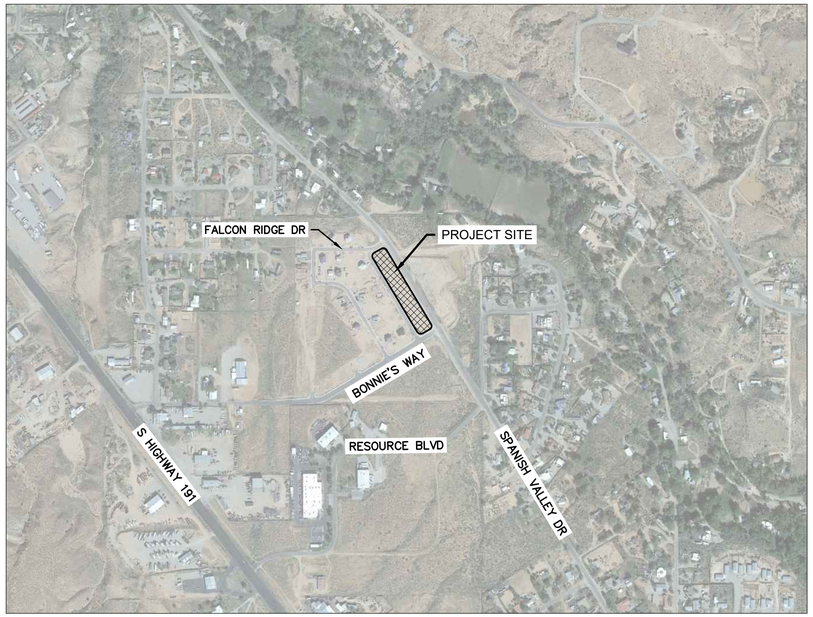
ARROYO CROSSING - TRACT E TOWNHOMES
PLAT AMENDMENT APPLICATION
GRAND COUNTY, UTAH
CIVIL PLANS



VICINITY MAP
NTS

SHEET LIST TABLE		
SHEET NO.	PLAN NO.	DESCRIPTION
C001	1	COVER SHEET
C002	2	NOTES SHEET
C100	3	SITE PLAN
C200	4	UTILITY PLAN
C300	5	GRADING PLAN
C401	6	GWSSA DETAILS
C402	7	GWSSA DETAILS
C403	8	GWSSA DETAILS

OWNER
MOAB AREA COMMUNITY LAND TRUST
PO BOX 1383
MOAB, UTAH 84532
435-261-2528

DEVELOPER
HOUSING AUTHORITY OF SOUTHEASTERN UTAH
321 E CENTER ST
MOAB, UTAH 84532
435-259-5891

SURVEYOR
RED DESERT LAND SURVEYING
30 SOUTH 100 EAST, SUITE 2
MOAB, UTAH 84532
LUCAS BLAKE
435-259-8171

ARCHITECT
ARCHITECTURAL SQUARED
PO BOX 1153
MOAB, UTAH 84532
COURTNEY KIZER
512-656-1745

CIVIL ENGINEER
SET ENGINEERING, LLC
301 FOURTH E STREET, #207
MOAB, UT 84532
JEFF PILLUS
970-403-5088

UTILITIES
ROCKY MOUNTAIN POWER
888-221-7070

DOMINION ENERGY (GAS)
866-366-4357

GRAND WATER AND SEWER SERVICES AGENCY
435-259-8121

GRAND COUNTY (STORM DRAIN AND ROADS)
435-259-5308

GEOTECH
TBD

PROPOSED SITE PLAN:

FOUR UNIT TOWNHOME:	1
FIVE UNIT TOWNHOME:	1
SIX UNIT TOWNHOME:	3
THREE-BEDROOM TOWNHOME UNITS:	27

LEGAL DESCRIPTION & BASIS OF BEARINGS:
TRACT E ARROYO CROSSING PHASE 1

THE BASIS OF BEARING PER RED DESERT LAND SURVEYING SUBDIVISION PLAT #541291

LAND USE DATA:

PARCEL ID'S:	02-0ARR-0204
ZONE:	PER ARROYO CROSSING MASTER PLAN
GROSS LAND AREA:	1.60 AC. ±

SETBACKS:

10' FRONT & STREET SIDE YARD
10' INTERIOR SIDE YARD
10' REAR YARD

EASEMENTS:

PROPOSED 15' PUBLIC UTILITY EASEMENT ON THE WESTERN PORTION OF THE PROPERTY ABUTTING GOLDEN EAGLE WAY.
EXISTING 10' PUBLIC UTILITY EASEMENT SURROUNDING THE REST OF THE SITE PER ARROYO CROSSING PHASE 1 FINAL PLAT.
EXISTING 30' STORM DRAIN EASEMENT BETWEEN BUILDING UNITS 4 AND 5.

Know what's below. Call 811 before you dig.
BLUE STAKES OF UTAH
UTILITY NOTIFICATION CENTER, INC.
www.bluestakes.org
1-800-662-4111

GWWSA APPROVAL:

SIGNATURE DATE

Revisions:

#	DATE	DESCRIPTION
1	4/12/24	REVISED SEWER SERVICES AND MANHOLE LOCATIONS ON SHEET C200

ARROYO CROSSING - TRACT E TOWNHOMES
PLAT AMENDMENT SUBMITTAL

COVER SHEET

GRAND COUNTY, UTAH

CIVIL ENGINEERING
1309 E. 3rd Ave., #206
Durango, CO 81301
970-403-5088

PLAN NO.
C001

Sheet 1 of 8
Project:2023-001
Date: 02/22/2024
Drawn By: DWF
Checked By: JAG

PROFESSIONAL ENGINEER
No. 8002240-2202
JEFFREY M. PILLUS
3/5/2024
STATE OF UTAH

c:\users\dustinfry\set engineering, llc dropbox\current projects\2023-001 arroyo tract e townhomes\cad\plotsheets\cover sheet.dwg — 4/12/2024 11:26 AM

GENERAL NOTES

1. ALL WORK SHALL BE CONSTRUCTED ACCORDING TO THE MOST RECENTLY ADOPTED VERSION OF STANDARDS AND SPECIFICATIONS OF GRAND COUNTY, UTAH APWA, GWSSA, LOCAL UTILITY PROVIDERS, AND PROJECT CIVIL ENGINEER AND GEOTECHNICAL ENGINEER.
2. THE CONTRACTOR SHALL CONTACT THE APPROPRIATE AGENCIES FOR LOCATION OF UNDERGROUND WATER, SEWER, GAS, ELECTRIC, TELEPHONE, IRRIGATION, SECONDARY WATER, FIBER OPTIC, AND CABLE TV UTILITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION. EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE ONLY, AND ALL EXISTING LINES MAY NOT BE SHOWN.
3. THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT ALL TIMES ONE (1) SIGNED COPY OF PLANS AND SPECIFICATIONS BEARING GRAND COUNTY STAMP OF APPROVAL.
4. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS PRIOR TO THE COMMENCEMENT OF ANY WORK ON THE PROJECT.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE OWNER/DEVELOPER OF ANY PROBLEMS IN CONFORMING TO THE APPROVED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.
6. THE CONTRACTOR SHALL REPAIR OR REPLACE THE EXISTING SITE AND LANDSCAPING, IN KIND, THAT WAS REMOVED OR DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL GUARANTEE SAID REPAIRS FOR ONE (1) YEAR AFTER THE FINAL ACCEPTANCE OF CONSTRUCTION.
7. THE OWNER/DEVELOPER SHALL BE THE RESPONSIBLE PARTY DURING CONSTRUCTION ACTIVITIES TO RESOLVE CONSTRUCTION PROBLEMS DUE TO CHANGED CONDITIONS OR DESIGN ERRORS ENCOUNTERED BY THE CONTRACTOR DURING THE PROGRESS OF ANY PORTION OF THE PROPOSED WORK.
8. IF THE MODIFICATIONS PROPOSED BY THE DEVELOPER TO THE APPROVED PLANS INVOLVE SIGNIFICANT CHANGES TO THE CHARACTER OF THE WORK OR TO FUTURE CONTIGUOUS PUBLIC OR PRIVATE IMPROVEMENTS, THE DEVELOPER SHALL BE RESPONSIBLE FOR SUBMITTING REVISED PLANS TO THE APPROPRIATE AGENCIES FOR APPROVAL PRIOR TO ANY FURTHER CONSTRUCTION RELATED TO THAT PORTION OF THE WORK.
9. ANY IMPROVEMENTS CONSTRUCTED NOT IN ACCORDANCE WITH THE APPROVED PLANS OR THE APPROVED REVISED PLANS, SHALL BE REMOVED AND THE IMPROVEMENTS SHALL BE RECONSTRUCTED ACCORDING TO THE APPROVED PLANS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COPY OF "RECORD DRAWING" PLANS TO THE ENGINEER OF WORK PRIOR TO ACCEPTANCE
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF RESETTING ALL DISTURBED SURVEY MONUMENTS BY A UTAH LICENSED P.L.S. WITHIN 30 DAYS OF PROJECT COMPLETION.
12. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
13. THE DUTY OF THE OWNER'S REPRESENTATIVE TO CONDUCT CONSTRUCTION REVIEW OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.
14. ALL EXISTING IMPROVEMENTS SHALL BE PROTECTED IN PLACE UNLESS OTHERWISE NOTED.

GRADING, DRAINAGE, AND EROSION CONTROL NOTES

1. ALL EARTHWORK SHALL COMPLY WITH THE GEOTECHNICAL ENGINEER'S SPECIFICATIONS.
2. SITE WORK CONTRACTOR MUST PREPARE A CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN AND FILE A NOTICE OF INTENT WITH UTAH DIVISION OF WATER QUALITY PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
3. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE PROPERTY LIMITS DUE TO GRADING OR EROSION SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR.
4. ANY CONSTRUCTION DEBRIS OR MUD TRACKING IN THE PUBLIC RIGHT-OF-WAY SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR. THE CONTRACTOR SHALL IMMEDIATELY FIX ANY EXCAVATIONS OR EXCESSIVE PAVEMENT FAILURES CAUSED BY THE DEVELOPMENT AND SHALL PROPERLY BARRICADE THE SITE UNTIL CONSTRUCTION IS COMPLETE.
5. THE PLACEMENT OF FILL MATERIALS MUST BE VERY CLOSELY MONITORED TO VERIFY THAT THE FILL MATERIALS ARE OF GOOD QUALITY, INCLUDING BEING FREE OF GYPSUM AND OR OTHER POOR-QUALITY MATERIALS, AND ARE COMPACTED SUFFICIENTLY.
6. A QUALIFIED GEOTECHNICAL ENGINEER SHOULD OVERSEE THE PLACEMENT OF FILL MATERIALS TO VERIFY THAT LIFT THICKNESSES, MOISTURE CONDITIONING, AND COMPACTION EFFORT IS MAINTAINED THROUGHOUT THE ENTIRE FILL PLACEMENT OPERATIONS. COMPACTION TESTS SHOULD BE PERFORMED ON EACH LIFT OF MATERIAL PLACED IN AREAS PROPOSED FOR SUPPORT OF STRUCTURAL COMPONENTS.
7. ALL DISTURBED AREAS SHALL BE RESEEDED AND THE VEGETATION ESTABLISHED TO AT LEAST 70% COVERAGE PRIOR TO FINAL APPROVAL PER STATE SWPPP REQUIREMENTS AS VERIFIED AND ENFORCED BY THE PROPERTY OWNER.

STREET CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY IN ACCORDANCE WITH THE CURRENT MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
2. THE CONTRACTOR SHALL PROVIDE INGRESS AND EGRESS TO PRIVATE PROPERTY ADJACENT TO THE WORK THROUGHOUT THE PERIOD OF CONSTRUCTION.
3. PRIOR TO FINAL PLACEMENT OF SURFACE PAVEMENT, ALL UNDERGROUND UTILITY MAINS SHALL BE INSTALLED AND SERVICE CONNECTIONS STUBBED OUT TO BEYOND CURB LINE OR SHOULDER WHEN ALLOWED BY THE UTILITY.
4. SERVICE FROM PUBLIC UTILITIES AND FROM SANITARY SEWERS SHALL BE MADE AVAILABLE FOR EACH LOT IN SUCH A MANNER THAT WILL NOT BE NECESSARY TO DISTURB THE STREET PAVEMENT, CURB, GUTTER, AND SIDEWALK WHEN CONNECTIONS ARE MADE.
5. CONTRACTOR SHALL RELOCATE STREET SIGNS TEMPORARILY DURING CONSTRUCTION, THEN REPLACE AS REQUIRED, INCLUDING T-LOCK BASE, METAL POST, MOUNTING HARDWARE, ETC.

UTILITY NOTES

1. ALL WATER, IRRIGATION, AND SEWER WORK SHALL BE COMPLETED PER GWSSA CONSTRUCTION STANDARDS.
2. ALL WATER PIPE BENDS AND TEES SHALL HAVE CONCRETE THRUST BLOCKS IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS. ALL CONCRETE THRUST BLOCKS SHALL BE 3,000 PSI MINIMUM COMPRESSIVE STRENGTH PLANT REDI-MIX DELIVERED TO THE SITE BY TRUCK.
3. ALL VERTICAL BENDS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED.
4. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY PUBLIC OR PRIVATE IMPROVEMENTS, IN KIND, INCLUDING, BUT NOT LIMITED TO: RESIDENTIAL SERVICES, WATER LINES, SEWER LINES, STORM DRAINS, ETC., THAT WERE REMOVED OR DAMAGED DURING CONSTRUCTION.
5. THE CONTRACTOR MAY TEMPORARILY BACKFILL TRENCHES TO THE EXISTING ROADWAY SURFACE WITH APPROVED ROAD BASE, PROVIDING A SMOOTH DRIVING SURFACE. IN THIS MANNER THE CONTRACTOR CAN ASPHALT PAVE LARGE SECTIONS OF TRENCH AT ONE TIME WHILE STILL PROVIDING A USABLE ROADWAY.
6. WHERE CONSTRUCTION OCCURS IN OR ACROSS ASPHALT OR CONCRETE PAVEMENT, SAW CUT THE PAVEMENT FOR A CLEAN STRAIGHT EDGE 6" OUTSIDE THE TRENCH LIMITS TO ALLOW CLEAN REMOVAL AND A GOOD SURFACE FOR PROPER PATCHING.
7. ALL PAVEMENT SAW CUTS SHALL BE 90° TO ONE ANOTHER.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ALL EXISTING ASPHALT FROM CONSTRUCTION EQUIPMENT. DAMAGED ASPHALT SHALL BE REPLACED BY THE CONTRACTOR AT HIS EXPENSE.
9. SEWER INVERTS, PIPE LENGTHS, AND SLOPES SHOWN ARE TO 24" OFFSET FROM CENTER OF MANHOLE, COINCIDENT WITH INNER WALL OF 48" MANHOLES.

LEGEND:

LINETYPE/HATCH — DESCRIPTION

EXISTING CONDITIONS:

- EXISTING ROAD CENTERLINE
- EXISTING CONCRETE
- EXISTING FLOWLINE
- EXISTING EASEMENT BOUNDARY
- EXISTING FENCE
- EXISTING GAS LINE
- EXISTING A.C. PAVEMENT
- EXISTING CONCRETE PAVEMENT
- EXISTING GRAVEL
- EXISTING IRRIGATION LINE
- EXISTING VEGETATION
- EXISTING PROPERTY BOUNDARY
- EXISTING POWER
- EXISTING RAILROAD
- EXISTING ASPHALT PAVEMENT EDGE
- EXISTING RIGHT-OF-WAY BOUNDARY
- EXISTING SEWER (GENERIC OR SERVICE LINE)
- EXISTING SEWER MAIN
- EXISTING STORM DRAIN
- EXISTING TELECOMM
- EXISTING COMBINATION OVERHEAD POWER/CABLE/FIBER
- EXISTING COMBINATION OVERHEAD POWER/CATV
- EXISTING COMBINATION OVERHEAD POWER/TELECOMM
- EXISTING LANDSCAPE WALL
- EXISTING WATER MAIN
- EXISTING WATER SERVICE LINE
- EXISTING ITEM TO BE DEMOLISHED/REMOVED/RELOCATED (PER PLAN)
- EXISTING CONTOUR (LABELED W/ ELEVATIONS)

PROPOSED IMPROVEMENTS:

- PROPOSED CONTOUR (LABELED W/ ELEVATIONS)
- CENTERLINE/ALIGNMENT W/ STATIONING
- A.C. PAVEMENT
- CONCRETE PAVEMENT
- FLOWLINE (DIRECTION DENOTED W/ ARROWS)
- EASEMENT/SETBACK BOUNDARY
- FENCE
- GAS MAIN
- EXISTING IRRIGATION LINE
- PROPERTY BOUNDARY
- POWER (UNDERGROUND)
- POWER (OVERHEAD)
- PAVEMENT MARKING
- RIGHT-OF-WAY BOUNDARY
- SEWER SERVICE LINE (SIZE DENOTED)
- SEWER MAIN (PER PLAN & PROFILE)
- STORM DRAIN (PER PLAN & PROFILE)
- TELECOMM
- COMBINATION OVERHEAD ELECTRIC/CABLE/FIBER
- COMBINATION OVERHEAD ELECTRIC/CATV
- COMBINATION OVERHEAD ELECTRIC/TELECOMM
- WATER MAIN (SIZE DENOTED)
- WATER SERVICE (PER PLAN)
- BUILDING/STRUCTURE
- DEEPENED FOOTING/WALL
- REVISION CLOUD & TRIANGLE (REV. # DENOTED)

SYMBOL LEGEND:

- PROPERTY PIN
- BENCHMARK
- WATER MANHOLE
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- WATER WELL
- WATER SHUT-OFF
- WATER LINE CAP
- WATER SPRINKLER
- WATER SPIGOT
- SEWER MANHOLE
- SEWER CLEANOUT
- GAS VALVE
- STORM DRAIN MANHOLE
- STORM DRAIN FLARED END SECTION
- STORM DRAIN AREA INLET
- STORM DRAIN CURB INLET
- POWER MANHOLE
- LIGHT POLE
- LUMINAIRE
- TRANSFORMER
- GUY WIRE
- TELECOMM PEDESTAL
- TELECOMM MANHOLE
- MAILBOX
- SIGN
- BOULDER
- ADA PARKING SPACE MARKING
- PEDESTRIAN RAMP
- CONIFEROUS TREE
- DECIDUOUS TREE

NOTATION LEGEND:

- ℄ = CENTERLINE
- (E) = EXISTING
- EG = EXISTING GRADE
- FG = FINISH GRADE
- FL = FLOWLINE
- IE = INVERT ELEVATION
- BOP = BOTTOM OF PIPE
- TOP = TOP OF PIPE
- BTM = BOTTOM
- GB = GRADE BREAK
- TBC/FOC = TOP BACK OF CURB/FACE OF CURB
- BFE = BASE FLOOD ELEVATION
- BFE(I) = BASE FLOOD ELEVATION INTERPOLATED
- FF = FINISH FLOOR
- R/W = RIGHT-OF-WAY
- 29 = LOT, TRACT, OR UNIT NUMBER
- TH = TWIN-HOME LOT
- SF = SINGLE-FAMILY LOT
- EOP/A/C/G = EDGE OF PVMT/ASPHALT/CONCRETE/GRAVEL
- FS = FINISHED SURFACE
- PUE = PUBLIC UTILITY EASEMENT

Revisions:

#	DATE	DESCRIPTION

ARROYO CROSSING - TRACT E TOWNHOMES
PLAT AMENDMENT SUBMITTAL

NOTES SHEET

GRAND COUNTY, UTAH

CIVIL ENGINEERING
1309 E. 3rd Ave., #206
Durango, CO 81301
970-403-5088

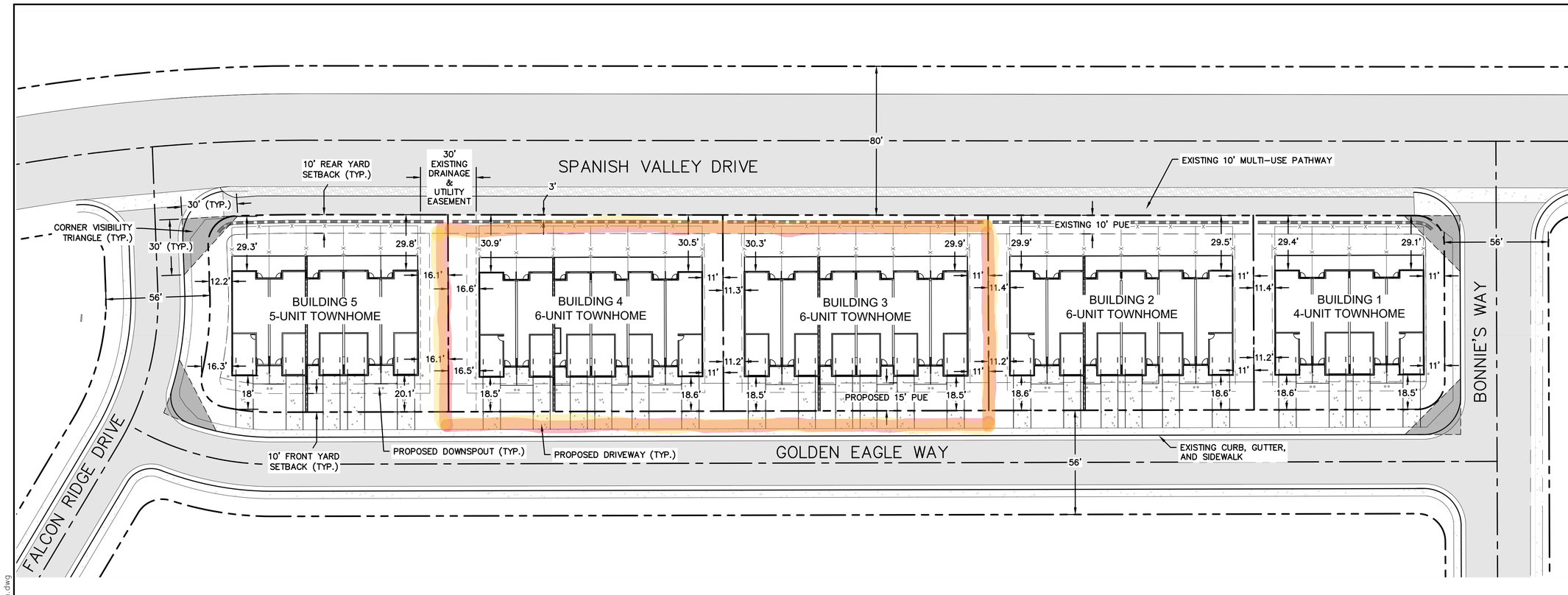
PLAN NO.

C002

Sheet 2 of 8
Project:2023-001
Date: 01/29/2024
Drawn By: DWF
Checked By: JAG

PROFESSIONAL ENGINEER
No. 8002240-2202
JEFFREY M. PILLUS
3/5/2024
STATE OF UTAH

c:\Users\dustinfr\set engineering, llc dropbox\current projects\2023-001 arroyo tract e townhomes\cad\plansheets\cover sheet.dwg — 1/29/2024 4:54 PM



NOTES:

PARCEL ID: 02-0ARR-0204

PARCEL AREA: 1.6 ACRES

LEGAL DESCRIPTION: TRACT E ARROYO CROSSING PHASE 1

SETBACKS:

1. 10' FRONT & STREET SIDE YARD
2. 10' SIDE YARD
3. 10' REAR YARD

EASEMENTS:

1. 15' PUBLIC UTILITY EASEMENT ON THE WESTERN PORTION OF THE PROPERTY ABUTTING GOLDEN EAGLE WAY.
2. 10' PUBLIC UTILITY EASEMENT SURROUNDING THE REST OF THE SITE PER ARROYO CROSSING PHASE 1 FINAL PLAT.
3. 30' STORM DRAIN EASEMENT BETWEEN BUILDING UNITS 4 AND 5.

GRAPHIC SCALE
0 15 30 FEET 60

Revisions:

#	DATE	DESCRIPTION

ARROYO CROSSING - TRACT E TOWNHOMES
PLAT AMENDMENT SUBMITTAL

SITE PLAN

GRAND COUNTY, UTAH

CIVIL ENGINEERING
1309 E. 3rd Ave., #206
Durango, CO 81301
970-403-5088

PLAN NO.

C100

Sheet 3 of 8

Project:2023-001

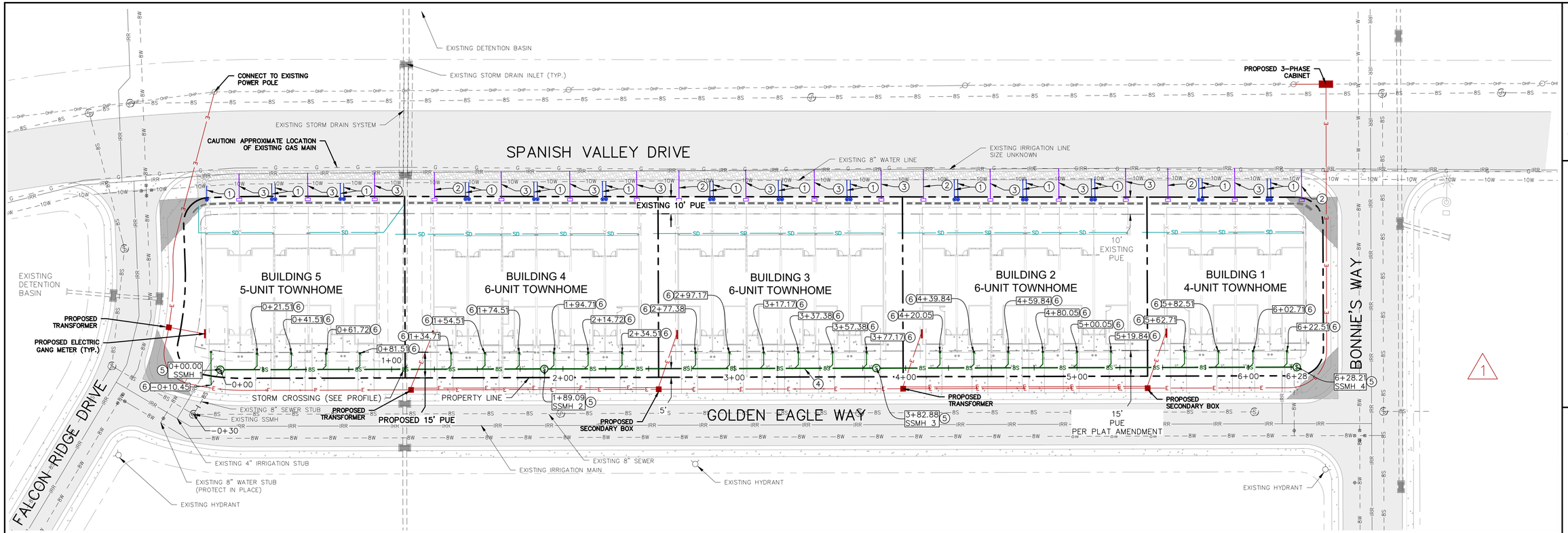
Date: 01/29/2024

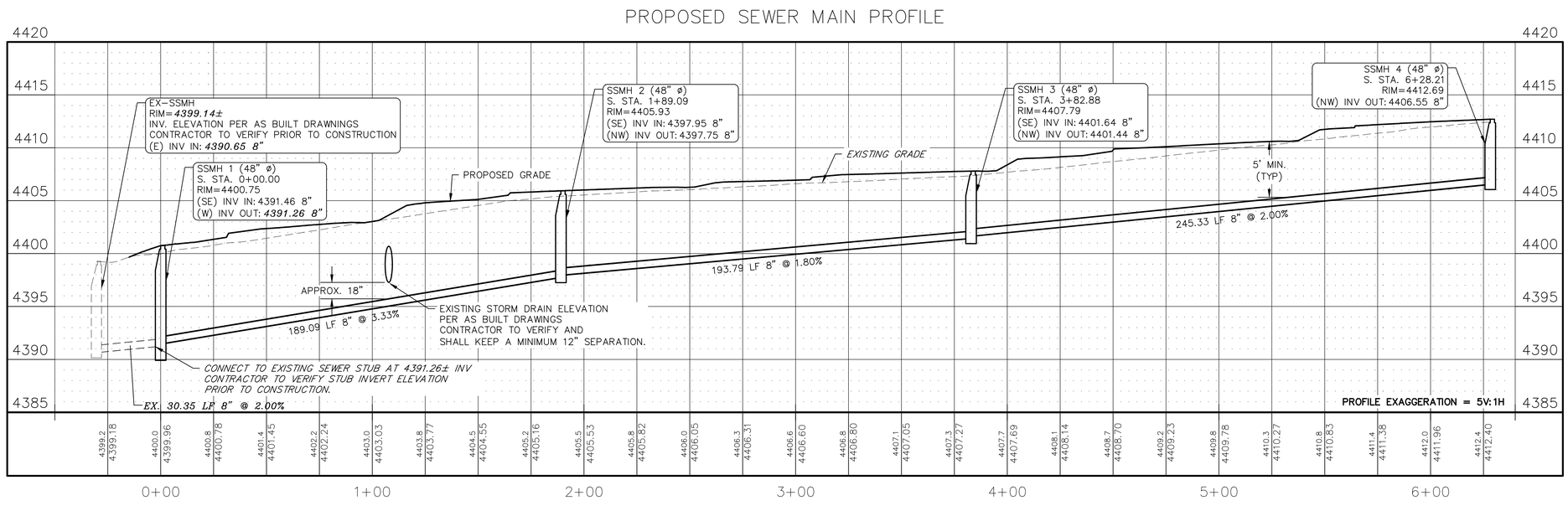
Drawn By: DWF

Checked By: JAG

PROFESSIONAL ENGINEER
No. 8007220-2202
JEFFREY M. PILLUS
3/5/2024
STATE OF UTAH

c:\users\dustinfry\set engineering, llc dropbox\current projects\2023-001 arroyo tract e townhomes\cad\plansheets\civil site plan.dwg





CONSTRUCTION NOTES

1	PROPOSED WATER SERVICE CONNECTION PER GWSSA DETAIL W-05
2	PROPOSED SINGLE-LOADED IRRIGATION SERVICE CONNECTION PER GWSSA DETAIL PI-01
3	PROPOSED DOUBLE-LOADED IRRIGATION SERVICE CONNECTION PER GWSSA DETAIL PI-01
4	PROPOSED 8" SANITARY SEWER LINE
5	PROPOSED 8" SANITARY SEWER MANHOLE PER GWSSA DETAIL S-01
6	PROPOSED 4" SANITARY SEWER SERVICE WITH CLEANOUT PER GWSSA DETAIL S-03

NOTES:

1. SEWER, WATER AND IRRIGATION TO BE CONSTRUCTED TO GWSSA STANDARDS
2. THE TRENCH RESURFACING THROUGH THE PATHWAY SHALL MEET THE SATISFACTION OF THE COUNTY ENGINEER OR ROAD SUPERVISOR.
3. METER LIDS/COVERS SHALL BE INSTALLED FLUSH WITH FINISHED GRADE PER GWSSA W-05, PROVIDED HEREIN.
4. REFER TO ROCKY MOUNTAIN POWER'S DRAWINGS AND SPECS FOR ELECTRICAL CONSTRUCTION.

GRAPHIC SCALE
0 15 30 FEET 60

Revisions:

#	DATE	DESCRIPTION
1	4/12/24	REVISED SEWER SERVICES AND MANHOLE LOCATIONS

ARROYO CROSSING - TRACT E TOWNHOMES
PLAT AMENDMENT SUBMITTAL

UTILITY PLAN

GRAND COUNTY, UTAH

CIVIL ENGINEERING
1309 E. 3rd Ave., #206
Durango, CO 81301
970-403-5088

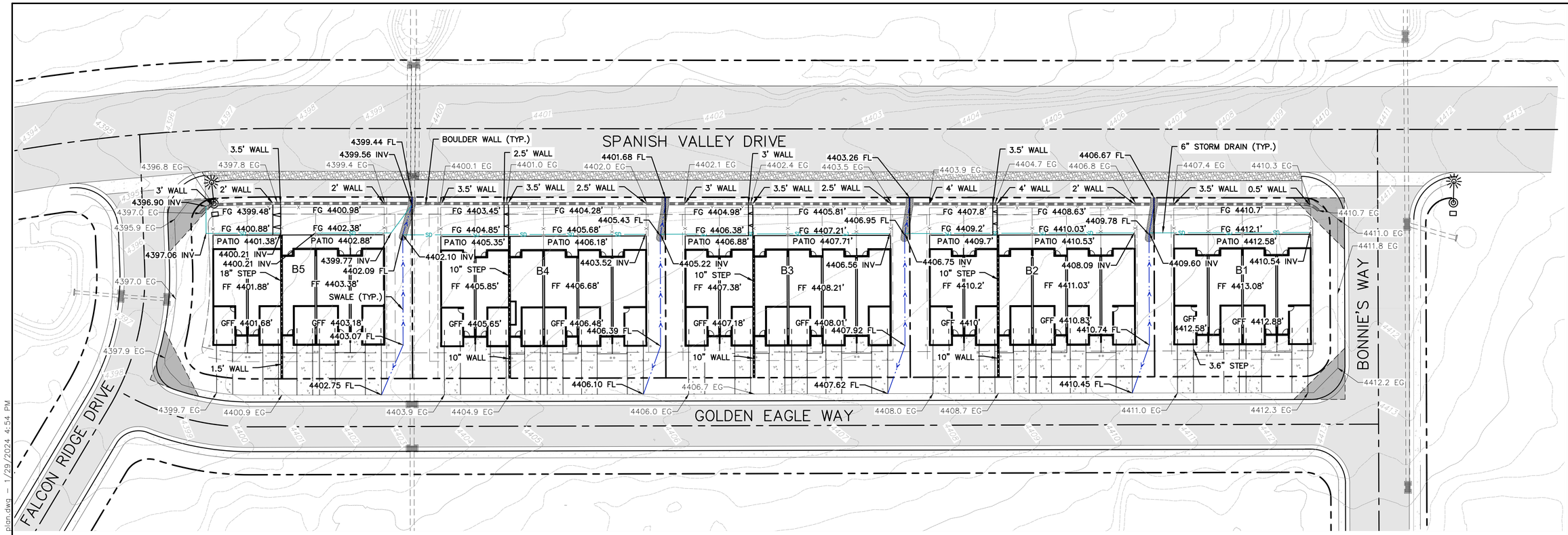
PLAN NO.

C200

Sheet 4 of 8
Project: 2023-001
Date: 02/22/2024
Drawn By: DWF
Checked By: JAG

PROFESSIONAL ENGINEER
No. 8002240-2202
JEFFREY M. PILLUS
3/5/2024
STATE OF UTAH

c:\users\dustinfr\set engineering, llc dropbox\current projects\2023-001 arroyo tract e townhomes\cad\plansheets\utility plan.dwg



GRAPHIC SCALE
0 15 30 FEET 60

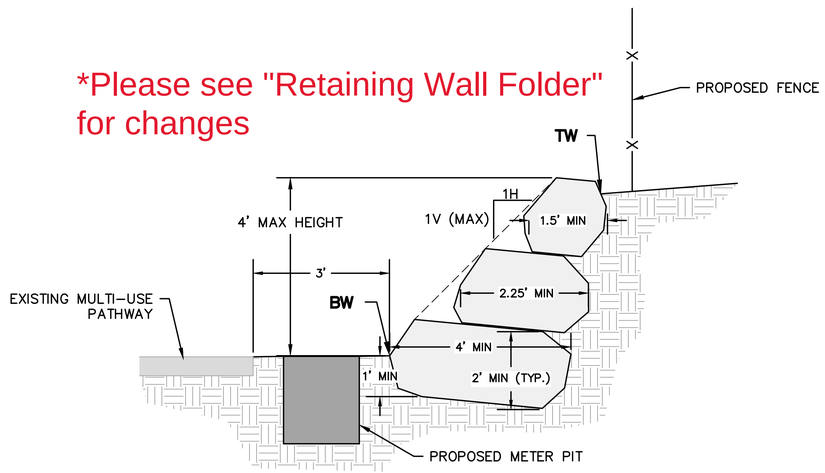
Revisions: #	DATE	DESCRIPTION

ARROYO CROSSING - TRACT E TOWNHOMES
PLAT AMENDMENT SUBMITTAL

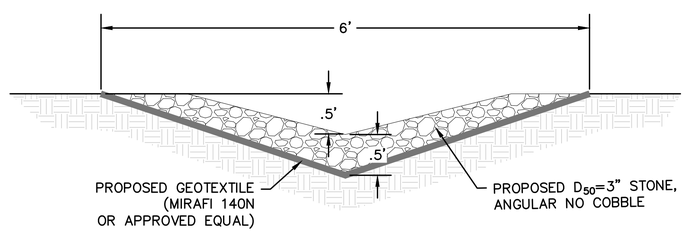
GRADING PLAN

GRAND COUNTY, UTAH

*Please see "Retaining Wall Folder" for changes



BOULDER WALL DETAIL
SCALE: NTS



DRAINAGE SWALE DETAIL
SCALE: NTS

NOTES:
1. RIP RAP AND GEOTEXTILE NOT REQUIRED IF DRAINAGE SWALE SLOPE AT OR BELOW 1%, SEE PLAN VIEW.

NOTES:
1. DEVELOPER IS RESPONSIBLE FOR EROSION CONTROL AND STORMWATER MANAGEMENT.
2. SITE SHALL BE STABILIZED IMMEDIATELY AFTER FINISH GRADE IS ESTABLISHED TO AVOID EROSION.
3. ALL SLOPES OVER 6:1 SLOPE SHALL BE ARMORED/STABILIZED.

CIVIL ENGINEERING
1309 E. 3rd Ave., #206
Durango, CO 81301
970-403-5088

PLAN NO.
C300

Sheet	5 of 8
Project:	2023-001
Date:	01/29/2024
Drawn By:	DWF
Checked By:	JAG

PROFESSIONAL ENGINEER
No. 9002240-2202
JEFFREY M. PILLUS
3/5/2024
STATE OF UTAH

c:\Users\dustinfry\set engineering, llc dropbox\current projects\2023-001 arroyo tract e townhomes\cad\plansheets\full site grading plan.dwg — 1/29/2024 4:54 PM

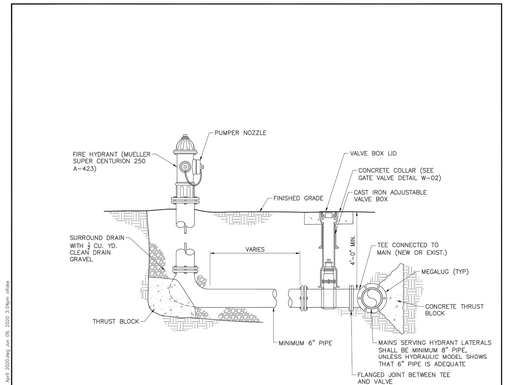
Grand Water & Sewer Service Agency



Construction Standards

SUNRISE ENGINEERING

Version 1, Approved 8/17/2017



NOTES:
1. FIRE HYDRANT BREAKAWAY FLANGE SHALL BE NO GREATER THAN 5in. ABOVE FINISHED GRADE OR 1in. BELOW FINISHED GRADE.
2. PIPE, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO ANSI/NSF STANDARD 61 AND APPLICABLE SECTIONS OF AWWA STANDARDS C104-A21.4-08 THROUGH C550-05 AND C900-07 THROUGH C950-07. BLOCKING AND MECHANICAL RESTRAINT SHALL BE PROVIDED PER DETAILS W-06 AND W-07.
3. HYDRANT DRAINS SHALL NOT BE LOCATED WITHIN 10 FEET OF SANITARY SEWERS.
4. ALL NEW MAINS SHALL BE PVC C900 OR C905 DR-18 PIPE UNLESS OTHERWISE APPROVED.

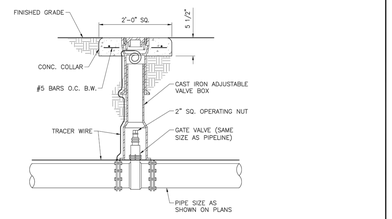
DETAIL - FIRE HYDRANT
N.T.S.

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 · FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
WATER - FIRE HYDRANT

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
8-8-2020	DJS	TRB	RWW	W-01



NOTES:
1. ALL VALVES SHALL BE RESTRAINED ACCORDING TO DETAILS W-06 AND W-07 AND SHALL BE TREATED AS A DEAD END IN BOTH DIRECTIONS.
2. PIPE, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO ANSI/NSF STANDARD 61 AND APPLICABLE SECTIONS OF AWWA STANDARDS C104-A21.4-08 THROUGH C550-05 AND C900-07 THROUGH C950-07. BLOCKING OR MECHANICAL RESTRAINT SHALL BE PROVIDED PER DETAILS W-06 AND W-07.
3. FOR VALVES OVER 48" DEEP ADD VALVE STEM AND VALVE BOX EXTENSIONS AS NECESSARY FOR NORMAL OPERATION OF VALVE KEY.
4. TRACER WIRE SHALL BE BROUGHT INTO THE VALVE BOX THROUGH HOLE AT BELL. COIL 12" OF TRACER WIRE INSIDE VALVE BOX BELL SECTION.
5. VALVES SMALLER THAN 16" SHALL BE GATE VALVES. MAINLINE VALVES 16" AND LARGER SHALL BE SHORT-BODY BUTTERFLY VALVES.
6. ALL NEW MAINS SHALL BE PVC C900 OR C905 DR-18 PIPE UNLESS OTHERWISE APPROVED.

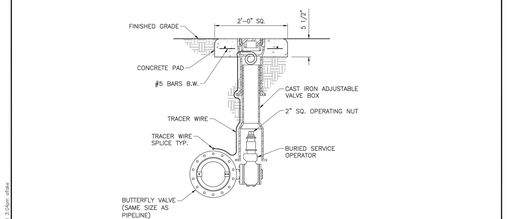
DETAIL - TYPICAL GATE VALVE
N.T.S.

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 · FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
WATER - GATE VALVE

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
8-8-2020	DJS	TRB	RWW	W-02



NOTES:
1. ALL VALVES SHALL BE RESTRAINED ACCORDING TO DETAILS W-06 AND W-07 AND SHALL BE TREATED AS A DEAD END IN BOTH DIRECTIONS.
2. PIPE, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO ANSI/NSF STANDARD 61 AND APPLICABLE SECTIONS OF AWWA STANDARDS C104-A21.4-08 THROUGH C550-05 AND C900-07 THROUGH C950-07. BLOCKING OR MECHANICAL RESTRAINT SHALL BE PROVIDED PER DETAILS W-06 AND W-07.
3. FOR VALVES OVER 48" DEEP ADD VALVE STEM AND VALVE BOX EXTENSIONS AS NECESSARY FOR NORMAL OPERATION OF VALVE KEY.
4. TRACER WIRE SHALL BE BROUGHT INTO THE VALVE BOX THROUGH HOLE AT BELL. COIL 12" OF TRACER WIRE INSIDE VALVE BOX BELL SECTION.
5. VALVES SMALLER THAN 16" SHALL BE GATE VALVES. MAINLINE VALVES 16" AND LARGER SHALL BE SHORT-BODY BUTTERFLY VALVES.
6. ALL NEW MAINS SHALL BE PVC C900 OR C905 DR-18 PIPE UNLESS OTHERWISE APPROVED.

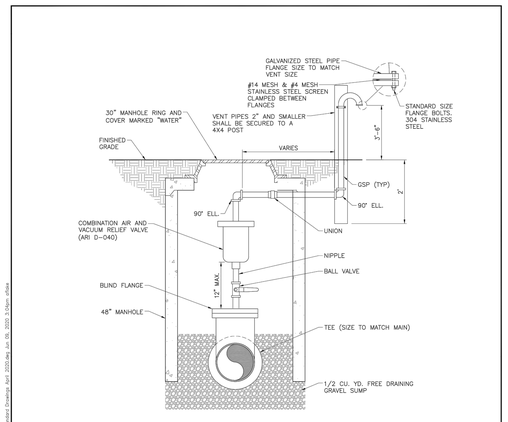
DETAIL - BURIED BUTTERFLY VALVE
N.T.S.

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 · FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
WATER - BUTTERFLY VALVE

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
8-8-2020	DJS	TRB	RWW	W-03



NOTES:
1. COMBINATION AIR VALVES SHALL BE NO LESS THAN 1/8" THE SIZE OF THE MAIN.
2. PIPE, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO ANSI/NSF STANDARD 61 AND APPLICABLE SECTIONS OF AWWA STANDARDS C104-A21.4-08 THROUGH C550-05 AND C900-07 THROUGH C950-07. BLOCKING OR MECHANICAL RESTRAINT SHALL BE PROVIDED PER DETAILS W-06 AND W-07.
3. ALL PIPE FITTINGS SHALL BE GALVANIZED STEEL 300lb. CLASS THREADED.
4. AIR VALVE COMPONENT CONNECTING PIPING SHALL BE GSP SCHEDULE 40.
5. ALL PIPE PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.
6. PIPE NIPPLES, FITTINGS, GOOSENECK, & BALL VALVE SHALL BE SIZED TO MATCH SIZE OF AIR VALVE.
7. ALL NEW MAINS SHALL BE PVC C900 OR C905 DR-18 PIPE UNLESS OTHERWISE APPROVED.

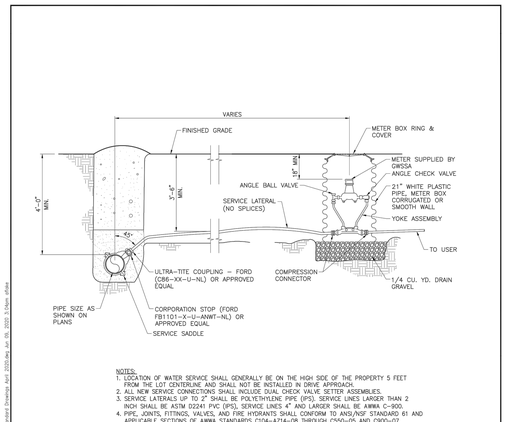
DETAIL - COMBINATION AIR VALVE
N.T.S.

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 · FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
WATER - COMBINATION AIR VALVE

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
8-8-2020	DJS	TRB	RWW	W-04



NOTES:
1. LOCATION OF WATER SERVICE SHALL GENERALLY BE ON THE HIGH SIDE OF THE PROPERTY 5 FEET FROM THE LOT CENTERLINE AND SHALL NOT BE INSTALLED IN DRIVE APPROACH.
2. ALL NEW SERVICE CONNECTIONS SHALL INCLUDE DUAL CHECK VALVE SETTER ASSEMBLIES.
3. SERVICE LATERALS UP TO 2" SHALL BE POLYETHYLENE PIPE (IPS). SERVICE LINES LARGER THAN 2 INCH SHALL BE ASTM D2241 PVC (IPS), SERVICE LINES 4" AND LARGER SHALL BE AWWA C-900.
4. PIPE, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO ANSI/NSF STANDARD 61 AND APPLICABLE SECTIONS OF AWWA STANDARDS C104-A21.4-08 THROUGH C550-05 AND C900-07 THROUGH C950-07.
5. SERVICE LINES SHALL BE CAPPED UNTIL CONNECTED FOR SERVICE.
6. NEW WATER SERVICE CONNECTIONS SHALL BE 1" UNLESS OTHERWISE NOTED.
7. SERVICE LATERAL FITTINGS SHALL HAVE NO COMPRESSION CONNECTIONS OUTSIDE OF THE METER BOX.

DETAIL - NEW WATER SERVICE CONNECTION
N.T.S.

REV. NO.	COMMENT	DATE

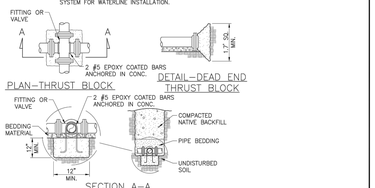
SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 · FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
WATER - NEW WATER SERVICE CONNECTION

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
8-8-2020	DJS	TRB	RWW	W-05

CONCRETE THRUST BLOCK
RESTRAINING SYSTEM DETAILS

NOTE:
CONTRACTOR SHALL USE EITHER MECHANICAL RESTRAINTS OR CONCRETE THRUST RESTRAINING SYSTEM FOR WATERLINE INSTALLATION.



THRUST BLOCK BEARING AREA IN SQ. FT.

PIPE SIZE	CROSS	TEE	WYE	DEAD END	VALVE	90° BEND	45° BEND	22.5° BEND	11.25° BEND
4	2.4	1.7	1.7	1.7	–	2.4	1.3	1.0	1.0
6	5.4	3.8	3.8	3.8	–	5.4	2.9	1.5	1.0
8	9.6	6.8	6.8	6.8	–	9.6	5.2	2.7	1.4
10	15.0	10.6	10.6	10.6	–	15.0	8.1	4.2	2.1
12	21.5	15.2	15.2	15.2	15.2	21.5	11.7	6.0	3.0
14	29.3	20.7	20.7	20.7	20.7	29.3	15.9	8.1	4.1
16	38.2	27.0	27.0	27.0	27.0	38.2	20.7	10.6	5.3
18	48.4	34.2	34.2	34.2	34.2	48.4	26.2	13.4	6.7
20	59.7	42.2	42.2	42.2	42.2	59.7	32.3	16.5	8.3
24	85.9	60.8	60.8	60.8	60.8	85.9	46.5	23.7	11.9

REDUCER

D2 \ D1	6	8	10	12	14	16	18	20	24
4	2.1	5.1	8.8	13.4	–	–	–	–	–
6	–	3.0	6.7	11.3	16.8	23.1	–	–	–
8	–	–	3.8	8.4	13.8	20.1	27.2	–	–
10	–	–	–	4.6	10.1	16.3	23.5	31.4	–
12	–	–	–	–	5.5	11.7	18.8	26.8	45.2
14	–	–	–	–	–	6.3	13.4	21.3	39.8
16	–	–	–	–	–	–	7.1	15.1	33.5
18	–	–	–	–	–	–	–	8.0	29.3
20	–	–	–	–	–	–	–	–	18.4

NOTES:
1. ALL THRUST BLOCK BEARING FACES SHALL BE PLACED AGAINST UNDISTURBED SOIL OR APPROVED COMPACTED BACKFILL.
2. SQUARE ALL EDGES TO RECEIVE CONCRETE.
3. CONCRETE SHALL BE CLASS C.
4. CALCULATED ON 200 PSI TEST PRESSURE AND ALLOWABLE BEARING PRESSURE OF 1500 LBS. PER SQ. FT.
5. IN POORER SOILS SPECIAL DESIGN IS REQUIRED.
6. ALL FITTINGS AND VALVES SHALL BE ANCHORED WITH TWO EPOXY COATED #5 REBAR. ONLY ONE REQ'D FOR REDUCER
7. CENTER ALL FITTINGS OVER THRUST BLOCKS.

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 · FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
WATER - CONCRETE THRUST BLOCKS

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
8-8-2020	DJS	TRB	RWW	W-06

MECHANICAL
THRUST RESTRAINING SYSTEM DETAILS

* CALCULATIONS DERIVED FROM EBAA IRON SALES

PVC VERTICLE BEND RESTRAINED LENGTHS IN FT. (L_1=BEFORE CONNECTION/L_2 AFTER CONNECTION)

BEND ANGLE	PIPE SIZE								
	4	6	8	10	12	14	16	18	20	24
11.25	4/1	5/2	7/2	9/3	10/3	12/4	13/4	15/5	16/5	19/6
22.5	8/3	11/4	15/5	17/6	21/7	24/8	27/9	30/9	33/10	38/12
45	16/5	23/8	30/10	36/12	43/14	49/16	56/18	62/20	69/21	79/25

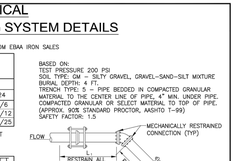
CALCULATIONS BASED ON THE ELEVATION OF THE PIPE REMAINING CONSTANT WITH THE CONTOUR OF THE GROUND. FOR TWO WAY FLOW, SUCH AS FOUND IN DISTRIBUTION SYSTEMS, USE ON BOTH SIDES OF FITTING.

BASED ON:
TEST PRESSURE 200 PSI
SOIL TYPE: GM – SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURE
BURIAL DEPTH: 4 FT.
TRENCH TYPE: 5 – PIPE BEDDED IN COMPACTED GRANULAR MATERIAL TO THE CENTER LINE OF PIPE, 4" MIN. UNDER PIPE. COMPACTED GRANULAR OR SELECT MATERIAL TO TOP OF PIPE. (APPROX. 90% STANDARD PROCTOR, AASHTO T-99)
SAFETY FACTOR: 1.5

PVC HORIZONTAL BEND RESTRAINED LENGTHS L, IN FT.

BEND ANGLE	PIPE SIZE								
	4	6	8	10	12	14	16	18	20	24
11.25	1	2	2	3	3	4	4	5	5	6
22.5	3	4	5	6	7	8	9	9	10	12
45	5	8	10	12	14	16	18	20	21	25
90	13	18	24	29	34	38	43	47	52	60

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED



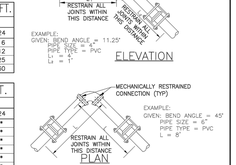
ELEVATION

PVC TEE RESTRAINED LENGTHS L, IN FT.

BRANCH SIZE, DIA.	RUN SIZE DIAMETER								
	4	6	8	10	12	14	16	18	20	24
4	*	*	*	*	*	*	*	*	*	*
6	–	*	*	*	*	*	*	*	*	*
8	–	–	*	*	*	*	*	*	*	*
10	–	–	–	*	*	*	*	*	*	*
12	–	–	–	–	*	*	*	*	*	*
14	–	–	–	–	–	*	*	*	*	*
16	–	–	–	–	–	–	*	*	*	*
18	–	–	–	–	–	–	–	20	4	*
20	–	–	–	–	–	–	–	–	34	3
24	–	–	–	–	–	–	–	–	–	60

* = FOR THIS CONDITION NEED ONLY RESTRAIN THE OUTLETS OF TEE

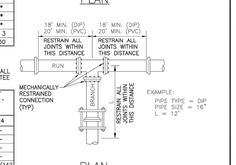
NOTES:
1. RESTRAIN THE THREE MECHANICAL JOINTS ON THE TEE.
2. ALL JOINTS WITHIN THE "L" DISTANCE ON THE BRANCH SIDE OF TEE SHALL BE RESTRAINED AND ALL JOINTS WITHIN 18' ON THE RUN SIDE OF THE TEE SHALL BE RESTRAINED.



PVC REDUCER RESTRAINED LENGTHS L, IN FT. (SMALL SIDE/LARGE SIDE)

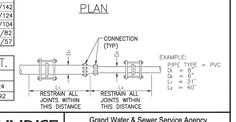
D2 \ D1	8	8	10	12	14	16	18	20	24
4	42/29	100/52	171/71	256/90	–	–	–	–	–
6	–	40/31	88/54	147/75	217/95	297/113	–	–	–
8	–	–	37/29	82/55	135/77	197/98	266/117	–	–
10	–	–	–	–	36/30	79/56	128/80	183/100	244/120
12	–	–	–	–	36/30	77/57	123/80	174/102	293/142
14	–	–	–	–	–	35/30	74/57	118/81	219/124
16	–	–	–	–	–	–	34/30	73/57	161/104
18	–	–	–	–	–	–	–	34/30	111/82
20	–	–	–	–	–	–	–	–	70/57

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED



PVC DEAD END RESTRAINED LENGTHS L, IN FT.

	PIPE SIZE								
	4	6	8	10	12	14	16	18	20	24
L	39	55	73	88	104	119	134	149	163	192



1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 · FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
WATER - MECHANICAL RESTRAINING SYSTEM (PVC PIPE)

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
8-27-2020	DJS	TRB	RWW	W-07

Revisions:

#	DATE	DESCRIPTION

ARROYO CROSSING - TRACT E TOWNHOMES
PLAT AMENDMENT SUBMITTAL

GWSSA DETAILS

GRAND COUNTY, UTAH

SET
CIVIL ENGINEERING
1309 E. 3rd Ave., #206
Durango, CO 81301
970-403-5088

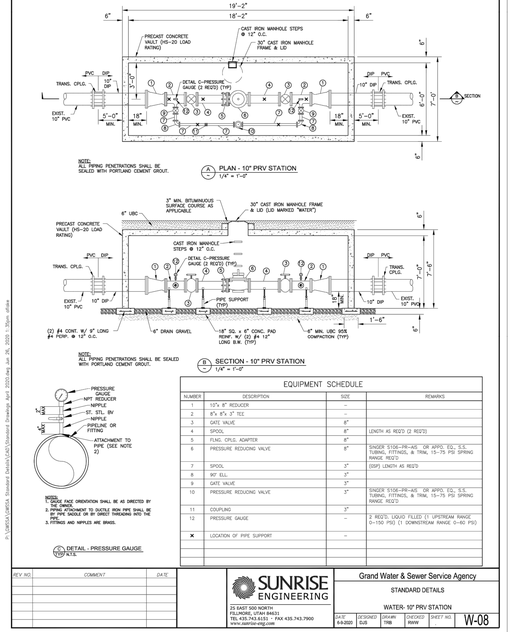
PLAN NO.

C401

Sheet 6 of 8
Project: 2023-001
Date: 01/29/2024
Drawn By: DWF
Checked By: JAG

PROFESSIONAL ENGINEER
No. 8000340-2202
JEFFREY M. PILLUS
3/5/2024
STATE OF UTAH

C:\Users\dustinfry\set engineering, llc dropbox\current projects\2023-001 arroyo tract e townhomes\cad\plansheets\gwssa details.dwg — 1/29/2024 4:54 PM



NOTE: ALL PIPING PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.

A PLAN - 10" PRV STATION
1/4" = 1'-0"

NOTE: ALL PIPING PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.

B SECTION - 10" PRV STATION
1/4" = 1'-0"

DETAIL - PRESSURE GAUGE
N.T.S.

EQUIPMENT SCHEDULE

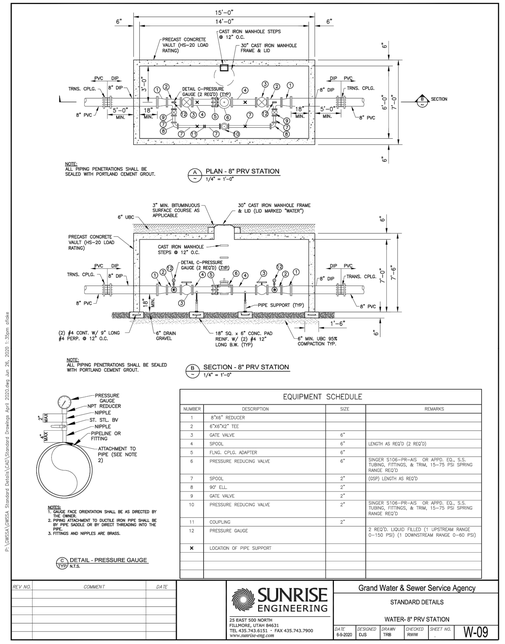
NUMBER	DESCRIPTION	SIZE	REMARKS
1	10"x 8" REDUCER	–	
2	8"x 8"x 3" TEE	–	
3	GATE VALVE	8"	
4	SPOOL	8"	LENGTH AS REQ'D (2 REQ'D)
5	FLNG. CPLG. ADAPTER	8"	
6	PRESSURE REDUCING VALVE	8"	SINGER 510E-PR-AG OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
7	SPOOL	3"	(DSP) LENGTH AS REQ'D
8	90° ELL.	3"	
9	GATE VALVE	3"	
10	PRESSURE REDUCING VALVE	3"	SINGER 510E-PR-AG OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
11	COUPLING	3"	
12	PRESSURE GAUGE	–	2 REQ'D, LIQUID FILLED (1 UPSTREAM RANGE 0-150 PSI) (1 DOWNSTREAM RANGE 0-60 PSI)
X	LOCATION OF PIPE SUPPORT	–	

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 • FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
WATER- 10" PRV STATION

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
8-8-2020	DJS	TRB	RWW	W-08



NOTE: ALL PIPING PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.

A PLAN - 8" PRV STATION
1/4" = 1'-0"

NOTE: ALL PIPING PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.

B SECTION - 8" PRV STATION
1/4" = 1'-0"

DETAIL - PRESSURE GAUGE
N.T.S.

EQUIPMENT SCHEDULE

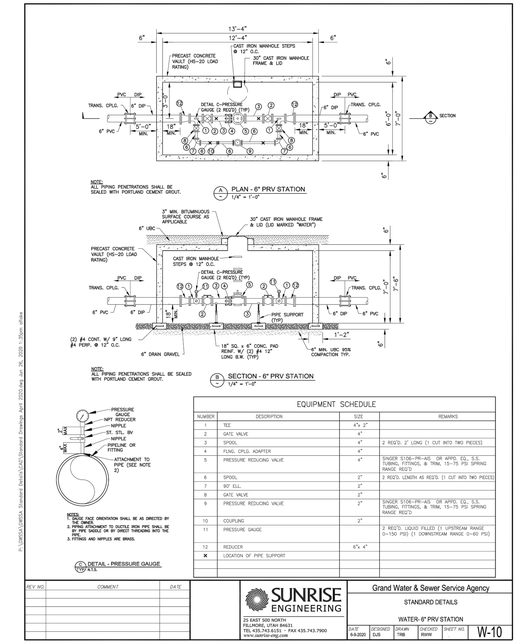
NUMBER	DESCRIPTION	SIZE	REMARKS
1	8"x6" REDUCER	–	
2	6"x6"x2" TEE	–	
3	GATE VALVE	6"	
4	SPOOL	6"	LENGTH AS REQ'D (2 REQ'D)
5	FLNG. CPLG. ADAPTER	6"	
6	PRESSURE REDUCING VALVE	6"	SINGER 510E-PR-AG OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
7	SPOOL	2"	(DSP) LENGTH AS REQ'D
8	90° ELL.	2"	
9	GATE VALVE	2"	
10	PRESSURE REDUCING VALVE	2"	SINGER 510E-PR-AG OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
11	COUPLING	2"	
12	PRESSURE GAUGE	–	2 REQ'D, LIQUID FILLED (1 UPSTREAM RANGE 0-150 PSI) (1 DOWNSTREAM RANGE 0-60 PSI)
X	LOCATION OF PIPE SUPPORT	–	

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 • FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
WATER- 8" PRV STATION

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
8-8-2020	DJS	TRB	RWW	W-09



NOTE: ALL PIPING PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.

A PLAN - 6" PRV STATION
1/4" = 1'-0"

NOTE: ALL PIPING PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.

B SECTION - 6" PRV STATION
1/4" = 1'-0"

DETAIL - PRESSURE GAUGE
N.T.S.

EQUIPMENT SCHEDULE

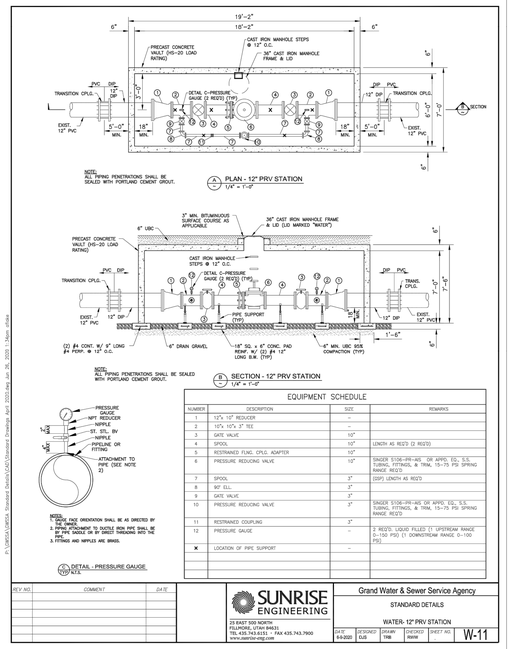
NUMBER	DESCRIPTION	SIZE	REMARKS
1	TEE	4"x 2"	
2	GATE VALVE	4"	
3	SPOOL	4"	2 REQ'D, 2' LONG (1 CUT INTO TWO PIECES)
4	FLNG. CPLG. ADAPTER	4"	
5	PRESSURE REDUCING VALVE	4"	SINGER 510E-PR-AG OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
6	SPOOL	2"	2 REQ'D, LENGTH AS REQ'D, (1 CUT INTO TWO PIECES)
7	90° ELL.	2"	
8	GATE VALVE	2"	
9	PRESSURE REDUCING VALVE	2"	SINGER 510E-PR-AG OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
10	COUPLING	2"	
11	PRESSURE GAUGE	–	2 REQ'D, LIQUID FILLED (1 UPSTREAM RANGE 0-150 PSI) (1 DOWNSTREAM RANGE 0-60 PSI)
12	REDUCER	6"x 4"	
X	LOCATION OF PIPE SUPPORT	–	

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 • FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
WATER- 6" PRV STATION

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
8-8-2020	DJS	TRB	RWW	W-10



NOTE: ALL PIPING PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.

A PLAN - 12" PRV STATION
1/4" = 1'-0"

NOTE: ALL PIPING PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.

B SECTION - 12" PRV STATION
1/4" = 1'-0"

DETAIL - PRESSURE GAUGE
N.T.S.

EQUIPMENT SCHEDULE

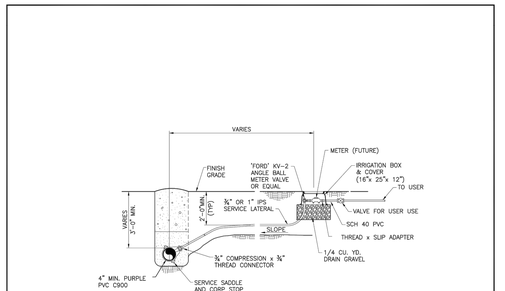
NUMBER	DESCRIPTION	SIZE	REMARKS
1	12"x 10" REDUCER	–	
2	10"x 10"x 2" TEE	–	
3	GATE VALVE	10"	
4	SPOOL	10"	LENGTH AS REQ'D (2 REQ'D)
5	RESTRAINED FLNG. CPLG. ADAPTER	10"	
6	PRESSURE REDUCING VALVE	10"	SINGER 510E-PR-AG OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
7	SPOOL	3"	(DSP) LENGTH AS REQ'D
8	90° ELL.	3"	
9	GATE VALVE	3"	
10	PRESSURE REDUCING VALVE	3"	SINGER 510E-PR-AG OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
11	RESTRAINED COUPLING	3"	
12	PRESSURE GAUGE	–	2 REQ'D, LIQUID FILLED (1 UPSTREAM RANGE 0-150 PSI) (1 DOWNSTREAM RANGE 0-100 PSI)
X	LOCATION OF PIPE SUPPORT	–	

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 • FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
WATER- 12" PRV STATION

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
8-8-2020	DJS	TRB	RWW	W-11



NOTES:
1. INSTALLATION OF PRESSURIZED IRRIGATION MAIN LINE, FITTINGS, VALVES, AND RESTRAINT SHALL CONFORM TO APPLICABLE CULINARY WATER DETAILS.
2. SERVICE LATERALS SHALL BE 3/4" OR 1" POLYETHYLENE PIPE (PPS) WITH COMPRESSION FITTINGS. LATERALS SHALL BE BLUE POLYETHYLENE WRAPPED WITH PURPLE LOCATOR TAPE.
3. PIPE, JOINTS, FITTINGS, AND VALVES SHALL CONFORM TO APPLICABLE SECTIONS OF AWWA STANDARDS C104-A274-08 THROUGH C550-05 AND C900-07 THROUGH C950-07.
4. TRENCH AND SURFACE REPAIR SHALL BE DONE PER DETAILS R-01 THROUGH R-03.
5. SERVICE LINES SHALL BE CAPPED UNTIL CONNECTED FOR SERVICE.

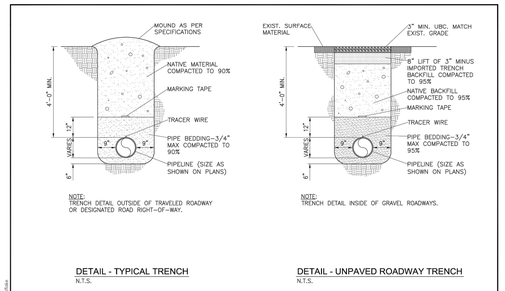
DETAIL - NEW IRRIGATION SERVICE CONNECTION
N.T.S.

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 • FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
SECONDARY SERVICE CONNECTION

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
8-8-2020	DJS	TRB	RWW	PI-01

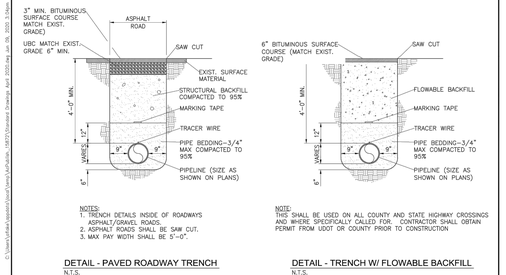


NOTE: TRENCH DETAIL OUTSIDE OF TRAVELED ROADWAY OR DESIGNATED ROAD RIGHT-OF-WAY.

DETAIL - TYPICAL TRENCH
N.T.S.

NOTE: TRENCH DETAIL INSIDE OF GRAVEL ROADWAYS.

DETAIL - UNPAVED ROADWAY TRENCH
N.T.S.



NOTES:
1. TRENCH DETAILS INSIDE OF ROADWAYS ASPHALT/GRAVEL ROADS.
2. ASPHALT ROADS SHALL BE SAW CUT.
3. MAX PAY WIDTH SHALL BE 5'-0".

DETAIL - PAVED ROADWAY TRENCH
N.T.S.

NOTE: THIS SHALL BE USED ON ALL COUNTY AND STATE HIGHWAY CROSSINGS AND WHERE SPECIFICALLY CALLED FOR. CONTRACTOR SHALL OBTAIN PERMIT FROM UDOT OR COUNTY PRIOR TO CONSTRUCTION

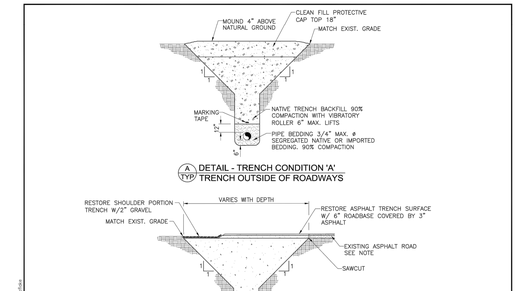
DETAIL - TRENCH W/ FLOWABLE BACKFILL
N.T.S.

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 • FAX 435.743.7900
www.sunrise-eng.com

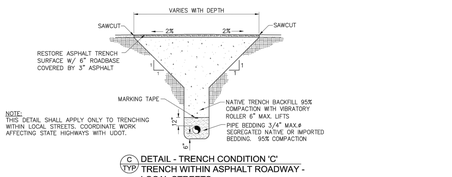
Grand Water & Sewer Service Agency
STANDARD DETAILS
ROADWAY - TRENCH DETAILS

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
8-8-2020	DJS	TRB	RWW	R-01



A DETAIL - TRENCH CONDITION 'A' (TYP) TRENCH OUTSIDE OF ROADWAYS

B DETAIL - TRENCH CONDITION 'B' (TYP) TRENCH WITHIN SHOULDER



NOTE: THIS DETAIL SHALL APPLY ONLY TO TRENCHING WITHIN LOCAL STREETS. COORDINATE WORK AFFECTING STATE HIGHWAYS WITH UDOT.

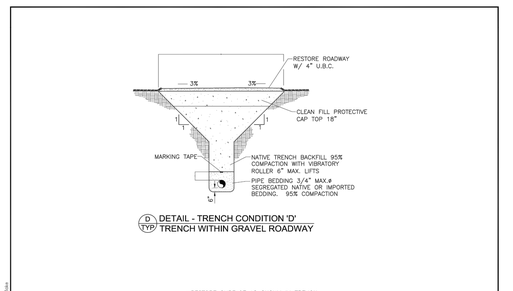
C DETAIL - TRENCH CONDITION 'C' (TYP) TRENCH WITHIN ASPHALT ROADWAY - LOCAL STREETS

REV. NO.	COMMENT	DATE

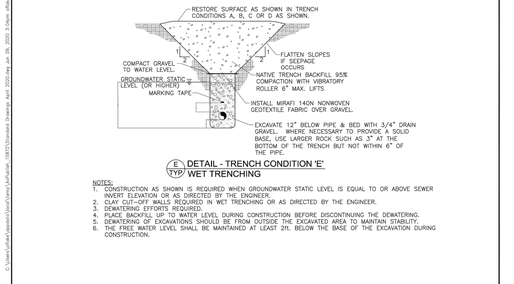
SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 • FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
ROADWAY - TRENCH DETAILS

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
8-8-2020	DJS	TRB	RWW	R-02



D DETAIL - TRENCH CONDITION 'D' (TYP) TRENCH WITHIN GRAVEL ROADWAY



E DETAIL - TRENCH CONDITION 'E' (TYP) WET TRENCHING

NOTES:
1. CONSTRUCTION AS SHOWN IS REQUIRED WHEN GROUNDWATER STATIC LEVEL IS EQUAL TO OR ABOVE SEWER INVERT ELEVATION OR AS DIRECTED BY THE ENGINEER.
2. CLAY CUT-OFF WALLS REQUIRED IN WET TRENCHING OR AS DIRECTED BY THE ENGINEER.
3. DEWATERING EFFORTS REQUIRED.
4. PLACE BACKFILL UP TO WATER LEVEL DURING CONSTRUCTION BEFORE DISCONTINUING THE DEWATERING.
5. DEWATERING OF EXCAVATIONS SHOULD BE FROM OUTSIDE THE EXCAVATED AREA TO MAINTAIN STABILITY.
6. THE FREE WATER LEVEL SHALL BE MAINTAINED AT LEAST 2FL BELOW THE BASE OF THE EXCAVATION DURING CONSTRUCTION.

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 • FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
ROADWAY - TRENCH DETAILS

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
8-8-2020	DJS	TRB	RWW	R-03

Revisions: #	DATE	DESCRIPTION

ARROYO CROSSING - TRACT E TOWNHOMES
PLAT AMENDMENT SUBMITTAL

GWSSA DETAILS

GRAND COUNTY, UTAH

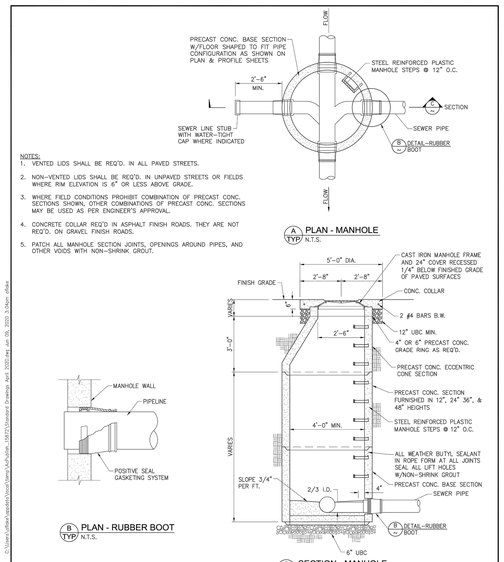
CIVIL ENGINEERING
1309 E. 3rd Ave., #206
Durango, CO 81301
970-403-5088

PLAN NO.
C402

Sheet 7 of 8
Project:2023-001
Date: 01/29/2024
Drawn By: DWF
Checked By: JAG

PROFESSIONAL ENGINEER
No. 8007540-2202
JEFFREY M. PILLUS
3/5/2024
STATE OF UTAH

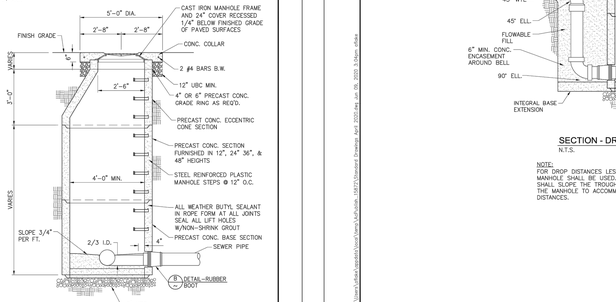
C:\Users\dustinfry\set engineering, llc dropbox\current projects\2023-001 arroyo tract e townhomes\cad\plansheets\gwssa details.dwg — 1/29/2024 4:54 PM



NOTES:
1. VENTED LIDS SHALL BE REQ'D. IN ALL PAVED STREETS.
2. NON-VENTED LIDS SHALL BE REQ'D. IN UNPAVED STREETS OR FIELDS WHERE RIM ELEVATION IS 6" OR LESS ABOVE GRADE.
3. WHERE FIELD CONDITIONS PROHIBIT COMBINATION OF PRECAST CONC. SECTIONS SHOWN, OTHER COMBINATIONS OF PRECAST CONC. SECTIONS MAY BE USED AS PER ENGINEER'S APPROVAL.
4. CONCRETE COLLAR REQ'D IN ASPHALT FINISH ROADS. THEY ARE NOT REQ'D. ON GRAVEL FINISH ROADS.
5. PATCH ALL MANHOLE SECTION JOINTS, OPENINGS AROUND PIPES, AND OTHER VOIDS WITH NON-SHRINK GROUT.

A TYP — PLAN - MANHOLE
N.T.S.

B TYP — PLAN - RUBBER BOOT
N.T.S.



C TYP — SECTION - MANHOLE
N.T.S.

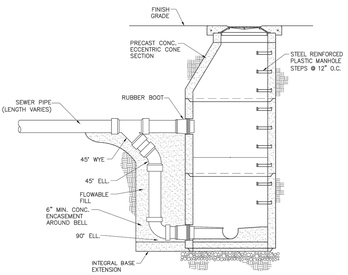
C:\Users\Jaffa\Legacies\Dropbox\Clients\Jaffa\Jaffa - 2307\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm dfaka

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 - FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
SANITARY SEWER- STANDARD MANHOLE

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
9-9-2020	DJS	TNB	RWW	S-01



SECTION - DROP MANHOLE
N.T.S.

NOTE:
FOR DROP DISTANCES LESS THAN 24" NO DROP MANHOLE SHALL BE USED. THE CONTRACTOR SHALL SLOPE THE TROUGHS IN THE BASE OF THE MANHOLE TO ACCOMMODATE THE DROP DISTANCES.

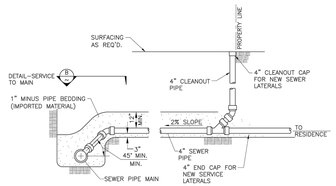
C:\Users\Jaffa\Legacies\Dropbox\Clients\Jaffa\Jaffa - 2307\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm dfaka

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 - FAX 435.743.7900
www.sunrise-eng.com

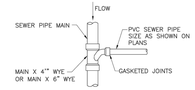
Grand Water & Sewer Service Agency
STANDARD DETAILS
SANITARY SEWER- STANDARD DROP MANHOLE

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
9-9-2020	DJS	TNB	RWW	S-02



NOTE:
SEWER LATERALS ARE GENERALLY LOCATED ON THE LOW SIDE OF THE PROPERTY 5 FEET FROM THE LOT CENTERLINE..

A TYP — DETAIL - SEWER SERVICE LATERAL
N.T.S.



G TYP — DETAIL - SERVICE TO MAIN
N.T.S.

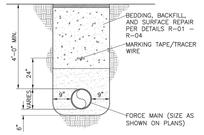
C:\Users\Jaffa\Legacies\Dropbox\Clients\Jaffa\Jaffa - 2307\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm dfaka

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 - FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
SANITARY SEWER- STANDARD SERVICE CONNECTION

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
9-9-2020	DJS	TNB	RWW	S-03



NOTES:
1. UNLESS GRINDER PUMPS ARE UTILIZED, FORCE MAINS SHALL BE A MINIMUM 4" HDPE.
2. FORCE MAINS SHALL ENTER THE GRAVITY SEWER SYSTEM AT A POINT NOT MORE THAN 24" ABOVE THE FLOWLINE OF THE RECEIVING MANHOLE.
3. AUTOMATIC AIR RELIEF VALVES SHALL BE PLACED AT HIGH POINTS IN THE FORCE MAIN TO PREVENT AIR LOCKING
4. JOINT RESTRAINT MUST BE PROVIDED PER DETAILS W-06 AND W-07. JOINTS MAY ALSO BE FUSED.

DETAIL - FORCE MAIN CONSTRUCTION
N.T.S.

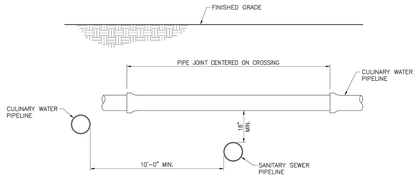
C:\Users\Jaffa\Legacies\Dropbox\Clients\Jaffa\Jaffa - 2307\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm dfaka

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 - FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
SANITARY SEWER - FORCE MAIN CONSTRUCTION

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
6-9-2020	DJS	BN	RWW	S-04



NOTES:
1. IF THE MINIMUM SEPARATION SHOWN HERE CANNOT BE MET, ADDITIONAL COORDINATION WITH GWSSA AND DIVISION OF DRINKING WATER APPROVAL ARE REQUIRED.
2. WATER TRANSMISSION LINES THAT MAY BECOME UNPRESSURIZED SHALL NOT BE INSTALLED WITHIN 20 FEET OF SEWER LINES.
3. WHEN A NEW SEWER FORCE MAIN CROSSES UNDER AN EXISTING WATER MAIN, ALL PORTIONS OF THE SEWER FORCE MAIN WITHIN 10 FEET (HORIZONTALLY) OF THE WATER MAIN SHALL BE ENCLOSED IN A CONTINUOUS SLEEVE.
4. WHEN A NEW WATER MAIN CROSSES OVER AN EXISTING SEWER FORCE MAIN, THE WATER MAIN SHALL BE CONSTRUCTED OF PIPE MATERIALS WITH A MINIMUM RATED WORKING PRESSURE OF 200 PSI OR EQUIVALENT PRESSURE RATING.
5. THE SEPARATION STANDARDS SHOWN ALSO APPLY TO SERVICE LATERALS.

DETAIL - WATER AND SEWER SEPARATION
N.T.S.

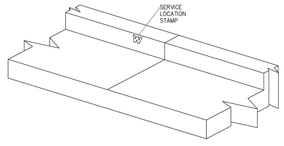
C:\Users\Jaffa\Legacies\Dropbox\Clients\Jaffa\Jaffa - 2307\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm dfaka

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 - FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
WATER - WATER AND SEWER SEPARATION

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
9-9-2020	DJS	BN	RWW	M-01



NOTES:
1. NEW OR REPLACED CONCRETE CURBS SHALL BE STAMPED WITH 2" BLOCK LETTERS IDENTIFYING THE LOCATION WHERE A UTILITY SERVICE LINE CROSSES THE CURB.
2. THE FOLLOWING DESIGNATIONS SHALL BE USED TO IDENTIFY UTILITIES:
   "W" – CULINARY WATER
   "PI" – PRESSURIZED IRRIGATION
   "S" – SEWER
   "G" – GAS

DETAIL - SERVICE LOCATION STAMP
N.T.S.

C:\Users\Jaffa\Legacies\Dropbox\Clients\Jaffa\Jaffa - 2307\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm dfaka

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 - FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency
STANDARD DETAILS
MISC - SERVICE LOCATION STAMP

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
9-9-2020	DJS	BN	RWW	M-02

Revisions:

#	DATE	DESCRIPTION

ARROYO CROSSING - TRACT E TOWNHOMES
PLAT AMENDMENT SUBMITTAL

GWSSA DETAILS

GRAND COUNTY, UTAH

CIVIL ENGINEERING
1309 E. 3rd Ave., #206
Durango, CO 81301
970-403-5088

PLAN NO.

C403

Sheet 8 of 8
Project:2023-001
Date: 01/29/2024
Drawn By: DWF
Checked By: JAG

PROFESSIONAL ENGINEER
No. 8002240-2202
JEFFREY M. PILLUS
3/5/2024
STATE OF UTAH

c:\users\dustinfr\set engineering, llc dropbox\current projects\2023-001 arroyo tract e townhomes\cad\plansheets\gwssa details.dwg — 1/29/2024 4:55 PM