PLANNING COMMISSION STAFF REPORT

MEETING DATE:	November 8, 2022
AGENDA ITEM TITLE:	Salida Crossings Planned Development – Substantial Modification
AGENDA SECTION:	Public Hearing

REQUEST SUMMARY:
The request is to amend the currently approved Salida Crossings Planned Development (PD) to: reduce the number of mixed-use buildings from 3 to 2; reduce the height of the mixed-use buildings; reduce the overall unit count from 122 to 92 (inc. 72 condominiums in the two mixed-use buildings and 20 newly incorporated townhomes); reconfigure the site layout; and subdivide the property into 22 lots (inc. the 2 mixed-use building lots and 20 townhome lots) plus common elements/tracts.

[Note: Although a major subdivision application was submitted along with the PD modification application, no noticing was published for the major subdivision. Therefore, the request will be for Planning Commission to make a recommendation to City Council for the PD modification but to continue the major subdivision review to the next Planning Commission meeting. Since the PD modification is an ordinance requiring two readings, and the major subdivision would be approved via resolution (requiring only one reading), the two items can be "merged" for Council consideration at a later date (currently anticipated to be December 20th). The applicant would prefer that it be dealt with in this way, for expediency's sake.]

APPLICANTS:
The applicant is BV Investments, LLC, 401 Whitewing Ln, Murphy, TX 75094. The representative for the applicant is Bernard Weber.

SITE LOCATION: 1520 E. Highway 50, Salida, CO.

PHOTO OF SUBJECT AREA:

PROCESS:
An application for a substantial modification to an approved Planned Development must follow a two-step process. The request is first addressed by the Planning Commission through a public hearing process. The Commission makes a recommendation of approval, approval with conditions, or denial of the request to City Council. The Commission may also remand the application back to the applicant for further information or amendment.

The City Council has final decision-making authority in such applications. During the review of any proposed substantial modification to the PD, the City Council may require such new conditions of approval as are necessary to ensure that the development will be compatible with the current community standards and regulations. This shall include, but not be limited to, applying the portions of the PD which have not obtained building permits, or are subject to the proposed amendment, any new community policies or regulations which have been implemented since the PD was originally approved. An applicant may withdraw a proposed modification at any time during the review process. A request for a substantial modification shall be accompanied by the same type and quality of information as was necessary for the original PD Development Plan approval and shall include a map of the entire PD Development Plan area which clearly defines that portion which is proposed for modification and a written justification of the proposed modification, including a discussion of any changes in impact which would result from the modification.

BACKGROUND AND DETAILS OF REQUEST:
Salida Crossings is a Planned Development (PD) currently approved for 3 mixed-use buildings and a total of 122 residential units on a single lot. The City- and voter-ratified PD allowed for additional density and building height, and required a total of 30 affordable deed restricted units (nearly 25%), greater setbacks, and nearby highway right-of-way improvements, among other requirements. The PD was originally approved by the City Council through the adoption of Ordinance 2018-04 on March 20, 2018. The ordinance was referred to a special ballot question on September 25, 2018 and was approved by a vote of the electorate.

Progress on the project has languished due to a variety of factors including financing, labor shortage, building materials costs, design amendments, and public improvements being conducted by the City along Highway 50. The original owner, Salida Crossings 134, LLC (represented by Duane Cozart), requested and received two time extensions to the project in 2020 and 2021 and an administrative approval for a minor PD modification, also in 2021. The development and property was sold in August 2021 to BV Investments, LLC, who requested and received additional time extensions in May and October of this year, the latter primarily to allow for the review of the proposed PD modification and major subdivision.

The current ownership is interested in revising the site layout and related components, to address current financial realities and to provide what they perceive to be a less impactful and more appealing site plan—while still meeting some of the original goals of the approved PD (such as providing needed housing and a relatively high percentage of deed-restricted housing).

The proposed modified PD would include 2 mixed-use buildings with approximately 4,000 SF – 6,000 SF of commercial space on the ground floor and two residential floors above. Each mixed-use building would have 36 units, including 15 one-bedrooms, 17 two-bedrooms, and 4 three-bedroom units. Additionally, the development proposes 20 three-bedroom, 1,500 SF townhomes located towards the rear/northwest portion of the property. Each of the buildings (mixed-use and townhomes) would sit on their own platted lots (22 in all) and take access from the internal private drive. A total of 24 of the units (25%) are proposed to be deed-restricted at a variety of maximum area median income (AMI) levels between 100% AMI and 140% AMI and all located within the mixed-use buildings. A total of 159 parking spaces would be provided for all the residential units, as well as the commercial uses. The amount of (unpaved/structureless) landscaping area would be increased by approximately 10%, including an approximately 4,500 SF private open space that would be provided for residents in the northeast corner of the site.

Specifically, the applicant's proposal would require the following modifications to the currently approved PD:

For the overall site boundaries:

- A reduction in the number of mixed-use buildings from 3 to 2;
- A reduction in the maximum allowed height from 48' 1" to the 35' generally allowed in the C-1 zone district (buildings would go from 4 stories to 3);
- The addition of (20) three-bedroom 1,500 SF attached townhomes in duplex and fourplex configurations (to be constructed by the applicant).
- A reduction in the number of total units from 122 to 92;
- A reduction in the overall density (from 1,124 SF/unit to 1,491 SF/unit);
- The re-inclusion of up to eight (8) total three-bedroom condominium units in the mixed-use buildings (originally permitted but removed through a minor modification); and removing studios from the mix;
- A 22-lot subdivision, including 2 lots for the multi-use buildings and 20 townhome lots, plus limited common elements/outlot(s) for access to the site, parking, and private open space;
- A reduction in the maximum allowable lot coverage for all buildings from 38% to 30%;

- A reduction in the maximum allowable access/parking coverage from 48% to 40%;
- A reduction in the maximum cumulative coverage (buildings and access/parking) from 86% to 70%;
- An increase in the minimum front setback for primary buildings from 75 feet to 80 feet;
- A reduction in the minimum side setback for primary buildings from 65-75 feet to 10 feet (20 feet for the mixed-use buildings);
- A reduction in the minimum rear setback for primary buildings from 50 feet to 10 feet (20 feet for the mixed-use buildings);
- A reduction in the number of deed-restricted affordable units from 30 to 24, though this represents a slight increase in the percentage of such units (from 24.6% to 26.1%);
- That the 24 deed-restricted units be listed between 100% AMI -140% AMI (instead of at 80% AMI as originally required), with 8 at 100% AMI, 8 at 120% AMI, and 8 at 140% AMI, all located within the mixed-use buildings;
- Reducing the amount of overall commercial space from 13,759 SF to 10,000 SF;
- A reduction in the number of overall required parking spaces from 225 to 159 (1.5 spaces per residential unit, plus 33 spaces for general commercial uses, and subtracting 25 for shared mixed-use)

For individual platted lots/lot boundaries:

- Zero lot frontage on public streets for internal lots (allowing lots to take access off a shared internal private drive);
- Reduction of the front setback on the townhome lots from 10 feet to 5 feet – the applicant is proposing a minimum 10-foot rear setbacks on the townhome lots (and 20 feet on the mixed-use lots) where 5-feet would normally be required in C-1;
- That required parking for the townhomes be provided on-site, within limited common elements, instead of on the townhome lot, which would normally require 1 space (applicant is providing 1.5 spaces per townhome lot);
- Reduction in side setback for accessory buildings from 3 feet to 0 feet;
- Increase in rear setback for accessory buildigns from 5 feet to 10 feet.

A comparison of the currently approved PD site plan and the proposed modified site plan are shown below:

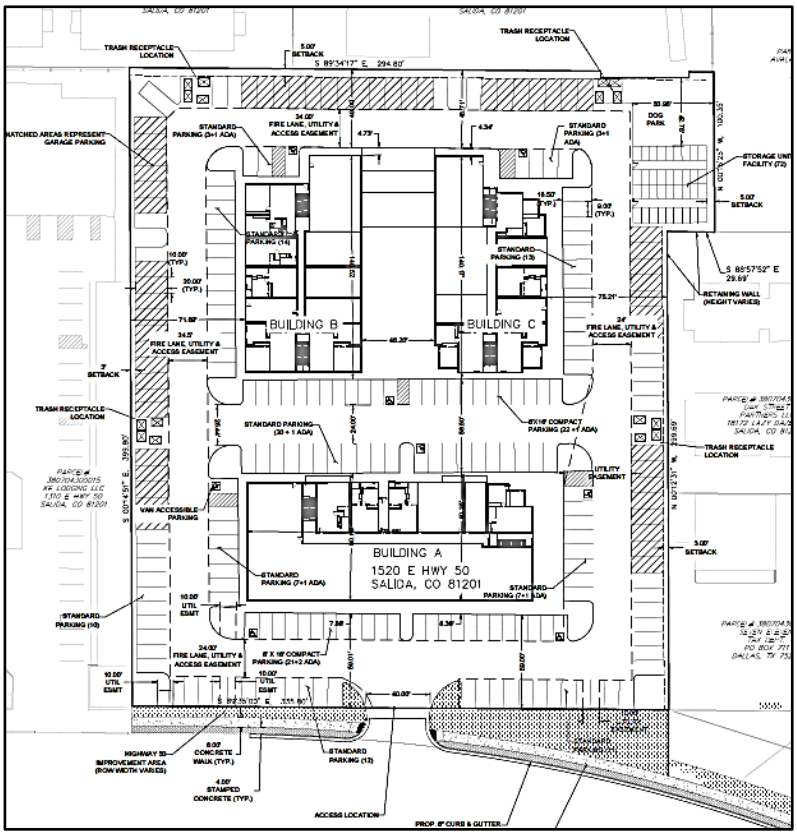


Figure 1: Currently Approved PD Plan

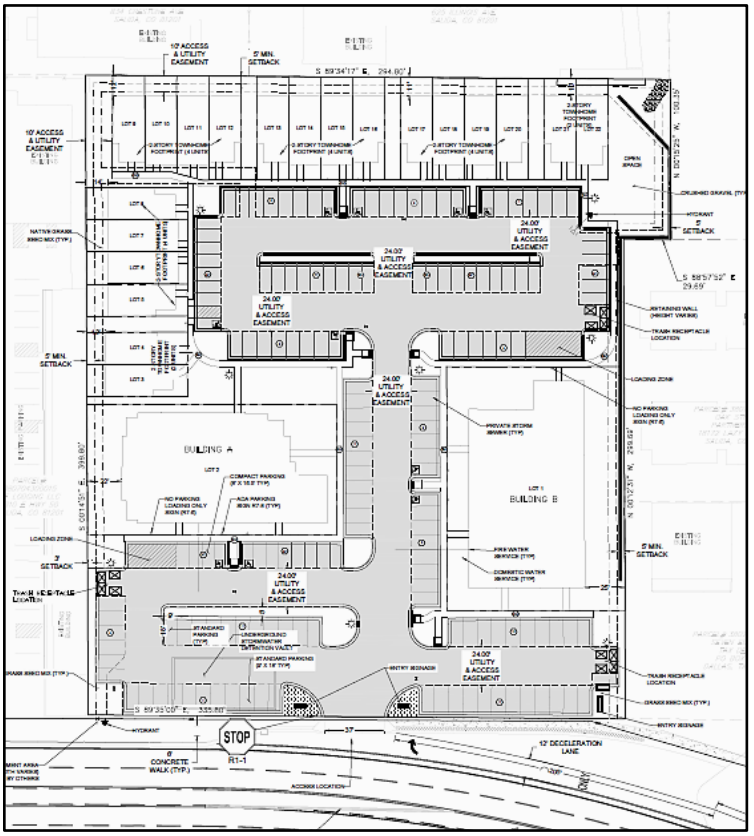


Figure 2: Proposed Modified PD Plan

Figure 3: Colorized Representation of Proposed Site Plan

REQUIREMENTS FOR APPROVAL OF SUBSTANTIAL MODIFICATIONS TO A PD:
Section 16-7-150 Modifications describes the conditions of when and how a PD may be modified.

(a) All provisions of the PD Development Plan authorized to be enforced by the City may be modified, removed or released by the City subject to the following:

(1) No modification, removal or release of the provisions of the PD Development Plan by the City shall affect the rights of the residents, occupants and owners of the PD to maintain and enforce those provisions in law or in equity; and

(2) No substantial modification removal or release of the provisions of a PD Development Plan by the City shall be permitted except upon a finding by the City Council, following a public hearing upon notice as required by this Chapter, that the modification, removal or release is:

(i) Consistent with the efficient development and preservation of the entire PD;

(ii) Does not affect in a substantially adverse manner either the enjoyment of land abutting upon or across the street from the PD or the public interest; and

(iii) Is not granted solely for a special benefit upon any person.

Staff: In regards to (1), there are currently no residents within the Salida Crossings PD, and the owners would be required to maintain and enforce such provisions in law or in equity. In regards to (2), overall, the proposed modification is a de-intensification of the currently approved PD with fewer overall residential units, reduced heights, less commercial space, less parking, and significantly more landscaping. Staff believes the modification would be consistent with the efficient development and preservation of the entire PD. The modifications also do not affect the enjoyment of land abutting upon or across the street from the PD in a substantially adverse manner, as the maximum height of the mixed-use buildings are proposed to be reduced by approximately 13 feet (to just under 35 feet, which is the maximum allowable height in the underlying C-1 Commercial zone district); the number of mixed-use buildings are proposed to be reduced from 3 to 2; and the amount of landscaping is proposed to be increased substantially. The biggest difference and potential impact to abutting properties is from the 20 proposed townhomes; however, the maximum height of those buildings are only approximately 24 feet and they are proposed to be setback from abutting properties up to twice what would normally be required in the underlying C-1 Commercial zone district (10 feet instead of 5 feet). The mixed-use buildings remain a minimum of 20 feet from any abutting property. Although the reduction in parking spaces from the originally approved PD is noteworthy, it should also be noted that the originally approved PD was “overparked” above what would have been required by code and did not take into account any practical reductions for mixed-uses that could share spaces between daytime and nighttime/overnight. The proposed modification appears consistent with the goals of the Comprehensive Plan and would not be granted solely for the benefit of a single individual.

(b) Residents and owners of land in the PD, may to the extent and in the manner expressly authorized by the provisions of the PD Development Plan, modify, remove or release their rights to enforce the provisions of the plan; but no such action shall affect the right of the City to enforce the provisions of the plan.

Staff: No such modification shall affect the right of the City to enforce provisions of the plan as approved.

(c) An insubstantial modification to an approved PD Development Plan may be authorized by the Administrator. However, insubstantial modifications may only be approved if they promote the terms, purposes and conditions of the original PD Development Plan and approval. The applicant shall make a written request to the Administrator justifying the proposed modification and clearly showing on the PD Development Plan and accompanying written narrative that portion which is proposed for modification. A record of such approved insubstantial modification shall be filed and recorded in the same manner as the original. The following shall NOT be considered an insubstantial modification:

(1) A change in land use or development concept.

(2) An increase in residential density levels or building coverage of nonresidential uses.

(3) An increase in the permitted height.

(4) A realignment of major circulation patterns or a change in functional classification of the street network.

(5) A reduction in approved open space or common amenities.

(6) Other significant changes which involve policy questions or issues of overriding importance to the community.

Staff: The proposed modification is not an insubstantial modification of the PD. This criterion is not applicable.

(d) During the review of any proposed substantial modification to the PD, the City Council may require such new conditions of approval as are necessary to ensure that the development will be compatible with the current community standards and regulations. This shall include, but not be limited to, applying the portions of the PD which have not obtained building permits, or are subject to the proposed amendment, any new community policies or regulations which have been implemented since the PD was originally approved. An applicant may withdraw a proposed modification at any time during the review process. A request for a substantial modification shall be accompanied by the same type and quality of information as was necessary for the original PD Development Plan approval and shall include a map of the entire PD Development Plan area which clearly defines that portion which is proposed for modification and a written justification of the proposed modification, including a discussion of any changes in impact which would result from the modification.

Staff: Staff is recommending a number of new conditions that may be recommended by the Planning Commission and adopted by City Council and would replace (or reword) most of those imposed by the original approval. Some of the most noteworthy pertain to certain fees, required public improvements within Highway 50, and the proposed 24 deed-restricted units. To this last point, although the applicant has proposed locating all of the deed-restricted units in the two mixed-use buildings and making them affordable to households earning from no more than 100% AMI to no more than 140% AMI, staff believes that a slightly wider breadth of income levels could be met in a slightly greater variety of housing types. For instance, staff proposes that two of the townhome units be deed-restricted with both units at no more than 160% AMI. The remaining 22 deed-restricted condominium units would be split between no more than 100% AMI, no more than 120% AMI, and no more than 140% AMI. (See a summary table of these recommendations below):

Max AMI Price:	100%	120%	140%	160%
Townhomes:	0	0	0	2
Condominiums	8	8	6	0

Staff would also recommend, as a condition, that if the deed-restricted units were to be rentals, that the provisions of the current Inclusionary Housing policies would control (rent prices for each of the units would be no more than 80% AMI or 100% AMI, with at least fifty percent of the units at no more than 80% AMI.

The applicant has made a complete application that defines which portions are proposed for modification. As conditioned, the modification meets the above requirements.

RECOMMENDED FINDINGS:
The application, as conditioned, is in compliance with the review standards for Substantial Modifications to a Planned Development found at Section 16-7-150 of the Land Use Code and is consistent with the efficient development and preservation of the entire PD; does not affect in a substantially adverse manner either the enjoyment of land abutting upon or across the street from the PD or the public interest; and is not granted solely for a special benefit upon any person.

STAFF RECOMMENDATIONS:
Staff recommends approval of the proposed Planned Development modification, with the following recommended conditions:

1. The Development Plan shall not be recorded until after the related major subdivision proposal is approved by City Council, substantially similar to what is shown by the PD modification development plan.
2. The applicant shall show on the PD plan the area(s) to be considered an “outlot(s)” or Limited Common Element (L.C.E.) for the HOA, outside of the lots intended to be platted.
3. The applicant must meet the requirements of the Public Works Director and City Engineering Consultants.
4. A plat note shall be added that states that “Fees-in-lieu for Open Space shall be paid at the time of building permit submittal of any residential units.”
5. A plat note shall be added that states that “Fees-in-lieu for Fair Contributions for Public School Sites shall be paid at the time of building permit submittal of any residential units.”
6. A plat note shall be added that states “No short-term vacation rental licenses shall be permitted in the development.”
7. The applicant shall provide a flexible recreational playscape or similar amenities to encourage play and outdoor activity for people of all ages in one of the open space/landscape areas on the site (not to be between buildings).
8. The following changes shall be made to the Site Data Table on the PD Plan:
    a. Side setbacks for the mixed-use buildings shall be a minimum of 20 feet.

b. The minimum lot frontage for all lots (both mixed-use and townhomes) shall be zero, recognizing frontage off of the internal private drive.

c. (If needed) The minimum front setback for the townhome lots shall be 7 feet.

d. Property size can be removed from the table.

e. Accessory building side setbacks shall be minimum of 3 feet, not 0 feet.

9. In regards to the 24 proposed deed-restricted units, the breakdown should be as follows (and a plat note shall be added stating the following):

    a. A minimum of two of the townhome units shall be permanently deed-restricted to be sold at prices no greater than what is affordable to households earning 160% of area median income (AMI); and

    b. A minimum of 22 of the condominium units shall be permanently deed-restricted to be sold at prices no greater than what is affordable to households earning 100% AMI (8 units); 120% AMI (8 units); and 140% AMI (6 units).

    c. If the deed-restricted units were to be rentals prior to sale, then the provisions of the current Inclusionary Housing policies will control for all units (rents for each of the units would be no more than what is affordable to households earning up to 80% AMI or up to 100% AMI, with at least fifty percent of the units at up to 80% AMI.

    d. Owner of the mixed use building shall disperse the deed-restricted units evenly between buildings and such units shall be dispersed evenly between floors.

10. HOA fees for deed-restricted units shall not be greater than ordinary fees for utilities, and owners of such units shall not be responsible for any assessments.

11. At least one of the mixed-use buildings (along with the required portion of deed-restricted units) shall be constructed and receive CO prior to the 9th townhome on the site receiving CO.

12. The second mixed-use building (along with the required portion of deed-restricted units) shall be constructed and receive CO prior to the 15th townhome receiving CO.

13. Both deed-restricted townhome units shall be constructed and receive CO prior to the 11th townhome unit receiving CO.

14. The ground floor space of the two commercial buildings shall include a minimum of 4,000 SF and 6,000 SF of commercial space, respectively.

15. Conditions #4 and #6 of the original conditions (shown on the PD plan) shall be added as a plat note.

16. The applicant shall remove all other conditions from the original PD approval from the development plan and replace them with conditioned plat notes included above.

17. A Development Agreement/Subdivision Improvements Agreement/Inclusionary Housing Agreement shall be required before building permits may be issued.

RESPONSE FROM REFERRAL DEPARTMENTS AND AGENCIES:

Fire Department – Assistant Fire Chief, Kathy Rohrich **–** *Fire Department has no concerns at this time.*

Police Department – Chief Russ Johnson – *No issues from PD.*

Public Works Department – Director, David Lady – See Below:

Public Works has completed review of the Civil Construction Plans dated 10/27/2022.

Plat
1) Utility Easements shall extend a minimum of 7.5-ft beyond public utility improvements.
2) Provide a plat for review with utility improvements overlay.

Drainage Report
1) Provide a signed and stamped copy for review.
2) Update existing imperviousness values as the site is soil. Recalculate detention.

Plans
1) Provide a signed and stamped copy for review.
2) The water main connection on the west end will be at Caldwell and not Hunt.
3) Applicant to work with City on water main re-alignment through site.
4) Provide additional detail of existing improvements in CDOT ROW including street lights and sidewalks. Relocate proposed private storm sewer out of CDOT ROW and onto subject property. Avoid new streetscape improvements to the greatest extent possible.

General
1) Provide record of CDOT utility and access permits.
2) Provide record of SUE in CDOT ROW.

The above items shall be addressed prior to issuance of improvements agreement and/or building permits. A detailed engineering review of the site improvements is recommended. The contractor shall provide product submittals for work occurring in the right-of-way and shall obtain necessary permits. A preconstruction meeting with Public Works shall be scheduled and completed prior to initiation of work.

Finance Department - Renee Thonhoff, Staff Accountant – *No Issues*

Chaffee County Planning Department – Miles Cottom, Planning Director -- *The County does not have any comment to make on this application.*

RECOMMENDED MOTION:
"I make a motion to recommend the City Council approve the Substantial Modification to the Salida Crossings Planned Development, with conditions recommended by staff, as it is in compliance with the review standards for Substantial Modifications to a Planned Development found at Section 16-7-150 of the Land Use Code."

Attachments:
Application materials for Substantial Modification
Draft Planned Development Plan for the Proposed Modification
Approved Site Plan for 2021 Minor Modification
Original PD Plan – 2018
Proof of publication

GENERAL DEVELOPMENT APPLICATION

448 East First Street, Suite 112
Salida, CO 81201
Phone: 719-530-2626 Fax: 719-539-5271
Email: planning@cityofsalida.com

1. TYPE OF APPLICATION (Check-off as appropriate)

- ☐ Annexation
- ☐ Pre-Annexation Agreement
- ☐ Appeal Application (Interpretation)
- ☐ Certificate of Approval
- ☐ Creative Sign Permit
- ☐ Historic Landmark/District
- ☐ License to Encroach
- ☐ Text Amendment to Land Use Code
- ☐ Watershed Protection Permit
- ☐ Conditional Use
- ☐ Administrative Review: (Type)_____
- ☐ Limited Impact Review: (Type)_____
- ☒ Major Impact Review: (Type)_____
- ☐ Other:_____

2. GENERAL DATA (To be completed by the applicant)

A. Applicant Information

Name of Applicant: Salida Crossings (Bernard Weber)

Mailing Address: 2605 Fairhill LN Flower TX 75022

Telephone Number: 970-390-6902 FAX: _____

Email Address: bwconcept30inc@gmail.com

Power of Attorney/ Authorized Representative: _____
(Provide a letter authorizing agent to represent you, include representative's name, street and mailing address, telephone number, and FAX)

B. Site Data

Name of Development: Salida Crossings

Street Address: 1520 HWY 50 Salida CO

Legal Description: Lot__SW ¼ section 4_____ Block Subdivision_Township 49 North Range_____ (attach description)

Disclosure of Ownership: List all owners' names, mortgages, liens, easements, judgments, contracts and agreements that run with the land. (May be in the form of a current certificate from a title insurance company, deed, ownership and encumbrance report, attorney's opinion, or other documentation acceptable to the City Attorney)

I certify that I have read the application form and that the information and exhibits herewith submitted are true and correct to the best of my knowledge.

Signature of applicant/agent BERNARD WEBER Date 10.27.22

Signature of property owner_____ Date_____

☐ 12. A plan for locations and specifications of street lights, signs and traffic control devices. YES e, f PL

2. REVIEW STANDARDS (If necessary, attach additional sheets)

The application for Limited or Major Impact Review shall comply with the following standards.

1. **Consistency with Comprehensive Plan**. The use shall be consistent with the City's Comprehensive Plan.

The Plan is consistent with stated goals in the following ways:
Improved standards for structures, landscaping, and
signage will improve the overall attractiveness and livability of Salida.
2. New development will be focused within or adjacent to the city to preserve the rural, scenic character of the surrounding area's open spaces and agricultural lands.
3. Highway 50 will be an attractive commercial corridor that safely and efficiently accommodates pedestrians, bicycles, and automobiles.
4. Community gateways along major roadway corridors
will create a positive and unique identity.

2. **Conformance to Code**. The use shall conform to all other applicable provisions of this Land Use Code, including, but not limited to:

a. Zoning District Standards. The purpose of the zone district in which it is located, the dimensional standards of that zone district, and any standards applicable to the particular use, all as specified in Article 5, Use and Dimensional Standards.

Highway 50 Corridor Overlay (50 CO).
Building Setbacks. To create a consistent image throughout the corridor, new construction should be developed in a manner that complements the historic pattern of buildings being located close to the highway
Architectural Standards:
1. Materials. With new construction, including an addition, two (2) or more materials must be used for exterior materials excluding roofing 2. Façade treatment. Long, blank walls must be avoided. 3. Fenestration. A minimum of twenty percent (20%) of the front façade of a building which houses a principal use on the parcel shall be glass. 4. Building Height. Additional height may be considered through the Planned Development process if it results in achieving one (1) or more goals of the Comprehensive Plan regarding infill development,

b. Site Development Standards. The parking, landscaping, sign and improvements standards.

Sidewalks shall be provided within the Highway 50 Corridor Overlay (50 CO). Sidewalks fronting Highway 50 shall be detached sidewalks with a width of six (6) feet. The parkway located between the curb or travel lane and the sidewalk shall be four (4) feet wide. Landscaping Standards. The minimum landscape area applicable to any property in the Highway 50 Corridor Overlay (50 CO) shall be that required in the underlying zone district. At a minimum, this landscaping shall be located along the road frontages identified herein and shall also be located within and around the parking areas, as described in Section 16-8-90 below.(i)Highway frontage buffer. There shall be an average of one (1) tree planted per thirty (30) feet of the property's highway frontage adjacent to the highway.

3. **Use Appropriate and Compatible**. The use shall be appropriate to its proposed location and be compatible with the character of neighboring uses, or enhance the mixture of complementary uses and activities in the immediate vicinity.

The Salida Crossings property is located in the City of Salida, CO. This property currently contains an old service garage and office building and is zoned C-1 Commercial with a PD overlay. Adjacent to the subject property: a 9-unit apartment building and single-family home to the north, 7-11 convenience store and apartments to the east, a mix of residential apartments, a motel, single-family residence and office building to the south, and a motel to the west.

Salida Crossings is an attainable, mixed-use Planned Development on 3.15 ac consisting of retail space, office space, and affordable housing in the City of Salida that is compatible with and enhances the character of neighboring uses by providing an ability to work and live in the same complex or walk and/or commute by bicycle to the downtown area – less than a mile away.

4. **Nuisance**. The operating characteristics of the use shall not create a nuisance and the impacts of the use on surrounding properties shall be minimized with respect to noise, odors, vibrations, glare, and similar conditions.

Once built, the project will be operated under the direction of an HOA and the impacts on the surrounding properties will be minimized with respect to noise, odors, vibrations, glare or similar conditions. In addition, the project will follow permitted principal or accessory uses as allowed within the C-1 zoning with a PD overlay.
It is expected that during the construction phases of the project, normal construction work hours and days will be established and will follow all City guidelines and rules as outlined in the City of Salida Code of Ordinances.

5. **Facilities**. There shall be adequate public facilities in place to serve the proposed use, or the applicant shall propose necessary improvements to address service deficiencies which the use would cause.

Existing drainage conditions exhibit characteristics such that adjacent properties to the north and east may experience some flooding resulting from undetained or mitigated runoff from the subject property. Post-development conditions will alleviate a large majority of this condition by re-routing runoff that originates on the subject property to a proposed underground stormwater detention vault which will release stormwater to the existing City drainage system at or below existing runoff rates. A small portion of the drainage that leaves the site in the existing conditions on the north end will be re-directed to an existing drainage swale.

6. **Environment**. The use shall not cause significant deterioration to water resources, wetlands, wildlife habitat, scenic characteristics, or other natural features. As applicable, the proposed use shall mitigate its adverse impacts on the environment.

The drainage system is designed and will be constructed so that only historic runoff at a maximum, not including historic irrigation, shall be released from the site. Drainage flows in excess of this amount will be detained in an on-site underground detention vault per Sec. 16-8-60 (d).
Further, the site is designed such that height of buildings is minimized to the extent reasonable to preserve scenic sight lines including natural and man-made per Sec. 16-2-30
In addition, the Salida Crossings property will enhance positive impact on the nearby wetlands, wildlife habitat and scenic characteristics while mitigating any adverse impacts on the environment through the selection of native or adapted plant material and locally sourced landscape materials.

FINAL DEVELOPMENT PLAN
SALIDA CROSSINGS
A PORTION OF THE SW 1/ 4 OF NW 1/ 4 OF SW 1/ 4 SECTION 4, TOWNSHIP 49 NORTH, RANGE 9 EAST OF THE NEW MEXICO P.M. COUNTY OF CHAFFEE, STATE OF COLORADO

CERTIFICATE OF DEDICATION AND OWNERSHIP

KNOW ALL PERSONS BY THESE PRESENTS THAT SALIDA CROSSINGS 134, LLC, IS THE FEE OWNER OF THE FOLLOWING DESCRIBED PROPERTY:

A TRACT OF LAND LOCATED IN THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER (SWV4NW1/4 SW1/4) OF SECTION 4, TOWNSHIP 49 NORTH, RANGE 9 EAST OF THE NEW MEXICO PRINCIPAL MERIDIAN, CHAFFEE COUNTY, COLORADO, BEING DESCRIBED AS FOLLOWS:
COMMENCING AT A POINT ON THE NORTHERLY RIGHT-OF-WAY BOUNDARY OF U.S. HIGHWAY NO. 50, WHENCE THE SOUTHEAST CORNER (BRASS CAP) OF SAID SECTION 4 BEARS SOUTH 72°19.0' EAST 4848.6 FEET, AND WHENCE THE HIGHWAY RIGHT-OF-WAY MARKER (BRASS CAP) OF STATION 2301+12 OF THE CENTERLINE SURVEY OF SAID HIGHWAY BEARS SOUTH 89'35' EAST 127.0 FEET, SAID COMMENCING POINT BEING MARKED BY A POINT IN THE EASTERLY SIDE OF 24 INCH C.M.P. CULVERT AND BEING WITNESSED BY A 5/8 INCH STEEL REINFORCING BAR 2 FEET LAND DRIVEN INTO THE GROUND AND HAVING A ONE INCH ALUMINUM CAP WHICH IS NORTH 89°35' WEST 3.0 FEET FROM SAID COMMENCING POINT ALSO BEING THE POINT OF BEGINNING OF THE TRACT HEREIN DESCRIBED;
THENCE NORTH 0'14.6' WEST 300.0 FEET TO A REINFORCING BAR AS DESCRIBED ABOVE;
THENCE SOUTH 89°35' EAST 28.8 FEET;
THENCE NORTH 0'14.6' WEST 100.0 FEET;
THENCE NORTH 89'35' WEST 365.4 FEET TO THE NORTHEAST CORNER OF THE TRACT HEREIN DESCRIBED IN BOOK 251 AT PAGE 423 OF THE RECORDS OF CHAFFEE COUNTY, COLORADO; THENCE SOUTH 0'20' EAST 400 FEET ALONG THE EAST BOUNDARIES OF THE TRACTS DESCRIBED IN BOOK 251 AT PAGE 423 AND IN BOOK 260 AT PAGE 184 OF THE RECORDS OF CHAFFEE COUNTY, COLORADO;
THENCE SOUTH 89°35' EAST 336 FEET ALONG THE NORTHERLY RIGHT-OF-WAY BOUNDARY OF U.S. HIGHWAY NO. 50 TO THE POINT OF BEGINNING.

EXECUTED THIS____DAY OF _____, 20____

_____
BY:

COUNTY OF CHAFFEE)
) SS.
STATE OF COLORADO)

THE FOREGOING DEDICATION WAS ACKNOWLEDGED BEFORE ME THIS _____ DAY OF _____ , 20_____, BY DUANE COZART AS SALIDA CROSSINGS 134, LLC, MANAGING MEMBER, WITNESS MY HAND AND SEAL.

MY COMMISSION EXPIRES _____

CERTIFICATION OF TITLE

I _____, A LICENSED INSURANCE AGENT IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT I HAVE EXAMINED THE TITLE TO THE PROPERTY HEREBY DEDICATED AND AS SHOWN AND DESCRIBED ON THIS FINAL DEVELOPMENT PLAN AND FOUND THE TITLE VESTED IN SALIDA CROSSINGS 134, LLC, FREE AND CLEAR OF ALL LIENS AND ENCUMBRANCES EXCEPT AS LISTED BELOW:

_____

_____

_____

_____

DATED THIS _____ DAY OF _____, 20____

_____
TITLE AGENT

CITY COUNCIL APPROVAL

THIS DEVELOPMENT PLAN IS APPROVED FOR FILING ON THIS _____DAY OF _____, 20___

_____
MAYOR

PLANNING COMMISSION APPROVAL

THIS DEVELOPMENT PLAN IS APPROVED BY THE CITY OF SALIDA PLANNING COMMISSION ON THIS _____DAY OF _____, 20___

_____
CHAIRMAN

CLERK AND RECORDER'S CERTIFICATE

THIS FINAL DEVELOPMENT PLAN WAS FILED IN THE OFFICE OF THE CLERK AND RECORDER OF CHAFFEE COUNTY, COLORADO AT _____, __M ON THIS _____DAY OF _____, 20___ UNDER RECEPTION NUMBER_____

_____
CHAFFEE COUNTY CLERK AND RECORDER

LAND SURVEYOR'S CERTIFICATE

I _____ A REGISTERED LAND SURVEYOR LICENSED TO PRACTICE IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS LAND SURVEY WAS PERFORMED UNDER MY DIRECT SUPERVISION AND THAT THE PLAT REPRESENTS THE RESULTS OF SAID SURVEY AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

_____, DATE_____

COLORADO P.L.S._____

VICINITY MAP
SCALE: 1" = 100'

ORDINANCE 2018-04		
EXHIBIT B: DEVELOPMENT PLAN		
Exhibit	Sheet Title	Page
1	Cover Sheet	1 of 2
2	Existing Conditions	*
3	Existing Zoning Map	*
4	Phasing Plan	n/a
5	Site Plan	2 of 2
6	Grading Plan	*
7	Utility Plan	*
8	Landscape Plan	*

EXHIBIT C: SALIDA CROSSINGS ARCHITECTURAL PLANS		
1	Plan Calculations page AO	*
2	First Floor Plan Building A page A1	*
3	Upper Floor Plan Building A page A2	*
4	First Floor Plan Building B & C page A3	*
5	Middle Floor Plans Building B & C page A4	*
6	North and South Elevation Building A page A5	*
7	West and East Elevation Building A page A6	*
8	East and West Elevation Building B & C; South and North Elevation Building B page A7	*
9	Fourth Floor Plan Buildings B & C page A8	*
*	These Exhibits shall be on record with the Salida City Clerk	

CONTACTS:

OWNER:

BV INVESTMENTS
401 WHITEWING LANE
MURPHY, TX 75094
CONTACT: BERNIE WEBER

DEVELOPER:

LOUCIOS ENTERPRISES, LLC
2605 FAIRHILL LANE
FLOWER, TX 75022

SURVEYOR:

RUBINO SURVEYING
3312 AIRPORT ROAD
BOULDER, CO 80301
PHONE: (303) 464-9515
CONTACT: BOB RUBINO

CIVIL ENGINEER

PHELPS ENGINEERING SERVICES
3522 SOUTH EMERSON STREET
ENGLEWOOD, CO 80113
PHONE: (303) 298-1644
CONTACT: LONNY PHELPS

SUBMITTAL DATES

1ST - DECEMBER 18, 2017
2nd - FEBRUARY 5, 2018

Proposed Land Use	*
Property Size (Sq. Ft.)	**137,370**
Building A	
Building Size (Sq. Ft.)	14,853
No. of Dwellings	36
3-Bedroom Units	4
2-Bedroom Units	17
1-Bedroom Units	15
Commercial Size (Sq. Ft.)	5,896
Building Height	34'-9"
Building B	
Building Size (Sq. Ft.)	13,374
No. of Dwellings	36
3-Bedroom Units	4
2-Bedroom Units	17
1-Bedroom Units	15
Office/Retail (Sq. Ft.)	4,104
Building Height	34'-9"
Townhomes	
Building Size (Sq. Ft.)	1,500 ea.
No. of Dwellings	20
3-Bedroom Units	20
Office/Retail (Sq. Ft.)	n/a
Building Height	**23'-7"
Parking Requirements	
Retail Parking (10,000 SF/300 SF per space)	33 spaces
1.5 spaces per building per mixed-use units	108 spaces
1.5 spaces per townhome	30 spaces
Subtotal Spaces Required	171 spaces
25% Reduction for retail	-25 spaces
Total Spaces Required	146 spaces
Total Spaces Provided	159 spaces
Total Covered Spaces Provided	n/a

* AMENDED BY CONDITION 9

** AMENDED BY CONDITIONS 10 & 11

Site Data Table

	C-1	PD	Rev. PD*	Rev. PD**
Residential Density (units/lot sf)	2,800	1,125	1,493	1,493
Number of Units	49	122	92	92
Lot Coverage - Buildings	60%	38%	30%	25%
Lot Coverage - Paving	60%	48%	40%	39%
Coverage Cumulative	90%	86%	70%	63%
Minimum Landscape Area	10%	14%	14%	25%
Building Side Setback - Mixed-use(ft)	5	65-75	20	10
Building Side Setback - Townhomes(ft)	5	65-75	20	10
Primary Building Front Setback(ft)	10	75	80	80
Primary Building Rear Setback Mixed-use(ft)	5	50	20	20
Primary Building Rear Setback Townhomes (ft)	5	50	10	10
Accessory Building Side Setback (ft)	3	5	0	0
Accessory Building Rear Setback (ft)	5	5	10	10
Maximum Height Primary Building (ft/in)	35	37/8 - 48/1	35	34/10
Maximum Height Accessory Building (ft)	25	15	25	23/8
Property Size (sq ft)		137,370	137,370	137,370
Min. Lot Frontage (ft)		335'-7"	335'-7"	0' ***

* Minimum requirements
** Provided by current Site Plan
***Off private drive

TRIP GENERATION RATES

Analysis Period	Weekday		
	In	Out	Total
AM Peak Hour	65	66	131
PM Peak Hour	73	64	136
24-Hours	847	847	1,694

ORDINANCE 2018-04
EXHIBIT D: CONDITIONS OF APPROVAL FOR SALIDA CROSSINGS PD (TO BE UPDATED PER CONDITIONS OF MODIFIED PD)

1. THE OWNER SHALL PAY IN LIEU OF LAND DEDICATION OR CONVEYANCE FOR A PUBLIC SCHOOL FACILITY AN AMOUNT OF ~~THREE HUNDRED FIFTY FOUR DOLLARS ($354.00)~~ PER RESIDENTIAL DWELLING UNIT. THE OWNER MAY ELECT FOR SUCH AMOUNT TO BE PAID BY THE OWNER OF A PARTICULAR LOT AND/OR UNIT AT THE TIME A RESIDENTIAL BUILDING PERMIT IS OBTAINED.

2. THE DEVELOPMENT PLAN FOR THE ENTIRE SITE SHALL CONSIST OF THE "DEVELOPMENT PLAN, SALIDA CROSSINGS" DATED 11/20/2017; "SALIDA CROSSINGS" ARCHITECTURAL PLANS ~~DATED 3/7/2018~~ AND THESE CONDITIONS OF APPROVAL.

3. AT THE TIME OF ISSUANCE OF A BUILDING PERMIT FOR THE PROJECT, THE DEVELOPER SHALL SUBMIT THE TOTAL OF PARKS, TRAILS AND OPEN SPACE IN LIEU FEES ~~TOTALING $2,800 PER UNIT.~~ APPLICABLE AT THE TIME OF DEVELOPMENT.

4. DEVELOPER SHALL AGREE TO COMPLETE THE HIGHWAY 50 CORRIDOR IMPROVEMENT PLAN IMPROVEMENTS, CONSISTING OF SIDEWALKS, PARKWAY AND STREET LIGHTING FOR THE PROJECT'S FRONTAGE AND CONTINUING TO THE INTERSECTION OF HIGHWAY 291 (OAK STREET). THE WORK SHALL BE COMPLETE PRIOR TO ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY FOR THE PROJECT, OR AN APPROPRIATE IN-LIEU AMOUNT AND AGREEMENT IS PROVIDED.

5. A MINIMUM OF THIRTY OF THE PROPOSED RESIDENTIAL UNITS SHALL BE DEED RESTRICTED FOR WORK FORCE HOUSING: GENERALLY AS DESCRIBED BELOW:
   - PHASE 1 (BUILDING A) WILL HAVE FOUR (4) UNITS (I BEDROOM AND 1 BATH) RESTRICTED TO HOUSEHOLDS EARNING 70% OR LESS OF THE CHAFFEE COUNTY AVERAGE MEDIAN INCOME (AMI) AND SIX (6) UNITS (2 BEDROOM AND 1 BATH) RESTRICTED TO HOUSEHOLDS EARNING 70% OR LESS AMI;
   - PHASE 2 (BUILDING B) WILL HAVE FIVE (5) UNITS (I BEDROOM AND 1 BATH) RESTRICTED TO HOUSEHOLDS EARNING 70% OR LESS OF THE AMI; FOUR (4) UNITS (2 BEDROOM AND 1 BATH) RESTRICTED TO HOUSEHOLDS EARNING 70% OR LESS AMI AND ONE (1) UNIT (2 BEDROOM AND 2 BATH) RESTRICTED TO HOUSEHOLDS EARNING 80% OR LESS AMI;
   - PHASE 3 (BUILDING C) WILL HAVE FIVE (5) UNITS (1 BEDROOM AND 1 BATH) RESTRICTED TO HOUSEHOLDS EARNING 70% OR LESS OF THE AMI; FOUR (4) UNITS (2 BEDROOM AND 1 BATH) RESTRICTED TO HOUSEHOLDS EARNING 70% OR LESS AMI AND ONE (1) UNIT (2 BEDROOM AND 2 BATH) RESTRICTED TO HOUSEHOLDS EARNING 80% OR LESS AMI; AND
   - THE MAXIMUM AMI STATED ABOVE MAY BE INCREASED OR DECREASED UP TO 10% FOR INDIVIDUAL HOUSEHOLDS. A CONDITION OF THE SUBSEQUENT DEVELOPMENT AGREEMENT(CONDITION #8) SHALL BE THAT THE DEVELOPER MAKE ANNUAL REPORTS TO THE CITY COUNCIL DETAILING CHANGES IN THE PRICING MODEL BASED UPON CHANGES TO THE COLORADO HOUSING AND FINANCE AUTHORITY COUNTY INCOME AND RENT TABLES FOR CHAFFEE COUNTY; AND
   - THE DEVELOPER WILL MAKE A GOOD FAITH EFFORT TO DISPERSE THE UNITS WITHIN THE FIRST THREE FLOORS OF EACH BUILDING.
   - THE HOA DUES FOR THE DEED RESTRICTED UNITS SHALL BE DISCOUNTED BY A MINIMUM OF 25%.

6. THE DEED RESTRICTION SHALL ADDRESS INCOME AND EMPLOYMENT QUALIFICATIONS; PROPOSED LOTTERY OR OTHER EQUITABLE SYSTEM FOR THE INITIAL SALE OF THE UNITS, AND BE APPROVED BY THE CITY COUNCIL. THE ENFORCEMENT OF THE DEED RESTRICTIONS WILL BE BY THE FUTURE CHAFFEE COUNTY HOUSING OFFICE, UNLESS IT DOES NOT EXIST AT THE TIME OF THE FIRST SALE OFA DEED RESTRICTED UNIT, IN WHICH CASE IT SHALL BE THE ONUS OF THE CITY OF SALIDA TO DESIGNATE AN APPROPRIATE ENTITY.
7. DEVELOPER SHALL MAKE CORRECTIONS TO THE IMPROVEMENT PLANS AS DESCRIBED BY THE PUBLIC WORKS DIRECTOR.
8. DEVELOPER SHALL ENTER INTO A DEVELOPMENT AGREEMENT TO ADDRESS THE IMPROVEMENTS REQUIRED FOR THE PROJECT AS WELL AS THOSE REQUIREMENTS CONTAINED IN CONDITIONS ABOVE PRIOR TO ISSUANCE OF A BUILDING PERMIT.
9. THE GROUND FLOOR SPACE OF BUILDING A SHALL INCLUDE A MINIMUM OF ~~7,515~~ 5,800 SQUARE FEET OF RETAIL USES AND SERVICES. BUILDINGS B ~~AND C~~ SHALL HAVE A MINIMUM OF ~~3,122~~ 4,800 SQUARE FEET OF OFFICE AND/OR RETAIL USES. THERE SHALL BE NO SHORT TERM RENTALS ALLOWED IN THE DEVELOPMENT.
10. THE FINAL DEVELOPMENT PLAN SHALL BE AMENDED TO REDUCE THE NUMBER OF DWELLING UNITS TO A MAXIMUM OF ~~122,~~ 92 INCREASE THE REQUIRED PARKING TO A RANGE OF ~~256-268~~ SPACES WHICH INCLUDES SPACES PROVIDED UNDER BUILDINGS B ~~AND C,~~ AND REMOVE REQUIREMENT FOR COVERED OUTDOOR PARKING 159
11. ~~THE REQUIRED PARKING MAY BE REDUCED TO 225 IF THE FORMER PARKING AREA IS UTILIZED FOR REQUIRED OPEN SPACE FOR A STATE CERTIFIED DAY CARE CENTER.~~

No.	REVISIONS	DATE	BY
1	PER CITY COMMENTS	2/6/2018	JP
2	PER CITY COMMENTS	8/9/2019	JP
3	PER CITY COMMENTS	4/8/2020	JP
4	MINOR AMENDMENT	10/31/2022	JP

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303) 298-1644 info@phelpsengineering.net phelpsengineering.net

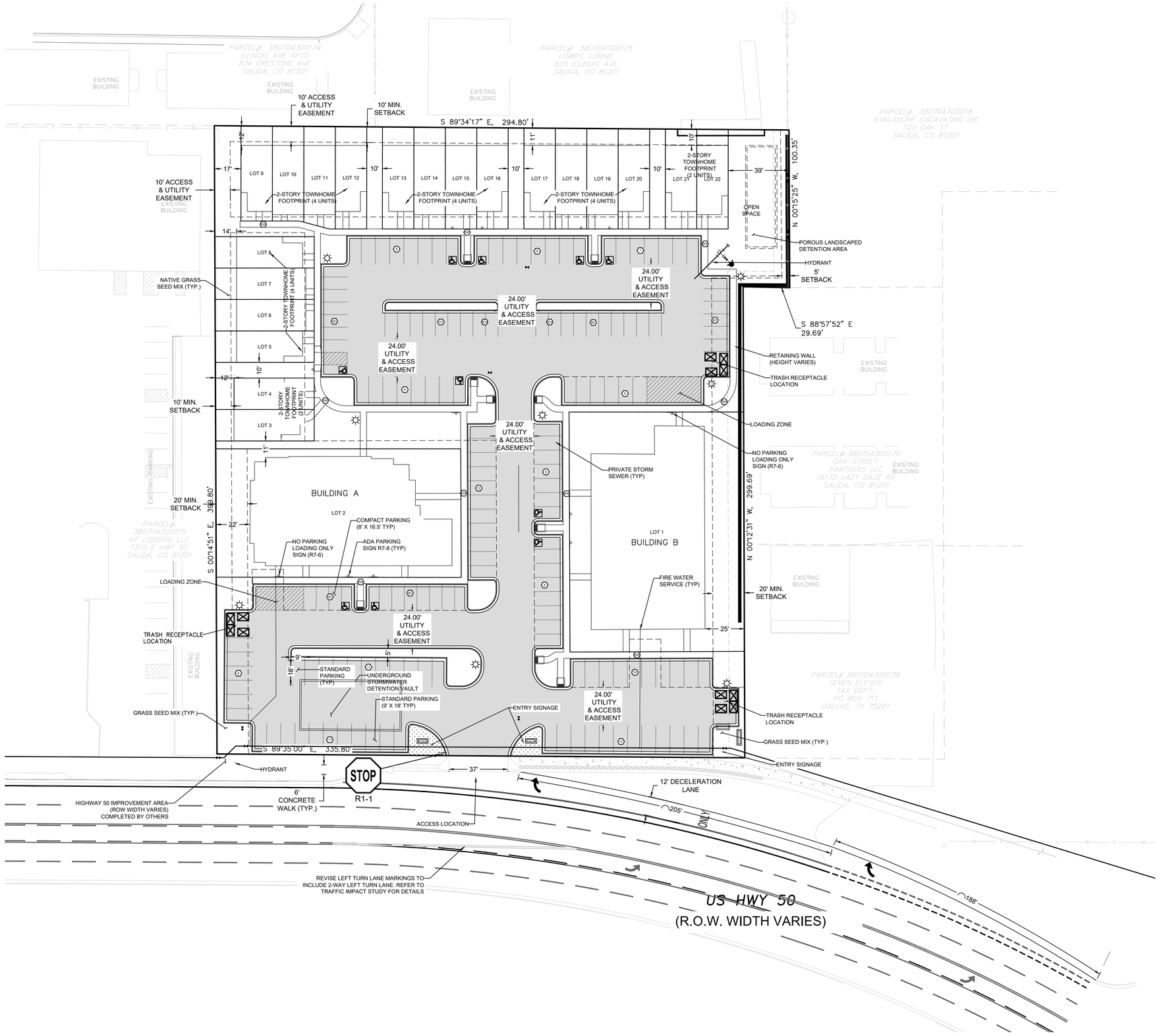
SCALE: SEE SHEET
DESIGNED BY: JP
DRAWN BY: JP
CHECKED BY: LP

FINAL DEVELOPMENT PLAN
COVER SHEET

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE
4/8/2020

PROJECT NO.
17202



TABULAR DATA

SITE TOTAL AREA: 3.15 AC

PARKING REQUIRED - 171
W/ 25% RETAIL REDUCTION - 146
PARKING PROVIDED
STANDARD PARKING 9'X18' (10 ADA).....113 STALLS
COMPACT PARKING 8'X16'.....46 STALLS
SITE TOTAL.....159 STALLS

TOTAL RETAIL / OFFICE ~ 10,000 SF
TOTAL RESIDENTIAL UNITS = 92
29.21 DU/AC

0 15 30 60
1 inch = 30 ft. Horizontal

LEGEND:

- EXISTING CONTOURS (8600)
- PROPOSED CONTOURS (8600)
- PROPOSED STORM SEWER W/INLET AND FES
- PROPOSED WATER LINE W/FIRE HYDRANT
- FUTURE WATER LINE W/FIRE HYDRANT
- PROPOSED SANITARY SEWER W/MANHOLE
- FUTURE SANITARY SEWER W/MANHOLE
- DRAINAGE FLOWLINE
- PROPOSED BOUNDARY LINE
- PROPOSED TRACT
- PROPOSED EASEMENT LINE
- PROPOSED ROAD CENTER LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB & GUTTER
- EXISTING TRASH ENCLOSURE
- EXISTING LIGHT POLE
- EXISTING STORM SEWER MANHOLE
- EXISTING INLET
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING UTILITY POLE
- EXISTING UNDERGROUND WATER LINES (WAT)
- EXISTING UNDERGROUND GAS LINES (GAS)
- EXISTING UNDERGROUND SANITARY SEWER LINES (SAN)
- EXISTING OVERHEAD UTILITY LINES (OHP)
- EXISTING FENCE (X)

SITE KEY NOTES & ABBREVIATIONS:

- (SW) 4-FT WIDE SIDEWALK
- (#) PARKING COUNT (STANDARD)
- (#C) PARKING COUNT (COMPACT)

NOTES:
- STORM SEWER LAYOUT IS PRELIMINARY AND SUBJECT TO CHANGE BASED ON HYDROLOGIC CALCULATIONS

No.	REVISIONS	DATE	BY
1	PER CITY COMMENTS	2/6/2018	JP
2	PER CITY COMMENTS	8/9/2019	JP
3	PER CITY COMMENTS	4/8/2020	JP
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PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303) 256-1644 info@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JP
DRAWN BY: JP
CHECKED BY: LP

FINAL DEVELOPMENT PLAN
SITE PLAN

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE
4/8/2020

PROJECT NO.
17202

CONSTRUCTION DOCUMENTS
SALIDA CROSSINGS
A PORTION OF THE SW 1/ 4 OF NW 1/ 4 OF SW 1/ 4 SECTION 4, TOWNSHIP 49 NORTH, RANGE 9 EAST OF THE NEW MEXICO P.M. COUNTY OF CHAFFEE, STATE OF COLORADO

GENERAL NOTES

MAINTENANCE:

A. THE DEVELOPER, HIS SUCESSORS AND ASSIGNS, SHALL BE RESPONSIBLE FOR INSTALLATION, MAINTENANCE AND REPLACEMENT OF ALL LANDSCAPING MATERIALS SHOWN OR INDICATED ON THE APPROVED SITE PLAN, INCLUDING THOSE AREAS FOUND IN THE RIGHT-OF-WAY.

B. LANDSCAPING SHALL BE CONTINUOUSLY MAINTAINED INCLUDING NECESSARY WATERING, WEEDING, PRUNING, PEST CONTROL, AND REPLACEMENT OF DEAD OR DISEASE PLANT MATERIAL. REPLACEMENT FOR DEAD OR DISEASED PLANT MATERIAL SHALL BE OF THE SAME TYPE OF PLANT MATERIAL AS SET FORTH IN THE APPROVED SITE PLAN; FOR EXAMPLE, A TREE MUST REPLACE THE TREE, A SHRUB MUST REPLACE A SHRUB, ETC. REPLACEMENT SHALL OCCUR IN THE NEXT PLANTING SEASON, BUT IN ANY EVENT, SUCH REPLACEMENT TIME SHALL NOT EXCEED ONE YEAR.

PLANTING:

A. FINAL PLANT SELECTION AND LAYOUT WILL BE BASED ON SOUND HORTICULTURAL PRACTICES RELATING TO MICROCLIMATE, SOIL, AND WATER REGIMES. ALL TREES WILL BE STAKED SO AS TO REMAIN UPRIGHT AND PALM FOLLOWING INSTALLATION. PLANT SIZE AND QUALITY AT TIME OF PLANTING WILL BE PER THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-1990).

B. ALL PLANTS DEPICTED ON THE LANDSCAPE PLAN SHALL BE OF A VARIETY WHICH IS COMPATIBLE WITH LOCAL CLIMATE AND THE SOILS, DRAINAGE AND WATER CONDITIONS OF THE SITE.

IRRIGATION:
ALL LANDSCAPING WILL BE AUTOMATICALLY IRRIGATED. CONTAINER PLANTINGS WILL BE DRIP IRRIGATED BASED ON THE SPECIFIC HORTICULTURAL REQUIREMENTS OF EACH SPECIES A REDUCED PRESSURE TYPE BACKFLOW PREVENTER WILL BE PROVIDED ON THE IRRIGATION SYSTEM THAT'S REQUIRED PER CODE.

COST ESTIMATE

COST ESTIMATE - MATERIALS AND INSTALLATION

PLANTS	Quantity	Unit Cost	Total
DECIDUOUS	17	$ 250	$ 4,250
EVERGREEN	8	$ 450	$ 3,600
SMALL DECIDUOUS	56	$ 250	$ 14,000
SHRUBS	1,131	$ 60	$ 67,860
NATIVE PLANT MIX	6844	$ 5	$ 34,218
TOTAL			$ 123,928

IRRIGATION	Quantity	Unit Cost	Total
SLEEVING - LF	300	$ 20	$ 6,000
MAINLINE - LF	1,046	$ 75	$ 78,450
VALVES	6	$ 250	$ 1,500
DRIPLINES - LF	5,000	$ 5	$ 25,000
TIMER	2	$ 5,000	$ 10,000
TOTAL			$ 120,950

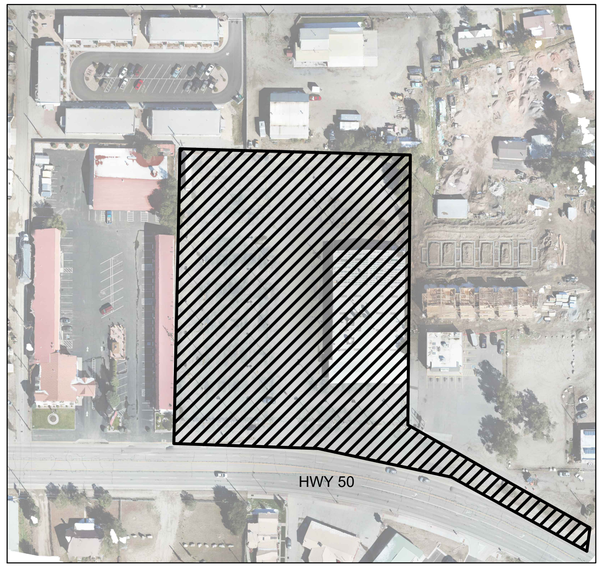
HARDSCAPE	Quantity (SF & CY)	Cost	Total
Unilock Boulevard B Interlocking pavers	2,300	50	$ 115,000
Crusher Fines	23.66	105	$ 2,484
TOTAL			$ 117,484

PROJECT ESTIMATED COSTS	**$ 362,363**

LANDSCAPE CALCULATIONS

	Acres	SF	Notes	*Reference - Salida Code of Ordinances - Version 10/11/22*
Total Gross Area of Site	3.14	137,214		
Required Landscape (10%)	0.314	13,721		Code Sec. 16-8-90.A1 - If a property does not utilize the zero-foot setback allowance, the minimum landscape area shall be ten percent (10%) and shall be located in both the front and side yard, where applicable.
Provided Landscape (13%)	0.403	17,555		

	REQUIRED	*PROVIDED*		
TREES	**59**	**66**	Commercial (C-1) - 1 per 300 s.f., 17,555 SF LANDSCAPE/300 = 59 TREES REQ'D	Code Sec. 16-8-90.C5-6
Deciduous - Min. 1.5" Cal.		58		Deciduous trees. Deciduous trees shall be a minimum of one and one-half (1½) inches in caliper
Evergreen - Min. 6' Ht.		8		Coniferous trees. Coniferous trees shall be a minimum of six (6) feet in height.
PARKING LOT TREES	**11**	**15**	169 SPOTS, 1 TREE PER 15 SPOTS, 169/15 X 1 = 11 TREES	Code Sec. 16-8-90.D1-3
Total TREES	**70**	**81**		
Total SHRUB AREA	**10,533 SF**	**11,086 SF**		Code Sec. 16-8-90.C3 - Minimum of sixty percent (60%) of the required landscape area shall be five ground cover.
PARKING LOT SHRUBS	56	382	169 SPOTS, 5 SHRUBS PER 15 SPOTS, 169/15 X 5 = 56 SHRUBS	
TOTAL SHRUB COUNT		1,136		Shrubs shall be a minimum two-gallon container.



VICINITY MAP
SCALE: 1" = 100'

Site Data Table	Proposed
Residential Density (units/acre)	28.6
Residential Density (units/lot sf)	1,492
Apartment Units	72
Townhome Units	20
Total Units	92
Total Office/Retail Space	10,274
Lot Coverage - Buildings	24%
Lot Coverage - Paving	39%
Coverage Cumulative	63%
Minimum Landscape Area	10%
Primary Building Side Setback min (ft)	3
Primary Building Front Setback min (ft)	5
Primary Building Rear Setback min (ft)	5
Accessory Building Side Setback (ft)	10
Accessory Building Rear Setback (ft)	10
Maximum Height Primary Building (ft/in)	34/9
Maximum Height Accessory Building (ft)	23/7
Property Size (sq. ft)	137,254
Min. Lot Frontage (ft)	335-7"

SITE TOTAL AREA: 3.15 AC

PARKING REQUIRED – 185
W/ 25% MIXED-USE REDUCTION – 139
PARKING PROVIDED
STANDARD PARKING 9'X18' (10 ADA).....113 STALLS
COMPACT PARKING 8'X16'.....46 STALLS
SITE TOTAL.....159 STALLS

TOTAL RETAIL / OFFICE ~ 10,274 SF
TOTAL UNITS = 100
31.75 DU/AC

Sheet List Table	
Sheet Number	Sheet Title
L-1	LANDSCAPE COVER SHEET
L-2	LANDSCAPE PLAN
L-3	LANDSCAPE DETAILS
I-1	IRRIGATION PLAN
I-2	IRRIGATION DETAILS
	SEE CIVIL DRAWINGS FOR EROSION CONTROL PLAN

CONTACTS:

OWNER:
CONCEPT30, INC.
71 GLENMOOR DRIVE
ENGLEWOOD, CO 80113
CONTACT: BERNIE WEBER

SURVEYOR:
RUBINO SURVEYING
3312 AIRPORT ROAD
BOULDER, CO 80301
PHONE: (303) 464-9515
CONTACT: BOB RUBINO

LANDSCAPE ARCHITECT
PHELPS ENGINEERING SERVICES
3522 SOUTH EMERSON STREET
ENGLEWOOD, CO 80113
PHONE: (303) 298-1644
CONTACT: CLAYTON TRAPP

CIVIL ENGINEER
PHELPS ENGINEERING SERVICES
3522 SOUTH EMERSON STREET
ENGLEWOOD, CO 80113
PHONE: (303) 298-1644
CONTACT: LONNY PHELPS

SUBMITTAL DATES
1ST - 10/27/2022

COLORADO 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)298-1644 mike@phelpsengineering.net phelpsengineering.net

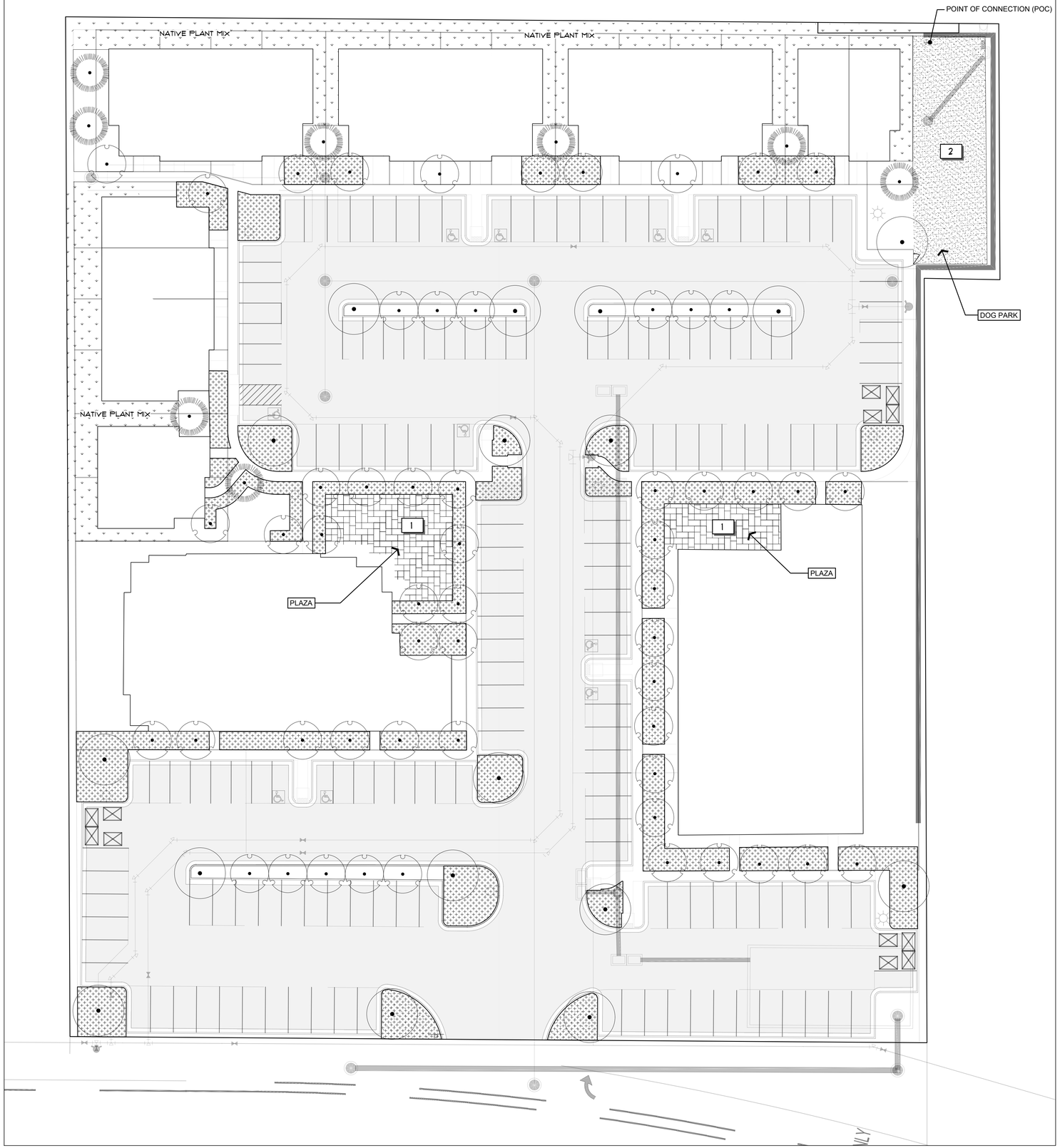
SCALE: SEE SHEET
DESIGNED BY:KM
DRAWN BY:KM
CHECKED BY:CT

CONSTRUCTION DOCUMENTS
LANDSCAPE PLAN
COVER SHEET

SALIDA CROSSINGS
1520 E. RAINBOW BLVD.
CITY OF SALIDA, COLORADO

DATE
10/27/2022

PROJECT NO.
17202



LANDSCAPE CALCULATIONS

	Acres	SF	Notes	*Reference - Salida Code of Ordinances - Version 10/11/22*
Total Gross Area of Site	3.14	137,214		
Required Landscape (10%)	0.314	13,721		Code Sec. 16-8-90.A1 - If a property does not utilize the zero-foot setback allowance, the minimum landscape area shall be ten percent (10%) and shall be located in both the front and side yard, where applicable.
Provided Landscape (13%)	0.403	17,555		

	REQUIRED	***PROVIDED***		
TREES	**59**	**66**	Commercial (C-1) - 1 per 300 s.f., 17,555 SF LANDSCAPE/300 = 59 TREES REQ'D	Code Sec. 16-8-90.C5-6
Deciduous - Min. 1.5" Cal.		58		Deciduous trees. Deciduous trees shall be a minimum of one and one-half (1½) inches in caliper
Evergreen - Min. 6' Ht.		8		Coniferous trees. Coniferous trees shall be a minimum of six (6) feet in height.
PARKING LOT TREES	**11**	**15**	169 SPOTS, 1 TREE PER 15 SPOTS, 169/15 X 1 = 11 TREES	Code Sec. 16-8-90.D1-3
Total TREES	**70**	**81**		
Total SHRUB AREA	**10,533 SF**	**11,086 SF**		Code Sec. 16-8-90.C3 - Minimum of sixty percent (60%) of the required landscape area shall be live ground cover.
PARKING LOT SHRUBS	56	382	169 SPOTS, 5 SHRUBS PER 15 SPOTS, 169/15 X 5 = 56 SHRUBS	
TOTAL SHRUB COUNT		1,136		Shrubs shall be a minimum two-gallon container.

PLANT SCHEDULE

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	DETAIL
		DECIDUOUS				
	11	GLEDITSIA TRIACANTHOS INERMIS 'SKYLINE'	SKYLINE HONEY LOCUST	1.5" CAL.	B&B	1/L-3
		EVERGREEN				
	8	JUNIPERUS SCOPULORUM	ROCKY MOUNTAIN JUNIPER	6' HT.	B&B	2/L-3
		SMALL DECIDUOUS				
	56	SYRINGA RETICULATA	JAPANESE TREE LILAC	1.5" CAL.	B&B	1/L-3

SHRUB AREAS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	DETAIL
	11,018 SF	SHRUB AREA					3/L-3
	446	AMORPHA CANESCENS	LEADPLANT	2 GAL	POT	3'0" @ 36" O.C.	
	19	ARCTOSTAPHYLOS UVA-URSI 'MASSACHUSETTS'	MASSACHUSETTS KINNIKINICK	2 GAL	POT	1'0" @ 36" O.C.	
	446	CARYOPTERIS X CLANDONENSIS	BLUEBEARD	2 GAL	POT	3'0" @ 36" O.C.	
	48	RHUS TRILOBATA	SKUNKBUSH SUMAC	2 GAL	POT	1'0" @ "U" O.C.	

NATIVE SEED MIX (NM)

BOTANIC	COMMON	PURE LIVE SEED RATE (LBS/ACRE)	PLANTING RATE PLS (LBS/ACRE)	
Agropyron cristatum	Crested Wheatgrass	10	25%	2.5
Bouteloua gracilis	Blue Grama Grass	8	20%	1.6
Elymus lanceolatus	Northern Wheatgrass	17	20%	3.4
Panicum virgatum	Switch Grass	3	20%	0.6
Spondolius cryptandrus	Sand Dropseed	1	15%	0.15
	TOTALS:		100%	8.25
	DRILL SEEDED RATE:		8.25	PLS/ACRE
	MECHANICAL BROADCAST RATE:		16.5	PLS/ACRE
	HAND BROADCAST RATE:		49.5	PLS/ACRE

REFERENCE NOTES SCHEDULE

SYMBOL	DESCRIPTION	QTY	DETAIL
1	UNILOCK BOULEVARD II INTERLOCKING PAVERS WITH A SMOOTH FINISH.	2,309 SF	5/L-3

SYMBOL	DESCRIPTION	QTY	DETAIL
2	CRUSHER FINES - MOUNTAIN GRANITE BREEZE	23.66 CY	4/L-3

0 20 40 60 feet

SCALE: 1" = 20'

PHELPS ENGINEERING
3522 South Emerson St. Englewood, CO 80113
(303) 256-1644 dm@phelpsengineering.net phelpsengineering.net

No.	REVISIONS	DATE	BY

SCALE: SEE SHEET
DESIGNED BY:KM
DRAWN BY:KM
CHECKED BY:CT

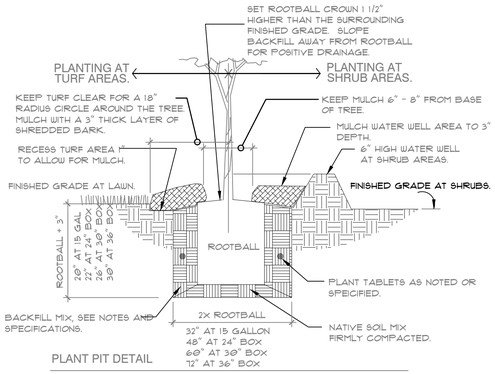
CONSTRUCTION DOCUMENTS
LANDSCAPE PLAN

SALIDA CROSSINGS
1520 E. RAINBOW BLVD.
CITY OF SALIDA, COLORADO

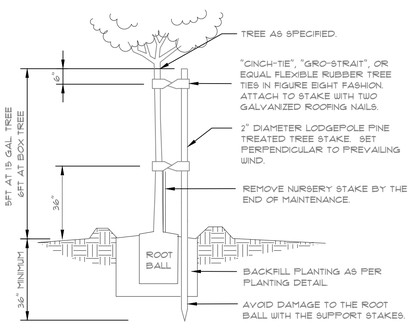
DATE
10/27/2022

PROJECT NO.
17202

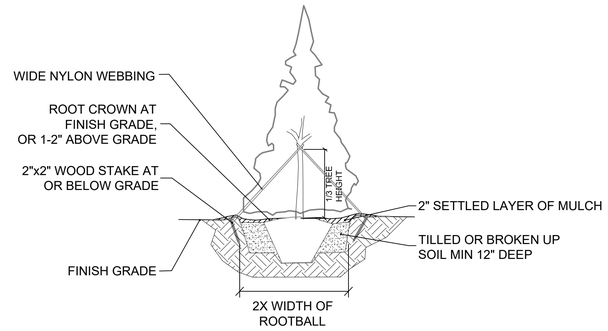
L-2
2 of 3



PLANT PIT DETAIL



STAKING DETAIL



1 TREE SINGLE STAKE PLANTING

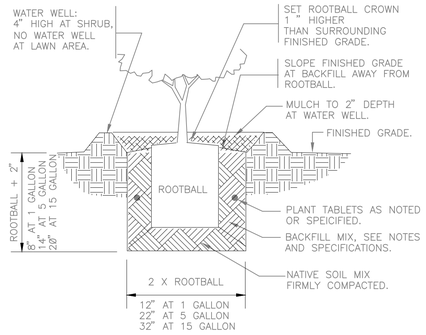
1" = 1'-0"

FX-PL-FX-TREE-02

2 EVERGREEN TREE PLANTING

1/4" = 1'-0"

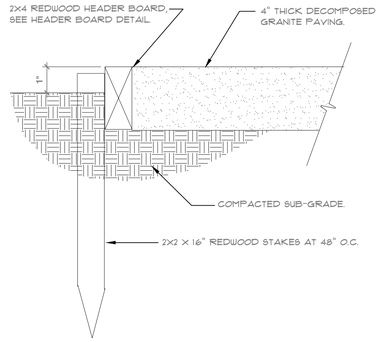
32 9343.25-01



3 SHRUB PLANTING

1" = 1'-0"

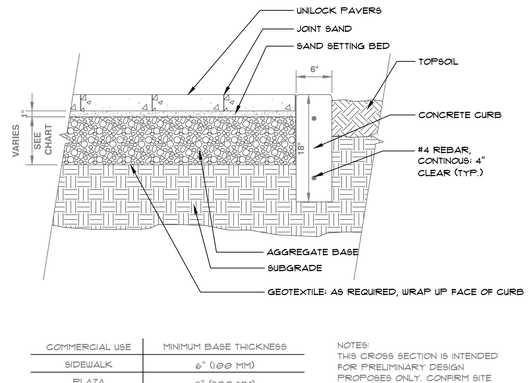
FX-PL-FX-SHRB-01



4 EDGE AT DECOMPOSED GRANITE PAVING

3" = 1'-0"

FX-SI-FX-PAV-01



COMMERCIAL USE	MINIMUM BASE THICKNESS
SIDEWALK	6" (150 MM)
PLAZA	8" (200 MM)
OTHER	CONTACT UNILOCK

NOTES:
THIS CROSS SECTION IS INTENDED FOR PRELIMINARY DESIGN PROPOSES ONLY. CONFIRM SITE CONDITIONS AND CONSULT WITH A QUALIFIED DESIGN PROFESSIONAL OR INSTILLER PRIOR TO INSTALLATION.

5 COMMERCIAL APPLICATION PAVER DETAIL

1" = 1'-0"

FX-SI-UNLK-INTE-01

Drawing name: C:\Users\Kelly - Work\OneDrive - Phelps Engineering Services\Company\Entitlement Engineering\17202 - Salida Commons\CAD\Landscape\17202-Salida-Landscape Plan.dwg L-3 DETAILS Oct 25, 2022 10:32pm by: Kelly - Work

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St. Englewood, CO 80113
(303) 256-1644 mail@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY:KM
DRAWN BY:KM
CHECKED BY:CT

CONSTRUCTION DOCUMENTS
LANDSCAPE PLAN
DETAILS

SALIDA CROSSINGS
1520 E. RAINBOW BLVD.
CITY OF SALIDA, COLORADO

DATE
10/27/2022

PROJECT NO.
17202

L-3
3 of 3

COLORADO 811
KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

FINAL PLAT
SALIDA CROSSINGS
A PORTION OF THE SW 1/ 4 OF NW 1/ 4 OF SW 1/ 4 SECTION 4, TOWNSHIP 49 NORTH, RANGE 9 EAST OF THE NEW MEXICO P.M. COUNTY OF CHAFFEE, STATE OF COLORADO

CERTIFICATE OF TITLE INSURANCE:

KNOW ALL MEN BY THESE PRESENTS, THAT THE UNDERSIGNED, BEING ALL OF THE OWNER(S), MORTGAGEE(S) AND LIEN HOLDER(S) OF CERTAIN LAND IN THE CITY OF SALIDA, CHAFFEE COUNTY, COLORADO, DESCRIBED AS FOLLOWS: BEGINNING _____, CONTAINING _____ ACRES, MORE OR LESS; _____ HAVE BY THESE PRESENTS LAID OUT, PLATTED AND SUBDIVIDED THE SAME INTO LOTS, BLOCKS OR TRACTS, AS SHOWN ON THIS PLAT, UNDER THE NAME AND STYLE OF _____, AND DO HEREBY DEDICATE TO THE CITY OF SALIDA AS PUBLIC ROADS, THE STREETS AND ROADS AS SHOWN ON SAID PLAT, THESE BEING _____. THE UNDERSIGNED HEREBY FURTHER DEDICATE TO THE PUBLIC ALL UTILITY EASEMENTS ON THE PROPERTY AS DESCRIBED AND AS SHOWN HEREON. THE UNDERSIGNED HEREBY FURTHER DEDICATE TO THE PUBLIC UTILITIES THE RIGHT TO INSTALL, MAINTAIN AND OPERATE MAINS, TRANSMISSION LINES, SERVICE LINES AND APPURTENANCES TO PROVIDE SUCH UTILITY SERVICES WITHIN THIS SUBDIVISION OR PROPERTY CONTIGUOUS THERETO, UNDER, ALONG AND ACROSS PUBLIC ROADS AS SHOWN ON THIS PLAT AND ALSO UNDER, ALONG AND ACROSS UTILITY EASEMENTS AS SHOWN HEREON. THE LANDS COMPRISING THIS SUBDIVISION ARE SUBJECT TO CERTAIN COVENANTS WHICH ARE RECORDED IN BOOK _____ AT PAGE _____ OF THE RECORDS OF CHAFFEE COUNTY, COLORADO.

EXECUTED THIS _____ DAY OF _____, 20__.

OWNER(S): MORTGAGEE(S)/LIENHOLDER(S):

_____ _____

COUNTY OF CHAFFEE)
) SS.
STATE OF COLORADO)

THE FOREGOING DEDICATION WAS ACKNOWLEDGED BEFORE ME THIS ____ DAY OF _____ 20__, BY _____. WITNESS MY HAND AND SEAL.

MY COMMISSION EXPIRES _____.

_____
NOTARY PUBLIC

CERTIFICATE OF STREET AND UTILITY MAINTENANCE:

PUBLIC NOTICE IS HEREBY GIVEN THAT NEITHER THE DEDICATED PUBLIC ROADS NOR THE PUBLIC UTILITIES SHOWN ON THIS PLAT WILL BE MAINTAINED BY THE CITY OF SALIDA UNTIL AND UNLESS THE SUBDIVIDER CONSTRUCTS THE STREETS, ROADS AND UTILITIES IN ACCORDANCE WITH THE SUBDIVISION AGREEMENT, IF ANY, AND THE SUBDIVISION REGULATIONS IN EFFECT AT THE DATE OF THE RECORDING OF THIS PLAT, AND APPROVAL OF THE CITY HAS BEEN ISSUED TO THAT EFFECT. WHEN THE CITY APPROVES A STREET OR UTILITY FOR MAINTENANCE, THE STREET OR UTILITY SHALL BECOME PUBLIC IN ALL SENSES OF THE WORD AND THE SUBDIVIDER HAS NO FURTHER OBLIGATIONS IN REGARDS TO THAT PARTICULAR STREET OR UTILITY.

SURVEYOR'S CERTIFICATE:

I, _____, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE SURVEY REPRESENTED BY THIS PLAT WAS MADE UNDER MY SUPERVISION, THE MONUMENTS SHOWN THEREON ACTUALLY EXIST AND THIS PLAT ACCURATELY REPRESENTS SAID SURVEY.

_____ _____
REGISTERED LAND SURVEYOR

TITLE CERTIFICATE:

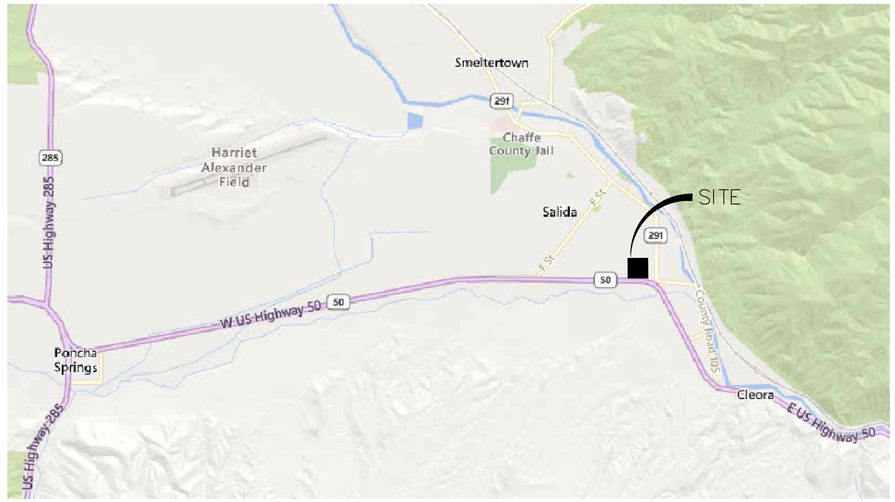
I, _____, AN (ATTORNEY AT LAW DULY LICENSED TO PRACTICE BEFORE THE COURTS OF RECORD OR A LICENSED TITLE INSURANCE AGENT REPRESENTING _____) IN THE STATE OF COLORADO, CERTIFY THAT I HAVE EXAMINED TITLE TO THE PROPERTY DESCRIBED HEREIN AND THAT IN MY OPINION TITLE TO THE ABOVE DESCRIBED REAL PROPERTY IS HELD BY _____.

SIGNED THIS ____ DAY OF _____, 20__.

_____ _____
ATTORNEY AT LAW

LEGAL DESCRIPTION:

COMMENCING AT A POINT ON THE NORTHERLY RIGHT-OF-WAY BOUNDARY OF U.S. HIGHWAY NO. 50, WHENCE THE SOUTHEAST CORNER (BRASS CAP) OF SAID SECTION 4 BEARS SOUTH 72°19.0' EAST 4848.6 FEET, AND WHENCE THE HIGHWAY RIGHT-OF-WAY CORNER (BRASS CAP) OF STATION 2301+12 OF THE CENTERLINE SURVEY OF SAID HIGHWAY BEARS SOUTH 89° 35' EAST 127.0FEET, SAID COMMENCING POINT BEING MARKED BE A POINT IN THE EASTERLY SIDE OF 24 INCH CMP CULVERT AND BEING WITNESSED BY A 5/8 INCH STEEL REINFORCING BAR 2 FEET LAND DRIVEN INTO THE GROUND AND HAVING A ONE INCH ALUMINUM CAP WHICH IS NORTH 89°35' WEST 3.0 FEET FROM SAID COMMENCING POINT ALSO BEING THE POINT OF BEGINNING OF THE TRACT HEREIN DESCRIBED;
THENCE NORTH 0°14.6' WEST 300.0 FEET TO A REINFORCING BAR AS DESCRIBED ABOVE;
THENCE SOUTH 89°35' EAST 28.8 FEET;
THENCE NORTH 0°14.6' WEST 100.0 FEET;
THENCE NORTH 89°35' WEST 365.4 FEET TO THE NORTHEAST CORNER OF THE TRACT HEREIN DESCRIBED IN BOOK 251 AT PAGE 423 OF THE RECORDS OF GHAFFEE COUNTY, COLORADO;
THENCE SOUTH 0°20' EAST 400 FEET ALONG THE EAST BOUNDARIES OF THE TRACTS DESCRIBED IN BOOK 251 AT PAGE 423 AND IN BOOK 260 AT PAGE 184 OF THE RECORDS OF CHAFFEE COUNTY, COLORADO;
THENCE SOUTH 89°35' EAST 336 FEET ALONG THE NORTHERLY RIGHT-OF-WAY BOUNDARY OF U.S. HIGHWAY NO. 50 TO THE POINT OF BEGINNING.



PROJECT CONTACTS:

OWNER:
BV INVESTMENTS
401 WHITEWIGN
MURPHY, TX 75094

CIVIL ENGINEER:
PHELPS ENGINEERING SERVICES, INC.
LONNY PHELPS, P.E.
3522 SOUTH EMMERSON STREET
ENGLEWOOD, CO 80113
PHONE: (303) 298-1644

DEVELOPER:
LOUCIOS ENTERPRISES LLC
2605 FAIRHILL LANE
FLOWER, TX 75022

SURVEYOR:
RUBINO SURVEYING
ROBERT J. RUBINO, PLS 14142
3312 AIRPORT ROAD
BOULDER, CO 80301
(303) 464-9515

TITLE EXCEPTIONS ACCORDING TO FIRST AMERICAN TITLE INSURANCE COMPANY TITLE COMMITMENT NO. 17-05749 EFFECTIVE NOVEMBER 1, 2017:

7. SUBJECT TO ANY VESTED AND ACCRUED WATER RIGHTS FOR MINING, AGRICULTURAL, MANUFACTURING OR OTHER PURPOSES, AND RIGHTS TO DITCHES AND RESERVOIRS USED IN CONNECTION WITH SUCH WATER RIGHTS AS MAY BE RECOGNIZED AND ACKNOWLEDGED BY THE LOCAL CUSTOMS, LAWS AND DECISIONS OF COURT AND ALSO SUBJECT TO THE RIGHT OF THE PROPRIETOR OF A VEIN OR LODE TO EXTRACT AND REMOVE HIS ORE THEREFROM, SHOULD THE SAME BE FOUND TO PENETRATE OR INTERSECT THE PREMISES HEREBY GRANTED, AS PROVIDED BY LAW, IN U.S. PATENT ISSUED JANUARY 20, 1882 AND RECORDED MARCH 4, 1882 IN BOOK 23 AT PAGE 139. (NOT PLOTTABLE)

8. EASEMENT GRANTED TO PUBLIC SERVICE COMPANY OF COLORADO IN INSTRUMENT RECORDED MARCH 14, 1979 IN BOOK 423 AT PAGE 713. (PLOTTED AND SHOWN HEREON)

9. EXHIBIT B DEED RESTRICTIONS AS SET FORTH IN DOCUMENT RECORDED SEPTEMBER 5, 2017 AS RECEPTION NO. 437005. (NOT PLOTTABLE)

10. NOTE: THE FOLLOWING NOTICES PURSUANT TO CRS 9-1.5-103 CONCERNING UNDERGROUND FACILITIES HAVE BEEN FILED WITH THE CLERK AND RECORDER. THESE STATEMENTS ARE GENERAL AND DO NOT NECESSARILY GIVE NOTICE OF UNDERGROUND FACILITIES WITHIN THE SUBJECT PROPERTY:
A) MOUNTAIN BELL TELEPHONE COMPANY - FILED OCTOBER 2, 1981, RECEPTION NO. 211211;
B) PUBLIC SERVICE COMPANY OF COLORADO - FILED NOVEMBER 2, 1981, RECEPTION NO. 211929;
C) WESTERN SLOPE GAS COMPANY - DECEMBER 11, 1981, RECEPTION NO. 212569 AND FILED MAY 24, 1985, RECEPTION NO. 234357; (COMPANY NAME AMENDED TO "WESTERN GAS SUPPLY COMPANY" BY CERTIFICATES RECORDED JUNE 27, 1988 IN BOOK 497 AT PAGE 103); MERGED WITH PUBLIC SERVICE COMPANY OF COLORADO PER INSTRUMENT RECORDED JANUARY 25, 1993 IN BOOK 531 AT PAGE 694. (NOT PLOTTABLE - NO SPECIFIC LOCATION GIVEN)
D) GREELEY GAS COMPANY - FILED NOVEMBER 18, 1981, AT RECEPTION NO. 212196.
(NOT PLOTTABLE - NO SPECIFIC LOCATION GIVEN)
E) LETTER FROM UTILITY NOTIFICATION CENTER OF COLORADO DISCLOSING LOCAL FACILITIES ACCESS THROUGH "ONE CALL SYSTEM" RECORDED SEPTEMBER 14, 1988 IN BOOK 498 AT PAGE 950. (NOT PLOTTABLE)

11. TERMS AND CONDITIONS SET FORTH IN DECLARATION OF UTILITY EASEMENT RECORDED OCTOBER 24, 2017 AS RECEPTION NO. 438348. (PLOTTED AND SHOWN HEREON)

12. TERMS AND CONDITIONS SET FORTH IN DECLARATION OF UTILITY EASEMENT RECORDED OCTOBER 24, 2017 AS RECEPTION NO. 438348. (PLOTTED AND SHOWN HEREON)

13. THE EFFECT, IF ANY, OF THE FOLLOWING MATTERS AS SHOWN ON THAT CERTAIN A.L.T.A./N.S.P.S. LAND TITLE SURVEY PREPARED BY ROBERT RUBINO, PLS 14142, DRAWING NO. 171191.DWG DATED OCTOBER 10, 2017
A) ANY LOSS OR CLAIM RESULTING FROM FAILURE OF EXISTING FENCING TO PRECISELY FOLLOW SUBJECT BOUNDARY LINES.
B) POSSIBLE ENCROACHMENT OF "WOOD WALL" ALONG THE WESTERLY BOUNDARY OF SUBJECT PROPERTY.
C) UTILITY POLES AND OVERHEAD UTILITY LINES AND POSSIBLE UNRECORDED EASEMENTS THEREFOR.
D) ENCROACHMENT OF "BOX CAR" ONTO SUBJECT PROPERTY
NOTE: UPON RECORDATION OF "ENCROACHMENT EASEMENT AGREEMENTS" AS SET FORTH AS A REQUIREMENT IN SCHEDULE B-I HEREIN, THIS EXCEPTION SHALL BE DELTED. (SEE SURVEY)

14. TERMS, CONDITIONS, PROVISIONS AND OBLIGATIONS SET FORTH IN ENCROACHMENT AGREEMENTS RECORDED _____, AS RECEPTION NO. _____, AND _____ AS RECEPTION NO. _____, AND _____ AS RECEPTION NO. _____ (NOT ADDRESSED)

GENERAL NOTES:

1. NOTICE: ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATE SHOWN HEREON.

2. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY RUBINO SURVEYING TO DETERMINE OWNERSHIP OR EASEMENTS OF RECORD, RIGHT OF WAY OR TITLE OF RECORD. RUBINO SURVEYING RELIED UPON FIRST AMERICAN TITLE INSURANCE COMPANY, FILE NO. 17-05491.

3. THIS SURVEY IS VALID ONLY IF PRINT HAS SEAL AND SIGNATURE OF SURVEYOR.

CITY ADMINISTRATOR APPROVAL:

THIS PLAT IS APPROVED BY THE SALIDA CITY ADMINISTRATOR THIS __ DAY OF 20___.

_____ _____
CITY ADMINISTRATOR

PLANNING COMMISSION APPROVAL:

PLANNING COMMISSION APPROVAL.
THIS PLAT IS APPROVED BY THE CITY OF SALIDA PLANNING COMMISSION THIS ____ DAY OF _____, 20__.

_____ _____
CHAIRMAN

THIS PLAT IS APPROVED FOR FILING AND THE CITY HEREBY ACCEPTS THE DEDICATION OF THE STREETS AND ROADS SHOWN HEREON SUBJECT TO THE PROVISIONS IN "STREET MAINTENANCE" SET FORTH ABOVE, AND FURTHER ACCEPTS THE DEDICATION OF THE EASEMENTS SHOWN HEREON.
SIGNED THIS _____ DAY OF _____, 20__.
CITY OF SALIDA

BY:_____
MAYOR

PLANNING COMMISSION APPROVAL:

THIS PLAT WAS FILED FOR RECORD IN THE OFFICE OF THE COUNTY CLERK AND RECORDER OF CHAFFEE COUNTY AT _____ ___ M. ON THE _____ DAY OF _____, 20__, RECEPTION NO. _____.
COUNTY CLERK AND RECORDER
BY:_____
DEPUTY
(ORD. NO. 2018-21 , § 2, 1-11-2019)

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: ZJD
CHECKED BY: RR

FINAL PLAT

SALIDA CROSSINGS
CITY OF SALIDA
CHAFFEE COUNTY, CO

DATE
10/27/2022

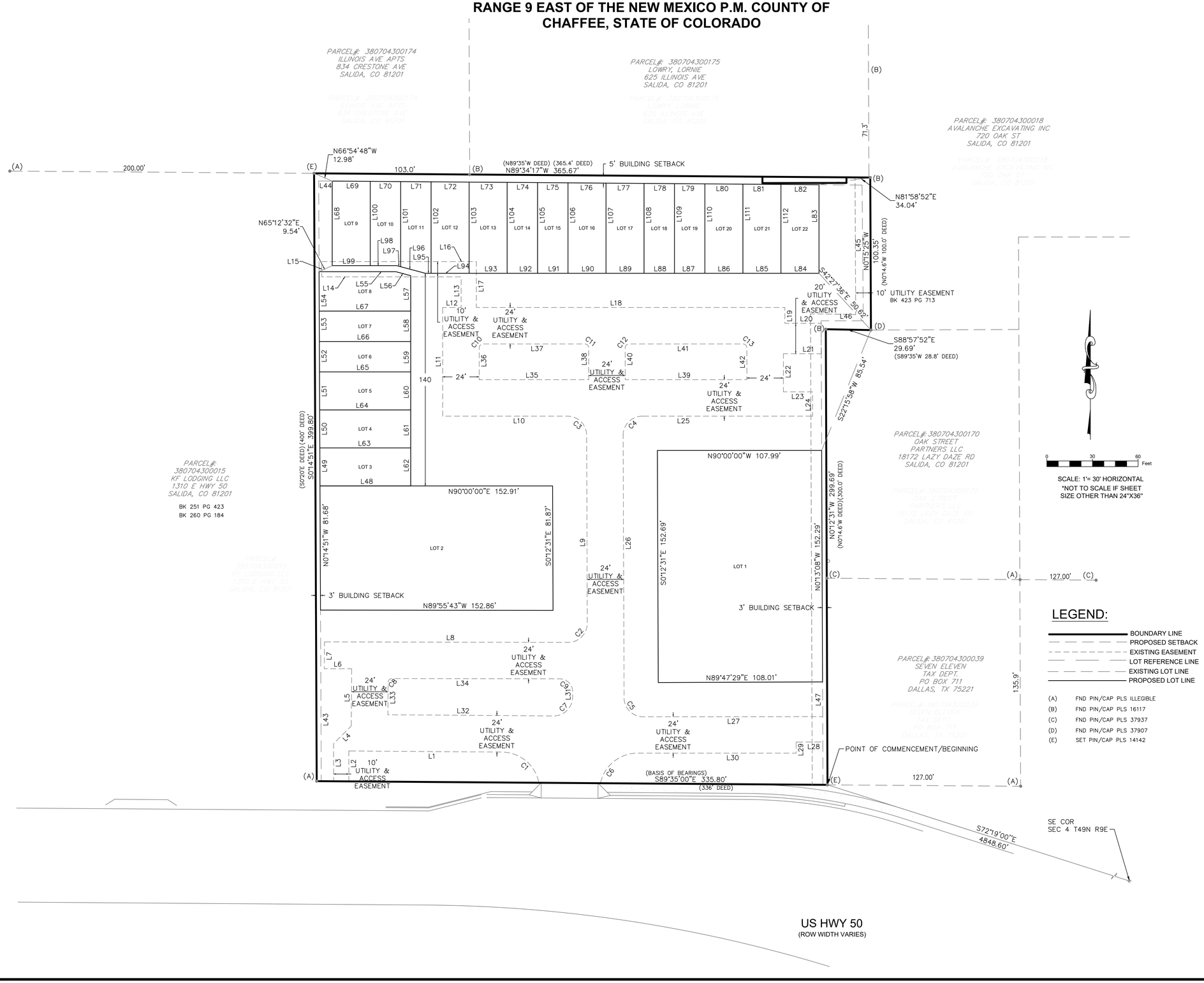
PROJECT NO.
17202

Drawing name: C:\Users\Zach\OneDrive - Phelps Engineering Services\Company\Entitlement Engineering\17202 - Salida Commons\CAD\Sheets\PRELIM PLAT\17202 - COVER PLAT.dwg COVER SHEET Oct 27, 2022 11:38am by: Zach

FINAL PLAT

SALIDA CROSSINGS MINOR SUBDIVISION

A PORTION OF THE SW 1/ 4 OF NW 1/ 4 OF SW 1/ 4 SECTION 4, TOWNSHIP 49 NORTH, RANGE 9 EAST OF THE NEW MEXICO P.M. COUNTY OF CHAFFEE, STATE OF COLORADO



SCALE: 1'= 30' HORIZONTAL
*NOT TO SCALE IF SHEET SIZE OTHER THAN 24"X36"

LEGEND:

- BOUNDARY LINE
- PROPOSED SETBACK
- EXISTING EASEMENT
- LOT REFERENCE LINE
- EXISTING LOT LINE
- PROPOSED LOT LINE

(A) FND PIN/CAP PLS ILLEGIBLE
(B) FND PIN/CAP PLS 16117
(C) FND PIN/CAP PLS 37937
(D) FND PIN/CAP PLS 37907
(E) SET PIN/CAP PLS 14142

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: ZJD
CHECKED BY: RR

FINAL PLAT

SALIDA CROSSINGS
CITY OF SALIDA
CHAFFEE COUNTY, CO

DATE
10/27/2022

PROJECT NO.
17202

Drawing name: C:\Users\Zach\OneDrive - Phelps Engineering Services\Company\Entitlement Engineering\17202 - Salida Commons\CAD\Sheets\PRELIM PLAT\17202 - PLAT.dwg PLAT MAP Oct 27, 2022 11:38am by: Zach

FINAL PLAT
SITE INFORMATION

LINE TABLE		
LINE	LENGTH	BEARING
L1	100.65	N89°34'55.02"W
L2	19.97	S0°04'44.10"E
L3	24.75	S0°04'44.10"E
L4	16.48	S44°55'54.43"W
L5	37.68	N0°25'04.98"E
L6	18.00	N90°00'00.00"E
L7	17.62	S0°25'04.98"W
L8	160.24	S89°53'41.87"E
L9	123.75	N0°12'31.17"W
L10	82.14	N90°00'00.00"W
L11	71.50	N0°00'00.00"E
L12	12.14	N90°00'00.00"E
L13	20.19	N0°03'43.70"E
L14	91.64	N90°00'00.00"W
L15	10.00	N0°00'00.00"E
L16	101.64	N90°00'00.00"E
L17	30.19	S0°00'22.10"E
L18	202.83	N90°00'00.00"E
L19	10.40	S0°00'01.46"E
L20	23.84	N89°57'57.40"E

LINE TABLE		
LINE	LENGTH	BEARING
L21	24.92	S89°59'12.58"E
L22	25.10	S0°00'00.00"E
L23	19.16	N90°00'00.00"W
L24	16.00	N0°00'00.00"E
L25	112.02	N90°00'00.00"W
L26	172.72	N0°12'31.17"W
L27	118.02	S89°56'29.68"W
L28	16.50	S89°47'28.83"W
L29	7.28	N0°00'00.00"E
L30	104.20	N90°00'00.00"E
L31	3.46	N0°25'04.98"E
L32	108.86	S89°34'55.02"E
L33	21.30	S0°25'04.98"W
L34	110.33	N89°55'42.55"W
L35	72.00	N90°00'00.00"W
L36	21.00	N0°00'00.00"E
L37	67.00	N90°00'00.00"E
L38	21.00	S0°00'00.00"E
L39	80.00	N90°00'00.00"W
L40	21.00	N0°00'00.00"E

LINE TABLE		
LINE	LENGTH	BEARING
L41	75.00	N90°00'00.00"E
L42	21.00	S0°00'00.00"E
L43	394.80	S0°14'50.62"E
L44	357.26	S89°34'17.46"E
L45	89.27	S0°31'19.50"E
L46	27.71	N90°00'00.00"W
L47	305.26	S0°13'08.18"E
L48	59.65	N90°00'00.00"W
L49	25.00	N0°14'50.62"W
L50	25.01	N0°14'50.62"W
L51	25.00	N0°14'50.62"W
L52	20.00	N0°14'50.62"W
L53	20.00	N0°14'50.62"W
L54	25.91	N0°14'50.62"W
L55	50.47	N90°00'00.00"E
L56	10.14	S75°00'00.00"E
L57	23.29	S0°00'00.00"E
L58	20.00	S0°00'00.00"E
L59	20.00	S0°00'00.00"E
L60	25.00	S0°00'00.00"E

CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C1	25.00'	34.24'	N50°20'42"W	31.63'	78°28'25"	20.42'
C2	12.50'	19.70'	N44°55'53"E	17.72'	90°16'49"	12.56'
C3	12.50'	19.59'	N45°06'16"W	17.65'	89°47'29"	12.45'
C4	12.50'	19.68'	S44°53'44"W	17.71'	90°12'31"	12.55'
C5	12.50'	19.63'	N45°12'31"W	17.68'	90°00'00"	12.50'
C6	25.00'	34.02'	N51°01'02"E	31.45'	77°57'57"	20.23'
C7	12.50'	19.63'	N45°25'05"E	17.68'	90°00'00"	12.50'
C8	2.50'	3.91'	S45°14'41"W	3.52'	89°39'12"	2.48'
C9	8.50'	13.40'	N44°45'19"W	12.06'	90°20'48"	8.55'
C10	2.50'	3.93'	N45°00'00"E	3.54'	90°00'00"	2.50'
C11	2.50'	3.93'	S45°00'00"E	3.54'	90°00'00"	2.50'
C12	2.50'	3.93'	N45°00'00"E	3.54'	90°00'00"	2.50'
C13	2.50'	3.93'	S45°00'00"E	3.54'	90°00'00"	2.50'

Parcel Name	Square Feet	Acres
LOT 1	16468.783	0.378
LOT 2	12502.44	0.287
LOT 3	1492.664	0.034
LOT 4	1495.845	0.034
LOT 5	1498.062	0.034
LOT 6	1200.389	0.028
LOT 7	1202.123	0.028
LOT 8	1547.14	0.036
LOT 9	1387.721	0.032
LOT 10	1107.763	0.025
LOT 11	1169.754	0.027
LOT 12	1501.907	0.034
LOT 13	1497.233	0.034
LOT 14	1194.417	0.027
LOT 15	1191.433	0.027
LOT 16	1485.08	0.034
LOT 17	1480.406	0.034
LOT 18	1180.959	0.027
LOT 19	1177.968	0.027
LOT 20	1468.253	0.034
LOT 21	1463.579	0.034
LOT 22	1459.473	0.034

LINE TABLE		
LINE	LENGTH	BEARING
L61	25.01	S0°00'00.00"E
L62	25.00	S0°00'00.00"E
L63	59.76	N90°00'00.00"E
L64	59.87	N90°00'00.00"E
L65	59.98	N90°00'00.00"E
L66	60.06	S89°59'59.39"E
L67	60.15	N90°00'00.00"E
L68	55.60	S0°00'00.00"E
L69	25.00	N89°34'17.46"W
L70	20.00	N89°34'17.46"W
L71	20.00	N89°34'17.46"W
L72	25.00	N89°34'17.46"W
L73	25.00	N89°34'17.46"W
L74	20.00	N89°34'17.46"W
L75	20.00	N89°34'17.46"W
L76	25.00	N89°34'17.46"W
L77	25.00	N89°34'17.46"W
L78	20.00	N89°34'17.46"W
L79	20.00	N89°34'17.46"W
L80	25.00	N89°34'17.46"W

LINE TABLE		
LINE	LENGTH	BEARING
L81	25.00	N89°34'17.46"W
L82	25.02	N89°34'17.46"W
L83	58.26	S0°00'57.62"W
L84	25.00	S89°59'40.53"W
L85	25.00	N90°00'00.00"W
L86	25.00	N90°00'00.00"W
L87	20.00	N90°00'00.00"W
L88	20.00	N90°00'00.00"W
L89	25.00	N90°00'00.00"W
L90	25.00	N90°00'00.00"W
L91	20.00	N90°00'00.00"W
L92	20.00	N90°00'00.00"W
L93	25.00	N90°00'00.00"W
L94	25.00	N90°00'00.00"W
L95	3.80	N90°00'00.00"E
L96	16.77	S75°00'00.00"E
L97	2.76	S75°00'00.00"E
L98	17.33	N90°00'00.00"E
L99	25.00	N90°00'00.00"E
L100	55.42	S0°00'01.23"W

LINE TABLE		
LINE	LENGTH	BEARING
L101	55.98	S0°00'00.61"W
L102	60.17	S0°00'00.00"E
L103	59.98	S0°00'00.00"E
L104	59.80	S0°00'00.00"E
L105	59.65	S0°00'00.61"W
L106	59.50	S0°00'00.00"E
L107	59.31	S0°00'00.00"E
L108	59.12	S0°00'00.00"E
L109	58.97	S0°00'00.00"E
L110	58.82	S0°00'00.00"E
L111	58.64	S0°00'00.00"E
L112	58.45	S0°00'00.00"E

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: ZJD
CHECKED BY: RR

FINAL PLAT

SALIDA CROSSINGS
CITY OF SALIDA
CHAFFEE COUNTY, CO

DATE
10/27/2022

PROJECT NO.
17202

Drawing name: C:\Users\Zach\OneDrive - Phelps Engineering Services\Company\Entitlement Engineering\17202 - Salida Commons\CAD\Sheets\PRELIM PLAT\17202 - PLAT.dwg SITE INFORMATION Oct 27, 2022 11:38am by: Zach

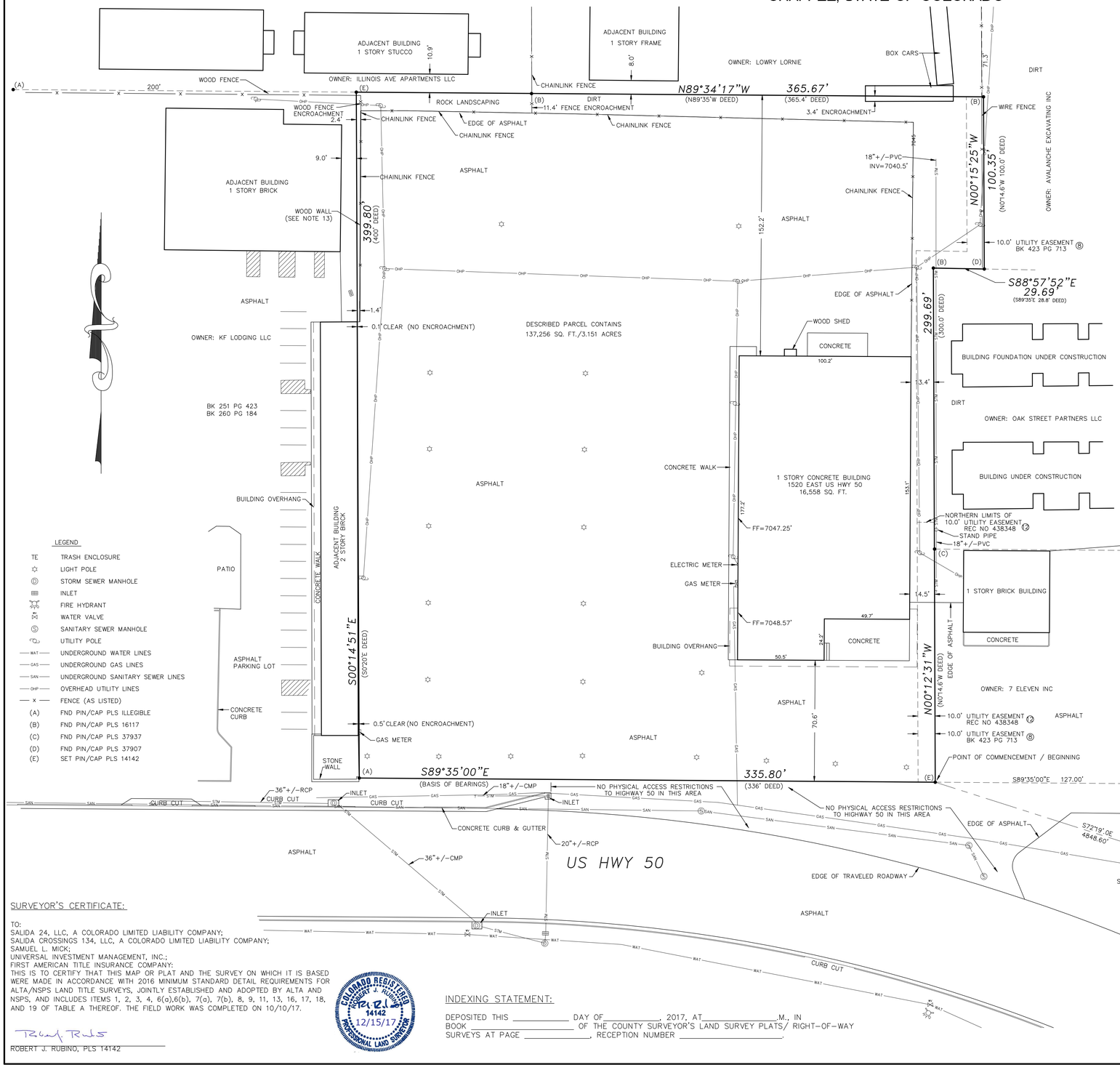
A.L.T.A./N.S.P.S. LAND TITLE SURVEY

A PORTION OF THE SW 1/4 OF SECTION 4, TOWNSHIP 49 NORTH, RANGE 8 EAST OF THE N.M.P.M. COUNTY OF CHAFFEE, STATE OF COLORADO

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



LEGEND

TE	TRASH ENCLOSURE
☼	LIGHT POLE
Ⓓ	STORM SEWER MANHOLE
▦	INLET
⋇	FIRE HYDRANT
⋈	WATER VALVE
Ⓢ	SANITARY SEWER MANHOLE
○	UTILITY POLE
WAT	UNDERGROUND WATER LINES
GAS	UNDERGROUND GAS LINES
SAN	UNDERGROUND SANITARY SEWER LINES
OHP	OVERHEAD UTILITY LINES
x	FENCE (AS LISTED)
(A)	FND PIN/CAP PLS ILLEGIBLE
(B)	FND PIN/CAP PLS 16117
(C)	FND PIN/CAP PLS 37937
(D)	FND PIN/CAP PLS 37907
(E)	SET PIN/CAP PLS 14142

SURVEYOR'S CERTIFICATE:

TO:
SALIDA 24, LLC, A COLORADO LIMITED LIABILITY COMPANY;
SALIDA CROSSINGS 134, LLC, A COLORADO LIMITED LIABILITY COMPANY;
SAMUEL L. MICK;
UNIVERSAL INVESTMENT MANAGEMENT, INC.;
FIRST AMERICAN TITLE INSURANCE COMPANY:
THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 6(a),6(b), 7(a), 7(b), 8, 9, 11, 13, 16, 17, 18, AND 19 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON 10/10/17.

ROBERT J. RUBINO, PLS 14142

COLORADO REGISTERED ROBERT J. RUBINO 14142 12/15/17 PROFESSIONAL LAND SURVEYOR

INDEXING STATEMENT:

DEPOSITED THIS _____ DAY OF _____, 2017, AT _____.M., IN BOOK _____ OF THE COUNTY SURVEYOR'S LAND SURVEY PLATS/ RIGHT-OF-WAY SURVEYS AT PAGE _____, RECEPTION NUMBER _____.

TITLE COMMITMENT LEGAL DESCRIPTION:

A TRACT OF LAND LOCATED IN THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER (SW1/4 NW1/4 SW1/4) OF SECTION 4, TOWNSHIP 49 NORTH, RANGE 9 EAST OF THE NEW MEXICO PRINCIPAL MERIDIAN, CHAFFEE COUNTY, COLORADO, BEING DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT ON THE NORTHERLY RIGHT-OF-WAY BOUNDARY OF U.S. HIGHWAY NO. 50, WHENCE THE SOUTHEAST CORNER (BRASS CAP) OF SAID SECTION 4 BEARS SOUTH 72°19.0' EAST 4848.6 FEET, AND WHENCE THE HIGHWAY RIGHT-OF-WAY MARKER (BRASS CAP) OF STATION 2301+12 OF THE CENTERLINE SURVEY OF SAID HIGHWAY BEARS SOUTH 89°35' EAST 127.0 FEET, SAID COMMENCING POINT BEING MARKED BY A POINT IN THE EASTERLY SIDE OF 24 INCH C.M.P. CULVERT AND BEING WITNESSED BY A 5/8 INCH STEEL REINFORCING BAR 2 FEET LAND DRIVEN INTO THE GROUND AND HAVING A ONE INCH ALUMINUM CAP WHICH IS NORTH 89°35' WEST 3.0 FEET FROM SAID COMMENCING POINT ALSO BEING THE POINT OF BEGINNING OF THE TRACT HEREIN DESCRIBED;
THENCE NORTH 0°14.6' WEST 300.0 FEET TO A REINFORCING BAR AS DESCRIBED ABOVE;
THENCE SOUTH 89°35' EAST 28.8 FEET;
THENCE NORTH 0°14.6' WEST 100.0 FEET;
THENCE NORTH 89°35' WEST 365.4 FEET TO THE NORTHEAST CORNER OF THE TRACT HEREIN DESCRIBED IN BOOK 251 AT PAGE 423 OF THE RECORDS OF CHAFFEE COUNTY, COLORADO;
THENCE SOUTH 0°20' EAST 400 FEET ALONG THE EAST BOUNDARIES OF THE TRACTS DESCRIBED IN BOOK 251 AT PAGE 423 AND IN BOOK 260 AT PAGE 184 OF THE RECORDS OF CHAFFEE COUNTY, COLORADO;
THENCE SOUTH 89°35' EAST 336 FEET ALONG THE NORTHERLY RIGHT-OF-WAY BOUNDARY OF U.S. HIGHWAY NO. 50 TO THE POINT OF BEGINNING.

SURVEYED LEGAL DESCRIPTION:

A TRACT OF LAND LOCATED IN THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 4, TOWNSHIP 49 NORTH, RANGE 9 EAST OF THE NEW MEXICO PRINCIPAL MERIDIAN, COUNTY OF CHAFFEE, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTHERLY RIGHT-OF-WAY LINE OF U.S. HIGHWAY NO. 50, WHENCE THE SOUTHEAST CORNER OF SAID SECTION 4 BEARS SOUTH 72°19' EAST, A DISTANCE OF 4848.6 FEET, AND WHENCE THE HIGHWAY RIGHT-OF-WAY MARKER OF STATION 2301+12 OF THE CENTERLINE OF SAID HIGHWAY BEARS SOUTH 89°35'00" EAST (WHICH IS THE BASIS OF BEARINGS FOR ALL BEARINGS STATED HEREIN), A DISTANCE OF 127.00 FEET;
THENCE NORTH 00°12'31" WEST, A DISTANCE OF 299.69 FEET;
THENCE SOUTH 88°57'52" EAST, A DISTANCE OF 29.69 FEET;
THENCE NORTH 00°15'25" WEST, A DISTANCE OF 100.35 FEET;
THENCE NORTH 89°34'17" WEST, A DISTANCE OF 365.67 FEET TO THE NORTHEAST CORNER OF THE TRACT DESCRIBED IN BOOK 251 AT PAGE 423 OF THE RECORDS OF CHAFFEE COUNTY;
THENCE SOUTH 00°14' 51" EAST ALONG THE EAST BOUNDARIES OF THE TRACTS DESCRIBED IN BOOK 251 AT PAGE 423 AND IN BOOK 260 AT PAGE 184 OF THE RECORDS OF CHAFFEE COUNTY, A DISTANCE OF 399.80 FEET TO NORTHERLY RIGHT-OF-WAY LINE OF SAID U.S. HIGHWAY NO. 50;
THENCE SOUTH 89°35'00" EAST ALONG SAID NORTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 335.80 FEET TO THE POINT OF BEGINNING.

(NOTE: THE ABOVE DESCRIBED "SURVEYED LEGAL DESCRIPTION" DESCRIBES THE SAME PROPERTY AS DESCRIBED IN THE TITLE COMMITMENT REFERENCED HEREON)

GENERAL NOTES:

1. NOTICE: ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATE SHOWN HEREON.

2. THIS A.L.T.A./N.S.P.S. LAND TITLE SURVEY, AND THE INFORMATION HEREON, MAY NOT BE USED FOR ANY ADDITIONAL OR EXTENDED PURPOSES BEYOND THAT FOR WHICH IT WAS INTENDED AND MAY NOT BE USED BY ANY PARTIES OTHER THAN THOSE TO WHICH IT IS CERTIFIED.

3. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY RUBINO SURVEYING TO DETERMINE OWNERSHIP OR EASEMENTS OF RECORD, RIGHT OF WAY OR TITLE OF RECORD. RUBINO SURVEYING RELIED UPON FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT NO. 17-05749, EFFECTIVE DECEMBER 6, 2017.

4. THE BEARINGS ARE BASED ON THE SOUTH LINE OF SUBJECT PROPERTY ASSUMED TO BEAR S89°35'00"E BETWEEN MONUMENTS FOUND AND DESCRIBED HEREON.

5. THIS SURVEY IS VALID ONLY IF PRINT HAS SEAL AND SIGNATURE OF SURVEYOR.

6. NO ZONING REPORT WAS SUPPLIED TO THE SURVEYOR. PER THE ZONING VERIFICATION LETTER FROM THE CITY OF SALIDA DATED 12/4/17, THE SUBJECT PROPERTY IS ZONED C-1 (COMMERCIAL) AND IS LOCATED WITHIN THE HIGHWAY 50 CORRIDOR OVERLAY DISTRICT.

7. PER FEMA'S FIRM MAP NO. 080269 0455B DATED MARCH 4, 1987, THE SUBJECT PROPERTY NOT LOCATED IN A FLOOD HAZARD AREA. THE SUBJECT PROPERTY IS IN ZONE X.

8. THERE WAS NO EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION, OR BUILDING ADDITIONS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELD WORK.

9. THERE WAS NO EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELD WORK.

10. THERE WERE NO WETLAND MARKERS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELD WORK.

11. THERE WERE NO PAINTED PARKING SPACES LOCATED ON SUBJECT PROPERTY AT THE TIME OF SURVEY.

12. ALL VISIBLE UTILITIES ARE PLOTTED AND SHOWN HEREON.

13. THE WOOD WALL ABUTS THE CHAINLINK FENCE ON THE WEST SIDE OF THE FENCE.

THIS PROPERTY IS SUBJECT TO THE FOLLOWING EXCEPTIONS ACCORDING TO FIRST AMERICAN TITLE INSURANCE COMPANY TITLE COMMITMENT NO. 17-05749 EFFECTIVE NOVEMBER 1, 2017:

7. SUBJECT TO ANY VESTED AND ACCRUED WATER RIGHTS FOR MINING, AGRICULTURAL, MANUFACTURING OR OTHER PURPOSES, AND RIGHTS TO DITCHES AND RESERVOIRS USED IN CONNECTION WITH SUCH WATER RIGHTS AS MAY BE RECOGNIZED AND ACKNOWLEDGED BY THE LOCAL CUSTOMS, LAWS AND DECISIONS OF COURT AND ALSO SUBJECT TO THE RIGHT OF THE PROPRIETOR OF A VEIN OR LODE TO EXTRACT AND REMOVE HIS ORE THEREFROM, SHOULD THE SAME BE FOUND TO PENETRATE OR INTERSECT THE PREMISES HEREBY GRANTED, AS PROVIDED BY LAW, IN U.S. PATENT ISSUED JANUARY 20, 1882 AND RECORDED MARCH 4, 1882 IN BOOK 23 AT PAGE 139. (NOT PLOTTABLE)

8. EASEMENT GRANTED TO PUBLIC SERVICE COMPANY OF COLORADO IN INSTRUMENT RECORDED MARCH 14, 1979 IN BOOK 423 AT PAGE 713. (PLOTTED AND SHOWN HEREON)

9. EXHIBIT B DEED RESTRICTIONS AS SET FORTH IN DOCUMENT RECORDED SEPTEMBER 5, 2017 AS RECEPTION NO. 437005. (NOT PLOTTABLE)

10. NOTE: THE FOLLOWING NOTICES PURSUANT TO CRS 9-1.5-103 CONCERNING UNDERGROUND FACILITIES HAVE BEEN FILED WITH THE CLERK AND RECORDER. THESE STATEMENTS ARE GENERAL AND DO NOT NECESSARILY GIVE NOTICE OF UNDERGROUND FACILITIES WITHIN THE SUBJECT PROPERTY:
A) MOUNTAIN BELL TELEPHONE COMPANY - FILED OCTOBER 2, 1981, RECEPTION NO. 211211; (NOT PLOTTABLE - NO SPECIFIC LOCATION GIVEN)
B) PUBLIC SERVICE COMPANY OF COLORADO - FILED NOVEMBER 2, 1981, RECEPTION NO. 211929; (NOT PLOTTABLE - NO SPECIFIC LOCATION GIVEN)
C) WESTERN SLOPE GAS COMPANY - DECEMBER 11, 1981, RECEPTION NO. 212569 AND FILED MAY 24, 1985, RECEPTION NO. 234357; (COMPANY NAME AMENDED TO "WESTERN GAS SUPPLY COMPANY" BY CERTIFICATES RECORDED JUNE 27, 1988 IN BOOK 497 AT PAGE 103); MERGED WITH PUBLIC SERVICE COMPANY OF COLORADO PER INSTRUMENT RECORDED JANUARY 25, 1993 IN BOOK 531 AT PAGE 694. (NOT PLOTTABLE - NO SPECIFIC LOCATION GIVEN)
D) GREELEY GAS COMPANY - FILED NOVEMBER 18, 1981, AT RECEPTION NO. 212196. (NOT PLOTTABLE - NO SPECIFIC LOCATION GIVEN)
E) LETTER FROM UTILITY NOTIFICATION CENTER OF COLORADO DISCLOSING LOCAL FACILITIES ACCESS THROUGH "ONE CALL SYSTEM" RECORDED SEPTEMBER 14, 1988 IN BOOK 498 AT PAGE 950. (NOT PLOTTABLE)

11. DELETED BY TITLE COMPANY

12. TERMS AND CONDITIONS SET FORTH IN DECLARATION OF UTILITY EASEMENT RECORDED OCTOBER 24, 2017 AS RECEPTION NO. 438348. (PLOTTED AND SHOWN HEREON)

13. THE EFFECT, IF ANY, OF THE FOLLOWING MATTERS AS SHOWN ON THAT CERTAIN A.L.T.A./N.S.P.S. LAND TITLE SURVEY PREPARED BY ROBERT RUBINO, PLS 14142, DRAWING NO. 17191.DWG DATED OCTOBER 10, 2017:
A. ANY LOSS OR CLAIM RESULTING FROM FAILURE OF EXISTING FENCING TO PRECISELY FOLLOW SUBJECT BOUNDARY LINES.
B. POSSIBLE ENCROACHMENT OF "WOOD WALL" ALONG THE WESTERLY BOUNDARY OF SUBJECT PROPERTY.
C. UTILITY POLES AND OVERHEAD UTILITY LINES AND POSSIBLE UNRECORDED EASEMENTS THEREFOR.
D. ENCROACHMENT OF "BOX CAR" ONTO SUBJECT PROPERTY
NOTE: UPON RECORDATION OF "ENCROACHMENT EASEMENT AGREEMENTS" AS SET FORTH AS A REQUIREMENT IN SCHEDULE B-I HEREIN, THIS EXCEPTION SHALL BE DELETED. (SEE SURVEY)

14. TERMS, CONDITIONS, PROVISIONS AND OBLIGATIONS SET FORTH IN ENCROACHMENT AGREEMENTS RECORDED _____, AS RECEPTION NO. _____, AND _____ AS RECEPTION NO. _____, AND _____ AS RECEPTION NO. _____ (NOT ADDRESSED)

REVISED 11/20/17, 12/05/17, 12/13/17, 12/15/17	
DRAWING NO: 17191.DWG	SHEET 1 OF 1
DATE OF SURVEY: 10/10/17	DATE OF DRAWING: 11/15/17
DRAWN BY: BR	PROJECT NO: 17191

Phase III Drainage Report
For:

Salida Crossings
Salida, Colorado

Property Owner:

BV Investments
401 Whitewign
Murphy, Texas 75094
Contact: Bernie Weber - Concept 30 Inc.
970-390-6902

Developer:

Loucios Enterprises, LLC
2605 Fairhill Lane
Flower, Texas 75022

Engineer:

Phelps Engineering Services, Inc.
3522 South Emerson Street
Englewood, Colorado 80113
Contact: Lonny Phelps, PE
303-298-1644

Submittal Date:
October 27, 2022

Revisions:

Phelps Project Number: 17202

PHELPS
ENGINEERING

Table of Contents

CERTIFICATION STATEMENTS

I hereby affirm that this report and plan for the Phase III drainage design of the development, Salida Crossings, was prepared by me (or under my direct supervision) in accordance with the provisions of the *City of Salida Design Criteria Manual for Water, Sewer, Stormwater, and Streets* for the owners thereof. I understand that the City of Salida does not and will not assume liability for drainage facilities designed by others.

_____

Registered Professional Engineer
State of Colorado No. 31346
(Affix Seal)

I. GENERAL LOCATION AND DESCRIPTION

This phase III drainage report presents the final drainage concepts for the development of the Salida Crossings project. The purpose of this study is to introduce the proposed layout, the final drainage scheme and the criteria that will be utilized in the designs of the drainage system for the project site.

The subject property is located within Section 4, Township 49 North, Range 9 East of the New Mexico Principal Meridan, City of Salida, Chaffee County, Colorado. The site is located adjacent to Colorado State Highway 50 (SH 50) at the southeast corner of the City of Salida.

The project site is located on a lot that was previously a car dealership. The project is bounded by a hotel to the west, various commercial buildings and lots to the north and east, and State Highway 50 to the south. The project site is approximately 3.15-acres. The original site was comprised of an approximately 1,800 square foot building, and paved asphalt surface covering the majority of the remainder of the site. Since the inception of this project, the building, the majority of the above ground features (light poles) and the asphalt covered surface has been removed to bare ground.

The northern three-quarters of the site generally slopes from the southwest to the northeast corner of the site. The majority of the runoff in this area sheet flows east into the adjacent property and a small area sheet flows into an existing drainage swale that flows north off-site into the adjacent property. The remaining quarter of the site sheet flows south into SH 50 and ultimately discharges to the Arkansas River (see the Existing Conditions Drainage Map in Appendix B).

The site is located on Flood Insurance Rate Map (FIRM) Panel 08015C0613D, dated December 7, 2017. The site is located within Flood Zone X, areas determined to be outside the 0.2% annual chance floodplain (see the Firmette Map in Appendix A).

The entire area has been mapped by the NRCS. The project site is nearly entirely composed of Dominson gravelly sandy loam with a small area at the northern property boundary that is composed of Manhattan sandy loam. The NRCS has classified both of these soil units as Hydrologic Soils Group A (see the Hydrologic Soil Group exhibit in Appendix A).

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

This phase III drainage report is for the development of the 3.15-acre site with two mixed-use buildings (Lots 1 & 2) that include 92 apartments with retail space on the first floor of each building, and 20 townhomes. In addition to the buildings, requisite roadways, sidewalks, open space, parking, landscaping, storm drainage facilities, and utilities will be constructed. This project is not expected to be built in phases.

II. DRAINAGE DESIGN CRITERIA

The project site’s drainage analysis will be completed in accordance with the City of Salida Department of Public Works *City of Salida Design Criteria Manual for Water, Sewer,*

Stormwater, and Streets and the Mile High Flood District's (MHFD) *Urban Storm Drainage Criteria Manual, Volumes I, II and III*.

The Rational method was used to determine the flows from the sub-basins that are routed through the site. The 5-year storm frequency was used for the minor design storm event and the 100-year storm frequency was used for the major design storm event when evaluating the flowrates generated by each of the sub-basins. Rainfall intensities were determined by the use of the city's equation for rainfall intensity (Equation 1 in sec. 8.5.1) and the 1-hour rainfall depths in inches for the 5-year and 100-year storm frequencies (Table 3 in sec. 8.5.2.1, calculation tables and forms included in Appendix A).

Mile High Flood district's MHFD-Detention, v4.04 spreadsheet was utilized to determine the required storage volumes for water quality, EURV and 100-year detention volumes to be used in the design of the proposed underground detention vault (see spreadsheet in Appendix B).

Mile High Flood District's MHFD-Inlet, v5.01 spreadsheet was utilized to determine the size and type of inlets to be used for capturing storm runoff in the roadways (see spreadsheets in Appendix B). Bentley's FlowMaster V8i was utilized for the initial sizing of the storm pipes. AutoCAD's Hydraflow Storm Sewers Extension v2021 will be used to finalize the size of the storm drain system piping and generate the HGL's of the system for the minor and major storm events.

III. DRAINAGE BASINS

As mentioned previously, the northern three-quarters of the existing site slopes from the southwest to the northeast corner of the site. The majority of the runoff in this area sheet flows east into the adjacent property and a small area sheet flows into an existing drainage swale that flows north into the adjacent property. The remaining quarter of the site sheet flows south into US Highway 50 and ultimately discharges to the Arkansas River.

The existing site consists of 5 sub-basins (X1 through X5). Sub-basin X1 is a small area that drained north into the adjacent property. Sub-basin X2 is a small area in the northeast corner of the site that drains into an existing drainage swale that directs flows from an existing storm sewer and continues north off-site into the adjacent property. The existing storm sewer is located adjacent to and just outside of the eastern property boundary of the site. Phelps Engineering has yet to determine where this storm pipe commences and what runoff flows are captured by the pipe. Sub-basin X3 is composed of the majority of the site and runoff flows sheet flow toward the northeast corner of the site to sheet flow off the site into the adjacent property between the previously existing building and Sub-basin X2. Between sub-basins X2 and X3, 3.45 cfs and 8.62 cfs flow off-site into the adjacent properties for the minor and major storm events, respectively. Sub-basin X4 consists of a portion of the roof of the previously existing building and the small area adjacent to the eastern property boundary that sheet flows into the adjacent property (0.50 cfs and 1.36 cfs respectively). Sub-basin X5 consists of the remainder of the site that sheet flows into US 50 (1.99 cfs and 4.81 cfs respectively, see the Existing Conditions Drainage Map in Appendix B). It should be noted that none of the runoff from these existing sub-basins passed through any formal water quality treatment/detention facility before flowing into the adjacent properties. Table 1 below is a summary of the hydrologic calculations for each of the existing conditions sub-basins.

Table 1. Summary of Existing Conditions Hydrologic Calculations

Basin	Drainage Area [ac]	Imperviousness	Soil Type	C_5	C_{100}	T_c [min]	I_5 [in/hr]	I_{100} [in/hr]	Q_5 [cfs]	Q_{100} [cfs]
X1	0.02	13.1%	A	0.06	0.21	5.76	3.24	7.53	0.005	0.04
X2	0.10	46.8%	A	0.33	0.48	15.52	2.07	4.82	0.07	0.24
X3	2.08	93.2%	A	0.79	0.84	11.07	2.47	5.75	4.04	10.01
X4	0.25	74.3%	A	0.59	0.69	5.00	3.39	7.88	0.50	1.36
X5	0.70	98.5%	A	0.84	0.88	5.00	3.39	7.88	1.99	4.81
Site Total	**3.15**	**90.8%**								

The proposed project site slopes from the northwest to the southeast and consists of 11 sub-basins (Basins A through I, OS1 and OS2) as shown on the Proposed Conditions Drainage Map in Appendix B.

Sub-basins A and B consist of portions of the townhomes, landscape areas, drive lane and parking areas for the site. The runoff will be collected in the roadway and directed to a set of CDOT Type 13 inlets at Design Point 1 (DP1) located within the road centerline. The captured flows will be piped to the inlets at DP2 and ultimately piped into the proposed underground detention vault W1 located in the southeast corner of the site.

Sub-basin F consists of portions of the roof for the building in Lot 1 and the open space behind the building. The runoff will be collected in a shallow swale that will direct the flows south to an area drain at DP4. The captured flows will be piped to the inlets at DP2.

Sub-basins C and D consist of portions of the roof for the buildings in Lots 1 and 2, landscaped areas, drive lane and parking areas for the site. The runoff will be collected in the roadway and directed to a set of CDOT Type 13 inlets at DP2 located within the road centerline. The captured flows will be piped into the proposed underground detention vault W1 located in the southeast corner of the site.

Sub-basin I consists of portions of the roof for the building in Lot 2 and the open space behind the building. The runoff will be collected in a shallow swale that will direct the flows south to an area drain at DP5. The captured flows will be piped into the proposed underground detention vault W1 located in the southeast corner of the site.

Sub-basin E consists of portions of the roof for the building in Lot 2, landscaped areas, drive lane and parking areas for the site. The runoff will be collected in the roadway and directed to a set of Denver Type 16 combination inlets at DP3 located in the corner of the parking lot by the trash enclosure. The captured flows will be piped into the proposed underground detention vault W1 located just east of the inlets.

Sub-basin G consists of portions of the townhomes and the open space behind the buildings. The runoff will be collected in a shallow swale that will direct the flows to one of three area drains located in low points behind Lots 8, 12 and 20. The captured flows will be piped to the existing drainage swale in the northeast corner of the project site at DP7.

Sub-basin H consists of portions of the townhome in Lot 22 and adjacent open space. The runoff for this area is to be directed to a manhole with a proposed slotted grate cover. The proposed manhole is to connect into the existing storm pipe that runs just inside the adjacent property on the east side of the project site boundary. The captured flows from sub-basin H will combine with the flows in the existing storm pipe and be piped northeast to discharge into the

existing drainage swale at DP7. The combined flows (0.40 cfs and 1.39 cfs respectively) will be directed north off-site in the existing drainage swale.

Sub-basin OS1 consists of the landscape areas behind the parking area curb in the southwest corner of the site. The runoff will sheet flow off-site into US Highway 50. Sub-basin OS2 consists of the landscape areas behind the parking area curb in the southeast corner of the site adjacent to US Highway 50 and the open space area behind parking lot curb and a retaining wall that runs the majority of the length of the eastern property boundary. The area adjacent to the eastern property boundary sheet flows off-site into the adjacent property. The area adjacent to US Highway 50 sheet flows off-site into the highway. The runoff flows that sheet flow off-site into Highway 50 are reduced to such a degree that they are virtually negligible compared to the exiting condition flows of 1.99 cfs and 4.81 cfs respectively from sub-basin X5. Therefore, there will be no issues with the existing system having capacity for these off-site flows from the proposed project site. See the Proposed Conditions Drainage Map in Appendix B.

Table 2 below is a summary of the hydrologic calculations for each of the proposed conditions sub-basins.

Table 2. Summary of Proposed Conditions Hydrologic Calculations

Basin	Drainage Area [ac]	Imperviousness	Soil Type	C_5	C_{100}	T_c [min]	I_5 [in/hr]	I_{100} [in/hr]	Q_5 [cfs]	Q_{100} [cfs]
A	0.50	79.7%	A	0.64	0.73	7.23	3.0	6.9	0.96	2.54
B	0.43	86.4%	A	0.71	0.78	5.00	3.4	7.9	1.03	2.64
C	0.88	78.8%	A	0.63	0.72	7.35	3.0	6.9	1.66	4.40
D	0.32	68.3%	A	0.53	0.64	10.35	2.6	5.9	0.43	1.21
E	0.22	85.5%	A	0.70	0.78	5.00	3.4	7.9	0.53	1.37
F	0.10	48.2%	A	0.34	0.49	5.00	3.4	7.9	0.12	0.39
G	0.40	49.5%	A	0.35	0.50	6.38	3.1	7.3	0.43	1.43
H	0.08	15.4%	A	0.08	0.23	8.66	2.8	6.4	0.02	0.12
I	0.14	35.3%	A	0.23	0.39	5.00	3.4	7.9	0.11	0.42
OS1	0.02	2.0%	A	0.01	0.13	5.00	3.4	7.9	0.0004	0.02
OS2	0.06	2.0%	A	0.01	0.13	5.00	3.4	7.9	0.001	0.06
Site Total	**3.15**	**69.2%**								

No offsite flows enter this project site. Runoff flows from all of the sub-basins except for sub-basins G, H, OS1 and OS2 will be directed to a proposed underground detention vault where the release rates will be significantly reduced for both the minor and major storm events.

IV. DRAINAGE FACILITY DESIGN

Since there were no existing water quality or detention facilities for the existing conditions storm drainage, the proposed project site will direct the majority of the runoff to a proposed underground water quality/detention vault in the southeast corner of the project site. Per the proposed storm drainage system, runoff from 2.59-acres of the 3.15-acre project site or 82% of the project site will be directed to the proposed underground detention vault. The storage volumes and release rates will follow MHFD's established methodology for the design of an Extended Detention Basin (EDB). The initial sizing of the underground detention vault will require a storage volume of 0.289 ac-ft or 12, 590 cu-ft at a minimum (see MHFD-Detention spreadsheet in Appendix B). The discharge from the detention facility is proposed to connect into the existing storm drainage system within US Highway 50. With further design of the detention facility, the release rates from the facility will be at or below the flow rates determined

for the existing conditions sub-basin X5 of 1.99 cfs and 4.81 cfs for the minor and major storm events respectively. Should the proposed inlets upstream from the underground detention vault become completely clogged, the emergency overflow is located at the southeast corner of the site and will release runoff into US Highway 50.

Additional water quality can be provided for with the use of landscaped areas and naturally vegetated areas to accommodate sheet flowing runoff and the proposed naturally vegetated drainage swales. Water quality will also be provided for in the proposed underground detention vault.

The storm sewer system comprised of inlets, area drains and storm drainpipe will be sized to intercept and transport the minor storm event without surcharging the system. The major storm will be captured in a comparable manner with any excess to the 100-year storm allowed to flow over the roadway system.

The NRCS has indicated that the existing soils on the site may be low to moderately susceptibility to sheet and rill erosion by water. However, the soils may be moderately susceptible to wind erosion (see the K-Factor, Whole Soil and Wind Erodibility exhibits in Appendix A). Since the beginning of the project, the existing building, asphalt and concrete pads have been removed and the ground is currently covered with native grasses and weeds, the ground will be susceptible to both wind and water erosion during grading activities. To minimize these effects, appropriate best management practices will be employed during construction. These include vehicle-tracking control, watering of the site, silt fences, straw logs, rock check dams, temporary vegetation and disking of the soil perpendicular to the prevailing wind direction.

V. CONCLUSIONS

This drainage report has been prepared in accordance with the City of Salida Department of Public Works, *City of Salida Design Criteria Manual for Water, Sewer, Stormwater, and Streets* and the Mile High Flood District's *Urban Storm Drainage Criteria Manual, Volumes I, II and* III regulations concerning storm drainage, detention and water quality. This report and the accompanying attachments in the Appendices, demonstrate that sufficient preliminary analysis and design has been performed to ensure that storm runoff due to the development of this project will be safely conveyed and released without detriment to the downstream facilities. As this project moves forward, the designs of the storm drainage system will follow the recommendations indicated in this report.

VI. REFERENCES

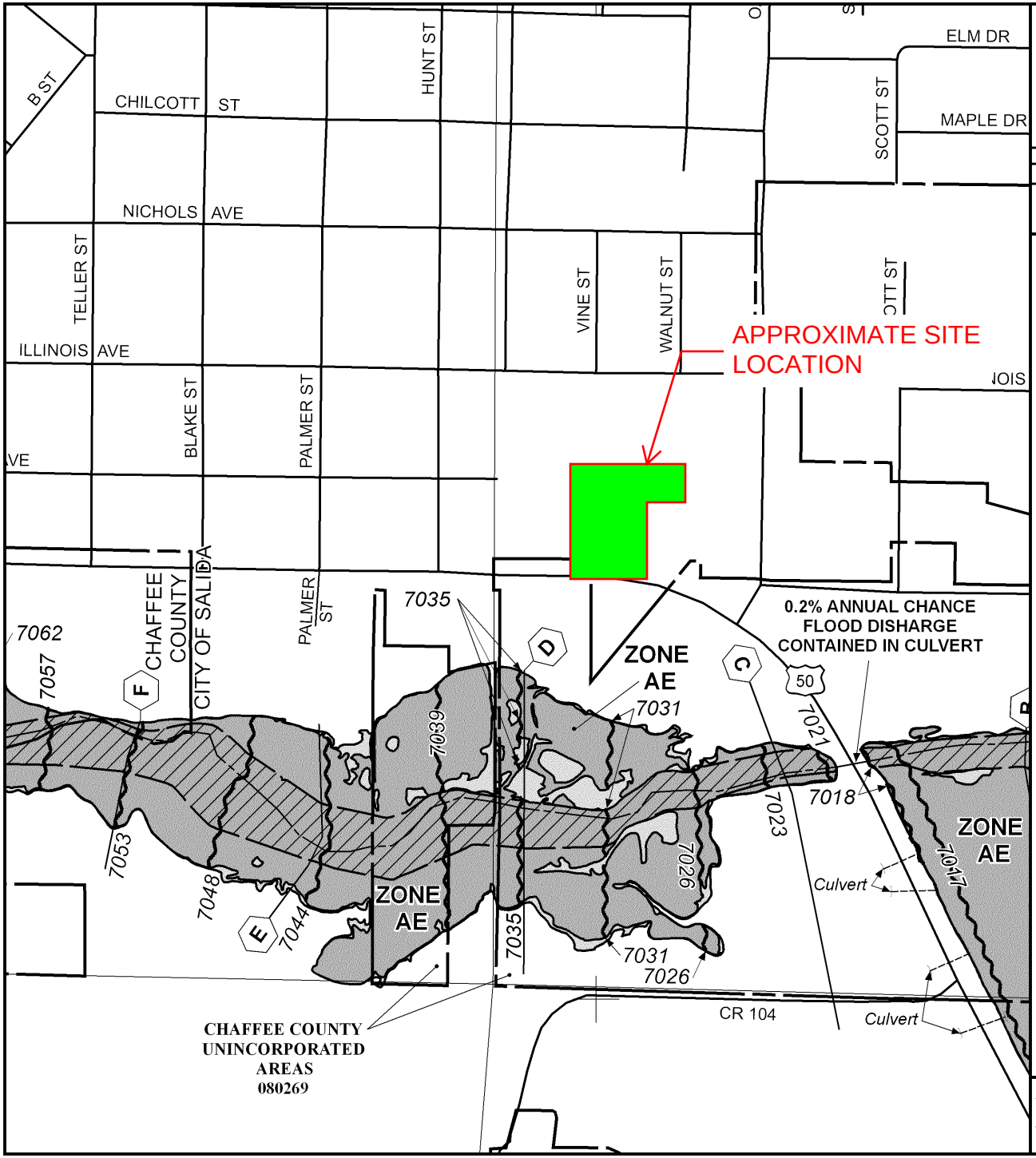
City of Salida Department of Public Works, *City of Salida Design Criteria Manual for Water, Sewer, Stormwater, and Streets*, Chaffee County, January 1, 2017

Mile High Flood District, *Urban Storm Drainage Criteria Manual*, *Volumes 1-3*, Latest Editions.

U.S. Department of Agriculture. (n.d.). Web Soil Survey. Retrieved December 12, 2017, from http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Appendix

A. HYDROLOGIC COMPUTATIONS



MAP SCALE 1" = 500'

0 500 1000 FEET

NFIP

PANEL 0613D

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CHAFFEE COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 613 OF 725

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
CHAFFEE COUNTY	080269	0613	D
SALIDA, CITY OF	080031	0613	D

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

MAP NUMBER
08015C0613D

EFFECTIVE DATE
DECEMBER 7, 2017

Federal Emergency Management Agency

Hydrologic Soil Group—Chaffee-Lake Area, Colorado, Parts of Chaffee and Lake Counties

Map Scale: 1:805 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 35 70 140 210

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Chaffee-Lake Area, Colorado, Parts of Chaffee and Lake Counties
Survey Area Data: Version 10, Oct 12, 2017

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

Date(s) aerial images were photographed: Jun 25, 2011—Sep 26, 2016

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DoD	Dominson gravelly sandy loam, 1 to 9 percent slopes	A	3.2	99.8%
MaB	Manhattan sandy loam, 1 to 3 percent slopes	A	0.0	0.2%
Totals for Area of Interest			**3.2**	**100.0%**

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

K Factor, Whole Soil—Chaffee-Lake Area, Colorado, Parts of Chaffee and Lake Counties

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Lines

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Points

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Chaffee-Lake Area, Colorado, Parts of Chaffee and Lake Counties
Survey Area Data: Version 10, Oct 12, 2017

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

Date(s) aerial images were photographed: Jun 25, 2011—Sep 26, 2016

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.

K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DoD	Dominson gravelly sandy loam, 1 to 9 percent slopes	.05	3.2	99.8%
MaB	Manhattan sandy loam, 1 to 3 percent slopes	.20	0.0	0.2%
Totals for Area of Interest			**3.2**	**100.0%**

Description

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

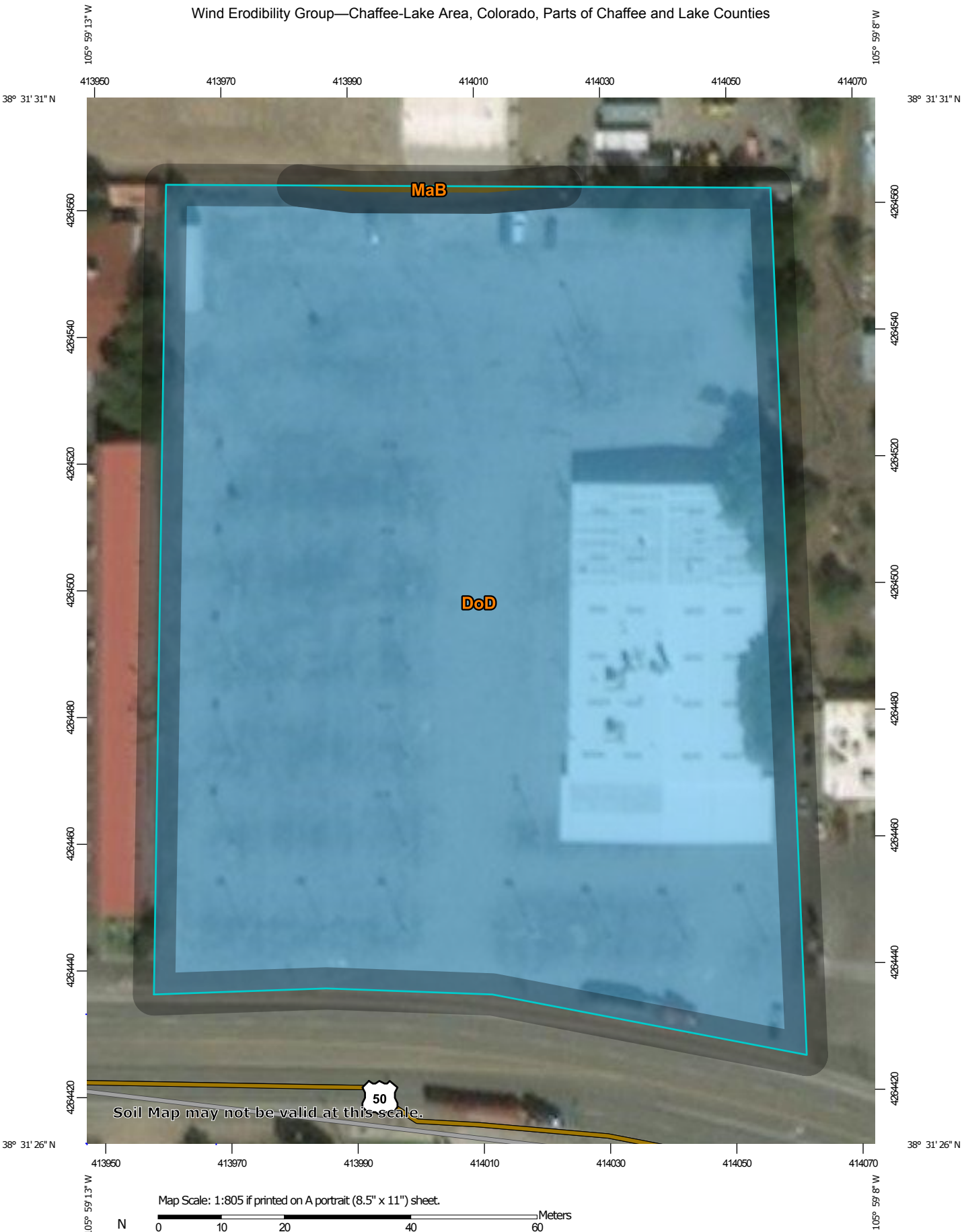
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)



Map Scale: 1:805 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 10 20 40 60

Feet
0 35 70 140 210

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

1
2
3
4
4L
5
6
7
8
Not rated or not available

Soil Rating Lines

1
2
3
4
4L
5
6
7
8
Not rated or not available

Soil Rating Points

1
2
3
4
4L
5
6
7
8
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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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: Chaffee-Lake Area, Colorado, Parts of Chaffee and Lake Counties
Survey Area Data: Version 10, Oct 12, 2017

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

Date(s) aerial images were photographed: Jun 25, 2011—Sep 26, 2016

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.

Wind Erodibility Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DoD	Dominson gravelly sandy loam, 1 to 9 percent slopes	6	3.2	99.8%
MaB	Manhattan sandy loam, 1 to 3 percent slopes	3	0.0	0.2%
Totals for Area of Interest			**3.2**	**100.0%**

Description

A wind erodibility group (WEG) consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

The data in Table 1 was used to derive the intensity equation (Equation 1) that can be used to calculate intensities for durations not listed in the table. This equation can be used in conjunction with the Rational Method, which is described in 8.6.

Equation 1 – Rainfall Intensity Equation for Salida, Colorado

$$I = \frac{49 * P_1}{(10 + T_d)^{0.927}}$$

Where,

I= Rainfall intensity (inch/hour).
P_1 = 1-hour rainfall depth (inches).
T_d = Storm duration or time of concentration (minutes).

8.5.2 DESIGN RAINFALL DISTRIBUTION

8.5.2.1 2-HOUR DESIGN STORM

For drainage areas larger than 90 acres, or for sizing stormwater infrastructure where a hydrograph is required, a temporal distribution must be assigned to a precipitation event for calculation of runoff. Characteristics of a temporal distribution include storm duration and distribution of rainfall. The UDFCD-USDCM recommends using a two-hour design storm for watersheds less than 15 square-miles. The UDFCD 2-hour design storm depth ratios are provided in Table 2. Design storm depth ratios are percentages of the total one-hour design rainfall depth at a given time increment.

Table 2 - Two-Hour Design Storm Distribution of 1-Hour Point Rainfall Depth (UDFCD-USDCM)

Time (minutes)	Percent of 1-Hour Precipitation Depth (%)				
	2-Yr	**5-Yr**	**10-Yr**	**25-Yr & 50-Yr**	**100-Yr & 500-Yr**
5	2	2	2	1.3	1
10	4	3.7	3.7	3.5	3
15	8.4	8.7	8.2	5	4.6
20	16	15.3	15	8	8
25	25	25	25	15	14
30	14	13	12	25	25
35	6.3	5.8	5.6	12	14
40	5	4.4	4.3	8	8
45	3	3.6	3.8	5	6.2
50	3	3.6	3.2	5	5
55	3	3	3.2	3.2	4
60	3	3	3.2	3.2	4
65	3	3	3.2	3.2	4
70	2	3	3.2	2.4	2
75	2	2.5	3.2	2.4	2
80	2	2.2	2.5	1.8	1.2
85	2	2.2	1.9	1.8	1.2
90	2	2.2	1.9	1.4	1.2
95	2	2.2	1.9	1.4	1.2
100	2	1.5	1.9	1.4	1.2
105	2	1.5	1.9	1.4	1.2

110	2	1.5	1.9	1.4	1.2
115	1	1.5	1.7	1.4	1.2
120	1	1.3	1.3	1.4	1.2

The one-hour point rainfall depths for the City were obtained from NOAA 14 at Station 05-7370 and are provided in Table 2.

Table 3 - Rainfall Depths -- NOAA 14 for Station 05-7370, Salida, Colorado

Storm Frequency	1-hour Rainfall (inches)
2-Year	0.596
5-Year	0.851
10-Year	1.08
25-Year	1.41
50-Year	1.69
100-Year	1.98

According to the UDFCD-USDCM, Depth reduction factors (DRFs) are typically applied to cumulative watershed models over two square-miles for the two-hour design storm for the 2-, 5-, and 10-year storms. For the 25-, 50-, and 100-year storms, NOAA 14 recommends applying DRFs to cumulative watershed models over 15 square-miles. Depth reduction factors for the 2-, 5-, and 10-year design rainfall events are provided in Table 4. Since there are no areas within the City that are larger than 15 square-miles, the DRFs for the 25-, 50-, and 100-year storms were not provided.

Table 4 - Depth Reduction Factors for 2-. 5-, & 10-Year Rainfall Events

Time (minutes)	Correction Factor by Watershed Area in Square Miles								
	2	**5**	**10**	**15**	**20**	**30**	**40**	**50**	**75**
5	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1
15	1	0.97	0.94	0.91	0.9	0.85	0.75	0.65	0.56
20	1	0.86	0.75	0.68	0.61	0.55	0.48	0.42	0.35
25	1	0.86	0.75	0.68	0.61	0.55	0.48	0.42	0.35
30	1	0.86	0.75	0.68	0.61	0.55	0.48	0.42	0.42
35	1	0.97	0.94	0.91	0.9	0.9	0.9	0.9	0.89
40	1	0.97	0.94	0.91	0.9	0.9	0.9	0.9	0.89
45	1	1	1	1.02	1.02	1.01	1.01	1.01	1
50	1	1	1	1.02	1.02	1.01	1.01	1.01	1
55	1	1	1	1.02	1.02	1.01	1.01	1.01	1
60	1	1	1	1.02	1.02	1.01	1.01	1.01	1
65	1	1	1	1.02	1.02	1.01	1.01	1.01	1
70	1	1	1	1.02	1.02	1.01	1.01	1.01	1
75	1	1	1	1.02	1.02	1.01	1.01	1.01	1
80	1	1	1	1.02	1.02	1.01	1.01	1.01	1
85	1	1	1	1.02	1.02	1.01	1.01	1.01	1
90	1	1	1	1.02	1.02	1.01	1.01	1.01	1
95	1	1	1	1.02	1.02	1.01	1.01	1.01	1
100	1	1	1	1.02	1.02	1.01	1.01	1.01	1

HYDROLOGIC SUMMARY

Project Name: Salida Crossings
Project No. 17202
Calculated By: FGF
Checked By: JJP/LEP
Date: 10/26/2022

Basin	Drainage Area [ac]	Imperviousness	Soil Type	C_5	C_{100}	T_c [min]	I_5 [in/hr]	I_{100} [in/hr]	Q_5 [cfs]	Q_{100} [cfs]
X1	0.02	13.1%	A	0.06	0.21	5.76	3.24	7.53	0.005	0.04
X2	0.10	46.8%	A	0.33	0.48	15.52	2.07	4.82	0.07	0.24
X3	2.08	93.2%	A	0.79	0.84	11.07	2.47	5.75	4.04	10.01
X4	0.25	74.3%	A	0.59	0.69	5.00	3.39	7.88	0.50	1.36
X5	0.70	98.5%	A	0.84	0.88	5.00	3.39	7.88	1.99	4.81
A	0.50	79.7%	A	0.64	0.73	7.23	3.0	6.9	0.96	2.54
B	0.43	86.4%	A	0.71	0.78	5.00	3.4	7.9	1.03	2.64
C	0.88	78.8%	A	0.63	0.72	7.35	3.0	6.9	1.66	4.40
D	0.32	68.3%	A	0.53	0.64	10.35	2.6	5.9	0.43	1.21
E	0.22	85.5%	A	0.70	0.78	5.00	3.4	7.9	0.53	1.37
F	0.10	48.2%	A	0.34	0.49	5.00	3.4	7.9	0.12	0.39
G	0.40	49.5%	A	0.35	0.50	6.38	3.1	7.3	0.43	1.43
H	0.08	15.4%	A	0.08	0.23	8.66	2.8	6.4	0.02	0.12
I	0.14	35.3%	A	0.23	0.39	5.00	3.4	7.9	0.11	0.42
OS1	0.02	2.0%	A	0.01	0.13	5.00	3.4	7.9	0.0004	0.02
OS2	0.06	2.0%	A	0.01	0.13	5.00	3.4	7.9	0.001	0.06
Site Total	**3.15**	**69.2%**								

Per MHFD Table 6-4 (Runoff coefficient equations based on NRCS soil group and storm return period) for Type A Soils:
C_5=0.86i^1.276 C_{100}= 0.78i + 0.110 i=% Impervious as a decimal
I=(49*P1)/(10+Tc)^0.927 Salida criterial manual Sec 8.5.1 Eqn. 1

SITE IMPERVIOUSNESS

Project Name: Salida Crossings
Project No. 17202
Calculated By: FGF
Checked By: JJP/LEP
Date: 10/26/2022

	Basin ID	Area [sf]	Area [ac]	Imp. [%]	Area Imperviousness	Basin Imperviousness
A	Roofs	4,477.00	0.10	90%	0.09	
0.50	Walks & Drives	1,817.00	0.04	90%	0.04	**79.68%**
ac	Lawns	3,877	0.09	2%	0.00	
	Paved	11,623.00	0.27	100%	0.27	
B	Roofs	1,883.00	0.04	90%	0.04	
0.43	Walks & Drives	1,486.00	0.03	90%	0.03	**86.42%**
ac	Lawns	2,239.00	0.05	2%	0.00	
	Paved	13,027.00	0.30	100%	0.30	
C	Roofs	5,934.00	0.14	90%	0.12	
0.88	Walks & Drives	1,718.00	0.04	90%	0.04	**78.83%**
ac	Lawns	7,511.00	0.17	2%	0.00	
	Paved	23,223.00	0.53	100%	0.53	
D	Roofs	4,321.00	0.10	90%	0.09	
0.32	Walks & Drives	1,223.00	0.03	90%	0.03	**68.26%**
ac	Lawns	3,908.00	0.09	2%	0.00	
	Paved	4,361.00	0.10	100%	0.10	
E	Roofs	2,017.00	0.05	90%	0.04	
0.22	Walks & Drives	476.00	0.01	90%	0.01	**85.47%**
ac	Lawns	1,194.00	0.03	2%	0.00	
	Paved	6,079.00	0.14	100%	0.14	
F	Roofs	2,334.00	0.05	90%	0.05	
0.10	Walks & Drives		0.00	90%	0.00	**48.16%**
ac	Lawns	2,116.00	0.05	2%	0.00	
	Paved		0.00	100%	0.00	
G	Roofs	9,322.00	0.21	90%	0.19	
0.40	Walks & Drives		0.00	90%	0.00	**49.45%**
ac	Lawns	7,966.00	0.18	2%	0.00	
	Paved		0.00	100%	0.00	
H	Roofs	445.00	0.01	90%	0.01	
0.08	Walks & Drives	90.00	0.00	90%	0.00	**15.39%**
ac	Lawns	2,980.00	0.07	2%	0.00	
	Paved		0.00	100%	0.00	
I	Roofs	2,291.00	0.05	90%	0.05	
0.14	Walks & Drives		0.00	90%	0.00	**35.32%**
ac	Lawns	3,759.00	0.09	2%	0.00	
	Paved		0.00	100%	0.00	
OS1	Roofs		0.00	90%	0.00	
0.02	Walks & Drives		0.00	90%	0.00	**2.00%**
ac	Lawns	876.00	0.02	2%	0.00	
	Paved		0.00	100%	0.00	
OS2	Roofs		0.00	90%	0.00	
0.06	Walks & Drives		0.00	90%	0.00	**2.00%**
ac	Lawns	2,684.00	0.06	2%	0.00	
	Paved		0.00	100%	0.00	
Total Site 3.15 ac						**69.2%**

Roofs= 90%
Walks & Drives= 90%
Lawns= 2%
Paved= 100%

Note: The % Impervious values are from the MHFD Table 6-3. "Recommended Percentage Impervious Values"

SITE IMPERVIOUSNESS EXISTING CONDITION

Project Name: Salida Crossings
Project No. 17202
Calculated By: FGF
Checked By: JJP/LEP
Date: 10/26/2022

	Basin ID	Area [sf]	Area [ac]	Imp. [%]	Area Imperviousness	Basin Imperviousness
X1	Roofs		0.000	90%	0.000	
0.02	Walks & Drives		0.000	90%	0.000	**13.1%**
ac	Lawns	849	0.019	2%	0.000	
	Paved	108	0.002	100%	0.002	
X2	Roofs		0.000	90%	0.000	
0.10	Walks & Drives		0.000	90%	0.000	**46.8%**
ac	Lawns	2,442	0.056	2%	0.001	
	Paved	2,057	0.047	100%	0.047	
X3	Roofs	6,869	0.16	90%	0.142	
2.08	Walks & Drives		0.00	90%	0.000	**93.2%**
ac	Lawns	5,552	0.13	2%	0.003	
	Paved	78,163	1.79	100%	1.794	
X4	Roofs	6,826	0.16	90%	0.141	
0.25	Walks & Drives		0.00	90%	0.000	**74.3%**
ac	Open Space	2,167	0.05	2%	0.001	
	Paved	1,921	0.04	100%	0.044	
X5	Roofs	4,680	0.11	90%	0.10	
0.70	Walks & Drives		0.00	90%	0.00	**98.5%**
ac	Lawns		0.00	2%	0.00	
	Paved	25,622	0.59	100%	0.59	
Total Site **3.15 ac**						**90.8%**

Roofs=	90%
Walks & Drives=	90%
Lawns=	2%
Paved=	100%

Note: The % Impervious values are from the MHFD Table 6-3. "Recommended Percentage Impervious Values"

STANDARD FORM SF-2
TIME OF CONCENTRATION

Subdivision
Location City of Salida, CO

Project Name: Salida Crossings
Project No. 17202
Calculated By: FGF
Checked By: JJP/LEP
Date: 10/26/2022

SUB-BASIN DATA				INITIAL/OVERLAND (T_i)			TRAVEL TIME (T_t)					Tc CHECK (URBANIZED BASINS)				FINAL
BASIN ID	D.A. (AC)	C_5	I (%)	L (FT)	S (%)	T_i (MIN)	L (FT)	S (%)	K	VEL. (FPS)	T_t (MIN)	COMP. T_c (MIN)	TOTAL LENGTH(FT)	SLOPE (FT/FT)	MIN. T_c (MIN)	T_c (MIN)
X1	0.02	0.06	13.1%	20	3.1%	5.76		0.0%	20.0	0.0	0.00	5.76	20	3.1%	23.95	5.76
X2	0.10	0.33	46.8%	70	0.4%	15.29	60	8.0%	15.0	4.2	0.24	15.52	130	3.9%	18.74	15.52
X3	2.08	0.79	93.2%	295	0.9%	9.95	91	0.6%	20.0	1.6	0.98	11.07	429	1.8%	12.56	11.07
							43	10.4%	15.0	4.8	0.15					
X4	0.25	0.59	74.3%	24	2.6%	3.31	16	13.8%	15.0	5.6	0.05	5.00	40	7.1%	13.50	5.00
X5	0.70	0.84	98.5%	113	1.2%	4.58					0.00	5.00	113.0	1.2%	10.00	5.00
A	0.50	0.64	79.7%	63	1.6%	5.65	151	0.6%	20.0	1.6	1.58	7.23	214.0	0.9%	14.31	7.23
B	0.43	0.71	86.4%	16	1.6%	2.41	172	0.8%	20.0	1.8	1.62	5.00	188.0	0.8%	12.92	5.00
C	0.88	0.63	78.8%	51	1.4%	5.40	210	0.8%	20.0	1.8	1.95	7.35	261.0	0.9%	14.87	7.35
D	0.32	0.53	68.3%	58	0.8%	8.43	210	0.8%	20.0	1.8	1.93	10.35	268.0	0.8%	17.05	10.35
E	0.22	0.70	85.5%	18	10.2%	1.41	113	1.3%	20.0	2.2	0.84	5.00	131.0	2.5%	12.13	5.00
F	0.10	0.34	48.2%	20	5.5%	3.50	81	0.5%	15.0	1.1	1.27	5.00	101.0	1.5%	18.69	5.00
G	0.40	0.35	49.5%	36	3.8%	5.21	135	1.7%	15.0	1.9	1.17	6.38	171.0	2.1%	18.83	6.38
H	0.08	0.08	15.4%	43	2.7%	8.66				0.0	0.00	8.66	43.0	2.7%	23.77	8.66
I	0.14	0.23	35.3%	14	10.7%	2.69	125	1.8%	15.0	2.0	1.02	5.00	139.0	2.7%	21.00	5.00
OS1	0.02	0.01	2.0%	3	2.7%	2.48	92	1.0%	15.0	1.5	1.03	5.00	95.0	1.0%	27.33	5.00
OS2	0.06	0.01	2.0%	3	21.3%	1.25				0.0	0.00	5.00	3.0	21.3%	25.67	5.00

$T_i = (0.395*(1.1 - C_5)*(L)^0.5)/(S^0.33)$ S in ft/ft MHFD Eqn. 6-3
VEL.=K*S^0.5 S in ft/ft K value is per MHFD Table 6-2 "NRCS Conveyance Factors, K"
T_t=L/60V MHFD Eqn. 6-4
COMP. Tc=Ti+Tt or 5 minutes whichever is greater MHFD Eqn. 6-2 and Ch 6 Sec. 2.4.4 "Minimum Time of Concentration"
MIN. Tc= (26-17I)+(L/(60*(14I+9)*(S)^0.5)) S in ft/ft MHFD Eqn. 6-5
Final Tc is the smaller of COMP. Tc and MIN. Tc

STANDARD FORM SF-3

STORM DRAINAGE SYSTEM DESIGN

(RATIONAL METHOD PROCEDURE)

Subdivision

Location City of Salida, CO

Design Storm 5-year

Project Name: Salida Crossings

Project No. 17202

Calculated By: FGF

Checked By: JJP/LEP

Date: 10/26/2022

		DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			
STREET	Design Point	Area Design.	Area (Ac)	Runoff Coeff.	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Tc (min)	ΣC*A (Ac)	I (in/hr)	Q (cfs)	Slope (%)	Street Flow (cfs)	Design Flow (cfs)	Slope (%)	Pipe Size (inches)	Length (ft)	Velocity (fps)	Tt (min)	REMARKS
Existing Conditions																					
	1	X1	0.02	0.06	5.76	0.00	3.24	0.005													Sheet flows offsite to north
	2	X2	0.10	0.33	15.52	0.03	2.07	0.07													Flows offsite to north in ex. Swale
	3	X3	2.08	0.79	11.07	1.64	2.47	4.04													Sheet flows offsite to east
						Add Basins X2 & X3			15.52	1.67	2.07	3.45									Total offsite flow in NE corner of Site
	4	X4	0.25	0.59	5.00	0.15	3.39	0.50													Sheet flows offsite to east
US Hwy 50	5	X5	0.70	0.84	5.00	0.59	3.39	1.99													Sheet flows offsite into US Hwy 50
Proposed Conditions																					
	1	A	0.50	0.64	7.2	0.32	3.0	0.96													
	1	B	0.43	0.71	5.0	0.31	3.4	1.03													
	1					Total flows at DP1			7.23	0.63	2.98	1.87			1.87	0.5	15		3.5		Triple CDOT Type 13 Inlet, flows piped to Inlet at DP2
	2	C	0.88	0.63	7.4	0.56	3.0	1.66													
	2	D	0.32	0.53	10.4	0.17	2.6	0.43													
	2					Total flows at DP2			10.35	0.73	2.55	1.86									Triple CDOT Type 13 Inlet
	4	F	0.10	0.34	5.0	0.03	3.4	0.12							0.12	0.5	6		2.1		10" Nyloplast Inline area drain, flows piped to vault W1
	2				Add piped flows from DP's 1 & 4				10.35	1.39	2.55	3.55			3.55	0.5	18		4.1		Flows piped into underground detention vault W1
	3	E	0.22	0.70	5.0	0.16	3.4	0.53							0.53	0.5	15		2.5		Double Denver Type 16 Combination Inlet, piped into underground detention vault W1
	5	I	0.14	0.23	5.0	0.03	3.4	0.11							0.11	0.5	6		2.1		10" Nyloplast Inline area drain, flows piped to vault W1
	6					Total flows into vault W1			10.35	1.58	2.55	4.03									Total flows into underground detention vault W1
	7	G	0.40	0.35	6.4	0.14	3.1	0.43							0.43	0.5	10		2.9		10" Nyloplast Inline area drains, flows piped to ex. Drainage Swale in NE corner of site
	7	H	0.08	0.08	8.7	0.01	2.8	0.02													Combined with flows in ex. Storm pipe & piped north to ex. Swale
	7					Total Site flows at DP7			8.66	0.15	2.77	0.40									Combined site flows piped to ex. Drainage Swale in NE corner
	8	OS1	0.02	0.01	5.0	0.00	3.4	0.0004													Sheet flows offsite into US Hwy 50
	9	OS2	0.06	0.01	5.0	0.00	3.4	0.001													Sheet flows offsite to east

STANDARD FORM SF-3

STORM DRAINAGE SYSTEM DESIGN

(RATIONAL METHOD PROCEDURE)

Subdivision
Location City of Salida, CO
Design Storm 100-year

Project Name: Salida Crossings
Project No. 17202
Calculated By: FGF
Checked By: JJP/LEP
Date: 10/26/2022

		DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			
STREET	Design Point	Area Design.	Area (Ac)	Runoff Coeff.	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Tc (min)	ΣC*A (Ac)	I (in/hr)	Q (cfs)	Slope (%)	Street Flow (cfs)	Design Flow (cfs)	Slope (%)	Pipe Size (inches)	Length (ft)	Velocity (fps)	Tt (min)	REMARKS
Existing Conditions																					
	1	X1	0.02	0.21	5.76	0.00	7.53	0.04													Sheet flows offsite to north
	2	X2	0.10	0.48	15.52	0.05	4.82	0.24													Flows offsite to north in ex. Swale
	3	X3	2.08	0.84	11.07	1.74	5.75	10.01													Sheet flows offsite to east
						Add Basins X2 & X3			15.52	1.79	4.82	8.62									Total offsite flow in NE corner of Site
	4	X4	0.25	0.69	5.00	0.17	7.88	1.36													Sheet flows offsite to east
US Hwy 50	5	X5	0.70	0.88	5.00	0.61	7.88	4.81													Sheet flows offsite into US Hwy 50
Proposed Conditions																					
	1	A	0.50	0.73	7.2	0.37	6.9	2.54													
	1	B	0.43	0.78	5.0	0.34	7.9	2.64													
	1					Total flows at DP1			7.23	0.70	6.93	4.86		0.23	4.63	0.5	15		4.2		Triple CDOT Type 13 Inlet, flows piped to Inlet at DP2, CO to DP2
	2	C	0.88	0.72	7.4	0.64	6.9	4.40													
	2	D	0.32	0.64	10.4	0.20	5.9	1.21													
	2		Add CO from DP1 to total flows at DP2						10.35	0.88	5.94	5.20									Triple CDOT Type 13 Inlet
	4	F	0.10	0.49	5.0	0.05	7.9	0.39							0.39	0.5	6		2.9		10" Nyloplast Inline area drain, flows piped to vault W1
	2			Add piped flows from DP's 1 & 4					10.35	1.59	5.94	9.46			9.46	0.5	18		4.9		Flows piped into underground detention vault W1
	3	E	0.22	0.78	5.0	0.17	7.9	1.37							1.37	0.5	15		3.3		Double Denver Type 16 Combination Inlet, piped intounderground detention vault W1
	5	I	0.14	0.39	5.0	0.05	7.9	0.42							0.42	0.5	6		2.9		10" Nyloplast Inline area drain, flows piped to vault W1
	6					Total flows into vault W1			10.35	1.82	5.94	10.82									Total flows into underground detention vault W1
	7	G	0.40	0.50	6.4	0.20	7.3	1.43							1.43	0.5	10		4.0		10" Nyloplast Inline area drains, flows piped to ex. Drainage Swale in NE corner of site
	7	H	0.08	0.23	8.7	0.02	6.4	0.12													Combined with flows in ex. Storm pipe & piped north to ex. Swale
	7					Total Site flows at DP7			8.66	0.22	6.44	1.39									Combined site flows piped to ex. Drainage Swale in NE corner
	8	OS1	0.02	0.13	5.0	0.00	7.9	0.02													Sheet flows offsite into US Hwy 50
	9	OS2	0.06	0.13	5.0	0.01	7.9	0.06													Sheet flows offsite to east

RUNOFF SUMMARY TABLE

Project Name: Salida Crossings
Project No. 17202
Calculated By: FGF
Checked By: JJP/LEP
Date: 10/26/2022

					Accumulated Flows		
Design Point	**Basins**	**Area (ac)**	**Q_5 (cfs)**	**Q_{100} (cfs)**	**Q_5 (cfs)**	**Q_{100} (cfs)**	**Contributing Basins**
1	A	0.50	0.96	2.54			
1	B	0.43	1.03	2.64			
1 Pipe Flows		0.93			1.87	4.86	A, B
2	C	0.88	1.66	4.40			
2	D	0.32	0.43	1.21			
4	F	0.10	0.12	0.39			
2 Pipe Flows		2.23			3.55	9.46	A, B, C, D, F
3	E	0.22	0.53	1.37			
5	I	0.14	0.11	0.42			
6 Detention Vault		2.59			4.03	10.82	A, B, C, D, E, F, I
7	G	0.40	0.43	1.43			
7	H	0.08	0.02	0.12			
7 Swale Flows		0.48			0.40	1.39	G, H
8	OS1	0.02	0.0004	0.02			
9	OS2	0.06	0.001	0.06			

RUNOFF SUMMARY TABLE EXISTING CONDITIONS

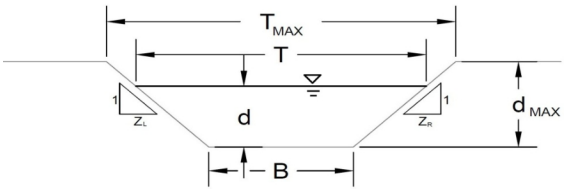
Drainage Analysis Point	Local Contribution						
	Basin ID	Area [ac]	Imp. [%]	C_5	C_{100}	Q_5 [cfs]	Q_{100} [cfs]
1	X1	0.02	13.1%	0.06	0.21	0.005	0.04
2	X2	0.10	46.8%	0.33	0.48	0.07	0.24
3	X3	2.08	93.2%	0.79	0.84	4.04	10.01
4	X4	0.25	74.3%	0.59	0.69	0.50	1.36
5	X5	0.70	98.5%	0.84	0.88	1.99	4.81

B. HYDRAULIC COMPUTATIONS

AREA INLET IN A SWALE

Salida Crossings

Inlet at DP1



This worksheet uses the NRCS vegetal retardance method to determine Manning's n.

For more information see Section 7.2.3 of the USDCM.

Analysis of Trapezoidal Grass-Lined Channel Using SCS Method

NRCS Vegetal Retardance (A, B, C, D, or E)	A, B, C, D, or E =		
Manning's n (Leave cell D16 blank to manually enter an n value)	n =	0.016	
Channel Invert Slope	S_O =	0.0050	ft/ft
Bottom Width	B =	0.00	ft
Left Side Slope	Z1 =	21.00	ft/ft
Right Side Sloe	Z2 =	21.00	ft/ft

Check one of the following soil types:

Soil Type:	Max. Velocity (V_{MAX})	Max Froude No. (F_{MAX})
Non-Cohesive	5.0 fps	0.60
Cohesive	7.0 fps	0.80
Paved	N/A	N/A

Choose One:
- Non-Cohesive
- Cohesive
- Paved

		Minor Storm	Major Storm	
Maximum Allowable Top Width of Channel for Minor & Major Storm	T_{MAX} =	**14.00**	**24.00**	ft
Maximum Allowable Water Depth in Channel for Minor & Major Storm	d_{MAX} =	**0.50**	**1.00**	ft

Allowable Channel Capacity Based On Channel Geometry

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Top Width Criterion	Q_{allow} =	**4.65**	**19.57**	cfs
MAJOR STORM Allowable Capacity is based on Top Width Criterion	d_{allow} =	**0.33**	**0.57**	ft

Water Depth in Channel Based On Design Peak Flow

Design Peak Flow	Q_o =	**1.87**	**4.86**	cfs
Water Depth	d =	**0.24**	**0.34**	ft

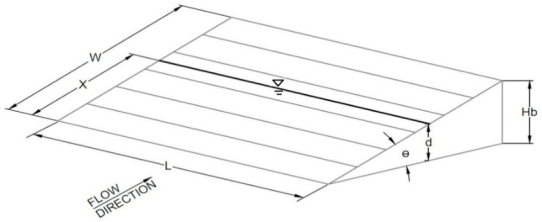
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Inlet Design Information (Input)

Type of Inlet: User-Defined — Inlet Type = User-Defined

Angle of Inclined Grate (must be <= 30 degrees)	θ =	0.00 degrees
Width of Grate	W =	6.54 ft
Length of Grate	L =	1.88 ft
Open Area Ratio	A_{RATIO} =	0.70
Height of Inclined Grate	H_B =	0.00 ft
Clogging Factor	C_f =	0.50
Grate Discharge Coefficient	C_d =	N/A
Orifice Coefficient	C_o =	0.64
Weir Coefficient	C_w =	2.05

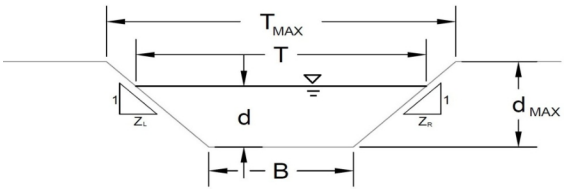


		MINOR	MAJOR	
Water Depth at Inlet (for depressed inlets, 1 foot is added for depression)	d =	0.24	0.34	
Total Inlet Interception Capacity (assumes clogged condition)	Q_a =	**2.71**	**4.63**	cfs
Bypassed Flow	Q_b =	**0.00**	**0.23**	cfs
Capture Percentage = Qa/Qo	C% =	**100**	**95**	%

AREA INLET IN A SWALE

Salida Crossings

Inlet at DP2



This worksheet uses the NRCS vegetal retardance method to determine Manning's n.

For more information see Section 7.2.3 of the USDCM.

Analysis of Trapezoidal Grass-Lined Channel Using SCS Method

NRCS Vegetal Retardance (A, B, C, D, or E)	A, B, C, D, or E =		
Manning's n (Leave cell D16 blank to manually enter an n value)	n =	0.016	
Channel Invert Slope	S_O =	0.0050	ft/ft
Bottom Width	B =	0.00	ft
Left Side Slope	Z1 =	21.00	ft/ft
Right Side Sloe	Z2 =	21.00	ft/ft

Check one of the following soil types:

Soil Type:	Max. Velocity (V_{MAX})	Max Froude No. (F_{MAX})
Non-Cohesive	5.0 fps	0.60
Cohesive	7.0 fps	0.80
Paved	N/A	N/A

Choose One:
- ☐ Non-Cohesive
- ☐ Cohesive
- ☒ Paved

		Minor Storm	Major Storm	
Maximum Allowable Top Width of Channel for Minor & Major Storm	T_{MAX} =	**14.00**	**24.00**	ft
Maximum Allowable Water Depth in Channel for Minor & Major Storm	d_{MAX} =	**0.50**	**1.00**	ft

Allowable Channel Capacity Based On Channel Geometry

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Top Width Criterion	Q_{allow} =	**4.65**	**19.57**	cfs
MAJOR STORM Allowable Capacity is based on Top Width Criterion	d_{allow} =	**0.33**	**0.57**	ft

Water Depth in Channel Based On Design Peak Flow

Design Peak Flow	Q_o =	**1.86**	**5.20**	cfs
Water Depth	d =	**0.24**	**0.35**	ft

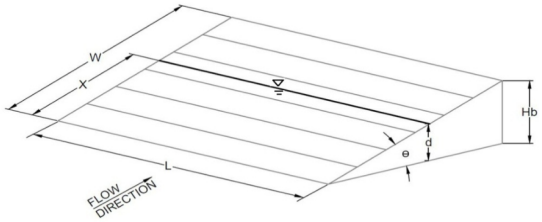
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Inlet Design Information (Input)

Type of Inlet: User-Defined — Inlet Type = User-Defined

Angle of Inclined Grate (must be <= 30 degrees)	θ =	0.00 degrees
Width of Grate	W =	9.81 ft
Length of Grate	L =	1.88 ft
Open Area Ratio	A_{RATIO} =	0.70
Height of Inclined Grate	H_B =	0.00 ft
Clogging Factor	C_f =	0.50
Grate Discharge Coefficient	C_d =	N/A
Orifice Coefficient	C_o =	0.64
Weir Coefficient	C_w =	2.05



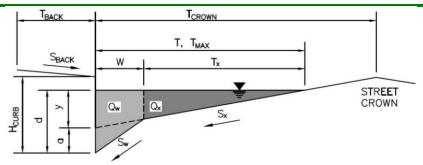
		MINOR	MAJOR	
Water Depth at Inlet (for depressed inlets, 1 foot is added for depression)	d =	0.24	0.35	
Total Inlet Interception Capacity (assumes clogged condition)	Q_a =	**3.66**	**6.53**	cfs
Bypassed Flow	Q_b =	**0.00**	**0.00**	cfs
Capture Percentage = Qa/Qo	C% =	**100**	**100**	%

MHFD-Inlet, Version 5.01 (April 2021)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: Salida Crossings
Inlet ID: Inlet at DP3



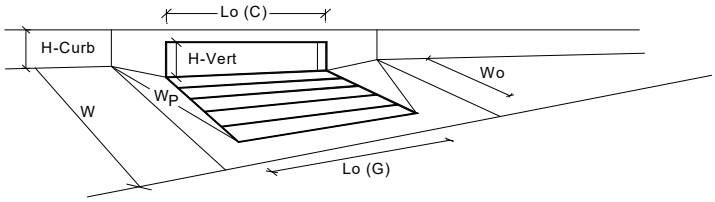
Gutter Geometry:			
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	24.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.006	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	12.0	24.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	8.4	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Depth Criterion	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 5.01 (April 2021)



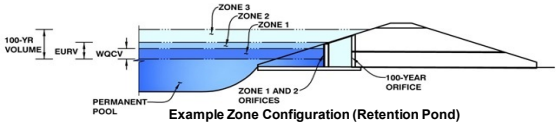
Design Information (Input)		MINOR	MAJOR	
Type of Inlet (Denver No. 16 Combination)	Type =	Denver No. 16 Combination		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	2.00	2.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	2	2	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	2.7	3.6	inches
Grate Information		MINOR	MAJOR	☐ Override Depths
Length of a Unit Grate	L_o (G) =	3.00	3.00	feet
Width of a Unit Grate	W_o =	1.73	1.73	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	0.31	0.31	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	0.50	0.50	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	3.60	3.60	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	0.60	0.60	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	3.00	3.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.50	6.50	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	5.25	5.25	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	0.00	0.00	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.70	3.70	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.66	0.66	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	0.249	0.321	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.06	0.13	ft
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	0.32	0.42	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.83	0.93	
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	0.32	0.42	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**0.66**	**1.46**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	$Q_{PEAK\ REQUIRED}$ =	0.53	1.37	cfs

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.04 (February 2021)

Project: Salida Crossing

Basin ID: Underground Detention Vault W1



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	EDB	
Watershed Area =	2.59	acres
Watershed Length =	500	ft
Watershed Length to Centroid =	200	ft
Watershed Slope =	0.005	ft/ft
Watershed Imperviousness =	75.99%	percent
Percentage Hydrologic Soil Group A =	100.0%	percent
Percentage Hydrologic Soil Group B =	0.0%	percent
Percentage Hydrologic Soil Groups C/D =	0.0%	percent
Target WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	User Input	

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

			Optional User Overrides
Water Quality Capture Volume (WQCV) =	0.066	acre-feet	acre-feet
Excess Urban Runoff Volume (EURV) =	0.255	acre-feet	acre-feet
2-yr Runoff Volume (P1 = 0.6 in.) =	0.082	acre-feet	0.60 inches
5-yr Runoff Volume (P1 = 0.85 in.) =	0.123	acre-feet	0.85 inches
10-yr Runoff Volume (P1 = 1.08 in.) =	0.160	acre-feet	1.08 inches
25-yr Runoff Volume (P1 = 1.41 in.) =	0.217	acre-feet	1.41 inches
50-yr Runoff Volume (P1 = 1.69 in.) =	0.267	acre-feet	1.69 inches
100-yr Runoff Volume (P1 = 1.98 in.) =	0.325	acre-feet	1.98 inches
500-yr Runoff Volume (P1 = 2.77 in.) =	0.489	acre-feet	2.77 inches
Approximate 2-yr Detention Volume =	0.084	acre-feet	
Approximate 5-yr Detention Volume =	0.123	acre-feet	
Approximate 10-yr Detention Volume =	0.161	acre-feet	
Approximate 25-yr Detention Volume =	0.219	acre-feet	
Approximate 50-yr Detention Volume =	0.255	acre-feet	
Approximate 100-yr Detention Volume =	0.289	acre-feet	

Define Zones and Basin Geometry

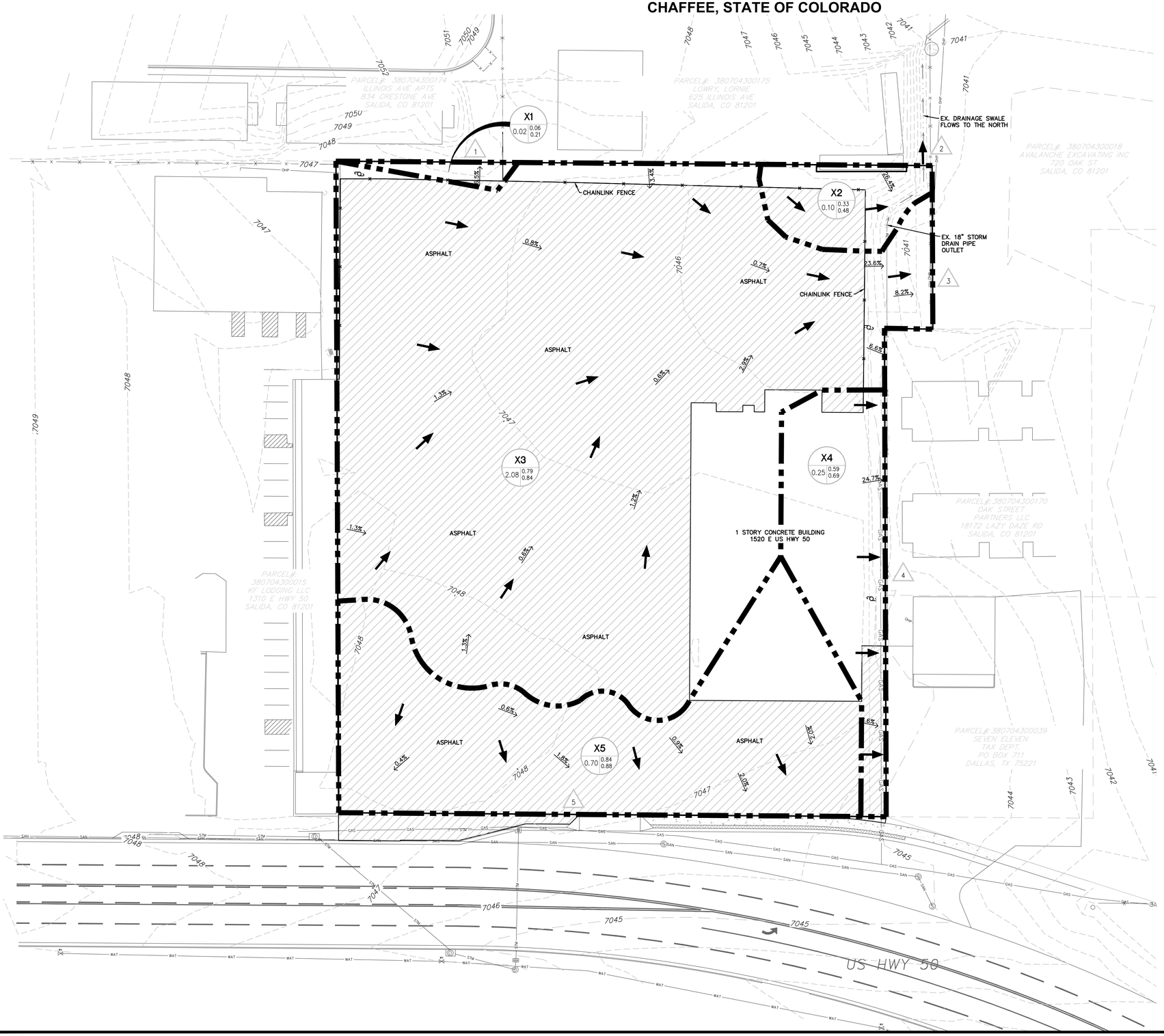
Zone 1 Volume (WQCV) =	0.066	acre-feet	
Zone 2 Volume (EURV - Zone 1) =	0.189	acre-feet	
Zone 3 Volume (100-year - Zones 1 & 2) =	0.034	acre-feet	
Total Detention Basin Volume =	0.289	acre-feet	
Initial Surcharge Volume (ISV) =	9	ft^3	
Initial Surcharge Depth (ISD) =	0.33	ft	
Total Available Detention Depth (H_{total}) =	11.30	ft	
Depth of Trickle Channel (H_{TC}) =	0.50	ft	
Slope of Trickle Channel (S_{TC}) =	0.004	ft/ft	
Slopes of Main Basin Sides (S_{main}) =	0	H:V	**Vertical Walls**
Basin Length-to-Width Ratio ($R_{L/W}$) =	2		

Initial Surcharge Area (A_{ISV}) =	26	ft^2
Surcharge Volume Length (L_{ISV}) =	5.1	ft
Surcharge Volume Width (W_{ISV}) =	5.1	ft
Depth of Basin Floor (H_{FLOOR}) =	0.17	ft
Length of Basin Floor (L_{FLOOR}) =	47.6	ft
Width of Basin Floor (W_{FLOOR}) =	26.4	ft
Area of Basin Floor (A_{FLOOR}) =	1,255	ft^2
Volume of Basin Floor (V_{FLOOR}) =	83	ft^3
Depth of Main Basin (H_{MAIN}) =	10.30	ft
Length of Main Basin (L_{MAIN}) =	47.6	ft
Width of Main Basin (W_{MAIN}) =	26.4	ft
Area of Main Basin (A_{MAIN}) =	1,255	ft^2
Volume of Main Basin (V_{MAIN}) =	12,922	ft^3
Calculated Total Basin Volume (V_{total}) =	**0.299**	acre-feet

Depth Increment = 0.50 ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	0.00		5.1	5.1	26		0.001		
ISV	0.33		5.1	5.1	26		0.001	9	0.000
	0.50		5.1	5.1	26		0.001	13	0.000
Floor	1.00		47.6	26.4	1,255		0.029	105	0.002
	1.50		47.6	26.4	1,255		0.029	732	0.017
	2.00		47.6	26.4	1,255		0.029	1,359	0.031
	2.50		47.6	26.4	1,255		0.029	1,987	0.046
	3.00		47.6	26.4	1,255		0.029	2,614	0.060
Zone 1 (WQCV)	3.21		47.6	26.4	1,255		0.029	2,878	0.066
	3.50		47.6	26.4	1,255		0.029	3,241	0.074
	4.00		47.6	26.4	1,255		0.029	3,869	0.089
	4.50		47.6	26.4	1,255		0.029	4,496	0.103
	5.00		47.6	26.4	1,255		0.029	5,123	0.118
	5.50		47.6	26.4	1,255		0.029	5,751	0.132
	6.00		47.6	26.4	1,255		0.029	6,378	0.146
	6.50		47.6	26.4	1,255		0.029	7,005	0.161
	7.00		47.6	26.4	1,255		0.029	7,633	0.175
	7.50		47.6	26.4	1,255		0.029	8,260	0.190
	8.00		47.6	26.4	1,255		0.029	8,887	0.204
	8.50		47.6	26.4	1,255		0.029	9,514	0.218
	9.00		47.6	26.4	1,255		0.029	10,142	0.233
	9.50		47.6	26.4	1,255		0.029	10,769	0.247
Zone 2 (EURV)	9.78		47.6	26.4	1,255		0.029	11,120	0.255
	10.00		47.6	26.4	1,255		0.029	11,396	0.262
	10.50		47.6	26.4	1,255		0.029	12,024	0.276
Zone 3 (100-year)	10.95		47.6	26.4	1,255		0.029	12,588	0.289
	11.00		47.6	26.4	1,255		0.029	12,651	0.290
	11.50		47.6	26.4	1,255		0.029	13,278	0.305
	12.00		47.6	26.4	1,255		0.029	13,906	0.319
	12.50		47.6	26.4	1,255		0.029	14,533	0.334
	13.00		47.6	26.4	1,255		0.029	15,160	0.348
	13.50		47.6	26.4	1,255		0.029	15,787	0.362
	14.00		47.6	26.4	1,255		0.029	16,415	0.377
	14.50		47.6	26.4	1,255		0.029	17,042	0.391
	15.00		47.6	26.4	1,255		0.029	17,669	0.406
	15.50		47.6	26.4	1,255		0.029	18,297	0.420
	16.00		47.6	26.4	1,255		0.029	18,924	0.434
	16.50		47.6	26.4	1,255		0.029	19,551	0.449
	17.00		47.6	26.4	1,255		0.029	20,179	0.463
	17.50		47.6	26.4	1,255		0.029	20,806	0.478
	18.00		47.6	26.4	1,255		0.029	21,433	0.492
	18.50		47.6	26.4	1,255		0.029	22,060	0.506
	19.00		47.6	26.4	1,255		0.029	22,688	0.521
	19.50		47.6	26.4	1,255		0.029	23,315	0.535
	20.00		47.6	26.4	1,255		0.029	23,942	0.550
	20.50		47.6	26.4	1,255		0.029	24,570	0.564
	21.00		47.6	26.4	1,255		0.029	25,197	0.578
	21.50		47.6	26.4	1,255		0.029	25,824	0.593
	22.00		47.6	26.4	1,255		0.029	26,452	0.607
	22.50		47.6	26.4	1,255		0.029	27,079	0.622
	23.00		47.6	26.4	1,255		0.029	27,706	0.636
	23.50		47.6	26.4	1,255		0.029	28,333	0.650
	24.00		47.6	26.4	1,255		0.029	28,961	0.665
	24.50		47.6	26.4	1,255		0.029	29,588	0.679
	25.00		47.6	26.4	1,255		0.029	30,215	0.694
	25.50		47.6	26.4	1,255		0.029	30,843	0.708
	26.00		47.6	26.4	1,255		0.029	31,470	0.722
	26.50		47.6	26.4	1,255		0.029	32,097	0.737
	27.00		47.6	26.4	1,255		0.029	32,725	0.751
	27.50		47.6	26.4	1,255		0.029	33,352	0.766
	28.00		47.6	26.4	1,255		0.029	33,979	0.780
	28.50		47.6	26.4	1,255		0.029	34,606	0.794
	29.00		47.6	26.4	1,255		0.029	35,234	0.809
	29.50		47.6	26.4	1,255		0.029	35,861	0.823
	30.00		47.6	26.4	1,255		0.029	36,488	0.838

DEVELOPMENT PLAN
SALIDA CROSSINGS
A PORTION OF THE SW 1/ 4 OF NW 1/ 4 OF SW 1/ 4 SECTION 4, TOWNSHIP 49 NORTH, RANGE 9 EAST OF THE NEW MEXICO P.M. COUNTY OF CHAFFEE, STATE OF COLORADO



1 inch = 30 ft. Horizontal

LEGEND:

- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- PR. MAJOR CONTOUR
- PR. MINOR CONTOUR
- EX. ASPHALT
- EX. BASIN BOUNDARY
- ID / AC C5 C100 — EX. BASIN IDENTIFICATION
- # — EX. DRAINAGE POINT
- EX. FLOW DIRECTION

RUNOFF SUMMARY TABLE EXISTING CONDITIONS

Drainage Analysis Point	Local Contribution						
	Basin ID	Area [ac]	Imp. [%]	C_5	C_{100}	Q_5 [cfs]	Q_{100} [cfs]
1	X1	0.02	13.1%	0.06	0.21	0.005	0.04
2	X2	0.10	46.8%	0.33	0.48	0.06	0.22
3	X3	2.08	93.2%	0.79	0.84	3.80	9.40
4	X4	0.25	74.3%	0.59	0.69	0.50	1.36
5	X5	0.70	98.5%	0.84	0.88	1.99	4.81

COLORADO 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303) 208-1644 info@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: FGF
DRAWN BY: ZJD
CHECKED BY: FGF

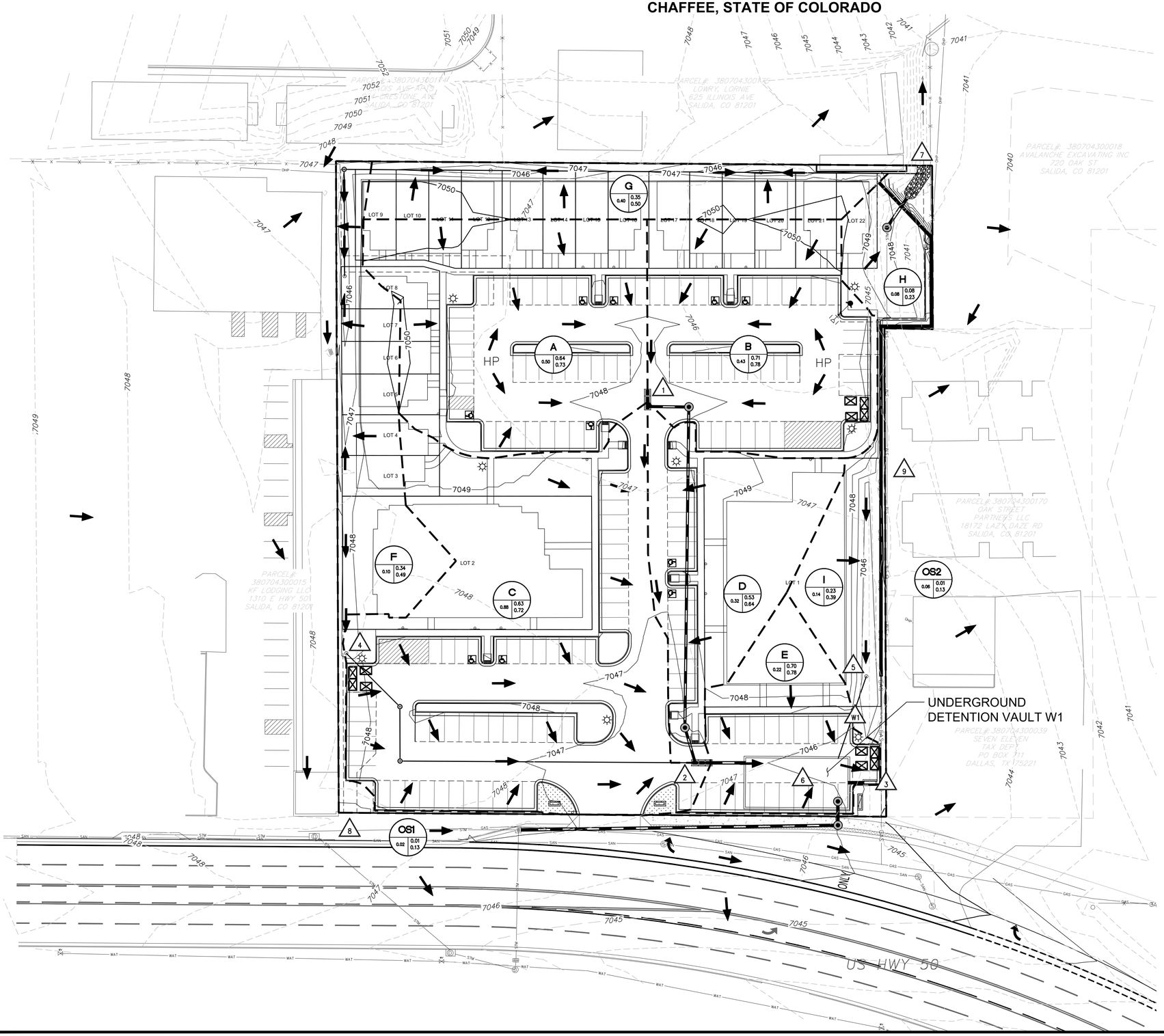
EXISTING CONDITIONS DRAINAGE MAP

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE 10/27/2022
PROJECT NO. 17202

Drawing name: C:\Users\FFEERO\Phelps Engineering Services\Company OneDrive - Company\Entitlement Engineering\17202 - Salida Commons\Eng. Reports\Drainage\2022.10.27 - Drainage Plan--Ex. Conditions.dwg EX. DRAIN MAP Oct 27, 2022 12:37pm by: FFeero

DEVELOPMENT PLAN
SALIDA CROSSINGS
A PORTION OF THE SW 1/ 4 OF NW 1/ 4 OF SW 1/ 4 SECTION 4, TOWNSHIP 49 NORTH, RANGE 9 EAST OF THE NEW MEXICO P.M. COUNTY OF CHAFFEE, STATE OF COLORADO



LEGEND:

- EX. MAJOR CONTOUR (8660)
- EX. MINOR CONTOUR (8661)
- PR. MAJOR CONTOUR (8660)
- PR. MINOR CONTOUR (8661)
- BASIN BOUNDARY
- ID / AC / C5 / C100 — BASIN IDENTIFICATION
- # — DRAINAGE POINT
- FLOW DIRECTION

RUNOFF SUMMARY TABLE

Design Point	Basins	Area (ac)	Q_5 (cfs)	Q_{100} (cfs)	Accumulated Flows Q_5 (cfs)	Accumulated Flows Q_{100} (cfs)	Contributing Basins
1	A	0.50	0.96	2.54			
1	B	0.43	1.03	2.64			
1 Pipe Flows		0.93			1.87	4.86	A, B
2	C	0.88	1.66	4.40			
2	D	0.32	0.43	1.21			
4	F	0.10	0.12	0.39			
2 Pipe Flows		2.23			3.55	9.46	A, B, C, D, F
3	E	0.22	0.53	1.37			
5	I	0.14	0.11	0.42			
6 Detention Vault		2.59			4.03	10.82	A, B, C, D, E, F, I
7	G	0.40	0.43	1.43			
7	H	0.08	0.02	0.12			
7 Swale Flows		0.48			0.40	1.39	G, H
8	OS1	0.02	0.0004	0.02			
9	OS2	0.06	0.001	0.06			

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No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303) 238-1644 info@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: FGF
DRAWN BY: ZJD
CHECKED BY: FGF

PROPOSED CONDITIONS DRAINAGE MAP

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE 10/27/2022
PROJECT NO. 17202

1 of 1

Drawing name: C:\Users\FFEERO\Phelps Engineering Services\Company OneDrive – Company\Entitlement Engineering\17202 – Salida Commons\Eng. Reports\Drainage\2022.10.27 Drainage Plan---Pr. Conditions.dwg DRAINAGE PLAN Oct 27, 2022 1:03pm by: FFeero

Storm Water Management Plan

For

Salida Crossings

A portion of the SW ¼ of NW ¼ of SW ¼ of Section 4, Township 49 North,
Range 9 East of the New Mexico P.M., City of Salida,
County of Chaffee, State of Colorado

Owner:
BV Investments
401 Whitewing Lane
Murphy, TX 75094

Developer:
Loucios Enterprises, LLC
2605 Fairhill Lane
Flower, TX 75022

Contact: Bernie Weber

Engineer:

Phelps Engineering Services, Inc.
3522 South Emerson Street
Englewood, Colorado 80113
Contact: Lonny Phelps

Submitted for Review to
City of Salida, Colorado

Submittal Date
October 27, 2022

Table of Contents

Appendix

1.0 Site Description

1.1 Introduction

The following Storm Water Management Plan (SWMP) has been prepared for use during the construction of the Salida Crossings project located in the Southwest Quarter of the Northwest Quarter of the Southwest Quarter of Section 4, Township 49 North, Range 9 East, in The City of Salida, Colorado The site is located adjacent to Colorado State Highway 50 (SH 50) at the southeast corner of the City of Salida. A vicinity map illustrating the project location is provided in Figure 1. This plan describes recommended procedures and methods to assist the Contractor in complying with the Colorado Water Quality Control Act and the Federal Water Pollution Control Act. A copy of the CDPHE General Permit for discharge is included (see **Appendix A**). The intent of this plan is to provide the contractor with information regarding the records, logs, permits, applications etc. that are required to be available at the project site. It is critical that the contractor understands that this Storm Water Management Plan is a living document that must be updated and maintained throughout the construction process.

Figure 1. Vicinity Map (Not to Scale)

1.2 Project Description

Beginning in the first quarter of 2023, construction of the Salida Crossings project is expected begin. The 3-acre ± site will be disturbed by removing existing structures and pavement, grading, excavation, roadway & building construction, and other development activities. The construction of the project will occur in 3 phases beginning with overlot grading, roadway improvements, utility installations and development of individual mixed-use buildings (Buildings 1 & 2). The completed

project will include 92 apartment units and townhomes as well as retail space within 2 buildings. A site plan of the proposed project is included at the end of this report. This site plan and the various erosion control plans are important documents that the contractor will need to use and refer to throughout the construction of the project and is discussed in later sections.

1.3 Proposed Sequence of Activities

The contractor will be responsible for implementing and maintaining the erosion and sediment control measures described in this document and the accompanying construction drawings and specifications. The contractor may designate certain tasks as he sees fit, but the ultimate responsibility for ensuring the implementation of these controls and their proper function remains with the contractor. The order of major activities will be as follows:

1. Site Preparation: Confirm project disturbance limitations with those indicated on the site map for the SWMP, mobilize office trailers, and install initial sediment and erosion control features shown on the Erosion Control Plan and approved by the SWMP Administrator.
2. Schedule internal pre-construction inspection of BMPs to insure proper installation and functionality.
3. Site Construction Preparation: Site demo and over-lot grading.
4. Utility Construction: installation of utilities and backfill of trenches
5. Site Concrete Construction: installation of curb, gutter and sidewalk
6. Site Paving: completion of asphalt paving with the exception of the top lift.
7. Installation of permanent BMP's: detention and water quality pond, outlet structure, etc.
8. Permanent and temporary seeding: permanent seeding of common areas.
9. Individual Building Foundation and Structure: excavation for footings, slabs, forming and pouring foundation walls.
10. Building Structure: installation of structural frame on foundation system, erection of wood frame structure, enclosures.
11. Building Interior: rough-in, interior finishes.
12. Finish grading of individual lots.
13. Final stabilization: landscaping of individual lots.
14. Remove all temporary BMPs upon establishment of sufficient vegetative cover.

If at any time construction ceases for a period expected to exceed 90 days, temporary seeding of all disturbed areas shall be installed until construction recommences. In the event that the project is suspended, the permit may need to be inactivated or reassigned to the next administrator.

1.4 Existing Soil and Surface Conditions

Generally, the site is flat with slopes of 1-3% or less to the southeast. There is currently very little existing vegetation which consists predominantly of prairie grass. The site is predominately covered by paved asphalt and existing structures. The estimated 5-year runoff coefficient (C) for the existing site conditions is 0.90.

According to the USDA Web Soil Survey, the site surface consists primarily of Dominson gravelly sandy loam that is classified as Hydrologic Soils Group A. These types of soil have a very high infiltration rate and a low runoff potential. The erosion factor, K, indicates the susceptibility of a soil to sheet and rill erosion by water. Values of K range from 0.05 to 0.20, where the higher the value is, the more susceptible the soil is to sheet and rill erosion by water. According to the results

of the survey, the site's potential for erosion is low with a K value of 0.05 for 99.8% of the site. The web soil survey data is included in **Appendix E**.

1.5 Wetlands and Receiving Waters

There are no known jurisdictional wetlands on the project site.

Consistent with existing conditions, runoff from the project site ultimately drains to the Arkansas River.

1.6 Storm Water Management Plan Administrator

Lonny Phelps, Phelps Engineering Services will be the designated SWMP Administrator for the Project. It will be his responsibility to insure the SWMP's adequacy at all times to effectively manage potential storm water pollutants throughout the course of construction.

1.7 Potential Pollutants

During construction of new facilities, there is a potential for storm water to be contaminated with pollutants. Examples of potential pollutants are soil sediments, slurry from saw cutting concrete and asphalt, equipment fueling, washing of exposed aggregate or masonry and concrete mix trucks, asphalt sealing, street and house painting, construction waste and other related activities.

2.0 Pollution Controls

2.1 Controls Overview

During construction, several control measures shall be implemented under the direction of the SWMP Administrator to prevent discharge of contaminated water. Specifications and details for specific control measures from the City of Salida are included in accompanying construction drawings for this project (see **Appendix F**). In addition to those structural measures, other controls include non-structural practices, materials management, spill prevention & management, and other miscellaneous controls as described in the following sections.

2.2 Erosion and Sediment Controls

The objective of erosion control is to limit the amount of erosion occurring on disturbed areas until stabilized. The objective of sediment control is to capture soil that has eroded before it leaves the construction site. Despite the use of both erosion and sediment control measures, it is recognized that some sediment could remain in runoff, especially during very large storm events. The contractor shall utilize the best management practices (BMP's) described in the following sections to minimize the above potential to the maximum extent practicable.

During all phases of construction, the contractor should plan ahead of possible rainfall events and work to limit erosion from occurring where potential exists. Where potential does exist provide adequate conveyance to direct runoff to BMP's that trap sediment. The erosion and sediment BMP's anticipated for use on the site include both structural and non-structural practices.

2.2.1 Structural Practices

Structural BMPs are structures that limit erosion and sediment transport. Such practices include wattle check dams, silt fence, inlet and outlet protection, sediment traps/sediment basins, and grading techniques. The structural BMP's that will be utilized on the subject site are described in more detail as follows:

Wattles

- Can be used for outlet, inlet, slope, swale or channel protection and additional upstream/downstream protection for specific area protection.
- Used to slow the velocity of concentrated flow in an area, reduce erosion and to catch sediment by capturing contaminated runoff.
- Wattles shall be installed to protect any existing storm pipe outlets, and as additional protection around any existing inlets downstream of the site prior to commencement of any land disturbing activities. Wattles shall be installed as needed throughout the grading and construction phases of the project.
- Most effective when used with other erosion prevention BMPs.
- Should not be used for basins exceeding 2-5 acres.
- Should be used in series with the base elevation of the upstream set at the same elevation or lower than the downstream set.

Silt Fence

- A temporary vertical barrier attached to and supported by posts entrenched in the ground.
- Utilized to intercept sediment from disturbed areas during construction.
- Silt Fence shall be installed on the downstream side of the property prior to commencement of any land disturbing activity. Silt fence shall be installed as needed throughout the grading and construction phases of the project.
- For use in areas of shallow flow, not concentrated runoff.
- Typically used at the toe of fills and in transitions between cuts and fills and along streams.
- Usually used as a perimeter control.
- Shall be inspected periodically and after each rain or snowmelt event.
- Not effective as a windbreak.

Inlet Protection

- A barrier across or around a storm drain inlet.
- Utilized to filter sediment-laden runoff and prevent it from entering storm drain systems.
- Inlet Protection shall be placed around any existing inlets that are downstream of the site prior to commencement of any construction activities. Inlet protection shall be immediately placed around any proposed inlet once its construction is completed.
- Not to be utilized as a primary sediment trapping device, but as a secondary control.
- Do not use where ponded water will create dangerous driving conditions.
- Blocking of the inlet shall not be watertight.

Outlet protection

- A structurally lined apron (generally riprap, concrete, or both) placed at the outlet of pipes or channel sections.
- Used to dissipate energy and prevent erosion by reducing velocity.
- Outlet Protection shall be constructed immediately after construction of the conveyance element is complete.
- Utilized as a permanent feature.

Sediment Basins

- A temporary ponding area with controlled outlet and a hard lined spillway.
- Utilized to detain sediment laden storm water runoff from disturbed areas greater than 5 acres to allow sediment particles to settle out.
- Sediment Basins should be installed prior to any other land disturbing activities upstream of the basin.
- May be designed to be upgraded to a permanent structure after construction is completed.
- Best used with other erosion prevention practices to limit sediment load in pond.
- Use only for treatment of onsite runoff.
- Never construct a sediment basin on a flowing stream or in wetlands.
- During construction, accumulated sediment shall be removed when the wet storage is reduced by half and must be properly disposed.
- If utilized in location of permanent water quality/detention facility, the full capacity of the permanent pond shall be re-established following stabilization.

Sediment Traps

- A small temporary ponding area formed by excavating below grade and/or by constructing an earthen embankment with a hard lined spillway.
- Utilized to detain sediment laden storm water runoff from small disturbed areas to allow sediment particles to settle out.
- Sediment Traps should be installed prior to any other land disturbing activities upstream of the trap.
- Use only if the contributing area to the trap is 5 acres or less, otherwise a sediment basin should be considered.
- Use only for treatment of onsite runoff.
- Never construct a sediment trap on a flowing stream or in wetlands.
- Traps should not be located closer than 20 feet from a proposed building foundation or highway edge of road.
- Traps should be located at points of discharge from disturbed areas.
- Best used with other erosion prevention practices to limit sediment load in pond.
- During construction, accumulated sediment shall be removed when the wet storage is reduced by half and must be properly disposed.

Grading Techniques

- Soil surface roughening, terracing and rounding at tops of cuts, transitions and roadway ditches to facilitate vegetation and minimize erosion.
- Surface Roughening of the soil is to be an ongoing sequence during the grading phase as the grading is concluded within each area, specifically on slopes and in any drainage swales.
- Disk surface to create ridges at least 6 inches deep following the land contour.
- Used to temporarily stabilize disturbed areas immediately after grading.

- After rainstorm events, rills that formed should be repaired immediately.

2.2.2 Non-Structural Practices

Non-structural BMPs are both temporary and permanent stabilization practices. Such practices may include temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, maintaining existing vegetation. The non-structural BMPs that will be used on the site include the following:

Temporary and Permanent Seeding

- Soil preparation, disking, and soil amendment may be necessary for proper seed bed establishment.
- Seeded areas should be inspected regularly. Areas that fail to establish shall be re-seeded promptly.
- Any area exposed for more than 30 days after construction has ceased in those areas shall be seeded or mulched.
- Permanent landscape cover shall be installed according to the landscape plan.

Mulching

- Application of plant residues to the soil surface. Typical mulching materials include certified weed free hay or straw, certified under the Colorado Department of Agriculture Weed Free Forage Certification Program.
- Utilized in combination with tackifier during high winds, on steep slopes, or due to seasonal constraints.
- Used to cover permanent and temporarily seeded areas.
- Inspect frequently and reapply in areas where mulching has loosened or removed.

Maintain Existing Vegetation

- Preserve wherever possible to prevent erosion and buffer movement of sediment.
- Establish buffers.
- Inspect frequently and apply BMPs when beginning to show signs of erosion.

Geotextiles

- A special liner that prevents erosion of the seedbed while vegetation is being established and aids in establishment by preserving moisture available to the seed.
- The blankets need to cover the necessary area of graded slopes and channels.
- The blanket will be installed according to the manufacturer's instructions and specifications. The number of staples or fasteners is critical while vegetation is still germinating.
- The erosion control blankets will be installed once graded slopes or swales designated to be vegetated have reached final grade or on areas where erosion is occurring during construction.
- The erosion control blanket will be inspected weekly and immediately after storm events to determine if cracks, tears, or breaches have been formed in the fabric. If so the blanket will be repaired or replaced immediately.
- Good contact with the soil will be maintained and erosion will not occur under the blanket. Any areas where he blanket is not in close contact with the ground will be repaired or replaced.
- Utilized as both temporary and permanent feature depending on grade.

2.2.3 Other Controls

Vehicle Tracking Control/ Construction Entrance

- A temporary stabilized layer of aggregate underlined with geotextile or gravel located where traffic enters or exits the construction site.
- Vehicle Tracking Control shall be installed prior to commencement of any construction and inspected daily.
- Does not work well alone in muddy conditions – use tire washing when mud is present. Implementation of tire washing should include provisions for collecting wash water and directing it to a treatment pond.
- Whenever possible locate the construction entrance as far from the disturbed area as possible to allow maximum travel time for sediment removal from tires.
- Public and Private roadways shall be kept clear of accumulated sediment.
- Cleaning sediment shall not be accomplished by flushing with water. Sediment should be shoveled or swept from the street and placed away from storm water improvements.

Concrete Washout

- Designed to receive wash water from washing of tools and concrete mixer chutes, liquid concrete waste from dump trucks, mobile batch mixers, and pump trucks.
- Concrete Washout shall be installed prior to the commencement of the infrastructure construction phase which will be requiring concrete and inspected daily when in use. This BMP is to be maintained throughout the vertical construction phase.
- Because pH is a pollutant of concern for washout activities, when unlined pits are used for concrete washout, the soil must have adequate buffering capacity to result in protection of state groundwater standards; otherwise, a liner/containment must be used.
- The use of the washout site should be temporary (less than 1 year).
- The washout site should not be located in an area where shallow groundwater may be present, such as near natural drainages, springs, or wetlands
- Depending on type of washout, a Vehicle Tracking Control may be required to access the washout.
- Adequate signage must be provided and in good repair identifying the location of the washout area.
- Remove concrete waste in the washout area, as needed to maintain BMP function (typically when filled to about two-thirds of its capacity).
- Collect concrete waste and deliver offsite to a designated disposal location.
- Upon termination of use of the washout site, accumulated solid waste, including concrete waste and any contaminated soils, must be removed from the site to prevent on-site disposal of solid waste. If the wash water is allowed to evaporate and the concrete hardens, it may be recycled.

Stabilized Staging Area

- A stabilized staging area is a clearly designated area where construction equipment and vehicles, stockpiles, waste bins, and other construction-related materials are stored. The contractor office trailer may also be located in this area.
- Stabilized Staging area shall be installed prior to the commencement of any construction activities. The initial size of the staging area can be established just for the grading phase then increased as needed for the infrastructure and vertical construction activities phases of the project.

- The layout of the staging area may vary depending on the type of construction activity and appropriate space should be provided to contain storage, provide for loading/unloading operations, construction office and parking if necessary and should be provided with:
  - A stabilized surface, either paved or covered, with 3-inch diameter aggregate or larger,
  - Perimeter controls such as silt fence, sediment control logs, or other measures,
  - Construction fencing to prevent unauthorized access to construction materials,
  - Provisions for Good Housekeeping practices related to materials storage and disposal,
  - A stabilized construction entrance/exit, as described in the Vehicle Tracking Control BMP details, to accommodate traffic associated with material delivery and waste disposal vehicles.
- Over-sizing the stabilized staging area may result in disturbance of existing vegetation in excess of that required for the project.

Control Practices for Wind Erosion

- Dust from the site will be controlled using a mobile pressure-type distributor truck to apply portable water to disturbed areas. The mobile unit will apply water as necessary to prevent runoff and ponding.
- Dust control will be implemented as needed once site grading has been initiated and during windy conditions while site grading is occurring.
- Spraying of portable water will be performed whenever the dryness of the soil warrants it.
- At least one mobile unit will be available at all time to distribute portable water to control dust on the project area.
- During high winds limit traffic speeds to 12 mph or less on areas without gravel or pavement.
- Gravel can be placed on construction roads, entrances, and construction staging areas. Stone/gravel provides an effective protective cover over the soil.
- In areas where wind erosion is expected soil-binding tackifiers can be applied with high success.

2.3 Materials Management

2.3.1 Potential Pollution Sources

Abnormal or especially hazardous materials are not expected to be utilized during the construction of the project, but like most construction projects, some materials or substances used have the potential to be hazardous when leaked into the storm water runoff. The following materials are expected to be present onsite during construction:

Concrete/Additives/Wastes	Cleaning Solvents/Detergents
Petroleum based products	Paints/Solvents
Pesticides	Acids
Fertilizers	Construction Wastes
Sanitary wastes	Soil Stabilization additives

Activities on the site that may impact storm water include the following:

- Equipment storage/Washing/Fueling
- Storage of Fertilizers/Chemicals/Paint/Fuel
- Waste storage/disposal
- Concrete truck washout and tool washing
- Sanitary facility use and disposal

As construction progresses, specific areas shall be designated for the above mentioned activities and materials management operations. The contractor is responsible for marking the location of these facilities on the site map and reporting on the condition, effectiveness and corrections or changes made and why.

2.3.2 Pollution Prevention Measures

Pollution prevention measures shall be utilized to prevent construction materials with the potential for polluting storm water from coming in contact with runoff. Measures include good housekeeping, proper disposal & storage, spill prevention, and secondary containment. BMPs for most common construction materials and wastes with the greatest potential for adversely affecting water quality are as follows:

BMPs for Construction Waste:

- Select a designated waste collection area onsite.
- Locate containers in level areas away from storm water conveyance structures.
- Provide covers for containers that contain very hazardous or soluble chemicals.
- Avoid putting paint/solvent containers in open dumpsters or allow them to dry completely before disposing.
- If a container does spill, provide clean up immediately.
- Make sure waste is disposed of at authorized disposal areas.

BMPs for Hazardous Waste Disposal

- Check with local waste management authorities with regard to requirements for disposing of hazardous materials.
- Use entire product before disposing.
- Dispose of containers with lids on and tightly sealed.
- Provide a separate dumpster for large amounts of chemical or hazardous material and maintain more stringent controls on that dumpster.
- Do not remove the product label from containers, it contains important disposal information.

BMPs for Residual Concrete Disposal

- Emptying or washing of excess concrete may be allowed on site. Excess concrete and wash water should be placed in a designated wash out area that avoids contact with storm water.
- Wash out areas should be clearly marked with signs and marked on the site map.
- The hardened residue from the wash out area can be disposed of like other non-hazardous construction waste.

BMPs for Sanitary/Septic Wastes

- If self-contained, temporary sanitary facilities are used, the waste disposal company should service the facilities based on the number of workers anticipated to avoid over use.
- All facilities should be anchored to the ground to prevent overturning due to wind or accident.
- Locate portable toilets away from curbs, swales or other locations where concentrated runoff may occur.
- Provide secondary containment barriers around the facility. Straw Wattles are NOT appropriate containment barriers!
- Do not dump any hazardous materials into the sanitary waste disposal systems.

BMPs for Pesticides/Fertilizers

- Store pesticides/fertilizers in a dry covered area and elevate above the ground.
- Provide secondary containment barriers around areas where a lot of material is stored. Straw Wattles are NOT appropriate containment barriers!
- Strictly follow recommended application rates and application methods.
- Apply fertilizer more frequently and at lower rates.
- Reduce exposure of nutrients to storm events by working fertilizer deep into soil.

BMPs for Petroleum Products

- Fueling operations shall only occur in a designated area.
- Store petroleum products in covered areas and away from areas where concentrated runoff occurs.
- Provide secondary containment barriers around areas where a lot of material is stored. Straw Wattles are NOT appropriate containment barriers!
- Schedule preventative maintenance for onsite equipment and fix any gas/oil leaks on a regular basis.
- Follow procedures for proper handling of asphalt and sealers.
- Secure fueling equipment and install valves to prevent vandalism/theft.

2.4 Spill Management

Construction site supervisors in conjunction with the SWMP Administrator should create and adopt a spill control plan that includes measures and procedures to stop the source of the spill, contain the spill, clean up, and dispose of contaminated materials. Key personnel should be identified and trained to be responsible for spill prevention and control. The following measures would be appropriate for a spill prevention response plan:

Store and handle materials to prevent spills

- Tightly seal containers.
- Make sure all containers are neatly labeled.
- Stack containers carefully for stability to avoid spills.
- Limit the height of stacks of stored materials.
- Store materials on covered pallets or in trailers with adequate ventilation.
- Eliminate storm water contact if there is a spill.
- Have cleanup procedures clearly posted.
- Have cleanup materials readily available and posted.
- Immediately contain any liquid.
- Stop the source of the spill.

- Cover spill with absorbent material and dispose of properly.

Additionally, records of spills, leaks, or overflows that result in the discharge of pollutants must be documented and maintained.

When any spill occurs:

1) Notify the controlling operator of the site immediately following a hazardous spill.
2) Document the spill and its clean-up procedures whether reporting is required or not.
3) At a minimum document the following:
   - Nature of spill,
   - Quantity of spill,
   - Date/time spill occurred,
   - Agency notification if necessary,
   - Clean-up procedures used,
   - Daily monitoring (7 days) after clean-up,
   - Photographs,
   - Interview(s) with any witnesses of the event.

Some spills will need to be reported to the Division of Water Quality immediately including the following:

- Over 25 gallons of petroleum,
- 5 CCs of mercury,
- A release of any chemical, oil, petroleum product which entered waters of the State of Colorado (which include surface water, groundwater, dry gullies or storm sewers leading to surface water),
- Any spill or release of raw sewage.

If any of the above criteria is met or exceeded, the Colorado Department of Public Health and Environment, City of Salida, Public Works Stormwater (719-539-6257), downstream users and other agencies (MS4s) will be notified. The CDPHE will be notified by telephone immediately. In addition, written notification describing the spill and the cleanup procedures used will be sent to the agencies 5 days following the spill. If a spill does not meet the above criteria, reporting is not mandatory.

See Appendix C for CDPHE's requirements. The Divisions 24-hour environmental emergency spill reporting line is 1-877-518-5608.

2.5 Non-Storm Water Components of Discharge

Non-storm water discharges must be avoided or reduced to the maximum extent possible. This SWMP plan will include construction dewatering due to the proximity of the Farmers Irrigation Ditch along the western property line and the likelihood of encountering ground water at a shallow (10') depth. Pumping or draining groundwater, even groundwater that has infiltrated an excavation will require a separate permit from the State. Storm water that mixes with groundwater is also subject to the controls in the general permit for Construction Dewatering. A copy of the permit will be included in Appendix B.

Groundwater and groundwater mixed with stormwater will not be discharged directly onto the ground, into the ditch or into the storm drainage system. This water is to be pumped into a settling

basin, a device to treat water by settling out sediment that was picked up by the pumping operation from dewatering activities. These basins will be:

- Used to remove sediments from dewatering activities.
- Used as a temporary feature.
- A structure consisting of an excavated basin surrounded by a perimeter control such as straw wattles, erosion bales or an earthen berm. The excavated area should be at least 3 feet deep. The excavated portion will serve for wet storage, and the remainder will provide dry storage.
- Sized for the amount of water expected to be pumped during a 3-hour period of time. When water reaches the outlet crest, pumping must stop until the water drains down and additional capacity is made available.

No materials shall be discharged in quantities that may impact storm water runoff. Possible discharge sources that need to be contained include:

- Locations where water tanks are being filled. Seal all leaks and avoid over filling. Any leaks should be directed to a water quality pond or protected to prevent erosion.
- Contain excess water during fire hydrant blow off, water system cleaning or other instances where potable water is discharged onto the surface. Convey any discharge to a water quality pond and avoid causing erosion by avoiding steep slopes, disturbed areas, etc.
- Monitor irrigation systems and fix leaks promptly. Avoid over irrigating areas where vegetation is not yet established.

3.0 Inspection and Maintenance

3.1 Inspection and Maintenance Overview

A site inspection of all erosion control facilities shall be conducted at least once every two weeks and immediately following any significant storm event, including but not limited to rain or snowmelt, which results in water and/or sediment being transported across the site. The inspection must determine if there is any evidence of, or the potential for, pollutants entering the storm drainage system. BMPs should be inspected to see if they meet the design and operation criteria in the SWMP and that they are adequately controlling potential pollutants. Any defects shall be corrected as soon as possible. Where spill kits have been used, or storage areas moved, supplies shall be restocked and re-protected. The site shall be inspected by the SWMP Administrator and monitored per the procedures outlined below:

3.2 Minimum Monitoring and Requirements

- Inspections of the site shall be conducted by the SWMP Administrator every two weeks and after significant storm events.
- Inspections are required at least every 30 days and after measurable storm events for sites that are no longer under construction, but do not have 70% established ground cover.

The SWMP Administrator shall certify that the site is in compliance with the permit by:

- Ensuring areas where significant runoff is occurring are identified on the site map.

- Storm water outfall shall be observed to determine whether or not measurable quantities of sediment or other pollutants have been or are being transported offsite.
- BMPs shall be addressed to determine if they are functioning properly or if they are in need of repair or maintenance. If the report describes deficiencies in pollution control structures or procedures, such deficiencies shall be corrected immediately.
- A brief description of measures taken to correct deficiencies shall be recorded.
- Determine if additional controls will be required.
- When an inspection does not identify any incidents of non-compliance, the report shall contain a certification that the site is in compliance with the SWMP and this permit.
- The date and inspector identity shall also be recorded. This record shall be signed and made available to the city, State and Federal inspectors upon request.

Based on the results of the inspection, the description of potential pollutant sources, and the control measures used should be updated on the SWMP and Site Map as soon as possible. Typically corrective action shall commence immediately when a deficiency is observed. SWMP and Map updates shall be completed within 72 hours. Another inspection should follow up and include the date, corrective action taken, and initials of who certified the work.

3.3 Reporting Requirements/ Inspection Reports

The Contractor is responsible for reporting of all BMP inspections and maintaining records of reports and maps throughout the project. The record shall be retained onsite and/or readily available until the inactivation notice has been filed. All inspection reports shall be submitted to the owner when the permit becomes inactive. A recommended/example inspection form is included in **Appendix D**. At a minimum, the inspection reports shall contain the following:

- Dates,
- Name(s) of inspectors,
- Purpose of inspection e.g. spill event, leakage of materials, storm event, bi- weekly inspection, etc.,
- When a bi-weekly report, an assessment of the entire property as related to
- SWMP issues,
- An estimated area of currently disturbed area,
- Evaluation of all active BMPs,
- Actions needed to assure continued compliance with SWMP guidelines,
- Document all areas of potential pollution sources and how they are protected,
- Documentation of any needed changes,
- Training events,
- Uncontrolled releases of mud or muddy water or measureable amounts of sediment,
- An estimated amount of precipitation. An onsite rain gauge is suggested.

4.0 Final Stabilization/ Conclusion

Permanent stabilization will be achieved by establishing vegetative or permanent surface cover on all disturbed areas. The vegetative cover will be specified on the landscape plan (see

Appendix G). Vegetative cover is considered complete when 70 percent of the pre-disturbance plant density is restored. In cases where the site was already disturbed, a plowed farm field for example, the pre-disturbance density will be the naturally occurring cover on non-plowed areas.

The General Contractor shall remove all temporary erosion and sediment control BMPs after stabilization is achieved or after temporary BMPs are no longer needed. Trapped sediment will be removed by the General Contractor. Disturbed soil areas resulting from removal of BMPs, the General Contractor will stabilize as soon as possible with either permanent surface cover per the construction plans or establishing vegetative cover per the landscape plans. This SWMP was designed based on the construction plans for the subdivision infrastructure only. Additions to this SWMP may be necessary to address BMPs for construction of residential housing or block construction. However the storm water permit may be maintained for other phases of the project.

Again this plan is a living document that will need to be updated and maintained throughout the construction process. The SWMP document will be modified accordingly as construction progresses and the site becomes more developed to include roads and the construction of buildings. It is the responsibility of the Owner/Operator to provide authorization to the necessary parties for coverage under the General Permit. Permit coverage will need to be updated to reflect the correct area of disturbance, transfer of responsibility, or completed stabilization of all of the phases as they begin and/or reach completion. The owner/operator is responsible for maintaining all BMPs and records until the inactivation notice or notice of reassignment is filed with the State.

5.0 References

1. CDOT Erosion Control and Storm water Quality Guide, Colorado Department of Transportation, 2002

2. Urban Storm Drainage Criteria Manual, Mile High Flood District (Rev. November 2017)

Appendix A:

CDPHE General Permit for Discharges from Construction Activity

COLORADO
Department of Public Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

ASSIGNED PERMIT NUMBER

_____

Date Received _____/_____/_____
MM DD YYYY

Revised: 10-2017

STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES APPLICATION

COLORADO DISCHARGE PERMIT SYSTEM (CDPS)

PHOTO COPIES, FAXED COPIES, PDF COPIES OR EMAILS WILL NOT BE ACCEPTED.

For Applications submitted on paper - Please print or type. Original signatures are required.
All items must be completed accurately and in their entirety for the application to be deemed complete. Incomplete applications will not be processed until all information is received which will ultimately delay the issuance of a permit. If more space is required to answer any question, please attach additional sheets to the application form. Applications or signature pages for the application may be submitted by mail or hand delivered to:

Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, WQCD-P-B2, Denver, CO 80246-1530

For Applications submitted electronically
Please note that you can ONLY complete the feedback form by downloading it to a PC or Mac/Apple computer and opening the Application with Adobe Reader or a similar PDF reader. The form will NOT work with web browsers, Google preview, Mac preview software or on mobile devices using iOS or Android operating systems.

If application is submitted electronically, processing of the application will begin at that time and not be delayed for receipt of the signed document.

Any additional information that you would like the Division to consider in developing the permit should be provided with the application. Examples include effluent data and/or modeling and planned pollutant removal strategies.

Beginning July 1, 2016, invoices will be based on acres disturbed.
DO NOT PAY THE FEES NOW – Invoices will be sent after the receipt of the application.

Disturbed Acreage for this application (see page 4)

- ☐ Less than 1 acre ($83 initial fee, $165 annual fee)
- ☐ 1-30 acres ($175 initial fee, $350 annual fee)
- ☐ Greater than 30 acres ($270 initial fee, $540 annual fee)

PERMIT INFORMATION

Reason for Application: ☐ NEW CERT ☐ RENEW CERT EXISTING CERT# _____

Applicant is: ☐ Property Owner ☐ Contractor/Operator

A. CONTACT INFORMATION - *indicates required

*** PERMITTED ORGANIZATION FORMAL NAME:** _____

1) * PERMIT OPERATOR - the party that has operational control over day to day activities - may be the same as owner.

Responsible Person (Title): _____

Currently Held By (Person): FirstName: _____ LastName: _____

Telephone: _____ Email Address: _____

Organization: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Per Regulation 61 : All reports required by permits, and other information requested by the Division shall be signed by the permittee or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(i) The authorization is made in writing by the permittee

(ii) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

(iii) The written authorization is submitted to the Division

2) OWNER - party has ownership or long term lease of property - may be the same as the operator.

☐ Same as 1) Permit Operator

Responsible Person (Title): _____

Currently Held By (Person): FirstName: _____ LastName: _____

Telephone: _____ Email Address: _____

Organization: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Per Regulation 61 : All reports required by permits, and other information requested by the Division shall be signed by the permittee or by a duly authorized representative of that person. A person is a duly authorized representative only if:

i. The authorization is made in writing by the permittee.
ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a **named individual** or any individual occupying a **named position);** and
iii. The written authorization is submitted to the Division.

3) *SITE CONTACT local contact for questions relating to the facility & discharge authorized by this permit for the facility

☐ Same as 1) Permit Operator

Responsible Person (Title): _____

Currently Held By (Person): FirstName: _____ LastName: _____

Telephone: _____ Email Address: _____

Organization: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

4) *BILLING CONTACT if different than the permittee.

☐ Same as 1) Permit Operator

Responsible Person (Title): _____

Currently Held By (Person): FirstName: _____ LastName: _____

Telephone: _____ Email Address: _____

Organization: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

5) OTHER CONTACT TYPES (check below) Add pages if necessary:

Responsible Person (Title): _____

Currently Held By (Person): FirstName: _____ LastName: _____

Telephone: _____ Email Address: _____

Organization: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

☐ Environmental Contact ☐ Consultant ☐ Stormwater MS4 Responsible Person

☐ Inspection Facility Contact ☐ Compliance Contact ☐ Stormwater Authorized Representative

B) PERMITTED PROJECT/FACILITY INFORMATION

Project/Facility Name _____

Street Address or Cross Streets _____

(e.g., Park St and 5 Ave; CR 21 and Hwy 10; 44 Ave and Clear Creek) ; A street name without an address, intersection, mile marker, or other identifying information describing the location of the project is not adequate. For **linear projects**, the route of the project should be described as best as possible using the starting point for the address and latitude and longitude – more clearly defined in the required map)

City: _____ County: _____ Zip Code: _____

Facility Latitude/Longitude - List the latitude and longitude of the excavation(s) resulting in the discharge(s). If the exact soil disturbing location(s) are not known, list the latitude and longitude of the center point of the construction project. If using the center point, be sure to specify that it is the center point of construction activity. The preferred method is GPS and Decimal Degrees.

Latitude _____ . _____ Longitude _____ . _____ (e.g., 39.70312°, 104.93348°)
Decimal Degrees (to 5 decimal places) Decimal Degrees (to 5 decimal places)

This information may be obtained from a variety of sources, including:

- **Surveyors or engineers** for the project should have, or be able to calculate, this information.
- **U.S. Geological Survey topographical map(s)**, available at area map stores.
- Using a **Global Positioning System (GPS) unit** to obtain a direct reading.
- **Google** - enter address in search engine, select the map, right click on location, and select "what's here".

***Note**: the latitude/longitude required above is not the directional degrees, minutes, and seconds provided on a site legal description to define property boundaries.*

C) MAP (Attachment) If no map is submitted, the application cannot be submitted.

Map: Attach a map that indicates the site location and that CLEARLY shows the boundaries of the area that will be disturbed. A vicinity map is not adequate for this purpose.

D) LEGAL DESCRIPTION - only for Subdivisions

Legal description: If subdivided, provide the legal description below, or indicate that it is not applicable (**do not** supply Township/Range/Section or metes and bounds description of site)

Subdivision(s): _____ Lot(s): _____ Block(s) _____

OR ☐ Not applicable (site has not been subdivided)

E) AREA OF CONSTRUCTION SITE - SEE PAGE 1 - WILL DETERMINE FEE

Provide both the total area of the construction site, and the area that will undergo disturbance, in acres.

Total area of project disturbance site (acres): _____

Note: aside from clearing, grading and excavation activities, disturbed areas also include areas receiving overburden (e.g., stockpiles), demolition areas, and areas with heavy equipment/vehicle traffic and storage that disturb existing vegetative cover.

☐ Part of Larger Common Plan of Development or Sale, (i.e., total, including all phases, filings, lots, and infrastructure not covered by this application)

F) NATURE OF CONSTRUCTION ACTIVITY

Check the appropriate box(es) or provide a brief description that indicates the general nature of the construction activities. (The full description of activities must be included in the Stormwater Management Plan.)

☐ Commercial Development

☐ Residential Development

☐ Highway and Transportation Development

☐ Pipeline and Utilities (including natural gas, electricity, water, and communications)

☐ Oil and Gas Exploration and Well Pad Development

☐ Non-structural and other development (i.e. parks, trails, stream realignment, bank stabilization, demolition, etc.)

G) ANTICIPATED CONSTRUCTION SCHEDULE

Construction Start Date: _____ Final Stabilization Date: _____

- *Construction Start Date* - This is the day you expect to begin ground disturbing activities, including grubbing, stockpiling, excavating, demolition, and grading activities.
- *Final Stabilization Date* - in terms of permit coverage, this is when the site is finally stabilized. This means that all ground surface disturbing activities at the site have been completed, and all disturbed areas have been either built on, paved, or a uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels. **Permit coverage must be maintained until the site is finally stabilized. Even if you are only doing one part of the project, the estimated final stabilization date must be for the <u>overall</u> project**. If permit coverage is still required once your part is completed, the permit certification may be transferred or reassigned to a new responsible entity(s).

H) RECEIVING WATERS (If discharge is to a ditch or storm sewer, include the name of the ultimate receiving waters)

Immediate Receiving Water(s): _____

Ultimate Receiving Water(s): _____

Identify the receiving water of the stormwater from your site. Receiving waters are any waters of the State of Colorado. This includes all water courses, even if they are usually dry. If stormwater from the construction site enters a ditch or storm sewer system, identify that system and indicate the ultimate receiving water for the ditch or storm sewer. **Note:** a stormwater discharge permit does <u>not</u> allow a discharge into a ditch or storm sewer system without the approval of the owner/ operator of that system.

I) SIGNATURE PAGE

1. **You may print and sign this document and mail the hard copy to the State along with required documents (address on page one).**

2. **Electronic Submission Signature**
   You may choose to submit your application electronically, along with required attachments. To do so, click the SUBMIT button below which will direct you, via e-mail , to sign the document electronically using the DocuSign Electronic Signature process. Once complete, you will receive via e-mail, an electronically stamped Adobe pdf of this application. Print the signature page from the electronically stamped pdf, sign it and mail it to the WQCD Permits Section to complete the application process (address is on page one of the application).
   - **The Division encourages use of the electronic submission of the application and electronic signature. This method meets signature requirements as required by the State of Colorado.**
   - **The ink signed copy of the electronically stamped pdf signature page is also required to meet Federal EPA Requirements.**
   - **Processing of the application will begin with the receipt of the valid electronic signature.**

☐ **STORMWATER MANAGEMENT PLAN CERTIFICATION**

By checking this box "I certify under penalty of law that a complete Stormwater Management Plan, as described in the stormwater management plan guidance, has been pre-pared for my activity. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the Stormwater Management Plan is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for falsely certifying the completion of said SWMP, including the possibility of fine and imprisonment for knowing violations."

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."
"I understand that submittal of this application is for coverage under the State of Colorado General Permit for Stormwater Discharges Associated with Construction Activity **for the entirety of the construction site/project described and applied for, until such time as the application is amended or the certification is transferred, inactivated, or expired**." [Reg 61.4(1)(h)]

For Docusign
Electronic Signature _____ Ink Signature _____ Date: _____

Signature of Legally Responsible Person or Authorized Agent (submission must include original signature)

_____ _____
Name (printed) Title

Signature: The applicant must be either the owner and operator of the construction site. Refer to Part B of the instructions for additional information.
The application must be signed by the applicant to be considered complete. In all cases, it shall be signed as follows:
(Regulation 61.4 (1ei)
a) In the case of corporations, by the responsible corporate officer is responsible for the overall operation of the facility from which the discharge described in the form originates
b) In the case of a partnership, by a general partner.
c) In the case of a sole proprietorship, by the proprietor.
d) In the case of a municipal, state, or other public facility, by either a principal executive officer, ranking elected official, (a principal executive officer has responsibility for the overall operation of the facility from which the discharge originates).

3rd Party Preparer: If this form was prepared by an authorized agent on behalf of the Permittee, please complete the field below.

_____ _____
Preparer Name (printed) Email Address

DO NOT INCLUDE A COPY OF THE STORMWATER MANAGEMENT PLAN
DO NOT INCLUDE PAYMENT—AN INVOICE WILL BE SENT AFTER THE CERTIFICATION IS ISSUED.

	Attach Map
	Attach File
	Attach File
	Attach File
	Attach File

Submit

Appendix B:

CDPHE Construction Dewatering Permit

COLORADO
Department of Public Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

For Agency Use Only:
Permit Number Assigned
COG07 - _____
COG315 -_____
COG316 -_____

Application for COLORADO DISCHARGE PERMIT SYSTEM (CDPS) General Permits:

- **Construction Dewatering** (COG070000)
- **Remediation Activities Discharging To Surface Water** (COG315000), or
- **Remediation Activities Discharging To Groundwater** (COG316000)

Please print or type. Original signatures are required. Photo, faxed, pdf or email copies will not be accepted.

This combined permit application is designed to streamline the application process for the three types of discharge permits listed in Part A below, and includes an *Application Guidance Document* to help applicants complete the application and select the right permit coverage for their activity. Please note that **one** application is intended to cover **one** project and **one** type of permit. Where multiple projects or types of permits are required, please submit an appropriate number of permit applications.

The application must be submitted to the Water Quality Control Division at least 30 days (for Construction Dewatering) or 45 days (for Remediation) prior to the anticipated date of discharge, and must be considered complete by the division before the review and approval process begins. The division will notify the applicant if additional information is needed to complete the application. If more space is required to answer any question, please attach additional sheets to the application form. Applications must be submitted by mail or hand delivered to:

Colorado Department of Public Health and Environment
Water Quality Control Division, WQCD-P-B2
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

***IMPORTANT**: Please read the Application Guidance Document (Guidance) for this permit application prior to completing this application. The Guidance provides specific and important instructions required for completing this application correctly.*

A. PERMIT INFORMATION

Reason for Application: □ NEW CERT

□ RENEW CERT EXISTING CERT # _____

Applicant is: □ Property Owner □ Contractor/Operator

Application is for the following discharge permit (select <u>ONE</u>). See Guidance.

□ Construction Dewatering (COG070000)

□ Remediation Activities Discharging to Surface Water (COG315000)

□ Remediation Activities Discharging to Groundwater (COG316000)

Note: This application is designed for processing each of the three permit types listed above. The division may request additional characterization of the proposed discharge to ensure that the appropriate permit coverage is requested and the appropriate permit certification is issued. The division may deny or change the requested type of discharge permit after review of the submitted application and will notify the applicant of the changes. Coverage under the "Subterranean Dewatering or Well Development" General Permit COG6030000 is not available using this application form.

4300 Cherry Creek Drive S., Denver, CO 80246-1530 P 303-692-2000 www.colorado.gov/cdphe/wqcd
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B. CONTACT INFORMATION

1. Permittee Information

Organization Formal Name: _____

Permittee Name: the person **authorized to sign and certify** the permit application. This person receives all permit correspondences and is **responsible** for ensuring compliance with the permit.

Responsible Position (Title): _____

Currently Held By (Person): _____

Telephone No: _____

Email address: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

This form must be signed by the permittee to be considered complete. **Per Regulation 61**, in all cases, it shall be signed as follows:

a) In the case of corporations, by a responsible corporate officer. For the purposes of this section, the responsible corporate officer is responsible for the overall operation of the facility from which the discharge described in the application originates.
b) In the case of a partnership, by a general partner.
c) In the case of a sole proprietorship, by the proprietor.
d) In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official.

2. DMR Cognizant Official (i.e. authorized agent) the person or position authorized to sign and certify reports required by permits including Discharge Monitoring Reports [DMR's], Annual Reports, Compliance Schedule submittals, and other information requested by the division. The division will transmit pre-printed DMR's to this person. If more than one, please add additional pages.

□ Same as 1) Permittee

Responsible Position (Title): _____

Currently Held By (Person): _____

Telephone No: _____

Email address: _____

Organization: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Per Regulation 61: All reports required by permits, and other information requested by the Division shall be signed by the permittee or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a) The authorization is made in writing by the permittee
b) The authorization specifies either an individual or **a position having responsibility for the overall operation of the regulated facility or activity** such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position)
c) Submitted in writing to the Division

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B. CONTACT INFORMATION (cont.)

3. Site/Local Contact (contact for questions relating to the facility & discharge authorized by this permit.)

□ Same as 1) Permittee

Responsible Position (Title): _____

Currently Held By (Person): _____

Telephone No: _____

Email address: _____

Organization: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

4. Operator in Responsible Charge Required for Groundwater Remediation COG315000 or COG316000

□ Same as 1) Permittee □ Same as 3) Site/ Local Contact

**Note: Where the division determines that coverage under the construction dewatering permit is appropriate, an ORC is not required.*

Operator Number _____ Legal Name: _____

Telephone No: _____Email address: _____

Company: _____

5. Billing Contact □ Same as 1) Permittee

Responsible Position (Title): _____

Currently Held By (Person): _____

Telephone No: _____

Email address: _____

Organization: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

6. Other Contact Types (check below) Add pages if necessary:

Responsible Position (Title): _____

Currently Held By (Person): _____

Telephone No: _____

Email address: _____

Organization: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

□ Environmental Contact
□ Facility Inspection Contact
□ Consultant
□ Compliance Contact
□ Property Owner
□ Other _____

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C. PERMITTED FACILITY INFORMATION

Facility or Project Name _____

Street Address (or cross streets) _____

City_____ Colorado, Zip Code _____

County _____

Type of Facility Ownership

□ City Government □ Corporation □ Private □ Municipal or Water District

□ State Government □ Mixed Ownership _____

Facility or Project Latitude/Longitude — List the latitude and longitude of the excavation resulting in the discharge(s). If the exact excavation location(s) are not known, list the latitude and longitude of the center point of the construction project. If using the center point, be sure to specify that it is the center point of construction activity.

Latitude _____. _____ Longitude _____. _____
Provide coordinates in decimal degrees to 6 decimal places (e.g., 39.703345°,-104.933567°)

Horizontal Collection Method: □ GPS Unspecified □ Interpolation Map – Map Scale Number_____
Reference Point: □ Project/Facility Entrance □ Project/Facility Center/Centroid

Horizontal Reference Datum: _____

Standard Industrial Classification (SIC) Code(s) for this FACILITY (include up to 4, in order of importance)

1_____ 2_____3_____4_____

Receiving Water_____

D. PROJECT DESCRIPTION

D.1. Description of Activity:

a) Provide a brief overview of the project and dewatering activity (e.g., highway, bridge and tunnel construction, storm drain expansion, etc.).

b) Is the dewatering and discharge in-stream? (The dewatering operation is considered in-stream where the dewatering activity is conducted within approximately the ordinary high water mark of the stream and/or on the bank of the stream and the discharge is back to the same water body.)

□ Yes * □ No

**If yes, you must provide a description of how your project meets this definition in the box below. If no description is provided, the work will not be considered in-stream. Please note that in-stream work activities may also require a separate Clean Water Act Section 404 Permit and Colorado 401 Certification.*

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c) Will the project involve a temporary stream diversion (e.g. diversion channel, pump-around, piped diversion, coffer dam) to reroute water around the construction area*?*

□ Yes * □ No

**By checking yes, the applicant understands that temporary water diversions are not covered under the permit certification and may require coverage under a Clean Water Act Section 404 Permit. Only dewatering discharge outfalls associated with construction-related activities may be covered under the permit certification.*

d) Will dewatering be conducted in areas that involve work on (e.g. replacing, repairing, making connections to, etc...) existing sanitary sewer lines, conveyances, or vessels, or in proximity to septic disposal systems?

□ Yes □ No

If yes, is there the potential that sewage or septage could be in the effluent to be discharged?

□ Yes □ No *

**If no, you must provide a description of the control measures that will be implemented to prevent sewage or septage from entering the discharge (use the box below). The division may add effluent limits for E. coli and/or Total Coliform if the applicant does not demonstrate that adequate measures will be in place.*

D.2 Description of Discharge:

a) Is the discharge to a ditch or storm sewer system? □ Yes* □ No

**If yes, the applicant must contact the owner of the ditch or storm sewer system prior to discharging to address any local ordinances and to determine if additional requirements will be imposed by the owner.*

b) Is the discharge to an impoundment? □ Yes* □ No

c) Discharge Frequency and Duration:

- Estimated discharge start date: _____
- Estimated discharge duration: Years _____ Months _____ Days _____
- Upon completion of construction phase dewatering, will there be long-term subterranean dewatering at the site (e.g. foundation, footer, toe drains, etc...)? □ Yes* □ No

  **If yes, note that construction phase dewatering and long-term subterranean dewatering cannot be covered under the same permit certification.*

d) Provide a brief description of the Best Management Practices (BMPs) to be used in the box below.

D.3 Discharge Outfalls (Limit 20 outfalls):

- Total number of **defined** outfalls requested: _____
- Total number of **undefined** outfalls requested:_____ (construction dewatering only)
- Complete Table 2a (for discharges to surface water) and/or 2b (for discharges to land with percolation to groundwater) to identify your defined and undefined outfall locations. Attach additional pages as necessary.

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Table 2a - Requested Outfalls for Discharges to Surface Water (Discharges that may reach surface water through direct discharge or through a conveyance such as a ditch or a storm sewer system)				
OUTFALL NUMBER[1]	**NAME OF RECEIVING STREAM(S)** (e.g., Cherry Creek, Boulder Creek, Arkansas River)	**ESTIMATED MAXIMUM FLOW RATE[2] (gpm)**	**DESCRIPTION OF DISCHARGE LOCATION[3]** (e.g., Discharge enters storm sewer located at the corner of Speer and 8th Ave. with flow to Cherry Creek)	**LATITUDE/LONGITUDE OF EACH DISCHARGE OUTFALL**
Defined Discharges to Surface Water				
001-A				
002-A				
003-A				
004-A				
Undefined Discharges to Surface Water *(Available for construction dewatering only) (Provide **estimated** lat/long only for undefined outfalls)*				
001-AU				
002-AU				
003-AU				
004-AU				

1 Identify up to 20 defined or undefined outfalls (undefined for construction dewatering only). Use additional pages as necessary.
2 For construction dewatering the maximum flow limit will be equal to twice the estimated maximum flow rate provided in the permit application. For groundwater remediation the 30-day average flow limit will be based on the design capacity of the treatment as provided in the permit application.
3 The discharge location is the point where effluent sampling will occur. This location must be at a point after treatment and before the effluent joins or is diluted by any other waste stream, body of water, or substance. If the discharge is to a ditch or storm sewer system, include the name of the ultimate receiving waters where the ditch or storm sewer discharges.

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Table 2b – Requested Outfalls for Discharges to Land with the Potential to Percolate to Groundwater (These discharges do not have the potential to reach surface water either directly or through a conveyance.)[4]			
OUTFALL NUMBER[1]	**ESTIMATED MAXIMUM FLOW RATE[2] (gpm)**	**DESCRIPTION OF DISCHARGE LOCATION[3]** (e.g., Discharge to a field south of project site and East of I-25)	**LATITUDE/LONGITUDE OF EACH DISCHARGE OUTFALL**
Defined Discharges to Land with Potential Percolation to Groundwater			
G001-A			
G002-A			
G003-A			
G004-A			
Undefined Discharges to Land with Potential Percolation to Groundwater *(Available for construction dewatering only) (Provide **estimated** lat/long only for undefined outfalls)*			
G001-AU			
G002-AU			
G003-AU			
G004-AU			

1 Identify up to 20 defined or undefined outfalls (undefined for construction dewatering only). Use additional pages as necessary.

2 For construction dewatering the maximum flow limit will be equal to twice the estimated maximum rate flow rate provided in the permit application. For groundwater remediation the 30-day average flow limit will be based on the design capacity of the treatment as provided in the permit application.

3 The discharge location is the point where effluent sampling will occur. This location must be at a point after treatment and before the effluent joins or is diluted by any other waste stream, body of water, or substance.

4 For discharges of uncontaminated groundwater to land, please review and consider the applicability of the division's *Low Risk Discharge Guidance: Discharges of Uncontaminated Groundwater to Land* before submitting a permit application to the division. This policy is available for download at https://www.colorado.gov/pacific/cdphe/clean-water-construction-compliance-assistance-and-guidance.

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E. ADDITIONAL INFORMATION

E.1 Nearby Sources of Potential Groundwater Contamination:

a) Has the proposed dewatering area been reviewed for possible groundwater contamination, such as plumes from leaking underground storage tanks (LUSTs), hazardous waste sites, or additional sources other than what is normally encountered at excavation and construction sites? *Applicants are expected to exercise due diligence in evaluating their project sites prior to applying for a discharge permit.*

□ Yes □ No

b) Is an open LUST located within **one-half mile** of the site?

□ Yes* □ No

**If yes, BTEX analytical data for a source water sample representative of the proposed discharge at the site must be included with the permit application. Failure to include this data may result in delays in processing the permit application until such data is submitted to the Division. See Guidance.*

c) Is a Superfund site or National Priorities List (NLP) site located within **one mile** of the site?

□ Yes* □ No

**If yes, analytical data for all parameters shown in Table 1 of this application (or an alternate list of constituents approved by the division) for a source water sample representative of the proposed discharge must be included with the permit application. Failure to include this data may result in delays in processing the permit application until such data is submitted to the Division. See Guidance.*

d) Is any other (non-LUST, non-Superfund, non-NPL site) known source of contamination, such as a Voluntary Cleanup (VCUP), Environmental Covenant, open RCRA Corrective Action site, or brownfields site located within **one-half mile** of the site?

□ Yes* □ No

**If yes, analytical data for all parameters shown in Table 1 of this application (or an alternate list of constituents approved by the division) for a source water sample representative of the proposed discharge must be included with the permit application. Failure to include this data may result in delays in processing the permit application until such data is submitted to the Division. See Guidance.*

e) If known sources of contamination are located near the site, provide an overview of the source and nature of contamination including:

- The nature of the contamination of the groundwater, alluvial water, stormwater, and/or surface water (the source water) for which treatment and/or remedial activities will occur,
- The primary industrial activities which resulted in the source water contamination,
- The source of the contamination (pipes, leaking underground storage tank, up gradient sources, etc.) or state "unknown."

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f) For contaminated discharges (remediation), provide a narrative description of the type(s) of treatment proposed for use at each identified outfall.

E.2 Chemical Additions

List any chemical additives or other materials to be used in the water or to treat water prior to discharge. Include the Material Safety Data Sheet (MSDS) for each chemical with the application.

CHEMICAL NAME	MANUFACTURER	PURPOSE	DOSAGE

E.3 Site Maps and Schematics

Are required maps and schematics attached? □ Yes
□ No-Application cannot be processed without required maps

✓ **Location Map(s) for Outfalls** – Application must include a location map(s) that shows the location of the project/facility, the limits of the construction activity, the approximate location of the requested discharge point(s)/outfalls, and the location of potential receiving water(s). If known, the map should also include the approximate location(s) where dewatering is to occur and the location of proposed BMP(s) to be used. A north arrow must be shown. **Maps must be on paper that can be folded to 8 ½ x 11 inches.**

E.4 Associated Permits

Does the applicant have a Stormwater Permit for Construction Activities? □ YES □ NO □ PENDING
If Yes, Stormwater Construction Permit Number: COR-_____

Does the applicant have a Clean Water Act Section 404 Permit? □ YES □ NO □ PENDING

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E.5 Water Rights

The State Engineers Office (SEO) has indicated that any discharge that does not return water directly to surface waters (i.e. land application, rapid infiltration basins, etc.) has the potential for material injury to a water right. As a result, the SEO needs to determine that material injury to a water right will not occur from such activities. To make this judgment, the SEO requests that a copy of all documentation demonstrating that the requirements of Colorado water law have been met, be submitted to their office for review. The submittal should be made as soon as possible to the following address:

Colorado Division of Water Resources ● 1313 Sherman Street, Room 818 ● Denver, Colorado 80203

Should there be any questions on the issue of water rights; the SEO can be contacted at (303) 866-3581. It is important to understand that any CDPS permit issued by the division does not constitute a water right. Issuance of a CDPS permit does not negate the need to also have the necessary water rights in place. It is also important to understand that even if the activity has an existing CDPS permit, there is no guarantee that the proper water rights are in place.

F. REQUIRED CERTIFICATION SIGNATURE [Reg 61.4(1)(h)]

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature (Legally Responsible Party (Page 2 item 1) _____

Date _____

Name (printed) _____Title_____

This form must be signed by the permittee to be considered complete. **Per Regulation 61**, in all cases, it shall be signed as follows:

a) In the case of corporations, by a responsible corporate officer. For the purposes of this section, the responsible corporate officer is responsible for the overall operation of the facility from which the discharge described in the application originates.
b) In the case of a partnership, by a general partner.
c) In the case of a sole proprietorship, by the proprietor.
d) In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official.

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ATTACHMENT 1
Please Submit the Laboratory Data Package for any Required Analysis with the Permit Application
(See Important Table Notes)

Required Water Quality Data			
Metals	**PQL (ug/l) [1]**	**Metals**	**PQL (ug/l) [1]**
Aluminum-Trec	15	Lead-PD	0.5
Antimony-Trec	2	Manganese-PD	2
Arsenic-Trec	1	Manganese-Diss	2
Arsenic-PD	1	Molybdenum-Trec	0.5
Barium-Trec	1	Nickel-Trec	1
Beryllium-Trec	2	Nickel-PD	1
Cadmium-Trec	0.5	Selenium-Trec	1
Cadmium-PD	0.5	Selenium-PD	1
Chromium III-Trec	20	Silver-Trec	0.5
Chromium III-PD	20	Silver-PD	0.5
Chromium VI-Diss	20	Thallium-Trec	0.5
Chromium-Trec	20	Thallium-PD	0.5
Copper-Trec	2	Uranium-PD	1
Copper-PD	2	Uranium-Trec	1
Iron-Trec	20	Zinc-Trec	10
Iron-Diss	20	Zinc-PD	10
Lead-Trec	0.5		
Volatiles	**PQL (ug/l) [1]**	**Volatiles**	**PQL (ug/l) [1]**
acrolein	15	ethylbenzene	75
benzene	3	methyl bromide	5
bromoform	3	methyl chloride	4.5
carbon tetrachloride	3	1,1,2,2-tetrachloroethane	2
chlorobenzene	60	tetrachloroethylene	2.3
chlorodibromomethane	3	toluene	60
2-chloroethylvinyl ether	0.65 *	1,2-trans-dichloroethylene	0.5 *
chloroform	3	1,1,1-trichloroethane	5
1,2-dichlorethane	3	1,1,2-trichloroethane	2.0
1,1-dichlorethylene	5	trichloroethylene	2.3
1,2-dichlorpropane	2	vinyl chloride	3
1,3-dichlorpropylene	2 *	1,4-Dioxane	0.15 *
Semi-Volatile Organic Compounds	**PQL (ug/l) [1]**	**Semi-Volatile Organic Compounds**	**PQL (ug/l) [1]**
acenaphthene	20	1,2-diphenylhydrazine (as azobenzene)	5 *
acenaphthylene	30	fluorene	20
anthracene	20	fluoranthene	25
benzidine	170	hexachlorobenzene	16
benzo(a)anthracene	12	hexachlorobutadiene	9
benzo(a)pyrene	20	hexachlorcyclopentadiene	50
benzo(b)fluoranthene	35	hexachloroethane	16
benzo(ghi)perylene	20	indeno(1,2,3-cd)pyrene	20
benzo(k)fluoranthene	25	isophorone	25
bis(2-chloroethyl)ether *(or Dichloroethyl ether)*	15	naphthalene	20
bis(2-chloroisopropyl)ether *(or 2,2-dichloroisopropyl ether)*	60	nitrobenzene	19
bis(2-ethylhexyl)phthalate	25	N-nitrosodimethylamine	30

Semi-Volatile Organic Compounds	PQL (ug/l) [1]	Semi-Volatile Organic Compounds	PQL (ug/l) [1]
Butyl benzyl phthalate	25	N-nitrosodi-n-propylamine	30
2-chloronaphthalene	20	N-nitrosodiphenylamine	19
chrysene	18	pyrene	10
dibenzo(a,h)anthracene	20	1,2,4-trichlorobenzene	20
1,2-dichlorobenzene	2.5	2-chlorophenol	35
1,3-dichlorobenzene	2.5	2,4-dichlorophenol	30
1,4-dichlorobenzene	3.5	2,4,-dimethylphenol	30
3,3-dichlorobenzidine	18	4,6-dinitro-o-cresol	17
diethyl phthalate	20	2,4-dinitrophenol	100
dimethyl phthalate	20	4-nitrophenol	25
di-n-butyl phthalate	25	pentachorophenol	36
2,4-dinitrotoluene	17	phenol	15
2,6-dinitrotoluene	20	2,4,6-trichlorophenol	25
xylene	10 *	1,4-Dioxane	0.15 *

[1] PQLs are as listed in the division's *Practical Quantitation Limits Policy* (CW 6) unless noted otherwise.

* This is a recommended PQL based on EPA approved methods. The division's *Practical Quantitation Limits Policy (CW 6)* does not provide a 40 CFR 136 based PQL for this parameter.

Trec = Total Recoverable

PD = Potentially Dissolved

Diss = Dissolved

PQL = Practical Quantitation Limit

Important table notes:

1) Please refer to the permit application Guidance to determine whether analytical data is required with the permit application, and if so, what specific type of data is required.

2) Parameter names match the names as they appear in the general permit or, as italicized, as they appear in the division's *Practical Quantitation Limits Policy* (CW-6).

3) The division may require analytical data for additional parameters where the project site is located in close proximity to potential sources of contamination for parameters not included in this Attachment 1, including but not limited to pesticide, PCB, radionuclide contamination.

4) Applicants applying under the General Permit for Remediation Activities Discharging to Groundwater (COG316000) are encouraged to contact the division prior to sample collection to ensure that the correct metal speciation is included in the sample analysis.

5) For the permit application, all sampling should be performed according to specified methods in 40 CFR 136, methods approved by EPA pursuant to 40 CFR 136, or methods approved by the division, in the absence of a method specified in or approved pursuant to 40 CFR 136. In addition, the PQLs listed in Attachment 1 should be met unless otherwise approved by the division.

Appendix C:

Reporting Chemical Spills and Releases in Colorado

REPORTING ENVIRONMENTAL RELEASES IN COLORADO

Hazardous Materials and Waste Management Division
(303) 692-3300

January 2009

Purpose of this Guidance

This guidance is intended to provide an overview of various reporting requirements for a variety of releases to the environment. Please check all of the possible requirements for reporting. This guidance does not cover all potential release scenarios. This guidance is not intended to modify or replace statutes or regulations, which undergo periodic revisions. In the event of a conflict between this guidance and statutes or regulations, the statutes and regulations govern.

Some reporting requirements are complex and overlapping, and this guidance does not go into details of all situations. If a release situation is not described in this guidance, or if clarification is desired, please obtain an official interpretation from the governing agency enforcing the statute or regulation.

Table of Contents

Contact Information

Release Reporting Numbers

National Response Center (NRC)	1 (800) 424-8802
24-hour reporting	
Colorado Environmental Release and Incident Reporting Line	1 (877) 518-5608
24-hour reporting	
Radiation Incident Reporting Line	(303) 877-9757
24-hour reporting	
Colorado State Patrol	(303) 239-4501
24-hour reporting	
US EPA Region 8 Emergency Response Spill Report Line	1 (800) 227-8914
24-hour reporting	
Division of Oil and Public Safety (Dept. of Labor and Employment)	(303) 318-8547
Fax	(303) 318-8546
Oil and Gas Conservation Commission (Dept. of Natural Resources)	(303) 894-2100
Division of Reclamation, Mining and Safety (Dept. of Natural Resources)	(303) 866-3567
Colorado Public Utilities Commission Gas Pipeline Safety Section (Dept. of Regulatory Agencies)	(303) 894-2851
Local Emergency Planning Committee (Dept. of Local Affairs)	(720) 852-6603
Business hours only - to obtain a list of LEPC contacts	

Colorado Department of Public Health and Environment

Mailing Address:
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1530

Office Hours:
Monday – Friday, except holidays 8:00 am – 5:00 pm

Environmental Divisions

Air Pollution Control Division	(303) 692-3100
Website	http://www.cdphe.state.co.us/ap/
Email	comments.apcd@state.co.us
Consumer Protection Division	(303) 692-3620
Website	http://www.cdphe.state.co.us/cp/
Email	comments.cpd@state.co.us
Hazardous Materials and Waste Management Division	(303) 692-3300
Website	http://www.cdphe.state.co.us/hm/
Email	comments.hmwmd@state.co.us
Water Quality Control Division	(303) 692-3500
Website	http://www.cdphe.state.co.us/wq/
Email	comments.wqcd@state.co.us

Colorado Environmental Release Reporting

When a release of a hazardous material or other substance occurs to the environment, there are a number of reporting and notification requirements that must be followed by the company or individual responsible for the release. Environmental releases must be reported to the appropriate authorities so that necessary response actions are taken in a timely fashion to ensure maximum protection of human health and the environment. However, taking appropriate and timely response actions do not relieve you of your responsibility to report a release. In addition, the responsible party is always liable for any damages that may result from a release, and is responsible for appropriate clean up actions whether or not the release is required to be reported.

> Additional reporting requirements may be found in permits, licenses, registrations, contingency and pollution prevention plans, fire codes, and local ordinances.

There is no penalty for over-reporting, but there are for failing to report a release. If you are unsure if a release needs to be reported, the Colorado Department of Public Health and Environment (the Department) recommends that releases be reported immediately even if the quantity of the release has not yet been determined. Your follow-up report will provide details that explain why the release was or was not reportable.

"Release" includes any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, including abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance, pollutant, or contaminant.

"Environment" is generally defined as any surface water, ground water, drinking water supply, land surface, subsurface strata, or ambient air. Releases into containment devices and those completely contained within a building or other structure are not releases into the environment as long as the hazardous substance does not volatilize into the ambient air or otherwise have the potential to enter the environment (e.g., through the floor or cracks in the floor). Releases of a substance into a storm drain or sewer, or onto a parking lot or roadway, are considered to be releases to the environment.

> Most spills and releases are covered by more than one reporting requirement, and all requirements must be met.

Release reporting requirements are based on the type of material released and/or the situation under which the release occurred. Additional reporting requirements may be found in permits, licenses, registrations, contingency and pollution prevention plans, fire codes, and local ordinances. Please check all of the possible requirements for reporting. Most spills and releases are covered by more than one reporting requirement, and ALL requirements must be met. Enforcement action may be taken against those who fail to provide required notifications or reports.

A. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

The Comprehensive Environmental Response, Compensation and Liability Act, commonly known as Superfund or CERCLA, provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. This Act also enabled revision of the National Contingency Plan, which provides the guidelines and

procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants.

Under CERCLA, the US EPA was directed to establish reporting quantities for all hazardous substances. The term "hazardous substance" is defined in CERCLA Section 101(14). These are defined by reference to substances that are listed or designated under other environmental statutes. They include:

- all hazardous air pollutants (HAPs) listed under Section 112(b) of the Clean Air Act (CAA). Radio-nuclides are hazardous substances because EPA designated them generically as hazardous air pollutants under Section 112(b) of the Clean Air Act. Even though the source of their listing is the Clean Air Act, releases of radionuclides to all media, not just to air, are covered by CERCLA's reporting requirements.
- toxic pollutants that are subject to pretreatment standards under Section 307(a) of the Clean Water Act (CWA) and toxic pollutants that present an imminent danger to public health when discharged to waters of the United States as designated under Section 311(b)(2)(A) of the Clean Water Act. All Clean Water Act hazardous substances are CERCLA hazardous substances, but only some CERCLA hazardous substances are Clean Water Act hazardous substances.
- wastes that are regulated as listed and/or characteristic hazardous wastes under the Resource Conservation and Recovery Act (RCRA). This includes thousands of hazardous wastes that are not specifically listed but that exhibit one or more of the characteristics of ignitability, reactivity, corrosivity or toxicity. A material is considered to be a release of a CERCLA hazardous substance if the material was a waste prior to release, or if the substance is not cleaned up for reuse and thus must be disposed of as a RCRA hazardous waste after release.
- any element, compound, mixture solution or substance designated under Section 102 of CERCLA that may present substantial danger to public health or welfare or the environment.
- any imminently hazardous chemical substance or mixture that EPA has taken action against under Section 7 of the Toxic Substances Control Act (TSCA). Any hazardous chemical substance or mixture that EPA has taken action against under this Act would automatically become a hazardous substance. To date, EPA hasn't designated any hazardous substances under the Toxic Substances Control Act.

Report releases at or above the reportable quantity (RQ) within 24 hours:

- Hazardous air pollutants under Section 112(b) of Clean Air Act
- Toxic pollutants under Section 307(a) or under Section 311(b)(2)(A) of Clean Water Act
- RCRA hazardous wastes
- Elements, compounds or substances under Section 102 of CERCLA

The person in charge of a facility or vessel must immediately report a release to the National Response Center (NRC) as soon as they have knowledge of a release to the environment of a CERCLA hazardous substance at or above the reportable quantity assigned to that substance within a 24-hour period. If the release is a mixture or solution of hazardous substances, it must be reported if the reportable quantity for any hazardous constituents is met or exceeded. If the responsible party doesn't know the quantity of one or more of the hazardous constituents contained in a mixture or solution, they must report the release if the total amount of the mixture or solution released equals or exceeds the reportable quantity for the hazardous constituent with the lowest reportable quantity.

Reporting is also required if a non-CERCLA substance is released into the environment and rapidly degrades into a CERCLA hazardous substance in an amount that equals or exceeds the reportable quantity for the newly formed CERCLA hazardous substance.

These notification and reporting requirements are included in 40 CFR Part 302. A list of CERCLA hazardous substances is included in Table 302.4 of these regulations.

B. Emergency Planning and Community Right-to-Know Act (EPCRA)

The Superfund Amendments and Reauthorization Act of 1986 reauthorized the Comprehensive Response, Compensation and Liability Act to continue cleanup activities around the country. Several amendments, definitions, clarifications and technical requirements were added to the legislation, including additional enforcement authorities. Title III of the Superfund Amendments also authorized the Emergency Planning and Community Right-to-Know Act (EPCRA), which established the community's right to information about the chemicals that are stored, used at and/or released from local facilities. It also established a framework for developing emergency plans for responding to releases and reporting requirements for facilities.

A list of EPCRA threshold planning quantities (TPQ) is included in 40CFR Part 355 Appendices A & B.

Under this Act, owners or operators of facilities at which a hazardous substance or extremely hazardous substance is produced, used or stored must provide immediate notification to the National Response Center (NRC), the State Emergency Response Commission (SERC) and the affected Local Emergency Planning Committee (LEPC) when there is a release of a hazardous substance or extremely hazardous substance with the potential to affect off-site persons that equals or exceeds its reportable quantity within a 24-hour period. If the release is an EPCRA extremely hazardous substance, but not a CERCLA hazardous substance, then only the SERC and LEPC need to be notified. Note – there may be more than one SERC and/or LEPC potentially affected by a release. Don't wait until there is a release to contact the SERC and LEPC(s) to ensure that the correct contacts will be made in the event of a spill. For a list of LEPCs, contact the Colorado Department of Local Affairs.

The owner or operator of the facility must report a release as soon as they know about it. In addition to immediate telephone notification, the responsible party must also send a follow-up written report as soon as practicable after the release to both the State Emergency Response Commission (in this case, to the Colorado Department of Public Health and Environment) and the Local Emergency Planning Committee. This report must describe the release, associated response actions taken, and any known or anticipated health risks associated with the release.

A table of CERCLA reportable quantities (RQ) is included in 40CFR Section 302.4.

Although EPCRA requires notification only for releases that have the potential to affect persons beyond the facility boundary, EPA and the Colorado Department of Public Health and Environment strongly encourage facilities to report onsite releases if there is ANY potential for the release to migrate offsite. The burden of proof is on the facility to show that any release into the environment of a reportable quantity or more of a hazardous substance or extremely hazardous substance has NO POTENTIAL for offsite migration (e.g., via groundwater, the wind or getting tracked offsite by workers and vehicles).

The State Emergency Response Commission (SERC) in Colorado is called the Colorado Emergency Planning Commission (CEPC). It consists of representatives of the Colorado Department of Public Health and Environment – Hazardous Materials and Waste Management Division, the Colorado Department of Local Affairs – Colorado Division of Emergency Management and the Division of Local Government, the Colorado Department of Public Safety –

Fire Safety Division, and the Colorado State Patrol. The Commission also includes representatives of affected industries, local governments, public interest or community groups and the Local Emergency Planning Committee (LEPC) community. The Colorado Department of Public Health and Environment represents the Commission for reporting purposes.

Reportable Quantities Under CERCLA and EPCRA

All reportable quantities are listed in pounds (except radionuclides, which are in curies). Congress established a one pound reportable quantity for all hazardous substances and extremely hazardous substances until EPA could evaluate each substance and adjust the reportable quantity to a level more appropriate for the substance. During this assessment, each hazardous substance was evaluated for six primary criteria: aquatic toxicity, mammalian toxicity, ignitability, reactivity, chronic toxicity, and potential carcinogenicity. Reportable quantities for CERCLA hazardous substances are listed in 40 CFR Section 302.4.

EPCRA extremely hazardous substances that are also hazardous substances under CERCLA have the same reportable quantity that is applicable under CERCLA. If not also listed as a CERCLA hazardous substance, extremely hazardous substances have a reportable quantity equal to the EPCRA threshold planning quantity (TPQ) for that substance. The threshold planning quantity is the quantity designated for each chemical in 40 CFR Part 355 Appendices A and B that triggers notification by facilities to the State Emergency Response Commission that those facilities are subject to emergency planning requirements.

For convenience, reportable quantities for hazardous substances and extremely hazardous substances can also be found in the EPA List of Lists (EPA 550-B-01-003). Bear in mind that because this document is only updated periodically, it may not contain recently added substances.

All concurrent releases of the same substance from a single facility must be combined to determine if a reportable quantity has been met or exceeded. Releases of different substances from a single facility should not be combined for purposes of determining if the releases need to be reported. Rather, each substance should be evaluated separately to determine if one or more reportable quantities have been met or exceeded. For example, spilling a mixture containing half the reportable quantity of one hazardous substance and half the reportable quantity of another hazardous substance does not trigger the reporting requirement. Releases from separate facilities should be treated as separate releases and should not be combined to determine if a reportable quantity has been met or exceeded.

EPCRA extremely hazardous substances that are also CERCLA hazardous substances have the same RQ as under CERCLA.

EPCRA extremely hazardous substances that are not listed under CERCLA have an RQ equal to their TPQ under EPCRA.

Mixtures

Most hazardous substances and extremely hazardous substances are not used or stored in pure form, but are mixtures or solutions. If a mixture of hazardous substances or extremely hazardous substances is released and the concentration of all hazardous substances and extremely hazardous substances in the mixture is known, then you must calculate the amount of each hazardous substance and extremely hazardous substance that has been released. If there is more than one hazardous substance or extremely hazardous substance in a mixture, you must check the reportable quantity for each substance. The release must be reported if the reportable quantity for any

hazardous substance or extremely hazardous substance has been met or exceeded. If the concentrations of the hazardous substances or extremely hazardous substances in the mixture are not known, then the release must be reported when the total amount of the mixture released equals or exceeds the reportable quantity for the constituent with the lowest reportable quantity.

Radionuclides

Releases of radionuclides in a mixture are additive. These releases are subject to reporting:

- if each radionuclide in a released mixture or solution is known, then the ratio between the quantity released and the reportable quantity for the radionuclide must be determined for each radionuclide. If the sum of the ratios for the radionuclides in the mixture or solution released is equal to or greater than one, it must be reported.
- if all of the radionuclides in the mixture are known but the quantity released of one or more of the radionuclides is unknown, it must be reported if the total quantity released is equal to or greater than the lowest reportable quantity of any one radionuclide in the mixture.
- if one or more radionuclides in the mixture is unknown, it must be reported if the total quantity released is equal to or greater than either one curie or the lowest reportable quantity of any of the known radionuclides in the mixture (whichever is lower).

Exceptions and Exclusions

Petroleum Products

Under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), petroleum products are excluded from the definition of hazardous substance. "Petroleum product" includes crude oil, any fraction of crude oil that is not specifically listed as a hazardous substance, natural and synthetic gases, and mixtures of natural and synthetic gases. EPA interprets petroleum as including those amounts of hazardous substances, like benzene, that are indigenous to crude oil or its fractions or that are normally added during the refining process. *Hazardous substances added to the petroleum or increased in concentration solely as a result of contamination during use are not included in the petroleum exclusion.*

A release of a petroleum product containing a reportable quantity of an EPCRA extremely hazardous substance is reportable.

Unlike the petroleum exclusion under CERCLA, extremely hazardous substances that are naturally occurring in petroleum products or that are normally added during refining are subject to reporting under the Emergency Planning and Community Right-to-Know Act (EPCRA). Therefore, a release of a petroleum product containing a reportable quantity of one or more extremely hazardous substances is reportable to the Colorado Emergency Planning Commission (CERC) and the Local Emergency Planning Committee (LEPC) if a reportable quantity is met or exceeded.

The responsible party is always responsible for appropriate clean up actions whether or not the release is required to be reported.

Note: releases of oil and petroleum to water are also covered under the Clean Water Act (Section E of this document). Releases of petroleum from regulated storage tanks are covered under the Colorado storage tank regulations (Section H of this document).

Metals

Under normal handling and use, solid forms of most metals present few health hazards. Metal fines and metal dust may cause irritation of the eyes, skin, and respiratory system, and fine particles of certain metals, including antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, silver, thallium, or zinc, dispersed in the air can be an explosion and/or health hazard. EPA has determined that releases of these metals with particles larger than 100 micrometers would not normally require response action due to the unlikely inhalation of such large particles. However, notification of the release of a reportable quantity of antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, silver, thallium, or zinc is required if the mean diameter of the particles released is less than 100 micrometers (0.004 inches). An exception to this is a release of a metal classified as a radionuclide, which does not qualify for this exemption even if the particles meet the size criteria.

Naturally Occurring Radionuclides

Notification of the release of naturally occurring radionuclides from large land holdings, like parks or golf courses, is not required. EPA broadened this exemption to include land containing ore reserves even if the undisturbed ores contain elevated natural concentrations of radionuclides, and to land disturbance activities including farming, construction, and disturbance incidental to extraction activities at all mines except uranium, phosphate, tin, zircon, hafnium, vanadium, monazite, and rare earth mines. Land disturbance incidental to extraction activities includes land clearing, overburden removal and stockpiling, and excavating, handling, transporting and storing ores and other raw materials. Land disturbance incidental to extraction also includes replacing materials in mined-out areas as long as those materials have not been processed and don't contain elevated radionuclide concentrations. Notification of the release of naturally occurring radionuclides from sites where coal and coal ash (fly ash, bottom ash, boiler slag) are stored or disposed is also not required.

Federally Permitted Releases

Releases that are regulated under one or more of the following programs are exempt from CERCLA and EPCRA reporting requirements:

- permitted discharges under the National Pollutant Discharge Elimination System (NPDES);
- permitted dredge and fill discharges under Section 404 of the Clean Water Act;
- permitted and interim status hazardous waste units under the Resource Conservation and Recovery Act;
- permitted discharges under the Marine Protection, Research and Sanctuaries Act;
- permitted injection of fluids under the Underground Injection Control (UIC) program in accordance with the Safe Drinking Water Act;
- air emissions subject to permit or control regulations under the Clean Air Act;
- permitted or allowed injection of fluids to develop crude oil or natural gas supplies;
- discharges of contaminants to Publicly Owned Treatment Works (POTW) if in compliance with pretreatment requirements under the Clean Water Act;
- releases of certain nuclear materials if in compliance with a license, permit, regulation or order issued in accordance with the Atomic Energy Act.

Registered Pesticides

The normal application of a pesticide product registered under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) is exempt from CERCLA and EPCRA reporting. This exemption includes the handling and storage of the product by an agricultural producer, but does not include

any spills of the pesticide. Pesticide spills are reportable if the amount spilled meets or exceeds the reportable quantity.

Continuous Releases

A continuous release is a release that occurs without interruption or abatement or that is routine, anticipated, intermittent, and incidental to normal operations or treatment processes. When a release of this type occurs, officials do not have to be notified each time. Instead, the facility can report it as a continuous release to the National Response Center, the Colorado Emergency Planning Commission and the Local Emergency Planning Committee(s) by telephone. This should be followed by a written report submitted to EPA Region 8, the Colorado Department of Public Health and Environment and the Local Emergency Planning Committee within 30 days of the initial telephone call. The written report should provide information about the source, composition, and normal range of the release. Periodic follow-up reports may also be required. Any release that exceeds the normal range (called a "statistically significant increase") must be reported immediately to the National Response Center, the Colorado Department of Public Health and Environment and the Local Emergency Planning Committee as if they were new release events. The normal range is determined by the amount of a hazardous substance released over any 24-hour period under normal operating conditions during the preceding year. Only releases that are both continuous and stable in quantity and rate can be included in the normal range.

Continuous release of an extremely hazardous substance that is not a CERCLA hazardous substance need only be reported to the Colorado Department of Public Health and Environment and the Local Emergency Planning Committee. A written report should also be sent to these two agencies within 30 days and any statistically significant increases in the release should be reported to both agencies. Periodic follow-up reports may also be required.

C. Resource Conservation and Recovery Act (RCRA)

All Resource Conservation and Recovery Act (RCRA) listed and characteristic hazardous wastes are designated as hazardous substances under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). For more information on listed and characteristic hazardous wastes, please review the Hazardous Waste Identification Guidance Document from the Hazardous Materials and Waste Management Division (http://www.cdphe.state.co.us/hm/hwid.pfd).

The reportable quantity for F- and K-listed hazardous wastes is based on the hazardous waste code. If the composition and concentrations of all included constituents is not known, the reportable quantity would be as listed for the waste code in 40 CFR Section 302.4. If the waste is analyzed and the concentrations of ALL of its hazardous constituents are identified, then reportable quantities of the specific constituents can be used to determine when reporting is required. For example, if a release of an F005 listed hazardous waste occurred and the concentrations of the constituents making up the waste were unknown, the reportable quantity would be 100 pounds. If it were known that the F005 waste was comprised of 50% toluene (reportable quantity 1000 pounds) and 50% methyl ethyl ketone (reportable quantity 5000 pounds), then the release would be reported when 2000 pounds of the mixture were released. [Since the reportable quantity for toluene is less than that for methyl ethyl ketone, the amount of toluene released will determine when the release must be reported. Since the mixture is 50% toluene, it would take 2000 pounds of the mixture to meet the reportable quantity of 1000 pounds for toluene.]

P- and U-listed hazardous wastes are reported based on the reportable quantity for the hazardous substance that the waste is listed for. For example, the reportable quantity for hazardous waste code U122 (formaldehyde) is 100 pounds. For the purposes of release reporting, it doesn't matter if the formaldehyde is used or unused or is the "sole active ingredient" in order to be reportable. (Related note: Colorado's hazardous waste regulations (6 CCR 1007-3) do not include the footnote regarding sole active ingredients. In Colorado, chemicals may have more than one active ingredient and still meet the listing description.)

All RCRA listed and characteristic hazardous wastes are designated as hazardous substances under CERCLA.

Unlisted hazardous wastes exhibiting the characteristics of ignitability, corrosivity and/or reactivity have a reportable quantity of 100 pounds unless the concentrations of all the constituents in the waste are known. If the waste is analyzed and the concentrations of ALL its hazardous constituents are identified, the reportable quantities of the specific constituents should be used to determine when reporting is required. For example, a corrosive-only waste of unknown composition has a reportable quantity of 100 pounds. If the waste is analyzed to determine that it was a 50% solution of hydrochloric acid in water, then the reportable quantity of the solution would be 10,000 pounds. [The reportable quantity for hydrochloric acid is 5000 pounds. Therefore it would take 10,000 pounds of the 50% solution to meet the reportable quantity for hydrochloric acid.]

Unlisted hazardous wastes that exhibit toxicity have reportable quantities specific to the constituent on which the characteristic of toxicity is based. The reportable quantity applies to the waste itself, not just to the toxic contaminant. If an unlisted hazardous waste exhibits toxicity on the basis of more than one contaminant, the reportable quantity for the waste is the lowest of the reportable quantities for those contaminants. For example, if a waste exhibits toxicity characteristics for the heavy metals lead (D008) and selenium (D010), with reportable quantities of 10 and 100 pounds respectively, the reportable quantity would be 10 pounds of the waste, or the lower of the two reportable quantities. If a waste exhibits a toxicity characteristic and one or more other hazardous waste characteristics, the reportable quantity for that waste is the lowest of the applicable reportable quantities.

These notification and reporting requirements are included in 40 CFR Part 302.

Permitted and Interim Status Treatment, Storage and Disposal Facilities and Large Quantity Generators of Hazardous Waste

Large quantity generators of hazardous waste and hazardous waste treatment, storage and disposal facilities (TSDF) are required to have and implement a contingency plan that describes the actions facility personnel must take in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, surface water or groundwater at the facility. Whenever there is an imminent or actual emergency situation, appropriate State and local agencies with designated response roles as described in the contingency plan must be notified immediately. Appropriate local authorities and the National Response Center or government official designated as the regional on-scene coordinator must be notified immediately if the facility's emergency coordinator determines that the facility has had a release, fire, or explosion that could threaten human health or the environment outside the facility. A treatment, storage, and disposal facility's permit generally requires reporting to the Colorado Department of Public Health and Environment – Hazardous Materials and Waste Management Division of any release, fire or explosion, even if the amount of the release is less than an otherwise reportable quantity.

The Department and local authorities must be notified when the facility is back in compliance and ready to resume operations. In addition, the facility must send a written report to both the EPA Regional Administrator and the Colorado Department of Public Health and Environment within 15 days of any incident that requires implementation of the facility contingency plan.

In the case of a release of hazardous waste stored in tanks, the facility must notify the Hazardous Materials and Waste Management Division within 24 hours of a release to the environment of more than one pound. A leak or spill of hazardous waste that is less than or equal to one pound from a tank or tank system does not need to be reported if the release is immediately contained and cleaned up. Within 30 days of the release, a written report must be submitted to the Division.

These notification and reporting requirements are included in 6 CCR 1007-3 Sections 264.56 and 265.56 and Sections 264.196(d) and 265.196(d).

D. Radiation Control

The state of Colorado has specific reporting requirements for stolen, lost or missing licensed or registered sources of radiation. Each licensee or registrant must report to the Colorado Department of Public Health and Environment by telephone in the event of lost, stolen or missing licensed or registered radioactive materials, a lost, stolen, or missing radiation machine, releases of radioactive materials, contamination events, and fires or explosions involving radioactive materials. Incidents should be reported to the Radiation Incident Reporting Line. Based on the severity of the event, notification may be required immediately, within 24 hours or within 30 days. A follow-up written report must also be submitted to the Department within 30 days of initial notification. The licensee must also report any additional substantive information regarding a loss or theft incident within 30 days after learning of such information.

Releases of radionuclides are reportable under CERCLA.

These release and notification requirements are contained in 6 CCR 1007-1 Sections 4.51 - 4.53.

E. Clean Water Act

The Clean Water Act (CWA) requires the person in charge of a facility or vessel to make an immediate report to the National Response Center of discharges of harmful quantities of oil to navigable waters as soon as they have knowledge of the release. In this case, oil means oil of any kind or in any form including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. Discharges of oil that violate applicable water quality standards and those that cause a film, sheen or discoloration of the surface of the water or adjoining shorelines, or cause a sludge or emulsion to be deposited beneath the surface of the water or on adjoining shorelines must be reported. In effect, this means that any discharge of oil to waters of the United States must be reported to the National Response Center. These release and notification requirements are contained in 40 CFR Part 110.

The Clean Water Act (CWA) also requires the person in charge of a facility or vessel to report to the National Response Center the discharge of a designated hazardous substance from the vessel or facility to waters of the United States in quantities that equal or exceed the reportable quantity as soon as they have knowledge of the release. Under the Act, the US EPA was directed to establish reporting quantities for all hazardous substances listed in Table 116.4 A and B (40 CFR Part 116), which were designated as hazardous substances in accordance with Section 311(b)(2)(A) of the

Clean Water Act. This designation includes any isomers and hydrates as well as any solutions and mixtures containing these substances. Each of these substances is included in the CERCLA list of hazardous substances (40 CFR Part 302 Table 302.4) and is assigned the reportable quantity listed in Table 302.4 for that substance. These release and notification requirements are contained in 40 CFR Parts 116 and 117.

Under the Clean Water Act, anyone that has a National Pollutant Discharge Elimination System (NPDES) permit must report to the National Response Center within 24 hours of becoming aware of any unanticipated bypasses or upsets that cause an exceedance of the effluent limits in their permit and any violation of their maximum daily discharge limits for any pollutant listed in the permit. A written report must be provided within five days. Other instances of noncompliance must be reported when monitoring reports are submitted.

The Clean Water Act also requires all industrial users of Publicly Owned Treatment Works (POTWs) to notify their treatment plant immediately if they have a discharge that could cause problems at the treatment plant.

These notification and reporting requirements are included in 40 CFR Parts 122 and 403.

State Requirements

A spill of any chemical, oil, petroleum product, sewage, etc., which may enter waters of the state of Colorado (which include surface water, ground water, and dry gullies and storm sewers leading to surface water) must be reported immediately to the Colorado Department of Public Health and Environment. Any accidental discharge to the sanitary sewer system must be reported immediately to the local sewer authority and the affected wastewater treatment plant. If a release occurs at a mining operation, the Division of Reclamation, Mining and Safety should also be notified.

For more information regarding State reporting requirements under 25-8-601(2) CRS, please refer to the "Guidance for Reporting Spills under the Colorado Water Quality Control Act and Colorado Discharge Permits" adopted by the Water Quality Control Division. This policy is available at http://www.cdphe.state.co.us/op/wqcc/Resources/Guidance/spillguidance.pdf.

F. Safe Drinking Water Act

The owner or operator of a public water system (community water systems, non-transient non-community water systems, and transient non-community water systems) must immediately report any credible threat to the water supply system to the Colorado Environmental Release and Incident Reporting Line and to the local emergency manager. The local emergency manager may be the county sheriff or a member of the fire department. A list of local emergency managers is available from the Colorado Department of Local Affairs.

G. Clean Air Act

Hazardous air pollutants (HAPs) listed in Section 112(b) of the Clean Air Act (CAA) are designated as hazardous substances under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Hazardous air pollutants are known or suspected to cause cancer or other serious health effects or adverse environmental effects. Health effects can include immunological, neurological, reproductive, developmental, and respiratory problems. In some cases, hazardous air

pollutants can be deposited onto soils or other surfaces, where they are taken in by plants and animals and can accumulate in organic tissue or pass up the food chain due to the inability of organisms to process the substance.

The release (or air emission) of a hazardous air pollutant that is allowed and less than any limit specified in a facility's air permit is considered to be a federally permitted release. If the facility releases more than is allowed under its air permit within a 24 hour period, the facility must report the release if the quantity released exceeded the facility's permitted level by a reportable quantity or more. For example, if a facility has an air permit that allows the release of 30 pounds of a hazardous substance and that substance has a reportable quantity of 100 pounds, the facility would have to report all releases of 130 pounds or more of that substance. Releases of less than 130 pounds would not need to be reported under CERCLA or EPCRA because even though the facility exceeded its permit limit, the amount released did not exceed the permitted level by its reportable quantity (in this case, 100 pounds) or more. If the air permit does not allow or does not specify the release of a hazardous air pollutant, then releases in excess of the CERCLA / EPCRA reportable quantity for that substance must be reported. Please be aware that other reporting requirements are triggered, however, based on the facility's air permit. The Clean Air Act (CAA) requires that permits for stationary air sources have language requiring prompt reporting of any emergencies, upsets and deviations from what is allowed in the permit. Releases must be reported to the National Response Center and to the Colorado Department of Public Health and Environment. Contact the Air Pollution Control Division for details on additional air-related requirements that may also apply.

Hazardous air pollutants are included in the CERCLA list of hazardous substances in 40 CFR Part 302 and are assigned the reportable quantity listed in Table 302.4 for each substance.

State Requirements

In the case of excess emissions during an emergency or malfunction, the owner or operator must notify the Colorado Department of Public Health and Environment as soon as possible, but no later than noon of the next working day, and provide a written follow-up report to the Air Pollution Control Division by the end of the facility's next reporting period.

These notification and reporting requirements are included in 5 CCR 1001-2 Section II.E and 5 CCR 1001-5, Regulation 3 Part C, Section VII.C.

H. Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs)

The reportable quantity for petroleum from a regulated storage tank system is 25 gallons.

Owners and operators of regulated storage tank systems must report a release or suspected release of regulated substances to the Division of Oil and Public Safety at the Colorado Department of Labor and Employment within 24 hours by telephone or facsimile. If outside normal working hours or on a weekend or holiday and emergency assistance is needed, the release can be reported to the Colorado Environmental Release and Incident Reporting line at the Colorado Department of Public Health and Environment. Any suspected release or release of unknown quantity is a reportable quantity unless the owner/operator can conclusively show the release is less than the reportable quantity for the released substance.

Under this program, the reportable quantity for petroleum releases is 25 gallons or more from regulated aboveground and underground storage tank systems, or any amount that causes a sheen on nearby surface water. This is interpreted to include releases from fuel pumps and fuel delivery trucks while connected to the petroleum storage tank system. Releases of less than 25 gallons from regulated petroleum storage tank systems, or a release of a hazardous substance that is less than the CERCLA reportable quantity, do not need to be reported to the Division of Oil and Public Safety if they are immediately contained and cleaned up. If cleanup cannot be accomplished within 24 hours, the Division of Oil and Public Safety must be notified immediately.

Spills or releases of hazardous substances in excess of the CERCLA reportable quantity from regulated underground storage tanks must also be reported to the National Response Center and the local fire authority immediately. Any release, regardless of quantity, that has or may impact waters of the state (including surface water, groundwater, dry gullies leading to surface water or storm sewers) must also be reported to the Colorado Environmental Release and Incident Reporting line immediately.

These notification and reporting requirements are included in 7 CCR 1101-14 Article 4, 8-20.5-208 CRS and 25-8-601 CRS.

I. Hazardous Materials Transportation

Highway, Aircraft, Rail and Vessel

Federal hazardous materials transportation regulations cover the transportation of hazardous materials by highway, aircraft, rail, and vessel. Transportation includes activities related to transportation like loading, unloading, and temporary storage. "Hazardous material" includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials as defined in 49 CFR Section 171.8, materials designated as hazardous in the Hazardous Materials Table in 49 CFR Section 172.101 and materials that meet the criteria for hazardous classes and division in 49 CFR Part 173.

The person in physical possession of the hazardous material during transportation must notify the National Response Center as soon as practical, but not more than 12 hours after an incident, if as a direct result of a hazardous material:

- a person is killed or is injured and requires hospitalization,
- there is an evacuation of the general public that lasts more than an hour,
- a major transportation artery or facility is shut down for an hour or more,
- the operational flight pattern or routine of an aircraft is altered,
- there is fire, breakage, spillage, or suspected contamination involving a radioactive material,
- there is fire, breakage, spillage, or suspected contamination involving an infectious substance other than a regulated medical waste,
- there is a release of a marine pollutant in a quantity exceeding 119 gallons for liquids or 882 pounds for solids,
- or any situation that, in the judgment of the person in possession of the hazardous material, should be reported even though it doesn't meet the above criteria.

Notice of incidents involving an infectious substance may be given to the Director of the Centers for Disease Control and Prevention (1-800-232-0124) instead of notifying the National Response Center.

The person in possession of the hazardous material at the time of the incident must submit a written report within 30 days of the incident to the US Department of Transportation. In addition, a written report must be submitted if there is an unintentional release of a hazardous material or the discharge of any quantity of hazardous waste even though verbal notification may not be required. If the incident involves air transportation, a copy of the report must also be submitted to the Federal Aviation Administration Security Field Office nearest the location of the incident.

These notification and reporting requirements are included in 49 CFR Sections 171.15 and 171.16.

State Requirements

The State also has specific requirements for reporting incidents involving hazardous materials or nuclear materials as cargo during transportation. The driver of a motor vehicle involved in a spill of hazardous material from a fuel tank that provides fuel for the vehicle and/or equipment on that vehicle must immediately notify the nearest law enforcement agency. The driver of a vehicle transporting nuclear or hazardous materials as cargo that is involved in a spill, or an incident which may result in a potential spill, must immediately notify the nearest law enforcement agency. As soon as possible after the initial notification of the spill or incident to the nearest law enforcement agency, the driver or a company representative must notify the Colorado State Patrol and the 24-hour Colorado Environmental Release and Incident Reporting Line. In addition, the driver of a motor vehicle transporting nuclear materials as cargo must immediately notify the Colorado State Patrol if the vehicle is involved in a crash, whether or not there is damage to the vehicle.

If the incident involves the release of hazardous waste, the transporter must notify the Colorado Department of Public Health and Environment and report the ultimate disposition of the waste to the Department in addition to the notifications above. In the event of a spill of hazardous waste at a transfer facility, the transporter must notify the Colorado Department of Public Health and Environment within 24 hours of a spill exceeding 55 gallons or if there is a fire or explosion. A written report must be sent to the Department within 15 days after the incident.

> Report releases along a highway to the National Response Center, nearest local law enforcement agency, Colorado State Patrol, and Colorado Environmental Release and Incident Reporting Line.

These notification and reporting requirements are included in 8 CCR 1507-25 Parts I and IV and 6 CCR 1007-3 Part 263.

Pipelines

In Colorado, the US Department of Transportation Office of Pipeline Safety inspects, regulates, and enforces interstate gas pipeline safety requirements. They also inspect, regulate, and enforce both intra- and interstate liquid pipeline safety requirements in this state. Through certification by the Office of Pipeline Safety, the Gas Pipeline Safety Division of the Colorado Public Utilities Commission regulates, inspects, and enforces intrastate gas pipeline safety requirements. Pipeline facilities include transmission, distribution, regulated gathering, master metered, liquefied natural gas, and propane gas systems. Be aware that these regulations are primarily for pipeline safety. Be sure to review other environmental release reporting requirements.

Hazardous Liquids and Carbon Dioxide

Federal hazardous materials transportation regulations cover the transportation of hazardous liquids and carbon dioxide by pipeline. In this case, hazardous liquid is limited to petroleum, petroleum products, and anhydrous ammonia in a non-gaseous state. Petroleum includes crude oil, condensate, natural gasoline, natural gas liquids, and liquefied petroleum gas. Petroleum product includes flammable, toxic or corrosive products obtained from distilling and processing of crude oil, unfinished oils, natural gas liquids, blend stocks, and other miscellaneous hydrocarbon compounds.

As early as practicable following discovery of a release of a hazardous liquid or carbon dioxide from a pipeline system, the operator must notify the National Response Center by telephone if:

- a person is killed or is injured and requires hospitalization,
- there is a fire or explosion not intentionally set by the operator,
- there is estimated property damage (including cost of cleanup and recovery, value of lost product, and damage to property) exceeding $50,000,
- there is pollution of any stream, river, reservoir, or other body of water that violated applicable water quality standards, caused a discoloration of the surface of the water or adjoining shoreline, or deposited a sludge or emulsion beneath the surface of the water or adjoining shoreline, or
- there is any situation that, in the judgment of the operator, should be reported even though it doesn't meet the above criteria.

A written accident report must be submitted to the US Department of Transportation Office of Pipeline Safety as soon as practicable, but not later than 30 days after discovery of a release. A supplemental report must be submitted within 30 days if the operator receives any updates or additions to the information originally reported.

These notification and reporting requirements are included in 49 CFR Part 195.

Natural Gas and Liquefied Natural Gas

Federal hazardous materials transportation regulations also cover the transportation of natural gas by pipeline and activities occurring at a liquefied natural gas (LNG) facility where natural and synthetic gas are liquefied, transferred or stored.

As early as practicable following discovery of a release of gas from a pipeline or of liquefied natural gas or gas from a liquefied natural gas facility, but generally not to exceed two hours after discovery, the operator must notify the National Response Center and the Colorado Public Utilities Commission Gas Pipeline Safety Section by telephone if:

- a person is killed or is injured and requires hospitalization,
- there is estimated property damage (including value of lost product and damage to property) of $50,000 or more,
- there is an event that results in an emergency shutdown of a liquefied natural gas facility, or
- there is any situation that, in the judgment of the operator, should be reported even though it doesn't meet the above criteria.

As early as practicable, but not later than 30 days after discovery and verbal report of a release, the operator must submit a written report to the US Department of Transportation Office of Pipeline Safety. A supplemental report must be submitted within 30 days if the operator receives relevant updates or additions to the information originally reported.

These notification and reporting requirements are included in 49 CFR Part 191 and 4 CCR 723-4 Sections 4900 - 4914.

State Requirements

If there is a leak on a gas pipeline, a liquefied natural gas system, a master meter system, or a propane system that results in the evacuation of 50 or more people from a normally occupied building or results in the closure of a roadway, the operator must contact the Colorado Public Utilities Commission Gas Pipeline Safety Section by telephone within two hours of discovery.

This notification requirement is contained in 4 CCR 723-4 Section 4911.

J. Oil and Gas Exploration and Production

Federal oil and gas lease surface operations are managed by the US Department of the Interior Bureau of Land Management (BLM) in cooperation with the appropriate Federal surface management agency or non-Federal surface owner. On National Forest System lands, the Forest Service has approval authority for the surface use portion of Federal oil and gas operations and for appeals related to Forest Service decisions and approvals. The BLM considers the Bureau of Indian Affairs to be the surface management agency for all Indian lands unless a Tribe has contracted the Bureau of Indian Affairs realty function for its lands.

"… All spills or leakages of oil, gas, salt water, toxic liquids or waste materials, blowouts, fires, personal injuries, and fatalities shall be reported by the operator to the BLM and the surface management agency in accordance with the requirements of *Notice to Lessees NTL-3A; Reporting of Undesirable Events*, and in accordance with any applicable local requirements.

The BLM requires immediate reporting of all Class I major events, such as spills of more than 100 barrels of fluid/500 MCF of gas released; fires that consume 100 bbl or more oil or 500 MCF gas; life threatening or fatal injury/loss of well control; release of reportable quantities of hazardous substances; spill, venting, or fire in sensitive areas, such as parks, recreation sites, wildlife refuges, lakes, reservoirs, streams, and urban or suburban areas" … "Volumes discharged during any of the above incidents will be estimated as necessary. Operators must take immediate action to prevent and control spills and the BLM, the surface management agency, and other applicable regulatory authorities must be consulted prior to treating or disposing of wastes and spills. Operators should become familiar with local surface management agency requirements for reporting and managing spills and leaks. …" (BLM "The Gold Book," Fourth Edition, Revised 2007)

State Requirements

Spills and releases of Exploration and Production (E&P) waste and produced fluids should be controlled and contained immediately upon discovery. Impacts resulting from spills and releases should be investigated and cleaned up as soon as practicable.

The rules and regulations for oil and gas exploration and production have recently been revised. Most of these changes become effective May 1, 2009 on federal land and April 1, 2009 on all other land.

If there is a spill or release of more than 20 barrels of E&P waste, it must be verbally reported to the Colorado Oil and Gas Conservation Commission (COGCC) as soon as practicable, but not more than 24 hours after discovery. If there is a spill or release of any size that impacts or

could impact waters of the state, a residence or an occupied structure, livestock or a public byway, it must be verbally reported to the Colorado Oil and Gas Conservation Commission as soon as practicable, but not more than 24 hours after discovery. Spills or releases of any size that impact or threaten to impact any surface water supply area must be reported to the Colorado Oil and Gas Conservation Commission and to the Colorado Environmental Release and Incident Reporting Line. If the release impacts or threatens to impact a surface water intake, it must be verbally reported to the emergency contact for that facility immediately after discovery. The operator must notify the affected surface owner or their appointed tenant of all reportable spills as soon as practicable, but not more than 24 hours after discovery.

Chemical spills and releases must be reported in accordance with all applicable state and federal laws, including the Emergency Planning and community Right-to-Know Act (EPCRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Oil Pollution Act, and the Clean Water Act.

Releases of more than 5 barrels of E&P waste, and all other reportable releases, must also be reported on COGCC Form 19 and submitted to the Colorado Oil and Gas Conservation Commission within 10 days after discovery of the release.

These notification requirements are contained in the Colorado Oil and Gas Conservation Commission 900-Series Rules.

K. Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) are managed under the Toxic Substances Control Act. Substances with concentrations greater than or equal to 50 parts per million PCBs are regulated under 40 CFR Part 761, which is implemented by the US Environmental Protection Agency. If a spill of the substance directly contaminates surface water, sewers, drinking water supplies, grazing lands, or vegetable gardens and/or the spill exceeds 10 pounds of PCBs by weight, the responsible party must notify the EPA within 24 hours. In Colorado, contact the Region 8 Emergency Response Spill Report Line. If the spill involves 10 pounds or less of PCBs and does not involve any of these resources, the spill must still be cleaned up, but notification to EPA isn't required. Unless commingled with a hazardous waste, releases of substances containing less than 50 parts per million PCBs are regulated under Colorado's solid waste regulations 6 CCR 1007-2. The solid waste regulations do not have specific release reporting requirements at this time.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) has set the reportable quantity for PCBs at one (1) pound. Any release of oil or other substance containing greater than or equal to one pound of PCBs must be reported to the National Response Center as soon as the release is discovered. In addition, if the release impacts waters of the state of Colorado, the release must be reported as per the Water Quality Control Division's reporting policy (see "Guidance for Reporting Spills under the Colorado Water Quality Control Act and Colorado Discharge Permits", http://www.cdphe.state.co.us/op/wqcc/Resources/Guidance/spillguidance.pdf).

Abbreviations & Definitions

CAA – Clean Air Act
CCR – Code of Colorado Regulations
CDPHE – Colorado Department of Public Health and Environment
CEPC – Colorado Emergency Planning Commission
CERCLA – Comprehensive Environmental Response, Compensation and Liability Act
CFR – Code of Federal Regulations
CRS – Colorado Revised Statues
CWA – Clean Water Act
EPA – United States Environmental Protection Agency
EPCRA – Emergency Planning and Community Right-to-Know Act
LEPC – Local Emergency Planning Committee
NRC – National Response Center
RCRA – Resource Conservation and Recovery Act
SERC – State Emergency Response Commission
SDWA – Safe Drinking Water Act

EPA's List of Lists is a compendium of the lists of chemicals subject to reporting requirements under the Emergency Planning and Community Right-to-Know Act (EPCRA), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and chemicals listed under section 112(r) of the Clean Air Act (CAA). Lists are also provided of Resource Conservation and Recovery Act (RCRA) hazardous wastes and radionuclides reportable under the Comprehensive Environmental Response, Compensation and Liability Act. These lists should be used as reference tools, not as a definitive source of compliance information. Reporting requirements for the Emergency Planning and Community Right-to-Know Act and the Comprehensive Environmental Response, Compensation and Liability Act are published in the Code of Federal Regulations (CFR), 40 CFR Parts 302 and 355 respectively. Compliance information for the Clean Air Act section 112(r) is published in 40 CFR Part 68. The List of Lists is available on the Internet at http://yosemite.epa.gov/oswer/lol.nsf/homepage.

Exploration and production (E&P) wastes are associated with operations to locate or remove oil or gas from the ground or to remove the impurities from oil or gas.

Extremely Hazardous Substances (EHS) are chemicals that present the most serious hazards during release (in terms of toxicity, reactivity, volatility, combustibility, and flammability) and are regulated under the Emergency Planning and Community Right-To-Know Act (EPCRA). The extremely hazardous substances list consists of approximately 360 substances and is included in EPA's List of Lists.

Facility means any building, equipment, structure, installation, containment structure, pipe, other stationary feature, motor vehicle, rolling stock, or aircraft. Facility also includes any site where a hazardous substance is or has been located.

Hazardous Materials are chemicals posing a hazard to human health or the environment when transported (49 USC 5103). They include hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, all materials in the Hazardous Materials Table (49 CFR 172.101), and materials meeting the criteria for hazard classes in part 173 of subchapter C of 49 CFR 172.101.

Hazardous Substances are chemicals posing a hazard to human health or the environment and are regulated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The hazardous substance list is included in EPA's List of Lists.

Reportable Quantity (RQ) is a term that applies to the amount of hazardous substances or extremely hazardous substances released within a 24-hour period. *Note that the 24-hour period is the time frame for measuring the quantity released, not the time frame for reporting a release*.

Threshold Planning Quantity (TPQ) is a term that applies to the amount of an extremely hazardous substance that must be present onsite in concentrations greater than 1% by weight of a compound or mixture at which the facility must meet all emergency planning requirements. If not also listed as a CERCLA hazardous substance, extremely hazardous substances have a reportable quantity equal to the threshold planning quantity for that substance.

"Waters of the State of Colorado" are any and all surface waters and subsurface waters (groundwater) that are contained in or flow in or through the state of Colorado. This includes lakes, rivers, streams, creeks, wetlands, irrigation ditches, storm drains, livestock ponds, borrow ditches, and dry gullies. This does not include waters in sewage systems, waters in treatment works of disposal systems, waters in potable water distribution systems, or water withdrawn for use until use and treatment have been completed.

Appendix D:

Sample Inspection Form

Facility:		**Cert. No. COR-03**	**Date:**
Address:		**City:**	**County:**
Facility Representative(s)/Title(s):			**Phone:**
Permittee:	**Responsible Official:**		**Title:**
Address:			**Phone:**
Inspector/Agency:	**Attendees:**		
Copy of SWMP confirmed on-site:	**Permit certification date:**		**Construction start date:**
Signed SWMP Certification submitted:			

1. Site Description: Does the SWMP clearly describe the construction activity, to include:

	Yes	No
a) The nature of the construction activity at the site.		
b) The proposed sequence for major activities?		
c) Estimates of the total area of the site, and the area and location expected to be disturbed by clearing, excavation, grading, or other construction activities?		
d) A summary of any existing data used in the development of the site construction plans or SWMP that describe the soil or existing potential for soil erosion?		
e) A **description** of the existing vegetation at the site and an **estimate** of the percent vegetative ground cover?		
f) The location and description of all **potential pollution sources,** including ground surface disturbing activities (see Part I.A.2.b), vehicle fueling, storage of fertilizers or chemicals, etc		
g) The **location** and **description** of any anticipated allowable sources of non-stormwater discharge at the site, e.g., uncontaminated springs, landscape irrigation return flow, construction dewatering, and concrete washout?		
h) The name of the receiving water(s) and the size, type and location of any outfall(s). If the stormwater discharge is to a municipal separate storm sewer system, the name of that system, the location of the storm sewer discharge, and the ultimate receiving water(s).		

2. Site Map: Does plan provide a generalized site map or maps which indicate:

	Yes	No
a) construction site boundaries		
b) all areas of ground surface disturbance		
c) areas of cut and fill		
d) areas used for storage of building materials, equipment, soil, or waste		
e) location of dedicated asphalt or concrete batch plants		

2. Site Map: (continued)

	Yes	No
f) locations of all structural BMPs		
g) locations of non-structural BMPs as applicable; and		
h) locations of springs, streams, wetlands and other surface waters.		

3. Stormwater Management Controls

	Yes	No
a) **SWMP Administrator**—Does the SWMP identify a specific individual(s), position or title who is responsible for developing/implementing/maintaining/revising the SWMP?		
b) **Identification of Potential Pollutant Sources—**Does the SWMP identify and describe those sources determined to have the potential to contribute pollutants to stormwater discharges? *(clarification)*		
c) **Best Management Practices (BMPs) for Stormwater Pollution Prevention**		
1) Structural Practices: Does the SWMP clearly describe and locate all structural practices implemented at the site to minimize erosion and sediment transport? (i.e. bales, wattles, silt fence, earth dike, drainage swales, sediment traps, subsurface drains, pipe slope drains, inlet/outlet protection, gabions, sediment basins, etc)		
2) Non-Structural Practices: Does SWMP clearly describe and locate all non-structural practices implemented to minimize erosion and sediment transport, including interim and permanent stabilization practices, and site-specific scheduling for implementation of the practices? (i.e., temporary and permanent vegetation, mulching, geotextiles, sod stabilization, slope roughening, veg. buffer strips, protection of trees, preservation of mature vegetation, etc)		
3) Phased BMP Implementation: Does SWMP clearly describe the relationship between the phases of construction and the implementation and maintenance of both structural and non-structural controls?		
4) Materials Handling and Spill Prevention: Does SWMP clearly describe and locate all practices implemented at the site to minimize impacts from procedures or significant materials (see definitions at Part I.E.) that could contribute pollutants to runoff? (i.e., exposed storage of building materials; paints and solvents; fertilizers or chemicals; waste material; and equipment maintenance or fueling procedures)		
If areas/procedures where potential spills can occur, are spill prevention and response procedures identified in the SWMP?		
5) Dedicated Concrete or Asphalt Batch Plants: Does SWMP clearly describe and locate all practices implemented at the site to control stormwater pollution from dedicated asphalt or concrete batch plants *covered by this certification*?		
6) Vehicle Tracking Control: Does SWMP clearly describe and locate all practices implemented at the site to control potential sediment discharges from vehicle tracking? (i.e., minimizing site access; street sweeping; tracking pads; graveled parking; paved area restrictions for vehicles; wash racks; education, etc.)		
7) Waste Management and Disposal, Including Concrete Washout: Does SWMP clearly describe and locate the practices implemented at the site to control stormwater pollution from all construction site wastes (liquid and solid) including concrete washout activities?		
8) Groundwater and Stormwater Dewatering: Does SWMP clearly describe and locate the practices implemented at the site to control stormwater pollution from the dewatering of [uncontaminated] groundwater or stormwater from excavations, wells, etc.?		
Does SWMP include installation and implementation specifications/details associated with all BMPs implemented at the facility? Source of design details:_____		

Notes:

BMP	Listed In SWMP	Included on Site Plan	SWMP Includes a Detail	Installed in the Field

4. Final Stabilization and Long-Term Stormwater Management

	Yes	No
Does SWMP clearly describe the practices used to achieve final stabilization and any planned practices to control pollutants in stormwater discharges that will occur after construction operations have been completed at the site? (i.e., seed mix selection and application methods; soil preparation and amendments; soil stabilization practices; etc.) Note: If permittee relies on landscape plan, then it must be referenced and maintained with the SWMP.		

5. Inspection and Maintenance

	Yes	No
Does the SWMP clearly describe the inspection and maintenance procedures implemented to maintain all [BMPs identified in the SWMP] in good and effective operating condition?		
Do the inspection records document the required inspection frequency?		
Are inspections conducted as required in the permit (scope and documentation)? (i.e., date, name and title, location of discharge of sediment, location of failed BMPs, location of additional BMPs needed, deviation from minimum inspection schedule, signature *after* corrective actions and site is in compliance)		

Notes:

Appendix E:

Soil Survey Information

Hydrologic Soil Group—Chaffee-Lake Area, Colorado, Parts of Chaffee and Lake Counties

Map Scale: 1:805 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 35 70 140 210

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Chaffee-Lake Area, Colorado, Parts of Chaffee and Lake Counties
Survey Area Data: Version 10, Oct 12, 2017

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

Date(s) aerial images were photographed: Jun 25, 2011—Sep 26, 2016

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DoD	Dominson gravelly sandy loam, 1 to 9 percent slopes	A	3.2	99.8%
MaB	Manhattan sandy loam, 1 to 3 percent slopes	A	0.0	0.2%
Totals for Area of Interest			**3.2**	**100.0%**

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

K Factor, Whole Soil—Chaffee-Lake Area, Colorado, Parts of Chaffee and Lake Counties

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Lines

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Soil Rating Points

.02
.05
.10
.15
.17
.20
.24
.28
.32
.37
.43
.49
.55
.64
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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

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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)

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K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DoD	Dominson gravelly sandy loam, 1 to 9 percent slopes	.05	3.2	99.8%
MaB	Manhattan sandy loam, 1 to 3 percent slopes	.20	0.0	0.2%
Totals for Area of Interest			**3.2**	**100.0%**

Description

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

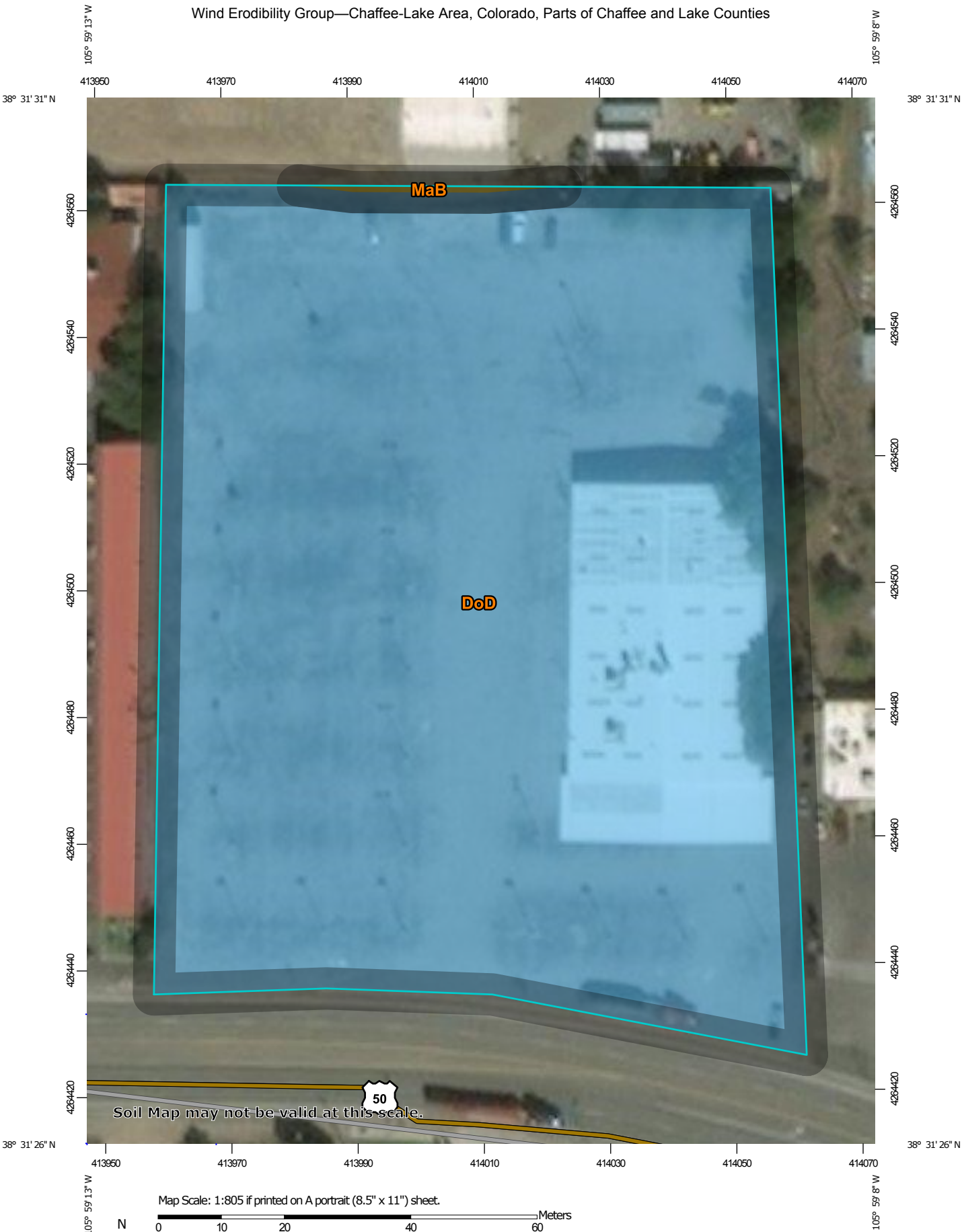
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)



Map Scale: 1:805 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 10 20 40 60

Feet
0 35 70 140 210

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

1
2
3
4
4L
5
6
7
8
Not rated or not available

Soil Rating Lines

1
2
3
4
4L
5
6
7
8
Not rated or not available

Soil Rating Points

1
2
3
4
4L
5
6
7
8
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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Web Soil Survey URL:
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Wind Erodibility Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DoD	Dominson gravelly sandy loam, 1 to 9 percent slopes	6	3.2	99.8%
MaB	Manhattan sandy loam, 1 to 3 percent slopes	3	0.0	0.2%
Totals for Area of Interest			**3.2**	**100.0%**

Description

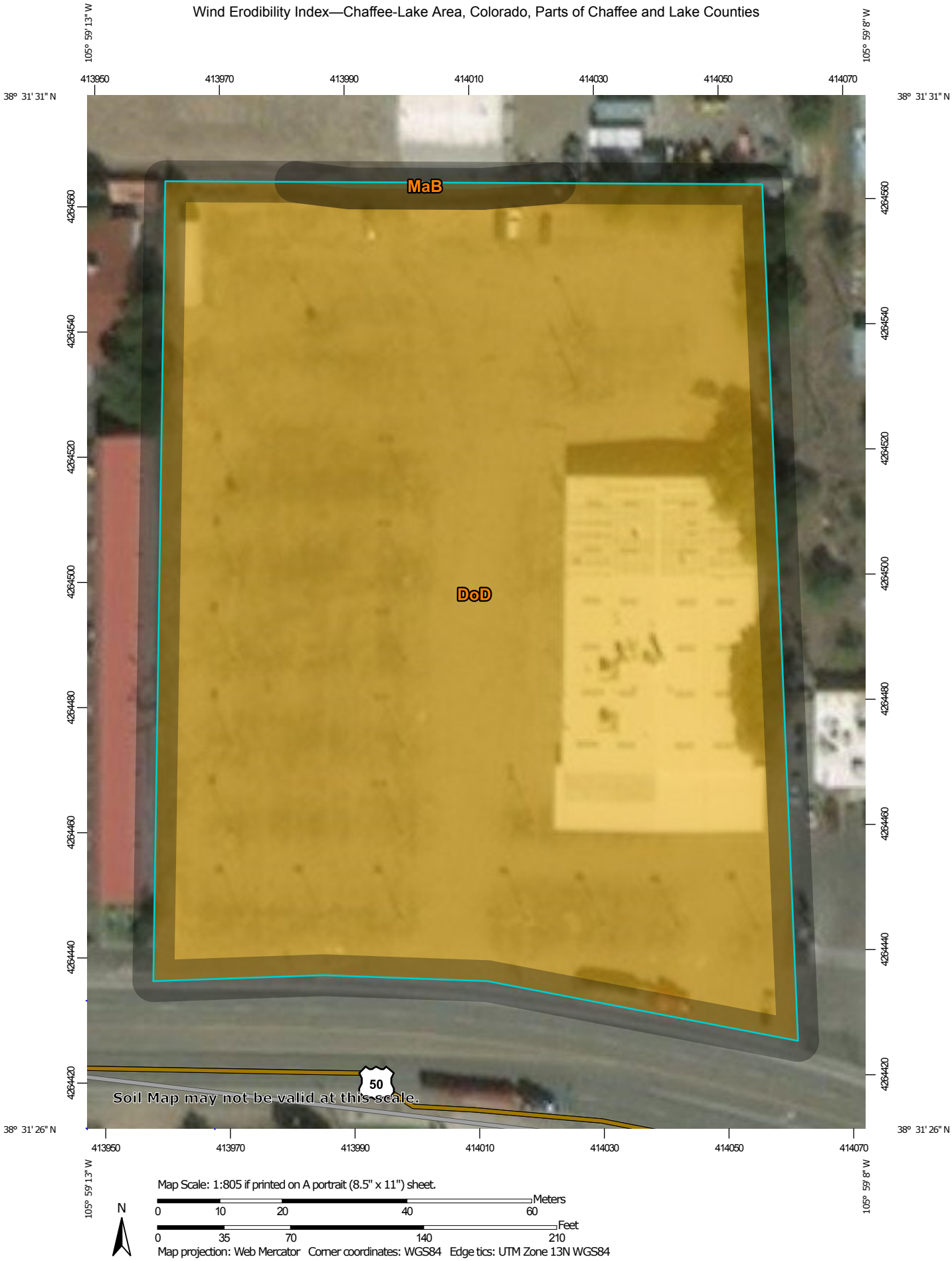
A wind erodibility group (WEG) consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower



Map Scale: 1:805 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 10 20 40 60

Feet
0 35 70 140 210

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- 0
- 38
- 48
- 56
- 86
- 134
- 160
- 180
- 220
- 250
- 310
- Not rated or not available

Soil Rating Lines

- 0
- 38
- 48
- 56
- 86
- 134
- 160
- 180
- 220
- 250
- 310
- Not rated or not available

Soil Rating Points

- 0
- 38
- 48
- 56
- 86
- 134
- 160
- 180
- 220
- 250
- 310
- Not rated or not available

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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Wind Erodibility Index

Map unit symbol	Map unit name	Rating (tons per acre per year)	Acres in AOI	Percent of AOI
DoD	Dominson gravelly sandy loam, 1 to 9 percent slopes	48	3.2	99.8%
MaB	Manhattan sandy loam, 1 to 3 percent slopes	86	0.0	0.2%
Totals for Area of Interest			**3.2**	**100.0%**

Description

The wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Rating Options

Units of Measure: tons per acre per year

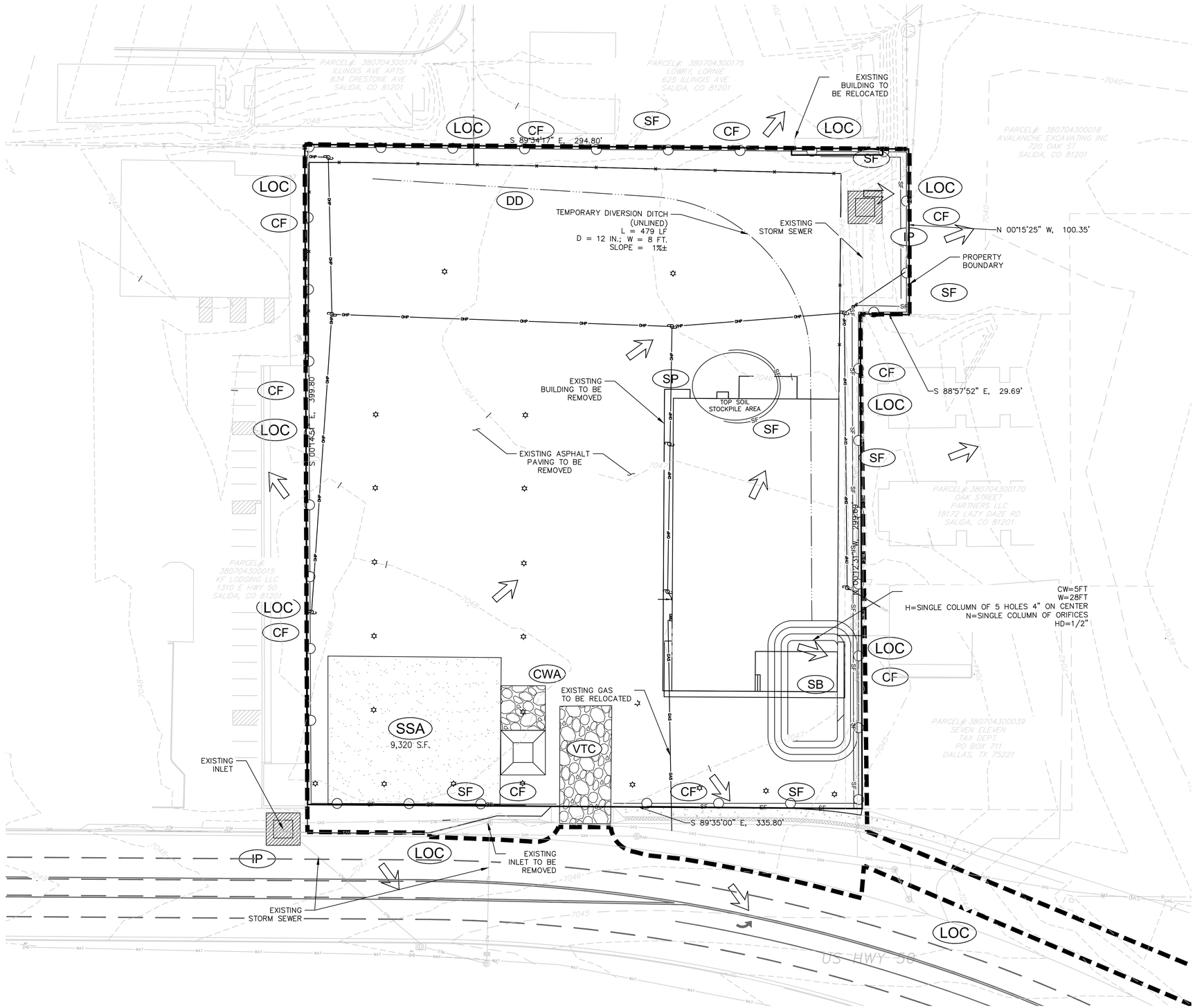
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix F:

Erosion Control Construction Plans and Details



0 15 30 60

1 inch = 30 ft. Horizontal

LEGEND:

- EX. BOUNDARY
- 8660 EX. MAJOR CONTOUR
- 8661 EX. MINOR CONTOUR
- LEASE LINE
- LOC LIMITS OF CONSTRUCTION
- CF CONSTRUCTION FENCE
- SF SILT FENCE
- SCL SEDIMENT CONTROL LOG
- VTC VEHICLE TRACTION CONTROL
- IP INLET PROTECTION
- SSA STABILIZED STAGING AREA
- CWA CONCRETE WASH AREA
- SB SEDIMENT BASIN
- DD DIVERSION DITCH
- FLOW ARROW

COLORADO 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)736-1644 mike@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS

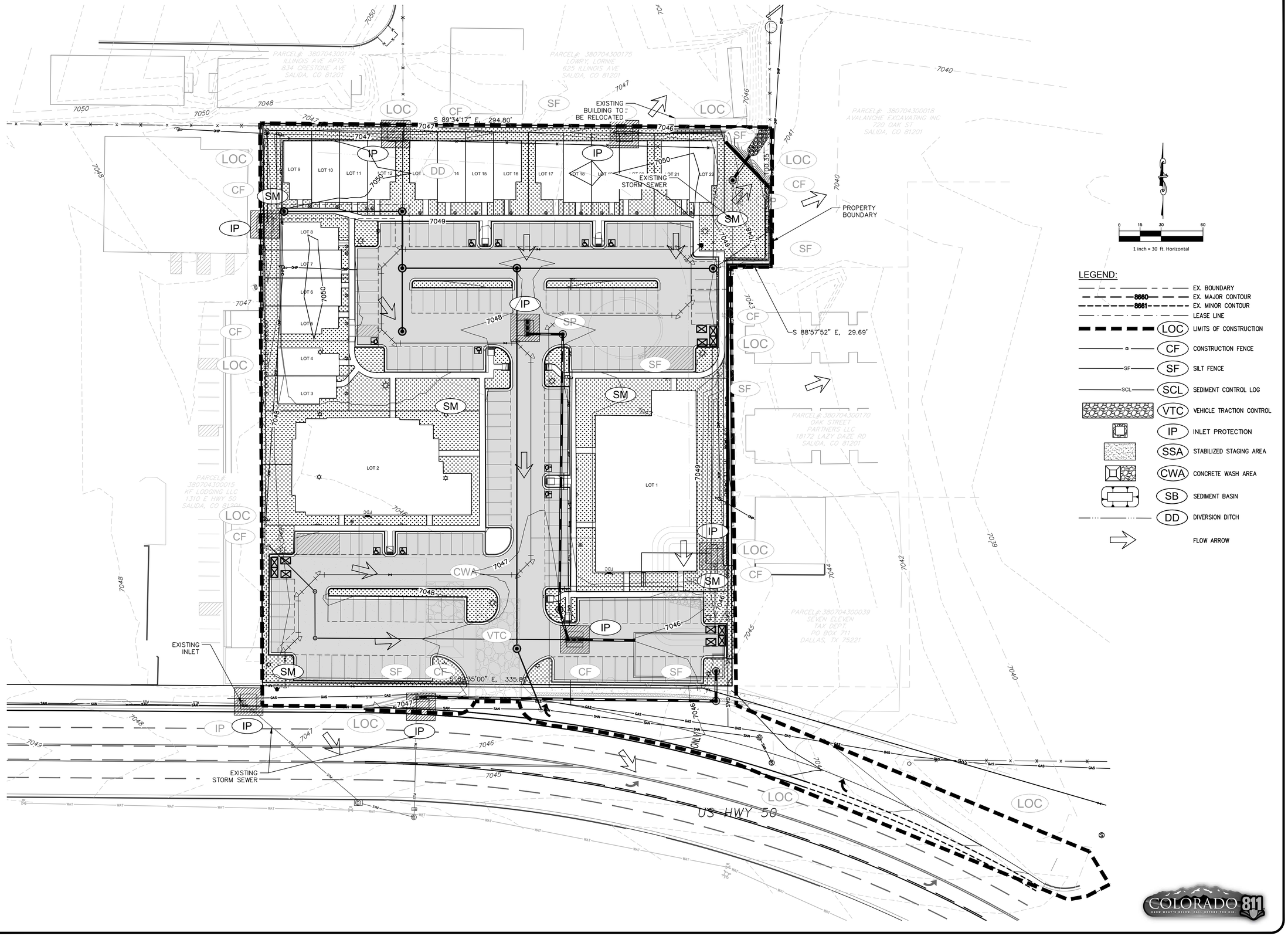
EROSION CONTROL INITIAL PLAN

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE 10/27/2022

PROJECT NO. 17202

Drawing name: C:\Users\JPucillo\OneDrive - Phelps Engineering Services\Company\Entitlement Engineering\17202 - Salida Commons\CAD\Sheets\Construction Documents\17202 - Initial Plan.dwg EROSION CONTROL INITIAL PLAN Oct 26, 2022 3:24pm by: JPucillo



LEGEND:

- EX. BOUNDARY
- 8660 EX. MAJOR CONTOUR
- 8661 EX. MINOR CONTOUR
- LEASE LINE
- LOC LIMITS OF CONSTRUCTION
- CF CONSTRUCTION FENCE
- SF SILT FENCE
- SCL SEDIMENT CONTROL LOG
- VTC VEHICLE TRACTION CONTROL
- IP INLET PROTECTION
- SSA STABILIZED STAGING AREA
- CWA CONCRETE WASH AREA
- SB SEDIMENT BASIN
- DD DIVERSION DITCH
- FLOW ARROW

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)736-1644 mike@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

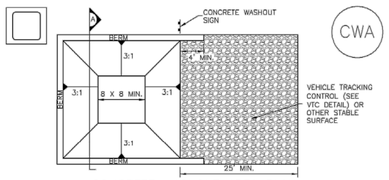
CONSTRUCTION DOCUMENTS
EROSION CONTROL FINAL PLAN

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

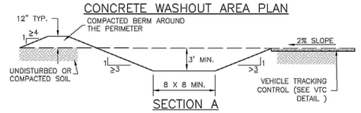
DATE
10/27/2022

PROJECT NO.
17202

DEVELOPMENT PLAN
SALIDA CROSSINGS
A PORTION OF THE SW 1/ 4 OF NW 1/ 4 OF SW 1/ 4 SECTION 4, TOWNSHIP 49 NORTH, RANGE 9 EAST OF THE NEW MEXICO P.M. COUNTY OF CHAFFEE, STATE OF COLORADO



CONCRETE WASHOUT AREA PLAN



SECTION A

CWA–1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –CWA INSTALLATION LOCATION.

2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.

3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.

4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.

5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.

6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.

7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.

8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

CWA MAINTENANCE NOTES

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

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

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

4. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.

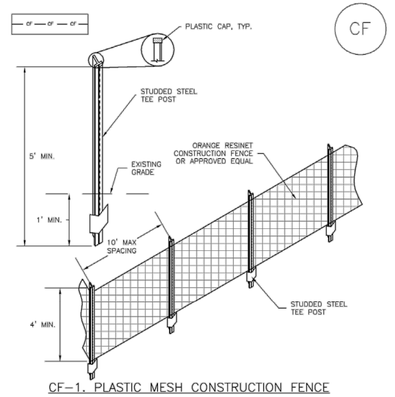
5. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER–TIGHT CONTAINER AND DISPOSED OF PROPERLY.

6. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.

7. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD).

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



CF–1. PLASTIC MESH CONSTRUCTION FENCE

CONSTRUCTION FENCE INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF CONSTRUCTION FENCE.

2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

3. CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR–GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.

4. STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.

5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.

CONSTRUCTION FENCE MAINTENANCE NOTES

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

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

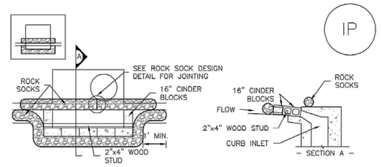
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. CONSTRUCTION FENCE SHALL BE REPAIRED OR REPLACED WHEN THERE ARE SIGNS OF DAMAGE SUCH AS RIPS OR SAGS. CONSTRUCTION FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

5. WHEN CONSTRUCTION FENCES ARE REMOVED, ALL DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE FENCE SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)



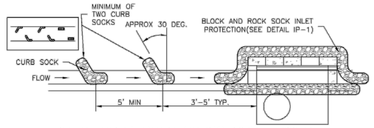
IP–1. BLOCK AND ROCK SOCK SUMP OR ON GRADE INLET PROTECTION

BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.

3. GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINTED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.



IP–2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

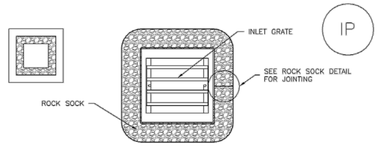
CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.

2. PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.

3. SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART.

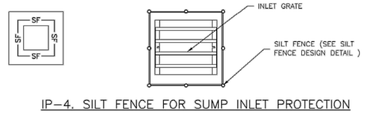
4. AT LEAST TWO CURB SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON–GRADE INLETS.



IP–3. ROCK SOCK SUMP/AREA INLET PROTECTION

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES
1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.



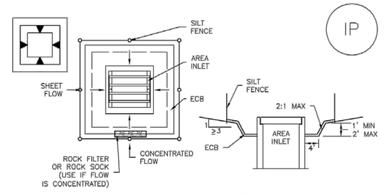
IP–4. SILT FENCE FOR SUMP INLET PROTECTION

SILT FENCE INLET PROTECTION INSTALLATION NOTES

1. SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET.

3. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.



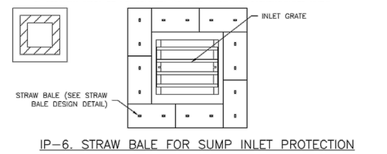
IP–5. OVEREXCAVATION INLET PROTECTION

OVEREXCAVATION INLET PROTECTION INSTALLATION NOTES

1. THIS FORM OF INLET PROTECTION IS PRIMARILY APPLICABLE FOR SITES THAT HAVE NOT YET REACHED FINAL GRADE AND SHOULD BE USED ONLY FOR INLETS WITH A RELATIVELY SMALL CONTRIBUTING DRAINAGE AREA.

2. WHEN USING FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH ORIENTED TOWARDS DIRECTION OF FLOW.

3. SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVEREXCAVATED AREA.

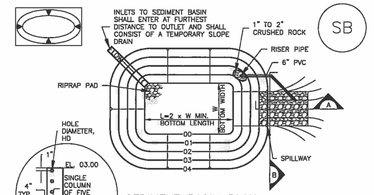


IP–6. STRAW BALE FOR SUMP INLET PROTECTION

STRAW BALE BARRIER INLET PROTECTION INSTALLATION NOTES

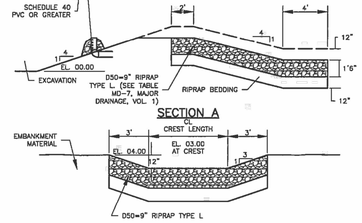
1. SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH ENDS OF BALES TIGHTLY ABUTTING ONE ANOTHER.



SEDIMENT BASIN PLAN

*EXCEPT WHERE THE HOLES EXCEED 1" DIAMETER, THEN UP TO TWO COLUMNS OF SAME SIZED HOLES MAY BE USED



SECTION A

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
7200 E Hampden Ave., Suite 300 Denver, CO 80224 303-290-8944

SCALE: SEE SHEET
DESIGNED BY: JP
DRAWN BY: JP
CHECKED BY: CD

STORMWATER MANAGEMENT PLANS
SWMP DETAILS

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE 12/18/2017
PROJECT NO. 17202

Drawing name: S:\Entitlement Engineering\17202 – Salida Commons\CAD\Sheets\SWMP\17202 – SWMP Details.dwg 3 SWMP DETAILS 1 Dec 15, 2017 1:59pm by: JPucillo

DEVELOPMENT PLAN
SALIDA CROSSINGS
A PORTION OF THE SW 1/ 4 OF NW 1/ 4 OF SW 1/ 4 SECTION 4, TOWNSHIP 49 NORTH, RANGE 9 EAST OF THE NEW MEXICO P.M. COUNTY OF CHAFFEE, STATE OF COLORADO

TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN			
Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (in)
1	12	2	5/32
2	21	3	7/64
3	28	5	1/8
4	33	6	9/64
5	38	8	5/32
6	43	9	11/64
7	47	11	13/64
8	51	12	15/64
9	55	13	1/4
10	58	15	17/64
11	61	16	9/32
12	64	18	1
13	67	19	1 1/4
14	70	21	1 1/2
15	73	22	1 3/4

SEDIMENT BASIN INSTALLATION NOTES

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

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

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

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

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

6. PIPE SCH 40 OR GREATER SHALL BE USED.

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

SEDIMENT BASIN MAINTENANCE NOTES

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

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

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

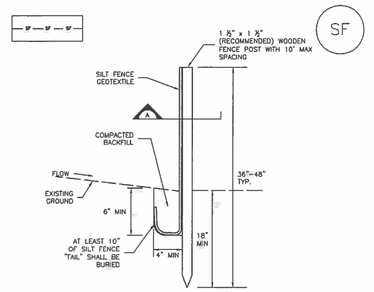
4. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).

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

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

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)

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



SILT FENCE

SECTION A

SF–1. SILT FENCE

SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2–5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.

5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.

6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J–HOOK." THE "J–HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10'– 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

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

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

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

4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

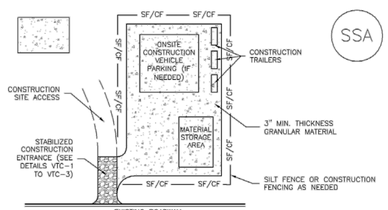
5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.

6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)

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



SSA–1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   –LOCATION OF STAGING AREA(S).
   –CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.

2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.

3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.

4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.

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

6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

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

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

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

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

STABILIZED STAGING AREA MAINTENANCE NOTES

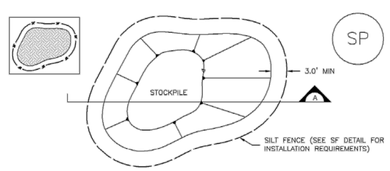
5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.

6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

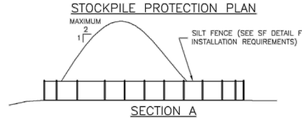
NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE–ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

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

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)



STOCKPILE PROTECTION PLAN



SECTION A

SP–1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF STOCKPILES.
   –TYPE OF STOCKPILE PROTECTION.

2. INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.

3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30–60 DAYS).

4. FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

STOCKPILE PROTECTION MAINTENANCE NOTES

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

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

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

STOCKPILE PROTECTION MAINTENANCE NOTES

4. IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.

5. STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.

(DETAILS ADAPTED FROM PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

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

PHELPS ENGINEERING
720E Hampden Ave, Suite 300 Denver, CO 80224 303-256-8944

No.	REVISIONS	DATE	BY

SCALE: SEE SHEET
DESIGNED BY: JP
DRAWN BY: JP
CHECKED BY: CD

STORMWATER MANAGEMENT PLANS
SWMP DETAILS

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE 12/18/2017
PROJECT NO. 17202

Drawing name: S:\Entitlement Engineering\17202 – Salida Commons\CAD\Sheets\SWMP\17202 – SWMP Details.dwg 4 SWMP DETAILS 2 Dec 15, 2017 1:59pm by: JPucillo

DEVELOPMENT PLAN
SALIDA CROSSINGS
A PORTION OF THE SW 1/ 4 OF NW 1/ 4 OF SW 1/ 4 SECTION 4, TOWNSHIP 49 NORTH, RANGE 9 EAST OF THE NEW MEXICO P.M. COUNTY OF CHAFFEE, STATE OF COLORADO

Street Sweeping and Vacuuming (SS) SM-7

Description

Street sweeping and vacuuming remove sediment that has been tracked onto roadways to reduce sediment transport into storm drain systems or a surface waterway.

Photograph SS-1. A street sweeper removes sediment and potential pollutants along the curb line at a construction site. Photo courtesy of Tom Gore.

Appropriate Uses

Use this practice at construction sites where vehicles may track sediment offsite onto paved roadways.

Design and Installation

Street sweeping or vacuuming should be conducted when there is noticeable sediment accumulation on roadways adjacent to the construction site. Typically, this will be concentrated at the entrance/exit to the construction site. Well-maintained stabilized construction entrances, vehicle tracking controls and tire wash facilities can help reduce the necessary frequency of street sweeping and vacuuming.

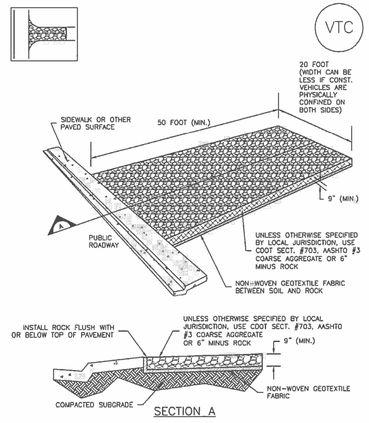
On smaller construction sites, street sweeping can be conducted manually using a shovel and broom. Never wash accumulated sediment on roadways into storm drains.

Maintenance and Removal

- Inspect paved roads around the perimeter of the construction site on a daily basis and more frequently, as needed. Remove accumulated sediment, as needed.
- Following street sweeping, check inlet protection that may have been displaced during street sweeping.
- Inspect area to be swept for materials that may be hazardous prior to beginning sweeping operations.

Street Sweeping/ Vacuuming	
Functions	
Erosion Control	No
Sediment Control	Yes
Site/Material Management	Yes

Vehicle Tracking Control (VTC) SM-4



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

SM-4 Vehicle Tracking Control (VTC)

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   -LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
   -TYPE OF CONSTRUCTION ENTRANCE(S)/EXITS(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).
2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

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

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

Wind Erosion/Dust Control (DC) EC-14

Description

Wind erosion and dust control BMPs help to keep soil particles from entering the air as a result of land disturbing construction activities. These BMPs include a variety of practices generally focused on either graded disturbed areas or construction roadways. For graded areas, practices such as seeding and mulching, use of soil binders, site watering, or other practices that provide prompt surface cover should be used. For construction roadways, road watering and stabilized surfaces should be considered.

Photograph DC-1. Water truck used for dust suppression. Photo courtesy of Douglas County.

Appropriate Uses

Dust control measures should be used on any site where dust poses a problem to air quality. Dust control is important to control for the health of construction workers and surrounding waterbodies.

Design and Installation

The following construction BMPs can be used for dust control:

- An irrigation/sprinkler system can be used to wet the top layer of disturbed soil to help keep dry soil particles from becoming airborne.
- Seeding and mulching can be used to stabilize disturbed surfaces and reduce dust emissions.
- Protecting existing vegetation can help to slow wind velocities across the ground surface, thereby limiting the likelihood of soil particles to become airborne.
- Spray-on soil binders form a bond between soil particles keeping them grounded. Chemical treatments may require additional permitting requirements. Potential impacts to surrounding waterways and habitat must be considered prior to use.
- Placing rock on construction roadways and entrances will help keep dust to a minimum across the construction site.
- Wind fences can be installed on site to reduce wind speeds. Install fences perpendicular to the prevailing wind direction for maximum effectiveness.

Wind Erosion Control/ Dust Control	
Functions	
Erosion Control	Yes
Sediment Control	No
Site/Material Management	Moderate

Maintenance and Removal

When using an irrigation/sprinkler control system to aid in dust control, be careful not to overwater. Overwatering will cause construction vehicles to track mud off-site.

BY | DATE | REVISIONS | No.

PHELPS ENGINEERING
720E Hampden Ave, Suite 300 Denver, CO 80224 303.256.8944

SCALE: SEE SHEET
DESIGNED BY: JP
DRAWN BY: JP
CHECKED BY: CD

STORMWATER MANAGEMENT PLANS
SWMP DETAILS

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE 12/18/2017
PROJECT NO. 17202

UTILITY STUDY REPORT

SALIDA CROSSINGS
1520 EAST HIGHWAY 50
SALIDA, COLORADO
PROJECT NUMBER 17202
CONTACT: LONNY E. PHELPS, P.E.

October 27, 2022

This Phase II Utility Study for the design of the Salida Crossings property was prepared by me or under my direct supervision in accordance with the City of Salida's Standard Specifications for Construction and acceptable professional practices of the industry. We acknowledge that the City of Salida's review of this Utility Study is only for general conformance with submittal requirements, current design criteria and standard engineering principles and practices.

TABLE OF CONTENTS

I. GENERAL LOCATION AND DESCRIPTION

A. Project Location

Figure 1
Vicinity Map

The 3.15-acre site is located in the southeast portion of the City of Salida. The parcel is in the southwest ¼ of the northwest ¼ of southwest ¼, Section 4, Township 49 North, Range 9 East of the 6th Principal Meridian in Chaffee County, Colorado.

The proposed project is surrounded by a hotel to the west, a contractor workshop and yard to the north, an existing building as well as a vacant Seven Eleven to the east, and to the south the property is bounded by Highway 50.

B. Description of Project

The project is a mixed-use development consisting of three buildings. Buildings A & B will consist of commercial space and 36 condominium units, each. A total of 20 townhome units are proposed as well. The development will also have parking, utilities, and green space areas.

The water demand was calculated using the design criteria from American Water Works Association (AWWA) *M22 – Sizing Water Service Lines and Meters*. The sanitary sewer flows were calculated using the design flow criteria from *Design and Construction*

Standards for Water and Wastewater Facilities, South Adams County Water and Sanitation District.

II. EXISTING & PROPOSED WATER SYSTEMS

A. Existing Water System

Existing distribution lines adjacent to the project include:

- One line on the north side of Highway 50 (westbound R.O.W.).
- One line on Oak Street to the east of the proposed development.

B. Proposed Water System

The project's land plan includes 92 dwelling units as well as commercial and retail/office space. The development will be serviced with approximately 1200' of proposed 8" water main with one 2" tap per mixed-use building and a ¾" tap for each townhome. The proposed water system will extend from the proposed 8" main along Highway 50 which will extend east to west from Oak Street to Hunt Street.

Table 1 below displays the calculations of the overall water demand for this development. These numbers will be used both to determine the water resources needed to supply the development and to design the distribution system.

The proposed project distribution system will connect to the existing City's distribution system at two locations shown in the figure in the Appendix. The water system will consist of 8" diameter lines looped throughout the project. A minimum fire flow of 1,000 gallons per minute (gpm) at 20 psi must be provided at all hydrants. The estimated peak demand for the development is 1,074 gpm.

Table 1
Overall Water Demand

Type	Qty.	Units	Demand/Unit	Peak Factor	Gal/Day	Gal/Min	Acre-Feet/Year
Domestic Use							
Proposed Building A (2" tap)	1027	Fixture Units	15		15,405	10.7	17.27
Proposed Building B (2" tap)	1027	Fixture Units	15		15,405	10.7	17.27
Townhomes (3/4" tap)	240	Fixture Units	15		3,600	2.5	4.04
Average Daily Demand (ADD):					**34410.0**	**23.9**	**38.6**
Irrigation Use (1" tap)	0.403	Irrigated Acres	2232		899	0.6	1.01
Maximum Day Demand (MDD=Peak Factor x ADD):							
Proposed Building A (2" tap)	1027	Fixture Units	15	3.0	46,215	32.1	51.81
Proposed Building B (2" tap)	1027	Fixture Units	15	3.0	46,215	32.1	51.81
Townhomes (3/4" tap)	240	Fixture Units	15	3.0	10,800	7.5	12.11
Project Fire Flow (1-hr)				3.0	60,000	1,000	67.26
Peak Irrigation Flow				3.0	2,698	1.9	3.02
Total					**165,928**	**1,074**	**186**
Peak Hour Demand (PHD=Peak Factor x ADD):							
Proposed Building A (2" tap)	1027	Fixture Units	15	6.0	92,430	64.2	103.61
Proposed Building B (2" tap)	1027	Fixture Units	15	6.0	92,430	64.2	103.61
Townhomes (3/4" tap)	240	Fixture Units	15	6.0	21,600	15.0	24.21
Peak Irrigation Flow				6.0	5,397	3.7	6.05
Total					**211,857**	**147**	**237**
Calculated Peak Demand	**1,074**	**GPM**					
Calculated Total Annual Demand	**186**	**Ac-ft/yr**					

III. EXISTING & PROPOSED SANITARY SEWER SYSTEMS

A. Existing Sewer System

There is an existing sanitary sewer located within the public right-of-way on Highway 50. The existing sewer service travels easterly along Highway 50 and changes direction to the south approximately 30’ from our site.

B. Proposed Sewer System

The project includes sewer services for 92 dwelling units as well as 10,274 square feet of commercial/retail/office space. All the proposed sanitary sewer flows will be routed to the existing 8” sanitary sewer on Highway 50. The proposed sanitary sewer service at the point of connection is 8” PVC, at 0.63% slope. Seven sanitary sewer manholes are proposed to be added as part of the development.

IV. IMPACT TO EXISTING SANITARY SEWER

A. Design Standards for Sewer Calculations

The design standards for the existing and proposed sanitary sewer design are as follows:

Pipe type	8” PVC
Pipe slope	0.50%
Manning’s roughness coeff.	0.013

Maximum design depth	d/D = 0.60 (Pipe diameters < 12”)
Allowable velocity range	2-10 feet per second (fps)

Using these design standards, the maximum allowable flow is calculated Q (max.) = 453.2 gpm, with a velocity of 2.9 fps

Table 2
Sewer Pipe Capacity

Pipe Capacity Calculation		
Slope	0.50%	
n	0.011	
Diameter	8	inch
Area	0.3491	SF
P	2.0944	feet
Rh	0.1667	feet
Capacity:	**453.2**	**gpm**
	0.653	**MGD**
Velocity:	**2.901**	**ft/s**

B. Calculating the Proposed Sewer Service Flows

As stated in the design standard reference (*Design and Construction Standards for Water and Wastewater Facilities, South Adams County Water and Sanitation District, July 2011)*, in Section 3.2 Design Flow, the typical average flow uses are as follows:

Residential Unit	76 Gallons/Capita/Day (3.0 capita per unit)
Commercial	600 Gallons/Acre/Day
Peaking factor	3.53 x (Average Daily Flow/1,000,000)$^{-0.168}$
Max. Peaking factor	5.0
Infiltration and Inflow	included in design values

The proposed sanitary service flows are calculated:

Table 3
Sewer Design Flow

Design Flow Calculation							
Onsite Flows:							
Type	**Qty.**	**Units**	**Capita/Unit**	**Capita**	**GPD/Capita or Acre**	**GPD**	**GPM**
Proposed Standard Residential Unit	92	Lots	3	276	76	20,976	14.57
Commercial/Retail/Office	0.240	Acres		0	600	144	0.10
Onsite Total:						**21,120**	**14.67**
Total Average Daily Flow (ADF):	21,120	GPD					
	0.021	MGD					
Peak Factor (PF):	5.00						
3.53 x [(ADF in MGD)$^{-0.168}$]; Max 5							
Peak Design Flow Rate (PDF):	0.108	MGD					
(ADF x PF) + (0.1 x ADF)	74.800	gpm					

C. Impact to Existing Sanitary Sewer Service

Comparing the total flow to the maximum design flow:

74.8 gpm < 453.2 gpm

The percent capacity of the system is 74.8 / 453.2 = 16.5%

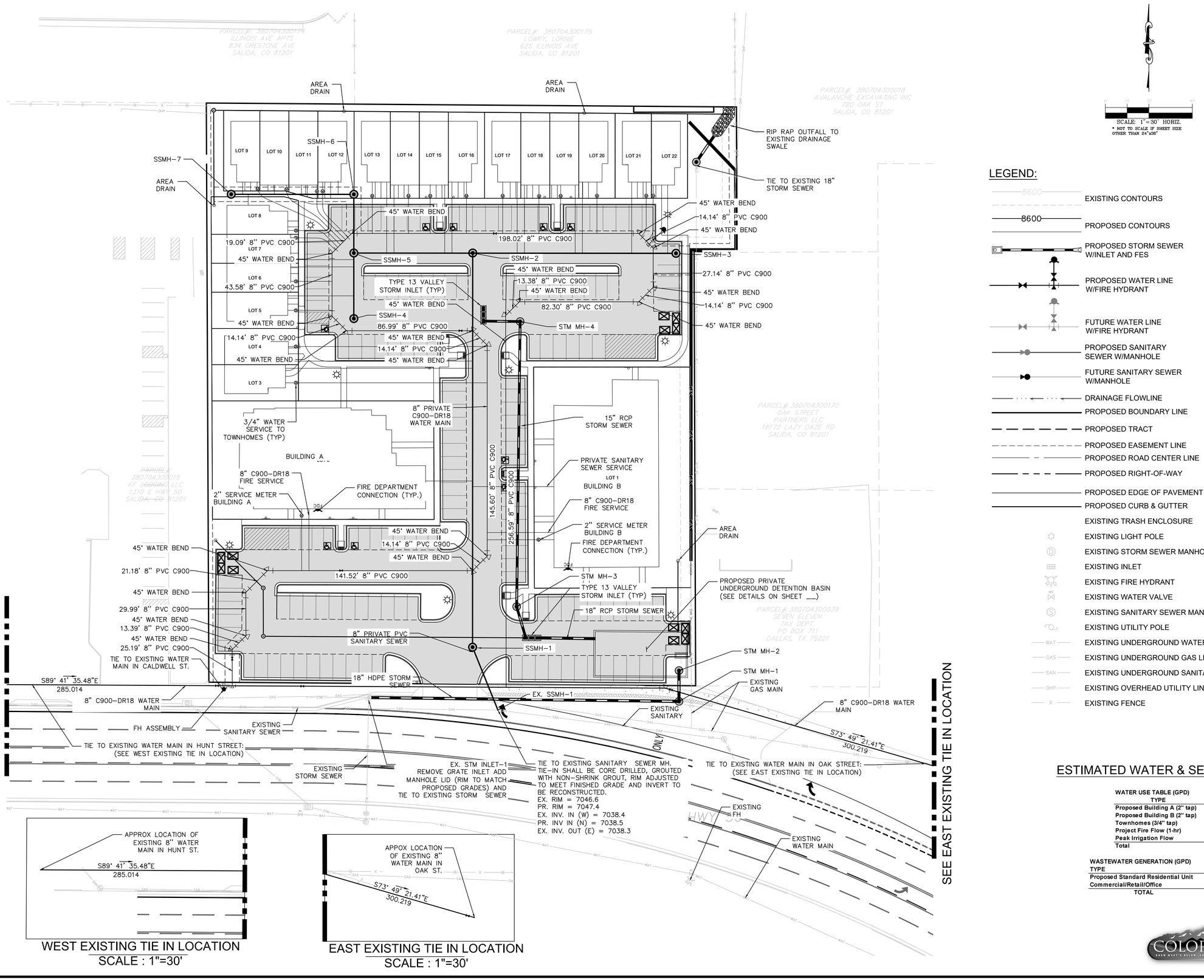
It does not appear that there has been a significant impact to the existing sanitary sewer service by the proposed mixed-use development. The additional flow due to the proposed mixed-use development is calculated as 74.8 gallons per minute.

Using design standards, the maximum flow for the existing sanitary sewer system is calculated as 453.2 gallons per minute. The total calculated flow during peak time including the proposed service areas is less than the maximum allowable flow.

V. REFERENCES

1. American Water Works Association. *M22 – Sizing Water Service Lines and Meters*. 3rd Ed. Revised 2014.
2. South Adams County Water and Sanitation District. *Design and Construction Standards for Water and Wastewater Facilities.* July 2011.

APPENDIX



SCALE: 1" = 30' HORIZ.
* NOT TO SCALE IF SHEET SIZE OTHER THAN 24"x36"

LEGEND:

- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED STORM SEWER W/INLET AND FES
- PROPOSED WATER LINE W/FIRE HYDRANT
- FUTURE WATER LINE W/FIRE HYDRANT
- PROPOSED SANITARY SEWER W/MANHOLE
- FUTURE SANITARY SEWER W/MANHOLE
- DRAINAGE FLOWLINE
- PROPOSED BOUNDARY LINE
- PROPOSED TRACT
- PROPOSED EASEMENT LINE
- PROPOSED ROAD CENTER LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB & GUTTER
- EXISTING TRASH ENCLOSURE
- EXISTING LIGHT POLE
- EXISTING STORM SEWER MANHOLE
- EXISTING INLET
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING UTILITY POLE
- EXISTING UNDERGROUND WATER LINES
- EXISTING UNDERGROUND GAS LINES
- EXISTING UNDERGROUND SANITARY SEWER LINES
- EXISTING OVERHEAD UTILITY LINES
- EXISTING FENCE

ESTIMATED WATER & SEWER FLOWS

WATER USE TABLE (GPD)

TYPE	ADD	MDD
Proposed Building A (2" tap)	15,405	46,215
Proposed Building B (2" tap)	15,405	46,215
Townhomes (3/4" tap)	3,600	10,800
Project Fire Flow (1-hr)	60000	60,000
Peak Irrigation Flow	899	2,698
Total	95,309	165,928

WASTEWATER GENERATION (GPD)

TYPE	ADF	PDF
Proposed Standard Residential Unit	20,976	104,880
Commercial/Retail/Office	144	720
TOTAL	21,120	105,600

BY | DATE | REVISIONS | No.

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)256-1044 mike@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS
OVERALL UTILITY PLAN

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE 10/27/2022
PROJECT NO. 17202

COLORADO 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

Drawing name: C:\Users\JPucillo\OneDrive - Phelps Engineering Services\Company\Entitlement Engineering\17202 - Salida Commons\CAD\Sheets\Construction Documents\9 - Overall Utility Plan.dwg OVERALL UTILITY PLAN Oct 26, 2022 2:20pm by: JPucillo

CONSTRUCTION DOCUMENTS
SALIDA CROSSINGS
A PORTION OF THE SW 1/ 4 OF NW 1/ 4 OF SW 1/ 4 SECTION 4, TOWNSHIP 49 NORTH, RANGE 9 EAST OF THE NEW MEXICO P.M. COUNTY OF CHAFFEE, STATE OF COLORADO

(1) CERTIFICATE OF DEDICATION AND OWNERSHIP.
Know all men by these presents, that the undersigned, being all of the Owner(s), Mortgagee(s) and Lien Holder(s) of certain land in the City of Salida, Chaffee County, Colorado, described as follows:
Beginning _____, containing _____ acres, more or less, _____ have by these presents laid out, platted and subdivided the same into lots, blocks or tracts, as shown on this plat, under the name and style of _____, and do hereby dedicate to the City of Salida as public roads, the streets and roads as shown on said plat, these being _____.
The undersigned hereby further dedicate to the public all utility easements on the property as described and as shown hereon. The undersigned hereby further dedicate to the public utilities the right to install, maintain and operate mains, transmission lines, service lines and appurtenances to provide such utility services within this subdivision or property contiguous thereto, under, along and across public roads as shown on this plat and also under, along and across utility easements as shown hereon.
The lands comprising this subdivision are subject to certain covenants which are recorded in Book _____ at Page ___ of the records of Chaffee County, Colorado.
Executed this ____ day of _____, 20__.
Owner(s): Mortgagee(s)/Lienholder(s):

_____
County of Chaffee)
) ss.
State of Colorado)
The foregoing dedication was acknowledged before me this ____ day of _____ 20__, by _____. Witness my hand and seal.
My commission expires _____.

_____
Notary Public

(2) CERTIFICATE OF STREET AND UTILITY MAINTENANCE.
Public notice is hereby given that neither the dedicated public roads nor the public utilities shown on this plat will be maintained by the City of Salida until and unless the subdivider constructs the streets, roads and utilities in accordance with the subdivision agreement, if any, and the subdivision regulations in effect at the date of the recording of this plat, and approval of the City has been issued to that effect. When the City approves a street or utility for maintenance, the street or utility shall become public in all senses of the word and the subdivider has no further obligations in regards to that particular street or utility.
(3) Surveyor's Certificate.
I, _____, a Registered Professional Land Surveyor in the State of Colorado, do hereby certify that the survey represented by this plat was made under my supervision, the monuments shown thereon actually exist and this plat accurately represents said survey.

_____
Registered Land Surveyor
(4) Title Certificate.
I,_____, an (attorney at law duly licensed to practice before the Courts of Record or a licensed title insurance agent representing _____) in the State of Colorado, certify that I have examined title to the property described herein and that in my opinion title to the above described real property is held by _____.
Signed this ____ day of _____, 20__.

_____
Attorney at Law
(5) City Administrator Approval
This plat is approved by the Salida City Administrator this __ day of 20___.

_____
City Administrator
(6) Planning Commission Approval.
This plat is approved by the City of Salida Planning Commission this ____ day of _____, 20__.

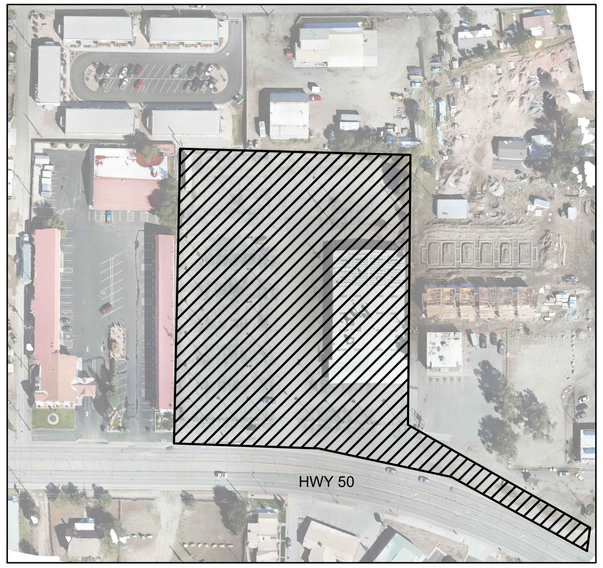
_____
Chairman
(7) City Council Approval.
This plat is approved for filing and the City hereby accepts the dedication of the streets and roads shown hereon subject to the provisions in "Street Maintenance" set forth above, and further accepts the dedication of the easements shown hereon.
Signed this _____ day of _____, 20__.
City of Salida

By:_____
Mayor
(8) Recorder's Certificate.
This plat was filed for record in the office of the County Clerk and Recorder of Chaffee County at _____ __.m. on the _____ day of _____, 20___, Reception No. _____.
County Clerk and Recorder

By:_____
Deputy

CITY OF SALIDA ENGINEERING STATEMENT

ALL WORK SHALL BE CONSTRUCTED TO THE CITY OF SALIDA CONSTRUCTION STANDARDS AND SPECIFICATIONS. THIS SITE PLAN HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE CONSTRUCTIONS STANDARDS AND SPECIFICATIONS AND OTHER CITY OF SALIDA REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.
PROJECT ENGINEER: _____ DATE: _____



VICINITY MAP
SCALE: 1" = 100'

Site Data Table	
	Proposed
Residential Density (units/acre)	28.6
Residential Density (units/lot sf)	1,492
Apartment Units	72
Townhome Units	20
Total Units	92
Total Office/Retail Space	10,274
Lot Coverage - Buildings	24%
Lot Coverage - Paving	39%
Coverage Cumulative	63%
Minimum Landscape Area	10%
Primary Building Side Setback min (ft)	3
Primary Building Front Setback min (ft)	5
Primary Building Rear Setback min (ft)	5
Accessory Building Side Setback (ft)	10
Accessory Building Rear Setback (ft)	10
Maximum Height Primary Building (ft/in)	34/9
Maximum Height Accessory Building (ft)	23/7
Property Size (sq. ft)	137,254
Min. Lot Frontage (ft)	335-7"

SITE TOTAL AREA: 3.15 AC

PARKING REQUIRED – 185
W/ 25% MIXED-USE REDUCTION – 139
PARKING PROVIDED
STANDARD PARKING 9'X18' (10 ADA).....113 STALLS
COMPACT PARKING 8'X16'.....46 STALLS
SITE TOTAL.....159 STALLS

TOTAL RETAIL / OFFICE ~ 10,274 SF
TOTAL UNITS = 100
31.75 DU/AC

Sheet List Table	
Sheet Number	Sheet Title
1	COVER SHEET
2	STANDARD NOTES
3	EXISTING CONDITIONS & DEMO PLAN
4	SITE PLAN
5	HORIZONTAL CONTROL
6	RAMP DETAIL PLAN
7	GRADING PLAN
8	GRADING PLAN
9	OVERALL UTILITY PLAN
10	SANITARY SEWER P&P
11	SANITARY SEWER P&P
12	STORM SEWER P&P
13	STORM SEWER P&P
14	STORM SEWER P&P
15	WATER PUBLIC IMPROV. P&P
16	WATER PUBLIC IMPROV. P&P
17	WATER PUBLIC IMPROV. P&P
18	SITE DETAILS – DETAILS 1
19	SITE DETAILS – DETAILS 2
20	EROSION CONTROL INITIAL PLAN
21	EROSION CONTROL FINAL PLAN
22	EROSION CONTROL DETAILS 1
23	EROSION CONTROL DETAILS 2
24	EROSION CONTROL DETAILS 3
25–32	UNDERGROUND VAULT DETAILS

Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
Volume FG vs EG	**1.000**	1.080	147967.62 Sq. Ft.	728.40 Cu. Yd.	7924.95 Cu. Yd.	7196.55 Cu. Yd.<Fill>
Totals			147967.62 Sq. Ft.	728.40 Cu. Yd.	7924.95 Cu. Yd.	7196.55 Cu. Yd.<Fill>

LAND SURVEYOR'S CERTIFICATE

I ROBERT J RUBINO A REGISTERED LAND SURVEYOR LICENSED TO PRACTICE IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS LAND SURVEY WAS PERFORMED UNDER MY DIRECT SUPERVISION AND THAT THE PLAT REPRESENTS THE RESULTS OF SAID SURVEY AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

_____, DATE_____

COLORADO P.L.S.___14142_____

CONTACTS:

OWNER:
BV INVESTMENTS
401 WHITEWING LANE
MURPHY, TX 75094
CONTACT: BERNIE WEBER

DEVELOPER
LOUCIOS ENTERPRISES, LLC
2605 FAIRHILL LANE
FLOWER, TX 75022

SUBMITTAL DATES
1ST - 10/27/2022

SURVEYOR:
RUBINO SURVEYING
3312 AIRPORT ROAD
BOULDER, CO 80301
PHONE: (303) 464-9515
CONTACT: BOB RUBINO

CIVIL ENGINEER
PHELPS ENGINEERING SERVICES
3522 SOUTH EMERSON STREET
ENGLEWOOD, CO 80113
PHONE: (303) 298-1644
CONTACT: LONNY PHELPS

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)298-1644 info@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS
COVER SHEET

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE
10/27/2022

PROJECT NO.
17202

GENERAL NOTES:

1. THE CONTRACTOR SHALL OBTAIN, AT HIS EXPENSE, ALL PERMITS WHICH ARE NECESSARY TO PERFORM THE PROPOSED WORK.
2. ALL BACKFILL MATERIAL SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY AND ADJUSTED FOR PROPER MOISTURE CONTENT.
3. TRENCHES SHALL BE EXCAVATED AND THE PIPE EXPOSED FOR INSPECTION AT ANY LOCATION ON THE PROJECT IF SO ORDERED.
4. ALL STATIONING IS ALONG THE CENTERLINE OF THE ROADWAY UNLESS OTHERWISE NOTED.
5. THE PROFILE GRADE ON THE PLANS IS THE ROADWAY CENTERLINE UNLESS OTHERWISE NOTED.
6. THE CONTRACTOR SHALL HAVE ON HIS POSSESSION AT THE SITE A COPY OF THE APPROVED CONSTRUCTION PLANS.
7. LIMITS OF WORK: NO AREAS SHALL BE DISTURBED OUTSIDE OF THE TEMPORARY CONSTRUCTION EASEMENTS AND THE ROADWAY DISTURBANCE LIMITS.
8. ALL WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE DEVELOPER, CITY OF SALIDA, OR THEIR REPRESENTATIVES. ONE OR ALL OF THE PARTIES HAS THE RIGHT TO REJECT MATERIALS AND WORKMANSHIP WHICH DO NOT COMPLY.
9. THE CONTRACTOR SHALL NOTIFY THE CITY OF SALIDA AND THE PUBLIC UTILITY COMPANIES PRIOR TO PROCEEDING WITH ANY EXCAVATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ANY EXISTING UTILITY (INCLUDING DEPTHS) WHICH MAY CONFLICT WITH THE PROPOSED CONSTRUCTION. ALL EXISTING UTILITIES SHALL BE PROTECTED FROM DAMAGE BY THE CONTRACTOR. DAMAGED UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE. ALL ITEMS SHOWN ON THE PLANS AS EXISTING ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE ACTUAL LOCATIONS MAY VARY FROM THE PLANS, ESPECIALLY IN THE CASE OF UNDERGROUND UTILITIES. WHENEVER THE CONTRACTOR DISCOVERS A DISCREPANCY IN LOCATIONS, THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY. ALL WORK PERFORMED IN THE AREA OF THE PUBLIC UTILITIES SHALL BE PERFORMED ACCORDING TO THE REQUIREMENTS OF THESE AGENCIES.
10. CONTRACTOR SHALL GIVE 72 HOURS NOTICE TO TOWN PERSONNEL TO PERFORM REQUIRED INSPECTIONS AND PRIOR TO ANY CONSTRUCTION ON THIS SITE. CONTACT CITY OF SALIDA PERSONNEL AT (719) 539-6257.
11. CONTRACTOR SHALL NOTIFY DESIGN ENGINEER OF ANY DESIGN CONFLICT ENCOUNTERED IN THE FIELD . PHELPS ENGINEERING ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS . THE UTILITIES SHOWN ON THIS DRAWING HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. IT IS CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE SIZE , MATERIAL, AND LOCATIONS OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

STORM SEWER NOTES:

1. LOCATION OF EXISTING STORM SEWER (INCLUDING CULVERTS) SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO START OF CONSTRUCTION.
2. STORM SEWER SHALL BE RCP PER CITY OF SALIDA "STANDARD SPECIFICATIONS FOR CONSTRUCTION" MANUAL.
3. ALL CULVERTS SHALL HAVE END SECTIONS ON BOTH THE UPSTREAM AND DOWNSTREAM ENDS OF THE PIPE UNLESS OTHERWISE NOTED ON THE PLANS.
4. STORM SEWER SHALL BE RCP AND SHALL HAVE BEDDING AND BACKFILL PER CITY OF SALIDA "STANDARD SPECIFICATIONS FOR CONSTRUCTION" MANUAL.
5. PIPE LENGTHS FOR STORM SEWER ARE APPROXIMATE HORIZONTAL DISTANCES FROM END SECTION TO END SECTION. THEREFORE, DISTANCES SHOWN ON THE PLANS ARE APPROXIMATE ONLY AND COULD VARY. END SECTIONS ARE INCLUDED IN THE PIPE LENGTH SHOWN ON THE PLANS.
6. DRIVEWAYS FOR ADJACENT PARCELS AND CULVERTS UNDER THE DRIVEWAYS SHALL BE DESIGNED IN THE FUTURE IN CONJUNCTION WITH DESIGNS FOR THE ADJACENT PARCELS.

PIPE BEDDING AND BACKFILL:

A. TRENCH ZONES. THE TERMS "BEDDING ZONE", "PIPE ZONE" AND "BACKFILL ZONE" SHALL REFER TO THE TRENCH ZONES IDENTIFIED IN THE STANDARD DETAILS, WATER MAIN BEDDING AND BACKFILL DETAIL.

1. BEDDING ZONE. THE BEDDING ZONE SHALL CONSIST OF ALL MATERIAL PLACED BELOW THE PIPE INVERT OR, WHEN PERMITTED, THE NATIVE MATERIALS GRADED AND PREPARED FOR DIRECT PLACEMENT OF THE PIPE.
2. PIPE ZONE. THE PIPE ZONE SHALL CONSIST OF ALL MATERIAL PLACED ABOVE THE PIPE INVERT TO AN ELEVATION SHOWN ON THE DETAILS.
3. BACKFILL ZONE. THE BACKFILL ZONE SHALL CONSIST OF ALL MATERIAL ABOVE THE PIPE ZONE.

B. MATERIAL. ALL BEDDING AND BACKFILL MATERIAL SHALL HAVE THE APPROVAL OF THE ENGINEER. ALL BEDDING AND BACKFILL MATERIAL SHALL BE FREE OF FROZEN MATERIAL, ORGANIC MATERIAL AND DEBRIS. THE MATERIALS TO BE USED IN EACH TRENCH ZONE ARE INDICATED ON THE STANDARD DETAILS AND THESE MATERIALS ARE DESCRIBED BELOW. ALL MATERIALS MAY BE SUBJECT TO GRADATION TESTS AND COMPACTION TESTS PRIOR TO APPROVAL OF THE USE OF THAT MATERIAL. THE TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL AND VERIFIED AS TO THEIR ACCURACY. THESE TESTS SHALL BE PERFORMED AT NO COST TO THE TOWN OR DISTRICT OR THEIR AGENTS.

1. GRANULAR BEDDING MATERIAL. THIS MATERIAL SHALL BE A CLEAN, WELL-GRADED GRAVELLY MATERIAL AND SHALL CONFORM TO THE FOLLOWING LIMITS WHEN TESTED BY MEANS OF LABORATORY SIEVES:

SIEVE SIZE PASSING BY WEIGHT	TOTAL PERCENT
3/8-INCH	100
NO. 4	70 - 100
NO. 8	36 - 93
NO. 16	20 - 80
NO. 30	8 - 65
NO. 50	2 - 30
NO. 100	1 - 10
NO. 200	0 - 3

2. ROADBASE BEDDING MATERIAL OR ROADBASE BACKFILL. THIS MATERIAL SHALL BE CLASS 6 AGGREGATE BASE COURSE AS SPECIFIED BY THE STATE OF COLORADO DEPARTMENT OF HIGHWAYS; AND SHALL MEET THE FOLLOWING GRADATION:

SIEVE SIZE PASSING BY WEIGHT	TOTAL PERCENT
3/4 INCH	100
NO. 4	30 - 65
NO. 8	20 - 55
NO. 200	3 - 12

3. GRANULAR BEDDING OR ` BACKFILL MATERIAL. THIS MATERIAL SHALL BE IMPORTED CRUSHED ROCK OR ANGULAR SURFACED GRAVEL AND MEET THE FOLLOWING GRADATION (ASTM D448, NO. 67):

SIEVE SIZE PASSING BY WEIGHT	TOTAL PERCENT
1-INCH	100
3/4 INCH	90-100
3/8-INCH	20-55
NO. 4	0-10
NO. 8	0-5

4. SELECT MATERIAL. SELECT MATERIAL SHALL NOT BE PERMITTED UNLESS AUTHORIZED BY THE ENGINEER. THIS MATERIAL SHALL CONSIST OF SUITABLE MATERIAL SCREENED FROM THE EXCAVATED EARTH HAVING NO ROCKS OR STONES GREATER IN SIZE THAN 2 INCHES FOR DIP OR RCP AND 3/4 INCH FOR ALL OTHER PIPE.
5. TRENCH STABILIZATION MATERIAL. THIS MATERIAL SHALL BE A 3/4" TO 1 1/2-INCH UNIFORMLY-GRADED, CRUSHED ROCK OR CONCRETE AGGREGATE.
6. BACKFILL MATERIAL. BACKFILL MATERIAL SHALL CONSIST OF SUITABLE MATERIAL FROM THE EXCAVATED EARTH, MEETING ALL THE REQUIREMENTS OF THE SPECIFICATIONS.
7. MATERIALS MAY REQUIRE CLAY DAMS AND/OR GEOTEXTILE WRAP, DEPENDING ON WATER TABLE OR SOILS CONDITIONS.

NO BOULDERS OVER 6 INCHES IN ANY DIMENSION SHALL BE ALLOWED IN THE TRENCH BACK FILL, PER SECTION 14-5-120 MATERIAL IN THE FRASER CODE.

C. BEDDING AND BACKFILL INSTALLATION:

1. GENERAL. UNLESS ACCURATE RESULTS CANNOT BE OBTAINED, THE COMPACTION REQUIREMENTS SHALL CONFORM TO MAXIMUM DRY DENSITY ACCORDING TO ASTM D698, MOISTURE-DENSITY RELATIONS OF SOILS (STANDARD PROCTOR). WHEN THE ASTM D698 TEST IS NOT APPLICABLE, THE PERCENTAGE COMPACTION REQUIREMENTS SHALL CONFORM TO ASTM D2049, TEST FOR RELATIVE DENSITY OF COHESIONLESS SOILS.

PIPE BEDDING AND BACKFILL (CON'T):

WHEN REQUIRED BY THE ENGINEER, THE DEVELOPER SHALL EXCAVATE BACKFILLED TRENCHES FOR THE PURPOSE OF PERFORMING COMPACTION TESTS AT LOCATIONS AND DEPTHS REQUIRED BY THE ENGINEER. THE DEVELOPER SHALL BE RESPONSIBLE FOR REINSTALLING AND COMPACTING THE TEST EXCAVATIONS AT NO ADDITIONAL COST TO THE TOWN.

IN AREAS UNDER ROADWAYS AND IN PUBLIC RIGHT-OF-WAY, COMPACTION TESTS SHALL BE PERFORMED IN THE TRENCH FOR THE BEDDING AND IN THE BACKFILL ZONE, ONE AND ONE-HALF (1½) FEET ABOVE THE TOP OF PIPE AND IN ONE-FOOT VERTICAL INCREMENTS TO FINISH GRADE. COMPACTION TEST SHALL BE PERFORMED FOR EACH VERTICAL INCREMENT NOTED ABOVE AND AT HORIZONTAL INTERVALS OF EVERY ONE HUNDRED (100) FEET, MEASURED ALONG THE CENTERLINE OF PIPE.

1. BEDDING ZONE INSTALLATION. BEDDING MATERIAL SHALL CONSIST OF THE MATERIAL ON WHICH THE PIPE IS PLACED IN ACCORDANCE WITH THE PIPE TRENCH DETAILS. BEDDING MATERIAL SHALL BE PLACED TO THE REQUIRED ELEVATION OF THE PIPE INVERT. TAMPING EQUIPMENT SHALL BE USED TO THOROUGHLY TAMP THE BEDDING MATERIAL TO A MINIMUM OF 95 PERCENT MAXIMUM DRY DENSITY OR TO 75 PERCENT RELATIVE DENSITY. THE MOISTURE CONTENT OF THE MATERIAL SHALL BE WITHIN 2 PERCENT OF OPTIMUM.
2. PIPE ZONE INSTALLATION. AFTER BEDDING MATERIAL HAS BEEN PLACED AND APPROVED AND AFTER THE PIPE HAS BEEN INSTALLED AND APPROVED, THE PIPE ZONE BACKFILL SHALL BE INSTALLED TO AN ELEVATION SHOWN ON THE DETAILS ON THE DRAWINGS.

   THE BACKFILL MATERIAL SHALL BE AS SPECIFIED ON THE DETAILS AND SHALL BE PLACED AND COMPACTED IN DISTINCT, SEPARATE LIFTS NOT TO EXCEED 6 INCHES OF LOOSE DEPTH; EXCEPT THAT THE FIRST LOOSE LIFT SHALL NOT BE HIGHER THAN THE PIPE CENTERLINE (SPRINGLINE). IF SELECT BACKFILL MATERIALS ARE PERMITTED IN THIS ZONE BUT ACCEPTABLE SELECT BACKFILL MATERIAL (SUITABLE FOR PLACEMENT WITHIN 12 INCHES OF THE PIPE BARREL) IS NOT AVAILABLE AT ANY PARTICULAR LOCATION, THE DEVELOPER SHALL USE IMPORTED GRANULAR BACKFILL MATERIAL. COMPACTION SHALL MEET THE REQUIREMENTS OF "BEDDING ZONE INSTALLATION," UTILIZING T-BARS OR MECHANICAL TAMPING EQUIPMENT.
3. BACKFILL ZONE INSTALLATION: OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND NOT UNDER DRIVEWAYS, STREETS, AND PARKING LOTS. AFTER THE PIPE ZONE BACKFILL HAS BEEN PLACED AND APPROVED, THE TRENCH SHALL BE BACKFILLED. ALL BACKFILL ABOVE THE PIPE ZONE BACKFILL SHALL BE CAREFULLY PLACED IN THE TRENCH IN LIFTS NO GREATER THAN EIGHTEEN (18) INCHES. EACH LIFT SHALL BE COMPACTED BY MECHANICAL EQUIPMENT TO NINETY PERCENT (90%) OF STANDARD DRY DENSITY. AFTER THE TRENCH IS BACKFILLED TO THE GROUND SURFACE, A LOADED DUMP TRUCK OR LOADER PLACED IN THE TRENCH LINE SHALL COMPACT THE BACKFILL BY ITS WHEEL LOAD. NO FEWER THAN TWO (2) PASSES SHALL BE MADE. IF THE BACKFILL IS DEPRESSED BELOW THE FINISHED GRADE ELEVATION, THE DEPRESSED AREA SHALL BE REFILLED AND COMPACTED. THE BACKFILL SHALL BE MOUNDED HIGHER THAN ADJACENT GROUND TO ALLOW FOR SETTLEMENT.
4. BACKFILL ZONE INSTALLATION IN ROADS AND STREETS. BENEATH ALL TRAVELED WAYS IN ROADS AND STREETS, HIGHWAY SHOULDERS AND WITHIN 15 FEET OF PAVEMENT IN STATE HIGHWAY DEPARTMENT RIGHTS-OF-WAY (UNLESS OTHERWISE SPECIFIED ON THE PLANS) BACKFILL SHALL BE CAREFULLY PLACED AND COMPACTED UP TO THE LIMIT OF BASE COURSE MATERIAL OR TO GRAVEL. COMPACTION SHALL BE BY MECHANICAL TAMPING IN 8-INCH MAXIMUM LOOSE LIFTS USING MECHANICAL OR HAND TAMPERS, WEIGHING NOT LESS THAN 20 POUNDS, OR VIBRATORY ROLLERS. ALL OTHER MEANS MUST BE APPROVED IN WRITING BY THE ENGINEER. ALL BACKFILL SHALL BE COMPACTED TO 95 PERCENT OF MAXIMUM LABORATORY DRY DENSITY OR 70 PERCENT RELATIVE DENSITY. THE MATERIAL SHALL BE WITHIN 2.0 PERCENT OF OPTIMUM MOISTURE CONTENT.
5. THE DEVELOPER MAY REQUEST APPROVAL OF ALTERNATE MEANS OF COMPACTION. SUCH REQUEST MUST BE SUBMITTED TO THE ENGINEER IN WRITING. APPROVAL OF THE COMPACTION METHOD WILL BE MADE BY THE ENGINEER ONLY IN WRITING. USE OF SPECIFIED OR APPROVED COMPACTION METHODS DOES NOT RELIEVE THE DEVELOPER FROM PROVIDING A COMPLETED PROJECT MEETING THE INTENT OF THIS SPECIFICATION.

SANITARY SEWER NOTES:

1. ALL SANITARY SEWER CONSTRUCTION SHALL COMPLY WITH THE CITY OF SALIDA'S "STANDARD SPECIFICATIONS FOR CONSTRUCTION MANUAL". THE CITY OF SALIDA OWNS AND MAINTAINS THE MUNICIPAL SANITARY SEWER SYSTEM. ALL WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE DEVELOPER, CITY OF SALIDA, OR THEIR REPRESENTATIVES. ONE OR ALL OF THE PARTIES HAS THE RIGHT TO REJECT MATERIALS AND WORKMANSHIP WHICH DO NOT COMPLY.
2. EACH SEWER MAIN SIZE IS 8-INCH IN DIAMETER UNLESS OTHERWISE NOTED. FOR PIPE INSTALLATIONS LESS THAN FOURTEEN (14) FEET DEEP MEASURED FROM THE PIPE INVERT TO FINISHED GRADE AND SLOPES LESS THAN EIGHTEEN PERCENT (18%), SEWER MAINS SHALL BE PVC, SDR 26, AWWA C900, OR APPROVED EQUAL. FOR PIPE INSTALLATIONS GREATER THAN FOURTEEN (14) FEET DEEP MEASURED FROM THE PIPE INVERT TO FINISHED GRADE AND/OR SLOPES GREATER THAN EIGHTEEN PERCENT (18%), SEWER MAINS SHALL BE PVC, C-900, AWWA C900, MINIMUM THICKNESS CONFORMING TO ASTM D2122, PER SECTION 14-3-340 (b)(1) OF THE CITY OF SALIDA DESIGN CRITERIA AND CONSTRUCTION STANDARDS.
3. SEWER LINES LESS THAN 1.5 FEET BELOW A WATER MAIN SHALL BE ENCASED IN CONCRETE PER CITY PIPE ENCASEMENT DETAIL OR MODIFIED TO HAVE A "NO BELL" CONSTRUCTION PER CITY PIPE CROSSING DETAIL. IF A SEWER LINE IS LESS THAN 1.5 FEET ABOVE A WATER LINE, A 20-FOOT LENGTH OF PVC C-900 OR C-905 (AS APPROPRIATE) SHALL BE USED FOR THE GRAVITY SEWER LINE, SMITH-BLAIR 229, FULL CIRCLE COLLAR LEAK REPAIR CLAMPS SHALL BE INSTALLED ON ALL SANITARY SEWER JOINTS WITHIN THE MINIMUM HORIZONTAL CLEARANCE REQUIREMENTS, AND A 20-FOOT LENGTH OF DUCTILE IRON PIPE SHALL BE INSTALLED ON THE WATER LINE, CENTERED OVER THE CENTERLINE OF THE SANITARY SEWER, PER CITY OF SALIDA'S "STANDARD SPECIFICATIONS FOR CONSTRUCTION MANUAL".
4. SEWER RIM ELEVATIONS SHOWN ARE APPROXIMATE ONLY AND ARE NOT TO BE TAKEN AS FINAL ELEVATIONS. RING AND COVER SHALL BE SET IN ASPHALT WITH CONCRETE ADJUSTMENT RINGS FOR MANHOLE ADJUSTMENT TO MATCH FINAL PAVEMENT ELEVATIONS.
5. ALL MANHOLES SHALL BE 48 INCHES IN DIAMETER WITH 24-INCH RING AND COVER, AND ECCENTRIC CONE UNLESS OTHERWISE SPECIFIED.
6. AT LEAST FIVE (5) DAYS PRIOR TO START OF CONSTRUCTION, A PRE-CONSTRUCTION MEETING WILL BE HELD ON-SITE AND ATTENDED BY THE CONTRACTOR AND REPRESENTATIVES OF THE CITY OF SALIDA. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE CITY OF SALIDA PUBLIC WORKS TO SCHEDULE THIS MEETING.
7. ALL PIPE LENGTHS ARE APPROXIMATE AND ARE HORIZONTAL LENGTHS ONLY.
8. THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT ALL TIMES ONE (1) SIGNED COPY OF THE PLANS WHICH HAVE BEEN APPROVED BY THE TOWN OF FRASER.
9. ALL MANHOLES SHALL HAVE SHAPED INVERTS.
10. ALL SEWER LINES SHALL BE TESTED IN ACCORDANCE WITH THE CITY OF SALIDA CONSTRUCTION STANDARDS AND MINIMUM DESIGN CRITERIA PRIOR TO ACCEPTANCE OR ANY CONNECTION TO AN EXISTING SEWER LINE.
11. PRIOR TO STARTING WORK WHERE SEWER MAINS ARE TO BE INSTALLED INTO EXISTING CITY OF SALIDA SEWER SYSTEMS, THE CONTRACTOR SHALL PLUG, WITH A WATER TIGHT PLUG, THE MANHOLE NEAREST TO THE POINT OF TIE-IN. THIS PLUG SHALL REMAIN IN PLACE UNTIL FINAL ACCEPTANCE BY THE CITY OF SALIDA. ITS PURPOSE SHALL BE TO PREVENT ANY MUD, WATER OR OTHER MATERIALS FROM ENTERING THE LINE DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PUMPING AND CLEANING THESE MANHOLES AND REMOVING THE PLUG WHEN SO INSTRUCTED BY THE CITY OF SALIDA.
12. THE CONTRACTOR SHALL PROVIDE A HARD EPOXY GROUT OR 6000 PSI CONCRETE AND PROVIDE A SMOOTH TROWEL FINISH TO THE PRECAST MANHOLE BASES IN ORDER TO MINIMIZE MATERIAL DEPOSITION.
13. MANHOLE JOINTS: JOINTS BETWEEN PRECAST MANHOLE SECTIONS ARE TO BE SEALED WITH RUB-R-NEK LTM BY HENRY COMPANY OR APPROVED ALTERNATE GASKET MATERIAL.

    EXTERNAL JOINT SEALING. IN ADDITION TO THE GASKET MATERIAL USED WITHIN THE JOINTS BETWEEN SECTIONS OF THE MANHOLE, AN EXTERNAL JOINT WRAP IS REQUIRED. THE JOINT WRAP SHALL BE A SELF-ADHERED MEMBRANE CONSISTING OF TWO (2) WATERPROOFING MATERIALS CONSISTING OF AGGRESSIVE RUBBERIZED ASPHALT ADHESIVE BACKED BY A LAYER OF HIGH DENSITY CROSS LAMINATED POLYETHYLENE AS MANUFACTURED BY GRACE CONSTRUCTION PRODUCTS OR APPROVED EQUAL. THE MEMBRANE STRIPS SHALL BE A MINIMUM OF TWELVE (12) INCHES WIDE.

    FLEXIBLE WATERTIGHT BOOT. A FLEXIBLE WATERTIGHT "BOOT" SYSTEM SHALL BE PROVIDED TO SEAL AROUND THE SEWER LINE ENTERING THE PRECAST MANHOLE BASE. ACCEPTABLE PRODUCTS INCLUDE:

    A. PSX POSITIVE SEAL, AS MANUFACTURED BY PRESS-SEAL GASKET CORP., FORT WAYNE, INDIANA;
    B. KOR-N-SEAL, AS MANUFACTURED BY NPC, INC., MILFORD, NH; OR
    C. AN APPROVED ALTERNATIVE.

    THE SANITARY SEWER PIPE SHALL PROTRUDE THROUGH THE MANHOLE WALL. WHERE A PRE-POURED INVERT TROUGH IS PRESENT IN THE MANHOLE BASE, THE PIPE SHALL EXTEND TO THAT POINT. WHERE A PRE-POURED INVERT TROUGH DOES NOT EXIST, THE PIPE SHALL EXTEND A MINIMUM DISTANCE OF SIX (6) INCHES INSIDE THE INTERIOR FACE OF THE MANHOLE WALL.
14. MANHOLE BASES, BARRELS AND TOPS SHALL BE PRECAST CONCRETE UNITS CONFORMING TO ASTM C478. CONCRETE FOR MANHOLE INVERTS AND OTHER SIMILAR ITEMS SHALL HAVE A TWENTY-EIGHT-DAY COMPRESSIVE STRENGTH OF NOT LESS THAN THREE THOUSAND (3,000) PSI. ALL REINFORCEMENT REQUIRED SHALL BE STANDARD REINFORCEMENT CONFORMING TO THE REQUIREMENTS SET FORTH IN ASTM A615, GRADE 40, PER CITY OF SALIDA'S "STANDARD SPECIFICATIONS FOR CONSTRUCTION MANUAL".
16. THERE SHALL BE A MINIMUM COVER OF 7 FEET OVER ALL UNINSULATED SEWER MAINS AND SERVICES AND A MINIMUM COVER OF 5 FEET OVER INSULATED SEWER MAINS AND SERVICES. SEWER MAINS WITH LESS THAN 7 FEET OF COVER SHALL BE INSULATED WITH DOW BLUE HI-60 OR APPROVED EQUAL.

WATER NOTES:

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE TOWN OF FRASER ENGINEERING STANDARDS AND CITY OF SALIDA WATER UTILITY STANDARDS AND SPECIFICATIONS FOR WATER LINE CONSTRUCTION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING:
   A) ALL LICENSES AND PERMITS REQUIRED FOR CONSTRUCTION;
   B) THE NOTIFICATION OF THE PROPER AUTHORITIES PRIOR TO CONSTRUCTION AND A PRE-CONSTRUCTION MEETING WITH THE DEVELOPER'S ENGINEER;
   C) THE EXACT HORIZONTAL AND VERTICAL LOCATIONS OF ALL UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND THEIR A RELOCATION NECESSITATED BY THIS CONSTRUCTION;
   D) PROVIDING THE DEVELOPER'S ENGINEER WITH AN "AS CONSTRUCTED" RED-LINED SET OF PRINTS AFTER COMPLETION OF THE PROJECT.
   E) ALL LIGHTS, SIGNS, BARRICADES, FLAG MEN, OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
3. **ALL WATER MAINS SHALL BE DUCTILE IRON PIPE OR C-900/C-905 PVC IN SIZE INDICATED ON PLANS.** DIP WATER PIPE SHALL BE PRESSURE CLASS 250 PSI MINIMUM, THICKNESS CLASS 52. PVC PIPE SHALL BE PRESSURE CLASS 235 PSI (DR18) AND HAVE A STANDARD LAYING LENGTH OF (20) FEET, PLUS OR MINUS (1) INCH, WITH INTEGRAL BELL AND SPIGOT JOINTS. ALL DIP OR PVC PIPE SHALL HAVE PUSH-ON SINGLE GASKET TYPE JOINTS. ALL DUCTILE IRON PIPE SHALL BE WRAPPED WITH AN 8 MIL MINIMUM THICKNESS OF POLYETHYLENE MATERIAL PER AWWA STANDARD C105. PIPE WRAP REQUIREMENTS MAY BE REDUCED OR ELIMINATED FOLLOWING SOIL CORROSITIVITY TESTING AND APPROVALS. WHEN PIPE SLOPES EXCEED 18%, THE WATERLINE SHALL BE RESTRAINED.
4. ALL FITTINGS SHALL BE MADE FROM DUCTILE IRON AND FURNISHED WITH MECHANICAL JOINT ENDS. ALL FITTINGS SHALL HAVE A PRESSURE RATING OF 250 PSI AND SHALL BE WRAPPED WITH AN 8 MIL MINIMUM THICKNESS OF POLYETHYLENE MATERIAL PER AWWA STANDARD C105.
5. FIRE HYDRANTS SHALL BE MUELLER MOUNTAIN TYPE, OPEN LEFT, WITH DIRECTION OF OPENING CAST IN TOP OF HYDRANT. FIRE HYDRANT ASSEMBLIES SHALL INCLUDE ALL PIPE, FITTINGS, VALVES, VALVE BOXES, MATERIALS, AND LABOR WHICH ARE NECESSARY TO INSTALL THE HYDRANT COMPLETE IN PLACE.
6. ALL FITTINGS SHALL BE CONSTRUCTED WITH THRUST BLOCKS AND A BOND BREAK WRAPPING AROUND ALL JOINTS PRIOR TO POURING.
7. ALL BENDS, TEES, FIRE HYDRANTS, AND PLUGS AT DEAD END MAINS SHALL BE PROTECTED FROM THRUST BY USING A MINIMUM OF 3000 PSI (28-DAY COMPRESSIVE STRENGTH) CONCRETE THRUST BLOCKS PER CITY OF SALIDA WATER UTILITY STANDARD SPECIFICATIONS FOR WATER LINE CONSTRUCTION AND THE DETAIL SHEET. BAGGED PREMIX CONCRETE CAN BE USED PROVIDED THAT ITS MATERIAL PROPERTIES PROVED AT LEAST A 3000 PSI 28-DAY COMPRESSIVE STRENGTH. PROVIDE A BOND BREAK WRAPPING AROUND PIPE, FITTING ETC. ADJACENT TO THRUST BLOCK PRIOR TO POURING.
8. ALL BENDS SHALL BE RESTRAINED WITH MECHANICAL JOINTS OR RODDED PER CITY OF SALIDA WATER UTILITY STANDARD SPECIFICATIONS FOR WATER LINE CONSTRUCTION AND THE DETAIL SHEET.
9. TRENCH WIDTH AT THE TOP OF THE BELL SHALL NOT EXCEED 24 INCHES PLUS THE PIPE WIDTH.
10. THE CONTRACTOR SHALL INFORM THE DEVELOPER OR DEVELOPER'S REPRESENTATIVE 24 HOURS IN ADVANCE WHEN A TRENCH WILL BE READY FOR COMPACTION TESTING. THE DEVELOPER SHALL HAVE A SOIL ENGINEER PERFORM THE COMPACTING TEST AT NO COST TO THE CONTRACTOR. RESULTS ARE TO BE PROVIDED TO THE CITY OF SALIDA.
11. CHLORINATION AND FLUSHING: ALL WATER MAINS SHALL BE DISINFECTED PER AWWA C-651 AFTER ALL CONSTRUCTION WORK HAS BEEN COMPLETED. CHLORINE SHALL BE ADDED TO THE WATER AT THE NECESSARY LOCATIONS IN THE AMOUNT TO FORM 50 PPM FREE CHLORINE RESIDUAL. THE CHLORINE SOLUTION SHALL BE LEFT IN THE PIPELINES FOR NOT LESS THAN 24 HOURS PER THE CITY OF SALIDA WATER UTILITY STANDARD SPECIFICATIONS FOR WATERLINE CONSTRUCTION. ALL CHLORINATION WORK MUST BE DONE IN PRESENCE OF THE TOWN. AT THE END OF 24 HOURS, A BACTERIOLOGICAL TEST SHALL BE PERFORMED BY A COLORADO CERTIFIED LABORATORY, ACCEPTABLE TO THE CITY, TO ENSURE ADEQUATE DISINFECTION. A THIRD PARTY INDEPENDENT CONTRACTOR, ACCEPTABLE TO THE CITY, WILL TAKE THE REQUIRED SAMPLES AND DELIVER THEM TO THE CERTIFIED LABORATORY FOR TESTING.
12. FOLLOWING THE COMPLETION OF THE DISINFECTION (CHLORINATION) WORK, THE CONTRACTOR SHALL BE RESPONSIBLE TO DECHLORINATE AND PROPERLY DISPOSE OF THE TEST WATER IN STRICT COMPLIANCE WITH ALL LOCAL, STATE AND FEDERAL LAWS, RULES AND REGULATIONS. PRIOR TO DISPOSAL, PROVISIONS MUST BE MADE BY THE CONTRACTOR TO ASSURE THAT NO CHLORINATED WATER IS DISCHARGED TO THE GROUND PER THE TOWN OF FRASER WATER UTILITY STANDARD SPECIFICATIONS FOR WATER LINE CONSTRUCTION.
13. HYDROSTATIC TESTING AND DISINFECTING: ALL WATER MAINS SHALL BE TESTED, DISINFECTED AND FLUSHED PER CITY OF SALIDA WATER UTILITY STANDARD SPECIFICATIONS FOR WATER LINE CONSTRUCTION. ALL PIPE SHALL BE FIELD PRESSURE TESTED TO A MINIMUM OF 150 PSI OR 1.5 TIMES THE WORKING PRESSURE. A MAXIMUM OF 1200 LINEAR FEET OF WATER LINE SHALL BE TESTED AT ONE TIME, UNLESS OTHERWISE APPROVED. ALL TESTS SHALL BE DONE IN THE PRESENCE OF THE UTILITY'S REPRESENTATIVE AND TO HIS SATISFACTION. ALLOWABLE LEAKAGE FOR EACH SECTION OF PIPE BETWEEN LINE VALVES SHALL NOT EXCEED THE LEAKAGE RATE SET FORTH IN THE CITY OF SALIDA WATER UTILITY STANDARD SPECIFICATIONS FOR WATER LINE CONSTRUCTION.
14. THE EXISTING WATER MAINS AND THE EXISTING FIRE HYDRANTS SHALL REMAIN IN SERVICE DURING THE NEW LINE CONSTRUCTION.
15. WHEN THE CONSTRUCTION OCCURS IN ASPHALT WITHIN THE PUBLIC RIGHT-OF-WAY, BACKFILL AND COMPACT THE ENTIRE TRENCH DEPTH AND THE TOP 12 INCHES OF THE TRENCH WITH "CLASS 6" ROAD BASE. PATCH BACK TRENCH WITH A DEPTH OF ASPHALT EQUAL TO THE DEPTH OF THE ADJACENT SURFACE OR A MINIMUM OF 5 INCHES, GRADE 'E' OR 'EX' IN 2 LIFTS. COMPACTION OF THE ASPHALT SHALL BE PER CITY OF SALIDA STANDARDS.
16. WHERE CONSTRUCTION OCCURS IN OR ACROSS ASPHALT OR CONCRETE PAVEMENT, SAW CUT THE PAVEMENT FOR A CLEAN STRAIGHT EDGE TO ASSURE PROPER PATCHING. HOT MIX IS THE ONLY ACCEPTABLE PATCHING MATERIAL.
17. WHEN CONSTRUCTION OCCURS IN EXISTING PRIVATE ASPHALT PARKING LOTS OR DRIVEWAYS, COMPACT THE ENTIRE DEPTH OF THE TRENCH AND PATCH BACK THE PAVEMENT WITH A MINIMUM OF 3-INCHES OF FULL DEPTH ASPHALT. MATCH EXISTING THICKNESS IF GREATER THAN 3-INCHES.
18. ALL WORK COMPLETED WITHIN THE PUBLIC RIGHT-OF-WAY SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN THE CITY OF SALIDA ROAD CUT SPECIFICATIONS.
19. ALL VALVE BOXES SHALL BE PLUMB AND SHALL HAVE AN OPERATING NUT EXTENSION/RISER TO WITHIN 24 INCHES OF GRADE AND BEDDED WITH A MINIMUM OF 1/3 CUBIC YARD OF 3/4-INCH CRUSHED ROCK. VALVE BOXES SHALL BE MARKED WITH FIBERGLASS MARKERS IN AREAS OUTSIDE OF ROADWAY. ALL VALVE BOXES SHALL BE CLEAN OF SOIL, ROCK AND DEBRIS.
20. ALL WATER MAINS SHALL BE REQUIRED TO HAVE TRACER WIRE. TRACER WIRE SHALL BE CONTINUOUS LOOP TWELVE-GUAGE STRANDED COPPER TRACER WIRE WITH WATERTIGHT INSULATION FOR DIRECT BURRY, INSTALLED IN THE TRENCH ABOVE THE WATER LINE. TEST STATIONS SHALL BE LOCATED ADJACENT TO EACH FIRE HYDRANT AND SHALL INCLUDE THE C.P. GLEN 4 WITH HEAVY CAST IRON LOCKING COVER AND FOUR POINT TERMINAL BOX AS MANUFACTURED BY C.P. TEST SERVICES, INC. OR EQUAL APPROVED BY THE CITY. THE TRACER WIRE SHALL BE INSTALLED IN ACCORDANCE WITH ATTACHMENT A-17 -- TRACER WIRE DETAIL. SPLICES IN TRACER WIRE SHALL ONLY BE MADE USING SOLDERLESS, 3M TYPE DB4-6 LOW VOLTAGE DIRECT BURY SPLICE KIT OR EQUAL APPROVED BY THE CITY.
21. ALL NEWLY INSTALLED PIPING SHALL NOT BE ACCEPTED UNTIL A LEAK DETECTION TEST OF THAT SEGMENT IS CONDUCTED AND ALL IDENTIFIED LEAKS ARE REPAIRED. THIS LEAK TEST WILL OCCUR IN THE MONTH IMMEDIATELY PRIOR TO THE EXPIRATION OF THE CITY OF SALIDA'S 12 MONTH WARRANTY.
22. THE CONTRACTOR SHALL INSTALL TRACER WIRE AND WARNING TAPE ABOVE ALL WATER MAINS.

ROADWAY NOTES:

1. LIFTS IN FILL AREAS SHALL NOT EXCEED 8 INCHES IN COMPACTED DEPTH. MAXIMUM SLOPES OF ALL CUTS & FILLS SHALL BE 3:1 UNLESS OTHERWISE NOTED.
2. PAVING SHALL NOT START UNTIL SUBGRADE COMPACTION TESTS ARE TAKEN MEETING THE REQUIREMENTS OF THE PLANS AND SPECS AND FINAL PAVEMENT DESIGN. THE PAVEMENT SECTION SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT FOR THIS PROJECT. THE MINIMUM DEPTH OF ASPHALT SHALL BE 5-INCHES.
3. THE CONTRACTOR SHALL SAW-CUT ALL EXISTING PAVEMENT WHERE MATCH LINES WITH EXISTING EDGE OF PAVEMENT OCCUR.
4. PORTLAND CEMENT CONCRETE SHALL BE CONSTRUCTED IN ACCORDANCE WITH CDOT STANDARD 600.
5. ASPHALT PAVING SHALL BE IN ACCORDANCE WITH THE CITY OF SALIDA ROAD STANDARDS FINAL ASPHALT THICKNESS AND BASE COURSE THICKNESS SHALL BE IN ACCORDANCE WITH THE SOIL'S ENGINEER'S REPORT.
6. ROADWAY BASE COURSE AND FILL AREA COMPACTION SHALL CONFORM TO THE TOWN OF FRASER ROAD STANDARDS. THE BASE COURSE AND COMPACTION SHALL ALSO CONFORM TO THE GENERAL NOTES.
7. COMPACTION FOR THE ROADWAY BASE COURSE SHALL MEET 95% OF STANDARD PROCTOR DENSITY WITH THE MATERIAL BEING WITHIN 2.0% OF OPTIMUM MOISTURE CONTENT. EACH LIFT OF ASPHALT SHALL MEET THE MINIMUM DENSITY OF 95% OF THE MARSHALL DENSITY. ASPHALT DENSITY TESTING SHALL BE PERFORMED ON EACH LIFT AT INTERVALS OF ONE TEST PER EVERY 250 LINEAR FEET PER LANE. TEST LOCATIONS ON EACH LIFT AND EACH LANE SHALL BE STAGGERED.
8. AT COMPLETION OF CONSTRUCTION, AS PART OF THE PRELIMINARY ACCEPTANCE, THE CITY WILL SELECT REPRESENTATIVE LOCATIONS TO TAKE ASPHALT CORINGS AS CONFIRMATION OF ASPHALT DEPTH AND CONSISTENCY OF THE ASPHALT SECTION. THE CITY WILL CONTRACT DIRECTLY WITH A COMPANY TO PERFORM THIS WORK AND WILL BACK CHARGE THE DEVELOPER FOR THE COST.

No.	REVISIONS	DATE	BY

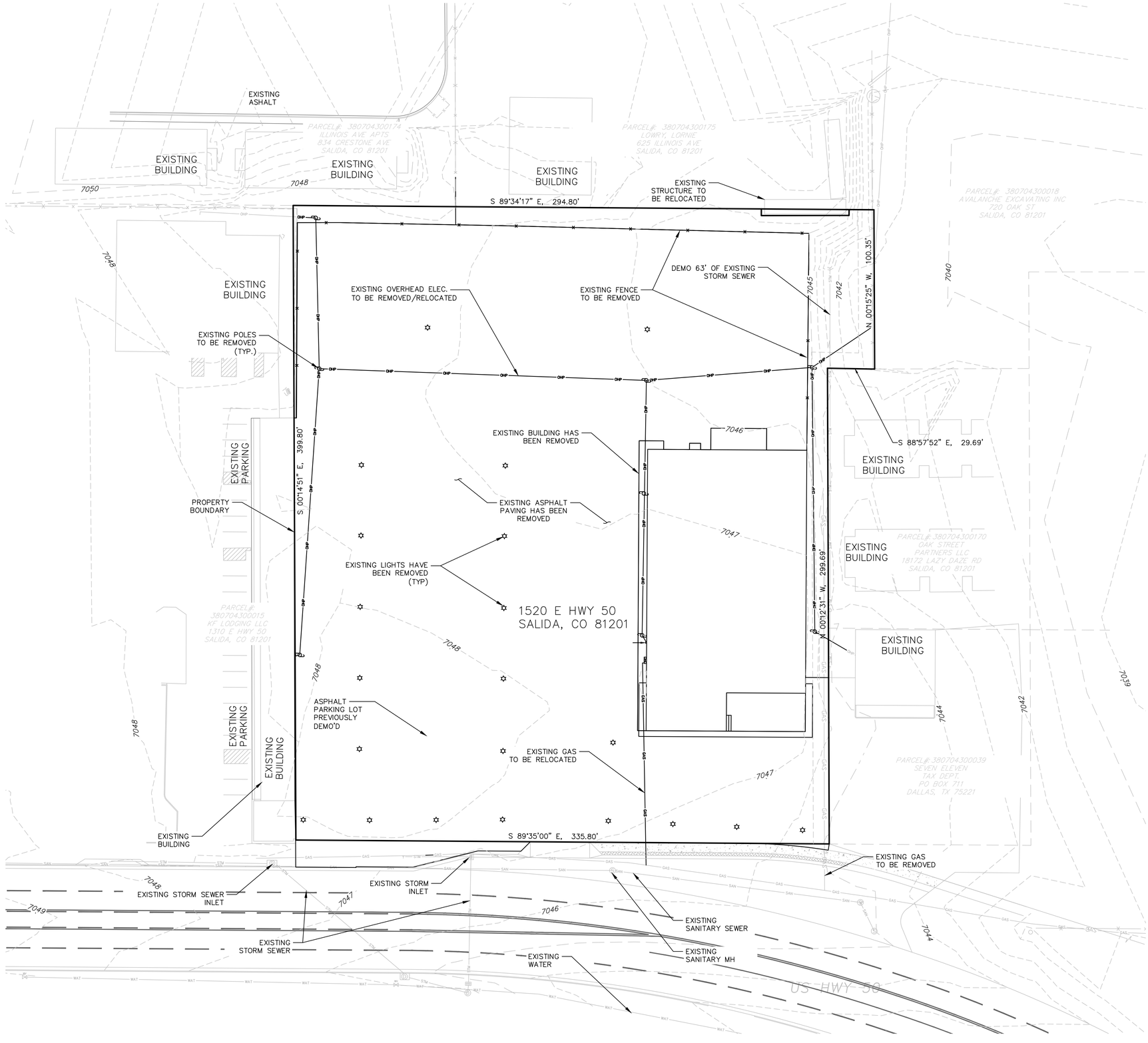
PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303) 298-1644 info@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS
STANDARD NOTES

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE 10/27/2022
PROJECT NO. 17202



0 15 30 60

SCALE: 1"=30' HORIZ.
* NOT TO SCALE IF SHEET SIZE OTHER THAN 24"x36"

LEGEND:

- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED STORM SEWER W/INLET AND FES
- PROPOSED WATER LINE W/FIRE HYDRANT
- FUTURE WATER LINE W/FIRE HYDRANT
- PROPOSED SANITARY SEWER W/MANHOLE
- FUTURE SANITARY SEWER W/MANHOLE
- DRAINAGE FLOWLINE
- PROPOSED BOUNDARY LINE
- PROPOSED TRACT
- PROPOSED EASEMENT LINE
- PROPOSED ROAD CENTER LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB & GUTTER
- EXISTING TRASH ENCLOSURE
- EXISTING LIGHT POLE
- EXISTING STORM SEWER MANHOLE
- EXISTING INLET
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING UTILITY POLE
- EXISTING UNDERGROUND WATER LINES
- EXISTING UNDERGROUND GAS LINES
- EXISTING UNDERGROUND SANITARY SEWER LINES
- EXISTING OVERHEAD UTILITY LINES
- EXISTING FENCE

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)256-1644 mike@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS

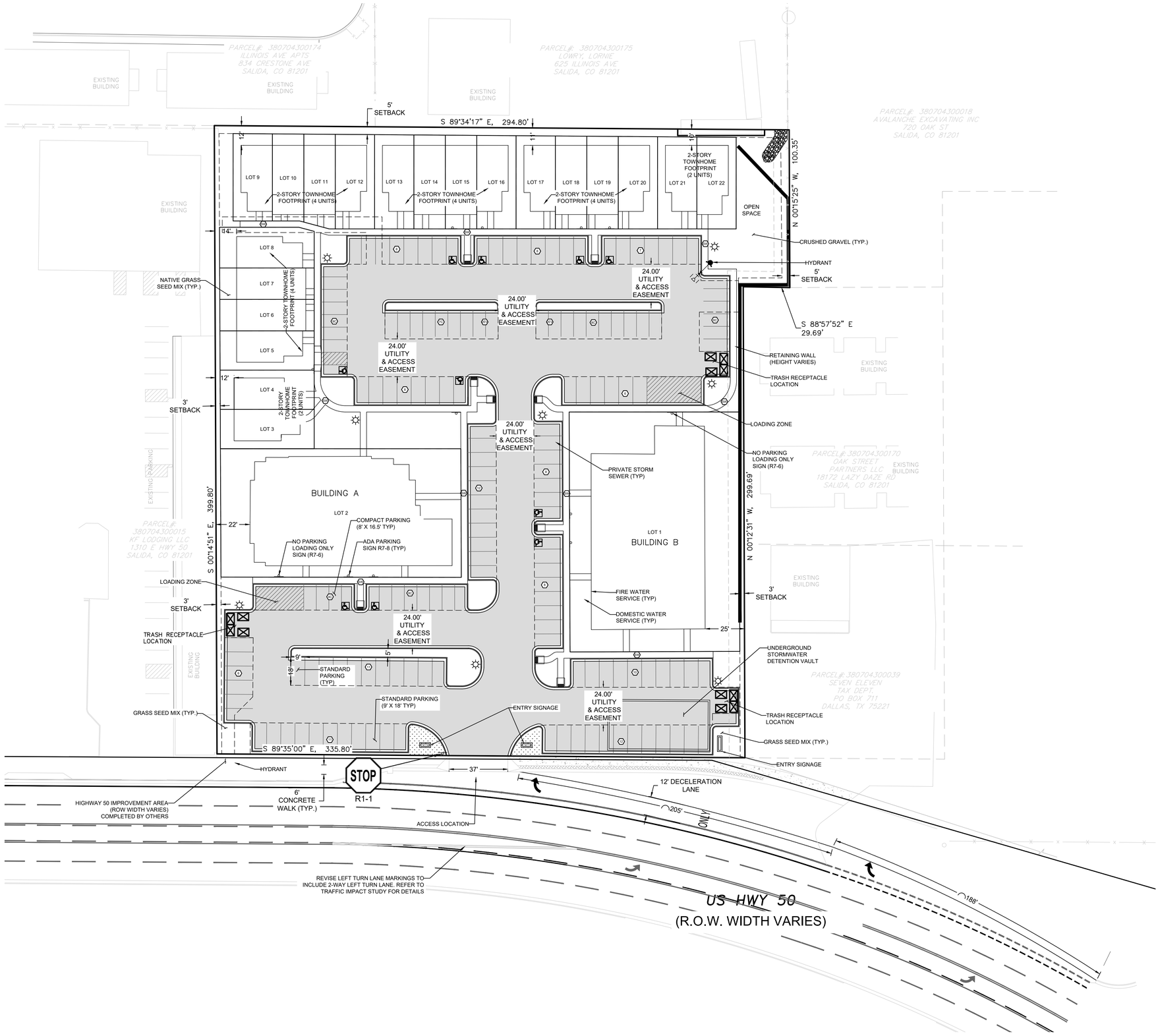
EXISTING CONDITIONS & DEMO PLAN

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE
10/27/2022

PROJECT NO.
17202

COLORADO 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.



TABULAR DATA

SITE TOTAL AREA: 3.15 AC

PARKING REQUIRED - 185
W/ 25% MIXED-USE REDUCTION - 139
PARKING PROVIDED
STANDARD PARKING 9'X18' (10 ADA).....113 STALLS
COMPACT PARKING 8'X16'.....46 STALLS
SITE TOTAL.....159 STALLS

TOTAL RETAIL / OFFICE ~ 10,274 SF
TOTAL UNITS = 100
31.75 DU/AC

0 15 30 60
1 inch = 30 ft. Horizontal

LEGEND:

- EXISTING CONTOURS (8600)
- PROPOSED CONTOURS (8600)
- PROPOSED STORM SEWER W/INLET AND FES
- PROPOSED WATER LINE W/FIRE HYDRANT
- FUTURE WATER LINE W/FIRE HYDRANT
- PROPOSED SANITARY SEWER W/MANHOLE
- FUTURE SANITARY SEWER W/MANHOLE
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- PROPOSED TRACT
- PROPOSED EASEMENT LINE
- PROPOSED ROAD CENTER LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB & GUTTER
- EXISTING TRASH ENCLOSURE
- EXISTING LIGHT POLE
- EXISTING STORM SEWER MANHOLE
- EXISTING INLET
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING UTILITY POLE
- EXISTING UNDERGROUND WATER LINES (WAT)
- EXISTING UNDERGROUND GAS LINES (GAS)
- EXISTING UNDERGROUND SANITARY SEWER LINES (SAN)
- EXISTING OVERHEAD UTILITY LINES (OHP)
- EXISTING FENCE (X)

SITE KEY NOTES & ABBREVIATIONS:

- (SW) 4-FT WIDE SIDEWALK
- (#) PARKING COUNT (STANDARD)
- (#C) PARKING COUNT (COMPACT)

NOTES:
- STORM SEWER LAYOUT IS PRELIMINARY AND SUBJECT TO CHANGE BASED ON HYDROLOGIC CALCULATIONS

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)256-1644 info@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

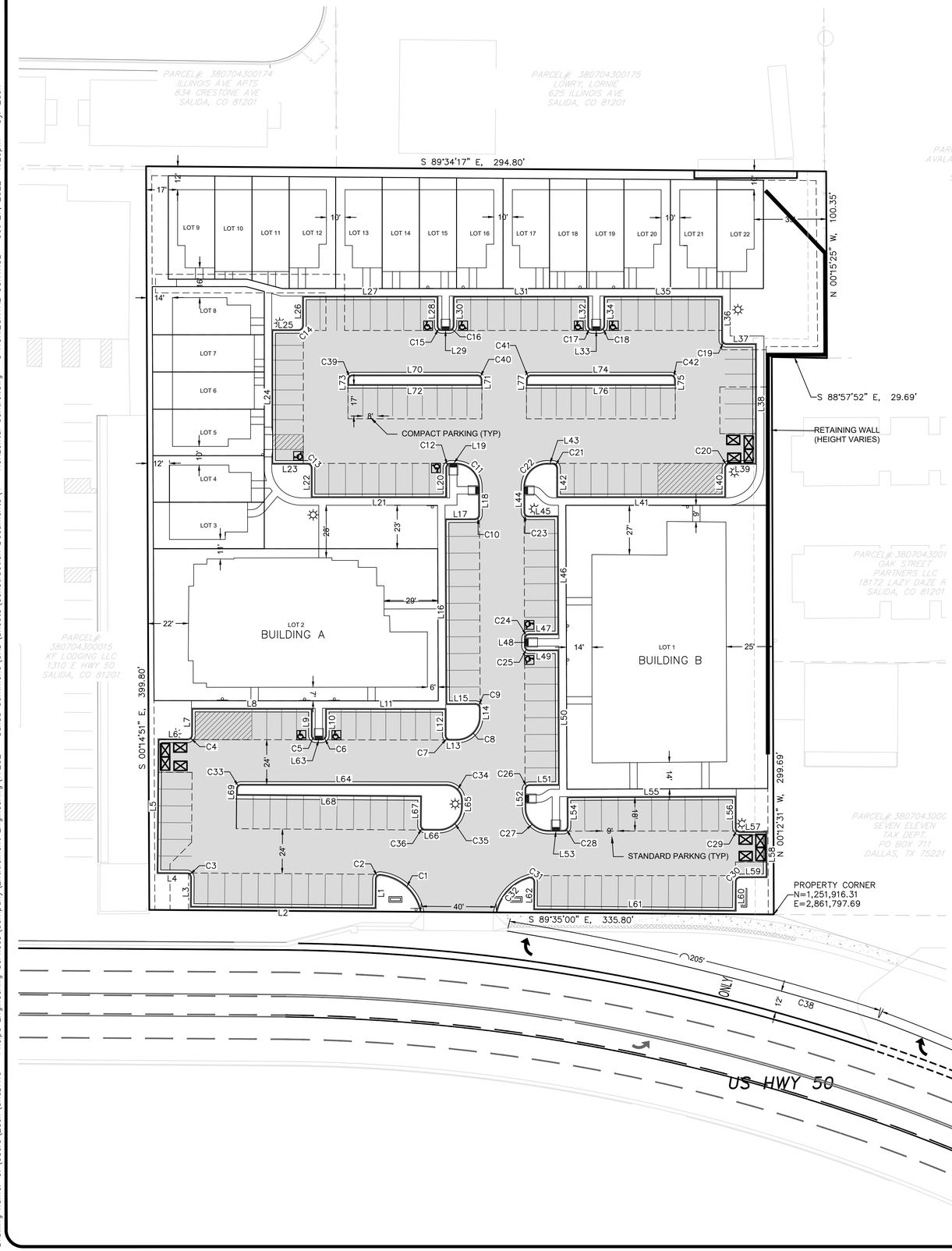
CONSTRUCTION DOCUMENTS
SITE PLAN

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE
10/27/2022

PROJECT NO.
17202

COLORADO 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.



SCALE: 1"=30' HORIZ.
* NOT TO SCALE IF SHEET SIZE OTHER THAN 24"x36"

Line Table		
Line #	Length	Direction
L1	15.376	S00° 25' 04.98"W
L2	99.000	N89° 34' 55.02"W
L3	15.500	N00° 25' 04.98"E
L4	15.500	N89° 34' 55.02"W
L5	71.528	N00° 25' 04.98"E
L6	15.500	S89° 55' 42.55"E
L7	14.000	N00° 04' 17.45"E
L8	64.000	S89° 55' 42.55"E
L9	14.000	S00° 04' 17.45"W
L10	14.000	N00° 04' 17.45"E
L11	64.000	S89° 55' 42.55"E
L12	14.001	S00° 04' 17.45"W
L13	3.741	S89° 55' 42.55"E
L14	4.527	N00° 12' 31.17"W
L15	15.500	S89° 47' 28.83"W
L16	99.000	N00° 12' 31.17"W
L17	15.489	N89° 47' 28.83"E
L18	15.224	N00° 12' 31.17"W
L19	3.487	N89° 49' 35.91"W
L20	15.500	S00° 00' 00.00"E

Line Table		
Line #	Length	Direction
L21	72.000	N90° 00' 00.00"W
L22	15.500	N00° 00' 00.00"E
L23	18.665	N90° 00' 00.00"W
L24	71.500	N00° 00' 00.00"E
L25	14.000	N90° 00' 00.00"E
L26	15.500	N00° 00' 00.00"E
L27	72.000	N90° 00' 00.00"E
L28	15.500	S00° 00' 00.00"E
L29	4.000	N90° 00' 00.00"E
L30	15.634	N00° 00' 00.00"E
L31	72.000	N90° 00' 00.00"E
L32	15.500	S00° 00' 00.00"E
L33	4.000	N90° 00' 00.00"E
L34	15.500	N00° 00' 00.00"E
L35	63.000	N90° 00' 00.00"E
L36	23.000	S00° 00' 00.00"E
L37	15.659	N90° 00' 00.00"E
L38	64.000	S00° 00' 00.00"E
L39	14.000	N90° 00' 00.00"W
L40	15.500	S00° 00' 00.00"E

Line Table		
Line #	Length	Direction
L41	90.000	N90° 00' 00.00"W
L42	15.500	N00° 00' 00.00"E
L43	3.020	N90° 00' 00.00"W
L44	13.695	S00° 12' 31.17"E
L45	15.500	N89° 47' 28.83"E
L46	63.000	S00° 12' 31.17"E
L47	15.516	S89° 47' 29.61"W
L48	5.000	S00° 22' 12.46"W
L49	15.500	N89° 47' 28.83"E
L50	72.000	S00° 12' 31.17"E
L51	15.500	S89° 43' 26.52"W
L52	10.014	S00° 12' 31.17"E
L53	8.011	N89° 47' 28.83"E
L54	15.500	N00° 12' 31.17"W
L55	90.000	N89° 47' 28.83"E
L56	16.350	S00° 12' 37.41"E
L57	13.989	N89° 47' 28.83"E
L58	24.000	S00° 13' 02.36"E
L59	14.031	S89° 47' 28.83"W
L60	15.527	S00° 25' 04.98"W

Line Table		
Line #	Length	Direction
L61	108.000	N89° 34' 55.02"W
L62	14.558	N00° 25' 04.98"E
L63	3.000	S89° 55' 42.55"E
L64	110.328	S89° 55' 42.55"E
L65	3.594	S00° 24' 10.40"W
L66	7.077	N89° 33' 54.41"W
L67	15.500	N00° 25' 04.98"E
L68	99.000	N89° 34' 55.02"W
L69	3.296	N00° 25' 04.98"E
L70	67.000	N90° 00' 00.00"E
L71	3.000	S00° 00' 00.00"E
L72	72.000	N90° 00' 00.00"W
L73	3.000	N00° 00' 00.00"E
L74	75.000	N90° 00' 00.00"E
L75	3.000	S00° 00' 00.00"E
L76	80.000	N90° 00' 00.00"W
L77	3.000	N00° 00' 00.00"E

Curve Table			
Curve #	Length	Radius	Delta
C1	31.614	25.010	072.4268
C2	4.190	2.500	096.0185
C3	3.927	2.500	090.0000
C4	3.927	2.500	090.0000
C5	3.927	2.500	090.0000
C6	3.927	2.500	090.0000
C7	3.926	2.500	089.9857
C8	19.696	12.500	090.2802
C9	3.927	2.500	090.0000
C10	3.930	2.519	089.3968
C11	19.076	12.500	087.4373
C12	3.927	2.500	090.0000
C13	3.927	2.500	090.0000
C14	3.927	2.500	090.0000
C15	3.927	2.500	090.0000
C16	3.794	2.507	086.7262
C17	3.927	2.500	090.0000
C18	3.927	2.500	090.0000
C19	3.927	2.500	090.0000
C20	3.927	2.500	090.0000

Curve Table			
Curve #	Length	Radius	Delta
C21	3.583	6.360	032.2753
C22	19.677	12.500	090.1920
C23	3.927	2.500	090.0000
C24	3.407	2.500	078.0862
C25	3.446	2.614	075.5093
C26	3.925	2.504	089.8052
C27	19.635	12.500	090.0000
C28	3.927	2.500	090.0000
C29	4.064	2.505	092.9397
C30	3.900	2.500	089.3733
C31	4.896	2.512	111.6722
C33	3.912	2.500	089.6535
C34	13.403	8.500	090.3465
C35	19.791	12.512	090.6333
C36	3.927	2.500	090.0000
C39	3.927	2.500	090.0000
C40	3.927	2.500	090.0000
C41	3.927	2.500	090.0000
C42	3.927	2.500	090.0000

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)536-1644 info@phelpsengineering.net phelpsengineering.net

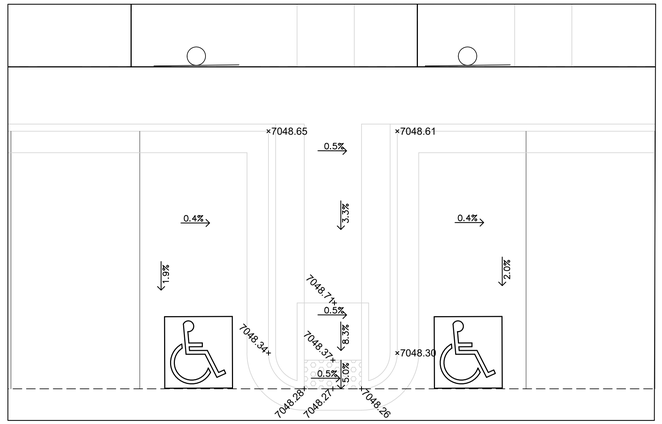
SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS
HORIZONTAL CONTROL

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE
10/27/2022

PROJECT NO.
17202



DETAIL RAMP A
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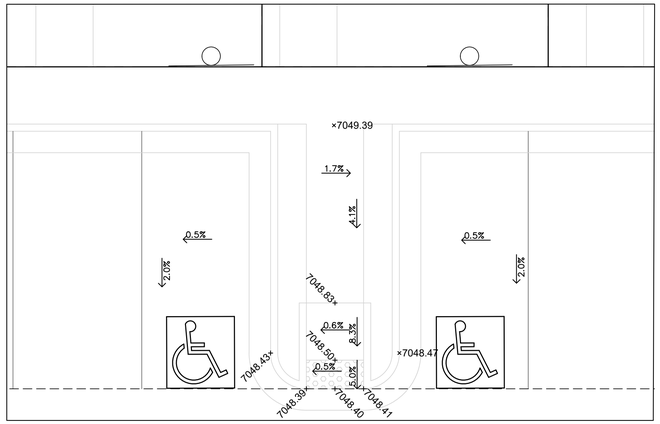
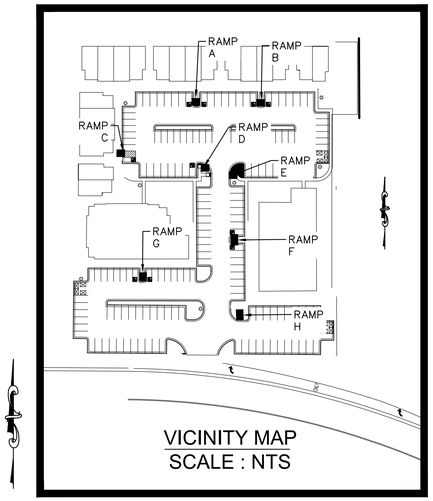
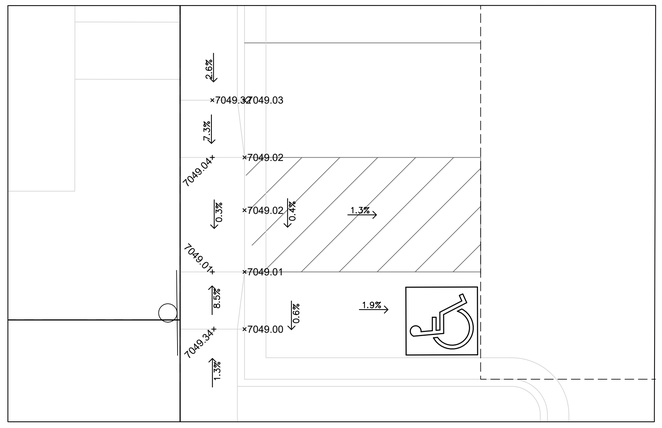


DETAIL RAMP B
SCALE : 1"=5'



VICINITY MAP
SCALE : NTS



DETAIL RAMP C
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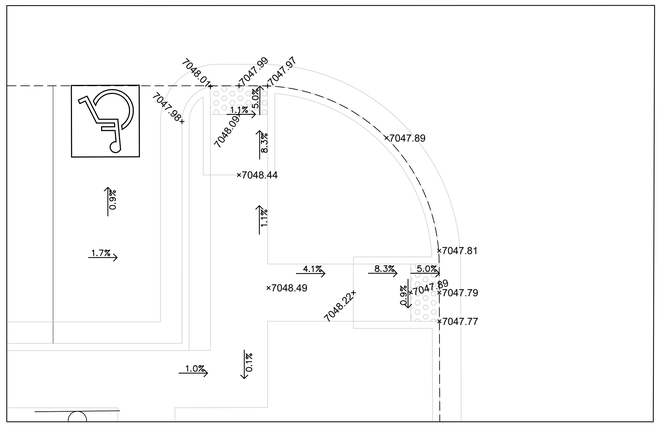

DETAIL RAMP D
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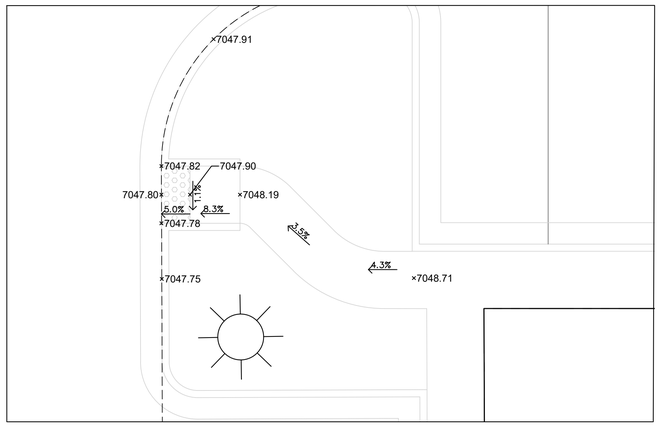

DETAIL RAMP E
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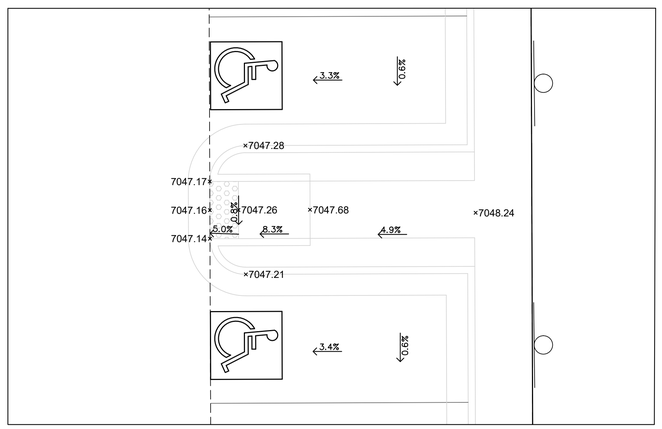

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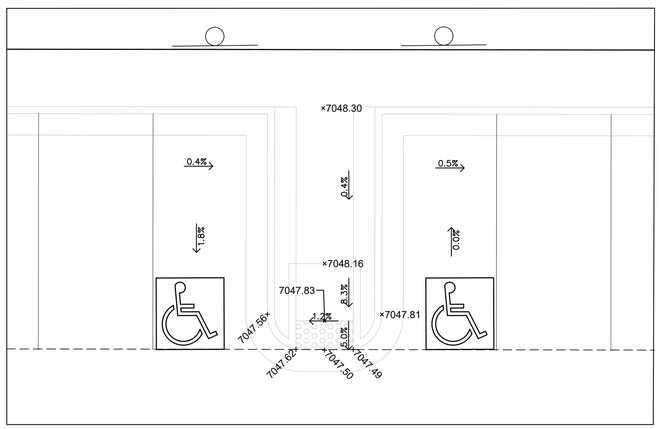

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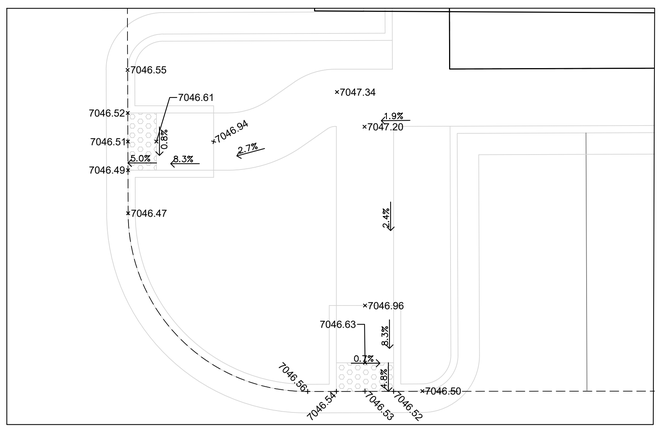


DETAIL RAMP H
SCALE : 1"=5'

COLORADO 811
KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)736-1644 info@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS

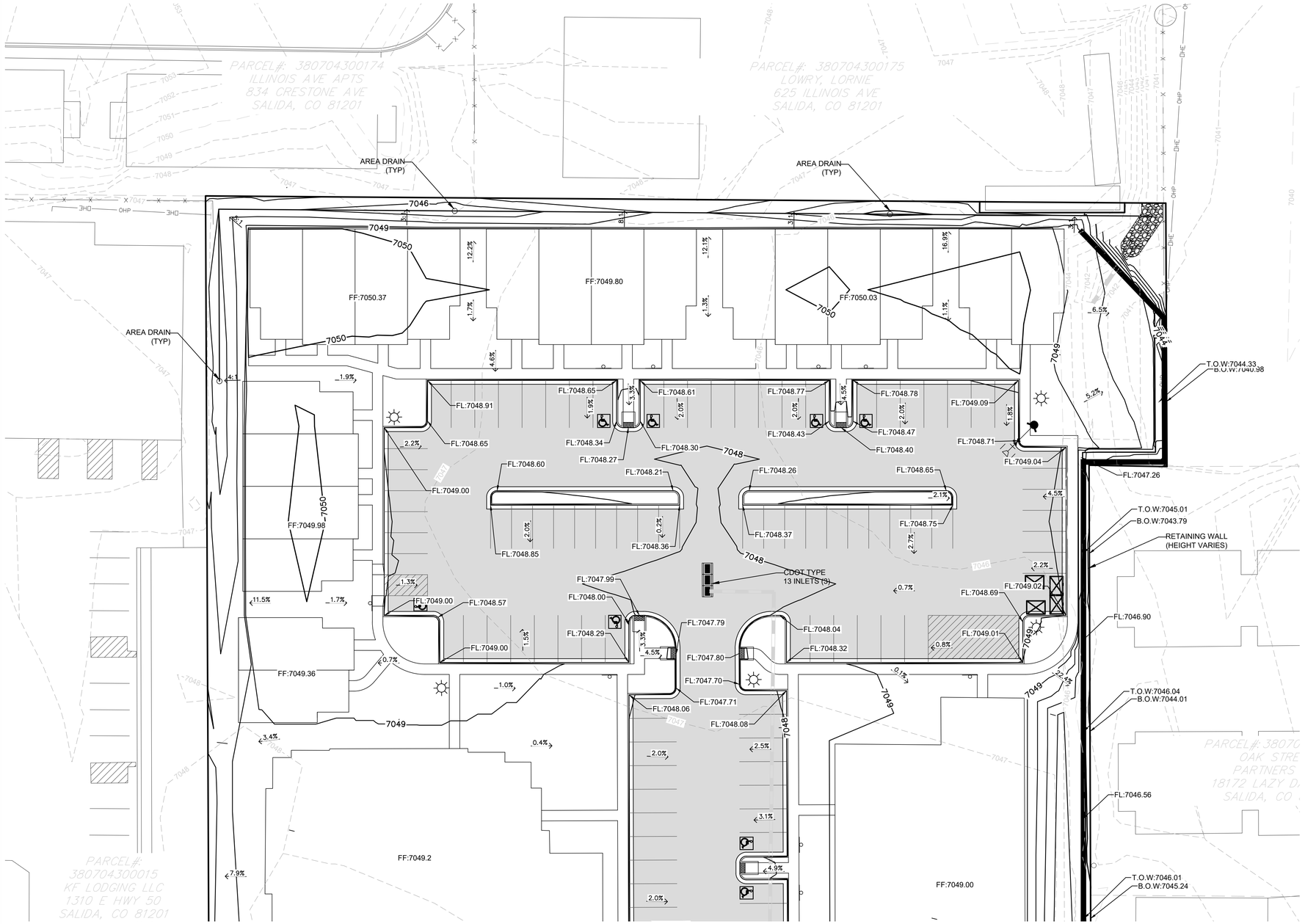
RAMP DETAIL PLAN

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE
10/27/2022

PROJECT NO.
17202

Drawing name: C:\Users\Zach\OneDrive - Phelps Engineering Services\Company\Entitlement Engineering\17202 - Salida Commons\CAD\Sheets\Construction Documents\RAMP DETAILS.dwg 6 RAMP DETAIL PLAN Oct 27, 2022 1:30pm by: Zach



SEE SHEET 8

LEGEND:

- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED STORM SEWER W/INLET AND FES
- PROPOSED WATER LINE W/FIRE HYDRANT
- FUTURE WATER LINE W/FIRE HYDRANT
- PROPOSED SANITARY SEWER W/MANHOLE
- FUTURE SANITARY SEWER W/MANHOLE
- DRAINAGE FLOWLINE
- PROPOSED BOUNDARY LINE
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- PROPOSED CURB & GUTTER
- EXISTING TRASH ENCLOSURE
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- EXISTING UNDERGROUND GAS LINES
- EXISTING UNDERGROUND SANITARY SEWER LINES
- EXISTING OVERHEAD UTILITY LINES
- EXISTING FENCE

1 inch = 20 ft. Horizontal

Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
Volume FG vs EG	**1.000**	1.080	147967.62 Sq. Ft.	728.40 Cu. Yd.	7924.95 Cu. Yd.	7196.55 Cu. Yd.<Fill>
Totals			147967.62 Sq. Ft.	728.40 Cu. Yd.	7924.95 Cu. Yd.	7196.55 Cu. Yd.<Fill>

COLORADO 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)258-1644 info@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS

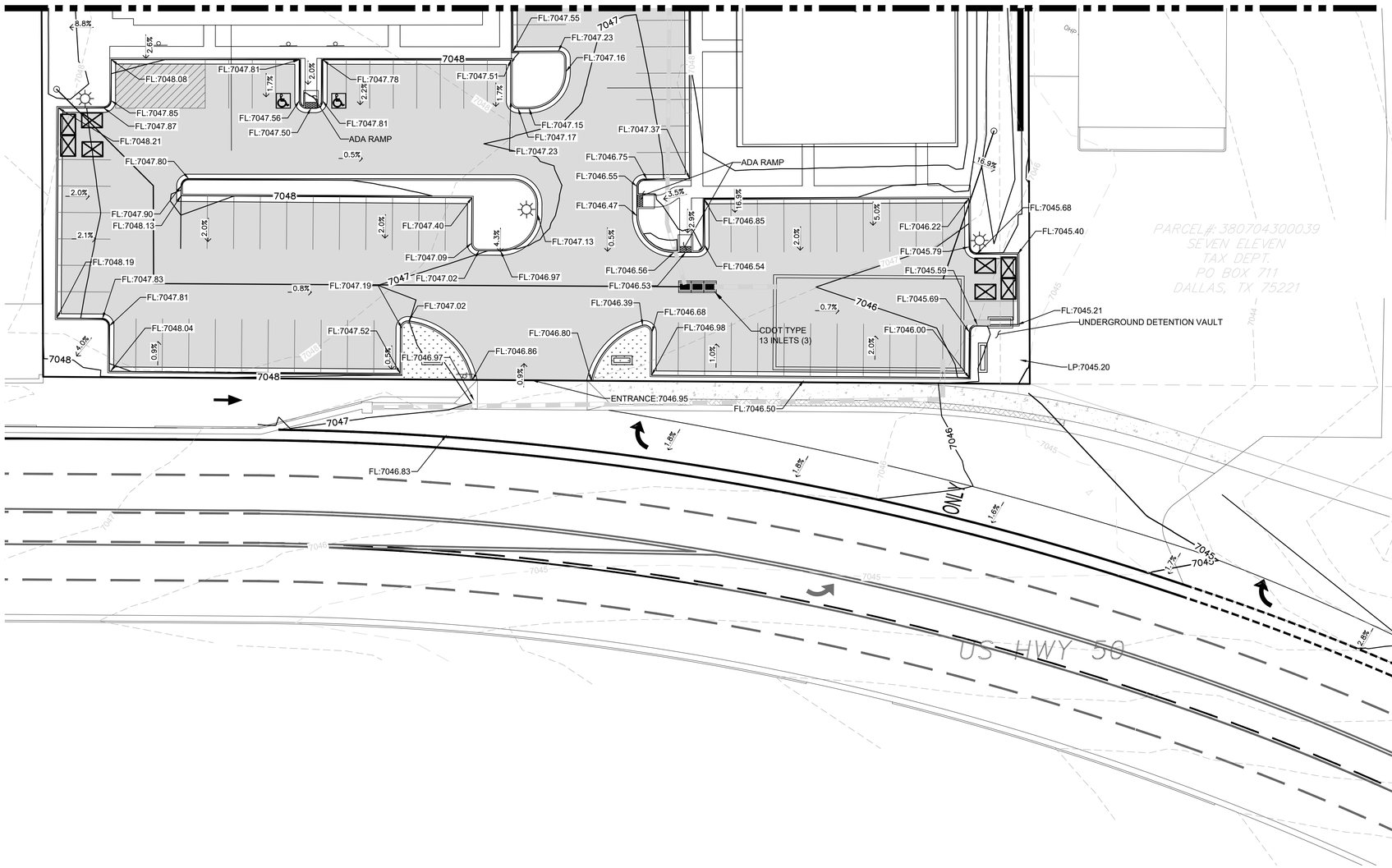
GRADING PLAN

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE 10/27/2022
PROJECT NO. 17202

Drawing name: C:\Users\Zach\OneDrive - Phelps Engineering Services\Company\Entitlement Engineering\17202 - Salida Commons\CAD\Sheets\Construction Documents\7 - Grading Plan.dwg GRADING PLAN Oct 27, 2022 1:30pm by: Zach

SEE SHEET 7



Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
Volume FG vs EG	**1.000**	1.080	147967.62 Sq. Ft.	728.40 Cu. Yd.	7924.95 Cu. Yd.	7196.55 Cu. Yd.<Fill>
Totals			147967.62 Sq. Ft.	728.40 Cu. Yd.	7924.95 Cu. Yd.	7196.55 Cu. Yd.<Fill>

LEGEND:

- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED STORM SEWER W/INLET AND FES
- PROPOSED WATER LINE W/FIRE HYDRANT
- FUTURE WATER LINE W/FIRE HYDRANT
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- EXISTING LIGHT POLE
- EXISTING STORM SEWER MANHOLE
- EXISTING INLET
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING UTILITY POLE
- WAT — EXISTING UNDERGROUND WATER LINES
- GAS — EXISTING UNDERGROUND GAS LINES
- SAN — EXISTING UNDERGROUND SANITARY SEWER LINES
- OHP — EXISTING OVERHEAD UTILITY LINES
- X — EXISTING FENCE

0 10 20 40

1 inch = 20 ft. Horizontal

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
35222 South Emerson St, Englewood, CO 80113
(303)258-1644 info@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS
GRADING PLAN

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE
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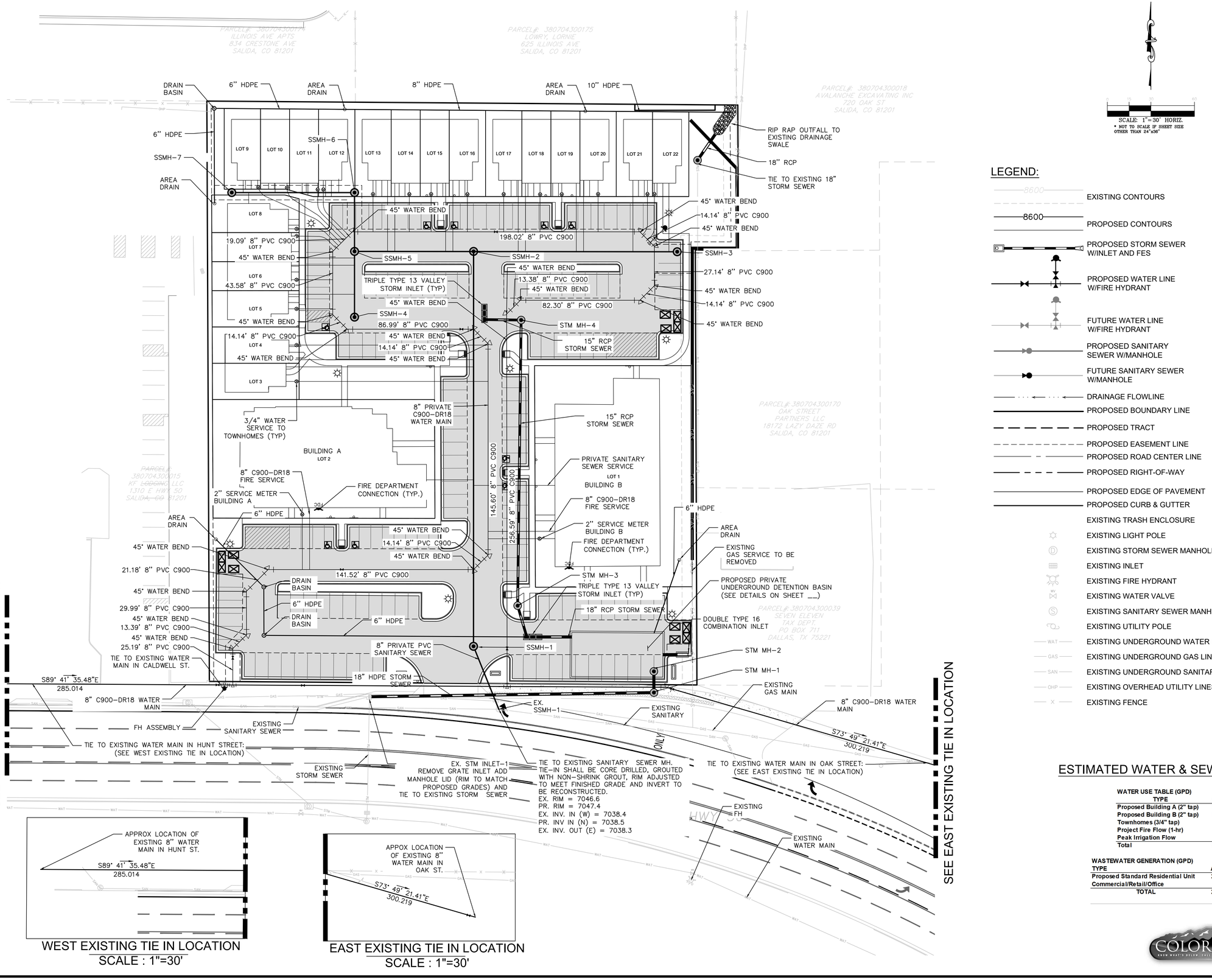
PROJECT NO.
17202

COLORADO 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.



WEST EXISTING TIE IN LOCATION
SCALE : 1"=30'

EAST EXISTING TIE IN LOCATION
SCALE : 1"=30'

SCALE: 1"=30' HORIZ.
* NOT TO SCALE IF SHEET SIZE OTHER THAN 24"x36"

LEGEND:

- EXISTING CONTOURS (8600)
- PROPOSED CONTOURS (8600)
- PROPOSED STORM SEWER W/INLET AND FES
- PROPOSED WATER LINE W/FIRE HYDRANT
- FUTURE WATER LINE W/FIRE HYDRANT
- PROPOSED SANITARY SEWER W/MANHOLE
- FUTURE SANITARY SEWER W/MANHOLE
- DRAINAGE FLOWLINE
- PROPOSED BOUNDARY LINE
- PROPOSED TRACT
- PROPOSED EASEMENT LINE
- PROPOSED ROAD CENTER LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB & GUTTER
- EXISTING TRASH ENCLOSURE
- EXISTING LIGHT POLE
- EXISTING STORM SEWER MANHOLE
- EXISTING INLET
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING UTILITY POLE
- EXISTING UNDERGROUND WATER LINES (WAT)
- EXISTING UNDERGROUND GAS LINES (GAS)
- EXISTING UNDERGROUND SANITARY SEWER LINES (SAN)
- EXISTING OVERHEAD UTILITY LINES (OHP)
- EXISTING FENCE

ESTIMATED WATER & SEWER FLOWS

WATER USE TABLE (GPD)

TYPE	ADD	MDD
Proposed Building A (2" tap)	15,405	46,215
Proposed Building B (2" tap)	15,405	46,215
Townhomes (3/4" tap)	3,600	10,800
Project Fire Flow (1-hr)	60000	60,000
Peak Irrigation Flow	899	2,698
Total	95,309	165,928

WASTEWATER GENERATION (GPD)

TYPE	ADF	PDF
Proposed Standard Residential Unit	20,976	104,880
Commercial/Retail/Office	144	720
TOTAL	21,120	105,600

COLORADO 811 — KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)238-1044 mike@phelpsengineering.net phelpsengineering.net

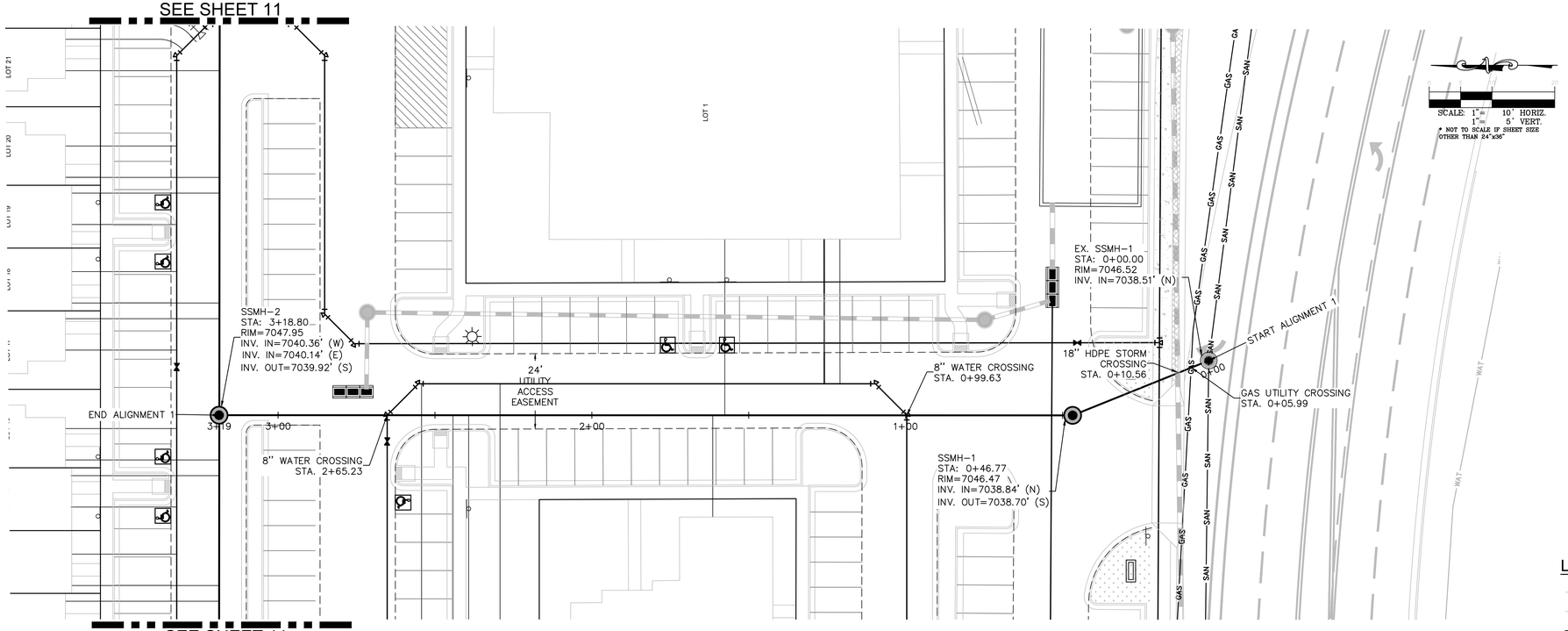
SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

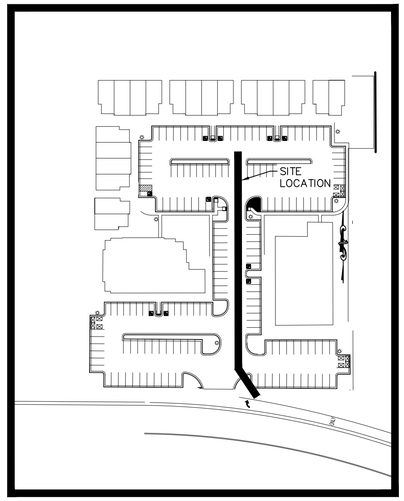
CONSTRUCTION DOCUMENTS
OVERALL UTILITY PLAN

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

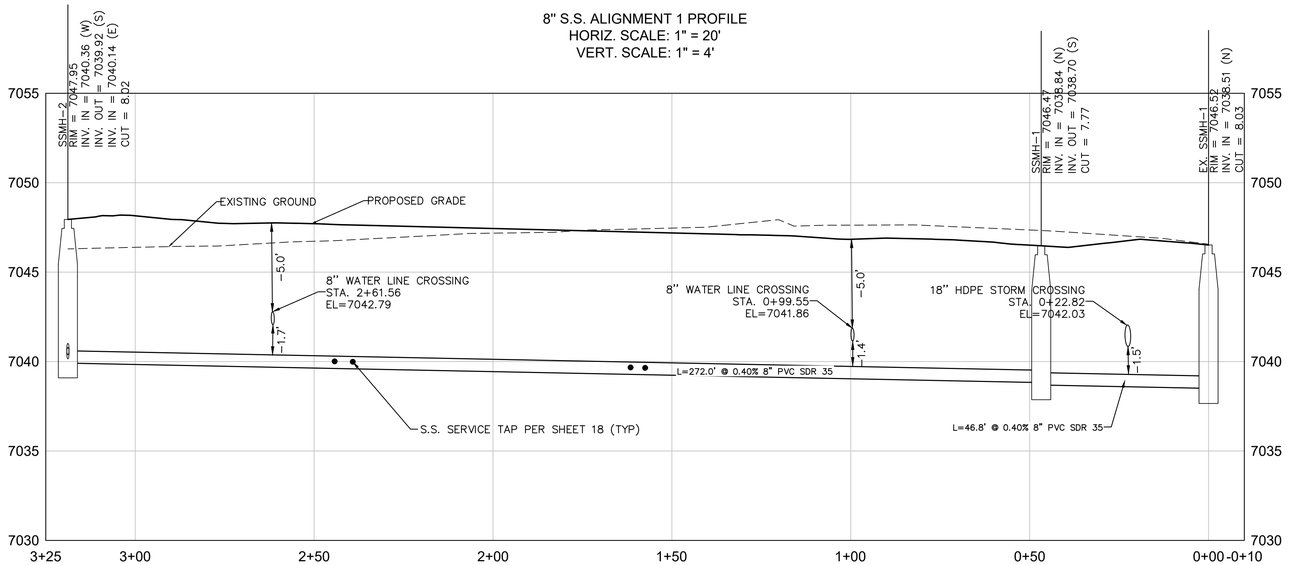
DATE 10/27/2022
PROJECT NO. 17202

Drawing name: C:\Users\Zach\OneDrive - Phelps Engineering Services\Company\Entitlement Engineering\17202 - Salida Commons\CAD\Sheets\Construction Documents\9 - Overall Utility Plan.dwg OVERALL UTILITY PLAN Oct 27, 2022 1:30pm by: Zach





VICINITY MAP
SCALE : NTS



LEGEND:

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- EXISTING FENCE

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No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)536-1644 info@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

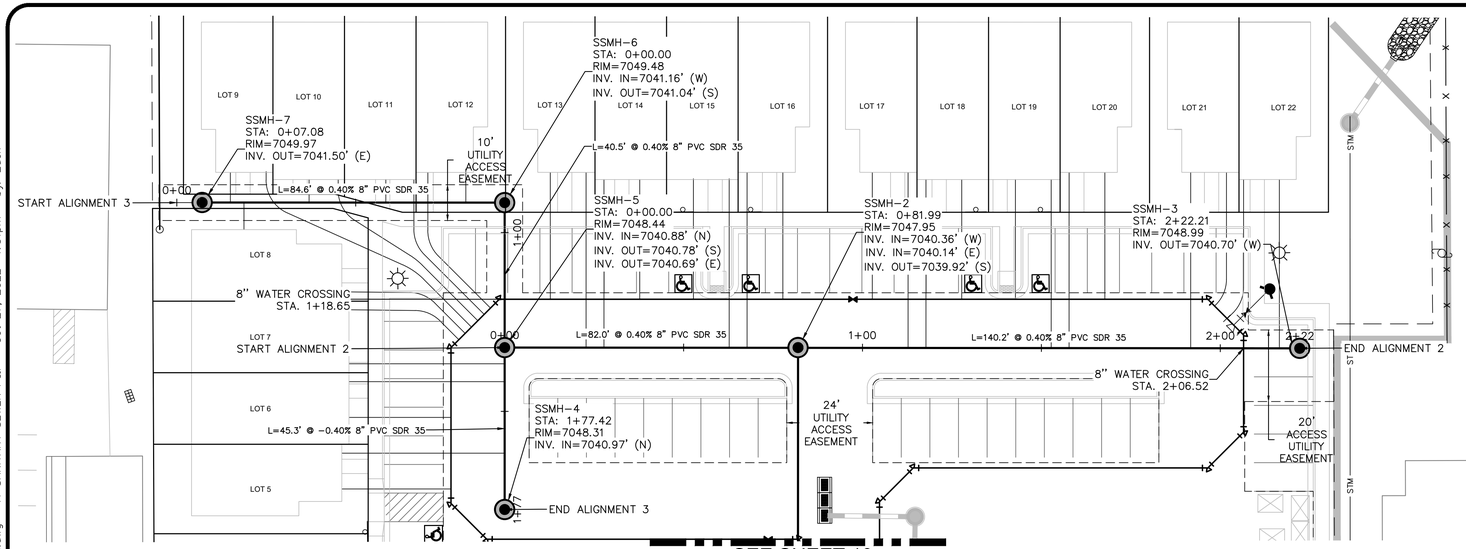
CONSTRUCTION DOCUMENTS
SANITARY SEWER P&P

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

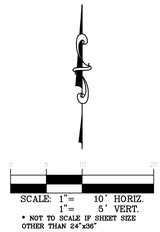
DATE
10/27/2022

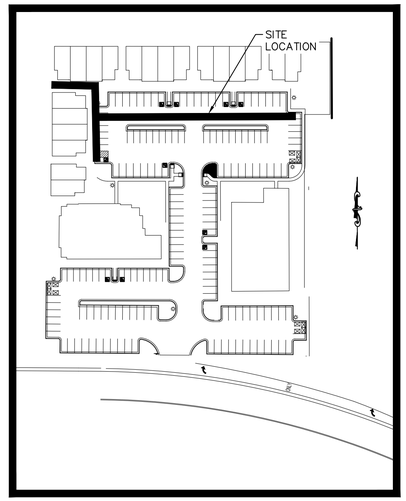
PROJECT NO.
17202

Drawing name: C:\Users\Zach\OneDrive - Phelps Engineering Services\Company\Entitlement Engineering\17202 - Salida Commons\CAD\Sheets\Construction Documents\sanitary plan and profile.dwg 10 SANITARY SEWER P&P Oct 27, 2022 1:31pm by: Zach



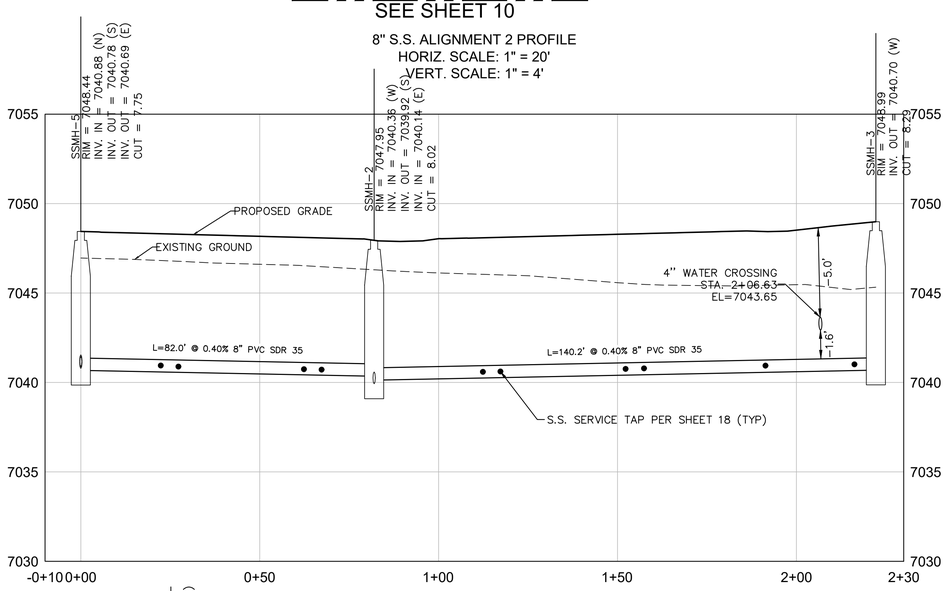
SEE SHEET 10



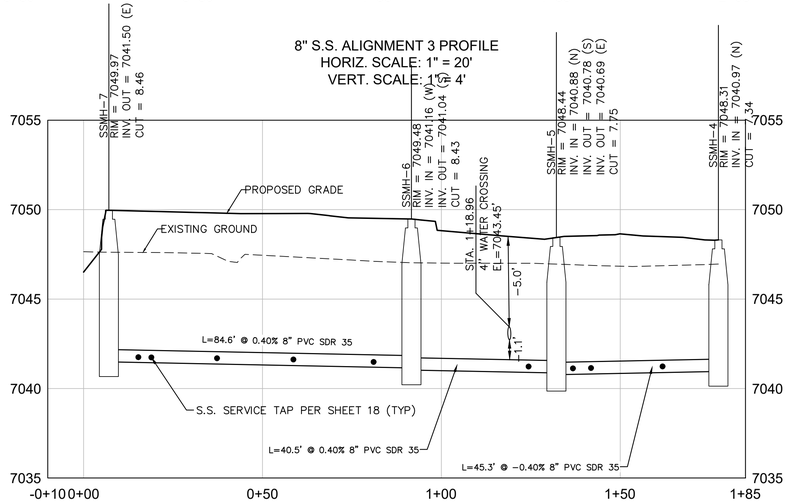


VICINITY MAP
SCALE : NTS

8" S.S. ALIGNMENT 2 PROFILE
HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 4'



8" S.S. ALIGNMENT 3 PROFILE
HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 4'



LEGEND:

- EXISTING CONTOURS
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- EXISTING OVERHEAD UTILITY LINES
- EXISTING FENCE

COLORADO 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)256-1644 info@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS
SANITARY SEWER P&P

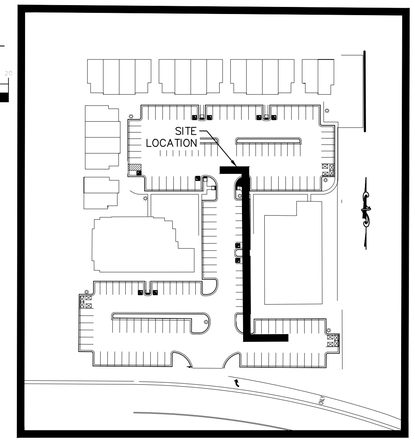
SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE
10/27/2022

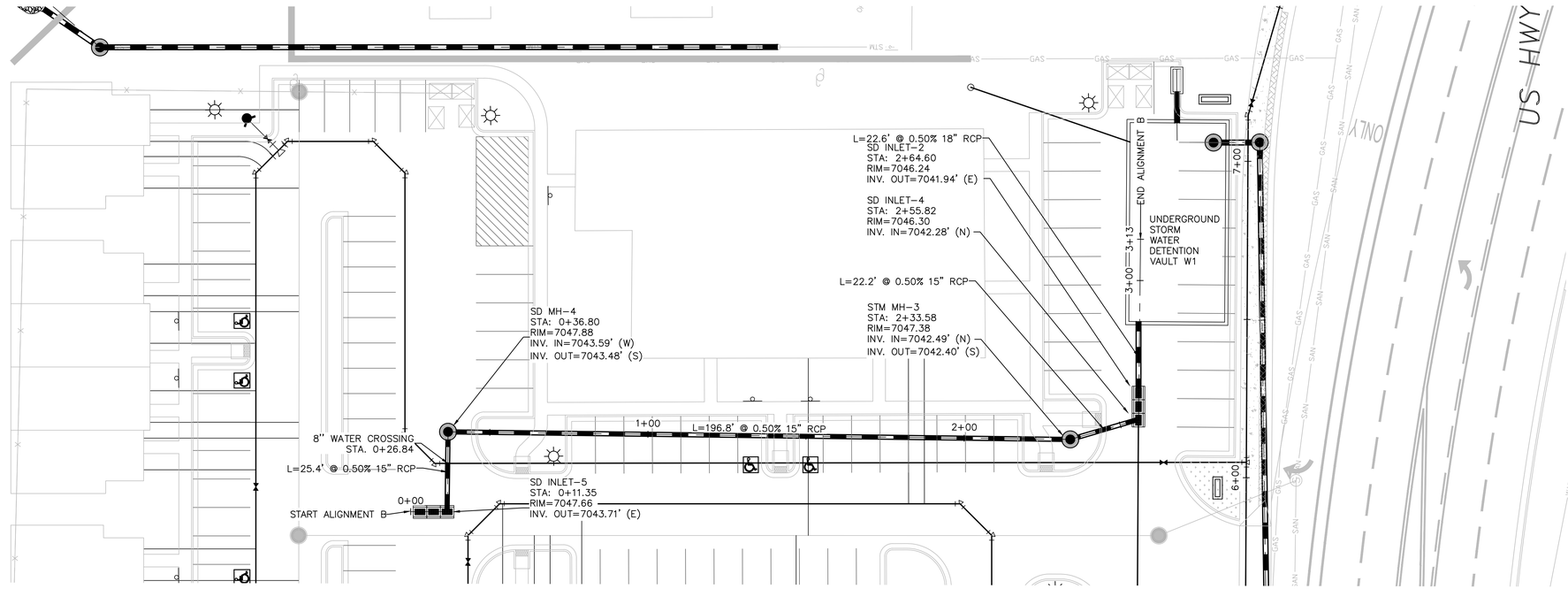
PROJECT NO.
17202

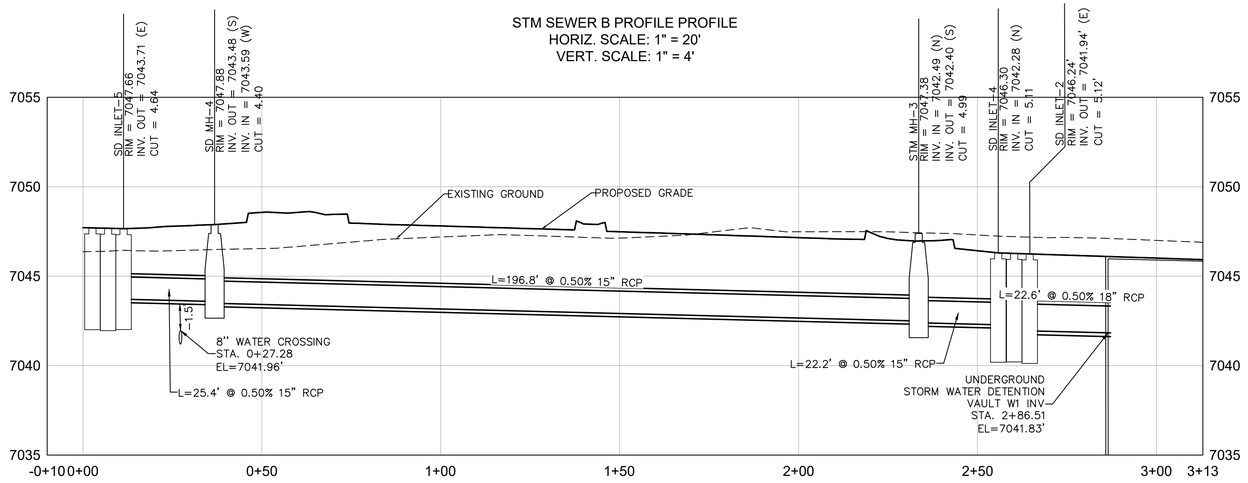
Drawing name: C:\Users\Zach\OneDrive - Phelps Engineering Services\Company\Entitlement Engineering\17202 - Salida Commons\CAD\Sheets\Construction Documents\sanitary plan and profile.dwg 11 SANITARY SEWER P&P Oct 27, 2022 1:31pm by: Zach

SCALE: 1" = 10' HORIZ.
1" = 5' VERTICAL.
* NOT TO SCALE IF SHEET SIZE OTHER THAN 24"x36"



VICINITY MAP
SCALE : NTS





LEGEND:

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- EXISTING OVERHEAD UTILITY LINES (OHP)
- EXISTING FENCE (X)

COLORADO 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303) 258-1644 info@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS

STORM SEWER P&P

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE
10/27/2022

PROJECT NO.
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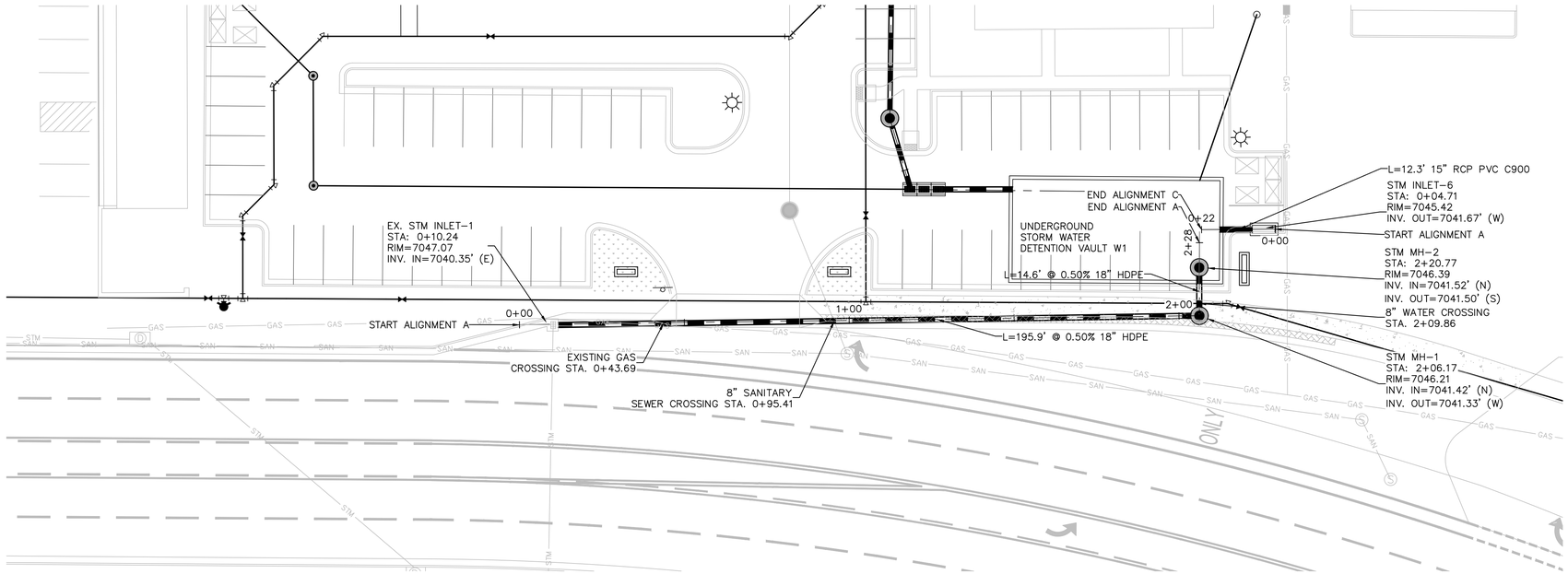
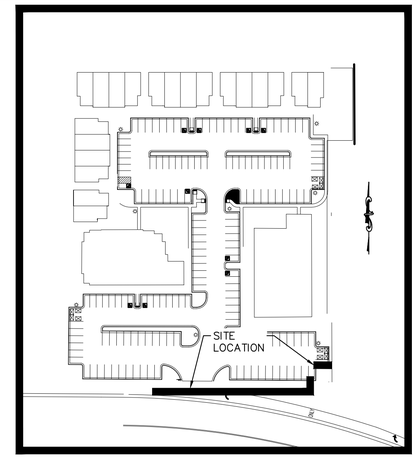
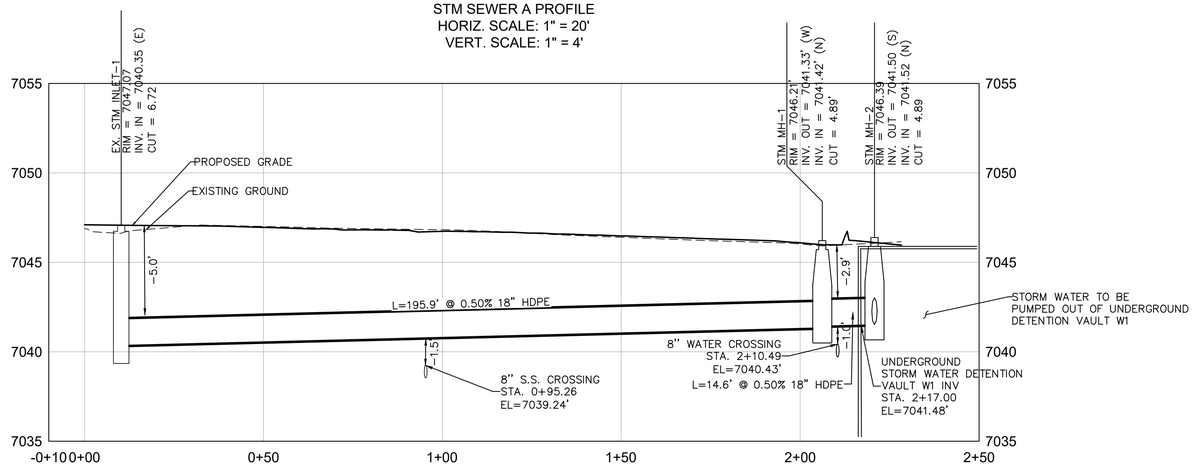


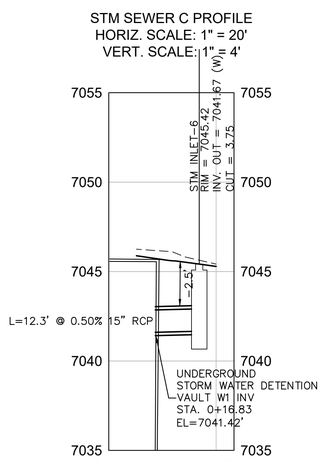


VICINITY MAP
SCALE : NTS

STM SEWER A PROFILE
HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 4'



STM SEWER C PROFILE
HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 4'



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SCALE: 1" = 10' HORIZ.
1" = 5' VERT.
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CONSTRUCTION DOCUMENTS
STORM SEWER P&P

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

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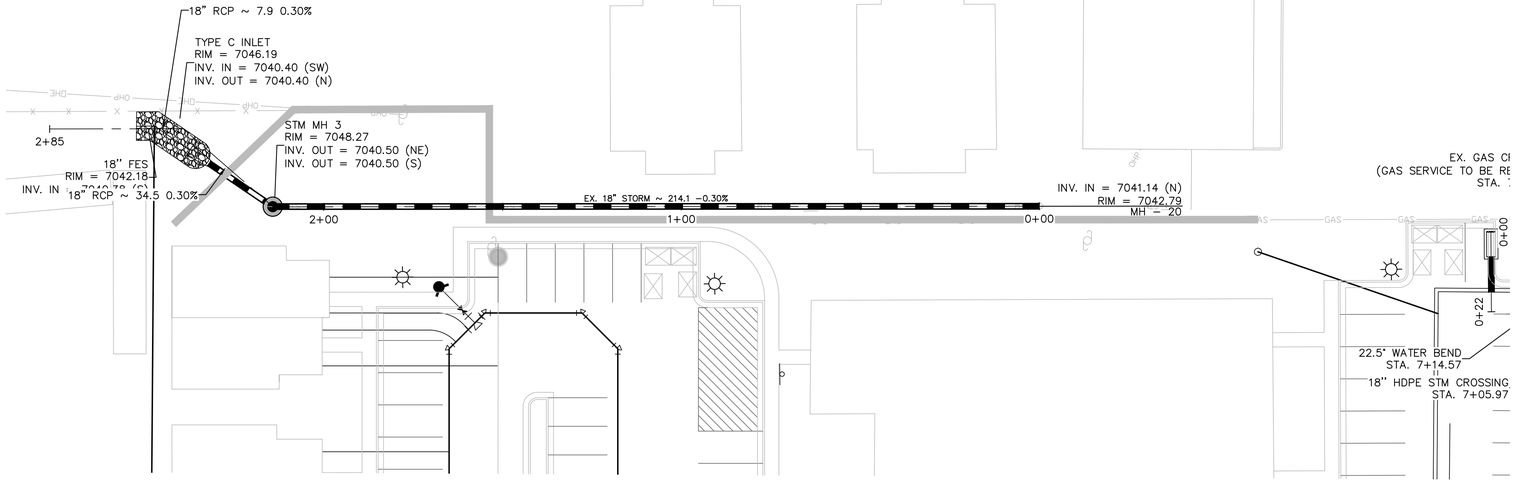

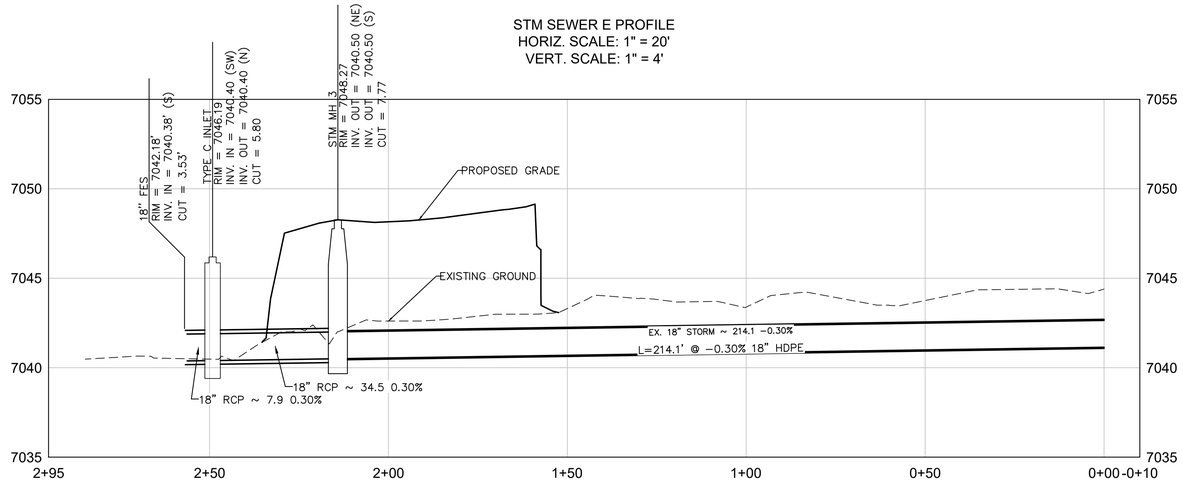

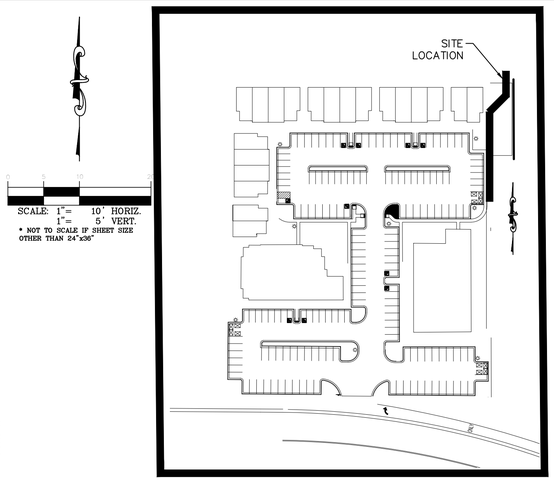

VICINITY MAP
SCALE : NTS

LEGEND:

- EXISTING CONTOURS
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No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303) 536-1644 info@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

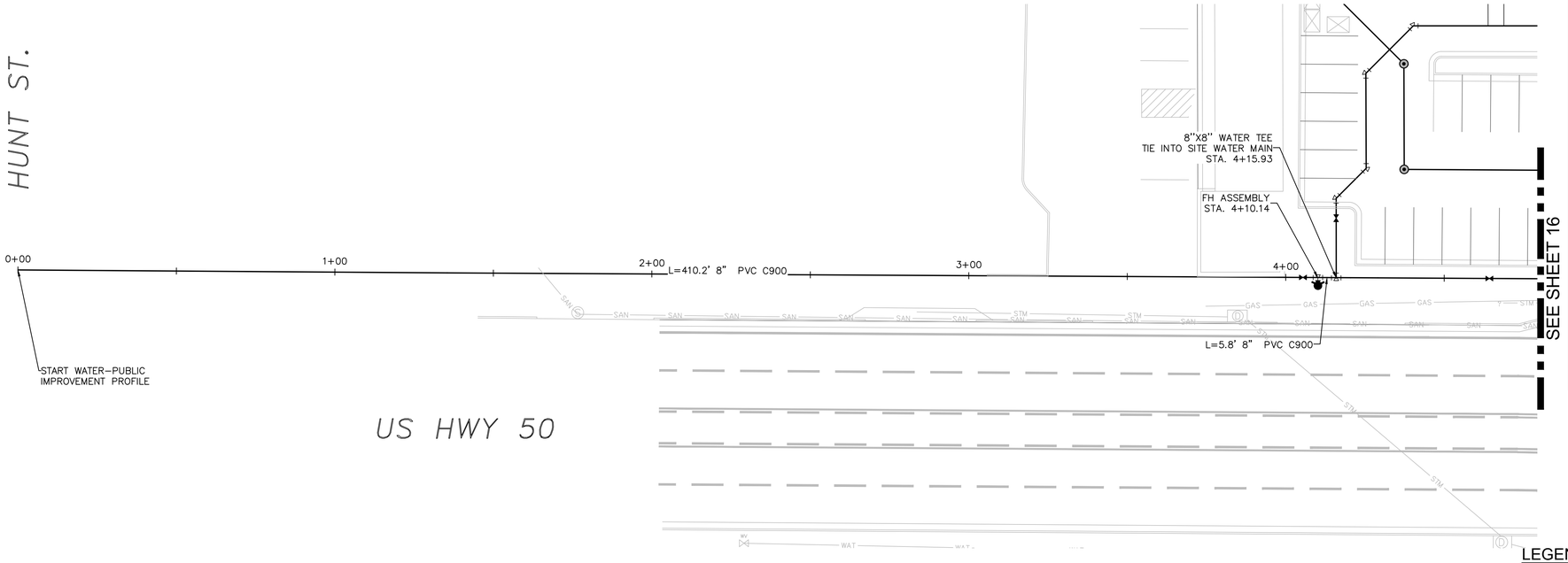
CONSTRUCTION DOCUMENTS
STORM SEWER P&P

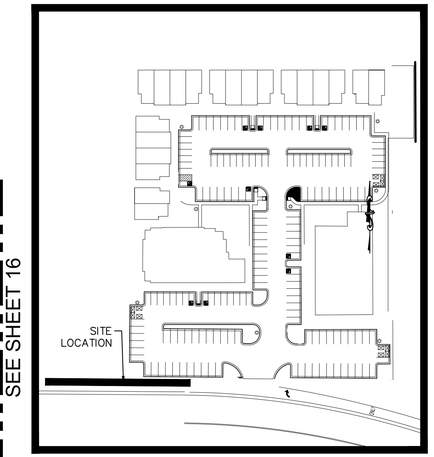
SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE
10/27/2022

PROJECT NO.
17202

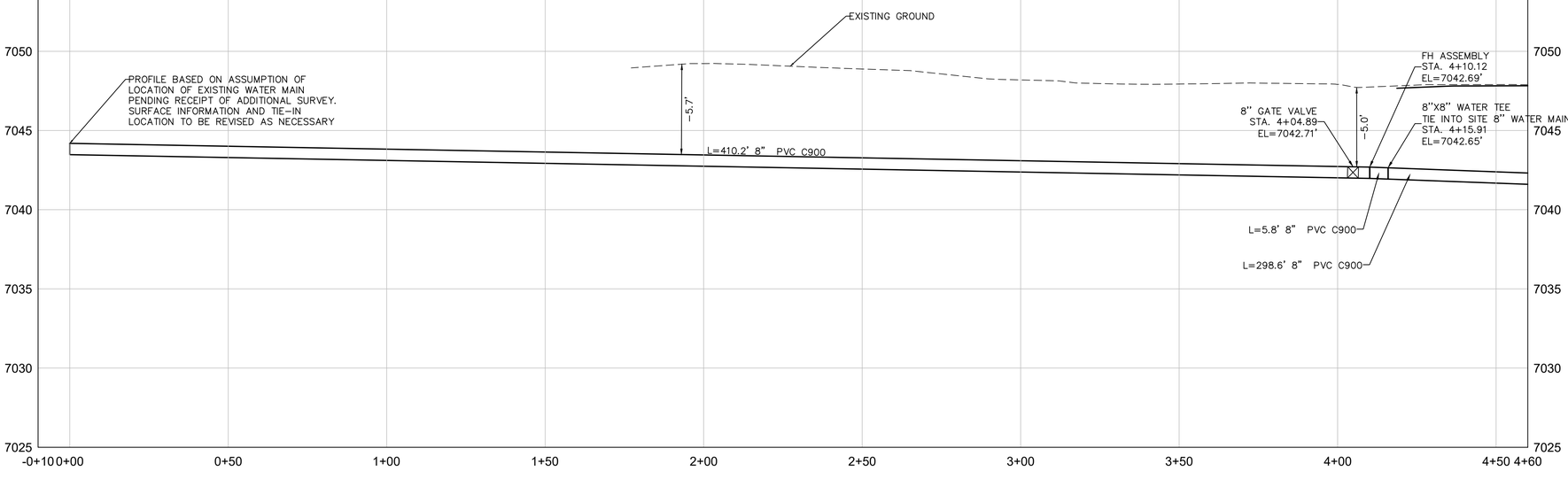
Drawing name: C:\Users\Zach\OneDrive - Phelps Engineering Services\Company\Entitlement Engineering\17202 - Salida Commons\CAD\Sheets\Construction Documents\storm plan and profile.dwg 14 STORM SEWER P&P Oct 27, 2022 1:31pm by: Zach





VICINITY MAP
SCALE : NTS

8" WATER- PUBLIC IMPROVEMENTS PROFILE
HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 4'



LEGEND:

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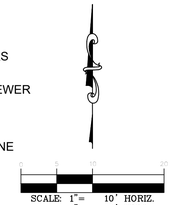

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No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)736-1644 info@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS
WATER PUBLIC IMPROV. P&P

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

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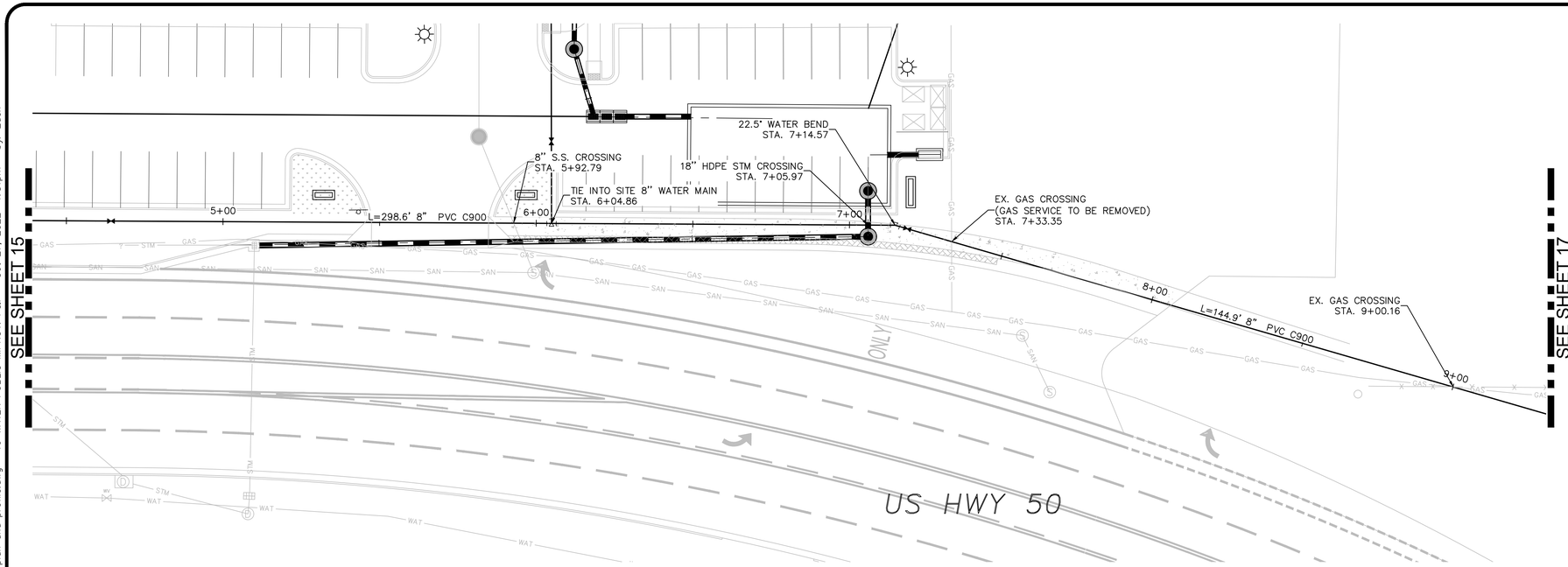
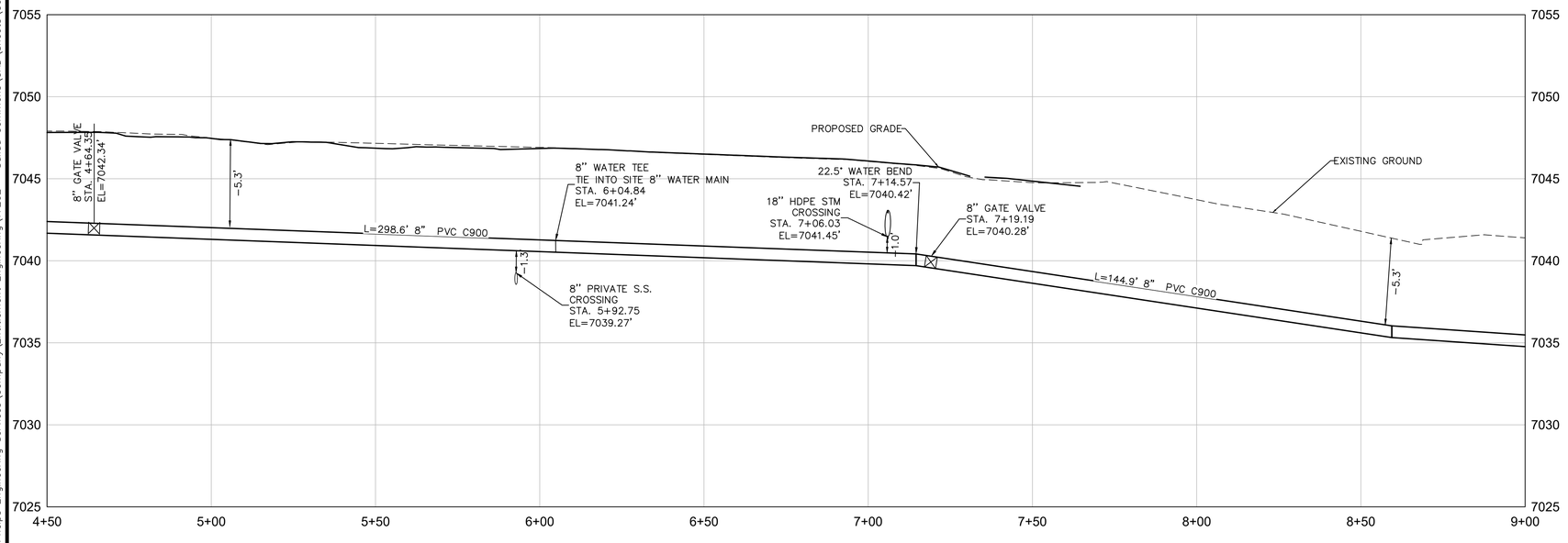
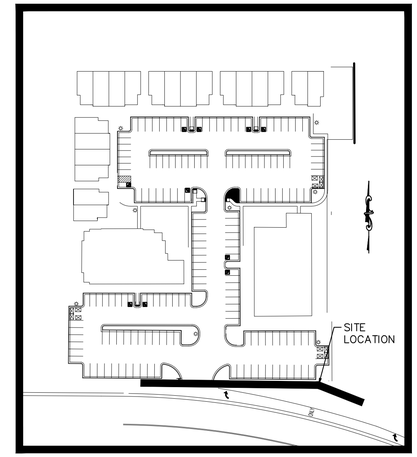


8" WATER- PUBLIC IMPROVEMENTS PROFILE
HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 4'





VICINITY MAP
SCALE : NTS

LEGEND:

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- PROPOSED CONTOURS (8600)
- PROPOSED STORM SEWER W/INLET AND FES
- PROPOSED WATER LINE W/FIRE HYDRANT
- FUTURE WATER LINE W/FIRE HYDRANT
- PROPOSED SANITARY SEWER W/MANHOLE
- FUTURE SANITARY SEWER W/MANHOLE
- DRAINAGE FLOWLINE
- PROPOSED BOUNDARY LINE
- PROPOSED TRACT
- PROPOSED EASEMENT LINE
- PROPOSED ROAD CENTER LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB & GUTTER
- EXISTING TRASH ENCLOSURE
- EXISTING LIGHT POLE
- EXISTING STORM SEWER MANHOLE
- EXISTING INLET
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING UTILITY POLE
- EXISTING UNDERGROUND WATER LINES (WAT)
- EXISTING UNDERGROUND GAS LINES (GAS)
- EXISTING UNDERGROUND SANITARY SEWER LINES (SAN)
- EXISTING OVERHEAD UTILITY LINES (OHP)
- EXISTING FENCE (X)

SCALE: 1"= 10' HORIZ.
1"= 5' VERT.
* NOT TO SCALE IF SHEET SIZE OTHER THAN 24"x36"

COLORADO 811
KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)256-1644 info@phelpsengineering.net phelpsengineering.net

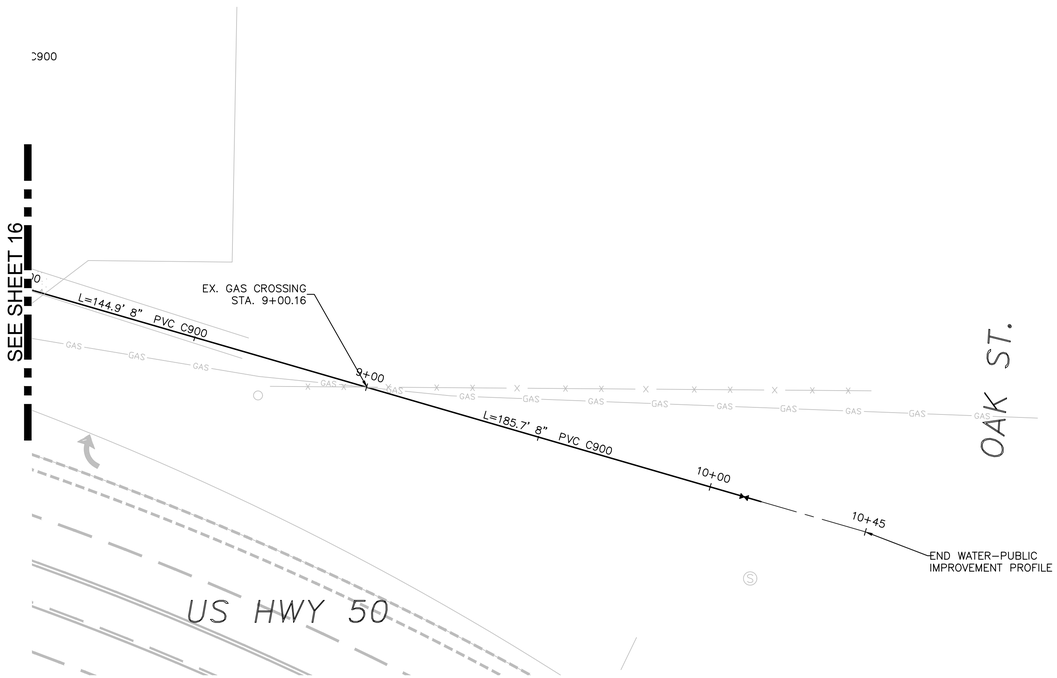
SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS
WATER PUBLIC IMPROV. P&P

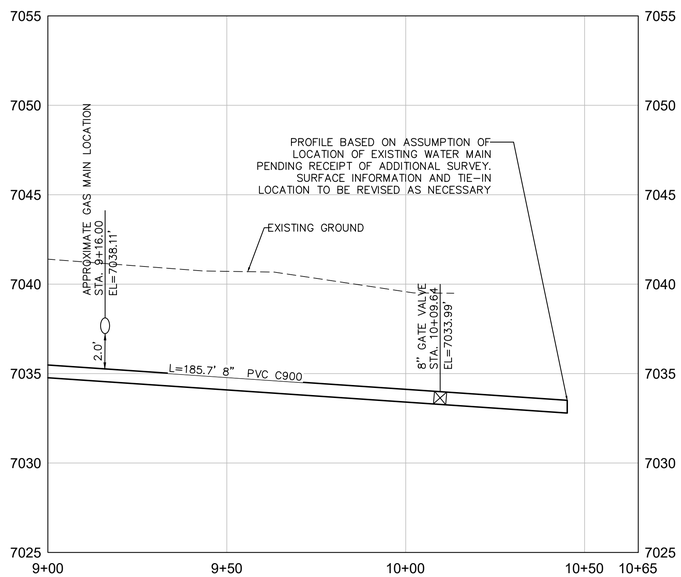
SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

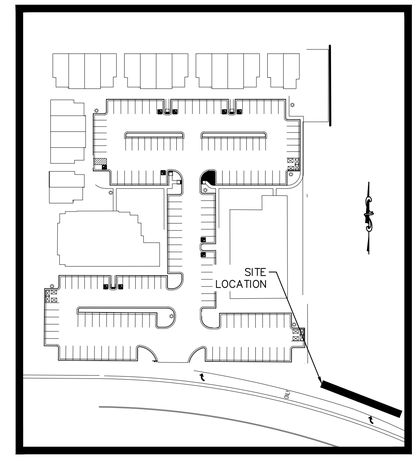
DATE
10/27/2022

PROJECT NO.
17202



8" WATER- PUBLIC IMPROVEMENTS PROFILE
HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 4'





VICINITY MAP
SCALE : NTS

LEGEND:

- EXISTING CONTOURS (8600)
- PROPOSED CONTOURS (8600)
- PROPOSED STORM SEWER W/INLET AND FES
- PROPOSED WATER LINE W/FIRE HYDRANT
- FUTURE WATER LINE W/FIRE HYDRANT
- PROPOSED SANITARY SEWER W/MANHOLE
- FUTURE SANITARY SEWER W/MANHOLE
- DRAINAGE FLOWLINE
- PROPOSED BOUNDARY LINE
- PROPOSED TRACT
- PROPOSED EASEMENT LINE
- PROPOSED ROAD CENTER LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB & GUTTER
- EXISTING TRASH ENCLOSURE
- EXISTING LIGHT POLE
- EXISTING STORM SEWER MANHOLE
- EXISTING INLET
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING UTILITY POLE
- EXISTING UNDERGROUND WATER LINES (WAT)
- EXISTING UNDERGROUND GAS LINES (GAS)
- EXISTING UNDERGROUND SANITARY SEWER LINES (SAN)
- EXISTING OVERHEAD UTILITY LINES (OHP)
- EXISTING FENCE (X)

SCALE: 1"= 10' HORIZ.
1"= 5' VERT.
* NOT TO SCALE IF SHEET SIZE OTHER THAN 24"x36"

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No.	REVISIONS	DATE	BY

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SCALE: SEE SHEET
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WATER PUBLIC IMPROV. P&P

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE
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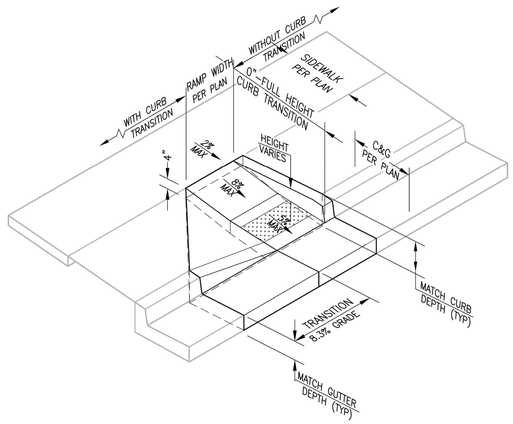
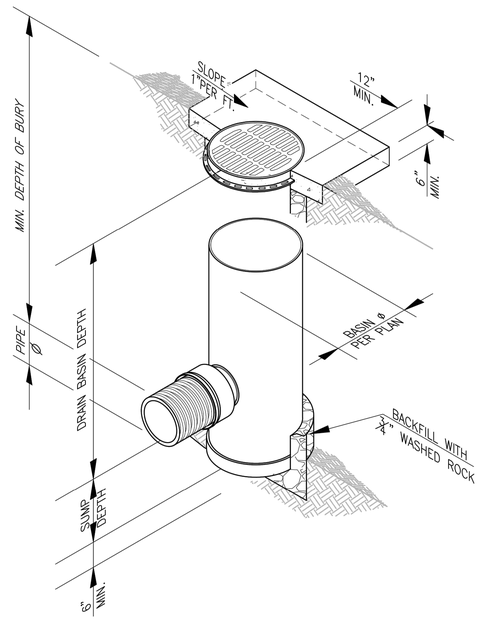


NOTES:

1. TRUNCATED DOMES SHALL BE 24 INCHES WIDE AND EXTEND THE FULL WIDTH OF THE ACCESS RAMP.
2. TRUNCATED DOMES SHALL BED EMBEDDED IN THE FRESH CONCRETE WITH NO AIR SPACE BETWEEN THE CONCRETE AND THE BOTTOM OF THE PLATE.
3. TRUNCATED DOMES SHALL BE CONSTRUCTED OF UNPAINTED CAST IRON CONFORMING TO ASTM A-48 CLASS 30B.

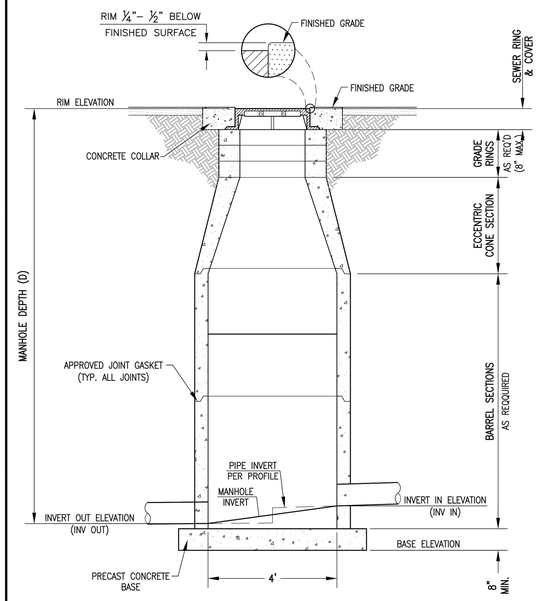
City Of SALIDA

ADA CURB RAMP – TYPE 2		
CITY OF SALIDA 304 W. HWY. 291 SALIDA, CO 81201 PHONE: (719) 539-6257	APPROVED: DATE: FEBRUARY 17 DRAWN BY: TLV	DRAWING ADA02



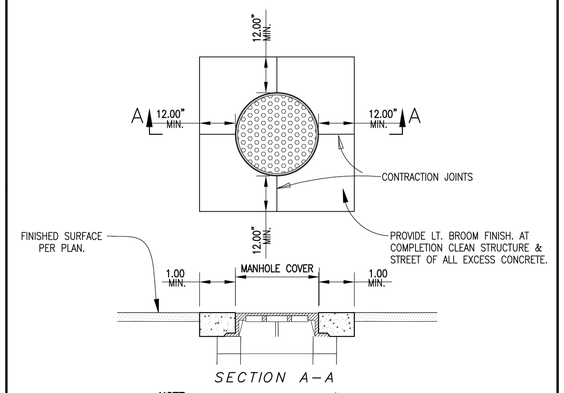
City Of SALIDA

DRAIN BASIN DETAIL		
CITY OF SALIDA 304 W. HWY. 291 SALIDA, CO 81201 PHONE: (719) 539-6257	APPROVED: DATE: FEBRUARY 17 DRAWN BY: TLV	DRAWING DR01



City Of SALIDA

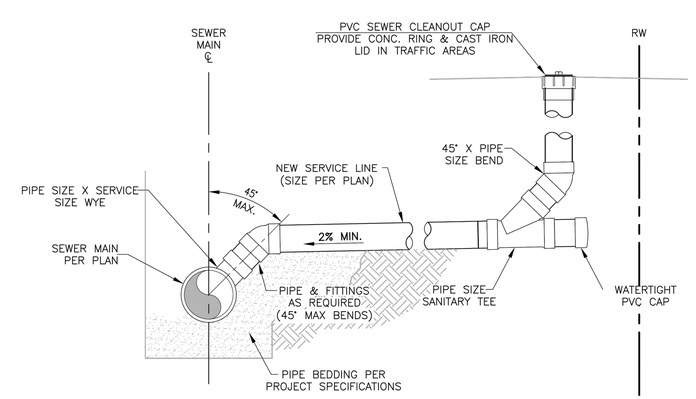
SEWER MANHOLE DETAIL		
CITY OF SALIDA 304 W. HWY. 291 SALIDA, CO 81201 PHONE: (719) 539-6257	APPROVED: DATE: FEBRUARY 17 DRAWN BY: TLV	DRAWING S01



NOTE: CONCRETE TO BE 4000 PSI W/ FIBER MESH REINFORCEMENT

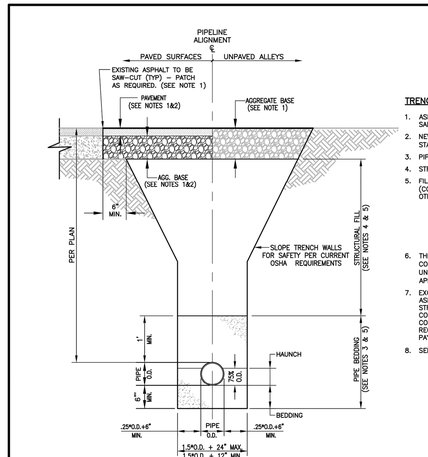
City Of SALIDA

SEWER MANHOLE COLLAR DETAIL		
CITY OF SALIDA 304 W. HWY. 291 SALIDA, CO 81201 PHONE: (719) 539-6257	APPROVED: DATE: FEBRUARY 17 DRAWN BY: TLV	DRAWING S02



City Of SALIDA

SEWER SERVICE TAP DETAIL		
CITY OF SALIDA 304 W. HWY. 291 SALIDA, CO 81201 PHONE: (719) 539-6257	APPROVED: DATE: FEBRUARY 17 DRAWN BY: TLV	DRAWING S03

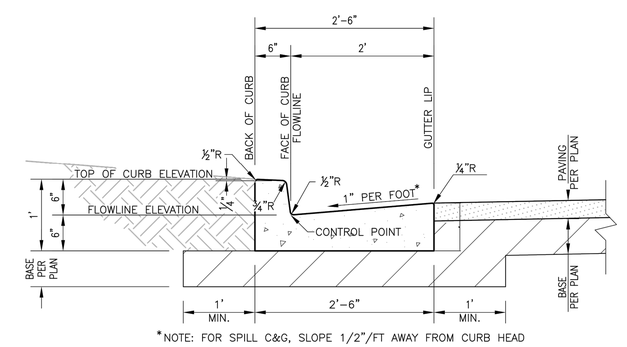


TRENCH SECTION NOTES

1. ASPHALT AND ALLEY PATCHING SHALL COMPLY WITH THE APPROPRIATE CITY OF SALIDA PATCHING STANDARDS.
2. NEW ASPHALT OR ASPHALT OVERLAYS SHALL COMPLY WITH THE PROJECT SPECIFIC STANDARDS PROVIDED IN THE STREET AND/OR ASPHALT PATCHING NOTES.
3. PIPE BEDDING SHALL MEET CDOT CLASS 6 AGGREGATE BASE SPECIFICATIONS.
4. STRUCTURAL FILL SHALL MEET CDOT CLASS 1 AGGREGATE BASE SPECIFICATIONS.
5. FILL AND BEDDING MATERIAL TO BE PLACED IN 8-INCH MAXIMUM LIFTS (COMPACTED DEPTH) TO THE FOLLOWING MINIMUM PERCENTAGES UNLESS NOTED OTHERWISE:
   A. STREETS, PARKING LOTS & ALLEYS: 95% MODIFIED PROCTOR (ASTM D1557)
   B. UTILITY EASEMENTS OUTSIDE THE STREET SECTION: 90% MODIFIED PROCTOR (ASTM 1557).
   C. UNDEVELOPED LAND: 80% MODIFIED PROCTOR (ASTM 1557).
6. THIS DETAIL IS FOR "DRY" TRENCH CONDITIONS. "WET TRENCH CONDITIONS CONTRACTOR SHALL PROVIDE A MINIMUM 4" OF 1.5 INCH MINUS WASHED ROCK UNDER PIPE BEDDING MATERIAL WRAPPED WITH FILTER FABRIC (MIRAFI 140N OR APPROVED EQUAL).
7. EXCAVATED MATERIAL CONTAINING RUBBISH, FROZEN MATERIAL, ORGANIC DEBRIS, ASPHALT, CONCRETE OR OTHER DELETERIOUS MATERIALS NOT SUITABLE FOR STRUCTURAL FILL SHALL BECOME THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF MATERIAL IN A FASHION THAT COMPLIES WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS. THE OWNER MAY REQUIRE DOCUMENTATION OF PROPER DISPOSAL AS A CONDITION OF FINAL PAYMENT.
8. SEE WATER AND/OR SEWER GENERAL NOTES FOR PIPE SPECIFICATIONS.

City Of SALIDA

UTILITY TRENCH		
CITY OF SALIDA 304 W. HWY. 291 SALIDA, CO 81201 PHONE: (719) 539-6257	APPROVED: DATE: FEBRUARY 17 DRAWN BY: TLV	DRAWING UT01



*NOTE: FOR SPILL C&G, SLOPE 1/2"/FT AWAY FROM CURB HEAD

City Of SALIDA

TYPICAL CURB AND GUTTER		
CITY OF SALIDA 304 W. HWY. 291 SALIDA, CO 81201 PHONE: (719) 539-6257	APPROVED: DATE: FEBRUARY 17 DRAWN BY: TLV	DRAWING ST04

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)256-1644 mitch@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

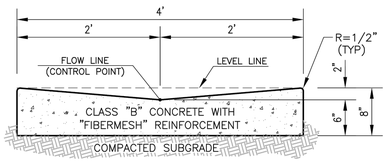
CONSTRUCTION DOCUMENTS
SITE DETAILS - DETAILS 1

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

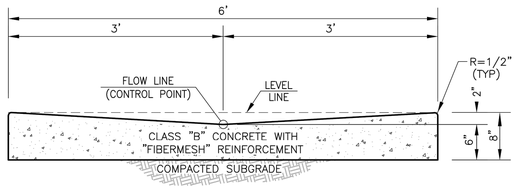
DATE
10/27/2022

PROJECT NO.
17202

COLORADO 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

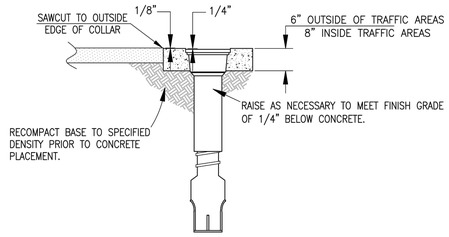


GUTTER PAN

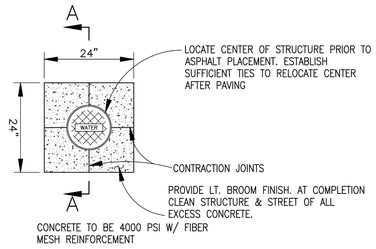


CROSSPAN

City Of SALIDA	CROSSPAN & GUTTER PAN		
CITY OF SALIDA 304 W. HWY. 291 SALIDA, CO 81201 PHONE: (719) 539-6257	APPROVED: DATE: FEBRUARY 17 DRAWN BY: TLV	DRAWING	ST05

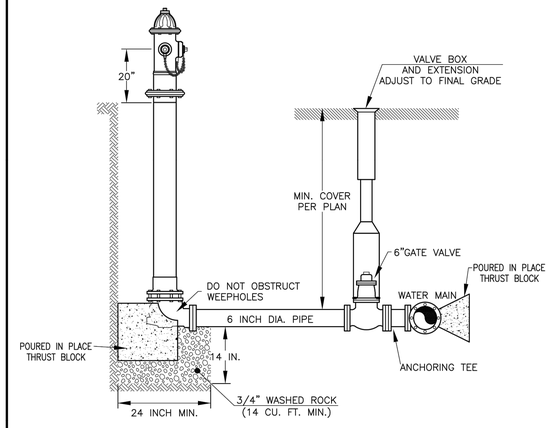


SECTION A-A



PLAN VIEW

City Of SALIDA	WATER VALVE COLLAR DETAIL		
CITY OF SALIDA 304 W. HWY. 291 SALIDA, CO 81201 PHONE: (719) 539-6257	APPROVED: DATE: FEBRUARY 17 DRAWN BY: TLV	DRAWING	W01

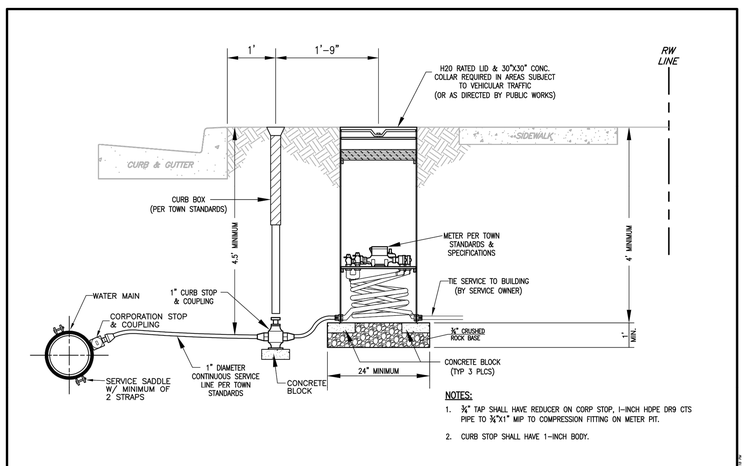


DETAIL

FIRE HYDRANT ASSEMBLY

(NO SCALE)

City Of SALIDA	FIREHYDRANT ASSEMBLY DETAIL		
CITY OF SALIDA 304 W. HWY. 291 SALIDA, CO 81201 PHONE: (719) 539-6257	APPROVED: DATE: FEBRUARY 17 DRAWN BY: TLV	DRAWING	W02



City Of SALIDA	WATER SERVICE TAP DETAIL		
APPROVED: DATE: APRIL 17 DRAWN BY: TLV	CITY OF SALIDA 304 W. HWY. 291 SALIDA, CO 81201 PHONE: (719) 539-6257	DRAWING	W03

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)256-1644 mike@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

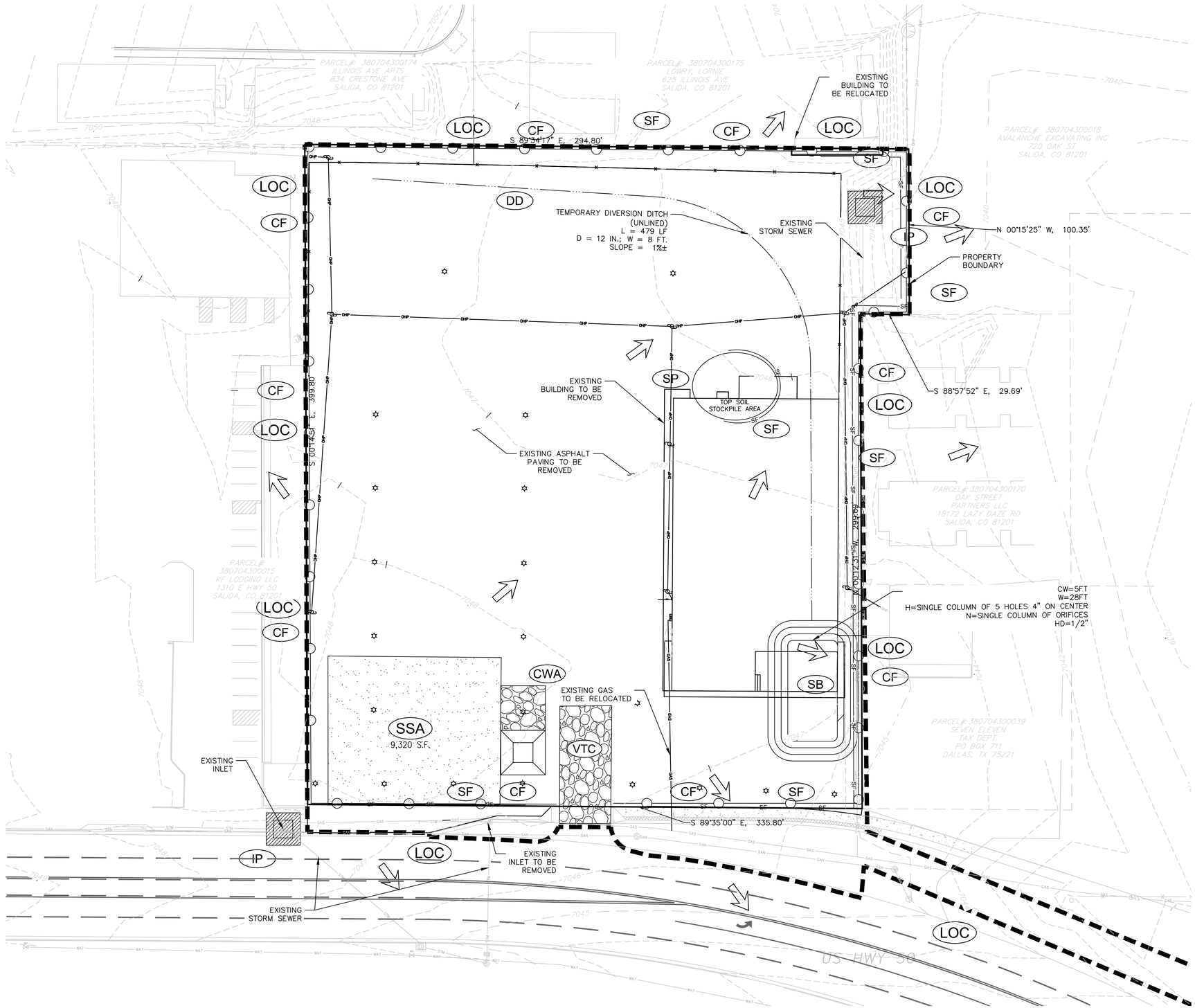
CONSTRUCTION DOCUMENTS
SITE DETAILS - DETAILS 2

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE
10/27/2022

PROJECT NO.
17202

COLORADO 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.



0 15 30 60

1 inch = 30 ft. Horizontal

LEGEND:

- EX. BOUNDARY
- 8660 EX. MAJOR CONTOUR
- 8661 EX. MINOR CONTOUR
- LEASE LINE
- LOC LIMITS OF CONSTRUCTION
- CF CONSTRUCTION FENCE
- SF SILT FENCE
- SCL SEDIMENT CONTROL LOG
- VTC VEHICLE TRACTION CONTROL
- IP INLET PROTECTION
- SSA STABILIZED STAGING AREA
- CWA CONCRETE WASH AREA
- SB SEDIMENT BASIN
- DD DIVERSION DITCH
- FLOW ARROW

COLORADO 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)536-1644 info@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS

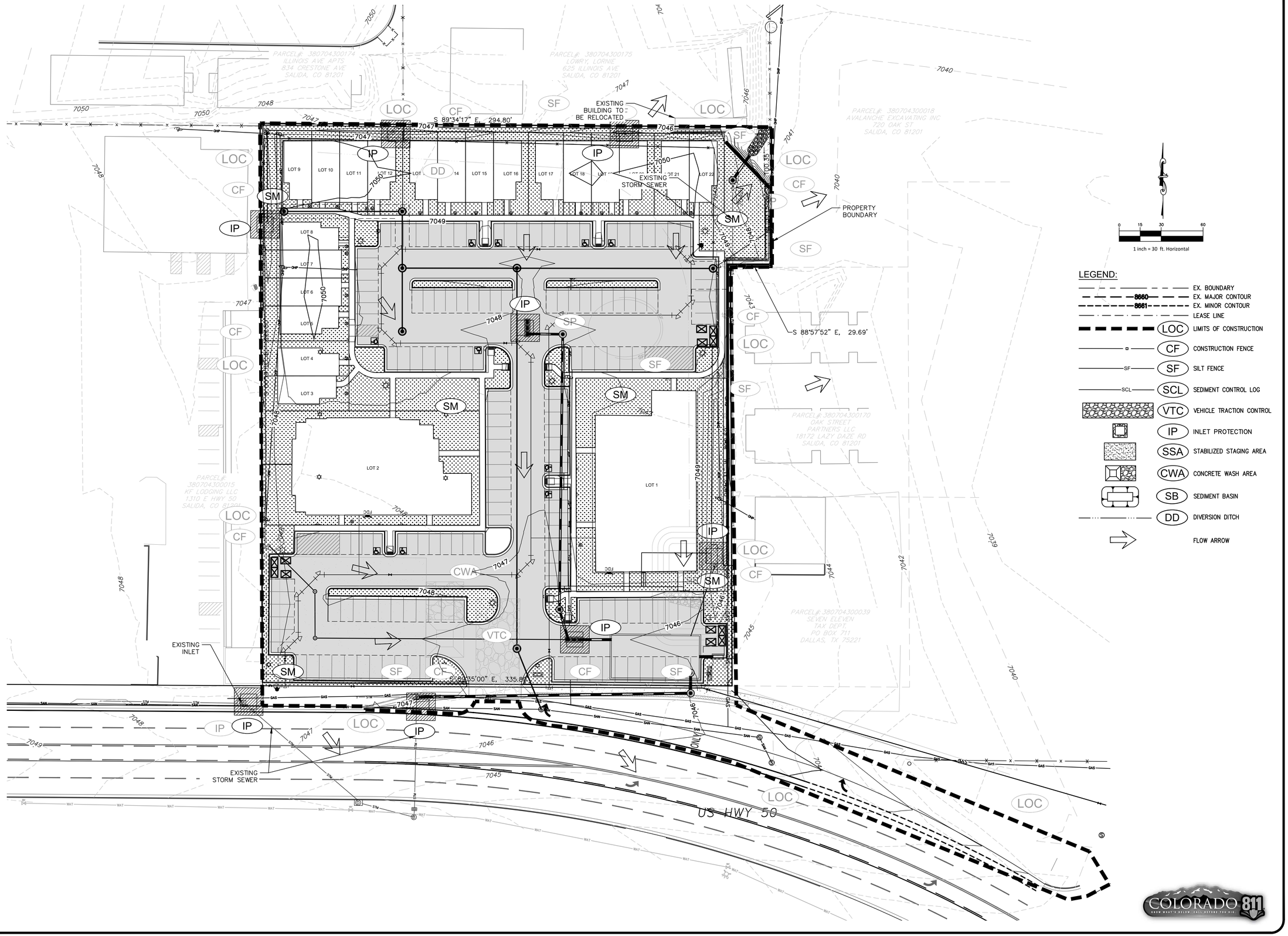
EROSION CONTROL INITIAL PLAN

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE 10/27/2022

PROJECT NO. 17202

Drawing name: C:\Users\Zach\OneDrive - Phelps Engineering Services\Company\Entitlement Engineering\17202 - Salida Commons\CAD\Sheets\Construction Documents\17202 - Initial Plan.dwg EROSION CONTROL INITIAL PLAN Oct 27, 2022 1:32pm by: Zach



No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)536-1644 mike@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS
EROSION CONTROL FINAL PLAN

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE
10/27/2022

PROJECT NO.
17202

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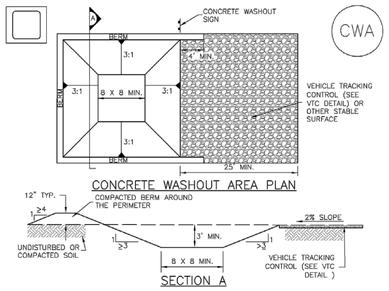
Drawing name: C:\Users\Zach\OneDrive - Phelps Engineering Services\Company\Entitlement Engineering\17202 - Salida Commons\CAD\Sheets\Construction Documents\17202 - Final Plan.dwg EROSION CONTROL FINAL PLAN Oct 27, 2022 1:32pm by: Zach



CONCRETE WASHOUT AREA PLAN

SECTION A

CWA–1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –CWA INSTALLATION LOCATION.

2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY, DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.

3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.

4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.

5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.

6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.

7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.

8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

CWA MAINTENANCE NOTES

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

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

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

4. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.

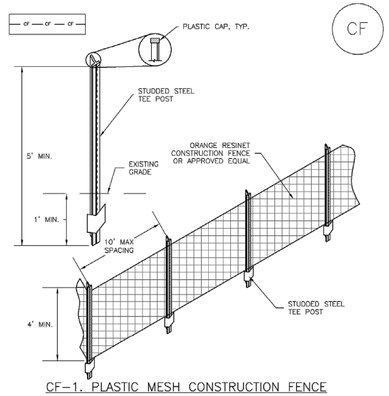
5. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER–TIGHT CONTAINER AND DISPOSED OF PROPERLY.

6. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.

7. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD).

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



CF–1. PLASTIC MESH CONSTRUCTION FENCE

CONSTRUCTION FENCE INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF CONSTRUCTION FENCE.

2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

3. CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR–GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.

4. STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.

5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.

CONSTRUCTION FENCE MAINTENANCE NOTES

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

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

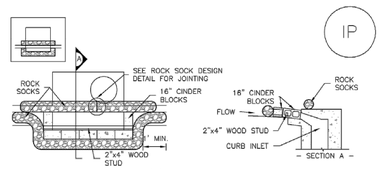
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. CONSTRUCTION FENCE SHALL BE REPAIRED OR REPLACED WHEN THERE ARE SIGNS OF DAMAGE SUCH AS RIPS OR SAGS. CONSTRUCTION FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

5. WHEN CONSTRUCTION FENCES ARE REMOVED, ALL DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE FENCE SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)



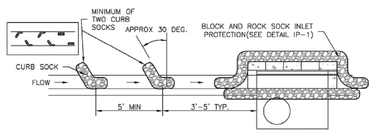
IP–1. BLOCK AND ROCK SOCK SUMP OR ON GRADE INLET PROTECTION

BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.

3. GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINTED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.



IP–2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

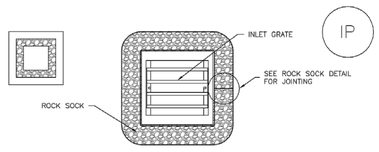
CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.

2. PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.

3. SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART.

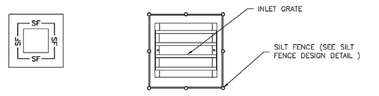
4. AT LEAST TWO CURB SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON–GRADE INLETS.



IP–3. ROCK SOCK SUMP/AREA INLET PROTECTION

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES
1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.



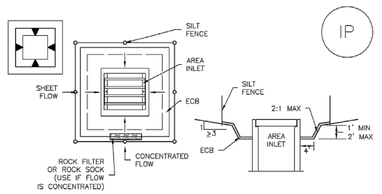
IP–4. SILT FENCE FOR SUMP INLET PROTECTION

SILT FENCE INLET PROTECTION INSTALLATION NOTES

1. SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET.

3. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.



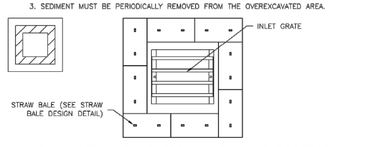
IP–5. OVEREXCAVATION INLET PROTECTION

OVEREXCAVATION INLET PROTECTION INSTALLATION NOTES

1. THIS FORM OF INLET PROTECTION IS PRIMARILY APPLICABLE FOR SITES THAT HAVE NOT YET REACHED FINAL GRADE AND SHOULD BE USED ONLY FOR INLETS WITH A RELATIVELY SMALL CONTRIBUTING DRAINAGE AREA.

2. WHEN USING FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH ORIENTED TOWARDS DIRECTION OF FLOW.

3. SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVEREXCAVATED AREA.

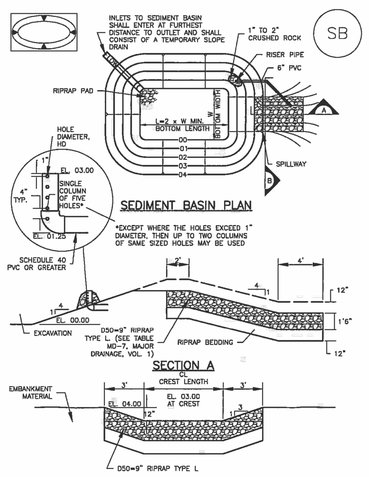


IP–6. STRAW BALE FOR SUMP INLET PROTECTION

STRAW BALE BARRIER INLET PROTECTION INSTALLATION NOTES

1. SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH ENDS OF BALES TIGHTLY ABUTTING ONE ANOTHER.



SEDIMENT BASIN PLAN

*EXCEPT WHERE THE HOLES EXCEED 1" DIAMETER, THEN UP TO TWO COLUMNS OF SAME SIZED HOLES MAY BE USED

SECTION A

COLORADO 811 KNOW WHAT'S BELOW CALL BEFORE YOU DIG.

No.	REVISIONS	DATE	BY

PHELPS ENGINEERING
3522 South Emerson St, Englewood, CO 80113
(303)736-1644 mike@phelpsengineering.net phelpsengineering.net

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS
EROSION CONTROL DETAILS 1

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE 10/27/2022
PROJECT NO. 17202

TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

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

SEDIMENT BASIN INSTALLATION NOTES

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

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

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

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

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

6. PIPE SCH 40 OR GREATER SHALL BE USED.

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

SEDIMENT BASIN MAINTENANCE NOTES

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

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

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

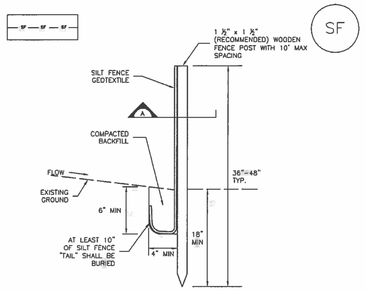
4. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).

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

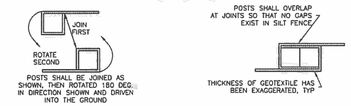
6. WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)

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



SILT FENCE



SECTION A

SF-1. SILT FENCE

SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2–5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

2. A UNIFORM 8" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.

5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.

6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10'– 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

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

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

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

4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

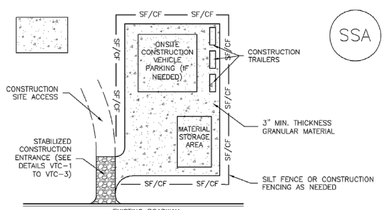
5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.

6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)

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



SSA-1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   -LOCATION OF STAGING AREA(S).
   -CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.

2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.

3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.

4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.

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

6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

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

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

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

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

STABILIZED STAGING AREA MAINTENANCE NOTES

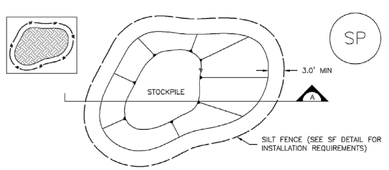
5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.

6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

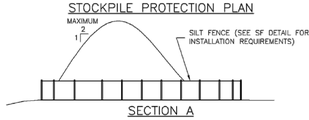
NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

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

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)



STOCKPILE PROTECTION PLAN



SECTION A

SP-1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   -LOCATION OF STOCKPILES.
   -TYPE OF STOCKPILE PROTECTION.

2. INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.

3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30–60 DAYS).

4. FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

STOCKPILE PROTECTION MAINTENANCE NOTES

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

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

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

STOCKPILE PROTECTION MAINTENANCE NOTES

4. IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.

5. STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.

(DETAILS ADAPTED FROM PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

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

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No.	REVISIONS	DATE	BY

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS
EROSION CONTROL DETAILS 2

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE 10/27/2022
PROJECT NO. 17202

Drawing name: C:\Users\Zach\OneDrive - Phelps Engineering Services\Company\Entitlement Engineering\17202 - Salida Commons\CAD\Sheets\Construction Documents\17202 - SWMP Details.dwg 20 EROSION CONTROL DETAILS 2 Oct 27, 2022 1:32pm by: Zach

Street Sweeping and Vacuuming (SS) SM-7

Description

Street sweeping and vacuuming remove sediment that has been tracked onto roadways to reduce sediment transport into storm drain systems or a surface waterway.

Photograph SS-1. A street sweeper removes sediment and potential pollutants along the curb line at a construction site. Photo courtesy of Tom Gore.

Appropriate Uses

Use this practice at construction sites where vehicles may track sediment offsite onto paved roadways.

Design and Installation

Street sweeping or vacuuming should be conducted when there is noticeable sediment accumulation on roadways adjacent to the construction site. Typically, this will be concentrated at the entrance/exit to the construction site. Well-maintained stabilized construction entrances, vehicle tracking controls and tire wash facilities can help reduce the necessary frequency of street sweeping and vacuuming.

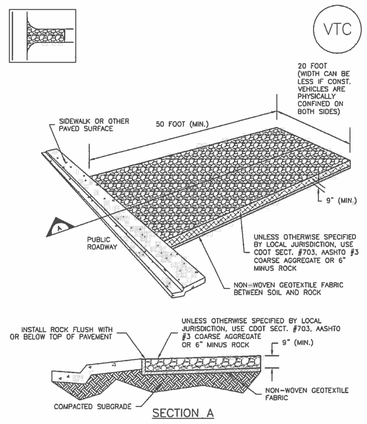
On smaller construction sites, street sweeping can be conducted manually using a shovel and broom. Never wash accumulated sediment on roadways into storm drains.

Maintenance and Removal

- Inspect paved roads around the perimeter of the construction site on a daily basis and more frequently, as needed. Remove accumulated sediment, as needed.
- Following street sweeping, check inlet protection that may have been displaced during street sweeping.
- Inspect area to be swept for materials that may be hazardous prior to beginning sweeping operations.

Street Sweeping/ Vacuuming	
Functions	
Erosion Control	No
Sediment Control	Yes
Site/Material Management	Yes

Vehicle Tracking Control (VTC) SM-4



VTC-1, AGGREGATE VEHICLE TRACKING CONTROL

SM-4 Vehicle Tracking Control (VTC)

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   -LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
   -TYPE OF CONSTRUCTION ENTRANCE(S)/EXITS(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).
2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

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

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

Wind Erosion/Dust Control (DC) EC-14

Description

Wind erosion and dust control BMPs help to keep soil particles from entering the air as a result of land disturbing construction activities. These BMPs include a variety of practices generally focused on either graded disturbed areas or construction roadways. For graded areas, practices such as seeding and mulching, use of soil binders, site watering, or other practices that provide prompt surface cover should be used. For construction roadways, road watering and stabilized surfaces should be considered.

Photograph DC-1. Water truck used for dust suppression. Photo courtesy of Douglas County.

Appropriate Uses

Dust control measures should be used on any site where dust poses a problem to air quality. Dust control is important to control for the health of construction workers and surrounding waterbodies.

Design and Installation

The following construction BMPs can be used for dust control:

- An irrigation/sprinkler system can be used to wet the top layer of disturbed soil to help keep dry soil particles from becoming airborne.
- Seeding and mulching can be used to stabilize disturbed surfaces and reduce dust emissions.
- Protecting existing vegetation can help to slow wind velocities across the ground surface, thereby limiting the likelihood of soil particles to become airborne.
- Spray-on soil binders form a bond between soil particles keeping them grounded. Chemical treatments may require additional permitting requirements. Potential impacts to surrounding waterways and habitat must be considered prior to use.
- Placing rock on construction roadways and entrances will help keep dust to a minimum across the construction site.
- Wind fences can be installed on site to reduce wind speeds. Install fences perpendicular to the prevailing wind direction for maximum effectiveness.

Wind Erosion Control/ Dust Control	
Functions	
Erosion Control	Yes
Sediment Control	No
Site/Material Management	Moderate

Maintenance and Removal

When using an irrigation/sprinkler control system to aid in dust control, be careful not to overwater. Overwatering will cause construction vehicles to track mud off-site.

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(303)736-1644 mike@phelpsengineering.net pilar@phelpsengineering.net

No.	REVISIONS	DATE	BY

SCALE: SEE SHEET
DESIGNED BY: JJP
DRAWN BY: JJP
CHECKED BY: LEP

CONSTRUCTION DOCUMENTS
EROSION CONTROL DETAILS 3

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE 10/27/2022
PROJECT NO. 17202

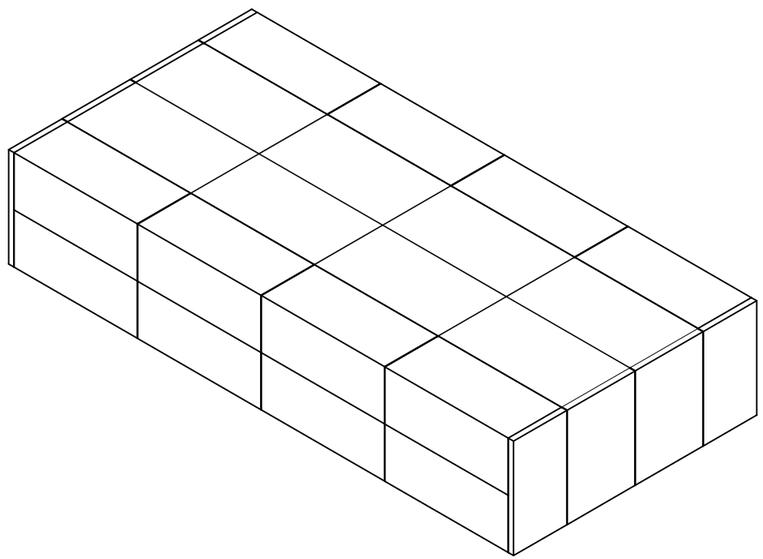
StormTrap®

MODULAR CONCRETE
STORMWATER MANAGEMENT

SHEET INDEX	
PAGE	DESCRIPTION
0.0	COVER SHEET
1.0	DOUBLETRAP DESIGN CRITERIA
2.0	DOUBLETRAP SYSTEM LAYOUT
3.0	DOUBLETRAP INSTALLATION SPECIFICATIONS
3.1	DOUBLETRAP INSTALLATION SPECIFICATIONS
4.0	DOUBLETRAP BACKFILL SPECIFICATIONS
5.0	RECOMMENDED PIPE / ACCESS OPENING SPECIFICATIONS
6.0	DOUBLETRAP MODULE TYPES

STORMTRAP CONTACT INFORMATION

STORMTRAP SUPPLIER: STORMTRAP
CONTACT NAME: STEPHEN JACKSON
CELL PHONE: 303-913-0607
SALES EMAIL: SJACKSON@STORMTRAP.COM



SALIDA CROSSINGS
SALIDA, CO

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COVER SHEET

SHEET NUMBER:

0.0

STRUCTURAL DESIGN LOADING CRITERIA

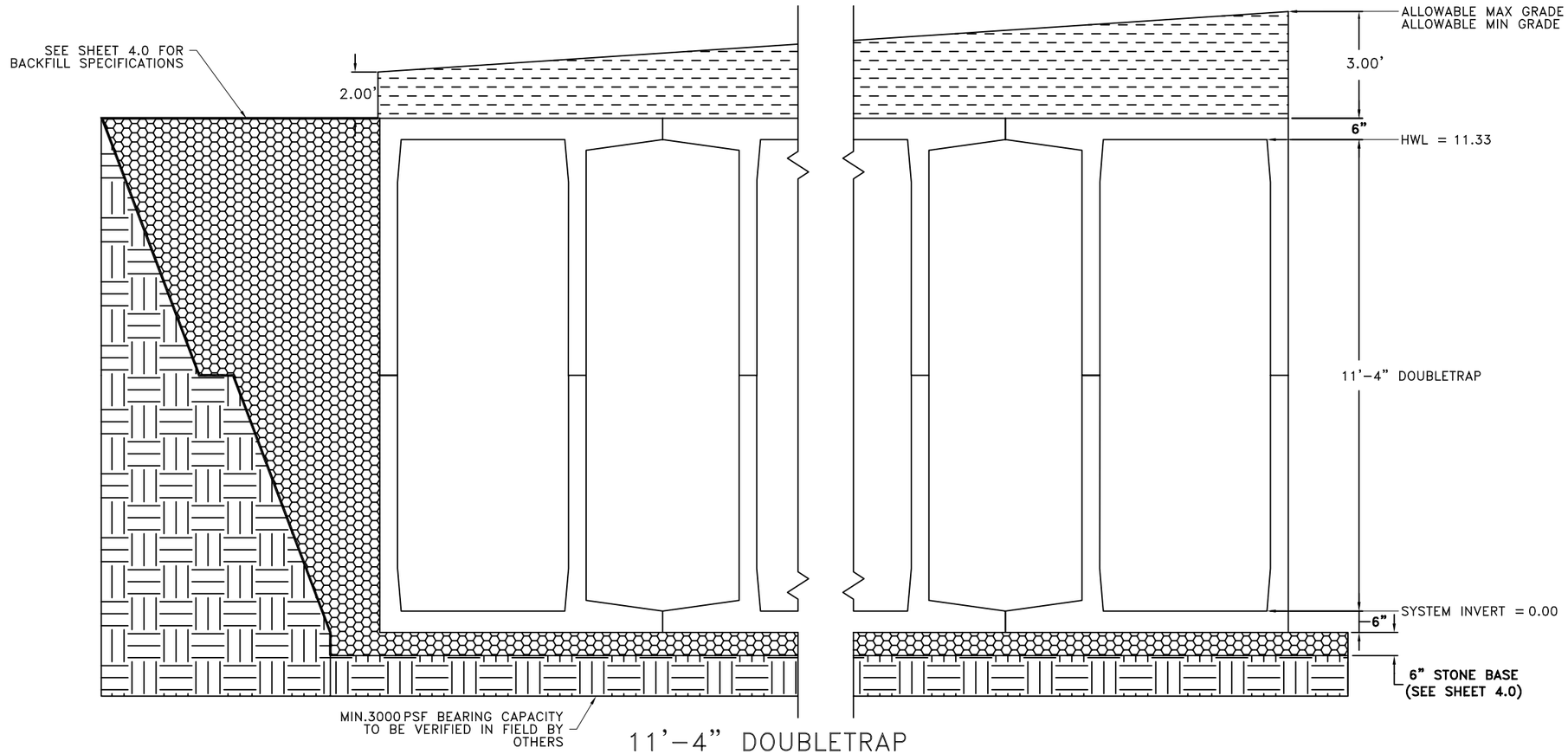
LIVE LOADING:	**AASHTO HS–20 HIGHWAY LOADING**
GROUND WATER TABLE:	BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE:	3000 PSF
SOIL DENSITY:	120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE:	35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE:	80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES:	ASTM C857 ACI–318
BACKFILL TYPE:	SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

WATER STORAGE PROV:	19,337.07 CUBIC FEET
UNIT HEADROOM:	11'–4" DOUBLETRAP

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 2.00' MAX. 3.00' CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
5. **SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.**



11'–4" DOUBLETRAP

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DOUBLETRAP DESIGN CRITERIA

SHEET NUMBER:

1.0

BILL OF MATERIALS

QTY.	UNIT TYPE	DESCRIPTION	TOP WEIGHT	BASE WEIGHT
8	I	11'-4" DOUBLETRAP	15900	15698
0	II	11'-4" DOUBLETRAP	18762	18560
8	III	11'-4" DOUBLETRAP	16254	16153
0	IV	11'-4" DOUBLETRAP	17685	17584
0	VII	11'-4" DOUBLETRAP	0	0
0	SPIV	11'-4" DOUBLETRAP	VARIES	VARIES
4	T2 PANEL	8" THICK PANEL	10381	
4	T4 PANEL	8" THICK PANEL	8171	
0	T7 PANEL	8" THICK PANEL	0	
5	JOINT WRAP	150' PER ROLL		
16	JOINT TAPE	14.5' PER ROLL		
TOTAL PIECES = 32				
TOTAL PANELS = 8				
HEAVIEST PICK WEIGHT = 18,762 LB				

LOADING DISCLAIMER:

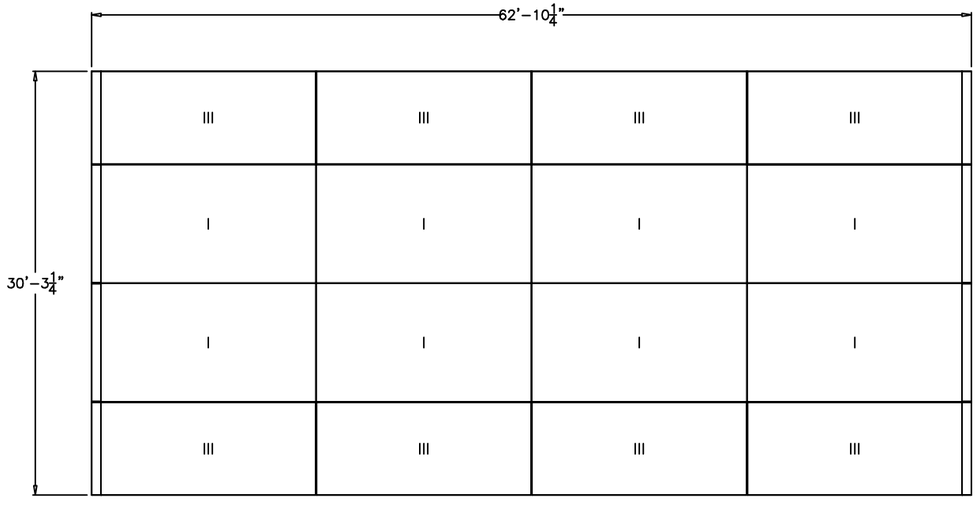
STORMTRAP IS NOT DESIGNED TO ACCEPT ANY ADDITIONAL LOADINGS FROM NEARBY STRUCTURES NEXT TO OR OVER THE TOP OF STORMTRAP. IF ADDITIONAL LOADING CONSIDERATIONS ARE REQUIRED FOR STRUCTURAL DESIGN OF STORMTRAP, PLEASE CONTACT STORMTRAP IMMEDIATELY.

TREE LOADING DISCLAIMER:

THE STORMTRAP SYSTEM HAS NOT BEEN DESIGNED TO SUPPORT THE ADDITIONAL WEIGHT OF ANY TREES. FURTHERMORE, THE ROOTS OF THE TREES MUST BE CONTAINED TO PREVENT FUTURE DAMAGE TO THE STORMTRAP SYSTEM. STORMTRAP ACCEPTS NO LIABILITY FOR DAMAGES CAUSED BY TREES OR OTHER VEGETATION PLACE AROUND OR ON TOP OF THE SYSTEM.

SEDIMENT/SAND FILTER DISCLAIMER:

FOR SYSTEMS CONTAINING SEDIMENT AND SAND FILTER MODULES; IF REQUIRED TO BE SEALED TO PREVENT SAND AND/OR PRE-TREATED WATER FROM MIGRATING INTO ADJOINING MODULES, IT IS THE SOLE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT THOSE MODULES ARE SEALED.



DESIGN CRITERIA
ALLOWABLE MAX GRADE = 14.83
ALLOWABLE MIN GRADE =13.83
INSIDE HEIGHT ELEVATION =11.33
SYSTEM INVERT = 0.00

NOTES:

1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP – INDICATES A MODULE WITH MODIFICATIONS.
5. P – INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. **IF A WATERTIGHT SOLUTION IS REQUIRED FOR AN OUTLET CONTROL STRUCTURE, ALL EXTERIOR COLD JOINTS, INCLUDING JOINT BETWEEN TOP AND BASE MODULES, BETWEEN TOP AND BASE OF ADJOINING SYMONS WALLS, AND JOINTS BETWEEN MODULE AND ADJACENT END PANELS WILL BE THE SOLE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO PROVIDE AND INSTALL THE WATERTIGHT APPLICATION PER THE EOR'S SPECIFICATION.**

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DOUBLETRAP
SYSTEM LAYOUT

SHEET NUMBER:

2.0

STORMTRAP INSTALLATION SPECIFICATIONS

1. STORMTRAP SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C891, STANDARD FOR INSTALLATION OF UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES, THE FOLLOWING ADDITIONS AND/OR EXCEPTIONS SHALL APPLY:

2. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT PROPER/ADEQUATE EQUIPMENT IS USED TO SET/INSTALL THE MODULES.

3. STORMTRAP MODULES CAN BE PLACED ON A LEVEL, 6" FOUNDATION OF ¾" AGGREGATE EXTENDING 2'–0" PAST THE OUTSIDE OF THE SYSTEM (SEE DETAIL 1) AND SHALL BE PLACED ON PROPERLY COMPACTED SOILS (SEE SHEET 1.0 FOR SOIL BEARING CAPACITY REQUIREMENTS), AND IN ACCORDANCE WITH ASTM C891 STANDARD PRACTICE FOR INSTALLATION OF UNDERGROUND PRECAST UTILITY STRUCTURES.

4. THE STORMTRAP MODULES SHALL BE PLACED SUCH THAT THE MAXIMUM SPACE BETWEEN ADJACENT MODULES DOES NOT EXCEED ¾" (SEE DETAIL 2). IF THE SPACE EXCEEDS ¾", THE MODULES SHALL BE RESET WITH APPROPRIATE ADJUSTMENT MADE TO LINE AND GRADE TO BRING THE SPACE INTO SPECIFICATION.

5. STORMTRAP MODULES ARE NOT WATERTIGHT. IF A WATERTIGHT SOLUTION IS REQUIRED, CONTACT STORMTRAP FOR RECOMMENDATIONS. THE WATERTIGHT APPLICATION IS TO BE PROVIDED AND IMPLEMENTED BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE SELECTED WATERTIGHT SOLUTION PERFORMS AS SPECIFIED BY THE MANUFACTURER.

6. THE PERIMETER HORIZONTAL JOINT BETWEEN THE TOP AND BASE LEG CONNECTION OF THE STORMTRAP MODULES SHALL BE SEALED WITH PREFORMED MASTIC JOINT TAPE ACCORDING TO ASTM C891, 8.8 AND 8.12. (SEE DETAIL 3). THE MASTIC JOINT TAPE DOES NOT PROVIDE A WATERTIGHT SEAL.

7. ALL EXTERIOR ROOF AND EXTERIOR VERTICAL WALL JOINTS BETWEEN ADJACENT STORMTRAP MODULES SHALL BE SEALED WITH 8" WIDE PRE–FORMED, COLD–APPLIED, SELF–ADHERING ELASTOMERIC RESIN, BONDED TO A WOVEN , HIGHLY PUNCTURE RESISTANT POLYMER WRAP, CONFORMING TO ASTM C891 AND SHALL BE INTEGRATED WITH PRIMER SEALANT AS APPROVED BY STORMTRAP (SEE DETAILS 2, 4, & 5). THE JOINT WRAP DOES NOT PROVIDE A WATERTIGHT SEAL. THE SOLE PURPOSE OF THE JOINT WRAP IS TO PROVIDE A SILT AND SOIL TIGHT SYSTEM. THE ADHESIVE EXTERIOR JOINT WRAP SHALL BE INSTALLED ACCORDING TO THE FOLLOWING INSTALLATION INSTRUCTIONS:

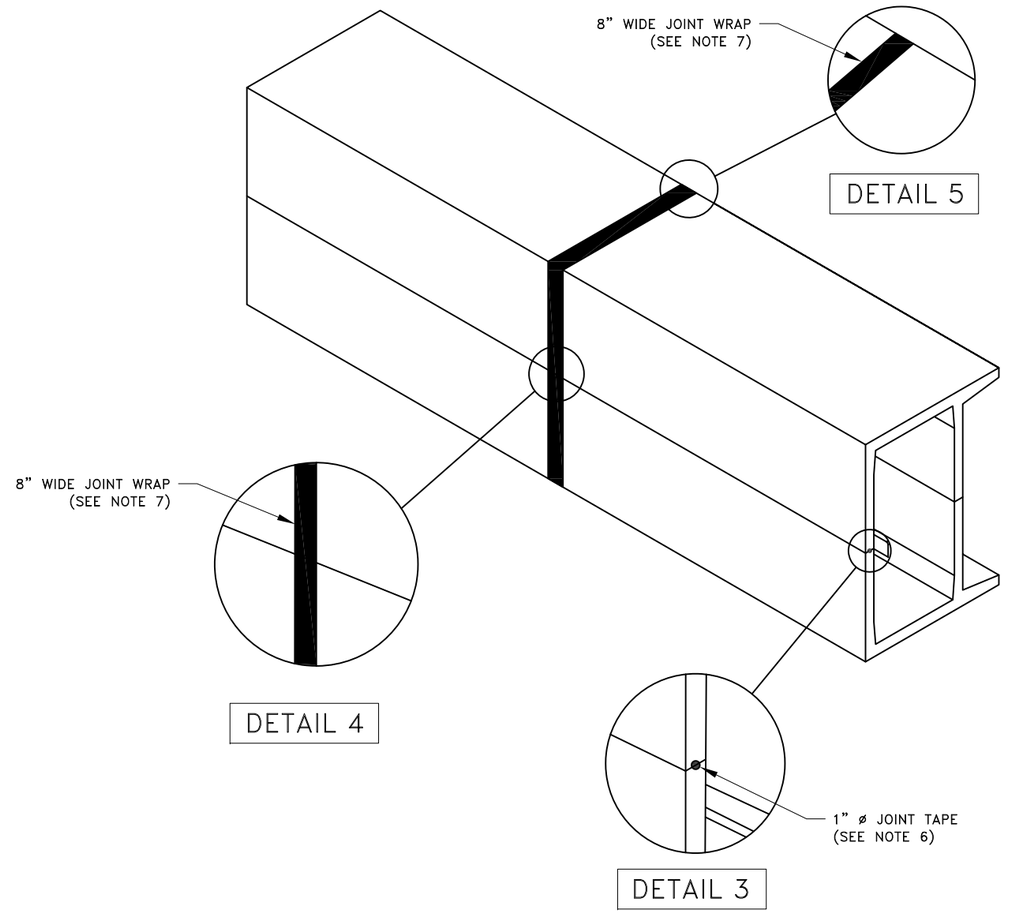
   7.1. USE A BRUSH OR WET CLOTH TO THOROUGHLY CLEAN THE OUTSIDE SURFACE AT THE POINT WHERE JOINT WRAP IS TO BE APPLIED.

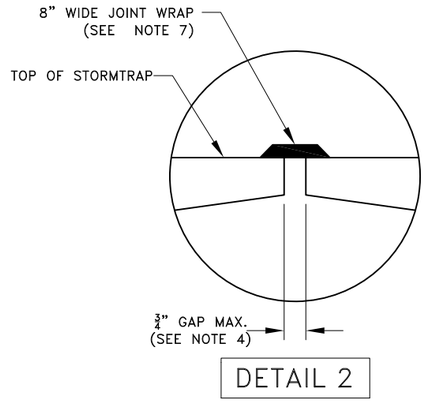
   7.2. A RELEASE PAPER PROTECTS THE ADHESIVE SIDE OF THE JOINT WRAP. PLACE THE ADHESIVE TAPE (ADHESIVE SIDE DOWN) AROUND THE STRUCTURE, REMOVING THE RELEASE PAPER AS YOU GO. PRESS THE JOINT WRAP FIRMLY AGAINST THE STORMTRAP MODULE SURFACE WHEN APPLYING.

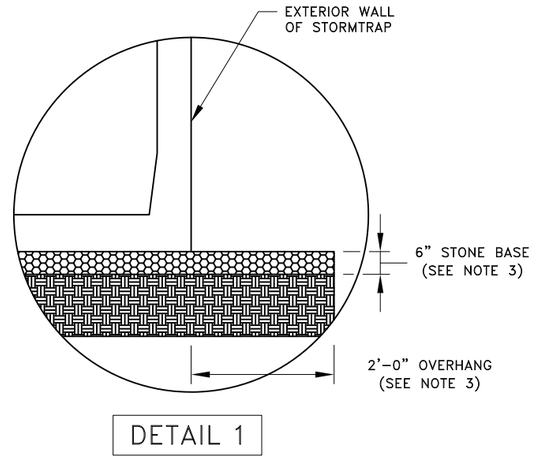
8. IF THE CONTRACTOR NEEDS TO CANCEL ANY SHIPMENTS, THEY MUST DO SO 48 HOURS PRIOR TO THEIR SCHEDULED ARRIVAL AT THE JOB SITE. IF CANCELED AFTER THAT TIME, PLEASE CONTACT THE PROJECT MANAGER.

9. IF THE STORMTRAP MODULE(S) IS DAMAGED IN ANY WAY PRIOR, DURING, OR AFTER INSTALL, STORMTRAP MUST BE CONTACTED IMMEDIATELY TO ASSESS THE DAMAGE AND TO DETERMINE WHETHER OR NOT THE MODULE(S) WILL NEED TO BE REPLACED. IF ANY MODULE ARRIVES AT THE JOBSITE DAMAGED DO NOT UNLOAD IT; CONTACT STORMTRAP IMMEDIATELY. ANY DAMAGE NOT REPORTED BEFORE THE TRUCK IS UNLOADED WILL BE THE CONTRACTOR'S RESPONSIBILITY.

10. STORMTRAP MODULES CANNOT BE ALTERED IN ANY WAY AFTER MANUFACTURING WITHOUT WRITTEN CONSENT FROM STORMTRAP.







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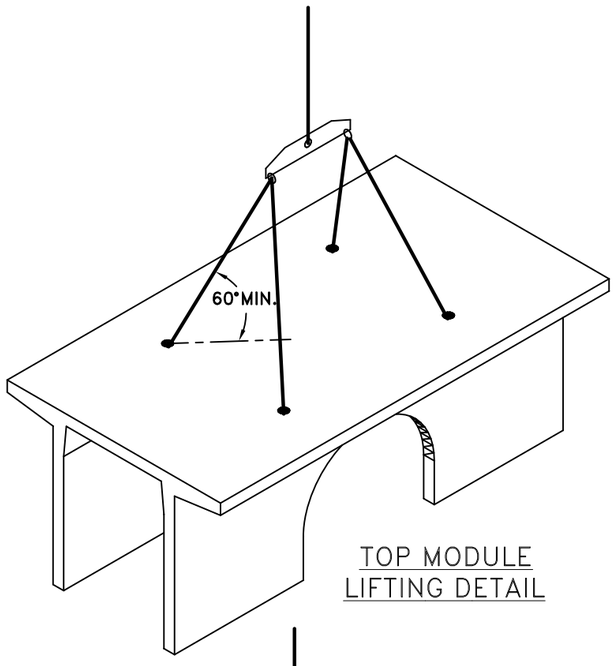
DOUBLETRAP INSTALLATION SPECIFICATIONS

SHEET NUMBER:

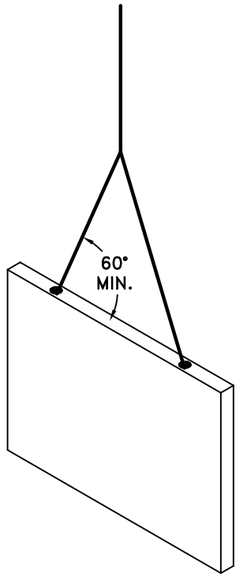
3.0

STORMTRAP MODULE LIFTING INSTALLATION NOTES

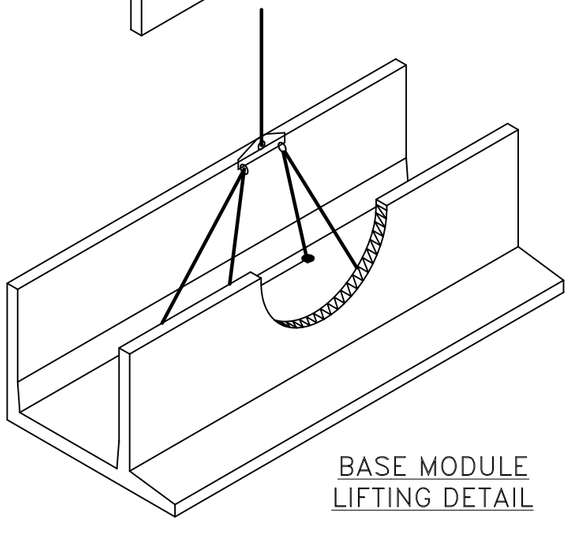
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL (4) CHAINS/CABLES ARE SECURED PROPERLY TO THE LIFTING ANCHORS AND IN EQUAL TENSION WHEN LIFTING THE STORMTRAP MODULE (SEE RECOMMENDATIONS 2 & 3).
2. MINIMUM 7'–0" CHAIN/CABLE LENGTH TO BE USED TO LIFT STORMTRAP MODULES (SUPPLIED BY CONTRACTOR).
3. CONTRACTOR TO ENSURE MINIMUM LIFTING ANGLE IS 60° FROM TOP SURFACE OF STORMTRAP MODULE. SEE DETAIL.
4. IT IS UNDERSTOOD AND AGREED THAT AT ALL TIMES DURING WHICH HOISTING AND RIGGING EQUIPMENT IS BEING SUPPLIED TO THE PURCHASER, OPERATOR OF SUCH EQUIPMENT SHALL BE IN CHARGE OF HIS ENTIRE EQUIPMENT AND SHALL AT ALL TIMES BE THE JUDGE OF THE SAFETY AND PROPERTY OF ANY SUGGESTION TO HIM FROM THE SELLER, ITS AGENTS OR EMPLOYEES. PURCHASER AGREES TO SAVE, INDEMNIFY AND HOLD HARMLESS SELLER FROM ALL LOSS, CLAIMS, DEMANDS OR CAUSES OF ACTION, WHICH MAY ARISE FROM THE EXISTENCE OR OPERATION OF SAID EQUIPMENT.



TOP MODULE
LIFTING DETAIL



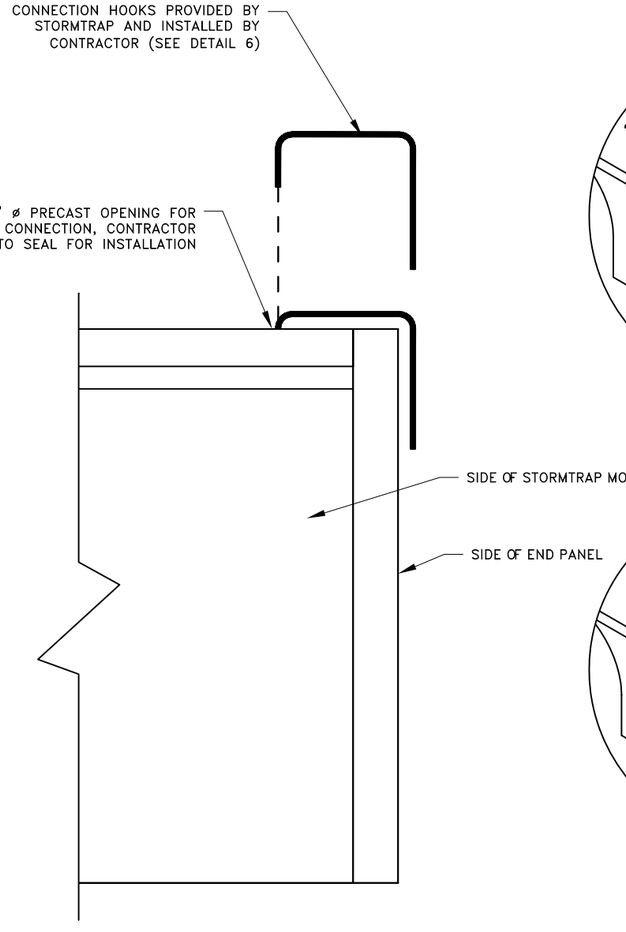
END PANEL
LIFTING DETAIL



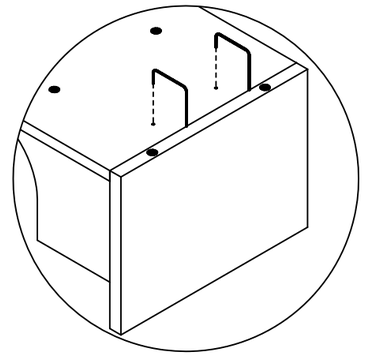
BASE MODULE
LIFTING DETAIL

END PANEL ERECTION/INSTALLATION NOTES

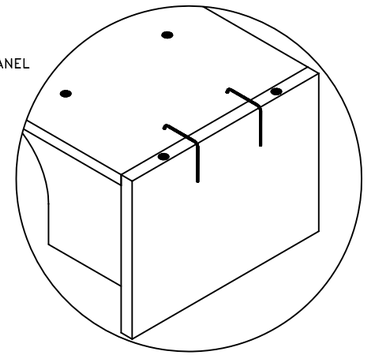
1. END PANELS WILL BE SUPPLIED TO CLOSE OFF OPEN ENDS OF ROWS.
2. PANELS SHALL BE INSTALLED IN A TILT UP FASHION DIRECTLY ADJACENT TO OPEN END OF MODULE (REFER TO SHEET 2.0 FOR END PANEL LOCATIONS).
3. CONNECTION HOOKS WILL BE SUPPLIED WITH END PANELS TO SECURELY CONNECT PANEL TO ADJACENT STORMTRAP MODULE (SEE PANEL CONNECTION ELEVATION VIEW).
4. ONCE CONNECTION HOOK IS ATTACHED, LIFTING CLUTCHES MAY BE REMOVED.
5. JOINT WRAP SHALL BE PLACED AROUND PERIMETER JOINT PANEL (SEE SHEET 3.0).



PANEL CONNECTION
ELEVATION VIEW



STEP 1



STEP 2

DETAIL 6

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DOUBLETRAP
INSTALLATION
SPECIFICATIONS

SHEET NUMBER:

3.1

ZONE CHART		
ZONES	ZONE DESCRIPTIONS	REMARKS
ZONE 1	FOUNDATION AGGREGATE	#5 (¾") STONE AGGREGATE (SEE NOTE 4 FOR DESCRIPTION)
ZONE 2	BACKFILL	UNIFIED SOILS CLASSIFICATION (GW, GP, SW, SP) OR SEE BELOW FOR APPROVED BACKFILL OPTIONS
ZONE 3	FINAL COVER OVERTOP	MATERIALS NOT TO EXCEED 120 PCF

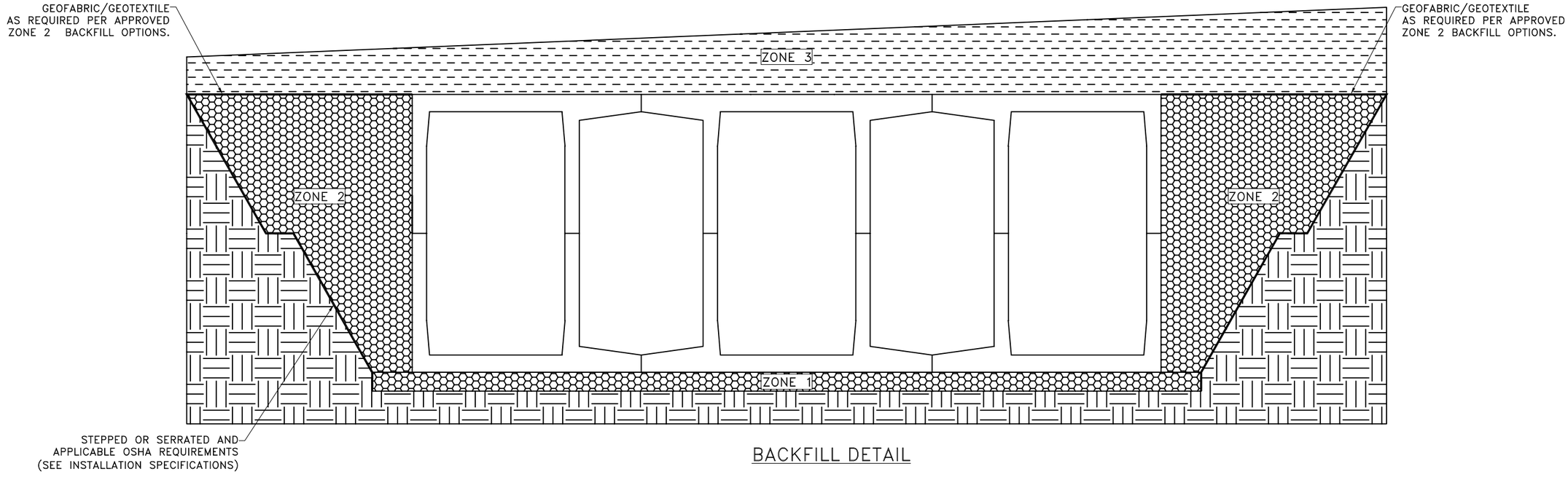
FILL DEPTH	TRACK WIDTH	MAX VEHICLE WEIGHT (KIPS)	MAX GROUND PRESSURE
12"	12"	51.8	1690 psf
	18"	56.1	1219 psf
	24"	68.1	1111 psf
	30"	76.7	1000 psf
	36"	85.0	924 psf

NOTE:
TRACK LENGTH NOT TO EXCEED 15'-4".
ONLY TWO TRACKS PER VEHICLE.

APPROVED ZONE 2 BACKFILL OPTIONS	
OPTION	REMARKS
¾" STONE AGGREGATE	THE STONE AGGREGATE SHALL CONSIST OF CLEAN AND FREE DRAINING ANGULAR MATERIAL. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL (ASTM SIZE #57) AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
SAND	IMPORTED PURE SAND IS PERMITTED TO BE USED AS BACKFILL IF IT IS CLEAN AND FREE DRAINING. THE SAND USED FOR BACKFILLING SHALL HAVE LESS THAN 40% PASSING #40 SIEVE AND LESS THAN 5% PASSING #200 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE SAND BACKFILL.
CRUSHED CONCRETE AGGREGATE	CLEAN, FREE DRAINING CRUSHED CONCRETE AGGREGATE MATERIAL CAN BE USED AS BACKFILL FOR STORMTRAP'S MODULES. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL.
ROAD PACK	STONE AGGREGATE 100% PASSING THE 1-1/2" SIEVE WITH LESS THAN 12% PASSING THE #200 SIEVE (ASTM SIZE #467). GEOFABRIC AS PER GEOTECHNICAL ENGINEER RECOMMENDATION.

STORMTRAP ZONE INSTALLATION SPECIFICATIONS/PROCEDURES

1. THE FILL PLACED AROUND THE STORMTRAP MODULES MUST DEPOSITED ON BOTH SIDES AT THE SAME TIME AND TO APPROXIMATELY THE SAME ELEVATION. AT NO TIME SHALL THE FILL BEHIND ONE SIDE WALL BE MORE THAN 2'-0" HIGHER THAN THE FILL ON THE OPPOSITE SIDE. BACKFILL SHALL EITHER BE COMPACTED AND/OR VIBRATED TO ENSURE THAT BACKFILL AGGREGATE/STONE MATERIAL IS WELL SEATED AND PROPERLY INTER LOCKED. CARE SHALL BE TAKEN TO PREVENT ANY WEDGING ACTION AGAINST THE STRUCTURE, AND ALL SLOPES WITHIN THE AREA TO BE BACKFILLED MUST BE STEPPED OR SERRATED TO PREVENT WEDGING ACTION. CARE SHALL ALSO BE TAKEN AS NOT TO DISRUPT THE JOINT WRAP FROM THE JOINT DURING THE BACKFILL PROCESS. BACKFILL MUST BE FREE-DRAINING MATERIAL. SEE ZONE 2 BACKFILL CHART ON THIS PAGE FOR APPROVED BACKFILL OPTIONS. IF NATIVE EARTH IS SUSCEPTIBLE TO MIGRATION, CONFIRM WITH GEOTECHNICAL ENGINEER AND PROVIDE PROTECTION AS REQUIRED (PROVIDED BY OTHERS).
2. DURING PLACEMENT OF MATERIAL OVERTOP THE SYSTEM, AT NO TIME SHALL MACHINERY BE USED OVERTOP THAT EXCEEDS THE DESIGN LIMITATIONS OF THE SYSTEM. WHEN PLACEMENT OF MATERIAL OVERTOP, MATERIAL SHALL BE PLACED SUCH THAT THE DIRECTION OF PLACEMENT IS PARALLEL WITH THE OVERALL LONGITUDINAL DIRECTION OF THE SYSTEM WHENEVER POSSIBLE.
3. THE FILL PLACED OVERTOP THE SYSTEM SHALL BE PLACED AT A MINIMUM OF 6" LIFTS. AT NO TIME SHALL MACHINERY OR VEHICLES GREATER THAN THE DESIGN HS-20 LOADING CRITERIA TRAVEL OVERTOP THE SYSTEM WITHOUT THE MINIMUM DESIGN COVERAGE. IF TRAVEL IS NECESSARY OVERTOP THE SYSTEM PRIOR TO ACHIEVING THE MINIMUM DESIGN COVER, IT MAY BE NECESSARY TO REDUCE THE ULTIMATE LOAD/BURDEN OF THE OPERATING MACHINERY SO AS TO NOT EXCEED THE DESIGN CAPACITY OF THE SYSTEM. IN SOME CASES, IN ORDER TO ACHIEVE REQUIRED COMPACTION, HAND COMPACTION MAY BE NECESSARY IN ORDER NOT TO EXCEED THE ALLOTTED DESIGN LOADING. SEE CHART FOR TRACKED VEHICLE WIDTH AND ALLOWABLE MAXIMUM PRESSURE PER TRACK.
4. STONE AGGREGATE FOUNDATION IN ZONE 1 IS RECOMMENDED FOR LEVELING PURPOSES ONLY (OPTIONAL).



BACKFILL DETAIL

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303.298.1644

PROJECT INFORMATION:

SALIDA CROSSINGS

SALIDA, CO

CURRENT ISSUE DATE:

3/24/2022

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PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	3/24/22	PRELIMINARY	KW

SCALE:

NTS

SHEET TITLE:

DOUBLETRAP BACKFILL SPECIFICATIONS

SHEET NUMBER:

4.0

RECOMMENDED ACCESS OPENING SPECIFICATION

1. A TYPICAL ACCESS OPENING FOR THE STORMTRAP SYSTEM ARE 2'–0" IN DIAMETER. ACCESS OPENINGS LARGER THAN 3'–0" IN DIAMETER NEED TO BE APPROVED BY STORMTRAP. ALL OPENINGS MUST RETAIN AT LEAST 1'–0" OF CLEARANCE FROM THE END OF THE STORMTRAP MODULE UNLESS NOTED OTHERWISE. ALL ACCESS OPENINGS TO BE LOCATED ON INSIDE LEG UNLESS OTHERWISE SPECIFIED.
2. PLASTIC COATED STEEL STEPS PRODUCED BY M.A. INDUSTRIES PART #PS3–PFC OR APPROVED EQUAL (SEE STEP DETAIL) ARE PROVIDED INSIDE ANY MODULE WHERE DEEMED NECESSARY. THE HIGHEST STEP IN THE MODULE IS TO BE PLACED A DISTANCE OF 1'–0" FROM THE INSIDE EDGE OF THE STORMTRAP MODULES. ALL ENSUING STEPS SHALL BE PLACED AT A DISTANCE BETWEEN 10" MIN AND 14" MAX BETWEEN THEM. STEPS MAY BE MOVED OR ALTERED TO AVOID OPENINGS OR OTHER IRREGULARITIES IN THE MODULE.
3. STORMTRAP LIFTING INSERTS MAY BE RELOCATED TO AVOID INTERFERENCE WITH ACCESS OPENINGS OR THE CENTER OF GRAVITY OF THE MODULE AS NEEDED.
4. STORMTRAP ACCESS OPENINGS MAY BE RELOCATED TO AVOID INTERFERENCE WITH INLET AND/OR OUTLET PIPE OPENINGS SO PLACEMENT OF STEPS IS ATTAINABLE.
5. ACCESS OPENINGS SHOULD BE LOCATED IN ORDER TO MEET THE APPROPRIATE MUNICIPAL REQUIREMENTS. STORMTRAP RECOMMENDS AT LEAST TWO ACCESS OPENINGS PER SYSTEM FOR ACCESS AND INSPECTION.
6. USE PRECAST ADJUSTING RINGS AS NEEDED TO MEET GRADE. STORMTRAP RECOMMENDS FOR COVER OVER 2' TO USE PRECAST BARREL OR CONE SECTIONS. (PROVIDED BY OTHERS)

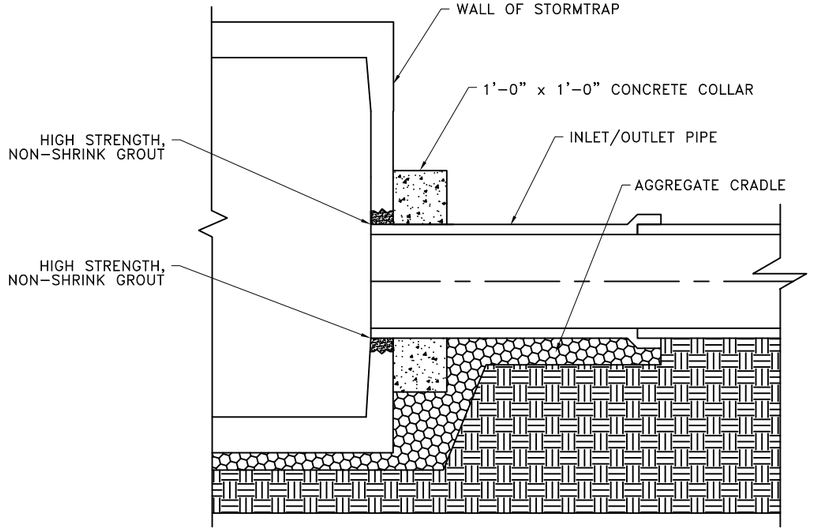
RECOMMENDED PIPE OPENING SPECIFICATION

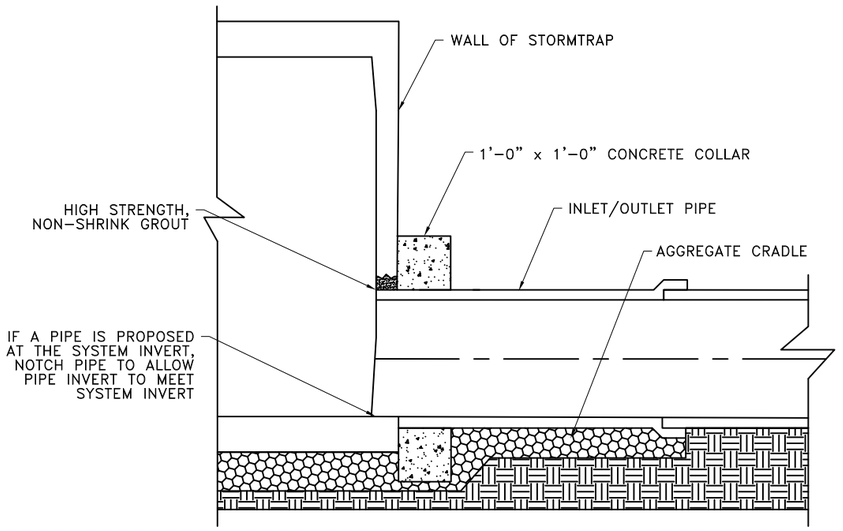
1. MINIMUM EDGE DISTANCE FOR AN OPENING ON THE OUTSIDE WALL SHALL BE NO LESS THAN 1'–0".
2. MAXIMUM OPENING SIZE TO BE DETERMINED BY THE MODULE HEIGHT. PREFERRED OPENING SIZE ⌀ 36" OR LESS. ANY OPENING NEEDED THAT DOES NOT FIT THIS CRITERIA SHALL BE BROUGHT TO THE ATTENTION OF STORMTRAP FOR REVIEW.
3. CONNECTING PIPES SHALL BE INSTALLED WITH A 1'–0" CONCRETE COLLAR, AND AN AGGREGATE CRADLE FOR AT LEAST ONE PIPE LENGTH (SEE PIPE CONNECTION DETAIL). A STRUCTURAL GRADE CONCRETE OR HIGH STRENGTH, NON–SHRINK GROUT WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI SHALL BE USED.
4. THE ANNULAR SPACE BETWEEN THE PIPE AND THE HOLE SHALL BE FILLED WITH HIGH STRENGTH NON–SHRINK GROUT.

RECOMMENDED PIPE INSTALLATION INSTRUCTIONS

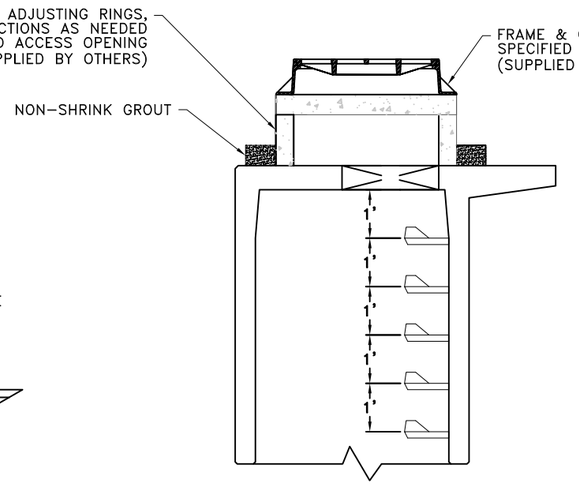
1. CLEAN AND LIGHTLY LUBRICATE ALL OF THE PIPE TO BE INSERTED INTO STORMTRAP.
2. IF PIPE IS CUT, CARE SHOULD BE TAKEN TO ALLOW NO SHARP EDGES. BEVEL AND LUBRICATE LEAD END OF PIPE.
3. ALIGN CENTER OF PIPE TO CORRECT ELEVATION AND INSERT INTO OPENING.

NOTE: ALL ANCILLARY PRODUCTS/SPECIFICATIONS RECOMMENDED AND SHOWN ON THIS SHEET ARE RECOMMENDATIONS ONLY AND SUBJECT TO CHANGE PER THE INSTALLING CONTRACTOR AND/OR PER LOCAL MUNICIPAL CODE/REQUIREMENTS.

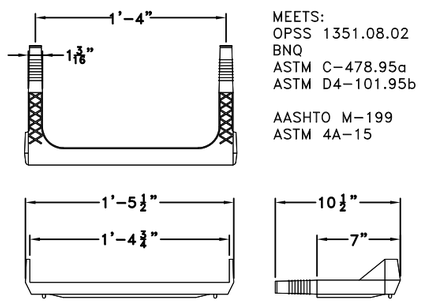




PIPE CONNECTION DETAIL



RISER / STAIR DETAIL



MEETS:
OPSS 1351.08.02
BNQ
ASTM C–478.95a
ASTM D4–101.95b

AASHTO M–199
ASTM 4A–15

STEP DETAIL

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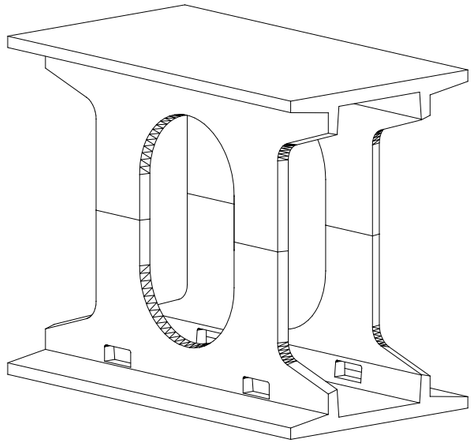
SHEET TITLE:

RECOMMENDED PIPE / ACCESS OPENING SPECIFICATIONS

SHEET NUMBER:

5.0



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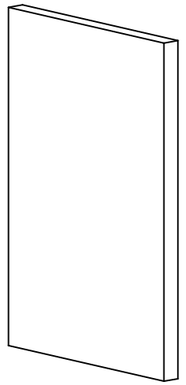
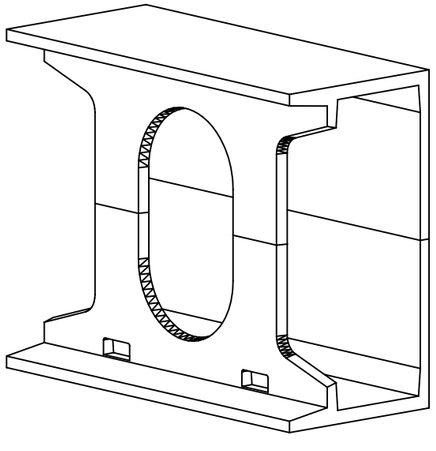
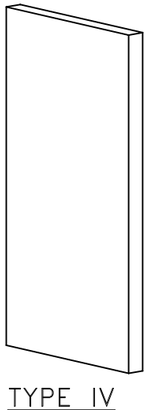


TYPE II
END PANEL



TYPE III



TYPE IV
END PANEL

NOTES:
1. OPENING LOCATIONS AND SHAPES MAY VARY.
2. SP – INDICATES A MODULE WITH MODIFICATIONS.
3. P – INDICATES A MODULE WITH A PANEL ATTACHMENT.
4. POCKET WINDOW OPENINGS ARE OPTIONAL.

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DOUBLETRAP
MODULE TYPES

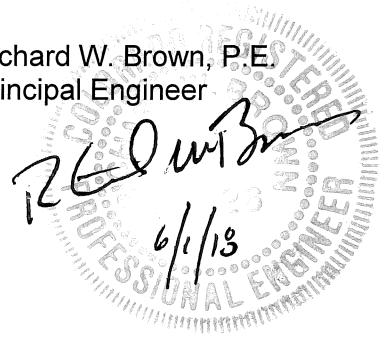
SHEET NUMBER:

6.0

GEOTECHNICAL ENGINEERING STUDY
PROPOSED SALIDA CROSSINGS BUILDING A, PHASE 1
SALIDA, COLORADO

Greg Snyder
Scientist

Richard W. Brown, P.E.
Principal Engineer



PREPARED FOR:
SALIDA CROSSINGS 134 LLC.
1208 C ST.
SALIDA, CO 81201

ATTN. MR. DUANE COZART

Project No. 18044

MAY 31, 2018

1537 G Street Salida, CO 81201		2035 1/2 Grande Avenue Monte Vista, CO 81144
(719)539-2312 Fax (719)530-9111	MOUNTAIN ENGINEERING & TESTING	(719)628-2069 Fax(719)530-9111

TABLE OF CONTENTS

FIGURES and APPENDICES

PURPOSE AND SCOPE OF STUDY

This geotechnical engineering study was prepared for the proposed Salida Crossings in Salida, Colorado. The study was conducted to evaluate the subsurface soil and ground water conditions and determine geotechnical engineering criteria for the structural foundation design of the proposed Building A. At the time of this report preparation, building plans have not been provided for our review. The study was conducted in accordance with our proposal number P-18-014 REVISED dated April 25, 2018. The purpose of our services is to provide information and geotechnical engineering recommendations relative to:

- Foundation design criteria
- Lateral earth pressures
- Excavation considerations

A field exploration program consisting of exploratory test pits was conducted to obtain information on subsurface conditions. The limited depth of the study is not sufficient to provide deep foundation recommendations. The results of the field exploration and field samples were analyzed to develop recommendations for the proposed building and are presented herein.

This report summarizes the data obtained during this study with our conclusions and recommendations based on the proposed construction and the subsurface conditions encountered. The conclusions and recommendations contained in this report are based upon the results of field and laboratory testing, engineering analyses, and our experience with similar soil conditions. Our recommendations are provided for the preparation of project plans and specifications, and are not intended as project specifications.

PROPOSED CONSTRUCTION

The proposed construction will consist of an approximately 14,852 square foot three story mixed use residential and commercial building. We anticipate shallow foundation systems with the grade to remain at or near the existing grade. If locations or conditions are significantly different from those described above or depicted in this report, we should be notified to reevaluate the recommendations contained herein.

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SITE CONDITIONS

The subject site is located at 1520 US-HWY 50 in Salida, Colorado. The existing property is a developed lot, previously used as Town and Country automotive dealership and service center building, with asphalt and concrete pavement surrounding the existing building. The ground surface in the vicinity of the building was stripped of asphalt, but contained a portion of the existing automotive dealership showroom within the western third of the proposed building location. A storm sewer vault was found in the southwest corner of the proposed building site.

SITE EXPLORATION

Field Exploration:

The subsurface conditions were explored with three (3) exploratory test pits excavated to a maximum depth of 8 feet below grade on May 14, 2018. The location of the test pits are shown on the Test Pit Location Plan, Figure 1. The log of the test pits with the Legend and Notes are shown on Figures 2 through 5.

The density of the soils in the test pits were evaluated by driving a 5/8-inch diameter penetrometer into the various strata with blows from a 10-pound hammer falling 12 inches. The penetrometer test results are shown on the test pit log. This test is similar to the standard penetration test described by ASTM D 1586. At the completion of the field exploration, the test pits were backfilled to the existing grade.

Laboratory Testing: No samples were tested due to the prominence of man-made fills, and oversized cobble.

SUBSURFACE CONDITIONS

Soil Conditions: The subsurface conditions encountered in test pits consist of approximately 3 to 5 feet of loose to dense fill containing man-made materials, and varying amounts of fine sands and gravel. The depth and composition of the fill may vary from the fill encountered in the test pits. The fill is underlain by a layer of gravels and cobbles with sand. Based on the difficulty of excavation and observation, we consider the gravels to be medium dense to dense.

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Ground Water Conditions: Ground water was not encountered in the test pits. The ground water readings represent the conditions during our exploration and may not be indicative of other times or locations. Water levels can fluctuate with variations in rainfall, temperature, snowmelt, irrigation and other factors.

FOUNDATION RECOMMENDATIONS

Considering the subsurface conditions encountered in the exploratory test pits and the nature of the proposed construction, a shallow foundation may be founded on the native granular soils consisting of gravel, cobble, and sand or a compacted structural fill. Numerous cobbles were encountered, and therefore, we recommend 6 to 12 inches of structural fill be placed and compacted below the footing subgrade to minimize point loads. **Any fill encountered below the foundation subgrade should be penetrated by the foundation, or removed and replaced with a structural fill material.** The following recommendations have been prepared for a shallow foundation with a minimum 2.5 feet (30 inch) embedment:

- Shallow foundations bearing on the native gravels or structural fill placed above the native soils should be designed for:
  An allowable soil bearing pressure of 2,500 psf.
  An allowable coefficient of friction of 0.46.

- Spread footings should have a minimum width of 16 inches for continuous footings and 24 inches for isolated pads.

- Exterior footings and footings beneath unheated areas should be placed at least 30 inches below the exterior grade for frost protection.

- Continuous foundation walls should be reinforced top and bottom to span an unsupported length of at least 12 feet.

- Granular foundation soils should be moisture conditioned and compacted with a heavily loaded vibratory compactor prior to footing construction.

- Compacted fill placed against the sides of the foundations to resist lateral loads should be a granular material. Requirements for fill placed and compacted to resist lateral loads are discussed below in "**Earthwork**."

- The recommendations provided are based on widely spaced test pits and conditions at the building site may vary. **A representative of the geotechnical engineer should observe all foundation excavations, prior to fill or concrete placement, to confirm the subgrade condition is consistent with the design soil conditions in this report.** Considering the man made fill onsite, it is important for us to observe the foundation excavation.

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Seismic Design Recommendations: According to ASCE 7-16 procedures, and information obtained from our subsurface exploration of limited depth at the building site, a Site Class D, stiff soil profile is estimated. The actual site class determination requires drilling and testing to a depth of 100 feet or a geophysical survey.

LATERAL EARTH PRESSURES

The lateral equivalent fluid pressures for soils above a free water surface are recommended below:

Backfill Material	Active	Passive	At Rest
Native gravels and sands (3" minus)	35 pcf	250 pcf	55 pcf
Imported Structural Fill	40 pcf	200 pcf	60 pcf

All structures and piping should be designed for appropriate surcharge pressures such as adjacent buildings, traffic, construction materials and equipment. The pressures recommended above assume drained conditions and a horizontal backfill surface. If water or sloping backfill conditions occur, we should be contacted to reevaluate our recommendations.

FLOOR SLABS

A minimum depth of 6 inches of compacted structural fill or a free draining gravel is recommended below slabs placed on stable subgrade in accordance with the recommendations in the "**Earthwork**" section of this report. To reduce the risk of slab settlement and cracking, the subgrade soils should be moisture conditioned and recompacted to the minimum density recommended in this report prior to placing the structural fill. Man-made fill below slab areas should be removed and replaced with the structural fill material recommended under the heading "Fill Materials, Placement and Compaction" in this report.

Floor slab control joints should be used to reduce damage due to shrinkage cracking. Joint spacing is dependent on slab thickness and aggregate size, and should be consistent with recognized guidelines such the Portland Cement Association (PCA) and the American Concrete Institute (ACI). A vapor retarder membrane is recommended for slabs with moisture sensitive floor coverings to reduce moisture in the concrete slab.

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Concrete placement and curing should be in accordance with the American Concrete Institute recommendations. Improper curing techniques and/or high slump concrete can cause excessive shrinkage, cracking and/or curling of the concrete slab.

EARTHWORK

General engineered fill recommendations are provided in Appendix A of this report.

Site Clearing and Subgrade Preparation: Strip and remove the existing vegetation, man-made fill, debris and other deleterious materials from the proposed subgrade areas. Stripped materials consisting of vegetation and organic materials should be wasted from the site or used to revegetate landscaped areas after grading operations. Organic materials should only be placed in non-structural areas. All exposed surfaces should be free of mounds and depressions that could prevent uniform compaction.

If unexpected fills or underground facilities are encountered during site clearing, such features should be removed prior to backfill placement and/or construction. According to observations of the test pit and location of the building addition, it should be expected that man-made fills, abandoned and existing utilities, and deleterious materials may be encountered during construction. All excavations should be observed by the geotechnical engineer prior to backfill placement. Subgrade that will receive fill, once properly cleared, should be moisture conditioned, and compacted to the same specifications as the fill material.

Fill Materials, Placement and Compaction: Based on the soils encountered in the test pits, the man made fill is not considered suitable for re-use. Imported structural fill should meet the following specifications or be approved by the Geotechnical Engineer.

Sieve Size	Percent Finer
2 inch	100
No. 4 Sieve	30-70
No. 50 Sieve	10-50
No. 200 Sieve	20 max.

Plasticity	
Liquid Limit	30 max.
Plasticity Index	10 max.

Frozen soils should not be used as fill or backfill, and fill should not be placed over frozen ground.

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The following compaction recommendations are provided for fill depths less than five (5) feet. If fill materials are placed in excess of five feet, we should be contacted to review the conditions and provide additional recommendations, if necessary. The compaction and moisture contents shown in the following table are recommended for granular soils.

FILL AREA	MINIMUM COMPACTION	MOISTURE CONTENT
Below Foundations	98% Std. Proctor (ASTM D698) or 95% Mod. Proctor (ASTM D1557)	Optimum Moisture, +/- 3%
Below Floor Slabs	95% Std. Proctor (ASTM D698) or 90% Mod. Proctor (ASTM D1557)	Optimum Moisture, +/- 3%
Pavement Areas	95% Mod. Proctor (ASTM D1557)	Optimum Moisture, +/- 3%

Excavation and Trench Construction: According to OSHA construction standards 2207, subpart P, the native soils classify as "Type C" soils and should not have side slopes steeper than 1½:1 (horizontal to vertical) up to a maximum depth of 20 feet or until encountering ground water. If ground water seepage occurs during excavation, flatter slopes may be appropriate. All vehicles and soil piles should be a minimum lateral distance from the crest of the slope equal to the slope height. The exposed slope face should be protected from the elements.

The contractor is responsible for designing and constructing stable, temporary excavations as required to maintain stability of both excavation sides and bottom. All excavations should be sloped or shored in the interest of safety following local and federal regulations, including current OSHA excavation and trench safety standards.

Compliance: Performance of the foundations supported on compacted fills or prepared subgrade depends upon compliance with the above earthwork recommendations. To assess compliance, observation and testing should be performed under the direction of the geotechnical engineer.

SURFACE DRAINAGE

Positive drainage should be provided during construction and maintained throughout the life of the proposed structure. Infiltration of water into utility or foundation excavations should be prevented during construction. Surface features that could retain water in areas adjacent to the structures should be avoided.

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SUBSURFACE DRAINAGE

To our knowledge below grade areas are not planned, and therefore, subsurface drainage is not required. Should conditions, building plans or elevation change, we should be contacted to review the drainage recommendations.

CONCRETE

Based on the granular nature of the on-site materials encountered in the test pits, we estimate the concentration of water soluble sulfates to have a negligible degree of sulfate attack on concrete exposed to these materials according to the U.S. Bureau of Reclamation Concrete Manual. Based on this information, a Type I-II is recommended. Concrete testing for slump, air content and compressive strength is recommended during placement of the concrete foundations and slabs.

LIMITATIONS

Mountain Engineering and Testing should be retained to review the final design plans and specifications with regards to the recommendations in this report. The conclusions and recommendations submitted in this letter are based upon the data obtained from the exploratory test pits and the proposed type of construction. The nature and extent of subsurface variations across the site may not become evident until excavation is performed. If during construction, fill, soil, rock or water conditions appear to be different from those described herein, this office should be advised at once so reevaluation of the recommendations may be made. We recommend on-site observation of excavations by a representative of the geotechnical engineer.

This study has been conducted for the client for the subject project in accordance with generally accepted geotechnical engineering practices in this area. If during construction, soil, rock or water conditions appear to be different from those described herein, Mountain Engineering & Testing should be advised at once to reevaluate our recommendations. In the event that changes in the nature, design or location of the project are different from the project descriptions in this report, then the conclusions and recommendations contained in this report shall not be considered valid unless Mountain Engineering & Testing reviews the changes and either verifies or modifies the conclusions of this report in writing.

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The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g. mold, fungi, and bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential of such contamination or pollution, other studies should be undertaken.

Please contact me at 719-539-2312 at your convenience if you have any questions of if we can be of further assistance.

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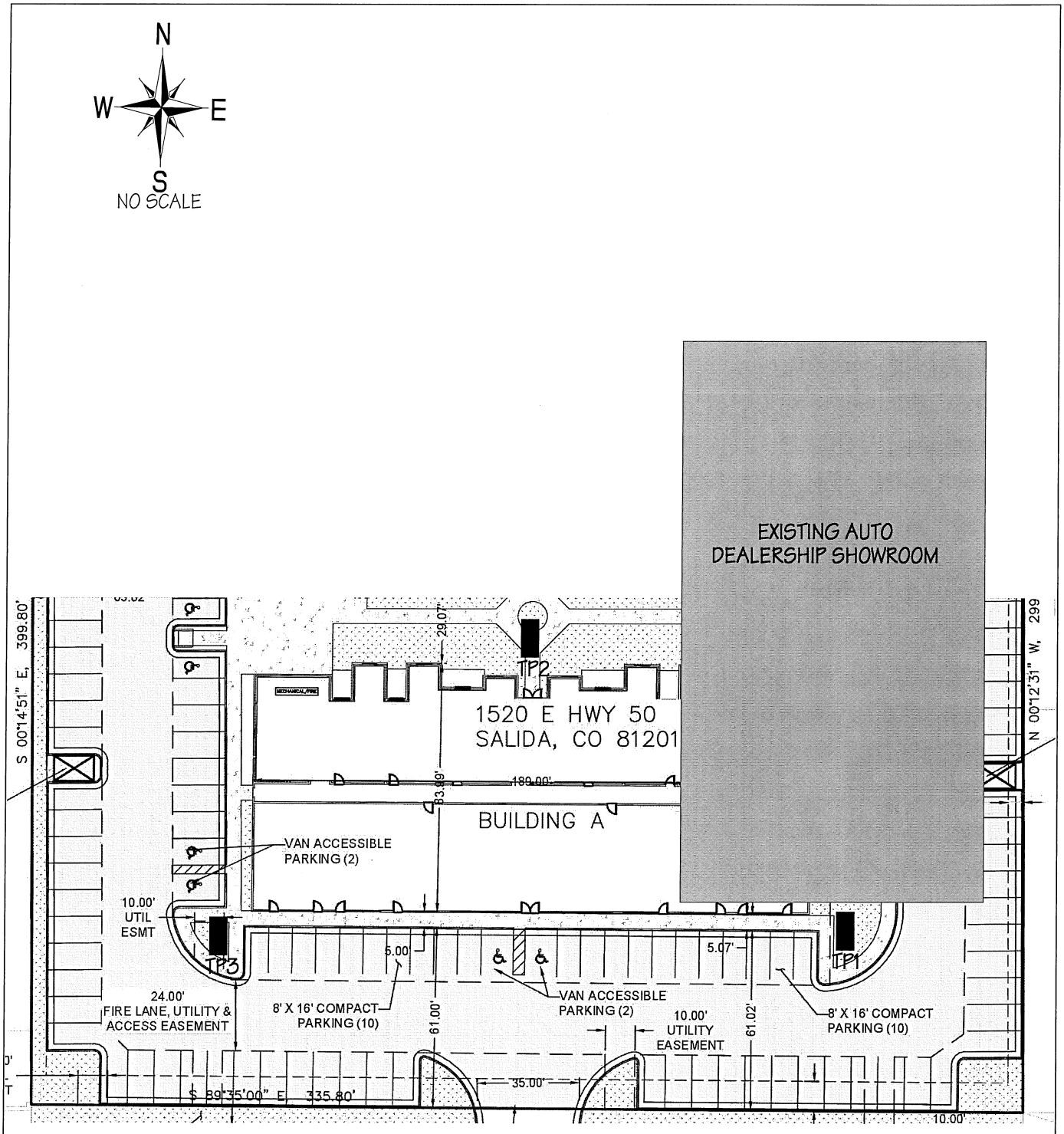


SYMBOLS

■ TP1 TEST PIT NUMBER AND APPROXIMATE LOCATION

GEOTECHNICAL ENGINEERING STUDY
SALIDA CROSSINGS, BUILDING A- PHASE 1
1520 US HWY 50, SALIDA, CO

TEST PIT LOCATION PLAN

1537 G Street Salida, CO 81201 (719)539-2312 Fax (719)530-9111	MOUNTAIN ENGINEERING & TESTING	2035 1/2 Grande Avenue Monte Vista, CO 81144 (719)628-2069 Fax(719)530-9111

FIGURE: 1

TEST PIT LOG NUMBER TP1

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
GEOTECHNICAL ENGINEERING STUDY SALIDA CROSSINGS	1520 US HWY 50, SALIDA, CO	18044

SURFACE CONDITIONS	COORDINATES	ELEVATION	TOTAL DEPTH	WATER DEPTH
ASPHALT PARKING LOT, FILL, BUILDINGS	38° 31.4625 N 105° 59.1655 W	NA	7-FEET	NONE

METHOD OF EXCAVATION	CONTRACTOR	DATE	TECHNICIAN	CHECKED BY
JOHN DEERE 310 SG BACKHOE	DUANE COZART	5/14/2018	GREG SNYDER	RWB

SAMPLE TYPE & NUMBER	PENETROMETER BLOW COUNTS	DEPTH IN FEET	CLASSIFICATION AND DESCRIPTION OF MATERIAL
		0	GRAVELLY SAND (ROADBASE) & FILL, TAN, LOOSE, FINE GRAINED SAND, LITTLE GRAVEL, DRY. -FILL-
	49/12" (N=8)	2	GRAVELLY SAND, DARK BROWN, DENSE, TRACE ROUNDED TO SUBROUNDED COBBLE TO 6",TRACE BRICK AND ASPHALT, DRY-MOIST. -FILL-
BULK 1 4'	100/5" (N=37)	4	
		6	COBBLE MATRIX-MOSTLY ROUND AND SUBROUND COBBLE WITH FINE SAND INFILL. -ALLUVIUM-
		8	BOTTOM OF HOLE @ 7-FEET MOIST.
		10	
		12	
		14	

FIGURE 2

1537 G Street
Salida, CO 81201
(719)539-2312
Fax (719)530-9111

MOUNTAIN ENGINEERING & TESTING

2035 1/2 Grande Avenue
Monte Vista, CO 81144
(719)628-2069
Fax(719)530-9111

TEST PIT LOG NUMBER TP2

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
GEOTECHNICAL ENGINEERING STUDY SALIDA CROSSINGS	1520 US HWY 50, SALIDA, CO	18044

SURFACE CONDITIONS	COORDINATES	ELEVATION	TOTAL DEPTH	WATER DEPTH
ASPHALT PARKING LOT, FILL, BUILDINGS	38° 31.4738 N 105° 59.1942 W	NA	8-FEET	NONE

METHOD OF EXCAVATION	CONTRACTOR	DATE	TECHNICIAN	CHECKED BY
JOHN DEERE 310 SG BACKHOE	DUANE COZART	5/14/2018	GREG SNYDER	RWB

SAMPLE TYPE & NUMBER	PENETROMETER BLOW COUNTS	DEPTH IN FEET	CLASSIFICATION AND DESCRIPTION OF MATERIAL
BULK 2 4'	36/12" (N=8)	2	SANDY GRAVEL (ROADBASE), TRACE ASPHALT, MAN MADE MATERIALS, LOOSE, DRY. -FILL-
BULK 2 4'	100/9" (N=20)	4	SAME-MEDIUM DENSE. -FILL-
		6	SANDY GRAVEL WITH COBBLE, DARK BROWN, ROUND AND SUBROUND COBBLE TO 24", FINE GRAINED SAND, DRY-MOIST -ALLUVIUM-
		8	BOTTOM OF HOLE @ 8-FEET. MOIST.
		10	
		12	
		14	

FIGURE 3

1537 G Street
Salida, CO 81201
(719)539-2312
Fax (719)530-9111

MOUNTAIN ENGINEERING & TESTING

2035 1/2 Grande Avenue
Monte Vista, CO 81144
(719)628-2069
Fax(719)530-9111

TEST PIT LOG NUMBER TP3

PROJECT NAME	PROJECT LOCATION			PROJECT NUMBER
GEOTECHNICAL ENGINEERING STUDY SALIDA CROSSINGS	1520 US HWY 50, SALIDA, CO			18044
SURFACE CONDITIONS	**COORDINATES**	**ELEVATION**	**TOTAL DEPTH**	**WATER DEPTH**
ASPHALT PARKING LOT, FILL, BUILDINGS	38° 31.4581 N 105°59.2073 W	NA	7.5-FEET	NONE
METHOD OF EXCAVATION	**CONTRACTOR**	**DATE**	**TECHNICIAN**	**CHECKED BY**
JOHN DEERE 310 SG BACKHOE	DUANE COZART	5/14/2018	GREG SNYDER	RWB

SAMPLE TYPE & NUMBER	PENETROMETER BLOW COUNTS	DEPTH IN FEET	CLASSIFICATION AND DESCRIPTION OF MATERIAL
BULK 1 2'		2	SANDY GRAVEL (ROADBASE), TRACE CONCRETE, ASPHALT AND BRICK, COBBLE TO 12", DRY. -FILL-
BULK 2 4'	100/5" (N=37)	4	GRAVEL WITH SAND, BROWN, DENSE, ROUND AND SUBROUND COBBLE TO 18", DRY-MOIST. -ALLUVIUM-
		6	
		8	BOTTOM OF HOLE @ 7.5-FEET MOIST.
		10	
		12	
		14	

FIGURE 4

1537 G Street
Salida, CO 81201
(719)539-2312
Fax (719)530-9111

MOUNTAIN ENGINEERING & TESTING

2035 1/2 Grande Avenue
Monte Vista, CO 81144
(719)628-2069
Fax(719)530-9111

LEGEND AND NOTES

PARTICLE SIZE IDENTIFICATION

Clay - Particles finer than 0.005 millimeters.

Silt - Particles finer than 0.074 millimeters and larger than 0.005 millimeters.

Sand - Particles finer than No. 4 Sieve and larger than the No. 200 Sieve .

Gravel - From 1/4-inch to 3 inches in diameter.

Cobble - From 3 to 12 inches in diameter.

Boulder - Larger than 12 inches in diameter.

SOIL DESCRIPTION MODIFIERS

Trace - Represents 0 to 5 percent by weight.

With (Coarse Grained Material) - Represents 15 to 29 percent by weight.

With (Fine Grained Material) - Represents 5 to 12 percent by weight.

NOTES

50/6" - (N=15) Indicates the number of blows required to drive a 5/8-inch penetrometer into the various strata with blows from a 10-pound hammer falling 12 inches. Number in parenthesis represents our calculated N-Value.

— — — — Dashed line between materials shown on the test pit logs are approximate and the transitions may be gradual.

DATE ▼ Groundwater level and the date of measurement.

The exploratory test pits were located based on the features shown on site plan.

Test pits are drawn to depth.

The exploratory test pit locations and elevations should be considered accurate only to the degree implied by the method used.

LABORATORY TEST RESULTS

+4 = Percent retained on No. 4 sieve;
-200 = Percentage passing the No. 200 sieve;
LL = Liquid Limit;
PI = Plasticity Index;
NP = Non-plastic;
WC = Water Content (%);
WSS = Water Soluble Sulfates (ppm);
DD = Dry Density (pcf);

FIGURE: 5

Appendix A
General Engineered Fill Recommendations

A. Clearing and Grubbing
   a. Areas where excavation or fill placement will be undertaken shall be cleared of all trees, stumps, roots, brush, rubbish, organic soil, or other objectionable matter as determined by the Soil Engineer. Organic soil which is suitable for topsoil shall be stockpiled for later use in landscaping,

B. Preparation of Area to be Filled
   a. Scarification: After vegetation and other unsuitable material have been removed, the ground surface of the area to be filled shall be scarified to a depth of at least six (6) inches, and the ground surface is free from ruts, ridges and other uneven features.

   b. Benching: Where fills are placed upon hillsides or slopes where the slope ratio of the original ground exceeds 5 horizontal to 1 vertical (20%), the original ground slope shall be stepped or benched, and the surfaces of benches scarified to a depth of at least six (6) inches. Ground slopes which are flatter than 5 horizontal to 1 vertical shall be benched when considered necessary by the Soil Engineer.

   c. Subgrade Compaction: After the foundation for the fill has been scarified and benched as necessary, the ground surface shall be bladed until it is uniform size and brought to the proper moisture content for compaction. The ground surface shall then be compacted to the densities recommended in the geotechnical report.

   d. Existing Earth Fill: Any unsuitable existing fill on the site shall be removed until undisturbed native soil is exposed. The native soil shall then be scarified, prepared, and compacted and suitable structural fill shall be placed, in accordance with these guidelines.

C. Compacted Fill
   a. Fill Materials: Material for fill shall consist of suitable soil as identified in soil reports and/or approved by the Soil Engineer. The fill materials used shall be free of vegetation, frozen material, or other deleterious material. The fill shall not contain particles having a diameter greater than three (3) inches.

   b. Rock: The maximum rock size in fill materials shall be three (3) inches. Large rocks shall not be allowed to nest and voids between rocks shall be carefully filled with properly compacted soil. No large rocks will be permitted within twelve (12) inches of finished grade.

   c. Fill Placement: Fill shall be placed in uniform, level layers which do not exceed six (6) inches thickness after compaction. Each layer shall be placed, mixed, and spread in such a manner as to insure uniformity of each layer, and to prevent the formation of layers or zones of material which differ significantly in characteristics from the surrounding fill.

d. Moisture Control: Prior to compaction, the fill material shall be brought to its Proctor optimum moisture content, plus or minus 3% to insure even and uniform moisture conditions within the layer. The contractor may be required to add water to material in the excavation or borrow areas prior to transporting to the fill if, in the opinion of the Soil Engineer, proper moisture control cannot be obtained by adding water directly to the fill surface.

e. Compaction Procedure: After each layer has been spread, mixed, and brought to the proper moisture content, it shall be mechanically compacted to the recommended density. Other levels of compaction may also be specified by the Soil Engineer depending upon the type of soil encountered. Compaction of each layer shall be continuous over the entire area of the layer, and compaction equipment shall make sufficient passes to insure uniform and adequate compaction of each layer.

f. Compaction of Slopes: The face slopes of fills shall be properly compacted. Compaction on face slopes of fills may be accomplished progressively in increments of three (3) to five (5) feet in fill height, or may be done after the fill is brought to its total height.

D. Quality Control

a. Moisture Density Tests: Prior to commencement of fill operations, a Proctor test, shall be made for each soil material anticipated in the excavation and borrow areas. Additional Proctor tests shall be made during construction if different materials are encountered, or if soil mixtures on the fill warrant additional testing. Occasional single-point density tests shall be performed if necessary to verify the appropriateness of the Proctor values being used.

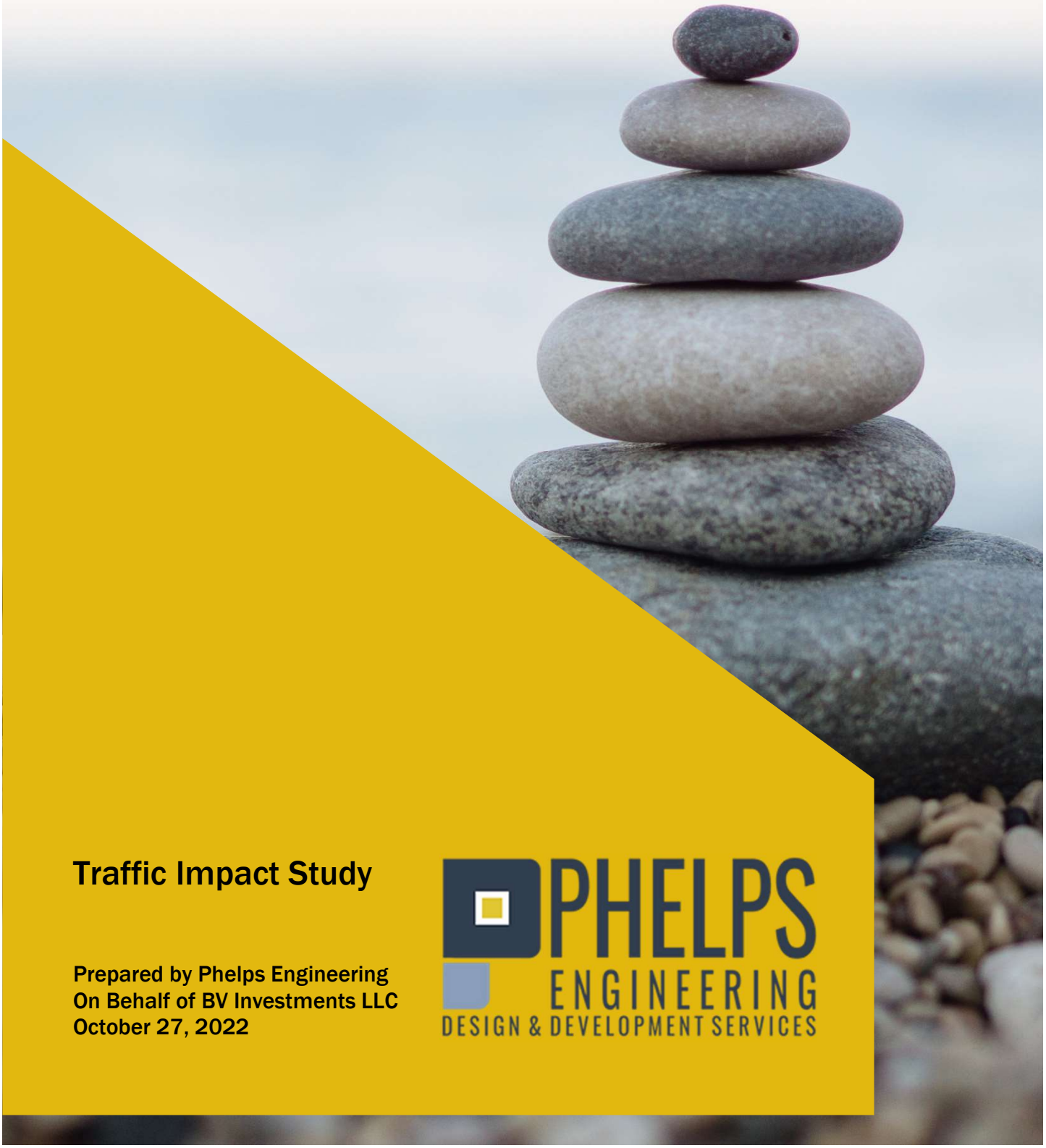
b. Density Testing: Field density tests shall be made by the Soil Engineer of the compaction of each layer of fill. At least one test shall be made for each layer of fill, and sufficient suitable compaction of each layer has been achieved. Density tests shall be taken in the compacted material below the disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof has not been properly compacted, the particular layer or portion shall be reworked until the required density has been obtained.

E. Seasonal Limits

a. No fill material shall be placed, spread, or rolled while it is frozen or thawing, or during unfavorable weather conditions. When fill operations are interrupted by weather conditions, fill operations shall not be resumed until the moisture content and density of the previously placed fill are tested for density.

SALIDA CROSSINGS

…a proposed mixed-use redevelopment serving the City of Salida, Colorado.



Traffic Impact Study

Prepared by Phelps Engineering
On Behalf of BV Investments LLC
October 27, 2022

PHELPS ENGINEERING
DESIGN & DEVELOPMENT SERVICES

REPORT CONTENTS

INTRODUCTION

Phelps Engineering Services, Inc. (PES) has prepared this traffic impact study for the proposed Salida Crossings mixed-use redevelopment project. This site is located at 1520 East Highway 50 in Salida, CO at county parcel number 380704300016. Currently, the site is occupied by a vacant car dealership parking lot. The site plan included in this report shows the use of only the current site access to East Rainbow Boulevard (US Highway 50A). No additional access is proposed. This existing access is located approximately 460 feet west of the intersection of East Rainbow Boulevard/Oak Street. This report has been prepared for submittal to the Colorado Department of Transportation (CDOT) and the City of Salida.

The preparation of this report included the following:

- An inventory of existing road and traffic conditions on US Highway 50A adjacent to the site including surface conditions; functional classification; road widths; pavement markings; traffic control signs; posted speed limits; intersection and access spacing; roadway and intersection alignments; curb, gutter, and sidewalk locations; and auxiliary turn lanes.
- Weekday turning movement traffic counts at the intersections of Rainbow Boulevard/Hunt Street, East Rainbow Boulevard/Oak Street, and Oak Street/County Road 105.
- A three-year (2020, 2019 and 2018) crash pattern review for US 50A between milepost 222 and 223, and for CO 291A between milepost 0 and 1.
- CDOT 2021 Annual Average Daily Traffic (AADT) volume data for US Highway 50A (East Rainbow Boulevard) adjacent to the site and SH 291 (Oak Street).
- Projections of 20-year background (baseline) traffic volumes on East Rainbow Boulevard and Oak Street adjacent to the site.
- The existing and proposed site land uses and access plan.
- Estimates of average weekday and weekday peak-hour trip generation for the proposed Salida Crossings redevelopment project and the estimated directional distribution of site-generated vehicle trips on the roadways and intersections adjacent to the site.
- Projected site-generated and resulting total peak-hour intersection traffic volumes at the site access point on East Rainbow Boulevard and at the intersection of East Rainbow Boulevard/Oak Street.
- An on-site parking needs analysis generated by the proposed residential and retail land uses and ADA parking space requirements.
- Intersection level of service analysis at the site access intersection with East Rainbow Boulevard and the intersection of East Rainbow Blvd./Oak St.
- An auxiliary right-/left-turn lane needs analysis based on the projected redevelopment volumes and criteria in the Colorado State Highway Access Code.
- Findings and recommendations.

LAND USE AND ACCESS

Figure 1 shows the site location relative to the adjacent and nearby roadways. A vacant car dealership parking lot currently occupies the site. The existing car dealership parking lot will be replaced with the Salida Crossings redevelopment. Salida Crossings is a planned mixed-use redevelopment project, consisting of seventy-two apartment units, twenty townhome units, and 10,274 square feet of retail space.

Figure 1: The site location relative to the adjacent and nearby roadways.

Figure 2 contains the proposed site plan showing the multi-family home units, townhome units, office/retail spaces, site circulation, and the access point to East Rainbow Boulevard. Site access to East Rainbow Boulevard will be via an existing access located approximately 460 feet west of Oak Street. Use of the access for the redevelopment project will require CDOT approval. Therefore, the applicant will submit a CDOT access permit application.

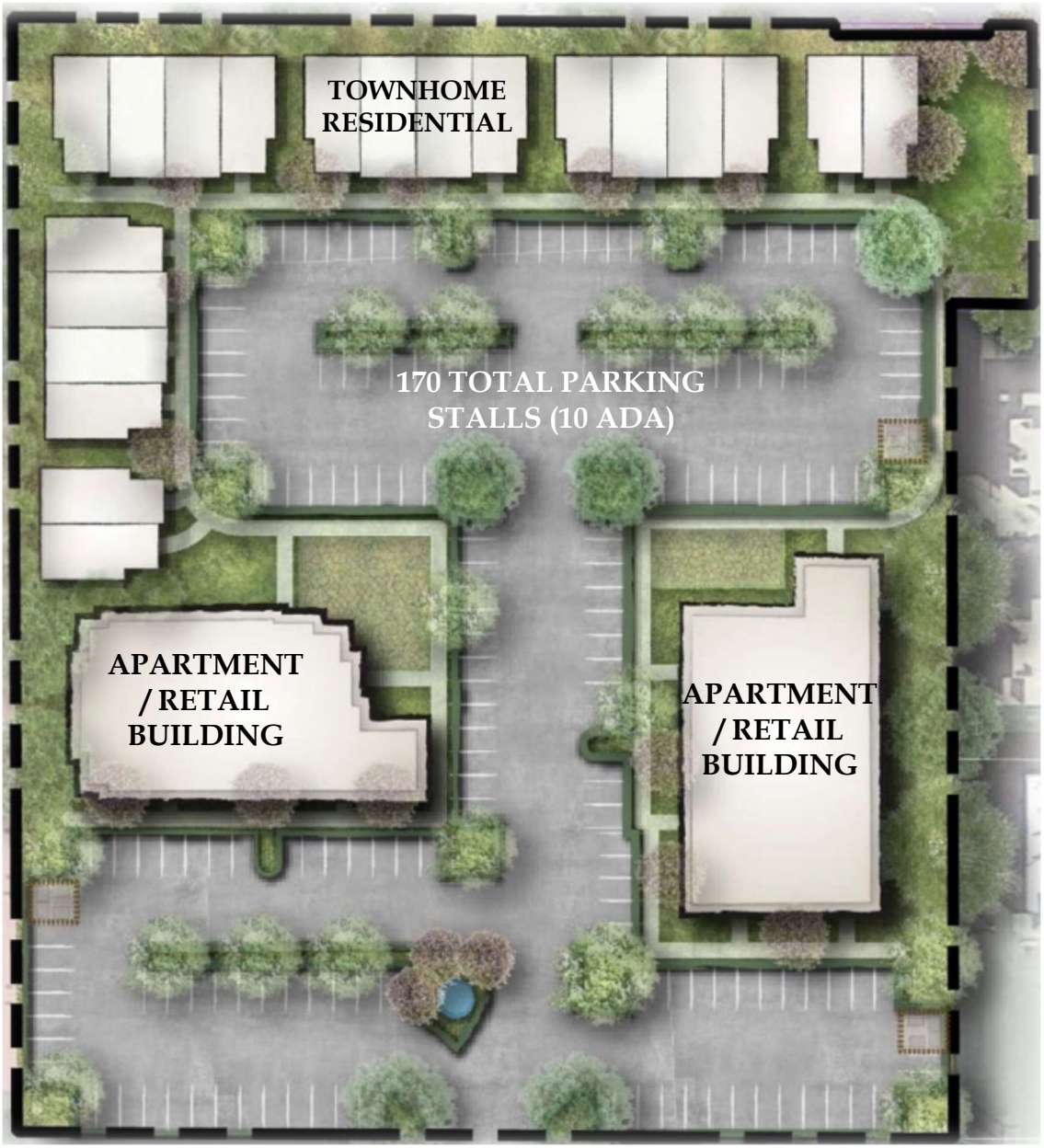


Figure 2: New Mixed-Use Redevelopment Conceptual Site Plan

ROAD AND TRAFFIC CONDITIONS

Figure 1 shows the roads adjacent to and in the vicinity of the site. Roads serving the site are identified below followed by a brief description of each:

- US Highway 50A (East Rainbow Boulevard) is the major roadway providing access to the site. US Highway 50A is an east-west state highway extending across Colorado from the Utah border in Mesa County to the Kansas border in Prowers County. US Highway 50A is classified as NR-A (Non-Rural Principal Highway) in the vicinity of the site. Adjacent to the site, US Highway 50A is a five-lane roadway with a posted speed limit of forty-five miles per hour (mph).

The street cross section includes striping for on-street bike lanes. The painted center median directly adjacent to the site access comprises two sets of dual solid yellow lines, which form a transition between the end of a two-way left-turn lane (TWLTL) and the dedicated eastbound left-turn lane at Oak Street. The applicant is requesting the access be CDOT-access-permitted as a full-movement with the redevelopment of the site.

- State Highway 291 (Oak Street) is classified as a two-lane NR-C (Non-Rural Arterial) in the vicinity of the site. Extending nine miles through Salida from US Highway 50A to US Highway 285, State Highway 291 has a posted speed limit of 35 mph north of US Highway 50A. The intersection of State Highway 291/US Highway 50A is a Stop-sign-controlled, full-movement T-intersection.

- Hunt Street is classified as an urban collector street in the City of Salida. The improvements to the roadway include a 34-foot traveled way, on-street parallel parking, detached sidewalks, curb and gutter, and directional curb ramps. The City Code, Section 1101(2)(a), states: "The speed limits for all streets within the City, unless otherwise posted, shall be 25 miles per hour." The speed limit on Hunt Street is not posted, so it is legally twenty-five mph. The intersection of US Highway 50A/Hunt Street is a Stop-sign-controlled, full-movement T-intersection.

- Chaffee County Road 105 (Old Stage Road) is a rural two-lane roadway with graded shoulders. The posted speed limit is twenty-five mph. The intersection of State Highway 291/County Road 105 is a stop-sign-controlled, full-movement T-intersection.

Existing Traffic Volumes

Figures 3a and 3b show the observed AM and PM peak-hourly traffic volumes at intersections adjacent to the site. Weekday turning movement traffic counts were obtained on Tuesday, April 5, 2022, at the intersections of Rainbow Boulevard (US-50)/Hunt Street, East Rainbow Boulevard (US-50)/Oak Street (SH 291), and Oak Street (SH 291)/County Road 105.

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Version 2022 (SP 0-3)

AM peak-hour traffic volumes at site adjacent intersections

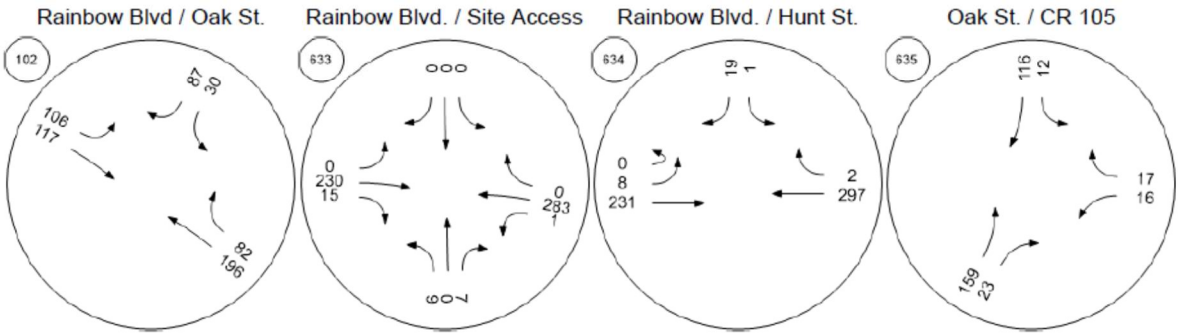

Figure 3a: AM peak-hour traffic volumes at site adjacent intersections.

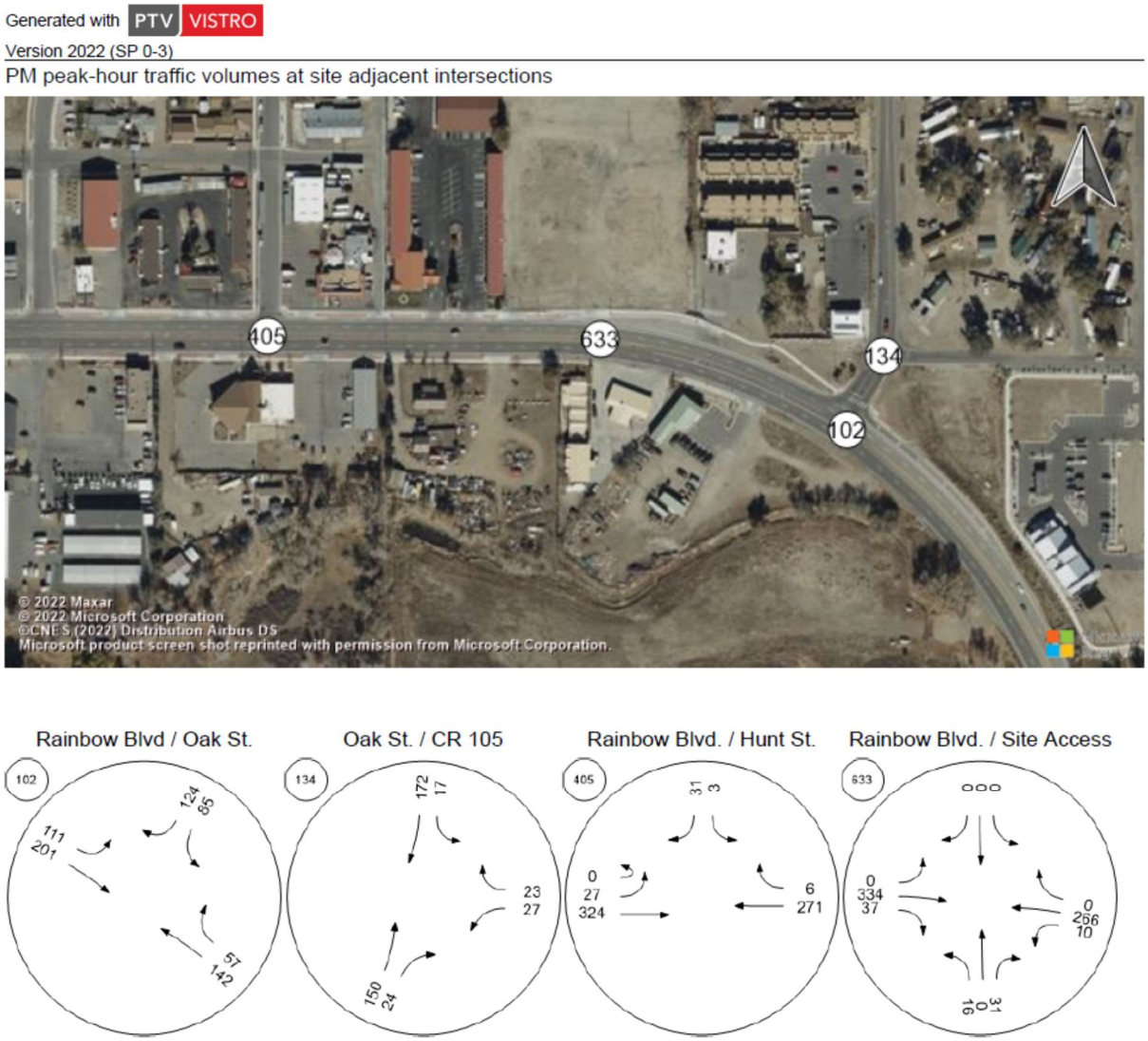

Figure 3b: PM peak-hour traffic volumes at site adjacent intersections.

PES also obtained the most current CDOT traffic data for count stations 102286, 102287, and 105345 located adjacent to the site. Table 1 includes the CDOT short duration count station 2021 AADT and project 2042 AADT for each station.

Station ID	Route	Milepost Begin-End	2021 AADT	Projected 2042 AADT	CDOT Growth Factor
102286	050A	222.198-222.399	8,400	9,106	1.084
102287	050A	222.399-233.62	6,200	6,786	1.095
105345	291A	0 – 0.865	4,100	4,444	1.084

Table 1: CDOT Short Duration Count Station 2021 AADT and 2042 AADT

Crash Pattern Review

CDOT provided crash data through its public website codot.gov. The latest year of crash records available in the CDOT crash database is 2020. To identify potential patterns of crashes on US 50A (Rainbow Boulevard) and CO 291A (Oak Street), three years (2020, 2019 and 2018) of crash records were reviewed for US 50A between milepost 222 and 223, and for CO 291A between milepost 0 and 1. Table 1 summarizes the three-year crash history for each roadway.

Route	Milepost	2020	2019	2018
US 50A	222 to 223	4 PDO Crashes	No Crashes Reported	2 PDO Crashes
CO 291A	0 to 1	No Crashes Reported	No Crashes Reported	No Crashes Reported
PDO = Property Damage Only				

Table 2: Three-year Crash Record Summary

There were two similar crashes at the intersection of US 50A (Rainbow Boulevard) and CO 291A (Oak Street) in 2020. A vehicle heading southbound on Oak St. and making a left turn onto US 50 was hit broadside by another vehicle heading eastbound on US 50 at the intersection. However, this intersection's three-year crash history indicates a low to moderate potential for crash reduction intersection when analyzed using the safety performance functions for a Rural 4-lane Divided Unsignalized 3-leg Intersection.

TRIP GENERATION

Estimates of the vehicle trips projected to be generated by Salida Crossings following redevelopment have been made using the nationally published trip generation rates from *Trip Generation, 10th Edition*, by the Institute of Transportation Engineers (ITE). Land use categories "215 – Single-Family Attached Housing," "220 – Multi-Family Housing (Low-Rise),"and "820 – Shopping Center", along with corresponding trip generation rates, have been used to develop the trip generation estimates for the site redevelopment. Table 3 below presents a summary of the estimated site trip generation. Salida Crossings is projected to generate about 1,694 "driveway" vehicle trips on the average weekday during a 24-hour period, with half entering and half exiting the site. During the morning peak hour, approximately sixty-five entering vehicles and sixty-six exiting vehicles would be generated by the redeveloped site. Approximately seventy-three entering vehicles and sixty-four exiting vehicles would be generated by Salida Crossings during the evening peak hour.

Analysis Period	Weekday		
	In	Out	Total
AM Peak Hour	65	66	131
PM Peak Hour	73	64	136
24-Hours	847	847	1,694

Table 3: Estimated Site Vehicle Driveway Trip Generation

Pass-By and Diverted Trips

The total number of trips generated by the site has also been aggregated by trip type to account for pass-by and diverted trips. A pass-by trip is one made by a motorist who would already be on an adjacent road regardless of the proposed development, but who stops in at the site while passing by. That pass-by motorist would then continue on his or her way to a final destination in the original direction.

Pass-by and diverted trip percentages have been based on data from the Trip Generation Handbook - An ITE Proposed Recommended Practice, 3rd Edition, 2014 by ITE and adjustments by PES for site-specific conditions. Analysis also accounts for diverted trips from the adjacent intersection of US Highway 50A/State Highway 291. These trips are technically considered non-pass-by trips, as they would be added to US Highway 50A and would result in altered turning movements at the nearby major intersection of US Highway 50A/State Highway 291. New trips would also be added to the proposed site access intersection.

The ITE-average percent pass-by and percent diverted trips were modified for this site-specific situation. Due to the site's geographic location on the outskirts of the city of Salida relative to adjacent major thoroughfares to the center of town, separate distributions were applied for entering and exiting vehicles to the site. Some drivers may enter the site eastbound on US Highway 50A but return to the center of town via Oak Street (and vice versa), changing their origin/destination paths.

PES increased the ITE-average proportion of primary trips (42 percent) generated by the shopping center to 60 percent. The ITE average of 34 percent pass-by trips generated by shopping centers was used, while PES decreased the proportion of diverted trips from 24 percent to 6 percent. Analysis accounts for pass-by and diverted trips for shopping center trips only. All residential trips were assumed to be primary.

Trip Reduction Factor

A trip reduction factor of one percent for residential and 3 percent for retail was used to account for trips between the proposed Salida Crossings mixed-use development and adjacent land uses, including motel and commercial uses. Internal trips are those in which both the origin and destination are within the development (trips paired between the proposed residential and commercial land uses).

TRIP DISTRIBUTION AND ASSIGNMENT

Trip Directional Distribution

An estimate of the directional distribution of site-generated vehicle trips to the study area roads and intersections is a necessary component in determining the site's traffic impacts. Table 4 shows the directional distribution estimate for the site-generated trips. The table shows the percentages of the site-generated vehicle trips projected to be oriented to and from the site's major approaches. Estimates have been based on the following factors: the proposed new land uses, the area street and road system serving the site, and the site's geographic location relative to the City of Salida and surrounding area.

Gate	To Salida Crossings	From Salida Crossings
	Share %	Share %
US 50 West of Hunt St.	55.00	65.00
US 50 South of CO 291	5.00	5.00
CO 291 North of CR 105	40.00	30.00

Table 4: Directional distribution estimate for the site-generated trips

Site-Generated Traffic

Redevelopment site-generated traffic volumes at the proposed site access point on US Highway 50A have been calculated by applying the directional distribution percentages estimated by PES (from Table 4) to the trip generation estimates (from Table 3). Figures 4a and 4b show the projected site-generated traffic volumes for the weekday AM and PM peak hours.

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Version 2022 (SP 0-3)

AM Peak-Hour Site Generated Traffic Volumes

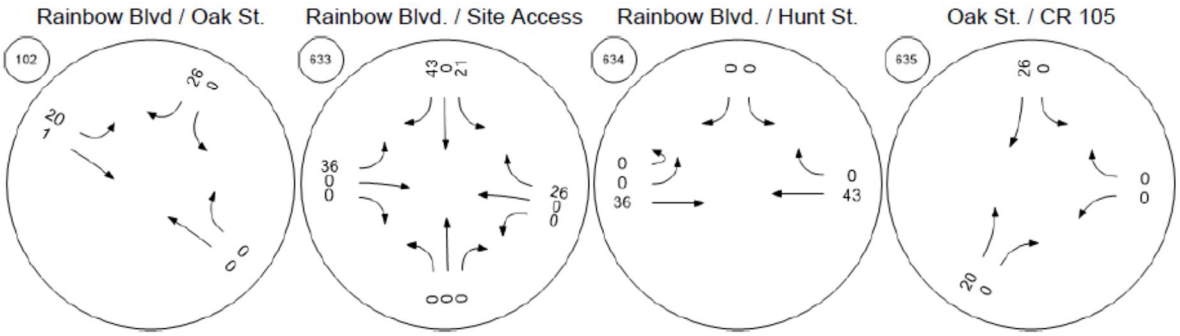

Figure 4a: AM Peak-Hour Site Generated Traffic Volumes

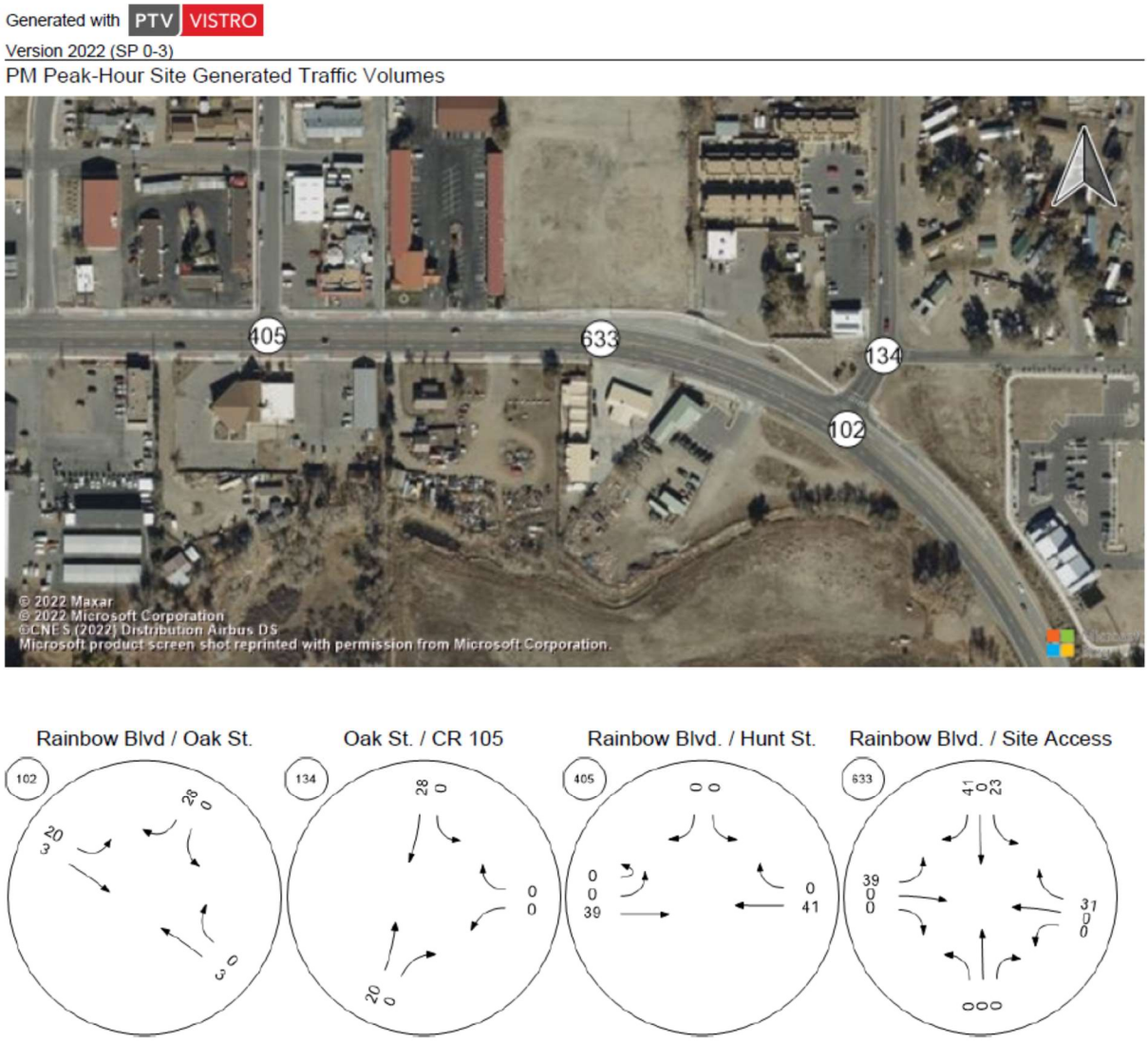

Figure 4b: PM Peak-Hour Site Generated Traffic Volumes

Existing-Plus-Site-Generated Traffic Volumes

Figures 5a and 5b show the sum of the existing traffic volumes (from Figures 3a and 3b) and site-generated peak-hour traffic volumes (shown in Figures 4a and 4b). These volumes represent the projected short-term total traffic following the opening of Salida Crossings.

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Version 2022 (SP 0-3)

AM Peak-Hour Existing Plus Site Generated Traffic Volumes

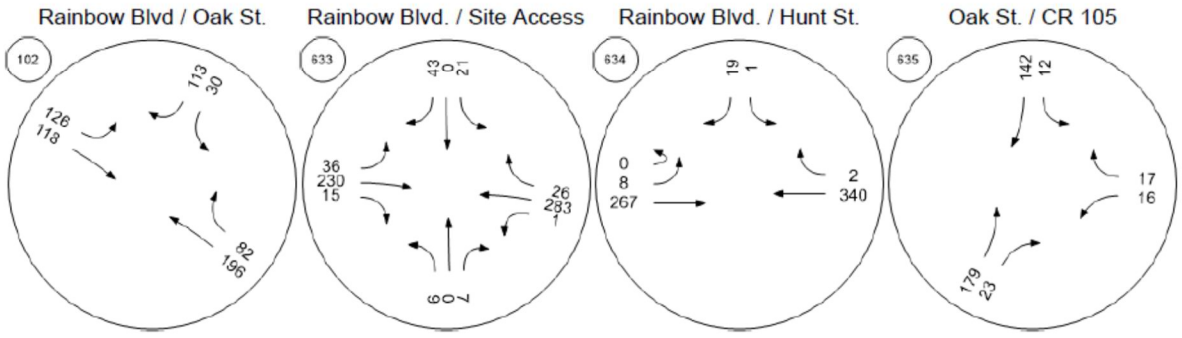


Figure 5a: AM Peak-Hour Existing Plus Site Generated Traffic Volumes

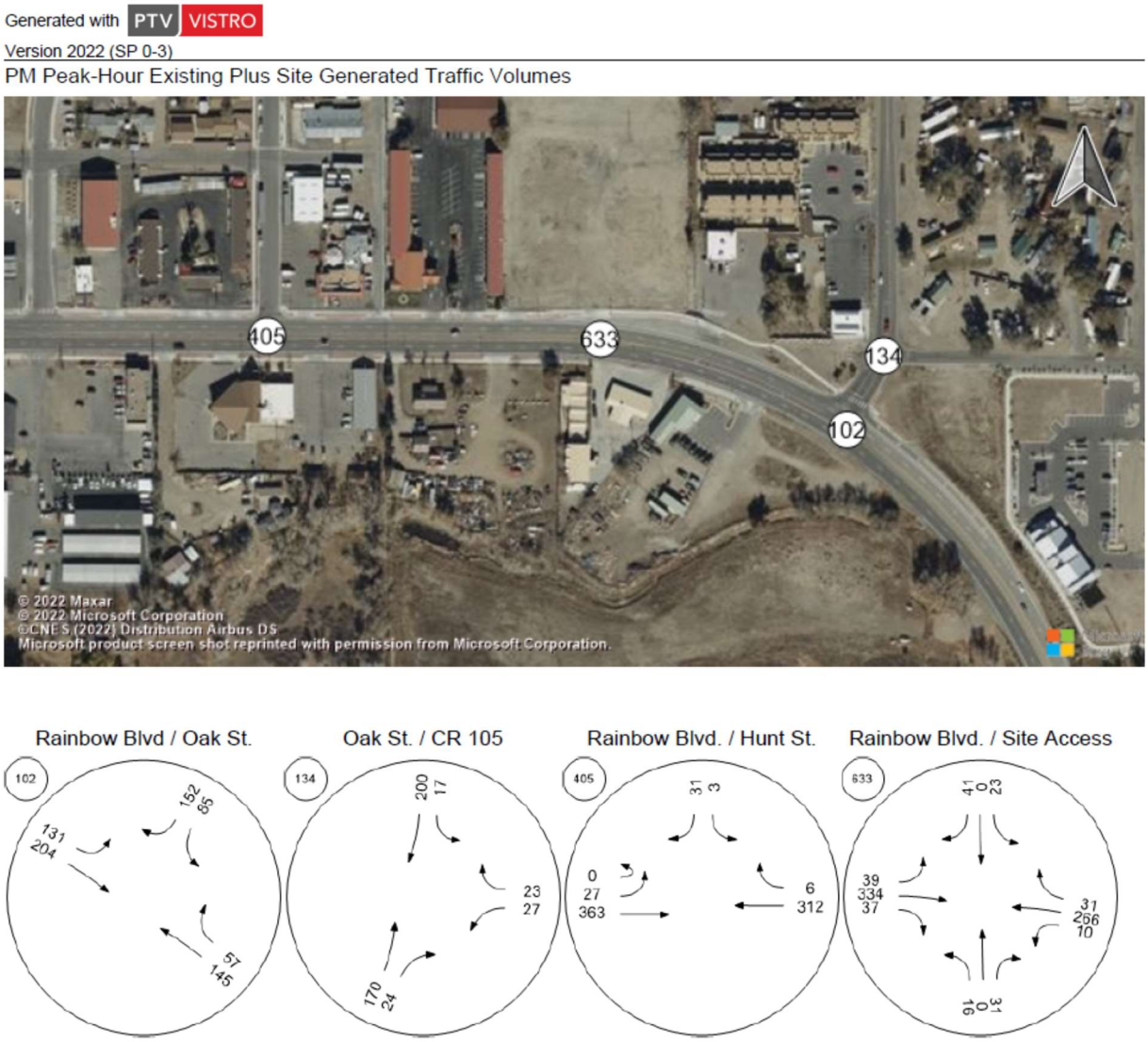


Figure 5b: PM Peak-Hour Existing Plus Site Generated Traffic Volumes

Estimated Future 2042 Background Traffic Volumes

Figures 6a and 6b show the projected 20-year background traffic volumes for the year 2042. The estimated 2042 background eastbound and westbound through traffic volumes on US Highway 50A are based on the CDOT 20-year growth factor of 1.084. The background traffic volumes were calculated by applying this growth factor to the existing traffic volumes. Background traffic volumes do not include projected traffic to be generated by the proposed Salida Crossings mixed-use development.

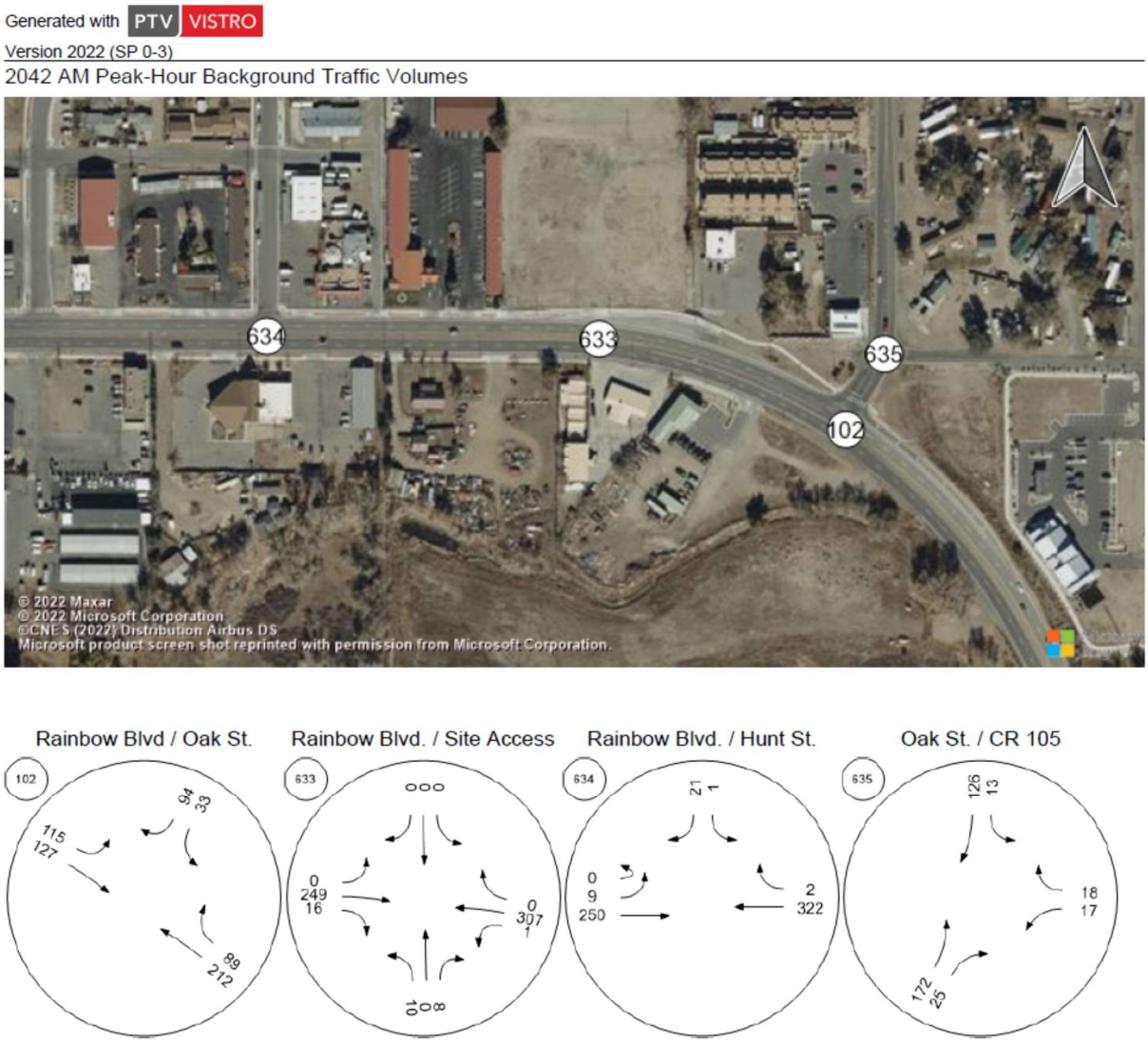


Figure 6a: 2042 AM Peak-Hour Background Traffic Volumes

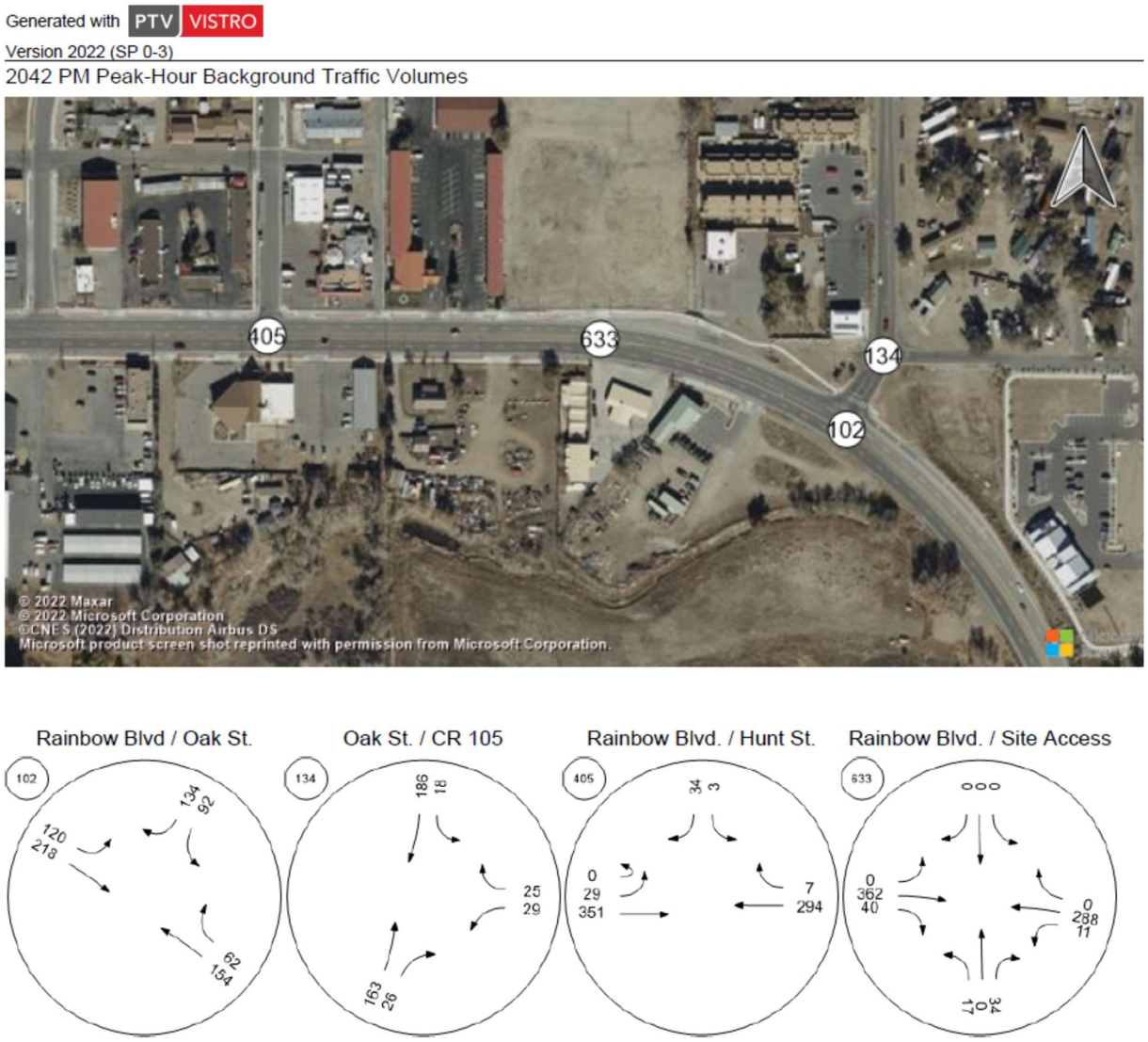


Figure 6b: 2042 PM Peak-Hour Background Traffic Volumes

Future 2042 Total Traffic Volumes

Figures 7a and 7b show the projected 2042 total traffic volumes. These volumes are the sum of 2042 background traffic volumes (from Figures 6a and 6b) plus the site-generated traffic volumes (from Figures 4a and 4b).

Generated with PTV VISTRO

Version 2022 (SP 0-3)

2042 AM Peak-Hour Background Plus Site Generated Traffic Volumes

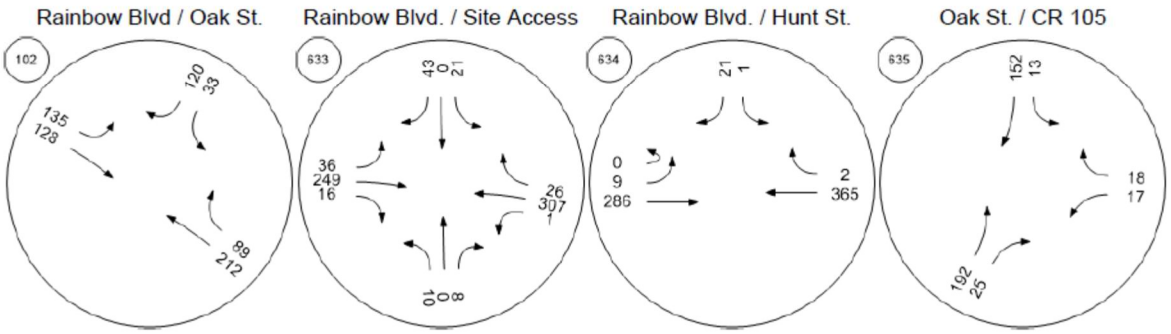


Figure 7a: 2042 AM Peak-Hour Background Plus Site Generated Traffic Volumes

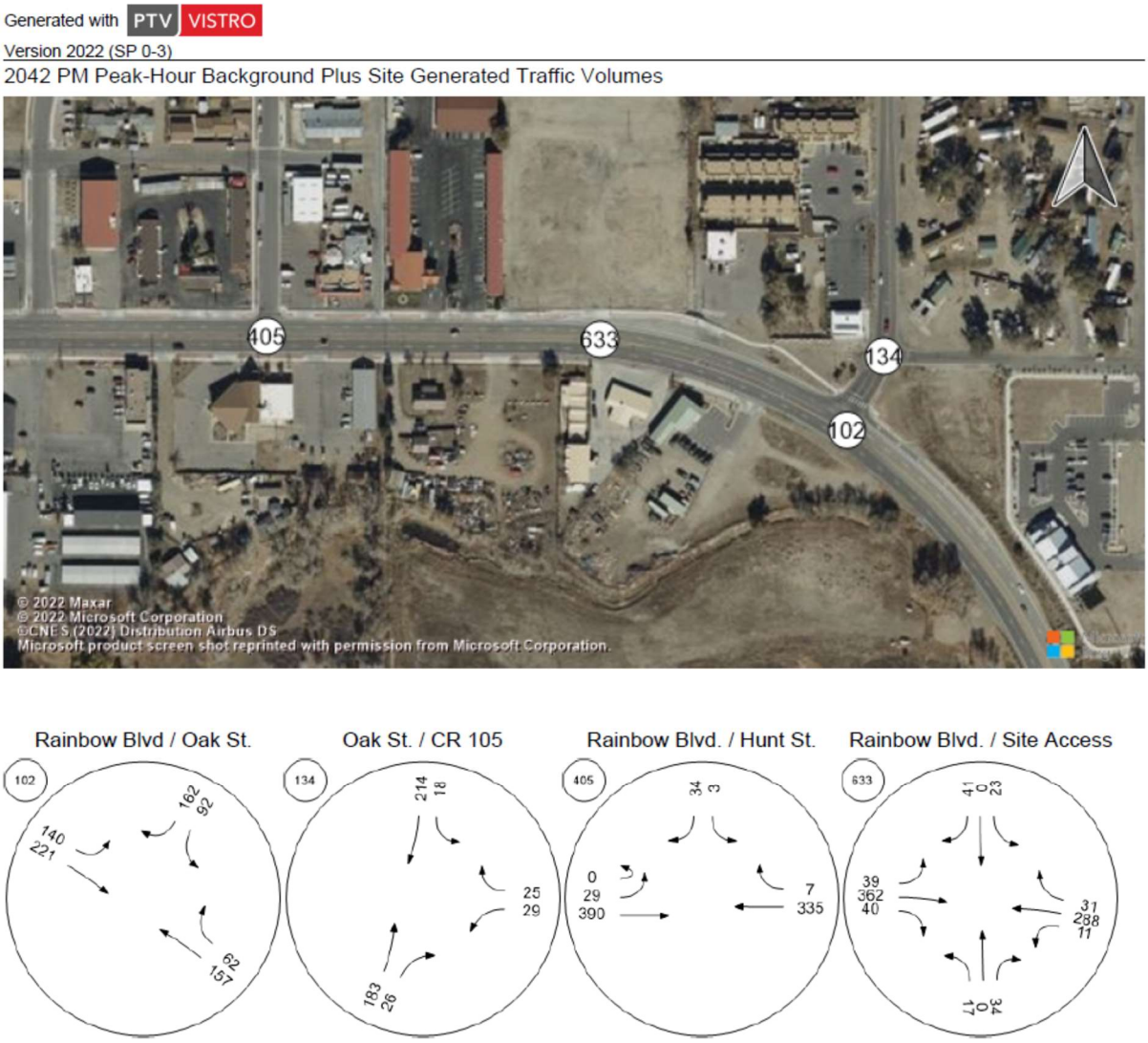


Figure 7b: 2042 PM Peak-Hour Background Plus Site Generated Traffic Volumes

LEVEL OF SERVICE ANALYSIS

The site access intersection and the nearby intersection of East Rainbow Boulevard/Oak Street have been analyzed to determine the projected intersection levels of service for the existing plus-site, 2042 background and 2042 total traffic scenarios for the midday and evening peak hour time periods.

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection and is indicated on a scale from "A" to "F." LOS A is indicative of little congestion or delay. LOS F indicates a high level of congestion or delay. Figure 8 displays what each level of service might look like while observing the intersection.

Figure 8: Intersection Levels of Service Graphical Representation

Table 2 shows the level of service delay ranges for signalized and unsignalized intersections.

Level of Service	Signalized Intersections		Unsignalized Intersections
	Average Control Delay (seconds per vehicle)	V/C[1]	Average Control Delay (seconds per vehicle)[2]
A	10.0 sec or less	less than 0.60	10.0 sec or less
B	10.1-20.0 sec	0.60-0.69	10.1-15.0 sec
C	20.1-35.0 sec	0.70-0.79	15.1-25.0 sec
D	35.1-55.0 sec	0.80-0.89	25.1-35.0 sec
E	55.1-80.0 sec	0.90-0.99	35.1-50.0 sec
F	80.1 sec or more	1.00 and greater	50.1 sec or more

(1) Source: Transportation Research Circular 212
(2) For unsignalized intersections if V/C ratio is greater than 1.0 the level of service is LOS F regardless of the projected average control delay per vehicle.

Table 5: Intersection Levels of Service Delay Ranges

The proposed site access intersection with US Highway 50A and the intersection of US Highway 50A/Oak Street have been analyzed to determine the projected levels of service for the key intersection turning movements. A summary of 2022 existing plus site-generated, 2042 background and 2042 background plus site-generated LOS during the weekday midday and evening peak hours are shown in Table 3. Detailed PTV Vistro reports included in Appendix B. Please refer to the PTV Vistro reports for additional details.

Scenario	Site Access/East Rainbow Blvd. Intersection Control: TWSC				East Rainbow Blvd./Oak St. Intersection Control: TWSC	
	NB	EBL	WBL	SBL	SB	EBL
Weekday Mid-Day Peak Hour						
2022 Existing	B	A	A	A	C	A
2022 Existing + Site	B	A	A	B	B	A
2042 Background	B	A	A	A	C	A
2042 Background + Site	C	A	A	B	C	A
Weekday PM Peak-Hour						
2022 Existing	B	A	A	A	B	A
2022 Existing + Site	B	A	A	C	B	A
2042 Background	B	A	A	A	B	A
2042 Background + Site	C	A	A	C	C	A

NB = Shared Northbound Left/Right Turns
EBL = Eastbound Left Turn
WBL = Westbound Left Turn
SB = Shared Southbound Left/Right Turns
TWSC = Two-way, Stop-sign Intersection Traffic Control

Table 6: Unsignalized Intersection Level of Service (LOS) Analysis Results

As shown in Table 6, all turning movements/intersection approaches at the proposed site access intersection with US Highway 50A, and the intersection of US Highway 50A/Oak Street are projected to operate at LOS C or better during peak periods through the 2042 horizon year.

AUXILIARY TURN LANE RECOMMENDATIONS

US Highway 50A is categorized as an NR-A Non-Rural Principal Highway in the vicinity of the site. According to the criteria contained in section 3.10(7) in the Colorado State Highway Access Code, the following auxiliary turn lanes are prescribed for this access based on the projected hourly turning traffic volumes.

Westbound Right-Turn Deceleration Lane

Per the State Highway Access Code, a dedicated westbound right-turn deceleration lane is required at the site access, consisting of:

- 435 feet of deceleration length
- 162 feet of transition taper (13.5:1 ratio – the transition taper can be included within the deceleration length)

A full-length dedicated right-turn deceleration lane for this access would extend back to the intersection of Oak Street/East Rainbow Boulevard, which is approximately 430 feet to the east.

A continuous right-turn lane could be constructed between the Oak Street intersection and this access; however, given the existing access to the adjacent property to the east and the on-street bicycle lane and the spacing between intersections, PES recommends the right-turn deceleration lane and a shorter-than-standard transition taper begin just west of the northwest corner radius at the intersection of Oak Street/US 50. The width of this lane is twelve feet, not including the existing westbound bike lane. The existing access to the adjacent property may need to be accommodated within this right-turn lane, subject to direction from CDOT. The constructed right-turn deceleration lane may need to be striped for exclusive right-turn lanes for each access, or striped with short-dash striping across the property access to the east.

Left-Turn Deceleration Lane

Per the access code, exclusive left-turn lanes shall be provided for access (including public street road connections to the state highway) on R-A and NR-A Highways with a projected peak-hour ingress left turning volume of greater than ten vehicles per hour (vph). Per the State Highway
Access Code, a dedicated eastbound left-turn lane is required at the site access, consisting of:

- 435 feet of deceleration length
- One hundred feet of storage length
- 162 feet of transition taper (13.5:1 ratio – the transition taper can be included within the deceleration length)

Restriping for a full-length, dedicated left-turn lane for this site to provide the specific access code turn lane elements listed above would interfere with existing striping for existing business access points on East Rainbow Boulevard. Therefore, to accommodate site-generated left-turn movements, PES recommends that the existing center TWLTL (two-way, left-turn lane) striping be extended through the proposed Salida Crossings access point. Striping modifications will need to be made to the west end of the existing striped taper for the eastbound left-turn lane approaching the Oak Street/East Rainbow Boulevard intersection.

Westbound Right-Turn Acceleration Lane

Although a westbound right-turn acceleration lane on US Highway 50A at the site access is prescribed based on the criteria in the State Highway Access Code and the projected peak-hour right-turn volumes, PES does not recommend that a westbound right-turn acceleration lane be required of the applicant. An acceleration lane in this location would be inconsistent with the existing conditions along this street. Moreover, the widening of the street west of the site to add an acceleration lane would not be feasible due to existing access points to businesses, pedestrian access along the north side of the street, landscaping, etc. Level of service for the southbound right-turning movement is projected to be LOS A through the 2042 horizon year without a right-turn acceleration lane.

THE US 50A/CO 291 INTERSECTION IMPROVEMENTS

The intersection was evaluated by the Colorado Department of Transportation and the City of Salida, Colorado in February of 2021. The Colorado Department of Transportation and the City of Salida recognized the need for a more functional and vibrant gateway to the city along CO 291 (Oak St) beginning from the intersection with US 50 (Rainbow Blvd), continuing towards downtown Salida, ending at the intersection with C St.

Currently, Oak St is stop controlled at the Rainbow Blvd intersection. Nearby development and continued growth are predicted to cause this intersection to experience significant traffic delays in the future. Furthermore, the current Oak St corridor into downtown Salida does not comply with State Highway Access Code requirements and is ill-suited for multimodal and aesthetically inviting travel.

This study evaluated various intersection and corridor design configurations which would meet goals set by the City. The preferred intersection configuration was a 5-legged roundabout. The preferred Oak St corridor design contained bike lanes on both sides of the road, sidewalk on the west side, and additional amenities like shade trees, park benches, and dark sky compliant street lighting. The construction of the roundabout has not yet commenced.

ADDITIONAL RECOMMENDATIONS

- A stop-sign should be installed at the site access (to control southbound traffic/traffic exiting the site).
- The access width, radii, and other elements should be constructed per access code standards.
- Any improvements required on any portion of an existing street, which serves as the access for a new development, shall be designed and paid for by the developer of that new development.
- A sidewalk should be added along the site frontage per City/CDOT criteria.

CONCLUSIONS

- The site is projected to generate about 1,694 new driveway vehicle trips on the average weekday.
- During the weekday AM peak hour of adjacent street traffic, 65 vehicles would enter the site while 64 vehicles would exit.
- During the weekday PM peak hour of adjacent street traffic, 73 vehicles would enter the site while 64 vehicles would exit.
- All approaches/turning movements at the proposed site access intersection with US Highway 50A and at the intersection of US 50A/Oak Street are projected to remain at LOS C or better through the 2042 horizon year.
- The projected peak-hour volumes for the eastbound left turn at the site access intersection with US Highway 50A are projected to exceed the 10-vph threshold

requiring an eastbound left-turn lane. Please refer to the "Auxiliary Turn Lane Recommendations" section above for recommended modifications to existing center painted median striping to accommodate site-generated left-turning movements. A CDOT Design Waiver (CDOT Form 102) may be required.

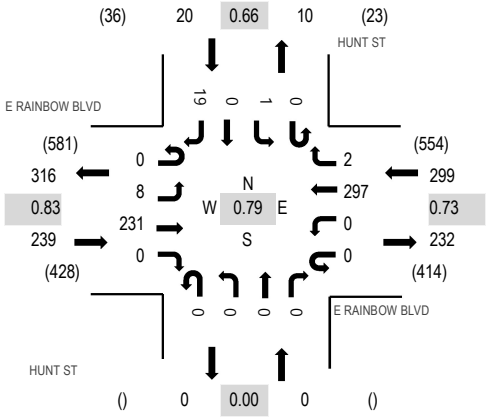
- Although a westbound right-turn acceleration lane on East Rainbow Boulevard at the site access is prescribed based on the projected volumes and criteria in the State Highway Access Code, PES does not recommend that this lane be required. Please refer to the "Auxiliary Turn Lane Recommendations" section above for details.
- A westbound right-turn deceleration lane will be required. Please refer to the "Auxiliary Turn Lane Recommendations" section above for details.
- The access width, radii and other elements should be constructed per access code standards.
- A sidewalk should be added along the site frontage per City/CDOT criteria.
- PES recommends that the site access point be access-permitted as a full-movement, Stop-sign controlled access.

APPENDIX A – TRAFFIC COUNT DATA

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

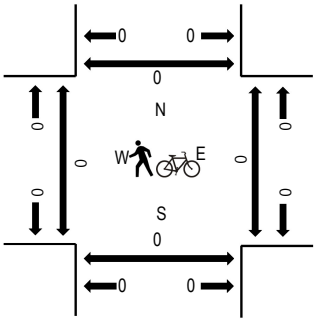
Location: 1 HUNT ST & E RAINBOW BLVD AM
Date: Tuesday, April 5, 2022
Peak Hour: 07:30 AM - 08:30 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



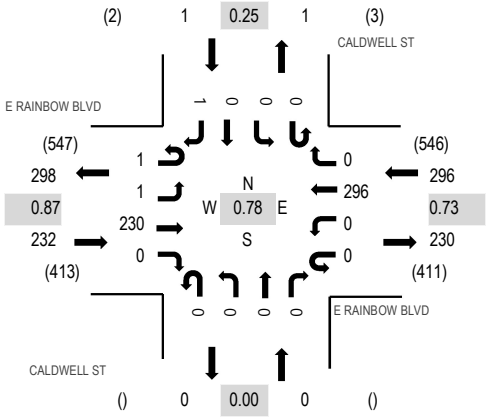
Traffic Counts

Interval Start Time	E RAINBOW BLVD Eastbound				E RAINBOW BLVD Westbound				HUNT ST Northbound				HUNT ST 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
7:00 AM	0	1	39	0	0	0	39	0	0	0	0	0	0	0	0	2	81	491	0	0	0	1
7:15 AM	0	1	41	0	0	0	67	3	0	0	0	0	0	1	0	3	116	553	0	0	0	0
7:30 AM	0	3	49	0	0	0	58	0	0	0	0	0	0	0	0	7	117	558	0	0	0	0
7:45 AM	0	2	70	0	0	0	101	2	0	0	0	0	0	0	0	2	177	540	0	0	0	0
8:00 AM	0	2	65	0	0	0	70	0	0	0	0	0	0	1	0	5	143	527	0	0	0	0
8:15 AM	0	1	47	0	0	0	68	0	0	0	0	0	0	0	0	5	121		0	0	0	0
8:30 AM	0	6	39	0	0	0	52	0	0	0	0	0	0	0	0	2	99		0	0	0	0
8:45 AM	0	1	61	0	0	0	93	1	0	0	0	0	0	1	0	7	164		0	0	0	1
Count Total	0	17	411	0	0	0	548	6	0	0	0	0	0	3	0	33	1,018		0	0	0	2
Peak Hour	0	8	231	0	0	0	297	2	0	0	0	0	0	1	0	19	558		0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

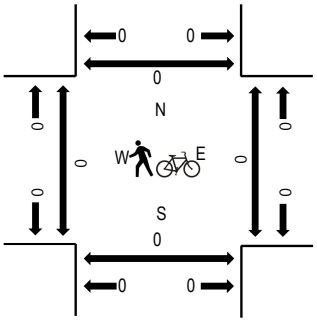
Location: 2 CALDWELL ST & E RAINBOW BLVD AM
Date: Tuesday, April 5, 2022
Peak Hour: 07:30 AM - 08:30 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



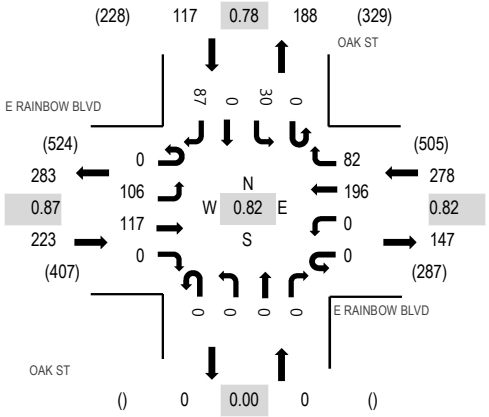
Traffic Counts

Interval Start Time	E RAINBOW BLVD Eastbound				E RAINBOW BLVD Westbound				CALDWELL ST Northbound				CALDWELL ST 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
7:00 AM	0	0	41	0	0	0	39	0	0	0	0	0	0	0	0	0	80	470	0	0	0	1
7:15 AM	0	0	47	0	0	0	65	1	0	0	0	0	0	0	0	0	113	527	0	0	0	0
7:30 AM	0	0	49	0	0	0	58	0	0	0	0	0	0	0	0	0	107	529	0	0	0	0
7:45 AM	0	0	67	0	0	0	102	0	0	0	0	0	0	0	0	1	170	512	0	0	0	0
8:00 AM	0	1	66	0	0	0	70	0	0	0	0	0	0	0	0	0	137	491	0	0	0	0
8:15 AM	1	0	48	0	0	0	66	0	0	0	0	0	0	0	0	0	115		0	0	0	0
8:30 AM	0	0	37	0	0	0	53	0	0	0	0	0	0	0	0	0	90		0	0	0	0
8:45 AM	0	1	55	0	0	0	92	0	0	0	0	0	0	1	0	0	149		0	0	0	1
Count Total	1	2	410	0	0	0	545	1	0	0	0	0	0	1	0	1	961		0	0	0	2
Peak Hour	1	1	230	0	0	0	296	0	0	0	0	0	0	0	0	1	529		0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

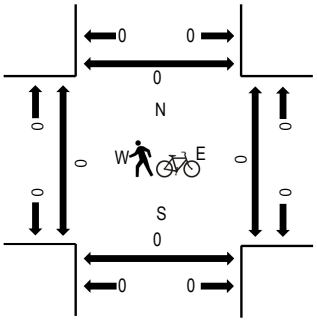
Location: 3 OAK ST & E RAINBOW BLVD AM
Date: Tuesday, April 5, 2022
Peak Hour: 07:30 AM - 08:30 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



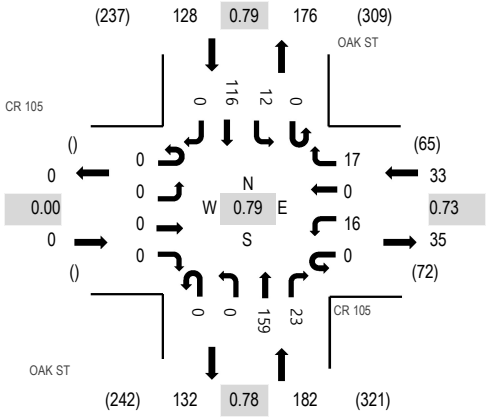
Traffic Counts

Interval Start Time	E RAINBOW BLVD Eastbound				E RAINBOW BLVD Westbound				OAK ST Northbound				OAK ST 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
7:00 AM	0	18	23	0	0	0	24	17	0	0	0	0	0	3	0	17	102	564	0	0	0	0
7:15 AM	1	20	22	0	0	0	48	20	0	0	0	0	0	7	0	21	139	616	0	0	0	0
7:30 AM	0	20	28	0	0	0	43	20	0	0	0	0	0	7	0	17	135	618	0	0	0	0
7:45 AM	0	36	28	0	0	0	60	25	0	0	0	0	0	10	0	29	188	600	0	0	0	0
8:00 AM	0	29	35	0	0	0	41	19	0	0	0	0	0	4	0	26	154	576	0	0	0	0
8:15 AM	0	21	26	0	0	0	52	18	0	0	0	0	0	9	0	15	141		0	0	0	0
8:30 AM	0	12	27	0	0	0	34	16	0	0	0	0	0	9	0	19	117		0	0	0	0
8:45 AM	0	22	39	0	0	0	52	16	0	0	0	0	0	10	0	25	164		0	0	0	0
Count Total	1	178	228	0	0	0	354	151	0	0	0	0	0	59	0	169	1,140		0	0	0	0
Peak Hour	0	106	117	0	0	0	196	82	0	0	0	0	0	30	0	87	618		0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

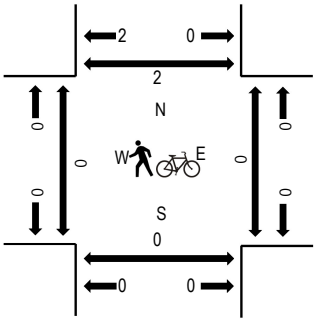
Location: 4 OAK ST & CR 105 AM
Date: Tuesday, April 5, 2022
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



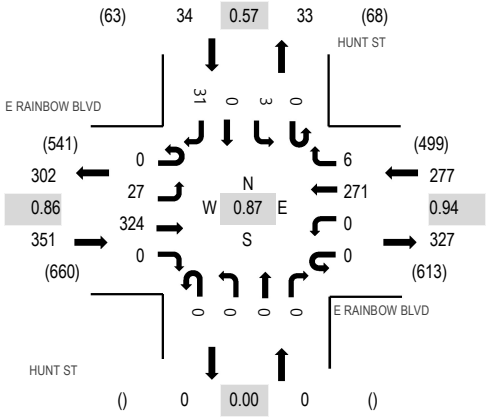
Traffic Counts

Interval Start Time	CR 105 Eastbound				CR 105 Westbound				OAK ST Northbound				OAK ST 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
7:00 AM	0	0	0	0	0	3	0	1	0	0	29	6	0	0	13	0	52	303	0	0	0	0
7:15 AM	0	0	0	0	0	3	0	1	0	0	36	4	0	1	27	0	72	343	0	0	0	0
7:30 AM	0	0	0	0	0	6	0	2	0	0	36	4	0	0	22	0	70	340	0	0	0	0
7:45 AM	0	0	0	0	0	6	0	7	0	0	49	9	0	5	33	0	109	332	0	0	0	2
8:00 AM	0	0	0	0	0	1	0	7	0	0	38	6	0	6	34	0	92	320	0	0	0	0
8:15 AM	0	0	0	0	0	4	0	5	0	0	35	3	0	5	17	0	69		0	0	0	1
8:30 AM	0	0	0	0	0	1	0	3	0	0	21	6	0	5	26	0	62		0	0	0	0
8:45 AM	0	0	0	0	0	11	0	4	0	0	35	4	0	8	35	0	97		0	0	0	0
Count Total	0	0	0	0	0	35	0	30	0	0	279	42	0	30	207	0	623		0	0	0	3
Peak Hour	0	0	0	0	0	16	0	17	0	0	159	23	0	12	116	0	343		0	0	0	2

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

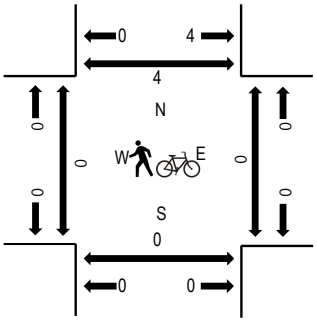
Location: 1 HUNT ST & E RAINBOW BLVD PM
Date: Tuesday, April 5, 2022
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



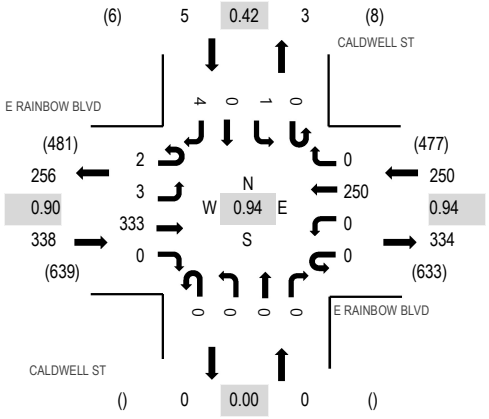
Traffic Counts

Interval Start Time	E RAINBOW BLVD Eastbound				E RAINBOW BLVD Westbound				HUNT ST Northbound				HUNT ST 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	96	0	0	0	71	3	0	0	0	0	0	1	0	14	191	662	0	0	0	3
4:15 PM	0	7	72	0	0	0	72	0	0	0	0	0	0	1	0	6	158	637	0	0	0	1
4:30 PM	0	6	73	0	0	0	67	0	0	0	0	0	0	0	0	5	151	633	0	0	0	0
4:45 PM	0	8	83	0	0	0	61	3	0	0	0	0	0	1	0	6	162	607	0	0	0	0
5:00 PM	0	8	86	0	0	0	59	2	0	0	0	0	0	1	0	10	166	560	0	0	0	0
5:15 PM	0	7	72	0	0	0	67	0	0	0	0	0	0	2	0	6	154		0	0	0	1
5:30 PM	0	8	72	0	0	0	36	2	0	0	0	0	0	3	0	4	125		0	0	0	0
5:45 PM	0	6	50	0	0	0	54	2	0	0	0	0	0	0	0	3	115		0	0	0	1
Count Total	0	56	604	0	0	0	487	12	0	0	0	0	0	9	0	54	1,222		0	0	0	6
Peak Hour	0	27	324	0	0	0	271	6	0	0	0	0	0	3	0	31	662		0	0	0	4

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

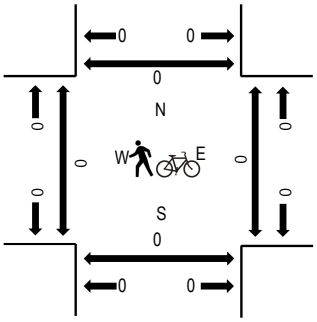
Location: 2 CALDWELL ST & E RAINBOW BLVD PM
Date: Tuesday, April 5, 2022
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



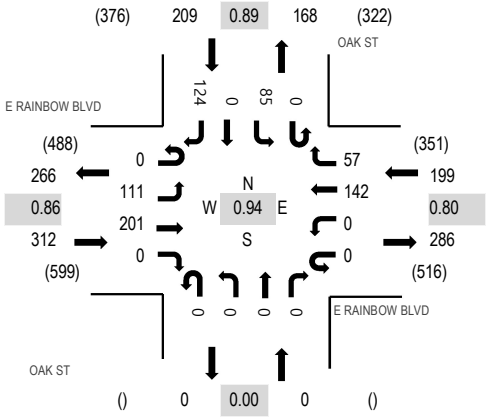
Traffic Counts

Interval Start Time	E RAINBOW BLVD Eastbound				E RAINBOW BLVD Westbound				CALDWELL ST Northbound				CALDWELL ST 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	0	85	0	0	0	58	0	0	0	0	0	0	0	0	0	143	593	0	0	0	0
4:15 PM	1	1	86	0	0	0	67	0	0	0	0	0	0	0	0	2	157	586	0	0	0	0
4:30 PM	0	1	93	0	0	0	60	0	0	0	0	0	0	0	0	0	154	575	0	0	0	0
4:45 PM	1	1	69	0	0	0	65	0	0	0	0	0	0	1	0	2	139	561	0	0	0	0
5:00 PM	0	3	72	0	0	0	60	1	0	0	0	0	0	0	0	0	136	529	0	0	0	0
5:15 PM	0	0	89	0	0	0	57	0	0	0	0	0	0	0	0	0	146		0	0	0	0
5:30 PM	0	0	79	0	0	0	59	1	0	0	0	0	0	1	0	0	140		0	0	0	1
5:45 PM	0	0	58	0	0	0	49	0	0	0	0	0	0	0	0	0	107		0	0	0	0
Count Total	2	6	631	0	0	0	475	2	0	0	0	0	0	2	0	4	1,122		0	0	0	1
Peak Hour	2	3	333	0	0	0	250	0	0	0	0	0	0	1	0	4	593		0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

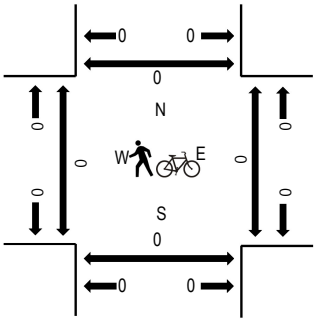
Location: 3 OAK ST & E RAINBOW BLVD PM
Date: Tuesday, April 5, 2022
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



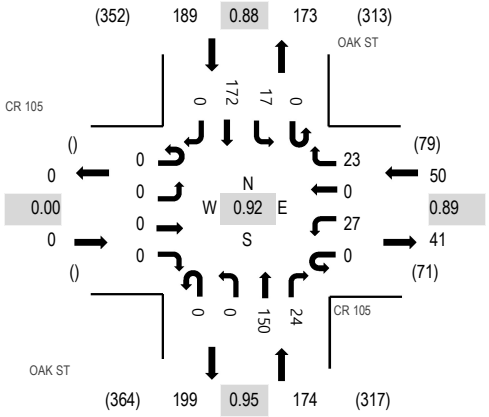
Traffic Counts

Interval Start Time	E RAINBOW BLVD Eastbound				E RAINBOW BLVD Westbound				OAK ST Northbound				OAK ST 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	34	59	0	0	0	37	11	0	0	0	0	0	16	0	32	189	718	0	0	0	0
4:15 PM	0	23	53	0	0	0	42	7	0	0	0	0	0	24	0	26	175	720	0	0	0	0
4:30 PM	0	31	38	0	0	0	41	22	0	0	0	0	0	17	0	33	182	713	0	0	0	0
4:45 PM	0	30	52	0	0	0	30	11	0	0	0	0	0	16	0	33	172	651	0	0	0	0
5:00 PM	0	27	58	0	0	0	29	17	0	0	0	0	0	28	0	32	191	608	0	0	0	0
5:15 PM	0	31	44	0	0	0	28	11	0	0	0	0	0	20	0	34	168		0	0	0	0
5:30 PM	0	27	42	0	0	0	16	10	0	0	0	0	0	6	0	19	120		0	0	0	0
5:45 PM	0	17	33	0	0	0	26	13	0	0	0	0	0	10	0	30	129		0	0	0	0
Count Total	0	220	379	0	0	0	249	102	0	0	0	0	0	137	0	239	1,326		0	0	0	0
Peak Hour	0	111	201	0	0	0	142	57	0	0	0	0	0	85	0	124	720		0	0	0	0

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

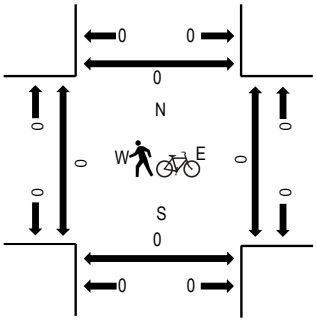
Location: 4 OAK ST & CR 105 PM
Date: Tuesday, April 5, 2022
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	CR 105 Eastbound				CR 105 Westbound				OAK ST Northbound				OAK ST 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	0	0	0	0	4	0	2	0	0	41	5	0	6	46	0	104	389	0	0	2	0
4:15 PM	0	0	0	0	0	1	0	6	0	0	25	3	0	4	50	0	89	397	1	0	0	0
4:30 PM	0	0	0	0	0	5	0	9	0	0	41	4	0	4	34	0	97	413	0	0	0	0
4:45 PM	0	0	0	0	0	8	0	6	0	0	34	6	0	4	41	0	99	385	0	0	0	0
5:00 PM	0	0	0	0	0	11	0	3	0	0	41	5	0	7	45	0	112	359	0	0	0	0
5:15 PM	0	0	0	0	0	3	0	5	0	0	34	9	0	2	52	0	105		0	0	0	0
5:30 PM	0	0	0	0	0	3	0	3	0	0	33	5	0	3	22	0	69		0	0	0	0
5:45 PM	0	0	0	0	0	8	0	2	0	0	28	3	0	1	31	0	73		0	0	0	1
Count Total	0	0	0	0	0	43	0	36	0	0	277	40	0	31	321	0	748		1	0	2	1
Peak Hour	0	0	0	0	0	27	0	23	0	0	150	24	0	17	172	0	413		0	0	0	0

APPENDIX B - PTV VISTRO INTERSECTION CAPACITY REPORTS

Intersection Level Of Service Report
Intersection 102: Rainbow Blvd / Oak St.

Control Type:	Two-way stop	Delay (sec / veh):	15.3
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.098

Intersection Setup

Name	Oak St.				US 50	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.48	11.48	11.48	11.48	11.48	11.48
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	50.00	400.00	100.00	100.00	350.00
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		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Oak St.				US 50	
Base Volume Input [veh/h]	30	87	106	117	196	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	0	0	0	0	0
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]	30	87	106	117	196	82
Peak Hour Factor	0.8000	0.8000	0.7400	0.8100	0.8200	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	27	36	36	60	24
Total Analysis Volume [veh/h]	38	109	143	144	239	98
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
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	0.12	0.12	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	15.28	9.46	8.30	0.00	0.00	0.00
Movement LOS	C	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.32	0.40	0.39	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	8.08	10.09	9.81	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.96		4.14		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	3.63					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 633: Rainbow Blvd. / Site Access

Control Type:	Two-way stop	Delay (sec / veh):	11.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name							Rainbow Blvd.					
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	0	0	0	0	0	0	1	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			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name							Rainbow Blvd.					
Base Volume Input [veh/h]	9	0	7	0	0	0	0	230	15	1	283	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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
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]	9	0	7	0	0	0	0	230	15	1	283	0
Peak Hour 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
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]	2	0	2	0	0	0	0	58	4	0	71	0
Total Analysis Volume [veh/h]	9	0	7	0	0	0	0	230	15	1	283	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.67	13.01	9.11	11.79	12.95	9.09	7.82	0.00	0.00	7.73	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.07	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.85	1.85	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.00
d_A, Approach Delay [s/veh]	10.55			11.28			0.00			0.03		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.32											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 634: Rainbow Blvd. / Hunt St.

Control Type:	Two-way stop	Delay (sec / veh):	13.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Hunt St.		Rainbow Blvd.			Rainbow Blvd.	
Approach	Southbound		Eastbound			Westbound	
Lane Configuration							
Turning Movement	Left	Right	U-turn	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0
Entry Pocket Length [ft]	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
Exit Pocket Length [ft]	0.00	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		No			No	

Volumes

Name	Hunt St.		Rainbow Blvd.			Rainbow Blvd.	
Base Volume Input [veh/h]	1	19	0	8	231	297	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	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
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	19	0	8	231	297	2
Peak Hour Factor	1.0000	0.6800	1.0000	0.4600	0.8300	0.7400	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	7	0	4	70	100	1
Total Analysis Volume [veh/h]	1	28	0	17	278	401	2
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Stop	Free	Free
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	0.00	0.03	0.00	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.33	9.64	10.98	8.17	0.00	0.00	0.00
Movement LOS	B	A	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.04	0.04	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.88	2.88	1.12	1.12	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.77		0.47			0.00	
Approach LOS	A		A			A	
d_I, Intersection Delay [s/veh]	0.58						
Intersection LOS	B						

Intersection Level Of Service Report
Intersection 635: Oak St. / CR 105

Control Type:	Two-way stop	Delay (sec / veh):	11.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.034

Intersection Setup

Name	Oak St.		Oak St.		County Road 105	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	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	No		No		No	

Volumes

Name	Oak St.		Oak St.		County Road 105	
Base Volume Input [veh/h]	159	23	12	116	16	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	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]	0	0	0	0	0	0
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]	159	23	12	116	16	17
Peak Hour Factor	0.8100	0.6700	0.7500	0.8500	0.7500	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	49	9	4	34	5	5
Total Analysis Volume [veh/h]	196	34	16	136	21	22
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	0.00	0.00	0.01	0.00	0.03	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	7.71	0.00	11.20	9.68
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.03	0.03	0.19	0.19
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.67	0.67	4.85	4.85
d_A, Approach Delay [s/veh]	0.00		0.81		10.42	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.34					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 102: Rainbow Blvd / Oak St.

Control Type:	Two-way stop	Delay (sec / veh):	15.5
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.246

Intersection Setup

Name	Oak Street		East Rainbow Boulevard		US 50	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.48	11.48	11.48	11.48	11.48	11.48
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	50.00	400.00	100.00	100.00	350.00
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		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Oak Street		East Rainbow Boulevard		US 50	
Base Volume Input [veh/h]	85	124	111	201	142	57
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	0	0	0	0	0
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]	85	124	111	201	142	57
Peak Hour Factor	0.7600	0.9700	0.9600	0.8600	0.8900	0.6900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	32	29	58	40	21
Total Analysis Volume [veh/h]	112	128	116	234	160	83
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
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	0.25	0.13	0.09	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	15.47	9.27	7.95	0.00	0.00	0.00
Movement LOS	C	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.96	0.45	0.28	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	23.94	11.34	7.12	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.16		2.64		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	4.61					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 134: Oak St. / CR 105

Control Type:	Two-way stop	Delay (sec / veh):	12.1
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.078

Intersection Setup

Name	Oak Street		Oak Street		CR 105	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.48	11.48	11.48	11.48	11.48	11.48
No. of Lanes in Entry Pocket	0	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]	62.14		62.14		31.07	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Oak Street		Oak Street		CR 105	
Base Volume Input [veh/h]	150	24	17	172	27	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	0	0	0	0	0
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]	150	24	17	172	27	23
Peak Hour Factor	0.9100	0.6900	0.6800	0.8300	0.6100	0.6700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	9	6	52	11	9
Total Analysis Volume [veh/h]	165	35	25	207	44	34
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	0.00	0.00	0.02	0.00	0.08	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	7.65	0.00	12.06	9.87
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.06	0.06	0.40	0.40
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.38	1.38	9.88	9.88
d_A, Approach Delay [s/veh]	0.00		0.82		11.11	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.07					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 405: Rainbow Blvd. / Hunt St.

Control Type:	Two-way stop	Delay (sec / veh):	13.0
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name	Hunt Street		East Rainbow Boulevard			East Rainbow Boulevard	
Approach	Southbound		Eastbound			Westbound	
Lane Configuration							
Turning Movement	Left	Right	U-turn	Left	Thru	Thru	Right
Lane Width [ft]	11.48	11.48	11.48	11.48	11.48	11.48	11.48
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0
Entry Pocket Length [ft]	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
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		45.00			45.00	
Grade [%]	0.00		0.00			0.00	
Crosswalk	Yes		No			No	

Volumes

Name	Hunt Street		East Rainbow Boulevard			East Rainbow Boulevard	
Base Volume Input [veh/h]	3	31	0	27	324	271	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	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
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	31	0	27	324	271	6
Peak Hour Factor	0.5800	1.0000	1.0000	0.9700	0.8400	0.9400	0.5800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	8	0	7	96	72	3
Total Analysis Volume [veh/h]	5	31	0	28	386	288	10
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Stop	Free	Free
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	0.01	0.04	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.97	9.33	10.08	7.89	0.00	0.00	0.00
Movement LOS	B	A	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.14	0.14	0.07	0.07	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.62	3.62	1.68	1.68	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.83		0.53			0.00	
Approach LOS	A		A			A	
d_I, Intersection Delay [s/veh]	0.77						
Intersection LOS	B						

Intersection Level Of Service Report
Intersection 633: Rainbow Blvd. / Site Access

Control Type:	Two-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.036

Intersection Setup

Name							East Rainbow Boulevard			East Rainbow Boulevard		
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	0	0	0	0	0	0	1	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			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name							East Rainbow Boulevard			East Rainbow Boulevard		
Base Volume Input [veh/h]	16	0	31	0	0	0	0	334	37	10	266	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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
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]	16	0	31	0	0	0	0	334	37	10	266	0
Peak Hour 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
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]	4	0	8	0	0	0	0	84	9	3	67	0
Total Analysis Volume [veh/h]	16	0	31	0	0	0	0	334	37	10	266	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	13.53	14.70	9.81	12.70	14.48	9.04	7.78	0.00	0.00	8.05	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.24	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00
95th-Percentile Queue Length [ft/ln]	5.93	5.93	5.93	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.21	0.00
d_A, Approach Delay [s/veh]	11.07			12.07			0.00			0.29		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.87											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 102: Rainbow Blvd / Oak St.

Control Type:	Two-way stop	Delay (sec / veh):	16.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.109

Intersection Setup

Name	Collegiate Peaks Byway		East Rainbow Boulevard		US 50	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.48	11.48	11.48	11.48	11.48	11.48
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	50.00	400.00	100.00	100.00	350.00
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		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Collegiate Peaks Byway		East Rainbow Boulevard		US 50	
Base Volume Input [veh/h]	30	87	106	117	196	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	26	20	1	0	0
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]	30	113	126	118	196	82
Peak Hour Factor	0.8000	0.8000	0.7400	0.8100	0.8200	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	35	43	36	60	24
Total Analysis Volume [veh/h]	38	141	170	146	239	98
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
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	0.11	0.15	0.14	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	16.56	9.64	8.38	0.00	0.00	0.00
Movement LOS	C	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.36	0.54	0.48	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	9.07	13.57	11.95	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.11		4.51		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	4.10					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 633: Rainbow Blvd. / Site Access

Control Type:	Two-way stop	Delay (sec / veh):	13.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.047

Intersection Setup

Name							East Rainbow Boulevard			East Rainbow Boulevard		
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	0	0	0	0	0	0	1	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			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name							East Rainbow Boulevard			East Rainbow Boulevard		
Base Volume Input [veh/h]	9	0	7	0	0	0	0	230	15	1	283	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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
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	21	0	43	36	0	0	0	0	26
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]	9	0	7	21	0	43	36	230	15	1	283	26
Peak Hour 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
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]	2	0	2	5	0	11	9	58	4	0	71	7
Total Analysis Volume [veh/h]	9	0	7	21	0	43	36	230	15	1	283	26
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.01	0.05	0.00	0.05	0.03	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.14	14.40	9.15	13.62	14.74	9.75	7.97	0.00	0.00	7.73	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.09	0.32	0.32	0.32	0.09	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.13	2.13	2.13	7.99	7.99	7.99	2.23	0.00	0.00	0.04	0.02	0.00
d_A, Approach Delay [s/veh]	11.40			11.02			1.02			0.02		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.76											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 634: Rainbow Blvd. / Hunt St.

Control Type:	Two-way stop	Delay (sec / veh):	14.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name							
Approach	Southbound		Eastbound			Westbound	
Lane Configuration							
Turning Movement	Left	Right	U-turn	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0
Entry Pocket Length [ft]	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
Exit Pocket Length [ft]	0.00	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		No			No	

Volumes

Name							
Base Volume Input [veh/h]	1	19	0	8	231	297	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	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
Site-Generated Trips [veh/h]	0	0	0	0	36	43	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	19	0	8	267	340	2
Peak Hour Factor	1.0000	0.6800	1.0000	0.4600	0.8300	0.7400	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	7	0	4	80	115	1
Total Analysis Volume [veh/h]	1	28	0	17	322	459	2
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Stop	Free	Free
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	0.00	0.04	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.36	9.86	11.54	8.34	0.00	0.00	0.00
Movement LOS	B	A	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.05	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.03	3.03	1.18	1.18	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.01		0.42			0.00	
Approach LOS	B		A			A	
d_I, Intersection Delay [s/veh]	0.52						
Intersection LOS	B						

Intersection Level Of Service Report
Intersection 635: Oak St. / CR 105

Control Type:	Two-way stop	Delay (sec / veh):	11.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.037

Intersection Setup

Name	Collegiate Peaks Byway		Collegiate Peaks Byway		County Road 105	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	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	No		No		No	

Volumes

Name	Collegiate Peaks Byway		Collegiate Peaks Byway		County Road 105	
Base Volume Input [veh/h]	159	23	12	116	16	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	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]	20	0	0	26	0	0
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]	179	23	12	142	16	17
Peak Hour Factor	0.8100	0.6700	0.7500	0.8500	0.7500	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	55	9	4	42	5	5
Total Analysis Volume [veh/h]	221	34	16	167	21	22
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	0.00	0.00	0.01	0.00	0.04	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	7.77	0.00	11.70	9.87
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.03	0.03	0.21	0.21
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.67	0.67	5.15	5.15
d_A, Approach Delay [s/veh]	0.00		0.68		10.76	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.22					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 102: Rainbow Blvd / Oak St.

Control Type:	Two-way stop	Delay (sec / veh):	16.7
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.267

Intersection Setup

Name	Oak Street		East Rainbow Boulevard		US 50	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.48	11.48	11.48	11.48	11.48	11.48
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	50.00	400.00	100.00	100.00	350.00
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		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Oak Street		East Rainbow Boulevard		US 50	
Base Volume Input [veh/h]	85	124	111	201	142	57
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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]	0	28	20	3	3	0
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]	85	152	131	204	145	57
Peak Hour Factor	0.7600	0.9700	0.9600	0.8600	0.8900	0.6900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	39	34	59	41	21
Total Analysis Volume [veh/h]	112	157	136	237	163	83
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
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	0.27	0.16	0.10	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	16.67	9.44	8.01	0.00	0.00	0.00
Movement LOS	C	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.06	0.58	0.34	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	26.56	14.43	8.51	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.45		2.92		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	5.00					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 134: Oak St. / CR 105

Control Type:	Two-way stop	Delay (sec / veh):	12.7
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.084

Intersection Setup

Name	Oak Street		Oak Street		CR 105	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.48	11.48	11.48	11.48	11.48	11.48
No. of Lanes in Entry Pocket	0	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]	62.14		62.14		31.07	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Oak Street		Oak Street		CR 105	
Base Volume Input [veh/h]	150	24	17	172	27	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
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]	20	0	0	28	0	0
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]	170	24	17	200	27	23
Peak Hour Factor	0.9100	0.6900	0.6800	0.8300	0.6100	0.6700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	47	9	6	60	11	9
Total Analysis Volume [veh/h]	187	35	25	241	44	34
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	0.00	0.00	0.02	0.00	0.08	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	7.70	0.00	12.66	10.09
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.06	0.06	0.42	0.42
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.41	1.41	10.56	10.56
d_A, Approach Delay [s/veh]	0.00		0.72		11.54	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.93					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 405: Rainbow Blvd. / Hunt St.

Control Type:	Two-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

Intersection Setup

Name	Hunt Street		East Rainbow Boulevard			East Rainbow Boulevard	
Approach	Southbound		Eastbound			Westbound	
Lane Configuration							
Turning Movement	Left	Right	U-turn	Left	Thru	Thru	Right
Lane Width [ft]	11.48	11.48	11.48	11.48	11.48	11.48	11.48
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0
Entry Pocket Length [ft]	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
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		45.00			45.00	
Grade [%]	0.00		0.00			0.00	
Crosswalk	Yes		No			No	

Volumes

Name	Hunt Street		East Rainbow Boulevard			East Rainbow Boulevard	
Base Volume Input [veh/h]	3	31	0	27	324	271	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	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
Site-Generated Trips [veh/h]	0	0	0	0	39	41	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	31	0	27	363	312	6
Peak Hour Factor	0.5800	1.0000	1.0000	0.9700	0.8400	0.9400	0.5800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	8	0	7	108	83	3
Total Analysis Volume [veh/h]	5	31	0	28	432	332	10
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Stop	Free	Free
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	0.01	0.04	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.78	9.48	10.44	8.00	0.00	0.00	0.00
Movement LOS	B	A	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.15	0.15	0.07	0.07	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.80	3.80	1.75	1.75	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.08		0.49			0.00	
Approach LOS	B		A			A	
d_I, Intersection Delay [s/veh]	0.70						
Intersection LOS	B						

Intersection Level Of Service Report
Intersection 633: Rainbow Blvd. / Site Access

Control Type:	Two-way stop	Delay (sec / veh):	15.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.044

Intersection Setup

Name							East Rainbow Boulevard			East Rainbow Boulevard		
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	0	0	0	0	0	0	1	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			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name							East Rainbow Boulevard			East Rainbow Boulevard		
Base Volume Input [veh/h]	16	0	31	0	0	0	0	334	37	10	266	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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
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	23	0	41	39	0	0	0	0	31
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]	16	0	31	23	0	41	39	334	37	10	266	31
Peak Hour 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
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]	4	0	8	6	0	10	10	84	9	3	67	8
Total Analysis Volume [veh/h]	16	0	31	23	0	41	39	334	37	10	266	31
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.04	0.00	0.04	0.06	0.00	0.05	0.03	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	15.51	16.60	9.92	14.98	16.79	9.84	7.95	0.00	0.00	8.05	0.00	0.00
Movement LOS	C	C	A	B	C	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.27	0.27	0.27	0.35	0.35	0.35	0.10	0.00	0.00	0.02	0.01	0.00
95th-Percentile Queue Length [ft/ln]	6.66	6.66	6.66	8.87	8.87	8.87	2.39	0.00	0.00	0.42	0.21	0.00
d_A, Approach Delay [s/veh]	11.82			11.69			0.76			0.26		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	2.05											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 102: Rainbow Blvd / Oak St.

Control Type:	Two-way stop	Delay (sec / veh):	16.4
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.115

Intersection Setup

Name	Collegiate Peaks Byway		East Rainbow Boulevard		US 50	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.48	11.48	11.48	11.48	11.48	11.48
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	50.00	400.00	100.00	100.00	350.00
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		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Collegiate Peaks Byway		East Rainbow Boulevard		US 50	
Base Volume Input [veh/h]	30	87	106	117	196	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
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]	33	94	115	127	212	89
Peak Hour Factor	0.8000	0.8000	0.7400	0.8100	0.8200	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	29	39	39	65	26
Total Analysis Volume [veh/h]	41	118	155	157	259	106
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
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	0.12	0.13	0.13	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	16.44	9.59	8.43	0.00	0.00	0.00
Movement LOS	C	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.39	0.45	0.44	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	9.68	11.23	11.04	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.36		4.19		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	3.72					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 633: Rainbow Blvd. / Site Access

Control Type:	Two-way stop	Delay (sec / veh):	12.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.019

Intersection Setup

Name							East Rainbow Boulevard			East Rainbow Boulevard		
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	0	0	0	0	0	0	1	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			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name							East Rainbow Boulevard			East Rainbow Boulevard		
Base Volume Input [veh/h]	9	0	7	0	0	0	0	230	15	1	283	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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840
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	0	8	0	0	0	0	249	16	1	307	0
Peak Hour 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
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	0	2	0	0	0	0	62	4	0	77	0
Total Analysis Volume [veh/h]	10	0	8	0	0	0	0	249	16	1	307	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.04	13.50	9.20	12.18	13.43	9.16	7.88	0.00	0.00	7.78	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.16	2.16	2.16	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.00
d_A, Approach Delay [s/veh]	10.78			11.59			0.00			0.03		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.34											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 634: Rainbow Blvd. / Hunt St.

Control Type:	Two-way stop	Delay (sec / veh):	14.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name							
Approach	Southbound		Eastbound			Westbound	
Lane Configuration							
Turning Movement	Left	Right	U-turn	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0
Entry Pocket Length [ft]	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
Exit Pocket Length [ft]	0.00	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		No			No	

Volumes

Name							
Base Volume Input [veh/h]	1	19	0	8	231	297	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	21	0	9	250	322	2
Peak Hour Factor	1.0000	0.6800	1.0000	0.4600	0.8300	0.7400	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	8	0	5	75	109	1
Total Analysis Volume [veh/h]	1	31	0	20	301	435	2
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Stop	Free	Free
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	0.00	0.04	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.02	9.79	11.34	8.28	0.00	0.00	0.00
Movement LOS	B	A	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.13	0.13	0.05	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.28	3.28	1.36	1.36	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.92		0.52			0.00	
Approach LOS	A		A			A	
d_I, Intersection Delay [s/veh]	0.61						
Intersection LOS	B						

Intersection Level Of Service Report
Intersection 635: Oak St. / CR 105

Control Type:	Two-way stop	Delay (sec / veh):	11.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.039

Intersection Setup

Name	Collegiate Peaks Byway		Collegiate Peaks Byway		County Road 105	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	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	No		No		No	

Volumes

Name	Collegiate Peaks Byway		Collegiate Peaks Byway		County Road 105	
Base Volume Input [veh/h]	159	23	12	116	16	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
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]	172	25	13	126	17	18
Peak Hour Factor	0.8100	0.6700	0.7500	0.8500	0.7500	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	53	9	4	37	6	6
Total Analysis Volume [veh/h]	212	37	17	148	23	23
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	0.00	0.00	0.01	0.00	0.04	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	7.75	0.00	11.51	9.83
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.03	0.03	0.22	0.22
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.71	0.71	5.42	5.42
d_A, Approach Delay [s/veh]	0.00		0.80		10.67	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.35					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 102: Rainbow Blvd / Oak St.

Control Type:	Two-way stop	Delay (sec / veh):	16.8
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.284

Intersection Setup

Name	Oak Street		East Rainbow Boulevard		US 50	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.48	11.48	11.48	11.48	11.48	11.48
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	50.00	400.00	100.00	100.00	350.00
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		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Oak Street		East Rainbow Boulevard		US 50	
Base Volume Input [veh/h]	85	124	111	201	142	57
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
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]	92	134	120	218	154	62
Peak Hour Factor	0.7600	0.9700	0.9600	0.8600	0.8900	0.6900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	35	31	63	43	22
Total Analysis Volume [veh/h]	121	138	125	253	173	90
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
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	0.28	0.14	0.10	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	16.79	9.37	8.03	0.00	0.00	0.00
Movement LOS	C	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.16	0.50	0.32	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	28.93	12.51	7.88	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.84		2.66		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	4.81					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 134: Oak St. / CR 105

Control Type:	Two-way stop	Delay (sec / veh):	12.5
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.089

Intersection Setup

Name	Oak Street		Oak Street		CR 105	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.48	11.48	11.48	11.48	11.48	11.48
No. of Lanes in Entry Pocket	0	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]	62.14		62.14		31.07	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Oak Street		Oak Street		CR 105	
Base Volume Input [veh/h]	150	24	17	172	27	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
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]	163	26	18	186	29	25
Peak Hour Factor	0.9100	0.6900	0.6800	0.8300	0.6100	0.6700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	45	9	7	56	12	9
Total Analysis Volume [veh/h]	179	38	26	224	48	37
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	0.00	0.00	0.02	0.00	0.09	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	7.69	0.00	12.51	10.10
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.06	0.06	0.45	0.45
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.46	1.46	11.37	11.37
d_A, Approach Delay [s/veh]	0.00		0.80		11.46	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.13					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 405: Rainbow Blvd. / Hunt St.

Control Type:	Two-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

Intersection Setup

Name	Hunt Street		East Rainbow Boulevard			East Rainbow Boulevard	
Approach	Southbound		Eastbound			Westbound	
Lane Configuration							
Turning Movement	Left	Right	U-turn	Left	Thru	Thru	Right
Lane Width [ft]	11.48	11.48	11.48	11.48	11.48	11.48	11.48
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0
Entry Pocket Length [ft]	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
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		45.00			45.00	
Grade [%]	0.00		0.00			0.00	
Crosswalk	Yes		No			No	

Volumes

Name	Hunt Street		East Rainbow Boulevard			East Rainbow Boulevard	
Base Volume Input [veh/h]	3	31	0	27	324	271	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	34	0	29	351	294	7
Peak Hour Factor	0.5800	1.0000	1.0000	0.9700	0.8400	0.9400	0.5800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	9	0	7	104	78	3
Total Analysis Volume [veh/h]	5	34	0	30	418	313	12
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Stop	Free	Free
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	0.01	0.04	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.55	9.44	10.32	7.96	0.00	0.00	0.00
Movement LOS	B	A	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.16	0.16	0.07	0.07	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.03	4.03	1.85	1.85	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.97		0.53			0.00	
Approach LOS	A		A			A	
d_I, Intersection Delay [s/veh]	0.77						
Intersection LOS	B						

Intersection Level Of Service Report
Intersection 633: Rainbow Blvd. / Site Access

Control Type:	Two-way stop	Delay (sec / veh):	14.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.041

Intersection Setup

Name							East Rainbow Boulevard			East Rainbow Boulevard		
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	0	0	0	0	0	0	1	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			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name							East Rainbow Boulevard			East Rainbow Boulevard		
Base Volume Input [veh/h]	16	0	31	0	0	0	0	334	37	10	266	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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840
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]	17	0	34	0	0	0	0	362	40	11	288	0
Peak Hour 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
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]	4	0	9	0	0	0	0	91	10	3	72	0
Total Analysis Volume [veh/h]	17	0	34	0	0	0	0	362	40	11	288	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	14.21	15.48	10.00	13.25	15.21	9.10	7.83	0.00	0.00	8.13	0.00	0.00
Movement LOS	B	C	A	B	C	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.27	0.27	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00
95th-Percentile Queue Length [ft/ln]	6.77	6.77	6.77	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.23	0.00
d_A, Approach Delay [s/veh]	11.40			12.52			0.00			0.30		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.89											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 102: Rainbow Blvd / Oak St.

Control Type:	Two-way stop	Delay (sec / veh):	17.9
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.128

Intersection Setup

Name	Collegiate Peaks Byway		East Rainbow Boulevard		US 50	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.48	11.48	11.48	11.48	11.48	11.48
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	50.00	400.00	100.00	100.00	350.00
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		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Collegiate Peaks Byway		East Rainbow Boulevard		US 50	
Base Volume Input [veh/h]	30	87	106	117	196	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	26	20	1	0	0
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]	33	120	135	128	212	89
Peak Hour Factor	0.8000	0.8000	0.7400	0.8100	0.8200	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	38	46	40	65	26
Total Analysis Volume [veh/h]	41	150	182	158	259	106
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
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	0.13	0.17	0.15	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	17.90	9.78	8.52	0.00	0.00	0.00
Movement LOS	C	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.44	0.59	0.53	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	10.89	14.85	13.29	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.52		4.56		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	4.19					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 633: Rainbow Blvd. / 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):	0.050

Intersection Setup

Name							East Rainbow Boulevard			East Rainbow Boulevard		
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	0	0	0	0	0	0	1	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			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name							East Rainbow Boulevard			East Rainbow Boulevard		
Base Volume Input [veh/h]	9	0	7	0	0	0	0	230	15	1	283	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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840
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	21	0	43	36	0	0	0	0	26
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	0	8	21	0	43	36	249	16	1	307	26
Peak Hour 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
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	0	2	5	0	11	9	62	4	0	77	7
Total Analysis Volume [veh/h]	10	0	8	21	0	43	36	249	16	1	307	26
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.01	0.05	0.00	0.05	0.03	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.62	15.00	9.25	14.14	15.34	9.87	8.03	0.00	0.00	7.78	0.00	0.00
Movement LOS	B	B	A	B	C	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.10	0.33	0.33	0.33	0.09	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.50	2.50	2.50	8.32	8.32	8.32	2.27	0.00	0.00	0.04	0.02	0.00
d_A, Approach Delay [s/veh]	11.68			11.27			0.96			0.02		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.71											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 634: Rainbow Blvd. / Hunt St.

Control Type:	Two-way stop	Delay (sec / veh):	15.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name							
Approach	Southbound		Eastbound			Westbound	
Lane Configuration							
Turning Movement	Left	Right	U-turn	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0
Entry Pocket Length [ft]	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
Exit Pocket Length [ft]	0.00	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		No			No	

Volumes

Name							
Base Volume Input [veh/h]	1	19	0	8	231	297	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	36	43	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	21	0	9	286	365	2
Peak Hour Factor	1.0000	0.6800	1.0000	0.4600	0.8300	0.7400	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	8	0	5	86	123	1
Total Analysis Volume [veh/h]	1	31	0	20	345	493	2
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Stop	Free	Free
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	0.00	0.04	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	15.14	10.01	11.94	8.45	0.00	0.00	0.00
Movement LOS	C	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.14	0.14	0.06	0.06	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.44	3.44	1.43	1.43	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.17		0.46			0.00	
Approach LOS	B		A			A	
d_I, Intersection Delay [s/veh]	0.55						
Intersection LOS	C						

Intersection Level Of Service Report
Intersection 635: Oak St. / CR 105

Control Type:	Two-way stop	Delay (sec / veh):	12.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.042

Intersection Setup

Name	Collegiate Peaks Byway		Collegiate Peaks Byway		County Road 105	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	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	No		No		No	

Volumes

Name	Collegiate Peaks Byway		Collegiate Peaks Byway		County Road 105	
Base Volume Input [veh/h]	159	23	12	116	16	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	20	0	0	26	0	0
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]	192	25	13	152	17	18
Peak Hour Factor	0.8100	0.6700	0.7500	0.8500	0.7500	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	9	4	45	6	6
Total Analysis Volume [veh/h]	237	37	17	179	23	23
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	0.00	0.00	0.01	0.00	0.04	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	7.81	0.00	12.04	10.03
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.03	0.03	0.23	0.23
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.71	0.71	5.76	5.76
d_A, Approach Delay [s/veh]	0.00		0.68		11.03	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.24					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 102: Rainbow Blvd / Oak St.

Control Type:	Two-way stop	Delay (sec / veh):	18.3
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.310

Intersection Setup

Name	Oak Street		East Rainbow Boulevard		US 50	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.48	11.48	11.48	11.48	11.48	11.48
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	50.00	400.00	100.00	100.00	350.00
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		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Oak Street		East Rainbow Boulevard		US 50	
Base Volume Input [veh/h]	85	124	111	201	142	57
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	20	3	3	0
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]	92	162	140	221	157	62
Peak Hour Factor	0.7600	0.9700	0.9600	0.8600	0.8900	0.6900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	42	36	64	44	22
Total Analysis Volume [veh/h]	121	167	146	257	176	90
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
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	0.31	0.17	0.11	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	18.31	9.54	8.09	0.00	0.00	0.00
Movement LOS	C	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.30	0.63	0.38	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	32.44	15.71	9.39	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.23		2.93		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	5.22					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 134: Oak St. / CR 105

Control Type:	Two-way stop	Delay (sec / veh):	13.2
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.096

Intersection Setup

Name	Oak Street		Oak Street		CR 105	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.48	11.48	11.48	11.48	11.48	11.48
No. of Lanes in Entry Pocket	0	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]	62.14		62.14		31.07	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Oak Street		Oak Street		CR 105	
Base Volume Input [veh/h]	150	24	17	172	27	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	20	0	0	28	0	0
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]	183	26	18	214	29	25
Peak Hour Factor	0.9100	0.6900	0.6800	0.8300	0.6100	0.6700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	9	7	64	12	9
Total Analysis Volume [veh/h]	201	38	26	258	48	37
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	0.00	0.00	0.02	0.00	0.10	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	7.74	0.00	13.15	10.34
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.06	0.06	0.49	0.49
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.48	1.48	12.18	12.18
d_A, Approach Delay [s/veh]	0.00		0.71		11.93	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.00					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 405: Rainbow Blvd. / Hunt St.

Control Type:	Two-way stop	Delay (sec / veh):	14.4
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.013

Intersection Setup

Name	Hunt Street		East Rainbow Boulevard			East Rainbow Boulevard	
Approach	Southbound		Eastbound			Westbound	
Lane Configuration							
Turning Movement	Left	Right	U-turn	Left	Thru	Thru	Right
Lane Width [ft]	11.48	11.48	11.48	11.48	11.48	11.48	11.48
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0
Entry Pocket Length [ft]	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
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		45.00			45.00	
Grade [%]	0.00		0.00			0.00	
Crosswalk	Yes		No			No	

Volumes

Name	Hunt Street		East Rainbow Boulevard			East Rainbow Boulevard	
Base Volume Input [veh/h]	3	31	0	27	324	271	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	39	41	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	34	0	29	390	335	7
Peak Hour Factor	0.5800	1.0000	1.0000	0.9700	0.8400	0.9400	0.5800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	9	0	7	116	89	3
Total Analysis Volume [veh/h]	5	34	0	30	464	356	12
Pedestrian Volume [ped/h]	0		0			0	

Intersection Settings

Priority Scheme	Stop	Free	Free
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	0.01	0.04	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.42	9.60	10.68	8.07	0.00	0.00	0.00
Movement LOS	B	A	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.17	0.17	0.08	0.08	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.23	4.23	1.92	1.92	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.22		0.49			0.00	
Approach LOS	B		A			A	
d_I, Intersection Delay [s/veh]	0.71						
Intersection LOS	B						

Intersection Level Of Service Report
Intersection 633: Rainbow Blvd. / Site Access

Control Type:	Two-way stop	Delay (sec / veh):	16.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.051

Intersection Setup

Name							East Rainbow Boulevard			East Rainbow Boulevard		
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	0	0	0	0	0	0	1	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			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name							East Rainbow Boulevard			East Rainbow Boulevard		
Base Volume Input [veh/h]	16	0	31	0	0	0	0	334	37	10	266	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 [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840	1.0840
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	23	0	41	39	0	0	0	0	31
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]	17	0	34	23	0	41	39	362	40	11	288	31
Peak Hour 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
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]	4	0	9	6	0	10	10	91	10	3	72	8
Total Analysis Volume [veh/h]	17	0	34	23	0	41	39	362	40	11	288	31
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.05	0.00	0.04	0.06	0.00	0.05	0.03	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	16.37	17.55	10.13	15.72	17.74	9.98	8.00	0.00	0.00	8.13	0.00	0.00
Movement LOS	C	C	B	C	C	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.31	0.31	0.31	0.37	0.37	0.37	0.10	0.00	0.00	0.02	0.01	0.00
95th-Percentile Queue Length [ft/ln]	7.63	7.63	7.63	9.34	9.34	9.34	2.44	0.00	0.00	0.46	0.23	0.00
d_A, Approach Delay [s/veh]	12.21			12.04			0.71			0.27		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	2.03											
Intersection LOS	C											

Engineers Opinion of Probable Cost
Salida Crossings - Salida, CO

Project:	17202 - Salida Crossings
Prepared By:	Phelps Engineering
Description:	Engineer's Opinion of Probable Cost
Date:	2022.10.27

Item	Quantity	Unit	Unit Cost	Cost Per Item	Comments
Demolition					
Mobilization	1	LS	$5,000.00	$5,000.00	
Saw Cut Existing Asphalt	50	LF	$15.00	$750.00	
Remove Existing Asphalt	24	SY	$17.00	$408.00	
			Demolition Subtotal:	$6,158.00	
Earthwork					
Mobilization	1	LS	$7,000.00	$7,000.00	
Clearing & Stockpile	2000	CY	$3.50	$7,000.00	
Cut to Fill On-Site	2000	CY	$4.00	$8,000.00	
Temporary Erosion & Sediment Control	1	LS	$20,000.00	$20,000.00	
Seeding & Mulching	1	AC	$750.00	$750.00	
			Earthwork Subtotal:	$42,750.00	
Roadway & Site Improvements					
Mobilization	1	LS	$9,000.00	$9,000.00	
Residential	0	LF	$223.00	$0.00	
Concrete Crosspan	1	EA	$1,500.00	$1,500.00	
Handicap Ramps	0	EA	$1,900.00	$0.00	
Striping (other)	100	LF	$2.00	$200.00	
Signs	20	EA	$350.00	$7,000.00	
Traffic Control (Temporary)	5	DAY	$2,500.00	$12,500.00	
Monument Sign	1	EA	$8,000.00	$8,000.00	
			Roadway & Site Improvements Subtotal:	$38,200.00	
Storm Drainage					
Mobilization	1	LS	$9,000.00	$9,000.00	
18" STM	215	LF	$85.00	$18,275.00	
Riprap	12	SY	$85.00	$1,020.00	
Storm Manhole (4' Dia.)	2	EA	$2,900.00	$5,800.00	
Connect to Existing Inlet	1	EA	$4,400.00	$4,400.00	
			Storm Drainage Subtotal:	$38,495.00	
Potable & Non-Potable Water					
Connect to Existing	2	EA	$2,600.00	$5,200.00	
8" PVC	1050	LF	$58.00	$60,900.00	
Fire Hydrant Assy.	1	EA	$6,800.00	$6,800.00	
Bends & Fittings	4	EA	$600.00	$2,400.00	
Gate Valves	4	EA	$1,300.00	$5,200.00	
Service Stubs	2	EA	$1,800.00	$3,600.00	
Water Meters	0	EA	$150.00	$0.00	
Inspection Fee	1	LS	$300.00	$300.00	
Inspection Point Charges	10	EA	$150.00	$1,500.00	Per each connection point, bend & fitting
			Potable Water Subtotal	$85,900.00	
Sanitary Sewer					
8" Sanitary Sewer PVC	40	LF	$65.00	$2,600.00	
Manhole (4' DIA)	1	EA	$3,500.00	$3,500.00	
Service Stubs	0	EA	$1,200.00	$0.00	
Connect to Existing	1	EA	$1,200.00	$1,200.00	
Sewer Connection Fees	1	EA	$6,376.00	$6,376.00	Before Building Permit Issued
			Sanitary Sewer Subtotal	$13,676.00	
			Total:	**$225,179.00**	
			Contingencies (10%):	$22,517.90	
Other					
Survey & Staking	1	LS	3.00%	$7,430.91	
Testing & Inspections	1	LS	3.00%	$7,430.91	
Engineering Construction Services	1	LS	4.00%	$9,907.88	
Dry Utilities	1	EA	2500.00	$2,500.00	
Landscape/Irrigation	0	SF	$2.00	$0.00	In Contengencies
			Subtotal	$27,269.69	
			Grand Total:	**$274,967**	

PHELPS ENGINEERING
DESIGN & DEVELOPMENT SERVICES

November 3, 2022

Thank you for the review of plans for Salida Crossings, below are our response to comments indicated in RED.

RE: Salida Crossings, Salida, Colorado
Salida Public Works Agency Review

To: Bill Almquist, Community Development Director, City of Salida

Public Works has completed review of the Civil Construction Plans dated 10/27/2022.

Plat

1) Utility Easements shall extend a minimum of 7.5-ft beyond public utility improvements.
    a. Acknowledged, utility easements extended where applicable
2) Provide a plat for review with utility improvements overlay.
    a. Plat with utilities shown has been provided

Drainage Report

1) Provide a signed and stamped copy for review.
    a. Signed and stamped report has been provided.
2) Update existing imperviousness values as the site is soil. Recalculate detention.
    a. Existing imperviousness values will be revised to show soil conditions. PES will continue to use the release rate per pre-demo conditions in order to provide a conservative analysis of historic site conditions.

Plans

1) Provide a signed and stamped copy for review.
    a. Signed and stamped plans are provided.
2) The water main connection on the west end will be at Caldwell and not Hunt.
    a. Acknowledged and updated
3) Applicant to work with City on water main re-alignment through site.
    a. Acknowledged

4) Provide additional detail of existing improvements in CDOT ROW including street lights and sidewalks. Relocate proposed private storm sewer out of CDOT ROW and onto subject property. Avoid new streetscape improvements to the greatest extent possible.
    a). We are awaiting revised survey to show improvements made along Hwy 50. PES will provide additional detail prior to acceptance and construction.

General

1) Provide record of CDOT utility and access permits.
    a. Record of CDOT correspondence provided
2) Provide record of SUE in CDOT ROW.
    a. Acknowledged

The above items shall be addressed prior to issuance of improvements agreement and/or building permits. A detailed engineering review of the site improvements is recommended. The contractor shall provide product submittals for work occurring in the right-of-way and shall obtain necessary permits. A preconstruction meeting with Public Works shall be scheduled and completed prior to initiation of work.
Acknowledged

Sincerely,

Joe Pucillo
Phelps Engineering

PARCEL#: 380704300174
ILLINOIS AVE APTS
834 CRESTONE AVE
SALIDA, CO 81201

PARCEL#: 380704300175
LOWRY, LORNIE
625 ILLINOIS AVE
SALIDA, CO 81201

PARCEL#: 380704300018
AVALANCHE EXCAVATING INC
720 OAK ST
SALIDA, CO 81201

TRASH RECEPTACLE LOCATION

5.00' SETBACK

S 89°34'17" E, 294.80'

HATCHED AREAS REPRESENT GARAGE PARKING

STANDARD PARKING (3+1 ADA)

24.00' FIRE LANE, UTILITY & ACCESS EASEMENT

4.73'

4.34'

49.00'

48.71'

50.96'

DOG PARK

42.76'

N 00°16'25" W, 100.35'

STORAGE UNIT FACILITY (72)

5.00' SETBACK

18.50' (TYP.)

9.00' (TYP.)

STANDARD PARKING (14)

STANDARD PARKING (13)

10.00' (TYP.)

20.00' (TYP.)

140.62'

140.17'

75.21'

S 88°57'52" E 29.69'

RETAINING WALL (HEIGHT VARIES)

71.69'

BUILDING B

BUILDING C

46.20'

24' FIRE LANE, UTILITY & ACCESS EASEMENT

24.5' FIRE LANE, UTILITY & ACCESS EASEMENT

3' SETBACK

TRASH RECEPTACLE LOCATION

S 00°14'51" E, 399.80'

25.44'

STANDARD PARKING (20 + 1 ADA)

24.00'

58.50'

8'X16' COMPACT PARKING (22 +1 ADA)

N 00°12'31" W, 299.69'

PARCEL#: 380704300170
OAK STREET PARTNERS LLC
18172 LAZY DAZE RD
SALIDA, CO 81201

TRASH RECEPTACLE LOCATION

UTILITY EASEMENT

PARCEL#: 380704300015
KF LODGING LLC
1310 E HWY 50
SALIDA, CO 81201

VAN ACCESSIBLE PARKING

80.35'

178.68'

80.14'

BUILDING A
1520 E HWY 50
SALIDA, CO 81201

3.00' SETBACK

STANDARD PARKING (7+1 ADA)

STANDARD PARKING (7+1 ADA)

STANDARD PARKING (10)

10.00' UTIL ESMT

7.86'

8.36'

PARCEL#: 380704300039
SEVEN ELEVEN
TAX DEPT.
PO BOX 711
DALLAS, TX 75221

24.00' FIRE LANE, UTILITY & ACCESS EASEMENT

8' X 16' COMPACT PARKING (21+2 ADA)

59.01'

59.00'

10.00' UTIL ESMT

10.00' UTIL ESMT

S 89°35'00" E, 335.80'

40.00'

10.00' UTILITY EASEMENT

STANDARD PARKING (11)

HIGHWAY 50 IMPROVEMENT AREA (ROW WIDTH VARIES)

6.00' CONCRETE WALK (TYP.)

4.00' STAMPED CONCRETE (TYP.)

STANDARD PARKING (12)

ACCESS LOCATION

PROP. 6" CURB & GUTTER TO MATCH EXISTING GRADES (TYP.)

US HWY 50

HIGHWAY 50 IMPROVEMENT AREA (ROW WIDTH VARIES)

HIGHWAY 50 IMPROVEMENT AREA (ROW WIDTH VARIES)

0 15 30 60

1 inch = 30 ft. Horizontal

LEGEND:

- EXISTING CONTOURS (8600)
- PROPOSED CONTOURS (8600)
- PROPOSED STORM SEWER W/INLET AND FES
- PROPOSED WATER LINE W/FIRE HYDRANT
- FUTURE WATER LINE W/FIRE HYDRANT
- PROPOSED SANITARY SEWER W/MANHOLE
- FUTURE SANITARY SEWER W/MANHOLE
- DRAINAGE FLOWLINE
- PROPOSED BOUNDARY LINE
- PROPOSED TRACT
- PROPOSED EASEMENT LINE
- PROPOSED ROAD CENTER LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB & GUTTER
- EXISTING TRASH ENCLOSURE
- EXISTING LIGHT POLE
- EXISTING STORM SEWER MANHOLE
- EXISTING INLET
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING UTILITY POLE
- EXISTING UNDERGROUND WATER LINES (WAT)
- EXISTING UNDERGROUND GAS LINES (GAS)
- EXISTING UNDERGROUND SANITARY SEWER LINES (SAN)
- EXISTING OVERHEAD UTILITY LINES (OHP)
- EXISTING FENCE (X)
- PROPOSED PUBLIC SIDEWALK
- 20'X10' SINGLE GARAGE PARKING (55 UNITS)
- STANDARD PARKING = 128 STALLS
- COMPACT PARKING = 44 STALLS
- TOTAL PARKING = 227 STALLS (8 ADA)
- 16 TRASH RECEPTACLES

No.	REVISIONS	DATE	BY
1	PER CITY COMMENTS	2/6/2018	JP
2	PER CITY COMMENTS	8/9/2019	JP
3	PER CITY COMMENTS	4/8/2020	JP

PHELPS ENGINEERING
7200 E HAMPDEN AVE. SUITE 300, DENVER, CO 80244

NOT FOR CONSTRUCTION

SCALE: SEE SHEET
DESIGNED BY: JP
DRAWN BY: JP
CHECKED BY: CD

FINAL DEVELOPMENT PLAN

SITE PLAN

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE 4/8/2020

PROJECT NO. 17202

1 of 1

Drawing name: S:\Entitlement Engineering\17202 - Salida Commons\CAD\Sheets\site plan.dwg SITE PLAN Mar 01, 2021 3:32pm by: JPucillo

FINAL DEVELOPMENT PLAN
SALIDA CROSSINGS
A PORTION OF THE SW 1/ 4 OF NW 1/ 4 OF SW 1/ 4 SECTION 4, TOWNSHIP 49 NORTH, RANGE 9 EAST OF THE NEW MEXICO P.M. COUNTY OF CHAFFEE, STATE OF COLORADO

CERTIFICATE OF DEDICATION AND OWNERSHIP

KNOW ALL PERSONS BY THESE PRESENTS THAT SALIDA CROSSINGS 134, LLC, IS THE FEE OWNER OF THE FOLLOWING DESCRIBED PROPERTY:

A TRACT OF LAND LOCATED IN THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER (SW¼NW¼¼ SW¼¼) OF SECTION 4, TOWNSHIP 49 NORTH, RANGE 9 EAST OF THE NEW MEXICO PRINCIPAL MERIDIAN, CHAFFEE COUNTY, COLORADO, BEING DESCRIBED AS FOLLOWS:
COMMENCING AT A POINT ON THE NORTHERLY RIGHT-OF-WAY BOUNDARY OF U.S. HIGHWAY NO. 50, WHENCE THE SOUTHEAST CORNER (BRASS CAP) OF SAID SECTION 4 BEARS SOUTH 72°19.0' EAST 4848.6 FEET, AND WHENCE THE HIGHWAY RIGHT-OF-WAY MARKER (BRASS CAP) OF STATION 2301+12 OF THE CENTERLINE SURVEY OF SAID HIGHWAY BEARS SOUTH 89°30' EAST 127.0 FEET, SAID COMMENCING POINT BEING MARKED BY A POINT IN THE EASTERLY SIDE OF 24 INCH C.M.P. CULVERT AND BEING WITNESSED BY A 5/8 INCH STEEL REINFORCING BAR 2 FEET LAND DRIVEN INTO THE GROUND AND HAVING A ONE INCH ALUMINUM CAP WHICH IS NORTH 89°30' WEST 3.0 FEET FROM SAID COMMENCING POINT ALSO BEING THE POINT OF BEGINNING OF THE TRACT HEREIN DESCRIBED:
THENCE NORTH 0°14.6' WEST 300.0 FEET TO A REINFORCING BAR AS DESCRIBED ABOVE;
THENCE SOUTH 89°30' EAST 28.8 FEET;
THENCE NORTH 0°14.6' WEST 100.0 FEET;
THENCE NORTH 89°30' WEST 365.4 FEET TO THE NORTHEAST CORNER OF THE TRACT HEREIN DESCRIBED IN BOOK 251 AT PAGE 423 OF THE RECORDS OF CHAFFEE COUNTY, COLORADO; THENCE SOUTH 0°20' EAST 400 FEET ALONG THE EAST BOUNDARIES OF THE TRACTS DESCRIBED IN BOOK 251 AT PAGE 423 AND IN BOOK 260 AT PAGE 184 OF THE RECORDS OF CHAFFEE COUNTY, COLORADO;
THENCE SOUTH 89°30' EAST 336 FEET ALONG THE NORTHERLY RIGHT-OF-WAY BOUNDARY OF U.S. HIGHWAY NO. 50 TO THE POINT OF BEGINNING.

EXECUTED THIS 15 DAY OF April, 20 20

BY: _____

COUNTY OF CHAFFEE)
) SS.
STATE OF COLORADO)

THE FOREGOING DEDICATION WAS ACKNOWLEDGED BEFORE ME THIS 15th DAY OF April, 20 20 BY DUANE COZART AS SALIDA CROSSINGS 134, LLC, MANAGING MEMBER, WITNESS MY HAND AND SEAL.

MY COMMISSION EXPIRES April 15, 2021

_____

KRISTI A. JEFFERSON
Notary Public
State of Colorado
Notary ID # 20004017716
My Commission Expires April 15, 2021

CERTIFICATION OF TITLE

I Gwendolyn Allen, A LICENSED INSURANCE AGENT IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT I HAVE EXAMINED THE TITLE TO THE PROPERTY HEREBY DEDICATED AND AS SHOWN AND DESCRIBED ON THIS FINAL DEVELOPMENT PLAN AND FOUND THE TITLE VESTED IN SALIDA CROSSINGS 134, LLC, FREE AND CLEAR OF ALL LIENS AND ENCUMBRANCES EXCEPT AS LISTED BELOW:

Effective as of 4/14/2020 - Deed of Trust Recorded as Rec. No. 452894
7:00 am

DATED THIS 15 DAY OF April, 20 20

_____
TITLE AGENT

CITY COUNCIL APPROVAL

THIS DEVELOPMENT PLAN IS APPROVED FOR FILING ON THIS 15 DAY OF April, 20 20

_____
MAYOR

PLANNING COMMISSION APPROVAL

THIS DEVELOPMENT PLAN IS APPROVED BY THE CITY OF SALIDA PLANNING COMMISSION ON THIS 15 DAY OF April, 20 20

_____
CHAIRMAN

CLERK AND RECORDER'S CERTIFICATE

THIS FINAL DEVELOPMENT PLAN WAS FILED IN THE OFFICE OF THE CLERK AND RECORDER OF CHAFFEE COUNTY, COLORADO AT 8:30 P.M. ON THIS 17th DAY OF April, 20 20 UNDER RECEPTION NUMBER 458354

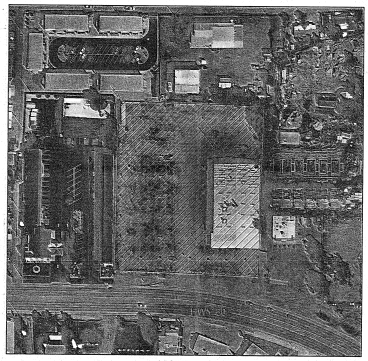
Patricia Trumbull (Deputy Recorder)
CHAFFEE COUNTY CLERK AND RECORDER

LAND SURVEYOR'S CERTIFICATE

I, Robert J. Rubino, A REGISTERED LAND SURVEYOR LICENSED TO PRACTICE IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS LAND SURVEY WAS PERFORMED UNDER MY DIRECT SUPERVISION AND THAT THE PLAT REPRESENTS THE RESULTS OF SAID SURVEY AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

_____, DATE 4-15-20

COLORADO P.L.S. 14142



VICINITY MAP
SCALE: 1" = 100'

ORDINANCE 2018-04 EXHIBIT B: DEVELOPMENT PLAN		
Exhibit	Sheet Title	Page
1	Cover Sheet	1 of 3
2	Existing Conditions	*
3	Existing Zoning Map	*
4	Phasing Plan	2 of 3
5	Site Plan	3 of 3
6	Grading Plan	*
7	Utility Plan	*
8	Landscape Plan	*

EXHIBIT C: SALIDA CROSSINGS ARCHITECTURAL PLANS		
1	Plan Calculations page A0	*
2	First Floor Plan Building A page A1	*
3	Upper Floor Plan Building A page A2	*
4	First Floor Plan Building B & C page A3	*
5	Middle Floor Plans Building B & C page A4	*
6	North and South Elevation Building A page A5	*
7	West and East Elevation Building A page A6	*
8	East and West Elevation Building B & C; South and North Elevation Building B page A7	*
9	Fourth Floor Plan Buildings B & C page A8	*
*	These Exhibits shall be on record with the Salida City Clerk	

CONTACTS:

OWNER:
SALIDA CROSSINGS 134, LLC
14300 W US HWY 50
SALIDA, CO 81201
CONTACT: DUANE COZART

SURVEYOR:
RUBINO SURVEYING
3312 AIRPORT ROAD
BOULDER, CO 80301
PHONE: (303) 464-9515
CONTACT: BOB RUBINO

CIVIL ENGINEER
PHELPS ENGINEERING SERVICES
7200 E. HAMPDEN AVE. SUITE 300
DENVER, CO 80224
PHONE: (303) 288-1644
CONTACT: LONNY PHELPS

SUBMITTAL DATES
1ST - DECEMBER 18, 2017
2nd - FEBRUARY 5, 2018

SAL
532 A

458354
458354 4/17/2020 2:30 PM PLAT Lori A Mitchell
1 of 3 R $20.00 D $0.00 S $0.00 EK Chaffee County Clerk

Proposed Land Use *	
Property Size (Sq. Ft.)	**137,254**
Building A	
Building Size (Sq. Ft.)	14,853
No. of Dwellings	38
2-Bedroom Units	12
1-Bedroom Units	26
Commercial Size (Sq. Ft.)	7,561
Building Height	37'-8"
Building B	
Building Size (Sq. Ft.)	13,374
No. of Dwellings	48
2-Bedroom Units	18
1-Bedroom Units	30
Office/Retail (Sq. Ft.)	5,137
Building Height	48'-1"
Building C	
Building Size (Sq. Ft.)	13,374
No. of Dwellings	48
2-Bedroom Units	18
1-Bedroom Units	30
Office/Retail (Sq. Ft.)	5,137
Building Height	48'-1"
**Parking Requirements ** **	
Retail Parking (10,765 SF/250 SF per space)	43spaces
Residential (1 space per building)	
3 buildings	3 spaces
1.5 spaces per building per 120 remaining units	191 spaces
Subtotal Spaces Required	240 spaces
25% Reduction for Mixed Use	-60 spaces
Total Spaces Required	180 spaces
Total Spaces Provided	107 spaces
Total Covered Spaces Provided	65 spaces

Site Data Table		
	C-1	PD
Residential Density (units/acre)	15.5	38.7
Residential Density (units/lot sf)	2,800	1,125
Number of Units	49	122
Lot Coverage - Buildings	60%	38%
Lot Coverage - Paving	60%	48%
Coverage Cumulative	90%	86%
Minimum Landscape Area	10%	14%
Primary Building Side Setback (ft)	5	65-75
Primary Building Front Setback (ft)	10	75
Primary Building Rear Setback (ft)	5	50
Accessory Building Side Setback (ft)	3	5
Accessory Building Rear Setback (ft)	5	5
Maximum Height Primary Building (ft/st)	35	37/8 - 48/1
Maximum Height Accessory Building (ft)	25	15
Property Size (Sq. Ft.)		137,254
Min. Lot Frontage (Ft.)		335-7"
Max. Lot Coverage (Structures)	60%	38%
Min. Setback from Side Lot Line (Ft.)		5
Min. Setback from Rear Lot Line (Ft.)		5
Min. Setback from Front Lot Line (Ft.)		10

* AMENDED BY CONDITION 9

** AMENDED BY CONDITIONS 10 & 11

TRIP GENERATION RATES

Description/ITE Code	Units	Rate Weekday Daily Traffic	PM Peak Period Rate	% PM In	% PM Out	Expected Units	Calculated Daily Trips	PM Trips - Total	PM In	PM Out
Apartment 220	DU	6.65	0.62	65	35	134	891	83	54	29
General Office 710	KSF	11.01	1.49	17	83	7.1	78	11	2	9
Shopping Center 820	KSF	42.94	3.37	49	51	9	385	30	15	15
TOTAL							**1354**	**124**	**71**	**53**

Notes:
DU = Dwelling Units
KSF = Units of 1,000 Square Feet

ORDINANCE 2018-04
EXHIBIT D CONDITIONS OF APPROVAL FOR SALIDA CROSSINGS PD

1. THE OWNER SHALL PAY IN LIEU OF LAND DEDICATION OR CONVEYANCE FOR A PUBLIC SCHOOL FACILITY AN AMOUNT OF THREE HUNDRED FIFTY-FOUR DOLLARS ($354.00) PER RESIDENTIAL DWELLING UNIT. THE OWNER MAY ELECT FOR SUCH AMOUNT TO BE PAID BY THE OWNER OF A PARTICULAR LOT AND/OR UNIT AT THE TIME A RESIDENTIAL BUILDING PERMIT IS OBTAINED.
2. THE DEVELOPMENT PLAN FOR THE ENTIRE SITE SHALL CONSIST OF THE "DEVELOPMENT PLAN, SALIDA CROSSINGS" DATED 11/20/2017; "SALIDA CROSSINGS" ARCHITECTURAL PLANS DATED 3/7/2018 AND THESE CONDITIONS OF APPROVAL.
3. AT THE TIME OF ISSUANCE OF A BUILDING PERMIT FOR THE PROJECT, THE DEVELOPER SHALL SUBMIT THE TOTAL OF PARKS, TRAILS AND OPEN SPACE IN LIEU FEES TOTALING $2,000 PER UNIT.
4. DEVELOPER SHALL AGREE TO COMPLETE THE HIGHWAY 50 CORRIDOR IMPROVEMENT PLAN IMPROVEMENTS, CONSISTING OF SIDEWALKS, PARKWAY AND STREET LIGHTING FOR THE PROJECT'S FRONTAGE AND CONTINUING TO THE INTERSECTION OF HIGHWAY 291 (OAK STREET). THE WORK SHALL BE COMPLETE PRIOR TO ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY FOR THE PROJECT, OR AN APPROPRIATE IN LIEU AMOUNT AND AGREEMENT IS PROVIDED.
5. A MINIMUM OF THIRTY OF THE PROPOSED RESIDENTIAL UNITS SHALL BE DEED RESTRICTED FOR WORK FORCE HOUSING: GENERALLY AS DESCRIBED BELOW:
   - PHASE 1 (BUILDING A) WILL HAVE FOUR (4) UNITS (I BEDROOM AND 1 BATH) RESTRICTED TO HOUSEHOLDS EARNING 70% OR LESS OF THE CHAFFEE COUNTY AVERAGE MEDIAN INCOME (AMI) AND SIX (6) UNITS (2 BEDROOM AND 1 BATH) RESTRICTED TO HOUSEHOLDS EARNING 70% OR LESS AMI;
   - PHASE 2 (BUILDING B) WILL HAVE FIVE (5) UNITS (I BEDROOM AND 1 BATH) RESTRICTED TO HOUSEHOLDS EARNING 70% OR LESS OF THE AMI; FOUR (4) UNITS (2 BEDROOM AND 1 BATH) RESTRICTED TO HOUSEHOLDS EARNING 70% OR LESS AMI AND ONE (1) UNIT (2 BEDROOM AND 2 BATH) RESTRICTED TO HOUSEHOLDS EARNING 80% OR LESS AMI; AND
   - PHASE 3 (BUILDING C) WILL HAVE FIVE (5) UNITS (1 BEDROOM AND 1 BATH) RESTRICTED TO HOUSEHOLDS EARNING 70% OR LESS OF THE AMI; FOUR (4) UNITS (2 BEDROOM AND 1 BATH) RESTRICTED TO HOUSEHOLDS EARNING 70% OR LESS AMI AND ONE (1) UNIT (2 BEDROOM AND 2 BATH) RESTRICTED TO HOUSEHOLDS EARNING 80% OR LESS AMI; AND
   - THE MAXIMUM AMI STATED ABOVE MAY BE INCREASED OR DECREASED UP TO 10% FOR INDIVIDUAL HOUSEHOLDS. A CONDITION OF THE SUBSEQUENT DEVELOPMENT AGREEMENT(CONDITION #8) SHALL BE THAT THE DEVELOPER MAKE ANNUAL REPORTS TO THE CITY COUNCIL DETAILING CHANGES IN THE PRICING MODEL BASED UPON CHANGES TO THE COLORADO HOUSING AND FINANCE AUTHORITY COUNTY INCOME AND RENT TABLES FOR CHAFFEE COUNTY; AND
   - THE DEVELOPER WILL MAKE A GOOD FAITH EFFORT TO DISPERSE THE UNITS WITHIN THE FIRST THREE FLOORS OF EACH BUILDING.
   - THE HOA DUES FOR THE DEED RESTRICTED UNITS SHALL BE DISCOUNTED BY A MINIMUM OF 25%.
6. THE DEED RESTRICTION SHALL ADDRESS INCOME AND EMPLOYMENT QUALIFICATIONS; PROPOSED LOTTERY OR OTHER EQUITABLE SYSTEM FOR THE INITIAL SALE OF THE UNITS, AND BE APPROVED BY THE CITY COUNCIL. THE ENFORCEMENT OF THE DEED RESTRICTIONS WILL BE BY THE FUTURE CHAFFEE COUNTY HOUSING OFFICE, UNLESS IT DOES NOT EXIST AT THE TIME OF THE FIRST SALE OFA DEED RESTRICTED UNIT, IN WHICH CASE IT SHALL BE THE ONUS OF THE CITY OF SALIDA TO DESIGNATE AM APPROPRIATE ENTITY.
7. DEVELOPER SHALL MAKE CORRECTIONS TO THE IMPROVEMENT PLANS AS DESCRIBED BY THE PUBLIC WORKS DIRECTOR.
8. DEVELOPER SHALL ENTER INTO A DEVELOPMENT AGREEMENT TO ADDRESS THE IMPROVEMENTS REQUIRED FOR THE PROJECT AS WELL AS THOSE REQUIREMENTS CONTAINED IN CONDITIONS ABOVE PRIOR TO ISSUANCE OF A BUILDING PERMIT.
9. THE GROUND FLOOR SPACE OF BUILDING A SHALL INCLUDE A MINIMUM OF 7,515 SQUARE FEET OF RETAIL USES AND SERVICES. BUILDINGS B AND C SHALL HAVE A MINIMUM OF 3, 122 SQUARE FEET OF OFFICE AND/OR RETAIL USES. THERE SHALL BE NO SHORT TERM RENTALS ALLOWED IN THE DEVELOPMENT.
10. THE FINAL DEVELOPMENT PLAN SHALL BE AMENDED TO REDUCE THE NUMBER OF DWELLING UNITS TO A MAXIMUM OF 122; INCREASE THE REQUIRED PARKING TO A RANGE OF 256-268 SPACES WHICH INCLUDES SPACES PROVIDED UNDER BUILDINGS B AND C; AND REMOVE REQUIREMENT FOR COVERED OUTDOOR PARKING
11. THE REQUIRED PARKING MAY BE REDUCED TO 225 IF THE FORMER PARKING AREA IS UTILIZED FOR REQUIRED OPEN SPACE FOR A STATE CERTIFIED DAY CARE CENTER.

No.	REVISIONS	DATE	BY
1	PER CITY COMMENTS	2/6/2019	JP
2	PER CITY COMMENTS	8/9/2019	BJ
3	PER CITY COMMENTS	4/8/2020	BJ

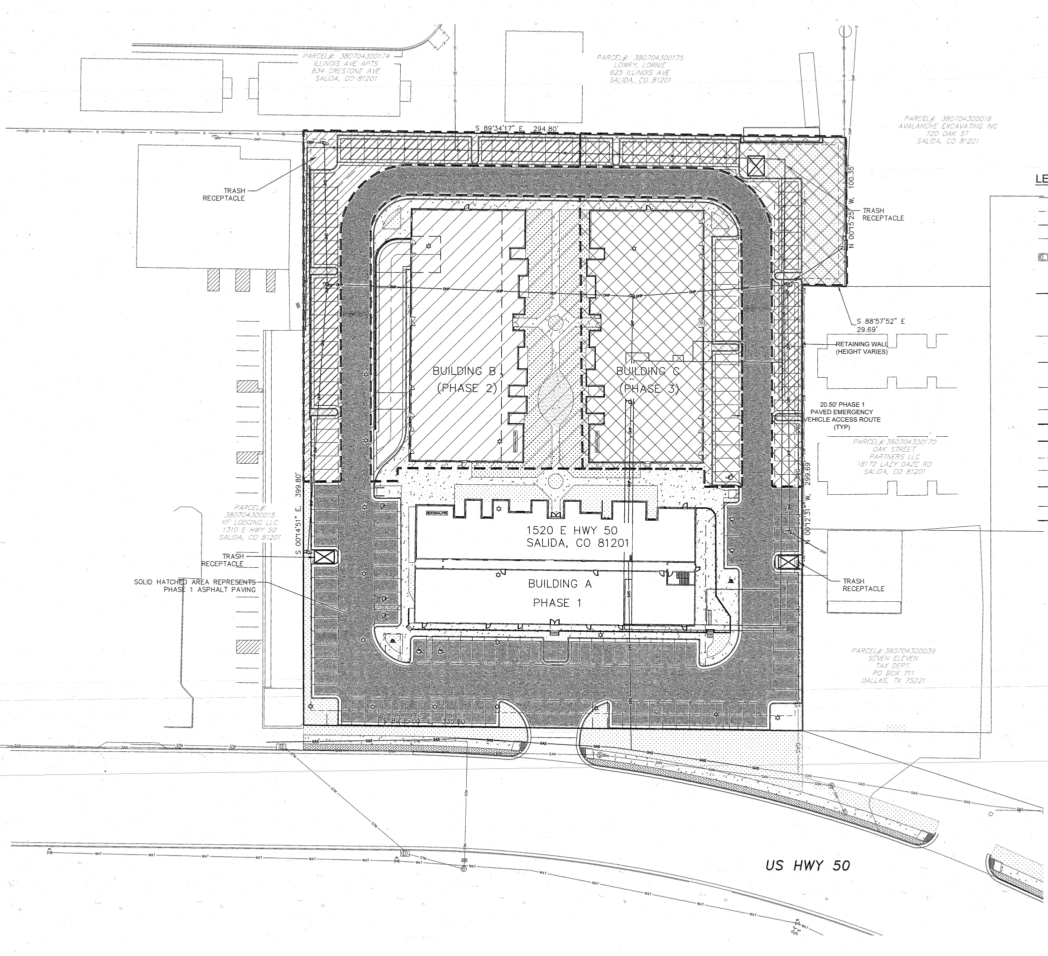
PHELPS ENGINEERING
7200 E. HAMPDEN AVE. SUITE 300 DENVER, CO 80224

SCALE: SEE SHEET
DESIGNED BY: JP
DRAWN BY: JP
CHECKED BY: CO

FINAL DEVELOPMENT PLAN
COVER SHEET

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE 4/8/2020
PROJECT NO. 17202



LEGEND:

- 8600 — EXISTING CONTOURS
- 8600 — PROPOSED CONTOURS
- PROPOSED STORM SEWER W/INLET AND FES
- PROPOSED WATER LINE W/FIRE HYDRANT
- FUTURE WATER LINE W/FIRE HYDRANT
- PROPOSED SANITARY SEWER W/MANHOLE
- FUTURE SANITARY SEWER W/MANHOLE
- DRAINAGE FLOWLINE
- PROPOSED BOUNDARY LINE
- PROPOSED TRACT
- PROPOSED EASEMENT LINE
- PROPOSED ROAD CENTER LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB & GUTTER
- EXISTING TRASH ENCLOSURE
- EXISTING LIGHT POLE
- EXISTING STORM SEWER MANHOLE
- EXISTING INLET
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING UTILITY POLE
- WAT — EXISTING UNDERGROUND WATER LINES
- GAS — EXISTING UNDERGROUND GAS LINES
- SAN — EXISTING UNDERGROUND SANITARY SEWER LINES
- OHP — EXISTING OVERHEAD UTILITY LINES
- X — EXISTING FENCE
- LIMITS OF PHASE 2
- LIMITS OF PHASE 3

PHASED PARKING COUNTS

PHASE 1 - 88 PARKING SPACES (20 COMPACT)
PHASE 2 - 58 PARKING SPACES (9 COMPACT)
PHASE 3 - 56 PARKING SPACES (9 COMPACT)

TOTAL PARKING - 202 SPACES
TOTAL COVERED PARKING - 65 SPACES

No.	REVISIONS	DATE	BY
1	PER CITY COMMENTS	2/6/2018	JP
2	PER CITY COMMENTS	8/9/2019	JP
3	PER CITY COMMENTS	4/8/2020	JP

PHELPS ENGINEERING
7200 E HAMPDEN AVE. SUITE 300, DENVER, CO 80244

COLORADO REGISTERED PROFESSIONAL ENGINEER
VINNY EUGENE PHELPS
31346
4/14/20

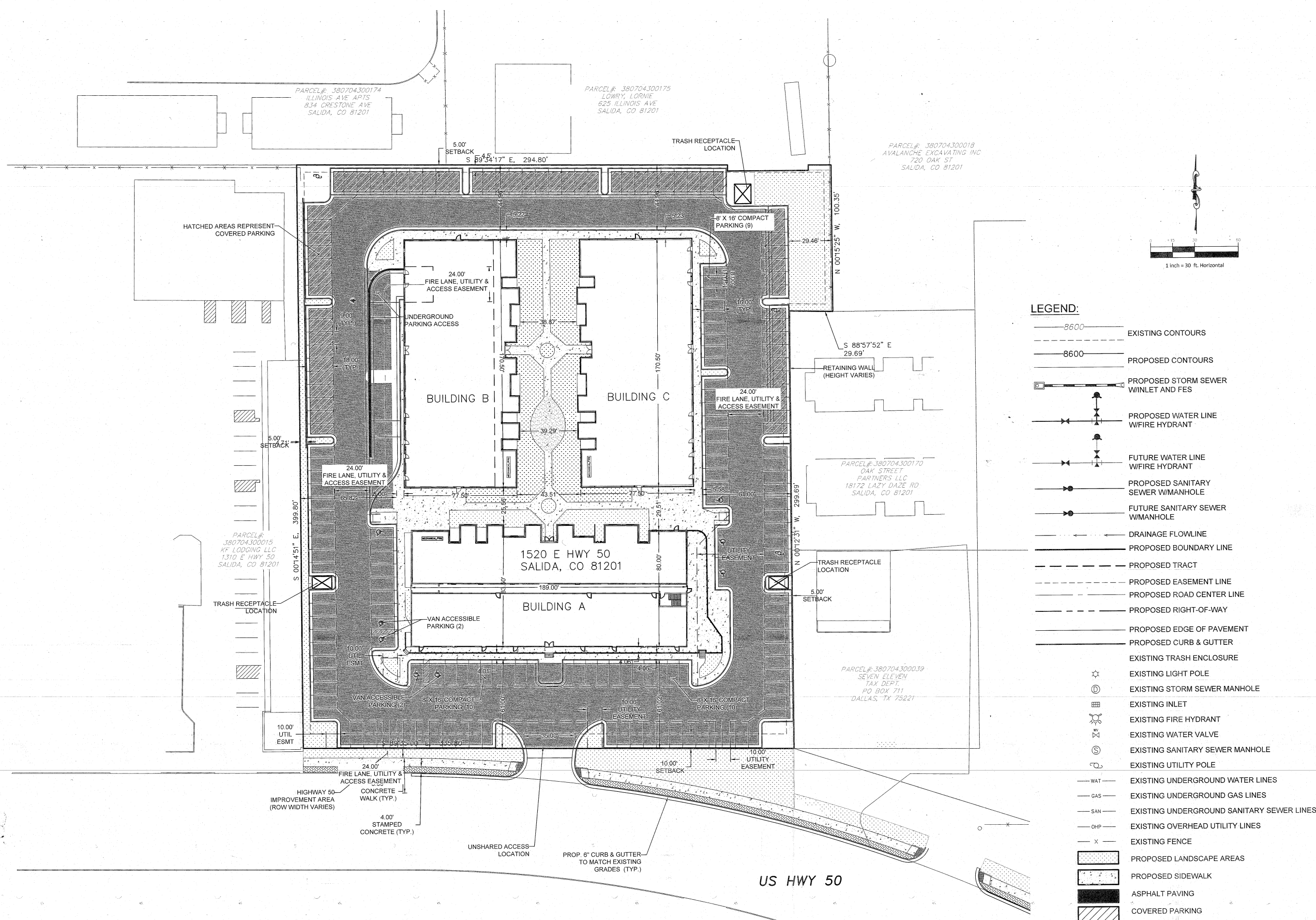
SCALE: SEE SHEET
DESIGNED BY: JP
DRAWN BY: JP
CHECKED BY: CD

FINAL DEVELOPMENT PLAN
PHASING PLAN

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE 4/8/2020
PROJECT NO. 17202

SAL 532 B



Drawing name: S:\Entitlement Engineering\17202 - Salida Commons\CAD\Sheets\site plan.dwg SITE PLAN Apr 08, 2020 1:03pm by: JPucillo

No.	REVISIONS	DATE	BY
1	PER CITY COMMENTS	2/6/2018	JP
2	PER CITY COMMENTS	8/9/2019	JP
3	PER CITY COMMENTS	4/8/2020	JP

PHELPS ENGINEERING
7200 E HAMPDEN AVE. SUITE 300, DENVER, CO 80244

COLORADO REGISTERED PROFESSIONAL ENGINEER 31346 4/14/20

SCALE: SEE SHEET
DESIGNED BY: JP
DRAWN BY: JP
CHECKED BY: CD

FINAL DEVELOPMENT PLAN
SITE PLAN

SALIDA CROSSINGS
CITY OF SALIDA, COLORADO

DATE 4/8/2020
PROJECT NO. 17202

3 of 3

SAL 532 C

458354
458354 4/17/2020 2:30 PM PLAT Lori A Mitchell
3 of 3 R$30 D$0 N$0 S$3 M$0 E$0 Chaffee County Clerk

CERTIFICATE OF PUBLICATION

STATE OF COLORADO } SS

County of Chaffee

I, MERLE J. BARANCZYK,

Being first duly sworn according to law, on oath depose and say, that I am, and at all the times herein mentioned, was the publisher of the Mountain Mail and that said Mountain Mail is a bi-weekly newspaper of general circulation, in said County and State, printed and published in the City of Salida, County of Chaffee and State of Colorado, and that copies of each number thereof are, and at all the times herein mentioned were, regularly distributed and delivered, by carrier or mail, to each of the subscribers of said newspaper, in accordance with the customary method of business in newspaper offices.

That the annexed PUBLIC HEARING NOTICE FROM THE CITY OF SALIDA

In the matter of PLANNED DEVELOPMENT MODIFICATION (TIME EXTENSION) APPLICATION – SALIDA CROSSINGS

This a true copy of the original, and the same was regularly published in the newspaper proper and not in a supplement, for the full period of ONE (1) INSERTION of said newspaper, and that the first publication was in the issue dated SEPTEMBER 30, 2022 and that the last publication of the same was in the issue dated SEPTEMBER 30, 2022 and the said Mountain Mail has been established, printed and published for the full period of fifty-two consecutive weeks, and continuously and uninterruptedly prior to the said date of the first publication of the notice aforesaid, in the City of Salida, County of Chaffee and State of Colorado, and is a newspaper duly qualified for the publishing of said notice within the meaning of an Act of the General Assembly of the State of Colorado, approved May 30th, 1923, and entitled "An act to Amend an Act Entitled 'An Act Concerning Legal Notices, Advertisements and Publications and the Fees of Printers and Publishers thereof, and to Repeal all Acts and Parts of Acts in Conflict with the Provisions of this Act'," and within the meaning of an Act amendatory thereof, approved May 18th, 1931 and entitled "An Act to Amend Section 4, of Chapter 139, Session Laws 'of Colorado, 1923, relating to Legal Notices and Advertisements," and within the meaning of any and all other Acts amendatory thereof or supplemental thereto. And further affiant saith not.

Pursuant to C.R.S. 24-70-103(5) this notice has also been posted online and available at: https: //www.themountainmail.com and posted online and available at Colorado Press Association Network-Colorado Public Notice database at:: https://www.publicnoticecolorado.com

The above certificate of publication was subscribed and sworn to before me by the above named Merle J. Baranczyk who is personally known to me to be the identical person described in the above certificate, on the 30TH day of SEPTEMBER, 2022 A.D.

FEIN # 84-0718607

KAREN HASSELBRINK-NOTARY PUBLIC-ID#19904013399
STATE OF COLORADO/COUNTY OF CHAFFEE
My Commission Expires: October 16th, 2022

KAREN HASSELBRINK
Notary Public
State of Colorado
Notary ID # 19904013399
My Commission Expires 10-16-2022

PROOF OF PUBLICATION

PUBLIC NOTICE
NOTICE OF PUBLIC HEARING BEFORE THE CITY COUNCIL FOR THE CITY OF SALIDA CONCERNING A PLANNED DEVELOPMENT MODIFICATION (TIME EXTENTION) APPLICATION

TO ALL MEMBERS OF THE PUBLIC AND INTERESTED PERSONS: PLEASE TAKE NOTICE that on October 4, 2022 at or about the hour of 6:30 p.m., a public hearing will be conducted by the City of Salida City Council at City Council Chambers, 448 East First Street, Suite 190, Salida, Colorado on an application submitted by BV Investments, LLC for a modification (time-extension) for the Salida Crossings Planned Development. The 3.15 acre property is located at 1520 E. Highway 50 and legally described as "A portion of the SW ¼ of the NW ¼ or the SW ¼ Section 4, Township 49 North, Range 9 East of the New Mexico P.M. County of Chaffee, State of Colorado".

Interested persons are encouraged to attend the public hearing in person or online at https://attendee.gotowebinar.com/rt/1909092342220683277. Further information on the application may be obtained from the Community Development Department, (719) 530-2634.

*Please note that it is inappropriate to personally contact individual City Councilors or planning Commissioners outside of the public hearing, while an application is pending. Such contact is considered ex-parte communication and will have to be disclosed as part of the public hearings on the matter. If you have any questions/comments, you should email or write a letter to staff, or present your concerns at the public meeting in-person or via the above GoToWebinar link so your comments can be made part of the record.

Published in The Mountain Mail September 30, 2022