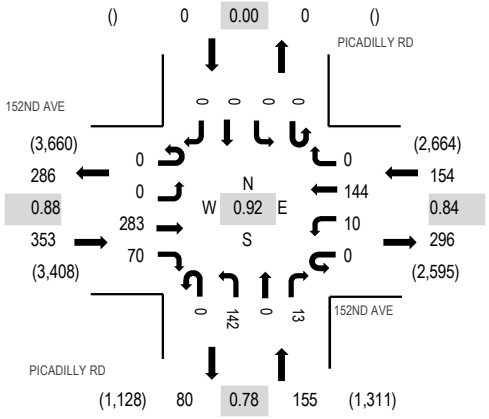
8:30 AM	0	11	0	0	0	0	2	3	0	1	3	0	0	0	1	14	35	140	0	0	0	0
8:45 AM	0	11	1	0	0	0	0	1	0	0	1	0	0	2	1	14	31	135	0	0	0	0
9:00 AM	0	18	7	0	0	0	2	3	0	0	2	2	0	1	4	10	49	126	0	0	0	0
9:15 AM	0	11	0	0	0	0	0	1	0	0	2	0	0	1	0	10	25	106	0	0	0	0
9:30 AM	0	12	0	0	0	0	2	0	0	0	1	0	0	0	4	11	30	106	0	0	0	0
9:45 AM	0	8	1	0	0	0	3	0	0	0	1	0	0	1	3	5	22	93	0	0	0	0
10:00 AM	0	13	2	0	0	0	1	0	0	0	2	0	0	0	0	11	29	94	0	0	0	0
10:15 AM	0	10	0	0	0	0	0	1	0	0	2	1	0	1	3	7	25	87	0	0	0	0
10:30 AM	0	4	0	0	0	0	0	1	0	0	1	0	0	1	2	8	17	89	0	0	0	0
10:45 AM	0	9	1	0	0	0	0	0	0	0	2	0	0	0	4	7	23	104	0	0	0	0
11:00 AM	0	13	0	0	0	0	0	1	0	0	2	0	0	2	1	3	22	120	0	0	0	0
11:15 AM	0	10	1	0	0	0	0	1	0	0	4	0	0	0	6	5	27	130	0	0	0	0
11:30 AM	0	11	1	0	0	0	2	2	0	0	3	0	0	0	3	10	32	138	0	0	0	0
11:45 AM	0	12	0	0	0	0	3	7	0	0	1	0	0	7	3	6	39	139	0	0	0	0
12:00 PM	0	11	3	0	0	0	0	2	0	0	3	1	0	4	4	4	32	126	0	0	0	0
12:15 PM	0	11	1	0	0	0	0	0	0	0	1	0	0	7	2	13	35	117	0	0	0	0
12:30 PM	0	10	3	0	0	0	2	0	0	0	3	0	0	4	2	9	33	112	0	0	0	0
12:45 PM	0	11	3	0	0	0	0	1	0	0	0	1	0	0	2	8	26	109	0	0	0	0
1:00 PM	0	9	1	0	0	0	2	0	0	0	1	0	0	0	3	7	23	116	0	0	0	0
1:15 PM	0	9	4	0	0	0	1	0	0	0	2	0	0	1	5	8	30	120	0	0	0	0
1:30 PM	0	9	0	0	0	0	1	1	0	0	2	0	0	1	1	15	30	132	0	0	0	0
1:45 PM	0	10	2	0	0	0	0	1	0	0	3	1	0	0	7	9	33	139	0	0	0	0
2:00 PM	0	12	1	0	0	0	0	3	0	0	3	0	0	1	0	7	27	155	0	0	0	0
2:15 PM	0	16	3	0	0	0	4	1	0	1	2	0	0	0	2	13	42	165	0	0	0	0
2:30 PM	0	16	2	1	0	0	0	0	0	0	7	0	0	0	1	10	37	199	0	0	0	0
2:45 PM	0	23	2	0	0	0	0	2	0	0	6	0	0	1	2	13	49	213	0	0	0	0
3:00 PM	0	20	2	0	0	0	0	1	0	0	4	1	0	0	1	8	37	214	0	0	0	0
3:15 PM	0	48	1	0	0	0	1	1	0	0	4	1	0	0	1	19	76	222	0	0	0	0
3:30 PM	0	38	1	0	0	0	0	1	0	0	2	0	0	0	3	6	51	193	0	0	0	0
3:45 PM	0	33	1	0	0	0	0	0	0	0	3	0	0	0	1	12	50	196	0	0	0	0
4:00 PM	0	20	1	0	0	0	1	0	0	0	3	0	0	0	3	17	45	214	0	0	0	0
4:15 PM	0	24	2	0	0	0	0	2	0	0	2	0	0	0	2	15	47	270	0	0	0	0
4:30 PM	0	31	1	0	0	0	2	1	0	0	2	1	0	0	1	15	54	276	0	0	0	0
4:45 PM	0	27	1	0	0	0	13	8	0	0	2	0	0	0	2	15	68	274	0	0	0	0
5:00 PM	0	36	3	0	0	1	30	13	0	0	5	0	0	1	1	11	101	234	0	0	0	0
5:15 PM	0	25	4	1	0	0	1	2	0	0	2	0	0	0	0	18	53	162	0	0	0	0
5:30 PM	0	24	1	1	0	0	2	4	0	0	4	0	0	0	4	12	52	146	0	0	0	0
5:45 PM	0	14	2	0	0	0	1	0	0	0	2	0	0	0	0	9	28	125	0	0	0	0
6:00 PM	0	15	0	0	0	1	0	0	0	0	3	0	0	1	1	8	29	120	0	0	0	0
6:15 PM	0	26	0	2	0	0	1	0	0	0	3	0	0	0	0	5	37	111	0	0	0	0
6:30 PM	0	8	3	0	0	0	2	1	0	0	1	0	0	0	1	15	31	103	0	0	0	0
6:45 PM	0	8	1	0	0	0	1	0	0	0	1	0	0	0	3	9	23	90	0	0	0	0
7:00 PM	0	12	1	0	0	0	1	0	0	0	2	0	0	0	2	2	20	89	0	0	0	0
7:15 PM	0	14	2	0	0	0	0	0	0	0	1	0	0	1	7	4	29	83	0	0	0	0
7:30 PM	0	9	0	0	0	0	0	0	0	0	0	0	0	0	2	7	18	71	0	0	0	0
7:45 PM	0	9	0	1	0	1	0	0	0	0	0	0	0	1	3	7	22	70	0	0	0	0
8:00 PM	0	6	1	0	0	0	0	0	0	0	1	0	0	0	1	5	14	58	0	0	0	0
8:15 PM	0	8	0	0	0	0	0	0	0	0	0	0	0	0	3	6	17	54	0	0	0	0
8:30 PM	0	8	0	0	0	0	0	0	0	0	1	0	0	0	5	3	17	43	0	0	0	0
8:45 PM	0	5	0	0	0	0	0	0	0	0	1	0	0	0	1	3	10	37	0	0	0	0
9:00 PM	0	6	0	0	0	0	0	0	0	0	0	0	0	2	1	1	10	35	0	0	0	0
9:15 PM	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	1	6	32	0	0	0	0
9:30 PM	0	5	1	0	0	0	0	2	0	0	1	0	0	0	2	0	11	36	0	0	0	0
9:45 PM	0	4	0	0	0	0	0	2	0	0	0	0	0	0	0	2	8	36	0	0	0	0
10:00 PM	0	3	0	0	0	0	0	0	0	0	3	0	0	0	0	1	7	39	0	0	0	0
10:15 PM	0	3	0	0	0	0	0	0	0	0	2	0	0	1	0	4	10	35	0	0	0	0
10:30 PM	0	1	1	0	0	0	0	0	0	0	3	0	0	0	2	4	11	29	0	0	0	0
10:45 PM	0	3	4	0	0	1	0	0	0	0	1	0	0	2	0	0	11	26	0	0	0	0
11:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	15	0	0	0	0
11:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4		0	0	0	0
11:30 PM	0	3	2	0	0	0	0	1	0	0	0	0	0	0	0	2	8		0	0	0	0

11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	981	126	6	0	4	107	78	0	2	157	15	0	83	167	808	2,534	0	0	0	0	
Peak Hour	0	119	9	1	0	1	46	24	0	0	11	1	0	1	4	59	276	0	0	0	0	

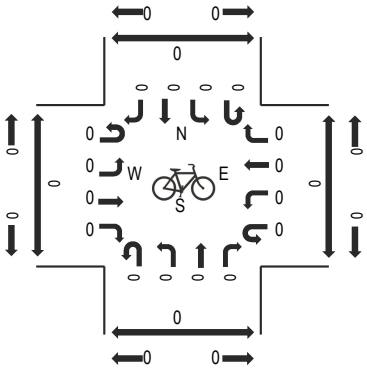
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 3 PICADILLY RD & 152ND AVE AM
Date: Tuesday, September 16, 2025
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

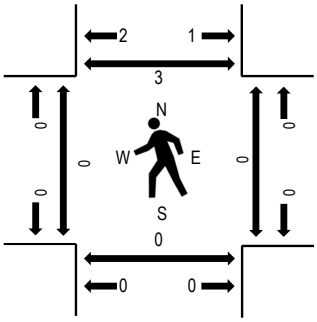
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	152ND AVE Eastbound				152ND AVE Westbound				PICADILLY RD Northbound				PICADILLY RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
12:00 AM	0	0	5	1	0	0	2	0	0	2	0	1	0	0	0	0	11	26	0	0	0	0
12:15 AM	0	0	1	0	0	0	2	0	0	3	0	0	0	0	0	0	6	23	0	0	0	0
12:30 AM	0	0	1	0	0	0	2	0	0	2	0	0	0	0	0	0	5	28	0	0	0	0
12:45 AM	0	0	1	0	0	0	1	0	0	0	0	2	0	0	0	0	4	30	0	0	0	0
1:00 AM	0	0	2	1	0	0	1	0	0	2	0	2	0	0	0	0	8	28	0	0	0	0
1:15 AM	0	0	2	1	0	0	2	0	0	6	0	0	0	0	0	0	11	24	0	0	0	0
1:30 AM	0	0	2	1	0	0	1	0	0	3	0	0	0	0	0	0	7	22	0	0	0	0
1:45 AM	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2	19	0	0	0	0
2:00 AM	0	0	0	1	0	0	0	0	0	3	0	0	0	0	0	0	4	20	0	0	0	0
2:15 AM	0	0	4	0	0	1	3	0	0	1	0	0	0	0	0	0	9	25	0	0	0	0
2:30 AM	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	4	24	0	0	0	0
2:45 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	27	0	0	0	0
3:00 AM	0	0	2	3	0	0	3	0	0	1	0	0	0	0	0	0	9	35	0	0	0	0
3:15 AM	0	0	2	3	0	0	3	0	0	0	0	0	0	0	0	0	8	41	0	0	0	0
3:30 AM	0	0	0	4	0	0	3	0	0	0	0	0	0	0	0	0	7	52	0	0	0	0
3:45 AM	0	0	2	3	0	0	5	0	0	1	0	0	0	0	0	0	11	70	0	0	0	0
4:00 AM	0	0	0	7	0	1	4	0	0	3	0	0	0	0	0	0	15	95	0	0	0	0
4:15 AM	0	0	1	5	0	2	10	0	0	1	0	0	0	0	0	0	19	140	0	0	0	0
4:30 AM	0	0	3	4	0	0	12	0	0	4	0	2	0	0	0	0	25	184	0	0	0	0
4:45 AM	0	0	3	13	0	1	14	0	0	4	0	1	0	0	0	0	36	245	0	0	0	0
5:00 AM	0	0	1	23	0	1	25	0	0	10	0	0	0	0	0	0	60	301	0	0	0	0
5:15 AM	0	0	9	18	0	3	30	0	0	3	0	0	0	0	0	0	63	336	0	0	0	0
5:30 AM	0	0	9	11	0	4	46	0	0	14	0	2	0	0	0	0	86	372	0	0	0	0
5:45 AM	0	0	16	16	0	6	38	0	0	15	0	1	0	0	0	0	92	423	0	0	0	0
6:00 AM	0	0	9	28	0	1	40	0	0	16	0	1	0	0	0	0	95	450	0	0	0	0
6:15 AM	0	0	15	23	0	3	47	0	0	10	0	1	0	0	0	0	99	502	0	0	0	0
6:30 AM	0	0	18	31	0	5	66	0	0	16	0	1	0	0	0	0	137	533	0	0	0	0
6:45 AM	0	0	19	25	0	5	57	0	0	13	0	0	0	0	0	0	119	551	0	0	0	0
7:00 AM	0	0	20	29	0	4	73	0	0	21	0	0	0	0	0	0	147	585	0	0	0	0
7:15 AM	0	0	11	28	0	5	74	0	0	11	0	1	0	0	0	0	130	553	0	0	0	0
7:30 AM	0	0	15	25	0	9	91	0	0	13	0	2	0	0	0	0	155	533	0	0	0	0
7:45 AM	0	0	28	18	0	0	79	0	0	26	0	2	0	0	0	0	153	482	0	0	0	0
8:00 AM	0	0	24	14	0	1	58	0	0	18	0	0	0	0	0	0	115	448	0	0	0	0
8:15 AM	0	0	35	13	0	2	56	0	0	4	0	0	0	0	0	0	110	430	0	0	0	0

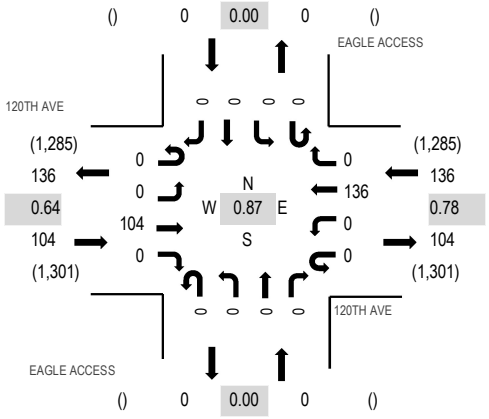
8:30 AM	0	0	30	13	0	2	44	0	0	13	0	2	0	0	0	0	104	420	0	1	0	0
8:45 AM	0	0	35	15	0	0	49	0	0	17	0	3	0	0	0	0	119	410	0	1	0	0
9:00 AM	0	0	23	10	0	5	41	0	0	18	0	0	0	0	0	0	97	373	0	0	0	0
9:15 AM	0	0	28	11	0	4	46	0	0	9	0	2	0	0	0	0	100	394	0	0	0	1
9:30 AM	0	0	27	19	0	3	35	0	0	9	0	1	0	0	0	0	94	389	0	0	0	0
9:45 AM	0	0	28	9	0	1	35	0	0	8	0	1	0	0	0	0	82	378	0	0	0	2
10:00 AM	0	0	33	11	0	3	56	0	0	15	0	0	0	0	0	0	118	383	0	0	0	0
10:15 AM	0	0	26	13	0	2	36	0	0	17	0	1	0	0	0	0	95	352	0	0	0	0
10:30 AM	0	0	41	7	0	3	23	0	0	9	0	0	0	0	0	0	83	339	0	0	0	0
10:45 AM	0	0	26	9	0	2	37	0	0	9	0	4	0	0	0	0	87	370	0	0	0	1
11:00 AM	0	0	28	9	0	2	33	0	0	13	0	2	0	0	0	0	87	389	0	0	0	0
11:15 AM	0	0	30	10	0	1	25	0	0	11	0	5	0	0	0	0	82	426	0	0	0	0
11:30 AM	0	0	36	12	0	1	43	0	0	18	0	4	0	0	0	0	114	453	0	0	0	0
11:45 AM	0	0	27	15	0	2	35	0	0	26	0	1	0	0	0	0	106	446	0	0	0	0
12:00 PM	0	0	48	22	0	0	37	0	0	16	0	1	0	0	0	0	124	428	0	0	0	0
12:15 PM	0	0	35	11	0	1	43	0	0	16	0	3	0	0	0	0	109	400	0	0	0	0
12:30 PM	0	0	44	16	0	2	33	0	0	10	0	2	0	0	0	0	107	399	0	0	0	0
12:45 PM	0	0	29	9	0	3	29	0	0	14	0	4	0	0	0	0	88	406	0	0	0	0
1:00 PM	0	0	24	10	0	2	41	0	0	18	0	1	0	0	0	0	96	419	0	0	0	0
1:15 PM	0	0	36	15	0	3	42	0	0	11	0	1	0	0	0	0	108	420	0	0	0	0
1:30 PM	0	0	37	16	0	1	44	0	0	14	0	2	0	0	0	0	114	426	0	0	0	0
1:45 PM	0	0	42	9	0	4	33	0	0	13	0	0	0	0	0	0	101	423	0	0	0	0
2:00 PM	0	0	37	10	0	0	31	0	0	15	0	4	0	0	0	0	97	452	0	0	0	0
2:15 PM	0	0	39	12	0	4	40	0	0	18	0	1	0	0	0	0	114	481	0	0	0	0
2:30 PM	0	0	45	14	0	1	27	0	0	18	0	6	0	0	0	0	111	507	0	0	0	0
2:45 PM	0	0	42	14	0	2	40	0	0	28	0	4	0	0	0	0	130	541	0	0	0	0
3:00 PM	0	0	46	13	0	2	33	0	0	30	0	2	0	0	0	0	126	547	0	0	0	0
3:15 PM	0	0	42	15	0	2	30	0	0	45	0	6	0	0	0	0	140	566	0	0	0	0
3:30 PM	0	0	63	8	0	1	36	0	0	36	0	1	0	0	0	0	145	578	0	0	0	0
3:45 PM	0	0	57	14	0	4	22	0	0	38	0	1	0	0	0	0	136	602	0	1	0	0
4:00 PM	0	0	58	10	0	5	39	0	0	26	0	7	0	0	0	0	145	628	0	0	0	0
4:15 PM	0	0	61	21	0	4	36	0	0	26	0	4	0	0	0	0	152	662	0	0	0	0
4:30 PM	0	0	71	14	0	3	48	0	0	33	0	0	0	0	0	0	169	661	0	0	0	1
4:45 PM	0	0	68	18	0	2	33	0	0	38	0	3	0	0	0	0	162	646	0	0	0	2
5:00 PM	0	0	83	17	0	1	27	0	0	45	0	6	0	0	0	0	179	597	0	0	0	0
5:15 PM	0	0	62	13	0	9	34	0	0	29	0	4	0	0	0	0	151	542	0	0	0	0
5:30 PM	0	0	67	14	0	2	37	0	0	30	0	4	0	0	0	0	154	495	0	1	0	0
5:45 PM	0	0	50	6	0	3	41	0	0	10	0	3	0	0	0	0	113	443	0	1	0	0
6:00 PM	0	0	60	13	0	2	25	0	0	20	0	4	0	0	0	0	124	420	0	0	0	0
6:15 PM	0	0	46	6	0	0	29	0	0	17	0	6	0	0	0	0	104	380	0	0	0	0
6:30 PM	0	0	56	8	0	4	19	0	0	13	0	2	0	0	0	0	102	357	0	0	0	0
6:45 PM	0	0	53	12	0	1	15	0	0	7	0	2	0	0	0	0	90	330	0	0	0	0
7:00 PM	0	0	37	6	0	1	26	0	0	12	0	2	0	0	0	0	84	302	0	0	0	0
7:15 PM	0	0	44	9	0	0	15	0	0	9	0	4	0	0	0	0	81	257	0	0	0	0
7:30 PM	0	0	35	11	0	0	20	0	0	4	0	5	0	0	0	0	75	236	0	0	0	0
7:45 PM	0	0	30	8	0	0	13	0	0	10	0	1	0	0	0	0	62	207	0	0	0	0
8:00 PM	0	0	16	5	0	2	11	0	0	4	0	1	0	0	0	0	39	195	0	0	0	0
8:15 PM	0	0	27	10	0	2	15	0	0	3	0	3	0	0	0	0	60	185	0	0	0	0
8:30 PM	0	0	20	9	0	0	7	0	0	9	0	1	0	0	0	0	46	160	0	0	0	0
8:45 PM	0	0	29	6	0	0	9	0	0	5	0	1	0	0	0	0	50	145	0	0	0	0
9:00 PM	1	0	11	3	0	0	9	0	0	5	0	0	0	0	0	0	29	121	0	0	0	0
9:15 PM	0	0	19	4	0	0	5	0	0	7	0	0	0	0	0	0	35	116	0	0	0	0
9:30 PM	0	0	19	2	0	1	3	0	0	5	0	1	0	0	0	0	31	107	0	0	0	0
9:45 PM	0	0	11	0	0	1	5	0	0	9	0	0	0	0	0	0	26	106	0	0	0	0
10:00 PM	0	0	14	3	0	0	2	0	0	5	0	0	0	0	0	0	24	96	0	0	0	0
10:15 PM	0	0	13	1	0	2	5	0	0	5	0	0	0	0	0	0	26	78	0	0	0	0
10:30 PM	0	0	11	7	0	1	7	0	0	3	0	1	0	0	0	0	30	64	0	0	0	0
10:45 PM	0	0	8	2	0	0	1	0	0	3	0	2	0	0	0	0	16	52	0	0	0	0
11:00 PM	0	0	1	1	0	0	2	0	0	1	0	1	0	0	0	0	6	45	0	0	0	0
11:15 PM	0	0	4	2	0	0	4	0	0	2	0	0	0	0	0	0	12		0	0	0	0
11:30 PM	0	0	6	2	0	0	5	0	0	5	0	0	0	0	0	0	18		0	0	0	0

11:45 PM	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	9	0	0	0	0
Count Total	1	0	2,443	964	0	164	2,500	0	0	1,159	0	152	0	0	0	0	7,383	0	5	0	7
Peak Hour	0	0	283	70	0	10	144	0	0	142	0	13	0	0	0	0	662	0	0	0	3

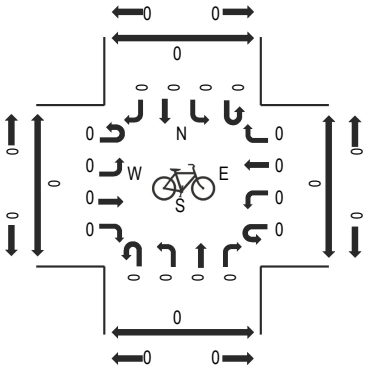
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 4 EAGLE ACCESS & 120TH AVE AM
Date: Tuesday, September 16, 2025
Peak Hour: 06:15 AM - 07:15 AM
Peak 15-Minutes: 06:30 AM - 06:45 AM

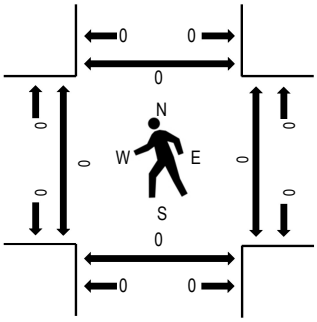
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	120TH AVE Eastbound				120TH AVE Westbound				EAGLE ACCESS Northbound				EAGLE ACCESS Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
12:00 AM	0	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	6	23	0	0	0	0
12:15 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	21	0	0	0	0
12:30 AM	0	0	1	0	0	0	7	0	0	0	0	0	0	0	0	0	8	21	0	0	0	0
12:45 AM	0	0	1	0	0	0	5	0	0	0	0	0	0	0	0	0	6	15	0	0	0	0
1:00 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	4	9	0	0	0	0
1:15 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	6	0	0	0	0
1:30 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
2:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0
2:15 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	9	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0
2:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	13	0	0	0	0
3:00 AM	0	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	6	18	0	0	0	0
3:15 AM	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	4	25	0	0	0	0
3:30 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	30	0	0	0	0
3:45 AM	0	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	6	50	0	0	0	0
4:00 AM	0	0	9	0	0	0	4	0	0	0	0	0	0	0	0	0	13	70	0	0	0	0
4:15 AM	0	0	6	0	0	0	3	0	0	0	0	0	0	0	0	0	9	86	0	0	0	0
4:30 AM	0	0	15	0	0	0	7	0	0	0	0	0	0	0	0	0	22	124	0	0	0	0
4:45 AM	0	0	20	0	0	0	6	0	0	0	0	0	0	0	0	0	26	181	0	0	0	0
5:00 AM	0	0	21	0	0	0	8	0	0	0	0	0	0	0	0	0	29	208	0	0	0	0
5:15 AM	0	0	39	0	0	0	8	0	0	0	0	0	0	0	0	0	47	218	0	0	0	0
5:30 AM	0	0	66	0	0	0	13	0	0	0	0	0	0	0	0	0	79	214	0	0	0	0
5:45 AM	0	0	42	0	0	0	11	0	0	0	0	0	0	0	0	0	53	204	0	0	0	0
6:00 AM	0	0	21	0	0	0	18	0	0	0	0	0	0	0	0	0	39	211	0	0	0	0
6:15 AM	0	0	24	0	0	0	19	0	0	0	0	0	0	0	0	0	43	240	0	0	0	0
6:30 AM	0	0	34	0	0	0	35	0	0	0	0	0	0	0	0	0	69	237	0	0	0	0
6:45 AM	0	0	24	0	0	0	36	0	0	0	0	0	0	0	0	0	60	222	0	0	0	0
7:00 AM	0	0	22	0	0	0	46	0	0	0	0	0	0	0	0	0	68	214	0	0	0	0
7:15 AM	0	0	19	0	0	0	21	0	0	0	0	0	0	0	0	0	40	192	0	0	0	0
7:30 AM	0	0	14	0	0	0	40	0	0	0	0	0	0	0	0	0	54	189	0	0	0	0
7:45 AM	0	0	26	0	0	0	26	0	0	0	0	0	0	0	0	0	52	172	0	0	0	0
8:00 AM	0	0	15	0	0	0	31	0	0	0	0	0	0	0	0	0	46	159	0	0	0	0
8:15 AM	0	0	20	0	0	0	17	0	0	0	0	0	0	0	0	0	37	157	0	0	0	0

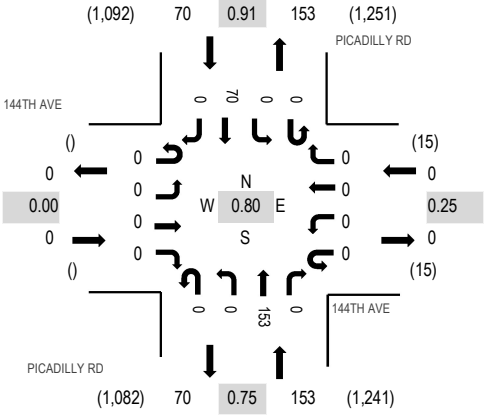
8:30 AM	0	0	22	0	0	0	15	0	0	0	0	0	0	0	0	0	37	152	0	0	0	0
8:45 AM	0	0	17	0	0	0	22	0	0	0	0	0	0	0	0	0	39	146	0	0	0	0
9:00 AM	0	0	18	0	0	0	26	0	0	0	0	0	0	0	0	0	44	130	0	0	0	0
9:15 AM	0	0	18	0	0	0	14	0	0	0	0	0	0	0	0	0	32	124	0	0	0	0
9:30 AM	0	0	14	0	0	0	17	0	0	0	0	0	0	0	0	0	31	117	0	0	0	0
9:45 AM	0	0	14	0	0	0	9	0	0	0	0	0	0	0	0	0	23	118	0	0	0	0
10:00 AM	0	0	14	0	0	0	24	0	0	0	0	0	0	0	0	0	38	120	0	0	0	0
10:15 AM	0	0	8	0	0	0	17	0	0	0	0	0	0	0	0	0	25	96	0	0	0	0
10:30 AM	0	0	12	0	0	0	20	0	0	0	0	0	0	0	0	0	32	98	0	0	0	0
10:45 AM	0	0	9	0	0	0	16	0	0	0	0	0	0	0	0	0	25	99	0	0	0	0
11:00 AM	0	0	9	0	0	0	5	0	0	0	0	0	0	0	0	0	14	90	0	0	0	0
11:15 AM	0	0	10	0	0	0	17	0	0	0	0	0	0	0	0	0	27	110	0	0	0	0
11:30 AM	0	0	20	0	0	0	13	0	0	0	0	0	0	0	0	0	33	116	0	0	0	0
11:45 AM	0	0	10	0	0	0	6	0	0	0	0	0	0	0	0	0	16	106	0	0	0	0
12:00 PM	0	0	20	0	0	0	14	0	0	0	0	0	0	0	0	0	34	119	0	0	0	0
12:15 PM	0	0	15	0	0	0	18	0	0	0	0	0	0	0	0	0	33	122	0	0	0	0
12:30 PM	0	0	11	0	0	0	12	0	0	0	0	0	0	0	0	0	23	124	0	0	0	0
12:45 PM	0	0	19	0	0	0	10	0	0	0	0	0	0	0	0	0	29	138	0	0	0	0
1:00 PM	0	0	22	0	0	0	15	0	0	0	0	0	0	0	0	0	37	148	0	0	0	0
1:15 PM	0	0	20	0	0	0	15	0	0	0	0	0	0	0	0	0	35	149	0	0	0	0
1:30 PM	0	0	25	0	0	0	12	0	0	0	0	0	0	0	0	0	37	145	0	0	0	0
1:45 PM	0	0	18	0	0	0	21	0	0	0	0	0	0	0	0	0	39	152	0	0	0	0
2:00 PM	0	0	12	0	0	0	26	0	0	0	0	0	0	0	0	0	38	157	0	0	0	0
2:15 PM	0	0	9	0	0	0	22	0	0	0	0	0	0	0	0	0	31	152	0	0	0	0
2:30 PM	0	0	9	0	0	0	35	0	0	0	0	0	0	0	0	0	44	155	0	0	0	0
2:45 PM	0	0	7	0	0	0	37	0	0	0	0	0	0	0	0	0	44	156	0	0	0	0
3:00 PM	0	0	14	0	0	0	19	0	0	0	0	0	0	0	0	0	33	155	0	0	0	0
3:15 PM	0	0	17	0	0	0	17	0	0	0	0	0	0	0	0	0	34	179	0	0	0	0
3:30 PM	0	0	16	0	0	0	29	0	0	0	0	0	0	0	0	0	45	187	0	0	0	0
3:45 PM	0	0	22	0	0	0	21	0	0	0	0	0	0	0	0	0	43	185	0	0	0	0
4:00 PM	0	0	21	0	0	0	36	0	0	0	0	0	0	0	0	0	57	191	0	0	0	0
4:15 PM	0	0	24	0	0	0	18	0	0	0	0	0	0	0	0	0	42	178	0	0	0	0
4:30 PM	0	0	21	0	0	0	22	0	0	0	0	0	0	0	0	0	43	169	0	0	0	0
4:45 PM	0	0	21	0	0	0	28	0	0	0	0	0	0	0	0	0	49	165	0	0	0	0
5:00 PM	0	0	18	0	0	0	26	0	0	0	0	0	0	0	0	0	44	152	0	0	0	0
5:15 PM	0	0	15	0	0	0	18	0	0	0	0	0	0	0	0	0	33	141	0	0	0	0
5:30 PM	0	0	22	0	0	0	17	0	0	0	0	0	0	0	0	0	39	138	0	0	0	0
5:45 PM	0	0	23	0	0	0	13	0	0	0	0	0	0	0	0	0	36	125	0	0	0	0
6:00 PM	0	0	17	0	0	0	16	0	0	0	0	0	0	0	0	0	33	110	0	0	0	0
6:15 PM	0	0	21	0	0	0	9	0	0	0	0	0	0	0	0	0	30	92	0	0	0	0
6:30 PM	0	0	10	0	0	0	16	0	0	0	0	0	0	0	0	0	26	87	0	0	0	0
6:45 PM	0	0	5	0	0	0	16	0	0	0	0	0	0	0	0	0	21	86	0	0	0	0
7:00 PM	0	0	7	0	0	0	8	0	0	0	0	0	0	0	0	0	15	77	0	0	0	0
7:15 PM	0	0	18	0	0	0	7	0	0	0	0	0	0	0	0	0	25	85	0	0	0	0
7:30 PM	0	0	20	0	0	0	5	0	0	0	0	0	0	0	0	0	25	84	0	0	0	0
7:45 PM	0	0	10	0	0	0	2	0	0	0	0	0	0	0	0	0	12	80	0	0	0	0
8:00 PM	0	0	15	0	0	0	8	0	0	0	0	0	0	0	0	0	23	85	0	0	0	0
8:15 PM	0	0	16	0	0	0	8	0	0	0	0	0	0	0	0	0	24	78	0	0	0	0
8:30 PM	0	0	19	0	0	0	2	0	0	0	0	0	0	0	0	0	21	70	0	0	0	0
8:45 PM	0	0	14	0	0	0	3	0	0	0	0	0	0	0	0	0	17	63	0	0	0	0
9:00 PM	0	0	12	0	0	0	4	0	0	0	0	0	0	0	0	0	16	59	0	0	0	0
9:15 PM	0	0	12	0	0	0	4	0	0	0	0	0	0	0	0	0	16	54	0	0	0	0
9:30 PM	0	0	8	0	0	0	6	0	0	0	0	0	0	0	0	0	14	43	0	0	0	0
9:45 PM	0	0	8	0	0	0	5	0	0	0	0	0	0	0	0	0	13	66	0	0	0	0
10:00 PM	0	0	2	0	0	0	9	0	0	0	0	0	0	0	0	0	11	61	0	0	0	0
10:15 PM	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	5	55	0	0	0	0
10:30 PM	0	0	2	0	0	0	35	0	0	0	0	0	0	0	0	0	37	54	0	0	0	0
10:45 PM	0	0	2	0	0	0	6	0	0	0	0	0	0	0	0	0	8	21	0	0	0	0
11:00 PM	0	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	5	16	0	0	0	0
11:15 PM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	4		0	0	0	0
11:30 PM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	4		0	0	0	0

11:45 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0
Count Total	0	0	1,301	0	0	0	1,285	0	0	0	0	0	0	0	0	0	2,586	0	0	0	0
Peak Hour	0	0	104	0	0	0	136	0	0	0	0	0	0	0	0	0	240	0	0	0	0

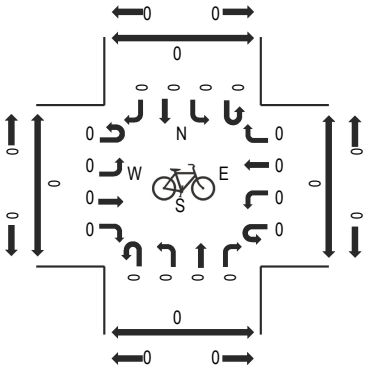
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 5 PICADILLY RD & 144TH AVE AM
Date: Tuesday, September 16, 2025
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

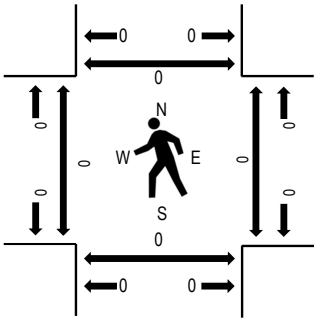
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	144TH AVE Eastbound				144TH AVE Westbound				PICADILLY RD Northbound				PICADILLY RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
12:00 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	9	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	9	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	15	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	16	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	15	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	1	0	7	16	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	11	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	9	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	5	8	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	6	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	8	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3	15	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	21	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	26	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	0	4	31	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	7	0	9	45	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	8	0	9	68	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	3	0	9	86	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	13	0	18	105	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	8	0	0	1	23	0	32	128	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	22	0	27	136	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	16	0	28	144	0	0	0	0
5:45 AM	0	0	0	0	0	0	0	0	0	0	18	0	0	0	23	0	41	170	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	0	0	0	18	0	0	0	22	0	40	179	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	9	0	0	0	26	0	35	192	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	38	0	54	198	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	34	0	50	200	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	17	0	0	0	36	0	53	186	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	30	0	41	165	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	2	0	0	16	0	0	0	38	0	56	143	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	19	0	0	0	17	0	36	128	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	19	0	0	0	13	0	32	124	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	15	0	19	133	0	0	0	0

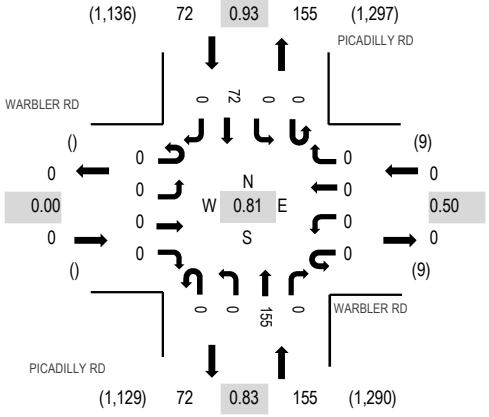
8:30 AM	0	0	0	0	0	0	0	1	0	0	20	1	0	0	19	0	41	138	0	0	0	0
8:45 AM	0	0	0	0	0	1	0	0	0	0	16	0	0	0	15	0	32	130	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	22	0	0	0	19	0	41	113	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	13	0	24	102	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	14	0	0	1	18	0	33	109	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	8	0	15	92	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	1	0	0	15	0	0	0	14	0	30	98	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	17	0	0	0	14	0	31	91	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	10	0	16	88	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	10	0	21	101	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	14	0	0	1	8	0	23	116	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	12	0	28	126	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	1	0	0	17	0	0	0	11	0	29	130	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	21	0	0	0	15	0	36	126	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	15	0	0	2	16	0	33	116	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	1	0	0	15	0	0	0	16	0	32	105	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	11	1	0	0	13	0	25	102	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	12	0	26	111	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	11	0	0	1	10	0	22	115	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	1	0	0	10	0	0	0	18	0	29	113	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	15	0	0	0	19	0	34	124	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	15	0	0	0	15	0	30	131	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	15	0	0	1	4	0	20	140	0	0	0	0
2:15 PM	0	0	0	0	0	1	0	0	0	0	20	0	0	1	18	0	40	161	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	26	0	0	0	15	0	41	189	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	28	0	0	0	11	0	39	193	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	29	0	0	0	12	0	41	213	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	53	0	0	0	15	0	68	220	0	0	0	0
3:30 PM	0	0	0	0	0	1	0	1	0	0	34	0	0	0	9	0	45	200	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	43	0	0	0	16	0	59	204	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	24	0	0	1	23	0	48	201	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	28	0	0	0	20	0	48	223	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	34	0	0	0	15	0	49	220	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	37	0	0	0	19	0	56	216	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	54	0	0	0	16	0	70	181	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	1	0	0	28	0	0	2	14	0	45	146	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	32	0	0	0	13	0	45	134	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	10	0	21	114	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	1	0	0	23	0	0	1	10	0	35	120	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	26	0	0	0	7	0	33	102	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	11	0	25	97	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	1	0	0	9	0	0	0	17	0	27	91	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	13	0	0	0	4	0	17	85	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	12	0	28	80	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	11	0	19	71	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	10	0	21	69	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	7	0	12	57	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	11	0	19	55	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	9	0	0	1	7	0	17	45	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	3	0	9	36	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	4	0	10	37	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	4	0	9	34	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	1	0	8	34	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	2	0	10	37	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	2	0	7	33	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	4	0	9	29	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	6	0	11	23	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	6	19	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	14	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3		0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	2	0	7		0	0	0	0

11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	
Count Total	0	0	0	0	0	3	0	12	0	0	1,239	2	0	13	1,079	0	2,348	0	0	0	0	
Peak Hour	0	0	0	0	0	0	0	0	0	0	153	0	0	0	70	0	223	0	0	0	0	

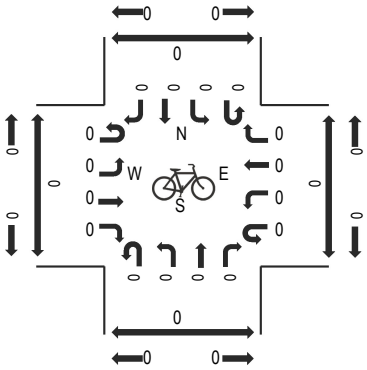
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 6 PICADILLY RD & WARBLER RD AM
Date: Tuesday, September 16, 2025
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

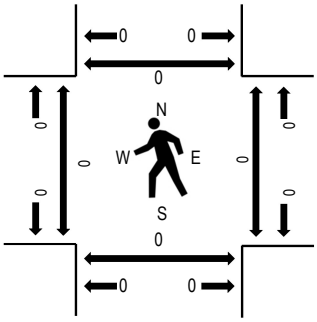
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	WARBLER RD Eastbound				WARBLER RD Westbound				PICADILLY RD Northbound				PICADILLY RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
12:00 AM	0	0	0	0	0	0	0	1	0	0	4	0	0	1	0	0	6	11	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	10	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	16	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	18	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	1	0	0	5	17	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	1	0	7	17	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	1	0	0	2	0	0	0	1	0	4	12	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	9	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	5	8	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	6	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	8	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3	15	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	22	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	27	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	4	33	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	7	0	10	46	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	8	0	9	69	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	4	0	10	87	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	13	0	17	106	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	9	0	0	0	24	0	33	129	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	22	0	27	137	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	17	0	29	147	0	0	0	0
5:45 AM	0	0	0	0	0	1	0	0	0	0	18	0	0	0	21	0	40	172	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	0	0	0	17	0	0	0	24	0	41	183	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	25	0	37	194	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	1	37	0	54	202	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	35	0	51	198	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	17	0	0	0	35	0	52	190	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	33	0	45	170	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	34	0	50	146	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	24	0	0	0	19	0	43	130	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	19	0	0	0	13	0	32	122	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	1	16	0	21	127	0	0	0	0

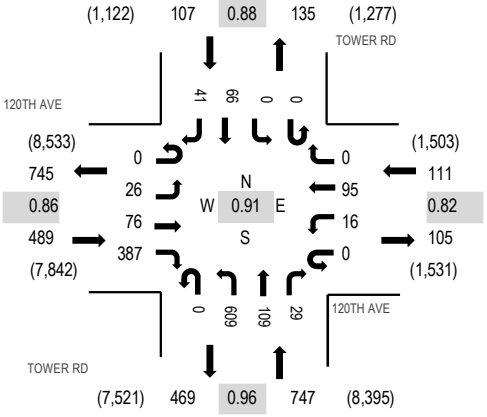
8:30 AM	0	0	0	0	0	0	0	0	0	0	18	0	0	0	16	0	34	134	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	21	0	0	0	14	0	35	136	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	21	0	0	0	16	0	37	120	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	16	0	28	112	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	14	0	0	1	21	0	36	117	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	11	0	19	96	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	15	0	0	0	14	0	29	98	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	18	0	0	0	15	0	33	93	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	1	8	0	15	88	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	10	0	21	105	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	10	0	24	127	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	12	0	28	137	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	1	0	0	19	0	0	0	12	0	32	142	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	25	0	0	0	18	0	43	134	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	20	0	34	120	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	19	0	0	0	14	0	33	118	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	10	0	0	1	13	0	24	116	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	18	0	0	0	11	0	29	126	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	19	0	0	0	13	0	32	128	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	1	0	0	11	0	0	0	19	0	31	119	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	1	0	0	14	0	0	0	19	0	34	127	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	15	0	31	134	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	15	0	0	0	8	0	23	148	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	19	0	0	1	19	0	39	172	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	26	0	0	0	15	0	41	201	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	29	0	0	0	16	0	45	205	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	33	0	0	0	14	0	47	223	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	1	0	0	50	0	0	0	17	0	68	225	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	35	0	0	0	10	0	45	209	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	47	0	0	0	16	0	63	211	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	25	0	0	0	24	0	49	206	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	32	0	0	0	20	0	52	227	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	32	0	0	0	15	0	47	223	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	37	0	0	0	21	0	58	223	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	54	0	0	0	16	0	70	186	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	29	0	0	0	19	0	48	155	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	33	0	0	0	14	0	47	139	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	10	0	21	121	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	25	0	0	0	14	0	39	126	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	25	0	0	0	7	0	32	106	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	13	0	29	99	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	10	0	0	0	16	0	26	88	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	13	0	0	0	6	0	19	82	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	11	0	25	78	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	11	0	18	72	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	10	0	0	0	10	0	20	72	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	7	0	15	62	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	12	0	19	57	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	10	0	0	0	8	0	18	48	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	4	0	10	38	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	10	38	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	4	0	10	35	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	1	0	8	33	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	2	0	10	37	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	2	0	7	36	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	3	0	8	32	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	7	0	12	27	0	0	0	0
10:45 PM	0	0	0	0	0	1	0	0	0	0	5	0	0	1	2	0	9	22	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	14	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	3		0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	2	0	7		0	0	0	0

11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	
Count Total	0	0	0	0	0	2	0	7	0	0	1,290	0	0	9	1,127	0	2,435	0	0	0	0	
Peak Hour	0	0	0	0	0	0	0	0	0	0	155	0	0	0	72	0	227	0	0	0	0	

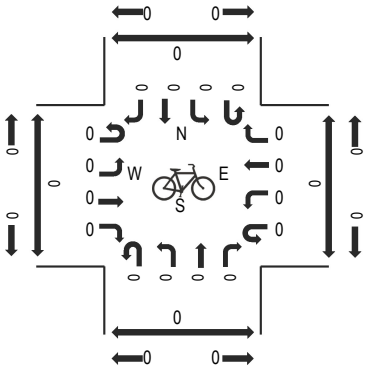
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 7 TOWER RD & 120TH AVE AM
Date: Tuesday, September 16, 2025
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

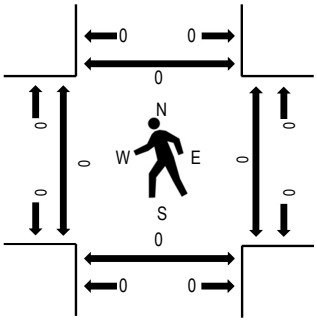
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	120TH AVE Eastbound				120TH AVE Westbound				TOWER RD Northbound				TOWER RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
12:00 AM	0	0	0	11	0	1	3	0	0	29	4	2	0	0	0	1	51	189	0	0	0	0
12:15 AM	0	0	0	10	0	1	4	0	0	26	1	0	0	0	0	0	42	176	0	0	0	0
12:30 AM	0	1	0	12	0	0	5	0	0	34	1	2	0	0	0	1	56	164	0	0	0	0
12:45 AM	0	0	0	5	0	0	6	0	0	25	4	0	0	0	0	0	40	135	0	0	0	0
1:00 AM	0	0	1	5	0	0	3	0	0	24	5	0	0	0	0	0	38	122	0	0	0	0
1:15 AM	0	0	1	6	0	1	2	0	0	17	2	1	0	0	0	0	30	103	0	0	0	0
1:30 AM	0	0	1	13	0	0	0	0	0	10	0	1	0	0	2	0	27	108	0	0	0	0
1:45 AM	0	0	0	10	0	0	0	0	0	15	2	0	0	0	0	0	27	100	0	0	0	0
2:00 AM	0	0	0	12	0	0	0	0	0	5	1	0	0	0	1	0	19	100	0	0	0	0
2:15 AM	0	0	1	12	0	0	1	0	0	18	1	0	0	0	2	0	35	114	0	0	0	0
2:30 AM	0	0	0	10	0	0	0	0	0	9	0	0	0	0	0	0	19	123	0	0	0	0
2:45 AM	0	0	1	12	0	0	0	0	0	12	1	0	0	0	1	0	27	142	0	0	0	0
3:00 AM	0	0	1	21	0	1	5	0	0	4	0	0	0	0	1	0	33	157	0	0	0	0
3:15 AM	0	1	2	25	0	0	1	0	0	12	0	0	0	0	3	0	44	190	0	0	0	0
3:30 AM	0	0	2	25	0	0	1	0	0	7	0	0	0	0	3	0	38	249	0	0	0	0
3:45 AM	0	0	4	22	0	0	0	0	0	8	1	1	0	0	6	0	42	320	0	0	0	0
4:00 AM	0	0	7	41	0	0	3	0	0	12	1	1	0	0	1	0	66	406	0	0	0	0
4:15 AM	0	1	6	61	0	1	5	0	0	17	2	1	0	0	9	0	103	505	0	0	0	0
4:30 AM	0	2	16	50	0	1	6	0	0	23	3	0	0	0	6	2	109	648	0	0	0	0
4:45 AM	0	1	14	72	0	2	1	0	0	20	10	2	0	0	4	2	128	842	0	0	0	0
5:00 AM	0	0	16	85	0	2	9	0	0	36	2	1	0	0	13	1	165	994	0	0	0	0
5:15 AM	0	2	41	123	0	2	10	0	0	39	7	2	0	0	17	3	246	1,110	0	0	0	0
5:30 AM	0	0	58	141	0	4	9	0	0	58	13	5	0	0	13	2	303	1,164	0	0	0	0
5:45 AM	0	2	27	124	0	0	15	0	0	72	17	3	0	0	17	3	280	1,196	0	0	0	0
6:00 AM	0	3	16	147	0	4	12	0	0	63	11	4	0	0	18	3	281	1,249	0	0	0	0
6:15 AM	0	4	25	125	0	5	20	0	0	79	8	8	0	0	22	4	300	1,319	0	0	0	0
6:30 AM	0	7	24	141	0	4	19	0	0	88	11	4	0	0	31	6	335	1,318	0	0	0	0
6:45 AM	0	7	23	130	0	10	33	0	0	78	15	3	0	1	27	6	333	1,327	0	0	0	0
7:00 AM	0	12	23	111	0	8	39	0	0	97	16	4	0	0	33	8	351	1,385	0	0	0	0
7:15 AM	0	3	15	116	0	5	22	0	0	93	11	4	0	0	21	9	299	1,316	0	0	0	0
7:30 AM	0	1	13	128	0	5	30	1	0	111	10	6	0	0	32	7	344	1,317	0	0	0	0
7:45 AM	0	5	31	132	0	11	37	0	0	126	18	6	0	0	20	5	391	1,241	0	0	0	0
8:00 AM	0	3	12	108	0	1	31	0	0	96	9	5	0	0	13	4	282	1,086	0	0	0	0
8:15 AM	0	3	22	128	0	3	19	0	0	105	4	2	0	0	10	4	300	1,090	0	0	0	0

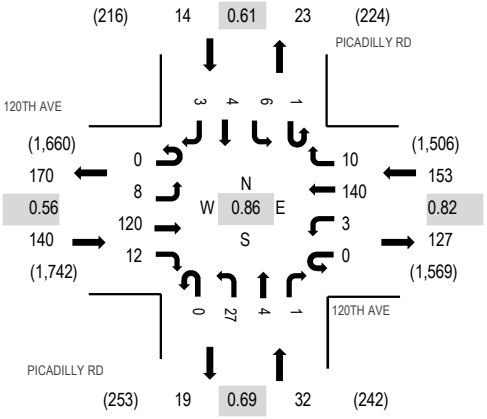
8:30 AM	0	4	16	100	0	3	12	0	0	91	16	6	0	0	15	5	268	1,036	0	0	0	0
8:45 AM	0	2	19	77	0	2	25	0	0	76	13	5	0	0	14	3	236	999	0	0	0	0
9:00 AM	0	6	19	83	0	6	30	0	0	105	16	5	0	0	10	6	286	954	0	0	0	0
9:15 AM	0	2	10	89	0	4	18	0	0	99	9	2	0	0	10	3	246	884	0	0	0	0
9:30 AM	0	1	17	74	0	7	18	0	0	85	12	0	0	0	9	8	231	883	0	0	0	0
9:45 AM	0	0	9	68	0	2	11	0	0	73	8	7	0	1	9	3	191	887	0	0	0	0
10:00 AM	0	1	10	72	0	5	20	0	0	77	16	1	0	0	11	3	216	905	0	0	0	0
10:15 AM	0	4	11	92	0	5	18	1	0	93	8	3	0	0	6	4	245	883	0	0	0	0
10:30 AM	0	5	11	81	0	2	13	0	0	101	9	2	0	0	8	3	235	839	0	0	0	0
10:45 AM	0	3	10	52	0	6	18	0	0	91	9	6	0	0	9	5	209	833	0	0	0	0
11:00 AM	0	7	5	74	0	5	7	0	0	70	12	5	0	0	7	2	194	869	0	0	0	0
11:15 AM	0	1	16	69	0	5	10	0	0	78	11	5	0	0	2	4	201	891	0	0	0	0
11:30 AM	0	4	6	61	0	5	12	1	0	109	8	9	0	0	7	7	229	946	0	0	0	0
11:45 AM	0	2	9	81	0	1	8	0	0	105	19	5	0	0	9	6	245	961	0	0	0	0
12:00 PM	0	1	16	79	0	6	15	0	0	72	12	7	0	0	8	0	216	958	0	0	0	0
12:15 PM	0	2	14	103	0	6	12	1	0	86	14	3	0	0	11	4	256	991	0	0	0	0
12:30 PM	0	4	13	83	0	5	12	0	0	102	8	5	0	0	8	4	244	970	0	0	0	0
12:45 PM	0	7	18	81	0	5	13	0	0	87	12	7	0	1	10	1	242	980	0	0	0	0
1:00 PM	0	1	20	75	0	3	19	0	0	109	12	2	0	0	7	1	249	968	0	0	0	0
1:15 PM	0	8	17	76	0	7	12	0	0	86	7	9	0	0	11	2	235	950	0	0	0	0
1:30 PM	0	3	22	60	0	3	16	0	0	120	11	2	0	0	14	3	254	1,031	0	0	0	0
1:45 PM	0	2	12	66	0	3	14	0	0	99	12	8	0	0	10	4	230	1,101	0	0	0	0
2:00 PM	0	4	11	58	0	3	11	0	0	120	11	4	0	0	6	3	231	1,181	0	0	0	0
2:15 PM	0	3	14	95	0	7	35	0	0	122	18	4	0	0	15	3	316	1,255	0	0	0	0
2:30 PM	0	2	13	104	0	1	31	0	0	146	12	2	0	0	11	2	324	1,279	0	0	0	0
2:45 PM	0	11	10	84	0	5	31	0	0	129	20	4	0	0	12	4	310	1,267	0	0	0	0
3:00 PM	0	5	10	79	0	1	20	0	0	147	23	7	0	0	11	2	305	1,255	0	0	0	0
3:15 PM	0	9	17	78	0	4	17	0	0	135	45	8	0	0	21	6	340	1,292	0	0	0	0
3:30 PM	0	11	19	91	0	7	25	1	0	107	33	7	0	0	10	1	312	1,283	0	0	0	0
3:45 PM	0	3	17	84	0	6	21	0	0	123	26	6	0	0	9	3	298	1,299	0	0	0	0
4:00 PM	0	4	28	84	0	3	27	0	0	140	25	6	0	0	18	7	342	1,363	0	0	0	0
4:15 PM	0	2	23	87	0	5	23	0	0	142	22	5	0	0	15	7	331	1,421	0	0	0	0
4:30 PM	0	1	18	87	0	3	15	0	0	149	29	7	0	0	13	6	328	1,429	0	0	0	0
4:45 PM	0	7	21	85	0	5	32	0	0	151	32	8	0	0	16	5	362	1,454	0	0	0	0
5:00 PM	0	6	18	109	0	6	20	0	0	162	29	4	0	0	20	26	400	1,419	0	0	0	0
5:15 PM	0	7	17	90	0	3	26	0	0	144	22	9	0	0	15	6	339	1,315	0	0	0	0
5:30 PM	0	6	20	103	0	2	17	0	0	152	26	8	0	0	15	4	353	1,269	0	0	0	0
5:45 PM	0	5	22	122	0	1	19	0	0	122	16	6	0	0	9	5	327	1,161	0	0	0	0
6:00 PM	0	3	20	112	0	6	8	0	0	108	18	4	0	0	11	6	296	1,060	0	0	0	0
6:15 PM	0	8	24	109	0	5	7	1	0	101	22	8	0	0	6	2	293	958	0	0	0	0
6:30 PM	0	4	11	81	0	4	19	1	0	95	11	3	0	0	14	2	245	877	0	0	0	0
6:45 PM	0	1	8	77	0	7	5	0	0	103	14	3	0	0	6	2	226	825	0	0	0	0
7:00 PM	0	3	9	69	0	5	6	0	0	80	10	4	0	0	7	1	194	757	0	0	0	0
7:15 PM	0	1	16	68	0	4	12	0	0	84	18	4	0	0	2	3	212	723	0	0	0	0
7:30 PM	0	5	20	54	0	1	6	0	0	82	10	3	0	0	10	2	193	659	0	0	0	0
7:45 PM	0	4	11	49	0	2	5	0	0	75	4	1	0	0	5	2	158	582	0	0	0	0
8:00 PM	0	2	12	53	0	4	11	0	0	59	9	3	0	0	6	1	160	549	0	0	0	0
8:15 PM	0	0	16	45	0	5	8	0	0	57	7	2	0	0	7	1	148	479	0	0	0	0
8:30 PM	0	0	10	35	0	1	4	0	0	47	11	4	0	0	3	1	116	444	0	0	0	0
8:45 PM	0	1	13	40	0	2	1	0	0	60	3	3	0	0	2	0	125	419	0	0	0	0
9:00 PM	0	3	7	31	0	2	3	0	0	32	7	3	0	0	2	0	90	404	0	0	0	0
9:15 PM	0	0	11	36	0	1	4	0	0	48	6	3	0	0	3	1	113	398	0	0	0	0
9:30 PM	0	1	7	29	0	1	2	0	0	41	5	3	0	0	0	2	91	360	0	0	0	0
9:45 PM	0	1	7	38	0	1	6	0	0	49	3	2	0	0	2	1	110	375	0	0	0	0
10:00 PM	0	0	0	37	0	0	6	0	0	34	3	1	0	0	2	1	84	334	0	0	0	0
10:15 PM	0	2	2	21	0	0	1	0	0	39	4	4	0	0	2	0	75	300	0	0	0	0
10:30 PM	0	0	3	27	0	3	29	0	0	38	0	3	0	0	3	0	106	280	0	0	0	0
10:45 PM	0	0	1	24	0	0	5	0	0	28	8	0	0	0	3	0	69	225	0	0	0	0
11:00 PM	0	0	6	10	0	0	3	0	0	29	1	0	0	0	1	0	50	198	0	0	0	0
11:15 PM	0	0	3	10	0	0	1	0	0	37	2	0	0	0	2	0	55		0	0	0	0
11:30 PM	0	0	1	12	0	0	4	0	0	26	5	0	0	0	2	1	51		0	0	0	0

11:45 PM	0	0	1	12	0	0	2	0	0	25	2	0	0	0	0	0	42	0	0	0	0
Count Total	0	253	1,200	6,389	0	284	1,212	7	0	7,050	1,017	328	0	3	848	271	18,862	0	0	0	0
Peak Hour	0	26	76	387	0	16	95	0	0	609	109	29	0	0	66	41	1,454	0	0	0	0

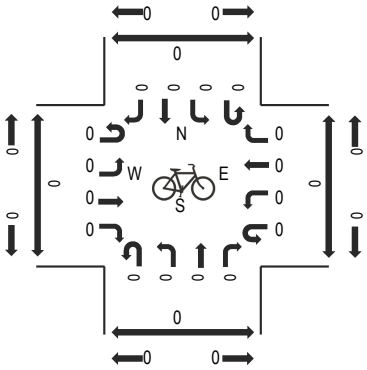
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 PICADILLY RD & 120TH AVE AM
Date: Wednesday, September 17, 2025
Peak Hour: 06:45 AM - 07:45 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

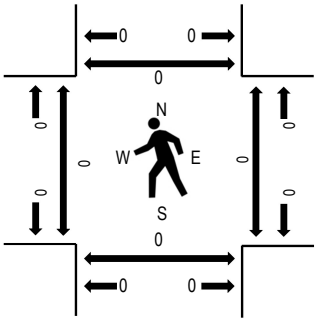
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	120TH AVE Eastbound				120TH AVE Westbound				PICADILLY RD Northbound				PICADILLY RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
12:00 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	30	0	0	0	0
12:15 AM	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	5	31	0	0	0	0
12:30 AM	0	0	3	0	0	0	10	2	0	0	0	0	0	2	1	0	18	27	0	0	0	0
12:45 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	1	5	11	0	0	0	0
1:00 AM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3	10	0	0	0	0
1:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	7	0	0	0	0
1:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2	8	0	0	0	0
1:45 AM	0	0	0	0	0	0	1	1	0	1	0	0	0	1	0	0	4	7	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
2:15 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	10	0	0	0	0
2:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	12	0	0	0	0
2:45 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	15	0	0	0	0
3:00 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	1	5	19	0	0	0	0
3:15 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	4	26	0	0	0	0
3:30 AM	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	4	36	0	0	0	0
3:45 AM	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	6	55	0	0	0	0
4:00 AM	0	0	8	0	0	0	4	0	0	0	0	0	0	0	0	0	12	77	0	0	0	0
4:15 AM	0	0	5	0	0	0	6	1	0	0	0	0	0	2	0	0	14	105	0	0	0	0
4:30 AM	0	0	13	0	0	0	8	0	0	0	0	0	0	2	0	0	23	145	0	0	0	0
4:45 AM	0	0	12	0	0	0	9	2	0	2	0	0	0	3	0	0	28	227	0	0	0	0
5:00 AM	0	1	21	0	0	0	10	0	0	0	1	0	0	7	0	0	40	245	0	0	0	0
5:15 AM	0	0	38	1	0	0	10	0	0	2	0	0	0	1	1	1	54	255	0	0	0	0
5:30 AM	0	1	79	0	0	0	14	0	0	2	0	0	0	7	0	2	105	247	0	0	0	0
5:45 AM	0	0	35	0	0	0	8	0	0	0	1	0	0	2	0	0	46	218	0	0	0	0
6:00 AM	0	0	25	1	0	0	19	2	0	0	0	1	0	2	0	0	50	252	0	0	0	0
6:15 AM	0	3	21	1	0	0	19	0	0	1	0	0	0	1	0	0	46	298	0	0	0	0
6:30 AM	0	0	43	1	0	0	26	1	0	1	1	0	0	2	1	0	76	316	0	0	0	0
6:45 AM	0	2	41	2	0	0	23	0	0	4	1	0	0	3	2	2	80	339	0	0	0	0
7:00 AM	0	4	37	5	0	1	35	4	0	2	3	0	1	2	2	0	96	314	0	0	0	0
7:15 AM	0	2	15	4	0	0	31	0	0	10	0	0	0	1	0	1	64	286	0	0	0	0
7:30 AM	0	0	27	1	0	2	51	6	0	11	0	1	0	0	0	0	99	278	0	0	0	0
7:45 AM	0	1	20	4	0	0	23	2	0	3	0	0	0	1	1	0	55	232	0	0	0	0
8:00 AM	0	3	18	3	0	0	33	2	0	6	2	0	0	0	0	1	68	216	0	0	0	0
8:15 AM	0	2	21	4	0	0	22	1	0	2	1	1	0	0	1	1	56	188	0	0	0	0

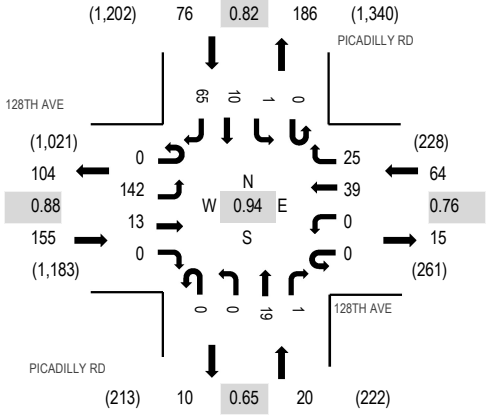
8:30 AM	0	1	26	3	0	0	16	0	0	3	0	0	0	1	1	2	53	169	0	0	0	0
8:45 AM	0	6	15	0	0	0	13	0	0	2	0	0	0	2	1	0	39	147	0	0	0	0
9:00 AM	0	0	19	2	0	0	17	0	0	0	0	0	0	1	1	0	40	156	0	0	0	0
9:15 AM	0	3	13	2	0	0	14	0	0	3	1	0	0	0	0	1	37	137	0	0	0	0
9:30 AM	0	0	10	1	0	1	14	0	0	3	1	0	0	0	0	1	31	128	0	0	0	0
9:45 AM	0	5	18	3	0	0	15	1	0	1	0	0	0	2	0	3	48	121	0	0	0	0
10:00 AM	0	1	8	0	0	0	8	0	0	1	1	0	0	2	0	0	21	107	0	0	0	0
10:15 AM	0	0	10	3	0	0	9	1	1	1	0	0	0	0	1	2	28	128	0	0	0	0
10:30 AM	0	2	10	1	0	0	8	0	0	2	0	0	0	1	0	0	24	142	0	0	0	0
10:45 AM	0	0	15	2	0	1	11	0	0	2	1	0	0	0	1	1	34	157	0	0	0	0
11:00 AM	1	0	13	2	0	0	14	3	0	1	3	1	0	0	0	4	42	159	0	0	0	0
11:15 AM	0	1	14	0	0	0	22	0	0	3	1	0	0	0	0	1	42	163	0	0	0	0
11:30 AM	0	0	14	1	0	1	12	0	0	3	1	0	0	2	1	4	39	168	0	0	0	0
11:45 AM	0	1	14	1	0	0	15	0	0	1	2	0	0	0	1	1	36	177	0	0	0	0
12:00 PM	0	0	15	2	0	0	19	0	0	4	2	2	0	1	1	0	46	197	0	0	0	0
12:15 PM	0	2	17	3	0	1	20	0	0	1	0	1	0	0	1	1	47	204	0	0	0	0
12:30 PM	0	1	23	2	0	0	14	1	0	3	0	1	0	1	1	1	48	212	0	0	0	0
12:45 PM	0	1	29	4	0	0	15	1	0	1	2	0	0	1	1	1	56	215	0	0	0	0
1:00 PM	0	4	19	3	0	0	23	1	0	1	1	1	0	0	0	0	53	214	0	0	0	0
1:15 PM	0	0	22	4	0	0	17	0	0	2	0	0	0	4	4	2	55	206	0	0	0	0
1:30 PM	0	1	21	3	0	0	19	1	0	3	1	0	0	1	1	0	51	201	0	0	0	0
1:45 PM	0	1	25	5	0	0	19	0	0	3	0	0	0	0	1	1	55	209	0	0	0	0
2:00 PM	0	1	14	2	0	1	22	0	0	1	1	0	0	0	2	1	45	227	0	0	0	0
2:15 PM	0	1	16	3	0	1	18	1	0	5	0	0	0	0	2	3	50	240	0	0	0	0
2:30 PM	0	2	11	2	0	0	29	9	0	4	0	0	0	0	2	0	59	242	0	0	0	0
2:45 PM	0	4	23	1	0	1	35	2	0	3	2	1	0	1	0	0	73	265	0	0	0	0
3:00 PM	1	1	25	3	0	0	22	1	0	2	2	0	0	0	1	0	58	255	0	0	0	0
3:15 PM	0	1	22	5	0	0	14	1	0	5	1	0	0	0	1	2	52	276	0	0	0	0
3:30 PM	0	3	25	2	0	0	40	5	0	1	1	0	0	0	3	2	82	304	0	0	0	0
3:45 PM	0	2	18	1	0	1	36	0	0	0	2	1	0	0	0	2	63	309	0	0	0	0
4:00 PM	0	1	29	2	0	0	36	2	0	3	0	0	0	1	3	2	79	325	0	0	0	0
4:15 PM	0	1	30	4	0	0	36	5	0	3	0	0	0	0	1	0	80	323	0	0	0	0
4:30 PM	0	3	23	2	0	1	51	1	0	2	0	0	0	1	0	3	87	319	0	0	0	0
4:45 PM	0	4	25	4	0	0	39	2	0	4	0	1	0	0	0	0	79	294	0	0	0	0
5:00 PM	0	5	26	5	0	0	32	1	0	3	0	0	0	0	3	2	77	280	0	0	0	0
5:15 PM	0	0	29	7	0	1	27	2	0	6	3	0	0	0	0	1	76	267	0	0	0	0
5:30 PM	0	1	20	4	0	0	28	2	0	2	1	0	0	2	0	2	62	241	0	0	0	0
5:45 PM	0	0	27	6	0	0	22	0	0	3	5	0	0	0	1	1	65	223	0	0	0	0
6:00 PM	0	2	19	8	0	0	23	2	0	4	2	0	0	0	1	3	64	201	0	0	0	0
6:15 PM	0	2	16	5	0	0	18	2	0	4	1	0	0	0	1	1	50	178	0	0	0	0
6:30 PM	0	1	17	3	0	0	16	0	0	3	0	0	0	1	2	1	44	170	0	0	0	0
6:45 PM	0	1	16	5	0	0	18	0	0	1	1	0	0	0	0	1	43	154	0	0	0	0
7:00 PM	0	1	11	7	0	0	18	0	0	0	1	0	0	0	1	2	41	151	0	0	0	0
7:15 PM	0	0	20	4	0	0	9	0	0	2	1	0	0	5	1	0	42	138	0	0	0	0
7:30 PM	0	0	10	3	0	0	9	0	0	3	0	0	0	1	1	1	28	114	0	0	0	0
7:45 PM	0	0	24	1	0	0	3	0	0	8	0	0	0	1	3	0	40	119	0	0	0	0
8:00 PM	0	1	11	2	0	0	9	0	0	2	0	0	0	2	1	0	28	96	0	0	0	0
8:15 PM	0	0	9	2	0	0	4	0	0	1	0	0	0	2	0	0	18	84	0	0	0	0
8:30 PM	0	1	20	0	0	0	6	1	0	0	0	0	0	3	1	1	33	81	0	0	0	0
8:45 PM	0	0	6	0	0	0	7	0	0	2	0	0	0	1	0	1	17	67	0	0	0	0
9:00 PM	0	1	12	1	0	0	2	0	0	0	0	0	0	0	0	0	16	66	0	0	0	0
9:15 PM	0	0	7	0	0	0	6	0	0	2	0	0	0	0	0	0	15	68	0	0	0	0
9:30 PM	0	0	11	1	0	0	4	1	0	0	0	0	0	2	0	0	19	56	0	0	0	0
9:45 PM	0	0	7	3	0	0	4	1	0	1	0	0	0	0	0	0	16	82	0	0	0	0
10:00 PM	0	0	4	3	0	0	4	1	0	2	1	1	0	0	2	0	18	74	0	0	0	0
10:15 PM	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	3	65	0	0	0	0
10:30 PM	0	0	5	2	0	0	32	5	0	0	0	0	0	0	0	1	45	69	0	0	0	0
10:45 PM	0	0	2	0	0	0	4	0	0	1	0	0	0	1	0	0	8	31	0	0	0	0
11:00 PM	0	0	4	0	0	1	3	0	0	0	0	0	0	0	0	1	9	30	0	0	0	0
11:15 PM	0	0	3	0	0	0	2	1	0	0	0	0	0	1	0	0	7		0	0	0	0
11:30 PM	0	0	2	1	0	0	4	0	0	0	0	0	0	0	0	0	7		0	0	0	0

11:45 PM	0	0	1	0	0	0	4	0	0	1	0	0	0	1	0	0	7	0	0	0	0
Count Total	2	89	1,472	179	0	14	1,411	81	1	175	53	13	1	84	59	72	3,706	0	0	0	0
Peak Hour	0	8	120	12	0	3	140	10	0	27	4	1	1	6	4	3	339	0	0	0	0

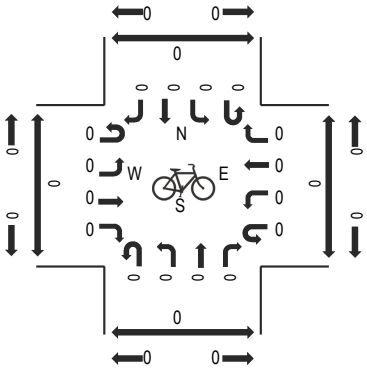
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 PICADILLY RD & 128TH AVE AM
Date: Wednesday, September 17, 2025
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

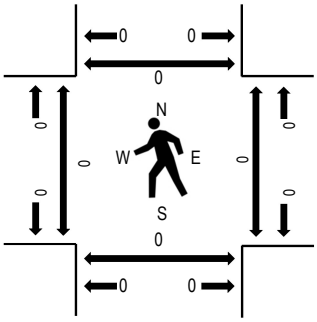
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	128TH AVE Eastbound				128TH AVE Westbound				PICADILLY RD Northbound				PICADILLY RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
12:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	21	0	0	0	0
12:15 AM	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	2	5	21	0	0	0	0
12:30 AM	0	4	0	1	0	0	0	0	0	0	2	0	0	0	2	0	9	20	0	0	0	0
12:45 AM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	14	0	0	0	0
1:00 AM	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	12	0	0	0	0
1:15 AM	0	2	0	0	0	0	0	1	0	0	0	0	0	1	0	0	4	12	0	0	0	0
1:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	14	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	13	0	0	0	0
2:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	14	0	0	0	0
2:15 AM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	13	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	9	0	0	0	0
2:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	3	10	0	0	0	0
3:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	10	0	0	0	0
3:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	14	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	21	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	34	0	0	0	0
4:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	5	6	47	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	6	9	66	0	0	0	0
4:30 AM	0	5	1	0	0	0	1	0	0	0	0	0	0	0	2	7	16	95	0	0	0	0
4:45 AM	0	4	0	0	0	0	0	1	0	0	2	0	0	0	3	6	16	118	0	0	0	0
5:00 AM	0	1	0	0	0	0	1	0	0	0	1	0	0	1	7	14	25	138	0	0	0	0
5:15 AM	0	12	0	0	0	0	0	0	0	0	1	0	0	0	3	22	38	152	0	0	0	0
5:30 AM	0	6	0	0	0	0	4	0	0	0	1	0	0	1	10	17	39	165	0	0	0	0
5:45 AM	0	18	0	0	0	0	2	0	0	0	1	0	0	0	1	14	36	177	0	0	0	0
6:00 AM	0	13	0	0	0	0	1	0	0	0	2	0	0	0	2	21	39	199	0	0	0	0
6:15 AM	0	16	2	0	0	0	2	0	0	0	2	1	0	3	1	24	51	242	0	0	0	0
6:30 AM	0	17	3	0	0	0	2	0	0	0	1	0	0	2	3	23	51	251	0	0	0	0
6:45 AM	0	13	9	0	0	0	1	0	0	0	4	0	0	7	8	16	58	246	0	0	0	0
7:00 AM	0	14	14	0	0	0	2	0	0	0	8	3	0	7	4	30	82	230	0	0	0	0
7:15 AM	0	11	10	0	0	0	2	0	0	0	2	1	0	9	2	23	60	200	0	0	0	0
7:30 AM	0	8	4	0	0	0	1	0	0	0	4	0	0	3	0	26	46	175	0	0	0	0
7:45 AM	0	9	5	0	0	0	1	1	0	0	4	1	0	3	2	16	42	171	0	0	0	0
8:00 AM	0	16	0	0	0	0	1	1	0	0	6	1	0	10	0	17	52	162	0	0	0	0
8:15 AM	0	9	2	0	0	0	0	0	0	0	3	0	0	5	2	14	35	149	0	0	0	0

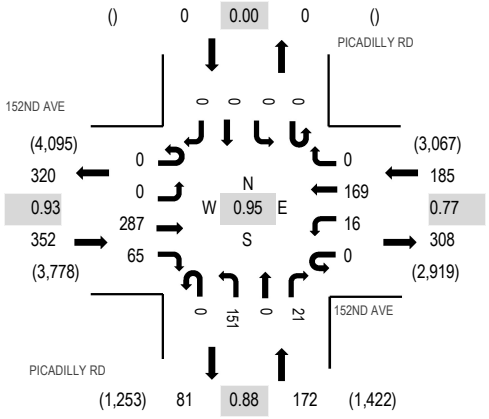
8:30 AM	0	10	2	0	0	0	3	2	0	0	1	1	0	1	4	18	42	147	0	0	0	0
8:45 AM	0	8	1	0	0	0	1	1	0	0	6	0	0	2	3	11	33	126	0	0	0	0
9:00 AM	0	11	2	0	0	0	1	4	0	0	0	0	0	0	2	19	39	131	0	0	0	0
9:15 AM	0	16	1	0	0	0	3	1	0	0	3	0	0	2	1	6	33	119	0	0	0	0
9:30 AM	0	8	0	0	0	0	0	2	0	0	1	1	0	2	1	6	21	113	0	0	0	0
9:45 AM	0	13	2	1	0	0	0	2	0	0	1	3	0	4	4	8	38	116	0	0	0	0
10:00 AM	0	13	0	1	0	1	3	1	0	0	3	1	0	2	0	2	27	103	0	0	0	0
10:15 AM	0	13	0	1	0	0	1	1	0	0	1	0	0	0	2	8	27	105	0	0	0	0
10:30 AM	0	9	0	0	0	0	1	0	0	1	2	0	0	2	1	8	24	106	0	0	0	0
10:45 AM	0	8	0	0	0	0	1	1	0	0	1	0	0	2	2	10	25	115	0	0	0	0
11:00 AM	0	9	1	1	0	0	2	1	0	0	4	0	0	0	3	8	29	141	0	0	0	0
11:15 AM	0	8	0	0	0	2	1	5	0	0	3	0	0	3	0	6	28	146	0	0	0	0
11:30 AM	0	8	0	0	0	0	2	5	0	0	2	0	0	0	6	10	33	153	0	0	0	0
11:45 AM	0	13	0	0	0	0	4	17	0	0	3	0	0	3	2	9	51	154	0	0	0	0
12:00 PM	0	7	2	0	0	0	0	1	0	0	2	0	0	10	3	9	34	133	0	0	0	0
12:15 PM	0	11	2	0	0	0	1	0	0	0	2	0	0	7	2	10	35	131	0	0	0	0
12:30 PM	0	13	0	0	0	0	1	0	0	0	2	0	0	5	2	11	34	128	0	0	0	0
12:45 PM	0	10	5	0	0	0	0	0	0	0	1	1	0	1	3	9	30	120	0	0	0	0
1:00 PM	0	12	0	0	0	0	4	0	0	0	7	0	0	1	1	7	32	125	0	0	0	0
1:15 PM	0	6	2	1	0	0	1	1	0	0	0	0	0	0	8	13	32	128	0	0	0	0
1:30 PM	0	9	1	0	0	0	0	1	0	0	3	0	0	0	2	10	26	136	0	0	0	0
1:45 PM	0	11	0	0	0	0	1	0	0	0	1	1	0	1	4	16	35	157	0	0	0	0
2:00 PM	0	18	2	0	0	0	2	1	0	0	2	0	0	2	3	5	35	178	0	0	0	0
2:15 PM	0	11	2	0	0	0	4	1	0	0	2	0	0	0	4	16	40	191	0	0	0	0
2:30 PM	0	21	2	0	0	0	0	0	0	0	9	1	0	1	2	11	47	203	0	0	0	0
2:45 PM	0	26	3	0	0	0	0	1	0	0	6	2	0	1	0	17	56	210	0	0	0	0
3:00 PM	0	26	1	0	0	0	1	2	0	0	5	0	0	0	1	12	48	196	0	0	0	0
3:15 PM	0	24	1	0	0	0	1	1	0	0	3	0	0	0	4	18	52	204	0	0	0	0
3:30 PM	0	23	1	0	0	0	2	1	0	0	9	0	0	0	5	13	54	216	0	0	0	0
3:45 PM	0	23	1	0	0	0	1	0	0	0	4	0	0	0	4	9	42	240	0	0	0	0
4:00 PM	0	26	3	0	0	0	6	1	0	0	2	0	0	1	4	13	56	282	0	0	0	0
4:15 PM	0	34	2	0	0	0	2	2	0	0	7	0	0	0	2	15	64	301	0	0	0	0
4:30 PM	0	42	2	0	0	0	5	3	0	0	3	1	0	0	4	18	78	315	0	0	0	0
4:45 PM	0	35	3	0	0	0	13	8	0	0	5	0	0	0	1	19	84	299	0	0	0	0
5:00 PM	0	30	4	0	0	0	14	5	0	0	5	0	0	1	4	12	75	262	0	0	0	0
5:15 PM	0	35	4	0	0	0	7	9	0	0	6	0	0	0	1	16	78	222	0	0	0	0
5:30 PM	0	30	1	0	0	0	6	0	0	0	3	1	0	0	4	17	62	195	0	0	0	0
5:45 PM	0	21	2	0	0	0	1	0	0	0	4	0	0	0	3	16	47	169	0	0	0	0
6:00 PM	0	16	0	0	0	0	0	1	0	0	5	1	0	0	3	9	35	156	0	0	0	0
6:15 PM	0	28	2	0	0	0	0	0	0	0	5	1	0	0	3	12	51	150	0	0	0	0
6:30 PM	0	14	0	0	0	0	1	1	0	0	1	0	0	1	3	15	36	132	0	0	0	0
6:45 PM	0	19	0	0	0	0	0	0	0	0	2	0	0	1	1	11	34	124	0	0	0	0
7:00 PM	0	11	2	0	0	0	4	0	0	0	2	0	0	0	3	7	29	115	0	0	0	0
7:15 PM	0	14	2	0	0	0	2	0	0	0	0	0	0	1	6	8	33	111	0	0	0	0
7:30 PM	0	11	3	0	0	1	1	0	0	0	1	0	0	0	1	10	28	103	0	0	0	0
7:45 PM	0	13	2	0	0	1	1	0	0	0	0	0	0	0	3	5	25	94	0	0	0	0
8:00 PM	0	12	0	0	0	0	0	0	0	0	0	0	0	0	3	10	25	82	0	0	0	0
8:15 PM	0	10	3	0	0	0	1	0	0	0	1	0	0	0	2	8	25	67	0	0	0	0
8:30 PM	0	5	3	0	0	0	1	0	0	0	1	0	0	0	6	3	19	50	0	0	0	0
8:45 PM	0	9	0	0	0	0	0	0	0	0	0	0	0	1	0	3	13	46	0	0	0	0
9:00 PM	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	4	10	39	0	0	0	0
9:15 PM	0	5	1	0	0	0	0	1	0	0	0	0	0	0	0	1	8	39	0	0	0	0
9:30 PM	0	7	0	0	0	0	0	0	0	0	1	0	0	1	2	4	15	38	0	0	0	0
9:45 PM	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	3	6	33	0	0	0	0
10:00 PM	0	3	1	0	0	0	0	0	0	0	2	0	0	0	2	2	10	31	0	0	0	0
10:15 PM	0	2	0	0	0	0	0	0	0	0	1	0	0	1	0	3	7	27	0	0	0	0
10:30 PM	0	2	1	0	0	0	1	0	0	0	5	0	0	0	0	1	10	31	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	2	4	29	0	0	0	0
11:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	3	6	28	0	0	0	0
11:15 PM	0	3	1	0	0	1	0	0	0	0	1	0	0	0	0	5	11		0	0	0	0
11:30 PM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	3	8		0	0	0	0

11:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	0	0	0	0
Count Total	0	1,051	126	6	0	8	130	90	0	1	199	22	0	113	199	890	2,835	0	0	0	0
Peak Hour	0	142	13	0	0	0	39	25	0	0	19	1	0	1	10	65	315	0	0	0	0

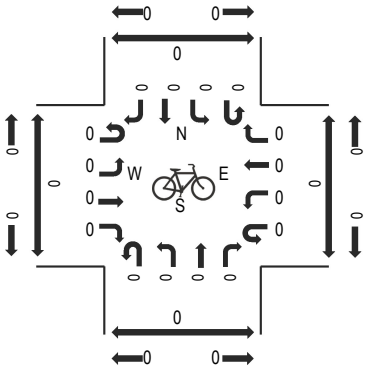
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 3 PICADILLY RD & 152ND AVE AM
Date: Wednesday, September 17, 2025
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

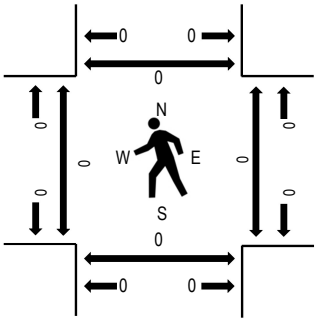
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	152ND AVE Eastbound				152ND AVE Westbound				PICADILLY RD Northbound				PICADILLY RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
12:00 AM	0	0	3	0	0	0	1	0	0	2	0	0	0	0	0	0	6	38	0	0	0	0
12:15 AM	0	0	4	2	0	0	2	0	0	0	0	1	0	0	0	0	9	37	0	0	0	0
12:30 AM	0	0	7	3	0	0	0	0	0	2	0	0	0	0	0	0	12	32	0	0	0	0
12:45 AM	0	0	1	0	0	0	2	0	0	7	0	1	0	0	0	0	11	28	0	0	0	0
1:00 AM	0	0	2	0	0	0	2	0	0	0	0	1	0	0	0	0	5	18	0	0	0	0
1:15 AM	0	0	1	0	0	0	0	0	0	3	0	0	0	0	0	0	4	18	0	0	0	0
1:30 AM	0	0	1	2	0	0	2	0	0	3	0	0	0	0	0	0	8	24	0	0	0	0
1:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	19	0	0	0	0
2:00 AM	0	0	2	0	0	0	1	0	0	2	0	0	0	0	0	0	5	23	0	0	0	0
2:15 AM	0	0	2	0	0	1	1	0	0	6	0	0	0	0	0	0	10	26	0	0	0	0
2:30 AM	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	3	21	0	0	0	0
2:45 AM	0	0	1	1	0	1	1	0	0	1	0	0	0	0	0	0	5	26	0	0	0	0
3:00 AM	0	0	2	0	0	0	4	0	0	2	0	0	0	0	0	0	8	34	0	0	0	0
3:15 AM	0	0	0	1	0	0	3	0	0	1	0	0	0	0	0	0	5	36	0	0	0	0
3:30 AM	0	0	2	3	0	0	3	0	0	0	0	0	0	0	0	0	8	49	0	0	0	0
3:45 AM	0	0	3	3	0	1	6	0	0	0	0	0	0	0	0	0	13	74	0	0	0	0
4:00 AM	0	0	1	7	0	0	1	0	0	1	0	0	0	0	0	0	10	97	0	0	0	0
4:15 AM	0	0	2	3	0	3	10	0	0	0	0	0	0	0	0	0	18	132	0	0	0	0
4:30 AM	0	0	4	11	0	0	12	0	0	5	0	1	0	0	0	0	33	190	0	0	0	0
4:45 AM	0	0	3	10	0	0	18	0	0	5	0	0	0	0	0	0	36	243	0	0	0	0
5:00 AM	0	0	1	19	0	1	18	0	0	5	0	1	0	0	0	0	45	288	0	0	0	0
5:15 AM	0	0	6	24	0	3	30	0	0	13	0	0	0	0	0	0	76	346	0	0	0	0
5:30 AM	0	0	11	18	0	5	42	0	0	10	0	0	0	0	0	0	86	389	0	0	0	0
5:45 AM	0	0	11	19	0	1	33	0	0	16	0	1	0	0	0	0	81	443	0	0	0	0
6:00 AM	0	0	16	21	0	2	52	0	0	12	0	0	0	0	0	0	103	509	0	0	0	0
6:15 AM	0	0	16	26	0	5	55	0	0	16	0	1	0	0	0	0	119	543	0	0	0	0
6:30 AM	0	0	32	29	0	1	58	0	0	20	0	0	0	0	0	0	140	577	0	0	0	0
6:45 AM	0	0	15	33	0	8	71	0	0	20	0	0	0	0	0	0	147	617	0	0	0	0
7:00 AM	0	0	17	29	0	7	66	0	0	16	0	2	0	0	0	0	137	602	0	0	0	0
7:15 AM	0	0	20	28	0	7	80	0	0	15	0	3	0	0	0	0	153	614	0	0	0	0
7:30 AM	0	0	27	22	0	9	105	0	0	13	0	4	0	0	0	0	180	595	0	0	0	0
7:45 AM	0	0	28	12	0	4	72	0	0	16	0	0	0	0	0	0	132	540	0	0	0	0
8:00 AM	0	0	39	30	0	5	62	0	0	13	0	0	0	0	0	0	149	505	0	0	0	0
8:15 AM	0	0	33	16	0	6	59	0	0	17	0	3	0	0	0	0	134	476	0	0	0	0

8:30 AM	0	0	31	19	0	6	55	0	0	12	0	2	0	0	0	0	125	456	0	0	0	0
8:45 AM	1	0	23	16	0	4	41	0	0	8	0	4	0	0	0	0	97	448	0	0	0	0
9:00 AM	0	0	31	13	0	4	56	0	0	14	0	2	0	0	0	0	120	449	0	0	0	0
9:15 AM	0	0	35	13	0	1	47	0	0	15	0	3	0	0	0	0	114	433	0	0	0	0
9:30 AM	0	0	38	11	0	5	44	0	0	17	0	2	0	0	0	0	117	433	0	0	0	0
9:45 AM	0	0	28	9	0	3	41	0	0	13	0	4	0	0	0	0	98	416	0	0	0	0
10:00 AM	0	0	31	11	0	2	48	0	0	9	0	3	0	0	0	0	104	434	0	0	0	0
10:15 AM	0	0	34	8	0	2	51	0	0	17	0	2	0	0	0	0	114	420	0	0	0	0
10:30 AM	0	0	31	5	0	3	46	0	0	13	0	2	0	0	0	0	100	397	0	0	0	0
10:45 AM	0	0	45	12	0	2	41	0	0	12	0	4	0	0	0	0	116	401	0	0	0	0
11:00 AM	0	0	35	5	0	1	34	0	0	15	0	0	0	0	0	0	90	423	0	0	0	0
11:15 AM	0	0	27	5	0	2	40	0	0	14	0	3	0	0	0	0	91	437	0	0	0	0
11:30 AM	0	0	36	11	0	2	38	0	0	15	0	2	0	0	0	0	104	455	0	0	0	0
11:45 AM	0	0	35	14	0	1	58	0	0	29	0	1	0	0	0	0	138	499	0	0	0	0
12:00 PM	0	0	37	15	0	2	37	0	0	9	0	4	0	0	0	0	104	491	0	0	0	0
12:15 PM	0	0	39	13	0	1	48	0	0	5	0	3	0	0	0	0	109	506	0	0	0	0
12:30 PM	0	0	45	22	0	7	51	0	0	23	0	0	0	0	0	0	148	540	0	0	0	0
12:45 PM	0	0	46	13	0	1	57	0	0	12	0	1	0	0	0	0	130	528	0	0	0	0
1:00 PM	0	0	49	13	0	1	40	0	0	13	0	3	0	0	0	0	119	515	0	0	0	0
1:15 PM	0	0	55	15	0	3	52	0	0	17	0	1	0	0	0	0	143	511	0	0	0	0
1:30 PM	0	0	47	17	0	2	57	0	0	13	0	0	0	0	0	0	136	483	0	0	0	0
1:45 PM	0	0	40	14	0	1	45	0	0	13	0	4	0	0	0	0	117	481	0	0	0	0
2:00 PM	0	0	36	14	0	7	33	0	0	20	0	5	0	0	0	0	115	521	0	0	0	0
2:15 PM	0	0	47	9	0	3	37	0	0	16	0	3	0	0	0	0	115	550	0	0	0	0
2:30 PM	0	0	56	17	0	2	29	0	0	26	0	4	0	0	0	0	134	581	0	0	0	0
2:45 PM	0	0	60	10	0	2	52	0	0	26	0	7	0	0	0	0	157	606	0	0	0	0
3:00 PM	0	0	52	11	0	3	45	0	0	28	0	5	0	0	0	0	144	601	0	0	0	0
3:15 PM	0	0	60	19	0	2	34	0	0	29	0	2	0	0	0	0	146	613	0	0	0	0
3:30 PM	0	0	64	17	0	1	43	0	0	29	0	5	0	0	0	0	159	651	0	0	0	0
3:45 PM	0	0	70	15	0	3	40	0	0	21	0	3	0	0	0	0	152	678	0	0	0	0
4:00 PM	0	0	61	14	0	1	46	0	0	32	0	2	0	0	0	0	156	693	0	0	0	0
4:15 PM	0	0	69	18	0	4	49	0	0	36	0	8	0	0	0	0	184	709	0	0	0	0
4:30 PM	0	0	82	13	0	7	41	0	0	42	0	1	0	0	0	0	186	699	0	0	0	0
4:45 PM	0	0	60	17	0	1	41	0	0	40	0	8	0	0	0	0	167	667	0	0	0	0
5:00 PM	0	0	76	17	0	4	38	0	0	33	0	4	0	0	0	0	172	648	0	0	0	0
5:15 PM	0	0	74	8	0	4	37	0	0	41	0	10	0	0	0	0	174	596	0	0	0	0
5:30 PM	0	0	52	21	0	0	46	0	0	34	0	1	0	0	0	0	154	561	0	0	0	0
5:45 PM	0	0	70	14	0	3	34	0	0	19	0	8	0	0	0	0	148	538	0	0	0	0
6:00 PM	0	0	48	13	0	3	28	0	0	26	0	2	0	0	0	0	120	521	0	0	0	0
6:15 PM	0	0	59	18	0	2	32	0	0	25	0	3	0	0	0	0	139	495	0	0	0	0
6:30 PM	0	0	48	12	0	5	44	0	0	20	0	2	0	0	0	0	131	457	0	0	0	0
6:45 PM	0	0	67	14	0	3	20	0	0	24	0	3	0	0	0	0	131	399	0	0	0	1
7:00 PM	0	0	45	6	0	4	28	0	0	9	0	2	0	0	0	0	94	339	0	0	0	0
7:15 PM	0	0	33	12	0	4	34	0	0	12	0	6	0	0	0	0	101	342	0	0	0	0
7:30 PM	0	0	29	12	0	0	21	0	0	7	0	4	0	0	0	0	73	295	0	0	0	0
7:45 PM	0	0	36	9	0	1	11	0	0	11	0	3	0	0	0	0	71	278	0	0	0	0
8:00 PM	0	0	61	10	0	3	10	0	0	10	0	3	0	0	0	0	97	257	0	0	0	0
8:15 PM	0	0	21	7	0	2	12	0	0	10	0	2	0	0	0	0	54	202	0	0	0	0
8:30 PM	0	0	27	11	0	0	13	0	0	5	0	0	0	0	0	0	56	177	0	0	0	0
8:45 PM	0	0	22	5	0	2	12	0	0	6	0	3	0	0	0	0	50	144	0	0	0	0
9:00 PM	0	0	22	1	0	1	11	0	0	7	0	0	0	0	0	0	42	128	0	0	0	0
9:15 PM	0	0	15	1	0	1	6	0	0	5	0	1	0	0	0	0	29	101	0	0	0	0
9:30 PM	0	0	9	6	0	1	2	0	0	4	0	1	0	0	0	0	23	96	0	0	0	0
9:45 PM	0	0	15	2	0	1	8	0	0	7	0	1	0	0	0	0	34	99	0	0	0	0
10:00 PM	0	0	6	3	0	0	2	0	0	3	0	1	0	0	0	0	15	81	0	0	0	0
10:15 PM	0	0	15	1	0	2	2	0	0	4	0	0	0	0	0	0	24	87	0	0	0	0
10:30 PM	0	0	12	3	0	0	5	0	0	5	0	1	0	0	0	0	26	71	0	0	0	0
10:45 PM	0	0	7	3	0	0	3	0	0	2	0	1	0	0	0	0	16	60	0	0	0	0
11:00 PM	0	0	9	4	0	3	4	0	0	1	0	0	0	0	0	0	21	52	0	0	0	0
11:15 PM	0	0	2	1	0	0	1	0	0	4	0	0	0	0	0	0	8		0	0	0	0
11:30 PM	0	0	5	4	0	0	0	0	0	6	0	0	0	0	0	0	15		0	0	0	0

11:45 PM	0	0	2	1	0	0	3	0	0	2	0	0	0	0	0	0	8	0	0	0	0
Count Total	1	0	2,735	1,042	0	211	2,856	0	0	1,238	0	184	0	0	0	0	8,267	0	0	0	1
Peak Hour	0	0	287	65	0	16	169	0	0	151	0	21	0	0	0	0	709	0	0	0	0

ALL TRAFFIC DATA SERVICES
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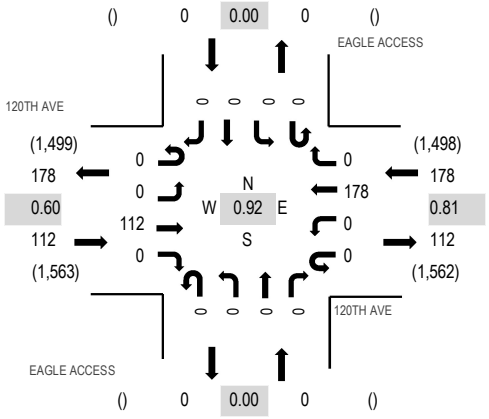
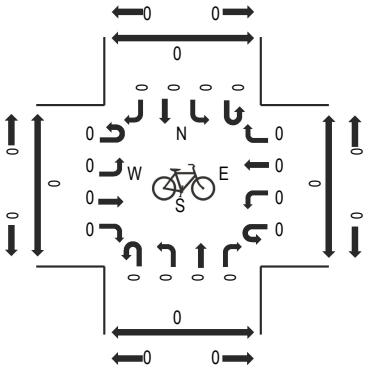
Location: 4 EAGLE ACCESS & 120TH AVE AM
Date: Wednesday, September 17, 2025
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

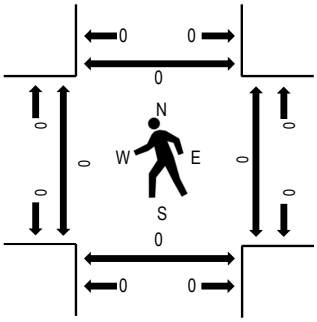
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	120TH AVE Eastbound				120TH AVE Westbound				EAGLE ACCESS Northbound				EAGLE ACCESS Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
12:00 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	28	0	0	0	0
12:15 AM	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	5	29	0	0	0	0
12:30 AM	0	0	5	0	0	0	12	0	0	0	0	0	0	0	0	0	17	25	0	0	0	0
12:45 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	4	9	0	0	0	0
1:00 AM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3	8	0	0	0	0
1:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	5	0	0	0	0
1:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0
1:45 AM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3	6	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
2:15 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	6	0	0	0	0
2:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0
3:00 AM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3	15	0	0	0	0
3:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	24	0	0	0	0
3:30 AM	0	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	5	36	0	0	0	0
3:45 AM	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	6	55	0	0	0	0
4:00 AM	0	0	7	0	0	0	5	0	0	0	0	0	0	0	0	0	12	72	0	0	0	0
4:15 AM	0	0	7	0	0	0	6	0	0	0	0	0	0	0	0	0	13	98	0	0	0	0
4:30 AM	0	0	15	0	0	0	9	0	0	0	0	0	0	0	0	0	24	133	0	0	0	0
4:45 AM	0	0	15	0	0	0	8	0	0	0	0	0	0	0	0	0	23	202	0	0	0	0
5:00 AM	0	0	28	0	0	0	10	0	0	0	0	0	0	0	0	0	38	231	0	0	0	0
5:15 AM	0	0	39	0	0	0	9	0	0	0	0	0	0	0	0	0	48	243	0	0	0	0
5:30 AM	0	0	80	0	0	0	13	0	0	0	0	0	0	0	0	0	93	236	0	0	0	0
5:45 AM	0	0	44	0	0	0	8	0	0	0	0	0	0	0	0	0	52	215	0	0	0	0
6:00 AM	0	0	29	0	0	0	21	0	0	0	0	0	0	0	0	0	50	229	0	0	0	0
6:15 AM	0	0	21	0	0	0	20	0	0	0	0	0	0	0	0	0	41	254	0	0	0	0
6:30 AM	0	0	46	0	0	0	26	0	0	0	0	0	0	0	0	0	72	266	0	0	0	0
6:45 AM	0	0	43	0	0	0	23	0	0	0	0	0	0	0	0	0	66	277	0	0	0	0
7:00 AM	0	0	34	0	0	0	41	0	0	0	0	0	0	0	0	0	75	256	0	0	0	0
7:15 AM	0	0	21	0	0	0	32	0	0	0	0	0	0	0	0	0	53	235	0	0	0	0
7:30 AM	0	0	25	0	0	0	58	0	0	0	0	0	0	0	0	0	83	226	0	0	0	0
7:45 AM	0	0	22	0	0	0	23	0	0	0	0	0	0	0	0	0	45	185	0	0	0	0
8:00 AM	0	0	18	0	0	0	36	0	0	0	0	0	0	0	0	0	54	174	0	0	0	0
8:15 AM	0	0	22	0	0	0	22	0	0	0	0	0	0	0	0	0	44	155	0	0	0	0

8:30 AM	0	0	26	0	0	0	16	0	0	0	0	0	0	0	0	0	42	137	0	0	0	0
8:45 AM	0	0	19	0	0	0	15	0	0	0	0	0	0	0	0	0	34	121	0	0	0	0
9:00 AM	0	0	19	0	0	0	16	0	0	0	0	0	0	0	0	0	35	122	0	0	0	0
9:15 AM	0	0	13	0	0	0	13	0	0	0	0	0	0	0	0	0	26	106	0	0	0	0
9:30 AM	0	0	11	0	0	0	15	0	0	0	0	0	0	0	0	0	26	100	0	0	0	0
9:45 AM	0	0	19	0	0	0	16	0	0	0	0	0	0	0	0	0	35	93	0	0	0	0
10:00 AM	0	0	11	0	0	0	8	0	0	0	0	0	0	0	0	0	19	85	0	0	0	0
10:15 AM	0	0	10	0	0	0	10	0	0	0	0	0	0	0	0	0	20	97	0	0	0	0
10:30 AM	0	0	10	0	0	0	9	0	0	0	0	0	0	0	0	0	19	111	0	0	0	0
10:45 AM	0	0	14	0	0	0	13	0	0	0	0	0	0	0	0	0	27	118	0	0	0	0
11:00 AM	0	0	14	0	0	0	17	0	0	0	0	0	0	0	0	0	31	121	0	0	0	0
11:15 AM	0	0	13	0	0	0	21	0	0	0	0	0	0	0	0	0	34	128	0	0	0	0
11:30 AM	0	0	17	0	0	0	9	0	0	0	0	0	0	0	0	0	26	132	0	0	0	0
11:45 AM	0	0	15	0	0	0	15	0	0	0	0	0	0	0	0	0	30	145	0	0	0	0
12:00 PM	0	0	18	0	0	0	20	0	0	0	0	0	0	0	0	0	38	161	0	0	0	0
12:15 PM	0	0	18	0	0	0	20	0	0	0	0	0	0	0	0	0	38	166	0	0	0	0
12:30 PM	0	0	25	0	0	0	14	0	0	0	0	0	0	0	0	0	39	171	0	0	0	0
12:45 PM	0	0	30	0	0	0	16	0	0	0	0	0	0	0	0	0	46	174	0	0	0	0
1:00 PM	0	0	20	0	0	0	23	0	0	0	0	0	0	0	0	0	43	173	0	0	0	0
1:15 PM	0	0	26	0	0	0	17	0	0	0	0	0	0	0	0	0	43	167	0	0	0	0
1:30 PM	0	0	22	0	0	0	20	0	0	0	0	0	0	0	0	0	42	159	0	0	0	0
1:45 PM	0	0	26	0	0	0	19	0	0	0	0	0	0	0	0	0	45	169	0	0	0	0
2:00 PM	0	0	15	0	0	0	22	0	0	0	0	0	0	0	0	0	37	184	0	0	0	0
2:15 PM	0	0	15	0	0	0	20	0	0	0	0	0	0	0	0	0	35	194	0	0	0	0
2:30 PM	0	0	12	0	0	0	40	0	0	0	0	0	0	0	0	0	52	198	0	0	0	0
2:45 PM	0	0	24	0	0	0	36	0	0	0	0	0	0	0	0	0	60	217	0	0	0	0
3:00 PM	0	0	24	0	0	0	23	0	0	0	0	0	0	0	0	0	47	210	0	0	0	0
3:15 PM	0	0	23	0	0	0	16	0	0	0	0	0	0	0	0	0	39	236	0	0	0	0
3:30 PM	0	0	25	0	0	0	46	0	0	0	0	0	0	0	0	0	71	267	0	0	0	0
3:45 PM	0	0	17	0	0	0	36	0	0	0	0	0	0	0	0	0	53	275	0	0	0	0
4:00 PM	0	0	32	0	0	0	41	0	0	0	0	0	0	0	0	0	73	290	0	0	0	0
4:15 PM	0	0	30	0	0	0	40	0	0	0	0	0	0	0	0	0	70	274	0	0	0	0
4:30 PM	0	0	24	0	0	0	55	0	0	0	0	0	0	0	0	0	79	261	0	0	0	0
4:45 PM	0	0	26	0	0	0	42	0	0	0	0	0	0	0	0	0	68	237	0	0	0	0
5:00 PM	0	0	26	0	0	0	31	0	0	0	0	0	0	0	0	0	57	218	0	0	0	0
5:15 PM	0	0	27	0	0	0	30	0	0	0	0	0	0	0	0	0	57	208	0	0	0	0
5:30 PM	0	0	24	0	0	0	31	0	0	0	0	0	0	0	0	0	55	186	0	0	0	0
5:45 PM	0	0	27	0	0	0	22	0	0	0	0	0	0	0	0	0	49	164	0	0	0	0
6:00 PM	0	0	19	0	0	0	28	0	0	0	0	0	0	0	0	0	47	149	0	0	0	0
6:15 PM	0	0	15	0	0	0	20	0	0	0	0	0	0	0	0	0	35	131	0	0	0	0
6:30 PM	0	0	19	0	0	0	14	0	0	0	0	0	0	0	0	0	33	129	0	0	0	0
6:45 PM	0	0	15	0	0	0	19	0	0	0	0	0	0	0	0	0	34	115	0	0	0	0
7:00 PM	0	0	11	0	0	0	18	0	0	0	0	0	0	0	0	0	29	109	0	0	0	0
7:15 PM	0	0	24	0	0	0	9	0	0	0	0	0	0	0	0	0	33	100	0	0	0	0
7:30 PM	0	0	11	0	0	0	8	0	0	0	0	0	0	0	0	0	19	83	0	0	0	0
7:45 PM	0	0	25	0	0	0	3	0	0	0	0	0	0	0	0	0	28	90	0	0	0	0
8:00 PM	0	0	12	0	0	0	8	0	0	0	0	0	0	0	0	0	20	79	0	0	0	0
8:15 PM	0	0	12	0	0	0	4	0	0	0	0	0	0	0	0	0	16	73	0	0	0	0
8:30 PM	1	0	19	0	0	0	6	0	0	0	0	0	0	0	0	0	26	70	0	0	0	0
8:45 PM	0	0	10	0	0	0	7	0	0	0	0	0	0	0	0	0	17	60	0	0	0	0
9:00 PM	0	0	12	0	0	0	2	0	0	0	0	0	0	0	0	0	14	56	0	0	0	0
9:15 PM	0	0	7	0	0	0	6	0	0	0	0	0	0	0	0	0	13	52	0	0	0	0
9:30 PM	0	0	11	0	0	0	5	0	0	0	0	0	0	0	0	0	16	40	0	0	0	0
9:45 PM	0	0	8	0	0	0	5	0	0	0	0	0	0	0	0	0	13	66	0	0	0	0
10:00 PM	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	10	60	0	0	0	0
10:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	59	0	0	0	0
10:30 PM	0	0	5	0	0	0	37	0	0	0	0	0	0	0	0	0	42	64	0	0	0	0
10:45 PM	0	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0	7	29	0	0	0	0
11:00 PM	0	0	4	0	0	0	5	0	0	0	0	0	0	0	0	0	9	28	0	0	0	0
11:15 PM	0	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	6		0	0	0	0
11:30 PM	0	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0	7		0	0	0	0

11:45 PM	0	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	6	0	0	0	0
Count Total	1	0	1,562	0	0	0	1,498	0	0	0	0	0	0	0	0	0	3,061	0	0	0	0
Peak Hour	0	0	112	0	0	0	178	0	0	0	0	0	0	0	0	0	290	0	0	0	0

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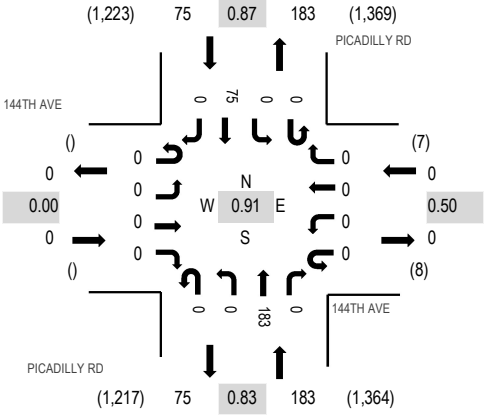
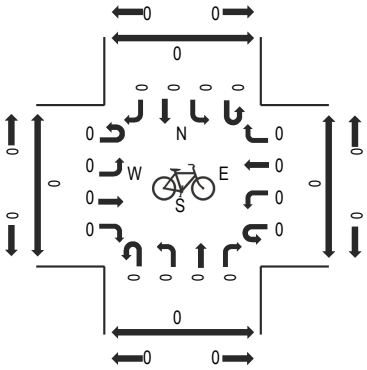
Location: 5 PICADILLY RD & 144TH AVE AM
Date: Wednesday, September 17, 2025
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

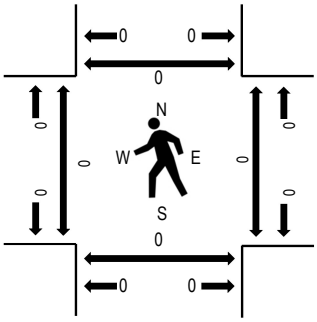
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	144TH AVE Eastbound				144TH AVE Westbound				PICADILLY RD Northbound				PICADILLY RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
12:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	17	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3	18	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	2	0	7	18	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	5	15	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	11	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	11	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	4	15	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	13	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	15	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	1	0	7	14	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	9	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3	10	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	11	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	15	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	22	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	34	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0	6	44	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	8	0	9	65	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	11	0	15	91	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	7	0	14	113	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	1	0	0	3	0	0	0	23	0	27	135	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	21	0	35	143	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	29	0	37	154	0	0	0	0
5:45 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	20	0	36	161	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	21	0	35	185	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	15	0	0	0	31	0	46	206	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	19	0	0	0	25	0	44	210	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	19	0	0	0	41	0	60	208	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	17	0	0	0	39	0	56	180	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	34	0	50	174	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	13	0	0	0	29	0	42	159	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	15	0	0	0	17	0	32	155	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	17	0	0	0	33	0	50	153	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	19	0	35	136	0	0	0	0

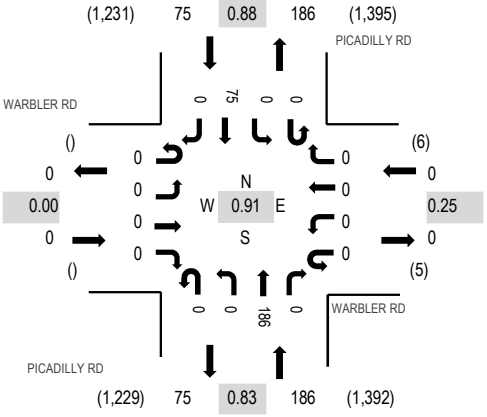
8:30 AM	0	0	0	0	0	0	0	0	0	0	11	0	0	1	26	0	38	131	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	10	0	0	0	20	0	30	121	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	17	0	33	125	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	20	0	0	0	10	0	30	115	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	1	0	0	14	0	0	1	12	0	28	112	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	19	0	0	0	15	0	34	107	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	12	0	23	99	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	21	0	0	0	6	0	27	99	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	12	0	23	97	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	15	0	26	100	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	7	0	23	123	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	21	0	0	0	4	0	25	135	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	10	0	26	136	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	1	0	0	29	0	0	0	19	0	49	158	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	13	0	0	0	22	0	35	131	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	18	0	26	129	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	21	0	0	0	27	0	48	134	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	9	0	0	0	13	0	22	114	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	21	0	0	0	12	0	33	119	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	1	0	0	11	0	0	0	19	0	31	125	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	1	0	0	9	0	0	0	18	0	28	121	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	15	0	0	1	11	0	27	143	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	23	0	0	1	15	0	39	166	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	15	0	27	172	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	1	0	0	31	0	0	0	18	0	50	199	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	38	0	0	0	12	0	50	204	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	31	0	0	0	14	0	45	195	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	31	0	0	2	21	0	54	196	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	34	0	0	0	21	0	55	203	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	24	0	0	1	16	0	41	209	0	0	0	0
4:00 PM	0	0	0	0	0	1	0	0	0	0	32	0	0	0	13	0	46	239	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	45	0	0	0	16	0	61	252	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	40	0	0	0	21	0	61	258	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	55	0	0	0	16	0	71	250	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	38	0	0	0	21	0	59	223	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	50	0	0	0	17	0	67	204	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	30	0	0	0	23	0	53	185	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	27	0	0	0	17	0	44	165	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	27	0	0	0	13	0	40	158	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	29	0	0	0	19	0	48	142	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	18	1	0	0	14	0	33	124	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	24	0	0	0	13	0	37	117	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	13	0	0	0	11	0	24	98	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	14	0	30	98	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	12	0	26	89	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	7	0	18	76	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	13	0	24	74	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	10	0	21	60	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	7	0	13	47	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	0	16	47	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	2	0	10	40	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	2	0	8	37	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	7	0	13	36	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	4	0	9	30	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	7	27	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	7	26	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	2	0	7	27	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	6	29	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0	6	26	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	8		0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	4	0	9		0	0	0	0

11:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	0	0	0	0
Count Total	0	0	0	0	0	1	0	6	0	0	1,363	1	0	7	1,216	0	2,594	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	183	0	0	0	75	0	258	0	0	0	0

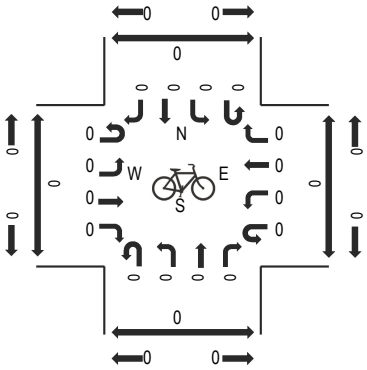
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 6 PICADILLY RD & WARBLER RD AM
Date: Wednesday, September 17, 2025
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

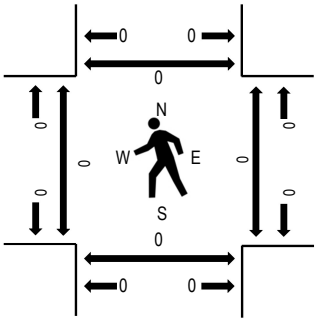
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	WARBLER RD Eastbound				WARBLER RD Westbound				PICADILLY RD Northbound				PICADILLY RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
12:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	19	0	0	0	0
12:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3	20	0	0	0	0
12:30 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	1	3	0	8	20	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	6	17	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	12	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	12	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	1	0	0	2	0	0	0	2	0	5	16	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	13	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	15	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	1	0	7	14	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	9	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3	10	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	11	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	15	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	22	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	34	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0	6	43	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	8	0	9	65	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	11	0	15	91	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	8	0	13	113	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	22	0	28	136	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	13	0	0	0	22	0	35	145	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	9	0	0	0	28	0	37	155	0	0	0	0
5:45 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	20	0	36	163	0	0	0	0
6:00 AM	0	0	0	0	0	0	0	0	0	0	15	0	0	0	22	0	37	186	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	15	0	0	0	30	0	45	208	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	19	0	0	0	26	0	45	212	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	18	0	0	0	41	0	59	212	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	19	0	0	0	40	0	59	186	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	1	32	0	49	177	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	31	0	45	169	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	17	0	33	160	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	34	0	50	158	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	1	0	0	18	0	0	0	22	0	41	141	0	0	0	0

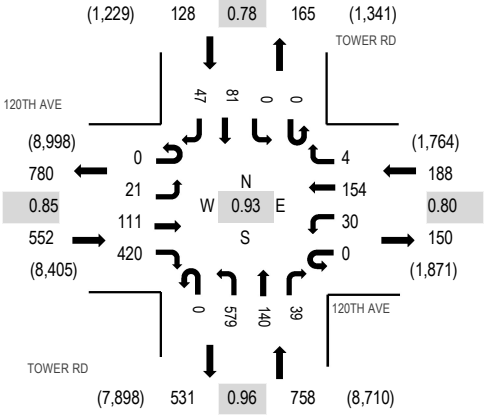
8:30 AM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	25	0	36	135	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	20	0	31	127	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	17	0	33	129	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	20	0	0	0	15	0	35	120	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	15	0	0	0	13	0	28	111	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	18	0	0	0	15	0	33	108	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	13	0	24	104	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	18	0	0	0	8	0	26	102	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	15	0	0	0	10	0	25	100	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	15	0	0	0	14	0	29	102	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	15	0	0	0	7	0	22	118	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	20	0	0	0	4	0	24	130	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	11	0	27	132	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	32	0	0	0	13	0	45	154	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	13	0	0	0	21	0	34	134	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	18	0	26	132	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	22	0	0	0	27	0	49	139	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	13	0	25	118	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	19	0	0	0	13	0	32	122	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	19	0	33	129	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	17	0	28	123	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	15	0	0	0	14	0	29	146	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	25	0	0	0	14	0	39	164	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	15	0	27	174	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	32	0	0	0	19	0	51	197	0	0	0	0
2:45 PM	0	0	0	0	0	2	0	0	0	0	34	0	0	0	11	0	47	203	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	1	0	34	0	0	1	13	0	49	193	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	29	0	0	0	21	0	50	193	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	37	0	0	0	20	0	57	203	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	19	0	0	0	18	0	37	209	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	1	0	0	36	0	0	0	12	0	49	244	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	45	0	0	0	15	0	60	251	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	42	0	0	0	21	0	63	261	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	56	0	0	0	16	0	72	252	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	35	0	0	0	21	0	56	227	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	53	0	0	0	17	0	70	210	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	31	0	0	0	23	0	54	190	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	28	0	0	0	19	0	47	169	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	26	0	0	0	13	0	39	158	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	29	0	0	1	20	0	50	143	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	18	0	0	0	15	0	33	125	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	24	0	0	0	12	0	36	115	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	13	0	0	0	11	0	24	100	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	17	0	0	1	14	0	32	102	0	0	0	0
7:30 PM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	12	0	23	89	0	0	0	0
7:45 PM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	7	0	21	80	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	14	0	26	76	0	0	0	0
8:15 PM	0	0	0	0	0	0	0	0	0	0	10	0	0	0	9	0	19	58	0	0	0	0
8:30 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	8	0	14	49	0	0	0	0
8:45 PM	0	0	0	0	0	0	0	0	0	0	9	0	0	0	8	0	17	47	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	2	0	8	41	0	0	0	0
9:15 PM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	2	0	10	41	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	8	0	12	37	0	0	0	0
9:45 PM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	3	0	11	33	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	1	0	0	4	0	0	0	3	0	8	28	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	6	28	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	2	0	8	27	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	6	28	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	7	0	8	25	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	5		0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	4	0	9		0	0	0	0

11:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	0	0	0	0
Count Total	0	0	0	0	0	2	0	4	1	0	1,391	0	0	5	1,226	0	2,629	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	186	0	0	0	75	0	261	0	0	0	0

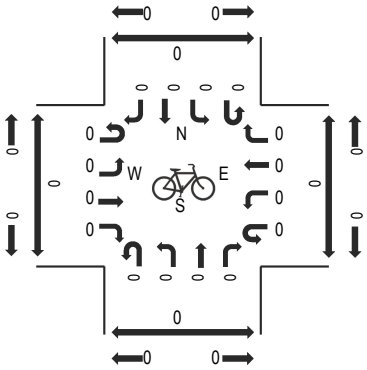
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 7 TOWER RD & 120TH AVE AM
Date: Wednesday, September 17, 2025
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

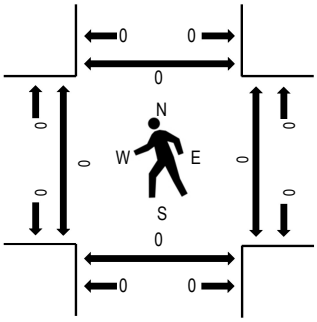
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	120TH AVE Eastbound				120TH AVE Westbound				TOWER RD Northbound				TOWER RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
12:00 AM	0	0	2	13	0	0	2	0	0	12	0	0	0	0	0	0	29	135	0	0	0	0
12:15 AM	0	0	2	5	0	0	4	0	0	20	2	0	0	1	2	0	36	129	0	0	0	0
12:30 AM	0	0	1	9	0	0	8	1	0	13	5	1	0	0	0	0	38	122	0	0	0	0
12:45 AM	0	1	1	5	0	1	3	1	0	17	3	0	0	0	0	0	32	111	0	0	0	0
1:00 AM	0	0	1	3	0	1	0	0	0	16	2	0	0	0	0	0	23	107	0	0	0	0
1:15 AM	0	0	0	10	0	2	1	0	0	13	3	0	0	0	0	0	29	100	0	0	0	0
1:30 AM	0	0	0	11	0	0	1	0	0	14	0	0	0	0	1	0	27	96	0	0	0	0
1:45 AM	0	0	0	12	0	1	2	0	0	12	1	0	0	0	0	0	28	93	0	0	0	0
2:00 AM	0	1	0	8	0	0	0	0	0	4	3	0	0	0	0	0	16	88	0	0	0	0
2:15 AM	0	0	0	11	0	0	2	0	0	9	3	0	0	0	0	0	25	100	0	0	0	0
2:30 AM	0	0	1	10	0	0	0	0	0	10	1	0	0	0	2	0	24	116	0	0	0	0
2:45 AM	0	0	2	10	0	0	0	0	0	10	0	0	0	0	1	0	23	146	0	0	0	0
3:00 AM	0	0	0	16	0	1	1	0	0	8	1	0	0	0	1	0	28	171	0	0	0	0
3:15 AM	0	1	3	24	0	0	1	0	0	11	1	0	0	0	0	0	41	206	0	0	0	0
3:30 AM	0	0	4	34	0	1	1	0	0	9	1	0	0	0	4	0	54	262	0	0	0	0
3:45 AM	0	0	5	24	0	1	1	0	0	12	1	0	0	0	4	0	48	332	0	0	0	0
4:00 AM	0	0	6	41	0	2	0	0	0	11	1	1	0	0	1	0	63	397	0	0	0	0
4:15 AM	0	1	7	50	0	1	6	0	0	23	0	1	0	0	8	0	97	504	0	0	0	0
4:30 AM	0	0	9	69	0	0	7	0	0	25	6	1	0	0	7	0	124	649	0	0	0	0
4:45 AM	0	1	14	61	0	1	9	0	0	19	2	0	0	0	6	0	113	823	0	0	0	0
5:00 AM	0	0	23	90	0	1	7	0	0	32	3	1	0	0	12	1	170	981	0	0	0	0
5:15 AM	0	1	40	120	0	1	14	0	0	35	11	2	0	0	17	1	242	1,079	0	0	0	0
5:30 AM	0	0	74	128	0	4	12	0	0	44	6	7	0	0	19	4	298	1,165	0	0	0	0
5:45 AM	0	2	29	128	0	2	12	0	0	58	18	4	0	0	14	4	271	1,224	0	0	0	0
6:00 AM	0	0	19	131	0	2	12	0	0	60	15	4	0	0	21	4	268	1,274	0	0	0	0
6:15 AM	0	5	24	146	0	2	22	0	0	85	13	5	0	0	20	6	328	1,354	0	0	0	0
6:30 AM	0	5	43	135	0	2	23	0	0	95	19	4	0	0	27	4	357	1,364	0	0	0	0
6:45 AM	0	9	39	123	0	3	22	0	0	87	17	4	0	0	14	3	321	1,416	0	0	0	0
7:00 AM	0	10	29	116	0	6	34	0	0	89	17	9	0	0	25	13	348	1,453	0	0	0	0
7:15 AM	0	4	18	133	0	10	25	0	0	89	14	4	0	0	28	13	338	1,439	0	0	0	0
7:30 AM	0	3	23	147	0	8	55	0	0	125	9	9	0	0	20	10	409	1,410	0	0	0	0
7:45 AM	0	2	19	125	0	6	33	0	0	123	13	9	0	0	21	7	358	1,300	0	0	0	0
8:00 AM	0	5	17	126	0	5	31	0	0	113	12	5	0	0	13	7	334	1,199	0	0	0	0
8:15 AM	0	6	31	119	0	6	24	0	0	89	9	5	0	0	13	7	309	1,094	0	0	0	0

8:30 AM	0	3	22	102	0	3	19	0	0	104	12	6	0	0	22	6	299	1,036	0	0	0	0
8:45 AM	0	2	19	96	0	4	19	0	0	89	10	4	0	0	10	4	257	929	0	0	0	0
9:00 AM	0	3	17	58	0	8	12	0	0	95	13	6	0	0	11	6	229	917	0	0	0	0
9:15 AM	0	4	15	91	0	5	11	0	0	93	10	7	0	0	10	5	251	870	0	0	0	0
9:30 AM	0	4	12	42	0	4	19	0	0	84	15	0	0	0	7	5	192	823	0	0	0	0
9:45 AM	0	4	22	82	0	6	7	1	0	95	8	3	0	0	9	8	245	844	0	0	0	0
10:00 AM	0	1	11	73	0	2	10	0	0	60	15	3	0	0	5	2	182	807	0	0	0	0
10:15 AM	0	3	11	77	0	3	13	0	0	79	7	2	0	0	5	4	204	832	0	0	0	0
10:30 AM	0	0	8	77	0	1	9	0	0	92	9	4	0	0	10	3	213	839	0	0	0	0
10:45 AM	0	8	16	69	0	1	11	0	0	79	7	5	0	0	8	4	208	850	0	0	0	0
11:00 AM	0	4	13	66	0	3	20	0	0	79	7	5	0	0	8	2	207	920	0	0	0	0
11:15 AM	0	2	10	72	0	6	16	1	0	83	6	5	0	0	5	5	211	961	0	0	0	0
11:30 AM	1	0	15	54	0	7	21	0	0	90	16	4	0	0	10	6	224	1,014	0	0	0	0
11:45 AM	0	11	12	96	0	4	16	0	0	108	10	5	0	0	9	7	278	1,044	0	0	0	0
12:00 PM	1	6	19	78	0	2	22	0	0	94	7	3	0	0	10	6	248	1,025	0	0	0	0
12:15 PM	0	5	13	91	0	3	21	0	0	104	11	6	0	0	7	3	264	1,018	0	0	0	0
12:30 PM	0	6	21	84	0	4	10	0	0	88	11	11	0	1	10	8	254	1,014	0	0	0	0
12:45 PM	0	5	23	68	0	8	17	0	0	98	17	8	0	1	9	5	259	1,009	0	0	0	0
1:00 PM	0	2	24	81	0	5	19	0	0	77	8	6	0	0	12	7	241	1,034	0	0	0	0
1:15 PM	0	5	23	70	0	6	21	1	0	103	10	6	0	0	10	5	260	1,071	0	0	0	0
1:30 PM	0	2	20	89	0	5	19	0	0	78	9	7	0	0	15	5	249	1,123	0	0	0	0
1:45 PM	0	5	25	72	0	1	21	0	0	122	15	8	0	0	13	2	284	1,169	0	0	0	0
2:00 PM	0	1	16	87	0	7	19	1	0	112	14	9	0	0	6	6	278	1,247	0	0	0	0
2:15 PM	0	2	16	101	0	7	17	0	0	130	16	3	0	0	14	6	312	1,303	0	0	0	0
2:30 PM	0	5	14	85	0	7	32	0	0	119	17	5	0	0	9	2	295	1,343	0	0	0	0
2:45 PM	0	2	20	106	0	5	29	0	0	147	27	7	0	0	16	3	362	1,440	0	0	0	0
3:00 PM	0	5	19	101	0	6	21	0	0	136	17	8	0	0	15	6	334	1,408	0	0	0	0
3:15 PM	0	4	22	90	0	3	23	0	0	145	27	14	0	0	16	8	352	1,457	0	0	0	0
3:30 PM	0	4	20	111	0	5	32	2	0	164	23	10	0	0	18	3	392	1,496	0	0	0	0
3:45 PM	0	2	18	88	0	6	35	0	0	142	22	7	0	0	8	2	330	1,524	0	0	0	0
4:00 PM	0	4	23	107	0	8	27	0	0	149	33	10	0	0	15	7	383	1,574	0	0	0	0
4:15 PM	0	6	30	109	0	4	39	0	0	139	35	10	0	0	14	5	391	1,582	0	0	0	0
4:30 PM	0	6	27	104	0	11	50	0	0	155	37	13	0	0	14	3	420	1,626	0	0	0	0
4:45 PM	0	3	25	96	0	1	42	1	0	132	34	7	0	0	28	11	380	1,583	0	0	0	0
5:00 PM	0	4	27	102	0	9	39	0	0	136	36	10	0	0	17	11	391	1,584	0	0	0	0
5:15 PM	0	8	32	118	0	9	23	3	0	156	33	9	0	0	22	22	435	1,549	0	0	0	0
5:30 PM	0	7	27	108	0	6	29	0	0	140	29	4	0	0	20	7	377	1,448	0	0	0	0
5:45 PM	0	3	27	107	0	4	25	0	0	157	27	9	0	0	17	5	381	1,337	0	0	0	0
6:00 PM	0	3	16	101	0	9	21	0	0	171	20	5	0	0	9	1	356	1,256	0	0	0	0
6:15 PM	0	3	22	117	0	5	20	1	0	127	21	3	0	0	14	1	334	1,161	0	0	0	0
6:30 PM	0	2	19	84	0	4	13	0	0	102	20	7	0	0	12	3	266	1,046	0	0	0	0
6:45 PM	0	7	12	85	0	2	24	0	0	132	15	8	0	0	10	5	300	971	0	0	0	0
7:00 PM	0	5	17	88	0	5	9	0	0	100	12	8	0	0	12	5	261	880	0	0	0	0
7:15 PM	0	0	19	74	0	4	19	1	0	76	13	5	0	0	5	3	219	787	0	0	0	0
7:30 PM	0	3	15	66	0	4	8	0	0	63	19	1	0	0	9	3	191	742	0	0	0	0
7:45 PM	0	6	22	67	0	2	7	0	0	81	9	6	0	0	8	1	209	686	0	0	0	0
8:00 PM	0	4	7	44	0	2	10	0	0	81	8	4	0	0	5	3	168	624	0	0	0	0
8:15 PM	0	4	11	52	0	3	6	0	0	72	11	3	0	0	11	1	174	558	0	0	0	0
8:30 PM	0	0	22	44	0	2	8	0	0	44	8	1	0	0	5	1	135	485	0	0	0	0
8:45 PM	0	1	8	56	0	3	7	0	0	59	9	3	0	0	1	0	147	459	0	0	0	0
9:00 PM	0	0	14	25	0	2	3	0	0	42	7	3	0	0	6	0	102	409	0	0	0	0
9:15 PM	0	2	6	22	0	3	4	0	0	56	4	2	0	0	1	1	101	383	0	0	0	0
9:30 PM	0	1	9	33	0	3	5	1	0	49	3	3	0	0	2	0	109	368	0	0	0	0
9:45 PM	0	1	7	38	0	1	2	0	0	39	3	3	0	0	3	0	97	359	0	0	0	0
10:00 PM	0	1	7	22	0	1	7	0	0	35	1	1	0	0	1	0	76	351	0	0	0	0
10:15 PM	0	0	1	35	0	0	0	0	0	42	5	0	0	0	2	1	86	337	0	0	0	0
10:30 PM	0	0	7	35	0	5	18	0	0	31	1	0	0	0	3	0	100	334	0	0	0	0
10:45 PM	0	1	4	20	0	2	12	0	0	47	1	0	0	0	2	0	89	305	0	0	0	0
11:00 PM	1	0	3	16	0	2	2	0	0	35	1	0	0	0	2	0	62	267	0	0	0	0
11:15 PM	0	0	2	21	0	1	2	0	0	45	5	1	0	0	6	0	83		0	0	0	0
11:30 PM	0	1	3	17	0	1	3	0	0	39	4	1	0	0	2	0	71		0	0	0	0

11:45 PM	0	0	1	12	0	0	4	0	0	30	1	1	0	0	2	0	51	0	0	0	0
Count Total	3	253	1,474	6,675	0	325	1,424	15	0	7,243	1,073	394	0	3	898	328	20,108	0	0	0	0
Peak Hour	0	21	111	420	0	30	154	4	0	579	140	39	0	0	81	47	1,626	0	0	0	0

ATTACHMENT B: LEVEL OF SERVICE ANALYSIS

HCS Two-Way Stop-Control Report

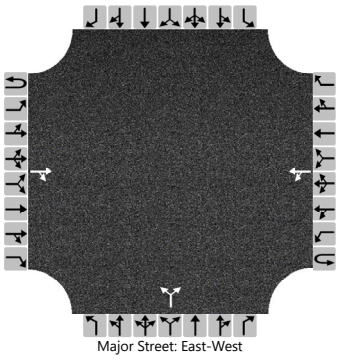
General Information

Analyst	L. Vagelatos
Agency/Co.	Crestone Peak
Date Performed	11/14/2025
Analysis Year	2025
Time Analyzed	
Intersection Orientation	East-West
Project Description	Eagle Pad Oil and Gas Development

Site Information

Intersection	Study Intersection 1
Jurisdiction	Adams County, Colorado
East/West Street	152nd Ave.
North/South Street	Picadilly Rd.
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			285	68		13	157			147		14				
Percent Heavy Vehicles (%)						0				1		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.41		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.51		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						14					171					
Capacity, c (veh/h)						1194					515					
v/c Ratio						0.01					0.33					
95% Queue Length, Q_{95} (veh)						0.0					1.4					
95% Queue Length, Q_{95} (ft)						0.0					35.3					
Control Delay (s/veh)						8.1	0.1				15.4					
Level of Service (LOS)						A	A				C					
Approach Delay (s/veh)					0.7				15.4							
Approach LOS					A				C							

HCS Two-Way Stop-Control Report

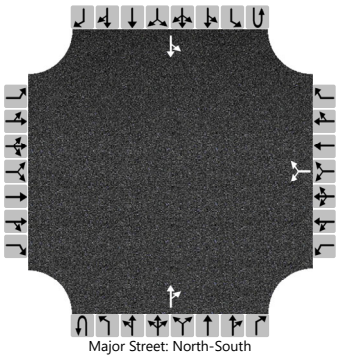
General Information

Analyst	L. Vagelatos
Agency/Co.	Crestone Peak
Date Performed	11/14/2025
Analysis Year	2025
Time Analyzed	Existing Average Peak
Intersection Orientation	North-South
Project Description	Eagle Pad Oil and Gas Development

Site Information

Intersection	Study Intersection 2
Jurisdiction	Adams County
East/West Street	Warbler Access Road
North/South Street	Picadilly Rd.
Peak Hour Factor	0.86
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						0		0			171	0		0	74	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.20						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.30						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							0							0		
Capacity, c (veh/h)							0							1386		
v/c Ratio														0.00		
95% Queue Length, Q_{95} (veh)														0.0		
95% Queue Length, Q_{95} (ft)														0.0		
Control Delay (s/veh)														7.6	0.0	
Level of Service (LOS)														A	A	
Approach Delay (s/veh)													0.0			
Approach LOS													A			

HCS Two-Way Stop-Control Report

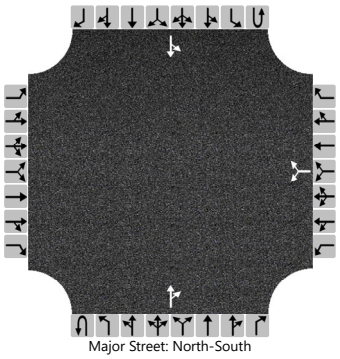
General Information

Analyst	L. Vagelatos
Agency/Co.	Crestone Peak
Date Performed	11/14/2025
Analysis Year	2025
Time Analyzed	Existing Average Peak
Intersection Orientation	North-South
Project Description	Eagle Pad Oil and Gas Development

Site Information

Intersection	Study Intersection 3
Jurisdiction	Adams County
East/West Street	144th Ave.
North/South Street	Picadilly Rd.
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						0		0			168	0		0	73	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.20						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.30						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							0							0		
Capacity, c (veh/h)							0							1387		
v/c Ratio														0.00		
95% Queue Length, Q_{95} (veh)														0.0		
95% Queue Length, Q_{95} (ft)														0.0		
Control Delay (s/veh)														7.6	0.0	
Level of Service (LOS)														A	A	
Approach Delay (s/veh)													0.0			
Approach LOS													A			

HCS Two-Way Stop-Control Report

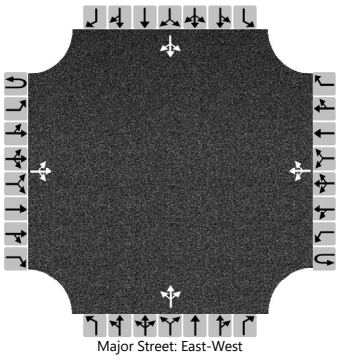
General Information

Analyst	L. Vagelatos
Agency/Co.	Crestone Peak
Date Performed	11/14/2025
Analysis Year	2025
Time Analyzed	Existing Average Peak
Intersection Orientation	East-West
Project Description	Eagle Pad Oil and Gas Development

Site Information

Intersection	Study Intersection 4
Jurisdiction	Adams County
East/West Street	128th Ave.
North/South Street	Picadilly Rd.
Peak Hour Factor	0.81
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		131	11	1		1	43	25		0	15	1		1	7	62
Percent Heavy Vehicles (%)		2				0				0	0	0		0	5	2
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.10				7.10	6.50	6.20		7.10	6.55	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.21				2.20				3.50	4.00	3.30		3.50	4.05	3.31

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		162				1					20				86	
Capacity, c (veh/h)		1516				1616					485				883	
v/c Ratio		0.11				0.00					0.04				0.10	
95% Queue Length, Q_{95} (veh)		0.4				0.0					0.1				0.3	
95% Queue Length, Q_{95} (ft)		10.0				0.0					2.5				7.6	
Control Delay (s/veh)		7.7	0.8	0.8		7.2	0.0	0.0			12.7				9.5	
Level of Service (LOS)		A	A	A		A	A	A			B				A	
Approach Delay (s/veh)	7.1				0.1				12.7				9.5			
Approach LOS	A				A				B				A			

HCS Two-Way Stop-Control Report

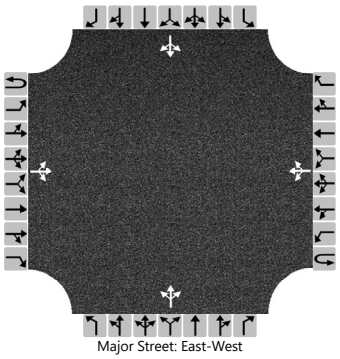
General Information

Analyst	L. Vagelatos
Agency/Co.	Crestone Peak
Date Performed	11/14/2025
Analysis Year	2025
Time Analyzed	Existing Average Peak
Intersection Orientation	East-West
Project Description	Eagle Pad Oil and Gas Development

Site Information

Intersection	Study Intersection 5
Jurisdiction	Adams County
East/West Street	120th Ave.
North/South Street	Picadilly Rd.
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		7	101	15		3	131	11		25	2	1		5	4	3
Percent Heavy Vehicles (%)		0				0				2	12	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.12	6.62	6.20		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.52	4.11	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		8				3					32				14	
Capacity, c (veh/h)		1430				1466					638				676	
v/c Ratio		0.01				0.00					0.05				0.02	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.2				0.1	
95% Queue Length, Q_{95} (ft)		0.0				0.0					5.1				2.5	
Control Delay (s/veh)		7.5	0.0	0.0		7.5	0.0	0.0			10.9				10.4	
Level of Service (LOS)		A	A	A		A	A	A			B				B	
Approach Delay (s/veh)	0.5				0.2				10.9				10.4			
Approach LOS	A				A				B				B			

HCS Two-Way Stop-Control Report

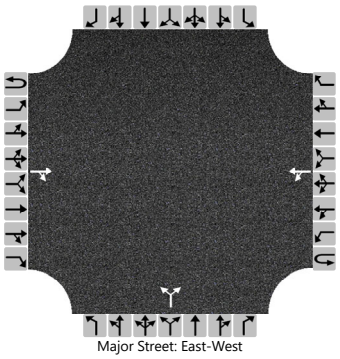
General Information

Analyst	L. Vagelatos
Agency/Co.	Crestone Peak
Date Performed	11/14/2025
Analysis Year	2025
Time Analyzed	Proposed Maximum Peak
Intersection Orientation	East-West
Project Description	Eagle Pad Oil and Gas Development

Site Information

Intersection	Study Intersection 1
Jurisdiction	Adams County, Colorado
East/West Street	152nd Ave.
North/South Street	Picadilly Rd.
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			285	117		13	157			196		14				
Percent Heavy Vehicles (%)						0				1		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.41		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.51		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						14					223					
Capacity, c (veh/h)						1143					494					
v/c Ratio						0.01					0.45					
95% Queue Length, Q_{95} (veh)						0.0					2.3					
95% Queue Length, Q_{95} (ft)						0.0					58.1					
Control Delay (s/veh)						8.2	0.1				18.2					
Level of Service (LOS)						A	A				C					
Approach Delay (s/veh)					0.7				18.2							
Approach LOS					A				C							

HCS Two-Way Stop-Control Report

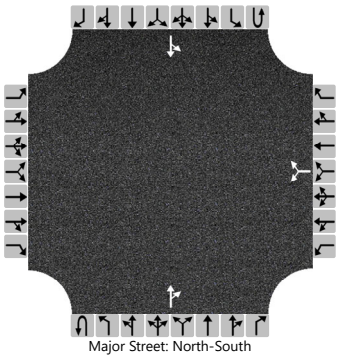
General Information

Analyst	L. Vagelatos
Agency/Co.	Crestone Peak
Date Performed	11/18/2025
Analysis Year	2025
Time Analyzed	Proposed Maximum Peak
Intersection Orientation	North-South
Project Description	Eagle Pad Oil and Gas Development

Site Information

Intersection	Study Intersection 2
Jurisdiction	Adams County
East/West Street	Warbler Access Road
North/South Street	Picadilly Rd.
Peak Hour Factor	0.86
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						0		0			220	0		0	123	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.20						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.30						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							0							0		
Capacity, c (veh/h)							0							1321		
v/c Ratio														0.00		
95% Queue Length, Q_{95} (veh)														0.0		
95% Queue Length, Q_{95} (ft)														0.0		
Control Delay (s/veh)														7.7	0.0	
Level of Service (LOS)														A	A	
Approach Delay (s/veh)													0.0			
Approach LOS													A			

HCS Two-Way Stop-Control Report

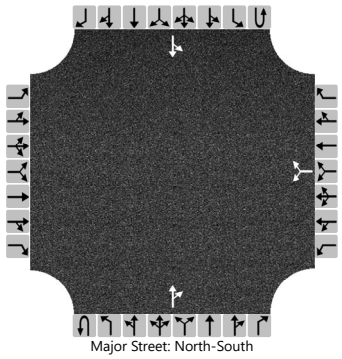
General Information

Analyst	L. Vagelatos
Agency/Co.	Crestone Peak
Date Performed	11/14/2025
Analysis Year	2025
Time Analyzed	Proposed Maximum Peak
Intersection Orientation	North-South
Project Description	Eagle Pad Oil and Gas Development

Site Information

Intersection	Study Intersection 3
Jurisdiction	Adams County
East/West Street	144th Ave.
North/South Street	Picadilly Rd.
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						0		0			217	0		0	122	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.20						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.30						2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							0							0		
Capacity, c (veh/h)							0							1321		
v/c Ratio														0.00		
95% Queue Length, Q_{95} (veh)														0.0		
95% Queue Length, Q_{95} (ft)														0.0		
Control Delay (s/veh)														7.7	0.0	
Level of Service (LOS)														A	A	
Approach Delay (s/veh)													0.0			
Approach LOS													A			

HCS Two-Way Stop-Control Report

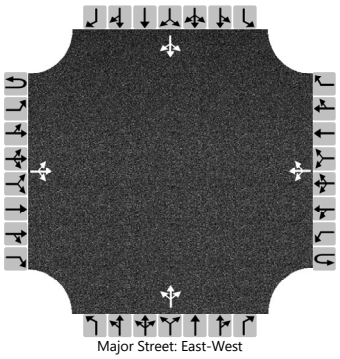
General Information

Analyst	L. Vagelatos
Agency/Co.	Crestone Peak
Date Performed	11/14/2025
Analysis Year	2025
Time Analyzed	Proposed Maximum Peak
Intersection Orientation	East-West
Project Description	Eagle Pad Oil and Gas Development

Site Information

Intersection	Study Intersection 4
Jurisdiction	Adams County
East/West Street	128th Ave.
North/South Street	Picadilly Rd.
Peak Hour Factor	0.81
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		131	11	1		1	43	25		0	64	1		1	56	62
Percent Heavy Vehicles (%)		2				0				0	0	0		0	5	2
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.12				4.10				7.10	6.50	6.20		7.10	6.55	6.22
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.21				2.20				3.50	4.00	3.30		3.50	4.05	3.31

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		162				1					80				147	
Capacity, c (veh/h)		1516				1616					472				647	
v/c Ratio		0.11				0.00					0.17				0.23	
95% Queue Length, Q_{95} (veh)		0.4				0.0					0.6				0.9	
95% Queue Length, Q_{95} (ft)		10.0				0.0					15.0				23.1	
Control Delay (s/veh)		7.7	0.8	0.8		7.2	0.0	0.0			14.2				12.2	
Level of Service (LOS)		A	A	A		A	A	A			B				B	
Approach Delay (s/veh)		7.1				0.1				14.2				12.2		
Approach LOS		A				A				B				B		

HCS Two-Way Stop-Control Report

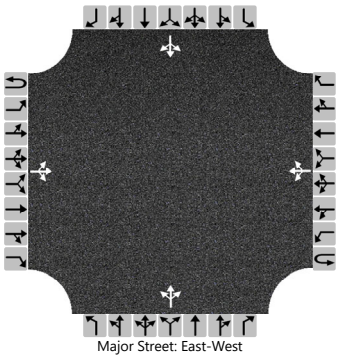
General Information

Analyst	L. Vagelatos
Agency/Co.	Crestone Peak
Date Performed	11/14/2025
Analysis Year	2025
Time Analyzed	Proposed Maximum Peak
Intersection Orientation	East-West
Project Description	Eagle Pad Oil and Gas Development

Site Information

Intersection	Study Intersection 5
Jurisdiction	Adams County
East/West Street	120th Ave.
North/South Street	Picadilly Rd.
Peak Hour Factor	0.88
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		7	101	15		3	131	60		25	2	1		54	4	3
Percent Heavy Vehicles (%)		0				0				2	12	0		9	0	0
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

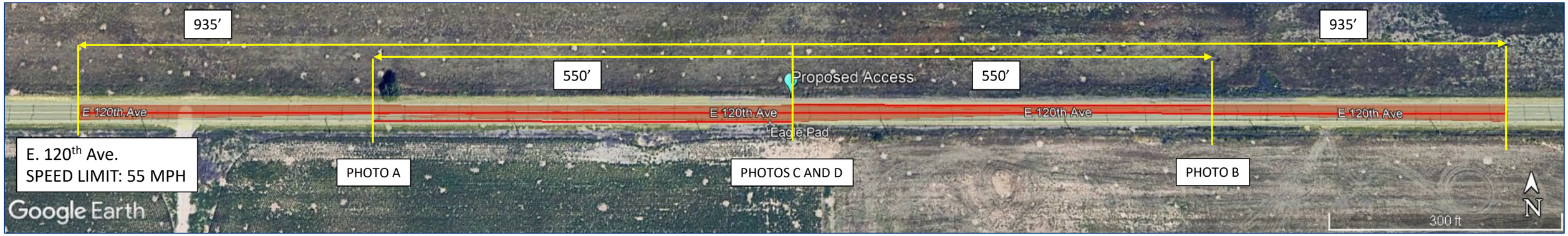
Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.12	6.62	6.20		7.19	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.52	4.11	3.30		3.58	4.00	3.30

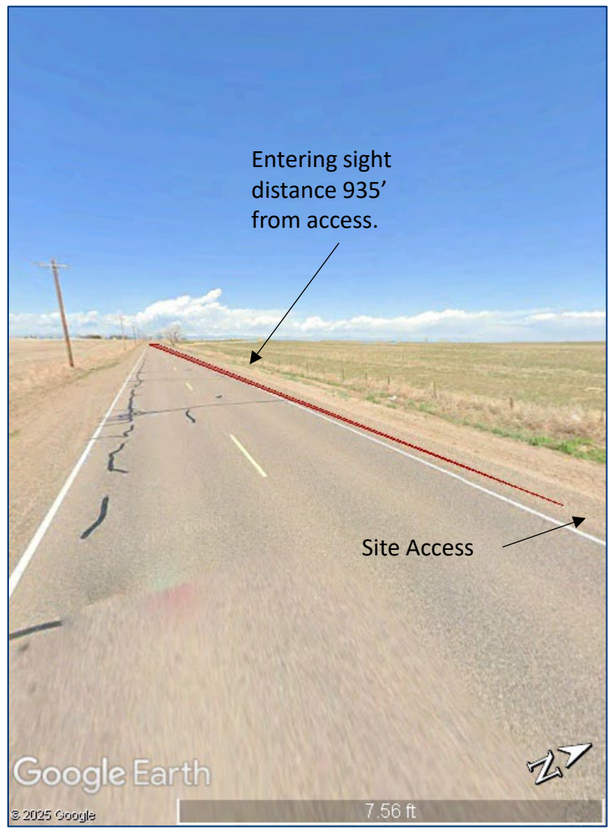
Delay, Queue Length, and Level of Service

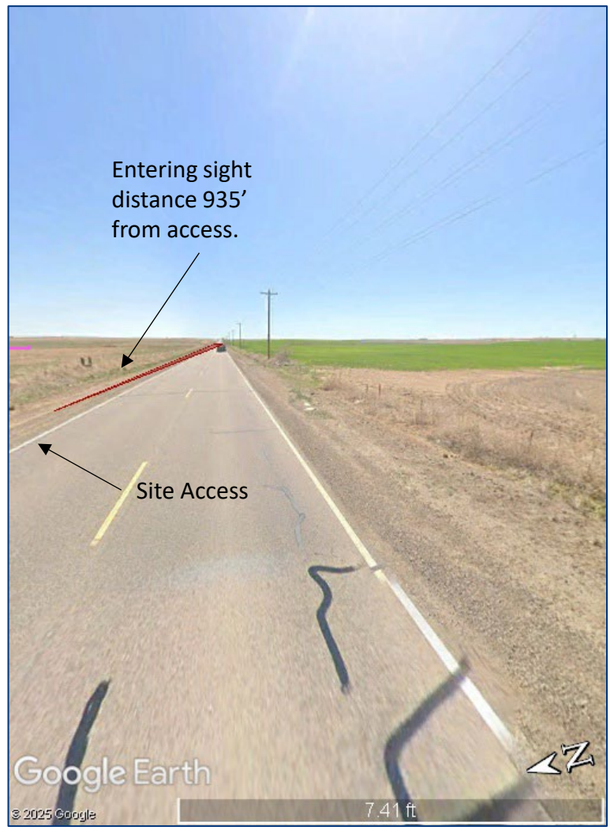
Flow Rate, v (veh/h)		8				3					32				69	
Capacity, c (veh/h)		1365				1466					610				609	
v/c Ratio		0.01				0.00					0.05				0.11	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.2				0.4	
95% Queue Length, Q_{95} (ft)		0.0				0.0					5.1				10.6	
Control Delay (s/veh)		7.7	0.0	0.0		7.5	0.0	0.0			11.2				11.7	
Level of Service (LOS)		A	A	A		A	A	A			B				B	
Approach Delay (s/veh)		0.5				0.1				11.2				11.7		
Approach LOS		A				A				B				B		

ATTACHMENT C: SIGHT DISTANCE

Exhibit 1: Sight Distance Evaluation – Proposed Site Access







Photograph A: Sight stopping distance. **Eastbound** E. 120th Ave. approximately 550 ft from the Proposed Site Access.

Photograph B: Sight stopping distance. **Westbound** E. 120th Ave. approximately 550 ft from the Proposed Site Access.

Photograph C: Entering sight distance. From Proposed Site Access facing **West** 935 ft distance.

Photograph D: Entering sight distance. From Proposed Site Access facing **East** 935 ft distance.

All photographs and measurements from Google Earth.