DOUGLAS COUNTY
COLORADO

Location and Extent Staff Report

Date: September 24, 2025

To: Douglas County Planning Commission

From: Trevor Bedford, AICP, Senior Planner TB
Jeanette Bare, AICP, Planning Manager SK for JB
Steven E. Koster, AICP, Assistant Director of Planning Services SK

Subject: **River Canyon Filing 2, 3rd Amendment, Lot 2A-1 – Location and Extent**

Project File: **LE2025-018**

Planning Commission Hearing: **October 6, 2025 @ 6:00 p.m.**

I. EXECUTIVE SUMMARY

Dominion Water and Sanitation District (DWSD) requests approval of a Location and Extent (L&E) for the proposed refurbishment and expansion of the Chatfield Basin Water Reclamation Facility (CBWRF) to provide wastewater treatment and surface water discharge to the South Platte River. The project is located between Caretaker Road and the High Line Canal, approximately 1,200 feet southwest of the intersection of Dante Drive and Waterton Road in the Roxborough area. The applicant states that the project is necessary to provide Sterling Ranch, The Range, and Louviers communities with reliable wastewater services.

The property is approximately 10 acres and is zoned General Industrial and Planning Area 2 (Industrial) of the River Canyon Planned Development. The property is located within the Pike National Forest Subarea as identified by the 2040 Comprehensive Master Plan.

II. APPLICATION INFORMATION

A. Applicant

Andrea Cole
Dominion Water and Sanitation District
9250 E Costilla Avenue
Greenwood Village, CO 80012

B. Applicant's Representative

Matt Padgett
Dominion Water and Sanitation District
9250 E Costilla Avenue
Greenwood Village, CO 80012

C. Request

The applicant requests approval of an L & E for the refurbishment and expansion of the Chatfield Basin Water Reclamation Facility (CBWRF).

D. Location

The project is located between Caretaker Road and the High Line Canal, approximately 1,200 feet southwest of the intersection of Dante Drive and Waterton Road in the Roxborough area. The attached vicinity map, zoning map, and aerial map highlight site location and existing conditions.

E. Project Description

DWSD proposes to refurbish and expand the Chatfield Basin Water Reclamation Facility (CBWRF). The improvements will allow the existing system to increase treatment capacity from 0.6 million gallons per day to 0.9 million gallon per day and incorporate treatment systems to produce higher quality effluent. No physical changes are proposed to the existing off-site discharge point.

The project includes two new metal pre-fabricated buildings; a 6,300-square-foot building for a membrane bioreactor and a 1,500-square-foot building for a fine screening area. Existing buildings will be refurbished, but the existing footprints are not expected to be expanded.

The site will be accessed via an improved gravel driveway connection to Caretaker Road. Additional site improvements include internal gravel drive and parking areas, grading, and stormwater management. An existing stormwater detention system will be retained and refurbished. The project will have exterior lighting for access and buildings. All exterior lighting will be required to comply with the Douglas County Zoning Resolution.

The applicant has proposed to mitigate odors with odor control systems. Noise impacts will be mitigated by enclosing the aeration blower in the proposed 6,300-square-foot building.

Construction is anticipated to begin with partial demolition of an aeration basin in October 2025. Most construction activities are planned to start in January 2026, with peak activity in Spring of 2026 with completion anticipated before the end of 2027. Construction is anticipated to be scheduled on weekdays from 6:00 a.m. to 5:00 p.m. During construction, approximately 22 workers will be on the site. During construction, equipment including a crane, concrete pump trucks, and forklifts will be delivered to the site. Post construction, four employees will be on site seven days a week with occasional deliveries to the site.

The project is located within the Pike National Forest Nonurban Subarea as identified by the Douglas County Comprehensive Master Plan 2040 (CMP) Section 3. Policy 3-3I.2 is to minimize the impact of development and respect the distinct character of the

Pike National Forest during development review. This project consists of upgrades to an existing wastewater treatment facility site.

III. CONTEXT

A. Background

The CBWRF was previously owned by the Roxborough Water and Sanitation District (RWSD) and was decommissioned in 2010. DWSD purchased the site with the intention of refurbishing and expanding the facility to provide service to Sterling Ranch and other customers within its service area.

B. Adjacent Land Uses and Zoning

Adjacent properties include the High Line Canal, vacant properties, and a roadway tract.

Zoning and Land Use

Direction	Zoning	Land Use
North	River Canyon Planned Development and General Industrial	Roadway tract and vacant
South	Agricultural One	High Line Canal
East	River Canyon Planned Development and General Industrial	Vacant
West	River Canyon Planned Development and General Industrial	Vacant

IV. PHYSICAL SITE CHARACTERISTICS

A. Site Characteristics and Constraints

The site is developed with an existing, decommissioned wastewater treatment facility. There is 100-year floodplain along the eastern property line.

B. Access

Access to the site will be via an existing driveway from Caretaker Road. The applicant proposes to refurbish the driveway with gravel.

D. Drainage and Erosion

The applicant provided a drainage report for review and has proposed to use and refurbish an existing detention ponds. Engineering had not yet responded to the referral request at the writing of this staff report. Approval of any necessary plans and permits including GESC and construction plans will be required prior to commencement of construction.

E. Floodplain

There is 100-year floodplain located along the eastern property line. Douglas County Engineering will review the project for any potential impacts and had not yet

responded to the referral request at the writing of this staff report. If any floodplain permits are necessary, approval of these will be required prior to commencement of construction.

V. PROVISION OF SERVICES

A. Schools

This is a nonresidential project that will not impact school services.

B. Fire Protection

West Metro Fire Protection District (WMFD) provides fire and emergency services for the site. A referral request was also sent to South Metro Fire Rescue (SMFR) who may also provide services within the area. At the writing of this staff report, WMFD and SMFR had not provided a response to the application. The applicant will be required to obtain any approvals or permits necessary from WMFD and SMFR prior to commencement of construction.

C. Sheriff Services

The Douglas County Sheriff's Office (DCSO) will provide police protection to the site. The Office of Emergency Management responded to the referral request with no comment. At the writing of this staff report, responses had not been received from E911 or DCSO.

D. Water and Sanitation

The purpose of the project is to provide wastewater services to nearby communities including Sterling Ranch, the Range, and Louviers.

E. Utilities

Area utility service providers were provided a referral on this application. CORE Electric Cooperative responded to the referral request that the project is outside of their service area. At the writing of this staff report, no other utility provider issued comments on the application.

F. Other Required Processes and Permits

In addition to the L & E approval, the following permits and other approvals may be required prior to commencement of construction:

- Engineering: Construction Drawings approval, GESC report and plans approval, approval of any other necessary plans and permits.
- Colorado Department of Public Health and Environment: Discharge permit, site application permit.
- Building Division: Building permits.
- West Metro Fire Department: Any necessary permits.
- South Metro Fire Department: Any necessary permits.

VI. PUBLIC NOTICE AND INPUT

Courtesy notices of an application in progress were sent to adjacent property owners. At the preparation of the staff report, no members of the public had responded to the courtesy notices. Any comments received will be provided prior to the hearing. Referral response requests were sent to required referral agencies on September 19, 2025. Referral responses are due at the conclusion of the referral period on October 2, 2025, or prior to the Planning Commission Hearing.

Referral agency responses received to date are attached to the staff report for reference. The Chatfield Community Association provided a referral response with concerns that approving the project prior to CDPHE permits and discharge permits being finalized is premature and noted concerns about water quality due to proximity to the floodplain. Further responses received through the end of the referral period will be provided to the Planning Commission prior to the hearing and added to the project record.

VII. STAFF ASSESSMENT

Staff evaluated the application in accordance with Section 32 of the DCZR. Should the Planning Commission approve the L & E request, the applicant will be required to receive approval of all necessary permits prior to commencement of the project.

ATTACHMENTS **PAGE**

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LAND USE APPLICATION

Please complete, sign, and date this application. Return it with the required items listed on the Submittal Checklist to planningsubmittals@douglas.co.us. Submittals may also be mailed or submitted in person to Planning Services. *NOTE: The Planning Commission or the Board of County Commissioners should not be contacted regarding an open application*.

OFFICE USE ONLY
PROJECT TITLE: River Canyon Filing 2, 3rd Amendment, Lot 2A-1
PROJECT NUMBER: LE2025-018

PROJECT TYPE: Location and Extents

MARKETING NAME: Chatfield Basin Water Reclamation Facility Refurbishment

PRESUBMITTAL REVIEW PROJECT NUMBER: PS2024-215 (updated from PS2023-126)

PROJECT SITE:

Address: 11310 Caretaker Road, Littleton, CO 80125

State Parcel Number(s): 2227-344-05-001

Subdivision/Block#/Lot# *(if platted)*: River Canyon Filing 2, 3rd AMD, Lot 2A-1

PROPERTY OWNER(S):

Name(s): Dominion Water & Sanitation District

Address: 9250 E Costilla Avenue, Greenwood Village, CO 80012

Phone: (720) 556-6840

Email: andrea.cole@dominionwsd.com

AUTHORIZED REPRESENTATIVE: *(Notarized Letter of Authorization is required from the property owner, unless the owner is acting as the representative)*

Name: Matt Padgett

Address: 9250 E Costilla Avenue, Greenwood Village, CO 80012

Phone: (720) 446-9141

Email: matt.padgett@dominionwsd.com

To the best of my knowledge, the information contained on this application is true and correct. I have received the County's information sheet regarding the *Preble's Meadow Jumping Mouse*.

Signed by:
Matt Padgett
067109D22B52400...

Applicant Signature-Matthew Padgett

August 25, 2025
Date

PREBLE'S MEADOW JUMPING MOUSE

What is the Preble's Meadow Jumping Mouse?
The Preble's Meadow Jumping Mouse is a rare mouse designated by the United States Fish and Wildlife Service as a "threatened species" under the Endangered Species Act. The federal threatened species designation prohibits the unlawful "take" of the Preble's Meadow Jumping Mouse or its habitat.

Where does the mouse live?
The Preble's Meadow Jumping Mouse lives primarily in heavily vegetated riparian habitats. In Douglas County, the mouse has been located in or near many drainages, including tributaries and the mainstream reaches of East and West Plum Creek. However, any stream reach or potential habitat within Douglas County may be subject to the requirements of the Endangered Species Act. The mouse has also been found in Boulder, Elbert, El Paso, Jefferson, and Larimer counties and in parts of Wyoming.

What activities may be considered a violation of the Endangered Species Act?
In its listing decision, the United States Fish and Wildlife Service identified activities that may result in violation of the Endangered Species Act to include:

1. Unauthorized or unpermitted collection, handling, harassing, or taking of the species;

2. Activities that directly or indirectly result in the actual death or injury death of the mouse, or that modify the known habitat of the species, thereby significantly modifying essential behavioral patterns (e.g., plowing, mowing, or cutting; conversion of wet meadow or riparian habitats to residential, commercial, industrial, recreational areas, or cropland; overgrazing; road and trail construction; water development or impoundment; mineral extraction or processing; off-highway vehicle use; and, hazardous material cleanup or bioremediation); and;

3. The application or discharge of agrichemicals or other pollutants and pesticides onto plants, soil, ground water, or other surfaces in violation of label directions or any use following Service notification that such use, application or discharge is likely to harm the species; would be evidence of unauthorized use, application or discharge.

How to determine if a proposed activity would violate the Endangered Species Act.
Any questions regarding whether an activity will impact the Preble's Meadow Jumping Mouse or its habitat should be directed to:

Field Office Supervisor
USFWS Colorado ES Field Office (MS 65412)
Denver Federal Center
PO Box 25486
Denver, CO 80225-0486
303-236-4773
ColoradoES@fws.gov

Where to find more information on the Preble's Meadow Jumping Mouse.
More information can be found at the US Fish and Wildlife Service website at:
https://ecos.fws.gov/ecp/species/4090

Any approval given by Douglas County does not obviate the need to comply with applicable federal, state, or local laws and/or regulations.

Location and Extents Report – Chatfield Basin Water Reclamation Facility

Douglas County, Colorado

Stantec

Prepared for:
Douglas County

Prepared by:
Dominion Water & Sanitation District &
Stantec Consulting Services Inc.

August 26, 2025

Project/File:
181301899

Stantec Consulting Services Inc.

Revision Schedule

Revision	Description	Author	Date	Independent Review	Date
0	For Approval	S. Cihelka	8/18/2025	M. Reimann	8/20/25

Disclaimer

The conclusions in the Report titled Location and Extents Report - Douglas County are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from Dominion Water & Sanitation District (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided by the Client to applicable authorities having jurisdiction and to other third parties in connection with the project, Stantec disclaims any legal duty based upon warranty, reliance or any other theory to any third party, and will not be liable to such third party for any damages or losses of any kind that may result.

Prepared by: _____
Signature

Susan Cihelka
Printed Name

Reviewed by: _____

Anni Santos
Printed Name

Approved by: _____
Signature

Matt Reimann, PE
Printed Name

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Engineer's Letter

August 26, 2025

Douglas County
Department of Community Development – Planning Services
100 Third Street,
Castle Rock, CO 80104

RE: Dominion Water and Sanitation District - Chatfield Basin Water Reclamation Facility Refurbishment and Expansion Location & Extents Planning and Engineering Review Application (PS2024-215 – River Canyon #2-3rd Amendment – Lot 2A-1)

To Whom It May Concern,

Dominion Water and Sanitation District (DWSD) requests for Douglas County to review and approve the Location and Extents Permit Application for the refurbishment and expansion of Chatfield Basin Water Reclamation Facility (CBWRF). On behalf of DWSD, Stantec Consulting Services Inc. (Stantec) has prepared the requested documents from the Pre-Submittal Review (PS2024-215, updated from PS2023-126) meeting held on October 17, 2024. The Grading Erosion and Sedimentation Control (GESC) Permit Application, Preliminary Plan and Report have been submitted for concurrent review is preliminary and grading and elevations may change as design progresses.

This is a progressive design-build project, in which Stantec is serving as the designer, with PCL Construction, Inc. (PCL) serving as the contractor for the detailed design and construction of the project. This project is broken into four (4) work packages to streamline the design and construction process.

- Work Package 1 (WP1) includes partial demolition of the Aeration Basin structure above ground and refurbishment of concrete structure below grade. WP1 will also include temporary equalization bypass modifications for the Roxborough Water Sanitation District (RWSD) Lift Station. The demolition permit is being completed separately by the demolition sub-contractor. A Small Utilities GESC was submitted for review to Douglas County on August 21, 2025.

- Work Package 2 (WP2) is for early procurement of long-lead equipment and does not involve any construction activity.

- Work Package 3 (WP3) consists of the civil grading, stormwater management, buried utilities and any other work not associated with new or existing structures on the site. It also includes partial demolition inside existing structures in preparation for the new work under Work Package 4.

- Work Package 4 (WP4) consists all of the new work associated with the refurbishment project across all new and existing structures. This includes upgrading fixtures and utility connections and installation of two new pre-engineered metal buildings for new wastewater treatment processes and installation of a new enclosed internal power distribution housing.

A more detailed outline of the proposed treatment and site improvements are provided in the Project Narrative of this report.

DWSD appreciates the County's input and guidance in support of this Project. If you have any questions or require additional information, please contact me.

Respectfully,

Matthew Reimann, P.E.
Project Manager

C: (720) 365-9396
E: Matthew.Reimann@Stantec.com

cc:

Pamela Grover
Dominion WSD
(303) 325-6457
Pamela.Grover@DominionWSD.com

Acronyms / Abbreviations

Acronym / Abbreviation	Full Name
CBWRF	Chatfield Basin Water Reclamation Facility
CDPHE	Colorado Department of Public Health and Environment
DWSD	Dominion Water Sanitation District
EDB	Extended Detention Basin
GESC	Grading, Erosion, and Sediment Control
MBR-AS	Membrane Bioreactor Activated Sludge
mgd	Million Gallons per Day
RWSD	Roxborough Water Sanitation District
SPRWRRF	South Platte Renew Water Resource Recovery Facility
WQCC	Water Quality Control Commission

1 Project Narrative

On behalf of Dominion Water & Sanitation District (DWSD), Stantec has prepared the project narrative in accordance with the Location and Extent submission to Douglas County for the proposed refurbishment and expansion of Chatfield Basin Water Reclamation Facility (CBWRF), located in Littleton, Douglas County, Colorado to provide wastewater treatment and surface water discharge to the South Platte River. In addition to typical wastewater effluent criteria stipulated by the Colorado Department of Public Health and Environment (CDPHE). The expansion of the wastewater treatment facility will provide Sterling Ranch, The Range, and Louvier communities with reliable wastewater services. Louvier is a small, unincorporated community in Douglas County that currently does not have reliable water or wastewater services.

CBWRF is owned and operated by DWSD, formerly owned by Roxborough Water and Sanitation District (RWSD). It was decommissioned prior to 2010 and was replaced with a lift station. The lift station conveys wastewater to a City of Littleton interceptor, which eventually flows into the South Platte Renew Water Resource Recovery Facility (SPRWRRF) for treatment. DWSD purchased the abandoned CBWRF from RWSD with the intention of refurbishing and expanding the facility to provide wastewater treatment.

The discharge easement was purchased by DWSD at the time of purchase of the wastewater treatment facility. The agreement requires the easement to be assigned to DWSD by Denver Water. DWSD is still working toward this assignment. In addition to the discharge easement, an easement with Xcel also exists for the utility power feed for the site.

The CBWRF has an existing discharge permit (CO0041645, administratively extended in May 2016) for 0.6 MGD which will allow for discharge to the South Platte River. A permit modification has been filed with the Colorado Department of Public Health and Environment (CDPHE), Water Quality Control Commission (WQCC) to expand the discharge permit to 0.9 MGD. The permit modification will be secured prior to the plant exceeding 0.6 MGD capacity. In addition, the site application has been filed with CDPHE and is currently under review. Other necessary permits will be submitted later during the course of design as needed.

This is a design-build project that will expand the existing wastewater treatment capacity of CBWRF, in which Stantec Consulting Services Inc. (Stantec) is serving as the designer, with PCL Construction, Inc. (PCL) serving as the contractor for the detailed design and construction of the project, which is broken into four (4) work packages to streamline the design and construction process.

- Work Package 1 includes partial demolition of the Aeration Basin structure and temporary equalization bypass modifications for the Roxborough Water Sanitation District (RWSD) Lift Station. The partial demotion includes removing the walls and roof while leaving the below-grade tankage intact. The CMU walls are in poor structural condition, however the concrete structure below grade is in good condition and will be refurbished. The demolition permit is being completed separately by the demolition sub-contractor.

- Work Package 2 is for early procurement of long-lead equipment and does not involve any construction activity.

- Work Package 3 consists of the civil grading, stormwater management, buried utilities and any other work not associated with new or existing structures on the site. It also includes partial demolition inside existing structures in preparation for the new work under Work Package 4. This includes demolition of existing HVAC equipment, electrical and mechanical equipment along with minor structure and architectural work such as removing knockout panels, roofing membranes and corroded metal doors.
- Work Package 4 consists all of the new work associated with the refurbishment project across all new and existing structures. This includes installation of new roofing, doors, electrical, plumbing, HVAC and mechanical equipment in the existing structures, two new pre-engineered metal buildings for new wastewater treatment processes and installation of a new "E-House" which is a pre-fabricated enclosure housing switchboards that distribute utility power across the site.

The existing wastewater treatment process at the CBWRF consisted of coarse screening and aerated grit removal, conventional activated sludge biological nutrient removal supplemented with chemical phosphorus removal, secondary clarifier, and disinfection with sodium hypochlorite before release into the South Platte River. Waste solids were aerobically digested before either wet sludge hauling or drying before final disposal. The facility has been out of service for over a decade and the proposed improvements consist of re-using or re-purposing all hydraulic structures on the site while replacing the mechanical equipment and adding two new treatment processes/buildings to meet expected effluent discharge limits.

The proposed improvements will update the existing wastewater treatment system to increase the treatment capacity of the plant from 0.6 million gallons per day (mgd) to 0.9 mgd, while producing higher quality effluent. The following existing buildings will be refurbished and feature utility enhancements, but the building's existing footprint are not to be expanded: Headworks (Area 10), Biological Nutrient Removal (BNR) (Area 20), Equalization Tank (Area 18, re-purposed aerobic digester), Chlorine Contact Tank and Chemical Storage (Area 80). The proposed prefabricated Electrical Utility Room (E-House) and transformer will be placed on the site of the existing Aeration Basin Blower Room. Proposed new building additions will include a Fine Screening (Area 15) – 1,500-sqft building, Membrane Bioreactor (Area 30) – 6,300-sqft and installation of a packaged odor control system (Area 70) will mitigate odors stemming from the untreated wastewater around the primary treatment and flow equalization processes. The odor control system servicing the influent splitter structure and Areas 10, 15 & 18 will treat foul air and ferric chloride dosing will also reduce the amount of hydrogen sulfide produced. The aeration blowers will be located inside the new Area 30 building to mitigate noise pollution, with the discharge air piping passing over to the Area 20 BNR tanks. A Backup Generator to support wastewater treatment efforts during emergency outages. The proposed Locations & Extents Plan Exhibit is included in (**Appendix A)**.

The existing preliminary treatment system is to retain and refurbish the existing headworks building to include pre-screening and grit removal upstream of a new Fine Screening building. The existing secondary bioreactor basins and clarifiers will be converted to a Membrane Bioreactor – Activated Sludge (MBR-AS) process tankage to provide high-quality effluent. The mixed liquor will be pumped into a pre-fabricated MBR tank where the membrane permeate will be sent for disinfection before final outfall. The existing chemical storage and pumping and piping facilities will be replaced in the existing chemical building with the addition of a supplemental carbon source feed system to enhance nitrate removal.

CBWRF is a private facility, and public improvements will be minimal. All proposed improvements will be contained on the project site. Site improvements will feature exterior lighting to new proposed buildings, and concrete pads at the access points. A pole-mounted light will be added adjacent to the Electrical Transformers and Backup Generators to provide visibility to facility staff. Other project improvements will include utilizing site lighting that seeks to minimize light pollution while providing a safe working environment for DWSD personnel. All proposed exterior lighting will conform to Douglas County's Zoning Resolution standards as detailed in Section 30. No landscaping, parking lots, paved sidewalks will be added on site. The existing gravel lot will be restored post construction. The access driveway through the site will also allow for large delivery vehicles to navigate the site without having to reverse.

This project was developed in compliance with the Comprehensive Master Plan for Douglas County.

2 Location and Extents Report

2.1 Community Impact Report

The objective of this project is to refurbish and expand the existing wastewater treatment capacity of Chatfield Basin Water Reclamation Facility. The expansion of the treatment facility will provide the communities of Sterling Ranch and Louviers more stable wastewater treatment while providing critical infrastructure to support the continued development of the Sterling Ranch Subdivision and ensure development occurs concurrently with necessary services and infrastructure.

Stormwater Detention is currently provided and the improvements proposed in this project will retain and improve them to continue treating stormwater runoff as required by the County. To reduce runoff, paved surfaces will be kept to a minimum and will be limited to landings adjacent doorways for foot and vehicle access.

2.2 Drainage Improvements

The proposed site improvements will result in an overall increase in the impervious area draining to the South Platte River. The existing stormwater detention system, permitted in 2008 was designed to accommodate 100-year design flows will be retained, and overall drainage patterns within the site will change minimally. Proposed improvements to the project site will restore the existing contours and raise the top of the bank six inches to restore the grade to meet the original permit for the Storm Water Detention Basin. A channel will be created to connect Basins 5 and 6 to flow into the overflow pond. The Phase III Drainage Report and Appendices (**Appendix C** of the GESC Report) lays out additional details how the runoff generated from the increased impervious area will be accommodated with the existing permitted system with minimal modifications. The Phase III Drainage Report is in accordance with the requirements of the Douglas County Storm Drainage and Design and Technical Criteria Manual, as required.

2.3 Traffic Impact

Existing and future traffic conditions are anticipated to have nominal impacts to future traffic or roadway infrastructure outside construction, with 12 trips per hour projected as the maximum total peak hour trips occurring in future conditions. During peak construction (March 2026), there will be increased traffic due to construction workers and facility operators accessing the project site. The maximum total peak hour number of trips is anticipated to be 38 trips per hour peak construction. No lane closures are anticipated as part of this project. A traffic narrative is included as **Appendix C**.

2.4 Stormwater Quality Recommendations

Douglas County requires post-construction control measures to prevent or reduce the discharge of pollutants into Douglas County's storm drain system. To satisfy this requirement, the configuration of new impervious areas are being proposed to (1) minimize directly connected impervious area by allowing for pervious areas to receive runoff from unconnected impervious areas before the extended detention basin (EDB) receives runoff, and (2) the proposed modifications to the existing EDB are intended to "Implement Control Measures with Water Quality Capture Volume with Slow Release" by designing the outfall control structure and pond volume for Full Spectrum Detention, with controlled release rates for the required Water Quality Capture Volume and 100-year detention volume, per Chapter 13 of the Douglas County Storm Drainage Design and Technical Criteria Manual.

2.5 Water Quality On Site

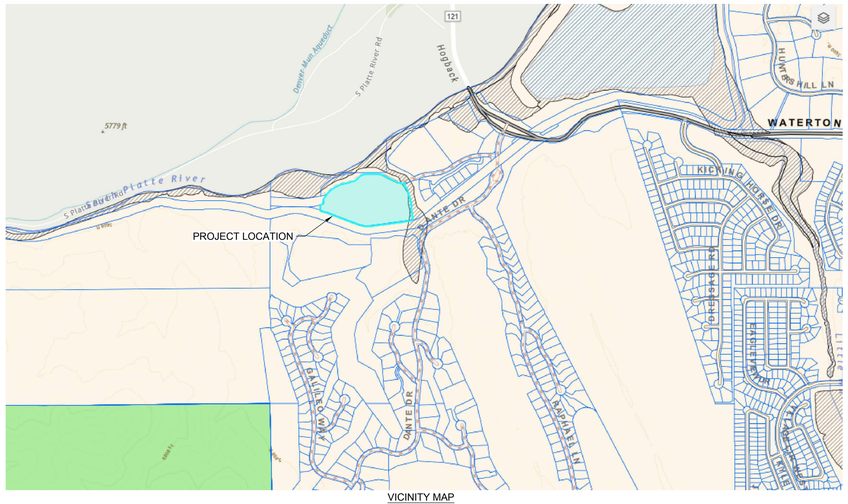
The Stormwater Detention and Infiltration Design Data Sheet for Chatfield Basin WRF (Facility ID: SWDF-20250619094037) was completed by Stantec and submitted to the Colorado Stormwater Council for review on June 19, 2025. The Stormwater Detention and Infiltration Design Data Sheet and submittal confirmation have been provided in **Appendix D**.

2.6 Construction Activities

Construction activities will be wide ranging within the existing site. Partial demolition of the aeration basin structure is scheduled to begin in October of 2025 and the main construction activities begin in January 2026, peaking in late spring 2026 for the structural work to construct the new building foundations and erect the new structures. Construction activities will continue through majority of 2027, wrapping up in the fall. Startup and commissioning are scheduled to be completed by the end of 2027. During the course of the construction, the work will take place on weekdays beginning October 2025 and be completed by December 2027. Construction activities will take place during construction hours 6:00am to 5:00pm, Monday through Friday to minimize noise pollution to neighboring properties. Any work conducted after hours would be considered special circumstances requiring work outside of normal hours as needed to relieve project constraints. A Grading, Erosion, and Sediment Control (GESC) Plan and report will be provided during the Engineering Services Review process.

Appendix A

Location & Extents Plan Exhibit



VICINITY MAP

LEGAL DESCRIPTION

A PARCEL OF LAN BEING A PART OF THE NORTH HALF OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 6 SOUTH, RANGE 69 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY DOUGLAS, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

LOT 2A, RIVER CANYON FILING NO. 2, 1ST AMENDMENT RECORDED AT RECEPTION NO. 201600108 IN THE OFFICIAL RECORDS OF DOUGLAS COUNTY, COLRADO CLERK AND RECORDER'S OFFICE.

CONTAINING AN AREA OF 12.530 ACRES, (545,803 SQUARE FEET), MORE OR LESS.

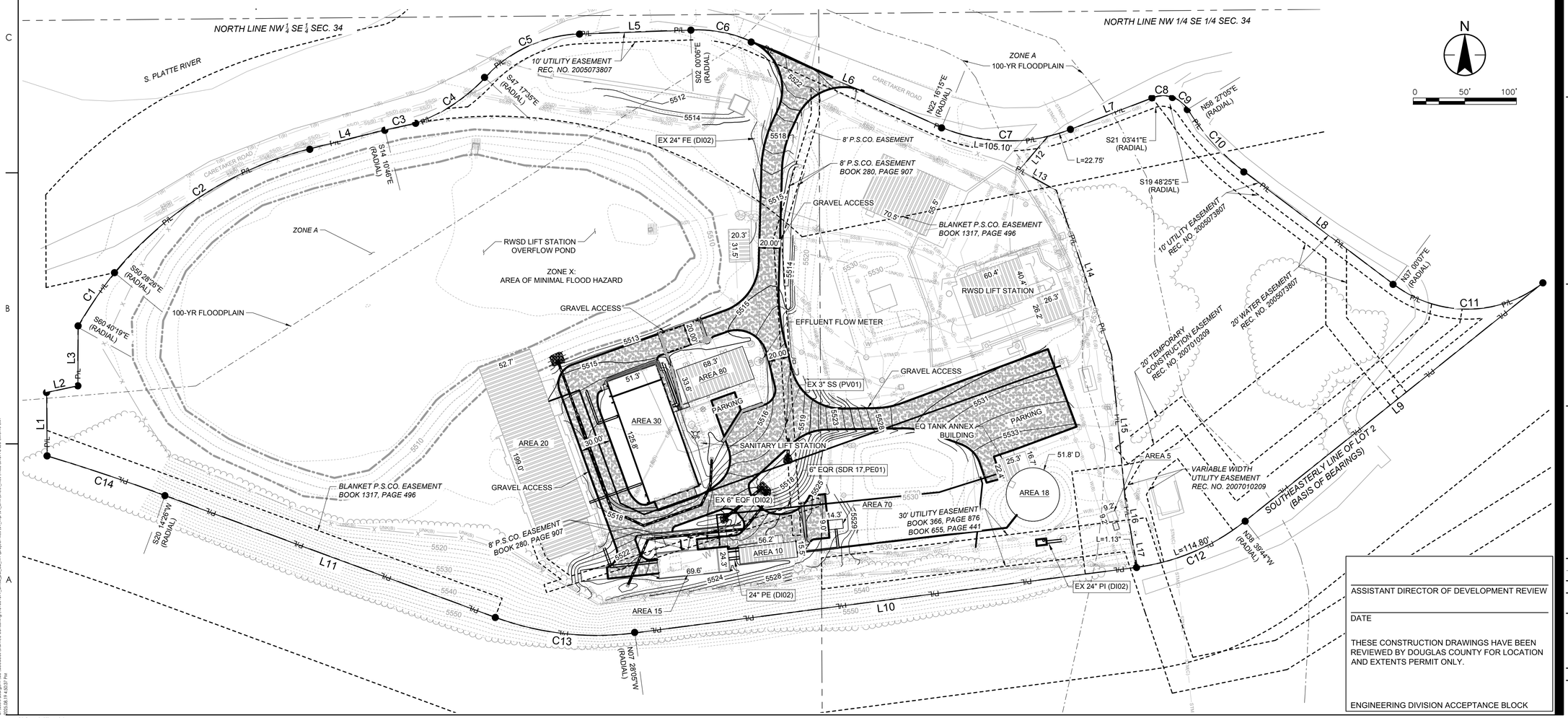
BUILDING DESCRIPTION			
AREA	BUILDING DESCRIPTION	BLDG ELEVATION (FT)	BLDG HEIGHT (FT)
5	ELECTRICAL HOUSING	5528.86	5540.86
10	HEADWORKS	5525.68	5541.01
15	FINE SCREENING*	5524.50	5546.50
18	EQUALIZATION TANK	5534.00	5543.25
20	BIOLOGICAL NUTRIENT REMOVAL	5518.69	5518.69
30	MEMBRANE BIOREACTOR*	5518.00	5549.00
70	ODOR CONTROL	5526.00	5535.00
80	CCT, CHEMICAL, STORAGE AND DOSING	5516.23	5527.15

*pending manufacturer details

WATER & SEWAGE MANAGEMENT	
WATER	DENVER WATER
SEWAGE	ROXBOUROUGH WATER & SANITATION DISTRICT

LINE TABLE		
LINE	BEARING	LENGTH
L1	N00 19'04"W	61.46'
L2	N77 48'26"E	30.71'
L3	N00 19'04"W	57.32'
L4	N75 47'21"E	75.00'
L5	N87 59' 55"E	107.92'
L6	S65 43'43"E	202.28'
L7	N68 56'07"E	84.84'
L8	D52 59' 57"E	180.99'
L9	S51 20'16"W	369.46'
L10	S82 31'56"W	490.08'
L11	N69 45' 34"W	340.87'
L12	N40 23'22"E	42.66'
L13	N60 55'09"W	40.98'
L14	N18 31'24"W	168.00'
L15	N05 26'55"W	139.83'
L16	N09 45'41"W	36.76'
L17	N10 31'12"W	30.87'

CURVE TABLE			
CURVE	DELTA	RADIUS	LENGTH
C1	10 11'51"	359.50'	63.98'
C2	36 15'46"	359.50'	227.53'
C3	4 00'02"	436.91'	30.51'
C4	27 31'31"	169.00'	81.19'
C5	45 17'32"	131.00'	103.56'
C6	26 18'24"	131.00'	60.15'
C7	43 20'37"	169.00'	127.85'
C8	40 51'56"	28.00'	19.97'
C9	38 38'45"	28.00'	18.89'
C10	21 27'00"	219.00'	81.99'
C11	75 12'50"	119.00'	156.22'
C12	31 11'40"	212.94'	115.93'
C13	27 42'31"	284.25'	137.47'
C14	3 28'28"	1985.08'	120.38'



ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

THESE CONSTRUCTION DRAWINGS HAVE BEEN REVIEWED BY DOUGLAS COUNTY FOR LOCATION AND EXTENTS PERMIT ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

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Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

Permit/Seal

Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD. LITTLETON, CO 80125

Project No.: 181301899
File Name: 01899C-LOC-EXTENTS-EXH

Scale: 1"=50'

JS	SC	RM	2025.08.19
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
LOCATION AND EXTENTS - EXHIBIT

Revision: 001

Drawing No.
LOE-EXH

ORIGINAL SHEET - ANSI D

Appendix B

Construction Plan

CHATFIELD BASIN WATER RECLAMATION FACILITY REFURBISHMENT
WORK PACKAGE 3
AUGUST 2025

SHEET	DRAWING NUMBER	DRAWING TITLE
L&E		
1	G-001	COVER
2	G-002	ABBREVIATIONS
3	G-003	SYMBOLS
4	C-001	GENERAL NOTES AND SYMBOLS
5	C-002	STANDARD DETAILS -I
6	C-003	STANDARD DETAILS -I
7	C-004	LOCATION CONTROL PLAN
8	C-101	OVERALL SITE PLAN
9	C-102	ENLARGED SITE PLAN - AREA 1
10	C-103	ENLARGED SITE PLAN - AREA 2
11	C-104	ENLARGED SITE PLAN - AREA 3
12	CG-101	OVERALL GRADING PLAN
13	CG-102	ENLARGED GRADING PLAN - AREA 1
14	CG-103	ENLARGED GRADING PLAN - AREA 2
15	CG-104	ENLARGED GRADING PLAN - AREA 3
16	CU-101	OVERALL YARD PIPING KEYMAP
17	CU-102	ENLARGED UTILITY PLAN AREA 1
18	CU-103	ENLARGED UTILITY PLAN AREA 2
19	C-202	PIPING PROFILES 1-3
20	C-203	PIPING PROFILES 4-6
21	C-204	PIPING PROFILE
22	C-205	PIPING PROFILE
23	C-207	PIPING PROFILE
24	C-208	PIPING PROFILE

CONTACT INFORMATION

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PHONE: (520) 975-2727

CONTRACTOR
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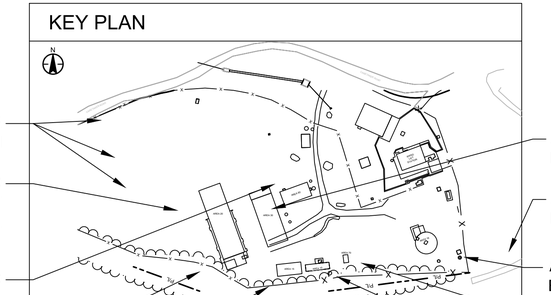
JEFF SCHEBLE (PROJECT MANAGER)
EMAIL: JSCHEBLE@PCL.COM
PHONE: (720) 840-3271

LOCATION PLAN
SCALE: N.T.S

KEY PLAN



FUTURE EXPANSION
AREA 20 BIOLOGICAL NUTRIENT REMOVAL
AREA 80 CCT AND CHEMICAL STORAGE
AREA 05 E-HOUSE, TRANSFORMER AND BACKUP GENERATOR
AREA 15 FINE SCREENS
AREA 30 MEMBRANE BIOREACTOR
AREA 05 INFLUENT SPLITTER
AREA 18 EQUALIZATION TANK
AREA 70 ODOR CONTROL
AREA 10 HEADWORKS

AREA KEY PLAN
SCALE: N.T.S

THE CONSTRUCTION PLANS INCLUDED HEREIN WERE PREPARED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE REQUIREMENTS OF THE ROADWAY DESIGN AND CONSTRUCTION STANDARDS AND STORM DRAINAGE DESIGN AND TECHNICAL CRITERIA OF DOUGLAS COUNTY, AS AMENDED.

CIVIL CONSTRUCTION PLANS PREPARED BY:

ZAK SARGENT, PE STANTEC	AUG 18, 2025	66476
	DATE	PE NUMBER

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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Issued	By	Appd	YYYY.MM.DD
A WORK PACKAGE 3 DRAFT	SSC	ZS	2025.08.20
B IFP - L&E	CLC	SRT	2025.06.XX

Revision	By	Appd	YYYY.MM.DD
0			

Permit/Seal

Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD, LITTLETON, CO 80125

Project No.: 181301899
File Name: 01899_G000_001-TEMP

Scale: NTS

KN	MCR	SRT	2025.08.01
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
GENERAL
COVER

Revision:

Drawing No.
G-001

A

A	AIR/ AMPERE
A/C	AIR CONDITIONING
A/R	AIR RELEASE
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS
AB	ANCHOR BOLT
ABAN	ABANDON
ABND	ABANDONED
ABBR	ABBREVIATION
ABS	ABSOLUTE TEMPERATURE
AC	ACTIVATED CARBON/ ASPHALTIC CONC/ ALTERNATING CURRENT
ACI	AMERICAN CONCRETE INTERNATIONAL
ACOUS	ACOUSTIC/ ACOUSTICAL
ACP	ASBESTOS CEMENT PIPE/ ASPHALTIC CONCRETE PAVEMENT
ADD	ADDITIONAL
ADH	ADHESIVE
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AISC	AMERICAN INSTITUTE OF STEEL CONST
ALT	ALTERNATE
ALUM	ALUMINUM/ ALUM
AMB	AMBIENT
ANSI	AMERICAN NATIONAL STANDARDS INST
API	AMERICAN PETROLEUM INSTITUTE
APPD	APPROVED
APPROX	APPROXIMATE
APPURTS	APPURTENANCES
ARCH	ARCHITECTURE
ASME	AMERICAN SOCIETY OF MECHANICAL ENG
ASPH	ASPHALT
ASTM	AMERICAN SOCIETY FOR TEST & MATERIALS
AT	ACOUSTICAL TILE
ATM	ATMOSPHERE
AV/AR	AIR VACUUM AND AIR RELEASE VALVE
AVE	AVENUE
AWPA	AMERICAN WOOD PRESERVERS ASSOC
AWS	AMERICAN WELDING SOCIETY
AWWA	AMERICAN WATER WORKS ASSOCIATION

B

B&S	BELL AND SPIGOT
B/W	BACK OF WALL/ BACK OF WALK
BC	BEGIN CURVE/ BOLT CIRCLE/ BETWEEN CENTERS/ BACK OF CURVE
BCR	BEGIN CURB RETURN
BD	BOARD
BDRY	BOUNDARY
BF	BLIND FLANGE/ BOTTOM OF FOOTING
BFP	BACK FLOW PREVENTER
BFV	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BLK	BLACK/ BLOCK
BLKG	BLOCKING
BLVD	BOULEVARD
BM	BEAM/ BENCH MARK
BO	BLOW-OFF ASSEMBLY
BOD	BIOCHEMICAL OXYGEN DEMAND
BOP	BOTTOM OF PIPE
BOT	BOTTOM
BPV	BACK PRESSURE VALVE
BRK	BRICK/ BREAK
BSMT	BASEMENT
BT	BOLT
BTU	BRITISH THERMAL UNIT
BV	BALL VALVE
BVC	BEGIN VERTICAL CURVE
BWV	BACK WATER VALVE

C

C	CENTIGRADE/ CHANNEL/ CEMENT
C&G	CURB AND GUTTER
CAB	CABINET/ CRUSHED AGGREGATE BASE
CAP	CAPACITY
CATS	CASING TEST STATION
CATV	CABLE TELEVISION
CB	CATCH BASIN/ CHALKBOARD/ CURB
CBWRF	CHATFIELD BASIN WATER RECLAMATION FACILITY
CC	CLOSED CIRCUIT TV/ CENTER TO CENTER
CD	CEILING DIFFUSER
CEM	CEMENT
CF	CURB FACE/ CUBIC FOOT
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CHEM	CHEMICAL
CHG	CHANGE
CHKD	CHECKERED
CI	CAST IRON
CIP	CAST IRON PIPE/ CAST IN PLACE
CIPP	CAST IN PLACE PIPE
CJ	CONSTRUCTION JOINT
CL	CENTERLINE
CL2	CHLORINE
CLF	CHAIN LINK FENCE
CLG	CEILING
CLOS	CLOSET
CLR	CLEAR/ CLEARANCE
CMB	CRUSHED MISCELLANEOUS BASE
CMC	CEMENT MORTAR-COATED
CML	CEMENT MORTAR-LINED
CML&C	CEMENT MORTAR-LINED AND COATED
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COL	COLUMN
COMM	COMMUNICATIONS CABLE
COMP	COMPRESSOR
CONC	CONCRETE/ CONCENTRIC
COND	CONDENSER/ CONDENSATE
CONN	CONNECTION
CONST	CONSTRUCT/ CONSTRUCTION
CONT	CONTINUED/ CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
COR	CORNER
COTG	CLEANOUT TO GRADE
CPLG	COUPLING
CPVC	CHLORINATED POLYVINYL CHLORIDE
CS	CAST STEEL
CSP	CORRUGATED STEEL PIPE
CSTS	CURRENT SPAN TEST STATION
CT	CERAMIC TILE
CTR	CENTER
CTS	CORROSION TEST STATION
CTSK	COUNTERSUNK
CU	COPPER/ CUBIC
CULV	CULVERT
CV	CHECK VALVE
CY	CUBIC YARD
CYL	CYLINDER

D

d	PENNY
DAD	DOUBLE ACTING DOOR
DAFT	DISSOLVED AIR FLOTATION THICKENER
DB	DIRECT BURY
DBL	DOUBLE
DC	DIRECT CURRENT
DEG	DEGREE
DET	DETAIL
DF	DRINKING FOUNTAIN/ DOUGLAS FIR
DG	DOOR GRILL
DH	DOUBLE HUNG
DI	DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL
DIAPH	DIAPHRAGM
DIFF	DIFFUSER/ DIFFERENTIAL
DIP	DUCTILE IRON PIPE
DIR	DIRECTION
DISCH	DISCHARGE
DISP	DISPENSER
DL	DEAD LOAD
DMH	DROP MANHOLE
DN	DOWN
DO	DISSOLVED OXYGEN/ DITTO
DR	DOOR/ DRAIN
DS	DRENCH SHOWER AND EYE WASH
DT	DRAIN TILE
DWG	DRAWING
DWLS	DOWELS
DWSD	DOMINION WATER AND SANITATION DISTRICT
DWY	DRIVEWAY

E

E	EAST
E/O	EAST OF
EA	EACH
EB	EXPANSION BOLT OR ANCHOR
EC	END CURVE
ECC	ECCENTRIC
ECR	END CURB RETURN
EF	EACH FACE/ EXHAUST FAN
EFF	EFFLUENT
EG	EXIST GRADE/ EDGE OF GUTTER/ EXHAUST GRILLE
EGL	ENERGY GRADE LINE
EL	ELEVATION
ELEC	ELECTRICAL/ ELECTRONIC
EN	EDGE NAILING
ENCL	ENCLOSURE
ENG	ENGINE
ENGR	ENGINEER
ENT	ENTRANCE
EP	EDGE OF PAVEMENT
EPT	ETHYLENE PROPYLENE
EQ	EQUAL
EQUIP	EQUIPMENT
ESMT	EASEMENT
ETB	EMULSION TREATED BASE
ETC	ET CETERA
EVAP	EVAPORATOR
EVC	END VERTICAL CURVE
EW	EACH WAY/ EYE WASH
EX	EXISTING
EXC	EXCAVATION
EXH	EXHAUST
EX-HY	EXTRA HEAVY
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR/ EXTENSION
EXTR	EXTRUDED

F

F	FAHRENHEIT/ FINISH
F TO F	FACE TO FACE
F&C	FRAME AND COVER
F&I	FURNISH AND INSTALL
FAB	FABRICATE/ FABRICATION/ FABRICATED
FAI	FRESH AIR INTAKE
FB	FLAT BAR/ FLOOR BEAM/ FIELD BOOK
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDR	FEEDER
FE	FIRE EXTINGUISHER/ FINAL EFFLUENT
FEM	FEMALE (PIPE THREAD)
FF	FLAT FACE/ FAR FACE/ FINISHED FLOOR
FG	FINISHED GRADE
FH	FIRE HYDRANT/ FLAT HEAD
FIG	FIGURE
FIN	FINISHED
FIX	FIXTURE
FL	FLOWLINE/ FLOOR
FLEX	FLEXIBLE
FLG	FLANGE/ FLOORING
FLGD	FLANGED
FLOCC	FLOCCULATOR/ FLOCCULATION
FLR	FLOOR
FLSG	FLASHING
FM	FACTORY MUTUAL (LAB APPRVD)/ FORCE MAIN
FMH	FLEXIBLE METAL HOSE
FN	FIELD NAILING
FND	FOUNDATION
FOC	FACE OF CONCRETE/ FIBER OPTIC CABLE
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FOW	FACE OF WALL
FPC	FLEXIBLE PIPE COUPLING
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FPTS	FOREIGN PIPE TEST STATION
FR	FRAME
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FINISHED SURFACE/ FAR SIDE/ FLOOR SINK / FORGED STEEL
FT	FEET/ FOOT
FTG	FOOTING
FUR	FURRING
FUT	FUTURE
FV	FIELD VERIFY
FWD	FORWARD

G

G	GAS
GA	GAGE / GAUGE
GAL	GALLON
GALV	GALVANIZED
GANC	GUY ANCHOR
GB	GRADE BREAK
GEN	GENERAL / GENERATOR
GFA	GROOVED FLANGE ADAPTER
GI	GALVANIZED IRON
GIP	GALVANIZED IRON PIPE
GL	GLASS / GROUND LINE / GRADE LINE
GLB	GLUE LAMINATED BEAM / GLULAM
GLV	GLOBE VALVE
GM	GAS METER
GP	GUY POLE
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GRADE
GRD	GRADE / GROUND
GRTG	GRATING
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE
GYP	GYPSUM

H

H	HIGH / HEIGHT
H&V	HEATING AND VENTILATING
H/B	HOSE BIBB
HC	HOUSE CONNECTION
HDR	HEADER
HDW	HARDWARE
HDWL	HEADWALL
HEX	HEXAGONAL
Hg	MERCURY
HGL	HYDRAULIC GRADE LINE
HGR	HANGER
HM	HOLLOW METAL
HORZ	HORIZONTAL
HP	HIGH POINT / HORSE POWER / HIGH PRESSURE
HPG	HIGH PRESSURE GAS
HR	HEAT RETURN / HOUR
HSL	HORIZONTALLY SLOTTED
HSS	HOLLOW STRUCTURAL SECTION
HTG	HEATING
HTR	HEATER
HV	HORIZONTAL AND VERTICAL CONTROL POINT
HVAC	HEATING, VENTILATION AND AIR CONDITIONING
HW	HOT WATER / HEADWORK
HWD	HARDWOOD
HWL	HIGH WATER LEVEL
HWO	HANDWHEEL OPERATED
HYD	HYDRAULIC / HYDRANT

I

I/O	INPUT/OUTPUT
I&O	INSIDE AND OUTSIDE
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
IF	INSIDE FACE
IJTS	INSULATING JOINT TEST STATION
IN	INCH
INCL	INCLUDE / INCLUDING
INFL	INFLUENT
INSL	INSULATION / INSULATING / INSULATED
INSP	INSPECTION
INST	INSTRUMENT
INT	INTERIOR
INV	INVERT
IP	IRON PIPE
IPS	IRON PIPE SIZE
IRRG	IRRIGATION

J

JAN	JANITOR
JC	JUNCTION CHAMBER
JCT	JUNCTION
JS	JUNCTION STRUCTURE
JSTS	JOISTS
JT	JOINT

K

k	KILO
K	KELVIN/ KARAT
kg	KILOGRAM
km	KILOMETER
kV	KILOVOLT
KVA	KILOVOLT AMPERE
kW	KILOWATT
kWh	KILOWATT HOUR

L

L	LITER/ LENGTH/ ANGLE
LAB	LABORATORY
LAM	LAMINATED
LAT	LATERAL
LAV	LAVATORY
LB	POUND
LCP	LOCAL CONTROL PANEL
LCS	LOCAL CONTROL STATION
LD	LOCAL DEPRESSION
LDG	LANDING
LEV	LEVEL
LF	LINEAR FOOT
LG	LENGTH/ LONG
LH	LAMP HOLE/ LEFT HAND
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LOL	LAYOUT LINE
LONG	LONGITUDINAL
LP	LOW POINT/ LOW PRESSURE/ LAMP POST
LPG	LIQUID PETROLEUM GAS
LT	LEFT/ LIGHT
LTS	LIME TREATED SOIL
LW	LOW WATER
LWL	LOW WATER LEVEL
LWR	LOWER

M

m	METER
M	MALE (PIPE THREAD)
mA	MILLIAMPS
MACH	MACHINE
MAG	MAGNETIC
MAINT	MAINTENANCE
MAN	MANUAL
MAS	MASONRY
MAT	MATERIAL
MAX	MAXIMUM
MB	MAIL BOX/ MACHINE BOLT
MCC	MOTOR CONTROL CENTER
MCR	MIDDLE OF CURB RETURN
MEAS	MEASURE
MECH	MECHANICAL
MED	MEDIUM
MEMB	MEMBER
MFR	MANUFACTURER
MFRD	MANUFACTURED
MGD	MILLION GALLONS PER DAY
MH	MANHOLE/ MAINTENANCE HOLE
MHT	MEAN HIGH TIDE
MHW	MEAN HIGH WATER
MI	MALLEABLE IRON/ MILE
MICRON	1/1,000,000 METER
MIL	MILITARY/ 1/1,000TH INCH
MIN	MINIMUM/ MINUTE
MIR	MIRROR
MISC	MISCELLANEOUS
MK	MARK
MLW	MEAN LOW WATER
mm	MILLIMETER
MO	MOTOR OPERATED/ MASONRY OPENING
MOD	MODEL
MON	MONUMENT
MOR	MORTAR
MS	MOP SINK
MSL	MEAN SEA LEVEL
MTC	MECHANICAL-TYPE COUPLING
MTD	MOUNTED
MTG	MOUNTING
MTL	METAL
MTR	MOTOR

N

N	NORTH
NaOCl	SODIUM HYPOCHLORITE
NaOH	SODIUM HYDROXIDE (CAUSTIC SODA)
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NF	NEAR FACE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NG	NATURAL GRADE/ NATURAL GAS
NIC	NOT IN CONTRACT
NO	NUMBER/ NORMALLY OPEN
NOM	NOMINAL
NPS	NOMINAL PIPE SIZE
NPT	NATIONAL PIPE THREAD
NRCP	NON-REINFORCED CONCRETE PIPE
NRS	NON-RISING STEM
NS	NEAR SIDE
NTS	NOT TO SCALE

O

OBJ	OBJECT
OC	ON CENTER/ OVER-CROSSING
OD	OUTSIDE DIAMETER/ OVERALL DIMENSION
OE	OUTER EDGE
OF	OVERFLOW/ OUTSIDE FACE
OFD	OVERFLOW DRAIN
OFF	OFFICE
OH	OVER HEAD
OHW	OVERHEAD WIRES
OPER	OPERATOR/ OPERATING
OPNG	OPENING
OPP	OPPOSITE
ORIG	ORIGINAL
OS&Y	OUTSIDE SCREW AND YOKE
OSA	OUTSIDE AIR
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OWG	OIL. WATER. GAS
OZ	OUNCE

P

P	POLE/ PAGE/ PIPE
P/S	POLE AND SHELF
PA	PLANTING AREA
PART	PARTITION
PAVMT	PAVEMENT
PB	POLYBUTYLENE/ PULL BOX
PC	POINT OF CURVATURE/ PRIMARY CLARIFIER/ PORTLAND CEMENT
PCC	PORTLAND CEMENT CONCRETE/ POINT OF COMPOUND CURVE
PCOTG	PRESSURE CLEANOUT TO GRADE
PCVC	POINT OF COMPOUND VERTICAL CURVE
PE	PLANT EFFLUENT/ POLYETHYLENE/ POLYELECTROLYTE POLYMER
PG	PRESSURE GAGE
pH	RECIPROCAL LOG OF HYDROGEN ION CONCENTRATION
PI	PLANT INFLUENT/ POINT OF INTERSECTION
PK	PARKING
PL	PLATE/ PROPERTY LINE/ PLACE
PLAS	PLASTER/ PLASTIC
PLT	PLANT
PLWD	PLYWOOD
PM	PRESSED METAL

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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ENGINEERING DIVISION ACCEPTANCE BLOCK

P CONT'D

PNEU	PNEUMATIC
PNL	PANEL
POB	POINT OF BEGINNING
POC	POINT OF CONNECTION
POT	POINT OF TANGENT
PP	POWER POLE/ POLYPROPYLENE
PPD	POUNDS PER DAY
PPH	POUNDS PER HOUR
PPM	POUNDS PER MINUTE
PR	PAIR
PRC	POINT OF REVERSE CURVE
PRCT	PRECAST
PREFAB	PREFABRICATED
PRESS	PRESSURE
PROF	PROFILE
PRV	PRESSURE REGULATING, RELIEF OR REDUCING VALVE
PRVC	POINT OF REVERSE VERTICAL CURVE
PS	PRESSURE SWITCH
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
PT	POINT OF TANGENCY/ PAINT/ PRESSURE
PTFE	POLYTETRAFLUOROETHYLENE (TEFLON)
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PVDF	POLYVINYLIDENE FLUORIDE (KYNAR)
PW	POTABLE WATER

Q

QT	QUARRY TILE
QTY	QUANTITY
QUAD	QUADRANGLE/ QUADRANT

R

R	RADIUS/ RISER / RATE OF SLOPE
R&O	ROCK AND OIL
R/W	RIGHT OF WAY
RAC	RECYCLED ASPHALT CONCRETE
RAG	RETURN AIR GRILLE
RAP	RECLAIMED ASPHALT PAVEMENT
RAS	RETURN ACTIVATED SLUDGE
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD/ ROOF DRAIN/ ROUND
RED	REDUCER/ REDUCING
REF	REFERENCE/ REFER/ REFRIGERATOR
REG	REGULATING
REINF	REINFORCE/ REINFORCED
REQD	REQUIRED
RESIL	RESILIENT
RET	RETAINING/ RETURN
REV	REVISION
REW	RECLAIMED WATER
RF	ROOF/ RAISED FOUNDATION/ ROUGH FACE
RFG	ROOFING
RGE	REGISTERED GEOTECHNICAL ENGINEER
RH	REDHEAD / RIGHT HAND
RM	ROOM
RO	ROUGH OPENING
RPM	REVOLUTIONS PER MINUTE
RR	RAILROAD
RS	RISING STEM
RSL	RAW SLUDGE
RT	RIGHT
RTP	REINFORCED THERMOSETTING PLASTIC
RTU	REMOTE TERMINAL UNIT
RW	REDWOOD
RWL	RAINWATER LEADER
RWSD	ROXBOROUGH WATER AND SANITATION DISTRICT

S

S	SOUTH/SCUM/SINK/SECOND/SLOPE
S/O	SOUTH OF
SAM	SAMPLE
SAN	SANITARY
SBR	STYRENE BUTADIENE (RUBBER)
SC	SECONDARY CLARIFIER
SCCP	STEEL CYLINDER CONCRETE PIPE
SCD	SCREWED
SCFM	STANDARD CUBIC FEET PER MINUTE
SCH	SCHEDULE
SD	SANITARY DRAIN/ SMOKE DETECTOR
SDR	STANDARD THERMOPLASTIC PIPE DIMENSION RATIO/STORM DRAIN
SEC	SECONDARY/ SECTION
SER	SERIES
SETT	SETTING
SF	SQUARE FOOT
SH	SHOWER
SHELV	SHELVING
SHT	SHEET
SHTG	SHEATHING
SIM	SIMILAR
SL	SLUDGE
SLDG	SLIDING
SLG	SLUICE GATE
SOG	SLAB ON GRADE
SOLN	SOLUTION
SP	STATIC PRESSURE/ SPARE CHEMICAL
SPEC	SPECIFICATION
SPK	SPIKE
SQ	SQUARE
SS	STAINLESS STEEL/ SANITARY SEWER/ SERVICE SINK
SSB	SELECT SUB-BASE
SSPWC	STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION
SSU	SECONDS SAYBOLT UNIVERSAL
ST	STREET/ STATE
STA	STATION
STC	SLEEVE-TYPE COUPLING
STD	STANDARD
STK	STAKE
STL	STEEL
STM	STEAM
STR	STRAIGHT/ STRUCTURAL
SU	STEAM LINE
SUCT	SUCTION
SV	SOLENOID VALVE
SW	SIDEWALK
SWD	SIDEWALK DRAIN
SWGR	SWITCHGEAR
SWR	SIDEWALL REGISTER
SY	SQUARE YARD
SYM	SYMMETRICAL/ SYMBOL
SYS	SYSTEM

T

T	THERMOSTAT/ TREAD OF STAIR/ TANGENT
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TAN	TANGENT
TB	TACK BOARD
TBE	THREAD BOTH ENDS
TBM	TEMPORARY BENCH MARK
TC	TOP OF CURB
TCV	TEMPERATURE CONTROL VALVE
TEL	TELEPHONE
TEMP	TEMPERATURE/ TEMPORARY
TF	TOP OF FOOTING
TH	TEST HOLE
THK	THICK/ THICKNESS
THR	THRESHOLD
THR'D	THREADED
TK	TANK/ TACK
TL	TRAVERSE LINE
TOC	TOP OF CONCRETE
TOE	THREAD ONE END
TOL	TOILET
TOM	TOP OF MASONRY
TOP	TOP OF PIPE
TOPO	TOPOGRAPHIC
TOS	TOP OF STEEL
TOW	TOP OF WALL
TP	TELEPHONE POLE
TR	TRACT
TRANS	TRANSMITTER/ TRANSITION /TRANSMISSION
TS	TRAFFIC SIGNAL
TSB	TOP SET BASE
TSC	TRAFFIC SIGNAL CONDUIT
TV	THERMOSTATIC VALVE/ TELEVISION
TW	THERMOMETER WELL /TRAVELED WAY
TYP	TYPICAL

U

UB	UNION BONNET
UBC	UNIFORM BUILDING CODE
UC	UNDER-CROSSING
UG	UNDERGROUND
UGC	UNDERGROUND CONDUIT
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES
UNID	UNIDENTIFIED
UNO	UNLESS NOTED OTHERWISE
UOI	UNLESS OTHERWISE INDICATED
UPS	UNINTERRUPTABLE POWER SUPPLY
UR	URINAL
USA	UNDERGROUND SERVICE ALERT
USGS	UNITED STATES GEOLOGICAL SURVEY
UV	ULTRAVIOLET
UW	UTILITY WATER

V

V	VALVE/ VERTICAL/ VENT/ VOLT/ VOLUME
VAC	VACUUM
VAR	VARIES/ VARIABLE
VB	VALVE BOX
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VOL	VOLUME
VPI	VERTICAL POINT OF INTERSECTION
VSL	VERTICALLY SLOTTED
VTC	VENT TO CEILING
VTR	VENT THROUGH ROOF
VWC	VINYL WALL COVERING
VWM	VERIFY WITH MANUFACTURE

W

W	WEST/ WASTE/ WIDTH/ WIDE FLANGE/ WATER
W/	WITH
W/O	WEST OF / WITHOUT
WC	WATER COLUMN / WATER CLOSET
WCO	WALL CLEANOUT
WD	WOOD
WDW	WINDOW
WH	WATER HEATER
WI	WROUGHT IRON
WM	WATER METER
WOG	WATER, OIL, OR GAS
WP	WATERPROOFING/ WORKING PRESSURE/ WORK POINT
WPJ	WEAKEN PLANE JOINT
WS	WATER SURFACE
WSTP	WATERSTOP
WT	WEIGHT
WWF	WELDED WIRE FABRIC
WWP	WATER WORKING PRESSURE

X

XCONN	CROSS CONNECTION
XS	EXTRA STRONG
XSEC	CROSS SECTION
XXS	DOUBLE EXTRA STRONG

Y

YD	YARD
YR	YEAR

Z

Z	ZERO/ ZONE
ZN	ZINC
#	POUND
&	AND
@	AT

FOR ADDITIONAL ABBREVIATIONS SEE:

GENERAL: PIPING SCHEDULES (MATERIAL AND FLUID)
CIVIL: GENERAL CIVIL SHEET
INSTRUMENTATION: GENERAL I&C SHEETS
BUILDING MECHANICAL: GENERAL HVAC, PLUMBING AND FIRE PROTECTION SHEETS
ELECTRICAL: GENERAL ELECTRICAL SHEETS

OTHER ABBREVIATIONS CONFORM TO ANSI STANDARD ABBREVIATIONS Z32.2.3

REV 010119

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Revision	By	Appd	YYYY.MM.DD
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Issued	By	Appd	YYYY.MM.DD
A WORK PACKAGE 3 DRAFT	CLC	SRT	2025.06.XX
B IFP - L&E	SSC	ZS	2025.08.20

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Client/Project
DOMINION WATER
SANITATION DISTRICT
CHATFIELD BASIN WRF
11290 CARETAKER RD,
LITTLETON, CO 80125

Project No.: 181301899
File Name: 01899_G000_002
Scale: NTS

KN	MCR	SRT	2025.04.07
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
GENERAL
ABBREVIATIONS

Revision: Sheet: of XX

Drawing No.
G-002

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TYPICAL PIPE DESIGNATION:

MATERIAL GROUP NUMBER

#" XXX (##)

PIPE DIAMETER — FLUID ABBREVIATION

GENERAL SHEET NOTES

1. ALTHOUGH SEVERAL PIPE MATERIAL GROUPS MAY BE LISTED ON THIS SHEET FOR A GIVEN FLUID SERVICE, CONTRACTOR SHALL PROVIDE ONLY THE PIPE MATERIAL GROUP SHOWN ON THE DRAWINGS AND SPECIFIED FOR THAT FLUID SERVICE.
2. CHANGE IN PIPING MATERIAL GROUP NUMBER IS INDICATED THUS:
3. PROVIDE DOUBLE CONTAINMENT FOR ALL CHEMICAL PIPING PER CODE REQUIREMENTS.

SHEET KEYNOTES

A. PROPRIETARY NAMES HAVE BEEN QUOTED FOR IDENTIFICATION PURPOSES ONLY. SUBSTITUTIONS WILL BE PERMITTED SUBJECT TO PROVISIONS OF THE SPECIFICATIONS.

B. NO SUBSTITUTIONS UNLESS ACCEPTED BY THE ENGINEER PER THE SPECIFICATIONS.

C. FOR VALVES 8" AND LARGER, SEE VALVE SCHEDULE. FOR SPECIAL VALVES, SEE SPECIFICATIONS. FOR PIPE LINING AND COATING, SEE SPECIFICATIONS.

D. PIPE MATERIALS SHALL BE PER THE REFERENCE STANDARDS AS MODIFIED BY THE CONTRACT SPECIFICATIONS. FOR PIPE LINING AND COATING, SEE SPECIFICATIONS.

FLUID ABBREVIATION	FUNCTION THIS LIST INCLUDES SOME LINES NOT USED IN THIS PROJECT (D)	PIPING MATERIALS (SEE GENERAL NOTES AT THE RIGHT AND PIPE MATERIAL SHEET)				FIELD TEST REQUIREMENTS (B)(C)		
		EXPOSED PIPING (K)		BURIED PIPING (J)		MINIMUM TEST PRESSURE (PSI)	TEST MEDIUM	LEAKAGE ALLOWANCE (A)
		4" DIA AND SMALLER	6" DIA AND LARGER	4" DIA AND SMALLER	6" DIA AND LARGER			
A	AERATION	CS01, PV01, FR01	CS05, DI01, PV01, FR01	CS01, PV01, FR01	CS05, DI01, PV01, FR01	25	AIR	(A)(D)
FA	FOUL AIR	--	FR01	--	FR01	10	AIR	(A)(D)
FEC	FERRIC CHLORIDE	PE01, PV02	PE01, PV02	PE01, PV02	PE01, PV02	125	WATER	(A)
FP	FIRE PROTECTION	(H)	(H)	(H)	(H)	(H)	WATER	--
MP	MEMBRANE PERMEATE	SS02, PV02	SS02, PV02	--	--	125	WATER	(A)
OF	OVERFLOW	-	-	PE01, PE05	-	25	WATER	(A)
PE	PRIMARY EFFLUENT	--	CS08, DI02	--	CS08, DI02	25	WATER	(A)
PI	PLANT INFLUENT	--	CY02, DI02	--	CY02, DI02	(E)	WATER	(B)
PLE	PLANT EFFLUENT	--	CS08	--	CS08	50	WATER	(A)
PW	POTABLE WATER	CS02, DI01, PV01, CU01	CS02, CS08, DI01, PV01	CS02, DI01, PV01, CU01	CS02, CS08, DI01, PV01, PV03, PV04	125	WATER	RC05, CS02, CS08, DI01, PV01, CU01(A) PV03, PV04(B)
RAS	RETURN ACTIVATED SLUDGE	CS08, DI02	CS08, DI02	CS08, DI02	CS08, DI02	50	WATER	(A)
S	SCUM	--	DI03	--	DI03	50	WATER	(A)
SDH	SODIUM HYDROXIDE (CAUSTIC SODA)	CS06, SS01, PE01	CS06, SS01, PE01	CS06, SS01, PE01	CS06, SS01, PE01	125	WATER	(A)
SDR	STORM DRAIN	--	CS08	--	RC01, RC05	(E)	WATER	CS08, RC05(A) RC01(C)
SE	SECONDARY EFFLUENT	--	CS08, DI02	--	CS08, DI02	50	WATER	(A)
SS	SANITARY SEWER	PV06, PV01	PE01, PE05	-	-	(F)	--	--
WAS	WASTE ACTIVATED SLUDGE	--	DI02	--	DI02	50	WATER	(A)

PIPING MATERIAL SCHEDULE (B)

GROUP NO	PIPE (D)	FITTINGS	VALVES, 6" AND SMALLER (A)(C)
DI02	DUCTILE IRON, ANSI A21.51, (AWWA C151), ENDS BELL AND SPIGOT, MECHANICAL JOINTS OR 125 PSI FLANGED. (TYPICAL SERVICE - SLUDGE AND SEWAGE LINES).	DUCTILE IRON AWWA C110, BELL AND SPIGOT JOINTS (RESTRAINED OR NON-RESTRAINED), MECHANICAL COUPLINGS, ASME B16.1 FLANGES, OR MECHANICAL JOINTS.	ECC PLUG, SYNTHETIC RUBBER FACED: DEZURIK PEC, CAST IRON OR MILLIKEN 601. SWING TYPE CHECK: CRANE #383 OR POWELL FIG 559. BALL: PRATT OR APCO-WILLAMETTE.
PE01	POLYETHYLENE PIPE, ASTM D3350, SDR AS SPECIFIED.	THERMAL BUTT-FUSED FLANGE CONNECTIONS AT ALL VALVES AND TRANSITIONS.	AS INDICATED ON DRAWINGS.
PE05	POLYETHYLENE, PRESSURE PIPE, AWWA C906.	POLYETHYLENE THERMAL BUTT-FUSED JOINTS, FLANGED JOINTS AT VALVES AND TRANSITIONS.	AS INDICATED ON DRAWINGS.
PE06	FLEXIBLE RUBBER HOSE, EPDM/SBR RUBBER. TEXTILE PLY WITH HELICAL STEEL WIRE REINFORCEMENT. 150 PSI.	BARBED SHANK FOR CONVERSION TO QUICK COUPLING OR THREADED END .	AS INDICATED ON DRAWINGS.
PV01	POLYVINYL CHLORIDE (PVC), ASTM D1785, SCH 80, TYPE I.	PVC, SCH 80, TYPE I, SOCKET SOLVENT WELD JOINTS, ASTM D2467. SOLVENT SHALL BE COMPATIBLE WITH FLUID SERVICE.	PVC, BALL, DIAPHBRAGM, BUTTERFLY, OR LIFT CHECK: NIBCO/CHEMTROL, MCCANNA-MARPAC, OR GEORGE FISCHER SLOANE

GENERAL SYMBOLOGY

- NEW CONSTRUCTION
- EXISTING (SCREENED)
- FUTURE (PHANTOM)
- EXISTING TO BE REMOVED OR DEMOLISHED

MATERIAL SYMBOLOGY

- CONCRETE (PLAN AND SECTION)
- GROUT OR SAND (PLAN AND SECTION)
- BRICK (PLAN AND SECTION)
- CMU (PLAN AND SECTION)
- STEEL/METAL/FRP (SMALL SCALE SECTION)
- CHECKER PLATE OR SOLID FRP GRATING (PLAN)
- CHECKER PLATE (SECTION)
- GRATING (PLAN)
- GRATING OR SOLID FRP GRATING (SECTION)
- SAFETY GRATING (PLAN)
- SAFETY GRATING (SECTION)
- RAILING (PLAN)
- WOOD (PLAN OR ELEVATION)
- LUMBER/ FRAMING - NOMINAL
- LUMBER - TRIMMED (BLOCKING OR SHIMS)
- OR — GLULAM (SECTION)
- GLULAM (ELEVATION)
- OR — PLYWOOD (SMALL SCALE)
- FINISHED GRADE
- GRAVEL/ DRAINROCK/ AGGREGATE BASE

REFERENCE SYMBOLS

SECTION IDENTIFICATION

Section Letter; bubble-ncs_sect_tail; bubble-ncs_sect_with_tail; Sheet where cut; Sheet where shown; bubble-ncs_sect

A-301 — TITLE1 — SCALE: 1/4"=1'-0" — callout-typ_title

DETAIL IDENTIFICATION

bubble-ncs_detl; Detail number; Sheet where shown; Sheet where cut; Standard Detail Number; bubble-std_detl

A-501 — TITLE1 — SCALE: 3"=1'-0" — callout-typ_title

S-101 — WATERSTOP — REVMM/DD/YY or SCALE — callout-typ_title (with bubble-std_detl_title added)

INTERIOR ELEVATION IDENTIFICATION

Elevation Number; Sheet where shown; Sheet where cut; bubble-ncs_int_elev

A-201, A-202 — A-101 — TITLE1 — SCALE: 1/4"=1'-0" — callout-typ_title

EXTERIOR ELEVATION IDENTIFICATION

A-201 — bubble-ncs_ext_elev — TITLE1 — SCALE: 1/4"=1'-0" — callout-typ_title

EQUIPMENT IDENTIFICATION

SEE EQUIPMENT SCHEDULE/SPECIFICATIONS

EQUIPMENT DESIGNATOR; EQUIPMENT NUMBER; AREA NUMBER; 12MAU-05; bubble-pipe1 or 2

PLEASE NOTE:

DISCIPLINE SPECIFIC SYMBOLS ARE SHOWN ON THE DISCIPLINE GENERAL DRAWINGS.

FOR WELDING SYMBOLS USE AMERICAN WELDING SOCIETY STANDARD SYMBOLS.

NORTH ARROW SYMBOLS

MISCELLANEOUS

- SHEET KEY SYMBOL
- REVISION TRIANGLE SYMBOL
- BREAK SYMBOL
- ANGLE SYMBOL
- CENTERLINE SYMBOL

MATCHLINE STA 10+00 / MATCHLINE SHEET C-112 — MATCHLINE SYMBOL

0 8' 16' 32' — ARCHITECTURAL UNIT SCALE BAR

0 20 40 — CIVIL UNIT SCALE BAR

HORZ 0 20 40; VERT 0 5 10 — SCALE IN FEET — CIVIL SCALE BAR WHERE THERE ARE HORIZONTAL AND VERTICAL SCALES

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

THESE CONSTRUCTION DRAWINGS HAVE BEEN REVIEWED BY DOUGLAS COUNTY FOR LOCATION AND EXTENTS PERMIT ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

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Issued	By	Appd	YYYY.MM.DD
B IFP - L&E	SSC	ZS	2025.08.20
A WORK PACKAGE 3 DRAFT	CLC	SRT	2025.06.XX

Permit/Seal

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Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF
11290 CARETAKER RD, LITTLETON, CO 80125

Project No.: 181301899

File Name: 01899_G000_003

Scale:

KN	MCR	SRT	2025.04.07
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
GENERAL SYMBOLS

Revision: Sheet: of XX

Drawing No.
G-003

DOUGLAS COUNTY STANDARD NOTES

1. THE DOUGLAS COUNTY ENGINEERING DIRECTOR SIGNATURE AFFIXED TO THIS DOCUMENT INDICATES THE ENGINEERING DIVISION HAS REVIEWED THE DOCUMENT AND FOUND IT IN GENERAL CONFORMANCE WITH THE DOUGLAS COUNTY ROADWAY DESIGN AND CONSTRUCTION STANDARDS AND THE DOUGLAS COUNTY SUBDIVISION RESOLUTION OR ACCEPTED VARIANCES TO THOSE REGULATIONS. THE DOUGLAS COUNTY ENGINEERING DIRECTOR, THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY, OTHER THAN STATED ABOVE, FOR THE COMPLETENESS AND/OR ACCURACY OF THESE DOCUMENTS. THE OWNER AND ENGINEER UNDERSTAND THAT THE RESPONSIBILITY FOR THE ENGINEERING ADEQUACY OF THE FACILITIES DEPICTED IN THIS DOCUMENT LIES SOLELY WITH THE PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF COLORADO WHOSE STAMP AND SIGNATURE IS AFFIXED TO THIS DOCUMENT.
2. ALL CONSTRUCTION SHALL CONFORM TO DOUGLAS COUNTY STANDARDS. ANY CONSTRUCTION NOT SPECIFICALLY ADDRESSED BY THESE PLANS AND SPECIFICATIONS WILL BE BUILT IN COMPLIANCE WITH THE LATEST EDITION OF THE MOST STRINGENT OF THE FOLLOWING:
   - THE DOUGLAS COUNTY ROADWAY DESIGN AND CONSTRUCTION STANDARDS
   - THE COLORADO DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
   - THE COLORADO DEPARTMENT OF TRANSPORTATION M STANDARDS
3. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE DOUGLAS COUNTY ENGINEERING DIVISION AS APPLICABLE. THE COUNTY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO ITS STANDARDS AND SPECIFICATIONS.
4. THE CONTRACTOR SHALL NOTIFY THE DOUGLAS COUNTY ENGINEERING INSPECTION DIVISION, 303-660-7487, A MINIMUM OF 24-HOURS AND A MAXIMUM OF 72-HOURS PRIOR TO STARTING CONSTRUCTION. CONTRACTOR SHALL NOTIFY DOUGLAS COUNTY ENGINEERING INSPECTION WHEN WORKING OUTSIDE OF THE PUBLIC RIGHT-OF-WAY ON ANY FACILITY THAT WILL BE CONVEYED TO THE COUNTY, URBAN DRAINAGE & FLOOD CONTROL DISTRICT, OR OTHER SPECIAL DISTRICT FOR MAINTENANCE (STORM SEWER, ENERGY DISSIPATERS, DETENTION OUTLET STRUCTURES, OR OTHER DRAINAGE INFRASTRUCTURES). FAILURE TO NOTIFY THE ENGINEERING INSPECTION DIVISION TO ALLOW THEM TO INSPECT THE CONSTRUCTION MAY RESULT IN NON-ACCEPTANCE OF THE FACILITY/INFRASTRUCTURE BY THE COUNTY AND/OR URBAN DRAINAGE.
5. CONSTRUCTION WILL NOT BEGIN UNTIL ALL APPLICABLE PERMITS HAVE BEEN ISSUED. IF A DOUGLAS COUNTY ENGINEERING INSPECTOR IS NOT AVAILABLE AFTER PROPER NOTICE OF CONSTRUCTION ACTIVITY HAS BEEN PROVIDED, THE PERMITTEE MAY COMMENCE WORK IN THE INSPECTOR'S ABSENCE. HOWEVER, DOUGLAS COUNTY RESERVES THE RIGHT NOT TO ACCEPT THE IMPROVEMENT IF SUBSEQUENT TESTING REVEALS AN IMPROPER INSTALLATION.
6. THE LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ACTUAL CONSTRUCTION. FOR INFORMATION CONTACT: COLORADO 811, AT 1-800-922-1987 (WWW.COLORADO811.ORG).
7. THE CONTRACTOR SHALL HAVE ONE (1) COPY OF THE PLANS SIGNED BY THE DOUGLAS COUNTY ENGINEERING DIRECTOR, ONE (1) COPY OF THE ROADWAY DESIGN AND CONSTRUCTION STANDARDS, AS AMENDED, AND ALL APPLICABLE PERMITS AT THE JOB SITE AT ALL TIMES.
8. ALL PROPOSED STREET CUTS TO EXISTING PAVEMENTS FOR UTILITIES, STORM SEWER OR FOR OTHER PURPOSES ARE LISTED AND REFERENCED BELOW:

   EXAMPLES: WATER TIE-IN — SHEET 3
   STORM SEWER CONNECTION — SHEET 6
9. A TRAFFIC CONTROL PLAN, IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, SHALL BE SUBMITTED TO DOUGLAS COUNTY FOR ACCEPTANCE WITH THE RIGHT-OF-WAY USE AND CONSTRUCTION PERMIT APPLICATION. A RIGHT-OF-WAY USE AND CONSTRUCTION PERMIT WILL NOT BE ISSUED WITHOUT AN ACCEPTED TRAFFIC CONTROL PLAN FOR TRAFFIC CONTROL DURING CONSTRUCTION.
10. THE CONSTRUCTION PLANS SHALL BE CONSIDERED VALID FOR THREE (3) YEARS FROM THE DATE OF COUNTY ACCEPTANCE, AFTER WHICH TIME THESE PLANS SHALL BE VOID AND WILL BE SUBJECT TO RE-REVIEW AND RE-ACCEPTANCE BY DOUGLAS COUNTY.
11. DOUGLAS COUNTY STANDARD DETAILS SHALL NOT BE MODIFIED. ANY NON-STANDARD DETAILS WILL BE CLEARLY IDENTIFIED AS SUCH.
12. PAVING, INCLUDING CONSTRUCTION OF CURB AND GUTTER (WHEN USED), SHALL NOT START UNTIL A PAVEMENT DESIGN REPORT AND SUBGRADE COMPACTION TESTS ARE ACCEPTED BY THE ENGINEERING INSPECTION DIVISION FOR ALL PUBLIC AND PRIVATE ROADS.
13. STANDARD DOUGLAS COUNTY HANDICAP RAMPS ARE TO BE CONSTRUCTED AT ALL CURB RETURNS AND AT MID-BLOCK LOCATIONS OPPOSITE OF ONE OF THE CURB RETURNS OF ALL "T" INTERSECTIONS AS IDENTIFIED ON THESE PLANS.
14. ALL STATIONING IS BASED ON CENTERLINE OF ROADWAYS UNLESS OTHERWISE NOTED.
15. ALL ELEVATIONS ARE ON UNITED STATES COAST AND GEODETIC SURVEY (USC&GS) (NAVD-88) DATUM WITH DATE. THE RANGE POINT OR MONUMENTS SHALL BE SHOWN ON CONSTRUCTION DRAWINGS.
16. ALL STORM SEWER IMPROVEMENTS (PUBLIC AND PRIVATE) INCLUDING, BUT NOT LIMITED TO, INLETS, PIPES, CULVERTS, CHANNELS, DITCHES, HYDRAULIC STRUCTURES, RIPRAP, DETENTION BASINS, FOREBAYS, MICROPOOLS, AND WATER QUALITY FACILITIES REQUIRE PERMITTING AND INSPECTIONS. PLEASE CONTACT THE DOUGLAS COUNTY ENGINEERING INSPECTIONS DIVISION AT 303- 660-7487 FOR PERMITTING REQUIREMENTS AND INSPECTIONS SCHEDULING.
17. TWO (2) MANHOLE ACCESS POINTS ARE REQUIRED ON ALL TYPE "R" CURB INLETS GREATER THAN OR EQUAL TO TEN (10) FEET IN LENGTH.
18. EPOXY COATED REBAR IS REQUIRED ON ALL DRAINAGE STRUCTURES.
19. DOUGLAS COUNTY REQUIRES CLASS D CONCRETE FOR ALL DRAINAGE STRUCTURES.
20. ALL RCP STORM SEWERS MUST USE ASTM C443 WATERTIGHT GASKETS PER THE CURRENT DOUGLAS COUNTY AND URBAN DRAINAGE DESIGN CRITERIA.
21. ALL RCP SHALL BE CLASS III STORM SEWER PIPE UNLESS OTHERWISE SPECIFIED.
22. JOINT RESTRAINTS ARE REQUIRED FOR A MINIMUM OF THE LAST TWO PIPE JOINTS AND FLARED END SECTION OF AN RCP OUTFALL.
23. PRECAST INLETS AND MANHOLE BASES ARE NOT ALLOWED.
24. TOE WALLS ARE REQUIRED ON FLARED END SECTIONS AT THE OUTLET END OF CULVERTS AND STORM SEWER OUTFALLS.
25. FILTER FABRIC IS REQUIRED UNDER ALL RIPRAP PADS.
26. THE PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF COLORADO, SIGNING THESE PLANS IS RESPONSIBLE FOR ENSURING THAT THE DETAILS INCLUDED ARE COMPATIBLE WITH THE STANDARD DOUGLAS COUNTY DETAILS CONTAINED IN THE LATEST VERSIONS OF THE CRITERIA MANUALS. THIS INCLUDES, BUT IS NOT LIMITED TO:
   - DOUGLAS COUNTY ROADWAY DESIGN AND CONSTRUCTION STANDARDS
   - DOUGLAS COUNTY STORM DRAINAGE DESIGN AND TECHNICAL CRITERIA
   - DOUGLAS COUNTY GRADING, EROSION AND SEDIMENT CONTROL CRITERIA
   - CDOT M & S STANDARDS
   - MUTCD
   - URBAN STORM DRAINAGE CRITERIA MANUAL VOLUMES 1,2 & 3
27. A TEMPORARY CONSTRUCTION ACCESS PERMIT FROM DOUGLAS COUNTY MAY BE REQUIRED FOR ANY PROJECT.

NOTES - CONTINUED

GENERAL

1. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE FROM DAMAGE. ALL IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION.
2. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL DEBRIS FROM DEMOLITION AT CONTRACTORS EXPENSE.
3. ALL BUILDING COORDINATES ARE TO OUTSIDE CORNER OF COLUMN OR BUILDING.
4. THE CONTRACTOR SHALL DISPOSE OF ALL NON-ORGANIC WASTES SUCH AS OLD GUNITE, PIPING, ROCK RUBBLE ETC... AT AN APPROVED LANDFILL OR, OTHER SUITABLE DISPOSAL SITES AT THE CONTRACTOR'S EXPENSE.
5. CONTRACTOR SHALL RESTORE ALL SURVEY MONUMENTS THAT ARE DAMAGED OR DESTROYED DURING CONSTRUCTION.

UTILITIES

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION. THE CONTRACTOR SHALL POTHOLE FOR EXISTING UTILITIES PRIOR TO SUBMITTAL OF SHOP DRAWINGS, FOR POINTS OF CONNECTIONS.
2. THE CONTRACTOR SHALL PROTECT ALL REMAINING EXISTING UTILITIES.
3. LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS AND ELEVATIONS AND SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT UTILITY LINES WHETHER SHOWN OR NOT SHOWN.
4. PRIOR TO ANY CONNECTION TO AN EXISTING UTILITY, THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY OWNER. PRIOR TO ANY EXCAVATION IN THE VICINITY OF ANY EXISTING UNDERGROUND FACILITIES, INCLUDING ALL WATER, SEWER, STORM DRAIN, GAS, PETROLIUM PRODUCTS, OR OTHER PIPELINES; ALL BURIED ELECTRIC POWER, COMMUNICATIONS, OR TELEVISION CABLES; ALL TRAFFIC SIGNAL AND STREET LIGHTING FACILITIES; AND ALL ROADWAY, STATE HIGHWAY, AND RAILROAD RIGHTS-OF-WAY, THE CONTRACTOR SHALL NOTIFY THE RESPECTIVE AUTHORITIES REPRESENTING THE OWNERS OR AGENCIES RESPONSIBLE FOR SUCH FACILITIES NOT LESS THAN 3 DAYS NOR MORE THAN 7 DAYS PRIOR TO EXCAVATION SO THAT A REPRESENTATIVE OF SAID OWNERS OR AGENCIES CAN BE PRESENT DURING SUCH WORK IF THEY SO DESIRE. IN THE CASE OF THE UNDERGROUND UTILITY SERVICE ALERT CENTER, THIS NOTICE WILL GIVE THEM TIME TO MARK THE LOCATION OF THE UTILITIES. THE CONTRACTOR SHALL ALSO NOTIFY THE REGIONAL OR LOCAL UNDERGROUND SERVICE ALERT COMPANY AT LEAST 3 DAYS, BUT NO MORE THAN 7 DAYS, PRIOR TO SUCH EXCAVATION.

SURVEY AND CONTROL

SURVEY CONTROL IS BASED IN NSRS 2011 COLORADO STATE PLANES, CENTRAL ZONE, US FOOT.

SEE SHEET C-004 FOR LOCAL SURVEY CONTROL POINTS LOCATIONS.

HORIZONTAL CONTROL IS BASED ON THE PROJECT CONTROL INFORMATION OF THE TOPOGRAPHIC SURVEY PERFORMED BY PRECISION SURVEY & MAPPING INC. ON AUGUST 2, 2018.

BASIS OF ELEVATION IS BASED ON THE PROJECT CONTROL INFORMATION OF THE TOPOGRAPHIC SURVEY PERFORMED BY PRECISION SURVEY & MAPPING INC. ON AUGUST 2, 2018 BEING POINT #10, A RED PLASTIC CAP, WITH A PUBLISHED ELEVATION OF 5517.39'.

ADDITIONAL PROJECT CONTROL POINTS BASED ON FIELD WORK PERFORMED ON OCTOBER 21, 2024.

PIPING

1. THE CONTRACTOR SHALL COMPLY WITH THE STATE DEPARTMENT OF HEALTH SERVICES CRITERIA FOR THE SEPARATION OF WATER MAINS AND SANITARY SEWERS.
2. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 36 INCHES OF COVER ON ALL PIPELINES UNLESS OTHERWISE SHOWN OR DIRECTED.
3. STRAIGHT SLOPES SHALL BE MAINTAINED BETWEEN INVERT ELEVATIONS SHOWN OR SPECIFIED.
4. THE CONTRACTOR SHALL ADJUST ALL VALVE BOXES, PULL BOXES AND MANHOLES TO FINISHED GRADE UNLESS OTHERWISE SHOWN OR SPECIFIED. MANHOLES IN OPEN FIELDS SHALL BE SET ONE FOOT ABOVE GRADE. APPROXIMATE RIM ELEVATIONS ARE SHOWN ON DRAWINGS.
5. ALL PIPE TRENCHING AND BACKFILL SHALL BE IN ACCORDANCE WITH DETAIL C-602 FOR RIGID PIPE AND C-601 FOR FLEXIBLE PIPE. THE PIPING SHOWN ON THESE PLANS SHALL BE RESTRAINED JOINT DESIGN AT ALL SLEEVE TYPE COUPLINGS.
6. THE CONTRACTOR SHALL PROVIDE TWO FLEXIBLE SLEEVE TYPE COUPLINGS WITH RESTRAINED JOINTS FOR EACH PIPE PENETRATING STRUCTURE (EXCLUDING MANHOLES). THE COUPLINGS AND FLEXIBLE JOINTS SHALL BE 3-FEET AND 8-FEET AWAY FROM THE STRUCTURE. ALL PIPING SHALL BE RESTRAINED JOINT DESIGN UNLESS INDICATED OTHERWISE. COUPLINGS AND RESTRAINED JOINTS SHALL BE PROVIDED WHETHER SHOWN ON THE DRAWINGS OR NOT. STEEL PIPE RESTRAINED HARNESS SETS SHALL BE PROVIDED IN ACCORDANCE WITH AWWA M-11. ALL OTHER PIPES, COUPLINGS AND RESTRAINED JOINTS SHALL BE APPROVED BY THE ENGINEER. ALL RESTRAINED JOINTS SHALL BE IN ACCORDANCE WITH THE PIPE MANUFACTURERS' RECOMMENDATIONS.

EROSION CONTROL

1. THE CONTRACTOR SHALL SUBMIT AN EROSION CONTROL PLAN FOR WORK DURING THE CONSTRUCTION, SIGNED AND STAMPED BY A REGISTERED CIVIL ENGINEER PRIOR TO THE START OF CONSTRUCTION.
   a. ALL SLOPES SHALL BE PROTECTED FROM EROSION DURING ROUGH GRADING OPERATIONS AND THEREAFTER, UNTIL INSTALLATION OF FINAL GROUNDCOVER (SEE LANDSCAPE PLANS FOR FINAL GROUNDCOVER).
   b. ALL SLOPE PROTECTION SWALES SHALL BE CONSTRUCTED AT THE SAME TIME AS BANKS ARE GRADED.
   c. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION AND MAINTENANCE OF EROSION CONTROL MEASURES CONTAINED WITHIN THE CONTRACT SPECIFICATIONS OR AS REQUIRED BY THE CITY, DISTRICT, OR OTHER REGULATORY AUTHORITY. THE CONTRACTOR SHALL ALSO PROVIDE ANY ADDITIONAL EROSION CONTROL MEASURES (E.G. HYDROSEEDING, MULCHING OF STRAW, SAND BAGGING, DIVERSION DITCHES, ETC.) DICTATED BY FIELD CONDITIONS TO PREVENT EROSION OR THE INTRODUCTION OF DIRT, MUD, OR DEBRIS INTO EXISTING PUBLIC STREETS, WATERWAYS, OR ONTO ADJACENT PROPERTIES DURING ANY PHASE OF CONSTRUCTION OPERATIONS.

GENERAL CIVIL SYMBOLS

- NEW
- EXISTING
- FUTURE
- EXISTING TO BE REMOVED OR DEMOLISHED
- CENTERLINE
- EARTH (IN SECTION)
- COMPACTED EARTH (IN SECTION)
- S=0.0123 — SLOPE ON PAVED SURFACE
- 3:1 — BERM SLOPE (HORZ TO VERT)

TOPOGRAPHY AND MAPPING SYMBOLS

- 125 — MAJOR CONTOURS
- MINOR CONTOURS
- TOP OF SLOPE
- TOE OF SLOPE
- P/L — PROPERTY LINE
- R/W — RIGHT-OF-WAY LINE
- GB — GRADE BREAK
- R — RIDGE LINE
- ESMT — EASEMENT LINE
- TEMP ESMT — TEMPORARY EASEMENT LINE
- TRAIL OR DIRT ROAD
- FLOW LINE
- FLOOD HAZARD AREA
- EDGE OF WETLANDS
- RAILROAD
- GUARDRAIL (PERMANENT)
- GUARDRAIL (REMOVABLE)
- VEGETATION
- WELL

DRAINAGE SYMBOLS

- RIPRAP
- HAY BALE
- SILT FENCE

GEOTECHNICAL SYMBOLS

- B-X — SOIL BORING LOCATION
- TEST PIT LOCATION
- XX — OBSERVATION HOLE
- MW — MONITORING WELL

PIPING AND UTILITIES

UTILITIES (SINGLE LINE) SEE PIPE SCHEDULE FOR ADDITONAL PIPING INFO

- UTILITIES (SIZE WHERE NOTED)
- G — UNDERGROUND

G	NATURAL GAS LINE
HPG	HIGH PRESSURE GAS LINE
LPG	LIQUID PETROLIUM GAS LINE
W	WATER
PW	POTABLE WATER
FIRE	FIRE SUPPLY WATER LINE
REW	RECLAIMED WATER
UW	UTILITY / NON-POTABLE WATER
IRRG	IRRIGATION LINE
SDR	STORM DRAIN
SS	SANITARY SEWER
STM	STEAM LINE
TEL	TELEPHONE
COMM	COMMUNICATIONS LINE
FOC	FIBER OPTIC CABLE
CATV	CABLE TV
E	POWER
UNID	UNIDENTIFIED
ABND	ABANDONED UTILITY

- BUMPED HEAD
- PP — POWER POLE
- BURIED ACCESS MANOLE (IN PLAN) LOCATE ON SIDE SHOWN
- BURIED ACCESS MANHOLE (IN PROFILE)
- AV/AR VALVE (IN PLAN)
- AV/AR VALVE (IN PROFILE)
- A/R VALVE (IN PLAN) LOCATE ON SIDE SHOWN
- BLOWOFF (IN PROFILE) LOCATE ON SIDE SHOWN
- BLOWOFF (IN PLAN)
- BLOWOFF (IN PROFILE)
- FIRE HYDRANT (IN PLAN)
- FH — FIRE HYDRANT (IN PROFILE)
- MH — MANHOLE (IN PLAN)
- MH — MANHOLE (IN PROFILE)
- COTG PCOTG — CLEANOUT TO GRADE OR PRESSURE CLEANOUT TO GRADE (IN PLAN)
- COTG PCOTG — CLEANOUT TO GRADE OR PRESSURE CLEANOUT TO GRADE (IN PROFILE)
- GATE VALVE
- BUTTERFLY VALVE
- ECCENTRIC PLUG VALVE
- LUBRICATED PLUG VALVE

ROAD AND PAVING SYMBOLS

- ASPHALT CEMENT PAVING
- CONCRETE PAVING
- GRAVEL PAVING
- CONCRETE CURB
- CONCRETE CURB AND GUTTER
- DROP INLET CATCH BASIN
- CURBSIDE DROP INLET CATCH BASIN WITH LOCAL DEPRESSION
- SIDE INLET CATCH BASIN WITH LOCAL DEPRESSION
- CONCRETE WALK
- DRIVEWAY/ACCESS RAMP

CONTROL SYMBOLS

- B M CP-XX — CONTROL P OINT
- ### — SITE COORDINATES (SEE TABLE ON DRAWINGS)
- N XXXXXXX E XXXXXXX — SITE COORDINATES
- EL XXXX.XX — MONUMENT
- HORIZONTAL CONTROL POINT
- VERTICAL CONTROL POINT
- XXX — HORZ AND VERT CONTROL POINT
- XXX.XX — FINISHED ELEVATION
- (XXX.XX) — EXISTING ELEVATION
- DELTA

STRUCTURES

- SITE OR RETAINING WALL
- FENCE (CHAINLINK)
- FENCE (WOOD)
- STRUCTURE
- STRUCTURE (BELOW GRADE)
- CB CB — CATCH BASIN

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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ENGINEERING DIVISION ACCEPTANCE BLOCK

Stantec
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Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
B IFP - L&E	SSC	ZS	2025.08.20

Permit/Seal

Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD, LITTLETON, CO 80125

Project No.: 181301899
File Name: 01899C-000-001-TEMP
Scale:
Dwn. Dsgn. Chkd. YYYY.MM.DD 2025.08.01

Title
GENERAL NOTES AND SYMBOLS

Revision: 1
Drawing No.
C-001

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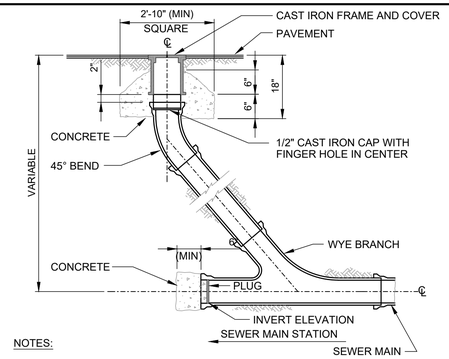
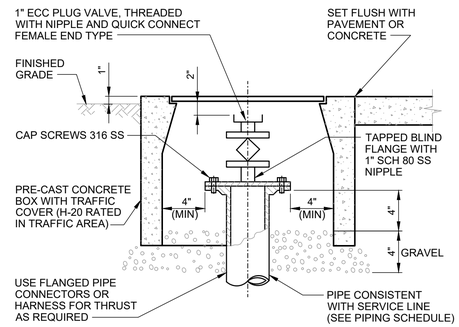


NOTES:

1. IF IN UNIMPROVED AREA TOP SHALL BE 6" ABOVE GRADE.
2. SEE PLAN FOR STATION AND INVERT ELEVATION. PIPE AND FITTINGS SHALL BE OF THE SAME MATERIAL AS THE MAIN LINE SEWER.

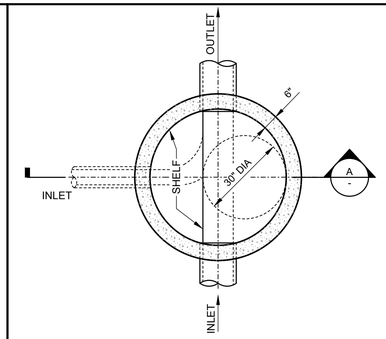
C-302 CLEANOUT TO GRADE (COTG)

REV 010119

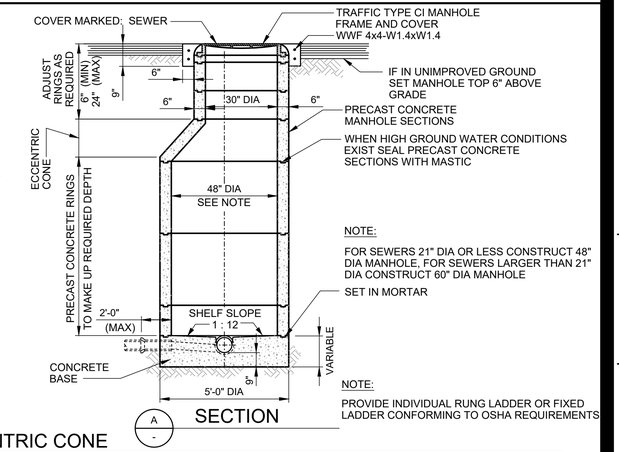


C-305 PRESSURIZED SYSTEM CLEANOUT TO GRADE (PCOTG)

REV 010119

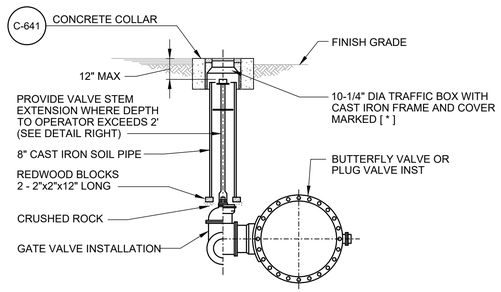


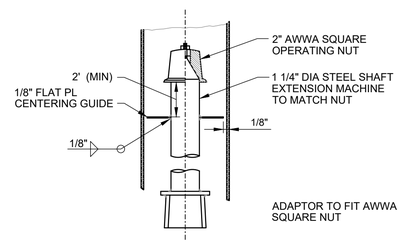
SECTIONAL PLAN



C-320 MANHOLE (MH) WITH ECCENTRIC CONE

REV 010119



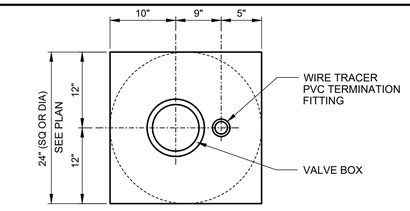


NOTES:

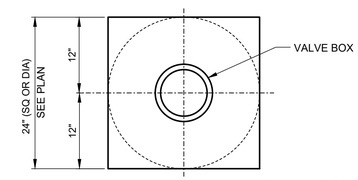
PROVIDE PROTECTIVE COATING TO EXTERIOR SURFACE OF VALVE BODY IN ACCORDANCE WITH SPECS.
FOR LUBRICATED PLUG VALVE, EXTEND LUBRICATION LINE TO GRADE PER MANUFACTURES INSTRUCTIONS.

C-640 BURIED VALVE INSTALLATION

REV 010119



PLAN



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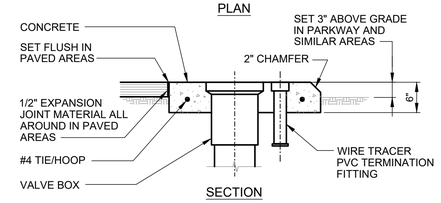
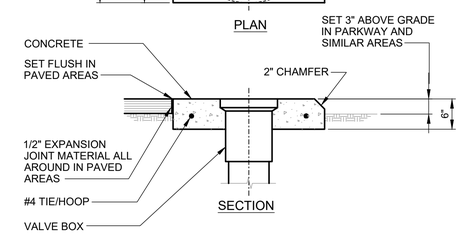


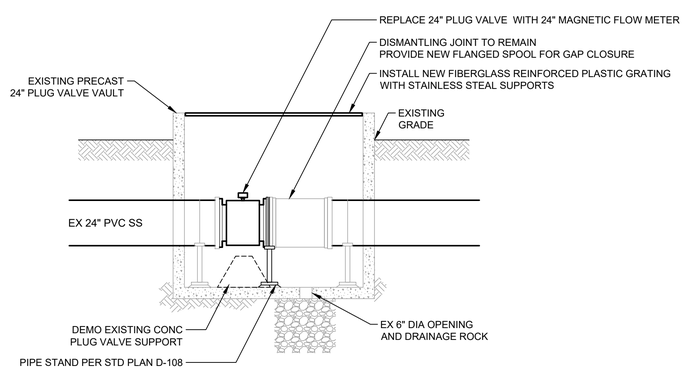
SECTION



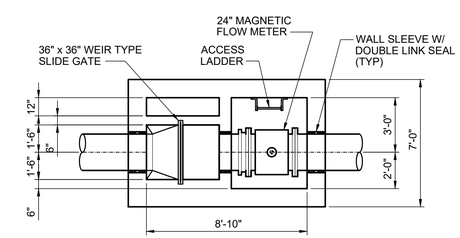
SECTION

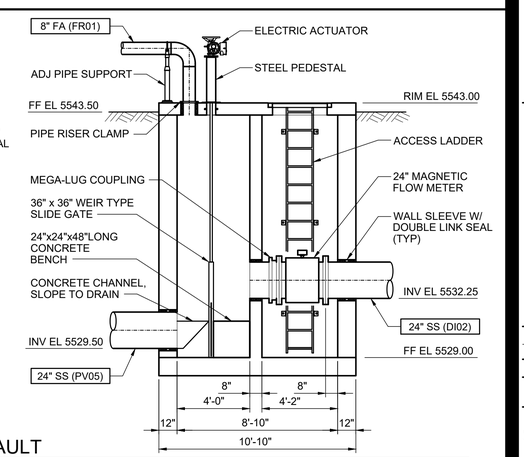
C-641 VALVE BOX COLLAR

REV 010119



C-642 COMBINED INFLUENT FLOW METERING VAULT





C-643 CBWRF INFLUENT FLOW METERING VAULT

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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By	Appd	YYYY.MM.DD	Revision

By	Appd	YYYY.MM.DD	Issued
JSC	ZS	2025.08.20	B IFP - I&E

Permit/Seal

Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD, LITTLETON, CO 80125

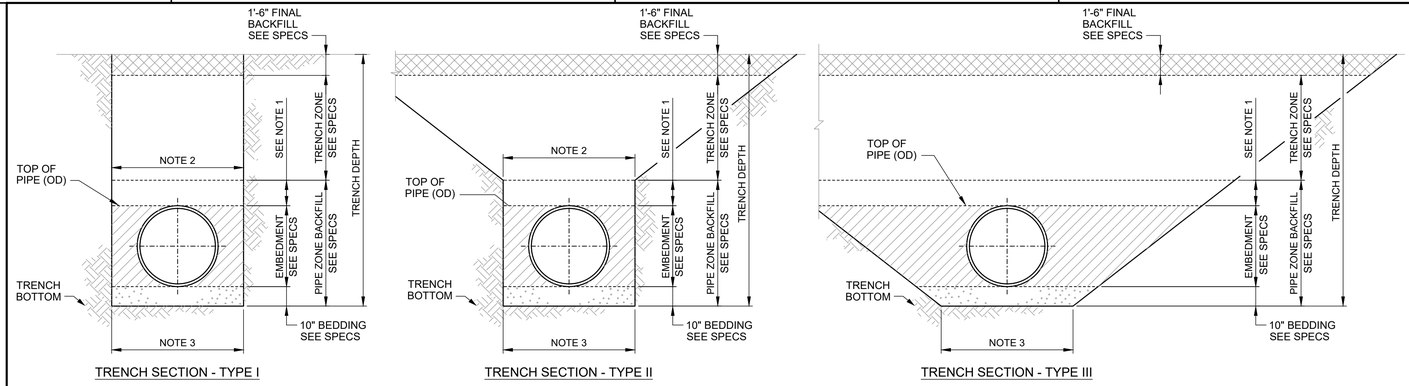
Project No.: 181301899
File Name: 01899C-000-002

Scale:

Dwn.	Dsgn.	Chkd.	2025.08.01 YYYY.MM.DD

Title
STANDARD DETAILS - I

Revision: 2
Drawing No.
C-002



TRENCH SECTION - TYPE I

TRENCH SECTION - TYPE II

TRENCH SECTION - TYPE III

NOTES:

1. 6" MIN FOR PIPE DIAMETER < 24"
   12" MIN FOR PIPE DIAMETER > 24"
2. MAX TRENCH WIDTH @ TOP OF PIPE:
   OD + 36" FOR, 18" AND LARGER PIPE OD
   OD + 24" FOR LESS THAN 18"
3. MIN TRENCH BOTTOM WIDTH:
   OD + 24" FOR MECHANICAL COMPACTION

A. FLEXIBLE PIPE REFERS TO ALL STEEL, DUCTILE-IRON, AND PLASTIC PIPES.

B. TYPICAL TRENCH SECTIONS (I, II AND III) ARE TO BE USED ONLY WHERE STABLE, COMPACT SOIL CONDITIONS EXIST. IF BOULDERS OR LARGE OBSTRUCTIONS ARE ENCOUNTERED, TRENCH SECTIONS MAY BE DEEPER OR WIDER THAN SHOWN. THE ENGINEER SHALL BE ADVISED SHOULD THIS OCCUR.

C. THE NEED FOR PROTECTIVE SYSTEMS AND EXCAVATION SLOPES SHALL BE DETERMINED CONSIDERING APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, AND GEOTECHNICAL CONSULTANTS' RECOMMENDATIONS.

D. PROTECTIVE SYSTEMS SHALL BE DESIGNED AND BUILT IN ACCORDANCE WITH THE APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS.

E. SUPPORTING DOCUMENTATION SHALL BE SUBMITTED TO THE ENGINEER REGARDING PIPE DESIGN AND COMPLIANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS.

F. UNSUPPORTED VERTICAL AND/OR SLOPING TRENCH WALL SLOPES SHALL NOT BE STEEPER THAN ALLOWED BY APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, UNLESS SUPPORTING DOCUMENTATION IS SUBMITTED, ACCORDING TO AFOREMENTIONED SAFETY STANDARDS.

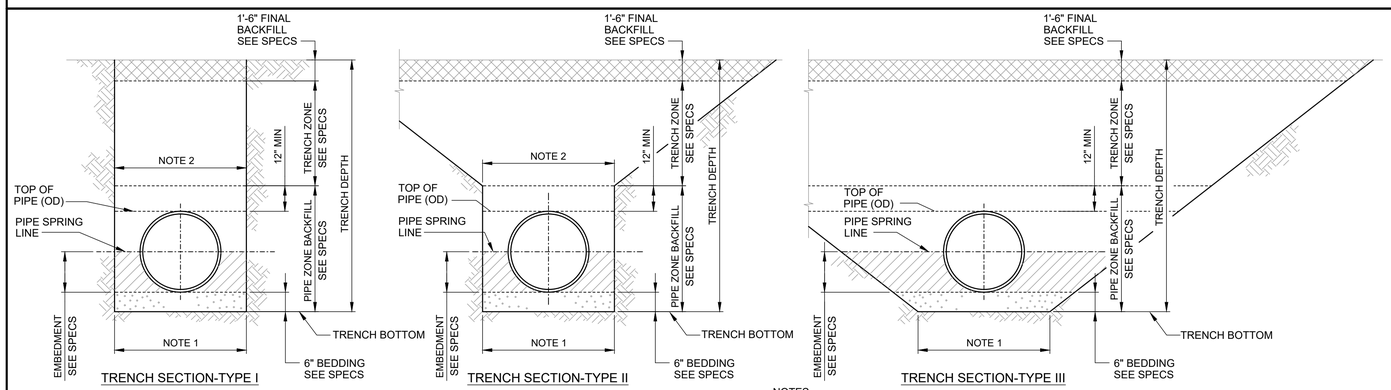
G. TRENCH SECTIONS OTHER THAN THE TYPICAL SECTIONS SHOWN MAY BE UTILIZED PROVIDED THEY COMPLY WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS. DOCUMENTATION SUPPORTING THIS COMPLIANCE AND PIPE DESIGN CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER.

H. IF OVER-EXCAVATION DUE TO POOR FOUNDATION MATERIAL IS ORDERED BY THE ENGINEER, THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTION OF THE SPECIFICATIONS ARTICLE ENTITLED, "FILL AND BACKFILL MATERIAL REQUIREMENTS."

I. IF DURING CONSTRUCTION, THE WATER TABLE IS DISCOVERED TO BE ABOVE THE TRENCH BOTTOM, THE ENGINEER SHALL BE NOTIFIED, AND APPROPRIATE DEWATERING SHALL BE IMPLEMENTED TO LOWER THE WATER LEVEL BELOW THE TRENCH BOTTOM. THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTIONS OF THE SPECIFICATIONS, OR AS ORDERED BY THE ENGINEER.

C-601 TRENCH SECTION FLEXIBLE PIPE

REV 010119



TRENCH SECTION-TYPE I

TRENCH SECTION-TYPE II

TRENCH SECTION-TYPE III

NOTES:

1. MIN TRENCH BOTTOM WIDTH:
   OD + 24" FOR MECHANICAL COMPACTION
   OD + 18" FOR WATER CONSOLIDATION
2. MAX TRENCH WIDTH @ TOP OF PIPE:
   OD + 36" FOR, 18" AND LARGER PIPE OD
   OD + 24" FOR LESS THAN 18" PIPE OD

A. RIGID PIPE REFERS TO ALL TYPES OF REINFORCED AND UN-REINFORCED CONCRETE PIPE AND VITRIFIED CLAY PIPE.

B. TYPICAL TRENCH SECTIONS (I, II AND III) ARE TO BE USED ONLY WHERE STABLE, COMPACT SOIL CONDITIONS EXIST. IF BOULDERS OR LARGE OBSTRUCTIONS AREENCOUNTERED, TRENCH SECTIONS MAY BE DEEPER OR WIDER THAN SHOWN.THE ENGINEER SHALL BE ADVISED SHOULD THIS OCCUR.

C. THE NEED FOR PROTECTIVE SYSTEMS, AND EXCAVATION SLOPES SHALL BE DETERMINED CONSIDERING APPLICABLE LOCAL, STATE AND FEDERAL (OSHA)SAFETY STANDARDS AND REGULATIONS, AND GEOTECHNICAL CONSULTANTS' RECOMMENDATIONS.

D. PROTECTIVE SYSTEMS SHALL BE DESIGNED AND BUILT IN ACCORDANCE WITH THE APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS.

E. SUPPORTING DOCUMENTATION SHALL BE SUBMITTED TO THE ENGINEER REGARDING PIPE DESIGN AND COMPLIANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS.

F. UNSUPPORTED VERTICAL AND/OR SLOPING TRENCH WALL SLOPES SHALL NOT BE STEEPER THAN ALLOWED BY APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, UNLESS SUPPORTING DOCUMENTATION IS SUBMITTED, ACCORDING TO AFOREMENTIONED SAFETY STANDARDS.

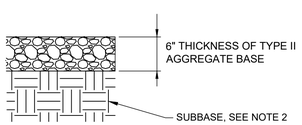
G. IF OVER-EXCAVATION DUE TO POOR FOUNDATION MATERIAL IS ORDERED BY THE ENGINEER, THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTION OF THE SPECIFICATIONS ARTICLE ENTITLED, "FILL AND BACKFILL MATERIAL REQUIREMENTS."

H. IF DURING CONSTRUCTION, THE WATER TABLE IS DISCOVERED TO BE ABOVE THE TRENCH BOTTOM, THE ENGINEER SHALL BE NOTIFIED, AND APPROPRIATE DEWATERING SHALL BE IMPLEMENTED TO LOWER THE WATER LEVEL BELOW THE TRENCH BOTTOM. THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTIONS OF THE SPECIFICATIONS, OR AS ORDERED BY THE ENGINEER.

I. TRENCH SECTIONS OTHER THAN THE TYPICAL SECTIONS SHOWN MAY BE UTILIZED PROVIDED THEY COMPLY WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS. DOCUMENTATION SUPPORTING THIS COMPLIANCE AND PIPE DESIGN CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER.

C-602 TRENCH SECTION RIGID PIPE

REV 010119

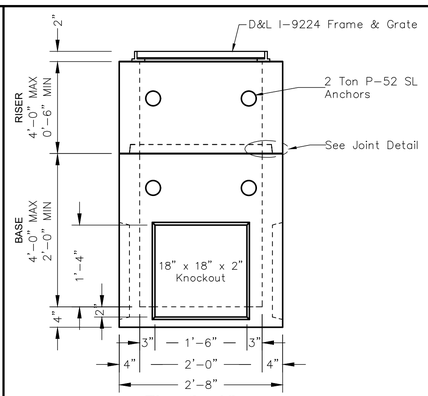


GRAVEL ROAD SECTION

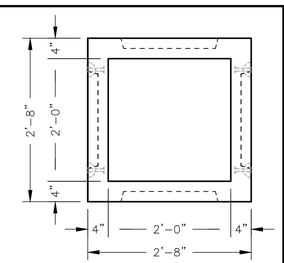
NOTES:

1. AGGREGATE BASE MATERIAL SHALL ADHERE TO SPECIFICATION SECTION 32 11 13.
2. COMPACT UPPER 8-INCHES OF ROAD SUBGRADE TO 95% RELATIVE COMPACTION.

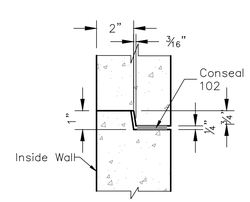
C-902 GRAVEL PAVEMENT



Elevation View



Plan View



Joint Detail

A. PRODUCT SHOWN IS OLDCASTLE PRECAST 2x2-CB MANUFACTURED IN LITTLETON, CO.

B. INLET IS MANUFACTURED ACCORDING TO ASTM C913 AND IS SUITABLE FOR HS-20 LOADING.

C. BASES ARE AVAILABLE WITH FLAT TOP OR JOINT KEYWAY.

2X2 STANDARD HEIGHTS	
BASE	RISER
2' - 0"	0' - 6"
2' - 6"	1' - 0"
3' - 0"	1' - 6"
4' - 0"	2' - 0"
-	2' - 6"
-	3' - 0"
-	4' - 0"

C-100 2'x2' PRECAST CATCH BASIN

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD, LITTLETON, CO 80125

Project No.: 181301899

File Name: 01899C-WF3-000-003

Scale:

Dwn.	Dsgn.	Chkd.	2025.08.01 YYYY.MM.DD

Title
STANDARD DETAILS - II

Revision: 3

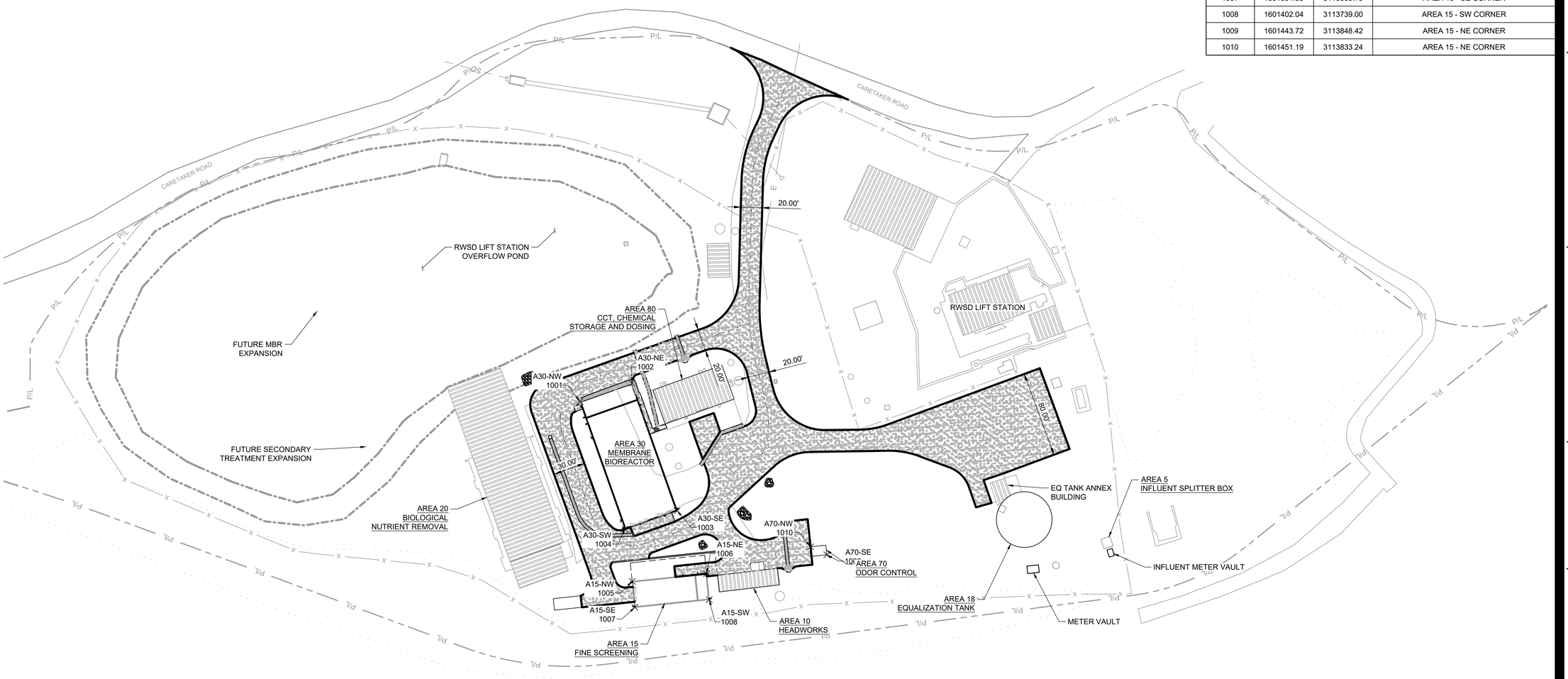
Drawing No.
C-003

GENERAL SHEET NOTES

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL LOCATE EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION. THE CONTRACTOR SHALL POTHOLE FOR EXISTING UTILITIES PRIOR TO SUBMITTAL OF SHOP DRAWINGS, FOR POINTS OF CONNECTION.
2. ALL UTILITIES SHALL BE PROTECTED IN PLACE UNLESS SHOWN OTHERWISE

LOCATION CONTROL TABLE

POINT #	NORTHING	EASTING	DESCRIPTION
1001	1601586.25	3113618.68	AREA 30 - NW CORNER
1002	1601603.38	3113667.07	AREA 30 - NE CORNER
1003	1601484.77	3113709.07	AREA 30 - SE CORNER
1004	1601467.63	3113660.68	AREA 30 - SW CORNER
1005	1601418.97	3113667.28	AREA 15 - NW CORNER
1006	1601426.16	3113736.50	AREA 15 - NE CORNER
1007	1601394.85	3113669.79	AREA 15 - SE CORNER
1008	1601402.04	3113739.00	AREA 15 - SW CORNER
1009	1601443.72	3113848.42	AREA 15 - NE CORNER
1010	1601451.19	3113833.24	AREA 15 - NE CORNER



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Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD.
LITTLETON, CO 80125

Project No.: 181301899
File Name: 01899C-WF3-000-004
Scale:

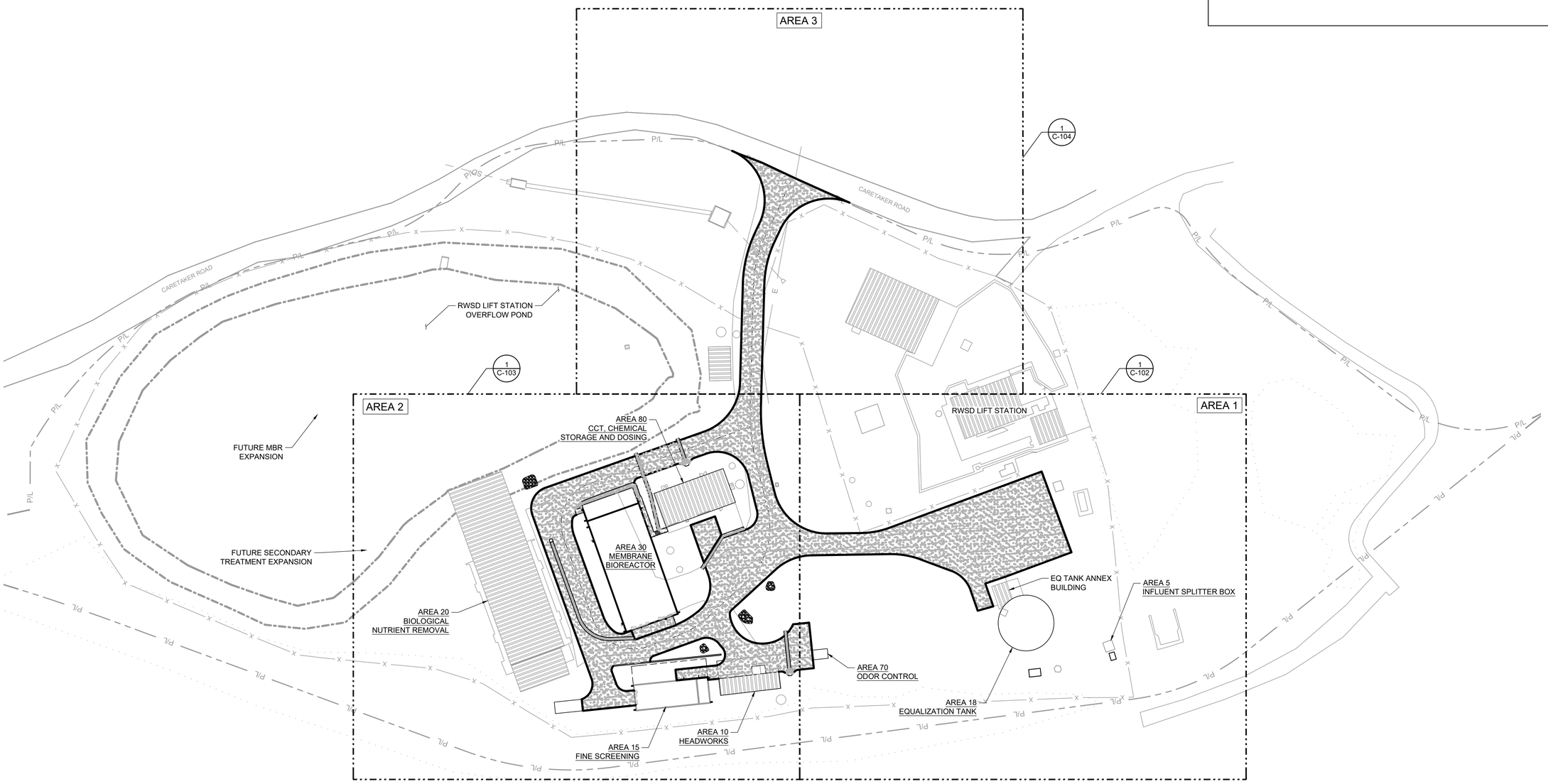
Dwn.	Dsgn.	Chkd.	2025.08.01 YYYY.MM.DD

Title
LOCATION CONTROL PLAN

Revision: 4
Drawing No.
C-004

GENERAL SHEET NOTES

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL LOCATE EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION. THE CONTRACTOR SHALL POTHOLE FOR EXISTING UTILITIES PRIOR TO SUBMITTAL OF SHOP DRAWINGS, FOR POINTS OF CONNECTION.
2. ALL UTILITIES SHALL BE PROTECTED IN PLACE UNLESS SHOWN OTHERWISE.
3. SEE G-003 FOR PIPE AND MATERIAL SCHEDULE.



ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

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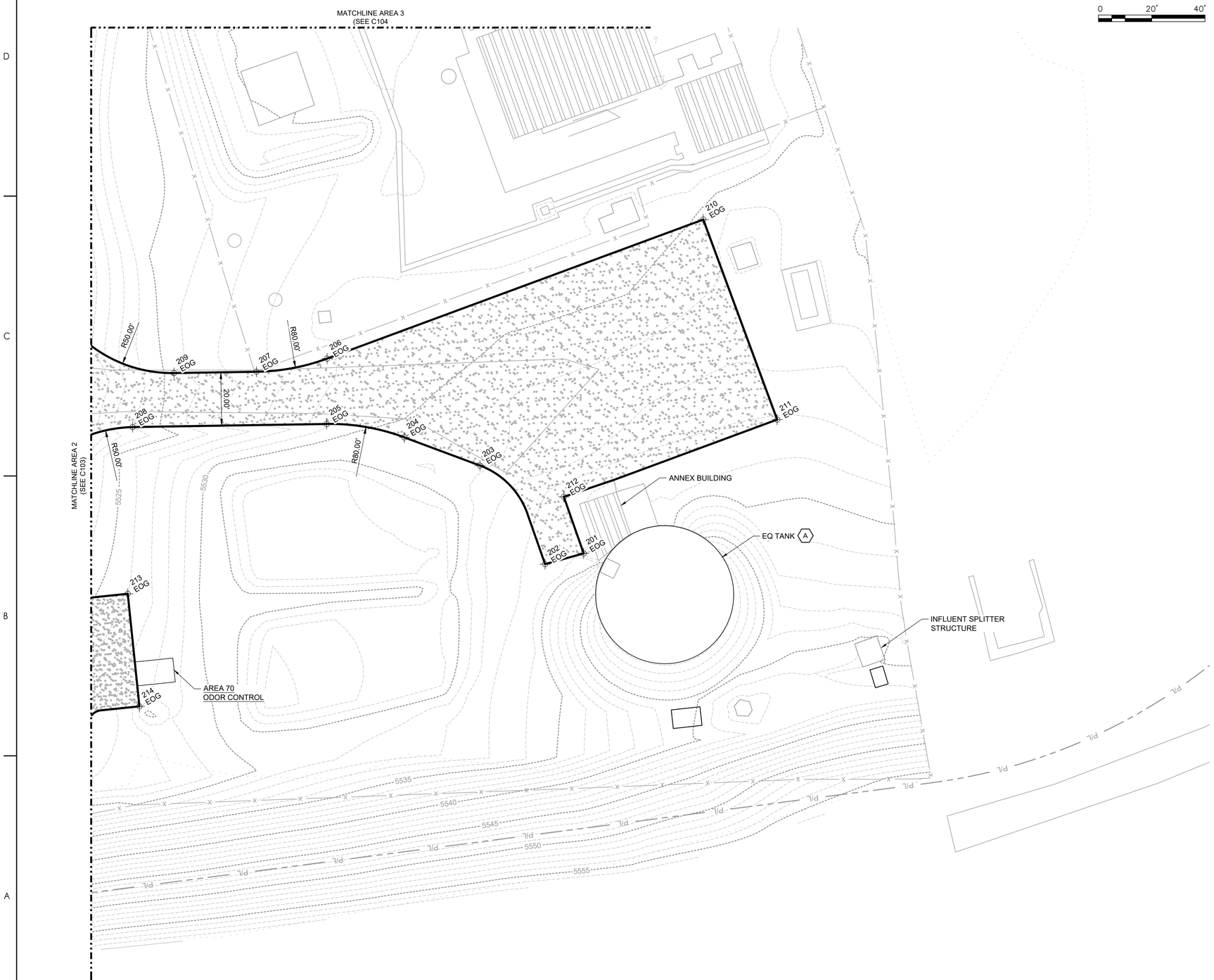
Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
1310 CARETAKER RD, LITTLETON, CO 80125

Project No.: 181301899
File Name: 01899C-WP3-100-101
Scale: SCALE

Dwn.	Dsgn.	Chkd.	2025.08.01 YYYY.MM.DD

Title
OVERALL SITE PLAN

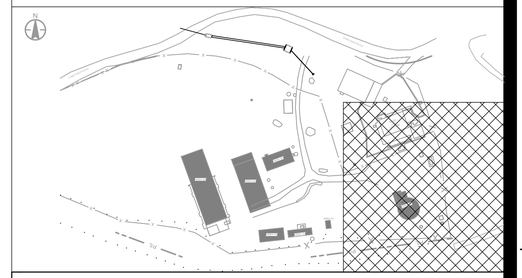
Revision: 5
Drawing No.
C-101



1 C-101 ENLARGED AREA 1 SITE PLAN

SCALE: 3"=1'-0"

KEY PLAN



GENERAL SHEET NOTES

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL LOCATE EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION. THE CONTRACTOR SHALL POTHOLE FOR EXISTING UTILITIES PRIOR TO SUBMITTAL OF SHOP DRAWINGS, FOR POINTS OF CONNECTION.
2. ALL UTILITIES SHALL BE PROTECTED IN PLACE UNLESS SHOWN OTHERWISE.

SHEET KEYNOTES

A. AEROBIC DIGESTER TO BE RE-PURPOSED AS EQUALIZATION (EQ) TANK

POINT TABLE

POINT #	ELEVATION	NORTHING	EASTING	DESCRIPTION
201	5533.97	1601491.94	3114001.69	EOG
202	5533.54	1601487.89	3113987.22	EOG
203	5532.29	1601524.88	3113962.78	EOG
204	5530.86	1601535.46	3113934.38	EOG
205	5529.42	1601540.49	3113905.21	EOG
206	5529.37	1601565.03	3113905.40	EOG
207	5528.00	1601560.08	3113878.92	EOG
208	5521.90	1601539.32	3113832.40	EOG
209	5524.11	1601559.60	3113847.93	EOG
210	5530.27	1601617.18	3114046.58	EOG
211	5533.13	1601542.14	3114074.30	EOG
212	5533.85	1601513.16	3113994.25	EOG
213	5526.20	1601476.79	3113830.58	EOG
214	5526.63	1601434.55	3113834.96	EOG

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD, LITTLETON, CO 80125

Project No.: 181301899

File Name: 01899C-WF3-100-102-104

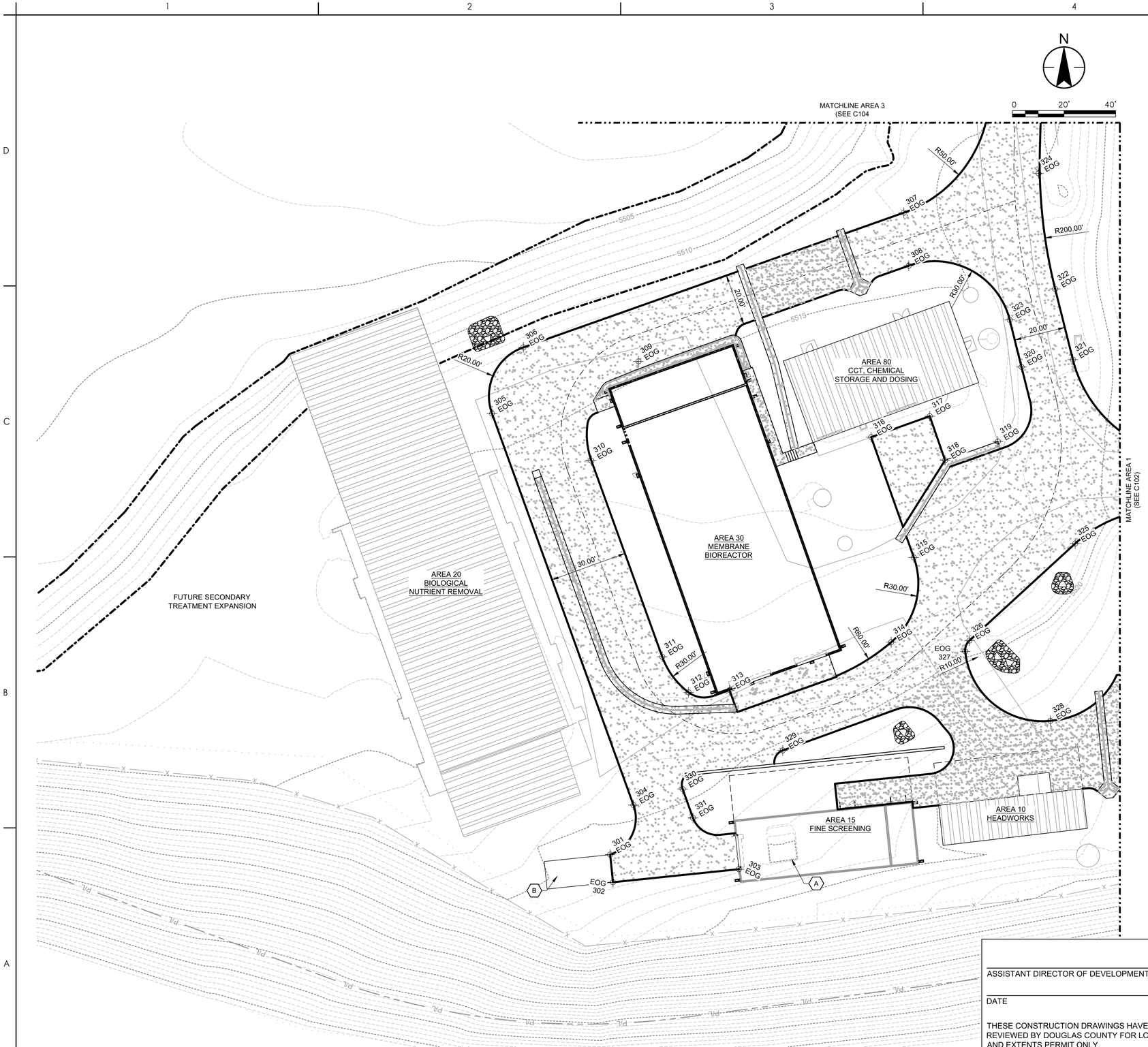
Scale: SCALE

Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
			2025.08.01

Title
ENLARGED SITE PLAN - AREA 1

Revision: 6

Drawing No.
C-102



1 C-101 ENLARGED AREA 2 SITE PLAN

SCALE: 3"=1'-0"

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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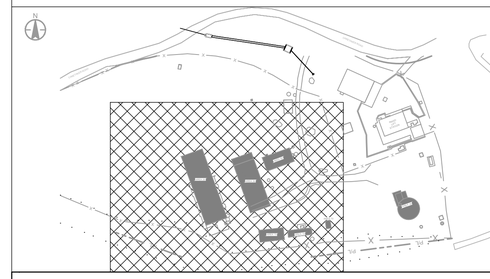
ENGINEERING DIVISION ACCEPTANCE BLOCK

KEY PLAN



GENERAL SHEET NOTES

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL LOCATE EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION. THE CONTRACTOR SHALL POTHOLE FOR EXISTING UTILITIES PRIOR TO SUBMITTAL OF SHOP DRAWINGS, FOR POINTS OF CONNECTION.
2. ALL UTILITIES SHALL BE PROTECTED IN PLACE UNLESS SHOWN OTHERWISE.

SHEET KEYNOTES

A. REMOVE GRIT DRYING BED.
B. REMOVE EXISTING CONCRETE SLAB.

POINT TABLE

POINT #	ELEVATION	NORTHING	EASTING	DESCRIPTION
301	5523.35	1601405.62	3113619.37	EOG
302	5523.35	1601394.93	3113620.48	EOG
303	5524.45	1601399.99	3113669.25	EOG
304	5520.95	1601424.84	3113628.41	EOG
305	5515.60	1601576.52	3113573.60	EOG
306	5514.72	1601602.17	3113585.74	EOG
307	5514.63	1601654.36	3113733.15	EOG
308	5514.95	1601633.82	3113735.06	EOG
309	5515.31	1601596.73	3113630.30	EOG
310	5516.93	1601558.26	3113612.10	EOG
311	5517.46	1601482.29	3113639.55	EOG
312	5517.50	1601468.50	3113649.74	EOG
313	5518.00	1601469.39	3113665.63	EOG
314	5519.22	1601487.96	3113728.27	EOG
315	5516.09	1601520.76	3113737.02	EOG
316	5515.98	1601567.39	3113720.49	EOG
317	5516.00	1601575.51	3113743.20	EOG
318	5515.81	1601558.44	3113749.12	EOG
319	5515.69	1601565.70	3113769.59	EOG
320	5517.08	1601594.57	3113778.75	EOG
321	5518.08	1601597.44	3113798.65	EOG
322	5516.94	1601624.83	3113791.79	EOG
323	5516.70	1601612.84	3113774.17	EOG
324	5515.41	1601669.57	3113785.34	EOG
325	5518.70	1601526.17	3113799.55	EOG
326	5519.38	1601488.53	3113758.54	EOG
327	5519.85	1601484.36	3113756.95	EOG
328	5524.94	1601457.48	3113789.90	EOG
329	5518.28	1601446.00	3113686.24	EOG
330	5521.30	1601431.05	3113647.43	EOG
331	5522.78	1601419.85	3113651.48	EOG

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Permit/Seal

Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD, LITTLETON, CO 80125

Project No.: 181301899
File Name: 01899C-WP3-100-102-104

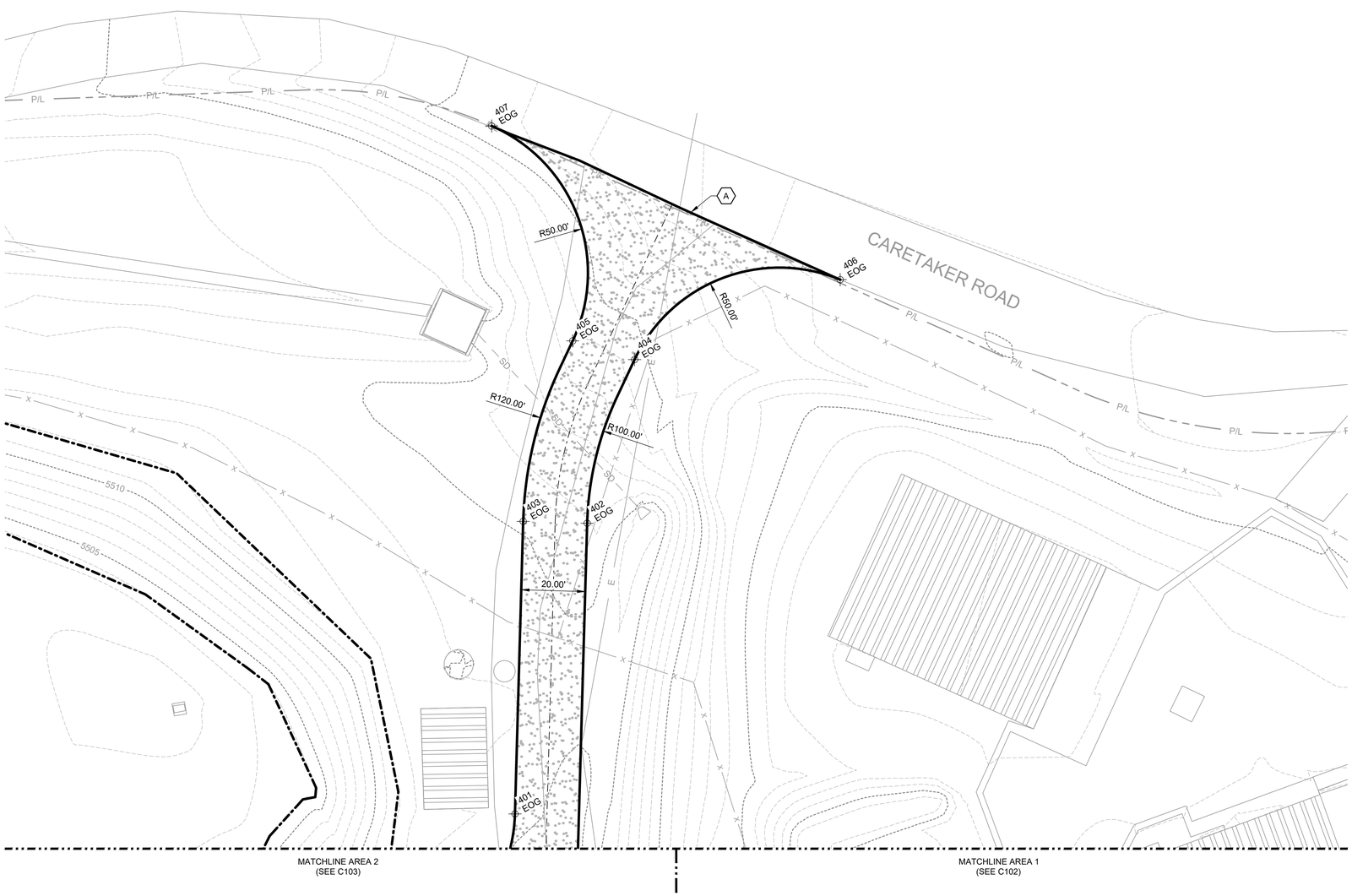
Scale: SCALE

Dwn.	Dsgn.	Chkd.	2025.08.01 YYYY.MM.DD

Title
ENLARGED SITE PLAN - AREA 2

Revision: 7

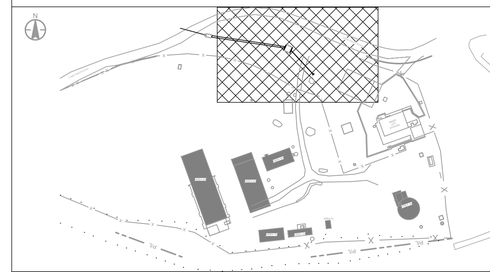
Drawing No.
C-103



1 C-101 ENLARGED AREA 3 SITE PLAN

SCALE: 3"=1'-0"

KEY PLAN



GENERAL SHEET NOTES

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL LOCATE EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION. THE CONTRACTOR SHALL POTHOLE FOR EXISTING UTILITIES PRIOR TO SUBMITTAL OF SHOP DRAWINGS, FOR POINTS OF CONNECTION.
2. ALL UTILITIES SHALL BE PROTECTED IN PLACE UNLESS SHOWN OTHERWISE.

SHEET KEYNOTES

A. MATCH EXISTING EDGE OF ROAD.

POINT TABLE

POINT #	ELEVATION	NORTHING	EASTING	DESCRIPTION
401	5514.26	1601700.09	3113766.45	EOG
402	5515.99	1601790.97	3113789.01	EOG
403	5515.99	1601791.53	3113769.02	EOG
404	5519.47	1601842.11	3113803.84	EOG
405	5519.23	1601847.96	3113784.49	EOG
406	5524.33	1601867.07	3113868.11	EOG
407	5520.34	1601915.10	3113759.16	EOG

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD, LITTLETON, CO 80125

Project No.: 181301899
File Name: 01899C-WF3-100-102-104
Scale: SCALE

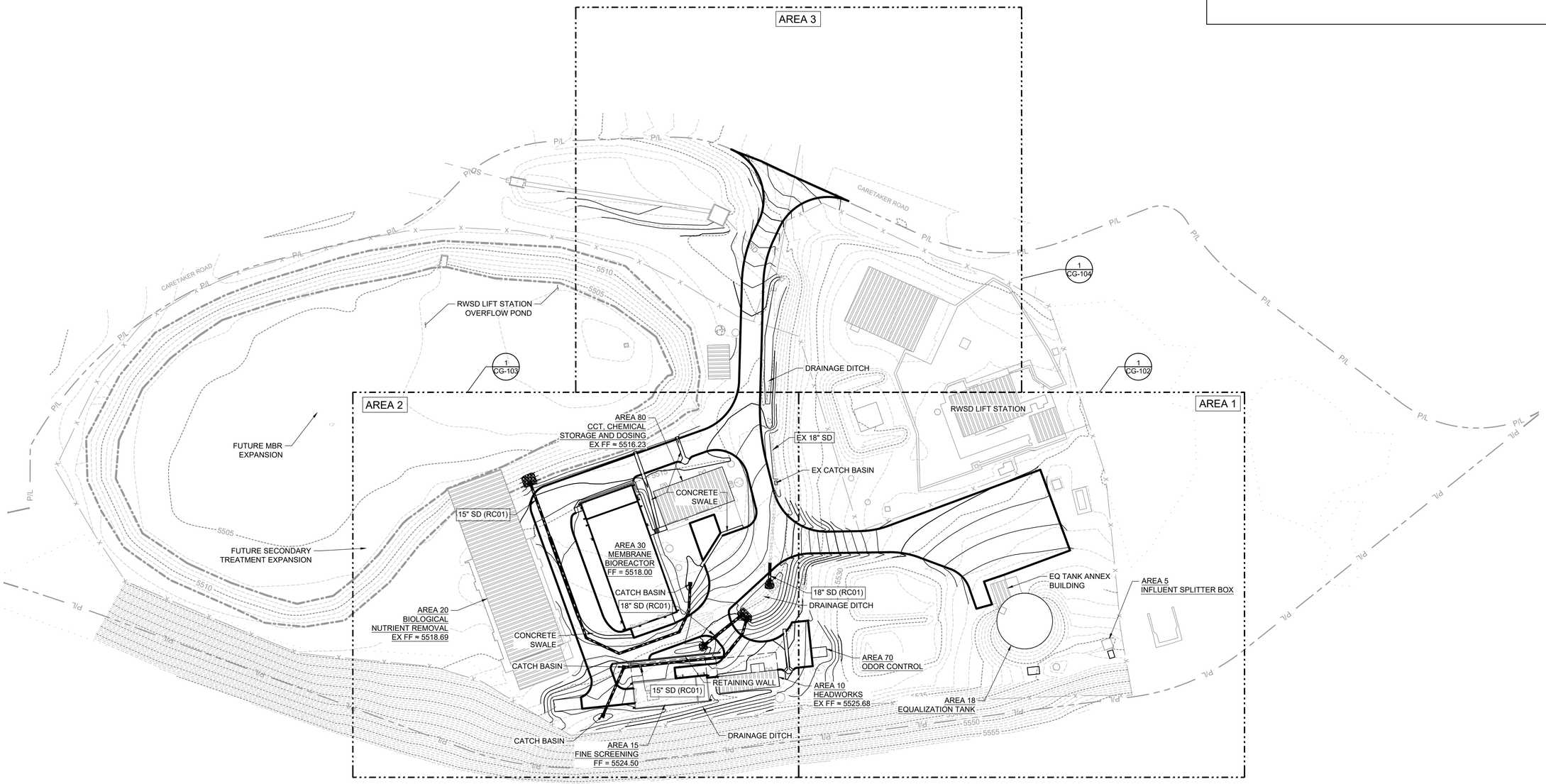
Dwn.	Dsgn.	Chkd.	2025.08.01 YYYY.MM.DD

Title
ENLARGED SITE PLAN - AREA 3

Revision: 8
Drawing No.
C-104

GENERAL SHEET NOTES

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL LOCATE EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION. THE CONTRACTOR SHALL POTHOLE FOR EXISTING UTILITIES PRIOR TO SUBMITTAL OF SHOP DRAWINGS, FOR POINTS OF CONNECTION.
2. ALL UTILITIES SHALL BE PROTECTED IN PLACE UNLESS SHOWN OTHERWISE.
3. SEE G-003 FOR PIPE AND MATERIAL SCHEDULE.



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B IFP - L&E	SSC	ZS	2025.08.20

Permit/Seal

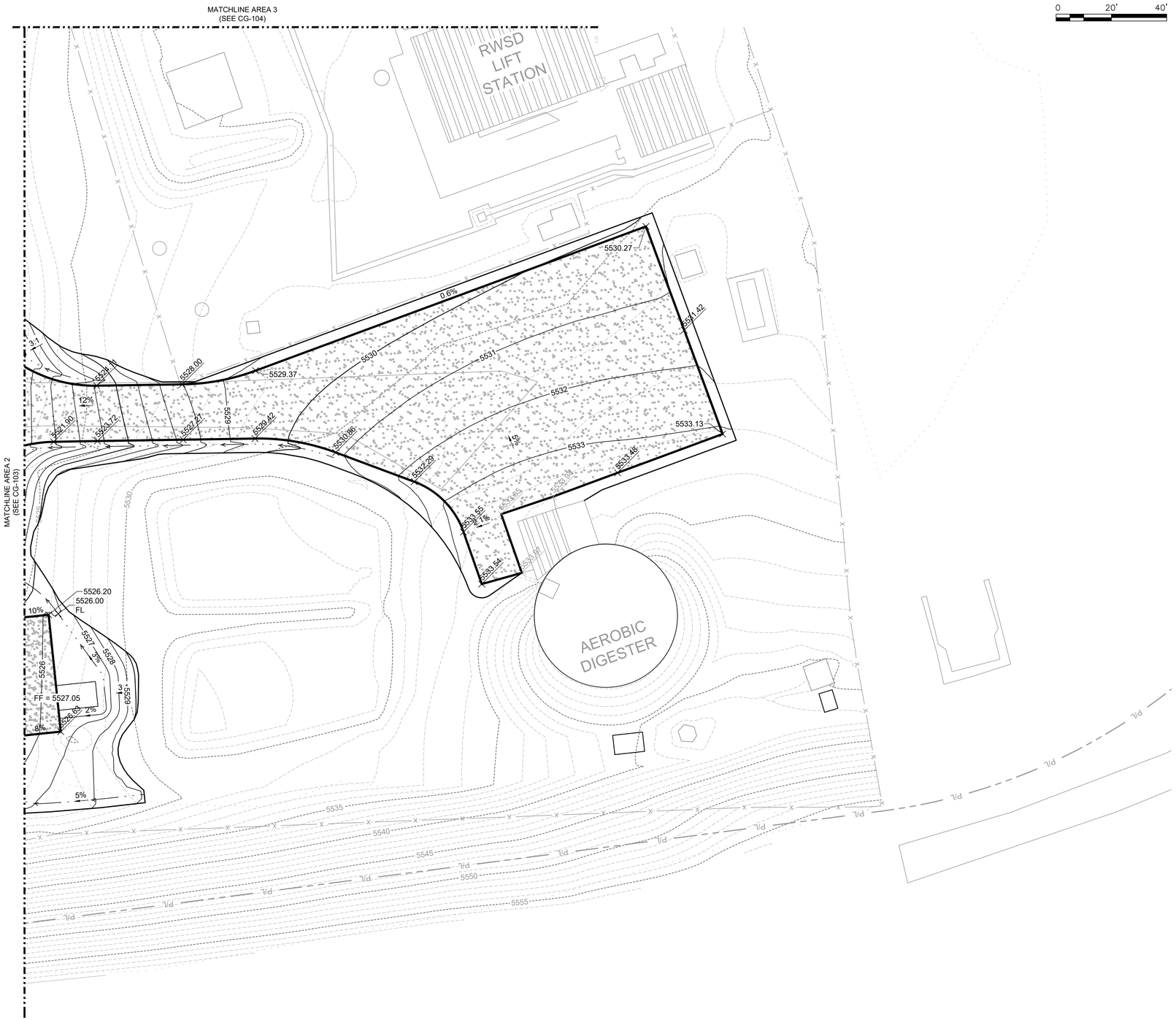
Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD, LITTLETON, CO 80125

Project No.: 181301899
File Name: 01899C-WP3-CG100-CG101
Scale: 1:50

Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
			2025.08.01

Title
OVERALL GRADING PLAN

Revision: 9
Drawing No.
CG-101



1
CG-102

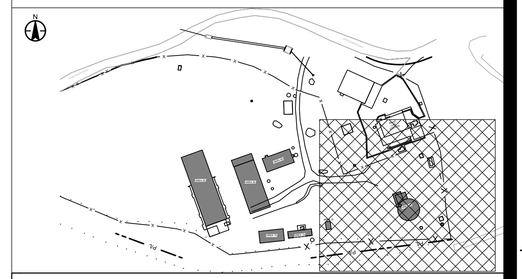
ENLARGED AREA 1 GRANDING PLAN

SCALE: 1:20

N

0 20' 40'

KEY PLAN



GENERAL SHEET NOTES

1. NOTE

SHEET KEYNOTES

A. NOTE

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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Permit/Seal

Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD, LITTLETON, CO 80125

Project No.: 181301899

File Name: 01899C-WP3-CG100-CG102-104

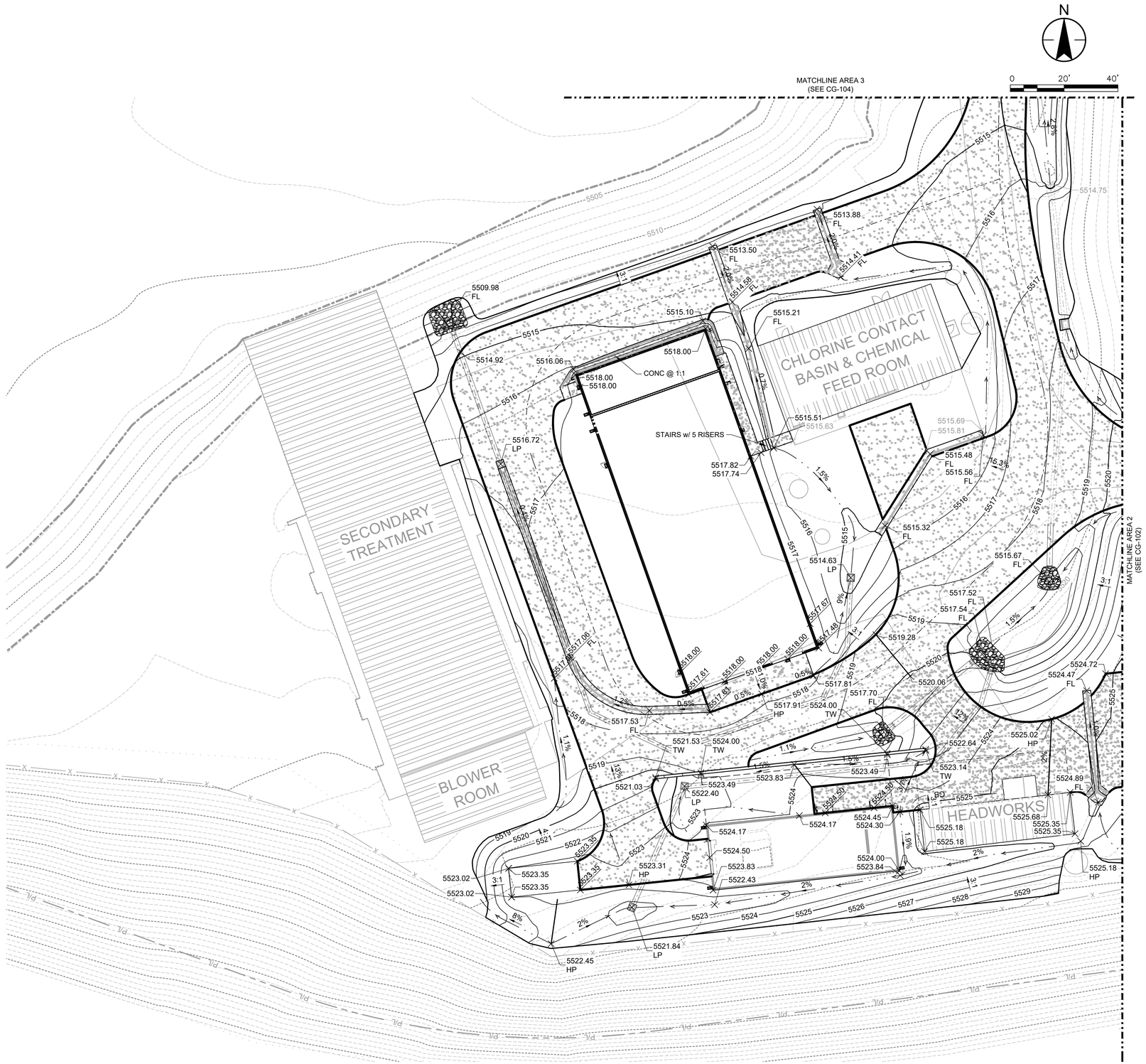
Scale: 1:20

Dwn.	Dsgn.	Chkd.	2025.08.01 YYYY.MM.DD

Title
ENLARGE GRADING PLAN - AREA 1

Revision: 10

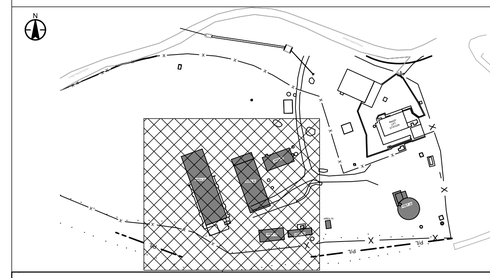
Drawing No.
CG-102



1 CG-103 ENLARGED AREA 2 GRADING PLAN

SCALE: 1:20

KEY PLAN



GENERAL SHEET NOTES

1. NOTE

SHEET KEYNOTES

A. XXXXX

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By	Appd	YYYY.MM.DD	

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B	IFP - L&E	ZS	2025.08.20
By		Appd	YYYY.MM.DD

Permit/Seal

Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD, LITTLETON, CO 80125

Project No.: 181301899

File Name: 0189PC-WP3-CG100-CG102-104

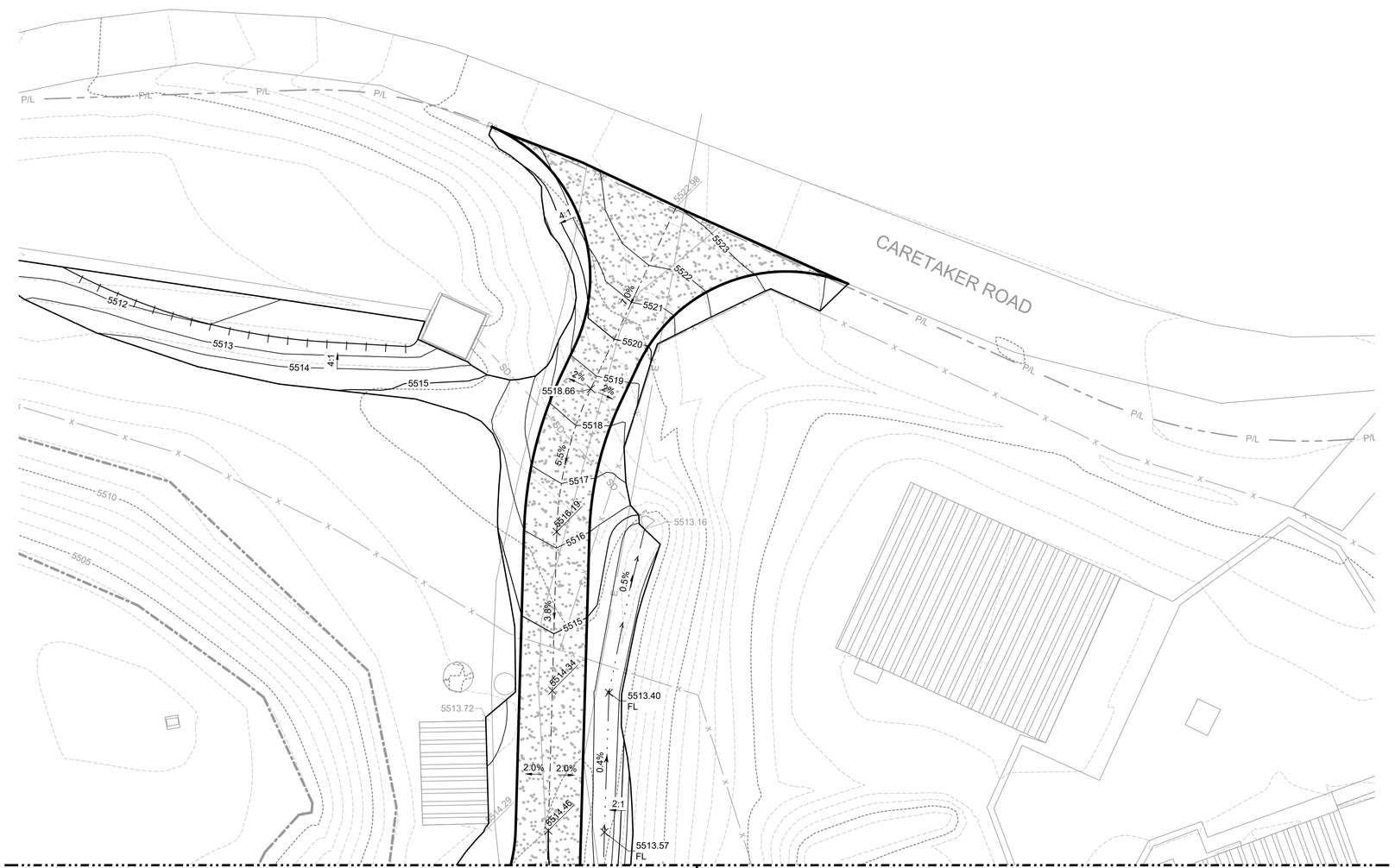
Scale: 1:20

Dwn.	Dsgn.	Chkd.	2025.08.01 YYYY.MM.DD

Title
ENLARGED GRADING PLAN - AREA 2

Revision: 11

Drawing No.
CG-103



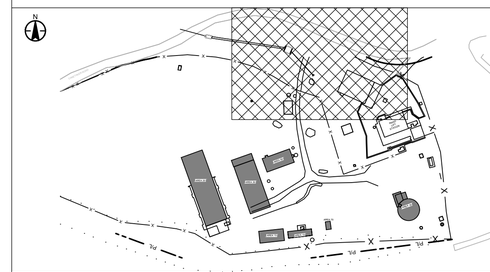
1 CG-104 ENLARGED AREA 3 GRADING PLAN

SCALE: 1:20

N

0 20' 40'

KEY PLAN



GENERAL SHEET NOTES

1. NOTE

SHEET KEYNOTES

A. XXXXX

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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B IFP - L&E	SSC	JS	2025.08.20

Permit/Seal

Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD, LITTLETON, CO 80125

Project No.: 181301899
File Name: 01899C-WP3-CG100-CG102-104

Scale: 1:20

Dwn.	Dsgn.	Chkd.	2025.08.01 YYYY.MM.DD

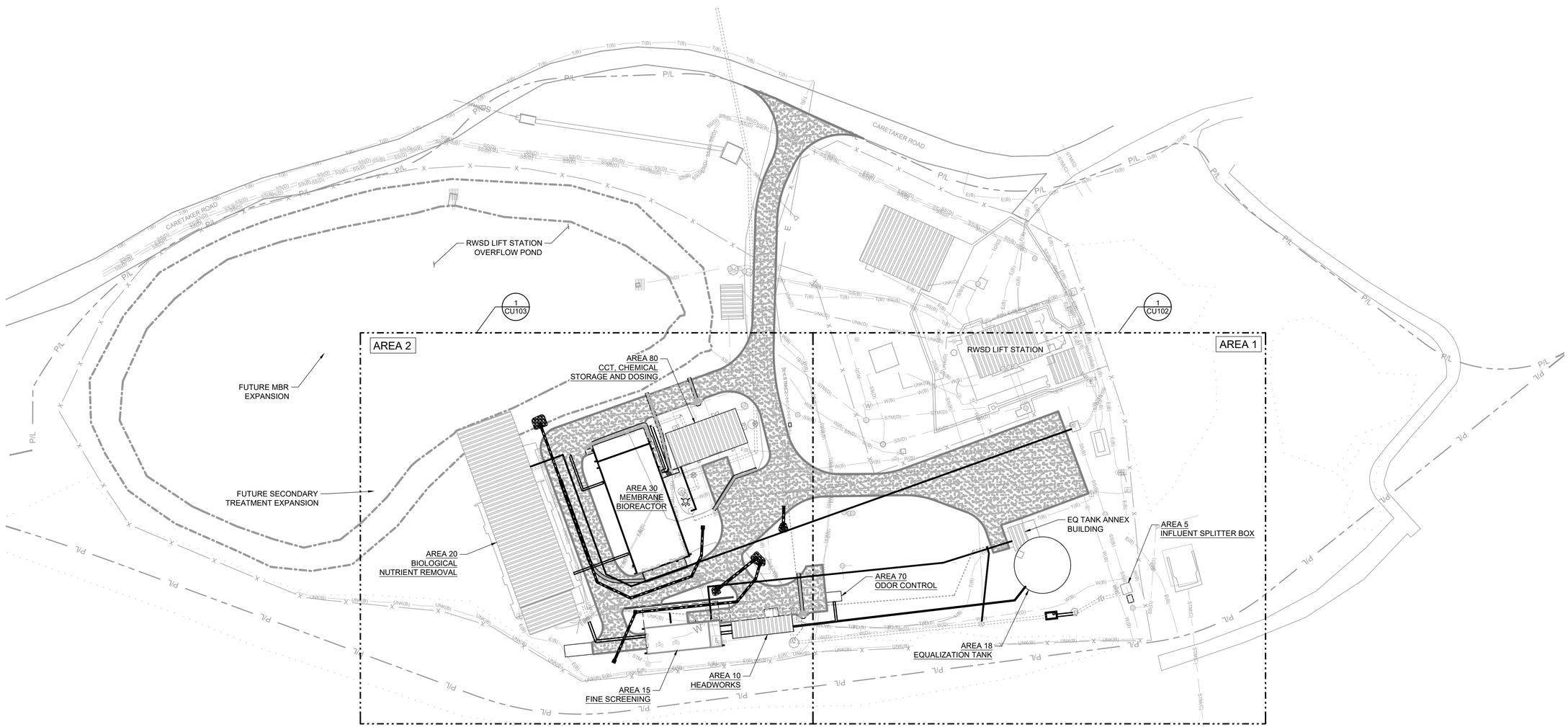
Title
ENLARGED GRADING PLAN - AREA 3

Revision: 12

Drawing No.
CG-104

GENERAL SHEET NOTES

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL LOCATE EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION. THE CONTRACTOR SHALL POTHOLE FOR EXISTING UTILITIES PRIOR TO SUBMITTAL OF SHOP DRAWINGS, FOR POINTS OF CONNECTION.
2. ALL UTILITIES SHALL BE PROTECTED IN PLACE UNLESS SHOWN OTHERWISE.
3. SEE G-003 FOR PIPE AND MATERIAL SCHEDULE.



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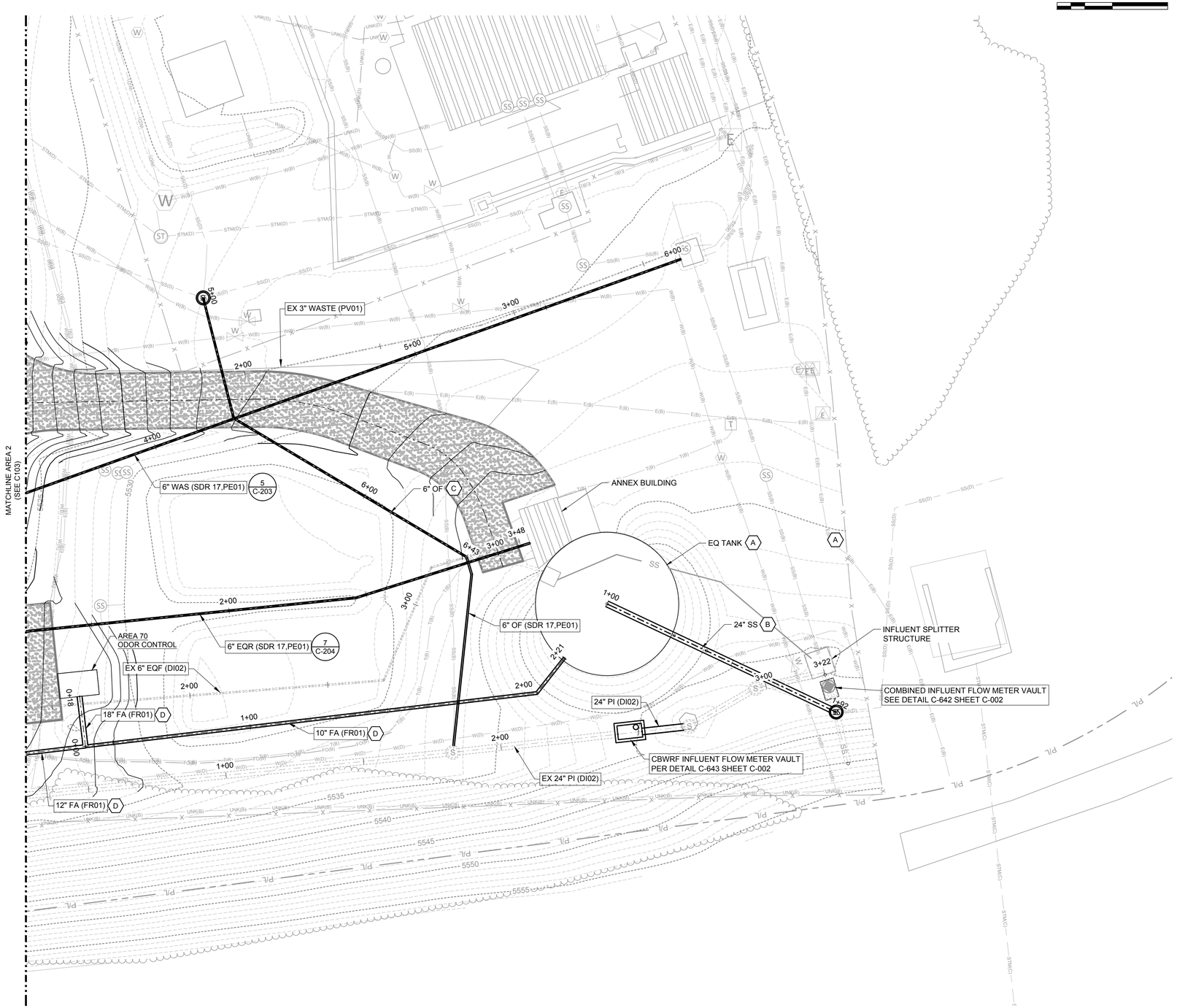
Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD, LITTLETON, CO 80125

Project No.: 181301899
File Name: 01899C-WP3-CU100-CU101
Scale: SCALE

Dwn.	Dsgn.	Chkd.	2025.08.01 YYYY.MM.DD

Title
OVERALL YARD PIPING KEYMAP

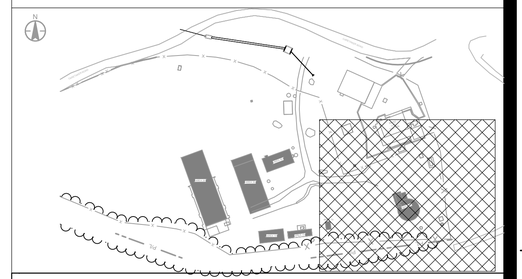
Revision: 13
Drawing No.
CU-101



1 C-102 ENLARGED AREA 1 UTILITY PLAN

SCALE: 1:20

KEY PLAN



GENERAL SHEET NOTES

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2. ALL UTILITIES SHALL BE PROTECTED IN PLACE UNLESS SHOWN OTHERWISE.
3. SEE G-003 FOR PIPE AND MATERIAL SCHEDULE.

SHEET KEYNOTES

A. AEROBIC DIGESTER TO BE RE-PURPOSED AS EQUALIZATION (EQ) TANK.
B. 24" SS INSTALLED IN WP1, REMOVE AT END OF CONSTRUCTION.
C. 6" OF INSTALLED IN WP1, REMOVE AT END OF CONSTRUCTION.
D. FOUL AIR (FA) PIPE SHALL BE PLACED ABOVE GRADE WITH CONCRETE SADDLE SUPPORTS OR AN APPROVED EQUAL SUPPORT SYSTEM.

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD, LITTLETON, CO 80125

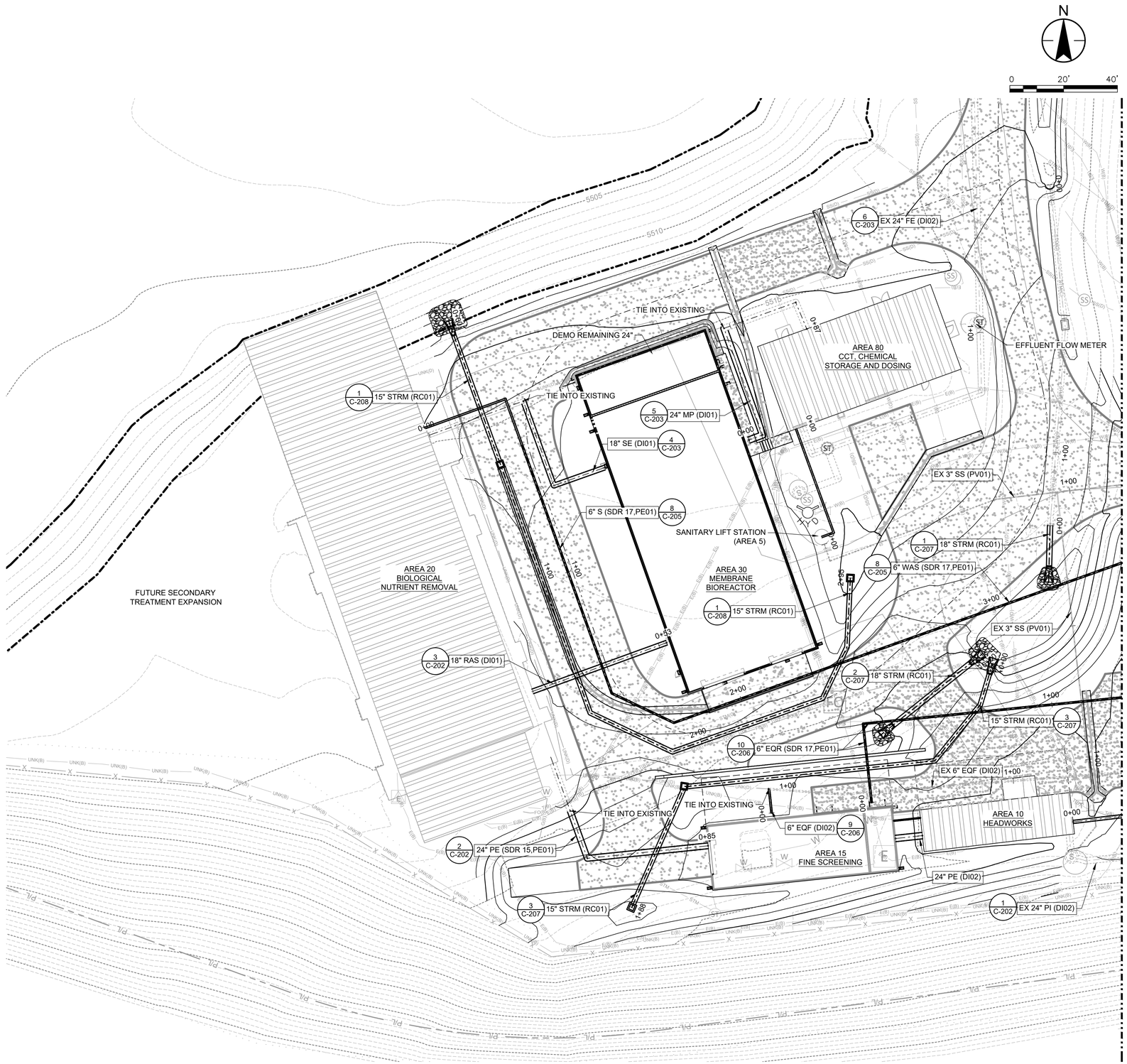
Project No.: 181301899
File Name: 01899C-WP3-CU100-CU102-103
Scale: 1:20

EP	ZS	MW	2025/06/09
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
ENLARGED UTILITY PLAN
AREA 1

Revision: 14

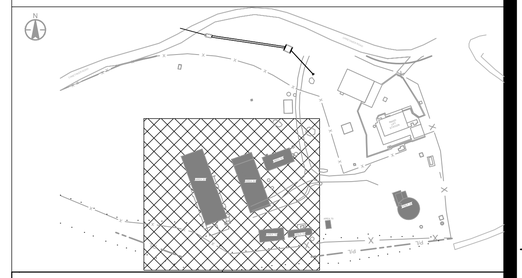
Drawing No.
CU102



1 C-103 ENLARGED AREA 2 UTILITY PLAN

SCALE: 1:20

KEY PLAN



GENERAL SHEET NOTES

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2. ALL UTILITIES SHALL BE PROTECTED IN PLACE UNLESS SHOWN OTHERWISE.

SHEET KEYNOTES

A. XXXXX

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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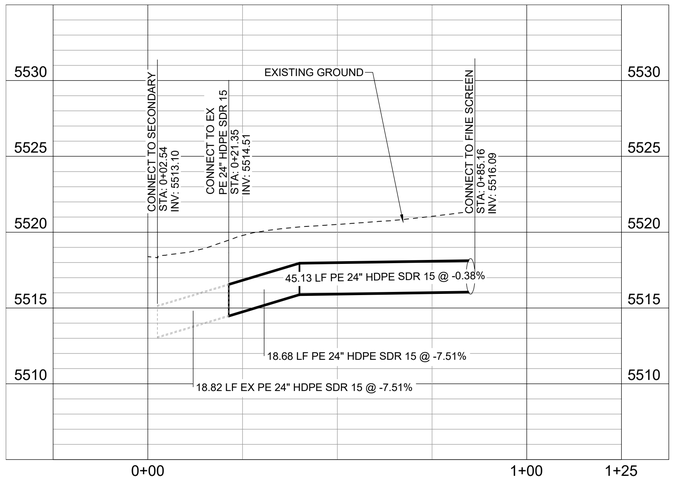
Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD, LITTLETON, CO 80125

Project No.: 181301899
File Name: 01899C-WP3-CU100-CU102-103
Scale: 1:20

EP	ZS	MW	~~2025.06.30~~
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

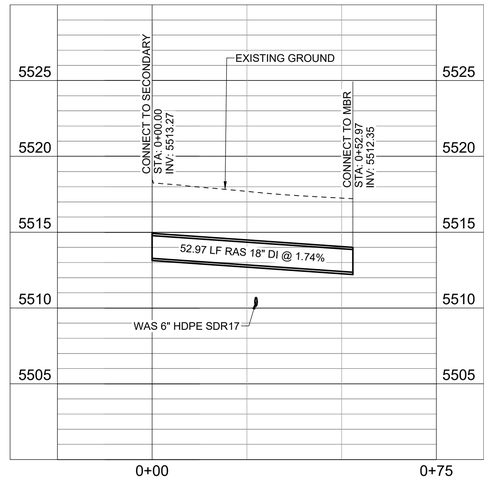
Title
ENLARGED UTILITY PLAN
AREA 2

Revision: 15
Drawing No.
CU103



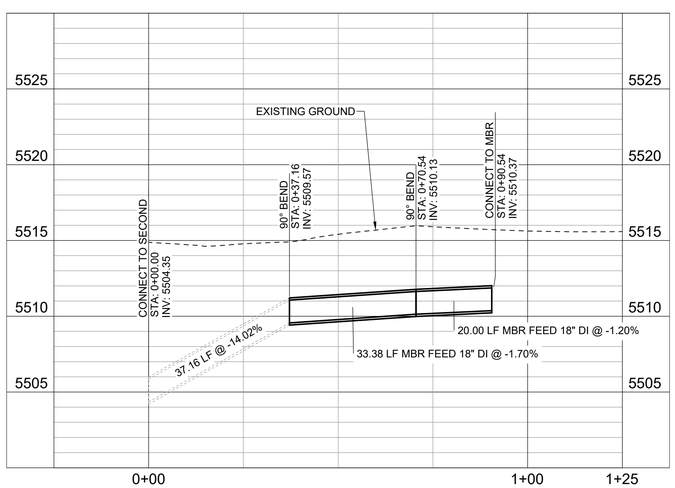
1 C-102 24" HDPE - PRIMARY EFFLUENT

HOR: 1"=20' VERT:1"=4'



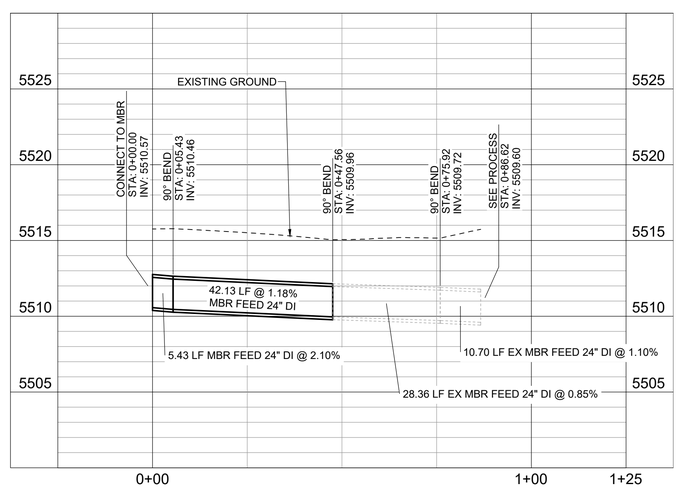
2 C-102 18" DUCTILE IRON - RETURN ACTIVATED SLUDGE

HOR: 1"=20' VERT:1"=4'



3 C-102 18" DUCTILE IRON - MEMBRANE FEED

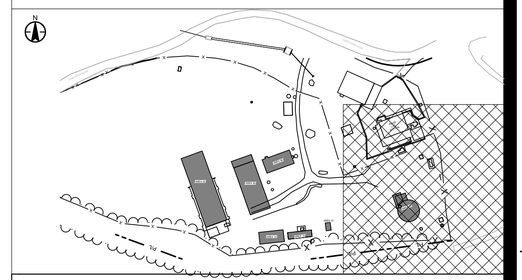
HOR: 1"=20' VERT:1"=4'



4 C-102 24" DUCTILE IRON - MEMBRANE FEED

HOR: 1"=20' VERT:1"=4'

KEY PLAN



GENERAL SHEET NOTES

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2. ALL UTILITIES SHALL BE PROTECTED IN PLACE UNLESS SHOWN OTHERWISE.
3. SEE G-003 FOR PIPE AND MATERIAL SCHEDULE.

SHEET KEYNOTES

A. REMOVE COVER AND ECCENTRIC CONE. ADD NEW PRECAST MANHOLE SECTION WITH 24" PENETRATION FOR BYPASS TO EQUALIZATION TANK.

B. ROUTE 24" GRAVITY BYPASS TO OPENING IN ROOF. REFER TO 18D-301 FOR TANK CONNECTION DETAIL.

C. AEROBIC DIGESTER TO BE RE-PURPOSED AS EQUALIZATION (EQ) TANK.

D. REROUTE 6" TANK OVERFLOW TO LIFT STATION OVERFLOW MANHOLE.

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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Permit/Seal

Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CAREFAKER RD, LITTLETON, CO 80125

Project No.: 181301899
File Name: 01899C-WP3-CU200-CU202-CU208

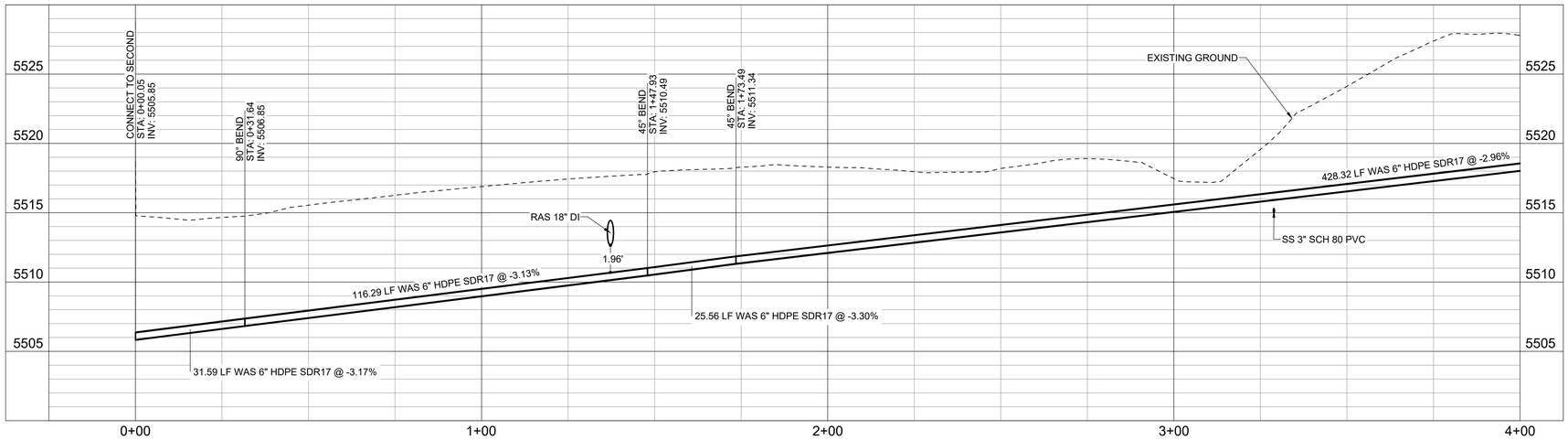
Scale: SCALE

Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
			2025.08.01

Title
PIPING PROFILES 1-3

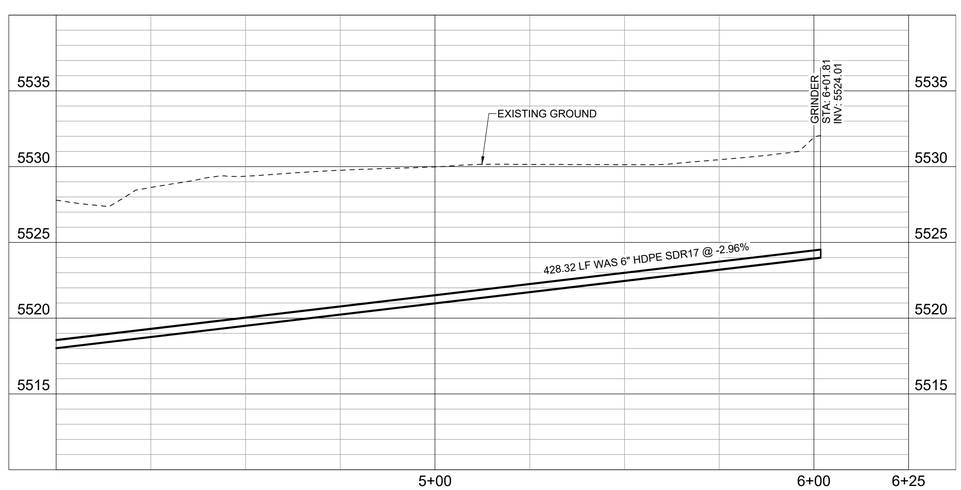
Revision: 16

Drawing No.
C-202



5 C-102 **6" HDPE SDR 17 - WASTE ACTIVATED SLUDGE**

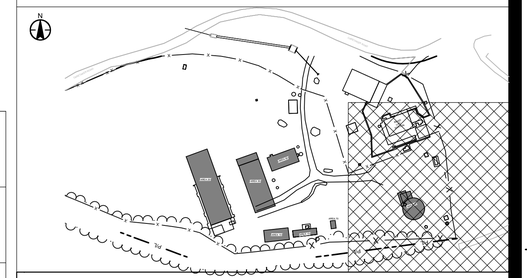
HOR: 1"=20' VERT:1"=4'



5 C-102 **6" HDPE SDR 17 - WASTE ACTIVATED SLUDGE**

CONTINUED - SEE BELOW HOR: 1"=20' VERT:1"=4'

KEY PLAN



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3. SEE G-003 FOR PIPE AND MATERIAL SCHEDULE.

SHEET KEYNOTES

A. REMOVE COVER AND ECCENTRIC CONE. ADD NEW PRECAST MANHOLE SECTION WITH 24" PENETRATION FOR BYPASS TO EQUALIZATION TANK.

B. ROUTE 24" GRAVITY BYPASS TO OPENING IN ROOF. REFER TO 18D-301 FOR TANK CONNECTION DETAIL.

C. AEROBIC DIGESTER TO BE RE-PURPOSED AS EQUALIZATION (EQ) TANK.

D. REROUTE 6" TANK OVERFLOW TO LIFT STATION OVERFLOW MANHOLE.

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

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Permit/Seal

Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD. LITTLETON, CO 80125

Project No.: 181301899
File Name: 01899C-WP3-CU200-CU202-CU208

Scale: SCALE

Dwn.	Dsgn.	Chkd.	2025.08.01 YYYY.MM.DD

Title
PIPING PROFILES 4-6

Revision: 17

Drawing No.
C-203

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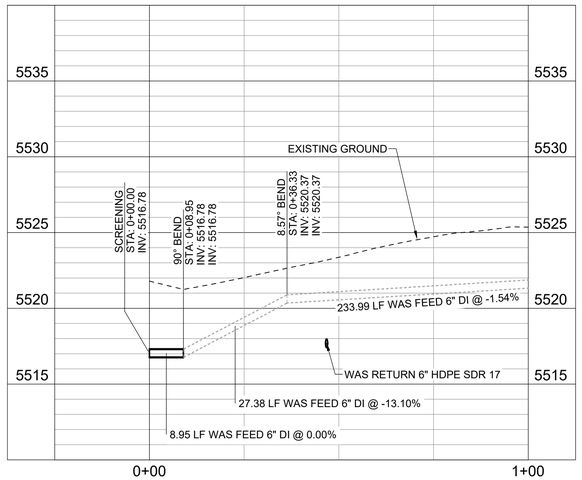

6 C-102 6" DUCTILE IRON - WASTE ACTIVATED SLUDGE FEED

HOR: 1"=20' VERT:1"=4'

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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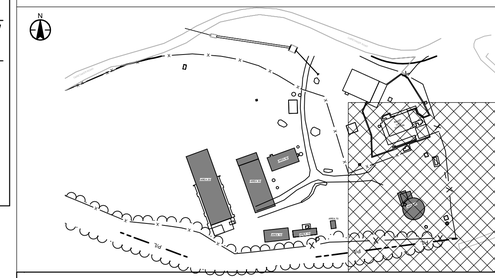
ENGINEERING DIVISION ACCEPTANCE BLOCK

KEY PLAN



GENERAL SHEET NOTES

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2. ALL UTILITIES SHALL BE PROTECTED IN PLACE UNLESS SHOWN OTHERWISE.
3. SEE G-003 FOR PIPE AND MATERIAL SCHEDULE.

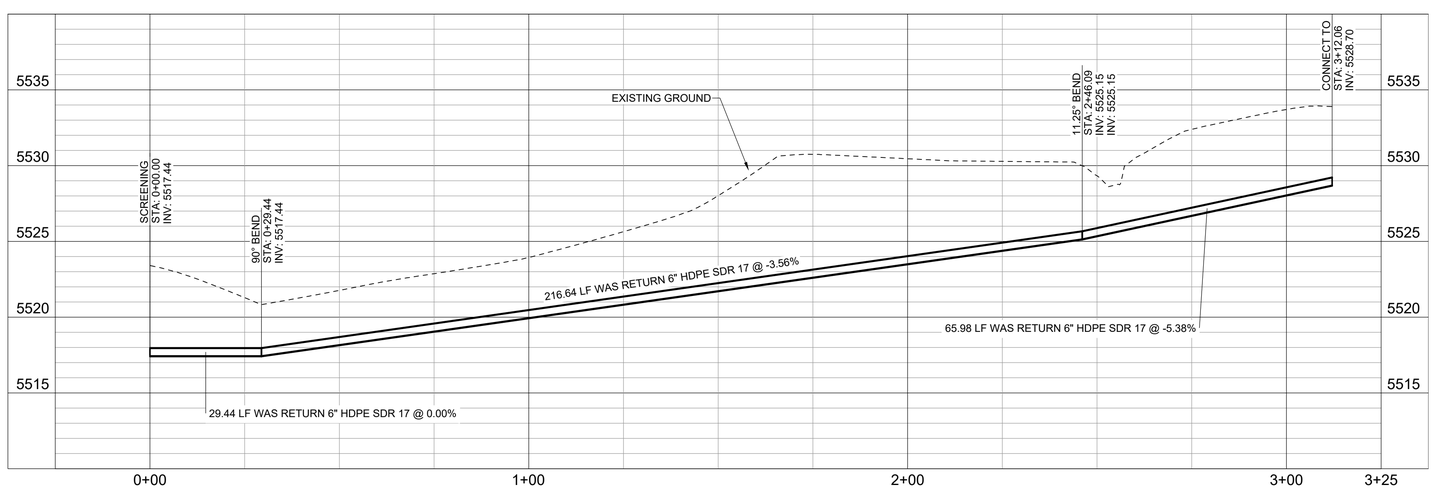
SHEET KEYNOTES

A. REMOVE COVER AND ECCENTRIC CONE. ADD NEW PRECAST MANHOLE SECTION WITH 24" PENETRATION FOR BYPASS TO EQUALIZATION TANK.

B. ROUTE 24" GRAVITY BYPASS TO OPENING IN ROOF. REFER TO 18D-301 FOR TANK CONNECTION DETAIL.

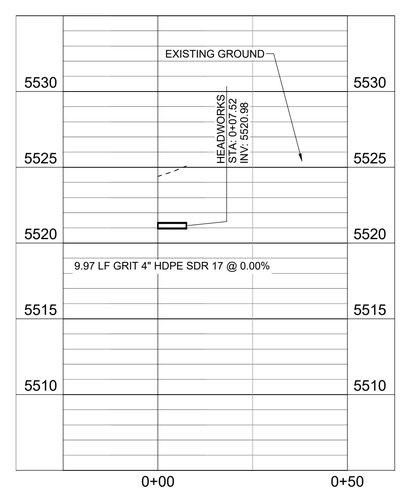
C. AEROBIC DIGESTER TO BE RE-PURPOSED AS EQUALIZATION (EQ) TANK.

D. REROUTE 6" TANK OVERFLOW TO LIFT STATION OVERFLOW MANHOLE.



7 C-102 6" HDPE SDR 17 - WASTE ACTIVATED SLUDGE RETURN

HOR: 1"=20' VERT:1"=4'



8 C-102 4" HDPE SDR 17 - GRIT

HOR: 1"=20' VERT:1"=4'

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B IFP - L&E	SSC	ZS	2025.08.20

Permit/Seal

Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD, LITTLETON, CO 80125

Project No.: 181301899

File Name: 01899C-WP3-CU200-CU202-CU208

Scale:

Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
			2025.08.01

Title
PIPING PROFILES

Revision: 18

Drawing No.
C-204

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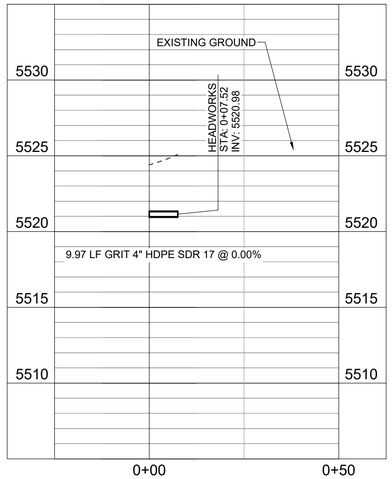

8 C-102 **4" HDPE SDR 17 - GRIT**

HOR: 1"=20' VERT:1"=4'

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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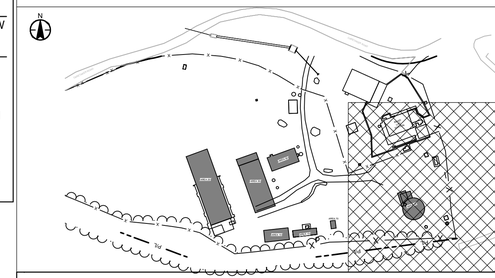
ENGINEERING DIVISION ACCEPTANCE BLOCK

KEY PLAN



GENERAL SHEET NOTES

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3. SEE G-003 FOR PIPE AND MATERIAL SCHEDULE.

SHEET KEYNOTES

A. REMOVE COVER AND ECCENTRIC CONE. ADD NEW PRECAST MANHOLE SECTION WITH 24" PENETRATION FOR BYPASS TO EQUALIZATION TANK.

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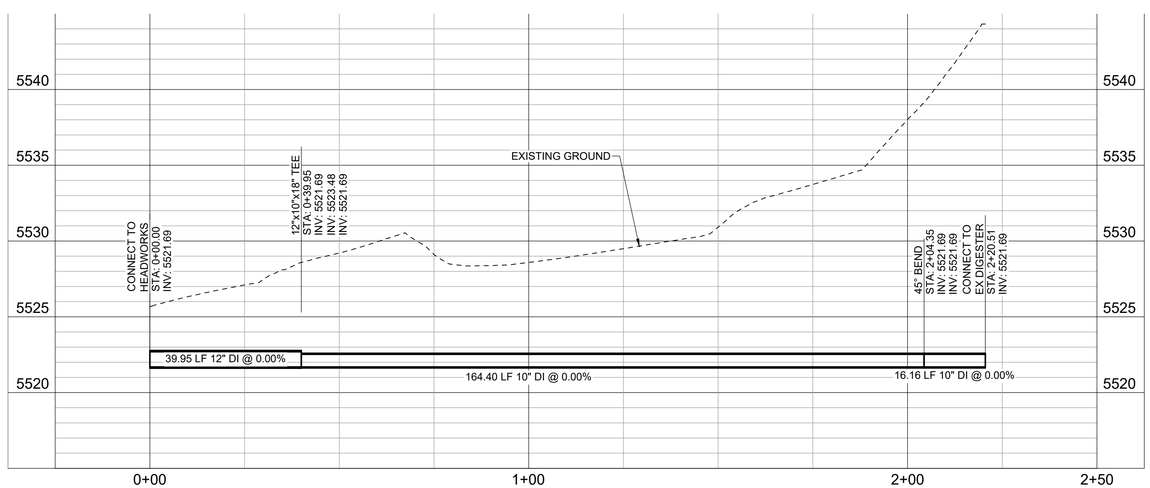
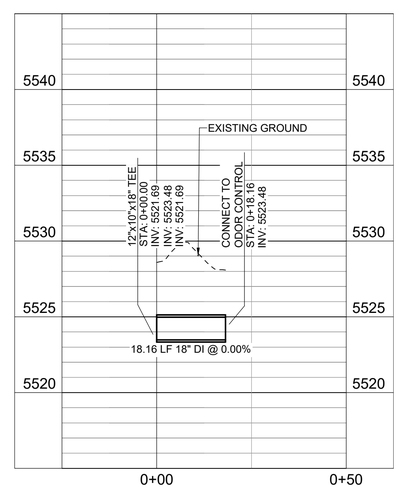
C. AEROBIC DIGESTER TO BE RE-PURPOSED AS EQUALIZATION (EQ) TANK.

D. REROUTE 6" TANK OVERFLOW TO LIFT STATION OVERFLOW MANHOLE.



9 C-102 **12" TO 10" FIBERGLASS REINFORCED PLASTIC (FR01) - FOUL AIR**

HOR: 1"=20' VERT:1"=4'



10 C-102 **18" FIBERGLASS REINFORCED PLASTIC (FR01) - FOUL AIR**

HOR: 1"=20' VERT:1"=4'

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Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
B IFP - L&E	SSC	ZS	2025.08.20

Permit/Seal

Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CAREFAKER RD, LITTLETON, CO 80125

Project No.: 181301899

File Name: 01899C-WP3-CU200-CU202-CU208

Scale:

Dwn.	Dsgn.	Chkd.	2025.08.01 YYYY.MM.DD

Title
PIPING PROFILES

Revision: 19

Drawing No.
C-205

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2025.08.20 2:54:07 PM

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

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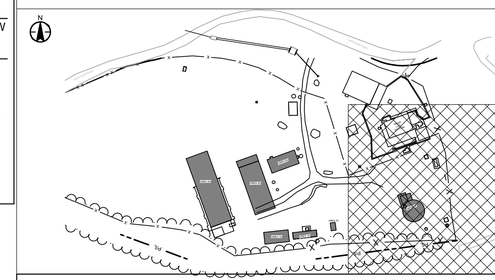
ENGINEERING DIVISION ACCEPTANCE BLOCK

KEY PLAN



GENERAL SHEET NOTES

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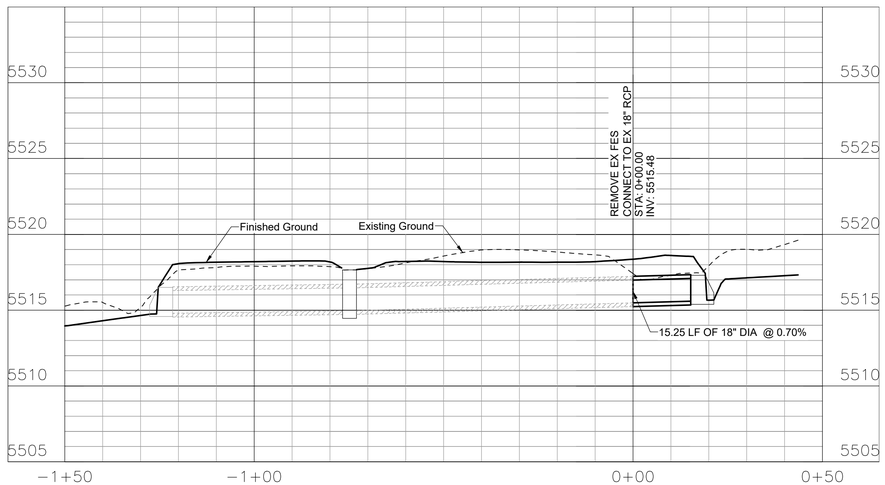

1 C-103 EX STORM 01 - STORM 01

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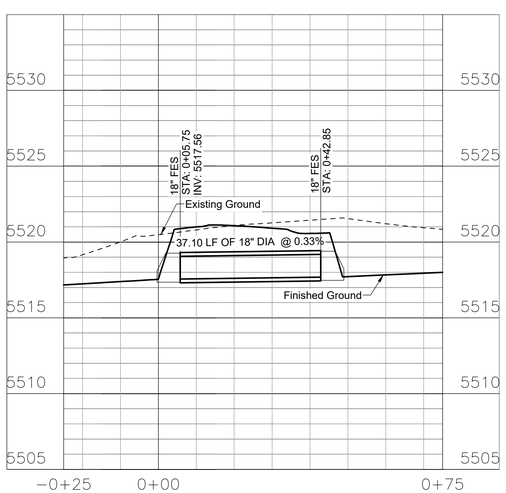

2 C-103 STORM 02

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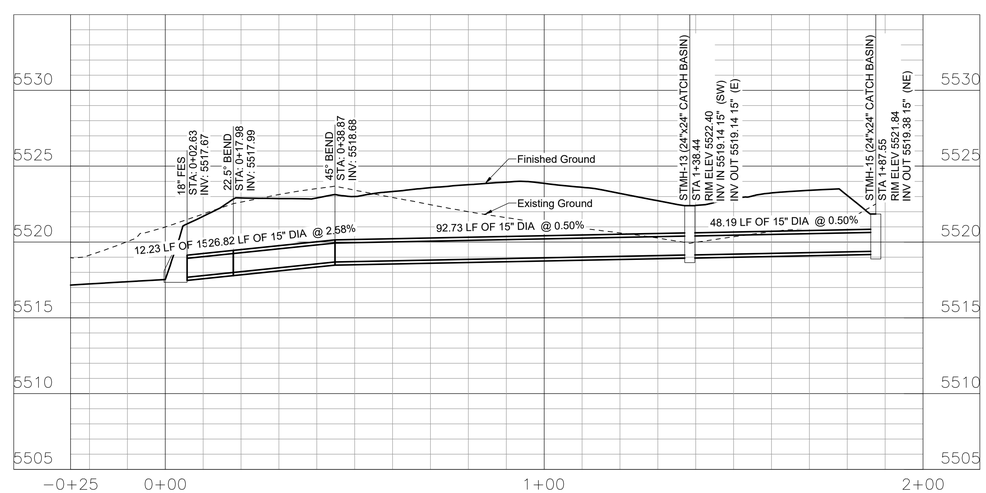

3 C-103 STORM 03

HOR: 1"=20' VERT:1"=4'

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Issued	By	Appd	YYYY.MM.DD
B IFP -1&E	SSC	ZS	2025.08.20

Permit/Seal

Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD, LITTLETON, CO 80125

Project No.: 181301899
File Name: 01899C-WP3-CU200-CU202-CU208

Scale:

Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
			2025.08.01

Title
PIPING PROFILE

Revision: 21

Drawing No.
C-207

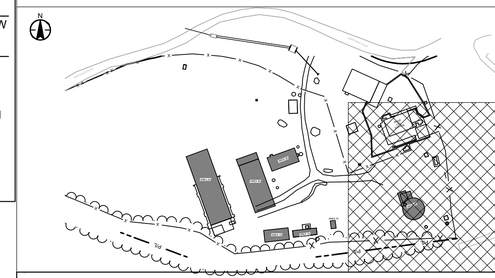
ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

THESE CONSTRUCTION DRAWINGS HAVE BEEN REVIEWED BY DOUGLAS COUNTY FOR LOCATION AND EXTENTS PERMIT ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

KEY PLAN



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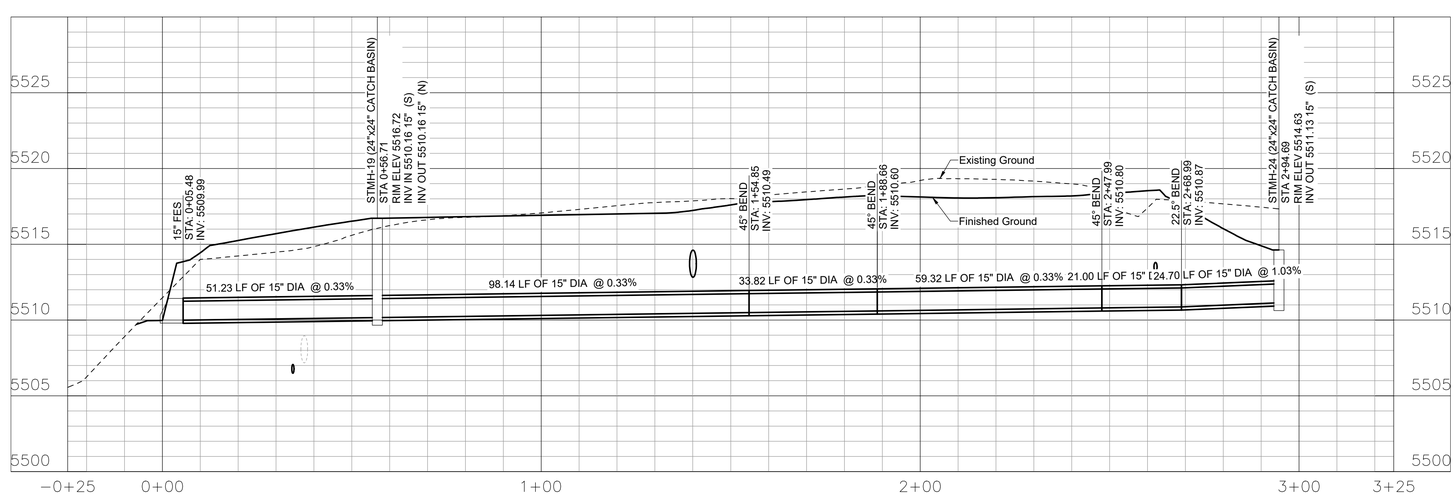

1 C-103 STORM 04

HOR: 1"=20' VERT:1"=4'

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Permit/Seal

Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD.
LITTLETON, CO 80125

Project No.: 181301899

File Name: 0189?C-WP3-CU200-CU202-CU208

Scale: SCALE

Dwn.	Dsgn.	Chkd.	2025.08.01 YYYY.MM.DD

Title
PIPING PROFILE

Revision: 22

Drawing No.
C-208

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2025.08.20 2:57:14 PM

Appendix C

Traffic Narrative

Stantec

Memo

To:	Douglas County	From:	Stantec Consulting Services, Inc.
File:	CBWRF	Date:	June 13, 2025

Reference: Chatfield Basin WRF Traffic Narrative

1 Background

Planned improvements at the Chatfield Basin site, located at 11310 Caretaker Rd, Littleton, and within Douglas County, warrant the need for a traffic narrative to discuss any potential impacts. At the time of this report the CBWRF is in the process of updating the address. Previously the address for this site was 11290 Caretaker Rd, however the physical location is unchanged. All information included in this narrative was provided by the contractor, unless otherwise noted.

2 Existing Conditions

While this facility is not currently in operation or continuously manned, two lab employees enter the site three days a week for sampling, resulting in two peak hour trips. There are no deliveries occurring during this time. The limited number of vehicles accessing the site has negligible impacts on existing traffic and roadway infrastructure.

3 Construction Conditions

Construction trips will consist exclusively of daily workers and operating equipment. During peak construction (March 2026) there will be 22 workers accessing the site. In addition to these workers, there will be two lab employees accessing the site for sampling. All workers and employees are expected to access the site during the AM peak hour and depart during the PM peak hour. Details regarding frequency and timeline of construction equipment trips are described below.

- **90-ton Boom Crane (Swing Seat):** One peak hour trip occurring six times throughout the construction period is required for scheduled installations. The crane will arrive onsite during the AM peak hour and depart during the PM peak hour. These trips will not occur on the same days as those associated with the Concrete Pump Truck.
- **18-Wheeler with Lowboy Trailer (50’ long):** It is estimated that the peak day will experience four total deliveries. Assuming that half of these will arrive and depart from the site during a single peak hour, this results in four total peak hour trips

- **10,000-lb RT Forklift:** Two forklifts will be brought to the site at the beginning of construction and remain until construction operations are complete. These trips will not contribute to totals during the peak month.
- **Concrete Pump Truck:** A maximum of 25 concrete trucks will access the site over the course of five hours. Assuming an even arrival rate, five of these will arrive and depart during a single peak hour, resulting in 10 peak hour trips. These trips will last for one or two days and will not occur on the same days as those associated with the 90-ton Boom Crane.

Trip Type	Peak Hour Trips	Peak Construction	Off-Peak Construction	Notes
Workers/Employees	24	X		
90-ton Boom Crane	1	X		No overlap with concrete trucks
18-Wheeler	4	X		
10k-lb RT Forklift	2		X	Beginning of construction
Concrete Pump Truck	10	X		No overlap with boom crane

Based on the information described above, a maximum of 38 peak hour trips will occur during the peak month of construction. Depending on departure rates from the site, the existing northbound-left storage lane along Dante Dr may be insufficient. Additionally, the Waterton Road median storage area is likely too short to accommodate the larger construction equipment and may pose safety and operation concerns when attempting to perform a left-turn maneuver. Because of this, right-turn movements onto and off of Waterton Road are advised when possible.

4 Future Conditions

After construction operations are completed, there will be four employees at the site for seven days a week. These employees are expected to arrive at the site during the AM peak hour and depart from the site during the PM peak hour. In addition to these employees, there will be up to four deliveries occurring every other week. It is assumed that each delivery will arrive and depart within the same hour. It is not expected that all four deliveries will occur during a single peak hour; however, even if they did all occur during a single peak hour, this would result in eight peak hour trips. The maximum number of total peak hour trips occurring during the Future Conditions is twelve. It is not expected that this number of peak hour trips will have significant impacts on future traffic and roadway infrastructure.

Regards,

Stantec Consulting Services Inc.

Brent Hypnarowski, PE
Traffic Engineer
Phone: (303) 285-4532
brent.hypnarowski@stantec.com

Appendix D

Stormwater Detention and Infiltration Design Data Sheet (Water Quality)

Stormwater Detention and Infiltration Design Data Sheet

SDI-Design Data v2.00, Released January 2020

Stormwater Facility Name: **Chatfield Basin Water Reclamation Facility Refurbishment Project**

Facility Location & Jurisdiction: **11310 Caretaker Road, Littleton CO. Douglas County**

User Input: Watershed Characteristics

Extended Detention Basin (EDB)	EDB	
Watershed Area =	3.80	acres
Watershed Length =	700	ft
Watershed Length to Centroid =	300	ft
Watershed Slope =	0.008	ft/ft
Watershed Imperviousness =	39.00%	percent
Percentage Hydrologic Soil Group A =	73.00%	percent
Percentage Hydrologic Soil Group B =	0.0%	percent
Percentage Hydrologic Soil Groups C/D =	27.00%	percent
Target WQCV Drain Time =	40.0	hours

Location for 1-hr Rainfall Depths (use dropdown):

User Input

User Defined Stage [ft]	User Defined Area [ft^2]	User Defined Stage [ft]	User Defined Discharge [cfs]
0.00	21	0.00	0.000
0.80	1,838	0.80	0.015
1.80	6,138	1.80	0.025
2.61	9,307	2.61	1.566
2.80	10,050	2.80	2.531
3.80	12,900	3.80	4.866

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

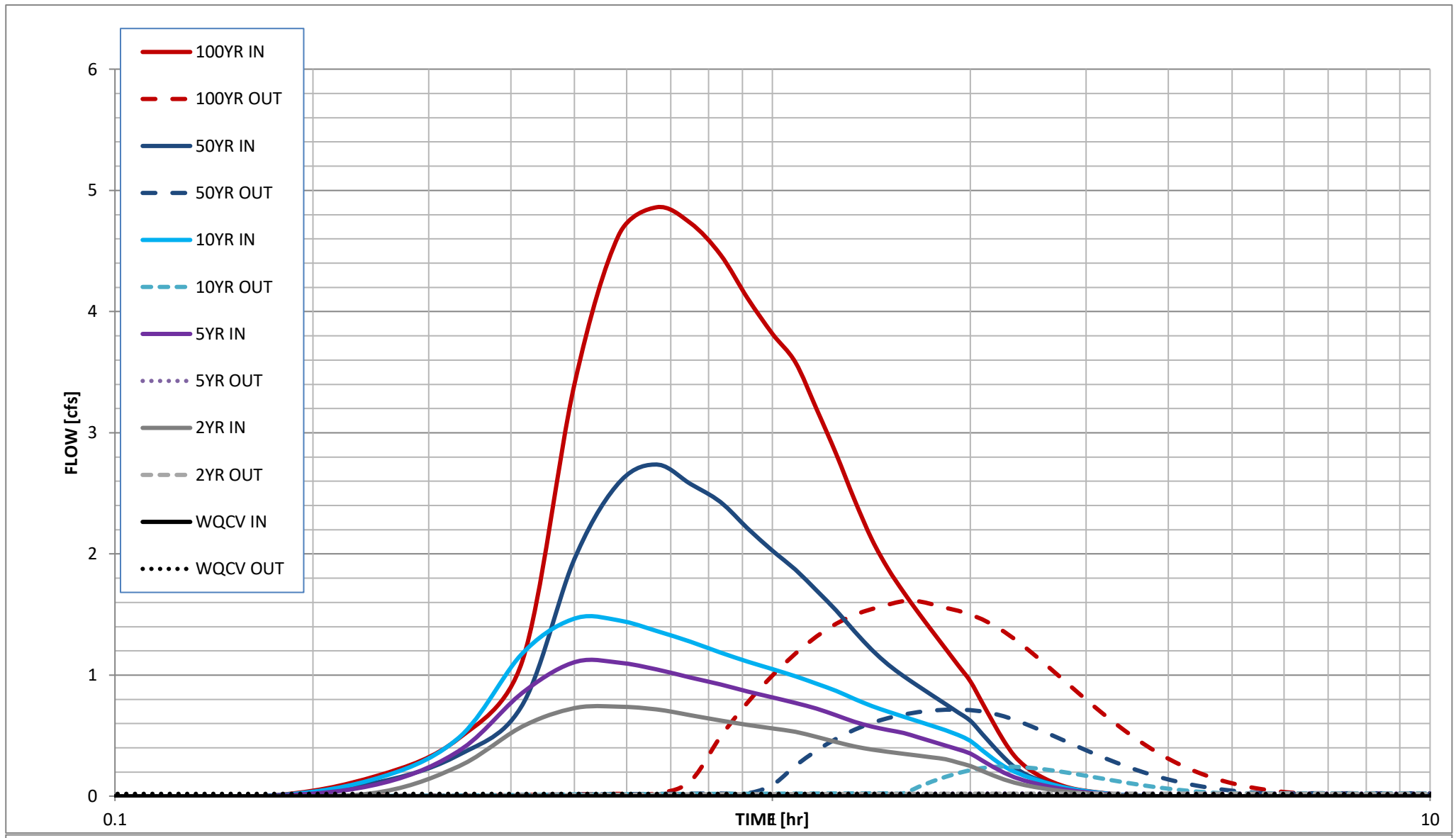
Once CUHP has been run and the Stage-Area-Discharge information has been provided, click 'Process Data' to interpolate the Stage-Area-Volume-Discharge data and generate summary results in the table below. Once this is complete, click 'Print to PDF'.

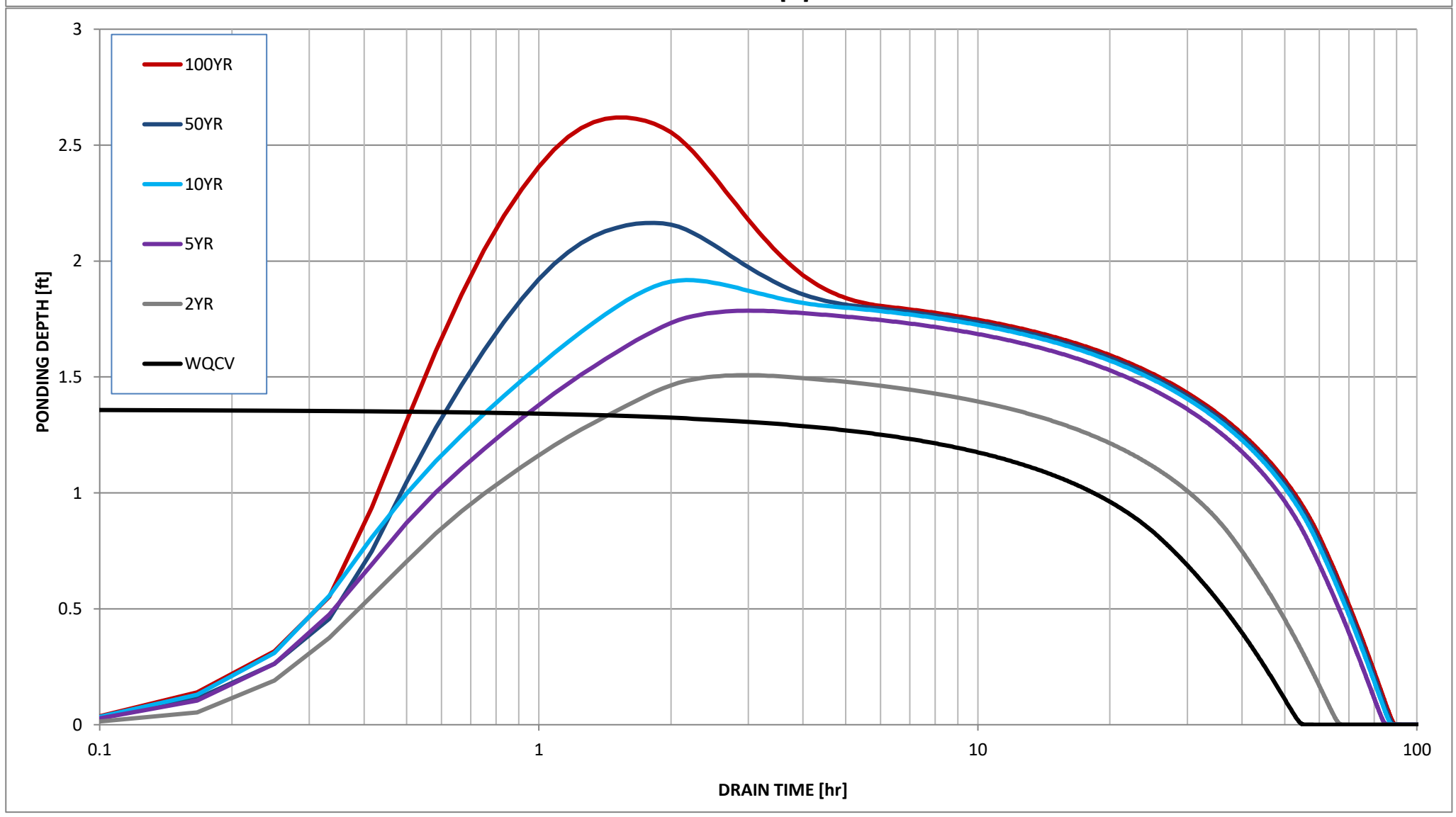
After completing and printing this worksheet to a pdf, go to:
https://maperture.digitaldataservices.com/gvh/?viewer=cswdif
Create a new stormwater facility, and attach the PDF of this worksheet to that record.

Routed Hydrograph Results

Design Storm Return Period =	WQCV	2 Year	5 Year	10 Year	50 Year	100 Year	
One-Hour Rainfall Depth =	N/A	0.82	1.10	1.35	1.99	2.29	in
CUHP Runoff Volume =	0.056	0.076	0.112	0.146	0.232	0.406	acre-ft
Inflow Hydrograph Volume =	N/A	0.076	0.112	0.146	0.232	0.406	acre-ft
Time to Drain 97% of Inflow Volume =	45.3	55.8	**71.7**	72.6	69.6	64.7	hours
Time to Drain 99% of Inflow Volume =	49.1	60.3	77.0	78.6	77.2	**74.6**	hours
Maximum Ponding Depth =	1.36	1.51	1.79	1.92	2.16	2.62	ft
Maximum Ponded Area =	0.10	0.11	0.14	0.15	0.17	**0.21**	acres
Maximum Volume Stored =	0.056	0.072	0.106	0.125	0.165	0.253	acre-ft

Stormwater Detention and Infiltration Design Data Sheet





From: mailer@digitaldataservices.com
To: Corby, Jordan
Subject: Stormwater Detention and Infiltration Facility - Chatfield Basin WRF
Date: Thursday, June 19, 2025 10:40:42 AM

> You don't often get email from mailer@digitaldataservices.com. Learn why this is important

Thank you for submitting to the Colorado Stormwater Detention and Infiltration database. Your facility has been recorded and the local jurisdiction has been notified.

Facility ID:	SWDF-20250619094037
Name:	Chatfield Basin WRF
Division:	South Platte
Jurisdiction:	DouglasCo
Design Storm:	Full Spectrum
Water Surface Acres:	0.30
Edit Key:	e8486d7b304f276c24cd643f6b151553

If you wish to edit the facility in the future, you will need the Edit Key listed above. If you lose the key, you will not be able to edit the facility information in the future.

Caution: This email originated from outside of Stantec. Please take extra precaution.

Attention: Ce courriel provient de l'extérieur de Stantec. Veuillez prendre des précautions supplémentaires.

Atención: Este correo electrónico proviene de fuera de Stantec. Por favor, tome precauciones adicionales.

With every community, we redefine what's possible.

Stantec is a global leader in sustainable engineering, architecture, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

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Comprehensive Master Plan Land Use Reference Map

Comprehensive Master Plan Areas

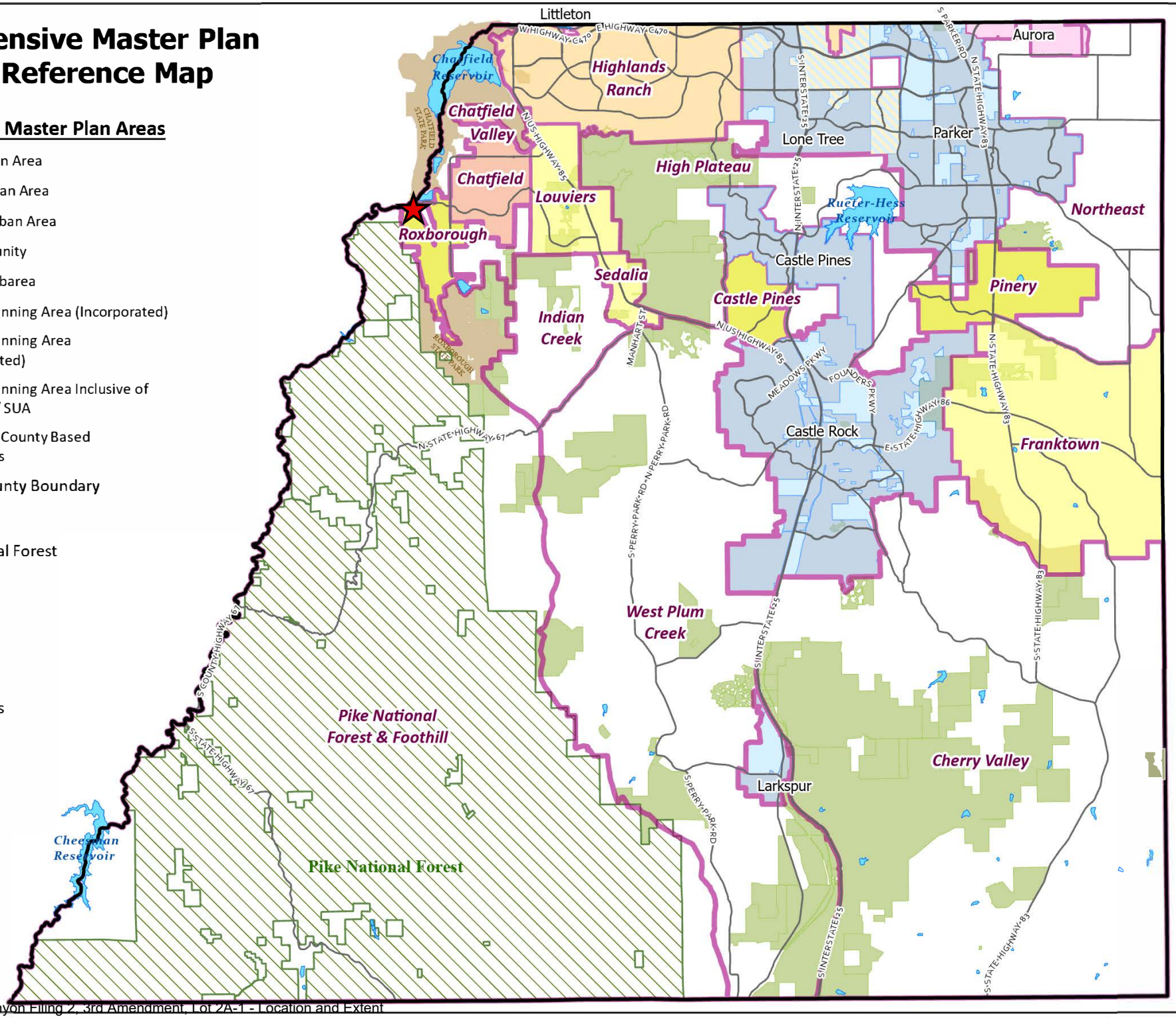
- Primary Urban Area
- Chatfield Urban Area
- Separated Urban Area
- Rural Community
- Nonurban Subarea
- Municipal Planning Area (Incorporated)
- Municipal Planning Area (Unincorporated)
- Municipal Planning Area Inclusive of County PUA / SUA
- Non-Douglas County Based Municipalities
- Douglas County Boundary

Parks

- Pike National Forest
- State Parks
- Open Space
- Lakes

Roadways

- Major Roads

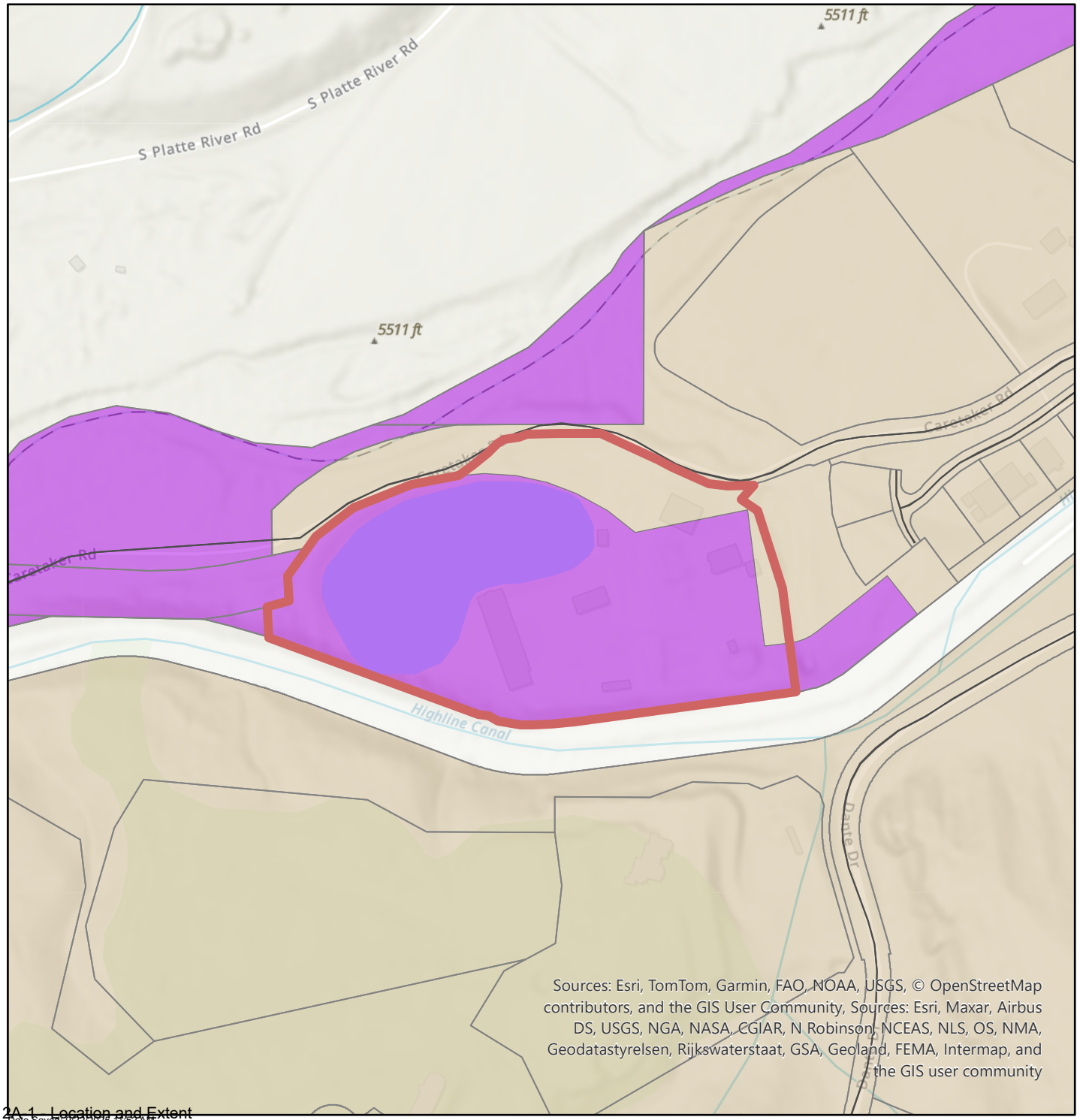


River Canyon Filing 2, 3rd Amendment, Lot 2A-1

LE2025-018
Zoning Map

N

LEGEND
- Roads
- Major Roads
- Parcels - PARCELS
- A1 - AGRICULTURAL ONE
- GI - GENERAL INDUSTRIAL
- PD - PLANNED DEVELOPMENT



Date Saved: 9/22/2025 11:52 AM

Source: https://apps.douglas.co.us/gisportal/apps/webappviewer/index.html?id=9cd173c692b7436891bd0bd025cbcc2c

River Canyon Filing 2, 3rd Amendment, Lot 2A-1

LE2025-018
Aerial Map

N

LEGEND
- Roads
- Major Roads
- Parcels - PARCELS

Date Saved: 9/22/2025 11:53 AM

Source: https://apps.douglas.co.us/gisportal/apps/webappviewer/index.html?id=9cd173c692b7436891bd0bd025cbcc2c

Project Name: River Canyon Filing 2, 3rd Amendment, Lot 2A-1
Project File #: LE2025-018
Date Sent: 09/19/2025 **Date Due:** 10/02/2025

Agency	Date Received	Agency Response	Response Resolution
AT&T Long Distance - ROW		Awaiting referral response	Awaiting referral response
Addressing Analyst	09/19/2025	New addresses have been assigned to the two additional buildings proposed with this project. The entire site was recently re-addressed per request from Dominion Water and Sanitation District. See below and the attached address map for details. Current Addresses 11300 Caretaker Road 11306 Caretaker Road 11310 Caretaker Road 11314 Caretaker Road 11324 Caretaker Road New Addresses 11318 Caretaker Road 11320 Caretaker Road Contact DCAddressing@douglas.co.us or 303.660.7449 with questions.	Information provided to applicant
Assessor		Awaiting referral response	Awaiting referral response
Black Hills Energy		Awaiting referral response	Awaiting referral response
Building Services		Awaiting referral response	Awaiting referral response
Comcast		Awaiting referral response	Awaiting referral response
Engineering Services		Awaiting referral response	Awaiting referral response
CORE Electric Cooperative	09/22/2025	We have received the above-referenced referral request. We have reviewed our records and find that this property is not in our service territory.	No response necessary
Jefferson County Planning and Zoning		Awaiting referral response	Awaiting referral response
Office of Emergency Management	09/19/2025	No comment	No response necessary
Douglas County Health Department		Awaiting referral response	Awaiting referral response
Mile High Flood District		Awaiting referral response	Awaiting referral response
CenturyLink		Awaiting referral response	Awaiting referral response
Sheriff's Office		Awaiting referral response	Awaiting referral response
Sheriff's Office E911		Awaiting referral response	Awaiting referral response
US Army Corp of Engineers		Awaiting referral response	Awaiting referral response
South Metro Fire Rescue		Awaiting referral response	Awaiting referral response
West Metro Fire Protection District		Awaiting referral response	Awaiting referral response
Arrowhead Shores		Awaiting referral response	Awaiting referral response

Project Name: River Canyon Filing 2, 3rd Amendment, Lot 2A-1
Project File #: LE2025-018
Date Sent: 09/19/2025 **Date Due:** 10/02/2025

Chatfield Community Association	09/20/2025	See attached letter. Summary: Concerns regarding water quality and that it may be premature to approve prior to CDPHE and Denver Water approvals	Comments forwarded to applicant
Chatfield Farms 1-A		Awaiting referral response	Awaiting referral response
Chatfield Farms 1-B HOA		Awaiting referral response	Awaiting referral response
Ravenna Homeowners Master Association		Awaiting referral response	Awaiting referral response
Roxborough Park Foundation		Awaiting referral response	Awaiting referral response
Roxborough Ridge HOA		Awaiting referral response	Awaiting referral response
Roxborough Village Filing 14B HOA		Awaiting referral response	Awaiting referral response
Roxborough Village First HOA		Awaiting referral response	Awaiting referral response
Ravenna Metro District		Awaiting referral response	Awaiting referral response
CDPHE – All Referrals		Awaiting referral response	Awaiting referral response
CDPHE – Water Quality Control Division		Awaiting referral response	Awaiting referral response
Roxborough Water & Sanitation District		Awaiting referral response	Awaiting referral response
Denver Water Board		Awaiting referral response	Awaiting referral response
Rural Water Authority of Douglas County		Awaiting referral response	Awaiting referral response
Xcel Energy-Right of Way & Permits		Awaiting referral response	Awaiting referral response
High Line Canal Conservancy		Awaiting referral response	Awaiting referral response

Trevor Bedford

From: Chatfield Community Association <chatfieldcommunity@gmail.com>
Sent: Saturday, September 20, 2025 12:02 PM
To: Trevor Bedford
Subject: Referral LE2025-018, Dominion Wastewater Treatment Plant

Chatfield Community Association Mission

The mission of CCA is to preserve the character of the Chatfield Basin, and to ensure that development in the area at least meets all state and county regulations, has adequate water, doesn't adversely impact existing residents, and hopefully blends well with the existing semi-rural nature.

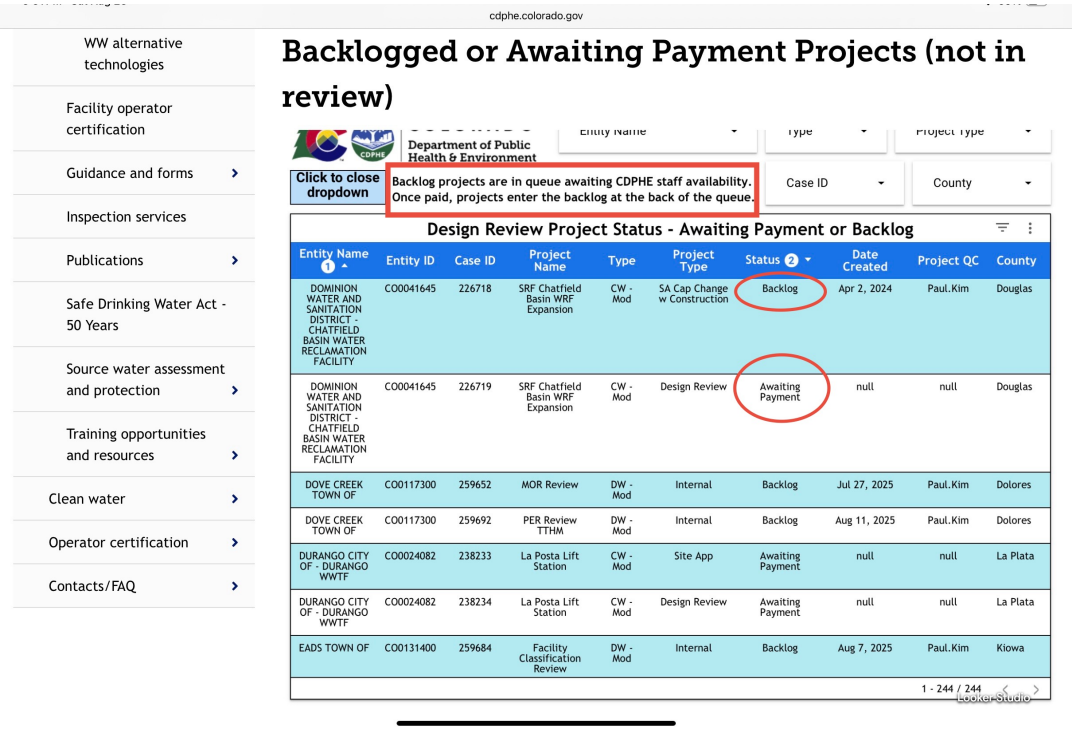
We emphasize objective, factual referral and public hearing comments when possible. But some views are inevitably subjective regarding quality of life, rural life, dark skies, and the like

tbedford@douglas.co.us
Trevor Bedford
Referral LE2025-018
River Canyon Filing 2, 3rd Amendment, Lot 2A-1

Trevor Bedford,

We have the following concerns and questions regarding the Chatfield Basin Water Reclamation Facility proposed refurbishment.

Approval of this application seems premature in as much as Dominion Water and Sanitation District (DWSD) does not appear to have a permit for the wastewater facility. Rules and regulations for the South Platte Basin are being updated, so plans submitted to the county may not meet new regulations when and if a permit is given to DWSD.



Entity Name	Entity ID	Case ID	Project Name	Type	Project Type	Status	Date Created	Project QC	County
DOMINION WATER AND SANITATION DISTRICT - CHATFIELD BASIN WATER RECLAMATION FACILITY	CO0041645	226718	SRF Chatfield Basin WRF Expansion	CW - Mod	SA Cap Change w Construction	Backlog	Apr 2, 2024	Paul.Kim	Douglas
DOMINION WATER AND SANITATION DISTRICT - CHATFIELD BASIN WATER RECLAMATION FACILITY	CO0041645	226719	SRF Chatfield Basin WRF Expansion	CW - Mod	Design Review	Awaiting Payment	null	null	Douglas
DOVE CREEK TOWN OF	CO0117300	259652	MOR Review	DW - Mod	Internal	Backlog	Jul 27, 2025	Paul.Kim	Dolores
DOVE CREEK TOWN OF	CO0117300	259692	PER Review TTHM	DW - Mod	Internal	Backlog	Aug 11, 2025	Paul.Kim	Dolores
DURANGO CITY OF - DURANGO WWTF	CO0024082	238233	La Posta Lift Station	CW - Mod	Site App	Awaiting Payment	null	null	La Plata
DURANGO CITY OF - DURANGO WWTF	CO0024082	238234	La Posta Lift Station	CW - Mod	Design Review	Awaiting Payment	null	null	La Plata
EADS TOWN OF	CO0131400	259684	Facility Classification Review	DW - Mod	Internal	Backlog	Aug 7, 2025	Paul.Kim	Kiowa

We have not seen an agreement with the State or Denver Water for a discharge permit. Plans submitted to the county may not meet requirements by the State or Denver Water for water quality. The location of the discharge facility could change from the submitted plan depending on the agreement with the State and Denver Water.

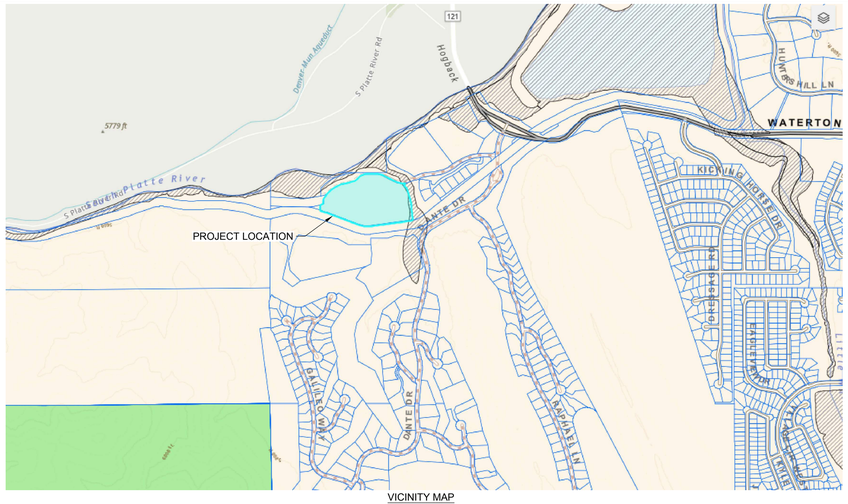
Is DWSD allowed to begin construction on the wastewater treatment plant prior to approval by the State?

How can the requirements from the county Douglas County Storm Drainage and Design be certain to be adequate when it does not appear that the State has issued requirements for the facility? A 100 year floodplain area boarders part of the DWSD property. Shouldn't DWSD build their wastewater facility to a standard higher than 100 years? In the 2013 flood in Larimer and Boulder counties, several wastewater facilities were affected, causing water contamination for miles downstream. Plans for DWSD's wastewater plant should be built to a higher standard than 100 years in order to protect Chatfield Reservoir drinking water and waters downstream.

We do not see any discussion in this application about plans for reuse of wastewater. If wastewater is discharged into the Platte which has nearby diversions for drinking water and additional discharge water will flow into Chatfield Reservoir, a drinking water supply for a number of districts, we would think any discharge would have to be of a high quality. It is disappointing there is not a more forward thinking facility being designed such as a plan for a closed loop system for reuse. DWSD shows reuse water on only some of their water supply charts, making it unclear if DWSD will actually reuse any of their wastewater discharge. We do not see a permit for a diversion for DWSD to get their wastewater off of the Platte for that reuse.

Until regulations are finalized and permits are issued, this application seems premature and should not be approved.

Team CCA



VICINITY MAP

LEGAL DESCRIPTION

A PARCEL OF LAN BEING A PART OF THE NORTH HALF OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 6 SOUTH, RANGE 69 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY DOUGLAS, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

LOT 2A, RIVER CANYON FILING NO. 2, 1ST AMENDMENT RECORDED AT RECEPTION NO. 201600108 IN THE OFFICIAL RECORDS OF DOUGLAS COUNTY, COLRADO CLERK AND RECORDER'S OFFICE.

CONTAINING AN AREA OF 12.530 ACRES, (545,803 SQUARE FEET), MORE OR LESS.

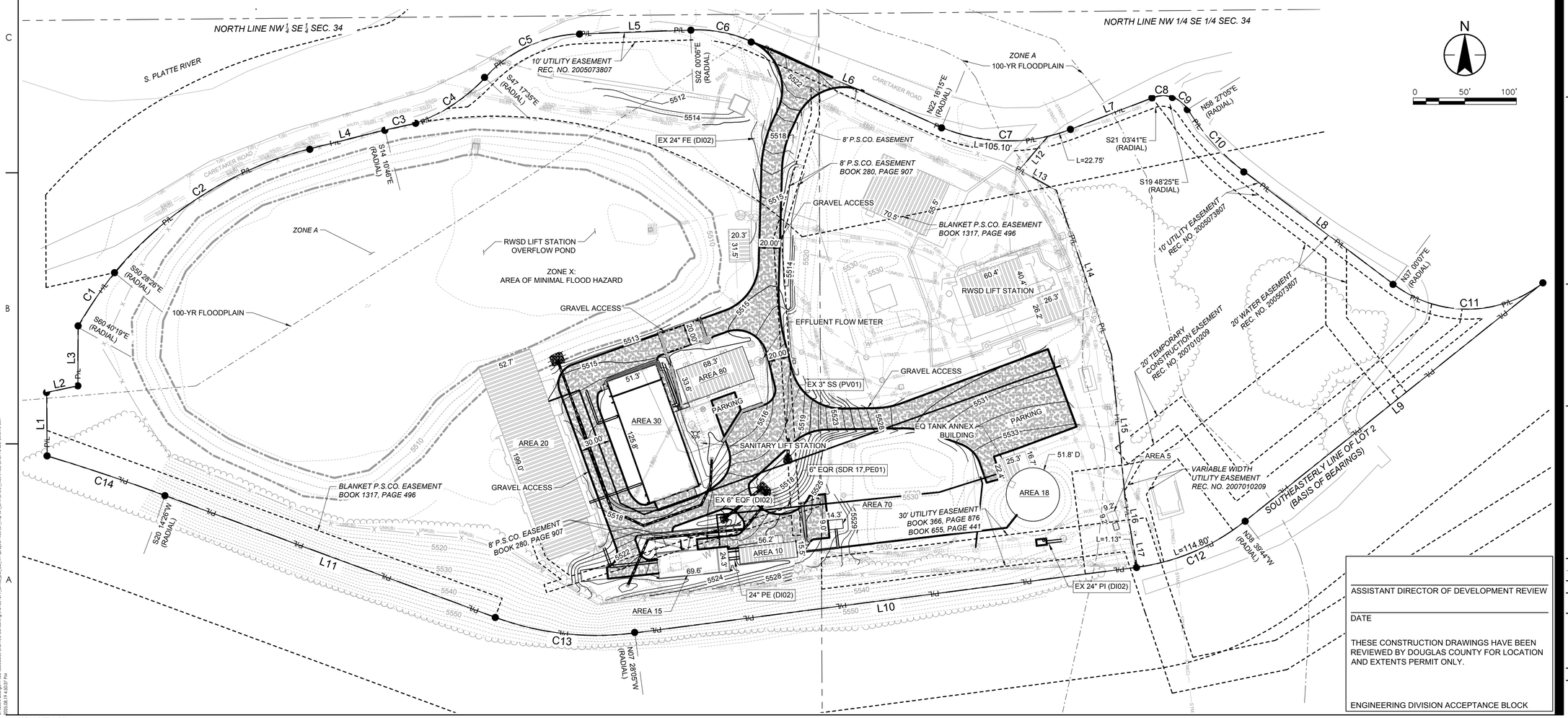
BUILDING DESCRIPTION			
AREA	BUILDING DESCRIPTION	BLDG ELEVATION (FT)	BLDG HEIGHT (FT)
5	ELECTRICAL HOUSING	5528.86	5540.86
10	HEADWORKS	5525.68	5541.01
15	FINE SCREENING*	5524.50	5546.50
18	EQUALIZATION TANK	5534.00	5543.25
20	BIOLOGICAL NUTRIENT REMOVAL	5518.69	5518.69
30	MEMBRANE BIOREACTOR*	5518.00	5549.00
70	ODOR CONTROL	5526.00	5535.00
80	CCT, CHEMICAL, STORAGE AND DOSING	5516.23	5527.15

*pending manufacturer details

WATER & SEWAGE MANAGEMENT	
WATER	DENVER WATER
SEWAGE	ROXBOUROUGH WATER & SANITATION DISTRICT

LINE TABLE		
LINE	BEARING	LENGTH
L1	N00 19'04"W	61.46'
L2	N77 48'26"E	30.71'
L3	N00 19'04"W	57.32'
L4	N75 47'21"E	75.00'
L5	N87 59' 55"E	107.92'
L6	S65 43'43"E	202.28'
L7	N68 56'07"E	84.84'
L8	D52 59' 57"E	180.99'
L9	S51 20'16"W	369.46'
L10	S82 31'56"W	490.08'
L11	N69 45' 34"W	340.87'
L12	N40 23'22"E	42.66'
L13	N60 55'09"W	40.98'
L14	N18 31'24"W	168.00'
L15	N05 26'55"W	139.83'
L16	N09 45'41"W	36.76'
L17	N10 31'12"W	30.87'

CURVE TABLE			
CURVE	DELTA	RADIUS	LENGTH
C1	10 11'51"	359.50'	63.98'
C2	36 15'46"	359.50'	227.53'
C3	4 00'02"	436.91'	30.51'
C4	27 31'31"	169.00'	81.19'
C5	45 17'32"	131.00'	103.56'
C6	26 18'24"	131.00'	60.15'
C7	43 20'37"	169.00'	127.85'
C8	40 51'56"	28.00'	19.97'
C9	38 38'45"	28.00'	18.89'
C10	21 27'00"	219.00'	81.99'
C11	75 12'50"	119.00'	156.22'
C12	31 11'40"	212.94'	115.93'
C13	27 42'31"	284.25'	137.47'
C14	3 28'28"	1985.08'	120.38'



ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

THESE CONSTRUCTION DRAWINGS HAVE BEEN REVIEWED BY DOUGLAS COUNTY FOR LOCATION AND EXTENTS PERMIT ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

Stantec
410 17th Street, Suite 1400
Denver, CO 80202
Tel 303.291.2277
www.stantec.com

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Consultant

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

Permit/Seal

Client/Project
DOMINION WATER SANITATION DISTRICT
CHATFIELD BASIN WRF REFURBISHMENT
11310 CARETAKER RD. LITTLETON, CO 80125

Project No.: 181301899
File Name: 01899C-LOC-EXTENTS-EXH

Scale: 1"=50'

JS	SC	RM	2025.08.19
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
LOCATION AND EXTENTS - EXHIBIT

Revision: 001

Drawing No.
LOE-EXH

ORIGINAL SHEET - ANSI D