Community & Economic
Development Department
www.adcogov.org

ADAMS COUNTY
COLORADO

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

Re-submittal Form

Case Name/ Number: PLT2025-00006/ Seltzer Heights

Case Manager: Nick Eagleson

Re-submitted Items:

- [ ] Development Plan/ Site Plan
- [X] Plat
- [ ] Parking/ Landscape Plan
- [ ] Engineering Documents
- [ ] Subdivision Improvements Agreement
- [ ] Other: _

*** All re-submittals must have this cover sheet and a cover letter addressing review comments.**

Please note the re-submittal review period is 21 days.

The cover letter must include the following information:

- Restate each comment that requires a response
- Provide a response below the comment with a description of the revisions
- Identify any additional changes made to the original document

For County Use Only:

Date Accepted:

Staff (accepting intake):

Resubmittal Active: Addressing, Building Safety, Neighborhood Services,

Engineering, Environmental, Parks, Planner, ROW, SIA - Finance, SIA - Attorney

Commenting Division: Planner Review 1st Review
Name of Reviewer: Nick Eagleson

1. PLN01: The request is for a preliminary plat to create 205 lots and 8 tracts on approximately 227 acres in the Seltzer Heights subdivision.
   RESPONSE: Acknowledged there are 205 lots, 8 tracts & 3 future development lots.
2. PLN02: Case number PLT2025-00006 can be placed in the top right corner.
   RESPONSE: The case number has been added to the top right corner of the preliminary plat.
3. PLN03: Portions of the site that are designated for future development should be placed in lots (if not already). Tracts are non-buildable pieces of land. If you intend on building in these areas, then make them lots and resubdivide them later.
   RESPONSE: The future developments areas are now designated as lots to be subdivided later.
4. PLN04: A will serve letter from TCVMD dated 5/15/24 shall be used as a sufficient will serve letter with conditions placed on the approval, which references additional documentation needed for the Final Plat application.
   RESPONSE: Acknowledged, thank you.
5. PLN05: Please ensure all proposed lots are larger than 3,600 sq.ft. in size, per the approved PUD.
   RESPONSE: All lots are larger than 3,600 sq. ft in size.
6. PLN06: The criteria for approval for a Preliminary Plat can be found in Section 2-02-19-03-05.
   RESPONSE: Acknowledged, thank you.
7. PLN07: Public Land Dedication fees will be assessed at the time of Final Plat
   RESPONSE: Acknowledged, thank you.
8. PLN08: Traffic Impact fees will be assessed at the time of building permit.
   RESPONSE: Acknowledged, thank you.
9. PLN09: Improvement Agreement will be required at the time of Final Plat.
   RESPONSE: Acknowledged, thank you.

Commenting Division: Right of Way Review 1st Review
Name of Reviewer: David Dittmer

1. *They are vacating lot/parcel lines for Todd Creek Metro Dist to create a single piece of property not broken out by the current 4.
   RESPONSE: Acknowledged.
2. *HSG Land is maintaining their ownership, but the piece that will need to addressed for overlapping interest/ownership is the vacation of the lot/parcel line between HSG and Seltzer Farms.
   RESPONSE: Acknowledged.
3. *ROW is being dedicated by all owners. If Todd Creek is not a party to the plat, we cannot require the ROW dedication along their property. Only Seltzer and HSG.
   RESPONSE: Todd Creek Village Metropolitan District is part of the plat and dedicate ROW.
4. *If not planning on a Seltzer Heights Filing No. 2, then remove filing from the title of Filing No. 1
   RESPONSE: We would like to keep the Filing #1. We are planning on additional filings when the future development tracts are platted.

5. *What is with the Yosemite Street re-alignment? Will engineering approve?
   RESPONSE: Yosemite Street is being realigned to match Yosemite Street north of 168th Ave. per staff recommendations.
   ROW1: Any easement, irrigation ditch and pipelines, and oil and gas pipelines must be vacated by final plat review to provide public notice of clear and developable lots within the subdivision.
   RESPONSE: Acknowledged.
   ROW2: All owners signing the plat must provide a copy of a recorded Statement of Authority stating they can encumber the entity and have legal authority to do so.
   RESPONSE: Please see the recorded statement of authorities for all the owners signing the plat.
   ROW3: A Title Binder is not a Title Commitment. A Commitment must be provided as to current legal ownership by vesting deed, hyperlinks to all cited documents provided for review. This is required for review of the preliminary plat, and an update will be required 30 days prior to final public hearing to verify no ownership changes, or additional encumbrances/entitlements of record. The current legal boundaries by vesting must be provided for each parcel, followed by the m/b legal of the newly created subdivision.
   RESPONSE: A title commitment has been included with this submittal.
   ROW4: Add sheet numbers centered below the title on all sheets.
   RESPONSE: Added sheet numbers to all sheets under the title.
   ROW5: Add the Case Number to the top right-hand corner of all sheets.
   RESPONSE: The case has been added to the top right-hand corner of all sheets.
   ROW6: Remove the clerk and recorder's recording block from the preliminary plat and added "THIS PLAT IS NOT TO BE RECORED".
   RESPONSE: The clerk and recorders block has been removed from the cover page.
   ROW7: Revise the Planning Commission recommendation block as provided.
   RESPONSE: The planning commission recommendation block has been revised.
   ROW8: You are platting Lots, Blocks, Streets, Tracts and Easements.
   RESPONSE: The dedication statement now includes Lots, Blocks, Streets, Tracts and Easements.
   ROW9: The Land Use Summary Table needs to provide the breakdown of the individual TRACTS, their use, ownership, and maintenance responsibility. Combine this with the Tract Table.
   RESPONSE: The land use table has been combined with the tract table and now includes the tract's use, ownership, and maintenance responsibility. Due to the size of the two tables we had to move it to sheet 12.
   ROW10: The Land Use Summary Table needs to provide the Lot, Block, Sq. Ft., and Ac.
   RESPONSE: The lot, block, sq. ft & ac has been added to the summary table.
   ROW11: Note 8 states the "OWNER" shall comply with the O&G regulations. Which owner(s) shall comply?
   RESPONSE: In note 8, now note 10, the "owner" has been revised to be specifically HSG Land LLC.
   ROW12: Need a NOTE stating all lots are to be developable and any pipelines that may exist not of record will be removed by the owner/developer.
   RESPONSE: Note 7 now states all lots are to be developable and any pipelines that may exist not of record will be removed by the owner/developer.

ROW13: Need a Note fortifying the Storm Drainage Facility Statement that provides a blanket access easement across TRACT H to inspect the detention pond and drainage facilities.
RESPONSE: A new easement note has been added to grant the easement over Tract H.
ROW14: Need to format DETAIL A as you have with DETAIL B.
RESPONSE: Detail A has been revised like Detail B.
ROW15: Sheet 3 is missing Tract, Lot, and Block Labels for the future development sites, and the Lot covered by Note 7.
RESPONSE: Tract, Lot, and block labels have been added to the future development lots.
ROW16: For any legally mapped and vested parcel who's property line is to be vacated the statement should read: Parcel Line Vacated by this Plat (the Final Plat).
RESPONSE: Changed the label for parcel lines to be vacated by this plat.
ROW17: Sheet 5; Remove all equipment locations. This is covered and approved with the oil and gas permit/building permits. Leave the note as plotted by the ECMC Records and that the two plugged and abandoned wells are located within the boundary of an operating oil and gas facility.
RESPONSE: All oil and gas wells shown exist. We feel it is important to show with their associated setbacks.
ROW18: Sheet 6; Missing Lot/Block labels, provide sq. ft. and ac. for all Lots and Tracts, provide monumentation to obtain the location of the plugged and abandoned well. Need to tie the Point of Commencement to the Point of Beginning.
RESPONSE: Added lot/block labels, Sq. ft, and Ac. Moved the ties to the plugged and abandoned wells to a different location. Added a tie from the commencement to point of beginning.
ROW19: Sheet 5 has a match line to itself on the left side. Believe it should be for Sheet 4. Verify all match line references are to the correct sheet.
RESPONSE: The matchline sheet number has been corrected on sheet 5 and checked all the other sheets as well.
ROW20: A Site Plan for the remaining Seltzer Farm house property including the location of all existing structures, the location and limits of the leach field, all easements that effect the property, access to the existing structures to verify the re-alignment of Yosemite Street does not impose adverse conditions or a non-conforming situation.
RESPONSE: Please refer to the attached Seltzer House site plan.
ROW21: Sheet 6; has Lot/Block issues. Provide correct information with sq. ft. and acreage.
RESPONSE: Lot and block info is now shown with Sq. Ft and acreage.
ROW22: Sheet 7; The "approximate location" of the pipeline needs to be vacated for development of lots along with the ditch easement. Need to clear the title to these lots. Detail A needs to be dealt with, and access to the P&A's well head within the boundary of Tract B.
RESPONSE: These conflicts of the pipeline and ditch easement will be clear of title at the final approval of the final plat. Added access easement to the well setback.
ROW23: The 10' wide irrigation ditch within Yosemite St. must be vacated and cited for Final Plat approval. County requires senior rights.
RESPONSE: Acknowledged.

ROW24: Sheet11; Need access to P&A'd well.
RESPONSE: An access easement has been added to the well setback.

Commenting Division: Environmental Analyst Review 1st Review
Name of Reviewer: Megan Grant

1. ENV1. The applicant provided a will-serve letter from Todd Creek Village Metro District for water and sewer. Please provide proof of appropriate and applicable water availability and supply sufficient for the proposed project.
   a) Please provide proof of water supply for proposed development from the Division of Water Resources (DWR) for Todd Creek Village Metro District to be able to serve this proposed project.
      RESPONSE: Please refer to the letter included from TDVMD.
   b) Please provide more information on sewer lines and installation of sewer lines. Adjacent properties in Todd Creek are on septic but proposed project is indicated as to be served by sewer; however, sewer lines do not currently exist.
      RESPONSE: A sewer main to North Metro will be constructed in conjunction with this project and the Seltzer Farms Project. A preliminary design of this offsite sewer was provided with the Seltzer Farms preliminary plat construction documents.

<u>The following comments apply to oil and gas:</u>
ENV2. The proposed plat indicates oil and gas locations with setbacks for the wells, however no access to the wells is included as required in the Adams County Development Standards and Regulations (ACDSR). Plat notes will also need to be updated with these access requirements for all applicable well types:
RESPONSE: Access easements are now shown to all PA wells. Also, the notes below have been added.
<u>Wells (producing, shut in)</u>
Refer to ACDSR Section 4-11-02-03-03-05:
b. Access to the oil and gas well location shall be provided by a public street or recorded easement for private access.

c. The Final Plat shall include notice to prospective buyers of the location of the oil and gas well and associated easements.

<u>Inactive Wells (plugged and abandoned)</u>
Refer to ACDSR Section 4-11-02-03-03-05.2c:
There shall be public access for ingress and egress to the setback of a width of not less than twenty feet.

2. ENV3. All known oil and gas well flow lines and/or easements shall be graphically depicted on the final plat or site-specific development plan. There are numerous producing oil and gas wells on the subject parcels and adjacent parcels, as well as plugged and abandoned and shut in wells. Though some the wells may not be active, that does not mean that the flowlines were removed. In the interest of public health and safety, Adams County recommends that the applicant verify the status and location of the flowlines.
   RESPONSE: Utility locates have been performed on the entire site to locate existing utilities. Lines found match those shown on the ECMC GIS online map.
3. ENV4. All wells within 200 feet of the subject parcels must be located and mapped. These may be located off the subject parcels, but setback distances may impact the parcels. Refer to Adams County Development Standards and Regulations Section 4-11-02-03-03-05-2b.
   RESPONSE: All wells that are within 200 feet of the project boundary are shown. There are 2 offsite wells that are close but are further than 200 feet.
4. ENV5. Well details and location, as well as historical aerials and records, are available through the Colorado Energy and Carbon Management Commission (ECMC), formerly the Colorado Oil & Gas Conservation Commission (COGCC), website and map features:
   https://ecmc.state.co.us/maps.html#/gisonline
   RESPONSE: Acknowledged.
   The following comments apply to natural resources:
5. ENV6. The subject parcels contain multiple water bodies, including Signal Reservoir No 2, Signal Ditch, and an unnamed lake and FEMA 100-year floodplain areas.
   RESPONSE: Acknowledged.
6. ENV7. The subject parcels are transected by the Natural Resource Conservation Overlay (NRCO), which aims to protect important wildlife areas, designated floodplains, riparian corridors, and cultural resources. See Sections 3-43 and 4-14-02 of the Adams County Development Standards and Regulations (ACDSR) for more details.
7. ENV8. If disturbance of land not previously developed within the NRCO is greater than one combined (1) acre, then a Resources Review must be completed by a qualified professional consultant prior to application submittal so that it may be taken into consideration. See ACDSR Section 4-14-02-03 for Resources Review methodology.
   RESPONSE: Currently the design is very preliminary. However, we believe there will be no or very minimal impact on the natural resource areas. During the final design, the actual impact will be evaluated and submitted for review if necessary.
8. ENV9. If resources review documentation is available for the proposed project, please provide this information for Adams County review.
   RESPONSE: No resources review documentation is available currently.

9. ENV10. Development shall be located out of the riparian plant community along rivers and streams, and outside of the hydric zone in relation to wetlands. All development must comply with the NRCO buffers/setbacks requirements for individual protected resources provided in ACDSR Section 4-14-02-04-02.
   RESPONSE: Acknowledged, final design will comply with these requirements.
10. ENV11. The way that buildings are designed impacts health through the materials used and the amount of volatile organic compounds (VOCs) or other harmful chemicals that they contain; the air and water quality; the amount of daylight; and even by encouraging physical activity and social interaction. Adams County encourages the applicant to consider incorporating design standards into the development to ensure a health-promoting environment. The applicant could pursue building certifications such as LEED, WELL Building Standard, Certified Healthy, or Living Building Challenge.
    RESPONSE: Acknowledged.
11. ENV12. Adams County encourages community designs that make it easy for people to include regular physical activity, such as walking and bicycling, in their daily routines. Because research shows that the way we design our communities can encourage regular physical activity, community plans that incorporate pedestrian and bicycle amenities that support the use of a broader pedestrian and bicycle network are strongly encouraged. Neighborhoods best encourage residents to walk and/or bicycle as part of their daily routine when they contain a system of well-designed and well-lit sidewalks and trails that connect with destinations in and adjacent to the community.
    RESPONSE: This project has proposed walks throughout the open spaces and around the ponds to encourage the residents to walk and bike within their community.
12. ENV13. Adams County recommends the incorporation of bicycle parking into the overall site design for residents and visitors. Bicycle parking locations and design should allow for safe access from external roads and sidewalks and to/from buildings and internal pedestrian paths.
    RESPONSE: We have added bicycle parking locations within the parks. The locations will be shown on future Landscape Construction Documents.
13. ENV14. The applicant may want to consider crosswalk(s) where pedestrian access and/or sidewalk crosses internal site drive lanes, as these pedestrian crossings may not be easily visible to drivers since they are not at a street intersection. The simplest crossing design would be to post signs and provide striping on the pavement. A safer design alternative would be to provide a raised pedestrian crossing, with striping and a contrasting color, to clearly delineate the crossing. The raised crossing will provide the added benefit of slowing traffic and improving driver awareness of the crossings.
    RESPONSE: Raised pedestrian crossings and pavement markings and signs have been added at the crosswalks that are not at intersections to allow for safe crossing.

14. ENV15. Where public transportation systems exist, direct pedestrian access should be provided to increase transit use and reduce unnecessary vehicle trips, and related vehicle emissions. The pedestrian/bicycle networks should be integrated with the existing and future transit plans for the area.
    RESPONSE: There are currently no public transportation systems or planned systems in this area. However, we have incorporated an extensive multi-use trail system that allows pedestrians and bicyclists to access the major street network.
15. ENV16. Research shows that people are more likely to use pedestrian amenities when these features are attractive and feel safe. One way to improve the feeling of safety is by providing pedestrian scale lighting. Adams County encourages the use of appropriate lighting in the area and along access routes.
    RESPONSE: We will consider adding lighting within the parks with the future Landscape Construction Documents.

Commenting Division: Development Engineering Review 1st Review
Name of Reviewer: Matthew Emmens

1. ENG1: Flood Insurance Rate Map – FIRM Panel # (08001C0307H), Federal Emergency Management Agency, March 5, 2007. According to the above reference, the project site does contain a delineated 100-year flood hazard zone; A floodplain use permit will be required for any work within the floodplains.
   RESPONSE: Acknowledged, thank you.
2. ENG2: The applicant shall be responsible for ensuring compliance with all Federal, State, and Local water quality construction requirements. In the event that the disturbed area of the site exceeds 1 acre and the site is within the Adams County MS4 area, then the applicant shall be responsible to prepare the SWMP plan using the Adams County ESC Template, and obtain both a County SWQ Permit and State Permit COR400000.The site is NOT located within the Adams County MS4 permit area. An Adams County SWQ Permit is not required for development of this site. However, any ground disturbance of 1 acres or more will require a State COR400000 stormwater permit.
   RESPONSE: Acknowledged, thank you.
3. ENG3: Prior to scheduling the final plat/FDP BOCC hearing, the developer is required to submit for review and receive approval of all construction documents (construction plans and reports). Construction documents shall include, at a minimum, onsite and public improvements construction plans, drainage report, traffic impact study. All construction documents must meet the requirements of the Adams County Development Standards and Regulations. The developer shall submit to the Adams County Development Review Engineering division the following: Engineering Review Application, Engineering Review Fee, electronic copies of all construction documents. The development review fee for an Engineering Review is dependent on the type of project and/or the size of the project. The Development Review few can be found in the Development Services Fee Schedule, located on the following web page: http://www.adcogov.org/one-stop-customer-center.Please note: the Engineering Review requires a separate application. Do not include Engineering Review documents with land use application submittals.

RESPONSE: Acknowledged, thank you.

4. ENG4: The developer is required to construct roadway improvements adjacent to the proposed site. Roadway improvements will consist of curb, gutter and sidewalk adjacent to the site and, any roadway improvements as required by the approved traffic impact study.
   RESPONSE: Acknowledged, thank you.
5. ENG5: Prior to the issuance of any construction or building permits, the developer shall enter into a Subdivision Improvements Agreement (SIA) with the County and provide a security bond for all public improvements.
   RESPONSE: Acknowledged, thank you.
6. ENG6: No building permits will be issued until all public improvements have been constructed, inspected and preliminarily accepted by the County's Public Works Dept.
   RESPONSE: Acknowledged, thank you.
7. ENG7: The developer is responsible for the repair or replacement of any broken or damaged section of curb gutter and sidewalk or other County infrastructure damaged during construction.
   RESPONSE: Acknowledged, thank you.
8. ENG8: LOW IMPACT DEVELOPMENT (LID) STANDARDS AND REQUIREMENTS Section 9-01-03-14: All construction projects shall reduce drainage impacts to the maximum extent practicable, and implement practices such as:
   1. On-site structural and non-structural BMPs to promote infiltration, evapo-transpiration or use of stormwater,

   2. Minimization of Directly Connected Impervious Area (MDCIA),

   3. Green Infrastructure (GI),

   4. Preservation of natural drainage systems that result in the infiltration, evapo-transpiration or use of stormwater in order to protect water quality and aquatic habitat.

   5. Use of vegetation, soils, and roots to slow and filter stormwater runoff.

   6. Management of stormwater as a resource rather than a waste product by creating functional, attractive, and environmentally friendly developments.

   7. Treatment of stormwater flows as close to the impervious area as possible.

   LID shall be designed and maintained to meet the standards of these Regulations and the Urban Drainage and Flood Control District's Urban Storm Drainage Criteria Manual, Volume 3.
   RESPONSE: Acknowledged, thank you.
9. ENG9: The drainage report needs to include a drainage basin map, which also shows the outfall points for all detention ponds.
   RESPONSE: The Drainage Report does contain a basin map that shows the pond's outfall. The pond outfalls into storm that will be connected east of Yosemite Street along 168th Avenue. Then ultimately discharged under 168th Avenue to the north.

10. ENG10: This project is adjacent to Weld County and it appears some improvements will be needed within Weld County. The applicant is responsible for making all submittals/referrals to Weld County. As well as obtaining all necessary approvals and permits from Weld County.
    RESPONSE: Acknowledged, thank you.

Commenting Division: Development Engineering Review 1st Review
Name of Reviewer: Matthew Emmens

1. See staff comments.
   RESPONSE: Acknowledged, thank you.
2. Sheet 1 of 13: Owner and Dedication Certificate Continued block, last ¶, 3rd line – Change "public easement" to "public easements".
   RESPONSE: The note has been changed to be plural.

Commenting Division: Public Health & Environment Review 1st Review
Name of Reviewer: Brendan Cicione

1. We also note that projects similar to this proposal often involve land development. Under Colorado air quality regulations, land development refers to all land clearing activities, including but not limited to land preparation such as excavating or grading, for residential, commercial or industrial development. Land development activities release fugitive dust, a pollutant regulation by the Division. Small land development activities are not subject to the same reporting and permitting requirements as large land activities. Specifically, land development activities that are less than 25 contiguous acres and less than 6 months in duration do not need to report air emissions to the Division. It is important to note that even if a permit is not required, fugitive dust control measures including the Land Development APEN Form APCD-223 must be followed at the site. Fugitive dust control techniques commonly included in the plan are included in the table below.
   RESPONSE: Acknowledged, thank you. This should be incorporated into our project's SWMP.
2. The General Conformity de minimis levels for the 2015 Denver Metro/North Front Range serious ozone nonattainment area are 50 tons per year of the ozone precursors VOCs or NOx and 25 tons per year for the 2008 Denver Metro/North Front Range severe nonattainment area. If a federal department or instrumentality determines that its action will result in emissions that are below the de minimis levels, the action is exempt and detailed air quality analysis is not required. Information about the general conformity rule, including training and frequently asked questions, is available at https://www.epa.gov/general-conformity.
   RESPONSE: Acknowledged, thank you.

Commenting Division: Geological Survey Review 1st Review
Name of Reviewer: Jill Carlson

Soil and bedrock engineering properties. The site is mapped as underlain by wind-deposited silt with lesser amounts of clay and sand. Wind deposits commonly exhibit compression or collapse under wetting and loading but, depending on the clay content, can also exhibit shrink/swell (volume changes in response to wetting and drying cycles). The surficial soils are underlain at unknown but likely shallow depth by interbedded claystone, siltstone, sandstone, and conglomerate of the Denver Formation. Claystone can exhibit low strength at high water content, very high swell potential and, if present at or near foundation depths, can cause damage to buildings and pavements if not properly identified and mitigated. Site-specific preliminary geotechnical investigation, testing, and analysis will be needed, if this has not been completed already, to determine depths to bedrock and seasonal groundwater levels, and to characterize soil and bedrock engineering properties such as swell/consolidation potential, density, strength, and water content. This information is needed to determine whether overexcavation is needed to provide adequate separation between highly expansive claystone bedrock and foundation elements, to design foundations, floor systems, subsurface drainage, pavements, etc., and to determine the site's suitability for below-grade (basement) construction, if planned.
RESPONSE: Acknowledged, a site-specific preliminary geotechnical investigation will be performed prior to final design.

Commenting Division: Water Resources Review 1st Review
Name of Reviewer: Ioana Comaniciu

If the water demands or water source for this referral are different than previously provided under PRC2023-0020, then the opinion in this letter is not valid and an updated water supply must be provided.
RESPONSE: Acknowledged, please see included letter from TCVMD.
Our records found well permit no. 69543 located on the subject 227 acres and is permitted on June 21, 1973. According to the information provided as part of PRC2023-0020 well no. 69543 will be plugged and abandoned prior to the development of the subdivision. A Well Abandonment Report eForm must be submitted for well permit no. 69543 prior to the subdivision approval to affirm the well was plugged and abandoned.
RESPONSE: Acknowledged, a well-abandoned report will be submitted prior to final plat approval.
The amounts of water in the Denver Basin aquifers, and identified in this letter, are calculated based on estimated current aquifer conditions. For planning purposes the county should be aware that the economic life of a water supply based on wells in a given Denver Basin aquifer may be less than the 100 or 300 years used for allocation due to anticipated water level declines. We recommend that the county determine whether it is appropriate to require development of renewable water resources for this subdivision to provide for a long-term water supply.
RESPONSE: The Denver Basin aquifer underlying the property is not used as a source for determining the available water for this project.

Commenting Division: Xcel Energy Review 1st Review
Name of Reviewer: Violeta Ciocanu

Per the Easement Statement on Page 2 of the Preliminary Plat of Seltzer Heights Filing No. 1 it is stated that "in addition, eight-foot (8') wide dry utility easements are hereby dedicated around the perimeter of tracts, parcels and/or open space areas…". PSCo requires the plat to show 8' instead of 6' around all tracts, parcels, and/or open space.

RESPONSE: The utility easements in the tracts have been revised from 6 feet to 8 feet.

Also, Public Service Company has an existing high-pressure natural gas transmission pipeline and associated land rights as shown within this property. Any activity including grading, proposed landscaping, erosion control or similar activities involving our existing right-of-way will require Public Service Company approval. Encroachments across Public Service Company's easements must be reviewed for safety standards, operational and maintenance clearances, liability issues, and acknowledged with a Public Service Company License Agreement to be executed with the property owner. PSCo is requesting that, prior to any final approval of the development plan, it is the responsibility of the property owner/developer/contractor to contact PSCo's Encroachment Team for development plan review and execution of a License Agreement (upload all files in PDF format) at: cloud.marketing.xcelenergy.com/encroachment

RESPONSE: Noted, we will reach out to the encroachment team to come up with an agreement.

The property owner/developer/contractor must complete the application process for any new natural gas service, relocation or modification to existing facilities via xcelenergy.com/InstallAndConnect. It is then the responsibility of the developer to contact the Designer assigned to the project for approval of design details.

RESPONSE: Noted, thank you.

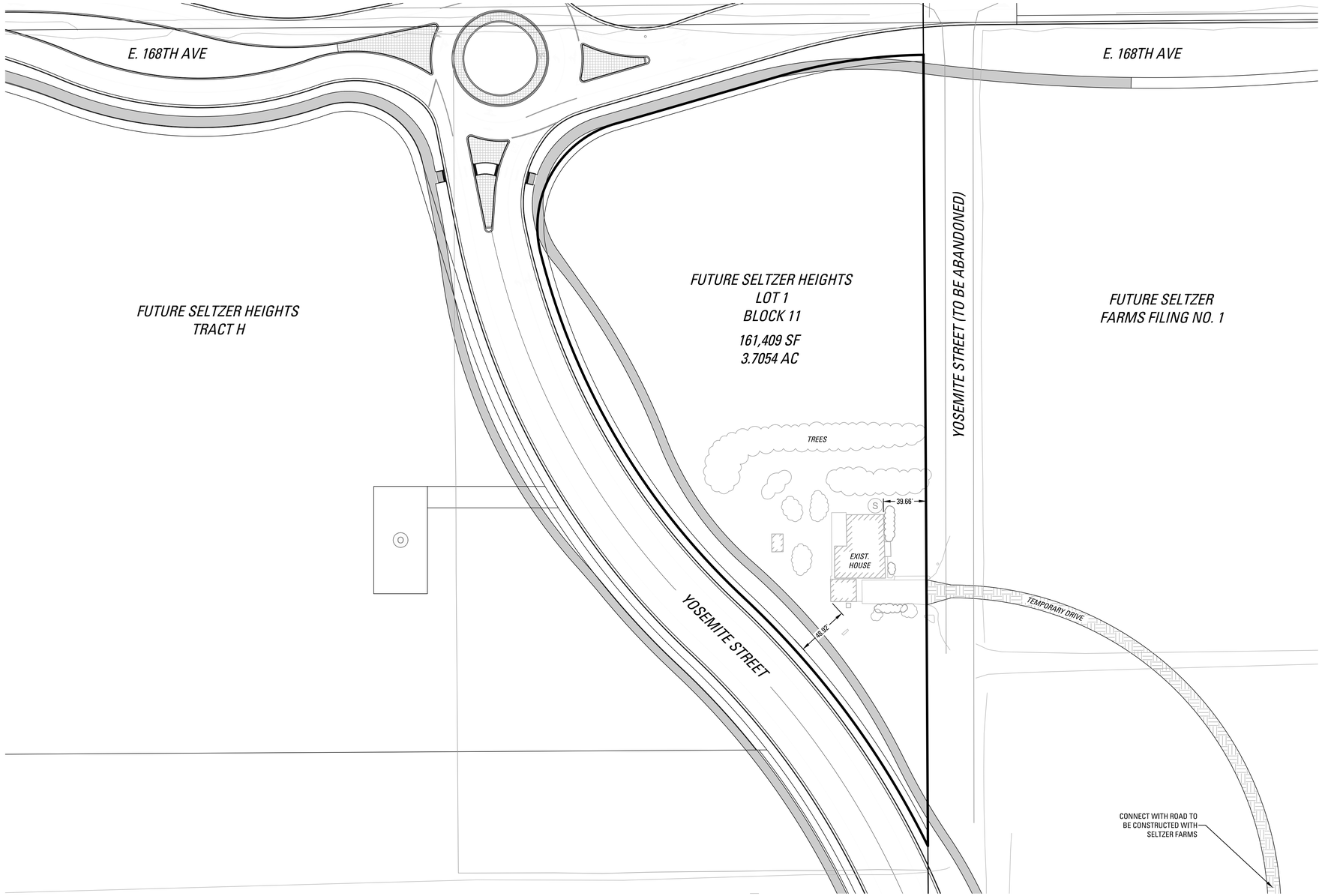
Additional easements may need to be acquired by separate document. The Designer must contact the appropriate Right-of-Way Agent.

RESPONSE: Acknowledged, thank you.

As a safety precaution, PSCo would like to remind the developer to contact Colorado 811 for utility locates prior to construction.

RESPONSE: Acknowledged, thank you.

SELTZER HEIGHTS
SELTZER LOT SITE PLAN



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50 0 25 50 100

SCALE: 1"= 50 ' HORIZ.

KT ENGINEERING
ENGINEERS • SURVEYORS
12500 W. 58th AVE. #230
ARVADA, CO 80002
PH: 720.638.5190

J:\01\09\FILING 1 HSG\CIVIL\EXHIBITS\SELTZER HOUSE\SELTZER HOUSE SITE PLAN.DWG

CASE NO: PLT2025-00006

PRELIMINARY PLAT

SELTZER HEIGHTS FILING NO. 1

LOCATED IN SECTION 4, TOWNSHIP 1 SOUTH,
RANGE 67 WEST OF THE 6TH P.M.,
COUNTY OF ADAMS, STATE OF COLORADO

SHEET 1 OF 13

DO NOT RECORD THIS DOCUMENT

OWNERSHIP AND DEDICATION CERTIFICATE:

KNOW ALL MEN BY THESE PRESENTS THAT THE UNDERSIGNED, BEING THE SOLE OWNERS OF THE FOLLOWING DESCRIBED TRACT OF LAND:

A PARCEL OF LAND LOCATED IN SECTION 4, TOWNSHIP 1 SOUTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF ADAMS, STATE OF COLORADO MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SECTION 4;

THENCE S 89°33'09" W ALONG THE NORTH LINE OF THE NORTHEAST 1/4 OF SAID SECTION 4 A DISTANCE OF 40.00 FEET TO A POINT ON THE WESTERLY RIGHT-OF-WAY LINE OF YOSEMITE STREET BEING AN EXCEPTION RECORDED IN BOOK 1 AT PAGE 527 AND THE EXTENSION THEREOF AND THE **POINT OF BEGINNING;**

THENCE S 00°19'36" E ALONG SAID WESTERLY RIGHT-OF-WAY LINE A DISTANCE OF 2348.64 FEET TO A POINT ON THE NORTHERLY BOUNDARY OF THAT PARCEL OF LAND RECORED AT RECEPTION NO. 2010000052390;

THENCE ALONG SAID PARCEL OF LAND THE FOLLOWING THREE (3) COURSES:

1) S 88°45'28 W A DISTANCE OF 1509.46 FEET;
2) S 25°55'39" E A DISTANCE OF 17.18 FEET;
3) S 26°31'05" W A DISTANCE OF 16.44 FEET TO A POINT ON THE NORTHERLY BOUNDARY OF TODD CREEK MEADOWS SUBDIVISION, A SUBDIVISION RECORDED AT RECEPTION NO. C0731590;

THENCE S 88°45'09" W ALONG SAID NORTHERLY BOUNDARY A DISTANCE OF 74.40 FEET TO A POINT ON THE EASTERLY BOUNDARY OF THAT PARCEL OF LAND RECORDED AT RECEPTION NO. C1138476;

THENCE ALONG SAID EASTERLY, AND SOUTHERLY BOUNDARY OF SAID PARCEL OF LAND AND THE EXTENSION THEREOF THE FOLLOWING SEVEN (7) COURSES:

1) S 00°30'00" E A DISTANCE OF 291.28 FEET;
2) N 73°15'18" W A DISTANCE OF 293.85 FEET;
3) N 51°17'25" W A DISTANCE OF 149.44 FEET;
4) N 78°17'25" W A DISTANCE OF 154.42 FEET;
5) S 70°02'35" W A DISTANCE OF 169.36 FEET;
6) S 59°09'35" W A DISTANCE OF 244.08 FEET;
7) S 75°34'18" W A DISTANCE OF 665.00 FEET TO A POINT ON THE EASTERLY BOUNDARY OF THAT PARCEL OF LAND RECORDED AT RECEPTION NO. C1138476 AND SHOWN ON A SURVEY BY BRIAN THOMAS BRINKMAN, PLS 38175 DATED 6-29-11 RECORDED AT RECEPTION NO. 2011-102;

THENCE ALONG SAID EASTERLY BOUNDARY OF SAID SURVEY RECORDED AT RECEPTION NO. 2011-102 THE FOLLOWING FOURTEEN (14) COURSES:

1) S 69°25'57" W A DISTANCE OF 314.14 FEET;
2) S 63°15'15" W A DISTANCE OF 135.49 FEET;
3) N 00°42'53" E A DISTANCE OF 559.19 FEET;
4) N 32°57'40" E A DISTANCE OF 800.14 FEET;
5) S 88°46'03" W A DISTANCE OF 830.04 FEET;
6) N 66°07'13" W A DISTANCE OF 53.12 FEET;
7) N 65°25'03" W A DISTANCE OF 290.82 FEET;
8) N 58°20'21" W A DISTANCE OF 389.89 FEET;
9) N 09°57'07" W A DISTANCE OF 301.16 FEET;
10) N 09°22'50" W A DISTANCE OF 187.79 FEET;
11) N 10°47'50" E A DISTANCE OF 103.98 FEET;
12) N 18°17'18" E A DISTANCE OF 214.81 FEET;
13) N 62°21'47" E A DISTANCE OF 439.90 FEET;
14) N 00°31'50" W A DISTANCE OF 428.97 FEET TO A POINT ON THE NORTH LINE OF THE NORTHWEST 1/4 OF SAID SECTION 4;

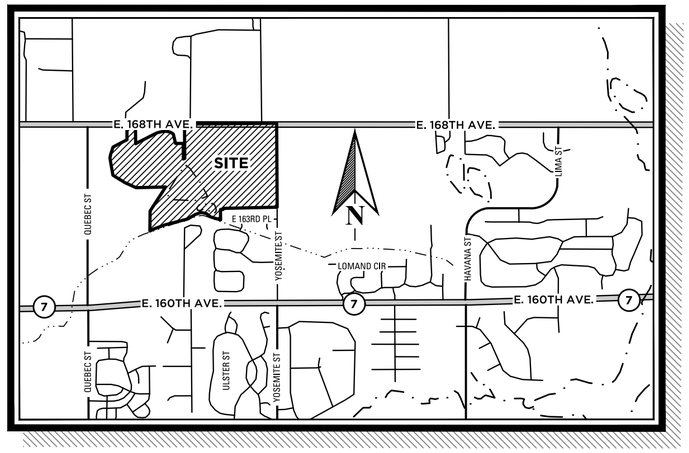
THENCE N 89°32'13" E ALONG SAID NORTH LINE A DISTANCE OF 241.08 FEET TO A POINT ON THE WESTERLY BOUNDARY OF AN AGREEMENT TO RESOLVE DISPUTED BOUNDARY LINE RECORDED AT RECEPTION NO. 2017000099326;

THENCE ALONG SAID AGREEMENT THE FOLLOWING SEVENTEEN (17) COURSES:

1) S 00°24'31" E A DISTANCE OF 542.45 FEET;
2) N 61°21'33" E A DISTANCE OF 75.99 FEET;
3) N 63°03'28" E A DISTANCE OF 101.27 FEET;
4) N 63°18'15" E A DISTANCE OF 97.13 FEET;
5) N 63°03'23" E A DISTANCE OF 120.44 FEET;
6) N 63°17'02" E A DISTANCE OF 100.72 FEET;
7) N 62°28'30" E A DISTANCE OF 56.87 FEET;
8) N 65°01'48" E A DISTANCE OF 131.55 FEET;
9) N 75°57'26" E A DISTANCE OF 131.79 FEET;
10) N 84°04'41" E A DISTANCE OF 99.05 FEET;
11) S 84°31'07" E A DISTANCE OF 26.00 FEET;
12) S 79°17'18" E A DISTANCE OF 63.94 FEET;
13) S 67°17'01" E A DISTANCE OF 98.25 FEET;
14) S 51°09'19" E A DISTANCE OF 47.50 FEET;
15) S 13°28'48" E A DISTANCE OF 154.06 FEET;
16) S 13°09'42" E A DISTANCE OF 112.86 FEET;
17) N 89°38'47" E A DISTANCE OF 214.92 FEET TO A POINT ON THE WESTERLY BOUNDARY OF THAT PARCEL OF LAND RECORED AT RECEPTION NO. 2013000074188;

THENCE ALONG SAID WESTERLY, SOUTHERLY AND EASTERLY BOUNDARY OF SAID PARCEL OF LAND THE FOLLOWING FOUR (4) COURSES:

1) S 00°27'04" E A DISTANCE OF 436.34 FEET;
2) N 65°32'32" E A DISTANCE OF 39.58 FEET;
3) S 87°43'24" E A DISTANCE OF 3.84 FEET;
4) N 00°27'04" W A DISTANCE OF 964.30 FEET TO A POINT ON SAID NORTH LINE OF THE NORTHEAST 1/4 OF SAID SECTION 4;



VICINITY MAP
1" = 3000'

OWNERSHIP AND DEDICATION CERTIFICATE CONTINUED:

THENCE N 89°31'38" E ALONG SAID NORTH LINE A DISTANCE OF 2167.54 FEET TO THE SOUTHEAST CORNER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 67 WEST BEING AN ANGLE POINT ON SAID NORTH LINE OF THE NORTHEAST 1/4 OF SECTION 4;

THENCE N 89°33'09" E CONTINUING ALONG SAID NORTH LINE OF THE NORTHEAST 1/4 OF SECTION 4 A DISTANCE OF 408.82 FEET TO THE **POINT OF BEGINNING**.

THE ABOVE DESCRIBED PARCEL CONTAINS AN AREA OF 9,925,012 SQUARE FEET, OR 227.8469 ACRES MORE OR LESS.

HAS BY THESE PRESENTS LAID OUT, PLATTED AND SUBDIVIDED THE SAME INTO LOTS, STREETS, TRACTS, BLOCKS, AND EASEMENTS AS SHOWN ON THIS PLAT UNDER THE NAME AND STYLE OF SELTZER HEIGHTS FILING NO. 1 PRELIMINARY PLAT.

ALL PUBLIC STREETS ARE HEREBY DEDICATED TO ADAMS COUNTY FOR PUBLIC USE.

THE UNDERSIGNED DOES HEREBY DEDICATE, GRANT AND CONVEY TO ADAMS COUNTY THOSE PUBLIC EASEMENTS AS SHOWN ON THE PLAT; AND FURTHER RESTRICTS THE USE OF ALL PUBLIC EASEMENTS TO ADAMS COUNTY AND/OR ITS ASSIGNS, PROVIDED HOWEVER, THAT THE SOLE RIGHT AND AUTHORITY TO RELEASE OR QUITCLAIM ALL OR ANY SUCH PUBLIC EASEMENTS SHALL REMAIN EXCLUSIVELY VESTED IN ADAMS COUNTY.

OWNERS SIGNATURES:

SEE SHEET 2 FOR OWNERS SIGNATURES

BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE EAST LINE OF THE NORTHEAST 1/4 OF SECTION 4 BEING S 00°19'36" E AND MONUMENTED AS FOLLOWS:

-NORTHEAST CORNER SECTION 4, BEING A FOUND 3.25" ALUMINUM CAP IN RANGE BOX MARKED "BASELINE, LS 38285"

-EAST QUARTER CORNER SECTION 4, BEING A FOUND 3.25" ALUMINUM CAP MARKED "EMK, PLS 38584"

SHEET INDEX:

1. COVER SHEET
2. GENERAL NOTES & OWNERS SIGNATURES
3. OVERALL BOUNDARY SHEET
4. TRACT A DETAILED PLAN SHEET
5. DETAILED PLAN SHEET
6. DETAILED PLAN SHEET
7. DETAILED PLAN SHEET
8. DETAILED PLAN SHEET
9. DETAILED PLAN SHEET
10. DETAILED PLAN SHEET
11. DETAILED PLAN SHEET
12. CURVE TAG TABLES
13. CURVE TAG TABLES

PLANNING COMMISSION APPROVAL:

PLANNING COMMISSION APPROVAL
RECOMMENDED FOR APPROVAL BY THE ADAMS COUNTY PLANNING COMMISSION THIS

_____ DAY OF _____A.D. 202__.

_____
CHAIR

BOARD OF COUNTY COMMISSIONERS' APPROVAL:

APPROVED BY ADAMS COUNTY BOARD OF COUNTY COMMISSIONERS

THIS _____ DAY OF _____A.D. 20____.

_____
CHAIR

ADAMS COUNTY ATTORNEY'S OFFICE:

_____
APPROVED AS TO FORM

SURVEYOR'S CERTIFICATE:

I CHRISTOPHER H. McELVAIN, A REGISTERED LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE SURVEY OF SELTZER HEIGHTS FILING NO. 1 PRELIMINARY PLAT WAS MADE UNDER MY SUPERVISION AND THE ACCOMPANYING PLAT ACCURATELY AND PROPERLY SHOWS SAID SUBDIVISION.

_____
CHRISTOPHER H. McELVAIN, P.L.S. 36561
FOR AND ON BEHALF OF KT ENGINEERING, LLC

DATE SUBMITTED: 01.20.2025

REVISION NO.	DATE
1	4/8/2025
2	
3	
4	
5	

PREPARED FOR:
HSG LAND LLC
10450 E. 159TH COURT
BRIGHTON, CO 80602

SCALE:	JOB NO:	BY:
1" = N/A	0109-2207	BSS

SHEET 1 OF 13

KT ENGINEERING
ENGINEERS • SURVEYORS
12500 W. 58th AVE. #230
ARVADA, CO 80002
PH: 720.638.5190

J:\0109\FILING 1 HSG\SURVEY\PLAT\PRELIMINARY PLAT\DRAWINGS\PLAT SHEETS\2207-HSG-PRELIMINARY-PLAT-CVR.DWG

PRELIMINARY PLAT

SELTZER HEIGHTS FILING NO. 1

LOCATED IN SECTION 4, TOWNSHIP 1 SOUTH,
RANGE 67 WEST OF THE 6TH P.M.,
COUNTY OF ADAMS, STATE OF COLORADO

CASE NO: PLT2025-00006

OWNER:

EXECUTED THIS _____ DAY OF _____, 20_____

HSG LAND LLC, A COLORADO LIMITED LIABILITY COMPANY

BY:_____

GEORGE R. HANLON JR., MANAGER

NOTARY:

STATE OF _____)
)SS
COUNTY OF _____)

THE FOREGOING OWNERSHIP AND DEDICATION CERTIFICATE WAS ACKNOWLEDGED BEFORE ME THIS _____ DAY OF _____, 20____,

BY GEORGE R. HANLON JR. AS MANAGER, HSG LAND LLC, A COLORADO LIMITED LIABILITY COMPANY

WITNESS MY HAND AND SEAL _____

MY COMMISSION EXPIRES _____

OWNER:

EXECUTED THIS _____ DAY OF _____, 20_____

TODD CREEK VILLAGE METROPOLITAN DISTRICT, A QUASI-MUNICIPAL CORPORATION AND POLITICAL SUBDIVISION OF THE STATE OF COLORADO

BY:_____

DONALD O. SUMMERS, PRESIDENT

NOTARY:

STATE OF _____)
)SS
COUNTY OF _____)

THE FOREGOING OWNERSHIP AND DEDICATION CERTIFICATE WAS ACKNOWLEDGED BEFORE ME THIS _____ DAY OF _____, 20____,

BY DONALD O. SUMMERS AS PRESIDENT, TODD CREEK VILLAGE METROPOLITAN DISTRICT, A QUASI-MUNICIPAL CORPORATION AND POLITICAL SUBDIVISION OF THE STATE OF COLORADO

WITNESS MY HAND AND SEAL _____

MY COMMISSION EXPIRES _____

OWNER:

EXECUTED THIS _____ DAY OF _____, 20_____

SELTZER FARMS INVESTMENT LLC, A COLORADO LIMITED LIABILITY COMPANY

BY:_____

GUILLAUME POUCHOT, MANAGER

NOTARY:

STATE OF _____)
)SS
COUNTY OF _____)

THE FOREGOING OWNERSHIP AND DEDICATION CERTIFICATE WAS ACKNOWLEDGED BEFORE ME THIS _____ DAY OF _____, 20____,

BY GUILLAUME POUCHOT AS MANAGER, SELTZER FARMS INVESTMENT LLC, A COLORADO LIMITED LIABILITY COMPANY

WITNESS MY HAND AND SEAL _____

MY COMMISSION EXPIRES _____

EASEMENTS STATEMENT:

1. SIX-FOOT (6') WIDE UTILITY EASEMENTS ARE HEREBY DEDICATED ON PRIVATE PROPERTY ADJACENT TO THE FRONT LOT LINES OF EACH LOT IN THE SUBDIVISION. IN ADDITION, EIGHT-FOOT (8') WIDE DRY UTILITY EASEMENTS ARE HEREBY DEDICATED AROUND THE PERIMETER OF TRACTS, PARCELS AND/OR OPEN SPACE AREAS. THESE EASEMENTS ARE DEDICATED TO ADAMS COUNTY FOR THE BENEFIT OF THE APPLICABLE UTILITY PROVIDERS FOR THE INSTALLATION, MAINTENANCE, AND REPLACEMENT OF UTILITIES.
2. A BLANKET ACCESS AND MAINTENANCE EASEMENT IS HEREBY GRANTED ACROSS TRACT H FOR STORMWATER DRAINAGE FACILITY INSPECTION AND MAINTENANCE.

STORM DRAINAGE FACILITY STATEMENT:

THE POLICY OF THE COUNTY REQUIRES THAT MAINTENANCE ACCESS SHALL BE PROVIDED TO ALL STORM DRAINAGE FACILITIES TO ASSURE CONTINUOUS OPERATIONAL CAPABILITY OF THE SYSTEM. THE PROPERTY OWNERS SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL DRAINAGE FACILITIES INCLUDING INLETS, PIPES, CULVERTS, CHANNELS, DITCHES, HYDRAULIC STRUCTURES, AND DETENTION BASINS LOCATED ON THEIR LAND UNLESS MODIFIED BY THE SUBDIVISION DEVELOPMENT AGREEMENT. SHOULD THE OWNER FAIL TO MAINTAIN SAID FACILITIES, THE COUNTY SHALL HAVE THE RIGHT TO ENTER SAID LAND FOR THE SOLE PURPOSE OF OPERATIONS AND MAINTENANCE. ALL SUCH MAINTENANCE COST WILL BE ASSESSED TO THE PROPERTY OWNERS.

GENERAL NOTES:

1. NOTICE: ACCORDING TO THE 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 ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF CERTIFICATION SHOWN HEREON.
2. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY KT ENGINEERING, LLC. TO DETERMINE TITLE OR EASEMENTS OF RECORD. RESEARCH FOR THIS SURVEY WAS PERFORMED IN ACCORDANCE WITH CRS 38-51-106 AND THE RULES OF PROCEDURE AND BOARD POLICY STATEMENTS OF THE STATE BOARD OF LICENSURE FOR ARCHITECTS, PROFESSIONAL ENGINEERS AND PROFESSIONAL LAND SURVEYORS, SPECIFICALLY THOSE BOARD RULES AND POLICY STATEMENTS RELATING TO THE DEPICTION OF EASEMENTS AND RIGHTS OF WAY ON SUBDIVISION PLATS. OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY POLICY NUMBER: PIB70842010.27955509, WITH AN EFFECTIVE DATE OF JANUARY 07, 2025 AT 5:00 P.M. WAS RELIED UPON FOR ALL INFORMATION REGARDING EASEMENTS OF RECORD, RIGHTS OF WAY, TITLE OF RECORD AND CIVIL COURT ACTIONS OF RECORD.
3. DISTANCES ON THIS PLAT ARE EXPRESSED IN U.S. SURVEY FEET AND DECIMALS THEREOF. A U.S. SURVEY FOOT IS DEFINED AS EXACTLY 1200/3937 METERS.
4. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND BOUNDARY MONUMENT OR ACCESSORY COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUS 18-4-508, C.R.S.
5. ACCORDING TO THE FIRM FLOOD INSURANCE RATE MAP NO. 08001C0307H, EFFECTIVE: MARCH 5, 2007 A PORTION OF THE SITE LIES WITHIN THE ZONE A 1% ANNUAL CHANCE FLOOD ZONE. THESE ZONE A AREAS ARE REFERENCED AS SIGNAL RESERVOIR NO. 1 AND SIGNAL RESERVOIR NO. 2 AND SHOWN ON SHEET 4.
6. NO LOT SHALL HAVE DIRECT ACCESS TO E. 168TH AVENUE OR YOSEMITE STREET.
7. ALL LOTS ARE TO BE DEVELOPABLE AND ANY PIPELINES THAT MAY EXIST NOT OF RECORD WILL BE REMOVED BY THE OWNER/DEVELOPER.

GENERAL NOTES CONTINUED:

8. THIS SUBDIVISION CONTAINS ONE EXISTING SEPTIC SYSTEM FOR THE HOME ON LOT 1, BLOCK 12. THE OWNER OF LOT 1, BLOCK 12 SHALL COMPLY WITH TITLE 25-10-101, ET SEQ. COLORADO REVISED STATUTES AND THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT WATER QUALITY CONTROL COMMISSION ON-SITE WASTEWATER TREATMENT SYSTEM REGULATION #43, 5 CCR-1002-43.
9. HSG LAND LLC SHALL COMPLY WITH ALL OIL AND GAS RELATED DESIGN AND PERFORMANCE STANDARDS OUTLINED IN SECTION 4-11-02-03-03 OF THE ADAMS COUNTY DEVELOPMENT STANDARDS AND REGULATIONS INCLUDING:
   - PURSUANT TO SECTION 4-07-01-02-01-12, WHERE A NEW HOME AND/OR OTHER PERMANENT STRUCTURE WITH PLUMBING IS CONSTRUCTED WITHIN THREE HUNDRED (300) FEET OF AN EXISTING OIL AND GAS WELL, THE PROPERTY OWNER SHALL SUBMIT A SIGNED WAIVER ACKNOWLEDGING THE EXISTENCE OF THE FACILITY.
   - ACTIVE OIL AND GAS WELL LOCATIONS SHALL INCLUDE A 250' BUFFER AS DEPICTED ON THIS PLAT. NO STRUCTURES MAY BE CONSTRUCTED WITHIN THIS BUFFER AREA.
   - THE OWNER SHALL DISCLOSE TO PROSPECTIVE PURCHASERS OF LOTS WITHIN A RADIUS OF 200 FEET OF THE PLUGGED AND ABANDONED WELL OF (1) THE LOCATION OF THE PLUGGED AND ABANDONED WELL, (2) THE LOCATION OF THE MAINTENANCE AND WORKOVER SETBACK, AND (3) THE PURPOSE FOR THE WELL MAINTENANCE AND WORKOVER SETBACK.
   - ABANDONED OIL AND GAS WELL WORKOVER SETBACKS AS DEPICTED ON THIS PLAT ARE 50'X100' AND CENTERED OVER THE ABANDONED WELL. NO STRUCTURES SHALL BE LOCATED WITHIN THIS SETBACK.
   - NO UTILITY LINES SHALL BE INSTALLED WITHIN TEN FEET OF ANY PLUGGED AND ABANDONED WELL.
10. ACTIVE WELLS (PRODUCING, SHUT IN)
REFER TO ACDSR SECTION 4-11-02-03-03-05:
a. ACCESS TO THE OIL AND GAS WELL LOCATION SHALL BE PROVIDED BY A PUBLIC STREET OR RECORDED EASEMENT FOR PRIVATE AACCESS.
b. THE FINAL SHALL INCLUDE NOTICE TO PROSPECTIVE BUYERS OF THE LOCATION OF THE OIL AND GAS WELL AND ASSOCIATED EASEMENTS.

INACTIVE WELLS (PLUGGED & ABANDONED)
REFER TO ACDSR SECTION 4-11-02-03-03-05.2c:
c. THERE SHALL BE PUBLIC ACCESS FOR INGRESS AND EGRESS TO THE SETBACK OF A WIDTH OF NOT LESS THAN TWENTY FEET.

11. THE PROPERTY MAY BE SUBJECT TO THE FOLLOWING SURFACE USE AGREEMENTS AS REFERENCED IN OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY POLICY NUMBER: PIB70842010.27002325, WITH AN EFFECTIVE DATE OF JUNE 18, 2024 AT 5:00 P.M.
   - SURFACE USE AGREEMENT RECORDED JULY 05, 2006 UNDER RECEPTION NO. 20060705000675490 AND SECOND AMENDMENT AND RATIFICATION OF SURFACE USE AGREEMENT RECORDED JANUARY 30, 2017 UNDER RECEPTION NO. 2017000008819.

DATE SUBMITTED: 01.20.2025	
REVISION NO.	DATE
1	4/8/2025
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PREPARED FOR:
HSG LAND LLC
10450 E. 159TH COURT
BRIGHTON, CO 80602

SCALE:	JOB NO:	BY:
1" = N/A	0109-2207	BSS

SHEET 2 OF 13

KT ENGINEERING
ENGINEERS • SURVEYORS
12500 W. 58th AVE. #230
ARVADA, CO 80002
PH: 720.638.5190

J:\0109\FILING 1 HSG\SURVEY\PLAT\PRELIMINARY PLAT\DRAWINGS\PLAT SHEETS\2207-HSG-PRELIMINARY-PLAT-CVR.DWG

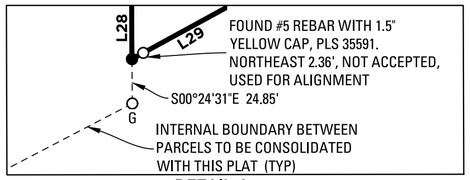
PRELIMINARY PLAT

SELTZER HEIGHTS FILING NO. 1

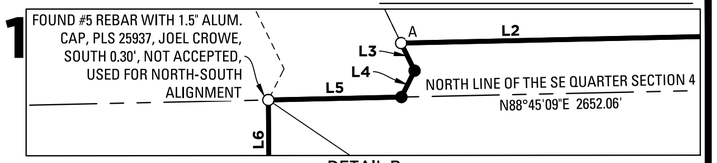
LOCATED IN SECTION 4, TOWNSHIP 1 SOUTH,
RANGE 67 WEST OF THE 6TH P.M.,
COUNTY OF ADAMS, STATE OF COLORADO

SHEET 3 OF 13

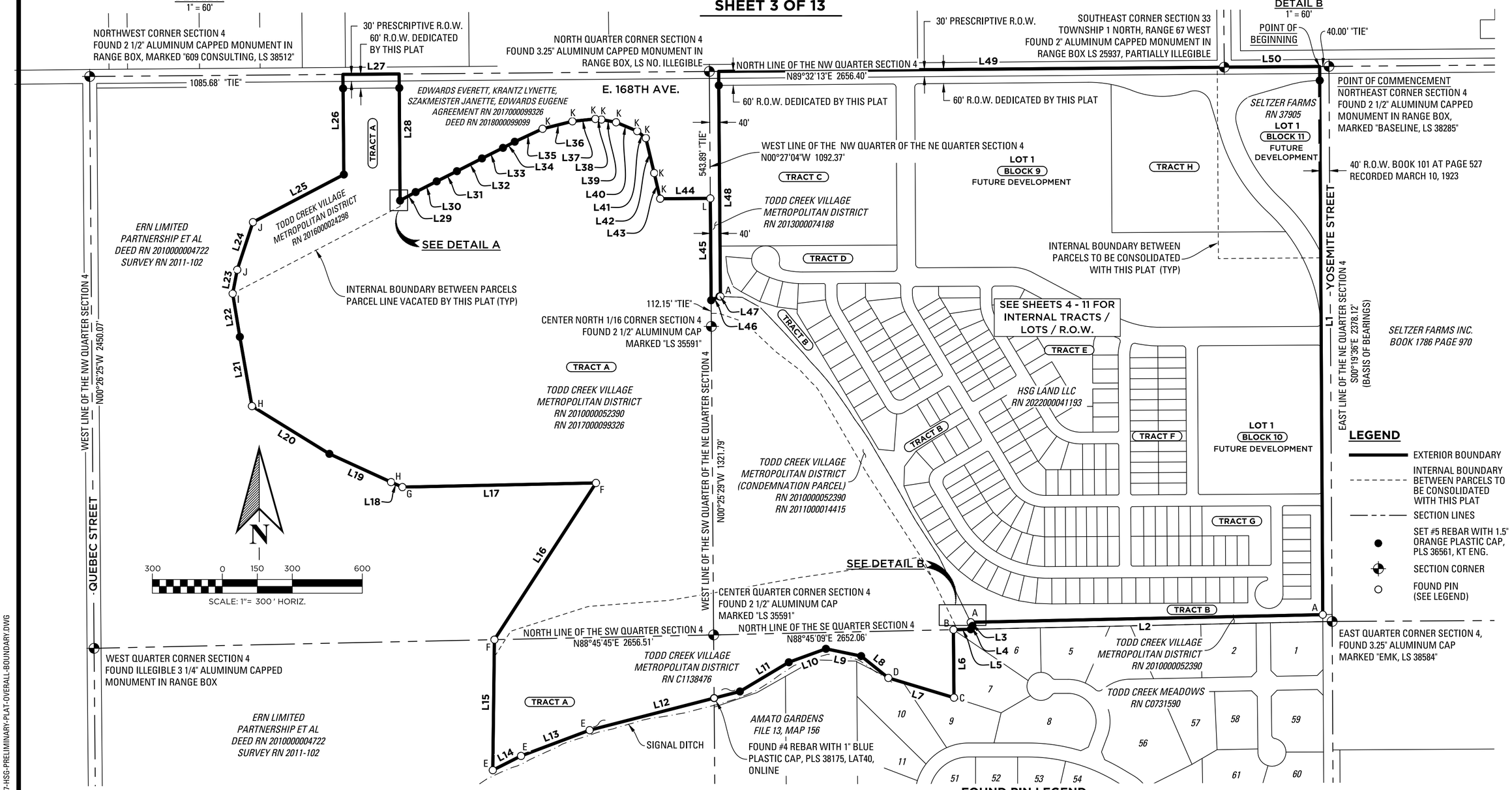
CASE NO: PLT2025-00006



DETAIL A
1" = 60'



DETAIL B
1" = 60'



LEGEND

- EXTERIOR BOUNDARY
- INTERNAL BOUNDARY BETWEEN PARCELS TO BE CONSOLIDATED WITH THIS PLAT
- SECTION LINES
- SET #5 REBAR WITH 1.5" ORANGE PLASTIC CAP, PLS 36561, KT ENG.
- SECTION CORNER
- FOUND PIN (SEE LEGEND)

BOUNDARY LINE TABLE

LINE #	LENGTH	BEARING	LINE #	LENGTH	BEARING	LINE #	LENGTH	BEARING	LINE #	LENGTH	BEARING	LINE #	LENGTH	BEARING
L1	2348.64	S00°19'36"E	L11	244.08	S59°09'35"W	L21	301.16	N09°57'07"W	L31	97.13	N63°18'15"E	L41	47.50	S51°09'19"E
L2	1509.46	S88°45'28"W	L12	665.00	S75°34'18"W	L22	187.79	N09°22'50"W	L32	120.44	N63°03'23"E	L42	154.06	S13°28'48"E
L3	17.03	S25°55'39"E	L13	314.14	S69°25'57"W	L23	103.98	N10°47'50"E	L33	100.72	N63°17'02"E	L43	112.86	S13°09'42"E
L4	16.44	S26°31'05"W	L14	135.49	S63°15'15"W	L24	214.81	N18°17'18"E	L34	56.87	N62°28'30"E	L44	214.92	N89°38'47"E
L5	74.40	S88°45'09"W	L15	559.19	N00°42'53"E	L25	439.90	N62°21'47"E	L35	131.55	N65°01'48"E	L45	436.34	S00°27'04"E
L6	291.28	S00°30'00"E	L16	800.14	N32°57'40"E	L26	428.97	N00°31'50"W	L36	131.79	N75°57'26"E	L46	39.58	N65°32'32"E
L7	293.85	N73°15'18"W	L17	830.04	S88°46'03"W	L27	241.08	N89°32'13"E	L37	99.05	N84°04'41"E	L47	3.84	S87°43'24"E
L8	149.44	N51°17'25"W	L18	53.12	N66°07'13"W	L28	542.45	S00°24'31"E	L38	26.00	S84°31'07"E	L48	964.30	N00°27'04"W
L9	154.42	N78°17'25"W	L19	290.82	N65°25'03"W	L29	75.99	N61°21'33"E	L39	63.94	S79°17'18"E	L49	2167.54	N89°31'38"E
L10	169.36	S70°02'35"W	L20	389.89	N58°20'21"W	L30	101.27	N63°03'28"E	L40	98.25	S67°17'01"E	L50	408.82	N89°33'09"E

FOUND PIN LEGEND

- A FOUND #5 REBAR WITH 1.5" YELLOW PLASTIC CAP, LS 28283, ROCK CREEK
- B FOUND #5 REBAR WITH 1.5" ALUMINUM CAP, LS 25937, JOEL CROWE (SEE DETAIL)
- C FOUND #5 REBAR WITH 1.5" YELLOW PLASTIC CAP, PLS 13487
- D FOUND #5 REBAR
- E FOUND #3 REBAR
- F FOUND #4 REBAR WITH 1" BLUE PLASTIC CAP, PLS 38175, LAT40
- G FOUND 1" METAL PIPE
- H FOUND #4 REBAR
- I FOUND #5 REBAR WITH 1.5" ALUMINUM CAP, PLS 31161, SURVCON
- J FOUND #5 REBAR WITH 1.5" ORANGE PLASTIC CAP, NO MARKINGS
- K FOUND #5 REBAR WITH 1.5" YELLOW PLASTIC CAP, PLS 35591, NH SURVEY
- L FOUND 60D NAIL

DATE SUBMITTED: 01.20.2025

REVISION NO.	DATE
1	4/8/2025
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PREPARED FOR:
HSG LAND LLC
10450 E. 159TH COURT
BRIGHTON, CO 80602

SCALE:	JOB NO:	BY:
1" = 300'	0109-2207	BSS

SHEET 3 OF 13

KT ENGINEERING
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J:\0109\FILING 1 HSG\SURVEY\PLAT\PRELIMINARY PLAT\DRAWINGS\PLAT SHEETS\2207-HSG-PRELIMINARY-PLAT-OVERALL-BOUNDARY.DWG

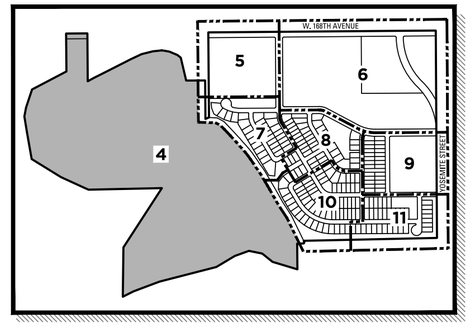
PRELIMINARY PLAT

SELTZER HEIGHTS FILING NO. 1

LOCATED IN SECTION 4, TOWNSHIP 1 SOUTH,
RANGE 67 WEST OF THE 6TH P.M.,
COUNTY OF ADAMS, STATE OF COLORADO

SHEET 4 OF 13

CASE NO: PLT2025-00006



KEYMAP
NTS

NORTHWEST CORNER SECTION 4
FOUND 2 1/2" ALUMINUM CAPPED MONUMENT IN
RANGE BOX, MARKED "609 CONSULTING, LS 38512"

30' PRESCRIPTIVE R.O.W.
60' R.O.W. DEDICATED BY THIS PLAT
E. 168TH AVE.
L27 NORTH LINE OF THE NW QUARTER SECTION 4
N89°32'13"E 2656.40'
1085.68' "TIE"

NORTH QUARTER CORNER SECTION 4
FOUND 3.25" ALUMINUM CAPPED MONUMENT IN
RANGE BOX, LS NO. ILLEGIBLE

8' WIDE DITCH EASEMENT
BOOK 65, PAGE 561
(TO BE VACATED BY SEPARATE DOCUMENT)

WEST LINE OF THE NW QUARTER
OF THE NE QUARTER SECTION 4
N00°27'04"W 1092.37'

543.89' "TIE"

MATCHLINE
SEE SHEET 5

EDWARDS EVERETT, KRANTZ LYNETTE,
SZAKMEISTER JANETTE, EDWARDS EUGENE
DEED RN 2018000099099

ZARLENGO #21-4
STATUS: PR
LOCATION PLOTTED PER
ECMC RECORDS

L26 L28 250'

L25 L24 L23 L22 L21 L20 L19 L18 L17 L16 L15 L14 L13 L12 L11 L10 L9 L8 L7 L6 L5 L4 L3 L2 L1

L29 L30 L31 L32 L33 L34 L35 L36 L37 L38 L39 L40 L41 L42 L43 L44 L45

SEE DETAIL A
SHEET 3

TODD CREEK VILLAGE
METROPOLITAN DISTRICT
RN 20160000024298

ZARLENGO #1
STATUS: PR
LOCATION PLOTTED PER
ECMC RECORDS

ZARLENGO #2
STATUS: PR
LOCATION PLOTTED PER
ECMC RECORDS

SIGNAL RESERVOIR #1
STATUS: SI
LOCATION PLOTTED PER
ECMC RECORDS

INTERNAL BOUNDARY BETWEEN PARCELS
PARCEL LINE VACATED BY THIS PLAT

TODD CREEK VILLAGE
METROPOLITAN DISTRICT
RN 2013000074188

TODD CREEK VILLAGE
METROPOLITAN DISTRICT
RN 2010000052390
RN 2017000099326

CENTER NORTH 1/16 CORNER SECTION 4
FOUND 2 1/2" ALUMINUM CAP
MARKED "LS 35591"

112.15' "TIE"

S87°43'24"E 93.21'
S61°04'01"E 87.93'
S43°53'10"E 64.97'
S43°34'32"E 50.38'
S43°23'02"E 50.98'
S42°18'21"E 50.05'
S43°10'34"E 51.62'
S40°00'06"E 49.83'
S43°25'44"E 49.64'
S40°32'59"E 53.98'
S38°36'40"E 54.36'
S34°54'52"E 52.47'
S34°53'05"E 51.88'
S32°40'58"E 48.79'
S36°19'29"E 49.08'
S33°43'25"E 55.59'
S29°59'07"E 52.71'
S30°42'04"E 49.34'
S30°43'08"E 50.44'
S30°09'04"E 50.93'
S29°33'39"E 50.29'
S29°40'24"E 50.25'
S29°12'19"E 49.82'
S30°01'48"E 48.04'
S32°55'22"E 182.76'

MATCHLINE
SEE SHEET 10

S25°55'39"E 314.88'

TODD CREEK VILLAGE
METROPOLITAN
DISTRICT
(CONDEMNATION
PARCEL)
RN 2010000052390
RN 2011000014415

APPROXIMATE LOCATION OF
SIGNAL RESERVOIR IRRIGATION
PIPELINE AS SHOWN ON
BOOK 2351, PAGE 577

8' WIDE DITCH EASEMENT
BOOK 65 AT PAGE 561
(TO BE VACATED BY
SEPARATE DOCUMENT)

TRACT A
4,744,819 SF

TRACT A IS A CONSOLIDATION
OF PARCELS RECORDED AT:
RN 2016000024298
RN 2017000099326
RN 2011000014415
RN C1138476

SIGNAL RESERVOIR NO. 1 ZONE
A FLOOD ZONE AS DEPICTED
ON FIRM NO. 08001C0307H

SIGNAL
RESERVOIR NO. 2
ZONE A FLOOD
ZONE AS
DEPICTED ON
FIRM NO.
08001C0307H

ERN LIMITED
PARTNERSHIP ET AL
DEED RN 2010000004722
SURVEY RN 2011-102

ZARLENGO #6-4
STATUS: PR
LOCATION PLOTTED PER
ECMC RECORDS

OIL & GAS PIPELINE EASEMENT
BOOK 4001 PAGE 717

CENTER QUARTER CORNER SECTION 4
FOUND 2 1/2" ALUMINUM CAP
MARKED "LS 35591"

WEST QUARTER CORNER SECTION 4
FOUND ILLEGIBLE 3 1/4" ALUMINUM CAPPED
MONUMENT IN RANGE BOX

NORTH LINE OF THE SW QUARTER SECTION 4
N88°45'45"E 2656.51'

NORTH LINE OF THE SE QUARTER SECTION 4
N88°45'09"E 2652.06'

EAST 1/4 CORNER SECTION 4,
FOUND 3.25" ALUMINUM CAP
MARKED "LS 38584, EMK"

SEE DETAIL B
SHEET 3

TODD CREEK VILLAGE
METROPOLITAN DISTRICT
RN C1138476

ZARLENGO #1
STATUS: PA
LOCATION PLOTTED PER
ECMC RECORDS

50'X100' WORKOVER
SETBACK

ZARLENGO #3
STATUS: PR
LOCATION PLOTTED PER
ECMC RECORDS

FLOWLINE
SIGNAL DITCH

ZARLENGO #23-4
STATUS: PR
LOCATION PLOTTED PER
ECMC RECORDS

FLOWLINE
SIGNAL DITCH

FOUND #4 REBAR WITH 1" BLUE
PLASTIC CAP, PLS 38175, LAT40,
ONLINE

AMATO GARDENS
FILE 13, MAP 156

TODD CREEK MEADOWS
RN C0731590

ERN LIMITED
PARTNERSHIP ET AL
DEED RN 2010000004722
SURVEY RN 2011-102

WEST LINE OF THE NW QUARTER SECTION 4
N00°26'25"W 2450.07'

QUEBEC STREET

WEST LINE OF THE SW QUARTER OF THE NE QUARTER SECTION 4
N00°25'29"W 1321.79'

LEGEND

- EXTERIOR BOUNDARY
- INTERNAL BOUNDARY BETWEEN PARCELS TO BE CONSOLIDATED WITH THIS PLAT
- SECTION LINES
- EASEMENT LINE
- ZONE A FLOOD ZONE
- L1 EXTERIOR BOUNDARY TAG SEE SHEET 3
- OIL & GAS WELL HEAD
- SET #5 REBAR WITH 1.5" ORANGE PLASTIC CAP, PLS 36561, KT ENG.

FOUND PIN LEGEND

- A FOUND #5 REBAR WITH 1.5" YELLOW PLASTIC CAP, LS 28283, ROCK CREEK
- B FOUND #5 REBAR WITH 1.5" ALUMINUM CAP, LS 25937, JOEL CROWE (SEE DETAIL)
- C FOUND #5 REBAR WITH 1.5" YELLOW PLASTIC CAP, PLS 13487
- D FOUND #5 REBAR
- E FOUND #3 REBAR
- F FOUND #4 REBAR WITH 1" BLUE PLASTIC CAP, PLS 38175, LAT40
- G FOUND 1" METAL PIPE
- H FOUND #4 REBAR
- I FOUND #5 REBAR WITH 1.5" ALUMINUM CAP, PLS 31161, SURVCON
- J FOUND #5 REBAR WITH 1.5" ORANGE PLASTIC CAP, NO MARKINGS
- K FOUND #5 REBAR WITH 1.5" YELLOW PLASTIC CAP, PLS 35591, NH SURVEY
- L FOUND 60D NAIL

N

240 0 120 240 480

SCALE: 1"= 240 ' HORIZ.

DATE SUBMITTED: 01.20.2025	
REVISION NO.	DATE
1	4/8/2025
2	
3	
4	
5	

PREPARED FOR:
HSG LAND LLC
10450 E. 159TH COURT
BRIGHTON, CO 80602

SCALE:	JOB NO:	BY:
1" = 240'	0109-2207	BSS

SHEET 4 OF 13

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ARVADA, CO 80002
PH: 720.638.5190

J:\0109\FILING 1 HSG\SURVEY\PLAT\PRELIMINARY PLAT\DRAWINGS\PLAT SHEETS\2207-HSG-PRELIMINARY-PLAT OPEN SPACE.DWG

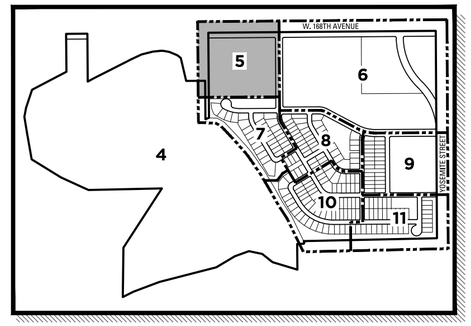
PRELIMINARY PLAT

SELTZER HEIGHTS FILING NO. 1

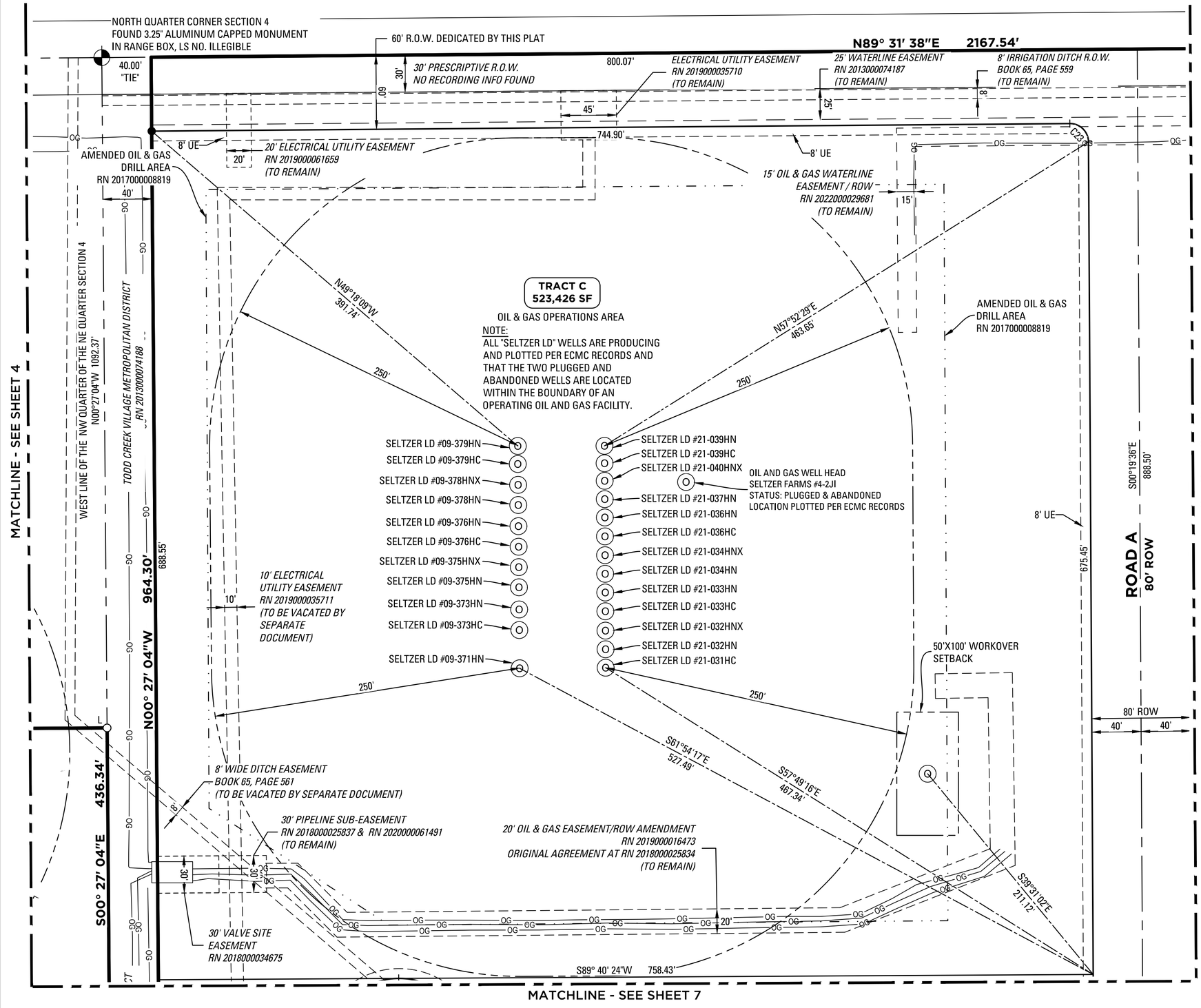
LOCATED IN SECTION 4, TOWNSHIP 1 SOUTH,
RANGE 67 WEST OF THE 6TH P.M.,
COUNTY OF ADAMS, STATE OF COLORADO

SHEET 5 OF 13

CASE NO: PLT2025-00006



KEYMAP
NTS



LEGEND

UE	UTILITY EASEMENT
C#	CURVE TAG (REFER TO SHEET 12 FOR CURVE TAG TABLES)
RN	RECEPTION NUMBER
●	SET NO. 5 REBAR W/ 1.5" ORANGE CAP PLS 36561
○	FOUND PROPERTY PIN AS DESCRIBED ON SHEET 3
	SECTION CORNERS AS DESCRIBED
◎	OIL AND GAS WELL HEAD
	PLAT BOUNDARY
	SHEET MATCHLINE
	ADJOINER PARCEL BOUNDARIES / RIGHT OF WAY
	SECTION LINE
	STREET CENTERLINE
	UTILITY EASEMENT
	OIL AND GAS SETBACK
OG	OIL AND GAS FLOW LINE
	AMENDED OIL & GAS DRILL AREA

N

60 0 30 60 120
SCALE: 1"= 60' HORIZ.

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10450 E. 159TH COURT
BRIGHTON, CO 80602

SCALE:	JOB NO:	BY:
1" = 60'	0109-2207	BSS

SHEET 5 OF 13

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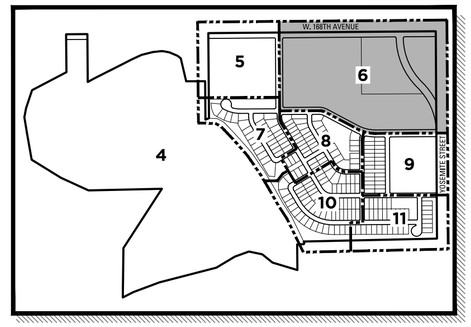
PRELIMINARY PLAT

SELTZER HEIGHTS FILING NO. 1

LOCATED IN SECTION 4, TOWNSHIP 1 SOUTH,
RANGE 67 WEST OF THE 6TH P.M.,
COUNTY OF ADAMS, STATE OF COLORADO

SHEET 6 OF 13

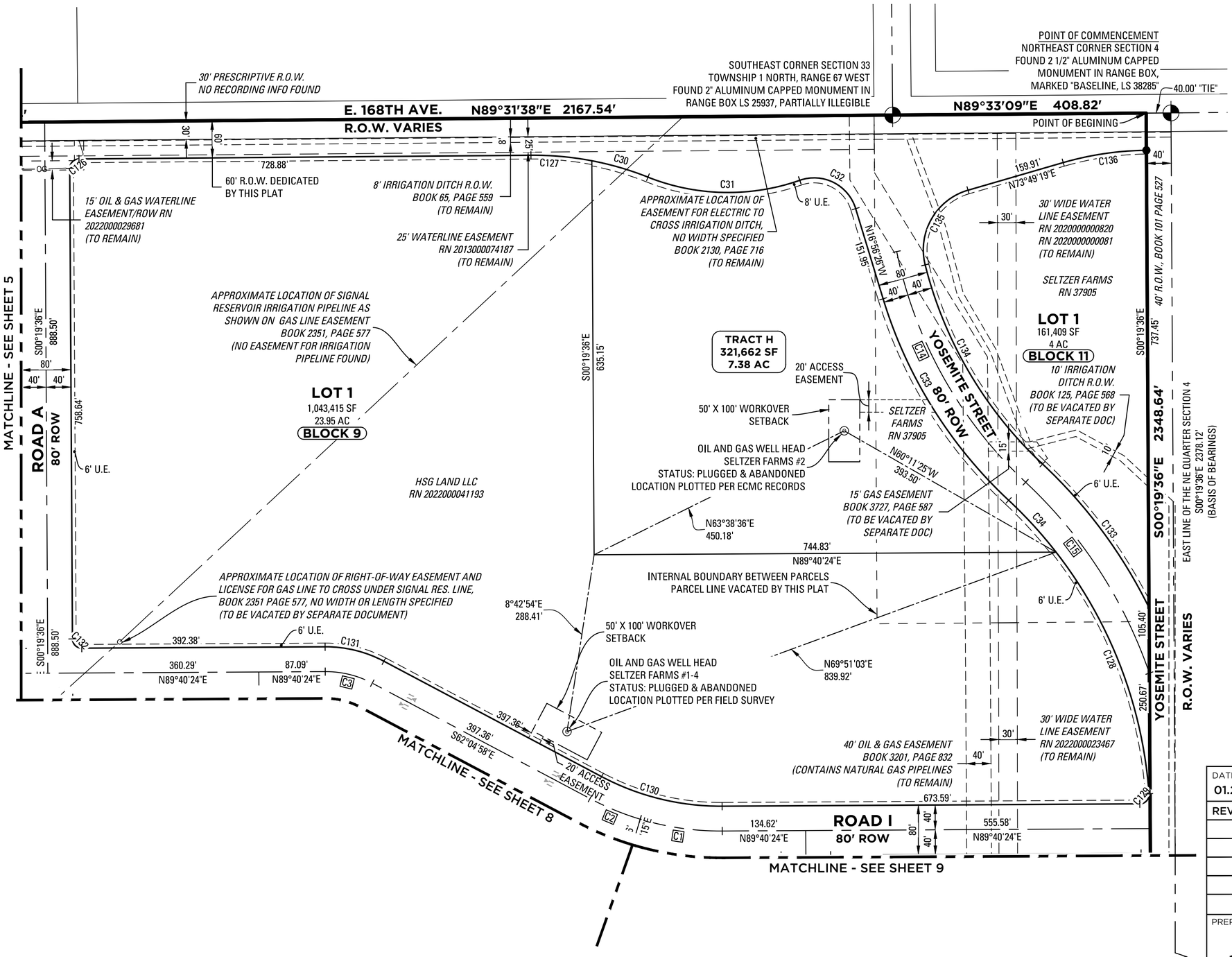
CASE NO: PLT2025-00006

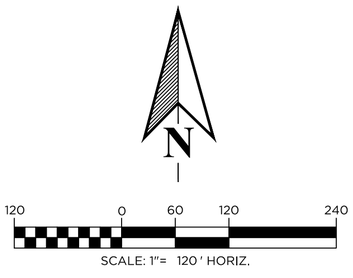


KEYMAP
NTS

LEGEND

- UE — UTILITY EASEMENT
- C# — CURVE TAG (REFER TO SHEET 12 FOR CURVE TAG TABLES)
- RN — RECEPTION NUMBER
- ● — SET NO. 5 REBAR W/ 1.5" ORANGE CAP PLS 36561
- ○ — FOUND PROPERTY PIN AS DESCRIBED ON SHEET 3
- ⊕ — SECTION CORNERS AS DESCRIBED
- ◎ — OIL AND GAS WELL HEAD
- PLAT BOUNDARY
- SHEET MATCHLINE
- ADJOINER PARCEL BOUNDARIES / RIGHT OF WAY
- SECTION LINE
- STREET CENTERLINE
- UTILITY EASEMENT
- OIL AND GAS SETBACK
- OG — OIL AND GAS FLOW LINE
- AMENDED OIL & GAS DRILL AREA





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HSG LAND LLC
10450 E. 159TH COURT
BRIGHTON, CO 80602

SCALE:	JOB NO:	BY:
1" = 120'	0109-2207	BSS

SHEET 6 OF 13

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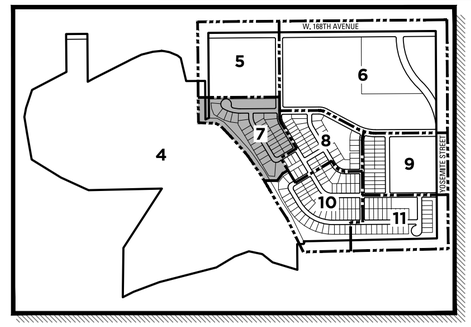
PRELIMINARY PLAT

SELTZER HEIGHTS FILING NO. 1

LOCATED IN SECTION 4, TOWNSHIP 1 SOUTH,
RANGE 67 WEST OF THE 6TH P.M.,
COUNTY OF ADAMS, STATE OF COLORADO

SHEET 7 OF 13

CASE NO: PLT2025-00006



KEYMAP
NTS

LEGEND

UE	UTILITY EASEMENT
C#	CURVE TAG (REFER TO SHEET 12 FOR CURVE TAG TABLES)
RN	RECEPTION NUMBER
●	SET NO. 5 REBAR W/ 1.5" ORANGE CAP PLS 36561
○	FOUND PROPERTY PIN AS DESCRIBED ON SHEET 3
⊕	SECTION CORNERS AS DESCRIBED
◎	OIL AND GAS WELL HEAD
	PLAT BOUNDARY
	SHEET MATCHLINE
	ADJOINER PARCEL BOUNDARIES / RIGHT OF WAY
	SECTION LINE
	STREET CENTERLINE
	UTILITY EASEMENT
	OIL AND GAS SETBACK
OG	OIL AND GAS FLOW LINE
	AMENDED OIL & GAS DRILL AREA

10' ELECTRICAL UTILITY EASEMENT RN 20190000035711 (TO BE VACATED BY SEPARATE DOCUMENT)

MATCHLINE - SEE SHEET 5

MATCHLINE - SEE SHEET 4

MATCHLINE SEE SHEET 6

MATCHLINE - SEE SHEET 8

TODD CREEK VILLAGE METROPOLITAN DISTRICT RN 20130000074188

OIL & GAS EASEMENT/ROW RN 20200000061505 (TO REMAIN)

8' WIDE DITCH EASEMENT BOOK 65, PAGE 561 (TO BE VACATED BY SEPARATE DOCUMENT)

APPROXIMATE LOCATION OF SIGNAL RESERVOIR IRRIGATION PIPELINE AS SHOWN ON GAS LINE EASEMENT BOOK 2351, PAGE 577 (NO EASEMENT FOR IRRIGATION PIPELINE FOUND)

WEST LINE OF THE NW QUARTER OF THE NE QUARTER SECTION 4 N00°27'04"W 1092.37'

CENTER NORTH 1/16 CORNER SECTION 4 FOUND 2 1/2" ALUMINUM CAP STAMPED "LS 35591"

OIL AND GAS WELL HEAD SELTZER PP#4-7 STATUS: PLUGGED & ABANDONED LOCATION PLOTTED PER FIELD SURVEY

50' X 100' WORKOVER SETBACK

TRACT A 4,744,819 SF

TRACT B 262,295 SF

TRACT D 57,023 SF

ROAD A 80' ROW

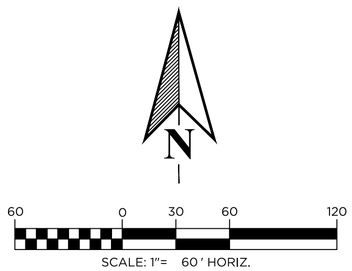
ROAD I 50' ROW

ROAD H 50' ROW

BLOCK 1

BLOCK 8

56	12,986 SF	
55	8,244 SF	
53	7,643 SF	
52	8,495 SF	
51	9,089 SF	
50	12,070 SF	
49	7,800 SF	
48	7,800 SF	
47	7,800 SF	
46	7,800 SF	
45	7,800 SF	
44	7,800 SF	
43	7,800 SF	
42	18,384 SF	
1	10,385 SF	
2	10,719 SF	
3	7,973 SF	
4	5,750 SF	
5	5,750 SF	
6	5,750 SF	
7	5,750 SF	
8	6,311 SF	
9	6,091 SF	
10	5,750 SF	
11	5,750 SF	
12	5,750 SF	
13	5,750 SF	
14	5,750 SF	
15	5,750 SF	
16	5,750 SF	
17	6,342 SF	
18	10,844 SF	



DATE SUBMITTED:	01.20.2025

REVISION NO.	DATE
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PREPARED FOR:
HSG LAND LLC
10450 E. 159TH COURT
BRIGHTON, CO 80602

SCALE:	JOB NO:	BY:
1" = 60'	0109-2207	BSS

SHEET 7 OF 13

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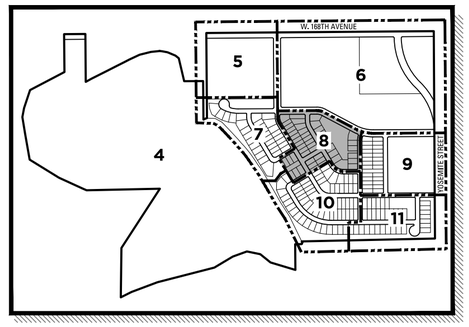
PRELIMINARY PLAT

SELTZER HEIGHTS FILING NO. 1

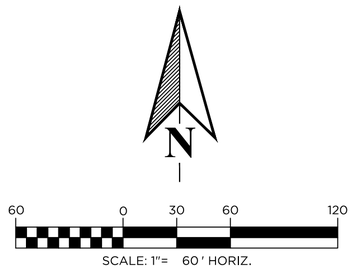
LOCATED IN SECTION 4, TOWNSHIP 1 SOUTH,
RANGE 67 WEST OF THE 6TH P.M.,
COUNTY OF ADAMS, STATE OF COLORADO

SHEET 8 OF 13

CASE NO: PLT2025-00006



KEYMAP
NTS



APPROXIMATE LOCATION OF SIGNAL RESERVOIR IRRIGATION PIPELINE AS SHOWN ON GAS LINE EASEMENT BOOK 2351, PAGE 577 (NO EASEMENT FOR IRRIGATION PIPELINE FOUND)

MATCHLINE - SEE SHEET 6

ROAD I
80' ROW

MATCHLINE - SEE SHEET 6

ROAD A
50' ROW

MATCHLINE - SEE SHEET 7

ROAD G
50' ROW

ROAD H
50' ROW

ROAD B
50' ROW

ROAD C
50' ROW

MATCHLINE - SEE SHEET 10

MATCHLINE - SEE SHEET 9

BLOCK 6
BLOCK 7
BLOCK 1
BLOCK 5

TRACT E
89,449 SF

TRACT B
262,295 SF

LEGEND

UE	UTILITY EASEMENT
C#	CURVE TAG (REFER TO SHEET 12 FOR CURVE TAG TABLES)
RN	RECEPTION NUMBER
●	SET NO. 5 REBAR W/ 1.5" ORANGE CAP PLS 36561
○	FOUND PROPERTY PIN AS DESCRIBED ON SHEET 3
⊕	SECTION CORNERS AS DESCRIBED
◎	OIL AND GAS WELL HEAD
———	PLAT BOUNDARY
— — —	SHEET MATCHLINE
———	ADJOINER PARCEL BOUNDARIES / RIGHT OF WAY
— — —	SECTION LINE
— — —	STREET CENTERLINE
— — —	UTILITY EASEMENT
— — —	OIL AND GAS SETBACK
—OG—	OIL AND GAS FLOW LINE
— · · — · · —	AMENDED OIL & GAS DRILL AREA

DATE SUBMITTED:	01.20.2025

REVISION NO.	DATE
1	4/8/2025
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PREPARED FOR:
HSG LAND LLC
10450 E. 159TH COURT
BRIGHTON, CO 80602

SCALE:	JOB NO:	BY:
1" = 60'	0109-2207	BSS

SHEET 8 OF 13

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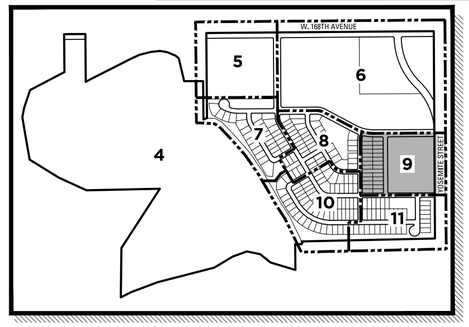
PRELIMINARY PLAT

SELTZER HEIGHTS FILING NO. 1

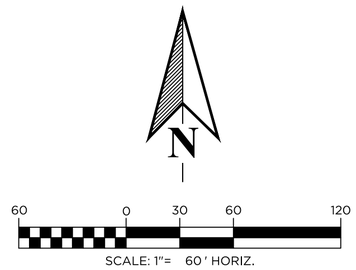
LOCATED IN SECTION 4, TOWNSHIP 1 SOUTH,
RANGE 67 WEST OF THE 6TH P.M.,
COUNTY OF ADAMS, STATE OF COLORADO

SHEET 9 OF 13

CASE NO: PLT2025-00006



KEYMAP
NTS



MATCHLINE - SEE SHEET 6

MATCHLINE - SEE SHEET 8

MATCHLINE - SEE SHEET 10

MATCHLINE - SEE SHEET 11

ROAD I
80' ROW

ROAD E
50' ROW

ROAD F
50' ROW

ROAD D
50' ROW

YOSEMITE STREET
R.O.W. VARIES

BLOCK 4

BLOCK 10
FUTURE DEVELOPMENT

LOT 1
338,116 SF

TRACT F
10,244 SF

1 6,495 SF
2 5,400 SF
3 5,400 SF
4 5,400 SF
5 5,400 SF
6 5,400 SF
7 5,400 SF
8 5,400 SF
9 5,400 SF
10 5,400 SF
11 5,400 SF
12 5,400 SF
13 5,986 SF
14 5,986 SF
15 5,400 SF
16 5,400 SF
17 5,400 SF
18 5,400 SF
19 5,400 SF
20 5,400 SF
21 5,400 SF
22 5,400 SF
23 5,400 SF
24 5,400 SF
25 5,400 SF
26 5,936 SF

134.62' N89°40'24"E
555.58' N89°40'24"E
500.58'
507.58'
254.18' N89°40'24"E
290.00' N89°40'24"E
301.40' N89°40'24"E
56.46' N16°45'15"E
319.37' N00°19'36"W
305.00' N00°19'36"W
614.56' S00°19'36"E
702.56' S00°19'36"E
607.56'
2348.64' S00°19'36"E

40' OIL & GAS EASEMENT
BOOK 3201, PAGE 832
(CONTAINS NATURAL GAS PIPELINES)
(TO REMAIN)

30' WIDE WATER LINE EASEMENT
RN 2022000023467
(TO REMAIN)

40' R.O.W., BOOK 101 PAGE 527

10' IRRIGATION DITCH R.O.W.
BOOK 125, PAGE 568
(TO BE VACATED BY SEPARATE DOC)

EAST LINE OF THE NE QUARTER SECTION 4
S00°19'36"E 2378.12'
(BASIS OF BEARINGS)

LEGEND

UE	UTILITY EASEMENT
C#	CURVE TAG (REFER TO SHEET 12 FOR CURVE TAG TABLES)
RN	RECEPTION NUMBER
●	SET NO. 5 REBAR W/ 1.5" ORANGE CAP PLS 36561
○	FOUND PROPERTY PIN AS DESCRIBED ON SHEET 3
⊕	SECTION CORNERS AS DESCRIBED
◎	OIL AND GAS WELL HEAD
———	PLAT BOUNDARY
— — —	SHEET MATCHLINE
———	ADJOINER PARCEL BOUNDARIES / RIGHT OF WAY
— — —	SECTION LINE
—— — ——	STREET CENTERLINE
- - - - -	UTILITY EASEMENT
—— - - ——	OIL AND GAS SETBACK
—— OG ——	OIL AND GAS FLOW LINE
— · · — · · —	AMENDED OIL & GAS DRILL AREA

DATE SUBMITTED: 01.20.2025	
REVISION NO.	DATE
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4	
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PREPARED FOR:
HSG LAND LLC
10450 E. 159TH COURT
BRIGHTON, CO 80602

SCALE:	JOB NO:	BY:
1" = 60'	0109-2207	BSS

SHEET 9 OF 13

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12500 W. 58th AVE. #230
ARVADA, CO 80002
PH: 720.638.5190

J:\0109\FILING 1 HSG\SURVEY\PLAT\PRELIMINARY PLAT\DRAWINGS\PLAT SHEETS\2207-HSG-PRELIMINARY-PLAT-SHEETS.DWG

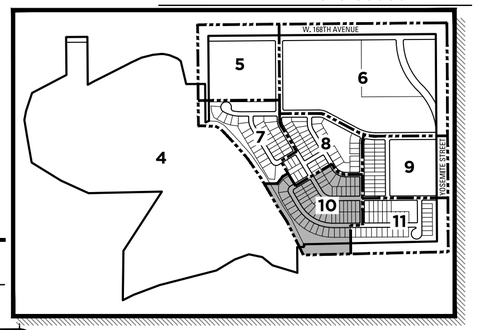
PRELIMINARY PLAT

SELTZER HEIGHTS FILING NO. 1

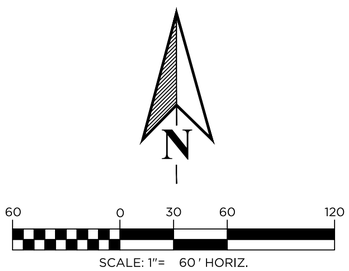
LOCATED IN SECTION 4, TOWNSHIP 1 SOUTH,
RANGE 67 WEST OF THE 6TH P.M.,
COUNTY OF ADAMS, STATE OF COLORADO

SHEET 10 OF 13

CASE NO: PLT2025-00006



KEYMAP
NTS



MATCHLINE SEE SHEET 7

MATCHLINE - SEE SHEET 8

MATCHLINE SEE SHEET 8

MATCHLINE - SEE SHEET 9

MATCHLINE - SEE SHEET 11

MATCHLINE - SEE SHEET 4

MATCHLINE - SEE SHEET 11

ROAD C 50' ROW

ROAD D 50' ROW

ROAD G 50' ROW

BLOCK 1

BLOCK 3

BLOCK 5

TRACT B 262,295 SF

SIGNAL RESERVOIR #2

MARCUS RESERVOIR

TODD CREEK VILLAGE METROPOLITAN DISTRICT RN 2010000052390 RN 2017000099326

TODD CREEK MEADOWS RN C0731590

OIL & GAS PIPELINE EASEMENT BOOK 4001 PAGE 717 (TO REMAIN)

8' WIDE DITCH EASEMENT BOOK 65 AT PAGE 561 (TO BE VACATED BY SEPARATE DOCUMENT)

32' PIPELINE EASEMENT RN 2017000025842 (TO REMAIN)

18' IRRIGATION PIPELINE EASEMENT FOR MARCUS RESERVOIR RN 20051103001216190 (TO REMAIN)

30' OIL & GAS PIPELINE EASEMENT/ROW RN 2018000025834 (TO REMAIN)

FOUND #5 REBAR WITH 1.5" ALUM. CAP, PLS 25937, JOEL CROWE, SOUTH 0.30', NOT ACCEPTED, USED FOR NORTH-SOUTH ALIGNMENT

NORTH LINE OF THE SE QUARTER SECTION 4 N88°45'09"E 2652.06'

S88° 45' 09"W 74.40'

S25° 55' 39"E 17.18'

S26° 31' 05"W 16.44'

S88° 45' 28"W 1509.46'

= TODD CREEK VILLAGE METROPOLITAN DISTRICT RN 2010000052390

LEGEND

UE	UTILITY EASEMENT
C#	CURVE TAG (REFER TO SHEET 12 FOR CURVE TAG TABLES)
RN	RECEPTION NUMBER
●	SET NO. 5 REBAR W/ 1.5" ORANGE CAP PLS 36561
○	FOUND PROPERTY PIN AS DESCRIBED ON SHEET 3
⊕	SECTION CORNERS AS DESCRIBED
◎	OIL AND GAS WELL HEAD
———	PLAT BOUNDARY
— — —	SHEET MATCHLINE
———	ADJOINER PARCEL BOUNDARIES / RIGHT OF WAY
———	SECTION LINE
———	STREET CENTERLINE
— — —	UTILITY EASEMENT
— — —	OIL AND GAS SETBACK
OG	OIL AND GAS FLOW LINE
— · — · —	AMENDED OIL & GAS DRILL AREA

DATE SUBMITTED: 01.20.2025	
REVISION NO.	DATE
1	4/8/2025
2	
3	
4	
5	

PREPARED FOR:
HSG LAND LLC
10450 E. 159TH COURT
BRIGHTON, CO 80602

SCALE:	JOB NO:	BY:
1" = 60'	0109-2207	BSS

SHEET 10 OF 13

KT ENGINEERING
ENGINEERS • SURVEYORS
12500 W. 58th AVE. #230
ARVADA, CO 80002
PH: 720.638.5190

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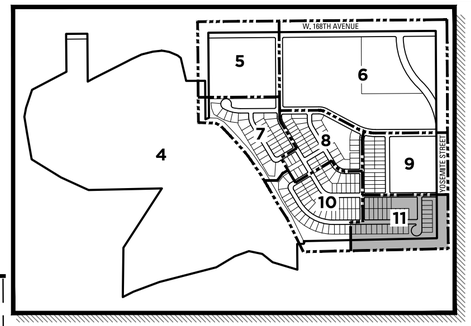
PRELIMINARY PLAT

SELTZER HEIGHTS FILING NO. 1

LOCATED IN SECTION 4, TOWNSHIP 1 SOUTH,
RANGE 67 WEST OF THE 6TH P.M.,
COUNTY OF ADAMS, STATE OF COLORADO

SHEET 11 OF 13

CASE NO: PLT2025-00006



KEYMAP
NTS

MATCHLINE - SEE SHEET 9

MATCHLINE - SEE SHEET 10

ROAD D
50' ROW

ROAD E
50' ROW

ROAD C
50' ROW

ROAD J
50' ROW

290.00'
N89°40'24"E

301.40'
N89°40'24"E

254.18'
N89°40'24"E

329.39'
N89°40'24"E

650.47'
N89°40'24"E

40' OIL & GAS EASEMENT
BOOK 3201, PAGE 832
(CONTAINS NATURAL GAS PIPELINES)
(TO REMAIN)

30' WIDE WATER LINE EASEMENT
RN 2022000023467
(TO REMAIN)

10' IRRIGATION DITCH R.O.W.
BOOK 125, PAGE 568
(TO BE VACATED BY SEPARATE DOC)

40' R.O.W., BOOK 101 PAGE 527

S00°19'36"E 2348.64'

YOSEMITE STREET
R.O.W. VARIES

EAST LINE OF THE NE QUARTER SECTION 4
S00°19'36"E 2378.12'
(BASIS OF BEARINGS)

TRACT G
49,789 SF

TRACT B
262,295 SF

20' ACCESS ESMT

S71°22'19"E
90.86'

50' X 100'
WORKOVER
SETBACK

OIL AND GAS WELL HEAD
SELTZER FARMS #4-8
STATUS: PLUGGED & ABANDONED
LOCATION PLOTTED PER FIELD
SURVEY

N40°55'25"E
130.33'

S89° 40' 24"W 200.05'

BLOCK 1
1 6,600 SF
2 6,000 SF
3 6,000 SF
4 6,000 SF
5 6,000 SF
6 6,000 SF
7 6,624 SF

BLOCK 2
1 7,005 SF
2 6,375 SF
3 6,375 SF
4 6,375 SF
5 6,375 SF
6 6,372 SF
7 6,375 SF
8 6,375 SF
9 6,375 SF
10 6,375 SF
11 6,375 SF
12 6,375 SF
13 6,375 SF
14 6,375 SF
15 6,375 SF
16 7,005 SF

BLOCK 1
8 6,600 SF
9 6,600 SF
10 6,600 SF
11 6,600 SF
12 6,600 SF
13 6,600 SF
14 6,600 SF
15 6,600 SF
16 6,600 SF
17 6,600 SF
18 6,600 SF

N89° 40' 24"E 840.00'

30' OIL & GAS PIPELINE EASEMENT/ROW
RN 2018000025834 (TO REMAIN)

S88° 45' 28"W 1509.46'

32' PIPELINE EASEMENT
RN 2017000025842
(TO REMAIN)

18' IRRIGATION PIPELINE EASEMENT
FOR MARCUS RESERVOIR
RN 2005110300121619O
(TO REMAIN)

30' OIL & GAS PIPELINE EASEMENT
BOOK 4001 PAGE 717 (TO REMAIN)

TODD CREEK MEADOWS
RN C0731590

EAST 1/4 CORNER SECTION 4,
FOUND 3.25" ALUMINUM CAP MARKED
"EMK, PLS 38584"

4 3 2 1

SCALE: 1"= 60' HORIZ.

LEGEND

UE	UTILITY EASEMENT
C#	CURVE TAG (REFER TO SHEET 12 FOR CURVE TAG TABLES)
RN	RECEPTION NUMBER
●	SET NO. 5 REBAR W/ 1.5" ORANGE CAP PLS 36561
○	FOUND PROPERTY PIN AS DESCRIBED ON SHEET 3
⊕	SECTION CORNERS AS DESCRIBED
◎	OIL AND GAS WELL HEAD
———	PLAT BOUNDARY
— — —	SHEET MATCHLINE
———	ADJOINER PARCEL BOUNDARIES / RIGHT OF WAY
— — —	SECTION LINE
— · —	STREET CENTERLINE
— — —	UTILITY EASEMENT
— — —	OIL AND GAS SETBACK
OG	OIL AND GAS FLOW LINE
— · · —	AMENDED OIL & GAS DRILL AREA

DATE SUBMITTED:
01.20.2025

REVISION NO.	DATE
1	4/8/2025
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PREPARED FOR:
HSG LAND LLC
10450 E. 159TH COURT
BRIGHTON, CO 80602

SCALE:	JOB NO:	BY:
1" = 60'	0109-2207	BSS

SHEET 11 OF 13

KT ENGINEERING
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J:\0109\FILING 1 HSG\SURVEY\PLAT\PRELIMINARY PLAT\DRAWINGS\PLAT SHEETS\2207-HSG-PRELIMINARY-PLAT-SHEETS.DWG

PRELIMINARY PLAT

SELTZER HEIGHTS FILING NO. 1

LOCATED IN SECTION 4, TOWNSHIP 1 SOUTH,
RANGE 67 WEST OF THE 6TH P.M.,
COUNTY OF ADAMS, STATE OF COLORADO

SHEET 12 OF 13

CASE NO: PLT2025-00006

CENTERLINE CURVE TABLE

CURVE #	DELTA	RADIUS	LENGHT	CHD BEARING	CHD LENGTH
C1	17°04'51"	450.00'	134.15'	S81°47'10"E	133.66'
C2	11°09'47"	450.00'	87.67'	S67°39'51"E	87.54'
C3	28°14'38"	160.00'	78.87'	S76°12'17"E	78.08'
C4	30°15'25"	350.00'	184.83'	S75°11'53"E	182.69'
C5	59°24'03"	150.00'	155.51'	S60°37'34"E	148.64'
C6	30°35'57"	150.00'	80.11'	S15°37'34"E	79.16'
C7	59°24'03"	445.00'	461.35'	S60°37'34"E	440.96'
C8	90°00'00"	57.80'	90.80'	S14°04'28"W	81.75'
C9	59°24'03"	150.00'	155.51'	S60°37'34"E	148.64'
C10	30°35'57"	170.00'	90.79'	S15°37'34"E	89.71'
C11	89°59'45"	57.98'	91.08'	S75°55'40"E	82.00'
C12	30°36'11"	149.96'	80.10'	S15°37'42"E	79.15'
C13	17°04'51"	150.00'	44.72'	N08°12'50"E	44.55'
C14	35°25'53"	700.00'	432.88'	S29°12'31"E	426.01'
C15	27°55'34"	760.00'	370.42'	S32°57'41"E	366.77'

TRACTS CURVE TABLE

CURVE #	DELTA	RADIUS	LENGTH	CHD BEARING	CHD LENGTH
C16	84°56'57"	60.00'	88.96'	S47°11'56"W	81.03'
C17	35°02'31"	58.00'	35.47'	N76°35'43"E	34.92'
C18	166°15'57"	8.00'	23.22'	S7°11'37"E	15.89'
C19	1°56'02"	28.00'	0.95'	S76°54'22"W	0.95'
C20	238°26'12"	60.00'	249.69'	S41°20'43"E	104.73'
C21	90°00'00"	8.00'	12.57'	N44°40'24"E	11.31'
C22	89°54'30"	15.01'	23.56'	N45°19'36"W	21.21'
C23	90°08'46"	15.00'	23.60'	S45°23'59"E	21.24'
C24	90°00'00"	15.00'	23.56'	S44°40'24"W	21.21'
C25	14°04'03"	325.00'	79.79'	N83°17'35"W	79.59'
C26	86°24'40"	28.00'	42.23'	N33°03'13"W	38.34'
C27	100°28'43"	60.00'	105.22'	N40°05'14"W	92.25'
C28	90°00'00"	8.00'	12.57'	S45°19'36"E	11.31'
C29	90°00'00"	8.00'	12.57'	S44°40'24"W	11.31'
C30	10°48'57"	500.00'	94.39'	N73°44'43"W	94.25'
C31	40°57'04"	350.00'	250.16'	N88°48'47"W	244.87'
C32	92°20'53"	70.00'	112.82'	N63°06'52"W	101.00'
C33	29°59'02"	740.00'	387.26'	N31°55'57"W	382.85'
C34	9°00'32"	720.00'	113.21'	N42°25'12"W	113.09'

GROSS SITE AREA		9,925,012 SF		227.8469 AC	
TOTAL NUMBER OF LOTS		205			
AREA TYPE	**AREA USE**	**AREA SF**	**AREA AC**	**COMMUNITY**	**COVERAGE**
LOT	LOTS	1,366,691 SF	31.3749 AC	13.77%	13.77%
TRACT	OPEN SPACE	5,535,281 SF	127.0726 AC	55.77%	55.77%
R.O.W.	PUBLIC STREET	956,673 SF	21.9622 AC	9.64%	9.64%
OIL & GAS TRACT	OIL & GAS FACILITY	523,426 SF	12.0162 AC	5.27%	5.27%
FUTURE DEVELOPMENT LOTS	FUTURE LOTS	1,542,941 SF	35.4210 AC	15.55%	15.55%
	TOTALS:	9,925,012 SF	227.8469 AC	100.0%	100.0%

BLOCK/TRACT	OWNERSHIP & MAINTENANCE	AREA SF	AREA AC	USE
1 / A	T.C.V.M.D*	4,744,819 SF	108.9261 AC	RESERVOIR / OPEN SPACE / PUBLIC ACCESS / UTILITIES / DRAINAGE
1 / B	DISTRICT*	262,218 SF	6.0197 AC	OPEN SPACE / PUBLIC ACCESS / UTILITIES / DRAINAGE
1 / C	DISTRICT*	523,426 SF	12.0162 AC	OIL & GAS OPERATIONS AREA
1 / D	DISTRICT*	56,993 SF	1.3084 AC	OPEN SPACE / PUBLIC ACCESS / UTILITIES / DRAINAGE
7 / E	DISTRICT*	87,814 SF	2.0159 AC	OPEN SPACE / PUBLIC ACCESS / UTILITIES / DRAINAGE
4 / F	DISTRICT*	6,640 SF	0.1524 AC	OPEN SPACE / PUBLIC ACCESS / UTILITIES / DRAINAGE
2 / G	DISTRICT*	52,276 SF	1.2001 AC	OPEN SPACE / PUBLIC ACCESS / UTILITIES / DRAINAGE
11 / H	DISTRICT*	316,184 SF	7.2586 AC	DETENTION POND / OPEN SPACE / PUBLIC ACCESS / UTILITIES / DRAINAGE

* T.C.V.M.D = TODD CREEK VILLAGE METROPOLITAN DISTRICT
* DISTRICT = FUTURE METROPOLITAN DISTRICT ESTABLISHED PRIOR TO FINAL PLAT

DATE SUBMITTED: 01.20.2025

REVISION NO.	DATE
1	4/8/2025
2	
3	
4	
5	

PREPARED FOR:
HSG LAND LLC
10450 E. 159TH COURT
BRIGHTON, CO 80602

SCALE:	JOB NO:	BY:
1" = N/A	0109-2207	BSS

SHEET 12 OF 13

KT ENGINEERING
ENGINEERS • SURVEYORS
12500 W. 58th AVE. #230
ARVADA, CO 80002
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J:\0109\FILING 1 HSG\SURVEY\PLAT\PRELIMINARY PLAT\DRAWINGS\PLAT SHEETS\2207-HSG-PRELIMINARY-PLAT-SHEETS.DWG

PRELIMINARY PLAT

SELTZER HEIGHTS FILING NO. 1

LOCATED IN SECTION 4, TOWNSHIP 1 SOUTH,
RANGE 67 WEST OF THE 6TH P.M.,
COUNTY OF ADAMS, STATE OF COLORADO

SHEET 13 OF 13

CASE NO: PLT2025-00006

LOTS CURVE TABLE

CURVE #	DELTA	RADIUS	LENGTH	CHD BEARING	CHD LENGTH
C35	19°45'47"	60.00'	20.70'	S9°33'18"W	20.59'
C36	5°07'37"	506.00'	45.28'	S87°34'00"E	45.26'
C37	7°08'13"	475.92'	59.28'	S81°11'35"E	59.24'
C38	7°08'13"	475.92'	59.28'	S73°57'58"E	59.24'
C39	7°08'13"	475.92'	59.28'	S66°44'21"E	59.24'
C40	7°08'13"	475.92'	59.28'	S59°30'44"E	59.24'
C41	7°08'13"	475.92'	59.28'	S52°17'07"E	59.24'
C42	7°08'13"	475.92'	59.28'	S45°03'30"E	59.24'
C43	7°08'13"	475.92'	59.28'	S37°49'53"E	59.24'
C44	4°18'57"	358.57'	27.01'	S32°34'18"E	27.00'
C45	22°24'02"	58.00'	22.68'	S19°48'27"E	22.53'
C46	55°57'37"	58.00'	56.65'	S19°22'22"W	54.42'
C47	11°43'17"	58.00'	11.87'	S53°12'49"W	11.84'
C48	89°24'23"	8.00'	12.48'	S14°22'27"W	11.25'
C49	89°24'23"	8.00'	12.48'	S76°13'32"E	11.25'
C50	54°57'29"	58.00'	55.63'	S58°24'17"E	53.53'
C51	0°25'12"	175.00'	1.28'	S30°42'57"E	1.28'
C52	23°14'13"	175.00'	70.97'	S18°53'18"E	70.49'
C53	6°56'32"	175.00'	21.20'	S3°47'39"E	21.19'
C54	90°00'00"	8.00'	12.57'	S45°19'36"E	11.31'
C55	2°51'41"	375.00'	18.73'	S88°53'45"E	18.73'
C56	10°16'26"	375.00'	67.24'	S82°19'42"E	67.15'
C57	9°09'42"	375.00'	59.96'	S72°36'38"E	59.90'
C58	7°57'36"	375.00'	52.10'	S64°02'59"E	52.06'
C59	7°31'58"	60.00'	7.89'	S56°18'12"E	7.88'
C60	57°15'40"	60.00'	59.96'	S23°54'23"E	57.50'
C61	90°00'00"	8.00'	12.57'	N44°40'24"E	11.31'
C62	90°00'00"	8.00'	12.57'	N45°19'36"W	11.31'
C63	89°24'23"	8.00'	12.48'	S76°13'32"E	11.25'
C64	0°36'01"	175.00'	1.83'	N31°13'33"W	1.83'
C65	14°24'17"	175.00'	44.00'	N38°43'42"W	43.88'
C66	14°25'25"	175.00'	44.05'	N53°08'33"W	43.94'
C67	14°26'38"	175.00'	44.12'	N67°34'35"W	44.00'
C68	14°16'54"	175.00'	43.62'	N81°56'21"W	43.51'
C69	1°14'48"	175.00'	3.81'	S89°42'12"E	3.81'

LOTS CURVE TABLE

CURVE #	DELTA	RADIUS	LENGTH	CHD BEARING	CHD LENGTH
C70	90°00'00"	8.00'	12.57'	S45°19'36"E	11.31'
C71	90°00'00"	8.00'	12.57'	S44°40'24"W	11.31'
C72	2°08'59"	420.00'	15.76'	N89°15'06"W	15.76'
C73	10°34'30"	420.00'	77.52'	S82°53'22"E	77.41'
C74	9°42'29"	420.00'	71.16'	S72°44'52"E	71.08'
C75	9°45'22"	420.00'	71.52'	S63°00'57"E	71.43'
C76	9°43'48"	420.00'	71.32'	S53°16'22"E	71.24'
C77	9°43'33"	420.00'	71.29'	S43°32'41"E	71.21'
C78	7°45'22"	420.00'	56.86'	S34°48'13"E	56.81'
C79	90°00'00"	33.00'	51.84'	N14°04'28"E	46.67'
C80	18°28'55"	125.00'	40.32'	N8°51'38"E	40.15'
C81	85°27'25"	15.00'	22.37'	N59°28'58"E	20.36'
C82	11°19'28"	490.15'	96.88'	S83°27'11"E	96.72'
C83	1°12'48"	488.58'	10.35'	S89°43'05"E	10.35'
C84	90°00'00"	15.00'	23.56'	S45°19'36"E	21.21'
C85	90°00'00"	8.00'	12.57'	S44°40'24"W	11.31'
C86	90°00'00"	8.00'	12.57'	N45°19'36"W	11.31'
C87	90°00'00"	8.00'	12.57'	S75°55'32"E	11.31'
C88	4°16'26"	175.00'	13.05'	S33°03'46"E	13.05'
C89	19°03'04"	175.00'	58.19'	S44°43'30"E	57.92'
C90	18°57'44"	175.00'	57.92'	S63°43'54"E	57.65'
C91	17°06'50"	175.00'	52.27'	S81°46'11"E	52.08'
C92	90°00'00"	8.00'	12.57'	S45°19'36"E	11.31'
C93	90°00'00"	8.00'	12.57'	S44°40'24"W	11.31'
C94	59°24'03"	125.00'	129.59'	N60°37'34"W	123.87'
C95	90°00'00"	8.00'	12.57'	N14°04'28"E	11.31'
C96	90°00'00"	15.00'	23.56'	S45°19'36"E	21.21'
C97	8°21'40"	195.00'	28.46'	S4°30'26"E	28.43'
C98	14°07'52"	195.00'	48.09'	S15°45'12"E	47.97'
C99	8°06'25"	195.00'	27.59'	S26°52'20"E	27.57'
C100	90°00'00"	8.00'	12.57'	S14°04'28"W	11.31'
C101	90°00'00"	8.00'	12.57'	N75°55'32"W	11.31'
C102	30°35'57"	125.00'	66.76'	N15°37'34"W	65.97'
C103	90°00'00"	15.00'	23.56'	N44°40'24"E	21.21'
C104	4°43'56"	145.00'	11.98'	S2°41'34"E	11.97'

LOTS CURVE TABLE

CURVE #	DELTA	RADIUS	LENGTH	CHD BEARING	CHD LENGTH
C105	90°00'00"	15.00'	23.56'	S44°40'24"W	21.21'
C106	28°14'38"	120.00'	59.15'	N76°12'17"W	58.56'
C110	2°23'35"	14.98'	0.63'	S0°19'36"E	0.63'
C111	90°00'00"	8.00'	12.57'	S44°40'24"W	11.31'
C112	59°24'03"	125.00'	129.59'	S60°37'34"E	123.87'
C113	25°52'01"	145.00'	65.46'	S17°59'32"E	64.91'
C114	90°00'00"	15.00'	23.56'	S45°19'36"E	21.21'
C115	5°36'11"	175.00'	17.11'	S3°07'42"E	17.11'
C116	20°17'07"	175.00'	61.96'	S16°04'21"E	61.64'
C117	4°42'38"	175.00'	14.39'	S28°34'14"E	14.38'
C118	90°00'00"	8.00'	12.57'	S14°04'28"W	11.31'
C119	90°00'00"	33.00'	51.84'	N75°55'32"W	46.67'
C120	30°35'57"	125.00'	66.76'	N15°37'34"W	65.97'
C121	90°00'00"	8.00'	12.57'	N44°40'24"E	11.31'
C122	90°00'00"	15.00'	23.56'	N44°40'24"E	21.21'
C123	90°00'00"	15.00'	23.56'	S45°19'36"E	21.21'
C124	90°00'00"	15.00'	23.56'	S44°40'24"W	21.21'
C125	90°00'00"	8.00'	12.57'	N45°19'36"W	11.31'
C126	89°51'14"	15.00'	23.52'	N44°36'01"E	21.19'
C127	11°19'10"	500.00'	98.78'	S84°48'47"E	98.62'
C128	33°42'49"	720.00'	423.66'	S21°03'31"E	417.57'
C129	93°52'30"	15.00'	24.58'	S42°44'09"W	21.92'
C130	28°14'38"	410.00'	202.11'	N76°12'17"W	200.07'
C131	28°14'38"	200.00'	98.59'	N76°12'17"W	97.59'
C132	90°00'00"	15.00'	23.56'	N45°19'36"W	21.21'
C133	20°45'21"	800.00'	289.81'	N36°32'47"W	288.22'
C134	32°48'29"	660.00'	377.92'	N30°31'13"W	372.78'
C135	87°56'17"	100.00'	153.48'	N29°51'10"E	138.85'
C136	15°34'29"	500.00'	135.92'	N81°36'33"E	135.50'

DATE SUBMITTED:
01.20.2025

REVISION NO.	DATE
1	4/8/2025
2	
3	
4	
5	

PREPARED FOR:
HSG LAND LLC
10450 E. 159TH COURT
BRIGHTON, CO 80602

SCALE:	JOB NO:	BY:
1" = N/A	0109-2207	BSS

SHEET 13 OF 13

KT ENGINEERING
ENGINEERS • SURVEYORS
12500 W. 58th AVE. #230
ARVADA, CO 80002
PH: 720.638.5190

J:\0109\FILING 1 HSG\SURVEY\PLAT\PRELIMINARY PLAT\DRAWINGS\PLAT SHEETS\2207-HSG-PRELIMINARY-PLAT-SHEETS.DWG

Customer Distribution

Prevent fraud - Please call a member of our closing team for wire transfer instructions or to initiate a wire transfer. Note that our wiring instructions will never change.

Order Number: **RND70865087** Date: **04/01/2025**

Property Address: **SELTZER HEIGHTS FILING NO. 1, Brighton, CO 80602**

For Closing Assistance

For Title Assistance

SHANA HOLT
5975 GREENWOOD PLAZA BLVD
GREENWOOD VILLAGE, CO 80111
(303) 850-4117 (Work)
sholt@ltgc.com

Agent for Buyer
EQUINOX LAND GROUP
Attention: TUCKER HANLON
10450 E 159TH CT
BRIGHTON, CO 80602
(720) 252-2111 (Cell)
(303) 799-6000 (Work)
(303) 771-7210 (Work Fax)
thanlon@wspcos.com
Delivered via: Electronic Mail

Agent for Buyer
KT ENGINEERING LLC
Attention: KEN TOLAND
12500 W 58TH AVE #230
ARVADA, CO 80002
(720) 638-5190 (Work)
ken@kteng.net
Delivered via: Electronic Mail

Agent for Buyer
EQUINOX LAND GROUP
Attention: JIMMY OGE
10450 E 159TH CT
BRIGHTON, CO 80602
(303) 799-6000 (Work)
(303) 771-7210 (Work Fax)
jimmy@wspcos.com
Delivered via: Electronic Mail

Estimate of Title Fees

Order Number: RND70865087 **Date:** 04/01/2025

Property Address: SELTZER HEIGHTS FILING NO. 1, Brighton, CO 80602

Seller(s): SELTZER FARMS INVESTMENT LLC, A COLORADO LIMITED LIABILITY COMPANY; AND TODD CREEK VILLAGE METROPOLITAN DISTRICT, A QUASI-MUNICIPAL CORPORATION AND POLITICAL SUBDIVISION OF THE STATE OF COLORADO; AND HSG LAND LLC, A COLORADO LIMITED LIABILITY COMPANY, AS THEIR INTERESTS MAY APPEAR

Buyer(s): A BUYER TO BE DETERMINED

Thank you for putting your trust in Land Title. Below is the estimate of title fees for the transaction. The final fees will be collected at closing. Visit **ltgc.com** to learn more about Land Title.

Estimate of Title Insurance Fees	
"TBD" Commitment	$436.00
TOTAL	**$436.00**

Note: The documents linked in this commitment should be reviewed carefully. These documents, such as covenants conditions and restrictions, may affect the title, ownership and use of the property. You may wish to engage legal assistance in order to fully understand and be aware of the implications of the documents on your property.

Chain of Title Documents:

Adams county recorded 08/03/1994 under reception no. C0004956

Adams county recorded 05/06/2003 under reception no. C1138476

Adams county recorded 12/02/2015 under reception no. 2015000100601

Adams county recorded 04/01/2016 under reception no. 2016000024298

Adams county recorded 11/09/2017 under reception no. 2017000099326

Adams county recorded 09/27/2018 under reception no. 2018000078743

Adams county recorded 05/06/2022 under reception no. 2022000041193

Adams county recorded 12/09/2024 under reception no. 2024000068378

ALTA COMMITMENT

Old Republic National Title Insurance Company

Schedule A

Order Number: RND70865087

Property Address:

SELTZER HEIGHTS FILING NO. 1, Brighton, CO 80602

1. **Effective Date:**

   03/27/2025 at 5:00 P.M.

2. **Policy to be Issued and Proposed Insured:**

   "TBD" Commitment $0.00
   Proposed Insured:
   A BUYER TO BE DETERMINED

3. **The estate or interest in the land described or referred to in this Commitment and covered herein is:**

   FEE SIMPLE

4. **Title to the estate or interest covered herein is at the effective date hereof vested in:**

   SELTZER FARMS INVESTMENT LLC, A COLORADO LIMITED LIABILITY COMPANY; AND TODD CREEK VILLAGE METROPOLITAN DISTRICT, A QUASI-MUNICIPAL CORPORATION AND POLITICAL SUBDIVISION OF THE STATE OF COLORADO; AND HSG LAND LLC, A COLORADO LIMITED LIABILITY COMPANY, AS THEIR INTERESTS MAY APPEAR

5. **The Land referred to in this Commitment is described as follows:**

   A PARCEL OF LAND LOCATED IN SECTION 4, TOWNSHIP 1 SOUTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF ADAMS, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

   BASIS OF BEARINGS; THE NORTH LINE OF THE NORTHWEST 1/4 OF SAID SECTION 4, BEING MONUMENTED AT THE NORTH QUARTER CORNER WITH A 3-1/4" ALUMINUM CAP STAMPED "LS 25937" AND MONUMENTED AT THE NORTH WEST CORNER WITH A 2-1/2" ALUMINUM CAP STAMPED "LS 12374" IS ASSUMED TO BEAR N 89°32'50"E, A DISTANCE OF 2656.37 FEET.

   COMMENCING AT THE NORTH QUARTER CORNER OF SAID SECTION 4
   THENCE S 00°26'28" E, ON THE EAST LINE OF THE NORTH WEST QUARTER OF SAID SECTION 4, A DISTANCE OF 543.5 FEET TO THE POINT OF BEGINNING; THENCE S 00°26'26" E, CONTINUING ON THE EAST LINE OF THE NORTH WEST QUARTER OF SAID SECTION 4, A DISTANCE OF 493.04 FEET TO A POINT BEING 55.73 NORTHERLY FROM THE CENTER NORTH SIXTEENTH CORNER OF SAID SECTION 4 AND BEING A POINT ON THAT BOUNDARY LINE ADJUSTMENT AS DESCRIBED IN BOOK 4931 AT PAGE **452** OF ADAMS COUNTY PUBLIC RECORDS; THENCE ALONG SAID BOUNDARY LINE AGREEMENT THE FOLLOWING 10 COURSES AND DISTANCES;

   THENCE N 89°31'59" E, A DISTANCE OF 32.19 FEET;
   THENCE S 71°03'37" E, A DISTANCE OF 115.93 FEET;
   THENCE S 46°44'52" E, A DISTANCE OF 185.31 FEET;
   THENCE S 52°43'55" E, A DISTANCE OF 131.26 FEET;
   THENCE S 42°42'06" E, A DISTANCE OF 70.54 FEET;
   THENCE S 47°00'19" E, A DISTANCE OF 27.90 FEET;
   THENCE S 34°53'37" E, A DISTANCE OF 28.74 FEET;
   THENCE S 30°03'43" E, A DISTANCE OF 404.31 FEET;
   THENCE S 32°55'27" E, A DISTANCE OF 457.80 FEET;
   THENCE S 25°59'02" E, A DISTANCE OF 76.03 FEET;

   THENCE DEPARTING SAID BOUNDARY LINE ADJUSTMENT AND ALONG THE NORTH BOUNDARY LINE AT A PARCEL OF LAND FOR TODD CREEK FARMS METRO DISTRICT NO. 1, REC. NO. C0846354 THE FOLLOWING COURSES & DISTANCES.

THENCE N 32°50'21" W, A DISTANCE OF 114.27 FEET;
THENCE S 79°19'39" W, A DISTANCE OF 305.00 FEET;
THENCE S 81°41'39" W, A DISTANCE OF 210.00 FEET;
THENCE S 79°59'39" W, A DISTANCE OF 334.00 FEET;
THENCE S 80°17'39" W, A DISTANCE OF 236.00 FEET;
THENCE S 85°49'39" W, A DISTANCE OF 347.00 FEET;
THENCE S 72°10'39" W, A DISTANCE OF 350.00 FEET;
THENCE S 32°41'39" W, A DISTANCE OF 130.00 FEET;

THENCE N 01°13'21" W AND DEPARTING SAID NORTH BOUNDARY LINE AND ALONG A BOUNDARY LINE FOR A PARCEL DESCRIBED IN BOOK 3907 AT PAGE **53**;

A DISTANCE OF 75.00 FEET;
THENCE N 33°18'11" E, A DISTANCE OF 801.02 FEET;
THENCE S 88°46'39" W, A DISTANCE OF 830.00 FEET;
THENCE N 65°28'27" W, A DISTANCE OF 54.31 FEET;
THENCE N 65°24'21" W, A DISTANCE OF 291.00 FEET;
THENCE N 58°17'21" W, A DISTANCE OF 390.05 FEET;
THENCE N 09°53'21" W, A DISTANCE OF 301.00 FEET;
THENCE N 09°53'21" W, A DISTANCE OF 187.20 FEET;
THENCE N 62°38'48" E, A DISTANCE OF 811.12 FEET;

THENCE N 02°53'33" W, A DISTANCE OF 27.98 FEET TO A POINT ON THE SOUTHERN BOUNDARY OF THE EDWARDS PROPERTY THE FOLLWING 16 COURSES.

THENCE NORTH 62°16'51" EAST, A DISTANCE OF 73.50 FEET:
THENCE NORTH 63°04'07" EAST, A DISTANCE OF 101.27 FEET:
THENCE NORTH 63°18'54" EAST, A DISTANCE OF 97.13 FEET;
THENCE NORTH 63°04'02" EAST, A DISTANCE OF 120.44 FEET;
THENCE NORTH 63°17'41' EAST, A DISTANCE OF 100.72 FEET;
THENCE NORTH 62°29'09" EAST, A DISTANCE OF 56.87 FEET;
THENCE NORTH 75°55'20" EAST, A DISTANCE OF 131.74 FEET;
THENCE NORTH 83°31'01" EAST, A DISTANCE OF 98.70 FEET;
THENCE SOUTH 82°36'09" EAST, A DISTANCE OF 26.37 FEET;
THENCE SOUTH 79°22'49" EAST, A DISTANCE OF 64.20 FEET;
THENCE SOUTH 67°13'40" EAST, A DISTANCE OF 98.32 FEET;
THENCE SOUTH 51°17'54" EAST, A DISTANCE OF 47.76 FEET;
THENCE SOUTH 13°24'16" EAST, A DISTANCE OF 154.59 FEET;
THENCE SOUTH 13°09'17" EAST, A DISTANCE OF 112.21 FEET;
THENCE NORTH 89°34'11" EAST, A DISTANCE OF 214.94 FEET;
TO THE POINT OF BEGINNING.

A PARCEL OF LAND IN SECTION 4, TOWNSHIP 1 SOUTH, RANGE 67 WEST OF THE 6TH P.M., COUNTY OF ADAMS, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EAST AND WEST CENTERLINE OF SAID SECTION 4, THAT IS 298 FEET DISTANT WEST OF THE SOUTHEAST CORNER OF THE SW 1/4, NE 1/4 OF SAID SECTION 4; THENCE SOUTH 296 FEET TO A POINT; THENCE N71°48'W, 295 FEET; THENCE N50°36'W, 150 FEET; THENCE N77°36'W, 155 FEET; THENCE S70°44'W, 170 FEET; THENCE S59°51'W, 245 FEET; THENCE S75°'49'W, 665 FEET; THENCE S69°28'W, 315 FEET; THENCE S63°30'W, 135 FEET; THENCE NORTH 482 FEET; THENCE N33°55'E, 130 FEET; THENCE N73°24'E, 350 FEET; THENCE N87°03'E, 347 FEET; THENCE N82°31'E, 236 FEET; THENCE N81°13'E, 334 FEET; THENCE N82°55'E, 210 FEET; THENCE N80°33'E, 305 FEET; THENCE S31°37'E, 200 FEET; THENCE S87°30'E, 50 FEET; THENCE SOUTH 98 FEET TO THE POINT OF BEGINNING,

ALTA COMMITMENT

Old Republic National Title Insurance Company

Schedule A

Order Number: RND70865087

COUNTY OF ADAMS, STATE OF COLORADO.

A PARCEL OF LAND LOCATED IN A PORTION OF THE NORTHWEST 1/4 OF SECTION 4, TOWNSHIP 1 SOUTH, RANGE 67 WEST, OF THE 6TH PRINCIPAL MERIDIAN; COUNTY OF ADAMS, STATE OF COLORADO MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BASIS OF BEARINGS: THE NORTH LINE OF THE NORTHWEST 1/4 OF SAID SECTION 4, BEARING SOUTH 89°32'47" WEST.

COMMENCING AT THE NORTH 1/4 CORNER OF SAID SECTION 4; THENCE SOUTH 89°32'47" WEST, AND ALONG THE NORTH LINE OF THE NORTHWEST 1/4 OF SAID SECTION 4, A DISTANCE OF 1328.22 FEET TO A POINT ON THE NORTHWEST CORNER OF THE NORTHEAST 1/4 OF THE NORTHWEST 1/4 OF SAID SECTION 4; THENCE CONTINUING ALONG SAID LINE SOUTH 00°31'16" EAST, A DISTANCE OF 30.00 FEET TO THE SOUTH LINE OF THE PRESCRIPTIVE RIGHT-OF-WAY LINE TO THE POINT OF BEGINNING:

STILL CONTINUING ALONG SAID LINE, SOUTH 00°31'16" EAST, A DISTANCE OF 537.92 FEET TO A POINT ON THE NORTH LINE OF A PARCEL OF LAND RECORDED IN THE ADAMS COUNTY CLERK AND RECORDER'S OFFICE AT RECEPTION NO. 2008-199; THENCE SOUTH 62°38'41" WEST, A DISTANCE OF 811.12 FEET; THENCE NORTH 09°53'24" EAST, A DISTANCE OF 104.83 FEET; THENCE NORTH 18°21'54" EAST, A DISTANCE OF 214.84 FEET; THENCE NORTH 62°38'41" EAST, A DISTANCE OF 440.19 FEET; THENCE NORTH 00°31'16" WEST, A DISTANCE OF 398.97 FEET; THENCE NORTH 89°32'47" EAST, A DISTANCE OF 278.50 FEET TO THE POINT OF BEGINNING,

COUNTY OF ADAMS, STATE OF COLORADO.

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ALTA COMMITMENT

Old Republic National Title Insurance Company

Schedule B, Part I

(Requirements)

Order Number: RND70865087

All of the following Requirements must be met:

This proposed Insured must notify the Company in writing of the name of any party not referred to in this Commitment who will obtain an interest in the Land or who will make a loan on the Land. The Company may then make additional Requirements or Exceptions.

Pay the agreed amount for the estate or interest to be insured.

Pay the premiums, fees, and charges for the Policy to the Company.

Documents satisfactory to the Company that convey the Title or create the Mortgage to be insured, or both, must be properly authorized, executed, delivered, and recorded in the Public Records.

THIS COMMITMENT IS FOR INFORMATION ONLY, AND NO POLICY WILL BE ISSUED PURSUANT HERETO.

ALTA COMMITMENT

Old Republic National Title Insurance Company

Schedule B, Part II

(Exceptions)

Order Number: RND70865087

This commitment does not republish any covenants, condition, restriction, or limitation contained in any document referred to in this commitment to the extent that the specific covenant, conditions, restriction, or limitation violates state or federal law based on race, color, religion, sex, sexual orientation, gender identity, handicap, familial status, or national origin.

1. **Any facts, rights, interests, or claims thereof, not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.**
2. **Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.**
3. **Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.**
4. **Any lien, or right to a lien, for services, labor or material heretofore or hereafter furnished, imposed by law and not shown by the Public Records.**
5. **Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date of the proposed insured acquires of record for value the estate or interest or mortgage thereon covered by this Commitment.**
6. **(a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.**
7. **(a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water.**
8. EXISTING LEASES AND TENANCIES, IF ANY.
9. ANY INCREASE OR DECREASE IN THE AREA OF THE LAND AND ANY ADVERSE CLAIM TO ANY PORTION OF THE LAND WHICH HAS BEEN CREATED BY OR CAUSED BY ACCRETION OR RELICTION, WHETHER NATURAL OR ARTIFICIAL; AND THE EFFECT OF THE GAIN OR LOSS OF AREA BY ACCRETION OR RELICTION UPON THE MARKETABILITY OF THE TITLE OF THE LAND.
10. RIGHTS OF THE PUBLIC IN AND TO THE USE OF EAST 168TH AVENUE
11. RIGHTS AND EASEMENTS FOR NAVIGATION AND FISHERY IN FAVOR OF THE PUBLIC WHICH MAY EXIST OVER THAT PORTION OF SAID LAND LYING BENEATH THE WATER OF SIGNAL DITCH AND THE SIGNAL RESERVIORS.
12. ANY RIGHTS OR INTERESTS OF THIRD PARTIES WHICH EXIST OR ARE CLAIMED TO EXIST IN AND OVER THE PRESENT AND PAST BED, BANKS OR WATERS OF SIGNAL DITCH AND THE SIGNAL RESERVOIRS.
13. RIGHT OF PROPRIETOR OF A VEIN OR LODE TO EXTRACT AND REMOVE HIS ORE THEREFROM SHOULD THE SAME BE FOUND TO PENETRATE OR INTERSECT THE PREMISES AS RESERVED IN UNITED STATES PATENT RECORDED MARCH 25, 1902, IN BOOK A67 AT PAGE 407.
14. EASEMENT GRANTED TO THE SIGNAL RESERVOIR AND IRRIGATION COMPANY BY INSTRUMENT RECORDED SEPTEMBER 13, 1918 IN BOOK 65 AT PAGE 558.
15. EASEMENTS GRANTED TO THE SIGNAL RESERVOIR AND IRRIGATION COMPANY BY INSTRUMENTS RECORDED SEPTEMBER 13, 1918 IN BOOK 65 AT PAGE 559 AND RECORDED SEPTEMBER 13, 1928 IN BOOK 89 AT PAGES 495 AND 496.

ALTA COMMITMENT

Old Republic National Title Insurance Company

Schedule B, Part II

(Exceptions)

Order Number: RND70865087

16. RIGHTS OF INGRESS AND EGRESS IN AND FROM THE SAID EASEMENT OR RIGHT OF WAY FOR THE PURPOSE OF CONSTRUCTING, MAINTAINING, OR REPAIRING A DITCH AS EVIDENCED BY QUIT CLAIM DEED RECORDED SEPTEMBER 13, 1918 IN BOOK 65 AT PAGE 561.

17. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN RIGHT OF WAY DEED RECORDED MAY 09, 1924 UNDER RECEPTION NO. 101711.

18. ANY TAX, LIEN, FEE, OR ASSESSMENT BY REASON OF INCLUSION OF SUBJECT PROPERTY IN THE WEST ADAMS COUNTY SOIL CONSERVATION DISTRICT, AS EVIDENCED BY INSTRUMENT RECORDED NOVEMBER 14, 1946, IN BOOK 327 AT PAGE 315.

19. RESERVATION OF AN UNDIVIDED 1/2 OF ALL MINERALS AND MINERALS RIGHTS IN, ON OR UDERLYING SAID LAND, AS SET FORTH IN INSTRUMENT RECORDED JULY 20, 1948 IN BOOK 360 AT PAGE 474, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN.

20. ANY TAX, LIEN, FEE, OR ASSESSMENT BY REASON OF INCLUSION OF SUBJECT PROPERTY IN THE BRIGHTON AREA FIRE POTECTION DISTRICT, AS EVIDENCED BY INSTRUMENT RECORDED NOVEMBER 27, 1961, IN BOOK 951 AT PAGE 205.

21. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN EASEMENT RECORDED JANUARY 02, 1964 IN BOOK 1122 AT PAGE 330.

22. OIL AND GAS LEASES RECORDED JUNE 9, 1970 IN BOOK 1604 AT PAGE 126, JULY 17, 1970 IN BOOK 1614 AT PAGE 158, AUGUST 4, 1970 IN BOOK 1618 AT PAGE 71, APRIL 24, 1970 IN BOOK 1619 AT PAGE 411, SEPTEMBER 9, 1970 IN BOOK 1627 AT PAGE 131, FEBRUARY 9, 1971 IN BOOK 1666 AT PAGE 308, FEBRUARY 4, 1972 IN BOOK 1779 AT PAGE 447, AUGUST 23, 1973 IN BOOK 1884 AT PAGE 566, APRIL 9, 1975 IN BOOK 1986 AT PAGE 684, MAY 20, 1975 IN BOOK 1995 AT PAGE 2, JUNE 4, 1975 IN BOOK 1997 AT PAGE 875 AND OCTOBER 6, 1982 IN BOOK 2683 AT PAGE 824, AND ANY AND ALL ASSIGNMENTS THEREOF, OR INTEREST THEREIN.

    NOTE: THE PRESENT OWNERSHIP OF THE LEASEHOLD CREATED BY SAID LEASE AND OTHER MATTERS AFFECTING THE INTEREST OF THE LESSEE ARE NOT SHOWN HEREIN.

23. RESERVATION OF ONE-HALF OF ALL EXISTING OIL, GAS AND MINERAL RIGHTS, RESERVED BY WARRANTY DEED RECORDED OCTOBER 25, 1974 IN BOOK 1960 AT PAGE 847, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN.

24. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH IN NOTICE AS TO ROAD RECORDED OCTOBER 25, 1974 IN BOOK 1960 AT PAGE 851.

25. EASEMENT GRANTED TO PANHANDLE EASTERN PIPE LINE COMPANY, FOR A RIGHT OF WAY GRANT, AND INCIDENTAL PURPOSES, BY INSTRUMENT RECORDED APRIL 15, 1975, IN BOOK 1987 AT PAGE 863.

26. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN RIGHT OF WAY EASEMENT AND LICENSE RECORDED SEPTEMBER 16, 1975 IN BOOK 2017 AT PAGE 817.

27. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN RIGHT OF WAY EASEMENT AND LICENSE RECORDED OCTOBER 31, 1975 IN BOOK 2026 AT PAGE 768.

28. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN EASEMENT AGREEMENT RECORDED MARCH 22, 1977 IN BOOK 2130 AT PAGE 716.

ALTA COMMITMENT

Old Republic National Title Insurance Company

Schedule B, Part II

(Exceptions)

Order Number: RND70865087

29. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN RIGHT OF WAY EASEMENT AND LICENSE RECORDED MAY 31, 1979 IN BOOK 2351 AT PAGE 577.
30. EASEMENT GRANTED TO BYRON OIL INDUSTRIES, INC., FOR GAS PIPELINES, AND INCIDENTAL PURPOSES, BY INSTRUMENT RECORDED SEPTEMBER 17, 1979, IN BOOK 2386 AT PAGE 683.
31. EASEMENT GRANTED TO UNION RURAL ELECTRIC ASSOCIATION, INC., FOR ELECTRIC TRANSMISSION OR DISTRIBUTION LINE OR SYSTEM, AND INCIDENTAL PURPOSES, BY INSTRUMENT RECORDED JANUARY 25, 1980, IN BOOK 2425 AT PAGE 725.
32. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN AFFIDAVIT OF POSSESSION RECORDED MAY 23, 1980 IN BOOK 2458 AT PAGE 523.
33. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN AGREEMENT RECORDED JULY 18, 1980 IN BOOK 2473 AT PAGE 893 AND STIPULATION OF INTEREST AND CORRECTIVE CROSS-CONVEYANCE OF OIL, GAS AND MINERAL INTEREST RECORDED JUNE 9, 1980 IN BOOK 2462 AT PAGE 425.
34. NOTICE OF GENERAL DESCRIPTION OF AREA SERVED BY PANHANDLE EASETERN PIPE LINE COMPANY RECORDED JUNE 25, 1986 IN BOOK 3162 AT PAGE 961.
35. EASEMENT GRANTED TO WESTERN GAS SUPPLY COMPANY, A COLORADO CORPORATION, FOR PIPELINES, AND INCIDENTAL PURPOSES, BY INSTRUMENT RECORDED SEPTEMBER 15, 1986, IN BOOK 3201 AT PAGE 832.
36. EASEMENT GRANTED TO WESTERN GAS SUPPLY COMPANY, FOR PIPELINES, AND INCIDENTAL PURPOSES, BY INSTRUMENT RECORDED NOVEMBER 14, 1990, IN BOOK 3727 AT PAGE 587.
37. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN ZONING HEARING DECISION - CASE #124-91-E-Z SELTZER FARMS RECORDED JANUARY 30, 1992 IN BOOK 3861 AT PAGE 157.
38. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS TO THE AGREEMENT SET FORTH IN BARGAIN AND SALE DEED RECORDED MAY 22, 1992 IN BOOK 3907 AT PAGE 53.
39. EASEMENT GRANTED TO ASSOCIATED NATURAL GAS, INC., FOR PIPELINE GATE VALVE OR GATE-VALVES, AND INCIDENTAL PURPOSES, BY INSTRUMENT RECORDED DECEMBER 18, 1992, IN BOOK 4001 AT PAGE 706.
40. EASEMENT GRANTED TO ASSOCIATED NATURAL GAS INC., A COLORADO CORPORATION, FOR A PIPELINE RIGHT OF WAY GRANT, AND INCIDENTAL PURPOSES, BY INSTRUMENT RECORDED DECEMBER 18, 1992, IN BOOK 4001 AT PAGE 709.
41. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN RIGHT OF WAY GRANT RECORDED DECEMBER 18, 1992 IN BOOK 4001 AT PAGE 713.
42. EASEMENT GRANTED TO ASSOCIATED NATURAL GAS, INC., FOR PIPELINE GATE VALVE OR GATE-VALVES, AND INCIDENTAL PURPOSES, BY INSTRUMENT RECORDED DECEMBER 18, 1992, IN BOOK 4001 AT PAGE 718.
43. EASEMENT GRANTED TO ASSOCIATED NATURAL GAS, INC., FOR PIPELINE GATE VALVE OR GATE-VALVES, AND INCIDENTAL PURPOSES, BY INSTRUMENT RECORDED SEPTEMBER 23, 1993, IN BOOK 4156 AT PAGE 12.
44. RESERVATION OF 1/2 OF ALL MINERALS AS EVIDENCED IN WARRANTY DEED RECORDED APRIL 04, 1994 IN BOOK 4290 AT PAGE 272.

ALTA COMMITMENT

Old Republic National Title Insurance Company

Schedule B, Part II

(Exceptions)

Order Number: RND70865087

45. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH IN MEMORANDUM OF UNDERSTANDING RECORDED OCTOBER 20, 1995 IN BOOK 4611 AT PAGE **341**.
46. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN BOUNDARY LINE AGREEMENT RECORDED FEBRUARY 04, 1997 IN BOOK 4931 AT PAGE **452**.
47. NOTICE OF OIL AND GAS INTERESTS AND SURFACE USE RECORDED DECEMBER 5, 2000 UNDER RECEPTION NO. **C0738227**.
48. NOTICE OF RIGHT TO USE SURFACE OF THE LANDS RECORDED DECEMBER 19, 2000 UNDER RECEPTION NO. **C0742925**.
49. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN ZONING HEARING DECISION - CASE #PUD2001-00030 RECORDED MARCH 12, 2002 UNDER RECEPTION NO. **C0938822**.
50. REQUEST FOR NOTIFICATION RECORDED JULY 08, 2002 UNDER RECEPTION NO. **C0993453**.
51. EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS, RESERVATIONS AND NOTES ON THE TODD CREEK VILLAGE PRELIMINARY PUD PLAN RECORDED AUGUST 23, 2002 UNDER RECEPTION NO. **C1014679** AND MAJOR AMENDMENT THERETO RECORDED FEBRUARY 25, 2025 UNDER RECEPTION NO. **2025000010042**.
52. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN IRRIGATION PIPELINE EASEMENT AND AGREEMENT RECORDED NOVEMBER 03, 2005 UNDER RECEPTION NO. **20051103001216190**.
53. REQUEST FOR NOTIFICATION OF SURFACE DEVELOPMENT RECORDED MARCH 31, 2006 UNDER RECEPTION NO. **20060331000327110**.
54. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN SURFACE USE AGREEMENT RECORDED JULY 05, 2006 UNDER RECEPTION NO. **20060705000675490** AND SECOND AMENDMENT AND RATIFICATION OF SURFACE USE AGREEMENT RECORDED JANUARY 30, 2017 UNDER RECEPTION NO. **2017000008819**.
55. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN AGREEMENT FOR WATER SERVICE RECORDED OCTOBER 02, 2007 UNDER RECEPTION NO. **2007000093311**.
56. REQUEST FOR NOTIFICATION OF SURFACE DEVELOPMENT RECORDED OCTOBER 15, 2007 UNDER RECEPTION NO. **2007000097421**.
57. REQUEST FOR NOTIFICATION (MINERAL ESTATE OWNER) RECORDED DECEMBER 24, 2007 UNDER RECEPTION NO. **2007000116902**.
58. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN RIGHT OF WAY AGREEMENT RECORDED AUGUST 23, 2013 UNDER RECEPTION NO. **2013000074187**.
59. ANY AND ALL MINERALS AND MINERAL RIGHTS AS RESERVED IN SPECIAL WARRANTY DEED RECORDED APRIL 1, 2016 UNDER RECEPTION NO. **201600024298**, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN.
60. REQUEST FOR NOTIFICATION OF APPLICATION FOR DEVELOPMENT RECORDED JULY 13, 2016 UNDER RECEPTION NO. **2016000055794**.
61. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN EASEMENT DEED AND AGREEMENT RECORDED AUGUST 30, 2017 UNDER RECEPTION NO. **2017000075842**.

ALTA COMMITMENT

Old Republic National Title Insurance Company

Schedule B, Part II

(Exceptions)

Order Number: RND70865087

NOTE: NONEXCLUSIVE SUB-EASEMENT AGREEMENT IN CONNECTION THERETO RECORDED MARCH 30, 2018 UNDER RECEPTION NO. **2018000025837**, AMENDMENT TO NONEXCLUSIVE SUBEASEMENT AGREEMENT RECORDED JULY 7, 2020 UNDER RECEPTION NO. **2020000061491**.

62. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN AGREEMENT TO RESOLVE DISPUTED BOUNDARY LINE RECORDED NOVEMBER 09, 2017 UNDER RECEPTION NO. **2017000099326**.

63. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN MEMORANDUM OF RIGHT OF WAY AGREEMENT RECORDED MARCH 30, 2018 UNDER RECEPTION NO. **2018000025834**, AND AS AMENDED IN INSTRUMENT RECORDED MARCH 6, 2019 UNDER RECEPTION NO. **2019000016473**.

64. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN VALVE SITE AGREEMENT RECORDED APRIL 30, 2018 UNDER RECEPTION NO. **2018000034675**.

65. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN EASEMENT DEED AND AGREEMENT RECORDED MAY 13, 2019 UNDER RECEPTION NO. **2019000035710**.

66. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN EASEMENT DEED AND AGREEMENT RECORDED MAY 13, 2019 UNDER RECEPTION NO. **2019000035711**.

67. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN EASEMENT DEED AND AGREEMENT RECORDED AUGUST 01, 2019 UNDER RECEPTION NO. **2019000061659**.

68. QUIT CLAIM DEED (MINERALS) RECORDED AUGUST 15, 2019 UNDER RECEPTION NO. **2019000066363**.

69. PERSONAL REPRESENTATIVE'S MINERAL DEEDS RECORDED AUGUST 28, 2019 UNDER RECEPTION NO. **2019000070944** AND **2019000070945**.

70. QUIT CLAIM MINERAL DEED RECORDED SEPTEMBER 3, 2019 UNDER RECEPTION NO. **2019000072458**.

71. TRUSTEE'S SPECIAL WARRANTY MINERAL DEED RECORDED SEPTEMBER 17, 2019 UNDER RECEPTION NO. **2019000077475**.

72. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN GRANT OF POCKET UTILITY EASEMENT RECORDED SEPTEMBER 27, 2019 UNDER RECEPTION NO. **4527536** (WELD COUNTY RECORDS).

73. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN WATER GATHERING AND DISPOSAL CONTRACT AS DISCLOSED BY MEMORANDUM OF AGREEMENT RECORDED JANUARY 30, 2020 UNDER RECEPTION NO. **2020000009733**.

74. TERMS, CONDITIONS, PROVISIONS, BURDENS, OBLIGATIONS AND EASEMENTS AS SET FORTH AND GRANTED IN MEMORANDUM OF RIGHT OF WAY AGREEMENT BY AND BETWEEN ROBERT L. SELTZER FAMILY TRUST AND ROCKY MOUNTAIN MIDSTREAM LLC RECORDED JULY 07, 2020 UNDER RECEPTION NO. **2020000061505**.

75. TERMS, CONDITIONS AND PROVISIONS OF MEMORANDUM OF WATER SUPPLY AGREEMENT RECORDED JULY 30, 2020 AT RECEPTION NO. **2020000072946** AND RECORDED JULY 30, 2020 UNDER RECEPTION NO. **2020000072951** AND RECORDED JULY 30, 2020 UNDER RECEPTION NO. **2020000072950** RECORDED JULY 30, 2020 UNDER RECEPTION NO. **2020000072948** AND RECORDED JULY 30, 2020 UNDER RECEPTION NO. **2020000072947** AND RECORDED JULY 30, 2020 UNDER RECEPTION NO. **2020000072949**.

ALTA COMMITMENT

Old Republic National Title Insurance Company

Schedule B, Part II

(Exceptions)

Order Number: RND70865087

76. TERMS, CONDITIONS AND PROVISIONS OF RESOLUTION APPROVING APPLICATION IN CASE #RCU2020-00004 PIONEER WATER PIPELINE RECORDED SEPTEMBER 10, 2020 AT RECEPTION NO. **2020000089962**.

77. NOTICES OF SALE BY AND BETWEEN BYRON OIL INDUSTRIES, INC. AND TETON ENERGY GROUP, LLC RECORDED OCTOBER 14, 2020 UNDER RECEPTION NOS. **2020000103733** AND **2020000103734** .

78. RESOLUTION APPROVING APPLICATIONI IN CASE #RCU2020-00021 PIONEER PRODUCED WATER PIPELINE CONDITIONAL USE PERMIT EXTENSION RECORDED SEPTEMBER 10, 2021 UNDER RECEPTION NO. **2021000107948**.

79. PERSONAL REPRESENTATIVE'S DEED (MINERALS) RECORDED FEBRUARY 25, 2022 UNDER RECEPTION NO. **2022000017502**.

80. TERMS, CONDITIONS AND PROVISIONS OF EASEMENT DEED AND AGREEMENT RECORDED MARCH 15, 2022 UNDER RECEPTION NO. **2022000023467**.

81. TERMS, CONDITIONS AND PROVISIONS OF QUITCLAIM MINERAL DEED RECORDED MARCH 23, 2022 UNDER RECEPTION NO. **2022000025911**.

82. TERMS, CONDITIONS AND PROVISIONS OF NON-EXCLUSIVE PIPELINE RIGHT-OF-WAY AND EASEMENT AGREEMENT RECORDED APRIL 05, 2022 UNDER RECEPTION NO. **2022000029681**.

83. ANY TAX, LIEN, FEE, OR ASSESSMENT BY REASON OF INCLUSION OF SUBJECT PROPERTY IN THE PROMONTORY METROPOLITAN DISTRICT NOS. 1-5, AS EVIDENCED BY INSTRUMENT RECORDED APRIL 14, 2022, UNDER RECEPTION NO. **2022000033527** AND RECORDED APRIL 28, 2022 UNDER RECEPTION NO. **2022000038299**.

84. RESERVATION OF ALL MINERALS AND MINERAL RIGHTS AS CONTAINED IN THE SPECIAL WARRANTY DEED FROM ROBERT L. SELTZER FAMILY TRUST TO HSG LAND LLC, A COLORADO LIMITED LIABILITY COMPANY RECORDED MAY 6, 2022 UNDER RECEPTION NO. **2022000041193**.

85. DEED OF TRUST DATED MAY 06, 2022, FROM HSG LAND LLC, A COLORADO LIMITED LIABILITY COMPANY TO THE PUBLIC TRUSTEE OF ADAMS COUNTY, COLORADO FOR THE USE OF ROBERT L. SELTZER FAMILY TRUST TO SECURE THE SUM OF $1,400,100.00 RECORDED MAY 06, 2022, UNDER RECEPTION NO. **2022000041194**.

86. RESERVATION OF ALL OIL AND GAS AND THEIR CONSTITUENTS, SULFUR, COAL, LIGNITE, URANIUM, AND OTHER FISSIONABLE MATERIAL, GEOTHERMAL ENERGY, BASE AND PRECIOUS METALS, ROCK, STONE, GRAVEL, AND ALL OTHER MINERAL SUBSTANCES AS MAY EXIST NOW OR IN THE FUTURE ON OR UNDER THE PROPERTY, AS SET FORTH IN SPECIAL WARRANTY DEED RECORDED DECEMBER 9, 2024 UNDER RECEPTION NO. **2024000068378**, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN.

87. TERMS, CONDITIONS, PROVISIONS, BURDENS AND OBLIGATIONS AS SET FORTH IN RESOLUTION 2025-039 RECORDED FEBRUARY 06, 2025 UNDER RECEPTION NO. **2025000006652**.

Land Title Guarantee Company
Disclosure Statements

Note: Pursuant to CRS 10-11-122, notice is hereby given that:

(A) The Subject real property may be located in a special taxing district.

(B) A certificate of taxes due listing each taxing jurisdiction will be obtained from the county treasurer of the county in which the real property is located or that county treasurer's authorized agent unless the proposed insured provides written instructions to the contrary. (for an Owner's Policy of Title Insurance pertaining to a sale of residential real property).

(C) The information regarding special districts and the boundaries of such districts may be obtained from the Board of County Commissioners, the County Clerk and Recorder, or the County Assessor.

Note: Effective September 1, 1997, CRS 30-10-406 requires that all documents received for recording or filing in the clerk and recorder's office shall contain a top margin of at least one inch and a left, right and bottom margin of at least one half of an inch. The clerk and recorder may refuse to record or file any document that does not conform, except that, the requirement for the top margin shall not apply to documents using forms on which space is provided for recording or filing information at the top margin of the document.

Note: Colorado Division of Insurance Regulations 8-1-2 requires that "Every title entity shall be responsible for all matters which appear of record prior to the time of recording whenever the title entity conducts the closing and is responsible for recording or filing of legal documents resulting from the transaction which was closed". Provided that Land Title Guarantee Company conducts the closing of the insured transaction and is responsible for recording the legal documents from the transaction, exception number 5 will not appear on the Owner's Title Policy and the Lenders Policy when issued.

Note: Affirmative mechanic's lien protection for the Owner may be available (typically by deletion of Exception no. 4 of Schedule B, Section 2 of the Commitment from the Owner's Policy to be issued) upon compliance with the following conditions:

(A) The land described in Schedule A of this commitment must be a single family residence which includes a condominium or townhouse unit.

(B) No labor or materials have been furnished by mechanics or material-men for purposes of construction on the land described in Schedule A of this Commitment within the past 6 months.

(C) The Company must receive an appropriate affidavit indemnifying the Company against un-filed mechanic's and material-men's liens.

(D) The Company must receive payment of the appropriate premium.

(E) If there has been construction, improvements or major repairs undertaken on the property to be purchased within six months prior to the Date of Commitment, the requirements to obtain coverage for unrecorded liens will include: disclosure of certain construction information; financial information as to the seller, the builder and or the contractor; payment of the appropriate premium fully executed Indemnity Agreements satisfactory to the company, and, any additional requirements as may be necessary after an examination of the aforesaid information by the Company.

No coverage will be given under any circumstances for labor or material for which the insured has contracted for or agreed to pay.

Note: Pursuant to CRS 10-11-123, notice is hereby given:

This notice applies to owner's policy commitments disclosing that a mineral estate has been severed from the surface estate, in Schedule B-2.

(A) That there is recorded evidence that a mineral estate has been severed, leased, or otherwise conveyed from the surface estate and that there is substantial likelihood that a third party holds some or all interest in oil, gas, other minerals, or geothermal energy in the property; and

(B) That such mineral estate may include the right to enter and use the property without the surface owner's permission.

Note: Pursuant to CRS 10-1-128(6)(a), It is unlawful to knowingly provide false, incomplete, or misleading facts or information to an insurance company for the purpose of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance, and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policyholder or claimant for the purpose of defrauding or attempting to defraud the policyholder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado Division of Insurance within the Department of Regulatory Agencies.

Note: Pursuant to Colorado Division of Insurance Regulations 8-1-3, notice is hereby given of the availability of a closing protection letter for the lender, purchaser, lessee or seller in connection with this transaction.

Note: Pursuant to CRS 24-21-514.5, Colorado notaries may remotely notarize real estate deeds and other documents using real-time audio-video communication technology. You may choose not to use remote notarization for any document.

Joint Notice of Privacy Policy of
Land Title Guarantee Company
Land Title Insurance Corporation and
Old Republic National Title Insurancy Company

This Statement is provided to you as a customer of Land Title Guarantee Company as agent for Land Title Insurance Corporation and Old Republic National Title Insurance Company.

We want you to know that we recognize and respect your privacy expectations and the requirements of federal and state privacy laws. Information security is one of our highest priorities. We recognize that maintaining your trust and confidence is the bedrock of our business. We maintain and regularly review internal and external safeguards against unauthorized access to your non-public personal information ("Personal Information").

In the course of our business, we may collect Personal Information about you from:

- applications or other forms we receive from you, including communications sent through TMX, our web-based transaction management system;
- your transactions with, or from the services being performed by us, our affiliates, or others;
- a consumer reporting agency, if such information is provided to us in connection with your transaction;

  and
- The public records maintained by governmental entities that we obtain either directly from those entities, or from our affiliates and non-affiliates.

Our policies regarding the protection of the confidentiality and security of your Personal Information are as follows:

- We restrict access to all Personal Information about you to those employees who need to know that information in order to provide products and services to you.
- We may share your Personal Information with affiliated contractors or service providers who provide services in the course of our business, but only to the extent necessary for these providers to perform their services and to provide these services to you as may be required by your transaction.
- We maintain physical, electronic and procedural safeguards that comply with federal standards to protect your Personal Information from unauthorized access or intrusion.
- Employees who violate our strict policies and procedures regarding privacy are subject to disciplinary action.
- We regularly assess security standards and procedures to protect against unauthorized access to Personal Information.

WE DO NOT DISCLOSE ANY PERSONAL INFORMATION ABOUT YOU WITH ANYONE FOR ANY PURPOSE THAT IS NOT STATED ABOVE OR PERMITTED BY LAW.

Consistent with applicable privacy laws, there are some situations in which Personal Information may be disclosed. We may disclose your Personal Information when you direct or give us permission; when we are required by law to do so, for example, if we are served a subpoena; or when we suspect fraudulent or criminal activities. We also may disclose your Personal Information when otherwise permitted by applicable privacy laws such as, for example, when disclosure is needed to enforce our rights arising out of any agreement, transaction or relationship with you.

Our policy regarding dispute resolution is as follows: Any controversy or claim arising out of or relating to our privacy policy, or the breach thereof, shall be settled by arbitration in accordance with the rules of the American Arbitration

Association, and judgment upon the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

Commitment For Title Insurance
Issued by Old Republic National Title Insurance Company

NOTICE

IMPORTANT—READ CAREFULLY: THIS COMMITMENT IS AN OFFER TO ISSUE ONE OR MORE TITLE INSURANCE POLICIES. ALL CLAIMS OR REMEDIES SOUGHT AGAINST THE COMPANY INVOLVING THE CONTENT OF THIS COMMITMENT OR THE POLICY MUST BE BASED SOLELY IN CONTRACT.

THIS COMMITMENT IS NOT AN ABSTRACT OF TITLE, REPORT OF THE CONDITION OF TITLE, LEGAL OPINION, OPINION OF TITLE, OR OTHER REPRESENTATION OF THE STATUS OF TITLE. THE PROCEDURES USED BY THE COMPANY TO DETERMINE INSURABILITY OF THE TITLE, INCLUDING ANY SEARCH AND EXAMINATION, ARE PROPRIETARY TO THE COMPANY, WERE PERFORMED SOLELY FOR THE BENEFIT OF THE COMPANY, AND CREATE NO EXTRACONTRACTUAL LIABILITY TO ANY PERSON, INCLUDING A PROPOSED INSURED.

THE COMPANY'S OBLIGATION UNDER THIS COMMITMENT IS TO ISSUE A POLICY TO A PROPOSED INSURED IDENTIFIED IN SCHEDULE A IN ACCORDANCE WITH THE TERMS AND PROVISIONS OF THIS COMMITMENT. THE COMPANY HAS NO LIABILITY OR OBLIGATION INVOLVING THE CONTENT OF THIS COMMITMENT TO ANY OTHER PERSON. .

COMMITMENT TO ISSUE POLICY

Subject to the Notice; Schedule B, Part I—Requirements; Schedule B, Part II—Exceptions; and the Commitment Conditions, Old Republic National Title Insurance Company, a Minnesota corporation (the "Company"), commits to issue the Policy according to the terms and provisions of this Commitment. This Commitment is effective as of the Commitment Date shown in Schedule A for each Policy described in Schedule A, only when the Company has entered in Schedule A both the specified dollar amount as the Proposed Policy Amount and the name of the Proposed Insured. If all of the Schedule B, Part I—Requirements have not been met within 6 months after the Commitment Date, this Commitment terminates and the Company's liability and obligation end.

COMMITMENT CONDITIONS

1. DEFINITIONS
   (a) "Knowledge" or "Known": Actual or imputed knowledge, but not constructive notice imparted by the Public Records.
   (b) "Land": The land described in Schedule A and affixed improvements that by law constitute real property. The term "Land" does not include any property beyond the lines of the area described in Schedule A, nor any right, title, interest, estate, or easement in abutting streets, roads, avenues, alleys, lanes, ways, or waterways, but this does not modify or limit the extent that a right of access to and from the Land is to be insured by the Policy.
   (c) "Mortgage": A mortgage, deed of trust, or other security instrument, including one evidenced by electronic means authorized by law.
   (d) "Policy": Each contract of title insurance, in a form adopted by the American Land Title Association, issued or to be issued by the Company pursuant to this Commitment.
   (e) "Proposed Insured": Each person identified in Schedule A as the Proposed Insured of each Policy to be issued pursuant to this Commitment.
   (f) "Proposed Policy Amount": Each dollar amount specified in Schedule A as the Proposed Policy Amount of each Policy to be issued pursuant to this Commitment.
   (g) "Public Records": Records established under state statutes at the Commitment Date for the purpose of imparting constructive notice of matters relating to real property to purchasers for value and without Knowledge.
   (h) "Title": The estate or interest described in Schedule A.

2. If all of the Schedule B, Part I—Requirements have not been met within the time period specified in the Commitment to Issue Policy, Commitment terminates and the Company's liability and obligation end.

3. The Company's liability and obligation is limited by and this Commitment is not valid without:
   (a) the Notice;
   (b) the Commitment to Issue Policy;
   (c) the Commitment Conditions;
   (d) Schedule A;
   (e) Schedule B, Part I—Requirements; and
   (f) Schedule B, Part II—Exceptions; and
   (g) a counter-signature by the Company or its issuing agent that may be in electronic form.

4. **COMPANY'S RIGHT TO AMEND**

   The Company may amend this Commitment at any time. If the Company amends this Commitment to add a defect, lien, encumbrance, adverse claim, or other matter recorded in the Public Records prior to the Commitment Date, any liability of the Company is limited by Commitment Condition 5. The Company shall not be liable for any other amendment to this Commitment.

5. **LIMITATIONS OF LIABILITY**
   (a) The Company's liability under Commitment Condition 4 is limited to the Proposed Insured's actual expense incurred in the interval between the Company's delivery to the Proposed Insured of the Commitment and the delivery of the amended Commitment, resulting from the Proposed Insured's good faith reliance to:
      i. comply with the Schedule B, Part I—Requirements;
      ii. eliminate, with the Company's written consent, any Schedule B, Part II—Exceptions; or
      iii. acquire the Title or create the Mortgage covered by this Commitment.
   (b) The Company shall not be liable under Commitment Condition 5(a) if the Proposed Insured requested the amendment or had Knowledge of the matter and did not notify the Company about it in writing.
   (c) The Company will only have liability under Commitment Condition 4 if the Proposed Insured would not have incurred the expense had the Commitment included the added matter when the Commitment was first delivered to the Proposed Insured.
   (d) The Company's liability shall not exceed the lesser of the Proposed Insured's actual expense incurred in good faith and described in Commitment Conditions 5(a)(i) through 5(a)(iii) or the Proposed Policy Amount.
   (e) The Company shall not be liable for the content of the Transaction Identification Data, if any.
   (f) In no event shall the Company be obligated to issue the Policy referred to in this Commitment unless all of the Schedule B, Part I—Requirements have been met to the satisfaction of the Company.
   (g) In any event, the Company's liability is limited by the terms and provisions of the Policy.

6. **LIABILITY OF THE COMPANY MUST BE BASED ON THIS COMMITMENT**
   (a) Only a Proposed Insured identified in Schedule A, and no other person, may make a claim under this Commitment.
   (b) Any claim must be based in contract and must be restricted solely to the terms and provisions of this Commitment.
   (c) Until the Policy is issued, this Commitment, as last revised, is the exclusive and entire agreement between the parties with respect to the subject matter of this Commitment and supersedes all prior commitment negotiations, representations, and proposals of any kind, whether written or oral, express or implied, relating to the subject matter of this Commitment.

(d) The deletion or modification of any Schedule B, Part II—Exception does not constitute an agreement or obligation to provide coverage beyond the terms and provisions of this Commitment or the Policy.
(e) Any amendment or endorsement to this Commitment must be in writing and authenticated by a person authorized by the Company.
(f) When the Policy is issued, all liability and obligation under this Commitment will end and the Company's only liability will be under the Policy.

7. **IF THIS COMMITMENT HAS BEEN ISSUED BY AN ISSUING AGENT**

The issuing agent is the Company's agent only for the limited purpose of issuing title insurance commitments and policies. The issuing agent is not the Company's agent for the purpose of providing closing or settlement services.

8. **PRO-FORMA POLICY**

The Company may provide, at the request of a Proposed Insured, a pro-forma policy illustrating the coverage that the Company may provide. A pro-forma policy neither reflects the status of Title at the time that the pro-forma policy is delivered to a Proposed Insured, nor is it a commitment to insure.

9. **ARBITRATION**

The Policy contains an arbitration clause. All arbitrable matters when the Proposed Policy Amount is $2,000,000 or less shall be arbitrated at the option of either the Company or the Proposed Insured as the exclusive remedy of the parties. A Proposed Insured may review a copy of the arbitration rules at http://www.alta.org/arbitration.

IN WITNESS WHEREOF, Land Title Insurance Corporation has caused its corporate name and seal to be affixed by its duly authorized officers on the date shown in Schedule A to be valid when countersigned by a validating officer or other authorized signatory.

Issued by:
Land Title Guarantee Company
3033 East First Avenue Suite 600
Denver, Colorado 80206
303-321-1880

Craig B. Rants, Senior Vice President

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
A Stock Company
1408 North Westshore Blvd., Suite 900, Tampa, Florida 33607
(612) 371-1111 *www.oldrepublictitle.com*

By _____ President

Attest _____ Secretary

This page is only a part of a 2016 ALTA® Commitment for Title Insurance issued by Old Republic National Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I—Requirements; and Schedule B, Part II—Exceptions; and a counter-signature by the Company or its issuing agent that may be in electronic form.

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Electronically Recorded RECEPTION#: 2025000018708,
4/7/2025 at 1:56 PM, 1 OF 1,
REC: $13.00
TD Pgs: 0 Josh Zygielbaum, Adams County, CO.

STATEMENT OF AUTHORITY

1. This Statement of Authority relates to an entity[1] named HSG Land LLC, and is executed on behalf of the entity pursuant to the provisions of Section 38-30-172, C.R.S.

2. The type of entity is a:

- ☐ corporation
- ☐ nonprofit corporation
- ☒ limited liability company
- ☐ general partnership
- ☐ limited partnership
- ☐ registered limited liability partnership
- ☐ registered limited liability limited partnership
- ☐ limited partnership association
- ☐ government or governmental subdivision or agency
- ☐ trust
- ☐ _____

3. The entity is formed under the laws of Colorado.

4. The mailing address for the entity is 10450 E. 159th Court, Brighton, CO 80602.

5. The ☒ name ☐ position of each person authorized to execute instruments conveying, encumbering, or otherwise affecting title to real property on behalf of the entity is George R. Hanlon, Jr., Manager.

6.[2] The authority of the foregoing person(s) to bind the entity is ☒ not limited ☐ limited as follows: _____

7. Other matters concerning the manner in which the entity deals with interests in real property: _____

Executed this 7th day of April, 2025.

> _____
> Signature (Type or Print Name Below)
> George R. Hanlon, Jr.

STATE OF Colorado)
) ss.
COUNTY OF Adams)

The foregoing instrument was acknowledged before me this 7th day of April, 2025, by George R. Hanlon, Jr., as Manager of HSG Land LLC.

Witness my hand and official seal
My commission expires: 04/21/2025

> _____
> Notary Public

JIMMY L OGE
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20084012558
MY COMMISSION EXPIRES APRIL 21, 2025

[1] This form should not be used unless the entity is capable of holding title to real property.
[2] The absence of any limitation shall be prima facie evidence that no such limitation exists.
[3] The statement of authority must be recorded to obtain the benefits of the statute.

STATEMENT OF AUTHORITY

1. This Statement of Authority relates to an entity[1] named Seltzer Farms Investment LLC, and is executed on behalf of the entity pursuant to the provisions of Section 38-30-172, C.R.S.

2. The type of entity is a:

☐ corporation	☐ registered limited liability partnership
☐ nonprofit corporation	☐ registered limited liability limited partnership
☒ limited liability company	☐ limited partnership association
☐ general partnership	☐ government or governmental subdivision or agency
☐ limited partnership	☐ trust (Section 38-30-108.5, C.R.S.)
☐ other:	

3. The entity is formed under the laws of: Colorado

4. The mailing address for the entity is: 5740 Olde Wadsworth Blvd, Arvada, CO 80002

5. The ☒ name ☒ position of each person authorized to execute instruments conveying, encumbering, or otherwise affecting title to real property on behalf of the entity is: Guillaume Pouchot, Manager & Charles Regan Hauptman, Manager.

6. The authority of the foregoing person(s) to bind the entity is ☒ not limited ☐ limited as follows:

Executed this 8th day of April 2025.

SELTZER FARMS INVESTMENT LLC, a Colorado limited liability company

By: _____
Guillaume Pouchot, Manager

STATE OF COLORADO)
) SS.
County of Jefferson)

The foregoing instrument was acknowledged before me this 8th day of April 2025, by Guillaume Pouchot, Manager of Seltzer Farms Investment LLC, a Colorado limited liability company.

Witness my hand and official seal.

KATE TAYLOR
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20204042584
MY COMMISSION EXPIRES DECEMBER 04, 2028

My commission expires: 12/04/2028

_____
Notary Public

[1] This form should not be used unless the entity is capable of holding title to real property.
[2] The absence of any limitation shall be prima facie evidence that no such limitation exists.
[3] The statement of authority must be recorded to obtain the benefits of the statute.

Jehn Water Consultants, Inc.
Water Resources Consulting
Celebrating Over 30 Years of Excellence

88 Inverness Circle East
Suite K-102
Englewood, Colorado 80112
(303) 321-8335

May 9, 2025

Ms. Ioana Comaniciu
Division of Water Resources
1313 Sherman Street, Room 821
Denver, CO 80203

Re: Todd Creek Village Metropolitan District Updated Water Supply Plan Report
Job No. 814.1

Dear Ioana:

Attached is an updated Water Supply Plan for Todd Creek Village Metropolitan District (TCVMD), dated May 8, 2025. The reason for this letter is that at this time three developments within TCVMD, that have already received preliminary PUD approval, are currently working on their preliminary and final platting submittals with Adams County. We wanted to ensure that your office has the most up to day Water Supply Plan report to aid in your review. The three developments are Seltzer Heights, Seltzer Farms and Baseline Lakes East. The total number of planned units for each development are included in Table 4 of the Water Supply Plan for Todd Creek Village Metropolitan District. TCVMD currently has plans to serve a total of 3,617 af/yr in demands, both current and future, as shown in the attached Table 4. As outlined in the 2025 Water Supply Plan, TCVMD currently has 6,766 af/yr available to meet demands utilizing their senior, junior, and ground water rights.

After your review, if there are any questions or if you are in need of additional information, please do not hesitate to contact me.

Sincerely,
JEHN WATER CONSULTANTS, INC.

Gina Burke
President

TODD CREEK VILLAGE
METROPOLITAN DISTRICT
WATER SUPPLY PLAN

Prepared For: Todd Creek Village Metropolitan District
10450 East 49th Ct.
Brighton, Colorado 80602

Prepared By: Jehn Water Consultants, Inc.
88 Inverness Circle East, Suite K-102
Englewood, Colorado 80112
(303)321-8335
Job No. 814.1

May 8, 2025

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INTRODUCTION

This Report is the current Water Supply Report for the Todd Creek Village Metropolitan District (District) which is approved to provide services in Adams and Weld Counties, Colorado. The primary purpose of this Report is to summarize the current and future demands of the District and the water available to meet those demands.

TCVMD is located west of Highway 85 near Brighton, in Adams and Weld Counties, Colorado (Figure 1). As shown on Figure 1, the service area for TCVMD comprises approximately 13,531 acres, located in Section 36 of Township 1 North, Range 68 West and portions of Sections 21, 22, 23, 24, 25, 26, 27, 28, 33, 34, 35, and 36 of Township 1 North, Range 67 West (Weld County) and in portions of Sections 1, 2, 3, 4, 5, 9, 10, 11, 12, 14, 15, 16, 21, 22, and 23 of Township 1 South, Range 67 West (Adams County), all in the 6th P.M. The District controls Denver Basin ground water rights in all or portions of Sections 1 - 5, 8 - 12, 14 - 16, and 21 - 23 in Township 1 South, Range 67 West.

This Report provides a summary of the water supplies available to the District and the current potable and irrigation demands of the District. This Report also provides firm yield analyses for the District's junior water rights and existing infrastructure to evaluate the sufficiency of the District's water supplies.

DISTRICT'S WATER SUPPLY

The District controls water rights in the Denver Basin aquifers underlying the District property as well as surface water rights on the South Platte.

Decreed Denver Basin Ground Water Rights

As summarized in Table 1, a total of 1,386.2 acre-feet per year (af/yr) are decreed for use within the District. That total includes 843.4 af/yr decreed from the nontributary Laramie-Fox Hills aquifer and 542.8 af/yr decreed from the not-nontributary Lower Arapahoe aquifer. At the time of this Report, the water rights decreed in the Lower Arapahoe aquifer have not been decreed in a Water Court approved augmentation plan.

As additional properties are platted and agreements are made with the District for service, the Denver Basin ground water is conveyed to the District. Table 2 provides a summary of Denver Basin ground water rights that have either been conveyed to the District but have not yet been adjudicated, or that underlie properties that are currently in the process of being zoned or platted and will be conveyed to the District upon completion of the land use process. Based on the estimates described in Table 2, there are approximately 568 af/yr in the not-nontributary Lower Arapahoe and 948 af/yr of nontributary Laramie-Fox Hills water rights underlying Todd Creek Village, Todd Creek Shook and Todd Creek Bartley (Adams County). The Todd Creek Seltzer properties, located in both Adams and Weld Counties, may have 59 af/yr in the not-nontributary Lower Arapahoe and 103 af/yr in the nontributary Laramie-Fox Hills underlying those parcels. There is also an estimated 86 af/yr of not-nontributary Lower Arapahoe and 155 af/yr of nontributary Laramie-Fox Hills aquifer ground water underlying the Dry Creek East property. The Dry Creek East property is currently being rezoned through Weld County and once the proposed development is platted, the Denver Basin ground water associated with the property will be conveyed to the District as one of the conditions for service. In total, there is approximately 714 af/yr available in the not-nontributary Lower Arapahoe and 1,206 af/yr in the nontributary Laramie-Fox Hills aquifers that will be available to the District to meet future demands.

Surface Water Rights

The District owns surface water rights to be utilized within the District to meet current and future demands. Table 3 provides a summary of those water rights totaling approximately 17,829 af/yr.

Old Brantner Ditch

The District permanently controls 18 shares of the Old Brantner Ditch. 17 of those shares were changed to municipal uses in Case No. 08CW165. The change of use in that Case was from irrigation to municipal uses within the District. The consumptive use associated with the 17 shares is 130 af/yr.

New Brantner Ditch

The District owns 19.375 shares of the New Brantner Ditch. Currently, the District utilizes its New Brantner Ditch shares to meet irrigation demands within its two-pipe system. The District intends to continue to utilize their New Brantner Ditch rights to meet irrigation demands. Based on historic headgate delivery data for the New Brantner Ditch, the average delivery is 34 af/share or for the District's shares, the total would be 659 af/yr.

Consolidated Mutual

The District permanently controls 500 af/yr of reusable effluent from Consolidated Mutual Water Company.

Case No. 13CW3181

This decree includes conditional surface water rights from the South Platte River, both direct and storage, conditional alluvial well water rights, and a plan for augmentation and exchange. Case No. 13CW3181 includes two surface points of diversion (TCVS-01 and TCVS-02) and four augmented alluvial wells (TCQAL-1 through TCQAL-4). The decreed total annual diversion may not exceed 6,202 af/yr (10-year average) and 11,237 acre-feet in any single year. A total of 1,198 acre-feet of storage was also decreed utilizing the reservoirs within the District's Service Area (Smith, Signal 1, Signal 2, and Baselines East and West). The District is currently using about 564 acre-feet of storage, has the remaining amount under development, is currently utilizing diversions from TCVS-01, and wells TCQAL-1, TCQAL-2, and TCQAL-4.

In Water Year 2023 the District diverted approximately 1,282 acre-feet from the decreed structures and 1,387 acre-feet in Water Year 2024.

Case No. 16CW3019

TCVMD has decreed a conditional storage water right for the Mann Lakes Reservoir which is an off-channel, lined gravel pit reservoir complex consisting of three interconnected lakes known as Mann Lake No. 1, Mann Lake No. 2, and Mann Lake No. 3. A total of 3,741 acre-feet of storage is decreed to Mann Lakes. The decreed volumetric limit is 7,482 af/yr. Currently, the Mann Lakes reservoirs are legally available for use and in 2023 the District diverted approximately 1,562 acre-feet and in 2024 they diverted approximately 1,222 acre-feet into the reservoir complex, utilizing Mann Lake Nos. 2 and 3.

Case No. 19CW3061

This decree was signed by the judge on June 15, 2022 and includes the relocation of 218 af of conditional storage rights from Baseline East, Baseline West, and Marcus Reservoir to the enlargement of Signal Reservoirs 1 & 2, enlargement rights of Signal Reservoirs 1 & 2, a partial third fill at Mann Lakes and direct flow surface rights at 14 points of diversion on the South Platte River. The enlargement of Signal Reservoir No. 1 adds 1,210 af for a total of 1,700 af. The enlargement of Signal Reservoir No. 2 (a second enlargement) adds 885 af for a total of 1,050 af. It also includes a partial third fill at Mann Lakes for an additional 2,306 acre-feet. This decree also includes 14 surface points of diversion on the South Platte River, WSP 1 – 14, with rates of 25 cfs each and 30 cfs cumulative at all 14 points of diversion. Volumetric limits were set for municipal uses in this decree. The total annual diversions under the Signal Reservoir No. 1 enlargement, the Signal Reservoir No. 2 second enlargement and municipal diversion at WSP 1 – 4 shall not exceed 2,180 af/yr on a ten-year rolling average and a single year not to exceed of 5,877 af.

EXISTING AND PROJECTED WATER DEMANDS

The District is currently relying on its surface water rights to meet the needs of the District and are utilizing their Denver Basin ground water rights as drought protection only. As of the date of this Report, the District is committed to provide potable and irrigation service to 4,875 residential units, thirteen commercial properties, and the irrigation of two parks, miscellaneous landscaping throughout the District and the Heritage Todd Creek Golf Course. The District manages two water rights portfolios, one to meet their potable demands and a second to meet their irrigation demands. The District runs on a two-pipe system where they only treat a portion of their surface water rights for potable use and can provide untreated water for irrigation throughout the District. The estimated current demands, as outlined in Table 4, for those properties that are currently platted and have service agreements with the District are approximately 2,039 af/yr.

JUNIOR FIRM YIELD ANALYSIS

An operational model was built to determine what demands could be met with the water rights discussed above. This firm yield analysis utilized the Operational Model completed for Case No. 19CW3061, updated through Water Year 2024, which includes the water rights decreed in Case Nos. 13CW3181 and 16CW3019. The total water rights available to the District at TCVS-01 and TCVS-02, as utilized in this operational analysis, are summarized in Table 5 as decreed in Case No. 13CW3181. The water rights available at Mann Lake are summarized in Table 6 as decreed in Case No. 16CW3019 and Table 7 as decreed in Case No. 19CW3061.

District Demands

Based on the demands outlined in Table 4, a total of 3,617 af/yr was utilized in the operational analysis (Table 8). This includes the potable demands and irrigation for the platted units. A conservative analysis was completed in regard to the demands of evaporation off of the storage reservoirs. It was assumed that the reservoirs were full throughout the operational model to maximize the evaporative demands on the system. As TCVMD utilizes the reservoirs as a single storage system with all the structures connected to each other, the analysis utilized a combine storage volume of 460 acre-feet at the District (Smith and Signal 2) with a combined surface area of 53 acres. For Mann Lakes, it was assumed that the District would only have available their portion of the Mann Lakes reservoir complex (58.15% of the total storage) which equates to 1,789 acre-feet and 93 surface acres. The conservative demands for evaporation at the District and Mann Lakes are provided in Tables 9 and 10, respectively. As shown, a total of 517 af/yr of evaporation was included in the operational analysis.

Analysis Results

Based on the water availability analysis and the demands on the system, a storage analysis was completed to determine the potential demands met. Table 11 shows the water remaining in storage after the monthly demands are met utilizing the District's available storage in Smith and Signal 2 totaling 460 af. This analysis provides excess storage to be carried over to meet the demands of the following month. There are months in which all demands were not met utilizing the TCVMD storage as shown in Table 12. Those additional demands where then modeled in the Mann Lakes Reservoir Complex. Table 13 shows the water remaining in storage after the remaining demands are met utilizing the District's storage in Mann Lakes and Table 14 provides

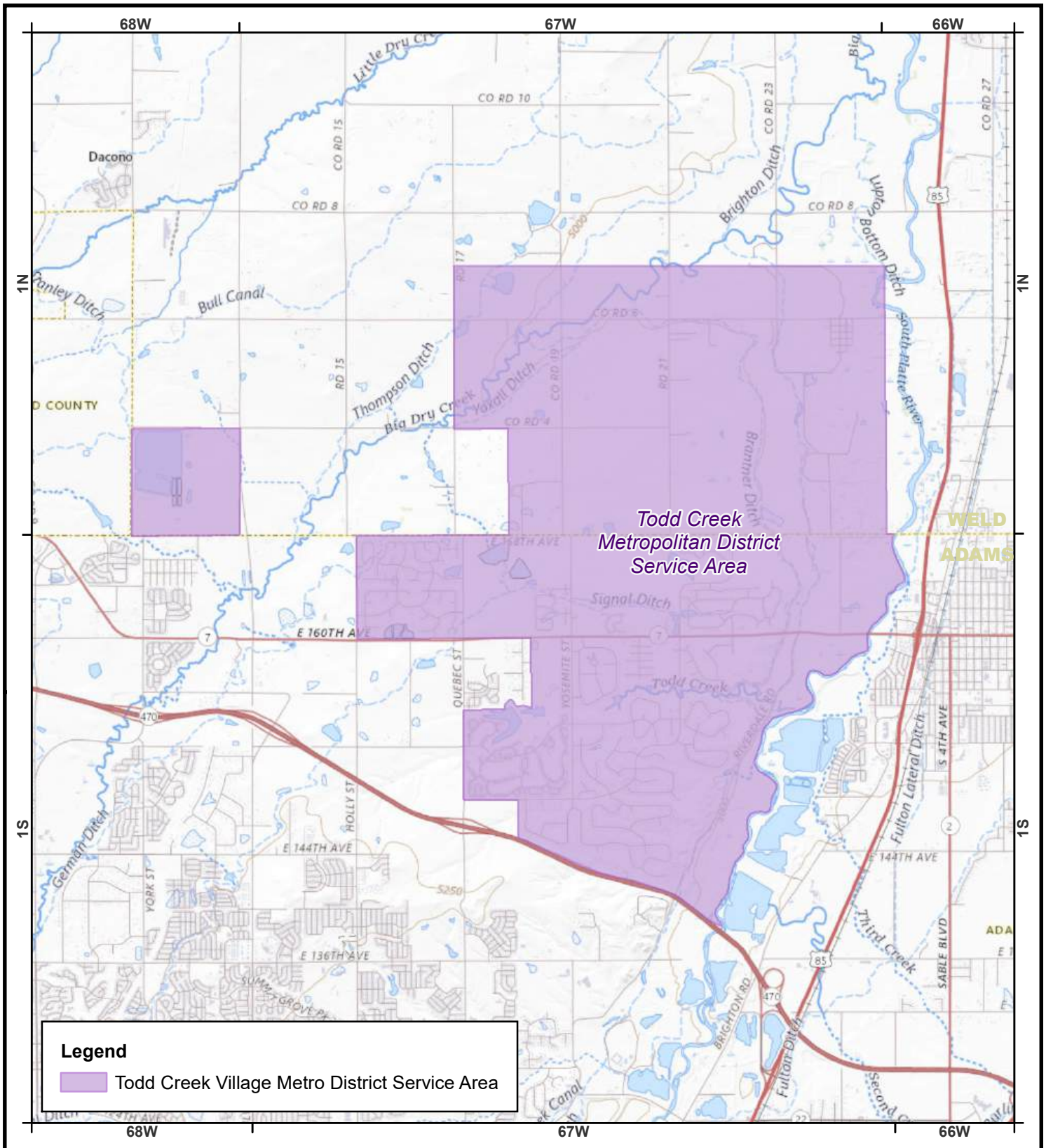
the demands met from water decreed in 16CW3019. The remaining demands not met by the water rights decreed in Case Nos. 13CW3181 and 16CW3019 were then modeled utilizing the water rights available from Case No. 19CW3061. For this update to the Water Supply Plan, we only utilized the storage available in Mann Lakes under Case No. 19CW3061 as the enlargements to Signal Reservoirs 1 and 2 have not been completed as of the date of this update. Table 15 shows the water remaining in storage after the remaining demands are met utilizing the District's refill right in Mann Lakes and the demands met is provided in Table 16.

As shown in Table 17, the junior surface water rights, with storage within the District and at Mann Lakes is sufficient to meet on average approximately 4,633 af/yr of the District's total future demands. As shown in Table 18, when the District's junior water rights are added to their existing senior and ground water rights, the District can meet its total demands and has an excess of 3,149 af/yr for future demands.

CONCLUSIONS

The Todd Creek Village Metropolitan District has sufficient water rights readily available to meet current and future demands within the District's Service Area. As of the date of this Report, the District's current and short-term future demands are approximately 3,617 af/yr. These demands will be met from water rights owned or controlled by the District. Those water rights currently include approximately 843 af/yr of currently decreed nontributary Laramie-Fox Hills ground water rights, 500 af/yr from Consolidated Mutual, 130 af/yr from the Old Brantner shares, 659 af/yr from the New Brantner shares, firm yield supplies from their decreed junior water rights, Case Nos. 13CW3181,16CW3019, and 19CW3061 based on the analyses included herein. The District will also have right to withdraw and use additional Denver Basin ground water from the Laramie-Fox Hills aquifer once adjudicated in the estimated amounts of 1,206 af/yr for additional drought protection.

These readily available water rights, totaling more than 6,700 af/yr as shown in Table 18, are more than sufficient to meet the current and future needs of the District. The District's two-pipe system would allow the use of the 5,922 af/yr of firm water rights to meet the potable and irrigation demands of over 9,200 units.



Jehn Water Consultants, Inc.
88 Inverness Circle East,
Suite K-102
Englewood, CO 80112
(303) 321-8335
www.jehnwater.com

FIGURE 1

TCVMD Service Area

N

1 inch = 1.25 miles

0 1.25 Miles

Job No. 814.4
Projection: UTM NAD83
Prepared By: HLB 01/07/2025
Checked By: GLB 01/07/2025

Sources:
Esri USGSTopo Basemap

P:\Todd_Creek_Village\GIS\HLB_Mxd\16CW3019\ToddCreek_ServiceArea_ExhibitA.mxd

Every effort has been made to ensure the accuracy of the data provided. This should be used for mapping purposes only and should not be considered a survey instrument.

TABLE 1
TODD CREEK VILLAGE METROPOLITAN DISTRICT
DECREED DENVER BASIN GROUND WATER

Case No.	NNT Lower Arapahoe (af/yr)	NT LFH (af/yr)	Total af/yr
83CW136	-	27.3	27.3
87CW258	177.0	226.0	403.0
96CW242	23.8	14.5	38.3
97CW186	28.0	39.0	67.0
98CW396	27.4	38.1	65.5
98CW397	24.7	-	24.7
99CW042	-	34.0	34.0
99CW124	16.8	23.8	40.6
99CW141	28.7	38.0	66.7
00CW160	16.6	-	16.6
00CW254	41.5	133.9	175.4
02CW106	112.1	177.6	289.7
04CW108	46.2	91.2	137.4
Total	542.8	843.4	1386.2

Note: At the time of this report, the NNT Lower Arapahoe Aquifer ground water is not included in a plan for augmentation.

98CW397 was reduced by District's pro-rata share (144 acres out of 149 acres decreed)

99CW124 was reduced by District's pro-rata share (80 acres out of 160 acres decreed)

TABLE 2
TODD CREEK VILLAGE METROPOLITAN DISTRICT
ESTIMATED DENVER BASIN GROUND WATER AVAILABLE

Dry Creek East
Township 1 North, Range 67 West, 6th P.M.

Acres	Aquifer	Saturated Thickness ft	Sy	Estimated Appropriation acre-feet	Estimated Annual Appropriation 100 yrs af/yr	Status
530.1	Lower Arapahoe	96	0.17	8,644	86.44	NNT
	Laramie-Fox Hills	195	0.15	15,521	155.21	NT

Todd Creek Shook
Portion of Section 3, Township 1 South, Range 67 West, 6th P.M.

Acres	Aquifer	Saturated Thickness ft	Sy	Estimated Appropriation acre-feet	Estimated Annual Appropriation 100 yrs af/yr	Status
55	Lower Arapahoe	100	0.17	935	9.35	NNT
	Laramie-Fox Hills	189	0.15	1,559	15.59	NT

Todd Creek Bartley
Portion of Section 2, Township 1 South, Range 67 West, 6th P.M.

Acres	Aquifer	Saturated Thickness ft	Sy	Estimated Appropriation acre-feet	Estimated Annual Appropriation 100 yrs af/yr	Status
285	Lower Arapahoe	100	0.17	4,845	48.45	NNT
	Laramie-Fox Hills	189	0.15	8,080	80.80	NT

Todd Creek Village
Township 1 South, Range 67 West, 6th P.M.

Acres	Aquifer	Saturated Thickness ft	Sy	Estimated Appropriation acre-feet	Estimated Annual Appropriation 100 yrs af/yr	Status
3,004	Lower Arapahoe	100	0.17	51,068	510.68	NNT
	Laramie-Fox Hills	189	0.15	85,163	851.63	NT

Todd Creek Seltzer
Portion of Section 34, Township 1 North, Range 67 West, and Portion of Section 3 and 4, Township 1 South, Range 67 West, 6th P.M.

Acres	Aquifer	Saturated Thickness ft	Sy	Estimated Appropriation acre-feet	Estimated Annual Appropriation 100 yrs af/yr	Status
381	Lower Arapahoe	91	0.17	5,913	59.13	NNT
339	Laramie-Fox Hills	203	0.15	10,295	102.95	NT

Notes: **At the time of this Report, the Denver Basin water rights included in this table have not been adjudicated.**

Dry Creek East Denver Basin water rights will be conveyed to the District once property is platted. Once conveyed, the District will adjudicate the water rights.

Todd Creek Village, Todd Creek Shook and Todd Creek Bartley Denver Basin water rights have been conveyed to the District.

The saturated thicknesses are to be considered estimates only.

TABLE 3
TODD CREEK VILLAGE METROPOLITAN DISTRICT
SURFACE WATER RIGHTS & CONTRACTS

Water Right	Contract/Shares	af/yr	Decree/SWSP	Uses	Notes
Old Brantner	17 shares	130	08CW165	Municipal	Decreed max annual
New Brantner	19.375 shares	659	shares	Irrigation	
Reusable Effluent	Consilidated Mutual	500	-	Municipal	Owned Water Stock/Contract
Jr Surface Water	-	6,202	13CW3181	Municipal	10-yr avg (decreed max 11,237 af/yr)
Jr Surface Water	-	7,482	16CW3019	Municipal	Decreed Volumetric Limit
Jr Surface Water	-	2,180	19CW3061	Municipal	10-yr avg (decreed max 5,877 af/yr)
	Total	17,153			

TABLE 4
TODD CREEK VILLAGE METROPOLITAN DISTRICT
ESTIMATED CURRENT & FUTURE DEMANDS

	Total units	Currently Served Units	Future Units	Potable af/yr/unit	Current af/yr	Future af/yr	Total Potable af/yr	units	Irrigation af/yr/unit	Current af/yr	Future af/yr	Total Irrigation af/yr	Total Demands af/yr
Development (Platted)													
TCF 1	54	54	0	0.27	14.53	0.00	14.53	54	0.34	18.36	0.00	18.36	32.89
TCF 2	57	57	0	0.27	15.33	0.00	15.33	57	0.34	19.38	0.00	19.38	34.71
TCF 3	62	62	0	0.27	16.68	0.00	16.68	62	0.34	21.08	0.00	21.08	37.76
TCF 4	139	139	0	0.27	37.39	0.00	37.39	139	0.34	47.26	0.00	47.26	84.65
TCF 5	160	160	0	0.27	43.04	0.00	43.04	160	0.34	54.40	0.00	54.40	97.44
Thompson	4	1	3	0.30	0.30	0.90	1.20	4	0.34	0.34	1.02	1.36	2.56
Foxridge	58	58	0	0.27	15.60	0.00	15.60	58	0.34	19.72	0.00	19.72	35.32
Wheatlands	71	71	0	0.27	19.10	0.00	19.10	71	0.34	24.14	0.00	24.14	43.24
Silver Springs	52	52	0	0.27	13.99	0.00	13.99	52	0.34	17.68	0.00	17.68	31.67
Hawk Ridge	48	48	0	0.27	12.91	0.00	12.91	48	0.34	16.32	0.00	16.32	29.23
Jogan Estates	3	2	1	0.30	0.60	0.30	0.90	3	0.25	0.50	0.25	0.75	1.65
ES 1	185	185	0	0.27	49.77	0.00	49.77	185	0.34	62.90	0.00	62.90	112.67
ESS	191	191	0	0.27	51.38	0.00	51.38	191	0.34	64.94	0.00	64.94	116.32
TCM 1	79	76	3	0.27	20.44	0.81	21.25	79	0.34	25.84	1.02	26.86	48.11
Adams	1	1	0	0.27	0.27	0.00	0.27	1	0.34	0.34	0.00	0.34	0.61
TC Shook	64	64	0	0.30	19.20	0.00	19.20	64	0.34	21.76	0.00	21.76	40.96
Riverside	179	175	4	0.30	52.50	1.20	53.70	179	0.34	59.50	1.36	60.86	114.56
Carlson Baseline Lakes	140	0	140	0.30	0.00	42.00	42.00	140	0.34	0.00	47.60	47.60	89.60
Baseline Lakes	54	54	0	0.27	14.53	0.00	14.53	54	0.34	18.36	0.00	18.36	32.89
HTC	1,271	1,271	0	0.27	341.90	0.00	341.90	1,271	0.25	317.75	0.00	317.75	659.65
Seltzer Heights	706	0	706	0.30	0.00	211.80	211.80	706	0.34	0.00	240.04	240.04	451.84
Seltzer Farms	935	0	935	0.30	0.00	280.50	280.50	935	0.34	0.00	317.90	317.90	598.40
Baseline Lakes East	362	0	362	0.30	0.00	108.60	108.60	362	0.34	0.00	123.08	123.08	231.68
Subtotals	**4,875**	**2,721**	**2,154**		**739.45**	**646.11**	**1385.56**	**4,875**		**810.57**	**732.27**	**1542.84**	**2928.40**
Commercial (Platted - 2010 Demands)													
HTC Club/Maint							3.65					11.70	15.35
TCVMD office							0.03					-	0.03
NH Church							0.88					-	0.88
Harvest Fellowship							0.24					0.39	0.63
City of Northglenn							200.00						200.00
TCVP&R ES Park							-					8.10	8.10
TCVP&R TCM Park							-					3.98	3.98
LS areas							-					69.90	69.90
Future HTC LS areas							-					120.00	120.00
Brighton Fire													
Seltzer Heights LS areas													
Seltzer Farms LS Areas													
Baseline Lakes East LS Areas													
HTC Golf Course							-					270.00	270.00
Total							**1,590.36**					**2,026.91**	**3,617.27**
Current							**744.25**					**1,294.64**	**2,038.89**
Future							**846.11**					**732.27**	**1,578.38**

Notes:
Demands provided by Todd Creek Village Metropolitan District

TABLE 5

WATER AVAILABLE IN-PRIORITY TO A JUNIOR SOUTH PLATTE RIVER WATER RIGHT AT TCVMD

With Case No. 13CW3181 Volumetric Limits Applied

(Acre-Feet)

Water Year	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	Annual Total	10-yr Rolling Average
2001	0	1,507	2,460	2,222	2,460	2,380	209	0	0	0	0	0	11,237	
2002	2,380	2,460	2,460	2,222	1,716	0	0	0	0	0	0	0	11,237	
2003	0	0	0	0	0	0	0	79	0	0	0	0	79	
2004	0	0	0	0	0	0	0	238	0	0	79	0	317	
2005	0	0	0	0	0	79	0	1,269	0	0	0	238	1,587	
2006	0	0	0	159	476	0	0	0	0	0	0	0	635	
2007	0	555	793	555	0	635	2,460	1,666	0	0	0	0	6,665	
2008	0	1,111	1,666	0	0	0	0	0	0	238	0	0	3,015	
2009	0	793	0	0	0	555	397	2,301	714	79	555	2,460	7,855	
2010	2,380	2,460	2,460	793	2,222	923	0	0	0	0	0	0	11,237	5,386
2011	0	0	2,380	2,222	1,190	0	1,269	2,380	1,796	0	0	0	11,237	5,386
2012	2,380	2,460	2,460	2,301	1,637	0	0	0	0	0	0	0	11,237	5,386
2013	0	0	0	0	0	0	0	0	0	0	1,507	2,460	3,967	5,775
2014	476	2,380	1,725	0	0	0	0	0	0	0	0	0	4,581	6,201
2015	1,590	0	0	0	0	0	0	0	0	0	0	0	1,590	6,202
2016	625	0	0	0	0	0	0	0	0	0	0	0	625	6,201
2017	0	555	2,142	1,666	1,031	0	1,111	175					6,681	6,202
2018	0	1,349	1,650	0	0	0	0	0	0	0	0	0	2,999	6,201
Average	546	868	1,122	674	596	254	303	451	148	19	126	303	5,377	

Notes: Case No. 13CW3181 - calculations include diversion limit of 40 cfs and volumetric limits (max yr 11,237 af and 6,202 af 10-yr avg)
Months adjusted to keep within 10-yr rollling average volumetric limit - one example of how water right could be managed.

TABLE 6

WATER AVAILABLE IN-PRIORITY TO A JUNIOR SOUTH PLATTE RIVER WATER RIGHT AT MANN LAKES

With a Diversion Limitation of 21 cfs on the South Platte River - 16CW3019

(Acre-Feet)

Water Year	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	Annual Total
2001	0	791	1,291	1,166	1,291	1,250	833	583	167	0	109	0	7,482
2002	1,250	1,291	1,291	1,166	1,291	375	42	0	0	0	0	0	6,706
2003	0	0	0	0	0	0	0	42	0	0	0	0	42
2004	0	0	0	0	0	0	0	125	0	0	42	0	167
2005	0	0	0	0	0	42	0	666	0	0	0	125	833
2006	0	0	0	83	250	0	0	0	0	0	0	0	333
2007	0	292	417	292	0	333	1,291	875	0	0	0	0	3,499
2008	0	583	875	0	0	0	0	0	0	125	0	0	1,583
2009	0	417	0	0	0	292	208	1,208	375	42	292	1,291	4,124
2010	1,250	1,291	1,291	417	1,166	1,125	942	0	0	0	0	0	7,482
2011	0	0	1,250	1,166	625	0	666	1,250	1,041	0	625	859	7,482
2012	1,250	1,291	1,291	1,208	916	0	0	0	0	0	0	0	5,956
2013	0	0	0	0	0	0	0	0	0	0	791	1,291	2,083
2014	250	1,250	1,291	1,166	1,291	875	833	526	0	0	0	0	7,482
2015	1,250	1,291	1,291	1,166	1,291	833	359	0	0	0	0	0	7,482
2016	1,250	1,291	1,291	1,208	1,291	1,151	0	0	0	0	0	0	7,482
2017	0	292	1,125	875	541	0	583	791	0	0	125	1,208	5,540
2018	0	708	1,291	1,166	1,291	333	666	167	0	0	0	0	5,623
Average	361	599	778	616	625	367	357	346	88	9	110	265	4,521

Notes: Case No. 16CW3019 - calculations include diversion limit of 21 cfs and volumetric limit (7482 af)

TABLE 7

WATER AVAILABLE IN-PRIORITY TO A JUNIOR SOUTH PLATTE RIVER WATER RIGHT AT MANN LAKES

With a Diversion Limitation of 30 cfs on the South Platte River - 19CW3061

(Acre-Feet)

Water Year	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	Annual Total
2001	0	339	553	500	553	536	357	250	71	0	581	0	3,741
2002	536	553	553	500	553	161	18	0	0	0	0	0	2,874
2003	0	0	0	0	0	0	0	18	0	0	0	0	18
2004	0	0	0	0	0	0	0	54	0	0	18	0	71
2005	0	0	0	0	0	18	0	286	0	0	0	54	357
2006	0	0	0	36	107	0	0	0	0	0	0	0	143
2007	0	125	179	125	0	143	553	375	0	0	0	0	1,500
2008	0	250	375	0	0	0	0	0	0	54	0	0	678
2009	0	179	0	0	0	125	89	518	161	18	125	553	1,767
2010	536	553	553	179	500	482	498	440	0	0	0	0	3,741
2011	0	0	536	500	268	0	286	536	446	0	268	617	3,456
2012	536	553	553	518	393	0	0	0	0	0	0	0	2,553
2013	0	0	0	0	0	0	0	0	0	0	339	553	893
2014	107	536	553	500	553	375	357	760	0	0	0	0	3,741
2015	536	553	553	500	553	357	688	0	0	0	0	0	3,741
2016	536	553	553	518	553	141	886	0	0	0	0	0	3,741
2017	0	125	482	375	232	0	250	339	0	0	54	518	2,374
2018	0	303	553	500	553	143	286	71	0	0	0	0	2,410
Average	155	257	333	264	268	138	237	203	38	4	77	128	2,100

Notes: Case No. 19CW3061 - calculations include diversion limit of 30 cfs and volumetric limit (3,741 af)

TABLE 8
TCVMD DEMANDS

(Acre-Feet)

Water Year	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	Annual Total
2001	141	81	97	76	90	135	328	611	639	561	412	446	3,617
2002	141	81	97	76	90	135	328	611	639	561	412	446	3,617
2003	141	81	97	76	90	135	328	611	639	561	412	446	3,617
2004	141	81	97	76	90	135	328	611	639	561	412	446	3,617
2005	141	81	97	76	90	135	328	611	639	561	412	446	3,617
2006	141	81	97	76	90	135	328	611	639	561	412	446	3,617
2007	141	81	97	76	90	135	328	611	639	561	412	446	3,617
2008	141	81	97	76	90	135	328	611	639	561	412	446	3,617
2009	141	81	97	76	90	135	328	611	639	561	412	446	3,617
2010	141	81	97	76	90	135	328	611	639	561	412	446	3,617
2011	141	81	97	76	90	135	328	611	639	561	412	446	3,617
2012	141	81	97	76	90	135	328	611	639	561	412	446	3,617
2013	141	81	97	76	90	135	328	611	639	561	412	446	3,617
2014	141	81	97	76	90	135	328	611	639	561	412	446	3,617
2015	141	81	97	76	90	135	328	611	639	561	412	446	3,617
2016	141	81	97	76	90	135	328	611	639	561	412	446	3,617
2017	141	81	97	76	90	135	328	611	639	561	412	446	3,617
2018	141	81	97	76	90	135	328	611	639	561	412	446	3,617
Average	141	81	97	76	90	135	328	611	639	561	412	446	3,617

TABLE 9

TCVMD ESTIMATED RESERVOIR EVAPORATION

Conservative Analysis - Assumed Storage Full

(Acre-Feet)

Water Year	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	Annual Total
2001	7	5	5	6	9	13	19	26	27	22	18	12	168
2002	7	5	5	6	9	13	19	26	27	22	18	12	168
2003	7	5	5	6	9	13	19	26	27	22	18	12	168
2004	7	5	5	6	9	13	19	26	27	22	18	12	168
2005	7	5	5	6	9	13	19	26	27	22	18	12	168
2006	7	5	5	6	9	13	19	26	27	22	18	12	168
2007	7	5	5	6	9	13	19	26	27	22	18	12	168
2008	7	5	5	6	9	13	19	26	27	22	18	12	168
2009	7	5	5	6	9	13	19	26	27	22	18	12	168
2010	7	5	5	6	9	13	19	26	27	22	18	12	168
2011	7	5	5	6	9	13	19	26	27	22	18	12	168
2012	7	5	5	6	9	13	19	26	27	22	18	12	168
2013	7	5	5	6	9	13	19	26	27	22	18	12	168
2014	7	5	5	6	9	13	19	26	27	22	18	12	168
2015	7	5	5	6	9	13	19	26	27	22	18	12	168
2016	7	5	5	6	9	13	19	26	27	22	18	12	168
2017	7	5	5	6	9	13	19	26	27	22	18	12	168
2018	7	5	5	6	9	13	19	26	27	22	18	12	168
Average	7	5	5	6	9	13	19	26	27	22	18	12	168

Notes: Smith and Signal 2 included in study.
Conservative estimate of evaporation - assumed full year-round

TABLE 10
MANN LAKES ESTIMATED RESERVOIR EVAPORATION
Conservative Analysis - Assumed Storage Full
(Acre-Feet)

Water Year	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	Annual Total
2001	14	10	10	12	19	31	42	51	52	47	35	24	349
2002	14	10	10	12	19	31	42	51	52	47	35	24	349
2003	14	10	10	12	19	31	42	51	52	47	35	24	349
2004	14	10	10	12	19	31	42	51	52	47	35	24	349
2005	14	10	10	12	19	31	42	51	52	47	35	24	349
2006	14	10	10	12	19	31	42	51	52	47	35	24	349
2007	14	10	10	12	19	31	42	51	52	47	35	24	349
2008	14	10	10	12	19	31	42	51	52	47	35	24	349
2009	14	10	10	12	19	31	42	51	52	47	35	24	349
2010	14	10	10	12	19	31	42	51	52	47	35	24	349
2011	14	10	10	12	19	31	42	51	52	47	35	24	349
2012	14	10	10	12	19	31	42	51	52	47	35	24	349
2013	14	10	10	12	19	31	42	51	52	47	35	24	349
2014	14	10	10	12	19	31	42	51	52	47	35	24	349
2015	14	10	10	12	19	31	42	51	52	47	35	24	349
2016	14	10	10	12	19	31	42	51	52	47	35	24	349
2017	14	10	10	12	19	31	42	51	52	47	35	24	349
2018	14	10	10	12	19	31	42	51	52	47	35	24	349
Average	14	10	10	12	19	31	42	51	52	47	35	24	349

Notes: TCVMD area of 93 acres
Conservative estimate of evaporation - assumed full year-round

TABLE 11
WATER AVAILABLE IN STORAGE AFTER DEMANDS ARE MET
LIMITED TO 460 af WITHIN DISTRICT - 13CW3181
(Acre-Feet)

Water Year	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
2001	0	460	460	460	460	460	0	0	0	0	0	0
2002	460	460	460	460	460	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	228	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	65	352	421	0	83	460	460	0	0	0	0
2008	0	460	460	0	0	0	0	0	0	0	0	0
2009	0	303	0	0	0	3	0	460	104	0	0	460
2010	460	460	460	460	460	460	0	0	0	0	0	0
2011	0	0	460	460	460	0	460	460	460	0	0	0
2012	460	460	460	460	460	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	460	460
2014	384	460	460	0	0	0	0	0	0	0	0	0
2015	460	0	0	0	0	0	0	0	0	0	0	0
2016	73	0	0	0	0	0	0	0	0	0	0	0
2017	0	65	460	460	460	0	360	0	0	0	0	0
2018	0	460	460	0	0	0	0	0	0	0	0	0
Average	128	203	250	177	153	56	71	89	31	0	26	51

TABLE 12
DEMANDS MET WITH TCVMD STORAGE - 13CW3181

(Acre-Feet)

Water Year	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	Annual Total
2001	0	485	501	481	494	539	669	0	0	0	0	0	3,169
2002	545	485	501	481	494	460	0	0	0	0	0	0	2,966
2003	0	0	0	0	0	0	0	79	0	0	0	0	79
2004	0	0	0	0	0	0	0	238	0	0	79	0	317
2005	0	0	0	0	0	79	0	1,015	228	0	0	238	1,561
2006	0	0	0	159	476	0	0	0	0	0	0	0	635
2007	0	485	501	481	421	539	732	1,015	460	0	0	0	4,634
2008	0	485	501	460	0	0	0	0	0	238	0	0	1,684
2009	0	485	303	0	0	539	400	1,015	1,044	183	555	850	5,374
2010	545	485	501	481	494	539	460	0	0	0	0	0	3,506
2011	0	0	501	481	494	460	732	1,015	1,044	460	0	0	5,186
2012	545	485	501	481	494	460	0	0	0	0	0	0	2,966
2013	0	0	0	0	0	0	0	0	0	0	816	850	1,666
2014	545	485	501	460	0	0	0	0	0	0	0	0	1,992
2015	545	460	0	0	0	0	0	0	0	0	0	0	1,005
2016	545	73	0	0	0	0	0	0	0	0	0	0	618
2017	0	485	501	481	494	460	732	535	0	0	0	0	3,687
2018	0	485	501	460	0	0	0	0	0	0	0	0	1,446
Average	182	299	295	272	215	226	207	273	154	49	81	108	2,361

Notes: Includes source water from 13CW3181
Storage in J.B. Smith and Signal 2

TABLE 13
WATER AVAILABLE IN STORAGE AFTER DEMANDS ARE MET
LIMITED TO 1789 af AT MANN LAKES - 16CW3019
(Acre-Feet)

Water Year	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
2001	0	781	1,789	1,789	1,789	1,789	1,789	1,306	377	0	0	0
2002	1,236	1,789	1,789	1,789	1,789	1,789	1,057	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	616	0	0	0	0
2006	0	0	0	0	212	0	0	0	0	0	0	0
2007	0	281	687	967	874	1,176	1,789	1,789	1,153	141	0	0
2008	0	573	1,437	1,404	891	320	0	0	0	0	0	0
2009	0	406	198	0	0	260	95	1,252	1,575	787	783	1,789
2010	1,789	1,789	1,789	1,789	1,789	1,789	1,789	723	0	0	0	0
2011	0	0	1,239	1,789	1,789	1,679	1,789	1,789	1,789	1,237	1,011	995
2012	1,789	1,789	1,789	1,789	1,789	1,679	905	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	757	1,789
2014	1,789	1,789	1,789	1,789	1,789	1,789	1,789	1,249	153	0	0	0
2015	1,236	1,789	1,789	1,789	1,789	1,789	1,375	309	0	0	0	0
2016	1,236	1,789	1,789	1,789	1,789	1,789	1,015	0	0	0	0	0
2017	0	281	1,395	1,789	1,789	1,679	1,789	1,789	693	0	0	334
2018	0	698	1,789	1,789	1,789	1,552	1,445	546	0	0	0	0
Average	504	764	1,070	1,126	1,104	1,060	924	632	319	120	142	273

TABLE 14
DEMANDS MET WITH MANN LAKES STORAGE - 16CW3019

(Acre-Feet)

Water Year	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	Annual Total
2001	0	0	0	0	0	0	63	1,015	1,044	377	109	0	2,608
2002	0	0	0	0	0	79	732	1,015	0	0	0	0	1,826
2003	0	0	0	0	0	0	0	42	0	0	0	0	42
2004	0	0	0	0	0	0	0	125	0	0	42	0	167
2005	0	0	0	0	0	42	0	0	616	0	0	125	783
2006	0	0	0	83	18	212	0	0	0	0	0	0	314
2007	0	0	0	0	73	0	0	0	584	965	141	0	1,763
2008	0	0	0	21	494	539	320	0	0	125	0	0	1,499
2009	0	0	198	198	0	0	332	0	0	782	261	0	1,770
2010	0	0	0	0	0	0	272	1,015	723	0	0	0	2,010
2011	0	0	0	0	0	79	0	0	0	505	816	850	2,250
2012	0	0	0	0	0	79	732	905	0	0	0	0	1,716
2013	0	0	0	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	21	494	539	732	1,015	1,044	153	0	0	3,998
2015	0	25	501	481	494	539	732	1,015	309	0	0	0	4,096
2016	0	413	501	481	494	539	732	1,015	0	0	0	0	4,174
2017	0	0	0	0	0	79	0	480	1,044	693	125	850	3,271
2018	334	0	0	21	494	539	732	1,015	546	0	0	0	3,680
Average	19	24	67	72	142	181	299	481	328	200	83	101	1,998

TABLE 15
WATER AVAILABLE IN STORAGE AFTER DEMANDS ARE MET
LIMITED TO 1789 af AT MANN LAKES - 19CW3061
(Acre-Feet)

Water Year	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
2001	0	339	0	0	0	0	0	250	321	0	0	0
2002	536	0	0	0	0	0	18	18	0	0	0	0
2003	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	286	86	0	0	0
2006	0	0	0	0	107	0	0	0	0	0	0	0
2007	0	125	303	428	428	571	0	0	0	0	0	0
2008	0	250	352	352	352	352	0	0	0	0	0	0
2009	0	179	179	0	0	125	214	537	214	232	357	0
2010	0	0	0	0	0	0	0	440	120	0	0	0
2011	0	0	536	0	0	0	0	0	0	0	268	794
2012	0	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	339	0
2014	0	0	0	0	0	0	0	540	540	0	0	0
2015	536	0	0	0	0	0	414	414	0	0	0	0
2016	536	0	0	0	0	0	774	774	0	0	0	0
2017	0	125	394	0	0	0	0	0	0	0	0	518
2018	306	610	0	0	0	143	344	416	0	0	0	0
Average	106	90	98	43	49	66	98	204	71	13	54	73

TABLE 16
DEMANDS MET WITH MANN LAKES ADDITIONAL FILL - 19CW3061

(Acre-Feet)

Water Year	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	Annual Total
2001	0	0	0	0	0	0	0	0	0	321	581	0	903
2002	0	0	0	0	0	0	0	0	18	0	0	0	18
2003	0	0	0	0	0	0	0	18	0	0	0	0	18
2004	0	0	0	0	0	0	0	54	0	0	18	0	71
2005	0	0	0	0	0	18	0	0	199	86	0	54	357
2006	0	0	0	36	0	107	0	0	0	0	0	0	143
2007	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	352	0	0	54	0	0	406
2009	0	0	0	179	0	0	0	0	0	0	0	0	179
2010	0	0	0	0	0	0	0	0	320	120	0	0	440
2011	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	540	0	0	540
2015	0	0	0	0	0	0	0	0	414	0	0	0	414
2016	0	0	0	0	0	0	0	0	774	0	0	0	774
2017	0	0	0	0	0	0	0	0	0	0	54	0	54
2018	212	0	0	0	0	0	0	0	416	0	0	0	627
Average	12	0	0	12	0	7	20	4	119	62	36	3	275

TABLE 17
TOTAL DEMANDS MET

(Acre-Feet)

Water Year	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	Annual Total
2001	0	485	501	481	494	539	732	1,015	1,044	698	691	0	6,680
2002	545	485	501	481	494	539	732	1,015	18	0	0	0	4,810
2003	0	0	0	0	0	0	0	139	0	0	0	0	139
2004	0	0	0	0	0	0	0	417	0	0	139	0	555
2005	0	0	0	0	0	139	0	1,015	1,044	86	0	417	2,700
2006	0	0	0	278	494	320	0	0	0	0	0	0	1,092
2007	0	485	501	481	494	539	732	1,015	1,044	965	141	0	6,397
2008	0	485	501	481	494	539	672	0	0	417	0	0	3,589
2009	0	485	501	376	0	539	732	1,015	1,044	965	816	850	7,323
2010	545	485	501	481	494	539	732	1,015	1,044	120	0	0	5,956
2011	0	0	501	481	494	539	732	1,015	1,044	965	816	850	7,436
2012	545	485	501	481	494	539	732	905	0	0	0	0	4,682
2013	0	0	0	0	0	0	0	0	0	0	816	850	1,666
2014	545	485	501	481	494	539	732	1,015	1,044	693	0	0	6,529
2015	545	485	501	481	494	539	732	1,015	723	0	0	0	5,516
2016	545	485	501	481	494	539	732	1,015	774	0	0	0	5,566
2017	0	485	501	481	494	539	732	1,015	1,044	693	179	850	7,012
2018	545	485	501	481	494	539	732	1,015	961	0	0	0	5,754
Average	212	324	362	357	357	415	525	758	601	311	200	212	4,633

TABLE 18
TOTAL WATER AVAILABLE TO TCVMD
Junior, Senior and Ground Water
(acre-feet/year)

Junior Avg Firm Yield	Senior Surface Rights	Denver Basin Ground Water	Annual Total	Current Demands	Excess Avail
4,633	1,289	843	6,766	3,617	3,149

TODD CREEK
METROPOLITAN DISTRICT
VILLAGE

10450 E 159th Ct.
Brighton, Co. 80602

Phone: 303-637-0344
Fax: 303-637-0423
www.toddcreekvillage.org

April 7, 2025

RE: Conditional Will-Serve Letter for the HSG Land LLC Parcel in the Todd Creek Village Preliminary PUD Plan Adams County, Colorado

Dear Owner's Representative:

You are the owner's representative of the HSG Land LLC parcel identified as Parcel number 0157104100005 included in Preliminary Plat application (the "Owner") in Adams County, Colorado (the "Property"). The Property is generally located in the southwest quadrant of WCR 2 and Yosemite St. in Adams County, Colorado. The Property is located within the service area of Todd Creek Village Metropolitan District ("TCVMD" or the "District"). It is the understanding of TCVMD that the Owner wishes to develop certain sites within the Property (the "Site") and seek Service (as defined below) to the Site. Therefore, the Site is the subject of this Conditional Will-Serve Letter from TCVMD.

TCVMD is willing and able to provide potable and non-potable water service and sanitary sewer service to the Site (the "Service") for either residential or commercial uses subject to the following conditions, which shall be conditions precedent to any obligation on the part of TCVMD to provide such Service:

1. The Owner shall pay TCVMD's then current water and sewer tap fees and all other applicable fees, rates, tolls and charges imposed pursuant to TCVMD's then current Rules and Regulations, as may be amended from time-to-time.

2. The Owner shall dedicate all groundwater rights to the District as outlined in TCVMD's Rules & Regulations at such time the District requires.

3. This Conditional Will-Serve Letter, as it relates to sewer service availability, is no longer subject to any approvals from Metro Water Recovery. On December 19, 2023 Metro Water Recovery and TCVMD executed the contract bringing in TCVMD as a Special Connector.

4. The Owner shall design, construct, acquire easements and install any and all infrastructure required or deemed necessary by TCVMD to provide Service to the Site (including but not limited to: service taps, service lines, mainlines or any other improvements and facilities required, including any permits or improvements required by Adams County or Weld County). The Owner shall design all such Owner-installed infrastructure according TCVMD's design standards and in accordance with TCVMD's Rules and Regulations, in place at such time as the design is completed. The Owner shall reimburse TCVMD for any and all costs the District incurs related to its review of the infrastructure design, construction and installation, including reimbursement of its engineering, legal and other consultant fees.

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5. The Owner will be required to pay for any off-site capital improvements deemed necessary by TCVMD to provide Service to the Site including, but not limited to, water storage tanks, pipelines, reservoir improvements, pumps, water treatment plant or upgrades needed to any other District infrastructure.

6. TCVMD will provide the Owner with non-monetary assistance in the acquisition of easements necessary to provide for offsite infrastructure that allows TCVMD to provide Service to the Site. In addition, TCVMD will provide the terms of, and administer, reimbursement or cost recovery agreements related to the installation or upsizing of offsite facilities or infrastructure designed and constructed by the Owner benefiting future development receiving service from TVCMD. The standard life span of such reimbursement agreements is fifteen years.

7. The Service will be provided to the Site, subject to and conditioned upon, compliance with the District's policies and Rules and Regulations as may be amended from time-to-time and the payment of all applicable fees, rates, tolls and charges imposed thereunder. This commitment shall run only to the Site and shall not be transferrable or assignable in any manner whatsoever.

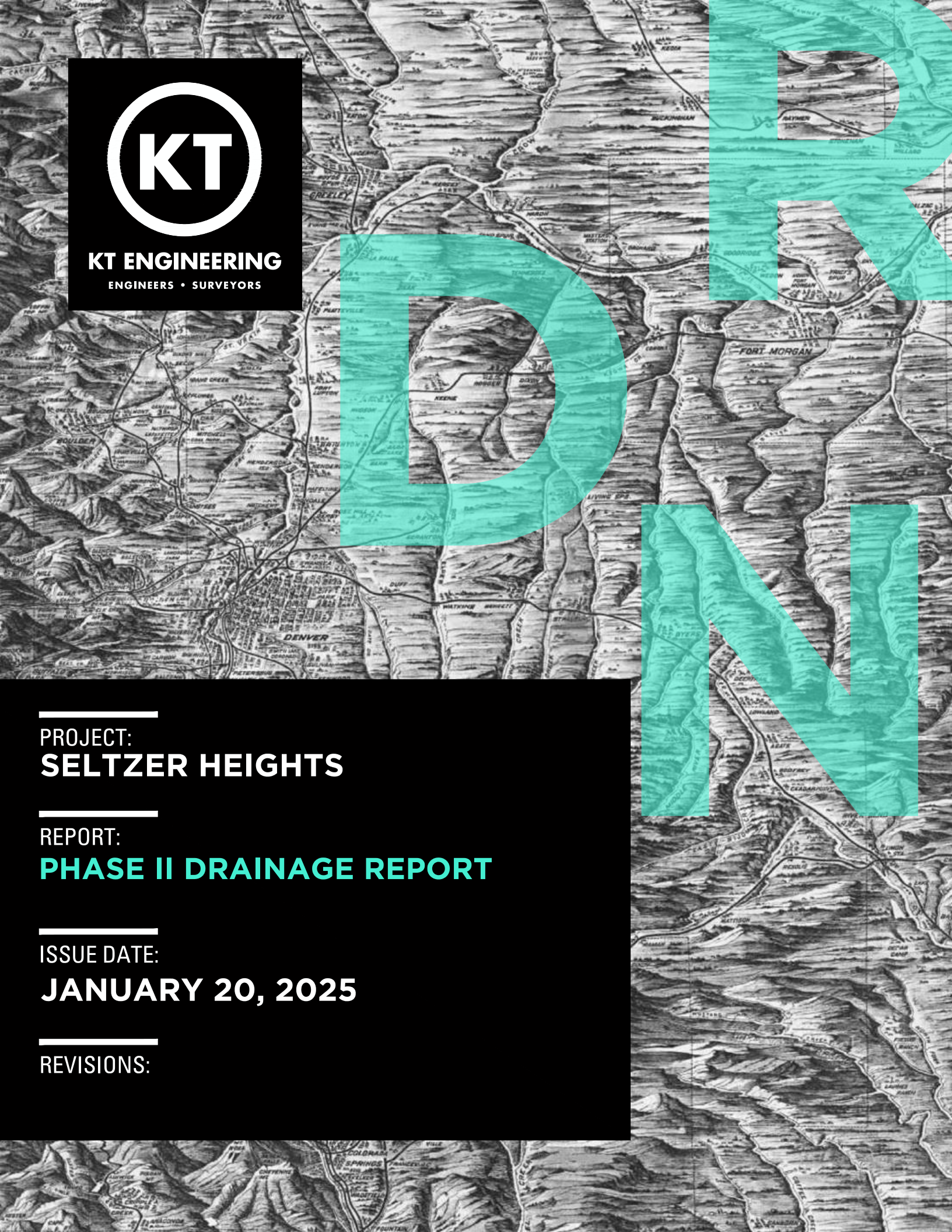
This Conditional Will-Serve Letter shall not be effective until the Owner purchases Taps or execute a Tap Purchase Agreement with TCVMD indicating the Owner's willingness to be bound by the terms set forth therein.

If anyone has any follow-up questions or concerns, please do not hesitate to contact me.

Todd Creek Village Metropolitan District

Don Summers
General Manager,
Todd Creek Village Metropolitan District

cc: Blair Dickhoner, District Counsel
Todd Creek Village Metropolitan District - Board of Directors


KT
KT ENGINEERING
ENGINEERS • SURVEYORS
DRN
PROJECT:
SELTZER HEIGHTS
REPORT:
PHASE II DRAINAGE REPORT
ISSUE DATE:
JANUARY 20, 2025
REVISIONS:

Engineer Certification Statement

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

Kenneth Paul Toland
Registered Professional Engineer
State of Colorado No. 33801
For and on behalf of KT Engineering

Developer Certification Statement

HSG Land LLC hereby certifies that the drainage facilities for the Preliminary Drainage Report for Seltzer Heights shall be constructed according to the design presented in this report. I understand that Adams County does not and will not assume liability for the drainage facilities designed and/or certified by my engineer. I understand that Adams County reviews drainage plans pursuant to Colorado Revised Statutes Title 30, Article 28; but cannot, on behalf of HSG Land LLC, guarantee that final drainage design review will absolve HSG Land LLC and/or their successors and/or assigns the future liability for improper design. I further understand that approval of the Final Plat and/or Final Development Plan does not imply approval of my engineer's drainage design.

_____ _____

HSG Land LLC Date:

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A. Vicinity Map & Design Charts, Land Use Maps, Soils Map
B. Excerpts from Seltzer Farms Phase II Drainage Report
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Proposed CUHP/SWMM Drainage Map
Proposed Drainage Map

I. Purpose and Scope

The Seltzer Heights Subdivision is a proposed master planned community composed of 4 parcels of land totaling approximately 220 acres. The project consists of existing Parcel Numbers 0157104200002, 0157104200001, 0157104000006, and 0157104100005 with an address of 8120 E. 168th Avenue. The Seltzer Heights Subdivision is planned to have 196 single-family houses and future development parcels. The future development parcels are planned to become an assisted and independent living campus and apartment complex. Preliminarily, it is anticipated that the assisted/independent living campus will consist of 235 dwelling units and the apartments will consist of 280 dwelling units. This results in a total of 711 dwelling units potentially proposed with this project. Approximately 109.3 acres of the project that are currently owned by Todd Creek Village Metropolitan district and contain Signal Reservoirs No. 1 and No. 2 will be preserved as open space with the only improvement being a concrete trail. The Seltzer Heights housing development will occur on the 110.3 acre parcel at address 8120 E. 168th Avenue. This area is referred to in this report as the Seltzer Heights Site.

The Seltzer Heights Site is located within a single watershed which drains to an existing roadside channel along the south side of E. 168th Avenue. This is referenced in previous drainage studies as *E. 168th Avenue Drainage #1*. *E. 168th Avenue Drainage #1* is conveyed to the east to the Seltzer Farms development located on the east side of Yosemite Street. Ultimately the roadside channel discharges via 2 existing culverts to the north side of E. 168th Avenue approximately 450 feet east of the Seltzer Farms property boundary into unincorporated Weld County. At this point, the total watershed area of the *E. 168th Avenue Drainage #1* is approximately 423.6 acres.

The overall basin has been studied in detail in the *Seltzer Farms Phase II Drainage Report*. This drainage report analyzes the overall 423.6 acre basin in the historic condition, existing condition, Phase 1 and Ultimate Buildout of the Seltzer Farms Development. The Seltzer Heights project is noted as the "HSG Parcel" in the *Seltzer Farms Phase II Drainage Report*. Because ultimately stormwater is discharged to unincorporated Weld County, the Detention Pond design included the *Seltzer Farms Phase II Drainage Report* adhere to major storm release rates in Chapter 5: Drainage Criteria in the Weld County Engineering and Construction Criteria. This sets the 100-year major storm pond release at the historic 5-year flowrate for both this project and the Seltzer Farms development.

The Seltzer Farms development anticipates receiving flows from Seltzer Heights and has extended and sized storm infrastructure for this purpose. "Pond OS" is noted in the *Seltzer Farms Phase II Drainage Report* and represents a detention pond located within Seltzer Heights. The proposed purpose of this pond was to reduce existing condition flows from Todd Creak Meadows and the undeveloped Seltzer Heights Site to the historic condition. As the Seltzer Heights project is now being developed, proposed Pond B will take the place of "Pond OS" as noted in the *Seltzer Farms Phase II Drainage Report*, however, anticipated 100-year pond release rates will remain the same or less than those in the Seltzer Farms Phase II Drainage Report.

Because the Seltzer Heights Site is within the study area of the *Seltzer Farms Phase II Drainage Report*, this report relies on modeling of the historic and existing conditions previously done in the aforementioned report. This project is located entirely in CUHP Basin 201 (or Rational Method Basin OS5) in the *Seltzer Farms Phase II Drainage Report*. As part of this report we have updated the proposed condition CUHP/SWMM Model to add the Seltzer Heights project and proposed Pond B to the modeling to demonstrate compliance with the major storm (100-year) release rate. Below is a summary of each scenario that has been analyzed including the Historic and Existing conditions included in the *Seltzer Farms Phase II Drainage Report* and the two proposed conditions updated in this report.

that was previously analyzed in the *Seltzer Farms Phase II Drainage Report*:

Historic Condition (*Seltzer Farms Phase II Drainage Report*)
The historic condition assumes all sub-basins are 2% impervious. No existing detention ponds are modeled in this condition. The purpose of this model is to establish a baseline for comparing flowrates in both Seltzer Farms Phase 1 and Seltzer Farms Ultimate Buildout models.

Existing Condition (*Seltzer Farms Phase II Drainage Report*)
The existing condition model uses current land uses to establish a percent impervious for each sub-basin. The purpose of this model is to establish existing flowrates within the watershed.

Seltzer Heights and Seltzer Farms Filing 1
This scenario analyzes the development of Seltzer Heights along with the first Filing of Seltzer Farms. Seltzer Heights consists of 196 single-family residential lots and future development parcels. The future development parcels were assigned an “Apartment” land use with a 75% imperviousness. Pond B will be located within the Seltzer Heights Site. Pond B is a proposed Extended Detention Basin that provides Water Quality Capture Volume (WQCV), 5-year and 100-year detention for the Seltzer Heights Site.

Seltzer Farms Filing 1 consists of 413 dwelling units within the Seltzer Farms development. Pond A is a detention pond located within the Seltzer Farms development and was previously analyzed in the *Seltzer Farms Phase II Drainage Report*. Pond A is an Extended Detention Basin that provides WQCV, 5-year and 100-year detention for the Seltzer Farms Development.

Seltzer Heights and Seltzer Farms Ultimate Buildout
This scenario analyzes the development of Seltzer Heights along with the ultimate buildout of the Seltzer Farms development. Seltzer Heights remains unchanged with 196 single family lots and future development parcels that were assigned an “Apartment” land use with a 75% imperviousness. Pond B remains unchanged in this scenario.

The ultimate buildout of Seltzer farms consists of 936 dwelling units. Pond A is sized for the ultimate buildout scenario only requiring the orifice plate to be replaced. Once replaced Pond A is a proposed Extended Detention Basin that provides WQCV, 5-year and 100-year detention for the Seltzer Farms Development.

II. General Location and Description

Location

The Seltzer Heights Subdvision is located on four separate parcels along the south side of E. 168th Avenue consisting of 220 acres. The Seltzer Heights development only occurs on a 110.3 acre parcel located at 8120 E. 168th Avenue, which is located on the southwest corner of E. 168th Avenue and Yosemite Street. The Seltzer Heights Site is located in the Northeast ¼ of Section 4, Township 1 South and Range 67 West of the Sixth Principal Meridian. The property is bound to the north by E. 168th Avenue and agricultural land uses, to the east by Yosemite Street and the Seltzer Farms development, and to the south by the Todd Creek Meadows larger lot residential subdivision and to the west by agricultural land. A vicinity map has been provided in the appendix of this report.

The Seltzer Heights Site is located within the E. 168th Avenue Drainage #1 watershed area. This watershed area encompasses 423.6 acres on the south side of E. 168th Avenue before being conveyed via existing culverts to the north side of E. 168th Avenue. This watershed area is bound to the west by a high point at E. 168th Avenue and the berms associated with Signal Reservoirs #1 and #2, to the south by a natural ridge in the topography in Todd Creek Meadows Subdivision, a high point in Yosemite Street, and Hi Land Acres and Shook Subdivision and to the east by an existing oil and gas access road, and to the north by E. 168th Avenue.

Description of Property

Existing Conditions

The Seltzer Heights Site (8120 E. 168th Avenue) is currently vacant land. There is a large oil and gas extraction facility present on the northwest corner of the site abutting E. 168th Avenue. There are no buildings located within the Seltzer Heights Site. In general, the Seltzer Heights Site is covered in native grasses common for the area. The developed site tends to slope to the northeast at approximate slopes of 2.0 to 5.0 percent.

The Seltzer Heights Subdivision overall boundary also contains land owned by the Todd Creek Village Metropolitan District. This land contains Signal Reservoirs No. 1 and No. 2, which store water for the Todd Creek Village Metropolitan District. There are outbuildings and drives associated with the reservoir operations present within these areas. It is anticipated that no improvements other than walking trails will be constructed in these areas as they will be preserved as open space. Development into future lots only takes place on the 110.3 acre parcel owned by HSG Land LLC located at 8120 E. 168th Avenue.

According to the USDA Web Soil Survey, the soils within the Seltzer Heights Site are made of Hydrologic Soil Group C soils consisting of Platner Loam (0-3% slopes), Platner Loam (3-5% slopes), and Ulm Loam (3-5% slopes).

As identified in the *Seltzer Farms Phase II Drainage Report*, the Seltzer Heights Site is located in the E. 168th Avenue Drainage #1 as identified in the Todd Creek PUD Amendment Preliminary Regional Drainage Report. From the westernmost extents of the basin at E. 168th Avenue, there are 2

channels that convey runoff to the east along E. 168th Avenue. Both channels are conveyed to the north side of E. 168th Avenue via two separate culverts at the same location at the southwest corner of the property located at 9945 E. 168th Avenue (aka Weld County Road 2). Once on the north side of E. 168th Avenue, the drainage enters Weld County. The E. 168th Avenue Drainage #1 encompasses approximately 1,583 acres. Of which, approximately 423.6 acres are from the south side of E. 168th Avenue and the remaining 1,159 acres of tributary area are on the north side of E. 168th Avenue.

Flows from the existing basin combine at Yosemite Street. The west side of Yosemite Street consists of 144.1 acres and the east side of Yosemite street consists of 279.5 acres.

Seltzer Heights Development

Seltzer Heights will consist of 196 single-family lots and associated street infrastructure and utilities to service the homes. It is anticipated that 2 future development lots will be platted, but not developed at this time. The future development lots are anticipated to be apartments and an assisted/independent living campus. For purposes of this drainage report, the future development lots have been assumed to be 75% impervious which correspond with the Apartment Land Use in MHFD Table 6-3: Recommended percentage imperviousness values. Proposed Pond B will be constructed as part of this development and will provide WQCV, 5-year and 100-year detention as required by Adams County. It is anticipated that outflows from Pond B will be piped along E. 168th Avenue to a storm extension provided by the Seltzer Farms development to the east.

<u>E. 168th Avenue Drainage #1</u>

Pond B will discharge to E. 168th Avenue Drainage #1. Pond B is proposed Extended Detention Basin (EDB) that will provide WQCV, 5-year and 100-year Detention. The proposed 100-year discharge rate will release at or below the 5-year Historic flowrate per Weld County Drainage Criteria since the site runoff will ultimately discharge to Weld County. Per the *Seltzer Farms Phase II Drainage Report*, the allowable 100-year maximum release rate for Pond B (Noted as Pond OS in the *Seltzer Farms Phase II Drainage Report*) is 37.6 cfs.

The Historic 5-year flow to existing culverts under E. 168th Avenue was determined to be 90.4 cfs. Of this Pond A as part of Seltzer Farms development will have a maximum release rate of 52.8 cfs. This leaves 37.6 cfs as the target release rate for Pond B in the Seltzer Heights development. A pipe for the Pond B outfall will be extended in E. 168th Avenue within the Seltzer Development. The Pond B outfall storm will be connected to this pipe.

As part of the Seltzer Farms Development, the existing culvert crossing under W. 168t Avenue will be replaced with dual 36-inch diameter culverts with adequate capacity to convey 100-year flows under W. 168th Avenue, which was previously calculated as 90.4 cfs.

The SWMM Model included in the Seltzer Farms Phase II Drainage Report indicates a peak outflow from Pond A of 50.3 cfs and 52.4 cfs in Phase I and Ultimate Buildout Phases, respectively.

III. Drainage Basin and Sub-Basins

Major Basin Description

The watershed lies within the South Platte River major drainage basin. The Seltzer Heights Site is within the direct watershed of the South Platte River. The South Platte River is a major conveyance in the Colorado Front Range. The watershed extends over an area of 23,000 square miles and is located in 3 states. Development within the South Platte River major drainage basin is controlled by the South Platte Major Drainageway Plan (June 2000), prepared by Camp Dresser & McKee Inc. The site is located along the northern boundary of the study at E. 168th Avenue.

There are no FEMA floodplains within the Seltzer Heights Site. Adjoining properties owned by the Todd Creek Village Metropolitan District have a Zone A FEMA Floodplain designated in Signal Reservoirs No. 1 and No. 2. These properties are shown in Flood Insurance Rate Map Number 08001C0307H with an effective date of March 5, 2007. The only improvements near the Zone A Floodplain are walking paths along the top of the reservoirs. There are no impacts proposed to the Zone A FEMA Floodplain.

Sub-Basin Description

The watershed has been broken up into 39 sub-basins. Storm sewer was preliminarily sized utilizing the Rational Method. The 5-year and 100-year storms have been analyzed by the rational method for storm sewer sizing. Pond B was sized utilizing UD-Detention as well as CUHP incorporated into a SWMM Model. The CUHP and SWMM analysis is an update to the model included in the Seltzer Farms Phase II Drainage Report as it includes development of the Seltzer Heights Site, including Pond B.

The key differences between this report and the Seltzer Farms Phase II Drainage Report is that CUHP Basin 201 (120.1 acres) was broken up into 4 individual CUHP Basins. These are CUHP Basins 201 (24.1 acres), 202 (48.7 acres), 203 (41.5 acres), and 204 (6.9 acres) that correspond to the proposed drainage patterns in the Seltzer Heights Development. Pond OS was also removed and replaced with Pond B which was sized for the Seltzer Heights Development.

Regulations

Pond B has been designed in compliance with the criteria set forth in Chapter 5: Drainage Criteria in the Weld County Engineering and Construction Criteria and in compliance with the *Seltzer Farms Phase II Drainage Report*. Other drainage facilities in Adams County have been designed in compliance with criteria set forth in Chapter 9: Storm Drainage Design and Stormwater Quality Control Regulations in the Adams County Development Standards and Regulations.

All facilities have been designed in compliance with the Mile High Flood District (MHFD) Urban Storm Drainage Criteria Manuals, Volumes 1-3.

Hydrological Criteria

1-hour point rainfall data for this watershed was obtained from Adams County Chapter 9 – Storm Drainage Design and Stormwater Quality Regulations. Sub-Basin hydrographs were developed by delineating watershed areas from the proposed storm sewer system. Sub-Basin hydrographs were generated in CUHP 2005 Version 2.0.1. Three storms were analyzed, the 5-year, 10-year and 100-year storm events. This report places emphasis on the 100-year storm event as this event will dictate overall pond and pipe infrastructure sizes. The Weld County Municipal Code does allow for the use of CUHP in areas located in the southwest portion of Weld County, in areas larger than 160 acres that have drainage characteristics similar to an urban area per Chapter 8, Article XI, Section 8-11-60. The minor and major storm events are the 5-year and 100-year, respectively.

Watersheds were delineated from Lidar Topography obtained from the Denver Regional Council of Governments (DRCOG) Regional Data Catalog. The Lidar was collected in 2020 and is Quality Level 2 Lidar (QL2) and was part of the DRCOG Regional Lidar Project 2020.

Hydraulic Criteria

EPA SWMM 5.2 was used to route flows through the drainage basins. Hydraflow AutoCAD extension software was used for preliminary channel and pipe capacities.

IV. Drainage Facility Design

General Concept

In general, drainage patterns remain the same from existing and proposed conditions. It is anticipated that Pond B outflows will be piped to storm infrastructure that will be installed with the Seltzer Farms Development to the east per the *Seltzer Farms Phase II Drainage Report*. Once east of the Seltzer Farms Development it is anticipated that both Ponds A (Seltzer Farms) and B (Seltzer Heights) will discharge to E. 168th Avenue Drainage #1 before crossing via dual 36-inch diameter culverts to the north side of E. 168th Avenue. The Dual 36-inch diameter culverts will be installed as part of the Seltzer Farms Project.

The storm systems included with this report have been designed to capture and convey runoff up to the 100-year storm event.

Pond B

Pond B is a WQCV + 5-yr + 100-yr Detention Pond located within the Seltzer Heights Site. This pond receives runoff from approximately 145.2 acres at 44.9% imperviousness. This includes proposed development of the Seltzer Heights Site. Approximately 24.02 acres is from an off-site basin (Basin OS4) to the south of the Seltzer Heights Site. This area is part of the Todd Creek Meadows rural residential subdivision. In general, flows are collected in 2 roadside channels. The first is located along E. 168th Avenue and conveys storm runoff to the east and the second is along the southern and east sides that conveys runoff north along Yosemite Street.

The SWMM model indicates a maximum 100-year volume of 22.30 acre feet and a peak 100-year release rate of 33.1 cfs. This corresponds to a maximum 100-year water depth of 7.70 feet (5114.70 W.S.E.). This when added to the 52.5 cfs release rate of Ultimate Condition Pond A in the *Seltzer Farms Phase II Drainage Report* is 85.6 cfs, which is less than the 5-year historic flowrate of 90.4 cfs at the culvert crossing under E. 168th Avenue.

V. Conclusion

This drainage report has been prepared in conformity with Chapter 5: Drainage Criteria in the Weld County Engineering and Construction Criteria and Chapter 9: Storm Drainage Design and Stormwater Quality Control Regulations in the Adams County Development Standards and Regulations. This drainage report is also in conformity with the MHFD Urban Storm Drainage Criteria Manuals.

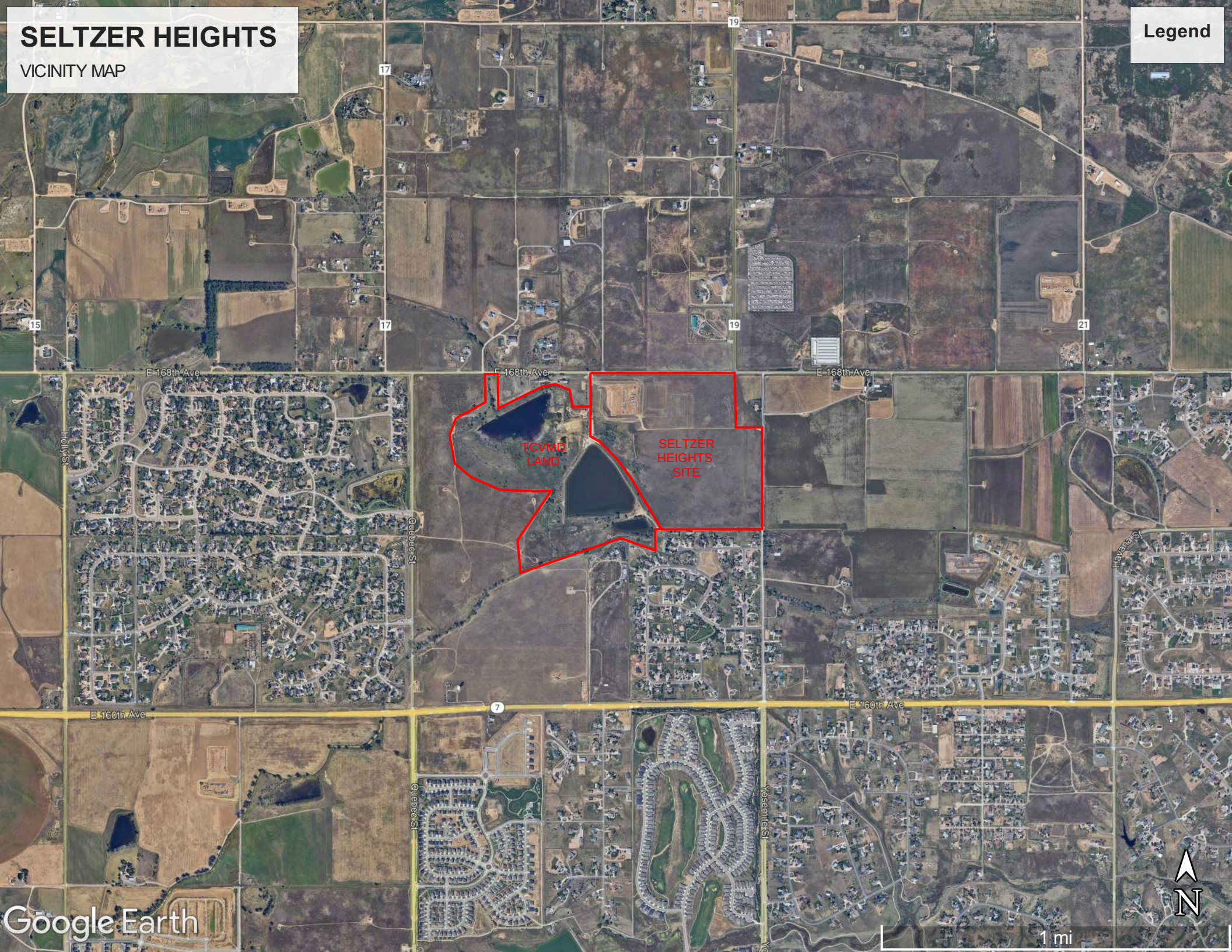
VI. References

1. **Weld County Engineering and Construction Criteria**
   Atkins, January 2021.
2. **Adams County Development Standards and Regulations, Chapter 9**
   Adams County, December 8, 2020.
3. **Urban Storm Drainage Design & Technical Criteria Manual Volumes 1-3**
   Urban Drainage and Flood Control District, Revised August, 2018.
4. **National Resources Conservation Service Web Soil Survey Golden Area, CO**
   U.S. Department of Agriculture, Natural Resources Conservation Service
5. **FIRM Map Number 08001C0307H**
   Federal Emergency Management Agency, Effective Date: March 5, 2007.
6. **Todd Creek PUD Amendment – Preliminary Regional Drainage Report**
   KT Engineering, Dated June 5, 2023.
7. **Seltzer Farms – Phase II Drainage Report**
   KT Engineering, Last Revised April 26, 2024.

APPENDIX A
VICINITY MAP
DESIGN CHARTS
EXISTING LAND USE MAP
SOILS MAP

SELTZER HEIGHTS

VICINITY MAP



plan to determine runoff coefficients and consider changes in flow patterns (from the undeveloped site conditions) caused by the proposed plan (including street alignments). When evaluating the estimated time of concentrations, the proposed lot grading shall be used to calculate the time of concentration. The proposed project shall in no way change historic runoff values, cause downstream damage, or adversely impact adjacent properties. In addition, phased or partial development analysis will not be accepted. The entire platted parcel shall be analyzed for full build-out in order to properly site and size detention/retention areas and conveyance systems.

Different levels of onsite analysis may be required depending on the size of project or as directed by the County. Refer to the Appendices for a copy of the Application Package for analysis requirements.

9-01-04-01-02 OFFSITE FLOW ANALYSIS

The analysis of offsite runoff is dependent on regional drainage characteristics (whether or not the tributary offsite area lies within a major drainage basin) and the existing/proposed land use and topographic features. If an existing Storm Drainage Master Plan has been adopted by resolution for the region being developed, the engineer shall use this as a baseline document (prior approval from the County on the Master Plan is required) and update it with proposed information. However, should no offsite information be available for fully developed flows (5-, 10- and 100-year), the engineer must perform a regional analysis to ensure the proposed development does not change historic runoff values, cause downstream damage, or adversely impact adjacent properties.

Different levels of offsite analysis may be required depending on the size of project or as directed by the County. Refer to the Appendices for a copy of the Application Package for analysis requirements.

9-01-04-02 STORM RETURN PERIOD

The minor and major storm return period shall not be less than those found in Table 9.2 for all vital drainage structures or critical points of surface water flow.

Table 9.2—Return Periods

Land Use	Return Period (Yrs) for Minor Drainage Systems	Return Period (Yrs) for Major Drainage Systems
Residential-Urban	5	100
Residential-Rural	10[a]	100
Commercial	5	100
Industrial	5	100
Open Space	5	100
School	5	100

[a] All roadside ditches and culverts shall be sized to carry the 10-year peak runoff.

9-01-04-03 RAINFALL

Presented in this Section are guidelines for the development of rainfall data to be used in preparing a hydrological analysis (storm runoff) for a proposed development within the County.

The rainfall intensity information published by the National Oceanic and Atmospheric Administration (NOAA) in the "Precipitation-Frequency Atlas of the Western United States" was used to develop incremental rainfall distributions presented in Table 9.5. The incremental rainfall distributions presented in this table are based on procedures developed by the MHFD. However, refinements have been made to closely match conditions within the County.

9-01-04-04 TIME-INTENSITY-FREQUENCY CURVES

A time-intensity-frequency curve was developed for the County by using one-hour point rainfall values (see Table 9.3) and factors for durations of less than one hour (see Table 9.4); both obtained from the NOAA Atlas. The outcomes of this distribution are point values that were then converted to intensities and plotted as Figure 9.1. Rainfall data from the Mile High Flood District (MHFD) may be used as an alternative (see MHFD Criteria Manual).

Table 9.3—One-Hour Point Rainfall (inches)

2-Year	5-Year	10-Year	50-Year	100-Year
1.00	1.42	1.68	2.35	2.71

Table 9.4—Factors for Durations of Less than One Hour

Duration (minutes)	5	10	15	30
Ratio to 1-hour depth	0.29	0.45	0.57	0.79

4.0 Intensity-Duration Curves for Rational Method

To develop depth-duration curves or intensity-duration curves for the Rational Method of runoff analysis take the 1-hour depth(s) obtained from NOAA Atlas 14 and apply Equation 5-1 for the duration (or durations) of interest:

$$I = \frac{28.5\, P_1}{(10 + T_d)^{0.786}} \qquad \text{Equation 5-1}$$

Where:

I = rainfall intensity (inches per hour)

P_1 = 1-hour point rainfall depth (inches)

T_d = storm duration (minutes)

Table 6-3. Recommended percentage imperviousness values

Land Use or Surface Characteristics	Percentage Imperviousness (%)
Business:	
Downtown Areas	95
Suburban Areas	75
Residential lots (lot area only)**:**	
Single-family	
2.5 acres or larger	12
0.75 – 2.5 acres	20
0.25 – 0.75 acres	30
0.25 acres or less	45
Apartments	75
Industrial:	
Light areas	80
Heavy areas	90
Parks, cemeteries	10
Playgrounds	25
Schools	55
Railroad yard areas	50
Undeveloped Areas:	
Historic flow analysis	2
Greenbelts, agricultural	2
Off-site flow analysis (when land use not defined)	45
Streets:	
Paved	100
Gravel (packed)	40
Drive and walks	90
Roofs	90
Lawns, sandy soil	2
Lawns, clayey soil	2

Used 50% for Lot Area

Table 6-5. Runoff coefficients, *c* (continued)

Total or Effective % Impervious	NRCS Hydrologic Soil Group C						
	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	500-Year
2%	0.01	0.05	0.15	0.33	0.40	0.49	0.59
5%	0.03	0.08	0.17	0.35	0.42	0.5	0.6
10%	0.06	0.12	0.21	0.37	0.44	0.52	0.62
15%	0.1	0.16	0.24	0.4	0.47	0.55	0.64
20%	0.14	0.2	0.28	0.43	0.49	0.57	0.65
25%	0.18	0.24	0.32	0.46	0.52	0.59	0.67
30%	0.22	0.28	0.35	0.49	0.54	0.61	0.68
35%	0.26	0.32	0.39	0.51	0.57	0.63	0.7
40%	0.3	0.36	0.43	0.54	0.59	0.65	0.71
45%	0.34	0.4	0.46	0.57	0.62	0.67	0.73
50%	0.38	0.44	0.5	0.6	0.64	0.69	0.75
55%	0.43	0.48	0.54	0.63	0.66	0.71	0.76
60%	0.47	0.52	0.57	0.65	0.69	0.73	0.78
65%	0.51	0.56	0.61	0.68	0.71	0.75	0.79
70%	0.56	0.61	0.65	0.71	0.74	0.77	0.81
75%	0.6	0.65	0.68	0.74	0.76	0.79	0.82
80%	0.65	0.69	0.72	0.77	0.79	0.81	0.84
85%	0.7	0.73	0.76	0.79	0.81	0.83	0.86
90%	0.74	0.77	0.79	0.82	0.84	0.85	0.87
95%	0.79	0.81	0.83	0.85	0.86	0.87	0.89
100%	0.83	0.85	0.87	0.88	0.89	0.89	0.9

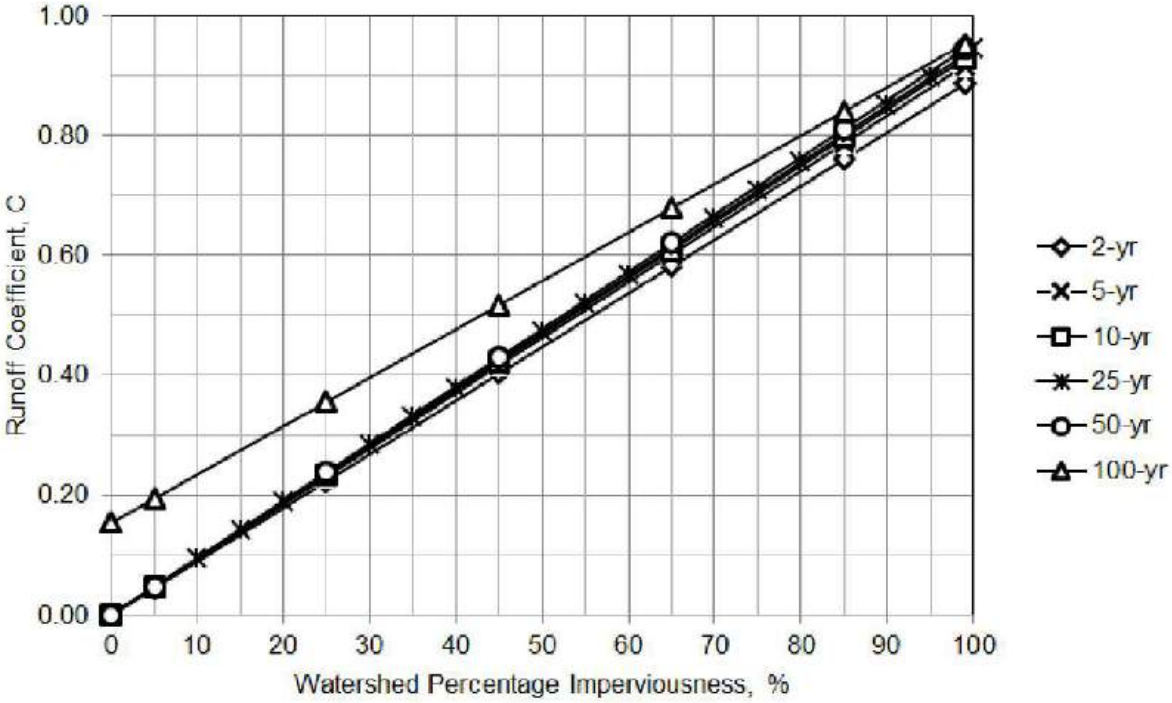


Figure 6-1. Runoff coefficient vs. watershed imperviousness NRCS HSG A

2.3 Limitations

The Rational Method is the simplistic approach for estimating the peak flow rate and total runoff volume from a design rainstorm in a given catchment. Under the assumption of uniform hydrologic losses, the method is limited to catchments smaller than 90 acres. Under the condition of composite soils and land uses, use an area-weighted method to derive the catchment's hydrologic parameters.

The greatest drawback to the Rational Method is that it normally provides only one point (the peak flow rate) on the runoff hydrograph. When the areas become complex and where subcatchments come together, the Rational Method will tend to overestimate the actual flow, which results in oversizing of drainage facilities. The Rational Method provides no means or methodology to generate and route hydrographs through drainage facilities. One reason the Rational Method is limited to small areas is that good design practice requires the routing of hydrographs for larger catchments to achieve an economically sound design.

Another disadvantage of the Rational Method is that with typical design procedures, one normally assumes that all of the design flow is collected at the design point and that there is no water running overland to the next design point. This is not an issue of the Rational Method but of the design procedure. Use additional analysis to account for this scenario.

2.4 Time of Concentration

One of the basic assumptions underlying the Rational Method is that runoff is linearly proportional to the average rainfall intensity during the time required for water to flow from the most remote part of the drainage area to the design point. In practice, the time of concentration is empirically estimated along the selected waterway through the catchment.

To calculate the time of concentration, first divide the waterway into overland flow length and channelized flow lengths, according to the channel characteristics. For urban areas (tributary areas of greater than 20 percent impervious), the time of concentration, t_c, consists of an initial time or overland flow time, t_i, plus the channelized flow travel time, t_t, through the storm drain, paved gutter, roadside ditch, or channel. For non-urban areas, the time of concentration consists of an overland flow time, t_i, plus the time of travel in a defined drainage path, such as a swale, channel, or stream. Estimate the channelized travel time portion, t_t, of the time of concentration from the hydraulic properties of the conveyance element. Initial or overland flow time, on the other hand, will vary with surface slope, depression storage, surface cover, antecedent rainfall, and infiltration capacity of the soil, as well as distance of surface flow. Compute the time of concentration for both urban and non-urban areas using Equation 6-2:

$$t_c = t_i + t_t \qquad \text{Equation 6-2}$$

Where:

t_c = computed time of concentration (minutes)

t_i = overland (initial) flow time (minutes)

t_t = channelized flow time (minutes).

2.4.1 Initial or Overland Flow Time

The initial or overland flow time, t_i, may be calculated using Equation 6-3:

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L_i}}{S_o^{0.33}} \qquad \text{Equation 6-3}$$

Where:

t_i = overland (initial) flow time (minutes)
C_5 = runoff coefficient for 5-year frequency (from Table 6-4)
L_i = length of overland flow (ft)
S_o = average slope along the overland flow path (ft/ft).

Equation 6-3 is adequate for distances up to 300 feet in urban areas and 500 feet in rural areas. Note that in a highly urbanized catchment, the overland flow length is typically shorter than 300 feet due to effective man-made drainage systems that collect and convey runoff.

2.4.2 Channelized Flow Time

The channelized flow time (travel time) is calculated using the hydraulic properties of the conveyance element. The channelized flow time, t_t, is estimated by dividing the length of conveyance by the velocity. The following equation, Equation 6-4 (Guo 2013), can be used to determine the flow velocity in conjunction with Table 6-2 for the conveyance factor.

$$t_t = \frac{L_t}{60K\sqrt{S_o}} = \frac{L_t}{60V_t} \qquad \text{Equation 6-4}$$

Where:

t_t = channelized flow time (travel time, min)
L_t = waterway length (ft)
S_o = waterway slope (ft/ft)
V_t = travel time velocity (ft/sec) = $K\sqrt{S_o}$
K = NRCS conveyance factor (see Table 6-2).

Table 6-2. NRCS Conveyance factors, K

Type of Land Surface	Conveyance Factor, K
Heavy meadow	2.5
Tillage/field	5
Short pasture and lawns	7
Nearly bare ground	10
Grassed waterway	15
Paved areas and shallow paved swales	20

The time of concentration, t_c, is the sum of the initial (overland) flow time, t_i, and the channelized flow time, t_t, as per Equation 6-2.

2.4.3 First Design Point Time of Concentration in Urban Catchments

Equation 6-4 was solely determined by the waterway characteristics and using a set of empirical formulas. A calibration study between the Rational Method and the Colorado Urban Hydrograph Procedure (CUHP) suggests that the time of concentration shall be the lesser of the values calculated by Equation 6-2 and Equation 6-5 (Guo and Urbonas 2013).

$$t_c = (26 - 17i) + \frac{L_t}{60(14i + 9)\sqrt{S_t}} \qquad \text{Equation 6-5}$$

Where:

t_c = minimum time of concentration for first design point when less than t_c from Equation 6-1.
L_t = length of channelized flow path (ft)
i = imperviousness (expressed as a decimal)
S_t = slope of the channelized flow path (ft/ft).

Equation 6-5 is the regional time of concentration that warrants the best agreement on peak flow predictions between the Rational Method and CUHP when the imperviousness of the tributary area is greater than 20 percent. It was developed using the UDFCD database that includes 295 sample urban catchments under 2-, 5-, 10-, 50, and 100-yr storm events (MacKenzie 2010). It suggests that both initial flow time and channelized flow velocity are directly related to the catchment's imperviousness (Guo and MacKenzie 2013).

The first design point is defined as a node where surface runoff enters the storm drain system. For example, all inlets are "first design points" because inlets are designed to accept flow into the storm drain.

Typically, but not always, Equation 6-5 will result in a lesser time of concentration at the first design point and will govern in an urbanized watershed. For subsequent design points, add the travel time for each relevant segment downstream.

2.4.4 Minimum Time of Concentration

Use a minimum t_c value of 5 minutes for urbanized areas and a minimum t_c value of 10 minutes for areas that are not considered urban. Use minimum values even when calculations result in a lesser time of concentration.

2.4.5 Common Errors in Calculating Time of Concentration

A common mistake in urbanized areas is to assume travel velocities that are too slow. Another common error is to not check the runoff peak resulting from only part of the catchment. Sometimes a lower portion of the catchment or a highly impervious area produces a larger peak than that computed for the whole catchment. This error is most often encountered when the catchment is long or the upper portion contains grassy open land and the lower portion is more developed.

9-01-04-05 RUNOFF COEFFICIENTS

The runoff coefficients to be used within the Rational Method, Colorado Urban Hydrograph Procedure (CUHP) or approved hydrologic models are to be determined based on existing and/or proposed land use and surface characteristics. When using the Rational Method and/or CUHP, the County requires the use of runoff coefficients presented in the Urban Storm Drainage Criteria Manual, Volume 1.

Recycled concrete will not be permitted as a ground covering surface.

9-01-04-06 TIME OF CONCENTRATION

In order to determine the rate of runoff at a designated outfall, the time of concentration must be determined. The time of concentration is the time it takes for water to flow from the most remote part of the drainage basin to the outfall of the study area. For the Rational Method, a separate time of concentration is necessary for the overall basin and each sub-basin. The time of concentration (T_c) is composed of the sheet or overland flow time (t_{ov}) and channel flow time (t_t). The time of concentration formula shall be as described in the Urban Storm Drainage Criteria Manual, Volume 1 for this Section.

9-01-04-07 STORM FLOW ANALYSIS

The engineer shall use the Rational Method for basins less than 90 acres. CUHP or other approved hydrologic models shall be used for basins larger than 160 acres. Basins between 90 acres and 160 acres in area may use either method.

9-01-04-07-01 *RATIONAL METHOD EQUATION*

Equation 9.4

$$Q=CIA$$

Where

Q = Flow Rate, cfs
A = Total Area of Basin, acres
C = Runoff Coefficient (refer to Section 9-01-04-05)
I = Rainfall Intensity, inches per hour (refer to Section 9-01-04-04)

9-01-04-07-02 *COMPUTER AIDED HYDROLOGIC MODELS*

For analyzing larger basins (greater than 90 acres), the engineer may either use the CUHP latest revision. (information detailed in Mile High Flood District's Criteria Manual) or another appropriate hydrology/hydraulics model. When using other hydrology/hydraulics models, the engineer will be required to develop unit, flood, routing and combination hydrographs for use in determining peak flows and time of concentrations at vital drainage structures or critical points of surface water runoff. A unit hydrograph is defined as the direct runoff hydrograph that results from 1-inch

E. 168TH AVENUE DRAINAGE ANALYSIS
EXISTING LAND USES

SELTZER HEIGHTS
SITE BOUNDARY

LAND USE LEGEND

- AGRICULTURE / OPEN SPACE - (2%)
- LARGE LOT RURAL RESIDENTIAL - (10%)
- RURAL RESDIENTIAL (2-5 ACRES) - (18%)
- RURAL RESDIENTIAL (1-2 ACRES) - (25%)
- SINGLE FAMILY LOW DENSITY - (35%)
- LIGHT INDUSTRIAL - (80%)
- STREETS - (100%)

N

600 0 300 600 1200

SCALE: 1"= 600 ' HORIZ.

KT ENGINEERING
ENGINEERS • SURVEYORS
12500 W. 58th AVE. #230
ARVADA, CO 80002
PH: 720.638.5190

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E. 168TH AVENUE DRAINAGE ANALYSIS
SOILS CONDITIONS MAP

SELTZER HEIGHTS
SITE BOUNDARY

NRCS SOIL CLASSIFICATION

- A SOILS
- B SOILS
- C SOILS
- D SOILS
- WATER

N

50 0 25 50 100

SCALE: 1"= 50 ' HORIZ.

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ARVADA, CO 80002
PH: 720.638.5190

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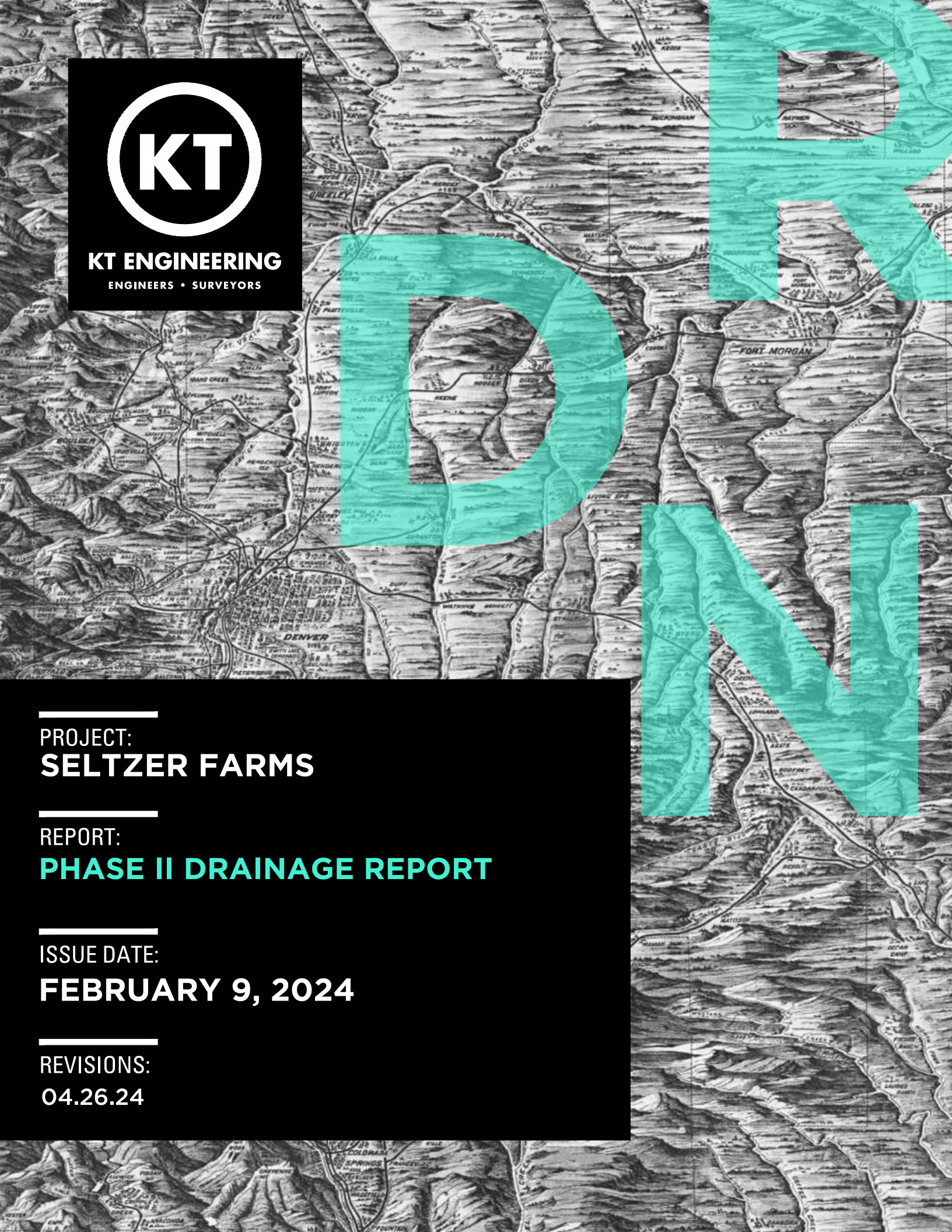
APPENDIX B
EXCERPTS FROM THE SELTZER FARMS PHASE II DRAINAGE REPORT



PROJECT:
SELTZER FARMS

REPORT:
PHASE II DRAINAGE REPORT

ISSUE DATE:
FEBRUARY 9, 2024

REVISIONS:
04.26.24

Engineer Certification Statement

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

Kenneth Paul Toland
Registered Professional Engineer
State of Colorado No. 33801
For and on behalf of KT Engineering

Developer Certification Statement

Remington Homes hereby certifies that the drainage facilities for the Preliminary Regional Drainage Report of the Seltzer Farms shall be constructed according to the design presented in this report. I understand that Adams County does not and will not assume liability for the drainage facilities designed and/or certified by my engineer. I understand that Adams County reviews drainage plans pursuant to Colorado Revised Statutes Title 30, Article 28; but cannot, on behalf of Remington Homes, guarantee that final drainage design review will absolve Remington Homes and/or their successors and/or assigns the future liability for improper design. I further understand that approval of the Final Plat and/or Final Development Plan does not imply approval of my engineer's drainage design.

_____ _____

Remington Homes Date:

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A. Vicinity Map & Design Charts, Land Use Maps, Soils Map
B. Hydrologic Information & Routing, Pond Sizing, CUHP/SWMM Summary
C. Historic CUHP/SWMM Model
D. Existing Condition CUHP/SWMM Model
E. Proposed Condition CUHP/SWMM Model
F. Future Condition CUHP/SWMM Model
G. FEMA Floodplain Map

Maps

Existing CUHP/SWMM Drainage Map
Phase 1 CUHP/SWMM Drainage Map
Ultimate CUHP/SWMM Drainage Map
Proposed Phase 1 Drainage Map
Proposed Ultimate Condition Drainage Map

I. Purpose and Scope

The Seltzer Farms subdivision is a proposed master planned community composed of 4 parcels of land totaling approximately 216.2 acres. The project consists of existing Parcel Numbers 0157103000014, 0157103300009, 0157103300003, and 0157104000020 with addresses of 16705 Yosemite Street and 9230 E. 168th Avenue. Seltzer Farms subdivision will ultimately consist of 936 dwelling units composed of single-family, duplexes, and townhomes. The first phase of the project will consist of 413 dwelling units composed of duplexes and single-family houses.

The subject properties are located within a single watershed which drains to an existing roadside channel along the south side of E. 168th Avenue. The E. 168th Avenue roadside channel is conveyed via 2 existing culverts to the north side of E. 168th Avenue approximately 450 feet east of the site boundary. The total watershed area of the drainage basin is approximately 423.6 acres.

There are four different scenarios analyzed in this report and are as follows: Historic Condition, Existing Condition, Todd Creek Farms Phase 1, and Seltzer Farms Ultimate Buildout. Each one is discussed in more detail below.

Historic Condition

The historic condition assumes all sub-basins are 2% impervious. No existing detention ponds are modeled in this condition. The purpose of this model is to establish a baseline for comparing flowrates in both Seltzer Farms Phase 1 and Seltzer Farms Ultimate Buildout models.

Existing Condition

The existing condition model uses current land uses to establish a percent impervious for each sub-basin. The purpose of this model is to establish existing flowrates within the watershed.

Seltzer Farms Phase 1

The Seltzer Farms Phase 1 analyzes the development of Phase 1 consisting of 413 dwelling units within the proposed community. Impervious area is increased due to the addition of residential lots, proposed streets and parks. Pond A is a proposed Extended Detention Basin that will provide Water Quality Capture Volume (WQCV), 5-year, and 100-year detention for the development.

Seltzer Farms Ultimate Buildout

The Seltzer Farms Ultimate Buildout analyzes the full development of the Seltzer Farms project consisting of 936 dwelling units. Pond A has been sized to provide WQCV, 5-yr, and 100-yr detention in the Ultimate Buildout scenario.

II. General Location and Description

Location

The Seltzer Farms Subdivision is located on four separate parcels along the south side of E. 168th Avenue consisting of 216.2 acres located at 16705 Yosemite Street and 9230 E. 168th Avenue. The site is located in the West ½ of Section 3, Township 1 South and Range 67 West of the Sixth Principal Meridian. The property is bound to the north by E. 168th Avenue, to the east by undeveloped agricultural land, to the south by larger lot residential subdivisions and to the west by Yosemite Street and agricultural land. It is anticipated that the 107.7 acres parcel of land located immediately west of the site on the west side of Yosemite Street will also be developed and was included in the Todd Creek Farms PUD Amendment Area previously submitted. The parcel immediately west of the Seltzer Heights subdivision is referred to as the HSG Parcel in this report. A vicinity map has been provided in the appendix of this report.

The overall watershed for this project encompasses 423.6 acres and is bound to the west by a high point at E. 168th Avenue and the berms associated with Signal Reservoirs #1 and #2, to the south by a natural ridge in the topography in Todd Creek Meadows, a high point in Yosemite Street, and Hi Land Acres and Shook Subdivision and to the east by an existing oil and gas access road, and to the north by E. 168th Avenue.

Description of Property

Existing Conditions

The site is currently used for agricultural purposes. There are several oil and gas facilities present within the site. The subject properties are mostly undeveloped with the exception of 2 houses and outbuildings located at 9230 E. 168th Avenue, and 1 house and outbuildings located at 16705 Yosemite Street. In general, the subject site is covered in native grasses common for the area. The properties tend to slope to the northeast at approximate slopes of 1.0 to 3.0 percent.

Along the southern portion of the site, there is an existing ditch identified as the Signal Ditch. It appears that the ditch is no longer in use as it has been filled in and abandoned to the east through the Shook Subdivision.

According to the USDA Web Soil Survey, the soils within the Seltzer Farms are made of Hydrologic Soil Group C soils consisting of Platner Loam (0-3% slopes), Platner Loam (3-5% slopes), and Ulm Loam (3-5% slopes).

The Seltzer Farms site is located in the E. 168th Avenue Drainage #1 as identified in the Todd Creek PUD Amendment Preliminary Regional Drainage Report. From the westernmost extents of the basin at E. 168th Avenue, there are 2 channels that convey runoff to the east along E. 168th Avenue. Both channels are conveyed to the north side of E. 168th Avenue via two separate culverts at the same location at the southwest corner of the property located at 9945 E. 168th Avenue (aka Weld County Road 2). Once on the north side of E. 168th Avenue, the drainage enters Weld County. The

E. 168th Avenue Drainage #1 encompasses approximately 1,583 acres. Of which, approximately 424 acres are from the south side of E. 168th Avenue and the remaining 1,159 acres of tributary area are on the north side of E. 168th Avenue.

Flows from the existing basin combine at Yosemite Street. The west side of Yosemite Street consists of 144.1 acres and the east side of Yosemite street consists of 279.5 acres.

Seltzer Farms – Phase 1

Seltzer Farms – Phase 1 will develop 413 dwelling units as single-family and duplex homes and associated street infrastructure and utilities to service the homes. Pond A will be constructed in Phase 1 and will provide WQCV, 5-year and 100-year detention as required by Adams County for the ultimate Seltzer Farms development (936 Dwelling Units).

E. 168th Avenue Drainage #1

The Seltzer Farms Phase 1 site will discharge to the E. 168th Avenue Drainage #1. Pond A is a proposed Extended Detention Basin (EDB) that will provide WQCV, 5-year, and 100-year detention. The proposed 100-year discharge rate will release at or below the 5-year Historic flowrate per Weld County Drainage Criteria since the site runoff will ultimately discharge to Weld County. The Historic 5-year flow to the existing culverts was calculated as 90.4 cfs per Adams County Drainage Criteria. It is proposed that Pond A will have a maximum 100-year release rate of 52.8 cfs. Another Detention Pond on the HSG Parcel will also be needed in order to reduce flows to the 5-year historic flowrate. The HSG Pond is identified as Pond OS and it has been given an allowable 100-year maximum release rate of 37.6 cfs. This pond will be constructed in coordination with the development of the HSG Parcel.

The 100-year combined maximum discharge rate of Ponds A and OS is 90.4 cfs (Pond A: 52.8 cfs, Pond OS:37.6 cfs). These release rates correspond to the release rates generated in the 5-year historic CUHP/SWMM model (90.4 cfs). Flows from the HSG Parcel will be piped through the Seltzer Farms site and combine with outflows from Pond A. The existing culvert crossing under W. 168th Avenue will be replaced with a dual 36-inch culverts with adequate capacity to convey 100-year flows under W. 168th Avenue. The SWMM Model shows a peak outflow of Pond A as 50.3 cfs in the Phase 1 condition.

Seltzer Farms – Ultimate Buildout

Seltzer Farms – Ultimate Buildout will develop an additional 523 dwelling units for a total of 936 dwelling units for the project. Although Pond A is large enough to accommodate the future development, it is anticipated that the Water Quality Plate will need to be modified in the Ultimate Buildout Phase to meet WQCV and 5-year release times.

E. 168th Avenue Drainage #1

The Seltzer Farms Phase 1 site will discharge to the E. 168th Avenue Drainage #1. Pond A is large enough to provide WQCV, 5-year, and 100-year detention for the full 936 unit subdivision. The proposed 100-year discharge rate will release at or below the 5-year Historic flowrate per Weld County Drainage Criteria. The Historic 5-year flow to the existing culverts was calculated at 90.4 cfs

per Adams County Drainage Criteria. It is proposed that Pond A will have a maximum 100-year release rate of 52.8 cfs. Another Detention Pond on the HSG Parcel will also be needed in order to reduce flows to the 5-year historic flowrate. The HSG Pond identified as Pond OS and it has been given an allowable 100-year maximum release rate of 37.6 cfs. This pond will be constructed in coordination with the development of the HSG Parcel.

The 100-year combined maximum discharge rate of Ponds A and OS is 90.4 cfs (Pond A: 52.8 cfs, Pond OS:37.6 cfs). These release rates correspond to the release rates generated in the 5-year historic CUHP/SWMM model (90.4 cfs). Flows from the HSG Parcel will be piped through the Seltzer Farms site and combine with outflows from Pond A. The Ultimate Buildout scenario will utilize the dual 36-inch culverts installed in Phase 1. The SWMM Model shows a peak outflow of Pond A as 52.4 cfs in the Ultimate Buildout condition.

III. Drainage Basin and Sub-Basins

Major Basin Description

The watershed lies within the South Platte River major drainage basin. Seltzer Farms properties are within the direct watershed of the South Platte River. The South Platte River is a major conveyance in the Colorado Front Range. The watershed extends over an area of 23,000 square miles and is located in 3 states. Development within the South Platte River major drainage basin is controlled by the South Platte Major Drainageway Plan (June 2000), prepared by Camp Dresser & McKee Inc. The site islocated along the northern boundary of the study at E. 168th Avenue.

There are no FEMA floodplains within the Todd Creek PUD Amendment properties. According to Flood Insurance Rate Map Numbers 08001C0326H and 08001C0307H with effective dates of March 5, 200, all three properties are located in Zone X, which is an area determined to be outside the 500-year floodplain.

Sub-Basin Description

The watershed has been broken up into 67 sub-basins in the Ultimate Buildout condition and 49 sub-basin in the Phase 1 condition. Storm sewer was preliminarily sized utilizing the Rational Method. The Phase 1 and Ultimate Buildout conditions were both modeled as part of this study. In general, the Ultimate Buildout condition generated higher developed flowrates with the exception of Design Points 49 and 83. Design Points 49 and 83 indicate higher 100-year flowrates are produced I the Phase 1 condition and therefore the pipes have been upsized accordingly to work with the highest flowrates.

The Phase 1 5-year storm was not analyzed in this report. 5-year flows in the ultimate condition were greater than all 5-year flows from Phase 1.

Regulations

Pond OS and Pond A have been designed in compliance with criteria set forth in Chapter 5: Drainage Criteria in the Weld County Engineering and Construction Criteria. Other drainage facilities in Adams County have been designed in compliance with criteria set forth in Chapter 9: Storm Drainage Design and Stormwater Quality Control Regulations in the Adams County Development Standards and Regulations.

All facilities have been designed in compliance with the Mile High Flood District (MHFD) Urban Storm Drainage Criteria Manuals, Volumes 1-3.

Hydrological Criteria

1-hour point rainfall data for this watershed was obtained from Adams County Chapter 9 – Storm Drainage Design and Stormwater Quality Regulations. Sub-Basin hydrographs were developed by delineating watershed areas from the proposed storm sewer system. Sub-Basin hydrographs were generated in CUHP 2005 Version 2.0.1. Three storms were analyzed, the 5-year, 10-year and 100-year storm events. This report places emphasis on the 100-year storm event as this event will dictate overall pond and pipe infrastructure sizes. The Weld County Municipal Code does allow for the use of CUHP in

areas located in the southwest portion of Weld County, in areas larger than 160 acres that have drainage characteristics similar to an urban area per Chapter 8, Article XI, Section 8-11-60. The minor and major storm events are the 5-year and 100-year, respectively.

Watersheds were delineated from Lidar Topography obtained from the Denver Regional Council of Governments (DRCOG) Regional Data Catalog. The Lidar was collected in 2020 and is Quality Level 2 Lidar (QL2) and was part of the DRCOG Regional Lidar Project 2020.

Hydraulic Criteria

EPA SWMM 5.2 was used to route flows through the drainage basins. Hydraflow AutoCAD extension software was used for preliminary channel and pipe capacities.

IV. Drainage Facility Design

General Concept

In general, drainage patterns remain the same from existing and proposed conditions. Runoff is conveyed to E. 168th Avenue Drainage #1. Direct outfalls are proposed as part of this report which do not currently exist to minimize impacts to adjacent properties. The storm systems included with this report have been designed to capture and convey runoff up to the 100-year storm event.

Pond OS

Pond OS is an off-site detention pond located on the HSG Parcel immediately west of the Seltzer Farms site. This pond receives runoff from the Todd Creek Meadows residential subdivision and undeveloped flows from the HSG Parcel. In general flows from this basin are conveyed north along the west side of Yosemite Street. Pond OS has a maximum tributary area of 144.1 acres at 6.7% imperviousness (CUHP Basins 200 and 201). The purpose of this pond is to reduce flows entering the Seltzer Farms subject site and ultimately crossing to the north side of E. 168th Avenue to Weld County. The purpose of this pond is to restrict 100-year outflows to a maximum of 37.6 cfs. When these flows combine with outflows from Pond A, they should be no greater than 90.4 cfs total. Flows from this pond will be piped through the Seltzer Farms site.

Pond A

Pond A is a WQCV +5-yr + 100-yr Detention Pond located within the Seltzer Farms site. This pond receives runoff from approximately 279.4 acres at 40.4% imperviousness. In general, proposed runoff from the Seltzer Farms site will enter Pond A. There are 3 primary storm sewer runs conveyed developed runoff from the Seltzer Farms site to Pond A. It is anticipated that outflows from Pond A will combine with those from Pond OS and discharge to a channel on the south side of E. 168th Avenue. The existing culvert crossing under E. 168th Avenue will be upgraded to dual 36-inch diameter RCP culverts capable of conveying 90.4 cfs which matches the Historical 5-year flowrate for the entire basin per Weld County Criteria. The Ultimate Condition 100-year release rate is proposed to be 52.4 cfs. The SWMM model indicates a maximum 100-year volume of 41.81 acre-feet and a 100-yr water depth of 8.89 feet (5070.89 W.S.E.) in the Ultimate Buildout Condition.

The Phase 1 100-year release rate is proposed to be 50.3 cfs. The SWMM model indicates a maximum 100-year volume of 35.20 acre-feet and a 100-yr water depth of 8.22 feet (5070.22 W.S.E.) in the Phase 1 condition. It is anticipated that the Water Quality and 5-year orifice plate will need to be changed out to match drain times upon the Ultimate Buildout.

V. Conclusion

This drainage report has been prepared in conformity with Chapter 5: Drainage Criteria in the Weld County Engineering and Construction Criteria and Chapter 9: Storm Drainage Design and Stormwater Quality Control Regulations in the Adams County Development Standards and Regulations. This drainage report is also in conformity with the MHFD Urban Storm Drainage Criteria Manuals.

VI. References

1. **Weld County Engineering and Construction Criteria**
   Atkins, January 2021.
2. **Adams County Development Standards and Regulations, Chapter 9**
   Adams County, December 8, 2020.
3. **Urban Storm Drainage Design & Technical Criteria Manual Volumes 1-3**
   Urban Drainage and Flood Control District, Revised August, 2018.
4. **National Resources Conservation Service Web Soil Survey Golden Area, CO**
   U.S. Department of Agriculture, Natural Resources Conservation Service
5. **FIRM Map Numbers 08001C0326H & 08001C0307H**
   Federal Emergency Management Agency, Effective Date: March 5, 2007.
6. **Todd Creek PUD Amendment – Preliminary Regional Drainage Report**
   KT Engineering, Dated June 5, 2023.

APPENDIX B
HYDROLOGIC AND ROUTING
POND A – UD DETENTION
CUHP / SWMM MODEL SUMMARY

PROJECT: SELTZER – EXISTING CONDITION
SHEET TITLE: EXISTING COMPOSITE RUNOFF FACTORS

Basin Name	Total Area (sq. miles)	Total Area (Acres)	Total Area (Sq. Ft.)	Agriculture/Open Space (Sq. Ft.)	Large Lot Rural Residential (Sq. Ft.)	Rural Residential (Sq. Ft.)	Rural Estate Residential (Sq. Ft.)	Single Family Low Density (Sq. Ft.)	Light Industrial (Sq. Ft.)	Streets (Sq. Ft.)	Soil Type "C" Composite Runoff Factors		
											C_5	C_{100}	I %
100	0.12759	81.66	3,556,898	3,337,475		19,051	95,768			104,604	0.08	0.50	5.59
101	0.12666	81.07	3,531,201	3,531,201							0.05	0.49	2.00
102	0.08799	56.31	2,453,070	2,453,070							0.05	0.49	2.00
200	0.03753	24.02	1,046,369	74,060			964,891			7,418	0.23	0.58	23.90
201	0.18767	120.11	5,231,875	5,204,422						27,453	0.06	0.49	2.51
300	0.05288	33.84	1,474,165	0	1,459,653					14,512	0.12	0.52	10.89
400	0.02172	13.90	605,492	9,935				595,557			0.31	0.63	34.46
500	0.02089	13.37	582,451	582,451							0.05	0.49	2.00

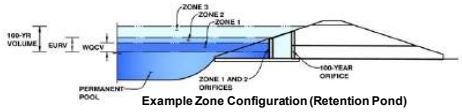
Land Use	Imp., I %
Agriculture/Open Space	2
Large Lot Rural Residential	10
Rural Residential (2-5 ac.)	18
Rural Estate Residential (1-2 ac.	25
Single Family Low Density	35
Light Industrial	80
Streets	100

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)

Project: Seltzer

Basin ID: Pond A - Ultimate Condition



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	**EDB**	
Watershed Area =	279.44	acres
Watershed Length =	6,286	ft
Watershed Length to Centroid =	3,087	ft
Watershed Slope =	0.012	ft/ft
Watershed Imperviousness =	40.47%	percent
Percentage Hydrologic Soil Group A =	0.0%	percent
Percentage Hydrologic Soil Group B =	0.0%	percent
Percentage Hydrologic Soil Groups C/D =	100.0%	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) =	4.217	acre-feet		acre-feet
Excess Urban Runoff Volume (EURV) =	10.519	acre-feet		acre-feet
2-yr Runoff Volume (P1 = 1 in.) =	9.329	acre-feet	1.00	inches
5-yr Runoff Volume (P1 = 1.42 in.) =	17.838	acre-feet	1.42	inches
10-yr Runoff Volume (P1 = 1.68 in.) =	23.720	acre-feet	1.68	inches
25-yr Runoff Volume (P1 = 1.81 in.) =	27.753	acre-feet	1.81	inches
50-yr Runoff Volume (P1 = 2.35 in.) =	40.736	acre-feet	2.35	inches
100-yr Runoff Volume (P1 = 2.71 in.) =	50.528	acre-feet	2.71	inches
500-yr Runoff Volume (P1 = 3.72 in.) =	75.637	acre-feet	3.72	inches
Approximate 2-yr Detention Volume =	7.714	acre-feet		
Approximate 5-yr Detention Volume =	13.543	acre-feet		
Approximate 10-yr Detention Volume =	15.711	acre-feet		
Approximate 25-yr Detention Volume =	16.263	acre-feet		
Approximate 50-yr Detention Volume =	19.533	acre-feet		
Approximate 100-yr Detention Volume =	23.613	acre-feet		

Define Zones and Basin Geometry

Zone 1 Volume (WQCV) =	4.217	acre-feet
Zone 2 Volume (User Defined - Zone 1) =	13.544	acre-feet
Zone 3 (100yr + 1 / 2 WQCV - Zones 1 & 2) =	7.960	acre-feet
Total Detention Basin Volume =	25.721	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	

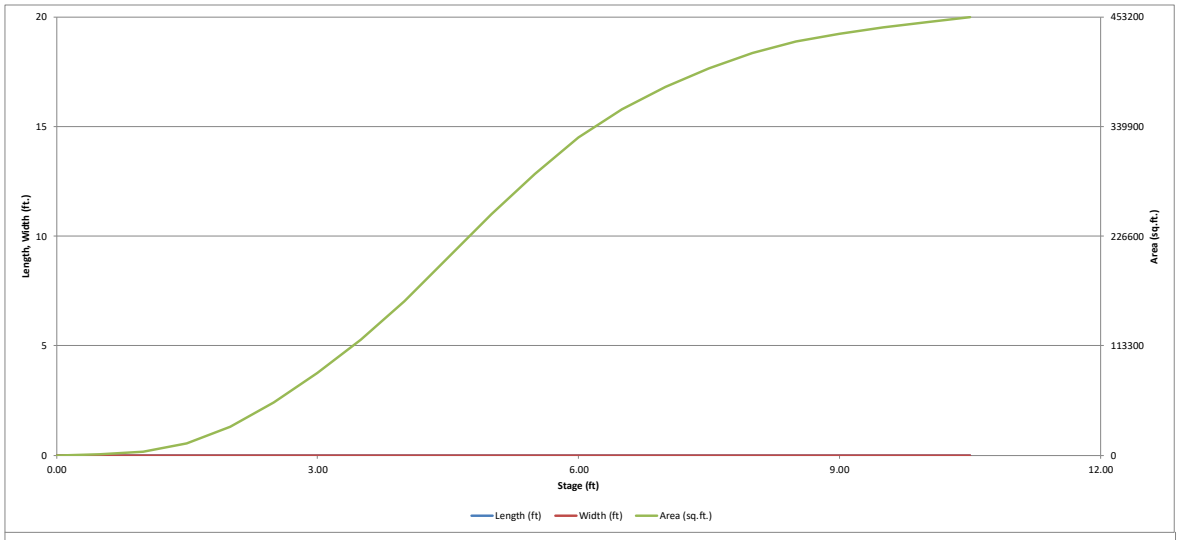
Initial Surcharge Area (A_{ISV}) =	user	ft^2
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user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

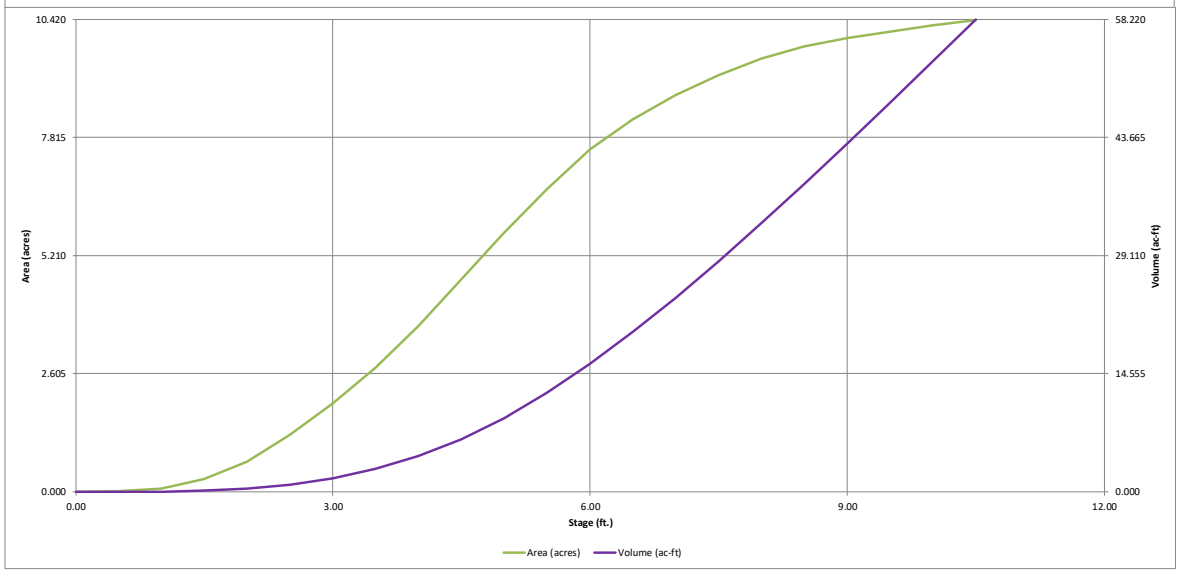
Depth Increment = ft

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	--	--	--	90	0.002		
5062.5	--	0.50	--	--	--	530	0.012	155	0.004
5063	--	1.00	--	--	--	3,240	0.074	1,097	0.025
5063.5	--	1.50	--	--	--	12,031	0.276	4,915	0.113
5064	--	2.00	--	--	--	29,125	0.669	15,204	0.349
5064.5	--	2.50	--	--	--	54,707	1.256	36,162	0.830
5065	--	3.00	--	--	--	85,000	1.951	71,088	1.632
5065.5	--	3.50	--	--	--	119,120	2.735	122,118	2.803
5066	--	4.00	--	--	--	159,261	3.656	191,714	4.401
5066.5	--	4.50	--	--	--	203,907	4.681	282,505	6.485
5067	--	5.00	--	--	--	249,169	5.720	395,774	9.086
5067.5	--	5.50	--	--	--	291,073	6.682	530,835	12.186
5068	--	6.00	--	--	--	328,796	7.548	685,802	15.744
5068.5	--	6.50	--	--	--	357,680	8.211	857,421	19.684
5069	--	7.00	--	--	--	380,867	8.744	1,042,058	23.922
5069.5	--	7.50	--	--	--	400,317	9.190	1,237,354	28.406
5070	--	8.00	--	--	--	416,110	9.553	1,441,460	33.091
5070.5	--	8.50	--	--	--	427,976	9.825	1,652,482	37.936
5071	--	9.00	--	--	--	436,088	10.011	1,868,498	42.895
5071.5	--	9.50	--	--	--	442,289	10.154	2,088,092	47.936
5072	--	10.00	--	--	--	447,897	10.282	2,310,639	53.045
5072.5	--	10.50	--	--	--	453,161	10.403	2,535,903	58.216

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)



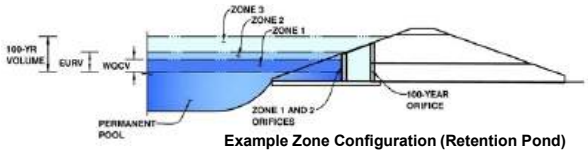


DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: **Seltzer**

Basin ID: **Pond A - Ultimate Condition**



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	3.95	4.217	Orifice Plate
Zone 2 (User)	6.27	13.544	Rectangular Orifice
3 (100+1/2WQCV)	7.21	7.960	Weir&Pipe (Restrict)
Total (all zones)		25.721	

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

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)	Underdrain Orifice Area =	N/A	ft^2
Underdrain Orifice Diameter =	N/A	inches	Underdrain Orifice Centroid =	N/A	feet

Calculated Parameters for Underdrain

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

Centroid of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)	WQ Orifice Area per Row =	9.722E-02	ft^2
Depth at top of Zone using Orifice Plate =	7.28	ft (relative to basin bottom at Stage = 0 ft)	Elliptical Half-Width =	N/A	feet
Orifice Plate: Orifice Vertical Spacing =	N/A	inches	Elliptical Slot Centroid =	N/A	feet
Orifice Plate: Orifice Area per Row =	14.00	sq. inches (use rectangular openings)	Elliptical Slot Area =	N/A	ft^2

Calculated Parameters for Plate

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

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	2.00						
Orifice Area (sq. inches)	14.00	14.00						

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

User Input: Vertical Orifice (Circular or Rectangular)

	Zone 2 Rectangular	Not Selected		Zone 2 Rectangular	Not Selected	
Invert of Vertical Orifice =	4.25	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Area =	1.33	N/A	ft^2
Depth at top of Zone using Vertical Orifice =	7.28	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Centroid =	0.33	N/A	feet
Vertical Orifice Height =	8.00	N/A	inches				
Vertical Orifice Width =	24.00		inches				

Calculated Parameters for Vertical Orifice

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

	Zone 3 Weir	Not Selected		Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	6.50	N/A	ft (relative to basin bottom at Stage = 0 ft)	Height of Grate Upper Edge, H_t =	6.50	N/A	feet
Overflow Weir Front Edge Length =	11.33	N/A	feet	Overflow Weir Slope Length =	2.92	N/A	feet
Overflow Weir Grate Slope =	0.00	N/A	H:V	Grate Open Area / 100-yr Orifice Area =	6.92	N/A	
Horiz. Length of Weir Sides =	2.92	N/A	feet	Overflow Grate Open Area w/o Debris =	26.17	N/A	ft^2
Overflow Grate Type =	Close Mesh Grate	Close Mesh Grate		Overflow Grate Open Area w/ Debris =	13.08	N/A	ft^2
Debris Clogging % =	50%	N/A	%				

Calculated Parameters for Overflow Weir

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

	Zone 3 Restrictor	Not Selected		Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	0.30	N/A	ft (distance below basin bottom at Stage = 0 ft)	Outlet Orifice Area =	3.78	N/A	ft^2
Outlet Pipe Diameter =	36.00	N/A	inches	Outlet Orifice Centroid =	0.91	N/A	feet
Restrictor Plate Height Above Pipe Invert =	19.00		inches	Half-Central Angle of Restrictor Plate on Pipe =	1.63	N/A	radians

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage=	9.00	ft (relative to basin bottom at Stage = 0 ft)	Spillway Design Flow Depth=	0.49	feet
Spillway Crest Length =	500.00	feet	Stage at Top of Freeboard =	10.49	feet
Spillway End Slopes =	4.00	H:V	Basin Area at Top of Freeboard =	10.40	acres
Freeboard above Max Water Surface =	1.00	feet	Basin Volume at Top of Freeboard =	58.11	acre-ft

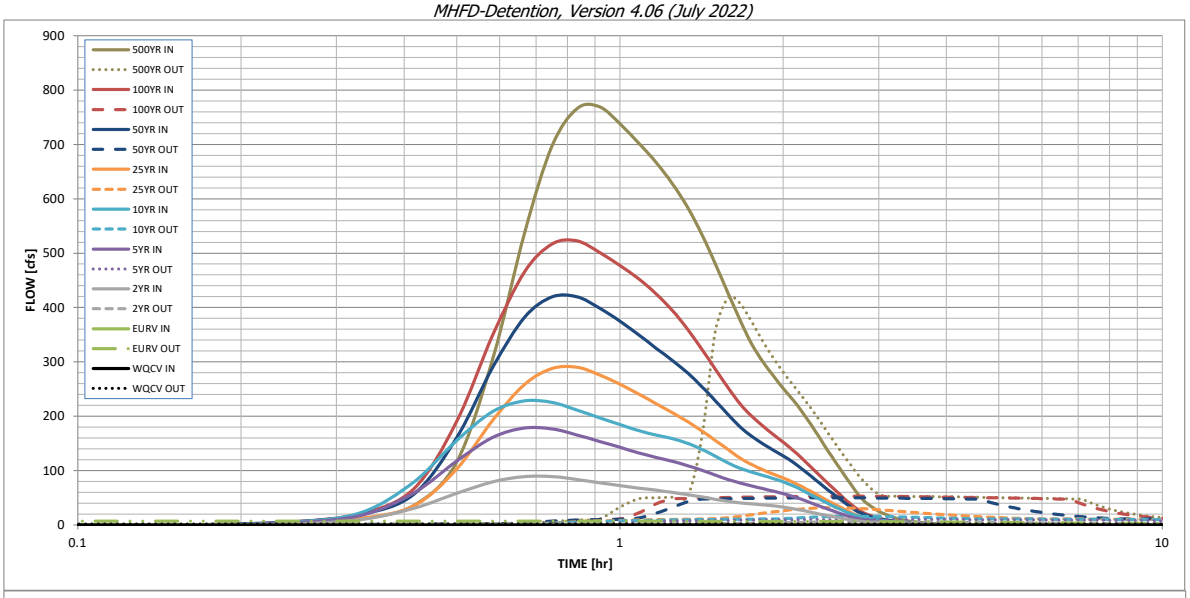
Calculated Parameters for Spillway

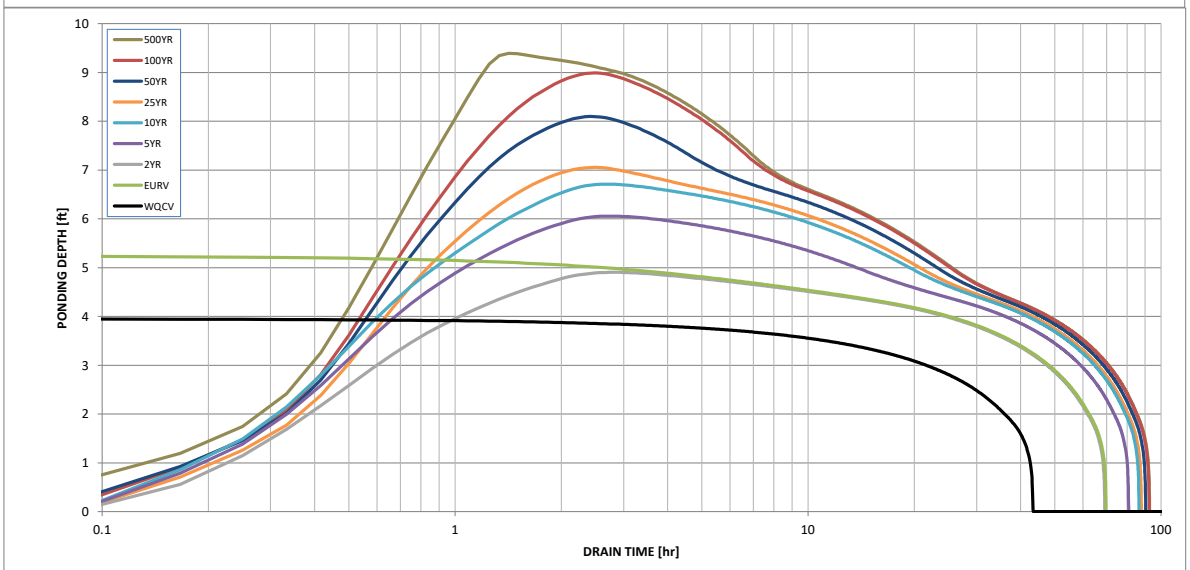
Routed Hydrograph Results *The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).*

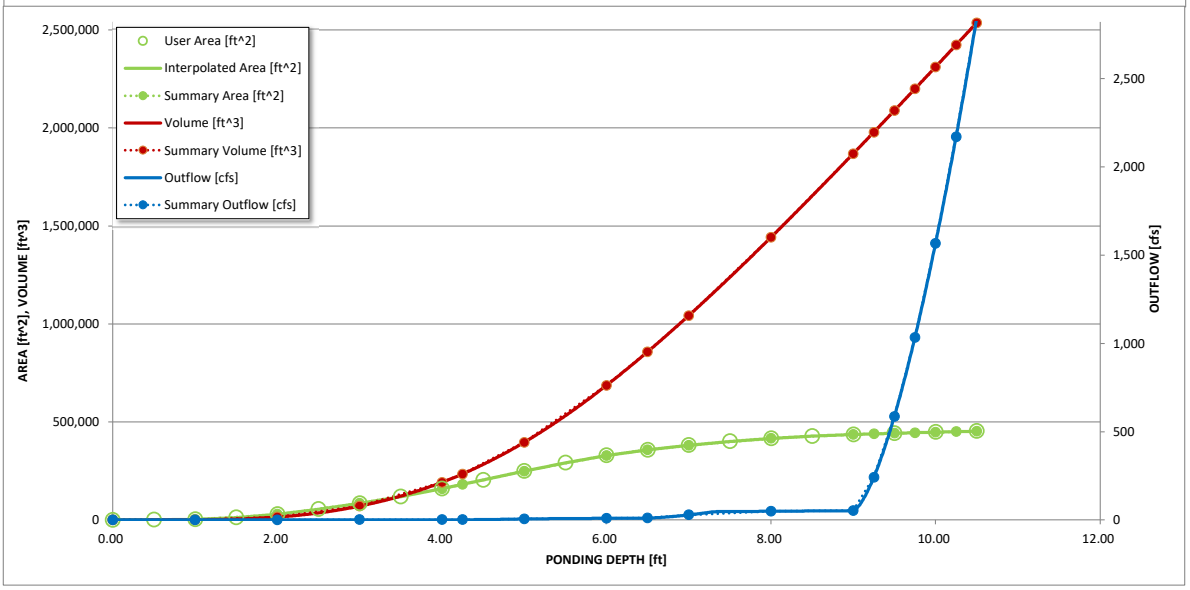
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
One-Hour Rainfall Depth (in) =	N/A	N/A	1.00	1.42	1.68	1.81	2.35	2.71	3.72
CUHP Runoff Volume (acre-ft) =	4.217	10.519	9.329	17.838	23.720	27.753	40.736	50.528	75.637
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	9.329	17.838	23.720	27.753	40.736	50.528	75.637
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	9.1	64.6	97.6	142.2	230.4	304.6	474.9
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.03	0.23	0.35	0.51	0.82	1.09	1.70
Peak Inflow Q (cfs) =	N/A	N/A	89.0	178.2	228.1	290.2	419.8	522.6	769.5
Peak Outflow Q (cfs) =	1.6	7.1	5.4	9.9	16.0	31.8	49.9	52.7	417.7
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.2	0.2	0.2	0.2	0.2	0.9
Structure Controlling Flow =	Plate	Vertical Orifice 1	Vertical Orifice 1	Vertical Orifice 1	Overflow Weir 1	Overflow Weir 1	Outlet Plate 1	Outlet Plate 1	Spillway
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	0.2	0.7	1.4	1.4	1.4
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	40	63	63	71	74	74	73	72	65
Time to Drain 99% of Inflow Volume (hours) =	**42**	67	67	77	81	82	82	83	80
Maximum Ponding Depth (ft) =	3.95	5.25	4.90	6.05	6.71	7.05	8.09	8.99	9.39
Area at Maximum Ponding Depth (acres) =	3.56	6.20	5.51	7.61	8.42	8.79	9.60	10.00	10.12
Maximum Volume Stored (acre-ft) =	4.221	10.576	8.524	16.123	21.347	24.361	33.953	42.695	46.720

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)







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

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Summary Stage-Area-Volume-Discharge Relationships

The user can create a summary S-A-V-D by entering the desired stage increments and the remainder of the table will populate automatically.

The user should graphically compare the summary S-A-V-D table to the full S-A-V-D table in the chart to confirm it captures all key transition points.

Stage - Storage Description	Stage [ft]	Area [ft^2]	Area [acres]	Volume [ft^3]	Volume [ac-ft]	Total Outflow [cfs]
	0.00	90	0.002	0	0.000	0.00
	1.00	3,240	0.074	1,097	0.025	0.47
	2.00	29,125	0.669	15,204	0.349	0.66
	3.00	85,000	1.951	71,088	1.632	1.28
	4.00	159,261	3.656	191,714	4.401	1.60
	4.25	181,584	4.169	234,319	5.379	1.67
	5.00	249,169	5.720	395,774	9.086	6.00
	6.00	328,796	7.548	685,802	15.744	9.72
	6.50	357,680	8.211	857,421	19.684	11.07
	7.00	380,867	8.744	1,042,058	23.922	29.00
	8.00	416,110	9.553	1,441,460	33.091	49.54
	9.00	436,088	10.011	1,868,498	42.895	52.78
	9.25	439,188	10.082	1,977,908	45.407	241.36
	9.50	442,289	10.154	2,088,092	47.936	586.36
	9.75	445,093	10.218	2,199,015	50.482	1,034.05
	10.00	447,897	10.282	2,310,639	53.045	1,565.44
	10.25	450,529	10.343	2,422,942	55.623	2,169.66
	10.50	453,161	10.403	2,535,903	58.216	2,839.44
	8.16	419,907	9.640	1,508,342	34.627	50.07

For best results, include the stages of all grade slope changes (e.g. ISV and Floor) from the S-A-V table on Sheet 'Basin'.

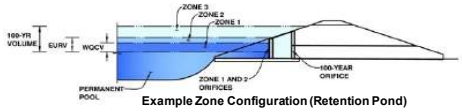
Also include the inverts of all outlets (e.g. vertical orifice, overflow grate, and spillway, where applicable).

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)

Project: Seltzer

Basin ID: Pond A - Phase 1



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	EDB	
Watershed Area =	270.42	acres
Watershed Length =	6,286	ft
Watershed Length to Centroid =	3,087	ft
Watershed Slope =	0.012	ft/ft
Watershed Imperviousness =	22.80%	percent
Percentage Hydrologic Soil Group A =	0.0%	percent
Percentage Hydrologic Soil Group B =	0.0%	percent
Percentage Hydrologic Soil Groups C/D =	100.0%	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) =	2.857 acre-feet		acre-feet
Excess Urban Runoff Volume (EURV) =	5.478 acre-feet		acre-feet
2-yr Runoff Volume (P1 = 1 in.) =	4.989 acre-feet	1.00	inches
5-yr Runoff Volume (P1 = 1.42 in.) =	12.618 acre-feet	1.42	inches
10-yr Runoff Volume (P1 = 1.68 in.) =	18.134 acre-feet	1.68	inches
25-yr Runoff Volume (P1 = 1.81 in.) =	22.317 acre-feet	1.81	inches
50-yr Runoff Volume (P1 = 2.35 in.) =	34.557 acre-feet	2.35	inches
100-yr Runoff Volume (P1 = 2.71 in.) =	44.223 acre-feet	2.71	inches
500-yr Runoff Volume (P1 = 3.72 in.) =	68.239 acre-feet	3.72	inches
Approximate 2-yr Detention Volume =	3.894 acre-feet		
Approximate 5-yr Detention Volume =	7.882 acre-feet		
Approximate 10-yr Detention Volume =	9.488 acre-feet		
Approximate 25-yr Detention Volume =	10.280 acre-feet		
Approximate 50-yr Detention Volume =	12.429 acre-feet		
Approximate 100-yr Detention Volume =	16.239 acre-feet		

Define Zones and Basin Geometry

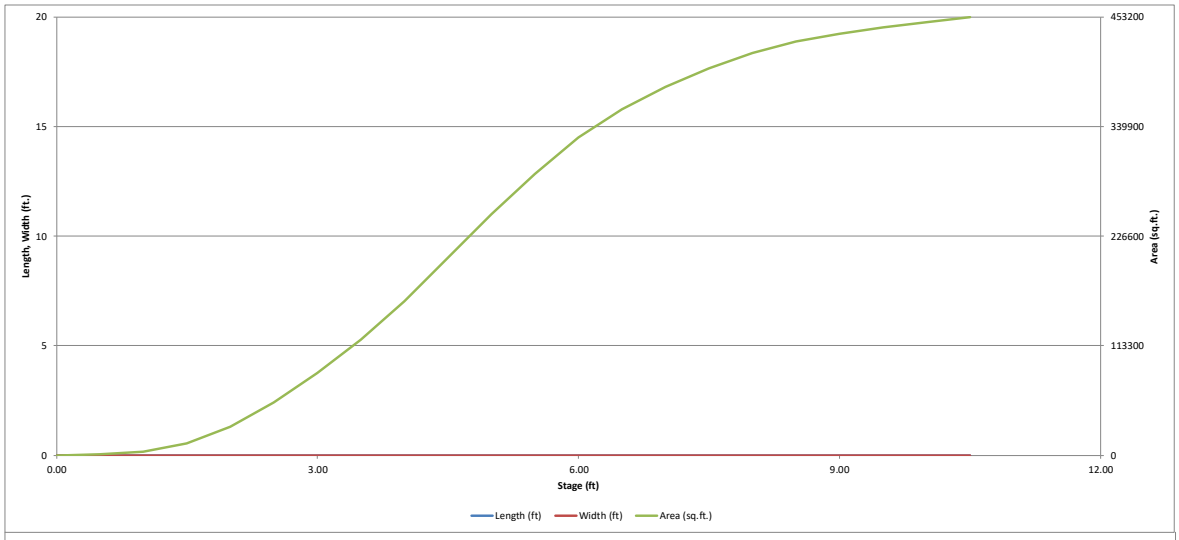
Zone 1 Volume (WQCV) =	2.857	acre-feet
Zone 2 Volume (User Defined - Zone 1) =	7.882	acre-feet
Zone 3 (100yr + 1 / 2 WQCV - Zones 1 & 2) =	6.929	acre-feet
Total Detention Basin Volume =	17.668	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio (R_{LW}) =	user	
Initial Surcharge Area (A_{ISV}) =	user	ft^2
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user	ft^2
Volume of Basin Floor (V_{FLOOR}) =	user	ft^3
Depth of Main Basin (H_{MAIN}) =	user	ft
Length of Main Basin (L_{MAIN}) =	user	ft
Width of Main Basin (W_{MAIN}) =	user	ft
Area of Main Basin (A_{MAIN}) =	user	ft^2
Volume of Main Basin (V_{MAIN}) =	user	ft^3
Calculated Total Basin Volume (V_{total}) =	**user**	acre-feet

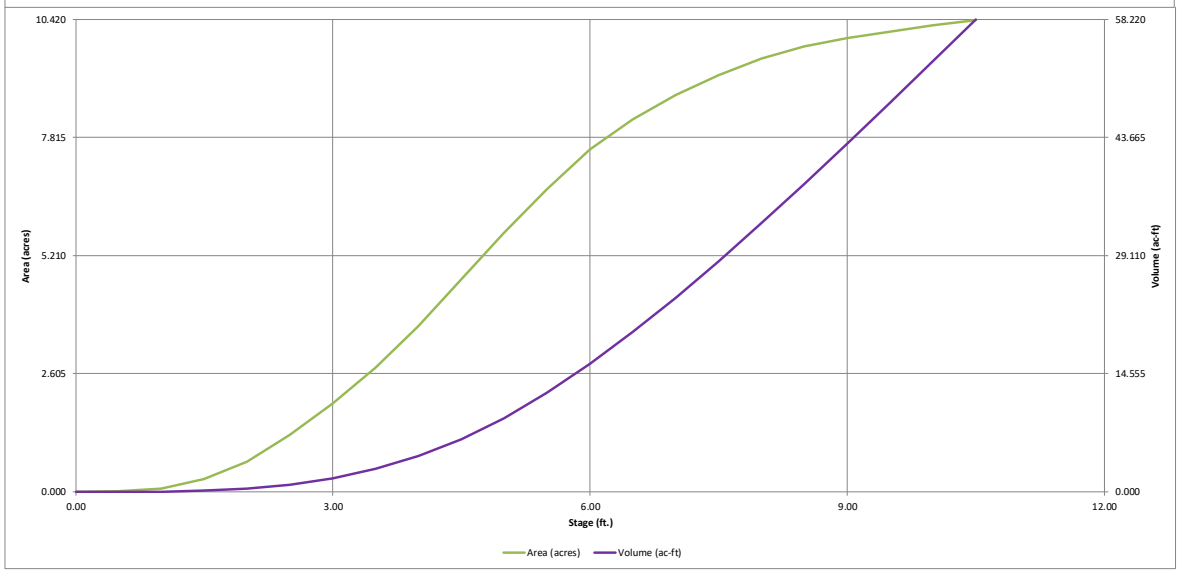
Depth Increment = ft

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	--	--	--	90	0.002		
5062.5	--	0.50	--	--	--	530	0.012	155	0.004
5063	--	1.00	--	--	--	3,240	0.074	1,097	0.025
5063.5	--	1.50	--	--	--	12,031	0.276	4,915	0.113
5064	--	2.00	--	--	--	29,125	0.669	15,204	0.349
5064.5	--	2.50	--	--	--	54,707	1.256	36,162	0.830
5065	--	3.00	--	--	--	85,000	1.951	71,088	1.632
5065.5	--	3.50	--	--	--	119,120	2.735	122,118	2.803
5066	--	4.00	--	--	--	159,261	3.656	191,714	4.401
5066.5	--	4.50	--	--	--	203,907	4.681	282,505	6.485
5067	--	5.00	--	--	--	249,169	5.720	395,774	9.086
5067.5	--	5.50	--	--	--	291,073	6.682	530,835	12.186
5068	--	6.00	--	--	--	328,796	7.548	685,802	15.744
5068.5	--	6.50	--	--	--	357,680	8.211	857,421	19.684
5069	--	7.00	--	--	--	380,867	8.744	1,042,058	23.922
5069.5	--	7.50	--	--	--	400,317	9.190	1,237,354	28.406
5070	--	8.00	--	--	--	416,110	9.553	1,441,460	33.091
5070.5	--	8.50	--	--	--	427,976	9.825	1,652,482	37.936
5071	--	9.00	--	--	--	436,088	10.011	1,868,498	42.895
5071.5	--	9.50	--	--	--	442,289	10.154	2,088,092	47.936
5072	--	10.00	--	--	--	447,897	10.282	2,310,639	53.045
5072.5	--	10.50	--	--	--	453,161	10.403	2,535,903	58.216

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)



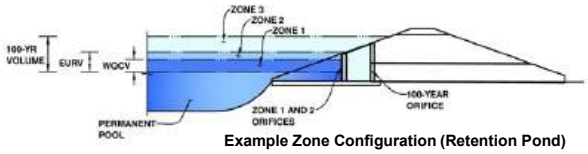


DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: **Seltzer**

Basin ID: **Pond A - Phase 1**



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	3.52	2.857	Orifice Plate
Zone 2 (User)	5.28	7.882	Rectangular Orifice
3 (100+1/2WQCV)	6.25	6.929	Weir&Pipe (Restrict)
Total (all zones)		17.668	

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

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)	Underdrain Orifice Area =	N/A	ft^2
Underdrain Orifice Diameter =	N/A	inches	Underdrain Orifice Centroid =	N/A	feet

Calculated Parameters for Underdrain

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

Centroid of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)	WQ Orifice Area per Row =	7.639E-02	ft^2
Depth at top of Zone using Orifice Plate =	7.28	ft (relative to basin bottom at Stage = 0 ft)	Elliptical Half-Width =	N/A	feet
Orifice Plate: Orifice Vertical Spacing =	N/A	inches	Elliptical Slot Centroid =	N/A	feet
Orifice Plate: Orifice Area per Row =	11.00	sq. inches (use rectangular openings)	Elliptical Slot Area =	N/A	ft^2

Calculated Parameters for Plate

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

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	2.00						
Orifice Area (sq. inches)	11.00	11.00						

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

User Input: Vertical Orifice (Circular or Rectangular)

	Zone 2 Rectangular	Not Selected			Zone 2 Rectangular	Not Selected	
Invert of Vertical Orifice =	3.75	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Area =	1.33	N/A	ft^2
Depth at top of Zone using Vertical Orifice =	7.28	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Centroid =	0.33	N/A	feet
Vertical Orifice Height =	8.00	N/A	inches				
Vertical Orifice Width =	24.00		inches				

Calculated Parameters for Vertical Orifice

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

	Zone 3 Weir	Not Selected			Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	6.50	N/A	ft (relative to basin bottom at Stage = 0 ft)	Height of Grate Upper Edge, H_t =	6.50	N/A	feet
Overflow Weir Front Edge Length =	11.33	N/A	feet	Overflow Weir Slope Length =	2.92	N/A	feet
Overflow Weir Grate Slope =	0.00	N/A	H:V	Grate Open Area / 100-yr Orifice Area =	6.92	N/A	
Horiz. Length of Weir Sides =	2.92	N/A	feet	Overflow Grate Open Area w/o Debris =	26.17	N/A	ft^2
Overflow Grate Type =	Close Mesh Grate	Close Mesh Grate		Overflow Grate Open Area w/ Debris =	13.08	N/A	ft^2
Debris Clogging % =	50%	N/A	%				

Calculated Parameters for Overflow Weir

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

	Zone 3 Restrictor	Not Selected			Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	0.30	N/A	ft (distance below basin bottom at Stage = 0 ft)	Outlet Orifice Area =	3.78	N/A	ft^2
Outlet Pipe Diameter =	36.00	N/A	inches	Outlet Orifice Centroid =	0.91	N/A	feet
Restrictor Plate Height Above Pipe Invert =	19.00		inches	Half-Central Angle of Restrictor Plate on Pipe =	1.63	N/A	radians

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage=	9.00	ft (relative to basin bottom at Stage = 0 ft)	Spillway Design Flow Depth=	0.49	feet
Spillway Crest Length =	500.00	feet	Stage at Top of Freeboard =	10.49	feet
Spillway End Slopes =	4.00	H:V	Basin Area at Top of Freeboard =	10.40	acres
Freeboard above Max Water Surface =	1.00	feet	Basin Volume at Top of Freeboard =	58.11	acre-ft

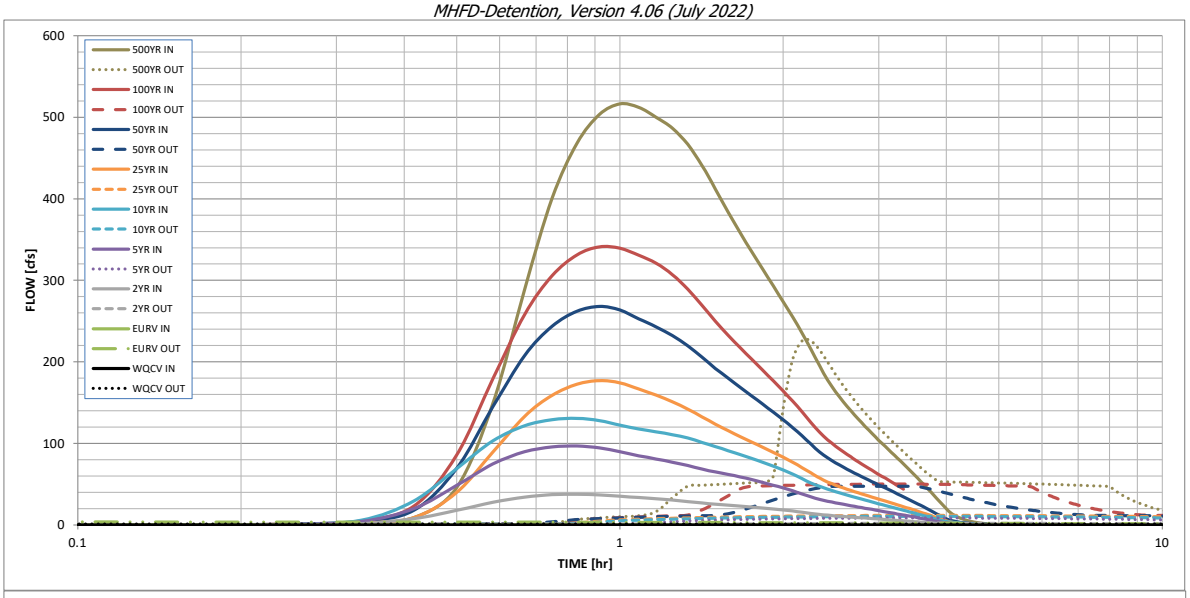
Calculated Parameters for Spillway

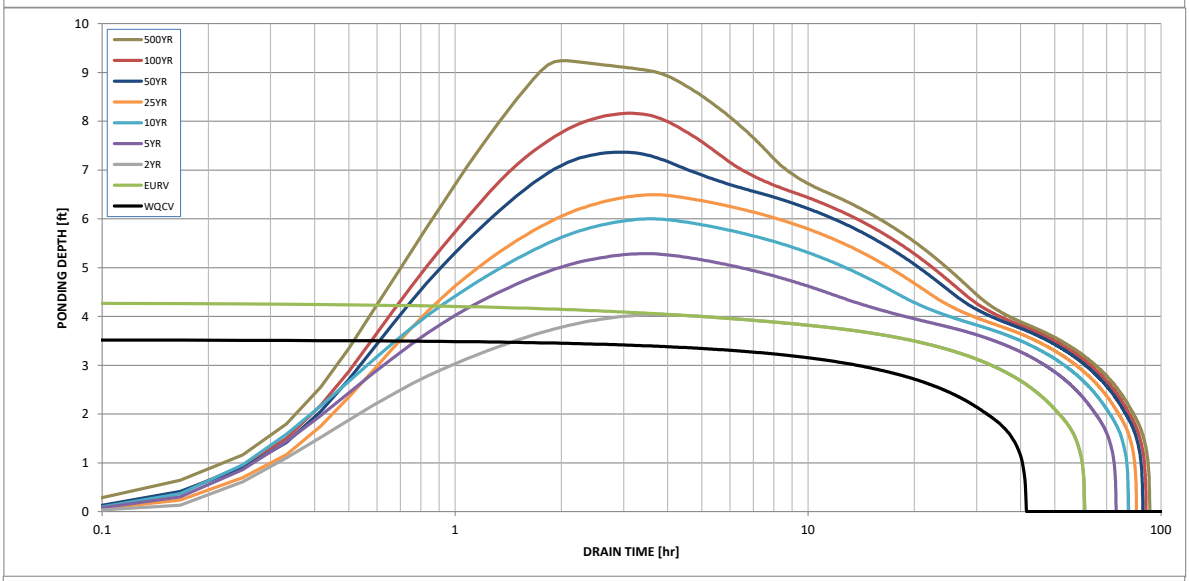
Routed Hydrograph Results *The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).*

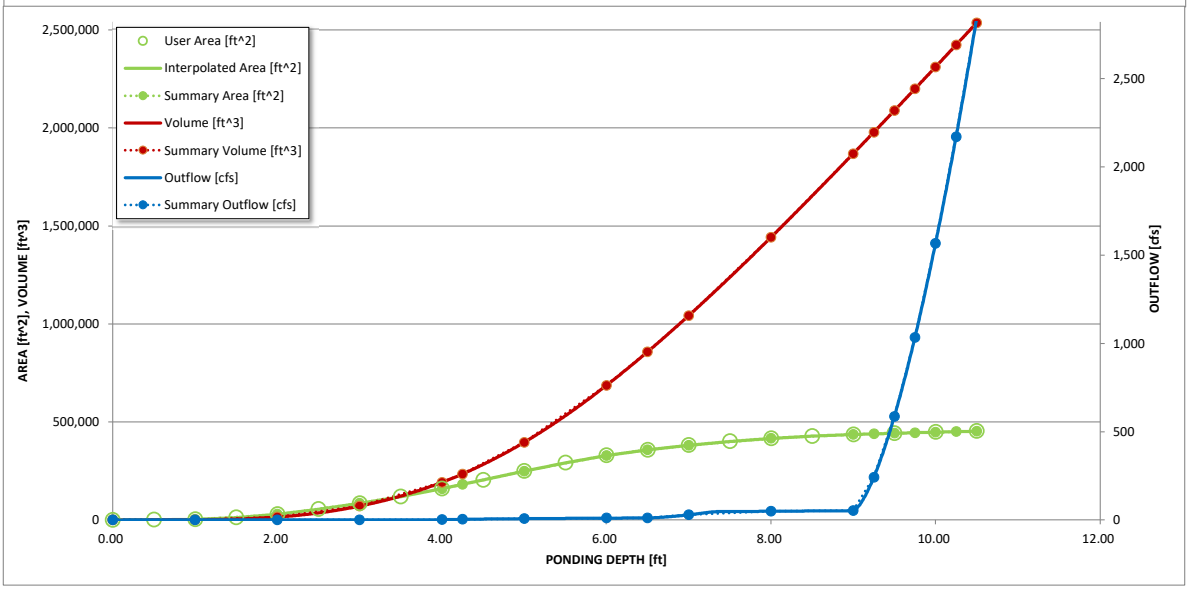
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
One-Hour Rainfall Depth (in) =	N/A	N/A	1.00	1.42	1.68	1.81	2.35	2.71	3.72
CUHP Runoff Volume (acre-ft) =	2.857	5.478	4.989	12.618	18.134	22.317	34.557	44.223	68.239
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	4.989	12.618	18.134	22.317	34.557	44.223	68.239
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	8.7	61.9	93.6	136.4	221.0	292.6	456.2
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.03	0.23	0.35	0.50	0.82	1.08	1.69
Peak Inflow Q (cfs) =	N/A	N/A	37.6	96.7	130.7	177.0	268.0	341.1	516.5
Peak Outflow Q (cfs) =	1.1	3.7	2.1	8.6	10.5	11.7	47.4	50.1	225.7
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.1	0.1	0.1	0.2	0.2	0.5
Structure Controlling Flow =	Plate	Vertical Orifice 1	Vertical Orifice 1	Vertical Orifice 1	Vertical Orifice 1	Vertical Orifice 1	Outlet Plate 1	Outlet Plate 1	Spillway
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	1.3	1.3	1.4
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	39	56	56	65	68	70	69	67	60
Time to Drain 99% of Inflow Volume (hours) =	**40**	59	59	71	76	79	80	80	78
Maximum Ponding Depth (ft) =	3.52	4.28	4.04	5.29	6.00	6.49	7.36	8.16	9.24
Area at Maximum Ponding Depth (acres) =	2.77	4.23	3.72	6.26	7.53	8.20	9.06	9.63	10.08
Maximum Volume Stored (acre-ft) =	2.859	5.505	4.512	10.763	15.668	19.602	27.128	34.530	45.205

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)







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

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Summary Stage-Area-Volume-Discharge Relationships

The user can create a summary S-A-V-D by entering the desired stage increments and the remainder of the table will populate automatically.

The user should graphically compare the summary S-A-V-D table to the full S-A-V-D table in the chart to confirm it captures all key transition points.

Stage - Storage Description	Stage [ft]	Area [ft^2]	Area [acres]	Volume [ft^3]	Volume [ac-ft]	Total Outflow [cfs]
	0.00	90	0.002	0	0.000	0.00
	1.00	3,240	0.074	1,097	0.025	0.37
	2.00	29,125	0.669	15,204	0.349	0.52
	3.00	85,000	1.951	71,088	1.632	1.00
	4.00	159,261	3.656	191,714	4.401	1.88
	4.25	181,584	4.169	234,319	5.379	3.51
	5.00	249,169	5.720	395,774	9.086	7.61
	6.00	328,796	7.548	685,802	15.744	10.52
	6.50	357,680	8.211	857,421	19.684	11.70
	7.00	380,867	8.744	1,042,058	23.922	29.50
	8.00	416,110	9.553	1,441,460	33.091	49.54
	9.00	436,088	10.011	1,868,498	42.895	52.78
	9.25	439,188	10.082	1,977,908	45.407	241.36
	9.50	442,289	10.154	2,088,092	47.936	586.36
	9.75	445,093	10.218	2,199,015	50.482	1,034.05
	10.00	447,897	10.282	2,310,639	53.045	1,565.44
	10.25	450,529	10.343	2,422,942	55.623	2,169.66
	10.50	453,161	10.403	2,535,903	58.216	2,839.44
	8.16	419,907	9.640	1,508,342	34.627	50.07

For best results, include the stages of all grade slope changes (e.g. ISV and Floor) from the S-A-V table on Sheet 'Basin'.

Also include the inverts of all outlets (e.g. vertical orifice, overflow grate, and spillway, where applicable).

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Feb 5 2024

E. 168TH AVENUE - CULVERT CROSSING

Invert Elev Dn (ft)	=	52.85
Pipe Length (ft)	=	59.90
Slope (%)	=	1.00
Invert Elev Up (ft)	=	53.45
Rise (in)	=	36.0
Shape	=	Circular
Span (in)	=	36.0
No. Barrels	=	2
n-Value	=	0.013
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

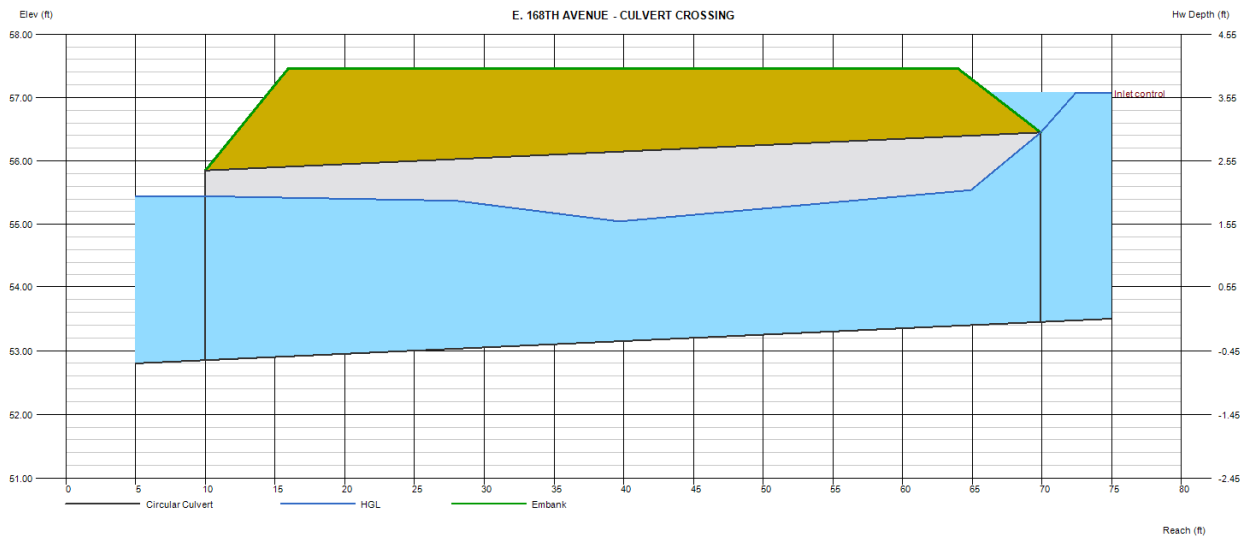
Top Elevation (ft)	=	57.46
Top Width (ft)	=	48.00
Crest Width (ft)	=	100.00

Calculations

Qmin (cfs)	=	90.40
Qmax (cfs)	=	90.40
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	90.40
Qpipe (cfs)	=	90.40
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	6.96
Veloc Up (ft/s)	=	8.18
HGL Dn (ft)	=	55.44
HGL Up (ft)	=	55.64
Hw Elev (ft)	=	57.07
Hw/D (ft)	=	1.21
Flow Regime	=	Inlet Control



PROJECT: SELTZER – SWMM MODEL
SHEET TITLE: PEAK FLOW SUMMARY

	Peak Discharge (cfs) - Historic			Peak Discharge (cfs) - Existing Condition			Peak Discharge (cfs) - Phase 1 Seltzer			Peak Discharge (cfs) - Ultimate Seltzer		
SWMM Node	**5-year**	**10-year**	**100-year**	**5-year**	**10-year**	**100-year**	**5-year**	**10-year**	**100-year**	**5-year**	**10-year**	**100-year**
Pond OS							52.8	78.9	236.8	48.8	73.0	219.4
900	43.9	67.6	212.5	48.4	72.7	220.0	1.7	5.1	37.6	1.4	4.7	37.6
901	36.0	55.6	167.9	46.8	66.7	179.6	46.6	59.0	129.8	62.2	76.6	158.0
902	57.5	94.2	327.8	67.3	104.4	339.0	16.7	23.3	63.6	33.0	41.9	92.5
903	90.4	149.1	523.0	104.0	163.4	540.6	4.0	5.8	16.5	8.7	12.4	34.6
903B	-	-	-	-	-	-	10.0	14.6	42.8	-	-	-
904	90.4	149.1	523.0	104.0	163.4	540.6	9.0	12.9	36.0	4.2	6.0	17.1
905	-	-	-	-	-	-	16.1	21.0	47.0	16.1	21.0	47.0
906	-	-	-	-	-	-	33.8	47.9	130.4	21.9	30.1	76.0
907	-	-	-	-	-	-	38.6	56.2	162.4	77.5	100.9	234.9
908	-	-	-	-	-	-	52.2	73.1	199.1	93.1	120.4	277.0
Pond A	-	-	-	-	-	-	120.2	163.4	425.1	196.8	251.6	565.9
909	-	-	-	-	-	-	8.3	10.4	50.3	9.7	15.8	52.4
910	-	-	-	-	-	-	5.0	9.2	62.4	5.2	10.9	63.5
911	-	-	-	-	-	-	4.2	8.2	60.4	4.3	9.4	61.4

APPENDIX C
HISTORIC CUHP/SWMM MODEL

CUHP SUBCATCHMENTS

Todd Creek Farms - Historical CUHP Inputs

Columns with this color heading are for required user-input
Columns with this color heading are for optional override values
Columns with this color heading are for program-calculated values

								Maximum Depression Storage (Watershed inches)		Horton's Infiltration Parameters			DCIA
Subcatchment Name	EPA SWMM Target Node	Raingage	Area (mi^2)	Length to Centroid (mi)	Length (mi)	Slope (ft/ft)	Percent Imperviousness	Pervious	Impervious	Initial Rate (in/hr)	Decay Coefficient (1/seconds)	Final Rate (in/hr)	Level 0, 1, or 2
100	JUNCT_100	100-YR	0.12759	0.43125	0.66932	0.01917	2	0.38	0.1	3	0.0018	0.5	0
101	JUNCT_101	100-YR	0.12666	0.40284	0.79905	0.01731	2	0.38	0.1	3	0.0018	0.5	0
102	JUNCT_102	100-YR	0.08799	0.31345	0.54621	0.01515	2	0.38	0.1	3	0.0018	0.5	0
200	JUNCT_200	100-YR	0.03753	0.21193	0.43182	0.02363	2	0.38	0.1	3	0.0018	0.5	0
201	JUNCT_201	100-YR	0.18767	0.31117	0.52917	0.02	2	0.38	0.1	3	0.0018	0.5	0
300	JUNCT_300	100-YR	0.05288	0.1197	0.25303	0.0205	2	0.38	0.1	3	0.0018	0.5	0
400	JUNCT_400	100-YR	0.02172	0.06742	0.14738	0.04888	2	0.38	0.1	3	0.0018	0.5	0
500	JUNCT_500	100-YR	0.02089	0.21572	0.33542	0.02138	2	0.38	0.1	3	0.0018	0.5	0

Todd Creek Farms - Historic 5-yr

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... NO
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... NO
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 01/01/2005 00:00:00
Ending Date 01/02/2005 12:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Routing Time Step ..... 60.00 sec
Variable Time Step ..... YES
Maximum Trials 8
Number of Threads 1
Head Tolerance ..... 0.005000 ft

**********	Volume	Volume
Flow Routing Continuity	acre-feet	10^6 gal
**********	---	---
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000
Groundwater Inflow	0.000	0.000

```
RDII Inflow ..............         0.000         0.000
External Inflow ..........        10.832         3.530
External Outflow .........        10.834         3.530
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.005         0.002
Continuity Error (%) .....        -0.061
```

****
Time-Step Critical Elements
****
Link 902 (9.12%)

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****
Routing Time Step Summary
****

Minimum Time Step	:	35.84 sec
Average Time Step	:	58.48 sec
Maximum Time Step	:	60.00 sec
% of Time in Steady State	:	0.00

```
Average Iterations per Step :     2.00
% of Steps Not Converging   :     0.00
Time Step Frequencies       :
   60.000 - 23.031 sec      :   100.00 %
   23.031 -  8.841 sec      :     0.00 %
    8.841 -  3.393 sec      :     0.00 %
    3.393 -  1.303 sec      :     0.00 %
    1.303 -  0.500 sec      :     0.00 %


******************
Node Depth Summary
******************

--------------------------------------------------------------------------------
                              Average  Maximum  Maximum  Time of Max    Reported
                                Depth    Depth      HGL   Occurrence   Max Depth
Node                 Type        Feet     Feet     Feet  days hr:min        Feet
--------------------------------------------------------------------------------
JUNCT_201            JUNCTION    0.00     0.00  5113.00     0  00:00        0.00
JUNCT_200            JUNCTION    0.02     0.23  5136.53     0  01:01        0.23
JUNCT_900            JUNCTION    0.05     0.66  5113.46     0  01:02        0.66
JUNCT_902            JUNCTION    0.09     0.96  5060.76     0  01:02        0.96
JUNCT_100            JUNCTION    0.00     0.00  5064.00     0  00:00        0.00
JUNCT_101            JUNCTION    0.00     0.00  5064.00     0  00:00        0.00
JUNCT_903            JUNCTION    0.00     0.03  5055.83     0  01:02        0.03
JUNCT_300            JUNCTION    0.02     0.38  5113.08     0  00:43        0.38
JUNCT_400            JUNCTION    0.01     0.22  5122.52     0  00:43        0.22
JUNCT_500            JUNCTION    0.01     0.16  5086.66     0  00:53        0.16
JUNCT_102            JUNCTION    0.00     0.00  5078.10     0  00:00        0.00
JUNCT_901            JUNCTION    0.05     0.55  5078.55     0  01:07        0.55
OUTFALL_904          OUTFALL     0.00     0.00  5055.70     0  00:00        0.00


******************
Node Inflow Summary
```

****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_201	JUNCTION	41.02	41.02	0 00:43	0.998	0.998	0.000
JUNCT_200	JUNCTION	5.73	5.73	0 00:44	0.2	0.2	0.000
JUNCT_900	JUNCTION	0.00	43.88	0 00:44	0	1.2	0.054
JUNCT_902	JUNCTION	0.00	57.53	0 00:58	0	2.33	-0.025
JUNCT_100	JUNCTION	18.91	18.91	0 00:49	0.68	0.68	0.000
JUNCT_101	JUNCTION	17.49	17.49	0 00:50	0.676	0.676	0.000
JUNCT_903	JUNCTION	0.00	90.40	0 01:02	0	3.53	-0.019
JUNCT_300	JUNCTION	14.07	14.07	0 00:37	0.281	0.281	-1.021
JUNCT_400	JUNCTION	7.46	7.46	0 00:34	0.115	0.115	-1.736
JUNCT_500	JUNCTION	2.72	2.72	0 00:45	0.111	0.111	-0.439
JUNCT_102	JUNCTION	13.28	13.28	0 00:47	0.469	0.469	0.000
JUNCT_901	JUNCTION	0.00	36.01	0 00:47	0	0.981	0.557
OUTFALL_904	OUTFALL	0.00	90.41	0 01:02	0	3.53	0.000

****
Node Surcharge Summary
****

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Feet	Min. Depth Below Rim Feet
JUNCT_201	JUNCTION	36.00	0.000	0.000
JUNCT_100	JUNCTION	36.00	0.000	0.000
JUNCT_101	JUNCTION	36.00	0.000	0.000

JUNCT_102 JUNCTION 36.00 0.000 0.000

****
Node Flooding Summary
****

No nodes were flooded.

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
OUTFALL_904	99.01	5.16	90.41	3.530
System	99.01	5.16	90.41	3.530

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days	hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
200	CONDUIT	4.84	0	01:01	0.63	0.00	0.09
201	DUMMY	41.02	0	00:43			
100	DUMMY	18.91	0	00:49			

101	DUMMY	17.49	0	00:50			
900	CONDUIT	33.50	0	01:02	5.78	0.01	0.07
902	CONDUIT	56.89	0	01:02	6.53	0.03	0.10
901	CONDUIT	24.92	0	01:07	1.77	0.01	0.15
102	DUMMY	13.28	0	00:47			
500	CONDUIT	2.67	0	00:53	0.87	0.00	0.07
400	CONDUIT	6.10	0	00:44	1.70	0.00	0.07
300	CONDUIT	14.18	0	00:47	2.30	0.01	0.08
903	DUMMY	90.41	0	01:02			

****
Flow Classification Summary
****

	Adjusted	---------- Fraction of Time in Flow Class ----------								
	/Actual		Up	Down	Sub	Sup	Up	Down	Norm	Inlet
Conduit	Length	Dry	Dry	Dry	Crit	Crit	Crit	Crit	Ltd	Ctrl
200	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.99	0.00
900	1.00	0.01	0.00	0.00	0.76	0.23	0.00	0.00	0.00	0.00
902	1.00	0.01	0.00	0.00	0.84	0.15	0.00	0.00	0.00	0.00
901	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.99	0.00
500	1.00	0.01	0.25	0.00	0.74	0.00	0.00	0.00	0.99	0.00
400	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.98	0.00
300	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.98	0.00

****
Conduit Surcharge Summary
****

No conduits were surcharged.

```
Analysis begun on:  Mon Feb  5 13:55:23 2024
Analysis ended on:  Mon Feb  5 13:55:23 2024
Total elapsed time: < 1 sec
```

Todd Creek Farms - Historic 10-yr

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... NO
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... NO
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 01/01/2005 00:00:00
Ending Date 01/02/2005 12:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Routing Time Step ..... 60.00 sec
Variable Time Step ..... YES
Maximum Trials 8
Number of Threads 1
Head Tolerance ..... 0.005000 ft

**********	Volume	Volume
Flow Routing Continuity	acre-feet	10^6 gal
**********	---	---
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	18.823	6.134

```
External Outflow .........        18.819         6.133
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.005         0.002
Continuity Error (%) .....        -0.007
```

****
Time-Step Critical Elements
****
Link 902 (12.28%)

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****
Routing Time Step Summary
****

Minimum Time Step	:	1.74 sec
Average Time Step	:	57.45 sec
Maximum Time Step	:	60.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	2.00
% of Steps Not Converging	:	0.00
Time Step Frequencies	:	
60.000 - 23.031 sec	:	99.96 %
23.031 - 8.841 sec	:	0.00 %

```
    8.841 -  3.393 sec      :     0.00 %
    3.393 -  1.303 sec      :     0.04 %
    1.303 -  0.500 sec      :     0.00 %
```

****
Node Depth Summary
****

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
JUNCT_201	JUNCTION	0.00	0.00	5113.00	0 00:00	0.00
JUNCT_200	JUNCTION	0.03	0.31	5136.61	0 01:00	0.31
JUNCT_900	JUNCTION	0.08	0.88	5113.68	0 01:01	0.88
JUNCT_902	JUNCTION	0.13	1.25	5061.05	0 01:01	1.25
JUNCT_100	JUNCTION	0.00	0.00	5064.00	0 00:00	0.00
JUNCT_101	JUNCTION	0.00	0.00	5064.00	0 00:00	0.00
JUNCT_903	JUNCTION	0.00	0.05	5055.85	0 01:01	0.05
JUNCT_300	JUNCTION	0.03	0.48	5113.18	0 00:41	0.48
JUNCT_400	JUNCTION	0.02	0.28	5122.58	0 00:41	0.28
JUNCT_500	JUNCTION	0.02	0.21	5086.71	0 00:52	0.21
JUNCT_102	JUNCTION	0.00	0.00	5078.10	0 00:00	0.00
JUNCT_901	JUNCTION	0.07	0.74	5078.74	0 01:05	0.74
OUTFALL_904	OUTFALL	0.00	0.00	5055.70	0 00:00	0.00

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent

JUNCT_201	JUNCTION	62.39	62.39	0	00:42	1.73	1.73	0.000
JUNCT_200	JUNCTION	8.83	8.83	0	00:45	0.347	0.347	0.028
JUNCT_900	JUNCTION	0.00	67.63	0	00:43	0	2.08	0.017
JUNCT_902	JUNCTION	0.00	94.19	0	00:58	0	4.05	-0.027
JUNCT_100	JUNCTION	29.23	29.23	0	00:49	1.18	1.18	0.000
JUNCT_101	JUNCTION	27.10	27.10	0	00:51	1.17	1.17	0.000
JUNCT_903	JUNCTION	0.00	149.05	0	01:01	0	6.13	-0.005
JUNCT_300	JUNCTION	21.25	21.25	0	00:36	0.487	0.487	-0.980
JUNCT_400	JUNCTION	11.31	11.31	0	00:33	0.2	0.2	-1.752
JUNCT_500	JUNCTION	4.22	4.22	0	00:47	0.194	0.194	-0.380
JUNCT_102	JUNCTION	20.50	20.50	0	00:48	0.815	0.815	0.000
JUNCT_901	JUNCTION	0.00	55.57	0	00:44	0	1.7	0.664
OUTFALL_904	OUTFALL	0.00	149.06	0	01:02	0	6.13	0.000

****
Node Surcharge Summary
****

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Feet	Min. Depth Below Rim Feet
JUNCT_201	JUNCTION	36.00	0.000	0.000
JUNCT_100	JUNCTION	36.00	0.000	0.000
JUNCT_101	JUNCTION	36.00	0.000	0.000
JUNCT_102	JUNCTION	36.00	0.000	0.000

****
Node Flooding Summary
****

No nodes were flooded.

****

Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
OUTFALL_904	99.29	10.19	149.06	6.132
System	99.29	10.19	149.06	6.132

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days	hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
200	CONDUIT	7.86	0	01:00	0.74	0.01	0.12
201	DUMMY	62.39	0	00:42			
100	DUMMY	29.23	0	00:49			
101	DUMMY	27.10	0	00:51			
900	CONDUIT	55.46	0	01:01	6.91	0.02	0.09
902	CONDUIT	93.59	0	01:02	7.89	0.05	0.13
901	CONDUIT	41.85	0	01:05	2.11	0.02	0.20
102	DUMMY	20.50	0	00:48			
500	CONDUIT	4.17	0	00:52	1.00	0.00	0.09
400	CONDUIT	9.69	0	00:42	2.04	0.00	0.10
300	CONDUIT	21.81	0	00:43	2.81	0.01	0.11
903	DUMMY	149.06	0	01:02			

****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
200	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.99	0.00
900	1.00	0.01	0.00	0.00	0.75	0.24	0.00	0.00	0.00	0.00
902	1.00	0.01	0.00	0.00	0.83	0.16	0.00	0.00	0.00	0.00
901	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.99	0.00
500	1.00	0.01	0.24	0.00	0.75	0.00	0.00	0.00	0.99	0.00
400	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.98	0.00
300	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.98	0.00

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Mon Feb 5 13:56:11 2024
Analysis ended on: Mon Feb 5 13:56:11 2024
Total elapsed time: < 1 sec

Todd Creek Farms - Historic 100-yr

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... NO
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... NO
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 01/01/2005 00:00:00
Ending Date 01/02/2005 12:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Routing Time Step ..... 60.00 sec
Variable Time Step ..... YES
Maximum Trials 8
Number of Threads 1
Head Tolerance ..... 0.005000 ft

**********	Volume	Volume
Flow Routing Continuity	acre-feet	10^6 gal
**********	---------	---------
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000

Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	59.884	19.514
External Outflow	59.874	19.511
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.005	0.002
Continuity Error (%)	0.007	

****
Time-Step Critical Elements
****
Link 902 (17.93%)

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****
Routing Time Step Summary
****
Minimum Time Step : 22.41 sec
Average Time Step : 54.80 sec
Maximum Time Step : 60.00 sec

```
% of Time in Steady State   :     0.00
Average Iterations per Step :     2.00
% of Steps Not Converging   :     0.00
Time Step Frequencies       :
   60.000 - 23.031 sec      :    97.00 %
   23.031 -  8.841 sec      :     3.00 %
    8.841 -  3.393 sec      :     0.00 %
    3.393 -  1.303 sec      :     0.00 %
    1.303 -  0.500 sec      :     0.00 %


******************
Node Depth Summary
******************
```

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
JUNCT_201	JUNCTION	0.00	0.00	5113.00	0 00:00	0.00
JUNCT_200	JUNCTION	0.07	0.62	5136.92	0 01:03	0.62
JUNCT_900	JUNCTION	0.18	1.77	5114.57	0 01:02	1.77
JUNCT_902	JUNCTION	0.29	2.35	5062.15	0 01:03	2.35
JUNCT_100	JUNCTION	0.00	0.00	5064.00	0 00:00	0.00
JUNCT_101	JUNCTION	0.00	0.00	5064.00	0 00:00	0.00
JUNCT_903	JUNCTION	0.01	0.09	5055.89	0 01:03	0.09
JUNCT_300	JUNCTION	0.07	0.87	5113.57	0 00:42	0.87
JUNCT_400	JUNCTION	0.04	0.56	5122.86	0 00:45	0.56
JUNCT_500	JUNCTION	0.05	0.42	5086.92	0 00:59	0.42
JUNCT_102	JUNCTION	0.00	0.00	5078.10	0 00:00	0.00
JUNCT_901	JUNCTION	0.16	1.49	5079.49	0 01:05	1.49
OUTFALL_904	OUTFALL	0.00	0.00	5055.70	0 00:00	0.00

```
******************
```

Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_201	JUNCTION	190.31	190.31	0 00:48	5.52	5.52	0.000
JUNCT_200	JUNCTION	27.97	27.97	0 00:52	1.11	1.11	0.057
JUNCT_900	JUNCTION	0.00	212.46	0 00:49	0	6.62	0.019
JUNCT_902	JUNCTION	0.00	327.79	0 01:02	0	12.9	-0.003
JUNCT_100	JUNCTION	93.13	93.13	0 00:56	3.76	3.76	0.000
JUNCT_101	JUNCTION	87.02	87.02	0 00:59	3.74	3.74	0.000
JUNCT_903	JUNCTION	0.00	522.97	0 01:03	0	19.5	-0.013
JUNCT_300	JUNCTION	62.88	62.88	0 00:42	1.55	1.55	-0.981
JUNCT_400	JUNCTION	32.24	32.24	0 00:38	0.634	0.634	-1.943
JUNCT_500	JUNCTION	13.55	13.55	0 00:55	0.616	0.616	-0.222
JUNCT_102	JUNCTION	65.13	65.13	0 00:55	2.59	2.59	0.000
JUNCT_901	JUNCTION	0.00	167.92	0 00:49	0	5.42	0.617
OUTFALL_904	OUTFALL	0.00	522.98	0 01:03	0	19.5	0.000

****
Node Surcharge Summary
****

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Feet	Min. Depth Below Rim Feet
JUNCT_201	JUNCTION	36.00	0.000	0.000
JUNCT_100	JUNCTION	36.00	0.000	0.000

JUNCT_101	JUNCTION	36.00	0.000	0.000
JUNCT_102	JUNCTION	36.00	0.000	0.000

****
Node Flooding Summary
****

No nodes were flooded.

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
OUTFALL_904	99.07	43.13	522.98	19.509
System	99.07	43.13	522.98	19.509

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days	hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
200	CONDUIT	26.85	0	01:03	1.07	0.02	0.24
201	DUMMY	190.31	0	00:48			

100	DUMMY	93.13	0	00:56			
101	DUMMY	87.02	0	00:59			
900	CONDUIT	195.93	0	01:03	10.70	0.08	0.19
902	CONDUIT	327.12	0	01:03	12.72	0.16	0.24
901	CONDUIT	150.35	0	01:05	3.19	0.09	0.38
102	DUMMY	65.13	0	00:55			
500	CONDUIT	13.50	0	00:59	1.35	0.01	0.19
400	CONDUIT	30.61	0	00:45	2.97	0.01	0.20
300	CONDUIT	63.78	0	00:43	3.93	0.03	0.23
903	DUMMY	522.98	0	01:03			

****
Flow Classification Summary
****

	Adjusted	---------- Fraction of Time in Flow Class ----------							
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
200	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.99	0.00
900	1.00	0.00	0.00	0.00	0.74	0.25	0.00	0.00	0.00	0.00
902	1.00	0.01	0.00	0.00	0.82	0.18	0.00	0.00	0.00	0.00
901	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.99	0.00
500	1.00	0.01	0.24	0.00	0.75	0.00	0.00	0.00	0.99	0.00
400	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.98	0.00
300	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.98	0.00

****
Conduit Surcharge Summary
****

No conduits were surcharged.

```
Analysis begun on:  Mon Feb  5 13:56:59 2024
Analysis ended on:  Mon Feb  5 13:56:59 2024
Total elapsed time: < 1 sec
```

APPENDIX D
EXISTING CONDITION CUHP/SWMM MODEL

CUHP SUBCATCHMENTS

Todd Creek Farms - Existing Condition CUHP Inputs

Columns with this color heading are for required user-input
Columns with this color heading are for optional override values
Columns with this color heading are for program-calculated values

								Maximum Depression Storage (Watershed inches)		Horton's Infiltration Parameters			DCIA
Subcatchment Name	EPA SWMM Target Node	Raingage	Area (mi^2)	Length to Centroid (mi)	Length (mi)	Slope (ft/ft)	Percent Imperviousness	Pervious	Impervious	Initial Rate (in/hr)	Decay Coefficient (1/seconds)	Final Rate (in/hr)	Level 0, 1, or 2
100	JUNCT_100	10-YR	0.12759	0.43125	0.66932	0.01917	5.59	0.38	0.1	3	0.0018	0.5	0
101	JUNCT_101	10-YR	0.12666	0.40284	0.79905	0.01731	2	0.38	0.1	3	0.0018	0.5	0
102	JUNCT_102	10-YR	0.08799	0.31345	0.54621	0.01515	2	0.38	0.1	3	0.0018	0.5	0
200	JUNCT_200	10-YR	0.03753	0.21193	0.43182	0.02363	23.9	0.38	0.1	3	0.0018	0.5	0
201	JUNCT_201	10-YR	0.18767	0.31117	0.52917	0.02	2.51	0.38	0.1	3	0.0018	0.5	0
300	JUNCT_300	10-YR	0.05288	0.1197	0.25303	0.0205	10.89	0.38	0.1	3	0.0018	0.5	0
400	JUNCT_400	10-YR	0.02172	0.06742	0.14738	0.04888	34.46	0.38	0.1	3	0.0018	0.5	0
500	JUNCT_500	10-YR	0.02089	0.21572	0.33542	0.02138	2	0.38	0.1	3	0.0018	0.5	0

Todd Creek Farms - Existing Condition 5-yr

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

```
  ----------------------------------------------------------

  ****************
  Analysis Options
  ****************
  Flow Units ............... CFS
  Process Models:
    Rainfall/Runoff ........ NO
    RDII ................... NO
    Snowmelt ............... NO
    Groundwater ............ NO
    Flow Routing ........... YES
    Ponding Allowed ........ NO
    Water Quality .......... NO
  Flow Routing Method ...... DYNWAVE
  Surcharge Method ......... EXTRAN
  Starting Date ............ 01/01/2005 00:00:00
  Ending Date .............. 01/02/2005 12:00:00
  Antecedent Dry Days ...... 0.0
  Report Time Step ......... 00:01:00
  Routing Time Step ........ 60.00 sec
  Variable Time Step ....... YES
  Maximum Trials ........... 8
  Number of Threads ........ 1
  Head Tolerance ........... 0.005000 ft


  *************************        Volume        Volume
  Flow Routing Continuity        acre-feet      10^6 gal
  *************************     ---------     ---------
  Dry Weather Inflow .......         0.000         0.000
  Wet Weather Inflow .......         0.000         0.000
  Groundwater Inflow .......         0.000         0.000
  RDII Inflow ..............         0.000         0.000
  External Inflow ..........        12.317         4.014
  External Outflow .........        12.315         4.013
```

```
Flooding Loss ............          0.000         0.000
Evaporation Loss .........          0.000         0.000
Exfiltration Loss ........          0.000         0.000
Initial Stored Volume ....          0.000         0.000
Final Stored Volume ......          0.005         0.002
Continuity Error (%) .....         -0.022

**************************
Time-Step Critical Elements
**************************
Link 902 (9.67%)

*******************************
Highest Flow Instability Indexes
*******************************
All links are stable.

*********************************
Most Frequent Nonconverging Nodes
*********************************
Convergence obtained at all time steps.

************************
Routing Time Step Summary
************************
Minimum Time Step           :    24.54 sec
Average Time Step           :    58.27 sec
Maximum Time Step           :    60.00 sec
% of Time in Steady State   :     0.00
Average Iterations per Step :     2.00
% of Steps Not Converging   :     0.00
Time Step Frequencies       :
   60.000 - 23.031 sec      :   100.00 %
   23.031 -  8.841 sec      :     0.00 %
    8.841 -  3.393 sec      :     0.00 %
```

```
    3.393 -  1.303 sec      :     0.00 %
    1.303 -  0.500 sec      :     0.00 %
```

****
Node Depth Summary
****

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
JUNCT_201	JUNCTION	0.00	0.00	5113.00	0 00:00	0.00
JUNCT_200	JUNCTION	0.03	0.32	5136.62	0 00:55	0.32
JUNCT_900	JUNCTION	0.06	0.70	5113.50	0 01:02	0.70
JUNCT_902	JUNCTION	0.09	1.05	5060.85	0 01:00	1.05
JUNCT_100	JUNCTION	0.00	0.00	5064.00	0 00:00	0.00
JUNCT_101	JUNCTION	0.00	0.00	5064.00	0 00:00	0.00
JUNCT_903	JUNCTION	0.00	0.04	5055.84	0 01:01	0.04
JUNCT_300	JUNCTION	0.02	0.42	5113.12	0 00:41	0.42
JUNCT_400	JUNCTION	0.02	0.38	5122.68	0 00:38	0.38
JUNCT_500	JUNCTION	0.01	0.16	5086.66	0 00:53	0.16
JUNCT_102	JUNCTION	0.00	0.00	5078.10	0 00:00	0.00
JUNCT_901	JUNCTION	0.05	0.63	5078.63	0 01:02	0.63
OUTFALL_904	OUTFALL	0.00	0.00	5055.70	0 00:00	0.00

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_201	JUNCTION	41.49	41.49	0 00:42	1.01	1.01	0.000

JUNCT_200	JUNCTION	9.44	9.44	0	00:42	0.359	0.359	-0.465
JUNCT_900	JUNCTION	0.00	48.41	0	00:44	0	1.38	0.163
JUNCT_902	JUNCTION	0.00	67.29	0	00:57	0	2.64	-0.004
JUNCT_100	JUNCTION	20.56	20.56	0	00:48	0.764	0.764	0.000
JUNCT_101	JUNCTION	17.49	17.49	0	00:50	0.676	0.676	0.000
JUNCT_903	JUNCTION	0.00	103.97	0	01:01	0	4.01	-0.021
JUNCT_300	JUNCTION	16.96	16.96	0	00:36	0.367	0.367	-0.955
JUNCT_400	JUNCTION	16.10	16.10	0	00:31	0.253	0.253	-1.736
JUNCT_500	JUNCTION	2.72	2.72	0	00:45	0.111	0.111	-0.193
JUNCT_102	JUNCTION	13.28	13.28	0	00:47	0.469	0.469	0.000
JUNCT_901	JUNCTION	0.00	46.75	0	00:43	0	1.21	0.779
OUTFALL_904	OUTFALL	0.00	103.97	0	01:01	0	4.01	0.000

****
Node Surcharge Summary
****

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Feet	Min. Depth Below Rim Feet
JUNCT_201	JUNCTION	36.00	0.000	0.000
JUNCT_100	JUNCTION	36.00	0.000	0.000
JUNCT_101	JUNCTION	36.00	0.000	0.000
JUNCT_102	JUNCTION	36.00	0.000	0.000

****
Node Flooding Summary
****

No nodes were flooded.

****
Outfall Loading Summary

****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
OUTFALL_904	99.01	6.07	103.97	4.013
System	99.01	6.07	103.97	4.013

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days	hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
200	CONDUIT	8.48	0	00:56	1.11	0.01	0.10
201	DUMMY	41.49	0	00:42			
100	DUMMY	20.56	0	00:48			
101	DUMMY	17.49	0	00:50			
900	CONDUIT	37.44	0	01:02	6.00	0.02	0.07
902	CONDUIT	66.59	0	01:01	6.92	0.03	0.11
901	CONDUIT	31.89	0	01:03	1.98	0.02	0.17
102	DUMMY	13.28	0	00:47			
500	CONDUIT	2.67	0	00:53	0.56	0.00	0.08
400	CONDUIT	14.53	0	00:41	2.98	0.01	0.09
300	CONDUIT	17.35	0	00:43	2.45	0.01	0.10
903	DUMMY	103.97	0	01:01			

****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
200	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.98	0.00
900	1.00	0.01	0.00	0.00	0.76	0.23	0.00	0.00	0.00	0.00
902	1.00	0.01	0.00	0.00	0.84	0.15	0.00	0.00	0.00	0.00
901	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.99	0.00
500	1.00	0.01	0.26	0.00	0.74	0.00	0.00	0.00	0.99	0.00
400	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.98	0.00
300	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.98	0.00

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Mon Feb 5 13:54:31 2024
Analysis ended on: Mon Feb 5 13:54:31 2024
Total elapsed time: < 1 sec

Todd Creek Farms - Existing Condition 10-yr

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... NO
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... NO
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 01/01/2005 00:00:00
Ending Date 01/02/2005 12:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Routing Time Step ..... 60.00 sec
Variable Time Step ..... YES
Maximum Trials 8
Number of Threads 1
Head Tolerance ..... 0.005000 ft

**********	Volume	Volume
Flow Routing Continuity	acre-feet	10^6 gal
**********	---	---
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000

```
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........        20.431         6.658
External Outflow .........        20.431         6.658
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.005         0.002
Continuity Error (%) .....        -0.026


**************************
Time-Step Critical Elements
**************************
Link 902 (12.64%)


*******************************
Highest Flow Instability Indexes
*******************************
All links are stable.


*******************************
Most Frequent Nonconverging Nodes
*******************************
Convergence obtained at all time steps.


************************
Routing Time Step Summary
************************
Minimum Time Step           :    25.10 sec
Average Time Step           :    57.29 sec
Maximum Time Step           :    60.00 sec
```

```
% of Time in Steady State   :     0.00
Average Iterations per Step :     2.00
% of Steps Not Converging   :     0.00
Time Step Frequencies       :
   60.000 - 23.031 sec      :   100.00 %
   23.031 -  8.841 sec      :     0.00 %
    8.841 -  3.393 sec      :     0.00 %
    3.393 -  1.303 sec      :     0.00 %
    1.303 -  0.500 sec      :     0.00 %


******************
Node Depth Summary
******************
```

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
JUNCT_201	JUNCTION	0.00	0.00	5113.00	0 00:00	0.00
JUNCT_200	JUNCTION	0.04	0.39	5136.69	0 00:55	0.39
JUNCT_900	JUNCTION	0.08	0.92	5113.72	0 01:00	0.92
JUNCT_902	JUNCTION	0.13	1.32	5061.12	0 00:59	1.32
JUNCT_100	JUNCTION	0.00	0.00	5064.00	0 00:00	0.00
JUNCT_101	JUNCTION	0.00	0.00	5064.00	0 00:00	0.00
JUNCT_903	JUNCTION	0.00	0.05	5055.85	0 01:00	0.05
JUNCT_300	JUNCTION	0.03	0.52	5113.22	0 00:39	0.52
JUNCT_400	JUNCTION	0.02	0.44	5122.74	0 00:37	0.44
JUNCT_500	JUNCTION	0.02	0.21	5086.71	0 00:52	0.21
JUNCT_102	JUNCTION	0.00	0.00	5078.10	0 00:00	0.00
JUNCT_901	JUNCTION	0.08	0.81	5078.81	0 01:01	0.81
OUTFALL_904	OUTFALL	0.00	0.00	5055.70	0 00:00	0.00

```
******************
```

Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_201	JUNCTION	62.85	62.85	0 00:42	1.75	1.75	0.000
JUNCT_200	JUNCTION	12.79	12.79	0 00:42	0.518	0.518	-0.323
JUNCT_900	JUNCTION	0.00	72.68	0 00:43	0	2.27	0.063
JUNCT_902	JUNCTION	0.00	104.36	0 00:56	0	4.38	-0.010
JUNCT_100	JUNCTION	30.89	30.89	0 00:49	1.27	1.27	0.000
JUNCT_101	JUNCTION	27.10	27.10	0 00:51	1.17	1.17	0.000
JUNCT_903	JUNCTION	0.00	163.44	0 01:00	0	6.66	-0.009
JUNCT_300	JUNCTION	24.20	24.20	0 00:35	0.582	0.582	-0.923
JUNCT_400	JUNCTION	20.89	20.89	0 00:31	0.346	0.346	-1.973
JUNCT_500	JUNCTION	4.22	4.22	0 00:47	0.194	0.194	-0.171
JUNCT_102	JUNCTION	20.50	20.50	0 00:48	0.815	0.815	0.000
JUNCT_901	JUNCTION	0.00	66.74	0 00:40	0	1.95	0.716
OUTFALL_904	OUTFALL	0.00	163.44	0 01:00	0	6.66	0.000

****
Node Surcharge Summary
****

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Feet	Min. Depth Below Rim Feet
JUNCT_201	JUNCTION	36.00	0.000	0.000
JUNCT_100	JUNCTION	36.00	0.000	0.000

JUNCT_101	JUNCTION	36.00	0.000	0.000
JUNCT_102	JUNCTION	36.00	0.000	0.000

****
Node Flooding Summary
****

No nodes were flooded.

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
OUTFALL_904	99.43	11.28	163.44	6.657
System	99.43	11.28	163.44	6.657

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
200	CONDUIT	11.72	0 00:55	1.18	0.01	0.13
201	DUMMY	62.85	0 00:42			

100	DUMMY	30.89	0	00:49			
101	DUMMY	27.10	0	00:51			
900	CONDUIT	59.80	0	01:01	7.10	0.02	0.10
902	CONDUIT	103.69	0	00:59	8.20	0.05	0.14
901	CONDUIT	49.03	0	01:01	2.27	0.03	0.21
102	DUMMY	20.50	0	00:48			
500	CONDUIT	4.16	0	00:52	0.67	0.00	0.10
400	CONDUIT	19.71	0	00:39	3.24	0.01	0.11
300	CONDUIT	24.90	0	00:41	2.78	0.01	0.12
903	DUMMY	163.44	0	01:00			

****
Flow Classification Summary
****

	Adjusted	---------- Fraction of Time in Flow Class ----------							
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
200	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.99	0.00
900	1.00	0.01	0.00	0.00	0.75	0.24	0.00	0.00	0.00	0.00
902	1.00	0.01	0.00	0.00	0.83	0.16	0.00	0.00	0.00	0.00
901	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.99	0.00
500	1.00	0.01	0.25	0.00	0.75	0.00	0.00	0.00	0.99	0.00
400	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.98	0.00
300	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.98	0.00

****
Conduit Surcharge Summary
****

No conduits were surcharged.

```
Analysis begun on:  Mon Feb  5 13:53:40 2024
Analysis ended on:  Mon Feb  5 13:53:40 2024
Total elapsed time: < 1 sec
```

Todd Creek Farms - Existing Condition 100-yr

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... NO
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... NO
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 01/01/2005 00:00:00
Ending Date 01/02/2005 12:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Routing Time Step ..... 60.00 sec
Variable Time Step ..... YES
Maximum Trials 8
Number of Threads 1
Head Tolerance ..... 0.005000 ft

**********	Volume	Volume
Flow Routing Continuity	acre-feet	10^6 gal
**********	---	---
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	61.431	20.018

```
External Outflow .........        61.419        20.014
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.005         0.002
Continuity Error (%) .....         0.010
```

****
Time-Step Critical Elements
****
Link 902 (17.99%)

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****
Routing Time Step Summary
****

Minimum Time Step	:	16.94 sec
Average Time Step	:	54.73 sec
Maximum Time Step	:	60.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	2.00
% of Steps Not Converging	:	0.00
Time Step Frequencies	:	
60.000 - 23.031 sec	:	96.54 %
23.031 - 8.841 sec	:	3.46 %

```
    8.841 -  3.393 sec      :     0.00 %
    3.393 -  1.303 sec      :     0.00 %
    1.303 -  0.500 sec      :     0.00 %


******************
Node Depth Summary
******************

--------------------------------------------------------------------------------
                            Average  Maximum  Maximum  Time of Max    Reported
                              Depth    Depth      HGL   Occurrence   Max Depth
Node                 Type      Feet     Feet     Feet  days hr:min        Feet
--------------------------------------------------------------------------------
JUNCT_201            JUNCTION  0.00     0.00  5113.00     0  00:00        0.00
JUNCT_200            JUNCTION  0.08     0.69  5136.99     0  00:58        0.69
JUNCT_900            JUNCTION  0.19     1.80  5114.60     0  01:02        1.80
JUNCT_902            JUNCTION  0.29     2.38  5062.18     0  01:02        2.38
JUNCT_100            JUNCTION  0.00     0.00  5064.00     0  00:00        0.00
JUNCT_101            JUNCTION  0.00     0.00  5064.00     0  00:00        0.00
JUNCT_903            JUNCTION  0.01     0.09  5055.89     0  01:02        0.09
JUNCT_300            JUNCTION  0.07     0.89  5113.59     0  00:43        0.89
JUNCT_400            JUNCTION  0.04     0.70  5123.00     0  00:38        0.70
JUNCT_500            JUNCTION  0.05     0.42  5086.92     0  00:59        0.42
JUNCT_102            JUNCTION  0.00     0.00  5078.10     0  00:00        0.00
JUNCT_901            JUNCTION  0.17     1.54  5079.54     0  01:01        1.54
OUTFALL_904          OUTFALL   0.00     0.00  5055.70     0  00:00        0.00


*******************
Node Inflow Summary
*******************

--------------------------------------------------------------------------------------------------
                            Maximum  Maximum                  Lateral       Total        Flow
                            Lateral    Total  Time of Max      Inflow      Inflow     Balance
                             Inflow   Inflow   Occurrence      Volume      Volume       Error
Node                 Type       CFS      CFS  days hr:min    10^6 gal    10^6 gal     Percent
--------------------------------------------------------------------------------------------------
```

JUNCT_201	JUNCTION	190.68	190.68	0	00:48	5.53	5.53	0.000
JUNCT_200	JUNCTION	33.37	33.37	0	00:49	1.27	1.27	-0.333
JUNCT_900	JUNCTION	0.00	220.00	0	00:49	0	6.81	0.090
JUNCT_902	JUNCTION	0.00	339.02	0	01:00	0	13.2	0.016
JUNCT_100	JUNCTION	94.75	94.75	0	00:56	3.85	3.85	0.000
JUNCT_101	JUNCTION	87.02	87.02	0	00:59	3.74	3.74	0.000
JUNCT_903	JUNCTION	0.00	540.56	0	01:02	0	20	-0.017
JUNCT_300	JUNCTION	66.04	66.04	0	00:41	1.64	1.64	-0.942
JUNCT_400	JUNCTION	46.86	46.86	0	00:36	0.773	0.773	-2.433
JUNCT_500	JUNCTION	13.55	13.55	0	00:55	0.616	0.616	-0.126
JUNCT_102	JUNCTION	65.13	65.13	0	00:55	2.59	2.59	0.000
JUNCT_901	JUNCTION	0.00	179.63	0	00:47	0	5.66	0.691
OUTFALL_904	OUTFALL	0.00	540.57	0	01:02	0	20	0.000

****
Node Surcharge Summary
****

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Feet	Min. Depth Below Rim Feet
JUNCT_201	JUNCTION	36.00	0.000	0.000
JUNCT_100	JUNCTION	36.00	0.000	0.000
JUNCT_101	JUNCTION	36.00	0.000	0.000
JUNCT_102	JUNCTION	36.00	0.000	0.000

****
Node Flooding Summary
****

No nodes were flooded.

****

Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
OUTFALL_904	99.11	44.53	540.57	20.013
System	99.11	44.53	540.57	20.013

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days	hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
200	CONDUIT	32.13	0	00:58	1.42	0.02	0.25
201	DUMMY	190.68	0	00:48			
100	DUMMY	94.75	0	00:56			
101	DUMMY	87.02	0	00:59			
900	CONDUIT	202.30	0	01:02	10.82	0.08	0.19
902	CONDUIT	338.27	0	01:02	12.88	0.17	0.25
901	CONDUIT	158.72	0	01:02	3.26	0.09	0.39
102	DUMMY	65.13	0	00:55			
500	CONDUIT	13.50	0	00:59	0.96	0.01	0.20
400	CONDUIT	46.20	0	00:39	4.01	0.02	0.21
300	CONDUIT	65.74	0	00:43	3.80	0.03	0.24
903	DUMMY	540.57	0	01:02			

****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
200	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
900	1.00	0.00	0.00	0.00	0.75	0.25	0.00	0.00	0.00	0.00
902	1.00	0.00	0.00	0.00	0.82	0.18	0.00	0.00	0.01	0.00
901	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.99	0.00
500	1.00	0.00	0.24	0.00	0.75	0.00	0.00	0.00	0.99	0.00
400	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.98	0.00
300	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.98	0.00

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Mon Feb 5 13:44:52 2024
Analysis ended on: Mon Feb 5 13:44:52 2024
Total elapsed time: < 1 sec

MAPS

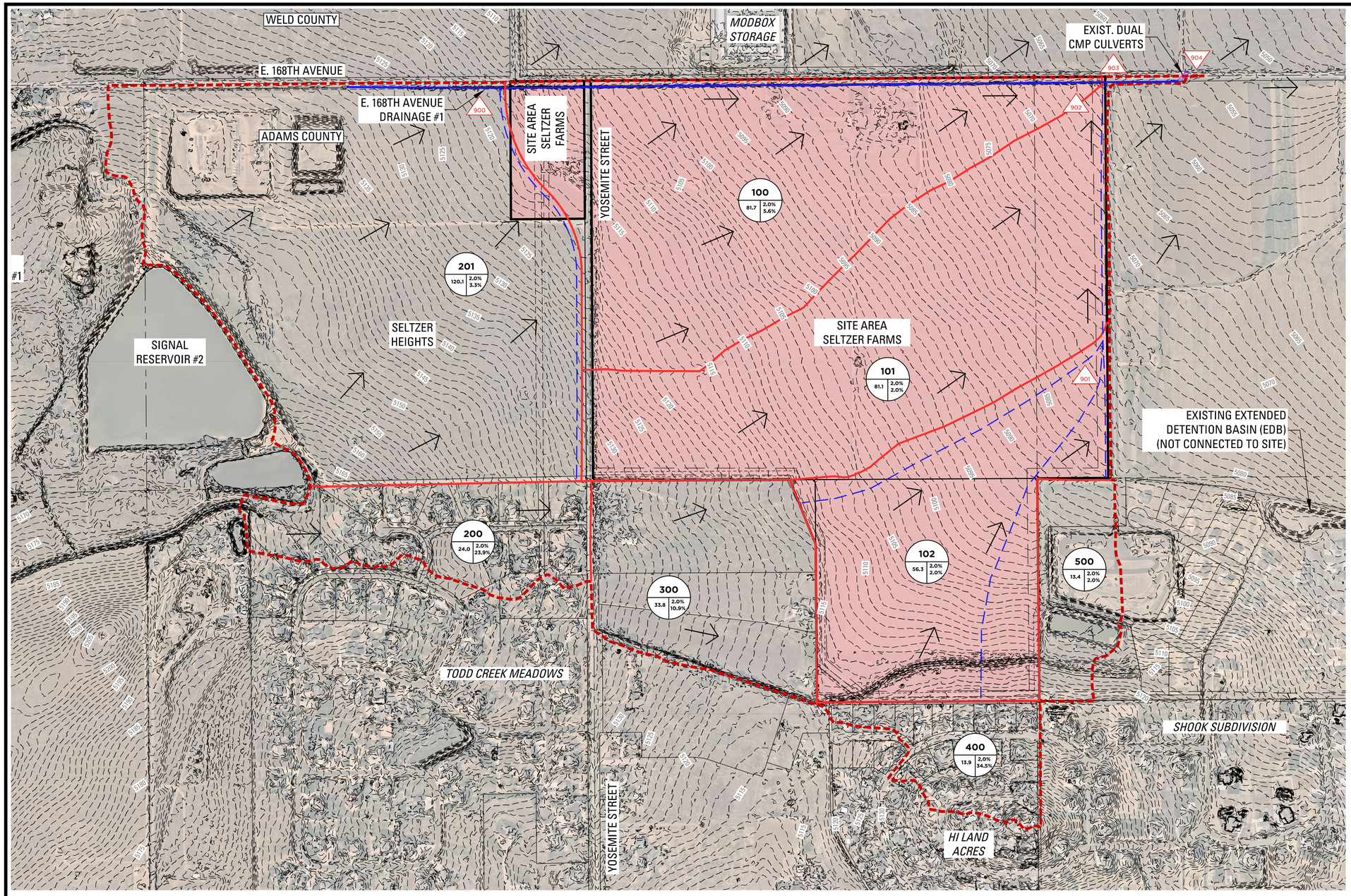
EXISTING CUHP/SWMM DRAINAGE MAP

PHASE 1 CUHP/SWMM DRAINAGE MAP

ULTIMATE CUHP/SWMM DRAINAGE MAP

PROPOSED PHASE 1 DRAINAGE MAP

PROPOSED ULTIMATE DRAINAGE MAP



DRAINAGE MAP LEGEND

- 110 — SUB BASIN NAME
- 45.8 — BASIN AREA (ACRES)
- 2.0% — HISTORICAL CONDITION IMPERVIOUSNESS
- 16.2% — EXISTING CONDITION IMPERVIOUSNESS
- 308 — SWMM MODEL DESIGN POINT
- MAJOR DRAINAGE BASIN BOUNDARY
- MINOR DRAINAGE BASIN BOUNDARY
- MAJOR DRAINAGE FLOW PATH
- MINOR DRAINAGE FLOW PATH
- DIRECTIONAL FLOW ARROW
- TODD CREEK FARMS SITE AREA

TOPOGRAPHIC DATA OBTAINED FROM THE DENVER REGIONAL COUNCIL OF GOVERNMENTS (DRCOG). 2020 DRCOG BLOCK 2, QL2 LIDAR DATA SET.

N

300 0 150 300 600

SCALE: 1"= 300 ' HORIZ.

DEVELOPED RUNOFF

DESIGN POINT	PEAK DISCHARGE (CFS) - HISTORIC			PEAK DISCHARGE (CFS) - EXISTING CONDITION		
	5-YEAR	10-YEAR	100-YEAR	5-YEAR	10-YEAR	100-YEAR
900	43.9	67.6	212.5	48.4	72.7	220.0
901	36.0	55.6	167.9	46.8	66.7	179.6
902	57.5	94.2	327.8	67.3	104.4	339.0
903	90.4	149.1	523.0	104.0	163.4	540.6
904	90.4	149.1	523.0	104.0	163.4	540.6

SELTZER FARMS FILING NO. 1
PRELIMINARY DRAINAGE REPORT

TITLE: EXISTING CUHP/SWMM MAP

ADDRESS: 9230 E. 168TH AVE
BRIGHTON, COLORADO 80602

LOCATION: SECTIONS 2, 3, & 4
TOWNSHIP 1 SOUTH, RANGE 67 WEST

DATE: 02/09/2024

REV 1: 04/26/2024	REV 3:
REV 2:	REV 4:

SHEET 1 OF 5

KT ENGINEERING
ENGINEERS • SURVEYORS
12500 W. 58th AVE. #230
ARVADA, CO 80002
PH: 720.638.5190

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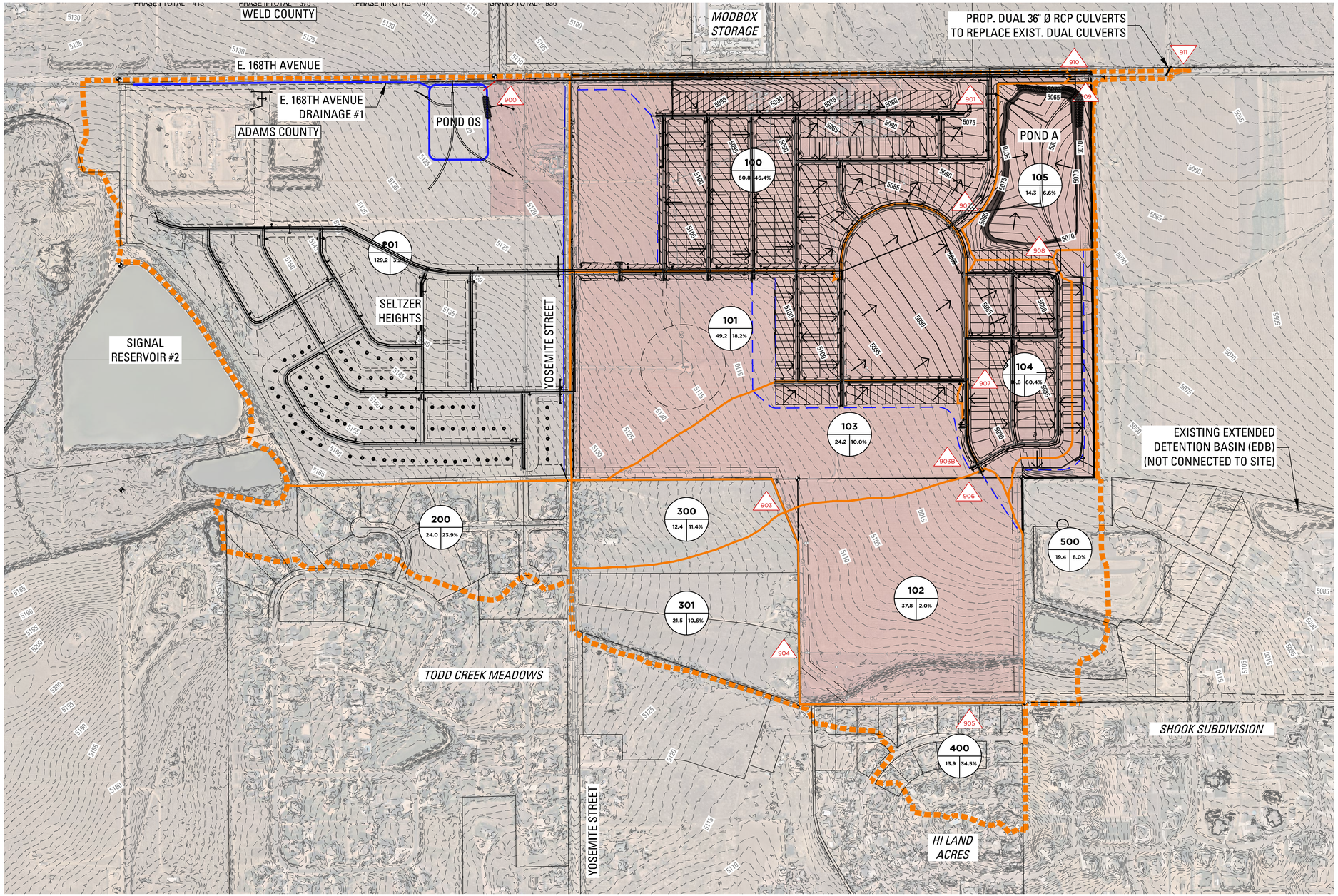

DEVELOPED RUNOFF			
	PEAK DISCHARGE (CFS) - PHASE 1 SELTZER		
DESIGN POINT	5-YEAR	10-YEAR	100-YEAR
Pond OS	52.8	78.9	236.8
900	1.7	5.1	37.6
901	46.6	59.0	129.8
902	16.7	23.3	63.6
903	4.0	5.8	16.5
903B	10.0	14.6	42.8
904	9.0	12.9	36.0
905	16.1	21.0	47.0
906	33.8	47.9	130.4
907	38.6	56.2	162.4
908	52.2	73.1	199.1
Pond A	120.2	163.4	425.1
909	8.3	10.4	50.3
910	5.0	9.2	62.4
911	4.2	8.2	60.4

DRAINAGE MAP LEGEND

104 — SUB BASIN NAME
18.2 — BASIN AREA (ACRES)
61.2% — PHASE 1 CONDITION IMPERVIOUSNESS

308 — SWMM MODEL DESIGN POINT
MAJOR DRAINAGE BASIN BOUNDARY
MINOR DRAINAGE BASIN BOUNDARY
MAJOR DRAINAGE FLOW PATH
PROPOSED CHANNEL DIVERSION
DIRECTIONAL FLOW ARROW
TODD CREEK FARMS SITE AREA

TOPOGRAPHIC DATA OBTAINED FROM THE DENVER REGIONAL COUNCIL OF GOVERNMENTS (DRCOG), 2020 DRCOG BLOCK 2, QL2 LIDAR DATA SET.

N

300 0 150 300 600
SCALE: 1"= 300 ' HORIZ.

SELTZER FARMS FILING NO. 1
PRELIMINARY DRAINAGE REPORT

TITLE: PHASE 1 CUHP/SWMM MAP

ADDRESS: 8120, 9230, & 11750 E. 168TH AVE
BRIGHTON, COLORADO 80602

LOCATION: SECTIONS 2, 3, & 4
TOWNSHIP 1 SOUTH, RANGE 67 WEST

DATE: 02/09/2024

REV 1: 04/26/2024	REV 3:
REV 2:	REV 4:

SHEET 2 OF 5

KT ENGINEERING
ENGINEERS • SURVEYORS
12500 W. 58th AVE. #230
ARVADA, CO 80002
PH: 720.638.5190

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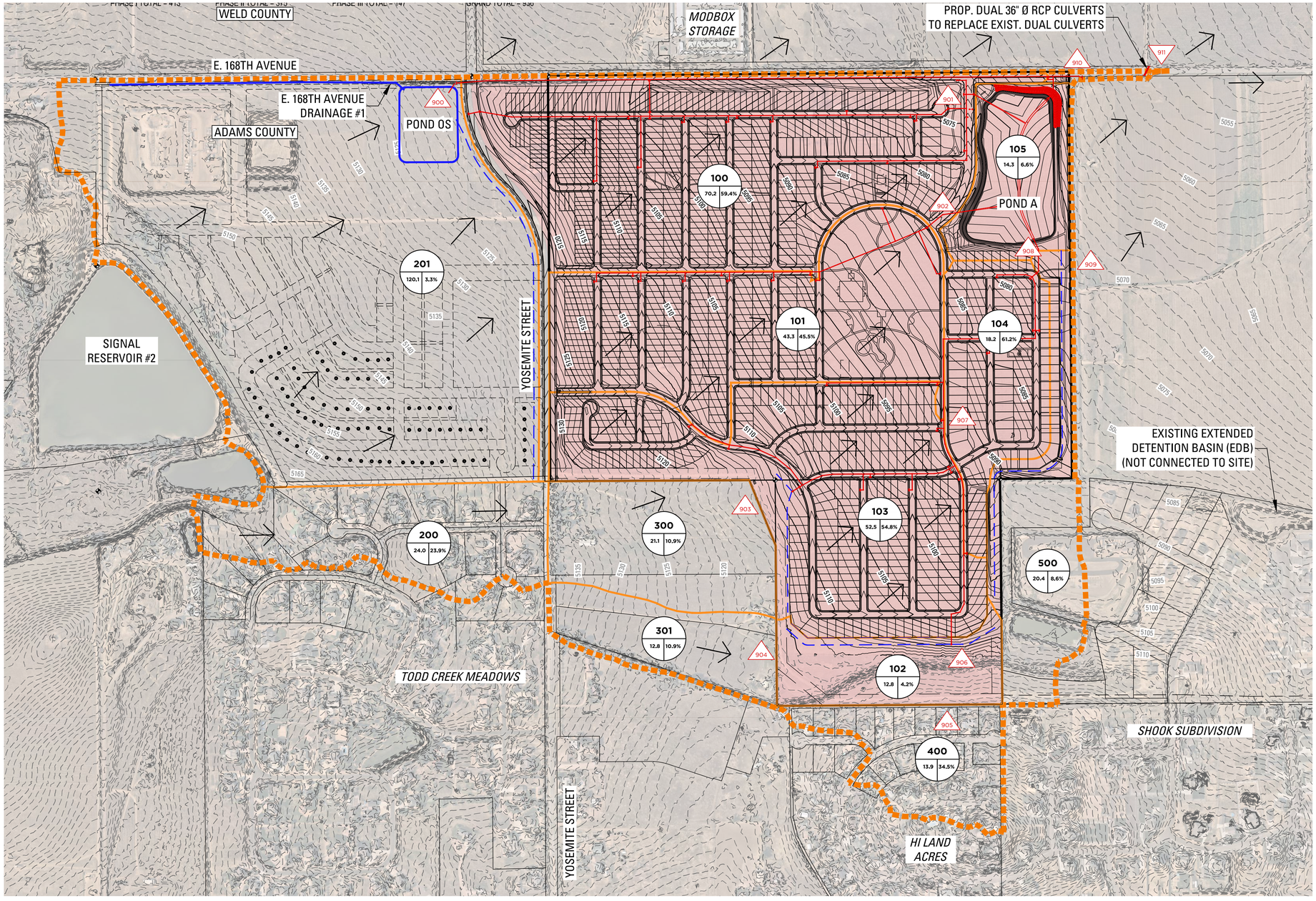
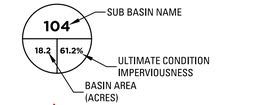


DEVELOPED RUNOFF			
	PEAK DISCHARGE (CFS) - ULTIMATE SELTZER		
DESIGN POINT	5-YEAR	10-YEAR	100-YEAR
Pond OS	48.8	73.0	219.4
900	1.4	4.7	37.6
901	62.2	76.6	158.0
902	33.0	41.9	92.5
903	8.7	12.4	34.6
904	4.2	6.0	17.1
905	16.1	21.0	47.0
906	21.9	30.1	76.0
907	77.5	100.9	234.9
908	93.1	120.4	277.0
Pond A	196.8	251.6	565.9
909	9.7	15.8	52.4
910	5.2	10.9	63.5
911	4.3	9.4	61.4

DRAINAGE MAP LEGEND



308 SWMM MODEL DESIGN POINT

MAJOR DRAINAGE BASIN BOUNDARY

MINOR DRAINAGE BASIN BOUNDARY

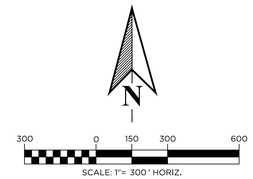
MAJOR DRAINAGE FLOW PATH

PROPOSED CHANNEL DIVERSION

DIRECTIONAL FLOW ARROW

TODD CREEK FARMS SITE AREA

TOPOGRAPHIC DATA OBTAINED FROM THE DENVER REGIONAL COUNCIL OF GOVERNMENTS (DRCOG), 2020 DRCOG BLOCK 2, QL2 LIDAR DATA SET.



SELTZER FARMS FILING NO. 1
PRELIMINARY DRAINAGE REPORT

TITLE: ULTIMATE CUHP/SWMM MAP

ADDRESS: 8120, 9230, & 11750 E. 168TH AVE
BRIGHTON, COLORADO 80602

LOCATION: SECTIONS 2, 3, & 4
TOWNSHIP 1 SOUTH, RANGE 67 WEST

DATE: 02/09/2024

REV 1: 04/26/2024	REV 3:
REV 2:	REV 4:

SHEET 3 OF 5

KT ENGINEERING
ENGINEERS • SURVEYORS
12500 W. 58th AVE. #230
ARVADA, CO 80002
PH: 720.638.5190

J:\8109\FILING 1 SELTZER\CIVIL\DRAINAGE\PHASE II\CAD FILES\2201-PH2-DRN-CUHP-ULT.DWG

APPENDIX C
HYDROLOGIC INFROMATION & ROUTING, POND SIZING
CUHP/SWMM SUMMARY

PROJECT: SELTZER HEIGHTS
SHEET TITLE: PROPOSED COMPOSITE RUNOFF FACTORS

Basin Name	Total Area (Acres)	Total Area (Sq. Ft.)	Undeveloped (Sq. Ft.)	Rural Res. (1-2 Ac.) (Sq. Ft.)	Single Family Low Density (Sq. Ft.)	Gravel (Sq. Ft.)	Apartments (Sq. Ft.)	Single Family (Sq. Ft.)	Local Street ROW (Sq. Ft.)	Collector Street ROW (Sq. Ft.)	Conc. Drives/Walks (Sq. Ft.)	Asphalt Pvmt (Sq. Ft.)	Soil Type "C" Composite Runoff Factors			
													C_5	C_{100}	I %	
OS4	24.02	1,046,369	74,060	964,891								7,418	0.23	0.58	23.90	
F1	2.58	112,446	73,733			441					6,303	31,969	0.32	0.63	34.94	
F2	9.57	416,688	326,843			25,479		53,670			10,696		0.14	0.54	12.76	
F3	7.79	339,411	131,011			208,400							0.24	0.59	25.33	
F4	2.97	129,365	61,584						22,602	31,426	11,187	2,566	0.39	0.66	43.66	
F5A	2.86	124,564	331				109,656			11,726	236	2,615	0.65	0.79	74.70	
F5B	2.90	126,465	0				105,762			20,703			0.64	0.78	73.85	
F6	1.22	53,187	18,550								6,870	27,767	0.56	0.75	64.53	
F7	8.34	363,320	25,136				338,184						0.61	0.77	69.95	
F8	3.22	140,255	0				140,255						0.65	0.79	75.00	
F9	5.71	248,582	154,233					76,202			18,147		0.22	0.58	23.14	
F10	0.54	23,726	5,901					15,951			1,874		0.37	0.65	41.22	
F11	2.39	104,161	0					64,436	39,725				0.58	0.76	66.78	
F12A	3.35	145,863	4,561					106,877	34,176		249		0.51	0.72	58.88	
F12B	2.51	109,154	1,712					67,605	39,316		521		0.56	0.75	65.29	
F13	2.12	92,465	1,415					50,378	28,028	12,416	228		0.56	0.75	65.12	
F14	0.44	19,198	0				2,361			16,837			0.60	0.76	68.86	
F15	2.82	122,634	0					92,092	30,542				0.52	0.73	60.96	
F16	2.75	119,982	74,539					37,034			8,409		0.22	0.58	22.98	
F17	3.41	148,736	0					134,565	14,171				0.47	0.71	54.19	
F18A	1.33	57,881	0					38,220	19,661				0.56	0.75	64.95	
F18B	2.84	123,877	0					96,702	27,175				0.52	0.73	59.65	
F18C	1.97	85,660	2,180					58,724	23,873		883		0.53	0.73	61.45	
F19	3.27	142,304	0					119,686	22,618				0.49	0.72	56.99	
F20	2.56	111,666	792				3,928	37,311	40,378	29,257			0.62	0.77	71.17	
F21	1.63	71,157	120				52,454			18,583			0.63	0.78	73.05	
F22	1.44	62,729	121				8,061			54,547			0.60	0.76	68.77	
F23	5.90	256,920	162,065					80,664			14,191		0.21	0.58	21.93	
F24	2.51	109,459	4,634					59,053	44,766		1,006		0.57	0.75	66.33	
F25	1.00	43,438	15,999					27,000			439		0.30	0.62	32.72	
F26	4.03	175,548	23,150					105,535	46,125		738		0.48	0.71	55.40	
F27	2.58	112,461	30,730					43,066	36,888		1,777		0.45	0.70	51.95	
F28	0.36	15,880	121				2,871		12,888				0.77	0.85	89.86	
F29	6.12	266,444	18,115				248,329						0.61	0.77	70.04	
F30	1.63	71,145	21,199						1,165		9,899	38,882	0.60	0.77	69.31	
F31	7.57	329,751	21,188				308,563						0.61	0.77	70.31	
F32	6.91	300,940	276,153				24,787						0.10	0.51	8.01	
G1	2.40	104,744	30,800							2,091	13,084	58,769	0.60	0.77	69.30	
G2	1.07	46,564	0								5,971	40,593	0.84	0.88	98.72	
Pond B	145.18	6,323,831	1,530,176	964,891	0	234,320	1,345,211	1,364,771	484,097	195,495	93,653	111,217	0.40	0.67	44.91	
200	24.02	1,046,369	74,060	964,891	0	0	0	0	0	0	0	7,418	0.23	0.58	23.90	(OS4)
201	24.13	1,051,295	276,013	0	0	0	251,200	315,318	141,832	0	28,050	38,882	0.46	0.70	52.22	(F23 THRU F30)
202	48.66	2,119,526	266,762	0	0	0	375,367	995,783	319,663	131,640	30,311	0	0.49	0.72	56.71	(F9 THRU F22 + F31)
203	41.45	1,805,701	637,188	0	0	234,320	693,857	53,670	22,602	63,855	35,292	64,917	0.40	0.67	45.14	(F1 THRU F8)
204	6.91	300,940	276,153	0	0	0	24,787	0	0	0	0	0	0.10	0.51	8.01	(F32)

Land Use	Imp., I %
Undeveloped	2
Rural Residential (1-2 Acres)	25
Single Family Low Density	35
Gravel	40
Apartments	75
Single Family Lot Area	50
Local Street ROW	94
Collector ROW	68
Concrete Walks/Drives/Roof	90
Asphalt Pavement	100

PROJECT: SELTZER HEIGHTS

SHEET TITLE: PROPOSED TIME OF CONCENTRATION CALCULATIONS

			TIME (Ti) *[Max. 300']*					TRAVEL TIME (Tt)								Tc CHECK (Urbanized Basins)					FINAL Tc	Time to Peak** Flow	Remarks
Basin No.	Area (acres)	5Yr. co-eff.	Elevations Upstream	Elevations Downstream	Dist. (ft)	Slope (ft/ft)	Ti (min)	Elevations Upstream	Elevations Downstream	Dist. (ft)	Slope (ft/ft)	*	Vel. (fps)	Tt (min)	Tc	Length (ft)	Avg Slope (ft/ft)	Imperv.	Tc (min)	(min)		
OS4	24.02	0.58	5184.5	5175.6	300	0.030	11.4	5175.6	5135.0	1,929	0.021	5.0	2.2	14.8	26.2	1929	0.021	0.24	39.9	26.2	**26.2**	Developed
F1	2.58	0.63	5153.3	5145.3	300	0.027	10.8	5145.3	5132.9	1,089	0.011	6.0	2.1	8.5	19.3	1089	0.011	0.35	32.3	19.3	**19.3**	Developed
F2	9.57	0.54	5177.6	5162.8	198	0.075	7.5	5162.8	5131.3	2,023	0.016	5.0	1.9	18.0	25.5	2023	0.016	0.13	48.9	25.5	**25.5**	Developed
F3	7.79	0.59	5142.5	5139.7	300	0.009	16.6	5139.7	5134.0	344	0.017	5.0	1.9	3.0	19.5	344	0.017	0.25	25.2	19.5	**19.5**	Developed
F4	2.97	0.66	5170.6	5167.0	145	0.025	7.1	5167.0	5132.7	1,165	0.029	6.0	3.4	5.7	12.8	1165	0.029	0.44	26.1	12.8	**12.8**	Developed
F5A	2.86	0.79	5161.2	5159.2	150	0.013	6.4	5159.2	5132.9	742	0.035	6.0	3.8	3.3	9.6	742	0.035	0.75	16.7	9.6	**9.6**	Developed
F5B	2.90	0.78	5161.5	5159.3	150	0.015	6.2	5159.3	5139.4	490	0.041	6.0	4.0	2.0	8.3	490	0.041	0.74	15.5	8.3	**8.3**	Developed
F6	1.22	0.75	5133.2	5132.0	35	0.034	2.5	5132.0	5122.7	836	0.011	6.0	2.1	6.6	9.1	836	0.011	0.65	22.4	9.1	**9.1**	Developed
F7	8.34	0.77	5158.5	5153.4	150	0.034	5.0	5153.4	5120.5	603	0.055	6.0	4.7	2.2	7.1	603	0.055	0.70	16.4	7.1	**7.1**	Developed
F8	3.22	0.79	5157.9	5152.0	150	0.039	4.4	5152.0	5122.0	289	0.104	5.0	4.8	1.0	5.4	289	0.104	0.75	14.0	5.4	**5.4**	Developed
F9	5.71	0.58	5177.6	5167.5	219	0.046	8.4	5167.5	5158.9	439	0.020	5.0	2.1	3.5	11.9	439	0.020	0.23	26.3	11.9	**11.9**	Developed
F10	0.54	0.65	5172.8	5168.5	102	0.042	5.1	5168.5	5165.3	106	0.030	5.0	2.6	0.7	5.8	106	0.030	0.41	19.7	5.8	**5.8**	Developed
F11	2.39	0.76	5177.1	5171.0	123	0.050	4.1	5171.0	5166.5	419	0.011	6.0	2.1	3.4	7.5	419	0.011	0.67	18.3	7.5	**7.5**	Developed
F12A	3.35	0.72	5176.0	5165.1	195	0.056	5.4	5165.1	5160.2	345	0.014	6.0	2.4	2.4	7.8	345	0.014	0.59	18.8	7.8	**7.8**	Developed
F12B	2.51	0.75	5171.5	5169.9	62	0.026	3.7	5169.9	5160.8	673	0.014	6.0	2.3	4.8	8.5	673	0.014	0.65	20.2	8.5	**8.5**	Developed
F13	2.12	0.75	5165.6	5164.2	52	0.027	3.3	5164.2	5158.2	653	0.009	6.0	1.9	5.7	9.0	653	0.009	0.65	21.2	9.0	**9.0**	Developed
F14	0.44	0.76	5161.6	5160.6	26	0.038	2.0	5160.6	5158.2	261	0.009	6.0	1.9	2.3	4.3	261	0.009	0.69	16.7	4.3	**5.0**	Developed
F15	2.82	0.73	5169.0	5164.2	186	0.026	6.7	5164.2	5160.5	444	0.008	6.0	1.8	4.1	10.8	444	0.008	0.61	20.3	10.8	**10.8**	Developed
F17	3.41	0.71	5178.0	5169.4	204	0.042	6.4	5169.4	5155.0	521	0.028	6.0	3.3	2.6	9.0	521	0.028	0.54	19.9	9.0	**9.0**	Developed
F18A	1.33	0.75	5171.0	5169.6	52	0.027	3.3	5169.6	5151.2	748	0.025	6.0	3.1	4.0	7.3	748	0.025	0.65	19.4	7.3	**7.3**	Developed
F18B	2.84	0.73	5170.8	5158.1	204	0.062	5.3	5158.1	5141.5	248	0.067	6.0	5.2	0.8	6.1	248	0.067	0.60	16.8	6.1	**6.1**	Developed
F18C	1.97	0.73	5165.6	5164.2	52	0.027	3.5	5164.2	5146.4	879	0.020	6.0	2.8	5.1	8.6	879	0.020	0.61	21.4	8.6	**8.6**	Developed
F16	2.75	0.58	5163.8	5155.7	200	0.041	8.5	5155.7	5148.2	190	0.039	5.0	3.0	1.1	9.5	190	0.039	0.23	23.4	9.5	**9.5**	Developed
F19	3.27	0.72	5154.1	5143.8	209	0.049	6.0	5143.8	5138.7	524	0.010	6.0	2.0	4.4	10.4	524	0.010	0.57	21.5	10.4	**10.4**	Developed
F20	2.56	0.77	5161.3	5159.0	94	0.024	4.3	5159.0	5136.6	764	0.029	6.0	3.4	3.7	8.0	764	0.029	0.71	17.8	8.0	**8.0**	Developed
F21	1.63	0.78	5139.8	5134.7	150	0.034	4.7	5134.7	5122.8	362	0.033	6.0	3.6	1.7	6.4	362	0.033	0.73	15.3	6.4	**6.4**	Developed
F22	1.44	0.76	5161.4	5160.4	24	0.042	1.9	5160.4	5122.7	1,294	0.029	6.0	3.4	6.3	8.2	1294	0.029	0.69	21.1	8.2	**8.2**	Developed
F23	5.90	0.58	5180.5	5164.5	234	0.068	7.7	5164.5	5133.1	1,444	0.022	5.0	2.2	10.9	18.6	1444	0.022	0.22	35.8	18.6	**18.6**	Developed
F24	2.51	0.75	5180.6	5179.2	52	0.027	3.3	5179.2	5138.2	1,432	0.029	6.0	3.4	7.1	10.3	1432	0.029	0.66	22.4	10.3	**10.3**	Developed
F25	1.00	0.62	5141.5	5130.7	92	0.117	3.7	5130.7	5127.2	346	0.010	5.0	1.5	3.8	7.5	346	0.010	0.33	24.7	7.5	**7.5**	Developed
F26	4.03	0.71	5180.6	5179.2	51	0.027	3.6	5179.2	5136.5	1,497	0.029	6.0	3.4	7.4	11.0	1497	0.029	0.55	25.4	11.0	**11.0**	Developed
F27	2.58	0.70	5157.6	5156.3	52	0.025	3.9	5156.3	5129.7	1,010	0.026	6.0	3.2	5.2	9.1	1010	0.026	0.52	23.5	9.1	**9.1**	Developed
F28	0.36	0.85	5144.4	5143.7	13	0.054	1.0	5143.7	5129.8	469	0.030	6.0	3.4	2.3	3.2	469	0.030	0.90	12.8	3.2	**5.0**	Developed

PROJECT: SELTZER HEIGHTS

SHEET TITLE: PROPOSED TIME OF CONCENTRATION CALCULATIONS

			TIME (Ti) *[Max. 300']*					TRAVEL TIME (Tt)								Tc CHECK (Urbanized Basins)					FINAL Tc	Time to Peak** Flow	Remarks
Basin No.	Area (acres)	5Yr. co-eff.	Elevations Upstream	Elevations Downstream	Dist. (ft)	Slope (ft/ft)	Ti (min)	Elevations Upstream	Elevations Downstream	Dist. (ft)	Slope (ft/ft)	*	Vel. (fps)	Tt (min)	Tc	Length (ft)	Avg Slope (ft/ft)	Imperv.	Tc (min)	(min)		
F29	6.12	0.77	5144.6	5138.1	200	0.033	5.8	5138.1	5120.4	745	0.024	5.0	2.3	5.4	11.1	745	0.024	0.70	18.4	11.1	**11.1**	Developed
F30	1.63	0.77	5136.3	5133.0	95	0.035	3.9	5133.0	5122.0	1,105	0.010	6.0	2.0	9.2	13.2	1105	0.010	0.69	24.1	13.2	**13.2**	Developed
F31	7.57	0.77	5151.8	5143.9	200	0.040	5.4	5143.9	5114.1	971	0.031	6.0	3.5	4.6	10.0	971	0.031	0.70	18.9	10.0	**10.0**	Developed
F32	6.91	0.51	5122.0	5109.5	248	0.050	9.9	5109.5	5107.3	429	0.005	6.0	1.4	5.0	14.9	429	0.005	0.08	34.6	14.9	**14.9**	Developed
G1	2.40	0.77	5122.6	5121.6	52	0.019	3.6	5121.6	5114.0	1,081	0.007	6.0	1.7	10.7	14.3	1081	0.007	0.69	25.7	14.3	**14.3**	Developed
G2	1.07	0.88	5122.2	5121.4	42	0.019	2.1	5121.4	5114.0	1,058	0.007	6.0	1.7	10.5	12.6	1058	0.007	0.99	18.5	12.6	**12.6**	Developed

* Type of Land Surface for Overland Travel Time	VELOCITY COEFFICIENTS	
1 = Heavy Meadow	1	2.5
2 = Tillage / Field	2	5
3 = Short pasture & lawns	3	7
4 = Nearly bare ground	4	10
5 = Grassed waterway	5	15
6 = Paved areas and shallow paved swales	6	20

PROJECT: SELTZER HEIGHTS
SHEET TITLE: PROPOSED SF-3 FORM (5-YR)

		DIRECT RUNOFF						TOTAL RUNOFF				STREET			PIPE			TRAVEL TIME			
BASIN	DESIGN POINT	AREA (Acres)	RUNOFF COEFF	Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	Tc (min)	(C A) (Acres)	I (in/hour)	Q (cfs)	SLOPE (%)	STREET FLOW (cfs)	CARRYOVER (cfs)	PIPE FLOW (cfs)	SLOPE (%)	PIPE SIZE (in)	LENGTH (ft)	VELOCITY (fps)	Tt (min)	REMARKS
F1	1	2.58	0.32	19.31	0.82	2.85	**2.32**								2.32	0.5	18	92	4.7	0.3	Total Flow Captured in Inlet at DP 1
F2	2	9.57	0.54	25.47	5.12	2.46	**12.59**								12.59	2.0	24	35	9.5	0.1	Total Flow to FES at DP 2
F4	3	2.97	0.66	12.77	1.97	3.47	**6.85**														Total Flow Captured in Inlet at DP 3
F2+F4	3							**25.53**	**7.09**	**2.45**	**17.35**				17.35	1.0	30	23	7.9	0.0	Combined Flow in Inlet at DP 3
F5B	4	2.90	0.78	8.27	2.28	4.13	**9.40**								9.40	2.0	24	187	8.7	0.4	Total Flow Captured in Inlet at DP 4
F3	5	7.79	0.59	19.54	4.60	2.83	**13.01**								13.01	0.5	30	66	5.7	0.2	Total Flow Captured in Inlet at DP 5
F3+F5B	6							**19.73**	**6.87**	**2.83**	**19.45**				19.45	0.5	36	102	8.2	0.2	Combined Flow in MH at DP 6
F1+F2+F3+F4+F5B	7							**25.58**	**14.78**	**2.45**	**36.17**				36.17	1.0	42	23	9.6	0.0	Combined Flow in MH at DP 7
F5A	8	2.86	0.79	9.65	2.25	3.92	**8.83**														Total Flow Captured in Inlet at DP 8
F1+F2+F3+F4+F5	8							**25.62**	**17.03**	**2.45**	**41.68**										Combined Flow in Inlet at DP 8
F7	9	8.34	0.77	7.11	6.41	4.37	**27.96**	**25.62**	**23.44**	**2.45**	**57.35**										Total Flow in Channel at DP 9
F6	10	1.22	0.75	9.14	0.91	4.00	**3.65**														Total Flow Captured in Inlet at DP 10
F1+F2+F3+F4+F5+F6+F7	11							**25.62**	**24.35**	**2.45**	**59.59**				59.59	0.9	48	79	10.4	0.1	Combined Flow in Inlet at DP 11
F8	12	3.22	0.79	5.41	2.54	4.75	**12.09**														Total Flow to Pond at DP 12
F9	13	5.71	0.58	11.93	3.32	3.60	**11.95**								11.95	0.5	30	460	5.6	1.4	Total Flow to Inlet at DP 13
F10	14	0.54	0.65	5.79	0.36	4.64	**1.65**														Total Flow to Inlet at DP 14
F9+F10	15							**13.30**	**3.68**	**3.41**	**12.55**				12.55	0.5	30	160	5.7	0.5	Combined Flow in Pipe at DP 15
F11	16	2.39	0.76	7.47	1.81	4.32	**7.80**														Total Flow to Inlet at DP 16
F9+F10+F11	17							**13.77**	**5.49**	**3.36**	**18.41**				18.41	0.5	36	481	6.2	1.3	Combined Flow in MH at DP 17
F12A	18	3.35	0.72	7.84	2.42	4.22	**10.23**														Total Flow to Inlet at DP 18
F9+F10+F11+F12A	19							**15.06**	**7.91**	**3.22**	**25.50**				25.50	0.5	42	39	6.8	0.1	Combined Flow in MH at DP 19
F12B	20	2.51	0.75	8.51	1.88	4.08	**7.68**														Total Flow Captured in Inlet at DP 20
F9+F10+F11+F12A+F12B	21							**15.16**	**9.79**	**3.22**	**31.56**				31.56	0.5	42	164	7.2	0.4	Combined Flow in MH at DP 21

PROJECT: SELTZER HEIGHTS
SHEET TITLE: PROPOSED SF-3 FORM (5-YR)

		DIRECT RUNOFF						TOTAL RUNOFF				STREET			PIPE			TRAVEL TIME			
BASIN	DESIGN POINT	AREA (Acres)	RUNOFF COEFF	Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	Tc (min)	(C A) (Acres)	I (in/hour)	Q (cfs)	SLOPE (%)	STREET FLOW (cfs)	CARRYOVER (cfs)	PIPE FLOW (cfs)	SLOPE (%)	PIPE SIZE (in)	LENGTH (ft)	VELOCITY (fps)	Tt (min)	REMARKS
F13	22	2.12	0.75	9.00	1.59	4.00	**6.37**														Total Flow Captured in Inlet at DP 22
F14	23	0.44	0.76	5.00	0.34	4.82	**1.62**														Total Flow Captured in Inlet at DP 23
F9 THRU F14	24							**15.54**	**11.72**	**3.17**	**37.19**				37.19	0.7	42	174	8.4	0.3	Combined Flow in MH at DP 24
F15	25	2.82	0.73	10.76	2.06	3.73	**7.69**														Total Flow Captured in Inlet at DP 25
F9 THRU F15	26							**15.88**	**13.78**	**3.15**	**43.40**				43.40	1.0	42	543	10.0	0.9	Combined Flow in MH at DP 26
F16	27	2.75	0.58	9.52	1.60	3.92	**6.26**														Total Flow Captured in Inlet at DP 27
F9 THRU F16	28							**16.79**	**15.38**	**3.06**	**47.00**				47.00	2.5	42	138	14.3	0.2	Combined Flow in MH at DP 28
F17	29	3.41	0.71	9.00	2.41	4.04	**9.74**								0.00	1.3	24	284	8.4	0.6	Total Flow Captured in Inlet at DP 29
F18A	30	1.33	0.75	7.32	0.99	4.32	**4.29**														Total Flow Captured in Inlet at DP 30
F17+F18A	31							**9.56**	**3.40**	**3.92**	**13.34**				13.34	1.0	24	37	7.4	0.1	Combined Flow in MH at DP 31
F18B	32	2.84	0.73	6.09	2.07	4.58	**9.48**														Total Flow Captured in Inlet at DP 32
F17+F18A+F18B	33							**9.64**	**5.47**	**3.92**	**21.46**				21.46	1.0	30	407	8.4	0.8	Combined Flow in MH at DP 33
F18C	34	1.97	0.73	8.63	1.44	4.08	**5.90**														Total Flow Captured in Inlet at DP 34
F17+F18A+F18B+F18C	35							**10.45**	**6.92**	**3.80**	**26.32**				26.32	1.0	36	53	8.9	0.1	Combined Flow in MH at DP 35
F9 THRU F18	36							**16.95**	**22.29**	**3.06**	**68.15**				68.15	2.5	42	261	15.7	0.3	Combined Flow in MH at DP 36
F19	37	3.27	0.72	10.41	2.34	3.80	**8.90**														Total Flow Captured in Inlet at DP 37
F9 THRU F19	38							**17.22**	**24.63**	**3.03**	**74.75**				74.75	2.6	42	57	16.4	0.1	Combined Flow in MH at DP 38
F20	39	2.56	0.77	8.02	1.98	4.17	**8.28**														Total Flow Captured in Inlet at DP 39
F9 THRU F20	40							**17.28**	**26.62**	**3.01**	**80.19**				80.19	2.6	48	463	16.7	0.5	Combined Flow in MH at DP 40
F23	41	5.90	0.58	18.62	3.40	2.91	**9.88**														Total Flow in Channel at DP 41
F24	42	2.51	0.75	10.34	1.89	3.80	**7.21**														Total Flow Captured in Inlet at DP 42
F25	43	1.00	0.62	7.54	0.62	4.27	**2.64**														Direct Runoff to Channel at DP 43
F23+F24+F25	43							**18.62**	**5.91**	**2.91**	**17.19**				17.19	1.0	30	52	8.0	0.1	Total Combined Flow in Channel at DP 43

PROJECT: SELTZER HEIGHTS
SHEET TITLE: PROPOSED SF-3 FORM (5-YR)

		DIRECT RUNOFF						TOTAL RUNOFF				STREET			PIPE			TRAVEL TIME			
BASIN	DESIGN POINT	AREA (Acres)	RUNOFF COEFF	Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	Tc (min)	(C A) (Acres)	I (in/hour)	Q (cfs)	SLOPE (%)	STREET FLOW (cfs)	CARRYOVER (cfs)	PIPE FLOW (cfs)	SLOPE (%)	PIPE SIZE (in)	LENGTH (ft)	VELOCITY (fps)	Tt (min)	REMARKS
F26	44	4.03	0.71	11.03	2.86	3.70	**10.58**														Total Flow Captured in Inlet at DP 44
F27	45	2.58	0.70	9.12	1.80	4.00	**7.19**														Total Flow Captured in Inlet at DP 45
F23+F24+F25+F27	45							**18.73**	**7.71**	**2.91**	**22.41**				22.41	1.0	36	14	8.5	0.0	Combined Flow in Inlet at DP 45
OS4	46	24.02	0.58	26.17	14.03	2.42	**33.95**								33.95	0.6	42	574	7.8	1.2	Total Flow Captured in Inlet at DP 46
F23 THRU F27+OS4	47							**27.40**	**22.80**	**2.36**	**53.72**				53.72	1.0	48	24	10.6	0.0	Combined Flow in MH at DP 47
F28	48	0.36	0.85	5.00	0.31	4.82	**1.49**														Total Flow Captured in Inlet at DP 48
F23 THRU F28+OS4	48							**27.44**	**23.11**	**2.36**	**54.45**				54.45	1.0	48	50	10.6	0.1	Combined Flow in Inlet at DP 48
F29	49	6.12	0.77	11.15	4.71	3.70	**17.41**														Direct Runoff to Channel at DP 49
F23 THRU F29+OS4	49							**27.52**	**27.82**	**2.34**	**65.21**				65.21	1.0	48	62	11.1	0.1	Total Combined Flow in Channel at DP 49
F21	50	1.63	0.78	6.41	1.28	4.52	**5.78**														Total Flow Captured in Inlet at DP 50
F21+F23 THRU F29+OS4	50							**27.61**	**29.10**	**2.34**	**68.20**				68.20	1.0	60	18	11.2	0.0	Combined Flow in Inlet at DP 50
F30	51	1.63	0.77	13.17	1.25	3.44	**4.31**														Total Flow Captured in Inlet at DP 51
F9 THRU F21+F23 THRU F30+OS4	52							**27.63**	**56.97**	**2.34**	**133.52**				133.52	1.0	72	28	13.1	0.0	Combined Flow in MH at DP 52
F22	53	1.44	0.76	8.19	1.10	4.17	**4.59**														Total Flow Captured in Inlet at DP 53
F9 THRU F30+OS4	53							**27.67**	**58.07**	**2.34**	**136.10**				136.10	1.0	72	50	14.7	0.1	Combined Flow in Inlet at DP 53
F31	54	7.57	0.77	10.03	5.83	3.84	**22.39**														Direct Runoff to Channel at DP 54
F9 THRU F31+OS4	54							**27.73**	**63.89**	**2.34**	**149.76**				149.76	1.0	72	72	14.9	0.1	Total Combined Flow in Channel at DP 54
F32	55	6.91	0.51	14.95	3.54	3.25	**11.49**														Direct Runoff to Pond B at DP 55
F1 THRU F32+OS4	55							**27.81**	**91.78**	**2.33**	**214.01**										Total Peak Inflow to Pond B at DP 55
G1	56	2.40	0.77	14.29	1.84	3.30	**6.08**								6.08	1.0	24	65	6.1	0.2	Total Flow Captured in Inlet at DP 56
G2	57	1.07	0.88	12.61	0.94	3.50	**3.31**	**14.47**	**2.79**	**3.30**	**9.20**										Total Flow Captured in Inlet at DP 57 Combined Flow in Inlet at DP 57

PROJECT: SELTZER HEIGHTS

SHEET TITLE: PROPOSED SF-3 FORM (100-YR)

		DIRECT RUNOFF						TOTAL RUNOFF				STREET			PIPE			TRAVEL TIME			
BASIN	DESIGN POINT	AREA (Acres)	RUNOFF COEFF	Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	Tc (min)	(C A) (Acres)	I (in/hour)	Q (cfs)	SLOPE (%)	STREET FLOW (cfs)	CARRYOVER (cfs)	PIPE FLOW (cfs)	SLOPE (%)	PIPE SIZE (in)	LENGTH (ft)	VELOCITY (fps)	Tt (min)	REMARKS
F1	1	2.58	0.63	19.31	1.62	5.44	**8.82**		**0.39** **1.23**		**2.12** **6.70**	1.1	8.71		6.70	0.5	18	959 92	3.6 4.7	4.4 0.3	Bypass Flow Total Flow Captured in Inlet at DP 1
F2	2	9.57	0.54	25.47	5.12	4.70	**24.03**								24.03	2.0	24	35	11.2	0.1	Total Flow to FES at DP 2
F4	3	2.97	0.66	12.77	1.97	6.63	**13.07**		**0.30** **1.68**		**1.97** **11.10**										Bypass Flow Total Flow Captured in Inlet at DP 3
F2+F4	3							**25.52**	**6.79**	**4.67**	**31.72**				31.72	1.0	30	23	9.1	0.0	Combined Flow in Inlet at DP 3
F5B	4	2.90	0.78	8.27	2.28	7.88	**17.93**		**0.59** **1.69**		**4.63** **13.30**	2.3	4.63		13.30	2.0	24	260 187	4.4 9.6	1.0 0.3	Bypass Flow Total Flow Captured in Inlet at DP 4
F3	5	7.79	0.59	19.54	4.60	5.40	**24.83**								24.83	0.5	30	66	6.6	0.2	Total Flow Captured in Inlet at DP 5
F3+F5B	6							**19.71**	**6.29**	**5.40**	**33.95**				33.95	0.5	36	102	7.2	0.2	Combined Flow in MH at DP 6
F1+F2+F3+F4+F5B	7							**25.56**	**14.31**	**4.67**	**66.83**				66.83	1.0	42	23	11.2	0.0	Combined Flow in MH at DP 7
F5A	8	2.86	0.79	9.65	2.25	7.48	**16.85**	**9.65**	**2.84** **0.90** **1.94**	**7.48**	**21.25** **6.75** **14.50**										Total Flow To Inlet at DP 8 Bypass Flow Total Flow Captured in Inlet at DP 8
F1+F2+F3+F4+F5	8							**25.60**	**16.25**	**4.67**	**75.89**										Combined Flow in Inlet at DP 8
F7	9	8.34	0.77	7.11	6.41	8.33	**53.36**	**25.60**	**22.65**	**4.67**	**105.80**										Total Flow in Channel at DP 9
F6	10	1.22	0.75	9.14	0.91	7.63	**6.97**	**23.70**	**2.50** **0.33** **2.17**	**4.89**	**12.23** **1.63** **10.60**	1.6	1.63					554	3.2	2.9	Total Flow To Inlet at DP 10 Bypass Flow Total Flow Captured in Inlet at DP 10
F1+F2+F3+F4+F5+F6+F7	11							**25.60**	**24.82**	**4.67**	**115.93**				115.93	0.9	48	79	12.1	0.1	Combined Flow in Inlet at DP 11
F8	12	3.22	0.79	5.41	2.54	9.07	**23.08**														Total Flow to Pond at DP 12
F9	13	5.71	0.58	11.93	3.32	6.86	**22.80**								22.80	0.5	30	460	6.5	1.2	Total Flow to Inlet at DP 13
F10	14	0.54	0.65	5.79	0.36	8.85	**3.15**														Total Flow to Inlet at DP 14
F9+F10	15							**13.10**	**3.68**	**6.57**	**24.16**				24.16	0.5	30	160	6.6	0.4	Combined Flow in Pipe at DP 15
F11	16	2.39	0.76	7.47	1.81	8.24	**14.89**		**0.34** **1.47**		**2.79** **12.10**	1.3	2.79					482	3.2	2.5	Bypass Flow Total Flow Captured in Inlet at DP 16
F9+F10+F11	17							**13.51**	**5.15**	**6.46**	**33.24**				33.24	0.5	36	481	7.2	1.1	Combined Flow in MH at DP 17
F12A	18	3.35	0.72	7.84	2.42	8.05	**19.52**	**10.00**	**2.76** **0.80** **1.96**	**7.40**	**20.46** **5.96** **14.50**	1.0	5.96					196	3.3	1.0	Total Flow to Inlet at DP 18 Bypass Flow Total Flow Captured in Inlet at DP 18
F9+F10+F11+F12A	19							**14.62**	**7.10**	**6.25**	**44.41**				44.41	0.5	42	39	7.8	0.1	Combined Flow in MH at DP 19
F12B	20	2.51	0.75	8.51	1.88	7.80	**14.65**		**0.29** **1.59**		**2.25** **12.40**	1.3	2.25					194	3.1	1.0	Bypass Flow Total Flow Captured in Inlet at DP 20

PROJECT: SELTZER HEIGHTS
SHEET TITLE: PROPOSED SF-3 FORM (100-YR)

		DIRECT RUNOFF						TOTAL RUNOFF				STREET			PIPE			TRAVEL TIME			
BASIN	DESIGN POINT	AREA (Acres)	RUNOFF COEFF	Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	Tc (min)	(C A) (Acres)	I (in/hour)	Q (cfs)	SLOPE (%)	STREET FLOW (cfs)	CARRYOVER (cfs)	PIPE FLOW (cfs)	SLOPE (%)	PIPE SIZE (in)	LENGTH (ft)	VELOCITY (fps)	Tt (min)	REMARKS
F9+F10+F11+F12A+F12B	21							**14.70**	**8.70**	**6.25**	**54.35**				54.35	0.5	42	164	8.1	0.3	Combined Flow in MH at DP 21
F13	22	2.12	0.75	9.00	1.59	7.63	**12.15**	**11.74**	**3.06**	**6.93**	**21.20**										Total Flow Captured in Inlet at DP 22
F14	23	0.44	0.76	5.00	0.34	9.19	**3.10**														Total Flow Captured in Inlet at DP 23
F9 THRU F14	24							**15.04**	**12.09**	**6.15**	**74.40**				74.40	0.7	42	174	9.8	0.3	Combined Flow in MH at DP 24
F15	25	2.82	0.73	10.76	2.06	7.12	**14.68**		**0.38** **1.68**		**2.68** **12.00**	1.3	2.68					184	3.1	1.0	Bypass Flow Total Flow Captured in Inlet at DP 25
F9 THRU F15	26							**15.34**	**14.15**	**6.10**	**86.40**				86.40	1.0	42	543	11.7	0.8	Combined Flow in MH at DP 26
F16	27	2.75	0.58	9.52	1.60	7.48	**11.95**														Total Flow Captured in Inlet at DP 27
F9 THRU F16	28							**16.11**	**15.75**	**5.97**	**93.97**				93.97	2.5	42	138	17.2	0.1	Combined Flow in MH at DP 28
F17	29	3.41	0.71	9.00	2.41	7.71	**18.59**		**0.54** **1.87**		**4.19** **14.40**	3.0	4.19		14.40	1.3	24	623 284	4.8 8.4	2.2 0.6	Bypass Flow Total Flow Captured in Inlet at DP 29
F18A	30	1.33	0.75	7.32	0.99	8.24	**8.19**		**0.16** **0.84**		**1.29** **6.90**	1.1	1.29					440	2.6	2.8	Bypass Flow Total Flow Captured in Inlet at DP 30
F17+F18A	31							**9.56**	**2.70**	**7.48**	**20.23**				20.23	1.0	24	37	17.2	0.0	Combined Flow in MH at DP 31
F18B	32	2.84	0.73	6.09	2.07	8.74	**18.09**		**0.45** **1.63**		**3.89** **14.20**	1.1	3.89		14.20	1.0	24	440 50	3.1 7.6	2.4 0.1	Bypass Flow Total Flow Captured in Inlet at DP 32
F17+F18A+F18B	33							**9.60**	**4.33**	**7.48**	**32.38**				32.38	1.0	30	407	9.2	0.7	Combined Flow in MH at DP 33
F18C	34	1.97	0.73	8.63	1.44	7.80	**11.25**	**8.45**	**2.04** **0.43** **1.61**	**7.88**	**16.11** **3.41** **12.70**	3.0	3.41					369	4.6	1.3	Total Flow to Inlet at DP 34 Bypass Flow Total Flow Captured in Inlet at DP 34
F17+F18A+F18B+F18C	35							**10.33**	**5.94**	**7.26**	**43.14**				43.14	1.0	36	53	9.4	0.1	Combined Flow in MH at DP 35
F9 THRU F18	36							**16.24**	**21.69**	**5.97**	**129.41**				129.41	2.5	42	261	18.4	0.2	Combined Flow in MH at DP 36
F19	37	3.27	0.72	10.41	2.34	7.26	**16.98**		**0.53** **1.80**		**3.88** **13.10**	3.0	3.88					96	4.8	0.3	Bypass Flow Total Flow Captured in Inlet at DP 37
F9 THRU F19	38							**16.48**	**23.50**	**5.92**	**139.13**				139.13	2.6	42	57	18.9	0.0	Combined Flow in MH at DP 38
F20	39	2.56	0.77	8.02	1.98	7.96	**15.80**	**10.74**	**2.95** **0.49** **2.46**	**7.19**	**21.22** **3.52** **17.70**	3.0	3.52					455	4.6	1.6	Total Flow to Inlet at DP 39 Bypass Flow Total Flow Captured in Inlet at DP 39
F9 THRU F20	40							**16.53**	**25.96**	**5.88**	**152.56**				152.56	2.6	48	463	19.6	0.4	Combined Flow in MH at DP 40
F23	41	5.90	0.58	18.62	3.40	5.55	**18.86**														Total Flow in Channel at DP 41
F24	42	2.51	0.75	10.34	1.89	7.26	**13.76**														Total Flow Captured in Inlet at DP 42
F25	43	1.00	0.62	7.54	0.62	8.14	**5.03**														Direct Runoff to Channel at DP 43

PROJECT: SELTZER HEIGHTS
SHEET TITLE: PROPOSED SF-3 FORM (100-YR)

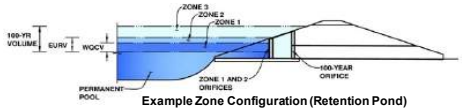
		DIRECT RUNOFF						TOTAL RUNOFF				STREET			PIPE			TRAVEL TIME			
BASIN	DESIGN POINT	AREA (Acres)	RUNOFF COEFF	Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	Tc (min)	(C A) (Acres)	I (in/hour)	Q (cfs)	SLOPE (%)	STREET FLOW (cfs)	CARRYOVER (cfs)	PIPE FLOW (cfs)	SLOPE (%)	PIPE SIZE (in)	LENGTH (ft)	VELOCITY (fps)	Tt (min)	REMARKS
F23+F24+F25	43							**18.62**	**5.91**	**5.55**	**32.80**				32.80	1.0	30	52	9.3	0.1	Combined Flow in Channel at DP 43
								11.17	**3.41**	**7.06**	**24.03**										Total Flow to Inlet at DP 44
									0.55		**3.89**										Bypass Flow
F26	44	4.03	0.71	11.03	2.86	7.06	**20.19**		**2.31**		**16.30**	3.0	3.89		16.30	2.5	24	244	10.9	0.4	Total Flow Captured in Inlet at DP 44
								11.79	**2.35**	**6.86**	**16.12**										Total Flow to Inlet at DP 45
									0.41		**2.82**										Bypass Flow
F27	45	2.58	0.70	9.12	1.80	7.63	**13.72**		**1.94**		**13.30**	1.1	2.82					703	3.0	3.9	Total Flow Captured in Inlet at DP 45
F23+F24+F25+F27	45							**18.72**	**7.85**	**5.55**	**43.56**				43.56	1.0	36	14	10.1	0.0	Combined Flow in Inlet at DP 28
OS4	46	24.02	0.58	26.17	14.03	4.62	**64.80**								64.80	0.6	42	574	9.0	1.1	Total Flow Captured in Inlet at DP 46
F23 THRU F27 + OS4	47							**27.23**	**24.19**	**4.52**	**109.34**				109.34	1.0	48	24	12.6	0.0	Combined Flow in MH at DP 47
F28	48	0.36	0.85	5.00	0.31	9.19	**2.84**														Total Flow Captured in Inlet at DP 48
F23 THRU F28 + OS4	48							**27.27**	**24.50**	**4.50**	**110.15**				110.15	1.0	48	50	12.6	0.1	Combined Flow in Inlet at DP 48
F29	49	6.12	0.77	11.15	4.71	7.06	**33.23**														Direct Runoff in Channel at DP 49
F23 THRU F29 + OS4	49							**27.33**	**29.21**	**4.50**	**131.33**				131.33	1.0	48	62	12.6	0.1	Combined Flow in Channel at DP 49
								9.65	**1.77**	**7.48**	**13.22**										Total Flow to Inlet at DP 50
									0.27		**2.02**										Bypass Flow
F21	50	1.63	0.78	6.41	1.28	8.63	**11.03**		**1.50**		**11.20**										Total Flow Captured in Inlet at DP 50
F21+F23 THRU F29+OS4	50							**27.41**	**30.70**	**4.50**	**138.07**				138.07	1.0	60	18	13.4	0.0	Combined Flow in Inlet at DP 50
								15.64	**1.66**	**6.06**	**10.06**										Total Flow to Inlet at DP 51
									0.13		**0.76**										Bypass Flow
F30	51	1.63	0.77	13.17	1.25	6.57	**8.22**		**1.54**		**9.30**										Total Flow Captured in Inlet at DP 51
F9 THRU F21+F23 THRU F30+OS4	52							**27.44**	**58.20**	**4.50**	**261.71**				261.71	1.0	72	28	15.6	0.0	Combined Flow in MH at DP 52
F22	53	1.44	0.76	8.19	1.10	7.96	**8.76**														Total Flow Captured in Inlet at DP 53
F9 THRU F30+OS4	53							**27.47**	**59.30**	**4.50**	**266.66**				266.66	1.0	72	50	15.8	0.1	Combined Flow in Inlet at DP 53
F31	54	7.57	0.77	10.03	5.83	7.33	**42.74**														Direct Runoff in Channel at DP 54
F9 THRU F31+OS4	54							**27.52**	**65.13**	**4.47**	**291.33**				291.33	1.0	72	72	16.0	0.1	Combined Flow in Channel at DP 54
F32	55	6.91	0.51	14.95	3.54	6.20	**21.93**														Direct inflow to Pond B at DP 55
F1 THRU F32+OS4	55							**27.59**	**96.03**	**4.47**	**429.58**										Total Peak inflow to Pond B at DP 55
G1	56	2.40	0.77	14.29	1.84	6.30	**11.61**	**26.63**	**2.30**	**4.57**	**10.51**				11.61	1.0	24	65	7.2	0.2	Total Flow Captured in Inlet at DP 56
																					Total Flow Captured in Inlet at DP 57
G2	57	1.07	0.88	12.61	0.94	6.68	**6.32**	**14.45**	**2.79**	**6.30**	**17.56**										Combined Flow in Inlet at DP 57

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)

Project: Seltzer Heights

Basin ID: Pond B



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	EDB	
Watershed Area =	145.18	acres
Watershed Length =	4,838	ft
Watershed Length to Centroid =	1,516	ft
Watershed Slope =	0.017	ft/ft
Watershed Imperviousness =	44.91%	percent
Percentage Hydrologic Soil Group A =	0.0%	percent
Percentage Hydrologic Soil Group B =	0.0%	percent
Percentage Hydrologic Soil Groups C/D =	100.0%	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) =	2.332 acre-feet		acre-feet
Excess Urban Runoff Volume (EURV) =	6.116 acre-feet		acre-feet
2-yr Runoff Volume (P1 = 1 in.) =	5.374 acre-feet	1.00	inches
5-yr Runoff Volume (P1 = 1.42 in.) =	9.893 acre-feet	1.42	inches
10-yr Runoff Volume (P1 = 1.68 in.) =	12.985 acre-feet	1.68	inches
25-yr Runoff Volume (P1 = 1.81 in.) =	15.049 acre-feet	1.81	inches
50-yr Runoff Volume (P1 = 2.35 in.) =	21.836 acre-feet	2.35	inches
100-yr Runoff Volume (P1 = 2.71 in.) =	26.902 acre-feet	2.71	inches
500-yr Runoff Volume (P1 = 3.72 in.) =	39.990 acre-feet	3.72	inches
Approximate 2-yr Detention Volume =	4.510 acre-feet		
Approximate 5-yr Detention Volume =	7.741 acre-feet		
Approximate 10-yr Detention Volume =	8.959 acre-feet		
Approximate 25-yr Detention Volume =	9.204 acre-feet		
Approximate 50-yr Detention Volume =	11.032 acre-feet		
Approximate 100-yr Detention Volume =	13.133 acre-feet		

Define Zones and Basin Geometry

Zone 1 Volume (WQCV) =	2.332	acre-feet
Zone 2 Volume (User Defined - Zone 1) =	7.742	acre-feet
Zone 3 (100yr + 1 / 2 WQCV - Zones 1 & 2) =	4.225	acre-feet
Total Detention Basin Volume =	14.299	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio (R_{LW}) =	user	

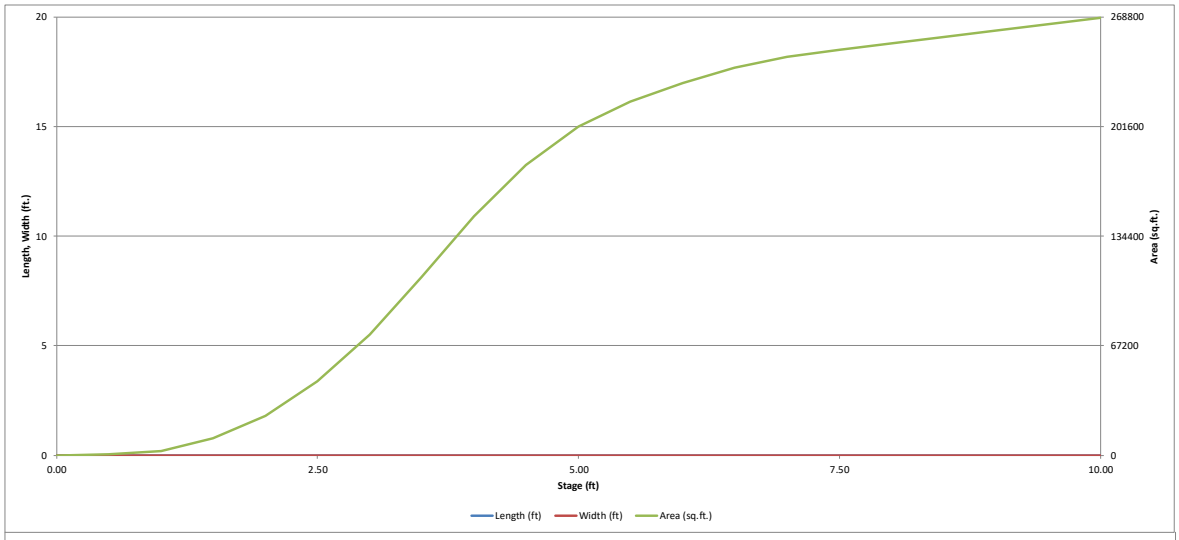
Initial Surcharge Area (A_{ISV}) =	user	ft^2
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user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

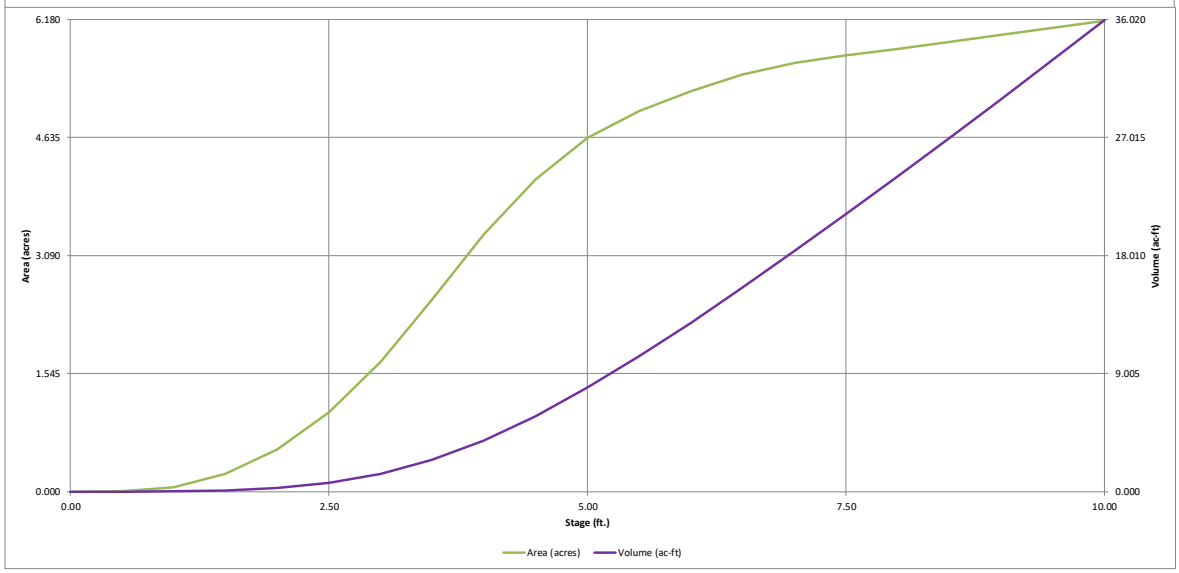
Depth Increment = ft

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	--	--	--	50	0.001		
5107.5	--	0.50	--	--	--	337	0.008	97	0.002
5108	--	1.00	--	--	--	2,469	0.057	798	0.018
5108.5	--	1.50	--	--	--	10,288	0.236	3,987	0.092
5109	--	2.00	--	--	--	24,196	0.555	12,608	0.289
5109.5	--	2.50	--	--	--	45,297	1.040	29,981	0.688
5110	--	3.00	--	--	--	73,922	1.697	59,786	1.372
5110.5	--	3.50	--	--	--	109,283	2.509	105,587	2.424
5111	--	4.00	--	--	--	146,724	3.368	169,589	3.893
5111.5	--	4.50	--	--	--	178,006	4.086	250,771	5.757
5112	--	5.00	--	--	--	201,691	4.630	345,696	7.936
5112.5	--	5.50	--	--	--	217,092	4.984	450,391	10.340
5113	--	6.00	--	--	--	228,328	5.242	561,746	12.896
5113.5	--	6.50	--	--	--	237,753	5.458	678,266	15.571
5114	--	7.00	--	--	--	244,381	5.610	798,800	18.338
5114.5	--	7.50	--	--	--	248,555	5.706	922,034	21.167
5115	--	8.00	--	--	--	252,484	5.796	1,047,294	24.043
5115.5	--	8.50	--	--	--	256,438	5.887	1,174,524	26.963
5116	--	9.00	--	--	--	260,417	5.978	1,303,738	29.930
5116.5	--	9.50	--	--	--	264,422	6.070	1,434,948	32.942
5117	--	10.00	--	--	--	268,454	6.163	1,568,167	36.000

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)



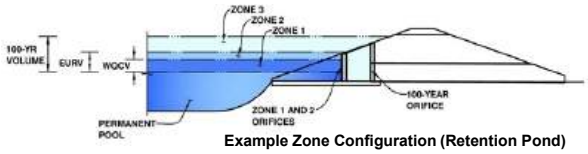


DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: **Seltzer Heights**

Basin ID: **Pond B**



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	3.47	2.332	Orifice Plate
Zone 2 (User)	5.45	7.742	Rectangular Orifice
3 (100+1/2WQCV)	6.27	4.225	Weir&Pipe (Restrict)
Total (all zones)		14.299	

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

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)	Underdrain Orifice Area =	N/A	ft^2
Underdrain Orifice Diameter =	N/A	inches	Underdrain Orifice Centroid =	N/A	feet

Calculated Parameters for Underdrain

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

Centroid of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)	WQ Orifice Area per Row =	4.340E-02	ft^2
Depth at top of Zone using Orifice Plate =	3.47	ft (relative to basin bottom at Stage = 0 ft)	Elliptical Half-Width =	N/A	feet
Orifice Plate: Orifice Vertical Spacing =	N/A	inches	Elliptical Slot Centroid =	N/A	feet
Orifice Plate: Orifice Area per Row =	6.25	sq. inches (use rectangular openings)	Elliptical Slot Area =	N/A	ft^2

Calculated Parameters for Plate

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

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	1.17	2.33					
Orifice Area (sq. inches)	6.25	6.25	6.25					

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

User Input: Vertical Orifice (Circular or Rectangular)

	Zone 2 Rectangular	Not Selected		Zone 2 Rectangular	Not Selected	
Invert of Vertical Orifice =	3.58	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Area =	0.50	N/A	ft^2
Depth at top of Zone using Vertical Orifice =	5.43	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Centroid =	0.25	N/A	feet
Vertical Orifice Height =	6.00	N/A	inches				
Vertical Orifice Width =	12.00		inches				

Calculated Parameters for Vertical Orifice

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

	Zone 3 Weir	Not Selected			Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	5.50	N/A	ft (relative to basin bottom at Stage = 0 ft)	Height of Grate Upper Edge, H_t =	5.50	N/A	feet
Overflow Weir Front Edge Length =	11.33	N/A	feet	Overflow Weir Slope Length =	2.92	N/A	feet
Overflow Weir Grate Slope =	0.00	N/A	H:V	Grate Open Area / 100-yr Orifice Area =	10.29	N/A	
Horiz. Length of Weir Sides =	2.92	N/A	feet	Overflow Grate Open Area w/o Debris =	26.17	N/A	ft^2
Overflow Grate Type =	Close Mesh Grate	Close Mesh Grate		Overflow Grate Open Area w/ Debris =	13.08	N/A	ft^2
Debris Clogging % =	50%	N/A	%				

Calculated Parameters for Overflow Weir

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

	Zone 3 Restrictor	Not Selected			Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	0.30	N/A	ft (distance below basin bottom at Stage = 0 ft)	Outlet Orifice Area =	2.54	N/A	ft^2
Outlet Pipe Diameter =	36.00	N/A	inches	Outlet Orifice Centroid =	0.68	N/A	feet
Restrictor Plate Height Above Pipe Invert =	14.00		inches	Half-Central Angle of Restrictor Plate on Pipe =	1.35	N/A	radians

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage=	8.00	ft (relative to basin bottom at Stage = 0 ft)	Spillway Design Flow Depth=	0.99	feet
Spillway Crest Length =	120.00	feet	Stage at Top of Freeboard =	9.99	feet
Spillway End Slopes =	4.00	H:V	Basin Area at Top of Freeboard =	6.16	acres
Freeboard above Max Water Surface =	1.00	feet	Basin Volume at Top of Freeboard =	35.94	acre-ft

Calculated Parameters for Spillway

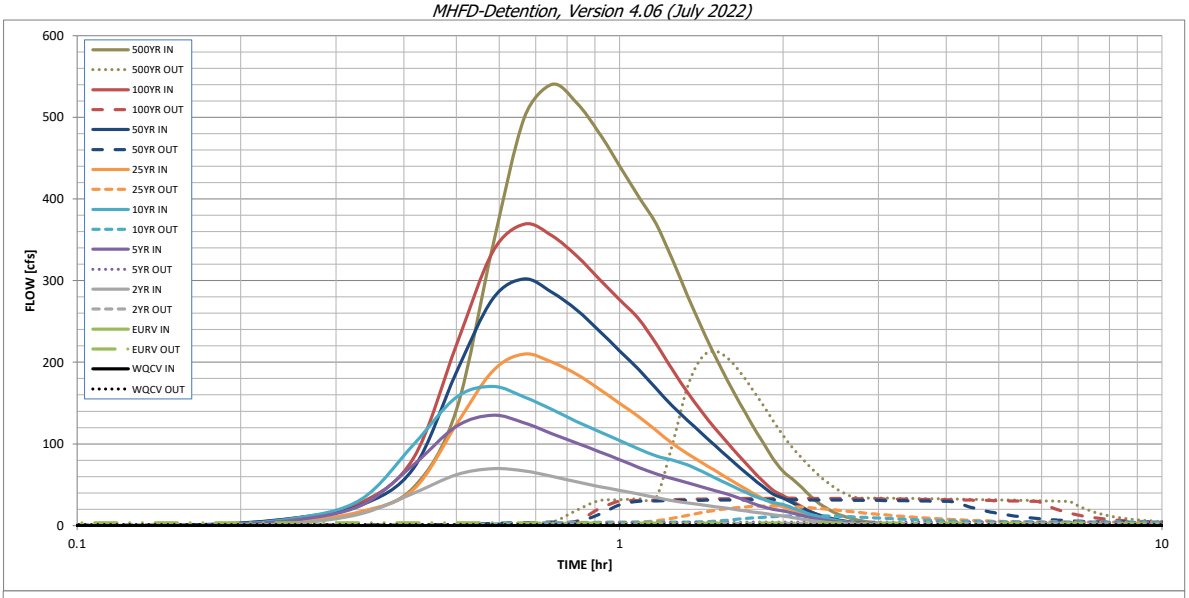
Routed Hydrograph Results

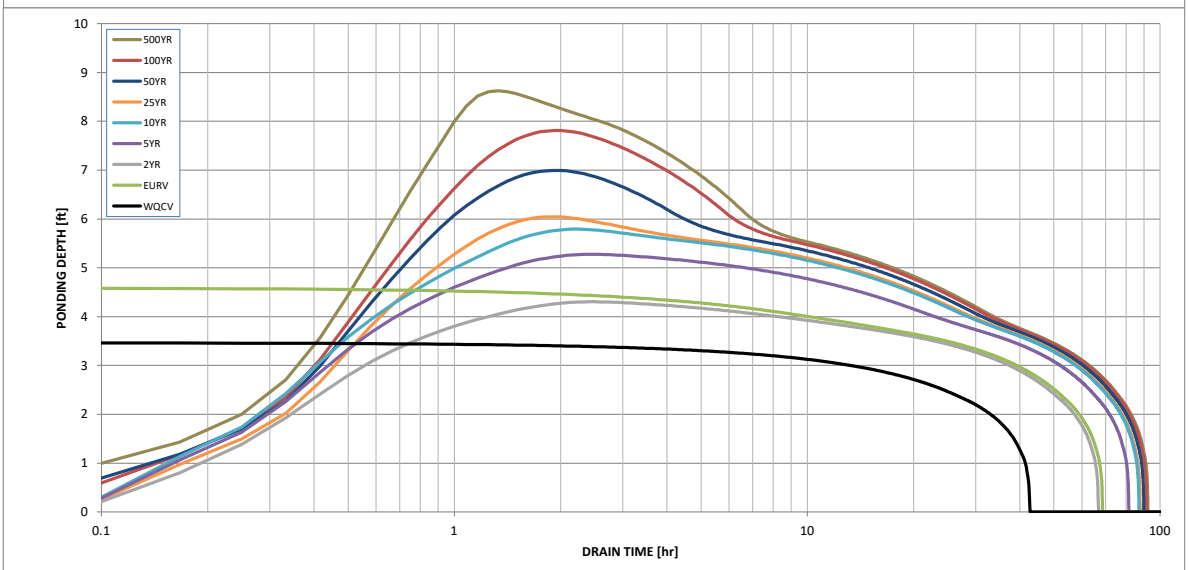
The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).

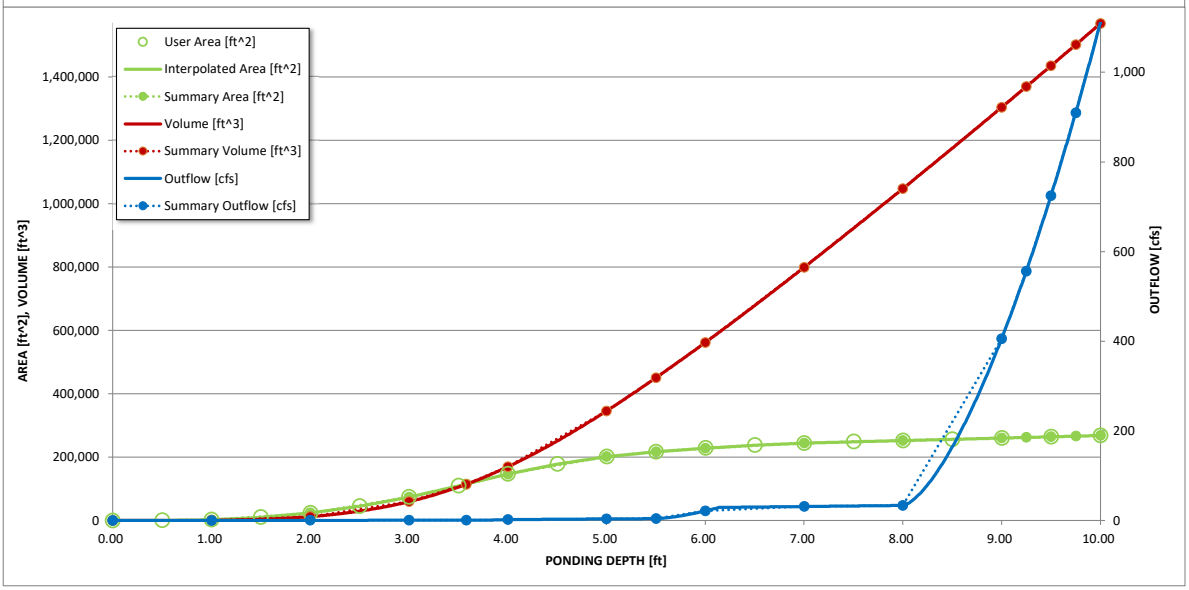
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
One-Hour Rainfall Depth (in) =	N/A	N/A	1.00	1.42	1.68	1.81	2.35	2.71	3.72
CUHP Runoff Volume (acre-ft) =	2.332	6.116	5.374	9.893	12.985	15.049	21.836	26.902	39.990
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	5.374	9.893	12.985	15.049	21.836	26.902	39.990
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	6.5	45.3	67.5	97.3	156.3	203.0	315.8
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.04	0.31	0.47	0.67	1.08	1.40	2.18
Peak Inflow Q (cfs) =	N/A	N/A	69.7	135.1	170.5	210.1	302.0	369.3	540.6
Peak Outflow Q (cfs) =	0.9	3.2	2.7	4.2	12.1	23.8	31.5	33.4	213.4
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.1	0.2	0.2	0.2	0.2	0.7
Structure Controlling Flow =	Plate	Vertical Orifice 1	Vertical Orifice 1	Vertical Orifice 1	Overflow Weir 1	Overflow Weir 1	Outlet Plate 1	Outlet Plate 1	Spillway
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	0.3	0.7	1.0	1.0	1.1
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	39	62	61	72	75	74	72	71	66
Time to Drain 99% of Inflow Volume (hours) =	**41**	66	64	77	82	82	82	83	80
Maximum Ponding Depth (ft) =	3.47	4.59	4.30	5.27	5.79	6.04	6.99	7.81	8.62
Area at Maximum Ponding Depth (acres) =	2.46	4.18	3.80	4.82	5.13	5.26	5.61	5.76	5.91
Maximum Volume Stored (acre-ft) =	2.349	6.129	4.968	9.212	11.755	13.106	18.282	22.887	27.612

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)







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

DETENTION BASIN OUTLET STRUCTURE DESIGN

Outflow Hydrograph Workbook Filename: _____

Inflow Hydrographs

The user can override the calculated inflow hydrographs from this workbook with inflow hydrographs developed in a separate program.

	SOURCE	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP
Time Interval	TIME	WQCV [cfs]	EURV [cfs]	2 Year [cfs]	5 Year [cfs]	10 Year [cfs]	25 Year [cfs]	50 Year [cfs]	100 Year [cfs]	500 Year [cfs]
5.00 min	0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.54	3.17
	0:15:00	0.00	0.00	2.77	6.65	8.54	4.96	8.86	8.91	16.05
	0:20:00	0.00	0.00	14.38	24.68	31.83	17.00	25.08	28.10	46.53
	0:25:00	0.00	0.00	39.60	74.37	99.20	44.01	69.88	82.69	141.29
	0:30:00	0.00	0.00	62.11	121.55	156.98	123.59	187.44	220.79	342.49
	0:35:00	0.00	0.00	69.66	135.11	170.47	189.38	277.66	335.58	499.10
	0:40:00	0.00	0.00	66.91	125.87	157.53	210.15	301.98	369.25	540.64
	0:45:00	0.00	0.00	60.24	112.49	142.04	200.12	285.59	354.95	517.71
	0:50:00	0.00	0.00	53.36	100.94	127.42	185.41	263.99	330.24	481.05
	0:55:00	0.00	0.00	47.74	90.58	115.08	167.16	238.50	302.10	440.50
	1:00:00	0.00	0.00	43.02	80.65	103.98	149.55	214.08	276.51	403.36
	1:05:00	0.00	0.00	38.63	71.34	93.79	133.38	191.46	253.57	369.77
	1:10:00	0.00	0.00	34.16	63.47	85.20	116.57	168.11	222.96	326.18
	1:15:00	0.00	0.00	30.46	57.57	80.03	100.58	146.63	190.98	281.80
	1:20:00	0.00	0.00	27.59	52.35	74.16	88.00	128.88	163.33	242.19
	1:25:00	0.00	0.00	25.19	47.30	66.34	77.20	112.87	139.48	207.11
	1:30:00	0.00	0.00	23.03	42.64	58.22	67.11	97.79	118.71	176.37
	1:35:00	0.00	0.00	20.92	38.23	50.80	57.63	83.73	100.64	149.59
	1:40:00	0.00	0.00	18.82	33.17	43.92	48.88	70.78	84.01	125.05
	1:45:00	0.00	0.00	16.79	27.85	37.65	40.78	58.87	68.71	102.49
	1:50:00	0.00	0.00	15.02	23.11	32.21	33.33	47.91	54.84	82.28
	1:55:00	0.00	0.00	13.22	19.97	28.50	26.93	38.78	43.43	66.36
	2:00:00	0.00	0.00	11.61	17.97	25.52	22.97	33.46	36.50	56.64
	2:05:00	0.00	0.00	9.74	15.29	21.57	18.90	27.69	29.70	46.48
	2:10:00	0.00	0.00	7.87	12.26	17.33	14.78	21.70	22.81	35.90
	2:15:00	0.00	0.00	6.27	9.65	13.69	11.34	16.65	17.12	27.08
	2:20:00	0.00	0.00	5.00	7.64	10.79	8.80	12.91	12.86	20.43
	2:25:00	0.00	0.00	3.95	6.03	8.41	6.78	9.91	9.55	15.26
	2:30:00	0.00	0.00	3.11	4.71	6.47	5.20	7.56	7.11	11.42
	2:35:00	0.00	0.00	2.44	3.62	4.90	3.97	5.73	5.41	8.69
	2:40:00	0.00	0.00	1.91	2.75	3.69	3.00	4.31	4.11	6.59
	2:45:00	0.00	0.00	1.48	2.08	2.82	2.29	3.29	3.18	5.10
	2:50:00	0.00	0.00	1.13	1.57	2.17	1.77	2.54	2.48	3.96
	2:55:00	0.00	0.00	0.84	1.15	1.61	1.33	1.91	1.86	2.97
	3:00:00	0.00	0.00	0.58	0.80	1.13	0.96	1.37	1.33	2.11
	3:05:00	0.00	0.00	0.38	0.54	0.74	0.65	0.92	0.89	1.40
	3:10:00	0.00	0.00	0.22	0.33	0.43	0.40	0.55	0.53	0.84
	3:15:00	0.00	0.00	0.11	0.17	0.21	0.21	0.28	0.27	0.41
	3:20:00	0.00	0.00	0.04	0.07	0.07	0.08	0.10	0.09	0.13
	3:25:00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00
	3:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Summary Stage-Area-Volume-Discharge Relationships

The user can create a summary S-A-V-D by entering the desired stage increments and the remainder of the table will populate automatically.

The user should graphically compare the summary S-A-V-D table to the full S-A-V-D table in the chart to confirm it captures all key transition points.

Stage - Storage Description	Stage [ft]	Area [ft^2]	Area [acres]	Volume [ft^3]	Volume [ac-ft]	Total Outflow [cfs]
	0.00	50	0.001	0	0.000	0.00
	1.00	2,469	0.057	798	0.018	0.21
	2.00	24,196	0.555	12,608	0.289	0.49
	3.00	73,922	1.697	59,786	1.372	0.82
	3.58	115,274	2.646	114,569	2.630	0.95
	4.00	146,724	3.368	169,589	3.893	1.92
	5.00	201,691	4.630	345,696	7.936	3.82
	5.50	217,092	4.984	450,391	10.340	4.41
	6.00	228,328	5.242	561,746	12.896	21.66
	7.00	244,381	5.610	798,800	18.338	31.50
	8.00	252,484	5.796	1,047,294	24.043	33.80
	9.00	260,417	5.978	1,303,738	29.930	405.54
	9.25	262,419	6.024	1,369,093	31.430	556.35
	9.50	264,422	6.070	1,434,948	32.942	724.79
	9.75	266,438	6.117	1,501,305	34.465	909.78
	10.00	268,454	6.163	1,568,167	36.000	1,110.51

For best results, include the stages of all grade slope changes (e.g. ISV and Floor) from the S-A-V table on Sheet 'Basin'.

Also include the inverts of all outlets (e.g. vertical orifice, overflow grate, and spillway, where applicable).

PROJECT: SELTZER HEIGHTS – CUHP/SWMM MODEL
SHEET TITLE: PEAK FLOW SUMMARY

	Peak Discharge (cfs) - Historic			Peak Discharge (cfs) - Existing Condition			Peak Discharge (cfs) Seltzer Heights w/ Phase 1 Seltzer Farms			Peak Discharge (cfs) Seltzer Heights w/ Ultimate Seltzer Farms		
SWMM Node	**5-year**	**10-year**	**100-year**	**5-year**	**10-year**	**100-year**	**5-year**	**10-year**	**100-year**	**5-year**	**10-year**	**100-year**
897							10.0	13.5	35.1	10.0	13.5	35.1
898							34.7	44.6	100.6	34.8	44.6	100.6
899							81.4	102.5	220.9	81.5	102.6	221.0
Pond B							123.2	156.3	340.8	123.2	156.3	340.8
900	43.9	67.6	212.5	48.4	72.7	220.0	4.1	12.3	33.1	4.1	12.3	33.1
901	36.0	55.6	167.9	46.8	66.7	179.6	53.6	67.8	148.2	62.2	76.6	158.0
902	57.5	94.2	327.8	67.3	104.4	339.0	17.4	24.0	64.4	33.0	41.9	92.5
903	90.4	149.1	523.0	104.0	163.4	540.6	4.0	5.8	16.5	8.7	12.4	34.6
903B	-	-	-	-	-	-	10.0	14.6	42.8	-	-	-
904	90.4	149.1	523.0	104.0	163.4	540.6	9.0	12.9	36.0	4.2	6.0	17.1
905	-	-	-	-	-	-	16.1	21.1	47.0	16.1	21.1	47.0
906	-	-	-	-	-	-	33.5	47.7	130.9	21.5	29.5	75.5
907	-	-	-	-	-	-	43.0	61.4	171.6	78.5	102.2	236.5
908	-	-	-	-	-	-	58.0	80.2	211.6	95.5	123.1	279.6
Pond A	-	-	-	-	-	-	136.3	183.2	459.7	199.7	254.8	568.5
909	-	-	-	-	-	-	8.6	10.6	50.7	9.7	16.4	52.5
910	-	-	-	-	-	-	12.7	22.8	83.7	13.8	28.6	85.6
911	-	-	-	-	-	-	12.7	22.8	83.7	13.8	28.6	85.6

APPENDIX D
SELTZER HEIGHTS + SELTZER FARMS FILING 1
CUHP/SWMM MODEL

CUHP SUBCATCHMENTS

Seltzer Heights + Seltzer Farms Filing 1 - CUHP Inputs

Columns with this color heading are for required user-input
Columns with this color heading are for optional override values
Columns with this color heading are for program-calculated values

								Maximum Depression Storage (Watershed inches)		Horton's Infiltration Parameters			DCIA
Subcatchment Name	EPA SWMM Target Node	Raingage	Area (mi^2)	Length to Centroid (mi)	Length (mi)	Slope (ft/ft)	Percent Imperviousness	Pervious	Impervious	Initial Rate (in/hr)	Decay Coefficient (1/seconds)	Final Rate (in/hr)	Level 0, 1, or 2
100	JUNCT_100	100-YR	0.104485	0.31364	0.61932	0.01476	46.88	0.38	0.1	3	0.0018	0.5	0
101	JUNCT_101	100-YR	0.07622	0.27576	0.57841	0.01685	20.47	0.38	0.1	3	0.0018	0.5	0
102	JUNCT_102	100-YR	0.05899	0.175	0.34205	0.01482	2	0.38	0.1	3	0.0018	0.5	0
103	JUNCT_103	100-YR	0.03774	0.21705	0.46288	0.01538	9.99	0.38	0.1	3	0.0018	0.5	0
104	JUNCT_104	100-YR	0.0262	0.15114	0.29394	0.01008	60.43	0.38	0.1	3	0.0018	0.5	0
105	JUNCT_105	100-YR	0.02241	0.08674	0.20114	0.02147	6.64	0.38	0.1	3	0.0018	0.5	0
200	JUNCT_200	100-YR	0.03753	0.21193	0.37411	0.02363	23.9	0.38	0.1	3	0.0018	0.5	0
201	JUNCT_201	100-YR	0.03771	0.13996	0.30704	0.02121	52.22	0.38	0.1	3	0.0018	0.5	0
202	JUNCT_202	100-YR	0.07603	0.34905	0.43598	0.01545	56.71	0.38	0.1	3	0.0018	0.5	0
203	JUNCT_203	100-YR	0.06477	0.18295	0.4024	0.01766	45.14	0.38	0.1	3	0.0018	0.5	0
204	JUNCT_204	100-YR	0.01079	0.05511	0.12955	0.02145	8.01	0.38	0.1	3	0.0018	0.5	0
300	JUNCT_300	100-YR	0.01937	0.13807	0.25549	0.01964	11.4	0.38	0.1	3	0.0018	0.5	0
301	JUNCT_301	100-YR	0.03351	0.10511	0.25455	0.01594	10.59	0.38	0.1	3	0.0018	0.5	0
400	JUNCT_400	100-YR	0.02172	0.06742	0.14738	0.04888	34.46	0.38	0.1	3	0.0018	0.5	0
500	JUNCT_500	100-YR	0.0319	0.3178	0.59905	0.01607	7.98	0.38	0.1	3	0.0018	0.5	0

SELTZER HEIGHTS + SELTZER FARMS FILING 1 - 5YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... NO
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... NO
Flow Routing Method ..... KINWAVE
Starting Date 01/01/2005 00:00:00
Ending Date 01/02/2005 12:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Routing Time Step ..... 60.00 sec

********** Flow Routing Continuity **********	Volume acre-feet	Volume 10^6 gal
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	22.519	7.338
External Outflow	17.723	5.775
Flooding Loss	0.000	0.000

```
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         4.789         1.561
Continuity Error (%) .....         0.030
```

```
*******************************
Highest Flow Instability Indexes
*******************************
All links are stable.
```

```
*************************
Routing Time Step Summary
*************************
Minimum Time Step           :    60.00 sec
Average Time Step           :    60.00 sec
Maximum Time Step           :    60.00 sec
% of Time in Steady State   :     0.00
Average Iterations per Step :     1.02
% of Steps Not Converging   :     0.00
```

```
******************
Node Depth Summary
******************
```

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
JUNCT_910	JUNCTION	0.58	0.88	5060.58	0 02:52	0.88
JUNCT_100	JUNCTION	0.00	0.00	5072.60	0 00:00	0.00
JUNCT_901	JUNCTION	0.04	0.83	5073.33	0 00:37	0.83

JUNCT_101	JUNCTION	0.00	0.00	5082.80	0	00:00	0.00
JUNCT_902	JUNCTION	0.04	0.59	5083.29	0	00:44	0.59
JUNCT_300	JUNCTION	0.00	0.00	5112.70	0	00:00	0.00
JUNCT_903	JUNCTION	0.02	0.31	5112.91	0	00:42	0.31
JUNCT_301	JUNCTION	0.00	0.00	5117.00	0	00:00	0.00
JUNCT_904	JUNCTION	0.02	0.47	5117.37	0	00:38	0.47
JUNCT_400	JUNCTION	0.00	0.00	5124.70	0	00:00	0.00
JUNCT_905	JUNCTION	0.02	0.58	5125.18	0	00:31	0.58
JUNCT_906	JUNCTION	0.05	1.29	5093.89	0	00:41	1.29
JUNCT_102	JUNCTION	0.00	0.00	5122.40	0	00:00	0.00
JUNCT_907	JUNCTION	0.06	1.29	5090.39	0	00:42	1.29
JUNCT_103	JUNCTION	0.00	0.00	5091.60	0	00:00	0.00
JUNCT_908	JUNCTION	0.06	1.27	5077.57	0	00:45	1.27
JUNCT_104	JUNCTION	0.00	0.00	5076.40	0	00:00	0.00
JUNCT_500	JUNCTION	0.00	0.00	5072.20	0	00:00	0.00
JUNCT_105	JUNCTION	0.00	0.00	5062.10	0	00:00	0.00
JUNCT_900	JUNCTION	0.37	0.50	5107.30	0	02:43	0.50
JUNCT_903B	JUNCTION	0.02	0.30	5091.80	0	00:50	0.30
JUNCT_909	JUNCTION	0.00	0.00	5059.80	0	00:00	0.00
JUNCT_203	JUNCTION	0.00	0.00	5120.50	0	00:00	0.00
JUNCT_204	JUNCTION	0.00	0.00	5122.00	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	5114.20	0	00:00	0.00
JUNCT_201	JUNCTION	0.00	0.00	5120.50	0	00:00	0.00
JUNCT_898	JUNCTION	0.05	1.05	5121.45	0	00:37	1.05
JUNCT_897	JUNCTION	0.04	0.74	5126.54	0	00:43	0.74
JUNCT_200	JUNCTION	0.04	0.74	5133.24	0	00:42	0.74
JUNCT_899	JUNCTION	0.05	1.05	5115.15	0	00:38	1.05
OUTFALL_911	OUTFALL	0.58	0.88	5059.37	0	02:52	0.88
STOR_PONDA	STORAGE	4.11	5.34	5067.34	0	02:53	5.34
STOR_PONDB	STORAGE	4.25	5.22	5112.22	0	02:43	5.22

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_910	JUNCTION	0.00	12.67	0	02:52	0	5.78	0.000
JUNCT_100	JUNCTION	53.59	53.59	0	00:37	1.5	1.5	0.000
JUNCT_901	JUNCTION	0.00	53.59	0	00:37	0	1.5	0.000
JUNCT_101	JUNCTION	17.42	17.42	0	00:44	0.679	0.679	0.000
JUNCT_902	JUNCTION	0.00	17.42	0	00:44	0	0.679	0.000
JUNCT_300	JUNCTION	4.03	4.03	0	00:42	0.137	0.137	0.000
JUNCT_903	JUNCTION	0.00	4.03	0	00:42	0	0.137	0.000
JUNCT_301	JUNCTION	9.02	9.02	0	00:38	0.232	0.232	0.000
JUNCT_904	JUNCTION	0.00	9.02	0	00:38	0	0.232	0.000
JUNCT_400	JUNCTION	16.10	16.10	0	00:31	0.255	0.255	0.000
JUNCT_905	JUNCTION	0.00	16.10	0	00:31	0	0.255	0.000
JUNCT_906	JUNCTION	0.00	33.50	0	00:41	0	0.808	0.000
JUNCT_102	JUNCTION	11.70	11.70	0	00:42	0.315	0.315	0.000
JUNCT_907	JUNCTION	0.00	42.98	0	00:43	0	1.2	0.000
JUNCT_103	JUNCTION	6.11	6.11	0	00:47	0.257	0.257	0.000
JUNCT_908	JUNCTION	0.00	57.95	0	00:44	0	1.65	0.000
JUNCT_104	JUNCTION	17.38	17.38	0	00:34	0.45	0.45	0.000
JUNCT_500	JUNCTION	3.56	3.56	0	00:55	0.206	0.206	0.000
JUNCT_105	JUNCTION	5.97	5.97	0	00:38	0.139	0.139	0.000
JUNCT_900	JUNCTION	0.00	4.08	0	02:43	0	2.34	0.000
JUNCT_903B	JUNCTION	0.00	9.99	0	00:49	0	0.397	0.000
JUNCT_909	JUNCTION	0.00	8.59	0	02:53	0	3.44	0.000
JUNCT_203	JUNCTION	39.24	39.24	0	00:34	0.907	0.907	0.000
JUNCT_204	JUNCTION	3.20	3.20	0	00:36	0.0696	0.0696	0.000
JUNCT_202	JUNCTION	47.34	47.34	0	00:36	1.25	1.25	0.000
JUNCT_201	JUNCTION	27.65	27.65	0	00:33	0.583	0.583	0.000
JUNCT_898	JUNCTION	0.00	34.74	0	00:37	0	0.943	0.000
JUNCT_897	JUNCTION	0.00	9.98	0	00:43	0	0.359	0.000
JUNCT_200	JUNCTION	9.99	9.99	0	00:42	0.36	0.36	0.000
JUNCT_899	JUNCTION	0.00	81.44	0	00:37	0	2.19	0.000

OUTFALL_911	OUTFALL	0.00	12.67	0	02:52	0	5.77	0.000
STOR_PONDA	STORAGE	0.00	136.31	0	00:41	0	4.17	0.036
STOR_PONDB	STORAGE	0.00	123.20	0	00:36	0	3.17	0.021

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 ft³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft³	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
STOR_PONDA	230.986	9	0	0	484.407	19	0 02:53	8.59
STOR_PONDB	221.661	14	0	0	391.556	25	0 02:43	4.08

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
OUTFALL_911	99.40	5.99	12.67	5.775

System 99.40 5.99 12.67 5.775

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days	hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
910	CONDUIT	12.67	0	02:52	6.21	0.11	0.22
100	DUMMY	53.59	0	00:37			
901	CONDUIT	53.60	0	00:38	22.61	0.04	0.14
101	DUMMY	17.42	0	00:44			
902	CONDUIT	17.42	0	00:45	14.99	0.05	0.15
300	DUMMY	4.03	0	00:42			
301	DUMMY	9.02	0	00:38			
400	DUMMY	16.10	0	00:31			
102	DUMMY	11.70	0	00:42			
905	CONDUIT	15.05	0	00:37	4.12	0.01	0.11
904	CONDUIT	8.62	0	00:46	3.02	0.01	0.09
903	CONDUIT	3.90	0	00:50	2.38	0.00	0.06
906	CONDUIT	33.48	0	00:42	7.53	0.10	0.21
103	DUMMY	6.11	0	00:47			
907	CONDUIT	42.87	0	00:45	9.90	0.10	0.21
104	DUMMY	17.38	0	00:34			
908	CONDUIT	57.93	0	00:44	25.31	0.04	0.14
105	DUMMY	5.97	0	00:38			
900	CONDUIT	4.08	0	02:50	5.93	0.09	0.20
903B	DUMMY	9.99	0	00:49			
16	DUMMY	3.56	0	00:55			
909	DUMMY	8.59	0	02:53			
203	DUMMY	39.24	0	00:34			
204	DUMMY	3.20	0	00:36			

202	DUMMY	47.34	0	00:36			
201	DUMMY	27.65	0	00:33			
200	CONDUIT	9.98	0	00:43	6.75	0.10	0.21
897	CONDUIT	9.94	0	00:46	2.41	0.03	0.19
898	CONDUIT	34.58	0	00:38	3.60	0.07	0.30
899	DUMMY	81.44	0	00:37			
PONDA	DUMMY	8.59	0	02:53			
PONDB	DUMMY	4.08	0	02:43			

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Wed May 22 15:57:40 2024
Analysis ended on: Wed May 22 15:57:41 2024
Total elapsed time: 00:00:01

SELTZER HEIGHTS + SELTZER FARMS FILING 1 - 10YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

```
****************
Analysis Options
****************
Flow Units ............... CFS
Process Models:
  Rainfall/Runoff ........ NO
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Flow Routing Method ...... KINWAVE
Starting Date ............ 01/01/2005 00:00:00
Ending Date .............. 01/02/2005 12:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Routing Time Step ........ 60.00 sec
```

Flow Routing Continuity	Volume acre-feet	Volume 10^6 gal
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	31.215	10.172
External Outflow	25.192	8.209
Flooding Loss	0.000	0.000

```
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         5.998         1.955
Continuity Error (%) .....         0.081
```

```
*******************************
Highest Flow Instability Indexes
*******************************
All links are stable.
```

```
*************************
Routing Time Step Summary
*************************
Minimum Time Step           :    60.00 sec
Average Time Step           :    60.00 sec
Maximum Time Step           :    60.00 sec
% of Time in Steady State   :     0.00
Average Iterations per Step :     1.03
% of Steps Not Converging   :     0.00
```

```
******************
Node Depth Summary
******************
```

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
JUNCT_910	JUNCTION	0.69	1.18	5060.88	0 02:31	1.18
JUNCT_100	JUNCTION	0.00	0.00	5072.60	0 00:00	0.00
JUNCT_901	JUNCTION	0.04	0.93	5073.43	0 00:37	0.93

JUNCT_101	JUNCTION	0.00	0.00	5082.80	0	00:00	0.00
JUNCT_902	JUNCTION	0.04	0.69	5083.39	0	00:45	0.69
JUNCT_300	JUNCTION	0.00	0.00	5112.70	0	00:00	0.00
JUNCT_903	JUNCTION	0.02	0.37	5112.97	0	00:42	0.37
JUNCT_301	JUNCTION	0.00	0.00	5117.00	0	00:00	0.00
JUNCT_904	JUNCTION	0.02	0.57	5117.47	0	00:38	0.57
JUNCT_400	JUNCTION	0.00	0.00	5124.70	0	00:00	0.00
JUNCT_905	JUNCTION	0.02	0.66	5125.26	0	00:31	0.66
JUNCT_906	JUNCTION	0.07	1.54	5094.14	0	00:40	1.54
JUNCT_102	JUNCTION	0.00	0.00	5122.40	0	00:00	0.00
JUNCT_907	JUNCTION	0.08	1.54	5090.64	0	00:41	1.54
JUNCT_103	JUNCTION	0.00	0.00	5091.60	0	00:00	0.00
JUNCT_908	JUNCTION	0.08	1.52	5077.82	0	00:44	1.52
JUNCT_104	JUNCTION	0.00	0.00	5076.40	0	00:00	0.00
JUNCT_500	JUNCTION	0.00	0.00	5072.20	0	00:00	0.00
JUNCT_105	JUNCTION	0.00	0.00	5062.10	0	00:00	0.00
JUNCT_900	JUNCTION	0.43	0.87	5107.67	0	02:24	0.87
JUNCT_903B	JUNCTION	0.02	0.37	5091.87	0	00:50	0.37
JUNCT_909	JUNCTION	0.00	0.00	5059.80	0	00:00	0.00
JUNCT_203	JUNCTION	0.00	0.00	5120.50	0	00:00	0.00
JUNCT_204	JUNCTION	0.00	0.00	5122.00	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	5114.20	0	00:00	0.00
JUNCT_201	JUNCTION	0.00	0.00	5120.50	0	00:00	0.00
JUNCT_898	JUNCTION	0.06	1.19	5121.59	0	00:36	1.19
JUNCT_897	JUNCTION	0.05	0.86	5126.66	0	00:43	0.86
JUNCT_200	JUNCTION	0.05	0.86	5133.36	0	00:42	0.86
JUNCT_899	JUNCTION	0.06	1.19	5115.29	0	00:38	1.19
OUTFALL_911	OUTFALL	0.69	1.18	5059.67	0	02:31	1.18
STOR_PONDA	STORAGE	4.57	6.05	5068.05	0	03:02	6.05
STOR_PONDB	STORAGE	4.56	5.73	5112.73	0	02:24	5.73

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_910	JUNCTION	0.00	22.81	0	02:31	0	8.21	0.000
JUNCT_100	JUNCTION	67.82	67.82	0	00:37	1.97	1.97	0.000
JUNCT_901	JUNCTION	0.00	67.82	0	00:37	0	1.97	0.000
JUNCT_101	JUNCTION	23.98	23.98	0	00:45	1	1	0.000
JUNCT_902	JUNCTION	0.00	23.98	0	00:45	0	1	0.000
JUNCT_300	JUNCTION	5.78	5.78	0	00:42	0.217	0.217	0.000
JUNCT_903	JUNCTION	0.00	5.78	0	00:42	0	0.217	0.000
JUNCT_301	JUNCTION	12.93	12.93	0	00:38	0.37	0.37	0.000
JUNCT_904	JUNCTION	0.00	12.93	0	00:38	0	0.37	0.000
JUNCT_400	JUNCTION	21.06	21.06	0	00:31	0.35	0.35	0.000
JUNCT_905	JUNCTION	0.00	21.06	0	00:31	0	0.35	0.000
JUNCT_906	JUNCTION	0.00	47.72	0	00:40	0	1.27	0.000
JUNCT_102	JUNCTION	17.80	17.80	0	00:42	0.548	0.548	0.000
JUNCT_907	JUNCTION	0.00	61.43	0	00:42	0	1.9	0.000
JUNCT_103	JUNCTION	8.93	8.93	0	00:48	0.411	0.411	0.000
JUNCT_908	JUNCTION	0.00	80.20	0	00:41	0	2.47	0.000
JUNCT_104	JUNCTION	21.38	21.38	0	00:33	0.57	0.57	0.000
JUNCT_500	JUNCTION	5.31	5.31	0	00:58	0.335	0.335	0.000
JUNCT_105	JUNCTION	8.76	8.76	0	00:37	0.229	0.229	0.000
JUNCT_900	JUNCTION	0.00	12.29	0	02:24	0	3.2	0.000
JUNCT_903B	JUNCTION	0.00	14.60	0	00:49	0	0.631	0.000
JUNCT_909	JUNCTION	0.00	10.63	0	03:02	0	5.03	0.000
JUNCT_203	JUNCTION	49.88	49.88	0	00:34	1.19	1.19	0.000
JUNCT_204	JUNCTION	4.64	4.64	0	00:36	0.113	0.113	0.000
JUNCT_202	JUNCTION	58.64	58.64	0	00:35	1.59	1.59	0.000
JUNCT_201	JUNCTION	34.62	34.62	0	00:32	0.753	0.753	0.000
JUNCT_898	JUNCTION	0.00	44.58	0	00:36	0	1.27	0.000
JUNCT_897	JUNCTION	0.00	13.50	0	00:43	0	0.519	-0.000
JUNCT_200	JUNCTION	13.51	13.51	0	00:42	0.52	0.52	0.000
JUNCT_899	JUNCTION	0.00	102.54	0	00:36	0	2.87	0.000

OUTFALL_911	OUTFALL	0.00	22.81	0	02:31	0	8.21	0.000
STOR_PONDA	STORAGE	0.00	183.16	0	00:41	0	6	0.032
STOR_PONDB	STORAGE	0.00	156.25	0	00:36	0	4.17	0.030

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 ft³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft³	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
STOR_PONDA	330.226	13	0	0	701.603	28	0 03:02	10.63
STOR_PONDB	275.303	18	0	0	500.545	32	0 02:24	12.29

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
OUTFALL_911	99.40	8.52	22.81	8.208

System 99.40 8.52 22.81 8.208

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days	hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
910	CONDUIT	22.81	0	02:31	7.35	0.19	0.30
100	DUMMY	67.82	0	00:37			
901	CONDUIT	67.79	0	00:37	24.18	0.05	0.16
101	DUMMY	23.98	0	00:45			
902	CONDUIT	23.98	0	00:45	16.46	0.07	0.17
300	DUMMY	5.78	0	00:42			
301	DUMMY	12.93	0	00:38			
400	DUMMY	21.06	0	00:31			
102	DUMMY	17.80	0	00:42			
905	CONDUIT	19.83	0	00:35	4.44	0.01	0.13
904	CONDUIT	12.49	0	00:45	3.35	0.01	0.11
903	CONDUIT	5.68	0	00:50	2.65	0.00	0.07
906	CONDUIT	47.68	0	00:41	8.33	0.14	0.26
103	DUMMY	8.93	0	00:48			
907	CONDUIT	61.32	0	00:44	10.96	0.14	0.25
104	DUMMY	21.38	0	00:33			
908	CONDUIT	80.28	0	00:41	27.95	0.05	0.16
105	DUMMY	8.76	0	00:37			
900	CONDUIT	12.26	0	02:30	8.15	0.26	0.35
903B	DUMMY	14.60	0	00:49			
16	DUMMY	5.31	0	00:58			
909	DUMMY	10.63	0	03:02			
203	DUMMY	49.88	0	00:34			
204	DUMMY	4.64	0	00:36			

202	DUMMY	58.64	0	00:35			
201	DUMMY	34.62	0	00:32			
200	CONDUIT	13.50	0	00:43	7.37	0.13	0.25
897	CONDUIT	13.48	0	00:45	2.64	0.04	0.22
898	CONDUIT	44.47	0	00:38	3.85	0.09	0.34
899	DUMMY	102.54	0	00:36			
PONDA	DUMMY	10.63	0	03:02			
PONDB	DUMMY	12.29	0	02:24			

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Wed May 22 15:56:40 2024
Analysis ended on: Wed May 22 15:56:40 2024
Total elapsed time: < 1 sec

SELTZER HEIGHTS + SELTZER FARMS FILING 1 - 100YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... NO
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... NO
Flow Routing Method ..... KINWAVE
Starting Date 01/01/2005 00:00:00
Ending Date 01/02/2005 12:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Routing Time Step ..... 60.00 sec

Flow Routing Continuity	Volume acre-feet	Volume 10^6 gal
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	71.847	23.412
External Outflow	63.771	20.781
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000

```
Final Stored Volume ......         7.939         2.587
Continuity Error (%) .....         0.190
```

```
******************************
Highest Flow Instability Indexes
******************************
All links are stable.
```

```
*************************
Routing Time Step Summary
*************************
Minimum Time Step           :    60.00 sec
Average Time Step           :    60.00 sec
Maximum Time Step           :    60.00 sec
% of Time in Steady State   :     0.00
Average Iterations per Step :     1.07
% of Steps Not Converging   :     0.00
```

```
******************
Node Depth Summary
******************
```

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Reported Max Depth Feet
JUNCT_910	JUNCTION	1.04	2.46	5062.16	0 02:25	2.46
JUNCT_100	JUNCTION	0.00	0.00	5072.60	0 00:00	0.00
JUNCT_901	JUNCTION	0.06	1.37	5073.87	0 00:43	1.37
JUNCT_101	JUNCTION	0.00	0.00	5082.80	0 00:00	0.00
JUNCT_902	JUNCTION	0.07	1.14	5083.84	0 00:52	1.14
JUNCT_300	JUNCTION	0.00	0.00	5112.70	0 00:00	0.00
JUNCT_903	JUNCTION	0.03	0.65	5113.25	0 00:49	0.65
JUNCT_301	JUNCTION	0.00	0.00	5117.00	0 00:00	0.00
JUNCT_904	JUNCTION	0.04	0.94	5117.84	0 00:45	0.94

JUNCT_400	JUNCTION	0.00	0.00	5124.70	0	00:00	0.00
JUNCT_905	JUNCTION	0.03	0.98	5125.58	0	00:36	0.98
JUNCT_906	JUNCTION	0.11	2.62	5095.22	0	00:46	2.62
JUNCT_102	JUNCTION	0.00	0.00	5122.40	0	00:00	0.00
JUNCT_907	JUNCTION	0.13	2.62	5091.72	0	00:46	2.62
JUNCT_103	JUNCTION	0.00	0.00	5091.60	0	00:00	0.00
JUNCT_908	JUNCTION	0.13	2.60	5078.90	0	00:49	2.60
JUNCT_104	JUNCTION	0.00	0.00	5076.40	0	00:00	0.00
JUNCT_500	JUNCTION	0.00	0.00	5072.20	0	00:00	0.00
JUNCT_105	JUNCTION	0.00	0.00	5062.10	0	00:00	0.00
JUNCT_900	JUNCTION	0.61	1.54	5108.34	0	02:10	1.54
JUNCT_903B	JUNCTION	0.04	0.64	5092.14	0	00:55	0.64
JUNCT_909	JUNCTION	0.00	0.00	5059.80	0	00:00	0.00
JUNCT_203	JUNCTION	0.00	0.00	5120.50	0	00:00	0.00
JUNCT_204	JUNCTION	0.00	0.00	5122.00	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	5114.20	0	00:00	0.00
JUNCT_201	JUNCTION	0.00	0.00	5120.50	0	00:00	0.00
JUNCT_898	JUNCTION	0.08	1.76	5122.16	0	00:42	1.76
JUNCT_897	JUNCTION	0.08	1.41	5127.21	0	00:50	1.41
JUNCT_200	JUNCTION	0.08	1.42	5133.92	0	00:49	1.42
JUNCT_899	JUNCTION	0.08	1.75	5115.85	0	00:44	1.75
OUTFALL_911	OUTFALL	1.04	2.46	5060.95	0	02:26	2.46
STOR_PONDA	STORAGE	5.57	8.35	5070.35	0	02:36	8.35
STOR_PONDB	STORAGE	5.03	7.70	5114.70	0	02:10	7.70

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_910	JUNCTION	0.00	83.69	0	02:25	0	20.8	0.000
JUNCT_100	JUNCTION	148.17	148.17	0	00:43	4.05	4.05	0.000
JUNCT_901	JUNCTION	0.00	148.17	0	00:43	0	4.05	0.000

JUNCT_101	JUNCTION	64.40	64.40	0	00:52	2.54	2.54	0.000
JUNCT_902	JUNCTION	0.00	64.40	0	00:52	0	2.54	0.000
JUNCT_300	JUNCTION	16.53	16.53	0	00:49	0.609	0.609	0.000
JUNCT_903	JUNCTION	0.00	16.53	0	00:49	0	0.609	0.000
JUNCT_301	JUNCTION	36.02	36.02	0	00:45	1.05	1.05	0.000
JUNCT_904	JUNCTION	0.00	36.02	0	00:45	0	1.05	0.000
JUNCT_400	JUNCTION	46.97	46.97	0	00:36	0.785	0.785	0.000
JUNCT_905	JUNCTION	0.00	46.97	0	00:36	0	0.785	0.000
JUNCT_906	JUNCTION	0.00	130.87	0	00:46	0	3.58	-0.000
JUNCT_102	JUNCTION	54.80	54.80	0	00:48	1.74	1.74	0.000
JUNCT_907	JUNCTION	0.00	171.56	0	00:48	0	5.36	0.000
JUNCT_103	JUNCTION	26.40	26.40	0	00:55	1.17	1.17	0.000
JUNCT_908	JUNCTION	0.00	211.62	0	00:47	0	6.44	0.000
JUNCT_104	JUNCTION	43.07	43.07	0	00:40	1.09	1.09	0.000
JUNCT_500	JUNCTION	16.67	16.67	0	01:08	0.98	0.98	0.000
JUNCT_105	JUNCTION	25.05	25.05	0	00:43	0.683	0.683	0.000
JUNCT_900	JUNCTION	0.00	33.10	0	02:10	0	7.53	-0.000
JUNCT_903B	JUNCTION	0.00	42.82	0	00:55	0	1.79	0.000
JUNCT_909	JUNCTION	0.00	50.66	0	02:36	0	13.3	0.000
JUNCT_203	JUNCTION	107.65	107.65	0	00:40	2.49	2.49	0.000
JUNCT_204	JUNCTION	12.99	12.99	0	00:42	0.332	0.332	0.000
JUNCT_202	JUNCTION	120.89	120.89	0	00:42	3.11	3.11	0.000
JUNCT_201	JUNCTION	71.42	71.42	0	00:38	1.5	1.5	0.000
JUNCT_898	JUNCTION	0.00	100.56	0	00:42	0	2.78	0.000
JUNCT_897	JUNCTION	0.00	35.05	0	00:50	0	1.27	0.000
JUNCT_200	JUNCTION	35.07	35.07	0	00:49	1.28	1.28	0.000
JUNCT_899	JUNCTION	0.00	220.90	0	00:43	0	5.89	0.000
OUTFALL_911	OUTFALL	0.00	83.69	0	02:26	0	20.8	0.000
STOR_PONDA	STORAGE	0.00	459.69	0	00:47	0	14.7	0.074
STOR_PONDB	STORAGE	0.00	340.81	0	00:42	0	8.71	0.080

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 ft³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft³	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
STOR_PONDA	616.189	24	0	0	1586.788	63	0 02:36	50.66
STOR_PONDB	372.594	24	0	0	971.149	62	0 02:10	33.10

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
OUTFALL_911	99.44	21.56	83.69	20.779
System	99.44	21.56	83.69	20.779

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
910	CONDUIT	83.69	0 02:26	10.33	0.70	0.61
100	DUMMY	148.17	0 00:43			
901	CONDUIT	148.18	0 00:43	30.46	0.11	0.23

101	DUMMY	64.40	0	00:52			
902	CONDUIT	64.40	0	00:53	21.91	0.18	0.28
300	DUMMY	16.53	0	00:49			
301	DUMMY	36.02	0	00:45			
400	DUMMY	46.97	0	00:36			
102	DUMMY	54.80	0	00:48			
905	CONDUIT	45.64	0	00:40	5.48	0.02	0.19
904	CONDUIT	35.70	0	00:50	4.42	0.02	0.19
903	CONDUIT	16.42	0	00:55	3.56	0.01	0.13
906	CONDUIT	130.84	0	00:46	11.03	0.39	0.44
103	DUMMY	26.40	0	00:55			
907	CONDUIT	171.34	0	00:49	14.57	0.39	0.43
104	DUMMY	43.07	0	00:40			
908	CONDUIT	211.53	0	00:47	37.07	0.14	0.26
105	DUMMY	25.05	0	00:43			
900	CONDUIT	33.10	0	02:14	10.47	0.70	0.61
903B	DUMMY	42.82	0	00:55			
16	DUMMY	16.67	0	01:08			
909	DUMMY	50.66	0	02:36			
203	DUMMY	107.65	0	00:40			
204	DUMMY	12.99	0	00:42			
202	DUMMY	120.89	0	00:42			
201	DUMMY	71.42	0	00:38			
200	CONDUIT	35.05	0	00:50	9.62	0.34	0.40
897	CONDUIT	35.00	0	00:52	3.44	0.11	0.36
898	CONDUIT	100.43	0	00:44	4.77	0.21	0.50
899	DUMMY	220.90	0	00:43			
PONDA	DUMMY	50.66	0	02:36			
PONDB	DUMMY	33.10	0	02:10			

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Wed May 22 15:55:49 2024

Analysis ended on: Wed May 22 15:55:49 2024
Total elapsed time: < 1 sec

APPENDIX E
SELTZER HEIGHTS + SELTZER FARMS (ULTIMATE BUILDOUT)
CUHP/SWMM MODEL

CUHP SUBCATCHMENTS

Seltzer Heights + Seltzer Farms (Ultimate Buildout) - CUHP Inputs

Columns with this color heading are for required user-input
Columns with this color heading are for optional override values
Columns with this color heading are for program-calculated values

								Maximum Depression Storage (Watershed inches)		Horton's Infiltration Parameters			DCIA
Subcatchment Name	EPA SWMM Target Node	Raingage	Area (mi^2)	Length to Centroid (mi)	Length (mi)	Slope (ft/ft)	Percent Imperviousness	Pervious	Impervious	Initial Rate (in/hr)	Decay Coefficient (1/seconds)	Final Rate (in/hr)	Level 0, 1, or 2
100	JUNCT_100	100-YR	0.10963	0.36402	0.79186	0.01182	59.4	0.38	0.1	3	0.0018	0.5	0
101	JUNCT_101	100-YR	0.06762	0.24792	0.5572	0.01592	45.52	0.38	0.1	3	0.0018	0.5	0
102	JUNCT_102	100-YR	0.02002	0.09905	0.22235	0.0138	4.24	0.38	0.1	3	0.0018	0.5	0
103	JUNCT_103	100-YR	0.08203	0.23939	0.63371	0.01316	54.84	0.38	0.1	3	0.0018	0.5	0
104	JUNCT_104	100-YR	0.02841	0.16345	0.40284	0.01143	61.16	0.38	0.1	3	0.0018	0.5	0
105	JUNCT_105	100-YR	0.02241	0.08674	0.20114	0.02147	6.64	0.38	0.1	3	0.0018	0.5	0
200	JUNCT_200	100-YR	0.03753	0.21193	0.37411	0.02363	23.9	0.38	0.1	3	0.0018	0.5	0
201	JUNCT_201	100-YR	0.03771	0.13996	0.30704	0.02121	52.22	0.38	0.1	3	0.0018	0.5	0
202	JUNCT_202	100-YR	0.07603	0.34905	0.43598	0.01545	56.71	0.38	0.1	3	0.0018	0.5	0
203	JUNCT_203	100-YR	0.06477	0.18295	0.4024	0.01766	45.14	0.38	0.1	3	0.0018	0.5	0
204	JUNCT_204	100-YR	0.01079	0.05511	0.12955	0.02145	8.01	0.38	0.1	3	0.0018	0.5	0
300	JUNCT_300	100-YR	0.03296	0.1286	0.2447	0.01954	10.9	0.38	0.1	3	0.0018	0.5	0
301	JUNCT_301	100-YR	0.01992	0.11989	0.2608	0.01572	10.86	0.38	0.1	3	0.0018	0.5	0
400	JUNCT_400	100-YR	0.02172	0.06742	0.14738	0.04888	34.46	0.38	0.1	3	0.0018	0.5	0
500	JUNCT_500	100-YR	0.0319	0.3178	0.59905	0.01607	8.57	0.38	0.1	3	0.0018	0.5	0

SELTZER HEIGHTS + SELTZER FARMS ULTIMATE - 5YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... NO
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... NO
Flow Routing Method ..... KINWAVE
Starting Date 01/01/2005 00:00:00
Ending Date 01/02/2005 12:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Routing Time Step ..... 5.00 sec

**********	Volume	Volume
Flow Routing Continuity	acre-feet	10^6 gal
**********	---	---
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	27.224	8.871
External Outflow	20.578	6.706
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000

```
Final Stored Volume ......         6.635         2.162
Continuity Error (%) .....         0.039

*******************************
Highest Flow Instability Indexes
*******************************
All links are stable.


*************************
Routing Time Step Summary
*************************
Minimum Time Step           :     5.00 sec
Average Time Step           :     5.00 sec
Maximum Time Step           :     5.00 sec
% of Time in Steady State   :     0.00
Average Iterations per Step :     1.00
% of Steps Not Converging   :     0.00


******************
Node Depth Summary
******************

-------------------------------------------------------------------------------
                            Average  Maximum  Maximum  Time of Max    Reported
                              Depth    Depth      HGL   Occurrence   Max Depth
Node                 Type      Feet     Feet     Feet  days hr:min        Feet
-------------------------------------------------------------------------------
JUNCT_910            JUNCTION     0.62     0.92  5060.62     0  02:44        0.92
JUNCT_100            JUNCTION     0.00     0.00  5072.60     0  00:00        0.00
JUNCT_901            JUNCTION     0.04     0.89  5073.39     0  00:37        0.89
JUNCT_101            JUNCTION     0.00     0.00  5082.80     0  00:00        0.00
JUNCT_902            JUNCTION     0.04     0.81  5083.51     0  00:36        0.81
JUNCT_300            JUNCTION     0.00     0.00  5112.70     0  00:00        0.00
JUNCT_903            JUNCTION     0.02     0.53  5113.13     0  00:38        0.53
JUNCT_301            JUNCTION     0.00     0.00  5117.00     0  00:00        0.00
JUNCT_904            JUNCTION     0.02     0.39  5117.29     0  00:41        0.39
```

JUNCT_400	JUNCTION	0.00	0.00	5124.70	0	00:00	0.00
JUNCT_905	JUNCTION	0.01	0.53	5125.13	0	00:30	0.53
JUNCT_906	JUNCTION	0.04	0.98	5105.78	0	00:35	0.98
JUNCT_102	JUNCTION	0.00	0.00	5104.90	0	00:00	0.00
JUNCT_907	JUNCTION	0.08	1.72	5090.82	0	00:36	1.72
JUNCT_103	JUNCTION	0.00	0.00	5090.60	0	00:00	0.00
JUNCT_908	JUNCTION	0.08	1.72	5078.02	0	00:37	1.72
JUNCT_104	JUNCTION	0.00	0.00	5076.40	0	00:00	0.00
JUNCT_500	JUNCTION	0.00	0.00	5072.20	0	00:00	0.00
JUNCT_105	JUNCTION	0.00	0.00	5062.10	0	00:00	0.00
JUNCT_900	JUNCTION	0.37	0.50	5107.30	0	02:42	0.50
JUNCT_909	JUNCTION	0.00	0.00	5059.80	0	00:00	0.00
JUNCT_203	JUNCTION	0.00	0.00	5120.50	0	00:00	0.00
JUNCT_204	JUNCTION	0.00	0.00	5122.00	0	00:00	0.00
JUNCT_899	JUNCTION	0.05	1.05	5115.15	0	00:37	1.05
JUNCT_898	JUNCTION	0.05	1.05	5121.45	0	00:35	1.05
JUNCT_897	JUNCTION	0.04	0.74	5126.54	0	00:41	0.74
JUNCT_200	JUNCTION	0.04	0.74	5133.24	0	00:41	0.74
JUNCT_201	JUNCTION	0.00	0.00	5120.50	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	5114.20	0	00:00	0.00
OUTFALL_911	OUTFALL	0.62	0.92	5059.41	0	02:44	0.92
STOR_PONDA	STORAGE	4.72	6.00	5068.00	0	02:42	6.00
STOR_PONDB	STORAGE	4.26	5.22	5112.22	0	02:42	5.22

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min		Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_910	JUNCTION	0.00	13.81	0	02:44	0	6.71	0.000
JUNCT_100	JUNCTION	62.18	62.18	0	00:37	1.86	1.86	0.000
JUNCT_901	JUNCTION	0.00	62.18	0	00:37	0	1.86	0.000
JUNCT_101	JUNCTION	33.01	33.01	0	00:36	0.952	0.952	0.000

JUNCT_902	JUNCTION	0.00	33.01	0	00:36	0	0.952	0.000
JUNCT_300	JUNCTION	8.66	8.66	0	00:38	0.231	0.231	0.000
JUNCT_903	JUNCTION	0.00	8.66	0	00:38	0	0.231	0.000
JUNCT_301	JUNCTION	4.16	4.16	0	00:41	0.139	0.139	0.000
JUNCT_904	JUNCTION	0.00	4.16	0	00:41	0	0.139	0.000
JUNCT_400	JUNCTION	16.10	16.10	0	00:30	0.255	0.255	0.000
JUNCT_905	JUNCTION	0.00	16.10	0	00:30	0	0.255	0.000
JUNCT_906	JUNCTION	0.00	21.49	0	00:35	0	0.511	0.000
JUNCT_102	JUNCTION	4.05	4.05	0	00:40	0.115	0.115	0.000
JUNCT_907	JUNCTION	0.00	78.50	0	00:36	0	2.05	0.000
JUNCT_103	JUNCTION	49.22	49.22	0	00:35	1.31	1.31	0.000
JUNCT_908	JUNCTION	0.00	95.48	0	00:37	0	2.54	0.000
JUNCT_104	JUNCTION	17.47	17.47	0	00:34	0.492	0.492	0.000
JUNCT_500	JUNCTION	3.61	3.61	0	00:53	0.209	0.209	0.000
JUNCT_105	JUNCTION	5.97	5.97	0	00:37	0.139	0.139	0.000
JUNCT_900	JUNCTION	0.00	4.08	0	02:42	0	2.34	0.000
JUNCT_909	JUNCTION	0.00	9.73	0	02:42	0	4.37	0.000
JUNCT_203	JUNCTION	39.24	39.24	0	00:33	0.907	0.907	0.000
JUNCT_204	JUNCTION	3.20	3.20	0	00:35	0.0696	0.0696	0.000
JUNCT_899	JUNCTION	0.00	81.48	0	00:36	0	2.19	0.000
JUNCT_898	JUNCTION	0.00	34.77	0	00:35	0	0.943	0.000
JUNCT_897	JUNCTION	0.00	9.98	0	00:41	0	0.36	0.000
JUNCT_200	JUNCTION	9.99	9.99	0	00:41	0.36	0.36	0.000
JUNCT_201	JUNCTION	27.65	27.65	0	00:32	0.583	0.583	0.000
JUNCT_202	JUNCTION	47.34	47.34	0	00:35	1.25	1.25	0.000
OUTFALL_911	OUTFALL	0.00	13.81	0	02:44	0	6.71	0.000
STOR_PONDA	STORAGE	0.00	199.72	0	00:37	0	5.7	-0.000
STOR_PONDB	STORAGE	0.00	123.18	0	00:35	0	3.17	-0.000

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary

****

Storage Unit	Average Volume 1000 ft³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft³	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
STOR_PONDA	354.375	14	0	0	686.854	27	0 02:42	9.73
STOR_PONDB	221.726	14	0	0	391.586	25	0 02:42	4.08

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
OUTFALL_911	99.39	6.96	13.81	6.705
System	99.39	6.96	13.81	6.705

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
910	CONDUIT	13.81	0 02:44	6.37	0.11	0.23
100	DUMMY	62.18	0 00:37			
901	CONDUIT	62.18	0 00:37	23.63	0.05	0.15
101	DUMMY	33.01	0 00:36			
902	CONDUIT	33.00	0 00:36	18.08	0.09	0.20

300	DUMMY	8.66	0	00:38			
301	DUMMY	4.16	0	00:41			
400	DUMMY	16.10	0	00:30			
102	DUMMY	4.05	0	00:40			
905	CONDUIT	16.05	0	00:31	5.90	0.01	0.13
904	CONDUIT	4.10	0	00:46	2.37	0.01	0.10
903	CONDUIT	8.63	0	00:40	7.06	0.02	0.09
906	CONDUIT	21.35	0	00:37	8.00	0.08	0.19
103	DUMMY	49.22	0	00:35			
907	CONDUIT	78.41	0	00:37	11.75	0.18	0.29
104	DUMMY	17.47	0	00:34			
908	CONDUIT	95.48	0	00:37	29.44	0.06	0.17
105	DUMMY	5.97	0	00:37			
900	CONDUIT	4.08	0	02:49	5.93	0.09	0.20
500	DUMMY	3.61	0	00:53			
909	DUMMY	9.73	0	02:42			
203	DUMMY	39.24	0	00:33			
204	DUMMY	3.20	0	00:35			
202	DUMMY	47.34	0	00:35			
201	DUMMY	27.65	0	00:32			
200	CONDUIT	9.98	0	00:41	6.75	0.10	0.21
897	CONDUIT	9.96	0	00:44	2.41	0.03	0.19
898	CONDUIT	34.66	0	00:37	3.60	0.07	0.30
899	DUMMY	81.48	0	00:36			
PONDA	DUMMY	9.73	0	02:42			
PONDB	DUMMY	4.08	0	02:42			

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Wed May 22 15:53:52 2024
Analysis ended on: Wed May 22 15:53:52 2024
Total elapsed time: < 1 sec

SELTZER HEIGHTS + SELTZER FARMS ULTIMATE - 10YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... NO
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... NO
Flow Routing Method ..... KINWAVE
Starting Date 01/01/2005 00:00:00
Ending Date 01/02/2005 12:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Routing Time Step ..... 5.00 sec

**********	Volume	Volume
Flow Routing Continuity	acre-feet	10^6 gal
**********	---	---
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	36.194	11.794
External Outflow	28.316	9.227
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000

```
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         7.864         2.563
Continuity Error (%) .....         0.039


*******************************
Highest Flow Instability Indexes
*******************************
All links are stable.


*************************
Routing Time Step Summary
*************************
Minimum Time Step           :     5.00 sec
Average Time Step           :     5.00 sec
Maximum Time Step           :     5.00 sec
% of Time in Steady State   :     0.00
Average Iterations per Step :     1.00
% of Steps Not Converging   :     0.00


******************
Node Depth Summary
******************

--------------------------------------------------------------------------------
                            Average  Maximum  Maximum  Time of Max    Reported
                              Depth    Depth      HGL   Occurrence   Max Depth
Node                 Type      Feet     Feet     Feet  days hr:min        Feet
--------------------------------------------------------------------------------
JUNCT_910            JUNCTION  0.73     1.33  5061.03     0  02:33        1.33
JUNCT_100            JUNCTION  0.00     0.00  5072.60     0  00:00        0.00
JUNCT_901            JUNCTION  0.05     0.99  5073.49     0  00:37        0.99
JUNCT_101            JUNCTION  0.00     0.00  5082.80     0  00:00        0.00
JUNCT_902            JUNCTION  0.04     0.91  5083.61     0  00:36        0.91
JUNCT_300            JUNCTION  0.00     0.00  5112.70     0  00:00        0.00
JUNCT_903            JUNCTION  0.03     0.63  5113.23     0  00:37        0.63
JUNCT_301            JUNCTION  0.00     0.00  5117.00     0  00:00        0.00
```

JUNCT_904	JUNCTION	0.02	0.47	5117.37	0	00:41	0.47
JUNCT_400	JUNCTION	0.00	0.00	5124.70	0	00:00	0.00
JUNCT_905	JUNCTION	0.02	0.61	5125.21	0	00:30	0.61
JUNCT_906	JUNCTION	0.05	1.14	5105.94	0	00:34	1.14
JUNCT_102	JUNCTION	0.00	0.00	5104.90	0	00:00	0.00
JUNCT_907	JUNCTION	0.09	1.97	5091.07	0	00:36	1.97
JUNCT_103	JUNCTION	0.00	0.00	5090.60	0	00:00	0.00
JUNCT_908	JUNCTION	0.09	1.97	5078.27	0	00:37	1.97
JUNCT_104	JUNCTION	0.00	0.00	5076.40	0	00:00	0.00
JUNCT_500	JUNCTION	0.00	0.00	5072.20	0	00:00	0.00
JUNCT_105	JUNCTION	0.00	0.00	5062.10	0	00:00	0.00
JUNCT_900	JUNCTION	0.43	0.87	5107.67	0	02:23	0.87
JUNCT_909	JUNCTION	0.00	0.00	5059.80	0	00:00	0.00
JUNCT_203	JUNCTION	0.00	0.00	5120.50	0	00:00	0.00
JUNCT_204	JUNCTION	0.00	0.00	5122.00	0	00:00	0.00
JUNCT_899	JUNCTION	0.06	1.19	5115.29	0	00:36	1.19
JUNCT_898	JUNCTION	0.06	1.19	5121.59	0	00:35	1.19
JUNCT_897	JUNCTION	0.05	0.86	5126.66	0	00:41	0.86
JUNCT_200	JUNCTION	0.05	0.86	5133.36	0	00:41	0.86
JUNCT_201	JUNCTION	0.00	0.00	5120.50	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	5114.20	0	00:00	0.00
OUTFALL_911	OUTFALL	0.73	1.33	5059.82	0	02:33	1.33
STOR_PONDA	STORAGE	5.12	6.65	5068.65	0	02:38	6.65
STOR_PONDB	STORAGE	4.56	5.73	5112.73	0	02:23	5.73

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_910	JUNCTION	0.00	28.55	0	02:33	0	9.23	0.000
JUNCT_100	JUNCTION	76.56	76.56	0	00:37	2.36	2.36	0.000
JUNCT_901	JUNCTION	0.00	76.56	0	00:37	0	2.36	0.000

JUNCT_101	JUNCTION	41.88	41.88	0	00:36	1.25	1.25	0.000
JUNCT_902	JUNCTION	0.00	41.88	0	00:36	0	1.25	0.000
JUNCT_300	JUNCTION	12.41	12.41	0	00:37	0.366	0.366	0.000
JUNCT_903	JUNCTION	0.00	12.41	0	00:37	0	0.366	0.000
JUNCT_301	JUNCTION	5.97	5.97	0	00:41	0.221	0.221	0.000
JUNCT_904	JUNCTION	0.00	5.97	0	00:41	0	0.221	0.000
JUNCT_400	JUNCTION	21.06	21.06	0	00:30	0.35	0.35	0.000
JUNCT_905	JUNCTION	0.00	21.06	0	00:30	0	0.35	0.000
JUNCT_906	JUNCTION	0.00	29.50	0	00:34	0	0.767	0.000
JUNCT_102	JUNCTION	6.06	6.06	0	00:40	0.195	0.195	0.000
JUNCT_907	JUNCTION	0.00	102.18	0	00:36	0	2.82	0.000
JUNCT_103	JUNCTION	61.15	61.15	0	00:35	1.68	1.68	0.000
JUNCT_908	JUNCTION	0.00	123.10	0	00:36	0	3.43	0.000
JUNCT_104	JUNCTION	21.44	21.44	0	00:33	0.623	0.623	0.000
JUNCT_500	JUNCTION	5.37	5.37	0	00:57	0.339	0.339	0.000
JUNCT_105	JUNCTION	8.76	8.76	0	00:36	0.229	0.229	0.000
JUNCT_900	JUNCTION	0.00	12.28	0	02:23	0	3.2	0.000
JUNCT_909	JUNCTION	0.00	16.38	0	02:38	0	6.04	0.000
JUNCT_203	JUNCTION	49.88	49.88	0	00:33	1.19	1.19	0.000
JUNCT_204	JUNCTION	4.64	4.64	0	00:35	0.113	0.113	0.000
JUNCT_899	JUNCTION	0.00	102.63	0	00:35	0	2.87	0.000
JUNCT_898	JUNCTION	0.00	44.62	0	00:35	0	1.27	0.000
JUNCT_897	JUNCTION	0.00	13.51	0	00:41	0	0.52	0.000
JUNCT_200	JUNCTION	13.51	13.51	0	00:41	0.52	0.52	-0.000
JUNCT_201	JUNCTION	34.62	34.62	0	00:31	0.753	0.753	0.000
JUNCT_202	JUNCTION	58.64	58.64	0	00:34	1.59	1.59	0.000
OUTFALL_911	OUTFALL	0.00	28.55	0	02:33	0	9.23	0.000
STOR_PONDA	STORAGE	0.00	254.81	0	00:37	0	7.61	-0.000
STOR_PONDB	STORAGE	0.00	156.31	0	00:35	0	4.17	-0.000

****
Node Flooding Summary
****

No nodes were flooded.

****

Storage Volume Summary
****

Storage Unit	Average Volume 1000 ft³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft³	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
STOR_PONDA	461.290	18	0	0	910.925	36	0 02:38	16.38
STOR_PONDB	275.420	18	0	0	500.498	32	0 02:23	12.28

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
OUTFALL_911	99.43	9.57	28.55	9.226
System	99.43	9.57	28.55	9.226

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
910	CONDUIT	28.55	0 02:33	7.83	0.24	0.33
100	DUMMY	76.56	0 00:37			
901	CONDUIT	76.56	0 00:37	25.13	0.06	0.16
101	DUMMY	41.88	0 00:36			

902	CONDUIT	41.87	0	00:36	19.37	0.11	0.23
300	DUMMY	12.41	0	00:37			
301	DUMMY	5.97	0	00:41			
400	DUMMY	21.06	0	00:30			
102	DUMMY	6.06	0	00:40			
905	CONDUIT	20.95	0	00:30	6.35	0.01	0.15
904	CONDUIT	5.93	0	00:46	2.64	0.01	0.12
903	CONDUIT	12.36	0	00:39	7.87	0.02	0.10
906	CONDUIT	29.39	0	00:36	8.78	0.11	0.23
103	DUMMY	61.15	0	00:35			
907	CONDUIT	102.07	0	00:37	12.67	0.23	0.33
104	DUMMY	21.44	0	00:33			
908	CONDUIT	123.10	0	00:36	31.69	0.08	0.20
105	DUMMY	8.76	0	00:36			
900	CONDUIT	12.26	0	02:28	8.15	0.26	0.35
500	DUMMY	5.37	0	00:57			
909	DUMMY	16.38	0	02:38			
203	DUMMY	49.88	0	00:33			
204	DUMMY	4.64	0	00:35			
202	DUMMY	58.64	0	00:34			
201	DUMMY	34.62	0	00:31			
200	CONDUIT	13.51	0	00:41	7.37	0.13	0.25
897	CONDUIT	13.49	0	00:44	2.63	0.04	0.22
898	CONDUIT	44.51	0	00:36	3.85	0.09	0.34
899	DUMMY	102.63	0	00:35			
PONDA	DUMMY	16.38	0	02:38			
PONDB	DUMMY	12.28	0	02:23			

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Wed May 22 15:52:32 2024
Analysis ended on: Wed May 22 15:52:32 2024
Total elapsed time: < 1 sec

SELTZER HEIGHTS + SELTZER FARMS ULTIMATE - 100YR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.1)

****
Analysis Options
****
Flow Units ..... CFS
Process Models:
  Rainfall/Runoff ..... NO
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... NO
Flow Routing Method ..... KINWAVE
Starting Date 01/01/2005 00:00:00
Ending Date 01/02/2005 12:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Routing Time Step ..... 5.00 sec

Flow Routing Continuity	Volume acre-feet	Volume 10^6 gal
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	76.926	25.068
External Outflow	67.492	21.993
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000

```
Final Stored Volume ......         9.367         3.053
Continuity Error (%) .....         0.087

*******************************
Highest Flow Instability Indexes
*******************************
All links are stable.


*************************
Routing Time Step Summary
*************************
Minimum Time Step           :     5.00 sec
Average Time Step           :     5.00 sec
Maximum Time Step           :     5.00 sec
% of Time in Steady State   :     0.00
Average Iterations per Step :     1.01
% of Steps Not Converging   :     0.00


******************
Node Depth Summary
******************

-------------------------------------------------------------------------------
                            Average  Maximum  Maximum  Time of Max    Reported
                              Depth    Depth      HGL   Occurrence   Max Depth
Node                 Type      Feet     Feet     Feet  days hr:min        Feet
-------------------------------------------------------------------------------
JUNCT_910            JUNCTION     1.06     2.50  5062.20     0  02:18        2.50
JUNCT_100            JUNCTION     0.00     0.00  5072.60     0  00:00        0.00
JUNCT_901            JUNCTION     0.06     1.42  5073.92     0  00:43        1.42
JUNCT_101            JUNCTION     0.00     0.00  5082.80     0  00:00        0.00
JUNCT_902            JUNCTION     0.06     1.37  5084.07     0  00:42        1.37
JUNCT_300            JUNCTION     0.00     0.00  5112.70     0  00:00        0.00
JUNCT_903            JUNCTION     0.05     1.04  5113.64     0  00:45        1.04
JUNCT_301            JUNCTION     0.00     0.00  5117.00     0  00:00        0.00
JUNCT_904            JUNCTION     0.04     0.79  5117.69     0  00:48        0.79
```

JUNCT_400	JUNCTION	0.00	0.00	5124.70	0	00:00	0.00
JUNCT_905	JUNCTION	0.02	0.90	5125.50	0	00:35	0.90
JUNCT_906	JUNCTION	0.08	1.85	5106.65	0	00:40	1.85
JUNCT_102	JUNCTION	0.00	0.00	5104.90	0	00:00	0.00
JUNCT_907	JUNCTION	0.13	3.14	5092.24	0	00:42	3.14
JUNCT_103	JUNCTION	0.00	0.00	5090.60	0	00:00	0.00
JUNCT_908	JUNCTION	0.13	3.14	5079.44	0	00:43	3.14
JUNCT_104	JUNCTION	0.00	0.00	5076.40	0	00:00	0.00
JUNCT_500	JUNCTION	0.00	0.00	5072.20	0	00:00	0.00
JUNCT_105	JUNCTION	0.00	0.00	5062.10	0	00:00	0.00
JUNCT_900	JUNCTION	0.61	1.54	5108.34	0	02:09	1.54
JUNCT_909	JUNCTION	0.00	0.00	5059.80	0	00:00	0.00
JUNCT_203	JUNCTION	0.00	0.00	5120.50	0	00:00	0.00
JUNCT_204	JUNCTION	0.00	0.00	5122.00	0	00:00	0.00
JUNCT_899	JUNCTION	0.08	1.76	5115.86	0	00:42	1.76
JUNCT_898	JUNCTION	0.08	1.76	5122.16	0	00:41	1.76
JUNCT_897	JUNCTION	0.08	1.42	5127.22	0	00:48	1.42
JUNCT_200	JUNCTION	0.08	1.42	5133.92	0	00:48	1.42
JUNCT_201	JUNCTION	0.00	0.00	5120.50	0	00:00	0.00
JUNCT_202	JUNCTION	0.00	0.00	5114.20	0	00:00	0.00
OUTFALL_911	OUTFALL	1.06	2.50	5060.99	0	02:19	2.50
STOR_PONDA	STORAGE	5.85	8.91	5070.91	0	02:22	8.91
STOR_PONDB	STORAGE	5.03	7.70	5114.70	0	02:09	7.70

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min		Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal	Flow Balance Error Percent
JUNCT_910	JUNCTION	0.00	85.59	0	02:18	0	22	0.000
JUNCT_100	JUNCTION	157.97	157.97	0	00:43	4.54	4.54	0.000
JUNCT_901	JUNCTION	0.00	157.97	0	00:43	0	4.54	0.000
JUNCT_101	JUNCTION	92.45	92.45	0	00:42	2.6	2.6	0.000

JUNCT_902	JUNCTION	0.00	92.45	0	00:42	0	2.6	0.000
JUNCT_300	JUNCTION	34.62	34.62	0	00:45	1.03	1.03	0.000
JUNCT_903	JUNCTION	0.00	34.62	0	00:45	0	1.03	0.000
JUNCT_301	JUNCTION	17.14	17.14	0	00:48	0.624	0.624	0.000
JUNCT_904	JUNCTION	0.00	17.14	0	00:48	0	0.624	0.000
JUNCT_400	JUNCTION	46.97	46.97	0	00:35	0.785	0.785	0.000
JUNCT_905	JUNCTION	0.00	46.97	0	00:35	0	0.785	0.000
JUNCT_906	JUNCTION	0.00	75.49	0	00:40	0	2.01	0.000
JUNCT_102	JUNCTION	18.28	18.28	0	00:47	0.601	0.601	0.000
JUNCT_907	JUNCTION	0.00	236.48	0	00:42	0	6.36	0.000
JUNCT_103	JUNCTION	127.52	127.52	0	00:41	3.32	3.32	0.000
JUNCT_908	JUNCTION	0.00	279.56	0	00:42	0	7.53	0.000
JUNCT_104	JUNCTION	43.54	43.54	0	00:41	1.19	1.19	0.000
JUNCT_500	JUNCTION	16.74	16.74	0	01:07	0.984	0.984	0.000
JUNCT_105	JUNCTION	25.05	25.05	0	00:42	0.683	0.683	0.000
JUNCT_900	JUNCTION	0.00	33.10	0	02:09	0	7.54	0.000
JUNCT_909	JUNCTION	0.00	52.50	0	02:22	0	14.5	0.000
JUNCT_203	JUNCTION	107.65	107.65	0	00:39	2.49	2.49	0.000
JUNCT_204	JUNCTION	12.99	12.99	0	00:41	0.332	0.332	0.000
JUNCT_899	JUNCTION	0.00	220.95	0	00:41	0	5.89	0.000
JUNCT_898	JUNCTION	0.00	100.62	0	00:41	0	2.78	0.000
JUNCT_897	JUNCTION	0.00	35.06	0	00:48	0	1.27	0.000
JUNCT_200	JUNCTION	35.07	35.07	0	00:48	1.28	1.28	0.000
JUNCT_201	JUNCTION	71.42	71.42	0	00:37	1.5	1.5	0.000
JUNCT_202	JUNCTION	120.89	120.89	0	00:41	3.11	3.11	0.000
OUTFALL_911	OUTFALL	0.00	85.59	0	02:19	0	22	0.000
STOR_PONDA	STORAGE	0.00	568.54	0	00:43	0	16.3	0.001
STOR_PONDB	STORAGE	0.00	340.76	0	00:41	0	8.71	0.000

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary

****

Storage Unit	Average Volume 1000 ft³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 ft³	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
STOR_PONDA	699.716	28	0	0	1831.044	72	0 02:22	52.50
STOR_PONDB	372.867	24	0	0	971.318	62	0 02:09	33.10

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal
OUTFALL_911	99.45	22.81	85.59	21.992
System	99.45	22.81	85.59	21.992

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth
910	CONDUIT	85.59	0 02:19	10.38	0.71	0.62
100	DUMMY	157.97	0 00:43			
901	CONDUIT	157.97	0 00:43	31.01	0.12	0.24
101	DUMMY	92.45	0 00:42			
902	CONDUIT	92.44	0 00:42	24.27	0.25	0.34

300	DUMMY	34.62	0	00:45			
301	DUMMY	17.14	0	00:48			
400	DUMMY	46.97	0	00:35			
102	DUMMY	18.28	0	00:47			
905	CONDUIT	46.83	0	00:35	7.88	0.03	0.23
904	CONDUIT	17.09	0	00:52	3.51	0.03	0.20
903	CONDUIT	34.61	0	00:46	10.63	0.07	0.17
906	CONDUIT	75.37	0	00:42	11.41	0.29	0.37
103	DUMMY	127.52	0	00:41			
907	CONDUIT	236.36	0	00:43	15.81	0.54	0.52
104	DUMMY	43.54	0	00:41			
908	CONDUIT	279.56	0	00:42	40.15	0.19	0.29
105	DUMMY	25.05	0	00:42			
900	CONDUIT	33.10	0	02:13	10.47	0.70	0.61
500	DUMMY	16.74	0	01:07			
909	DUMMY	52.50	0	02:22			
203	DUMMY	107.65	0	00:39			
204	DUMMY	12.99	0	00:41			
202	DUMMY	120.89	0	00:41			
201	DUMMY	71.42	0	00:37			
200	CONDUIT	35.06	0	00:48	9.62	0.34	0.40
897	CONDUIT	35.03	0	00:50	3.44	0.11	0.36
898	CONDUIT	100.49	0	00:42	4.77	0.21	0.50
899	DUMMY	220.95	0	00:41			
PONDA	DUMMY	52.50	0	02:22			
PONDB	DUMMY	33.10	0	02:09			

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Wed May 22 15:51:42 2024
Analysis ended on: Wed May 22 15:51:43 2024
Total elapsed time: 00:00:01

APPENDIX F
FEMA FLOODPLAIN MAP

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC- 3, #9202
1315 East- West Highway
Silver Spring, MD 20910- 3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242,** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was provided by the Adams County and Commerce City GIS departments. The coordinate system used for the production of the digital FIRM is Universe Transverse Mercator, Zone 13N, referenced to North American Datum of 1983 and the GRS 80 spheroid, Western Hemisphere.

This map reflects more detailed and up- to- date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de- annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

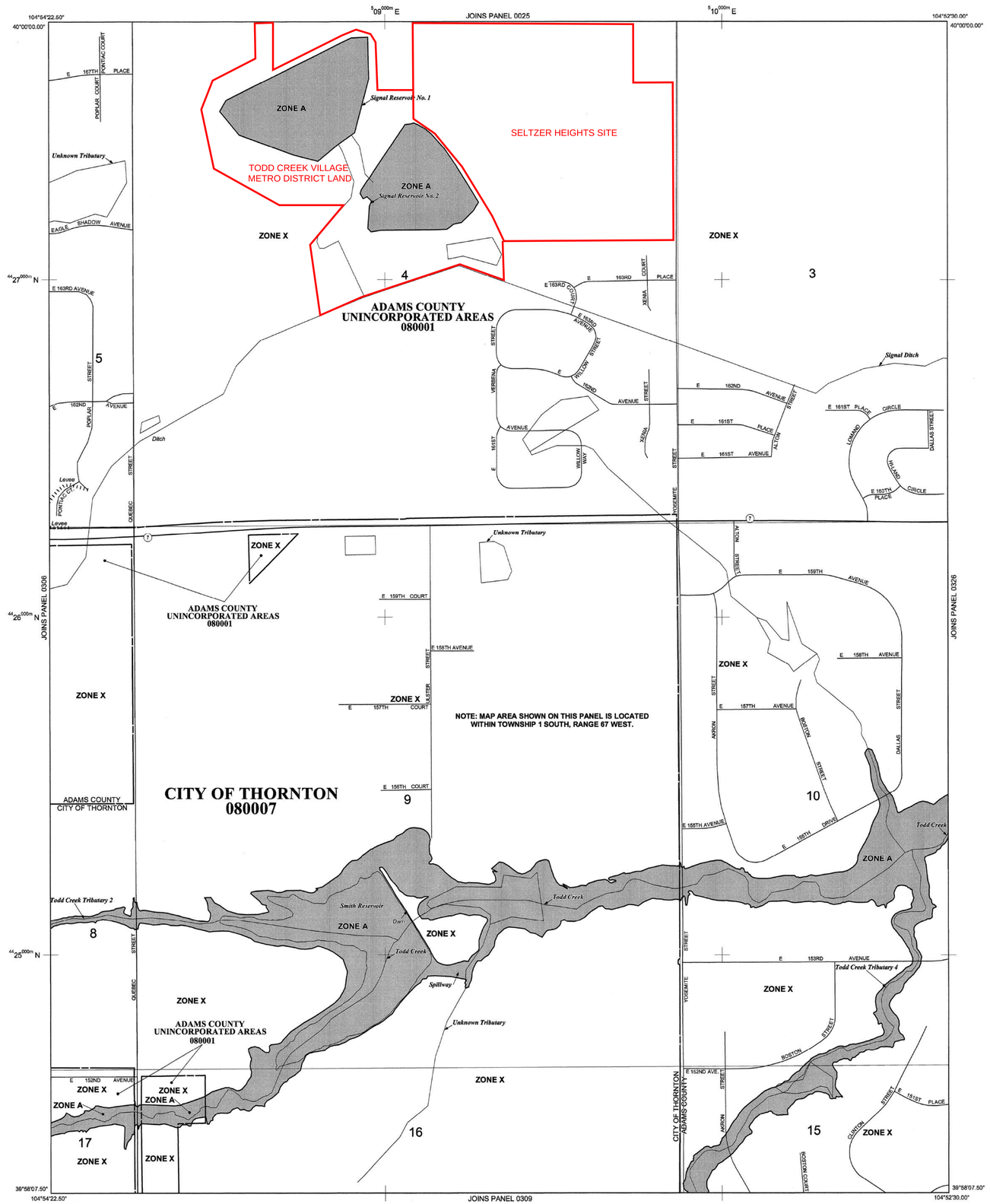
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1- 800- 358- 9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report*, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1- 800- 358- 9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1- 877- FEMA MAP** (1- 877- 336- 2627) or visit the FEMA website at http://www.fema.gov/.

This digital Flood Insurance Rate Map (FIRM) was produced through a cooperative partnership between the State of Colorado Water Conservation Board, the Urban Drainage and Flood Control District, and the Federal Emergency Management Agency (FEMA). The State of Colorado Water Conservation Board and the Urban Drainage and Flood Control District have implemented a long-term approach of floodplain management to reduce the costs associated with flooding. As part of this effort, both the State of Colorado and the Urban Drainage and Flood Control District have joined in Cooperating Technical Partner agreements with FEMA to produce this digital FIRM.

Additional flood hazard information and resources are available from local communities, the Colorado Water Conservation Board, and the Urban Drainage and Flood Control District.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

513 Base Flood Elevation line and value; elevation in feet*

(EL 987) Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A — A Cross section line

23 — 23 Transect line

97°07'30", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

$^{42}75^{000m}$N 1000-meter Universal Transverse Mercator grid ticks, zone 13

6000000 M 5000-foot grid ticks: Alabama State Plane coordinate system, east zone (FIPSZONE 0101), Transverse Mercator

DX5510 × Bench mark (see explanation in Notes to Users section of this FIRM panel)

M1.5 • River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
August 16, 1995
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
March 5, 2007 - to update map format

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1- 800- 638- 6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0307H

FIRM
FLOOD INSURANCE RATE MAP
ADAMS COUNTY, COLORADO
AND INCORPORATED AREAS

PANEL 307 OF 1150
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ADAMS COUNTY	080001	0307	H
THORNTON, CITY OF	080007	0307	H

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
08001C0307H

MAP REVISED
MARCH 5, 2007

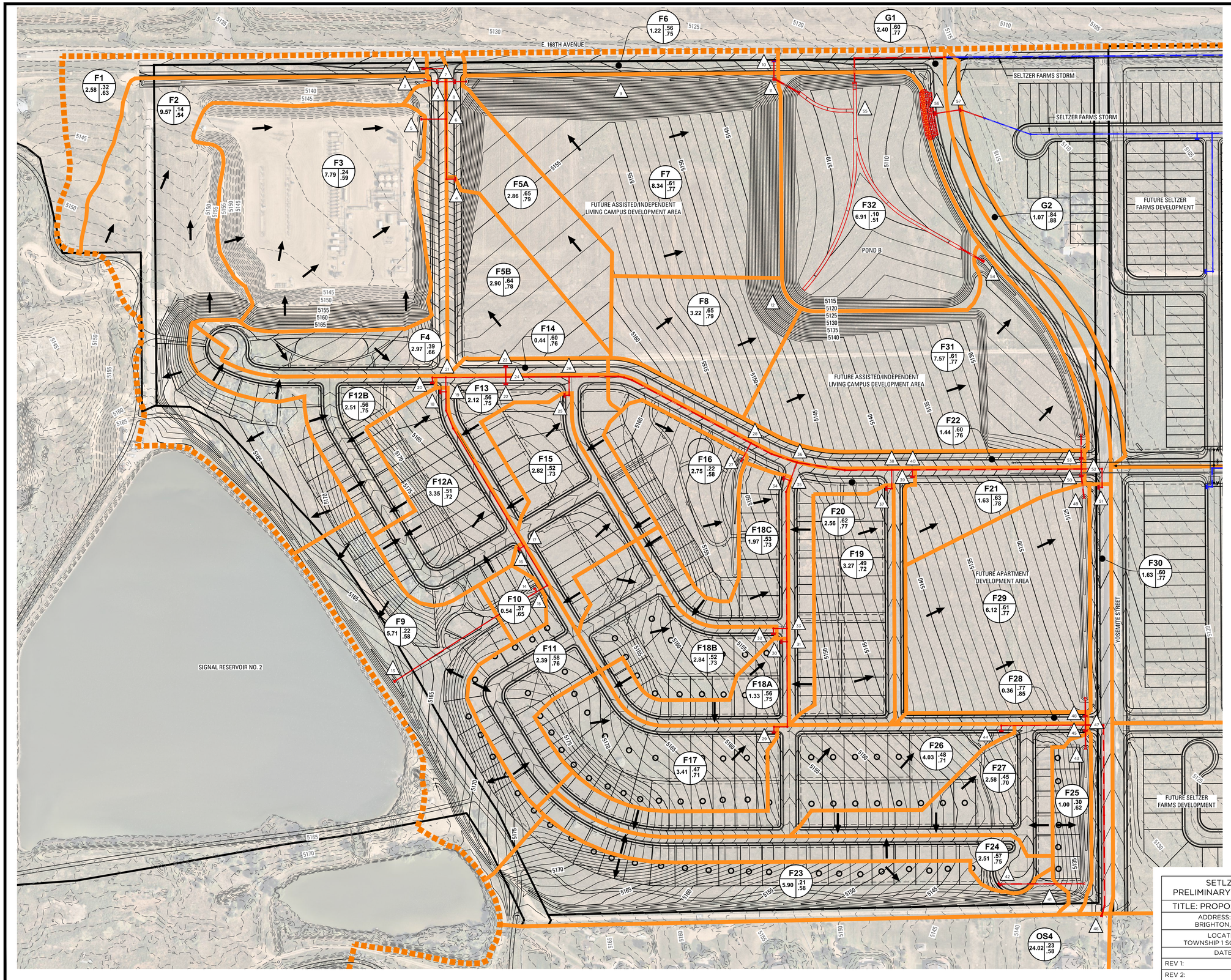
Federal Emergency Management Agency

MAPS

PROPOSED DRAINAGE MAP

SELTZER HEIGHTS + SELTZER FARMS FILING 1 CUHP/SWMM DRAINAGE MAP

SELTZER HEIGHTS + SELTZER FARMS (ULTIMATE BUILDOUT) CUHP/SWMM DRAINAGE MAP



DEVELOPED RUN OFF					
DESIGN POINT	BASIN	DIRECT RUNOFF		ROUTED FLOWRATES	
		Q5	Q100	Q5	Q100
		CFS	CFS	CFS	CFS
1	F1	2.32	9.82	-	-
2	F2	12.59	24.03	-	-
3	F4	6.85	13.07	-	-
3	F2+F4	-	-	17.35	31.72
4	F5B	9.40	17.93	-	-
5	F3	13.01	24.83	-	-
6	F3+F5B	-	-	19.45	33.95
7	F1+F2+F3+F4+F5B	-	-	36.17	66.83
8	F5A	8.83	16.85	-	-
8	F1 THRU F5	-	-	41.66	75.89
9	F7	27.96	53.36	57.35	105.80
10	F6	3.66	6.97	-	-
11	F1 THRU F7	-	-	59.59	115.93
12	F8	12.09	23.08	-	-
13	F9	11.95	22.80	-	-
14	F10	1.65	3.15	-	-
15	F9+F10	-	-	12.55	24.16
16	F11	7.80	14.89	-	-
17	F9+F10+F11	-	-	16.41	33.24
18	F12A	10.23	19.52	-	-
19	F9+F10+F11+F12A	-	-	25.50	44.41
20	F12B	7.68	14.65	-	-
21	F9 THRU F12	-	-	31.56	54.35
22	F13	6.37	12.15	-	-
23	F14	1.62	3.10	-	-
24	F9 THRU F14	-	-	37.19	74.40
25	F15	7.69	14.66	-	-
26	F9 THRU F15	-	-	43.40	86.40
27	F16	6.26	11.95	-	-
28	F9 THRU F16	-	-	47.00	93.97
29	F17	9.74	18.59	-	-
30	F18A	4.29	8.19	-	-
31	F17+F18A	-	-	13.34	20.23
32	F18B	9.48	18.09	-	-
33	F17+F18A+F18B	-	-	21.46	32.38
34	F18C	5.90	11.25	-	-
35	F17+F18A+F18B+F18C	-	-	26.32	43.14
36	F9 THRU F18	-	-	68.15	129.41
37	F19	8.90	16.98	-	-
38	F9 THRU F19	-	-	74.75	139.13
39	F20	8.26	15.80	-	-
40	F9 THRU F20	-	-	80.19	152.56
41	F23	9.88	18.86	-	-
42	F24	7.21	13.76	-	-
43	F25	2.64	5.03	-	-
43	F23+F24+F25	-	-	17.19	32.80
44	F26	10.58	20.19	-	-
45	F27	7.19	13.72	-	-
45	F23+F24+F25+F27	-	-	22.41	43.56
46	OS4	33.95	64.80	-	-
47	F3 THRU F27+OS4	-	-	53.72	109.34
48	F28	1.49	2.84	-	-
48	F23 THRU F28+OS4	-	-	54.45	110.15
49	F29	17.41	33.23	-	-
49	F23 THRU F29+OS4	-	-	65.21	131.33
50	F21	5.76	11.03	-	-
50	F21+F23-F29+OS4	-	-	68.20	136.07
51	F30	4.31	8.22	-	-
52	F9-F21+F23-F30+OS4	-	-	133.52	261.71
53	F22	4.59	8.76	-	-
53	F9-F30+OS4	-	-	136.10	266.66
54	F31	22.39	42.74	-	-
54	F9 THRU F31+OS4	-	-	149.76	291.33
55	F32	11.49	21.93	-	-
56	F1 THRU F32+OS4	-	-	214.01	429.58
56	G1	6.08	11.61	-	-
57	G2	3.31	6.32	9.20	17.56

BASINS DESIGNATION — A

BASINS AREA (ACRES) — 9.42 | .19 .52 — 5YR & 100YR RUNOFF COEFFICIENTS

- DESIGN POINT
- FLOW ARROW
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- MAJOR BASIN BOUNDARY
- MINOR BASIN BOUNDARY

N

50 0 25 50 100

SCALE: 1"= 50 ' HORIZ.

SETLZER HEIGHTS
PRELIMINARY DRAINAGE REPORT

TITLE: PROPOSED DRAINAGE MAP

ADDRESS: 8120 E. 168TH AVE
BRIGHTON, COLORADO 80602

LOCATION: SECTION 4
TOWNSHIP 1 SOUTH, RANGE 67 WEST

DATE: 05/24/2024

REV 1:	REV 3:
REV 2:	REV 4:

SHEET 1 OF 3

KT ENGINEERING
ENGINEERS • SURVEYORS
12500 W. 58th AVE. #230
ARVADA, CO 80002
PH: 720.638.5190

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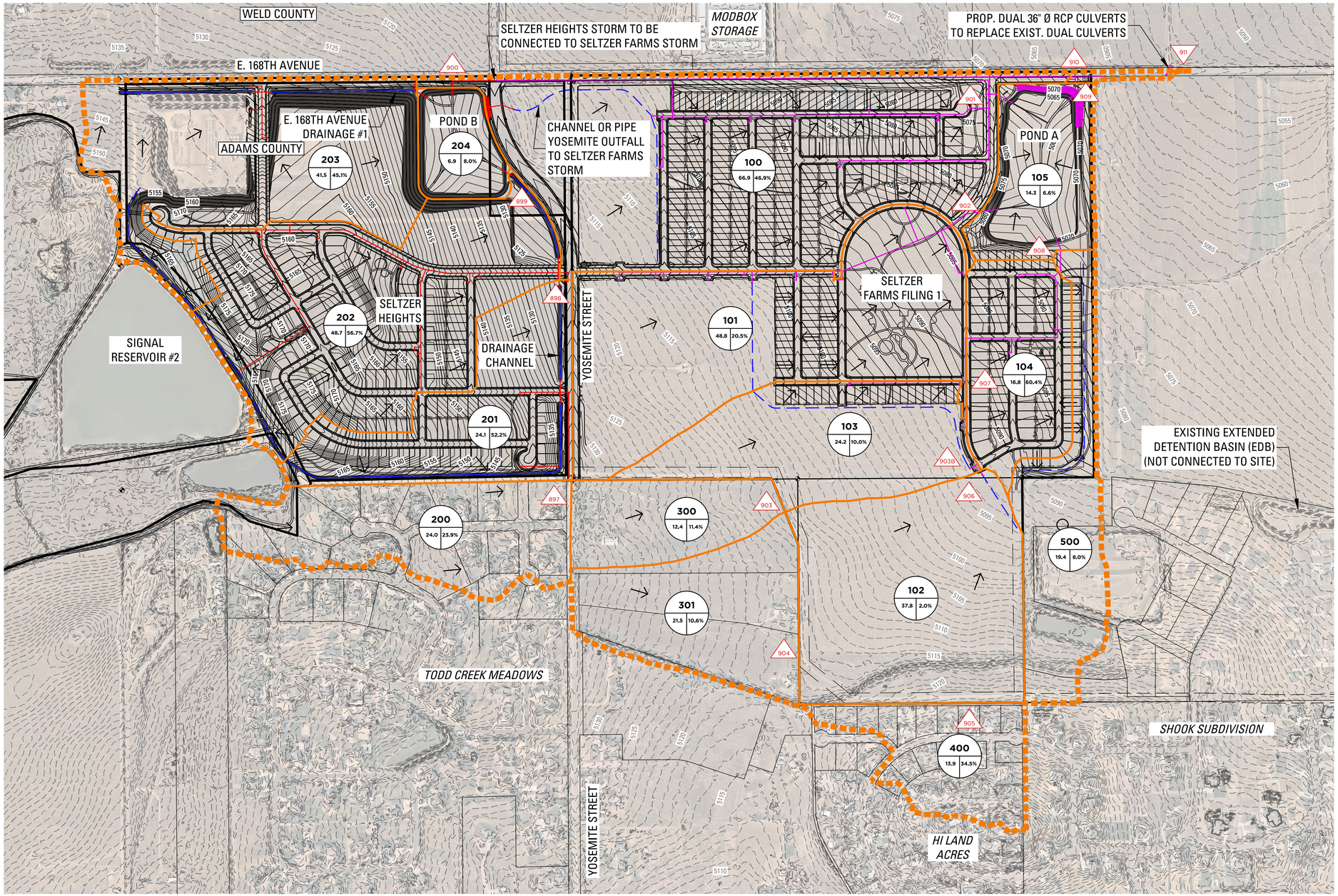

DEVELOPED RUNOFF
SELTZER HEIGHTS + SELTZER FARMS F1

DESIGN POINT	PEAK DISCHARGE 5-YEAR	10-YEAR	100-YEAR
	CFS	CFS	CFS
897	10.0	13.5	35.1
898	34.7	44.6	100.6
899	81.4	102.5	220.9
POND B	123.2	156.3	340.8
900	4.1	12.3	33.1
901	53.6	67.8	148.2
902	17.4	24.0	64.4
903	4.0	5.8	16.5
903B	10.0	14.6	42.8
904	9.0	12.9	36.0
905	16.1	21.1	47.0
906	33.5	47.7	130.9
907	43.0	61.4	171.6
908	58.0	80.2	211.6
POND A	136.3	183.2	459.7
909	8.6	10.6	50.7
910	12.7	22.8	83.7
911	12.7	22.8	83.7

DRAINAGE MAP LEGEND

104 — SUB BASIN NAME
18.2 — BASIN AREA (ACRES)
61.2% — SELTZER HEIGHTS AND SELTZER FARMS FILING 1 IMPERVIOUSNESS

308 — SWMM MODEL DESIGN POINT
MAJOR DRAINAGE BASIN BOUNDARY
MINOR DRAINAGE BASIN BOUNDARY
MAJOR DRAINAGE FLOW PATH
PROPOSED CHANNEL DIVERSION
DIRECTIONAL FLOW ARROW
SELTZER FARMS STORM DRAIN
SELTZER HEIGHTS STORM DRAIN

TOPOGRAPHIC DATA OBTAINED FROM THE DENVER REGIONAL COUNCIL OF GOVERNMENTS (DRCOG). 2020 DRCOG BLOCK 2, QL2 LIDAR DATA SET.

N

300 0 150 300 600
SCALE: 1"= 300 ' HORIZ.

SELTZER HEIGHTS
PRELIMINARY DRAINAGE REPORT

TITLE: CUHP/SWMM MAP
SELTZER HEIGHTS W/ SELTZER FARMS F1

ADDRESS: 8120 E. 168TH AVE
BRIGHTON, COLORADO 80602

LOCATION: SECTION 4
TOWNSHIP 1 SOUTH, RANGE 67 WEST

DATE: 05/24/2024

REV 1: REV 3:
REV 2: REV 4:

SHEET 2 OF 3

KT ENGINEERING
ENGINEERS • SURVEYORS
12500 W. 58th AVE. #230
ARVADA, CO 80002
PH: 720.638.5190

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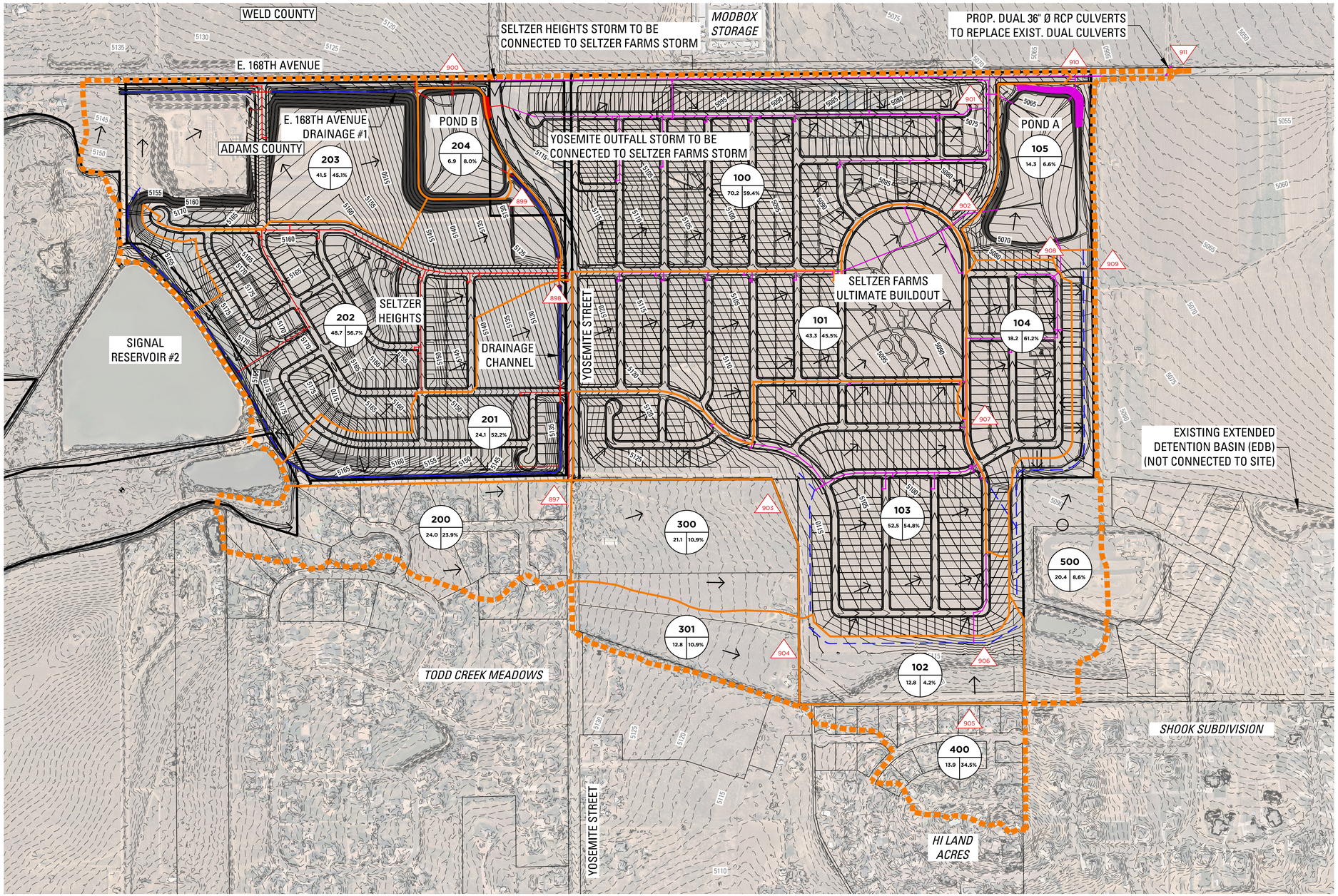

DEVELOPED RUNOFF SELTZER HEIGHTS + SELTZER FARMS ULT.			
	PEAK DISCHARGE		
DESIGN POINT	5-YEAR	10-YEAR	100-YEAR
	CFS	CFS	CFS
897	10.0	13.5	35.1
898	34.8	44.6	100.6
899	81.5	102.6	221.0
POND B	123.2	156.3	340.8
900	4.1	12.3	33.1
901	62.2	76.6	158.0
902	33.0	41.9	92.5
903	8.7	12.4	34.6
904	4.2	6.0	17.1
905	16.1	21.1	47.0
906	21.5	29.5	75.5
907	78.5	102.2	236.5
908	95.5	123.1	279.6
POND A	199.7	254.8	568.5
909	9.7	16.4	52.5
910	13.8	28.6	85.6
911	13.8	28.6	85.6

DRAINAGE MAP LEGEND

- 104 / 18.2 / 61.2% — SUB BASIN NAME; SELTZER HEIGHTS AND SELTZER FARMS FILING 1 IMPERVIOUSNESS; BASIN AREA (ACRES)
- 308 — SWMM MODEL DESIGN POINT
- MAJOR DRAINAGE BASIN BOUNDARY
- MINOR DRAINAGE BASIN BOUNDARY
- MAJOR DRAINAGE FLOW PATH
- PROPOSED CHANNEL DIVERSION
- DIRECTIONAL FLOW ARROW
- SELTZER FARMS STORM DRAIN
- SELTZER HEIGHTS STORM DRAIN

TOPOGRAPHIC DATA OBTAINED FROM THE DENVER REGIONAL COUNCIL OF GOVERNMENTS (DRCOG). 2020 DRCOG BLOCK 2, QL2 LIDAR DATA SET.

N

300 0 150 300 600

SCALE: 1"= 300 ' HORIZ.

SELTZER HEIGHTS
PRELIMINARY DRAINAGE REPORT

TITLE: CUHP/SWMM MAP
SELTZER HEIGHTS W/ SELTZER FARMS ULT.

ADDRESS: 8120 E. 168TH AVE
BRIGHTON, COLORADO 80602

LOCATION: SECTION 4
TOWNSHIP 1 SOUTH, RANGE 67 WEST

DATE: 05/24/2024

REV 1:	REV 3:
REV 2:	REV 4:

SHEET 3 OF 3

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SELTZER HEIGHTS FILING NO. 1

PRELIMINARY ROADWAY & UTILITY CONSTRUCTION PLANS

LOCATED IN SECTION 4, TOWNSHIP 1 SOUTH, RANGE 67 WEST OF THE 6TH P.M.,
COUNTY OF ADAMS, STATE OF COLORADO
227.85 ACRES - 208 LOTS / 8 TRACTS

LEGAL DESCRIPTION:

A PARCEL OF LAND LOCATED IN SECTION 4, TOWNSHIP 1 SOUTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF ADAMS, STATE OF COLORADO MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SECTION 4;

THENCE S 89°33'09" W ALONG THE NORTH LINE OF THE NORTHEAST 1/4 OF SAID SECTION 4 A DISTANCE OF 40.00 FEET TO A POINT ON THE WESTERLY RIGHT-OF-WAY LINE OF YOSEMITE STREET BEING AN EXCEPTION RECORDED IN BOOK 1 AT PAGE 527 AND THE EXTENSION THEREOF AND THE POINT OF BEGINNING;

THENCE S 00°19'36" E ALONG SAID WESTERLY RIGHT-OF-WAY LINE A DISTANCE OF 2348.64 FEET TO A POINT ON THE NORTHERLY BOUNDARY OF THAT PARCEL OF LAND RECORED AT RECEPTION NO. 2010000052390;

THENCE ALONG SAID PARCEL OF LAND THE FOLLOWING THREE (3) COURSES:

1) S 88°45'28 W A DISTANCE OF 1509.46 FEET;
2) S 25°55'39" E A DISTANCE OF 17.18 FEET;
3) S 26°31'05" W A DISTANCE OF 16.44 FEET TO A POINT ON THE NORTHERLY BOUNDARY OF TODD CREEK MEADOWS SUBDIVISION, A SUBDIVISION RECORDED AT RECEPTION NO. C0731590;

THENCE S 88°45'09" W ALONG SAID NORTHERLY BOUNDARY A DISTANCE OF 74.40 FEET TO A POINT ON THE EASTERLY BOUNDARY OF THAT PARCEL OF LAND RECORDED AT RECEPTION NO. C1138476;

THENCE ALONG SAID EASTERLY, AND SOUTHERLY BOUNDARY OF SAID PARCEL OF LAND AND THE EXTENSION THEREOF THE FOLLOWING SEVEN (7) COURSES:

1) S 00°30'00" E A DISTANCE OF 291.28 FEET;
2) N 73°15'18" W A DISTANCE OF 293.85 FEET;
3) N 51°17'25" W A DISTANCE OF 149.44 FEET;
4) N 78°17'25" W A DISTANCE OF 154.42 FEET;
5) S 70°02'35" W A DISTANCE OF 169.36 FEET;
6) S 59°09'35" W A DISTANCE OF 244.08 FEET;
7) S 75°34'18" W A DISTANCE OF 665.00 FEET TO A POINT ON THE EASTERLY BOUNDARY OF THAT PARCEL OF LAND RECORDED AT RECEPTION NO. C1138476 AND SHOWN ON A SURVEY BY BRIAN THOMAS BRINKMAN, PLS 38175 DATED 6-29-11 RECORDED AT RECEPTION NO. 2011-102;

THENCE ALONG SAID EASTERLY BOUNDARY OF SAID SURVEY RECORDED AT RECEPTION NO. 2011-102 THE FOLLOWING FOURTEEN (14) COURSES:

1) S 69°25'57" W A DISTANCE OF 314.14 FEET;
2) S 63°15'15" W A DISTANCE OF 135.49 FEET;
3) N 00°42'53" E A DISTANCE OF 559.19 FEET;
4) N 32°57'40" E A DISTANCE OF 800.14 FEET;
5) S 88°46'03" W A DISTANCE OF 830.04 FEET;
6) N 66°07'13" W A DISTANCE OF 53.12 FEET;
7) N 65°25'03" W A DISTANCE OF 290.82 FEET;
8) N 58°20'21" W A DISTANCE OF 389.89 FEET;
9) N 09°57'07" W A DISTANCE OF 301.16 FEET;
10) N 09°22'50" W A DISTANCE OF 187.79 FEET;
11) N 10°47'50" E A DISTANCE OF 103.98 FEET;
12) N 18°17'18" E A DISTANCE OF 214.81 FEET;
13) N 62°21'47" E A DISTANCE OF 439.90 FEET;
14) N 00°31'50" W A DISTANCE OF 428.97 FEET TO A POINT ON THE NORTH LINE OF THE NORTHWEST 1/4 OF SAID SECTION 4;

THENCE N 89°32'13" E ALONG SAID NORTH LINE A DISTANCE OF 241.08 FEET TO A POINT ON THE WESTERLY BOUNDARY OF AN AGREEMENT TO RESOLVE DISPUTED BOUNDARY LINE RECORDED AT RECEPTION NO. 2017000093326;

THENCE ALONG SAID AGREEMENT THE FOLLOWING SEVENTEEN (17) COURSES:

1) S 00°24'31" E A DISTANCE OF 542.45 FEET;
2) N 61°21'33" E A DISTANCE OF 75.99 FEET;
3) N 63°03'28" E A DISTANCE OF 101.27 FEET;
4) N 63°18'15" E A DISTANCE OF 97.13 FEET;
5) N 63°03'23" E A DISTANCE OF 120.44 FEET;
6) N 63°17'02" E A DISTANCE OF 100.72 FEET;
7) N 62°28'30" E A DISTANCE OF 56.87 FEET;
8) N 65°01'48" E A DISTANCE OF 131.55 FEET;
9) N 75°57'26" E A DISTANCE OF 131.79 FEET;
10) N 84°04'41" E A DISTANCE OF 99.05 FEET;
11) S 84°31'07" E A DISTANCE OF 26.00 FEET;
12) S 79°17'18" E A DISTANCE OF 63.94 FEET;
13) S 67°17'01" E A DISTANCE OF 98.25 FEET;
14) S 51°09'19" E A DISTANCE OF 47.50 FEET;
15) S 13°28'48" E A DISTANCE OF 154.06 FEET;
16) S 13°09'42" E A DISTANCE OF 112.86 FEET;
17) N 89°38'47" E A DISTANCE OF 214.92 FEET TO A POINT ON THE WESTERLY BOUNDARY OF THAT PARCEL OF LAND RECORED AT RECEPTION NO. 2013000074188;

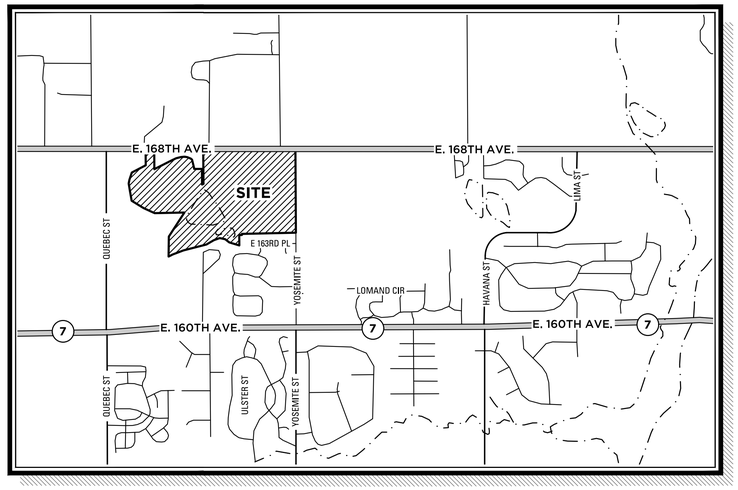
THENCE ALONG SAID WESTERLY, SOUTHERLY AND EASTERLY BOUNDARY OF SAID PARCEL OF LAND THE FOLLOWING FOUR (4) COURSES:

1) S 00°27'04" E A DISTANCE OF 436.34 FEET;
2) N 65°32'32" E A DISTANCE OF 39.58 FEET;
3) S 87°43'24" E A DISTANCE OF 3.84 FEET;
4) N 00°27'04" W A DISTANCE OF 964.30 FEET TO A POINT ON SAID NORTH LINE OF THE NORTHEAST 1/4 OF SAID SECTION 4;

THENCE N 89°31'38" E ALONG SAID NORTH LINE A DISTANCE OF 2167.54 FEET TO THE SOUTHEAST CORNER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 67 WEST BEING AN ANGLE POINT ON SAID NORTH LINE OF THE NORTHEAST 1/4 OF SECTION 4;

THENCE N 89°33'09" E CONTINUING ALONG SAID NORTH LINE OF THE NORTHEAST 1/4 OF SECTION 4 A DISTANCE OF 408.82 FEET TO THE POINT OF BEGINNING.

THE ABOVE DESCRIBED PARCEL CONTAINS AN AREA OF 9,925,012 SQUARE FEET, OR 227.8469 ACRES MORE OR LESS.



VICINITY MAP
1" = 2000'

SHEET INDEX:

SHEET #	SHEET TITLE
01	COVER SHEET
02	TYPICAL STREET SECTIONS
03	EXISTING CONDITION
04	OVERALL UTILITY
05	OVERALL LAND USE
06	OVERALL GRADING
07	DETAILED INTERSECTIONS - E. 168TH AVE & YOSEMITE
08	DETAILED INTERSECTIONS - E. 168TH AVE & SITE ENTRANCE
09	DETAILED INTERSECTIONS - YOSEMITE & SITE ENTRANCES
10	EROSION CONTROL PLAN
11	SITE DETAILS - 1
12	SITE DETAILS - 2
13	SITE DETAILS - 3
14	SITE DETAILS - 4
15	STORM DETAILS - 1

BASIS OF BEARING:

BEARINGS ARE BASED ON THE EAST LINE OF THE NORTHEAST 1/4 OF SECTION 4 BEING S 00°19'36" E AND MONUMENTED AS FOLLOWS:

-NORTHEAST CORNER SECTION 4, BEING A FOUND 3.25" ALUMINUM CAP IN RANGE BOX MARKED "BASELINE, LS 38285"

-EAST QUARTER CORNER SECTION 4, BEING A FOUND 3.25" ALUMINUM CAP MARKED "EMK, PLS 38584"

VERTICAL DATUM - SITE BENCHMARK:

CENTER 1/4 CORNER, SECTION 3, TOWNSHIP 1 SOUTH, RANGE 67 WEST OF THE 6TH P.M., COUNTY OF ADAMS. BEING A FOUND 2.5" ALUMINUM CAP, STAMPED PLS 25937 AND HAVING AN ELEVATION OF 5090.02 (NAVD 88). ELEVATION BASED ON NGS OPUS OBSERVATIONS - NAVD 88 COMPUTED USING GEOID 18.

LIST OF CONTACTS:

PROJECT DEVELOPER
HSG LAND, LLC
10450 E. 159TH CT.
BRIGHTON, CO 80602
PHONE: 303-637-0344

ENGINEER
KT ENGINEERING
12500 58TH AVENUE, SUITE 230
ARVADA, CO 80002
PHONE: 720-638-5190
CONTACT: KEN TOLAND, PE

FIRE PROTECTION
BRIGHTON FIRE RESCUE
500 S. 4TH AVE., 3RD FLOOR
BRIGHTON, CO 80601
PHONE:303-659-4101

PLANNING CONSULTANT
PCS GROUP INC.
200 KALAMATH ST
DENVER, CO 80223
PHONE: 720-259-8246
CONTACT: JOHN PRESTWICH

SURVEYOR
KT ENGINEERING
12500 58TH AVENUE, SUITE 230
ARVADA, CO 80002
PHONE: 720-638-5190
CONTACT: CHRIS McELVAIN, PLS

PLANNING DEPARTMENT
ADAMS COUNTY
4430 S. ADAMS COUNTY PKWY
BRIGHTON, CO 80601
PHONE:303-659-2120
CONTACT: GREG BARNES

GAS
XCEL ENERGY
2655 N. 63RD
BOULDER, CO, 80301
PHONE:720.491.0568

ELECTRIC
UNTIED POWER
500 COOPERATIVE WAY
BRIGHTON, CO 80603
PHONE: 303-637-1300

LEGEND:

5400	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
E	EXISTING ELECTRIC UTILITY LINE
	EXISTING UTILITY POLE
	EXISTING ELECTRICAL TRANSFORMER
G	EXISTING GAS UTILITY LINE
	EXISTING WATER MAIN
	EXISTING FIRE HYDRANT
5400	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED BOUNDARY LINE
	PROPOSED CENTER LINE
	PROPOSED EASEMENT
	PROPOSED LOT LINE
	PROPOSED RIGHT-OF-WAY
	PROPOSED SETBACK
100 LF 8" SAN	PROPOSED SANITARY SEWER LINE
SS STA: 1+00.00	PROPOSED SANITARY SEWER SERVICE
	PROPOSED SANITARY SEWER MANHOLE
	PROPOSED UNDERDRAIN
100 LF 18" RCP	PROPOSED STORM SEWER LINE
	PROPOSED TYPE R INLET
	PROPOSED TYPE 16 INLET
	PROPOSED BOX BASE MANHOLE
	PROPOSED CIRCULAR MANHOLE
	PROPOSED FLARED END SECTION
	PROPOSED RIPRAP
100 LF 8" WAT	PROPOSED WATER LINE
	PROPOSED WATER SERVICE AND METER
	PROPOSED IRRIGATION SERVICE AND METER
	PROPOSED WATER GATE VALVE
	PROPOSED FIRE HYDRANT
	PROPOSED REDUCER
	PROPOSED BLOW-OFF
	PROPOSED BEND W/ THRUST BLOCK
	PROPOSED CROSS
	PROPOSED TEE
	PROPOSED AIR RELEASE VALVE
	PROPOSED PRESSURE REDUCING VALVE
	PROPOSED 100 YR WATER SURFACE ELEVATION
	PROPOSED FLOWLINE SWALE

KT ENGINEERING
12500 W. 58TH AVE. #230
ARVADA, CO 80002
P: 720.638.5190
WWW.KTENG.NET

PREPARED FOR:
HSG LAND LLC

REVISIONS:

NO.	REVISION DESCRIPTION	DATE	BY
1.			
2.			
3.			
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7.			
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STAMP:
NOT FOR CONSTRUCTION

SHEET INFO:
SELTZER HEIGHTS FILING 1
COVER SHEET

PROJECT NO:
0109-2207

DRAWN BY:
EST

DESIGNED BY:
KPT

SCALE:
1" = NA'

SUBMITTED ON:
01/20/2025

J:\0109\FILING 1 HSG\CIVIL\PLANNING\0207-HSG-COVR.dwg

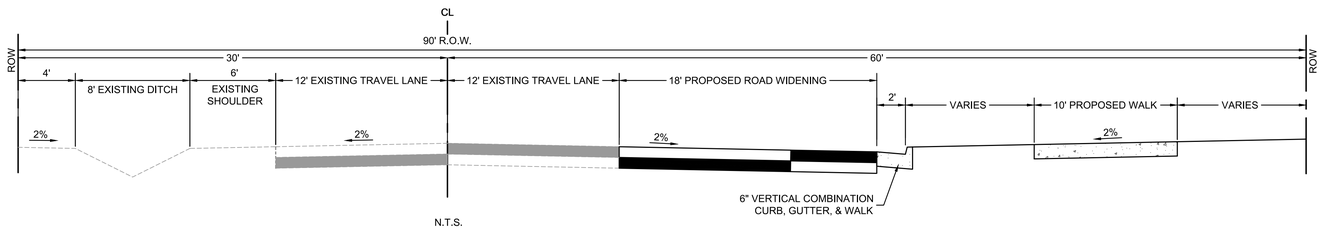
TYPE

TYPICAL STREET SECTION

MINOR ARTERIAL

E. 168TH AVENUE

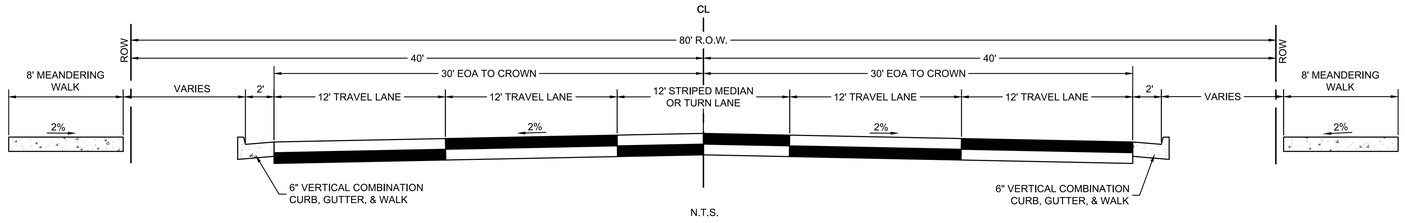
SOUTH SIDE BUILT TO ULTIMATE WIDTH



MAJOR COLLECTOR

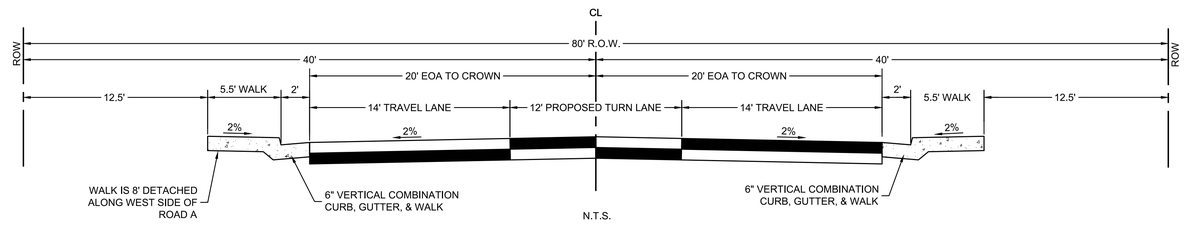
YOSEMITE STREET

BUILT TO ULTIMATE WIDTH



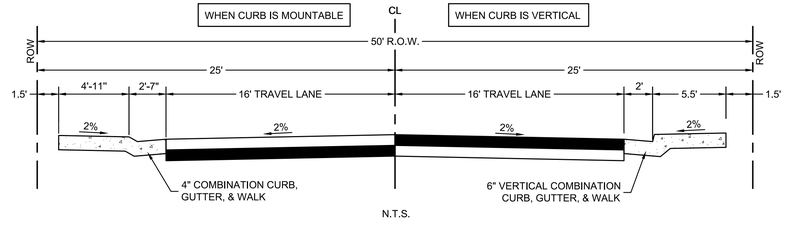
MINOR COLLECTOR

A PORTION OF ROAD A & ROAD I



LOCAL (RESIDENTIAL)

ROAD A, B, C, D, E, F, G, H, I



KT ENGINEERING

12500 W. 58TH AVE. #230
ARVADA, CO 80002

P: 720.638.5190

WWW.KTENG.NET

PREPARED FOR:
HSG LAND LLC

REVISIONS:

NO.	REVISION DESCRIPTION	DATE	BY
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8.			

STAMP:

NOT FOR CONSTRUCTION

SHEET INFO:

SELTZER HEIGHTS FILING 1

TYPICAL STREET SECTION

PROJECT NO:
0109-2207

DRAWN BY:
EST

DESIGNED BY:
KPT

SCALE:
1" = N/A

SUBMITTED ON:
01/20/2025

02 OF 15

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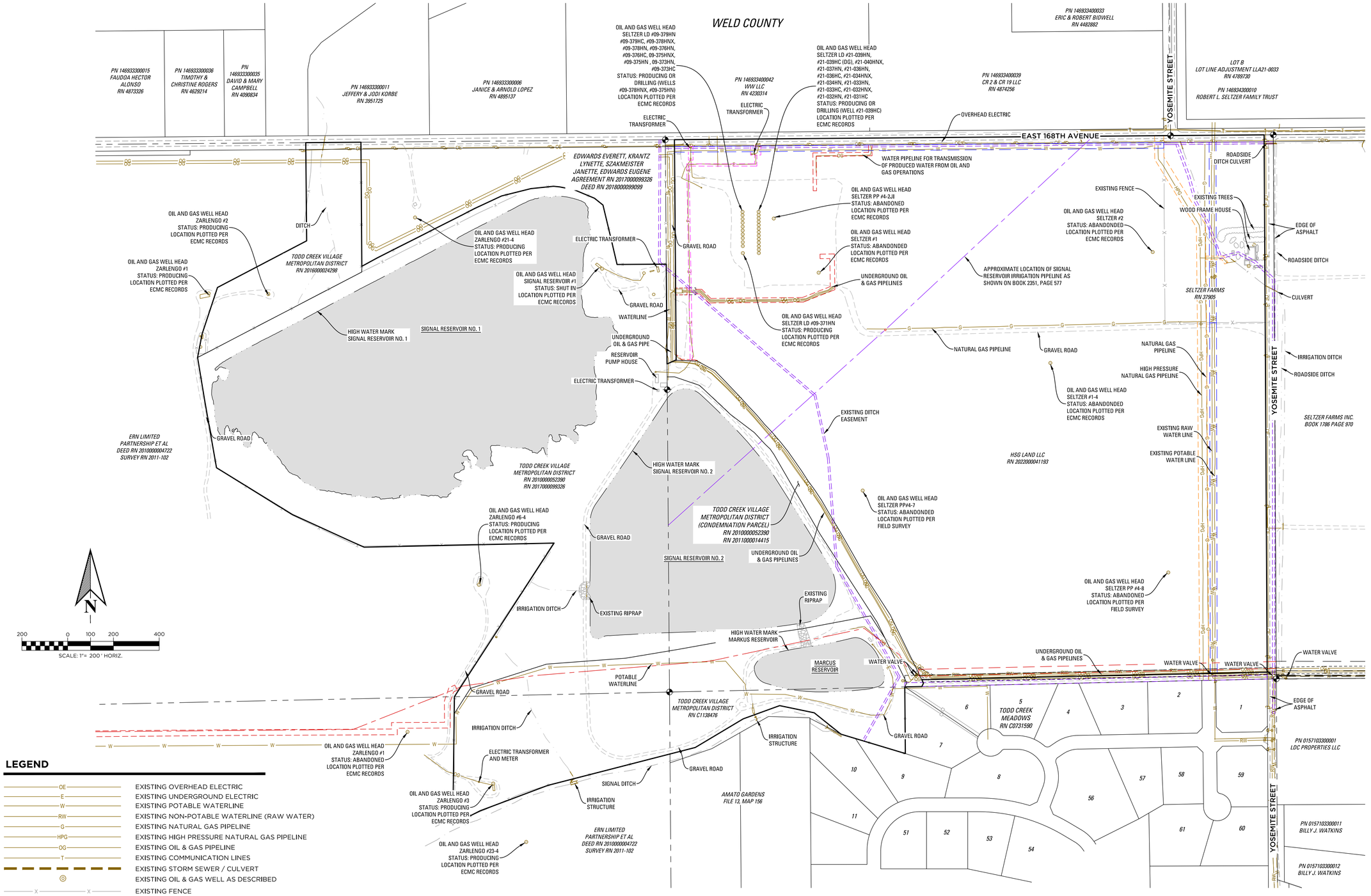

LEGEND

- OE — EXISTING OVERHEAD ELECTRIC
- E — EXISTING UNDERGROUND ELECTRIC
- W — EXISTING POTABLE WATERLINE
- RW — EXISTING NON-POTABLE WATERLINE (RAW WATER)
- G — EXISTING NATURAL GAS PIPELINE
- HPG — EXISTING HIGH PRESSURE NATURAL GAS PIPELINE
- OG — EXISTING OIL & GAS PIPELINE
- T — EXISTING COMMUNICATION LINES
- EXISTING STORM SEWER / CULVERT
- EXISTING OIL & GAS WELL AS DESCRIBED
- X — EXISTING FENCE
- EXISTING SWALE / DITCH
- EXISTING WATERLINE EASEMENT
- EXISTING IRRIGATION EASEMENT
- EXISTING OIL & GAS EASEMENT
- EXISTING ELECTRIC EASEMENT
- EXISTING NATURAL GAS EASEMENT

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KT ENGINEERING
12500 W. 58TH AVE. #230
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PREPARED FOR:
HSG LAND LLC

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STAMP:
NOT FOR CONSTRUCTION

SHEET INFO:

SELTZER HEIGHTS FILING 1

EXISTING CONDITIONS

PROJECT NO: 0109-2207
DRAWN BY: EST
DESIGNED BY: KPT
SCALE: 1" = 200'
SUBMITTED ON: 01/20/2025

03 OF 15

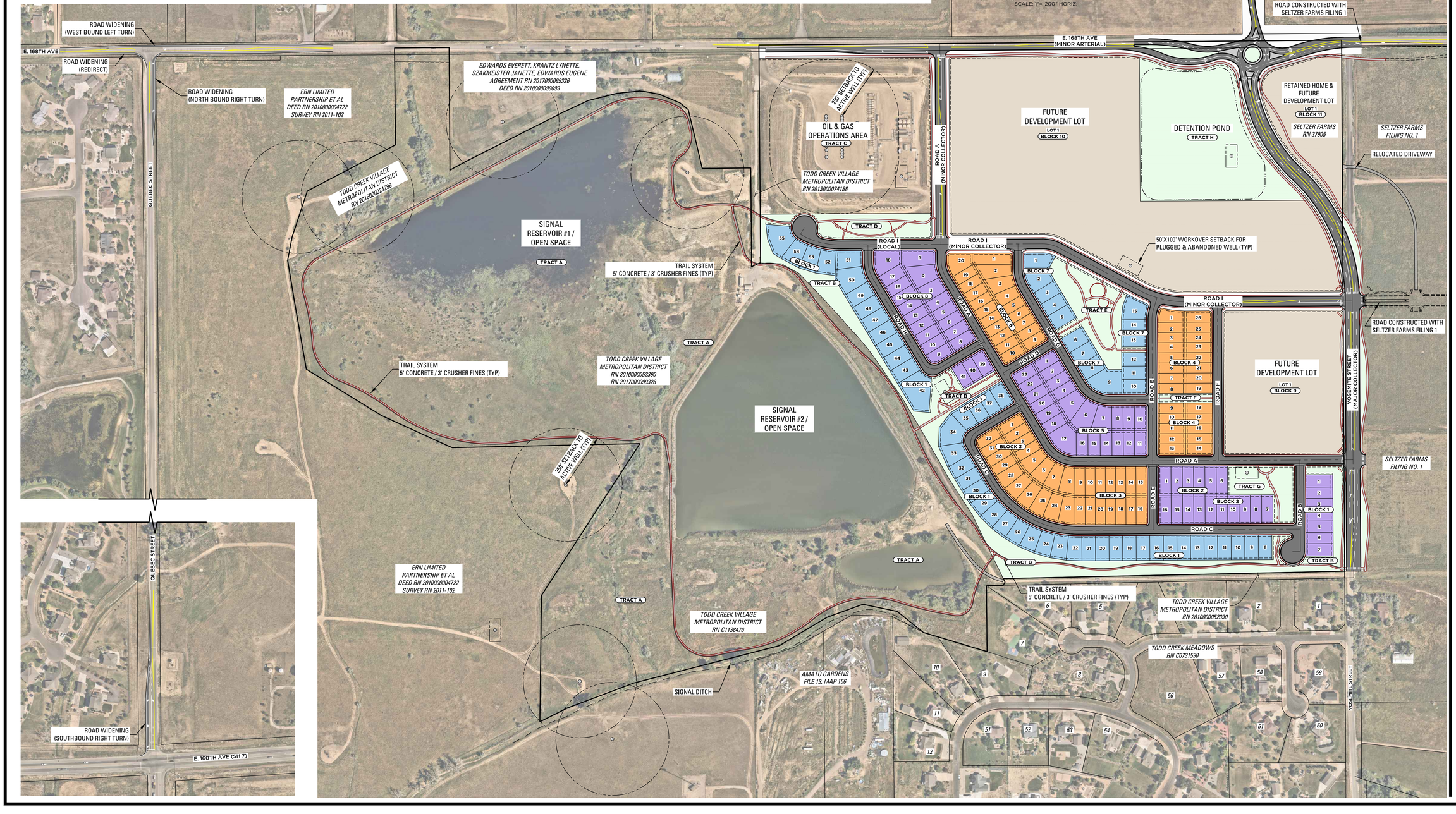
LAND USE SUMMARY TABLE

PARCEL	COUNT	AREA SF	AREA AC	% OF TOTAL
RIGHT-OF-WAY	NA	956,673 SF	21.9622 AC	9.64 %
OIL & GAS TRACT	1	523,426 SF	12.0162 AC	5.27 %
OPEN SPACE TRACTS	7	5,535,281 SF	127.0726 AC	55.77 %
FUTURE DEVELOPMENT LOTS	3	1,542,941 SF	35.4210 AC	15.55 %
45' WIDE RESIDENTIAL LOTS	78	459,950 SF	10.5590 AC	4.63 %
50' WIDE RESIDENTIAL LOTS	67	436,127 SF	10.0121 AC	4.40 %
60' WIDE RESIDENTIAL LOTS	60	470,614 SF	10.8038 AC	4.74 %
TOTAL =		9,925,012 SF	227.8469 AC	100.00 %

TRACT TABLE

TRACT	OWNERSHIP	AREA SF	AREA AC	USE
TRACT A	T.C.V.M.D*	4,744,819 SF	108.9261 AC	RESERVOIR / OPEN SPACE / PUBLIC ACCESS / UTILITIES / DRAINAGE
TRACT B	DISTRICT	262,218 SF	6.0197 AC	OPEN SPACE / PUBLIC ACCESS / UTILITIES / DRAINAGE
TRACT C	DISTRICT	523,426 SF	12.0162 AC	OIL & GAS OPERATIONS AREA
TRACT D	DISTRICT	56,993 SF	1.3084 AC	OPEN SPACE / PUBLIC ACCESS / UTILITIES / DRAINAGE
TRACT E	DISTRICT	87,814 SF	2.0159 AC	OPEN SPACE / PUBLIC ACCESS / UTILITIES / DRAINAGE
TRACT F	DISTRICT	6,640 SF	0.1524 AC	OPEN SPACE / PUBLIC ACCESS / UTILITIES / DRAINAGE
TRACT G	DISTRICT	52,276 SF	1.2001 AC	OPEN SPACE / PUBLIC ACCESS / UTILITIES / DRAINAGE
TRACT H	DISTRICT	316,184 SF	7.2586 AC	DETENTION POND / OPEN SPACE / PUBLIC ACCESS / UTILITIES / DRAINAGE

* T.C.V.M.D = TODD CREEK VILLAGE METROPOLITAN DISTRICT



KT ENGINEERING
12500 W. 58TH AVE. #230
ARVADA, CO 80002
P: 720.638.5190
WWW.KTENG.NET

PREPARED FOR:
HSG LAND LLC

REVISIONS:

NO.	REVISION DESCRIPTION	DATE	BY
1.			
2.			
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4.			
5.			
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7.			
8.			

STAMP:
NOT FOR CONSTRUCTION

SHEET INFO:
SELTZER HEIGHTS FILING 1
OVERALL LAND USE

PROJECT NO: 0109-2207
DRAWN BY: EST
DESIGNED BY: KPT
SCALE: 1" = 200'
SUBMITTED ON: 01/20/2025

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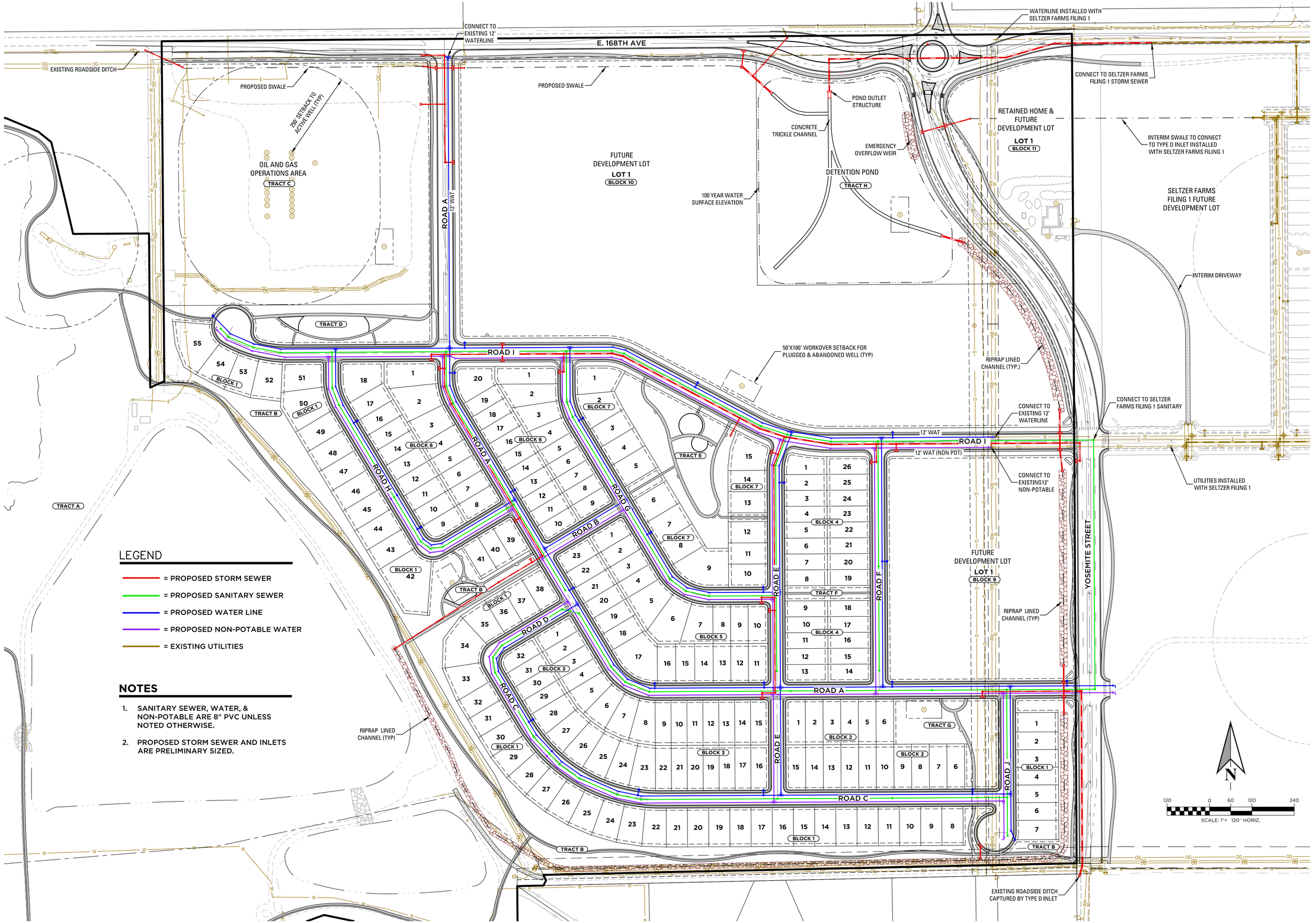

LEGEND

- = PROPOSED STORM SEWER
- = PROPOSED SANITARY SEWER
- = PROPOSED WATER LINE
- = PROPOSED NON-POTABLE WATER
- = EXISTING UTILITIES

NOTES

1. SANITARY SEWER, WATER, & NON-POTABLE ARE 8" PVC UNLESS NOTED OTHERWISE.
2. PROPOSED STORM SEWER AND INLETS ARE PRELIMINARY SIZED.

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ARVADA, CO 80002
P: 720.638.5190
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PREPARED FOR:
HSG LAND LLC

REVISIONS:

NO.	REVISION DESCRIPTION	DATE	BY
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STAMP:
NOT FOR CONSTRUCTION

SHEET INFO:

SELTZER HEIGHTS FILING 1

OVERALL UTILITY

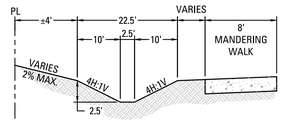
PROJECT NO: 0109-2207
DRAWN BY: EST
DESIGNED BY: KPT
SCALE: 1" = 120'
SUBMITTED ON: 01/20/2025

05 OF 15

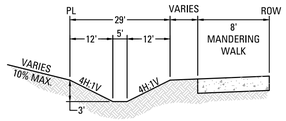
J:\0109\FILING 1 HSG\CIVIL\PLANNING\0207-HSG-PRELIMINARY-OVERALL-UTILITY.dwg

LEGEND

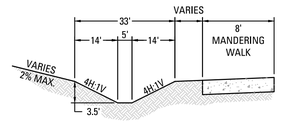
- 2.6% = PROPOSED GRADE
- 3:1 = PROPOSED SLOPE
- = EXISTING CONTOUR MINOR
- = EXISTING CONTOUR MAJOR
- = PROPOSED CONTOUR MINOR
- = PROPOSED CONTOUR MAJOR
- LP = LOW POINT
- HP = HIGH POINT
- A = LOT TYPE " A "
- B = LOT TYPE " B "
- G = LOT TYPE " G "
- T = LOT TYPE " T "
- WO = LOT TYPE " WO "



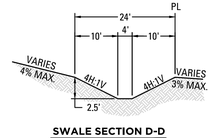
SWALE SECTION A-A



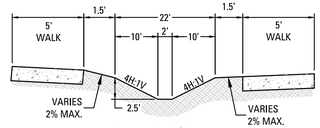
SWALE SECTION B-B



SWALE SECTION C-C



SWALE SECTION D-D



SWALE SECTION E-E

120 0 60 120 240

SCALE: 1"= 120 ' HORIZ.

KT ENGINEERING

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ARVADA, CO 80002

P: 720.638.5190

WWW.KTENG.NET

PREPARED FOR:
HSG LAND LLC

REVISIONS:

NO.	REVISION DESCRIPTION	DATE	BY
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

STAMP:

NOT FOR CONSTRUCTION

SHEET INFO:

SELTZER HEIGHTS FILING 1

OVERALL GRADING

PROJECT NO:
0109-2207

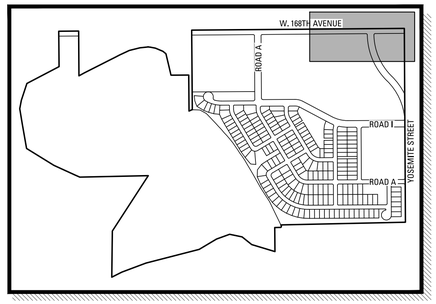
DRAWN BY:
EST

DESIGNED BY:
KPT

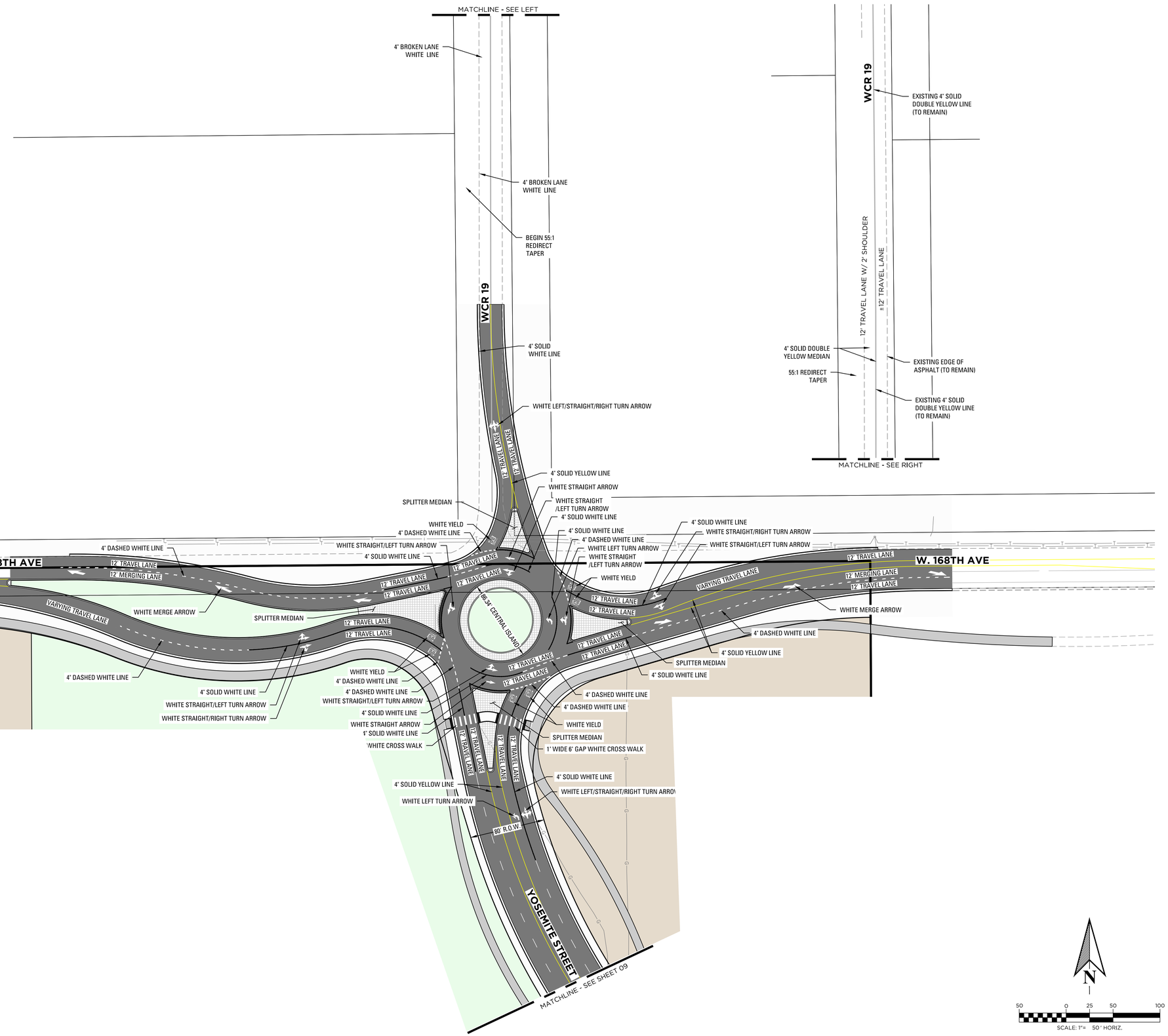
SCALE:
1" = 120'

SUBMITTED ON:
01/20/2025

J:\0109\FILING 1\HSG\CIVIL\PLANNING\0207-HSG-PRELIMINARY-OVERALL-GRADING.dwg



KEYMAP
NTS



KT ENGINEERING
12500 W. 58TH AVE. #230
ARVADA, CO 80002
P: 720.638.5190
WWW.KTENG.NET

PREPARED FOR:
HSG LAND LLC

REVISIONS:

NO.	REVISION DESCRIPTION	DATE	BY
1.			
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3.			
4.			
5.			
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STAMP:
NOT FOR CONSTRUCTION

SHEET INFO:

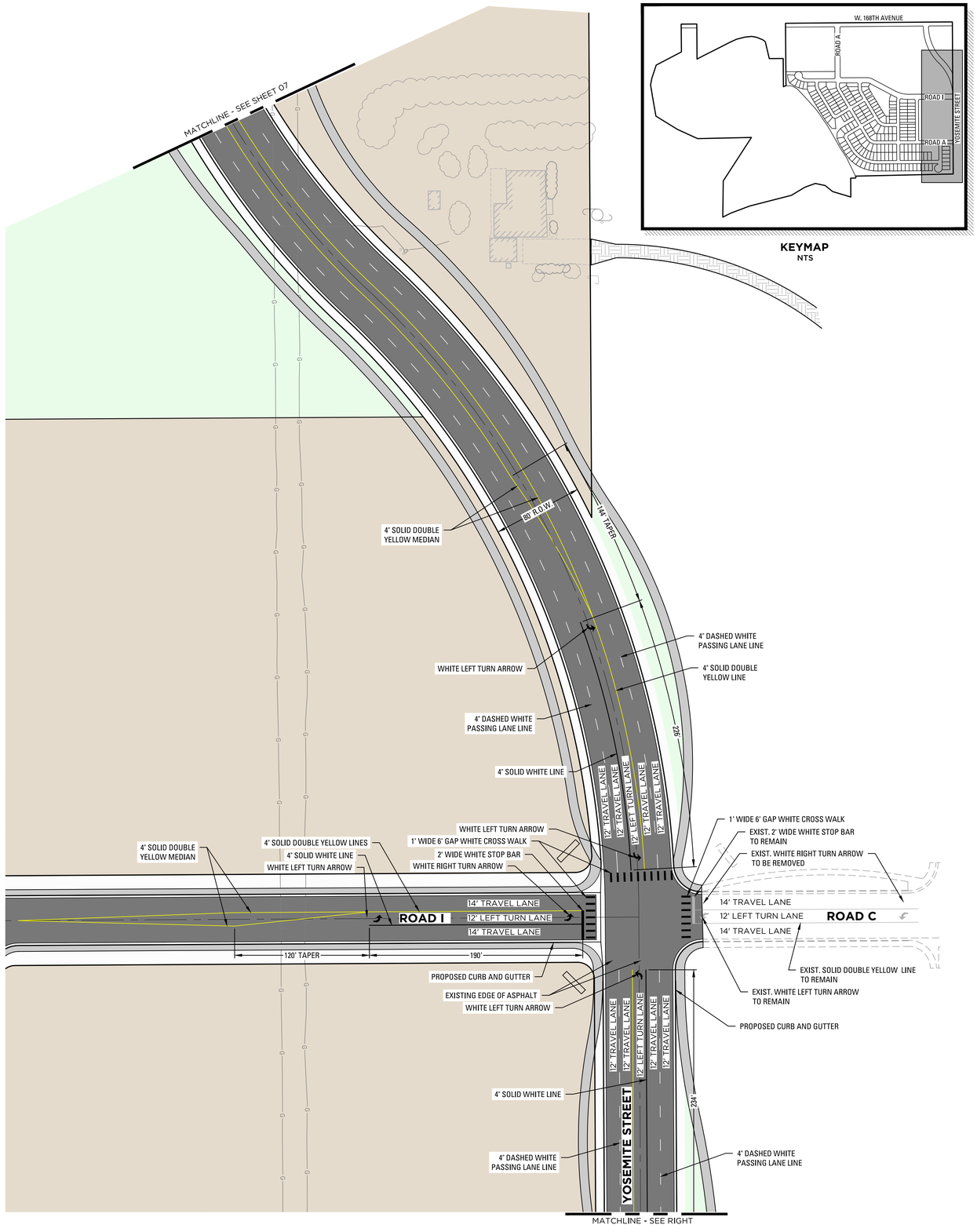
SELTZER HEIGHTS FILING 1

DETAILED INTERSECTIONS 168TH AVE & YOSEMITE

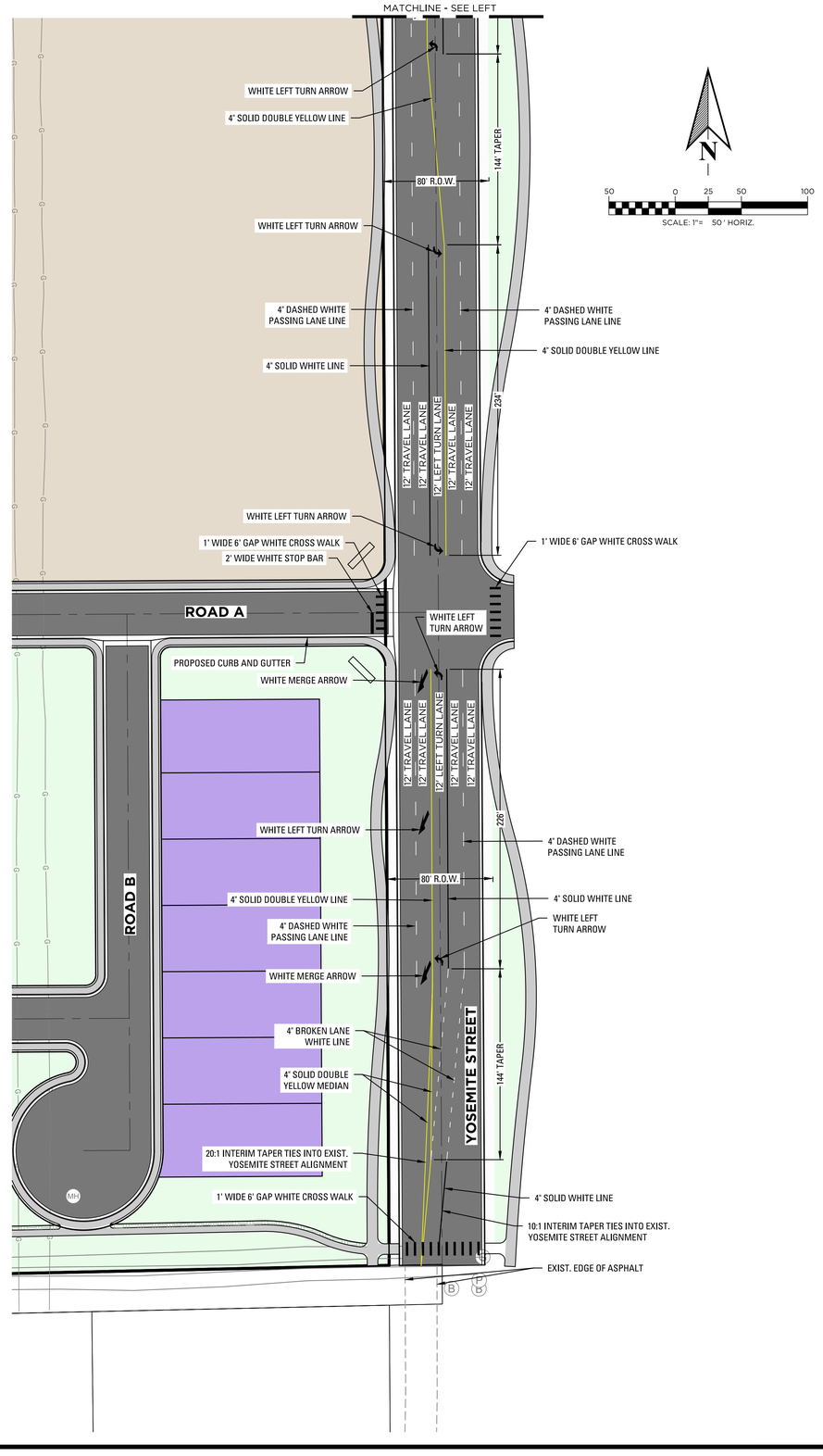
PROJECT NO: 0109-2207
DRAWN BY: EST
DESIGNED BY: KPT
SCALE: AS SHOWN
SUBMITTED ON: 01/20/2025

07 OF 15

J:\0109\FILING 1 HSD\CIVIL\PLANNING\2207-RSS-DETAILED-INTERSECTION.dwg



KEYMAP
NTS



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ARVADA, CO 80002
P: 720.638.5190
WWW.KTENG.NET

PREPARED FOR:
HSG LAND LLC

REVISIONS:

NO.	REVISION DESCRIPTION	DATE	BY
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5.			
6.			
7.			
8.			

STAMP:
NOT FOR CONSTRUCTION

SHEET INFO:
SELTZER HEIGHTS FILING 1
DETAILED INTERSECTIONS YOSEMITE & SITE ENTRANCES

PROJECT NO: 0109-2207
DRAWN BY: EST
DESIGNED BY: KPT
SCALE: AS SHOWN
SUBMITTED ON: 01/20/2025

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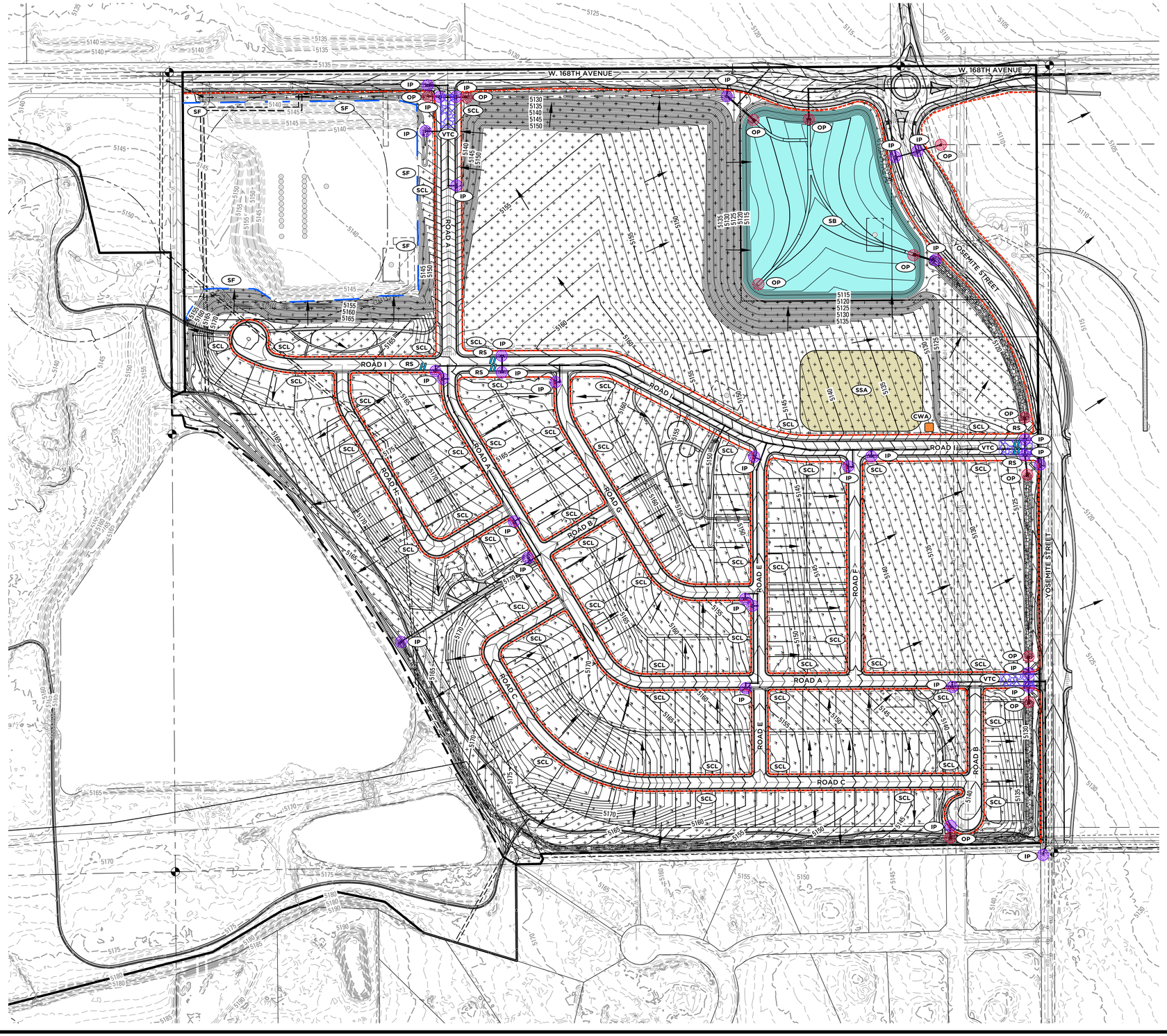

BMP LEGEND

CHECK DAM	CD	
INLET PROTECTION	IP	
OUTLET PROTECTION	OP	
SILT FENCE	SF	
CONSTRUCTION FENCE	CF	
SEDIMENT CONTROL LOG	SCL	
EXISTING CONTOUR MINOR		
EXISTING CONTOUR MAJOR		
PROPOSED CONTOUR MINOR		
PROPOSED CONTOUR MAJOR		
VEHICLE TRACKING CONTROL	VTC	
SEDIMENT BASIN	SB	
STABILIZED STAGING AREA	SSA	
CONCRETE WASHOUT AREA	CWA	
TEMPORARY SEEDING/MULCHING	TS	
PERMANENT SEEDING/MULCHING	PS	
SURFACE FLOW ARROW		
LIMITS OF CONSTRUCTION		
ROCK SOCK	RS	

N

150 0 75 150 300

SCALE: 1"= 150 ' HORIZ.

KT ENGINEERING
12500 W. 58TH AVE. #230
ARVADA, CO 80002
P: 720.638.5190
WWW.KTENG.NET

PREPARED FOR:
HSG LAND LLC

REVISIONS:

NO.	REVISION DESCRIPTION	DATE	BY
1.			
2.			
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STAMP:
NOT FOR CONSTRUCTION

SHEET INFO:

SELTZER HEIGHTS FILING 1

EROSION CONTROL PLAN

PROJECT NO: 0109-2207
DRAWN BY: EST
DESIGNED BY: KPT
SCALE: 1" = 150'
SUBMITTED ON: 01/20/2025

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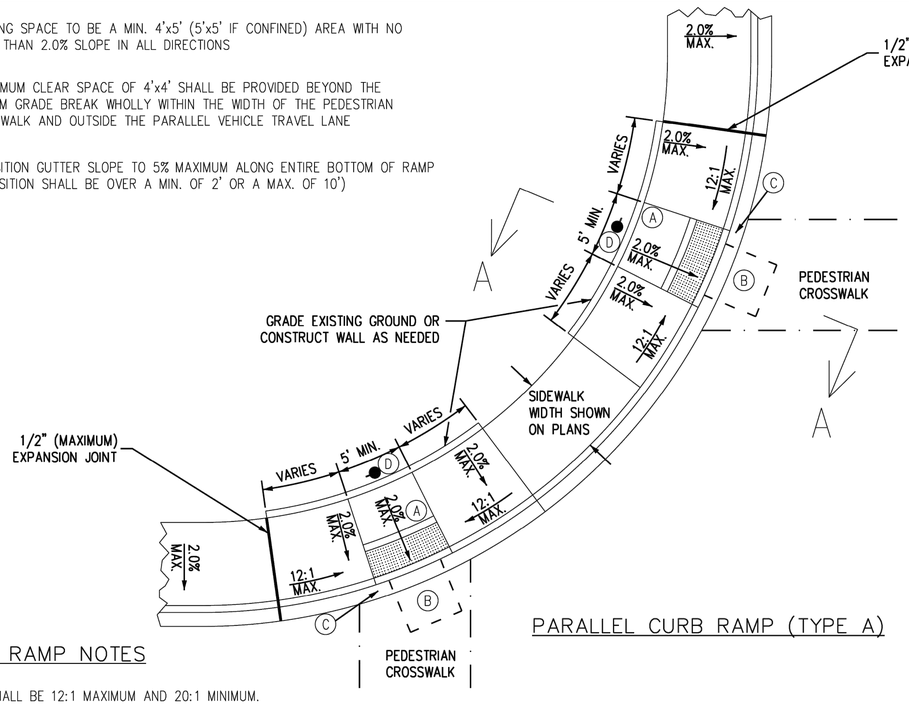
Ⓐ TURNING SPACE TO BE A MIN. 4'x5' (5'x5' IF CONFINED) AREA WITH NO MORE THAN 2.0% SLOPE IN ALL DIRECTIONS

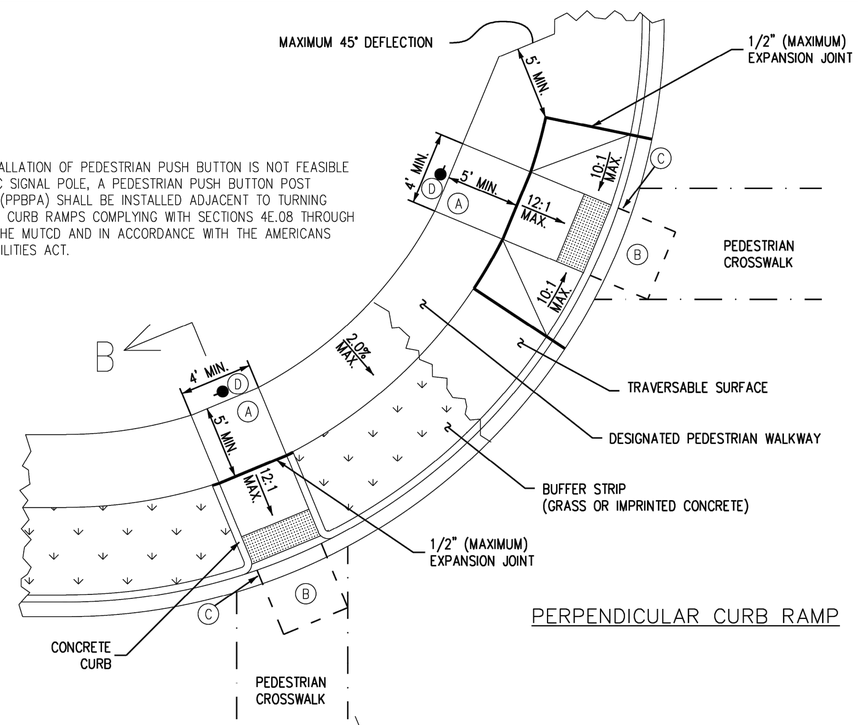
Ⓑ A MINIMUM CLEAR SPACE OF 4'x4' SHALL BE PROVIDED BEYOND THE BOTTOM GRADE BREAK WHOLLY WITHIN THE WIDTH OF THE PEDESTRIAN CROSSWALK AND OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE

Ⓒ TRANSITION GUTTER SLOPE TO 5% MAXIMUM ALONG ENTIRE BOTTOM OF RAMP (TRANSITION SHALL BE OVER A MIN. OF 2' OR A MAX. OF 10')



PARALLEL CURB RAMP (TYPE A)

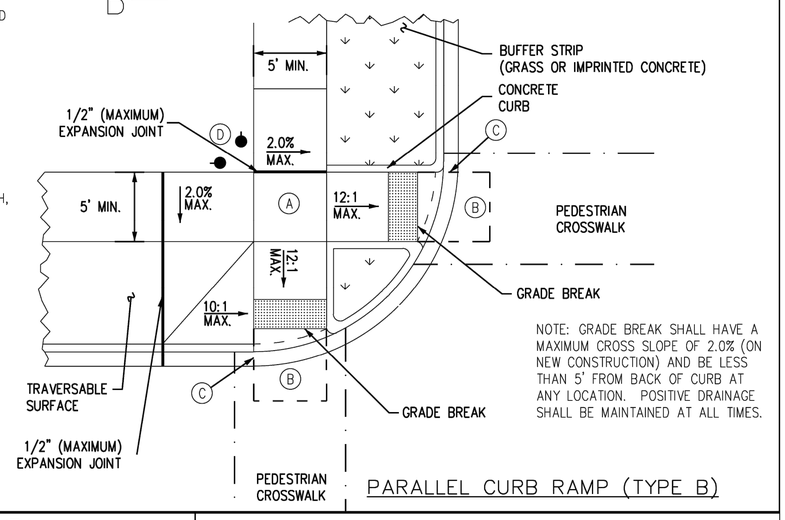
Ⓓ WHEN INSTALLATION OF PEDESTRIAN PUSH BUTTON IS NOT FEASIBLE ON TRAFFIC SIGNAL POLE, A PEDESTRIAN PUSH BUTTON POST ASSEMBLY (PPBPA) SHALL BE INSTALLED ADJACENT TO TURNING SPACES OF CURB RAMPS COMPLYING WITH SECTIONS 4E.08 THROUGH 4E.13 OF THE MUTCD AND IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT.



PERPENDICULAR CURB RAMP

CURB RAMP NOTES

1. RAMP SLOPES SHALL BE 12:1 MAXIMUM AND 20:1 MINIMUM.
2. RAMP GRADE BREAKS MUST BE PERPENDICULAR TO THE RUNNING SLOPE.
3. CURB RAMPS SHALL BE A MINIMUM OF 6" THICK. CURB RAMPS ADJACENT TO A CROSS PAN SHALL BE POURED MONOLITHIC AND THE GUTTER THICKNESS SHALL MATCH THE THICKNESS OF THE CROSS PAN (8" MINIMUM).
4. CURB RAMP OPENINGS SHALL BE WHOLLY LOCATED WITHIN PEDESTRIAN CROSSWALK. GUTTERLINE PROFILE SHALL MATCH ROADWAY SLOPE. CROSSWALKS ON NEW CONSTRUCTION SHALL MEET ADA REQUIREMENTS AS DESCRIBED IN THE CODE OF FEDERAL REGULATIONS TITLE II.
5. ALL CONCRETE SIDEWALK AND CURB RAMP SURFACES SHALL HAVE A BROOM FINISH PERPENDICULAR TO THE DIRECTION OF TRAVEL.
6. EXPANSION JOINTS (SEE JOINT DETAIL) SHALL BE PROVIDED AT ALL LOCATIONS WHERE NEW CONCRETE MEETS EXISTING CONCRETE OR AT LOCATIONS SHOWN IN THESE DETAILS.
7. DETECTABLE WARNING SURFACES SHALL BE INSTALLED AT SIDEWALK TO STREET TRANSITIONS AND BE OF A CONTRASTING COLOR. THE U.S. ACCESS BOARD PROPOSED GUIDELINES FOR ACCESSIBLE RIGHTS-OF-WAY (PROWAG) CHAPTER R3 TECHNICAL REQUIREMENTS PROVIDES GUIDANCE ON DETECTABLE WARNING SURFACES. FOR REFERENCE, THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) HAS AN APPROVED PRODUCTS LIST (APL) OF TRUNCATED DOME PANELS. THE COUNTY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY PROPOSED DETECTABLE WARNING SURFACES.
8. ALL DETECTABLE WARNING SURFACE AREAS SHALL BE WITHIN A MAXIMUM OF 2 IN. FROM THE BACK OF CURB (EXCEPT AS SHOWN IN TYPE B PARALLEL RAMP). ALL DETECTABLE WARNING SURFACES SHALL BE 2 FT. IN LENGTH, MEASURED ALONG THE DIRECTION OF PEDESTRIAN TRAVEL, AND COVER THE COMPLETE WIDTH OF THE RAMP AREA.
9. DO NOT INSTALL DRAINAGE STRUCTURES, TRAFFIC SIGNAL EQUIPMENT, JUNCTION BOXES, AND OTHER OBSTRUCTIONS IN FRONT OF OR WITHIN THE RAMP CLEAR SPACE.
10. PERPENDICULAR AND PARALLEL CURB RAMPS SHOWN ARE ACCEPTABLE FOR USE AT MID-BLOCK INSTALLATIONS.
11. THE CONTRACTOR SHOULD ACCOUNT FOR CONSTRUCTION TOLERANCES TO PREVENT EXCEEDING MAXIMUM SLOPES AND MINIMUM DIMENSIONS SHOWN. THE COUNTY MAY REQUIRE REMOVAL AND RECONSTRUCTION TO ACHIEVE SPECIFIED DIMENSIONS AND SLOPES.
12. WHEN ISSUES ARISE THAT REQUIRE ADJUSTMENTS TO PROVIDE AN ADA COMPLIANT CURB RAMP, THE CURB RAMP SHOWN ON THE PLANS MAY BE ADJUSTED IN THE FIELD BY THE CONTRACTOR TO ACCOMMODATE DIFFERING ELEVATIONS, VARIANCES IN SLOPE, OR TRANSITIONS TO EXISTING FEATURES AS LONG AS THE MINIMUM DIMENSIONS ARE ACHIEVED AND THE MAXIMUM SLOPES ARE NOT EXCEEDED.
13. WHEN ISSUES ARISE THAT REQUIRE MODIFICATIONS (I.E. CHANGE CURB RAMP TYPE, ADDITION OR DELETION OF CURB RAMP FEATURES, ETC.) THE ENGINEER OF RECORD SHALL SUBMIT REVISIONS TO THE COUNTY USING THE APPROVED CONSTRUCTION PLANS FOR REVIEW AND APPROVAL.
14. THE CONTRACTOR SHALL NOTIFY THE COUNTY AT LEAST TWO (2) BUSINESS DAYS PRIOR TO NEEDING A CONCRETE FORM INSPECTION.
15. FOR ADDITIONAL GUIDANCE ON CURB RAMP LAYOUT AND CONSTRUCTION, PROWAG SHALL BE REFERENCED.



NOTE: GRADE BREAK SHALL HAVE A MAXIMUM CROSS SLOPE OF 2.0% (ON NEW CONSTRUCTION) AND BE LESS THAN 5' FROM BACK OF CURB AT ANY LOCATION. POSITIVE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES.

PARALLEL CURB RAMP (TYPE B)

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Last Modification Date:	12/10/16	Initials:	JEH				
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Drawing File Name:	CURB RAMP DETAILS.DWG						
Acad Ver.	2013	Scale:	N/A	Units: ENGLISH			

ADAMS COUNTY
TRANSPORTATION DEPARTMENT
4430 S. ADAMS COUNTY PARKWAY
BRIGHTON, CO 80601

CURB RAMP DETAILS

Sheet Number: 1 of 3

KT ENGINEERING
12500 W. 58TH AVE. #230
ARVADA, CO 80002
P: 720.638.5190
WWW.KTENG.NET

PREPARED FOR:
HSG LAND LLC

REVISIONS:

NO.	REVISION DESCRIPTION	DATE	BY
1.			
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STAMP:
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SHEET INFO:
SELTZER HEIGHTS FILING 1
DETALS
DETAILS SITE 1

PROJECT NO: 0109-2207
DRAWN BY: EST
DESIGNED BY: KPT
SCALE: 1" = NA'
SUBMITTED ON: 01/20/2025

11 OF 15

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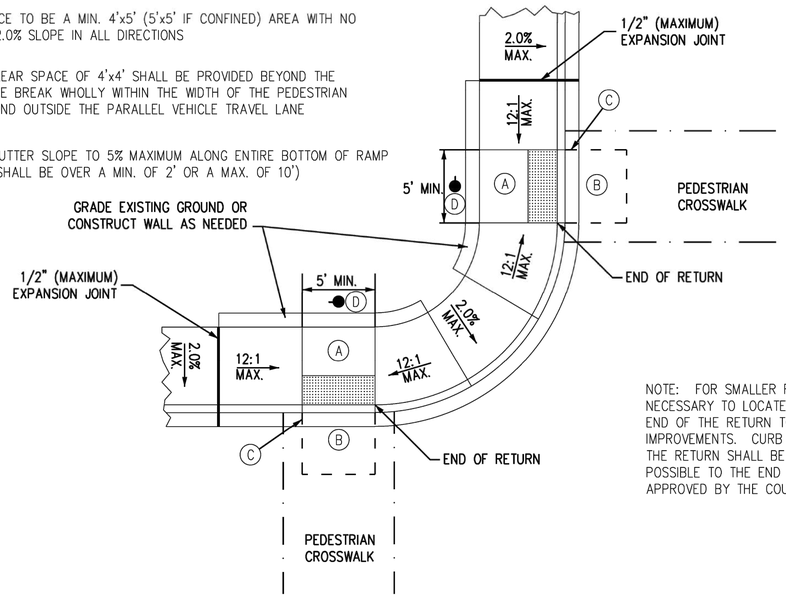
(A) TURNING SPACE TO BE A MIN. 4'x5' (5'x5' IF CONFINED) AREA WITH NO MORE THAN 2.0% SLOPE IN ALL DIRECTIONS

(B) A MINIMUM CLEAR SPACE OF 4'x4' SHALL BE PROVIDED BEYOND THE BOTTOM GRADE BREAK WHOLLY WITHIN THE WIDTH OF THE PEDESTRIAN CROSSWALK AND OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE

(C) TRANSITION GUTTER SLOPE TO 5% MAXIMUM ALONG ENTIRE BOTTOM OF RAMP (TRANSITION SHALL BE OVER A MIN. OF 2' OR A MAX. OF 10')

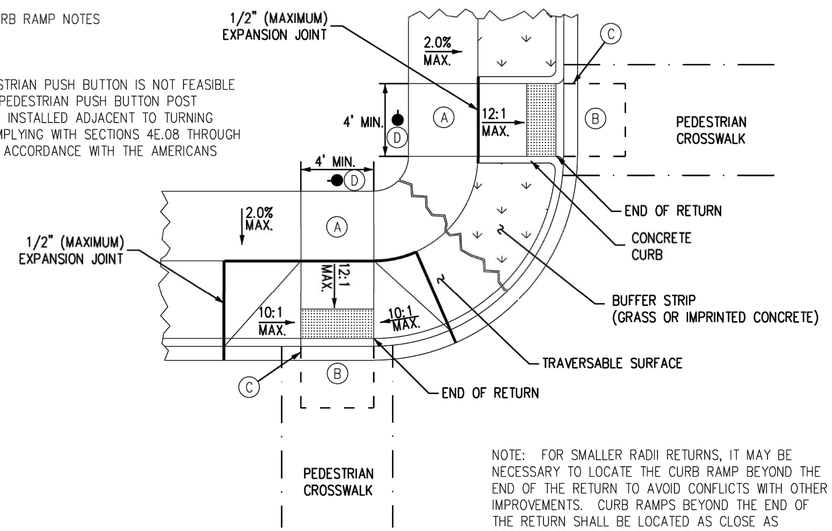


PARALLEL CURB RAMPS – SMALL RADIUS

* SEE SHEET 1 FOR CURB RAMP NOTES

(D) WHEN INSTALLATION OF PEDESTRIAN PUSH BUTTON IS NOT FEASIBLE ON TRAFFIC SIGNAL POLE, A PEDESTRIAN PUSH BUTTON POST ASSEMBLY (PPBPA) SHALL BE INSTALLED ADJACENT TO TURNING SPACES OF CURB RAMPS COMPLYING WITH SECTIONS 4E.08 THROUGH 4E.13 OF THE MUTCD AND IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT.

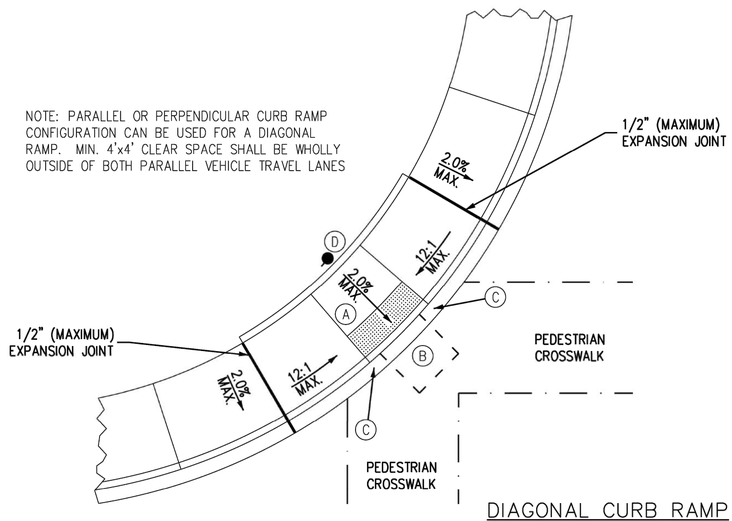
NOTE: FOR SMALLER RADII RETURNS, IT MAY BE NECESSARY TO LOCATE THE CURB RAMP BEYOND THE END OF THE RETURN TO AVOID CONFLICTS WITH OTHER IMPROVEMENTS. CURB RAMPS BEYOND THE END OF THE RETURN SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE END OF THE RETURN AND SHALL BE APPROVED BY THE COUNTY.



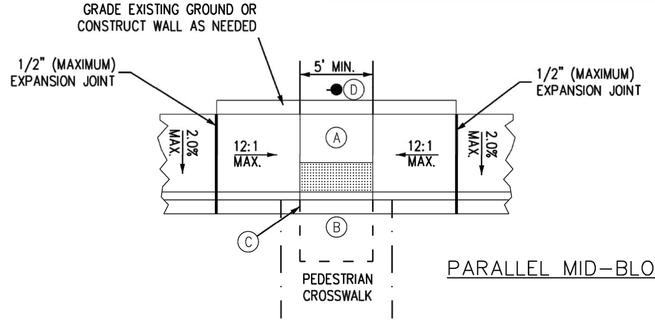
NOTE: FOR SMALLER RADII RETURNS, IT MAY BE NECESSARY TO LOCATE THE CURB RAMP BEYOND THE END OF THE RETURN TO AVOID CONFLICTS WITH OTHER IMPROVEMENTS. CURB RAMPS BEYOND THE END OF THE RETURN SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE END OF THE RETURN AND SHALL BE APPROVED BY THE COUNTY.

PERPENDICULAR CURB RAMPS – SMALL RADIUS

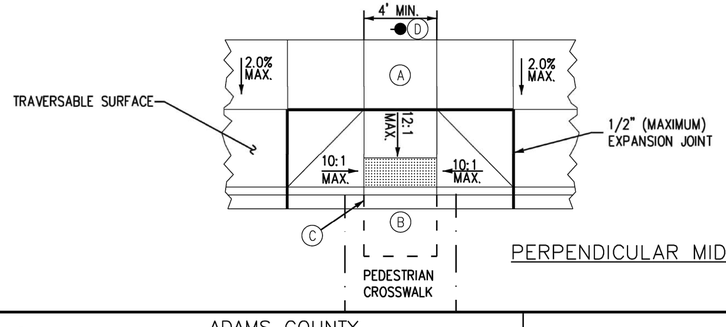
NOTE: PARALLEL OR PERPENDICULAR CURB RAMP CONFIGURATION CAN BE USED FOR A DIAGONAL RAMP. MIN. 4'x4' CLEAR SPACE SHALL BE WHOLLY OUTSIDE OF BOTH PARALLEL VEHICLE TRAVEL LANES



DIAGONAL CURB RAMP



PARALLEL MID-BLOCK CURB RAMP



PERPENDICULAR MID-BLOCK CURB RAMP

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Drawing File Name:	CURB RAMP DETAILS.DWG			
Acad Ver. 2013	Scale: N/A	Units:	ENGLISH	

Sheet Revisions		
03/31/17	ADAMS COUNTY	ACS

ADAMS COUNTY
TRANSPORTATION DEPARTMENT
4430 S. ADAMS COUNTY PARKWAY
BRIGHTON, CO 80601

CURB RAMP DETAILS

Sheet Number: 2 of 3

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KT ENGINEERING
12500 W. 58TH AVE. #230
ARVADA, CO 80002
P: 720.638.5190
WWW.KTENG.NET

PREPARED FOR:
HSG LAND LLC

REVISIONS:

NO.	DATE	BY	REVISION DESCRIPTION
1.			
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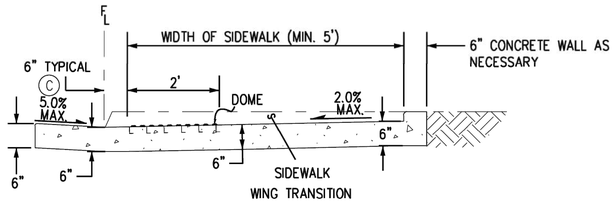
STAMP:
NOT FOR CONSTRUCTION

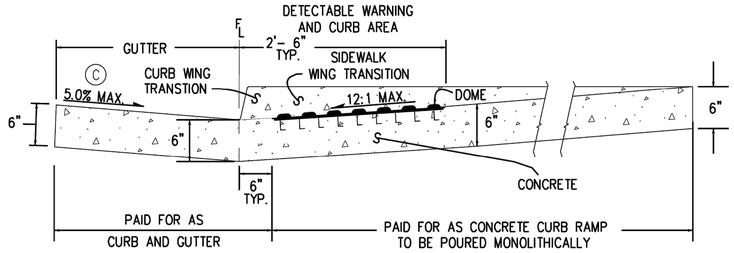
SHEET INFO:
SELTZER HEIGHTS FILING 1
DETAILS
DETAILS SITE 2

PROJECT NO: 0109-2207
DRAWN BY: EST
DESIGNED BY: KPT
SCALE: 1" = NA'
SUBMITTED ON: 01/20/2025

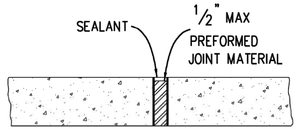
12 OF 15



SECTION A–A CURB RAMP PROFILE

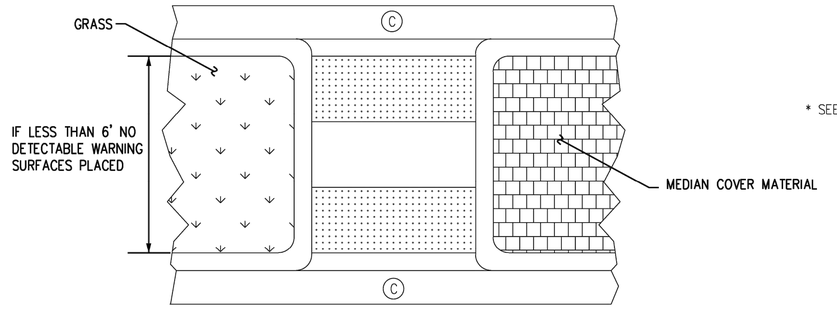


SECTION B–B CURB RAMP PROFILE



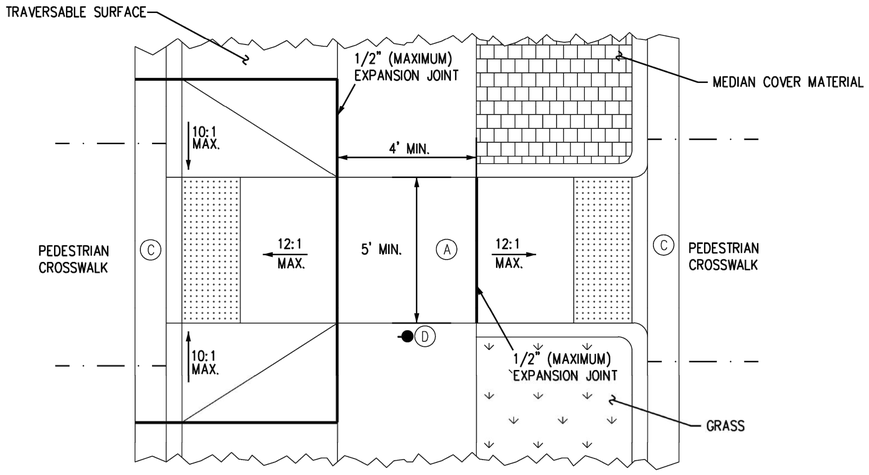
NOTE:
EXPANSION JOINTS SHALL NOT BE PLACED WITHIN THE RAMP AREA

EXPANSION JOINT



MEDIAN CUT THROUGH CROSSING

* SEE SHEET 1 FOR CURB RAMP NOTES



PEDESTRIAN MEDIAN REFUGE

1. DETECTABLE WARNING SURFACES SHALL BE OF A CONTRASTING COLOR AND MEET CHAPTER R3 TECHNICAL REQUIREMENTS IN THE U.S. ACCESS BOARD PROPOSED GUIDELINES FOR ACCESSIBLE RIGHTS–OF–WAY (PROWAG) AS APPROVED BY THE COUNTY. FOR REFERENCE, THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) HAS AN APPROVED PRODUCTS LIST (APL) OF TRUNCATED DOME PANELS. THE COUNTY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY PROPOSED DETECTABLE WARNING SURFACES.
2. DETECTABLE WARNINGS SHALL BE INSTALLED AT SIDEWALK TO STREET TRANSITIONS.
3. THE TRUNCATED DOME PANEL SHALL BE EMBEDDED IN THE CONCRETE CURB RAMP WHILE CONCRETE IS PLASTIC.
4. WHEN DETECTABLE WARNING SURFACE IS CUT, GRIND OFF REMAINING PORTION OF ANY CUT DOMES. SEAL ALL CUT PANEL EDGES TO PREVENT WATER DAMAGE.
5. IF BRICKS OR PAVERS ARE USED FOR DETECETABLE WARNING SURFACE, THE UNDERLYING CONCRETE SHALL BE A MINIMUM OF 4 INCHES THICK.
6. JOINT SEALANT SHALL BE A PRODUCT ON THE CDOT APL OR AN APPROVED EQUAL BY THE COUNTY.

DOME PANEL NOTES

(A) TURNING SPACE TO BE A MIN. 4'x5' (5'x5' IF CONFINED) AREA WITH NO MORE THAN 2.0% SLOPE IN ALL DIRECTIONS

(C) TRANSITION GUTTER SLOPE TO 5% MAXIMUM ALONG ENTIRE BOTTOM OF RAMP (TRANSITION SHALL BE OVER A MIN. OF 2' OR A MAX. OF 10')

(D) WHEN INSTALLATION OF PEDESTRIAN PUSH BUTTON IS NOT FEASIBLE ON TRAFFIC SIGNAL POLE, A PEDESTRIAN PUSH BUTTON POST ASSEMBLY (PPBPA) SHALL BE INSTALLED ADJACENT TO TURNING SPACES OF CURB RAMPS COMPLYING WITH SECTIONS 4E.08 THROUGH 4E.13 OF THE MUTCD AND IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT.

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Acad Ver. 2013	Scale: N/A	Units:	ENGLISH	

Sheet Revisions		
03/31/17	ADAMS COUNTY	ACS

ADAMS COUNTY
TRANSPORTATION DEPARTMENT
4430 S. ADAMS COUNTY PARKWAY
BRIGHTON, CO 80601

CURB RAMP DETAILS

Sheet Number: 3 of 3

KT ENGINEERING
12500 W. 58TH AVE. #230
ARVADA, CO 80002
P: 720.638.5190
WWW.KTENG.NET

PREPARED FOR:
HSG LAND LLC

REVISIONS:

NO.	REVISION DESCRIPTION	DATE	BY
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STAMP:
NOT FOR CONSTRUCTION

SHEET INFO:
SELTZER HEIGHTS FILING 1
DETAILS
DETAILS SITE 3

PROJECT NO: 0109-2207
DRAWN BY: EST
DESIGNED BY: KPT
SCALE: 1" = NA'
SUBMITTED ON: 01/20/2025

13 OF 15

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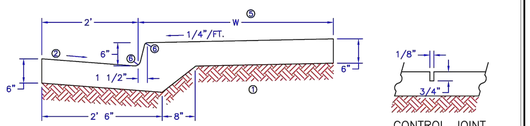
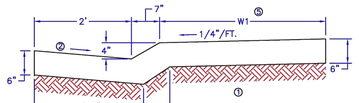
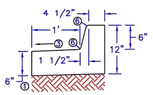


VERTICAL COMBINATION CURB, GUTTER & WALK (MONOLITHIC)

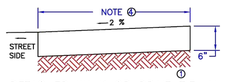
CONTROL JOINT



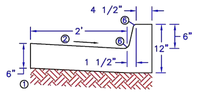
COMBINATION CURB & GUTTER AND WALK



MEDIAN CURB & GUTTER



DETACHED WALK OR DRIVE TIE–IN



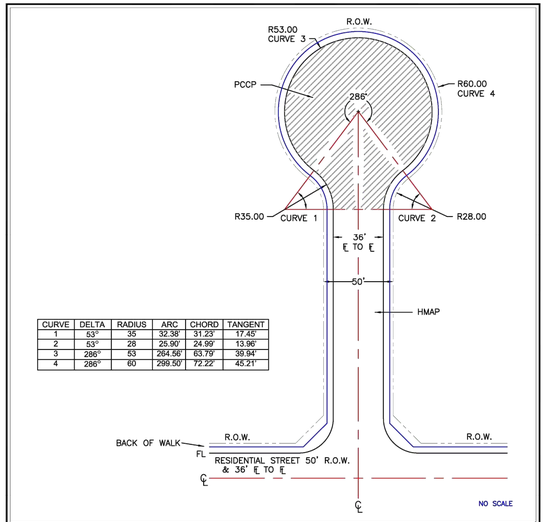
VERTICAL CURB & GUTTER

NO SCALE

NOTES:

① COMPACTED SUBGRADE
② GUTTER CROSS SLOPE SHALL BE 1"/ft
③ GUTTER CROSS SLOPE SHALL BE 1/2"/ft
④ DETACHED SIDEWALK WIDTH SHALL BE 5'–0" FOR NEW CONSTRUCTION
⑤ W=5'–6" AND W1=4'–11" TYPICAL (MIN. REQUIRED FOR NEW CONSTRUCTION)
⑥ 1 1/2" RADIUS

ADAMS COUNTY TRANSPORTATION DEPARTMENT /ENGINEERING	CURB, GUTTER & WALK	ADAMS COUNTY TRANSPORTATION DEPARTMENT /CONSTRUCTION INSPECTION
4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601	REVISION DATE: 06/02/14 — FILE NAME: CG&W_D.DWG	4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601



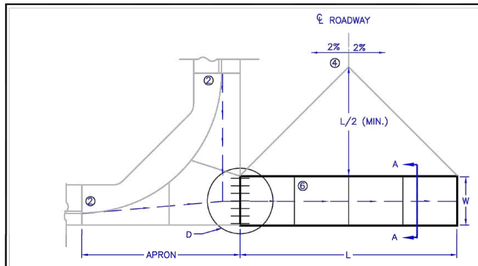
CURVE	DELTA	RADIUS	ARC	CHORD	TANGENT
1	53°	35	32.38'	31.23'	17.45'
2	53°	28	25.90'	24.99'	13.96'
3	286°	53	264.56'	63.79'	39.94'
4	286°	60	299.50'	72.22'	45.21'

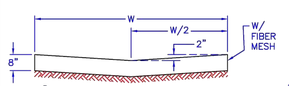
NO SCALE

NOTES:

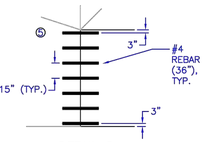
① SEE SUBDIVISION REGULATIONS FOR MAXIMUM DISTANCE, CENTER OF INTERSECTION TO RADIUS POINT.
② 5.5' COMBINATION CURB, GUTTER & WALK, SEE CURB, GUTTER AND WALK & RADIUS DETAILS
③ HANDICAP RAMPS WILL BE REQUIRED, SEE DETAILS
④ FOR MINIMUM RADIUS RETURN VALUES – SEE CHAPT. 7 OF ROADWAY STANDARDS

ADAMS COUNTY TRANSPORTATION DEPARTMENT /ENGINEERING	PAVED CUL-DE-SAC LOCAL, RESIDENTIAL	ADAMS COUNTY TRANSPORTATION DEPARTMENT /CONSTRUCTION INSPECTION
4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601	REVISION DATE: 06/02/14 — FILE NAME: RESIDENT_CULDESAC.DWG	4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601





SECT. A–A



DETAIL D

NO SCALE

W	8' OR MATCH EXISTING IF PARTIAL REPLACEMENT 6' IF USED AS COMMERCIAL CURB CUT

NOTES:

① COMPACTED SUBGRADE
② 1/8" WIDE CONTROL JOINT WITH 3/4" MINIMUM DEPTH
③ ADAMS COUNTY TO DETERMINE REINFORCEMENT REQUIREMENTS IF REINFORCEMENT IS NEEDED
④ WHERE PAVEMENT IS TO BE RECONSTRUCTED CROWN SHALL BE TRANSITIONED OVER L/2' (MIN). NO CROWN SHALL EXIST AT THE CROSSPAN
⑤ COLD JOINTS SHALL BE DOWELED AS PER "D" (MINIMUM, 2 BARS). JOINT TO BE FILLED WITH JOINT FILLER
⑥ CONTRACTION JOINTS SHALL BE SPACED @ MAXIMUM 10' INTERVALS
⑦ CROSSPANS SHALL BE CONSTRUCTED IN HALVES TO ALLOW TRAFFIC MOVEMENT

ADAMS COUNTY TRANSPORTATION DEPARTMENT /ENGINEERING	TYPICAL CROSSPAN	ADAMS COUNTY TRANSPORTATION DEPARTMENT /CONSTRUCTION INSPECTION
4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601	REVISION DATE: 06/02/14 — FILE NAME: TYP_XPAN_D.DWG	4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601

KT ENGINEERING
12500 W. 58TH AVE. #230
ARVADA, CO 80002
P: 720.638.5190
WWW.KTENG.NET

PREPARED FOR:
HSG LAND LLC

REVISIONS:

NO.	REVISION DESCRIPTION	DATE	BY
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

STAMP:

NOT FOR CONSTRUCTION

SHEET INFO:

SELTZER HEIGHTS FILING 1

DETAILS
DETAILS SITE 4

PROJECT NO: 0109-2207
DRAWN BY: EST
DESIGNED BY: KPT
SCALE: 1" = NA'
SUBMITTED ON: 01/20/2025

14 OF 15

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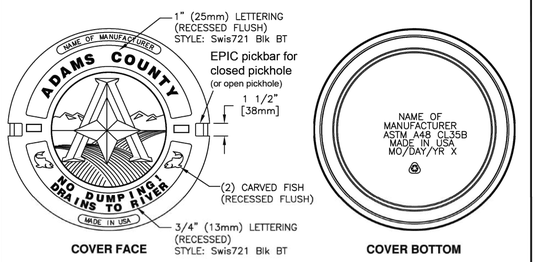
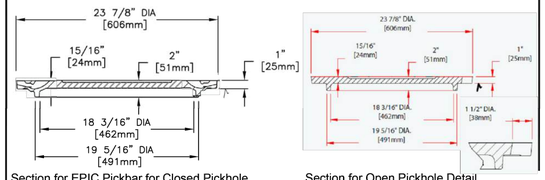
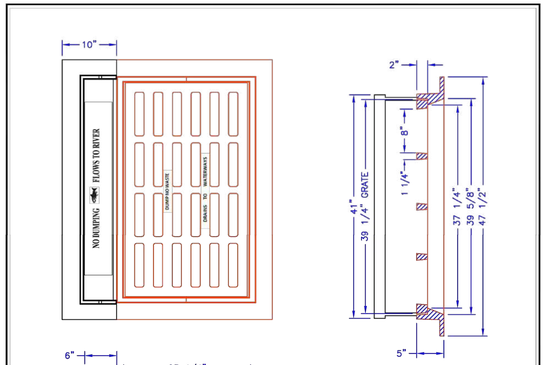




Section for EPIC Pickbar for Closed Pickhole Alternative

Section for Open Pickhole Detail Alternative

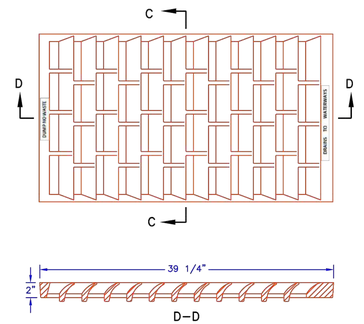
ADAMS COUNTY PUBLIC WORKS DEPARTMENT /ENGINEERING	STANDARD MANHOLE COVER for Public Structures	ADAMS COUNTY PUBLIC WORKS DEPARTMENT /CONSTRUCTION INSPECTION
4430 S. Adams County Pkwy. Brighton, CO 80601	REVISION DATE: 1/17/2019 · FILE NAME: STORM MANHOLE	4955 E. 74TH AVE. COMMERCE CITY, CO 80022



NO SCALE

NOTE:
1. GRATE SHOWN IS THE DEETER–2502. SIMILAR GRATES BY OTHER MANUFACTURERS MUST BE APPROVED BY THE COUNTY PRIOR TO USE.
2. REQUIRED FRAME IS NEENAH R–3362–1 (SINGLE) OR R–3363–1 (DOUBLE). SIMILAR FRAMES BY OTHER MANUFACTURERS MUST BE APPROVED BY THE COUNTY PRIOR TO USE.
3. GRATE & FRAME SHOWN FLAT FOR ILLUSTRATION PURPOSES ONLY.
4. ALSO SEE INLET BOX, TYPES 13 & 16 DETAIL

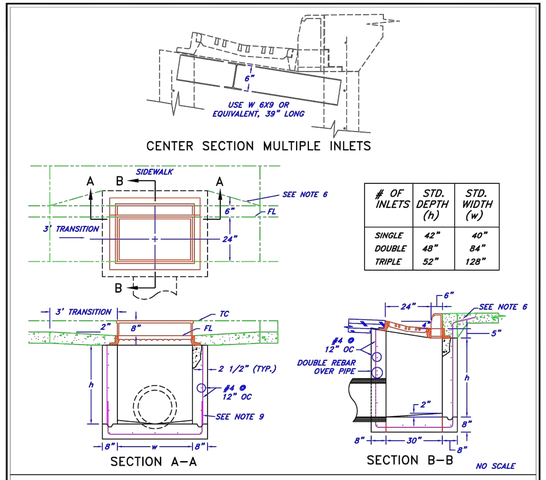
Adams County Public Works Engineering	TYPE 13 GRATE & FRAME for Public and Private Structures	Adams County Public Works Construction Insp.
4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601	REVISION DATE: 9/15/2017 · FILE NAME: 13GRATE.DWG	4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601



NO SCALE

NOTE:
1. GRATE SHOWN IS NEENAH R–3362 TYPE "L". SIMILAR GRATES BY OTHER MANUFACTURERS MUST BE APPROVED BY THE COUNTY PRIOR TO USE.
2. REQUIRED FRAME IS NEENAH R–3362–1 (SINGLE) OR R–3363–1 (DOUBLE). SIMILAR FRAMES BY OTHER MANUFACTURERS MUST BE APPROVED BY THE COUNTY PRIOR TO USE.
3. GRATE SHOWN FLAT FOR ILLUSTRATION PURPOSES ONLY.
4. ALSO SEE INLET BOX, TYPES 13 & 16 DETAIL

Adams County Public Works Engineering	TYPE 16 GRATE for Public and Private Structures	Adams County Public Works Construction Insp.
4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601	REVISION DATE: 9/15/2017 · FILE NAME: 16GRATE.DWG	4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601

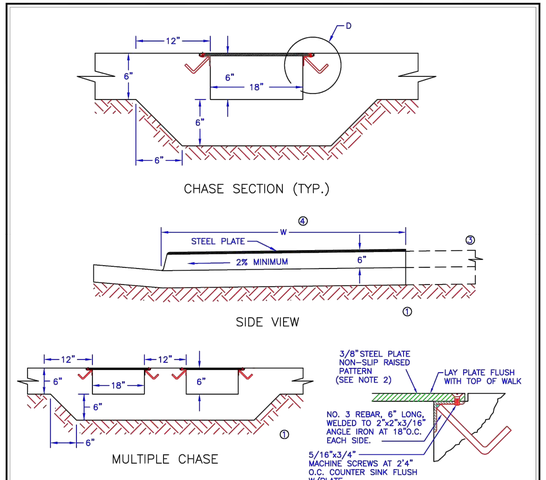


# OF INLETS	STD. DEPTH (h)	STD. WIDTH (w)
SINGLE	42"	40"
DOUBLE	48"	84"
TRIPLE	52"	128"

NO SCALE

NOTES:
1. FOR PAYMENT PURPOSES, INLET STRUCTURES SHALL INCLUDE 5'–0" CURB & GUTTER TRANSITION SECTION AT EACH END OF INLET PLUS SIDEWALK SECTIONS WHERE REQUIRED BEHIND INLET STRUCTURE AND TRANSITION SECTIONS.
2. FLOOR SLOPE MAY BE POURED MONOLITHICALLY WITH BASE.
3. OUTLET PIPES TO BE SET FLUSH WITH INSIDE FACE OF INLET WALL. BELL END TO BE PLACED ON UPSTREAM SIDE.
4. UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER, ALL TYPE 16 INLETS SHALL BE CONSTRUCTED WITH AN ADJUSTABLE CURB BOX.
5. REQUIRED FRAME IS NEENAH R–3362–1 (SINGLE) OR R–3363–1 (DOUBLE). SIMILAR FRAMES BY OTHER MANUFACTURERS MUST BE APPROVED BY THE COUNTY PRIOR TO USE.
6. EXTEND REINFORCING INTO SIDEWALK SECTION A MINIMUM OF 12". WHERE NO SIDEWALK IS TO BE PLACED, EXTEND REINFORCING INTO BACK WALL OF INLET BEHIND CURB FRAME.
7. WHERE INVERT ELEVATION IS GIVEN, IT SHALL BE CONSIDERED TO BE LOCATED AT THE FLOW LINE OF THE PIPE (OUT). BOX DIMENSIONS TO BE ADJUSTED ACCORDINGLY.
8. ALL INLET BOXES SHALL BE CAST IN PLACE CONCRETE UNLESS OTHERWISE AUTHORIZED BY THE COUNTY.
9. WHERE VERTICAL BARS ARE TO BE SPLICED, MINIMUM SPLICE LENGTH =12" OR 25d.

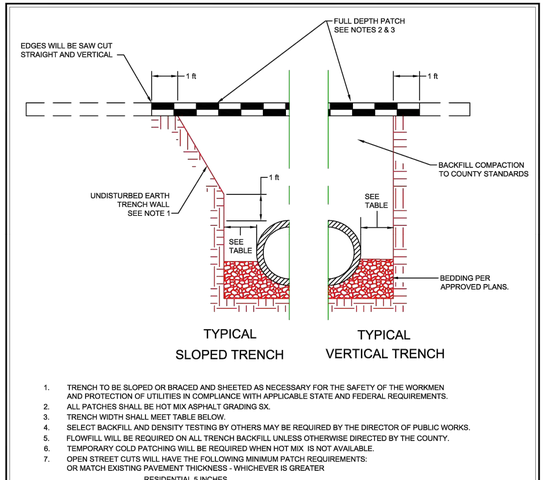
ADAMS COUNTY TRANSPORTATION DEPARTMENT /ENGINEERING	INLET BOX TYPES 13 & 16	ADAMS COUNTY TRANSPORTATION DEPARTMENT /CONSTRUCTION INSPECTION
4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601	REVISION DATE: 06/02/14 · FILE NAME: INLET_BOX.DWG	4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601



NO SCALE

NOTES:
① COMPACTED SUBGRADE MATERIAL
② CHASE SECTIONS WITHIN 25' OF INTERSECTIONS OR DRIVEWAYS ARE REQUIRED TO USE 1/2" STEEL PLATE
③ CONSTRUCT CONCRETE CHANNEL WHERE REQUIRED
④ W = 5' 6" OR MATCH EXISTING

ADAMS COUNTY TRANSPORTATION DEPARTMENT /ENGINEERING	SIDEWALK CHASE DETAILS	ADAMS COUNTY TRANSPORTATION DEPARTMENT /CONSTRUCTION INSPECTION
4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601	REVISION DATE: 06/02/14 · FILE NAME: SWLK_CHASE_D.DWG	4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601



1. TRENCH TO BE SLOPED OR BRACED AND SHEETED AS NECESSARY FOR THE SAFETY OF THE WORKMEN AND PROTECTION OF UTILITIES IN COMPLIANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS.
2. ALL PATCHES SHALL BE HOT MIX ASPHALT GRADING SX.
3. TRENCH WIDTH SHALL MEET TABLE BELOW.
4. SELECT BACKFILL AND DENSITY TESTING BY OTHERS MAY BE REQUIRED BY THE DIRECTOR OF PUBLIC WORKS.
5. FLOWFILL WILL BE REQUIRED ON ALL TRENCH BACKFILL UNLESS OTHERWISE DIRECTED BY THE COUNTY.
6. TEMPORARY COLD PATCHING WILL BE REQUIRED WHEN HOT MIX IS NOT AVAILABLE.
7. OPEN STREET CUTS WILL HAVE THE FOLLOWING MINIMUM PATCH REQUIREMENTS:
   OR MATCH EXISTING PAVEMENT THICKNESS - WHICHEVER IS GREATER
   RESIDENTIAL 5 INCHES
   COLLECTOR 7 INCHES
   ARTERIAL OR INDUSTRIAL - 9 INCHES
8. ALL CUTS WILL BE PATCHED (OR COLD PATCHED) THE SAME DAY THE CUT IS MADE.
9. CONSTRUCTION SIGNING AND BARRICADES WILL BE MAINTAINED BY THE CONTRACTOR.
10. APPROVED TRAFFIC CONTROL PLAN WILL BE REQUIRED PRIOR TO CONSTRUCTION.

NOMINAL SIZE OF PIPE, I.D.	MAXIMUM TRENCH WIDTH AT TOP OF PIPE	MINIMUM TRENCH WIDTH AT PIPE SPRINGLINE
Less than 18"	Pipe O.D. + 18"	Pipe O.D. + 12"
18" thru 48"	Pipe O.D. + 30"	Pipe O.D. + 24"
49" or more	Must have submitted Engineering Plan	

SOIL CLASSIFICATION	MINIMUM RELATIVE COMPACTION (%)	
AASHTO M 145	AASHTO T 99	AASHTO T 180
A-1	100	95
A-3	100	95
A-2-4	100	95
A-2-5	100	95
All Others	95	90

NO SCALE

ADAMS COUNTY TRANSPORTATION DEPARTMENT /ENGINEERING	TRENCH PATCHING DETAIL	ADAMS COUNTY TRANSPORTATION DEPARTMENT /CONSTRUCTION INSPECTION
4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601	REVISION DATE: 06/02/14 · FILE NAME: TRENCHPATCH_REV.DWG	4430 S. ADAMS COUNTY PKWY. BRIGHTON, CO 80601

KT ENGINEERING
12500 W. 58TH AVE. #230
ARVADA, CO 80002
P: 720.638.5190
WWW.KTENG.NET

PREPARED FOR:
HSG LAND LLC

REVISIONS:

NO.	DESCRIPTION	DATE	BY
1.			
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STAMP:
NOT FOR CONSTRUCTION

SHEET INFO:
SELTZER HEIGHTS FILING 1
DETAILS
DETAILS STORM 1

PROJECT NO:
0109-2207

DRAWN BY:
EST

DESIGNED BY:
KPT

SCALE:
1" = NA'

SUBMITTED ON:
01/20/2025

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