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

CONDITIONAL USE PERMIT

Application submittals must include all documents on this checklist as well as this page. Please use the reference guide (pgs. 3-4) included in this packet for more information on each submittal item.

All applications shall be submitted electronically to epermitcenter@adcogov.org. If the submittal is too large to email as an attachment, the application may be sent as an unlocked OneDrive link. Alternatively, the application may be delivered on a flash drive to the One-Stop Customer Service Center. All documents should be combined in a single PDF. Once a complete application has been received, fees will be invoiced and payable online at https://permits.adcogov.org/CitizenAccess/.

- [x] 1. Development Application Form (pg. 5)
- [x] 2. Application Fees (see pg. 2)
- [x] 3. Written Explanation of the Project
- [x] 4. Site Plan Showing Proposed Development
- [x] 5. Proof of Ownership (warranty deed or title policy)
- [x] 6. Proof of Water and Sewer Services
- [x] 7. Proof of Utilities (e.g. electric, gas)
- [x] 8. Legal Description
- [x] 9. Certificate of Taxes Paid
- [x] 10. Certificate of Notice to Mineral Estate Owners/and Lessees(pg. 7)
- [x] 11. Certificate of Surface Development (pg. 8-10)

Supplemental Items (if applicable) *Contact County staff for supplemental forms

- [x] 1. Traffic Impact Study
- [x] 2. Neighborhood Meeting Summary
- [ ] 3. Solid waste transfer station*
- [ ] 4. Solid waste composting facility*
- [ ] 5. Scrap tire recycling facility*
- [ ] 6. Inert fill*

Application Fees	Amount	Due
Conditional Use Permit	$1,000 ($300 per additional residential request/ $500 per additional non-residential)	After complete application received
Tri-County Health	$360 (TCHD Level 3)	After complete application received

Conditional Use-Guide to Development Application Submittal

The submittal documents for all Land Use/Development Applications are listed below. Detailed explanations of the submittal documents are also provided.

All development application submittals shall comprise of one (1) electronic copy (emailed or delivered on a USB). **Application submittals that do not conform to these guidelines shall not be accepted.**

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3. Written Explanation:

- A clear and concise, yet thorough, description of the proposal. Please include, if applicable, timeframe, purpose of project, and improvements that will be made to the site.

4. Site Plan:

- A detailed drawing of existing and proposed improvements.
- Including:
  - Streets, roads, and intersections
  - Driveways, access points, and parking areas
  - Existing and proposed structures, wells, and septic systems,
  - Easements, utility lines, and no build or hazardous areas
  - Scale, north arrow, and date of preparation
- An Improvement Location Certificate or Survey may be required during the official review

5. Proof of Ownership:

- A deed may be found in the Office of the Clerk and Recorder.
- A title commitment is prepared by a professional title company.

6. Proof of Water:

- A written statement from the appropriate water district indicating that they will provide service to the property **OR** a copy of a current bill from the service provider.
- Well permit(s) information can be obtained from the Colorado State Division of Water Resources at (303) 866-3587.

Proof of Sewer:

- A written statement from the appropriate sanitation district indicating that they will provide service to the property **OR** a copy of a current bill from the service provider.
- A written statement from Tri-County Health indicating the viability of obtaining Onsite Wastewater Treatment Systems.

7. Proof of Utilities (Gas, Electric, etc):

- A written statement from the appropriate utility provider indicating that they will provide service to the property.
- Copy of a current bill from the service provider.

8. Legal Description:

- Geographical description used to locate and identify a property.
- Visit http://gisapp.adcogov.org/quicksearch/ to find the legal description for your property.

9. Proof of Taxes Paid:

- All taxes on the subject property must be paid in full. Please contact the Adams County Treasurer's Office.
- Or http://adcogov.org/index.aspx?NID=812

10. Certificate of Notice to Mineral Estate Owners/ Certificate of Surface Development:

- The State of Colorado requires notification to mineral rights owners of applications for surface development (i.e. zoning, plats, etc.)
- Mineral or Surface right owners may be found in the title commitment for the subject property

- You may also search the Office of the Clerk and Recorder for any recorded deeds, easements, or other documents

SUPPLEMENTAL:

1. **Preliminary Traffic Impact Study:**
   - This shall include, but not limited to:
     - Trip generation estimates from the development,
     - Current traffic counts,
     - Projected future traffic counts to include background traffic projections and future traffic projections from the development.
     - A description of the traffic impacts that the development will have on the surrounding area.

   Final Traffic Study:
   - Shall have all of the information contained in a Preliminary Traffic Impact Study and it shall also include recommendations on how to mitigate the traffic impacts that are caused by the development. (See chapter 8 for full description of requirements).

2. **Neighborhood Meeting Summary:**
   - Please refer to Section 2-01-02 of the Adams County Development Standards and Regulations for the specific requirements regarding time, location, and notice
   - A written summary shall be prepared including the materials submittal presented at the meeting, any issues identified at the meeting, and how those issues have been addressed

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DEVELOPMENT APPLICATION FORM

Application Type:

☐ Conceptual Review	☐ Preliminary PUD	☐ Temporary Use
☐ Subdivision, Preliminary	☐ Final PUD	☐ Variance
☐ Subdivision, Final	☐ Rezone	☒ Conditional Use
☐ Plat Correction/ Vacation	☐ Special Use	☐ Other: _____

PROJECT NAME: Major Amendment Conditional Use Permit RCU2021-00023, 13200 sq ft and 10 acres

APPLICANT

Name(s): GCSA LLC/Llaricxe Aldana Phone #: 303-435=3021

Address: PO Box 5

City, State, Zip: Watkins CO 80137

2nd Phone #: Email: gcsallc1978@gmail.com

OWNER

Name(s): same as above Phone #:

Address:

City, State, Zip:

2nd Phone #: Email:

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

Name: Joseph L Henderson PE, PTOE Phone #: 303-589-6875

Address: 823 W 124TH DRIVE

City, State, Zip: WESTMINSTER CO 80234

2nd Phone #: Email: joe@sustainabletrafficsolutions.com

DESCRIPTION OF SITE

Address:	6539 Imboden Rd
City, State, Zip:	Watkins CO 80137
Area (acres or square feet):	10 SEE LEGAL DESCRIPTION
Tax Assessor Parcel Number	0181706400006
Existing Zoning:	A3
Existing Land Use:	A3
Proposed Land Use:	event center

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

If Yes, please list PRE#: 2021-00049

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: Llaricxe Aldana Date: January 4, 2023

Owner's Printed Name

Name: Llaricxe Aldana

Owner's Signature

GCSA LLC
PO BOX 5
WATKINS CO 80137

Adams County
Community & Economic Development Department

EXPLANATION OF REQUEST

This is a major amendment to the Conditional Use Permit RCU2021-00023. The amendment/change to the approved resolution 2022-412 on August 2, 2022 under Conditions of Approval: Item 6 The Conditional Use Permit shall only permit the subject use to occur within the 4,470 sq ft of the barn identified on the floor plan and within the roughly six acres shown the site plan. Any extension of space of the subject use within the larger lot and within the existing barn, which is approximately 39 acres and 13,200 sq ft respectively, shall require an amendment to the conditional use permit.

I am now requesting an amendment, as I plan to use the 13,200 sq ft building and 10 acres.

I have applied for a permit to build a new 6' fence, permit BDP22-2098 was issued on November 8, 2022. Final inspection was done on December 15, 2022.

COMMUNITY AND ECONOMIC DEVELOPMENT
BUILDING PERMIT INSPECTION RECORD

UMBER: BDP22-2098 **DATE OF ISSUANCE: 11/8/2022**

ISSUED FOR: NEW 6' FENCE ON NORTH, SOUTH, EAST AND WEST

CSA LLC **SITE ADDRESS:** 6539 IMBODEN RD

NTRACTOR: FOUR MILE CONSTRUCTION

POST THIS CARD AT OR NEAR THE FRONT OF THE BUILDING, INSPECTION WILL NOT BE MADE UNLESS THIS CARD IS POSTED
DO NOT POUR CONCRETE UNTIL INSPECTED AND APPROVED

TION & CODE	INSPECTOR SIGNATURE / DATE	TYPE OF INSPECTION & CODE	INSPECTOR SIGNATURE / DATE
ISSONS | SETBACKS		☐ 205 INSULATION	
NCLOSED ELECTRODE		☐ 210 DRYWALL	
WALL REINFORCING		☐ 220 LATH | WIRE	
| CONSTRUCTION METER		☐ 230 CEILING GRID	
DAMPPROOFING		☐ 235 ABOVE CEILING ELECTRICAL	
ND PLUMBING		☐ 245 ELECTRICAL SERVICE EQUIPMENT	
ND ELECTRICAL		☐ TRI-COUNTY HEALTH DEPT **303-288-6816**	
ND GAS PIPE		☐ WATER & SANITATION DISTRICT	
EATHING		☐ FINAL FIRE DISTRICT	
RICT		☐ INFRASTRUCTURE MGMT **720-523-6962**	
TRICAL		☐	
		☐ DEV SERVICES - LANDSCAPE | PARKING **720-523-6800**	
BING			
ANICAL		☐ 265 FINAL ELECTRICAL INSPECTION	
E		☒ **300 FINAL BUILDING INSPECTION**	DB 12.15.22

comes invalid if no approved inspection has been made or work is suspended or abandoned for 180 days. This card must be signed by all required agencies & departments prior to use ancy or use prior to approved final inspection is not permitted under penalty of fine and order to vacate. Notify the Building Safety Division forty-eight (48) hours in advance for

sted 24 hours a day, 7 days a week using the online scheduling available through the E-Permit Center https://permits.adcogov.org/citizenaccess. You must have an account and e this system. You will need the permit number and the inspection code for the request. Inspections will be scheduled for the next available business day.

n

sted 24 hours a day, 7 days a week by calling 720-523-6320. You will need the permit number and the inspection code for the request system. Inspections will be scheduled for the y.

Electronically Recorded RECEPTION#: 2022000066773,
8/4/2022 at 2:18 PM, 1 OF 3,
TD Pgs: 0 Josh Zygielbaum, Adams County, CO.

STATE OF COLORADO)
COUNTY OF ADAMS)

At a regular meeting of the Board of County Commissioners for Adams County, Colorado, held at the Government Center in Brighton, Colorado on the 2nd day of August, 2022 there were present:

Eva J. Henry	**Excused**
Charles "Chaz" Tedesco	**Commissioner**
Emma Pinter	**Commissioner**
Steve O'Dorisio	**Commissioner**
Lynn Baca	**Commissioner**
Heidi Miller	**County Attorney**
Erica Hannah	**Clerk to the Board**

when the following proceedings, among others were held and done, to-wit:

RESOLUTION APPROVING APPLICATION IN CASE # RCU2021-00023; GCSA EVENT CENTER

Resolution 2022-412

WHEREAS, this case involved a request for a Conditional Use Permit (CUP) to allow for the use of an Event Center in an Agicultural-3 (A-3) zone district on the following described property:

LOCATION: 6539 Imboden Rd, Watkins, CO 80137. / Parcel Number: 0181706400006

LEGAL DESCRIPTION: PART OF THAT PARCEL OF LAND DESCRIBED IN DEED RECORDED SEPTEMBER 1, 2016, AS RECEPTION NO. 2016000073084 IN THE RECORDS OF THE CLERK AND RECORDER FOR ADAMS COUNTY, COLORADO, BEING A PART OF THE SOUTHEAST 1/4 OF SECTION 6, TOWNSHIP 3 SOUTH, RANGE 64 WEST OF THE 6TH P.M., COUNTY OF ADAMS, STATE OF COLORADO, DESCRIBED AS FOLLOWS: BEGINNING AT THE SOUTHWEST CORNER OF SAID PARCEL; THENCE NORTH 89°45'33" EAST, COINCIDENT WITH THE SOUTH LINE OF SAID PARCEL, A DISTANCE OF 397.00 FEET; THENCE NORTH 00°17'43" EAST, PARALLEL WITH THE WEST LINE OF SAID PARCEL, A DISTANCE OF 658.81 FEET TO THE NORTH LINE OF SAID PARCEL; THENCE SOUTH 89°44'44" WEST, COINCIDENT WITH THE NORTH LINE OF SAID PARCEL, A DISTANCE OF 397.00 FEET TO THE NORTHWEST CORNER OF SAID PARCEL; THENCE SOUTH 00°17'43" WEST, COINCIDENT WITH THE WEST LINE OF SAID PARCEL, A DISTANCE OF 658.71 FEET TO THE TRUE POINT OF BEGINNING

WHEREAS, the Adams County Planning Commission held a public hearing on the application on the 14th day of July, 2022, and forwarded a recommendation of APPROVAL to the Board of County Commissioners; and

WHEREAS, the Board of County Commissioners held a public hearing on the application on the 2nd day of August, 2022; and

WHEREAS, substantial testimony was presented by members of the public and the applicant.

NOW, THEREFORE, BE IT RESOLVED, by the Board of County Commissioners, County of Adams, State of Colorado, that based upon the evidence presented at the hearing the application in this case is hereby APPROVED based upon the following findings-of-fact, conditions, and note to the applicant:

Findings-of-Fact:

1. The conditional use is permitted in the applicable zone district.
2. The conditional use is consistent with the purposes of these standards and regulations.

3. The conditional use will comply with the requirements of these standards and regulations, including but not limited to, all applicable performance standards.
4. The conditional use is compatible with the surrounding area, harmonious with the character of the neighborhood, not detrimental to the immediate area, not detrimental to the future development of the area, and not detrimental to the health, safety, or welfare of the inhabitants of the area and the County.
5. The conditional use permit has addressed all off-site impacts.
6. The site is suitable for the proposed conditional use including adequate usable space, adequate access, and absence of environmental constraints.
7. The site plan for the proposed conditional use will provide the most convenient and functional use of the lot including the parking scheme, traffic circulation, open space, fencing, screening, landscaping, signage, and lighting.
8. Sewer, water, storm water drainage, fire protection, police protection, and roads are to be available and adequate to serve the needs of the conditional use as designed and proposed.

Conditions Precedent:

1. The applicant shall obtain a change in occupancy for the barn prior to operating the event center.
2. The applicant shall obtain a letter of approval from the Bennett Fire Protection District as part of the building permit and change in occupancy permitting processes.
3. The applicant shall obtain a Use Permit from the Tri-County Health Department (TCHD) or other applicable health department to change the use on the property from residential to commercial as it applies to the on-site wastewater treatment system. All written requirements within an October 12, 2021 letter from TCHD shall be met.
4. The applicant shall install all required landscaping and parking per the approved plans and receive a passing inspection or bond for the landscaping.
5. The applicant shall submit an engineering review application to receive formal approval of engineering reports and Civil Site Construction documents. All onsite and offsite civil improvements must be permitted, inspected, and approved by the Adams County Public Works Department prior to Certificate of Occupancy.
6. A "Notice to Proceed" will be issued upon the County receiving documentation from the applicant demonstrating that all Conditions Precedent have been met. Only when the applicant has received this notice, is the proposed use allowed conditionally.

Conditions of Approval:

1. The Conditional Use Permit shall expire on August 2, 2024 (2 years).
2. All parking for participants shall be located on the subject property. All vehicle parking and drive lanes shall be on an approved surface, such as recycled asphalt.
3. Per the February 28, 2022 Colorado Department of Public Health and Environment (CDPHE) letter, the applicant shall track indoor water usage and event population at every event for a minimum of two years and provide a report of such data to the local health department on an annual basis. Should the data show that the wastewater flows exceed 2,000 GPD on the maximum monthly average flow, the TCHD permit terminates, and the OWTS becomes subject to review from the CDPHE.
4. The hours of operation are only permitted to be from 3 p.m-12 a.m.
5. Occupant load of the barn shall be determined at the time of building safety review and shall not be exceeded at any time.
6. The Conditional Use Permit shall only permit the subject use to occur within the 4,470 sq ft of the barn identified on the floor plan and within the roughly six acres shown the site plan. Any extension of space of the subject use within the larger lot and within the existing barn, which is approximately 39 acres and 13, 200 sq ft respectively, shall require an amendment to the conditional use permit

Notes to the applicant:

1. The Conditional Use Permit will expire on August 2, 2023, if the applicants do not apply for and receive a change in occupancy through a building permit issued by the County.
2. All applicable building, zoning, health, engineering, and fire codes shall be adhered to with this request.
3. Permanent roadway improvements related to traffic impacts generated by the use will need to be reevaluated with subsequent conditional use permits.

4. Additional drainage information may be required prior to building permit issuance.
5. All operations shall conform to the Indoor Commercial Recreation/Entertainment and Event Center performance standards, as required by Section 4-09-02-12 and Section 4-09-02-12-03 of the County's Development Standards.
6. The applicant shall not exceed the maximum sound pressure level allowed in A-3 zoning. Sound pressure levels are measured in decibels (db). The maximum allowed sound pressure levels in the A-3 zone district are the following: Daytime (7 am - 10pm: 80db) and Nighttime (10pm – 7am: 75db).
7. Any noise complaints received by the county shall be considered upon reevaluation of subsequent conditional use permits.
8. Per the February 28, 2022 CDPHE letter, if the event center includes a kitchen other than a warming kitchen, CDPHE will require an additional review of the OWTS capacity.
9. Per the February 28, 2022 CDPHE letter, if the event center includes a dishwasher, CDPHE will require an additional review of the OWTS capacity.

Upon motion duly made and seconded the foregoing resolution was adopted by the following vote:

Henry_____Aye
Tedesco_____Aye
Pinter_____Aye
O'Dorisio_____Aye
Baca_____Aye
Commissioners

STATE OF COLORADO)
County of Adams)

I, Josh Zygielbaum, County Clerk and ex-officio Clerk of the Board of County Commissioners in and for the County and State aforesaid do hereby certify that the annexed and foregoing Order is truly copied from the Records of the Proceedings of the Board of County Commissioners for said Adams County, now in my office.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said County, at Brighton, Colorado this 2nd day of August A.D. 2022.

County Clerk and ex-officio Clerk of the Board of County Commissioners

Josh Zygielbaum:

By:

E-Signed by Erica Hannah (2)
VERIFY authenticity with e-Sign

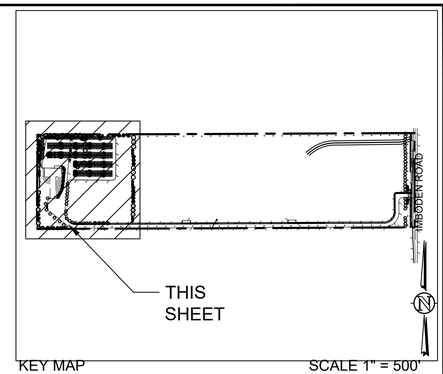
Deputy

SITE PARKING TABLE					
BLDG	USE	GFA	CODE	REQUIRED	PROVIDED
EVENT CENTER	COMMERCIAL	13,200 SF	1/40 SF	330 + 8 HC	331 + 12 HC

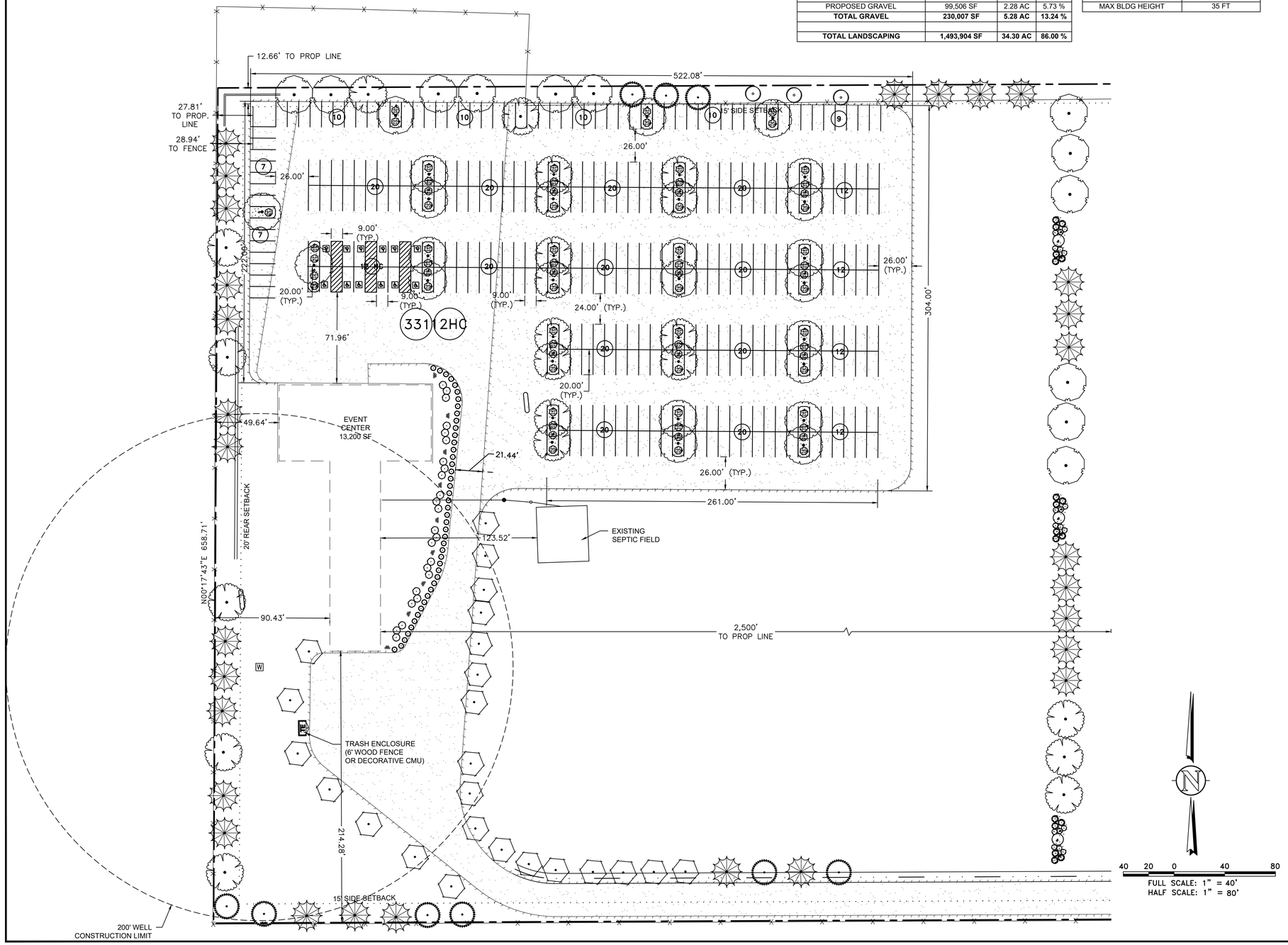
SEE LANDSCAPING PLANS PREPARED BY NDS FOR LANDSCAPING DETAILS.

LOT DATA TABLE			
DESCRPTION	AREA	ACRES	%
ZONING			
LOT	1,737,111 SF	39.88 AC	100.00 %
EXISTING BUILDING	13,200 SF	0.30 AC	0.76 %
TOTAL BUILDING	**13,200 SF**	**0.30 AC**	**0.76 %**
EXISTING GRAVEL	140,325 SF	3.22 AC	8.08 %
EXISTING GRAVEL TO BE REMOVED	9,824 SF	0.23 AC	0.57 %
PROPOSED GRAVEL	99,506 SF	2.28 AC	5.73 %
TOTAL GRAVEL	**230,007 SF**	**5.28 AC**	**13.24 %**
TOTAL LANDSCAPING	**1,493,904 SF**	**34.30 AC**	**86.00 %**

LOT SETBACK TABLE	
SETBACK	DISTANCE
ZONE	A-3
FRONT	50 FT
SIDE	15 FT
REAR	20 FT
MAX BLDG HEIGHT	35 FT



KEY MAP SCALE 1" = 500'



NOTES

THIS PLAN IS INTENDED AS THE SITE PLAN FOR THE ALDANA EVENT CENTER.

ALL IMPROVEMENTS ARE PROPOSED UNLESS NOTED AS EXISTING.

IT IS THE OWNER AND/OR THE CONTRACTOR'S RESPONSIBILITY TO ATTAIN ALL APPROPRIATE PERMITS AND REVIEW APPROVALS FROM THE STATE OF COLORADO AND ADAMS COUNTY RESPECTIVELY.

SEE HORIZONTAL AND VERTICAL CONTROL SURVEY AS PROVIDED BY AMERICAN WEST LAND SURVEYING CO. – DATED NOVEMBER 11, 2021.

SEE COVER SHEET FOR BASIS OF BEARING & BENCHMARK.

ANY REFERENCE TO EASEMENTS, SURVEY POINTS, OR EXISTING UTILITIES AND FEATURES ARE BASED SOLELY FROM SURVEY INFORMATION PROVIDED BY MERICAN WEST LAND SURVEYING CO.

NOT ALL UNCC UTILITY LOCATES HAVE BEEN PERFORMED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES ARE LOCATED AND SURVEY PROVIDED TO THE OWNER AND ENGINEER PRIOR TO CONSTRUCTION DRAWING RELEASE.

SYMBOL LEGEND

- 45 DEG BEND
- 22.5 DEG BEND
- RESTRAINED PLUG
- RESTRAINED TEE
- WATER METER
- RESTRAINED CROSS
- FIRE HYDRANT
- RESTRAINED VALVE
- THRUST BLOCK TB
- GATE VALVE GV
- CURB STOP
- PIPE CROSSING
- MANHOLE
- MANHOLE W/ FLOW DIRECTION
- RD ROOF DRAIN
- PROPOSED GRAVEL
- EXISTING CONC
- PROPOSED CONC
- EXISTING ASPHALT
- PROPOSED ASPHALT

LINETYPE LEGEND

- LOT / PROPERTY / SECTION LINE
- RIGHT OF WAY LINE
- EASEMENT
- SETBACK
- TO BE ABANDONED LOT LINE
- EXISTING BUILDING, CURB
- EDGE of ASPHALT or GRAVEL RD
- CHAINLINK FENCE
- WIRE FENCE
- POND WQ W/S
- SWALE
- OHE — EXISTING OVERHEAD ELEC
- EL — EXISTING ELECTRICAL LINE
- ST — EXISTING STORM LINE
- SA — EXISTING SANITARY LINE
- W — EXISTING WATER LINE
- GA — EXISTING GAS LINE
- FO — EXISTING FIBER OPTIC LINE
- T — EXISTING TELEPHONE LINE
- SA — PROPOSED SANITARY LINE
- SS — PROPOSED SANITARY SERVICE
- ST — PROPOSED STORM LINE
- WA — PROPOSED WATER LINE
- WAS — PROPOSED WATER SERVICE
- GA — PROPOSED GAS LINE
- EL — PROPOSED ELECTRIC LINE
- T — PROPOSED TELEPHONE LINE

127 S. DENVER AVE
FT. LUPTON, CO 80621
www.westernec.com
email@westernec.com
(720) 685-9951
FAX (720) 294-1330
Western Engineering Consultants, inc LLC

No.	REVISION	DATE	BY
0	INITIAL RELEASE	12/20/21	CFC
1	REV PER COUNTY COMMENTS	03/29/22	CFC
2	REV PER COUNTY COMMENTS	12/27/22	CFC

OWNER:
ALDANA LLC
CONTACT:
LLARICXE ALDANA
6657 IMBODEN RD
WATKINS, CO 80137
(303) 435-3021

SITE PLAN
ALDANA EVENT CENTER
6539 IMBODEN RD
ADAMS COUNTY, COLORADO

Dig Safely.
CALL UNCC
THREE WORKING DAYS BEFORE YOU DIG
1-800-922-1987
www.uncc.org
UTILITY NOTIFICATION CENTER OF COLORADO

PRELIMINARY FOR REVIEW ONLY

ONLY VALID FOR CONSTRUCTION IF SEAL & ORIGINAL SIGNATURE ARE ON EACH SHEET

INITIAL PLAN RELEASE: 12/20/21
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0406.002.00
DOC CON # 0006-SITE

6 OF 10

RECEPTION#: 2016000073084, 09/01/2016 at 01:42:06 PM, 1 OF 2, State Documentary Fee $16.50 TD Pgs: 2 Doc Type:SPWTY Stan Martin, Adams County, CO

SPECIAL WARRANTY DEED

State Doc Fee: $16.50
Recording Fee: $16.00

THIS DEED is dated the 24th day of August, 2016, and is made between (whether one, or more than one),

Muegge Farms, LLC, a Colorado limited liability company

the "Grantor" of the County of Adams and State of Colorado and

GCSA, LLC, a Colorado limited liability company

(whether one, or more than one), the "Grantee", whose legal address is 1947 Macon St Aurora CO 80010 of the County of Adams and State of Colorado.

WITNESS, that the Grantor, for and in consideration of the sum of **One Hundred Sixty Five Thousand Dollars and No Cents** (**$165,000.00**), the receipt and sufficiency of which is hereby acknowledged, hereby grants, bargains, sells, conveys and confirms unto the Grantee and the Grantee's heirs and assigns forever, all the real property, together with any improvements thereon, located in the County of Adams and State of Colorado described as follows:

See Exhibit "A" attached hereto and made a part hereof

also known by street address as: B Vacant Land, Watkins, CO 80137

TOGETHER with all and singular the hereditaments and appurtenances thereto belonging, or in anywise appertaining, the reversions, remainders, rents, issues and profits thereof, and all the estate, right, title, interest, claim and demand whatsoever of the Grantor, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances;

TO HAVE AND TO HOLD the said premises above bargained and described, with the appurtenances, unto the Grantee, and the Grantee's heirs and assigns forever, The Grantor, for the Grantor and the Grantor's heirs and assigns, does covenant, grant, bargain, and agree that the Grantor shall and will WARRANT THE TITLE AND DEFEND the above described premises, in the quiet and peaceable possession of the Grantee and the heirs and assigns of the Grantee, against all and every person or persons claiming the whole or any part thereof, by, through, or under the Grantor except and subject to:

2016 taxes and all subsequent years, restrictions, reservations, covenants, easements and rights-of-way of record, if any.

IN WITNESS WHEREOF, the Grantor has executed this deed on the date set forth above.

MUEGGE FARMS, LLC, A COLORADO LIMITED LIABILITY COMPANY

Daniel Dent Watts, Manager

State of Colorado
County of ~~Denver~~ Arapahoe

The foregoing instrument was acknowledged before me this 24th day of August, 2016 by Daniel Dent Watts, as Manager of Muegge Farms, LLC, a Colorado limited liability company.

Witness my hand and official seal.

Notary Public
My commission expires: 10/4/2018

COLORADO
Division of Water Resources
Department of Natural Resources

WELL PERMIT NUMBER 86379-F
RECEIPT NUMBER 10013402

ORIGINAL PERMIT APPLICANT(S)

GCSA LLC (LLARICXE ALDANA)

APPROVED WELL LOCATION

Water Division: 1 Water District: 1
Designated Basin: N/A
Management District: N/A
County: ADAMS
Parcel Name: N/A
Physical Address: 6539 IMBODEN RD WATKINS, CO 80137

SW 1/4 SE 1/4 Section 6 Township 3.0 S Range 64.0 W Sixth P.M.

UTM COORDINATES (Meters, Zone:13, NAD83)

Easting: 534848.0 Northing: 4407251.0

PERMIT TO CONSTRUCT A NEW WELL

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT
CONDITIONS OF APPROVAL

1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
3) Approved pursuant to CRS 37-90-137(4) and the findings of the State Engineer dated December 8, 2021.
4) The use of groundwater from this well is limited to commercial, irrigation of not more than 1 acre and use in 2 single family dwellings.
5) Production from this well is restricted to the Upper Arapahoe aquifer, which corresponds to the interval between 695 feet and 870 feet below the ground surface.
6) The pumping rate of this well shall not exceed 50 GPM.
7) The average annual amount of groundwater to be withdrawn shall not exceed 8.5 acre-feet and the total volume of groundwater to be withdrawn shall not exceed 850 acre-feet.
8) The entire length of the hole shall be geophysically logged as required by Rule 9 of the Statewide Nontributary Ground Water Rules prior to installing casing.
9) The owner shall mark the well in a conspicuous location with well permit number(s), name of the aquifer, and court case number(s) as appropriate. The owner shall take necessary means and precautions to preserve these markings.
10) A totalizing flow meter must be installed on this well and maintained in good working order. Permanent records of all diversions must be maintained by the well owner (recorded at least annually) and submitted to the Division Engineer upon request.
11) This well shall be constructed more than 600 feet from any existing well, completed in the same aquifer, that is not owned by the applicant.
12) This well shall be constructed not more than 200 feet from the location specified on this permit.
13) Pursuant to CRS 37-90-137(9)(b) and the Denver Basin Rules, no more than 98% of the nontributary groundwater withdrawn annually shall be consumed and the well owner shall demonstrate to the reasonable satisfaction of the State Engineer that no more than 98% of the water withdrawn will be consumed.
14) This well is subject to administration by the Division Engineer in accordance with applicable decrees, statutes, rules, and regulations.

NOTE: This well is withdrawing water from a non-renewable aquifer. While the withdrawals from this aquifer are administered based on a 100 year aquifer life, water level declines may prevent this well from diverting the permitted amounts for that 100 years.

NOTE: To ensure a maximum productive life of this well, perforated casing should be set through the entire producing interval of the approved zone or aquifer indicated above.

WELL PERMIT NUMBER 86379-F **RECEIPT NUMBER 10013402**

NOTE: This permit will expire on the expiration date unless the well is constructed and a pump is installed by that date. A Well Construction and Yield Estimate Report (GWS-31) and Pump Installation and Production Equipment Test Report (GWS-32) must be submitted to the Division of Water Resources to verify the well has been constructed and the pump has been installed. A one-time extension of the expiration date may be available. Contact the DWR for additional information or refer to the extension request form (GWS-64) available at: dwr.colorado.gov

NOTE: This well will be completed in a Type 1 aquifer penetrating only one confining layer and must be constructed in accordance with Well Construction Rule 10.4.5.1 (2 CCR 402-2).

Issued By JOANNA WILLIAMS

Date Issued: 12/8/2021

Expiration Date: 12/8/2023

PERMIT HISTORY

11-29-2022 PERMIT EXTENDED

CES Consultants, LLC

July 6, 2022

GCSA, LLC
Attn: Llaricxe Aldana
P.O. Box 5
Watkins, CO 80137

RE: Detailed Soil Investigation and Design for a proposed addition to the Onsite Wastewater Treatment System (OWTS) for the Event Center located at 6539 Imboden Road, Watkins, Colorado 80137
(Adams County Parcel #0181706400006)

Dear Llaricxe:

CES Consultants, LLC (CES) is pleased to provide the on-site Detailed Soil Investigation results and design for a proposed expansion of the existing Onsite Wastewater Treatment System (OWTS) for the new Event Center to be located at 6539 Imboden Road. GSCA has applied for a Conditional Use Permit for the Event Center. Per the application, the proposed use of the Event Center is for four (4) events per month with up to 298 people. The site is located in Adams County and the Tri-County Health Department service area. The new expansion to the OWTS has been designed and sized per the current Tri-County Health Department (TCHD) Standards.

In 2020, a 540-gallon single-compartment polyethylene septic tank with a gravity-fed Chamber Soil Treatment Area was installed to provide on-site wastewater treatment for the proposed Event Center. This OWTS was not permitted by Tri-County Health Department prior to the installation. In 2021, an application for a Conditional Use Permit for the Event Center was submitted to Adams County to expand the use of the Event Center for up to four (4) events per month with up to 298 people at each event (GCSA Event Center, RCU2021-00023 TCHD Case No. 7276)

Both the Colorado Department of Public Health and Environment (CDPHE) and Tri-County Health Department (TCHD) staff reviewed the initial Conditional Use application for compliance with applicable environmental and public health regulations. The plan was to use an Onsite Wastewater Treatment System (OWTS) to provide wastewater treatment for the Event Center. Per comments from both CDPHE and TCHD, they requested that additional information concerning the proposed use be provided to show that the wastewater design flows do not result in an average daily peak flow at peak occupancy of more than 2,000 GPD. Per calculations proved by CES in a letter dated February 14, 2022, the design flows per the proposed use of the Event Center will be 1490 GPD (see included PDF of CES letter and TCHD approval letter).

In December 2021, High Plains Sanitation Services performed an inspection of the existing onsite wastewater system and found it to be in good condition and functioning correctly. The existing OWTS is constructed with a 540-gallon single-compartment polyethylene septic tank with a gravity-fed Chamber Soil Treatment Area that contains

40 Infiltrator chamber units. A copy of the inspection report for the existing OWTS is included in this design report.

It is the intention of the landowner to keep this existing system and design an expansion of the OWTS to provide the adequate septic tank storage and soil treatment area for the estimated and approved 1490 GPD sewage design flows.

Preliminary Site Investigation:

Property Information:

Address: 6539 Imboden Road, Watkins, CO 80137
Legal Description:
Part of the SE1/4 of Section 6, T3S, R64W
Adams County, Colorado
Adams County Parcel #0181706400006
Site Area: 39.88 Acres (Total Site Area)
Event Center Development Area = 6.0 Acres

Published Site Information:

A. Topography: The area where the existing and proposed OWTS will be installed slopes from the west to the east at a 3.5 % to 4.0% slope.
B. Soil Data: Per the Web Soil Survey from the USDA, Natural Resources Conservation Service, the soil type at the site where the OWTS will be located is an Ascalon Sandy Loam, 3 to 5 percent slopes. A copy of the NRCS Soils Report for the site is included with this report.
C. Existing OWTS records: There are no existing septic permits located on the parcel. There is an existing 540-gallon single-compartment polyethylene septic tank with a gravity-fed chamber soil treatment area that will be kept and expanded to provide wastewater treatment for the proposed Event Center.
D. Existing Floodplain: The site is not located within any mapped 100-Year Floodplain per FIRM Map #08001CO680J, Date: September 28, 2018).
E. Existing Water Wells: There will be a domestic water well located on the site. The OWTS will be located such that it a minimum of 100 feet from the proposed well.
F. Easements: There are no known easements that encumber the parcel.

Proposed Development:
As noted above, it is the intention of the landowner to keep the existing OWTS system and design an expansion of the system to provide the adequate septic tank storage and soil treatment area for the estimated and approved 1490 GPD sewage design flows.

Reconnaissance:

Date: 6/20/2022

Landscape position:
No landscaping or trees presently exist on the site of the existing or proposed OWTS at this time.

Any new landscaping for the Event Center will be installed to meet all the Tri-County Health Department setback requirements for the existing and proposed OWTS.

Topography**:**

The area of the existing and proposed OWTS slopes from the west to the east at a 3.5 % to 4.0% slope.

Vegetation:

At the present time the site is covered by a native dryland grasses.

Natural and cultural features**:**

No natural or known cultural features exist on this site.

Current and historic land use:

The current and historic land use on the site is as undeveloped subdivided farmland.

Detailed Soil Investigation:

On June 20, 2022, CES Consultants performed an on-site soil investigation. Two (2) 8-foot soil profile holes were excavated in the proposed location of the new STA. A tactile evaluation using the "Feel Method for Soil Texturing" was performed on the soil observed in the each of the test pits. The two (2) soil profile test pits showed no evidence of groundwater or bedrock within 8 feet of the surface. The soil observed in the in the test pits is classified as a Sandy Loam correlating to Soil Type 2 (Table #10). Soil Type 2 has a Long-Term Acceptance Rate (LTAR) of 0.60 GPD/SF.

OWTS Design:

Based on the information obtained from the site detailed soil evaluation, the expansion of the existing OWTS will be designed as a Standard OWTS gravity system with the addition of a two-compartment Septic Tank located upstream of the existing 540 gallon single-compartment tank, and the addition of new absorption trenches of Quick 4 Plus Infiltrator Chamber units placed east of the existing chamber trenches. The addition of the new trenches will provide the adequate soil treatment area for the estimated sewage flows.

Design Sewage Flow values**:**

Per calculations proved by CES in a letter dated February 14, 2022, the approved sewage design flows for the proposed Event Center usage will be 1490 GPD.

Required Septic Tank Storage Amount:

Per Section 12.2: Septic Tanks – For a non-residential application, the septic tank must be sized to provide a minimum of 48 hours of detention for the incoming wastewater design flows. Therefore, for a 1490 GPD design flow, the septic tank detention storage volume shall be a minimum of 2980 gallons.

A new 2500 -gallon two (2) compartment concrete or fiberglass septic tank will be installed upstream of the existing 540 gallon single-compartment tank to provide 3040 gallons of detention storage volume. The septic tank must be approved by the Colorado Department of Public Health & Environment (CDPHE).

Soil Treatment Area Sizing:

Per Sec 13.3 of the Tri-County Regulations the required area of the Absorption Trenches for a design flow of 1490 GPD and a soil LTAR of 0.60 GPD/SF =

1490 GPD/0.60 GPD/SF = 2483.3 SF = 2484 SF

By using Quick 4 Plus Gravelless Chambers, the required area of the trenches will be reduced by 30%:

Required Trench Area = (2484 SF)(0.70) = 1738.8 SF = 1739 SF
Design square footage per Quick 4 Plus Infiltrator = 12.00 SF/Unit
Required units = 1739 SF/12.00 SF/Unit = 144.9 units = 145 units

To be able to use the existing four (4) absorption trenches that each contain 10 gravelless Infiltrator units, a new diversion box will be installed right after the existing 540-gallon septic tank that will spilt the wastewater flows so that approximately one-fourth (1/4) of the design wastewater flow (372.5 GPD) will be diverted to the existing trenches with the 40 Infiltrator units. Per the 0.60 GPD/SF application rate and the 30% reduction for the use of the infiltrator units, the existing four (4) trenches can accept 374.4 GPD of wastewater flows.

The rest of the diverted wastewater flows (1117.5 GPD) will be treated using new absorption trenches. The sizing of the new trenches is as follows:
1117.5 GPD/0.60 GPD/SF = 1862.5 = 1863 SF.
With 30% reduction, required absorption trench area = (1863 SF)(0.70) = 1304.1 = 1305 SF.
At 12.0 SF per Infiltrator unit – 1305 SF/12.0 SF/Unit = 108.75 = 109 units

The new Soil Treatment Area will consist of five (5) absorption trenches with 22 Quick 4 Plus Infiltrator units for each trench for a total of 110 Infiltrator Units. The trenches will be approximately 3 feet wide by 88 feet long, will have 4 feet of undisturbed soil located between them, and covered with a minimum 12" of topsoil and vegetated per Tri-County Health Department standards. The bottom of trenches shall be laid level.

The OWTS shall be constructed to meet all current Tri-County Health Department standards, including all required setbacks and maintenance standards.

This letter was prepared for the exclusive use of our client and is not intended for any other purpose. Our conclusions are based on the information made available to us at this time. Should additional information become available, we reserve the right to determine the impact, if any, of the new information on our opinions and conclusions; and to revise our opinions and conclusions if necessary and warranted by the discovery of additional information.

If you have any questions or comments concerning this design, please feel free to contact me at (970) 373-4480 or kurt@cesconsultantsllc.com

Sincerely,

CES CONSULTANTS, LLC

Kurt Rollin, P.E.
Principal

CES Consultants, LLC

February 14, 2022

David Debosky, Planner I
Adams County Community and Economic Development
4430 South Adams County Parkway, Suite W2000A
Brighton, CO 80601

Re: GCSA Event Center, RCU2021-00023
TCHD Case No. 7276
6539 Imboden Road
Adams County, Colorado

Dear Mr. Debosky:

CES Consultants, LLC (CES) has been contracted by GCSA, LLC to provide an engineering design and calculation of the required on-site wastewater design flows for the proposed Event Center to be located at 6539 Imboden Road. GSCA has applied for a Conditional Use Permit for the Event Center, and per the application, four (4) events per month with up to 298 people are proposed for the site.

Both the Colorado Department of Public Health and Environment (CDPHE) and Tri-County Health Department (TCHD) staff have reviewed the initial application for compliance with applicable environmental and public health regulations. The plan is to use of an Onsite Wastewater Treatment System (OWTS) to provide wastewater treatment for this proposed Event Center (see attached PDFs of review letters). Per comments from both CDPHE and TCHD, they requested that additional information concerning the proposed use be provided to show that the wastewater design flows do not result in an average daily peak flow at peak occupancy of more than 2,000 GPD. If the design flows are at or above that threshold, then the system meets CDPHE's definition of a domestic wastewater treatment works. If they are below 2,000 GPD, then the new OWTS for the Event Center can be permitted by TCHD.

Per the requirements of both CHPHE and TCHD, the average daily peak flow at peak occupancy is calculated using the estimated peak flow for a maximum occupancy at a single event. Per information provide to us by the applicant (GCSA), it is not planned to install a kitchen or dishwasher in the event center. There will be a "warming kitchen only" with no major food service. Per Table 3, Estimate of Average Daily Wastewater Flow per person, from the TCHD OWTS Design Regulations, we believe this proposed usage equates to the same usage as a "Churches, per seat; warming kitchen only, no major food service". The average daily flow per person for this use is 5.0 GPD/per person/event.

Therefore, for the stated maximum occupancy of the Event Center of 298 persons at one event, the estimated average daily peak flow at peak occupancy that shall be used to design the proposed OWTS will be:

(298 persons) (5.0 gpd/per person/event) = 1,490 GPD

This estimated design wastewater flow is below the 2,000 GPD that would designate this as a domestic wastewater treatment works per CHPHE's definition and therefore, the new OWTS for the Event Center can be permitted by TCHD.

It is GCSA's intention to provide a OWTS Design Report and Plan per Tri-County Health OWTS Regulations once these estimate design flows have been approved.

A copy of this letter is being sent to Mr. Charles Cousino, REHS with CHPE and Ms. Kathy Boyer, REHS with TCHD to confirm their approval of this calculation of the estimated average daily peak flow at peak occupancy for use if the final OWTS design.

This letter was prepared for the exclusive use of our client and is not intended for any other purpose. Our conclusions are based on the information made available to us at this time. Should additional information become available, we reserve the right to determine the impact, if any, of the new information on our opinions and conclusions; and to revise our opinions and conclusions if necessary and warranted by the discovery of additional information.

If you have any questions or comments concerning this matter, please feel free to contact me at (970) 373-4480 or kurt@cesconsultantsllc.com

Sincerely,

CES CONSULTANTS, LLC

Kurt Rollin, P.E.
Principal

cc: Mr. Charles Cousino, Colorado Department of Public Health and Environment
Ms. Kathy Boyer, Tr-County Health Department

TABLE 3: ESTIMATE OF AVERAGE DAILY WASTEWATER FLOW AND BOD_5 LOAD PER PERSON UNLESS OTHERWISE NOTED		
RESIDENTIAL WASTEWATER	**GPD**	**BOD_5 IN POUNDS PER DAY**
Single-family dwellings	75	.20
Auxiliary buildings by fixture type		
Bath/Shower	14.7	.014
Dishwasher	1.8	.002
Kitchen sink with garbage grinder	5.8	.052
Laundry washer	19.5	.037
Lavatory	8.4	.021
Water closet (toilet)	24.8	.029
Hotels and motels per room	75	.15
Multiple-family dwellings or apartments	75	.20
Boarding and rooming houses (users absent during working hours)	50	.15
Tiny Homes[3], per unit	150	.40
Mobile home	75	.20
Mobile home park per space	300	.80
COMMERCIAL WASTEWATER		
Facilities with short-term or transient visitors Examples: Airports or bus stations per passenger; fairgrounds per person attending; ball parks, race tracks, stadiums, theaters or auditoriums per seat	5	.02
Airport per employee	10	.06
Barber and beauty shops per chair	100	.70[1]
Bowling alleys per lane - toilet wastes only	5	.03[1]
Country club per member	30	.02
County club per employee	20	.06
Dentist offices per non-wet chair	50	.14[1]
Doctor offices per doctor	250	.80[1]
Factories and plants exclusive of industrial wastewater per employee per eight-hour shift – no showers	20	.05
Factories and plants exclusive of industrial wastewater per employee per eight-hour shift - showers provided	35	.08
Kennels per dog	30	.20
Laundries, self-service per commercial washer	400	.75
Office buildings per employee per eight-hour shift	15	.06
Service stations per toilet fixture	250	.50[1]
Stores and shopping centers per square foot of retail space	.1	.01[1]
Work or construction camps semi-permanent with flush toilets	50	.17
Work or construction camps semi-permanent without flush toilets	35	.02
FOOD SERVICE ESTABLISHMENT		
Restaurant open 1 or 2 meals per seat	50	.06/meal
24-hour restaurant per seat	75	.07/meal served
Restaurant with paper service only per seat	25	.01/meal served
Additional for bars and cocktail lounges per seat	30	.02
Drive-in restaurant per car space	50	.02

INSTITUTIONAL WASTEWATER WITHOUT KITCHENS UNLESS OTHERWISE NOTED		
Churches per seat; without any food service, or other uses	3.5	.01
Churches, per seat; warming kitchen only, no major food service	5	.01
Churches, per seat; with food service, per meal served[4]	4	.02
Hospitals per bed space	250	.20
Nursing homes; group homes for developmentally disabled, per bed space	125	.20
Schools, Boarding per person	100	.17
Schools, Day without cafeteria, gym or showers	15	.04
Schools, Day with cafeterias, no gym or showers	20	.08
Schools, Day with cafeterias, gym and showers	25	.10
Schools, Day additional for school workers	15	.06
RECREATIONAL AND SEASONAL WASTEWATER USE		
Camps, day, no meals served	15	.12
Luxury resort	125	.17
Resort night and day	50	.12
Campground per campsite[2]	50	.12
Public park flush toilet per fixture per hour when park is open	36	.04 lbs./ fixture
Public park urinal per fixture per hour when park is open	10	.01 lbs./fixture
Public park shower per fixture per hour when park is open	100	.10 lbs./ fixture
Public park faucet per fixture per hour when park is open	15	.04 lbs./ fixture
Swimming pools and bathhouses	10	.06
Travel trailer parks with individual water and sewage hookup per unit [2]	100	.24
Travel trailer park without individual water and sewage hookup per unit [2]	50	.12

1. BOD levels need further verification depending on the specific use of the facility.

2. Laundry facilities are to be calculated on a per commercial washer basis in accordance with other elements of this table.

3. For the purposes of this Table, a “Tiny home” is a structure that has only one bedroom and has <400 sq.ft. of livable space, including lofts. In this instance, the OWTS may be sized for only one bedroom.

4. For churches with food service, the 4 gal/meal must be added to the 3.5 gal/seat to determine design flows.

February 22, 2022

Kurt Rollin, P.E.
CES Consultants, LLC
721 4th Street, Suite I
Ft. Lupton, Colorado, 80621

RE: GCSA Event Center Wastewater, RCU2021-00023
TCHD Case No. 7276

Dear Mr. Rollin,

Thank you for the opportunity to review and comment on the wastewater design flows for an event center located at 6539 Imboden Road. Tri-County Health Department (TCHD) staff previously reviewed the application for the Conditional Use Permit and responded in a letter dated October 12, 2021.

The applicant has provided calculations by CES Consultants, LLC for on-site wastewater design flows, in accordance with our October 12, 2021 letter to Adams County. Daily flows are estimated to be 1490 Gallons per Day (GPD), which is below the 2000 GPD threshold for State approval and regulation. The wastewater system may therefore be permitted as an Onsite Wastewater Treatment System (OWTS) through TCHD. TCHD is satisfied with the calculations, and the plan to build or expand on the existing On-Site Wastewater Treatment System (OWTS) to meet the proposed daily flows.

Tri-County Health Department Regulation Number O-17, Section 4.2 requires a Use Permit be obtained when the property changes use or when TCHD does not have record of the system. TCHD did not have record of an OWTS on the subject property. In accordance with our October 12, 2021 letter, the applicant has applied for a Use Permit. However, the existing OWTS is not appropriately sized for the projected flows. Therefore, it will be necessary for the system to be expanded and permitted by TCHD prior to approval of the Conditional Use Permit for the event center.

The site plan included with the case referral materials indicates parking for the event will be located on the north and south sides of the building. It is not clear how attendees will access the north parking lot. Based on the site plan, the OWTS is located east of the building, and attendees may drive over the sewer line to access the north lot. The grade of pipe used for the sewer line shall be evaluated to determine if it can accommodate car traffic; or traffic shall be directed so as not to cross the sewer line.

The applicant may contact Michael Weakley at (720) 200-1593 or mweakley@tchd.org with questions or for more information; and may continue the Use Permit process with

Brian Mead at the TCHD Aurora East Office, 15400 E. 14th Place - Suite 115, Aurora, CO 80011, 303-341-9370, bmead@tchd.org. More information on obtaining a permit to expand is available at http://www.tchd.org/269/Septic-Systems under the Use Permit tab.

This letter is meant to address provision of wastewater services only, and does not address TCHD's previous comments regarding noise, dust, or provision of drinking water.

Please feel free to contact me at 720-200-1575 or kboyer@tchd.org if you have any questions about TCHD's comments.

Sincerely,

Kathy Boyer, REHS
Land Use and Built Environment Specialist III

cc: Sheila Lynch, Keith Homersham, Michael Weakley, Brian Mead, TCHD
Charles Cousino, CDPHE
David Deboskey, Adams County

55562 E County Road 46
Strasburg, CO 80136
303-622-4126
highplainssan@gmail.com
www.highplainssanitation.com

Onsite Wastewater System Inspection Report

Property Address: 6539 Imboden Road, Watkins, CO 80137

COUNTY RECORD SEARCH

County for Records – Tri-County Health Department

County Record Status – No septic records available

SITE INSPECTION

Age of system – 2020 (1 year)

Date of Inspection – 11/11/21 Date of Last Pumping – 11/22/21

Service Provider of last pumping – High Plains Sanitation Service
55562 E County Road 46
Strasburg, CO 80136
303-622-4126
highplainssan@gmail.com

Tank Information – 540 - single compartment – polyethylene tank.

Located – Approximately 85' east of the center east corner on the east side of the event center building. There is a 24" poly riser on the access port. The access port lid and riser are in good condition.

Tank Integrity – Tank appears to be in good condition with no apparent cracks or leakage from the chambers.

Baffles & Tees – PVC Sanitary Tee on the inlet and outlet lines.

Sludge level in tank was 5" and Scum layer in the tank was 6".

Inlet line – Appears to be installed properly and was running clear at the time of inspection.

Outlet line – Appears to be installed properly and was running clear at the time of inspection.

Inlet line was scoped with a line camera. Appears to be no breakage, settling or blockage in the line.

Soil Treatment Area information

Type of system – Gravity fed, chamber system STA with 4 rows, approx. 24" to depth.

Components of absorption system – The distribution box for the field is located 20' east of the septic tank. Refer to the "As Built" Drawing provided by High Plains Sanitation Services for approximate locations of the tank and field.

Soil Conditions at the time of inspection – Dry – No indication of surfacing or back up of the system.

High Plains
SANITATION SERVICES

55562 E County Road 46
Strasburg, CO 80136
303-622-4126
highplainssan@gmail.com
www.highplainssanitation.com

OBSERVATIONS:

At the time of this inspection, we found the system to be in good condition and functioning correctly.

The septic tank was pumped as part of this inspection.

RECOMMENDATIONS:

General Recommendations:

We recommend that the tank be pumped as needed, in accordance with the amount of usage and condition of the system. The building is commercial in use, with no residential occupants or bedrooms, and two bathrooms with ten toilets total present in the building.

We recommend that the grass and weeds over the leaching field be kept mowed to help in evapotranspiration of the soil treatment area. Be cautious of the inspection ports at the south end of the STA.

We recommend keeping livestock off the field. Livestock compact the soil and will inhibit the field from functioning correctly.

We recommend that water conservation practices be utilized to avoid hydraulic overload, i.e. spread out large water loads into the system, no more than 2 loads a day, check for and repair leaking faucets and running toilets regularly, etc.

Neither High Plains Sanitation Services nor any of its agents or employees undertake or assume liability to the owner of the above property, or any purchaser of the above property or any lending agency making a loan on the above property in connection with either its examination of the property or in the report.

This is a visual inspection conducted solely for the purpose of detecting health hazards observable at the time of inspection, and does not constitute a warranty that the system is without flaw or that it will continue to function in the future. Inspections requested during periods of rain, snow or when a residence has been unoccupied may be of questionable value.

Signature Jeffrey Nicoll

County Pumping License Numbers: TCHD – CI0002139 / NAWT Inspector Certification: 12599ITC

55562 E County Road 46
Strasburg, CO 80136
303-622-4126
highplainssan@gmail.com
www.highplainssanitation.com

6359 Imboden Road, Watkins, CO 80137

Well located at 6657 Imboden Rd

55562 E County Road 46
Strasburg, CO 80136
303-622-4126
highplainssan@gmail.com
www.highplainssanitation.com

Looking east from building to tank

Looking west from tank to building

Access port for tank – Before Pumping

Effluent Filter – Before & After Cleaning

55562 E County Road 46
Strasburg, CO 80136
303-622-4126
highplainssan@gmail.com
www.highplainssanitation.com

Looking east from tank to distribution box

Looking west from distribution box to tank

Distribution box for STA

Looking south across STA from north end

Looking north across STA from south end

55562 E County Road 46
Strasburg, CO 80136
303-622-4126
highplainssan@gmail.com
www.highplainssanitation.com

Inspection Ports at south end of STA

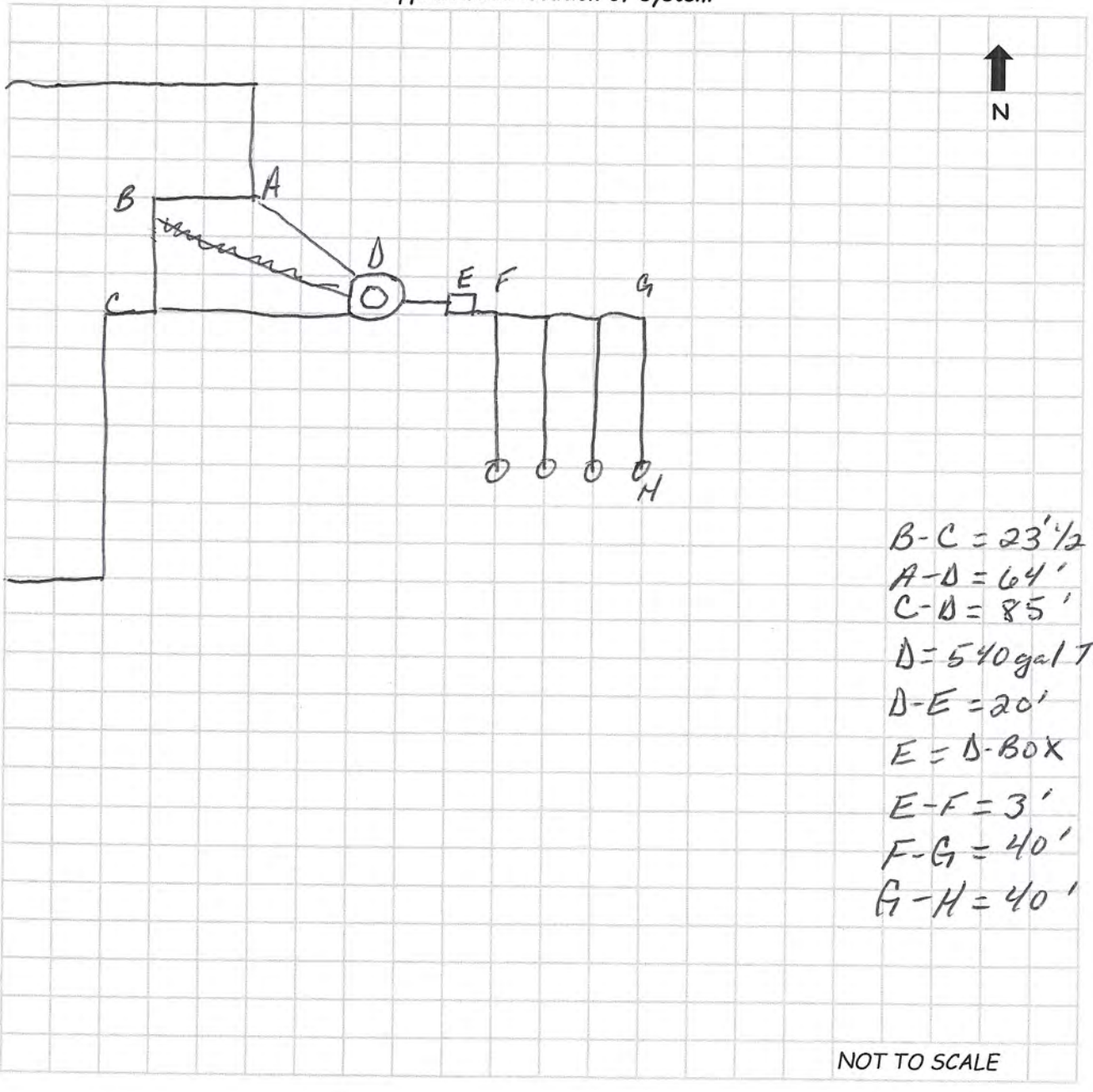
Access Port after pumping

High Plains Sanitation Service
Jeff & Kim Seipp
55562 E CR 46
Strasburg, CO 80136
303-622-4126
highplainssan@gmail.com

6539 Imboden Rd

Onsite Wastewater System Inspection Report

Approximate location of system



B-C = 23'½"
A-D = 64'
C-D = 85'
D = 540 gal Tank
D-E = 20'
E = D-Box
E-F = 3'
F-G = 40'
G-H = 40'

NOT TO SCALE

Tri-County Health Department

SOIL PROFILE TEST PIT LOG

(A SEPARATE LOG SHALL BE COMPLETED FOR EACH SOIL PROFILE TEST PIT)

Property Address: **6539 Imboden Road,Watkins, CO. 80137 (Adams County Parcel #0181706400006)**

Test Pit Number: **#1**

Date of Logging: **June 20, 2022**

Range of Depth of Soil Horizon, Relative to Ground Surface	USDA Soil Texture	USDA Soil Structure - Type	Soil Structure-Grade	Soil Type (Table 10 or "R" Soils in Table 11)	Redoximorphic Features Present? (Y/N)
0 feet - 1 foot	Sandy Loam	GR	2	2	N
1 foot - 2 feet	Sandy Clay Loam	PR	2	2A	N
2 feet - 8 feet	Sandy Loam	GR	1	2	N

Notes:

Is there a limiting layer as defined in Regulation 0-17? ☐ Yes ☒ No

If yes, design document must explain how the limiting condition is addressed.

Is Dawson Arkose (DA) or Cemented Sand (CS) present? ☐ Yes ☒ No

If yes, please answer the following:

Is material fractured and/or jointed? ☐ Yes ☐ No

What is the cementation class? _____

Is the Dawson Arkose or Cemented Sand a limiting layer per section 8.7B.2 of 0-17? ☐ Yes ☐ No

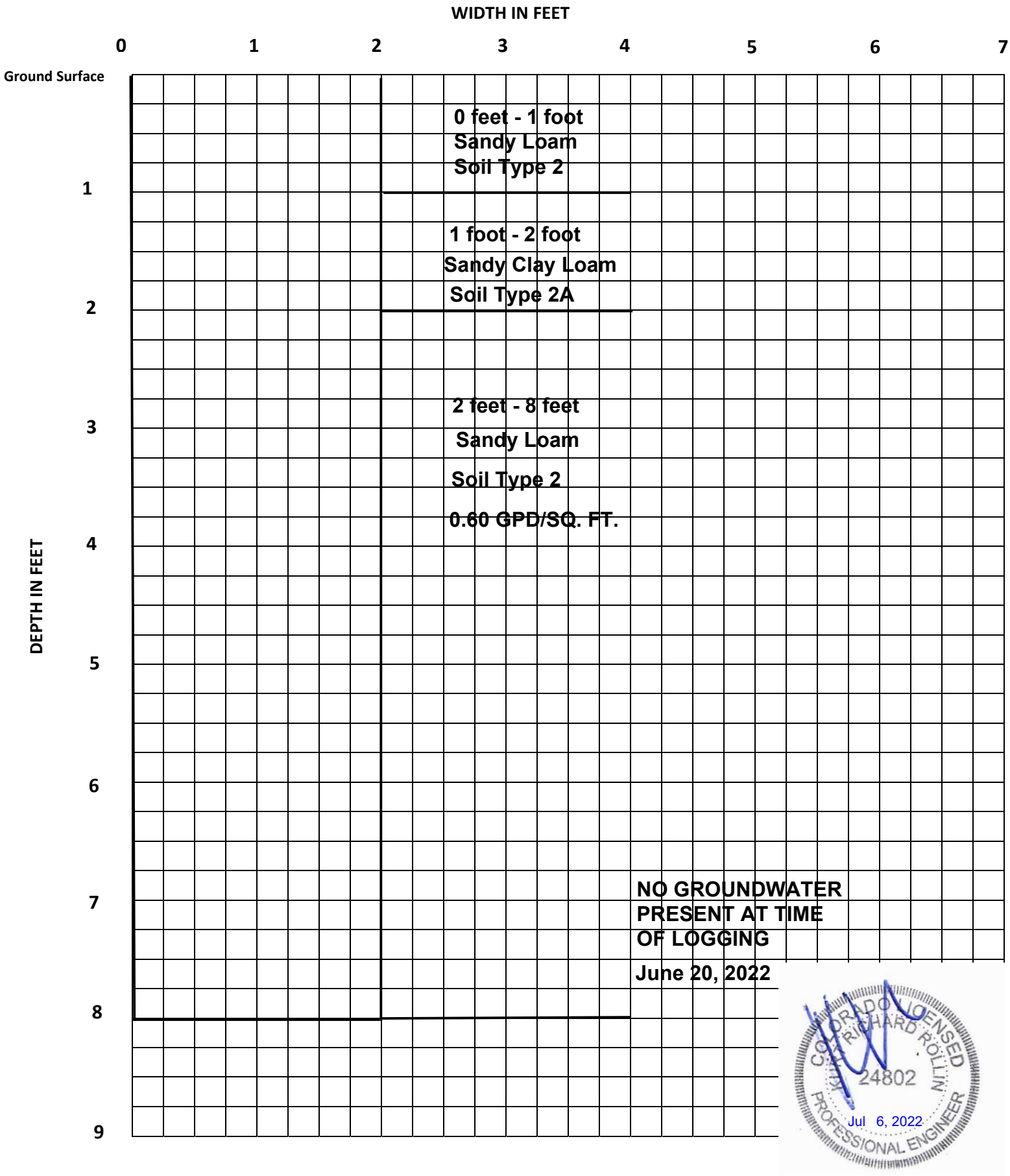
Aurora
15400 E. 14th Place
Suite 309
Aurora, CO 80011
303-341-9370

Castle Rock
410 South Wilcox
Castle Rock, CO 80104
303-663-7650

Commerce City
4201 E. 72nd Avenue
Commerce City, CO 80022
303-288-6816

Greenwood Village
6162 S. Willow Drive, Suite 100
Greenwood Village, CO 80111
720-200-1670

Soil Profile Test Pit Graphic Log Number: #1



Tri-County Health Department

SOIL PROFILE TEST PIT LOG

(A SEPARATE LOG SHALL BE COMPLETED FOR EACH SOIL PROFILE TEST PIT)

Property Address: **6539 Imboden Road,Watkins, CO. 80137 (Adams County Parcel #0181706400006)**

Test Pit Number: **#2**

Date of Logging: **June 20, 2022**

Range of Depth of Soil Horizon, Relative to Ground Surface	USDA Soil Texture	USDA Soil Structure - Type	Soil Structure-Grade	Soil Type (Table 10 or "R" Soils in Table 11)	Redoximorphic Features Present? (Y/N)
0 feet - 1 foot	Sandy Loam	GR	2	2	N
1 foot - 2 feet	Sandy Clay Loam	PR	2	2A	N
2 feet - 8 feet	Sandy Loam	GR	1	2	N

Notes:

Is there a limiting layer as defined in Regulation 0-17? ☐ Yes ☒ No

If yes, design document must explain how the limiting condition is addressed.

Is Dawson Arkose (DA) or Cemented Sand (CS) present? ☐ Yes ☒ No

If yes, please answer the following:

Is material fractured and/or jointed? ☐ Yes ☐ No

What is the cementation class? _____

Is the Dawson Arkose or Cemented Sand a limiting layer per section 8.7B.2 of 0-17? ☐ Yes ☐ No

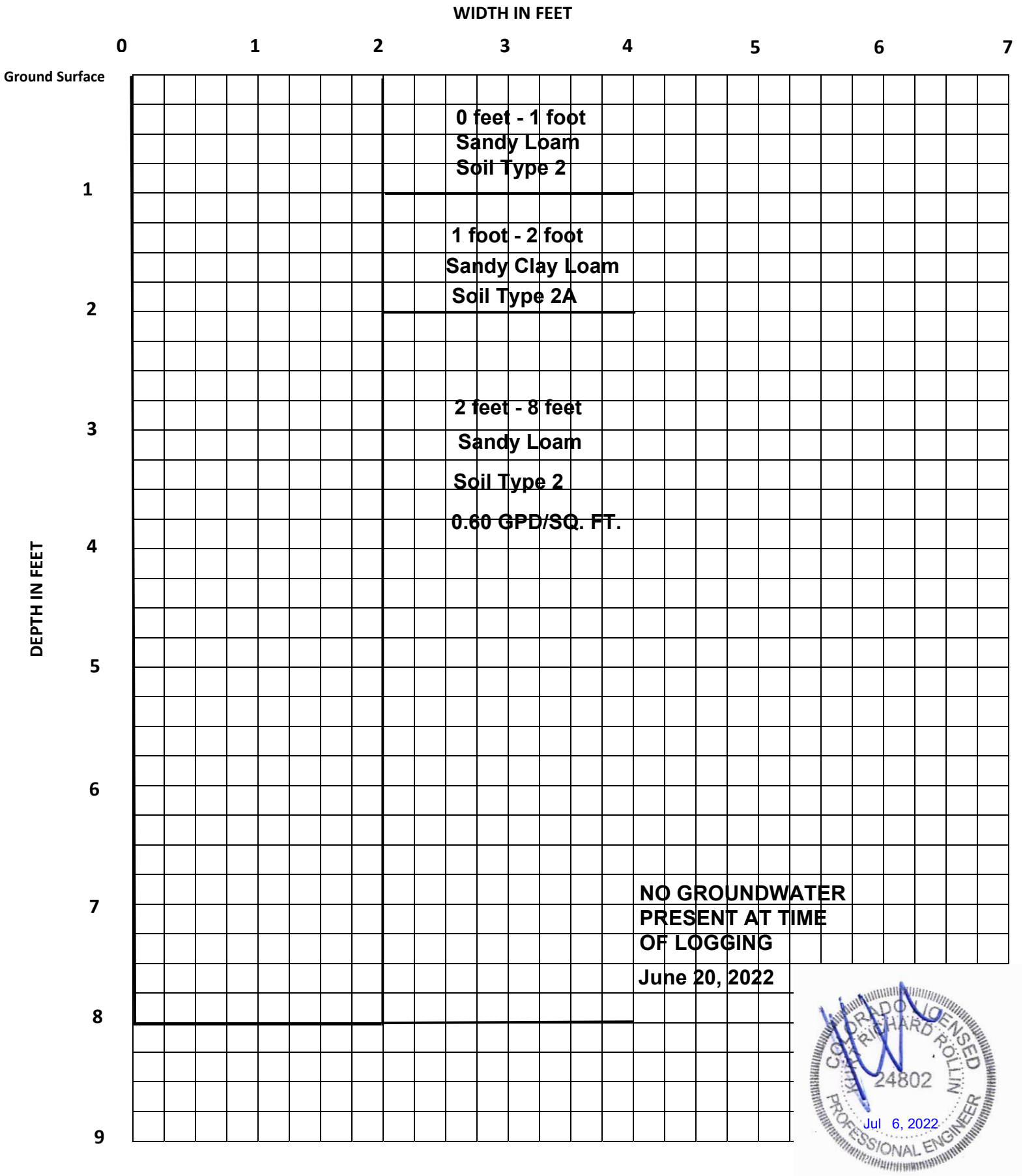
Aurora
15400 E. 14th Place
Suite 309
Aurora, CO 80011
303-341-9370

Castle Rock
410 South Wilcox
Castle Rock, CO 80104
303-663-7650

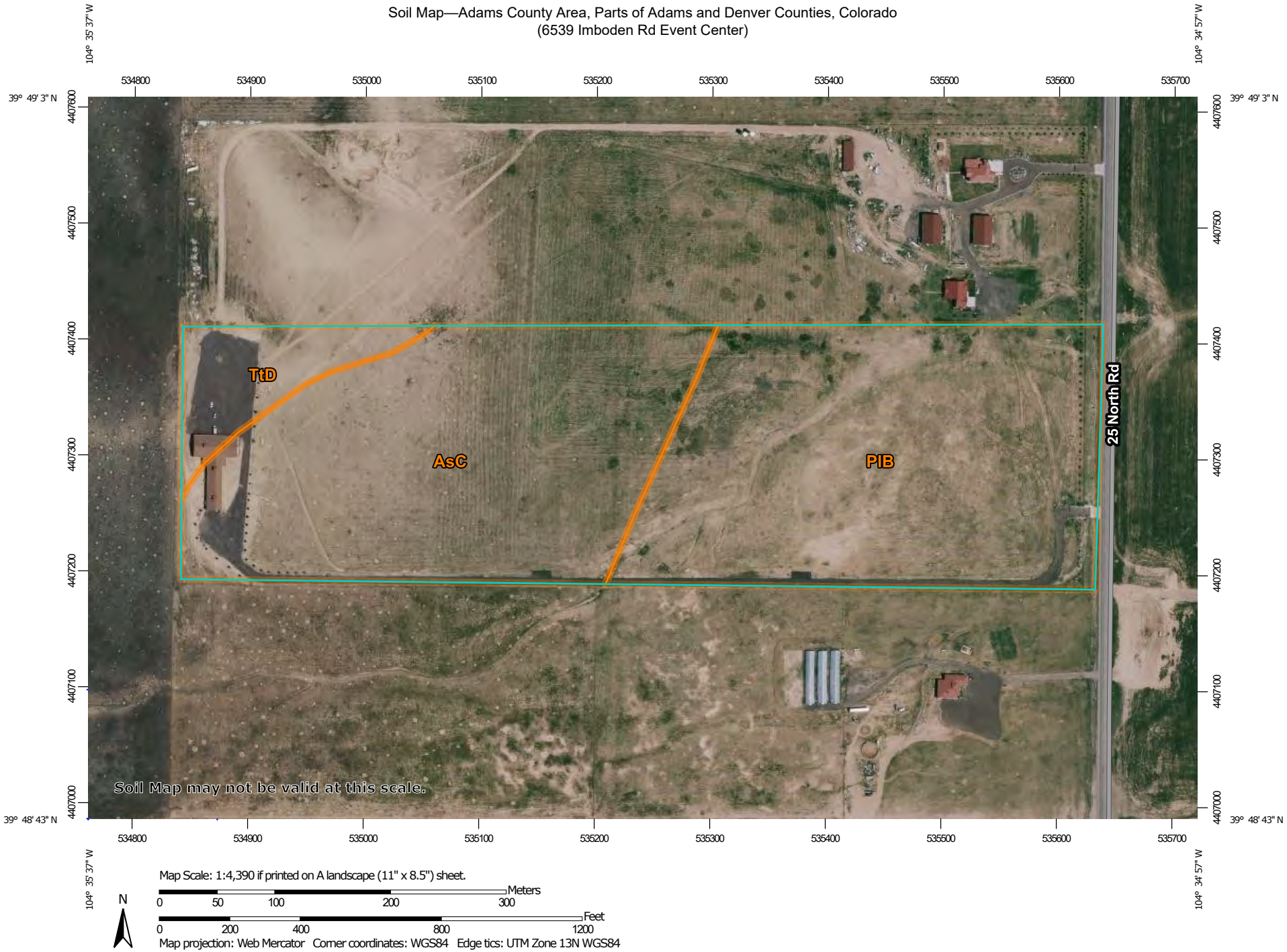
Commerce City
4201 E. 72nd Avenue
Commerce City, CO 80022
303-288-6816

Greenwood Village
6162 S. Willow Drive, Suite 100
Greenwood Village, CO 80111
720-200-1670

Soil Profile Test Pit Graphic Log Number: #2



Soil Map—Adams County Area, Parts of Adams and Denver Counties, Colorado
(6539 Imboden Rd Event Center)



Map Scale: 1:4,390 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 18, Aug 31, 2021

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AsC	Ascalon sandy loam, 3 to 5 percent slopes	19.6	44.5%
PlB	Platner loam, 0 to 3 percent slopes	21.3	48.3%
TtD	Truckton loamy sand, 3 to 9 percent slopes	3.2	7.2%
Totals for Area of Interest		**44.0**	**100.0%**

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

AsC—Ascalon sandy loam, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2tlnt
Elevation: 3,550 to 5,970 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 135 to 160 days
Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

Ascalon and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ascalon

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wind-reworked alluvium and/or calcareous sandy eolian deposits

Typical profile

Ap - 0 to 6 inches: sandy loam
Bt1 - 6 to 12 inches: sandy clay loam
Bt2 - 12 to 19 inches: sandy clay loam
Bk - 19 to 35 inches: sandy clay loam
C - 35 to 80 inches: sandy loam

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline (0.1 to 1.9 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0

Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: R067BY024CO - Sandy Plains, R072XY111KS - Sandy Plains
Hydric soil rating: No

Minor Components

Stoneham

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY002CO - Loamy Plains, R072XY100KS - Loamy Tableland
Hydric soil rating: No

Vona

Percent of map unit: 8 percent
Landform: Interfluves
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY024CO - Sandy Plains, R072XY111KS - Sandy Plains
Hydric soil rating: No

Platner

Percent of map unit: 2 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY002CO - Loamy Plains, R072XY100KS - Loamy Tableland
Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 18, Aug 31, 2021

Septic Tank Absorption Fields

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
AsC	Ascalon sandy loam, 3 to 5 percent slopes	Somewhat limited	Ascalon (80%)	Slow water movement (0.50)	19.6	44.5%
			Stoneham (10%)	Slow water movement (0.47)		
PlB	Platner loam, 0 to 3 percent slopes	Somewhat limited	Platner (85%)	Slow water movement (0.47)	21.3	48.3%
			Ascalon (10%)	Slow water movement (0.50)		
TtD	Truckton loamy sand, 3 to 9 percent slopes	Very limited	Truckton (85%)	Filtering capacity (1.00)	3.2	7.2%
Totals for Area of Interest					**44.0**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Somewhat limited	40.9	92.8%
Very limited	3.2	7.2%
Totals for Area of Interest	**44.0**	**100.0%**

Description

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Adams County Map

Legend

- Lake
- Lake
- River
- Parks and Open Space
- Highways (5,000 - 10,000)
  - Interstate
  - Highway
  - Tollway
- Parcels
- Building
- County Boundary
- City
  - Arvada
  - Aurora
  - Bennett
  - Brighton
  - Commerce City
  - Federal Heights
  - Lochbuie
  - Northglenn
  - Thornton
  - Westminster

0.2 0 0.12 0.2 Miles

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION

Notes

National Flood Hazard Layer FIRMette

FEMA

104°35'20"W 39°49'1"N

104°34'42"W 39°48'33"N

Feet 1:6,000

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

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

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

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

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

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

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

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

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

N

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

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

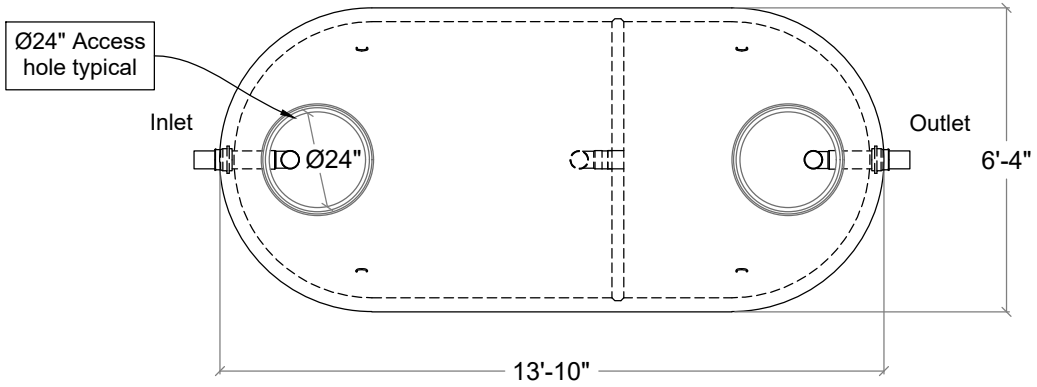
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/5/2022 at 1:02 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

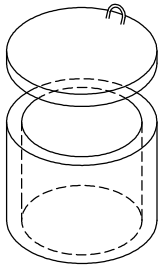
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory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

2500 Gal. Two Compartment Septic Tank

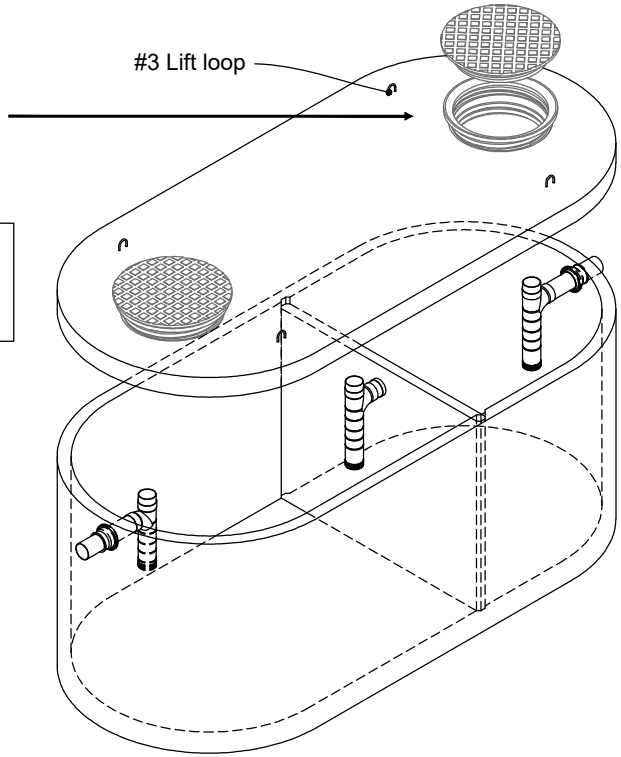
FLXX® FLXX®

PLAN

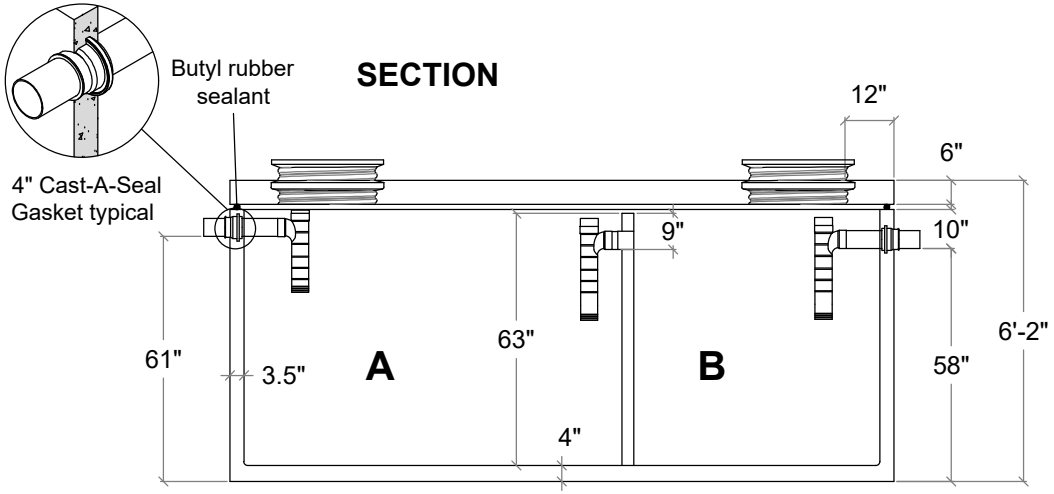




Optional concrete or other riser system available, see pages 100 - 101



SECTION



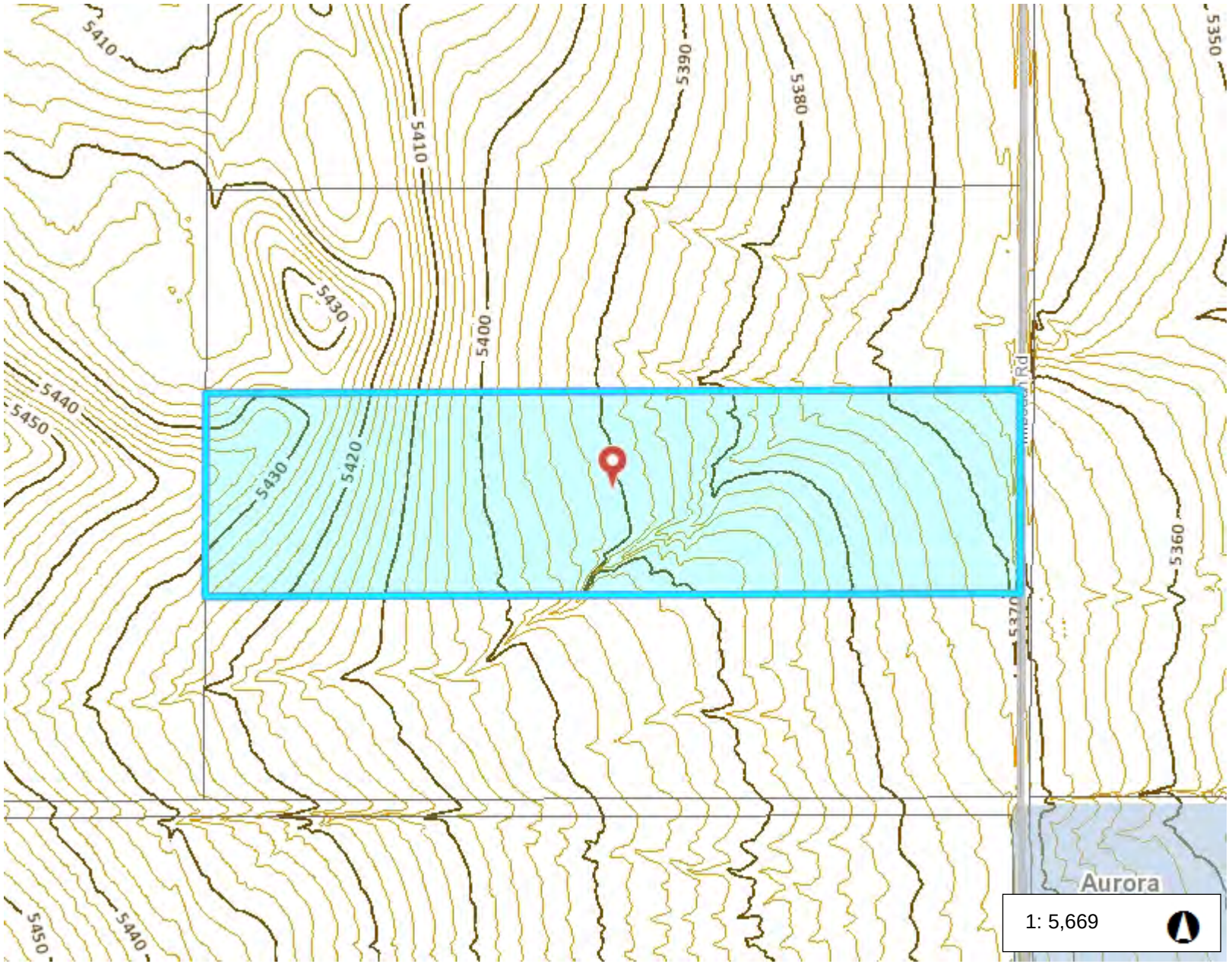
- Monolithic tank meets ASTM C-1227 Spec. for water and wastewater structures.
- Butyl rubber sealant meets Fed. Spec. SS-S-210A. (Provided with tank)
- All plumbing shown in diagram is 4" SDR 35. (Provided with tank)
- Follow standard practice for installation of underground precast concrete structures. (See page 2 for ASTM C-891 Summary)

Part #	Capacities (gallons)		Approximate Weights			
	A	B	Tank	Lid	Baffle Wall	Total
PCA-000-325	1470	980	11,890 lbs	5,400 lbs	1,150 lbs	18,440 lbs
Total Capacity: 2450 gallons						

FLXX® WATERTIGHT

Front Range Precast Concrete, Inc.
5901 Dexter Street, Unit 102, Commerce City, CO 80022
Phone (303) 442-3207 - (800) 783-3207 - Fax (303) 442-3209
www.flxx.com

Adams County Map



Legend

- Highways (5,000 - 10,000)
  - Interstate
  - Highway
  - Tollway
- Building
- County Parks and Open Space
- Cities
  - Arvada
  - Aurora
  - Bennett
  - Brighton
  - Commerce City
  - Federal Heights
  - Lochbuie
  - Northglenn
  - Thornton
  - Westminster
- Small Lakes
- Major Lakes
- Rivers
  - Canal
  - Ditch
  - Primary Creek
  - River
  - Secondary Creek
  - Stream
- Parcels
- County Boundary
- Contours-Comanche
  - Major

0.2 0 0.09 0.2 Miles

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION

Notes

OWTS DESIGN FOR GSCA, LLC
6539 Imboden Road
Watkins, CO 80137
Adams County Parcel #0181706400006

DATE: July 6, 2022

Table of Elevations/Depths of Proposed OWTS System Components:

SYSTEM COMPONENT	ELEVATION	DEPTH BELOW GRADE
BENCHMARK	5424.0 NW Lot Corner	
NEW 2500 GALLON SEPTIC TANK INLET	5426.8	3.0 ft +/-
NEW 2500 GALLON SEPTIC TANK OUTLET	5426.5	3.0 ft. +/-
NEW DISTRIBUTION BOX FOR NEW TRENCHES FLOWLINE	5422.5	4.0 ft. +/-
EXISTING GROUND ELEVATION AT END OF ABSORPTION TRENCHES	5426.0	N/A
START OF ABSORTION TRENCH BOTTOM ELEV.	5422.0	4.0 ft. +/-
END OF ABSORTION TRENCH BOTTOM ELEV.	5422.0	4.0 ft. +/-

6162 S. Willow Drive, Suite 100
Greenwood Village, CO 80111
Ph (720) 200-1670 Fax (303) 741-4021
www.tchd.org

Permit to Expand An On-site Waste Water Treatment System

PROPERTY INFORMATION:

Address: 6539 Imboden Rd
Watkins, CO 80137--
County: Adams
APN: 0181706400006

Dwelling Type: Commercial
No. of Bedrooms: 0
Water Supply: Private Well
Onsite ID: COMMERCIAL-Barn/Eve

OWNER INFORMATION: **GCSA LLC**

Address: PO Box 5
Watkins, CO 80137-0005
Phone: 303-435-3021

PERMIT INFORMATION: ON0042515 **Permit Type:** OWTS **Construction Phase:** Expansion

System Design:

System Designed By: CES Consultants, Kurt Rollin

Design Date: 7/6/2022

Design Number: 18-0095.001

Electrical Inspection Required? No

Associated Professionals

Business Name: GCSA LLC
Name: Maria Aldana
PO Box 5
Watkins, CO 80137--

OWTS - Installer
NAWT Certification: 15946INSTCHD Certification: CI000
Phone: 303-435-3021
Email: sanchez194718@gmail.com

OWTS - Permit Comments

Install per CES Consultants design, design number 18-0095.001, dated July 6, 2022, requiring a new 2500 -gallon two (2) compartment CDPHE approved septic tank installed upstream of the existing 540 gallon single-compartment tank. The effluent from the tanks will feed to a new distribution box that will spilt the wastewater flows so that approximately one-fourth (1/4) of the design wastewater flow (372.5 GPD) is delivered to the existing four (4) absorption trenches that each contain 10 gravelless Infiltrator units. The rest of the diverted wastewater flows (1117.5 GPD) will be treated using new absorption trenches, consisting of five (5) absorption trenches with 22 Quick 4 Plus Infiltrator units for each trench for a total of 110 Infiltrator Units. The trenches will be approximately 3 feet wide by 88 feet long, will have 4 feet of undisturbed soil located between them. The bottom of trenches shall be laid level.

Maintain all applicable setbacks required by TCHD Regulation 0-17, including 100 feet from any well.

TCHD requires that the applicant complete and submit a "United States Environmental Protection Agency (US EPA) Shallow Injection Well Inventory Request Form" for all commercial systems. A copy of the form is provided on the TCHD website.

FOR AN ON-SITE WASTE WATER TREATMENT SYSTEM

LIMITATIONS AND DISCLAIMER

A Permit to **Expand** shall expire **4 Weeks** from the date of issuance unless extended to a fixed date upon request by the Applicant and approved by Tri-County Health Department.

6162 S. Willow Drive, Suite 100
Greenwood Village, CO 80111
Ph (720) 200-1670 Fax (303) 741-4021
www.tchd.org

Permit to Expand An On-site Waste Water Treatment System

PROPERTY INFORMATION:				**OWNER INFORMATION:**	**GCSA LLC**
Address:	6539 Imboden Rd Watkins, CO 80137--	**Dwelling Type:**	Commercial	**Address:**	PO Box 5 Watkins, CO 80137-0005
County:	Adams	**No. of Bedrooms:**	0		
		Water Supply:	Private Well		
APN:	0181706400006	**Onsite ID:**	COMMERCIAL-Barn/Eve	**Phone:**	303-435-3021

PERMIT INFORMATION: ON0042515 **Permit Type:** OWTS **Construction Phase:** Expansion

PERMIT VALID FROM: 7/12/2022 to 7/12/2023

Steven Chevalier 07/12/2022

WILL SERVE LETTER

June 14, 2021

GCSA LLC
6657 IMBODEN RD
WATKINS, CO 80137

Re: 6539 1/2 IMBODEN RD, WATKINS, CO 80137

Dear GCSA LLC,

This letter is to confirm that Xcel Energy is your utility provider for electric service. In accordance with our tariffs, on file with and approved by the Colorado Public Utilities Commission, electric facilities can be made available to serve the project at 6539 1/2 IMBODEN RD WATKINS. The cost, and whether any reinforcements or extensions are required, for the Company to provide those facilities will be determined by your designer upon receipt of application and project plans.

Your utility service(s) will be provided after the following steps are completed:

- ***Application submitted to Xcel Energy's "Builders Call Line (BCL)"*** – once your application is accepted you will be assigned a design department representative who will be your primary point of contact
- ***Utility design is completed*** – you must provide your design representative with the site plan, the one - line diagrams, and panel schedules for electric and gas loads if applicable
- ***All documents provided by design representative are signed and returned***
- ***Payment is received*** (Residential Service Laterals if applicable)
- ***Required easements are granted*** - you must sign and return applicable easement documents to your Right-of-Way agent
- ***Site is ready for utility construction -*** the site ready information can be found on our website at may be viewed at Construction and Inspection | Xcel Energy.

An estimated scheduled in-service date will be provided once these requirements have been met. It is important to keep in mind that the terms and conditions of utility service, per our tariffs, require that you provide adequate space and an easement on your property for all gas and electric facilities required to serve your project, including but not limited to gas and electrical lines and meters, transformers, and pedestals. General guidelines for requirements can be found on our website at xcelenergy.com/InstallAndConnect.

Xcel Energy looks forward to working with you on your project and if I can be of further assistance, please contact me at the phone number or email listed below.

Sincerely,

Dana Rael-Padilla
Xcel Energy Designer

Mailing address: Public Service Company of Colorado
3751 Fraser St
Aurora, CO 80011

ROGGEN FARMER'S ELEVATOR ASSOCIATION

(303) 849-5506 FAX (303) 849-5508 P.O. BOX 8 ROGGEN,COLORADO 80652

Invoice	452980
Invoice Date	12/20/22
Due Date	01/20/23
Amount	54.00

SOLD TO: MARIA C. ALDANA
P.O. BOX 5
WATKINS, CO 80137

** INVOICE REPRINT **

Acct. No.	Sold By	Type	Terms	
13296	RFE	CHARGE	NET DUE 20TH	LOC: 29

Prod. No.	Description	U/M	Quantity	Unit Price	Amount
903836	PROPANE TANK RENTAL $54/QUARTER Serial# M2039552 Tank Desc RED BARN WEST SIDE	EAC	1.0000	54.0000	54.00
	TOTAL		1.0000		54.00

Invoice	Customer	Invoice Date
452980	13296	12/20/22

Total Amount	54.00

ROGGEN FARMER'S ELEVATOR ASSOCIATION
(303) 849-5506 FAX (303) 849-5508 P.O. BOX 8 ROGGEN,COLORADO 80652

Invoice	452981
Invoice Date	12/20/22
Due Date	01/20/23
Amount	54.00

SOLD TO: MARIA C. ALDANA
P.O. BOX 5
WATKINS, CO 80137

** INVOICE REPRINT **

Acct. No.	Sold By	Type	Terms	
13296	RFE	CHARGE	NET DUE 20TH	LOC: 29

Prod. No.	Description	U/M	Quantity	Unit Price	Amount
903836	PROPANE TANK RENTAL $54/QUARTER Serial# M2039543 Tank Desc RED BARN EAST TANK	EAC	1.0000	54.0000	54.00
	TOTAL		1.0000		54.00

Invoice	Customer	Invoice Date
452981	13296	12/20/22

Total Amount	54.00

PART OF THAT PARCEL OF LAND DESCRIBED IN DEED RECORDED SEPTEMBER 1, 2016, AS RECEPTION NO. 2016000073084 IN THE RECORDS OF THE CLERK AND RECORDER FOR ADAMS COUNTY, COLORADO, BEING A PART OF THE SOUTHEAST 1/4 OF SECTION 6, TOWNSHIP 3 SOUTH, RANGE 64 WEST OF THE 6TH P.M., COUNTY OF ADAMS, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID PARCEL; THENCE NORTH 89°45'33" EAST, COINCIDENT WITH THE SOUTH LINE OF SAID PARCEL, A DISTANCE OF 661.00 FEET; THENCE NORTH 00°17'43" EAST, PARALLEL WITH THE WEST LINE OF SAID PARCEL, A DISTANCE OF 658.88 FEET TO THE NORTH LINE OF SAID PARCEL; THENCE SOUTH 89°44'44" WEST, COINCIDENT WITH THE NORTH LINE OF SAID PARCEL, A DISTANCE OF 661.00 FEET TO THE NORTHWEST CORNER OF SAID PARCEL; THENCE SOUTH 00°17'43" WEST, COINCIDENT WITH THE WEST LINE OF SAID PARCEL, A DISTANCE OF 658.71 FEET TO THE TRUE POINT OF BEGINNING.

SAID PARCEL CONTAINS 10.00 ACRES, MORE OR LESS.

PREPARED BY: CURTIS D. HOOS, PLS 37971
FOR AND ON BEHALF OF:
AMERICAN WEST LAND SURVEYING CO.
BRIGHTON, CO 80601

Electronically Recorded RECEPTION#: 2022000039239,
5/3/2022 at 8:01 AM, 1 OF 5,
DocStamp: $0.00
TD Pgs: 0 Josh Zygielbaum, Adams County, CO.

QUITCLAIM DEED

THIS DEED, dated this 25th day of February, 2022 between **GCSA LLC, A Colorado Limited Liability Company** whose legal address is P.O. Box 5, Watkins, Colorado, 80137, County of Adams and State of Colorado, grantor, and **THE COUNTY OF ADAMS, State of Colorado**, grantee, whose legal address is 4430 South Adams County Parkway, Brighton, Colorado 80601, Brighton, Colorado 80601:

WITNESS, that the grantor, for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, have remised, released, sold and QUITCLAIMED, and by these presents remise, release, sell and QUITCLAIM unto the grantee, its successors and assigns forever, all the right, title, interest, claim and demand which the grantor has in and to the real property, together with improvements, if any, situate, lying and being in the said County of Adams, State of Colorado, described as follows:

Legal description as set forth in Exhibit "A" attached hereto and incorporated herein by this reference.

Dedicated for Imboden Road
Assessor's schedule or parcel numbers: Being a part of 0181706400006

TOGETHER with all and singular the hereditaments and appurtenances thereto belonging, or in anywise appertaining, the reversion and reversions, remainder and remainders, rents, issues and profits thereof, and all the estate, right, title, interest, claim and demand whatsoever of the grantor, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances;

TO HAVE AND TO HOLD the same, together with all and singular the appurtenances and privileges thereunto belonging, or in anywise thereunto appertaining, and all the estate, right, title, interest and claim whatsoever of the grantor, either in law or equity, to the only proper use, benefit and behoove of the grantee, its successors and assigns forever.

The singular number shall include the plural, the plural the singular, and the use of any gender shall be applicable to all genders.

IN WITNESS WHEREOF, the grantor has executed this deed on the date set forth above.

GCSA LLC

By: Llaricxe Aldana As: Manager
Llaricxe Aldana

STATE OF COLORADO)
) §
COUNTY OF Arapahoe)

The foregoing instrument was acknowledged before me this 25th day of February, 2022, by Llaricxe Aldana as Manager of GCSA LLC

My commission expires: 07/15/2024

Witness my hand and official seal.

Notary Public

DAVID ALFREDO DIAZ
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20204024346
MY COMMISSION EXPIRES 07/15/2024

Electronically Recorded RECEPTION#: 2022000039239,
5/3/2022 at 8:01 AM, 2 OF 5,
TD Pgs: 0 Josh Zygielbaum, Adams County, CO.

EXHIBIT "A"

THE EAST 30.00 FEET OF THAT PARCEL OF LAND DESCRIBED IN DEED RECORDED SEPTEMBER 1, 2016 AS RECEPTION NO. 2016000073084 IN THE RECORDS OF THE CLERK AND RECORDER FOR ADAMS COUNTY, COLORADO, BEING A PART OF THE SOUTHEAST 1/4 OF SECTION 6, TOWNSHIP 3 SOUTH, RANGE 64 WEST OF THE 6TH P.M., COUNTY OF ADAMS, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF SAID PARCEL; THENCE SOUTH 89°45'33" WEST, COINCIDENT WITH THE SOUTH LINE OF SAID PARCEL, A DISTANCE OF 30.00 FEET TO THE WEST RIGHT-OF-WAY OF IMBODEN ROAD; THENCE NORTH 00°00'28" WEST, COINCIDENT WITH SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 659.31 FEET TO THE NORTH LINE OF SAID PARCEL; THENCE NORTH 89°44'44" EAST, A DISTANCE OF 30.00 FEET TO THE NORTHEAST CORNER OF SAID PARCEL; THENCE SOUTH 00°00'28" EAST, COINCIDENT WITH THE EAST LINE OF SAID PARCEL, A DISTANCE OF 659.32 FEET TO THE TRUE POINT OF BEGINNING.

SAID PARCEL CONTAINS 19,779 SQUARE FEET OR 0.45 ACRES, MORE OR LESS.

PREPARED BY: CURTIS D. HOOS, PLS 37971
FOR AND ON BEHALF OF:
AMERICAN WEST LAND SURVEYING CO.
BRIGHTON, CO 80601

NOTE: THIS DRAWING IS MEANT TO DEPICT THE ATTACHED DESCRIPTION AND IS FOR INFORMATIONAL PURPOSES ONLY. IT DOES NOT REPRESENT A MONUMENTED LAND SURVEY. NOTE: THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY AMERICAN WEST LAND SURVEYING CO. TO DETERMINE OWNERSHIP, RIGHTS-OF-WAY OR EASEMENTS OF RECORD.

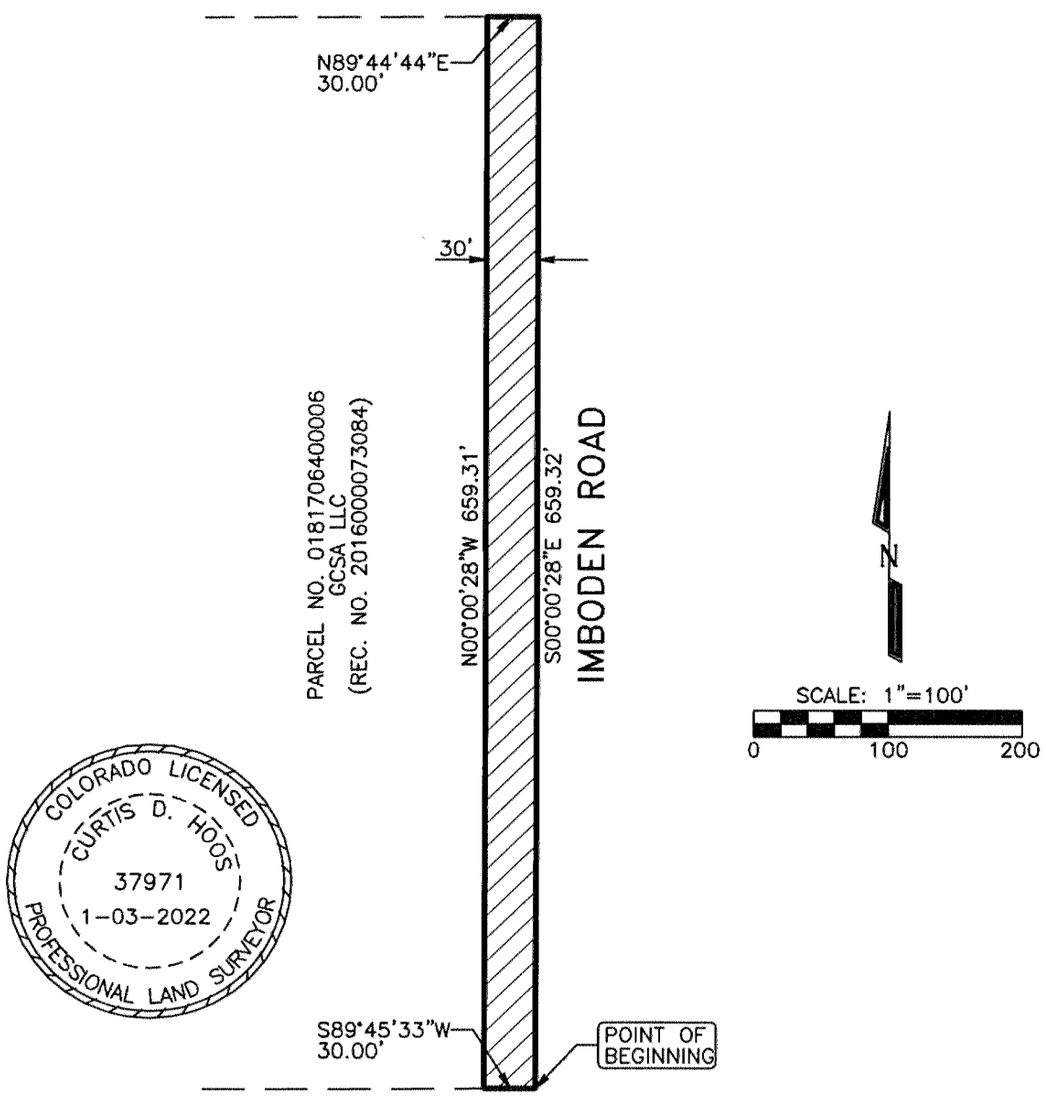
PARCEL NO. 0181706400006 GCSA LLC	DRAWN BY: CDH FIELD: CDH JAN. 3, 2022 PAGE 1 OF 2	American West Land Surveying Co. A Colorado Corporation

PO Box 129, Brighton, CO 80601 * P 303-659-1532 F 303-655-0575 * AMWESTLS.COM

Electronically Recorded RECEPTION#: 2022000039239,
5/3/2022 at 8:01 AM, 3 OF 5,
TD Pgs: 0 Josh Zygielbaum, Adams County, CO.

ILLUSTRATION FOR

EXHIBIT "A"



NOTE: THIS DRAWING IS MEANT TO DEPICT THE ATTACHED DESCRIPTION AND IS FOR INFORMATIONAL PURPOSES ONLY. IT DOES NOT REPRESENT A MONUMENTED LAND SURVEY. NOTE: THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY AMERICAN WEST LAND SURVEYING CO. TO DETERMINE OWNERSHIP, RIGHTS-OF-WAY OR EASEMENTS OF RECORD.

PARCEL NO. 0181706400006 GCSA LLC	DRAWN BY: CDH FIELD: CDH JAN. 3, 2022 PAGE 2 OF 2

PO Box 129, Brighton, CO 80601 * P 303-659-1532 F 303-655-0575 * AMWESTLS.COM

Electronically Recorded RECEPTION#: 2022000039239,
5/3/2022 at 8:01 AM, 4 OF 5,
TD Pgs: 0 Josh Zygielbaum, Adams County, CO.

BOARD OF COUNTY COMMISSIONERS FOR
ADAMS COUNTY, STATE OF COLORADO

RESOLUTION ACCEPTING A QUITCLAIM DEED FROM GCSA LLC, TO ADAMS COUNTY FOR RIGHT-OF-WAY PURPOSES FOR IMBODEN ROAD

Resolution 2022-235

WHEREAS, the Planning Commission for Adams County, Colorado, has considered the advisability of accepting a Quitclaim Deed from GCSA LLC, for right-of-way purposes along property located in the Southeast quarter of Section 6, Township 3 South, Range 64 West of the 6th Principal Meridian as described in the Exhibit "A;" and,

WHEREAS, this Quitclaim Deed is in conjunction with a Conditional Use Permit and was requested due to additional traffic impacts from the development; and,

WHEREAS, at a regular meeting of the Planning Commission for Adams County, Colorado, held at the County Government Center in Brighton on Thursday the 24th day of March 2022, the Planning Commission recommended that the Board of County Commissioners accept said Quitclaim Deed.

NOW, THEREFORE, BE IT RESOLVED by the Board of County Commissioners, County of Adams, State of Colorado, that the attached Quitclaim Deed from GCSA LLC, a copy of which is attached hereto and incorporated herein by this reference, be and hereby is accepted.

Upon motion duly made and seconded the foregoing resolution was adopted by the following vote:

Henry_____Aye
Tedesco_____Aye
Pinter_____Aye
O'Dorisio_____Aye
Baca_____Aye
Commissioners

STATE OF COLORADO)
County of Adams)

I, Josh Zygielbaum, County Clerk and ex-officio Clerk of the Board of County Commissioners in and for the County and State aforesaid do hereby certify that the annexed and foregoing Order is truly copied from the Records of the Proceedings of the Board of County Commissioners for said Adams County, now in my office.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said County, at Brighton, Colorado this 19th day of April A.D. 2022.

County Clerk and ex-officio Clerk of the Board of County Commissioners

Josh Zygielbaum:

By:

E-Signed by Erica Hannah
VERIFY authenticity with e-Sign

Deputy

Electronically Recorded RECEPTION#: 2022000039239,
5/3/2022 at 8:01 AM, 5 OF 5,
TD Pgs: 0 Josh Zygielbaum, Adams County, CO.

PLANNING COMMISSION FOR
ADAMS COUNTY, STATE OF COLORADO

RESOLUTION RECOMMENDING ACCEPTANCE OF A QUITCLAIM DEED FROM GCSA LLC TO ADAMS COUNTY FOR RIGHT-OF-WAY PURPOSES

At a regular meeting of the Planning Commission for Adams County, Colorado, held at the County Government Center in Brighton, Colorado, on Thursday the 24TH day of March 2022, the following proceedings, among others, were had and done, to wit:

WHEREAS, the Adams County Planning Commission has considered the advisability of accepting a Quitclaim Deed from GCSA LLC, for right-of-way being on the following described property:

> See Legal Description as set forth in Exhibit "A" attached hereto and incorporated herein by this reference.

WHEREAS, this Quitclaim Deed is in conjunction with a property located in the Southeast quarter of Section 6, Township 3 South, Range 64 West of the 6th Principal Meridian, County of Adams, State of Colorado.

NOW, THEREFORE, BE IT RESOLVED that the Adams County Planning Commission recommends to the Board of County Commissioners that said Quitclaim Deed from GCSA LLC, be accepted by the Board of County Commissioners.

Upon a motion duly made and seconded, the foregoing resolution was adopted.

I, John F. DuPriest Chair of the Adams County Planning Commission, do here by certify that the annexed foregoing resolution is a true and correct record of the proceedings of the Adams County Planning Commission.

Chair
Adams County Planning Commission

RWD2022-00002

Statement Of Taxes Due

Account Number R0190404
Assessed To

Parcel 0181706400006
GCSA LLC
PO BOX 5
WATKINS, CO 80137-0005

Legal Description

SECT,TWN,RNG:6-3-64 DESC: PARCEL B PART OF THE SE4 OF SEC 6 DESC AS FOLS COMMENCING AT THE SE COR OF SEC 6 TH N 00D 00M 28S W 659/31 FT TO THE POB TH S 89D 45M 33S W 2637/71 FT TH N 00D 17M 43S E 658/71 FT TH N 89D 44M 44S E 2634/28 FT TH S 00D 00M 28S E 659/32 FT TO THE POB 39/8780A

Situs Address

6539 IMBODEN RD

Year	Tax	Interest	Fees	Payments	Balance
Tax Charge					
2020	$166.22	$0.00	$0.00	($166.22)	$0.00
Total Tax Charge					$0.00
Grand Total Due as of 06/11/2021					**$0.00**

Tax Billed at 2020 Rates for Tax Area 351 - 351

Authority	Mill Levy	Amount
RANGEVIEW LIBRARY DISTRICT	3.6700000	$6.53
FIRE DISTRICT 7 - BENNETT	13.0700000	$23.26
GENERAL	22.7730000	$40.55
RETIREMENT	0.3140000	$0.56
ROAD/BRIDGE	1.3000000	$2.31
DEVELOPMENTALLY DISABLED	0.2570000	$0.46
SD 27 BOND (Brighton)	22.0690000	$39.28
SD 27 GENERAL (Brighton)	26.6760000*	$47.48
URBAN DRAINAGE SOUTH PLATTE	0.1000000	$0.18
URBAN DRAINAGE & FLOOD CONT	0.9000000	$1.60
SOCIAL SERVICES	2.2530000	$4.01
Taxes Billed 2020	93.3820000	$166.22

* Credit Levy

Values	Actual	Assessed
AG DRY FARMING LAND	$6,139	$1,780
Total	$6,139	$1,780

Tax amounts are subject to change due to endorsement, advertising, or fees.
Please call the office to confirm amount due after August 1st.

All Tax Lien Redemption payments must be made with cash or cashier's check.

Adams County Treasurer & Public Trustee
4430 S Adams County Parkway, Suite W1000
Brighton, CO 80601
720-523-6160

Adams County Treasurer & Public Trustee

RECEIPT OF PAYMENT (Tax, Fees, Costs, Interests, Penalties)

Account	Parcel Number	Receipt Date	Receipt Number
R0190404	0181706400006	Feb 11, 2022	2022-02-11-MMM-11738-P

GCSA LLC
PO BOX 5
WATKINS, CO 80137-0005

Situs Address	Payor
6539 IMBODEN RD	GCSA LLC PO BOX 5 WATKINS, CO 80137-0005

Legal Description

SECT,TWN,RNG:6-3-64 DESC: PARCEL B PART OF THE SE4 OF SEC 6 DESC AS FOLS COMMENCING AT THE SE COR OF SEC 6 TH N 00D 00M 28S W 659/31 FT TO THE POB TH S 89D 45M 33S W 2637/71 FT TH N 00D 17M 43S E 658/71 FT TH N 89D 44M 44S E 2634/28 FT TH S 00D 00M 28S E 659/32 FT TO THE POB 39/8780A

Property Code	Actual	Assessed	Year	Area	Mill Levy
AG DRY FARMING LAND - 4127	5,345	1,550	2021	351	94.746

Payments Received

Check	$146.86
Check Number 264	
Payor CHRISTINA ALDANA WITH GCSA LLC	

Payments Applied

Year	Charges	Billed	Prior Payments	New Payments	Balance
2021	Tax Charge	$146.86	$0.00	$146.86	$0.00
				$146.86	$0.00
			Balance Due as of Feb 11, 2022		$0.00

WE ARE EXPANDING TO SERVE YOU BETTER! WATCH FOR NEW LOCATIONS ON OUR WEBSITE!

4430 S ADAMS COUNTY PKWY C2436
BRIGHTON CO 80601
[Stay Safe! Please use website services www.adcotax.com]

Email: treasurer@adcogov.org
Telephone: 720-523-6160

ALL CHECKS ARE SUBJECT TO FINAL COLLECTION. THANK YOU FOR YOUR PAYMENT!

Title Company Login (only)

The Treasurer's office is currently processing the 2022 Tax Roll. Please check back soon for 2022 tax information.

SEARCH FOR MY ACCOUNT

Click Here

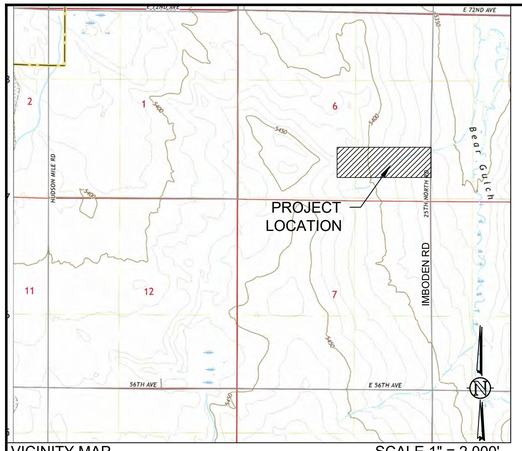
Registered User Login

Password

Login

Forgot Your Password?

PLEASE NOTE: All DELINQUENT tax payments must be paid with CASH, CREDIT CARD, OR CERTIFIED FUNDS, ONLY. Delinquent payments are posted as of the date RECEIVED by the Treasury and Public Trustee, NOT as of the postmark date. Thank you.



VICINITY MAP SCALE 1" = 2,000'

SE 1/4 SECTION 6 TOWNSHIP 3 SOUTH RANGE 64 WEST
SHOWN VICINITY MAP TAKEN FROM USGS QUAD MAP - MANILA, CO

ALDANA EVENT CENTER

Located in the Southeast 1/4 of Section 6, Township 3 South,
Range 64 West of the 6th P.M.,
County of Adams, State of Colorado

REVISIONS		SHEET	INDEX:
0	1	1	COVER SHEET
0	1	2	NOTES
0	1	3	EXISTING CONDITIONS WITH AERIAL
0	1	4	EXISTING CONDITIONS AND DEMO PLAN
0	1	5	OVERALL SITE PLAN
0	1	6	SITE PLAN
0	1	7	UTILITY PLAN
0	1	8	GRADING PLAN
0	1	8D	GRADING DETAILS
0	1	9	HISTORICAL & EXISTING DRAINAGE
0	1	10	DEVELOPED DRAINAGE PLAN

0	INITIAL RELEASE:	DECEMBER 20, 2021
1	REV PER COUNTY COMMENTS:	JANUARY 29, 2022

SITE PLAN FOR:

ALDANA EVENT CENTER
6539 IMBODEN ROAD
WATKINS , CO 80137

PREPARED FOR:

GCSA LLC
6657 IMBODEN RD.
WATKINS, CO 80137
(303) 435-3021

APPROVED BY:

PROPERTY OWNER **DATE**
GCSA LLC

WESTERN ENGINEERING CONSULTANTS, INC. **DATE**
CHADWIN F. COX, P.E.

PROJECT INFORMATION:
ADDRESS: 6539 IMBODEN ROAD, WATKINS, CO 80137
PARCEL ID: 0181706400006
NUMBER OF LOTS: 1
PROJECT TYPE:
PHASE: 1
DEVELOPED IMPERVIOUSNESS: 5.25%
SUBDIVISION:

PROJECT TEAM:

OWNER/DEVELOPER
GCSA LLC
6657 IMBODEN ROAD
WATKINS, CO 80137
(303) 435-3021

CONTRACTOR
COMPANY
NAME
PHONE

CIVIL ENGINEER
CHADWIN F. COX, P.E.
WESTERN ENGINEERING CONSULTANTS, INC.
127 SOUTH DENVER AVE.
FORT LUPTON, CO 80621
720-685-9951

UNCC
CALL BEFORE
YOU DIG
1-800-922-1987
Utility Notification
Center of Colorado
Administrative Office
16361 Table Mountain Parkway
Golden, Colorado 80403
Office: 303-232-1991 Fax: 303-234-1712
Toll-Free: 1-800-922-1987

CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

PREPARED BY:

Western Engineering Consultants, inc. LLC

WESTERN ENGINEERING CONSULTANTS, inc. LLC
127 SOUTH DENVER AVENUE, FORT LUPTON, CO 80621
303-913-7341 PH, 720-294-1330 FAX, email@westerneci.com

PROJECT NO: 00-0406.002.00
INITIAL PLAN RELEASE: DECEMBER 20, 2021
TOTAL SHEETS: 11
SHEET: 1 of 10

T:\0406_002_00-ALDANA WATKINS EQUESTRIAN\Dwg\CDs\0406-002-WEC-CDs.dwg, 02-NOTES, 3/29/2022 10:31:49 AM, AutoCAD PDF (General Documentation).pc3, ARCH expand D (36.00 x 24.00 Inches), WEC 24*36, WEC 24*36

SUPPLEMENTAL CONSTRUCTION NOTES

(ADAMS COUNTY REQUIREMENTS SHALL GOVERN)

GENERAL CONSTRUCTION NOTES:

1. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY, OR EASEMENT, SHALL CONFORM TO ADAMS COUNTY CONSTRUCTION SPECIFICATIONS AND DESIGN STANDARDS. IN THE CASE SUCH STANDARDS ARE NOT PROVIDED, CDOT STANDARDS SHALL APPLY.
2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS PRIOR TO COMMENCEMENT OF ANY WORK ON THE PROJECT.
3. THE CONTRACTOR IS RESPONSIBLE TO NOTIFY THE OWNER AND THE TOWN OF ANY PROBLEMS IN CONFORMING TO THE APPROVED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR DURING CONSTRUCTION ACTIVITIES TO RESOLVE CONSTRUCTION PROBLEMS DUE TO CHANGED CONDITIONS OR DESIGN ERRORS ENCOUNTERED BY THE CONTRACTOR DURING THE PROGRESS OF ANY PORTION OF THE PROJECT. IF, IN THE OPINION OF THE OWNER, THE MODIFICATIONS PROPOSED BY THE CONTRACTOR TO THE APPROVED PLANS INVOLVE SIGNIFICANT CHANGES TO THE CHARACTER OF THE WORK, OR TO THE FUTURE CONTIGUOUS PUBLIC OR PRIVATE IMPROVEMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESUBMITTING THE REVISED PLAN TO THE OWNER FOR APPROVAL PRIOR TO ANY FURTHER CONSTRUCTION RELATED TO THAT PORTION OF THE PROJECT. ANY IMPROVEMENTS NOT CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS, OR THE APPROVED REVISED PLANS, SHALL BE REMOVED AND RECONSTRUCTED ACCORDING TO THE APPROVED PLANS.
5. THE GRADING PLAN IS FOR ROUGH GRADING ONLY. CHANGES MAY BE NECESSARY TO BRING PLANS INTO CONFORMANCE WITH APPROVED FINAL DRAINAGE PLAN AND SITE PLAN.
6. A WATER TRUCK, IF CALLED BY THE INSPECTOR (OR PUBLIC WORKS DEPARTMENT (PWD)), WILL BE PROVIDED, BY THE CONTRACTOR, TO MAINTAIN DUST CONTROL.
7. ANY SETTLEMENT OR SOIL ACCUMULATION, BEYOND THE PROPERTY LIMITS, DUE TO GRADING OR EROSION, SHALL BE REPAIRED BY THE CONTRACTOR IMMEDIATELY.
8. NO GRADING SHALL TAKE PLACE IN DELINEATED FLOOD HAZARD AREAS UNTIL THE FINAL DRAINAGE PLAN HAS BEEN APPROVED AND ALL APPROPRIATE PERMITS HAVE BEEN OBTAINED.
9. ANY CONSTRUCTION DEBRIS OR MUD TRACKING ONTO THE PUBLIC RIGHT-OF-WAY, RESULTING FROM THE PROJECT, SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR. THE CONTRACTOR SHALL IMMEDIATELY FIX ANY EXCAVATION OR EXCESSIVE PAVEMENT FAILURE CAUSED BY PROJECT, AND SHALL PROPERLY BARRICADE THE SITE UNTIL CONSTRUCTION IS COMPLETE. FAILURE BY THE CONTRACTOR TO CORRECT ANY OF THE ABOVE WITHIN 48 HOURS OF WRITTEN NOTICE, BY THE TOWN, SHALL CAUSE THE TOWN TO ISSUE A STOP WORK ORDER (RED TAG) AND/OR DO THE WORK AND MAKE A CLAIM AGAINST THE PROJECT'S LETTER OF CREDIT FOR ANY COSTS INCURRED BY THE TOWN.
10. THE CONTRACTOR SHALL BE SOLELY, AND COMPLETELY RESPONSIBLE FOR THE CONDITIONS AT, AND ADJACENT TO, THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, DURING THE PERFORMANCE OF THE WORK. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY, AND SHALL NOT BE LIMITED TO, NORMAL WORKING HOURS. THE DUTY OF THE TOWN TO CONDUCT CONSTRUCTION REVIEW OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
12. ~~ALL UTILITY POLES SHALL BE RELOCATED PRIOR TO PLACEMENT OF ANY CONCRETE BY THE _____________ ELECTRIC DEPARTMENT. ALL FACILITIES THAT NEED RELOCATION BY THE ELECTRIC DEPARTMENT WILL BE BILLED TO THE DEVELOPER.~~
13. THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS PRIOR TO ADJUSTING ALL CLEANOUTS, MANHOLES, VALVE BOXES, SURVEY MONUMENTS, AND ANY OTHER FIXTURES TO FINISHED GRADE PRIOR TO FINAL PAVING.
14. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGPERSONS, OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY, IN ACCORDANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
15. THE CONTRACTOR SHALL PROVIDE INGRESS AND EGRESS TO PRIVATE PROPERTY ADJACENT TO THE PROJECT THROUGHOUT THE PERIOD OF CONSTRUCTION. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL OBTAIN A WRITTEN AGREEMENT FROM THE PROPERTY OWNERS IMPACTED BY THIS ACCESS. ~~UPON REQUEST, THE CONTRACTOR SHALL PROVIDE A COPY OF THESE WRITTEN AGREEMENTS TO THE OWNER.~~
16. PRIOR TO FINAL PLACEMENT OF SURFACE PAVEMENT, ALL UNDERGROUND UTILITY MAINS SHALL BE INSTALLED AND SERVICE CONNECTIONS STUBBED OUT BEYOND CURB LINE, WHEN ALLOWED BY THE UTILITY. SERVICE FROM PUBLIC UTILITIES AND FROM SANITARY SEWERS SHALL BE MADE AVAILABLE FOR EACH LOT IN SUCH A MANNER THAT WILL NOT BE NECESSARY TO DISTURB THE STREET PAVEMENT, CURB, GUTTER, AND SIDEWALK WHEN CONNECTIONS ARE MADE.
17. REPRODUCIBLE COPIES OF "AS BUILT" PLANS SHALL BE SUBMITTED TO THE TOWN PRIOR TO CONSTRUCTION ACCEPTANCE OF THE PUBLIC IMPROVEMENTS (IF ANY PUBLIC IMPROVEMENTS ARE NECESSARY).
18. THE CONTRACTOR SHALL NOTIFY THE TOWN INSPECTOR (OR PWD) AT LEAST 24 HOURS PRIOR TO DESIRED INSPECTION.
19. THE CONTRACTOR SHALL BE RESPONSIBLE TO APPROPRIATELY MARK (BY BAGGING) ALL FIRE HYDRANTS THAT ARE TAKEN OUT OF SERVICE DURING THIS PROJECT. THE CONTRACTOR SHALL NOTIFY THE TOWN FIRE DEPARTMENT AT LEAST 24 HOURS PRIOR TO REMOVING ANY FIRE HYDRANT FROM SERVICE.
20. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH ADAMS COUNTY AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.
21. THE CONTRACTOR SHALL HAVE ONE (1) SIGNED COPY OF THE APPROVED PLANS, ONE (1) COPY OF THE APPROPRIATE STANDARDS AND SPECIFICATIONS. AND A COPY OF ANY PERMITS AND EXTENSION AGREEMENTS NEEDED FOR THE JOB, ON-SITE AT ALL TIMES.
22. THERE SHALL BE NO SITE CONSTRUCTION ACTIVITIES ON SATURDAYS, UNLESS SPECIFICALLY APPROVED BY THE PUBLIC WORKS INSPECTOR, AND NO SITE CONSTRUCTION ACTIVITIES ON SUNDAYS OR HOLIDAYS, UNLESS THERE IS PRIOR WRITTEN APPROVAL BY THE PUBLIC WORKS DIRECTOR.

WESTERN ENGINEERING CONSULTANTS GENERAL CONSTRUCTION NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN DESIGN & CONSTRUCTION SPECIFICATIONS. IN THE CASE SUCH STANDARDS ARE NOT PROVIDED, A PROPER SPECIFICATION SHALL BE FOLLOWED AS AGREED BETWEEN THE OWNER, ENGINEER, AND CONTRACTOR.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE ELEVATION AND O.D. OF ALL EXISTING LINES AT THE POINT OF CONNECTION TO THE NEW SYSTEM PRIOR TO ORDERING MATERIALS THAT DEPEND ON THIS INFORMATION.
3. WESTERN ENGINEERING CONSULTANTS (WEC) IS NOT A GUARANTOR OF THE CONSTRUCTING CONTRACTORS OBLIGATION AND PERFORMANCE OF WORK.
4. WEC IS NOT RESPONSIBLE FOR SAFETY, IN, ON, OR ABOUT THE PROJECT SITE, NOR FOR COMPLIANCE BY THE APPROPRIATE PARTY OF ANY REGULATIONS THERETO.
5. WEC EXERCISES NO CONTROL OF THE SAFETY OR ADEQUACY OF ANY EQUIPMENT, BUILDING COMPONENTS, SCAFFOLDING, FORMS, OR OTHER WORK AIDS USED IN OR ABOUT THE PROJECT, OR IN THE SUPERVISION OF THE SAME.

ARCHITECTURAL INFORMATION:

1. THESE PLANS USED THE BUILDING PLAN PREPARED BY CRC CONSULTING DATED MARCH, 2020.
2. ANY SUBSEQUENT REVISIONS MADE BY BBD. ARE NOT REFLECTED IN THIS PLAN SET. REVISIONS DESCRIBED AND DATED ON INDIVIDUAL SHEETS IN THIS PLAN SET ARE ENGINEERING REVISIONS ONLY.

UTILITY LOCATION NOTES:

1. COLORADO STATE S.B. 93-155 REQUIRES ANYONE WHO ENGAGES IN ANY TYPE OF EXCAVATION TO PROVIDE ADVANCE NOTICE OF AT LEAST TWO (2) BUSINESS DAYS NOT INCLUDING THE DAY OF ACTUAL NOTICE.

UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) 1-800-922-1987

2. NEW UTILITIES MAY HAVE BEEN INSTALLED SINCE THE LOCATES FOR THIS PROJECT WERE COMPLETED (IE NOT SHOWN ON PLANS). IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ATTAIN NEW LOCATES AS STATED BY LAW.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND COORDINATE ADDITIONAL LOCATES IF THE STATE OR ANOTHER UTILITY ENTITY HAS UTILITIES IN THE AREA WHICH WERE NOT IDENTIFIED BY UNCC.

UTILITY POTHOLE & SURVEY NOTES:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO STARTING CONSTRUCTION. LOCATIONS WHERE EXISTING UTILITIES AND PROPOSED CONSTRUCTION CROSS OR POTENTIALLY CONFLICT SHALL BE POTHOLED BY THE CONTRACTOR, ELEVATIONS SURVEYED, AND RESULTS AND CONFLICTS PROVIDED TO WEC. WEC REQUIRES A MINIMUM OF 5 WORKING DAYS FOR RE-DESIGN OF ANY CONFLICTS DISCOVERED BY THE POTHOLE. SEE ALSO CONTRACTOR'S AS-BUILT DRAWING NOTES.
2. THE CONTRACTOR SHALL PROVIDE DRAWINGS OF EXISTING ON-SITE UNDERGROUND UTILITIES AS EXPLAINED WITHIN THE CONTRACTOR'S AS-BUILT DRAWING NOTES. THE CONTRACTOR IS REQUIRED TO PLAN AHEAD AND NOTIFY THE OWNER OF ANY CONFLICTS IN A TIMELY MANNER.

CONTRACTOR'S AS-BUILT DRAWINGS NOTES:

1. THE CONTRACTOR SHALL PROVIDE, AT THE COMPLETION OF THE PROJECT OR EACH PHASE OF THE PROJECT, A COMPLETE SET OF "AS-BUILT" DRAWINGS TO THE OWNER. THE AS-BUILT DRAWINGS WILL CONSIST OF A MARKED-UP SET OF "ISSUED FOR CONSTRUCTION" DRAWINGS VERIFYING THE FOLLOWING:
    - A) ALL LENGTHS, SIZES, AND MATERIALS OF INSTALLED PIPE, MANHOLES, AND ANY OTHER IMPROVEMENT.
    - B) HORIZONTAL LOCATIONS EITHER BY STATION AND OFFSET, OR BY NORTHING AND EASTING COORDINATES OF ALL MANHOLES, BENDS, CLEANOUTS, VALVES, TAPS, WYES, STUBS, PLUGS, TEES, ETC.
    - C) INVERT ELEVATION OF EACH CONSTRUCTED PIPE AT: STORM SEWER AND SANITARY SEWER MANHOLES, INLETS, OUTLETS, STUB ENDS, ETC. TOP OF PIPE ELEVATIONS OF EACH FOREIGN PIPE OR UTILITY CROSSING.
    - D) CONSTRUCTED SLOPE OF STORM AND SANITARY PIPES BETWEEN MANHOLES AND STRUCTURES.
    - E) TOP OF PIPE ELEVATION AT REGULAR INTERVALS AND/OR FITTINGS FOR WATER LINES, FIRE PROTECTION LINES, GAS LINES, AND ELECTRIC CONDUITS.
    - F) ELEVATIONS AT FLOWLINE OF CURB AND GUTTER AT DESIGN LOCATIONS AND GRADE BREAKS. ELEVATION OF INLET AND TRENCH DRAIN GRATES. TOP OF CURB AT CURB INLETS.
    - G) ANY OTHER VARIATIONS FROM THE CONSTRUCTION DOCUMENTS MUST BE CLEARLY NOTED AND DETAILED ON THE PLANS.
2. THE CONTRACTOR SHALL VERIFY AND SUBMIT, FOR APPROVAL BY THE OWNER, THE GROUND SURFACE ELEVATIONS AT THE FINAL COMPLETION OF THE PROJECT PRIOR TO THE FINAL ACCEPTANCE.
3. THE FINAL AS-BUILT DRAWING CERTIFICATE SHALL BE SIGNED ON EACH SHEET BY THE CONTRACTOR RESPONSIBLE FOR THE WORK.
4. CONTRACTOR AS-BUILT DRAWINGS WILL BE DUE PRIOR TO SUBMITTING THE FINAL PAY REQUEST. NON-CONFORMING AS-BUILT DRAWINGS WILL BE RETURNED TO THE CONTRACTOR FOR REVISIONS AND RESUBMITTAL. FINAL PAYMENT WILL NOT BE APPROVED UNTIL THE OWNER HAS REVIEWED AND APPROVED THE AS-BUILT DRAWINGS.
5. ALL AS-BUILT SURVEYING SHALL MEET COLORADO STANDARD OF CARE. (I.E. HORIZONTAL WITHIN 0.10-FEET AND VERTICAL WITHIN 0.05-FEET). IT IS RECOMMENDED ALL GRAVITY SYSTEMS BE DIFFERENTIAL SURVEYED TO MAINTAIN ACCEPTABLE TOLERANCES.

GEOTECHNICAL NOTES:

1. FOR ALL GEOTECHNICAL RELATED ISSUES (PIPE BEDDING, BACKFILL, IMPORTING FILLS, ASPHALT, ETC). REFERENCE THE PROJECT GEOTECHNICAL STUDY PREPARED BY __________________ DATED ________.

GEOTECHNICAL TESTING:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL TESTING IN ORDER TO MEET PROPERTY OWNER REQUIREMENTS AND TOWN DESIGN STANDARDS.
2. THE OWNER SHALL PAY FOR TESTING TO MEET THE MINIMUM REQUIRED BY COUNTY STANDARDS.
3. ALL COSTS FOR FAILING TESTS WILL BE DEDUCTED FROM THE CONTRACTOR'S PAYMENT REQUEST(S).

BASIS of BEARING & BENCHMARK:

~~BASIS of BEARINGS (HORIZONTAL DATUM):~~
~~THE CENTERLINE OF VACATED ELGIN STREET IS ASSUMED TO BEAR NORTH 00°09'40" WEST AS MONUMENTED HEREON, WITH ALL BEARINGS SHOWN HERON RELATIVE THERETO.~~

~~PROJECT BENCHMARK (VERTICAL DATUM): ALL ELEVATIONS SHOWN HEREON ARE BASED UPON STATIC GPS OBSERVATIONS POST PROCESSED THROUGH THE JAVAD DATA PROCESSING ONLINE SERVICE (DPOS) RESULTING IN THE NORTHWEST CORNER OF BLOCK 36, BEING A 5/8" REBAR WITH YELLOW PLASTIC CAP, PLS 10102 HAVING AN ELEVATION OF 5525.44 (NAVD 88).~~

SURVEY CONSTRUCTION NOTES:

1. PROJECT HORIZONTAL & VERTICAL CONTROL AND CONTROL NOTES ARE SHOWN ON THE HORIZONTAL BASELINE CONTROL SHEET OF THIS PLAN SET.
2. ALL PROPERTY PINS OR SURVEY MONUMENTS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED BY A LICENSED SURVEYOR AT THE CONTRACTOR'S EXPENSE. THIS SHALL INCLUDE A SURVEY PLAT IF REQUIRED BY LAW.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIND AND IDENTIFY ALL EXISTING SURVEY MONUMENTS WHICH MAY BE DISTURBED DURING CONSTRUCTION.
4. EXISTING HORIZONTAL AND VERTICAL CONTROL SHALL BE VERIFIED BY A PROFESSIONAL LAND SURVEYOR. THE CONTRACTOR'S SURVEYOR SHALL PROVIDE WRITTEN CONFIRMATION VERIFYING THE CONTROL IS SATISFACTORY PRIOR TO BEGINNING OF CONSTRUCTION.
5. ALL CONSTRUCTION SURVEYING SHALL MEET COLORADO STANDARD OF CARE.
6. THE CONTRACTOR SHALL FIELD SURVEY THE EXISTING GROUND SURFACE ALONG THE PROPOSED ALIGNMENT, COMPARE THE SURFACE TO THE TOPOGRAPHY AS SHOWN ON THESE PLANS AND SUBMIT IN WRITING ANY CONCLUSIONS / DISCREPANCIES BETWEEN THE SURVEYS.
7. ALL FIELD STAKING SHALL BE PERFORMED AND LABELED MATCHING THE STATIONING AND OFFSET BASELINE AS SHOWN IN THIS PLAN SET. ARBITRARY BASELINE OR STATIONING (NOT MATCHING THESE DESIGN PLANS) WILL NOT BE ALLOWED.
8. CUT-SHEETS ARE REQUIRED TO BE COPIED TO THE SPECIFIC IMPROVEMENT CONTRACTOR, OWNER AND WEC WITHIN 2 DAYS OF CONSTRUCTION STAKING.
9. ANY MONUMENTS INSTALLED FOR THIS PROJECT (NEW & REVISED) SHALL BE PER CDOT DETAIL (M-629-1).

EXISTING TOPOGRAPHY and CONTOURS:

1. ALL PROFILES (THIS PLAN SET) REPRESENT A DIGITAL TERRAIN MODEL (DTM) CREATED BY WEC BASED ON FIELD SURVEY PROVIDED BY OTHERS.
2. CONTOUR LINES OF EXISTING/ORIGINAL GRADE HAVE A 2-FOOT INTERVAL ACCURACY AND ARE SHOWN FOR ILLUSTRATION ONLY.

GRADING AND COMPACTION NOTES:

1. REFERENCE THE PROJECT GEOTECHNICAL STUDY PREPARED BY __________________ DATED ___________.
2. ALL EXCESS SOIL MATERIALS ARE TO BE STOCKPILED AS DIRECTED BY THE OWNER OR REMOVED AT THE CONTRACTOR'S EXPENSE. ALL CONCRETE, ASPHALT, AND OTHER REMOVED IMPROVEMENTS SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
3. ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION AS A MINIMUM, UNLESS OTHERWISE NOTED.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL GRADEWORK TO ENSURE POSITIVE DRAINAGE AT ALL TIMES (MATCH ORIGINAL CONDITIONS).
5. ALL BACKFILL SHALL MEET THE TYPICAL TRENCH DETAIL SPECIFICATIONS SHOWN IN THIS PLAN SET, AND PER TOWN CRITERIA.
6. ALL OTHER SOIL PLACEMENT OVER 12-INCHES IN THICKNESS SHALL ALSO MEET THE TYPICAL TRENCH DETAIL COMPACTION SPECIFICATIONS SHOWN IN THIS PLAN SET.
7. STRIP THE TOP 6-INCHES OF ALL AREAS TO BE DISTURBED DURING CONSTRUCTION, AND STOCKPILE SEPARATE FROM TRENCH SPOILS IN LOCATION(S) AS APPROVED BY PROPERTY OWNER. REPLACE STRIPPINGS ABOVE COMPLETED PIPELINES MATCHING PRE CONSTRUCTION GRADES WHERE NO PROPOSED GRADING IS SHOWN.
8. THE CONTRACTOR SHALL MEET THE PROJECT SPECIFICATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT AND COORDINATE SCHEDULING THE GEOTECHNICAL TESTING FIRM IN ORDER TO MEET THE PROJECT SPECIFICATIONS AND STANDARDS.
9. FOR GRADING NOT SHOWN HERE-IN THESE PLANS, REFER TO LANDSCAPE GRADING BY OTHERS. LANDSCAPE FINAL GRADING TO BE PROVIDED BY OTHERS.
10. ROUGH GRADING VERTICAL TOLERANCES ARE ± 0.10 FT.
11. COMPACTION OF ALL HYDRANT RUN BACKFILL SHALL MEET 100% OF MAXIMUM DENSITY AND WITHIN 3% +/- OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY STANDARD PROCTOR ASTM-D-698.
12. CONTRACTOR TO PROVIDE TRAFFIC CONTROL MEASURES AS REQUIRED BY TOWN STANDARDS FOR PUBLIC RIGHT OF WAY.
13. IF NECESSARY TO ACCESS OVER EXISTING IMPROVEMENTS (IE, EXISTING ROADS, SHALLOWS, UTILITIES ETC,.) THE CONTRACTOR SHALL COORDINATE WITH THE GEOTECHNICAL CONSULTANT REGARDING PROTECTION AGAINST CONSTRUCTION TRAFFIC LOADS.

EROSION CONTROL & STORM WATER MANAGEMENT PLAN:

1. ALL EROSION CONTROL MEASURES MUST BE INSTALLED PER URBAN DRAINAGE FLOOD CONTROL DISTRICT (UDFCD) REQUIREMENTS (UNLESS OTHERWISE SHOWN HEREIN), AND ALSO STATE SWMP PERMIT REQUIREMENTS.
2. ALL DISTURBED AREAS (I.E. CONSTRUCTION WORK LIMITS) SHALL BE ENCLOSED BY SILT FENCE IF POTENTIAL FOR RUNOFF EXISTS.
3. INSTALL VEHICLE TRACKING CONTROL AT ALL ACCESS ROAD LOCATIONS ADJACENT TO ALL ENTRANCES / EXITS TO & FROM THE SITE.
4. SEE EROSION PROTECTION DETAILS AS SHOWN ON DRAWINGS.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN (IE, SEASONAL SEEDING, MATERIALS, ETC.) ANY AND ALL EROSION PROTECTION NECESSARY UNTIL FINAL ACCEPTANCE OR ONCE SEEDING IS ESTABLISHED, WHICHEVER COMES FIRST.
6. THE CONTRACTOR SHALL PROVIDE SWEEPING AS NECESSARY TO KEEP PRIVATE AND PUBLIC ROADWAYS CLEAN OF DEBRIS.

SEEDING:

1. ALL SEEDING SHALL BE PER TOWN PARKS & RECREATION DESIGN STANDARDS AND AS ACCEPTABLE TO THE PROPERTY OWNER.

ADJACENT DITCH or LATERAL WORK:

1. NO WORK SHALL COMMENCE WITHIN 15-FEET OF ANY DITCH OR LATERAL TOP OF BANK EXCEPT AT THOSE CROSSING LOCATIONS AS NOTED ON THE PLANS UNLESS OTHERWISE APPROVED BY THE OWNER AND APPROPRIATE DITCH COMPANY.
2. ALL WORK WITHIN 15-FEET OF ANY DITCH OR LATERAL TOP OF BANK SHALL MEET ALL REQUIREMENTS AND SPECIFICATIONS PER THE DITCH CROSSING PERMIT.
3. CONTACT OWNER/WEC FOR ANY DITCH RELATED ISSUES.

ELECTRIC and COMMUNICATION CONDUIT CONSTRUCTION NOTES:

1. SEE ALSO ELECTRICAL PLANS FOR ELECTRIC AND COMMUNICATION DESIGN AND SPECIFICATIONS - BY OTHERS.

RELOCATION OF EXISTING LIGHT POLES AND EQUIPMENT:

1. ~~SEE ALSO ELECTRICAL PLANS FOR REMOVAL, SALVAGE, AND RE-INSTALLATION OF EXISTING LIGHT POLES AND EXISTING SECURITY IMPROVEMENTS - BY OTHERS.~~

RAW WATERLINE CONSTRUCTION NOTES:

1. ~~RAW WATERLINE PIPE SHALL BE RIGID POLYVINYL CHLORIDE (PVC) ASTM D3034 (< 15") OR ASTM 679 (≥ 15") WITH WALL THICKNESS SDR 35, ADS N-12 SMOOTH INTERIOR, OR AS APPROVED BY THE ENGINEER.~~
2. ~~ALL LENGTHS SHOWN ON THE PLANS ARE FROM END TO END OR PI TO PI.~~
3. ~~THE CONTRACTOR SHALL INSTALL TEMPORARY PLUGS (IF NECESSARY) AT EXISTING HEAD GATES AND SHALL REMAIN IN PLACE UNTIL CONSTRUCTION ACCEPTANCE IS ISSUED, AT WHICH TIME THEY SHALL BE REMOVED BY THE CONTRACTOR.~~
4. ~~INSTALL MARKER POSTS IN NON-FARMABLE AREAS OR PERMANENT SURVEY MONUMENTS IN EXISTING CONCRETE STRUCTURES WITHIN 2.0-FEET OF PIPELINE BEND LOCATIONS (ALONG THE PIPE CENTERLINE NOT OFFSET).~~
5. ~~RAW WATERLINE PIPE SHALL BE AIR TESTED AT 4 PSIG OR AS APPROVED BY THE ENGINEER (SHALL DEPEND UPON PIPE MATERIAL USED).~~

STORM SEWER CONSTRUCTION NOTES:

1. ALL STORM SEWER PIPE TO BE A.S.T.M. C-76, CLASS III REINFORCED CONCRETE PIPE WITH RUBBER GASKETS MEETING AASHTO M-170 REQUIREMENTS. UNLESS OTHERWISE NOTED.
2. STORM SEWER MANHOLES SHALL BE 4 FEET DIAMETER FOR 30 INCH PIPE OR LESS, 5 FEET DIAMETER FOR 36 INCH PIPE. FOR SIZES ABOVE 36 INCH, CONCRETE JUNCTION BOXES, OR PRECAST MANHOLE TEES, WILL BE DETAILED BY THE ENGINEER.
3. ALL ROADWAY STORM SEWER INLETS ARE CDOT TYPE R CURB INLETS, UNLESS OTHERWISE NOTED. THE PROPOSED POND STORM SEWER OUTLET IS CDOT TYPE C.
4. ALL STORM SEWER MANHOLE AND INLET LIDS SHALL BE LABELED PER TOWN STANDARDS INCLUDING THE FOLLOWING CONFINED SPACE INFORMATION "STORM SEWER, CAUTION CONFINED SPACE, ENTRY PERMIT REQUIRED," (TO BE COORDINATED WITH TOWN INSPECTOR).
5. MANHOLE AND INLET LID LOCATION TO BE COORDINATED WITH TOWN INSPECTOR.
6. A MINIMUM OF 2.0 FEET OF COVER OVER THE TOP OF THE STORM SEWER LINES SHALL BE MAINTAINED UNLESS OTHERWISE NOTED.
7. A MINIMUM VERTICAL SEPARATION OF 18" SHALL BE MAINTAINED AT ALL CROSSINGS UNLESS OTHERWISE NOTED.
8. ALL LENGTHS OF STORM SEWER LINES SHOWN ON THE PLANS ARE MEASURED HORIZONTALLY FROM CENTER TO CENTER OF ALL STRUCTURES, MANHOLES, BENDS, TEES, AND INLETS UNLESS OTHERWISE NOTED.
9. STORM SEWER SHALL BE AIR TESTED AT 4 PSIG. CONCRETE MANHOLES SHALL BE TESTED PER MANHOLE LEAKAGE TEST.
10. ALL STORM SEWER PIPE SHALL BE LEFT SMOOTH, CLEAN, AND FREE OF OBSTRUCTIONS THROUGHOUT THE ENTIRE ALIGNMENT.
11. PIPE, BENDS, TEES, AND ALL ACCESSORIES ARE TO BE SUPPLIED BY THE SAME SUPPLIER.
12. EXCAVATION SHALL BE DEWATERED AS NECESSARY TO EXCAVATE AND PLACE PIPE WITHIN DRY TRENCH.
13. ALL INSTALLED STORM PIPING IS REQUIRED TO BE WATER JETTED CLEAN TWO WEEKS PRIOR TO THE FINAL ACCEPTANCE WALK THRU.
14. ALL STORM PIPING THIS PROJECT "PRIVATE" UNLESS OTHERWISE NOTED.

STORM DRAINAGE MAINTENANCE:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM EROSION AND SEDIMENT CONTROL MEASURES (INCLUDING PLANTINGS) AND TO MAINTAIN CONSTRUCTED DRAINAGE FACILITIES THROUGH THE CONSTRUCTION PROCESS IN A MANNER THAT PRESERVES THE INTENDED FUNCTION AND LIFE OF THE FACILITIES.

SANITARY SEWER CONSTRUCTION NOTES:

1. SEWER PIPE SHALL BE RIGID POLYVINYL CHLORIDE (PVC) ASTM D3034 (< 15") OR ASTM 679 (≥ 15") WITH WALL THICKNESS SDR 35 (SDR 26 FOR DEPTHS ≥ 20').
2. ALL LENGTHS OF SEWER LINE SHOWN ON THE MASTER UTILITY PLAN ARE FROM THE CENTER OF MANHOLE TO THE CENTER OF MANHOLE.
3. THE CONTRACTOR SHALL INSTALL TEMPORARY PLUGS IN THE MANHOLES AT THE POINTS OF CONNECTION TO THE EXISTING SEWER SYSTEMS. PLUGS SHALL REMAIN IN PLACE UNTIL CONSTRUCTION ACCEPTANCE IS ISSUED, AT WHICH TIME THEY SHALL BE REMOVED BY THE CONTRACTOR.
4. INSTALL MARKER POSTS IN LANDSCAPE AREAS OR PERMANENT SURVEY MONUMENTS IN EXISTING PAVED SURFACES WITHIN 2.0-FEET OF EVERY MANHOLE AND STUB LOCATION (ALONG THE PIPE CENTERLINE NOT OFFSET).

STREET CONSTRUCTION NOTES:

1. ~~ALL STREET IMPROVEMENTS TO BE COMPLETED PER CDOT CONSTRUCTION STANDARDS & SPECIFICATIONS.~~
2. ~~HANDICAP RAMPS ARE TO BE FORMED AT ALL INTERSECTIONS.~~

ASPHALT NOTES:

1. ~~FULL ASPHALT DESIGN SECTION TO BE PER GEOTECHNICAL REPORT AND COUNTY STANDARDS (& DETAILS). SEE GEOTECHNICAL NOTES AND TYPICAL ASPHALT AND CONCRETE TRENCH PATCH DETAILS.~~
2. STANDARD ASPHALT INSTALLATIONS MUST FOLLOW COUNTY STANDARDS.

CONSTRUCTION WORK LIMITS:

1. NO CONSTRUCTION ACTIVITIES SHALL TAKE PLACE OUTSIDE OF THE SHOWN WORK LIMITS, EXCEPT FOR ACCESS WITHIN EXISTING ACCESS ROUTES.
2. ALL EXISTING FENCE WITHIN THE CONSTRUCTION WORK LIMITS SHALL BE REMOVED, SALVAGED, AND REPLACED AS DIRECTED BY THE OWNER.
3. ANY FENCE DAMAGED DURING REMOVAL SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

STRIPING NOTES:

1. ALL STANDARD PARKING STALL STRIPING DIMENSIONS ARE 9.0 FEET WIDE BY 18.0 FEET LONG UNLESS OTHERWISE NOTED.
2. ALL STRIPING THIS PROJECT TO BE WHITE UNLESS OTHERWISE NOTED.
3. ALL HANDICAP STALLS TO BE SIGNED & STRIPED PER ADA SPECIFICATIONS, USE BLUE & WHITE SYMBOLOGY, VAN DENOTES VAN ACCESSIBLE STALLS, STD DENOTES STANDARD ACCESSIBLE STALLS.
4. STRIPING MATERIAL TO BE ALKY (OIL BASED) FOR LINES, SYMBOLS, AND LETTERS.
5. ALL STRIPING SHALL COMPLY WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
6. REMOVAL OF EXISTING STRIPING WHICH CONFLICTS WITH THE NEW STRIPING DESIGN WILL BE REQUIRED. PAVEMENT MARKING REMOVAL AND INSTALLATION WILL BE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR.
7. LAYOUT OF STRIPING IN THE FIELD WILL REQUIRE APPROVAL BY ADAMS COUNTY PRIOR TO APPLICATION OF FINAL STRIPING.

FIRELINE and WATERLINE CONSTRUCTION NOTES:

1. A MINIMUM OF 4.5 FEET OF COVER OVER THE TOP OF THE WATER LINES IS TO BE MAINTAINED. (5'-0" MINIMUM OF COVER FOR FIRE PROTECTION LINES.)
2. A MINIMUM VERTICAL SEPARATION OF 18" SHALL BE MAINTAINED AT ALL CROSSINGS, UNLESS OTHERWISE NOTED.
3. ALL LENGTHS OF WATER LINE AND FIRE PROTECTION LINES SHOWN ON THE PLANS ARE MEASURED HORIZONTALLY FROM CENTER TO CENTER OF ALL VALVES, FITTINGS, BENDS, TEES, ETC. VERTICAL RISERS ARE MEASURED VERTICALLY.
4. P.V.C. FIRE PROTECTION LINES TO BE AWWA C-900, CLASS 200. D.I.P. FIRE PROTECTION LINES AND FITTINGS TO BE PRESSURE CLASS 350 AND COMPLY WITH AWWA C-110. ALL PIPELINE APPURTENANCES SHALL BE OF SIMILAR METALS (NO DISSIMILAR METALS).
5. TAPPING SADDLES TO BE USED ONLY FOR TEMPORARY BLOW OFFS.
    - A) ALL TEMPORARY BLOW OFF TAPPING SADDLES SHALL BE BRASS.
    - B) ALL TEES SHALL BE SWIVEL TEES.
6. FIRE PROTECTION AND WATER LINES SHALL BE HYDROSTATICALLY TESTED AT 150 PSI FOR 2 HOURS.
7. ALL WATER LINES, INCLUDING FIRE LINES, ARE TO BE DISINFECTED AND PRESSURE TESTED PER TOWN STANDARDS.
8. TEMPORARY TAP(S) SHALL BE INSTALLED AS REQUIRED TO FLUSH AND TEST THE LINE. THE TAPPING SADDLE SHALL BE PLUGGED WITH A BRASS PLUG UPON COMPLETION.
9. THE TOWN WATER DEPARTMENT INSPECTOR SHALL BE NOTIFIED PRIOR TO BACK- FILLING AND TESTING (DISINFECTION AND HYDROSTATIC).
10. PIPE, FITTINGS, BOLTS, WASHERS, NUTS AND ALL ACCESSORIES ARE TO BE SUPPLIED BY THE SAME MANUFACTURER.
11. EXCAVATION SHALL BE DEWATERED AS NECESSARY TO EXCAVATE AND PLACE PIPE WITHIN DRY TRENCH.
12. ~~CLAY CUT-OFF WALLS SHALL BE INSTALLED WITHIN 10-FEET OF EVERY BRANCH OF A TEE, BEND, CROSS, MANHOLE. OR PHASE ENDING. THE DISTANCE BETWEEN CLAY CUT-OFF WALLS BETWEEN FITTINGS SHALL NOT EXCEED 400 FEET ON ANY LINE.~~
13. INSTALL MARKER POSTS IN LANDSCAPE AREAS OR PERMANENT SURVEY MONUMENT IN EXISTING PAVED SURFACES ABOVE ALL HORIZONTAL BENDS AND STUB LOCATIONS.
14. ALL NEW HYDRANTS SHALL BE MUELLER.

FIRELINE and WATERLINE RESTRAINT NOTES:

1. BOTH THRUST BLOCKS AND MEGALUG RESTRAINTS (ALL JOINTS AND FITTINGS) ARE REQUIRED WITHIN RESTRAINT ZONES. NEW PIPING AND FITTINGS SHALL BE CONTINUOUSLY CONNECTED WITH MEGALUGS. ALL THRUST RESTRAINT CONCRETE SHALL BE 28 DAY COMPRESSIVE STRENGTH > 3,500 P.S.I.
2. ALL MECHANICAL JOINTS SHALL BE RESTRAINED USING MEGALUG SERIES 2000 PV (NEW JOINTS) OR 2000 SV (SPLIT VERSION) FOR EXISTING JOINTS (TIE- INTO EXISTING SYSTEM) OR UNI-FLANGE SERIES UFR 1300 C-"DIA" OR APPROVED EQUAL.
3. ALL PUSH-ON JOINTS SHALL BE RESTRAINED USING MEGALUG SERIES 1600 OR UNI-FLANGE SERIES 1390-C-"DIA" OR APPROVED EQUAL WITHIN RESTRAINT ZONES.
4. CONNECTION TO AN EXISTING SYSTEM WITH A NEW GATE VALVE SHALL BE RESTRAINED ON EACH SIDE.
5. ANY EXISTING UNRESTRAINED FIRELINE JOINTS/FITTINGS EXPOSED DURING CONSTRUCTION SHALL BE RESTRAINED USING THE APPROPRIATE MEGALUG SERIES.
6. TO INSTALL MEGALUG TO EXISTING MECHANICAL JOINT FITTINGS AND VALVES, REMOVE BOLTS AND SLIDE EXISTING RETAINER GLAND AWAY FROM FITTING. INSTALL MEGALUG SERIES 2000 PER MANUFACTURER'S SPECIFICATIONS. DO NOT ATTEMPT TO REMOVE THE EXISTING FOLLOWER GLAND.
7. EXISTING THRUST BLOCKS THAT ARE DISTURBED DURING THE CONSTRUCTION OF THE NEW FIRE PROTECTION LINE SHALL BE REINSTALLED (USING FORMS IF NECESSARY TO CREATE BLOCKING THAT WILL BEAR ON UNDISTURBED SOIL).

SUPPLEMENTAL SPECIAL CONDITIONS:

1. ALL POINTS OF CONNECTION TO ANY EXISTING PIPE AND ALL EXISTING UTILITY CROSSINGS SHALL BE POTHOLED AND THE LOCATION, ELEVATION, PIPE MATERIAL, PIPE DIAMETER, AND ANY OTHER EXISTING INFORMATION SHALL BE NOTED AND FORWARDED TO WEC PRIOR TO ORDERING MATERIALS WHICH DEPEND ON THIS INFORMATION. ALL POTHOLE LOCATIONS ARE SHOWN ON THE PLANS.
2. FOLLOWING SUCCESSFUL PRESSURE TESTING, ALL NEWLY PLACED PIPE SHALL BE LOCATED USING NEW TRACING WIRE AND SURVEYED BY THE CONTRACTOR AS ADDITIONAL AS-BUILT INFORMATION.
3. WEEKLY PROGRESS MEETINGS WILL BE HELD. PROJECT ENGINEER, CONTRACTOR SUPERINTENDENT (SITE SUPERINTENDENT), SUBCONTRACTORS AND OWNER SHALL ATTEND.
4. ALL ADJACENT PROPERTY OWNER RELATIONS & CORRESPONDENCE MUST BE ROUTED THROUGH AND APPROVED BY THE OWNER.
5. ALL PROPOSED PIPE INSTALLATION SHALL BE WITH FULL LENGTHS OF PIPE. NO SHORT OR CUT PIPE SHALL BE INSTALLED UNLESS OTHERWISE APPROVED AND SHOWN ON THE PLANS (I.E. CLOSURE PIECES, FABRICATED BEND LOCATIONS AND AT MANHOLES).

	OBTAINED BY
BUILDING PERMIT	OWNER/SUBCONTRACTOR
STATE STORMWATER MANAGEMENT PLAN PERMIT OR WAIVER	OWNER/WEC/CONTRACTOR
STATE GROUNDWATER DISCHARGE PERMIT	CONTRACTOR
~~NATIONAL PERMIT~~	~~OWNER~~
ADAMS COUNTY GRADING PERMIT	OWNER OR CONTRACTOR

REQUIRED SUBMITTALS:

1. ALL CATALOG CUT SHEETS FOR ALL IMPROVEMENTS, GRADATIONS, MIX DESIGNS, PROCTOR TESTS, TACK COATS, ETC. ARE REQUIRED SUBMITTALS AND MUST BE APPROVED BY ENGINEER AND SUBMITTED TO THE TOWN.
2. ALL PROPOSED IMPROVEMENT MATERIALS AS APPROVED BY THE ENGINEER SHALL BE SUBMITTED TO THE TOWN. (MATERIAL SPECIFICATIONS AND PRODUCT DATA SHEETS ONLY).

PROJECT CLOSE OUT:

1. IT IS THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR TO PERFORM EROSION CONTROL MEASURES (INCLUDING PLANTINGS) AND TO MAINTAIN CONSTRUCTION FACILITIES THROUGH THE CONSTRUCTION PROCESS IN A MANNER THAT PRESERVES THE INTENDED FUNCTION AND LIFE OF THE FACILITIES.
2. IT IS THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR TO OBTAIN FINAL ACCEPTANCE FROM THE TOWN AFTER WHICH THE 1-YEAR WARRANTY PERIOD REGARDING ANY PUBLIC IMPROVEMENTS AND RELATED CONSTRUCTION WILL BEGIN.

ADA NOTES:

1. ALL HANDICAP PARKING STALLS, RAMPS, AND ROUTES SHALL MEET CURRENT ADA STANDARDS.

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email@westerneci.com
(720) 685-9951
FAX (720) 294-1330
Western Engineering Consultants, inc LLC

No.	REVISION	DATE	BY
0	INITIAL RELEASE	12/20/21	CFC
1	REV PER COUNTY COMMENTS	03/29/22	CFC

GCSA LLC
CONTACT:
LLARICXE ALDANA
6657 IMBODEN RD
WATKINS, CO 80137
(303) 435-3021

NOTES
ALDANA EVENT CENTER
6539 IMBODEN RD
ADAMS COUNTY, COLORADO

Dig Safely.
CALL UNCC
THREE WORKING DAYS BEFORE YOU DIG
1-800-922-1987
www.uncc.org
UTILITY NOTIFICATION CENTER OF COLORADO

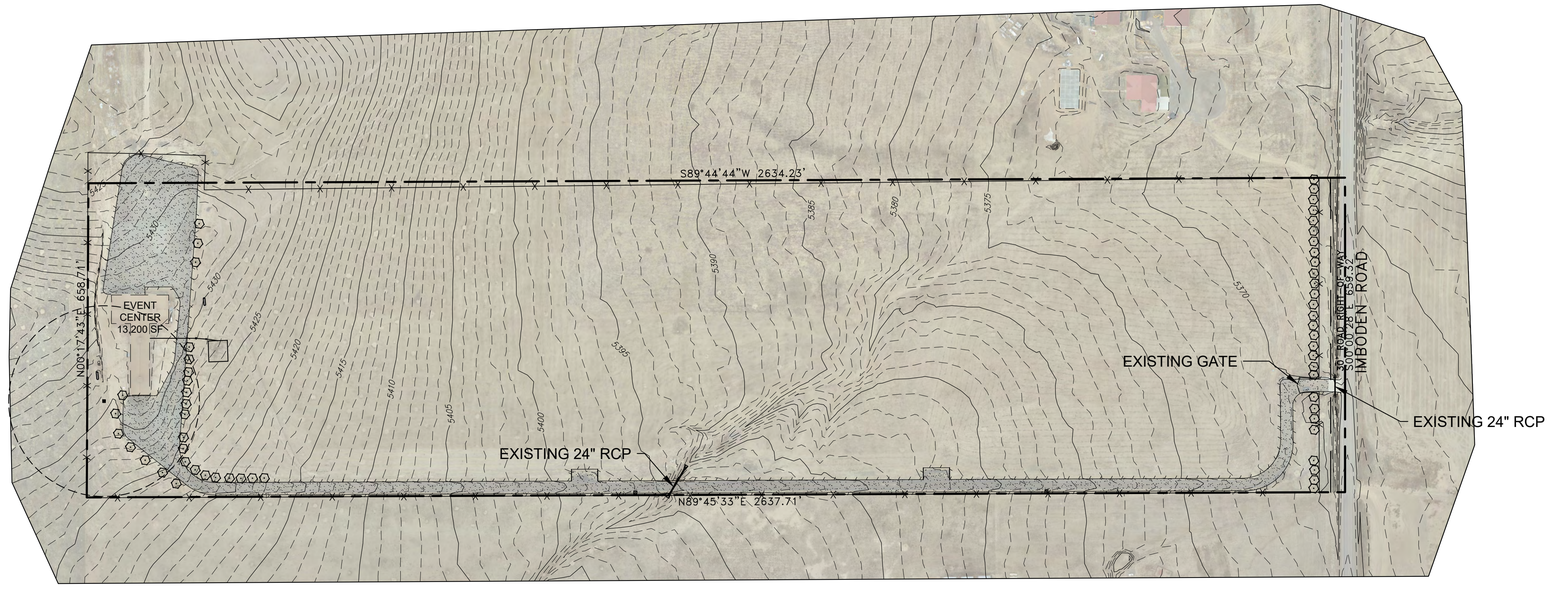
PRELIMINARY
FOR REVIEW ONLY

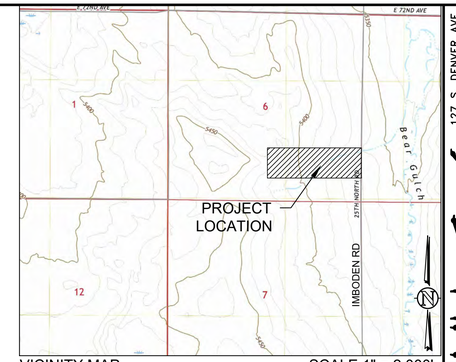
ONLY VALID FOR CONSTRUCTION IF SEAL & ORIGINAL SIGNATURE ARE ON EACH SHEET

INITIAL PLAN RELEASE: 12/20/21
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC

PROJECT NO.
01-0406.002.00

DOC CON #
02-NOTES





VICINITY MAP SCALE 1" = 2,000'

SE 1/4 SECTION 6 TOWNSHIP 3 SOUTH RANGE 64 WEST
SHOWN VICINITY MAP TAKEN FROM USGS QUAD MAP - MANILA, CO

NOTES

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SYMBOL LEGEND

- 45 DEG BEND
- 22.5 DEG BEND
- RESTRAINED PLUG
- RESTRAINED TEE
- WATER METER
- RESTRAINED CROSS
- FIRE HYDRANT
- RESTRAINED VALVE
- THRUST BLOCK TB
- GATE VALVE GV
- CURB STOP
- PIPE CROSSING
- MANHOLE
- MANHOLE W/ FLOW DIRECTION
- RD ROOF DRAIN
- PROPOSED GRAVEL
- EXISTING CONC
- PROPOSED CONC
- EXISTING ASPHALT
- PROPOSED ASPHALT

LINETYPE LEGEND

- LOT / PROPERTY / SECTION LINE
- RIGHT OF WAY LINE
- EASEMENT
- SETBACK
- TO BE ABANDONED LOT LINE
- EXISTING BUILDING, CURB
- EDGE of ASPHALT or GRAVEL RD
- CHAINLINK FENCE
- WIRE FENCE
- POND WQ W/S
- SWALE
- OHE — EXISTING OVERHEAD ELEC
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150 75 0 150 300

FULL SCALE: 1" = 150'
HALF SCALE: 1" = 300'

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No.	REVISION	DATE	BY
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1	REV. PER COUNTY COMMENTS	03/29/22	CFC

CONTACT:
LLARICXE ALDANA
6657 IMBODEN RD
WATKINS, CO 80137
(303) 435-3021

EXISTING CONDITIONS PLAN
ALDANA EVENT CENTER
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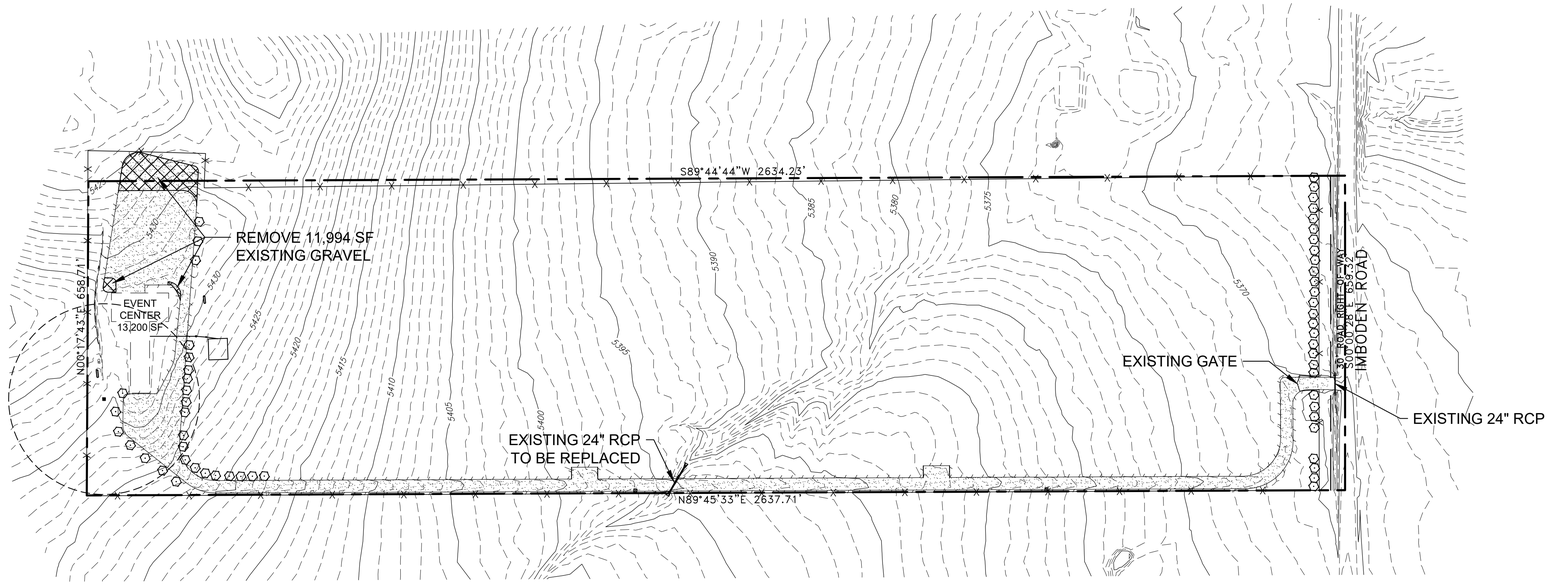
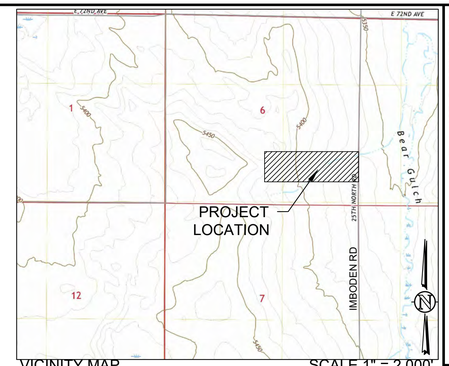
PROJECT NO.
01-0406.002.00

DOC CON #
0003-EXCON AE





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SYMBOL LEGEND

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	22.5 DEG BEND		GATE VALVE GV
	RESTRAINED PLUG		CURB STOP
	RESTRAINED TEE		PIPE CROSSING
	WATER METER		MANHOLE
	RESTRAINED CROSS		MANHOLE W/ FLOW DIRECTION
	FIRE HYDRANT	RD	ROOF DRAIN
	RESTRAINED VALVE		
			PROPOSED GRAVEL
	EXISTING CONC		PROPOSED CONC
	EXISTING ASPHALT		PROPOSED ASPHALT

LINETYPE LEGEND

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	RIGHT OF WAY LINE
	EASEMENT
	SETBACK
	TO BE ABANDONED LOT LINE
	EXISTING BUILDING, CURB
	EDGE of ASPHALT or GRAVEL RD
	CHAINLINK FENCE
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	POND WQ W/S
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OHE	EXISTING OVERHEAD ELEC
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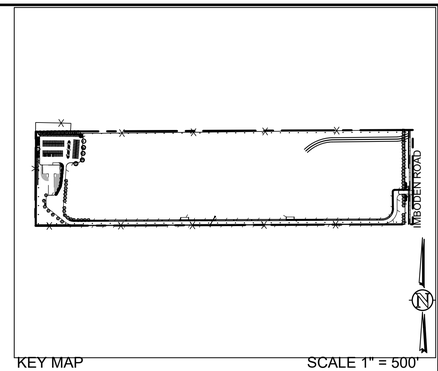
PROJECT NO.
01-0406.002.00

DOC CON #
0004-EXCONDEMO

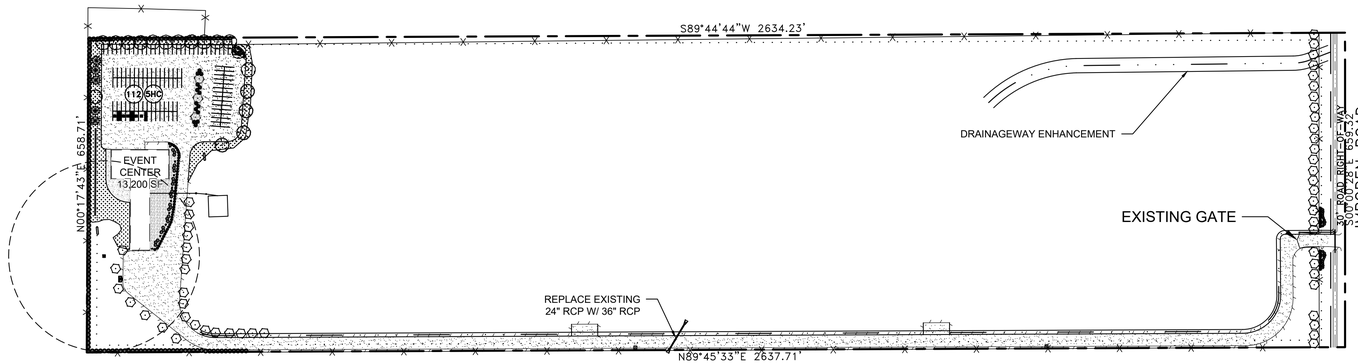
LOT SETBACK TABLE	
SETBACK	DISTANCE
ZONE	A-3
FRONT	50 FT
SIDE	15 FT
REAR	20 FT
MAX BLDG HEIGHT	35 FT

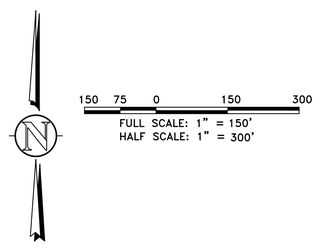
LOT DATA TABLE			
DESCRPTION	AREA	ACRES	%
ZONING			
LOT	1,737,111 SF	39.88 AC	100.00 %
EXISTING BUILDING	13,200 SF	0.30 AC	0.76 %
TOTAL BUILDING	**13,200 SF**	**0.30 AC**	**0.76 %**
EXISTING GRAVEL	140,325 SF	3.22 AC	8.08 %
EXISTING GRAVEL TO BE REMOVED	9,824 SF	0.23 AC	0.57 %
PROPOSED GRAVEL	22,675 SF	0.52 AC	1.31 %
TOTAL GRAVEL	**153,176 SF**	**3.52 AC**	**8.82 %**
TOTAL LANDSCAPING	**1,570,735 SF**	**36.06 AC**	**90.42 %**



KEY MAP SCALE 1" = 500'

SITE PARKING TABLE					
BLDG	USE	GFA	CODE	REQUIRED	PROVIDED
EVENT CENTER	COMMERCIAL	4,470 SF	1/40 SF	112 + 5 HC	112 + 5 HC





150 75 0 150 300
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NOTES

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- PROPOSED GRAVEL
- EXISTING CONC
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DESIGNED BY: CFC
DRAWN BY: CFC
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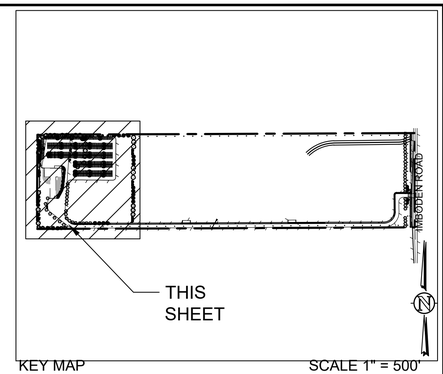
PROJECT NO. 01-0406.002.00
DOC CON # 0005-OVR SITE

SITE PARKING TABLE					
BLDG	USE	GFA	CODE	REQUIRED	PROVIDED
EVENT CENTER	COMMERCIAL	13,200 SF	1/40 SF	330 + 8 HC	331 + 12 HC

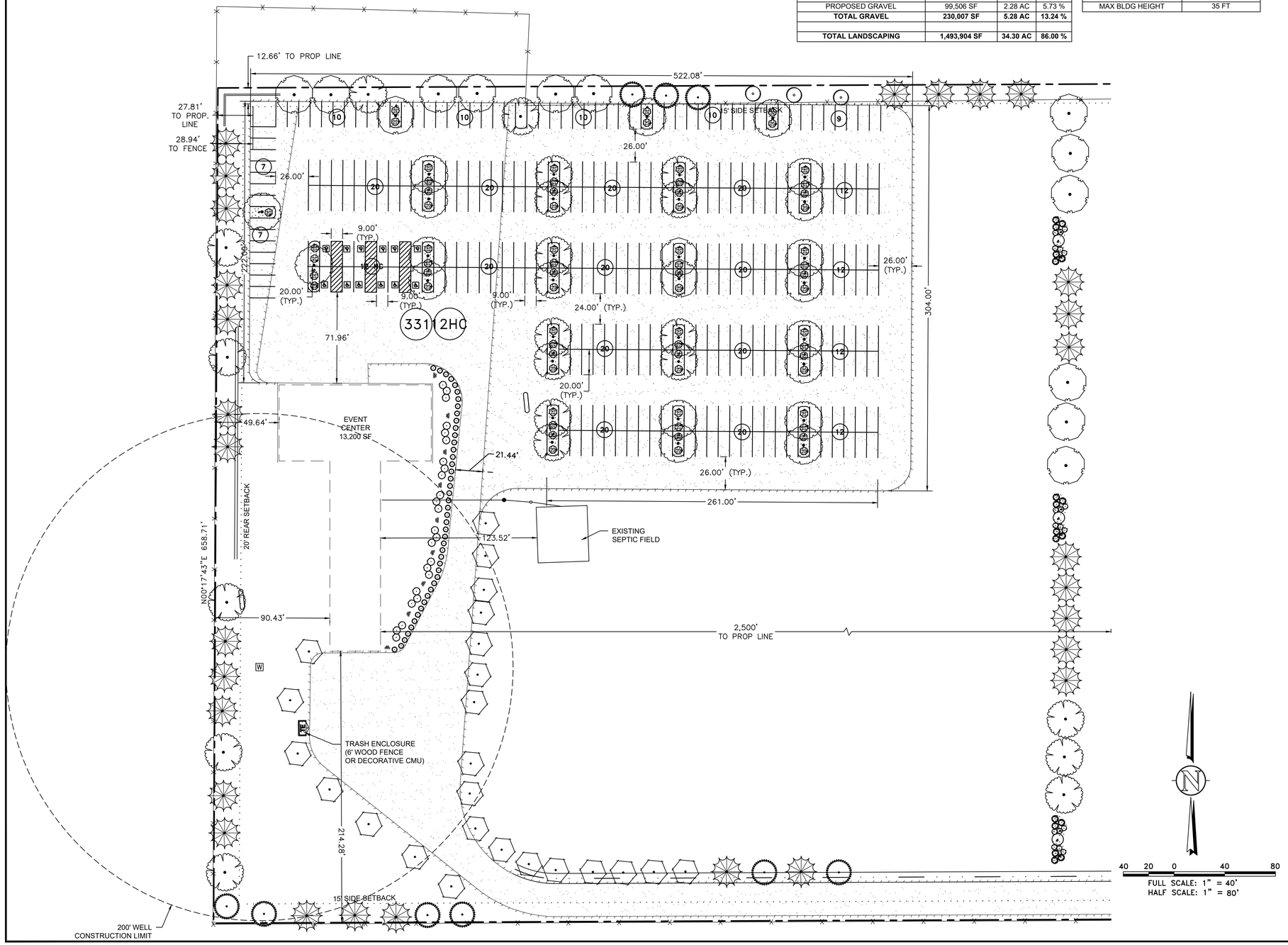
SEE LANDSCAPING PLANS PREPARED BY NDS FOR LANDSCAPING DETAILS.

LOT DATA TABLE			
DESCRPTION	AREA	ACRES	%
ZONING			
LOT	1,737,111 SF	39.88 AC	100.00 %
EXISTING BUILDING	13,200 SF	0.30 AC	0.76 %
TOTAL BUILDING	**13,200 SF**	**0.30 AC**	**0.76 %**
EXISTING GRAVEL	140,325 SF	3.22 AC	8.08 %
EXISTING GRAVEL TO BE REMOVED	9,824 SF	0.23 AC	0.57 %
PROPOSED GRAVEL	99,506 SF	2.28 AC	5.73 %
TOTAL GRAVEL	**230,007 SF**	**5.28 AC**	**13.24 %**
TOTAL LANDSCAPING	**1,493,904 SF**	**34.30 AC**	**86.00 %**

LOT SETBACK TABLE	
SETBACK	DISTANCE
ZONE	A-3
FRONT	50 FT
SIDE	15 FT
REAR	20 FT
MAX BLDG HEIGHT	35 FT



KEY MAP SCALE 1" = 500'



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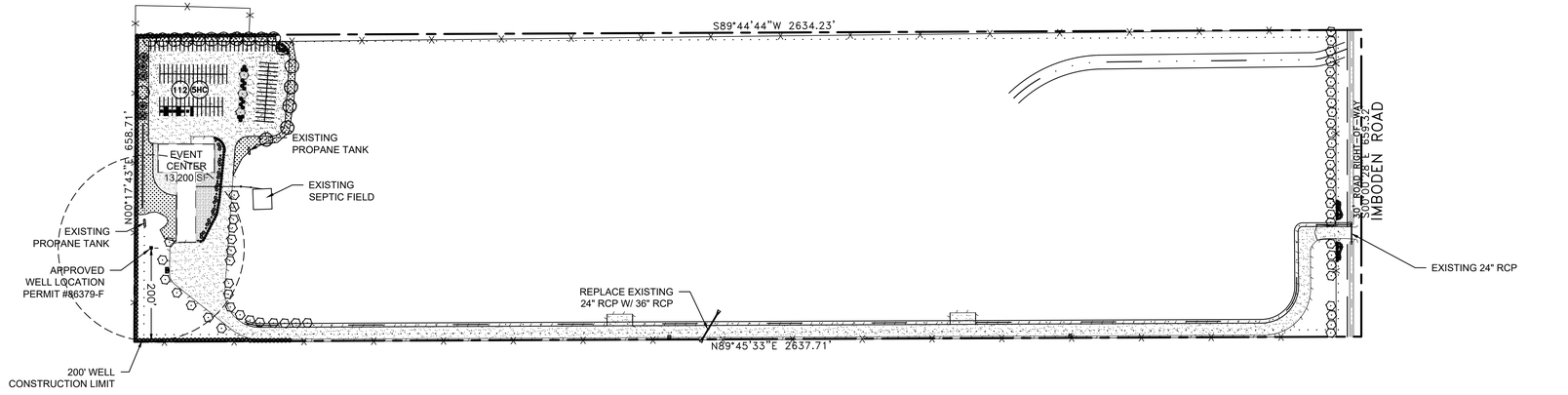
PROJECT NO. 01-0406.002.00
DOC CON # 0006-SITE

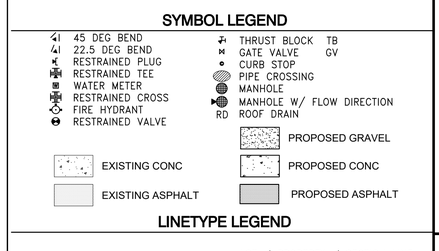
6 OF 10

UTILITY NOTES:

1. WATER USAGE SHALL BE PER STATE PERMIT # 86379-F.
2. OWTS SHALL ADHERE TO TRI-COUNTY REGULATION.
3. ALL WATER SERVICE LINE PIPING SHALL BE TYPE K SOFT COPPER AND WITH A MINIMUM OF 4.5 FEET OF COVER.
4. SANITARY SEWER SERVICE LINE PIPING SHALL BE SDR-35 PVC AT 2% MINIMUM SLOPE.
5. ALL PRIVATE/PUBLIC STORM PIPING SHALL BE ADS SMOOTH INTERIOR N-12 OR SDR 35 PVC UNLESS OTHERWISE NOTED WITH WATERTIGHT JOINTS AT MINIMUM SLOPE OF 0.5%.
6. GAS SERVICES TO BE PROPANE.
7. ELECTRIC SERVICES TO BE EXTENDED FROM EXISTING OVERHEAD, COORDINATE WITH XCEL.

UTILITY SUMMARY		
TYPE	SIZE	COMMENT
GAS		PROPANE TANK
ELECTRICAL	TBD	XCEL
TELEPHONE	PER CENTURY LINK	N/A
TELEVISION	PER COMCAST	N/A
WATER SERVICE		WELL PERMIT #86379-F
IRRIGATION	N/A	XERISCAPE
WASTEWATER	SEPTIC	ENGINEERED OWTS
FIRE DISTRICT		BENNETT FIRE PROTECTION DISTRICT
FIRE SERVICE	N/A	N/A





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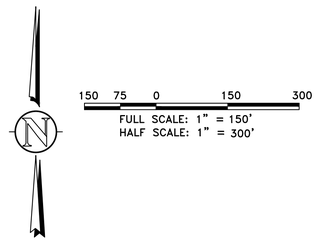

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No.	REVISION	DATE	BY
0	INITIAL RELEASE	12/20/21	CFC
1	REV. PER COUNTY COMMENTS	03/29/22	CFC

OWNER:
ALDANA LLC
CONTACT:
LLARICXE ALDANA
6657 IMBODEN RD
WATKINS, CO 80137
(303) 435-3021

OVERALL UTILITY PLAN
ALDANA EVENT CENTER
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INITIAL PLAN RELEASE: 12/20/21
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC

PROJECT NO.
01-0406.002.00

DOC CON #
0007-UTIL

ALDANA EVENT CENTER EARTHWORK SUMMARY

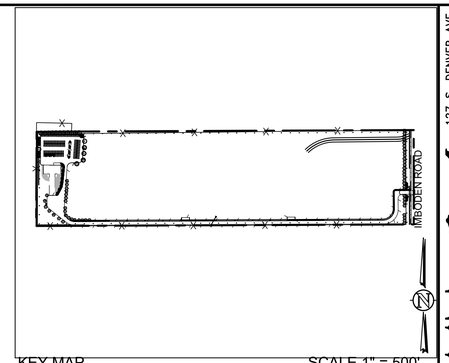
	Description	Area (sq. ft)	Thickness (inches)	Volume (cubic ft)	Volume (cubic yds)	
	ASPHALT	62,250	-6	-31,125	(1,153)	
	OVER-EX SOIL REPLACEMENT	0	0	0	-	
A	TOTAL IMPORT	62,250 sft		-31,125	(1,153)	A
	Undisturbed Area	37.52 ac				
	Total Adjusted Earthwork Area	2.36 ac				
B1	EG to FG Surface to Surface net cut required (cy)				817	
B2	EG to FG Surface to Surface net (fill) required (cy)				(1,742)	
B	EG to FG Surface to Surface net cut (fill) required (cy) after 10% fill shrinkage				(925)	B
	(B-A) Net Excess or (Shortage) cy needed in order to balance				**228**	**=B1-(B2+A)**
	Net adjustment to balance + raise, (lower) in feet over EG to FG area				0.06	
	% Unbalanced				-25%	
	Assumed Stripping's (6" over 0.87 ac)				1,153	

As per the Project Geotechnical report, additional import may be necessary to achieve stabilization.
Additional import may be required and an excess material condition could occur.
No overexcavation, foundation excavation, or buried utility export, has been included in this table.
Not all landscape hardscape areas have been accounted for in this table.

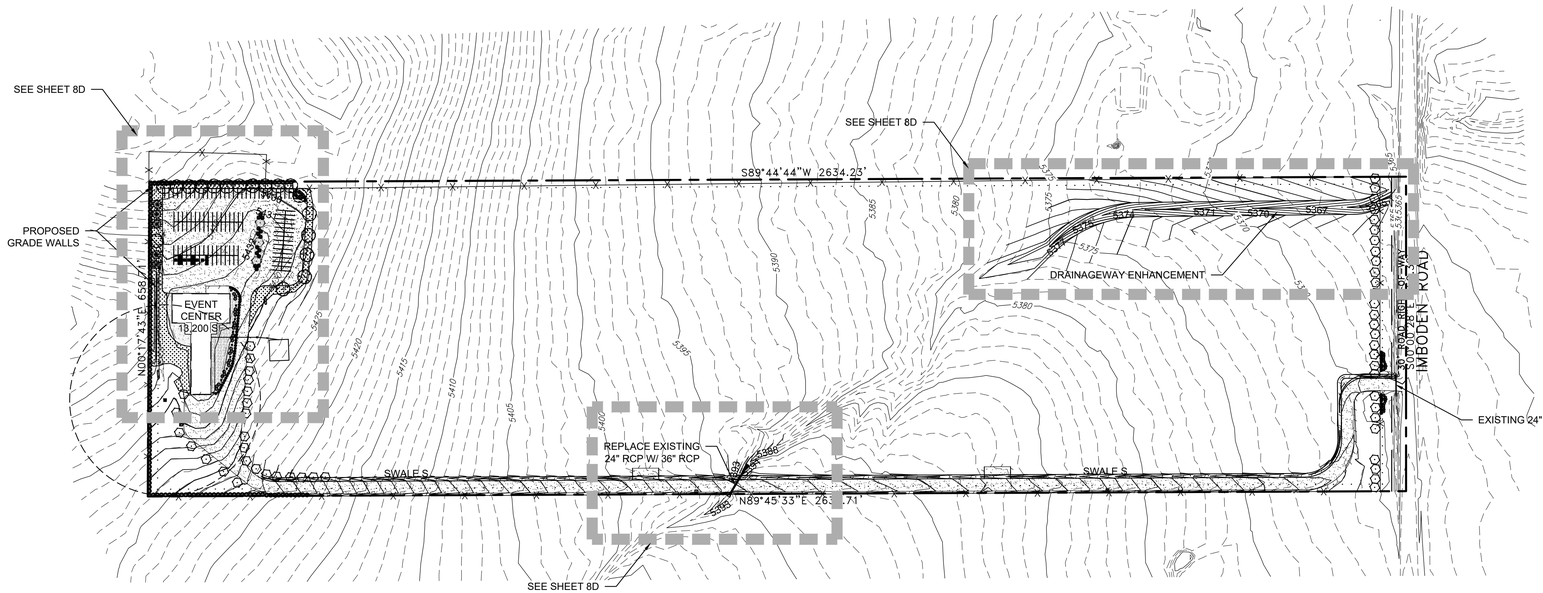
12/23/2021 Revision 0

GRADING LEGEND

- EXISITNG MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 5132.12 × G — EXISITNG SPOT ELEVATION
- 1.0% — EXISTING SLOPE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- 5132.15 FG — PROPOSED SPOT ELEVATION
- 2.0% — PROPOSED SLOPE



KEY MAP SCALE 1" = 500'



150 75 0 150 300
FULL SCALE: 1" = 150'
HALF SCALE: 1" = 300'

NOTES

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SYMBOL LEGEND

- 45 DEG BEND
- 22.5 DEG BEND
- RESTRAINED PLUG
- RESTRAINED TEE
- WATER METER
- RESTRAINED CROSS
- FIRE HYDRANT
- RESTRAINED VALVE
- THRUST BLOCK TB
- GATE VALVE GV
- CURB STOP
- PIPE CROSSING
- MANHOLE
- MANHOLE W/ FLOW DIRECTION
- RD ROOF DRAIN
- PROPOSED GRAVEL
- EXISTING CONC
- PROPOSED CONC
- EXISTING ASPHALT
- PROPOSED ASPHALT

LINETYPE LEGEND

- LOT / PROPERTY / SECTION LINE
- RIGHT OF WAY LINE
- EASEMENT
- SETBACK
- TO BE ABANDONED LOT LINE
- EXISTING BUILDING, CURB
- EDGE of ASPHALT or GRAVEL RD
- CHAINLINK FENCE
- WIRE FENCE
- POND WQ W/S
- SWALE
- OHE — EXISTING OVERHEAD ELEC
- EL — EXISTING ELECTRICAL LINE
- ST — EXISTING STORM LINE
- SA — EXISTING SANITARY LINE
- W — EXISTING WATER LINE
- GA — EXISTING GAS LINE
- FO — EXISTING FIBER OPTIC LINE
- T — EXISTING TELEPHONE LINE
- SA — PROPOSED SANITARY LINE
- SS — PROPOSED SANITARY SERVICE
- ST — PROPOSED STORM LINE
- WA — PROPOSED WATER LINE
- WAS — PROPOSED WATER SERVICE
- GA — PROPOSED GAS LINE
- EL — PROPOSED ELECTRIC LINE
- T — PROPOSED TELEPHONE LINE

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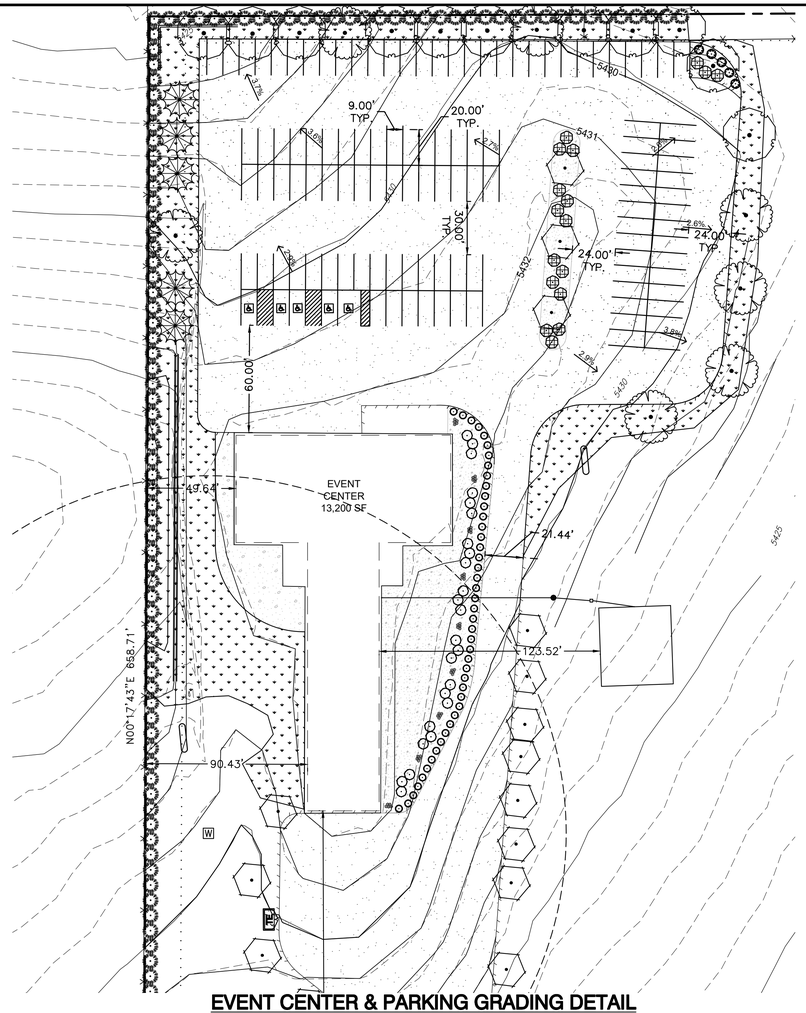
DOC CON # 0008-GRD

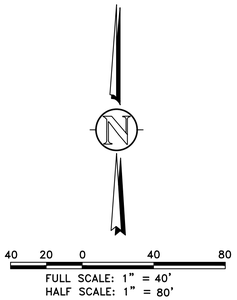
8 OF 10

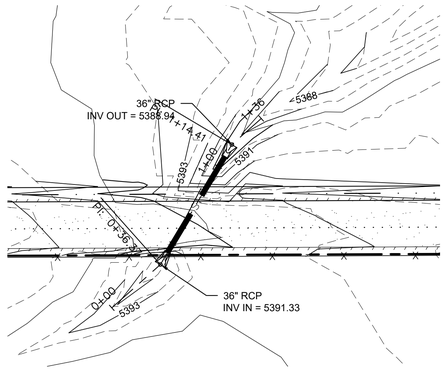


EVENT CENTER & PARKING GRADING DETAIL

GRADING LEGEND

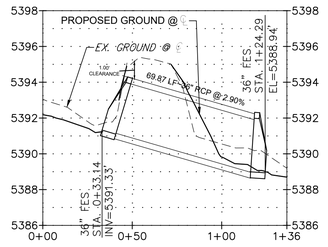
	EXISITNG MAJOR CONTOUR
	EXISTING MINOR CONTOUR
5132.12 × G	EXISITNG SPOT ELEVATION
1.0%	EXISTING SLOPE
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
5132.15 FG	PROPOSED SPOT ELEVATION
2.0%	PROPOSED SLOPE

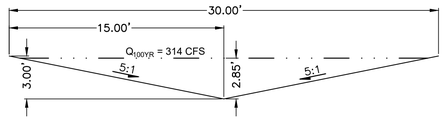




CULVERT REPLACEMENT GRADING DETAIL

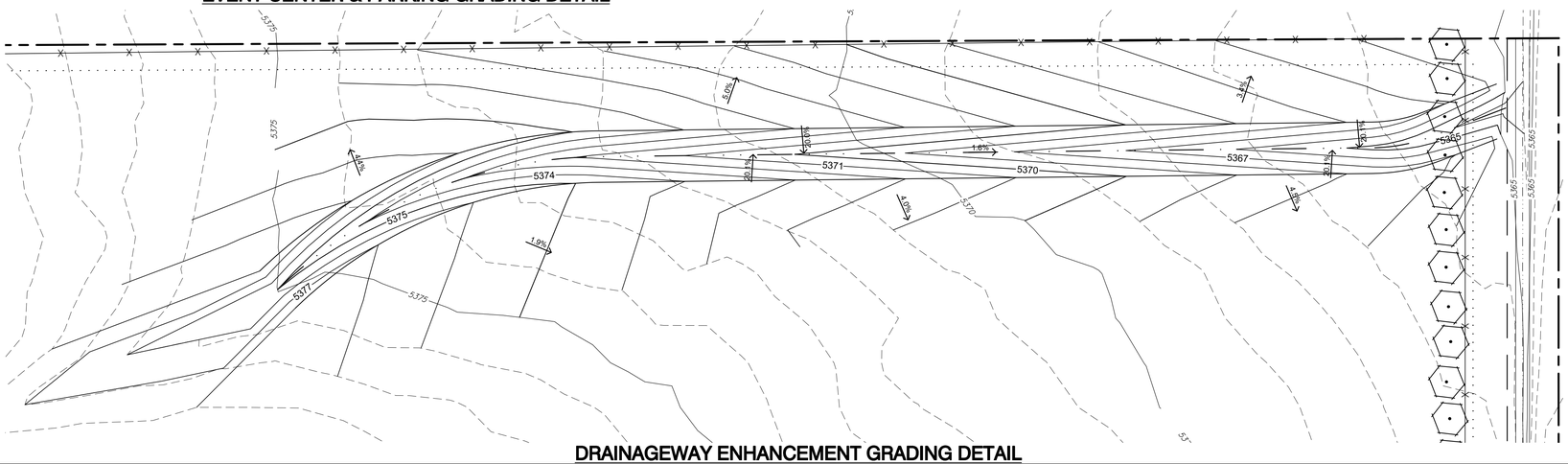
Alignment - ROAD CULVERT PROFILE
HORIZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 4'



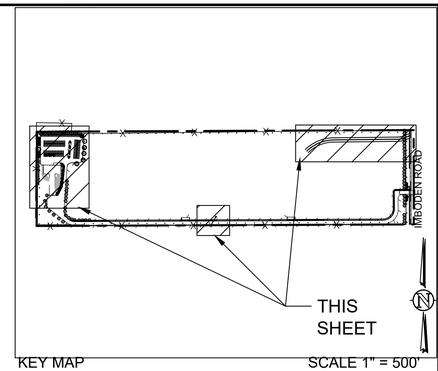


DRAINAGEWAY ENHANCEMENT TYP. SECTION

Q_{CAP} = 362.20 CFS
SCALE 1" = 5'



DRAINAGEWAY ENHANCEMENT GRADING DETAIL



KEY MAP SCALE 1" = 500'

NOTES

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SYMBOL LEGEND

45 DEG BEND	THRUST BLOCK TB
22.5 DEG BEND	GATE VALVE GV
RESTRAINED PLUG	CURB STOP
RESTRAINED TEE	PIPE CROSSING
WATER METER	MANHOLE
RESTRAINED CROSS	MANHOLE W/ FLOW DIRECTION
FIRE HYDRANT	RD ROOF DRAIN
RESTRAINED VALVE	
	PROPOSED GRAVEL
EXISTING CONC	PROPOSED CONC
EXISTING ASPHALT	PROPOSED ASPHALT

LINETYPE LEGEND

	LOT / PROPERTY / SECTION LINE
	RIGHT OF WAY LINE
	EASEMENT
	SETBACK
	TO BE ABANDONED LOT LINE
	EXISTING BUILDING, CURB
	EDGE of ASPHALT or GRAVEL RD
	CHAINLINK FENCE
	WIRE FENCE
	POND WQ W/S
	SWALE
OHE	EXISTING OVERHEAD ELEC
EL	EXISTING ELECTRICAL LINE
ST	EXISTING STORM LINE
SA	EXISTING SANITARY LINE
W	EXISTING WATER LINE
GA	EXISTING GAS LINE
FO	EXISTING FIBER OPTIC LINE
T	EXISTING TELEPHONE LINE
SA	PROPOSED SANITARY LINE
SS	PROPOSED SANITARY SERVICE
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WAS	PROPOSED WATER SERVICE
GA	PROPOSED GAS LINE
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PROJECT NO. 01-0406.002.00
DOC CON # 008D-GRD DTL

8D OF 10

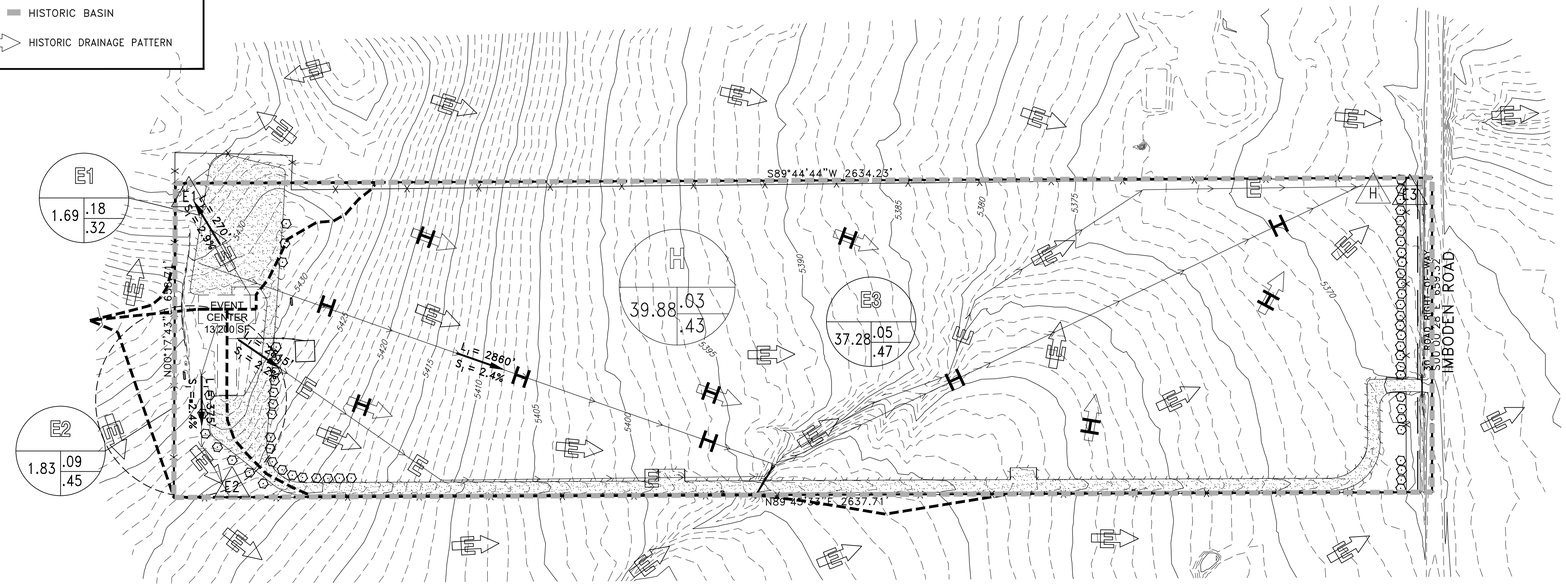
EXISTING DRAINAGE LEGEND

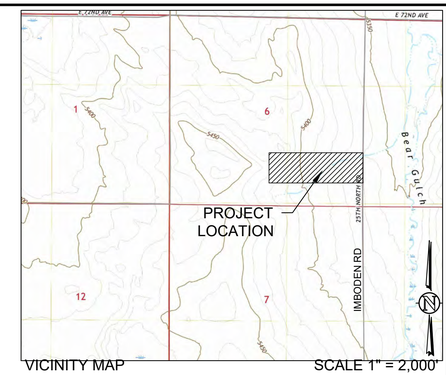
E — EXISTING SUB-BASIN DESIGNATION
1.12 | .73 — C5
.83 — C100
AREA IN ACRES
8 — DESIGN POINT
EXISTING BASIN
EXISTING DRAINAGE PATTERN

HISTORIC DRAINAGE LEGEND

H — HISTORIC SUB-BASIN DESIGNATION
1.12 | .73 — C5
.83 — C100
AREA IN ACRES
HISTORIC BASIN
HISTORIC DRAINAGE PATTERN

L - INITIAL LENGTH $L_i = LI$
S - INTIAL SLOPE $S_i = SI$
L - TRAVEL LENGTH $L_t = LT$
S - TRAVEL SLOPE $S_t = ST$
*** AVERAGE SLOPE INCLUDES ROOF SLOPE OF 8.33%**





VICINITY MAP SCALE 1" = 2,000'
SE 1/4 SECTION 6 TOWNSHIP 3 SOUTH RANGE 64 WEST
SHOWN VICINITY MAP TAKEN FROM USGS QUAD MAP - MANILA, CO

NOTES

THIS PLAN IS INTENDED AS THE HISTORIC & EXISTING DRAINAGE PLAN FOR THE ALDANA EVENT CENTER.

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SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED VALVE
THRUST BLOCK TB
GATE VALVE GV
CURB STOP
PIPE CROSSING
MANHOLE
MANHOLE W/ FLOW DIRECTION
RD ROOF DRAIN
PROPOSED GRAVEL
EXISTING CONC
PROPOSED CONC
EXISTING ASPHALT
PROPOSED ASPHALT

LINETYPE LEGEND

LOT / PROPERTY / SECTION LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WQ W/S
SWALE
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EXISTING ELECTRICAL LINE
EXISTING STORM LINE
EXISTING SANITARY LINE
EXISTING WATER LINE
EXISTING GAS LINE
EXISTING FIBER OPTIC LINE
EXISTING TELEPHONE LINE
PROPOSED SANITARY LINE
PROPOSED SANITARY SERVICE
PROPOSED STORM LINE
PROPOSED WATER LINE
PROPOSED WATER SERVICE
PROPOSED GAS LINE
PROPOSED ELECTRIC LINE
PROPOSED TELEPHONE LINE

Historic Runoff Table - ALDANA EVENT CENTER

BASIN	Impervious	C-YR	I	A	CIA(YR-historic)	Flow	DESIGN POINT
H							
C_2 **(MHFD 2018)**	2.00	0.01	0.89	39.88	0.35	cfs	H1
C_5	2.00	0.03	1.18	39.88	1.32	cfs	
C_{10}	2.00	0.10	1.46	39.88	5.83	cfs	
C_{100}	2.00	0.43	2.68	39.88	46.05	cfs	

Existing Runoff Table - ALDANA EVENT CENTER

BASIN	Impervious	C-YR	I	A	CIA(YR-existing)	Flow	DESIGN POINT
E1							
C_2 **(MHFD 2018)**	26.24	0.17	2.68	1.69	0.78	cfs	E1
C_5	26.24	0.18	3.56	1.69	1.10	cfs	
C_{10}	26.24	0.19	4.40	1.69	1.41	cfs	
C_{100}	26.24	0.32	8.06	1.69	4.30	cfs	
E2							
C_2 **(MHFD 2018)**	11.01	0.08	2.60	1.83	0.39	cfs	E2
C_5	11.01	0.09	3.45	1.83	0.54	cfs	
C_{10}	11.01	0.14	4.27	1.83	1.07	cfs	
C_{100}	11.01	0.45	7.81	1.83	6.45	cfs	
E3							
C_2 **(MHFD 2018)**	3.90	0.02	1.36	37.28	1.24	cfs	E3
C_5	3.90	0.05	1.80	37.28	3.06	cfs	
C_{10}	3.90	0.12	2.23	37.28	10.37	cfs	
C_{100}	3.90	0.47	4.08	37.28	72.02	cfs	

EXISTING SITE EFFECTIVE IMPERVIOUSNESS

Existing Runoff Table - ALDANA EVENT CENTER

BASIN	Impervious	C-YR	I	A	CIA(YR-existing)	Flow	DESIGN POINT
EX SITE							
C_2 **(MHFD 2018)**	5.81	0.04	1.36	39.88	2.10	cfs	
C_5	5.81	0.06	1.81	39.88	4.24	cfs	
C_{10}	5.81	0.13	2.23	39.88	11.52	cfs	
C_{100}	5.81	0.45	4.09	39.88	73.22	cfs	

150 75 0 150 300
FULL SCALE: 1" = 150'
HALF SCALE: 1" = 300'

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DOC CON # 0009-H&EX DRNG

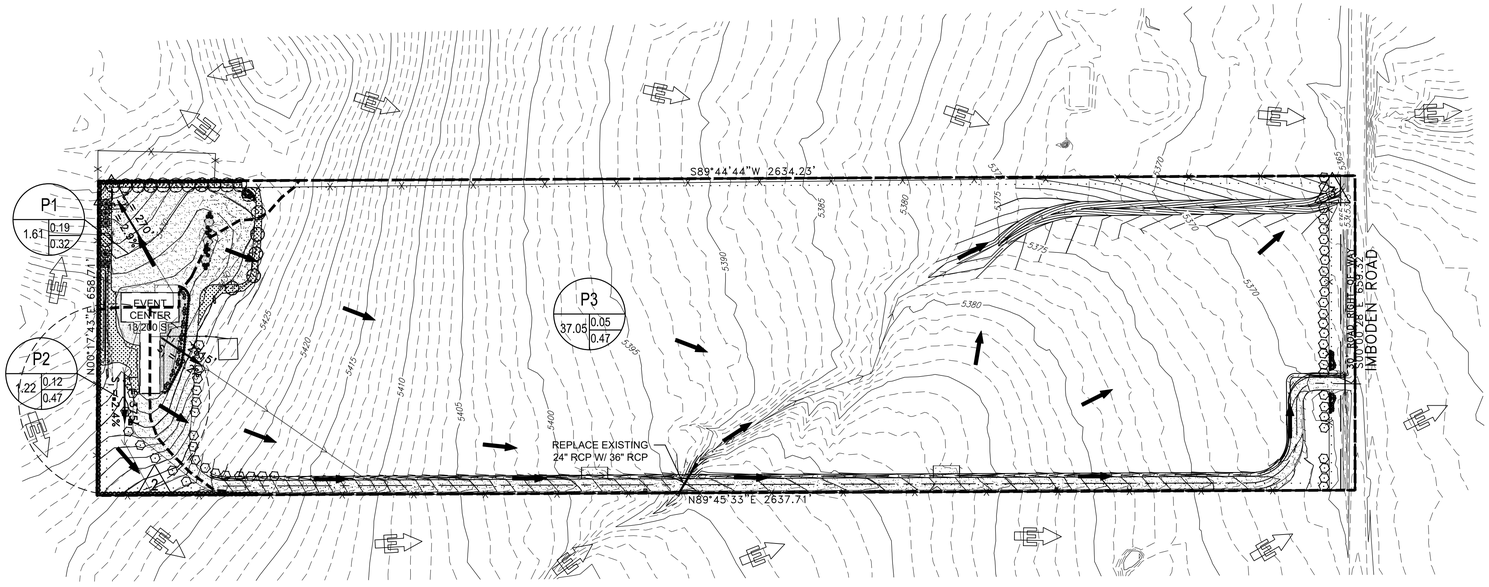
DEVELOPED DRAINAGE LEGEND

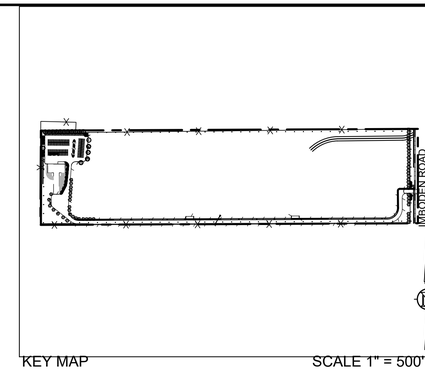
B1 — SUB-BASIN DESIGNATION
3.20 | .58 — C5
.88 — C100
AREA IN ACRES

DEVELOPED BASIN
PROPOSED DRAINAGE PATTERN
DESIGN POINT

L - INITIAL LENGTH
S - INTIAL SLOPE
L - TRAVEL LENGTH
S - TRAVEL SLOPE
L_i= LI, S_i= SI
L_t= LT, S_t= ST

* AVERAGE SLOPE INCLUDES ROOF SLOPE OF 8.33%





KEY MAP SCALE 1" = 500'

Developed Runoff Table - ALDANA EVENT CENTER							
BASIN	Impervious	C-YR	I	A	CIA(YR-DEVELOPED)	cfs	DESIGN POINT
P1							
C_2 (MHFD 2018)	26.76	0.18	2.68	1.61	0.76	cfs	1
C_5	26.76	0.19	3.56	1.61	1.07	cfs	
C_{10}	26.76	0.19	4.41	1.61	1.37	cfs	
C_{100}	26.76	0.32	8.07	1.61	4.15	cfs	
P2							
C_2 (MHFD 2018)	15.49	0.12	2.62	1.22	0.37	cfs	2
C_5	15.49	0.12	3.48	1.22	0.52	cfs	
C_{10}	15.49	0.17	4.30	1.22	0.91	cfs	
C_{100}	15.49	0.47	7.86	1.22	4.55	cfs	
P3							
C_2 (MHFD 2018)	3.91	0.02	1.36	37.05	1.23	cfs	3
C_5	3.91	0.05	1.80	37.05	3.05	cfs	
C_{10}	3.91	0.12	2.23	37.05	10.31	cfs	
C_{100}	3.91	0.47	4.08	37.05	71.58	cfs	

DEVELOPED SITE
EFFECTIVE
IMPERVIOUSNESS

Developed Runoff Table - ALDANA EVENT CENTER							
BASIN	Impervious	C-YR	I	A	CIA(YR-DEVELOPED)	cfs	DESIGN POINT
DS SITE							
C_2 (MHFD 2018)	6.09	0.04	1.36	39.88	2.22	cfs	
C_5	6.09	0.06	1.81	39.88	4.40	cfs	
C_{10}	6.09	0.13	2.23	39.88	11.72	cfs	
C_{100}	6.09	0.45	4.09	39.88	73.45	cfs	

150 75 0 150 300
FULL SCALE: 1" = 150'
HALF SCALE: 1" = 300'

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ALL IMPROVEMENTS ARE PROPOSED UNLESS NOTED AS EXISTING.

IT IS THE OWNER AND/OR THE CONTRACTOR'S RESPONSIBILITY TO ATTAIN ALL APPROPRIATE PERMITS AND REVIEW APPROVALS FROM THE STATE OF COLORADO AND ADAMS COUNTY RESPECTIVELY.

SEE HORIZONTAL AND VERTICAL CONTROL SURVEY AS PROVIDED BY AMERICAN WEST LAND SURVEYING CO. – DATED NOVEMBER 11, 2021.

SEE COVER SHEET FOR BASIS OF BEARING & BENCHMARK.

ANY REFERENCE TO EASEMENTS, SURVEY POINTS, OR EXISTING UTILITIES AND FEATURES ARE BASED SOLELY FROM SURVEY INFORMATION PROVIDED BY MERICAN WEST LAND SURVEYING CO.

NOT ALL UNCC UTILITY LOCATES HAVE BEEN PERFORMED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES ARE LOCATED AND SURVEY PROVIDED TO THE OWNER AND ENGINEER PRIOR TO CONSTRUCTION DRAWING RELEASE.

SYMBOL LEGEND

- 45 DEG BEND
- 22.5 DEG BEND
- RESTRAINED PLUG
- RESTRAINED TEE
- WATER METER
- RESTRAINED CROSS
- FIRE HYDRANT
- RESTRAINED VALVE
- THRUST BLOCK TB
- GATE VALVE GV
- CURB STOP
- PIPE CROSSING
- MANHOLE
- MANHOLE W/ FLOW DIRECTION
- RD ROOF DRAIN
- PROPOSED GRAVEL
- EXISTING CONC
- PROPOSED CONC
- EXISTING ASPHALT
- PROPOSED ASPHALT

LINETYPE LEGEND

- LOT / PROPERTY / SECTION LINE
- RIGHT OF WAY LINE
- EASEMENT
- SETBACK
- TO BE ABANDONED LOT LINE
- EXISTING BUILDING, CURB
- EDGE of ASPHALT or GRAVEL RD
- CHAINLINK FENCE
- WIRE FENCE
- POND WQ W/S
- SWALE
- EXISTING OVERHEAD ELEC
- EXISTING ELECTRICAL LINE
- EXISTING STORM LINE
- EXISTING SANITARY LINE
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING FIBER OPTIC LINE
- EXISTING TELEPHONE LINE
- PROPOSED SANITARY LINE
- PROPOSED SANITARY SERVICE
- PROPOSED STORM LINE
- PROPOSED WATER LINE
- PROPOSED WATER SERVICE
- PROPOSED GAS LINE
- PROPOSED ELECTRIC LINE
- PROPOSED TELEPHONE LINE

Western Engineering Consultants, inc LLC
127 S. DENVER AVE
FT. LUPTON, CO 80621
www.westernec.com
email@westernec.com
(720) 685-9951
FAX (720) 294-1330

No.	REVISION	DATE	BY
0	INITIAL RELEASE	12/20/21	CFC
1	REV. PER COUNTY COMMENTS	03/29/22	CFC

OWNER:
ALDANA LLC
CONTACT:
LLARICXE ALDANA
6657 IMBODEN RD
WATKINS, CO 80137
(303) 435-3021

DEVELOPED DRAINAGE PLAN
ALDANA EVENT CENTER
6539 IMBODEN RD
ADAMS COUNTY, COLORADO

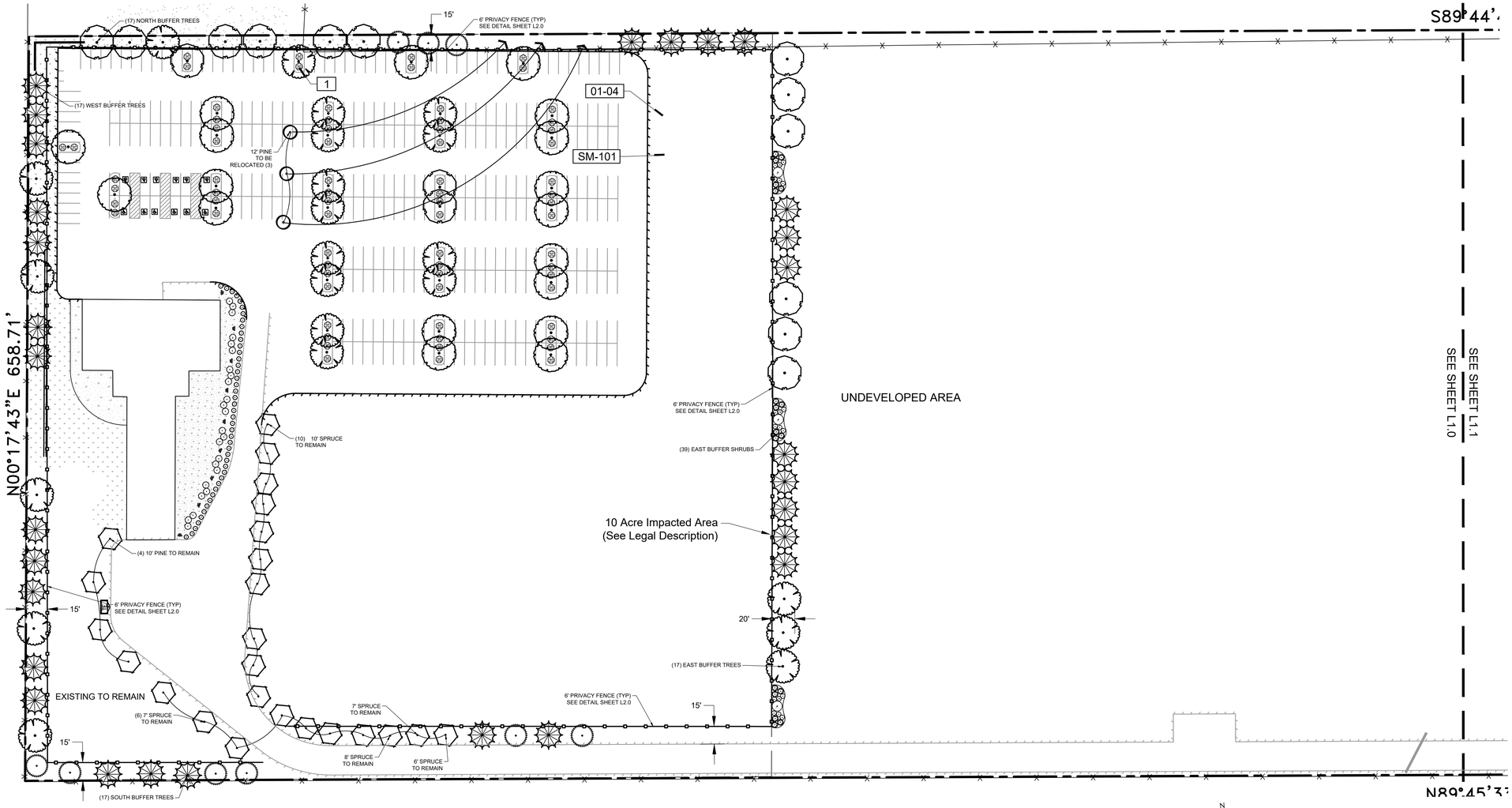
Dig Safely.
CALL UNCC
THREE WORKING DAYS BEFORE YOU DIG
1-800-922-1987
www.uncc.org
UTILITY NOTIFICATION CENTER OF COLORADO

PRELIMINARY FOR REVIEW ONLY

ONLY VALID FOR CONSTRUCTION IF SEAL & ORIGINAL SIGNATURE APPEARS ON EACH SHEET

INITIAL PLAN RELEASE: 12/20/21
DESIGNED BY: CFC
DRAWN BY: CFC
CHECKED BY: CFC
PROJECT NO. 01-0406.002.00
DOC CON # 0010-DEV DRNG

10 OF 10



LANDSCAPE PLAN

SCALE: 1" = 50'

0 50 100 150

N

PLANT SCHEDULE

QTY FOR REFERENCE ONLY, VERIFY ALL COUNTS PER PLAN

TREES	CODE	QTY	BOTANICAL / COMMON NAME	CONT
	CS	18	CATALPA SPECIOSA / NORTHERN CATALPA	2" B&B
	CO	22	CELTIS OCCIDENTALIS / COMMON HACKBERRY	2" B&B
	GTS	15	GLEDITSIA TRIACANTHOS INERMIS `SHADEMASTER` TM / SHADEMASTER LOCUST	2" B&B
	PE	9	PINUS EDULIS / PINON PINE	5` B&B
	PP	29	PINUS NIGRA / AUSTRIAN PINE	6` B&B
	EXR	3	RELOCATE AS INDICATED / EXISTING TREE TO BE RELOCATED ARROW POINT INDICATES NEW LOCATION	EX
	EX-RET	52	TO REMAIN- PROTECT DURING CONSTRUCTION / EXISTING TREE TO REMAIN	EXISTING

SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	BOX	44	BUXUS MICROPHYLLA / BOXWOOD	5 GAL
	EN	18	ERICAMERIA NAUSEOSA / RUBBER RABBITBRUSH	5 GAL
	FM	3	FORESTIERA NEOMEXICANA / NEW MEXICAN PRIVET MULTISTEM	5 GAL.
	HS	24	HYDRANGEA PANICULATA / PANICLE HYDRANGEA	5 GAL
	PALS	18	PEROVSKIA ATRIPLICIFOLIA / RUSSIAN SAGE	5 GAL
	RG	70	RHUS AROMATICA `GRO-LOW` / GRO-LOW FRAGRANT SUMAC	5 GAL

PERENNIALS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	PMR	45	PENSTEMON MEXICALI `RED ROCKS` / PENSTEMON	4"POT

PLANT SCHEDULE

GROUND COVERS	CODE	QTY	BOTANICAL / COMMON NAME	CONT
	NLS	19,346 SF	LOW GROW NATIVE SEED MIX / PAWNEE BUTTES SEED CO LOW GROW NATIVE 5 LBS PER 1000 SQUARE FEET.	SEED

MULCHES	CODE	QTY	BOTANICAL / COMMON NAME	CONT
	RM	17,546 SF	ROCK MULCH / RIVER ROCK 1"-2" PER OWNER APPROVAL. PLACE TO A UNIFORM DEPTH OF 3"	MULCH

REFERENCE NOTES SCHEDULE

SYMBOL	DESCRIPTION
1	PLACE SHREDDED CEDAR MULCH AROUND BASE OF ALL PERENNIALS AND GRASSES IN LARGE COBBLE AREAS. MASSED PERENNIALS TO RECEIVE LARGE RING AROUND ENTIRE GROUP (TYP). WOOD MULCH NOT REQUIRED AROUND BASE OF PLANTS LOCATED IN PEA GRAVEL.

SYMBOL	DESCRIPTION
01-04	SEED ALL DISTURBED AREAS WITH NATIVE LAWN MIX UNLESS OTHERWISE NOTED.

32 LANDSCAPE IMPROVEMENTS

SYMBOL	DESCRIPTION
32-01	14 G ROLL TOP STEEL EDGING, STAKED 30" OC MAX.
SM-101	ALL SEEDED AREAS TO BE AMENDED AND HYDROSEEDED. PLACE EROSION CONTROL MAT ON ALL SLOPES EXCEEDING 4:1.

Low Grow Native Seed Mix

PBSI Native Low Grow Mix
Arizona Fescue
Sandberg Bluegrass
(Rocky Mountain Fescue

(Rate: 5 lbs/1000 sf (PLS)

SEED MAINTENANCE: MOW LOW GROW NATIVE MIX ABOUT ½ THE AMOUNT AS SODDED TURFGRASS OR AS NEEDED. HAND PULL WEED OR SPOT WEED USING A BROADLEAF APPLICATION DURING FIRST 3 GROWING SEASONS.

DISTURBED AREAS TO BE RESEEDED WITH LOW GROW NATIVE MIX UNLESS OTHERWISE NOTED. RE: CIVIL PLANS

SITE CATEGORY REQUIREMENTS

STREET FRONTAGE

Street Name or Zone Boundary (elev.)	Adjacent Use	Width Provided	Linear Footage
East*	Imboden Rd	N/a - Targeted approach	625

No. of Trees Req / Prov. (1/40 lf)	Shrubs Required / Provided (2/40 lf)
n/a	n/a

OVERALL LANDSCAPE

Net Site Area (SF) (less public R.O.W.)	Landscape Area Required	Landscape Area Provided
1,737,085 sf	173,708 / 86,854 ROW	173,708+ / 87,715 ROW

PARKING LOT LANDSCAPE

Parking Space Provided	No. of Trees Req / Prov.	Parking Area (SF) Required / Provided	Percentage landscape Req. / Provided
343	34 / 34	4095 / 4095+	75% / 75%

BUFFERYARDS - TYPE 'C'

Street Name or Zone Boundary (elev.)	Linear Footage	Buffer Width	No. of Trees Req / Prov (2/80 lf)	Fence Provided
West	659	15'	17 / 17	632 lf
North	661	15'	17 / 17 (3 existing)	642 lf
South	661	15'	17 / 17 (6 existing)	627 lf
East	659	20'	17 / 17	N/a - Targeted Approach - 39 shrubs

REVISIONS:
Cty Comment: 02.02.22
Cty Comment: 05.20.22
Cty Comment: 06.08.22
Fence Update: 08.15.22
Site Mod: 10.20.22

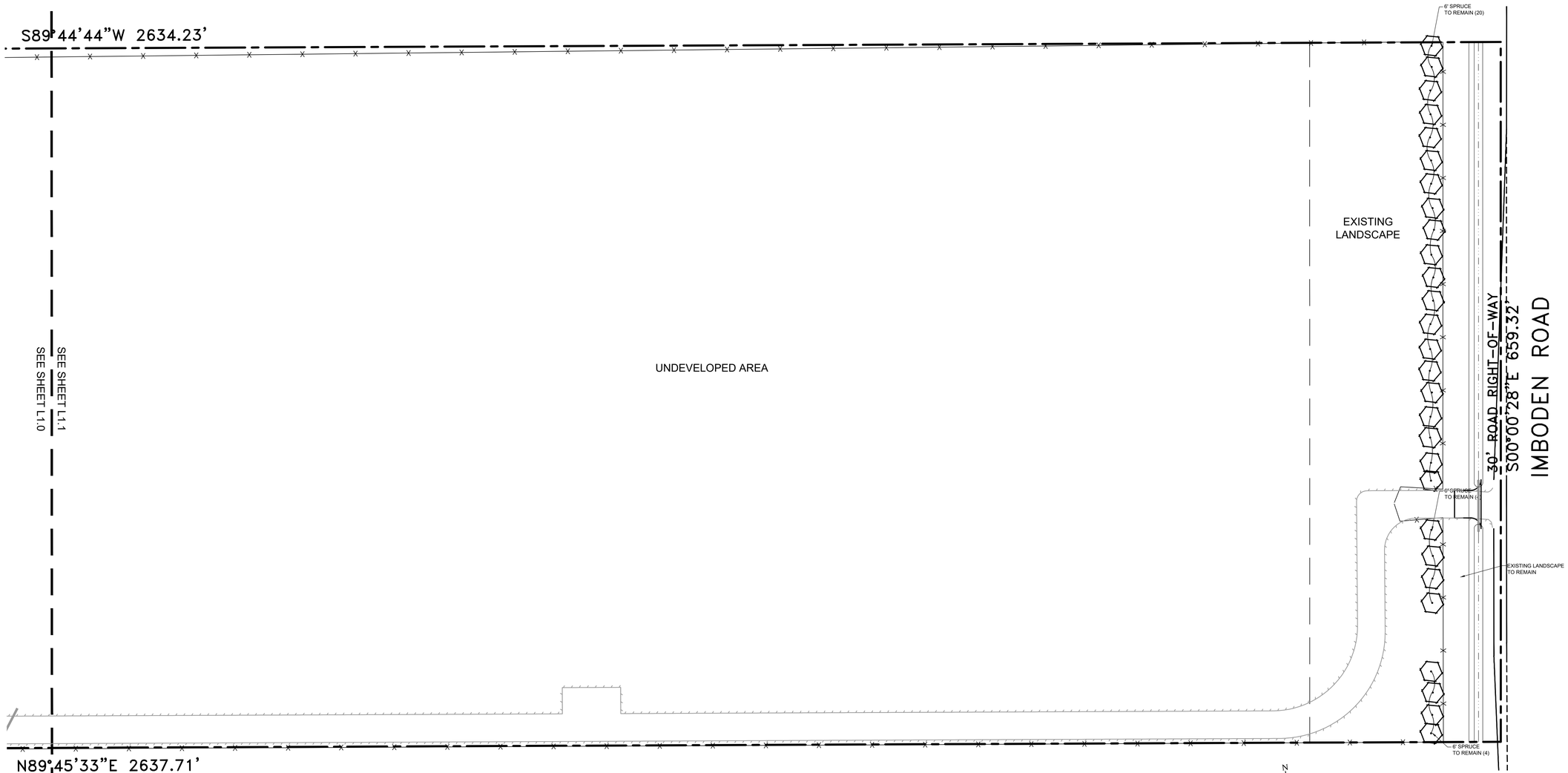
NDS
NATURAL DESIGN SOLUTIONS
Landscape Architecture
Land Planning - Irrigation Design
5539 Colt Drive, Longmont, CO 80503
(303) 443-0385 neil@ndscolorado.com

NEIL ALAN MCLANE 405
Colorado
Original Date of Licensure
10-17-22
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

FINAL LANDSCAPE PLAN

6539 IMBODEN RD
ADAMS COUNTY, CO

PROJ. NO.:
DATE: 12.21.21
SCALE: See Sheet
DRAWN: JRO
CHKD BY: NAM
SHEET L1.0



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NATURAL DESIGN SOLUTIONS
Landscape Architecture
Land Planning - Irrigation Design
5539 Colt Drive, Longmont, CO 80503
(303) 443-0385 neil@ndscolorado.com

NEIL ALAN MCLANE 205 Colorado Original Date of Licensure 10-17-22 STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

6539 IMBODEN RD
ADAMS COUNTY, CO

FINAL LANDSCAPE PLAN

PROJ. NO.:
DATE: 12.21.21
SCALE: See Sheet
DRAWN: JRO
CHKD BY: NAM
SHEET L1.1

GENERAL NOTES

(Note: All references to "Contractor" are specific to "Landscape Contractor" unless notified as "General or other type of Contractor")

1. CONTRACTOR IS RESPONSIBLE FOR VERIFYING QUANTITIES OF MATERIALS NEEDED TO COMPLETE THIS PLAN IN THE FIELD. NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES BETWEEN THE DRAWINGS AND CONDITIONS IN THE FIELD. SUBSTITUTIONS OF PLANT MATERIAL ARE NOT ALLOWED WITHOUT APPROVAL FROM LANDSCAPE ARCHITECT GIVEN PRIOR TO INSTALLATION. GRAPHIC QTY'S. PREVAIL OVER WRITTEN QTY'S. PRIOR TO COMMENCEMENT OF WORK THE LANDSCAPE CONTRACTOR SHALL CONTACT OWNERS REPRESENTATIVE FOR SPECIFIC INSTRUCTIONS RELEVANT TO THE SEQUENCING AND SCOPE OF WORK.
2. CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL LANDSCAPE SHOWN ON THIS PLAN. ANY DEFICIENCIES OR DEVIATIONS FROM THIS PLAN ARE TO BE APPROVED BY OWNER'S REPRESENTATIVE OR LANDSCAPE ARCHITECT. ANY CHANGES FROM THE APPROVED PLANS MAY REQUIRE APPROVAL FROM THE CITY OR COUNTY PLANNING DEPARTMENTS. LANDSCAPE CONTRACTOR TO PROVIDE ALL LABOR AND MATERIALS NECESSARY TO FURNISH SCOPE OF WORK AS SHOWN PER PLAN.
3. EXISTING TOPSOIL IS TO BE STOCKPILED AND USED TO ESTABLISH FINAL GRADES WITHIN LANDSCAPE AREAS. ALL STOCKPILED SOIL MUST BE CLEAR OF WEEDS, ROCKS AND DEBRIS BEFORE REUSE. ALL BERMED PLANTING BEDS TO BE CREATED WITH IMPORTED TOPSOIL.
4. GENERAL CONTRACTOR TO RE-SPREAD STOCKPILED SOIL AND ESTABLISH ROUGH GRADE CONDITIONS TO THE FOLLOWING SPECIFICATIONS:
   A. 1" BELOW CURB FOR ALL SEEDED AREAS.
   B. 2.5" BELOW CURB FOR ALL SODDED AREAS.
   C. 4" BELOW CURB FOR ALL PLANTING, ROCK AND MULCH BEDS.
5. CONTRACTOR TO TILL PARKING LOT ISLANDS TO A DEPTH OF 30".
6. AMEND ALL PLANTING BEDS WITH CLASS 1 COMPOST. APPLY AT RATE OF 3 CYDS. PER 1000 SQUARE FEET TO ALL PLANTING BEDS AND MANICURED LAWN AREAS, AND 2 CYDS. PER 1000 SQUARE FEET FOR SEEDED AREAS. TILL, MIXING THOROUGHLY, INTO THE UPPER 8" OF SOIL.
7. FINE GRADE TO BE ESTABLISHED BY LANDSCAPE CONTRACTOR. FINE GRADE SHALL BE FREE OF ROCKS AND DEBRIS. FINE GRADE IN SEED AREAS SHALL BE FREE FROM ROCKS AND DEBRIS ½" AND GREATER. FINE GRADE IN SODDED AREAS SHALL BE FREE FROM ROCKS AND DEBRIS ¼"AND GREATER. CONTRACTOR TO REPORT ANY POOR DRAINAGE CONDITIONS PRIOR TO CONSTRUCTION.
8. CONTRACTOR IS TO PROVIDE VERIFICATION THAT ALL SOD AND SEED IS OF THE SPECIES SHOWN ON THIS PLAN. NO SUBSTITUTIONS WILL BE ALLOWED. SOD TO BE LAID WITH TIGHT STAGGERED EDGES AND BE ROLLED AFTER INSTALLATION. SEEDED AREAS CANNOT BE SUBSTITUTED WITH SOD.
9. MULCHS: ALL PLANTING BEDS THAT CALL FOR WOOD MULCH TO RECEIVE 4" ORGANIC SHREDDED BARK MULCH. SHREDDED MULCH IS TO BE OF FIBROUS MATERIAL, NOT CHIPS OR CHUNKS. NO FABRIC IS TO BE PLACED UNDER WOOD/ORGANIC MULCH. ALL MULCHED BEDS ARE TO BE SPRAYED WITH WATER AFTER INSTALLATION TO HELP MULCH TO MAT DOWN.

   ALL AREAS THAT CALL FOR COBBLE/ROCK MULCH TO RECEIVE MIN. 3" DEPTH, UNLESS NOTED OTHERWISE.

   TREES IN COBBLE/ROCK MULCH, SOD AND SEEDED AREAS TO RECEIVE 4' DIAMETER OF WOOD MULCH RING, 3" DEEP. SHRUBS AND GROUNDCOVERS IN COBBLE/ROCK MULCH SOD AND SEEDED AREAS TO RECEIVE A WOOD MULCH RING AT 2X DIAMETER OF ROOT BALL, 3" DEPTH. NO FABRIC UNDERLAYMENT TO BE PLACED UNDER ROCK OR WOOD MULCH.

19. CONTRACTOR IS TO PROVIDE A ONE YEAR WARRANTY ON ALL PLANT MATERIAL, TURF, IRRIGATION COMPONENTS, AND WORKMANSHIP. REPLACEMENT PLANT MATERIALS SHALL BE OF THE SAME SPECIES AND SIZE AS THE DECAYED OR DEAD PLANT MATERIAL. WARRANTY IS VOID IF PLANT MATERIAL ARE UNDER OR OVER-WATERED/FERTILIZED, DAMAGED BY VANDALISM OR NEGLECTED BY OWNER AFTER FINAL MAINTENANCE PERIOD AND FINAL ACCEPTANCE IS PROVIDED.

    REMOVE ALL TREE STAKING MATERIALS AT END OF WARRANTY, PRIOR TO FINAL ACCEPTANCE

10. SEED MIX INSTALLATION: CONTRACTOR TO DRILL SEED WITH BRILLION TYPE APPLICATOR AND APPLY 'SOIL GUARD' BONDED FIBER MATRIX (BFM), WHERE INDICATED PER PLAN AND SCHEDULES. APPLY SEED IN TWO DIRECTIONS (PERPENDICULAR OF THE OTHER) ADD SOIL GUARD BFM FOR DRILL SEEDING WHERE NOTED PER PLAN AND ON ALL SLOPES 5:1 TO 3:1. FOR AREAS WITH 3:1 SLOPES OR GREATER CONTRACTOR TO USE SOIL GUARD APPLICATION ONLY (IN LIEU OF HYDROMULCH) CONTRACTOR TO SPOT SEED NON-GERMINATING AREAS (3) MONTHS AFTER INITIAL SEED APPLICATION. CONTRACTOR TO RE-SEED ALL BARE AREAS (6"x6") AND GREATER AFTER (6) MONTHS FROM SEED GERMINATION OR AT THE BEGINNING OF THE FOLLOWING GROWING SEASON. PRIOR TO THE 11-MONTH WARRANTY INSPECTION RE-APPLY SOIL GUARD AND SEED MIX TO ALL BARE AREAS (6"x6" OR GREATER) AND TO ALL BARE AREAS (4"x4" OR GREATER) ON ALL SLOPES 3:1 AND GREATER.
11. REMOVED DEAD TWIGS AND BRANCHES FROM ALL NEW AND EXISTING PLANT MATERIAL IN A MANNER THAT DOES NOT CHANGE THE NATURAL HABIT OF THE PLANT MATERIAL. SCARES OF 1" OR MORE SHALL BE PAINTED WITH ORGANIC TREE PAINT. CENTRAL LEADERS SHALL NOT BE REMOVED AT ANY TIME. NEWLY PLANTED TREES WITHOUT CENTRAL LEADERS WILL BE REJECTED.
12. CONTRACTOR TO APPLY FERTILIZER IN SPRING & LATE SEPTEMBER. WATER THOROUGHLY AFTER APPLICATION OF FERTILIZERS.

    ALL SEEDED AND SODDED AREAS TO HAVE RECOMMEND FERTILIZER APPLICATIONS ADDED ONCE IN MID TO LATE JUNE AND ONCE IN LATE SEPTEMBER. WATER THOROUGHLY AFTER APPLICATION OF FERTILIZERS.
13. ALL PLANT MATERIALS AND UTILITIES ARE SHOWN AT AN APPROXIMATE LOCATIONS. THE CONTRACTOR MAY NEED TO ADJUST LOCATIONS OF PLANT MATERIAL TO ADHERE TO SPECIFIC ON-SITE CONDITIONS AND CODE REQUIREMENTS. ALL TREES AND SHRUBS TO BE PLACES AT 2' MINIMUM BACK OF CURB. CONTRACTOR TO CALL FOR UTILITY LOCATES BEFORE PLANTING (TYP.) 1-800-922-1987, OR CALL 811 BEFORE YOU DIG!
14. STEEL EDGING TO BE USED TO SEPARATE ALL TURF AND/OR SEEDED AREAS FROM PLANTING BEDS. USE PERFORATED EDGING SEGMENTS TO OBTAIN POSITIVE DRAINAGE FOR ALL DRAINAGE SWALES OR AREAS OF STANDING WATER.
15. CONTRACTOR TO PROVIDE COBBLE & UNDERLAYMENT FOR BUILDING DRAINS AND SWALES THROUGH LANDSCAPED AREAS.
16. ALL REQUIRED LANDSCAPING TO BE INSTALLED PRIOR TO ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.
17. ALL NURSERY STOCK TO CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI z60.1) AND THE COLORADO NURSERY ACT.
18. CONTRACTOR IS RESPONSIBLE FOR CONTACTING LANDSCAPE ARCHITECT FOR ALL REQUIRED INSPECTIONS. PROVIDE AT LEAST 48 HOURS NOTICE TO SCHEDULE AN INSPECTION. REQUIRED INSPECTIONS INCLUDE A LANDSCAPE LAYOUT AND PLANT MATERIAL VERIFICATION AND PLACEMENT INSPECTION, IRRIGATION MAIN LINE INSPECTION, LANDSCAPE AND IRRIGATION PUNCH LIST INSPECTION, AND A LANDSCAPE AND IRRIGATION FINAL INSPECTION.
20. MAINTENANCE: THE OWNER OF THIS PROPERTY AND ANY FUTURE OWNERS SHALL BE RESPONSIBLE FOR THE PROPER LANDSCAPE AND IRRIGATION MAINTENANCE OF THIS SITE AND ANY RIGHT OF WAY AREAS BETWEEN THE CURB AND PROPERTY LINES OF THIS SITE. MAINTENANCE OF THIS SITE INCLUDES, BUT IS NOT LIMITED TO, IRRIGATION INSPECTIONS AND ADJUSTMENTS, IRRIGATION SYSTEM SHUT DOWN AND START UP, IRRIGATION LEAK REPAIR, LANDSCAPE WEEDING, MOWING, SEEDING, FERTILIZATION, WOOD MULCH AND ROCK COVER REPLACEMENT, PRUNING, AND PLANT MATERIAL REPLACEMENT (INCLUDING ANNUAL BEDS). ALL MAINTENANCE SHOULD BE IN ACCORDANCE WITH STANDARDS SPECIFIED WITHIN THE "ALCC SPECIFICATIONS HANDBOOK" REVISED EDITION- 1996. OWNER SHOULD CONTACT LANDSCAPE CONTRACTOR OR LANDSCAPE ARCHITECT REGARDING ANY QUESTIONS RELATING TO THE LANDSCAPE OR IRRIGATION MAINTENANCE OF THIS SITE.

PLAN NOTES:

1. **DEVELOPER WILL INSTALL ALL PRIVACY FENCING, TREES AND IRRIGATION IN THE LANDSCAPE BUFFERS. LANDSCAPE BUFFERS WILL BE OWNED AND MAINTAINED BY A COMMON OWNERS ASSOCIATION. FENCING, LANDSCAPING AND IRRIGATION ON THE INDIVIDUAL LOTS WILL BE THE RESPONSIBILITY EACH LAND OWNER AS THE LOTS ARE DEVELOPED**
2. **NO SUBSTITUTIONS WITHOUT PREVIOUS APPROVAL OF LANDSCAPE ARCHITECT. UNAPPROVED DEVIATIONS FROM THIS PLAN WILL BE RECTIFIED AT CONTRACTORS EXPENSE. THIS INCLUDES DEVIATIONS OF CULTIVARS FROM THOSE PROPOSED. SEE NOTE #11 FOR ID TAG RETENTION REQUIREMENTS.**
3. **CONTRACTOR TO PROVIDE ANALYSIS OF ANY AMENDMENTS PROPOSED FOR PLANTING AREAS PRIOR TO INSTALLATION OF SUCH MATERIALS.**
4. **CONTRACTOR TO PROVIDE RECEIPTS TO LANDSCAPE ARCHITECT FOR ALL SEEDING PROPOSED ON SITE, PRIOR TO INSTALLATION OF SEEDING MATERIALS.**
5. **NO FABRIC UNDER WOOD MULCH IN ANY AREAS. ALL PLANTS IN ROCK MULCH AREAS TO RECEIVE SHREDDED CEDAR MULCH RINGS. MASSING SHALL HAVE CONTINUOUS SHREDDED MULCH BANDS. SEE DETAILS SHEET L2.0.**
6. **ALL EMITTERS TO BE PLACED AT THE APPROPRIATE LOCATIONS. ALL EMITTERS TO USE MICRO TUBING, STAKES, AND BUG CAPS.**
7. **SEE LANDSCAPE DETAILS SHEET FOR ADDITIONAL NOTES AND DETAILS.**
8. **RETAIN 10% OF ALL PLANT TAGS PER SPECIES FOR DURATION OF WARRANTY PERIOD.**

IRRIGATION NOTES

ALL TURF AREAS TO BE IRRIGATED WITH AN AUTOMATIC POP-UP SPRINKLER SYSTEM. ALL SHRUBS BEDS TO BE IRRIGATED WITH AUTOMATIC DRIP IRRIGATION SYSTEM. THE IRRIGATION SYSTEM IS TO BE ADJUSTED TO MEET THE NEEDS OF INDIVIDUAL PLANT MATERIAL.

IRRIGATION SYSTEM TO BE ADJUSTED AS NEEDED FOR PLANT ESTABLISHMENT FOR A PERIOD OF AT LEAST ONE (1) YEAR.

ADJUSTMENTS TO BE MADE AFTER ESTABLISHMENT BASED ON SPECIFIC PLANT REQUIREMENTS. SEE SUGGESTED RUN TIMES PROVIDED WITHIN THESE PLANS.

DESIGN OF IRRIGATION SYSTEMS TO MEET OR EXCEED LOCAL REQUIREMENTS AND INDUSTRY STANDARDS. CONSTRUCTION DOCUMENTS SUITABLE FOR DEVELOPMENT COORDINATION TO BE PROVIDED.

IRRIGATION SYSTEM TO BE DESIGNED USING APPROPRIATE COMPONENTS FOR PLANT MATERIAL, AND WILL INCLUDE A SMART ET CONTROLLER AND RAIN SENSOR.

EXISTING TREE PROTECTION DIRECTIONS:

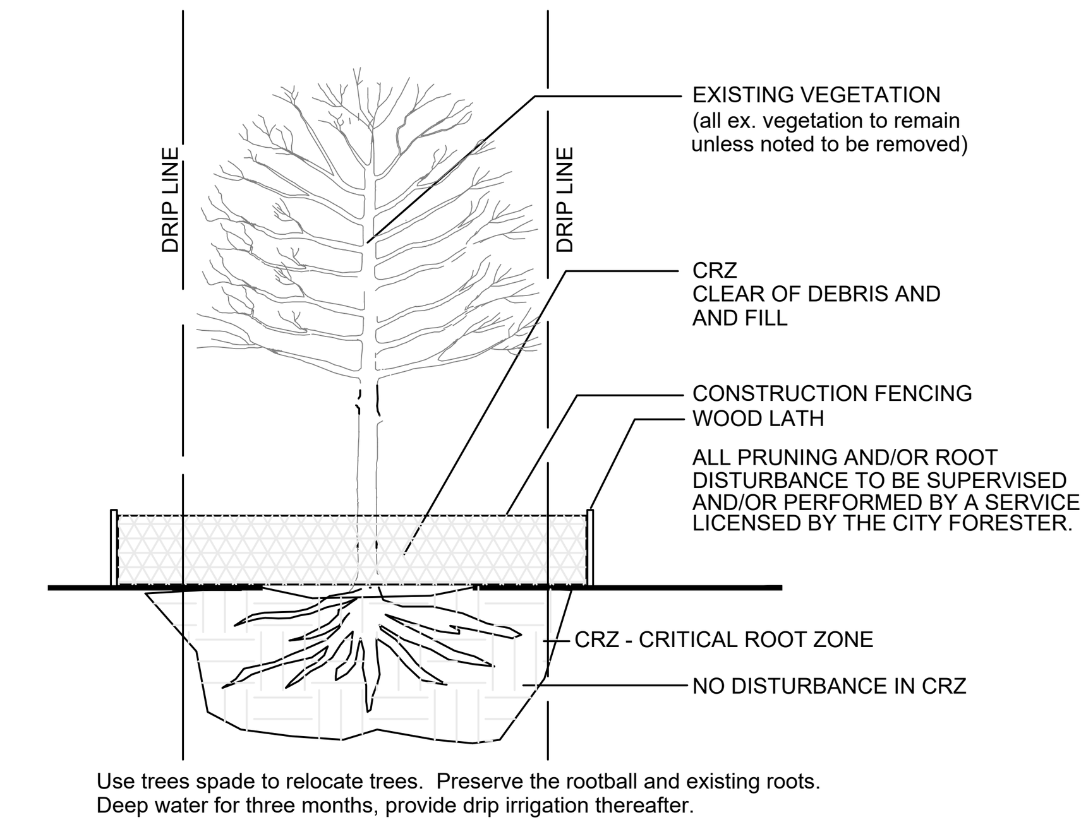
PROTECTIVE FENCING:

FOUR FEET HEIGHT PROTECTIVE FENCING IS TO BE INSTALLED AROUND THE EXISTING TREES TO REMAIN PRIOR TO CONSTRUCTION ON THIS SITE. CONTRACTOR IS TO TAKE PRECAUTIONS TO ENSURE THAT EXISTING ROOTS AND LIMBS ARE NOT DAMAGED DURING EXCAVATION ADJACENT TO TREES. FENCING IS TO BE INSTALLED BELOW THE EDGE OF THE CANOPY OF THE EXISTING TREES TO REMAIN. FENCING IS TO REMAIN IN PLACE FOR THE DURATION OF CONSTRUCTION.

IF ROOT PRUNING IS NECESSARY FOR GRADING, EXCAVATING, OR INSTALLATION OF IRRIGATION SYSTEM, ALL ROOT PRUNING IS TO TAKE PLACE OUTSIDE OF THE PROTECTIVE FENCING AROUND EACH TREE. CONTRACTOR IS TO TRENCH 12" AWAY FROM PROTECTIVE FENCING. ANY ROOTS LARGER THAN 2" ARE TO BE SAW CUT. CONTRACTOR IS TO HAND DIG ANY TRENCHES AND SAW CUT ANY INTERFERING ROOTS INSIDE THE PROTECTIVE FENCE AREAS.

WATERING, MULCHING, AND FERTILIZATION:

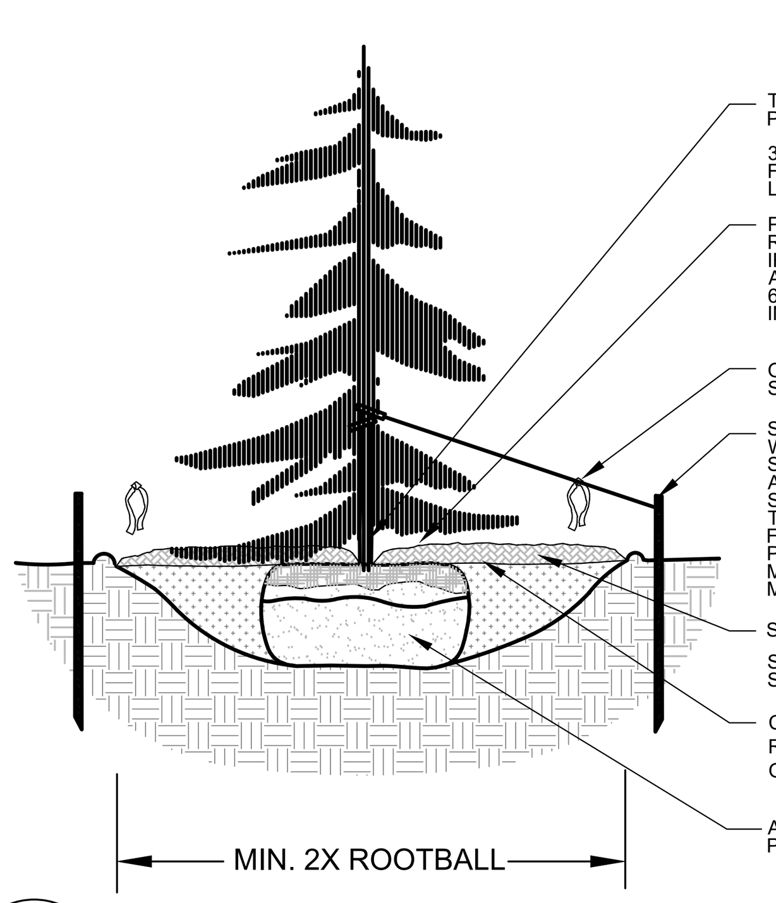
PRIOR TO CONSTRUCTION CONTRACTOR IS TO PLACE A 4" DEPTH OF WOOD CHIPS OR MULCH INSIDE THE PROTECTIVE FENCING OF EXISTING TREES TO REMAIN. CONTRACTOR IS TO PROVIDE REGULAR DEEP WATERING TO ALL EXISTING TREES TO REMAIN THROUGHOUT CONSTRUCTION. DURING CONSTRUCTION A SLOW-RELEASE NITROGREN FERTILIZER IS TO BE APPLIED AROUND THE BASE OF EACH TREE AT A RATE OF 2 LBS. PER 1000 S.F. (USE DRIP LINE OF TREE TO CALCULATE SQUARE FOOTAGE).



Use trees spade to relocate trees. Preserve the rootball and existing roots.
Deep water for three months, provide drip irrigation thereafter.

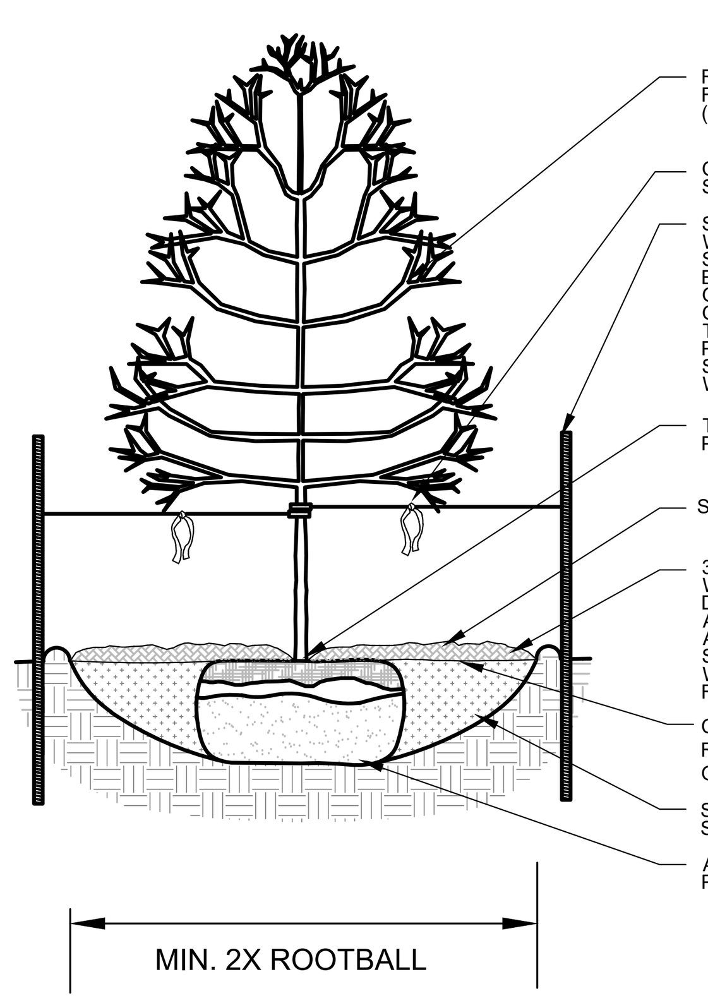
L2.0 EXISTING TREE PROTECTION DETAIL

NOTES:
1. DO NOT REMOVE OR CUT LEADER.
2. PRUNE ONLY DEAD OR BROKEN BRANCHES IMMEDIATELY PRIOR TO PLANTING.
3. DO NOT REMOVE ANY DOUBLE LEADER, UNLESS OTHERWISE DIRECTED BY OWNERS REPRESENTATIVE.
4. KEEP PLANTS MOIST AND SHADED UNTIL PLANTING.
5. AMENDED BACKFILL SHALL BE AS STATED ON THIS SHEET.
6. MARK THE NORTH SIDE OF TREE IN THE NURSERY, AND ROTATE TREE TO FACE NORTH AT THE SITE WHENEVER POSSIBLE.
7. PINE AND SPRUCE TREES TO BE SPRAYED FOR IPS BARK BEETLE PRIOR TO PLANTING. COORDINATE WITH CITY FORESTRY FOR CURRENT INSECT AND DISEASE RECOMMENDATIONS PRIOR TO PLANTING.
8. ALL TREES TO BE DEEP WATERED AT TIME OF PLANTING.

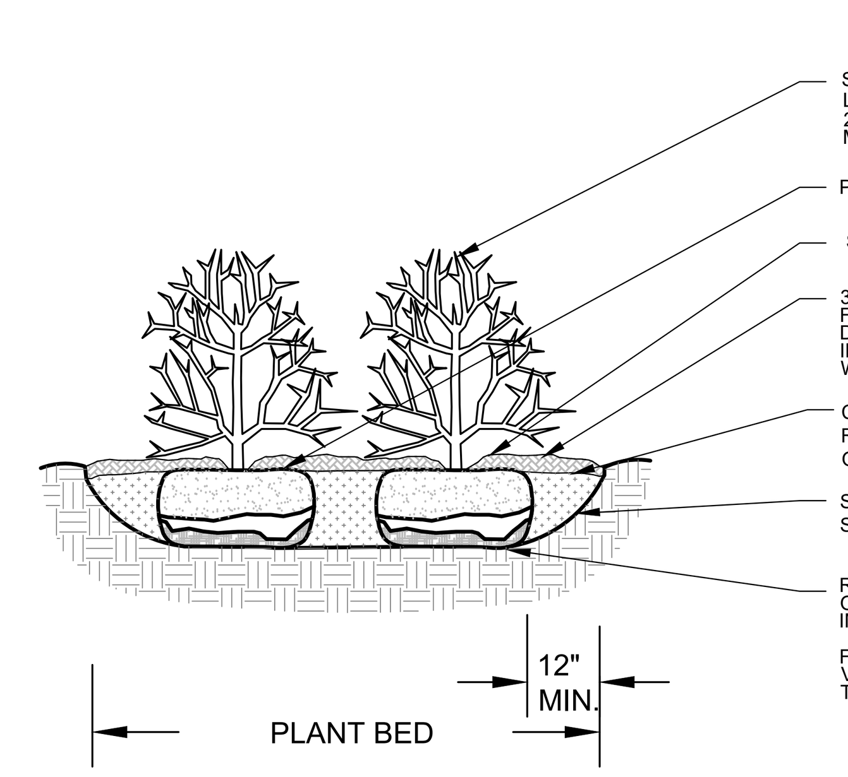


L2.0 EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE
SECTION

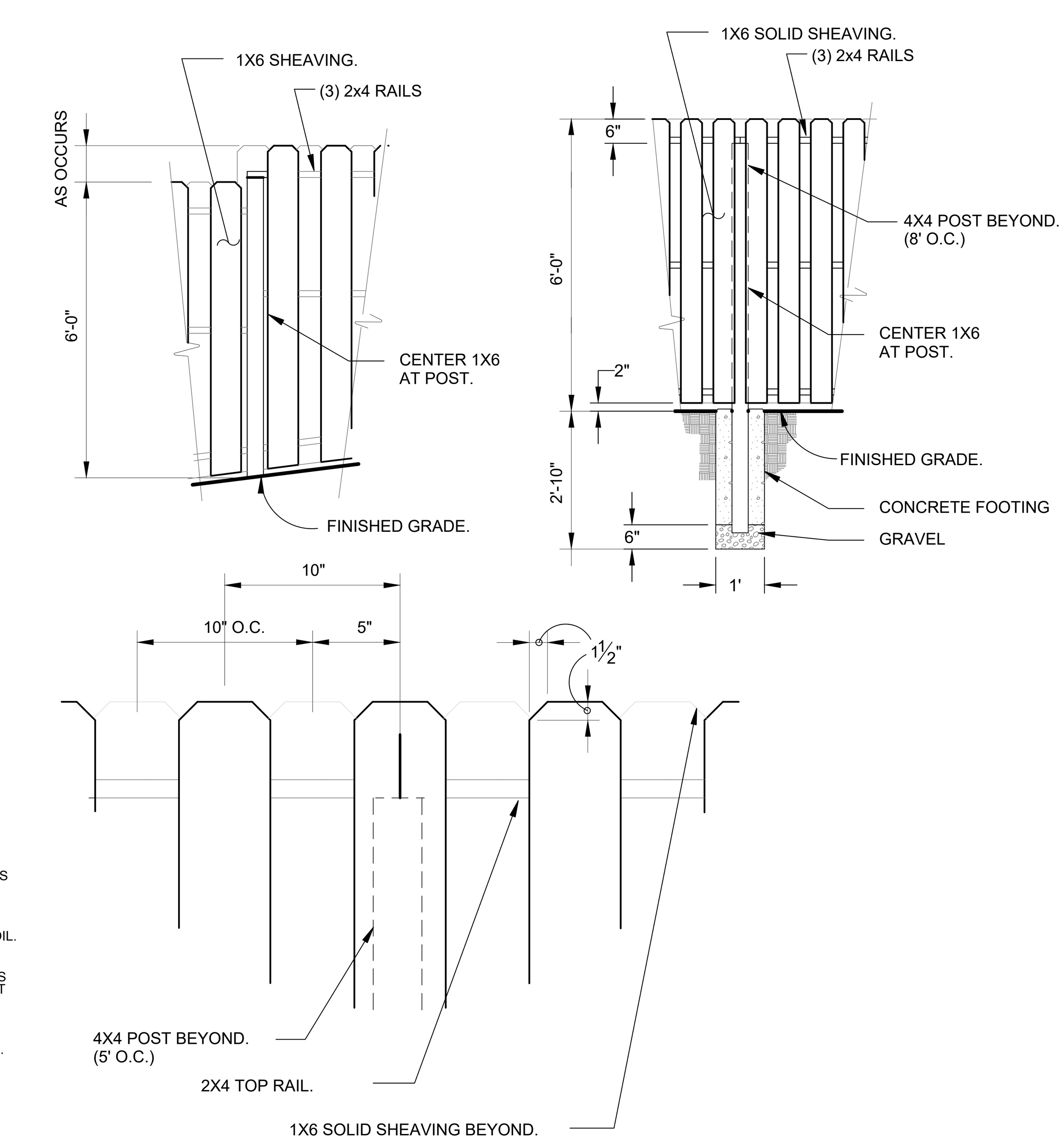
NOTES:
1. MARK THE NORTH SIDE OF TREE IN THE NURSERY, AND ROTATE TREE TO FACE NORTH AT THE SITE WHENEVER POSSIBLE.
2. AT TIME OF PLANTING, DO NOT REMOVE OR CUT LEADER AND PRUNE ONLY DEAD OR BROKEN BRANCHES, CROSS OVER BRANCHES, AND WEAK OR NARROW CROTCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED. HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.
3. STRUCTURAL PRUNING SHOULD NOT BEGIN UNTIL AFTER ESTABLISHMENT PERIOD, USUALLY TWO GROWING SEASONS.
4. KEEP PLANTS MOIST AND SHADED UNTIL PLANTING.
5. DO NOT FERTILIZE FOR AT LEAST ONE GROWING SEASON.
6. AMENDED BACKFILL SHALL BE AS STATED ON THIS SHEET.
7. WRAP TRUNK ON EXPOSED SITES AND SPECIES WITH THIN BARK. USE ELECTRICAL OR DUCT TAPE, NOT TWINE.
8. COORDINATE WITH CITY FORESTRY FOR CURRENT INSECT AND DISEASE RECOMMENDATIONS PRIOR TO PLANTING.
9. DEEP WATER ALL PLANTS AT TIME OF PLANTING.



L2.0 DECIDUOUS TREE PLANTING DETAIL
SECTION



L2.0 SHRUB PLANTING DETAIL
NOT TO SCALE
SECTION



L2.0 6' SHADOWBOX FENCE DETAIL
NOT TO SCALE

REVISIONS:
Cty Comment: 02.02.22
Cty Comment: 05.20.22
Cty Comment: 06.08.22
Fence Update: 08.15.22
Site Mod: 10.20.22

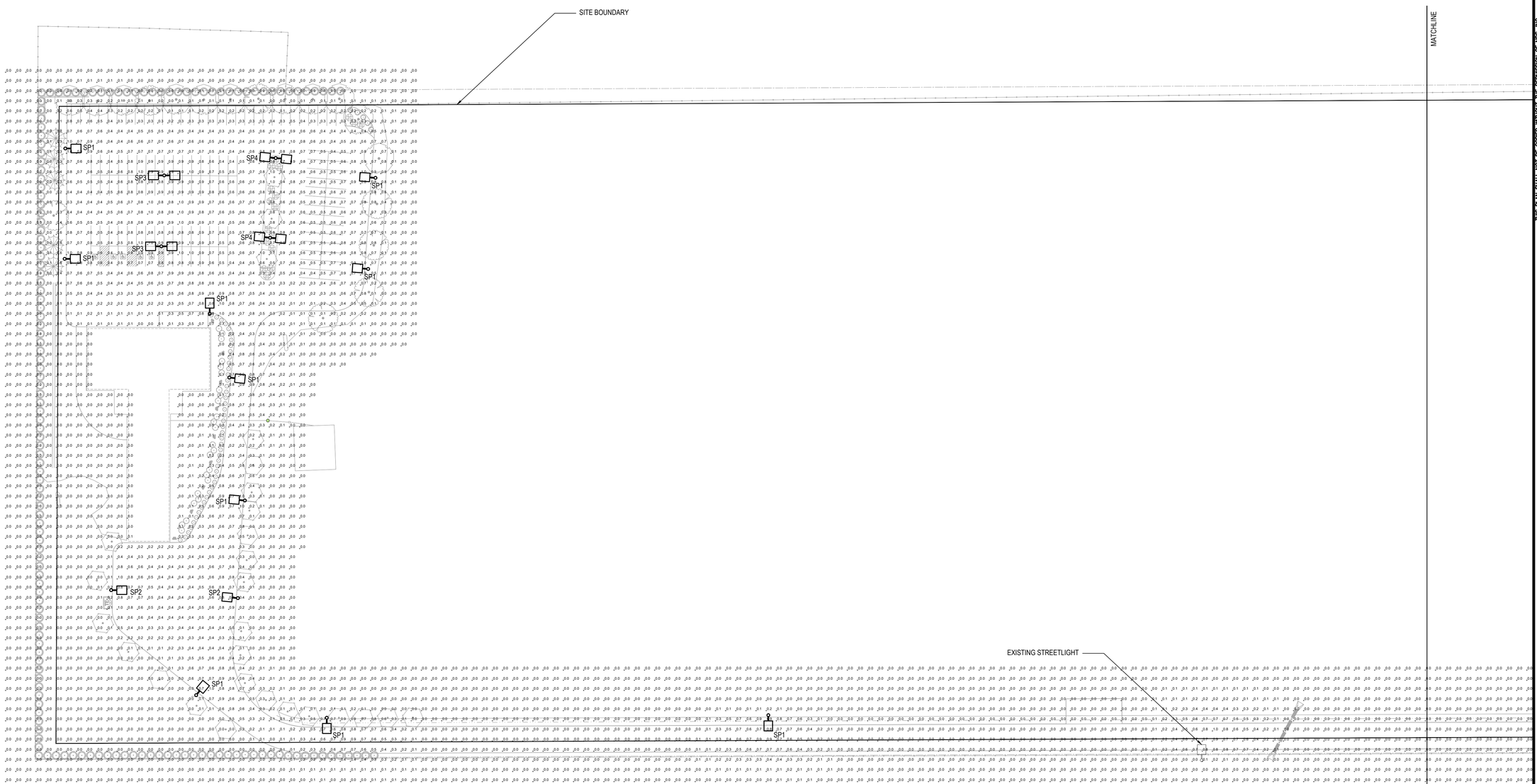
NATURAL DESIGN SOLUTIONS
Landscape Architecture
Land Planning · Irrigation Design
5539 Colt Drive, Longmont, CO 80503
(303) 443-0388 · neil@ndscolorado.com

NEIL ALAN MCLANE 405 Original Date of Licensure STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT 10-19-22

6539 IMBODEN RD
ADAMS COUNTY, CO

FINAL LANDSCAPE PLAN DETAILS & NOTES

PROJ. NO.:	
DATE:	12.21.21
SCALE:	See Sheet
DRAWN:	JRO
CHKD BY:	NAM
SHEET	L2.0



1 SITE LIGHTING PHOTOMETRIC

SCALE: 1" = 50'-0"

LIGHTING CALCULATION STATISTICS SUMMARY:

	AVERAGE	MAXIMUM	MINIMUM	MAX/MIN	AVG/MIN
PARKING/PAVED AREAS:	0.7fc	1.0fc	0.1fc	5.0:1	3.5:1

PHOTOMETRY PLAN GENERAL NOTES:

1. VALUES SHOWN ARE MAINTAINED HORIZONTAL ILLUMINANCE VALUES MEASURED AT GRADE.
2. SITE LIGHTING DESIGN HAS BEEN COMPLETED TO PRODUCE EVEN ILLUMINATION OF PARKING AND PAVED AREAS.
3. ALL LIGHT FIXTURES SHALL BE FULLY SHIELDED AND DIRECT LIGHT DOWNWARDS.
4. THERE WILL BE NO OFF-SITE GLARE ALLOWED.

SITE LIGHTING DESIGN HAS BEEN COMPLETED TO CONFORM TO CITY OF ADAMS COUNTY EXTERIOR LIGHTING STANDARDS

REVISIONS:

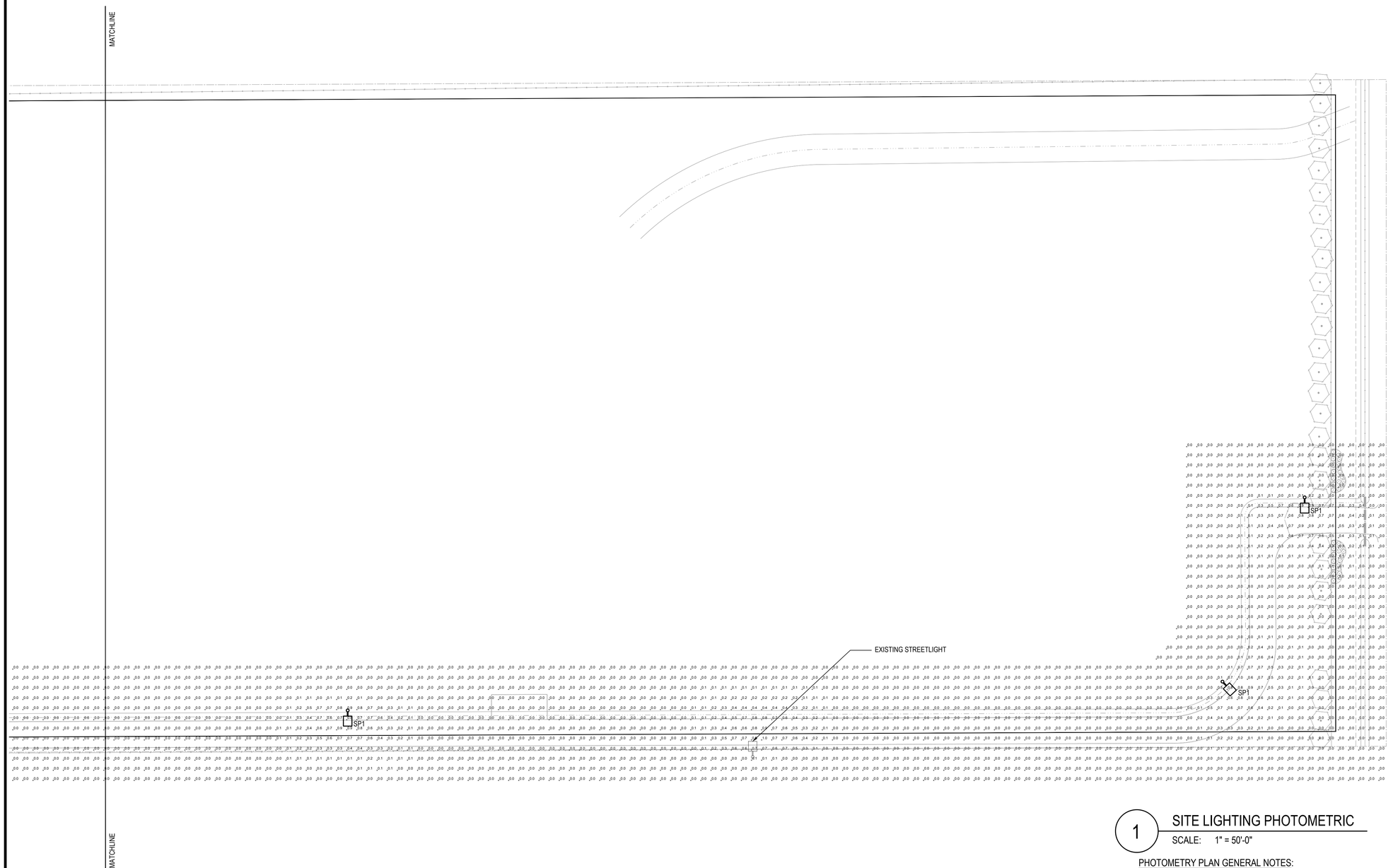
STUDIO LIGHTNING
63 SUNSET DR.
BAILEY, CO 80421
303.242.1572

6539 IMBODEN RD
ADAMS COUNTY, CO

SITE LIGHTING PHOTOMETRIC

PROJ. NO.:
DATE: 04.06.22
SCALE: See Sheet
DRAWN:
CHKD BY:

SHEET LP1



1 SITE LIGHTING PHOTOMETRIC

SCALE: 1" = 50'-0"

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	AVERAGE	MAXIMUM	MINIMUM	MAX/MIN	AVG/MIN
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PHOTOMETRY PLAN GENERAL NOTES:

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REVISIONS:

STUDIO LIGHTNING
63 SUNSET DR.
BAILEY, CO 80421
303.242.1572

6539 IMBODEN RD
ADAMS COUNTY, CO

SITE LIGHTING PHOTOMETRIC

PROJ. NO.:
DATE: 04.06.22
SCALE: See Sheet
DRAWN:
CHKD BY:

SHEET LP2

HOUSE-SIDE SHIELD PROVIDED TO MITIGATE LIGHT SPILL INTO NEIGHBORING PROPERTIES

LUMINAIRE SCHEDULE

Symbol	Label	General Description	Mounting Height	Color	Catalog Number	Lamp	LLF	Watts	SHIELDING
	SP1	SITE POLE PARKING & DRIVES	20'-0" AFG	BLACK	MCGRAW-EDISON GLEON-SA1A-730-U-T4W-BK-DIM-HSS	LED	1.00	34W	FULL CUTOFF
	SP2	SITE POLE PARKING & DRIVES	20'-0" AFG	BLACK	MCGRAW-EDISON GLEON-SA1A-730-U-T4FT-BK-DIM-HSS	LED	1.00	34W	FULL CUTOFF
	SP3	SITE POLE - DOUBLE HEAD PARKING & DRIVES	20'-0" AFG	BLACK	MCGRAW-EDISON GLEON-SA1A-730-U-T4W-BK-DIM-HSS-MA1037	LED	1.00	(2)34W	FULL CUTOFF
	SP4	SITE POLE - DOUBLE HEAD PARKING & DRIVES	20'-0" AFG	BLACK	MCGRAW-EDISON GLEON-SA1A-730-U-T4FT-BK-DIM-HSS-MA1037	LED	1.00	(2)34W	FULL CUTOFF

Project		Catalog #		Type	SP1/2/3/4
Prepared by		Notes		Date	

McGraw-Edison

GLEON Galleon

Area / Site Luminaire

Product Features

LumenSafe Technology
Light ARchitect™

Interactive Menu

- Ordering Information page 2
- Mounting Details page 3
- Optical Distributions page 4
- Product Specifications page 4
- Energy and Performance Data page 4
- Control Options page 9

Product Certifications

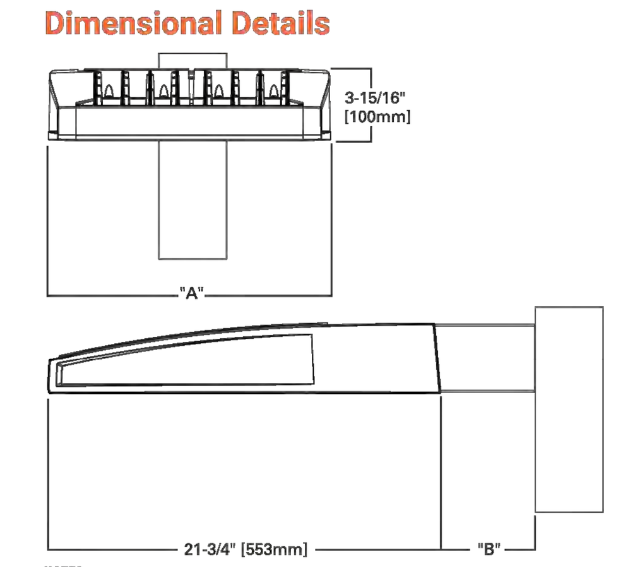
Quick Facts

- Lumen packages range from 4,200 - 80,800 (34W - 640W)
- Efficacy up to 156 lumens per watt
- Options to meet Buy American and other domestic preference requirements

Connected Systems

- WaveLinx
- Enlighted

Dimensional Details



Number of Light Squares	"A" Width	"B" Standard Arm Length	"B" Extended Arm Length [1]	"B" Quick Mount Arm Length	"B" Quick Mount Extended Arm Length
1-4	15-1/2"	7"	10"	10-5/8"	16-9/16"
5-6	21-5/8"	7"	10"	10-5/8"	16-9/16"
7-8	27-5/8"	7"	13"	10-5/8"	–
9-10	33-3/4"	7"	16"	--	–

NOTES:
For arm selection requirements and additional line art, see Mounting Details section.

NOTES:
1. Visit https://www.designlights.org/search/ to confirm qualification. Not all product variations are DLC qualified.
2. IDA Certified for 3000K CCT and warmer only.

REVISIONS:

STUDIO LIGHTNING
STUDIO LIGHTNING
63 SUNSET DR.
BAILEY, CO 80421
303.242.1572

6539 IMBODEN RD
ADAMS COUNTY, CO

LIGHTING DETAILS

PROJ. NO.:
DATE: 04.06.22
SCALE: See Sheet
DRAWN:
CHKD BY:
SHEET LP3

ALDANA EVENT CENTER

6539 Imboden Rd.

Watkins Co

GENERAL CONSTRUCTION NOTES:

1. DRAWINGS ARE MEANT TO SHOW INTENT ONLY, NOT EXACT DETAIL. THESE DRAWINGS ARE A "BUILDERS SET" AND INTENDED FOR THE USE ON AN EXPERIENCED AND WELL QUALIFIED CONTRACTOR WHO MAY INFER REASONABLE INFORMATION BASED ON EXPERIENCE COMMON IN THE INDUSTRY AND TRADES, QUALITY LEVEL IS A REQUIRED STANDARD. DO NOT SCALE DRAWINGS. ALL DIMENSIONS SHOWN ARE TO FACE OF STUD, OR CENTERLINE OF STRUCTURAL STEEL, UNLESS OTHERWISE NOTED. FIELD VERIFY ALL CONDITIONS OF WORK AND REPORT ANY DISCREPANCIES TO THE ARCHITECT FOR CLARIFICATIONS BEFORE STARTING ANY WORK. CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL ERRORS IN HIS WORK, INCLUDING THE LACK OF FIELD VERIFICATION OF EXISTING CONDITIONS.
2. ALL EXTERIOR WALLS TO BE MINIMUM 6" DIMENSION IF IN FRAME AND 8" IF IN CMU, TYPICAL.
3. ALL SHIM SPACES, AS SHOWN ON DOOR AND WINDOW DETAILS AND STOREFRONT, ARE TO BE COORDINATED IN THE FIELD WHEN CONSTRUCTED.
4. ALL GYPSUM BOARD USED IN WET AREAS, I.E.: JANITOR CLOSETS, REST ROOMS, ETC., SHALL RECEIVE WATER RESISTANT GYPSUM BOARD. ALL INTERIOR WALLS TO PENETRATE ABOVE THE CEILING A MINIMUM OF 4".
5. ALL SITE WORK TO BE IN STRICT CONFORMANCE WITH THE RECOMMENDATIONS OF THE PROJECTS SOILS REPORT. REFER TO THE CIVIL DRAWINGS FOR FINISH GRADING INFORMATION, TOP OF CURB ELEVATION, SITE DRAINAGE REQUIREMENTS, AND BUILDING HORIZONTAL AND VERTICAL CONTROLS.
6. ALL SUBCONTRACTORS SHALL BE RESPONSIBLE FOR COORDINATING THEIR OWN WORK WITH THAT OF OTHER TRADES.
7. ELECTRICAL AND MECHANICAL CONDITIONS ARE TO BE FIELD VERIFIED. ERRORS OR OMITS OF SUCH CONDITIONS WILL NOT BE ALLOWED. ALL WORK UNDER SUCH CONTRACTS TO BE IN COMPLIANCE WITH APPLICABLE LOCAL CODE REQUIREMENTS.
8. GLAZING CONTRACTOR SHALL FURNISH ALL BREAK METAL TRIM; AND SHALL FURNISH THE REQUIRED SHOP DRAWINGS AND CALCULATIONS FOR ALL STOREFRONT AND GLASS DESIGN PER APPLICABLE LOCAL CODE REQUIREMENTS.
9. ALL WORKMANSHIP TO BE WARRANTED FOR ONE FULL YEAR FROM DATE OF COMPLETION OF CONTRACT, ANY DAMAGE TO ADJOINING CONDITIONS DURING CONSTRUCTION ARE TO BE REPAIRED OR REPLACED AND WARRANTED BY CONTRACTOR AT CONTRACTOR EXPENSE.
10. ALL PENETRATIONS THROUGH FIRE WALLS SHALL BE SEALED BY THE TRADE MAKING THE PENETRATION, IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS.
11. ALL CONTRACTORS AND SUBCONTRACTORS WILL THOROUGHLY FAMILIARIZE THEMSELVES WITH THESE CONSTRUCTION DOCUMENTS AND WILL VERIFY EXISTING SITE AND CONDITIONS PRIOR TO SUBMITTING A BID. ALL SUBCONTRACTORS WILL PROVIDE ALL LABOR, SUPERVISION, AND MATERIALS OF EVERY TYPE WHICH MAY BE NECESSARY FOR A SUCCESSFUL COMPLETION. ALL WORK TO BE PERFORMED IN A GOOD AND WORKMANLIKE MANNER ACCORDING TO THE TRUE INTENT AND MEANING OF THE DRAWINGS AND SPECIFICATIONS.
12. THIS ARCHITECT AND HIS PROFESSIONAL CONSULTANTS WILL NOT HAVE CONTROL, OF AND WILL NOT BE RESPONSIBLE FOR, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, OR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK ON THIS PROJECT OR FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK ON THIS SITE, NOR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE INTENT OF THE CONTRACT AND OR THESE CONSTRUCTION DOCUMENTS.
13. SITE SAFETY: EACH CONTRACTOR WILL ABIDE BY LOCAL AREA STANDARDS AND RELATED OSHA STANDARDS FOR THE PROTECTION AND SAFETY FOR THEIR EMPLOYEES ON SITE. THIS ARCHITECT AND HIS PROFESSIONAL CONSULTANTS WILL BE HELD HARMLESS BY THE OWNER, GENERAL CONTRACTOR AND RELATED AWARDED TRADES ON THIS PROJECT FOR ACCIDENTS OR INJURIES CAUSED OR ACCRUED ON THIS PROPERTY DURING THE PRE/ACTUAL/POST CONSTRUCTION PHASES OF THIS PROJECT.

CODE ANALYSIS

GOVERNING CODE
2018 IBC

PROJECT DESCRIPTION

This project is for a 13,200 gross sq ft event center.

BUILDING DESCRIPTION

This existing building is a one story commercial building.
The construction is all wood construction with a concrete slab on grade.

CONSTRUCTION TYPE

TYPE V-B WITH FIRE SPRINKLERS

OCCUPANCY CLASSIFICATION

A-3 ASSEMBLY WITH OL GREATER THAN 50

OCCUPANT LOAD

ASSEMBLY WITH OL GREATER THAN 50

SEATING AREA	11600 SF	ASSEMBLY	15 SF/ PERSON	=	773	OCCUPANTS
SERVICE AND WET BAR AREAS	610 SF	KITCHEN	200 SF/ PERSON	=	3	OCCUPANTS
DRESSING ROOM	138 SF	BUSINESS	100 SF/ PERSON	=	1	OCCUPANTS
OFFICE	298 SF	BUSINESS	100 SF/ PERSON	=	3	OCCUPANTS
UTILITY AREAS / WATER TANK	200 SF	ACCESSORY	200 SF/ PERSON	=	1	OCCUPANTS
RESTROOMS AND CORRIDORS	354 SF	ACCESSORY	200 SF/ PERSON	=	2	OCCUPANTS
TOTAL OCCUPANT LOAD				=	**784**	**OCCUPANTS**

EXIT WITH REQUIREMENTS

Total required exit width
Doors - occupants x 0.2 = 157 inches of required width
Provided exist width is 198 inches - 6 doors at 33 inches each 3 EXITS REQUIRED 6 EXITS PROVIDED

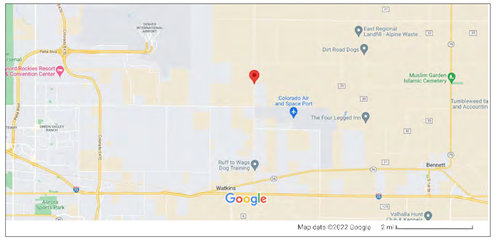
PLUMBING FIXTURE CALCULATIONS

Fixture calculations by occupancy			REQUIRED	PROVIDED
Assembly (A-3) =		784 /2	392	
Men	toilets	1 per 75	5.22	3
	urinals			3
	sinks	1 per 200	1.96	2
Women	toilets	1 per 75	5.22	6
	sinks	1 per 200	1.96	2
Drink Fountain not required where water is served				
Service sink				1

DRAWING LEGEND

- SECTION REFERENCE
- BUILDING SECTION REFERENCE
- EXTERIOR ELEVATION REFERENCE
- DETAIL REFERENCE
- INTERIOR ELEVATION REFERENCE
- ELEVATION MARKER
  MAJOR ELEVATION REFERENCE OF FLOORS, BEARINGS, ETC., - PLAN REFERENCE 100'-0" = FIRST FLOOR ELEVATION
- SPOT ELEVATION
  TOP OF FINISH MATERIAL (UNO)-PLAN REFERENCE 100'-0" = FIRST FLOOR ELEVATION
- DOOR MARKER
- WINDOW MARKER
- FLAG NOTE

VICINITY MAP



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Wayne@WAndersonAIA.com

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PUEBLO, CO
(719) 924-9733

MEP ENGINEER
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EE LLC
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PARKER, CO 80138
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(303) 748-1189

DRAWING INDEX:

PROGRESS SET
NOT FOR CONSTRUCTION
The information shown on this sheet is not for construction. Information in this document in not complete nor final and is subject to change with out notification, all contractors and bidders are to use these drawings at their own risk, and liability.
Report any discrepancy to the Architect.

Wayne D. Anderson, AIA, LLC
7825 W Ontario Place
Littleton, Colorado 80128
(303) 550-5678
(720) 367-5354 EFax

STATE OF COLORADO
WAYNE D. ANDERSON
C-2974
LICENSED ARCHITECT
Dec 12, 2022

ALDANA EVENT CENTER
6539 Imboden Rd.
Watkins Co

ISSUE DATE:
Dec 12, 2022
REVISIONS:

SCALE:
PROJECT:2022-127

COVER SHEET
CODE ANALYSIS

A0.0

PROJECT SPECIFICATIONS

DIVISION 1 - GENERAL REQUIREMENTS:

01000 GENERAL REQUIREMENTS:

INCLUDE ALL FEES, PERMITS, INSPECTION AS REQUIRED FOR THIS PROJECT. ALL WORK PERFORMED AND MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH APPLICABLE CODES, REGULATIONS, AND ORDINANCES HAVING JURISDICTION. THE CONTRACTOR AND HIS SUB-CONTRACTORS ARE TO PROVIDE: ALL WORK REQUIRED FOR A COMPLETE AND USABLE FACILITY WHEN COMPLETE, ALL FIELD SUPERVISION. ALL FINISH MATERIALS SHALL CONFORM AND COMPLY WITH APPLICABLE FLAME SPREAD REQUIREMENTS OF GOVERNING CODE AND REGULATIONS. DO NOT SCALE DRAWINGS. FIELD VERIFY ALL CONDITIONS OF WORK AND REPORT ANY DISCREPANCIES TO THE ARCHITECT. DRAWINGS ARE MEANT TO SHOW INTENT ONLY NOT EXACT DETAIL. ALL DIMENSIONS SHOWN ARE TO FACE OF STUDS UNLESS OTHERWISE INDICATED. SUB-CONTRACTORS ARE TO FIELD VERIFY ALL CONDITIONS, LOCATIONS, AND HOOK UP REQUIREMENTS OF ALL EQUIPMENT, PRIOR TO ROUGH IN OF ANY WORK. ALL MATERIALS AND EQUIPMENT TO BE INSTALLED PER THE MANUFACTURERS INSTRUCTIONS AND SPECIFICATIONS.

01040 PROJECT COORDINATION:

INSPECTION OF CONDITIONS, REQUIRES THE INSTALLERS OF EACH MAJOR COMPONENT TO INSPECT BOTH THE SUBSTRATE AND CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED. DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED IN AN ACCEPTABLE MANNER. MANUFACTURER'S INSTRUCTIONS: COMPLY WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS, TO THE EXTENT THAT THOSE INSTRUCTIONS AND RECOMMENDATIONS ARE MORE EXPLICIT OR STRINGENT THAN REQUIREMENTS CONTAINED IN CONTRACT DOCUMENTS. MOUNTING HEIGHTS: WHERE MOUNTING HEIGHTS ARE NOT INDICATED, INSTALL INDIVIDUAL COMPONENTS AT STANDARD MOUNTING HEIGHTS RECOGNIZED WITHIN THE INDUSTRY FOR THE PARTICULAR APPLICATION INDICATED. REFER QUESTIONABLE MOUNTING HEIGHT DECISIONS TO THE ARCHITECT FOR FINAL DECISION. LIMITING EXPOSURES: SUPERVISE CONSTRUCTION ACTIVITIES TO ENSURE THAT NO PART OF THE CONSTRUCTION, COMPLETED OR IN PROGRESS, IS SUBJECT TO HARMFUL, DANGEROUS, DAMAGING, OR OTHERWISE DELETERIOUS EXPOSURE DURING THE CONSTRUCTION PERIOD.

01045 CUTTING AND PATCHING:

REQUIREMENTS FOR STRUCTURAL WORK: DO NOT CUT AND PATCH STRUCTURAL ELEMENTS IN A MANNER THAT WOULD REDUCE THEIR LOAD-CARRYING CAPACITY OR LOAD-DEFLECTION RATIO. USE MATERIALS THAT ARE IDENTICAL TO EXISTING MATERIALS. IF IDENTICAL MATERIALS ARE NOT AVAILABLE OR CANNOT BE USED WHERE EXPOSED SURFACES ARE INVOLVED, USE MATERIALS THAT MATCH EXISTING ADJACENT SURFACES TO THE FULLEST EXTENT POSSIBLE WITH REGARD TO VISUAL EFFECT. USE MATERIALS WHOSE INSTALLED PERFORMANCE WILL EQUAL OR SURPASS THAT OF EXISTING MATERIALS. BEFORE CUTTING EXISTING SURFACES, EXAMINE SURFACES TO BE CUT AND PATCHED AND CONDITIONS UNDER WHICH CUTTING AND PATCHING IS TO BE PERFORMED. TAKE CORRECTIVE ACTION BEFORE PROCEEDING, IF UNSAFE OR UNSATISFACTORY CONDITIONS ARE ENCOUNTERED. PROVIDE TEMPORARY SUPPORT OF WORK TO BE CUT. PROTECT EXISTING CONSTRUCTION DURING CUTTING AND PATCHING TO PREVENT DAMAGE. PROVIDE PROTECTION FROM ADVERSE WEATHER CONDITIONS FOR PORTIONS OF THE PROJECT THAT MIGHT BE EXPOSED DURING CUTTING AND PATCHING OPERATIONS. AVOID INTERFERENCE WITH USE OF ADJOINING AREAS OR INTERRUPTION OF FREE PASSAGE TO ADJOINING AREAS. TAKE ALL PRECAUTIONS NECESSARY TO AVOID CUTTING EXISTING PIPE, CONDUIT OR DUCTWORK SERVING THE BUILDING, BUT SCHEDULED TO BE REMOVED OR RELOCATED UNTIL PROVISIONS HAVE BEEN MADE TO BYPASS THEM. CUT EXISTING CONSTRUCTION USING METHODS LEAST LIKELY TO DAMAGE ELEMENTS TO BE RETAINED OR ADJOINING CONSTRUCTION IN GENERAL, WHERE CUTTING IS REQUIRED USE HAND OR SMALL POWER TOOLS DESIGNED FOR SAWING OR GRINDING, NOT HAMMERING AND CHOPPING. CUT HOLES AND SLOTS NEATLY TO SIZE REQUIRED WITH MINIMUM DISTURBANCE OF ADJACENT SURFACES. TEMPORARILY COVER OPENINGS WHEN NOT IN USE.

TO AVOID MARRING EXISTING FINISHED SURFACES, CUT OR DRILL FROM THE EXPOSED OR FINISHED SIDE INTO CONCEALED SURFACES. CUT THROUGH CONCRETE AND MASONRY USING A CUTTING MACHINE SUCH AS A CARBORUNDUM SAW OR DIAMOND CORE DRILL. COMPLY WITH REQUIREMENTS OF APPLICABLE SECTIONS OF DIVISION-2 WHERE CUTTING AND PATCHING REQUIRES EXCAVATING AND BACKFILLING. BY-PASS UTILITY SERVICES SUCH AS PIPE OR CONDUIT, BEFORE CUTTING, WHERE SERVICES ARE SHOWN OR REQUIRED TO BE REMOVED, RELOCATED OR ABANDONED. CUT-OFF PIPE OR CONDUIT IN WALLS OR PARTITIONS TO BE REMOVED. CAP, VALVE OR PLUG AND SEAL THE REMAINING PORTION OF PIPE OR CONDUIT TO PREVENT ENTRANCE OF MOISTURE OR OTHER FOREIGN MATTER AFTER BY-PASSING AND CUTTING. PATCH WITH DURABLE SEAMS THAT ARE AS INVISIBLE AS POSSIBLE.

RESTORE EXPOSED FINISHES OF PATCHED AREAS AND EXTEND FINISH RESTORATION INTO RETAINED ADJOINING CONSTRUCTION IN A MANNER THAT WILL ELIMINATE EVIDENCE OF PATCHING AND REFINISHING. WHERE REMOVAL OF WALLS OR PARTITIONS EXTENDS ONE FINISHED AREA INTO ANOTHER, PATCH AND REPAIR FLOOR AND WALL SURFACES IN THE NEW SPACE TO PROVIDE AN EVEN SURFACE OF UNIFORM COLOR AND APPEARANCE. REMOVE EXISTING FLOOR AND WALL COVERINGS AND REPLACE WITH NEW MATERIALS, IF NECESSARY TO ACHIEVE UNIFORM COLOR AND APPEARANCE. WHERE PATCHING OCCURS IN A SMOOTH PAINTED SURFACE, EXTEND FINAL PAINT COAT OVER ENTIRE UNBROKEN CONTAINING THE PATCH, AFTER THE PATCHED AREA HAS RECEIVED PRIMER AND SECOND COAT. THOROUGHLY CLEAN AREAS AND SPACES WHERE CUTTING AND PATCHING IS PERFORMED OR USED AS ACCESS. REMOVE COMPLETELY PAINT, MORTAR, OILS, PUTTY AND ITEMS OF SIMILAR NATURE. THOROUGHLY CLEAN PIPING, CONDUIT AND SIMILAR FEATURES BEFORE PAINTING OR OTHER FINISHING IS APPLIED. RESTORE DAMAGED PIPE COVERING TO ITS ORIGINAL CONDITION.

01300 SUBMITTALS:

SUBMITTALS ARE ONLY REQUIRED IF THE PRODUCT BEING INSTALLED IS DIFFERENT THEN WHAT IS SPECIFIED HERE IN AND OR FROM WHAT THE OWNER HAS ALREADY APPROVED. COORDINATE PREPARATION AND PROCESSING OF SUBMITTALS WITH PERFORMANCE OF CONSTRUCTION ACTIVITIES. TRANSMIT EACH SUBMITTAL SUFFICIENTLY IN ADVANCE OF PERFORMANCE OF RELATED CONSTRUCTION ACTIVITIES TO AVOID DELAY.
ALLOW SUFFICIENT REVIEW TIME SO THAT INSTALLATION WILL NOT BE DELAYED AS A RESULT OF THE TIME REQUIRED TO PROCESS SUBMITTALS, INCLUDING TIME FOR ALL RE-SUBMITALS. SHOP DRAWINGS INCLUDE FABRICATION AND INSTALLATION DRAWINGS, SETTING DIAGRAMS, SCHEDULES, PATTERNS, TEMPLATES AND SIMILAR DRAWINGS. DO NOT SUBMIT PRODUCT DATA UNTIL COMPLIANCE WITH REQUIREMENTS OF THE CONTRACT DOCUMENTS HAS BEEN CONFIRMED.

01400 QUALITY CONTROL SERVICES:

QUALITY CONTROL SERVICES INCLUDE INSPECTIONS AND TESTS AND RELATED ACTIONS INCLUDING REPORTS, PERFORMED BY INDEPENDENT AGENCIES, GOVERNING AUTHORITIES, AND THE CONTRACTOR. INSPECTION AND TESTING SERVICES ARE REQUIRED TO VERIFY COMPLIANCE WITH REQUIREMENTS SPECIFIED OR INDICATED. THESE SERVICES DO NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COMPLIANCE WITH CONTRACT DOCUMENT REQUIREMENTS. THE CONTRACTOR SHALL PROVIDE INSPECTIONS, TESTS AND SIMILAR QUALITY CONTROL SERVICES, AS NORMALLY PROVIDED FOR, FOR A PROJECT OF THIS SCOPE AND REQUIRED BY GOVERNING AUTHORITIES. THESE SERVICES INCLUDE THOSE SPECIFIED TO BE PERFORMED BY AN INDEPENDENT AGENCY AND NOT BY THE CONTRACTOR. SEE STRUCTURAL SPECIFICATIONS ON SHEET S1.0 FOR FURTHER REQUIREMENTS ON TESTING AND SPECIAL INSPECTIONS. COSTS FOR THESE SERVICES SHALL BE INCLUDED IN THE CONTRACT SUM.

01500 TEMPORARY FACILITIES:

CONTRACTOR TO PROVIDE HIS OWN ON SITE CONSTRUCTION TRAILER, AND LAVATORY FACILITIES DURING THE EXTENT OF THIS PROJECT.

01700 PROJECT CLOSE OUT:

DAMAGED CONSTRUCTION: REPLACE CONSTRUCTION AND OTHER COMPONENTS OF THE WORK THAT HAVE BEEN DAMAGED OR HAVE DETERIORATED BEYOND SUCCESSFUL REPAIR BY MEANS OF FINISH TOUCH-UP OR SIMILAR MINOR REPAIR PROCEDURES. AND REPORT THIS TO THE ARCHITECT FOR VERIFICATION OF REPAIR.

01710 CLEANING:

REMOVE TEMPORARY PROTECTIVE COVERINGS AND STRIPPABLE FILMS (IF ANY) AS SOON AS EACH COMPONENT IS INSTALLED. PROVIDE CONSTRUCTION CLEANING DURING AND AFTER WHEN ALL WORK IS COMPLETE. CLEAN ALL GLASS, CLEAN ALL FLOORS, POLISH ALL METAL SURFACES AS REQUIRED.

01740 WARRANTIES:

CONTRACTOR AND ALL OF HIS SUB-CONTRACTORS ARE TO PROVIDE A ONE YEAR WARRANTY FROM DATE OF FINAL INSPECTION.

GENERAL STAIR NOTES:

1. STAIRS SHALL BE CONSTRUCTED SO THEY ADHERE TO IBC.
2. 7" MAXIMUM RISER HEIGHT (RISERS ARE NOT TO VARY MORE THAN $\frac{3}{8}$" IN THE SAME STAIR RUN)
3. 11" TREADS MINIMUM, MEASURED TREAD NOSE TO TREAD NOSE.
4. PROVIDE A CLEAR FINISHED WIDTH OF 36" MINIMUM.
5. HEADROOM SHALL NOT BE LESS THAN 6'-8" AND CLEAR OF OBSTRUCTIONS.
6. HEIGHT OF TOP OF THE HANDRAILS SHALL BE BETWEEN 34" TO 38".
7. HANDRAILS WITH A CIRCULAR CROSS SECTION SHALL HAVE AN OUTSIDE DIAMETER OF AT LEAST 1-1/4" AND NOT GREATER THAN 2". IF THE HANDRAILS ARE NOT CIRCULAR, IT SHALL HAVE A PERIMETER DIMENSION OF AT LEAST 4 INCHES AND NOT GREATER THAN 6-1/4 INCHES WITH A MAXIMUM CROSS SECTION OF DIMENSION 2-1/4 INCHES, EDGES SHALL HAVE A MINIMUM RADIUS O F0.01 INCH.
8. HANDRAILS WITH A PERIMETER GREATER THAN 6-1/4 INCHES SHALL HAVE GRASPABLE FINGER RECESS AREA ON BOTH SIDES OF THE PROFILE. THE FINGER RECESS SHALL BEGIN WITHIN A DISTANCE OF $\frac{3}{4}$ INCH MEASURED VERTICALLY FROM THE TALLEST PORTION OF THE PROFILE AND ACHIEVE A DEPTH OF AT LEAST $\frac{5}{16}$ INCH WITHIN $\frac{7}{8}$ INCH BELOW THE TALLEST PORTION OF THE PROFILE. THE MINIMUM WIDTH OF THE HANDRAIL ABOVE THE RECESS SHALL BE 1-1/4 INCHES TO A MAXIMUM OF 2-3/4 INCHES. EDGES SHALL HAVE A MINIMUM RADIUS OF 0.01 INCH.
9. HANDRAILS FOR THE STAIRWAYS SHALL CONTINUOUS FOR THE FULL LENGTH OF THE FLIGHT, FROM A POINT DIRECTLY ABOVE THE TOP RISER OF THE FLIGHT TO A POINT DIRECTLY ABOVE THE LOWEST RISER OF THE FLIGHT. HANDRAILS ENDS SHALL BE RETURNED OR SHALL TERMINATE IN NEWEL POSTS OR SAFETY TERMINALS. HANDRAILS ADJACENT TO A WALL SHALL HAVE A SPACE OF NOT LESS THAN 1-1/2 INCH BETWEEN THE WALL AND THE HANDRAILS.
10. GUARDRAILS SHALL BE CONSTRUCTED AT THE STAIR OPENINGS, LANDINGS AND OTHER OPEN CHANGES IN ELEVATION GREATER THAN 30" WITHIN 36" MUST BE PROVIDED TO A MINIMUM HEIGHT OF 42". BALUSTERS OR OPENINGS MUST BE SPACED TO PREVENT PASSAGE OF A 4" SPHERE.
11. STAIRS WITH ENCLOSED USEABLE SPACE UNDERNEATH SHALL BE LER R302.1-ENCLOSED ACCESSIBLE SPACE UNDER STAIRS SHALL HAVE WALLS, UNDER-STAIR SURFACE AND ANY SOFFITS PROTECTED ON THE ENCLOSED SIDE WITH 1/2-INCH GYPSUM BOARD.
12. EXTERIOR STAIRS SHALL HAVE THE FOLLOWING STRINGERS ARRAIGNMENT: [6] 2X12 STRINGERS @ STAIR, DOUBLE STRINGER @ SIDES WITH 2 INTERMEDIATE STRINGERS. UNLESS NOTED OTHERWISE (U.N.O.)
13. INTERIOR STAIRS SHALL HAVE THE FOLLOWING STRINGER ARRANGEMENT: [3] 2X12 STRINGERS @ STAIR, SINGLE STRINGER @ SIDES WITH 1 INTERMEDIATE STRINGER. UNLESS NOTED OTHERWISE (U.N.O.)

DIVISION 2 - SITE WORK:

02080 UTILITIES:

SEE CIVIL DRAWINGS FOR ALL UTILITY WORK.
(UNDER SEPARATE COVER)

02511 HOT MIXED ASPHALT PAVING:

PREPARE SUB-BASE IN ACCORDANCE WITH THE SOILS REPORT.
GENERAL: USE LOCALLY AVAILABLE MATERIALS AND GRADATIONS THAT EXHIBIT A SATISFACTORY RECORD OF PREVIOUS INSTALLATIONS.
COARSE AGGREGATE: SOUND, ANGULAR CRUSHED STONE, CRUSHED GRAVEL, OR PROPERLY CURED CRUSHED BLAST FURNACE SLAG, COMPLYING WITH ASTM D 692-88.WNN
FINE AGGREGATE: SHARP-EDGED NATURAL SAND OR SAND PREPARED FROM STONE, PROPERLY CURED BLAST FURNACE SLAG, GRAVEL, OR COMBINATIONS THEREOF, COMPLYING WITH ASTM D 1073.
MINERAL FILLER: ROCK OR SLAG DUST, HYDRAULIC CEMENT, OR OTHER INERT MATERIAL COMPLYING WITH ASTM D 242.
ASPHALT CEMENT: ASTM D 33B1 FOR VISCOSITY-GRADED MATERIAL; ASTM D 946 FOR PENETRATION-GRADED MATERIAL.
PRIME COAT: CUT-BACK ASPHALT TYPE, ASTM D 2027; MC-30, MC-70 OR MC-250.

TACK COAT: EMULSIFIED ASPHALT; ASTM D 977.
HERBICIDE TREATMENT: COMMERCIAL CHEMICAL FOR WEED CONTROL, REGISTERED BY ENVIRONMENTAL PROTECTION AGENCY. PROVIDE GRANULAR, LIQUID, OR WETTABLE POWDER FORM.
AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED IN THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

CIBA-GEIGY CORP.
DOW CHEMICAL U.S.A.
E.I. DU PONT DE NEMOURS & CO., INC.
FMC CORP.
THOMPSON-HAYWARD CHEMICAL CO.
U.S. BORAX AND CHEMICAL CORP.

LANE MARKING PAINT: ALKYD-RESIN TYPE, READY-MIXED COMPLYING WITH AASHTO M 248, TYPE I. COLOR: YELLOW.
WHEEL STOPS: 2,500-PSI COMPRESSIVE STRENGTH PRECAST, AIR-ENTRAINED CONCRETE, APPROXIMATELY 6 INCHES HIGH, 9 INCHES WIDE, AND 7 FEET LONG. PROVIDE CHAMFERED CORNERS AND DRAINAGE SLOTS ON UNDERSIDE. SECURE WHEEL STOPS TO HOT-MIXED ASPHALT SURFACE WITH NOT LESS THAN TWO 3/4-INCH-DIAMETER GALVANIZED STEEL DOWELS EMBEDDED IN PRECAST CONCRETE AT 1/3 POINTS. SIZE LENGTH OF DOWEL TO PENETRATE AT LEAST 1/2 HOT-MIXED ASPHALT DEPTH.

PROVIDE PLANT-MIXED, HOT-LAID ASPHALT-AGGREGATE MIXTURE COMPLYING WITH ASTM D 3515 AND AS RECOMMENDED BY THE SOILS REPORT.
REMOVE LOOSE MATERIAL FROM COMPACTED SUBBASE SURFACE IMMEDIATELY BEFORE APPLYING HERBICIDE TREATMENT OR PRIME COAT.
PROOF-ROLL PREPARED SUBBASE SURFACE TO CHECK FOR UNSTABLE AREAS AND AREAS REQUIRING ADDITIONAL COMPACTION. NOTIFY ARCHITECT OF UNSATISFACTORY CONDITIONS. DO NOT BEGIN PAVING WORK UNTIL DEFICIENT SUBBASE AREAS HAVE BEEN CORRECTED AND ARE READY TO RECEIVE PAVING.

02520 PORTLAND CEMENT CONCRETE PAVING:

EXTENT OF PORTLAND CEMENT CONCRETE PAVING IS SHOWN ON DRAWINGS, INCLUDING CURBS, GUTTERS, WALKWAYS, AND PAVEMENT. PREPARED SUBBASE IS SPECIFIED IN THE SOILS REPORT.
CONCRETE AND RELATED MATERIALS ARE SPECIFIED IN DIVISION 3. FORMS: STEEL, WOOD, OR OTHER SUITABLE MATERIAL OF SIZE AND STRENGTH TO RESIST MOVEMENT DURING CONCRETE PLACEMENT AND TO RETAIN HORIZONTAL AND VERTICAL ALIGNMENT UNTIL REMOVAL. USE STRAIGHT FORMS, FREE OF DISTORTION AND DEFECTS. WELDED WIRE MESH: WELDED PLAIN COLD-DRAWN STEEL WIRE FABRIC, ASTM A 185. JOINT DOWEL BARS: PLAIN STEEL BARS, ASTM A 615, GRADE 60. CUT BARS TRUE TO LENGTH WITH ENDS SQUARE AND FREE OF BURRS. CONCRETE FINISHING AFTER STRIKING-OFF AND CONSOLIDATING CONCRETE, SMOOTH SURFACE BY SCREEDING AND FLOATING. USE HAND METHODS ONLY WHERE MECHANICAL FLOATING IS NOT POSSIBLE. ADJUST FLOATING TO COMPACT SURFACE AND PRODUCE UNIFORM TEXTURE. AFTER FLOATING, TEST SURFACE FOR TRUENESS WITH A 10-FT. STRAIGHTEDGE. DISTRIBUTE CONCRETE AS REQUIRED TO REMOVE SURFACE IRREGULARITIES, AND REFLOAT REPAIRED AREAS TO PROVIDE A CONTINUOUS SMOOTH FINISH. WORK EDGES OF SLABS, GUTTERS, BACK TOP EDGE OF CURB, AND FORMED JOINTS WITH AN EDGING TOOL, AND ROUND TO 1/2-INCH RADIUS, UNLESS OTHERWISE INDICATED. ELIMINATE TOOL MARKS ON CONCRETE SURFACE. AFTER COMPLETION OF FLOATING AND WHEN EXCESS MOISTURE OR SURFACE SHEEN HAS DISAPPEARED, COMPLETE TROWELING AND FINISH SURFACE WITH A BROOM FINISH BY DRAWING A FINE-HAIR BROOM ACROSS CONCRETE SURFACE PERPENDICULAR TO LINE OF TRAFFIC. REPEAT OPERATION IF REQUIRED TO PROVIDE A FINE LINE TEXTURE ACCEPTABLE TO ARCHITECT.

02900 LANDSCAPE WORK:

SEE LANDSCAPE PLANS
(UNDER SEPARATE COVER)

DIVISION 3 - CONCRETE:

03300 CAST-IN-PLACE CONCRETE:

ALL CONCRETE SHALL BE TYPE II MODIFIED PER THE SOILS REPORT
SEE STRUCTURAL DRAWINGS (UNDER SEPERATE COVER)

03375 CONCRETE SEALING:

APPLY THREE COATS OF KURE-N-SEAL 30 BY SONNEBORN BUILDING PRODUCTS OR EQUAL ON ALL NEW INTERIOR CONCRETE SLABS.

DIVISION 4 - MASONRY:

04220 CONCRETE UNIT MASONRY:

WHERE CONCRETE BLOCKS ARE INDICATED OR IN ALL CONCEALED LOCATIONS PROVIDE LIGHTWEIGHT HOLLOW LOAD-BEARING CONCRETE MASONRY UNITS COMPLYING WITH ASTM C90, GRADE N, TYPE I, COLOR AND STYLE AS SELECTED BY THE OWNER. ALL MASONRY WALLS SHALL DEVELOP 1500 PSI ULTIMATE COMPRESSIVE STRENGTH (F'M) IN 28 DAYS. BLOCK REINFORCING SHALL BE ASTM A615, GRADE 60, STANDARD DUR-O-WALL, LADDER TYPE AT 16" O.C. WALLS SHALL HAVE A VERTICAL WALL REINFORCEMENT ACCORDING TO THE STRUCTURAL REQUIREMENTS. PROVIDE A WATER REPELLENT COATING OF CHEM-TRETE PB AS MANUFACTURED BY HULS AMERICA, OR EQUAL. TO ALL EXTERIOR EXPOSED CMU. WHERE NEW MASONRY UNITS ARE TO BE USED, THEY SHALL MATCH TEXTURE, STYLE AND COLOR OF THE EXISTING MASONRY UNITS.

DIVISION 5 - METALS:

05400 COLD FORMED METAL FRAMING:

MANUFACTURERS STANDARD LOAD-BEARING STEEL STUDS AND ACCESSORIES AS RECOMMENDED BY MANUFACTURER. 16 GAGE AND HEAVIER UNITS FABRICATE METAL FRAMING COMPONENTS OF STRUCTURAL QUALITY STEEL SHEET WITH A MINIMUM YIELD POINT OF 50,000 PSI; ASTM A446, A570, OR A611. 18 GAGE AND LIGHTER UNITS FABRICATE METAL FRAMING COMPONENTS OF COMMERCIAL QUALITY STEEL SHEET WITH A MINIMUM YIELD POINT OF 33,000 PSI; ASTM A446, A570, OR A611.

05500 METAL FABRICATIONS:

STRUCTURAL STEEL WIDE FLANGE SECTION ASTM A992, GRADE 50
STEEL ANGLES AND PLATES ASTM A36
STEEL TUBING ASTM A500, GRADE B
STEEL PIPE ASTM A53, GRADE B
SEE STRUCTURAL SPECIFICATIONS FOR FURTHER REQUIREMENTS.
SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO MANUFACTURE.

SEE STRUCTURAL DRAWINGS FOR MORE INFORMATION
(UNDER SEPERATE COVE)

DIVISION 6 - WOODS AND PLASTICS:

06100 ROUGH CARPENTRY:

NOTE: THIS IS A TYPE III BUILDING WOOD IS NOT ALLOWED IN USE FOR ANY STRUCTURAL ELEMENT.

ALL MATERIAL TO BE NEW. ALL PLYWOOD TO BE EXTERIOR GRADE, AND TO CARRY APA CERTIFICATION. ALL WOOD EXPOSED TO THE EXTERIOR OR CONCRETE TO BE PRESSURE TREATED. ALL WOOD EXPOSED TO THE INTERIOR TO BE FIRE TREATED WOOD. ALL CHANGES IN LUMBER SPECIES OR GRADE MUST BE APPROVED IN WRITING BY THE ARCHITECT. ALL LUMBER MUST BEAR AN APPROVED GRADING STAMP.
DIMENSIONAL LUMBER: SHALL BE HEM FIR #2, FB = 950 PSI.
ALL NAILING MUST BE IN STRICT ACCORDANCE WITH THE CURRENT CODE NAILING SCHEDULES.
PLYWOOD: SHALL CONFORM WITH AMERICAN PLYWOOD ASSOCIATIONS CURRENT PRODUCT STANDARD SPECIFICATIONS, AND SHALL BE PERFORMANCE RATED BY THE AMERICAN PLYWOOD ASSOCIATION.

6200 FINISH CARPENTRY:

ALL CABINETRY SHOWN IS FOR BID PUPOSES ONLY, GC TO PROVIDE OWNER WITH MORE DETAILED CABINET SHOP DRAWINGS FOR REVIEW AND APPROVAL BEFORE MAKING ANY CABINET.

ALL MATERIAL TO BE NEW, TRIM TO BE PAINT GRADE, UNLESS OTHERWISE NOTED. ALL WOOD EXPOSED TO THE EXTERIOR TO BE PRESSURE TREATED.

DIVISION 7 - THERMAL AND MOISTURE PROTECTION:

07160 BITUMINOUS DAMPPROOFING:

EXTENT OF EACH TYPE OF DAMPPROOFING WORK IS INDICATED ON DRAWINGS. PROCEED WITH DAMPPROOFING WORK ONLY AFTER SUBSTRATE CONSTRUCTION AND PENETRATING WORK HAVE BEEN COMPLETED. PROVIDE BITUMINOUS DAMPPROOFING MATERIALS WHICH ARE CERTIFIED IN WRITING BY MANUFACTURER OF PRIMARY DAMPPROOFING MATERIALS TO BE SUPERIOR IN PERFORMANCE FOR APPLICATION INDICATED. COMPLY WITH MANUFACTURER'S INSTRUCTIONS TO ENSURE SATISFACTORY PERFORMANCES OF WORK.

07210 BUILDING INSULATION:

PROVIDE BUILDING INSULATION TO COMPLY WITH THE FOLLOWING:
MASONRY FOAM INSULATION.
BATT INSULATION AND VAPOR BARRIER.
RIGID ROOF INSULATION FOR FLAT ROOFS AND SLOPED ROOFS.

072119 FOAMED IN PLACE INSULATION

ICYNENE SPRAY FOAM

A. INSTALLER QUALIFICATIONS: AN AUTHORIZED REPRESENTATIVE WHO IS TRAINED AND APPROVED BY MANUFACTURER. ANY REPAIRS BY AN ICYNENE LICENSED CONTRACTOR.
B. FIRE RESISTANCE CHARACTERISTICS: AS DETERMINED BY TESTING IDENTICAL PRODUCTS BASED ON A 4 INCH MINIMUM THICKNESS ACCORDING TO ASTM E 119 BY A QUALIFIED TESTING AGENCY. IDENTIFY PRODUCTS WITH APPROPRIATE MARKINGS OF APPLICABLE TESTING AGENCY.
C. FIRE PROPAGATION CHARACTERISTICS: PASSES NFPA 285 TESTING AS PART OF AN APPROVED ASSEMBLY.
D. SUSTAINABILITY REQUIREMENTS: PROVIDE SPRAY POLYURETHANE FOAM INSULATION AS FOLLOWS:
   1. LOW EMITTING: INSULATION TESTED ACCORDING TO CA/DPH/EHLB/V1.1-2010.
   2. RESISTANT TO FUNGAL GROWTH AS PER ASTM C1338.
   3. CONTAINING NO PBDE.
E. COMPLY WITH INSULATION MANUFACTURER'S WRITTEN INSTRUCTIONS APPLICABLE TO PRODUCTS AND APPLICATIONS.

07300 ROOFING:

PROVIDE ALL ROOFING MATERIAL TO BE NEW, WITH 10 OR 20 YEAR WARRANTY AS SELECTED BY THE OWNER. PROVIDE ROOFING AS SPECIFIED ON PLANS OR AS REQUIRE TO MATCH THE EXISTING.

A. INSTALL SHEET FLASHING AND PREFORMED FLASHING ACCESSORIES AND ADHERE TO SUBSTRATES ACCORDING TO ROOFING SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS.
   1. FLASH PENETRATIONS AND FIELD-FORMED INSIDE AND OUTSIDE CORNERS WITH CURED OR UNCURED SHEET FLASHING AS RECOMMENDED BY MANUFACTURER.
   2. CLEAN SPLICE AREAS, APPLY SPLICING CEMENT, AND FIRMLY ROLL SIDE AND END LAPS OF OVERLAPPING SHEETS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS TO ENSURE A WATERTIGHT SEAM INSTALLATION. APPLY LAP SEALANT AND SEAL EXPOSED EDGES OF SHEET FLASHING TERMINATIONS.
   3. TERMINATE AND SEAL TOP OF SHEET FLASHING.
G. WALKWAYS: INSTALL WALKWAY PRODUCTS IN LOCATIONS INDICATED. ADHERE WALKWAY PRODUCTS TO SUBSTRATE WITH COMPATIBLE ADHESIVE ACCORDING TO ROOFING SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS.
H. PROTECT SHEET MEMBRANE ROOFING FROM DAMAGE AND WEAR DURING REMAINDER OF CONSTRUCTION PERIOD. WHEN REMAINING CONSTRUCTION WILL NOT AFFECT OR ENDANGER ROOFING, INSPECT ROOFING FOR DETERIORATION AND DAMAGE, DESCRIBING ITS NATURE AND EXTENT IN A WRITTEN REPORT, WITH COPIES TO ARCHITECT AND OWNER.
I. CORRECT DEFICIENCIES IN OR REMOVE ROOFING THAT DOES NOT COMPLY WITH REQUIREMENTS, REPAIR SUBSTRATES, REINSTALL ROOFING, AND REPAIR SHEET FLASHING TO A CONDITION FREE OF DAMAGE AND DETERIORATION AT THE TIME OF SUBSTANTIAL COMPLETION AND ACCORDING TO WARRANTY REQUIREMENTS.

07600 FLASHING AND SHEET METAL:

PROVIDE SHEET METAL AND FLASHING TO MATCH EXISTING CONDITIONS. AND AS SHOWN ON THE DRAWINGS.

07900 JOINT SEALERS:

PROVIDE JOINT SEALERS, JOINT FILLERS AND OTHER RELATED MATERIALS THAT ARE COMPATIBLE WITH ONE ANOTHER AND WITH JOINT SUBSTRATES UNDER CONDITIONS OF SERVICE AND APPLICATION, AS DEMONSTRATED BY SEALANT MANUFACTURER BASED ON TESTING AND FIELD EXPERIENCE.
PROVIDE BACKER ROD WHERE APPLICABLE.

DIVISION 8 - DOORS AND WINDOWS:

08100 METAL DOORS AND FRAMES:

EXTERIOR DOORS TO BE 16 GAGE HOLLOW METAL COMPLYING WITH ASTM A40, HOT DIPPED GALVANIZED AND PRIME PAINTED AS MANUFACTURED BY CECO DOOR DIVISION, OR EQUAL. EXTERIOR FRAMES TO BE 16 GAGE, ALL WELDED CONSTRUCTION, INSTALLED WITH CONCEALED FASTENERS, ANCHORED TO CONCRETE FLOOR, AND PROPERLY REINFORCED FOR THE FINISH HARDWARE. FINISH TO BE PRIMED FOR PAINT. 1/4" CLEAR TEMPERED GLASS AT ALL DOORS. TEMPERED GLASS AS REQUIRED AT ALL AREAS TO COMPLY WITH LOCAL CODE.

08305 ACCESS DOORS:

PROVIDE ACCESS DOORS AS REQUIRED, PROVIDE REQUIRED FIRE RATINGS FOR ALL SIZES NEEDED.

08410 ALUMINUM ENTRANCES AND STOREFRONTS:

PROVIDE ALUMINUM ENTRANCE AND STOREFRONT SYSTEMS CAPABLE OF WITHSTANDING LOADS AND THERMAL AND STRUCTURAL MOVEMENT REQUIREMENTS INDICATED WITHOUT FAILURE, BASED ON TESTING MANUFACTURER'S STANDARD UNITS IN ASSEMBLIES SIMILAR TO THOSE INDICATED FOR THIS PROJECT. FAILURE INCLUDES AIR INFILTRATION AND WATER PENETRATION EXCEEDING SPECIFIED LIMITS; AND FRAMING MEMBERS TRANSFERRING STRESSES, INCLUDING THOSE CAUSED BY THERMAL AND STRUCTURAL MOVEMENT, TO GLAZING UNITS. RE: SHEET A7.1

08710 FINISH HARDWARE:

PROVIDE HEAVY DUTY COMMERCIAL LOCKS. ALL DOOR LOCKS AS SCHEDULED ON SHEET A7.1
ALL DOOR AND GATE HARDWARE IS TO MEET MINIMUM ADA AND ANSI STANDARDS AND GUIDELINES, DOOR OPENING FORCE NOT TO BE GREATER THAN 5.0 POUNDS.

DIVISION 9 - FINISHES:

09110 METAL STUD SYSTEMS:

AT METAL STUD WALLS AND FRAMING, PROVIDE 16 GAGE STANDARD PUNCHED STEEL "C" STUDS, EITHER HOT-DIP GALVANIZED OR FACTORY PRE-PAINTED. AT INTERIOR METAL STUD PARTITIONS OF CEILING AND SOFFIT FURRING PROVIDE 22 AND 25 GAGE STANDARD PUNCHED STEEL STUDS.

09260 GYPSUM WALLBOARD SYSTEM:

PROVIDE FED SPEC SS-L-30D, IN 48" WIDTHS
REGULAR WALLBOARD: TYPE III, GRADE R, CLASS 1, 5/8" THICK
SHEATHING: TYPE II, GRADE W, CLASS 2., 5/8" THICK
AND/OR AS INDICATED ON THE DRAWINGS.

09500 ACOUSTICAL CEILINGS:

TILES TO MATCH EXISTING SYSTEM.
ALL CEILINGS WILL CONSIST OF A WIRE SUSPENDED STEEL GRID SYSTEM AND 5/8" MINERAL FIBRE DROP-IN PANELS, (AS SELECTED BY THE OWNER). THE TEES WILL BE ARRANGED EITHER IN A GRID PATTERN TO FORM 2' X 4' OPENINGS, OR MATCH EXISTING GRID TO ACCOMMODATE A SYSTEMATIC PATTERN FOR THE DROP-IN NON-DIRECTIONAL FISSURED PANELS, AND MECHANICAL HEATING AND AIR CONDITIONING GRILLS.

09600 FLOORING:

PROVIDE A SMOOTH TRANSITION TO ALL FLOOR AREAS. SEE DRAWINGS AND FINISH SCHEDULE FOR FLOOR FINISHES. UTILIZE MANUFACTURERS INSTALLATION REQUIREMENTS ON ALL FINISHES.

09800 SPECIAL COATINGS:

SPECIAL COATINGS FOR INTERIOR USE:
2-COMPONENT HIGH PERFORMANCE POLYAMIDE EPOXY COATING.
SUBMIT MANUFACTURER'S TECHNICAL INFORMATION INCLUDING BASIC MATERIALS ANALYSIS AND APPLICATION INSTRUCTIONS FOR EACH COATING MATERIAL SPECIFIED.
PROVIDE SAMPLES OF EACH COLOR AND MATERIAL TO BE APPLIED, WITH TEXTURE TO SIMULATE ACTUAL CONDITIONS, ON REPRESENTATIVE SAMPLES OF THE ACTUAL SUBSTRATE.

SINGLE SOURCE RESPONSIBILITY: PROVIDE PRIMERS AND UNDERCOAT MATERIAL PRODUCED BY THE SAME MANUFACTURER AS THE FINISH COATS. USE ONLY THINNERS RECOMMENDED BY THE MANUFACTURER, AND ONLY WITHIN RECOMMENDED LIMITS.

MATERIAL QUALITY: PROVIDE THE BEST QUALITY GRADE OF THE VARIOUS COATINGS AS REGULARLY MANUFACTURED BY ACCEPTABLE COATING MANUFACTURERS. MATERIALS NOT DISPLAYING MANUFACTURER'S IDENTIFICATION AS A BEST-GRADE PRODUCT WILL NOT BE ACCEPTABLE.

EXAMINE SUBSTRATES AND CONDITIONS UNDER WHICH COATING WILL BE PERFORMED FOR COMPLIANCE WITH REQUIREMENTS FOR APPLICATION OF COATINGS. DO NOT PROCEED WITH APPLICATION UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
SURFACE PREPARATION: PERFORM SURFACE PREPARATION AND CLEANING IN COMPLIANCE WITH THE MANUFACTURER'S INSTRUCTIONS FOR THE PARTICULAR SUBSTRATE CONDITIONS, AND AS SPECIFIED.

MATERIAL PREPARATION: CAREFULLY MIX AND PREPARE MATERIALS IN COMPLIANCE WITH THE COATING MANUFACTURER'S DIRECTIONS.

APPLY SPECIAL COATINGS BY BRUSH, ROLLER, SPRAY, SQUEEGEE, OR OTHER APPLICATORS IN ACCORDANCE WITH MANUFACTURER'S DIRECTIONS. USE BRUSHES BEST SUITED FOR THE MATERIAL BEING APPLIED. USE ROLLERS OF CARPET, VELVET BACK, OR HIGH-PILE SHEEP'S WOOL AS RECOMMENDED BY THE MANUFACTURER FOR THE MATERIAL AND TEXTURE REQUIRED

09900 PAINTING:

CONTRACTOR SHALL PROVIDE PAINTING OF ALL INTERIOR AND EXTERIOR SURFACES AS FOLLOWS:

ALL MISCELLANEOUS METALS, AND TRIM
METAL DOORS, WINDOWS AND FRAMES
METAL GRILLWORK
ALL EXPOSED UNFINISHED SURFACES NOT DEFINED ELSEWHERE
CONTRACTOR SHALL APPLY PAINT TO ALL EXTERIOR SURFACES,
AND TO MATCH THE EXISTING ADJOINING SURFACES, OR AS SELECTED BY THE OWNER.

DIVISION 10- SPECIALTIES:

10522 FIRE EXTINGUISHERS:

PROVIDE FIRE EXTINGUISHERS, CABINETS, AND ACCESSORIES
TO BE GOOD QUALITY MANUFACTURE. SUBJECT TO OWNER AND LOCAL FIRE DEPARTMENT APPROVAL.

10800 TOILET AND BATH ACCESSORIES:

PROVIDE ACCESSORIES AS SHOWN ON THE PLANS AND AS FOLLOWS:
SINGLE-SOURCE RESPONSIBILITY: PROVIDE PRODUCTS OF SAME MANUFACTURER FOR EACH TYPE OF ACCESSORY UNIT AND FOR UNITS EXPOSED TO VIEW IN SAME AREAS, UNLESS OTHERWISE ACCEPTABLE TO ARCHITECT.

SPECIAL PROJECT WARRANTY: PROVIDE MANUFACTURER'S WRITTEN 5-YEAR WARRANTY AGAINST SILVER SPOILAGE OF MIRRORS, AGREEING TO REPLACE ANY MIRRORS THAT DEVELOP VISIBLE DEFECTS WITHIN WARRANTY PERIOD.

INSTALL TOILET ACCESSORY UNITS IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS, USING FASTENERS APPROPRIATE TO SUBSTRATE AND RECOMMENDED BY MANUFACTURER OF UNIT. INSTALL UNITS PLUMB AND LEVEL, FIRMLY ANCHORED IN LOCATIONS AND AT HEIGHTS INDICATED.

DIVISION 11 - EQUIPMENT:

11500 SPECIALIZED EQUIPMENT:

SUPPLIED BY OWNER, INSTALLED BY OWNER AND CONNECTED BY GENERAL CONTRACTOR.

DIVISION 12- FURNISHINGS:

SUPPLIED BY OWNER, INSTALLED BY OWNER.

DIVISION 13 - SPECIAL CONSTRUCTION: (NOT USED)

DIVISION 14 - CONVEYING SYSTEMS: (NOT USED)

DIVISION 15 - MECHANICAL:

ALL MECHANICAL WORK TO BE PROVIDED PER THE MECHANICAL DRAWINGS AND SPECIFICATIONS.

SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO MANUFACTURE.

ALL CONDITIONS ARE TO BE FIELD VERIFIED. ALL WORK TO BE IN STRICT ACCORDANCE WITH LOCAL CODES AND STANDARDS.

15400 PLUMBING:

ALL MECHANICAL WORK TO BE PROVIDED PER THE MECHANICAL DRAWINGS AND SPECIFICATIONS.

SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO MANUFACTURE.

ALL CONDITIONS ARE TO BE FIELD VERIFIED. ALL WORK TO BE IN STRICT ACCORDANCE WITH LOCAL CODES AND STANDARDS.

15500 HVAC:

ALL MECHANICAL WORK TO BE PROVIDED PER THE MECHANICAL DRAWINGS AND SPECIFICATIONS.

SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO MANUFACTURE.

ALL CONDITIONS ARE TO BE FIELD VERIFIED. ALL WORK TO BE IN STRICT ACCORDANCE WITH LOCAL CODES AND STANDARDS.

15990 TESTING, ADJUSTING, AND BALANCING:

TO BE PROVIDED BY SUBCONTRACTOR.

SEE MECHANICAL SPECIFICATIONS FOR FURTHER INFORMATION.

DIVISION 16 - ELECTRICAL:

16400 ELECTRICAL:

ALL ELECTRICAL WORK TO BE PROVIDED PER THE ELECTRICAL DRAWINGS AND SPECIFICATIONS.

SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO MANUFACTURE.

ALL CONDITIONS ARE TO BE FIELD VERIFIED. ALL WORK TO BE IN STRICT ACCORDANCE WITH LOCAL CODES AND STANDARDS.

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(720) 367-5354 EFax

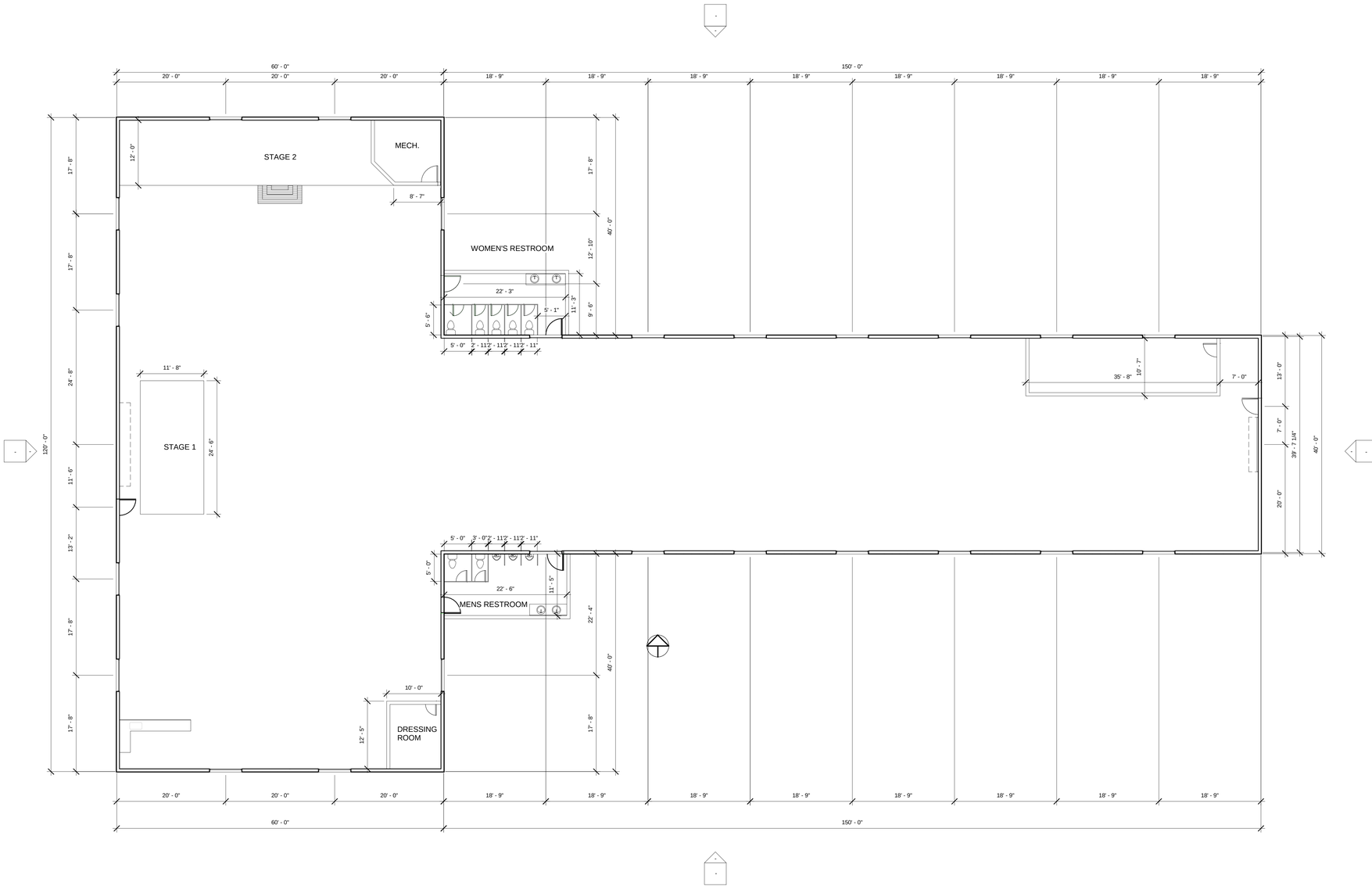
WAYNE D. ANDERSON
C-2974
Nov 21, 2022

ALDANA EVENT CENTER
6539 Imboden Rd.
Watkins Co

ISSUE DATE:
Nov 21, 2022
REVISIONS:
SCALE:
PROJECT:2022-127

SPECIFICATIONS
A0.1

MAR Y CIELO
Custom Homes LLC.
INTERIOR & ARCHITECTURAL DESIGN AND CONSTRUCTION
Maryeris Rubio
c: 720.933.5074
e: rubiomarkeda@yahoo.com
http://www.marycielodesign.com



1 First Floor
1/8" = 1'-0"

6539 IMBODEN ROAD

Proposed New Building Use

TOWN OF WATKINS CO, 80022

Description	Date

Project number	Project Number
Date	3/14/2022

Existing First Floor Plan

A1

PROGRESS SET
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GENERAL SHEET NOTES:

NOTE: ALL FINISHES SHOWN ARE FOR BIDDING PURPOSES ONLY, GC TO FIELD VERIFY ALL FINISHES AND COLORS WITH THE OWNER, AND ALL FINISHES MUST BE APPROVED BY THE HEALTH AND BUILDING DEPARTMENTS.

(01) PLASTIC LAMINATE CABINET AND COUNTER TOP AS SELECTED BY THE OWNER.

(02) PLASTIC LAMINATE TABLE TOPS AS SELECTED BY THE OWNER.

ROOM FINISH SCHEDULE

ROOM #	ROOM NAME	FLOOR	BASE	WALLS NORTH	WALLS SOUTH	WALLS EAST	WALLS WEST	CEILING	REMARKS:
100	OFFICE	CPT1	VCB-1	PT-1	PT-1	PT-1	PT-1	C-1	MATCH EXISTING
101	STYAGE	CPT1	VCB-1	PT-1	PT-1	PT-1	PT-1	C-1	
102	WATER ROOM	CPT1	VCB-1	PT-1	PT-1	PT-1	PT-1	C-1	
103	PORTABLE STAGE	CPT1	VCB-1	PT-1	PT-1	PT-1	PT-1	C-1	
104	EVENT FLOOR	CPT1	VCB-1	PT-1	PT-1	PT-1	PT-1	C-1	
105	WETBAR 1	CPT1	VCB-1	PT-1	PT-1	PT-1	PT-1	C-1	
106	DRESSINGS ROOM	VCT-1	VCB-1	PT-1	PT-1	PT-1	PT-1	C-1	
107	WOMENTS RR	VCT-1	VCB-1	PT-1	PT-1	PT-1	PT-1	C-1	
108	MENS RR	CPT1	VCB-1	PT-1	PT-1	PT-1	PT-1	C-1	
109	WET BAR 2	CPT1	VCB-1	PT-1	PT-1	PT-1	PT-1	C-1	
110	BUFFET	CPT1	VCB-1	PT-1	PT-1	PT-1	PT-1	C-1	

ROOM FINISH LEGEND

NOTE: ALL FINISHES AND COLORS AS SELECTED BY THE OWNER

FLOORING:

EPOX-1 — EPOXY PAINT TO MATCH EXISTING

WALLS:

PT-1 — SEMI GLOSS PAINT

PT-2 — WASHABLE GLOSS PAINT

FRP — WASHABLE MARILITE / FIBER PANELS

WALL BASE:

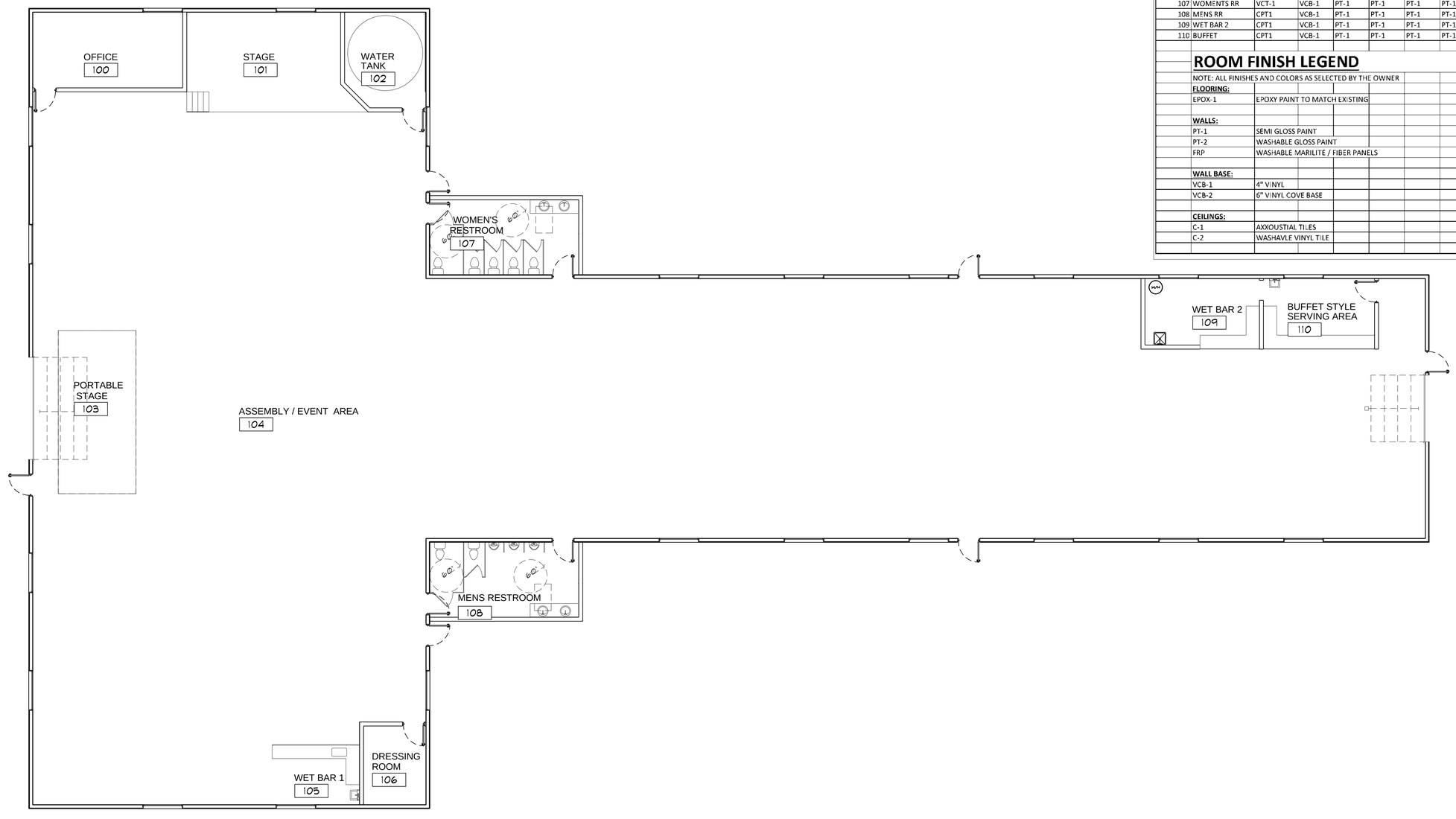
VCB-1 — 4" VINYL

VCB-2 — 6" VINYL COVE BASE

CEILINGS:

C-1 — AXXOUSTIAL TILES

C-2 — WASHAVLE VINYL TILE



1 / A2.3 **FINISH PLAN**

SCALE 1/8" = 1'-0"

0 8 16 24

Graphic Scale: 1 inch = 8 feet

PROGRESS SET

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(303) 550-5678
(720) 367-5354 EFax

STATE OF COLORADO
WAYNE D. ANDERSON
C-2974
LICENSED ARCHITECT
Dec 12, 2022

ALDANA EVENT CENTER

6539 Imboden Rd.

Watkins Co

ISSUE DATE: Dec 12, 2022

REVISIONS:

SCALE: PLAN

PROJECT: 2022-127

FINISH

A2.3

GENERAL SHEET NOTES:

SEE MECHANICAL AND ELECTRICAL PLANS FOR MORE INFORMATION ON THE REQUIREMENTS OF EACH PIECE OF EQUIPMENT. EQUIPMENT SUPPLIED BY OTHERS, CONTRACTOR TO PROVIDE REQUIRED HOOK-UP. LIST TO INCLUDE BUT NOT LIMITED TO THE THE EQUIPMENT LIST SHOWN ON THIS PLAN.

(CONTRACTOR TO FIELD VERIFY ALL CONDITIONS)

EQUIPMENT

1.1 GENERAL

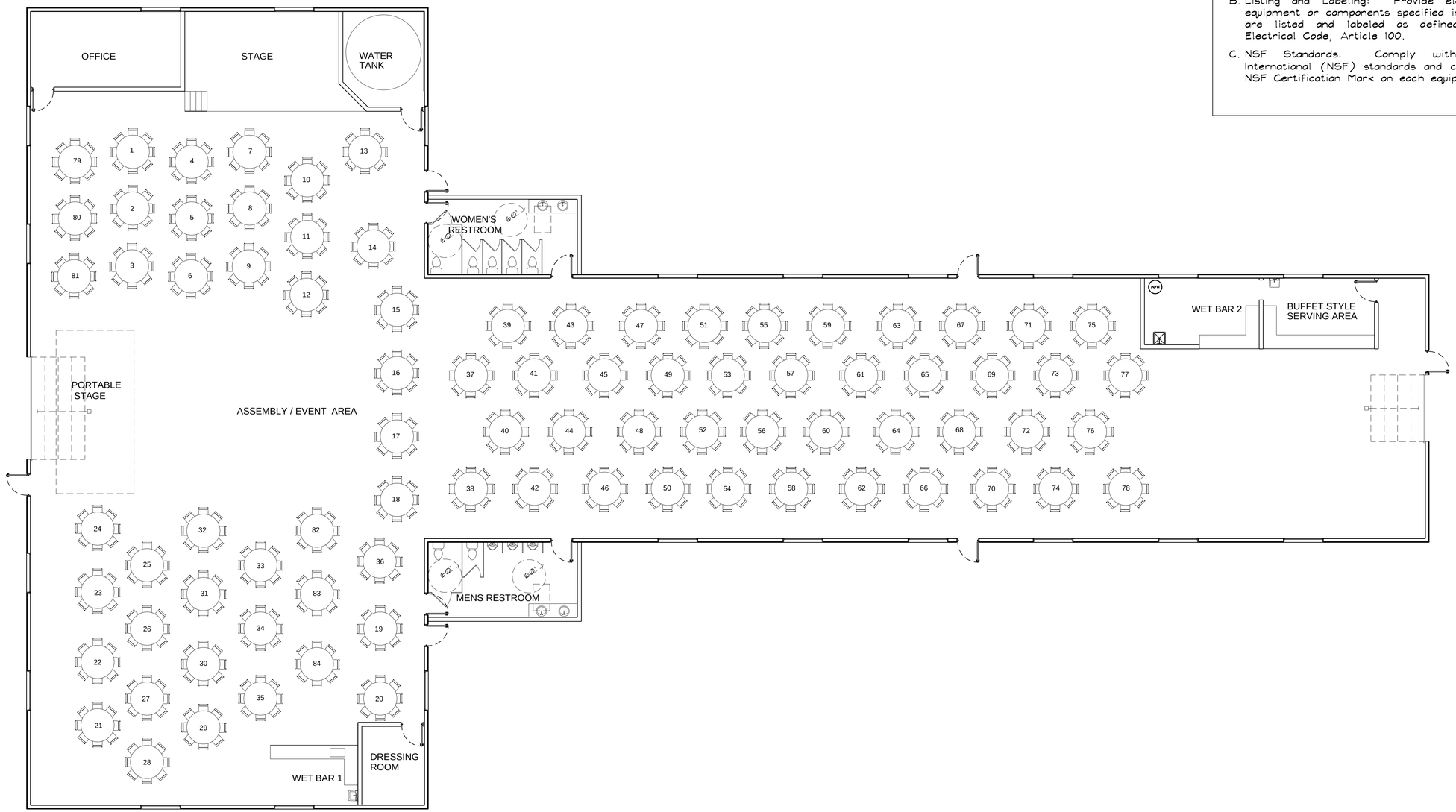
A. Submittals: Product Data for each type of food service equipment indicated and the following:

1. Coordination Drawings: For locations of food service equipment and service-utility locations and characteristics. Key equipment with item numbers and descriptions indicated in Contract Documents.

2. Regulatory Requirements: Comply with ALL LOCAL CODES

B. Listing and Labeling: Provide electrically operated equipment or components specified in this Section that are listed and labeled as defined in the National Electrical Code, Article 100.

C. NSF Standards: Comply with applicable NSF International (NSF) standards and criteria and provide NSF Certification Mark on each equipment item.



1 A2.4 EQUIPMENT PLAN

SCALE 1/4" = 1'-0"

0 8 16 24

Graphic Scale: 1 inch = 8 feet

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STATE OF COLORADO
WAYNE D. ANDERSON
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LICENSED ARCHITECT
Dec 12, 2022

ALDANA EVENT CENTER

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ISSUE DATE:
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REVISIONS:

SCALE: 1/8"=1'-0"
PROJECT:2022-127

EQUIPMENT FLOOR PLAN

A2.4

PROGRESS SET

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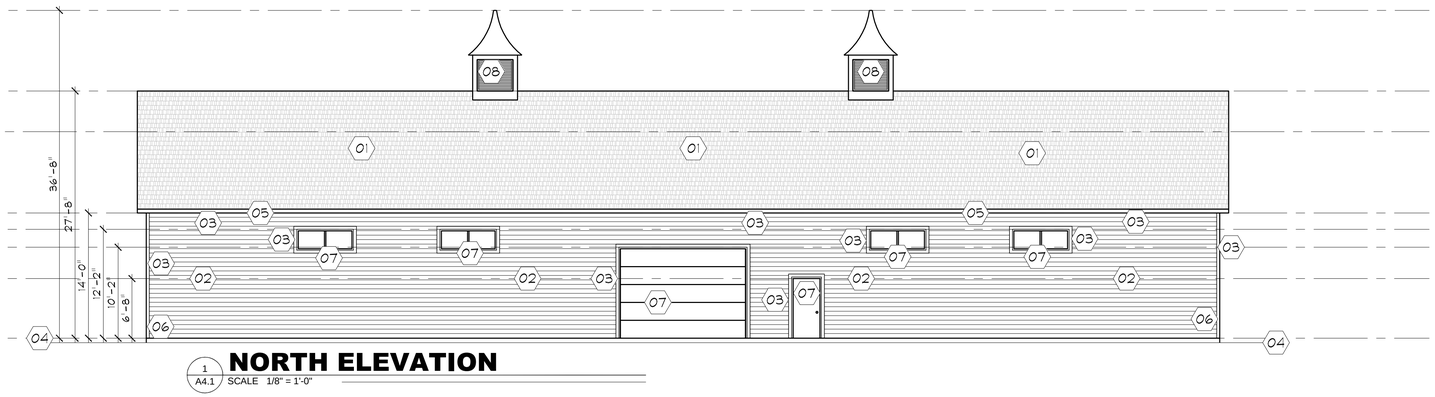
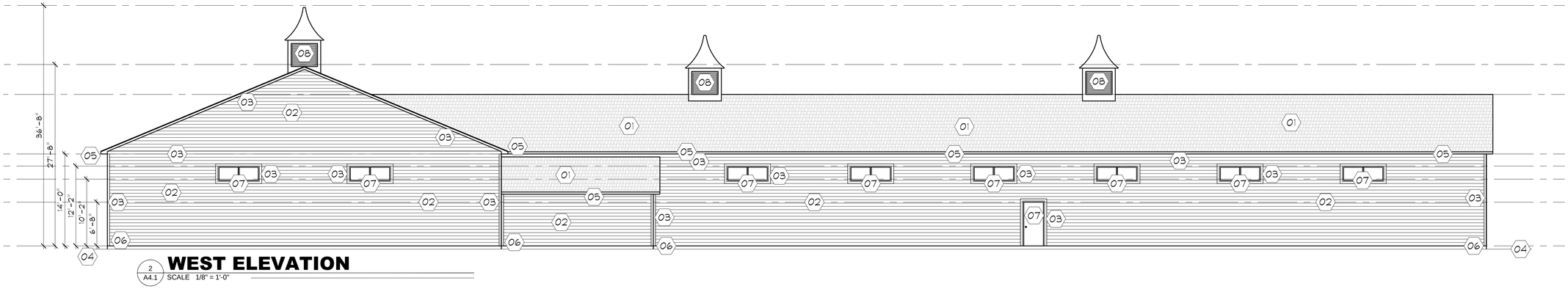
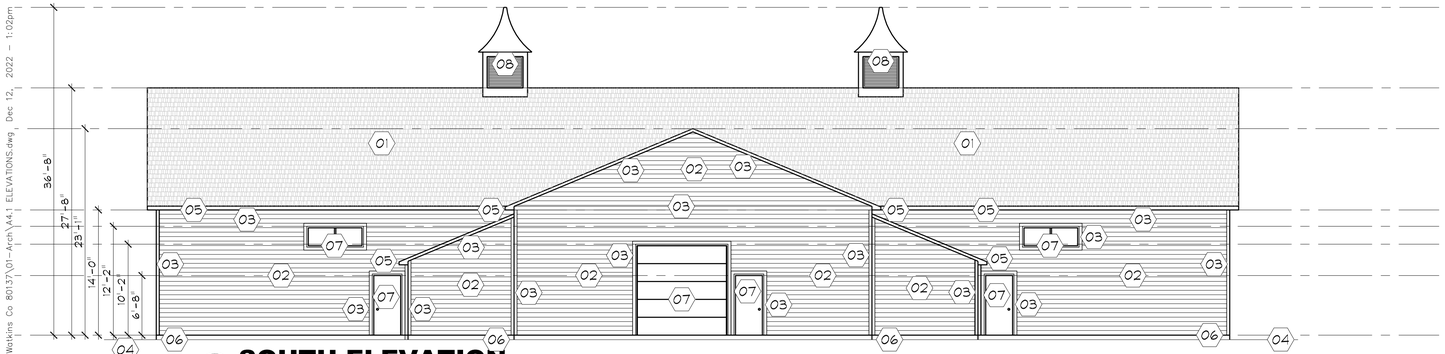


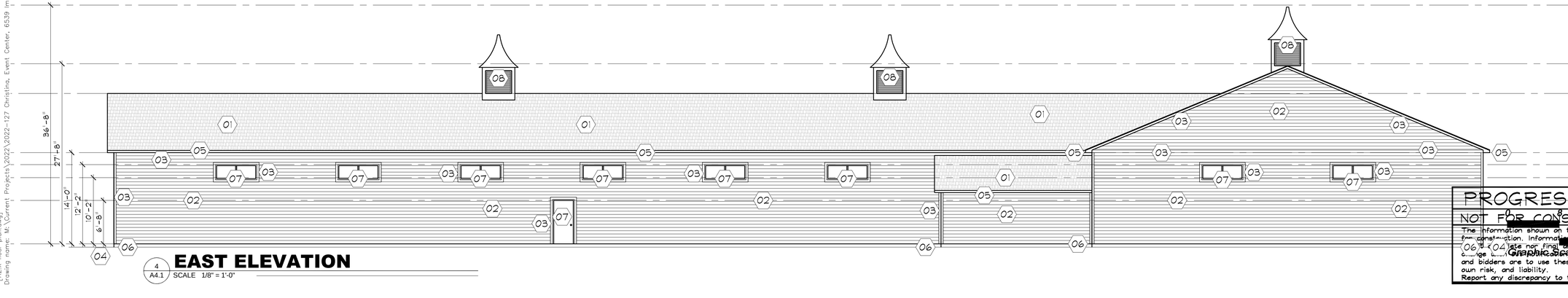
1 A4.1 **NORTH ELEVATION**
SCALE 1/8" = 1'-0"



2 A4.1 **WEST ELEVATION**
SCALE 1/8" = 1'-0"



3 A4.1 **SOUTH ELEVATION**
SCALE 1/8" = 1'-0"



4 A4.1 **EAST ELEVATION**
SCALE 1/8" = 1'-0"

GENERAL SHEET NOTES:

01 ASPHALT SHINGLES AS SELECTED BY THE OWNER, RE: ROOF PLAN, FIELD VERIFY ALL CONDITIONS.

02 LAP SIDING, AS SELECTED BY THE OWNER, FIELD VERIFY ALL CONDITIONS.

03 WOOD TRIM AS SELECTED BY THE OWNER, FIELD VERIFY ALL CONDITIONS.

04 EXISTING GRADE LINE, FIELD VERIFY ALL CONDITIONS.

05 PROVIDE GUTTERS AND DOWNSPOUTS AS REQUIRED AND AS SELECTED BY THE OWNER, FIELD VERIFY ALL CONDITIONS.

06 PROVIDE DOWNSPOUT SPLASH BLOCKS AS REQUIRED, FIELD VERIFY ALL CONDITIONS.

07 INSULATED DOORS AND WINDOWS RE: RESCHECK ENERGY COMPLIANCE REPORT SHEET A0.2, AS SELECTED BY THE OWNER, FIELD VERIFY ALL CONDITIONS.

08 ROOF VENT COPULA AS SELECTED BY THE OWNER, FIELD VERIFY ALL CONDITIONS.

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STATE OF COLORADO
WAYNE D. ANDERSON
C-2974
LICENSED ARCHITECT
Dec 12, 2022

ALDANA EVENT CENTER

6539 Imboden Rd.

Watkins Co

ISSUE DATE:
Dec 12, 2022
REVISIONS:

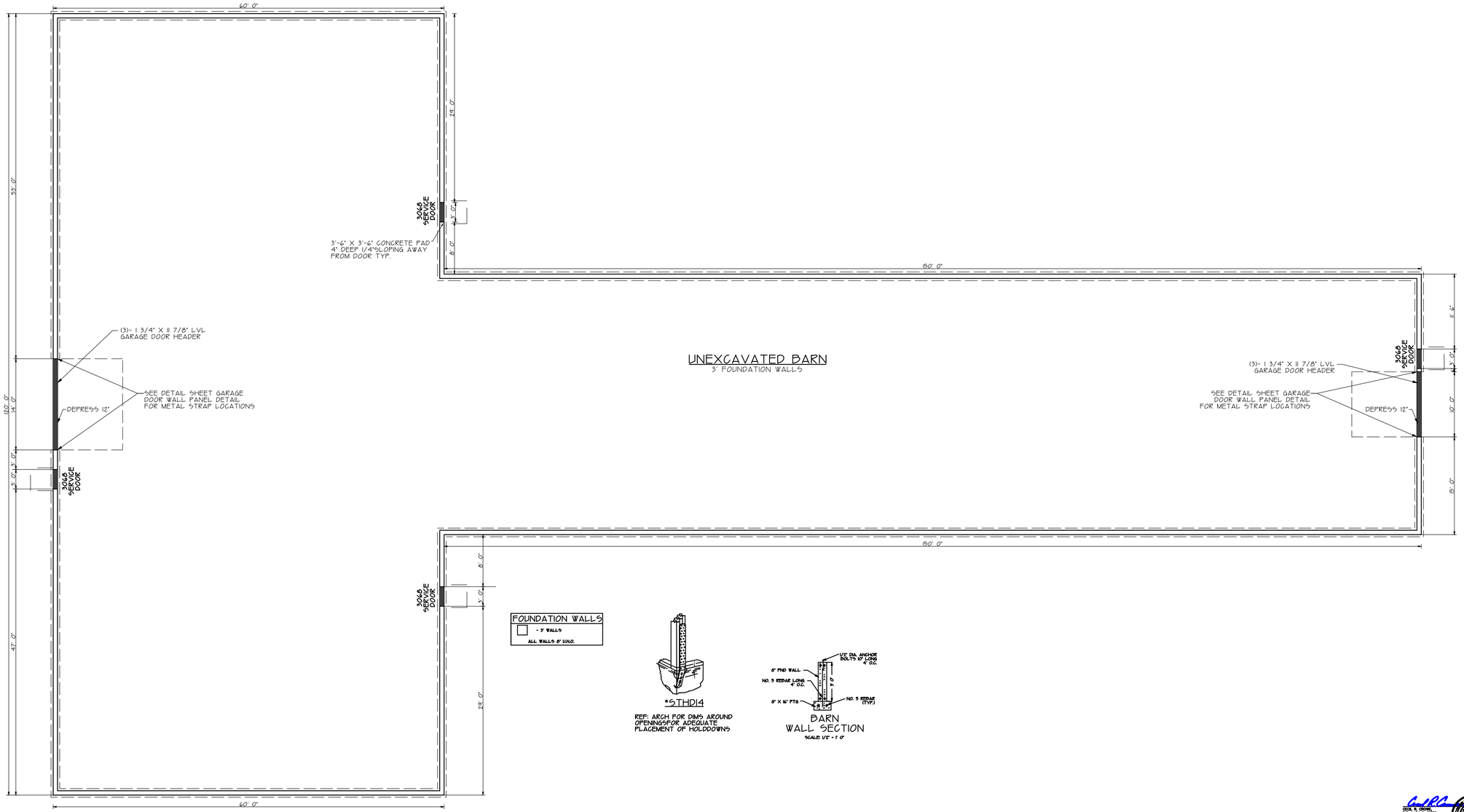
SCALE: 1/8"=1'-0"
PROJECT:2022-127

EXTERIOR ELEVATIONS

A4.1

PROGRESS SET
NOT FOR CONSTRUCTION

Contractor to confirm 8 feet



REVISIONS	DATE

CRC CONSULTING
1830 IROQUOIS ROAD, PUEBLO, COLORADO
PHONE: 719-924-9733

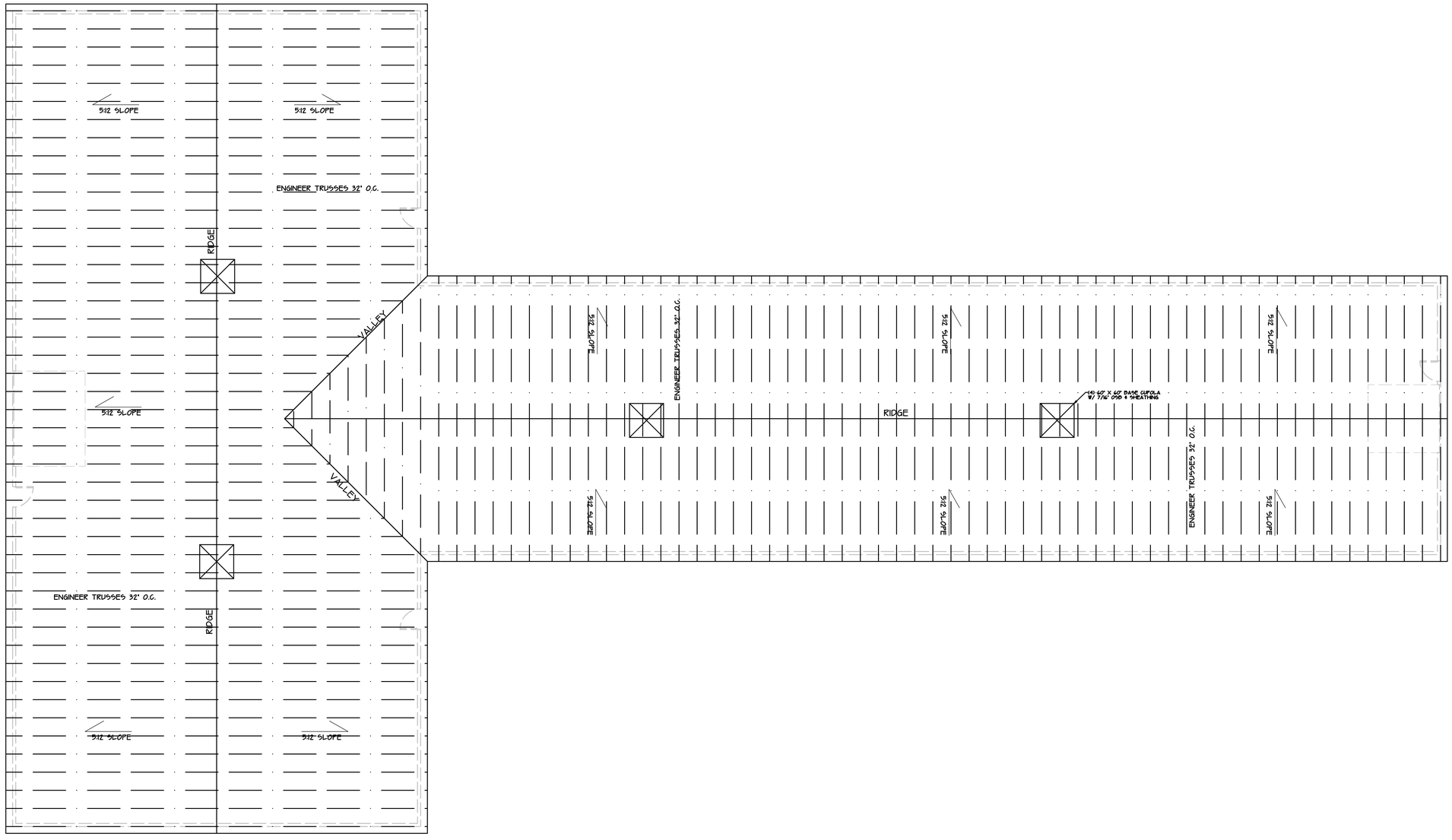
FOUNDATION PLAN
PARCEL B MUEGGE FARMS
TOWN OF WATKINS, ADAMS COUNTY, COLORADO.

CECIL R. CRONEL
P.E. & P.L.S. 5330
DATE: JUNE 23, 2020
ELECTRONIC SIGNATURE PER TITLE 24-71.5-107 (4) C.R.S.

DRAWN BY: EF
CHECKED BY: CRC
DATE DRAWN: 4.17.20
SCALE: 1' = 1/8"
SHEET: S1 OF: S3

FOUNDATION PLAN

PROGRESS SET
NOT FOR CONSTRUCTION



ROOF PLAN

REVISIONS	DATE

CRC CONSULTING
1830 IROQUOIS ROAD, PUEBLO, COLORADO
PHONE: 719-924-9733

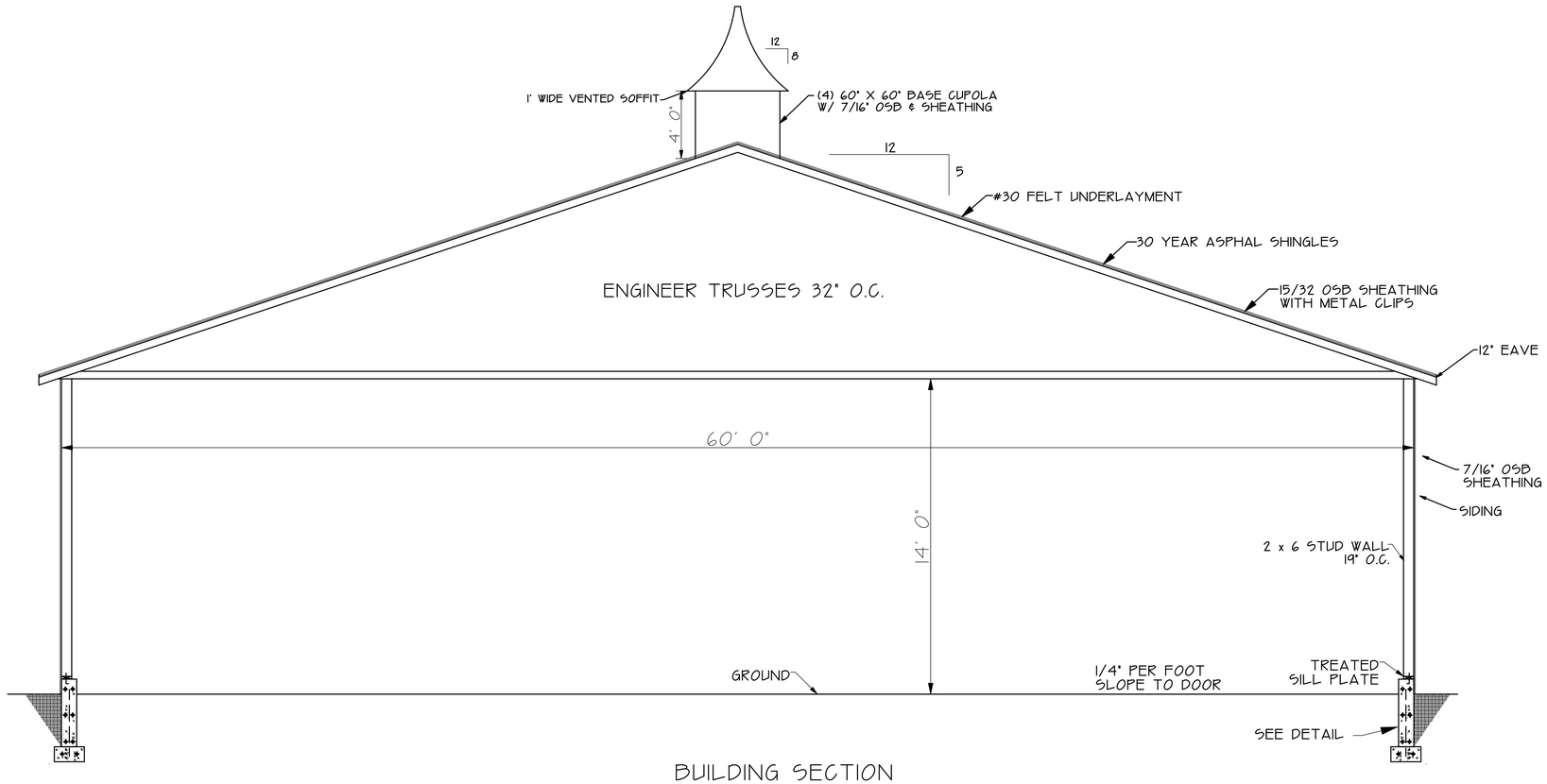
FOUNDATION PLAN
PARCEL B MUEGGE FARMS
TOWN OF WATKINS, ADAMS COUNTY, COLORADO.

CECIL R. CRONE
P.E. & P.L.S. 12330
JUNE 23, 2020
DATE
ELECTRONIC SIGNATURE PER TITLE 24-71.3-101 (4) C.R.S.

COLORADO LICENSED 12330 P.E. & P.L.S.

DRAWN BY: EF
CHECKED BY: CRC
DATE DRAWN: 4.17.20
SCALE: 1' = 1/8"
SHEET: S2
OF: S3

PROGRESS SET
NOT FOR CONSTRUCTION



BUILDING SECTION

SCALE: 3/16" = 1'0"

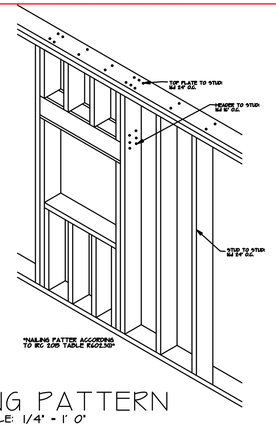
KING AND JACK SIZES		
SPAN	NO. JACK STUDS	NO. KING STUDS
UP TO 3' 6"	1	1
3' 6" TO 5' 0"	1	2
5' 0" TO 5' 6"	2	2
5' 6" TO 8' 0"	2	2
8' 0" TO 10' 6"	2	3
SPANS OVER 10' SEE PLANS		

HEADER SCHEDULE	
SPAN	HEADER
TO 4'0"	2-2 X 8s
4'0" TO 6'0"	2-2 X 8s
6'0" TO 8'0"	2- 2 X 10s
8'0" TO 10'0"	2- 2 X 10s
10'0" TO 12'0"	2- 1 3/4" X 9 1/2" LVLs
SPANS OVER 10' SEE PLANS	

POST LOCATION	
EXTERIOR WALL	(3) 2 X 6 POST
INTERIOR WALL	(4) 2 X 4 POST

NOTE:
HEADERS WILL BE ADJACENT TO THE HOLES THEY COVER. NO HEADERS AT THE TOP OF THE WALL.

BUILDING CODE ANALYSIS
ADAMS COUNTY
2018 INTERNATIONAL BUILDING CODE (IBC)
2018 INTERNATIONAL RESIDENTIAL CODE (IRC)
2018 INTERNATIONAL MECHANICAL CODE (IMC)
2018 INTERNATIONAL PLUMBING CODE (IPC)
2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
2018 INTERNATIONAL EXISTING BUILDING CODE (EBC)
13,200 SQ FT
ROOF SNOW LOAD 30 PSF
BASIC WIND - 115 MPH
IBC 1102.2 YARD MUST BE MIN 60' IN LENGTH AROUND PERIMETER



NAILING PATTERN

SCALE: 1/4" = 1' 0"

GENERAL NOTES & SPECIFICATIONS:

1. THIS DESIGN IS FOR A POLE BARN AT PARCEL B MUEGGE FARMS TOWN OF WATKINS, ADAMS COUNTY, COLORADO.
2. DESIGN LOADS: A. ROOF LIVE LOAD - 30 PSF, 10 PSF DEAD LOAD; B. FLOOR LIVE LOAD - 40 PSF 10 PSF DEAD LOAD; C. 115 MPH WIND LOAD SPEED
C. THE FOUNDATION SHOULD BE BASED ON SPREAD FOOTINGS WITH 1,800 LBS PSF WITH 5' OF OVER-EXCAVATED & RE-COMPACTED SOIL ACORDING TO SUB-SURFACE EXPLORATION BY CRE PROJECT #16-7113 DATED DECEMBER 20, 2016.
3. CONCRETE: SHALL DEVELOP 3500 PSI STRENGTH IN 28 DAYS.
4. REINFORCING STEEL SHALL BE GRADE 60, REBAR, SPLICED WITH 18" OVERLAPS TO BE CONTINUOUS AROUND CORNERS.
5. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS SHOWN ON THIS PLAN PRIOR TO CONCRETE PLACEMENT AND REPORT ANY DISCREPANCY TO THE ENGINEER OR BE RESPONSIBLE FOR SAME.
6. FOUNDATION CONTRACTOR SHALL CHECK AND REVIEW UPPER ARCHITECTURAL FLOOR PLAN FOR DOOR, DUCT, STAIR, AND MISCELLANEOUS BLOCKOUTS AND BE RESPONSIBLE FOR SAME.
7. #2 HEM-FIR OR BETTER WILL BE USE IN CONSTRUCTION OF THE BARN
8. THIS FOUNDATION IS DESIGNED ACCORDING TO IRC 2018
9. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE BUILDING CODE ADOPTED BY ADAMS COUNTY, COLORADO.

SHEAR BRACING:

A. EXTERIOR WALL SHEATHING SHALL BE 7/16 APA RATED OSB SHEATHING ATTACHED WITH 8d NAILS AT 4" O.C. AT ALL PANEL EDGE AND 12" O.C. AT ALL INTERMEDIATE SUPPORT, UNLESS NOTED OTHERWISE. DO NOT SPLICE OSB AT CORNERS OF OPENINGS IN WALLS. ALL PANEL EDGES MUST BE BLOCKED AT EXTERIOR WALLS.

B. ROOF SHEATHING SHALL BE 15/32" OSB, NAIL AT 6" O.C. AT PANEL EDGES AND 12" AT PANEL FIELD.

C. FLOOR SHEATHING SHALL BE 3/4" APA 48X24 EXPOSURE 1 RATED TONGUE AND GROOVE PLYWOOD OR OSB EQUIVALENT, GLUE AND NAIL WITH 8d NAILS AT 6" O.C. AT PERIMETER AND 12" O.C. AT INTERMEDIATE FRAMING.

CONNECTION OF MULTIPLE LVLs;

THE MULTIPLE LVLs FASTENED TOGETHER WILL REQUIRE 12d NAILS PLACED AT 12" APART ALONG THE BEAM. 2 LVLS WILL REQUIRE 2 ROWS OF NAILS SPACED 2" FROM TOP AND BOTTOM. 3 LVLs WILL REQUIRE 3 ROWS OF NAILS SPACED 2" FROM TOP AND BOTTOM AND ONE ROW DOWN THE CENTER.

CECIL R. CROWE,
P.E. & P.L.S. 12330

JUNE 23, 2020
DATE

ELECTRONIC SIGNATURE PER TITLE 24-71.3-107 (4) C.R.S.

COLORADO LICENSED CECIL R. CROWE 12330 P.E. & P.L.S.

DETAIL PLAN

PROGRESS SET
NOT FOR CONSTRUCTION

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REVISIONS	DATE

CRC CONSULTING
1830 IROQUOIS ROAD, PUEBLO, COLORADO
PHONE: 719-924-9733

SECTION/ DETAILS FOR
PARCEL B MUEGGE FARMS
TOWN OF WATKINS, ADAMS COUNTY, COLORADO.

DRAWN BY: EF

CHECKED BY: CRC

DATE DRAWN: 3.20.20

SCALE: 1' = 1/4"

SHEET: S3 OF: S3

Aldana Event Center

Traffic Impact Study

GCSA, LLC

Adams County, Colorado

April 4, 2022

Prepared By:

Sustainable Traffic Solutions, Inc.
http://www.sustainabletrafficsolutions.com/

Joseph L. Henderson, PE, PTOE
303.589.6875
joe@sustainabletrafficsolutions.com

Table of Contents

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Aldana Event Center

Traffic Impact Study

1.0 Introduction

GCSA, LLC is planning to create an event center at 6539 Imboden Road in Adams County. A 13,200 ft^2 building is planned that will be designed to host weddings and other celebrations. Events are anticipated on Saturdays in the afternoon and evening in April through October. Events could be held on Friday evenings, so Adams County requested that the intersection operations be evaluated during the Friday evening peak hour as well as the Saturday peak hour. A maximum of 298 guests will be accommodated at the facility. The vicinity map showing the location of the development is contained in Figure 1, and Figure 2 contains the site plan for the development. Access to the site is proposed from Imboden Road. While the site for the Aldana Event Center is in Adams County, it is included in the NEATS[1] study area. Parts of the study area have been annexed into Aurora and it is anticipated the entire study area will eventually be annexed into Aurora.

The County is requiring a conditional use permit for this project. Based on Table 8.15 of the Adams County Development Standards and Regulations[2], a Level 3 traffic impact study is required if the development will generate more than 250 vehicles per day. This study has been prepared in conformance with Adams County requirements for traffic studies.

2.0 Project Description

2.1 Study Area

The study area includes the intersections of Imboden Road / 56th Avenue and Imboden Road / site access. See Figure 3 for the existing laneage and traffic control.

The streets providing access to the site are classified based on Figure 13 from the NEATS study. Both Imboden Road and 56th Avenue are classified as minor arterials. The west and south legs of 56th Avenue / Imboden Road are projected to have two through lanes in each direction, and the other two legs are expected to have one through lane in each direction.

1 Northeast Area Transportation Study Refresh – Final Report. David Evans and Associates, Inc. October 2018.

2 Adams County Development Standards and Regulations – Section 8-02. September 12, 2005.

2.2 Study Assumptions

The following assumptions were utilized for this study.

- **Scoping Meeting.** A scoping meeting was held with Eden Steele from Adams County on Friday, January 14, 2022. Minutes from the meeting and other correspondence are contained in Appendix A.
- **Adjustment of Traffic Count Data for COVID 19.** Historic traffic count data were used to determine if it was necessary to compensate for the effect of COVID 19. The historic data was obtained from Count Station 000002, a continuous count station on I-70 west of the SH 36 / Air Park Road interchange in Aurora. The data from the count station showed that volumes in January 2022 increased by 18% compared to the average of December 2018 and 2019. Therefore, it wasn't necessary to inflate the data collected for the study to compensate for the impact of COVID 19. The table with the data from Count Station 000002 is contained in Appendix B.
- **Short-Term Planning Horizon.** The development is expected to be completed in Year 2023. Considering the County requirement that the short-term planning horizon be five years following the completion of the development, the short-term planning horizon is Year 2028.
- **Long-Term Planning Horizon.** The long-term planning horizon is Year 2042 because it is 20 years in the future.
- **Growth in Background Traffic.** The growth in background traffic was determined using existing traffic volumes and the Year 2040 volumes that are contained in Figure 11 from the NEATS study[3]. The following annual growth rates were used in the study.
    - Imboden Road north of 56th Avenue – 8.1%
    - Imboden Road south of 56th Avenue – 7.3%
    - 56th Avenue west of Imboden Road – 18.4%
    - 56th Avenue east of Imboden Road – 28.7%
- **Improvements to Study Area Corridors and Intersections.** 56th Avenue and Imboden Road both have one lane in each direction. The south and west legs will be widened to have two lanes in each direction. Auxiliary lanes are expected at 56th Avenue / Imboden Road. These improvements are assumed to be constructed by the Year 2042.
- **Saturation Flow Rate.** The saturation flow rate was assumed to be 1,900 passenger cars / hour / lane which is typical in urban areas.

[3] Northeast Area Transportation Study Refresh – Final Report. David Evans and Associates. October 2018.

- **Peak Hour Factor (PHF).** For the existing and the short-term planning horizons, the PHF was based on the data collected for the traffic study. At new approaches with low traffic volumes, the PHF was assumed to be 0.85 for all movements in all of the planning horizons. In the long-term horizon, the PHF was assumed to be 0.92 unless the existing PHF is higher than 0.92. In that case, the existing PHF was used in the analysis of the long-term volumes.
- **Truck Percentage.** 23% trucks were assumed in the analysis based on data that were collected for the project.

3.0 Existing Traffic Volumes

Traffic count data were collected for the project on average days in January and February by All Traffic Data. The data are contained in Appendix B. The existing peak hour volumes from the evening peak hour on Friday and the Saturday peak hour are summarized in Figures 4 and 5. Existing and future daily volumes are summarized in Table 1.

3.1 Level of Service Analysis

To evaluate the performance of the intersections within the study area, the level of service (LOS) was calculated using PTV VISTRO software. This software package utilizes criteria described in the Highway Capacity Manual[4]. LOS is a measure used to describe operational conditions at an intersection. LOS categories ranging from A to F are assigned based on the predicted delay in seconds per vehicle for the intersection as a whole, as well as for individual turning movements. LOS A indicates very good operations, and LOS F indicates poor, congested operations. In Aurora, acceptable intersection operation is LOS D, or better. Individual movements may be allowed to fall to LOS E. The Aurora criteria were used in this study because the study area intersections are either in Aurora or are assumed to be annexed into Aurora in the future.

The intersection of 56th Avenue / Imboden Road is currently operating at LOS B during the Friday evening peak hour and LOS A during the Saturday peak hour. The level of service for intersections with side-street stop-control is determined by the movement with the highest delay value. The detailed analysis results are summarized in Table 2 and the VISTRO analysis results are contained in Appendix C.

4.0 Site Generated Traffic Volumes

4.1 Trip Generation

Event centers are a land use that is not addressed in the ITE Trip Generation manual[5], therefore, the trip generation was determined based on information that

[4] Highway Capacity Manual, 7th Edition. National Academy of Sciences, Engineering, and Medicine. 2022.

[5] Trip Generation, 11th Edition. Institute of Transportation Engineers. September 2021.

was provided by the developer. The facility will accommodate a maximum of 298 guests. Assuming an average of two guests per vehicle, the total trip generation for the event is expected to be approximately 298 trips. There will be approximately 149 inbound trips prior to the event, and 149 trips exiting the site at the end of the event.

4.2 Trip Distribution and Assignment

The trip distribution for the development is contained in Figure 6. It is based on the location of the site within the metro area and access to major transportation facilities. The Friday evening and Saturday peak hour trip assignments are contained in Figures 7 and 8.

5.0 Year 2028 Traffic Conditions

Construction of the development is expected to be completed in Year 2023. Based on the County's requirements, the short-term horizon is five years after the completion of the development. Therefore, the short-term horizon will be Year 2028. The background traffic volumes were developed by inflating the existing traffic volumes by the growth rates discussed in Section 2.2. Figures 9 and 10 contain the Year 2028 background traffic volume scenarios. The total traffic volume scenarios were developed by combining the background traffic volume scenarios with the trip assignment. Figures 11 and 12 contain the Year 2028 total traffic volume scenarios.

The following table summarizes the intersection operation for the background and total traffic volume scenarios. Both intersections are expected to operate at acceptable levels of service during the all traffic volume scenarios. The laneage and traffic control assumed in the total traffic volume scenarios are contained in Figure 13. The detailed analysis results are summarized in Table 2 and the VISTRO analysis results are contained in Appendix C.

Intersection	Control	Background		Total	
		Friday PM	Saturday	Friday PM	Saturday
1 - 56th Avenue / Imboden Road	Side-Street Stop	B	B	C	C
2 - Imboden Road / Site Access	Side-Street Stop	---		B	B

6.0 Year 2042 Traffic Conditions

The Year 2042 background and total traffic volume scenarios were developed as discussed in Section 5.0. Figures 14 and 15 contain the Year 2042 background traffic volume scenarios, and the total traffic volume scenarios are contained in Figures 16 and 17.

The following table summarizes the intersection operation for all scenarios. Both intersections are expected to operate at acceptable levels of service during the background and total traffic volume scenarios. The laneage and traffic control assumed in the total traffic volume scenarios are contained in Figure 18. The

detailed analysis results are summarized in Table 2 and the VISTRO analysis results are contained in Appendix C.

Intersection	Control	Background		Total	
		Friday PM	Saturday	Friday PM	Saturday
1 - 56th Avenue / Imboden Road	Signalized	C	C	C	C
2 - Imboden Road / Site Access	Side-Street Stop	---		C	C

7.0 V/C Ratios

The existing and future volume to capacity ratios (V/C) were calculated for the key links in the study area (see Table 3). The capacity thresholds used for the analysis are contained in Table 8.16 of the Adams County Development Standards and Regulations. All of the existing and future V/C ratios are below 1.0.

8.0 Auxiliary Lanes

The need for auxiliary lanes at the site access on Imboden Road was determined through a review of the State Highway Access Code[6] (SHAC). Based on email correspondence with the City of Aurora staff, Aurora uses criteria in the SHAC to determine the need for auxiliary lanes and Imboden Road would be categorized as an NR-B roadway. Refer to Table 4 for an evaluation of the auxiliary lane requirements. It shows that a northbound left turn deceleration lane will be required for this development. A left turn acceleration lane will not be necessary based on the projected side-street level of service.

9.0 Intersection Sight Distance

The intersection sight distance was estimated for the stop-controlled site access on Imboden Road. The methodology for the analysis is contained in Section 9.5 of A Policy on the Geometric Design of Highways and Streets, 7th Edition[7]. According to the County criteria, the design speed was used to determine the required sight distance. Figure 19 shows that adequate intersection sight distance exists at the site access.

10.0 Conclusions

STS has drawn the following conclusions based on the analysis performed for this project.

Intersection Operation. Both of the study area intersections are expected to operate at acceptable levels of service through the Year 2042 total traffic volume scenarios.

6 State Highway Access Code. The Transportation Commission of Colorado. Amended March 2002.

7 A Policy on the Geometric Design of Highways and Streets, 7th Edition. American Association of State Highway and Transportation Officials. 2018.

V/C Ratios. The V/C ratios for the key links in the study area are all below 1.0 and are expected to remain below 1.0 through the Year 2042.

Auxiliary Lanes. A northbound left turn deceleration lane will be required by the traffic from this development.

Intersection Sight Distance. The intersection sight distance for the proposed site access will meet AASHTO criteria.

Tables

Table 1. Existing and Projected Daily Traffic Volumes

Count Location	Existing	Aldana Event Center	Year 2028 Background	Year 2028 Total	Year 2042 Background	Year 2042 Total
Imboden Road North of the Site Access	1,795	60	2,860	2,920	7,240	7,300
Imboden Road Between the Site Access and 56th Avenue	1,795	240	2,860	3,100	7,060	7,300
Imboden Road South of 56th Avenue	2,060	90	3,800	3,890	12,810	12,900
56th Avenue West of Imboden Road	950	150	2,620	2,770	19,750	19,900
56th Avenue East of Imboden Road	100	0	450	450	9,400	9,400

Notes

1. The daily volumes highlighted in yellow were collected in the field. The other existing volumes were estimated based on the peak hour to daily ratio of an adjacent intersection leg where count data were collected.

Table 2. Intersection Operational Summary

Signalized Intersections [1]	Year 2022				Year 2028 Background				Year 2028 Total				Year 2042 Background				Year 2042 Total			
	Friday PM		Saturday		Friday PM		Saturday		Friday PM		Saturday		Friday PM		Saturday		Friday PM		Saturday	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1 - 56th Avenue / Imboden Road	---				---				---				25.7	C	25.8	C	26.8	C	26.4	C

Stop-Controlled Intersections 1	Year 2022				Year 2028 Background				Year 2028 Total				Year 2042 Background				Year 2042 Total			
	Friday PM		Saturday		Friday PM		Saturday		Friday PM		Saturday		Friday PM		Saturday		Friday PM		Saturday	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1 - 56th Avenue / Imboden Road	10.3	B	9.9	A	12.8	B	11.3	B	20.5	C	15.8	C	---				---			
	EBLT		EBLT		EBLT		EBLT		EBLT		EBLT									
2 - Imboden Road / Site Access	---				---				14.8	B	14.1	B	---				20.9	C	20.9	C
									EBLT		EBLT						EBLT		EBLT	

Note

1. The level of service for signalized intersections is based on the delay for the entire intersection.
2. The level of service for intersections with side-street stop-control is determined by the movement with the highest delay value.

Table 3. Existing and Future V/C

Link	Facility Type	Existing		Year 2028 Background		Year 2028 Total		Year 2042 Background		Year 2042 Total	
		Volume	V/C	Volume	V/C	Volume	V/C	Volume	V/C	Volume	V/C
Imboden Road North of the Site Access	Minor Arterial	1,795	0.11	2,860	0.18	2,920	0.18	7,240	0.45	7,300	0.46
Imboden Road Between the Site Access and 56th Avenue	Minor Arterial	1,795	0.11	2,860	0.18	3,100	0.19	7,060	0.44	7,300	0.46
Imboden Road South of 56th Avenue	Minor Arterial	2,060	0.13	3,800	0.24	3,890	0.24	12,810	0.40	12,900	0.40
56th Avenue West of Imboden Road	Minor Arterial	950	0.06	2,620	0.16	2,770	0.17	19,750	0.62	19,900	0.62
56th Avenue East of Imboden Road	Minor Arterial	100	0.01	450	0.03	450	0.03	9,400	0.59	9,400	0.59

Table 4. Auxiliary Lane Analysis

Intersection / Movement	Threshold	Peak Hour Volume		Taper Length [1,2]	Storage Length	Total
		Friday PM	Saturday			
2 - Imboden Road / Site Access						
SBRT	>50 VPH	30	30	---	---	---
NBLT	>25 VPH	120	120	222	120	342

Legend

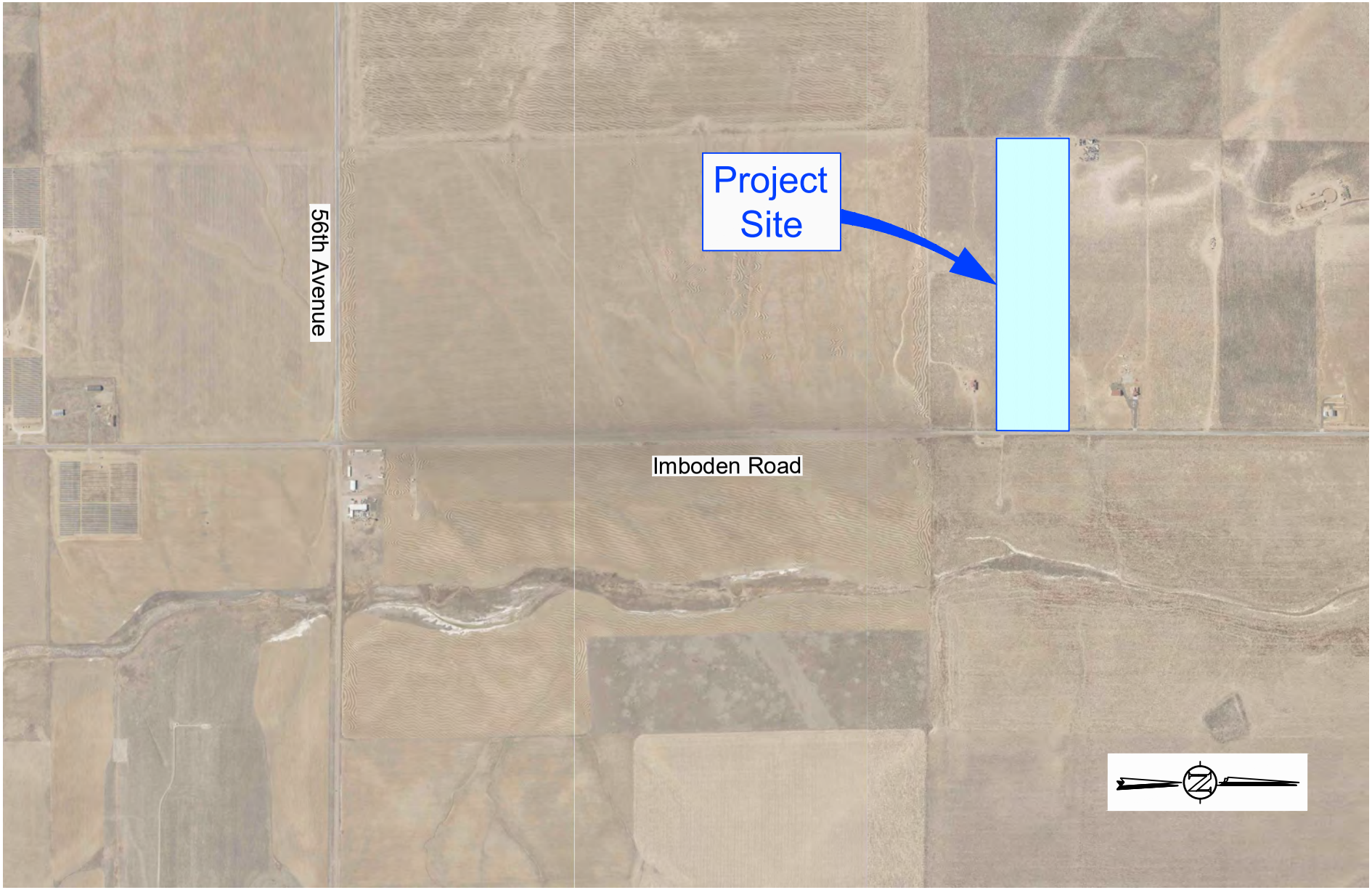
XX	Turn Lane Warranted

Notes

1. The speed limit on Imboden Road is 55 MPH.

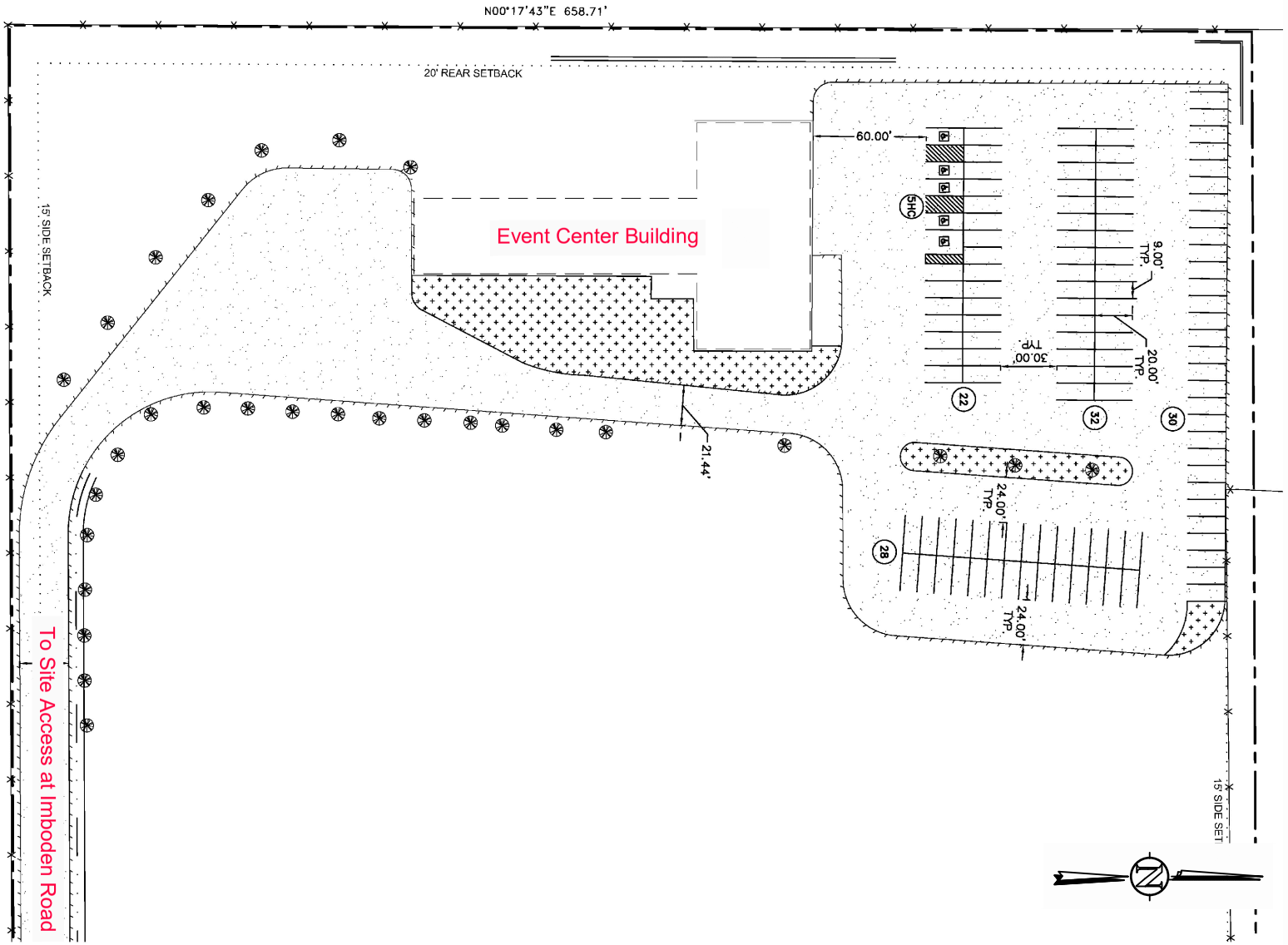
2. Refer to Table 4-5 from the State Highway Access Code for the definitions of turn bay lengths. A 12' wide lane was assumed to determine the taper length.

Figures



Aldana Event Center Traffic Impact Study
VICINITY MAP

Scale	NTS	Date	April 4, 2022	Drawn by	JLH	Job #	GCSA, LLC	Figure	1



Aldana Event Center Traffic Impact Study
VICINITY MAP

Scale	NTS	Date	April 4, 2022	Drawn by	JLH	Job #	GCSA, LLC	Figure	2

Figure 3 – Laneage and Traffic Control – Existing

56th Avenue

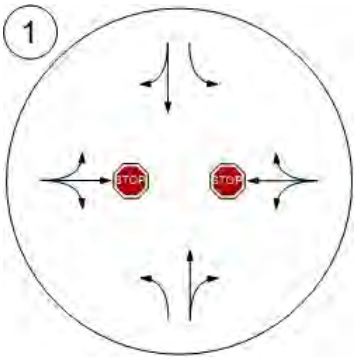


Figure 4 – Existing Traffic Volumes – Friday Evening Peak Hour

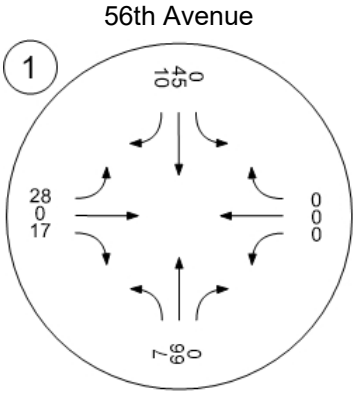
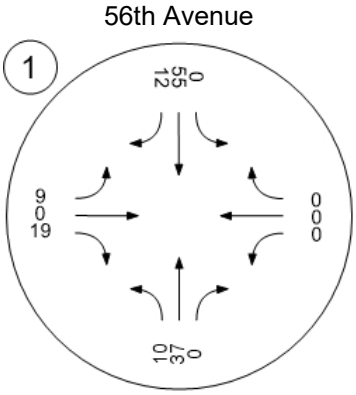
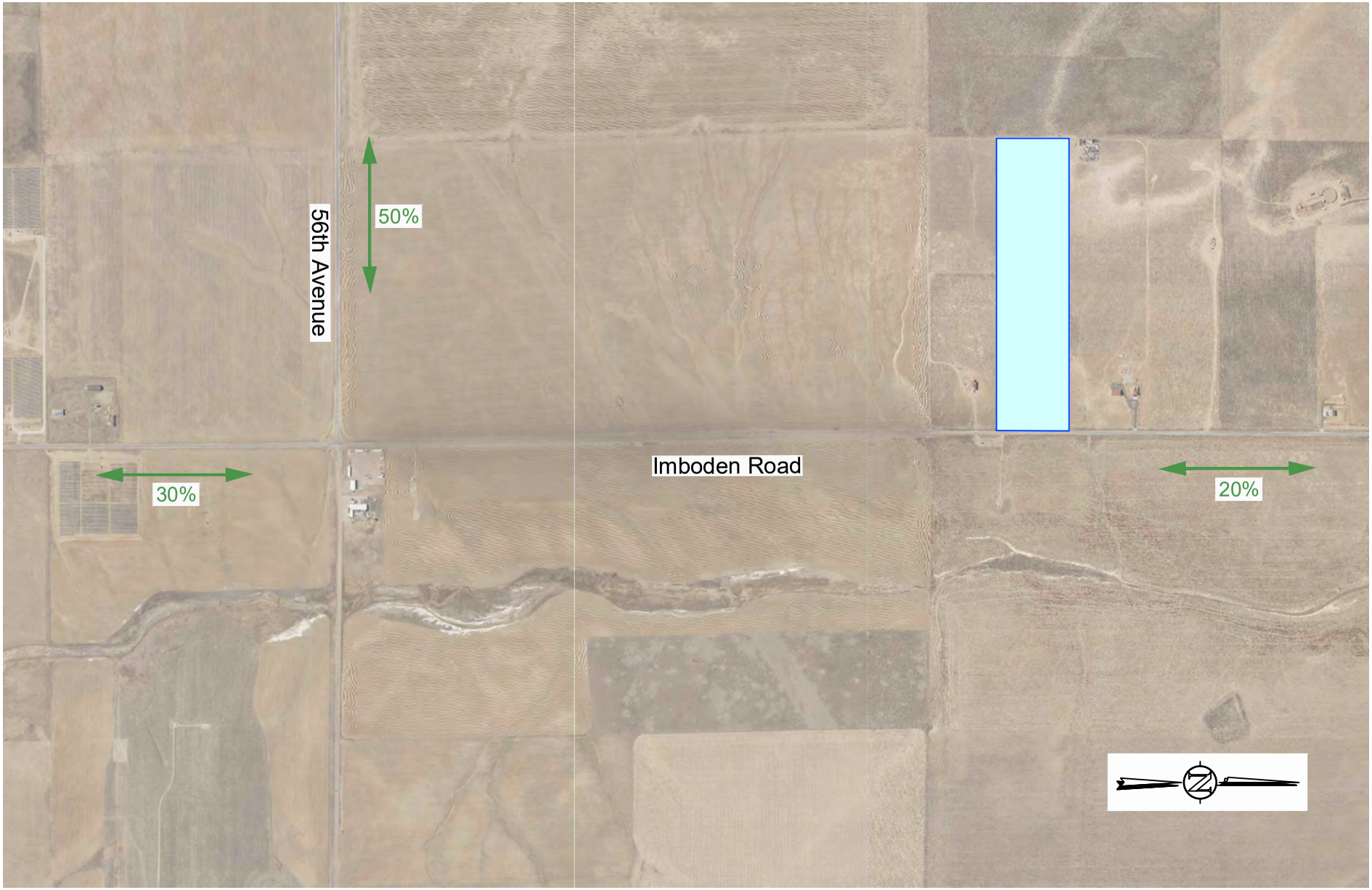


Figure 5 – Existing Traffic Volumes – Saturday Peak Hour





Aldana Event Center Traffic Impact Study
TRIP DISTRIBUTION

Scale	NTS	Date	April 4, 2022	Drawn by	JLH	Job #	GCSA, LLC	Figure	6

Figure 7 – Trip Assignment – Friday Evening Peak Hour

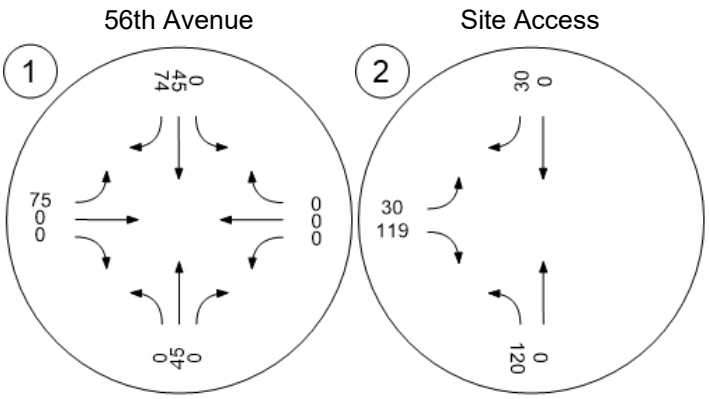


Figure 8 – Trip Assignment – Saturday Peak Hour

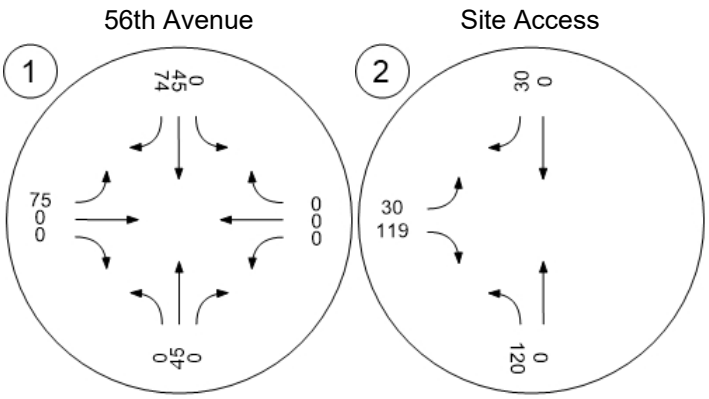


Figure 9 – Year 2028 Background Traffic Volumes – Friday Evening Peak Hour

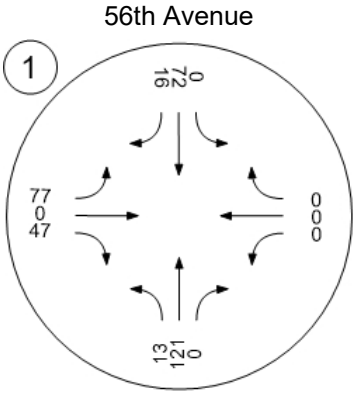


Figure 10 – Year 2028 Background Traffic Volumes – Saturday Peak Hour

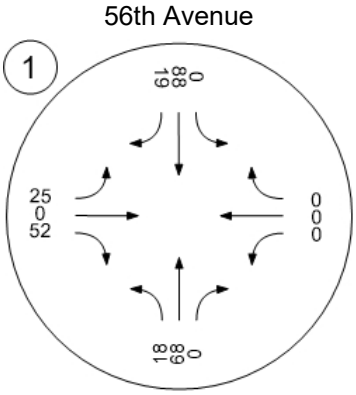


Figure 11 – Year 2028 Total Traffic Volumes – Friday Evening Peak Hour

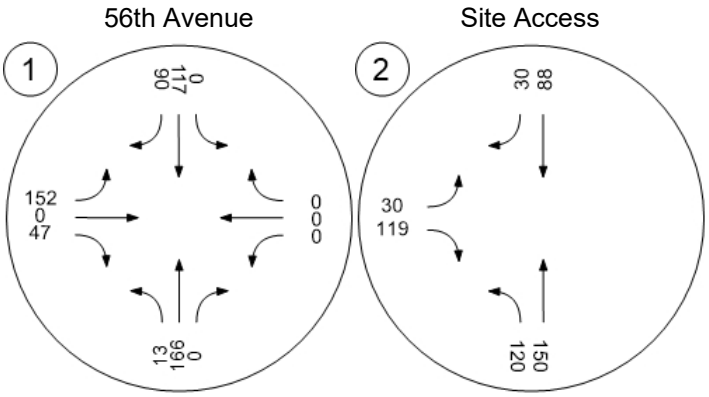


Figure 12 – Year 2028 Total Traffic Volumes – Saturday Peak Hour

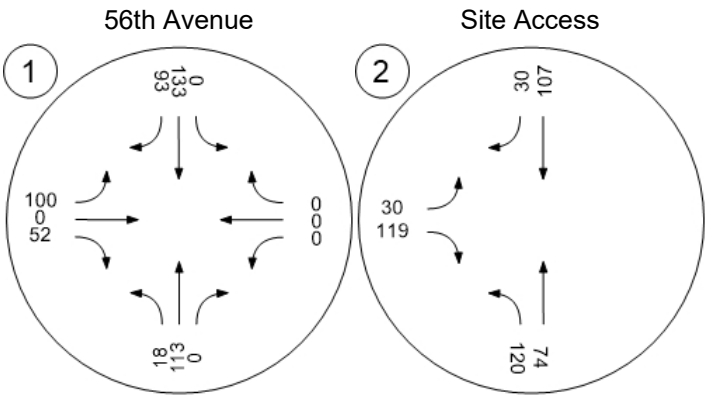


Figure 13 – Laneage and Traffic Control – Year 2028 Total Traffic Volume Scenario

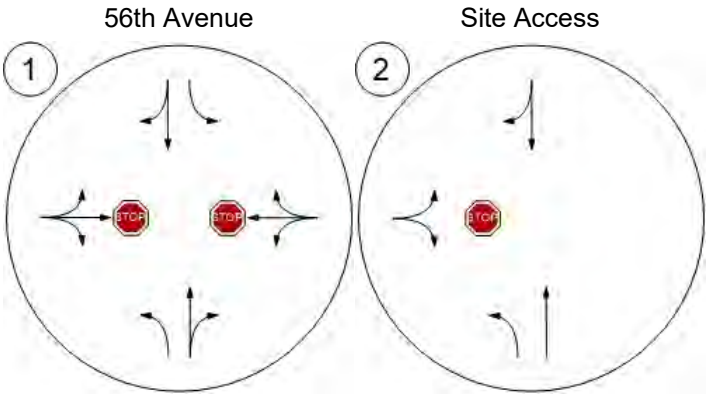


Figure 14 – Year 2042 Background Traffic Volumes – Friday Evening Peak Hour

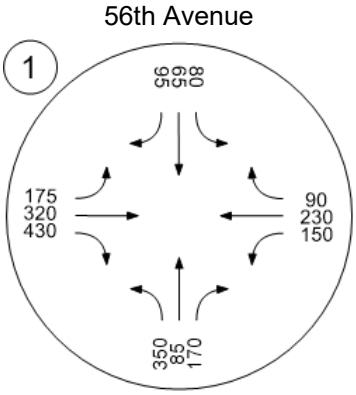


Figure 15 – Year 2042 Background Traffic Volumes – Saturday Peak Hour

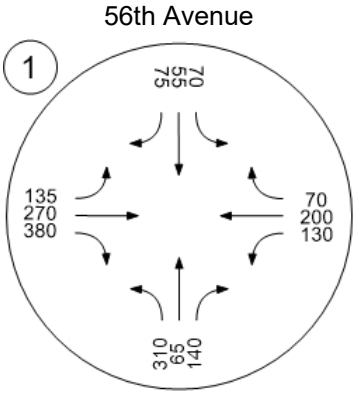


Figure 16 – Year 2042 Total Traffic Volumes – Friday Evening Peak Hour

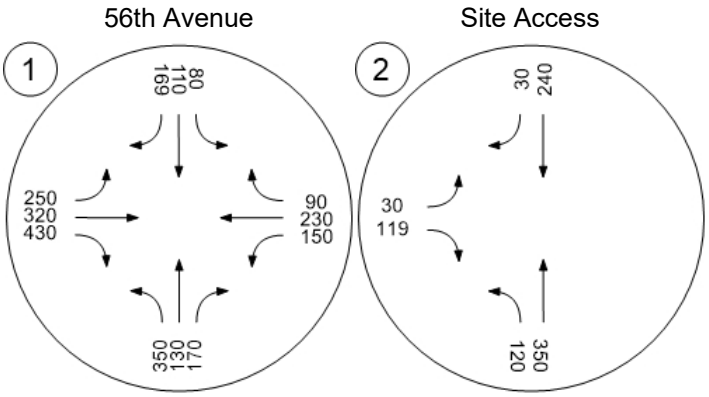


Figure 17 – Year 2042 Total Traffic Volumes – Saturday Peak Hour

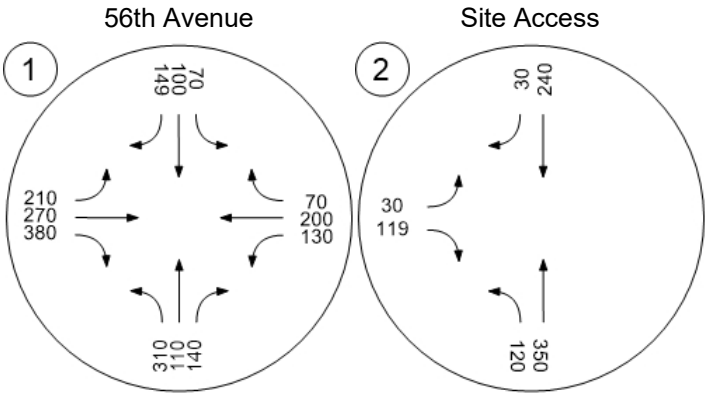
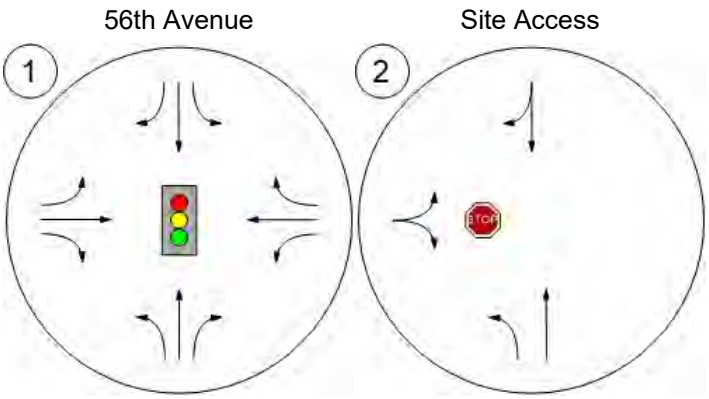
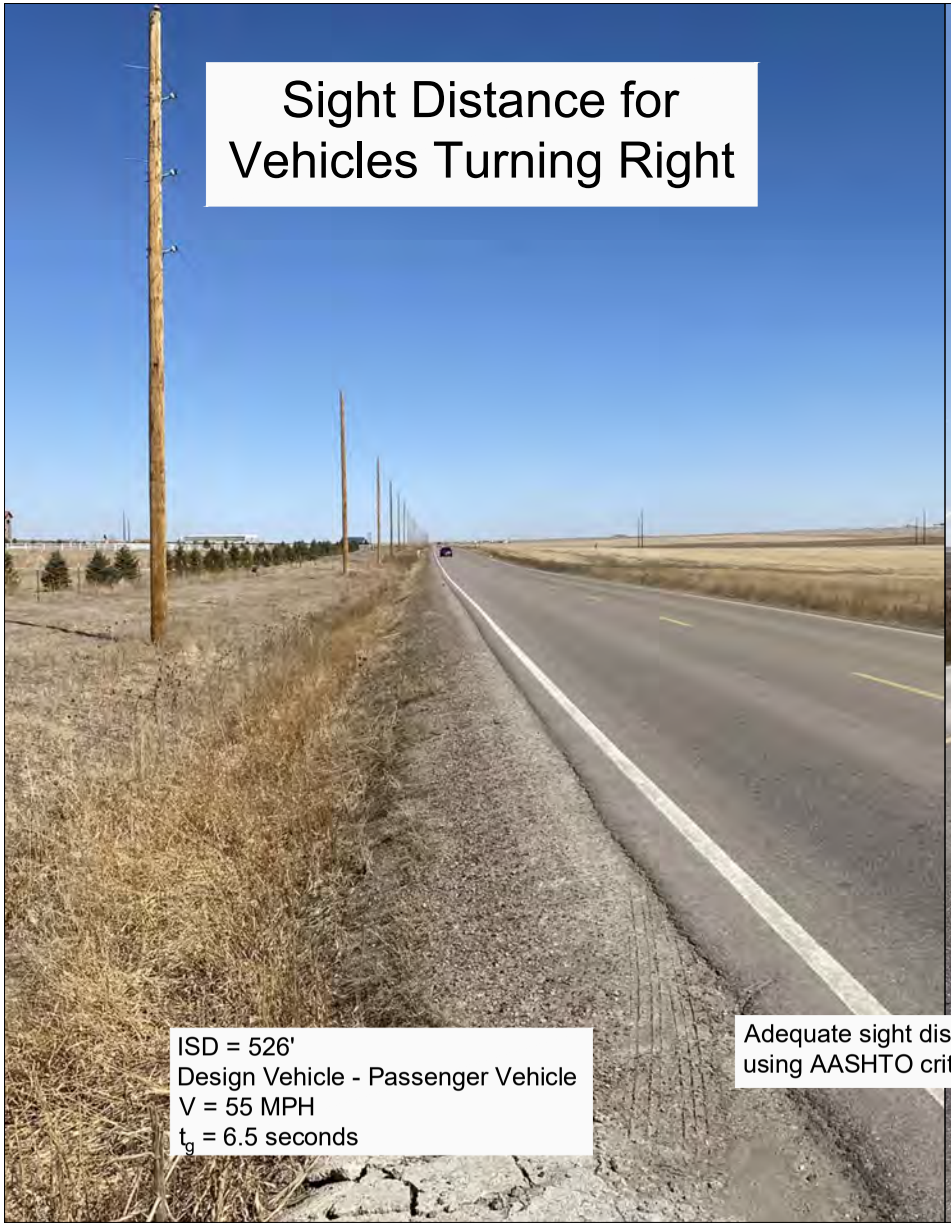
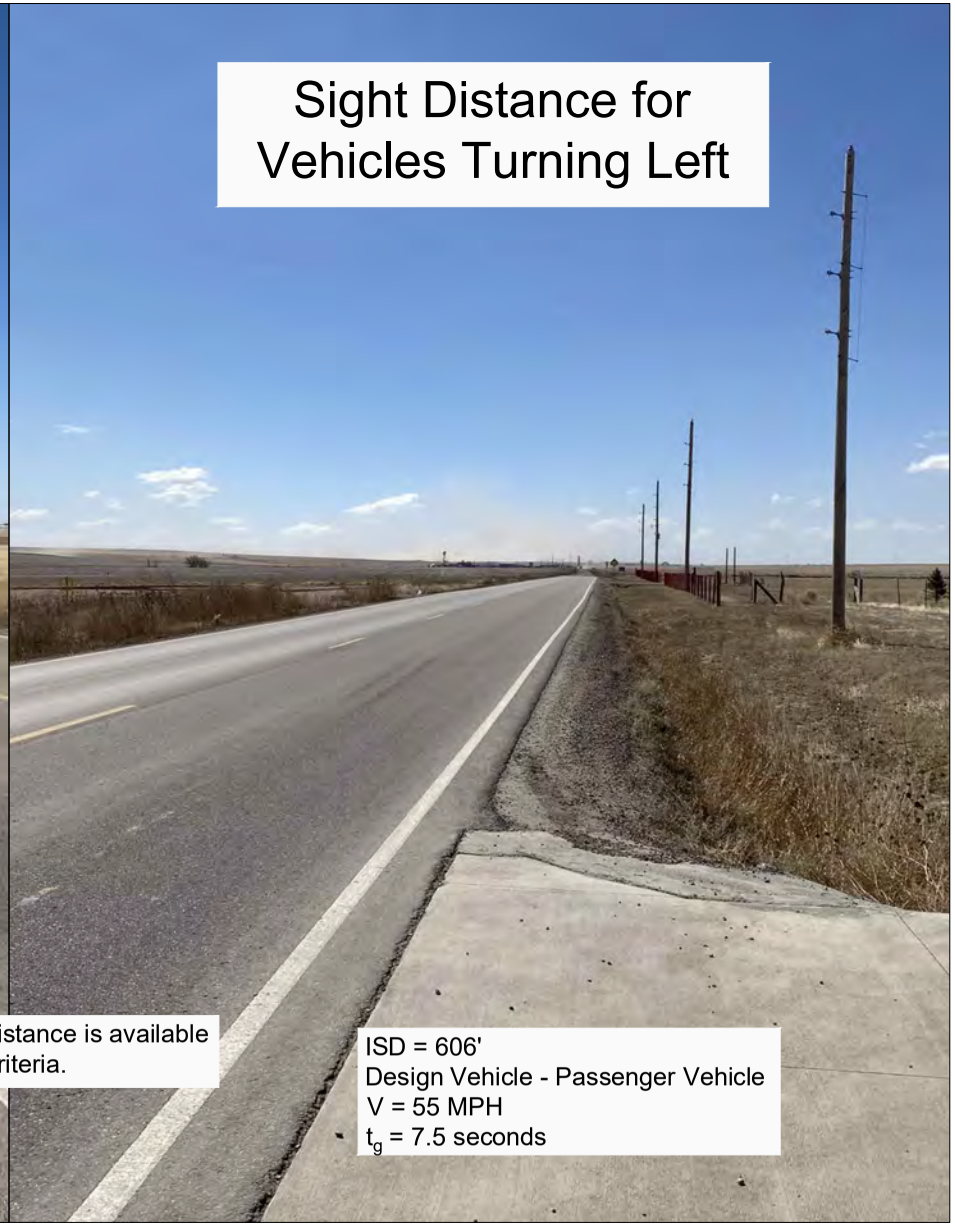


Figure 18 – Laneage and Traffic Control – Year 2042 Total Traffic Volume Scenario







Adequate sight distance is available using AASHTO criteria.

STS

Aldana Event Center Traffic Impact Study
INTERSECTION SIGHT DISTANCE

Scale	NTS	Date	April 4, 2022	Drawn by	JLH	Job #	GCSA, LLC	Figure	19

Appendix A

Project Correspondence

MEETING MINUTES

PROJECT: Aldana Event Center Traffic Impact Study

DATE / TIME: January 14, 2022 / 1:00 p.m.

LOCATION: Zoom Meeting

PREPARED BY: Joseph L. Henderson, PE, PTOE

ATTENDEES: Eden Steele – Adams County

COPY TO: Christina Aldana

The following represents our understanding of the contents of this meeting. Participants are requested to review these meeting notes and respond to Joe Henderson with any comments within three business days from the distribution of these meeting notes.

Action items and responsible parties are shown in bold font and underlined.

Meeting Summary

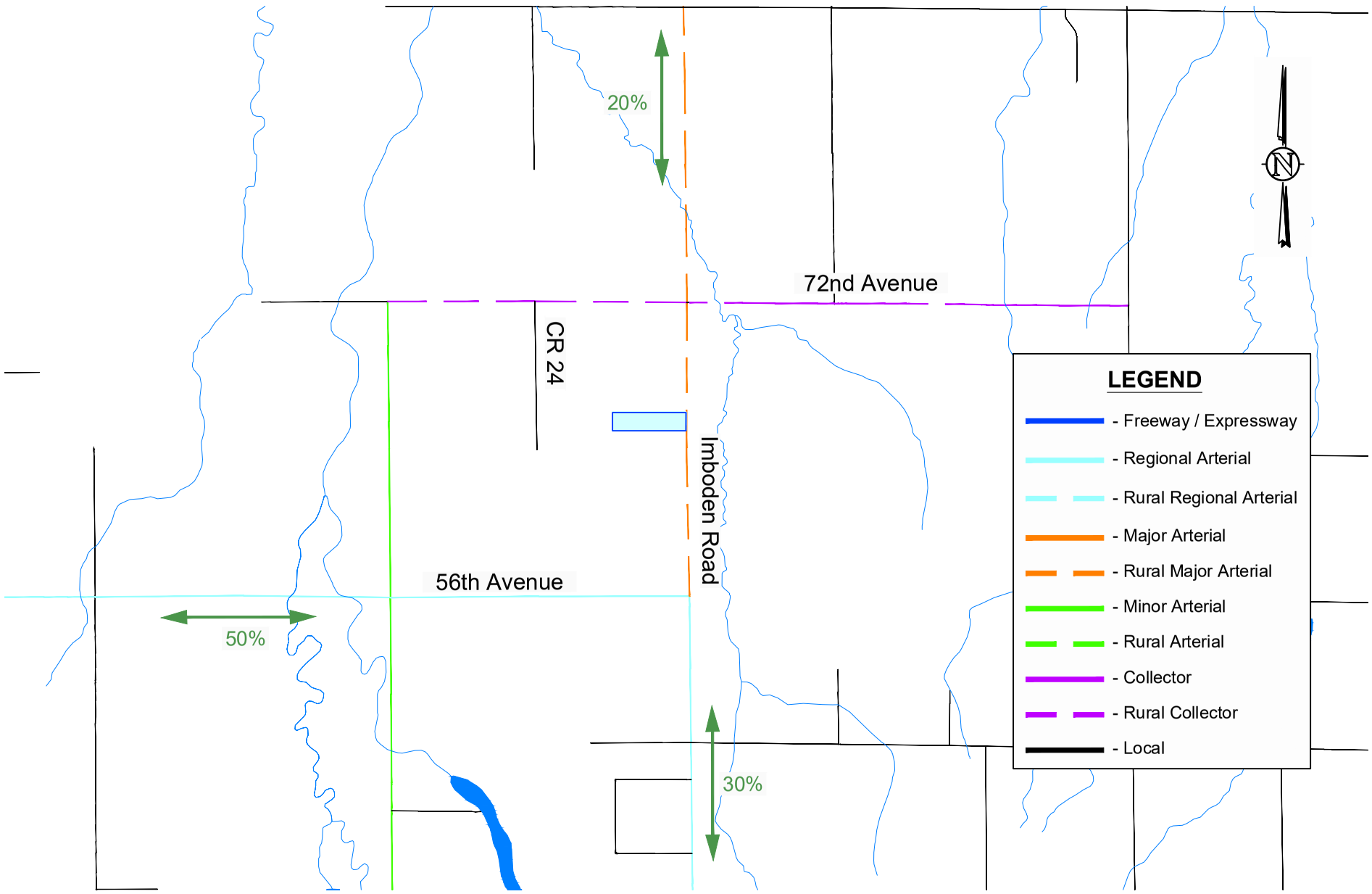
1. **Traffic Study Level and Study Area Intersections.** A Level 3 study will be performed because the development is expected to generate more than 250 trips during an event. The study area intersections will be:
    - Imboden Road / 56th Avenue
    - Imboden road / site access
2. **Traffic Count Data.** The following data will be collected for the project.
    a. **Peak Hour Counts.** Peak hour count data will be collected on an average Saturday from noon to 3:00 p.m.
    b. **Daily Volumes.** Directional volume and vehicle classification data will be collected on Imboden Road near the site access on an average weekday and on an average Saturday.
3. **Traffic Study Assumptions.** They are attached to these minutes.
4. **Trip Generation.** The trip generation will be based on an average of two occupants per vehicle.
5. **Trip Distribution.** The trip distribution is acceptable (see attached).
6. **Options for Intersection Control.** The County may accept a traffic control contractor in lew of the construction of a northbound left turn lane. A consideration may be how much that the left turning traffic will impede the northbound through movement.

7. **City of Aurora.** The City boundary extends to the south edge of the property where the event center will be constructed. A contact at the City is John Springs (jsprings@auroragov.org 303.739.7527).

2.2 Study Assumptions

The following assumptions were utilized for this study.

- **Scoping Meeting.** A scoping meeting was held with Eden Steele on Friday, January 14, 2022. Minutes from the meeting are contained in Appendix A.
- **Short-Term Planning Horizon.** The development is expected to be completed in Year 2023. Considering the County requirement that the short-term planning horizon be five years following the completion of the development, the short-term planning horizon is Year 2028.
- **Long-Term Planning Horizon.** The long-term planning horizon is Year 2042 because it is 20 years in the future.
- **Growth in Background Traffic.** The growth in background traffic will be determined using existing traffic volumes and the Year 2040 volumes that are contained in Figure 11 from the NEATS study.
- **Improvements to Study Area Corridors and Intersections.** Imboden Road is classified as a rural regional arterial by Adams County and a major arterial by the City of Aurora. Both classifications have one lane in each direction, therefore, there are no capacity improvements planned in the study area.
- **Saturation Flow Rate.** The saturation flow rate was assumed to be 1,600 passenger cars / hour / lane which is typical in rural areas.
- **Peak Hour Factor.** The peak hour factor was based on the data collected for the traffic study.
- **Truck Percentage.** This will be determined based on the traffic data that are collected for the project.



Aldana Event Center Traffic Impact Study
TRIP GENERATION

Scale	1" = 2,000'	Date	January 14, 2022	Drawn by	JLH	Job #	GCSA, LLC	Figure	6

Gmail **Joe Henderson <thetrafficczar@gmail.com>**

Aldana Event Center TIS

1 message

Joe Henderson <joe@sustainabletrafficsolutions.com> Wed, Mar 23, 2022 at 4:04 PM
To: Eden Steele <esteele@adcogov.org>

Eden,

I'm working on this project and have updated some of the assumptions based on the projected volumes that are shown in the NEATS study. The updated assumptions are attached. I used track changes to highlight the changes.

The changes are needed due to the higher than expected volumes on Imboden Road and 56th Avenue in Year 2040. Currently, the area is very rural. However, it will not be rural by 2040 so it is necessary to use assumptions for an urban area.

Please let me know if you have any questions.

--
Joseph L. Henderson, PE, PTOE
Principal
Sustainable Traffic Solutions, Inc.
823 West 124th Drive
Westminster, CO 80234
303.589.6875
joe@sustainabletrafficsolutions.com
sustainabletrafficsolutions.com

Licensed in CO, WY, and IA

Aldana Event Center Traffic Study Assumptions - Updated 3-23-22.pdf
102K

2.2 Study Assumptions

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    - Imboden Road north of 56th Avenue – 8.1%
    - Imboden Road south of 56th Avenue – 7.3%
    - 56th Avenue west of Imboden Road – 18.4%
    - 56th Avenue east of Imboden Road – 28.7%
- **Improvements to Study Area Corridors and Intersections.** Imboden Road is classified as a rural regional arterial by Adams County and a major arterial by the City of Aurora. Both classifications have one lane in each direction, therefore, there are no capacity improvements planned in the study area.
- **Saturation Flow Rate.** The saturation flow rate was assumed to be ~~1,600~~1,900 passenger cars / hour / lane which is typical in urban ~~rural~~ areas.
- **Peak Hour Factor (PHF).** For the existing and the short-term planning horizons, the PHF was based on the data collected for the traffic study. At

[3] Northeast Area Transportation Study Refresh – Final Report. David Evans and Associates. October 2018.

new approaches with low traffic volumes, the PHF was assumed to be 0.85 for all movements in all of the planning horizons. In the long-term horizon, the PHF was assumed to be 0.92 unless the existing PHF is higher than 0.92. In that case, the existing PHF was used in the analysis of the long-term volumes.

- ~~**Peak Hour Factor.** The peak hour factor was based on the data collected for the traffic study.~~
- **Truck Percentage.** 23% trucks was assumed in the analysis based on data that were collected for the project.

Gmail **Joe Henderson <thetrafficczar@gmail.com>**

TIS on Imboden Road

7 messages

Joe Henderson <joe@sustainabletrafficsolutions.com> Wed, Mar 30, 2022 at 1:13 PM
To: jsprings@auroragov.org
Cc: Eden Steele <esteele@adcogov.org>

John,

I'm working on a traffic impact study for an event center at 6539 Imboden Road. The development is in Adams County but is included in the NEATS study area, so it seems to make sense to consider Aurora's turn lane requirements to determine if turn lanes are needed into the site. I can't find the turn lane requirements. Can you point me toward them?

--
Joseph L. Henderson, PE, PTOE
Principal
Sustainable Traffic Solutions, Inc.
823 West 124th Drive
Westminster, CO 80234
303.589.6875
joe@sustainabletrafficsolutions.com
sustainabletrafficsolutions.com

Licensed in CO, WY, and IA

Springs, John <jsprings@auroragov.org> Thu, Mar 31, 2022 at 1:44 PM
To: "Gomez, Steven" <segomez@auroragov.org>, "Harline, Carl" <charline@auroragov.org>
Cc: "joe@sustainabletrafficsolutions.com" <joe@sustainabletrafficsolutions.com>

Hi Carl and Steve,

Would either of you know where Joe (copied here) can find the information he is requesting to determine if a decel lane is needed?

Thank you,

John Springs, P.E.

Project Engineer | City of Aurora

email jsprings@auroragov.org | office 303.739.7572

Facebook | Twitter | Instagram | Nextdoor | AuroraTV.org

Upcoming out of office: 4/5 through 4/12. For urgent needs, please email my supervisor Janet Bender, jbender@auroragov.org

From: Joe Henderson <joe@sustainabletrafficsolutions.com>
Sent: Wednesday, March 30, 2022 1:14 PM
To: Springs, John <jsprings@auroragov.org>
Cc: Eden Steele <esteele@adcogov.org>
Subject: TIS on Imboden Road

John,

I'm working on a traffic impact study for an event center at 6539 Imboden Road. The development is in Adams County but is included in the NEATS study area, so it seems to make sense to consider Aurora's turn lane requirements to determine if turn lanes are needed into the site. I can't find the turn lane requirements. Can you point me toward them?

--

Joseph L. Henderson, PE, PTOE

Principal

Sustainable Traffic Solutions, Inc.

823 West 124th Drive

Westminster, CO 80234

303.589.6875

joe@sustainabletrafficsolutions.com

sustainabletrafficsolutions.com

Licensed in CO, WY, and IA

Harline, Carl <charline@auroragov.org> Thu, Mar 31, 2022 at 2:28 PM

To: "Springs, John" <jsprings@auroragov.org>, "Gomez, Steven" <segomez@auroragov.org>
Cc: "joe@sustainabletrafficsolutions.com" <joe@sustainabletrafficsolutions.com>

Hi Joe,

We use CDOT's State Highway Access Code for the thresholds for triggering turn lane requirements. You'll want to reference that to determine if they should be anticipated for any particular site access point.

Let me know if there's anything else we can help with!

Carl Harline, P.E.
Principal Engineer - Traffic | City of Aurora
office 303.739.7300 | *email* charline@auroragov.org

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Facebook | Twitter | Instagram | Nextdoor | AuroraTV.org

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Joe Henderson <joe@sustainabletrafficsolutions.com> Thu, Mar 31, 2022 at 2:32 PM
To: "Harline, Carl" <charline@auroragov.org>
Cc: "Springs, John" <jsprings@auroragov.org>, "Gomez, Steven" <segomez@auroragov.org>

Carl,

How do the City's roadway classifications compare with CDOT's? In the NEAT's study, Imboden Road is classified as a major arterial. Which CDOT roadway classification is comparable to a major arterial?

Joe

[Quoted text hidden]
[Quoted text hidden]
[Quoted text hidden]

Joe Henderson <joe@sustainabletrafficsolutions.com> Fri, Apr 1, 2022 at 11:08 AM
To: "Harline, Carl" <charline@auroragov.org>
Cc: "Springs, John" <jsprings@auroragov.org>, "Gomez, Steven" <segomez@auroragov.org>

Carl,

Please reply to this message so that I can complete my report.

Joe

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[Quoted text hidden]

[Quoted text hidden]

Gomez, Steven <segomez@auroragov.org> Fri, Apr 1, 2022 at 2:34 PM
To: Joe Henderson <joe@sustainabletrafficsolutions.com>, "Harline, Carl" <charline@auroragov.org>
Cc: "Springs, John" <jsprings@auroragov.org>

Joe, CDOT R-B classification for Imboden Road

Steve Gomez, P.E., PTOE
Senior Engineer – Traffic| City of Aurora
office 303.739.7300 | *email* segomez@auroragov.org

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[Quoted text hidden]
[Quoted text hidden]

Joe Henderson <joe@sustainabletrafficsolutions.com> Sun, Apr 3, 2022 at 1:37 PM
To: "Gomez, Steven" <segomez@auroragov.org>
Cc: "Harline, Carl" <charline@auroragov.org>, "Springs, John" <jsprings@auroragov.org>

Steve,

Thanks for the clarification.

Joe
[Quoted text hidden]
[Quoted text hidden]
[Quoted text hidden]

Appendix B

Traffic Count Data

Count Station 000002 - Average Daily Volumes on I-70 West of the SH 36 / Air Park Road Interchange in Aurora

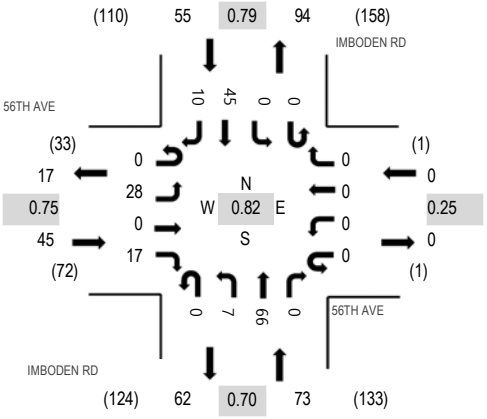
Year	January	February	March	April	May	June	July	August	September	October	November	December
2022	26,780	27,366										
2021	25,849	25,195	29,199	29,656	31,711	35,040	35,170	33,072	32,719	31,756	30,474	29,742
2020	25,884	24,126	23,630	19,315	25,292	29,254	31,823	31,778	30,513	29,633	26,553	26,349
2019	23,568	23,350	26,881	27,396	29,514	31,935	32,912	31,830	29,878	28,897	26,701	26,938
2018	23,962	23,157	26,693	26,147	28,592	30,588	31,829	30,301	28,117	26,809	25,229	25,412
2018/2019 Average	23,765	23,254	26,787	26,772	29,053	31,262	32,371	31,066	28,998	27,853	25,965	26,175
2021 - 2018/2019 Average	2,084	1,942	2,412	2,885	2,658	3,779	2,800	2,007	3,722	3,903	4,509	3,567
% Increase	**9%**	**8%**	**9%**	**11%**	**9%**	**12%**	**9%**	**6%**	**13%**	**14%**	**17%**	**14%**
2022 - 2018/2019 Average	3,015	4,113	-26,787	-26,772	-29,053	-31,262	-32,371	-31,066	-28,998	-27,853	-25,965	-26,175
% Increase	**13%**	**18%**										

ALL TRAFFIC DATA SERVICES

(303) 216-2439
www.alltrafficdata.net

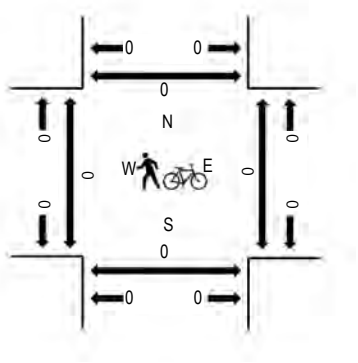
Location: 1 IMBODEN RD & 56TH AVE PM
Date: Friday, January 28, 2022
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

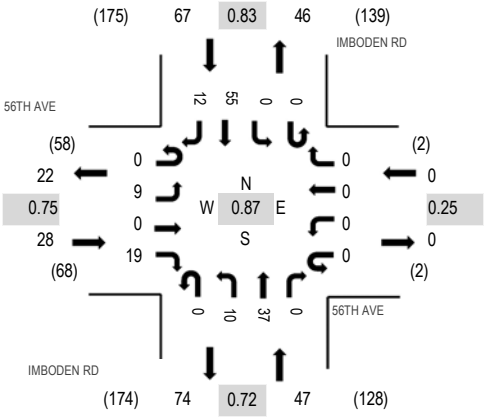
Interval Start Time	56TH AVE Eastbound				56TH AVE Westbound				IMBODEN RD Northbound				IMBODEN RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	6	0	3	0	0	0	0	0	3	12	0	0	0	8	1	33	155	0	0	0	0
4:15 PM	0	4	1	4	0	0	0	0	0	3	12	0	0	0	12	3	39	156	0	0	0	0
4:30 PM	0	1	0	3	0	0	0	1	0	5	12	0	0	0	14	1	37	170	0	0	0	0
4:45 PM	0	8	0	7	0	0	0	0	0	3	10	0	0	0	16	2	46	173	0	0	0	0
5:00 PM	0	5	0	6	0	0	0	0	0	2	15	0	0	0	5	1	34	161	0	0	0	0
5:15 PM	0	7	0	3	0	0	0	0	0	2	24	0	0	0	15	2	53		0	0	0	0
5:30 PM	0	8	0	1	0	0	0	0	0	0	17	0	0	0	9	5	40		0	0	0	0
5:45 PM	0	3	0	2	0	0	0	0	0	0	13	0	0	0	16	0	34		0	0	0	0
Count Total	0	42	1	29	0	0	0	1	0	18	115	0	0	0	95	15	316		0	0	0	0
Peak Hour	0	28	0	17	0	0	0	0	0	7	66	0	0	0	45	10	173		0	0	0	0

ALL TRAFFIC DATA SERVICES

(303) 216-2439
www.alltrafficdata.net

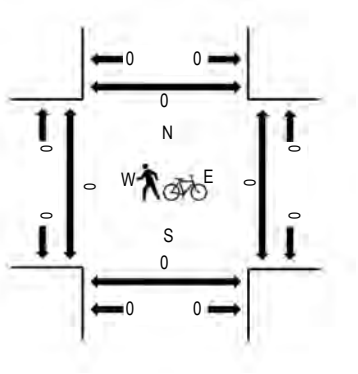
Location: 1 IMBODEN RD & 56TH AVE Noon
Date: Saturday, January 29, 2022
Peak Hour: 01:15 PM - 02:15 PM
Peak 15-Minutes: 02:00 PM - 02:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	56TH AVE Eastbound				56TH AVE Westbound				IMBODEN RD Northbound				IMBODEN 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 PM	0	1	0	2	0	0	0	0	0	1	10	1	0	0	10	3	28	124	0	0	0	0
12:15 PM	0	2	0	1	0	0	0	0	0	3	13	0	0	0	12	3	34	123	0	0	0	0
12:30 PM	0	3	0	1	0	0	1	0	0	1	8	0	0	0	10	2	26	127	0	0	0	0
12:45 PM	0	1	0	0	0	0	0	0	0	6	6	0	0	0	19	4	36	132	0	0	0	0
1:00 PM	0	5	0	2	0	0	0	0	0	0	7	0	0	0	9	4	27	128	0	0	0	0
1:15 PM	0	2	0	4	0	0	0	0	0	1	8	0	0	0	19	4	38	142	0	0	0	0
1:30 PM	0	3	0	5	0	0	0	0	0	1	5	0	0	0	14	3	31	138	0	0	0	0
1:45 PM	0	1	0	4	0	0	0	0	0	7	10	0	0	0	6	4	32	126	0	0	0	0
2:00 PM	0	3	0	6	0	0	0	0	0	1	14	0	0	0	16	1	41	121	0	0	0	0
2:15 PM	0	7	0	4	0	0	1	0	0	2	9	0	0	1	8	2	34		0	0	0	0
2:30 PM	0	0	0	3	0	0	0	0	0	1	5	0	0	0	9	1	19		0	0	0	0
2:45 PM	0	8	0	0	0	0	0	0	0	0	8	0	0	0	10	1	27		0	0	0	0
Count Total	0	36	0	32	0	0	2	0	0	24	103	1	0	1	142	32	373		0	0	0	0
Peak Hour	0	9	0	19	0	0	0	0	0	10	37	0	0	0	55	12	142		0	0	0	0

All Traffic Data Services

www.alltrafficdata.net

Date Start: 03-Feb-22
Site Code: 2
Station ID: 2
IMBODEN RD N.O. 56TH AVE

Start Time	03-Feb-22 Thu	NB	SB							Total
12:00 AM		11	6							17
01:00		8	5							13
02:00		9	3							12
03:00		7	7							14
04:00		11	9							20
05:00		31	27							58
06:00		**58**	103							**161**
07:00		27	**109**							136
08:00		49	53							102
09:00		53	35							88
10:00		46	30							76
11:00		22	29							51
12:00 PM		27	36							63
01:00		38	21							59
02:00		45	33							78
03:00		82	50							132
04:00		115	33							148
05:00		**125**	**61**							**186**
06:00		84	32							116
07:00		42	31							73
08:00		45	11							56
09:00		34	14							48
10:00		12	26							38
11:00		30	20							50
Total		1011	784							1795
Percent		56.3%	43.7%							
AM Peak	-	06:00	07:00	-	-	-	-	-	-	06:00
Vol.	-	58	109	-	-	-	-	-	-	161
PM Peak	-	17:00	17:00	-	-	-	-	-	-	17:00
Vol.	-	125	61	-	-	-	-	-	-	186

All Traffic Data Services

www.alltrafficdata.net

Date Start: 03-Feb-22
Site Code: 2
Station ID: 2
IMBODEN RD N.O. 56TH AVE

Start Time	04-Feb-22 Fri	NB	SB							Total
12:00 AM		15	18							33
01:00		5	26							31
02:00		11	24							35
03:00		16	46							62
04:00		29	50							79
05:00		75	47							122
06:00		104	**70**							**174**
07:00		125	45							170
08:00		**126**	20							146
09:00		79	54							133
10:00		44	59							103
11:00		29	65							94
12:00 PM		36	54							90
01:00		65	41							106
02:00		69	37							106
03:00		65	62							127
04:00		85	63							148
05:00		**115**	**66**							**181**
06:00		68	36							104
07:00		35	30							65
08:00		23	22							45
09:00		15	27							42
10:00		22	32							54
11:00		10	14							24
Total		1266	1008							2274
Percent		55.7%	44.3%							
AM Peak	-	08:00	06:00	-	-	-	-	-	-	06:00
Vol.	-	126	70	-	-	-	-	-	-	174
PM Peak	-	17:00	17:00	-	-	-	-	-	-	17:00
Vol.	-	115	66	-	-	-	-	-	-	181

All Traffic Data Services

www.alltrafficdata.net

Date Start: 03-Feb-22
Site Code: 2
Station ID: 2
IMBODEN RD N.O. 56TH AVE

Start Time	05-Feb-22 Sat	NB	SB							Total
12:00 AM		10	6							16
01:00		12	9							21
02:00		4	4							8
03:00		9	6							15
04:00		12	11							23
05:00		20	24							44
06:00		30	**71**							101
07:00		13	58							71
08:00		32	54							86
09:00		30	58							88
10:00		**74**	46							**120**
11:00		62	51							113
12:00 PM		75	79							154
01:00		80	44							124
02:00		76	70							146
03:00		74	87							161
04:00		60	58							118
05:00		**89**	81							**170**
06:00		48	77							125
07:00		31	**117**							148
08:00		29	34							63
09:00		18	18							36
10:00		15	13							28
11:00		19	7							26
Total		922	1083							2005
Percent		46.0%	54.0%							
AM Peak	-	10:00	06:00	-	-	-	-	-	-	10:00
Vol.	-	74	71	-	-	-	-	-	-	120
PM Peak	-	17:00	19:00	-	-	-	-	-	-	17:00
Vol.	-	89	117	-	-	-	-	-	-	170
Grand Total		3199	2875							6074
Percent		52.7%	47.3%							
ADT		ADT 2,025		AADT 2,025						

All Traffic Data Services

www.alltrafficdata.net

Date Start: 03-Feb-22
Site Code: 2
Station ID: 2
IMBODEN RD N.O. 56TH AVE

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
02/03/22	0	4	1	1	1	0	0	0	4	0	0	0	0	11
01:00	0	2	2	0	0	0	0	0	4	0	0	0	0	8
02:00	0	1	2	0	1	0	0	0	4	1	0	0	0	9
03:00	0	2	0	0	0	0	0	0	5	0	0	0	0	7
04:00	0	7	1	0	1	0	0	0	2	0	0	0	0	11
05:00	0	12	11	0	1	0	0	0	5	**2**	0	0	0	31
06:00	0	27	**15**	0	**7**	0	0	0	9	0	0	0	0	**58**
07:00	0	11	4	0	4	**1**	0	1	6	0	0	0	0	27
08:00	0	23	6	**2**	3	0	0	1	**14**	0	0	0	0	49
09:00	0	**32**	7	1	3	1	0	2	7	0	0	0	0	53
10:00	0	29	4	0	4	0	0	1	8	0	0	0	0	46
11:00	0	11	2	1	3	0	0	**3**	2	0	0	0	0	22
12 PM	0	14	2	0	4	0	0	2	**5**	0	0	0	0	27
13:00	0	16	7	2	9	0	0	2	2	0	0	0	0	38
14:00	0	10	**16**	0	**12**	**1**	0	2	4	0	0	0	0	45
15:00	0	51	13	2	5	1	0	**4**	5	1	0	0	0	82
16:00	0	83	9	**7**	7	1	0	1	5	**2**	0	0	0	115
17:00	2	**100**	12	6	1	1	0	2	1	0	0	0	0	**125**
18:00	**4**	71	5	0	0	0	0	0	4	0	0	0	0	84
19:00	2	33	0	1	1	0	0	0	5	0	0	0	0	42
20:00	1	35	3	2	1	0	0	1	2	0	0	0	0	45
21:00	1	29	0	0	0	0	0	0	3	1	0	0	0	34
22:00	0	11	0	0	0	0	0	0	1	0	0	0	0	12
23:00	0	30	0	0	0	0	0	0	0	0	0	0	0	30
Day Total	10	644	122	25	68	6	0	22	107	7	0	0	0	1011
Percent	1.0%	63.7%	12.1%	2.5%	6.7%	0.6%	0.0%	2.2%	10.6%	0.7%	0.0%	0.0%	0.0%	
AM Peak		09:00	06:00	08:00	06:00	07:00		11:00	08:00	05:00				06:00
Vol.		32	15	2	7	1		3	14	2				58
PM Peak	18:00	17:00	14:00	16:00	14:00	14:00		15:00	12:00	16:00				17:00
Vol.	4	100	16	7	12	1		4	5	2				125

All Traffic Data Services

www.alltrafficdata.net

Date Start: 03-Feb-22
Site Code: 2
Station ID: 2
IMBODEN RD N.O. 56TH AVE

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
02/04/22	0	14	0	0	0	0	0	0	0	**1**	0	0	0	15
01:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
02:00	0	11	0	0	0	0	0	0	0	0	0	0	0	11
03:00	0	14	1	0	0	0	0	0	1	0	0	0	0	16
04:00	0	29	0	0	0	0	0	0	0	0	0	0	0	29
05:00	3	66	0	3	3	0	0	0	0	0	0	0	0	75
06:00	3	85	3	**7**	4	0	0	0	2	0	0	0	0	104
07:00	2	92	6	5	**18**	0	**2**	0	0	0	0	0	0	125
08:00	**5**	**106**	3	3	3	2	1	0	3	0	0	0	0	**126**
09:00	3	59	1	1	6	3	0	1	5	0	0	0	0	79
10:00	0	14	**10**	0	3	1	0	**4**	**12**	0	0	0	0	44
11:00	0	11	5	0	3	**5**	0	0	4	1	0	0	0	29
12 PM	0	11	7	1	5	**5**	0	2	3	1	0	0	**1**	36
13:00	0	26	8	0	10	5	0	2	**13**	1	0	0	0	65
14:00	0	25	21	0	6	3	0	**5**	9	0	0	0	0	69
15:00	0	24	18	**3**	9	1	0	3	5	**2**	0	0	0	65
16:00	0	29	32	0	10	2	**1**	3	6	2	0	0	0	85
17:00	0	**52**	**33**	0	**27**	0	0	1	2	0	0	0	0	**115**
18:00	0	42	15	0	5	0	0	1	4	0	0	0	1	68
19:00	0	19	9	0	2	1	0	1	3	0	0	0	0	35
20:00	0	11	6	1	2	1	0	1	0	1	0	0	0	23
21:00	0	6	2	0	0	1	0	0	6	0	0	0	0	15
22:00	0	6	7	0	2	0	0	1	6	0	0	0	0	22
23:00	0	1	2	0	2	0	0	1	4	0	0	0	0	10
Day Total	16	758	189	24	120	30	4	26	88	9	0	0	2	1266
Percent	1.3%	59.9%	14.9%	1.9%	9.5%	2.4%	0.3%	2.1%	7.0%	0.7%	0.0%	0.0%	0.2%	
AM Peak	08:00	08:00	10:00	06:00	07:00	11:00	07:00	10:00	10:00	00:00				08:00
Vol.	5	106	10	7	18	5	2	4	12	1				126
PM Peak		17:00	17:00	15:00	17:00	12:00	16:00	14:00	13:00	15:00			12:00	17:00
Vol.		52	33	3	27	5	1	5	13	2			1	115

All Traffic Data Services

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Date Start: 03-Feb-22
Site Code: 2
Station ID: 2
IMBODEN RD N.O. 56TH AVE

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
02/05/22	0	6	1	0	2	0	0	0	1	0	0	0	0	10
01:00	0	3	1	0	0	0	0	1	7	0	0	0	0	12
02:00	0	0	0	0	0	0	0	0	4	0	0	0	0	4
03:00	0	5	0	0	2	0	0	0	2	0	0	0	0	9
04:00	0	3	5	0	1	0	0	0	3	0	0	0	0	12
05:00	0	10	1	0	1	0	0	0	**8**	0	0	0	0	20
06:00	0	8	9	0	5	0	0	0	8	0	0	0	0	30
07:00	0	4	6	0	1	0	0	0	2	0	0	0	0	13
08:00	0	10	7	0	5	0	0	**2**	6	**1**	0	0	**1**	32
09:00	0	15	3	0	2	**1**	0	1	7	0	0	0	1	30
10:00	0	**43**	13	1	**6**	1	0	1	7	1	0	0	1	**74**
11:00	0	29	**15**	**2**	6	1	0	1	7	1	0	0	0	62
12 PM	0	38	22	0	8	0	0	3	3	**1**	0	0	0	75
13:00	0	38	22	**1**	6	**1**	**1**	2	**9**	0	0	0	0	80
14:00	0	33	28	1	10	0	0	0	4	0	0	0	0	76
15:00	0	**43**	24	0	5	0	0	0	2	0	0	0	0	74
16:00	0	26	15	0	8	1	0	**4**	6	0	0	0	0	60
17:00	0	40	**31**	0	**12**	0	0	1	5	0	0	0	0	**89**
18:00	0	24	13	0	8	0	0	0	3	0	0	0	0	48
19:00	0	16	9	0	1	0	0	1	4	0	0	0	0	31
20:00	0	9	9	0	4	0	0	1	6	0	0	0	0	29
21:00	0	6	5	0	2	0	0	0	5	0	0	0	0	18
22:00	0	6	4	0	0	0	0	0	5	0	0	0	0	15
23:00	0	9	2	0	2	0	0	0	6	0	0	0	0	19
Day Total	0	424	245	5	97	5	1	18	120	4	0	0	3	922
Percent	0.0%	46.0%	26.6%	0.5%	10.5%	0.5%	0.1%	2.0%	13.0%	0.4%	0.0%	0.0%	0.3%	
AM Peak		10:00	11:00	11:00	10:00	09:00		08:00	05:00	08:00			08:00	10:00
Vol.		43	15	2	6	1		2	8	1			1	74
PM Peak		15:00	17:00	13:00	17:00	13:00	13:00	16:00	13:00	12:00				17:00
Vol.		43	31	1	12	1	1	4	9	1				89
Grand Total	26	1826	556	54	285	41	5	66	315	20	0	0	5	3199
Percent	0.8%	57.1%	17.4%	1.7%	8.9%	1.3%	0.2%	2.1%	9.8%	0.6%	0.0%	0.0%	0.2%	

All Traffic Data Services

www.alltrafficdata.net

Date Start: 03-Feb-22
Site Code: 2
Station ID: 2
IMBODEN RD N.O. 56TH AVE

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
02/03/22	0	4	0	0	1	0	0	0	1	0	0	0	0	6
01:00	0	3	0	0	0	0	0	0	2	0	0	0	0	5
02:00	0	1	0	0	0	1	0	0	1	0	0	0	0	3
03:00	0	0	0	0	5	0	0	0	2	0	0	0	0	7
04:00	0	2	1	0	5	1	0	0	0	0	0	0	0	9
05:00	0	5	11	0	9	2	0	0	0	0	0	0	0	27
06:00	0	75	15	0	5	**6**	0	0	2	0	0	0	0	103
07:00	**1**	**76**	**17**	**1**	6	3	0	**4**	1	0	0	0	0	**109**
08:00	0	20	9	0	**15**	4	0	2	**3**	0	0	0	0	53
09:00	0	14	5	0	11	1	0	2	2	0	0	0	0	35
10:00	0	16	4	0	8	1	0	0	1	0	0	0	0	30
11:00	0	15	2	0	7	2	0	1	2	0	0	0	0	29
12 PM	0	23	4	0	5	0	0	**4**	0	0	0	0	0	36
13:00	0	16	2	**1**	2	0	0	0	0	0	0	0	0	21
14:00	0	23	6	0	4	0	0	0	0	0	0	0	0	33
15:00	0	38	5	0	6	0	0	1	0	0	0	0	0	50
16:00	0	18	5	0	**10**	0	0	0	0	0	0	0	0	33
17:00	0	**48**	3	0	9	0	0	0	**1**	0	0	0	0	**61**
18:00	0	26	3	0	2	0	0	1	0	0	0	0	0	32
19:00	0	22	**7**	0	1	0	0	1	0	0	0	0	0	31
20:00	0	10	1	0	0	0	0	0	0	0	0	0	0	11
21:00	0	11	2	0	0	0	0	1	0	0	0	0	0	14
22:00	0	21	2	0	1	0	0	1	1	0	0	0	0	26
23:00	0	16	3	0	1	0	0	0	0	0	0	0	0	20
Day Total	1	503	107	2	113	21	0	18	19	0	0	0	0	784
Percent	0.1%	64.2%	13.6%	0.3%	14.4%	2.7%	0.0%	2.3%	2.4%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	07:00	08:00	06:00		07:00	08:00					07:00
Vol.	1	76	17	1	15	6		4	3					109
PM Peak		17:00	19:00	13:00	16:00			12:00	17:00					17:00
Vol.		48	7	1	10			4	1					61

All Traffic Data Services

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Date Start: 03-Feb-22
Site Code: 2
Station ID: 2
IMBODEN RD N.O. 56TH AVE

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
02/04/22	0	12	5	0	0	1	0	0	0	0	0	0	0	18
01:00	0	24	2	0	0	0	0	0	0	0	0	0	0	26
02:00	0	22	2	0	0	0	0	0	0	0	0	0	0	24
03:00	0	41	5	0	0	0	0	0	0	0	0	0	0	46
04:00	0	41	5	0	2	0	0	1	1	0	0	0	0	50
05:00	0	38	7	0	2	0	0	0	0	0	0	0	0	47
06:00	0	**55**	5	0	8	1	0	1	0	0	0	0	0	**70**
07:00	0	39	6	0	0	0	0	0	0	0	0	0	0	45
08:00	0	18	2	0	0	0	0	0	0	0	0	0	0	20
09:00	0	35	7	0	7	3	0	0	2	0	0	0	0	54
10:00	**1**	23	**8**	0	13	**6**	0	**4**	**3**	**1**	0	0	0	59
11:00	0	28	8	0	**22**	3	0	1	2	1	0	0	0	65
12 PM	0	12	**11**	0	24	4	0	2	1	0	0	0	0	54
13:00	0	15	4	0	11	**5**	0	**4**	2	0	0	0	0	41
14:00	0	7	4	0	23	3	0	0	0	0	0	0	0	37
15:00	0	10	5	0	**42**	4	0	1	0	0	0	0	0	62
16:00	0	16	5	0	34	5	0	2	0	**1**	0	0	0	63
17:00	0	**22**	6	0	34	0	0	2	2	0	0	0	0	**66**
18:00	0	14	3	0	14	1	0	0	**3**	1	0	0	0	36
19:00	0	11	4	0	14	1	0	0	0	0	0	0	0	30
20:00	0	10	2	0	9	0	0	1	0	0	0	0	0	22
21:00	0	15	3	0	6	0	0	2	1	0	0	0	0	27
22:00	0	19	4	0	8	1	0	0	0	0	0	0	0	32
23:00	0	10	0	0	3	0	0	0	1	0	0	0	0	14
Day Total	1	537	113	0	276	38	0	21	18	4	0	0	0	1008
Percent	0.1%	53.3%	11.2%	0.0%	27.4%	3.8%	0.0%	2.1%	1.8%	0.4%	0.0%	0.0%	0.0%	
AM Peak	10:00	06:00	10:00		11:00	10:00		10:00	10:00	10:00				06:00
Vol.	1	55	8		22	6		4	3	1				70
PM Peak		17:00	12:00		15:00	13:00		13:00	18:00	16:00				17:00
Vol.		22	11		42	5		4	3	1				66

All Traffic Data Services

www.alltrafficdata.net

Date Start: 03-Feb-22
Site Code: 2
Station ID: 2
IMBODEN RD N.O. 56TH AVE

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
02/05/22	0	5	0	0	1	0	0	0	0	0	0	0	0	6
01:00	0	7	0	0	1	0	0	0	1	0	0	0	0	9
02:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
03:00	0	4	0	0	1	0	0	1	0	0	0	0	0	6
04:00	0	4	0	0	5	0	0	0	0	**2**	0	0	0	11
05:00	0	14	1	0	8	0	0	0	1	0	0	0	0	24
06:00	0	26	1	0	**39**	**4**	0	0	1	0	0	0	0	**71**
07:00	0	19	3	0	25	4	0	**4**	1	2	0	0	0	58
08:00	0	**30**	2	0	18	2	0	1	1	0	0	0	0	54
09:00	0	24	**4**	0	22	3	0	2	**2**	1	0	0	0	58
10:00	0	25	2	0	12	2	0	3	2	0	0	0	0	46
11:00	0	19	4	0	27	0	0	1	0	0	0	0	0	51
12 PM	0	42	6	0	25	0	0	2	**4**	0	0	0	0	79
13:00	0	19	2	0	20	1	0	2	0	0	0	0	0	44
14:00	0	26	7	0	33	0	0	3	1	0	0	0	0	70
15:00	0	33	9	0	37	0	0	**5**	3	0	0	0	0	87
16:00	0	24	4	0	28	1	0	1	0	0	0	0	0	58
17:00	0	18	4	0	**55**	0	0	2	2	0	0	0	0	81
18:00	0	33	10	0	27	**4**	0	1	1	**1**	0	0	0	77
19:00	0	**53**	**23**	0	39	0	0	0	2	0	0	0	0	**117**
20:00	0	15	3	0	14	0	0	0	2	0	0	0	0	34
21:00	0	11	0	0	7	0	0	0	0	0	0	0	0	18
22:00	0	4	0	0	6	1	0	0	2	0	0	0	0	13
23:00	0	3	0	0	4	0	0	0	0	0	0	0	0	7
Day Total	0	462	85	0	454	22	0	28	26	6	0	0	0	1083
Percent	0.0%	42.7%	7.8%	0.0%	41.9%	2.0%	0.0%	2.6%	2.4%	0.6%	0.0%	0.0%	0.0%	
AM Peak		08:00	09:00		06:00	06:00		07:00	09:00	04:00				06:00
Vol.		30	4		39	4		4	2	2				71
PM Peak		19:00	19:00		17:00	18:00		15:00	12:00	18:00				19:00
Vol.		53	23		55	4		5	4	1				117
Grand Total	2	1502	305	2	843	81	0	67	63	10	0	0	0	2875
Percent	0.1%	52.2%	10.6%	0.1%	29.3%	2.8%	0.0%	2.3%	2.2%	0.3%	0.0%	0.0%	0.0%	

Appendix C

VISTRO Analysis Results

Year 2022 Volumes

Aldana Event Center TIS

Vistro File: C:\...\Friday PM.vistro
Report File: C:\...\Existing Friday PM.pdf

Scenario 1 Existing Friday PM
3/23/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	56th Avenue	Two-way stop	HCM 7th Edition	EB Left	0.050	10.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 56th Avenue

Control Type:	Two-way stop	Delay (sec / veh):	10.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.050

Intersection Setup

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Base Volume Input [veh/h]	7	66	0	0	45	10	28	0	17	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	66	0	0	45	10	28	0	17	0	0	0
Peak Hour Factor	0.7000	0.7000	0.7000	0.7900	0.7900	0.7900	0.7500	0.7500	0.7500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	24	0	0	14	3	9	0	6	0	0	0
Total Analysis Volume [veh/h]	10	94	0	0	57	13	37	0	23	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.58	0.00	0.00	7.61	0.00	0.00	10.26	10.69	9.17	10.11	10.38	8.96
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.02	0.00	0.00	0.00	0.00	0.00	0.24	0.24	0.24	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.54	0.00	0.00	0.00	0.00	0.00	6.04	6.04	6.04	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.73			0.00			9.84			9.82		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.85											
Intersection LOS	B											

Aldana Event Center TIS

Vistro File: C:\...\Saturday.vistro
Report File: C:\...\Existing Saturday.pdf

Scenario 1 Existing Saturday
3/25/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	56th Avenue	Two-way stop	HCM 7th Edition	EB Left	0.016	9.9	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 56th Avenue

Control Type:	Two-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Base Volume Input [veh/h]	10	37	0	0	55	12	9	0	19	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	37	0	0	55	12	9	0	19	0	0	0
Peak Hour Factor	0.7200	0.7200	0.7200	0.8300	0.8300	0.8300	0.7500	0.7500	0.7500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	13	0	0	17	4	3	0	6	0	0	0
Total Analysis Volume [veh/h]	14	51	0	0	66	14	12	0	25	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.03	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.61	0.00	0.00	7.52	0.00	0.00	9.91	10.36	9.04	9.95	10.22	8.75
Movement LOS	A	A	A	A	A	A	A	B	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.00	0.00	0.00	0.13	0.13	0.13	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.76	0.00	0.00	0.00	0.00	0.00	3.33	3.33	3.33	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	1.64			0.00			9.32			9.64		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.48											
Intersection LOS	A											

Year 2028 Traffic Volume Scenarios

Aldana Event Center TIS

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Scenario 2 2028 Back Friday PM
3/25/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	56th Avenue	Two-way stop	HCM 7th Edition	EB Left	0.174	12.8	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 56th Avenue

Control Type:	Two-way stop	Delay (sec / veh):	12.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.174

Intersection Setup

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Base Volume Input [veh/h]	7	66	0	0	45	10	28	0	17	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Growth Factor	1.8400	1.8400	1.8400	1.6000	1.6000	1.6000	2.7500	2.7500	2.7500	4.5400	4.5400	4.5400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	121	0	0	72	16	77	0	47	0	0	0
Peak Hour Factor	0.7000	0.7000	0.7000	0.7900	0.7900	0.7900	0.7500	0.7500	0.7500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	43	0	0	23	5	26	0	16	0	0	0
Total Analysis Volume [veh/h]	19	173	0	0	91	20	103	0	63	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.07	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.69	0.00	0.00	7.80	0.00	0.00	12.76	13.10	10.69	11.85	11.49	9.40
Movement LOS	A	A	A	A	A	A	B	B	B	B	B	A
95th-Percentile Queue Length [veh/ln]	0.04	0.00	0.00	0.00	0.00	0.00	0.95	0.95	0.95	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.06	0.00	0.00	0.00	0.00	0.00	23.81	23.81	23.81	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.76			0.00			11.98			10.91		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	4.55											
Intersection LOS	B											

Aldana Event Center TIS

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Scenario 2 2028 Back Saturday
3/25/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	56th Avenue	Two-way stop	HCM 7th Edition	EB Left	0.052	11.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 56th Avenue

Control Type:	Two-way stop	Delay (sec / veh):	11.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.052

Intersection Setup

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Base Volume Input [veh/h]	10	37	0	0	55	12	9	0	19	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Growth Factor	1.8400	1.8400	1.8400	1.6000	1.6000	1.6000	2.7500	2.7500	2.7500	4.5400	4.5400	4.5400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	68	0	0	88	19	25	0	52	0	0	0
Peak Hour Factor	0.7200	0.7200	0.7200	0.8300	0.8300	0.8300	0.7500	0.7500	0.7500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	24	0	0	27	6	8	0	17	0	0	0
Total Analysis Volume [veh/h]	25	94	0	0	106	23	33	0	69	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.08	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.74	0.00	0.00	7.61	0.00	0.00	11.33	11.71	9.77	11.45	11.11	8.96
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.06	0.00	0.00	0.00	0.00	0.00	0.45	0.45	0.45	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.43	0.00	0.00	0.00	0.00	0.00	11.15	11.15	11.15	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	1.63			0.00			10.27			10.51		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	3.55											
Intersection LOS	B											

Aldana Event Center TIS

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Scenario 3 2028 Total Friday PM
4/3/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	56th Avenue	Two-way stop	HCM 7th Edition	EB Left	0.445	20.5	C
2	Site Access	Two-way stop	HCM 7th Edition	EB Left	0.081	14.8	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 56th Avenue

Control Type:	Two-way stop	Delay (sec / veh):	20.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.445

Intersection Setup

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Base Volume Input [veh/h]	7	66	0	0	45	10	28	0	17	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Growth Factor	1.8400	1.8400	1.8400	1.6000	1.6000	1.6000	2.7500	2.7500	2.7500	4.5400	4.5400	4.5400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	45	74	75	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	166	0	0	117	90	152	0	47	0	0	0
Peak Hour Factor	0.7000	0.7000	0.7000	0.7900	0.7900	0.7900	0.7500	0.7500	0.7500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	59	0	0	37	28	51	0	16	0	0	0
Total Analysis Volume [veh/h]	19	237	0	0	148	114	203	0	63	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.08	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.07	0.00	0.00	7.96	0.00	0.00	20.51	20.64	17.20	14.02	13.67	9.78
Movement LOS	A	A	A	A	A	A	C	C	C	B	B	A
95th-Percentile Queue Length [veh/ln]	0.05	0.00	0.00	0.00	0.00	0.00	3.02	3.02	3.02	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.22	0.00	0.00	0.00	0.00	0.00	75.50	75.50	75.50	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.60			0.00			19.72			12.49		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	6.89											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 2: Site Access

Control Type:	Two-way stop	Delay (sec / veh):	14.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.081

Intersection Setup

Name	Imboden Road		Imboden Road		Site Access	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Imboden Road		Imboden Road		Site Access	
Base Volume Input [veh/h]	0	94	55	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	23.00	23.00	2.00	2.00	2.00
Growth Factor	1.0000	1.6000	1.6000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	120	0	0	30	30	119
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	120	150	88	30	30	119
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	44	26	9	9	35
Total Analysis Volume [veh/h]	141	176	104	35	35	140
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.08	0.15
d_M, Delay for Movement [s/veh]	7.76	0.00	0.00	0.00	14.80	10.31
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.32	0.00	0.00	0.00	0.89	0.89
95th-Percentile Queue Length [ft/ln]	8.10	0.00	0.00	0.00	22.37	22.37
d_A, Approach Delay [s/veh]	3.45		0.00		11.21	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	4.84					
Intersection LOS	B					

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Scenario 3 2028 Total Saturday
4/3/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	56th Avenue	Two-way stop	HCM 7th Edition	EB Left	0.268	15.8	C
2	Site Access	Two-way stop	HCM 7th Edition	EB Left	0.075	14.1	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 56th Avenue

Control Type:	Two-way stop	Delay (sec / veh):	15.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.268

Intersection Setup

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Base Volume Input [veh/h]	10	37	0	0	55	12	9	0	19	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Growth Factor	1.8400	1.8400	1.8400	1.6000	1.6000	1.6000	2.7500	2.7500	2.7500	4.5400	4.5400	4.5400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	45	74	75	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	113	0	0	133	93	100	0	52	0	0	0
Peak Hour Factor	0.7200	0.7200	0.7200	0.8300	0.8300	0.8300	0.7500	0.7500	0.7500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	39	0	0	40	28	33	0	17	0	0	0
Total Analysis Volume [veh/h]	25	157	0	0	160	112	133	0	69	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.09	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.12	0.00	0.00	7.76	0.00	0.00	15.77	15.98	13.16	13.42	13.06	9.30
Movement LOS	A	A	A	A	A	A	C	C	B	B	B	A
95th-Percentile Queue Length [veh/ln]	0.06	0.00	0.00	0.00	0.00	0.00	1.61	1.61	1.61	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.62	0.00	0.00	0.00	0.00	0.00	40.31	40.31	40.31	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	1.12			0.00			14.88			11.93		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	4.89											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 2: Site Access

Control Type:	Two-way stop	Delay (sec / veh):	14.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.075

Intersection Setup

Name	Imboden Road		Imboden Road		Site Access	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Imboden Road		Imboden Road		Site Access	
Base Volume Input [veh/h]	0	46	67	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	23.00	23.00	2.00	2.00	2.00
Growth Factor	1.0000	1.6000	1.6000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	120	0	0	30	30	119
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	120	74	107	30	30	119
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	22	31	9	9	35
Total Analysis Volume [veh/h]	141	87	126	35	35	140
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.07	0.15
d_M, Delay for Movement [s/veh]	7.82	0.00	0.00	0.00	14.06	10.38
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.33	0.00	0.00	0.00	0.88	0.88
95th-Percentile Queue Length [ft/ln]	8.26	0.00	0.00	0.00	22.06	22.06
d_A, Approach Delay [s/veh]	4.84		0.00		11.12	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	5.40					
Intersection LOS	B					

Year 2042 Traffic Volume Scenarios

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Scenario 6 2042 Back Friday PM
3/25/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	56th Avenue	Signalized	HCM 7th Edition	WB Thru	0.473	25.7	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 56th Avenue

Control Type:	Signalized	Delay (sec / veh):	25.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.473

Intersection Setup

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Base Volume Input [veh/h]	350	85	170	80	65	95	175	320	430	150	230	90
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	85	0	0	48	0	0	215	0	0	45
Total Hourly Volume [veh/h]	350	85	85	80	65	47	175	320	215	150	230	45
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	95	23	23	22	18	13	48	87	58	41	63	12
Total Analysis Volume [veh/h]	380	92	92	87	71	51	190	348	234	163	250	49
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	28	0	9	23	0	19	59	0	9	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	40.0	40.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	52	43	43	52	38	38	45	36	36	45	30	30
g / C, Green / Cycle	0.49	0.41	0.41	0.49	0.36	0.36	0.43	0.34	0.34	0.43	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.33	0.06	0.07	0.08	0.05	0.04	0.18	0.22	0.18	0.20	0.16	0.04
s, saturation flow rate [veh/h]	1154	1555	1322	1062	1555	1322	1066	1555	1322	814	1555	1322
c, Capacity [veh/h]	635	636	541	585	560	476	431	536	455	315	446	379
d1, Uniform Delay [s]	19.38	19.49	19.71	14.38	22.51	22.35	20.83	29.07	27.41	22.47	31.80	27.72
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.17	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.12	0.48	0.68	0.54	0.47	0.45	1.14	1.34	0.90	1.32	1.10	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.14	0.17	0.15	0.13	0.11	0.44	0.65	0.51	0.52	0.56	0.13
d, Delay for Lane Group [s/veh]	23.50	19.97	20.39	14.91	22.98	22.80	21.97	30.40	28.31	23.79	32.91	27.87
Lane Group LOS	C	B	C	B	C	C	C	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.81	1.49	1.52	1.19	1.25	0.90	3.13	7.47	4.73	2.63	5.47	0.93
50th-Percentile Queue Length [ft/ln]	170.26	37.24	38.08	29.68	31.18	22.44	78.19	186.79	118.16	65.71	136.68	23.16
95th-Percentile Queue Length [veh/ln]	11.09	2.68	2.74	2.14	2.24	1.62	5.63	11.95	8.29	4.73	9.30	1.67
95th-Percentile Queue Length [ft/ln]	277.26	67.03	68.55	53.42	56.12	40.38	140.74	298.86	207.29	118.28	232.54	41.69

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.50	19.97	20.39	14.91	22.98	22.80	21.97	30.40	28.31	23.79	32.91	27.87
Movement LOS	C	B	C	B	C	C	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	22.42			19.58			27.69			29.15		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	25.70											
Intersection LOS	C											
Intersection V/C	0.473											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.89	43.89	43.89	43.89
l_p,int, Pedestrian LOS Score for Intersection	2.670	2.583	3.124	2.530
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	457	362	1048	857
d_b, Bicycle Delay [s]	31.24	35.22	11.90	17.14
l_b,int, Bicycle LOS Score for Intersection	2.630	1.984	3.188	2.396
Bicycle LOS	B	A	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Scenario 6 2042 Back Saturday
3/25/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	56th Avenue	Signalized	HCM 7th Edition	WB Thru	0.383	25.8	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 56th Avenue

Control Type:	Signalized	Delay (sec / veh):	25.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.383

Intersection Setup

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Base Volume Input [veh/h]	310	65	140	70	55	75	135	270	380	130	200	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	70	0	0	38	0	0	190	0	0	35
Total Hourly Volume [veh/h]	310	65	70	70	55	37	135	270	190	130	200	35
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	84	18	19	19	15	10	37	73	52	35	54	10
Total Analysis Volume [veh/h]	337	71	76	76	60	40	147	293	207	141	217	38
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	21	0	11	23	0	41	64	0	9	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	40.0	40.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	62	54	54	62	53	53	35	26	26	35	21	21
g / C, Green / Cycle	0.59	0.51	0.51	0.59	0.50	0.50	0.33	0.25	0.25	0.33	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.30	0.05	0.06	0.07	0.04	0.03	0.13	0.19	0.16	0.16	0.14	0.03
s, saturation flow rate [veh/h]	1125	1555	1322	1081	1555	1322	1101	1555	1322	879	1555	1322
c, Capacity [veh/h]	706	735	625	678	727	618	379	443	376	289	371	315
d1, Uniform Delay [s]	14.41	15.30	15.49	11.06	15.48	15.35	24.22	33.08	31.83	25.04	35.36	31.33
k, delay calibration	0.49	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.25	0.26	0.40	0.33	0.22	0.20	0.65	1.70	1.25	1.27	1.46	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.10	0.12	0.11	0.08	0.06	0.39	0.66	0.55	0.49	0.58	0.12
d, Delay for Lane Group [s/veh]	16.66	15.56	15.89	11.40	15.71	15.55	24.87	34.78	33.09	26.31	36.82	31.50
Lane Group LOS	B	B	B	B	B	B	C	C	C	C	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.40	0.90	0.99	0.79	0.77	0.51	2.77	7.09	4.81	2.68	5.29	0.81
50th-Percentile Queue Length [ft/ln]	109.94	22.57	24.75	19.74	19.18	12.80	69.23	177.17	120.17	67.03	132.21	20.29
95th-Percentile Queue Length [veh/ln]	7.84	1.63	1.78	1.42	1.38	0.92	4.98	11.45	8.40	4.83	9.06	1.46
95th-Percentile Queue Length [ft/ln]	195.92	40.63	44.55	35.54	34.52	23.03	124.62	286.31	210.06	120.66	226.49	36.53

Movement, Approach, & Intersection Results

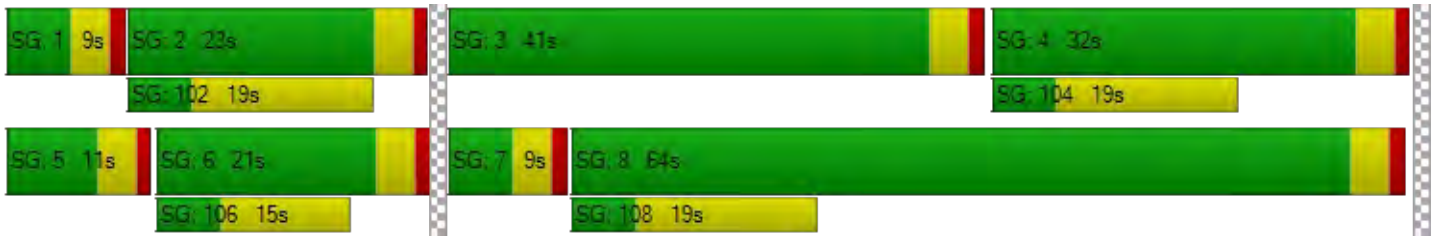
d_M, Delay for Movement [s/veh]	16.66	15.56	15.89	11.40	15.71	15.55	24.87	34.78	33.09	26.31	36.82	31.50
Movement LOS	B	B	B	B	B	B	C	C	C	C	D	C
d_A, Approach Delay [s/veh]	16.38			13.81			31.99			32.57		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	25.81											
Intersection LOS	C											
Intersection V/C	0.383											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.89	43.89	43.89	43.89
l_p,int, Pedestrian LOS Score for Intersection	2.574	2.508	3.067	2.478
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	324	362	1143	533
d_b, Bicycle Delay [s]	36.88	35.22	9.64	28.23
l_b,int, Bicycle LOS Score for Intersection	2.474	1.913	2.941	2.271
Bicycle LOS	B	A	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Aldana Event Center TIS

Vistro File: C:\...\Friday PM.vistro
Report File: C:\...\2042 Total Friday PM.pdf

Scenario 5 2042 Total Friday PM
4/3/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	56th Avenue	Signalized	HCM 7th Edition	WB Thru	0.501	26.8	C
2	Site Access	Two-way stop	HCM 7th Edition	EB Left	0.122	20.9	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 56th Avenue

Control Type:	Signalized	Delay (sec / veh):	26.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.501

Intersection Setup

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Base Volume Input [veh/h]	350	85	170	80	65	95	175	320	430	150	230	90
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	45	74	75	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	85	0	0	85	0	0	215	0	0	45
Total Hourly Volume [veh/h]	350	130	85	80	110	84	250	320	215	150	230	45
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	95	35	23	22	30	23	68	87	58	41	63	12
Total Analysis Volume [veh/h]	380	141	92	87	120	91	272	348	234	163	250	49
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	28	0	9	23	0	19	59	0	9	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	40.0	40.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	49	40	40	49	35	35	48	39	39	48	29	29
g / C, Green / Cycle	0.47	0.38	0.38	0.47	0.33	0.33	0.46	0.37	0.37	0.46	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.35	0.09	0.07	0.08	0.08	0.07	0.24	0.22	0.18	0.20	0.16	0.04
s, saturation flow rate [veh/h]	1093	1555	1322	1025	1555	1322	1111	1555	1322	811	1555	1322
c, Capacity [veh/h]	581	620	527	544	544	462	450	552	469	317	405	344
d1, Uniform Delay [s]	21.01	20.86	20.39	15.05	24.05	23.83	21.88	28.15	26.55	21.74	34.24	29.84
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.35	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.64	0.85	0.72	0.63	0.93	0.95	4.14	1.19	0.82	1.30	1.54	0.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.65	0.23	0.17	0.16	0.22	0.20	0.61	0.63	0.50	0.51	0.62	0.14
d, Delay for Lane Group [s/veh]	26.65	21.71	21.11	15.68	24.98	24.79	26.02	29.34	27.37	23.03	35.78	30.03
Lane Group LOS	C	C	C	B	C	C	C	C	C	C	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.41	2.50	1.61	1.27	2.30	1.74	4.82	7.09	4.49	2.48	5.59	0.94
50th-Percentile Queue Length [ft/ln]	185.15	62.51	40.16	31.74	57.48	43.60	120.51	177.35	112.25	61.98	139.76	23.58
95th-Percentile Queue Length [veh/ln]	11.87	4.50	2.89	2.29	4.14	3.14	8.42	11.46	7.97	4.46	9.47	1.70
95th-Percentile Queue Length [ft/ln]	296.73	112.52	72.29	57.13	103.46	78.48	210.53	286.55	199.13	111.57	236.70	42.45

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	26.65	21.71	21.11	15.68	24.98	24.79	26.02	29.34	27.37	23.03	35.78	30.03
Movement LOS	C	C	C	B	C	C	C	C	C	C	D	C
d_A, Approach Delay [s/veh]	24.68			22.21			27.74			30.67		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	26.77											
Intersection LOS	C											
Intersection V/C	0.501											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.89	43.89	43.89	43.89
l_p,int, Pedestrian LOS Score for Intersection	2.700	2.718	3.163	2.526
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	457	362	1048	857
d_b, Bicycle Delay [s]	31.24	35.22	11.90	17.14
l_b,int, Bicycle LOS Score for Intersection	2.711	2.192	3.323	2.396
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Site Access

Control Type:	Two-way stop	Delay (sec / veh):	20.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.122

Intersection Setup

Name	Imboden Road		Imboden Road		Site Access	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Imboden Road		Imboden Road		Site Access	
Base Volume Input [veh/h]	0	350	240	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	23.00	23.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	120	0	0	30	30	119
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	120	350	240	30	30	119
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	95	65	8	8	32
Total Analysis Volume [veh/h]	130	380	261	33	33	129
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.12	0.17
d_M, Delay for Movement [s/veh]	8.16	0.00	0.00	0.00	20.93	12.37
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.34	0.00	0.00	0.00	1.20	1.20
95th-Percentile Queue Length [ft/ln]	8.55	0.00	0.00	0.00	30.09	30.09
d_A, Approach Delay [s/veh]	2.08		0.00		14.11	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.47					
Intersection LOS	C					

Aldana Event Center TIS

Vistro File: C:\...\Saturday.vistro
Report File: C:\...\2042 Toal Saturday.pdf

Scenario 5 2042 Total Saturday
4/3/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	56th Avenue	Signalized	HCM 7th Edition	WB Thru	0.428	26.4	C
2	Site Access	Two-way stop	HCM 7th Edition	EB Left	0.122	20.9	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: 56th Avenue

Control Type:	Signalized	Delay (sec / veh):	26.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.428

Intersection Setup

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Imboden Road			Imboden Road			56th Avenue			56th Avenue		
Base Volume Input [veh/h]	310	65	140	70	55	75	135	270	380	130	200	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	45	74	75	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	70	0	0	75	0	0	190	0	0	35
Total Hourly Volume [veh/h]	310	110	70	70	100	74	210	270	190	130	200	35
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	84	30	19	19	27	20	57	73	52	35	54	10
Total Analysis Volume [veh/h]	337	120	76	76	109	80	228	293	207	141	217	38
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	27	0	9	26	0	18	60	0	9	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	14	0	0	14	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	40.0	40.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	60	52	52	60	50	50	37	28	28	37	19	19
g / C, Green / Cycle	0.57	0.49	0.49	0.57	0.48	0.48	0.35	0.27	0.27	0.35	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.32	0.08	0.06	0.07	0.07	0.06	0.20	0.19	0.16	0.16	0.14	0.03
s, saturation flow rate [veh/h]	1061	1555	1322	1042	1555	1322	1156	1555	1322	877	1555	1322
c, Capacity [veh/h]	647	728	619	634	705	599	400	450	382	294	317	269
d1, Uniform Delay [s]	15.34	16.09	15.75	11.34	16.86	16.69	25.58	32.67	31.44	24.68	38.67	34.26
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.22	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.99	0.49	0.41	0.39	0.47	0.46	2.63	1.60	1.19	1.21	2.61	0.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.16	0.12	0.12	0.15	0.13	0.57	0.65	0.54	0.48	0.68	0.14
d, Delay for Lane Group [s/veh]	18.32	16.58	16.16	11.73	17.33	17.15	28.21	34.27	32.63	25.89	41.29	34.50
Lane Group LOS	B	B	B	B	B	B	C	C	C	C	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.72	1.65	1.03	0.84	1.54	1.13	4.61	6.89	4.68	2.60	5.53	0.84
50th-Percentile Queue Length [ft/ln]	118.01	41.27	25.82	20.91	38.52	28.25	115.30	172.25	116.88	64.93	138.27	21.00
95th-Percentile Queue Length [veh/ln]	8.28	2.97	1.86	1.51	2.77	2.03	8.13	11.19	8.22	4.68	9.39	1.51
95th-Percentile Queue Length [ft/ln]	207.09	74.29	46.47	37.63	69.34	50.85	203.35	279.87	205.53	116.88	234.70	37.80

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.32	16.58	16.16	11.73	17.33	17.15	28.21	34.27	32.63	25.89	41.29	34.50
Movement LOS	B	B	B	B	B	B	C	C	C	C	D	C
d_A, Approach Delay [s/veh]	17.62			15.67			31.90			35.15		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	26.37											
Intersection LOS	C											
Intersection V/C	0.428											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	43.89	43.89	43.89	43.89
l_p,int, Pedestrian LOS Score for Intersection	2.601	2.629	3.086	2.476
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	438	419	1067	895
d_b, Bicycle Delay [s]	32.02	32.80	11.43	16.02
l_b,int, Bicycle LOS Score for Intersection	2.555	2.121	3.074	2.271
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Intersection Level Of Service Report
Intersection 2: Site Access

Control Type:	Two-way stop	Delay (sec / veh):	20.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.122

Intersection Setup

Name	Imboden Road		Imboden Road		Site Access	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Imboden Road		Imboden Road		Site Access	
Base Volume Input [veh/h]	0	350	240	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	23.00	23.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	120	0	0	30	30	119
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	120	350	240	30	30	119
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	95	65	8	8	32
Total Analysis Volume [veh/h]	130	380	261	33	33	129
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.12	0.17
d_M, Delay for Movement [s/veh]	8.16	0.00	0.00	0.00	20.93	12.37
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.34	0.00	0.00	0.00	1.20	1.20
95th-Percentile Queue Length [ft/ln]	8.55	0.00	0.00	0.00	30.09	30.09
d_A, Approach Delay [s/veh]	2.08		0.00		14.11	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.47					
Intersection LOS	C					

WESTERN ENGINEERING CONSULTANTS, Inc LLC
127 S. Denver Avenue, Ft. Lupton, CO 80621
2501 Mill St. Brush, CO 80723
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March 29, 2022

Adams County Development Engineering Services
4430 S. Adams County Pkwy.
First Floor, Suite W2000B
Brighton, CO 80601

RE: ALDANA EVENT CENTER DRAINAGE NARRATIVE LETTER

Dear Adams County Engineering:

Western Engineering Consultants inc. LLC (WEC) appreciates the opportunity to submit this Drainage Narrative Letter for the Aldana Event Center on behalf of GCSA LLC.

The 39.90-acre property owned by GCSA LLC consists of a single parcel (0181706400006). The existing parcel is currently zoned A-3. This letter summarizes the drainage impact from the proposed improvements – gravel driveway/access road, event center, gravel parking lot, and the proposed drainage swales.

Attached to this letter are the following:

- Vicinity Map
- Key map (Google Exhibit)
- FEMA Firmette
- NRCS Soils Report
- WEC Drainage Plans
- Rational Method Runoff Calculations
- Drainage Swale Capacity Calculations

FLOODPLAIN
Pursuant to the attached exhibit (the current FEMA) – the entire property is **not** within a current or expected amended floodplain. It is located within an Area of Minimal Flood Hazard (Zone X) as seen in FIRM panel 08001C0680J dated September 28, 2018.

PARCEL DESCRIPTION
The property lies approximately 4,300 feet south of E 72th Ave, with Imboden Road along its east property line. The entire property is located in the Southeast 1/4 of Section 6, Township 3 South, Range 64 West of the 6th P.M. The existing site is currently undeveloped.

This site lies approximately 3 miles southeast of Denver International Airport and approximately 2.6 miles northwest of Colorado Air and Space Port. This site does fall under height restrictions from both airports, however since the site does not fall directly in line with a runway, the height of the building (35') falls well under the maximum allowable height per each airport's Part 77 surface.

MAJOR DRAINAGE STUDIES

This site is included in two major drainage studies – the *Box Elder Creek (Downstream of Jewell Avenue), Bear Gulch, and Coyote Run Major Drainageway Plan (2014 MDP)* prepared by Olsson Associates dated August 2014, and the *Preliminary Design Report for Lower Box Elder Creek Watershed Outfall Systems Planning (2001 OSP)* prepared by Wright Water Engineers, Inc. dated October 2001.

Both above-mentioned studies include this site within basin BG-77, Design Element 261, and assume an existing impervious value of 2.0% and a future impervious value of 85.0%. The existing and future runoff values can be seen in the table included in Appendix A under Design Point JUNCT_6261. The existing 10-year and 100-year peak flow values are 98 cfs and 314 cfs, respectively.

PROPOSED IMPROVEMENTS

The overall 39.90-acre site has been designed to adequately convey developed runoff from the proposed improvements as well as the tributary offsite basins to the existing low point in the northeast corner of the site, following existing flow patterns.

A 26 foot gravel driveway/access road is proposed off Imboden Road that will provide access to the proposed event center. The access road has been designed to generally follow existing grades in order to maintain existing flow patterns. A 36" culvert is proposed where the access road will cross over an existing natural drainageway that runs through the site.

WEC has prepared and analyzed preliminary grading concepts for each basin and enclosed drainage calculations based on the proposed improvements of the overall property.

HISTORIC / EXISTING RATIONAL DRAINAGE DESCRIPTION

The entire 39.88-acre property has been mapped as a single Historic Basin.

Historically, the site drained towards the existing natural drainageway through the center of the site at roughly 2.4% (per USGS Manila, CO Quad Map). The runoff calculated for the 39.88-acre Historic Basin is 1.32 cfs and 46.05 cfs for the minor (5yr) and major (100yr) storm events, respectively.

The existing site was broken into three Existing Basins (E1, E2, and E3).

Basin E1 (1.69 acres) consists of the northwestern corner of the site that generally drains northwest and ultimately off-site at roughly 2.9%. The existing effective imperviousness for the basin is 26.24% as it contains the portion of the gravel parking lot that has been installed for the proposed event center. The runoff calculated is 1.10 cfs and 4.30 cfs for the minor (5yr) and major (100yr) storm events, respectively.

Basin E2 (1.83 acres) consists of southwestern corner of the site that generally drains south and ultimately off-site at roughly 2.4%. The existing effective imperviousness for the basin is 11.01% as it contains a portion of the proposed event center and a portion of the gravel driveway/access road. The runoff calculated is 0.54 cfs and 6.45 cfs for the minor (5yr) and major (100yr) storm events, respectively.

Basin E3 (37.28 acres) consists of the remainder of the site east of the proposed event center that generally drains from the highpoint of the site at the proposed event center location east towards the existing natural drainageway through the site, and ultimately offsite at roughly 2.2%. The existing drainageway conveys water from the northeast corner of the site to the existing 36" culvert pair under Imboden Road (roughly 100 feet north of this site). The existing effective imperviousness for the basin is 3.90% as it contains a portion of the proposed event center and a majority of the gravel driveway/access road to the proposed building. The runoff calculated is 3.06 cfs and 72.02 cfs for the minor (5yr) and major (100yr) storm events, respectively.

DEVELOPED RATIONAL DRAINAGE ANALYSIS

Appendix B includes all Rational Method runoff calculations summarizing the 5, 10, and 100 year event runoff the proposed Developed Basins.

Currently, the grading and drainage design is intended to convey a majority of the runoff on site to the existing low point of the site following existing flow patterns through the use of drainage swales and road culverts. The portions of this site that are not proposed to be improved will continue to follow existing drainage patterns.

The site was broken into three developed basins (P1, P2, & P3).

Basin P1 (1.61 acres) contains the northwestern corner of the site. Proposed improvements this basin include fine grading and expansion of the gravel parking lot that has already been installed. The basin will drain as it currently does from the building to the northwest, and ultimately off-site at roughly 2.9%. The developed effective imperviousness for the basin is 26.76%. The runoff calculated is 1.07 cfs and 4.15 cfs for the minor (5yr) and major (100yr) storm events, respectively.

Basin P2 (1.22 acres) contains the southeastern corner of the site. Proposed improvements this basin include fine grading of a portion of the access road/driveway that has already been installed and a portion of the proposed building. The basin will drain as it currently does from the building to the south, and ultimately off-site at roughly 2.4%. The developed effective imperviousness for the basin is 15.49%. The runoff calculated is 0.52 cfs and 4.55 cfs for the minor (5yr) and major (100yr) storm events, respectively.

Basin P3 (37.05 acres) contains the remainder of the site east of the proposed event center. Proposed improvements this basin include a fine grading of the access road/driveway that has already been installed, a portion of the proposed driveway surrounding the proposed building, and a portion of the proposed building. The basin will drain as it currently does from the building to the east towards the existing natural drainageway through the site, through the proposed drainageway enhancement, and ultimately offsite at the northeast corner of the site at roughly 2.2%. The existing drainageway conveys water from the northeast corner of the site to the existing 36” culvert pair under Imboden Road (roughly 100 feet north of this site). The developed effective imperviousness for the basin is 3.91%. The runoff calculated is 3.05 cfs and 71.58 cfs for the minor (5yr) and major (100yr) storm events, respectively.

CONVEYANCE DESIGN & ANALYSIS

The proposed grading of the site has been designed to adequately convey the developed runoff from this site to the existing low point in the northeast corner of the site through the use of drainage swales and road culverts, following existing flow patterns.

Proposed swales will capture proposed runoff from the proposed buildings and driveways and convey it towards the existing natural drainageway that runs through the site. A drainageway enhancement swale has been designed in the northeast corner of the site in order to convey existing 100-year flows to the existing 36” culvert pair under Imboden Road without directing runoff onto the adjacent property to the north. The 36” culvert pair currently has capacity to convey 340 cfs, exceeding the existing 100-year event of 314 cfs.

A 24” culvert has been installed under the access road crossing of the existing natural drainageway. While this 24” culvert does allow flows to continue through this site without negatively effecting the surrounding properties, it is slightly undersized for the existing 10-year event of 98 cfs. A 36” culvert is therefore proposed to replace the existing 24” culvert in order sufficiently convey the existing 10-year flow rate.

Swale and culvert capacity calculations can be found in Appendix C.

STORMWATER DETENTION

Currently, no stormwater detention or attenuation is proposed due to the proximity of the site to a major drainageway as well as due to the proposed improvements adding less than 5% of total site imperviousness.

Since a portion of the proposed access road/driveway off Imboden Road and the proposed event center have already been installed, the increase in impervious area was determined by comparing the developed effective imperviousness of the site (6.09%) to the historic (undeveloped) imperviousness of 2.0%. The resulting increase in impervious area is roughly 3.09% for the 39.88-acre site.

Although no stormwater detention is proposed, the site will provide water quality treatment to stormwater runoff through overland runoff and via the proposed drainage swales. Since a majority of this site will remain undeveloped natural vegetation, all runoff from the proposed improvements will be treated as it is conveyed through the site. Most small storm events will infiltrate before leaving the site, and larger storm events will be routed through both proposed and existing drainageways (proposed swales and the existing natural drainageway) through the site and released at the northeast corner of the site. The proposed drainageway enhancement will convey flows off-site without impacting the adjacent property to the north.

Per the 2001 OSP, an existing regional water quality and detention pond (BGO) existing approximately 100 feet north of this property on the east side of Imboden Road. The existing 36" culvert pair under Imboden discharges into this detention facility. The pond was designed to attenuate to existing imperviousness condition flow rates the flows from the developed imperviousness condition for the 10- and 100-year storm events and has a total volume of 34 acre-feet.

CONCLUSION

The proposed improvements for the Aldana Event Center will create additional imperviousness, however the attached drainage plan and supporting calculations enhance and significantly improve the current existing runoff conditions. The attached designs are intended to meet or exceed the minimum requirements of Adams County Storm Drainage and UDFCD criteria.

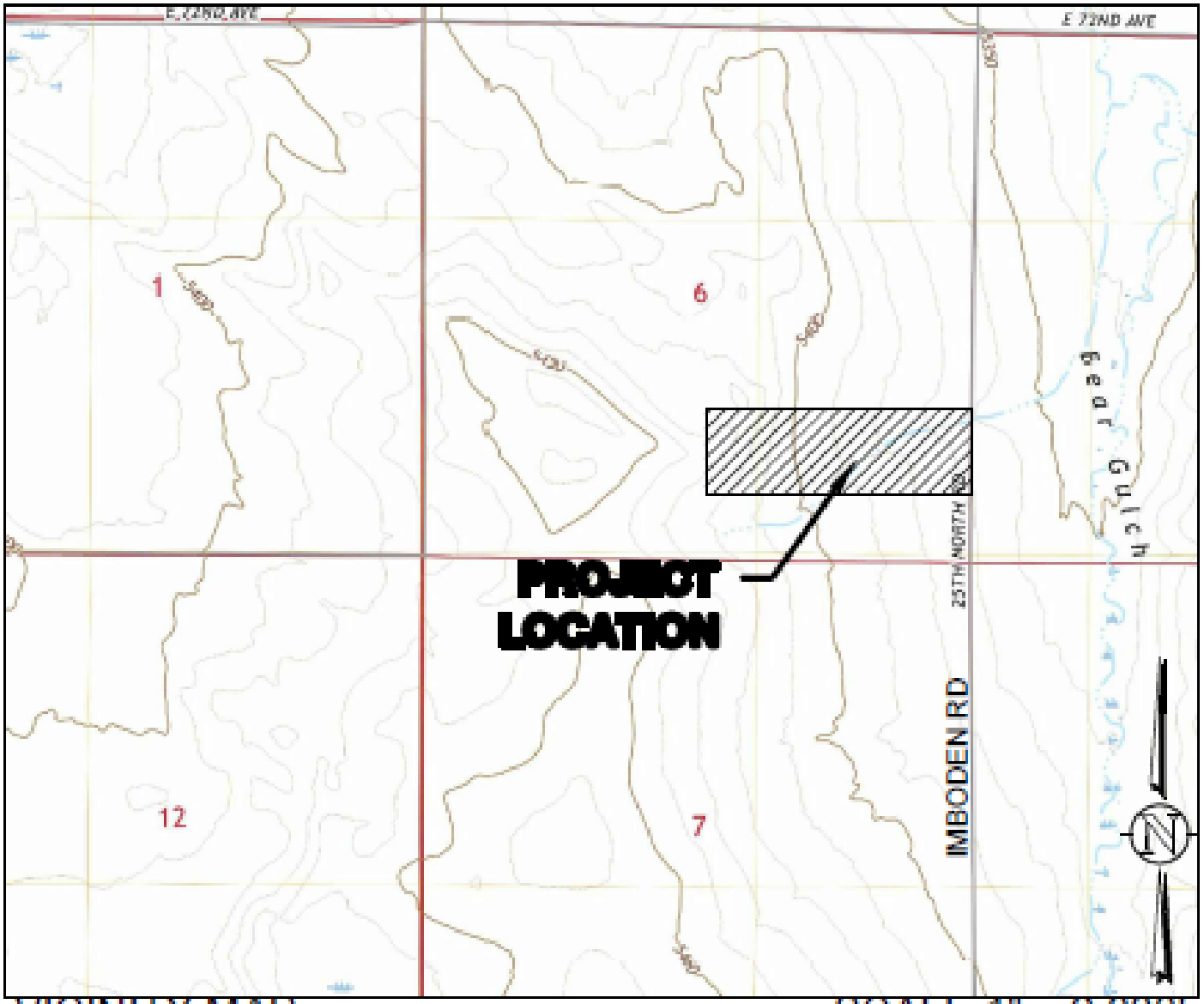
Sincerely,

Western Engineering Consultants inc., LLC
Chadwin F. Cox, P.E.
Senior Project Manager

Encl. Google Site Plan Exhibit, USGS Vicinity Map, NRCS Soils Report, WEC Drainage Plans, WEC Historic, Existing, & Developed Rational Drainage Calcs, and Swale Capacity Calculations

APPENDIX A

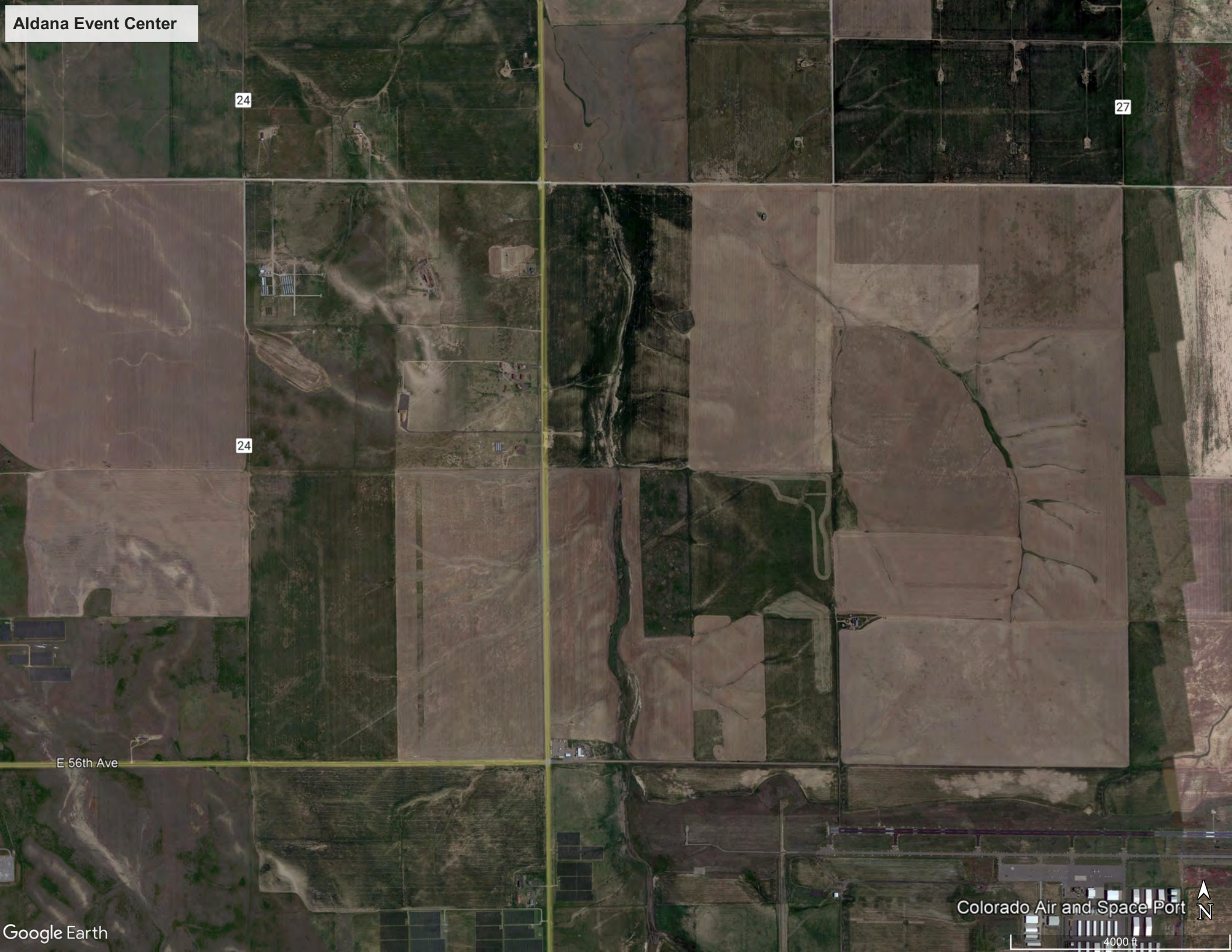
Vicinity Map (USGS) / Key Map / FEMA Firmette /
Soil Survey Map & Legend / MDP Relevant Pages



VICINITY MAP SCALE 1" = 2,000'

SE 1/4 SECTION 6 TOWNSHIP 3 SOUTH RANGE 64 WEST

SHOWN VICINITY MAP TAKEN FROM USGS QUAD MAP - MANILA, CO


Aldana Event Center
24
27
24
E 56th Ave
Colorado Air and Space Port
N
4000 ft
Google Earth

National Flood Hazard Layer FIRMette

FEMA

104°35'36"W 39°49'7"N

104°34'58"W 39°48'39"N

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

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

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

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

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

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

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

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

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

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/10/2021 at 7:04 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.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

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

December 10, 2021

Preface

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

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

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

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

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

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

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

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Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Custom Soil Resource Report
Soil Map

Map Scale: 1:4,640 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 18, Aug 31, 2021

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

Date(s) aerial images were photographed: Jul 17, 2015—Oct 2, 2017

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

MAP LEGEND

MAP INFORMATION

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AsC	Ascalon sandy loam, 3 to 5 percent slopes	21.0	43.8%
PlB	Platner loam, 0 to 3 percent slopes	22.8	47.6%
TtD	Truckton loamy sand, 3 to 9 percent slopes	4.1	8.5%
Totals for Area of Interest		**48.0**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

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

AsC—Ascalon sandy loam, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2tlnt
Elevation: 3,550 to 5,970 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 135 to 160 days
Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

Ascalon and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ascalon

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wind-reworked alluvium and/or calcareous sandy eolian deposits

Typical profile

Ap - 0 to 6 inches: sandy loam
Bt1 - 6 to 12 inches: sandy clay loam
Bt2 - 12 to 19 inches: sandy clay loam
Bk - 19 to 35 inches: sandy clay loam
C - 35 to 80 inches: sandy loam

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline (0.1 to 1.9 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: R067BY024CO - Sandy Plains, R072XY111KS - Sandy Plains

Hydric soil rating: No

Minor Components

Stoneham

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY002CO - Loamy Plains, R072XY100KS - Loamy Tableland
Hydric soil rating: No

Vona

Percent of map unit: 8 percent
Landform: Interfluves
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY024CO - Sandy Plains, R072XY111KS - Sandy Plains
Hydric soil rating: No

Platner

Percent of map unit: 2 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY002CO - Loamy Plains, R072XY100KS - Loamy Tableland
Hydric soil rating: No

PlB—Platner loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tln0
Elevation: 4,000 to 4,930 feet
Mean annual precipitation: 14 to 17 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 135 to 160 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Platner and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Platner

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed eolian deposits over tertiary aged alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Ap - 0 to 6 inches: loam
Bt1 - 6 to 11 inches: clay
Bt2 - 11 to 20 inches: clay
Bk1 - 20 to 27 inches: loam
Bk2 - 27 to 37 inches: sandy clay loam
C - 37 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Minor Components

Ascalon

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Rago, rarely flooded

Percent of map unit: 4 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R067BY036CO - Overflow
Hydric soil rating: No

Rago, ponded

Percent of map unit: 1 percent
Landform: Playas
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R067BY010CO - Closed Upland Depression
Hydric soil rating: No

TtD—Truckton loamy sand, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: 34wz
Elevation: 4,400 to 6,000 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 125 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Truckton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truckton

Setting

Landform: Plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits derived from mixed

Typical profile

H1 - 0 to 9 inches: loamy sand
H2 - 9 to 21 inches: sandy loam
H3 - 21 to 32 inches: loamy sand
H4 - 32 to 60 inches: coarse sand

Properties and qualities

Slope: 3 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Minor Components

Vona

Percent of map unit: 8 percent
Hydric soil rating: No

Blakeland

Percent of map unit: 5 percent
Hydric soil rating: No

Tryon

Percent of map unit: 1 percent
Landform: Swales
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: Yes

Loup

Percent of map unit: 1 percent
Landform: Swales
Ecological site: R067BY029CO - Sandy Meadow
Hydric soil rating: Yes

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SEE SHEET B-1 FOR NORTHERN PORTION OF STUDY AREA

All nodes in this watershed begin with JUNCT_6 and all elements and subwatersheds begin with 6 in the models

All nodes in this watershed begin with JUNCT_1 and all elements and subwatersheds begin with 1 in the models

All nodes in this watershed begin with JUNCT_5 and all elements and subwatersheds begin with 5 in the models

Watershed not included in updated study

THIS PROJECT

BEAR GULCH

BOX ELDER CREEK

HAYESMOUNT CREEK

CAVANAUGH ROAD

QUAIL RUN MI ROAD

IMBODEN MI ROAD

WATKINS MI ROAD

HUDSON MI ROAD

HAYESMOUNT MI ROAD

MONAGHAN ROAD

48TH AVENUE

38TH AVENUE

26TH AVENUE

72ND AVENUE

64TH AVENUE

USGS TOPOGRAPHY

DIA TOPOGRAPHY

Olsson Associates Edits

Legend

- 72 Subwatershed
- Watershed Boundary
- Study Area Boundary

1" = 4000'

N

Figure B-5B

BASE MAP SOURCE: USGS 7.5' QUADRANGLE MAPS

DELINEATION BASED ON USGS QUADRANGLE MAPS AND DIA TOPOGRAPHY

WRIGHT WATER ENGINEERS, INC.
2490 W. 26TH AVE. SUITE 100A
DENVER, CO 80211
(303)480-1700 FAX(303)480-1020

DESIGN	PDW	DATE	6/01
DETAIL	CKB	DATE	6/01
CHECK	JEJ	DATE	6/01
REVISED		DATE	

CITY AND COUNTY OF DENVER ADAMS COUNTY
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

LOWER BOX ELDER CREEK
OUTFALL SYSTEMS PLANNING STUDY

SUBWATERSHED DELINEATION

SHEET B-2

6/25/01; C56 D:\991-134\00CB\SUBFIGB2.APR

Table B-5 - Baseline Peak Flows

Watershed	Design Point	Area Adjustment	Existing Conditions Peak Flow (cfs)							Future Conditions Peak Flow (cfs)						
			Q_2	Q_5	Q_{10}	Q_{25}	Q_{50}	Q_{100}	Q_{500}	Q_2	Q_5	Q_{10}	Q_{25}	Q_{50}	Q_{100}	Q_{500}
Bear Gulch	JUNCT_6239	1	17	78	366	886	1248	1764	2691	1220	1699	2409	3366	4066	4935	6633
Bear Gulch	JUNCT_6240	1	17	85	410	974	1380	1951	2998	1284	1797	2549	3575	4312	5269	7079
Bear Gulch	JUNCT_6241	1	21	97	462	1103	1566	2215	3434	1345	1909	2709	3839	4660	5719	7750
Bear Gulch	JUNCT_6242	1	14	35	97	197	261	341	493	131	197	295	415	503	608	813
Bear Gulch	JUNCT_6243	1	14	35	96	195	258	338	489	123	188	283	401	485	587	804
Bear Gulch	JUNCT_6244	1	24	116	521	1187	1725	2476	3883	1389	2016	2924	4140	5039	6250	8513
Bear Gulch	JUNCT_6245	1	3	31	79	143	186	238	340	279	378	516	641	750	856	1105
Bear Gulch	JUNCT_6246	1	13	31	80	155	201	260	371	74	127	210	320	397	485	664
Bear Gulch	JUNCT_6247	1	190	271	776	1488	2197	3167	4991	1623	2410	3557	5060	6178	7684	10596
Bear Gulch	JUNCT_6248	1	543	800	1166	1668	2359	3341	5278	1704	2547	3804	5339	6547	8195	11366
Bear Gulch	JUNCT_6249	1	523	802	1280	1977	2509	3560	5669	1783	2667	3997	5555	6850	8557	11922
Bear Gulch	JUNCT_6250	1	7	55	142	263	343	443	634	542	729	993	1239	1452	1652	2131
Bear Gulch	JUNCT_6251	1	6	50	135	255	334	435	624	500	679	911	1150	1346	1581	2042
Bear Gulch	JUNCT_6252	1	4	58	149	276	363	471	678	474	645	883	1100	1296	1472	1929
Bear Gulch	JUNCT_6253	1	4	56	147	273	360	467	673	448	608	839	1054	1246	1442	1900
Bear Gulch	JUNCT_6254	1	2	31	78	142	187	241	346	259	350	469	585	685	800	1036
Bear Gulch	JUNCT_6255	1	2	35	92	169	222	288	413	292	390	530	675	797	924	1213
Bear Gulch	JUNCT_6256	1	504	821	1354	2123	2659	3664	5851	1817	2724	4089	5662	6970	8703	12198
Bear Gulch	JUNCT_6257	1	505	818	1452	2383	2983	3799	6102	1872	2812	4228	5809	7170	8959	12555
Bear Gulch	JUNCT_6258	1	475	818	1508	2500	3161	4016	6249	1890	2849	4286	5871	7235	9014	12667
Bear Gulch	JUNCT_6259	1	466	796	1513	2523	3201	4101	6298	1887	2859	4315	5890	7267	9027	12687
Bear Gulch	JUNCT_6260	2	411	628	1715	3033	4085	5426	8060	2083	3081	4725	6687	8197	10171	13904
Bear Gulch	JUNCT_6261	1	3	34	98	186	243	314	451	411	547	735	903	1053	1200	1544
Bear Gulch	JUNCT_6262	1	3	35	110	218	290	387	565	369	505	688	891	1054	1237	1632
Bear Gulch	JUNCT_6263	2	382	608	1744	3120	4275	5806	8784	2097	3155	4949	6998	8653	10813	14828
Bear Gulch	JUNCT_6264	1	4	30	123	267	356	470	684	527	712	978	1219	1436	1651	2148
Bear Gulch	JUNCT_6265	1	4	46	185	415	560	751	1098	651	892	1236	1621	1933	2267	3017
Bear Gulch	JUNCT_6266	1	5	53	213	475	646	877	1289	733	1003	1377	1827	2161	2572	3438
Bear Gulch	JUNCT_6267	2	382	610	1841	3352	4651	6344	9679	2274	3452	5422	7583	9401	11759	16088
Bear Gulch	JUNCT_6268	1	2	23	59	106	133	173	250	76	102	139	173	207	252	333
Bear Gulch	JUNCT_6269	1	2	27	84	165	217	284	412	291	387	514	637	744	878	1130
Bear Gulch	JUNCT_6270	1	2	29	92	185	246	326	472	289	398	544	702	828	973	1271
Bear Gulch	JUNCT_6271	2	380	611	1870	3417	4741	6501	9946	2321	3534	5549	7744	9554	11989	16420
Bear Gulch	JUNCT_6273	2	380	617	1956	3598	5034	6912	10610	2358	3621	5762	8070	9999	12522	17270
Bear Gulch	JUNCT_6274	2	375	616	1972	3639	5092	7011	10794	2408	3697	5851	8177	10141	12670	17473
Bear Gulch	JUNCT_6275	2	354	623	2082	3862	5466	7558	11712	2495	3865	6186	8650	10768	13439	18715
Bear Gulch	JUNCT_6276	2	335	622	2086	3872	5495	7620	11824	2507	3880	6224	8683	10790	13481	18802
Bear Gulch	JUNCT_6277	1	6	44	195	446	605	815	1203	785	1082	1500	1979	2348	2768	3645
Bear Gulch	JUNCT_6278	1	4	52	131	238	313	404	581	430	573	762	951	1117	1304	1686
Bear Gulch	JUNCT_6279	2	332	621	2086	3870	5507	7629	11908	2514	3889	6234	8678	10813	13486	18784
Bear Gulch	JUNCT_6301	1	2	21	62	120	157	203	292	247	333	453	563	660	759	979
Bear Gulch	JUNCT_6302	1	1	15	35	59	78	97	138	101	137	189	234	274	307	397
Bear Gulch	JUNCT_6303	1	1	18	42	73	95	120	170	119	162	218	266	311	362	466
Bear Gulch	JUNCT_6304	1	3	42	106	196	257	334	481	286	391	536	674	796	919	1205
Bear Gulch	JUNCT_6305	1	3	56	153	287	382	506	733	369	514	710	925	1105	1301	1737
Bear Gulch	JUNCT_6306	1	33	78	200	361	479	640	939	395	547	766	1042	1250	1488	2001
Bear Gulch	JUNCT_6307	1	32	88	227	412	547	731	1064	464	641	887	1198	1438	1704	2294
Bear Gulch	JUNCT_6308	1	31	100	256	465	620	827	1206	528	736	1019	1372	1633	1943	2575
Bear Gulch	JUNCT_6309	1	2	18	41	71	92	117	166	121	165	222	273	318	368	474
Bear Gulch	JUNCT_6310	1	1	15	36	62	82	103	147	107	144	195	239	279	324	416
Bear Gulch	JUNCT_6311	1	149	227	336	458	555	669	894	327	449	621	781	919	1046	1360
Bear Gulch	JUNCT_6312	1	125	174	244	306	363	427	553	128	180	249	312	366	429	555
Bear Gulch	JUNCT_6313	1	328	478	690	941	1131	1359	1827	504	708	990	1276	1517	1775	2346
Bear Gulch	JUNCT_6314	1	1	18	41	71	93	118	167	120	160	211	254	295	347	444

All nodes in this watershed begin with JUNCT_6 and all elements and subwatersheds begin with 6 in the models

All nodes in this watershed begin with JUNCT_1 and all elements and subwatersheds begin with 1 in the models

All nodes in this watershed begin with JUNCT_5 and all elements and subwatersheds begin with 5 in the models

Watershed not included in updated study

THIS PROJECT

CAVANAUGH ROAD

QUAIL RUN MI ROAD

IMBODEN MI ROAD

WATKINS MI ROAD

HUDSON MI ROAD

HAYESMOUNT MI ROAD

MONAGHAN ROAD

BEAR GULCH

BOX ELDER CREEK

HAYESMOUNT CREEK

96TH AVE

88TH AVE

80TH AVE

72ND AVE

64TH AVE

56TH AVE

48TH AVE

38TH AVE

26TH AVE

Olsson Associates Edits

Legend

- 317 Conveyance Element
- 255 Conveyance Node

Watershed

- Bear Gulch
- Box Elder
- Lower Hayesmount
- Upper Hayesmount

1" = 4000'

N

Figure B-6B

SEE SHEET H-1 FOR NORTHERN PORTION OF STUDY AREA

11/5/99; D:\991-134\000\cb\cb-elements.apr

BASE MAP SOURCE: USGS 7.5' QUADRANGLE MAPS
SWMM ELEMENTS FROM QUADRANGLE MAPS AND DIA DRAINAGE MAPS

WRIGHT WATER ENGINEERS, INC.
2490 W. 26TH AVE. SUITE 100A
DENVER, CO 80211
(303)480-1700 FAX(303)480-1020

DESIGN	PDW	DATE	1/00
DETAIL	BJR	DATE	1/00
CHECK	JEJ	DATE	1/00
REVISED		DATE	

CITY AND COUNTY OF DENVER ADAMS COUNTY
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

LOWER BOX ELDER CREEK
OUTFALL SYSTEMS PLANNING STUDY

SWMM CONVEYANCE ELEMENTS

SHEET H-2

COMMENTARY ON SHEET T-23

Proposed drainage improvements are shown for the following stream reaches:

Stream BG	Bear Gulch	Station 254+68 to 301+00	Adams County
		Station 301+00 to 345+89	City of Aurora
Stream BGF	Fox Creek	Station 0+00 to 30+58	Adams County
Stream BGG	Grizzly Creek	Station 37+26 to 131+65	Adams County
Stream BGGb		Station 0+00 to 2+41	Adams County
Stream BGM		Station 0+00 to 16+00	City of Aurora
		Station 16+00 to 46+77	Adams County
Stream BGMa		Station 0+00 to 33+17	Adams County
Stream BGN		Station 0+00 to 15+50	City of Aurora
Stream BGO		Station 0+00 to 16+45	Adams County

General drainage status for the area covered on this sheet includes:

The approximate limit of the floodplain for the 100-year storm event (future percentage imperviousness condition, without detention facilities, existing channel conditions and roadway crossings) is shown on the plan sheets. The floodplain for stream BE (Box Elder Creek) is based upon the Flood Hazard Area Delineation (FHAD) study for the area. The FHAD is based upon different mapping, and the floodplain may appear inconsistent with the mapping. Floodplains for other streams are approximate. The floodplain limits are subject to change due to implementation of detention, channel improvements and roadway crossings.

There is no riparian vegetation or wetland vegetation along any of the stream reaches on this sheet.

Proposed drainage improvements include the following items:

Channel Improvements:

Stream BGMa, BGO and BGM station 16+00 to 46+77: use grass-lined channel (100-year capacity) with trickle channel. Use 4-foot maximum drop grouted sloping boulder drop structures where existing thalweg slope is greater than stable channel slope.

Stream BGG (Grizzly Creek) station 37+26 to 39+70 and BGM station 0+00 to 16+00: use grass-lined channel (100-year capacity) with grass-lined low flow channel. Use 4-foot maximum drop grouted sloping boulder drop structures where existing thalweg slope is greater than stable channel slope.

Stream BG (Bear Gulch), BGF (Fox Creek), BGG (Grizzly Creek) station 39+70 to 131+65, BGGb and BGN: use stabilized natural channel with floodplain management. Use 3-foot maximum drop check structures where existing thalweg slope is greater than stable channel slope.

Road Crossings:

Road crossings have been designed to convey the 100-year peak flow rate based upon future percentage imperviousness and assuming that regional detention facilities are in place. Road crossings are included at all section lines (the location of future arterial roadways) within Adams County and the City of Aurora and selected locations within DIA property.

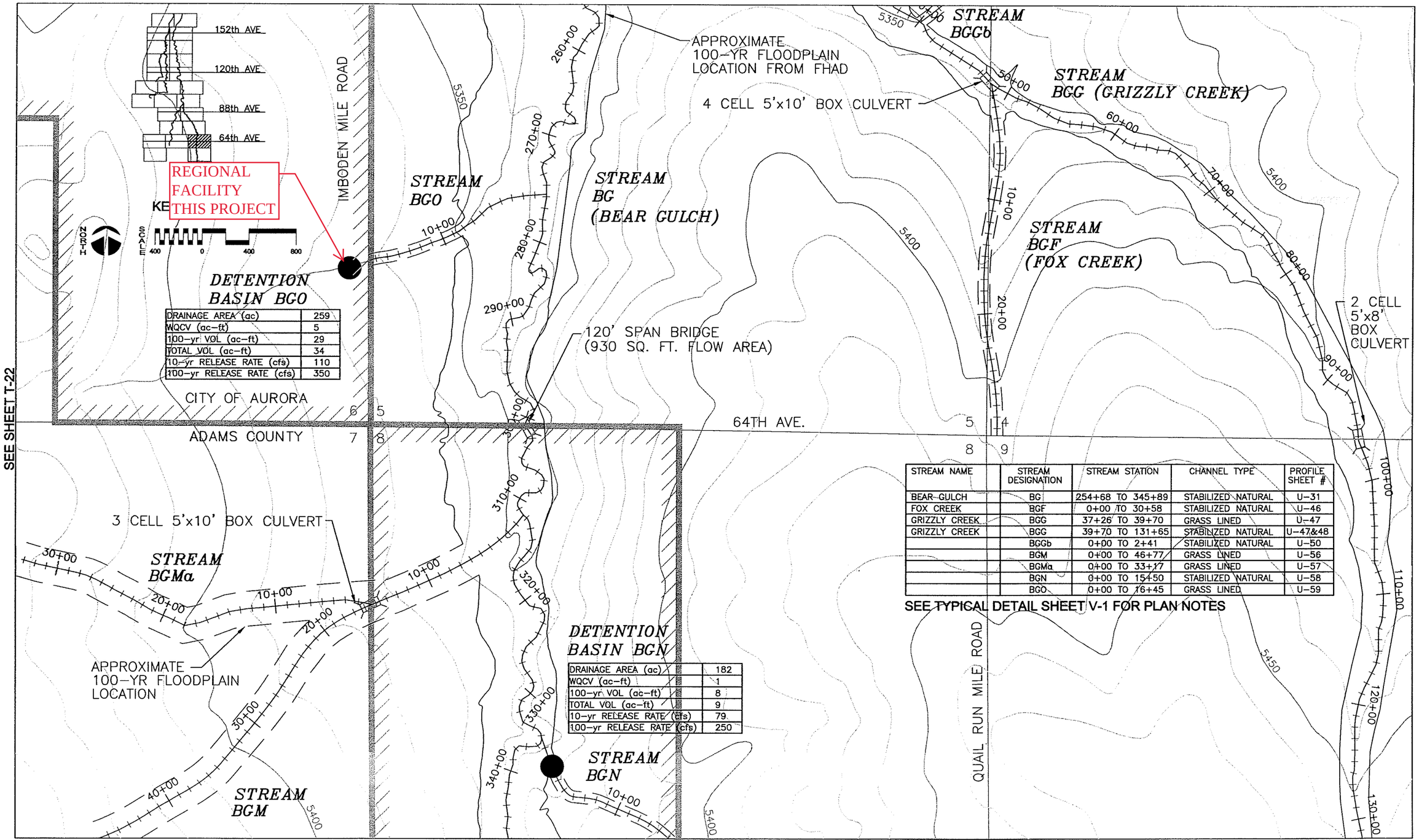
Detention facilities:

The location and size of regional detention facilities BGN and BGO proposed for portions of the City of Aurora are shown on the plan sheet. The regional detention facilities are designed to attenuate to existing imperviousness condition flow rates the flows from the developed imperviousness condition for the 10-year and 100-year storm events. The required detention volume and allowable release rates are shown on the plan. Additionally, the regional detention facilities include a WQCV as per Volume 3 of the Drainage Manual. The developer of any site that does not drain to a regional detention facility should provide on-site detention facilities when that site is developed. The storage volume and release rates for on-site detention facilities should be based upon the most recent drainage criteria provided in the *Urban Storm Drainage Criteria Manual*, as a minimum, for the central return period specified by Adams County, the City of Aurora and DIA. Generally, on-site detention facilities shall be designed to manage the WQCV, 10-year and 100-year storm events.

Capital construction costs are summarized below for each stream reach. Detailed cost calculations of channel improvements (channel, pipelines, drop structures and check structures), traffic costs (bridges and culverts), detention facilities and right-of-way acquisition are presented in Appendix W. Cost information is summarized by stream reach and by jurisdiction in Appendix X.

Stream Designation	Stream Name	Length (Feet)	Capital Construction Costs	Property Acquisition Costs	Contingency, Administrative and Legal Costs	Total Costs
BG	Bear Gulch	9121	$971,093	$-	$495,546	$1,456,639
BGF	Fox Creek	3058	$235,951	$35,101	$135,526	$406,579
BGG	Grizzly Creek	9439	$902,014	$1,600	$451,807	$1,355,421
BGGb		241	$12,050	$2,766	$7,408	$22,224
BGM		4677	$868,770	$21,716	$445,243	$1,335,729
BGMa		3317	$454,600	$19,873	$237,236	$711,709
BGN		1550	$176,735	$32,192	$104,464	$313,391
BGO		1645	$386,193	$64,724	$225,459	$676,376
	Total Sheet T-23	33048	$4,007,406	$177,972	$2,092,689	$6,278,068

SEE SHEET T-20



STREAM NAME	STREAM DESIGNATION	STREAM STATION	CHANNEL TYPE	PROFILE SHEET #
BEAR GULCH	BG	254+68 TO 345+89	STABILIZED NATURAL	U-31
FOX CREEK	BGF	0+00 TO 30+58	STABILIZED NATURAL	U-46
GRIZZLY CREEK	BGG	37+26 TO 39+70	GRASS LINED	U-47
GRIZZLY CREEK	BGG	39+70 TO 131+65	STABILIZED NATURAL	U-47&48
	BGGb	0+00 TO 2+41	STABILIZED NATURAL	U-50
	BGM	0+00 TO 46+77	GRASS LINED	U-56
	BGMa	0+00 TO 33+17	GRASS LINED	U-57
	BGN	0+00 TO 154+50	STABILIZED NATURAL	U-58
	BGO	0+00 TO 76+45	GRASS LINED	U-59

SEE TYPICAL DETAIL SHEET V-1 FOR PLAN NOTES

BASE MAPPING FROM USGS 7.5' QUADRANGLE MAPS AND DIA MAPPING

WRIGHT WATER ENGINEERS, INC.
2490 W. 26TH AVE. SUITE 100A
DENVER, CO 80211
(303)480-1700 FAX(303)480-1020

DESIGN	PW	DATE	09/01
DETAIL	LD	DATE	09/01
CHECK	JJ, KW	DATE	09/01
REVISED	-	DATE	-

CITY AND COUNTY OF DENVER ADAMS COUNTY
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

PRELIMINARY DESIGN REPORT
LOWER BOX ELDER CREEK

BEAR GULCH AND TRIBUTARIES

SHEET T-23

APPENDIX B

NOAA Atlas Rainfall / WEC Rational Method Runoff Calculations

NOAA Atlas 14, Volume 8, Version 2
Location name: Bennett, Colorado, USA*
Latitude: 39.8194°, Longitude: -104.5125°
Elevation: 5367.22 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.236** (0.191-0.294)	**0.291** (0.234-0.362)	**0.390** (0.313-0.487)	**0.481** (0.384-0.604)	**0.622** (0.485-0.822)	**0.741** (0.561-0.988)	**0.871** (0.634-1.19)	**1.01** (0.705-1.41)	**1.21** (0.810-1.73)	**1.38** (0.891-1.98)
10-min	**0.346** (0.279-0.431)	**0.425** (0.343-0.531)	**0.570** (0.458-0.713)	**0.705** (0.562-0.885)	**0.911** (0.710-1.20)	**1.09** (0.821-1.45)	**1.27** (0.929-1.74)	**1.48** (1.03-2.07)	**1.78** (1.19-2.54)	**2.02** (1.30-2.89)
15-min	**0.422** (0.340-0.526)	**0.519** (0.418-0.647)	**0.696** (0.558-0.870)	**0.859** (0.686-1.08)	**1.11** (0.865-1.47)	**1.32** (1.00-1.76)	**1.56** (1.13-2.12)	**1.81** (1.26-2.52)	**2.17** (1.45-3.09)	**2.46** (1.59-3.53)
30-min	**0.571** (0.460-0.711)	**0.699** (0.563-0.872)	**0.934** (0.749-1.17)	**1.15** (0.919-1.45)	**1.49** (1.16-1.97)	**1.78** (1.34-2.37)	**2.09** (1.52-2.84)	**2.43** (1.69-3.39)	**2.92** (1.95-4.16)	**3.32** (2.14-4.75)
60-min	**0.704** (0.568-0.878)	**0.858** (0.691-1.07)	**1.14** (0.917-1.43)	**1.41** (1.13-1.77)	**1.83** (1.43-2.42)	**2.19** (1.66-2.92)	**2.58** (1.88-3.51)	**3.01** (2.10-4.20)	**3.63** (2.42-5.18)	**4.14** (2.67-5.93)
2-hr	**0.838** (0.680-1.04)	**1.02** (0.824-1.26)	**1.35** (1.09-1.68)	**1.67** (1.34-2.08)	**2.17** (1.71-2.85)	**2.60** (1.98-3.44)	**3.07** (2.26-4.15)	**3.59** (2.52-4.97)	**4.34** (2.92-6.15)	**4.95** (3.23-7.04)
3-hr	**0.916** (0.747-1.13)	**1.11** (0.901-1.36)	**1.47** (1.19-1.81)	**1.81** (1.46-2.24)	**2.34** (1.85-3.08)	**2.81** (2.15-3.71)	**3.32** (2.45-4.47)	**3.89** (2.75-5.36)	**4.70** (3.19-6.63)	**5.38** (3.52-7.60)
6-hr	**1.09** (0.895-1.33)	**1.30** (1.07-1.59)	**1.70** (1.39-2.09)	**2.08** (1.69-2.56)	**2.68** (2.13-3.48)	**3.19** (2.47-4.17)	**3.76** (2.80-5.01)	**4.38** (3.12-5.98)	**5.28** (3.61-7.38)	**6.02** (3.98-8.44)
12-hr	**1.33** (1.10-1.61)	**1.58** (1.30-1.91)	**2.03** (1.67-2.46)	**2.44** (2.00-2.98)	**3.09** (2.47-3.95)	**3.63** (2.82-4.69)	**4.22** (3.17-5.57)	**4.87** (3.50-6.58)	**5.80** (4.00-8.01)	**6.56** (4.37-9.10)
24-hr	**1.59** (1.32-1.91)	**1.89** (1.57-2.27)	**2.42** (2.00-2.91)	**2.88** (2.37-3.49)	**3.57** (2.86-4.50)	**4.14** (3.23-5.27)	**4.74** (3.57-6.17)	**5.39** (3.89-7.17)	**6.29** (4.36-8.58)	**7.01** (4.72-9.64)
2-day	**1.84** (1.54-2.20)	**2.21** (1.84-2.63)	**2.81** (2.34-3.36)	**3.33** (2.76-4.00)	**4.07** (3.27-5.05)	**4.66** (3.65-5.85)	**5.27** (3.98-6.75)	**5.90** (4.28-7.75)	**6.76** (4.72-9.10)	**7.43** (5.05-10.1)
3-day	**2.02** (1.69-2.39)	**2.38** (2.00-2.83)	**3.00** (2.51-3.56)	**3.52** (2.93-4.21)	**4.27** (3.44-5.27)	**4.87** (3.83-6.08)	**5.49** (4.17-7.00)	**6.13** (4.47-8.00)	**7.00** (4.91-9.37)	**7.68** (5.24-10.4)
4-day	**2.15** (1.81-2.54)	**2.52** (2.12-2.98)	**3.13** (2.63-3.72)	**3.67** (3.06-4.36)	**4.42** (3.58-5.44)	**5.03** (3.97-6.25)	**5.65** (4.31-7.18)	**6.30** (4.61-8.20)	**7.19** (5.06-9.59)	**7.88** (5.40-10.6)
7-day	**2.45** (2.07-2.87)	**2.84** (2.41-3.34)	**3.51** (2.96-4.13)	**4.07** (3.41-4.81)	**4.86** (3.95-5.92)	**5.49** (4.36-6.77)	**6.13** (4.70-7.72)	**6.79** (5.01-8.77)	**7.69** (5.46-10.2)	**8.39** (5.80-11.2)
10-day	**2.71** (2.30-3.17)	**3.14** (2.66-3.67)	**3.85** (3.26-4.51)	**4.44** (3.74-5.23)	**5.27** (4.30-6.38)	**5.92** (4.72-7.26)	**6.58** (5.07-8.24)	**7.26** (5.37-9.31)	**8.16** (5.81-10.7)	**8.86** (6.15-11.8)
20-day	**3.49** (2.98-4.04)	**4.00** (3.42-4.64)	**4.83** (4.12-5.62)	**5.52** (4.68-6.44)	**6.46** (5.29-7.72)	**7.18** (5.76-8.70)	**7.90** (6.12-9.77)	**8.62** (6.42-10.9)	**9.57** (6.87-12.4)	**10.3** (7.20-13.6)
30-day	**4.12** (3.54-4.75)	**4.71** (4.04-5.43)	**5.66** (4.84-6.54)	**6.43** (5.47-7.46)	**7.47** (6.14-8.87)	**8.26** (6.65-9.93)	**9.03** (7.03-11.1)	**9.80** (7.33-12.3)	**10.8** (7.78-13.9)	**11.5** (8.12-15.1)
45-day	**4.89** (4.22-5.61)	**5.59** (4.82-6.41)	**6.70** (5.76-7.71)	**7.59** (6.49-8.77)	**8.78** (7.24-10.3)	**9.66** (7.81-11.5)	**10.5** (8.23-12.8)	**11.4** (8.54-14.2)	**12.4** (8.99-15.9)	**13.2** (9.34-17.2)
60-day	**5.52** (4.78-6.31)	**6.32** (5.46-7.23)	**7.59** (6.54-8.70)	**8.60** (7.37-9.89)	**9.92** (8.20-11.6)	**10.9** (8.82-13.0)	**11.8** (9.27-14.4)	**12.7** (9.59-15.8)	**13.8** (10.1-17.7)	**14.6** (10.4-19.0)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper

bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.
Please refer to NOAA Atlas 14 document for more information.

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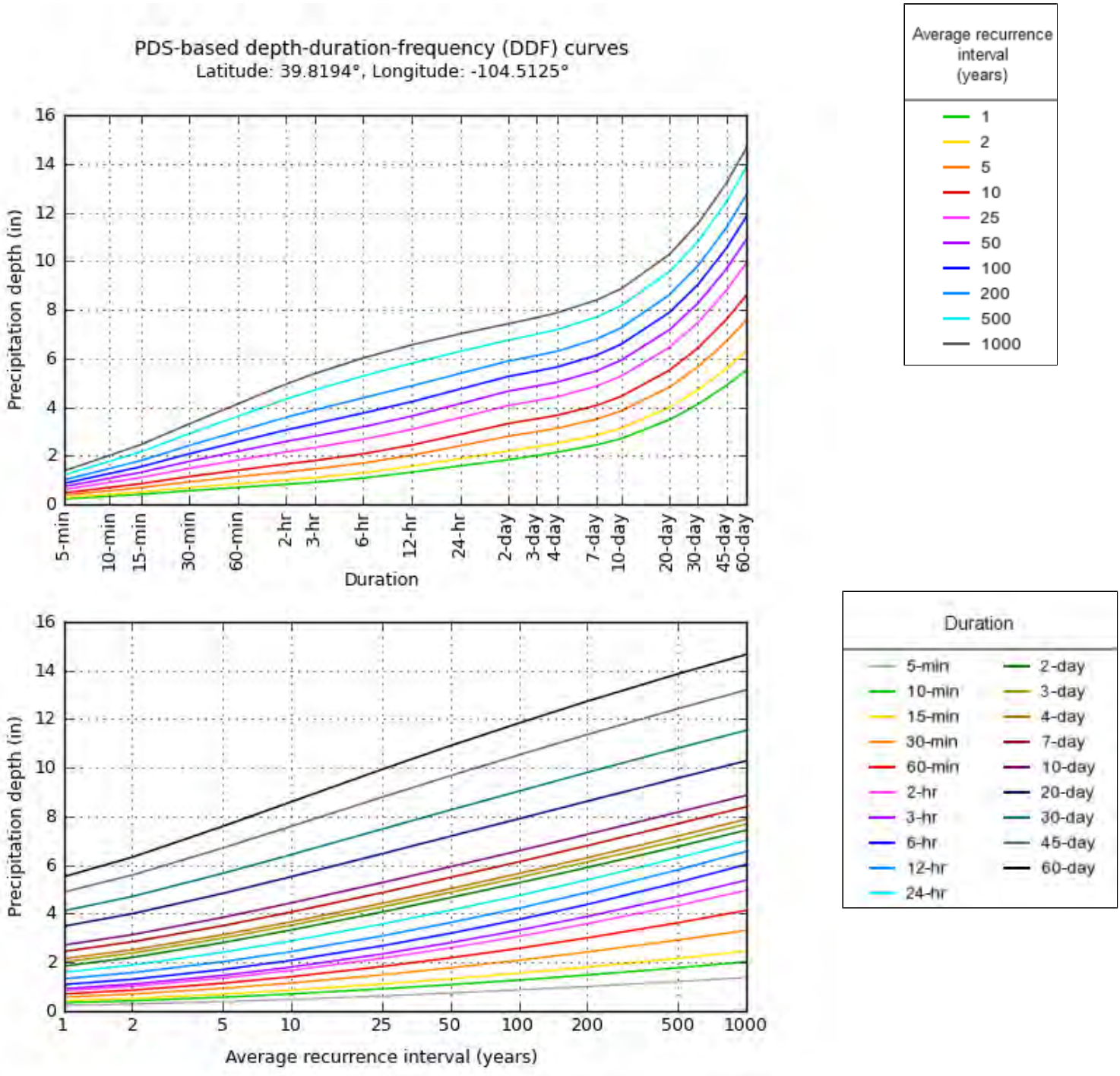
PF graphical



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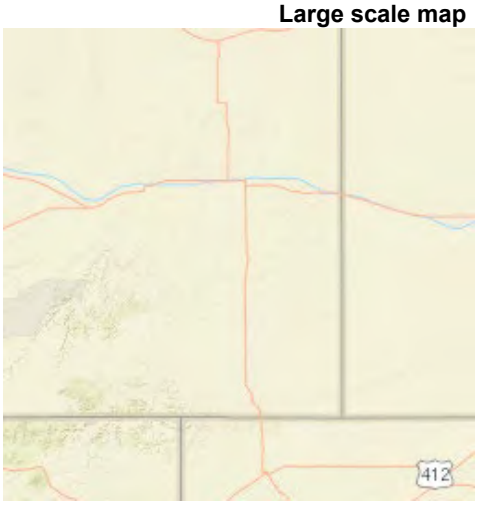
Maps & aerials

Small scale terrain

Large scale terrain

Large scale map



Large scale aerial

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Disclaimer

Historic Runoff Table - ALDANA EVENT CENTER							
BASIN	Impervious	C-YR	I	A	CIA(YR-historic)	Flow	DESIGN POINT
H							
C_2 (MHFD 2018)	2.00	0.01	0.89	39.88	0.35	cfs	H1
C_5	2.00	0.03	1.18	39.88	1.32	cfs	
C_{10}	2.00	0.10	1.46	39.88	5.83	cfs	
C_{100}	2.00	0.43	2.68	39.88	46.05	cfs	

ALDANA EVENT CENTER - Historic Runoff Calcs

3/29/2022

for soils - C_2 C_5 C_{10} C_{100} --> from Table RO-5
**for Ti calculations - only C_5 is used

Ti= (.395*(1.1-C_5)*(Li^.5)) / (Si)^.333 From MHFD (UDFCD) 2018, Equation 6-3
Tt= (Lt / (60 * V)) From MHFD (UDFCD) 2018, Equation 6-4
I = (28.5 * P_1) / ((10 + Td)^0.786) From MHFD (UDFCD) 2018, Equation 5-1

	2	5	10	100
1-Hour Point Rainf	**0.858**	**1.14**	**1.41**	**2.58**

H **Historic - 2, 5, 10, 100 yr** — **39.879** acres

NRCS Type 10% A, 45% B, 45% C

		Length	Slope	C_{yr} - see frequency left	Ti**	Velocity	Tt	Tc	Use Tc	I	A		
2yr				0.01	29.19	1.38	28.54	57.73	57.73	0.89	39.88	**$CIA_{5\ existing}$** 0.35	**cfs**
	initial	500	0.034										
5yr	travel	2,360	0.019	0.03	29.19	1.38	28.54	57.73	57.73	1.18	39.88	**$CIA_{10\ existing}$** 1.32	**cfs**
		2860											
10yr	Overland flow			0.10	29.19	1.38	28.54	57.73	57.73	1.46	39.88	**$CIA_{10\ existing}$** 5.83	**cfs**
	300 ft max for urban, 500 ft max for rural												
	Remainder carried as travel												
100yr	Cv=	10		0.43	29.19	1.38	28.54	57.73	57.73	2.68	39.88	**$CIA_{100\ existing}$** 46.05	**cfs**

39.879 acres

H	**Undeveloped**	**Gravel**	**Building**	**Concrete**	**Water/Aphalt**	**EFFECTIVE**
NRCS Type 10% A, 45% B, 45% C						
Imperviousness %	2	40.00	90.00	100.00	100.00	**2.00**
C2	0.01	0.2905	0.739	0.8355	0.8355	**0.01**
C5	0.028	0.333	0.7635	0.8565	0.8565	**0.03**
C10	0.1	0.3925	0.7835	0.8655	0.8655	**0.10**
C100	0.4315	0.609	0.8415	0.89	0.89	**0.43**
AREA	39.879	0.00	0.00	0.00	0.00	39.88

0.000 acres

H2	**Undeveloped**	**Gravel**	**Building**	**Concrete**	**Water/Aphalt**	**EFFECTIVE**
NRCS Type 100% B						
Imperviousness %	2	40.00	90.00	100.00	100.00	**#DIV/0!**
C2	0.01	0.29	0.74	0.84	0.84	**#DIV/0!**
C5	0.01	0.32	0.76	0.86	0.86	**#DIV/0!**
C10	0.07	0.38	0.78	0.86	0.86	**#DIV/0!**
C100	0.44	0.61	0.84	0.89	0.89	**#DIV/0!**
AREA	0.000	0.00	0.00	0.00	0.00	0.00

TABLE RO-2 (taken from MHFD (UDFCD Manual - Vol. I)

Type of Land Surface	Conveyance coefficient,
Heavy Meadow	2.5
Tillage/field	5
Short pasture/Lawns	7
Nearly Bare Ground	10.00
Grassed Waterway	15.00
Paved areas and shallow paved swales	20.00

Existing Runoff Table - ALDANA EVENT CENTER							
BASIN	Impervious	C-YR	I	A	CIA(YR-existing)	Flow	DESIGN POINT
EX SITE							
C_2 (MHFD 2018)	5.81	0.04	1.36	39.88	2.10	cfs	
C_5	5.81	0.06	1.81	39.88	4.24	cfs	
C_{10}	5.81	0.13	2.23	39.88	11.52	cfs	
C_{100}	5.81	0.45	4.09	39.88	73.22	cfs	
E1							
C_2 (MHFD 2018)	26.24	0.17	2.68	1.69	0.78	cfs	E1
C_5	26.24	0.18	3.56	1.69	1.10	cfs	
C_{10}	26.24	0.19	4.40	1.69	1.41	cfs	
C_{100}	26.24	0.32	8.06	1.69	4.30	cfs	
E2							
C_2 (MHFD 2018)	11.01	0.08	2.60	1.83	0.39	cfs	E2
C_5	11.01	0.09	3.45	1.83	0.54	cfs	
C_{10}	11.01	0.14	4.27	1.83	1.07	cfs	
C_{100}	11.01	0.45	7.81	1.83	6.45	cfs	
E3							
C_2 (MHFD 2018)	3.90	0.02	1.36	37.28	1.24	cfs	E3
C_5	3.90	0.05	1.80	37.28	3.06	cfs	
C_{10}	3.90	0.12	2.23	37.28	10.37	cfs	
C_{100}	3.90	0.47	4.08	37.28	72.02	cfs	

ALDANA EVENT CENTER - Existing Runoff Calcs

3/29/2022

for soils - C2 C_5 C_{10} C_{100} = from Table RO-5
**for Ti calculations - only C_5 is used

Ti= (.395*(1.1-C_5)*($Li^{.5}$)) / ($Si)^{.333}$ From MHFD (UDFCD) 2018, Equation 6-3
Tt= (Lt / (60 * V)) From MHFD (UDFCD) 2018, Equation 6-4
I = (28.5 * P_1) / ((10 + Td)$^{0.786}$) From MHFD (UDFCD) 2018, Equation 5-1

	2	5	10	100
1-Hour Point Rainfall	**0.858**	**1.14**	**1.41**	2.58

2018 MHFD >>> Tc Check = (26-17i) + [Ltravel / (60*(14i + 9)(So)^.5)]

EX SITE	**Existing - 2, 5, 10, 100 yr**			**39.879** acres									
	NRCS Type 10% A, 45% B, 45% C		C_{yr} - see frequency left	Ti**	Velocity	Tt	Tc	check	Use Tc	I	A	**$CIA_{5\ existing}$**	
2yr			0.04	4.21	1.85	25.30	29.52	57.24	29.52	1.36	39.88		2.10 **cfs**
		Length / Slope										**$CIA_{5\ existing}$**	
	initial	20 / 0.083											
5yr	travel	2,815 / 0.022	0.06	4.21	1.85	25.30	29.52	57.24	29.52	1.81	39.88		4.24 **cfs**
		2835										**$CIA_{10\ existing}$**	
10yr	Overland flow		0.13	4.21	1.85	25.30	29.52	57.24	29.52	2.23	39.88		11.52 **cfs**
	300 ft max for urban, 500 ft max for rural												
	Remainder carried as travel											**$CIA_{100\ existing}$**	
100yr	Cv=	12.5	0.45	4.21	1.85	25.30	29.52	57.24	29.52	4.09	39.88		73.22 **cfs**
E1	**Existing - 2, 5, 10, 100 yr**			**1.691** acres									
	NRCS Type 100% A		C_{yr} - see frequency left	Ti**	Velocity	Tt	Tc	check	Use Tc	I	A	**$CIA_{5\ existing}$**	
2yr			0.17	4.54	2.13	2.11	6.66	23.63	6.66	2.68	1.69		0.78 **cfs**
		Length / Slope										**$CIA_{5\ existing}$**	
	initial	30 / 0.083											
5yr	travel	270 / 0.029	0.18	4.54	2.13	2.11	6.66	23.63	6.66	3.56	1.69		1.10 **cfs**
		300										**$CIA_{10\ existing}$**	
10yr	Overland flow		0.19	4.54	2.13	2.11	6.66	23.63	6.66	4.40	1.69		1.41 **cfs**
	300 ft max for urban, 500 ft max for rural												
	Remainder carried as travel											**$CIA_{100\ existing}$**	
100yr	Cv=	12.5	0.32	4.54	2.13	2.11	6.66	23.63	6.66	8.06	1.69		4.30 **cfs**
E2	**Existing - 2, 5, 10, 100 yr**			**1.826** acres									
	NRCS Type 10% A, 90% B		C_{yr} - see frequency left	Ti**	Velocity	Tt	Tc	check	Use Tc	I	A	**$CIA_{5\ existing}$**	
2yr			0.08	4.11	1.94	3.23	7.33	27.96	7.33	2.60	1.83		0.39 **cfs**
		Length / Slope										**$CIA_{5\ existing}$**	
	initial	20 / 0.083											
5yr	travel	375 / 0.024	0.09	4.11	1.94	3.23	7.33	27.96	7.33	3.45	1.83		0.54 **cfs**
		395										**$CIA_{10\ existing}$**	
10yr	Overland flow		0.14	4.11	1.94	3.23	7.33	27.96	7.33	4.27	1.83		1.07 **cfs**
	300 ft max for urban, 500 ft max for rural												
	Remainder carried as travel											**$CIA_{100\ existing}$**	
100yr	Cv=	12.5	0.45	4.11	1.94	3.23	7.33	27.96	7.33	7.81	1.83		6.45 **cfs**
E3	**Existing - 2, 5, 10, 100 yr**			**37.278** acres									
	NRCS Type 50% B, 50% C		C_{yr} - see frequency left	Ti**	Velocity	Tt	Tc	check	Use Tc	I	A	**$CIA_{5\ existing}$**	
2yr			0.02	4.27	1.85	25.30	29.57	58.47	29.57	1.36	37.28		1.24 **cfs**
		Length / Slope										**$CIA_{5\ existing}$**	
	initial	20 / 0.083											
5yr	travel	2,815 / 0.022	0.05	4.27	1.85	25.30	29.57	58.47	29.57	1.80	37.28		3.06 **cfs**
		2835										**$CIA_{10\ existing}$**	
10yr	Overland flow		0.12	4.27	1.85	25.30	29.57	58.47	29.57	2.23	37.28		10.37 **cfs**
	300 ft max for urban, 500 ft max for rural												
	Remainder carried as travel											**$CIA_{100\ existing}$**	
100yr	Cv=	12.5	0.47	4.27	1.85	25.30	29.57	58.47	29.57	4.08	37.28		72.02 **cfs**

39.879 acres

EX SITE	Undeveloped	Gravel	Building	Concrete	Water/Asphalt	
NRCS Type 10% A, 45% B, 45% C						EFFECTIVE
Imperviousness %	2	40.00	90.00	100.00	100.00	**5.81**
C2	0.01	0.2905	0.739	0.8355	0.8355	**0.04**
C5	0.028	0.333	0.7635	0.8565	0.8565	**0.06**
C10	0.1	0.3925	0.7835	0.8655	0.8655	**0.13**
C100	0.4315	0.609	0.8415	0.89	0.89	**0.45**
AREA	36.321	3.22	0.34	0.00	0.00	39.88

1.691 acres

E1	Undeveloped	Gravel	Building	Concrete	Water/Asphalt	
NRCS Type 100% A						EFFECTIVE
Imperviousness %	2	40.00	90.00	100.00	100.00	**26.24**
C2	0.01	0.25	0.73	0.84	0.84	**0.17**
C5	0.01	0.27	0.75	0.87	0.87	**0.18**
C10	0.01	0.28	0.77	0.87	0.87	**0.19**
C100	0.13	0.42	0.81	0.89	0.89	**0.32**
AREA	0.727	0.88	0.09	0.00	0.00	1.69

1.826 acres

E2	Undeveloped	Gravel	Building	Concrete	Water/Asphalt	
NRCS Type 10% A, 90% B						EFFECTIVE
Imperviousness %	2	40.00	90.00	100.00	100.00	**11.01**
C2	0.01	0.286	0.739	0.84	0.84	**0.08**
C5	0.01	0.315	0.759	0.861	0.861	**0.09**
C10	0.064	0.37	0.779	0.861	0.861	**0.14**
C100	0.409	0.591	0.837	0.89	0.89	**0.45**
AREA	1.557	0.14	0.12	0.00	0.00	1.83

37.278 acres

E3	Undeveloped	Gravel	Building	Concrete	Water/Asphalt	
NRCS Type 50% B, 50% C						EFFECTIVE
Imperviousness %	2	40.00	90.00	100.00	100.00	**3.90**
C2	0.01	0.30	0.74	0.84	0.84	**0.02**
C5	0.03	0.34	0.77	0.86	0.86	**0.05**
C10	0.11	0.41	0.79	0.87	0.87	**0.12**
C100	0.47	0.63	0.85	0.89	0.89	**0.47**
AREA	35.580	1.57	0.12	0.00	0.00	37.28

TABLE RO-2 (taken from MHFD (UDFCD) Manual - Vol. I)	
Type of Land Surface	Conveyance coefficient, Cv
Heavy Meadow	2.5
Tillage/field	5
Short pasture/Lawns	7
Nearly Bare Ground	10.00
Grassed Waterway	15.00
Paved areas and shallow paved swales	20.00

Developed Runoff Table - ALDANA EVENT CENTER							
BASIN	Impervious	C-YR	I	A	CIA(YR-DEVELOPED)	cfs	DESIGN POINT
DS SITE							
C_2 (MHFD 2018)	6.09	0.04	1.36	39.88	2.22	cfs	
C_5	6.09	0.06	1.81	39.88	4.40	cfs	
C_{10}	6.09	0.13	2.23	39.88	11.72	cfs	
C_{100}	6.09	0.45	4.09	39.88	73.45	cfs	
P1							
C_2 (MHFD 2018)	26.76	0.18	2.68	1.61	0.76	cfs	1
C_5	26.76	0.19	3.56	1.61	1.07	cfs	
C_{10}	26.76	0.19	4.41	1.61	1.37	cfs	
C_{100}	26.76	0.32	8.07	1.61	4.15	cfs	
P2							
C_2 (MHFD 2018)	15.49	0.12	2.62	1.22	0.37	cfs	2
C_5	15.49	0.12	3.48	1.22	0.52	cfs	
C_{10}	15.49	0.17	4.30	1.22	0.91	cfs	
C_{100}	15.49	0.47	7.86	1.22	4.55	cfs	
P3							
C_2 (MHFD 2018)	3.91	0.02	1.36	37.05	1.23	cfs	3
C_5	3.91	0.05	1.80	37.05	3.05	cfs	
C_{10}	3.91	0.12	2.23	37.05	10.31	cfs	
C_{100}	3.91	0.47	4.08	37.05	71.58	cfs	

ALDANA EVENT CENTER - Developed Runoff Calcs (% Max Bldg-Pavement)

3/29/2022

See below for effective C values as calculated from Table RO-5
**for Ti calculations - only C_5 is used

Ti= (.395*(1.1-C_5)*(Li^.5)) / (Si)^.333 From MHFD (UDFCD) 2018, Equation 6-3
Tt= (Lt / (60 * V)) From MHFD (UDFCD) 2018, Equation 6-4
I = (28.5 * P_1) / ((10 + Td)^0.786) From MHFD (UDFCD) 2018, Equation 5-1

	2	5	10	100
Point Rainfall	**0.858**	**1.14**	**1.41**	**2.58**

2018 MHFD >>> Tc Check = (26-17i) + [Ltravel / (60*(14i + 9)(So)^.5)]

DS SITE **Developed -2, 5, 10, 100 yr** **39.88** acres
NRCS Type 10% A, 45% B, 45% C

		Length	Slope	C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{yr} - see above	I	A	**$CIA_{5\ developed}$**
2yr				0.06	4.20	1.85	25.30	29.51	57.07	29.51	0.04	1.36	39.88	2.22 **cfs**
	initial	20	0.083											**$CIA_{5\ developed}$**
5yr	travel	2,815	0.022	0.06	4.20	1.85	25.30	29.51	57.07	29.51	0.06	1.81	39.88	4.40 **cfs**
		2,835	0.022											**$CIA_{10\ developed}$**
10yr	Overland flow			0.06	4.20	1.85	25.30	29.51	57.07	29.51	0.13	2.23	39.88	11.72 **cfs**
	300 ft max for urban, 500 ft max for rural													
	Remainder carried as travel													**$CIA_{100\ developed}$**
100yr	Cv=	12.50		0.06	4.20	1.85	25.30	29.51	57.07	29.51	0.45	4.09	39.88	73.45 **cfs**

P1 **Developed -2, 5, 10, 100 yr** **1.61** acres
NRCS Type 100% A

		Length	Slope	C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{yr} - see above	I	A	**$CIA_{5\ developed}$**
2yr				0.19	4.53	2.13	2.11	6.64	23.52	6.64	0.18	2.68	1.61	0.76 **cfs**
	initial	30	0.083											**$CIA_{5\ developed}$**
5yr	travel	270	0.029	0.19	4.53	2.13	2.11	6.64	23.52	6.64	0.19	3.56	1.61	1.07 **cfs**
		300	0.034											**$CIA_{10\ developed}$**
10yr	Overland flow			0.19	4.53	2.13	2.11	6.64	23.52	6.64	0.19	4.41	1.61	1.37 **cfs**
	300 ft max for urban, 500 ft max for rural													
	Remainder carried as travel													**$CIA_{100\ developed}$**
100yr	Cv=	12.50		0.19	4.53	2.13	2.11	6.64	23.52	6.64	0.32	8.07	1.61	4.15 **cfs**

P2 **Developed -2, 5, 10, 100 yr** **1.22** acres

NRCS Type 10% A, 90% B

		Length	Slope	C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{yr} - see above	I	A	$CIA_{5\ developed}$
2yr				0.12	3.95	1.94	3.23	7.18	26.98	7.18	0.12	2.62	1.22	0.37 **cfs**
	initial	20	0.083											$CIA_{5\ developed}$
5yr	travel	375	0.024	0.12	3.95	1.94	3.23	7.18	26.98	7.18	0.12	3.48	1.22	0.52 **cfs**
		395	0.027											$CIA_{10\ developed}$
10yr	Overland flow			0.12	3.95	1.94	3.23	7.18	26.98	7.18	0.17	4.30	1.22	0.91 **cfs**
	300 ft max for urban, 500 ft max for rural													
	Remainder carried as travel													$CIA_{100\ developed}$
100yr	Cv=		12.50	0.12	3.95	1.94	3.23	7.18	26.98	7.18	0.47	7.86	1.22	4.55 **cfs**

P3 **Developed -2, 5, 10, 100 yr** **37.05** acres

NRCS Type 50% B, 50% C

		Length	Slope	C_5	Ti	Velocity	Tt	Tc	check	Use Tc	C_{yr} - see above	I	A	$CIA_{5\ developed}$
2yr				0.05	4.27	1.85	25.30	29.57	58.47	29.57	0.02	1.36	37.05	1.23 **cfs**
	initial	20	0.083											$CIA_{5\ developed}$
5yr	travel	2,815	0.022	0.05	4.27	1.85	25.30	29.57	58.47	29.57	0.05	1.80	37.05	3.05 **cfs**
		2,835	0.022											$CIA_{10\ developed}$
10yr	Overland flow			0.05	4.27	1.85	25.30	29.57	58.47	29.57	0.12	2.23	37.05	10.31 **cfs**
	300 ft max for urban, 500 ft max for rural													
	Remainder carried as travel													$CIA_{100\ developed}$
100yr	Cv=		12.50	0.05	4.27	1.85	25.30	29.57	58.47	29.57	0.47	4.08	37.05	71.58 **cfs**

DS SITE	TOTAL AREA Landscaping	39.879 acres Gravel	Building	Concrete	Water/ Asphalt	
NRCS Type 10% A, 45% B, 45% C						EFFECTIVE
I	2	40.00	90.00	100.00	100.00	**6.09**
C2	0.01	0.2905	0.739	0.8355	0.8355	**0.04**
C5	0.028	0.333	0.7635	0.8565	0.8565	**0.06**
C10	0.1	0.3925	0.7835	0.8655	0.8655	**0.13**
C100	0.4315	0.609	0.8415	0.89	0.89	**0.45**
AREA	36.03	3.52	0.34	0.00	0.00	39.879

P1	TOTAL AREA Landscaping	1.610 acres Gravel	Building	Concrete	Water/ Asphalt	
NRCS Type 100% A						EFFECTIVE
I	2	40.00	90.00	100.00	100.00	**26.76**
C2	0.01	0.25	0.73	0.84	0.84	**0.18**
C5	0.01	0.27	0.75	0.87	0.87	**0.19**
C10	0.01	0.28	0.77	0.87	0.87	**0.19**
C100	0.13	0.42	0.81	0.89	0.89	**0.32**
AREA	0.68	0.85	0.09	0.00	0.00	1.610

P2	TOTAL AREA Landscaping	1.219 acres Gravel	Building	Concrete	Water/ Asphalt	
NRCS Type 10% A, 90% B						EFFECTIVE
I	2	40.00	90.00	100.00	100.00	**15.49**
C2	0.01	0.29	0.74	0.84	0.84	**0.12**
C5	0.01	0.32	0.76	0.86	0.86	**0.12**
C10	0.06	0.37	0.78	0.86	0.86	**0.17**
C100	0.41	0.59	0.84	0.89	0.89	**0.47**
AREA	0.95	0.14	0.12	0.00	0.00	1.219

P3	TOTAL AREA Landscaping	37.045 acres Gravel	Building	Concrete	Water/ Asphalt	
NRCS Type 50% B, 50% C						EFFECTIVE
I	2	40.00	90.00	100.00	100.00	**3.91**
C2	0.01	0.30	0.74	0.84	0.84	**0.02**
C5	0.03	0.34	0.77	0.86	0.86	**0.05**
C10	0.11	0.41	0.79	0.87	0.87	**0.12**
C100	0.47	0.63	0.85	0.89	0.89	**0.47**
AREA	35.35	1.57	0.12	0.00	0.00	37.045

TABLE RO-2 (taken from MHFD (UDFCD) Manual - Vol. I)	
Type of Land Surface	Conveyance coefficient, Cv
Heavy Meadow	2.5
Tillage/field	5
Short pasture/Lawns	7
Nearly Bare Ground	10.00
Grassed Waterway	15.00
Paved areas and shallow paved swales	20.00

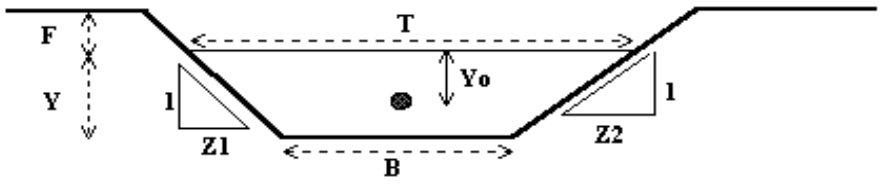
APPENDIX C

Channel & Culvert Capacities

Normal Flow Analysis - Trapezoidal Channel

Project: Aldana Event Center

Channel ID: Drainage Swales & Roadside Ditch



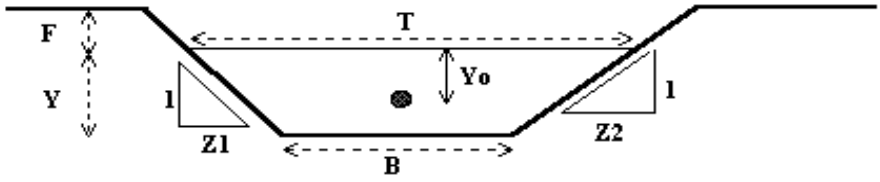
Design Information (Input)			
Channel Invert Slope	So =	0.0150	ft/ft
Manning's n	n =	0.030	
Bottom Width	B =	0.00	ft
Left Side Slope	Z1 =	4.00	ft/ft
Right Side Slope	Z2 =	4.00	ft/ft
Freeboard Height	F =	0.00	ft
Design Water Depth	Y =	**1.00**	ft

Normal Flow Condtion (Calculated)			
Discharge	**Q =**	**15.02**	cfs
Froude Number	**Fr =**	**0.94**	
Flow Velocity	**V =**	**3.76**	fps
Flow Area	A =	4.00	sq ft
Top Width	T =	8.00	ft
Wetted Perimeter	P =	8.25	ft
Hydraulic Radius	R =	0.49	ft
Hydraulic Depth	D =	0.50	ft
Specific Energy	Es =	1.22	ft
Centroid of Flow Area	Yo =	0.33	ft
Specific Force	Fs =	0.19	kip

Normal Flow Analysis - Trapezoidal Channel

Project: Aldana Event Center

Channel ID: Proposed Drainageway Enhancement

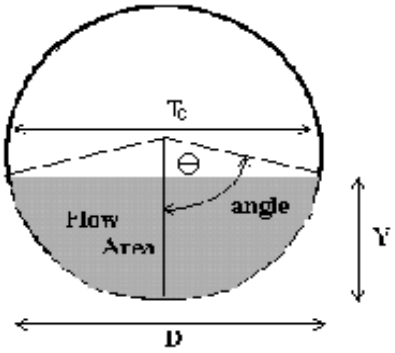


Design Information (Input)			
Channel Invert Slope	So =	0.0157	ft/ft
Manning's n	n =	0.030	
Bottom Width	B =	0.00	ft
Left Side Slope	Z1 =	5.00	ft/ft
Right Side Slope	Z2 =	5.00	ft/ft
Freeboard Height	F =		ft
Design Water Depth	Y =	**2.85**	ft

Normal Flow Condtion (Calculated)			
Discharge	**Q =**	**315.89**	cfs
Froude Number	**Fr =**	**1.15**	
Flow Velocity	**V =**	**7.78**	fps
Flow Area	A =	40.61	sq ft
Top Width	T =	28.50	ft
Wetted Perimeter	P =	29.06	ft
Hydraulic Radius	R =	1.40	ft
Hydraulic Depth	D =	1.43	ft
Specific Energy	Es =	3.79	ft
Centroid of Flow Area	Yo =	0.94	ft
Specific Force	Fs =	7.15	kip

CIRCULAR CONDUIT FLOW (Normal & Critical Depth Computation)

Project: Aldana Event Center
Pipe ID: Existing 24" Access Road Culvert



Design Information (Input)			
Pipe Invert Slope	So =	0.0100	ft/ft
Pipe Manning's n-value	n =	0.0150	
Pipe Diameter	D =	24.00	inches
Design discharge	**Q =**	**19.50**	**cfs**

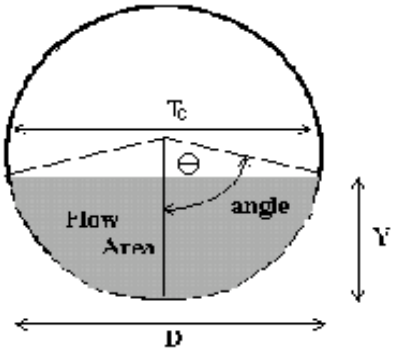
Full-flow Capacity (Calculated)			
Full-flow area	Af =	3.14	sq ft
Full-flow wetted perimeter	Pf =	6.28	ft
Half Central Angle	Theta =	3.14	radians
Full-flow capacity	Qf =	19.66	cfs

Calculation of Normal Flow Condition			
Half Central Angle (0<Theta<3.14)	Theta =	2.25	radians
Flow area	An =	2.73	sq ft
Top width	Tn =	1.56	ft
Wetted perimeter	Pn =	4.49	ft
Flow depth	Yn =	1.62	ft
Flow velocity	Vn =	7.13	fps
Discharge	Qn =	19.50	cfs
Percent Full Flow	Flow =	99.2%	of full flow
Normal Depth Froude Number	Fr_n =	0.95	subcritical

Calculation of Critical Flow Condition			
Half Central Angle (0<Theta-c<3.14)	Theta-c =	2.20	radians
Critical flow area	Ac =	2.67	sq ft
Critical top width	Tc =	1.62	ft
Critical flow depth	Yc =	1.59	ft
Critical flow velocity	Vc =	7.29	fps
Critical Depth Froude Number	Fr_c =	1.00	

CIRCULAR CONDUIT FLOW (Normal & Critical Depth Computation)

Project: Aldana Event Center
Pipe ID: Proposed 36" Access Road Culvert



Design Information (Input)			
Pipe Invert Slope	So =	0.0290	ft/ft
Pipe Manning's n-value	n =	0.0150	
Pipe Diameter	D =	36.00	inches
Design discharge	**Q =**	**98.00**	**cfs**

Full-flow Capacity (Calculated)			
Full-flow area	Af =	7.07	sq ft
Full-flow wetted perimeter	Pf =	9.42	ft
Half Central Angle	Theta =	3.14	radians
Full-flow capacity	Qf =	98.70	cfs

Calculation of Normal Flow Condition			
Half Central Angle (0<Theta<3.14)	Theta =	2.25	radians
Flow area	An =	6.16	sq ft
Top width	Tn =	2.34	ft
Wetted perimeter	Pn =	6.74	ft
Flow depth	Yn =	2.44	ft
Flow velocity	Vn =	15.92	fps
Discharge	Qn =	98.00	cfs
Percent Full Flow	Flow =	99.3%	of full flow
Normal Depth Froude Number	Fr_n =	1.73	supercritical

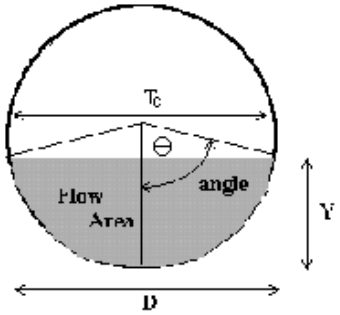
Calculation of Critical Flow Condition			
Half Central Angle (0<Theta-c<3.14)	Theta-c =	2.75	radians
Critical flow area	Ac =	6.98	sq ft
Critical top width	Tc =	1.14	ft
Critical flow depth	Yc =	2.89	ft
Critical flow velocity	Vc =	14.04	fps
Critical Depth Froude Number	Fr_c =	1.00	

CIRCULAR CONDUIT FLOW (Normal & Critical Depth Computation)

MHFD-Culvert, Version 4.00 (May 2020)

Project: Aldana Event Center

Pipe ID: Existing Imboden 36" Culvert (Single Pipe)



Design Information (Input)			
Pipe Invert Slope	So =	0.0910	ft/ft
Pipe Manning's n-value	n =	0.0150	
Pipe Diameter	D =	36.00	inches
Design discharge	Q =	170.00	cfs

Full-Flow Capacity (Calculated)			
Full-flow area	Af =	7.07	sq ft
Full-flow wetted perimeter	Pf =	9.42	ft
Half Central Angle	Theta =	3.14	radians
Full-flow capacity	Qf =	174.85	cfs

Calculation of Normal Flow Condition			
Half Central Angle (0<Theta<3.14)	Theta =	2.20	radians
Flow area	An =	6.03	sq ft
Top width	Tn =	2.42	ft
Wetted perimeter	Pn =	6.61	ft
Flow depth	Yn =	2.39	ft
Flow velocity	Vn =	28.19	fps
Discharge	Qn =	170.01	cfs
Percent of Full Flow	Flow =	97.2%	of full flow
Normal Depth Froude Number	Fr_n =	3.15	supercritical

Calculation of Critical Flow Condition			
Half Central Angle (0<Theta-c<3.14)	Theta-c =	3.01	radians
Critical flow area	Ac =	7.07	sq ft
Critical top width	Tc =	0.39	ft
Critical flow depth	Yc =	2.99	ft
Critical flow velocity	Vc =	24.06	fps
Critical Depth Froude Number	Fr_c =	1.00	

APPENDIX D

WEC Drainage Plans

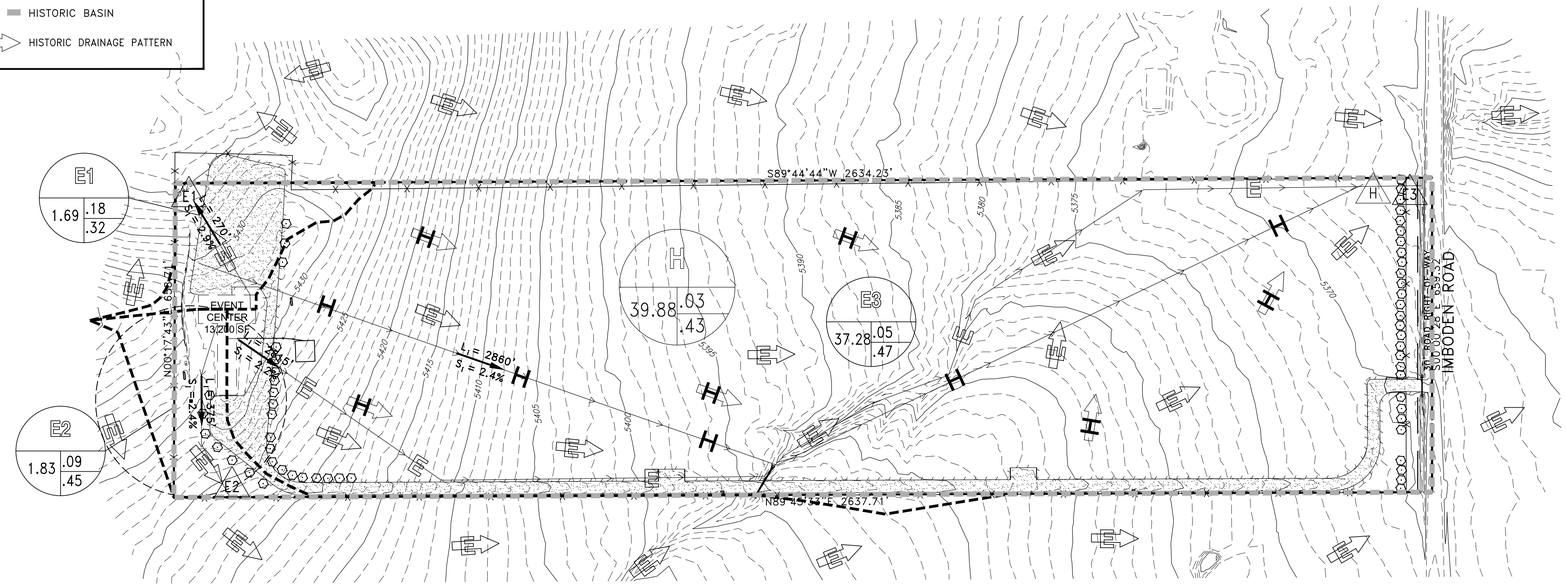
EXISTING DRAINAGE LEGEND

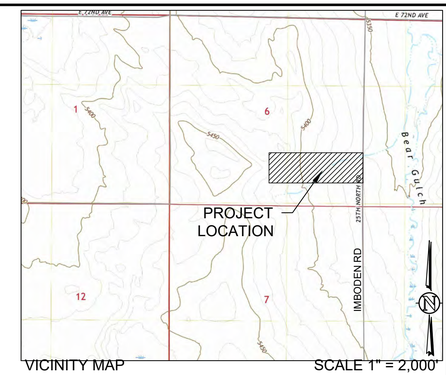
E — EXISTING SUB-BASIN DESIGNATION
1.12 | .73 — C5
.83 — C100
AREA IN ACRES
8 — DESIGN POINT
EXISTING BASIN
EXISTING DRAINAGE PATTERN

HISTORIC DRAINAGE LEGEND

H — HISTORIC SUB-BASIN DESIGNATION
1.12 | .73 — C5
.83 — C100
AREA IN ACRES
HISTORIC BASIN
HISTORIC DRAINAGE PATTERN

L - INITIAL LENGTH $L_i = LI$
S - INTIAL SLOPE $S_i = SI$
L - TRAVEL LENGTH $L_t = LT$
S - TRAVEL SLOPE $S_t = ST$
*** AVERAGE SLOPE INCLUDES ROOF SLOPE OF 8.33%**





VICINITY MAP SCALE 1" = 2,000'
SE 1/4 SECTION 6 TOWNSHIP 3 SOUTH RANGE 64 WEST
SHOWN VICINITY MAP TAKEN FROM USGS QUAD MAP - MANILA, CO

NOTES

THIS PLAN IS INTENDED AS THE HISTORIC & EXISTING DRAINAGE PLAN FOR THE ALDANA EVENT CENTER.

ALL IMPROVEMENTS ARE PROPOSED UNLESS NOTED AS EXISTING.

IT IS THE OWNER AND/OR THE CONTRACTOR'S RESPONSIBILITY TO ATTAIN ALL APPROPRIATE PERMITS AND REVIEW APPROVALS FROM THE STATE OF COLORADO AND ADAMS COUNTY RESPECTIVELY.

SEE HORIZONTAL AND VERTICAL CONTROL SURVEY AS PROVIDED BY AMERICAN WEST LAND SURVEYING CO. – DATED NOVEMBER 11, 2021.

SEE COVER SHEET FOR BASIS OF BEARING & BENCHMARK.

ANY REFERENCE TO EASEMENTS, SURVEY POINTS, OR EXISTING UTILITIES AND FEATURES ARE BASED SOLELY FROM SURVEY INFORMATION PROVIDED BY MERICAN WEST LAND SURVEYING CO.

NOT ALL UNCC UTILITY LOCATES HAVE BEEN PERFORMED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES ARE LOCATED AND SURVEY PROVIDED TO THE OWNER AND ENGINEER PRIOR TO CONSTRUCTION DRAWING RELEASE.

SYMBOL LEGEND

45 DEG BEND
22.5 DEG BEND
RESTRAINED PLUG
RESTRAINED TEE
WATER METER
RESTRAINED CROSS
FIRE HYDRANT
RESTRAINED VALVE
THRUST BLOCK TB
GATE VALVE GV
CURB STOP
PIPE CROSSING
MANHOLE
MANHOLE W/ FLOW DIRECTION
RD ROOF DRAIN
PROPOSED GRAVEL
EXISTING CONC
PROPOSED CONC
EXISTING ASPHALT
PROPOSED ASPHALT

LINETYPE LEGEND

LOT / PROPERTY / SECTION LINE
RIGHT OF WAY LINE
EASEMENT
SETBACK
TO BE ABANDONED LOT LINE
EXISTING BUILDING, CURB
EDGE of ASPHALT or GRAVEL RD
CHAINLINK FENCE
WIRE FENCE
POND WQ W/S
SWALE
EXISTING OVERHEAD ELEC
EXISTING ELECTRICAL LINE
EXISTING STORM LINE
EXISTING SANITARY LINE
EXISTING WATER LINE
EXISTING GAS LINE
EXISTING FIBER OPTIC LINE
EXISTING TELEPHONE LINE
PROPOSED SANITARY LINE
PROPOSED SANITARY SERVICE
PROPOSED STORM LINE
PROPOSED WATER LINE
PROPOSED WATER SERVICE
PROPOSED GAS LINE
PROPOSED ELECTRIC LINE
PROPOSED TELEPHONE LINE

Historic Runoff Table - ALDANA EVENT CENTER

BASIN	Impervious	C-YR	I	A	CIA(YR-historic)	Flow	DESIGN POINT
H							
C_2 **(MHFD 2018)**	2.00	0.01	0.89	39.88	0.35	cfs	H1
C_5	2.00	0.03	1.18	39.88	1.32	cfs	
C_{10}	2.00	0.10	1.46	39.88	5.83	cfs	
C_{100}	2.00	0.43	2.68	39.88	46.05	cfs	

Existing Runoff Table - ALDANA EVENT CENTER

BASIN	Impervious	C-YR	I	A	CIA(YR-existing)	Flow	DESIGN POINT
E1							
C_2 **(MHFD 2018)**	26.24	0.17	2.68	1.69	0.78	cfs	E1
C_5	26.24	0.18	3.56	1.69	1.10	cfs	
C_{10}	26.24	0.19	4.40	1.69	1.41	cfs	
C_{100}	26.24	0.32	8.06	1.69	4.30	cfs	
E2							
C_2 **(MHFD 2018)**	11.01	0.08	2.60	1.83	0.39	cfs	E2
C_5	11.01	0.09	3.45	1.83	0.54	cfs	
C_{10}	11.01	0.14	4.27	1.83	1.07	cfs	
C_{100}	11.01	0.45	7.81	1.83	6.45	cfs	
E3							
C_2 **(MHFD 2018)**	3.90	0.02	1.36	37.28	1.24	cfs	E3
C_5	3.90	0.05	1.80	37.28	3.06	cfs	
C_{10}	3.90	0.12	2.23	37.28	10.37	cfs	
C_{100}	3.90	0.47	4.08	37.28	72.02	cfs	

EXISTING SITE EFFECTIVE IMPERVIOUSNESS

Existing Runoff Table - ALDANA EVENT CENTER

BASIN	Impervious	C-YR	I	A	CIA(YR-existing)	Flow	DESIGN POINT
EX SITE							
C_2 **(MHFD 2018)**	5.81	0.04	1.36	39.88	2.10	cfs	
C_5	5.81	0.06	1.81	39.88	4.24	cfs	
C_{10}	5.81	0.13	2.23	39.88	11.52	cfs	
C_{100}	5.81	0.45	4.09	39.88	73.22	cfs	

150 75 0 150 300
FULL SCALE: 1" = 150'
HALF SCALE: 1" = 300'

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No.	REVISION	DATE	BY
0	INITIAL RELEASE	12/20/21	CFC
1	REV. PER COUNTY COMMENTS	03/29/22	CFC

OWNER:
ALDANA LLC
CONTACT:
LLARICXE ALDANA
6657 IMBODEN RD
WATKINS, CO 80137
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HIST & EX DRAINAGE PLAN
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CHECKED BY: CFC
PROJECT NO. 01-0406.002.00
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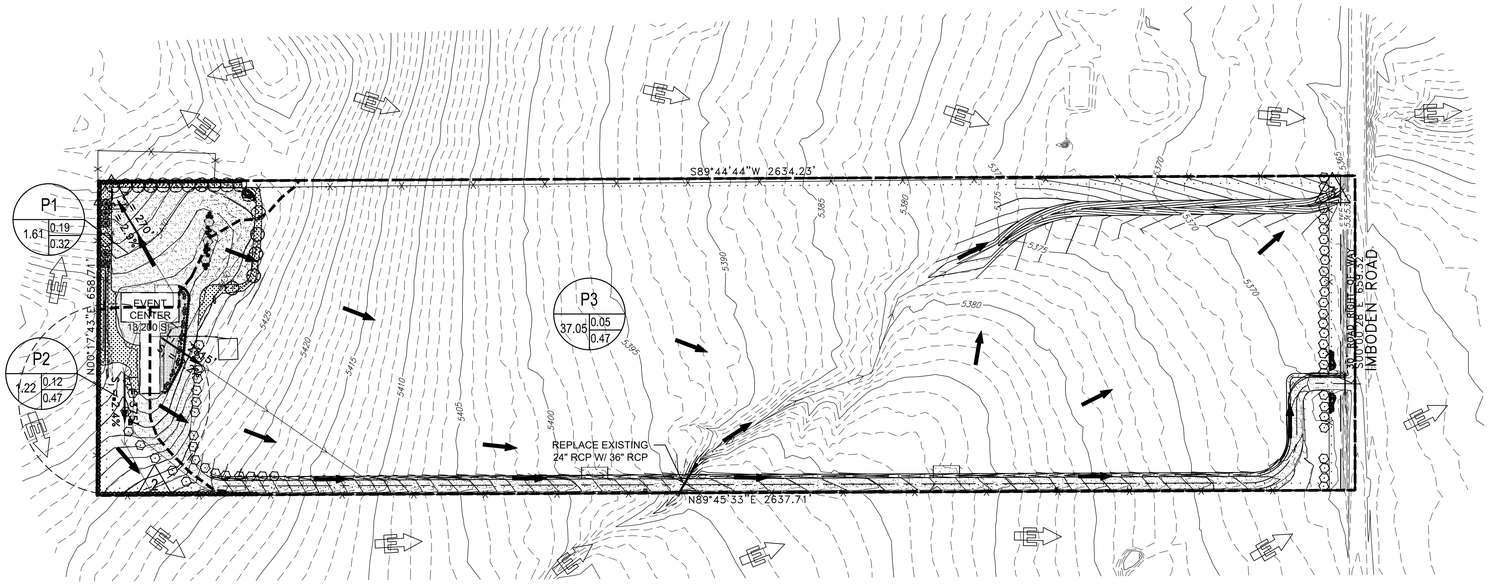
DEVELOPED DRAINAGE LEGEND

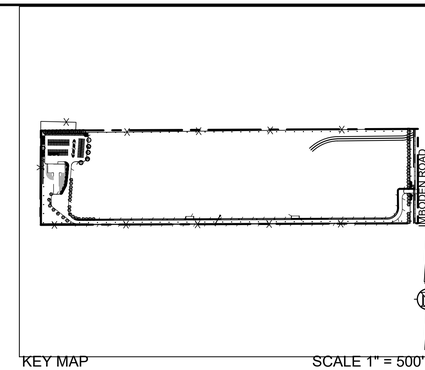
B1 — SUB-BASIN DESIGNATION
3.20 | .58 — C5
.88 — C100
AREA IN ACRES

DEVELOPED BASIN
PROPOSED DRAINAGE PATTERN
DESIGN POINT

L - INITIAL LENGTH
S - INTIAL SLOPE
L - TRAVEL LENGTH
S - TRAVEL SLOPE
L_i= LI, S_i= SI
L_t= LT, S_t= ST

* AVERAGE SLOPE INCLUDES ROOF SLOPE OF 8.33%





KEY MAP SCALE 1" = 500'

Developed Runoff Table - ALDANA EVENT CENTER							
BASIN	Impervious	C-YR	I	A	CIA(YR-DEVELOPED)	cfs	DESIGN POINT
P1							
C_2 (MHFD 2018)	26.76	0.18	2.68	1.61	0.76	cfs	1
C_5	26.76	0.19	3.56	1.61	1.07	cfs	
C_{10}	26.76	0.19	4.41	1.61	1.37	cfs	
C_{100}	26.76	0.32	8.07	1.61	4.15	cfs	
P2							
C_2 (MHFD 2018)	15.49	0.12	2.62	1.22	0.37	cfs	2
C_5	15.49	0.12	3.48	1.22	0.52	cfs	
C_{10}	15.49	0.17	4.30	1.22	0.91	cfs	
C_{100}	15.49	0.47	7.86	1.22	4.55	cfs	
P3							
C_2 (MHFD 2018)	3.91	0.02	1.36	37.05	1.23	cfs	3
C_5	3.91	0.05	1.80	37.05	3.05	cfs	
C_{10}	3.91	0.12	2.23	37.05	10.31	cfs	
C_{100}	3.91	0.47	4.08	37.05	71.58	cfs	

DEVELOPED SITE
EFFECTIVE
IMPERVIOUSNESS

Developed Runoff Table - ALDANA EVENT CENTER							
BASIN	Impervious	C-YR	I	A	CIA(YR-DEVELOPED)	cfs	DESIGN POINT
DS SITE							
C_2 (MHFD 2018)	6.09	0.04	1.36	39.88	2.22	cfs	
C_5	6.09	0.06	1.81	39.88	4.40	cfs	
C_{10}	6.09	0.13	2.23	39.88	11.72	cfs	
C_{100}	6.09	0.45	4.09	39.88	73.45	cfs	

150 75 0 150 300
FULL SCALE: 1" = 150'
HALF SCALE: 1" = 300'

NOTES

THIS PLAN IS INTENDED AS THE DEVELOPED DRAINAGE PLAN FOR THE ALDANA EVENT CENTER.

ALL IMPROVEMENTS ARE PROPOSED UNLESS NOTED AS EXISTING.

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SYMBOL LEGEND

- 45 DEG BEND
- 22.5 DEG BEND
- RESTRAINED PLUG
- RESTRAINED TEE
- WATER METER
- RESTRAINED CROSS
- FIRE HYDRANT
- RESTRAINED VALVE
- THRUST BLOCK TB
- GATE VALVE GV
- CURB STOP
- PIPE CROSSING
- MANHOLE
- MANHOLE W/ FLOW DIRECTION
- RD ROOF DRAIN
- PROPOSED GRAVEL
- EXISTING CONC
- PROPOSED CONC
- EXISTING ASPHALT
- PROPOSED ASPHALT

LINETYPE LEGEND

- LOT / PROPERTY / SECTION LINE
- RIGHT OF WAY LINE
- EASEMENT
- SETBACK
- TO BE ABANDONED LOT LINE
- EXISTING BUILDING, CURB
- EDGE of ASPHALT or GRAVEL RD
- CHAINLINK FENCE
- WIRE FENCE
- POND WQ W/S
- SWALE
- EXISTING OVERHEAD ELEC
- EXISTING ELECTRICAL LINE
- EXISTING STORM LINE
- EXISTING SANITARY LINE
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING FIBER OPTIC LINE
- EXISTING TELEPHONE LINE
- PROPOSED SANITARY LINE
- PROPOSED SANITARY SERVICE
- PROPOSED STORM LINE
- PROPOSED WATER LINE
- PROPOSED WATER SERVICE
- PROPOSED GAS LINE
- PROPOSED ELECTRIC LINE
- PROPOSED TELEPHONE LINE

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PROJECT NO. 01-0406.002.00
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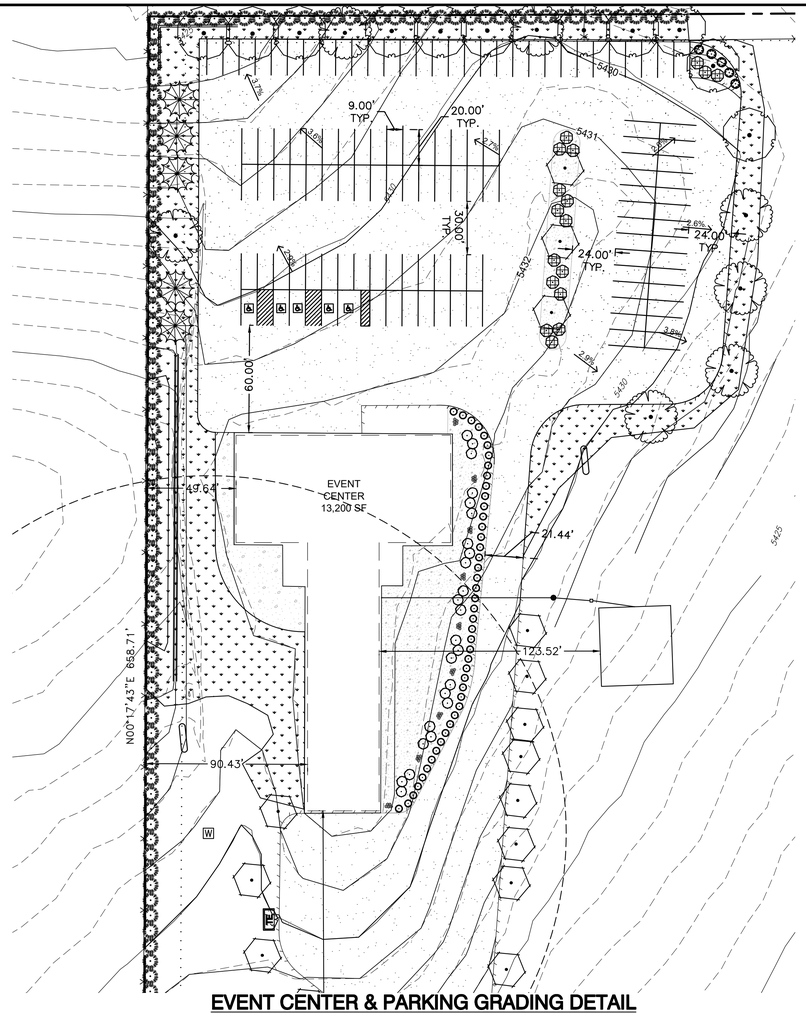
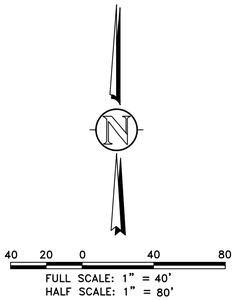
10 OF 10

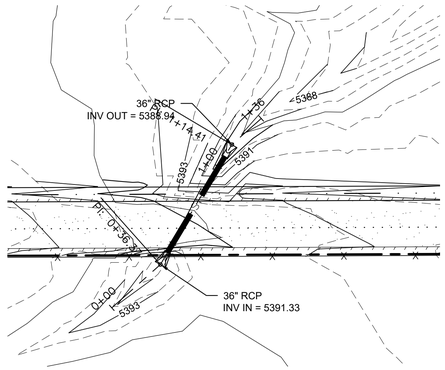


EVENT CENTER & PARKING GRADING DETAIL

GRADING LEGEND

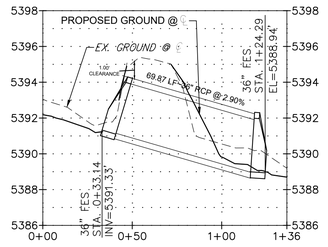
	EXISITNG MAJOR CONTOUR
	EXISTING MINOR CONTOUR
5132.12 × G	EXISITNG SPOT ELEVATION
1.0%	EXISTING SLOPE
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
5132.15 FG	PROPOSED SPOT ELEVATION
2.0%	PROPOSED SLOPE

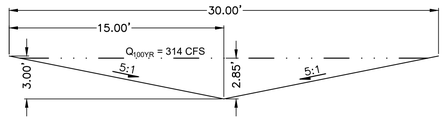




CULVERT REPLACEMENT GRADING DETAIL

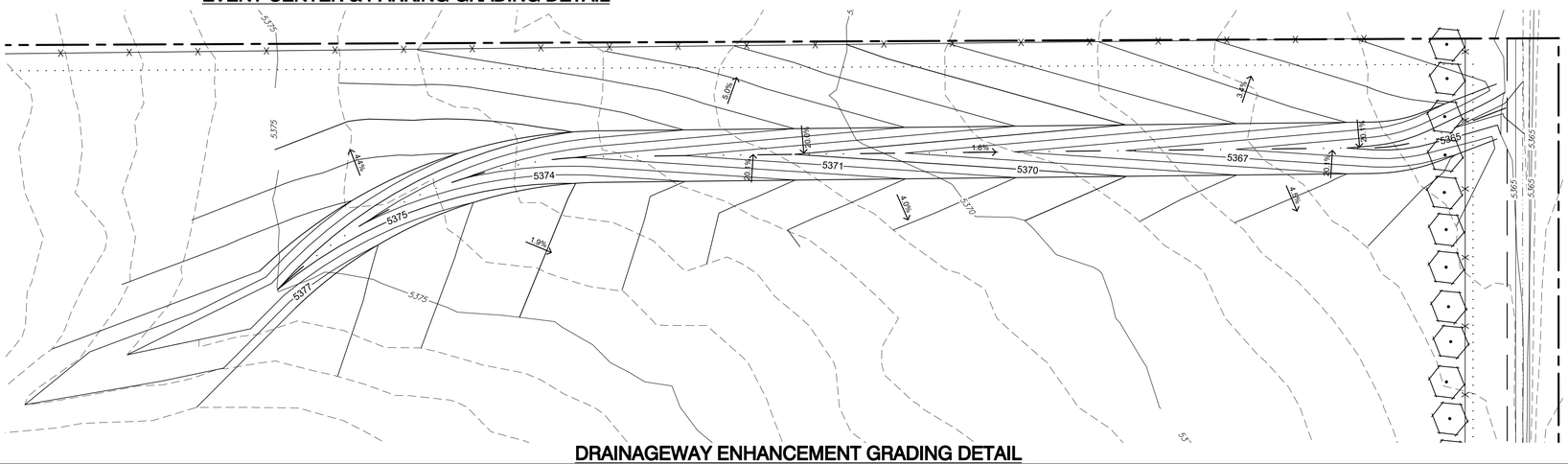
Alignment - ROAD CULVERT PROFILE
HORIZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 4'



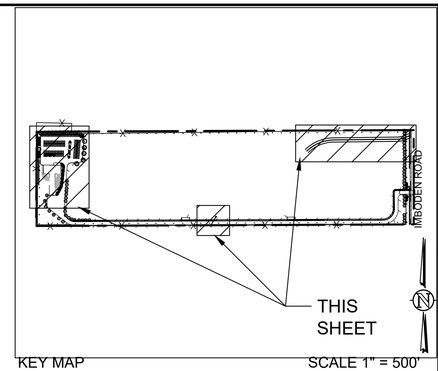


DRAINAGEWAY ENHANCEMENT TYP. SECTION

Q_{CAP} = 362.20 CFS
SCALE 1" = 5'



DRAINAGEWAY ENHANCEMENT GRADING DETAIL



KEY MAP SCALE 1" = 500'

NOTES

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SYMBOL LEGEND

45 DEG BEND	THRUST BLOCK TB
22.5 DEG BEND	GATE VALVE GV
RESTRAINED PLUG	CURB STOP
RESTRAINED TEE	PIPE CROSSING
WATER METER	MANHOLE
RESTRAINED CROSS	MANHOLE W/ FLOW DIRECTION
FIRE HYDRANT	RD ROOF DRAIN
RESTRAINED VALVE	
	PROPOSED GRAVEL
EXISTING CONC	PROPOSED CONC
EXISTING ASPHALT	PROPOSED ASPHALT

LINETYPE LEGEND

	LOT / PROPERTY / SECTION LINE
	RIGHT OF WAY LINE
	EASEMENT
	SETBACK
	TO BE ABANDONED LOT LINE
	EXISTING BUILDING, CURB
	EDGE of ASPHALT or GRAVEL RD
	CHAINLINK FENCE
	WIRE FENCE
	POND WQ W/S
	SWALE
OHE	EXISTING OVERHEAD ELEC
EL	EXISTING ELECTRICAL LINE
ST	EXISTING STORM LINE
SA	EXISTING SANITARY LINE
W	EXISTING WATER LINE
GA	EXISTING GAS LINE
FO	EXISTING FIBER OPTIC LINE
T	EXISTING TELEPHONE LINE
SA	PROPOSED SANITARY LINE
SS	PROPOSED SANITARY SERVICE
ST	PROPOSED STORM LINE
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WAS	PROPOSED WATER SERVICE
GA	PROPOSED GAS LINE
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T	PROPOSED TELEPHONE LINE

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