



Re-submittal Form

Case Name/ Number: _____

Case Manager: _____

Re-submitted Items:

- ☐ Development Plan/ Site Plan
- ☐ Plat
- ☐ Parking/ Landscape Plan
- ☐ Engineering Documents **EGR2023-00015**
- ☐ Subdivision Improvements Agreement (Microsoft Word version)
- ☐ Other: _____

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

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

The cover letter must include the following information:

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

For County Use Only:

Date Accepted:

Staff (accepting intake):

Resubmittal Active: Engineering, Planner, Right-of-Way, Addressing; Building Safety;

Neighborhood Services; Environmental; Parks; Attorney; Finance; Plan Coordination



ENGINEERING YOUR VISION

September 17, 2024

Mr. Brayan Marin, Senior Planner
Adams County Planning & Development Division
4430 South Adams County Parkway, Suite W20000A
Brighton, CO 80601

RE: Responses to Development Team Review Comments Second Submittal
Minor Subdivision
5200 Sheridan Boulevard – Case# PLT2023-00012

Dear Mr. Marin,

In reference to the project changes that were discussed in our July 23rd 2024 meeting, we offer the following revisions.

Purrington Civil will be assuming the role of primary Civil Consultant, and Olsson will move forward as the Surveyor and Landscape Architect. All proposed development for Lot 1 including Sheridan Blvd improvements have been removed from this submission. A revised Level III Drainage Report has been completed. An updated conceptual access plan has been completed. All proposed grading is based on the grading approved in TVM2024-00008. The plat document has been updated to reflect these changes.

The following attachments are included with this submittal.

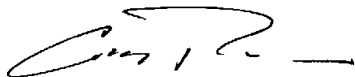
1. Plat Document
2. Civil Construction Plan Set
3. Conceptual Access Plan
4. Easement Exhibit
5. Level III Drainage Report
6. CDPS General Permit (COR413231)
7. SWQ Permit (CS12021-00008)
8. TUP Permit (TVM2024-00008)
9. Certification of Authority
10. Receipt of Taxes Paid
11. Proof of Water
12. Proof of Sewer
13. Maintenance Agreement
14. Subdivision Improvement Agreement

Please do not hesitate to contact me with any questions or if additional information is needed.

Sincerely,

Adams County Planning & Development Division
September 17, 2024
Page 2

PURRINGTON CIVIL, LLC

A handwritten signature in black ink, appearing to read "Chris Purrington", with a horizontal line extending to the right.

Chris Purrington, P.E.
Principal

cc: Jim Goyette

5200 SHERIDAN MINOR SUBDIVISION

CASE NO.

BEING A REPLAT OF PORTIONS OF TRACT D AND TRACT E, BERKELEY VILLAGE FILING NO. 1 TOGETHER WITH UNPLATTED LANDS
LOCATED IN THE NORTHWEST QUARTER OF SECTION 18,TOWNSHIP 3 SOUTH, RANGE 68 WEST OF THE 6TH P.M.
COUNTY OF ADAMS, STATE OF COLORADO

OWNERSHIP AND DEDICATION CERTIFICATE:

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

A PART OF THE NORTHWEST 1/4 OF SECTION 18, TOWNSHIP 3 SOUTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN, ADAMS COUNTY, COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE WEST 1/4 CORNER OF SAID SECTION 18; THENCE NORTH 89 DEGREES 19 MINUTES 55 SECONDS EAST, AND ALONG THE EAST - WEST CENTERLINE OF SAID SECTION 18, A DISTANCE OF 60 FEET; THENCE NORTH 00 DEGREES 23 MINUTES 00 SECONDS WEST, A DISTANCE OF 40 FEET TO THE POINT OF BEGINNING; THENCE NORTH 00 DEGREES 23 MINUTES 00 SECONDS WEST, ALONG THE EAST RIGHT OF WAY LINE OF SHERIDAN BOULEVARD, A DISTANCE OF 350 FEET; THENCE SOUTH 88 DEGREES 12 MINUTES 36 SECONDS EAST, A DISTANCE OF 494.66 FEET; THENCE NORTH 71 DEGREES 40 MINUTES 00 SECONDS EAST, A DISTANCE OF 188.20 FEET; THENCE NORTH 00 DEGREES 54 MINUTES 24 SECONDS WEST, A DISTANCE OF 14.10 FEET; THENCE NORTH 89 DEGREES 19 MINUTES 55 SECONDS EAST, ALONG DISTANCE OF 228.50 FEET; THENCE SOUTH 00 DEGREES 54 MINUTES 24 SECONDS EAST, A DISTANCE OF 285.00 FEET; THENCE SOUTH 89 DEGREES 19 MINUTES 55 SECONDS WEST, A DISTANCE OF 115.00 FEET; THENCE SOUTH 00 DEGREES 54 MINUTES 24 SECONDS EAST, A DISTANCE OF 125.00 FEET TO A POINT ON THE NORTH RIGHT OF WAY LINE OF WEST 52ND AVENUE; THENCE SOUTH 89 DEGREES 19 MINUTES 55 SECONDS WEST, AND ALONG THE NORTH RIGHT OF WAY LINE OF WEST 52ND AVENUE, A DISTANCE OF 113.50 FEET; THENCE NORTH 00 DEGREES 54 MINUTES 24 SECONDS WEST, A DISTANCE OF 10.00 FEET; THENCE SOUTH 89 DEGREES 19 MINUTES 55 SECONDS WEST AND ALONG THE NORTH RIGHT OF WAY LINE OF WEST 52ND AVENUE, A DISTANCE OF 676.87 FEET TO THE POINT OF BEGINNING.

HAS BY THESE PRESENTS LAID OUT, PLATTED AND SUBDIVIDED THE SAME INTO LOTS, STREETS AND EASEMENTS AS SHOWN ON THIS PLAT UNDER THE NAME AND STYLE OF 5200 SHERIDAN MINOR SUBDIVISION, AND DO, BY THESE PRESENTS, OF ITS OWN FREE WILL AND VOLUNTARILY, WITHOUT COERCION, THREAT OR BUSINESS COMPULSION, GRANT AND CONVEY TO THE COUNTY OF ADAMS, STATE OF COLORADO ALL EASEMENTS, EXCEPT THOSE OF PRIOR RECORD, AS SHOWN HEREON AND GRANT AND CONVEY TO THE COUNTY OF ADAMS AN EASEMENT OVER ANY AND ALL PRIVATE ACCESS DRIVES AND RIGHTS-OF-WAY FOR THE PURPOSE OF PASSAGE OF SERVICE VEHICLES AND PASSAGE OF ALL VEHICLES AND PEDESTRIANS DURING AN EMERGENCY SITUATION. IT IS EXPRESSLY UNDERSTOOD THAT THE ACCEPTANCE OF THE DEDICATION OF THIS EASEMENT IS NOT TO BE CONSTRUED AS AN ACCEPTANCE BY THE COUNTY OF SAID PRIVATE ACCESS DRIVES AND RIGHTS-OF-WAY FOR ANY OTHER PURPOSE INCLUDING MAINTENANCE PURPOSES.

OWNER: SBGM LAND TRUST

BY: JAMES GOYETTE

ACKNOWLEDGEMENT:

STATE OF COLORADO)
) SS
COUNTY OF)

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS DAY
OF , 20 , BY .

WITNESS MY HAND AND OFFICIAL SEAL

NOTARY PUBLIC

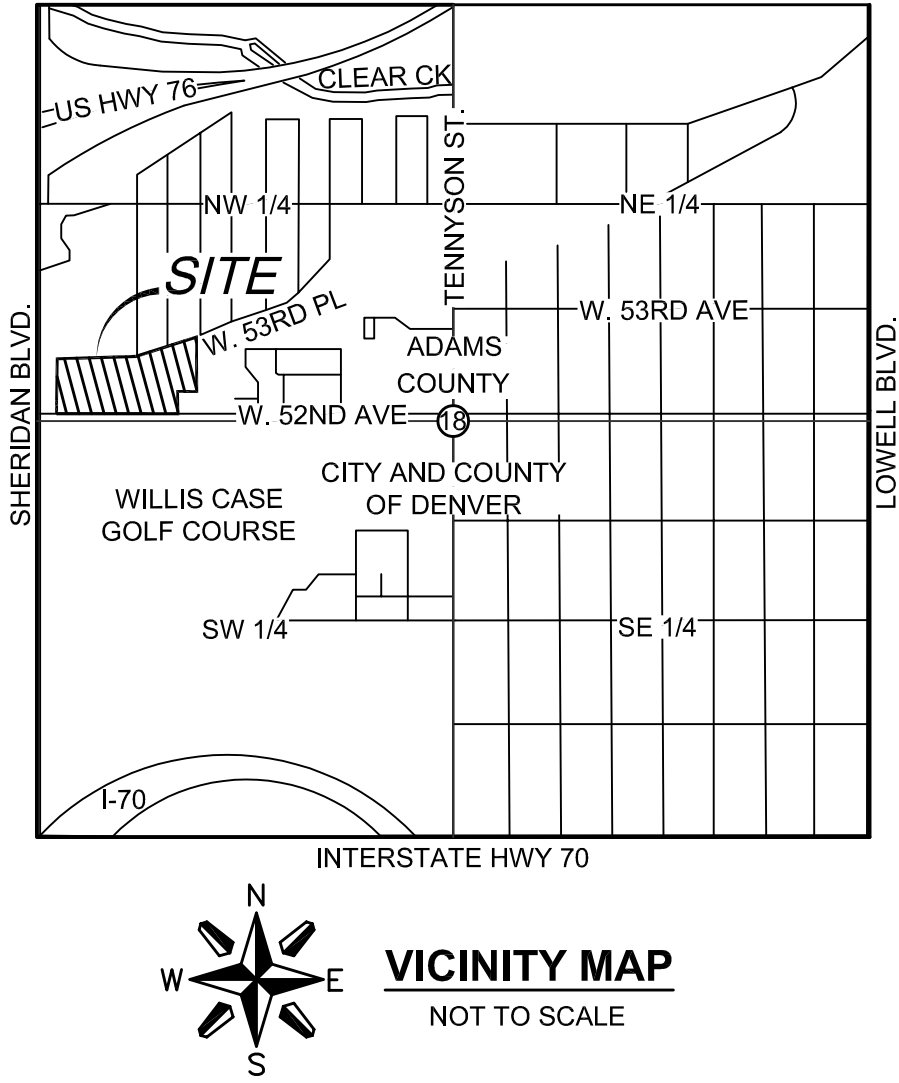
MY COMMISSION EXPIRES:

SURVEYOR'S CERTIFICATE:

I, MATT ROBERT EISENACH, A PROFESSIONAL LAND SURVEYOR LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS SURVEY OF 5200 SHERIDAN MINOR SUBDIVISION WAS MADE BY ME OR DIRECTLY UNDER MY SUPERVISION ON OR ABOUT THE 19TH DAY OF AUGUST, 2024, AND THAT THE SURVEY IS BASED UPON MY KNOWLEDGE, INFORMATION AND BELIEF, IT HAS BEEN PREPARED IN ACCORDANCE WITH THE APPLICABLE STANDARDS OF PRACTICE, IT IS NOT A GUARANTY OR WARRANTY, EITHER EXPRESSED OR IMPLIED, AND THE ACCOMPANYING PLAT ACCURATELY AND PROPERLY SHOWS SAID MINOR SUBDIVISION PLAT AND THE SURVEY THEREOF.

MATT ROBERT EISENACH, PROFESSIONAL LAND SURVEYOR
COLORADO LICENSE NUMBER 38257

SHEET 1 OF 4



PLANNING COMMISSION APPROVAL:

RECOMMENDED FOR APPROVAL BY THE ADAMS COUNTY PLANNING COMMISSION THIS DAY OF , 20 .

CHAIR

BOARD OF COUNTY COMMISSIONERS APPROVAL:

APPROVED BY THE ADAMS COUNTY BOARD OF COMMISSIONERS THIS DAY OF , 20 .

CHAIR

ADAMS COUNTY ATTORNEY'S CERTIFICATE:

APPROVED AS TO FORM

CLERK AND RECORDER'S CERTIFICATE:

ACCEPTED FOR FILING IN THE OFFICE OF THE CLERK AND RECORDER OF ADAMS COUNTY, COLORADO ON THIS DAY OF , 20 AT O'CLOCK .M. AND WAS RECORDED IN PLAT FILE AT MAP , RECEPTION NO. .

COUNTY CLERK AND RECORDER

BY: DEPUTY CLERK

NOTES:

1. BASIS OF BEARINGS: THE SOUTH LINE OF THE NORTHWEST QUARTER OF SECTION 18, TOWNSHIP 3 SOUTH, RANGE 68 WEST OF THE 6TH P.M., BEING MONUMENTED AT THE WEST END BY A 3.25 INCH BRASS CAP STAMPED "CITY OF WHEAT RIDGE LS 13212" AND AT THE EAST END BY A 2.5 INCH ALUMINUM CAP (ILLEGIBLE MARKINGS) IS ASSUMED TO BEAR NORTH 89°23'41" EAST A DISTANCE OF 2588.52 FEET.
2. ALL DISTANCES SHOWN HEREON ARE EXPRESSED IN U.S. SURVEY FEET AND DECIMAL THEREOF. A U.S. SURVEY FOOT IS DEFINED AS EXACTLY 1200/3937 METERS.
3. GROSS LAND AREA FOR SUBJECT PROPERTY IS: 311,828 SQUARE FEET, OR 7.158 ACRES OF LAND, MORE OF LESS.
4. THE PURPOSE OF THIS MINOR SUBDIVISION IS TO CREATE FOUR (4) LOTS AND ONE (1) TRACT OF LAND AND DEDICATE EASEMENTS AS SHOWN HEREON.
5. EASEMENT STATEMENT: FIVE-FOOT (5') WIDE UTILITY EASEMENTS ARE HEREBY DEDICATED ON PRIVATE PROPERTY ADJACENT TO THE FRONT LOT LINES OF EACH LINE IN THE SUBDIVISION. IN ADDITION, TEN-FOOT (10') WIDE DRY UTILITY EASEMENTS ARE HEREBY DEDICATED AROUND THE PERIMETER OF TRACTS, PARCELS, AND/OR OPEN SPACE AREAS. THESE EASEMENTS ARE DEDICATED TO ADAMS COUNTY ARE FOR THE BENEFIT OF THE APPLICABLE UTILITY PROVIDERS FOR THE INSTALLATION, MAINTENANCE, AND REPLACEMENT OF UTILITIES. UTILITY EASEMENTS SHALL ALSO BE GRANTED WITHIN ANY ACCESS EASEMENTS AND PRIVATE STREETS IN THE SUBDIVISION. PERMANENT STRUCTURES, IMPROVEMENTS, OBJECTS, BUILDINGS, WELLS, WATER METERS AND OTHER OBJECTS THAT MAY INTERFERE WITH THE UTILITY FACILITIES OR USE THEREOF (INTERFERING OBJECTS) SHALL NOT BE PERMITTED WITHIN SAID UTILITY EASEMENTS AND THE UTILITY PROVIDERS, AS GRANTEES, MAY REMOVE ANY INTERFERING OBJECTS AT NO COST TO SUCH GRANTEES, INCLUDING, WITHOUT LIMITATION, VEGETATION.
6. STORM DRAINAGE FACILITIES STATEMENT: THE POLICY OF THE COUNTY REQUIRES THAT MAINTENANCE ACCESS SHALL BE PROVIDED TO ALL STORM DRAINAGE FACILITIES TO ASSURE CONTINUOUS OPERATIONAL CAPABILITY OF THE SYSTEM. THE PROPERTY OWNERS SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL DRAINAGE FACILITIES INCLUDING INLETS, PIPES, CULVERTS, CHANNELS, DITCHES, HYDRAULIC STRUCTURES, AND DETENTION BASINS LOCATED ON THEIR LAND UNLESS MODIFIED BY THE SUBDIVISION DEVELOPMENT AGREEMENT. SHOULD THE OWNER FAIL TO MAINTAIN SAID FACILITIES, THE COUNTY SHALL HAVE THE RIGHT TO ENTER SAID LAND FOR THE SOLE PURPOSE OF OPERATIONS AND MAINTENANCE. ALL SUCH MAINTENANCE COST WILL BE ASSESSED TO THE PROPERTY OWNERS.
7. TRACT A IS DEDICATED TO ADAMS COUNTY FOR STORM WATER DRAINAGE PURPOSES WITH MAINTENANCE OF THE SURFACE BEING THE RESPONSIBILITY OF THE PROPERTY OWNER(S) OF SAID TRACT.
8. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY OLSSON TO DETERMINE OWNERSHIP OR EASEMENTS OF RECORD. FOR ALL INFORMATION REGARDING EASEMENTS, PUBLIC ROAD RIGHT-OF-WAY AND TITLE OF RECORD OLSSON RELIED UPON TITLE COMMITMENT NO. ABD70772511-2, ISSUED BY OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY HAVING AN EFFECTIVE DATE OF 01/06/2023 AT 5:00 P.M. IF ANY OTHER EASEMENTS, RIGHT-OF-WAYS, VACATIONS, COURT DECREES OR OTHER ENCUMBRANCES AFFECT THIS PROPERTY, THEIR EXISTENCE IS UNKNOWN TO THIS SURVEYOR AND THEREFORE NOT SHOWN.
9. NOTICE: PURSUANT TO COLORADO REVISED STATUTES TITLE 13, ARTICLE 80, SECTION 105 (C.R.S. 13-80-105) - YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.
10. ALL GENERAL NOTES, DEDICATIONS, AND PLAT RESTRICTIONS, AS SHOWN ON THE PLAT OF BERKELEY VILLAGE - FILING NO. 1, AS RECORDED AT RECEPTION NO. 886210 SHALL APPLY UNLESS SPECIFICALLY AMENDED AND SUPERCEDED HEREBY.
11. FIELD WORK WAS COMPLETED IN MAY, 2022.
12. AT THE TIME OF SITE SPECIFIC DEVELOPMENT FOR ANY LOT, THE DEVELOPER SHALL BE RESPONSIBLE FOR THE CONSTRUCTION OF THAT PORTION OF THE DRAINAGE SYSTEM NECESSARY TO SERVICE THAT PARTICULAR LOT. THE SUBDIVIDER SHALL PROVIDE ALL OF THE NECESSARY RIGHTS TO THE FUTURE DEVELOPER SO THAT THE REQUIREMENTS OF THIS NOTE MAY APPLY.
13. SEE GEOLOGICAL REPORT ASSOCIATED WITH THIS PROJECT FOR ADDITIONAL INFORMATION

SHEET INDEX

SHEET 1.....TITLE SHEET
SHEET 2.....BOUNDARY & LOTS
SHEET 3.....DEDICATED EASEMENTS
SHEET 4.....LINE AND CURVE TABLES

1525 RALEIGH STREET, SUITE 400
DENVER, COLORADO
TEL 303.237.2072
www.olsson.com

PLATTED SUBDIVISION

APPROVED BY: NSS
PROJECT #: A22-02737
DATE: 09.16.2024

SHEET 1 OF 4

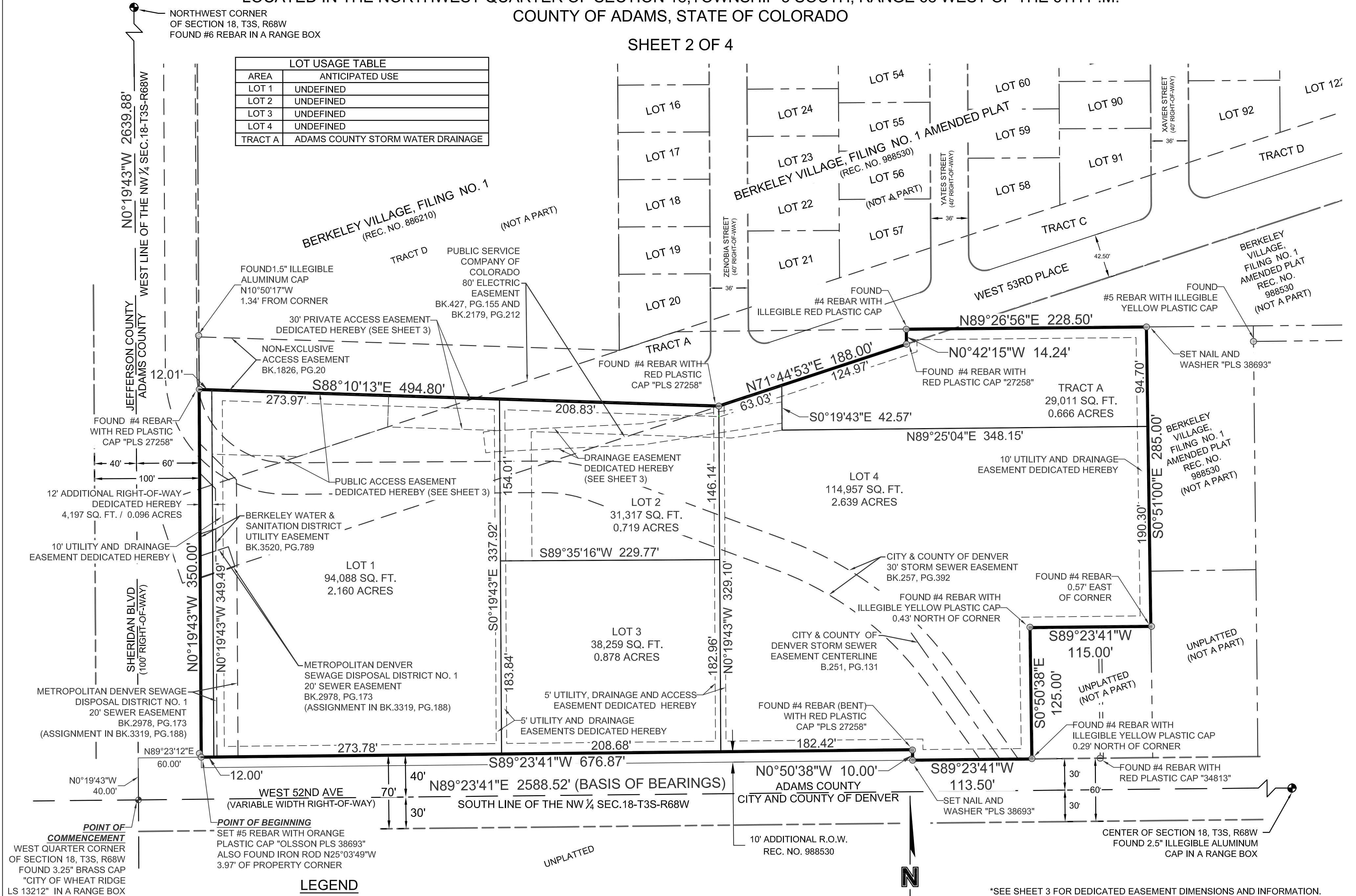
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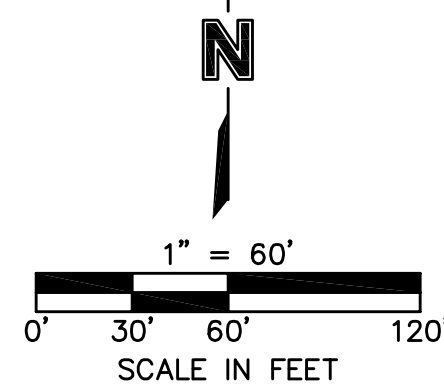
SHEET 2 OF 4

LOT USAGE TABLE	
AREA	ANTICIPATED USE
LOT 1	UNDEFINED
LOT 2	UNDEFINED
LOT 3	UNDEFINED
LOT 4	UNDEFINED
TRACT A	ADAMS COUNTY STORM WATER DRAINAGE



LEGEND

- FOUND OR SET MONUMENT AS NOTED
- FOUND SECTION CORNER AS NOTED
- BOUNDARY LINE
- - - EASEMENT LINE
- - - ADJOINING PROPERTY LINE
- - - RIGHT-OF-WAY LINE
- - - SECTION LINE



*SEE SHEET 3 FOR DEDICATED EASEMENT DIMENSIONS AND INFORMATION.

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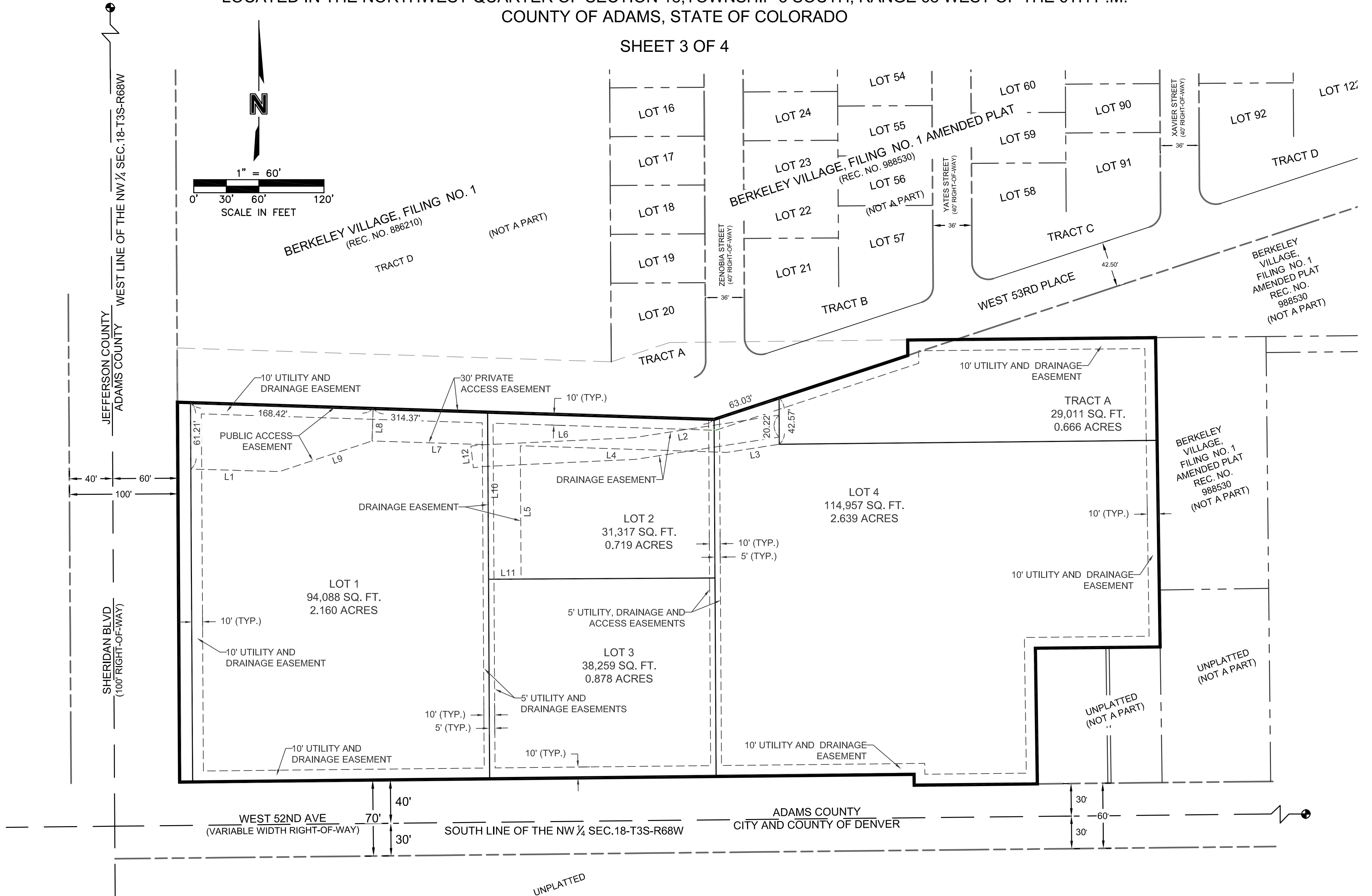
SHEET
2 OF 4

5200 SHERIDAN MINOR SUBDIVISION

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SHEET 3 OF 4



LEGEND

- FOUND OR SET MONUMENT AS NOTED
- FOUND SECTION CORNER AS NOTED
- BOUNDARY LINE
- - - EASEMENT LINE
- - - ADJOINING PROPERTY LINE
- - - RIGHT-OF-WAY LINE
- - - SECTION LINE

NOTE: THIS SHEET ONLY SHOWS PROPOSED EASEMENTS DEDICATED BY THIS PLAT. EXISTING EASEMENTS ARE NOT SHOWN FOR CLARITY. SEE SHEET 2 FOR ADDITIONAL INFORMATION ON EXISTING EASEMENTS.

*SEE SHEET 2 FOR BOUNDARY AND LOT INFORMATION.

olsson

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APPROVED BY: NSS
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SHEET
3 OF 4

5200 SHERIDAN MINOR SUBDIVISION

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SHEET 4 OF 4

LINE TABLE		
LINE #	DIRECTION	LENGTH
L1	N88°23'58"W	81.58'
L2	N81°10'52"E	135.81'
L3	S81°10'34"W	48.79'
L4	N88°09'35"W	190.56'
L5	S0°19'43"E	122.89'
L6	N87°17'46"E	140.46'
L7	N88°09'35"W	106.68'
L8	S1°50'14"W	29.94'
L9	S71°42'44"W	89.83'
L10	N0°19'43"W	124.02'
L11	S89°40'17"W	30.00'
L12	N6°41'29"W	20.00'



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SHEET
4 OF 4

[illegible]

CIVIL CONSTRUCTION DOCUMENTS
for
ADAMS COUNTY MINOR SUBDIVISION

LEGAL DESCRIPTION

PROJECT BENCHMARK
B.M. #117A SHERIDAN BLVD & 52ND AVENUE
CCD BRASS CAP @ SE CORNER IN WALK
ELEV=5294.50FT. (NAVD 1988)

Owner
James Goyette, Trustee
SGBM Land Trust
P.O. Box 306
Pine, CO 80470
Phone: 303.838.2503

Landscape Architect
Olsson
7878 N. 16th Street, Suite 105
Phoenix, AZ 85020
Phone: 480.560.8897
Contact: Devyn Diaz

VICINITY MAP
N.T.S.



- C.01 COVER SHEET
- C.02 NOTES
- C.03 EXISTING CONDITIONS
- C.04 EXISTING CONDITIONS
- C.05 OVERALL GRADING PLAN
- C.06 PHASE I GESC PLAN
- C.07 PHASE II GESC PLAN
- C.08 EROSION CONTROL DETAILS
- C.09 EROSION CONTROL DETAILS
- C.10 EXTENDED DETENTION BASIN
- C.11 STORM SEWER PLAN AND PROFILES
- C.12 STORM SEWER AND DETENTION DETAILS
- C.13 RETAINING WALL PLAN AND PROFILE
- C.14 LANDSCAPE PLAN
- C.15 LANDSCAPE DETAILS

REVIEW SET



PURRINGTON
CIVIL

ENGINEERING Your Vision

1299 WASHINGTON AVENUE, SUITE 280
GOLDEN, CO 80401

SCALE: N.1.3

C.01

Performance Standard Notes:

1.

Stormwater runoff from disturbed areas must flow to at least **one (1)** CM to minimize sediment in the discharge. Do not allow **sediment to leave** the site. The best way to prevent sediment or pollutants from entering the storm sewer system is to stabilize the site as quickly as possible, preventing erosion and stopping sediment runoff at its source.
2.

Phase construction to minimize disturbed areas, including disturbance of steep slopes. (i.e. the entire project site should not be disturbed if construction will only be occurring in one particular section of the site). Limit soil exposure to the shortest possible period of time. Protect natural features and **existing vegetation** whenever possible. Removal of existing vegetation shall be limited to the area required for immediate construction operations. Maintain pre-existing vegetation (or equivalent CMs) for areas within 50 horizontal ft of receiving waters.
3.

Soil compaction must be minimized for areas where infiltration CMs will occur or where final stabilization will be achieved through vegetative cover.
4.

All **soil imported** to or **exported** from the site shall be properly covered to prevent the loss of material during transport.
5.

Dust emissions resulting from grading activities or wind shall be controlled.
6.

Install construction fence (orange) to protect wetlands and other sensitive areas and to prevent access, and to delineate the Limits of Construction. Do not use silt fence to protect wetlands since trenching may impact these areas.
7.

CMs intended to capture overland, low velocity **sheet flow** at a fairly level grade shall only be installed along contours.
8.

Install CMs, such as **check dams**, perpendicular to the **concentrated flows** to reduce flow velocity.
9.

Storm drain **inlets** within and adjacent to the construction site must be protected. Any ponding of stormwater around inlet protection must not cause excessive flooding or damage adjacent areas or structures.
10.

Install **Vehicle Tracking Control (VTC)** to enter/exit unpaved area. Do not use recycled crushed concrete or asphalt millings for vehicle tracking pads.
11.

Straw bales shall not be used for primary erosion or sediment control (i.e. straw bales may be used for reinforcement behind another BMP such as silt fence).
12.

Outlets systems (such as skimmer or perforated riser pipe) shall be installed to withdraw water from or near the surface level when discharging from basins. Water cannot drain from the bottom of the pond.
13.

Temporary stabilization must be implemented for earth disturbing activities on any portion of the site where land disturbing activities have permanently or temporarily ceased (for more than 14 calendar days). Temporary stabilization methods examples: tarps, soil tackifier, and hydroseed. Temporary stabilization requirement may **exceed** the 14-day schedule when either the function of the specific area requires it to remain disturbed, or, physical characteristics of the terrain and climate prevent stabilization as long as the constraints and alternative schedule is documented on the SWMP, and locations are identified on the EC Plan (site map).
14.

Runoff from **stockpile area** must be controlled. Soils that will be stockpiled for more than 30 days shall be protected from wind and water erosion within 14 days of stockpile construction. Install CMs/BMPs 5 ft away from the toe of the stockpile's slope.
15.

Water use to clean concrete trucks shall be discharged into a **concrete washout area** (CWA). The predefined containment area must be identified with a sign, and shall allow the liquids to evaporate or dry out. CWA discharges that may reach groundwater must flow through soil that has buffering capacity prior to reaching groundwater. The concrete washout location shall be not be located in an area where shallow groundwater may be present and would result in buffering capacity not being adequate, such as near natural drainages, springs, or wetlands. In this case, a liner underneath is needed for areas with high groundwater levels. CWA shall not be placed in low areas, ditches or adjacent to state waters. Place CWA 50 ft away from state waters.
16.

Waste, such as building materials, workers trash and construction debris, must be properly managed to prevent stormwater pollution.
17.

Install **stabilized staging area (SSA)** to store materials, construction trailer, etc.
18.

If conditions in the field warrant **additional** CMs/BMPs to the ones originally approved on the SWMP or EC Plan (civil drawing), the landowner or contractor shall implement measures determined necessary, as **directed by the County**.
19.

Permanent CMs/BMPs for slopes, channels, ditches, or disturbed land area shall be performed immediately after final grading. Consider the use **erosion control blankets** on slopes 3:1 or steeper and areas with **concentrated flows** such as swales, long channels and roadside ditches.
20.

The discharge of **sanitary waste** into the storm sewer system is prohibited. Portable toilets must be provided, secured and placed on permeable surfaces, away from the curbside, storm inlets and/or drainage ways.
21.

Remove temporary CMs/BMPs once final stabilization is reached, unless otherwise authorized.
22.

Final stabilization must be implemented. Final stabilization is reached when all soil disturbing activities have been completed, and either a uniform vegetative cover has been established with an individual plant density of at least 70% of pre-disturbance levels, or equivalent permanent alternative method has been implemented.

23.

Provide **spill prevention** and containment measures for construction materials, waste and fuel storage areas. **Bulk storage** (55 gallons or greater) of petroleum products and liquid chemicals must have secondary containment, or equivalent protection, in order to contain spills and to prevent spilled material from entering state waters.
24.

Spills or releases of chemical, oil, petroleum product, sewage, etc., which may reach the storm sewer or enter state waters within **24-hours** from time of discovery. Guidance available at www.cdphe.state.co.us/emp/spillsandreleased.htm. State of Colorado Spill-line: 1-877-518-5608. Adams County Stormwater Hotline: 720-523-6400; Public Works 303-453-8787 and the Tri-County Health Department at 303-220-9200.

Adams County Erosion Control Plan - General Notes:

1.

All construction projects, regardless of the size, shall install, maintain and repair stormwater pollution **control measures (CMs)** to effectively minimize erosion, sediment transport, and the release of pollutants related to construction activity. CMs example include: sediment control logs (SCL), silt fence (SF), dikes/swales, sediment traps (ST), inlet protection (IP), outlet protection (OP), check dams (CD), sediment basins (SB), temporary/permanent seeding and mulching (MU), soil roughening, maintaining existing vegetation and protection of trees. CMs must be selected, designed, adequately sized, installed and maintained in accordance with good engineering, hydrologic and pollution control practices. CMs/BMPs installation and maintenance details shall conform to Urban Drainage Flood Control Criteria Manual Volume 3, or the Colorado Department of Transportation (CDOT) Item Code Book. CMs must filter, settle, contain or strain pollutants from stormwater flows in order to prevent bypass of flows without treatment. CMs must be appropriate to treat the runoff from the amount of disturbed area, the expected flow rate, duration, and flow conditions (i.e., sheet or concentrated flow). CMs/BMPs **shall be specified in the SWMP (if applicable), and the locations shown on the EC Plan**.
- 1)

Prior to construction, projects disturbing 1 or more acres of land, or any project belonging to a common plan of development disturb 1 or more acres, must obtain:
 - A General **Permit** for Stormwater Discharges associated with Construction Activities, from the Colorado Department of Public Health and Environment, and
 - An Adams County Stormwater Quality Permit within the unincorporated Adams County MS4 Area.
- 3)

Permitted projects shall develop a Stormwater Management Plan (**SWMP**), aka Erosion and Sediment Control Plan (ESCP), in compliance with CDPHE minimum requirements. The approved SWMP, including Erosion Control (EC) Plan (Site Map), shall be **kept** on site and **updated** at all times. The **Qualified Stormwater Manager** is responsible for implementing the SWMP and CMs (aka BMPs) during construction.
- 4)

Permitted projects shall perform regular **Stormwater Inspections** every 7 calendar days; **or** every 14 calendar days and within 24 hours after any precipitation or snowmelt event that causes surface erosion. Inspection frequency can be reduced for **Post-Storm Event inspections at Temporarily Idle Sites** and also for **Stormwater Inspections at Completed Sites waiting for final stabilization**. Inspection reports must identify any incidents of non-compliance.
- 5)

Tracking of dirt onto paved public or private paved roads is not allowed. The use of dirt ramps to enter/exit from an unpaved into a paved area is prohibited. Vehicle tracking controls shall be implemented, otherwise entrance area must drain thru a CM towards the private site.
- 6)

Truck loads of fill material imported to or cut material exported from the site shall be properly covered to prevent loss of the material during transportation on public ROW. Haul routes must be permitted by the County. No material shall be transported to another site without applicable permits.
- 7)

Control measures designed for **concrete washout waste** must be implemented. This includes washout waste discharged to the ground and washout waste from concrete trucks and masonry operations.
- 8)

Temporary **CMs/BMPs shall be removed** after the site has reached final stabilization.
- 9)

Dewatering operations discharging off-site into any waters conveyance systems including wetlands, irrigation ditches, canals, rivers, streams or storm sewer systems, require a State Construction Dewatering Permit.
- 10)

Permitted projects shall **keep** the CDPHE's Stormwater Discharge Permit, Stormwater Management Plan (SWMP) and inspection logs available on-site throughout the duration of the project, and for an additional 3 years after permit close-out.

Permitted landowner and/or contractor shall **close** the State and City/County permit once **final stabilization** is reached. Stormwater inspections shall continue until Inactivation Notice is filed with CDPHE.

Maintenance Standard Notes:

1.

Maintain and repair CMs according to approved Erosion Control Plan (civil drawing) to assure they continue performing as originally intended.
2.

CMs/BMPs requiring maintenance or adjustment shall be **repaired immediately** after observation of the failing BMP.
3.

CMs shall be cleaned when sediment levels accumulate to **half the design** unless otherwise specified.
4.

SWMP and EC plan shall be continuously **updated** to reflect new or revised CMs/BMPs due to changes in design, construction, operation, or maintenance, to accurately reflect the actual field conditions. A notation shall be made in the SWMP, including date of changes in the field, identification of the CMs removed, modified or added, and the locations of those CMs. Updates must be made within 72-hours following the change.
5.

Maintain **Vehicle Tracking Control (VTC)**, if sediment tracking occurs, clean-up immediately. Sweep by hand or the use street sweepers (with vacuum system). Flushing off paved surfaces with water is prohibited.
6.

CWA must be cleaned once waste accumulation reaches ⅔ of the wet storage capacity of the structure. Legally disposed of concrete waste. Do not bury on-site.
7.

Clean-up spills immediately after discovery, or contain until appropriate cleanup methods can be employed. Follow Manufacturer's recommended methods for spill cleanup, along with proper disposal methods. **Records** of spills, leaks, or overflows that result in discharge of pollutants must be documented and maintained.
8.

Remove sediment from storm sewer infrastructure (ponds, storm pipes, outlets, inlets, roadside ditches, etc.), and restore volume capacity upon completion of project or prior to initial acceptance of public improvements (if applicable). Do not flush sediment offsite, capture on-site and disposed of at an approved location. These notes are not intended to be all-inclusive, but to highlight the basic stormwater pollution prevention requirements for construction activities to **comply** with CDPS Stormwater Construction Permit and be in **conformance** with County standards.

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Seeding

Permanent vegetative cover consisting of Loamy or Clayey Soils Mix must be applied with Bonded Fiber Matrix hydromulch as outlined below (Broadcast).

Seed Mix

A - Loamy or Clayey Soils Mix				
Species	Variety	Percent of Mix	(Drilled Planting) PLS lbs./Acre	(Broadcast) PLS lbs./Acre
Western wheatgrass	Arriba	25	4	8
Green needlegrass	Loderm	20	2	4
Blue grama	Lewington	20	0.6	1.2
Buffalograss	Tussock	10	1.7	3.3
Sandberg bluegrass	-----	10	0.3	0.6
Sideoats grama	Vaughn	15	1.4	2.8
TOTAL:		100	10 lbs./ac	19.9 lbs./ac

Adams County Flammable Gas Notes:

1.

A flammable gas indicator will be utilized at all times during trenching, excavation, drilling, or when working within ten (10) feet of an open excavation.
2.

Before personnel are permitted to enter an open trench or excavation, the trench or excavation will be monitored to ensure that flammable gas is not present in concentrations exceeding 1% and that oxygen is present at a minimum concentration of 19.5%. When in an excavation or trench, each work party will work no more than five (5) feet from a continuous flammable gas and oxygen monitor.
3.

When trenching, excavating, or drilling deeper than two (2) feet into the fill, or in the presence of detectable concentrations of flammable gas, the soils will be wetted and the operating equipment will be provided with spark proof exhausts.
4.

A dry chemical fire extinguisher, ABC rated, will be provided on all equipment used in the landfill.
5.

Personnel within or near an open trench or drill hole will be fully clothed, and wear shoes with non-metallic soles, a hard hat and safety goggles or glasses.
6.

Exhaust blowers will be used where trenches show a concentration of 1% flammable gas or a concentration of less than 19.5% oxygen.
7.

Smoking will not be permitted in any area within one hundred (100) feet of the excavation.
8.

Personnel will be kept upwind of any open trench unless the trench is continuously monitored.
9.

All other applicable Safety and Health Regulations for Construction, as promulgated in 29 CFR by the Occupational Safety and Health Administration, shall be met. Applicable regulations include, but may not be limited to, the confined space standard (Part 1926.21(b)(6) (i)&(ii) in Subpart C); gases, vapors, fumes, dusts and mists (Part 1926.55 in Part 1926 Subpart E); fire protection and prevention (Part 1926 Subpart F); and trenching and excavation (Subpart P).
10.

Compliance with the Occupational Safety and Health Administration's confined space requirements for general industry, as promulgated in 29 CFR 1910.146 and Appendices A- F.

NOTES

SCALE: N.T.S

C.02

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ADAMS COUNTY

BY

REVISION

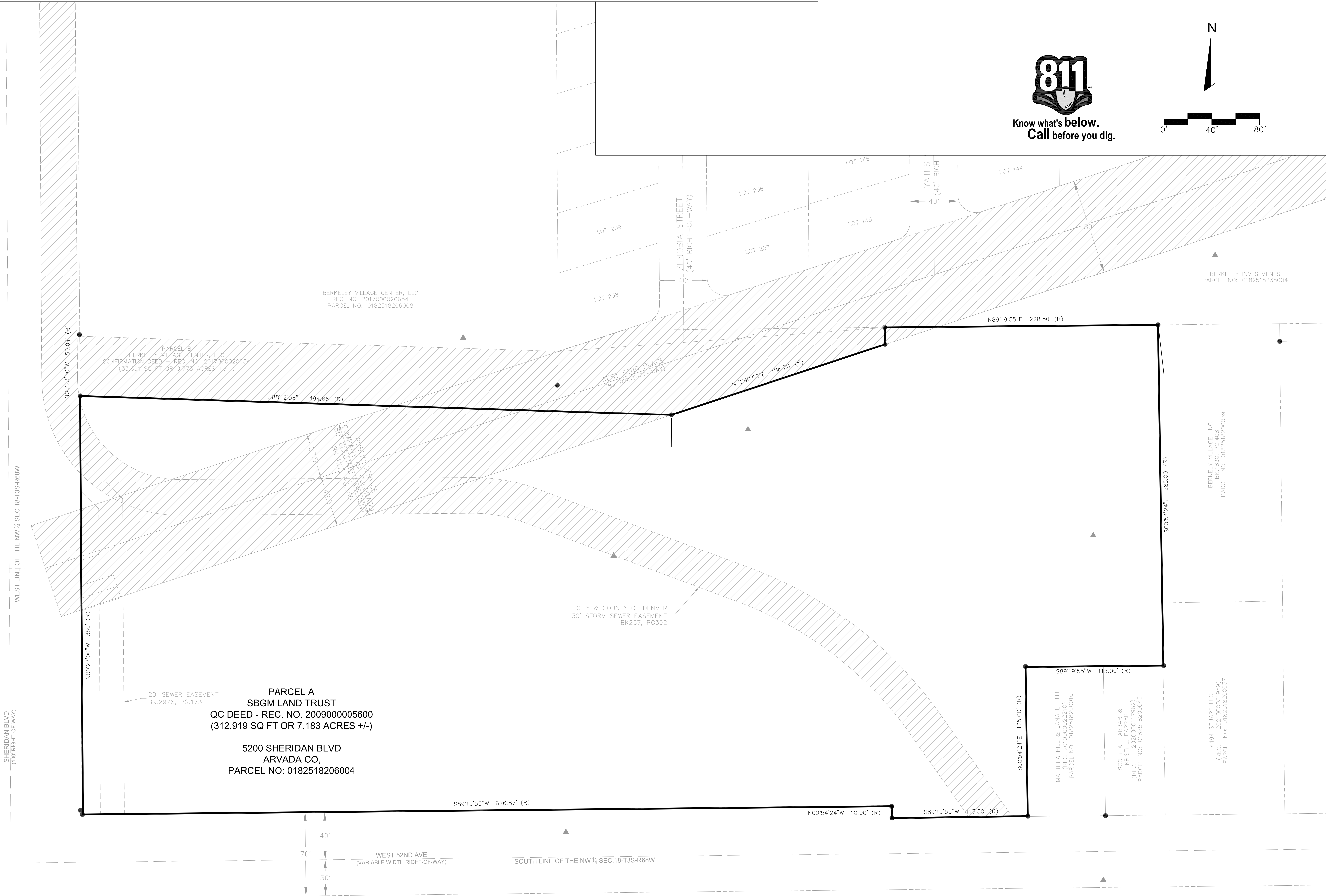
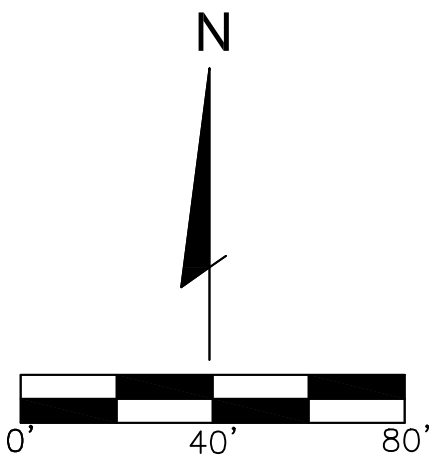
DATE

5200 SHERIDAN MINOR SUBDIVISION PLAT

EXISTING CONDITIONS



Know what's below.
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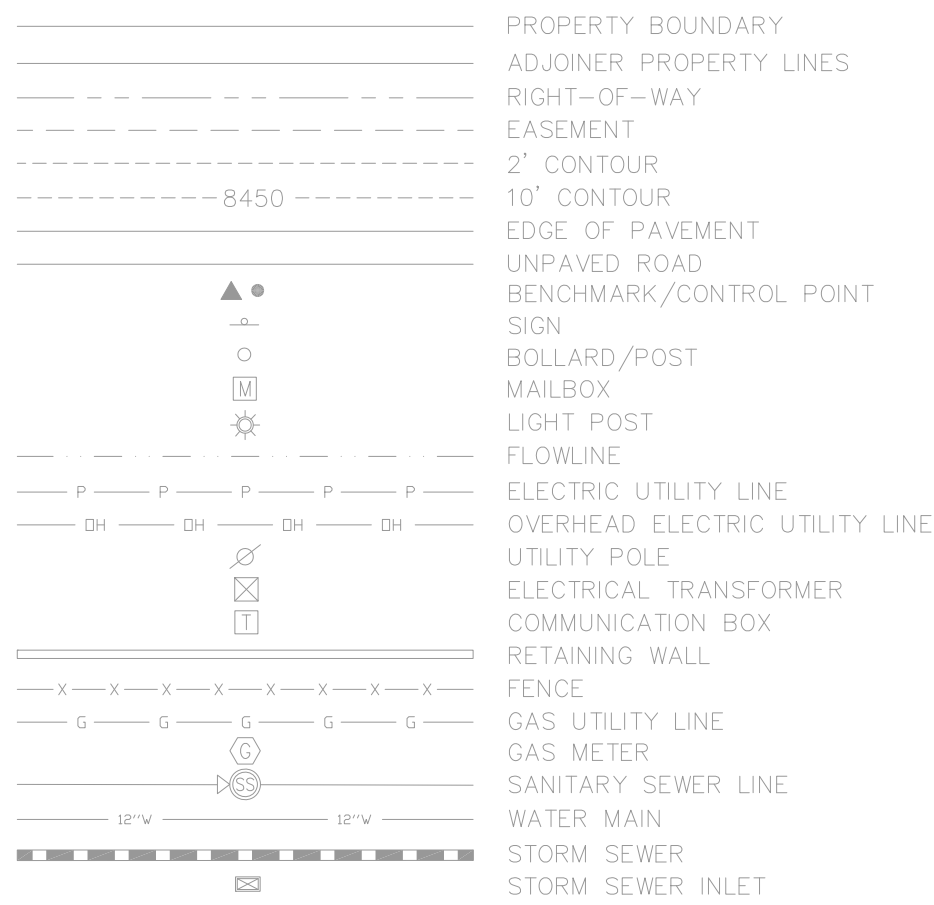
EXISTING
CONDITIONS

SCALE: AS NOTED

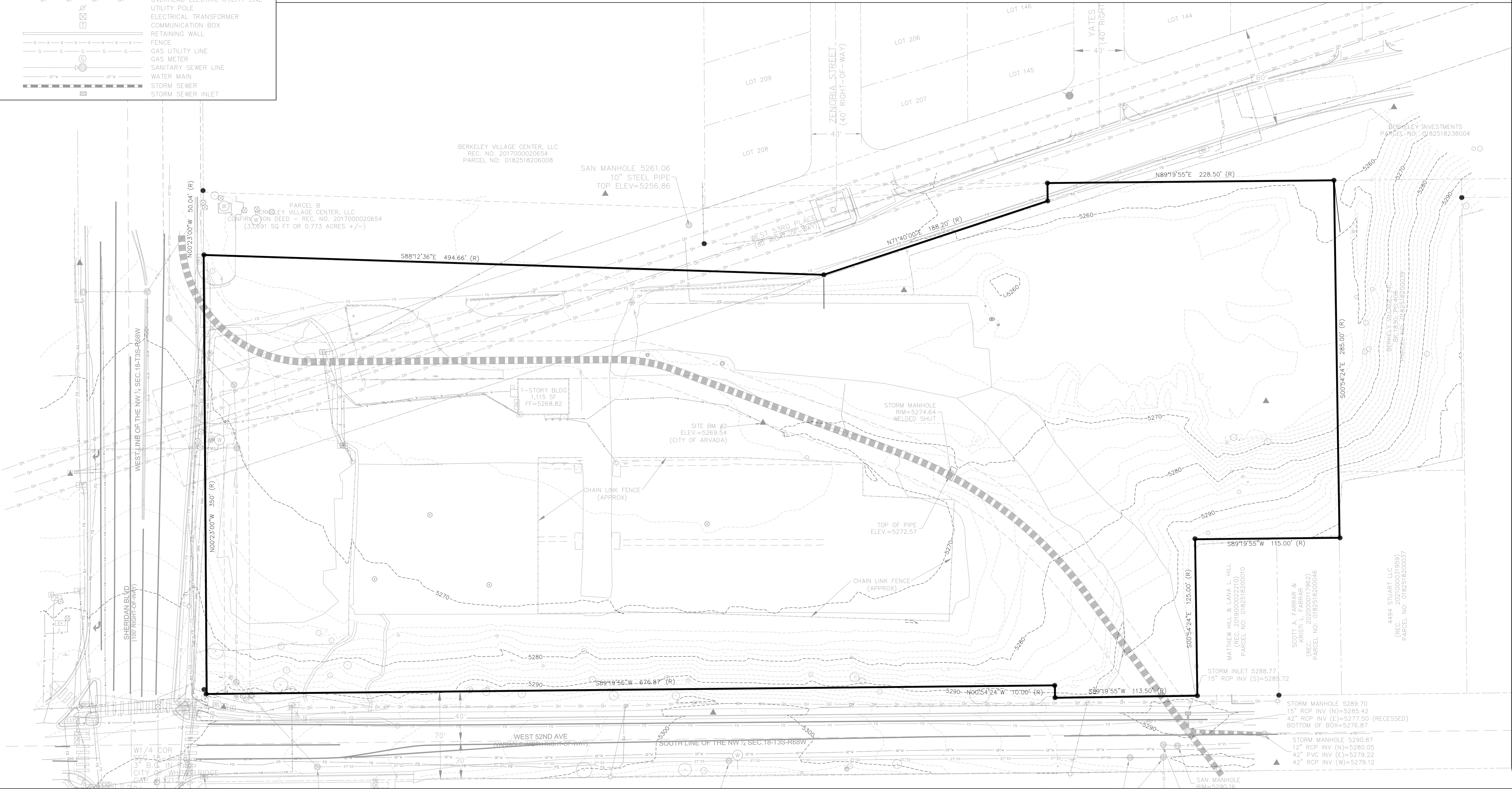
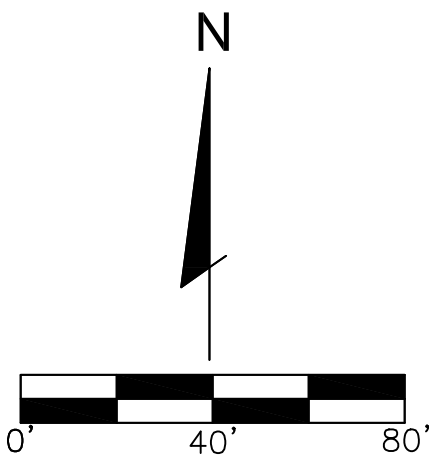
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EXISTING CONDITIONS

LEGEND (EXISTING)



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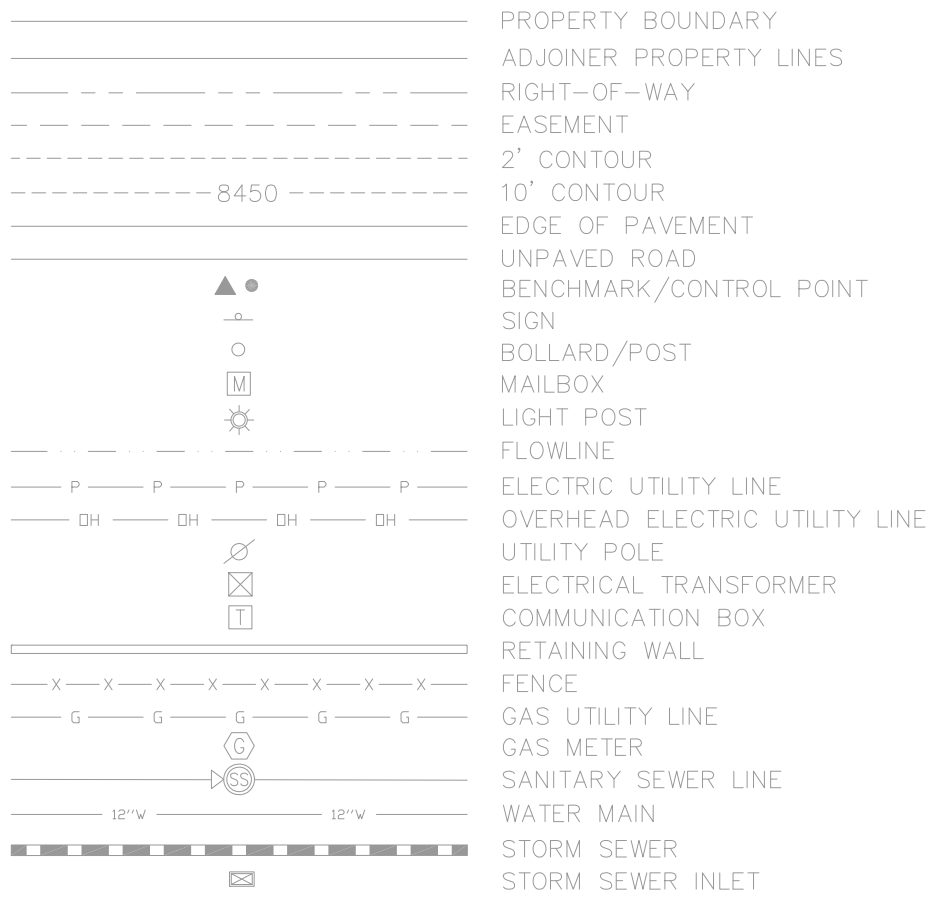
EXISTING
CONDITIONS

SCALE: AS NOTED

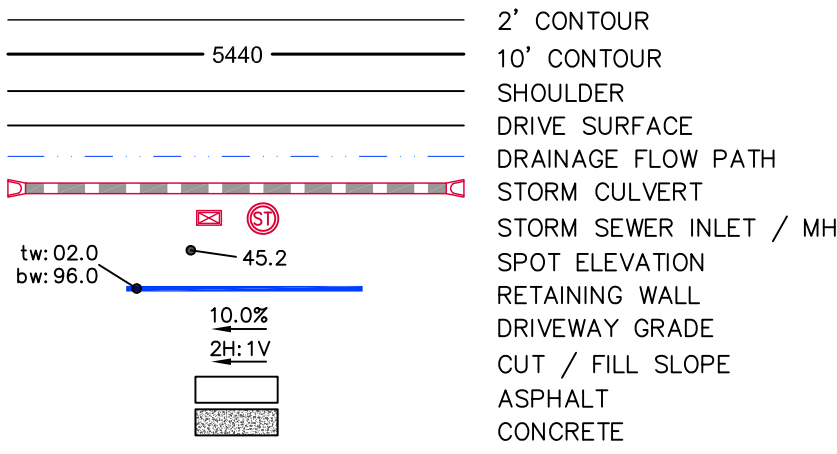
C.04

5200 SHERIDAN MINOR SUBDIVISION PLAT OVERALL GRADING PLAN

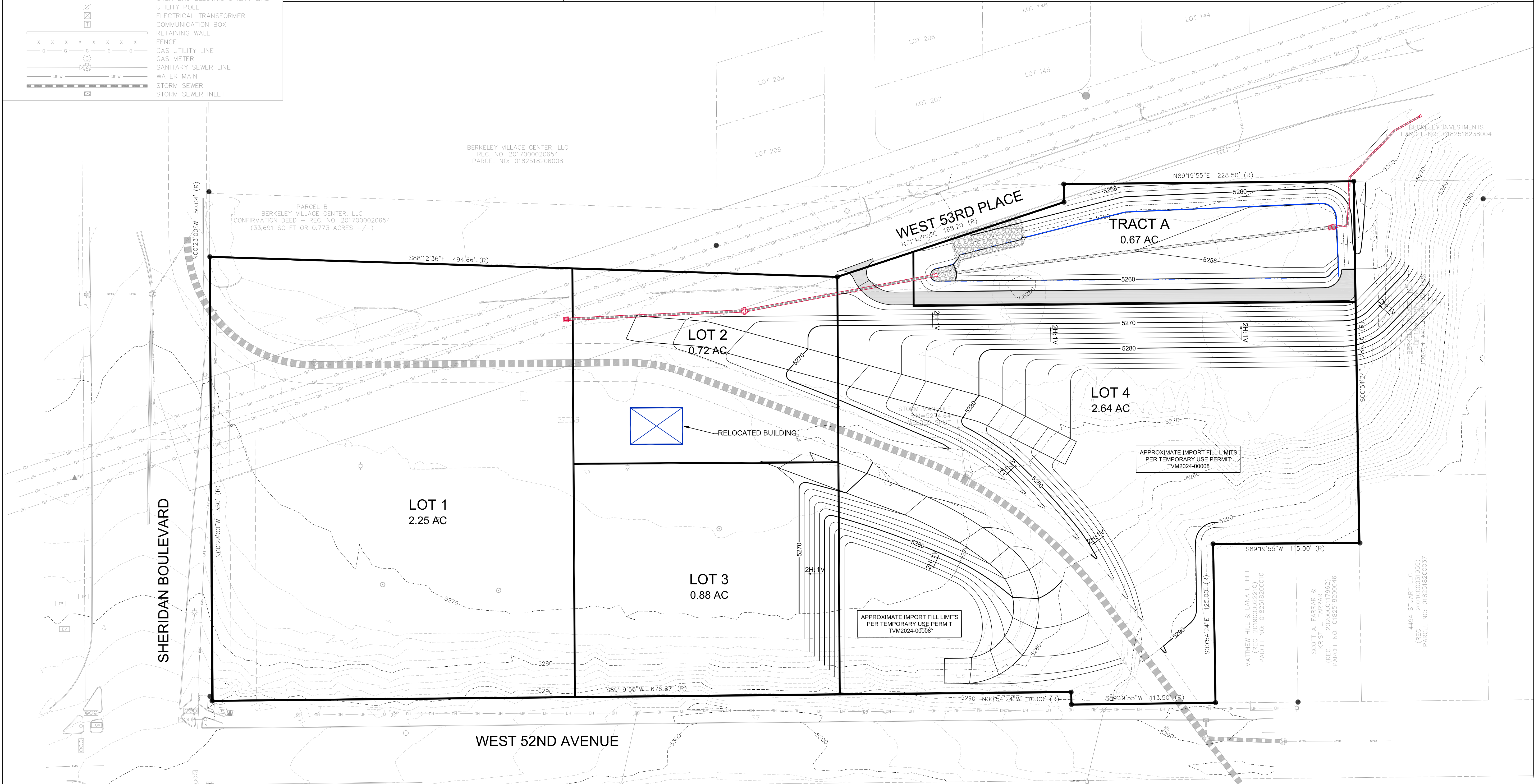
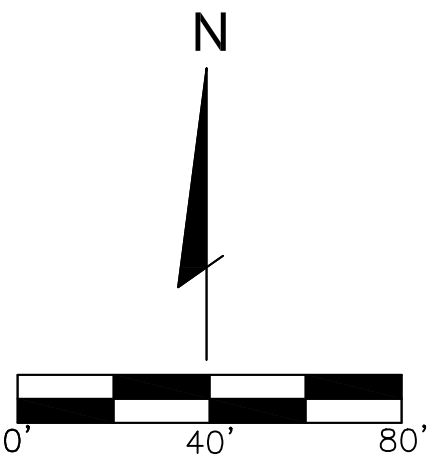
LEGEND (EXISTING)



LEGEND (PROPOSED)



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OVERALL
GRADING PLAN

SCALE: AS NOTED

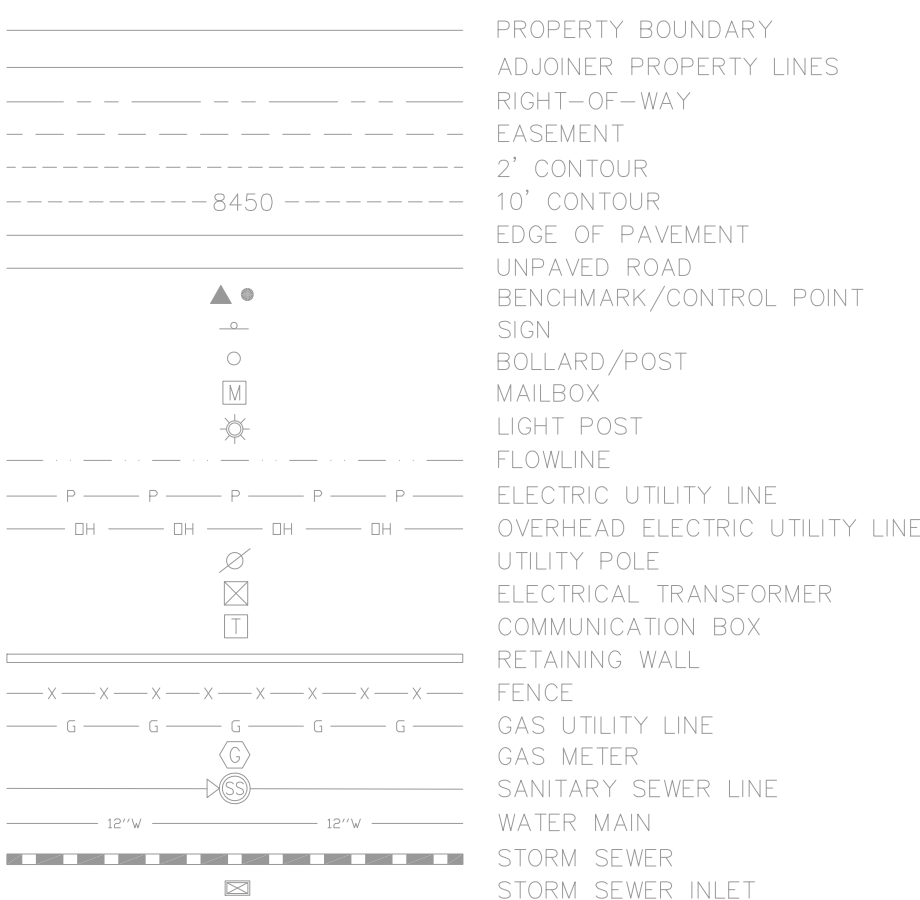
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5200 SHERIDAN MINOR SUBDIVISION PLAT

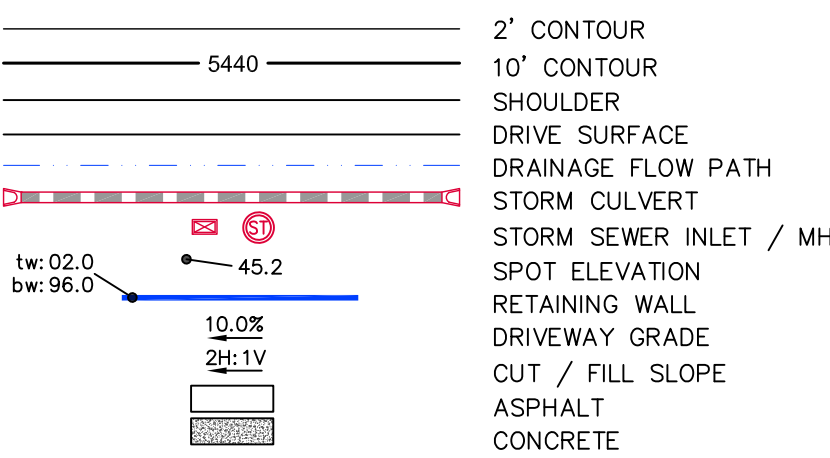
PHASE I GRADING, EROSION, AND SEDIMENT CONTROL PLAN

- * (CF) CONSTRUCTION FENCE
 - * (SB) SEDIMENT BASIN
 - * (DS) DRAINAGE SWALE
 - * (SF) SILT FENCE
 - * (VTC) VEHICLE TRACKING CONTROL
 - * (SSA) STABILIZED STAGING AREA
 - * (SP) STOCKPILE MANAGEMENT
 - * (PV) PROTECTION OF EXISTING VEGETATION
 - * (SR) SURFACE ROUGHENING
 - (DC) DUST CONTROL / WATER TRUCK
 - * (IP) INLET PROTECTION
 - * (SCL) SEDIMENT CONTROL LOG
 - * (SCR) STABILIZED CONSTRUCTION ROADWAY
 - (PS) PERMANENT SEEDING
- SEE EROSION CONTROL DETAILS SHEETS

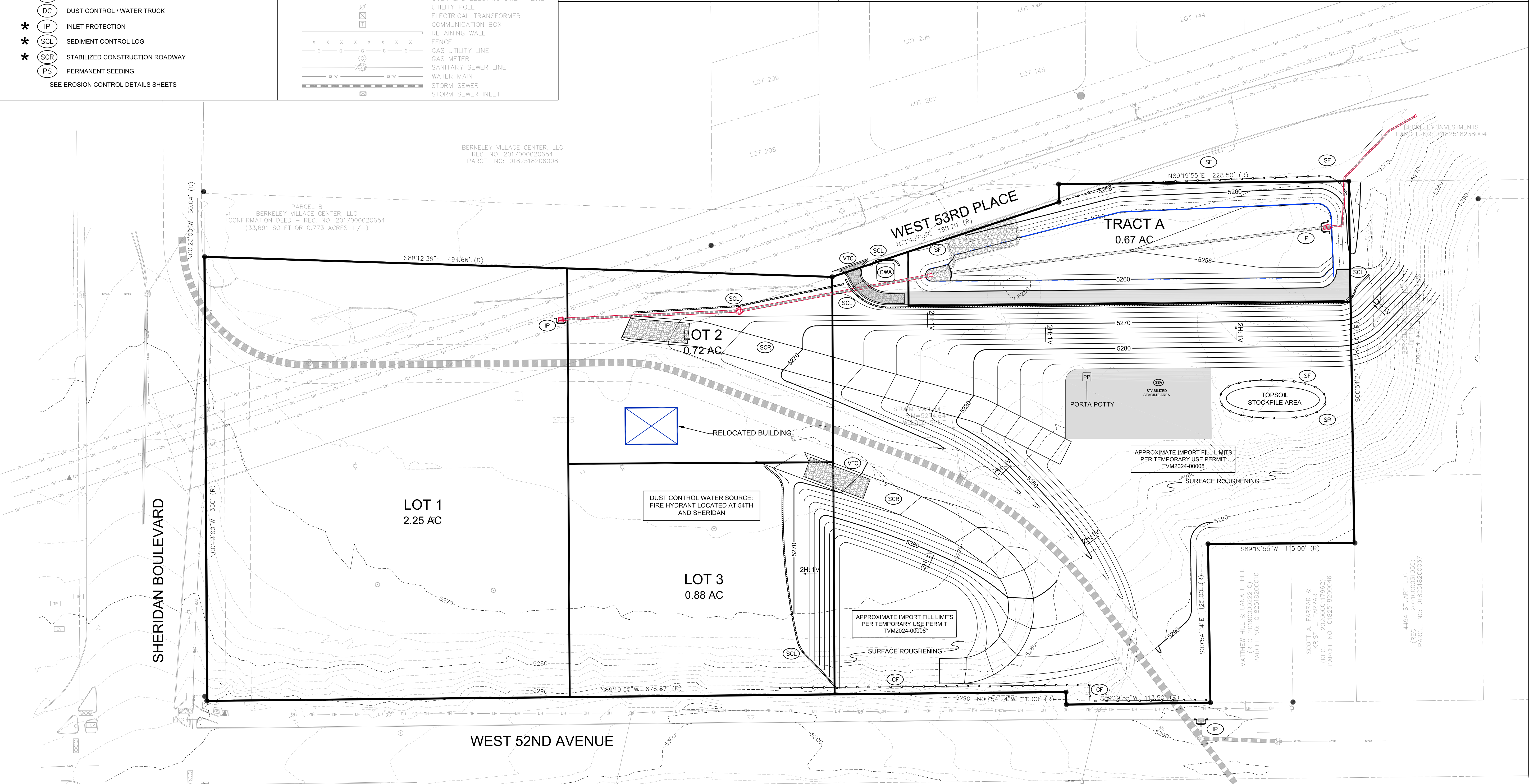
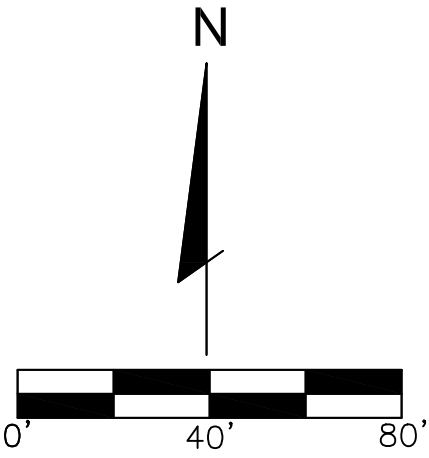
LEGEND (EXISTING)



LEGEND (PROPOSED)



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PHASE I
GESC PLAN

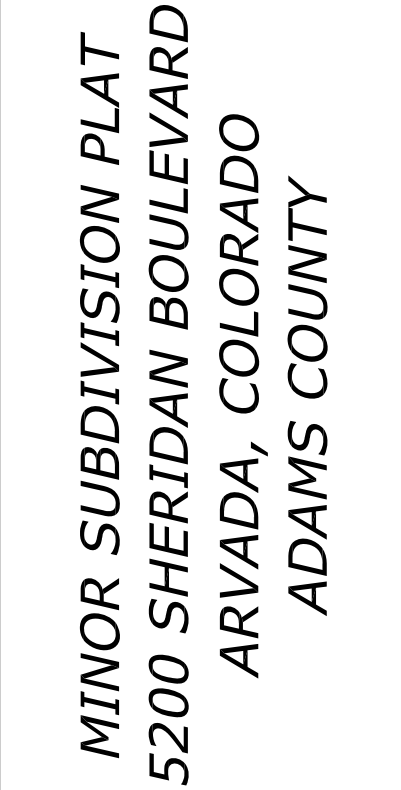
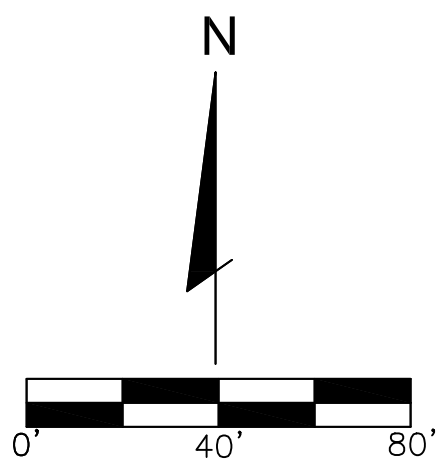
SCALE: AS NOTED

C.06

PHASE II GRADING, EROSION, AND SEDIMENT CONTROL PLAN

LEGEND (PROPOSED)

2' CONTOUR
10' CONTOUR
SHOULDER
DRIVE SURFACE
DRAINAGE FLOW PATH
STORM CULVERT
STORM SEWER INLET / MH
STREET ELEVATION
RETAINING WALL
DRIVEWAY GRADE
CUT / FILL SLOPE
ASPHALT
CONCRETE



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PHASE II GESC PLAN	S NOTED
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SCALE: AS NOTED

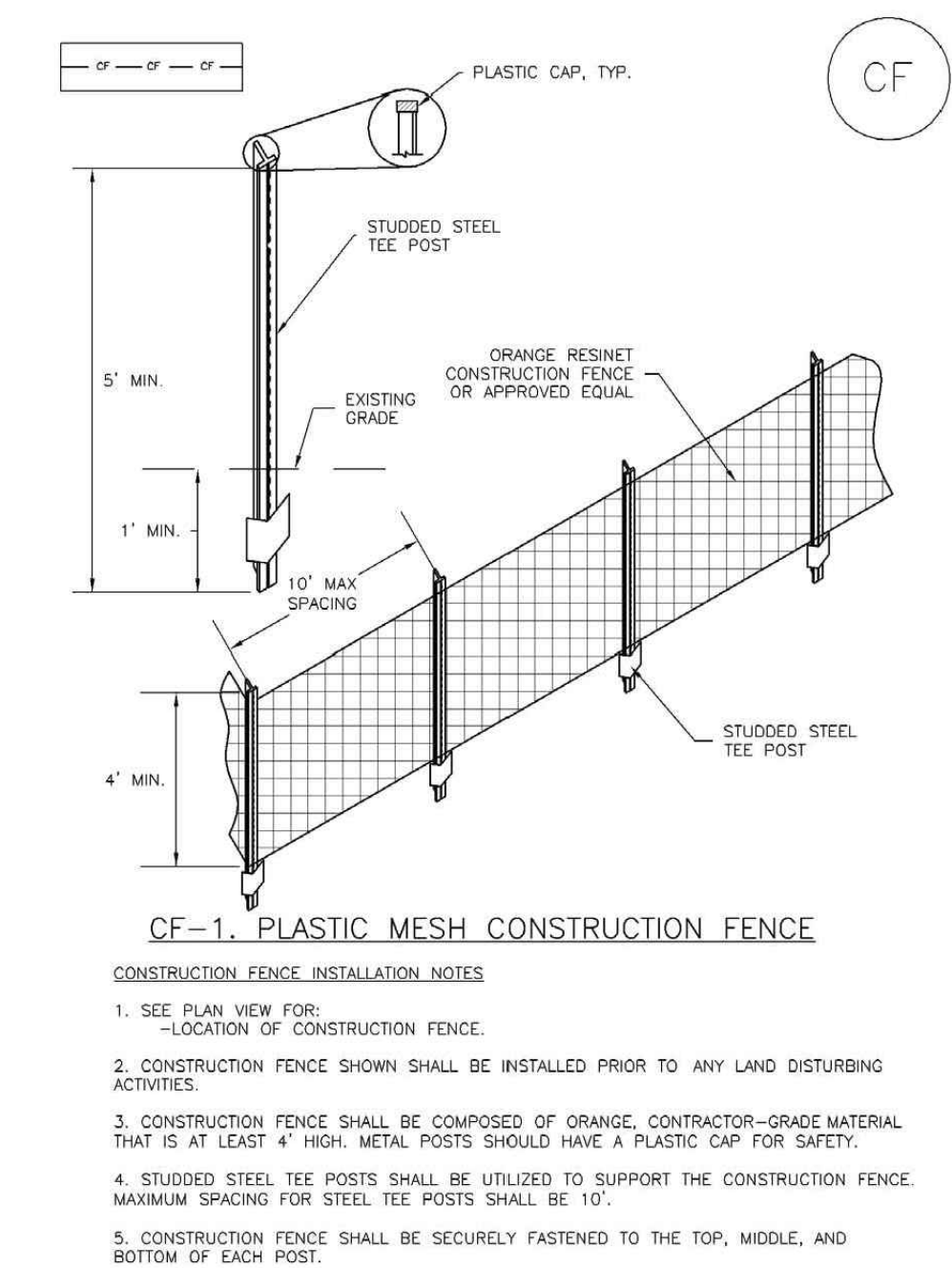
C.07

5200 SHERIDAN MINOR SUBDIVISION PLAT

EROSION CONTROL DETAILS

SM-3

Construction Fence (CF)



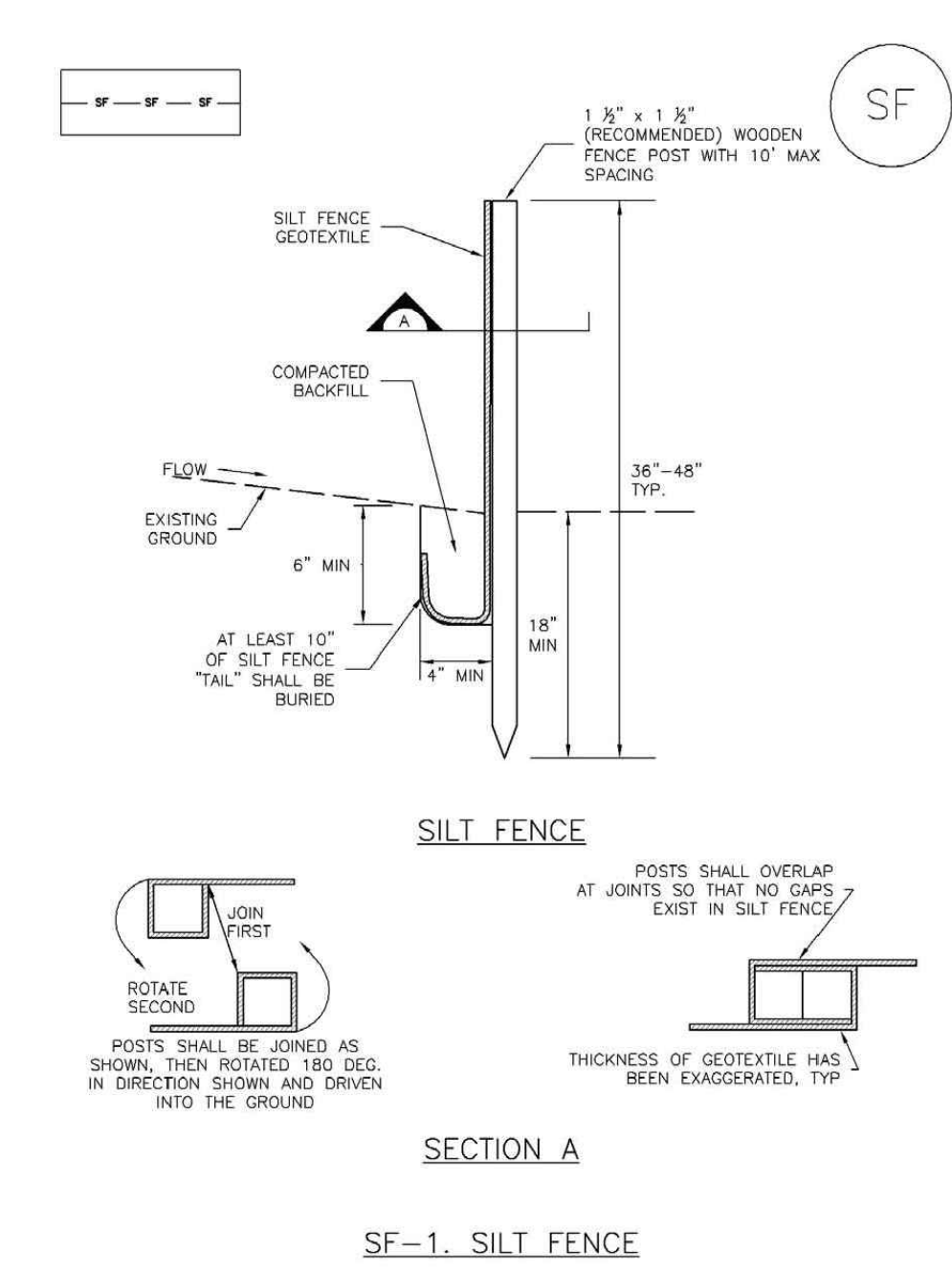
CF-2

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SC-1

Silt Fence (SF)



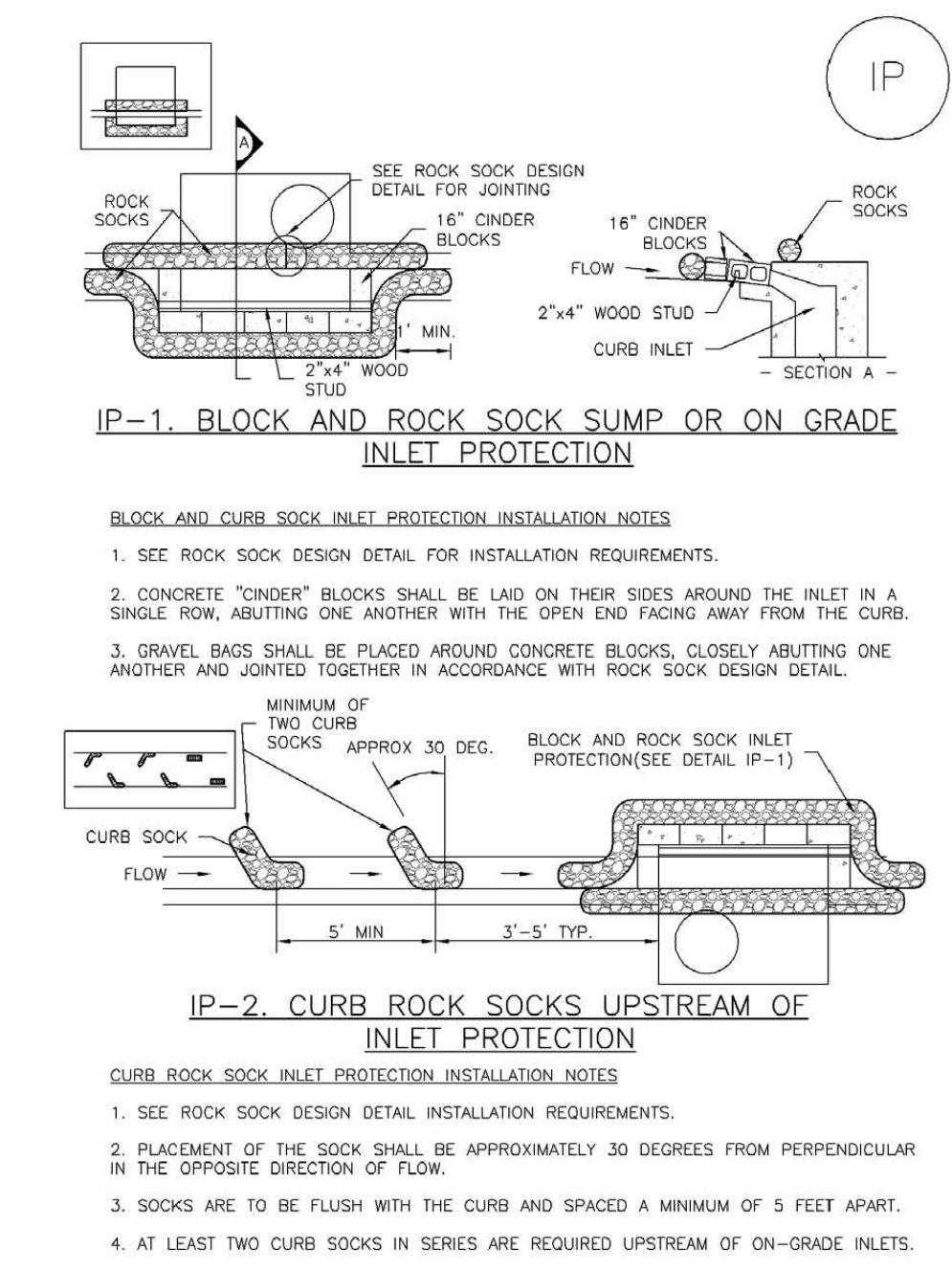
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SF-3

SC-6

Inlet Protection (IP)



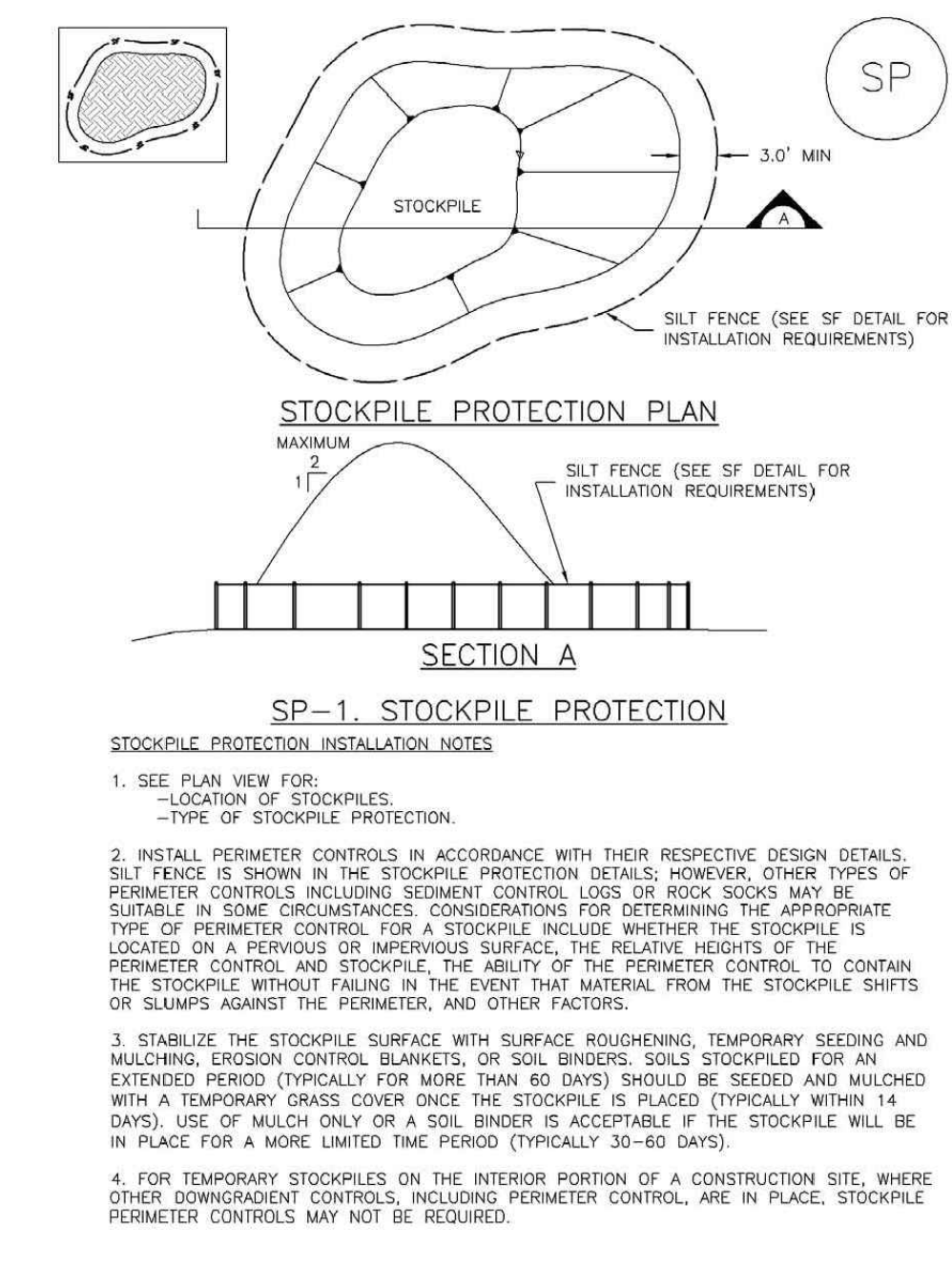
IP-4

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August 2013

MM-2

Stockpile Management (SP)



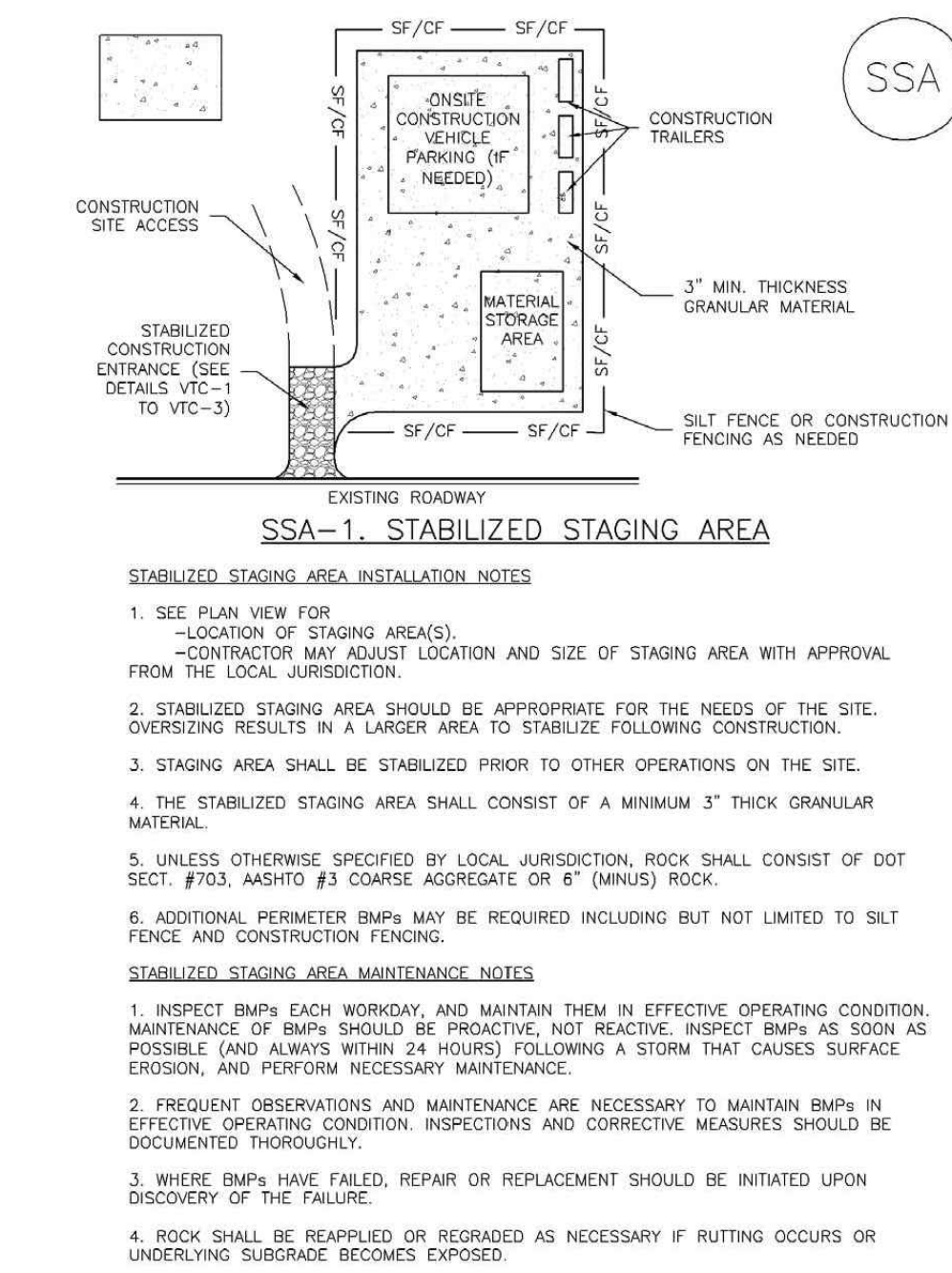
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SP-3

SM-6

Stabilized Staging Area (SSA)



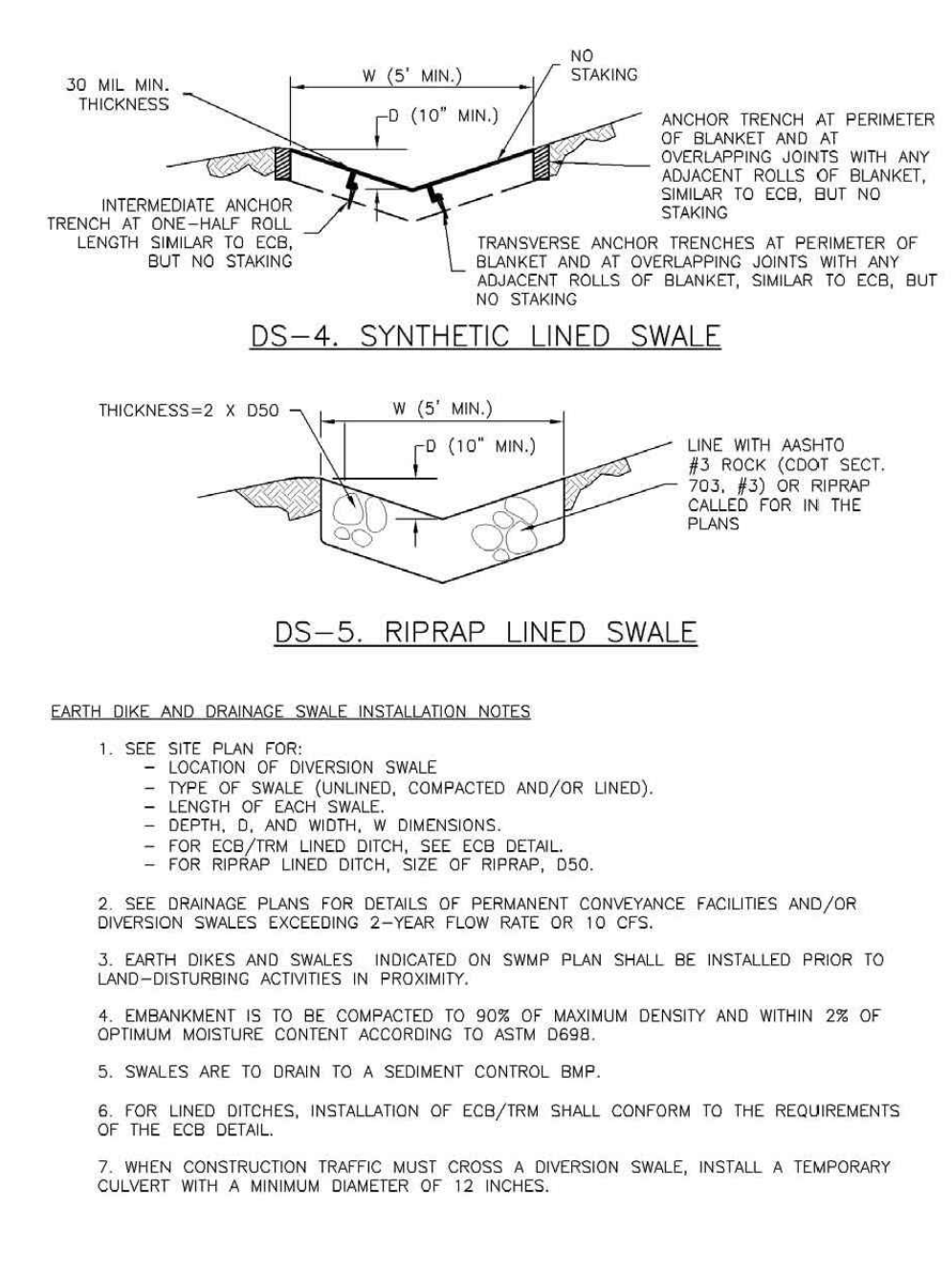
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SSA-3

EC-10

Earth Dikes and Drainage Swales (ED/DS)



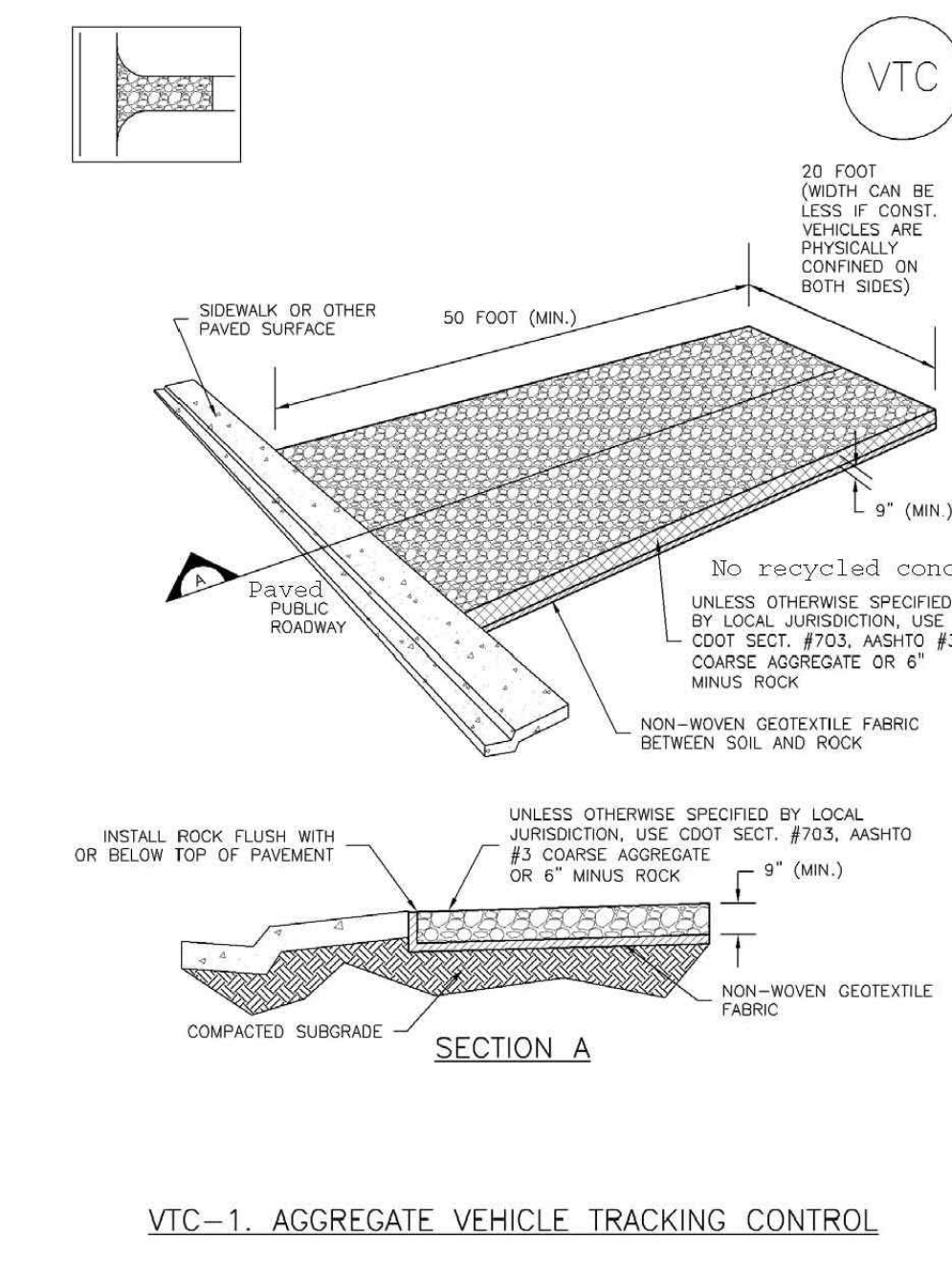
ED/DS-4

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SM-4

Vehicle Tracking Control (VTC)



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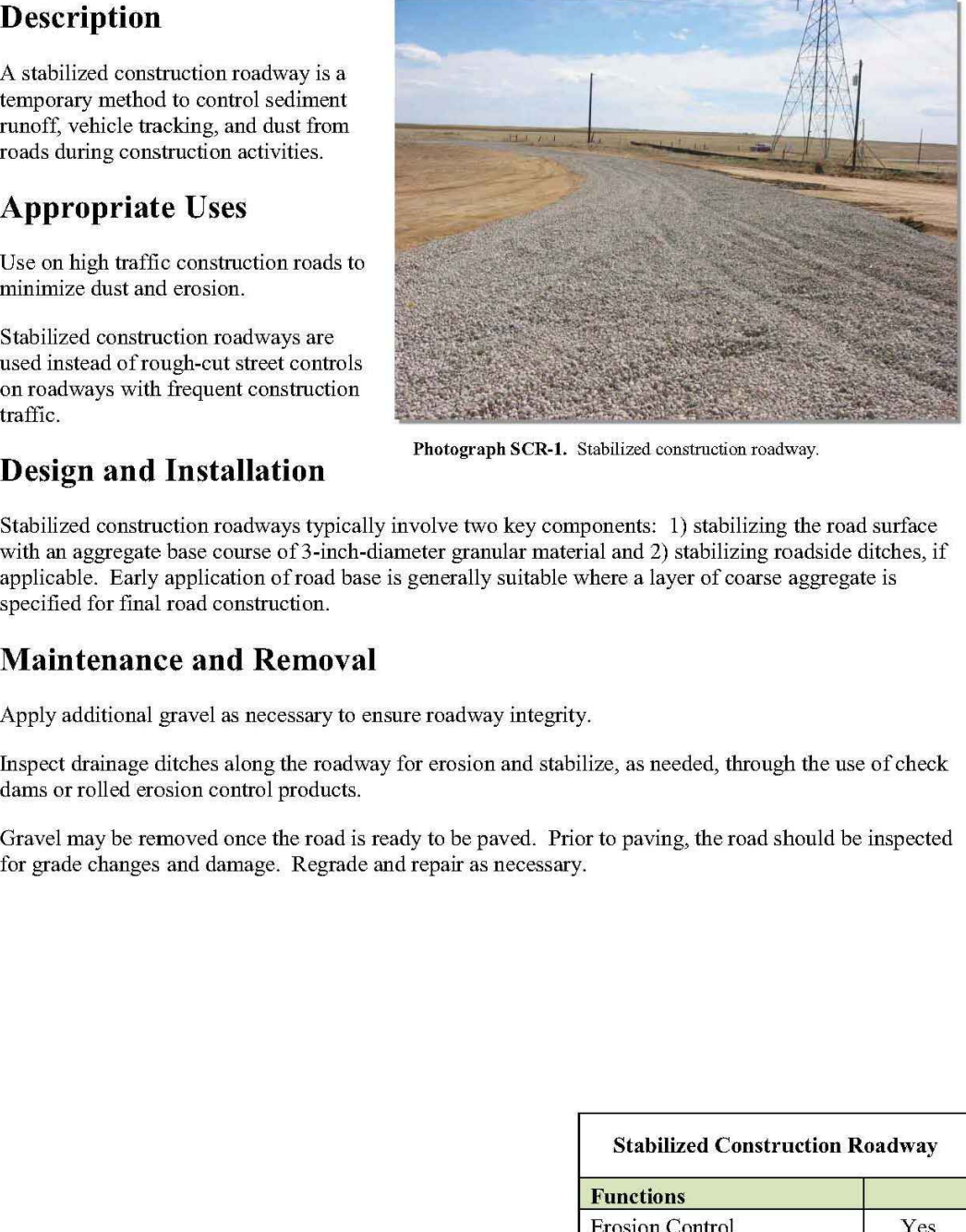
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Rev. 3/12/12

VTC-3

SM-5

Stabilized Construction Roadway (SCR)



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SCR-1

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EROSION CONTROL
DETAILS

SCALE: N.T.S.

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EROSION CONTROL DETAILS

Temporary and Permanent Seeding (TS/PS) EC-2

Description

Temporary seeding can be used to stabilize disturbed areas that will be inactive for an extended period. Permanent seeding should be used to stabilize areas at final grade that will not be otherwise stabilized. Effective seeding includes preparation of a seedbed, selection of an appropriate seed mixture, proper planting techniques, and protection of the seeded area with mulch, geotextiles, or other appropriate measures.

Appropriate Uses

When the soil surface is disturbed and will remain inactive for an extended period (typically 30 days or longer), protective stabilization measures should be implemented. If the inactive period is short-lived (on the order of two weeks), techniques such as surface roughening may be appropriate. For longer periods of inactivity, temporary seeding and mulching can provide effective erosion control. Permanent seeding should be used on finished areas that have not been otherwise stabilized.

Typically, local governments have their own seed mixes and timelines for seeding. Check jurisdictional requirements for seeding and temporary stabilization.

Design and Installation

Effective seeding requires proper seedbed preparation, selection of an appropriate seed mixture, use of appropriate seeding equipment to ensure proper coverage and density, and protection with mulch or fabric until plants are established.

The USDCM Volume 2 *Revegetation* Chapter contains detailed seed mix, soil preparations, and seeding and mulching recommendations that may be referenced to supplement this Fact Sheet.

Drill seeding is the preferred seeding method. Hydroseding is not recommended except in areas where steep slopes prevent use of drill seeding equipment, and even in these instances it is preferable to hand seed and mulch. Some jurisdictions do not allow hydroseding or hydromulching.

Seedbed Preparation

Prior to seeding, ensure that areas to be revegetated have soil conditions capable of supporting vegetation. Overot grading can result in loss of topsoil, resulting in poor quality subsoils at the ground surface that have low nutrient value, little organic matter content, few soil microorganisms, rooting restrictions, and conditions less conducive to infiltration of precipitation. As a result, it is typically necessary to provide stockpiled topsoil, compost, or other

Temporary and Permanent Seeding	
Functions	
Erosion Control	Yes
Sediment Control	No
Site/Material Management	No

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 TS/PS-1



Photograph TS/PS-1. Equipment used to drill seed. Photo courtesy of Douglas County.

Wind Erosion/Dust Control (DC) EC-14

Description

Wind erosion and dust control BMPs help to keep soil particles from entering the air as a result of land disturbing construction activities. These BMPs include a variety of practices generally focused on either graded disturbed areas or construction roadways. For graded areas, practices such as seeding and mulching, use of soil binders, site watering, or other practices that provide prompt surface cover should be used. For construction roadways, road watering and stabilized surfaces should be considered.

Appropriate Uses

Dust control measures should be used on any site where dust poses a problem to air quality. Dust control is important to control for the health of construction workers and surrounding waterbodies.

Design and Installation

The following construction BMPs can be used for dust control:

- An irrigation/sprinkler system can be used to wet the top layer of disturbed soil to help keep dry soil particles from becoming airborne.
- Seeding and mulching can be used to stabilize disturbed surfaces and reduce dust emissions.
- Protecting existing vegetation can help to slow wind velocities across the ground surface, thereby limiting the likelihood of soil particles to become airborne.
- Spray-on soil binders form a bond between soil particles keeping them grounded. Chemical treatments may require additional permitting requirements. Potential impacts to surrounding waterways and habitat must be considered prior to use.
- Placing rock on construction roadways and entrances will help keep dust to a minimum across the construction site.
- Wind fences can be installed on site to reduce wind speeds. Install fences perpendicular to the prevailing wind direction for maximum effectiveness.

Maintenance and Removal

When using an irrigation/sprinkler control system to aid in dust control, be careful not to overwater. Overwatering will cause construction vehicles to track mud off-site.

Wind Erosion Control/ Dust Control	
Functions	
Erosion Control	Yes
Sediment Control	No
Site/Material Management	Moderate

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Photograph DC-1. Water truck used for dust suppression. Photo courtesy of Douglas County.

Street Sweeping and Cleaning S-11

Description

Street sweeping uses mechanical pavement cleaning practices to reduce sediment, litter and other debris washed into storm sewers by runoff. This can reduce pollutant loading to receiving waters and in some cases reduce clogging of storm sewers and prolong the life of infiltration oriented BMPs and reduce clogging of outlet structures in detention BMPs.

Different designs are available with typical sweepers categorized as a broom and conveyor belt sweeper, wet or dry vacuum-assisted sweepers, and regenerative-air sweepers. The effectiveness of street sweeping is dependent upon particle loadings in the area being swept, street texture, moisture conditions, parked car management, equipment operating conditions and frequency of cleaning (Pitt et al. 2004).

Appropriate Uses

Street sweeping is an appropriate technique in urban areas where sediment and litter accumulation on streets is of concern for aesthetic, sanitary, water quality, and air quality reasons. From a pollutant loading perspective, street cleaning equipment can be most effective in areas where the surface to be cleaned is the major source of contaminants. These areas include freeways, large commercial parking lots, and paved storage areas (Pitt et al. 2004). Where significant sediment accumulation occurs on pervious surfaces tributary to infiltration BMPs, street sweeping may help to reduce clogging of infiltration media. In areas where construction activity is occurring, street sweeping should occur as part of construction site stormwater management plans. Vacuuming of permeable pavement systems is also considered a basic routine maintenance practice to maintain the BMP in effective operating condition. See the maintenance chapter for more information on permeable pavement systems. Not all sweepers are appropriate for this application.

Practice Guidelines¹

- Post street sweeping schedules with signs and on local government websites so that cars are not parked on the street during designated sweeping days.
- Sweeping frequency is dependent on local government budget, staffing, and equipment availability, but monthly sweeping during non-winter months is a common approach in the metro Denver urban

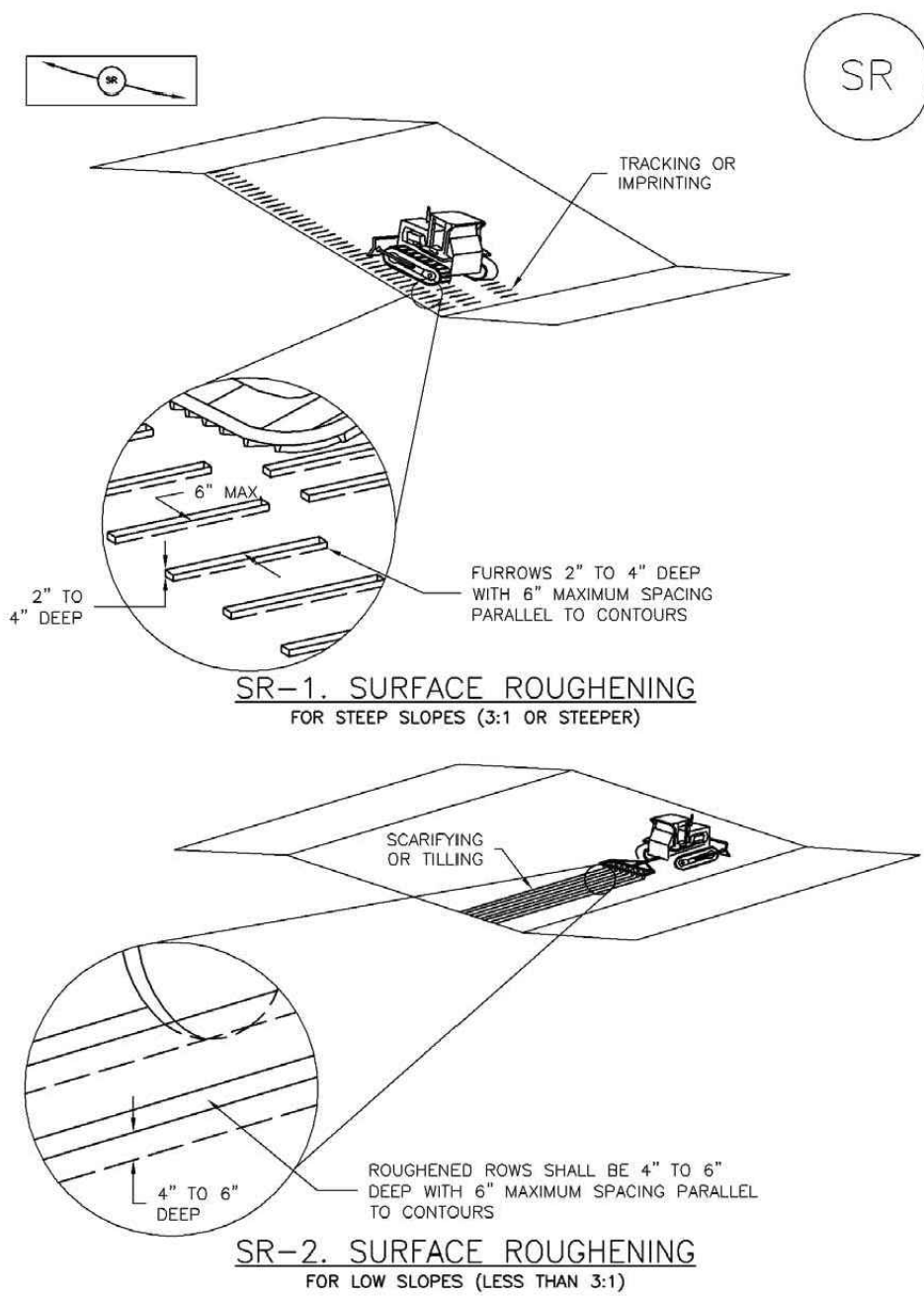
¹ Practice guidelines adapted from CASQA (2003) *California Stormwater BMP Handbook*, Practice SC-70 Road and Street Maintenance.

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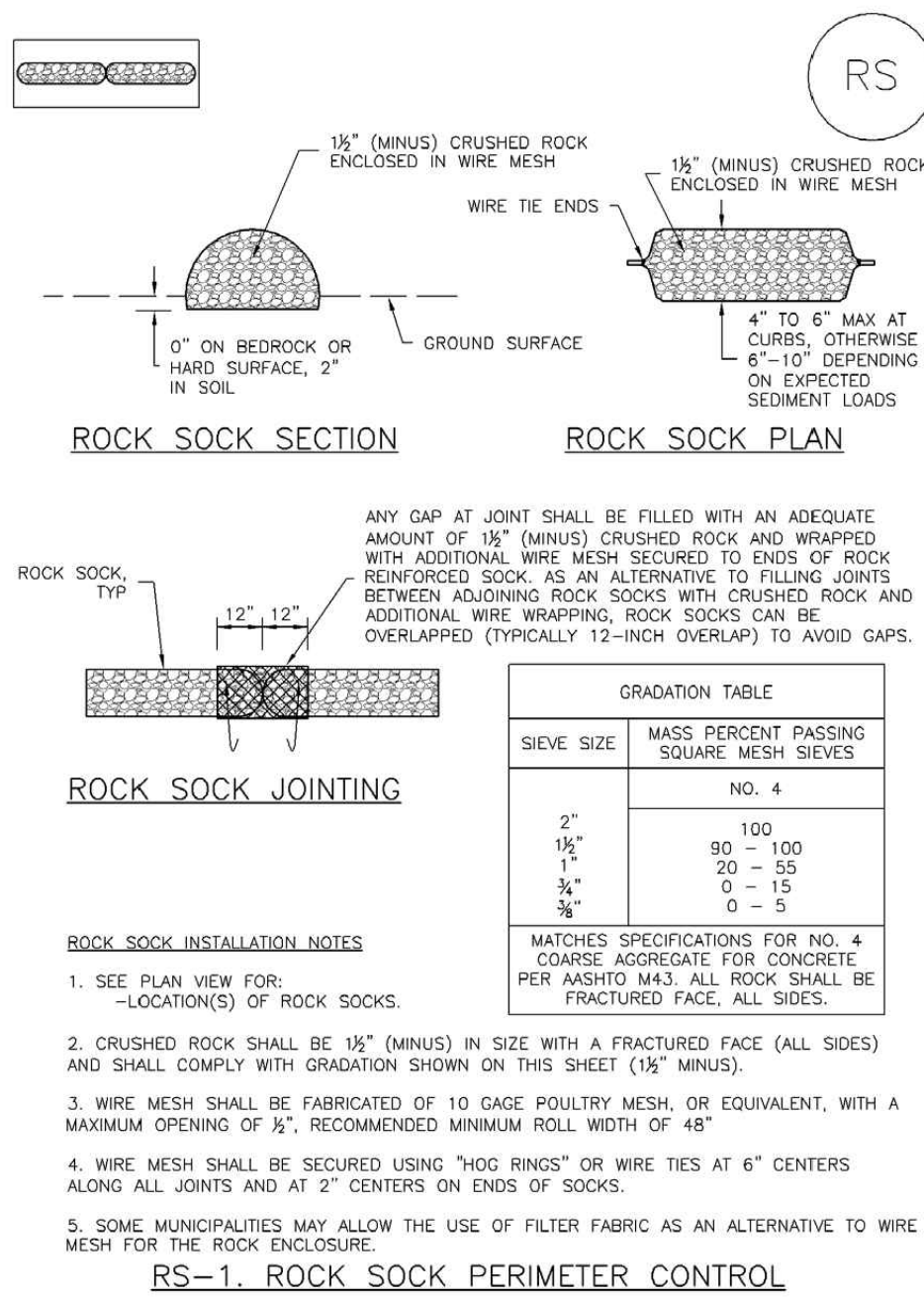
Photograph SSC-4. Monthly street sweeping from April through November removed nearly 40,690 cubic yards of sediment/debris from Denver streets in 2009. Photo courtesy of Denver Public Works.

Surface Roughening (SR) EC-1



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Rock Sock (RS) SC-5



RS-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Protection of Existing Vegetation (PV) SM-2

Description

Protection of existing vegetation on a construction site can be accomplished through installation of a construction fence around the area requiring protection. In cases where upgradient areas are disturbed, it may also be necessary to install perimeter controls to minimize sediment loading to sensitive areas such as wetlands. Existing vegetation may be designated for protection to maintain a stable surface cover as part of construction phasing, or vegetation may be protected in areas designated to remain in natural condition under post-development conditions (e.g., wetlands, mature trees, riparian areas, open space).

Appropriate Uses

Existing vegetation should be preserved for the maximum practical duration on a construction site through the use of effective construction phasing. Preserving vegetation helps to minimize erosion and can reduce revegetation costs following construction.

Protection of wetland areas is required under the Clean Water Act, unless a permit has been obtained from the U.S. Army Corps of Engineers (USACE) allowing impacts in limited areas.

If trees are to be protected as part of post-development landscaping, care must be taken to avoid several types of damage, some of which may not be apparent at the time of injury. Potential sources of injury include soil compaction during grading or due to construction traffic, direct equipment-related injury such as bark removal, branch breakage, surface grading and trenching, and soil cut and fill. In order to minimize injuries that may lead to immediate or later death of the tree, tree protection zones should be developed during site design, implemented at the beginning of a construction project, as well as continued during active construction.

Design and Installation

General

Once an area has been designated as a preservation area, there should be no construction activity allowed within a set distance of the area. Clearly mark the area with construction fencing. Do not allow stockpiles, equipment, trailers or parking within the protected area. Guidelines to protect various types of existing vegetation follow.

Protection of Existing Vegetation	
Functions	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	Yes

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Photograph PV-1. Protection of existing vegetation and a sensitive area. Photo courtesy of CDOT.

Street Sweeping and Cleaning S-11

area. Consider increasing sweeping frequency based on factors such as traffic volume, land use, field observations of sediment and trash accumulation, proximity to watercourses, etc. For example:

- Increase the sweeping frequency for streets with high pollutant loadings, especially in high traffic and industrial areas.
 - Conduct street sweeping prior to wetter seasons to remove accumulated sediments.
 - Increase the sweeping frequency for streets in special problem areas such as special events, high litter or erosion zones.
- Perform street cleaning during dry weather if possible.
 - Avoid wet cleaning the street; instead, utilize dry methods where possible.
 - Maintain cleaning equipment in good working condition and purchase replacement equipment as needed. Old sweepers should be replaced with more technologically advanced sweepers (preferably regenerative air sweepers) that maximize pollutant removal.
 - Operate sweepers at manufacturer recommended optimal speed levels to increase effectiveness.
 - Regularly inspect vehicles and equipment for leaks and repair promptly.
 - Keep accurate logs of the number of curb-miles swept and the amount of waste collected.
 - Dispose of street sweeping debris and dirt at a landfill.
 - Do not store swept material along the side of the street or near a storm drain inlet.

Changes in Street Sweeper Technology (Source: Center for Watershed Protection 2002)

At one time, street sweepers were thought to have great potential to remove stormwater pollutants from urban street surfaces and were widely touted as a stormwater treatment practice in many communities. Street sweeping gradually fell out of favor, largely as a result of performance monitoring conducted as part of the National Urban Runoff Program (NURP). These studies generally concluded that street sweepers were not very effective in reducing pollutant loads (USEPA, 1983). The primary reason for the mediocre performance was that mechanical sweepers of that era were unable to pick up fine-grained sediment particles that carry a substantial portion of the stormwater pollutant load. In addition, the performance of sweepers is constrained by that portion of a street's stormwater pollutant load delivered from outside street pavements (e.g., pollutants that wash onto the street from adjacent areas or are directly deposited on the street by rainfall). Street sweeping technology, however, has evolved considerably since the days of the NURP testing. Today, communities have a choice in three basic sweeping technologies to clean their urban streets: traditional mechanical sweepers that utilize a broom and conveyor belt, vacuum-assisted sweepers, and regenerative-air sweepers (those that blast air onto the pavement to loosen sediment particles and vacuum them into a hopper).

For more information, see http://www.cwp.org/Resource_Library/Center_Docs/PWP/ELC_PWP121.pdf

SWC-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

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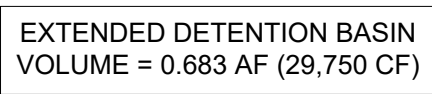
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EROSION CONTROL
DETAILS

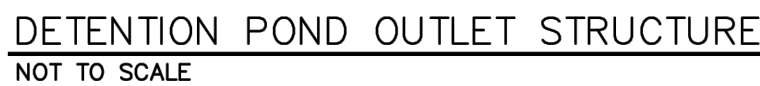
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C.09

EXTENDED DETENTION BASIN PLAN AND DETAILS



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NOTE:
CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF OUTLET
STRUCTURE TO ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION



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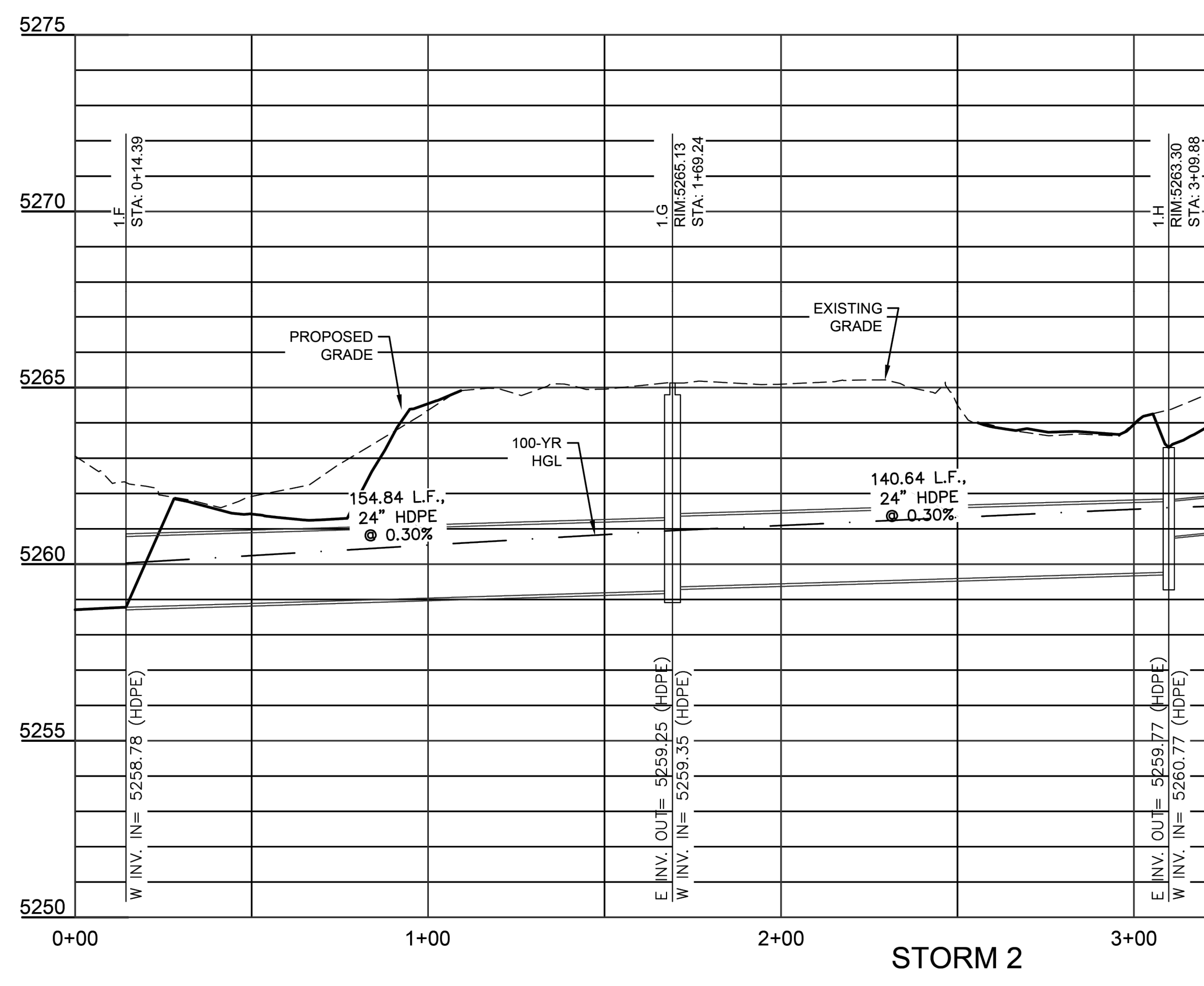
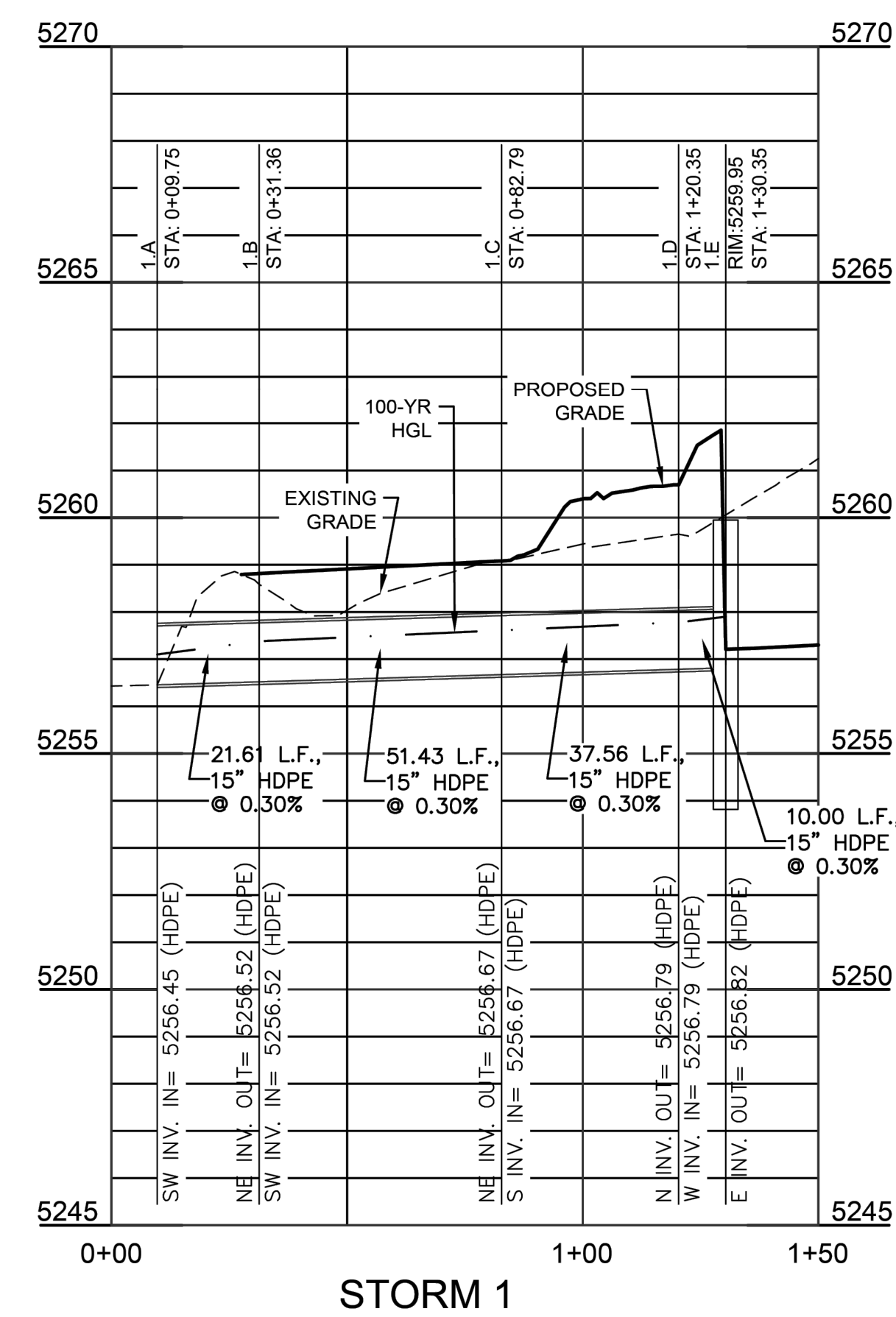
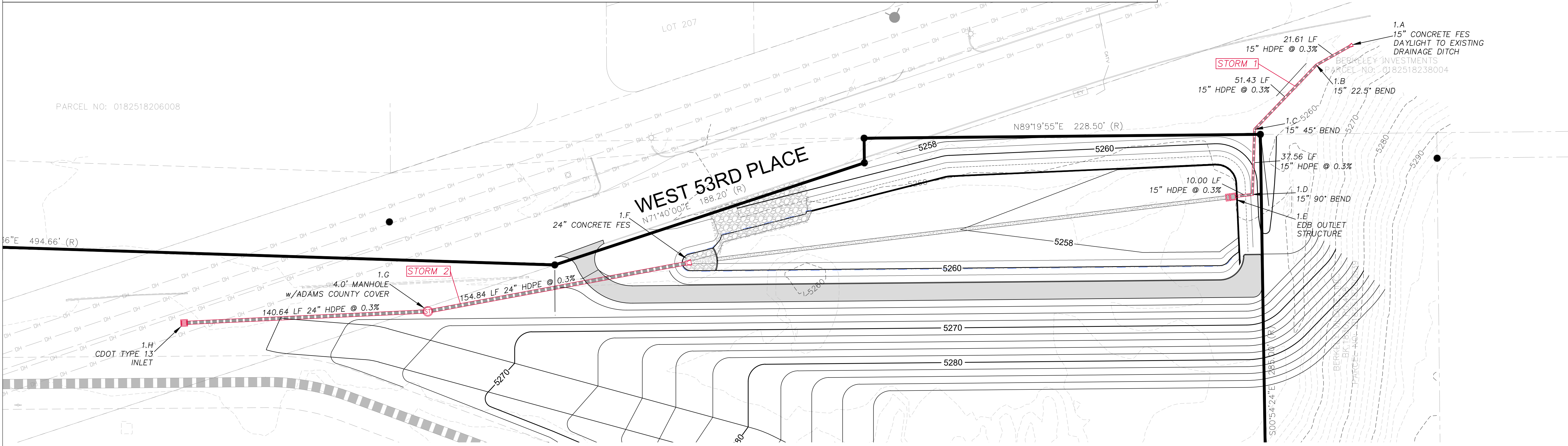
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SCALE: AS NOTED

C.10

5200 SHERIDAN MINOR SUBDIVISION PLAT

STORM SEWER PLAN AND PROFILES



- STORM SEWER NOTES**
- STORM SEWER PIPE MATERIALS SHALL BE HDPE DOUBLE-WALL, SMOOTH INTERIOR PIPE (ADS N-12 OR APPROVED EQUAL) UNLESS OTHERWISE SPECIFIED IN THE PLANS. ALL JOINTS AND STRUCTURE CONNECTIONS SHALL BE SOIL-TIGHT (MINIMUM).
 - STORM SEWER PIPE SHALL BE BEDDED, INSTALLED, AND BACKFILLED IN ACCORDANCE WITH THE DETAILS INCLUDED IN THE PLANS, MANUFACTURER'S INSTALLATION REQUIREMENTS, AND/OR STANDARD DETAILS INCLUDED BY REFERENCE.
 - ALL CAST-IN-PLACE CONCRETE DRAINAGE STRUCTURES SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI, TYPE II CEMENT (UNLESS OTHERWISE SPECIFIED) WITH AIR ENTRAINING ADMIXTURES AND SHALL CONFORM TO THE LOCAL CITY'S SPECIFICATIONS.
 - SMALL DIAMETER STORM SEWER CONNECTIONS (12 INCH DIAMETER AND LESS) SHALL BE MADE WITH REDUCING WYE'S, 45 DEGREE BENDS, AND REDUCING COUPLERS, UNLESS OTHERWISE INDICATED. REFER TO PLAN AND DETAILS FOR SYSTEM LAYOUT.
 - ALL CAST-IN-PLACE AND PRE-FABRICATED DRAINAGE STRUCTURES WITHIN PAVED AREAS MUST BE INSTALLED TO MEET (AT A MINIMUM) AASHTO H-20/HS-20 LOAD RATING. THE GENERAL CONTRACTOR SHALL CONSULT WITH THE MANUFACTURER OF ANY PRE-FABRICATED STRUCTURE TO CONFIRM INSTALLATION MEASURES REQUIRED TO ENSURE THE AFOREMENTIONED LOAD RATING IS ACHIEVED. FOR ALL PRE-FABRICATED NYLOPLAST® DRAIN BASINS, THE GENERAL CONTRACTOR SHALL POUR A CONCRETE COLLAR UNDER THE FRAME/GRATE/HOOD ASSEMBLY IN THE MINIMUM DIMENSIONS SPECIFIED ON THE MANUFACTURER'S STANDARD DETAIL DRAWINGS TO ACHIEVE H-20/HS-20 LOAD RATING. THE GENERAL CONTRACTOR SHALL CONTACT OWNER FOR ADDITIONAL DIRECTION IF H-20/HS-20 INSTALLATION GUIDELINES CANNOT BE OBTAINED FROM THE MANUFACTURER OF ANY PROPOSED PRE-FABRICATED STRUCTURE.

DATE	REVISION	BY

MINOR SUBDIVISION PLAT
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ARVADA, COLORADO
ADAMS COUNTY

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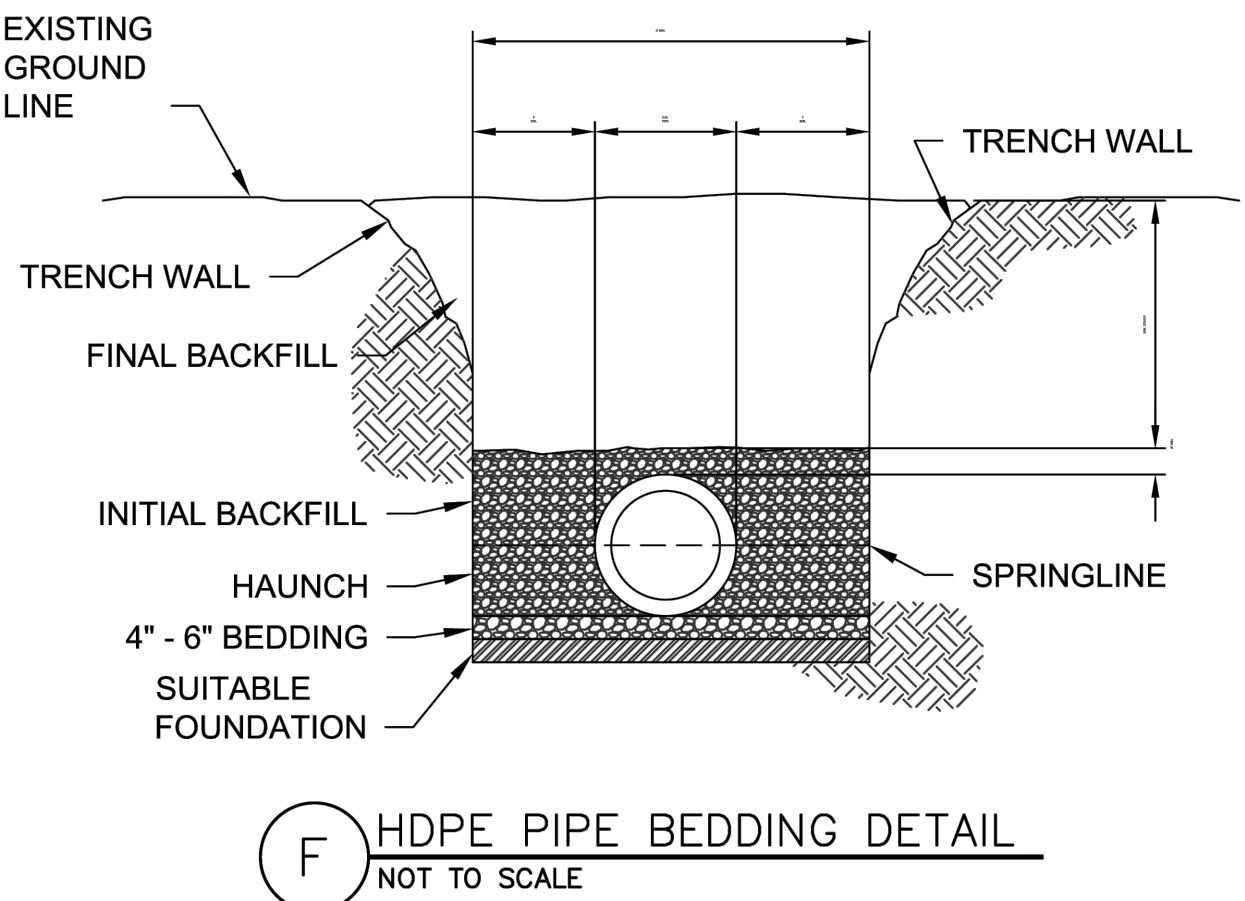
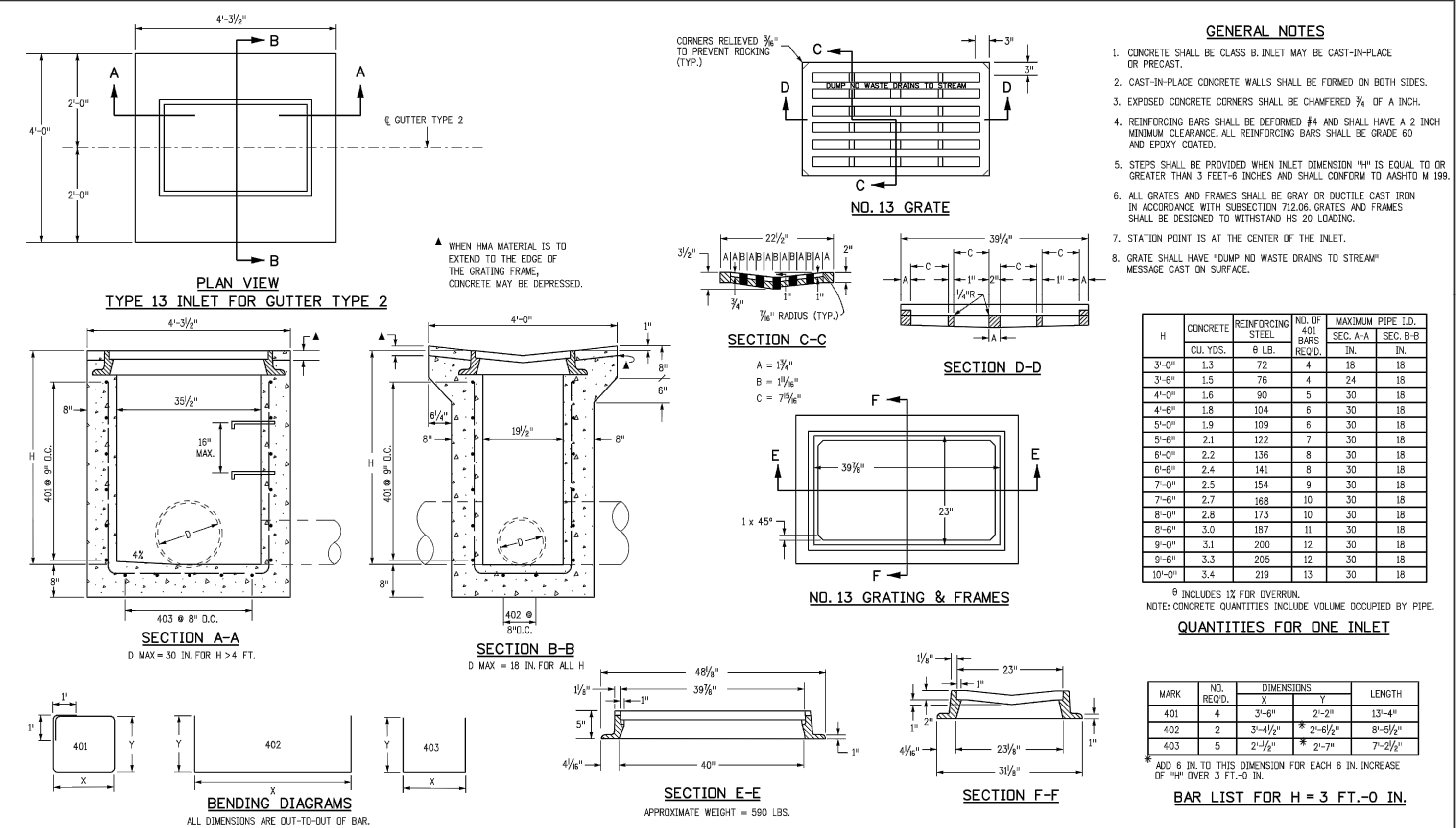
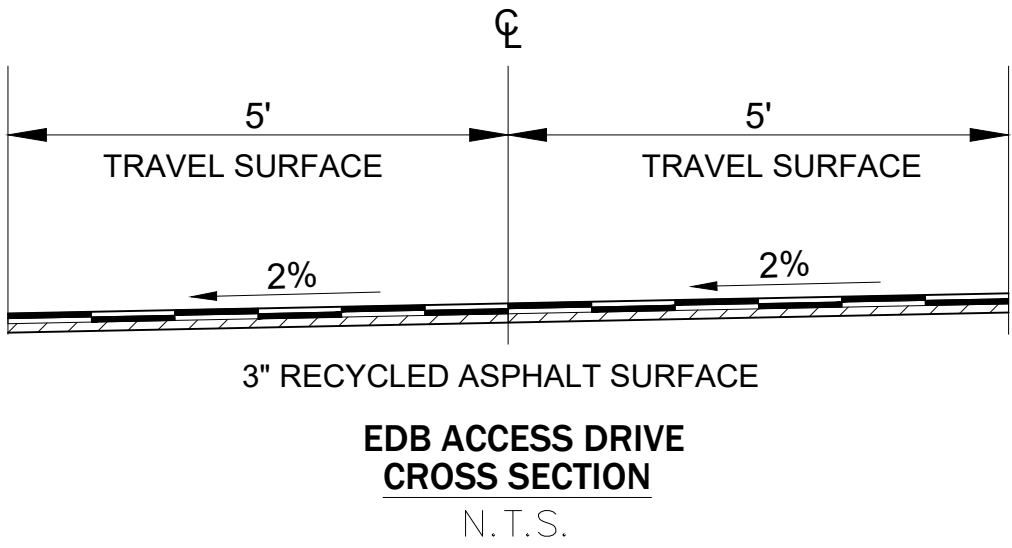
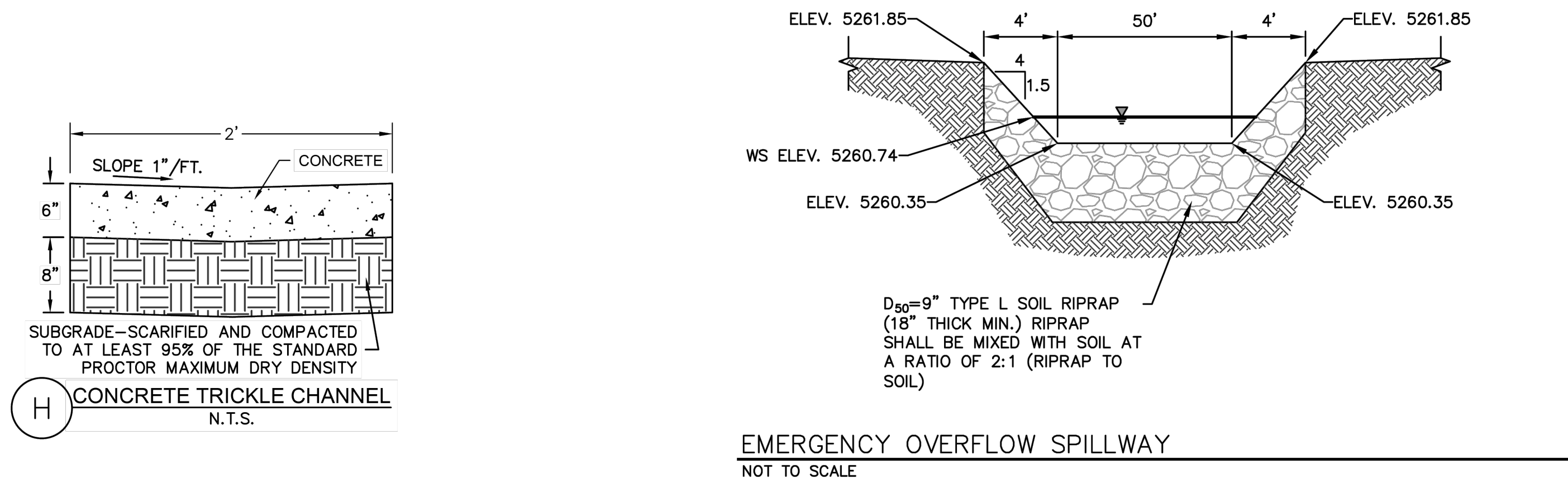
STORM SEWER
PLAN AND PROFILES

SCALE: AS NOTED

C.11

5200 SHERIDAN MINOR SUBDIVISION PLAT

STORM SEWER AND DETENTION DETAILS



Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch JBK	CONCRETE INLET TYPE 13 Issued by the Project Development Branch July 31, 2019	STANDARD PLAN NO. M-604-13 Standard Sheet No. 1 of 1 Project Sheet Number:
Creation Date: 07/31/19	CEX	Date:	Comments:			
Designer Initials: JBK	CEX					
Last Modification Date: 07/31/19	CEX					
Detailer Initials: LTA	CEX					
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	CEX					

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5200 SHERIDAN BOULEVARD
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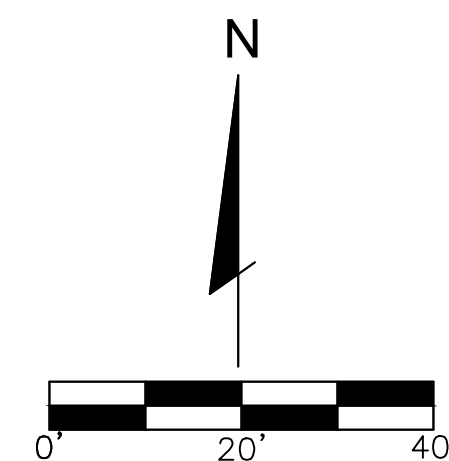
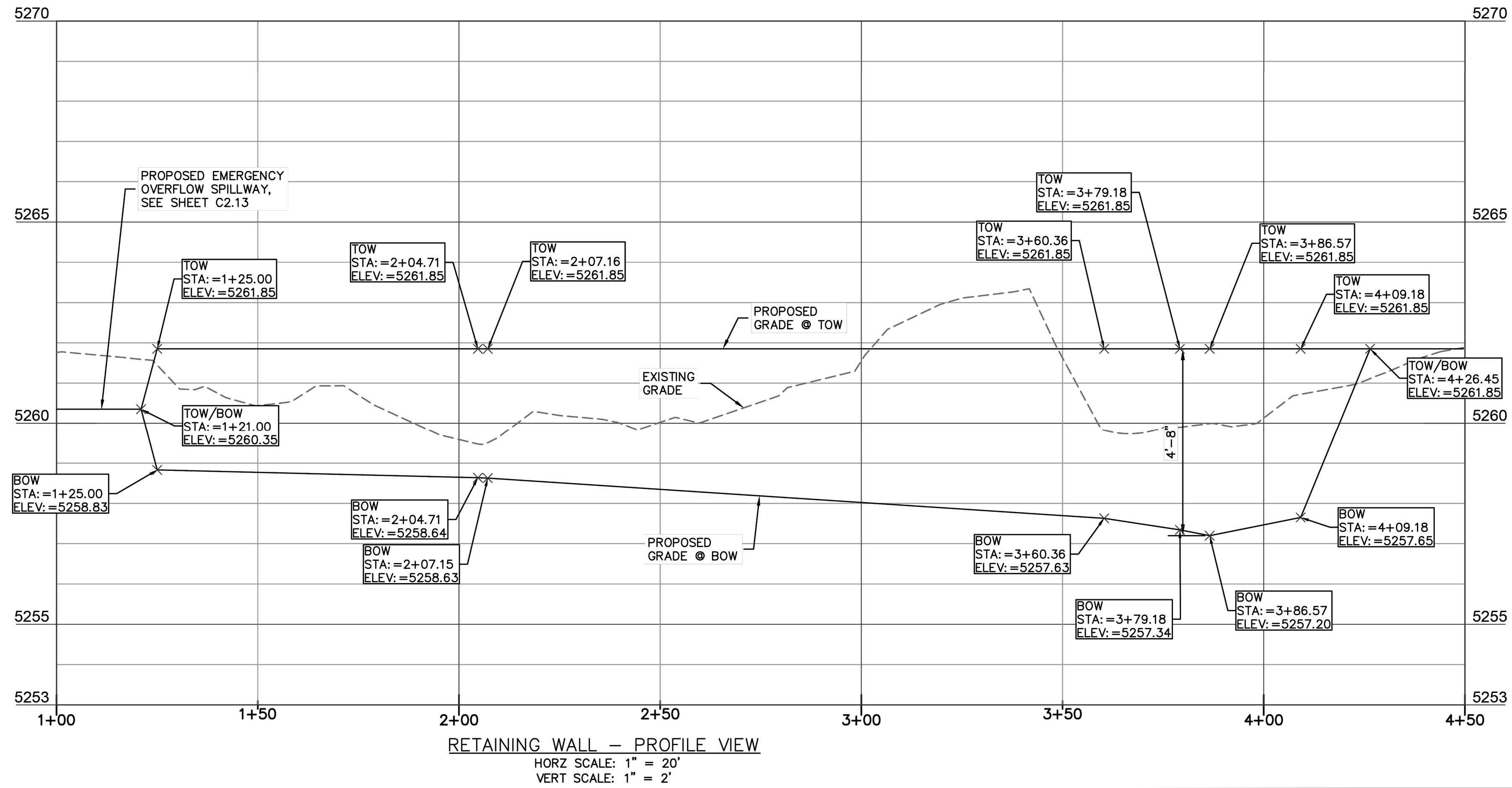
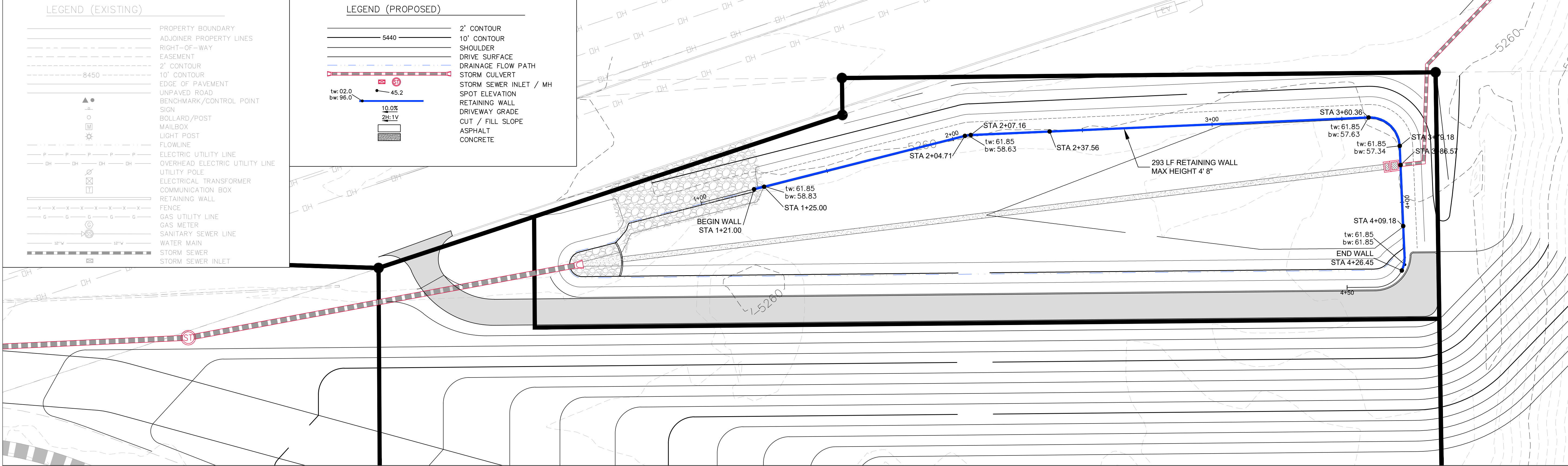
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EDB AND
STORM SEWER
DETAILS

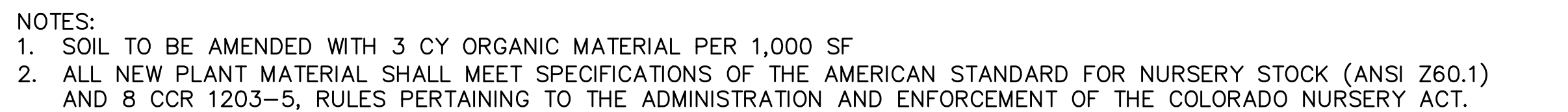
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5200 SHERIDAN MINOR SUBDIVISION PLAT

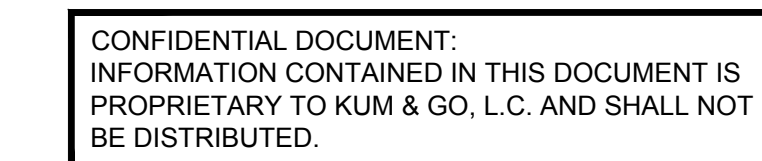
RETAINING WALL PLAN AND PROFILE



DATE	REVISION	BY
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RETAINING WALL PLAN AND PROFILE		SCALE: AS NOTED
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* - UNABLE TO MEET TREES DUE TO UTILITIES, EASEMENTS AND SIGN VISIBILITY.



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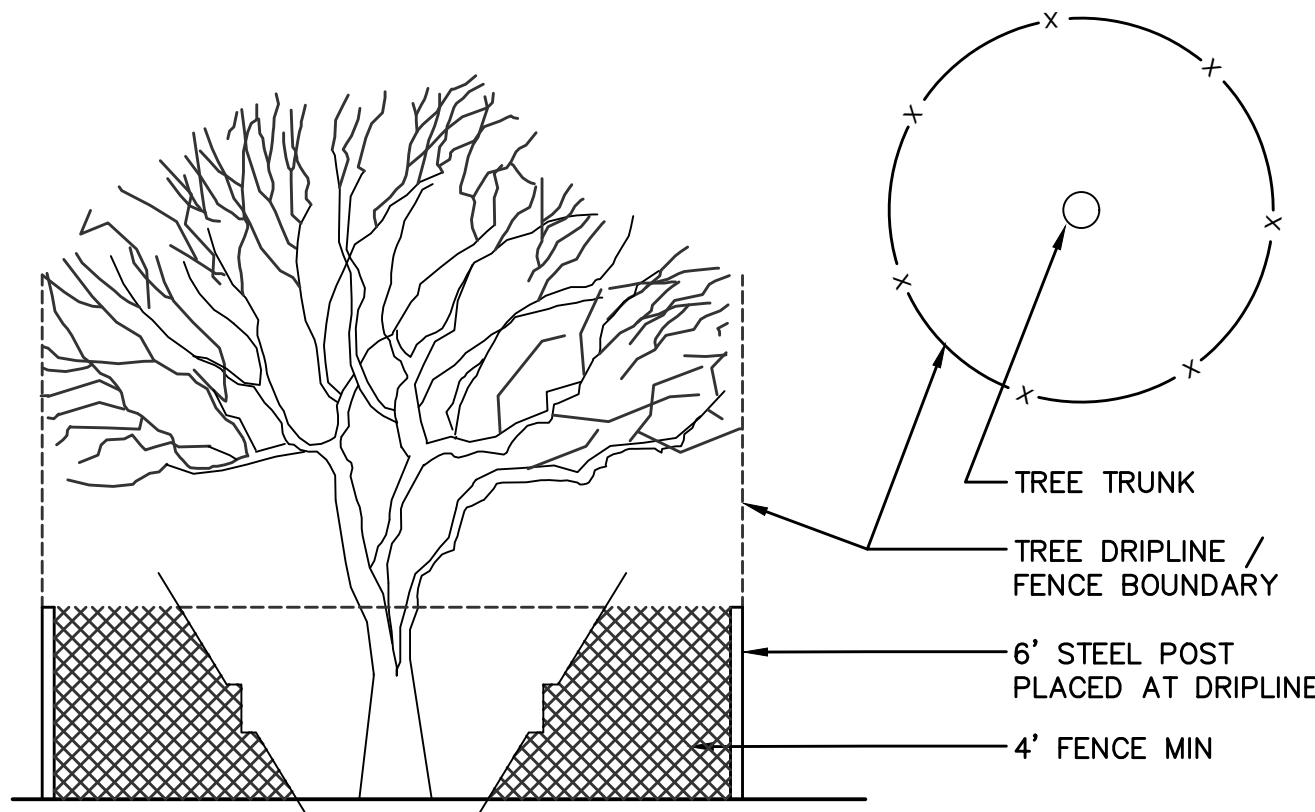
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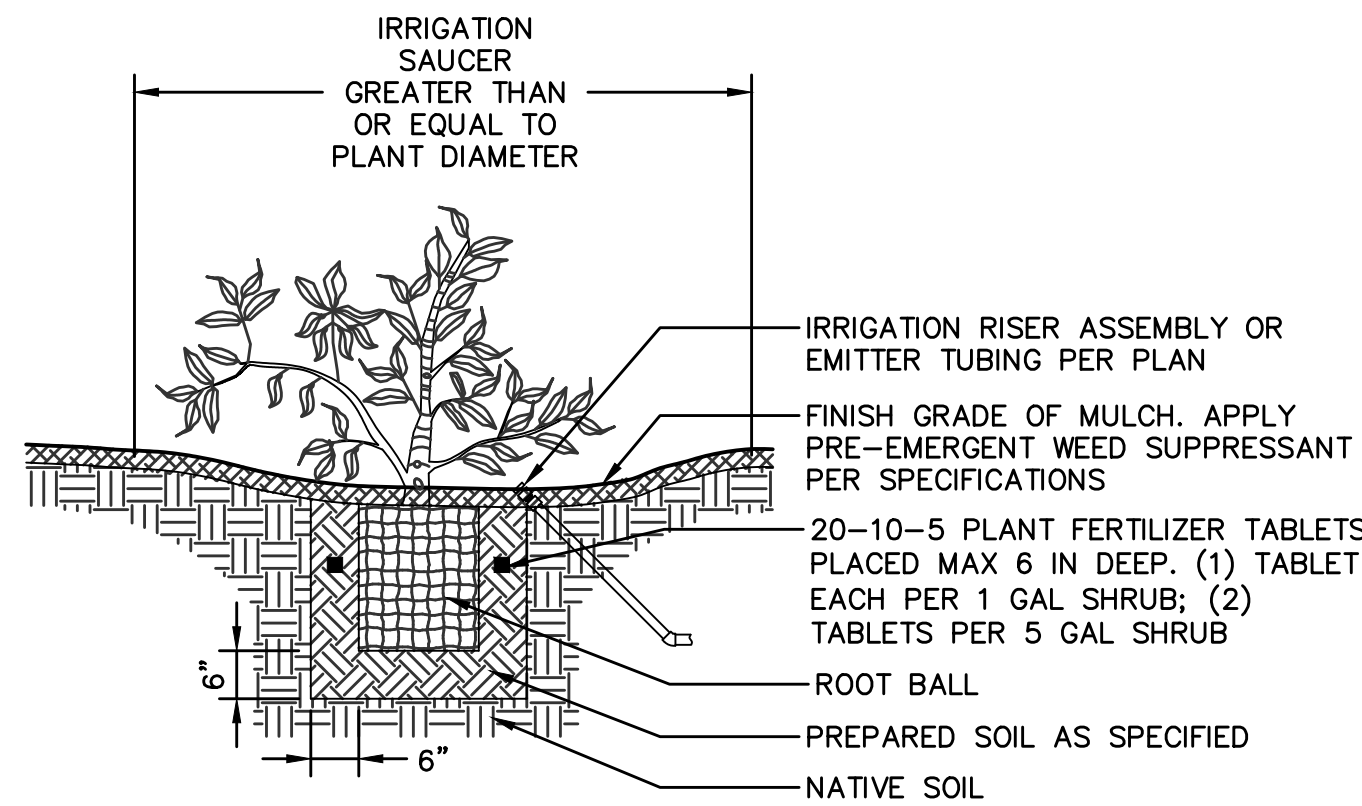
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- NOTE:
1. FENCE MATERIAL PER CITY STANDARD (ORANGE HEAVY DUTY POLYETHYLENE SAFETY FENCE MIN)
 2. NO STORAGE OF MATERIALS WITHIN TREE PROTECTION ZONE
 3. TREE PROTECTION FENCING TO BE MAINTAINED THROUGH THE DURATION OF THE PROJECT

1 TREE PROTECTION

NTS

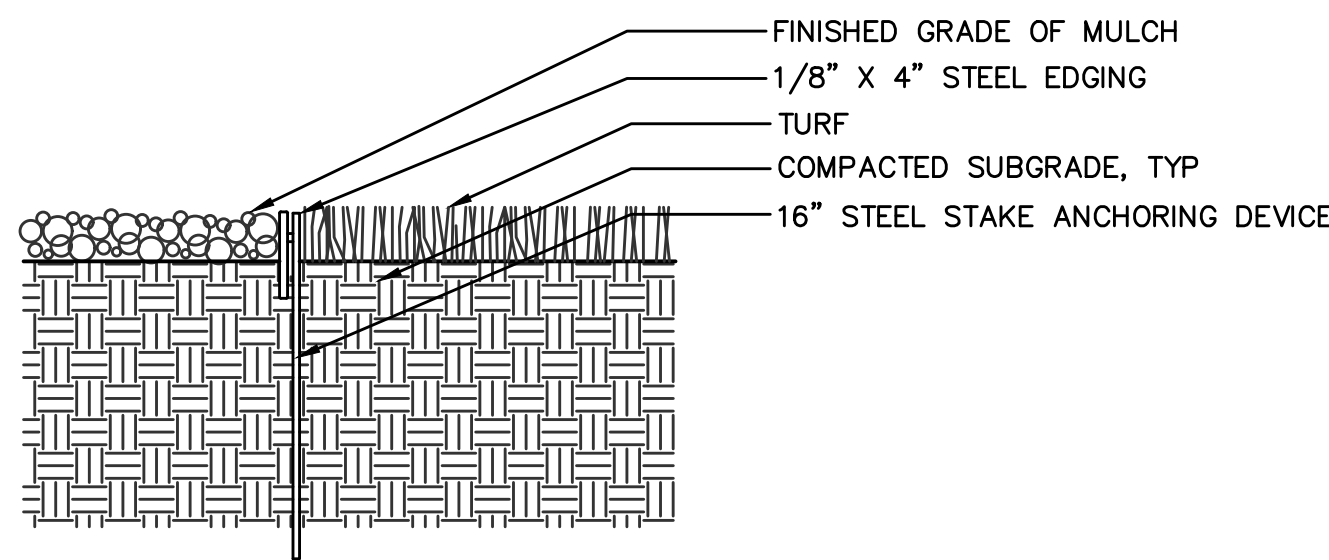


- NOTES:
1. SCARIFY PERIMETER OF PLANT PITS PRIOR TO BACKFILL
 2. TEST PLANT PITS FOR DRAINAGE: CONSTRUCT AN EXAMPLE IRRIGATION SAUCER FOR ENGINEER'S APPROVAL PRIOR TO PLACING MULCH

5 SHRUB PLANTING

NTS

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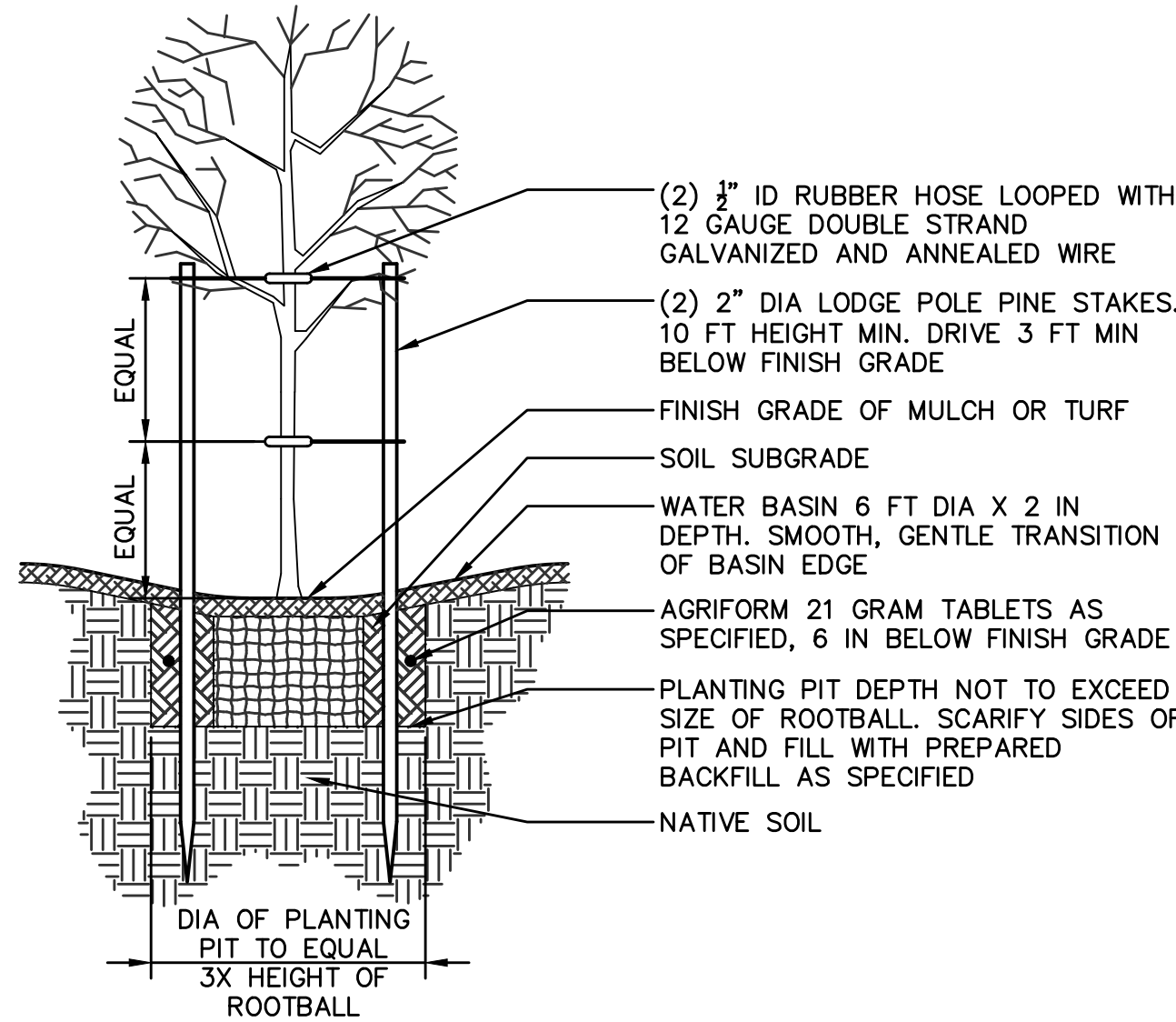


- NOTES:
1. EDGING SHALL BE FLUSH WITH FINISHED GRADE OF MULCH
 2. LANDSCAPE ARCHITECT SHALL APPROVE STEEL EDGING TYPE AND ANCHOR PRIOR TO INSTALLATION

9 STEEL EDGING

NTS

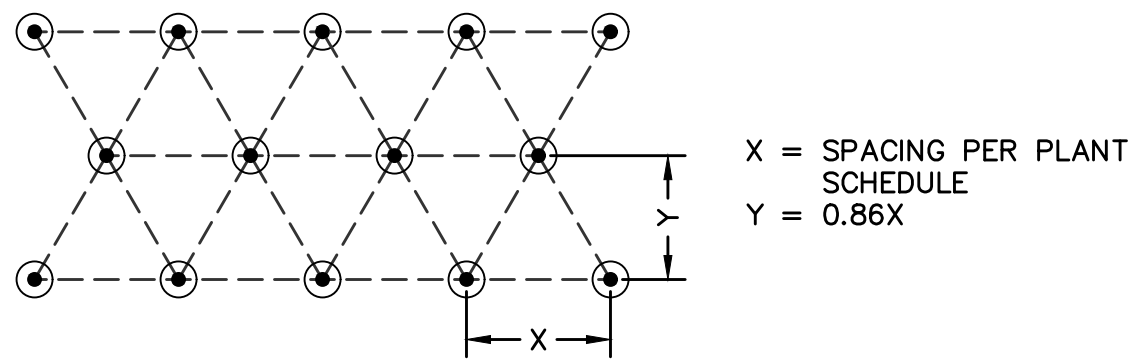
CM-CO-2022-02202737-24



2 SINGLE TRUNK TREE PLANTING

NTS

CM-CO-2022-02202737-02



- NOTES:
1. PLANT ALL GROUNDCOVERS ON CENTER AND IN A TRIANGLE PATTERN
 2. SIZE OF PLANT MATERIAL SHALL BE AS NOTED ON PLANT SCHEDULE

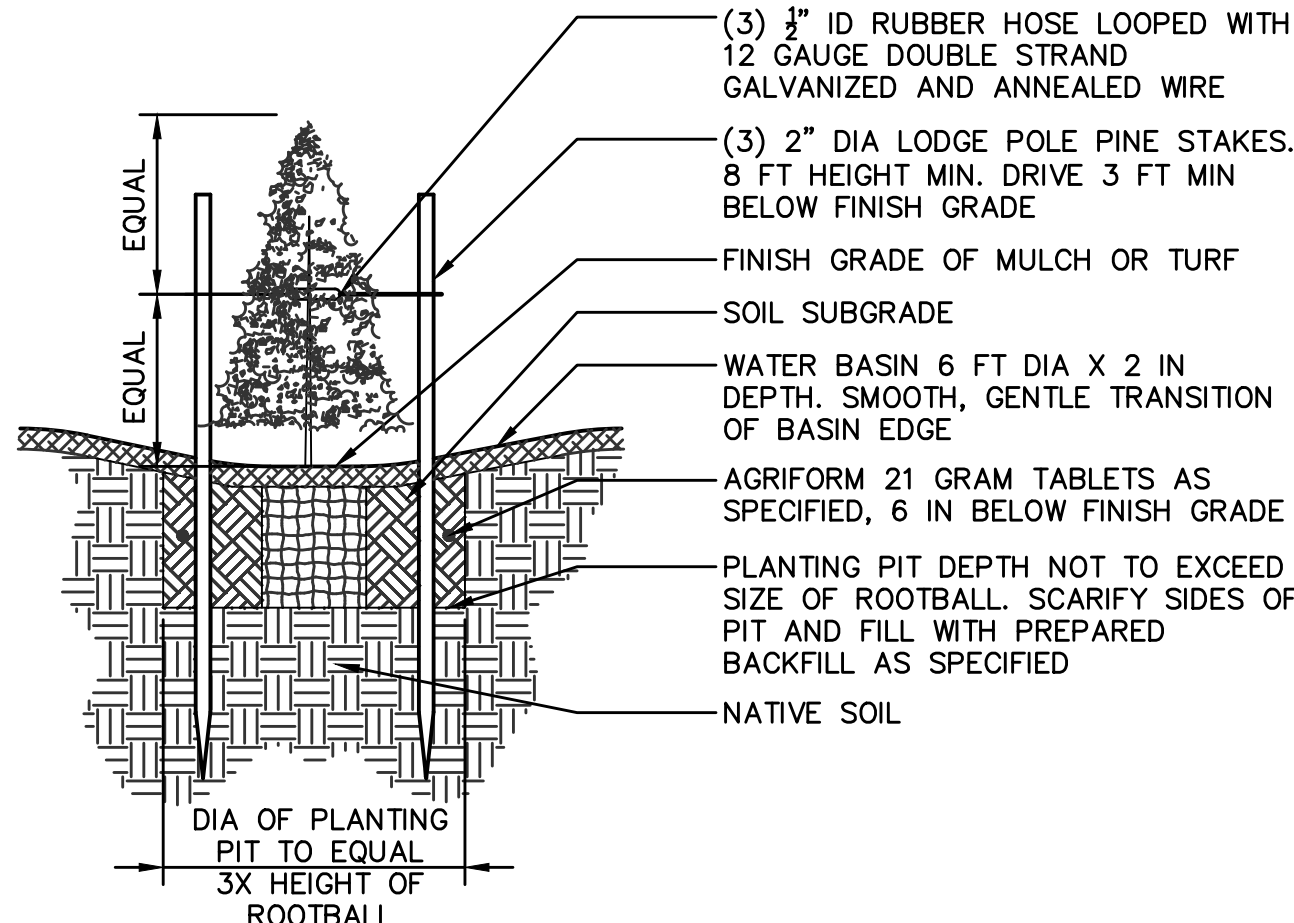
6 GROUNDCOVER SPACING

NTS

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GENERAL PLANTING NOTES

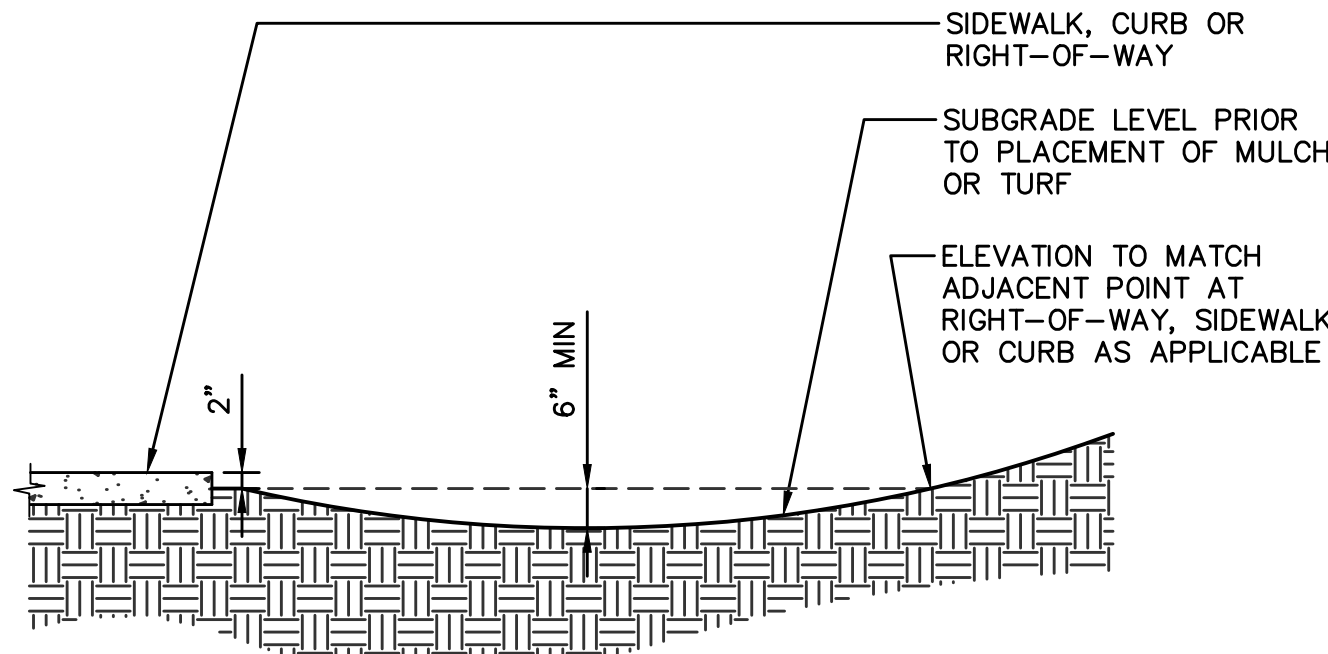
1. ALL WORK SHALL BE COORDINATED WITH THE WORK OF OTHER TRADES
2. LOCATE AND FLAG ALL UNDERGROUND UTILITIES PRIOR TO AN CONSTRUCTION. CONTRACTOR SHALL PROTECT EXISTING OVERHEAD AND UNDERGROUND UTILITIES. ANY DAMAGE TO SUCH SHALL BE REPAIRED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.
3. PLANTS AND OTHER MATERIALS ARE QUANTIFIED AND SUMMARIZED FOR THE CONVENIENCE OF THE CITY AND LOCAL GOVERNING BODIES. CONFIRM AND INSTALL SUFFICIENT QUANTITIES TO COMPLETE THE WORK AS DRAWN.
4. PLAN IS SUBJECT TO CHANGES BASED ON PLANT SIZE AND MATERIAL AVAILABILITY. ALL CHANGES OR SUBSTITUTIONS MUST BE APPROVED BY THE CITY OF COLORADO SPRINGS AND THE LANDSCAPE ARCHITECT.
5. ALL PLANT MATERIAL SHALL BE NURSERY GROWN TO MEET MINIMUM SIZE AS SPECIFIED IN THE AMERICAN STANDARD FOR NURSERY ESTABLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION (ANLA). THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO REJECT ANY PLANT MATERIAL NOT MEETING SPECIFICATIONS
6. PLANTING OF TREES, SHRUBS, SODDED AND SEEDED TURFGRASS IS RECOMMENDED TO COMMENCE DURING EITHER THE SPRING (MARCH 15 - JUNE 15) OR FALL (SEPTEMBER 1 - OCTOBER 15) PLANTING SEASON AND WITH WATER AVAILABLE FOR IRRIGATION PURPOSES.
7. THE LANDSCAPE CONTRACTOR SHALL REMOVE ALL CONSTRUCTION DEBRIS AND MATERIALS INJURIOUS TO PLANT GROWTH FROM PLANTING PITS AND BEDS PRIOR TO BACKFILLING WITH PLANTING MIX.
8. A PRE-EMERGENT HERBICIDE SHALL BE APPLIED TO ALL SHRUB BEDS PRIOR TO THE INSTALLATION OF ANY PLANT MATERIAL.
9. BACKFILL PLANTING BEDS ACCORDING TO SOIL AMENDMENTS TABLE. IN PARKING AREAS, SOIL TO BE TILLED OR REMOVED AND REPLACED WITH PLANTING SOIL TO A DEPTH OF 30". THOROUGHLY MIX PLANTING SOIL COMPONENTS PRIOR TO PLACEMENT.
10. ALL PLANT BEDS FOR TREES AND SHRUBS, UNLESS OTHERWISE NOTED ON THE PLANS, TO BE MULCHED A MINIMUM OF 8" DEEP WITH NEUTRAL COLOR (GRAY, TAN OR BROWN) 4"-6" DIAMETER ROUNDED RIVER BED GRAVEL, OR APPROVED EQUAL, OVER GEOTEXTILE WEED BARRIER FABRIC.
11. METAL LANDSCAPE EDGING IS TO BE USED ON ALL LANDSCAPE BEDS ABUTTING SODDED AREAS OR AS NOTED ON LANDSCAPE PLANS.
12. LANDSCAPE CONTRACTOR IS TO BE RESPONSIBLE FOR WATERING ALL PLANT MATERIAL UNTIL THE TIME THE PERMANENT IRRIGATION SYSTEM IS FULLY FUNCTIONAL AND ACCEPTANCE OF THE PROJECT HAS TAKEN PLACE. ANY MATERIAL WHICH DIES, OR DEFOLIATES (PRIOR TO ACCEPTANCE OF THE WORK) WILL BE PROMPTLY REMOVED AND REPLACED.
13. THE CONTRACTOR WILL COMPLETELY GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR BEGINNING AT THE DATE OF ACCEPTANCE, OR STORE OPENING, WHICHEVER IS GREATER. CONTRACTOR WILL MAKE ALL REPLACEMENTS PROMPTLY (AS PER DIRECTION OF OWNER).
14. ALL LANDSCAPE AREAS AND SOD AREAS SHALL BE IRRIGATED WITH A HIGH-EFFICIENCY, AUTOMATIC IRRIGATION SYSTEM ACHIEVING 100% EVEN COVERAGE OF ALL LANDSCAPE AREAS. IRRIGATION SYSTEM SHALL BE DESIGN-BUILD TO MEET ALL CITY REQUIREMENTS.
15. CONTRACTOR TO INSPECT THE PLANT MATERIAL BEFORE INSTALLATION FOR SIZE AND HEALTH OF PLANTS, OBSERVE FIELD OVERSIGHT OF THE TYPE AND INCORPORATION DEPTH OF SOIL AMENDMENTS TO TURF AREAS, OBTAIN PROPER IRRIGATION INSPECTIONS, AS WELL AS THE FINAL VERIFICATIONS. ALL LANDSCAPING AND IRRIGATION TO BE IN ACCORDANCE WITH CITY INSPECTION AFFIDAVITS. CONTRACTOR SHALL PROVIDE OLSSON TWO (2) DAYS AFTER LANDSCAPE INSTALLATION IS COMPLETE TO PERFORM A FINAL LANDSCAPE INSPECTION AND APPROVAL.
16. CONTRACTOR TO PROVIDE OLSSON WITH TRUCK TICKETS FOR ALL SOIL AMENDMENTS SHOWN ON PLAN.
17. CONTRACTOR TO NOTIFY OLSSON DURING LANDSCAPE ISLAND SOIL TILLING OPERATIONS. OLSSON TO VERIFY PLANTING AREAS HAVE BEEN TILLED OR SOIL REMOVED/REPLACED TO A DEPTH OF 30".
18. PRIOR TO FINAL LANDSCAPE INSPECTION, CONTRACTOR TO VERIFY ALL LANDSCAPING AND IRRIGATION IS CONSTRUCTED IN ACCORDANCE WITH CITY INSPECTION AFFIDAVITS. CONTRACTOR TO PROVIDE RECEIPTS OF ALL PLANT MATERIALS INSTALLED ON-SITE
19. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING AS-BUILT REDLINES SHOWING CHANGES TO THE APPROVED FINAL LANDSCAPE PLANS. AS-BUILT REDLINES SHALL BE PROVIDED TO OWNER PRIOR TO THE FINAL LANDSCAPE INSPECTION.
20. A FINAL IRRIGATION PLAN SHALL BE SUBMITTED AND REVIEWED CONCURRENT WITH BUILDING PERMIT SUBMITTAL AND APPROVED PRIOR TO ISSUANCE OF A BUILDING PERMIT.
21. THE HEALTH OF THE EXISTING VEGETATION TO REMAIN, SHALL BE VERIFIED AT THE BEGINNING AND END OF PROJECT.



3 EVERGREEN TREE PLANTING

NTS

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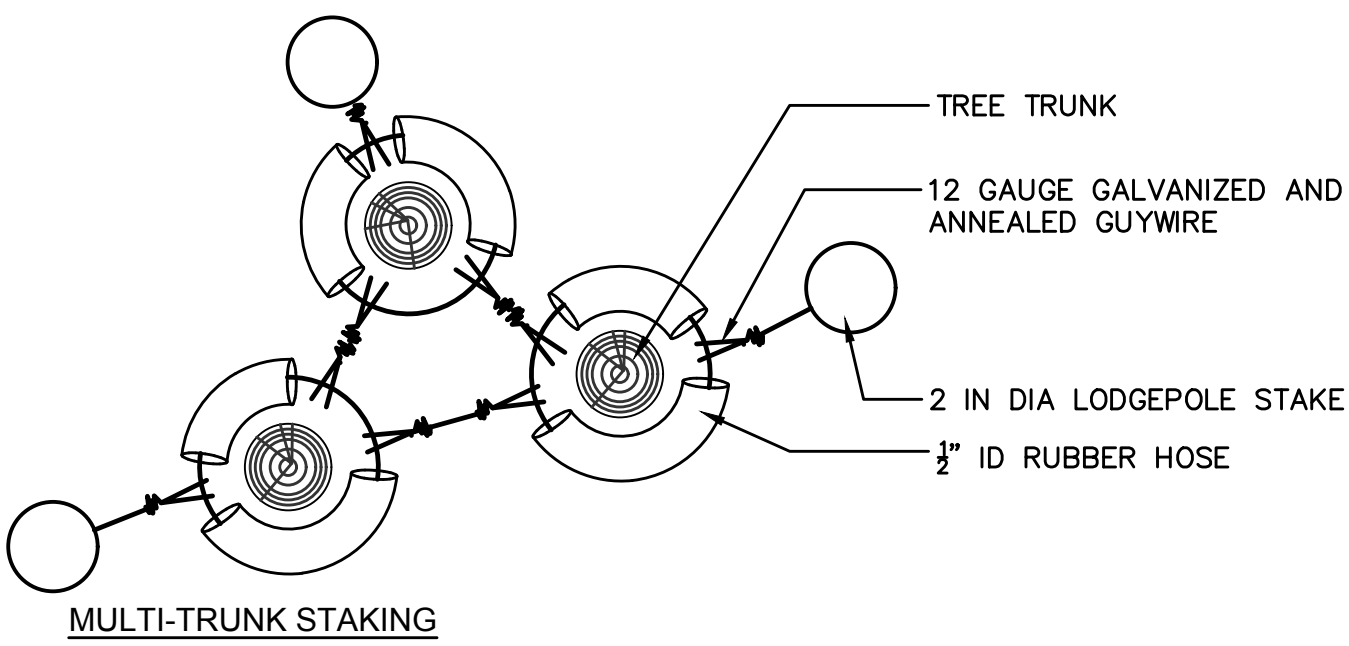
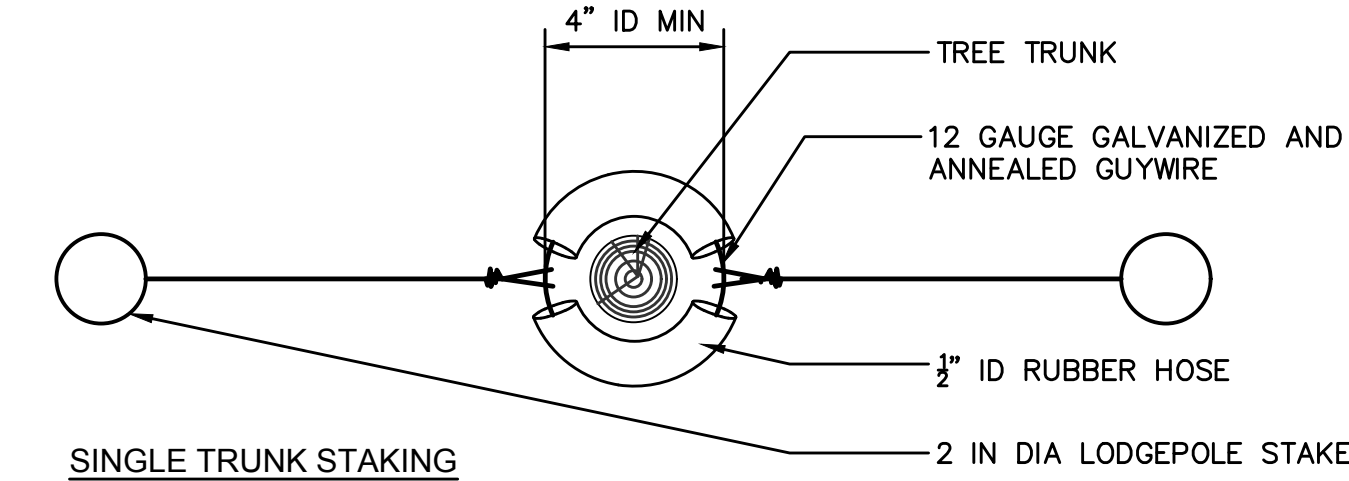


- NOTE:
1. IRRIGATION SWALE TO BE APPROVED PRIOR TO PLACEMENT OF PLANTS, TURF OR MULCH

7 IRRIGATION SWALE

NTS

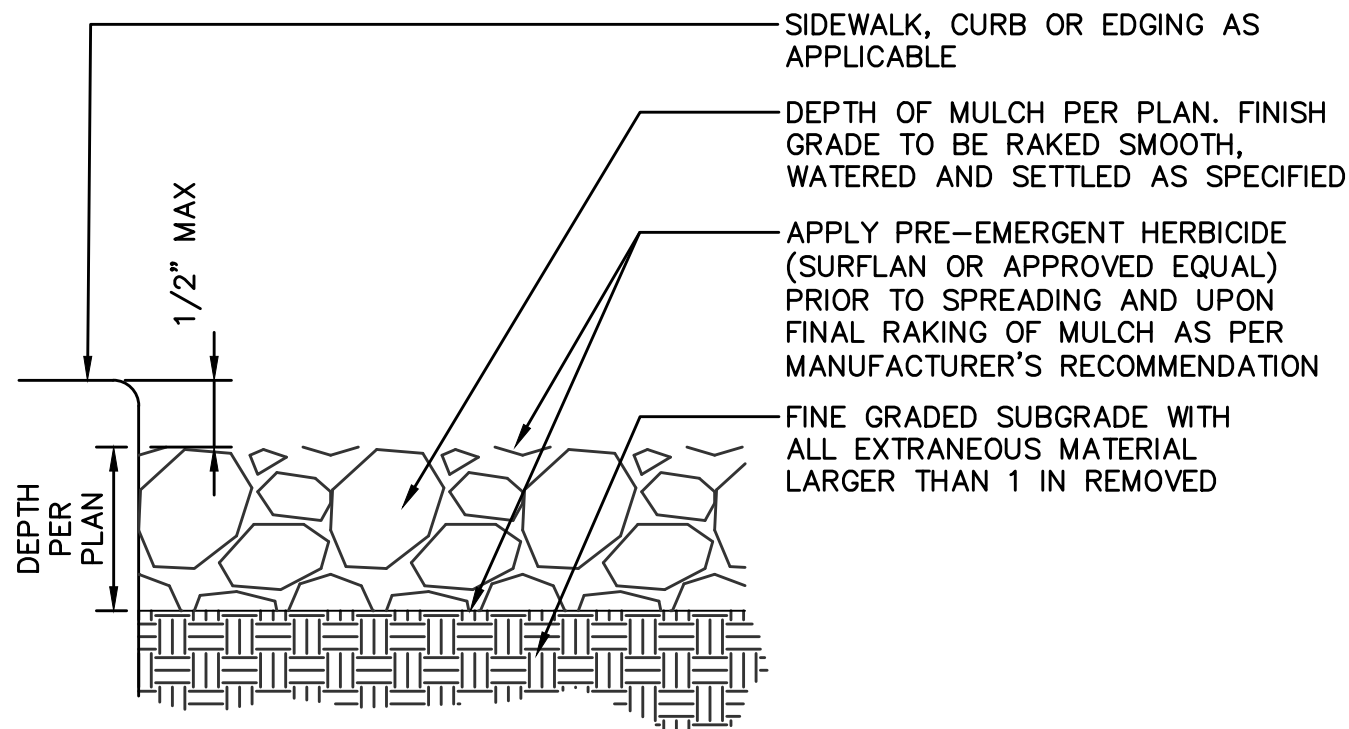
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4 TREE STAKING - PLAN VIEW

NTS

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- NOTES:
1. MULCH TYPE, SIZE AND COLOR AS NOTED IN LANDSCAPE SCHEDULE
 2. CONTRACTOR TO SUBMIT MULCH SAMPLE FOR APPROVAL PRIOR TO CONSTRUCTION

8 MULCH APPLICATION

NTS

CM-CO-2022-02202737-09

NOTE:

1. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. THIS INCLUDES PRIVATE AND PUBLIC UTILITIES.

C.15

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CALL 811 SEVENTY-TWO HOURS PRIOR TO
DIGGING, GRADING OR EXCAVATING FOR THE
MARKING OF UNDERGROUND MEMBER UTILITIES.

olsson

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Loveland, CO 80538
TEL 970.461.7733
www.olsson.com

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CONSTRUCTION.

52ND AVE & SHERIDAN BLVD

LANDSCAPE DETAILS

KG PROJECT TEAM:
RDM: TC
SDM: DG
CPM: BS

REVISION DESCRIPTION

DATE

DATE: 01/31/2024

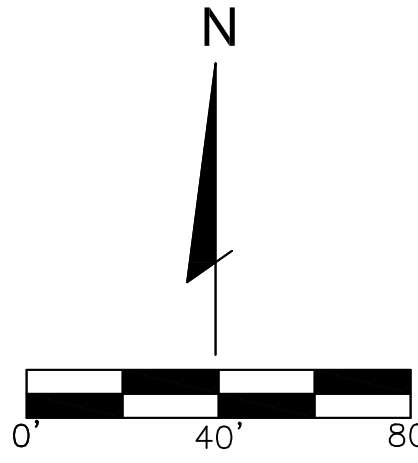
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5200 SHERIDAN BOULEVARD

CONCEPTUAL ACCESS AND GRADING PLAN



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MINOR SUBDIVISION PLAT
5200 SHERIDAN BOULEVARD
ARVADA, COLORADO
ADAMS COUNTY

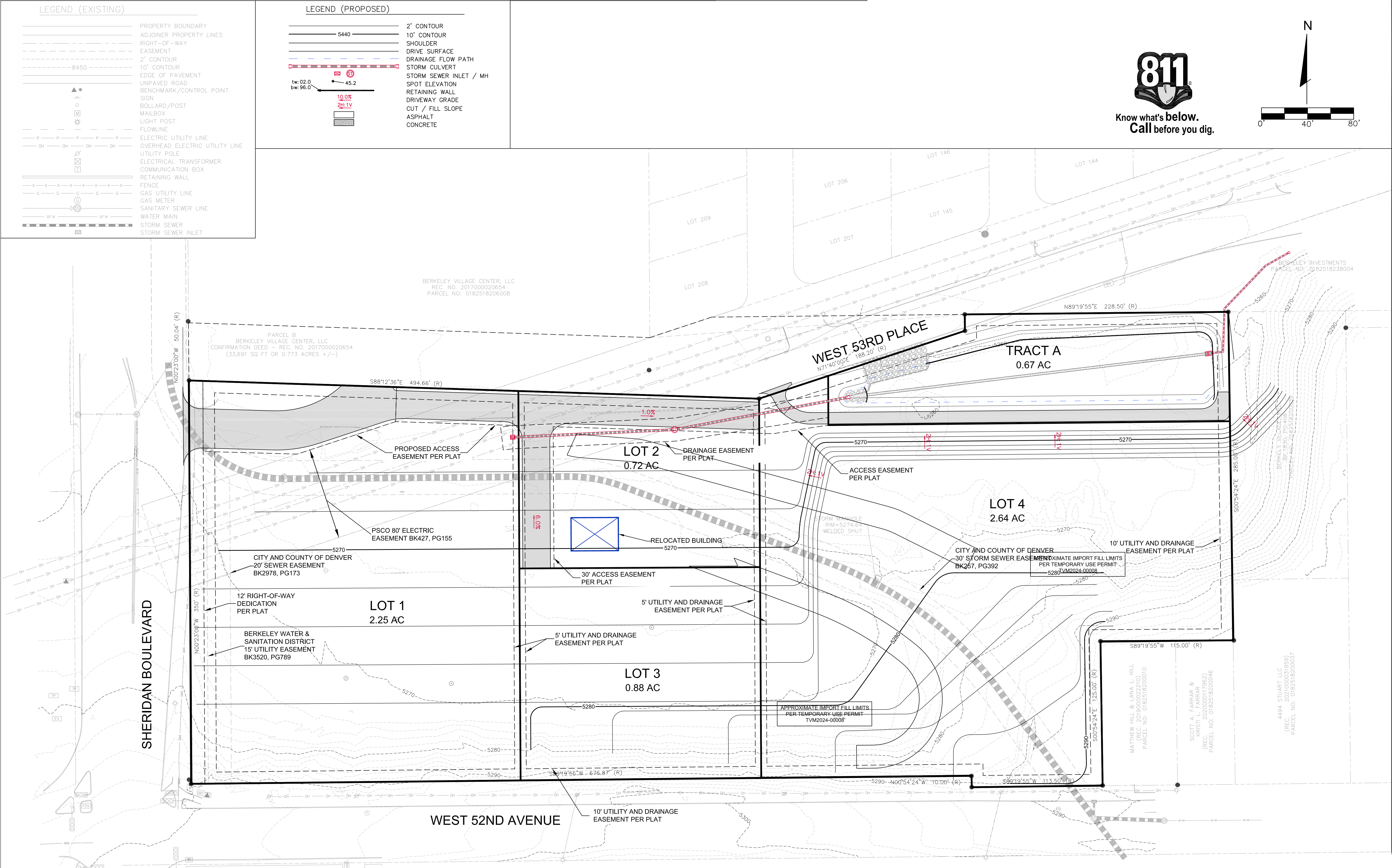


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CONCEPTUAL ACCESS AND GRADING PLAN

SCALE: AS NOTED

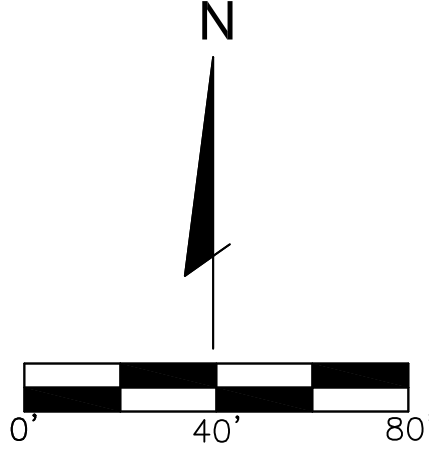


5200 SHERIDAN BOULEVARD

EASEMENT EXHIBIT



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BERKELEY VILLAGE CENTER, LLC
REC. NO. 2017000020654
PARCEL NO: 0182518206008

PARCEL B
BERKELEY VILLAGE CENTER, LLC
CONFIRMATION DEED - REC. NO. 2017000020654
(33.691 SQ FT OR 0.773 ACRES +/-)

PROPOSED COMMON
ACCESS EASEMENT

~~PROPOSED PRIVATE
30' ACCESS EASEMENT~~

~~PROPOSED PRIVATE
30' ACCESS EASEMENT~~

LOT 2
0.72 AC

0.72 AC
SED DRAINAGE
ENT

LOT 1
2.25 AC

PARCEL A
 SBGM LAND TRUST
 QC DEED - REC. NO. 2009000005600
 (312,919 SQ FT OR 7.183 ACRES +/-)

5200 SHERIDAN BLVD
ARVADA CO,
PARCEL NO: 0182518206004

LOT 3
0.88 AC

TRACT A
0.67 AC

LOT 4
2.64 AC

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EASEMENT EXHIBIT

SCALE: AS NOTED

**LEVEL III
STORM DRAINAGE STUDY**

**REGIONAL DRAINAGE REPORT
5200 SHERIDAN MINOR SUBDIVISION PLAT**

5200 SHERIDAN BOULEVARD
ARVADA, COLORADO
ADAMS COUNTY

Prepared for:
James Goyette
SBGM Land Trust
P.O. Box 306
Pine, CO 80470

September 2024



ENGINEERING YOUR VISION

1299 Washington Avenue, Suite 280
Golden, CO 80401
Phone: 303.956.8353

ENGINEER CERTIFICATION OF DRAINAGE REPORT

"I hereby certify that this report (plan) for the Final Drainage design of 5200 Sheridan Minor Subdivision Plat was prepared by me or under my direct supervision in accordance with the provisions of Adams County Storm Drainage Design and Technical Criteria for the owners thereof. I understand that Adams County does not and will not assume liability for drainage facilities designed by others."

Date

Registered Professional Engineer

State of Colorado No. _____

DEVELOPER CERTIFICATION OF DRAINAGE FACILITIES

"James Goyette. hereby certifies that the drainage facilities for 5200 Sheridan Minor Subdivision Plat shall be constructed according to the design presented in this report. I understand that Adams County does not and will not assume liability for the drainage facilities designed and/ or certified by my engineer. I understand that Adams County reviews drainage plans pursuant to Colorado Revised Statutes Title 30, Article 28; but cannot, on behalf of 5200 Sheridan Minor Subdivision, guarantee that final drainage design review will absolve SBGM Land Trust and/ or their successors and/ or assigns the future liability for improper design. I further understand that approval of the Final Plat and/ or Final Development Plan does not imply approval of my engineer's drainage design."

Date

Name of Developer

Authorized Signature

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APPENDIX D	REFERENCED INFORMATION
APPENDIX E	DESIGN DRAWINGS

1.0 GENERAL LOCATION AND DESCRIPTION

This document is the Level III Storm Drainage Study Report for the 5200 Sheridan Minor Subdivision Plat. The purpose of this report is to identify onsite and offsite drainage patterns, storm sewer, inlet locations, and areas tributary to the site with the goal of safely routing developed storm water runoff to adequate outfall facilities.

Additionally, this report will address regional water quality treatment and full spectrum detention within an extended detention basin located on the property. This facility will serve the overall property.

The proposed project is located at 5200 Sheridan Boulevard, located within Parcel A, SBGM Land Trust, QC Deed, being a portion of the northwest quarter of Section 18, Township 3 South, Range 68 West of the 6th P.M., City of Arvada, County of Adams, State of Colorado. The site is bordered on the west by Sheridan Boulevard, on the north by W 53rd Place, and on the south by W 52nd Avenue.

Currently the site consists primarily of a partially paved parking lot with a central single-story building. Gravel parking lots, dirt drives, and native grass areas are located throughout the site surrounding the building and pavement area. Parcel A is currently listed as approximately 7.183 acres and will be further subdivided within the proposed development of this project.

Parcel A will be divided into four (4) individual lots and one (1) tract. The drainage analysis and improvements presented in this report will be for the entire Parcel A that includes the four (4) future individual lots.

The overall parcel generally slopes from south to north at slopes ranging from 2 percent to 50 percent. An approximately 60" diameter Denver storm sewer mainline crosses through the central portion of the parcel. This pipe is expected to be upsized in the future and will remain untouched and unimpacted until an agreement with the City & County of Denver regarding grading and fill over the pipe has been established.

According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Custom Soil Resource Report for the site, approximately two-thirds of the site can be classified as Hydrologic Soil Group A. The remaining third of the site does not have a Hydrologic Soil Group designation. For the purpose of this drainage analysis, the entirety of the site has been assumed as Hydrologic Soil Group A. The NRCS Soil Report for the site can be seen within Appendix D.

Per FEMA's National Flood Hazard Layer (NFHL) FIRMette Map Panel 08001C0591H, dated March 5th, 2007, the entirety of the site is located within Zone X, Area of Minimal Flood Hazard. The FEMA FIRMette Panel for the site can be seen within Appendix D.

Geotechnical Considerations:

Per the geotechnical report for the Lot 1 (*Report of Geotechnical Exploration, Kum & Go #2294*, prepared by Olsson, dated September 1st, 2022), claystone and bedrock was encountered at depths ranging from 3 feet to 8 feet below the existing grade of Lot 1.

2.0 DRAINAGE BASIN AND SUB-BASINS

Existing Basin Description:

Based off of the October 2019 City & County of Denver Storm Drainage Master Plan (SDMP), Parcel A is located within Basin 4300-03 for Clear Creek – North of I-70. The relevant pages of the SDMP can be found within Appendix D.

According the SDMP, collection system Project B – Clear Creek Outfall includes the existing 60" diameter storm main that runs across Parcel A. The SDMP calls for this collect system to be drastically upsized, and the City & County of Denver will not allow a connection from the site to any of the location storm sewer infrastructure located within the site nor along Sheridan Boulevard to the west due to the current capacity issues of the pipes.

The site and its adjacent areas of interest have been divided into two distinct existing drainage basins based off the current drainage and flow patterns. Please note that these basins represent the existing conditions prior to the Inert Fill Operations per the Temporary Use Permit TVM2023-00009.

Descriptions of each existing basin are as follows.

Existing basin *EX1* consists primarily of the area of Parcel A located west of the Denver storm main. Runoff generated within this basin will flow north, undetained and untreated, across 53rd Place and into the existing parking lot directly north of the site. This flow entering the parking lot is represented as Design Point 1 (DP1).

Existing basin *EX2* consists primarily of the area of Parcel A located east of the Denver storm main. Runoff generated within this basin will generally flow undetained and untreated to the northeast. Runoff is routed through the neighborhood's existing storm sewer infrastructure via 53rd Place's curb and gutter and by an existing regional drainage ditch located at the northeast corner of the site. This flow within leaving at the northeast corner of the site is represented by Design Point 2 (DP2).

The delineation of each of these existing drainage basins can be found on the Existing Drainage Basin Map within Appendix A. Table 1 below highlights the key parameters of the existing basins.

Table 1. Existing Basin Characteristics

Basin	Description	Area (acres)	Imperviousness (%)
EX1	Parcel A - West	4.60	36.9%
EX2	Parcel A - East	2.84	11.3%

Proposed Major Basin Descriptions:

The site has been divided into five (5) proposed major drainage basins. These five basins correspond with the four (4) individual lots and the one (1) Tract. Lots 1, 2, 3 and 4 have been designated as “future developments” and have assumed imperviousness values. Tract A has been evaluated for the proposed condition. Descriptions of each of the proposed major drainage basins are as follows.

Major Basin *LOT 1* corresponds to the Lot 1 portion of Parcel A. This area, comprised of the western portion of the parcel, has been denoted as “future development”, with the assumption that the lot will contain a gas station and convenience store, parking areas, and various landscaping and lawns. For the purpose of this report’s drainage analysis, Lot 1 has been assumed to have a proposed imperviousness value of 65.2%. This value is based on a previous Convenience Store / Gas Station design.

Major Basin *LOT 2* corresponds to the Lot 2 portion of Parcel A. This area, comprised of the northern half of the center area of the parcel, has been denoted as “future development”, with the assumption that the lot will contain an office building, parking lot, and various landscaping throughout. For the purpose of this report’s drainage analysis, Lot 2 has been assumed to have a proposed imperviousness value of 85.0%.

Major Basin *LOT 3* corresponds to the Lot 3 portion of Parcel A. This area, comprised of the southern half of the center area of the parcel, has been denoted as “future development”, with the assumption that the site will contain an office building, parking lot, and various landscaping throughout. For the purpose of this report’s drainage analysis, the buildable area of Lot 3

(approximately 2/3 of the total area) has been assumed at an imperviousness of 90%. The remaining 1/3 of Lot 3 represents the very steep grass area along 52nd Avenue. The slope of this area would prove too difficult to develop and has been assumed that it will remain a grass hill in future development. As a result, Lot 3 has been assumed to have a proposed imperviousness value of 61.0%.

Major Basin *LOT 4* corresponds to the Lot 4 portion of Parcel A. This area, comprised of the eastern portion of the parcel, has been denoted as “future development”, with the assumption that the site will be used for general storage, comprised of a mix of pavement, gravel, and landscape areas. For the purpose of this report’s drainage analysis, Lot 4 has been assumed to have a proposed imperviousness value of 60.0%

Major Basin *TRACT A* corresponds to the Tract A portion of Parcel A. This area, located within the northeast corner of the parcel, will contain the extended detention basin that will serve as a regional facility for all four of the previously mentioned Lots.

The delineation of each of these major drainage basins can be found on the Proposed Major Basin Map within Appendix A. Table 2 below highlights the key parameters of the previously described major basins.

Table 2. Major Basin Characteristics

Basin	Description	Area (acres)	Imperviousness (%)
LOT 1	Future Site	2.16	65.2%
LOT 2	Future Site	0.72	85.0%
LOT 3	Future Site	0.88	61.0%
LOT 4	Future Site	2.64	60.0%
TRACT A	Detention Basin	0.66	5.0%

Offsite Basin Descriptions:

There are three basins outside of the limits of the overall Parcel A that contribute runoff to the various design points within the proposed conditions. Descriptions of each of these offsite drainage basins are as follows.

Basin OS-1 consists of the landscape area between the southern property line and W 52nd Avenue sidewalk as well as the area between Sheridan Boulevard and the western property line, outside of the overall Parcel A. Runoff generated within this basin will flow onto Lot 1 and contribute to *Major Basin LOT 1*.

Basin OS-2 consists of the landscape area between the southern property line and W 52nd Avenue sidewalk, outside of the overall Parcel A. Runoff generated within this basin will flow onto Lot 3 and contribute to *Major Basin LOT 3*.

Basin OS-3 consists of the landscape area between the southern property line and W 52nd Avenue sidewalk, outside of the overall Parcel A. Runoff generated within this basin will flow onto Lot 4 and contribute to *Major Basin LOT 4*.

The delineation of each of these major drainage basins can be found on the Proposed Major Basin Map within Appendix A. Table 4 below highlights the key parameters of the previously described offsite basins.

Table 4. Offsite Basin Characteristics

Basin	Description	Area (acres)	Imperviousness (%)
OS-1	Offsite to Basin Lot 1	0.23	2.0%
OS-2	Offsite to Basin Lot 3	0.08	2.0%
OS-3	Offsite to Basin Lot 4	0.07	2.0%

Summary:

The impact of the proposed development to the existing drainage patterns can be evaluated at each of the two design points, which have been designated within the “EXISTING BASIN DESCRIPTION” section above.

The routing of the proposed drainage basins to the two design points is detailed in depth within the full hydrological equations and calculations within Appendix B of this report.

A pre-development versus post-development comparison of each of the two design points is summarized below in Table 5.

Table 5. Pre- to Post-Development Comparison

		Design Point 1	Design Point 2
Tributary Area (acres)	Pre-	4.60	2.84
	Post-	0.46	6.98
Imperviousness (%)	Pre-	36.9%	11.3%
	Post-	93.6%	53.7%
Q₅ (cfs)	Pre-	3.51	0.47
	Post-	1.31	7.79
Q₁₀₀ (cfs)	Pre-	9.52	2.71
	Post-	2.97	22.62

As the post-development total runoff being directed to Design Point 1 is less than the pre-development values, there are no expected adverse impacts, and no additional improvements are to be required.

The increase in runoff to Design Point 2 is to be addressed via the proposed detention basin, which is detailed in the following sections.

3.0 DRAINAGE BASIN CRITERIA

Development Criteria Reference and Constraints:

The design of the proposed drainage system was completed in accordance with the criteria set forth within the Adams County Development Standards and Regulations (DSR), as well as the Mile High Flood District (MHFD) Criteria Manuals.

Hydrological Criteria:

Hydrologic calculations have been prepared in accordance with criteria set forth within the DSR, as well as MHFD. Hydrologic calculations can be found within Appendix B of this report.

Hydrologic calculations have been performed by utilizing the Rational Method calculations. Imperviousness and runoff coefficients have been calculated via the equations presented within the MHFD Criteria Manuals. NOAA Atlas 14 has provided rainfall intensity values and rainfall depth values for the site. These referenced equations and resources can be found within Appendix B.

Hydraulic Criteria:

Hydraulic calculations have been prepared in accordance with the criteria set forth within the DSR, as well as the MHFD Criteria Manuals. Hydraulic calculations can be found within Appendix C of this report.

The design of the extended detention basin and its outlet structure has been performed by utilizing the Detention Design – MHFD-Detention v4.06 spreadsheet. The completed spreadsheet, is include within Appendix C.

Floodplain Regulations Compliance:

Per FEMA's National Flood Hazard Layer (NFHL) FIRMette Map Panel 08001C0591H, dated March 5th, 2007, the entirety of the site is located within Zone X, Area of Minimal Flood Hazard. The FEMA FIRMette Panel for the site can be seen within Appendix D.

Modifications of Criteria:

There are no proposed modifications to the drainage criteria for this project.

4.0 DRAINAGE FACILITY DESIGN

General Concept:

The Tract A detention basin has been designed to support the majority of the runoff generated for the overall Parcel A in its full, future-buildout condition. *Major Basins LOT 1, LOT 2, LOT 3, and LOT 4* have been denoted as future development and are assumed to be tributary to the pond in their entirety. With the exception of the north west corner of the lot, the entirety of *Major Basin LOT 1* is also tributary to the Tract A detention basin. Additionally, offsite basins OS-1, OS-2, and OS-3 direct runoff onto the parcel and have been accounted for within the analysis of the Tract A detention basin.

The majority of the runoff generated within *Major Basin LOT 1* will be conveyed via overland flow through future swales and gutters to the inlet proposed at the northwest corner of Lot 1.

Additionally, *Major Basins LOT 2 and LOT 3* will be able to route generated runoff through future swales and gutters to the inlet proposed at the northwest corner of Lot 1. From the inlet, the conveyance of runoff will be provided via the storm sewer main directly south of W 53rd Place. Flowing from west to east, this storm main has been sized to convey the Lot 1, Lot 2 and Lot 3 future developments, before discharging into the Tract A detention basin.

Major Basin LOT 4 will route generated runoff north and directly into the Tract A detention basin.

Specific Details:

Sustainable Development Practices (SDP):

Section 3-27-06-05-07-08 of the Adams County DSR defines SDP's for new buildings that are encouraged to be incorporated to the maximum extent. The proposed development has implemented the following practices:

- Low-Impact Development (LID) stormwater management facilities; references following sections.
- The removal and replacement of various trees throughout the property.

Water Quality Treatment:

Section 9-04-04 of the Adams County DSR defines the minimum water quality treatment design standards for post-construction water quality treatment BMP's. The treatment of the WQCV for the site will be provided within the proposed Tract A detention basin. The total 6.98 acres tributary to the detention basin can be summarized in a few different manners:

- Approximately 93.8% of the entire area of analysis is tributary to the detention basin. This area of analysis includes all of Parcel A and any offsite area that contributes runoff to the pond.
- Approximately 93.5% of the overall Parcel A area is tributary to the detention basin. This area includes all four of the Lots and Tract A.

The area not directed to the detention basin cannot be feasibly captured and routed to any sort of treatment BMP or facility. This uncapturable area is primarily the adjacent roadway (West 53rd Place). This area cannot be captured due to the fact that it is too low in elevation and cannot be routed to the proposed detention basin.

Additionally, the proposed detention basin will drain the full, post-development WQCV within 40 hours which allows for proper pollutant removal, maintain vegetations, and overall functionality.

As designed, the proposed detention basin meets the requirements of Section 9-04-04-1a and Section 9-04-04-1b of the Adams County DSR, and therefore

meets the minimum water quality treatment requirements for a post-construction water quality treatment BMP.

Low-Impact Development (LID):

Section 9-01-03-14 of the Adams County DSR defines the LID standards and requirements for all construction projects. The proposed development has implemented the following LID practices:

- The proposed detention basin will provide an onsite, structural BMP which will promote infiltration, evapotranspiration, and the use and treatment of stormwater.
- Grass swales and buffers are used on the east end of the site to promote infiltration and the reduction of stormwater runoff.

Required Storage Volumes:

Per criteria set forth within the Adams County DSR, as well as MHFD, the parcel's proposed Tract A detention basin will need to detain and release the full Water Quality Capture Volume (WQCV), the minor (5-year) storm event runoff volume, the major (100-year) storm event runoff volume, as well as an additional $\frac{1}{2}$ of the WQCV.

The detention basin has been designed in a manner such that WQCV is detained and released within 40 hours and that the minor (5-year) and major (100-year) storm events are attenuated and released at a rate equal to or less than the maximum allowable release rates. The calculation for the maximum allowable release rates can be seen within Appendix C.

Per the calculations presented within the MHFD-Detention, Version 4.06 (July 2022), DETENTION BASIN STAGE-STORAGE TABLE BUILDER spreadsheet, the proposed detention basin will provide a WQCV of 0.126 acre-feet, a minor (5-year) storm event runoff volume of 0.264 acre-feet, and a major (100-year) storm event runoff volume of 0.620 acre-feet. **The total EDB volume is 0.683 acre-feet.**

Outlet Structure and Spillway:

The outlet structure has been designed to drain the WQCV in 40 hours and release the minor (5-year) and major (100-year) storm events at a rate equal to or less than their respective maximum allowable release rates. Runoff exiting the outlet structure will enter the proposed storm sewer infrastructure, which flows northeast and discharges into the existing regional drainage ditch located at the northeast corner of the site.

The outlet structure for the proposed detention basin has been designed in ordinance to MHFD's *Volume 3, Chapter 4: Treatment BMPs, Treat BMP Fact Sheets: T-12 Outlet Structures, Figure OS-7: Full spectrum detention outlet structure for 5-acre impervious are or less*. This design utilizes a rectangular concrete structure with a slanted safety grate. The micropool will be located inside of the outlet structure, while the interior concrete weir will contain a rectangular concrete knockout. The knockout will be covered with a bar rack (trash screen) and stainless steel orifice plate. This orifice plate will contain numerous orifices of varying heights and sizes in order to ensure the proper attenuation release of each of the specified volumes.

A spillway is provided within the northwestern portion of the detention basin's berm and will serve as the emergency overflow path. Storm events greater than the major (100-year) storm event will pass through the spillway and flow undetained in W 53rd Place and to Design Point 2.

The sizing and calculation for the design of the outlet structure was completed by utilizing the MHFD-Detention, Version 4.06 (July 2022), DETENTION BASIN OUTLET STRUCTURE DESIGN spreadsheet. This spreadsheet is included with Appendix C. The pond design as well as the details of the outlet structure, forebay, micropool, and emergency overflow spillway, is included within Appendix E.

Table 6 below summarizes the impact the proposed Tract A detention basin will have on Design Point 2.

Table 6. Design Point 2 Detention Basin

	Pre-Development	Post-Development (No Det. Basin)	Post-Development (With Det. Basin)
Tributary Area (acres)	2.84	6.98	6.98
Imperviousness (%)	11.3%	53.7%	53.7%
Q₅ (cfs)	0.34	7.79	0.29
Q₁₀₀ (cfs)	2.71	22.62	2.49

5.0 CONCLUSION

This report and the proposed drainage design for the overall Parcel A is in compliance with the Adams County DSR, the MHFD Criteria Manuals, existing drainage patterns, floodplain regulations, and all other applicable state and federal regulations.

More than 80% of the proposed project area will be directed to the proposed extended detention basin. This facility will provide runoff attenuation and treatment for the overall parcel's WQCV, minor storm event, and major storm event. The outlet structure will drain the WQCV within 40 hours and release the minor and major storm events at or below their maximum allowable rates. The pond spillway will allow for greater volumes to safely overflow offsite and undetained into the adjacent roadways.

Any runoff that is not directed to the detention basin will flow offsite and match the existing regional drainage patterns. As the total amount of offsite runoff has been greatly reduced through the development of the site, there are no expected adverse impacts to the existing storm sewer inlets, public roadways, or the regional historic drainage patterns.

6.0 REFERENCES

Adams County Development Standards and Regulations, Adams County, dated December 8, 2020

Urban Storm Drainage Criteria Manual, Volumes 1, 2, & 3, Mile High Flood District, dated January 2016

Report of Geotechnical Exploration, Kum & Go #2294, Olsson, dated September 1, 2022

MHFD-Detention, Version 4.06, Mile High Flood District, July 2022

APPENDIX A

MAPS

- Vicinity
- Existing Drainage Basin
- Proposed Drainage Basin

5200 SHERIDAN MINOR SUBDIVISION PLAT

VICINITY MAP





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ARVADA, COLORADO
ADAMS COUNTY

DATE	REVISION	BY

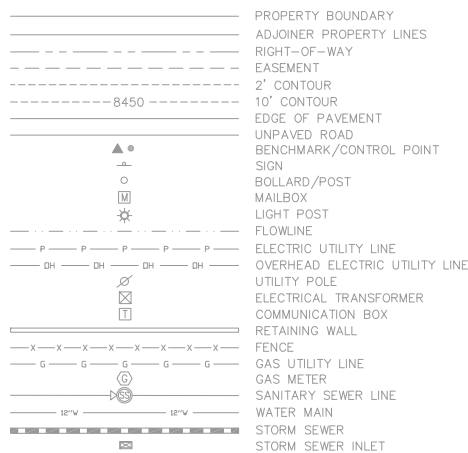
VICINITY MAP

SCALE: AS NOTED

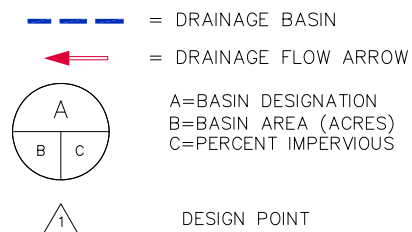
5200 SHERIDAN MINOR SUBDIVISION PLAT

EXISTING DRAINAGE BASIN MAP

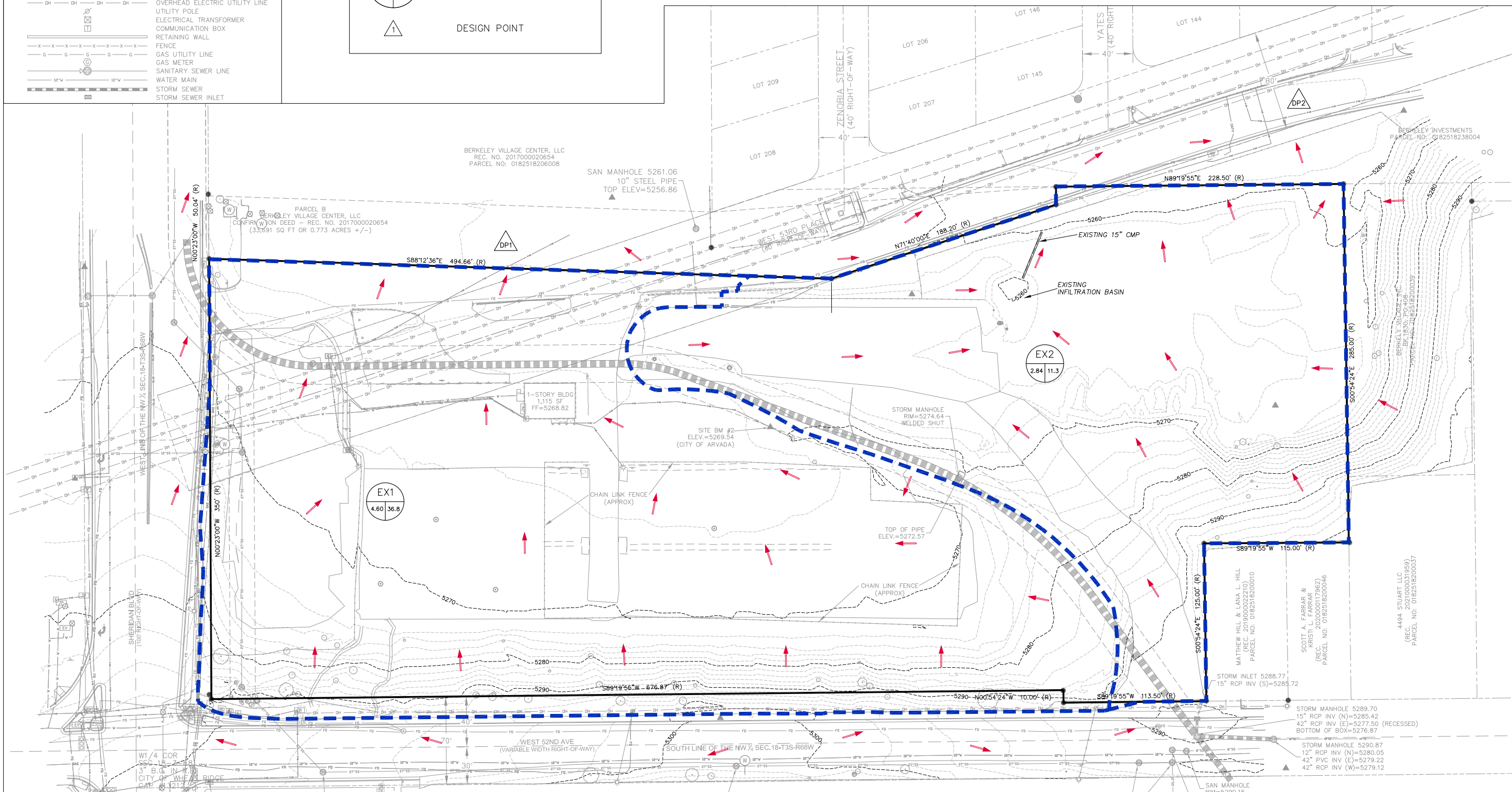
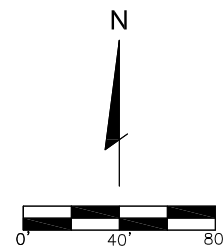
LEGEND (EXISTING)



LEGEND



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EXISTING DRAINAGE
BASIN MAP

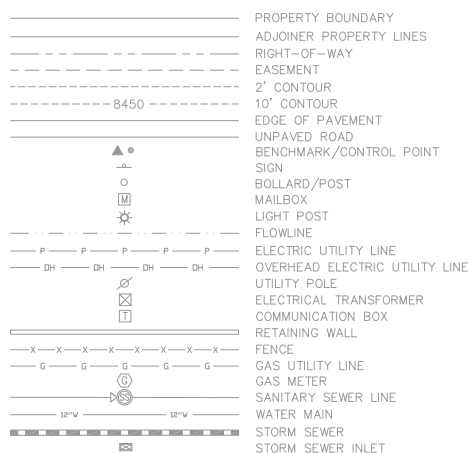
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DP 1

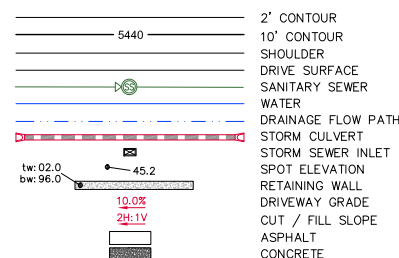
5200 SHERIDAN MINOR SUBDIVISION PLAT

PROPOSED DRAINAGE BASIN MAP

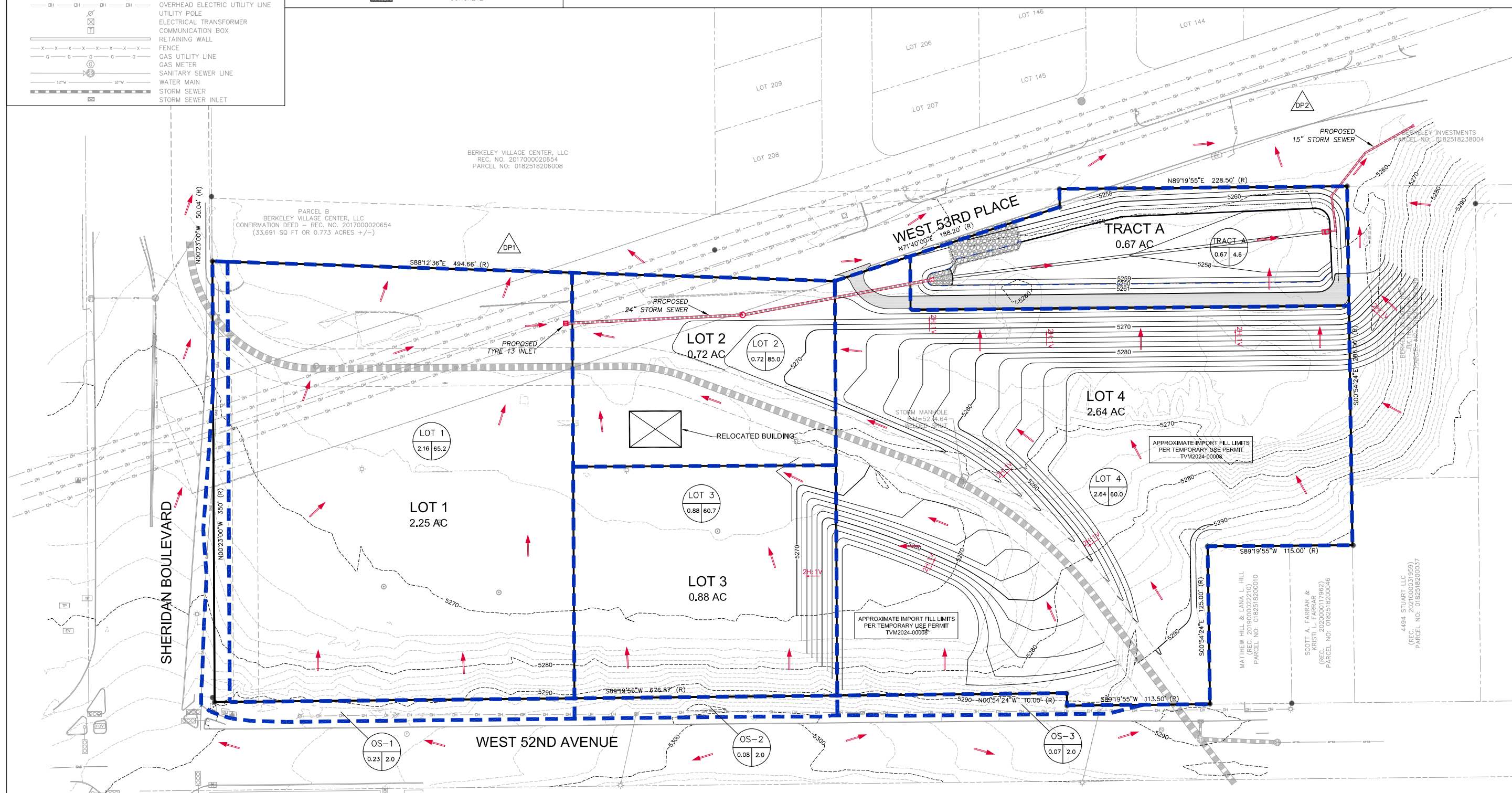
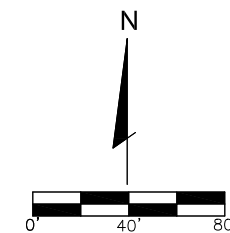
LEGEND (EXISTING)



LEGEND (PROPOSED)



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PROPOSED DRAINAGE
BASIN MAP

SCALE: AS NOTED

DP 2

APPENDIX B

HYDROLOGIC CALCULATIONS

- NOAA Point Precipitation Frequency Estimates
- Impervious Calculations
- Runoff Calculations



NOAA Atlas 14, Volume 8, Version 2
Location name: Arvada, Colorado, USA*
Latitude: 39.7918°, Longitude: -105.0521°
Elevation: 5270 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffrey Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps & aerals](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.204 (0.158-0.264)	0.255 (0.197-0.329)	0.343 (0.265-0.444)	0.422 (0.324-0.548)	0.540 (0.405-0.732)	0.638 (0.466-0.871)	0.743 (0.524-1.03)	0.855 (0.579-1.21)	1.01 (0.660-1.47)	1.14 (0.722-1.66)
10-min	0.299 (0.232-0.386)	0.373 (0.289-0.481)	0.502 (0.388-0.650)	0.618 (0.475-0.803)	0.791 (0.593-1.07)	0.935 (0.683-1.28)	1.09 (0.768-1.51)	1.25 (0.848-1.78)	1.48 (0.967-2.15)	1.67 (1.06-2.43)
15-min	0.365 (0.283-0.471)	0.454 (0.352-0.587)	0.612 (0.473-0.792)	0.754 (0.579-0.979)	0.965 (0.723-1.31)	1.14 (0.832-1.56)	1.33 (0.936-1.84)	1.53 (1.03-2.17)	1.81 (1.18-2.62)	2.03 (1.29-2.97)
30-min	0.516 (0.400-0.665)	0.640 (0.495-0.826)	0.858 (0.662-1.11)	1.05 (0.809-1.37)	1.34 (1.01-1.82)	1.59 (1.16-2.16)	1.84 (1.30-2.56)	2.12 (1.44-3.00)	2.50 (1.63-3.63)	2.81 (1.78-4.11)
60-min	0.639 (0.495-0.824)	0.791 (0.613-1.02)	1.06 (0.818-1.37)	1.30 (0.999-1.69)	1.66 (1.24-2.25)	1.96 (1.43-2.67)	2.27 (1.60-3.16)	2.61 (1.77-3.71)	3.09 (2.02-4.48)	3.47 (2.20-5.07)
2-hr	0.762 (0.598-0.972)	0.943 (0.739-1.20)	1.26 (0.986-1.61)	1.55 (1.20-1.99)	1.97 (1.50-2.64)	2.33 (1.72-3.14)	2.70 (1.93-3.71)	3.11 (2.13-4.36)	3.68 (2.43-5.27)	4.13 (2.65-5.96)
3-hr	0.827 (0.653-1.05)	1.02 (0.806-1.29)	1.36 (1.07-1.73)	1.67 (1.31-2.13)	2.13 (1.62-2.83)	2.51 (1.87-3.36)	2.91 (2.09-3.97)	3.35 (2.31-4.66)	3.96 (2.63-5.63)	4.45 (2.87-6.37)
6-hr	0.986 (0.788-1.23)	1.21 (0.963-1.51)	1.59 (1.27-2.00)	1.94 (1.54-2.44)	2.46 (1.90-3.23)	2.89 (2.18-3.82)	3.35 (2.44-4.51)	3.85 (2.69-5.29)	4.54 (3.05-6.38)	5.10 (3.33-7.20)
12-hr	1.23 (0.993-1.52)	1.48 (1.20-1.83)	1.93 (1.56-2.39)	2.33 (1.87-2.90)	2.93 (2.29-3.79)	3.42 (2.61-4.46)	3.95 (2.90-5.24)	4.51 (3.18-6.11)	5.30 (3.60-7.34)	5.93 (3.92-8.27)
24-hr	1.50 (1.23-1.84)	1.81 (1.48-2.21)	2.34 (1.90-2.86)	2.80 (2.27-3.44)	3.48 (2.74-4.42)	4.03 (3.10-5.16)	4.60 (3.42-6.02)	5.22 (3.72-6.97)	6.07 (4.17-8.28)	6.75 (4.51-9.28)
2-day	1.77 (1.47-2.13)	2.13 (1.76-2.56)	2.73 (2.26-3.30)	3.25 (2.67-3.94)	4.00 (3.18-4.99)	4.59 (3.56-5.79)	5.20 (3.90-6.68)	5.83 (4.20-7.66)	6.70 (4.65-9.00)	7.38 (4.98-10.0)
3-day	1.92 (1.61-2.30)	2.30 (1.92-2.75)	2.93 (2.43-3.51)	3.47 (2.87-4.17)	4.23 (3.39-5.25)	4.84 (3.79-6.06)	5.47 (4.14-6.98)	6.13 (4.45-7.99)	7.02 (4.90-9.35)	7.72 (5.25-10.4)
4-day	2.04 (1.72-2.43)	2.42 (2.03-2.88)	3.06 (2.56-3.65)	3.61 (3.00-4.32)	4.39 (3.54-5.42)	5.02 (3.95-6.25)	5.66 (4.30-7.18)	6.33 (4.62-8.20)	7.24 (5.09-9.60)	7.96 (5.44-10.7)
7-day	2.34 (1.98-2.75)	2.73 (2.31-3.22)	3.39 (2.86-4.00)	3.96 (3.33-4.69)	4.77 (3.88-5.82)	5.42 (4.31-6.67)	6.08 (4.68-7.64)	6.78 (5.00-8.69)	7.73 (5.48-10.1)	8.47 (5.85-11.2)
10-day	2.61 (2.23-3.05)	3.02 (2.57-3.53)	3.70 (3.15-4.34)	4.29 (3.62-5.04)	5.12 (4.19-6.19)	5.78 (4.62-7.06)	6.46 (5.00-8.05)	7.17 (5.32-9.12)	8.13 (5.80-10.6)	8.88 (6.17-11.7)
20-day	3.41 (2.95-3.93)	3.88 (3.36-4.48)	4.66 (4.02-5.40)	5.32 (4.55-6.17)	6.23 (5.16-7.40)	6.94 (5.61-8.34)	7.65 (5.99-9.38)	8.38 (6.29-10.5)	9.36 (6.76-12.0)	10.1 (7.11-13.1)
30-day	4.06 (3.54-4.64)	4.62 (4.02-5.28)	5.52 (4.79-6.33)	6.26 (5.40-7.21)	7.28 (6.06-8.56)	8.05 (6.56-9.57)	8.82 (6.94-10.7)	9.59 (7.24-11.9)	10.6 (7.69-13.4)	11.3 (8.04-14.6)
45-day	4.84 (4.25-5.50)	5.54 (4.85-6.29)	6.64 (5.80-7.56)	7.53 (6.55-8.60)	8.72 (7.30-10.1)	9.61 (7.87-11.3)	10.5 (8.29-12.6)	11.3 (8.59-13.9)	12.4 (9.05-15.5)	13.2 (9.40-16.8)
60-day	5.48 (4.84-6.19)	6.31 (5.56-7.13)	7.62 (6.70-8.62)	8.66 (7.57-9.84)	10.0 (8.43-11.6)	11.0 (9.08-12.9)	12.0 (9.54-14.3)	12.9 (9.86-15.7)	14.1 (10.3-17.5)	14.9 (10.7-18.9)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).
 Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.
 Please refer to NOAA Atlas 14 document for more information.

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PF graphical

AREA WEIGHTED IMPERVIOUSNESS VALUES
24-035 5200 Sheridan Minor Subdivision Plat

EXISTING BASINS

Basin Name	Basin Description	Soil Type	Paved 100% (acres)	Building 90% (acres)	Gravel 40% (acres)	Lawn 2% (acres)	Total Area (acres)	Percent Impervious
EX1	DP1 - Existing	A	0.85	0.03	1.96	1.76	4.60	36.9%
EX2	DP2 - Existing	A	0.01		0.67	2.16	2.84	11.3%
Total			0.86	0.03	2.63	3.92	7.44	27.1%

MAJOR BASINS

Basin Name	Basin Description	Soil Type	Paved 100% (acres)	Building 90% (acres)	Gravel 40% (acres)	Lawn 2% (acres)	Lot 2 85% (acres)	Lot 3 90% (acres)	Lot 4 60% (acres)	Total Area (acres)	Percent Impervious
LOT 1	Future Site (1)	A	1.15	0.27		0.74				2.16	65.2%
LOT 2	Future Site (2)	A					0.72			0.72	85.0%
LOT 3	Future Site (3)	A				0.29		0.59		0.88	61.0%
LOT 4	Future Site (2)	A							2.64	2.64	60.0%
TRACT A	Detention Basin	A	0.02			0.64				0.66	5.0%
Total			1.17	0.27	-	1.67	0.72	0.59	2.64	7.06	59.1%

(1) Values for Lot 1 are based on a previous Convenience Store / Gas Station Design

(2) Values for Lots 2 and 4 are assumed based on each lots future build-out condition

(3) Values for Lot 3 are assumed based on a buildable area of 2/3 of the lot at 90%

OFF-SITE BASINS

Basin Name	Basin Description	Soil Type	Paved 100% (acres)	Building 90% (acres)	Gravel 40% (acres)	Lawn 2% (acres)	Lot 2 85% (acres)	Lot 3 90% (acres)	Lot 4 60% (acres)	Total Area (acres)	Percent Impervious
OS-1	Off-Site to LOT 1	A				0.23				0.23	2.0%
OS-2	Off-Site to LOT 2	A				0.08				0.08	2.0%
OS-3	Off-Site to LOT 3	A				0.07				0.07	2.0%
Total			-	-	-	0.38	-	-	-	0.38	2.0%

MASTER BASINS

Basin Name	Basin Description	Soil Type	Paved 100% (acres)	Building 90% (acres)	Gravel 40% (acres)	Lawn 2% (acres)	Lot 2 85% (acres)	Lot 3 90% (acres)	Lot 4 60% (acres)	Total Area (acres)	Percent Impervious
DP1	DP1 - Proposed	A	0.43			0.03				0.46	93.6%
DP2	DP2 - Proposed	A	0.74	0.27	-	2.02	0.72	0.59	2.64	6.98	53.7%
Total			1.17	0.27	-	2.05	0.72	0.59	2.64	7.44	56.2%

Table 6-3. Recommended percentage imperviousness values

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

Location: 5200 Sheridan Blvd, Arvada, CO

Cells of this color are for calculated results based on overrides

$$t_t = \frac{L_t}{60K_2\sqrt{S_t}} = \frac{L_t}{60V_t}$$

Regional $t_c = (26 - 17i) +$

Subcatchment Name	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C							Overland (Initial) Flow Time				
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	Overland Flow Length L _i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S _i (ft/ft)	Overland Flow Time t _i (min)
EX1	4.60	A	36.9	0.23	0.24	0.26	0.29	0.34	0.40	0.49	300			0.0625	14.67
EX2	2.84	A	11.3	0.05	0.05	0.06	0.08	0.12	0.20	0.33	300			0.0700	17.22
LOT 1	2.16	A	65.2	0.48	0.50	0.52	0.55	0.58	0.62	0.67	150			0.1315	5.68
LOT 2	0.72	A	85.0	0.68	0.70	0.71	0.74	0.75	0.77	0.80	65			0.0225	4.46
LOT 3	0.88	A	61.0	0.44	0.46	0.47	0.51	0.55	0.59	0.65	180			0.1067	7.12
LOT 4	2.64	A	60.0	0.43	0.45	0.47	0.50	0.54	0.58	0.64	170			0.0650	8.27
TRACT A	0.66	A	5.0	0.02	0.02	0.02	0.03	0.07	0.15	0.29	32			0.0800	5.56
DP1	0.46	A	93.6	0.77	0.79	0.80	0.82	0.82	0.84	0.86	105.00			0.058	3.20
DP2	6.98	A	53.7	0.37	0.39	0.41	0.44	0.48	0.53	0.60	150.00			0.132	6.71

APPENDIX C

HYDRAULIC CALCULATIONS

- Maximum Allowable Release Rate
- Extended Detention Basin Sizing Calculations
- Storm Sewer Sizing Calculations
 - Storm Sewer 1 – EDB Outlet Pipe (15")
 - Storm Sewer 2 – Storm Sewer Pipe to EDB (24")
- Forebay Design

EXTENDED DETENTION BASIN - MAXIMUM ALLOWABLE RELEASE RATE
24-035 5200 Sheridan Minor Subdivision Plat

The release rate from the detention basin shall be the lesser of the two following methods

1. As defined by the Adams County DSR
2. The existing, pre-development flow rate at the downstream confluence point (DP2)

Method 1:

9-01-11-02 MAXIMUM ALLOWABLE RELEASE RATE

The maximum allowable release rates for the corresponding storm events (5 and 100-year) are as presented in Table 9.16.

Table 9.16—Allowable Release Rates (CFS/Acre)

Control Frequency	Dominant Soil Group		
	A	B	C & D
5-year	0.07	0.13	0.17
100-year	0.50	0.85	1.00

Total Tributary Area: 6.98 acres - represented by Master Basin DP2

5-Year: $0.07 \text{ cfs/acre} \times 6.98 = \mathbf{0.49 \text{ cfs}}$

100-Year: $0.50 \text{ cfs/acre} \times 6.98 = \mathbf{3.49 \text{ cfs}}$

Method 2:

Subcatchment Name	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Peak Flow, Q (cfs)						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
EX1	4.60	A	36.9	1.91	2.70	3.51	5.05	7.04	9.52	16.04
EX2	2.84	A	11.3	0.23	0.34	0.47	0.76	1.44	2.71	6.09

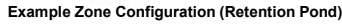
Conclusion:

5-Year Storm Maximum Allowable Release Rate: **0.34 cfs**

100-Year Storm Maximum Allowable Release Rate: **2.71 cfs**

MHFD-Detention, Version 4.06 (July 2022)

Basin ID: Tract A Extended Detention Basin



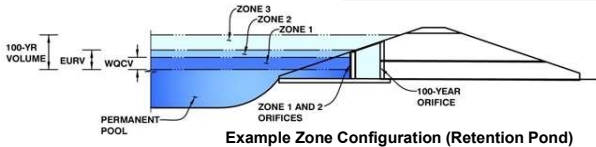
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DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: **5200 Sheridan Minor Subdivision Plat**

Basin ID: **Tract A Extended Detention Basin**



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	1.31	0.126	Orifice Plate
Zone 2 (5-year)	1.82	0.138	Circular Orifice
Z3 (100+1/2WQCV)	3.15	0.419	Weir&Pipe (Restrict)
Total (all zones)		0.683	

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

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

Calculated Parameters for Underdrain

Underdrain Orifice Area = ft²
Underdrain Orifice Centroid = feet

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

Centroid of Lowest Orifice = ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Orifice Plate = ft (relative to basin bottom at Stage = 0 ft)
Orifice Plate: Orifice Vertical Spacing = inches
Orifice Plate: Orifice Area per Row = sq. inches (diameter = 7/8 inch)

Calculated Parameters for Plate

WQ Orifice Area per Row = ft²
Elliptical Half-Width = feet
Elliptical Slot Centroid = feet
Elliptical Slot Area = ft²

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

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	0.33	0.67					
Orifice Area (sq. inches)	0.58	0.58	0.58					

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

User Input: Vertical Orifice (Circular or Rectangular)

Invert of Vertical Orifice = ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice = ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter = inches

Calculated Parameters for Vertical Orifice

Vertical Orifice Area = ft²
Vertical Orifice Centroid = feet

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

Overflow Weir Front Edge Height, H_o = ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length = feet
Overflow Weir Grate Slope = H:V
Horiz. Length of Weir Sides = feet
Overflow Grate Type =
Debris Clogging % = %

Calculated Parameters for Overflow Weir

Height of Grate Upper Edge, H_u = feet
Overflow Weir Slope Length = feet
Grate Open Area / 100-yr Orifice Area =
Overflow Grate Open Area w/o Debris = ft²
Overflow Grate Open Area w/ Debris = ft²

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

Depth to Invert of Outlet Pipe = ft (distance below basin bottom at Stage = 0 ft)
Outlet Pipe Diameter = inches
Restrictor Plate Height Above Pipe Invert = inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

Outlet Orifice Area = ft²
Outlet Orifice Centroid = feet
Half-Central Angle of Restrictor Plate on Pipe = radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

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

Calculated Parameters for Spillway

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

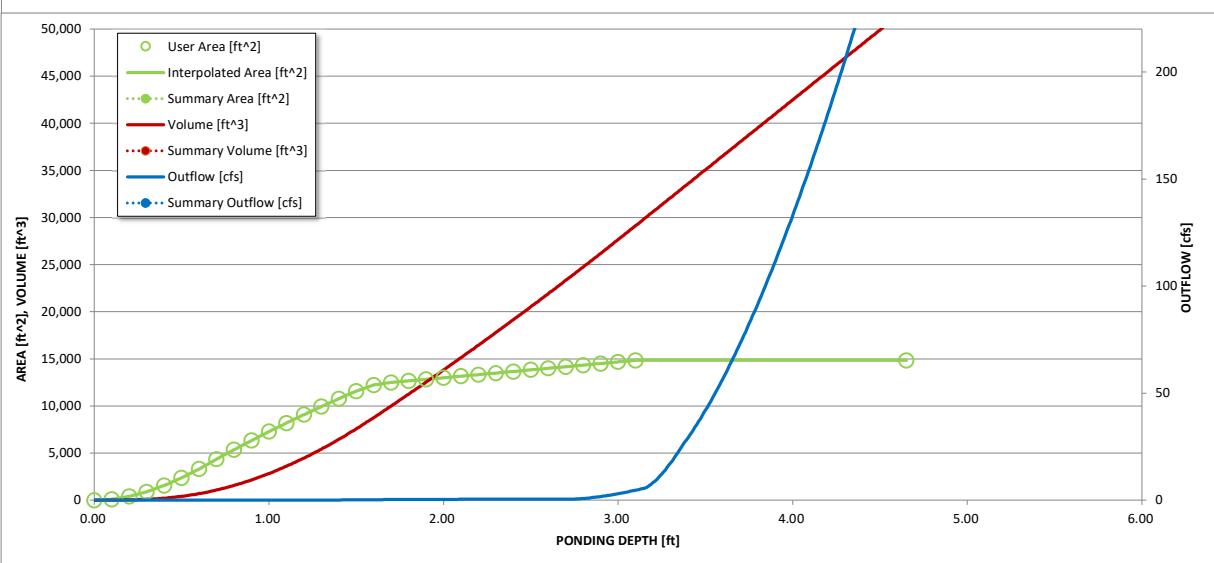
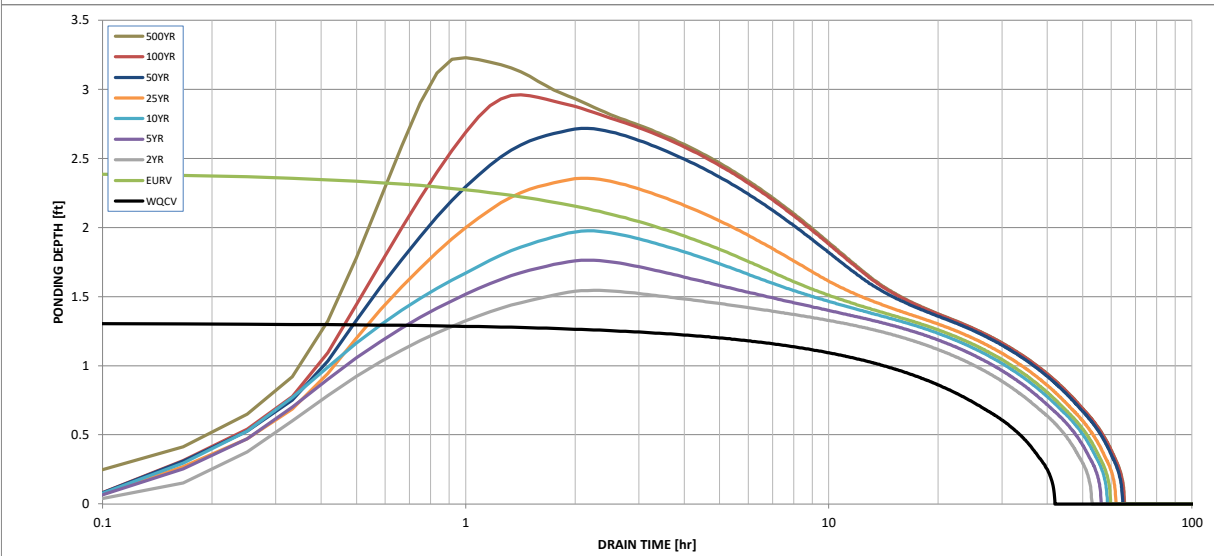
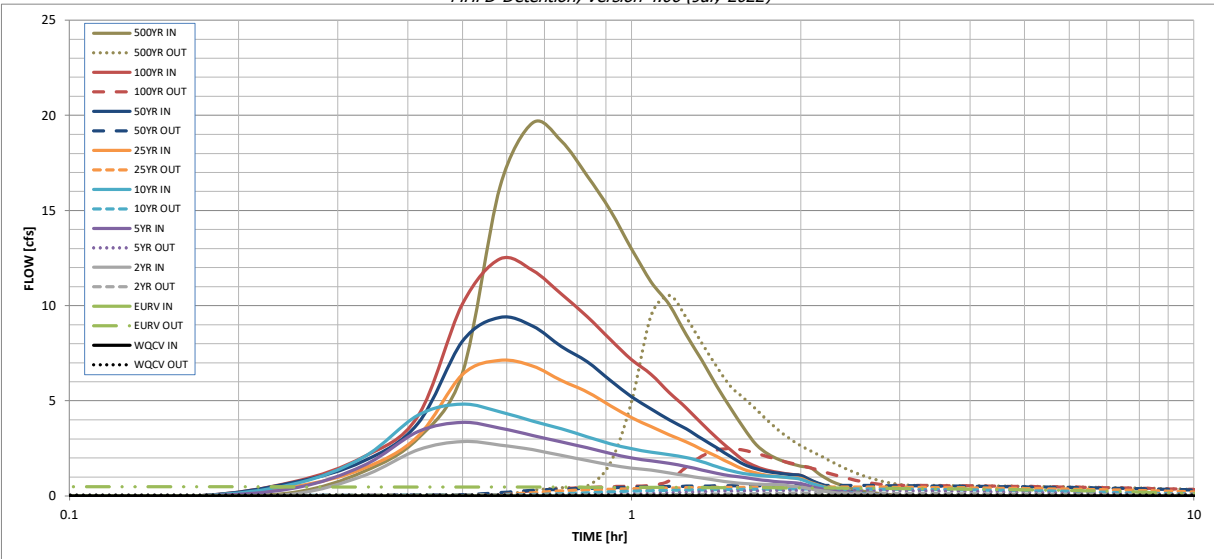
Routed Hydrograph Results

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

	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
Design Storm Return Period =									
One-Hour Rainfall Depth (in) =	N/A	N/A	0.79	1.06	1.30	1.66	1.96	2.27	3.09
CUHP Runoff Volume (acre-ft) =	0.126	0.441	0.204	0.282	0.357	0.489	0.617	0.783	1.217
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	0.204	0.282	0.357	0.489	0.617	0.783	1.217
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	0.0	0.0	0.1	0.1	1.0	2.7	6.7
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.00	0.00	0.01	0.02	0.14	0.38	0.95
Peak Inflow Q (cfs) =	N/A	N/A	2.87	3.86	4.83	7.13	9.38	12.45	19.61
Peak Outflow Q (cfs) =	0.06	0.49	0.16	0.29	0.37	0.48	0.56	2.49	10.54
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	15.8	6.9	3.4	0.6	0.9	1.6
Structure Controlling Flow =	Vertical Orifice 1	Vertical Orifice 1	Vertical Orifice 1	Vertical Orifice 1	Vertical Orifice 1	Vertical Orifice 1	Vertical Orifice 1	Overflow Weir 1	Spillway
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.3	1.0
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	37	50	47	49	50	51	52	50	46
Time to Drain 99% of Inflow Volume (hours) =	40	55	50	53	54	56	58	58	56
Maximum Ponding Depth (ft) =	1.31	2.41	1.55	1.76	1.98	2.36	2.72	2.96	3.23
Area at Maximum Ponding Depth (acres) =	0.23	0.31	0.27	0.29	0.30	0.31	0.33	0.34	0.34
Maximum Volume Stored (acre-ft) =	0.127	0.443	0.185	0.247	0.308	0.424	0.539	0.621	0.713

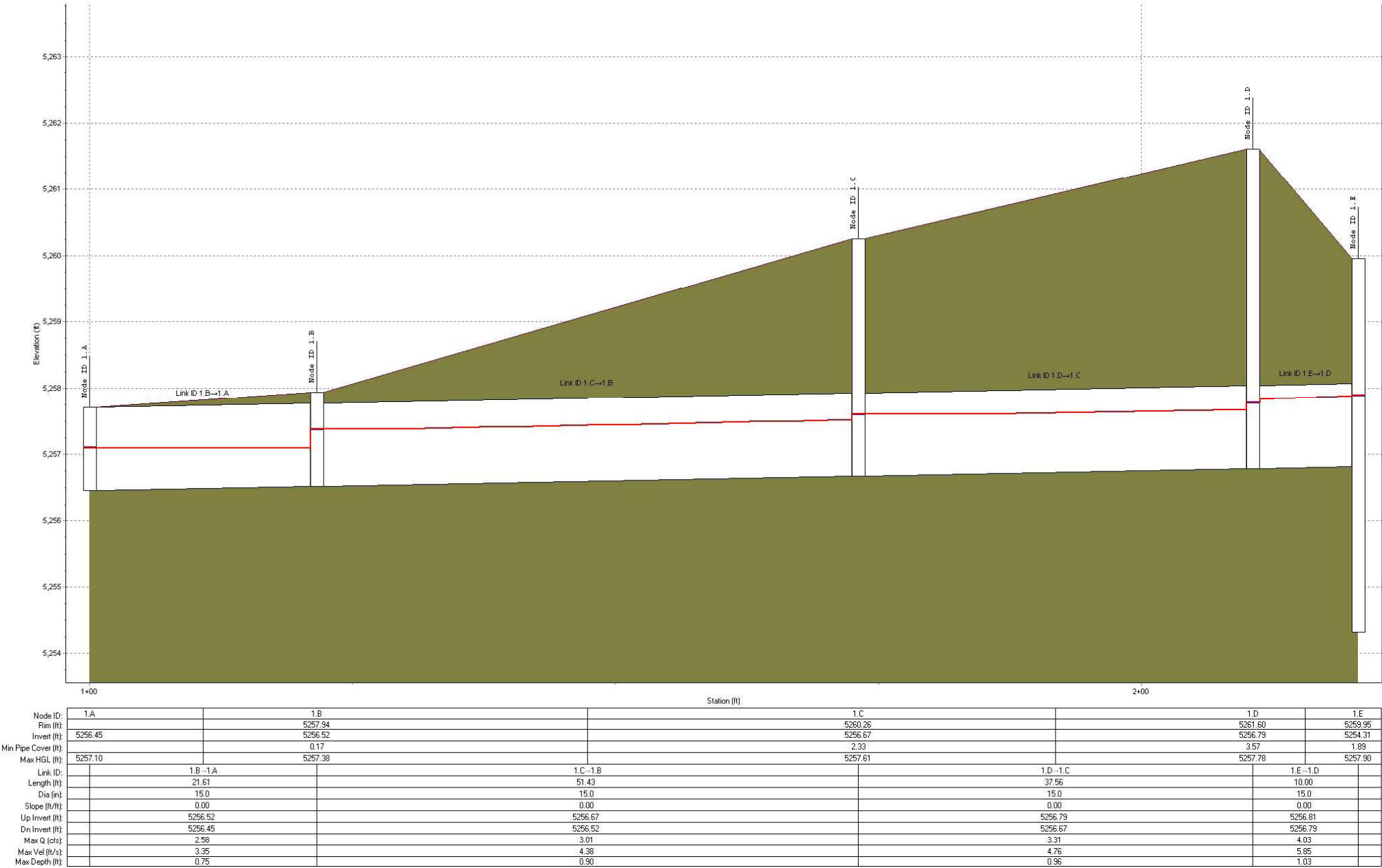
DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

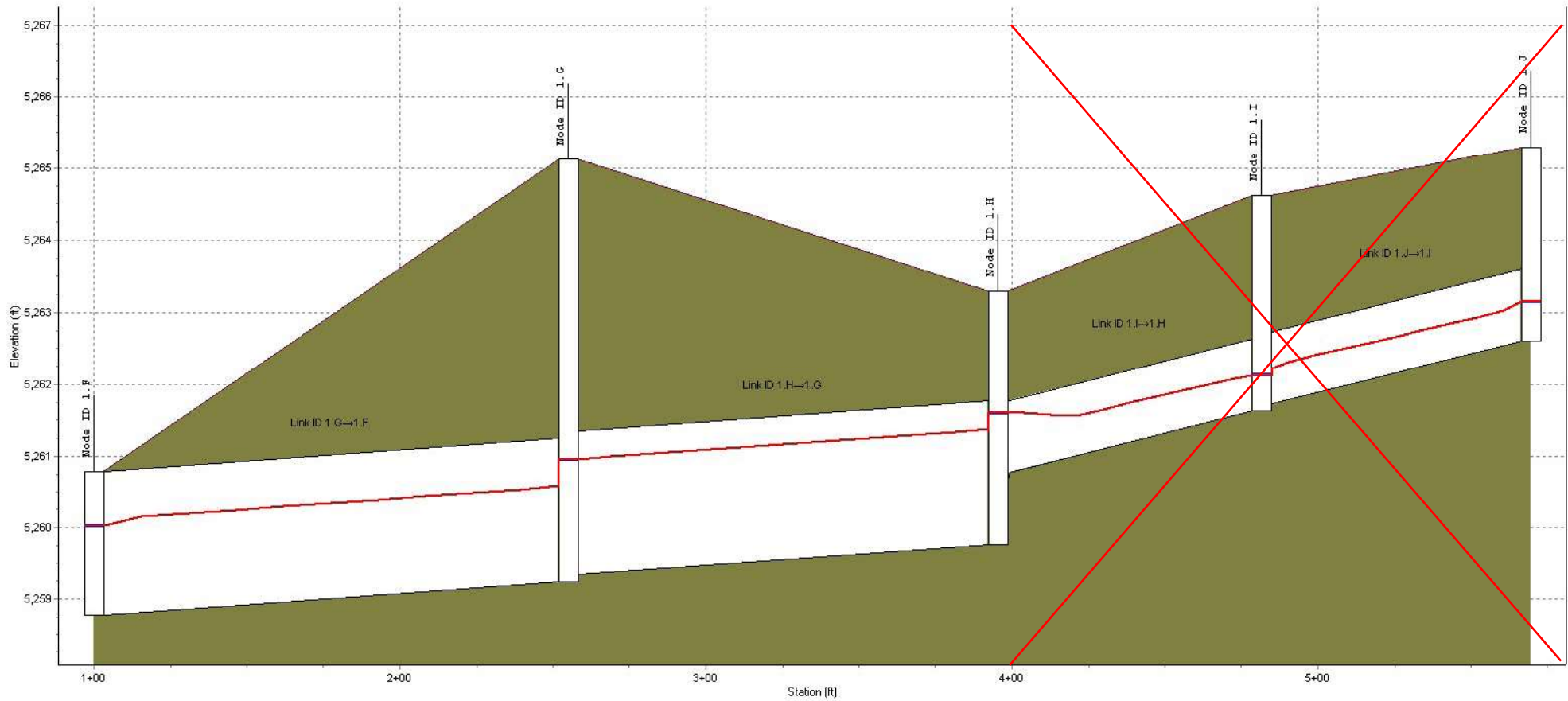


S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

Storm Sewer 1 - EDB Outlet Pipe



Storm Sewer 2 - Storm Sewer Pipe to EDB



Node ID:	1.F	1.G	1.H	1.I	1.J
Rim (ft):		5265.13	5263.30	5264.62	5265.29
Invert (ft):	5258.78	5259.25	5259.77	5261.63	5262.61
Min Pipe Cover (ft):		3.78	1.53	1.89	1.68
Max HGL (ft):	5260.03	5260.95	5261.60	5262.13	5263.15
Link ID:	1.G-1.F	1.H-1.G	1.I-1.H	1.J-1.I	
Length (ft):	154.84	140.64	86.08	87.96	
Dia (in):	24.0	24.0	12.0	12.0	
Slope (ft/ft):	0.00	0.00	0.01	0.01	
Up Invert (ft):	5259.25	5259.77	5261.63	5262.61	
Dn Invert (ft):	5258.78	5259.35	5260.77	5261.73	
Max Q (cfs):	12.10	12.19	1.82	1.81	
Max Vel (ft/s):	4.86	4.29	4.23	4.50	
Max Depth (ft):	1.48	1.72	0.66	0.51	

FOREBAY DESIGN

24-035 5200 Sheridan Minor Subdivision Plat

Forebay Design:

Per MFHD USDCM Volume 3, Chapter 4, Treatment BMP Fact Sheets: T-5 Extended Detention Basin

The forebay must have a minimum volume of 2% of the WQCV, have a maximum depth of 18 inches, and must release the volume at 2% of the undetained 100-year discharge:

$$0.02 * 0.128 \text{ ac-ft} = 0.00256 \text{ ac-ft} = \mathbf{111.5 \text{ cu. ft.}}$$

$$0.02 * 12.08 \text{ cfs (FES 1.F Outflow)} = \mathbf{0.24 \text{ cfs}}$$

Assuming a 15 inch tall wall;

$$Q = C_o A \sqrt{2gh}$$

$$A = \pi r^2$$

$$A = \pi r^2 = \frac{Q}{C_o \sqrt{2gh}}$$

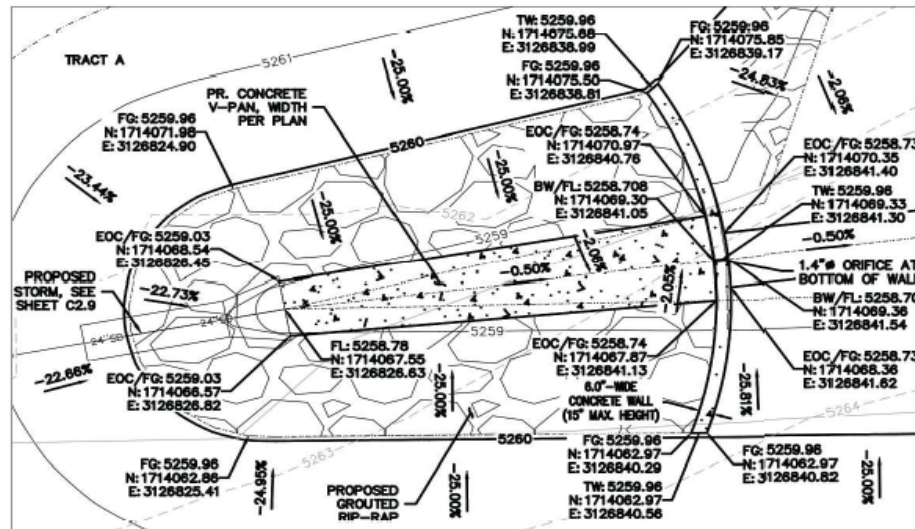
$$r = \sqrt{\frac{Q}{\pi C_o \sqrt{2gh}}}$$

Where: Q = Discharge, cfs
C_o = Orifice coefficient, dimensionless
A = Cross-sectional area of orifice, ft²
g = Gravitational constant (32.2 ft/sec²)
H = Effective head, ft
r = Orifice radius, ft

$$r = \sqrt{\frac{0.24 \text{ cfs}}{\pi * 0.61 * \sqrt{2 * 32.2 \frac{\text{ft}}{\text{sec}^2} * 1.25 \text{ ft}}}}$$

$$= 0.12 \text{ ft} = 1.4 \text{ in}$$

FOREBAY STAGE STORAGE		
ELEVATION	AREA (sq. ft.)	VOLUME (cu. ft.)
5258.71	0.03	0.00
5258.80	27.39	0.85
5258.90	39.46	4.17
5259.00	52.05	8.73
5259.10	65.15	14.58
5259.20	78.75	21.77
5259.30	92.86	30.34
5259.40	107.48	40.35
5259.50	122.60	51.84
5259.60	138.23	64.88
5259.70	154.36	79.50
5259.80	171.00	95.76
5259.90	188.14	113.71
5259.96	198.67	125.31



DETENTION BASIN FOREBAY
NOT TO SCALE

APPENDIX D

REFERENCED INFORMATION

- CCD Storm Drainage Master Plan
- NRCS Soils
- FEMA FIRMette Panel

4.6 CLEAR CREEK

MAJOR DRAINAGEWAY NUMBER 4300

WATERSHED DESCRIPTION: Clear Creek is a west bank tributary to the South Platte River, and has its source in the Rocky Mountains west of Denver. Flowing in a generally easterly direction from the Continental Divide, Clear Creek enters the high plains in Golden. Within this lower reach, Clear Creek passes through unincorporated areas of Adams and Jefferson Counties, and the cities of Golden, Wheatridge, Arvada and Denver. Clear Creek crosses the northwest corner of Denver for a distance of 0.2 miles in the vicinity of 52nd Avenue and Gray Street.

The drainage area at the mouth is 575 square miles, of which 400 square miles are in the mountain region above Golden. There are 11 major reservoirs in the lower Clear Creek basin, three of which are on-stream and provide some residual flood control effects downstream from each site. Ralston Reservoir was built in 1938 by Denver and receives water from Ralston and South Boulder Creeks. Although Ralston Reservoir is not operated for flood control purposes, there are approximately 2,400 acre-feet of storage available. Maple Grove Reservoir is located on Lena Gulch at West 27th Avenue and has approximately 452 acre-feet of available storage. Leyden Lake is an irrigation water storage reservoir on Leyden Creek upstream from Indiana Street, and has approximately 550 acre-feet of uncontrolled storage.

MAJOR DRAINAGEWAY CHARACTERISTICS

TOTAL TRIBUTARY AREA:
575 Sq. Mi

TRIBUTARY AREA IN DENVER:
2.5 Sq. Mi

MAJOR DRAINAGEWAY LENGTH IN DENVER:
Clear Creek: 0.2 Mi.

DENVER CITY COUNCIL DISTRICTS: 1

JURISDICTION(S) OUTSIDE OF DENVER: Adams County, Lakeside, Mountain View, Wheat Ridge, Jefferson County

KEY POINTS OF INTEREST IN DENVER WATERSHED:
Regis University, Berkley Lake, West Highland

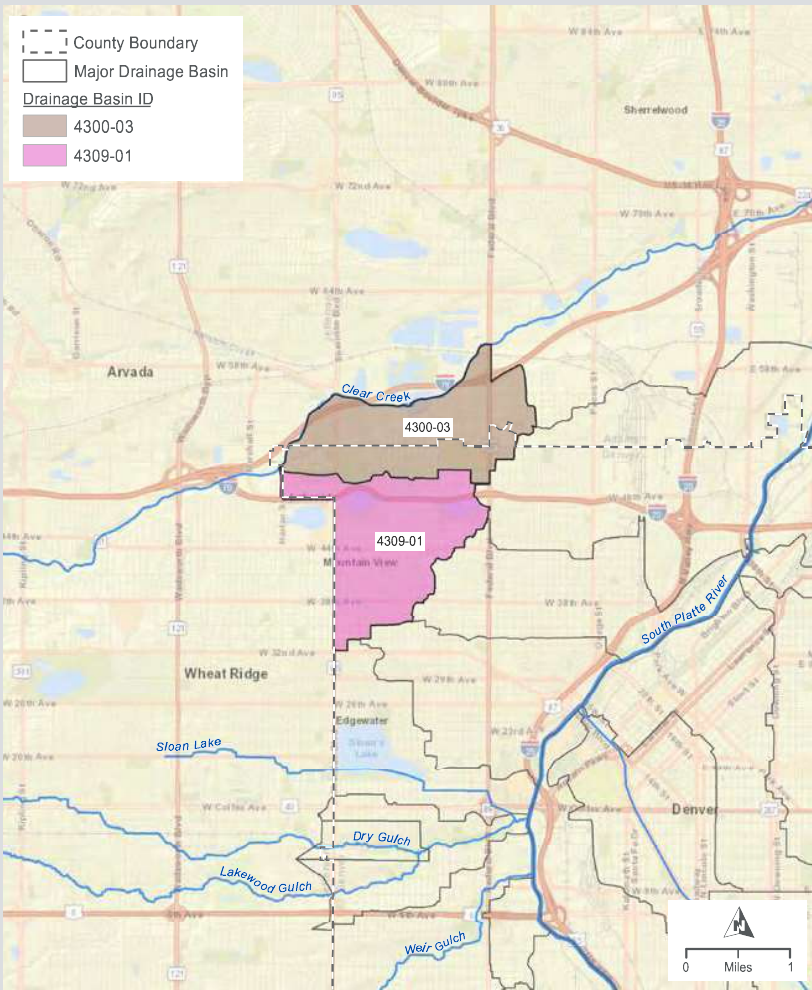


FIGURE 4.7
Major Drainageway Map — Clear Creek

DESCRIPTION / CURRENT SYSTEM

EXISTING SYSTEM: This collection system basin drains to Clear Creek and is generally bound by Regis Boulevard on the south, Clear Creek on the north and west, and Alcott Street on the east. A 60-inch RCP drains into the basin from the south from Basin 4309-01 (Berkeley Lake) and continues through Willis Case Golf Course and then along Sheridan Boulevard to Clear Creek. The southern half of the basin is located within the City and County of Denver and drains to an existing 36-inch system in 52nd Avenue. The northern half is outside of the City and drains to the north into Clear Creek. The majority of the basin is residential, but also includes Regis University and Willis Case Golf Course.

DRAINAGE DEFICIENCIES: The majority of trunk drainage systems within this basin do not meet drainage criteria.

TRANS-BASIN FLOW: Flow enters Basin 4300-03 from Basin 4309-01 at the outlet of Berkley Lake.

RECOMMENDED IMPROVEMENTS

COLLECTION SYSTEM

PROJECT A - N. FEDERAL BLVD. OUTFALL: Replacing the 12-inch pipe in N. Federal Blvd. with a 24-inch line within Denver's jurisdiction will meet drainage criteria. Extending the system to the north into Arvada and the outfall at Clear Creek will require a slightly larger system to be coordinated with the City of Arvada.

PROJECT B - CLEAR CREEK OUTFALL: The existing City and County of Denver storm drain outfall in N. Sheridan Blvd. and along W. 52nd Ave. should be upsized to better convey flows to Clear Creek and meet drainage criteria. A portion of this project is outside the City and County of Denver; however Denver has a 30' wide easement for its existing drain in Sheridan Boulevard on to Clear Creek. Recommended sizes range from 48- to 96-inch RCP along the system.

PROJECT C - W. 52ND AVE. OUTFALL: Upsizing to a 60-inch pipe along W. 52nd Ave. west of Sheridan Blvd. is Recommended outfalling to Clear Creek.

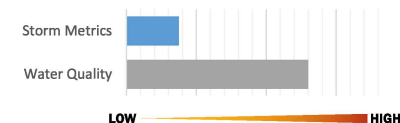


STORM DRAINAGE SYSTEM

EXISTING SYSTEM: 5.6 MI
COLLECTION SYSTEM NEEDS: 2.2 MI



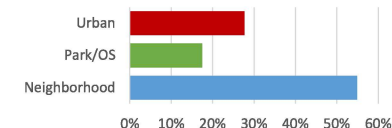
WATER QUALITY & STORM METRICS PRIORITY SCORING*



* Based on Storm Metrics and Stormwater Quality Prioritization reports



FUTURE LAND USE / PROJECTED BUILDOUT



* Based on Blueprint Denver land use



MAJOR DRAINAGEWAY CLEAR CREEK

RECOMMENDED MAJOR DRAINAGE WAY IMPROVEMENTS: YES
100-YEAR FEMA FLOODPLAIN AREA: 2 AC
0% OF BASIN



BASIN LAYOUT & STATISTICS

NEIGHBORHOODS:
Chaffee Park, Regis

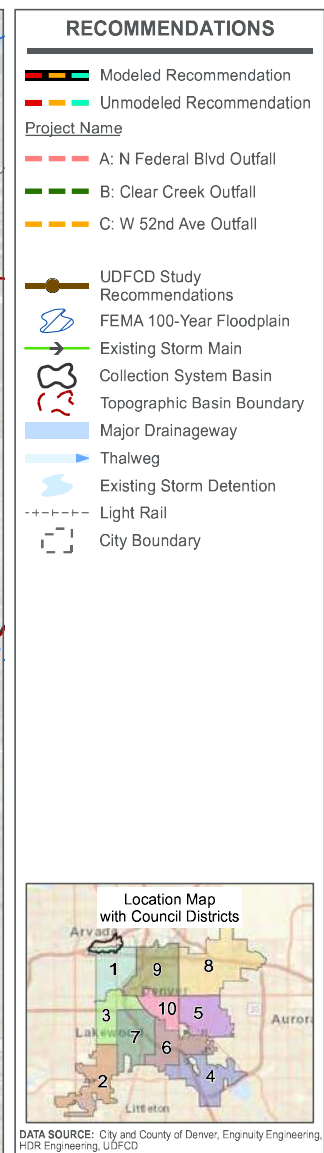
COUNCIL DISTRICT(S): 1
PARK/OS AREA: 103 AC

EXISTING DETENTION:
8 AC

SIZE: 1,147 AC / 1.79 Sq. Mi.
AVERAGE IMPERVIOUS: 50%

PIPE INSTALLATION DATE:
MIN: 1930 MAX: 2017 AVG: 1993







United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Adams County Area, Parts of Adams and Denver Counties, Colorado



August 29, 2022

Custom Soil Resource Report Map—Hydrologic Soil Group



Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DUM	Dumps		5.0	34.7%
Tc	Terrace escarpments	A	6.1	41.6%
TuC	Truckton sandy loam, 3 to 5 percent slopes	A	3.4	23.7%
Totals for Area of Interest			14.5	100.0%

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

National Flood Hazard Layer FIRMeTte



FIRMeTte

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

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) -RCH\$ 9 S
		With BFE or Depth -RCH\$ 2 \$ 9 S
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile -RCH;
		Future Conditions 1% Annual Chance Flood Hazard -RCH;
		Area with Reduced Flood Risk due to Levee, See Notes. -RCH;
		Area with Flood Risk due to Levee -RCH'
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard -RCH;
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard -RCH'
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance
		Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **8/29/2022 at 3:29 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

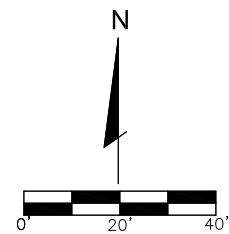
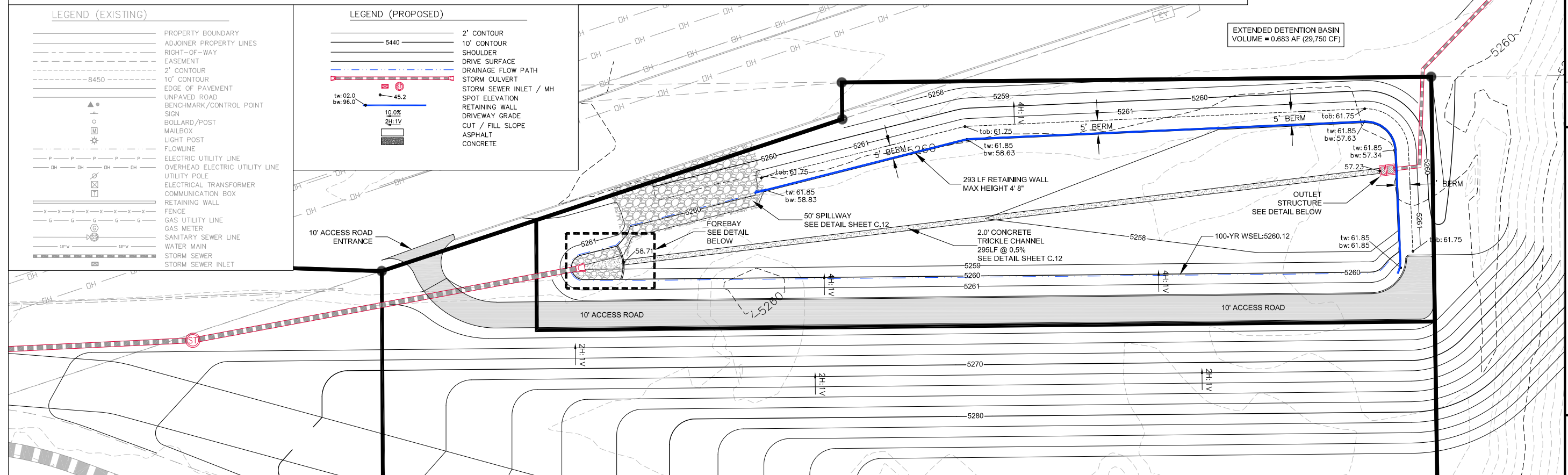
APPENDIX E

DESIGN DRAWINGS

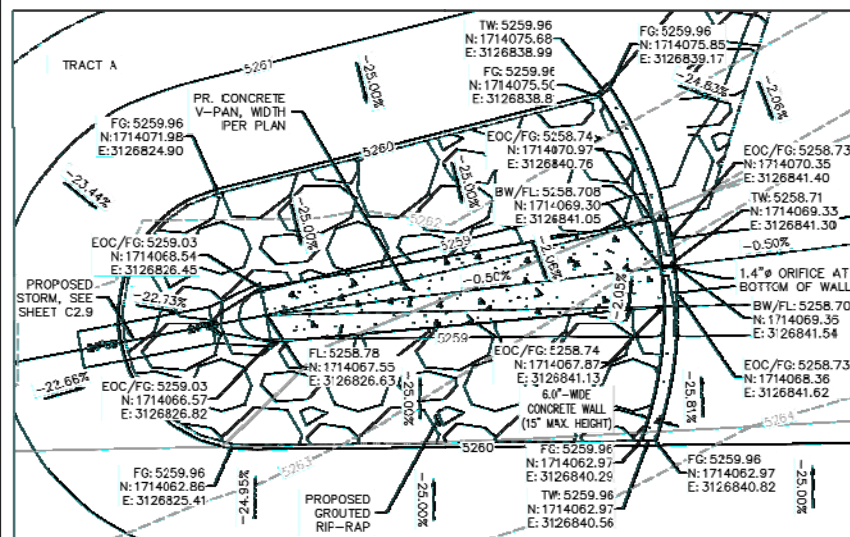
- Extended Detention Basin Plan and Details
- Storm Sewer Plan and Profiles
- EDB and Storm Sewer Details

5200 SHERIDAN MINOR SUBDIVISION PLAT

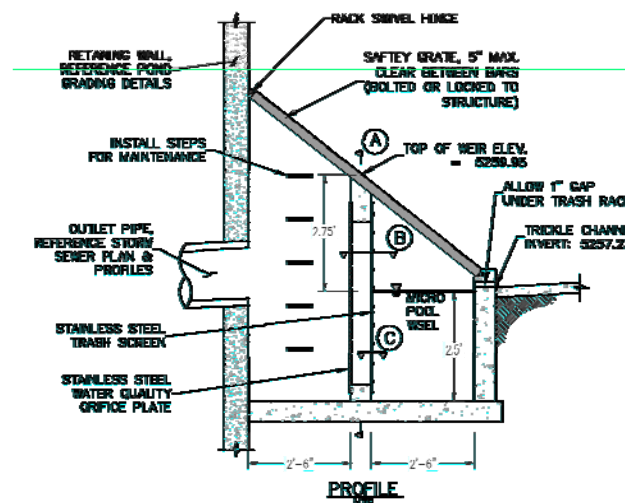
EXTENDED DETENTION BASIN PLAN AND DETAILS



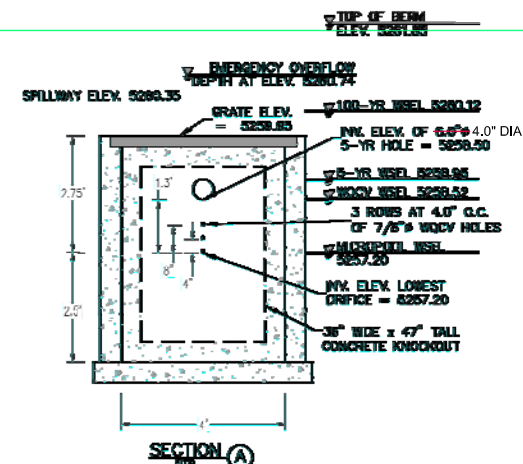
Know what's **below**.
Call before you dig.



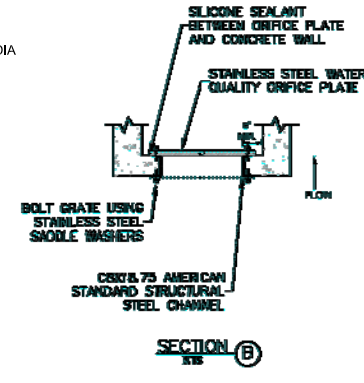
DETENTION BASIN FOREBAY
NOT TO SCALE



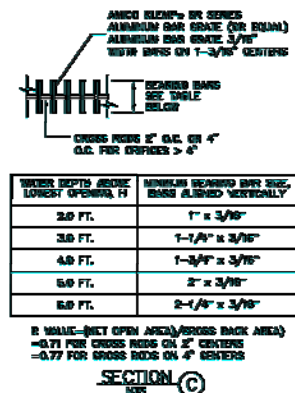
DETENTION POND OUTLET STRUCTURE
NOT TO SCALE



SECTION **(A)**



SECTION 8



SECTION C

NOTE:
CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF OUTLET
STRUCTURE TO ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.

MINOR SUBDIVISION PLAT
5200 SHERIDAN BOULEVARD
ARVADA, COLORADO
ADAMS COUNTY



PURRINGTON
CIVIL

ENGINEERING Your Vision

1299 WASHINGTON AVENUE SUITE 280
GOLDEN, CO 80401

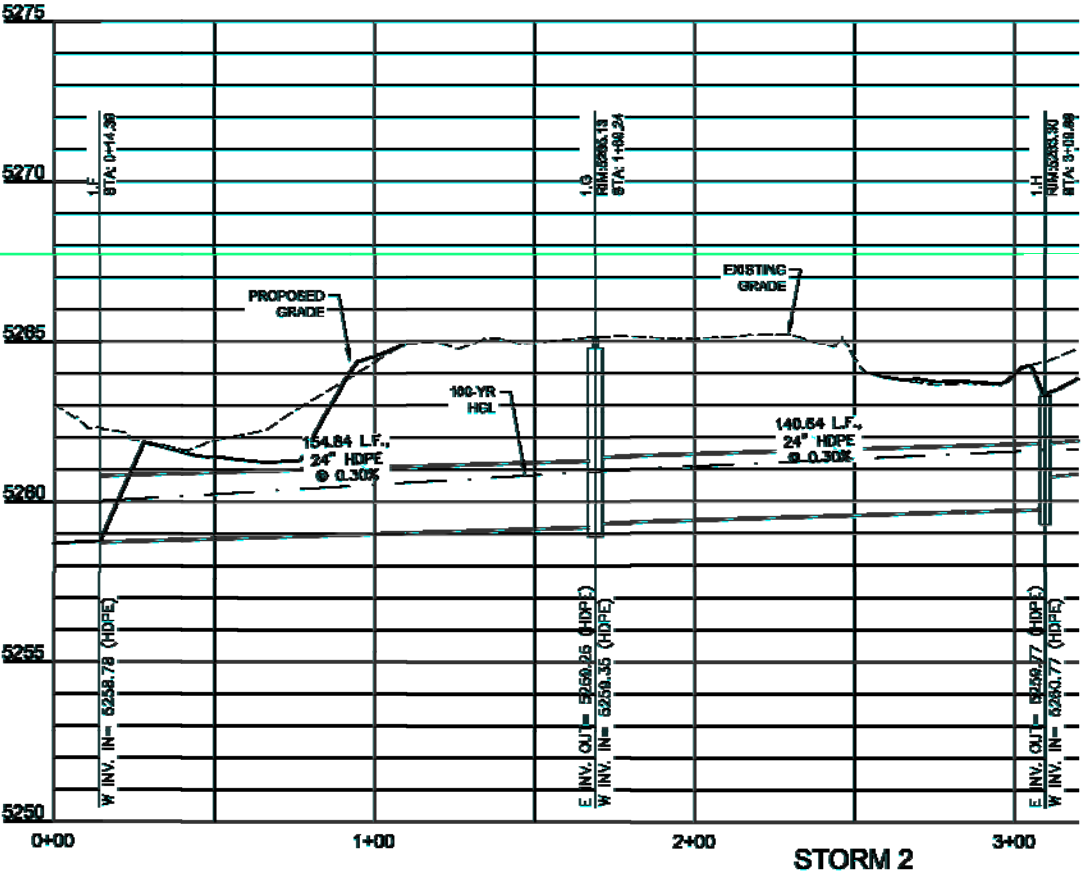
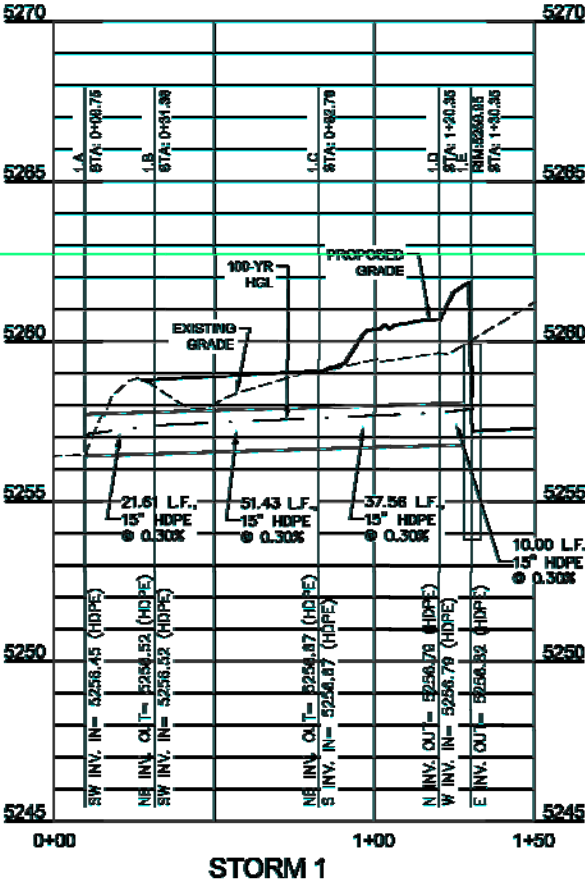
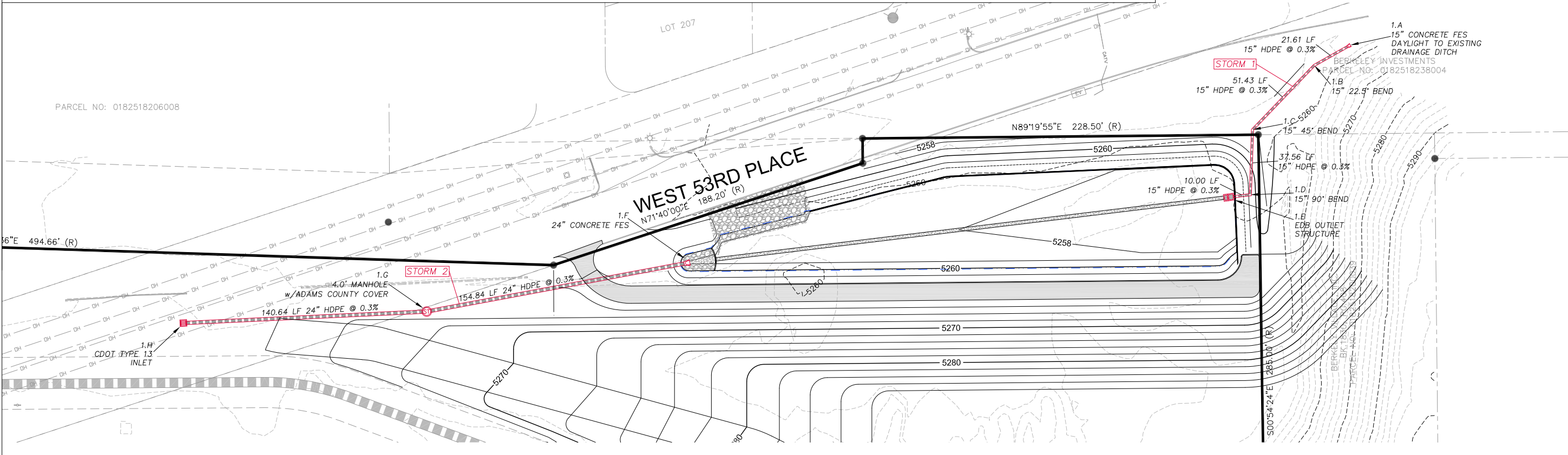
EDB PLAN AND DETAILS

SCALE: AS NOTED

C.10

5200 SHERIDAN MINOR SUBDIVISION PLAT

STORM SEWER PLAN AND PROFILES



- STORM SEWER NOTES
- STORM SEWER PIPE MATERIALS SHALL BE HDPE DOUBLE-WALL, SMOOTH INTERIOR PIPE (ADS N-12 OR APPROVED EQUAL) UNLESS OTHERWISE SPECIFIED IN THE PLANS. ALL JOINTS AND STRUCTURE CONNECTIONS SHALL BE SOIL-TIGHT (MINIMUM).
 - STORM SEWER PIPE SHALL BE BEDDED, INSTALLED, AND BACKFILLED IN ACCORDANCE WITH THE DETAILS INCLUDED IN THE PLANS, MANUFACTURER'S INSTALLATION REQUIREMENTS, AND/OR STANDARD DETAILS INCLUDED BY REFERENCE.
 - ALL CAST-IN-PLACE CONCRETE DRAINAGE STRUCTURES SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI, TYPE II CEMENT (UNLESS OTHERWISE SPECIFIED) WITH AIR ENTRAINING ADMIXTURES AND SHALL CONFORM TO THE LOCAL CITY'S SPECIFICATIONS.
 - SMALL DIAMETER STORM SEWER CONNECTIONS (12 INCH DIAMETER AND LESS) SHALL BE MADE WITH REDUCING WYE'S, 45 DEGREE BENDS, AND REDUCING COUPLERS, UNLESS OTHERWISE INDICATED. REFER TO PLAN AND DETAILS FOR SYSTEM LAYOUT.
 - ALL CAST-IN-PLACE AND PRE-FABRICATED DRAINAGE STRUCTURES WITHIN PAVED AREAS MUST BE INSTALLED TO MEET (AT A MINIMUM) AASHTO H-20/HS-20 LOAD RATING. THE GENERAL CONTRACTOR SHALL CONSULT WITH THE MANUFACTURER OF ANY PRE-FABRICATED STRUCTURE TO CONFIRM INSTALLATION MEASURES REQUIRED TO ENSURE THE AFOREMENTIONED LOAD RATING IS ACHIEVED. FOR ALL PRE-FABRICATED NYLOPLAST® DRAIN BASINS, THE GENERAL CONTRACTOR SHALL POUR A CONCRETE COLLAR UNDER THE FRAME/GRATE/HOOD ASSEMBLY IN THE MINIMUM DIMENSIONS SPECIFIED ON THE MANUFACTURER'S STANDARD DETAIL DRAWINGS TO ACHIEVE H-20/HS-20 LOAD RATING. THE GENERAL CONTRACTOR SHALL CONTACT OWNER FOR ADDITIONAL DIRECTION IF H-20/HS-20 INSTALLATION GUIDELINES CANNOT BE OBTAINED FROM THE MANUFACTURER OF ANY PROPOSED PRE-FABRICATED STRUCTURE.

BY

REVISION

DATE

MINOR SUBDIVISION PLAT
5200 SHERIDAN BOULEVARD
ARVADA, COLORADO
ADAMS COUNTY

PURRINGTON CIVIL

ENGINEERING Your Vision
1299 WASHINGTON AVENUE SUITE 280
GOLDEN, CO 80401

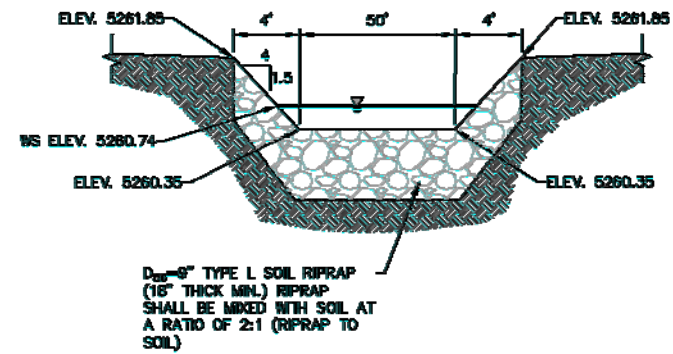
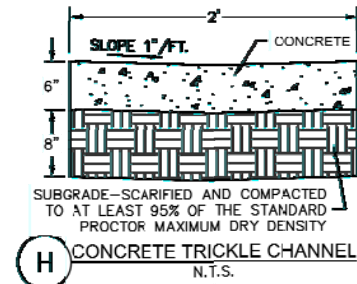
STORM SEWER
PLAN AND PROFILES

SCALE: AS NOTED

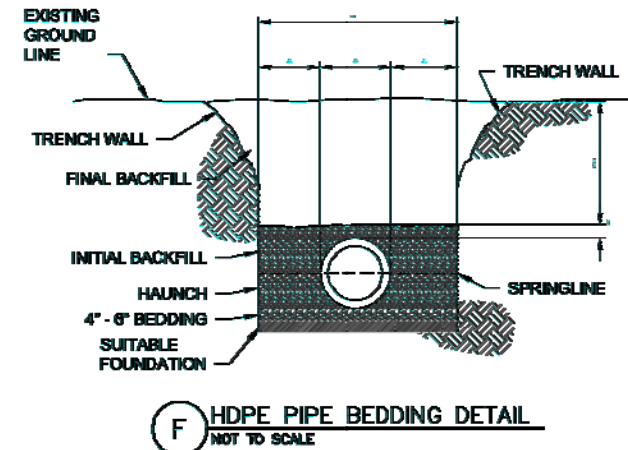
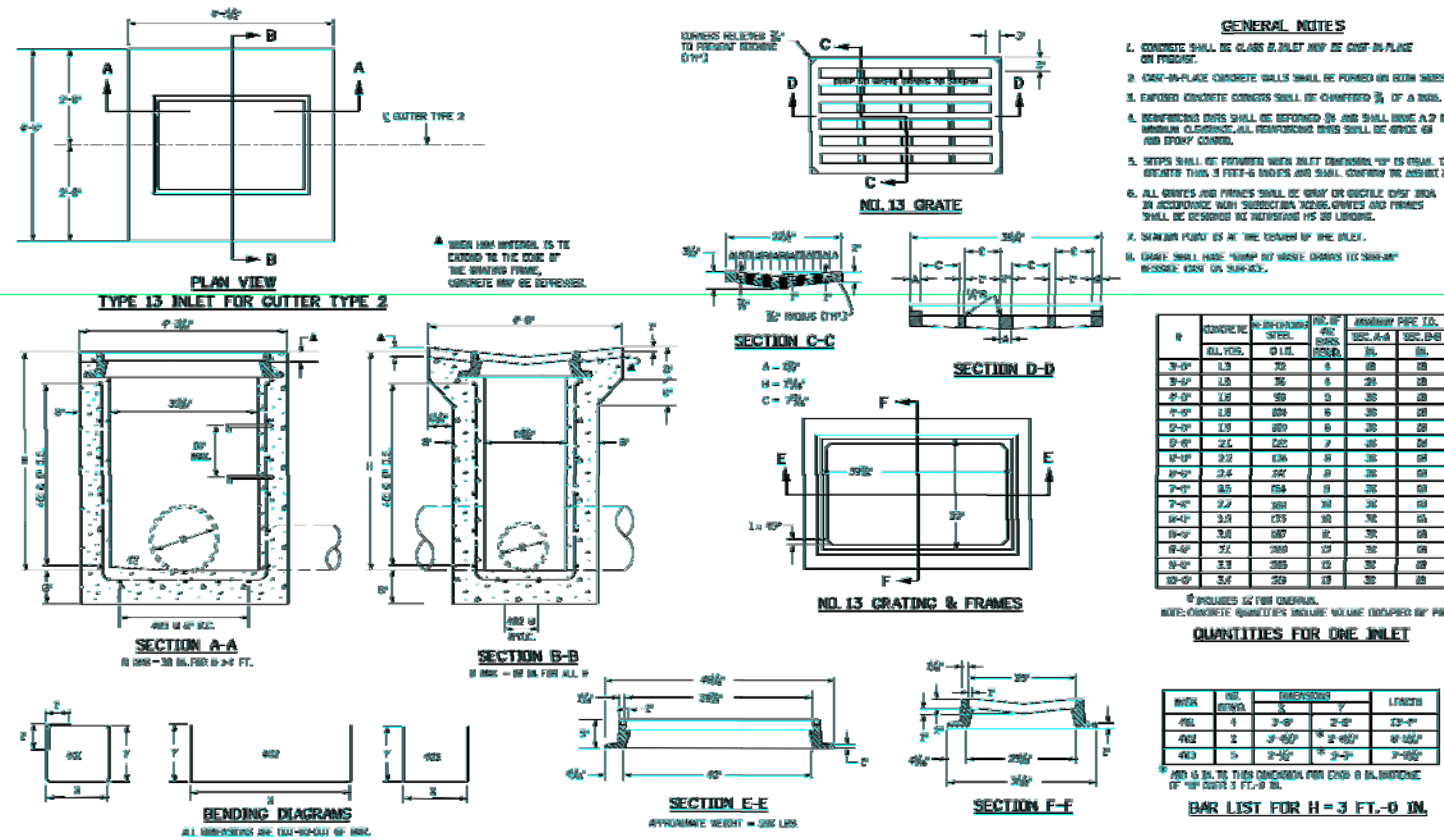
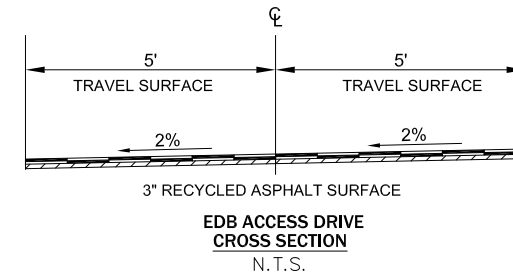
C.11

5200 SHERIDAN MINOR SUBDIVISION PLAT

STORM SEWER AND DETENTION DETAILS



EMERGENCY OVERFLOW SPILLWAY
NOT TO SCALE



Computer File Information			
Creation Date: 07/31/99			
Designer Initials: JEM			
Last Modified Date: 07/31/99			
Distributor Initials: LTA			
CMS Work Authorization No.	System Test No.	System	Printer Function

Sheet Revisions	
Order	Comments

Colorado Department of Transportation
 2629 West Howard Place
 Suite 103, 3rd Floor
 Denver, CO 80204
 Phone: 303-737-8861 Fax: 303-737-8862
Project Development Branch **JBK**

CONCRETE INLET TYPE 13

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-604-13
Standard Sheet No. 1 of 1

Project Street Number:

[illegible]

MINOR SUBDIVISION PLAT
5200 SHERIDAN BOULEVARD
ARVADA, COLORADO
ADAMS COUNTY



PURRINGTON
CIVIL

ENGINEERING Your Vision

1299 WASHINGTON AVENUE, SUITE 280
GOLDEN, CO 80401

EDB AND STORM SEWER DETAILS

SCALE: AS NOTED

C.12



COLORADO

**Department of Public
Health & Environment**

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

Certification Number: COR413231

This Certification to Discharge specifically authorizes:

**Owner SBGM Land Trust - Not a Business
Operator SBGM Land TrustSBGM Land Trust - Not a Business
to discharge stormwater from the facility identified as**

5200 Sheridan Blvd

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

Clear Creek

Facility Activity : NonStructural
Disturbed Acres: 4.00 acres
Facility Located at: 5200 Sheridan Blvd Arvada 80002
ADAMS County
Latitude 39.791656 Longitude -105.051375

**Specific Information
(if applicable):**

Certification is issued: 4/5/2024
Certification is effective: 4/1/2024
Expiration date of general permit: 3/31/2029

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

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





Adams County Stormwater Quality Permit Certification Renewal

Adams County

Stormwater Management Division grants:

Jim Goyette - SBGM Land Trust

permission to discharge stormwater associated with construction site:

5200 Sheridan Blvd - Fill Operations

5200 Sheridan Blvd

Adams County, CO

CSI2021-00008

Case #

M. Juliana Archuleta,
Stormwater Administrator

09/11/2024

Signature

Date



Adams County Stormwater Management Division
Public Works Department
4430 S. Adams County Pkwy, Ste W2000B
Brighton, CO 80601

This permit expires on: 9/13/2025



ADAMS COUNTY DEVELOPMENT SERVICES

Temporary Use Permit

APPLICANT

James Goyette

PIN

182518206004

DATES VALID

September 11th, 2024 to March 11th, 2025

THIS PERMIT ISSUED FOR:

Inert Fill Operation

PERMIT NUMBER

TVM2024-00008

COLORADO

THIS PERMIT SHALL BE OPENLY DISPLAYED AT ALL TIMES

Terms and Conditions of Permit Approval:

This permit shall be openly displayed at all times.

This permit is valid for the period beginning on the **11th day of September, 2024** until the **11th day of March, 2025**.

1. The Temporary Use Permit is valid for up to 17,000 cubic yards of inert fill material and fill shall not be placed on more than 10 acres of the site. All materials shall be inert.
2. All applicable building, zoning, fire, engineering, and health codes shall be adhered to with this request.
3. Any additional fill material or fill source will require a new Temporary Use Permit, Special Use Permit, or Conditional Use Permit, as applicable.
4. The hours of operation will be Monday through Saturday from 7:00 a.m. to 7:00 p.m.
5. The property is not located within a delineated 100-year floodplain hazard zone. A Floodplain Use Permit is not required for this site.
6. The property is not located within an NRCO District.
7. No new access is requested. Must use existing access to property. Access width shall not be greater than 30 feet. No other access is permitted by ADCO.
8. A portion of the property is located in the Mineral Conservation Overlay District.
9. The property is within the Flammable Gas Overlay District.
10. The applicant has certified the inert fill is clean and meets the inert fill requirements.
11. Adams County Operational Standards, Section 4-16-03 NOISE, restricts noise to :
 - a. The maximum permissible sound pressure levels of any continuous source of sound are established for a time period within each zone district listed. Sound pressure levels shall be measured at the property line or boundary of a public right-of-way, at a height of at least four (4) feet above the immediate surrounding surface, on a sound level meter of standard design and operated on the "A" weighting network.

*****No inert fill shall be transported to the site until erosion and sediment control BMPs have been installed.*****

CERTIFICATION OF REVOCABLE TRUST

THE SBGM LAND TRUST, A REVOCABLE TRUST

I, James W. Goyette, do hereby certify that I have created the aforementioned Revocable Trust. The pertinent facts regarding such Trust are:

1. CURRENT TRUSTEES:

James W. Goyette is Grantor, Beneficiary and Trustee of the SBGM Land Trust.

2. DIRECT NAMED BENEFICIARIES:

James W. Goyette is the beneficiary during his lifetime. After the death of Beneficiary, the Trust shall terminate and be disposed of to certain named beneficiaries per the terms of said Trust.

3. Each herein named Trustee is qualified to act on behalf of the Trust. Trustee is authorized to act for any asset, banking, check, stock, real estate, escrow, insurance, or other action. The Trustee may buy, sell, hold, convey, encumber, rent, borrow or lend money for any purpose, secure repayment by note, mortgage, trust deed, contract, interest in, security, pledge, or encumber any part of the Trust, hypothecate, repair, destroy, improve, deduct, retain, insure, expend, pay out, incur expenses, invest, engage in business, lease any property, money, or value of the Trust, or any additional property, compromise, settle, arbitrate, sign, agree, negotiate, or defend any agreement, contract, claim or demand, or act through an agent or attorney-in-fact. The Trustee may freely act without obtaining the consent of any person or court.

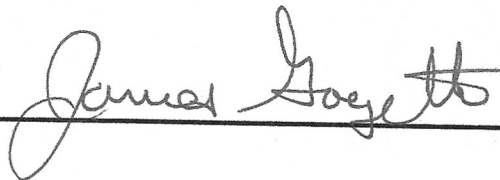
4. The Trust has not been revoked.

5. No asset is owned personally by any Trustee, Settlor, or Beneficiary.

6. Only one signature of any singular trustee is required for any action.

Dated Nov 21, 2023

James W. Goyette



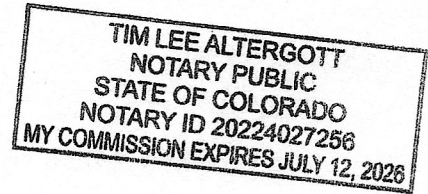
STATE OF Colorado) SS
COUNTY OF Jefferson)

On 11-21-23 before me, James W.
Goyette personally appeared and is
the person(s) whose name(s)
is/are subscribed to the within instrument and
acknowledged
to me that he/she/they executed the same in
his/her/their
authorized capacity(ies), and that by his/her/their
signature(s)
on the instrument the person(s), or the entity upon
behalf of
which the person(s) acted, executed the instrument.
WITNESS my hand and official seal.

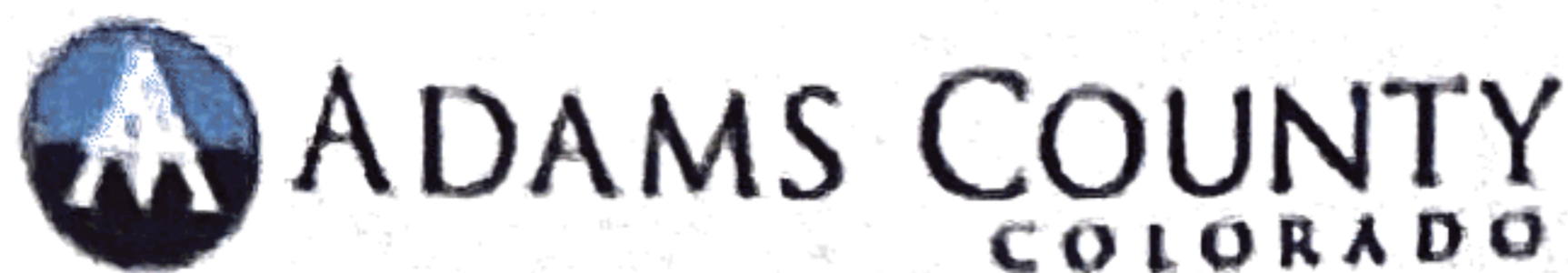
Signature

Jim S. Goyette

7-12-26
My Commission Expires:



(THIS AREA FOR OFFICIAL
NOTARIAL SEAL)



Powered by
ACI PAYMENTS, INC.

Adams County Treasurer, CO

Real Property Tax

Confirmation Number

GDYX313RA

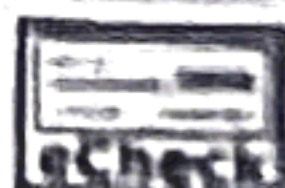
Date & Time

Thursday, June 6, 2024 08:13AM MT

Successful completion of the payment transaction is conditioned upon accurate and complete information being entered by you and is subject to financial institution and biller acceptance, approval and authorization of the payment. Electronic check payments may take up to seven business days to be returned by your Financial Institution if incorrect information is entered when a payment is submitted.

Payment Method

Amount



Ending in *50**

\$21,490.75

Account Information

Name	James Goyette
Street Address	PO Box 306 520 Gatewood Ct
City	Pine
State	CO
Zip code	80470
Country	United States
Daytime phone	(303) 907 - 5959
Email	jimgo25@msn.com
Property Tax Account Number	R0105441

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Back

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11-28-22

Kum & Go L.C.
ATTN: Dan Garneau
1459 Grand Ave
Des Moines, IA 50309

RE: KUM & GO #2294
ATTACHED FOR LEGAL

Dear Kum & Go L.C.

Denver Water has been asked to determine whether the property described on the attached layout is located within Denver Water's service area and eligible to receive water service from Denver Water. This letter verifies that the property is located within the City and County of Denver or one of Denver Water's Total Service Distributor service area. This property is eligible to receive water. Any project located on the property will be subject to compliance with Denver Water's Operating Rules, Regulations, Engineering Standards and applicable charges. Prior to proceeding with the project, you should determine the regulations and charges that might apply. Please check the fire requirements for the proposed development with the Fire Prevention Bureau and the availability of fire flow from existing mains with Denver Water's Hydraulics Department.

If you have questions, or you would like to schedule a meeting to discuss the proposed project, please contact Denver Water Sales Administration at 303-628-6100 (Option 2).

Sincerely,

Jackson Marshall
Digitally signed by: Jackson Marshall
DN: CN = Jackson Marshall email = jackson_marshall@denverwater.org C = US O = Denver Water OU = Water Sales/Sales Admin
Date: 2021.06.11 07:51:45 -0600

Jackson Marshall
Sales Administration

LEGAL DESCRIPTION

SUB:BERKELEY VILLAGE FILING NO 1 DESC: PT OF BERKELEY VILLAGE FILING NO 1 TOG WITH A PT OF SEC 18/3/68 BEG AT W4 COR SEC 18 TH E 60 FT TH N 40 FT TO TRUE POB TH N 350 FT TH S 88D 12M E 494/66 FT TH N 71D 40M E 188/20 FT TH N 14/10 FT TH E 228/50 FT TH S 285 FT TH W 115 FT TH S 125 FT TO PT ON N ROW LN W 52ND AVE TH W 113/50 FT TH N 10 FT TH W ALG N ROW LN W 52ND AVE 676/87 FT TO TRUE POB 18/3/68 AND



Kum & Go #2294

Vicinity Map

olsson

1880 Fall River Drive, Suite 200
Loveland, CO 80538
Tel. 970-461-7733

Eric Kilgore

From: Gedge, Kelsey <Kgedge@MetroWaterRecovery.com>
Sent: Tuesday, September 27, 2022 10:30 AM
To: Eric Kilgore
Subject: Potential Connection near Sheridan and 52nd Ave
Attachments: SHERIDAN BOULEVARD INTERCEPTOR.pdf

Eric, good speaking with you this morning. Find attached plan/profile sheet of our Sheridan Boulevard Interceptor in this location. Hopefully the new development you are working on will be able to re-use the existing connection BEK 0043 between manholes SB 10/SB 11 that was approved in May 2008. If you are able to re-use this connection then Metro does not need to approve anything. If any work is done to repair the connection we will need to be notified at least 48 hours in advance so we can schedule an inspector to be present while that work is taking place. If you need a bigger connection then a formal connection request will need to be made by Berkely Water & Sanitation and I can help walk through that process.

When you get close to finalizing the plans we would like to review them briefly to make sure there is no conflict with our infrastructure. Let me know if you have any questions, thanks.

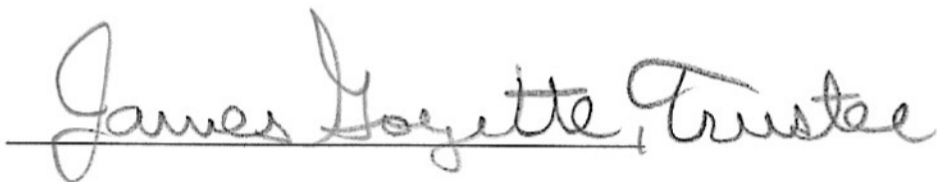


Kelsey S. Gedge, P.E.
Senior Transmission System
Engineering Manager
303-286-3357
[MetroWaterRecovery.com](mailto:Kgedge@MetroWaterRecovery.com)

Maintenance Agreement

This Maintenance Agreement is made and will be effective 1/26/2024 between SBGM Land Trust, PO Box 306, Pine, CO, 80470 and all owners of lots located at 5200 Sheridan Blvd, Arvada, CO, 80002.

It is agreed by SBGM Land Trust to maintain all private streets, drainage, common areas and detention facilities on the property. Each lot will share proportionately (as to their percent square footage of the total lot area) in the cost of such maintenance.

A handwritten signature in cursive script that reads "James Goyette, Trustee". The signature is written in dark ink and is positioned above a horizontal line.

James Goyette, Trustee
SBGM Land Trust

SUBDIVISION IMPROVEMENTS AGREEMENT

THIS AGREEMENT is made and entered into this ____ day of _____, 20____, between _____, a _____ corporation qualified to do business in Colorado (“Developer”), whose address is _____ and the Board of County Commissioners of the County of Adams, State of Colorado (“County”), whose address is 4430 S. Adams County Parkway, Brighton, CO 80601.

WITNESSETH:

WHEREAS, Developer is the owner of real property in the County of Adams, State of Colorado, as described in Exhibit “A” attached hereto, and by this reference made a part hereof.

WHEREAS, it is provided by resolution of the Board of County Commissioners, County of Adams, that where designated the Developer shall have entered into a written agreement with the County to install public and/or private improvements, and to deed land for public purposes or right-of-way.

NOW, THEREFORE, in consideration of the foregoing, the parties hereto promise, covenant, and agree as follows:

1. **Engineering Services.** Developer shall furnish, at its own expense, all engineering and other services in connection with the design and construction of the improvements described and detailed on Exhibit “B” attached hereto, and by this reference made a part hereof (“Improvements”).
2. **Drawings and Estimates.** The Developer shall furnish drawings and cost estimates for all improvements described and detailed on Exhibit “B” for approval by the County. Upon request, the Developer shall furnish one set of reproducible “as built” drawings and a final statement of construction costs to the County.
3. **Construction.** Developer shall furnish and construct, at its own expense and in accordance with drawings and materials approved by the County, the improvements described and detailed on Exhibit “B”.
4. **Time for Completion.** Improvements shall be completed according to the terms of this agreement within “construction completion date” appearing in Exhibit “B”. The Director of Community and Economic Development Department may for good cause grant extension of time for completion of any part or all of improvements appearing on said Exhibit “B”. Any extension greater than 180 days may be approved only by the Board of County Commissioners. All extensions of time shall be in written form only.
5. **Warranties of Developer.** Developer warrants that the Improvements shall be installed in good workmanlike manner and in substantial compliance with the Plans and requirements of this Agreement and shall be substantially free of defects in materials and workmanship. These warranties of Developer shall remain in effect until Preliminary Acceptance of the improvements by the County.
6. **Guarantee of Compliance.** Developer shall furnish to the County a cash escrow deposit or other acceptable collateral, releasable only by the County, to guarantee compliance with this agreement. Said collateral shall be in the amount of \$<XXXXXX>, including twenty percent (20%) to cover administration and five percent (5%) per year for the term of the Agreement to cover inflation. Upon approval of the final plat, completion of said improvements constructed according to the terms of this agreement, and preliminary acceptance by the Director of Public Works in accordance with section 5-02-05-01 of the County’s Development Standards and Regulations, the collateral shall be released. Completion of said improvements shall be determined solely by the County, and a reasonable part of said collateral, up to 20%, may be retained to guarantee maintenance of public improvements for a period of one year from the date of preliminary acceptance.

Collateral shall be furnished in the amount required and in a form acceptable to the Board of County Commissioners prior to final plat approval. No building permits shall be issued until

the final plat has been approved and the improvements described in Exhibit "B" have been preliminarily accepted by the Department of Public Works.

7. **Acceptance and Maintenance of Public Improvements.** All improvements designated "public" on Exhibit "B" shall be public facilities and become the property of the County or other public agencies upon acceptance. During the period of one year from and after the acceptance of public improvements, the Developer shall, at its own expense, make all needed repairs or replacement due to defective materials or workmanship which, in the opinion of the County, becomes necessary. If, within ten days of written notice to the Developer from the County requesting such repairs or replacements, the Developer has not undertaken with due diligence to make the same, the County may make such repairs or replacements at the Developer's expense. In the case of an emergency such written notice may be waived.
8. **Successors and Assigns.** This agreement shall be binding upon the heirs, executors, personal representatives, successors, and assigns of the Developer, and shall be deemed a covenant running with the real property as described in Exhibit "A" attached hereto.
9. **Improvements and Dedication.** The undersigned Developer hereby agrees to provide the following improvements, and to dedicate described property.
 - A. **Improvements.** Designate separately each public and private improvement.

Public Improvements:

(General description of construction.) See Exhibit "B" for description, estimated quantities and estimated construction costs.

The improvements shall be constructed in accordance with all County requirements and specifications in accordance with the approved plans and time schedule as indicated in Exhibit "B".
 - B. **Public dedication of land for right-of-way purposes or other public purpose.** Upon approval of this agreement by the Board of County Commissioners, the Developer hereby agrees to convey by warranty deed to the County of Adams the following described land for right-of-way or other public purposes:

(General description of right-of-way).
10. **Default by Developer.** A default by the Developer shall exist if (a) Developer fails to construct the Subdivision Improvements in substantial compliance with the Plans and the other requirements of this Agreement; (b) Developer fails to complete construction of the Improvements by the Completion Date provided herein as the same may be extended; (c) Developer fails to cure any noncompliance specified in any written notice of noncompliance within a reasonable time after receipt of the notice of noncompliance; (d) Developer otherwise breaches or fails to comply with any obligation of Developer under this Agreement.
 - A. **Remedies of County.** If the County, after notice, determines that a default by Developer exists, and if Developer fails to cure such default within the time specified by the County, the County shall be entitled to (a) make a draw on the collateral for the amount reasonably determined by the County to be necessary to cure the default in a manner consistent with the approved Plans up to the face amount of the Collateral; and (b) sue the Developer for recovery of any amount necessary to cure the default over and above the amount available in the Collateral provided.
 - B. **County Right to Completion of Subdivision Improvements.** The right of the County to complete or cause completion of the Improvements as herein provided shall include the following rights:

- a. The County shall have the right to complete the Subdivision Improvements, in substantial accordance with the plans, the estimated costs, and other requirements of this Agreement, either itself or by contract with a third party or by assignment of its rights to a successor developer who has acquired the Property by purchase, foreclosure, or otherwise. The County, any contractor under the County, or any such successor developer, their agents, subcontractors and employees shall have the non-exclusive right to enter upon the streets and easements shown on the final plat of the Subdivision and upon any part of the Subdivision owned by Developer for the purpose of completing the Improvements.

C. **Use of Funds by County.** Any funds obtained by the County through Collateral, or recovered by the County from Developer by suit or otherwise, shall be used by the County to pay the costs of completion of the Improvements substantially in accordance with the Plans and the other Requirements of this Agreement and to pay the reasonable costs and expenses of the County in connection with the default by Developer, including reasonable attorneys' fees.

Name/s
Developer

By: _____
Name, Title

By: _____
Name, Title

The foregoing instrument was acknowledged before me this _____ day of _____, 20____, by _____.

My commission expires: _____

Address: _____

Notary Public

APPROVED BY resolution at the meeting of _____, 20____.

Collateral to guarantee compliance with this agreement and construction of public improvements shall be required in the amount of _____. No building permits shall be issued until said collateral is furnished in the amount required and in a form acceptable to the Board of County Commissioners.

ATTEST:

BOARD OF COUNTY COMMISSIONERS
ADAMS COUNTY, COLORADO

Clerk of the Board

Chair

EXHIBIT A

Legal Description: LOT 1 OF THE 5200 SHERIDAN MINOR SUBDIVISION LOCATED IN THE NORTHWEST QUARTER OF SECTION 18, TOWNSHIP 3 SOUTH, RANGE 68 WEST OF THE 6TH P.M. COUNTY OF ADAMS, STATE OF COLORADO

EXHIBIT B

Private Drainage Improvements:

<u>Description</u>	<u>Est. Quantity</u>	<u>Est. Unit Cost</u>	<u>Est. Construct. Cost</u>
15” HDPE Pipe	121 LF	\$40.00/LF	\$4,840.00
24” HDPE Pipe	296 LF	\$50.00/LF	\$14,800.00
CDOT Type 13 Storm Inlet	1 EA	\$5,000.00/EA	\$5,000.00
48” Storm Manhole	1 EA	\$3,500.00/EA	\$3,500.00
24” RCP Flared End Section	1 EA	\$1,100/EA	\$1,100.00
Detention Outlet Structure	1 EA	\$6,000/EA	\$6,000.00
Detention Pond	1 LS	\$50,000/LS	\$50,000.00
TOTAL:			\$85,240.00

Construction Completion Date: 02/27/2025

Initials or signature of Developer: _____
