CONSTRUCTION DRAWINGS FOR

JACKASS GULCH AT HIGH LINE CANAL

MILE HIGH FLOOD DISTRICT

CITY OF LITTLETON

COUNTY OF ARAPAHOE, STATE OF COLORADO

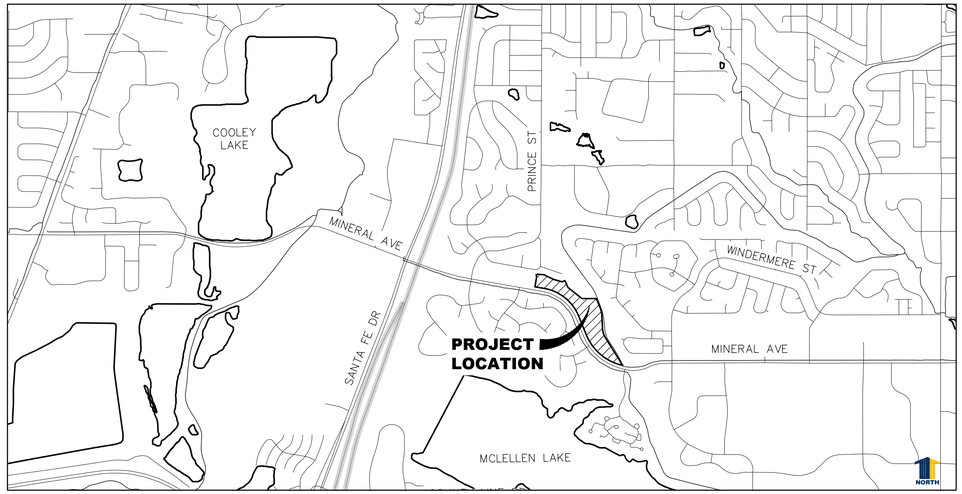
PROJECT NO. 108255

FINAL PLANS

JANUARY 2025

LEGEND

- PROPOSED MAJOR CONTOUR (5') — 5350
- PROPOSED MINOR CONTOUR (1')
- EXISTING MAJOR CONTOUR (5') — 5350
- EXISTING MINOR CONTOUR (1')
- ROW/PROPERTY LINE
- CENTERLINE
- PROPERTY BOUNDARY
- EASEMENT
- PROPOSED STORM DRAIN — D
- STORM DRAINAGE MANHOLE NUMBER — SD 1
- EXISTING FIBER OPTIC — FO
- EXISTING POTABLE WATER MAIN — W
- EXISTING SANITARY SEWERS — S
- EXISTING STORM DRAIN — D
- EXISTING STORM DRAIN INLET
- EXISTING UNDERGROUND ELECTRIC — E
- EXISTING UNDERGROUND TELEPHONE — T
- EXISTING WOOD FENCE — X
- EXISTING GUARDRAIL
- EXISTING RAILROAD TRACKS



VICINITY MAP

SCALE: 1"=1500'

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63 TOTAL SHEETS

THESE POND AND STABILIZATION IMPROVEMENT PLANS FOR JACKASS GULCH WERE PREPARED BY ME (OR UNDER MY DIRECT SUPERVISION) IN ACCORDANCE WITH THE REQUIREMENTS OF THE "CITY OF LITTLETON STORM DRAINAGE AND TECHNICAL CRITERIA MANUAL".

811 UNCC
CALL BEFORE YOU DIG
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OR
1-800-922-1987
Utility Notification Center of Colorado
Administrative Office 303–232–1991
16361 Table Mountain Parkway
Golden, Co. 80403

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

CALIBRE ENGINEERING, INC. ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS (HORIZONTAL AND VERTICAL). THE EXISTING UTILITIES SHOWN ON THIS DRAWING HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. IT IS, HOWEVER, THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE LOCATIONS OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.

MHFD
MILE HIGH FLOOD DISTRICT

BENCHMARK

BENCHMARK: NGS CONTROL POINT Q 23 BEING A 3" BRASS CAP SET IN CON CRETE STAMPED "US COAST CEODETIC SURVEY BMQ 23 1929" LOCATED 2.7 MILES SOUTH ALONG THE DENVER AND RIO GRANDE WESTERN RAILROAD FROM THE STATION AT LITTLETON, 0.3 MILE NORTH OF RAILROAD BRIDGE 13.19 WHICH IS OVER CLARK GULCH, 251 FEET NORTH OF MILEPOST 13, IN LINE WITH A ROW OF TELEPHONE POLES, 56 FEET EAST OF THE CENTERLINE OF U.S. HIGHWAYS 85 AND 87, 59 FEET SOUTH OF A TELEPHONE POLE, 21.7 FEET WEST OF THE WEST RAIL, AND 1.2 FEET WEST OF A WITNESS POST.

NAVD88 ELEV= 5395.26'

Littleton Colorado

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DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12TS.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH

COLORADO LICENSED TREVOR R. IGEL 62834 PROFESSIONAL ENGINEER 12/6/2024

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Construction Management Civil Engineering Surveying

JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
TITLE SHEET

Sheet TS1 1 of 63
1 Date JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12TS.DWG
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XREFS:

GENERAL NOTES:

1. LOCATION OF ALL EXISTING UTILITIES (PRIVATE OR PUBLIC) SHALL BE IDENTIFIED AND VERIFIED BY CONTRACTOR PRIOR TO MOBILIZATION, CONSTRUCTION, OR ORDERING OF MATERIALS. FOR INFORMATION CONTACT: DENVER INTER–UTILITY GROUP, 1–800–922–1987 OR LOCAL AGENCY, PRIVATE ENTITY, OR OTHER ASSOCIATED ENTITIES WITHIN THE LIMITS OF CONSTRUCTION. THE CONTRACTOR SHALL BEAR THE FULL COST OF REMOVAL, REPLACEMENT, AND DELAY RELATED TO UNVERIFIED EXISTING CONDITIONS. WHERE THE CONTRACTOR FINDS CONFLICTS OR DISCREPANCIES THEY SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.

2. ALL TRENCHES SHALL BE ADEQUATELY SUPPORTED AND THE SAFETY OF WORKERS PROVIDED FOR AS REQUIRED BY THE MOST RECENT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION." THESE REGULATIONS ARE DESCRIBED IN SUBPART P, PART 1926 OF THE CODE OF FEDERAL REGULATIONS. SHEETING AND SHORING SHALL BE UTILIZED WHERE NECESSARY TO PREVENT ANY EXCESSIVE WIDENING OR SLOUGHING OF THE TRENCH WHICH MAY BE DETRIMENTAL TO HUMAN SAFETY. TO THE PIPE BEING PLACED, TO TREES OR TO ANY EXISTING STRUCTURE WHERE EXCAVATIONS ARE MADE UNDER SEVERE WATER CONDITIONS. THE CONTRACTOR MAY BE REQUIRED TO USE AN APPROVED PILING INSTEAD OF SHEETING AND SHORING. SEE THE SOILS REPORT FOR ADDITIONAL INFORMATION.

3. IN ALL CASES, MAINTAIN TEN FEET HORIZONTAL AND 18" VERTICAL DISTANCE BETWEEN WATER AND SANITARY SEWER.

4. COMPACTION OF ALL TRENCHES MUST BE ATTAINED AND COMPACTION TEST RESULTS SUBMITTED TO THE CITY, AND MILE HIGH FLOOD DISTRICT (MHFD) PRIOR TO FINAL ACCEPTANCE. PAVEMENT PATCHES SHALL BE SEAMLESS.

5. CONTRACTOR SHALL NOTIFY THE CITY AND MILE HIGH FLOOD DISTRICT (MHFD) 48 HOURS PRIOR TO THE START OF CONSTRUCTION.

6. REPAIR OF ANY DAMAGE TO EXISTING IMPROVEMENT(S) OR LANDSCAPING IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL DAMAGED EXISTING CURB, GUTTER AND SIDEWALK SHALL BE REPLACED PRIOR TO THE ACCEPTANCE OF COMPLETED IMPROVEMENTS.

7. PRIOR TO REQUESTING A CERTIFICATE OF OCCUPANCY THE CURB, GUTTER, SIDEWALK, CURB CUT(S), AND WHEELCHAIR RAMP(S) ADJACENT TO THIS PROPERTY WILL BE CLEANED FOR INSPECTION BY THE CITY ENGINEERING DIVISION. ANY NEWLY DAMAGED AREAS AS WELL AS ANY AREAS THAT WERE ALREADY DAMAGED PRIOR TO START OF THE CONSTRUCTION WILL BE REPLACED PRIOR TO APPROVAL OF THE CERTIFICATE OF OCCUPANCY.

8. ALL CONSTRUCTION ACTIVITIES MUST COMPLY WITH THE STATE OF COLORADO PERMITTING PROCESS FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY. FOR INFORMATION, PLEASE CONTACT COLORADO DEPARTMENT OF HEALTH, WATER QUALITY CONTROL DIVISION, WQCD–PE–B2, 4300 CHERRY DRIVE SOUTH, DENVER, COLORADO 80222–1530. ATTENTION: PERMITS AND ENFORCEMENT SECTION. PHONE (303) 692–3590.

9. IF DEWATERING IS REQUIRED, A STATE CONSTRUCTION DEWATERING DISCHARGE PERMIT IS REQUIRED FOR DISCHARGES TO A STORM SEWER, CHANNEL, IRRIGATION DITCH, ANY STREET THAT IS TRIBUTARY TO THE AFOREMENTIONED FACILITIES, OR ANY WATERS OF THE UNITED STATES. CONTRACTOR SHALL OBTAIN PERMIT PRIOR TO COMMENCING CONSTRUCTION.

10. THE CONTRACTOR SHALL PROVIDE THE DEVELOPER/OWNER WITH A SET OF PLANS MARKED "AS–BUILT". THESE PLANS SHALL SHOW ALL VARIATIONS FROM THE APPROVED SET OF PLANS. THE DEVELOPER/OWNER SHALL THEN SUBMIT THE "AS–BUILTS" TO THE CITY AND MHFD FOR ACCEPTANCE.

11. PERMISSION TO REPRODUCE THESE PLANS IS HEREBY GIVEN TO THE CITY OF LITTLETON AND MHFD FOR PURPOSES ASSOCIATED WITH PLAN REVIEW, APPROVAL, PERMITTING, INSPECTION AND CONSTRUCTION OF THE WORK.

12. NO BUILDING, STRUCTURE, OR FILL WILL BE PLACED IN THE DETENTION AREAS AND NO CHANGES OR ALTERATIONS AFFECTING THE HYDRAULIC CHARACTERISTICS OF THE DETENTION AREAS WILL BE MADE WITHOUT THE APPROVAL OF THE CITY ENGINEER.

13. UNDERGROUND UTILITY NOTE: ALL EXISTING AND PROPOSED UTILITIES SHALL BE INSTALLED UNDERGROUND UNLESS AN AGREEMENT FOR PLACING UTILITIES UNDERGROUND HAS BEEN ENTERED INTO BETWEEN THE PROPERTY OWNER AND THE CITY.

14. CONCRETE REPLACEMENT NOTE: PRIOR TO REQUESTING A CERTIFICATE OF OCCUPANCY AND/OR PRIOR TO ANY USE OF THE BUILDING THE CURB, GUTTER, SIDEWALK, CURB CUTS, CROSS PANS, AND WHEELCHAIR RAMPS ADJACENT TO THE PROPERTY WILL BE CLEANED BY CONTRACTOR FOR INSPECTION BY THE LITTLETON ENGINEERING DIVISION. ANY NEWLY DAMAGED OR DISPLACED CONCRETE AREAS AS WELL AS ANY CONCRETE AREAS THAT WERE ALREADY DAMAGED OR DISPLACED PRIOR TO START OF THE CONSTRUCTION SHALL BE REMOVED AND REPLACED BY THE CONTRACTOR AS DIRECTED BY THE LITTLETON ENGINEERING INSPECTOR PRIOR TO APPROVAL OF THE CERTIFICATE OF OCCUPANCY AND/OR PRIOR TO ANY USE OF THE BUILDING.

15. THE DESIGNS SHOWN SATISFY ADA REQUIREMENTS FOR THE GRADES AND CROSS SLOPES SHOWN ON THESE PLANS FOR THE SIDEWALKS AND WALKWAYS, RAMPS, ETC.

16. ALL ELEVATIONS SHOWN ON THESE PLANS ARE TIED TO NAVD88 DATUM AND REFLECT FINAL GRADE, UNLESS OTHERWISE SHOWN HEREIN.

17. CONTACT THE U.S. FISH AND WILDLIFE SERVICE, OFFICE OF MIGRATORY BIRDS, AT (303) 236–8171, FOR PERMITTING REQUIREMENTS PRIOR TO THE REMOVAL OR DESTRUCTION OF ANY BIRD NEST.

CITY OF LITTLETON
EROSION CONTROL PLAN NOTES:

1. THE PROPERTY OWNER IS ULTIMATELY RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION CONTROL FACILITIES THAT ARE INSTALLED ON THE PROPERTY, EVEN IF SPECIFIC TASKS MAY BE DESIGNATED TO OTHERS SUCH AS CONTRACTORS, SUB–CONTRACTORS OR SITE OPERATORS. IF THE CITY GIVES DIRECTION TO A DESIGNEE, IT IS THE DESIGNEE'S RESPONSIBILITY TO NOTIFY THE OWNER.

2. THE CITY MAY REQUIRE THAT THE OWNER OR THEIR DESIGNEE PROVIDE ADDITIONAL EROSION CONTROL MEASURES SHOULD UNFORESEEN WATER OR WIND EROSION PROBLEMS OCCUR OR SHOULD THE EROSION AND SEDIMENT CONTROL PLAN (ESCP) IMPLEMENTED NOT FUNCTION AS INTENDED.

3. ALL EROSION CONTROL DEVICES SHOWN ON THE PLAN ARE TO BE INSTALLED PROPERLY PRIOR TO THE START OF GRADING OR SOIL DISTURBANCE ON THE SITE UNLESS OTHERWISE COORDINATED WITH THE OWNER. THE SILT FENCING, SEDIMENT TRAPS, INLET PROTECTION AND OTHER BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE INSPECTED, CLEANED AND MAINTAINED BY THE OWNER OR THEIR DESIGNEE AS NEEDED. BMP'S REMOVED TO ACCOMMODATE CONSTRUCTION PHASING, INCLUDING CLEARING AND GRUBBING, UTILITIES, ROADS, VERTICAL CONSTRUCTION, FINAL GRADING, AND STABILIZATION SHALL HAVE REDUNDANT BMP'S IN PLACE TO PROVIDE ADEQUATE EROSION CONTROL.

4. THE ESCP MEASURES ARE TO REMAIN IN–PLACE AND OPERATIONAL UNTIL ALL SITE PAVING AND PERMANENT LANDSCAPING OR VEGETATION ESTABLISHMENT IS COMPLETED. A SUSTAINABLE VEGETATION GROWTH IN A DENSITY OF AT LEAST 70% OF THE PRE–EXISTING CONDITION, IS TO BE ESTABLISHED ON ALL SEEDED AREAS OR PERMANENT EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED. TEMPORARY IRRIGATION MAY BE NECESSARY TO ESTABLISH PLANT GROWTH.

5. ALL AREAS DISTURBED BY GRADING OR CONSTRUCTION TRAFFIC SHALL BE FINISH GRADED, SEEDED, MULCHED AND WATERED OR OTHERWISE VEGETATED TO STABILIZE THE GROUND SURFACE UPON THE COMPLETION OF GRADING OPERATIONS AND WITHOUT DELAY, OR AS APPROVED BY THE CITY IF SEASONAL OR WEATHER CONDITIONS DO NOT ALLOW. THE CITY SHALL APPROVE THE SEED MIX AND RATE OF APPLICATION PRIOR TO SEEDING THE AREA.

6. AFTER THE SITE HAS BEEN STABILIZED OR VEGETATION ESTABLISHED, THE OWNER OR THEIR DESIGNEE SHALL REMOVE ALL EROSION CONTROL MEASURES AND CLEAN ALL STORM SEWERS WHERE SEDIMENT HAS BEEN DEPOSITED. IT MAY ALSO BE NECESSARY TO PERIODICALLY CLEAN THE PUBLIC STORM SEWERS AND DOWN GRADIENT PROPERTIES DURING THE DEVELOPMENT OF THE SITE.

7. THE OWNER OR THEIR DESIGNEE IS RESPONSIBLE TO CLEAN ALL PUBLIC STREETS AND SIDEWALKS WHERE SEDIMENT OR MUD IS TRACKED ONTO THE PAVED SURFACE. THE OWNER OR THEIR DESIGNEE MAY BE REQUIRED TO CLEAN THE PUBLIC WAY IMMEDIATELY OR WITHOUT DELAY UPON BEING NOTIFIED BY THE CITY.

8. THE OWNER OR THEIR DESIGNEE SHALL BE RESPONSIBLE FOR THE DEVELOPMENT AND IMPLEMENTATION OF A STORM WATER MANAGEMENT PLAN (SWMP) OF APPROPRIATE CONTROL MEASURES AND MAINTENANCE PROCEDURES TO PREVENT POLLUTION FROM ALL NONSTORM WATER DISCHARGES ON THE SITE. THE SWMP SHALL ADDRESS, AT A MINIMUM:
   - CONCRETE MIXER TRUCK WASH WATER DISPOSAL AREAS
   - SPILL PROTECTION FOR PETROLEUM PRODUCTS AND OTHER CHEMICALS, INCLUDING VEHICLE FUELING AND POTENTIALLY HAZARDOUS MATERIALS
   - PROHIBITION OF CHEMICALS ADDED TO STORM WATER
   - BUILDING MATERIAL WASTE DISPOSAL
   - PROVISIONS TO INSTALL AND MAINTAIN REDUNDANT BMP'S TO ACCOMMODATE REMOVAL OF BMP'S SHOWN ON THE ESCP FOR CONSTRUCTION PHASING, INCLUDING BUT NOT LIMITED TO CLEARING AND GRUBBING, UTILITIES, ROADS, VERTICAL CONSTRUCTION, FINAL GRADING AND STABILIZATION.

9. IF THE OWNER OR THEIR DESIGNEE FAILS TO IMPLEMENT ANY OF THE PROVISIONS OF THE ESCP AND IGNORES THE CITY'S VERBAL OR WRITTEN REQUEST FOR IMMEDIATE REMEDY, THE CITY MAY IMMEDIATELY OR WITHOUT DELAY MAKE ARRANGEMENTS OR HIRE A PRIVATE CONTRACTOR TO CLEAN THE PUBLIC WAYS AND BILL THE OWNER DIRECTLY FOR THE ACTUAL COST OF SUCH CLEANUP PLUS A $300 ADMINISTRATIVE FEE.

10. THE CITY MAY ISSUE A "STOP WORK" ORDER TO STOP ANY PERMITTED SITE CONSTRUCTION WORK FROM PROCEEDING UNTIL THE EROSION CONTROL MEASURES PROVIDED ON THE ESCP ARE REINSTALLED, IMPLEMENTED AS INTENDED, OR UNTIL CORRECTIVE MEASURES ARE TAKEN AND ANY NECESSARY CLEANUP IS PERFORMED.

11. THE OWNER OR THEIR DESIGNEE MAY NOT UTILIZE THE PUBLIC STREET AS A STAGING AREA FOR THE TEMPORARY STORAGE OF BUILDING MATERIALS, EXCAVATED MATERIALS OR CONSTRUCTION EQUIPMENT. USE OF OFFSITE PRIVATE PROPERTY FOR STAGING MAY BE SUBJECT TO REVIEW BY THE LITTLETON ZONING OFFICIAL.

12. FOR ALL SITES DISTURBING EQUAL TO OR GREATER THAN ONE (1) ACRE, THE STATE OF COLORADO REQUIRES A CDPS GENERAL PERMIT ENTITLED "STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY." A COPY OF THAT PERMIT SHALL BE SUBMITTED TO THE CITY OF LITTLETON ENGINEERING & UTILITIES DIVISION PRIOR TO THE ISSUANCE OF ANY GRADING, DEMOLITION, FOUNDATION OR BUILDING PERMIT BY THE CITY.

13. AN AIR POLLUTANT EMISSION NOTICE CONSTRUCTION PERMIT ISSUED BY THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE), AIR POLLUTION CONTROL DIVISION IS REQUIRED FOR ALL SITES LARGER THAN 25 ACRES OR FOR THOSE AREAS WHICH TAKE MORE THAN SIX MONTHS TO REACH COMPLETION. A COPY OF THAT PERMIT SHALL BE SUBMITTED TO THE CITY OF LITTLETON ENGINEERING & UTILITIES DIVISION PRIOR TO THE ISSUANCE OF ANY GRADING, FOUNDATION OR BUILDING PERMIT.

14. A CONSTRUCTION DEWATERING DISCHARGE PERMIT SHALL BE OBTAINED FROM CDPHE PRIOR TO PUMPING OF ANY SURFACE OR SUB–SURFACE WATER INTO ANY CITY PUBLIC WAY OR STORM DRAINAGE SYSTEM. ADEQUATE SEDIMENT CONTROL BMP'S SHALL BE REQUIRED AT THE PUMP'S INLET AND OUTLET.

ENGINEER NOTES:

1. LOCATION OF ALL EXISTING UTILITIES (PRIVATE OR PUBLIC) SHALL BE IDENTIFIED OR VERIFIED BY CONTRACTOR PRIOR TO MOBILIZATION, CONSTRUCTION, OR ORDERING OF MATERIALS. FOR INFORMATION CONTACT: DENVER INTER–UTILITY GROUP, 1–800–922–1987 OR LOCAL AGENCY, PRIVATE ENTITY, OR OTHER ASSOCIATED ENTITIES WITHIN THE LIMITS OF CONSTRUCTION. THE CONTRACTOR SHALL BEAR THE FULL COST OF REMOVAL, REPLACEMENT, AND DELAY RELATED TO UNVERIFIED EXISTING CONDITIONS. WHERE THE CONTRACTOR FINDS CONFLICTS OR DISCREPANCIES THEY SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.

2. THE CONTRACTOR SHALL PERFORM ALL WORK NECESSARY TO COMPLETE THE WORK SHOWN ON THE PLANS OR DESCRIBED IN THE SPECIFICATIONS IN A SATISFACTORY MANNER. UNLESS OTHERWISE PROVIDED. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, EQUIPMENT, TOOLS, LABOR, AND INCIDENTALS TO COMPLETE THE WORK.

3. IN SOME CASES THERE ARE AREAS OF THE SITE DEPICTED ON MORE THAN ONE PAGE OF THE PLANS, HOWEVER ALL IMPROVEMENTS ARE NOT DEPICTED ON EVERY PAGE. THE CONTRACTOR SHALL REVIEW EACH PAGE OF THE PLANS AND DETAILS AND SHALL CONSTRUCT ALL IMPROVEMENTS REGARDLESS OF WHETHER THEY ARE SHOWN ON EVERY PAGE. WHERE DISCREPANCIES ARE FOUND ON PLANS OR DETAILS SHOWN ON THE PLANS THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL BEAR THE FULL COST OF REMOVAL, REPLACEMENT, DELAY, AND MOBILIZATION RELATED TO FAILURE TO REVIEW ALL PLANS.

4. THE MANUFACTURER/SUPPLIER SHALL DETERMINE PIPE CLASS BASED ON THE MAXIMUM COVER AND BEDDING SHOWN ON THE PLANS AND SOIL TYPE SHOWN IN THE GEOTECHNICAL REPORT. THE CONTRACTOR SHALL PROVIDE PIPE DLOAD CALCULATIONS STAMPED BY A REGISTERED ENGINEER. IN NO CASE SHALL RCP PIPE CLASS BE LESS THAN CLASS III.

5. WHERE CONSTRUCTION DETAILS AND SPECIFICATIONS ARE NOTED IN THESE PLANS USE EITHER CITY OF LITTLETON STORM DRAINAGE DESIGN AND TECHNICAL CRITERIA MANUAL, LATEST ADDITION OR MHFD STANDARD SPECIFICATIONS FOR DESIGN AND CONSTRUCTION, WHICHEVER IS MORE RESTRICTIVE.

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12GN.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:49 AM
XREFS:

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12GN.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH

COLORADO LICENSED — TREVOR B. REED — 52834 — 12/6/2024 — PROFESSIONAL ENGINEER

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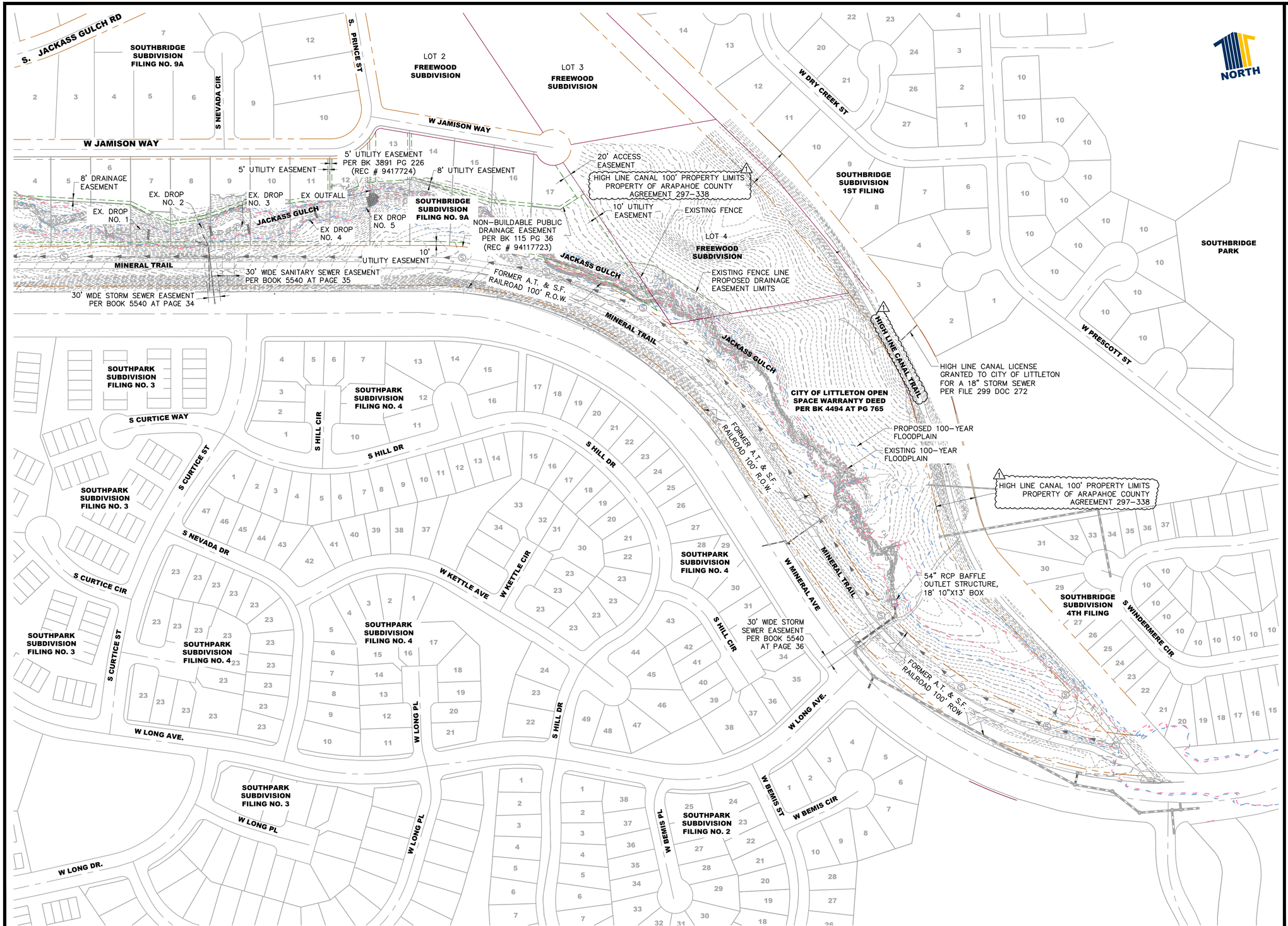
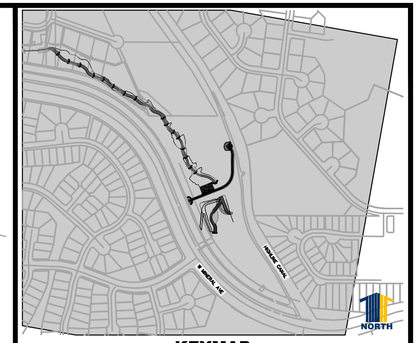
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
GENERAL NOTES

Sheet GN1 — 2 of 63
Date: JANUARY 21, 2025





KEYMAP

LEGEND

- EXISTING MAJOR CONTOUR (5')
- EXISTING MINOR CONTOUR (1')
- EXISTING CENTERLINE
- EXISTING ROW
- EXISTING EASEMENT
- EXISTING CHANNEL FLOWLINE
- EXISTING LOT / PARCEL
- EXISTING FENCE
- EXISTING BRIDGE GUARDRAIL
- EXISTING ELECTRICAL LINE
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING TELEPHONE LINE
- EXISTING 100 YR FLOODPLAIN
- PROPOSED 100 YR FLOODPLAIN
- EXISTING RIPRAP PROTECTION

CONSTRUCTION NOTES

1. WHERE CONSTRUCTION DETAILS AND SPECIFICATIONS ARE NOTED IN THESE PLANS USE EITHER CITY OF LITTLETON STORM DRAINAGE DESIGN AND TECHNICAL CRITERIA MANUAL, LATEST ADDITION, OR MHFD STANDARD SPECIFICATIONS FOR DESIGN AND CONSTRUCTION, WHICHEVER IS MORE RESTRICTIVE.
2. ALL DIMENSIONS ARE TO FLOWLINE, EXCEPT PROFILES, WHICH ARE CENTERLINE DIMENSIONS, OR UNLESS OTHERWISE NOTED.
3. REFER TO TREE MITIGATION SHEETS FOR TREE PROTECTION AND REMOVALS
4. SEE SHEET T1 FOR BASIS OF BEARINGS.
5. SEE SHEET GN1 FOR GENERAL NOTES.
6. SEE DT SHEETS FOR DETAILS.

811 UNCC
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OR
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Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12EX.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
0 60 120 240
1 inch = 120 ft. Horizontal
Designer: JLD | Drafter: KJM | Checked: BSH

COLORADO LICENSED TREVOR B. WELL 62834 PROFESSIONAL ENGINEER 12/9/2024

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Construction Management Civil Engineering Surveying

JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
EXISTING CONDITIONS PLAN

Sheet: EX1
3 of 63
Date: JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\T12 - 60% DESIGN SUBMITTAL\12EX.DWG
PLOTTED BY: JORDAN DILLARD PLOT DATE: 1/21/2025 1:41 PM
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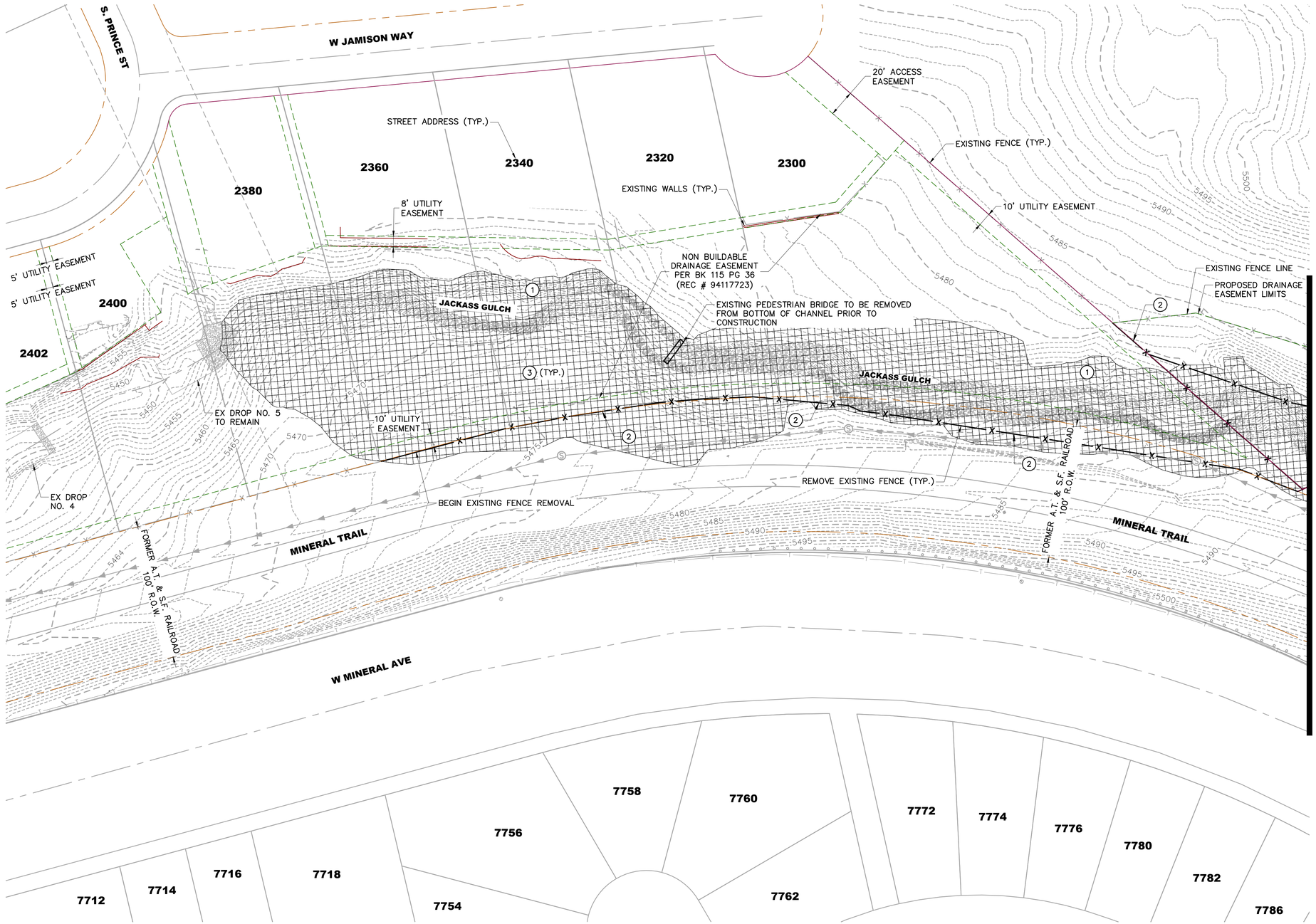

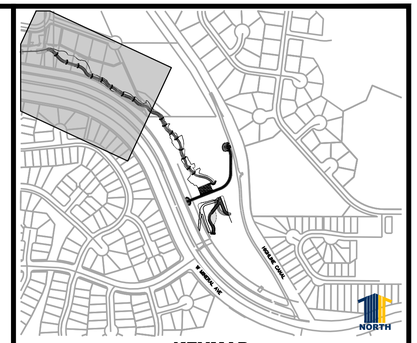

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- EXISTING CENTERLINE
- EXISTING ROW
- EXISTING EASEMENT
- EXISTING CHANNEL FLOWLINE
- EXISTING LOT / PARCEL
- EXISTING FENCE
- REMOVE EXISTING FENCE
- EXISTING BRIDGE GUARDRAIL
- EXISTING ELECTRICAL LINE
- EXISTING STORM SEWER
- REMOVE EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING TELEPHONE LINE
- EXISTING RIPRAP PROTECTION
- CLEAR AND GRUB LIMITS
- DEMO RIPRAP PROTECTION

CONSTRUCTION KEYNOTES

1. JACKASS GULCH IMPROVEMENTS
2. REMOVE EXISTING FENCE
3. CLEAR AND GRUB

GENERAL NOTES:

1. WHERE CONSTRUCTION DETAILS AND SPECIFICATIONS ARE NOTED ON THESE PLANS USE EITHER CITY OF LITTLETON STORM DRAINAGE DESIGN AND TECHNICAL CRITERIA MANUAL, LATEST EDITION, OR MHFD STANDARD SPECIFICATIONS FOR DESIGN AND CONSTRUCTION, WHICHEVER IS MORE RESTRICTIVE.
2. SEE SHEET TS1 FOR BASIS OF BEARINGS.
3. SEE SHEET GN1 FOR GENERAL NOTES.
4. CONTACT THE U.S. FISH AND WILDLIFE SERVICE, OFFICE OF MIGRATORY BIRDS, AT (303) 236–8171, FOR PERMITTING REQUIREMENTS PRIOR TO THE REMOVAL OR DESTRUCTION OF ANY BIRD NEST.
5. REFER TO THE TREE MITIGATION SHEETS FOR TREE PROTECTION AND REMOVALS.
6. SEE DT SHEETS FOR DETAILS.
7. EXISTING 24" & 42" RCP CAN BE REUSED IF DEEMED SUITABLE BY ENGINEER.
8. TOPSOIL IS TO BE STRIPPED AND STOCKPILED FOR REUSE.

DATE		REVISION DESCRIPTION
01/21/25	1	HIGH LINE CANAL REVISIONS

Drawing Name: 12DM1.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
0 20 40 80
1 inch = 40 ft. Horizontal
Designer: JLD | Drafter: KJM | Checked: BSH

COLORADO LICENSED 62834 JASON L. DEAN 12/9/2024 PROFESSIONAL ENGINEER

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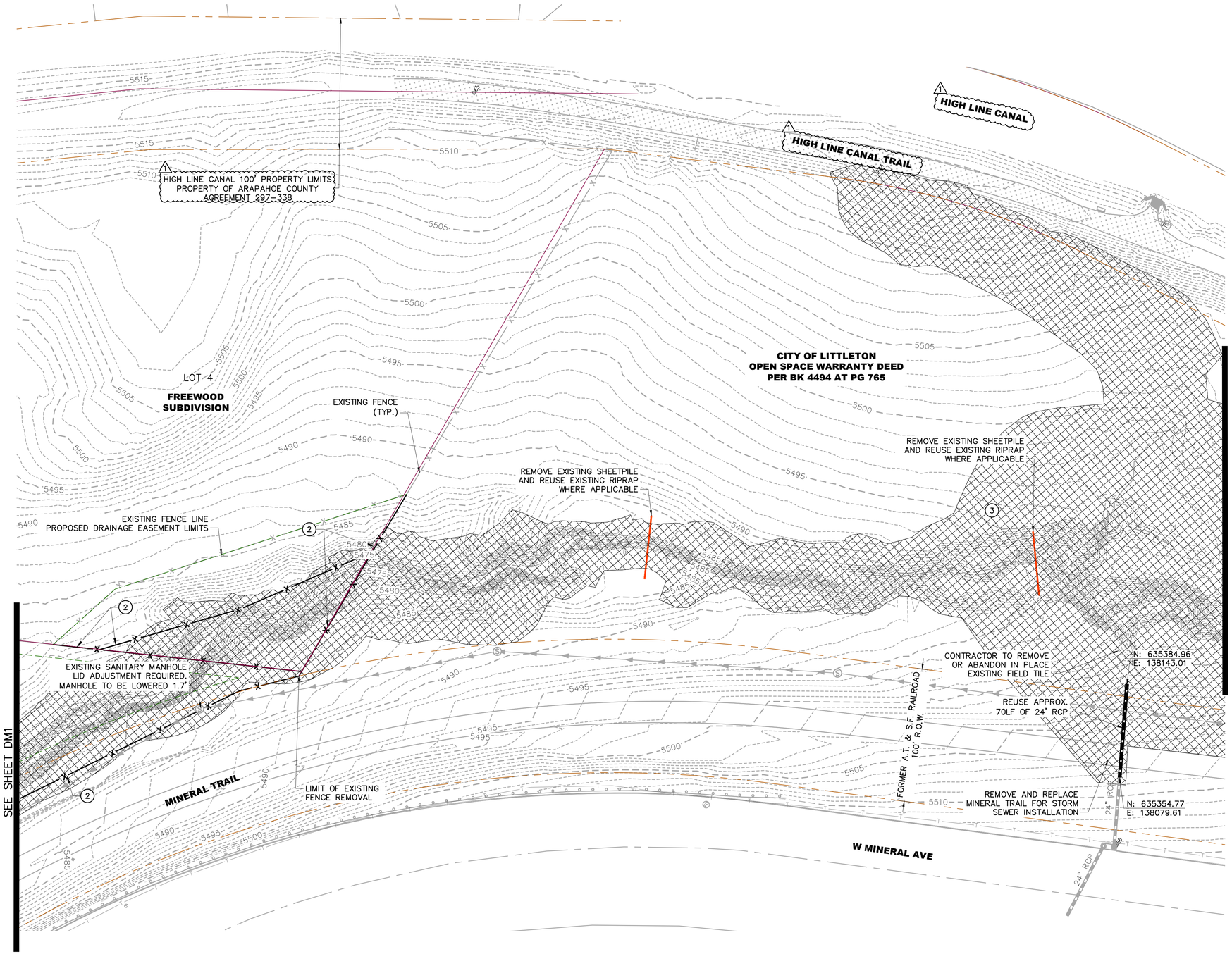
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
DEMOLITION PLAN 1

Sheet: DM1 | 4 of 63
Date: JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12DM1.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:50 AM
XREFS:



KEYMAP

LEGEND

- EXISTING MAJOR CONTOUR (5')
- EXISTING MINOR CONTOUR (1')
- EXISTING CENTERLINE
- EXISTING ROW
- EXISTING EASEMENT
- EXISTING CHANNEL FLOWLINE
- EXISTING LOT / PARCEL
- EXISTING FENCE
- REMOVE EXISTING FENCE
- EXISTING BRIDGE GUARDRAIL
- EXISTING ELECTRICAL LINE
- EXISTING STORM SEWER
- REMOVE EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING TELEPHONE LINE
- EXISTING RIPRAP PROTECTION
- CLEAR AND GRUB LIMITS
- DEMO RIPRAP PROTECTION

CONSTRUCTION KEYNOTES

1. JACKASS GULCH IMPROVEMENTS
2. REMOVE EXISTING FENCE
3. CLEAR AND GRUB

GENERAL NOTES:

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DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12DM1.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
0 20 40 80 — 1 inch = 40 ft. Horizontal
Designer: JLD | Drafter: KJM | Checked: BSH

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
DEMOLITION PLAN 2

Sheet: DM2 — 5 of 63
Date: JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12DM1.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:50 AM
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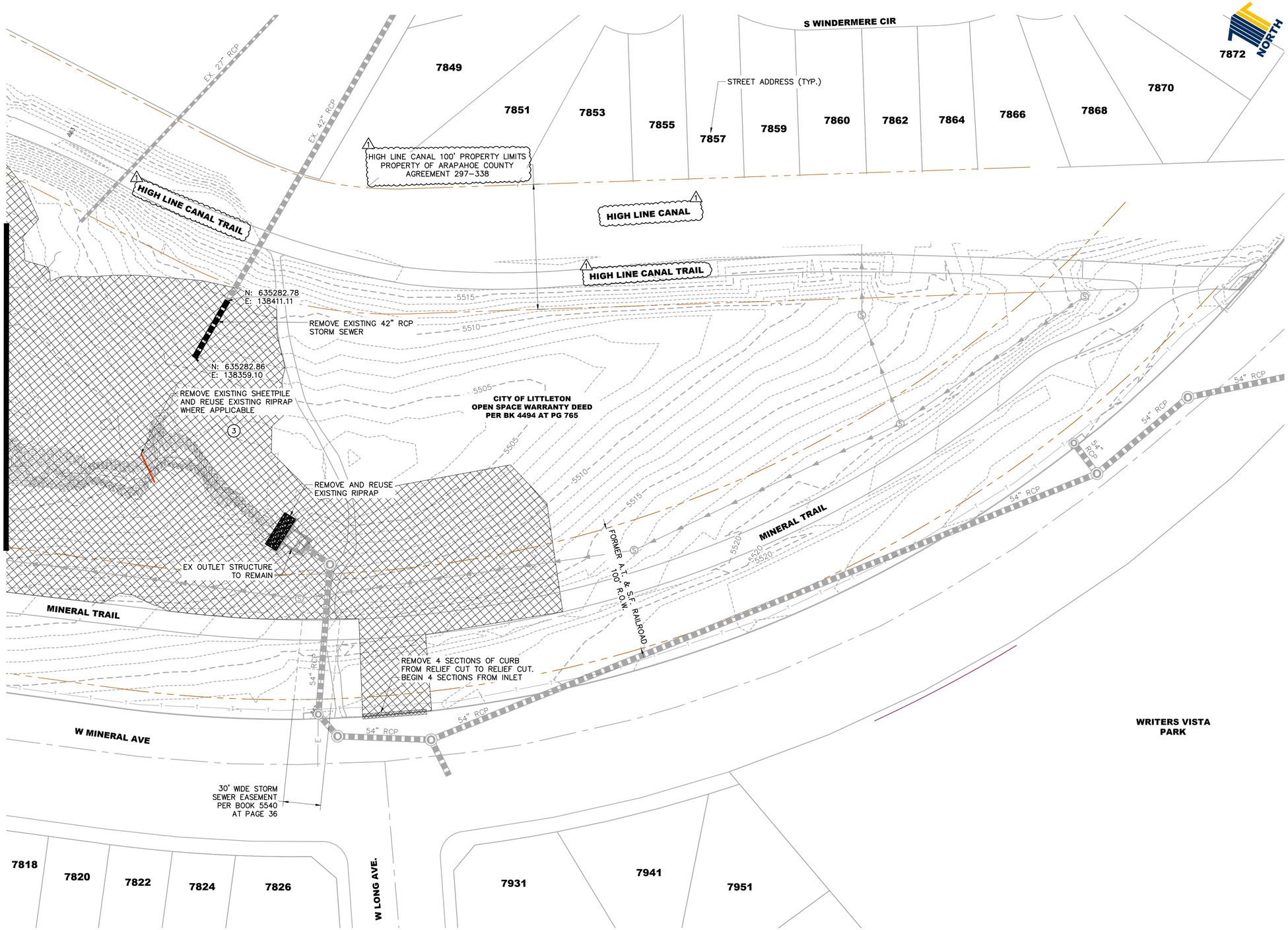
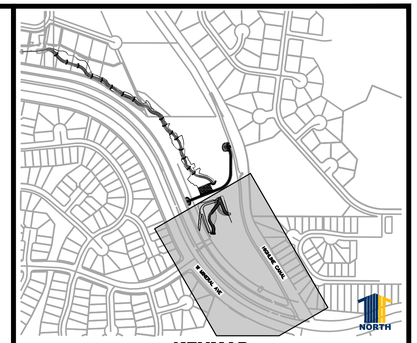


SEE SHEET DM2



KEYMAP

LEGEND

- EXISTING MAJOR CONTOUR (5') — 5350
- EXISTING MINOR CONTOUR (1')
- EXISTING CENTERLINE
- EXISTING ROW
- EXISTING EASEMENT
- EXISTING CHANNEL FLOWLINE
- EXISTING LOT / PARCEL
- EXISTING FENCE
- REMOVE EXISTING FENCE
- EXISTING BRIDGE GUARDRAIL
- EXISTING ELECTRICAL LINE
- EXISTING STORM SEWER
- REMOVE EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING TELEPHONE LINE
- EXISTING RIPRAP PROTECTION
- CLEAR AND GRUB LIMITS
- DEMO RIPRAP PROTECTION

CONSTRUCTION KEYNOTES

1. JACKASS GULCH IMPROVEMENTS
2. REMOVE EXISTING FENCE
3. CLEAR AND GRUB

GENERAL NOTES:

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DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12DM1.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH
0 20 40 80
1 inch = 40 ft. Horizontal

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TREVOR B. HEE
62834
12/9/2024
PROFESSIONAL ENGINEER

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
DEMOLITION PLAN 3

Sheet: DM3 — 6 of 63
Date: JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12DM1.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:50 AM
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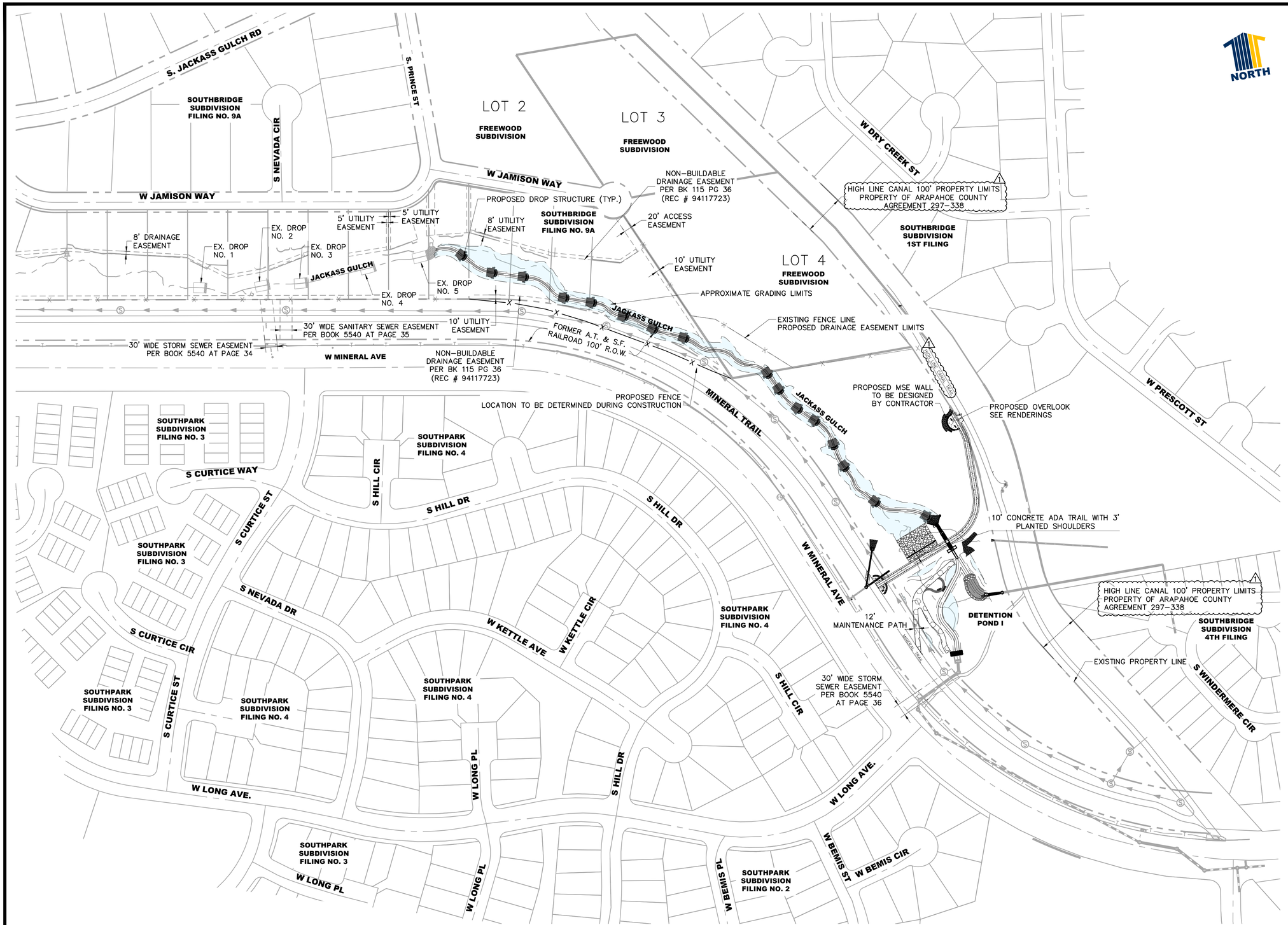

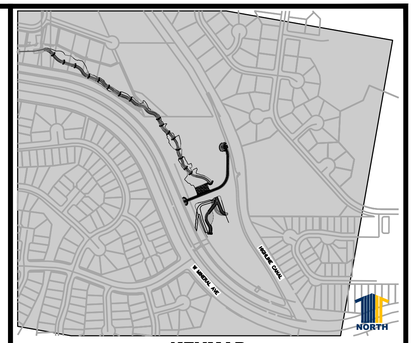

KEYMAP

LEGEND

- EXISTING ROADWAY CENTERLINE
- EXISTING ROW
- EXISTING EASEMENT
- EXISTING CHANNEL FLOWLINE
- EXISTING LOT / PARCEL
- EXISTING FENCE
- EXISTING BRIDGE GUARDRAIL
- EXISTING ELECTRICAL LINE
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING TELEPHONE LINE
- PROPOSED CHANNEL CENTERLINE
- PROPOSED TOE OF BANK
- PROPOSED TOP OF BANK
- PROPOSED BOULDER WALL
- PROPOSED FENCE
- EXISTING RIPRAP PROTECTION
- PROPOSED RIPRAP PROTECTION
- PROPOSED CONCRETE PAVEMENT
- PROPOSED MAINTENANCE PATH
- PROPOSED FLOODPLAIN BENCH
- PROPOSED DROP STRUCTURE

CONSTRUCTION NOTES

1. WHERE CONSTRUCTION DETAILS AND SPECIFICATIONS ARE NOTED ON THESE PLANS USE MHFD STANDARD SPECIFICATIONS FOR DESIGN AND CONSTRUCTION.
2. ALL DIMENSIONS ARE TO FLOWLINE, EXCEPT PROFILES, WHICH ARE CENTERLINE DIMENSIONS, OR UNLESS OTHERWISE NOTED.
3. SEE SHEET T1 FOR BASIS OF BEARINGS.
4. SEE SHEET GN1 FOR GENERAL NOTES.
5. SEE DT SHEETS FOR DETAILS.
6. ALIGNMENT RUNS ALONG LEFT SIDE OF THE TRAIL

811 UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987 Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12SP1.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
0 60 120 240 — 1 inch = 120 ft. Horizontal
Designer: JLD | Drafter: KJM | Checked: BSH

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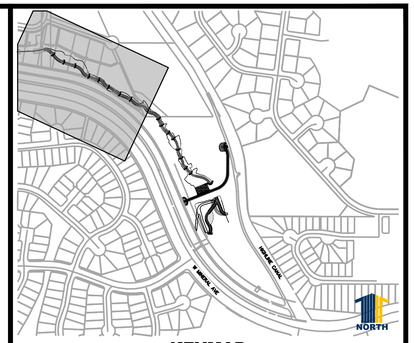
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
OVERALL SITE PLAN

Sheet SP1 — 7 of 63
Date: JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12SP1.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:50 AM
XREFS:

SEE SHEET SP3



KEYMAP

LEGEND

- EXISTING ROADWAY CENTERLINE
- EXISTING ROW
- EXISTING EASEMENT
- EXISTING CHANNEL FLOWLINE
- EXISTING LOT / PARCEL
- EXISTING FENCE
- EXISTING BRIDGE GUARDRAIL
- EXISTING ELECTRICAL LINE
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING TELEPHONE LINE
- PROPOSED CHANNEL CENTERLINE
- PROPOSED TOE OF BANK
- PROPOSED TOP OF BANK
- PROPOSED BOULDER WALL
- PROPOSED FENCE
- EXISTING RIPRAP PROTECTION
- PROPOSED RIPRAP PROTECTION
- PROPOSED CONCRETE PAVEMENT
- PROPOSED MAINTENANCE PATH
- PROPOSED FLOODPLAIN BENCH
- PROPOSED DROP STRUCTURE

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4. SEE SHEET GN1 FOR GENERAL NOTES.
5. SEE DT SHEETS FOR DETAILS.
6. ALIGNMENT RUNS ALONG LEFT SIDE OF THE TRAIL

811 UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987 Utility Notification Center of Colorado

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12SP2.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:50 AM
XREFS:

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12SP2.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
0 20 40 80
1 inch = 40 ft. Horizontal
Designer: JLD | Drafter: KJM | Checked: BSH

COLORADO LICENSED 62834 JASON L. DEAL 12/9/2024 PROFESSIONAL ENGINEER

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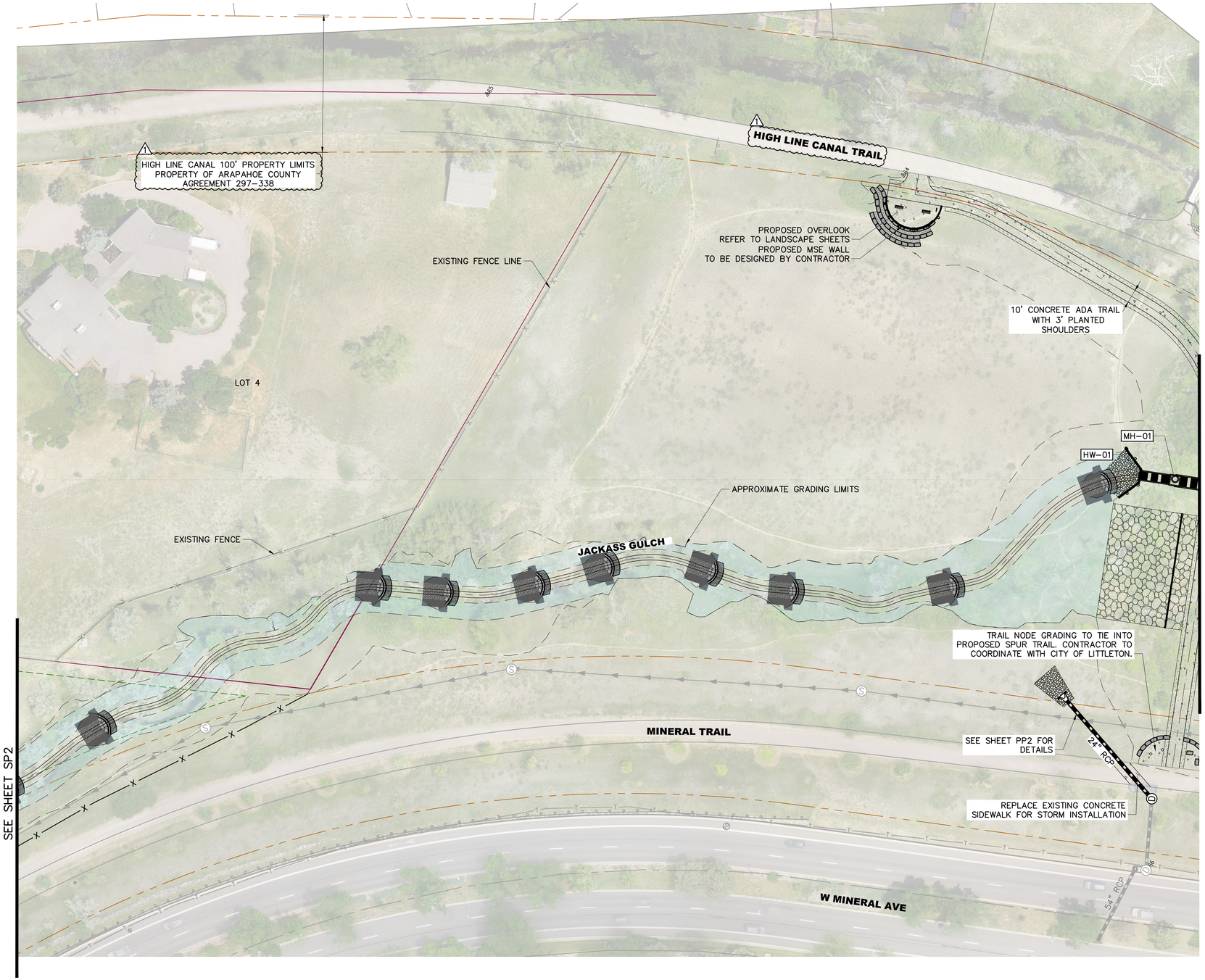
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
SITE PLAN 1

Sheet SP2 8 of 63
Date JANUARY 21, 2025



KEYMAP

LEGEND

- EXISTING ROADWAY CENTERLINE
- EXISTING ROW
- EXISTING EASEMENT
- EXISTING CHANNEL FLOWLINE
- EXISTING LOT / PARCEL
- EXISTING FENCE
- EXISTING BRIDGE GUARDRAIL
- EXISTING ELECTRICAL LINE
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING TELEPHONE LINE
- PROPOSED CHANNEL CENTERLINE
- PROPOSED TOE OF BANK
- PROPOSED TOP OF BANK
- PROPOSED BOULDER WALL
- PROPOSED FENCE
- EXISTING RIPRAP PROTECTION
- PROPOSED RIPRAP PROTECTION
- PROPOSED CONCRETE PAVEMENT
- PROPOSED MAINTENANCE PATH
- PROPOSED FLOODPLAIN BENCH
- PROPOSED DROP STRUCTURE

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OR
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Utility Notification
Center of Colorado

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12SP2.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
0 20 40 80
1 inch = 40 ft. Horizontal
Designer: JLD
Drafter: KJM
Checked: BSH

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52834
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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
SITE PLAN 2

Sheet SP3
9 of 63
Date JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12SP2.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:51 AM
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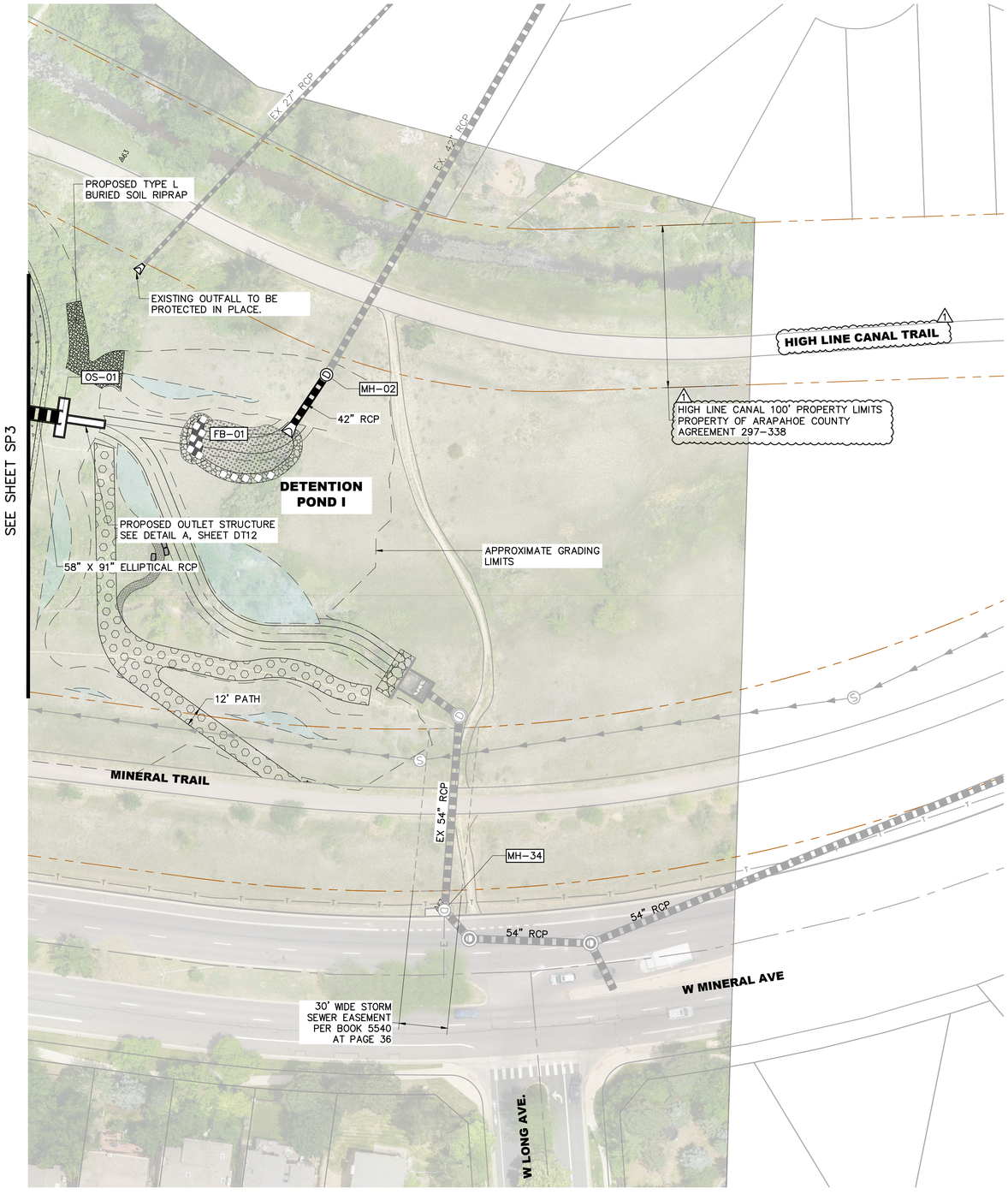

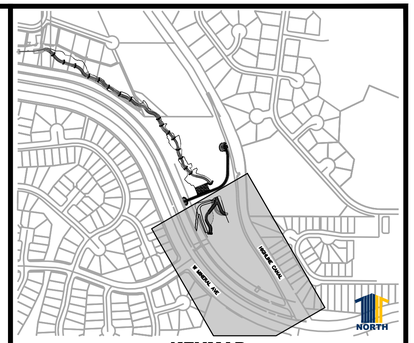

KEYMAP

LEGEND

EXISTING ROADWAY CENTERLINE
EXISTING ROW
EXISTING EASEMENT
EXISTING CHANNEL FLOWLINE
EXISTING LOT / PARCEL
EXISTING FENCE
EXISTING BRIDGE GUARDRAIL
EXISTING ELECTRICAL LINE
EXISTING STORM SEWER
EXISTING SANITARY SEWER
EXISTING TELEPHONE LINE
PROPOSED CHANNEL CENTERLINE
PROPOSED TOE OF BANK
PROPOSED TOP OF BANK
PROPOSED BOULDER WALL
PROPOSED FENCE
EXISTING RIPRAP PROTECTION
PROPOSED RIPRAP PROTECTION
PROPOSED CONCRETE PAVEMENT
PROPOSED MAINTENANCE PATH
PROPOSED FLOODPLAIN BENCH
PROPOSED DROP STRUCTURE

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6. ALIGNMENT RUNS ALONG LEFT SIDE OF THE TRAIL

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OR
1-800-922-1987
Utility Notification
Center of Colorado

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12SP2.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
0 20 40 80
1 inch = 40 ft. Horizontal
Designer: JLD | Drafter: KJM | Checked: BSH

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TREVOR B. IGELL
62834
12/9/2024
PROFESSIONAL ENGINEER

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
SITE PLAN 3

Sheet: SP4
10 of 63
Date: JANUARY 21, 2025

PATH: J:\MH-TD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12SP2.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:51 AM
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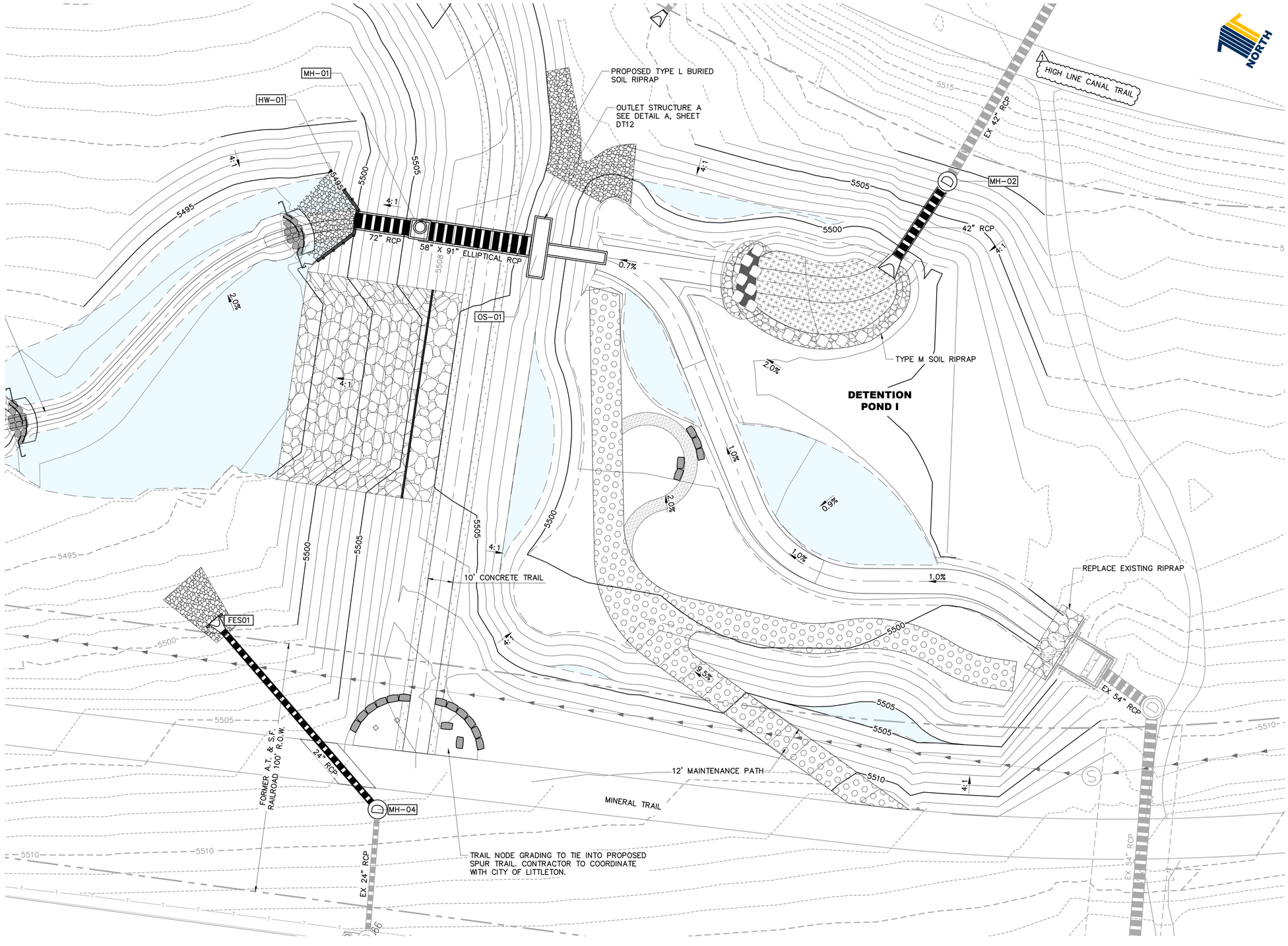

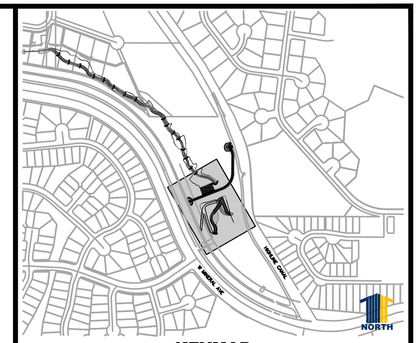

KEYMAP

LEGEND

- EXISTING MAJOR CONTOUR (5')
- EXISTING MINOR CONTOUR (1')
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING ROADWAY CENTERLINE
- EXISTING ROW
- EXISTING EASEMENT
- EXISTING CHANNEL FLOWLINE
- EXISTING LOT / PARCEL
- EXISTING FENCE
- EXISTING BRIDGE GUARDRAIL
- EXISTING ELECTRICAL LINE
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING TELEPHONE LINE
- PROPOSED CHANNEL CENTERLINE
- EXISTING 100 YR FLOODPLAIN
- PROPOSED 100 YR FLOODPLAIN
- PROPOSED BOULDER WALL
- PROPOSED STORM SEWER
- PROPOSED DROP STRUCTURE
- PROPOSED FLOODPLAIN BENCH
- PROPOSED MAINTENANCE PATH

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4. SEE SHEET GN1 FOR GENERAL NOTES.
5. SEE DT SHEETS FOR DETAILS.
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7. SEE SHEET GR1 FOR PROPOSED GROUTED BOULDER DROP LOCATIONS

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OR
1-800-922-1987
Utility Notification Center of Colorado

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12PD1.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:51 AM
XREFS:

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12PD1.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD
Drafter: KJM
Checked: BSH

0 10 20 40
1 inch = 20 ft. Horizontal

COLORADO LICENSED TREVOR B. IGEL 62834 PROFESSIONAL ENGINEER 12/9/2024

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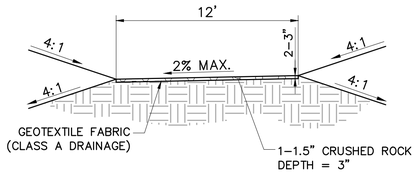
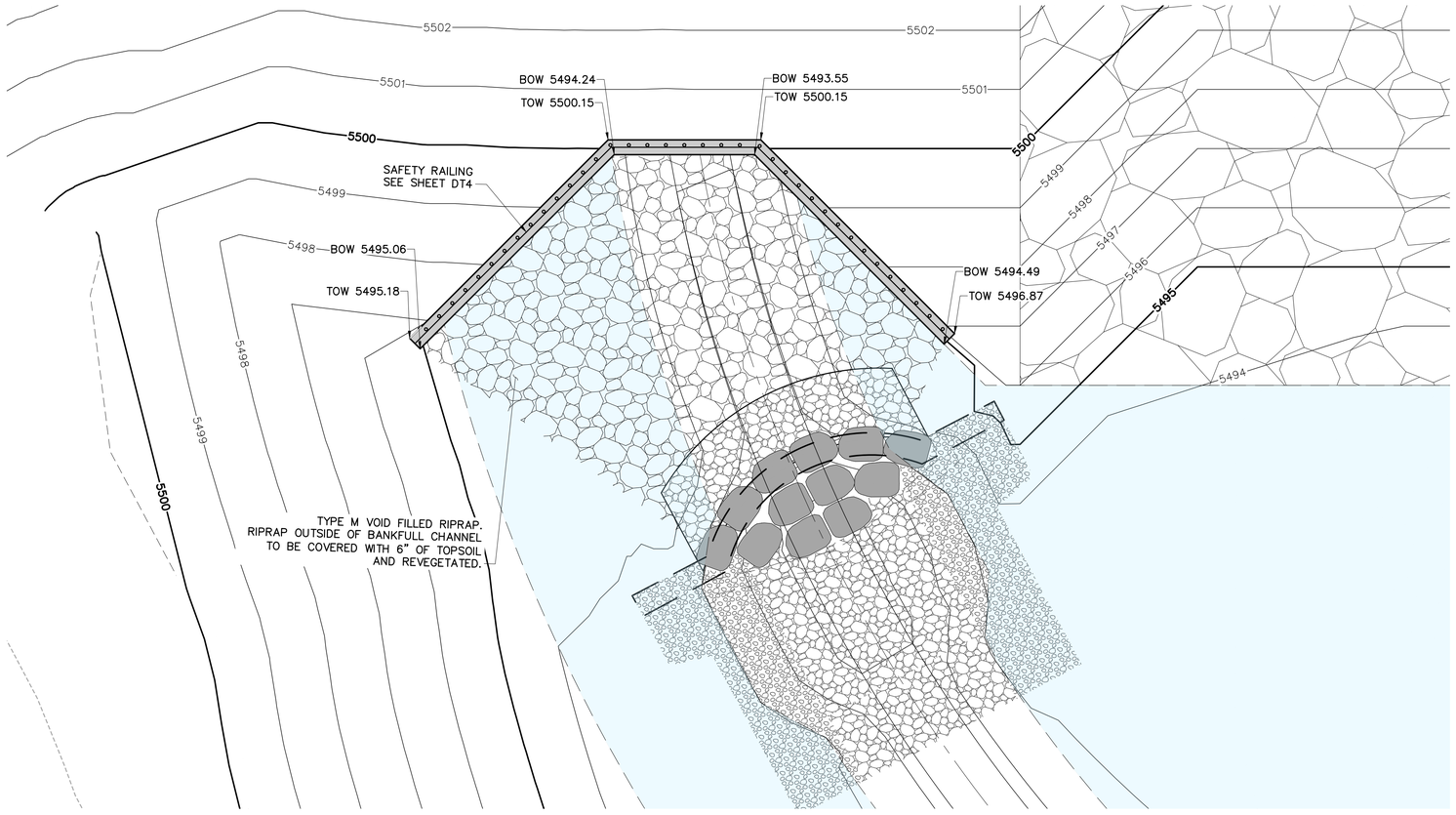
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
POND PLAN

Sheet: PD1
11 of 63
Date: JANUARY 21, 2025



POND I MAINTENANCE PATH DETAIL

N.T.S.



HEADWALL PLAN VIEW

1" = 5'

NOTE: BOTTOM OF HEADWALL TO BE 36" BELOW THE INVERT OF THE PIPE. SEE DT2 – DT3.

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12DT9.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH

COLORADO LICENSED
TREVOR B. WEIL
52834
12/6/2024
PROFESSIONAL ENGINEER

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Calibre Engineering, Inc.
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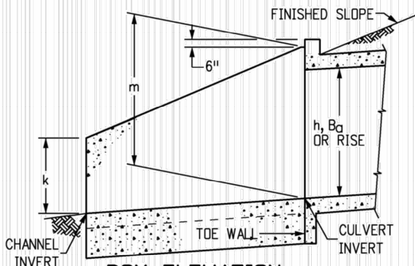
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
SITE DETAILS 1

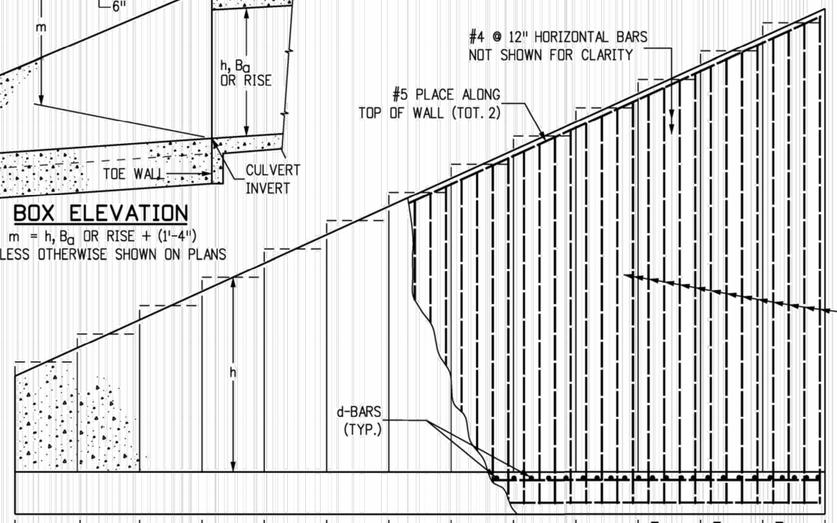
Sheet: DT1 | 12 of 63
Date: JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12DT9.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:52 AM
XREFS:



BOX ELEVATION

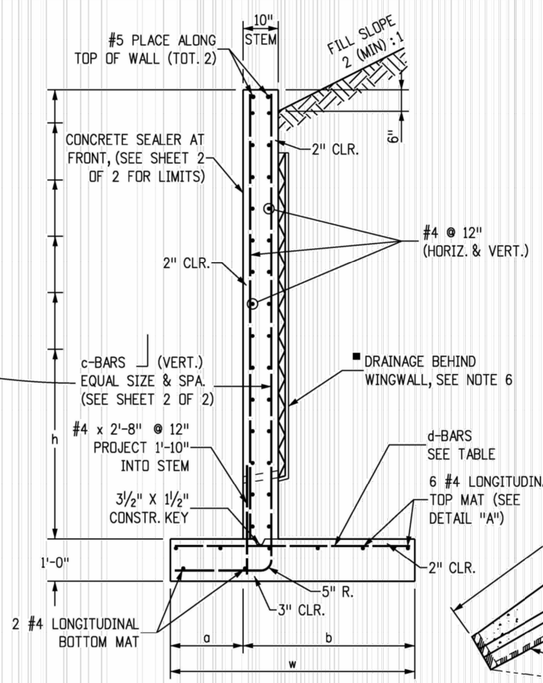
m = h, B_d OR RISE + (1'-4")
UNLESS OTHERWISE SHOWN ON PLANS



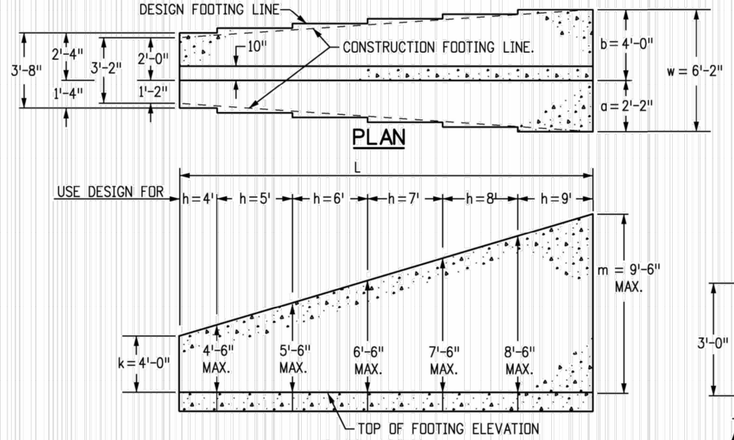
h =	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	■ 12'	■ 13'	■ 14'
a =	1'-0"	1'-2"	1'-4"	1'-6"	1'-8"	1'-10"	2'-0"	2'-2"	2'-4"	2'-6"	2'-8"	2'-10"	3'-0"
b =	1'-8"	2'-0"	2'-4"	2'-8"	3'-0"	3'-4"	3'-8"	4'-0"	4'-4"	4'-8"	5'-0"	5'-4"	5'-8"
w =	2'-8"	3'-2"	3'-8"	4'-2"	4'-8"	5'-2"	5'-8"	6'-2"	6'-8"	7'-2"	7'-8"	8'-2"	8'-8"
d-BARS	#4 @ 9"	#4 @ 9"	#4 @ 9"	#4 @ 9"	#4 @ 9"	#4 @ 9"	#5 @ 11"	#5 @ 10"	#5 @ 10"	#5 @ 8"	#6 @ 8"	#7 @ 9"	#7 @ 7"
✳ CONC. CY/LF	0.161	0.210	0.259	0.309	0.358	0.407	0.457	0.506	0.556	0.605	0.654	0.704	0.753

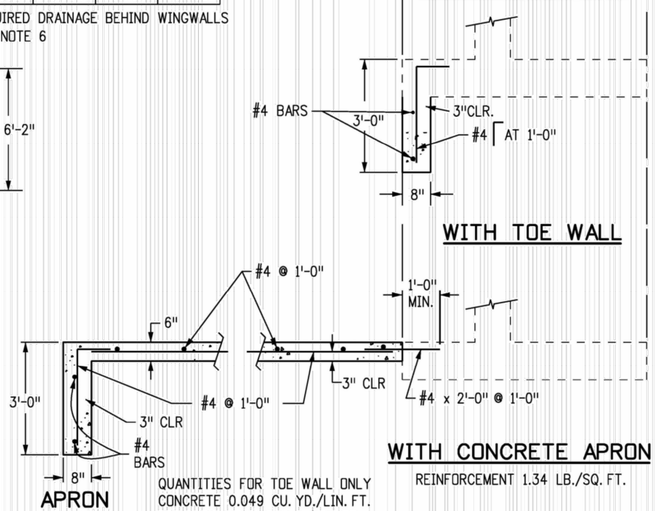
✳ DOES NOT INCLUDE TOE WALL QUANTITIES
SEE SHEET 2 OF 2 FOR REINFORCING STEEL QUANTITY

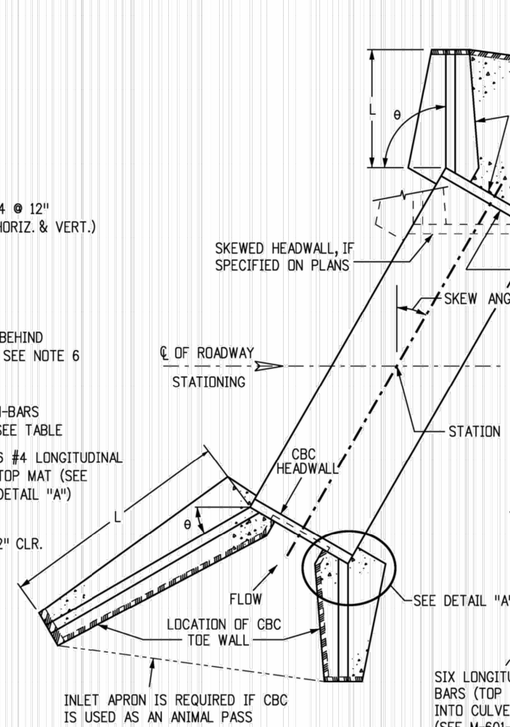
■ REQUIRED DRAINAGE BEHIND WINGWALLS SEE NOTE 6



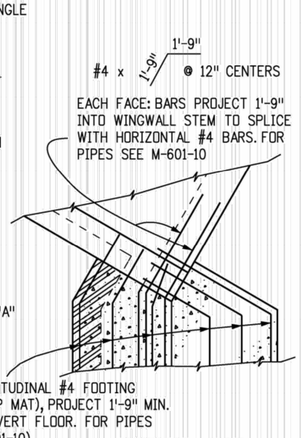
TYPICAL SECTION







TYPICAL CULVERT LAYOUT



DETAIL "A"

DESIGN DATA:

AASHTO LRFD EIGHTH EDITION, 2017
DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN, YIELD LINE METHOD

REINFORCED CONCRETE:
CONCRETE CLASS D (BOX CULVERT): f'_c = 4,500 PSI
REINFORCING STEEL: f_y = 60,000 PSI

LOADING:
AT-REST EARTH (FLUID) PRESSURE FOR CONCRETE STEM DESIGN = 55 PCF FOR 2 (MIN.) : 1 SLOPED BACKFILL
ACTIVE EARTH (FLUID) PRESSURE FOR CONCRETE FOOTING DESIGN = 40 PCF FOR 2 (MIN.) : 1 SLOPED BACKFILL
LIVE LOAD SURCHARGE = 2'
MINIMUM RESISTANCE FOR SOIL BEARING = 5.5 KSF
SOIL BEARING RESISTANCE FACTOR = 0.45

GENERAL NOTES:

1. ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾ IN.
2. WINGWALL FOOTING AND FLOOR OF BOX CULVERT SHALL BE PLACED MONOLITHICALLY.
3. DIMENSIONS "h", "k", "L", "m" AND ANGLE "θ" FOR WINGWALL SHALL BE AS SHOWN ON THE PLANS.
4. MINIMUM CLASS B LAP SPLICE LENGTH FOR BLACK REINFORCING BARS:

BAR SIZE:	#4	#5	#6	#7
SPLICE LENGTH:	1'- 6"	1'-11"	2'-3"	2'-7"

5. DESIGN DOES NOT CONSIDER ANY SCOUR EFFECTS.
6. WINGWALL DRAIN SHALL BE REQUIRED IF "h" ≥ 12.0 FT., SEE SHEET 2 OF 2 FOR DETAILS.

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

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

WINGWALLS FOR PIPE OR BOX CULVERTS

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-601-20
Standard Sheet No. 1 of 2
Project Sheet Number:

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12DT9.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:52 AM
XREFS:

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12DT9.dwg
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COLORADO LICENSED TREVOR B. REES 62834 12/9/2024 PROFESSIONAL ENGINEER

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
SITE DETAILS 2

Sheet DT2 of 63
Date: JANUARY 21, 2025

c-BARS AND REINFORCING STEEL QUANTITY (EXCLUDE TOE WALL)

✳ REINFORCING STEEL QUANTITY INCLUDES STEM AND FOOTING QUANTITIES, BUT DOES NOT INCLUDE TOE WALL QUANTITIES.

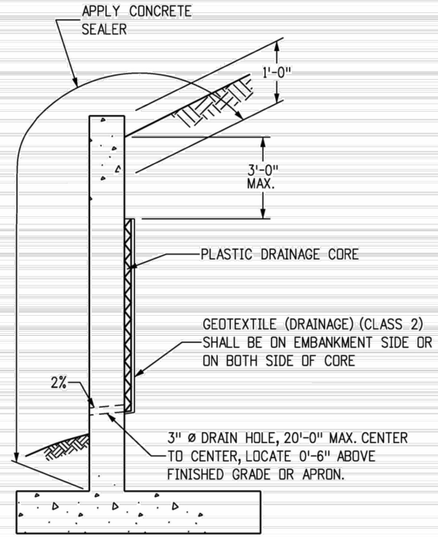
L (MULTIPLE OF m)		≤ (1.0 x m)		≤ (1.25 x m)		≤ (1.5 x m)		≤ (1.75 x m)		≤ (2.0 x m)		≤ (2.25 x m)		≤ (2.5 x m)		≤ (2.75 x m)		≤ (3.0 x m)		≤ (3.25 x m)		≤ (3.5 x m)	
m (FT)	k (FT)	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.	c-BARS	✳ REINF. LB./L.F.
14	4	#4 @ 10"	53.60	#5 @ 10"	57.95	#5 @ 10"	57.10	#5 @ 8"	60.22	#5 @ 7"	62.43	#5 @ 7"	62.09	#5 @ 6"	65.38	#5 @ 6"	65.15	#6 @ 8"	67.10	#6 @ 8"	66.94	#6 @ 7"	70.66
	5	#4 @ 10"	55.86	#5 @ 10"	60.46	#5 @ 10"	59.60	#5 @ 8"	62.89	#5 @ 7"	65.23	#5 @ 7"	64.88	#5 @ 6"	68.34	#5 @ 6"	68.11	#6 @ 8"	70.17	#6 @ 8"	70.00	#6 @ 7"	73.90
	6	#5 @ 10"	64.43	#6 @ 10"	70.60	#6 @ 10"	69.69	#6 @ 8"	74.93	#6 @ 8"	74.45	#6 @ 7"	78.30	#6 @ 6"	83.64	#6 @ 6"	83.40	#6 @ 6"	83.22	#6 @ 6"	83.05	#7 @ 7"	89.64
	7	#5 @ 10"	67.29	#6 @ 10"	73.76	#6 @ 10"	72.83	#6 @ 8"	78.32	#6 @ 8"	77.84	#6 @ 7"	81.87	#6 @ 6"	87.45	#6 @ 6"	87.21	#6 @ 6"	87.02	#6 @ 6"	86.86	#7 @ 7"	93.73
	8	#5 @ 8"	74.71	#6 @ 8"	83.46	#6 @ 7"	87.09	#6 @ 6"	92.54	#7 @ 7"	99.47	#7 @ 7"	99.08	#7 @ 6"	107.11	#7 @ 6"	106.86	#7 @ 6"	106.66	#7 @ 6"	106.49	#7 @ 6"	106.35
	9	#5 @ 8"	78.10	#6 @ 8"	87.23	#6 @ 7"	91.03	#6 @ 6"	96.72	#7 @ 7"	103.93	#7 @ 7"	103.54	#7 @ 6"	111.90	#7 @ 6"	111.65	#7 @ 6"	111.45	#7 @ 6"	111.28	#7 @ 6"	111.13
13	4	#4 @ 10"	50.51	#4 @ 10"	49.25	#5 @ 10"	53.71	#5 @ 10"	53.09	#5 @ 10"	52.36	#5 @ 9"	53.85	#5 @ 8"	55.54	#5 @ 7"	57.85	#5 @ 7"	57.67	#5 @ 7"	57.51	#6 @ 9"	59.93
	5	#4 @ 10"	52.66	#4 @ 10"	51.37	#5 @ 10"	56.09	#5 @ 10"	55.46	#5 @ 10"	54.99	#5 @ 9"	56.29	#5 @ 8"	58.08	#5 @ 7"	60.51	#5 @ 7"	60.33	#5 @ 7"	60.17	#6 @ 9"	62.72
	6	#4 @ 10"	54.92	#5 @ 10"	59.48	#5 @ 9"	60.31	#6 @ 9"	67.56	#6 @ 9"	67.08	#6 @ 9"	66.70	#6 @ 8"	69.53	#6 @ 8"	69.28	#6 @ 7"	73.12	#6 @ 7"	72.95	#6 @ 7"	72.81
	7	#4 @ 10"	57.36	#5 @ 10"	62.16	#5 @ 9"	63.05	#6 @ 9"	70.66	#6 @ 9"	70.16	#6 @ 9"	69.78	#6 @ 8"	72.75	#6 @ 8"	72.50	#6 @ 7"	76.52	#6 @ 7"	76.35	#6 @ 7"	76.20
	8	#5 @ 10"	66.39	#6 @ 10"	72.82	#6 @ 8"	77.97	#6 @ 7"	81.68	#6 @ 7"	81.19	#6 @ 6"	86.67	#6 @ 6"	86.37	#7 @ 7"	93.18	#7 @ 7"	92.97	#7 @ 7"	92.80	#7 @ 7"	92.64
	9	#5 @ 10"	69.37	#6 @ 10"	76.10	#6 @ 8"	81.49	#6 @ 7"	85.37	#6 @ 7"	84.87	#6 @ 6"	90.59	#6 @ 6"	90.29	#7 @ 7"	97.39	#7 @ 7"	97.18	#7 @ 7"	97.00	#7 @ 7"	96.85
12	2	#4 @ 10"	43.91	#4 @ 10"	42.65	#4 @ 10"	41.82	#4 @ 10"	41.22	#4 @ 10"	40.78	#4 @ 9"	41.29	#5 @ 10"	44.61	#5 @ 10"	44.37	#5 @ 10"	44.18	#5 @ 10"	44.01	#5 @ 10"	43.87
	3	#4 @ 10"	45.82	#4 @ 10"	44.55	#4 @ 10"	43.71	#4 @ 10"	43.11	#4 @ 10"	42.66	#4 @ 9"	43.22	#5 @ 10"	46.75	#5 @ 10"	46.51	#5 @ 10"	46.32	#5 @ 10"	46.15	#5 @ 10"	46.01
	4	#4 @ 10"	47.80	#4 @ 10"	46.51	#4 @ 10"	45.65	#5 @ 10"	50.06	#5 @ 10"	49.59	#5 @ 10"	49.23	#5 @ 10"	48.94	#5 @ 10"	48.69	#5 @ 9"	50.00	#5 @ 8"	51.72	#5 @ 8"	51.57
	5	#4 @ 10"	49.84	#4 @ 10"	48.53	#4 @ 10"	47.66	#5 @ 10"	52.33	#5 @ 10"	51.85	#5 @ 10"	51.48	#5 @ 10"	51.19	#5 @ 10"	50.94	#5 @ 9"	52.33	#5 @ 8"	54.14	#5 @ 8"	54.00
	6	#4 @ 10"	51.99	#4 @ 10"	50.65	#5 @ 10"	55.34	#5 @ 8"	58.41	#5 @ 8"	57.93	#6 @ 10"	60.60	#6 @ 10"	60.29	#6 @ 9"	62.42	#6 @ 9"	62.22	#6 @ 9"	62.04	#6 @ 8"	64.89
	7	#4 @ 10"	54.30	#5 @ 10"	58.80	#5 @ 10"	57.87	#5 @ 8"	61.10	#5 @ 8"	60.61	#6 @ 10"	63.43	#6 @ 10"	63.11	#6 @ 9"	65.35	#6 @ 9"	65.15	#6 @ 9"	64.97	#6 @ 8"	67.96
	8	#5 @ 10"	62.91	#5 @ 10"	61.45	#5 @ 7"	67.46	#5 @ 6"	70.68	#5 @ 6"	70.20	#6 @ 7"	76.44	#6 @ 7"	76.13	#6 @ 7"	75.87	#6 @ 6"	81.30	#6 @ 6"	81.12	#6 @ 6"	80.98
	9	#5 @ 10"	65.64	#5 @ 10"	64.15	#5 @ 7"	70.44	#5 @ 6"	73.82	#5 @ 6"	73.33	#6 @ 7"	79.86	#6 @ 7"	79.54	#6 @ 7"	79.28	#6 @ 6"	84.95	#6 @ 6"	84.77	#6 @ 6"	84.62
11	2	#4 @ 10"	41.70	#4 @ 10"	40.42	#4 @ 10"	39.57	#4 @ 10"	38.96	#4 @ 10"	38.50	#4 @ 10"	38.15	#4 @ 10"	37.87	#4 @ 10"	37.63	#4 @ 9"	38.25	#5 @ 10"	41.46	#5 @ 10"	41.31
	3	#4 @ 10"	43.57	#4 @ 10"	42.27	#4 @ 10"	41.40	#4 @ 10"	40.79	#4 @ 10"	40.33	#4 @ 10"	39.97	#4 @ 10"	39.69	#4 @ 10"	39.45	#4 @ 9"	40.12	#5 @ 10"	43.54	#5 @ 10"	43.39
	4	#4 @ 10"	45.48	#4 @ 10"	44.16	#4 @ 10"	43.28	#4 @ 10"	42.66	#4 @ 9"	43.09	#5 @ 10"	46.57	#5 @ 10"	46.27	#5 @ 10"	46.02	#5 @ 10"	45.82	#5 @ 10"	45.65	#5 @ 10"	45.50
	5	#4 @ 10"	47.46	#4 @ 10"	46.10	#4 @ 10"	45.21	#4 @ 10"	44.58	#4 @ 9"	45.06	#5 @ 10"	48.74	#5 @ 10"	48.44	#5 @ 10"	48.19	#5 @ 10"	47.99	#5 @ 10"	47.81	#5 @ 10"	47.67
	6	#4 @ 10"	49.52	#4 @ 10"	48.14	#4 @ 9"	48.23	#5 @ 10"	51.88	#5 @ 10"	51.38	#5 @ 9"	52.57	#5 @ 9"	52.27	#5 @ 8"	53.99	#5 @ 8"	53.79	#5 @ 7"	56.16	#5 @ 7"	56.01
	7	#4 @ 10"	51.73	#4 @ 10"	50.31	#4 @ 9"	50.43	#5 @ 10"	54.29	#5 @ 10"	53.78	#5 @ 9"	55.04	#5 @ 9"	54.73	#5 @ 8"	56.55	#5 @ 8"	56.35	#5 @ 7"	58.84	#5 @ 7"	58.70
	8	#4 @ 10"	54.00	#5 @ 10"	58.44	#5 @ 10"	57.45	#5 @ 8"	60.64	#5 @ 7"	62.92	#5 @ 6"	66.25	#5 @ 6"	65.94	#5 @ 6"	65.69	#6 @ 8"	67.76	#6 @ 8"	67.57	#6 @ 7"	71.45
	9	#4 @ 10"	56.20	#5 @ 10"	60.87	#5 @ 10"	59.85	#5 @ 8"	63.21	#5 @ 7"	65.60	#5 @ 6"	69.09	#5 @ 6"	68.78	#5 @ 6"	68.52	#6 @ 8"	70.69	#6 @ 8"	70.51	#6 @ 7"	74.57
10	2	#4 @ 10"	39.84	#4 @ 10"	38.53	#4 @ 10"	37.65	#4 @ 10"	37.03	#4 @ 10"	36.57	#4 @ 10"	36.20	#4 @ 10"	35.91	#4 @ 10"	35.67	#4 @ 10"	35.48	#4 @ 9"	36.07	#4 @ 9"	35.93
	3	#4 @ 10"	41.68	#4 @ 10"	40.35	#4 @ 10"	39.47	#4 @ 10"	38.84	#4 @ 10"	38.36	#4 @ 10"	38.00	#4 @ 10"	37.71	#4 @ 10"	37.46	#4 @ 10"	37.27	#4 @ 9"	37.91	#4 @ 9"	37.76
	4	#4 @ 10"	43.58	#4 @ 10"	42.22	#4 @ 10"	41.31	#4 @ 10"	40.67	#4 @ 10"	40.19	#4 @ 10"	39.82	#4 @ 10"	39.53	#4 @ 10"	39.28	#4 @ 10"	39.08	#4 @ 9"	39.77	#4 @ 9"	39.63
	5	#4 @ 10"	45.53	#4 @ 10"	44.14	#4 @ 10"	43.21	#4 @ 10"	42.56	#4 @ 10"	42.07	#5 @ 10"	46.44	#5 @ 10"	46.13	#5 @ 10"	45.87	#5 @ 10"	45.67	#5 @ 10"	45.49	#5 @ 10"	45.34
	6	#4 @ 10"	47.58	#4 @ 10"	46.14	#4 @ 10"	45.20	#4 @ 10"	44.53	#4 @ 10"	44.03	#5 @ 10"	48.67	#5 @ 10"	48.35	#5 @ 10"	48.08	#5 @ 10"	47.88	#5 @ 10"	47.69	#5 @ 10"	47.54
	7	#4 @ 10"	49.79	#4 @ 10"	48.31	#4 @ 10"	47.34	#5 @ 10"	51.97	#5 @ 10"	51.45	#5 @ 10"	51.04	#5 @ 9"	52.29	#5 @ 9"	52.03	#5 @ 8"	53.79	#5 @ 8"	53.61	#5 @ 7"	56.00
	8	#4 @ 10"	52.06	#4 @ 10"	50.54	#4 @ 10"	49.54	#5 @ 10"	54.43	#5 @ 10"	53.89	#5 @ 10"	53.47	#5 @ 9"	54.80	#5 @ 9"	54.53	#5 @ 8"	56.39	#5 @ 8"	56.20	#5 @ 7"	58.72
9	2	#4 @ 10"	38.01	#4 @ 10"	36.75	#4 @ 10"	35.85	#4 @ 10"	35.21	#4 @ 10"	34.73	#4 @ 10"	34.36	#4 @ 10"	34.06	#4 @ 10"	33.81	#4 @ 10"	33.61	#4 @ 10"	33.44	#4 @ 10"	33.30
	3	#4 @ 10"	39.93	#4 @ 10"	38.56	#4 @ 10"	37.64	#4 @ 10"	36.99	#4 @ 10"	36.51	#4 @ 10"	36.13	#4 @ 10"	35.83	#4 @ 10"	35.58	#4 @ 10"	35.38	#4 @ 10"	35.21	#4 @ 10"	35.06
	4	#4 @ 10"	41.81	#4 @ 10"	40.40	#4 @ 10"	39.47	#4 @ 10"	38.81	#4 @ 10"	38.31	#4 @ 10"	37.93	#4 @ 10"	37.63	#4 @ 10"	37.37	#4 @ 10"	37.17	#4 @ 10"	36.99	#4 @ 10"	36.84
	5	#4 @ 10"	43.75	#4 @ 10"	42.30	#4 @ 10"	41.35	#4 @ 10"	40.67	#4 @ 10"	40.17	#4 @ 10"	39.78	#4 @ 10"	39.47	#4 @ 10"	39.20	#4 @ 9"	39.86	#5 @ 10"	43.28	#5 @ 10"	43.12
	6	#4 @ 10"	45.79	#4 @ 10"	44.30	#4 @ 10"	43.31	#4 @ 10"	42.62	#4 @ 10"	42.10	#4 @ 10"	41.71	#4 @ 10"	41.39	#4 @ 10"	41.12	#4 @ 9"	41.82	#5 @ 10"	45.46	#5 @ 10"	45.30
	7	#4 @ 10"	48.04	#4 @ 10"	46.50	#4 @ 10"	45.49	#4 @ 10"	44.77	#5 @ 10"	49.29	#5 @ 10"	48.86	#5 @ 10"	48.53	#5 @ 10"	48.24	#5 @ 10"	48.03	#5 @ 10"	47.84	#5 @ 10"	47.67
	8	#4 @ 10"	50.43	#4 @ 10"	48.84	#4 @ 10"	47.80	#4 @ 10"	47.06	#5 @ 10"	51.83	#5 @ 10"	51.40	#5 @ 10"	51.05	#5 @ 10"	50.77	#5 @ 10"	50.54	#5 @ 10"	50.35	#5 @ 10"	50.18
8	2	#4 @ 10"	36.41	#4 @ 10"	35.01	#4 @ 10"	34.08	#4 @ 10"	33.42	#4 @ 10"	32.92	#4 @ 10"	32.54	#4 @ 10"	32.23	#4 @ 10"	31.97	#4 @ 10"	31.77	#4 @ 10"	31.59	#4 @ 10"	31.44
	3	#4 @ 10"	38.23	#4 @ 10"	36.80	#4 @ 10"	35.85	#4 @ 10"	35.18	#4 @ 10"	34.67	#4 @ 10"	34.28	#4 @ 10"	33.97	#4 @ 10"	33.70	#4 @ 10"	33.50	#4 @ 10"	33.32	#4 @ 10"	33.17
	4	#4 @ 10"	40.09	#4 @ 10"	38.61	#4 @ 10"	37.64	#4 @ 10"	36.95	#4 @ 10"	36.44	#4 @ 10"	36.04	#4 @ 10"	35.72	#4 @ 10"	33.45	#4 @ 10"	35.25	#4 @ 10"	35.07	#4 @ 10"	34.91
	5	#4 @ 10"	41.99	#4 @ 10"	40.47	#4 @ 10"	39.47	#4 @ 10"	38.76	#4 @ 10"	38.24	#4 @ 10"	37.83	#4 @ 10"	37.50	#4 @ 10"	37.23	#4 @ 10"	37.02	#4 @ 10"	36.84	#4 @ 10"	36.68
	6	#4 @ 10"	43.97	#4 @ 10"	42.40	#4 @ 10"	41.36	#4 @ 10"	40.64	#4 @ 10"	40.10	#4 @ 10"	39.68	#4 @ 10"	39.35	#4 @ 10"	39.07	#4 @ 9"	43.33	#5 @ 10"	43.13	#5 @ 10"	42.96
	7	#4 @ 10"	46.19	#4 @ 10"	44.56	#4 @ 10"	43.49	#4 @ 10"	42.74	#4 @ 10"	42.18	#4 @ 10"	41.75	#4 @ 10"	41.41	#4 @ 10"	41.13	#4 @ 9"	45.65	#5 @ 10"	45.45	#5 @ 10"	45.28
7	2	#4 @ 10"	34.90	#4 @ 10"	33.44	#4 @ 10"	32.47	#4 @ 10"	31.78	#4 @ 10"	31.27	#4 @ 10"	30.86	#4 @ 10"	30.54	#4 @ 10"	30.27	#4 @ 10"	30.06	#4 @ 10"	29.88	#4 @ 10"	29.72
	3	#4 @ 10"	36.73	#4 @ 10"	35.23	#4 @ 10"	34.23	#4 @ 10"	33.53	#4 @ 10"	33.00	#4 @ 10"	32.59	#4 @ 10"	32.26	#4 @ 10"	31.99	#4 @ 10"	31.78	#4 @ 10"	31.59	#4 @ 10"	31.43
	4	#4 @ 10"	38.59	#4 @ 10"	37.04	#4 @ 10"	36.01	#4 @ 10"	35.29	#4 @ 10"	34.75	#4 @ 10"	34.33	#4 @ 10"	33.99	#4 @ 10"	33.71	#4 @ 10"	33.50	#4 @ 10"	33.31	#4 @ 10"	33.14
	5	#4 @ 10"	40.48	#4 @ 10"	38.86	#4 @ 10"	37.80	#4 @ 10"	37.06	#4 @ 10"	36.50	#4 @ 10"	36.07	#4 @ 10"	35.73	#4 @ 10"	35.44	#4 @ 10"	35.22	#4 @ 10"	35.03	#4 @ 10"	34.86
	6	#4 @ 10"	42.39	#4 @ 10"	40.71	#4 @ 10"	39.61	#4 @ 10"	38.84	#4 @ 10"	38.26	#4 @ 10"	37.82	#4 @ 10"	37.47	#4 @ 10"	37.17	#4 @ 10"	36.95	#4 @ 10"	36.75	#4 @ 10"	36.58

EXAMPLE:

SELECT THE c-BARS SIZE, SPACING AND STEEL QUANTITY FOR A 25.0 FEET LONG WINGWALL WITH m = 11.8 FT. AND k = 6.3 FT.

SOLUTION:

1. DETERMINE WINGWALL LENGTH IN MULTIPLE OF m:
   L / m = 25.0 / 11.8 = 2.12
   L = (2.12 x m), USE L ≤ (2.25 x m)
2. ROUND TO REAREST WHOLE NUMBER FOR m AND k:
   m = 11.8 FT., USE m = 12.0 FT.
   k = 6.3 FT., USE k = 6.0 FT.
3. DETERMINE c-BARS BY USING THE TABLE:
   L ≤ (2.25 x m)
   m = 12
   k = 6
   c-BARS: #6 @ 10"
   REINF. STEEL = 60.60 LB / LF
4. DETERMINE REINFORCING STEEL QUANTITY OF WHOLE WINGWALL:
   REINFORCING STEEL QUANTITY = 25.0 x 60.60 = 1,515 LB.



LIMITS OF CONCRETE SEALER AND WINGWALL DRAIN DETAILS

NOTES: 1. THE GEOCOMPOSITE SHALL BE SECURED TO THE WALL TO PREVENT MOVEMENT DURING BACKFILLING.

2. COST OF GEOCOMPOSITE DRAIN AND CONCRETE SEALER SHALL BE INCLUDED IN THE WORK.

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

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

WINGWALLS FOR PIPE OR BOX CULVERTS

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-601-20
Standard Sheet No. 2 of 2
Project Sheet Number:

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12DT9.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:52 AM
XREFS:

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12DT9.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH

COLORADO LICENSED TREVOR B. WEE 62854 PROFESSIONAL ENGINEER 12/5/2024

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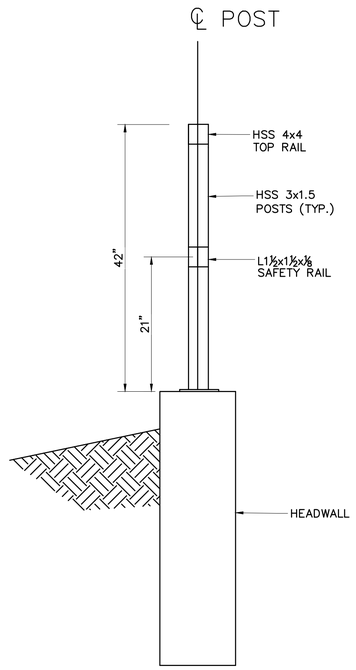
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
SITE DETAILS 3

Sheet DT3 14 of 63
Date JANUARY 21, 2025

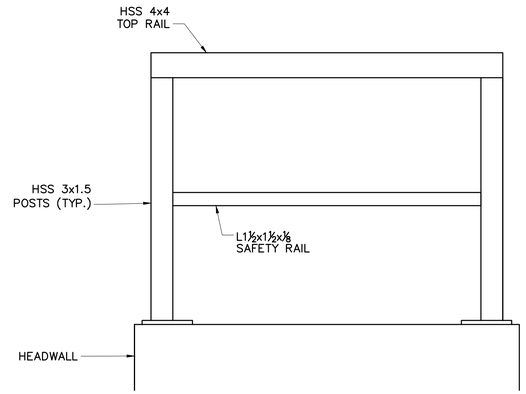


PEDESTRIAN RAILING NOTES:

1. RAILINGS SHALL BE FABRICATED TO FIT THE TOP OF THE WALL.
2. RAILING ELEMENTS SHALL BE WEATHERING STEEL.
   2.1. HSS SECTIONS: ASTM A847, Fy = 50ksi
   2.2. STEEL SHAPES: ASTM A588, Fy = 50ksi
   2.3. STEEL PLATES: ASTM A588, Fy = 50ksi

SAFETY RAILING (STEEL)
TYPICAL SECTION

1" = 5'



NOTE:
1. THIS IS AN HLCC STANDARD RAIL. DEFERRED SUBMITTAL FINAL DESIGN & DETAILING TO BE PROVIDED BY CONTRACTOR.
2. RAILING TO MATCH THE EXISTING RAILING AROUND THE OUTLET STRUCTURE NEAR THE SOUTHWEST PORTION OF THE SITE.

SAFETY RAILING (STEEL)
ELEVATION

1" = 5'

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12DT9.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
SITE DETAILS 4

Sheet DT4 — 15 of 63
Date: JANUARY 21, 2025

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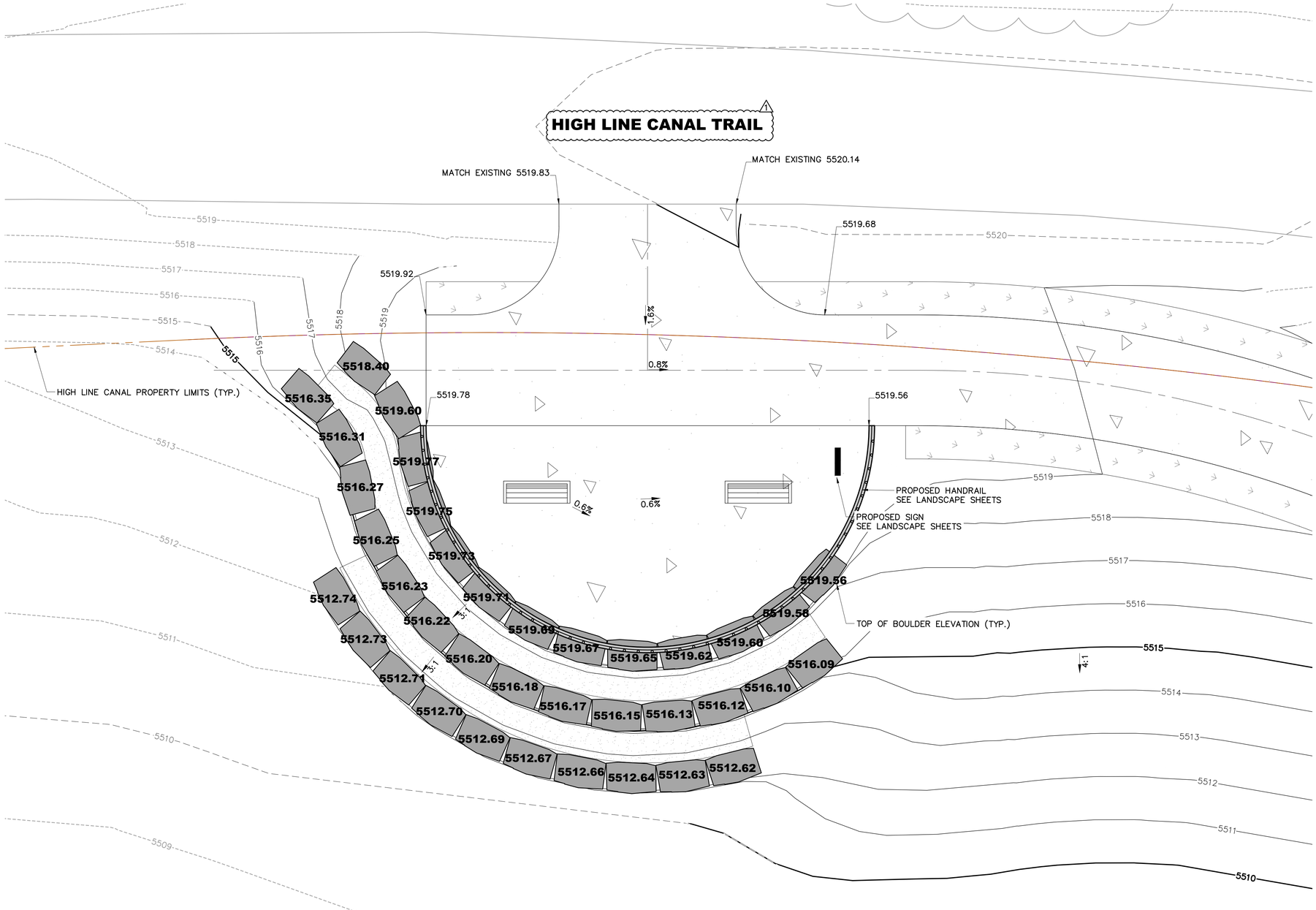

OVERLOOK GRADING DETAIL

1" = 5'

			Drawing Name: 12DT9.dwg				
			Job Number				
01/21/25	1	HIGH LINE CANAL REVISIONS	Prepared For: MILE HIGH FLOOD DISTRICT	Designer: JLD	Drafter: KJM	Checked: BSH	
DATE		REVISION DESCRIPTION					

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
SITE DETAILS 5

Sheet: DT5 — 16 of 63

Date: JANUARY 21, 2025

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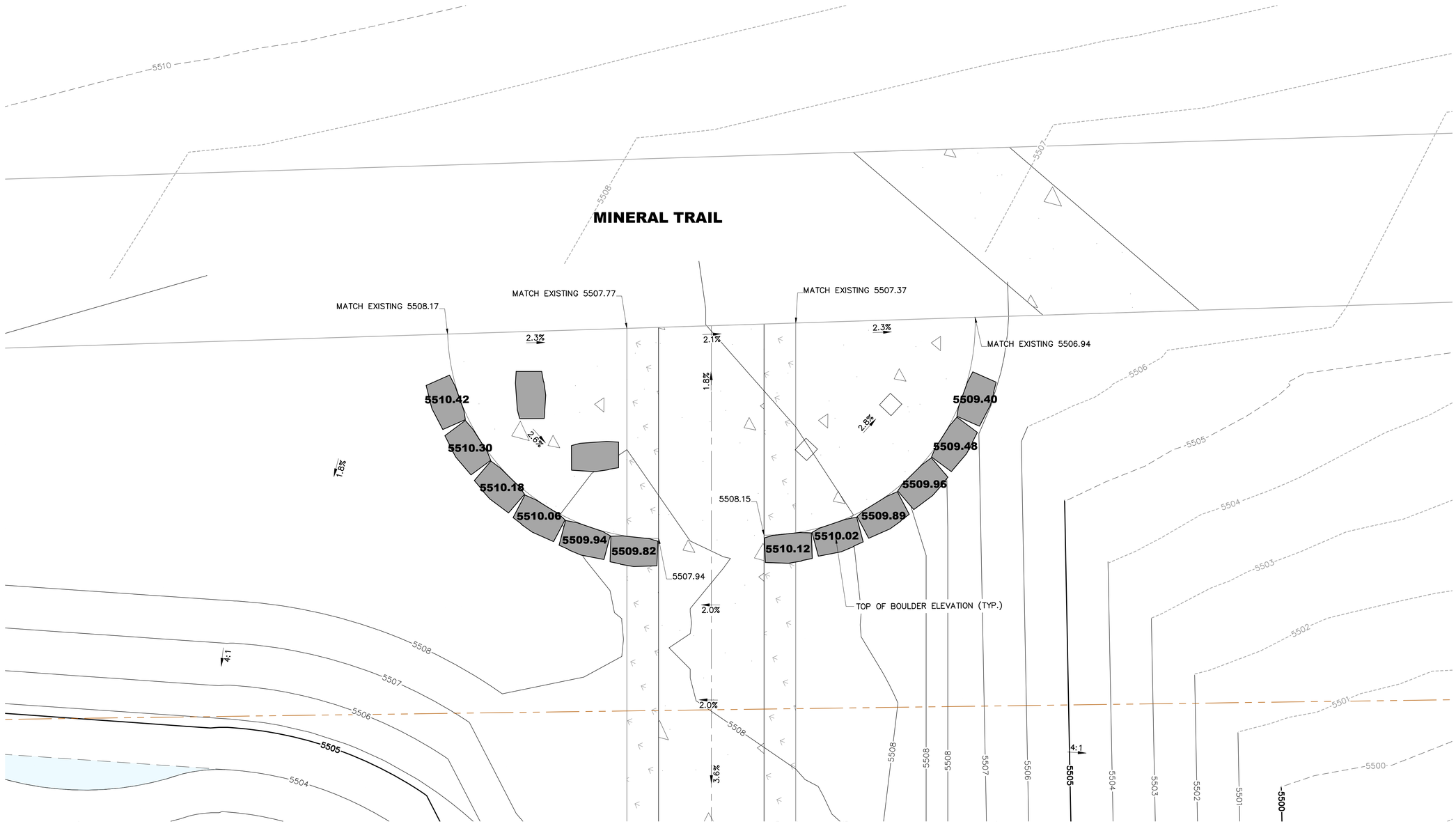

TRAIL NODE GRADING DETAIL

1" = 5'

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PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:52 AM
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DATE		REVISION DESCRIPTION
01/21/25	1	HIGH LINE CANAL REVISIONS

Drawing Name: 12DT9.dwg			
Job Number			
Prepared For: MILE HIGH FLOOD DISTRICT	Designer: JLD	Drafter: KJM	Checked: BSH

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
SITE DETAILS 6

Sheet: DT6 — 17 of 63

Date: JANUARY 21, 2025

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DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12DT9.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD
Drafter: KJM
Checked: BSH

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52834
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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
SITE DETAILS 7

Sheet: DT7

Date: JANUARY 21, 2025

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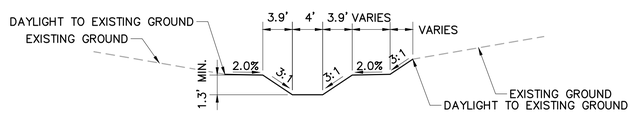
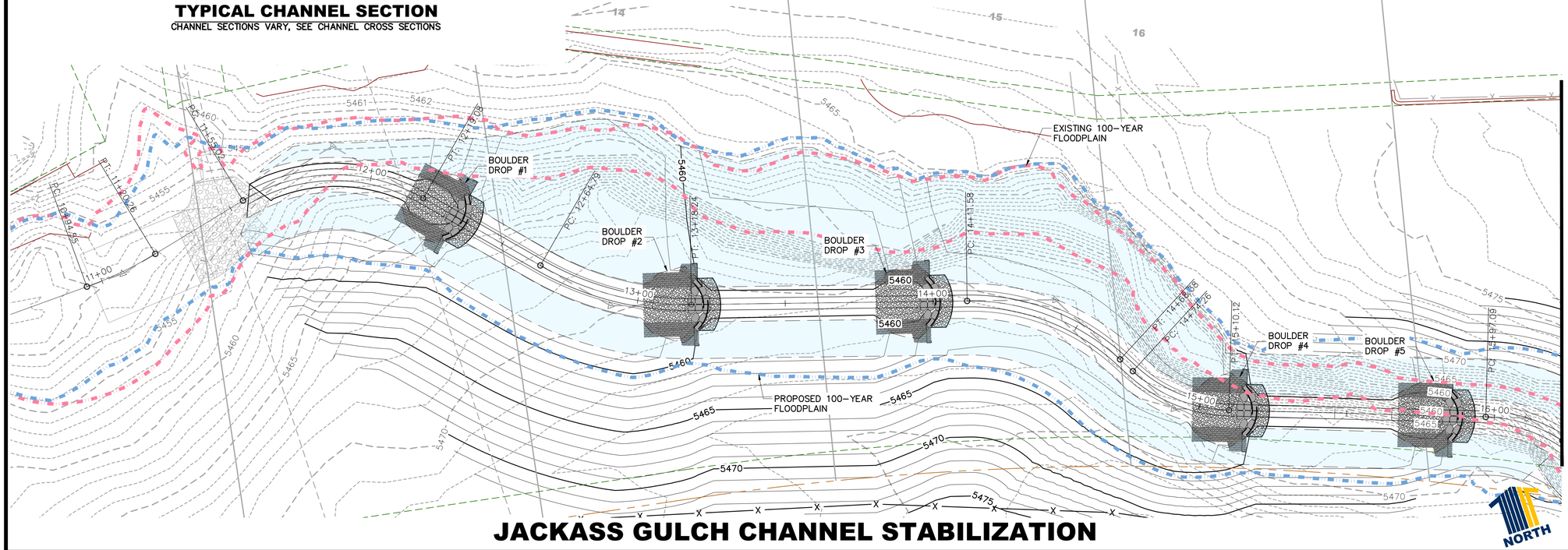
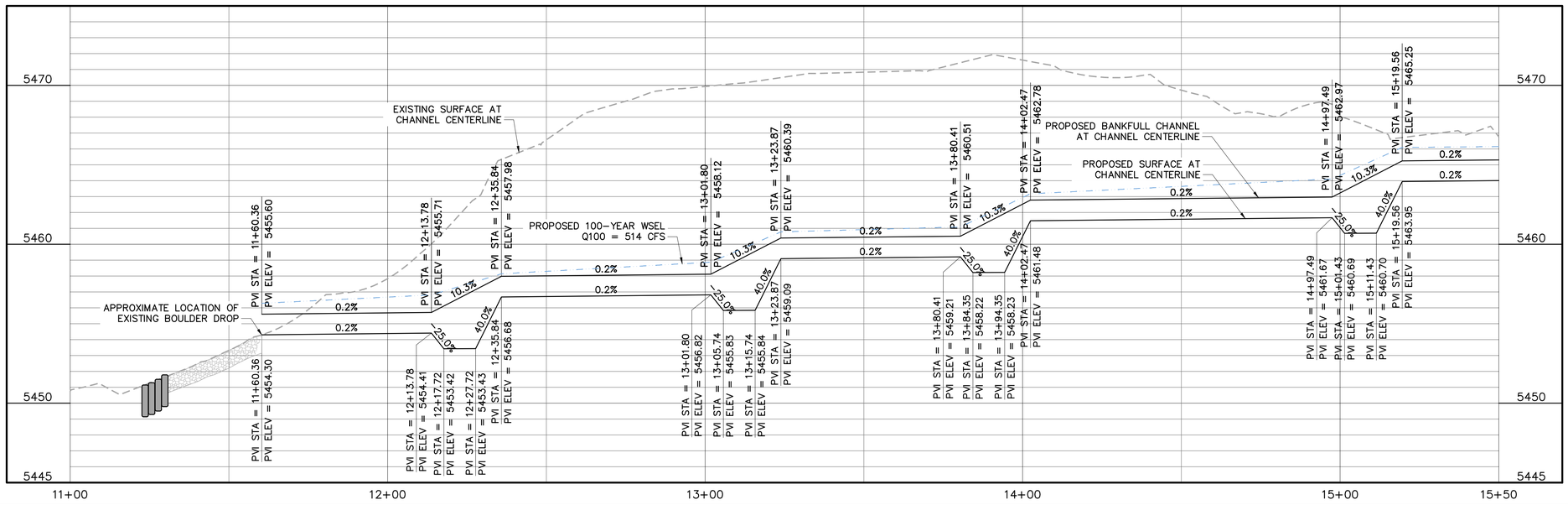


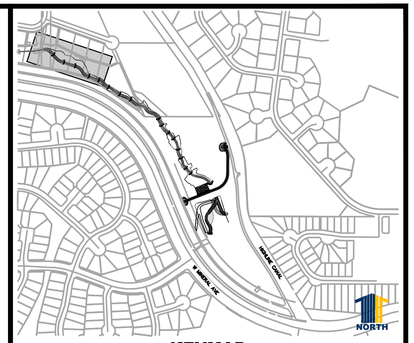
TYPICAL CHANNEL SECTION

CHANNEL SECTIONS VARY, SEE CHANNEL CROSS SECTIONS



JACKASS GULCH CHANNEL STABILIZATION





KEYMAP

LEGEND

- EXISTING MAJOR CONTOUR (5')
- EXISTING MINOR CONTOUR (1')
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING ROADWAY CENTERLINE
- EXISTING ROW
- EXISTING EASEMENT
- EXISTING CHANNEL FLOWLINE
- EXISTING LOT / PARCEL
- EXISTING FENCE
- EXISTING BRIDGE GUARDRAIL
- EXISTING ELECTRICAL LINE
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING TELEPHONE LINE
- PROPOSED CHANNEL CENTERLINE
- EXISTING 100 YR FLOODPLAIN
- PROPOSED 100 YR FLOODPLAIN
- PROPOSED BOULDER WALL
- PROPOSED STORM SEWER
- PROPOSED DROP STRUCTURE
- PROPOSED FLOODPLAIN BENCH
- PROPOSED MAINTENANCE PATH

CONSTRUCTION NOTES

1. WHERE CONSTRUCTION DETAILS AND SPECIFICATIONS ARE NOTED ON THESE PLANS USE MHFD STANDARD SPECIFICATIONS FOR DESIGN AND CONSTRUCTION.
2. ALL DIMENSIONS ARE TO FLOWLINE, EXCEPT PROFILES, WHICH ARE CENTERLINE DIMENSIONS, OR UNLESS OTHERWISE NOTED.
3. SEE SHEET T1 FOR BASIS OF BEARINGS.
4. SEE SHEET GN1 FOR GENERAL NOTES.
5. SEE DT SHEETS FOR DETAILS.
6. EXISTING 24" & 42" RCP CAN BE REUSED IF DEEMED SUITABLE BY ENGINEER
7. SEE SHEET GR1 FOR PROPOSED GROUTED BOULDER DROP LOCATIONS

811 UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987 Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12CH.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
1 inch = 20 ft. Horizontal
1 inch = 4 ft. Vertical
Designer: JLD | Drafter: KJM | Checked: BSH

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
CHANNEL STABILIZATION PLAN & PROFILE 1

Sheet: CH1
19 of 63
Date: JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12CH.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:53 AM
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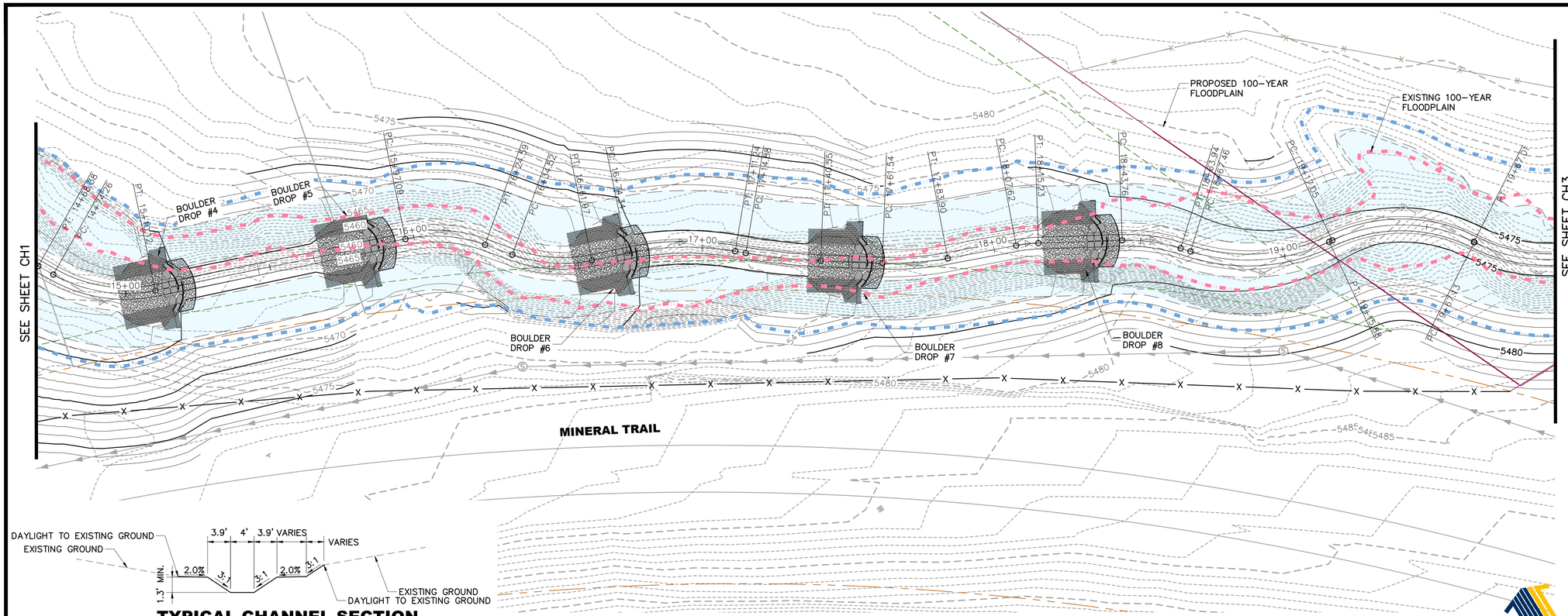
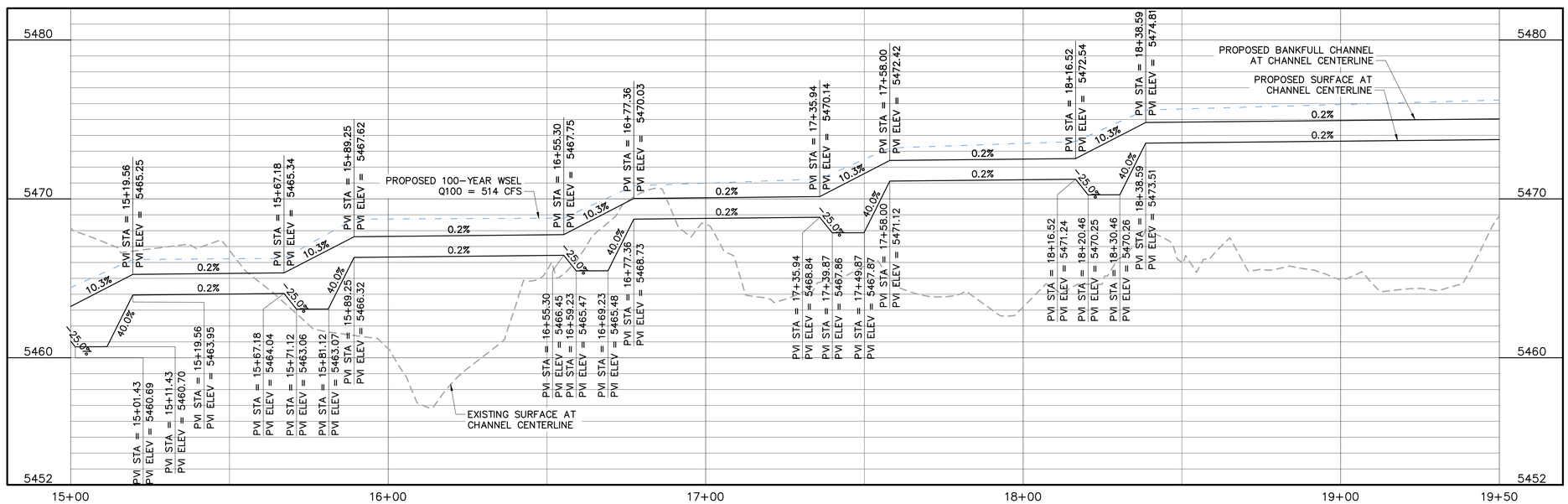
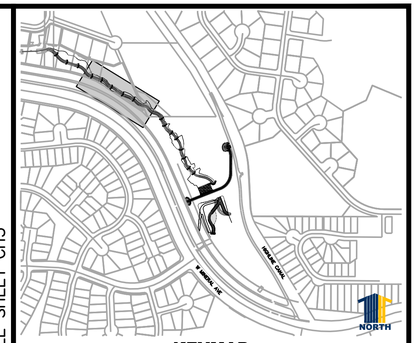


TYPICAL CHANNEL SECTION
CHANNEL SECTIONS VARY, SEE CHANNEL CROSS SECTIONS

JACKASS GULCH CHANNEL STABILIZATION





KEYMAP

LEGEND

- EXISTING MAJOR CONTOUR (5') — 5350
- EXISTING MINOR CONTOUR (1')
- PROPOSED MAJOR CONTOUR — 5505
- PROPOSED MINOR CONTOUR — 5501
- EXISTING ROADWAY CENTERLINE
- EXISTING ROW
- EXISTING EASEMENT
- EXISTING CHANNEL FLOWLINE
- EXISTING LOT / PARCEL
- EXISTING FENCE
- EXISTING BRIDGE GUARDRAIL
- EXISTING ELECTRICAL LINE
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DATE		REVISION DESCRIPTION
01/21/25	1	HIGH LINE CANAL REVISIONS

Drawing Name: 12CH.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH
0 10 20 40
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1 inch = 4 ft. Vertical

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
CHANNEL STABILIZATION PLAN & PROFILE 2

Sheet: CH2 | 20 of 63
Date: JANUARY 21, 2025

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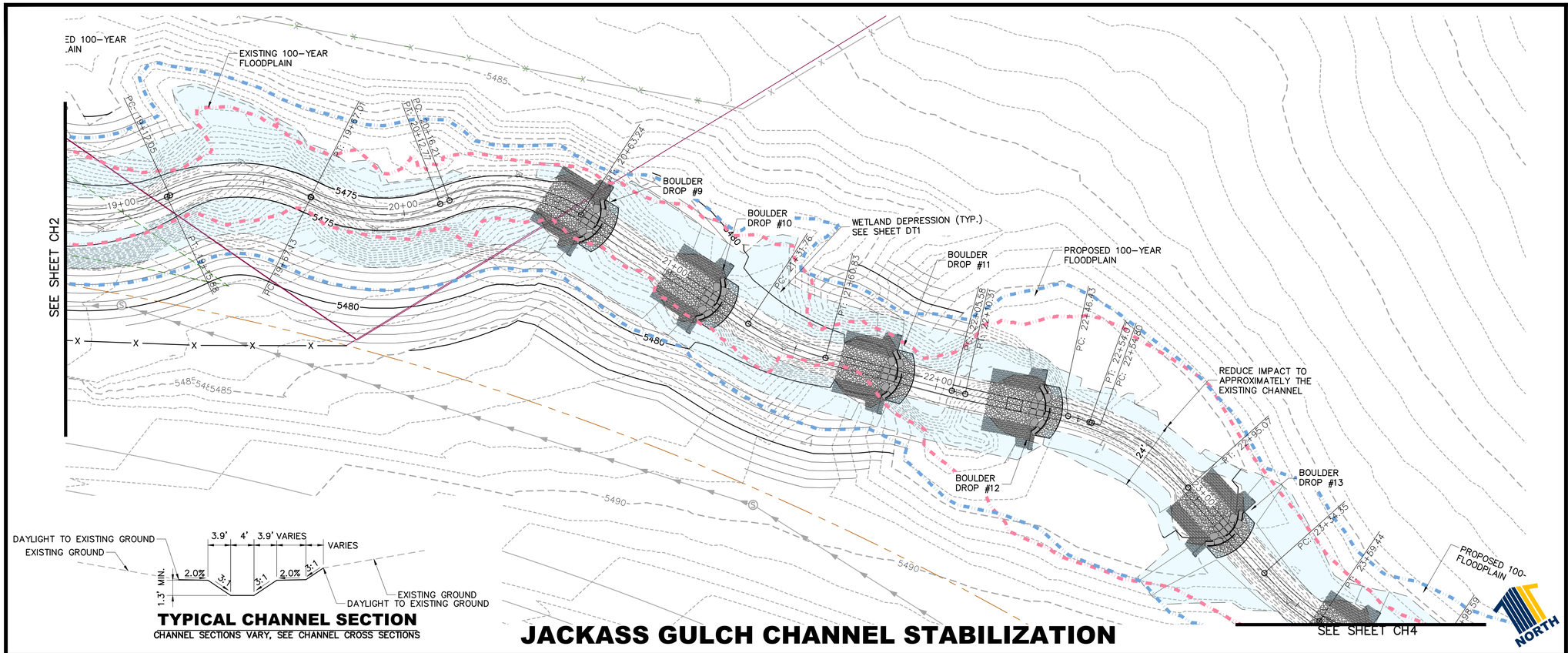
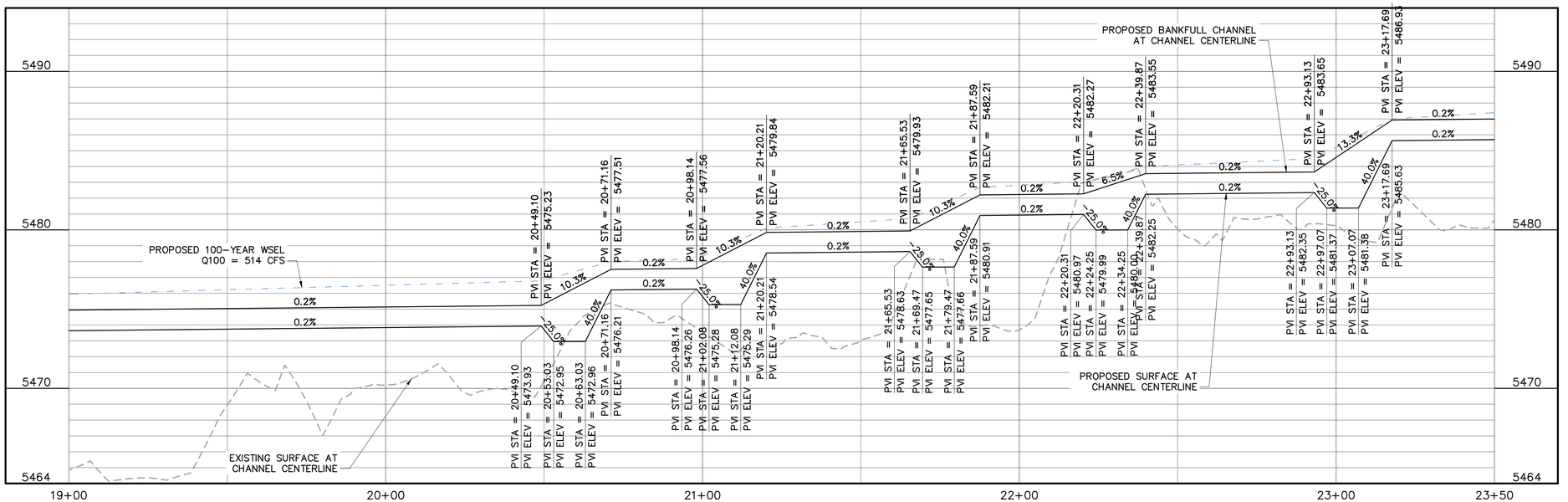
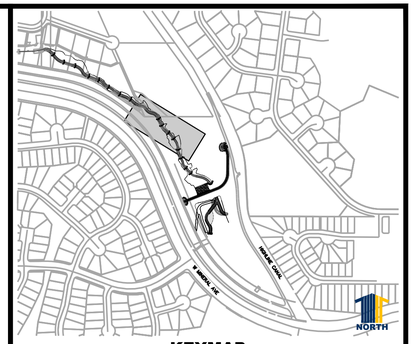


TYPICAL CHANNEL SECTION
CHANNEL SECTIONS VARY, SEE CHANNEL CROSS SECTIONS

JACKASS GULCH CHANNEL STABILIZATION





KEYMAP

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- EXISTING ROW
- EXISTING EASEMENT
- EXISTING CHANNEL FLOWLINE
- EXISTING LOT / PARCEL
- EXISTING FENCE — X — X
- EXISTING BRIDGE GUARDRAIL
- EXISTING ELECTRICAL LINE — E — E
- EXISTING STORM SEWER — D
- EXISTING SANITARY SEWER — S
- EXISTING TELEPHONE LINE — T — T — T
- PROPOSED CHANNEL CENTERLINE
- EXISTING 100 YR FLOODPLAIN
- PROPOSED 100 YR FLOODPLAIN
- PROPOSED BOULDER WALL
- PROPOSED STORM SEWER — D
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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
CHANNEL STABILIZATION PLAN & PROFILE 3

Sheet CH3 — 21 of 63
Date: JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12CH.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:53 AM
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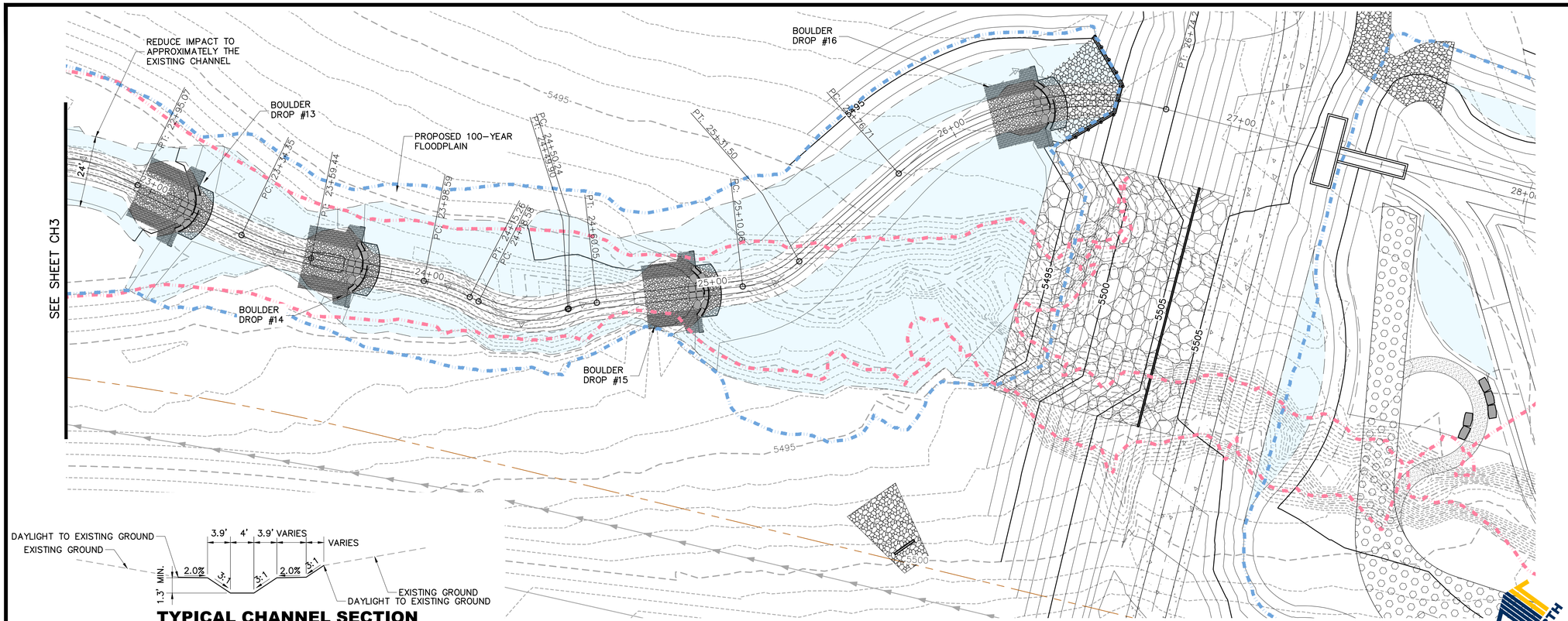
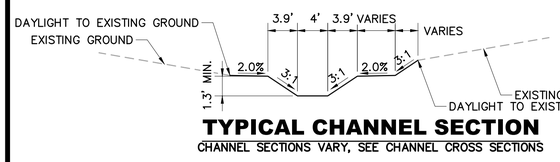
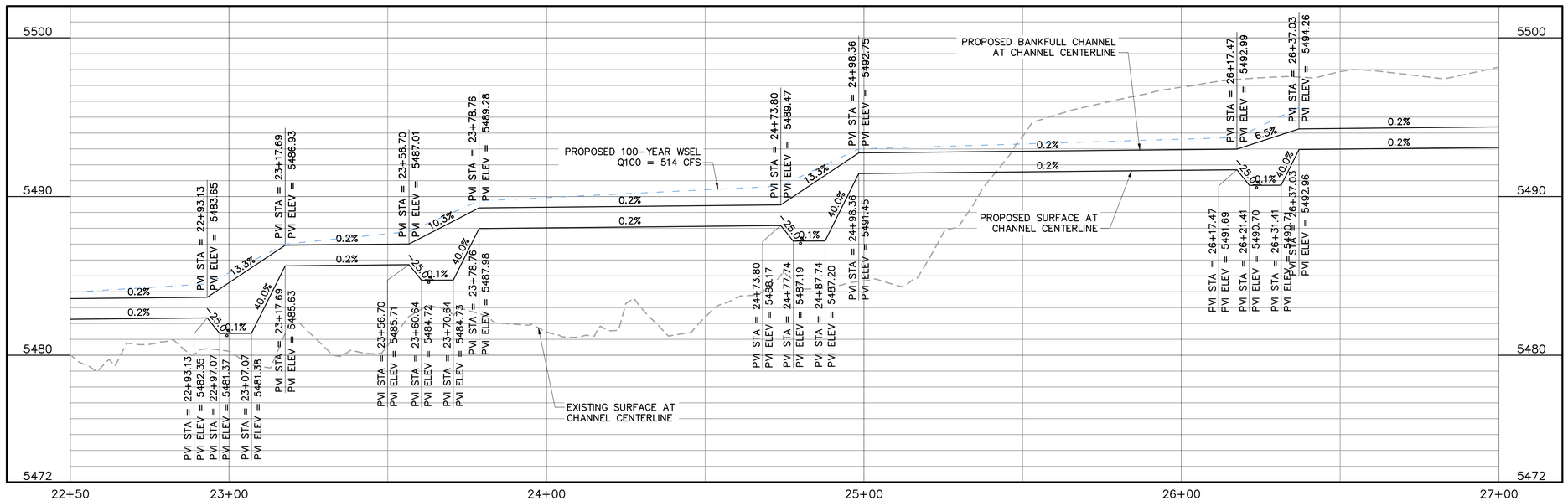
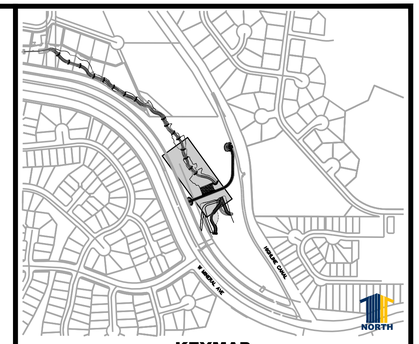




TYPICAL CHANNEL SECTION
CHANNEL SECTIONS VARY, SEE CHANNEL CROSS SECTIONS

JACKASS GULCH CHANNEL STABILIZATION





KEYMAP

LEGEND

- EXISTING MAJOR CONTOUR (5') — 5350
- EXISTING MINOR CONTOUR (1')
- PROPOSED MAJOR CONTOUR — 5505
- PROPOSED MINOR CONTOUR — 5501
- EXISTING ROADWAY CENTERLINE
- EXISTING ROW
- EXISTING EASEMENT
- EXISTING CHANNEL FLOWLINE
- EXISTING LOT / PARCEL
- EXISTING FENCE — X — X
- EXISTING BRIDGE GUARDRAIL
- EXISTING ELECTRICAL LINE — E — E
- EXISTING STORM SEWER — D
- EXISTING SANITARY SEWER — S
- EXISTING TELEPHONE LINE — T — T — T
- PROPOSED CHANNEL CENTERLINE
- EXISTING 100 YR FLOODPLAIN
- PROPOSED 100 YR FLOODPLAIN
- PROPOSED BOULDER WALL
- PROPOSED STORM SEWER — D
- PROPOSED DROP STRUCTURE
- PROPOSED FLOODPLAIN BENCH
- PROPOSED MAINTENANCE PATH

CONSTRUCTION NOTES

1. WHERE CONSTRUCTION DETAILS AND SPECIFICATIONS ARE NOTED ON THESE PLANS USE MHFD STANDARD SPECIFICATIONS FOR DESIGN AND CONSTRUCTION.
2. ALL DIMENSIONS ARE TO FLOWLINE, EXCEPT PROFILES, WHICH ARE CENTERLINE DIMENSIONS, OR UNLESS OTHERWISE NOTED.
3. SEE SHEET T1 FOR BASIS OF BEARINGS.
4. SEE SHEET GN1 FOR GENERAL NOTES.
5. SEE DT SHEETS FOR DETAILS.
6. EXISTING 24" & 42" RCP CAN BE REUSED IF DEEMED SUITABLE BY ENGINEER
7. SEE SHEET GR1 FOR PROPOSED GROUTED BOULDER DROP LOCATIONS

811 UNCC
CALL BEFORE YOU DIG
811
OR
1-800-922-1987
Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12CH.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH
1 inch = 20 ft. Horizontal
1 inch = 4 ft. Vertical

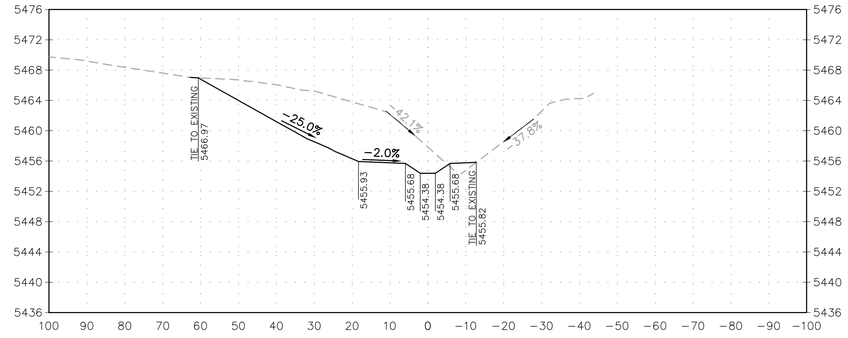
COLORADO LICENSED TREVOR B. REES 62834 12/6/2024 PROFESSIONAL ENGINEER

Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
CHANNEL STABILIZATION PLAN & PROFILE 4

Sheet CH4
22 of 63
Date JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12CH.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:53 AM
XREFS:



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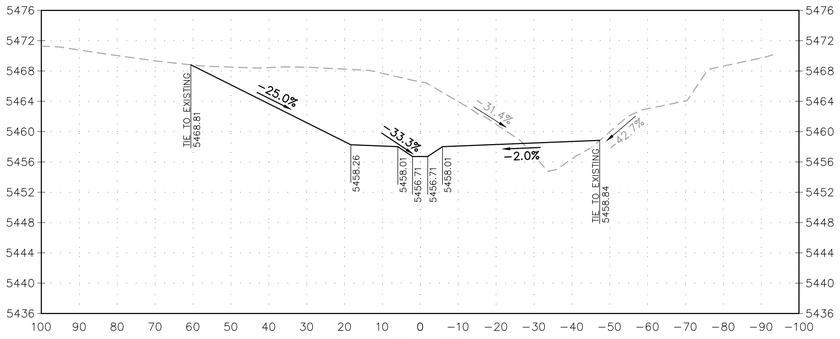

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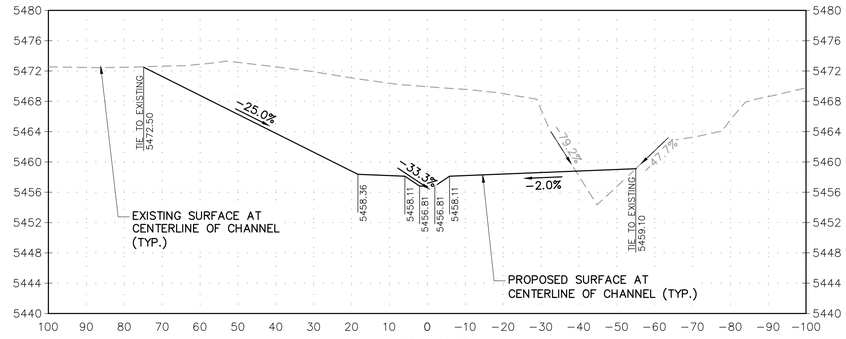

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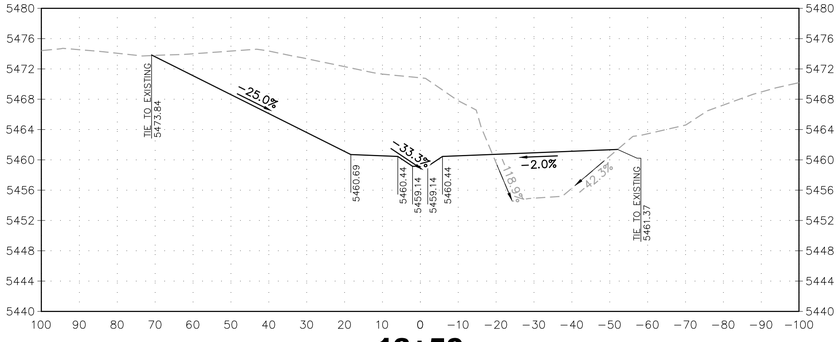

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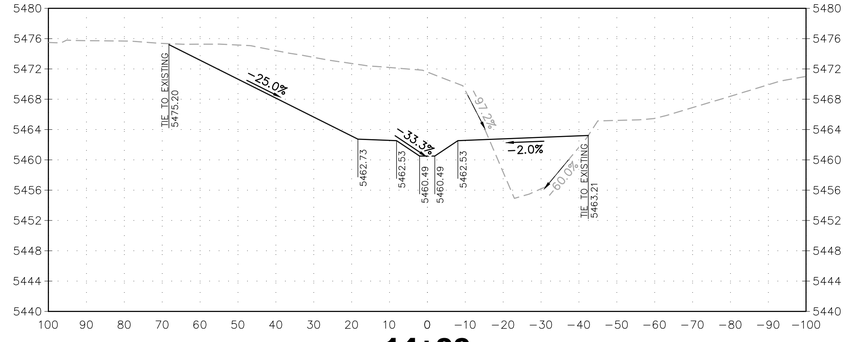

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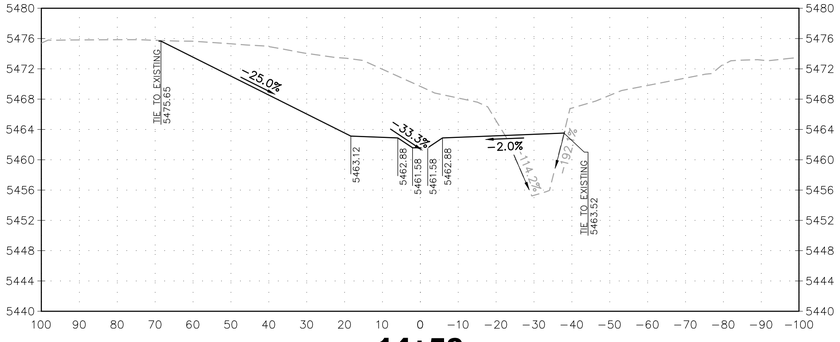

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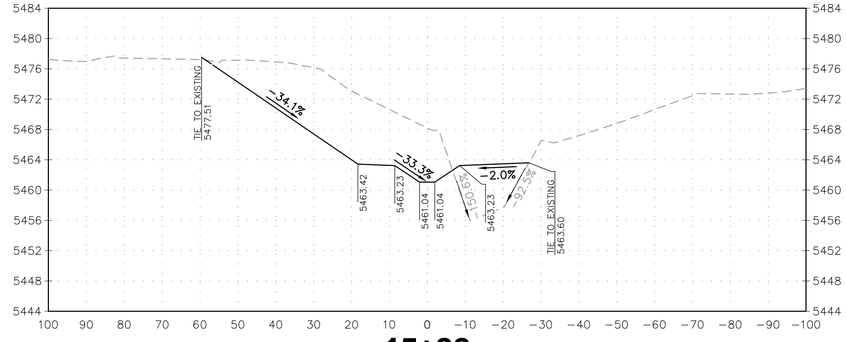

15+00

NOTE: ALL SECTIONS ARE PERPENDICULAR TO ALIGNMENT UNLESS OTHERWISE NOTED.

01/21/25	1	HIGH LINE CANAL REVISIONS
DATE		REVISION DESCRIPTION

Drawing Name: 12XS.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH

0 10 20 40
1 inch = 20 ft. Horizontal
1 inch = 10 ft. Vertical

COLORADO LICENSED
TREVOR B. WELL
62834
12/9/2024
PROFESSIONAL ENGINEER

Calibre
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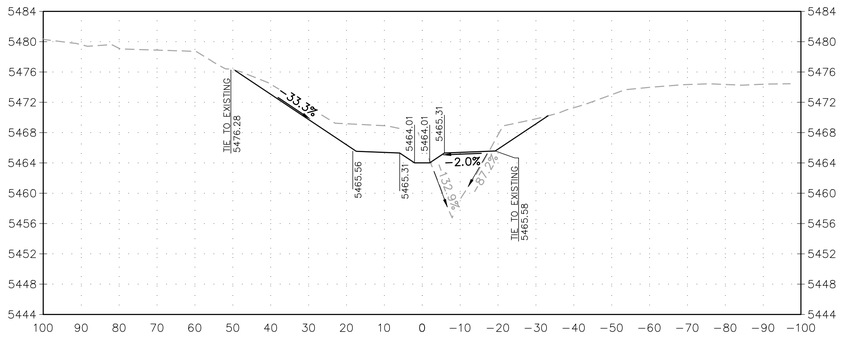
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
CHANNEL CROSS SECTIONS 1

Sheet: XS1
23 of 63
Date: JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12XS.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:54 AM
XREFS:



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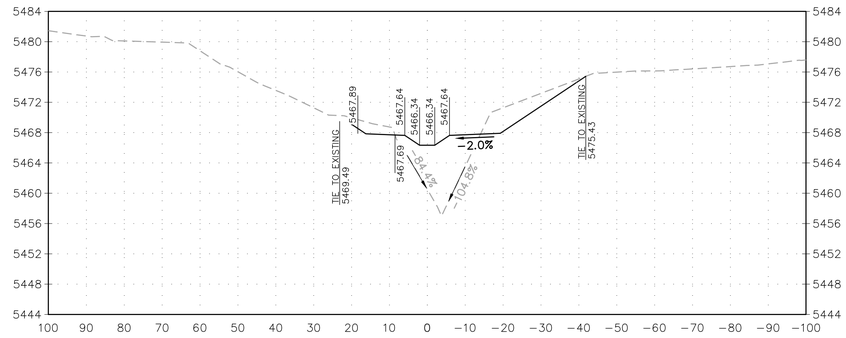

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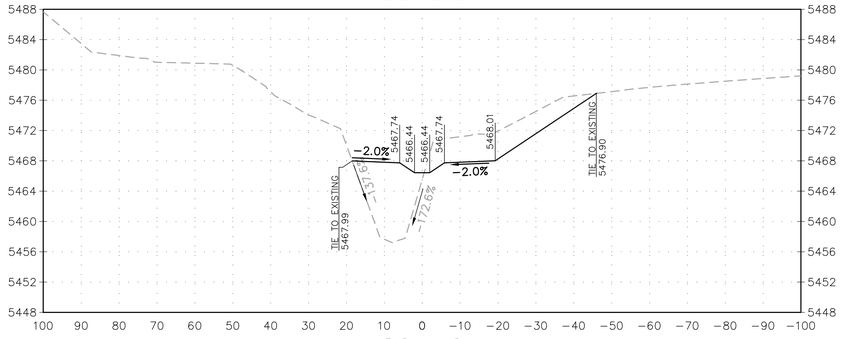

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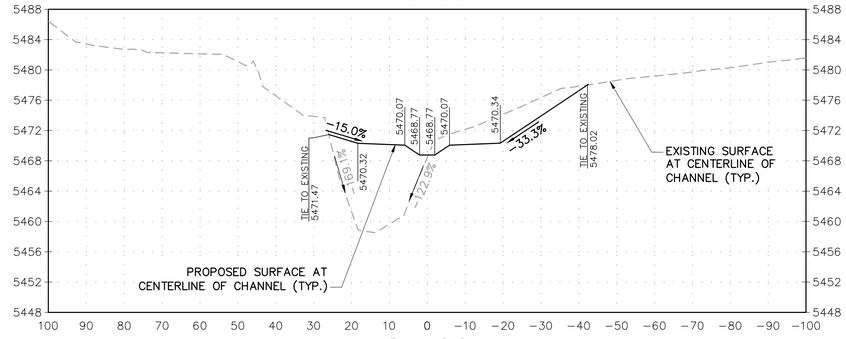

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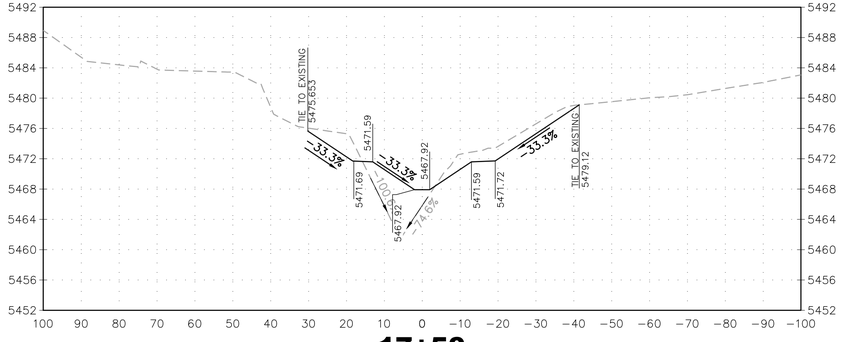

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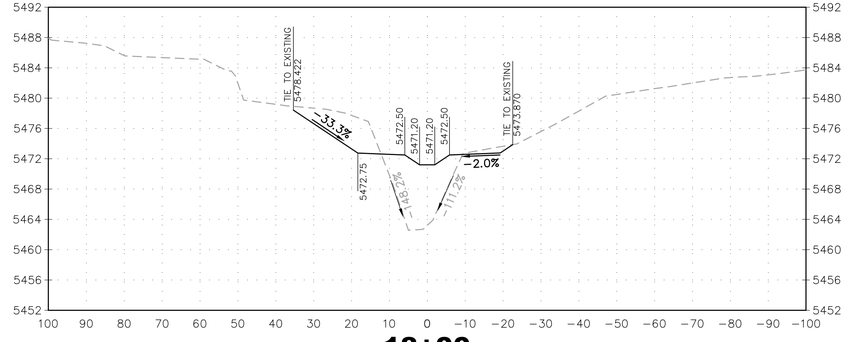

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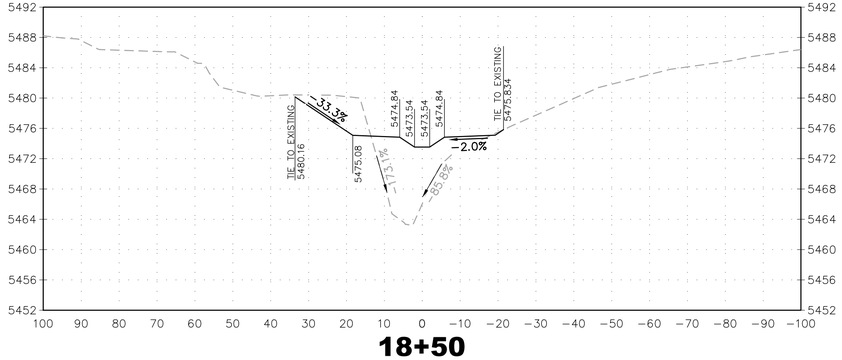

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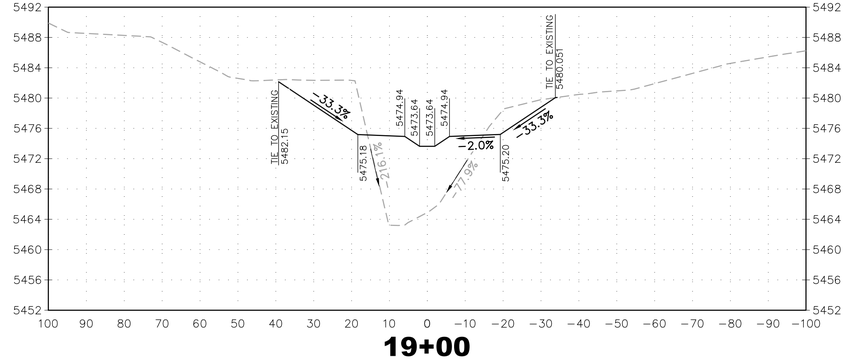

18+00

18+50

19+00

NOTE: ALL SECTIONS ARE PERPENDICULAR TO ALIGNMENT UNLESS OTHERWISE NOTED.

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12XS.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH

1 inch = 20 ft. Horizontal
1 inch = 10 ft. Vertical

COLORADO LICENSED
TREVOR B. INEL
62834
PROFESSIONAL ENGINEER
12/9/2024

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Construction Management Civil Engineering Surveying

JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
CHANNEL CROSS SECTIONS 2

Sheet: XS2

Date: JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12XS.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:54 AM
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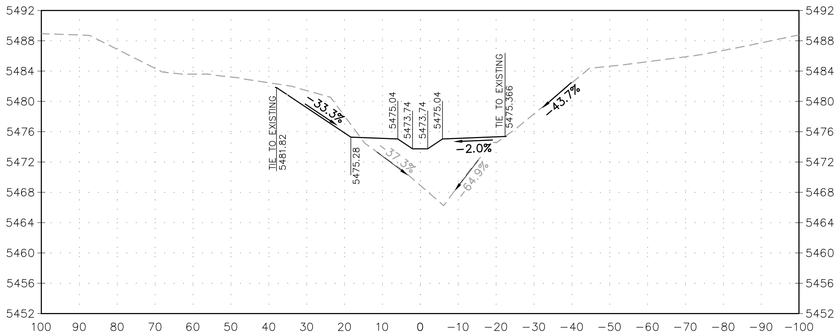

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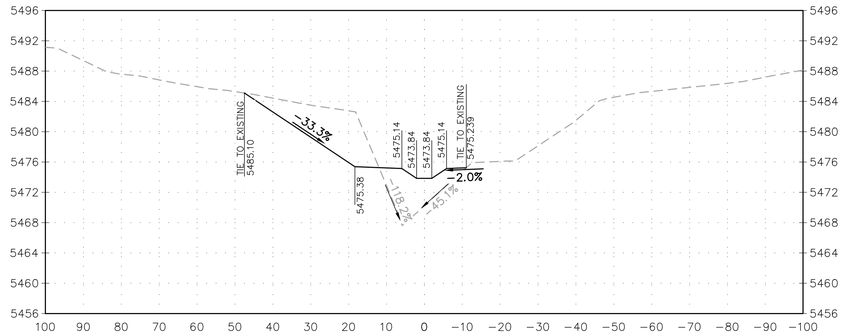

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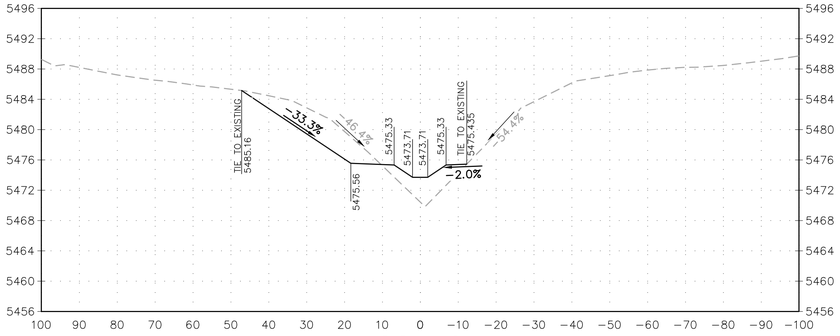

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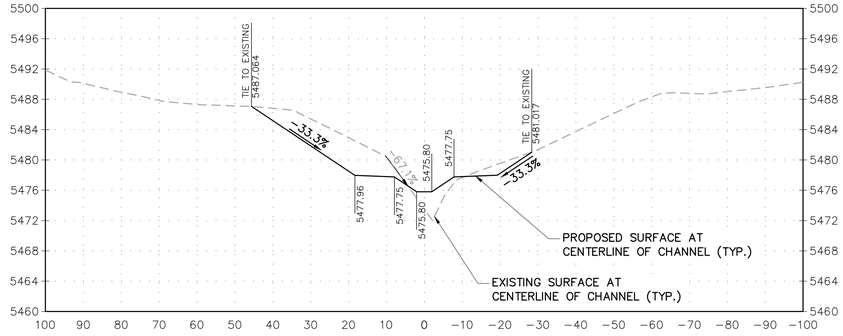

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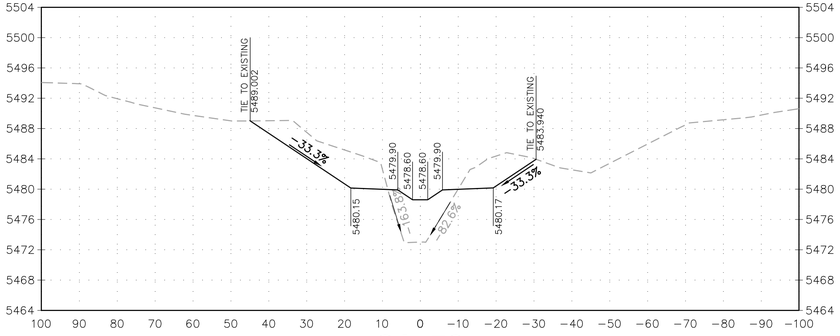

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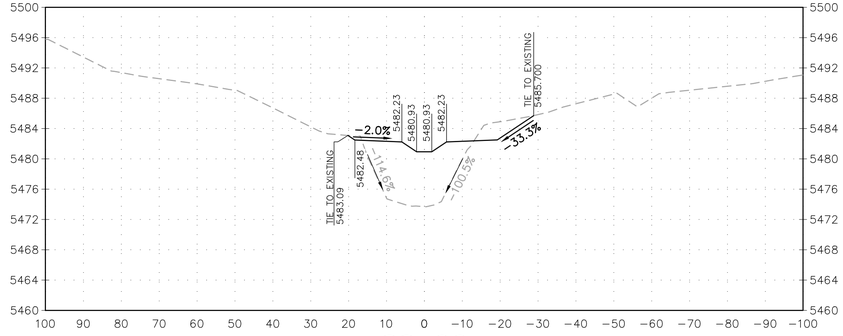

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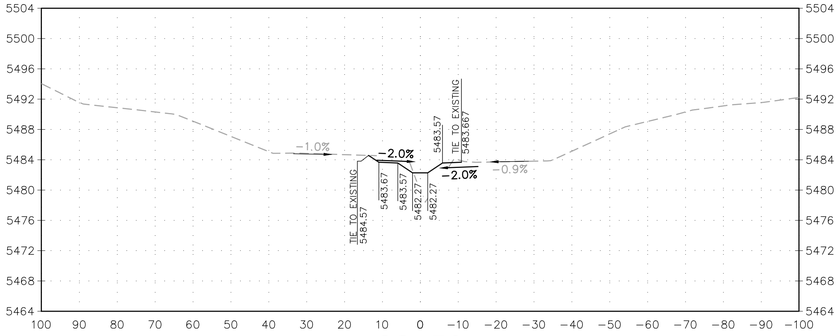

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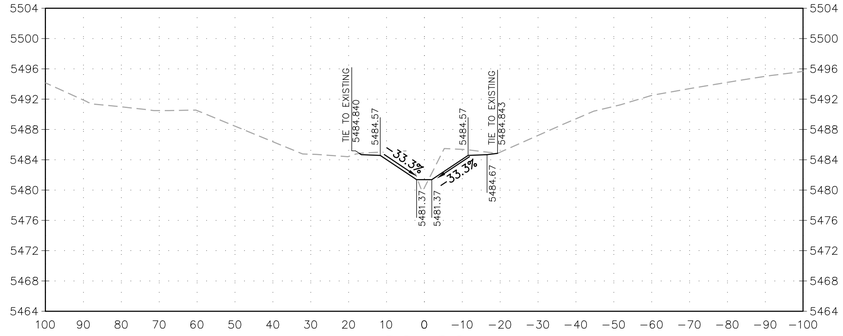

23+00

NOTE: ALL SECTIONS ARE PERPENDICULAR TO ALIGNMENT UNLESS OTHERWISE NOTED.

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12XS.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:54 AM
XREFS:

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12XS.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
1 inch = 20 ft. Horizontal
1 inch = 10 ft. Vertical
Designer: JLD | Drafter: KJM | Checked: BSH

COLORADO LICENSED TREVOR B. WELL 62834 PROFESSIONAL ENGINEER 12/9/2024

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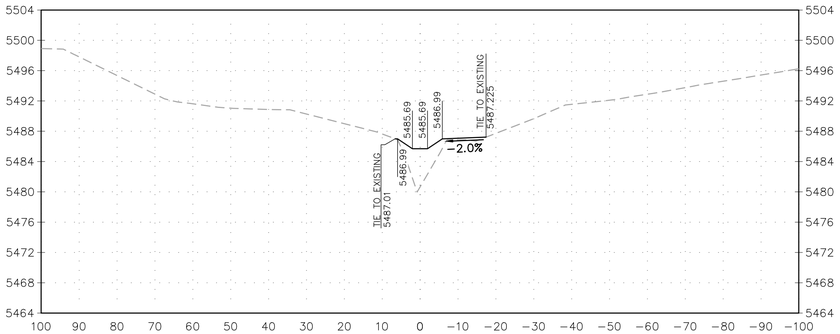
Construction Management Civil Engineering Surveying

JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
CHANNEL CROSS SECTIONS 3

Sheet: XS3

Date: JANUARY 21, 2025



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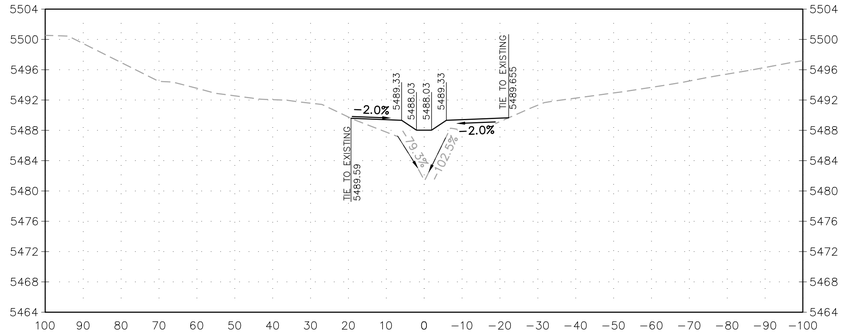

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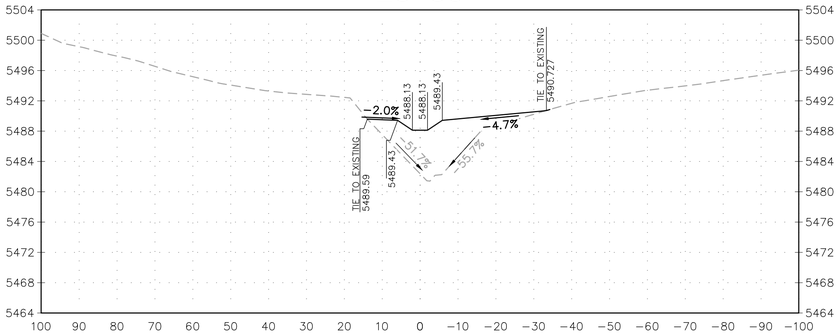

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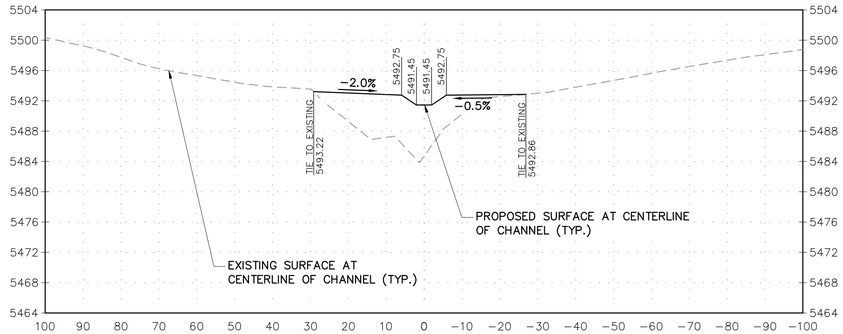

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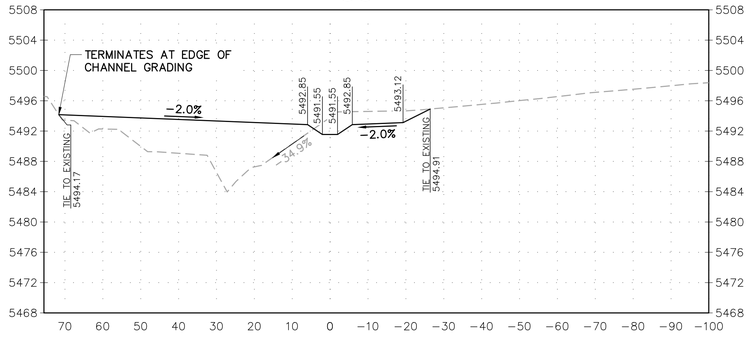

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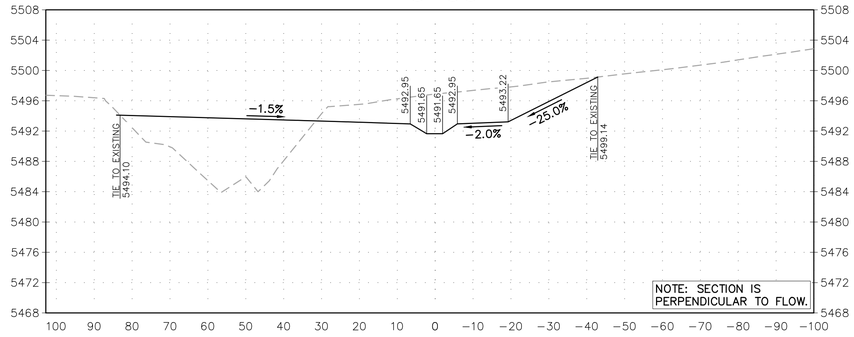

26+00

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DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12XS.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH

0 10 20 40
1 inch = 20 ft. Horizontal
1 inch = 10 ft. Vertical

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Construction Management Civil Engineering Surveying

JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
CHANNEL CROSS SECTIONS 4

Sheet: XS4
26 of 63
Date: JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12XS.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:54 AM
XREFS:

PROPOSED GROUTED BOULDER DROP #1
SEE SHEET GR3

PROPOSED GROUTED BOULDER DROP #2
SEE SHEET GR3

PROPOSED GROUTED BOULDER DROP #3
SEE SHEET GR3

PROPOSED GROUTED BOULDER DROP #4
SEE SHEET GR3

PROPOSED GROUTED BOULDER DROP #5
SEE SHEET GR3

PROPOSED GROUTED BOULDER DROP #6
SEE SHEET GR3

PROPOSED GROUTED BOULDER DROP #7
SEE SHEET GR3

PROPOSED GROUTED BOULDER DROP #8
SEE SHEET GR3

PROPOSED GROUTED BOULDER DROP #9
SEE SHEET GR3

PROPOSED GROUTED BOULDER DROP #10
SEE SHEET GR3

PROPOSED GROUTED BOULDER DROP #11
SEE SHEET GR3

PROPOSED GROUTED BOULDER DROP #12
SEE SHEET GR4

PROPOSED GROUTED BOULDER DROP #13
SEE SHEET GR2

PROPOSED GROUTED BOULDER DROP #14
SEE SHEET GR3

PROPOSED GROUTED BOULDER DROP #15
SEE SHEET GR2

PROPOSED GROUTED BOULDER DROP #16
SEE SHEET GR4

11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00

NORTH

KEYMAP

LEGEND

- EXISTING ROADWAY CENTERLINE
- EXISTING ROW
- EXISTING EASEMENT
- EXISTING CHANNEL FLOWLINE
- EXISTING LOT / PARCEL
- EXISTING FENCE
- EXISTING BRIDGE GUARDRAIL
- EXISTING ELECTRICAL LINE
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING TELEPHONE LINE
- PROPOSED CHANNEL CENTERLINE
- PROPOSED TOE OF BANK
- PROPOSED TOP OF BANK
- PROPOSED BOULDER WALL
- PROPOSED FENCE
- EXISTING RIPRAP PROTECTION
- PROPOSED RIPRAP PROTECTION
- PROPOSED CONCRETE PAVEMENT
- PROPOSED MAINTENANCE PATH
- PROPOSED FLOODPLAIN BENCH
- PROPOSED DROP STRUCTURE

CONSTRUCTION NOTES

1. WHERE CONSTRUCTION DETAILS AND SPECIFICATIONS ARE NOTED ON THESE PLANS USE MHFD STANDARD SPECIFICATIONS FOR DESIGN AND CONSTRUCTION.
2. ALL DIMENSIONS ARE TO FLOWLINE, EXCEPT PROFILES, WHICH ARE CENTERLINE DIMENSIONS, OR UNLESS OTHERWISE NOTED.
3. SEE SHEET T1 FOR BASIS OF BEARINGS.
4. SEE SHEET GN1 FOR GENERAL NOTES.
5. SEE DT SHEETS FOR DETAILS.
6. ALIGNMENT RUNS ALONG LEFT SIDE OF THE TRAIL

811 UNCC
CALL BEFORE
YOU DIG
811
OR
1-800-922-1987
Utility Notification
Center of Colorado

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12GR.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:55 AM
XREFS:

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12GR.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH

0 30 60 120
1 inch = 60 ft. Horizontal

COLORADO LICENSED
TREVOR B. WELL
62834
PROFESSIONAL ENGINEER
12/9/2024

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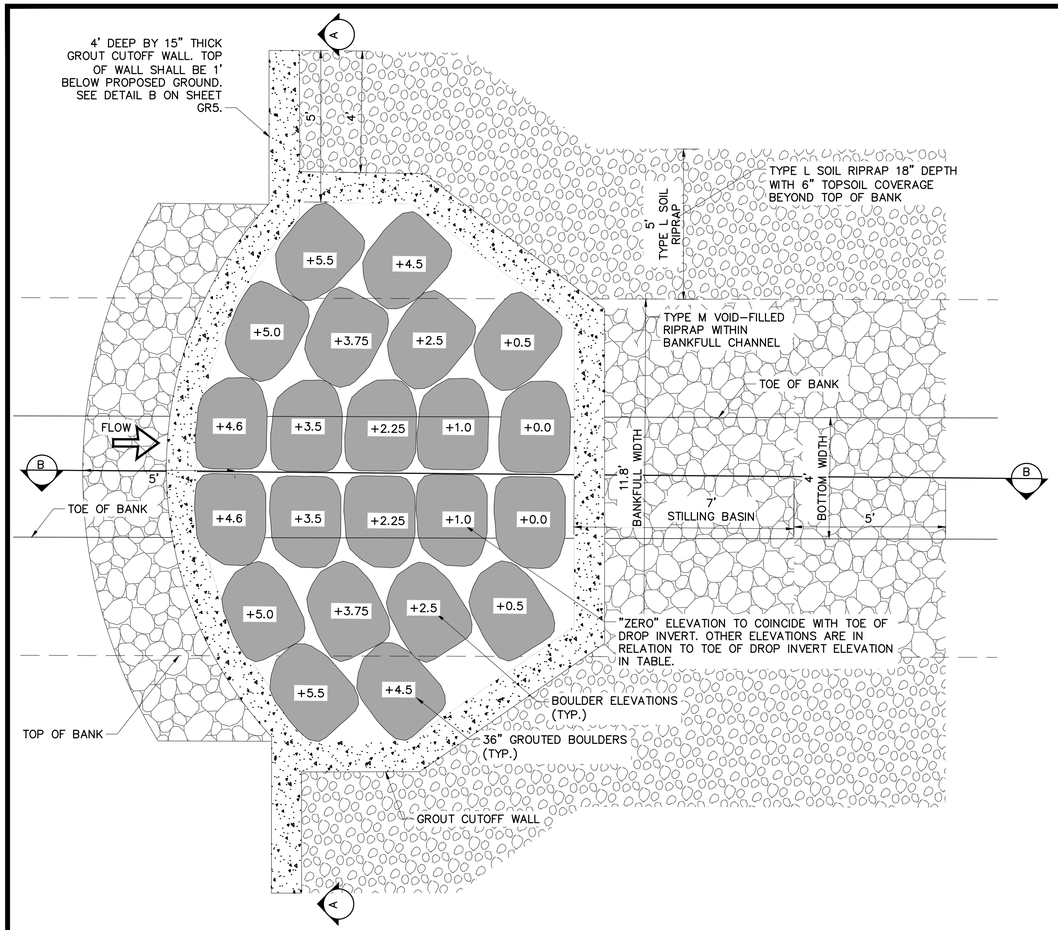
Construction Management Civil Engineering Surveying

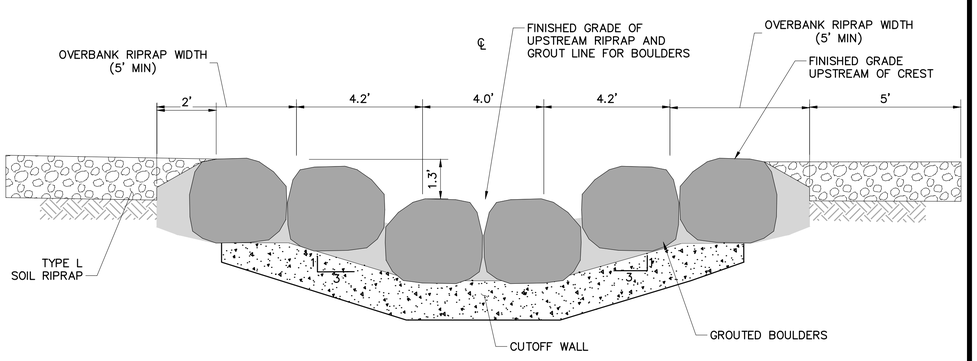
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
OVERALL GROUTED BOULDER LAYOUT

Sheet GR1
27 of 63
Date JANUARY 21, 2025



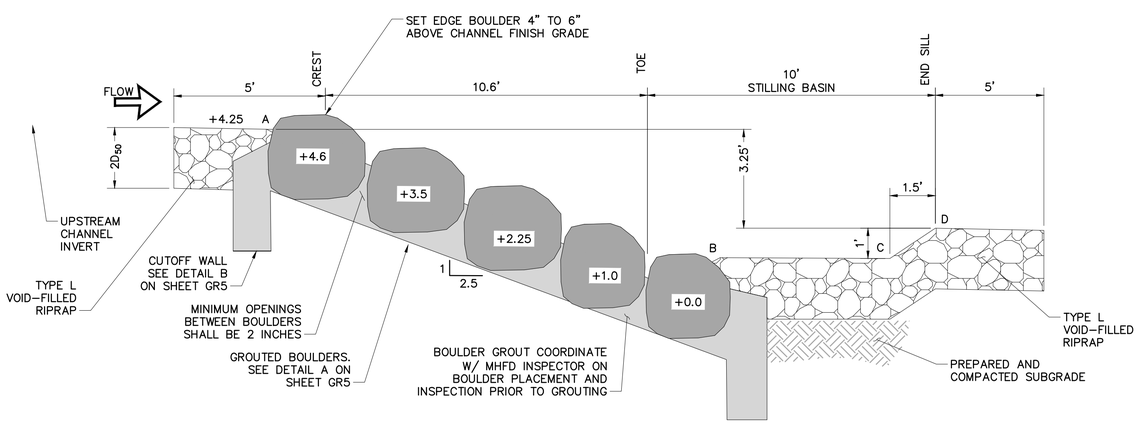
PLAN VIEW - GROUTED BOULDER DROP WITH FREE-DRAINING STILLING BASIN

N.T.S.



SECTION A - GROUTED BOULDER DROP STRUCTURE CROSS SECTION

N.T.S.



DETAIL B - GROUTED BOULDER DROP WITH FREE-DRAINING STILLING BASIN

N.T.S.

NOTES:

1. ALL DROP STRUCTURES SHALL BE CONSTRUCTED IN DEWATERED CONDITIONS. SUBGRADE UNDER THE DROP STRUCTURES SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT.
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   - C = END BOTTOM OF POOL
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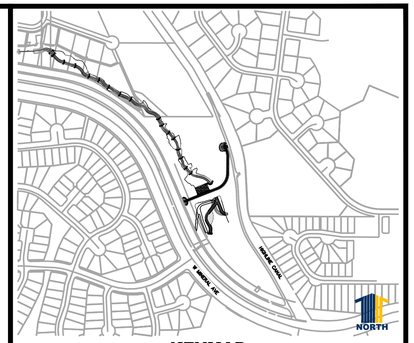

KEYMAP

LEGEND

- EXISTING ROADWAY CENTERLINE
- EXISTING ROW
- EXISTING EASEMENT
- EXISTING CHANNEL FLOWLINE
- EXISTING LOT / PARCEL
- EXISTING FENCE
- EXISTING BRIDGE GUARDRAIL
- EXISTING ELECTRICAL LINE
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING TELEPHONE LINE
- PROPOSED CHANNEL CENTERLINE
- PROPOSED TOE OF BANK
- PROPOSED TOP OF BANK
- PROPOSED BOULDER WALL
- PROPOSED FENCE
- EXISTING RIPRAP PROTECTION
- PROPOSED RIPRAP PROTECTION
- PROPOSED CONCRETE PAVEMENT
- PROPOSED MAINTENANCE PATH
- PROPOSED FLOODPLAIN BENCH
- PROPOSED DROP STRUCTURE

CONSTRUCTION NOTES

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5. SEE DT SHEETS FOR DETAILS.
6. ALIGNMENT RUNS ALONG LEFT SIDE OF THE TRAIL

811 UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987 Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12GR.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH
0 5 10 20 — 1 inch = 10 ft. Horizontal

COLORADO LICENSED TREVOR B. WELL 62834 PROFESSIONAL ENGINEER 12/9/2024

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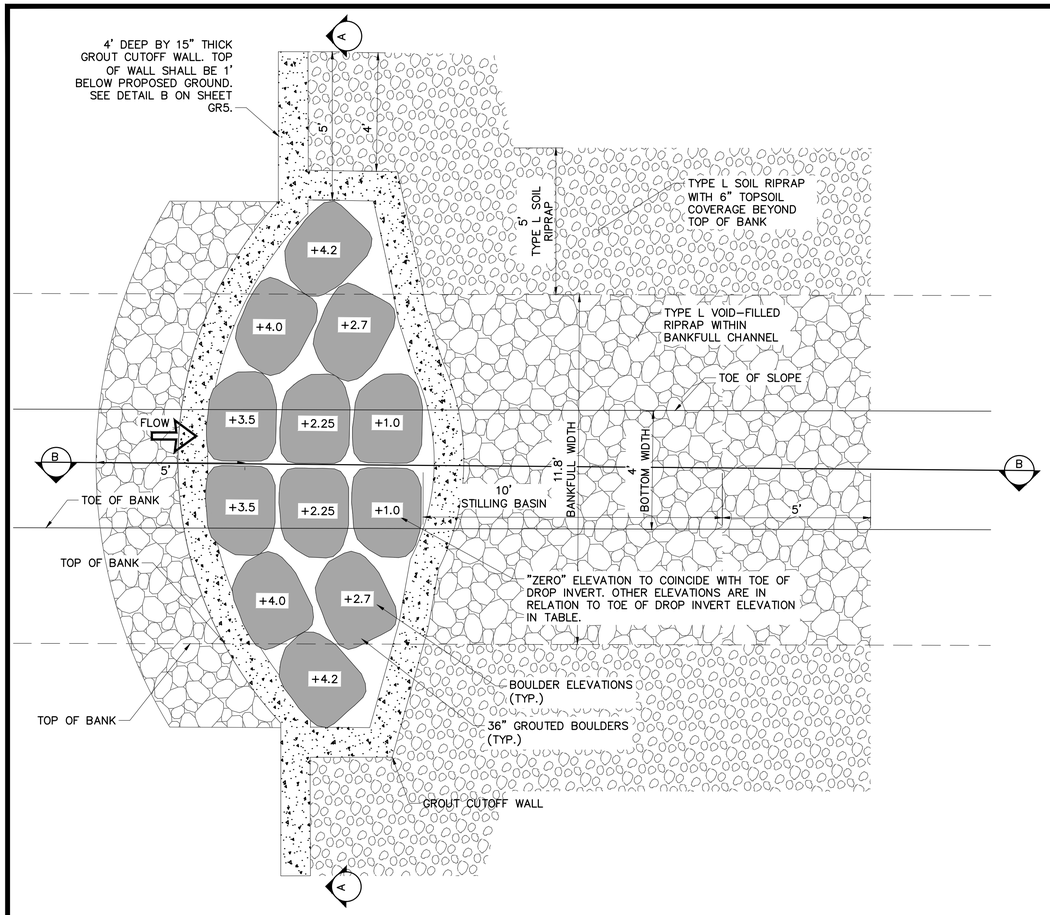
Construction Management Civil Engineering Surveying

JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
GROUTED BOULDER DETAIL (3.25' DROP)

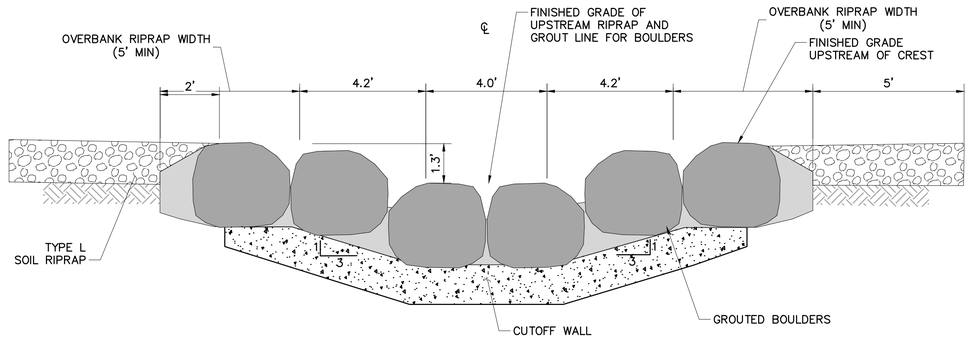
Sheet: GR2 — 28 of 63
Date: JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12GR.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:55 AM
XREFS:



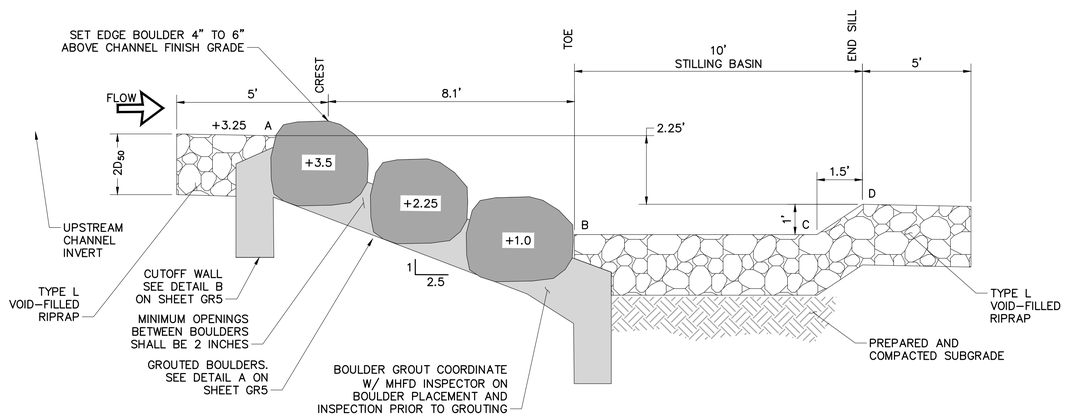
PLAN VIEW - GROUTED BOULDER DROP WITH FREE-DRAINING STILLING BASIN

N.T.S.



SECTION A - GROUTED BOULDER DROP STRUCTURE CROSS SECTION

N.T.S.



DETAIL B - GROUTED BOULDER DROP WITH FREE-DRAINING STILLING BASIN

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NOTES:

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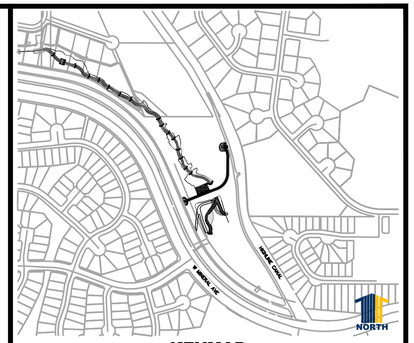

KEYMAP

LEGEND

- EXISTING ROADWAY CENTERLINE
- EXISTING ROW
- EXISTING EASEMENT
- EXISTING CHANNEL FLOWLINE
- EXISTING LOT / PARCEL
- EXISTING FENCE
- EXISTING BRIDGE GUARDRAIL
- EXISTING ELECTRICAL LINE
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
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- EXISTING RIPRAP PROTECTION
- PROPOSED RIPRAP PROTECTION
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DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12GR.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
0 5 10 20 — 1 inch = 10 ft. Horizontal
Designer: JLD | Drafter: KJM | Checked: BSH

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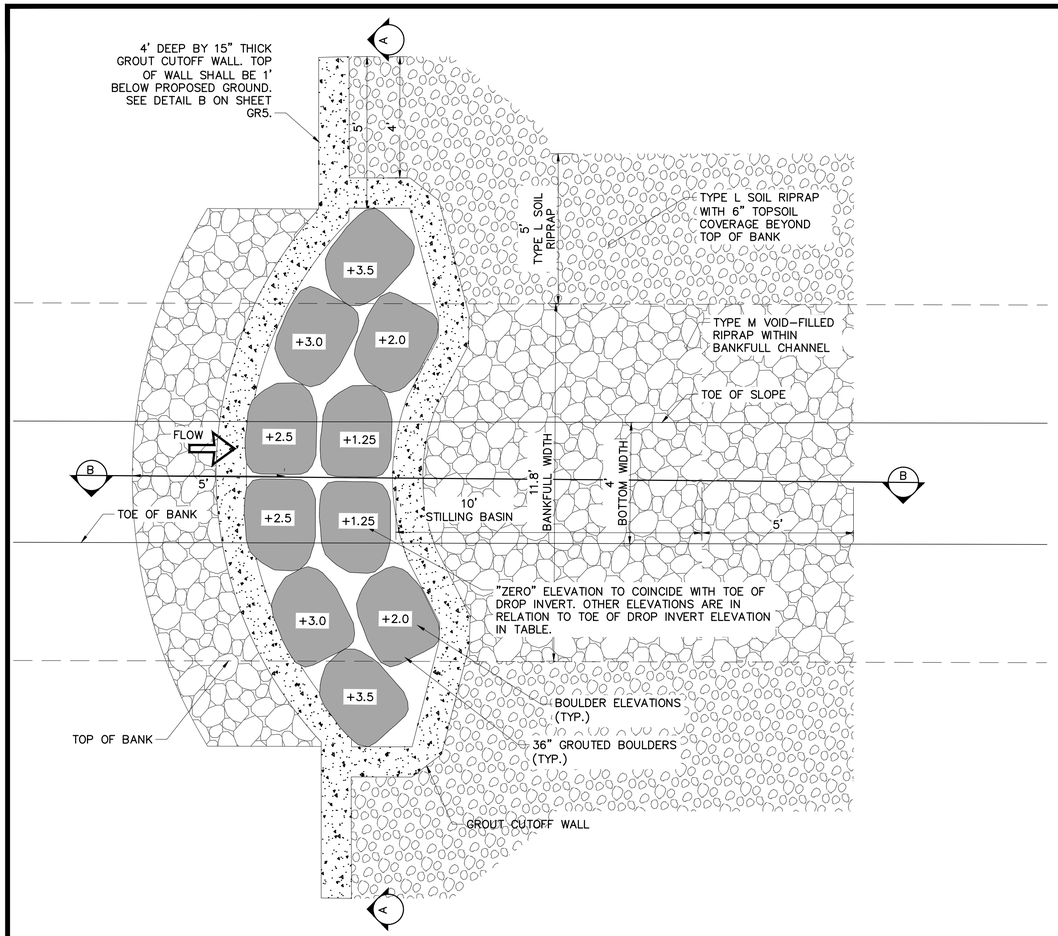
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
GROUTED BOULDER DETAIL (2.25' DROP)

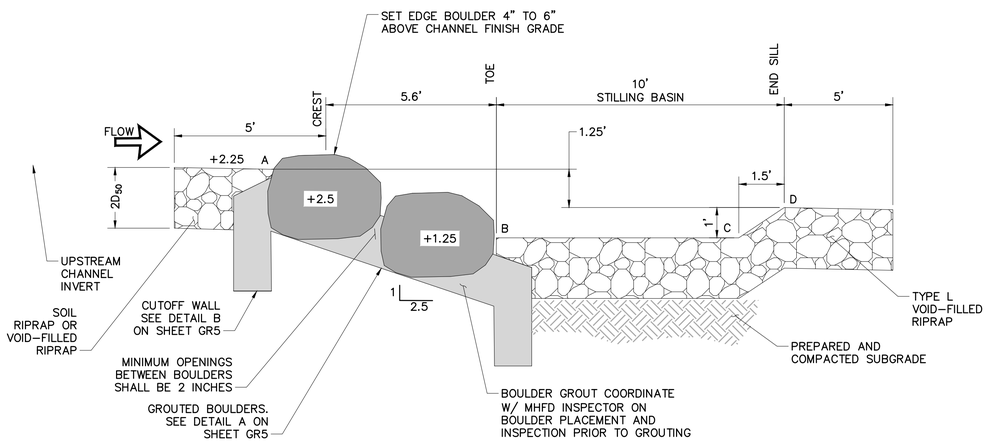
Sheet GR3 29 of 63
Date JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12GR.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:55 AM
XREFS:



PLAN VIEW - GROUTED BOULDER DROP WITH FREE-DRAINING STILLING BASIN

N.T.S.



DETAIL B - GROUTED BOULDER DROP WITH FREE-DRAINING STILLING BASIN

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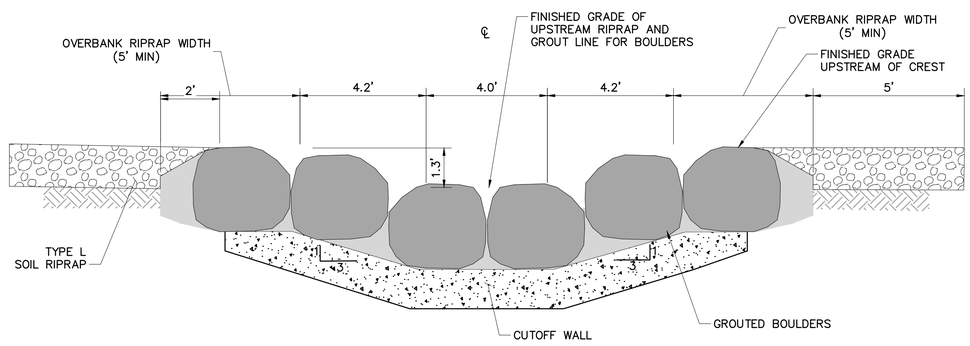

SECTION A - GROUTED BOULDER DROP STRUCTURE CROSS SECTION

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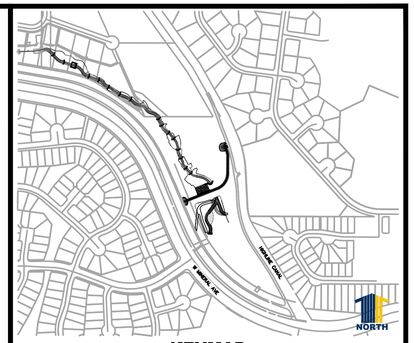

KEYMAP

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DATE	REVISION DESCRIPTION
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Drawing Name: 12GR.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
0 5 10 20 — 1 inch = 10 ft. Horizontal
Designer: JLD | Drafter: KJM | Checked: BSH

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
GROUTED BOULDER DETAIL (1.25' DROP)

Sheet: GR4 — 30 of 63
Date: JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12GR.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:55 AM
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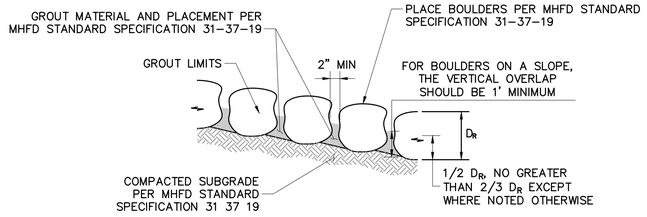
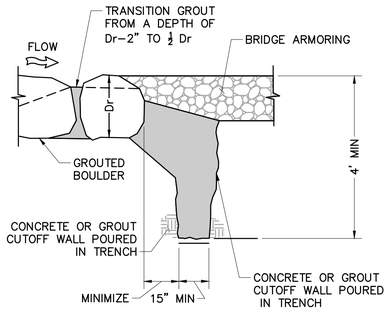


DETAIL A - GROUTED BOULDER PLACEMENT

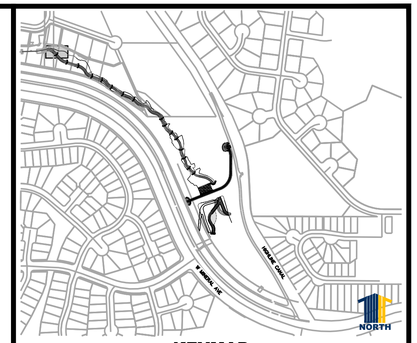
N.T.S.



NOTE:
GROUT CUTOFF WALL TO BE ON UPSTREAM AND DOWNSTREAM EDGES OF GROUTED BOULDER DROPS.

DETAIL B - CONCRETE OR GROUT CUTOFF WALL

N.T.S.



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Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12GR.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH
0 1.25 2.5 5
1 inch = 2.5 ft. Horizontal

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
GROUTED BOULDER STRUCTURE DETAILS

Sheet: GR5
31 of 63
Date: JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12GR.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:55 AM
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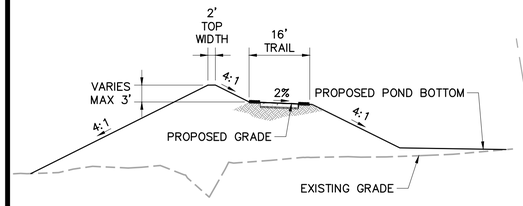
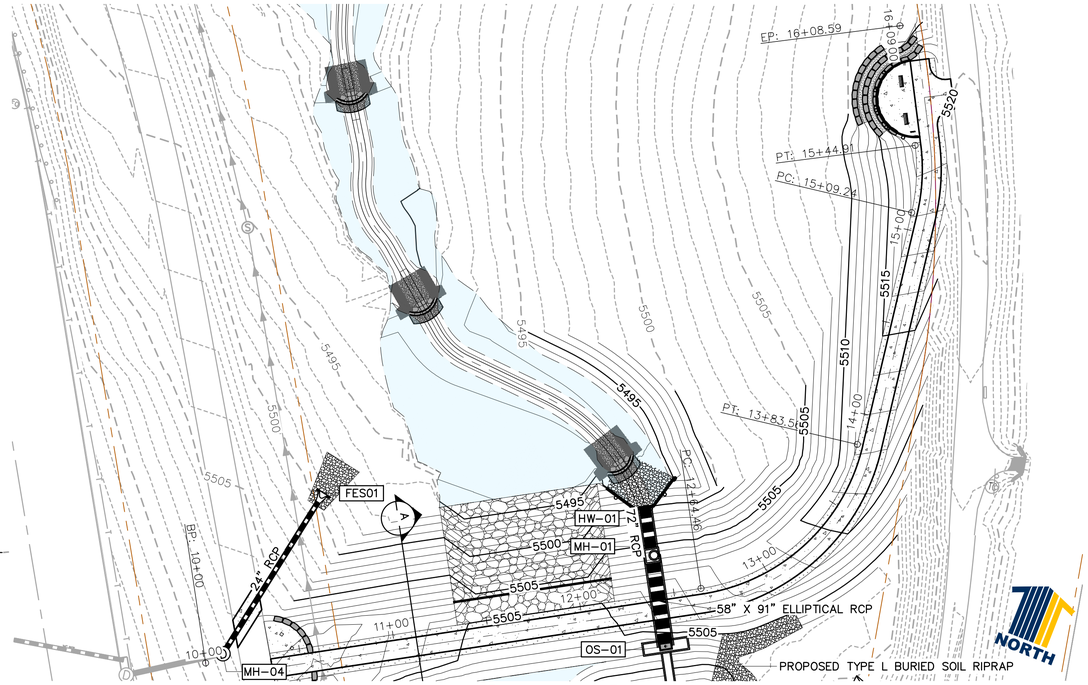
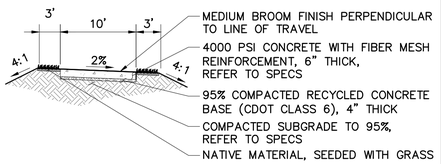


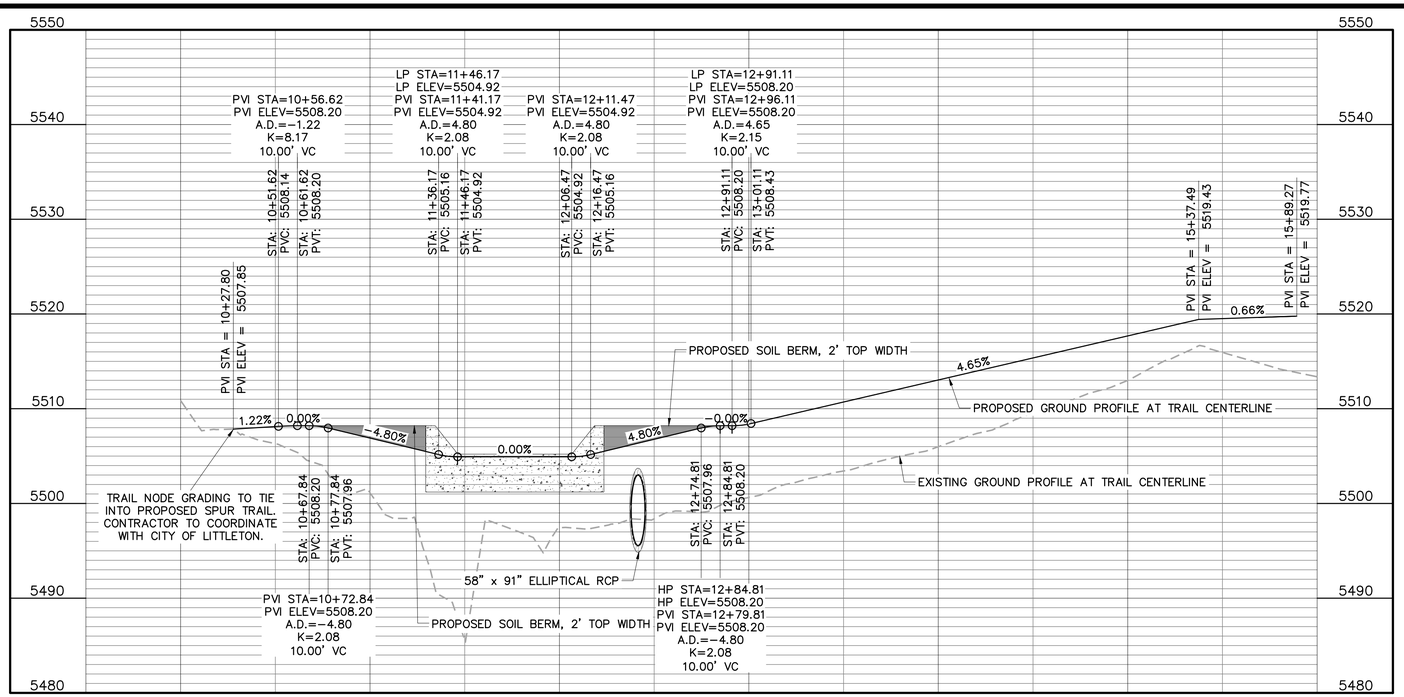
SECTION A-A', BERM SECTION



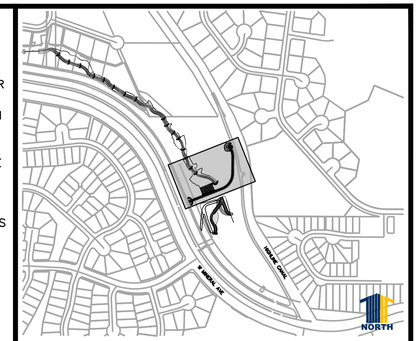
MAIN TRAIL PLAN



TYPICAL TRAIL SECTION



MAIN TRAIL PROFILE



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Drawing Name: 12TR.dwg
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Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH
0 20 40 80
1 inch = 40 ft. Horizontal
1 inch = 8 ft. Vertical

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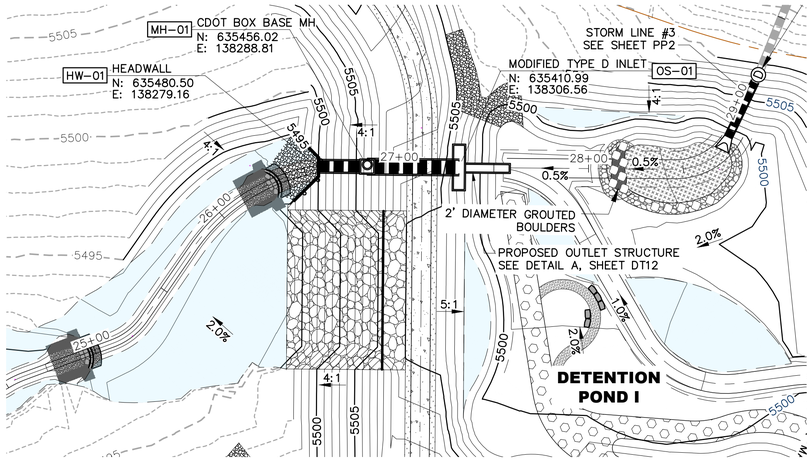
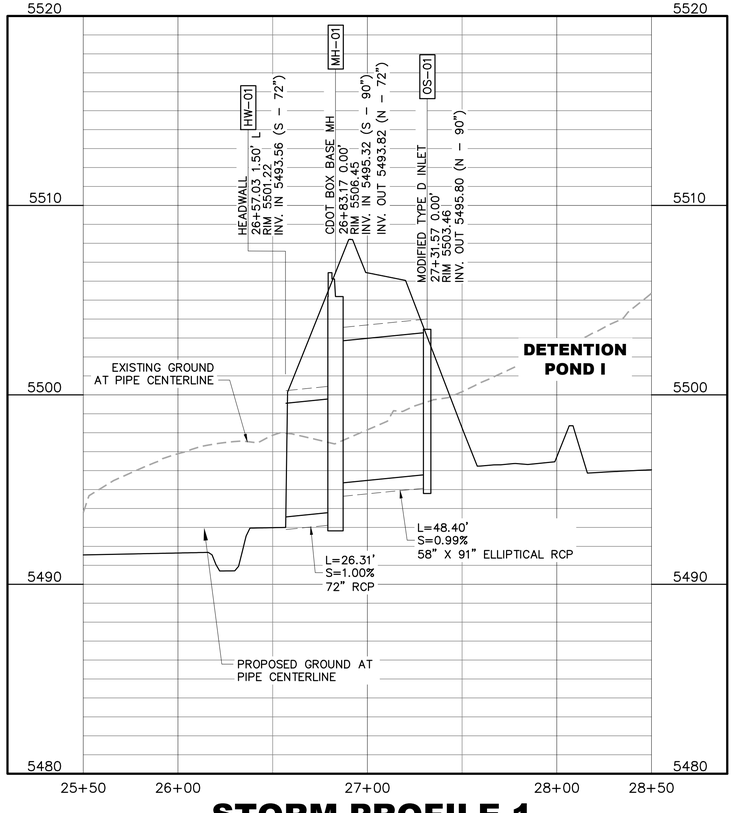
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
MAIN TRAIL PLAN & PROFILE

Sheet TR1
32 of 63
Date JANUARY 21, 2025

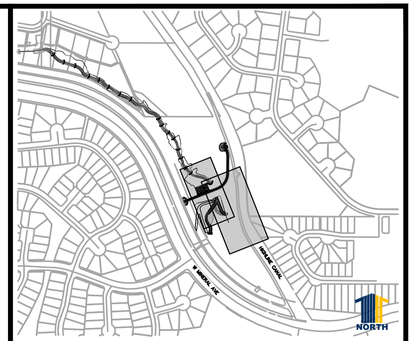
PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12TR.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:56 AM
XREFS:



STORM PLAN 1



STORM PROFILE 1



KEYMAP

LEGEND

- EXISTING MAJOR CONTOUR (5') — 5350
- EXISTING MINOR CONTOUR (1')
- PROPOSED MAJOR CONTOUR — 5505
- PROPOSED MINOR CONTOUR — 5501
- EXISTING ROADWAY CENTERLINE
- EXISTING ROW
- EXISTING EASEMENT
- EXISTING CHANNEL FLOWLINE
- EXISTING LOT / PARCEL
- EXISTING FENCE — X — X
- EXISTING BRIDGE GUARDRAIL
- EXISTING ELECTRICAL LINE — E — E
- EXISTING STORM SEWER — D
- EXISTING SANITARY SEWER — S
- EXISTING TELEPHONE LINE — T — T — T
- PROPOSED CHANNEL CENTERLINE
- EXISTING 100 YR FLOODPLAIN
- PROPOSED 100 YR FLOODPLAIN
- PROPOSED BOULDER WALL
- PROPOSED STORM SEWER — D
- PROPOSED DROP STRUCTURE
- PROPOSED FLOODPLAIN BENCH
- PROPOSED MAINTENANCE PATH

CONSTRUCTION NOTES

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3. SEE SHEET T1 FOR BASIS OF BEARINGS.
4. SEE SHEET GN1 FOR GENERAL NOTES.
5. SEE DT SHEETS FOR DETAILS.
6. EXISTING 24" & 42" RCP CAN BE REUSED IF DEEMED SUITABLE BY ENGINEER
7. SEE SHEET GR1 FOR PROPOSED GROUTED BOULDER DROP LOCATIONS

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OR
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Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12SD1.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD
Drafter: KJM
Checked: BSH

0 20 40 80
1 inch = 40 ft. Horizontal
1 inch = 4 ft. Vertical

COLORADO LICENSED TREVOR B. KEE 62834 PROFESSIONAL ENGINEER 12/9/2024

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
STORM PLAN & PROFILE 1

Sheet: PP1
33 of 63
Date: JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12SD1.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:56 AM
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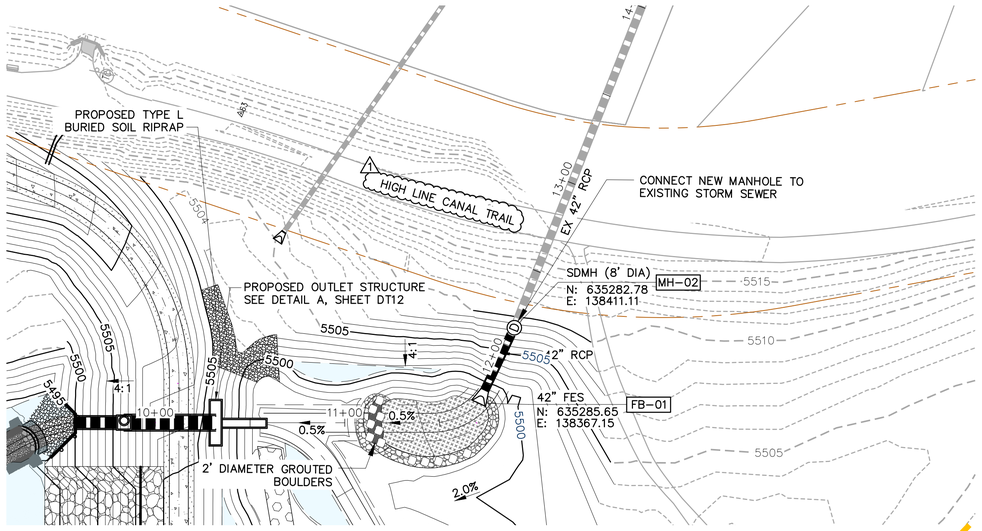
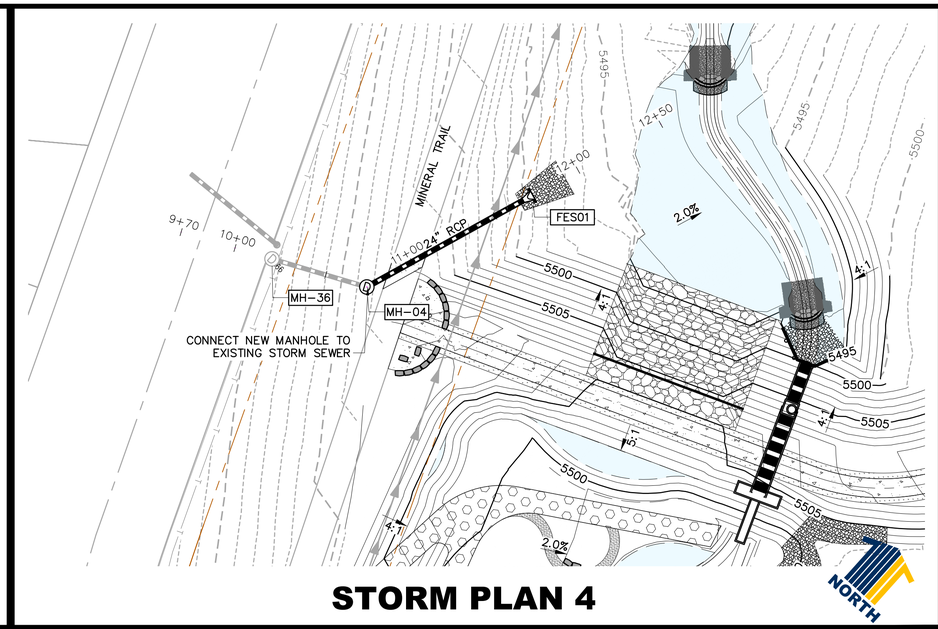
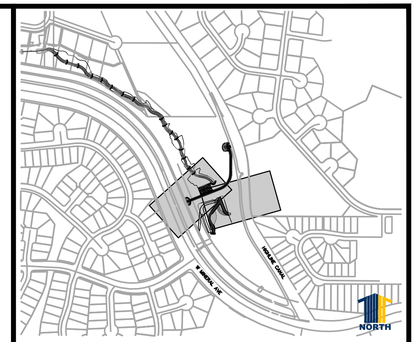


STORM PLAN 3



STORM PLAN 4



KEYMAP

LEGEND

- EXISTING MAJOR CONTOUR (5') — 5350
- EXISTING MINOR CONTOUR (1')
- PROPOSED MAJOR CONTOUR — 5505
- PROPOSED MINOR CONTOUR — 5501
- EXISTING ROADWAY CENTERLINE
- EXISTING ROW
- EXISTING EASEMENT
- EXISTING CHANNEL FLOWLINE
- EXISTING LOT / PARCEL
- EXISTING FENCE — X — X
- EXISTING BRIDGE GUARDRAIL
- EXISTING ELECTRICAL LINE — E — E
- EXISTING STORM SEWER — D
- EXISTING SANITARY SEWER — S
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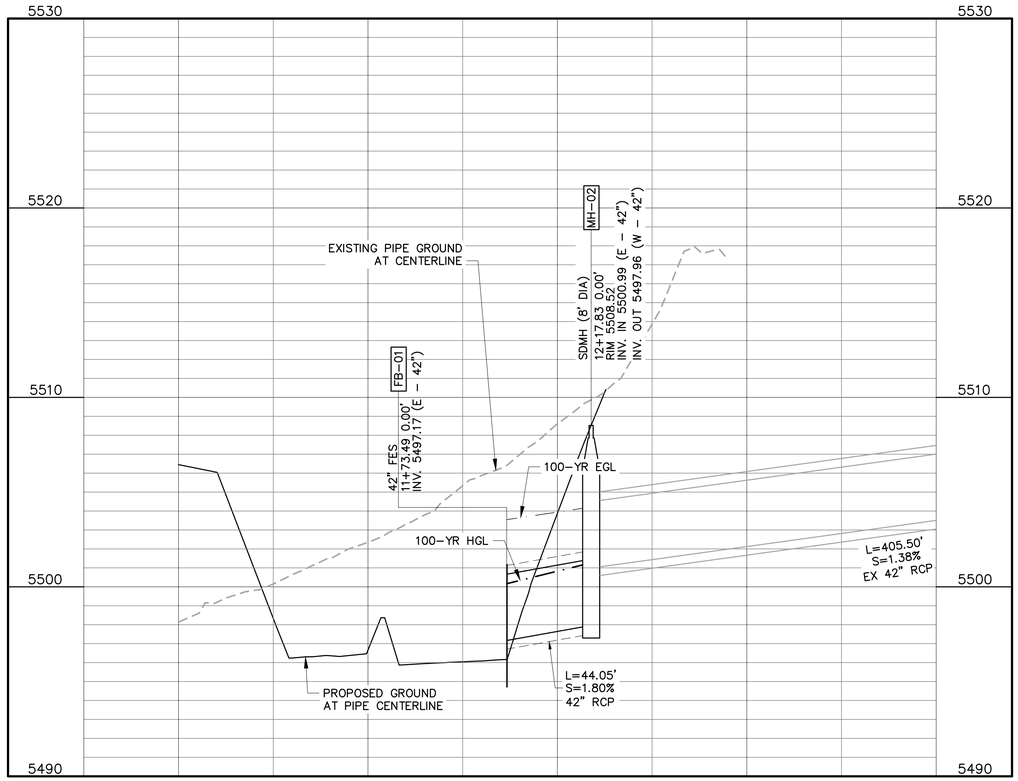
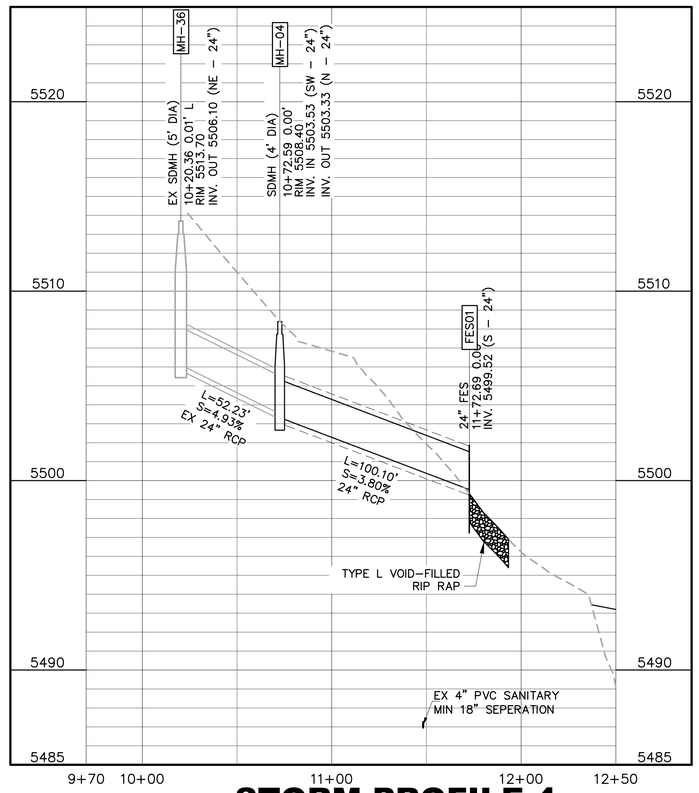


STORM PROFILE 3



STORM PROFILE 4

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		Job Number		1 inch = 40 ft. Horizontal 1 inch = 4 ft. Vertical			
01/21/25	1 HIGH LINE CANAL REVISIONS	Prepared For	MILE HIGH FLOOD DISTRICT	Designer JLD	Drafter KJM	Checked BSH	
DATE	REVISION DESCRIPTION						

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TREVOR B. WELL
62834
12/9/2024
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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
STORM PLAN & PROFILE 2

Sheet PP2 34 of 63

Date JANUARY 21, 2025

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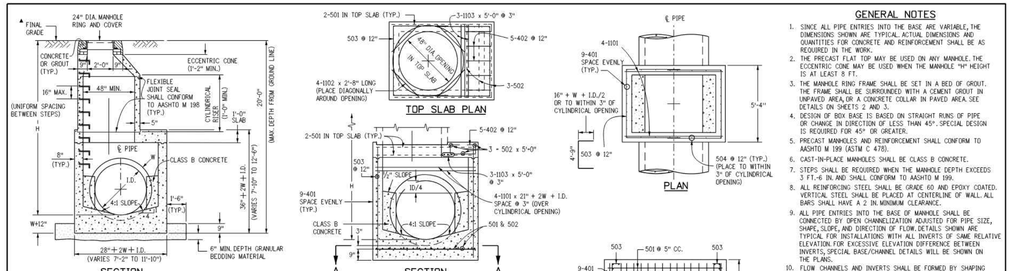

GENERAL NOTES

1. SINCE ALL PIPE ENTRIES INTO THE BASE ARE VARIABLE, THE DIMENSIONS SHOWN ARE TYPICAL. ACTUAL DIMENSIONS AND QUANTITIES FOR CONCRETE AND REINFORCEMENT SHALL BE AS REQUIRED IN THE WORK.
2. THE PRECAST FLAT TOP MAY BE USED ON ANY MANHOLE. THE ECCENTRIC CONE MAY BE USED WHEN THE MANHOLE "H" HEIGHT IS AT LEAST 8 FT.
3. THE MANHOLE RING FRAME SHALL BE SET IN A BED OF GROUT. THE FRAME SHALL BE SURROUNDED WITH A CEMENT GROUT IN UNPAVED AREA, OR A CONCRETE COLLAR IN PAVED AREA. SEE DETAILS ON SHEETS 2 AND 3.
4. DESIGN OF BOX BASE IS BASED ON STRAIGHT RUNS OF PIPE OR CHANGE IN DIRECTION OF LESS THAN 45°. SPECIAL DESIGN IS REQUIRED FOR 45° OR GREATER.
5. PRECAST MANHOLES AND REINFORCEMENT SHALL CONFORM TO AASHTO M 199 (ASTM C 478).
6. CAST-IN-PLACE MANHOLES SHALL BE CLASS B CONCRETE.
7. STEPS SHALL BE REQUIRED WHEN THE MANHOLE DEPTH EXCEEDS 3 FT-6 IN. AND SHALL CONFORM TO AASHTO M 199.
8. ALL REINFORCING STEEL SHALL BE GRADE 60 AND EPOXY COATED. VERTICAL STEEL SHALL BE PLACED AT CENTERLINE OF WALL. ALL BARS SHALL HAVE A 2 IN. MINIMUM CLEARANCE.
9. ALL PIPE ENTRIES INTO THE BASE OF MANHOLE SHALL BE CONNECTED BY OPEN CHANNELIZATION ADJUSTED FOR PIPE SIZE, SHAPE, SLOPE, AND DIRECTION OF FLOW. DETAILS SHOWN ARE TYPICAL FOR INSTALLATIONS WITH ALL INVERTS OF SAME RELATIVE ELEVATION. FOR EXCESSIVE ELEVATION DIFFERENCE BETWEEN INVERTS, SPECIAL BASE/CHANNEL DETAILS WILL BE SHOWN ON THE PLANS.
10. FLOW CHANNELS AND INVERTS SHALL BE FORMED BY SHAPING WITH CLASS B CONCRETE OR APPROVED GROUT.
11. STUB-OUTS SHALL EXTEND 2 FT. MINIMUM BEYOND OUTSIDE WALL SURFACE OF MANHOLE AND BE SATISFACTORILY PLUGGED.
12. THE SLOPE OF THE MANHOLE COVER SHALL MATCH THE ROADWAY PROFILE AND CROSS SLOPE.

▲ WHEN FINAL GRADE IS PAVEMENT SURFACE, RECESS MANHOLE RING AND COVER ¼" MIN. TO ½" MAX.

MARK	SIZE	TYPE	WT. ▲/FT.	BARS	I.D. 54"	60"	66"	72"	84"	96"	FORMULAS
401	4	I	0.668	(NO. REQ'D.) (LENGTH) (WEIGHT) ▲	18 8'-1" 97.2	18 8'-8" 104.2	18 9'-3" 111.2	18 9'-10" 118.2	18 11'-0" 132.3	18 12'-2" 146.3	401 BAR LENGTH = 32" + 2W + I.D.
402	4	III	0.668	(NO. REQ'D.) (LENGTH) (WEIGHT) ▲	5 5'-5" 18.1	5 6'-0" 20.0	5 6'-7" 22.0	5 7'-2" 23.9	5 8'-4" 27.8	5 9'-6" 31.7	402 BAR LENGTH = I.D. + 2W
501	5	I	1.043	(NO. REQ'D.) (LENGTH) (WEIGHT) ▲	17 7'-5" 135.5	17 8'-0" 141.8	17 8'-7" 152.2	17 9'-2" 162.5	17 10'-4" 183.2	17 11'-6" 203.9	501 BAR LENGTH = 24" + I.D. + 2W
502	5	I	1.043	(NO. REQ'D.) (LENGTH) (WEIGHT) ▲	22 5'-0" 114.7	23 5'-0" 119.9	25 5'-0" 130.4	26 5'-0" 135.6	29 5'-0" 151.2	32 5'-0" 166.9	502 NUMBER BARS REQ'D. = 3 + $\left(\frac{24+I.D.+2W}{@\ 5"}+1\right)$
503	5	II	1.043	(NO. REQ'D.) (LENGTH) (WEIGHT) ▲	16 12'-10" 214.2	16 13'-5" 223.9	16 14'-0" 262.8	18 14'-9" 273.8	20 15'-9" 328.5	24 16'-11" 423.5	503 NUMBER BARS REQ'D. = $2\left(\frac{134+I.D.+2W}{@\ 12"}+1\right)$ BAR LENGTH = 4'-0"+2(36"+W+I.D./2)
504	5	I	1.043	(NO. REQ'D.) (LENGTH) (WEIGHT) ▲	12 8'-7" 101.2	14 8'-8" 126.6	14 9'-3" 135.1	16 9'-10" 164.1	18 11'-0" 206.5	20 12'-2" 253.8	504 NUMBER BARS REQ'D. = $2\left(\frac{28"+I.D.+2W}{@\ 12"}+1\right)$
1101	11	I	5.313	(NO. REQ'D.) (LENGTH) (WEIGHT) ▲	4 7'-2" 152.3	4 7'-9" 164.7	4 8'-4" 177.1	4 8'-11" 189.5	4 10'-1" 214.3	4 11'-3" 239.1	1101 BAR LENGTH = 21" + I.D. + 2W
1102	11	I	5.313	(NO. REQ'D.) (LENGTH) (WEIGHT) ▲	4 7'-8" 56.7	4 7'-8" 56.7	4 7'-8" 56.7	4 7'-8" 56.7	4 7'-8" 56.7	4 56.7 2'-8"	BENDING TYPE I: STRAIGHT
1103	11	I	5.313	(NO. REQ'D.) (LENGTH) (WEIGHT) ▲	3 5'-0" 79.7	3 5'-0" 79.7	3 5'-0" 79.7	3 5'-0" 79.7	3 5'-0" 79.7	3 5'-0" 79.7	TYPE II: 4'-9", 16"+W+I.D./2
▲ REINFORCING STEEL TOTAL					965.6	1,037.5	1,127.2	1,204.4	1,380.2	1,601.6	TYPE III: 12"±, 12"±, 2", I.D.+2W-38"
CONCRETE - CUBIC YARDS - TOTAL					6.0	6.6	7.3	8.0	9.5	11.1	

NOTE: QUANTITIES ARE BASED ON SAME SIZE PIPE ENTRANCE TO AND EXIT FROM, BASE AND A 4 FT. MANHOLE ENTRANCE INTO TOP SLAB OF BASE.

QUANTITIES FOR CONCRETE MANHOLE BOX BASE

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	(R-X)		
Last Modification Date: 07/31/19	(R-X)		
Detailer Initials: LTA	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

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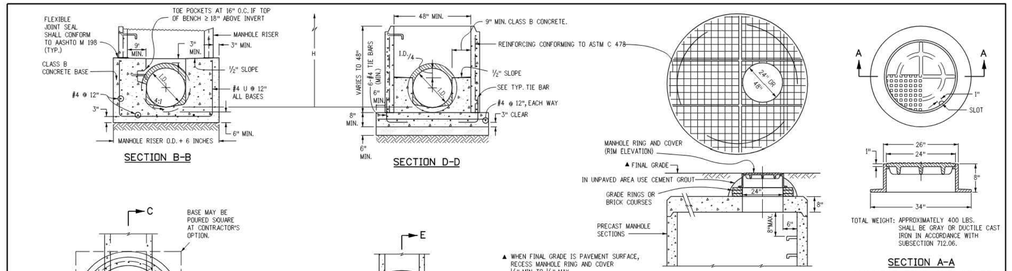
MANHOLES

STANDARD PLAN NO. M-604-20
Standard Sheet No. 1 of 3
Project Sheet Number:

Issued by the Project Development Branch: July 31, 2019



LEGEND
- SUITABLE SUBGRADE
- GRANULAR BEDDING MATERIAL
- CONCRETE

PRECAST MANHOLE BASES NOTES:

1. THE BASE SLAB SHALL BE POURED MONOLITHICALLY WITH BOTTOM RISER SECTION.
2. PRECAST MANHOLE BASES SHALL FIT THE CONDITIONS AND LOCATIONS FOR WHICH THEY ARE INTENDED WITHOUT ANY FIELD MODIFICATIONS. ANY MANHOLE BASE WHICH REQUIRES FIELD CUTTING OR MODIFICATION IN ORDER TO FIT THE LOCATIONS INTENDED WILL BE REJECTED BY THE ENGINEER AND REMOVED AND REPLACED BY THE CONTRACTOR AT NO COST TO THE DEPARTMENT.
3. PRECAST MANHOLE BASES SHALL BE BEDDED ON AN APPROVED GRANULAR BEDDING MATERIAL AS SHOWN ABOVE.

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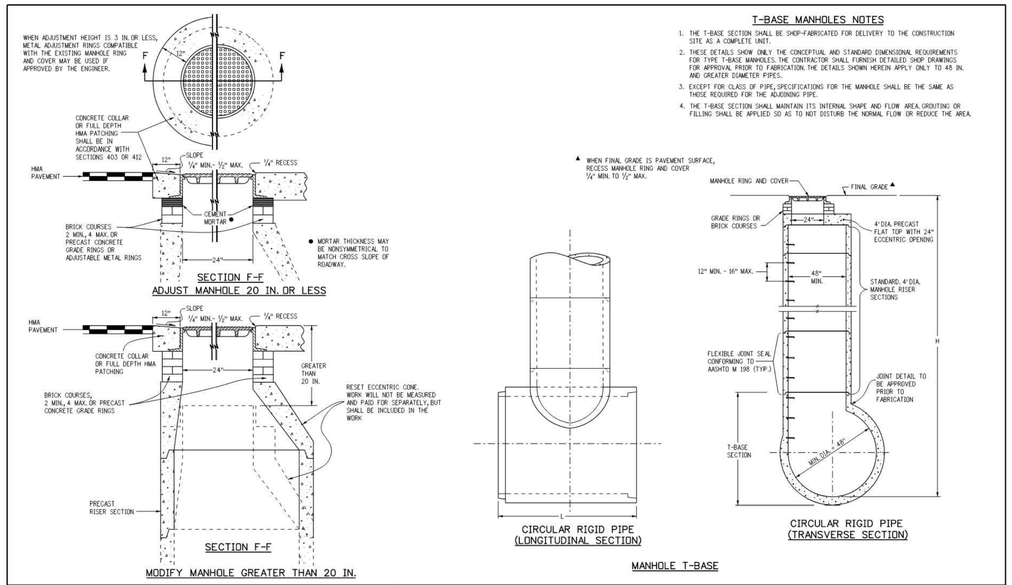
MANHOLES

STANDARD PLAN NO. M-604-20
Standard Sheet No. 2 of 3
Project Sheet Number:

Issued by the Project Development Branch: July 31, 2019



T-BASE MANHOLES NOTES

1. THE T-BASE SECTION SHALL BE SHOP-FABRICATED FOR DELIVERY TO THE CONSTRUCTION SITE AS A COMPLETE UNIT.
2. THESE DETAILS SHOW ONLY THE CONCEPTUAL AND STANDARD DIMENSIONAL REQUIREMENTS FOR TYPE T-BASE MANHOLES. THE CONTRACTOR SHALL FURNISH DETAILED SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION. THE DETAILS SHOWN HEREIN APPLY ONLY TO 48 IN. AND GREATER DIAMETER PIPES.
3. EXCEPT FOR CLASS OF PIPE, SPECIFICATIONS FOR THE MANHOLE SHALL BE THE SAME AS THOSE REQUIRED FOR THE ADJOINING PIPE.
4. THE T-BASE SECTION SHALL MAINTAIN ITS INTERNAL SHAPE AND FLOW AREA. GROUTING OR FILLING SHALL BE APPLIED SO AS TO NOT DISTURB THE NORMAL FLOW OR REDUCE THE AREA.

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MANHOLES

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Standard Sheet No. 3 of 3
Project Sheet Number:

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DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12DT4-DT5.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD
Drafter: KJM
Checked: BSH

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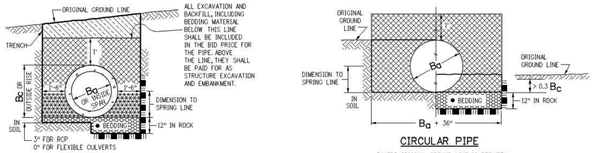
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
UTILITY DETAILS 1

Sheet DT2
35 of 63
Date JANUARY 21, 2025



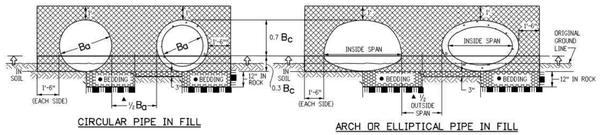
PIPE IN TRENCH

CIRCULAR PIPE

(WHERE ORIGINAL GROUND LINE IS BETWEEN 0.3 B_c AND B_c + 1 FT. ABOVE FLOWLINE)

- THE BEDDING MATERIAL FOR RIGID PIPE IN SOIL SHALL BE 3 IN. OF LOOSE STRUCTURE BACKFILL (CLASS 1 OR 2). BEDDING IS NOT REQUIRED FOR FLEXIBLE PIPE IN SOIL. BEDDING MATERIAL FOR RIGID OR FLEXIBLE PIPE IN ROCK SHALL BE 12 IN. OF LOOSE STRUCTURE BACKFILL, CLASS 1.

▲ WHEN TWO OR MORE CONDUITS ARE LAID SIDE-BY-SIDE, THEY SHALL BE PLACED SO THAT THEY ARE ½ OUTSIDE DIAMETER, OR ½ OUTSIDE SPAN, OR 3 FT. APART, WHICHEVER IS LESS. HOWEVER, IF END SECTIONS ARE USED, THE MINIMUM SPACING SHALL BE 1 FT. BETWEEN END SECTIONS.



CIRCULAR PIPE IN FILL

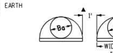
ARCH OR ELLIPTICAL PIPE IN FILL

GENERAL NOTES

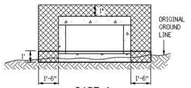
1. EXCAVATION AND BACKFILL PATTERNS DIFFERENT FROM THOSE INDICATED ON THESE SHEETS WILL BE SHOWN ELSEWHERE ON THE PLANS.
2. EXCAVATION FOR CHANNEL CHANGE OR CHANNEL IMPROVEMENT WILL BE EITHER UNCLASSIFIED EXCAVATION OR MUCK EXCAVATION AND WILL BE NOTED ON THE PLANS. EXCAVATION FROM THE CHANNEL FLOWLINE TO THE DEPTH REQUIRED FOR THE NEW STRUCTURE AND INCIDENTAL CHANNEL EXCAVATION WILL BE PAID FOR AS STRUCTURE EXCAVATION.
3. STRUCTURE FOOTINGS WHICH ARE LOCATED IN ROCK SHALL BE POURED OUT TO UNDISTURBED ROCK WITHOUT FORMING IN CONFORMANCE WITH SUBSECTION 601.09(b).
4. STRUCTURAL PLATE CULVERTS SHALL BE CONSTRUCTED AS SHOWN ON THE PLANS.
5. B_a EQUALS THE INSIDE DIAMETER OF A PIPE AND B_c EQUALS THE OUTSIDE DIAMETER OF A PIPE. FOR THIN WALLED PIPES, IT IS ASSUMED THAT $B_a = B_c$.
6. APPROXIMATE STRUCTURE EXCAVATION AND BACKFILL QUANTITIES, UP TO 1 FT. OVER THE PIPE WILL BE SHOWN ON THE PLANS, FOR INFORMATION ONLY.

LEGEND

- STRUCTURE EXCAVATION LIMITS
- STRUCTURE BACKFILL, CLASS 1 OR 2, AS SHOWN ON PLANS
- STRUCTURE BACKFILL, CLASS 1
- EMBANKMENT MATERIAL
- EARTH
- ROCK
- BEDDING
- CONCRETE
- = WHEN FLOW LINE OF CULVERT IS LESS THAN 0.3 B_c BELOW THE ORIGINAL GROUND LINE, EMBANKMENT SHALL BE BUILT UP TO 0.3 B_c ABOVE THE FLOW LINE AND TRENCH EXCAVATED TO THE BOTTOM OF PIPE OR AS SHOWN.

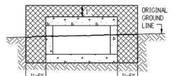


CONDUIT WITH END SECTIONS



CASE 1

APPLIES WHEN THE ORIGINAL GROUND LINE IS LESS THEN 1 FT. ABOVE THE BOTTOM OF THE BOX CULVERT. THE EMBANKMENT SHALL BE BUILT UP TO 1 FT. ABOVE THE BOTTOM OF THE BOX CULVERT AND THEN EXCAVATED TO THE BOTTOM OF THE BOX CULVERT. THIS EMBANKMENT AND EXCAVATION WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WORK.

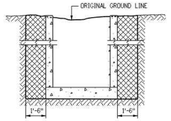


CASE 2

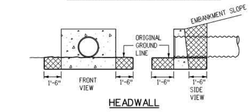
APPLIES WHEN THE ORIGINAL GROUND LINE IS MORE THAN 1 FT. ABOVE THE BOTTOM OF THE BOX CULVERT.

CONCRETE BOX CULVERT

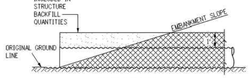
IN BOTH CASES, THE TRENCH (OUTLINED BY THE THICK SOLID LINE) SHALL THEN BE EXCAVATED TO ACCOMMODATE CONSTRUCTION OF THE BOX CULVERT.



DROP INLETS AND DIVISION BOXES



HEADWALL



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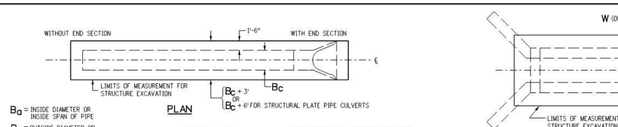
Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

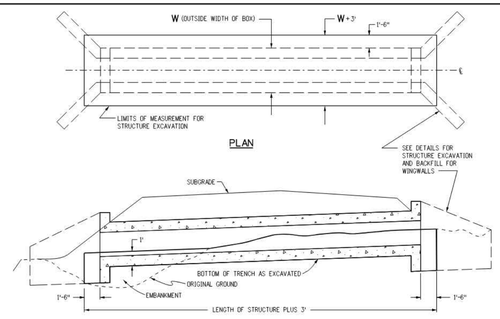
EXCAVATION AND BACKFILL FOR STRUCTURES

Issued by the Project Development Branch: July 31, 2019

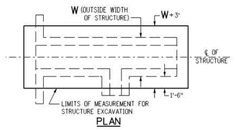
STANDARD PLAN NO.
M-206-1
Standard Sheet No. 1 of 2
Project Sheet Number:



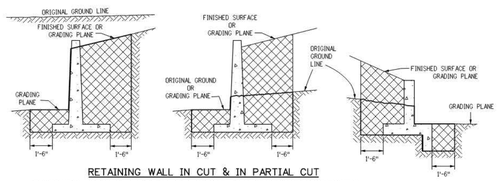
STRUCTURE EXCAVATION MEASUREMENT FOR PIPE CULVERTS



STRUCTURE EXCAVATION MEASUREMENT FOR CONCRETE BOX CULVERTS



STRUCTURE EXCAVATION MEASUREMENT FOR DIVISION BOXES



RETAINING WALL IN CUT & IN PARTIAL CUT

ANY ADDITIONAL EXCAVATION BEHIND THE LIMITS SHOWN SHALL BE FILLED WITH CLASS 1 BACKFILL MATERIAL. THE ADDITIONAL EXCAVATION AND BACKFILL WILL NOT BE MEASURED AND PAID FOR.

WINGWALL

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	REV		
Last Modification Date: 07/31/19	REV		
Detailer Initials: LTA	REV		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	REV		

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Issued by the Project Development Branch: July 31, 2019

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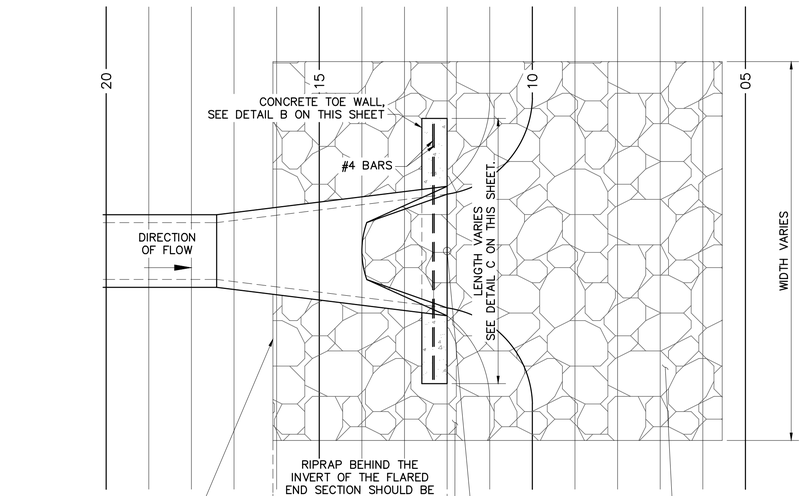
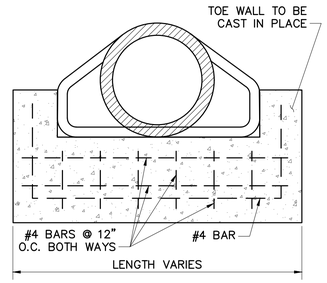
M-206-1
Standard Sheet No. 2 of 2
Project Sheet Number:



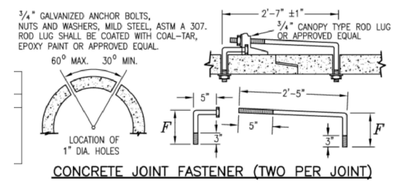
DETAIL A: OUTFALL TO RIPRAP OUTFALL PROTECTION



DETAIL B: CONCRETE TOE WALL

PIPE SIZE	TOE WALL LENGTH (FEET)
18"	7'–0"
24"	8'–0"
30"	10'–0"
36"	12'–8"
42"	15'–9"
48"	17'–6"
54"	19'–6"

DETAIL C: TOE WALL TABLE



CONCRETE JOINT FASTENER (TWO PER JOINT)

DETAIL D: CONCRETE JOINT FASTENER

FLARED END SECTION

N.T.S.

01/21/25	1	HIGH LINE CANAL REVISIONS	Drawing Name: 12DT4-DT5.dwg			
DATE		REVISION DESCRIPTION	Job Number			
			Prepared For: MILE HIGH FLOOD DISTRICT	Designer: JLD	Drafter: KJM	Checked: BSH

COLORADO LICENSED Jaclyn L. Isel 62834 12/5/2024 PROFESSIONAL ENGINEER

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
UTILITY DETAILS 2

Sheet DT3 — 36 of 63
Date: JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12DT4-DT5.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:56 AM
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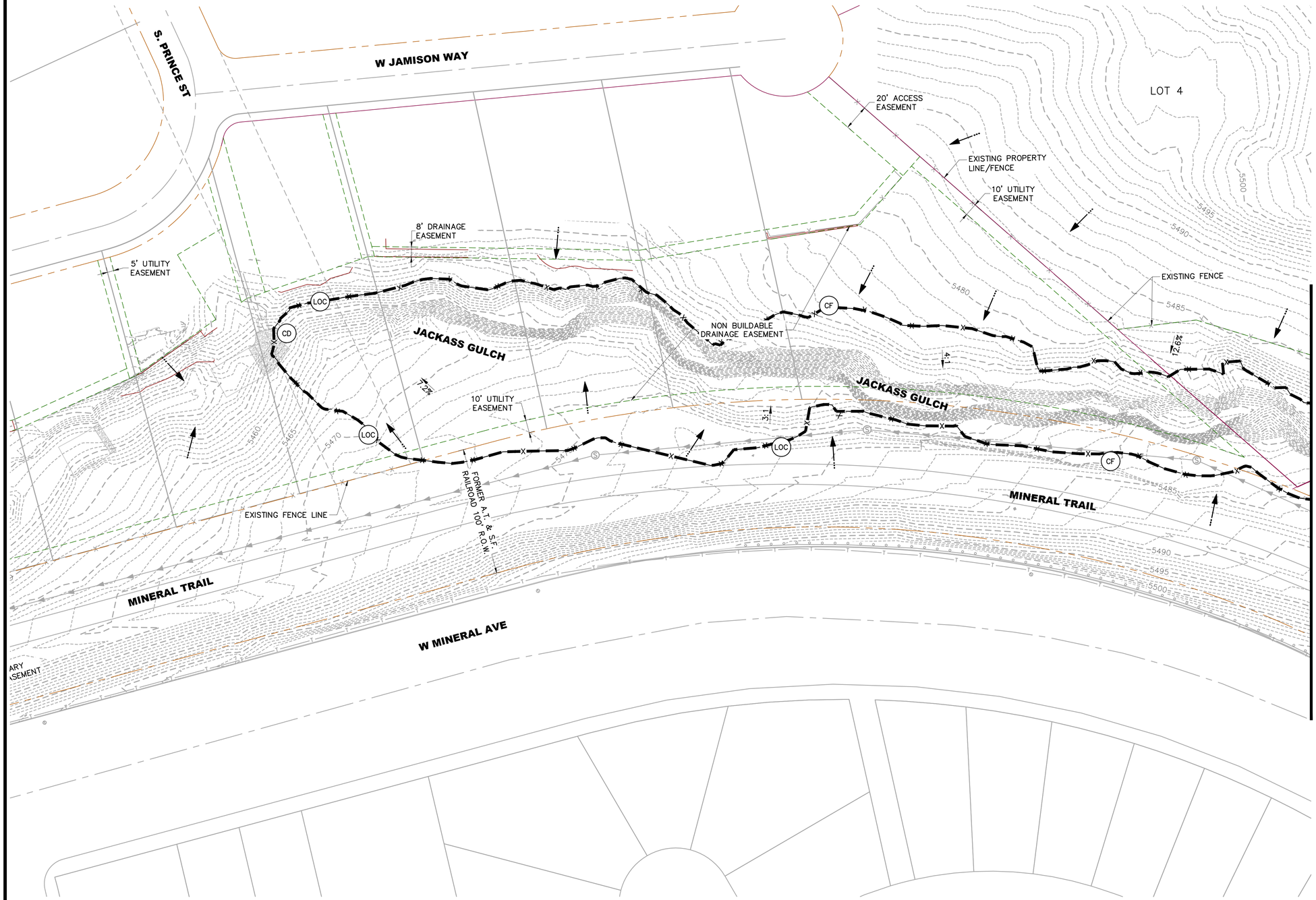

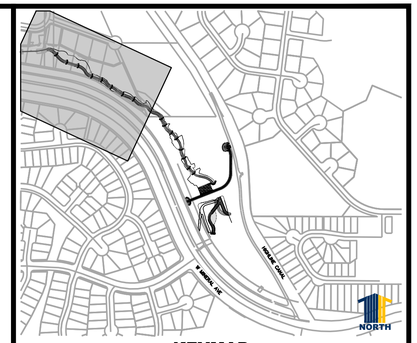

KEYMAP

CONSTRUCTION NOTES

1. WHERE CONSTRUCTION DETAILS AND SPECIFICATIONS ARE NOTED ON THESE PLANS USE CITY OF LITTLETON STORM DRAINAGE CRITERIA MANUAL.
2. ALL DIMENSIONS ARE TO FLOWLINE, EXCEPT PROFILES, WHICH ARE CENTERLINE DIMENSIONS, UNLESS OTHERWISE NOTED.
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4. SEE SHEET GN1 FOR GENERAL NOTES RELATED TO THESE PLANS.
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LEGEND

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CS	CURB SOCK
CWA	CONCRETE WASHOUT AREA
ECB	EROSION CONTROL BLANKET
IP	ON GRADE INLET PROTECTION
OP	TEMPORARY OUTLET PROTECTION
PTP	PORTA POTTY
CF	CONSTRUCTION FENCE
SM	SEEDING AND MULCHING
SR	SURFACE ROUGHING
SSA	STABILIZED STAGING AREA
VTC	VEHICLE TRACKING CONTROL
LOC	LIMITS OF CONSTRUCTION
	EMERGENCY OVERFLOW ARROW
	PROPOSED DROP STRUCTURE

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12EC1.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
0 20 40 80
1 inch = 40 ft. Horizontal
Designer: JLD | Drafter: KJM | Checked: BSH

COLORADO LICENSED 62834 TREVOR B. WELL PROFESSIONAL ENGINEER 12/9/2024

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
INITIAL EROSION CONTROL 1

Sheet EC1 | 37 of 63
Date JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12EC1.DWG
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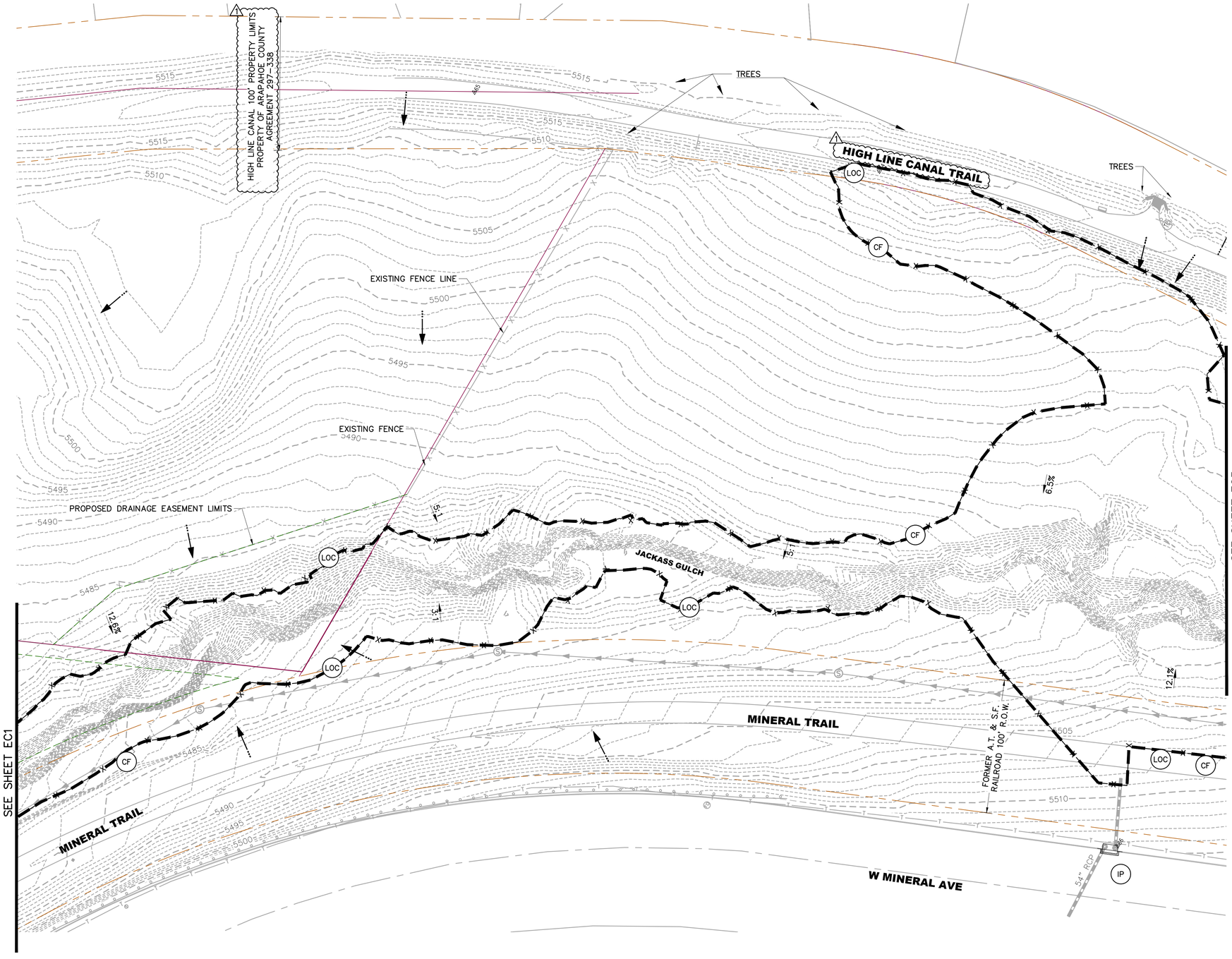

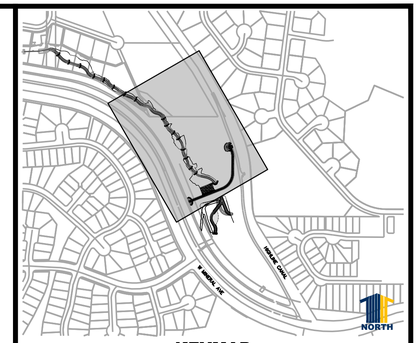

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LEGEND

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- CS — CURB SOCK
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- VTC — VEHICLE TRACKING CONTROL
- LOC — LIMITS OF CONSTRUCTION
- EMERGENCY OVERFLOW ARROW
- PROPOSED DROP STRUCTURE

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12EC1.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:57 AM
XREFS:

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12EC1.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH

0 20 40 80
1 inch = 40 ft. Horizontal

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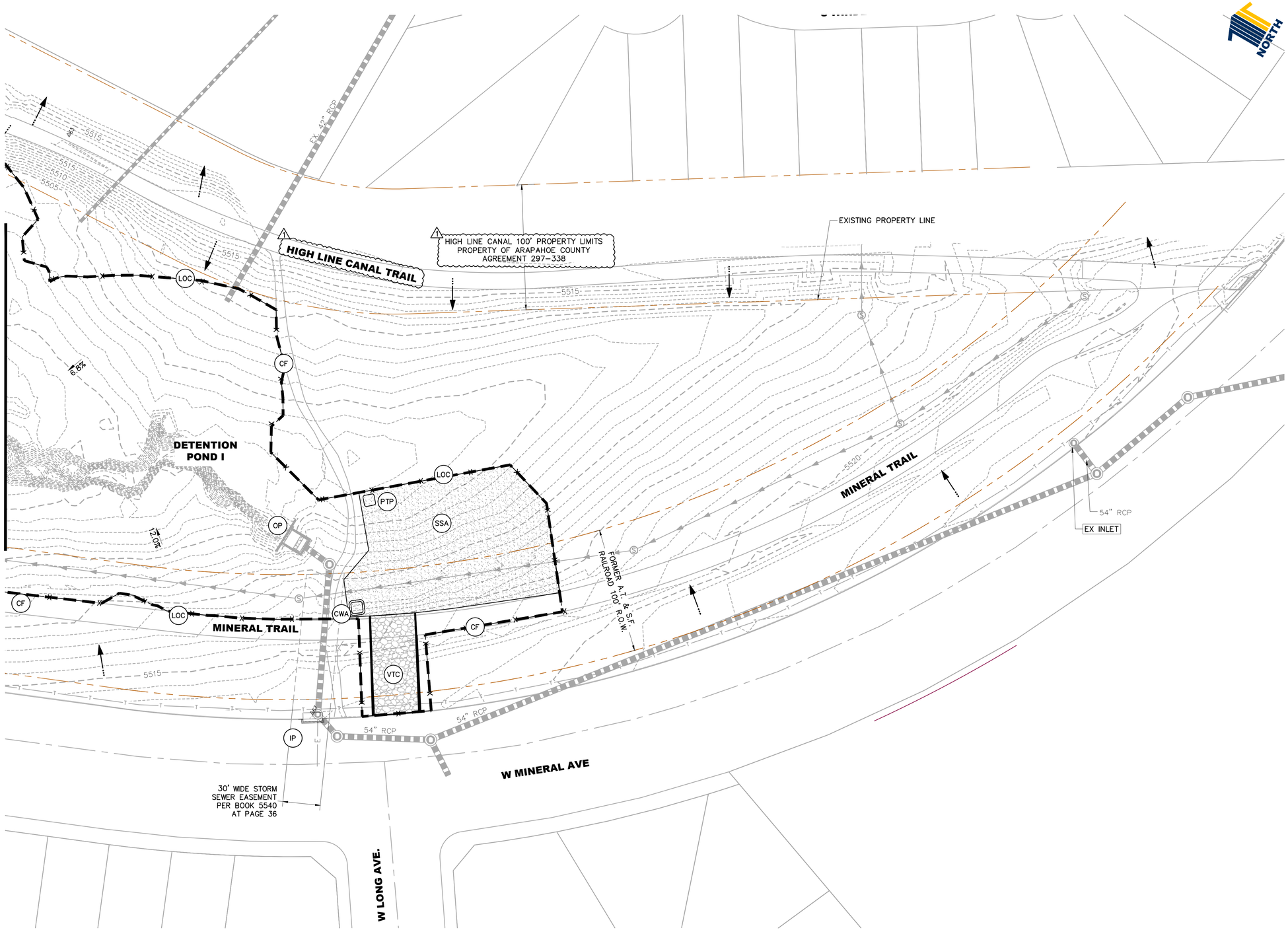
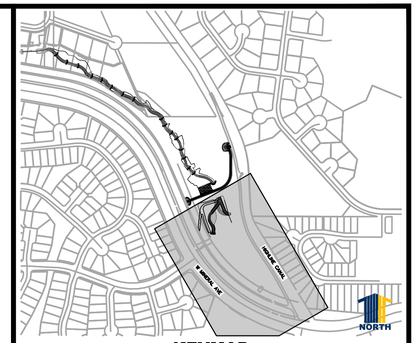
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
INITIAL EROSION CONTROL 2

Sheet EC2 of 63
Date JANUARY 21, 2025





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- EMERGENCY OVERFLOW ARROW
- PROPOSED DROP STRUCTURE

01/21/25	1	HIGH LINE CANAL REVISIONS
DATE		REVISION DESCRIPTION

Drawing Name: 12EC1.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH
0 20 40 80
1 inch = 40 ft. Horizontal

COLORADO LICENSED
TREVOR B. IVEY
62834
12/6/2024
PROFESSIONAL ENGINEER

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
INITIAL EROSION CONTROL 3

Sheet: EC3 — 39 of 63
Date: JANUARY 21, 2025

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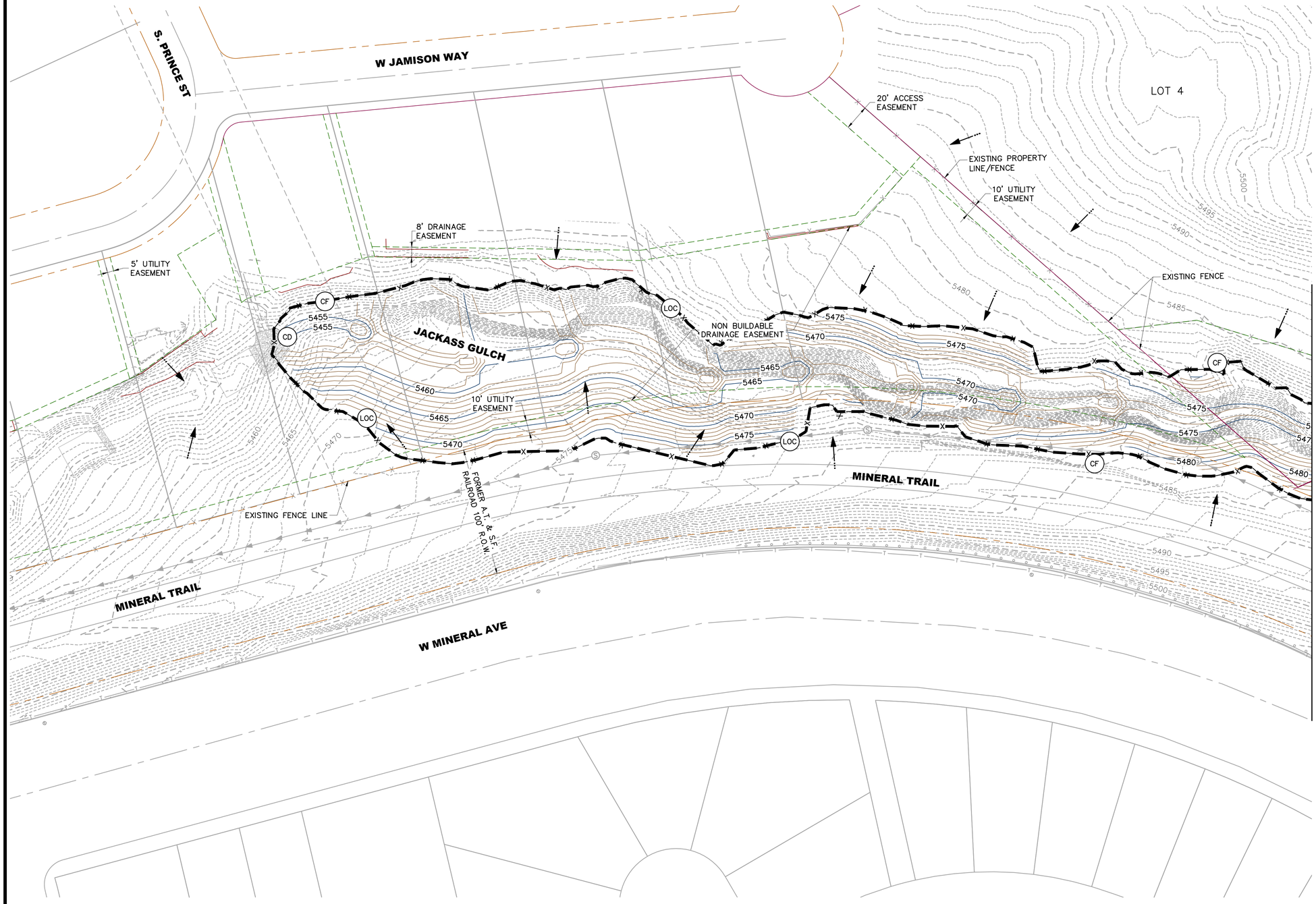

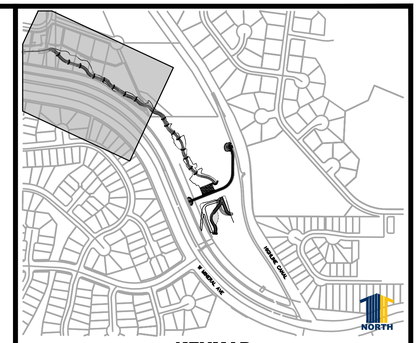

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- (LOC) LIMITS OF CONSTRUCTION
- EMERGENCY OVERFLOW ARROW
- PROPOSED DROP STRUCTURE

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12EC2.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:57 AM
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DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12EC2.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
0 20 40 80
1 inch = 40 ft. Horizontal
Designer: JLD | Drafter: KJM | Checked: BSH

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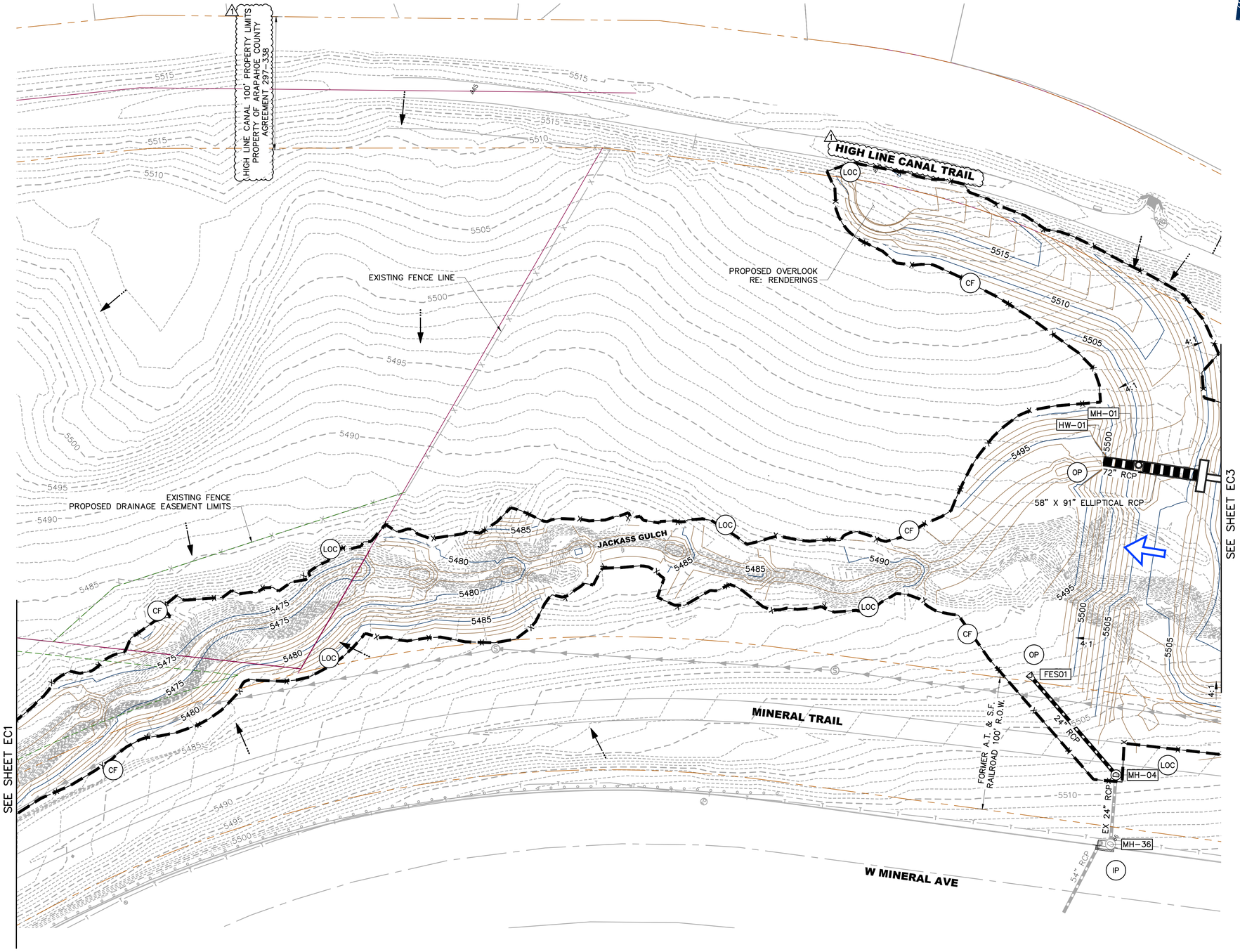
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
INTERIM EROSION CONTROL 1

Sheet EC4 of 63
Date JANUARY 21, 2025



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DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12EC2.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
1 inch = 40 ft. Horizontal (0, 20, 40, 80)
Designer: JLD | Drafter: KJM | Checked: BSH

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
INTERIM EROSION CONTROL 2

Sheet EC5 of 63
Date JANUARY 21, 2025

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PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:57 AM
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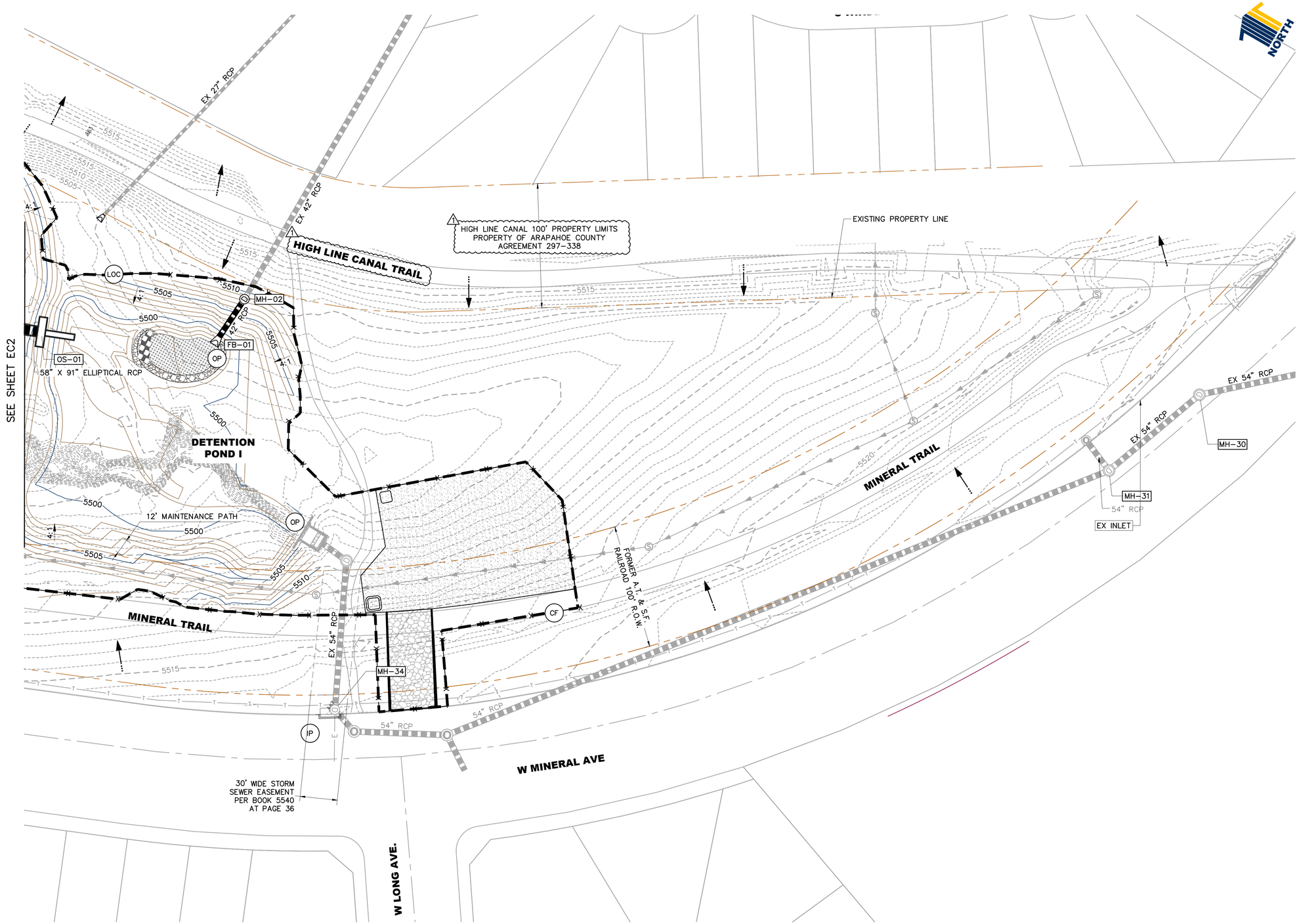

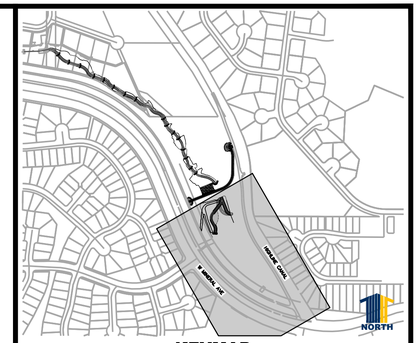

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PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12EC2.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:57 AM
XREFS:

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12EC2.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH
0 20 40 80
1 inch = 40 ft. Horizontal

COLORADO LICENSED 62834 TREVOR B. WELL 12/9/2024 PROFESSIONAL ENGINEER

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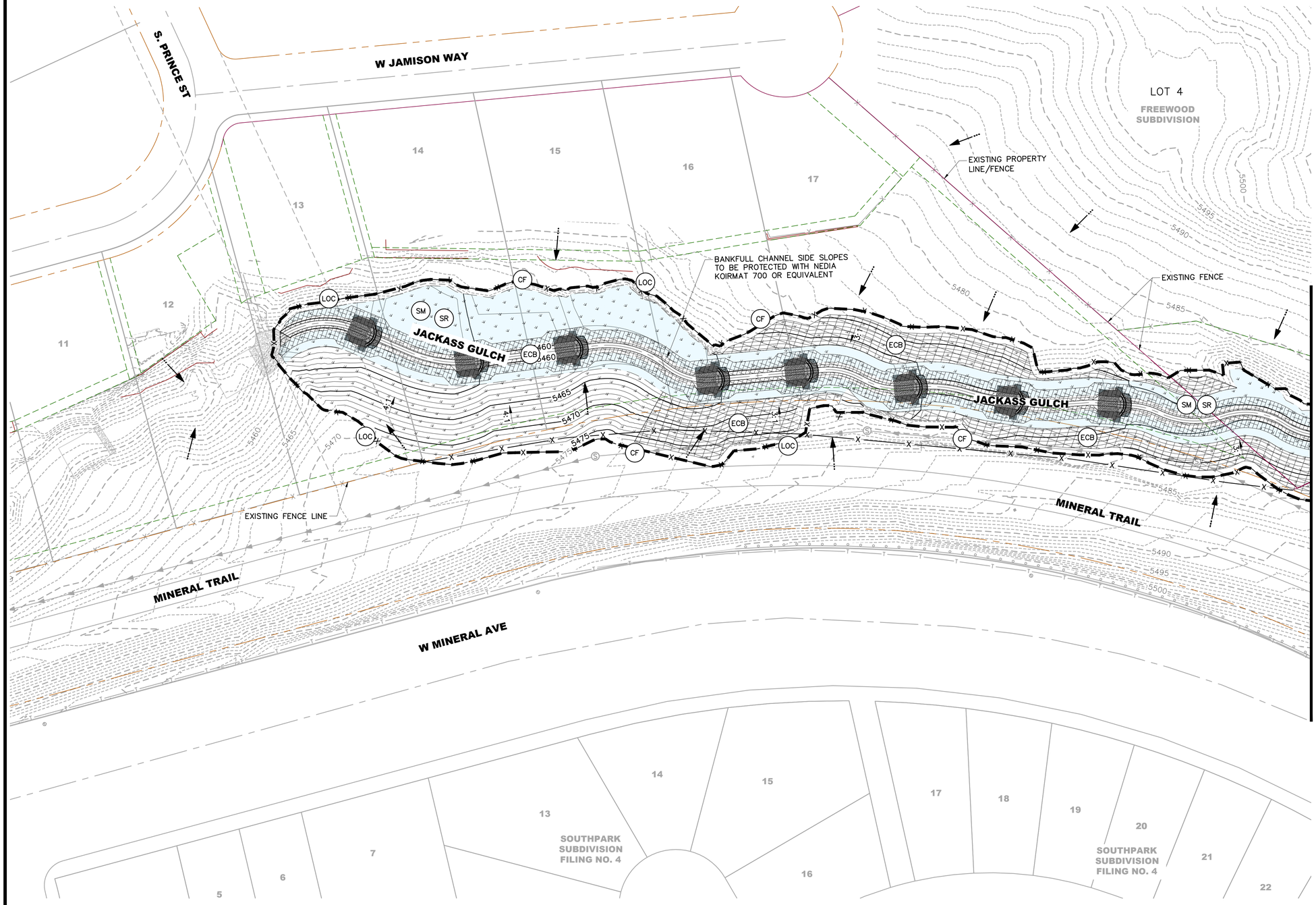
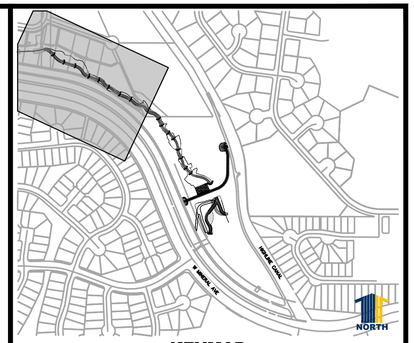
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
INTERIM EROSION CONTROL 3

Sheet: EC6 | 42 of 63
Date: JANUARY 21, 2025





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8. ALL CONSTRUCTION FENCES AND TEMPORARY CONTROL MEASURES SHALL BE REMOVED AT TIME OF FINAL SITE STABILIZATION.
9. SLOPES GREATER THAN 4:1 TO BE PROTECTED WITH ECB

LEGEND

CD	CHECK DAM
CS	CURB SOCK
CWA	CONCRETE WASHOUT AREA
ECB	COCO EROSION CONTROL BLANKET
ECB	COIR EROSION CONTROL BLANKET
IP	ON GRADE INLET PROTECTION
OP	TEMPORARY OUTLET PROTECTION
PTP	PORTA POTTY
CF	CONSTRUCTION FENCE
SM	SEEDING AND MULCHING
SR	SURFACE ROUGHING
SSA	STABILIZED STAGING AREA
VTC	VEHICLE TRACKING CONTROL
LOC	LIMITS OF CONSTRUCTION
	EMERGENCY OVERFLOW ARROW
	PROPOSED DROP STRUCTURE

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12EC3.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
0 20 40 80
1 inch = 40 ft. Horizontal
Designer: JLD | Drafter: KJM | Checked: BSH

COLORADO LICENSED TREVOR B. IGEL 62834 PROFESSIONAL ENGINEER 12/9/2024

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
FINAL EROSION CONTROL 1

Sheet EC7 of 63
Date JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12EC3.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:58 AM
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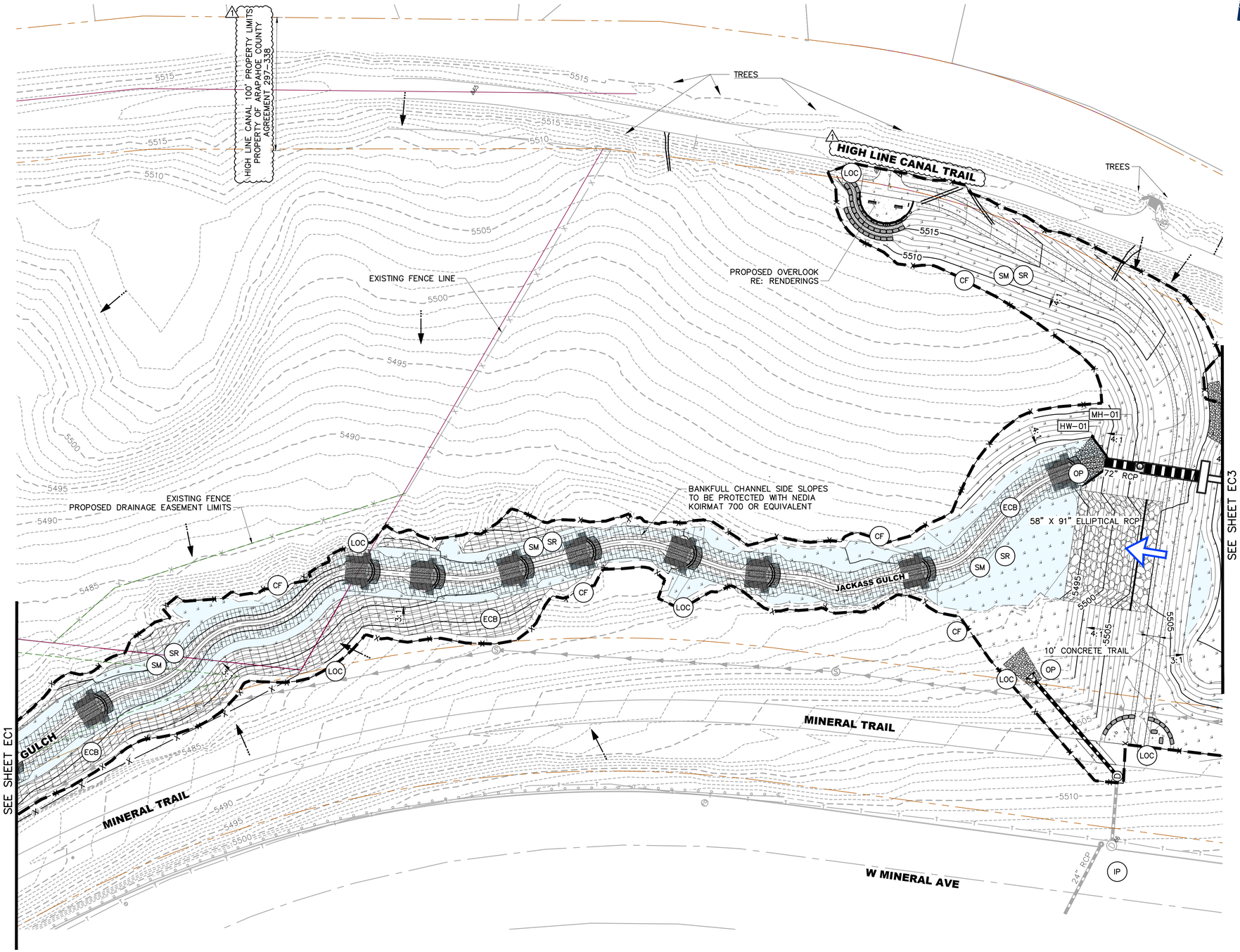

KEYMAP

CONSTRUCTION NOTES

1. WHERE CONSTRUCTION DETAILS AND SPECIFICATIONS ARE NOTED ON THESE PLANS USE CITY OF LITTLETON STORM DRAINAGE CRITERIA MANUAL.
2. ALL DIMENSIONS ARE TO FLOWLINE, EXCEPT PROFILES, WHICH ARE CENTERLINE DIMENSIONS, UNLESS OTHERWISE NOTED.
3. SEE SHEET T1 FOR BENCHMARK, BASIS OF BEARINGS.
4. SEE SHEET GN1 FOR GENERAL NOTES RELATED TO THESE PLANS.
5. GRADES SHOWN ARE FINISHED GRADE.
6. CONTRACTOR SHALL CLEAN ALL INLETS AND STORM PIPES BETWEEN DETENTION FACILITY AND SITE AT FINAL CLEAN-UP AS NEEDED.
7. REFER TO LANDSCAPE PLANS FOR SEED MIXES, PLUG PLANTINGS, AND PLANTINGS.
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SSA	STABILIZED STAGING AREA
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LOC	LIMITS OF CONSTRUCTION
	EMERGENCY OVERFLOW ARROW
	PROPOSED DROP STRUCTURE

DATE		REVISION DESCRIPTION
01/21/25	1	HIGH LINE CANAL REVISIONS

Drawing Name: 12EC3.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
0 20 40 80 — 1 inch = 40 ft. Horizontal
Designer: JLD | Drafter: KJM | Checked: BSH

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
FINAL EROSION CONTROL 2

Sheet EC8 — 44 of 63
Date: JANUARY 21, 2025

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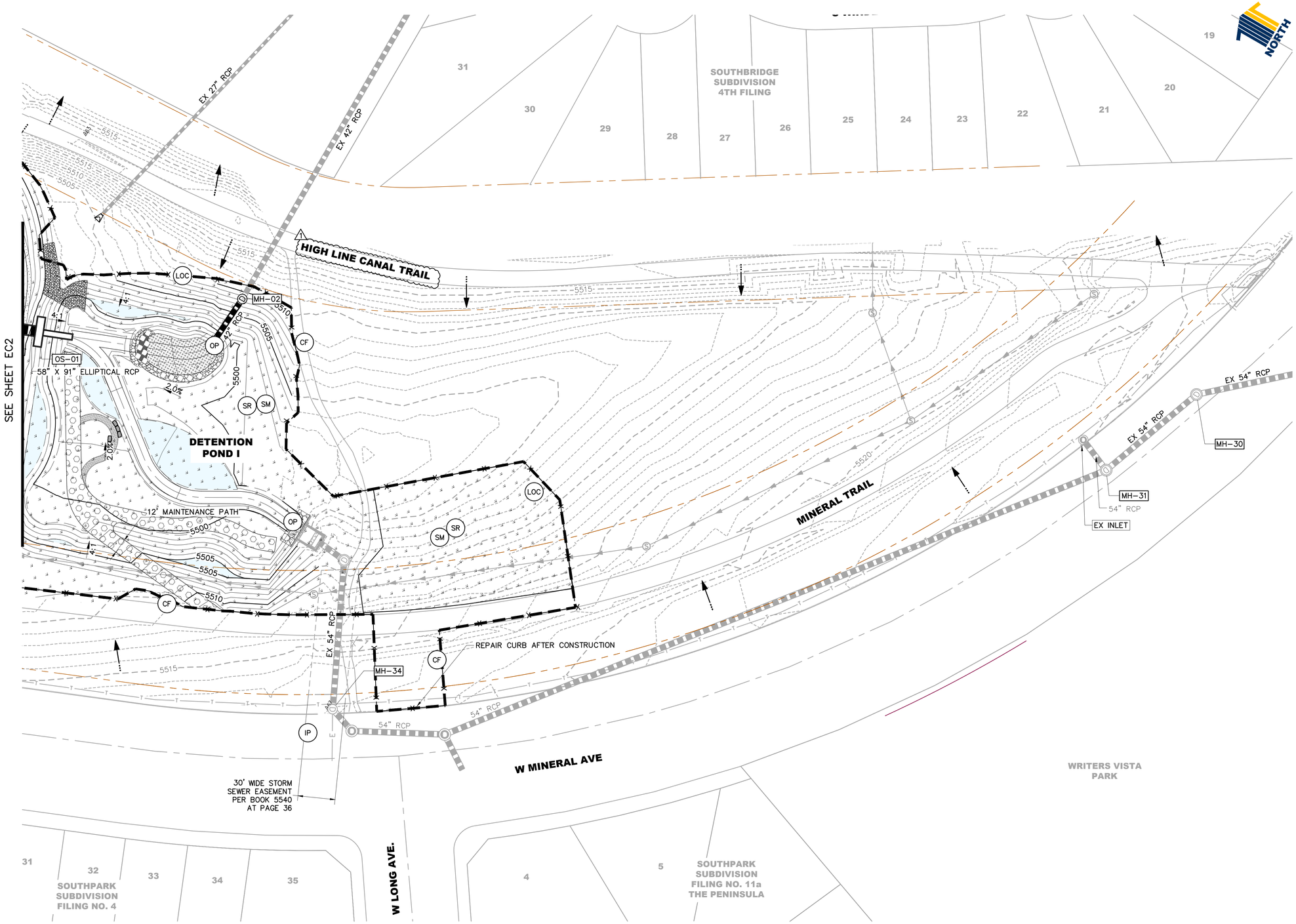

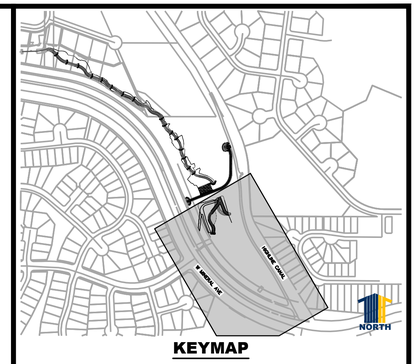

KEYMAP

CONSTRUCTION NOTES

1. WHERE CONSTRUCTION DETAILS AND SPECIFICATIONS ARE NOTED ON THESE PLANS USE CITY OF LITTLETON STORM DRAINAGE CRITERIA MANUAL.
2. ALL DIMENSIONS ARE TO FLOWLINE, EXCEPT PROFILES, WHICH ARE CENTERLINE DIMENSIONS, UNLESS OTHERWISE NOTED.
3. SEE SHEET T1 FOR BENCHMARK, BASIS OF BEARINGS.
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5. GRADES SHOWN ARE FINISHED GRADE.
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8. ALL CONSTRUCTION FENCES AND TEMPORARY CONTROL MEASURES SHALL BE REMOVED AT TIME OF FINAL SITE STABILIZATION.
9. SLOPES GREATER THAN 4:1 TO BE PROTECTED WITH ECB

LEGEND

CD	CHECK DAM
CS	CURB SOCK
CWA	CONCRETE WASHOUT AREA
ECB	COCO EROSION CONTROL BLANKET
ECB	COIR EROSION CONTROL BLANKET
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	EMERGENCY OVERFLOW ARROW
	PROPOSED DROP STRUCTURE

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

Drawing Name: 12EC3.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
0 20 40 80
1 inch = 40 ft. Horizontal
Designer: JLD | Drafter: KJM | Checked: BSH

COLORADO LICENSED TREVOR B. IGEL 62834 12/9/2024 PROFESSIONAL ENGINEER

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
FINAL EROSION CONTROL 3

Sheet: EC9 | 45 of 63
Date: JANUARY 21, 2025

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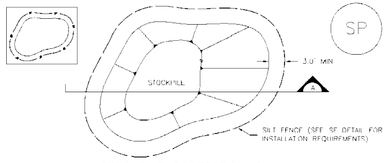
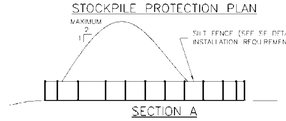


STOCKPILE PROTECTION PLAN



SECTION A

SP-1, STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   -LOCATION OF STOCKPILES.
   -TYPE OF STOCKPILE PROTECTION.

2. INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS, HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.

3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).

4. FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

STOCKPILE PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

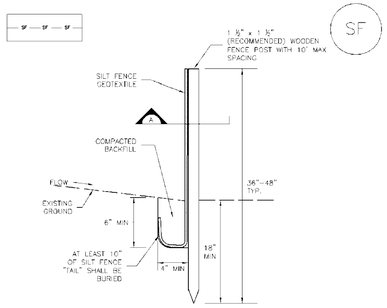
STOCKPILE PROTECTION MAINTENANCE NOTES

4. IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.

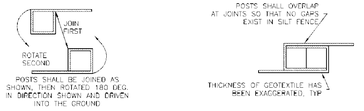
5. STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.

(DETAILS ADAPTED FROM PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.



SILT FENCE



SECTION A

SF-1, SILT FENCE

SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.

5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.

6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

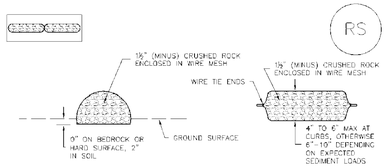
5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.

6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

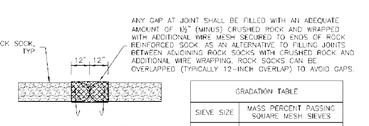
7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.



ROCK SOCK SECTION ROCK SOCK PLAN



ROCK SOCK JOINTING

GRADATION TABLE	
SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
	NO. 4
2"	100
1½"	90 - 100
1"	20 - 55
¾"	0 - 15
⅜"	0 - 5
MATCHES SPECIFICATIONS FOR NO. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.	

ROCK SOCK INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   -LOCATION(S) OF ROCK SOCKS.

2. CRUSHED ROCK SHALL BE 1½" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (1½" MINUS).

3. WIRE MESH SHALL BE FABRICATED OF 1Ø CAGE POULTRY MESH, OR EQUIVALENT, WITH A MAXIMUM OPENING OF 1", RECOMMENDED MINIMUM ROLL WIDTH OF 48".

4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.

5. SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.

RS-1, ROCK SOCK PERIMETER CONTROL

ROCK SOCK MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED BEYOND REPAIR.

5. SEDIMENT ACCUMULATED UPSTREAM OF ROCK SOCKS SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE ROCK SOCK.

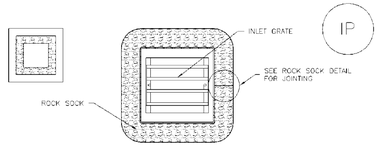
6. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

7. WHEN ROCK SOCKS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF ROCK SOCK INSTALLATION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY OTHER SIMILAR PROPRIETARY PRODUCTS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY PROTECTION PRODUCTS; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

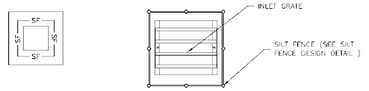


IP-3, ROCK SOCK SUMP/AREA INLET PROTECTION

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.



IP-4, SILT FENCE FOR SUMP INLET PROTECTION

SILT FENCE INLET PROTECTION INSTALLATION NOTES

1. SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET.

3. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.

GENERAL INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   -LOCATION OF INLET PROTECTION.
   -TYPE OF INLET PROTECTION (IP-1, IP-2, IP-3, IP-4, IP-5, IP-6)

2. INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS). IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.

3. MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

INLET PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY, A DEPTH OF 6" WHEN SILT FENCE IS USED, OR ½ OF THE HEIGHT FOR STRAW BALES.

5. INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.

6. WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF INLET PROTECTION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY PROPRIETARY INLET PROTECTION METHODS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY INLET PROTECTION; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

NOTE: SOME MUNICIPALITIES DISCOURAGE OR PROHIBIT THE USE OF STRAW BALES FOR INLET PROTECTION. CHECK WITH LOCAL JURISDICTION TO DETERMINE IF STRAW BALE INLET PROTECTION IS ACCEPTABLE.

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Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD
Drafter: KJM
Checked: BSH

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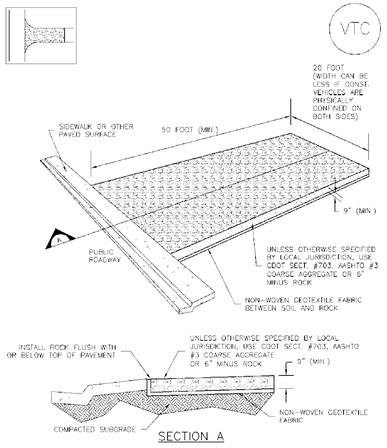
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
EROSION CONTROL DETAILS 1

Sheet DT8
46 of 63
Date JANUARY 21, 2025



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   –LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
   –TYPE OF CONSTRUCTION ENTRANCE(S)/EXIT(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).

2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.

3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.

4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.

6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF IDOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

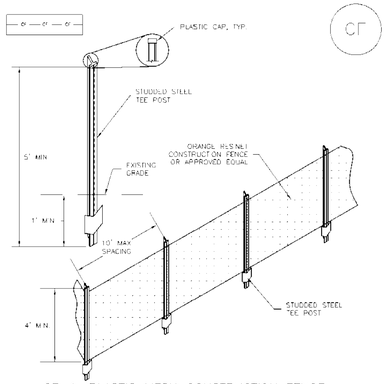
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.

5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)



CF-1. PLASTIC MESH CONSTRUCTION FENCE

CONSTRUCTION FENCE INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF CONSTRUCTION FENCE

2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

3. CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR-GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.

4. STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL "TEE POSTS SHALL BE 10'.

5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.

CONSTRUCTION FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. CONSTRUCTION FENCE SHALL BE REPAIRED OR REPLACED WHEN THERE ARE SIGNS OF DAMAGE SUCH AS RIPS OR SAGS. CONSTRUCTION FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

5. WHEN CONSTRUCTION FENCES ARE REMOVED, ALL DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE FENCE SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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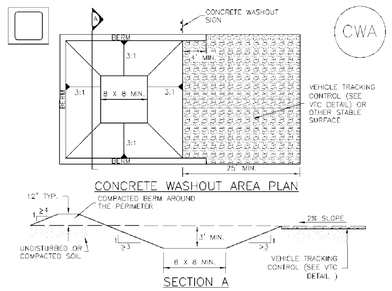

CWA-1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –CWA INSTALLATION LOCATION.

2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.

3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.

4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.

5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.

6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.

7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.

8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

CWA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.

5. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.

6. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.

7. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD).

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

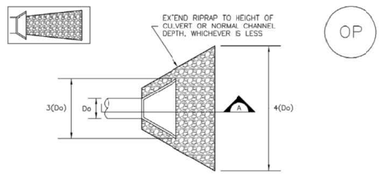

TABLE OP-1. TEMPORARY OUTLET PROTECTION SIZING TABLE

PIPE DIAMETER, Do (INCHES)	DISCHARGE, Q (CFS)	APRON LENGTH, La (FT)	RIPRAP D50 DIAMETER MIN (INCHES)
8	2.5	5	4
	5	10	6
12	5	10	4
	10	13	6
18	10	10	6
	20	16	9
	30	23	12
	40	26	16
24	30	16	9
	40	26	9
	50	26	12
	60	30	16

OP-1. TEMPORARY OUTLET PROTECTION

TEMPORARY OUTLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   –LOCATION OF OUTLET PROTECTION.
   –DIMENSIONS OF OUTLET PROTECTION.

2. DETAIL IS INTENDED FOR PIPES WITH SLOPE ≤ 10%. ADDITIONAL EVALUATION OF RIPRAP SIZING AND OUTLET PROTECTION DIMENSIONS REQUIRED FOR STEEPER SLOPES.

3. TEMPORARY OUTLET PROTECTION INFORMATION IS FOR OUTLETS INTENDED TO BE UTILIZED LESS THAN 2 YEARS.

TEMPORARY OUTLET PROTECTION INSPECTION AND MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM AURORA, COLORADO AND PREVIOUS VERSION OF VOLUME 3, NOT AVAILABLE IN AUTOCAD)

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Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH

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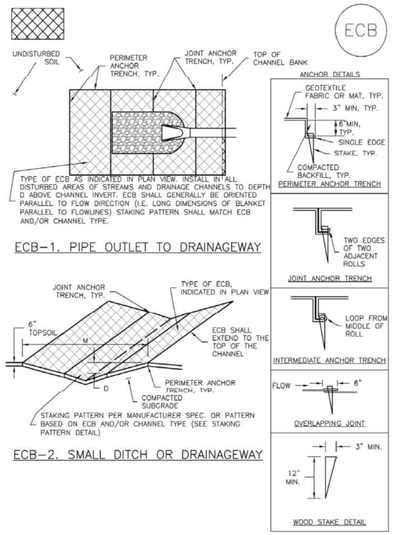
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
EROSION CONTROL DETAILS 2

Sheet DT9 47 of 63
Date JANUARY 21, 2025



EROSION CONTROL BLANKET INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF ECB.
   –TYPE OF ECB (STRAW, STRAW–COCONUT, COCONUT, OR EXCELSIOR).
   –AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.

2. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.

3. IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.

4. PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.

5. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.

6. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE–HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.

7. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.

8. MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB–1.

9. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBS SHALL BE RESEEDED AND MULCHED.

10. DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TABLE ECB–1. ECB MATERIAL SPECIFICATIONS

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING**
STRAW*	–	100%	–	DOUBLE/ NATURAL
STRAW–COCONUT	30% MIN	70% MAX	–	DOUBLE/ NATURAL
COCONUT	100%	–	–	DOUBLE/ NATURAL
EXCELSIOR	–	–	100%	DOUBLE/ NATURAL

*STRAW ECBs MAY ONLY BE USED OUTSIDE OF STREAMS AND DRAINAGE CHANNEL.
**ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS

EROSION CONTROL BLANKET MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

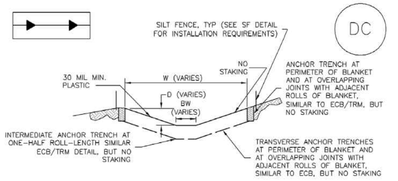
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.

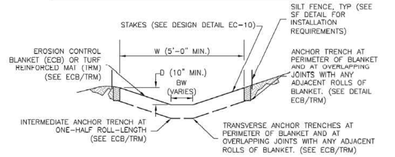
5. ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATED A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE ECB REINSTALLED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

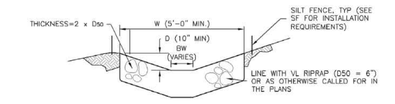
(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO AND TOWN OF PARKER COLORADO, NOT AVAILABLE IN AUTOCAD)



DC–1. PLASTIC LINED DIVERSION CHANNEL



DC–2. GEOTEXTILE OR MAT LINED DIVERSION CHANNEL



DC–3. RIPRAP LINED DIVERSION CHANNEL

CHANNEL DIVERSION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF DIVERSION CHANNEL.
   –TYPE OF CHANNEL (UNLINED, GEOTEXTILE OR MAT LINED, PLASTIC LINE, OR RIPRAP LINED).
   –LENGTH OF EACH TYPE OF CHANNEL.
   –DEPTH, D, WIDTH, W, AND BOTTOM WIDTH, BW.
   –FOR RIPRAP LINED CHANNEL, SIZE OF RIPRAP, D50, SHALL BE SHOWN ON PLANS.

2. SEE DRAINAGE PLANS FOR DETAILS OF PERMANENT CONVEYANCE FACILITIES.

3. DIVERSION CHANNELS INDICATED ON THE SWMP PLAN SHALL BE INSTALLED PRIOR TO WORK IN DOWNGRADIENT AREAS OR NATURAL CHANNELS.

4. FOR GEOTEXTILE OR MAT LINED CHANNELS, INSTALLATION OF GEOTEXTILE OR MAT SHALL CONFORM TO THE REQUIREMENTS OF DETAIL ECB. FOR PLASTIC LINED CHANNELS, INSTALLATION OF ANCHOR TRENCHES SHALL CONFORM TO THE REQUIREMENTS OF DETAIL ECB.

5. WHERE CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION CHANNEL, THE PERMITTEE SHALL INSTALL A TEMPORARY STREAM CROSSING CONFORMING TO THE REQUIREMENTS OF DETAIL TSC.

DIVERSION CHANNEL MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

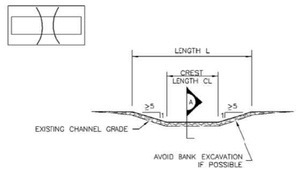
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. DIVERSION CHANNELS ARE TO REMAIN IN PLACE UNTIL WORK IN THE DOWNGRADIENT AREA OR NATURAL CHANNEL IS NO LONGER REQUIRED. IF APPROVED BY LOCAL JURISDICTION DIVERSION CHANNEL MAY BE LEFT IN PLACE.

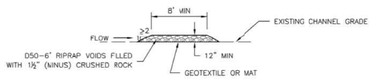
5. IF DIVERSION CHANNELS ARE REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.



FORD CROSSING SECTION



SECTION A

TSC–2. FORD CROSSING

TEMPORARY STREAM CROSSING INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATIONS OF TEMPORARY STREAM CROSSINGS.
   –STREAM CROSSING TYPE (FORD, CULVERT, OR FLUME).
   –FOR FORD CROSSING: LENGTH (L), CREST LENGTH (CL), AND DEPTH (D).
   –FOR CULVERT CROSSING: LENGTH (L), CREST LENGTH (CL), CROSSING HEIGHT (H), DEPTH (D), CULVERT DIAMETER (CD), AND NUMBER, TYPE AND CLASS OR GAUGE OF CULVERTS.

2. TEMPORARY STREAM CROSSING DIMENSIONS, D50, AND NUMBER OF CULVERTS INDICATED (FOR CULVERT CROSSING) SHALL BE CONSIDERED MINIMUM DIMENSIONS; ENGINEER MAY ELECT TO INSTALL LARGER FACILITIES. ANY DAMAGE TO STREAM CROSSING OR EXISTING STREAM CHANNEL DURING BASEFLOW OR FLOOD EVENTS SHALL BE PROMPTLY REPAIRED.

3. SEE MAJOR DRAINAGE CHAPTER FOR RIPRAP GRADATIONS.

4. WHERE FAILURE OF A STREAM CROSSING CAN RESULT IN SIGNIFICANT DAMAGE OR HARM IT MUST BE DESIGNED BY A STRUCTURAL ENGINEER.

TEMPORARY STREAM CROSSING MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

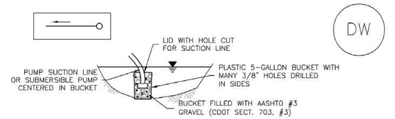
4. REMOVE SEDIMENT ACCUMULATED UPSTREAM OF CROSSING AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE CROSSING.

5. STREAM CROSSINGS ARE TO REMAIN IN PLACE UNTIL NO LONGER NEEDED AND SHALL BE REMOVED PRIOR TO THE END OF CONSTRUCTION.

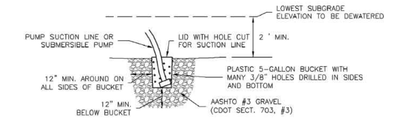
6. WHEN STREAM CROSSINGS ARE REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED AND COVERED WITH GEOTEXTILE OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

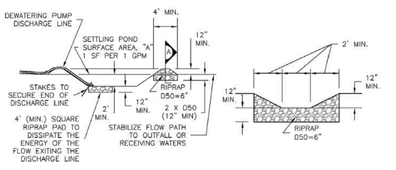
(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND CITY OF AURORA, COLORADO (Va. DSWC), NOT AVAILABLE IN AUTOCAD)



DW–1. DEWATERING POND ALREADY FILLED WITH WATER



DW–2. DEWATERING SUMP FOR SUBMERSED PUMP



DW–3. SUMP DISCHARGE SETTLING BASIN

SETTLING BASIN SECTION A

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12DT1-DT3.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:58 AM
XREFS:

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

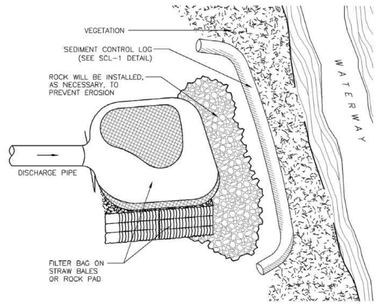
Drawing Name: 12DT1-DT3.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD
Drafter: KJM
Checked: BSH

COLORADO LICENSED TREVOR B. WEE 62834 12/6/2024 PROFESSIONAL ENGINEER

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
EROSION CONTROL DETAILS 3

Sheet DT10
48 of 63
Date JANUARY 21, 2025



DW-4, DEWATERING FILTER BAG

DEWATERING INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION OF DEWATERING EQUIPMENT.
   - TYPE OF DEWATERING OPERATION (DW-1 TO DW-4).

2. THE OWNER OR CONTRACTOR SHALL OBTAIN A CONSTRUCTION DISCHARGE (DEWATERING) PERMIT FROM THE STATE PRIOR TO ANY DEWATERING OPERATIONS DISCHARGING FROM THE SITE. ALL DEWATERING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE PERMIT.

3. THE OWNER OR OPERATOR SHALL PROVIDE, OPERATE, AND MAINTAIN DEWATERING SYSTEMS OF SUFFICIENT SIZE AND CAPACITY TO PERMIT EXCAVATION AND SUBSEQUENT CONSTRUCTION IN DRY CONDITIONS AND TO LOWER AND MAINTAIN THE GROUNDWATER LEVEL A MINIMUM OF 2-FEET BELOW THE LOWEST POINT OF EXCAVATION AND CONTINUOUSLY MAINTAIN EXCAVATIONS FREE OF WATER UNTIL BACK-FILLED TO FINAL GRADE.

DEWATERING INSTALLATION NOTES

4. DEWATERING OPERATIONS SHALL USE ONE OR MORE OF THE DEWATERING SUMPS SHOWN ABOVE, WELL POINTS, OR OTHER MEANS APPROVED BY THE LOCAL JURISDICTION TO REDUCE THE PUMPING OF SEDIMENT, AND SHALL PROVIDE A TEMPORARY SEDIMENT BASIN OR FILTRATION BMP TO REDUCE SEDIMENT TO ALLOWABLE LEVELS PRIOR TO RELEASE OFF SITE OR TO A RECEIVING WATER. A SEDIMENT BASIN MAY BE USED IN LIEU OF SUMP DISCHARGE SETTLING BASIN SHOWN ABOVE IF A 4-FOOT-SQUARE RIPRAP PAD IS PLACED AT THE DISCHARGE POINT AND THE DISCHARGE END OF THE LINE IS STAKED IN PLACE TO PREVENT MOVEMENT OF THE LINE.

DEWATERING MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

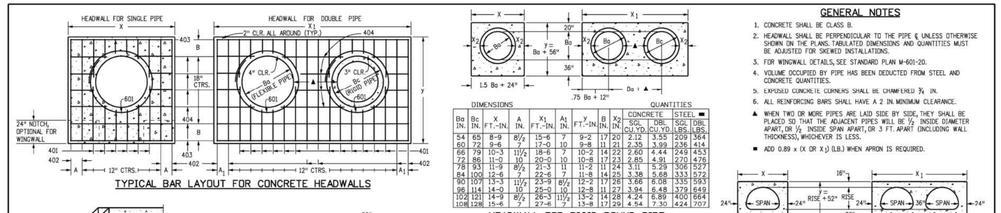
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. DEWATERING BMPs ARE REQUIRED IN ADDITION TO ALL OTHER PERMIT REQUIREMENTS.

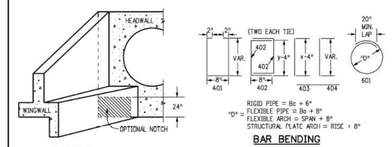
5. TEMPORARY SETTLING BASINS SHALL BE REMOVED WHEN NO LONGER NEEDED FOR DEWATERING OPERATIONS. ANY DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

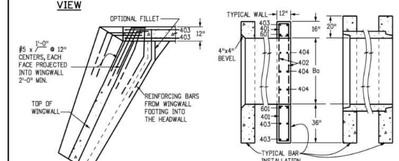


TYPICAL BAR LAYOUT FOR CONCRETE HEADWALLS



FRONT VIEW

BAR BENDING



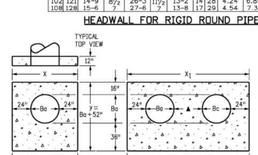
TOP VIEW

WINGWALL CONNECTION

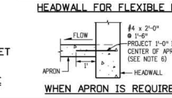
INLET OUTLET ENDS OF FLEXIBLE PIPE

INLET OUTLET ENDS OF RIGID PIPE

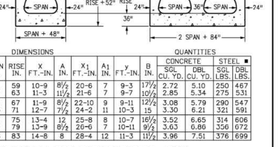
HEADWALL FOR RIGID ROUND PIPE



HEADWALL FOR FLEXIBLE ROUND PIPE



WHEN APRON IS REQUIRED



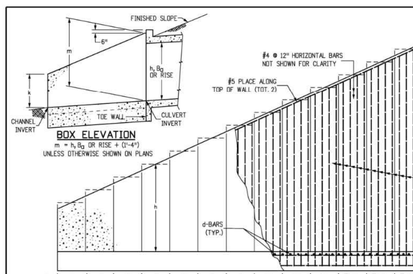
HEADWALL FOR FLEXIBLE PIPE ARCH

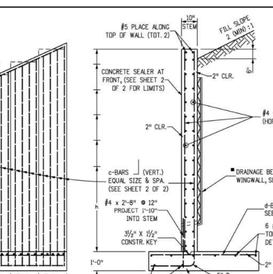
HEADWALL FOR STRUCTURAL PLATE ARCH

SKEW FACTOR TABLE

SKEW ANGLE A°	90	85	80	75	70	65	60	55	50	45	40	35	30
FACTOR (crosswy)	1.000	1.004	1.015	1.035	1.064	1.103	1.155	1.221	1.305	1.414	1.556	1.743	2.000

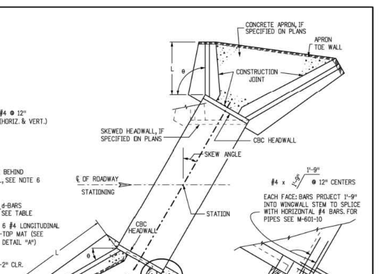
Computer File Information		Sheet Revisions		Colorado Department of Transportation		
Creation Date: 07/31/19		Date:	Comments	2829 West Howard Place, CDOT HQ, 3rd Floor, Denver, CO 80204, Phone: 303-757-9021 FAX: 303-757-9868	HEADWALL FOR PIPES	STANDARD PLAN NO. M-601-10
Designer Initials: JBK				Project Development Branch JBK		Standard Sheet No. 1 of 1
Last Modification Date: 07/31/19					Issued by the Project Development Branch: July 31, 2019	Project Sheet Number:
Detailer Initials: LTA						
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English						





QUANTITIES FOR TOE WALL ONLY
CONCRETE 0.049 CU.YD./LIN.FT.
REINFORCEMENT 5.1 LB./LIN.FT.

REINFORCEMENT 1.34 LB./SQ.FT.



DESIGN DATA:

AASHTO LRFD EIGHTH EDITION, 2017
DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN, YIELD LINE METHOD

REINFORCED CONCRETE:
CONCRETE CLASS D (BOX CULVERT): f'_c = 4,500 PSI
REINFORCING STEEL: f_y = 60,000 PSI

LOADING:
AT-REST EARTH (FLUID) PRESSURE FOR CONCRETE STEM DESIGN = 55 PCF FOR 2 (MIN.) : 1 SLOPED BACKFILL
ACTIVE EARTH (FLUID) PRESSURE FOR CONCRETE FOOTING DESIGN = 40 PCF FOR 2 (MIN.) : 1 SLOPED BACKFILL
LIVE LOAD SURCHARGE = 2'
MINIMUM RESISTANCE FOR SOIL BEARING = 5.5 KSF
SOIL BEARING RESISTANCE FACTOR = 0.45

GENERAL NOTES:

1. ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾ IN.
2. WINGWALL FOOTING AND FLOOR OF BOX CULVERT SHALL BE PLACED MONOLITHICALLY.
3. DIMENSIONS "H", "h", "L", "m" AND ANGLE "W" FOR WINGWALL SHALL BE AS SHOWN ON THE PLANS.
4. MINIMUM CLASS B LAP SPLICE LENGTH FOR BLACK REINFORCING BARS:

BAR SIZE:	#4	#5	#7
SPLICE LENGTH:	1'- 6"	1'-11"	2'-3"

5. DESIGN DOES NOT CONSIDER ANY SCOUR EFFECTS.
6. WINGWALL DRAIN SHALL BE REQUIRED IF "H" ≥ 12.0 FT., SEE SHEET 2 OF 2 FOR DETAILS.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		
Creation Date: 07/31/19		Date:	Comments	2829 West Howard Place, CDOT HQ, 3rd Floor, Denver, CO 80204, Phone: 303-757-9021 FAX: 303-757-9868	WINGWALLS FOR PIPE OR BOX CULVERTS	STANDARD PLAN NO. M-601-20
Designer Initials: JBK				Project Development Branch JBK		Standard Sheet No. 1 of 2
Last Modification Date: 07/31/19					Issued by the Project Development Branch: July 31, 2019	Project Sheet Number:
Detailer Initials: LTA						
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English						

c-BARS AND REINFORCING STEEL QUANTITY (EXCLUDE TOE WALL)

✱ REINFORCING STEEL QUANTITY INCLUDES STEM AND FOOTING QUANTITIES, BUT DOES NOT INCLUDE TOE WALL QUANTITIES.

L (MULTIPLE OF m)		≤ (1.0 x m)		≤ (1.25 x m)		≤ (1.5 x m)		≤ (1.75 x m)		≤ (2.0 x m)		≤ (2.25 x m)		≤ (2.5 x m)		≤ (2.75 x m)		≤ (3.0 x m)		≤ (3.25 x m)		≤ (3.5 x m)	
n (FT)	k (FT)	c-BARS	✱ REINF. LB./L.F.	c-BARS	✱ REINF. LB./L.F.	c-BARS	✱ REINF. LB./L.F.	c-BARS	✱ REINF. LB./L.F.	c-BARS	✱ REINF. LB./L.F.	c-BARS	✱ REINF. LB./L.F.	c-BARS	✱ REINF. LB./L.F.	c-BARS	✱ REINF. LB./L.F.	c-BARS	✱ REINF. LB./L.F.	c-BARS	✱ REINF. LB./L.F.	c-BARS	✱ REINF. LB./L.F.
14	4	#4 @ 10"	53.60	#5 @ 10"	57.35	#5 @ 10"	57.10	#5 @ 8"	60.22	#5 @ 7"	62.43	#5 @ 7"	62.09	#5 @ 6"	65.38	#5 @ 6"	65.15	#5 @ 8"	67.10	#5 @ 8"	66.94	#6 @ 7"	70.66
	5	#4 @ 10"	55.86	#5 @ 10"	60.46	#5 @ 10"	59.60	#5 @ 8"	62.89	#5 @ 7"	65.23	#5 @ 7"	64.88	#5 @ 6"	68.34	#5 @ 6"	68.11	#5 @ 8"	70.17	#5 @ 8"	70.00	#6 @ 7"	73.90
	6	#5 @ 10"	64.43	#5 @ 10"	70.60	#6 @ 10"	69.69	#6 @ 8"	74.93	#6 @ 8"	74.45	#6 @ 7"	78.30	#6 @ 6"	83.64	#6 @ 6"	83.40	#6 @ 6"	83.22	#6 @ 6"	83.05	#7 @ 7"	89.64
	7	#5 @ 10"	67.29	#6 @ 10"	73.76	#6 @ 10"	72.83	#6 @ 8"	78.32	#6 @ 8"	77.84	#6 @ 7"	81.87	#6 @ 6"	87.45	#6 @ 6"	87.22	#6 @ 6"	87.02	#6 @ 6"	86.86	#7 @ 7"	93.73
	8	#5 @ 8"	74.71	#6 @ 8"	83.46	#6 @ 7"	87.09	#6 @ 6"	92.54	#7 @ 7"	99.47	#7 @ 7"	99.08	#7 @ 6"	107.11	#7 @ 6"	106.86	#7 @ 6"	106.66	#7 @ 6"	106.49	#7 @ 6"	106.35
	9	#5 @ 8"	78.10	#6 @ 8"	87.23	#6 @ 7"	91.03	#6 @ 6"	96.72	#7 @ 7"	103.93	#7 @ 7"	103.54	#7 @ 6"	111.90	#7 @ 6"	111.65	#7 @ 6"	111.45	#7 @ 6"	111.28	#7 @ 6"	111.13
13	4	#4 @ 10"	50.51	#5 @ 10"	49.25	#5 @ 10"	53.73	#5 @ 10"	53.09	#5 @ 10"	52.36	#5 @ 9"	53.85	#5 @ 8"	55.54	#5 @ 8"	55.34	#5 @ 8"	57.85	#5 @ 7"	57.67	#5 @ 7"	59.83
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	9	#5 @ 10"	69.37	#6 @ 10"	76.10	#6 @ 8"	81.49	#6 @ 7"	85.37	#6 @ 7"	84.87	#6 @ 6"	90.59	#6 @ 6"	90.29	#7 @ 7"	97.39	#7 @ 7"	97.18	#7 @ 7"	97.00	#7 @ 7"	96.85
12	2	#4 @ 10"	43.91	#4 @ 10"	42.65	#4 @ 10"	41.82	#4 @ 10"	41.22	#4 @ 10"	40.78	#4 @ 9"	41.29	#5 @ 10"	44.61	#5 @ 10"	44.37	#5 @ 10"	44.18	#5 @ 10"	44.01	#5 @ 10"	43.87
	3	#4 @ 10"	45.82	#4 @ 10"	44.55	#4 @ 10"	43.71	#4 @ 10"	43.11	#4 @ 10"	42.66	#4 @ 10"	43.20	#5 @ 10"	46.75	#5 @ 10"	46.51	#5 @ 10"	46.32	#5 @ 10"	46.15	#5 @ 10"	46.01
	4	#4 @ 10"	47.80	#4 @ 10"	46.51	#4 @ 10"	45.65	#5 @ 10"	50.06	#5 @ 10"	49.59	#5 @ 10"	49.23	#5 @ 10"	48.94	#5 @ 10"	48.69	#5 @ 9"	50.00	#5 @ 8"	51.72	#5 @ 8"	51.57
	5	#4 @ 10"	49.84	#4 @ 10"	48.53	#4 @ 10"	47.66	#5 @ 10"	52.33	#5 @ 10"	51.85	#5 @ 10"	51.48	#5 @ 10"	51.19	#5 @ 10"	50.94	#5 @ 9"	52.33	#5 @ 8"	54.14	#5 @ 8"	54.00
	6	#4 @ 10"	51.88	#4 @ 10"	50.65	#5 @ 10"	55.54	#5 @ 8"	58.41	#5 @ 8"	57.93	#5 @ 8"	60.60	#5 @ 7"	60.29	#5 @ 9"	62.42	#5 @ 8"	62.24	#5 @ 8"	62.04	#5 @ 8"	61.89
	7	#4 @ 10"	54.30	#5 @ 10"	58.80	#5 @ 10"	57.87	#5 @ 8"	61.10	#5 @ 8"	60.61	#5 @ 8"	63.43	#5 @ 7"	63.11	#5 @ 9"	65.35	#5 @ 9"	65.15	#5 @ 9"	64.97	#5 @ 8"	67.96
	8	#5 @ 10"	62.91	#5 @ 10"	61.45	#5 @ 7"	67.46	#5 @ 6"	70.68	#5 @ 6"	70.20	#5 @ 7"	76.44	#6 @ 7"	76.13	#6 @ 7"	75.87	#6 @ 6"	81.30	#6 @ 6"	81.12	#6 @ 6"	80.98
	9	#5 @ 10"	65.64	#5 @ 10"	64.15	#5 @ 7"	70.44	#5 @ 6"	73.82	#5 @ 6"	73.33	#5 @ 7"	79.86	#6 @ 7"	79.54	#6 @ 7"	79.28	#6 @ 6"	84.95	#6 @ 6"	84.77	#6 @ 6"	84.62
11	2	#4 @ 10"	41.70	#4 @ 10"	40.42	#4 @ 10"	39.57	#4 @ 10"	38.96	#4 @ 10"	38.50	#4 @ 10"	38.15	#4 @ 10"	37.87	#4 @ 10"	37.63	#4 @ 9"	38.25	#5 @ 10"	41.46	#5 @ 10"	41.31
	3	#4 @ 10"	43.57	#4 @ 10"	42.27	#4 @ 10"	41.40	#4 @ 10"	40.79	#4 @ 10"	40.33	#4 @ 10"	39.97	#4 @ 10"	39.69	#4 @ 10"	39.45	#4 @ 9"	40.12	#5 @ 10"	43.54	#5 @ 10"	43.39
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	6	#4 @ 10"	49.52	#4 @ 10"	48.14	#4 @ 9"	48.23	#5 @ 10"	51.88	#5 @ 10"	51.38	#5 @ 9"	52.57	#5 @ 9"	52.27	#5 @ 8"	53.99	#5 @ 8"	53.79	#5 @ 7"	56.16	#5 @ 7"	56.01
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10	2	#4 @ 10"	39.84	#4 @ 10"	38.53	#4 @ 10"	37.65	#4 @ 10"	37.03	#4 @ 10"	36.57	#4 @ 10"	36.20	#4 @ 10"	35.91	#4 @ 10"	35.67	#4 @ 10"	35.48	#4 @ 9"	36.07	#4 @ 9"	35.93
	3	#4 @ 10"	41.68	#4 @ 10"	40.35	#4 @ 10"	39.47	#4 @ 10"	38.84	#4 @ 10"	38.36	#4 @ 10"	38.00	#4 @ 10"	37.71	#4 @ 10"	37.46	#4 @ 10"	37.26	#4 @ 10"	37.08	#4 @ 9"	37.91	#4 @ 9"	37.76
	4	#4 @ 10"	43.58	#4 @ 10"	42.22	#4 @ 10"	41.31	#4 @ 10"	40.67	#4 @ 10"	40.19	#4 @ 10"	39.82	#4 @ 10"	39.53	#4 @ 10"	39.28	#4 @ 10"	39.08	#4 @ 9"	39.77	#4 @ 9"	39.63
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	6	#4 @ 10"	47.58	#4 @ 10"	46.14	#4 @ 10"	45.20	#4 @ 10"	44.53	#4 @ 10"	44.03	#5 @ 10"	48.67	#5 @ 10"	48.35	#5 @ 10"	48.08	#5 @ 10"	47.88	#5 @ 10"	47.69	#5 @ 10"	47.54
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	8	#4 @ 10"	52.06	#4 @ 10"	50.54	#4 @ 10"	49.54	#5 @ 10"	54.43	#5 @ 10"	53.89	#5 @ 10"	53.47	#5 @ 9"	54.80	#5 @ 9"	54.53	#5 @ 8"	56.39	#5 @ 8"	56.20	#5 @ 7"	58.72
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	3	#4 @ 10"	39.83	#4 @ 10"	38.56	#4 @ 10"	37.64	#4 @ 10"	36.99	#4 @ 10"	36.51	#4 @ 10"	36.13	#4 @ 10"	35.83	#4 @ 10"	35.58	#4 @ 10"	35.38	#4 @ 10"	35.21	#4 @ 10"	35.06
	4	#4 @ 10"	41.81	#4 @ 10"	40.40	#4 @ 10"	39.47	#4 @ 10"	38.81	#4 @ 10"	38.31	#4 @ 10"	37.93	#4 @ 10"	37.63	#4 @ 10"	37.37	#4 @ 10"	37.17	#4 @ 10"	36.99	#4 @ 10"	36.84
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	6	#4 @ 10"	44.30	#4 @ 10"	43.24	#4 @ 10"	42.30	#4 @ 10"	41.62	#4 @ 10"	42.10	#4 @ 10"	41.71	#4 @ 10"	41.39	#4 @ 10"	41.12	#4 @ 9"	41.82	#5 @ 10"	45.46	#5 @ 10"	45.30
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	7	#4 @ 10"	46.19	#4 @ 10"	44.56	#4 @ 10"	43.49	#4 @ 10"	42.74	#4 @ 10"	42.18	#4 @ 10"	41.75	#4 @ 10"	41.41	#4 @ 10"	41.13	#4 @ 9"	41.96	#5 @ 10"	45.65	#5 @ 10"	45.45	#5 @ 10"	45.28
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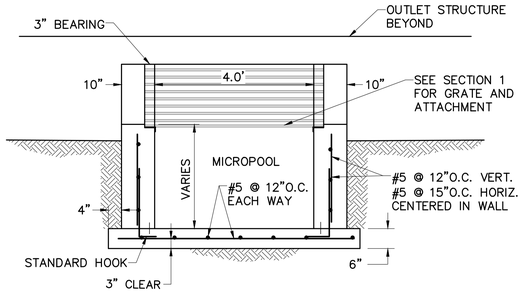
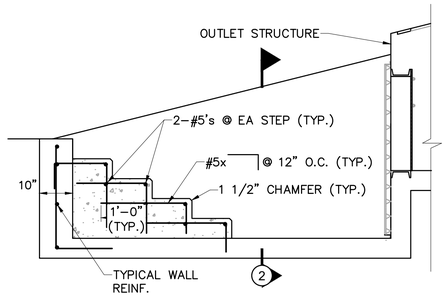


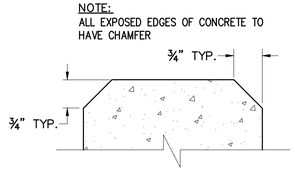
SECTION 2



TYPICAL MICROPOOL REINF.

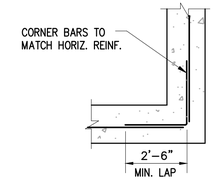
N.T.S.

NOTE:
ALL EXPOSED EDGES OF CONCRETE TO HAVE CHAMFER



CONCRETE CHAMFER DETAIL

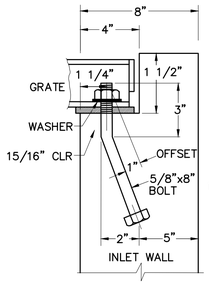
N.T.S.

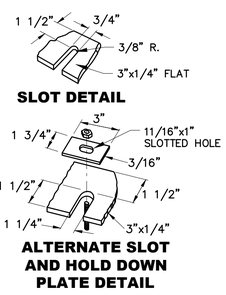


TYPICAL CORNER OF CONCRETE WALLS AND FOOTINGS

TYPICAL CORNER REINFORCING DETAIL

N.T.S.





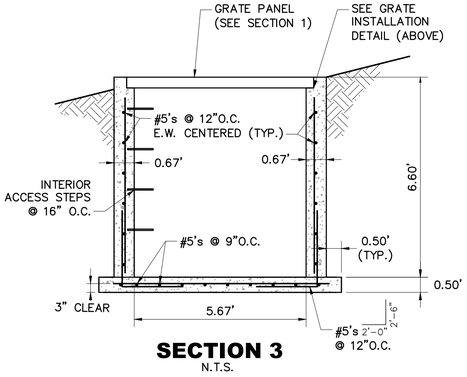
GRATE INSTALLATION DETAIL

REINFORCING STEEL

1. FABRICATE AND PLACE REINFORCING BARS IN ACCORDANCE WITH CRSI "MANUAL OF STANDARD PRACTICE" AND CRSI "RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS".
2. REINFORCING STEEL TO COMPLY WITH ASTM A615, GRADE 60.
3. LAP REINFORCING STEEL IN CONCRETE 2'-6" MINIMUM.
4. PROVIDE REINFORCING STEEL WITH PROTECTIVE COVERING OF CONCRETE AS NOTED IN SECTIONS.
5. DO NOT USE BRICK OR POROUS MATERIAL TO SUPPORT FOOTING STEEL OFF THE GROUND.
6. SUBMIT SHOP DRAWINGS.
7. WHERE SINGLE CURTAIN OF REINFORCEMENT SHOWN, CENTER BARS IN WALL.
8. REFER TO TYPICAL CORNER REINFORCING DETAIL THIS SHEET FOR CORNER BARS.
9. MANHOLE STEPS SHALL CONFORM TO AASHTO M 199.

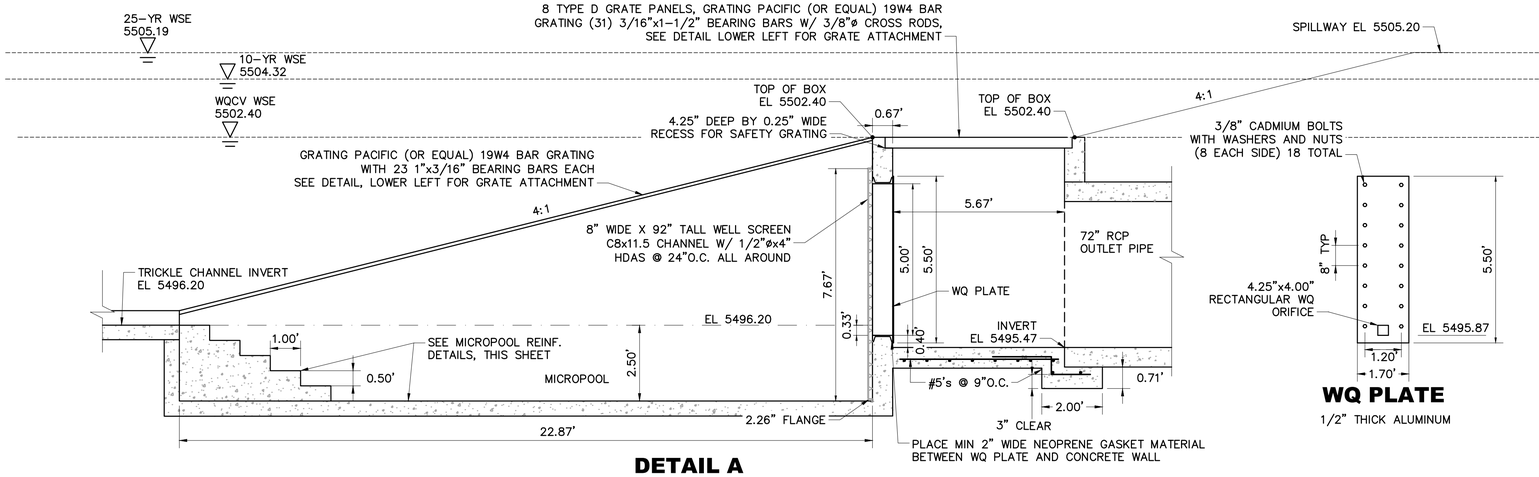
CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301 "SPECIFICATIONS FOR STRUCTURAL BUILDINGS," EXCEPT AS MODIFIED BY THE SUPPLEMENTAL REQUIREMENTS CONTAINED HERIN OR SHOWN ON THE DRAWINGS, AND AS SPECIFIED IN SECTION 03000.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS 4,500 PSI.
3. CEMENT SHALL CONFORM TO ASTM C 150, TYPE I/II; CONTRACTOR SHALL SUBSTITUTE 20% OF CLASS F FLYASH FOR CEMENT.
4. AGGREGATES ASTM C 33.
5. CONCRETE SHALL CONTAIN 6" AIR ENTRAINMENT, ±1%.
6. PROVIDE 3/4" CHAMFER ON ALL EXPOSED EDGES PER DETAIL ABOVE
7. WATER CEMENT RATIO SHALL BE 0.45 MAX.
8. MAXIMUM WATER SOLUBLE CHLORIDE ION CONTENT = 0.3%.



SECTION 3

N.T.S.

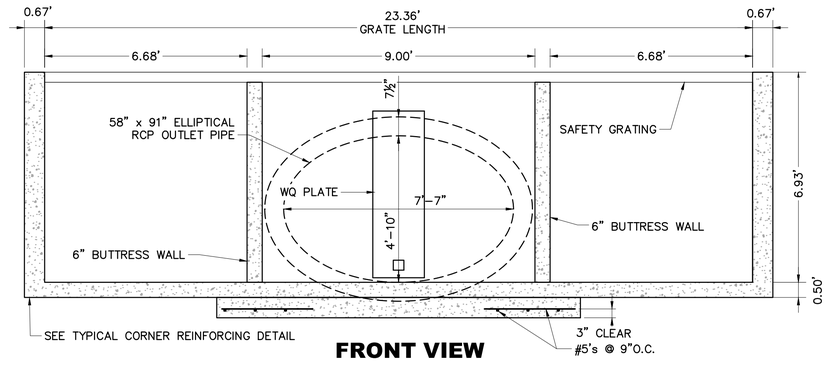


DETAIL A OUTLET STRUCTURE

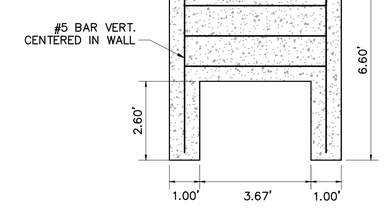
N.T.S.

WQ PLATE

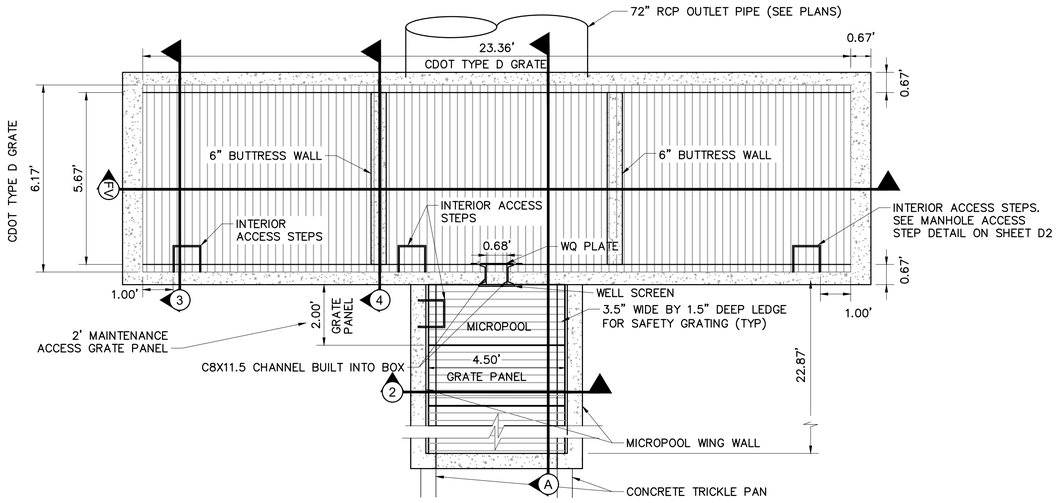
1/2" THICK ALUMINUM



FRONT VIEW



SECTION 4 BUTTRESS WALL



PLAN VIEW

			Drawing Name: 12DT6-DT7.dwg			
			Job Number			
			Prepared For: MILE HIGH FLOOD DISTRICT	Designer: JLD	Drafter: KJM	Checked: BSH
01/21/25	1	HIGH LINE CANAL REVISIONS				
DATE		REVISION DESCRIPTION				

COLORADO LICENSED TREVOR B. HELL 62834 PROFESSIONAL ENGINEER 12/9/2024

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
OUTLET STRUCTURE DETAILS

Sheet DT12 50 of 63

Date JANUARY 21, 2025

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PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:58 AM
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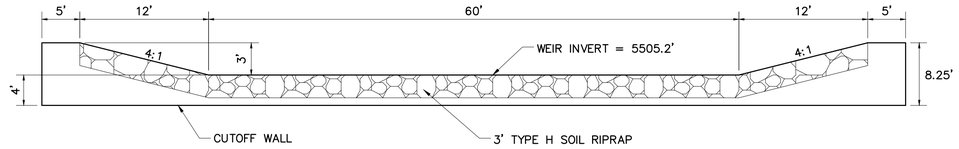

POND I OVERFLOW WEIR SECTION 1

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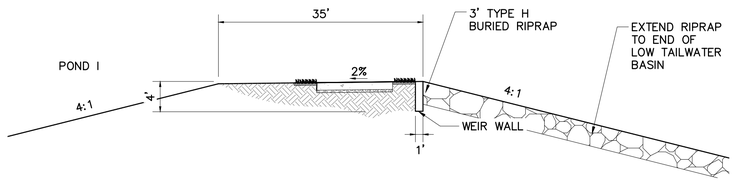

POND I OVERFLOW WEIR SECTION 2

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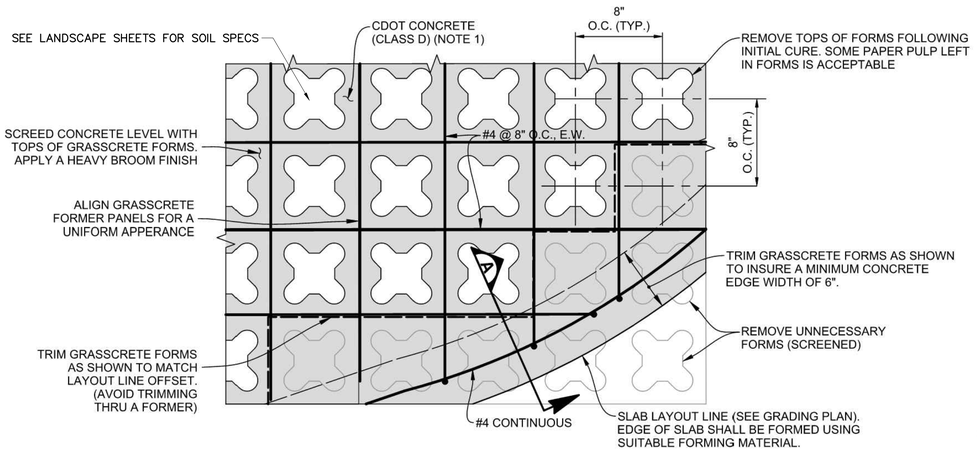
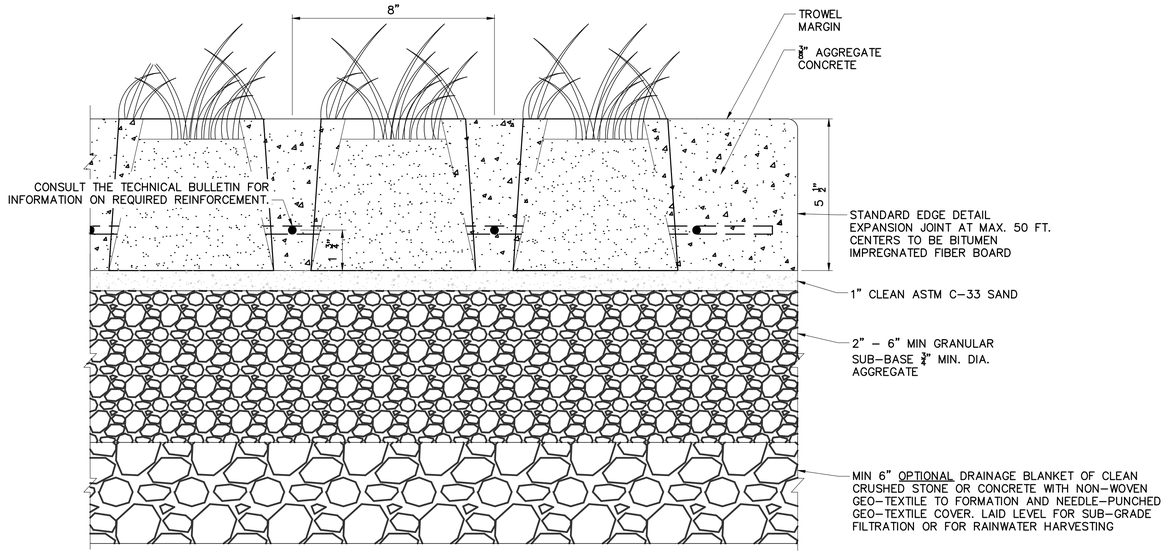


GRASSCRETE PLAN DETAIL

N.T.S



GRASSCRETE SINGLE USE 5 1/2" MOLDED PULP VOID GRASSED SYSTEM

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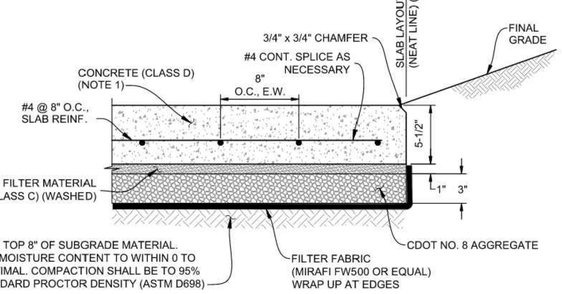
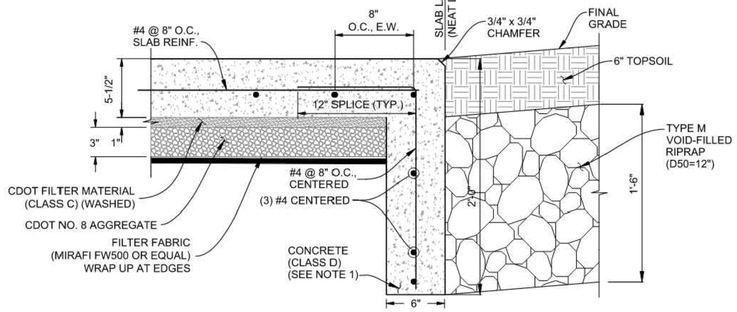
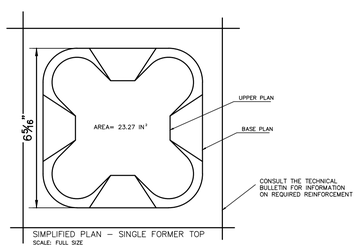


ADJACENT TO SOIL (SEE GRADING PLAN)



ADJACENT TO RIPRAP (SEE GRADING PLAN)

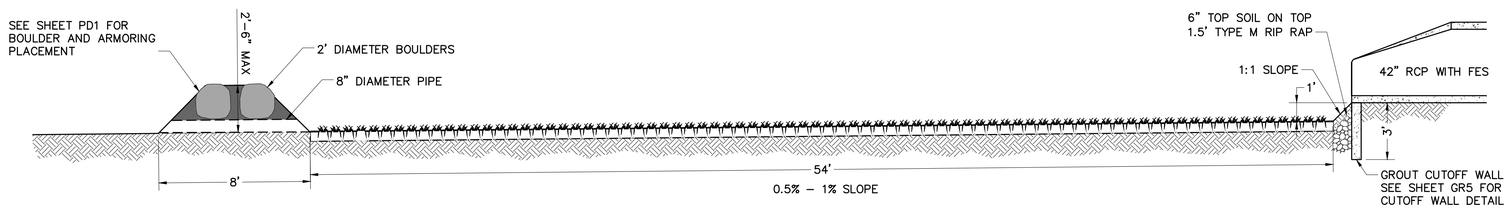


GRASSCRETE SINGLE USE 5 1/2" MOLDED PULP FORMER

SCALE 4"=1'-0"

SECTION A - GRASSCRETE SLAB DETAILS

N.T.S



GRASSCRETE FOREBAY PROFILE

SCALE 1"=4'-0"

01/21/25	1	HIGH LINE CANAL REVISIONS					
DATE		REVISION DESCRIPTION					

Drawing Name: 12DT6-DT7.dwg
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: JLD | Drafter: KJM | Checked: BSH

COLORADO LICENSED
TREVOR B. WELL
62834
PROFESSIONAL ENGINEER
12/9/2024

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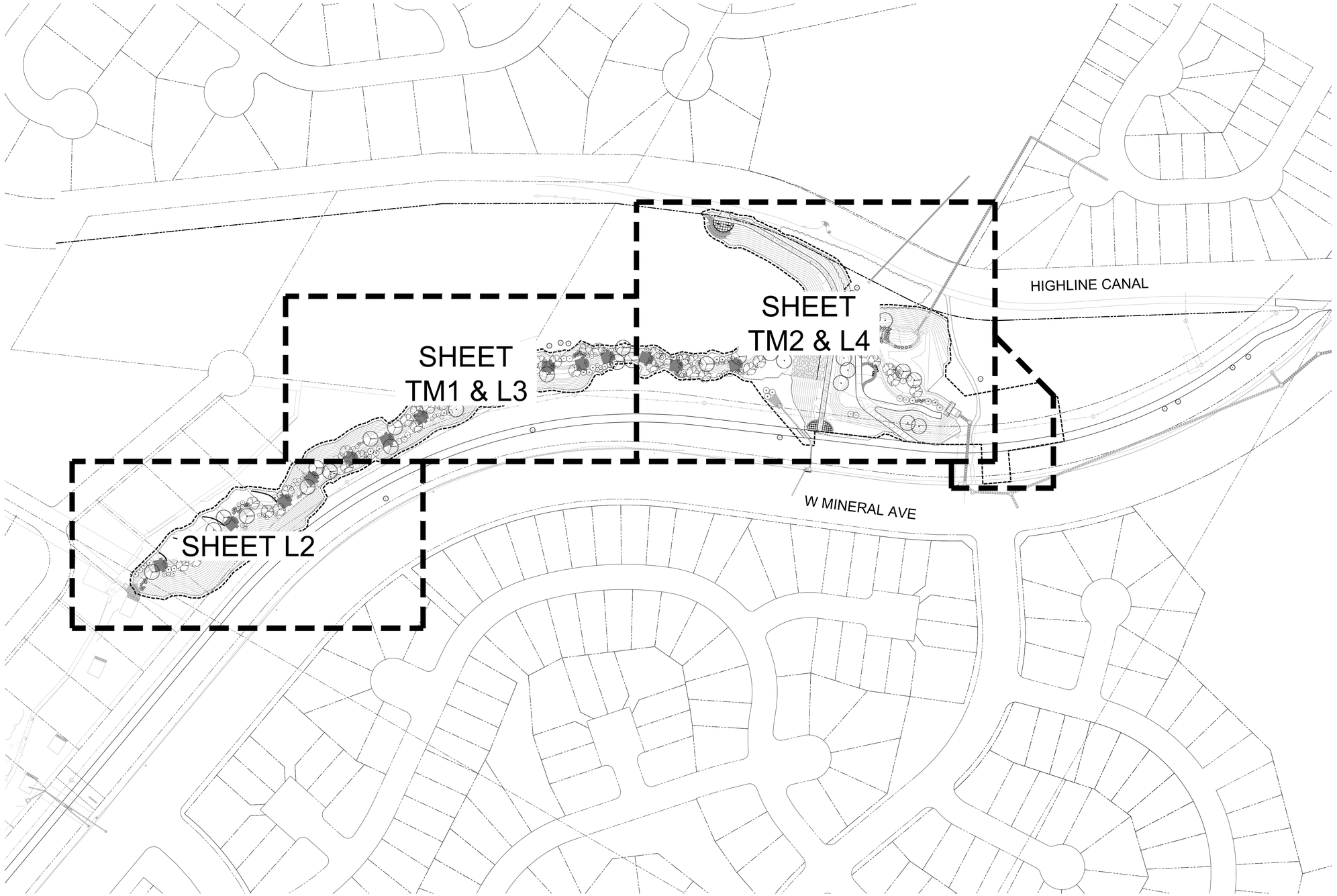
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
FOREBAY AND WEIR DETAILS

Sheet: DT13 | 51 of 63
Date: JANUARY 21, 2025

PATH: J:\MHFD JACKASS POND\CADD\CIVIL\12 - 60% DESIGN SUBMITTAL\12DT6-DT7.DWG
PLOTTED BY: JAKE SPRINDIS PLOT DATE: 1/21/2025 11:58 AM
XREFS:

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1.800.922.1987
CALL 2- BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.



1 OVERALL LANDSCAPE PLAN

NORTH

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

VALERIAN
Landscape Architecture | Urban Design
Irrigation Design | Planning

Drawing Name: OVERALL LANDSCAPE PLAN
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: SS | Drafter: BR | Checked: SS
0 50 100 200
1 inch =100ft. Horizontal

STACEY E. STICKLER 654 — 11/25/2008 — Original Date of Licensure 12.5.2024 — STATE OF COLORADO — LICENSED LANDSCAPE ARCHITECT

Calibre
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9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
OVERALL LANDSCAPE PLAN

Sheet L1 — 52 of 63
Date: JANUARY 21, 2025

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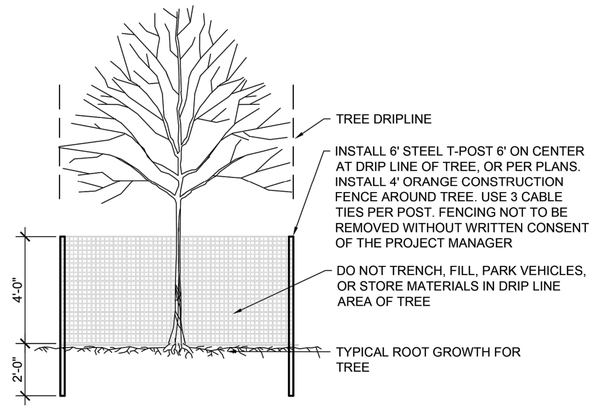

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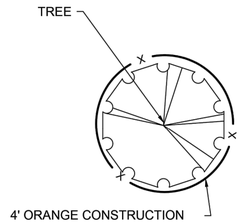


PLAN

NOTES:
1. REMOVAL OF TREE PROTECTION FENCE DURING CONSTRUCTION WILL RESULT IN A $500 PER INCIDENT, PER DAY FINE TO THE CONTRACTOR.
2. CONSTRUCTION FENCE SHALL BE INSTALLED PRIOR TO OTHER BMP'S AND ANY LAND DISTURBING ACTIVITIES.
3. ANY DAMAGED FENCE SHALL BE REPAIRED ON A DAILY BASIS.

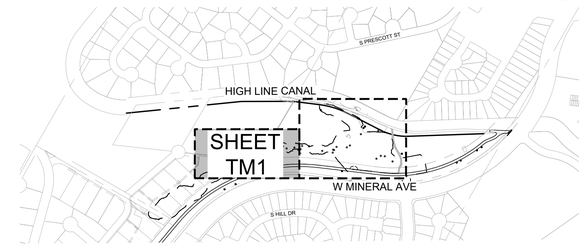
2 TREE PROTECTION FENCING

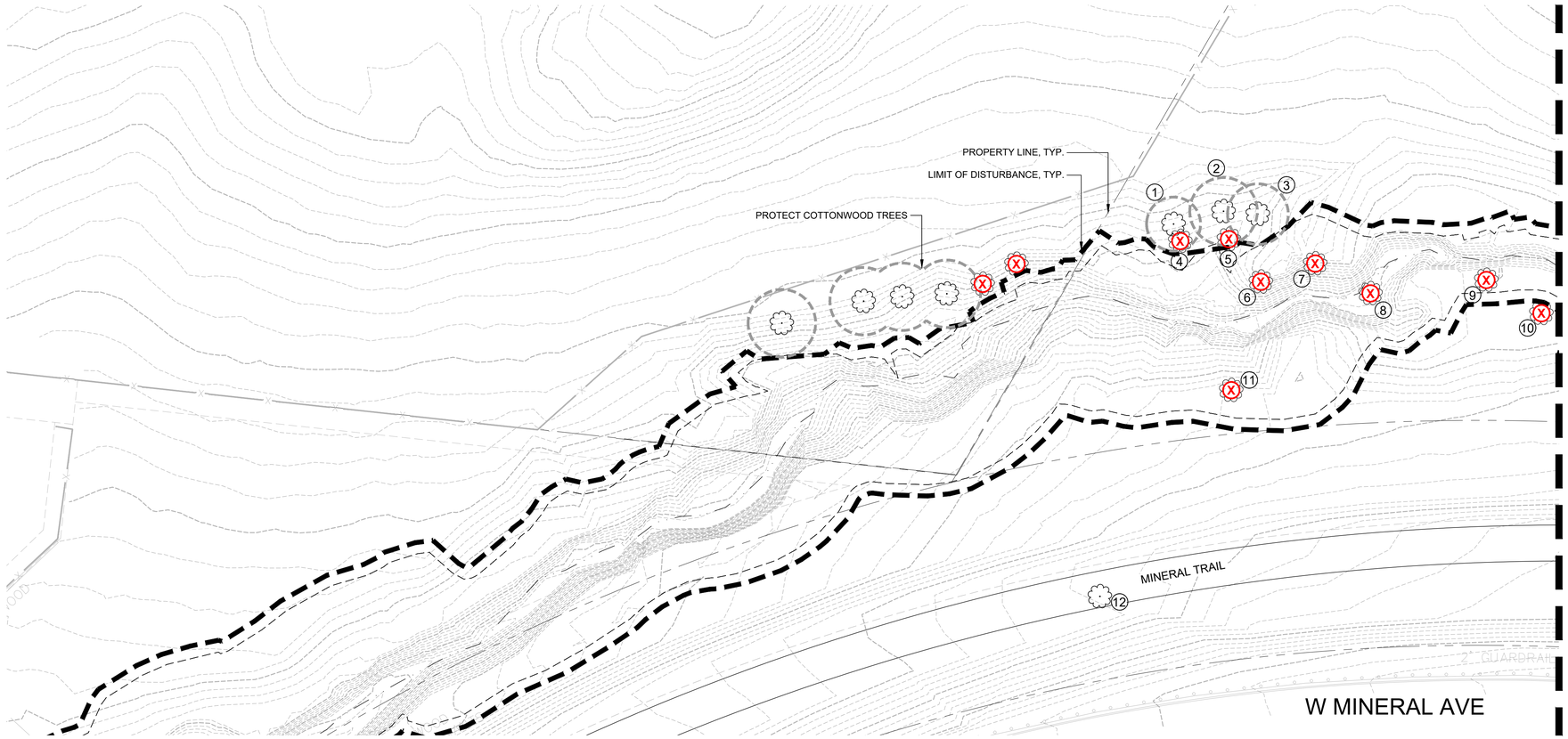
CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1.800.922.1987
CALL 2- BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE PROTECTED
- TREE TO BE REMOVED - TREE ASSESSMENT
- TREE PROTECTION ZONE - TPZ
- LIMIT OF DISTURBANCE

KEYMAP





1 TREE MITIGATION PLAN

TREE ASSESSMENT

TREE #	CALIPER INCHES (DSH)	COMMON NAME	BOTANICAL NAME	CONDITION	STATUS	DSH INCHES REMOVED*	SURVEY
1	8"	Siberian Elm	*Ulmus pumila*	Fair	To Remain - Protect		SSPRD
2	10"	Siberian Elm	*Ulmus pumila*	Fair	To Remain - Protect		SSPRD
3	9"	Siberian Elm	*Ulmus pumila*	Fair	To Remain - Protect		SSPRD
4	30"	Russian Olive	*Elaeagnus angustifolia*	Good	Remove	N/A (Prohibited)	SSPRD
5	10"	Siberian Elm	*Ulmus pumila*	Fair	Remove	N/A (Prohibited)	SSPRD
6	?	Cottonwood	*Populus deltoides*	Dead	Remove	N/A (Dead)	ERO
7	?	Unknown	*Unknown*		Remove	Unknown	SSPRD
8	22"	Cottonwood	*Populus deltoides*	Poor	Remove	22	SSPRD
9	7"	Cottonwood	*Populus deltoides*	Good	Remove	7	SSPRD
10	?	Unknown	*Unknown*		Remove	Unknown	SSPRD
11	8"	Plum	*Prunus*	Good	Remove	8	SSPRD / ERO
12	7"	Western Catalpa	*Catalpa Speciosa*	Good	To Remain		SSPRD
13	7"	Cottonwood	*Populus deltoides*	Good	Remove	7	SSPRD
14	8"	Cottonwood	*Populus deltoides*	Good	Remove	8	SSPRD
15	30"	Russian Olive	*Elaeagnus angustifolia*	Good	Remove	N/A (Prohibited)	SSPRD
16	30"	Russian Olive	*Elaeagnus angustifolia*	Good	Remove	N/A (Prohibited)	SSPRD
17	?	Cottonwood	*Populus deltoides*	Poor	Remove	Unknown	ERO
18	9"	Cottonwood	*Populus deltoides*	Fair	Remove	9	SSPRD
19	10"	Cottonwood	*Populus deltoides*	Fair	Remove	10	SSPRD
20	?	Cottonwood	*Populus deltoides*	Poor	Remove	Unknown	ERO
21	9"	Cottonwood	*Populus deltoides*	Fair	To Remain		SSPRD
22	30"	Russian Olive	*Elaeagnus angustifolia*	Good	Remove	N/A (Prohibited)	SSPRD
23	8"	Green Ash	*Fraxinus pennsylvanica*	Good	Remove	N/A (Prohibited)	SSPRD
24	16"	Cottonwood	*Populus deltoides*	Fair	Remove	16	SSPRD
25	34"	Cottonwood	*Populus deltoides*	Poor	Remove	34	SSPRD
26	13"	Crack Willow	*Salix x fragilis*	Poor	Remove	N/A (Prohibited)	SSPRD
27	10"	Crack Willow	*Salix x fragilis*	Poor	Remove	N/A (Prohibited)	SSPRD
28	14"	Cottonwood	*Populus deltoides*	Good	To Remain - Protect		SSPRD
29	30"	Russian Olive	*Elaeagnus angustifolia*	Good	Remove	N/A (Prohibited)	SSPRD
30	11"	Crack Willow	*Salix x fragilis*	Fair	Remove	N/A (Prohibited)	SSPRD
31	8"	Cottonwood	*Populus deltoides*	Poor	To Remain - Protect		SSPRD
32	8"	American Elm	*Ulmus americana*	Fair	To Remain - Protect		SSPRD
33	30"	Russian Olive	*Elaeagnus angustifolia*	Good	Remove	N/A (Prohibited)	SSPRD
34	?	Unknown	*Unknown*		Remove	Unknown	N/A

Total trees removed	26
Total DSH inches removed*	**121**
Total replacement trees (2.5" caliper)	76
Total caliper inches of replacement trees	**190**

*DSH inches removed is determined by tree DSH. Trees to be removed that are a prohibited tree species or are dead do not count towards inches removed/replaced per the City of Littleton Tree Manual.

TREE MITIGATION NOTES:

1. EXISTING TREES SHOWN ON THE TREE MITIGATION PLANS WERE PROVIDED BY THE CITY OF LITTLETON. LOCATIONS ARE APPROXIMATE.
2. THE CITY OF LITTLETON PROVIDED THE TREE ASSESSMENT CRITERIA RELATED TO THE EXISTING TREES. THE TREES WITH ASSIGNED NUMBERS AND NO INFORMATION SHOWN ON THE TREE ASSESSMENT WERE LOCATED BY ON-SITE GIS WITH LOCATIONS ONLY.
3. CONTRACTOR SHALL ADHERE TO THE CITY OF LITTLETON TREE MANUAL FOR TREE PROTECTION AND REMOVAL PROCEDURES FOR ALL TREES SHOWN WITHIN THE CITY OF LITTLETON PROPERTY.
4. ALL PROJECTS WILL REQUIRE A PERMIT FROM THE CITY FORESTER OR GROUNDS MANAGER. TO OBTAIN A PERMIT, THE EXISTING CONDITIONSS PLAN AND TREE MITIGATION PLANS SHALL BE SUBMITTED TO THE CITY FORESTER FOR REVIEW. THE CITY FORESTER SHALL REVIEW THE PLANS TO ENSURE THAT PUBLIC SHADE TREES ARE PROTECTED TO THE FULL EXTENT FEASIBLE FROM DAMAGE DURING CONSTRUCTION, STREET AND SIDEWALK REPAIR, UTILITIES WORK ABOVE AND BELOW GROUND, AND OTHER SIMILAR ACTIVITIES.
5. TREES #17 - #20 ARE SHOWN TO BE REMOVED. CONTRACTOR TO ATTEMPT TO SAVE THESE TREES WHERE POSSIBLE.

PATH: C:\USERS\STACEY\VALERIAN DROPBOX\VALERIAN TEAM FOLDER\PROJECTS\20-064_CALIBRE_JACKASS GULCH\2-WORKING\2024-12-06_90% RESUBMITTAL\20-064_TM1_TREE MITIGATION PLAN.DWG
PLOTTED BY: STACEY PLOT DATE: 12/9/2024 5:02 PM
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DATE		REVISION DESCRIPTION
01/21/25	1	HIGH LINE CANAL REVISIONS

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Drawing Name: TREE MITIGATION PLAN
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
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1 inch =30 ft. Horizontal
Designer: SS | Drafter: BR | Checked: SS

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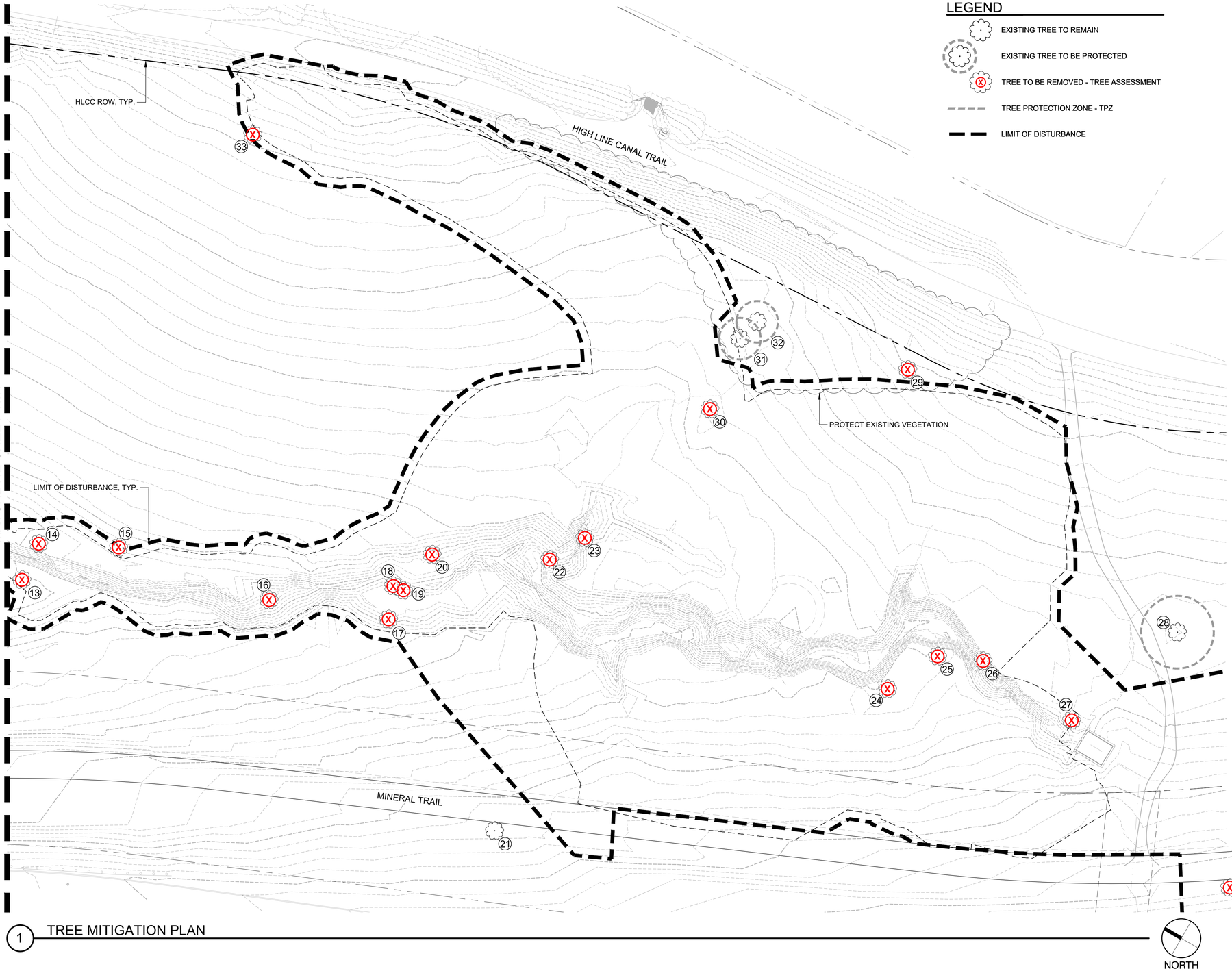
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
TREE MITIGATION PLAN

Sheet: TM1
53 of 63
Date: JANUARY 21, 2025



1 TREE MITIGATION PLAN

LEGEND

- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE PROTECTED
- TREE TO BE REMOVED - TREE ASSESSMENT
- TREE PROTECTION ZONE - TPZ
- LIMIT OF DISTURBANCE

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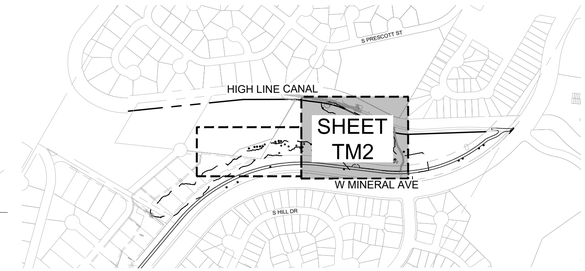
CALL 2- BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

KEYMAP



TREE ASSESSMENT

TREE #	CALIPER INCHES (DSH)	COMMON NAME	BOTANICAL NAME	CONDITION	STATUS	DSH INCHES REMOVED*	SURVEY
1	8"	Siberian Elm	*Ulmus pumila*	Fair	To Remain - Protect		SSPRD
2	10"	Siberian Elm	*Ulmus pumila*	Fair	To Remain - Protect		SSPRD
3	9"	Siberian Elm	*Ulmus pumila*	Fair	To Remain - Protect		SSPRD
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6	?	Cottonwood	*Populus deltoides*	Dead	Remove	N/A (Dead)	ERO
7	?	Unknown	*Unknown*		Remove	Unknown	SSPRD
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10	?	Unknown	*Unknown*		Remove	Unknown	SSPRD
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12	7"	Western Catalpa	*Catalpa Speciosa*	Good	To Remain		SSPRD
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17	?	Cottonwood	*Populus deltoides*	Poor	Remove	Unknown	ERO
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19	10"	Cottonwood	*Populus deltoides*	Fair	Remove	10	SSPRD
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01/21/25	1 HIGH LINE CANAL REVISIONS

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Drawing Name: TREE MITIGATION PLAN
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
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1 inch =30 ft. Horizontal
Designer: SS | Drafter: BR | Checked: SS

STACEY E. STICKLER 654 — 11/25/2008 — 12.5.2024 — STATE OF COLORADO — LICENSED LANDSCAPE ARCHITECT

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
TREE MITIGATION PLAN

Sheet: TM2 — 54 of 63
Date: JANUARY 21, 2025

PATH: C:\USERS\STACEY\VALERIAN DROPBOX\VALERIAN TEAM FOLDER\PROJECTS\20-064_CALIBRE_JACKASS GULCH\2-WORKING\2024-12-06_90% RESUBMITTAL\20-064_TM2_TREE MITIGATION PLAN.DWG
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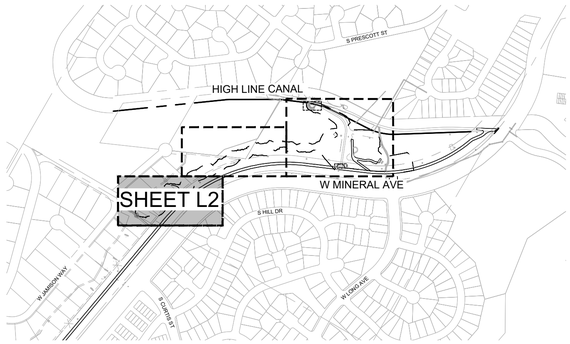
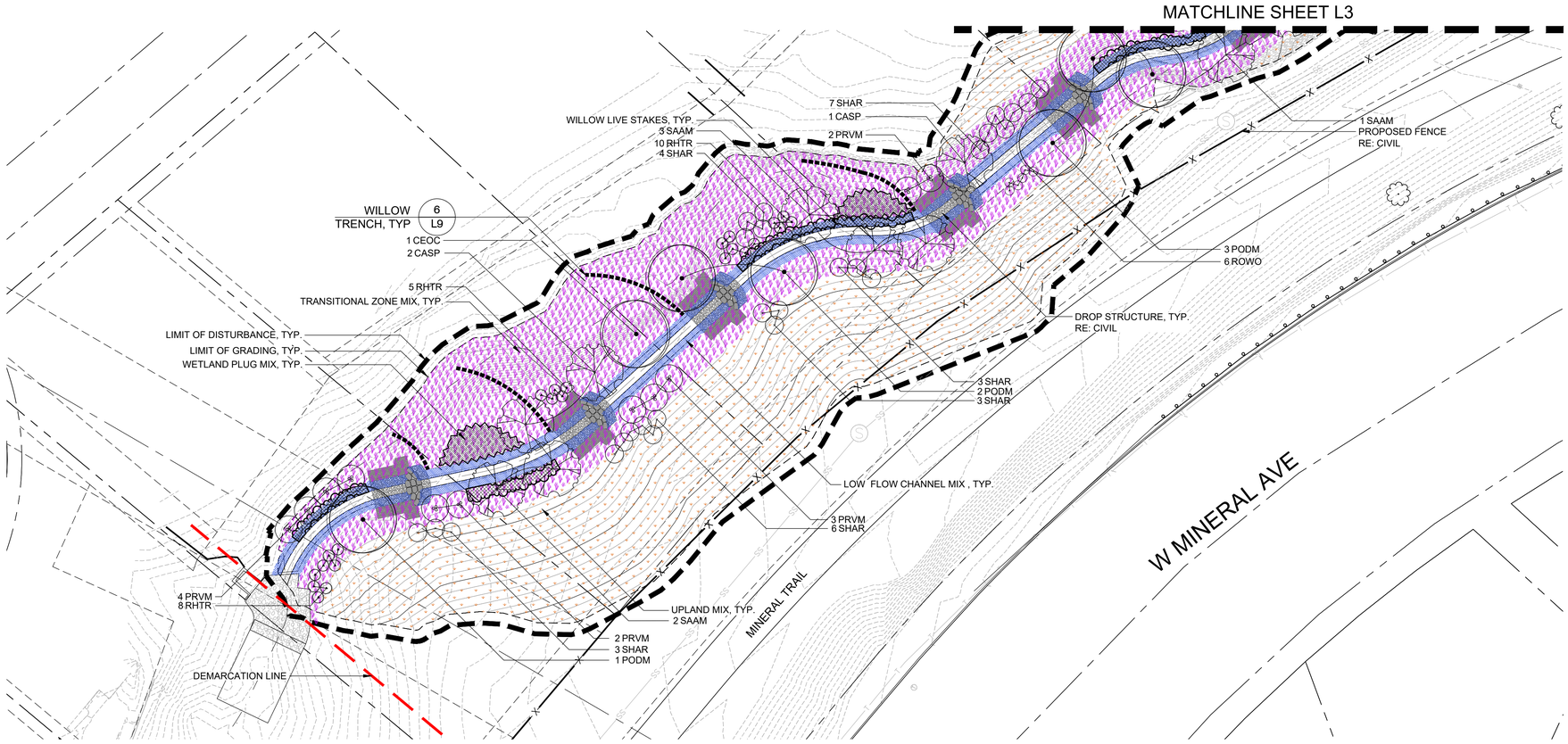
KEYMAP





1 LANDSCAPE PLAN

LEGEND

- DECIDUOUS TREES
- DECIDUOUS SHRUBS
- LOW FLOW CHANNEL MIX (ZONE 1)
- WETLAND PLUG MIX (ZONE 2)
- TRANSITIONAL MIX (ZONE 3)
- UPLAND MIX (ZONE 4)
- GRASSCRETE PLUG MIX (ZONE 5)
- WILLOW LIVE STAKES (WLS)
- CRUSHER FINES
- WILLOW TRENCH
- LIMIT OF GRADING
- LIMIT OF DISTURBANCE

NOTES

1. REFER TO CIVIL SHEETS FOR ADDITIONAL INFORMATION.
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NORTH

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

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Drawing Name: LANDSCAPE PLAN
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: SS | Drafter: BR | Checked: SS
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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
LANDSCAPE PLAN

Sheet L2 of 63
Date JANUARY 21, 2025

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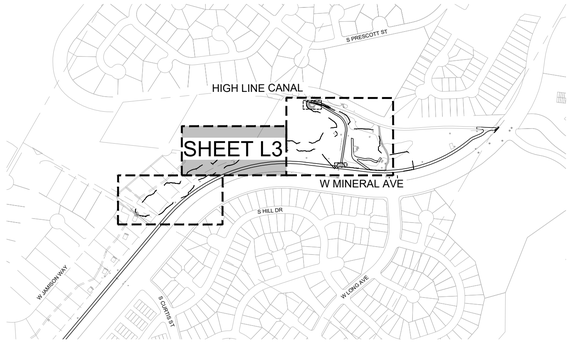

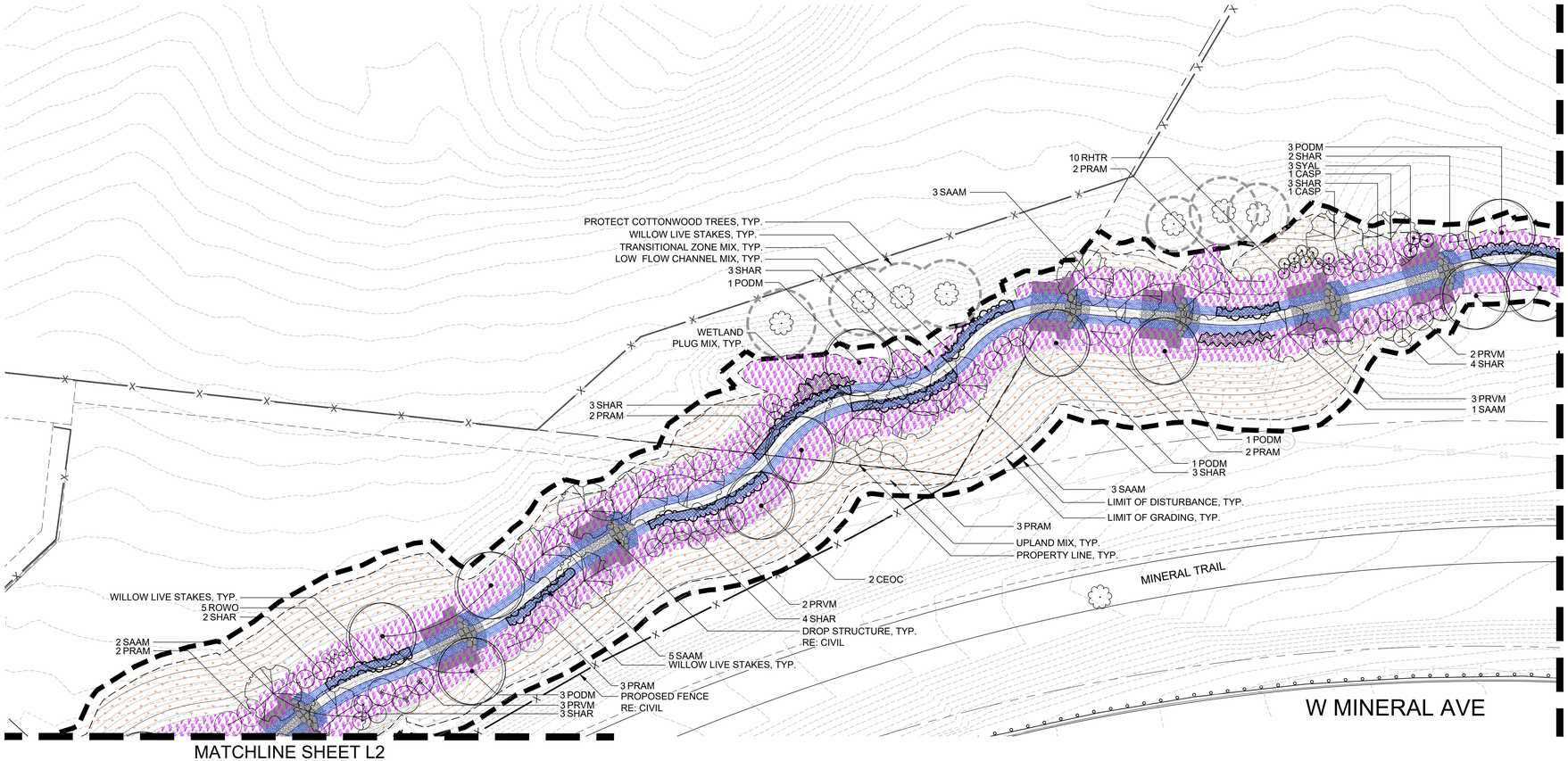

LEGEND

- DECIDUOUS TREES
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1 LANDSCAPE PLAN

NORTH

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

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Drawing Name: LANDSCAPE PLAN
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STACEY E. STICKLER 554
11/26/2008
Original Date of Licensure
12.5.2024
STATE OF COLORADO
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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
LANDSCAPE PLAN

Sheet L3 | 56 of 63
Date: JANUARY 21, 2025

PATH: C:\USERS\STACEY\VALERIAN DROPBOX\VALERIAN TEAM FOLDER\PROJECTS\20-064_CALIBRE_JACKASS GULCH\2-WORKING\2024-12-06_90% RESUBMITTAL\20-064_L3_LANDSCAPE PLAN.DWG
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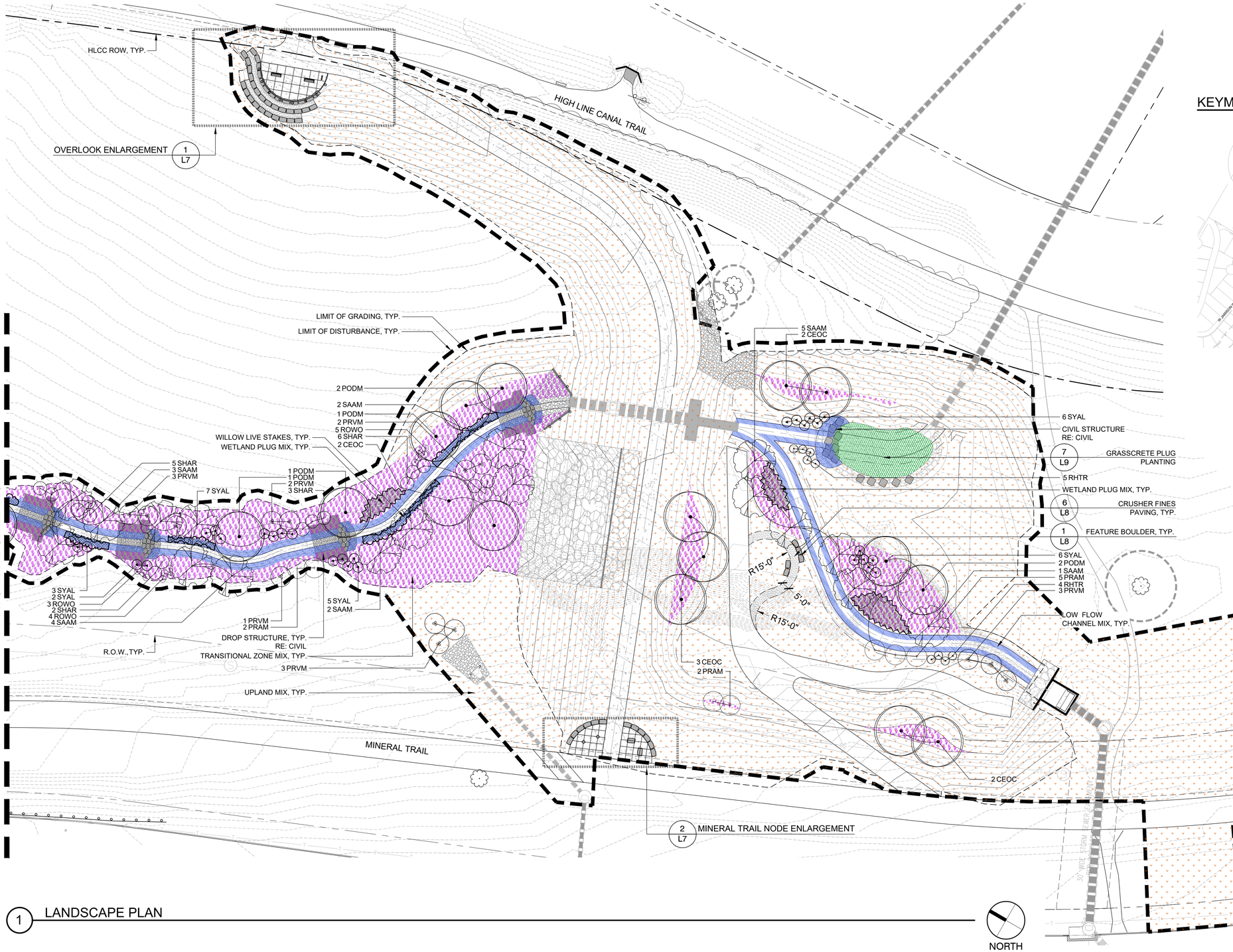

1 LANDSCAPE PLAN

NORTH

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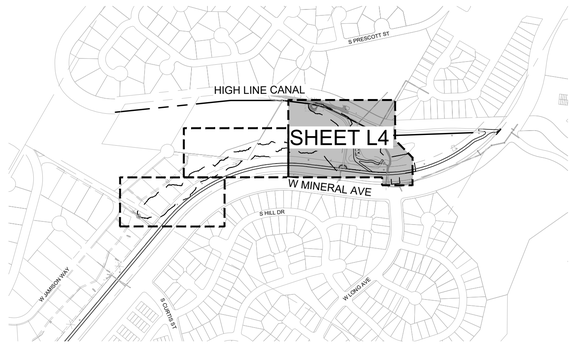

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Drawing Name: LANDSCAPE PLAN
Job Number:
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POND AND STABILIZATION IMPROVEMENTS
LANDSCAPE PLAN

Sheet L4 — 57 of 63
Date: JANUARY 21, 2025

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PLANT SCHEDULE

CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL
DECIDUOUS TREES					
CASP	5	CATALPA SPECIOSA	NORTHERN CATALPA	B & B	2.5"CAL
CEOC	12	CELTIS OCCIDENTALIS	COMMON HACKBERRY	B & B	2.5"CAL
PODM	22	POPULUS DELTOIDES MONILIFERA	PLAINS COTTONWOOD	B & B	2.5"CAL
SAAM	37	SALIX AMYGDALIODES	PEACH LEAF WILLOW	B & B	2.5"CAL

CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT
DECIDUOUS SHRUBS				
PRAM	23	PRUNUS AMERICANA	AMERICAN PLUM	#5
PRVM	35	PRUNUS VIRGINIANA MELANOCARPA	WESTERN CHOKEBERRY	#5
RHTR	42	RHUS TRILOBATA	SKUNKBUSH SUMAC	#5
ROWO	23	ROSA WOODSII	WOODS' ROSE	#5
SHAR	69	SHEPHERDIA ARGENTEA	SILVER BUFFALOBERRY	#5
SYAL	32	SYMPHORICARPOS ALBUS	COMMON SNOWBERRY	#5

SYMBOL	QTY	BOTANICAL NAME	COMMON NAME	CONT @	SPACING
GROUND COVERS					
	1,343	SALIX EXIGUA & SALIX IRRORATA	WILLOW LIVE STAKES (WLS)	STAKE	18" O.C.
	13,536 SF	ZONE 1	LOW FLOW CHANNEL MIX	SEED	
	851	ZONE 2	WETLAND PLUG MIX	PLUG	18" O.C.
	52,355 SF	ZONE 3	TRANSITIONAL MIX	SEED	
	140,525 SF	ZONE 4	UPLAND MIX	SEED	
	870	ZONE 5	GRASSCRETE PLUG MIX	PLUG	16" O.C.
	180 LF	SALIX EXIGUA & SALIX IRRORATA	WILLOW TRENCH	STAKE	

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SEED & PLUG MIXES

Low Flow Channel Mix (Zone 1)

Scientific Name	Common Name	Variety	Lb/ac (PLS)	% by Weight	PLS/sq ft	% of PLS/sq ft
Graminoids						
Nassella viridula	Green needle grass	Cucharas	1.00	4.98	4	3
Beckmannia syzigachne	American sloughgrass	CO Ecotype	0.20	1.00	5	3
Bolboschoenus maritimus	Alkali bulrush	CO Ecotype	1.25	6.22	5	3
Carex pellita	Woolly sedge	CO Ecotype	1.50	7.47	11	7
Distichlis spicata	Inland saltgrass	CO Ecotype	0.50	2.49	6	4
Eleocharis palustris	Creeping spikerush	CO Ecotype	0.75	3.73	11	7
Elymus trachycaulus	Slender wheatgrass	San Luis	1.50	7.47	5	4
Elymus canadensis	Canada wildrye	Mandan	0.50	2.49	7	5
Juncus arcticus	Mountain rush	CO Ecotype	0.05	0.25	13	8
Juncus torreyi	Torrey's rush	CO Ecotype	0.04	0.20	11	7
Panicum virgatum	Switchgrass	Blackwell	2.00	9.96	18	11
Pascopyrum smithii	Western wheatgrass	Arriba	2.00	9.96	5	3
Poa palustris	Fowl bluegrass	CO Ecotype	0.10	0.50	7	5
Schoenoplectus americanus	Olney's threesquare bulrush	CO Ecotype	1.25	6.22	9	6
Schoenoplectus tabernaemontani	Softstem bulrush	CO Ecotype	0.75	3.73	9	6
Spartina pectinata	Prairie cordgrass	Red River	3.00	14.93	14	9
Sporobolus airoides	Alkali sacaton	CO Ecotype	0.15	0.75	6	4
		Graminoid Totals	**16.54**	**82.33**	**146**	**94**
Forbs						
Asclepias incarnata	Swamp milkweed	CO Ecotype	1.50	7.47	3	2
Asclepias speciosa	Showy milkweed	CO Ecotype	1.50	7.47	3	2
Verbena hastata	Blue vervain	CO Ecotype	0.05	0.25	2	1
Helianthus nuttallii	Nuttall's sunflower	CO Ecotype	0.50	2.49	2	2
		Forb Totals	**3.55**	**17.67**	**10**	**6**
		Total	**20.09**	**100**	**155.58**	**100**

***var. = variety; vns. = variety not specified**

Drill Seed Rate: 20.09 PLS#/Acre
Mechanical Broadcast Rate: 20.09 PLS#/Acre
Hand Broadcast Rate: 40.18 PLS#/Acre

Transitional Mix (Zone 3)

Scientific Name	Common Name	Variety	Lb/ac (PLS)	% by Weight	PLS/sq ft	% of PLS/sq ft
Graminoids						
Buchloe dactyloides	Buffalograss	Bowie	3	11.27	4	3
Bouteloua gracilis	Blue grama	Hachita	0.5	1.88	9	8
Distichlis spicata	Inland saltgrass	CO Ecotype	0.5	1.88	6	5
Eleocharis palustris	Creeping spikerush	CO Ecotype	0.01	0.04	0	6
Elymus canadensis	Canada wildrye	Mandan	3	11.27	8	6
Elymus trachycaulus	Slender wheatgrass	San Luis	2.5	9.39	9	7
Juncus arcticus	Mountain rush	CO Ecotype	0.03	0.11	8	6
Muhlenbergia asperifolia	Alkali muhly	CO Ecotype	0.15	0.56	5	4
Panicum virgatum	Switchgrass	Blackwell	1	3.76	9	7
Pascopyrum smithii	Western wheatgrass	Arriba	5	18.79	13	10
Andropogon gerardii	Little bluestem	CO Ecotype	3	11.27	9	7
Sorghastrum nutans	Indiangrass	Holt	2	7.52	8	6
Spartina pectinata	Prairie cordgrass	Red River	1.5	5.64	7	5
Sporobolus airoides	Alkali sacaton	CO Ecotype	0.1	0.38	4	3
Sporobolus cryptandrus	Sand dropseed	CO Ecotype	0.05	0.19	6	5
		Graminoid Totals	**22.34**	**83.95**	**104**	**90**
Forbs and Shrubs						
Achillea millefolium var. occidentalis	Western yarrow	CO Ecotype	0.05	0.19	3	3
Artemisia ludoviciana	Prairie sage	CO Ecotype	0.04	0.15	4	3
Asclepias speciosa	Showy milkweed	CO Ecotype	3	11.27	4	3
Coreopsis tinctoria	Plains Coreopsis	CO Ecotype	0.08	0.30	3	2
Gallardia aristata	Blanket flower	CO Ecotype	1	3.76	3	2
Heliomeris multiflora	Showy goldeneye	CO Ecotype	0.1	0.38	2	2
		Forb Totals	**4.27**	**16.05**	**19.33**	**15.63**
		Total	**26.61**	**100**	**123.70**	**105.42**

***var. = variety; vns. = variety not specified**

Drill Seed Rate: 26.61 PLS#/Acre
Mechanical Broadcast Rate: 26.61 PLS#/Acre
Hand Broadcast Rate: 53.22 PLS#/Acre

Wetland Plug Mix (18" O.C. spacing) (Zone 2)

Scientific Name	Common Name	Quantity
Juncus arcticus	Baltic Rush	142
Juncus torreyi	Torrey's Rush	142
Carex emoryi	Emory's Sedge	142
Carex pellita	Wooly Sedge	142
Pancium virgatum	Switchgrass	142
Distichlis spicata	Desert Saltgrass	142
	Total	**851**

Grasscrete Plug Mix (16" O.C. spacing) (Zone 5)

Scientific Name	Common Name	Quantity
Juncus arcticus	Baltic Rush	145
Juncus torreyi	Torrey's Rush	145
Carex emoryi	Emory's Sedge	145
Carex pellita	Wooly Sedge	145
Pancium virgatum	Switchgrass	145
Distichlis spicata	Desert Saltgrass	145
	Total	**870**

Upland Mix (Zone 4)

Scientific Name	Common Name	Variety	% by Weight
Graminoids			
Elymus lanceolatus psammophilus	Streambank Wheatgrass		30
Pascopyrum smithii	Western Wheatgrass	Arriba or Barton	30
Bouteloua curtipendula	Sideoats Grama		20
Bouteloua gracilis	Blue Grama		15
Buchloe dactyloides	Buffalo Grass (treated)		5
		Graminoid Totals	**100**
		Total	**100**

NOTE:
CONTRACTOR TO VERIFY WITH OWNER UPLAND SEED MIX PRIOR TO ORDERING SEED. SEE NATIVE SEEDING SPECIFICATIONS FOR FURTHER INFORMATION.

PATH: C:\USERS\STACEY\VALERIAN DROPBOX\VALERIAN TEAM FOLDER\PROJECTS\20-064_CALIBRE_JACKASS GULCH\2-WORKING\2024-12-06_90% RESUBMITTAL\20-064_L5_LANDSCAPE SCHEDULE.DWG
PLOTTED BY: STACEY PLOT DATE: 12/9/2024 5:01 PM
XREFS:

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

VALERIAN
Landscape Architecture | Urban Design
Irrigation Design | Planning

Drawing Name: LANDSCAPE SCHEDULE
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: SS | Drafter: BR | Checked: SS

STACEY E. STICKLER 554 — Original Date of Licensure 11/26/2008 — 12.5.2024 — STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

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LANDSCAPE SCHEDULE

Sheet L5 of 63
Date JANUARY 21, 2025

GENERAL NOTES:

1. VERIFY ALL EXISTING CONDITIONS PRIOR TO BEGINNING WORK. BE AWARE OF ANY UNDERGROUND UTILITIES. PROTECT ALL EXISTING SITE FEATURES TO REMAIN FROM POTENTIAL DAMAGE BY SITE CONSTRUCTION OPERATIONS. AVOID ANY WORK BEYOND SCOPE OF PROJECT AREA.
2. COORDINATE ALL DISCIPLINES AND SITE CONSTRUCTION THAT WILL BE NEEDED TO COMPLETE THE PROJECT IN THE TIME FRAME GIVEN AND WITHIN BUDGET. ALL ACCESS TO SITE, USE OF UTILITIES, STORAGE, AND OTHER REQUIREMENTS SHALL BE COORDINATED PRIOR TO BEGINNING WORK.
3. CONTRACTOR IS RESPONSIBLE TO INSPECT AND CONFIRM SITE CONDITIONS PRIOR TO BEGINNING WORK. COMMENCEMENT OF WORK SHALL SIGNIFY ALL CONDITIONS ARE ACCEPTABLE AND NO ALLOWANCE WILL BE MADE FOR UNRECOGNIZED CONDITIONS AFTER START OF WORK.
4. NOTIFY OWNER/LANDSCAPE ARCHITECT IMMEDIATELY UPON DISCOVERY OF UNFORESEEN SITE CONDITIONS OR PLAN DISCREPANCIES. NO CHANGE TO SPECIFIED WORK SHALL BE COMPLETED WITHOUT VERIFICATION OF EXISTING CONDITIONS AND WRITTEN APPROVAL OF MODIFICATION BY THE LANDSCAPE ARCHITECT.

LANDSCAPE NOTES:

1. NO CONSTRUCTION ACTIVITIES (EITHER TEMPORARY OR PERMANENT) OTHER THAN THE ACTIVITIES AUTHORIZED IN THE SECTION 404 PERMIT WILL OCCUR IN WETLANDS. ALL ADDITIONAL ACTIVITIES NEED TO BE AUTHORIZED BY THE U.S. ARMY CORPS OF ENGINEERS IN WRITING BEFORE CONSTRUCTION. NO MATERIALS WILL BE STOCKPILED IN THE WETLANDS.
2. CONTACT THE U.S. FISH AND WILDLIFE SERVICE, OFFICE OF MIGRATORY BIRDS, AT (303) 236-8171, FOR PERMITTING REQUIREMENTS PRIOR TO THE REMOVAL OR DESTRUCTION OF ANY BIRD NEST.
3. IF HEAVY EQUIPMENT IS ACQUIRED THAT WAS PREVIOUSLY WORKING IN ANOTHER STREAM, RIVER, LAKE, POND, OR WETLAND, ONE OF THE FOLLOWING DISINFECTION PRACTICES IS NECESSARY PRIOR TO BRINGING ON-SITE TO PREVENT THE SPREAD OF NEW ZEALAND MUD SNAILS AND OTHER AQUATIC HITCHHIKERS INTO THIS DRAINAGEWAY. THESE PRACTICES ARE ALSO NECESSARY AFTER PROJECT COMPLETION, PRIOR TO THIS EQUIPMENT BEING USED IN ANOTHER STREAM, RIVER, LAKE, POND, OR WETLAND, FOR THE SAME PURPOSE:
   REMOVE ALL MUD AND DEBRIS FROM EQUIPMENT (TRACKS, TURRETS, BUCKETS, DRAGS, TEETH, ETC.) AND PAY/SOAK EQUIPMENT WITH A 1:15 SOLUTION OF DISINFECTION SOLUTION CONTAINING THE FOLLOWING INGREDIENTS:
   A. DIALKYL DIMETHYL AMMONIUM CHLORIDE (5-10% BY WEIGHT);
   B. ALKYL DIEMETHYL BENZYL AMMONIUM CHLORIDE (5-10% BY WEIGHT);
   C. NONYL PHENOL ETHOXYLATE (5-10% BY WEIGHT);
   D. SODIUM SESQUICARBONATE (1-5%) AND,
   E. TETRASODIUM ETHYLENE DIAMINETETRAACETATE (1-15%)
   THE EQUIPMENT SHOULD BE KEPT MOIST FOR AT LEAST 10 MINUTES, AND RINSATE SHOULD BE MANAGED AS A SOLID WASTE IN ACCORDANCE WITH LOCAL, COUNTY, STATE, OR FEDERAL REGULATIONS.
   SMALL EQUIPMENT, HAND TOOLS, BOOTS AND ANY OTHER EQUIPMENT THAT WAS PREVIOUSLY USED IN A RIVER, STREAM, LAKE, POND, OR WETLAND PRIOR TO MOVING THE EQUIPMENT TO ANOTHER WATER BODY MAY BE DISINFECTED USING THE FOLLOWING METHODS:
   A. SPRAY/SOAK EQUIPMENT WITH WATER GREATER THAN 140 DEGREES FAHRENHEIT FOR AT LEAST 10 MINUTES.
   B. SANITIZE WATER SUCTION HOSES AND WATER TRANSPORTATION TANKS (USING METHODS DESCRIBED ABOVE) AND DISCARD RINSE WATER AT AN APPROPRIATELY PERMITTED DISPOSAL FACILITY.
4. WHERE THE PLANTING PLANS AND NOTES DIFFER FROM THE SPECIFICATIONS, THE PLANTING PLANS AND NOTES GOVERN.
5. FINAL ELEVATIONS IN THE WETLAND AREAS SHALL BE APPROVED BY THE PROJECT ECOLOGIST. THE CONTRACTOR SHALL SEEK REVIEW AND OBSERVATION OF THE SUBGRADE ELEVATIONS FROM THE ECOLOGIST AND ENGINEER PRIOR TO TOPSOIL APPLICATION.
6. THE PLANT MATERIAL LISTED IN THE PLANTING QUANTITIES TABLE SHALL BE PLANTED IN THE AREAS SHOWN ON THE PLANTING PLANS.
7. NO SUBSTITUTIONS OF PLANT MATERIAL OR AMENDMENTS WILL BE PERMITTED WITHOUT APPROVAL OF ECOLOGIST AND ENGINEER. NO SUBSTITITIONS SHALL BE MADE UNLESS SPECIFIED PLANT MATERIALS ARE UNAVAILABLE. CONTRACTOR MUST NOTIFY ECOLOGIST AND ENGINEER IF MATERIALS ARE UNAVAILABLE, AND LIST PROPOSED SUBSTITUTIONS. ECOLOGIST AND ENGINEER MUST APPROVE ALL SUBSTITITIONS.
8. ECOLOGIST SHALL INSPECT SEED LOT ANALYSIS BEFORE SEED IS PURCHASED TO CHECK FOR UNDESIRABLE SPECIES AND WHETHER THE SEED HAS BEEN TESTED WITHIN 6 MONTHS OF PROJECT INITIATION.
9. ALL PLANT MATERIAL SHALL BE REVIEWED BY THE ECOLOGIST PRIOR TO INSTALLATION. ECOLOGIST MAY REJECT PLANT MATERIAL DEEMED TO BE OF INSUFFICIENT QUALITY AT ANY TIME DURING THE PLANTING PROCESS. PLANTS WITH DRY, BROKEN, OR CRUMBLING ROOTS SHALL NOT BE ACCEPTED FOR PLANTING.
10. PLANTING OPERATIONS WILL BE CONDUCTED UNDER FAVORABLE WEATHER CONDITIONS.
11. THE PLANTING LOCATIONS SHOWN ON THE PLANTING PLANS ARE APPROXIMATE AND SHOULD BE FIELD STAKED BY THE CONTRACTOR FOR APPROVAL BY THE ECOLOGIST PRIOR TO DIGGING PLANTING PITS. THE CONTRACTOR WILL NOTIFY THE ECOLOGIST WHEN THE PLANTING LOCATIONS HAVE BEEN STAKED AND NO LESS THAN 72 HOURS BEFORE DIGGING PLANTING PITS AND PLANTING. THE CONTRACTOR SHALL RELOCATE ANY PLANT AS DIRECTED BY THE OWNER'S REPRESENTATIVE PRIOR TO PLANTING AT NO ADDITIONAL COST TO THE OWNER.
12. THE CONTRACTOR WILL REVIEW THE SEEDING LIMITS AND OVERLAP WITH THE ECOLOGIST PRIOR TO SEEDING.
13. THE CONTRACTOR SHALL CONFINE ALL OPERATIONS TO THE CONSTRUCTION LIMITS SHOWN INCLUDING SEEDING, PLANTING, AND MULCHING.
14. ANY AREAS OUTSIDE THE CONSTRUCTION LIMITS DISTURBED BY CONSTRUCTION OPERATIONS, NOT DIRECTED BY AN OWNER'S REPRESENTATIVE, SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
15. ALL MATERIALS AND METHODS TO BE SUBMITTED FOR APPROVAL BY THE OWNER'S REPRESENTATIVES PRIOR TO CONSTRUCTION.

GENERAL TOPSOIL MANAGEMENT:

1. EXISITING TOPSOIL SHALL BE STRIPPED TO A DEPTH OF 6-8" WITHIN THE LIMITS OF DISTURBANCE. STRIPPED TOPSOIL SHALL BE PLACED IN STOCKPILES NO GREATER THAN 10' TALL.
2. TESTING WILL BE REQUIRED OF ON-SITE SOILS PLACED INTO STOCKPILES TO BE USED AS SEED BED OR IMPORTED SOILS TO BE USED AS SEED BED PRIOR TO IMPORT OR APPLICATION. CURRENT STANDARD NUTRIENT TESTS AND USDA TEXTURE ANALYSIS ARE REQUIRED FOR EACH SOIL FRACTION, PILE, OR SOURCE. TESTS SHALL BE CONDUCTED BY THE ECOLOGIST.
3. SOIL AMENDMENT RATES WILL BE BASED ON THE RESULTS OF THE STANDARD NUTRIENT TESTS OF SOIL STOCKPILES. ECOLOGIST SHALL ADJUST AMENDMENT AND FERTILIZER RATES AND METHODS TO MEET DESIRED CHEMICAL AND PHYSICAL MAKEUP. ANY ADJUSTMENTS SHALL BE NEGOTIATED AND MUTUALLY AGREED UPON BY THE CONTRACTOR AND OWNER.
4. SOIL AMENDMENTS AND FERTILIZERS SHALL BE APPLIED TO AREAS STAKED OUT BY THE ECOLOGIST. NO OR LITTLE FERTILIZERS OR AMENDMENTS WILL BE APPLIED TO AREAS LESS THAN 12" ABOVE THE NORMAL HIGH WATER ELEVATION. GRANULAR AMENDMENTS SHALLED BE INCORPORATED INTO TOPSOIL TO A DEPTH OF 1".
5. ALL SUBSOIL AREAS MUST BE RIPPED TO DECOMPACT AND ROUGHEN PRIOR TO TOPSOIL APPLICATION. TRUCKS AND HEAVY EQUIPMENT SHALL NOT DRIVE ON THE DECOMPACTED SUBSOIL AREAS OR TOPSOILED AREAS AFTER DECOMPACTION OR APPLICATION OF TOPSOIL. ANY AREAS RE-COMPACTED FOLLOWING PLACEMENT SHALL BE DECOMPACTED.
6. ALL HEAVILY COMPACTED AREAS SUCH AS, BUT NOT LIMITED TO, CONSTRUCTION ACCESS CORRIDORS AND STAGING AREAS SHALL BE RIPPED TO AT LEAST A DEPTH OF 18" PRIOR TO TOPSOIL APPLICATION. ECOLOGIST AND ENGINEER SHALL INSPECT DECOMPACTED AREAS PRIOR TO TOPSOIL PLACEMENT.
7. SOILS SHALL NOT BE WORKED WHEN FROZEN, SNOW COVERED, WET, OR MUDDY.

SEEDING AND MULCHING:

1. ALL SEED BAGS SHALL BE LABELED AT ALL TIMES AND SHALL BE PROVIDED TO THE ECOLOGIST FOR REVIEW AND DOCUMENTATION. SEED TAGS MUST SHOW JOB NAME, TOTAL POUNDS OF MIXTURE, AND ALL SCIENTIFIC NAMES OF SPECIES.
2. ALL SEED FURNISHED SHALL BE WEED FREE. ECOLOGIST SHALL INSPECT SEED LOT ANALYSIS BEFORE SEED IS PURCHASED TO CHECK FOR UNDESIRABLE WEEDS AND OTHER SPECIES. THE CONTRACTOR SHALL FURNISH TO THE ECOLOGIST A SIGNED STATEMENT CERTIFYING THAT THE SEED FURNISHED IS FROM A LOT THAT HAS BEEN TESTED BY A RECOGNIZED LABORATORY. ANY WEEDS PRESENT SHALL BE REPORTED TO AND PRE-APPROVED BY ECOLOGIST PRIOR TO PURCHASE. SEED WHICH HAS BECOME WET, MOLDY, OR OTHERWISE DAMAGED IN TRANSIT OR IN STORAGE WILL NOT BE ACCEPTABLE.
3. SEED MIX SHALL BE PLANTED BY BROADCAST AND/OR DRILLSEED METHOD. BROADCAST SEEDING CAN BE DONE BY DRIBBLING SEED FROM A MECHANICAL DRILL (LARGE AREAS) AND BY USING A WHIRLYBIRD TYPE SEEDER OR BY HAND (FOR SMALL AREAS). SEED SHALL NOT BE APPLIED WITH A HYDROSEEDER AS THIS MAY DAMAGE THE SEED. BROADCAST SEED SHALL BE HARROWED OR RAKED LIGHTLY TO COVER SEED. WETLAND SEED SHALL BE BROADCAST ON MOIST CHANNEL BOTTOM AREAS BUT SHALL NOT BE BROADCAST INTO AREAS OF STANDING WATER. IT MAY NOT BE NECESSARY TO HARROW OR RAKE TO COVER SEED IN AREAS WHERE SOIL IS CONSISTENTLY WET. THIS WILL BE DETERMINED BY THE ECOLOGIST AND ENGINEER.

   PLS - PURE LIVE SEED IS THE AMOUNT OF SEED EXPECTED TO GROW BASED ON THE PURITY AND GERMINATION RATE OF THE BULK SEED.
   THE FORMULA USED FOR DETERMINING THE QUALITY OF PURE LIVE SEED (PLS) SHALL BE (POUNDS OF SEED) X (PURITY) X (GERMINATION) = POUNDS OF PURE LIVE SEED (PLS)

4. IF THE SEED AVAILABLE ON THE MARKET DOES NOT MEET THE MINIMUM PURITY AND GERMINATION PERCENTAGES SPECIFIED, THE SUBCONTRACTOR MUST COMPENSATE FOR A LESSER PERCENTAGE OF PURITY OR GERMINATION BY FURNISHING SUFFICIENT ADDITIONAL SEED TO EQUAL THE SPECIFIED PRODUCT. THE TAGS FROM THE SEED MIXES MUST BE SUPPLIED TO ECOLOGIST AND ENGINEER AND FORWARDED TO THE DOUGLAS COUNTY EROSION CONTROL INSPECTOR.
5. ALL BLANKETED AREAS SHALL BE DECOMPACTED AND A LOOSE, RAKED SEEDBED PREPARED PRIOR TO SEEDING. ALL CLODS, ROCKS, DEPRESSIONS OR LUMPS OVER 2" SHALL BE PULVERIZED AND RAKED OUT OF ALL DISTURBED AREAS TO BE SEEDED. UNDER NO CIRCUMSTANCES SHALL THE TOPSOIL SURFACE BE SMOOTH AND COMPACTED.
6. SEED SHALL BE APPLIED AT THE SPECIFIED RATES WITHIN 48 HOURS OF TOPSOIL PLACEMENT. IF A RAIN EVENT OCCURS THAT COMPACTS OR ERODES THE SEEDBED PRIOR TO PERFORMING SEEDING, THE SEEDBED SHALL BE RE-PREPARED.
7. ADJACENT SEED MIXES SHALL OVERLAP BY FIVE FEET. SEEDING AREAS SHOWN ON PLANS DO NOT INCLUDE OVERLAP. CONTRACTOR SHALL CALCULATE AND APPLY SEED QUANTITIES NECESSARY TO ACHIEVE 5' OVERLAP.
8. SEEDING, SOIL PREPARATION, BLANKETING, OR MULCHING SHALL NOT OCCUR WHEN THE SOIL IS WET, SNOW COVERED OR FROZEN. IF THE PROJECT CALLS FOR HYDRAULIC MULCHING, IT SHALL NOT BE DONE IN THE PRESENCE OF FREE SURFACE WATER AND SHALL BE APPIED 48 HOURS PRIOR TO ANTICIPATED PRECIPITATION.
9. ALL AREAS DISTURBED IN CONSTRUCTION AND COVERED WITH COIR EROSION CONTROL MAT SHALL BE MULCHED WITH STRAW IN ACCORDANCE WITH THE SPECIFICATIONS. 75% OF STRAW SHALL BE OVER 10 INCHES IN LENGTH AND CERTIFIED WEED FREE. MULCH SHALL BE APPLIED NO MORE THAN 24 HOURS AFTER SEEDING. MULCH SHALL NOT BE APPLIED IF A COVER CROP IS USED.
10. AREAS NOT PROPERLY MULCHED, OR AREAS DAMAGED DUE TO THE CONTRACTOR'S NEGLIENCE, SHALL BE REPAIRED AND REMULCHED AS DESCRIBED ABOVE, AT THE CONTRACTOR'S EXPENSE. MULCH MAY BE REMOVE BY CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL SHALL BE REPAIRED AND REMULCHED AS ORDERED. PAYMENT FOR THIS ORDERED CORRECTIVE WORK SHALL BE AT THE CONTRACT PRICES.
11. CONTRACTOR TO USE THE SOUTH SUBURBAN PARKS AND RECREATION DISTRICT STANDARDS AND SPECIFICATIONS FOR THE UPLAND MIX AS SHOWN IN THE PLANS.

TREE AND SHRUB PLANTING:

1. TREES AND SHRUBS MUST BE INSPECTED FOR HEALTH, SIZE, AND SPECIES PRIOR TO INSTALLATION. NOTIFY THE ECOLOGIST AT LEAST 48 HOURS PRIOR TO INSTALLATION AT SITE. NURSERY INSPECTION OF PLANTS MAY BE ARRANGED PRIOR TO DELIVERY TO SITE, IF A LOCAL NURSERY IS USED. NOTIFY THE ECOLOGIST AT LEAST 1 WEEK PRIOR TO DELIVERY FOR NURSERY INSPECTION.
2. ALL TREES AND SHRUBS SHALL BE WATERED AND COVERED FOR DELIVERY TO SITE AND SHALL BE WATERED UPON ARRIVAL.
3. ALL PLANTING LOCATIONS SHALL BE APPROVED IN THE FIELD ON THE DAY OF PLANTING AND ADJUSTED BY THE ECOLOGIST, IF NECESSARY, PRIOR TO INSTALLATION.
4. THE CONTRACTOR SHALL WATER THE TREES ONCE A WEEK AT THE RATE OF 50 GALLONS PER TREE PER WATERING FOR THE MONTHS OF MAY THROUGH OCTOBER AND TWICE PER MONTH AT THE RATE OF 70 GALLONS PER TREE FOR THE MONTHS OF NOVEMBER THROUGH APRIL. SHRUBS SHALL BE WATERED AT THE RATE OF 5 GALLONS ONCE PER WEEK FROM MAY THROUGH OCTOBER AND 10 GALLONS PER SHRUBS FROM THE MONTHS OF NOVEMBER THROUGH APRIL.

WETLAND PLUG AND WILLOW STAKE NOTES:

1. WETLAND PLUGS SHALL BE PLANTED AT 18" O.C. TRIANGULAR SPACING IN WETLAND AREAS.
2. CUTTINGS AND WETLAND PLUGS SHALL BE FIELD LOCATED AND STAKED BY THE ECOLOGIST PRIOR TO INSTALLATION AND ECOLOGIST SHALL BE PRESENT TO APPROVE WETLAND PLUG AND WILLOW STAKE QUALITY AND INSTALLATION IN THE PROJECT AREA.
3. WETLAND PLUGS SHALL BE WET UPON TRANSFER TO THE SITE AND SHOULD BE PLANTED ON THE SAME DAY. PLUGS SHALL BE PLANTED IN GENEROUS HOLES TO ACCOMMODATE ROOTS WITHOUT BENDING ROOTS INTO A "J" SHAPE. AIR POCKETS IN HOLES SHALL BE FILLED AND ½ TO 2" OF NATIVE SOIL PLACED AROUND SURFACE OF PLUG SOIL.
4. LIVE SANDBAR AND BLUE WILLOW (S. EXIGUA AND S. IRRORATA) CUTTINGS MUST BE COLLECTED AND INSTALLED IN DORMANT CONDITION (USUALLY BEFORE APRIL 15). WILLOWS SHOULD BE HARVESTED FROM A NEARBY LOCATION WITHIN THE SAME DRAINAGE OR AS DIRECTED BY THE ECOLOGIST. REFER TO THE WILLOW LIVE STAKE DETAIL FOR MORE INFORMATION.
5. WILLOW CUTTINGS WILL BE A MINIMUM OF 3 TO 4 FEET LONG AND WILL BE ½" TO 1" IN DIAMETER WITH SMOOTH UNDAMAGED BARK. WILLOW CUTTINGS FOR WILLOW TRENCHES SHALL BE 4 TO 5 FEET LONG. STAKES SHALL BE PLANTED IN A VERTICAL HOLE THAT IS SATURATED AT THE BOTTOM THROUGHOUT THE GROWING SEASON. APPROXIMATELY 2/3 OF THE STAKE SHALL BE INSERTED INTO THE HOLE AND HOLE WILL BE BACKFILLED WITH NATIVE SOILS AND LIGHTLY TAMPED TO PREVENT AIR POCKETS.
6. WILLOW STAKES SHALL BE PLANTED AT A SPACING OF 1.5' O.C IN TRIANGULAR SPACING IN AREAS CALLED OUT IN THE LANDSCAPE DRAWINGS. IN WILLOW TRENCHES, FOLLOW WILLOW TRENCH DETAIL.

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1.800.922.1987
CALL 2- BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

PATH: C:\USERS\STACEY\VALERIAN DROPBOX\VALERIAN TEAM FOLDER\PROJECTS\20-064_CALIBRE_JACKASS GULCH\2-WORKING\20241206_90% RESUBMITTAL\20-064_L6_LANDSCAPE NOTES.DWG
PLOTTED BY: STACEY PLOT DATE: 12/9/2024 5:03 PM
XREFS:

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

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Drawing Name	LANDSCAPE NOTES
Job Number	
Prepared For	MILE HIGH FLOOD DISTRICT
Designer	SS
Drafter	BR
Checked	SS

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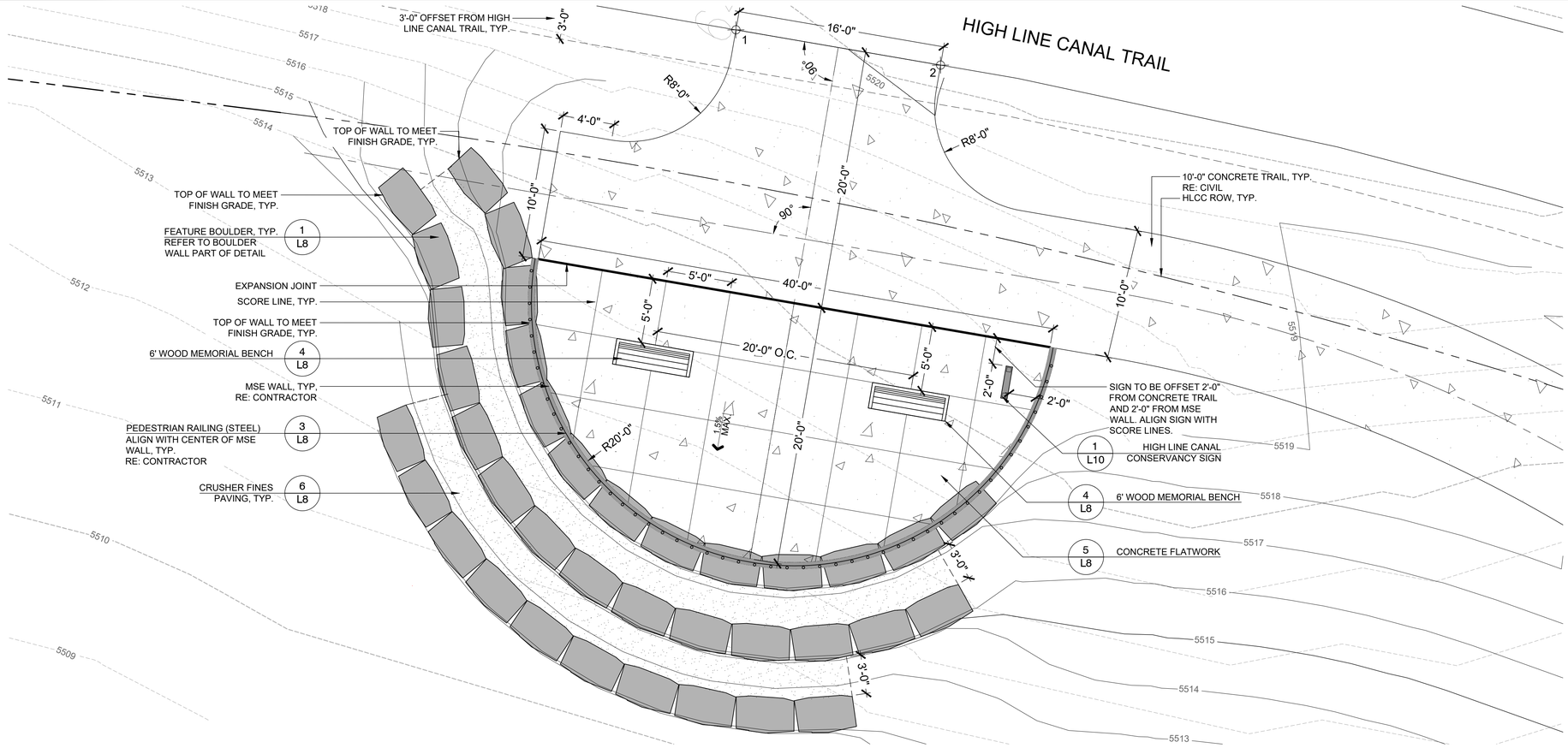
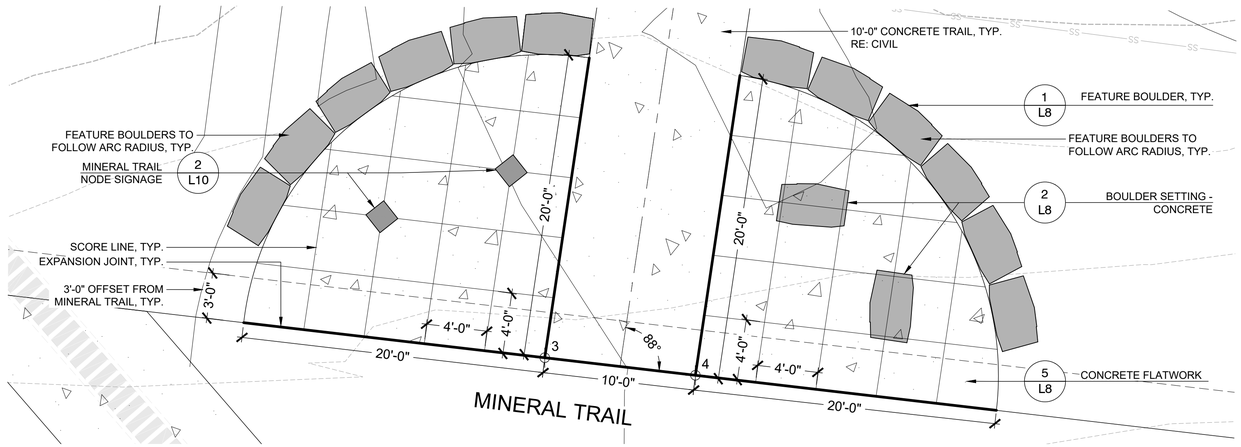
JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
LANDSCAPE NOTES

Sheet L6

Date JANUARY 21, 2025



1 OVERLOOK ENLARGEMENT
1" = 5'



2 MINERAL TRAIL NODE ENLARGEMENT
1" = 5'

NORTH

CALL UTILITY NOTIFICATION CENTER OF COLORADO
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OVERLOOK NOTES
1. OVERLOOK CONCRETE TO ALIGN WITH CONCRETE TRAIL AND MAINTAIN FINISH GRADE WITH CONCRETE TRAIL FOR ADA ACCESS.
2. MAINTAIN 1.5% SLOPE ACROSS THE OVERLOOK CONCRETE AS SHOWN IN THE ENLARGEMENT.
3. SIGNAGE TO BE PROVIDED WITH SEPARATE PACKAGE FOR INSTALL.
4. REFER TO CIVIL GRADING PLANS FOR FINISH GRADES.
5. CONTRACTOR TO VERIFY OVERLOOK LAYOUT WITH STAKING FOR APPROVAL BEFORE INSTALLATION.

NORTHING/EASTING POINT SCHEDULE

POINT	DESCRIPTION	NORTHING	EASTING
1	CONCRETE TRAIL INTERSECTION WITH EXIST. CONCRETE TRAIL	N 635736.6	E 138385.9
2	CONCRETE TRAIL INTERSECTION WITH EXIST. CONCRETE TRAIL	N 635721.6	E 138391.5
3	CONCRETE TRAIL INTERSECTION WITH EXIST. CONCRETE TRAIL	N 635357.7	E 138104.9
4	CONCRETE TRAIL INTERSECTION WITH EXIST. CONCRETE TRAIL	N 635348.5	E 138108.8

MINERAL TRAIL NODE NOTES
1. PLACE BOULDERS ALONG EDGE OF CONCRETE CURB AND SELECT FLAT BOULDERS FOR SEATING.
2. CONTRACTOR TO VERIFY TRAIL NODE LAYOUT WITH STAKING FOR APPROVAL BEFORE INSTALLATION.
3. SIGNAGE TO BE PROVIDED WITH SEPARATE PACKAGE FOR INSTALL. CONTRACTOR TO VERIFY ALL SIGN FOOTING LOCATIONS SHALL NOT CONFLICT WITH ANY EXISTING OR PROPOSED UTILITIES.
4. REFER TO CIVIL GRADING PLANS FOR FINISH GRADES.

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

VALERIAN
Landscape Architecture | Urban Design
Irrigation Design | Planning

Drawing Name: LANDSCAPE DETAILS
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: SS | Drafter: BR | Checked: SS

STACEY E. STICKLER 654 — Original Date of Seal: 11/25/2008 — 12.5.2024 — STATE OF COLORADO — LICENSED LANDSCAPE ARCHITECT

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
LANDSCAPE DETAILS

Sheet L7 of 63
Date: JANUARY 21, 2025

PATH: C:\USERS\STACEY\VALERIAN DROPBOX\VALERIAN TEAM FOLDER\PROJECTS\20-064_CALIBRE_JACKASS GULCH\2-WORKING\2024-12-06_90% RESUBMITTAL\20-064_L7_LANDSCAPE DETAILS.DWG
PLOTTED BY: STACEY PLOT DATE: 12/9/2024 5:03 PM
XREFS:

CALL UTILITY NOTIFICATION
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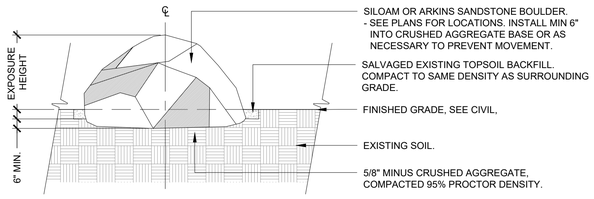
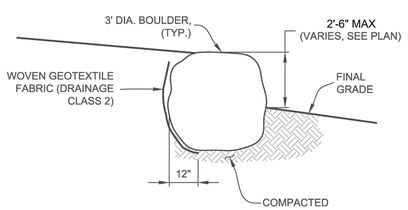
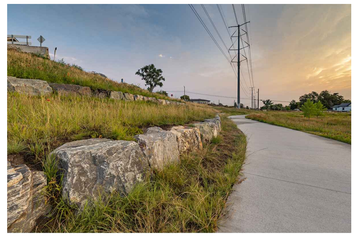
1.800.922.1987
CALL 2- BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

NOTE:
1. BOULDERS SHALL BE SILOAM OR ARKINS SANDSTONE.
2. OWNER SHALL SELECT AND APPROVE BOULDERS PRIOR TO CONSTRUCTION.
3. OWNER SHALL APPROVE FINAL LOCATION, POSITION AND EXPOSURE HEIGHT PRIOR TO SETTING OF BOULDERS.
4. SIZE: 30"-42" OR APPROXIMATELY 1-2 TON BOULDERS.





BOULDER WALL

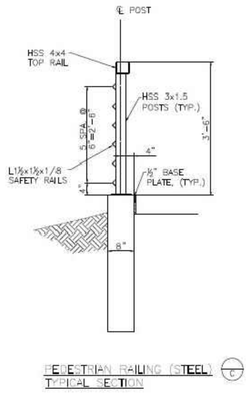


1 FEATURE BOULDER
1/4" = 1'-0"

PEDESTRIAN RAILING NOTES:
1. RAILINGS SHALL BE FABRICATED TO FIT THE TOP OF THE WALL
2. RAILING ELEMENTS SHALL BE WEATHERING STEEL:
   2.1. HSS SECTIONS: ASTM A847, Fy = 50ksi
   2.2. STEEL SHAPES: ASTM A588, Fy = 50ksi
   2.3. STEEL PLATES: ASTM A588, Fy = 50ksi

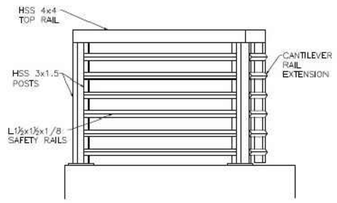
NOTE:
1. BOULDERS SHALL BE SILOAM OR ARKINS SANDSTONE.
2. OWNER SHALL SELECT AND APPROVE BOULDERS PRIOR TO CONSTRUCTION.
3. OWNER SHALL APPROVE FINAL LOCATION, POSITION AND EXPOSURE HEIGHT PRIOR TO SETTING OF BOULDERS.
4. SIZE: 30"-42" OR APPROXIMATELY 1-2 TON BOULDERS.
5. SET BOULDERS PRIOR TO CONCRETE FLATWORK, PROVIDE ISOLATION JOINT AND FILL WITH FLEXIBLE CAULKING, COLOR TO MATCH CONCRETE, OWNER SHALL APPROVE COLOR.

2 BOULDER SETTING - CONCRETE
1/4" = 1'-0"



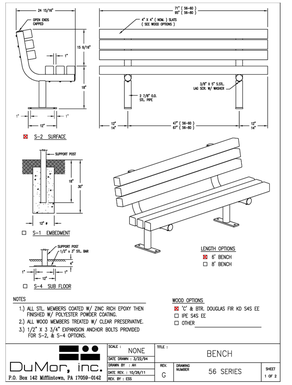
PEDESTRIAN RAILING (STEEL) TYPICAL SECTION 6

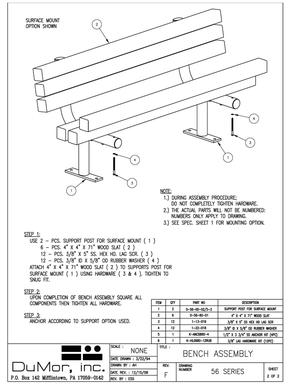
3 PEDESTRIAN RAILING (STEEL)
1/2" = 1'-0"



PEDESTRIAN RAILING (STEEL) ELEVATION 6

NOTE:
1. THIS IS AN HLCC STANDARD RAIL. DEFERRED SUBMITTAL FINAL DESIGN & DETAILING TO BE PROVIDED BY CONTRACTOR.



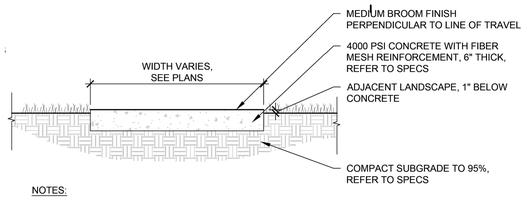


REFERENCE IMAGE

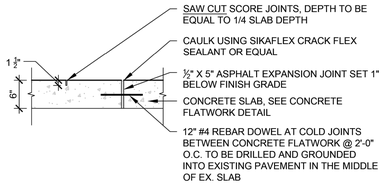
NOTE:
1. STEEL TO BE POWDER COATED COLOR BRONZE

BRONZE

4 6' WOOD MEMORIAL BENCH
N.T.S.



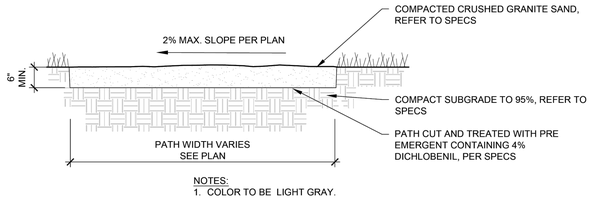
NOTES:
1. INSTALL CONTROL JOINTS AND EXPANSION JOINTS PER SPECIFICATIONS AND PLANS. SEE JOINT DETAIL.
2. CROSS-SLOPE TO DRAIN AT 2% MAX. OR AS SHOWN ON PLANS.



NOTES:
SAWCUTS ARE REQUIRED ON ALL TRAILS.

5 CONCRETE FLATWORK
NTS

CONCRETE FLATWORK TO BE USED IN THE OVERLOOK. SEE SHEET L7.



NOTES:
1. COLOR TO BE LIGHT GRAY.

6 CRUSHER FINES PAVING
NTS

CRUSHER FINES TO BE USED AT THE OVERLOOK BOULDER WALL AND 5' TRAIL. SEE SHEETS L4 AND L7.

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

VALERIAN
Landscape Architecture | Urban Design
Irrigation Design | Planning

Drawing Name: LANDSCAPE DETAILS
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: SS | Drafter: BR | Checked: SS

STACEY E. STICKLER 654 — Original Date of Licensure 11/09/2009 — 12.5.2024 — STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

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Highlands Ranch, CO 80129 (303) 730-0434
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Construction Management Civil Engineering Surveying

JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
LANDSCAPE DETAILS

Sheet L8 of 63
Date JANUARY 21, 2025

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PLOTTED BY: STACEY PLOT DATE: 12/9/2024 5:03 PM
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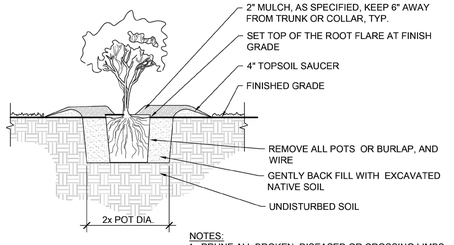
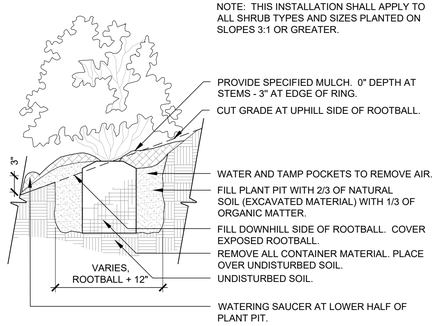
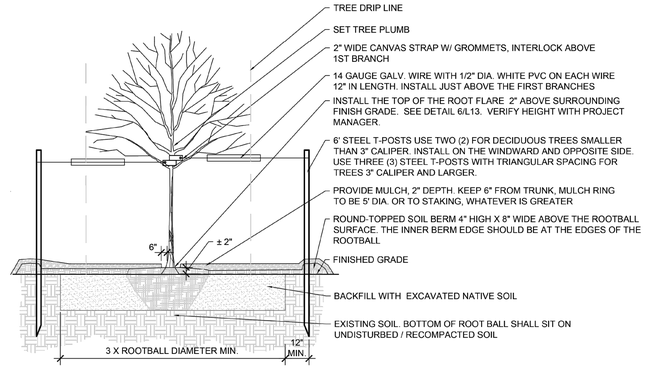


NOTES:
1. PRUNE ALL BROKEN, DISEASED OR CROSSING LIMBS.
2. CLEANLY PRUNE ALL DAMAGED ROOT ENDS.
3. DO NOT ALLOW ROOTS TO DRY OUT DURING INSTALLATION PROCESS.
4. DEEP WATER AFTER PLANTING.
5. MULCH TO BE 'NATURAL WOOD MULCH' FROM A-1 ORGANICS.

1 SHRUB PLANTING
NTS SC-24



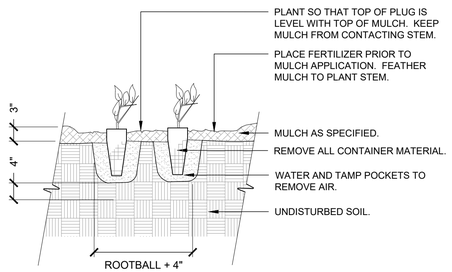
2 SHRUB PLANTING ON SLOPE
1 1/2" = 1'-0" 329333.13-15



NOTES:
1. PRUNE ALL BROKEN, DISEASED OR CROSSING LIMBS.
2. CLEANLY PRUNE ALL DAMAGED ROOT ENDS.
3. DO NOT ALLOW ROOTS TO DRY OUT DURING INSTALLATION PROCESS.
4. DEEP WATER AFTER PLANTING. DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING.
5. WRAP DECIDUOUS TREES PER SPECIFICATIONS (EXCLUDES COTTONWOOD TREES).
6. MULCH TO BE 'NATURAL WOOD MULCH' FROM A-1 ORGANICS.
7. FOR B&B TREES COMPLETELY REMOVE ALL WIRE BASKET, ALL TWINE AND ALL BURLAP FROM THE TREE'S ROOT BALL AT PLANTING. REMOVE ALL TWINE, PROTECTIVE SLEEVES, BAMBOO STAKES, HORTICULTURAL TAPE, FLAGGING AND/OR OTHER MATERIAL USED DURING TRANSPORT OR AT THE NURSERY.
8. THE TREE IDENTIFICATION TAG W/ TREE SPECIES INFORMATION SHALL BE LEFT ON THE TREE FOR FORESTRY OR HORTICULTURE STAFF TO REMOVE.
9. STEEL T- POSTS AND GUY WIRES TO BE REMOVED AT END OF WARRANTY PERIOD.

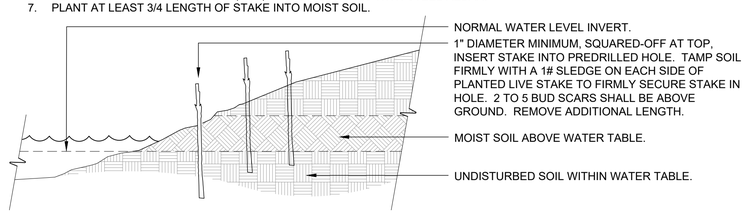
3 DECIDUOUS TREE
NTS 329343.39-09

NOTE:
1. DO NOT CUT LEADER AND PRUNE ALL DAMAGED OR DEAD WOOD AFTER PLANTING, STAKING AND MULCHING.
2. REMOVE ALL PLANTING LABELS AFTER FINAL ACCEPTANCE BY LANDSCAPE ARCHITECT.

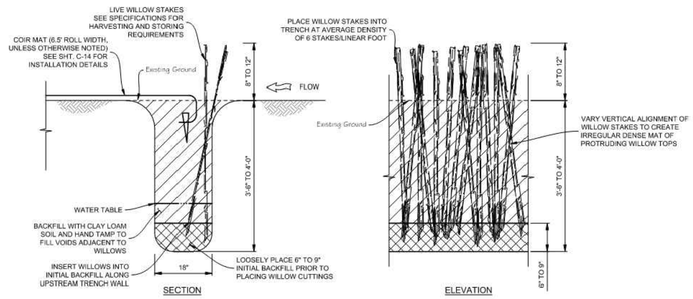


4 PLUG PLANTING
3/4" = 1'-0" 329333.93-91

NOTE:
1. HARVEST AND PLANT WILLOW LIVE STAKES DURING DORMANT SEASON.
2. USE HEALTHY, STRAIGHT, AND LIVE WOOD AT 2 TO 3 YEARS OLD.
3. MAKE CLEAN CUTS AND DO NOT DAMAGE STAKES OR SPLIT ENDS DURING INSTALLATION.
4. SOAK CUTTINGS FOR 24 HOURS (MIN.) PRIOR TO INSTALLATION.
5. STORE CUT WILLOWS WITH LOWER ENDS IN WATER FOR NO LONGER THAN 7 DAYS BEFORE PLANTING.
6. LENGTH OF STAKES SHALL BE 2' (MIN.). PRE-DRILL HOLES WITH STEEL REBAR.
7. PLANT AT LEAST 3/4 LENGTH OF STAKE INTO MOIST SOIL.

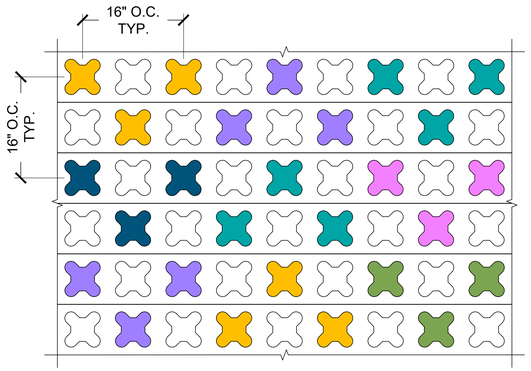


5 WILLOW LIVE STAKE (WLS)
N.T.S. 329350-27



WILLOW TRENCH DETAILS

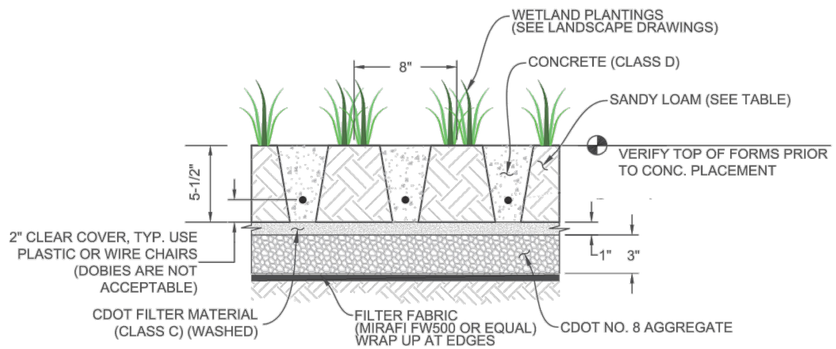
6 WILLOW TRENCH
N.T.S.



LEGEND
- PLUG SPECIES 1
- PLUG SPECIES 2
- PLUG SPECIES 3
- PLUG SPECIES 4
- PLUG SPECIES 5
- PLUG SPECIES 6

NOTES:
1. PLUGS SHOULD BE TRIANGULATED IN GROUPS OF 3I GROUPS OF SPECIES SHOULD VARY. PLANT EVERY OTHER GRASSCRETE VOID IN A ROW. ALTERNATE FOR ADJACENT ROWS. REPEAT PATTERN.
2. IF THERE ARE EXCESS PLUGS AFTER ENTIRE GRASSCRETE IS PLANTED, FILL IN SKIPPED VOIDS.
3. REFER TO CIVIL FOR GRASSCRETE DETAIL.

7 GRASSCRETE PLUG PLANTING
N.T.S.



GRASSCRETE SLAB TYPICAL SECTION

SANDY LOAM		
TEXTURAL CLASS/USDA DESIGNATION	SIZE (MM)	% OF TOTAL WEIGHT
GRAVEL	> 2	< 5
SAND	0.05 - 2	70 - 80
SILT	0.002 - 0.05	15 - 20
CLAY	< 0.002	< 5

P-JA-01

DATE	REVISION DESCRIPTION
01/21/25	1 HIGH LINE CANAL REVISIONS

VALERIAN
Landscape Architecture | Urban Design
Irrigation Design | Planning

Drawing Name: LANDSCAPE DETAILS
Job Number:
Prepared For: MILE HIGH FLOOD DISTRICT
Designer: SS | Drafter: BR | Checked: SS

STACEY E. STICKLER 654 — 11/25/2008 — Original Date of Licensure — 12.5.2024 — STATE OF COLORADO — LICENSED LANDSCAPE ARCHITECT

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
LANDSCAPE DETAILS

Sheet L9 of 63
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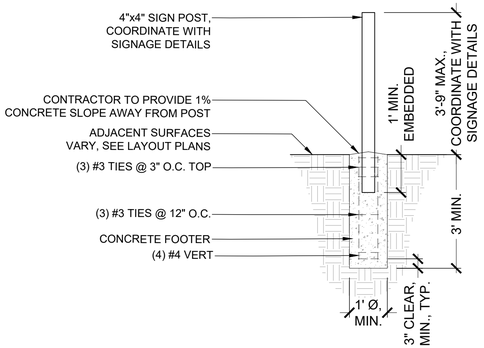
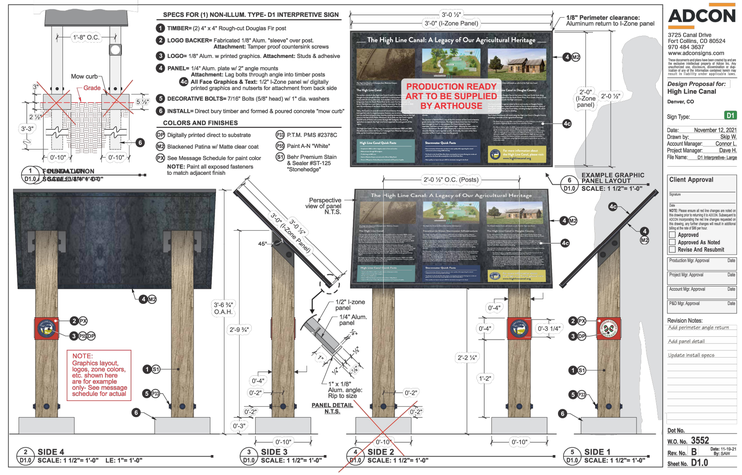
PLOTTED BY: STACEY PLOT DATE: 12/9/2024 5:01 PM
XREFS:

NOTE:
FOR INFORMATION ONLY. LOGOS AND SIGN PANEL TO BE PROVIDED TO CONTRACTOR.

NOTES:
1. FOOTING HOLE TO BE AT LEAST 36" BELOW FINISHED GRADE, AND MUST EXTEND TO THE FROST LINE.
2. THE DIAMETER OF THE FOOTING HOLE MUST BE AT LEAST 8" LARGER THAN THE WIDTH OF THE COLUMN.
3. RESTORE ADJACENT SURFACING TO PRE-CONSTRUCTION CONDITION UNLESS OTHERWISE SPECIFIED.
4. ALL EXPOSED STEEL AND FASTENERS TO BE HOT-DIPPED GALVANIZED
5. CONTRACTOR TO SUBMIT PAINT SYSTEM COMPATIBLE WITH HOT-DIPPED GALVANIZED COATING.



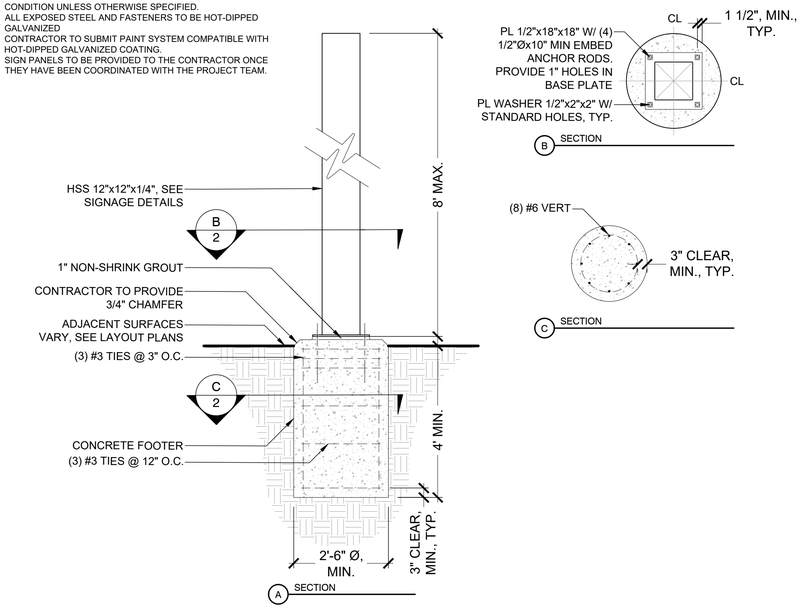
A OVERLOOK SIGNAGE POST
1/2" = 1'-0"



B

1 HIGH LINE CANAL CONSERVANCY SIGN

NOTES:
1. FOOTING HOLE TO BE AT LEAST 48" BELOW FINISHED GRADE, AND MUST EXTEND TO THE FROST LINE.
2. BEVEL TOP EDGES OF CONCRETE FOOTING.
3. RESTORE ADJACENT SURFACING TO PRE-CONSTRUCTION CONDITION UNLESS OTHERWISE SPECIFIED.
4. ALL EXPOSED STEEL AND FASTENERS TO BE HOT-DIPPED GALVANIZED
5. CONTRACTOR TO SUBMIT PAINT SYSTEM COMPATIBLE WITH HOT-DIPPED GALVANIZED COATING.
6. SIGN PANELS TO BE PROVIDED TO THE CONTRACTOR ONCE THEY HAVE BEEN COORDINATED WITH THE PROJECT TEAM.



2 MINERAL TRAIL NODE SIGNAGE
1/2" = 1'-0"

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3725 Canal Drive
Fort Collins, CO 80524
970 484 3837
www.adconsigns.com
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High Line Canal
Denver, CO
Sign Type: D1
Date: November 12, 2021
Drawn by: Skip W.
Account Manager: Connor L.
Project Manager: Dave H.
File Name: ....01 Interpretive Large

Client Approval
Signature
Title
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Project Mgr. Approval Date
Account Mgr. Approval Date
R&D Mgr. Approval Date
Revision Notes:
Add perimeter angle return
Add panel detail
Update install specs
Dgn No.
W.O. No. 3552
Rev. No. B Date: 11-19-21 By: DAVE
Sheet No. D1.0

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Landscape Architecture | Urban Design
Irrigation Design | Planning

Drawing Name: SIGNAGE DETAILS			
Job Number			
Prepared For: MILE HIGH FLOOD DISTRICT	Designer: SS	Drafter: BR	Checked: SS

COLORADO LICENSED EDWARD CHARLES SIMPSON 44980 PROFESSIONAL ENGINEER 12/9/24

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JACKASS GULCH
POND AND STABILIZATION IMPROVEMENTS
SIGNAGE DETAILS

Sheet L10 of 63
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