NOTICE TO BIDDERS – UNSEALED BID SET

These plans are issued for bidding purposes only and have not been sealed by the Engineer of Record. They are not for construction. The Engineer will issue a final sealed set prior to execution of the Contract, which will govern construction. The final set is not expected to differ materially from these documents. Any changes made to these documents before the proposal due date will be issued by Addendum. Any changes made after the proposal due date and before the sealed set is issued will be identified to the Contractor and handled under the Contract Documents. Bidders shall base their proposals on these documents as modified by all issued Addenda.

10/13/26 10:33 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C1.0 GENERAL NOTES LEGEND ABBREVIATIONS.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

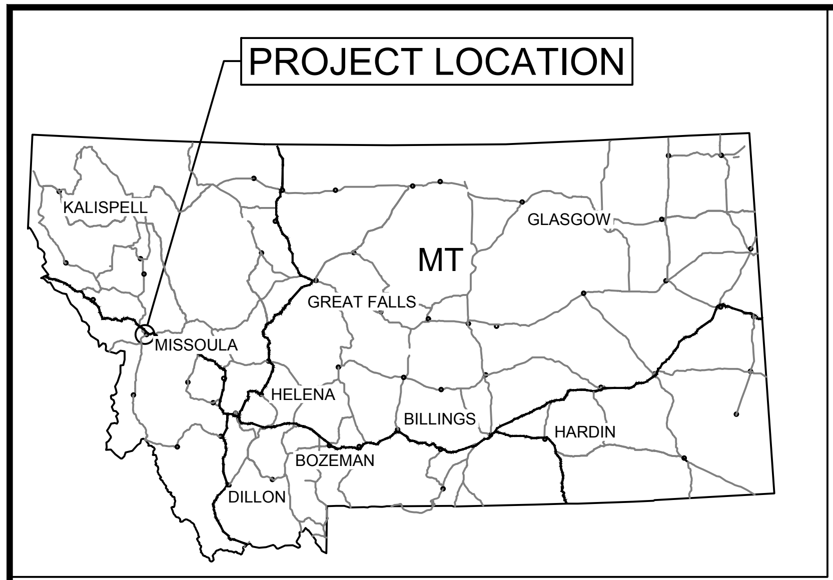
DESIGNER
DRAWN
CHECKED
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

REGULATORY APPROVAL AND SIGNATURE

SHEET 0 OF 105



MISSOULA URBAN TRANSPORTATION DISTRICT

AND

CITY OF MISSOULA

PLANS FOR PROPOSED OFFSITE INFRASTRUCTURE

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

MISSOULA, MONTANA

TYPE OF CONSTRUCTION:

GRADE, GRAVEL, PAVEMENT, DRAINAGE, CURB & GUTTER, PATH, SIDEWALK, WATER UTILITY, SEWER, LANDSCAPING, INTERSECTION IMPROVEMENTS, NEW CONSTRUCTION & RECONSTRUCTION

DESIGN DESIGNATION:

CITY OF MISSOULA, MONTANA DEPARTMENT OF TRANSPORTATION (MDT) DESIGN STANDARDS & MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY STANDARDS (DEQ)

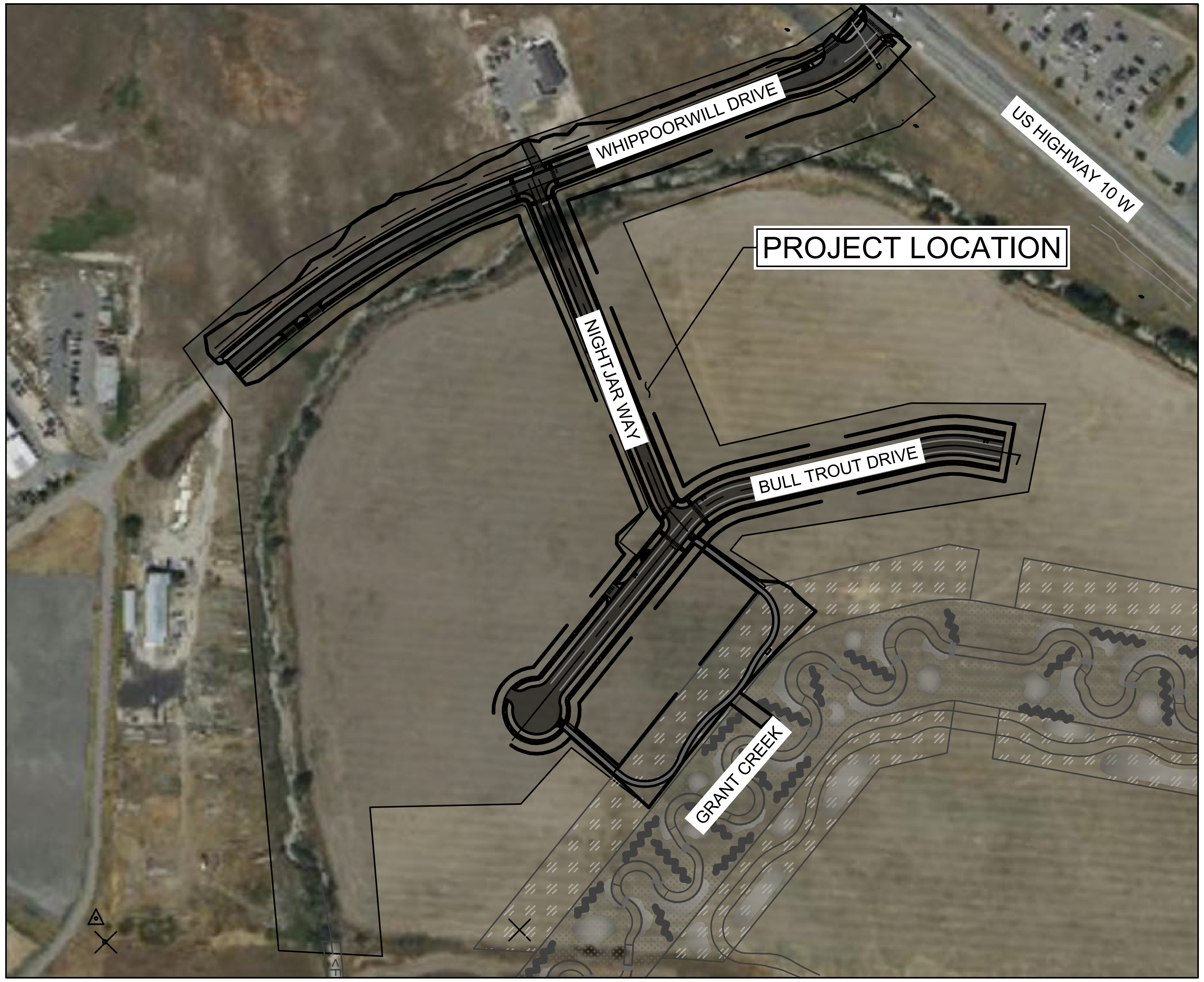
SPECIFICATION:

MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (2021) WITH CITY OF MISSOULA PUBLIC WORKS AND MONTANA DEPARTMENT OF TRANSPORTATION SUPPLEMENTS

WHIPPORWILL ROAD
PROPOSED LENGTH = 1460'
EXISTING LENGTH = 1460'

NIGHTJAR WAY
PROPOSED LENGTH = 765'

BULL TROUT DRIVE
PROPOSED LENGTH = 1212'



ENGINEER OF RECORD	APPLICABLE PLAN SHEETS
Kyle Gauthier, P.E.	**SITE CIVIL** INTRO SHEETS 0 - 4 DEMOLITION 5 TYPICAL SECTION 6 - 8 ROADWAY DESIGN 9 - 18 ADA GRADING 19 - 28 SEWER DESIGN 29 - 42 WATER DESIGN 43 - 50 STORM DESIGN 51 - 65 TRAFFIC CTRL 66 STRIPING PLAN 67 DETAILS 68 - 88 EROSION CTRL 89
Chris Brandriet, PLA	**LANDSCAPING** PLANTING PLAN KEY 90 PLANTING NOTES 91 - 92 PLANTING PLAN 93 - 98 PLANTING DETAILS 99
Ruslan Belous, P.E.	**ELECTRICAL** ELECTRICAL NOTES 100 ELECTRICAL SITE PLAN 101 ELECTRICAL DETAILS 102-103 ELECTRICAL SCHEDULES 104 SINGLE LINE DIAGRAM 105

CITY OF MISSOULA
STAGE 4

DJ&A ENGINEERS PLANNERS SURVEYORS

PLANS PREPARED FOR

MISSOULA URBAN TRANSPORTATION DISTRICT
AND THE
CITY OF MISSOULA

10/13/26 11:18 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C1.0 GENERAL NOTES LEGEND ABBREVIATIONS.DWG;

GENERAL NOTES

1. SPECIFICATIONS: CONSTRUCT THE PROJECT IN COMPLIANCE WITH THE MONTANA PUBLIC WORKS STANDARDS AND SPECIFICATIONS (MPWSS) 7TH EDITION AND BEST MANAGEMENT PRACTICES, AS WELL AS THE MISSOULA MODIFICATIONS TO MPWSS. THE PROJECT SPECIFICATIONS FOR THIS PROJECT WERE CREATED IN REFERENCE TO THE MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS) 7TH EDITION.

2. EROSION CONTROL PLAN: THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING AN EROSION CONTROL PLAN TO THE CITY ENGINEER FOR APPROVAL/PERMITTING PRIOR TO BEGINNING ANY WORK. WORK WILL NOT BE CONDUCTED UNTIL THE EROSION CONTROL PLAN HAS BEEN APPROVED BY THE CITY ENGINEER. THE CONTRACTOR WILL PROVIDE METHODS TO PREVENT RUNOFF FROM THE CONSTRUCTION SITE FROM ENTERING DIRECTLY INTO THE ADJACENT WATERWAYS, SEE ENGINEERS EROSION CONTROL PLAN FOR BASE REQUIREMENTS.

3. GENERAL STORM WATER PERMITS: THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING AND COMPLETING ALL REQUIREMENTS OF THE MPDES STORM WATER PERMIT ADMINISTERED UNDER THE MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY. AN AUTHORIZATION UNDER THE GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY IS REQUIRED FOR CONSTRUCTION ACTIVITIES THAT INCLUDE CLEARING, EXCAVATING, GRADING, GRUBBING, OR PLACEMENT/REMOVAL OF EARTH MATERIAL WITH A TOTAL AREA OF ONE OR MORE ACRES. ADDITIONAL INFORMATION IS PROVIDED IN THE SPECIFICATIONS.

4. CITY OF MISSOULA STORM WATER PERMIT: THE CONTRACTOR SHALL OBTAIN A REQUIRED CITY OF MISSOULA STORM WATER PERMIT. THE CONTRACTOR MUST SUBMIT ALL REQUIRED FORMS TO THE ENGINEER SO THAT THE ENGINEER CAN TURN IN SAID FORMS TO CITY OF MISSOULA ENGINEERING AS PART OF THE STAGE 6 PROCESS IN ORDER FOR CITY OF MISSOULA ENGINEERING TO ACCEPT INFRASTRUCTURE. THE CONTRACTOR IS ALSO REQUIRED TO SUBMIT TO THE CITY OF MISSOULA A COPY OF THE NOTICE OF INTENT (NOI) PROVIDED TO MT DEQ, A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PROVIDED TO MT DEQ AND A COPY OF MT DEQ'S CONFIRMATION LETTER.

5. UTILITIES: EXISTING UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE. NOT ALL EXISTING UTILITIES ARE SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY LOCATIONS OF ALL UTILITIES THAT MAY BE IMPACTED BY THIS PROJECT. THE CONTRACTOR SHALL COORDINATE ALL UTILITY RELOCATIONS WITH THE UTILITY PROVIDERS AT NO COST TO THE OWNER.

6. COODINATION WITH LANDOWNERS: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH LANDOWNERS ADJACENT TO THE PROJECT TO SCHEDULE NECESSARY WORK ON DRIVEWAYS, APPROACHES, AND OTHER WORK THAT MAY AFFECT ACCESS TO THEIR PROPERTIES.

7. MAILBOXES: ALL MAILBOXES ARE TO REMAIN OPERATIONAL DURING CONSTRUCTION, EITHER BY INSTALLING NEW MAILBOXES OR BY PROVIDING TEMPORARY MAILBOX USE.

8. BASIS OF QUANTITIES: PROVIDED VIA CMAR.

9. PROJECT VICINITY TO AIRPORT: CONTRACTOR TO COORDINATE WITH MISSOULA COUNTY PRIOR TO START OF CONSTRUCTION TO DETERMINE NECESSARY CONSTRUCTION OPERATIONS AND PRECAUTIONS WHEN WORKING WITHIN AIRPORT AREA.

10. EXISTING CONDITIONS: CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION.

11. GRADING: GRADING AND SLOPE INFORMATION PRESENTED IN THIS PLAN SET IS BASED ON DESIGN GRADES AND BEST AVAILABLE MAPPING DATA. EXISTING ELEVATIONS AT TIE-IN POINT ELEVATIONS SHALL BE VERIFIED PRIOR TO INSTALLATION OF IMPROVEMENTS. NOTIFY THE ENGINEER IF DIFFERENT CONDITIONS ARE FOUND. CONTRACTORS RESPONSIBLE FOR ENSURING POSITIVE DRAINAGE AND ADA COMPLIANCE FOR CONSTRUCTED IMPROVEMENTS.

DESIGN STANDARDS

1. ROADWAYS: STREETS ARE DESIGNED TO MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS (MCPWSS) INCLUDING DRAWINGS AND CONFORM TO GUIDANCE SET FORTH IN AASHTO GREEN BOOK: A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, 2018 7TH EDITION.

2. INTERSECTIONS: INTERSECTIONS ARE DESIGNED TO MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS (MCPWSS) AS WELL AS MONTANA DEPARTMENT OF TRANSPORTATION STANDARDS FOR THE INTERSECTION BETWEEN WHIPPORWILL DRIVE AND WEST BROADWAY. CONTRACTOR IS RESPONSIBLE FOR ANY MDT CONSTRUCTION PERMITS FOR CONSTRUCTION ALONG BROADWAY.

3. SIDEWALKS: SIDEWALKS ARE DESIGNED TO CITY OF MISSOULA STANDARDS & DETAILS AND CONFORM TO GUIDANCE SET FORTH BY ADA GUIDELINES. SIDEWALKS SHALL NOT EXCEED 2% CROSS SLOPE, SHALL NOT EXCEED 5% RUNNING SLOPE UNLESS IT IS A RAMPED AREA AND SHALL FOLLOW ADA REQUIREMENTS.

4. PRESSURIZED UTILITIES: THRUST BLOCKS WILL BE REQUIRED ON ALL VALVES AND BENDS FOR PRESSURIZED UTILITIES (WATER MAIN, FORCE MAIN) PER MISSOULA STANDARD DETAILS STD-406 AND STD-407.

5. FITTINGS AND VALVES: ALL BUTTERFLY VALVES, GATE VALVES, BENDS, AND FITTINGS SHALL BE MECHANICAL JOINT (MJ). CONTRACTOR SHALL NOT EXCEED 50% OF THE MANUFACTURERS RECOMMENDED MAXIMUM DEFLECTION ON ALL JOINTS, BENDS AND FITTINGS.

6. VERTICAL SEPARATION: ENSURE A MINIMUM OF 18" OF VERTICAL SEPARATION FROM POTABLE WATER AND NON POTABLE CROSSING LINES. ENSURE A MINIMUM OF 12" OF VERTICAL SEPARATION BETWEEN TWO NON-POTABLE CROSSING LINES. SEE DETAIL 1/69 IF THIS IS NOT FEASIBLE.

7. FIRE HYDRANTS: INSTALL ALL FIRE HYDRANTS TO FACE THE STREET.

8. DUCTILE IRON PIPE AND FITTINGS: ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED IN 8-MIL POLYETHYLENE WRAP TO PREVENT CORROSION MCPWSS SECTION 02660, PARAGRAPH 2.12.

9. MANHOLE COATING: THE FORCE MAIN TERMINATION MANHOLE AND THE NEXT TWO DOWNSTREAM MANHOLES ARE TO BE COATED PER MISSOULA MODIFICATIONS TO THE MPWSS SECTION 09950.

ABBREVIATIONS

ADA STANDARDS FOR ACCESSIBLE DESIGN	ADA
ALTERNATE	ALT.
AMERICAN SOCIETY FOR TESTING & MATERIALS	ASTM
AND	&
AND SO FORTH (ET CETERA)	ETC.
APPROXIMATE	APPROX.
ASPHALT	ASPH.
AT	@
BACK-TO-BACK	B&B
BEGIN VERTICAL CURVE ELEVATION	BVCE
BEGIN VERTICAL CURVE STATION	BVCS
BENCH MARK	BM
BLUE PLASTIC CAP	BPC
BOTTOM OF FOREBAY	BFB
CAST IRON	C.I.
CENTERLINE	CL, C/L
CLEAR	CLR.
CONTINUOUS DEFLECTIVE SEPARATION	CDS
CONTROL POINT	CP
CORRUGATED	CORR.
CORRUGATED METAL PIPE	CMP
CUBIC YARD	CY
CUBIC FEET	FT³, CF
CULVERT	CULV.
CURVE DELTA	Δ
DEGREE	°, DEG.
DIAMETER	DIA., D, Ø
DIMENSION RATIO	DR
DRAINAGE STRUCTURE	DS
DRAWING(S)	DRWG(S).
DRIVE	DR
DUCTILE IRON FLANGE	DI FL
EACH	EACH
EAST	E
EDGE OF BASIN	EOB
EDGE OF FORE BAY	EOFB
EDGE OF CONCRETE	EOC
EDGE OF GRAVEL	EOG
ELEVATION	ELEV., EL.
ENGINEER(S)	ENGR(S).
END VERTICAL CURVE ELEVATION	EVCE
END VERTICAL CURVE STATION	EVCS
EXCAVATION	EXC.
EXPANSION JOINT	EXP. JT.
EXTRUDED POLYSTYRENE	XPS
FINISHED GRADE	FG
FOOT (MEASUREMENT)	FT. OR '
FRONT FACE OF CURB PAN	FF
FORCE MAIN	FM
FOUND	FND
FLOW LINE	FL
GALVANIZED GAGE (GAUGE)	GALV. GA.
GROUND FAULT CIRCUIT INTERRUPTER	GFCI
GROUNDWATER SURFACE LINE	GWS
HEXAGON	HEX.
INSIDE DIAMETER	ID
INVERT	INV.
INVERT ELEVATION	IE
K-VALUE (RATE OF CHANGE OF GRADE)	K
KILO-AMPERE INTERRUPTING CAPACITY	KAIC
KILO-VOLT AMPERE	KVA
KILO-WATT	KW
LEFT	LT
LENGTH OF CURVE	L
LINEAL FOOT	LF
LOOP	LP
LONGITUDINAL VERTICAL CURVE	LVC
LUMP SUM	LS
MAIN DISTRIBUTION PANEL	MDP
MECHANICAL	MEC
MECHANICAL JOINT	MJ
MILES	M
MAXIMUM	MAX.

MINUTE(S) (ANGULAR)	'
MINIMUM	MIN.
MINIMUM HEADED STUDS	MIN HS-#
MISCELLANEOUS	MISC.
MISSOULA CITY PUBLIC WORKS STANDARD SPECS.	MCPWSS
MONTANA	MT
MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY	MDEQ
MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS	MPWSS
MONUMENT	MON.
NORTH AMERICAN VERTICAL DATUM	NAVD
NORMAL CROWN	NC
NORTH	N
NUMBER	NO.
OCCUPATIONAL SAFETY & HEALTH ADMIN.	OSHA
ON CENTER	O.C.
ON CENTER, EACH WAY	OCEW
OUTSIDE DIAMETER	OD
PAVEMENT	PVMT.
PERCENT	PCT. OR %
PERFORATE	PERF.
POINT OF COMPOUND CURVE	PCC
POINT OF CURVE	PC
POINT ON CURVE	POC
POINT OF INTERSECTION	PI
POINT OF REVERSE CURVE	PRC
POINT ON TANGENT	POT
POINT OF TANGENT	PT
POINT OF VERTICAL INTERSECTION	PVI
POLYVINYL CHLORIDE	PVC
POUND	LB
POUND PER SQUARE FOOT	PSF
POUND PER SQUARE INCH	PSI
PRESSURE GAUGE	PG
SCHEDULE	SCH.
SLOPE DESIGNATION	HORIZ:VERT
STANDARD DIMENSION RATIO	SDR
STAINLESS STEEL	SST
QUANTITY LEVEL	QL
QUANTITIES	QUANT.
RADIUS	R
RADIUS POINT	RAD PT.
RAIL ROAD	R-R
RED PLASTIC CAP	RPC
REQUIRED	REQD.
RIGHT	RT
RIGHT-OF-WAY	R/W
RIM ELEVATION	RIM ELEV
ROAD	RD.
SECOND (ANGULAR)	"
SIDEWALK	S/W
SOUTH	S
SPECIFICATION	SPEC.
SQUARE	SQ
SQUARE FOOT	FT², SF
SQUARE YARD	SY
STANDARD	STD
STREET	ST
STATION	STA
SUPERELEVATION RATE	E
SYMMETRICAL	SYM.
TANGENT	TAN.
TEMPORARY BENCH MARK	TBM
TOP BACK OF CURB	TBC
TOP OF PIPE ELEVATION	T.O.P. ELEV
TYPICAL	TYP.
VERTICAL CURVE LENGTH	VC
VERTICAL POINT OF INTERSECTION	VPI
VOLT ALTERNATING CURRENT	VAC
WEST	W
YARD	YD

REVISION	DATE	DESCRIPTION
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DESIGNER KD
DRAWN KD
CHECKED KG
PROJ. NO. 7486
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SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

GENERAL NOTES & ABBREVIATIONS

SHEET
2 OF 105

4/14/26 14:31 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C1.0 GENERAL NOTES, LEGEND & ABBREVIATIONS.DWG;

EXISTING LEGEND

━━━━	SUBJECT PROPERTY LOT LINE
—— ——	SURVEY ADJACENT LOT PROPERTY LINE
————	PRIVATE ACCESS AND UTILITY EASEMENT
— — — —	DITCH MAINTENANCE EASEMENT
- - - - - -	EDGE OF ASPHALT
—— ——	EDGE OF DIRT DRIVEWAY
- - - - - -	ROAD SHOULDER
— — — — — — —	EDGE OF GRASS TWO-TRACK
————	RIPRAP EDGE
▭	CULVERT PIPE
————	GUY CABLE
— — — — — OHP —	OVERHEAD POWER LINE
— — — — — UGP —	UNDERGROUND POWER LINE
— — — — — FO —	UNDERGROUND FIBER OPTIC LINE
—— 3160 ——	MAJOR CONTOUR LINE WITH CONTOUR LABEL
————	MINOR CONTOUR LINE
—·> —·> —·> —	DRAINAGE DITCH
—— —— —— ——	TOP OF BANK
— · · — · · — · · —	TOE OF BANK
—— x —— x ——	GATE
—— x —— x ——	WIRE FENCE
—— * —— * ——	BARB WIRE FENCE
▨	ASPHALT HATCH & ASPHALT EDGE
▨	GRAVEL/DIRT HATCH & GRAVEL/DIRT EDGE

PROPOSED LEGEND

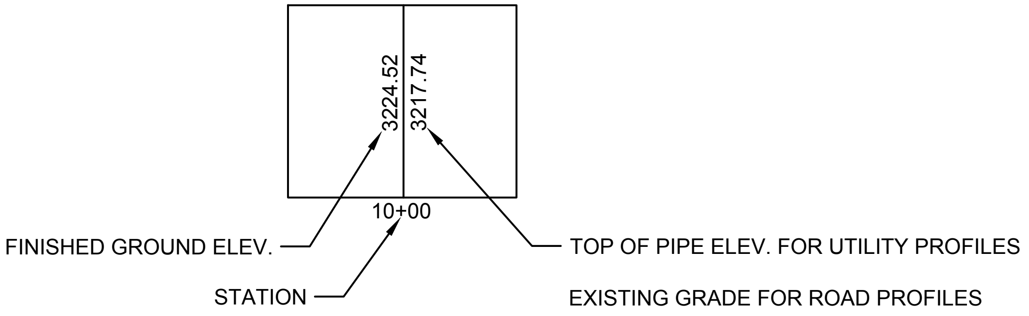
————	SUBJECT PROPERTY LOT LINE
—> —> —	STORMWATER SWALE
———— R/W —	RIGHT OF WAY LINE - ROAD
—— SW ——	STORM WATER (BLACK)
—— SW ——	STORM WATER (COLOR)
—— SW 8" ——	8" STORM WATER LINE (BLACK)
—— SW 8" ——	8" STORM WATER LINE (COLOR)
—— SW 24" ——	24" STORM WATER LINE (BLACK)
—— SW 24" ——	24" STORM WATER LINE (COLOR)
—— W ——	WATER FORCE MAIN (BLACK)
—— W ——	WATER FORCE MAIN (COLOR)
—— W 12" ——	12" WATER LINE (BLACK)
—— W 12" ——	12" WATER LINE (COLOR)
—— W 20" ——	20" WATER LINE (BLACK)
—— W 20" ——	20" WATER LINE (COLOR)
—WS—WS—WS—WS—WS—	WATER SERVICE LINE (BLACK)
—WS—WS—WS—WS—WS—	WATER SERVICE LINE (COLOR)
—FS—FS—FS—FS—FS—	WATER FIRE SERVICE LINE (BLACK)
—FS—FS—FS—FS—FS—	WATER FIRE SERVICE LINE (COLOR)
—— FM ——	SANITARY SEWER FORCE MAIN (BLACK)
—— FM ——	SANITARY SEWER FORCE MAIN (COLOR)
—— 4" FM ——	4" SANITARY SEWER FORCE MAIN (BLACK)
—— 4" FM ——	4" SANITARY SEWER FORCE MAIN (COLOR)
————	8" SANITARY SEWER LINE (BLACK)
————	8" SANITARY SEWER LINE (COLOR)
—SS—SS—SS—SS—	SANITARY SEWER SERVICE (BLACK)
—SS—SS—SS—SS—	SANITARY SEWER SERVICE (COLOR)
━●━●━●━●━	SILT FENCE
——— — ———	CENTERLINE - ROAD
————	SITE/PARKING STRIPING
—— x —— x ——	CHAIN LINK FENCE
————	ASPHALT ROAD EDGE
————	SIDEWALK EDGE
————	CONCRETE CURB
▒	ASPHALT
▭	CONCRETE SIDEWALK

*NOTE: CONTRACTOR SHALL PLOT PLANS
IN COLOR, AS SOME LINES MAY BE
IDENTIFIED IN COLOR ON CERTAIN
SHEETS THROUGHOUT THE PLAN SET.

SYMBOLOGY

△	SET CONTROL POINT - 5/8" REBAR WITH 1/2 RED PLASTIC CAP
●	FOUND 2" ALUMINUM CAP
■	FOUND 1 1/2" ALUMINUM CAP
▲	FOUND 1 1/4" YELLOW PLASTIC CAP
◎	FOUND 1 1/4" PINK PLASTIC CAP
○	FOUND 5/8" REBAR
◪	FOUND 3/8" REBAR
◑	FOUND 3/4" IRON BAR
⊗	FOUND 4" STEEL PIPE FENCE POST
⊸	EXISTING OVERHEAD UTILITY POLE
EM	EXISTING ELECTRIC METER
E	EXISTING ELECTRIC TRANSFORMER
⊠	EXISTING FIBER OPTIC PEDESTAL
Ⓦ	EXISTING WATER WELL
→	EXISTING GUY WIRE
✱	FIRE HYDRANT
WV ⋈	WATER VALVE
Ⓢ	STORMWATER REMOTE SUMP
SW	STORMWATER MANHOLE
⊡	SEWER MANHOLE
▬	STORMWATER CONCRETE BASIN WITH CURB INLET
○	EXISTING - DECIDUOUS TREE
CS	CURB STOP

PROFILE LEGEND


3224.52
3217.74
10+00
FINISHED GROUND ELEV.
STATION
TOP OF PIPE ELEV. FOR UTILITY PROFILES
EXISTING GRADE FOR ROAD PROFILES

4/14/26 14:31 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C1.0 GENERAL NOTES, LEGEND & ABBREVIATIONS.DWG;

REVISION	DATE	DESCRIPTION
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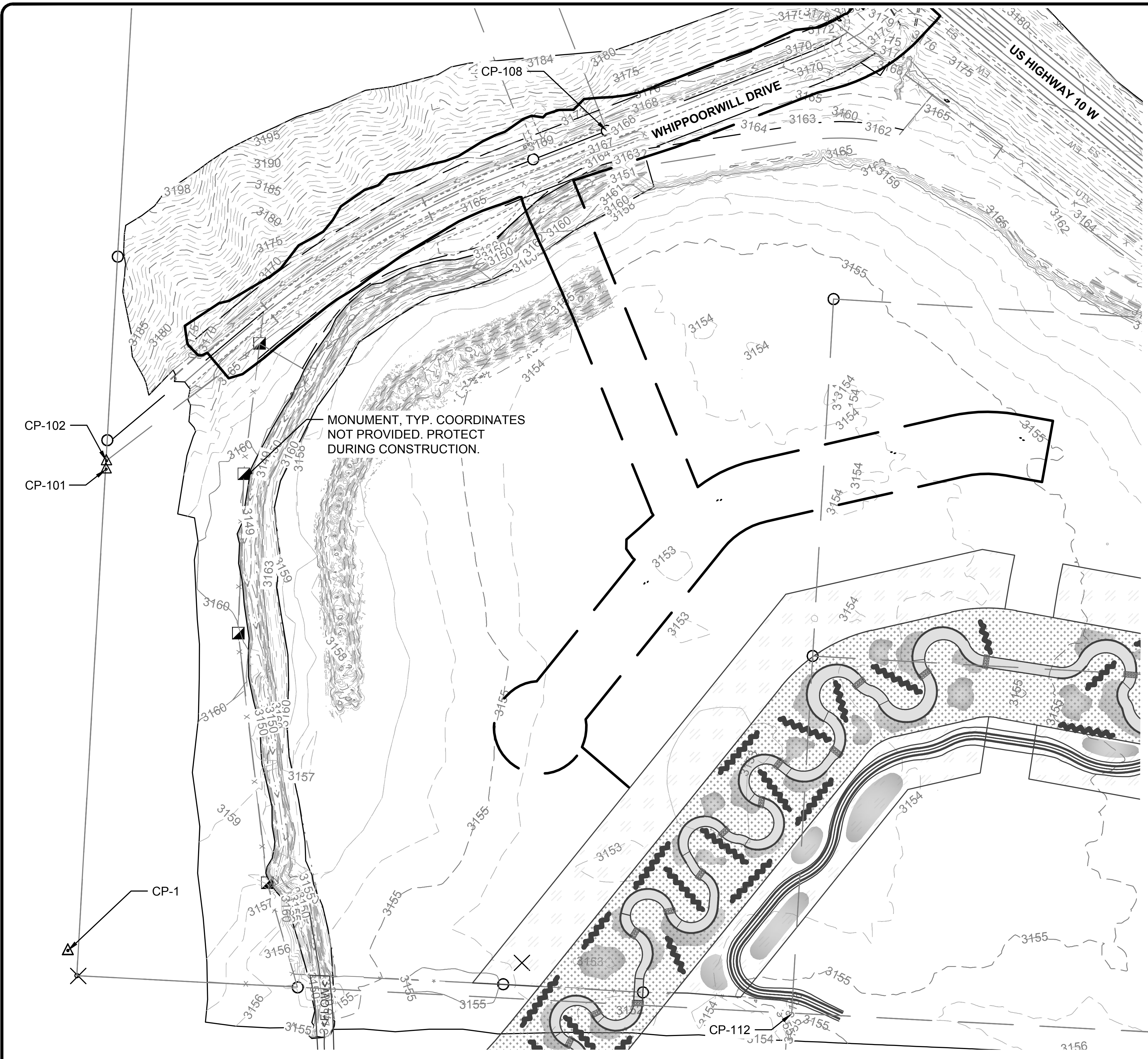
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

LEGEND

SHEET
3 OF 105



MONUMENT, TYP. COORDINATES NOT PROVIDED. PROTECT DURING CONSTRUCTION.

GROUND COORDINATES							
Point ID	Latitude (Global)	Longitude (Global)	Northing	Easting	Elevation	Combined Scale Factor	Description 1
1	46d54'25.32913"	-114d04'16.21225"	1001977.045	827231.654	3158.827	0.999246	Fd Rebar w/ Red Plastic Cap (RPC)
101	46d54'34.08769"	-114d04'15.95527"	1002861.984	827301.234	3166.92	0.999245	Fd Rebar w/ 1.5" Alum. Cap
102	46d54'34.23703"	-114d04'15.95709"	1002877.098	827301.99	3168.652	0.999245	Fd Rebar w/ 1.25" Alum. Cap
108	46d54'40.74604"	-114d04'03.23308"	1003484.009	828222.488	3167.942	0.999245	Fd Rebar
112	46d54'24.96283"	-114d03'56.98564"	1001862.16	828562.388	3155.531	0.999246	Fd Rebar w/ 1.25" Alum. Cap
GRID COORDINATES							
Point ID	Latitude (Global)	Longitude (Global)	Northing	Easting	Elevation	Combined Scale Factor	Description 1
1	46d54'25.32913"	-114d04'16.21225"	1001976.441	827234.287	3158.827	0.999246	Fd Rebar w/ Red Plastic Cap (RPC)
101	46d54'34.08769"	-114d04'15.95527"	1002860.712	827303.814	3166.92	0.999245	Fd Rebar w/ 1.5" Alum. Cap
102	46d54'34.23703"	-114d04'15.95709"	1002875.814	827304.57	3168.652	0.999245	Fd Rebar w/ 1.25" Alum. Cap
108	46d54'40.74604"	-114d04'03.23308"	1003482.267	828224.374	3167.942	0.999245	Fd Rebar
112	46d54'24.96283"	-114d03'56.98564"	1001862.642	828564.017	3155.531	0.999246	Fd Rebar w/ 1.25" Alum. Cap

BOUNDARY/EASEMENT LINES: SHOWN PER INFORMATION PROVIDED FOR PROPOSED LOT CONFIGURATION. THE PROPERTY SHOWN IS NOT OF RECORD BUT MERELY BASED UPON PLANS FOR A FUTURE SUBDIVISION. THE LINES SHOULD NOT BE RELIED UPON. UPON FINALIZATION AND RECORDATION OF MAPPING AND EXCHANGE OF TITLE, PROPERTY LINES WILL NEED TO BE ESTABLISHED. TITLE INFORMATION HAS NOT BEEN PROVIDED. THE INTENT IS TO DEPICT A CONCEPT OF FUTURE PROPERTY LIMITS FOR PLANNING PURPOSES.

DATES OF SURVEY: SEPTEMBER 23 AND 24, 2024

BASIS OF BEARINGS: THE BASIS OF BEARINGS FOR THIS SURVEY IS GRID NORTH, DERIVED FROM GPS OBSERVATIONS WITH SURVEY GRADE RECEIVERS AND REFERENCED TO MONTANA STATE PLANE COORDINATE SYSTEM NAD83 (2011), (EPOCH 2010.0)

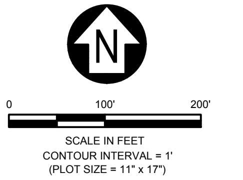
DISTANCE: COORDINATES AND DISTANCES ARE TRANSFORMED TO GROUND, HORIZONTAL UNITS ARE INTERNATIONAL FEET. COMBINED SCALE FACTOR FOR THIS PROJECT IS 0.9992455832

BENCH MARK: ELEVATIONS DERIVED BY STATIC GPS OBSERVATIONS AND POST-PROCESSED THROUGH NATIONAL GEODETIC SURVEY (NGS) ONLINE POSITIONING USER SERVICE (OPUS).

ELEV.= 3862.791 IFT; NAVD 1988 (COMPUTED USING GEOID18) FOR CONTROL POINT#1 (THIS SURVEY)

GROSS LAND AREA: SQ. FT. OR ACRES (TO BE DETERMINED, UPON FUTURE MAPPING)

UTILITIES: ALL VISIBLE ABOVE-GROUND UTILITY FEATURES SHOWN ON THIS MAP WERE OBTAINED BY CONVENTIONAL MEANS. EVIDENCE OF SUB-SURFACE UTILITY OBTAINED FROM THE FIELD SURVEY WERE TAKEN FROM PAINT MARKINGS SET-OUT UNDER THE FOLLOWING MONTANA ONE-CAL (811) DIG TICKETS: 24133360, 24133359, 24133358, 24133357, AND a24133356. NO REPRESENTATION IS MADE AS TO THE COMPLETENESS OF SAID UTILITY INFORMATION AND ANY USER OF THIS INFORMATION SHOULD CONTACT THE UTILITY OR GOVERNMENT AGENCY DIRECTLY, IF DIGGING IN THE AREA.



SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER JS
DRAWN JS
CHECKED KG
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SURVEYED DJ&A, P.C.

ENGINEERS
PLANNERS
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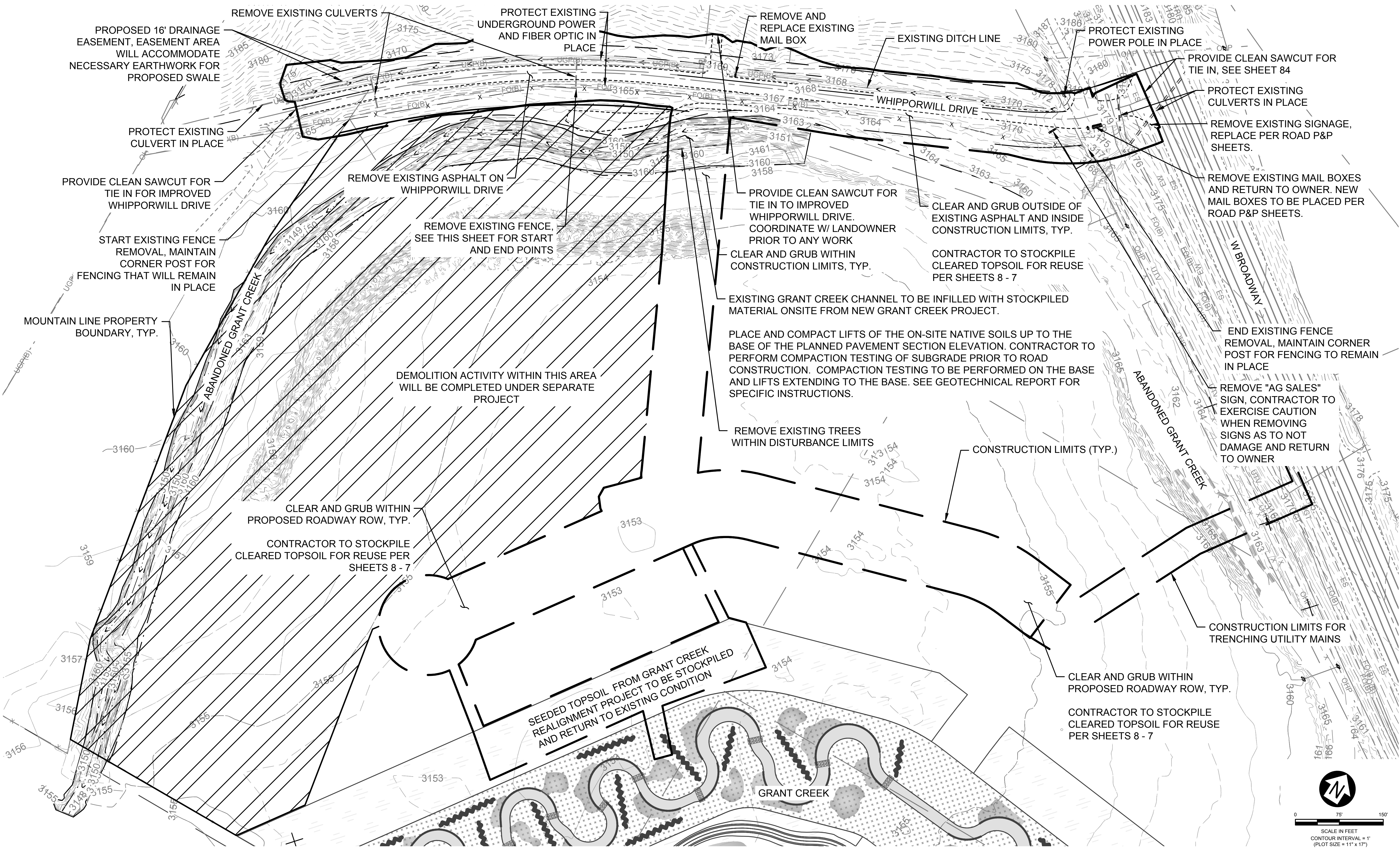
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONTROL POINT LAYOUT

SHEET
4 OF 105

10/13/26 11:18 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C1.0 GENERAL NOTES LEGEND ABBREVIATIONS.DWG;



REMOVE EXISTING CULVERTS

PROPOSED 16' DRAINAGE EASEMENT, EASEMENT AREA WILL ACCOMMODATE NECESSARY EARTHWORK FOR PROPOSED SWALE

PROTECT EXISTING CULVERT IN PLACE

PROVIDE CLEAN SAWCUT FOR TIE IN FOR IMPROVED WHIPPORWILL DRIVE

START EXISTING FENCE REMOVAL, MAINTAIN CORNER POST FOR FENCING THAT WILL REMAIN IN PLACE

MOUNTAIN LINE PROPERTY BOUNDARY, TYP.

PROTECT EXISTING UNDERGROUND POWER AND FIBER OPTIC IN PLACE

REMOVE EXISTING ASPHALT ON WHIPPORWILL DRIVE

REMOVE EXISTING FENCE, SEE THIS SHEET FOR START AND END POINTS

DEMOLITION ACTIVITY WITHIN THIS AREA WILL BE COMPLETED UNDER SEPARATE PROJECT

CLEAR AND GRUB WITHIN PROPOSED ROADWAY ROW, TYP.

CONTRACTOR TO STOCKPILE CLEARED TOPSOIL FOR REUSE PER SHEETS 8 - 7

SEEDED TOPSOIL FROM GRANT CREEK REALIGNMENT PROJECT TO BE STOCKPILED AND RETURN TO EXISTING CONDITION

REMOVE AND REPLACE EXISTING MAIL BOX

EXISTING DITCH LINE

PROTECT EXISTING POWER POLE IN PLACE

PROVIDE CLEAN SAWCUT FOR TIE IN, SEE SHEET 84

PROTECT EXISTING CULVERTS IN PLACE

REMOVE EXISTING SIGNAGE, REPLACE PER ROAD P&P SHEETS.

REMOVE EXISTING MAIL BOXES AND RETURN TO OWNER. NEW MAIL BOXES TO BE PLACED PER ROAD P&P SHEETS.

PROVIDE CLEAN SAWCUT FOR TIE IN TO IMPROVED WHIPPORWILL DRIVE. COORDINATE W/ LANDOWNER PRIOR TO ANY WORK

CLEAR AND GRUB OUTSIDE OF EXISTING ASPHALT AND INSIDE CONSTRUCTION LIMITS, TYP.

CONTRACTOR TO STOCKPILE CLEARED TOPSOIL FOR REUSE PER SHEETS 8 - 7

CLEAR AND GRUB WITHIN CONSTRUCTION LIMITS, TYP.

EXISTING GRANT CREEK CHANNEL TO BE INFILLED WITH STOCKPILED MATERIAL ONSITE FROM NEW GRANT CREEK PROJECT.

PLACE AND COMPACT LIFTS OF THE ON-SITE NATIVE SOILS UP TO THE BASE OF THE PLANNED PAVEMENT SECTION ELEVATION. CONTRACTOR TO PERFORM COMPACTION TESTING OF SUBGRADE PRIOR TO ROAD CONSTRUCTION. COMPACTION TESTING TO BE PERFORMED ON THE BASE AND LIFTS EXTENDING TO THE BASE. SEE GEOTECHNICAL REPORT FOR SPECIFIC INSTRUCTIONS.

REMOVE EXISTING TREES WITHIN DISTURBANCE LIMITS

END EXISTING FENCE REMOVAL, MAINTAIN CORNER POST FOR FENCING TO REMAIN IN PLACE

REMOVE "AG SALES" SIGN, CONTRACTOR TO EXERCISE CAUTION WHEN REMOVING SIGNS AS TO NOT DAMAGE AND RETURN TO OWNER

CONSTRUCTION LIMITS (TYP.)

CONSTRUCTION LIMITS FOR TRENCHING UTILITY MAINS

CLEAR AND GRUB WITHIN PROPOSED ROADWAY ROW, TYP.

CONTRACTOR TO STOCKPILE CLEARED TOPSOIL FOR REUSE PER SHEETS 8 - 7

7/20/26 12:52 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C2.0 DEMOLITION PLAN.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER KD
DRAWN KD
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
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MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

DEMOLITION PLAN

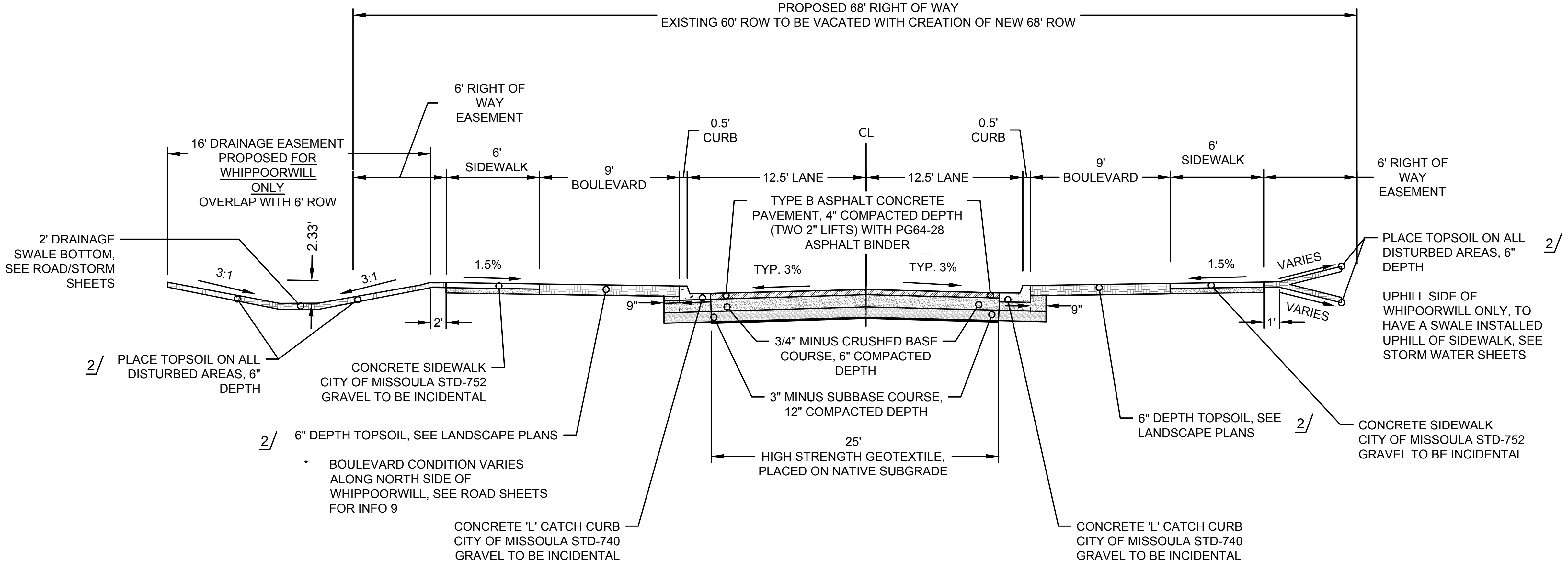
SHEET
5 OF 105

NOTES:

1. ALL DISTURBED AREAS SHALL BE REESTABLISHED WITH DRYLAND SEED MIX, AS SPECIFIED IN THE LANDSCAPE PLANS.

2. APPROX. 5000 CY OF TOPSOIL NEEDED FOR ALL BOULEVARD AND ROW AREAS.
CONTRACTOR TO CLEAR, GRUB AND STOCKPILE EXISTING TOPSOIL. ONCE STOCKPILED, CONTRACTOR SHALL PERFORM SOIL TESTS IN ALIGNMENT WITH LANDSCAPE PLAN & SPECIFICATION REQUIREMENTS.

BASED ON ASSUMED 6" EXISTING TOPSOIL, CONTRACTOR SHOULD BE ABLE TO CLEAR AND GRUB NEEDED TOPSOIL WITHIN THE LIMITS OF DISTURBANCE.


PROPOSED 68' RIGHT OF WAY
EXISTING 60' ROW TO BE VACATED WITH CREATION OF NEW 68' ROW
16' DRAINAGE EASEMENT PROPOSED FOR WHIPPOORWILL ONLY OVERLAP WITH 6' ROW
6' RIGHT OF WAY EASEMENT
6' SIDEWALK
9' BOULEVARD
0.5' CURB
CL
12.5' LANE
12.5' LANE
0.5' CURB
9' BOULEVARD
6' SIDEWALK
6' RIGHT OF WAY EASEMENT
TYPE B ASPHALT CONCRETE PAVEMENT, 4" COMPACTED DEPTH (TWO 2" LIFTS) WITH PG64-28 ASPHALT BINDER
2' DRAINAGE SWALE BOTTOM, SEE ROAD/STORM SHEETS
2.33'
3:1
3:1
1.5%
TYP. 3%
TYP. 3%
1.5%
VARIES
VARIES
PLACE TOPSOIL ON ALL DISTURBED AREAS, 6" DEPTH 2/
UPHILL SIDE OF WHIPOORWILL ONLY, TO HAVE A SWALE INSTALLED UPHILL OF SIDEWALK, SEE STORM WATER SHEETS
9"
9"
2'
1'
2/ PLACE TOPSOIL ON ALL DISTURBED AREAS, 6" DEPTH
CONCRETE SIDEWALK CITY OF MISSOULA STD-752 GRAVEL TO BE INCIDENTAL
3/4" MINUS CRUSHED BASE COURSE, 6" COMPACTED DEPTH
3" MINUS SUBBASE COURSE, 12" COMPACTED DEPTH
6" DEPTH TOPSOIL, SEE LANDSCAPE PLANS 2/
CONCRETE SIDEWALK CITY OF MISSOULA STD-752 GRAVEL TO BE INCIDENTAL
2/ 6" DEPTH TOPSOIL, SEE LANDSCAPE PLANS
25' HIGH STRENGTH GEOTEXTILE, PLACED ON NATIVE SUBGRADE
* BOULEVARD CONDITION VARIES ALONG NORTH SIDE OF WHIPPOORWILL, SEE ROAD SHEETS FOR INFO 9
CONCRETE 'L' CATCH CURB CITY OF MISSOULA STD-740 GRAVEL TO BE INCIDENTAL
CONCRETE 'L' CATCH CURB CITY OF MISSOULA STD-740 GRAVEL TO BE INCIDENTAL

WHIPPOORWILL DRIVE - TYPICAL SECTION
INDUSTRIAL STANDARD

NOT TO SCALE

STA 100+00 - 114.+59.34 (ROADWAY SECTION TRANSITIONS FOR APPROACH TO BROADWAY, SEE SHEET 12)

4/24/26 07:32 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C3.0 TYPICAL SECTION.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER KD
PROJ. NO. 7486
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MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

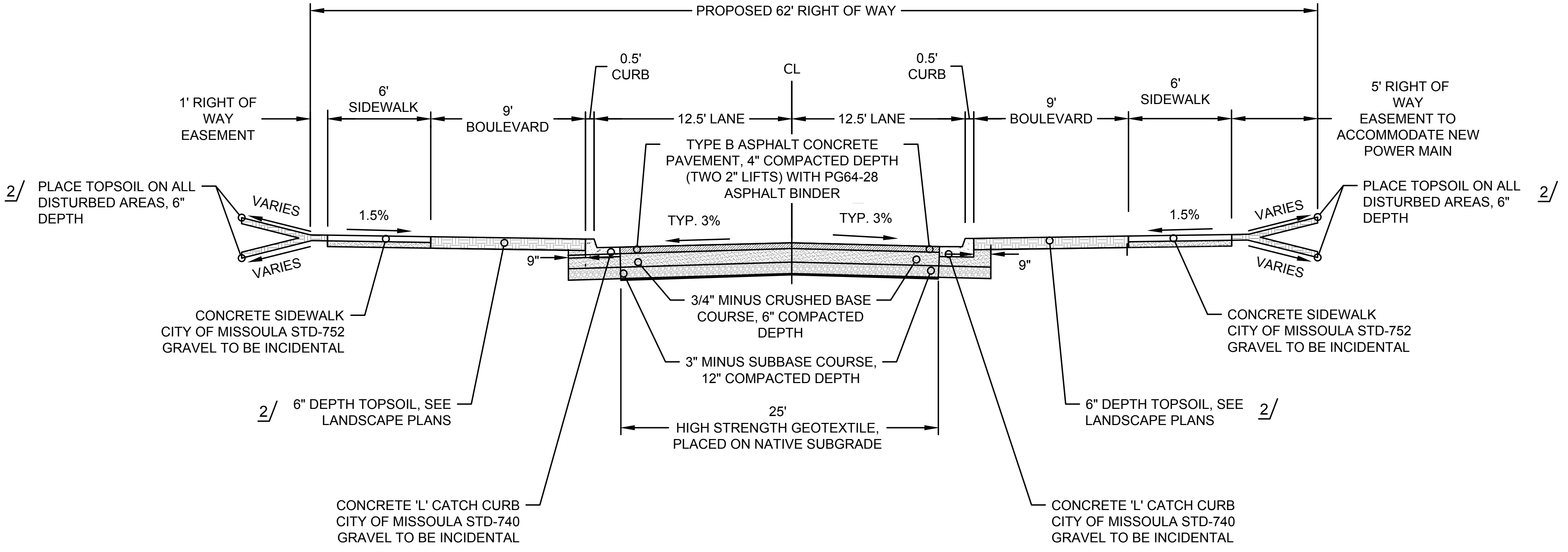
WHIPPOORWILL DRIVE
INDUSTRIAL TYPICAL SECTION (1)

NOTES:

1. ALL DISTURBED AREAS SHALL BE REESTABLISHED WITH DRYLAND SEED MIX, AS SPECIFIED IN THE LANDSCAPE PLANS.

2. APPROX. 5000 CY OF TOPSOIL NEEDED FOR ALL BOULEVARD AND ROW AREAS.
CONTRACTOR TO CLEAR, GRUB AND STOCKPILE EXISTING TOPSOIL. ONCE STOCKPILED, CONTRACTOR SHALL PERFORM SOIL TESTS IN ALIGNMENT WITH LANDSCAPE PLAN & SPECIFICATION REQUIREMENTS.

BASED ON ASSUMED 6" EXISTING TOPSOIL, CONTRACTOR SHOULD BE ABLE TO CLEAR AND GRUB NEEDED TOPSOIL WITHIN THE LIMITS OF DISTURBANCE.


PROPOSED 62' RIGHT OF WAY
1' RIGHT OF WAY EASEMENT
6' SIDEWALK
9' BOULEVARD
0.5' CURB
CL
12.5' LANE
12.5' LANE
0.5' CURB
9' BOULEVARD
6' SIDEWALK
5' RIGHT OF WAY EASEMENT TO ACCOMMODATE NEW POWER MAIN
TYPE B ASPHALT CONCRETE PAVEMENT, 4" COMPACTED DEPTH (TWO 2" LIFTS) WITH PG64-28 ASPHALT BINDER
2 PLACE TOPSOIL ON ALL DISTURBED AREAS, 6" DEPTH
VARIES
1.5%
TYP. 3%
TYP. 3%
1.5%
VARIES
PLACE TOPSOIL ON ALL DISTURBED AREAS, 6" DEPTH 2
9"
9"
VARIES
VARIES
CONCRETE SIDEWALK CITY OF MISSOULA STD-752 GRAVEL TO BE INCIDENTAL
3/4" MINUS CRUSHED BASE COURSE, 6" COMPACTED DEPTH
CONCRETE SIDEWALK CITY OF MISSOULA STD-752 GRAVEL TO BE INCIDENTAL
3" MINUS SUBBASE COURSE, 12" COMPACTED DEPTH
2 6" DEPTH TOPSOIL, SEE LANDSCAPE PLANS
25' HIGH STRENGTH GEOTEXTILE, PLACED ON NATIVE SUBGRADE
6" DEPTH TOPSOIL, SEE LANDSCAPE PLANS 2
CONCRETE 'L' CATCH CURB CITY OF MISSOULA STD-740 GRAVEL TO BE INCIDENTAL
CONCRETE 'L' CATCH CURB CITY OF MISSOULA STD-740 GRAVEL TO BE INCIDENTAL

NIGHTJAR WAY - TYPICAL SECTION
INDUSTRIAL STANDARD

NOT TO SCALE

STA 200+00 - 207+65.27

4/24/26 07:32 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C3.0 TYPICAL SECTION.DWG;

REVISION	DATE	DESCRIPTION
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MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

NIGHTJAR WAY
INDUSTRIAL TYPICAL SECTION (2)

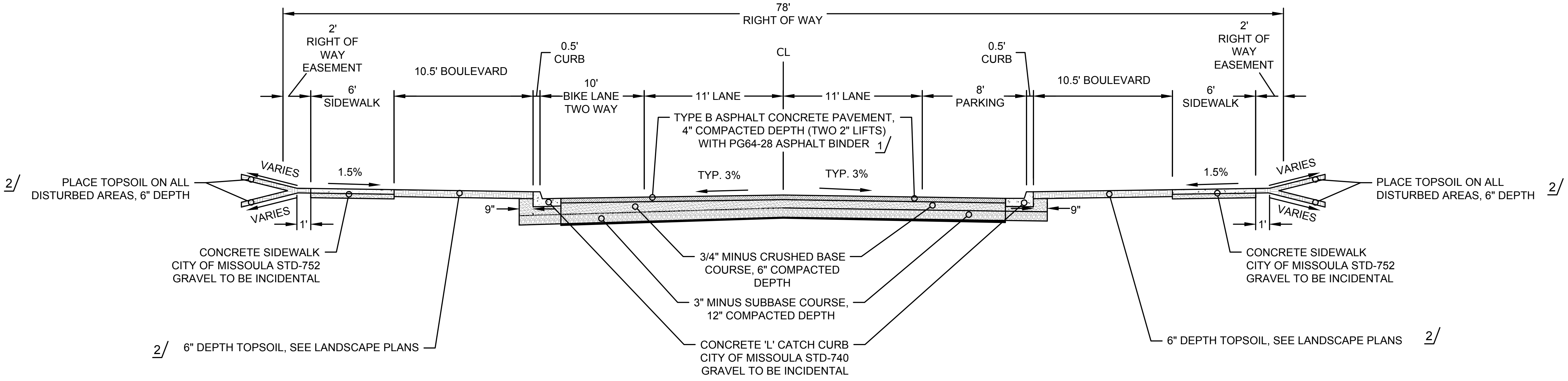
SHEET
7 OF 105

NOTES:

1. ALL DISTURBED AREAS SHALL BE REESTABLISHED WITH DRYLAND SEED MIX, AS SPECIFIED IN THE LANDSCAPE PLANS.

2. APPROX. 5000 CY OF TOPSOIL NEEDED FOR ALL BOULEVARD AND ROW AREAS.
CONTRACTOR TO CLEAR, GRUB AND STOCKPILE EXISTING TOPSOIL. ONCE STOCKPILED, CONTRACTOR SHALL PERFORM SOIL TESTS IN ALIGNMENT WITH LANDSCAPE PLAN & SPECIFICATION REQUIREMENTS.

BASED ON ASSUMED 6" EXISTING TOPSOIL, CONTRACTOR SHOULD BE ABLE TO CLEAR AND GRUB NEEDED TOPSOIL WITHIN THE LIMITS OF DISTURBANCE.



BULL TROUT DRIVE - TYPICAL SECTION
COMMUNITY MIXED USE

NOT TO SCALE

STA 300+00 - 312+12.00

4/24/26 07:32 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C3.0 TYPICAL SECTION.DWG;

REVISION	DATE	DESCRIPTION
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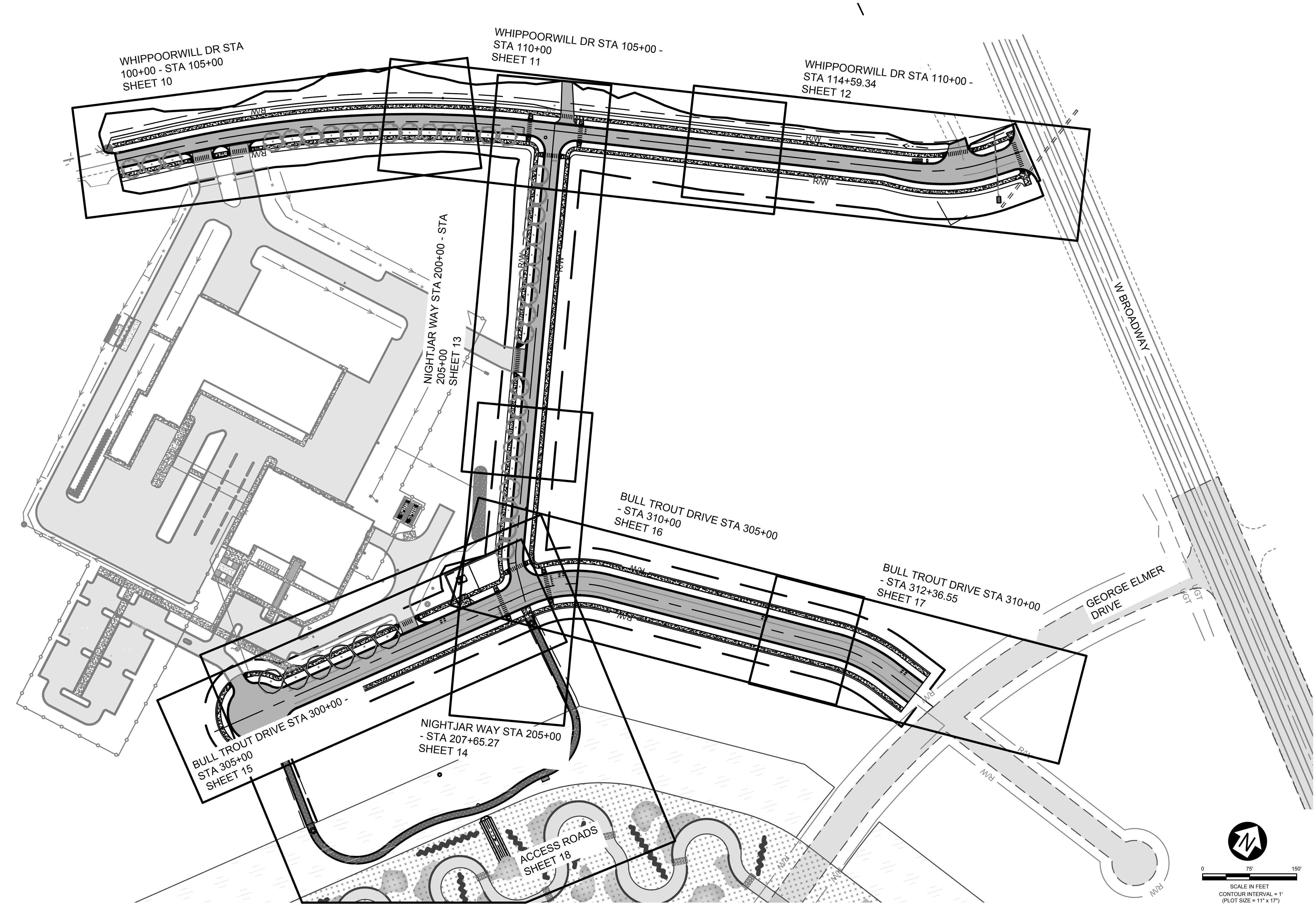
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

BULL TROUT DRIVE
COMMUNITY MIXED USE TYPICAL SECTION

SHEET
8 OF 105


WHIPPOORWILL DR STA 100+00 - STA 105+00 SHEET 10
WHIPPOORWILL DR STA 105+00 - STA 110+00 SHEET 11
WHIPPOORWILL DR STA 110+00 - STA 114+59.34 SHEET 12
NIGHTJAR WAY STA 200+00 - STA 205+00 SHEET 13
NIGHTJAR WAY STA 205+00 - STA 207+65.27 SHEET 14
BULL TROUT DRIVE STA 300+00 - STA 305+00 SHEET 15
BULL TROUT DRIVE STA 305+00 - STA 310+00 SHEET 16
BULL TROUT DRIVE STA 310+00 - STA 312+36.55 SHEET 17
ACCESS ROADS SHEET 18
W BROADWAY
GEORGE ELMER DRIVE
R/W
UGT
N
0
75'
150'
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

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PROJ. NO. 7486
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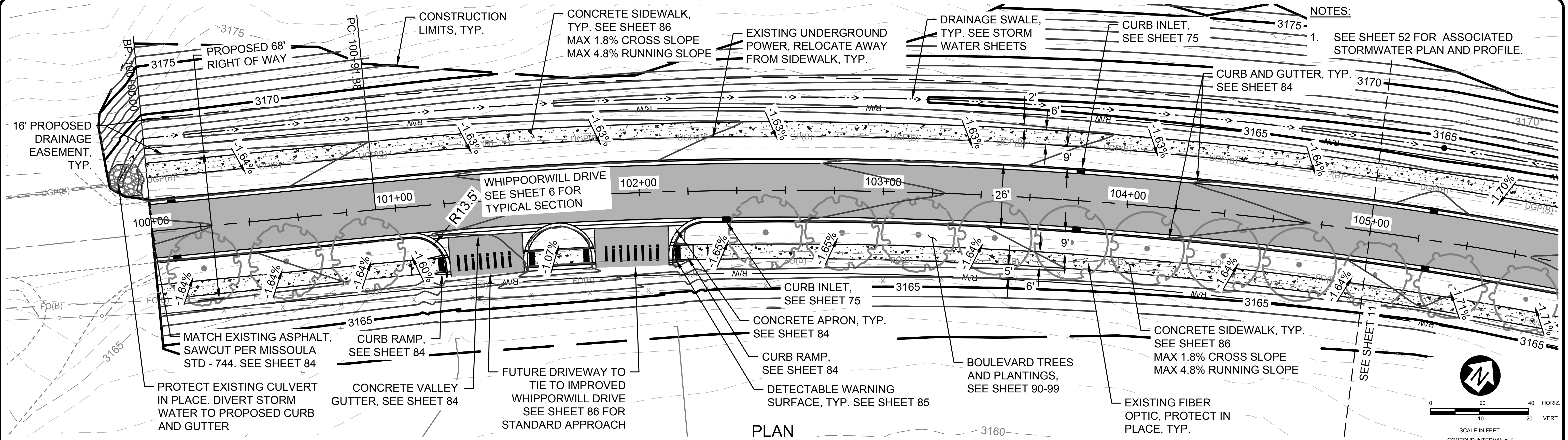
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

ROAD P&P KEY

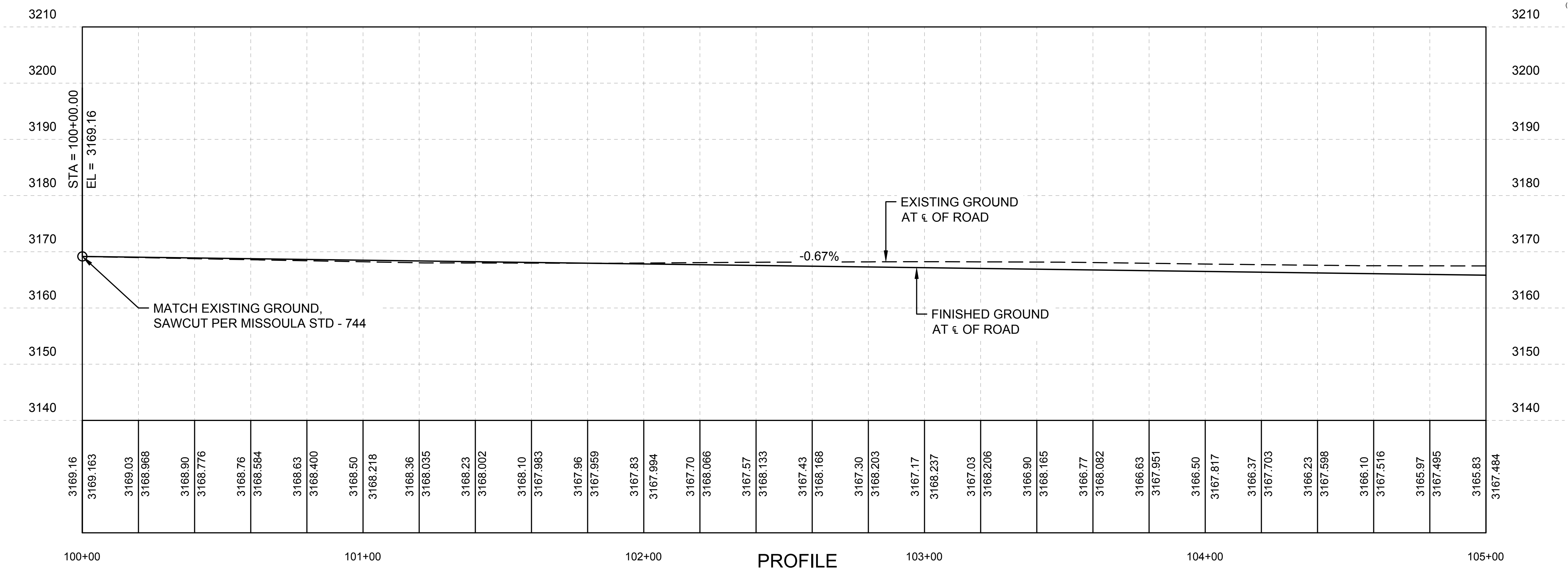
SHEET 9 OF 105


CONSTRUCTION LIMITS, TYP.
CONCRETE SIDEWALK, TYP. SEE SHEET 86 MAX 1.8% CROSS SLOPE MAX 4.8% RUNNING SLOPE
EXISTING UNDERGROUND POWER, RELOCATE AWAY FROM SIDEWALK, TYP.
DRAINAGE SWALE, TYP. SEE STORM WATER SHEETS
CURB INLET, SEE SHEET 75
CURB AND GUTTER, TYP. SEE SHEET 84
PROPOSED 68' RIGHT OF WAY
BP: 100+00.00
PC: 100+91.86
16' PROPOSED DRAINAGE EASEMENT, TYP.
WHIPPOORWILL DRIVE SEE SHEET 6 FOR TYPICAL SECTION
R13.5'
100+00
101+00
102+00
103+00
104+00
105+00
3175
3170
3165
3160
-1.64%
-1.63%
-1.60%
-1.07%
-1.65%
-1.70%
-1.71%
2'
6'
9'
26'
5'
R/W
UGP(B)
FO(B)
MATCH EXISTING ASPHALT, SAWCUT PER MISSOULA STD - 744. SEE SHEET 84
CURB RAMP, SEE SHEET 84
PROTECT EXISTING CULVERT IN PLACE. DIVERT STORM WATER TO PROPOSED CURB AND GUTTER
CONCRETE VALLEY GUTTER, SEE SHEET 84
FUTURE DRIVEWAY TO TIE TO IMPROVED WHIPPORWILL DRIVE SEE SHEET 86 FOR STANDARD APPROACH
CURB INLET, SEE SHEET 75
CONCRETE APRON, TYP. SEE SHEET 84
CURB RAMP, SEE SHEET 84
DETECTABLE WARNING SURFACE, TYP. SEE SHEET 85
BOULEVARD TREES AND PLANTINGS, SEE SHEET 90-99
CONCRETE SIDEWALK, TYP. SEE SHEET 86 MAX 1.8% CROSS SLOPE MAX 4.8% RUNNING SLOPE
EXISTING FIBER OPTIC, PROTECT IN PLACE, TYP.
SEE SHEET 11
N
0
20
40
HORIZ.
10
20
VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

NOTES:

1. SEE SHEET 52 FOR ASSOCIATED STORMWATER PLAN AND PROFILE.

PLAN



PROFILE

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA PROJ. NO. 7486
DRAWN EA DATE 10.23.2026
CHECKED KG SURVEYED DJ&A, P.C.

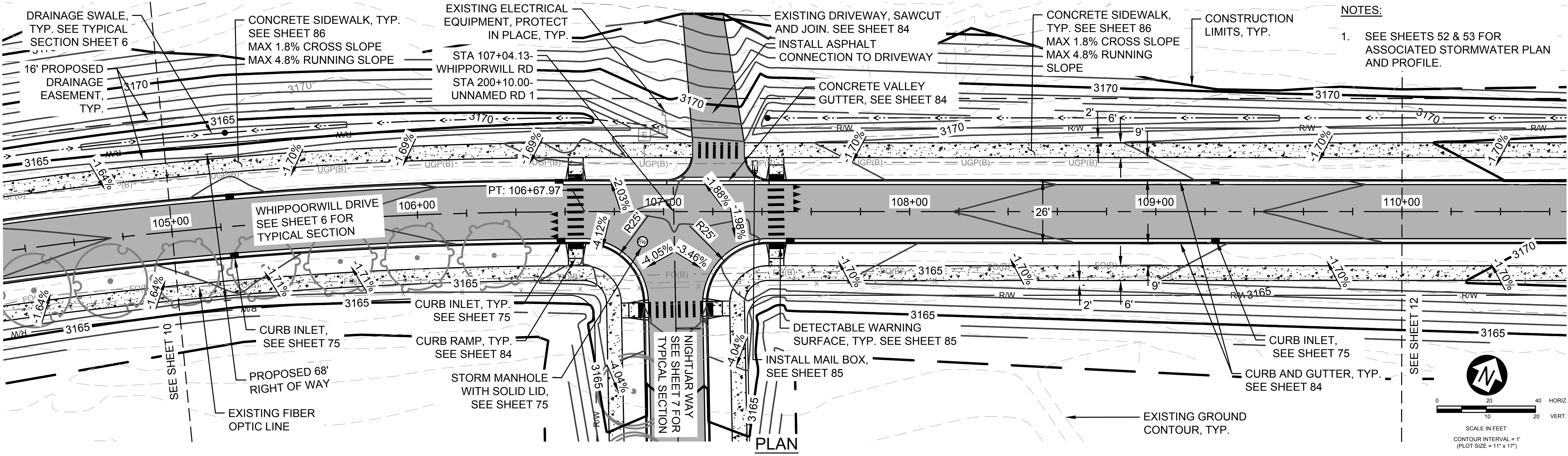
DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

WHIPPOORWILL DR STA 100+00 - STA 105+00

SHEET 10 OF 105

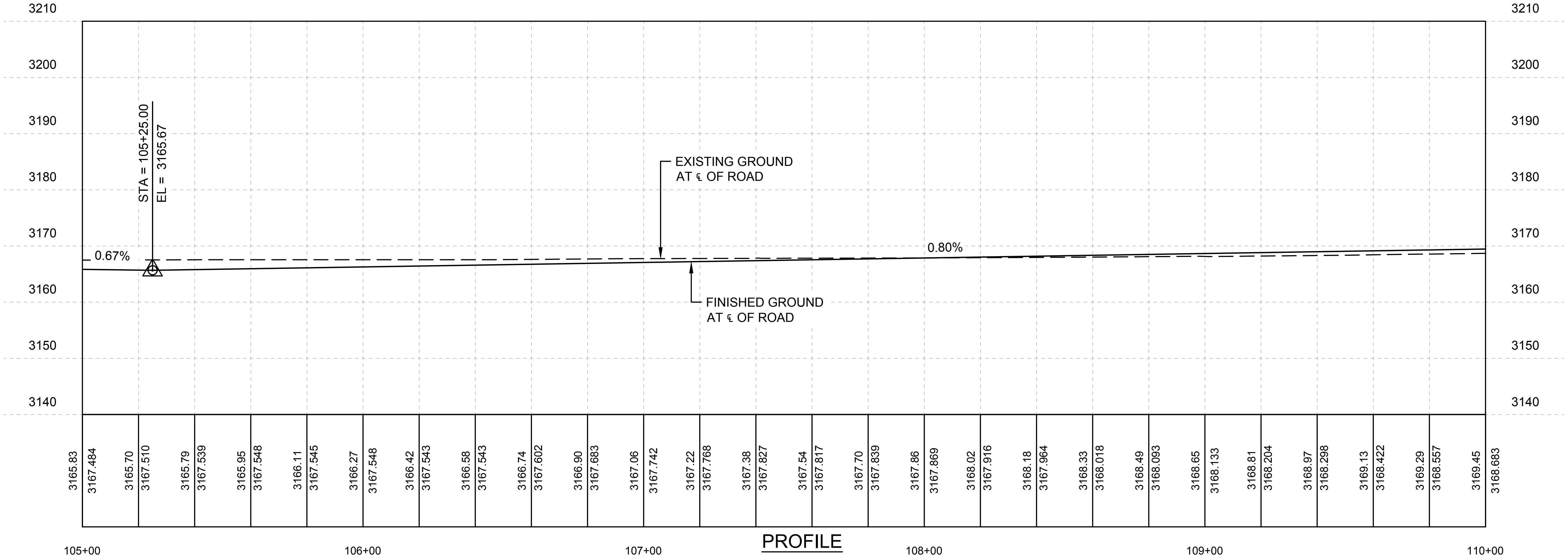
7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;


DRAINAGE SWALE, TYP. SEE TYPICAL SECTION SHEET 6
16' PROPOSED DRAINAGE EASEMENT, TYP.
CONCRETE SIDEWALK, TYP. SEE SHEET 86 MAX 1.8% CROSS SLOPE MAX 4.8% RUNNING SLOPE
EXISTING ELECTRICAL EQUIPMENT, PROTECT IN PLACE, TYP.
STA 107+04.13- WHIPPORWILL RD STA 200+10.00- UNNAMED RD 1
EXISTING DRIVEWAY, SAWCUT AND JOIN. SEE SHEET 84
INSTALL ASPHALT CONNECTION TO DRIVEWAY
CONCRETE VALLEY GUTTER, SEE SHEET 84
CONCRETE SIDEWALK, TYP. SEE SHEET 86 MAX 1.8% CROSS SLOPE MAX 4.8% RUNNING SLOPE
CONSTRUCTION LIMITS, TYP.
3170
3165
R/W
UGP(B)
FO(B)
-1.64%
-1.70%
-1.69%
-1.71%
-2.03%
-4.12%
-1.88%
-1.98%
-4.05%
-3.46%
-4.04%
R25'
PT: 106+67.97
WHIPPOORWILL DRIVE SEE SHEET 6 FOR TYPICAL SECTION
105+00
106+00
107+00
108+00
109+00
110+00
26'
2'
6'
9'
CURB INLET, TYP. SEE SHEET 75
CURB INLET, SEE SHEET 75
CURB RAMP, TYP. SEE SHEET 84
STORM MANHOLE WITH SOLID LID, SEE SHEET 75
PROPOSED 68' RIGHT OF WAY
EXISTING FIBER OPTIC LINE
SEE SHEET 10
NIGHTJAR WAY SEE SHEET 7 FOR TYPICAL SECTION
DETECTABLE WARNING SURFACE, TYP. SEE SHEET 85
INSTALL MAIL BOX, SEE SHEET 85
EXISTING GROUND CONTOUR, TYP.
CURB INLET, SEE SHEET 75
CURB AND GUTTER, TYP. SEE SHEET 84
SEE SHEET 12
N
0 20 40 HORIZ.
10 20 VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

NOTES:

1. SEE SHEETS 52 & 53 FOR ASSOCIATED STORMWATER PLAN AND PROFILE.

PLAN



PROFILE

7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA
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PROJ. NO. 7486
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SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

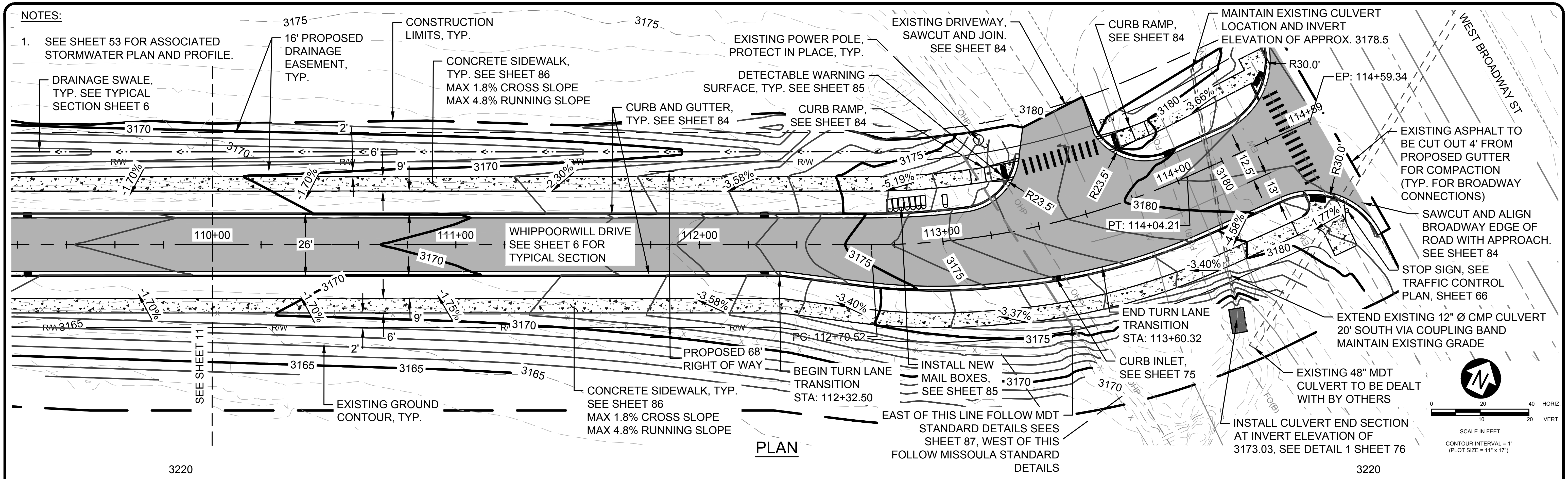
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

WHIPPOORWILL DR STA 105+00 - STA 110+00

SHEET
11
OF
105

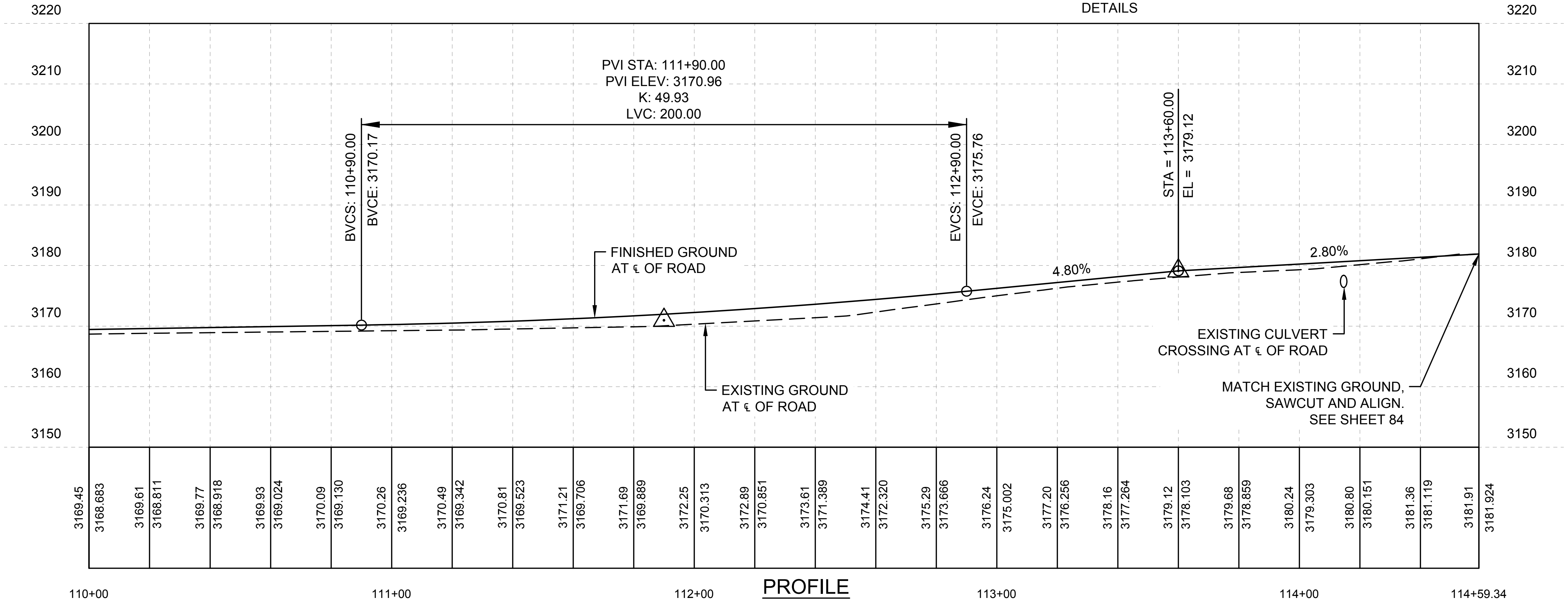
NOTES:

1. SEE SHEET 53 FOR ASSOCIATED STORMWATER PLAN AND PROFILE.



DRAINAGE SWALE, TYP. SEE TYPICAL SECTION SHEET 6
16' PROPOSED DRAINAGE EASEMENT, TYP.
CONSTRUCTION LIMITS, TYP.
CONCRETE SIDEWALK, TYP. SEE SHEET 86 MAX 1.8% CROSS SLOPE MAX 4.8% RUNNING SLOPE
CURB AND GUTTER, TYP. SEE SHEET 84
EXISTING POWER POLE, PROTECT IN PLACE, TYP.
DETECTABLE WARNING SURFACE, TYP. SEE SHEET 85
CURB RAMP, SEE SHEET 84
EXISTING DRIVEWAY, SAWCUT AND JOIN. SEE SHEET 84
CURB RAMP, SEE SHEET 84
MAINTAIN EXISTING CULVERT LOCATION AND INVERT ELEVATION OF APPROX. 3178.5
R30.0'
EP: 114+59.34
WEST BROADWAY ST
EXISTING ASPHALT TO BE CUT OUT 4' FROM PROPOSED GUTTER FOR COMPACTION (TYP. FOR BROADWAY CONNECTIONS)
SAWCUT AND ALIGN BROADWAY EDGE OF ROAD WITH APPROACH. SEE SHEET 84
STOP SIGN, SEE TRAFFIC CONTROL PLAN, SHEET 66
EXTEND EXISTING 12" Ø CMP CULVERT 20' SOUTH VIA COUPLING BAND MAINTAIN EXISTING GRADE
EXISTING 48" MDT CULVERT TO BE DEALT WITH BY OTHERS
INSTALL CULVERT END SECTION AT INVERT ELEVATION OF 3173.03, SEE DETAIL 1 SHEET 76
CURB INLET, SEE SHEET 75
END TURN LANE TRANSITION STA: 113+60.32
EAST OF THIS LINE FOLLOW MDT STANDARD DETAILS SEES SHEET 87, WEST OF THIS FOLLOW MISSOULA STANDARD DETAILS
INSTALL NEW MAIL BOXES, SEE SHEET 85
BEGIN TURN LANE TRANSITION STA: 112+32.50
PROPOSED 68' RIGHT OF WAY
CONCRETE SIDEWALK, TYP. SEE SHEET 86 MAX 1.8% CROSS SLOPE MAX 4.8% RUNNING SLOPE
EXISTING GROUND CONTOUR, TYP.
SEE SHEET 11
WHIPPOORWILL DRIVE SEE SHEET 6 FOR TYPICAL SECTION
110+00
111+00
112+00
113+00
114+00
114+59
PC: 112+70.52
PT: 114+04.21
R23.5'
R30.0'
26'
2'
6'
9'
12.5'
13'
-1.70%
-2.30%
-3.58%
-5.19%
-3.66%
-4.58%
-1.77%
-3.40%
-3.37%
-1.75%
3165
3170
3175
3180
R/W
OHP
N
0 20 40 HORIZ.
10 20 VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

PLAN



PROFILE

REVISION	DATE	DESCRIPTION
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-	-	-

DESIGNER EA
DRAWN EA
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
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MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

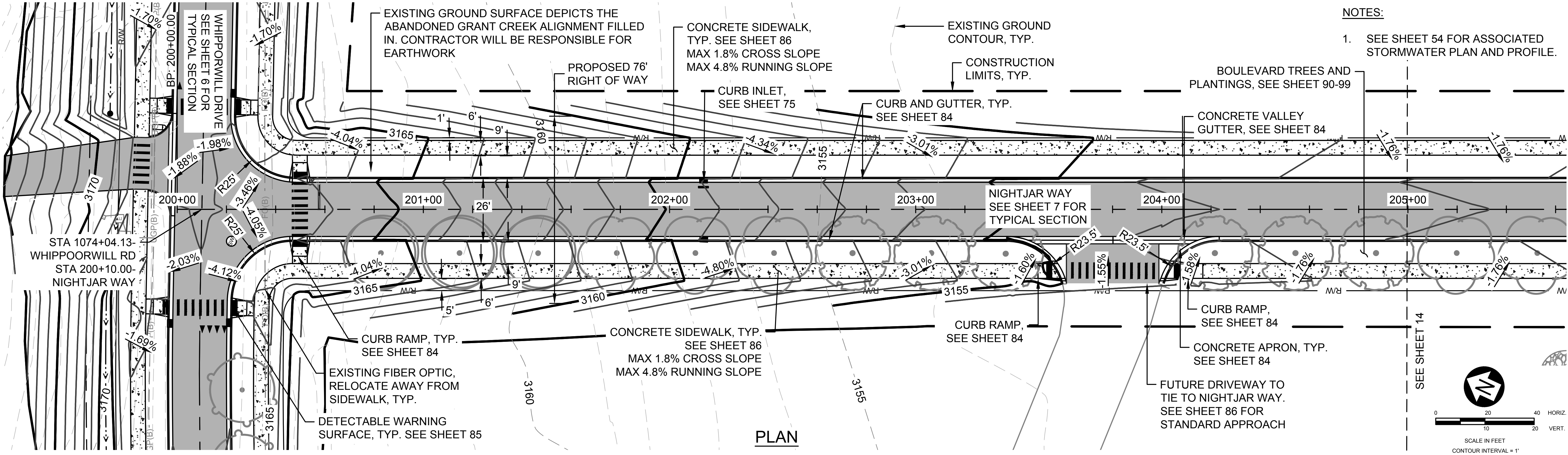
WHIPPOORWILL DR STA 110+00 - STA 114+59.34

SHEET 12 OF 105

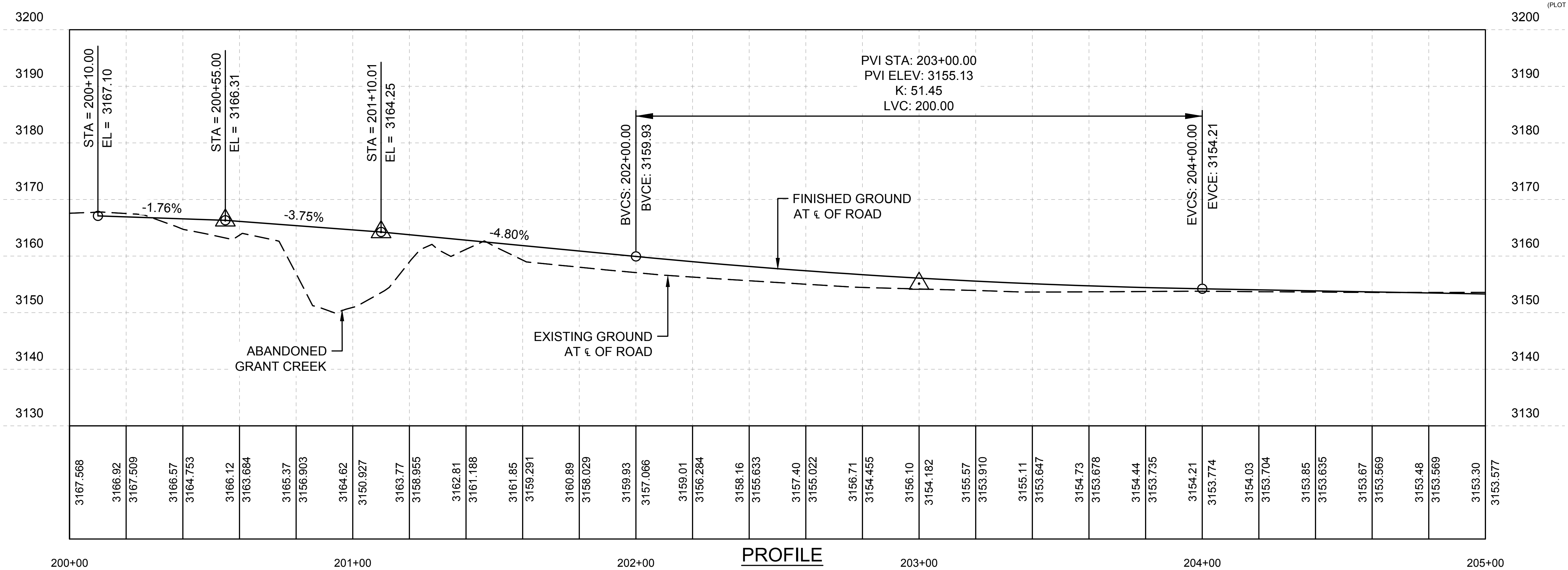
7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;

NOTES:

1. SEE SHEET 54 FOR ASSOCIATED STORMWATER PLAN AND PROFILE.


EXISTING GROUND SURFACE DEPICTS THE ABANDONED GRANT CREEK ALIGNMENT FILLED IN. CONTRACTOR WILL BE RESPONSIBLE FOR EARTHWORK
CONCRETE SIDEWALK, TYP. SEE SHEET 86 MAX 1.8% CROSS SLOPE MAX 4.8% RUNNING SLOPE
EXISTING GROUND CONTOUR, TYP.
CONSTRUCTION LIMITS, TYP.
PROPOSED 76' RIGHT OF WAY
CURB INLET, SEE SHEET 75
CURB AND GUTTER, TYP. SEE SHEET 84
BOULEVARD TREES AND PLANTINGS, SEE SHEET 90-99
CONCRETE VALLEY GUTTER, SEE SHEET 84
WHIPPOORWILL DRIVE SEE SHEET 6 FOR TYPICAL SECTION
BP: 200+00.00
STA 1074+04.13- WHIPPOORWILL RD STA 200+10.00- NIGHTJAR WAY
NIGHTJAR WAY SEE SHEET 7 FOR TYPICAL SECTION
200+00
201+00
202+00
203+00
204+00
205+00
26'
1'
6'
9'
5'
R25'
R23.5'
-1.70%
-1.98%
-1.88%
-3.46%
-4.05%
-2.03%
-4.12%
-4.04%
-4.34%
-3.01%
-4.80%
-1.60%
-1.55%
-1.58%
-1.76%
-1.69%
3170
3165
3160
3155
R/W
CURB RAMP, TYP. SEE SHEET 84
EXISTING FIBER OPTIC, RELOCATE AWAY FROM SIDEWALK, TYP.
DETECTABLE WARNING SURFACE, TYP. SEE SHEET 85
CONCRETE SIDEWALK, TYP. SEE SHEET 86 MAX 1.8% CROSS SLOPE MAX 4.8% RUNNING SLOPE
CURB RAMP, SEE SHEET 84
CURB RAMP, SEE SHEET 84
CONCRETE APRON, TYP. SEE SHEET 84
FUTURE DRIVEWAY TO TIE TO NIGHTJAR WAY. SEE SHEET 86 FOR STANDARD APPROACH
SEE SHEET 14
0 20 40 HORIZ.
10 20 VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

PLAN



PROFILE

7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

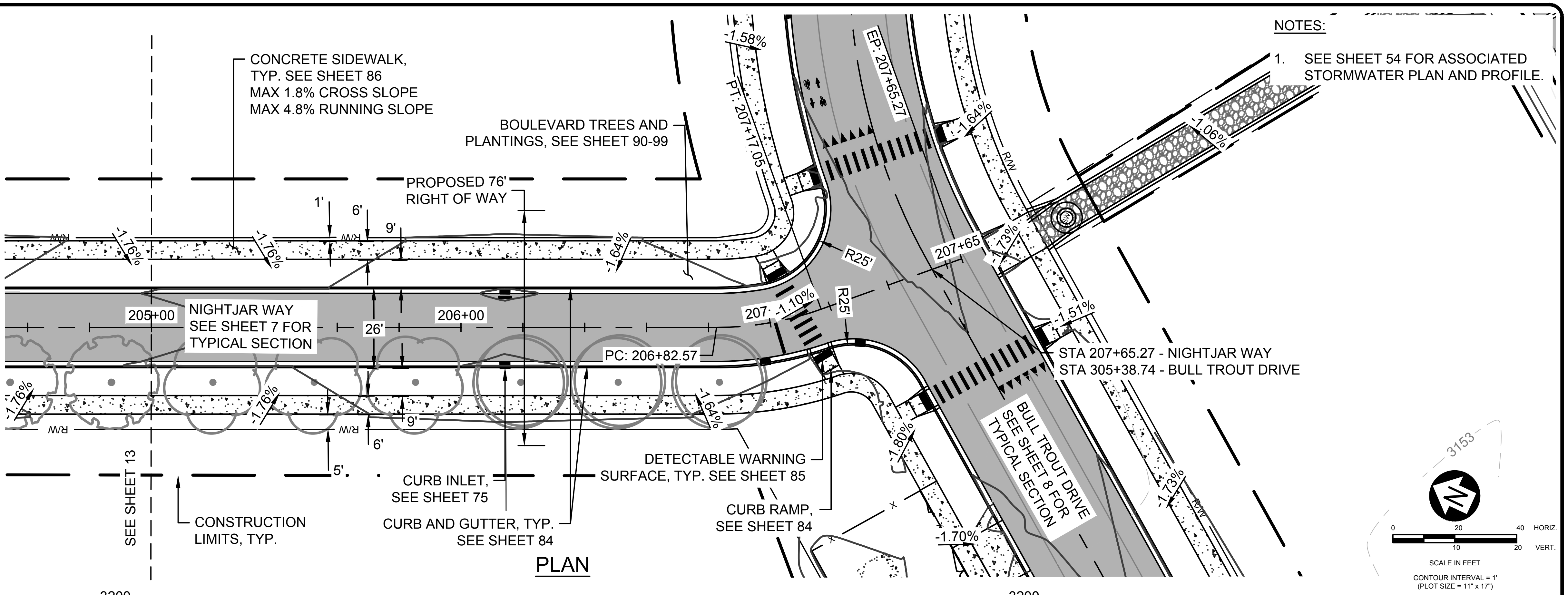
DESIGNER EA
PROJ. NO. 7486
DRAWN EA
DATE 10.23.2026
CHECKED KG
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

NIGHTJAR WAY STA 200+00 - STA 205+00

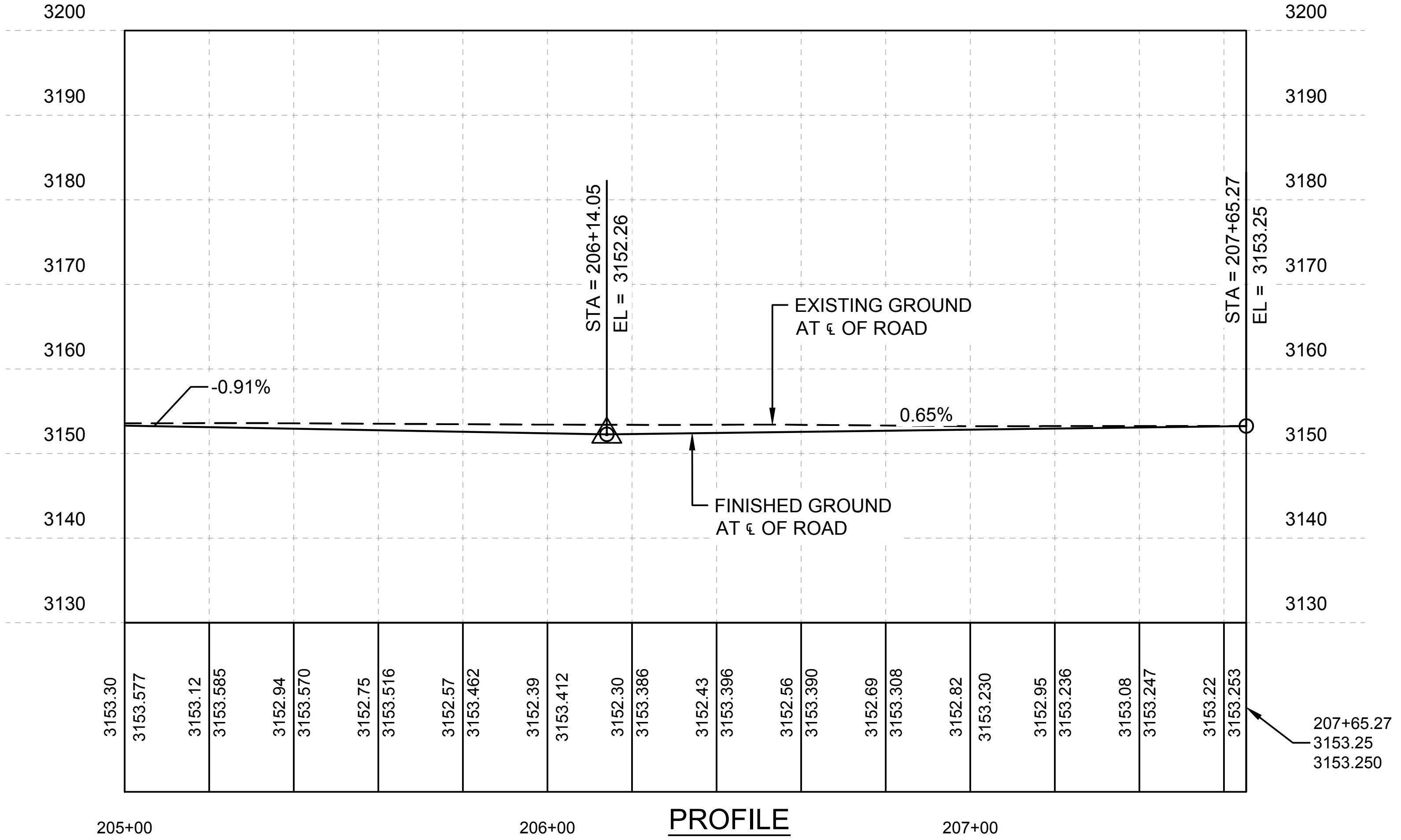
SHEET
13 OF 105



NOTES:

1. SEE SHEET 54 FOR ASSOCIATED STORMWATER PLAN AND PROFILE.

PLAN



PROFILE

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA
DRAWN EA
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

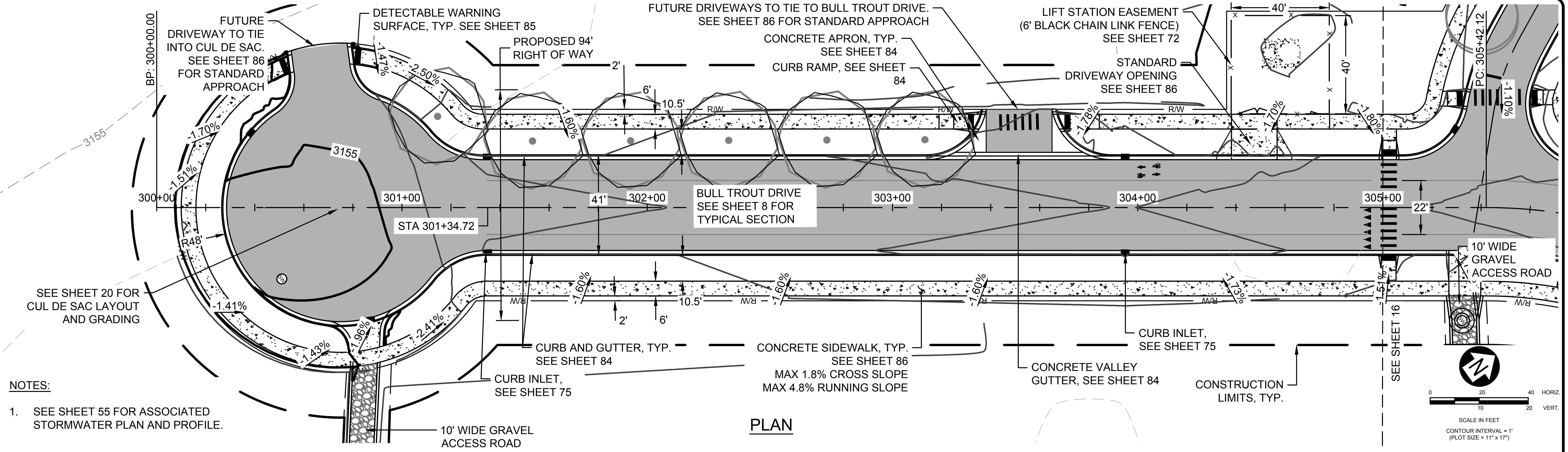
DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

NIGHTJAR WAY STA 205+00 - STA 207+65.27

SHEET
14 OF 105

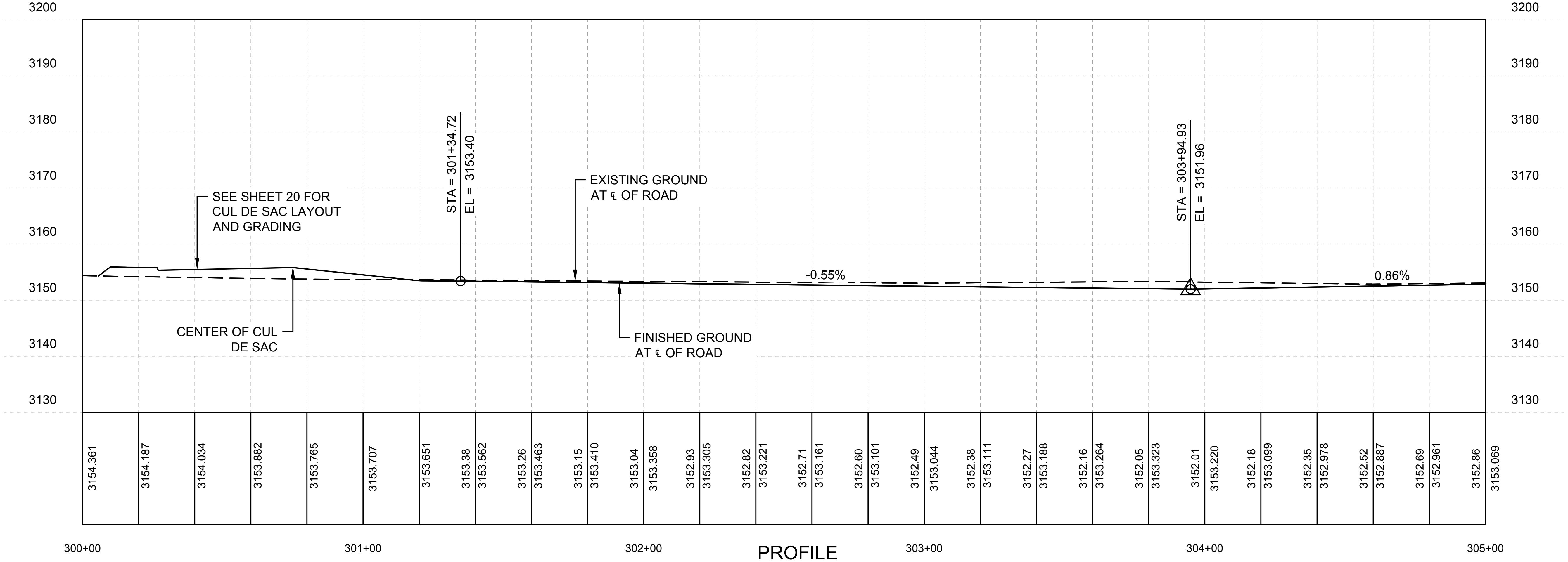
7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;


FUTURE DRIVEWAY TO TIE INTO CUL DE SAC. SEE SHEET 86 FOR STANDARD APPROACH
BP: 300+00.00
DETECTABLE WARNING SURFACE, TYP. SEE SHEET 85
PROPOSED 94' RIGHT OF WAY
FUTURE DRIVEWAYS TO TIE TO BULL TROUT DRIVE. SEE SHEET 86 FOR STANDARD APPROACH
CONCRETE APRON, TYP. SEE SHEET 84
CURB RAMP, SEE SHEET 84
LIFT STATION EASEMENT (6' BLACK CHAIN LINK FENCE) SEE SHEET 72
STANDARD DRIVEWAY OPENING SEE SHEET 86
40'
40'
PC: 305+42.12
-1.10%
-1.47%
-2.50%
-1.60%
2'
6'
10.5'
R/W
-1.78%
-1.70%
-1.80%
3155
3155
-1.70%
-1.51%
300+00
301+00
41'
302+00
BULL TROUT DRIVE SEE SHEET 8 FOR TYPICAL SECTION
303+00
304+00
305+00
22'
STA 301+34.72
R48'
10' WIDE GRAVEL ACCESS ROAD
SEE SHEET 20 FOR CUL DE SAC LAYOUT AND GRADING
-1.41%
-1.60%
10.5'
-1.60%
-1.60%
-1.73%
-1.51%
R/W
2'
6'
-1.43%
-1.96%
-2.41%
CURB AND GUTTER, TYP. SEE SHEET 84
CONCRETE SIDEWALK, TYP. SEE SHEET 86 MAX 1.8% CROSS SLOPE MAX 4.8% RUNNING SLOPE
CURB INLET, SEE SHEET 75
CONCRETE VALLEY GUTTER, SEE SHEET 84
CURB INLET, SEE SHEET 75
CONSTRUCTION LIMITS, TYP.
SEE SHEET 16
10' WIDE GRAVEL ACCESS ROAD
0 20 40 HORIZ.
10 20 VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

NOTES:

1. SEE SHEET 55 FOR ASSOCIATED STORMWATER PLAN AND PROFILE.

PLAN



PROFILE

7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA
PROJ. NO. 7486
DRAWN EA
DATE 10.23.2026
CHECKED KG
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

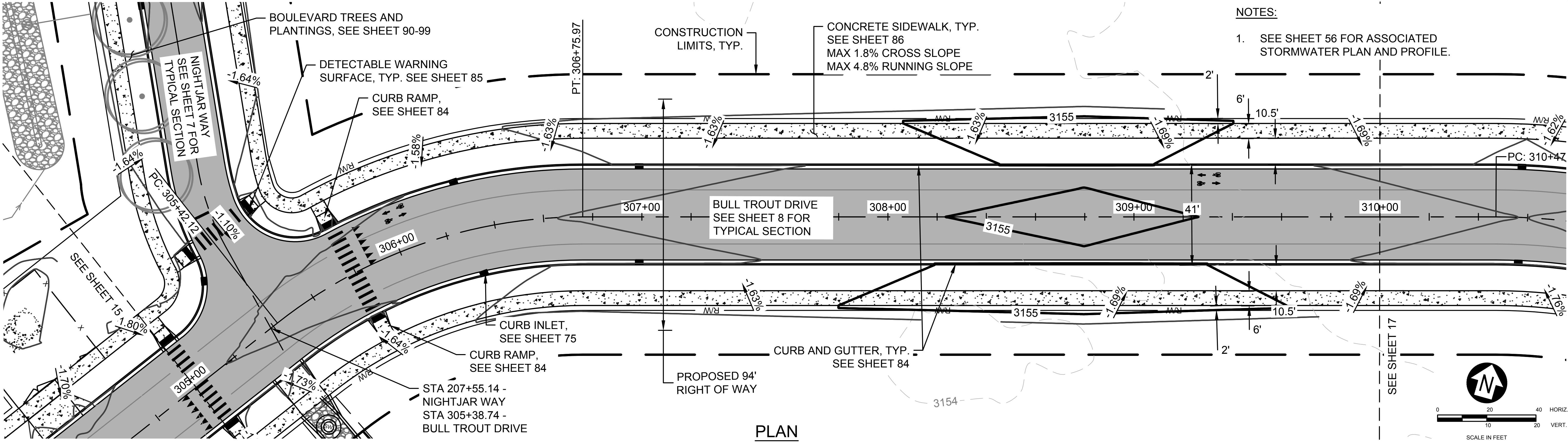
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

BULL TROUT DRIVE STA 300+00 - STA 305+00

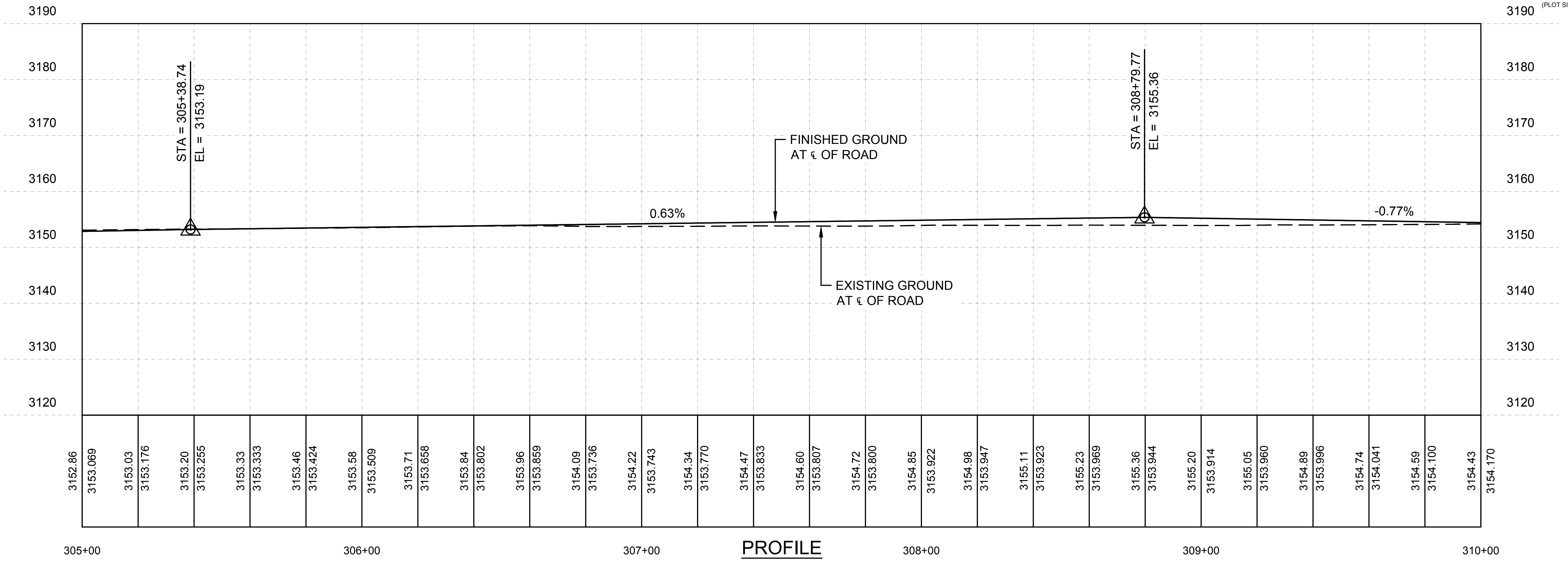
SHEET
15 OF 105

NOTES:

1. SEE SHEET 56 FOR ASSOCIATED STORMWATER PLAN AND PROFILE.


BOULEVARD TREES AND PLANTINGS, SEE SHEET 90-99
DETECTABLE WARNING SURFACE, TYP. SEE SHEET 85
CURB RAMP, SEE SHEET 84
NIGHTJAR WAY SEE SHEET 7 FOR TYPICAL SECTION
PT: 306+75.97
CONSTRUCTION LIMITS, TYP.
CONCRETE SIDEWALK, TYP. SEE SHEET 86 MAX 1.8% CROSS SLOPE MAX 4.8% RUNNING SLOPE
PC: 305+42.12
-1.64%
-1.64%
-1.58%
-1.63%
-1.63%
-1.63%
-1.69%
-1.69%
-1.62%
-1.10%
1.80%
-1.70%
-1.73%
-1.64%
-1.63%
-1.69%
-1.69%
-1.76%
R/W
3155
2'
6'
10.5'
41'
PC: 310+47
305+00
306+00
307+00
308+00
309+00
310+00
3155
BULL TROUT DRIVE SEE SHEET 8 FOR TYPICAL SECTION
SEE SHEET 15
CURB INLET, SEE SHEET 75
CURB RAMP, SEE SHEET 84
STA 207+55.14 - NIGHTJAR WAY STA 305+38.74 - BULL TROUT DRIVE
PROPOSED 94' RIGHT OF WAY
CURB AND GUTTER, TYP. SEE SHEET 84
3155
10.5'
6'
2'
3154
SEE SHEET 17
N
0 20 40 HORIZ.
10 20 VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

PLAN



PROFILE

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA PROJ. NO. 7486
DRAWN EA DATE 10.23.2026
CHECKED KG SURVEYED DJ&A, P.C.

DJ&A ENGINEERS PLANNERS SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

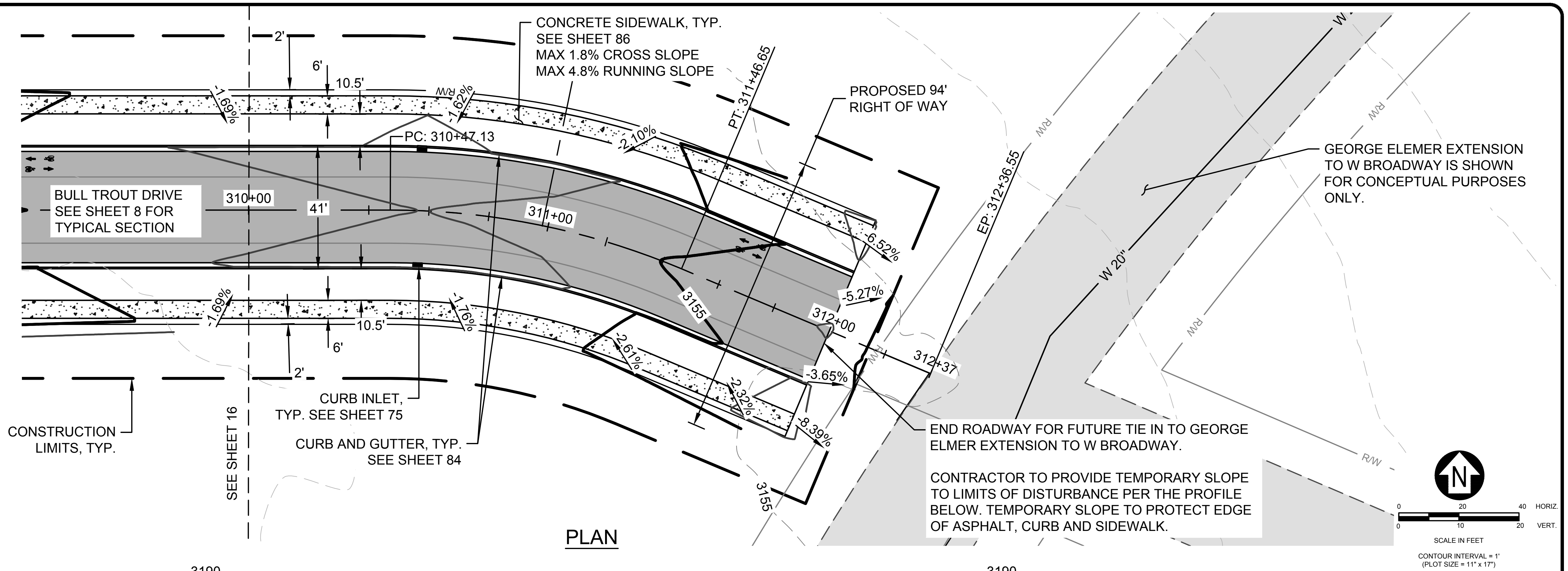
BULL TROUT DRIVE STA 305+00 - STA 310+00

SHEET 16 OF 105

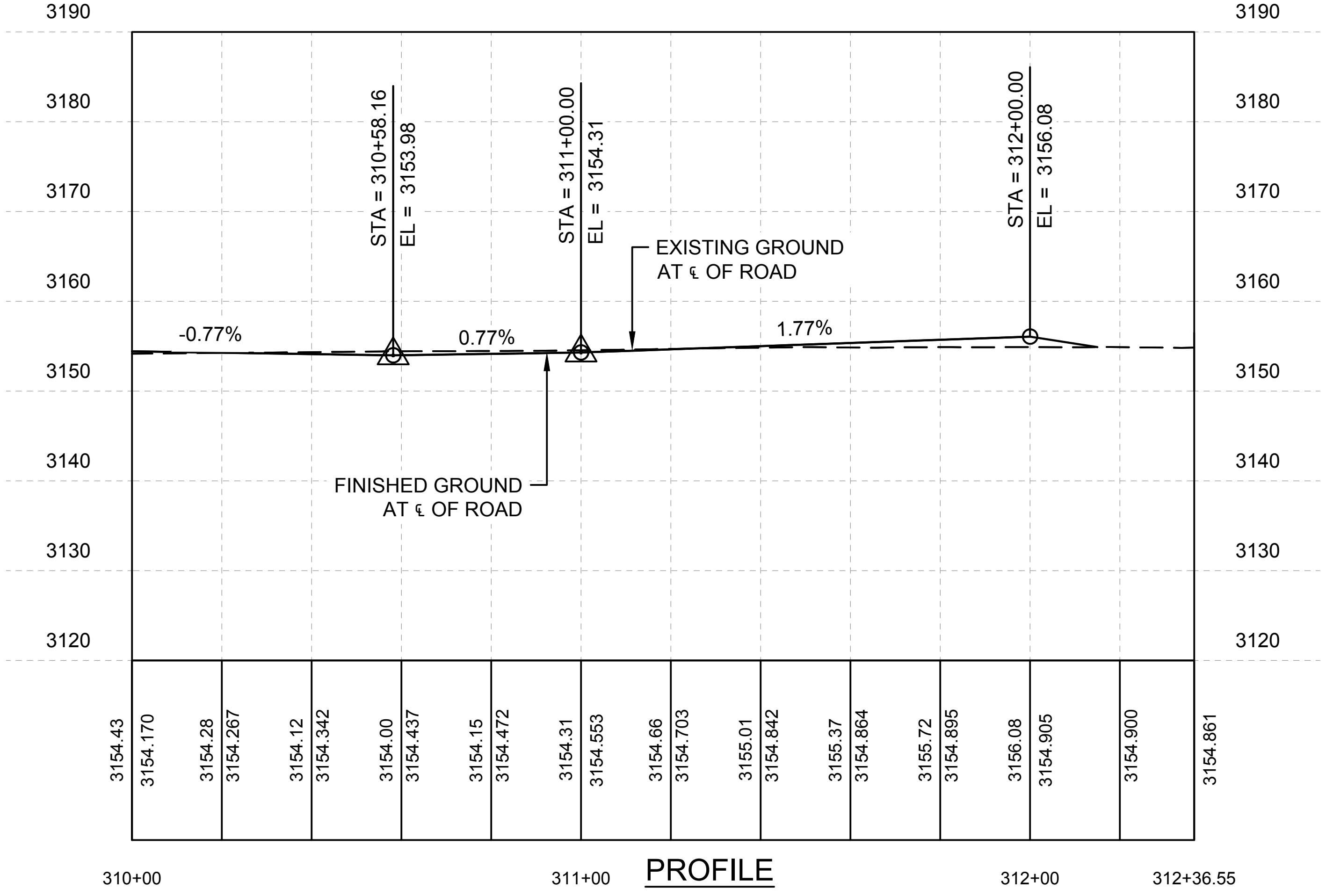
7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;

NOTES:

1. SEE SHEET 56 FOR ASSOCIATED STORMWATER PLAN AND PROFILE.


CONCRETE SIDEWALK, TYP.
SEE SHEET 86
MAX 1.8% CROSS SLOPE
MAX 4.8% RUNNING SLOPE
PROPOSED 94' RIGHT OF WAY
PT: 311+46.65
EP: 312+36.55
GEORGE ELEMER EXTENSION TO W BROADWAY IS SHOWN FOR CONCEPTUAL PURPOSES ONLY.
W 20"
W
R/W
R/W
R/W
R/W
R/W
2'
6'
10.5'
-1.69%
-1.62%
-2.10%
PC: 310+47.13
BULL TROUT DRIVE
SEE SHEET 8 FOR
TYPICAL SECTION
310+00
41'
311+00
-6.52%
-5.27%
3155
312+00
312+37
-3.65%
-1.69%
-1.76%
10.5'
6'
2'
-2.61%
-2.32%
-8.39%
CONSTRUCTION LIMITS, TYP.
SEE SHEET 16
CURB INLET, TYP. SEE SHEET 75
CURB AND GUTTER, TYP. SEE SHEET 84
3155
END ROADWAY FOR FUTURE TIE IN TO GEORGE ELMER EXTENSION TO W BROADWAY.
CONTRACTOR TO PROVIDE TEMPORARY SLOPE TO LIMITS OF DISTURBANCE PER THE PROFILE BELOW. TEMPORARY SLOPE TO PROTECT EDGE OF ASPHALT, CURB AND SIDEWALK.
N
0 20 40 HORIZ.
0 10 20 VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

PLAN



PROFILE

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA PROJ. NO. 7486
DRAWN EA DATE 10.23.2026
CHECKED KG SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

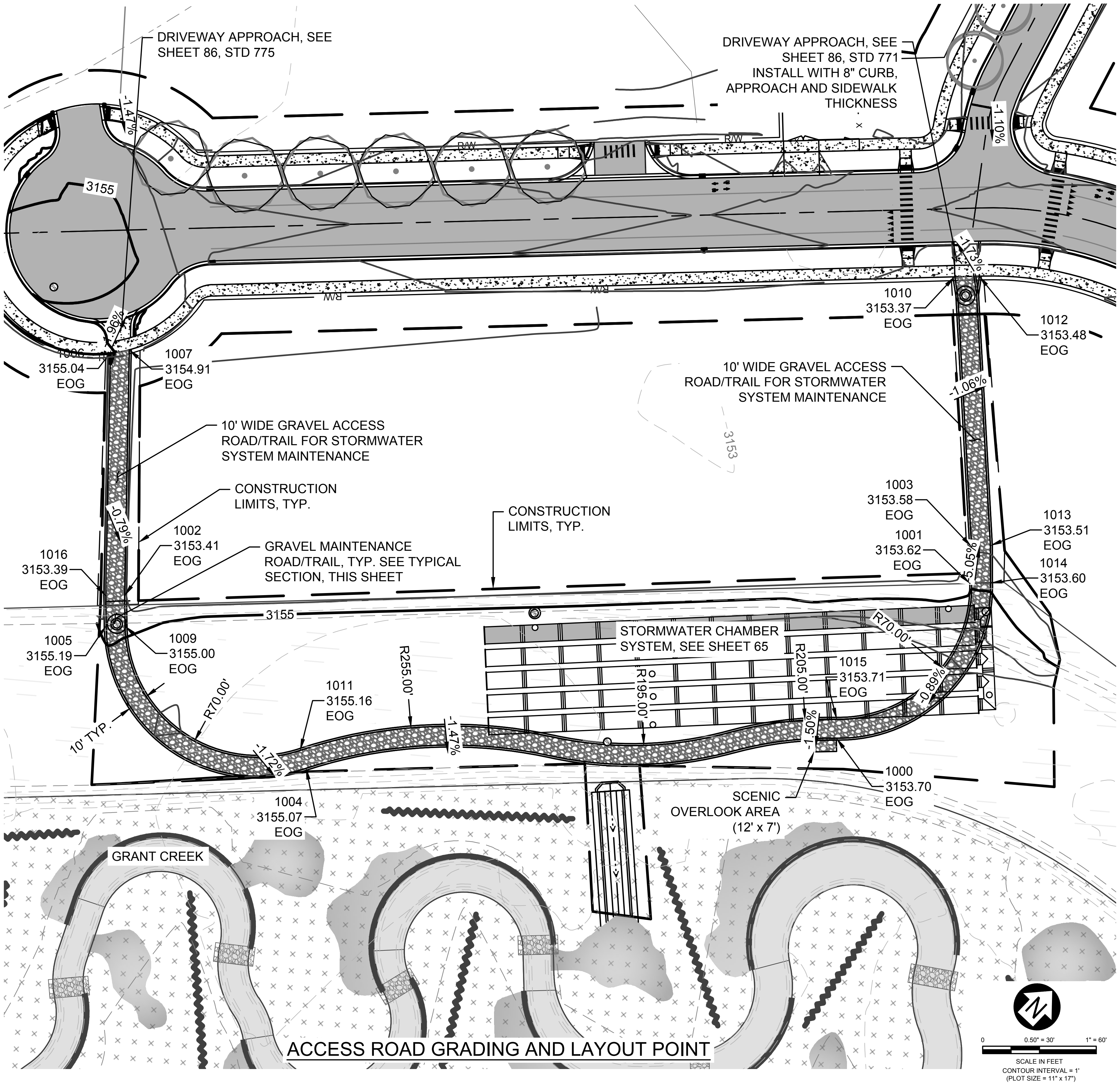
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

BULL TROUT DRIVE STA 310+00 - STA 312+36.55

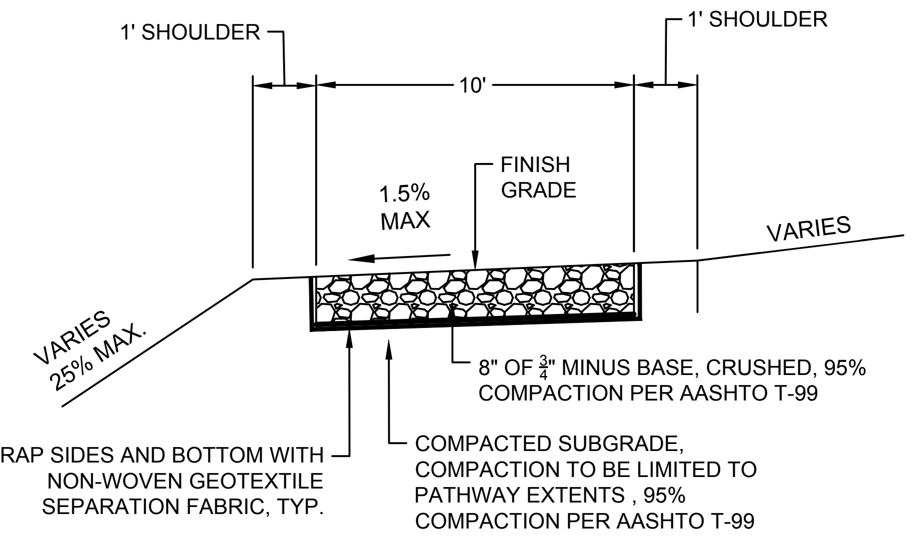
SHEET
17 OF 105

LAYOUT POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1000	1002511.45	828556.74	3153.70	EOG
1001	1002618.05	828539.91	3153.62	EOG
1002	1002273.59	828256.04	3153.41	EOG
1003	1002631.32	828525.76	3153.58	EOG
1004	1002287.69	828387.53	3155.07	EOG
1005	1002255.58	828261.91	3155.19	EOG
1006	1002350.62	828153.37	3155.04	EOG
1007	1002359.41	828158.50	3154.91	EOG
1009	1002263.29	828268.28	3155.00	EOG
1010	1002716.72	828411.27	3153.37	EOG
1011	1002291.46	828378.27	3155.16	EOG
1012	1002726.85	828419.43	3153.48	EOG
1013	1002639.30	828531.79	3153.51	EOG
1014	1002626.53	828546.91	3153.60	EOG
1015	1002518.06	828549.23	3153.71	EOG
1016	1002265.97	828249.55	3153.39	EOG



ACCESS ROAD GRADING AND LAYOUT POINT


1' SHOULDER
1' SHOULDER
10'
1.5% MAX
FINISH GRADE
VARIES
VARIES 25% MAX.
8" OF ¾" MINUS BASE, CRUSHED, 95% COMPACTION PER AASHTO T-99
WRAP SIDES AND BOTTOM WITH NON-WOVEN GEOTEXTILE SEPARATION FABRIC, TYP.
COMPACTED SUBGRADE, COMPACTION TO BE LIMITED TO PATHWAY EXTENTS , 95% COMPACTION PER AASHTO T-99

ACCESS ROAD TYPICAL SECTION

7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

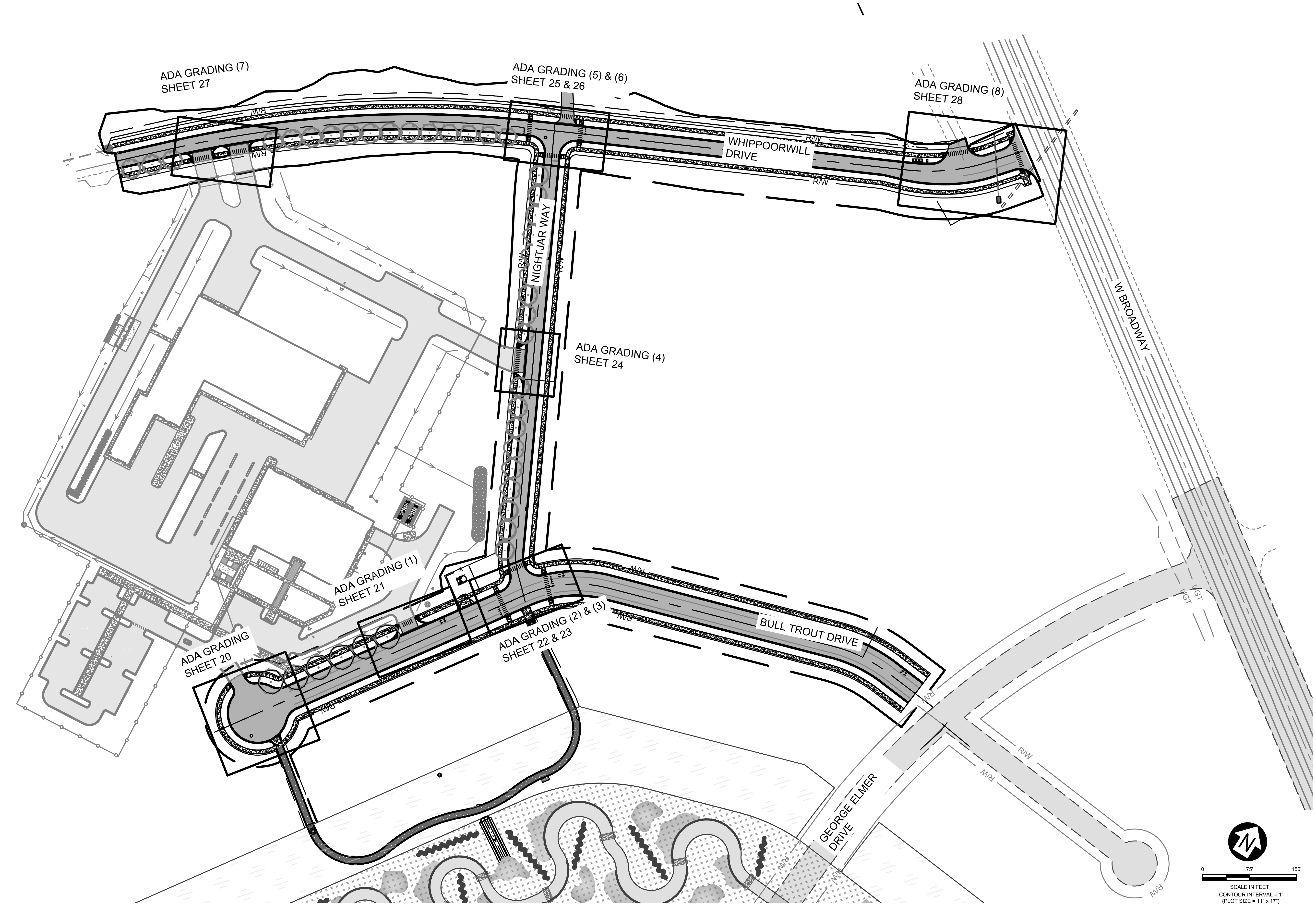
DESIGNER EA
DRAWN EA
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

ACCESS ROAD PLAN

SHEET
18 OF 105



SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA
DRAWN EA
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

ADA CURB RAMP KEY

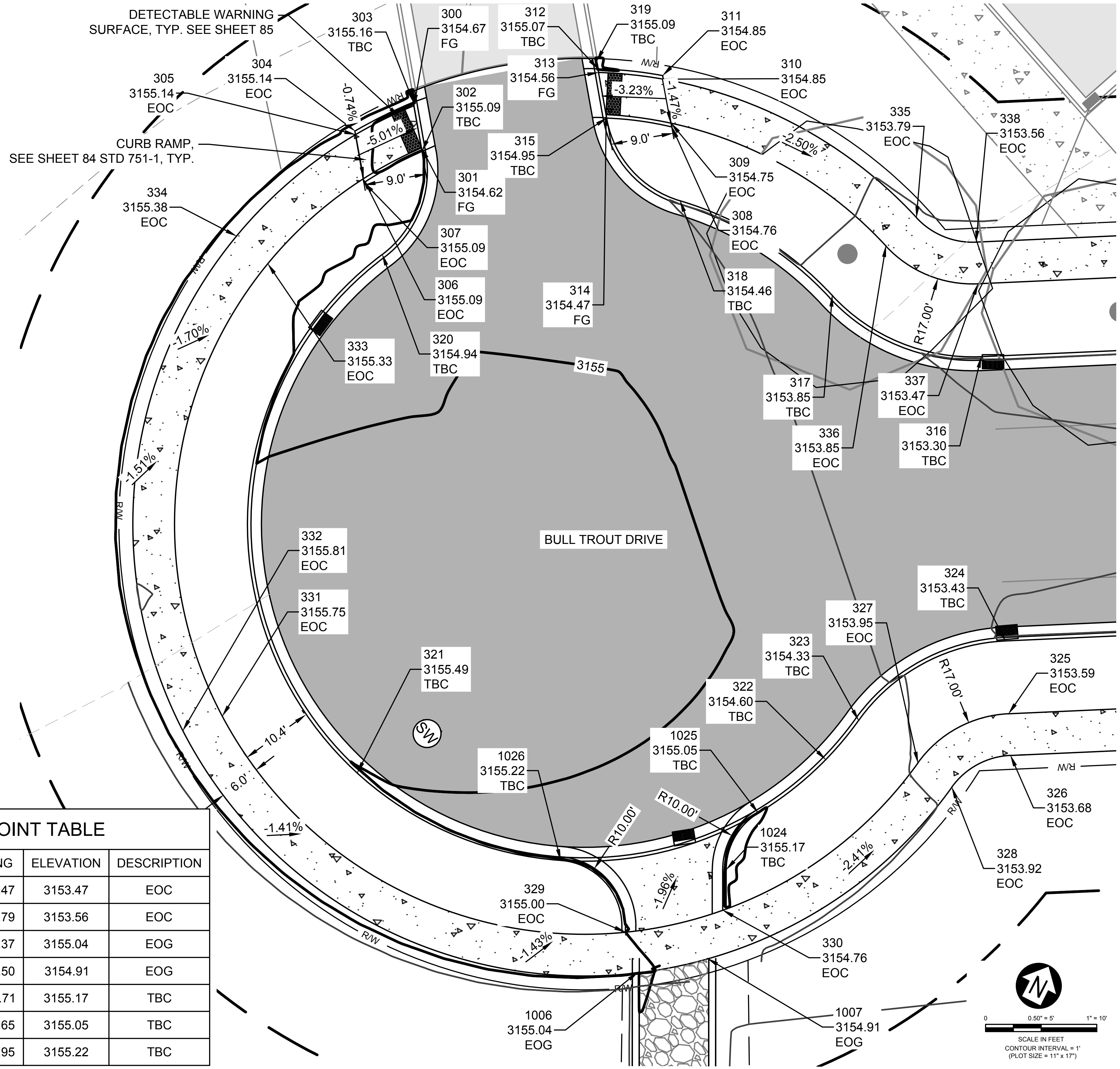
SHEET
19 OF 105

LAYOUT POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
300	1002408.90	828038.58	3154.67	FG
301	1002405.71	828043.83	3154.62	FG
302	1002405.45	828044.26	3155.09	TBC
303	1002409.18	828038.13	3155.16	TBC
304	1002400.13	828035.68	3155.14	EOC
305	1002399.85	828036.14	3155.14	EOC
306	1002396.48	828041.64	3155.09	EOC
307	1002396.19	828042.10	3155.09	EOC
308	1002434.71	828065.41	3154.76	EOC
309	1002435.00	828064.95	3154.75	EOC
310	1002438.34	828059.45	3154.85	EOC
311	1002438.62	828059.00	3154.85	EOC
312	1002432.26	828052.13	3155.07	TBC
313	1002432.00	828052.57	3154.56	FG
314	1002428.80	828057.82	3154.47	FG
315	1002428.53	828058.26	3154.95	TBC
316	1002446.23	828119.64	3153.30	TBC
317	1002435.99	828098.85	3153.85	TBC
318	1002428.57	828074.16	3154.46	TBC
319	1002432.85	828051.16	3155.09	TBC
320	1002391.33	828051.60	3154.94	TBC
321	1002339.28	828105.15	3155.49	TBC
322	1002391.08	828148.32	3154.60	TBC
323	1002398.37	828147.22	3154.33	TBC
324	1002421.79	828152.60	3153.43	TBC
325	1002415.20	828160.78	3153.59	EOC
326	1002411.44	828165.45	3153.68	EOC
327	1002400.73	828157.45	3153.95	EOC
328	1002402.07	828163.30	3153.92	EOC
329	1002353.07	828147.86	3155.00	EOC
330	1002365.65	828154.76	3154.76	EOC
331	1002330.13	828086.18	3155.75	EOC
332	1002324.49	828083.98	3155.81	EOC
333	1002378.09	828041.71	3155.33	EOC
334	1002377.35	828035.75	3155.38	EOC
335	1002452.48	828098.47	3153.79	EOC
336	1002446.48	828098.61	3153.85	EOC

LAYOUT POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
337	1002452.82	828111.47	3153.47	EOC
338	1002456.58	828106.79	3153.56	EOC
1006	1002350.62	828153.37	3155.04	EOG
1007	1002359.41	828158.50	3154.91	EOG
1024	1002369.89	828150.71	3155.17	TBC
1025	1002378.73	828147.65	3155.05	TBC
1026	1002352.91	828133.95	3155.22	TBC



7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA
PROJ. NO. 7486
DRAWN EA
DATE 10.23.2026
CHECKED KG
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

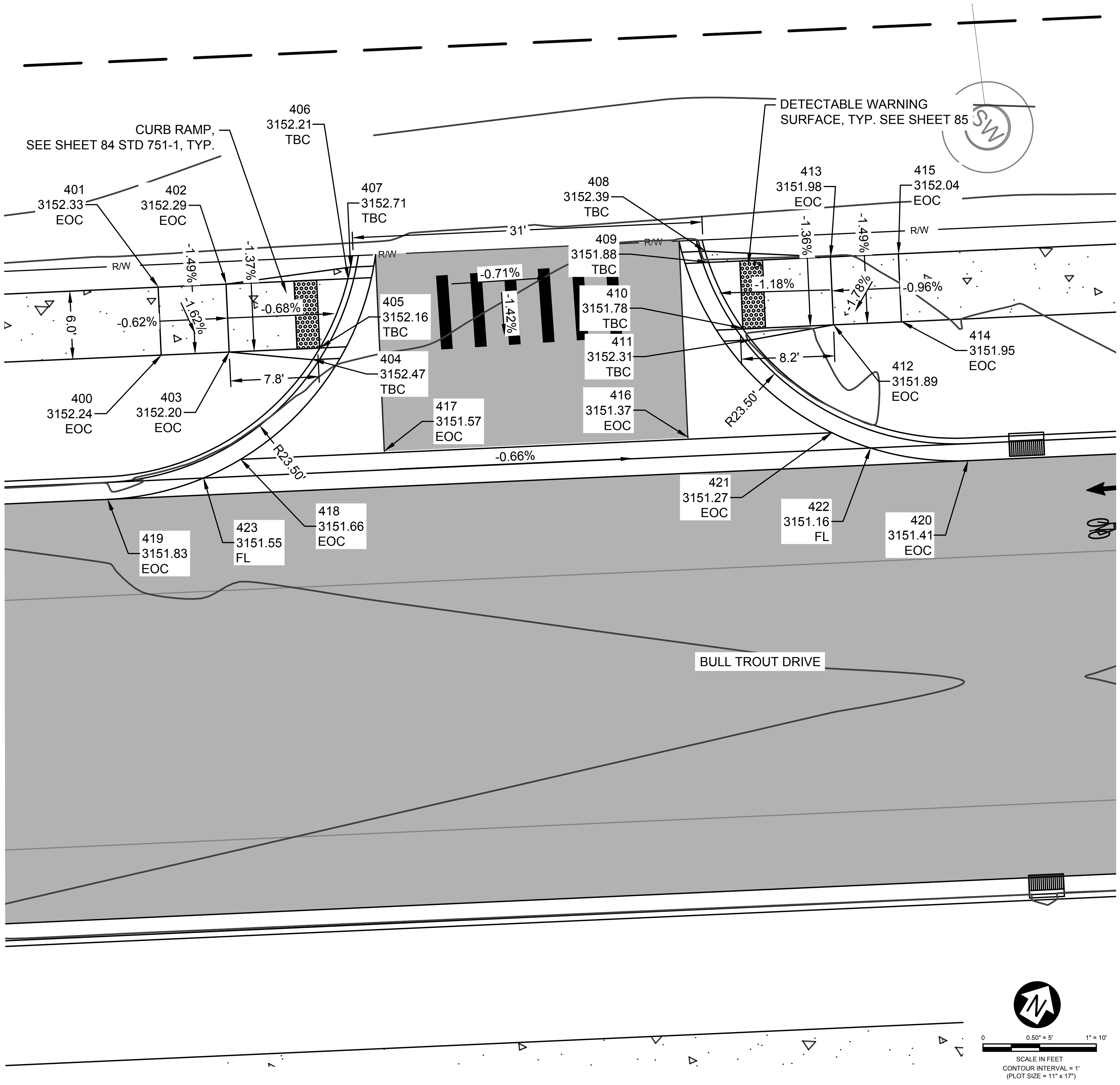
ADA GRADING

SHEET
20 OF 105

DESCRIPTION
EOC
EOC
EOG
EOG
TBC
TBC
TBC

LAYOUT POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
400	1002597.60	828228.05	3152.24	EOC
401	1002601.36	828223.38	3152.33	EOC
402	1002606.04	828227.14	3152.29	EOC
403	1002602.27	828231.82	3152.20	EOC
404	1002607.34	828237.18	3152.47	TBC
405	1002608.50	828236.84	3152.16	TBC
406	1002614.41	828233.89	3152.21	TBC
407	1002615.25	828233.28	3152.71	TBC
408	1002639.65	828252.93	3152.39	TBC
409	1002639.23	828253.88	3151.88	TBC
410	1002637.62	828260.21	3151.78	TBC
411	1002637.52	828261.49	3152.31	TBC
412	1002643.84	828265.30	3151.89	EOC
413	1002647.61	828260.62	3151.98	EOC
414	1002648.52	828269.06	3151.95	EOC
415	1002652.28	828264.39	3152.04	EOC
416	1002627.64	828264.24	3151.37	EOC
417	1002606.76	828247.43	3151.57	EOC
418	1002596.76	828239.57	3151.66	EOC
419	1002585.63	828234.46	3151.83	EOC
420	1002644.81	828282.12	3151.41	EOC
421	1002637.44	828272.34	3151.27	EOC
422	1002639.11	828275.60	3151.16	FL
423	1002593.21	828238.64	3151.55	FL



7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

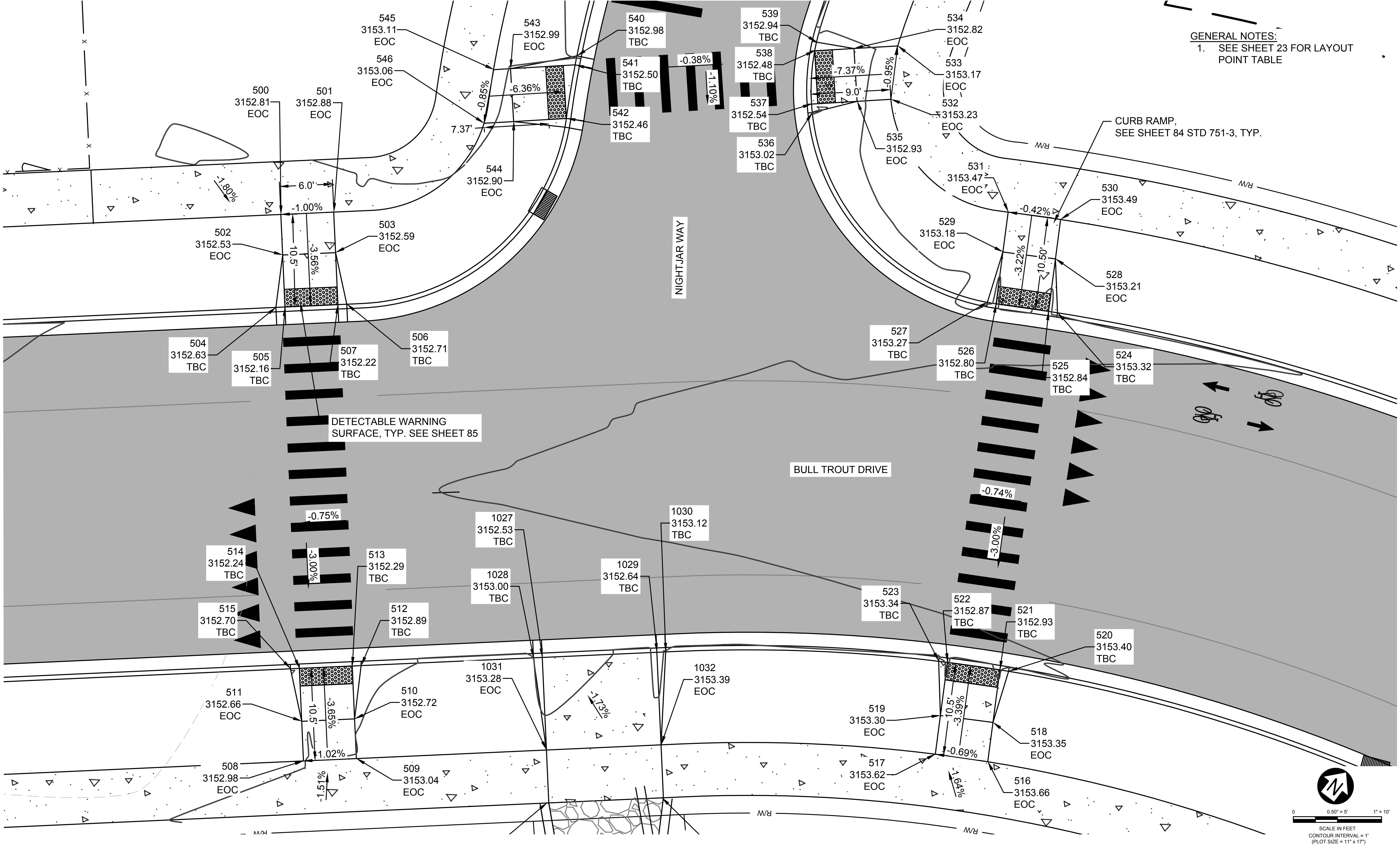
DESIGNER EA
DRAWN EA
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

ADA GRADING (1)

SHEET
21 OF 105



GENERAL NOTES:
1. SEE SHEET 23 FOR LAYOUT POINT TABLE

7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA PROJ. NO. 7486
DRAWN EA DATE 10.23.2026
CHECKED KG SURVEYED DJ&A, P.C.

DJ&A ENGINEERS PLANNERS SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

ADA GRADING (2)

SHEET
22 OF 105

LAYOUT POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
500	1002738.22	828341.30	3152.81	EOC
501	1002742.90	828345.06	3152.88	EOC
502	1002735.34	828344.88	3152.53	EOC
503	1002740.01	828348.64	3152.59	EOC
504	1002730.83	828348.83	3152.63	TBC
505	1002731.64	828349.47	3152.16	TBC
506	1002737.10	828353.87	3152.71	TBC
507	1002736.31	828353.24	3152.22	TBC
508	1002699.17	828389.45	3152.98	EOC
509	1002703.84	828393.21	3153.04	EOC
510	1002706.66	828389.71	3152.72	EOC
511	1002701.99	828385.94	3152.66	EOC
512	1002711.21	828385.67	3152.89	TBC
513	1002710.43	828385.03	3152.29	TBC
514	1002705.75	828381.27	3152.24	TBC
515	1002704.97	828380.64	3152.70	TBC
516	1002757.27	828440.83	3153.66	EOC
517	1002753.38	828436.26	3153.62	EOC
518	1002760.66	828437.88	3153.35	EOC
519	1002756.71	828433.35	3153.30	EOC
520	1002765.83	828434.70	3153.40	TBC
521	1002765.19	828433.93	3152.93	TBC
522	1002761.29	828429.35	3152.87	TBC
523	1002760.63	828428.60	3153.34	TBC
524	1002796.87	828407.90	3153.32	TBC

LAYOUT POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
525	1002796.21	828407.11	3152.84	TBC
526	1002792.32	828402.54	3152.80	TBC
527	1002791.71	828401.74	3153.27	TBC
528	1002800.74	828403.16	3153.21	EOC
529	1002796.78	828398.64	3153.18	EOC
530	1002804.13	828400.20	3153.49	EOC
531	1002800.23	828395.64	3153.47	EOC
532	1002798.71	828377.26	3153.23	EOC
533	1002803.30	828373.23	3153.17	EOC
534	1002799.39	828370.17	3152.82	EOC
535	1002795.69	828374.90	3152.93	EOC
536	1002791.03	828372.49	3153.02	TBC
537	1002791.61	828371.71	3152.54	TBC
538	1002795.87	828367.42	3152.48	TBC
539	1002796.69	828366.84	3152.94	TBC
540	1002775.28	828350.02	3152.98	TBC
541	1002774.46	828350.65	3152.50	TBC
542	1002769.70	828354.55	3152.46	TBC
543	1002768.68	828346.13	3152.99	EOC
544	1002764.98	828350.86	3152.90	EOC
545	1002767.18	828344.95	3153.11	EOC
546	1002762.32	828348.78	3153.06	EOC
1010	1002716.72	828411.27	3153.37	EOG
1012	1002726.85	828419.43	3153.48	EOG
1027	1002727.22	828398.56	3152.53	TBC

LAYOUT POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1028	1002726.44	828397.93	3153.00	TBC
1029	1002737.35	828406.72	3152.64	TBC
1030	1002738.13	828407.34	3153.12	TBC
1031	1002720.64	828406.74	3153.28	EOC
1032	1002730.76	828414.89	3153.39	EOC

7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA
DRAWN EA
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

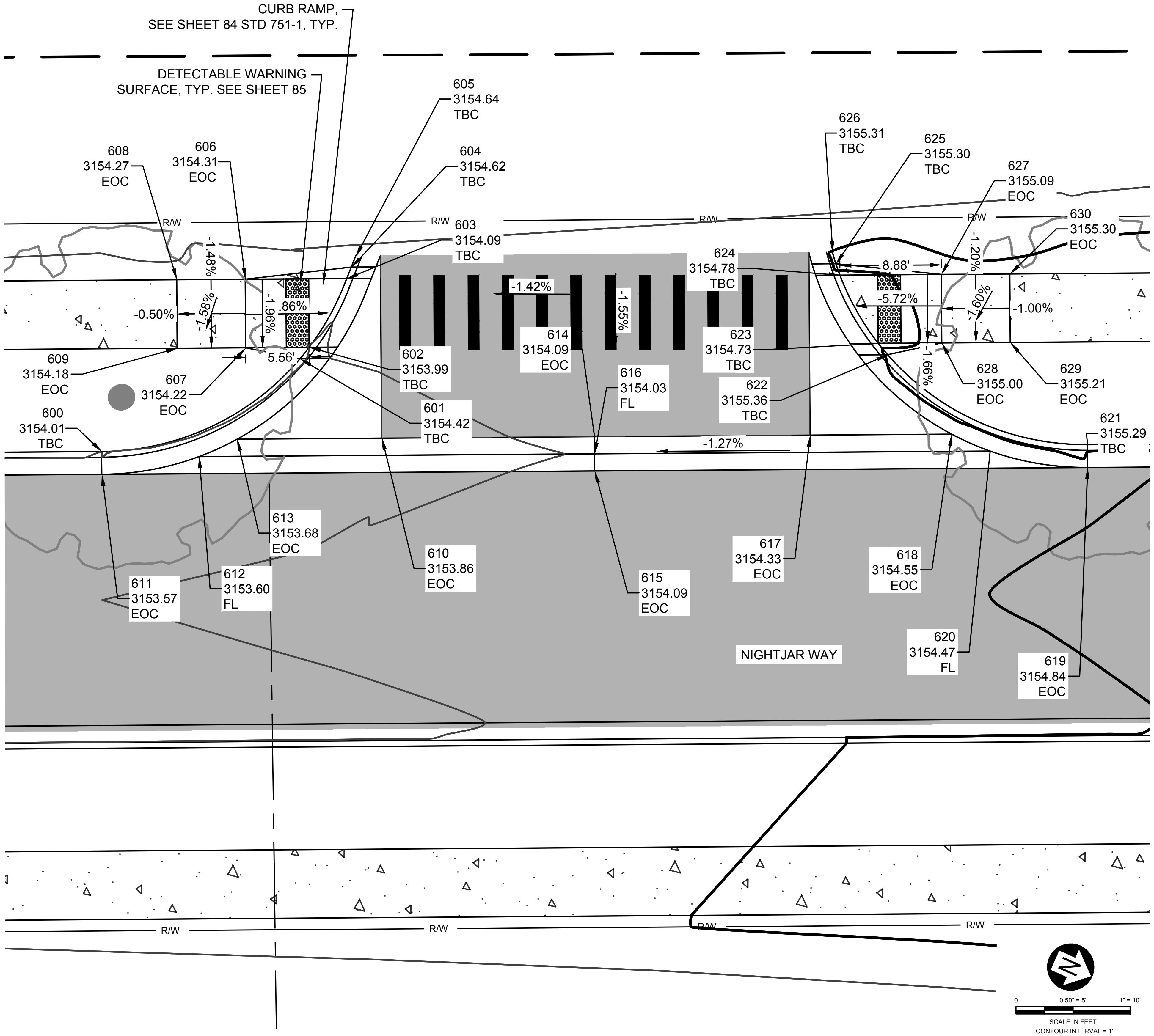
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

ADA GRADING (3)

SHEET
23 OF 105

LAYOUT POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
600	1003041.52	828237.76	3154.01	TBC
601	1003054.67	828223.79	3154.42	TBC
602	1003055.05	828222.56	3153.99	TBC
603	1003055.88	828215.75	3154.09	TBC
604	1003055.88	828214.67	3154.62	TBC
605	1003055.88	828213.70	3154.64	TBC
606	1003047.64	828219.09	3154.31	EOC
607	1003049.90	828224.65	3154.22	EOC
608	1003042.08	828221.35	3154.27	EOC
609	1003044.34	828226.91	3154.18	EOC
610	1003063.89	828227.61	3153.86	EOC
611	1003042.27	828239.61	3153.57	EOC
612	1003049.61	828235.02	3153.60	FL
613	1003052.15	828232.37	3153.68	EOC
614	1003081.14	828220.61	3154.09	EOC
615	1003082.27	828223.39	3154.09	EOC
616	1003081.71	828222.00	3154.03	FL
617	1003098.65	828213.51	3154.33	EOC
618	1003110.14	828208.85	3154.55	EOC
619	1003122.27	828207.16	3154.84	EOC
620	1003113.80	828208.98	3154.47	FL
621	1003121.52	828205.31	3155.29	TBC
622	1003102.36	828204.45	3155.36	TBC
623	1003101.23	828203.83	3154.73	TBC
624	1003095.90	828199.52	3154.78	TBC
625	1003095.20	828198.72	3155.30	TBC
626	1003094.57	828197.92	3155.31	TBC
627	1003104.12	828196.18	3155.09	EOC
628	1003106.38	828201.74	3155.00	EOC
629	1003111.94	828199.48	3155.21	EOC
630	1003109.68	828193.92	3155.30	EOC



0 0.50" = 5' 1" = 10'

SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA PROJ. NO. 7486
DRAWN EA DATE 10.23.2026
CHECKED KG SURVEYED DJ&A, P.C.

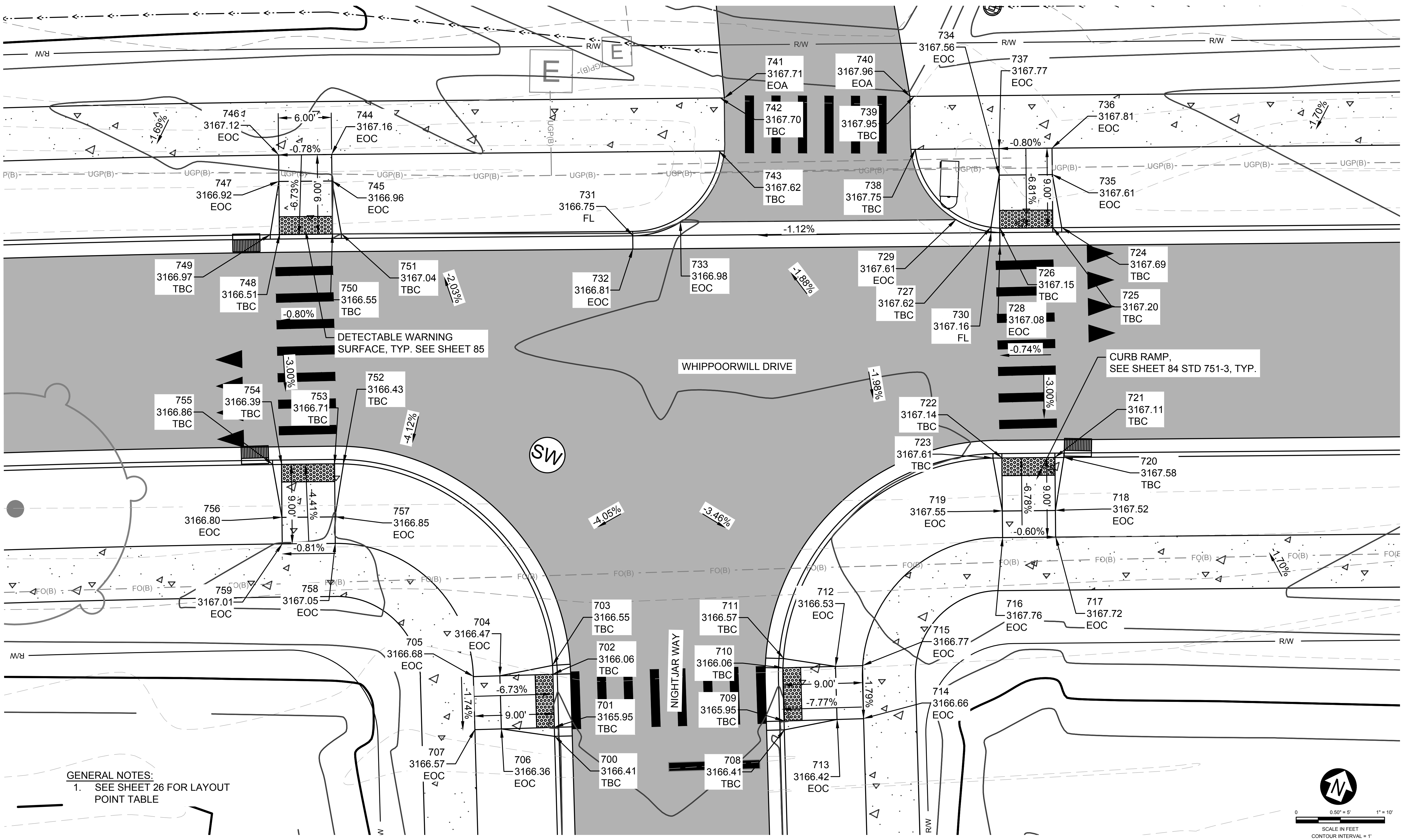
DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

ADA GRADING (4)

SHEET
24 OF 105

7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;



GENERAL NOTES:

1. SEE SHEET 26 FOR LAYOUT POINT TABLE

7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

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DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

ADA GRADING (5)

SHEET 25 OF 105

LAYOUT POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
725	1003457.57	828131.55	3167.20	TBC
726	1003455.43	828125.95	3167.15	TBC
727	1003455.17	828124.99	3167.62	TBC
728	1003453.56	828126.67	3167.08	EOC
729	1003454.59	828120.97	3167.61	EOC
730	1003454.60	828125.20	3167.16	FL
731	1003440.09	828087.35	3166.75	FL
732	1003438.69	828087.88	3166.81	EOC
733	1003443.43	828091.86	3166.98	EOC
734	1003461.03	828123.80	3167.56	EOC
735	1003463.18	828129.40	3167.61	EOC
736	1003465.98	828128.33	3167.81	EOC
737	1003463.83	828122.73	3167.77	EOC
738	1003460.43	828113.87	3167.75	TBC
739	1003466.02	828111.68	3167.95	TBC
740	1003465.82	828111.21	3167.96	EOA
741	1003458.30	828091.60	3167.71	EOA
742	1003458.14	828091.14	3167.70	TBC
743	1003452.48	828093.11	3167.62	TBC
744	1003436.80	828052.21	3167.16	EOC
745	1003434.00	828053.29	3166.96	EOC
746	1003434.64	828046.61	3167.12	EOC
747	1003431.85	828047.68	3166.92	EOC
748	1003426.24	828049.84	3166.51	TBC
749	1003425.87	828048.88	3166.97	TBC

LAYOUT POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
750	1003428.40	828055.44	3166.55	TBC
751	1003428.76	828056.38	3167.04	TBC
752	1003404.47	828065.71	3166.43	TBC
753	1003404.13	828064.75	3166.71	TBC
754	1003401.97	828059.16	3166.39	TBC
755	1003401.60	828058.22	3166.86	TBC
756	1003396.37	828061.30	3166.80	EOC
757	1003398.53	828066.91	3166.85	EOC
758	1003395.72	828067.98	3167.05	EOC
759	1003393.57	828062.38	3167.01	EOC

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA PROJ. NO. 7486
DRAWN EA DATE 10.23.2026
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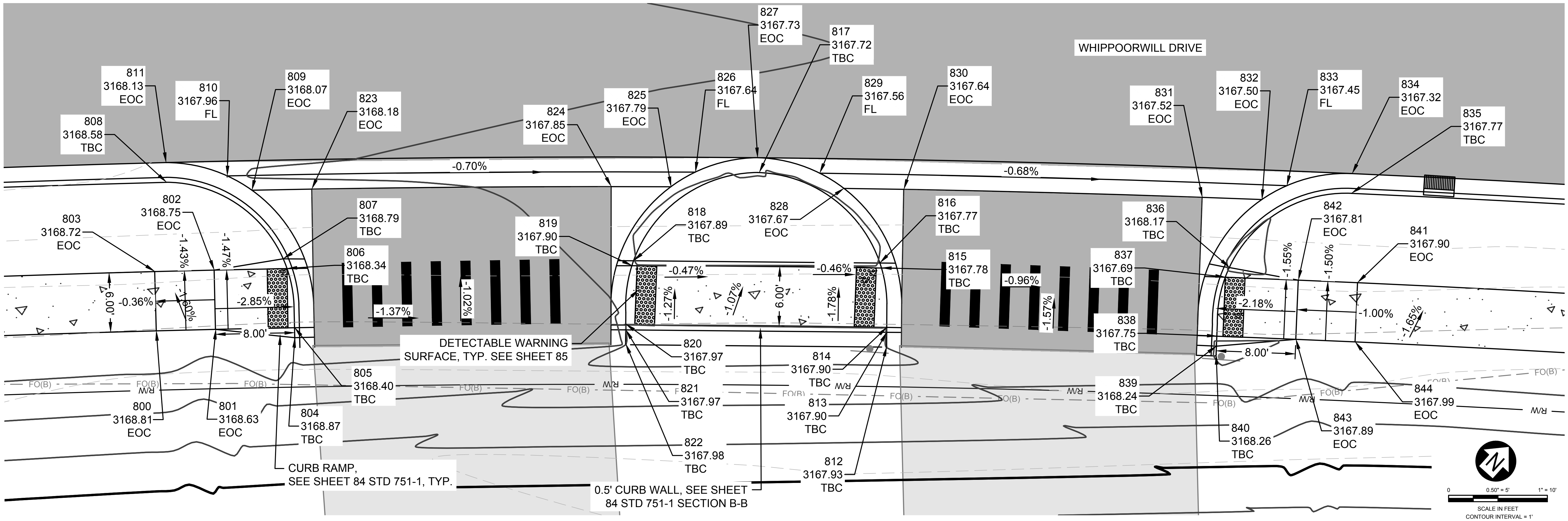
DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

ADA GRADING (6)



LAYOUT POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
800	1003111.78	827594.06	3168.81	EOC
801	1003115.61	827598.70	3168.63	EOC
802	1003120.23	827594.88	3168.75	EOC
803	1003116.40	827590.23	3168.72	EOC
804	1003119.89	827605.51	3168.87	TBC
805	1003120.67	827604.88	3168.40	TBC
806	1003124.90	827600.58	3168.34	TBC
807	1003125.44	827599.66	3168.79	TBC
808	1003124.23	827585.58	3168.58	TBC
809	1003128.95	827592.89	3168.07	EOC
810	1003128.54	827590.03	3167.96	FL
811	1003125.78	827584.32	3168.13	EOC
812	1003156.17	827653.20	3167.93	TBC
813	1003157.31	827652.32	3167.90	TBC
814	1003157.70	827652.02	3167.90	TBC

LAYOUT POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
815	1003162.10	827647.89	3167.78	TBC
816	1003162.39	827647.45	3167.77	TBC
817	1003162.05	827632.19	3167.72	TBC
818	1003147.19	827627.69	3167.89	TBC
819	1003146.69	827627.87	3167.90	TBC
820	1003141.64	827631.02	3167.97	TBC
821	1003141.19	827631.39	3167.97	TBC
822	1003140.07	827632.25	3167.98	TBC
823	1003132.78	827597.59	3168.18	EOC
824	1003151.68	827621.28	3167.85	EOC
825	1003155.41	827626.04	3167.79	EOC
826	1003158.11	827627.08	3167.64	FL
827	1003163.14	827631.13	3167.73	EOC
828	1003166.09	827639.92	3167.67	EOC
829	1003165.78	827637.04	3167.56	FL

LAYOUT POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
830	1003169.76	827644.75	3167.64	EOC
831	1003187.77	827669.00	3167.52	EOC
832	1003191.32	827673.90	3167.50	EOC
833	1003193.99	827675.03	3167.45	FL
834	1003199.03	827679.47	3167.32	EOC
835	1003197.41	827680.65	3167.77	TBC
836	1003183.87	827675.56	3168.17	TBC
837	1003182.85	827675.84	3167.69	TBC
838	1003177.63	827678.86	3167.75	TBC
839	1003176.81	827679.44	3168.24	TBC
840	1003176.10	827679.95	3168.26	TBC
841	1003190.68	827686.71	3167.90	EOC
842	1003187.18	827681.84	3167.81	EOC
843	1003182.31	827685.34	3167.89	EOC
844	1003185.81	827690.22	3167.99	EOC

7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA PROJ. NO. 7486
DRAWN EA DATE 10.23.2026
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DJ&A
ENGINEERS
PLANNERS
SURVEYORS

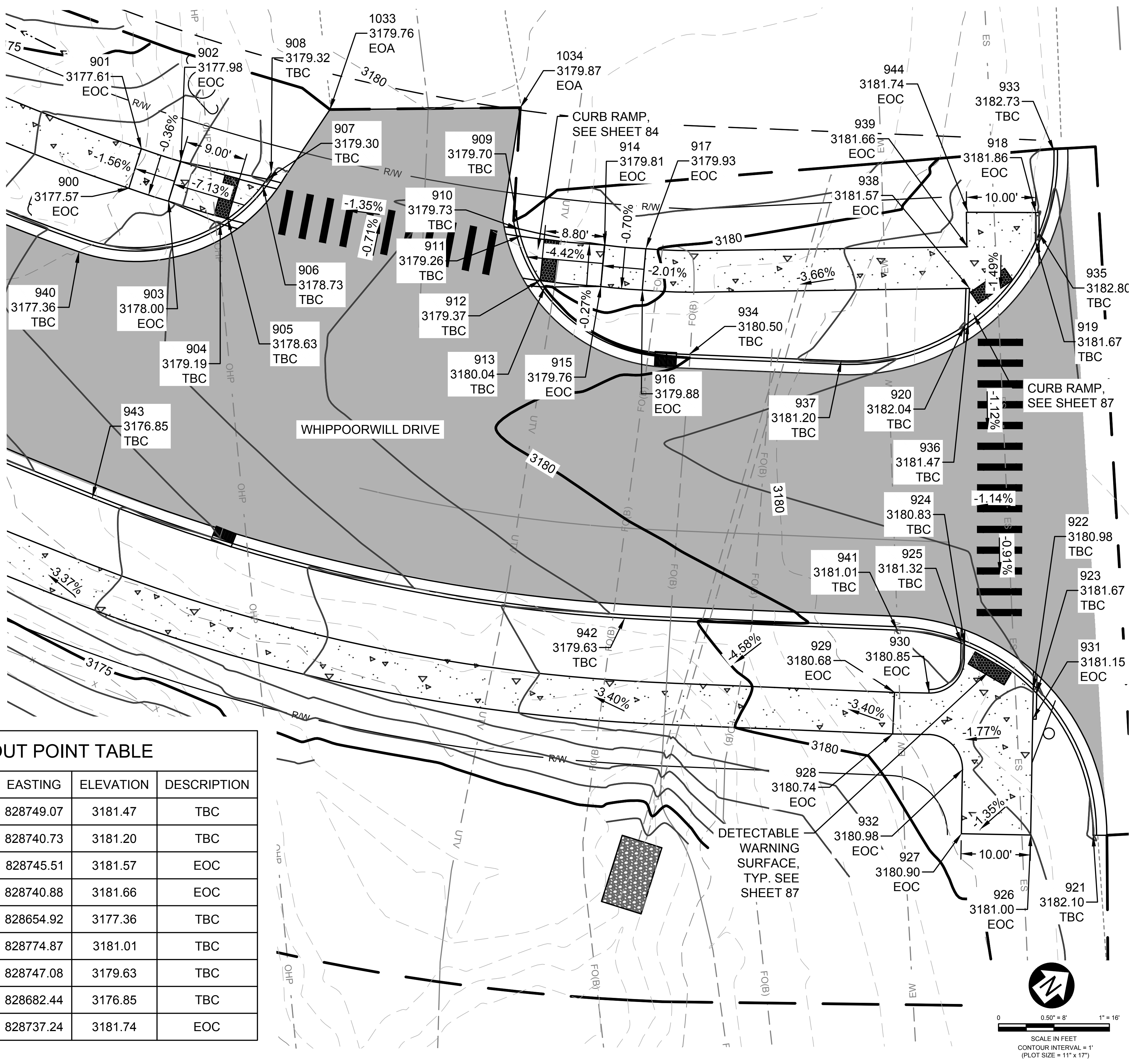
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

ADA GRADING (7)

SHEET
27 OF 105

LAYOUT POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
900	1003670.19	828653.02	3177.57	EOC
901	1003675.38	828650.00	3177.61	EOC
902	1003678.35	828655.21	3177.98	EOC
903	1003673.16	828658.23	3178.00	EOC
904	1003676.46	828665.67	3179.19	TBC
905	1003677.74	828665.87	3178.63	TBC
906	1003684.74	828665.70	3178.73	TBC
907	1003685.81	828665.49	3179.30	TBC
908	1003686.83	828665.23	3179.32	TBC
909	1003708.33	828694.34	3179.70	TBC
910	1003707.79	828695.25	3179.73	TBC
911	1003707.25	828696.23	3179.26	TBC
912	1003705.04	828702.87	3179.37	TBC
913	1003704.88	828704.00	3180.04	TBC
914	1003715.35	828705.34	3179.81	EOC
915	1003710.94	828709.41	3179.76	EOC
916	1003715.00	828713.82	3179.88	EOC
917	1003719.42	828709.76	3179.93	EOC
918	1003764.46	828743.86	3181.86	EOC
919	1003761.61	828746.95	3181.67	TBC
920	1003745.86	828748.99	3182.04	TBC
921	1003709.95	828815.80	3182.10	TBC
922	1003717.73	828794.50	3180.98	TBC
923	1003717.75	828795.20	3181.67	TBC
924	1003714.82	828782.97	3180.83	TBC
925	1003714.58	828782.49	3181.32	TBC
926	1003703.33	828809.70	3181.00	EOC
927	1003696.07	828802.82	3180.90	EOC
928	1003698.47	828785.52	3180.74	EOC
929	1003702.70	828781.26	3180.68	EOC
930	1003706.32	828784.68	3180.85	EOC
931	1003714.83	828797.55	3181.15	EOC
932	1003702.41	828796.11	3180.98	EOC
933	1003772.40	828739.08	3182.73	TBC
934	1003713.73	828725.27	3180.50	TBC
935	1003762.77	828746.42	3182.80	TBC



LAYOUT POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
936	1003746.49	828749.07	3181.47	TBC
937	1003729.30	828740.73	3181.20	TBC
938	1003750.02	828745.51	3181.57	EOC
939	1003753.84	828740.88	3181.66	EOC
940	1003658.70	828654.92	3177.36	TBC
941	1003709.04	828774.87	3181.01	TBC
942	1003681.17	828747.08	3179.63	TBC
943	1003636.14	828682.44	3176.85	TBC
944	1003757.28	828737.24	3181.74	EOC

7/20/26 12:44 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C4.0 ROADWAY P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA PROJ. NO. 7486
DRAWN EA DATE 10.23.2026
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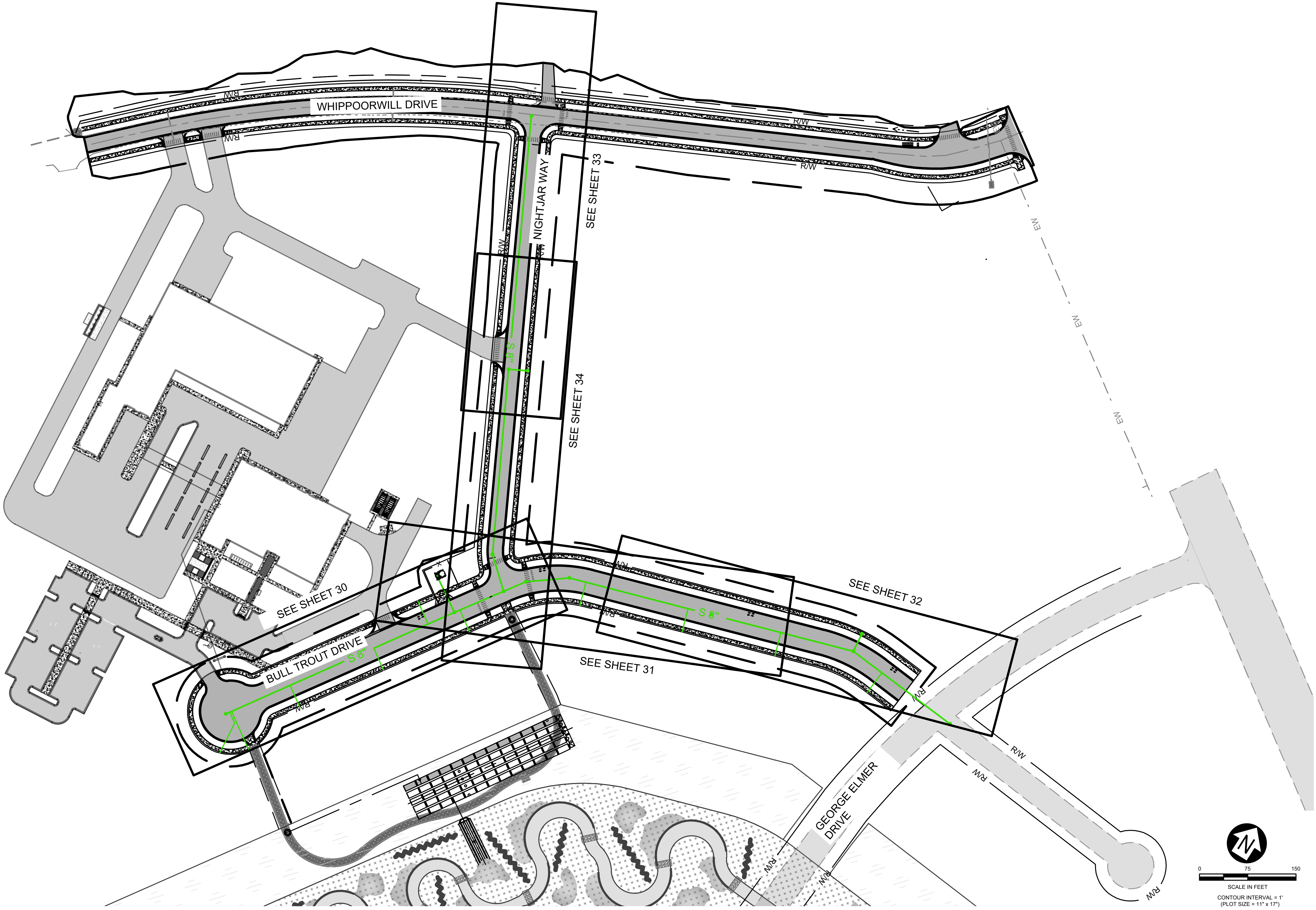
DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

ADA GRADING (8)

SHEET 28 OF 105



10/19/26 09:08 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C5.0 SEWER P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

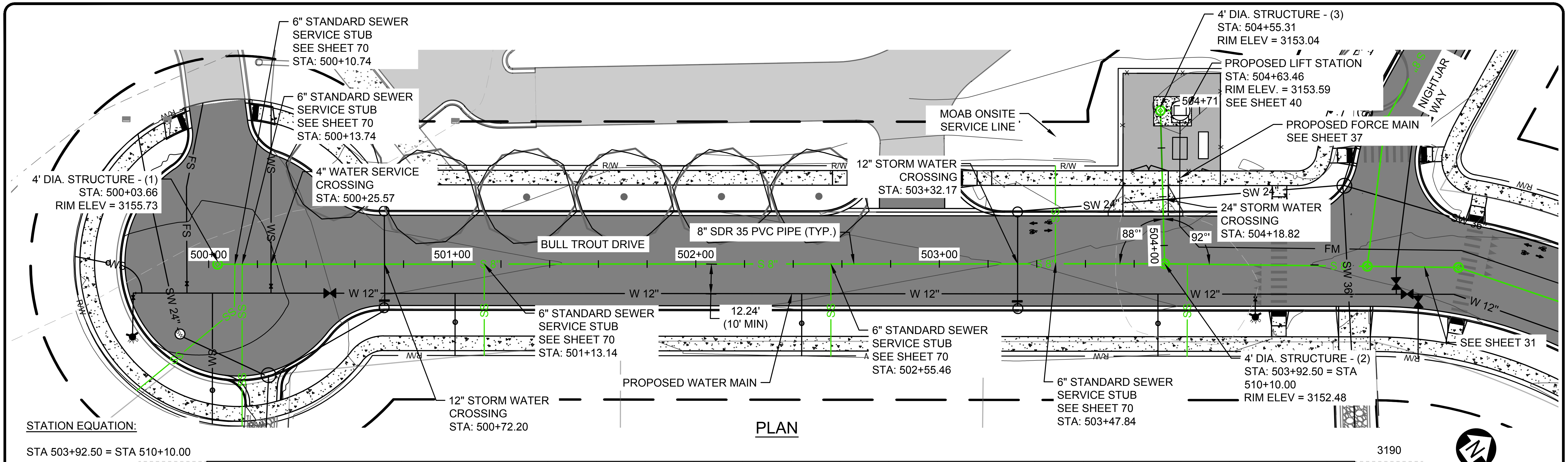
DESIGNER EA
DRAWN EA
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

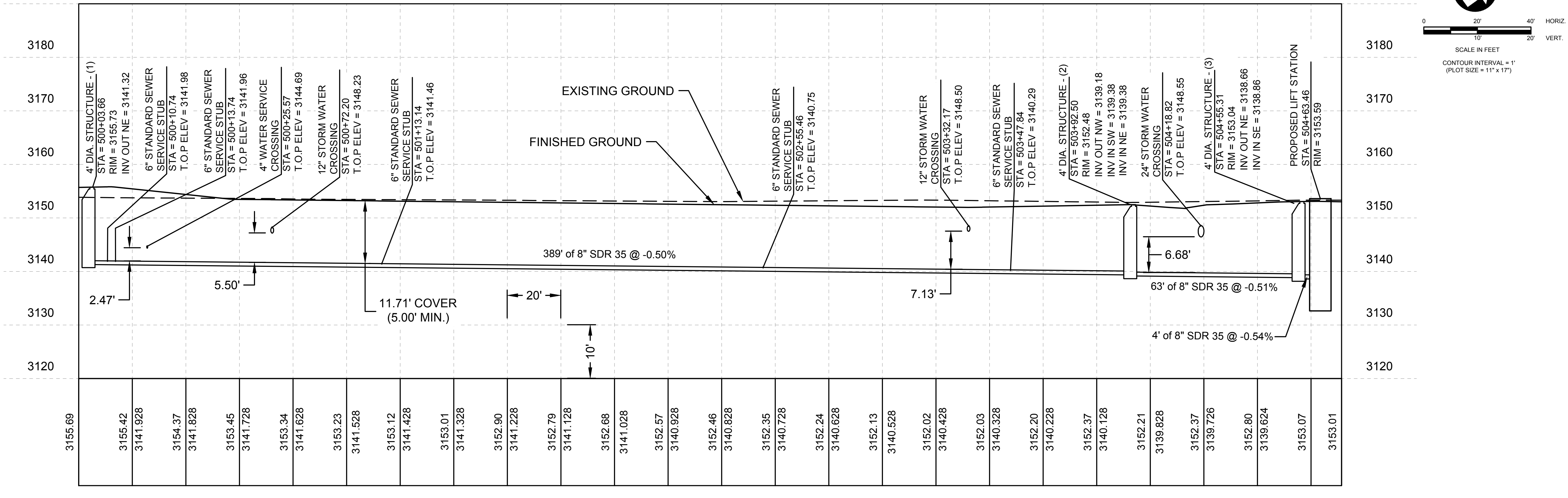
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

GRAVITY SEWER P&P KEY

SHEET
29 OF 105


6" STANDARD SEWER SERVICE STUB SEE SHEET 70 STA: 500+10.74
6" STANDARD SEWER SERVICE STUB SEE SHEET 70 STA: 500+13.74
4" WATER SERVICE CROSSING STA: 500+25.57
4' DIA. STRUCTURE - (1) STA: 500+03.66 RIM ELEV = 3155.73
4' DIA. STRUCTURE - (3) STA: 504+55.31 RIM ELEV = 3153.04
PROPOSED LIFT STATION STA: 504+63.46 RIM ELEV. = 3153.59 SEE SHEET 40
504+71
MOAB ONSITE SERVICE LINE
PROPOSED FORCE MAIN SEE SHEET 37
NIGHTJAR WAY
12" STORM WATER CROSSING STA: 503+32.17
SW 24"
24" STORM WATER CROSSING STA: 504+18.82
88°
92°
504+00
FM
8" SDR 35 PVC PIPE (TYP.)
BULL TROUT DRIVE
500+00
501+00
502+00
503+00
W 12"
SW 36"
SW 24"
FS
SS
S 8"
R/W
6" STANDARD SEWER SERVICE STUB SEE SHEET 70 STA: 501+13.14
12.24' (10' MIN)
6" STANDARD SEWER SERVICE STUB SEE SHEET 70 STA: 502+55.46
SEE SHEET 31
4' DIA. STRUCTURE - (2) STA: 503+92.50 = STA 510+10.00 RIM ELEV = 3152.48
PROPOSED WATER MAIN
12" STORM WATER CROSSING STA: 500+72.20
6" STANDARD SEWER SERVICE STUB SEE SHEET 70 STA: 503+47.84
STATION EQUATION:
STA 503+92.50 = STA 510+10.00

PLAN


3190
3180
3170
3160
3150
3140
3130
3120
4' DIA. STRUCTURE - (1) STA = 500+03.66 RIM = 3155.73 INV OUT NE = 3141.32
6" STANDARD SEWER SERVICE STUB STA = 500+10.74 T.O.P ELEV = 3141.98
6" STANDARD SEWER SERVICE STUB STA = 500+13.74 T.O.P ELEV = 3141.96
4" WATER SERVICE CROSSING STA = 500+25.57 T.O.P ELEV = 3144.69
12" STORM WATER CROSSING STA = 500+72.20 T.O.P ELEV = 3148.23
6" STANDARD SEWER SERVICE STUB STA = 501+13.14 T.O.P ELEV = 3141.46
EXISTING GROUND
FINISHED GROUND
6" STANDARD SEWER SERVICE STUB STA = 502+55.46 T.O.P ELEV = 3140.75
12" STORM WATER CROSSING STA = 503+32.17 T.O.P ELEV = 3148.50
6" STANDARD SEWER SERVICE STUB STA = 503+47.84 T.O.P ELEV = 3140.29
4' DIA. STRUCTURE - (2) STA = 503+92.50 RIM = 3152.48 INV OUT NW = 3139.18 INV IN SW = 3139.38 INV IN NE = 3139.38
24" STORM WATER CROSSING STA = 504+18.82 T.O.P ELEV = 3148.55
4' DIA. STRUCTURE - (3) STA = 504+55.31 RIM = 3153.04 INV OUT NE = 3138.66 INV IN SE = 3138.86
PROPOSED LIFT STATION STA = 504+63.46 RIM = 3153.59
389' of 8" SDR 35 @ -0.50%
2.47'
5.50'
11.71' COVER (5.00' MIN.)
20'
10'
7.13'
6.68'
63' of 8" SDR 35 @ -0.51%
4' of 8" SDR 35 @ -0.54%
0
20'
40'
HORIZ.
10'
20'
VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")
3155.69
3155.42
3141.928
3154.37
3141.828
3153.45
3141.728
3153.34
3141.628
3153.23
3141.528
3153.12
3141.428
3153.01
3141.328
3152.90
3141.228
3152.79
3141.128
3152.68
3141.028
3152.57
3140.928
3152.46
3140.828
3152.35
3140.728
3152.24
3140.628
3152.13
3140.528
3152.02
3140.428
3152.03
3140.328
3152.20
3140.228
3152.37
3140.128
3152.21
3139.828
3152.37
3139.726
3152.80
3139.624
3153.07
3153.01
500+00
501+00
502+00
503+00
504+00
504+71.39

PROFILE

6/25/26 12:53 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C5.0 SEWER P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

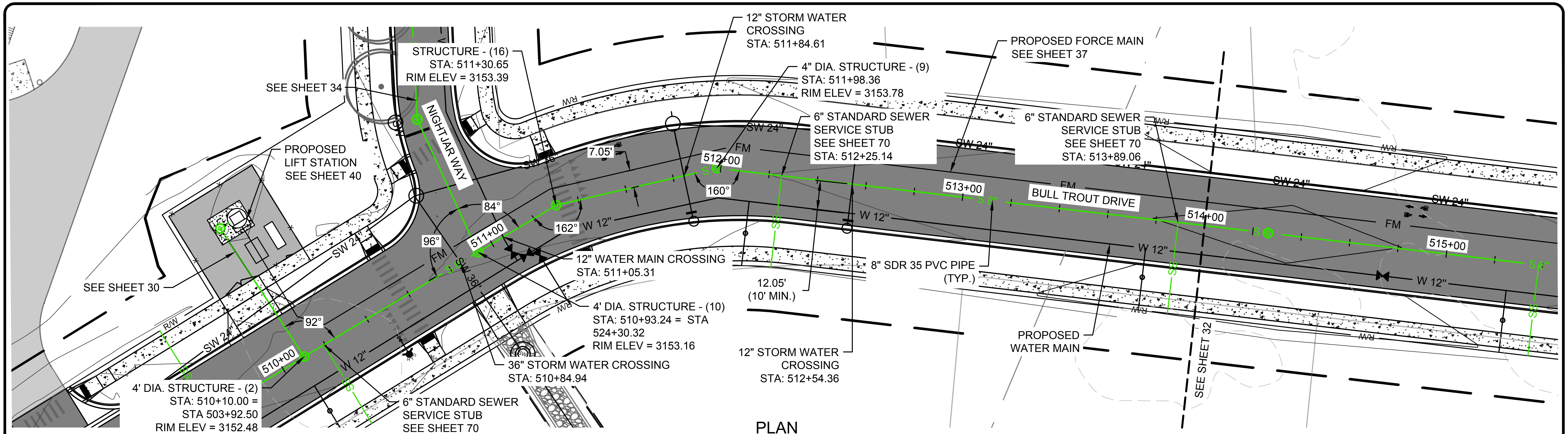
DESIGNER EA　PROJ. NO. 7486
DRAWN EA　DATE 10.23.2026
CHECKED KG　SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

GRAVITY SEWER STA 500+00 - STA 504+70
SEGMENT 1

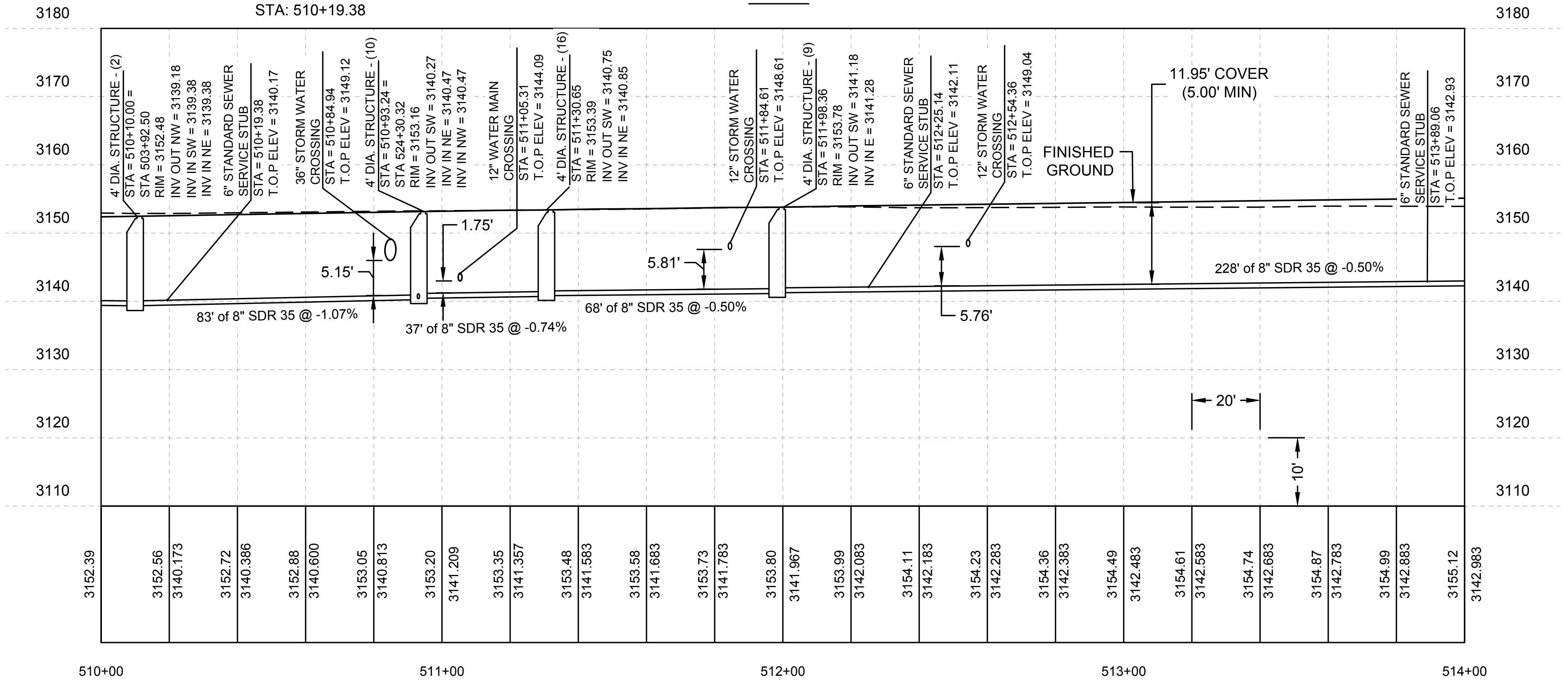
SHEET
30 OF 105


12" STORM WATER CROSSING STA: 511+84.61
PROPOSED FORCE MAIN SEE SHEET 37
STRUCTURE - (16) STA: 511+30.65 RIM ELEV = 3153.39
4" DIA. STRUCTURE - (9) STA: 511+98.36 RIM ELEV = 3153.78
SEE SHEET 34
6" STANDARD SEWER SERVICE STUB SEE SHEET 70 STA: 512+25.14
6" STANDARD SEWER SERVICE STUB SEE SHEET 70 STA: 513+89.06
NIGHTJAR WAY
PROPOSED LIFT STATION SEE SHEET 40
7.05'
512+00
513+00
514+00
515+00
BULL TROUT DRIVE
160°
84°
162°
96°
92°
511+00
510+00
SW 24"
SW 36"
FM
W 12"
R/W
SS
12" WATER MAIN CROSSING STA: 511+05.31
SEE SHEET 30
4' DIA. STRUCTURE - (10) STA: 510+93.24 = STA 524+30.32 RIM ELEV = 3153.16
8" SDR 35 PVC PIPE (TYP.)
12.05' (10' MIN.)
PROPOSED WATER MAIN
12" STORM WATER CROSSING STA: 512+54.36
36" STORM WATER CROSSING STA: 510+84.94
SEE SHEET 32
4' DIA. STRUCTURE - (2) STA: 510+10.00 = STA 503+92.50 RIM ELEV = 3152.48
6" STANDARD SEWER SERVICE STUB SEE SHEET 70 STA: 510+19.38

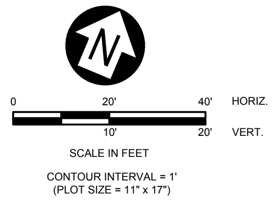
PLAN

STATION EQUATION:

STA 510+10.00 = STA 503+92.50
STA 510+93.24 = STA 524+30.32


3180
3170
3160
3150
3140
3130
3120
3110
4' DIA. STRUCTURE - (2) STA = 510+10.00 = STA 503+92.50 RIM = 3152.48 INV OUT NW = 3139.18 INV IN SW = 3139.38 INV IN NE = 3139.38
6" STANDARD SEWER SERVICE STUB STA = 510+19.38 T.O.P ELEV = 3140.17
36" STORM WATER CROSSING STA = 510+84.94 T.O.P ELEV = 3149.12
4' DIA. STRUCTURE - (10) STA = 510+93.24 = STA 524+30.32 RIM = 3153.16 INV OUT SW = 3140.27 INV IN NE = 3140.47 INV IN NW = 3140.47
12" WATER MAIN CROSSING STA = 511+05.31 T.O.P ELEV = 3144.09
4' DIA. STRUCTURE - (16) STA = 511+30.65 RIM = 3153.39 INV OUT SW = 3140.75 INV IN NE = 3140.85
12" STORM WATER CROSSING STA = 511+84.61 T.O.P ELEV = 3148.61
4' DIA. STRUCTURE - (9) STA = 511+98.36 RIM = 3153.78 INV OUT SW = 3141.18 INV IN E = 3141.28
6" STANDARD SEWER SERVICE STUB STA = 512+25.14 T.O.P ELEV = 3142.11
12" STORM WATER CROSSING STA = 512+54.36 T.O.P ELEV = 3149.04
FINISHED GROUND
11.95' COVER (5.00' MIN)
6" STANDARD SEWER SERVICE STUB STA = 513+89.06 T.O.P ELEV = 3142.93
1.75'
5.15'
5.81'
5.76'
83' of 8" SDR 35 @ -1.07%
37' of 8" SDR 35 @ -0.74%
68' of 8" SDR 35 @ -0.50%
228' of 8" SDR 35 @ -0.50%
20'
10'
3152.39
3152.56
3140.173
3152.72
3140.386
3152.88
3140.600
3153.05
3140.813
3153.20
3141.209
3153.35
3141.357
3153.48
3141.583
3153.58
3141.683
3153.73
3141.783
3153.80
3141.967
3153.99
3142.083
3154.11
3142.183
3154.23
3142.283
3154.36
3142.383
3154.49
3142.483
3154.61
3142.583
3154.74
3142.683
3154.87
3142.783
3154.99
3142.883
3155.12
3142.983
510+00
511+00
512+00
513+00
514+00

PROFILE



6/25/26 12:53 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\5.0 SEWER P&P.DWG

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA
DRAWN EA
CHECKED KG
PROJ. NO. 7486
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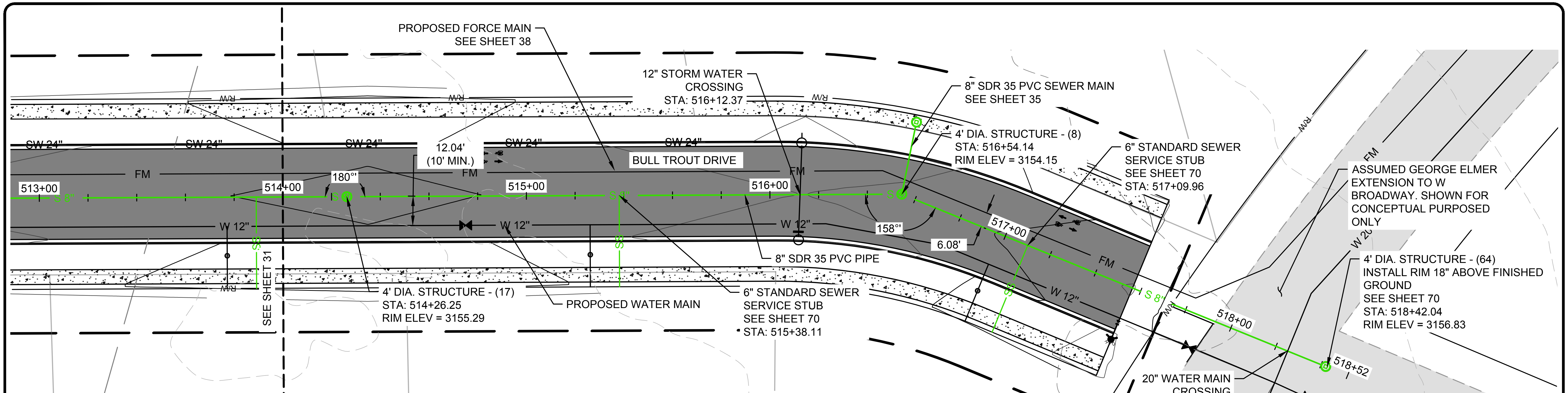
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

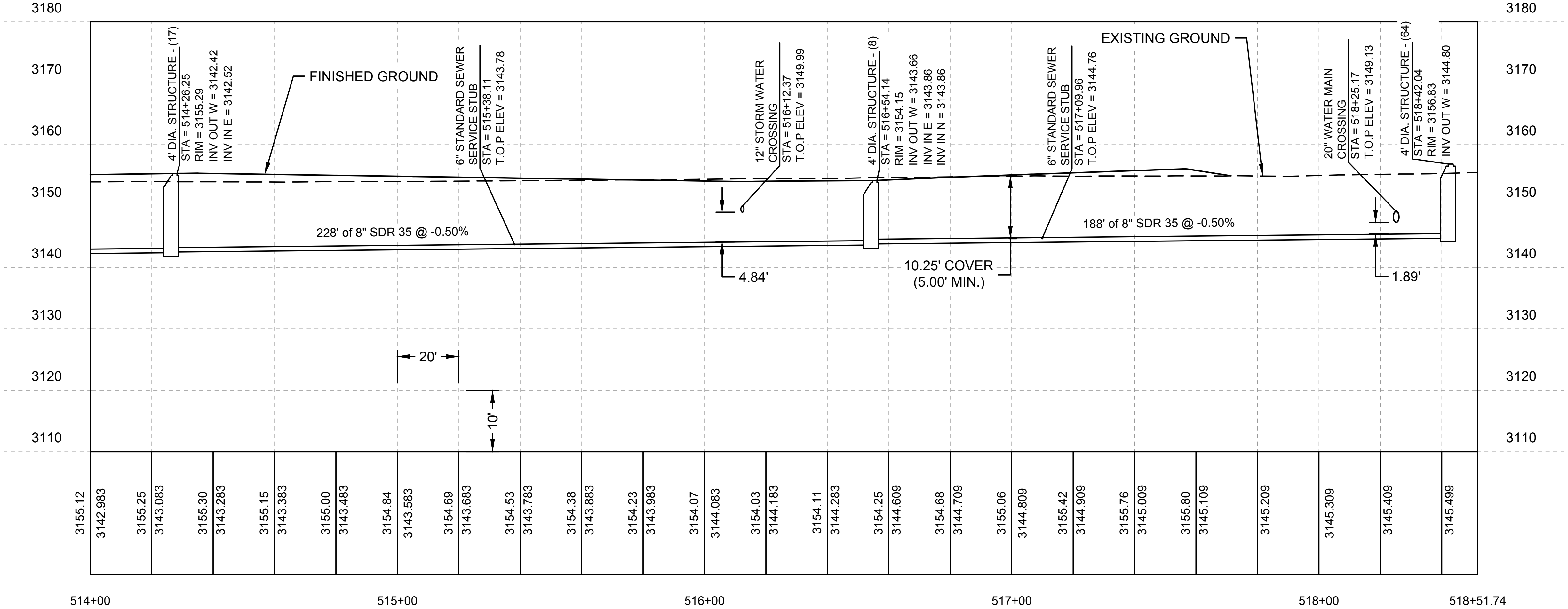
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

GRAVITY SEWER STA 510+00 - STA 514+00
SEGMENT 2

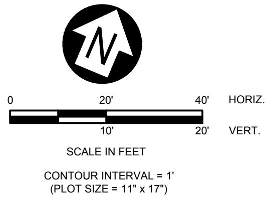
SHEET 31 OF 105



PLAN



PROFILE



SCALE IN FEET

CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

6/25/26 12:53 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C5.0 SEWER P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA
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PLANNERS
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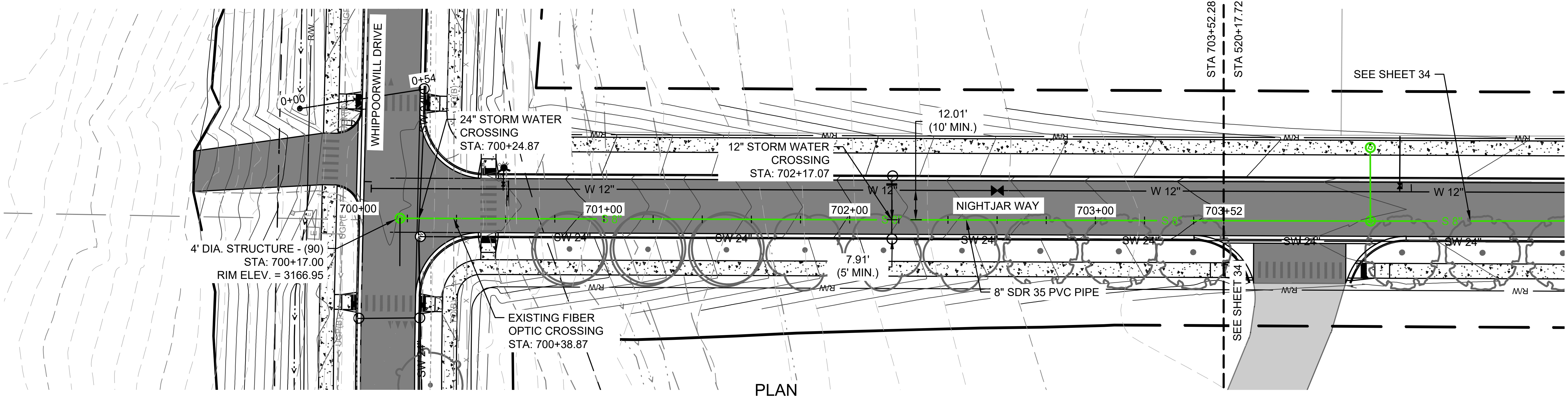
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

GRAVITY SEWER STA 514+00 - STA 516+73
SEGMENT 2

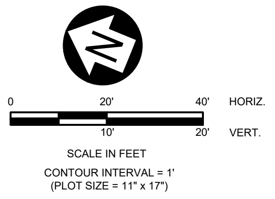
SHEET
32 OF 105



PLAN

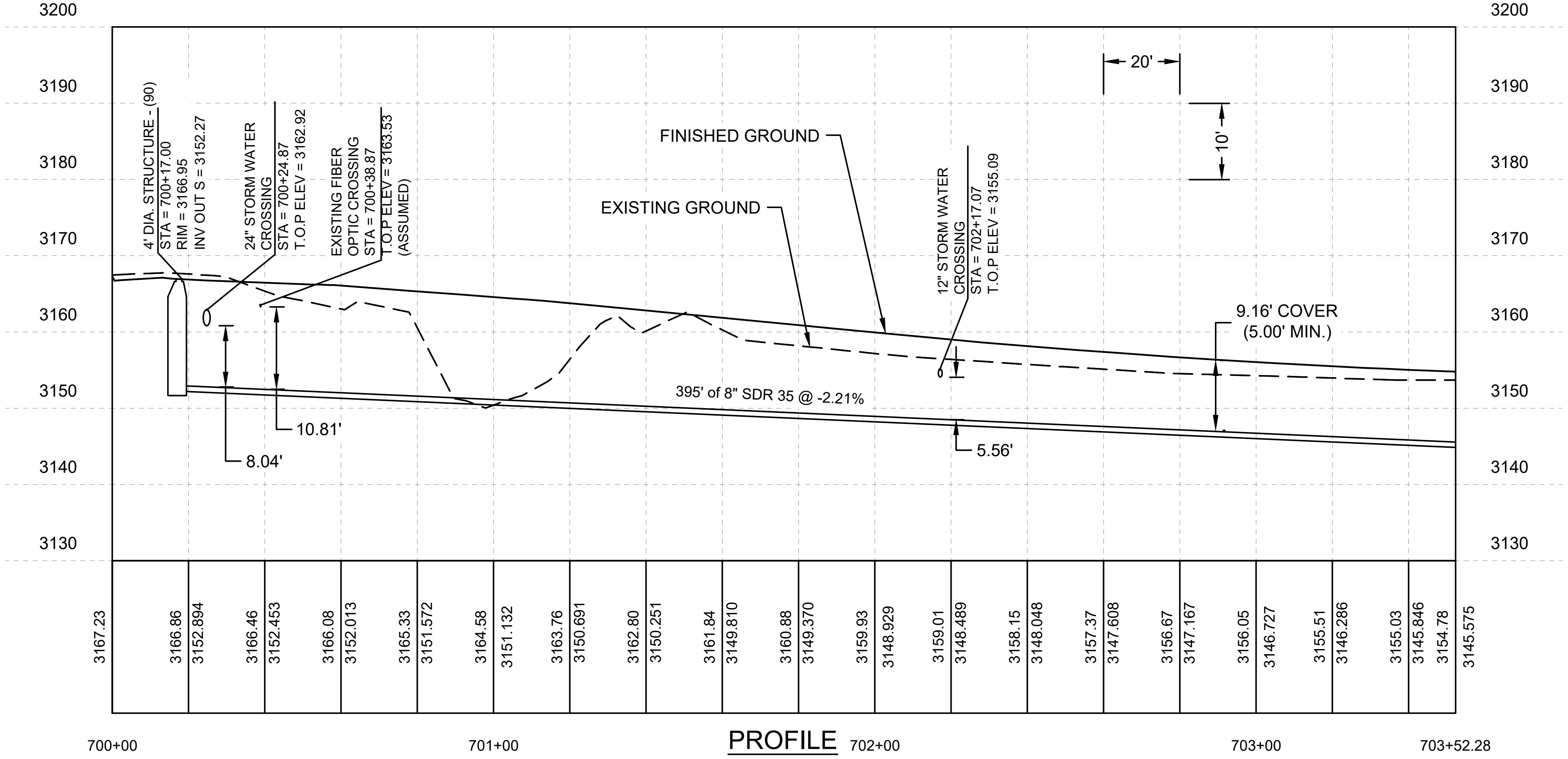
STATION EQUATION:

STA 703+52.28 = STA 520+17.72



SCALE IN FEET

CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")



PROFILE

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA
DRAWN EA
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

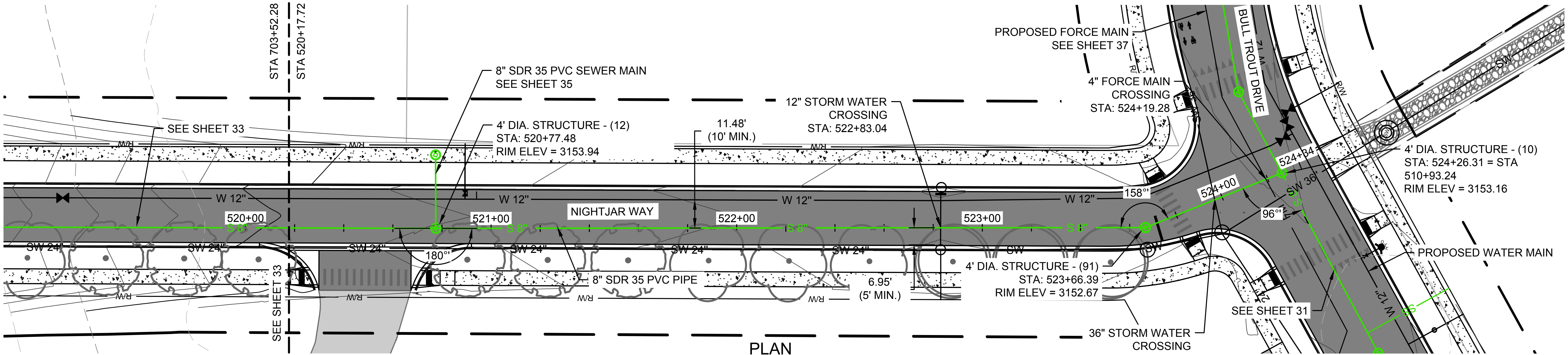
DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

GRAVITY SEWER STA 700+00 - STA 703+49
SEGMENT 3

SHEET
33 OF 105

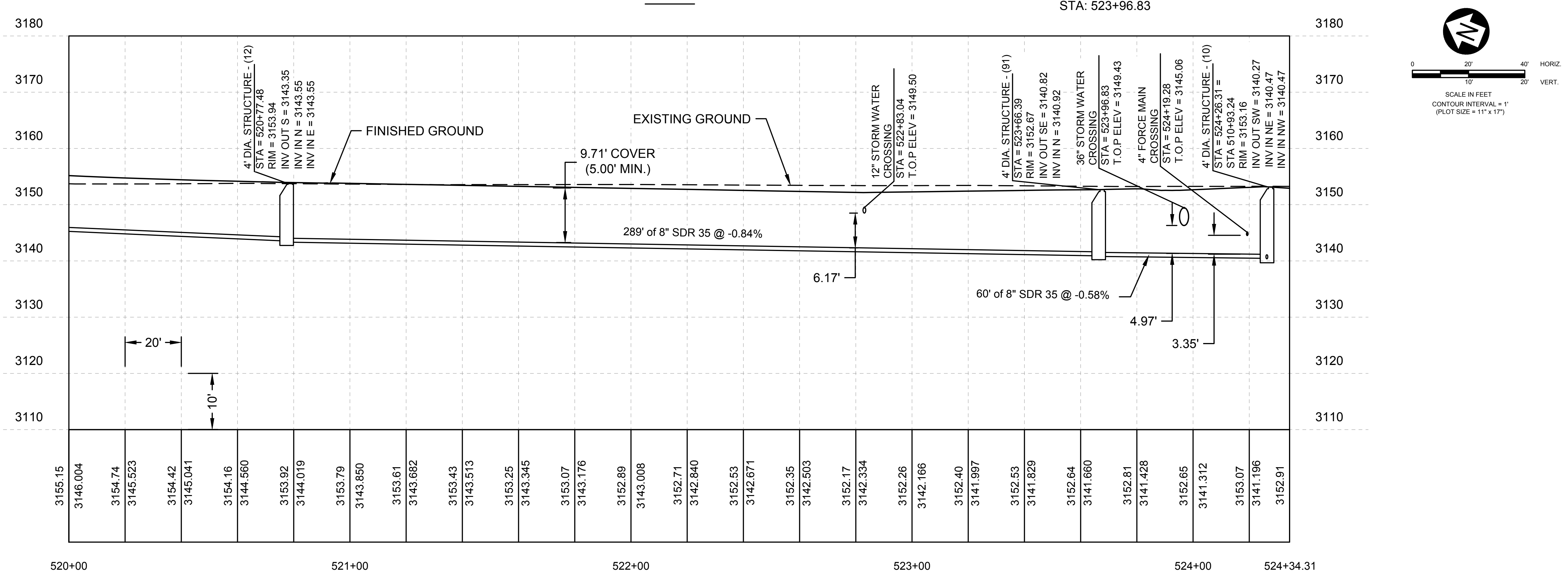
10/19/26 09:08 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C5.0 SEWER P&P.DWG;



PLAN

STATION EQUATION:

STA 520+17.72 = STA 703+52.28
STA 524+26.31 = STA 510+93.24



PROFILE

REVISION	DATE	DESCRIPTION
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-	-	-

DESIGNER EA
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PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

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PLANNERS
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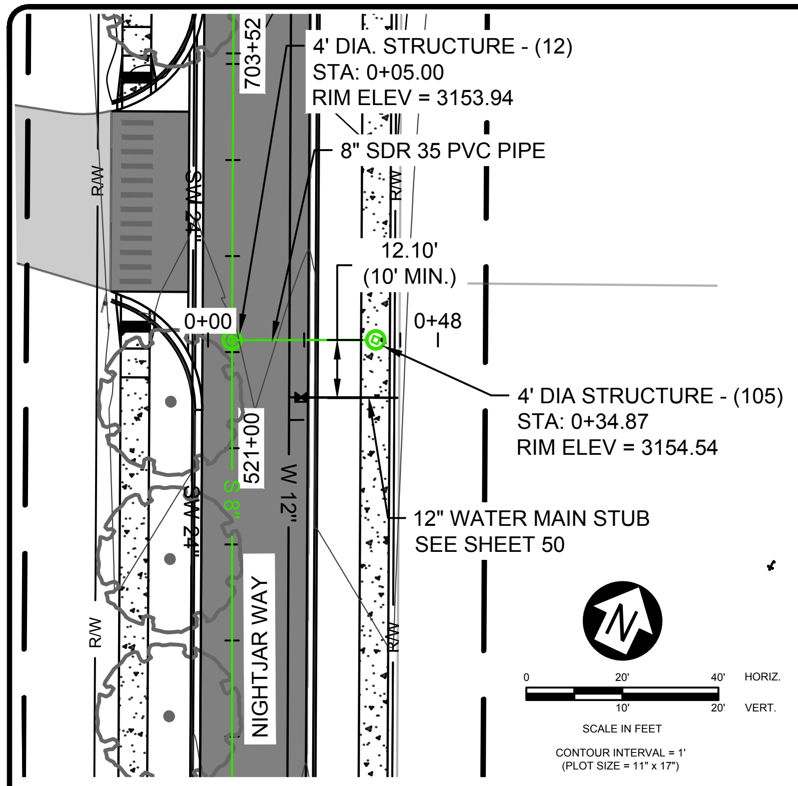
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

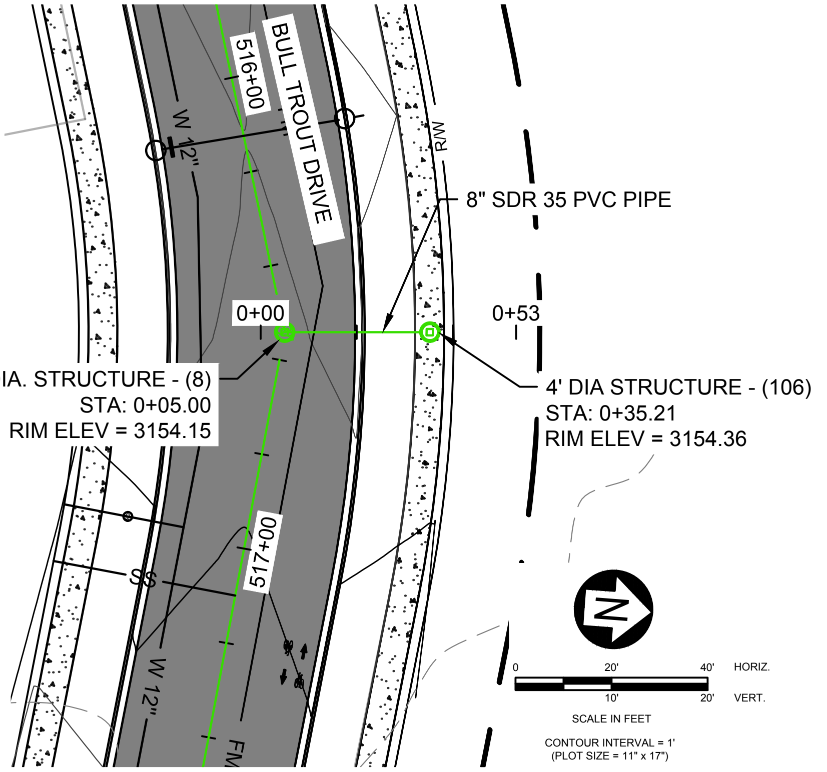
GRAVITY SEWER STA 520+00 - STA 524+40
SEGMENT 3

SHEET
34 OF 105

6/25/26 12:53 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C5.0 SEWER P&P.DWG;



PLAN



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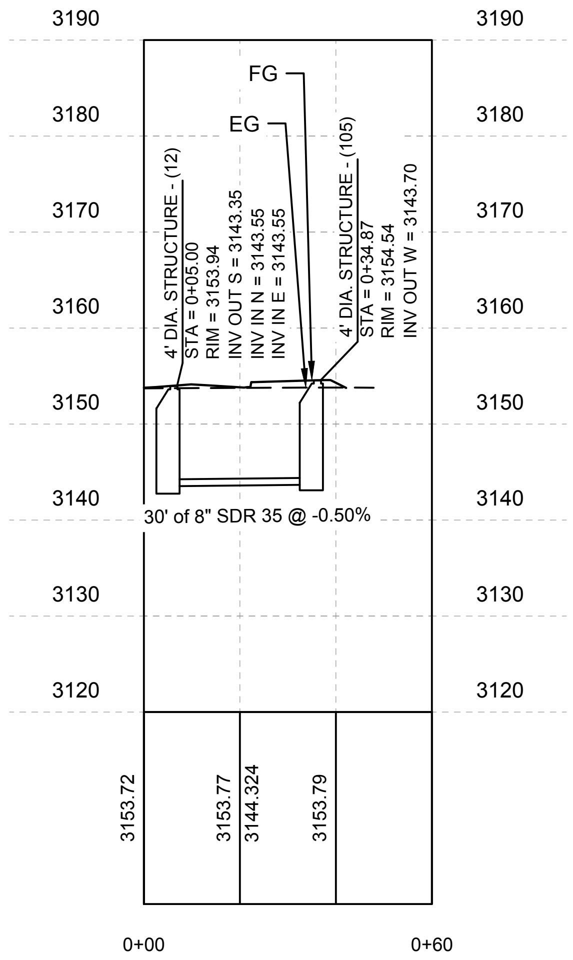
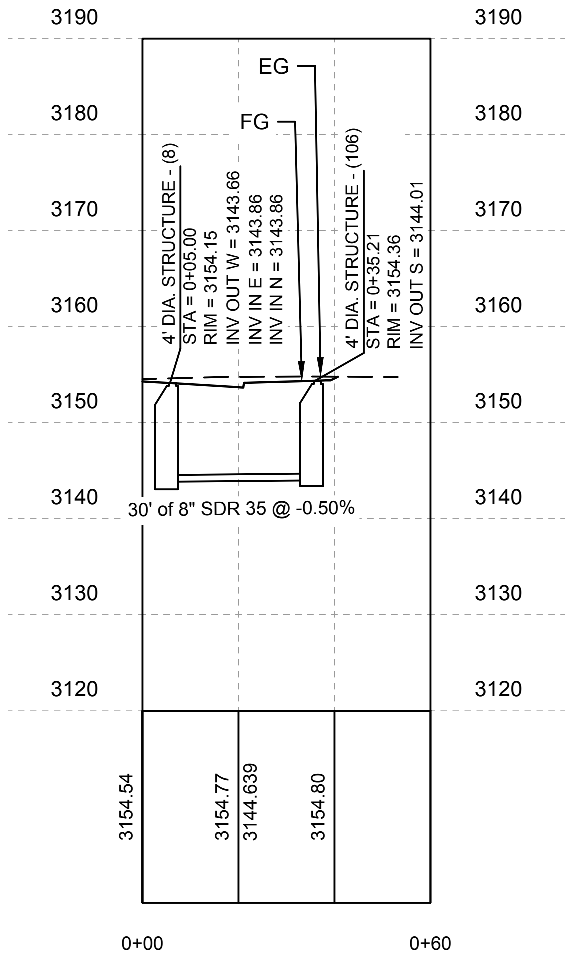


PROFILE



PROFILE

REVISION	DATE	DESCRIPTION
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DESIGNER EA
PROJ. NO. 7486
DRAWN EA
DATE 10.23.2026
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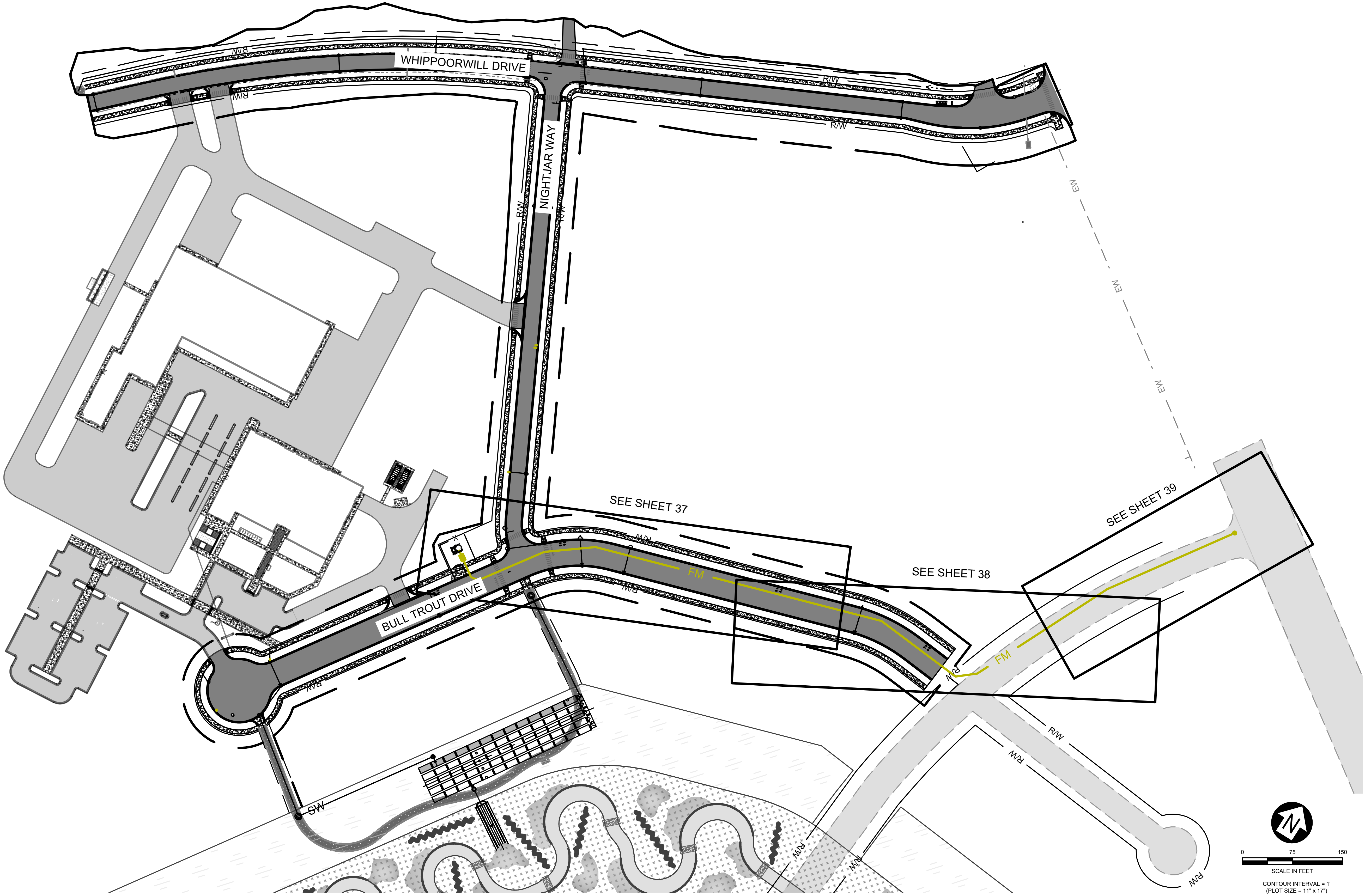
DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

GRAVITY SEWER STUBS
SEGMENT 3

SHEET
35 OF 105

6/25/26 12:53 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C5.0 SEWER P&P.DWG;



CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

10/19/26 09:08 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C5.0 SEWER P&P.DWG;

REVISION	DATE	DESCRIPTION
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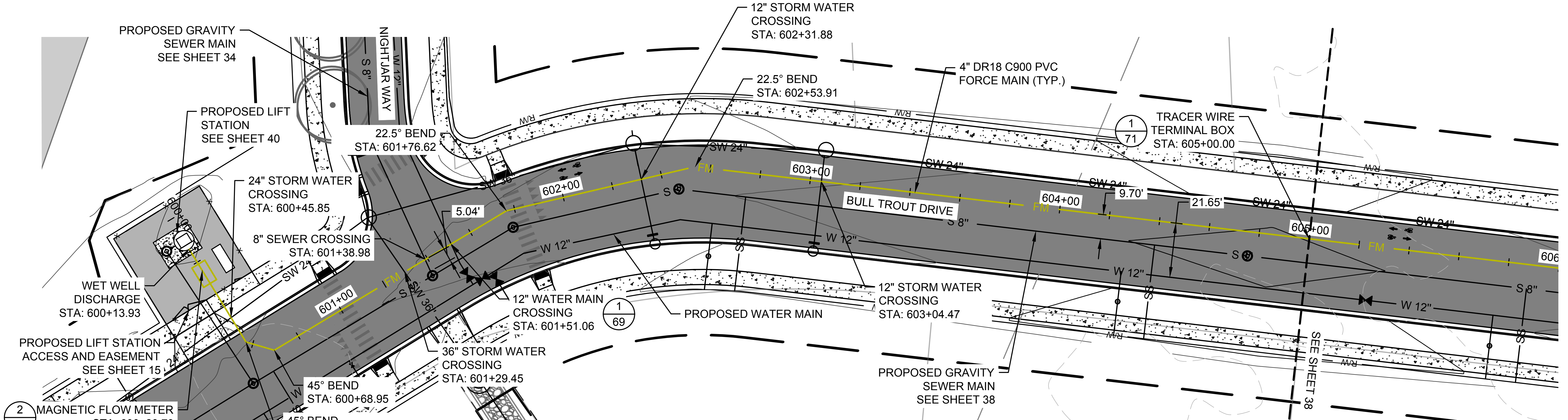
DESIGNER EA
DRAWN EA
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

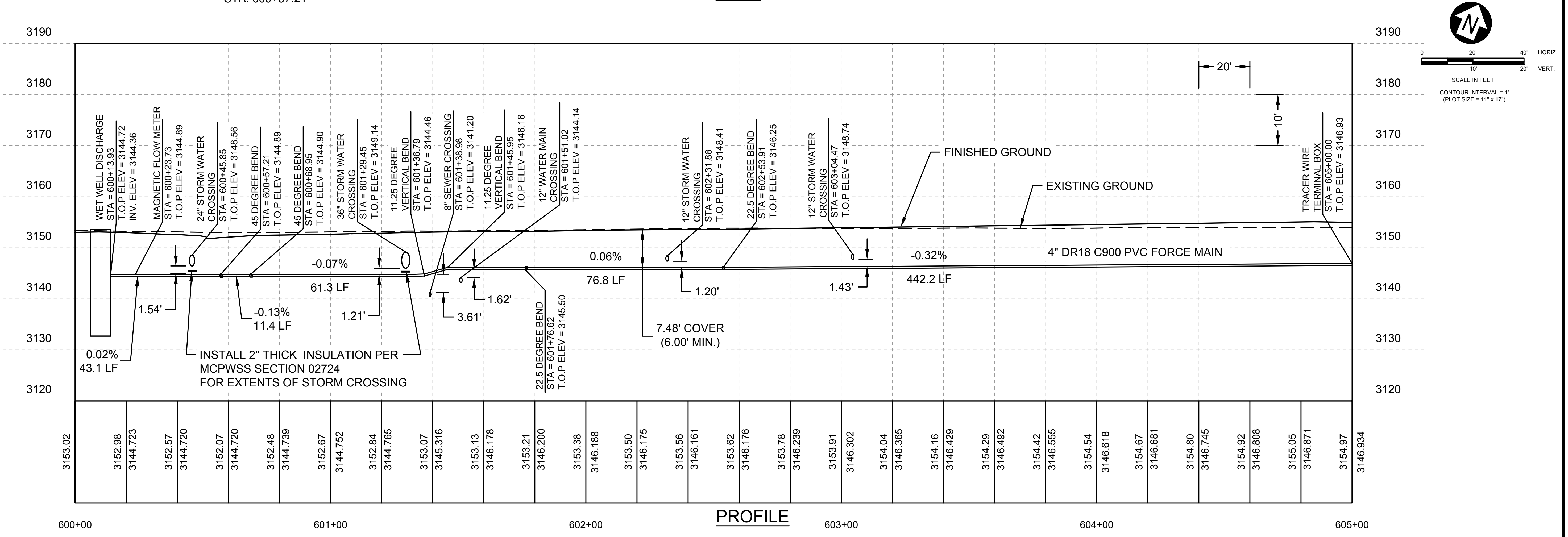
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

FORCE MAIN SEWER P&P KEY

SHEET
36 OF 105


PROPOSED GRAVITY SEWER MAIN SEE SHEET 34
PROPOSED LIFT STATION SEE SHEET 40
NIGHTJAR WAY
S 8"
W 12"
22.5° BEND STA: 601+76.62
24" STORM WATER CROSSING STA: 600+45.85
8" SEWER CROSSING STA: 601+38.98
5.04'
WET WELL DISCHARGE STA: 600+13.93
PROPOSED LIFT STATION ACCESS AND EASEMENT SEE SHEET 15
2
72
MAGNETIC FLOW METER STA: 600+23.73
45° BEND STA: 600+68.95
45° BEND STA: 600+57.21
36" STORM WATER CROSSING STA: 601+29.45
12" WATER MAIN CROSSING STA: 601+51.06
1
69
PROPOSED WATER MAIN
12" STORM WATER CROSSING STA: 602+31.88
22.5° BEND STA: 602+53.91
4" DR18 C900 PVC FORCE MAIN (TYP.)
1
71
TRACER WIRE TERMINAL BOX STA: 605+00.00
12" STORM WATER CROSSING STA: 603+04.47
PROPOSED GRAVITY SEWER MAIN SEE SHEET 38
SEE SHEET 38
BULL TROUT DRIVE
600+00
601+00
602+00
603+00
604+00
605+00
606
9.70'
21.65'
SW 24"
SW 36"
SW 36'
SW 2
FM
S
S 8"
W 12"
W
SS
R/W

PLAN


3190
3180
3170
3160
3150
3140
3130
3120
WET WELL DISCHARGE STA = 600+13.93 T.O.P ELEV = 3144.72 INV. ELEV = 3144.36
MAGNETIC FLOW METER STA = 600+23.73 T.O.P ELEV = 3144.89
24" STORM WATER CROSSING STA = 600+45.85 T.O.P ELEV = 3148.56
45 DEGREE BEND STA = 600+57.21 T.O.P ELEV = 3144.89
45 DEGREE BEND STA = 600+68.95 T.O.P ELEV = 3144.90
36" STORM WATER CROSSING STA = 601+29.45 T.O.P ELEV = 3149.14
11.25 DEGREE VERTICAL BEND STA = 601+36.79 T.O.P ELEV = 3144.46
8" SEWER CROSSING STA = 601+38.98 T.O.P ELEV = 3141.20
11.25 DEGREE VERTICAL BEND STA = 601+45.95 T.O.P ELEV = 3146.16
12" WATER MAIN CROSSING STA = 601+51.02 T.O.P ELEV = 3144.14
22.5 DEGREE BEND STA = 601+76.62 T.O.P ELEV = 3145.50
12" STORM WATER CROSSING STA = 602+31.88 T.O.P ELEV = 3148.41
22.5 DEGREE BEND STA = 602+53.91 T.O.P ELEV = 3146.25
12" STORM WATER CROSSING STA = 603+04.47 T.O.P ELEV = 3148.74
TRACER WIRE TERMINAL BOX STA = 605+00.00 T.O.P ELEV = 3146.93
FINISHED GROUND
EXISTING GROUND
20'
10'
4" DR18 C900 PVC FORCE MAIN
0.02%
43.1 LF
1.54'
-0.13%
11.4 LF
-0.07%
61.3 LF
1.21'
3.61'
1.62'
0.06%
76.8 LF
7.48' COVER (6.00' MIN.)
1.20'
1.43'
-0.32%
442.2 LF
INSTALL 2" THICK INSULATION PER MCPWSS SECTION 02724 FOR EXTENTS OF STORM CROSSING
3153.02
3152.98
3144.723
3152.57
3144.720
3152.07
3144.720
3152.48
3144.739
3152.67
3144.752
3152.84
3144.765
3153.07
3145.316
3153.13
3146.178
3153.21
3146.200
3153.38
3146.188
3153.50
3146.175
3153.56
3146.161
3153.62
3146.176
3153.78
3146.239
3153.91
3146.302
3154.04
3146.365
3154.16
3146.429
3154.29
3146.492
3154.42
3146.555
3154.54
3146.618
3154.67
3146.681
3154.80
3146.745
3154.92
3146.808
3155.05
3146.871
3154.97
3146.934
600+00
601+00
602+00
603+00
604+00
605+00
0
20'
40'
HORIZ.
10'
20'
VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

PROFILE

6/25/26 12:53 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C5.0 SEWER P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA
DRAWN EA
CHECKED KG
PROJ. NO. 7486
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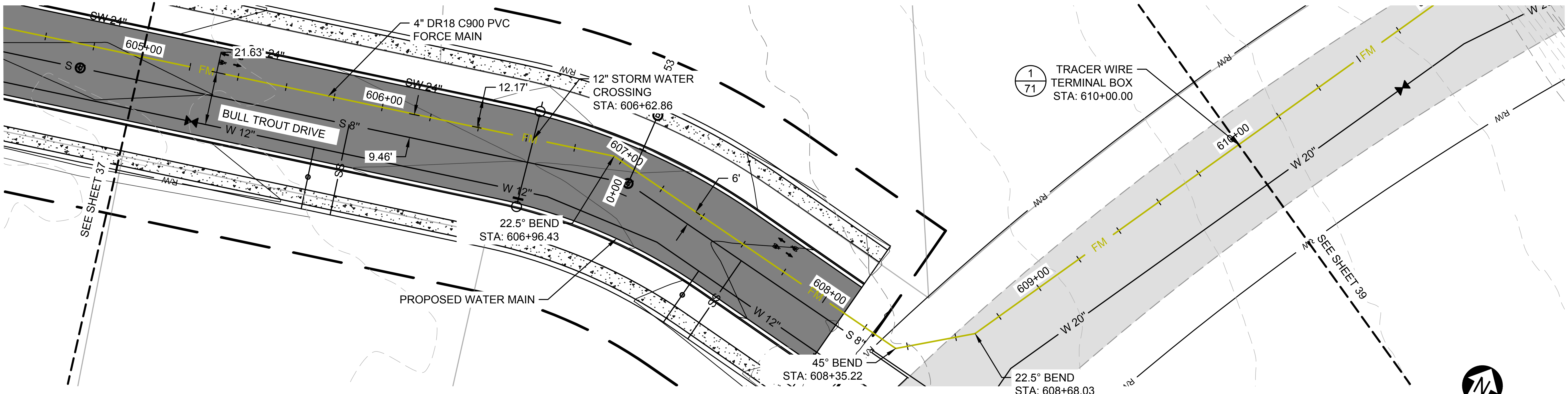
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

FORCE MAIN SEWER STA 600+00 - STA 605+00

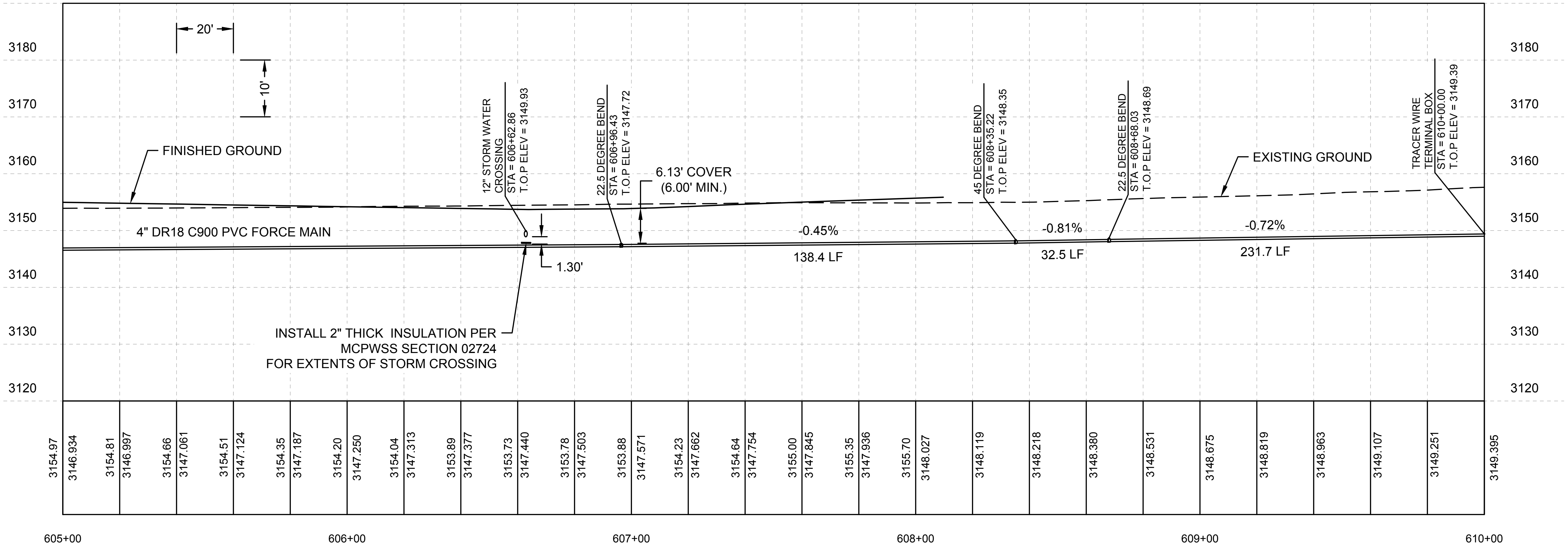
SHEET
37
OF
105



PLAN

0 20' 40' HORIZ.
10' 20' VERT.
SCALE IN FEET

CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")



PROFILE

REVISION	DATE	DESCRIPTION
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-	-	-

DESIGNER EA
DRAWN EA
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

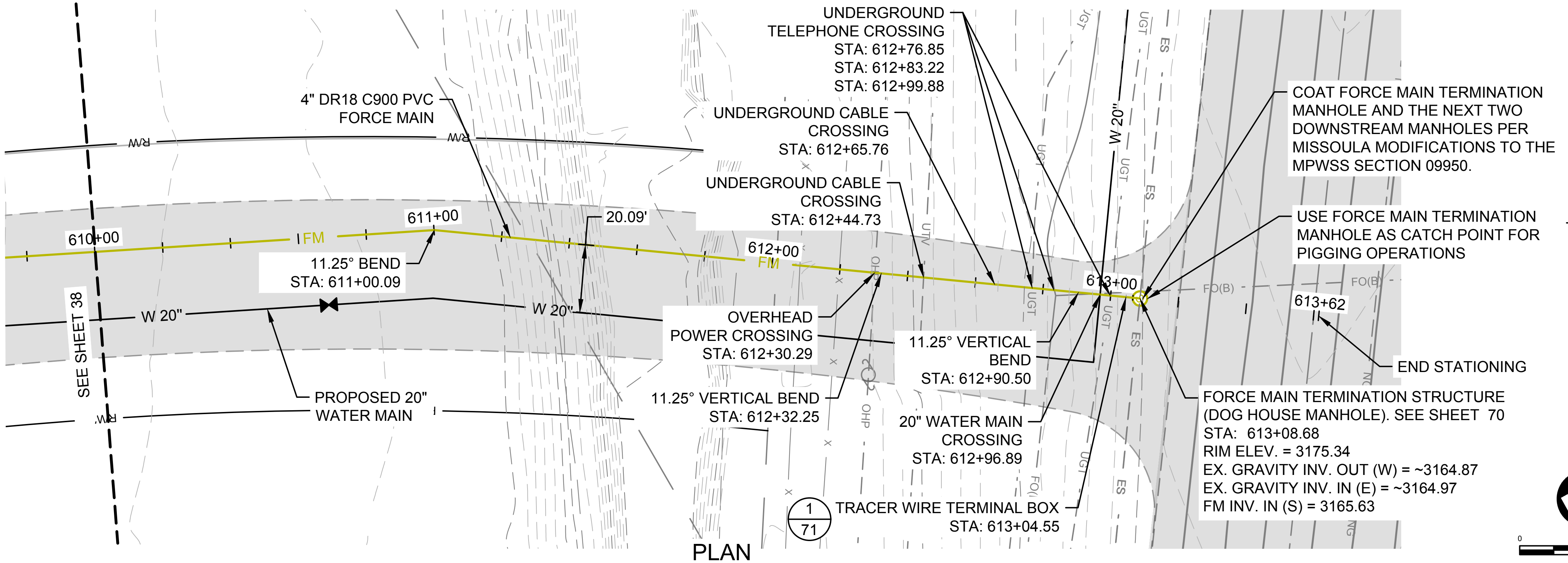
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

FORCE MAIN SEWER STA 605+00 - STA 610+00

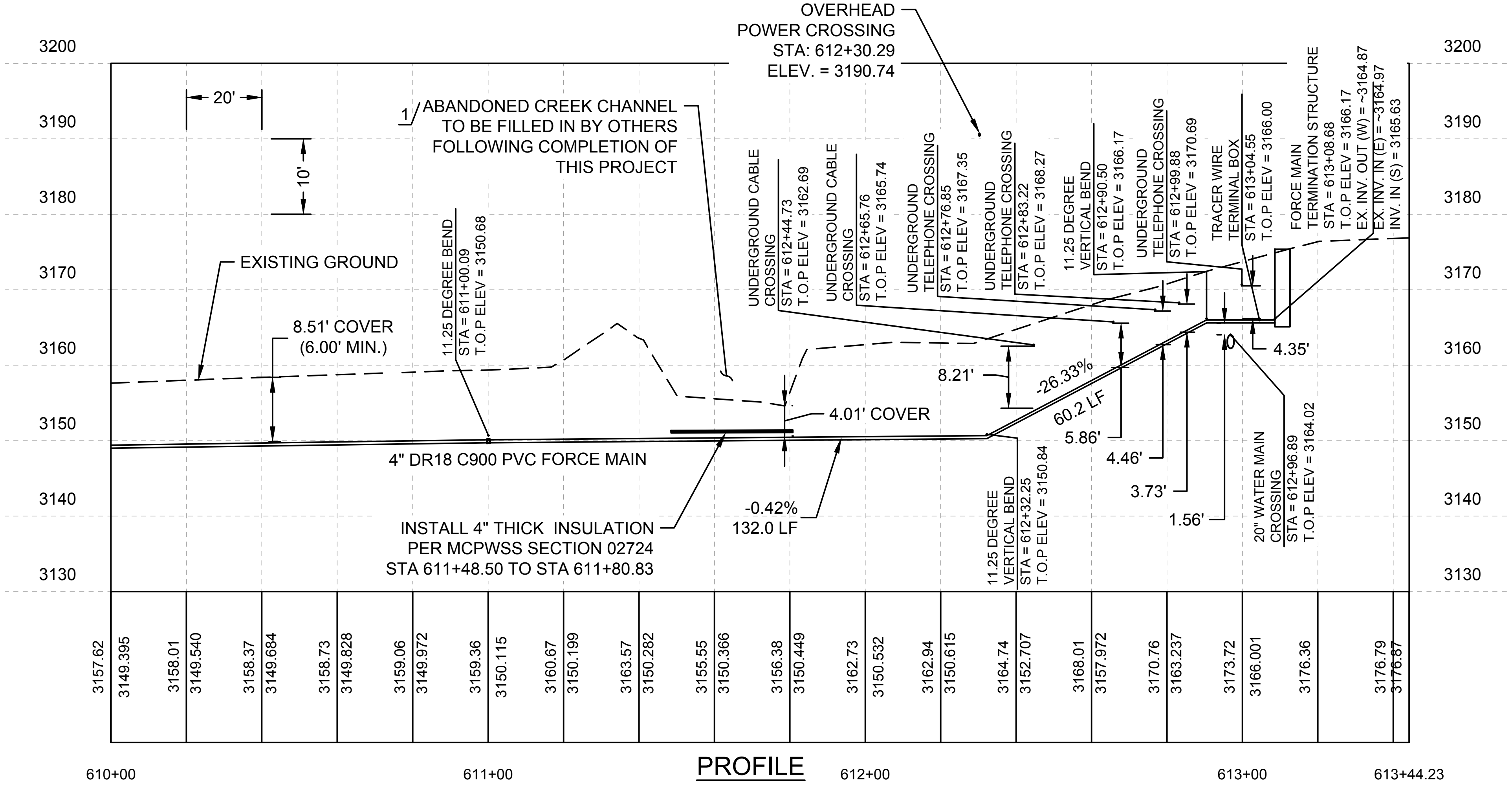
SHEET
38
OF
105

6/25/26 12:53 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C5.0 SEWER P&P.DWG;



PLAN

0 20' 40' HORIZ.
10' 20' VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")



PROFILE

FOOTNOTES:

1/ WITH COMPLETION OF THE ONGOING GRANT CREEK RESTORATION AND REALIGNMENT PROJECT. THE EXISTING CREEK CHANNEL HAS BEEN ABANDONED AND WILL BE FILLED IN FOLLOWING COMPLETION OF THIS PROJECT. AS A RESULT, THE REQUIREMENTS IN MDEQ-2 SECTION 39 FOR SEWERS IN RELATION TO STREAMS DO NOT APPLY. INSULATION BOARD IS INTENDED TO PROVIDE TEMPORARY PROTECTION DURING THE PERIOD BETWEEN WHEN THIS PROJECT IS COMPLETE AND THE ABANDONED CREEK CHANNEL IS FILLED IN.

2/ FOR ALL TRENCHING ALONG BROADWAY (PARALLEL), CONTRACTOR TO ENSURE TRENCH IS BACKFILLED WITHIN THE SAME DAY TO AVOID ANY OPEN TRENCHING OVERNIGHT OR INSTALL MDT APPROVED POSITIVE BARRIER.

6/25/26 12:53 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C5.0 SEWER P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA
PROJ. NO. 7486
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DATE 10.23.2026
CHECKED KG
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

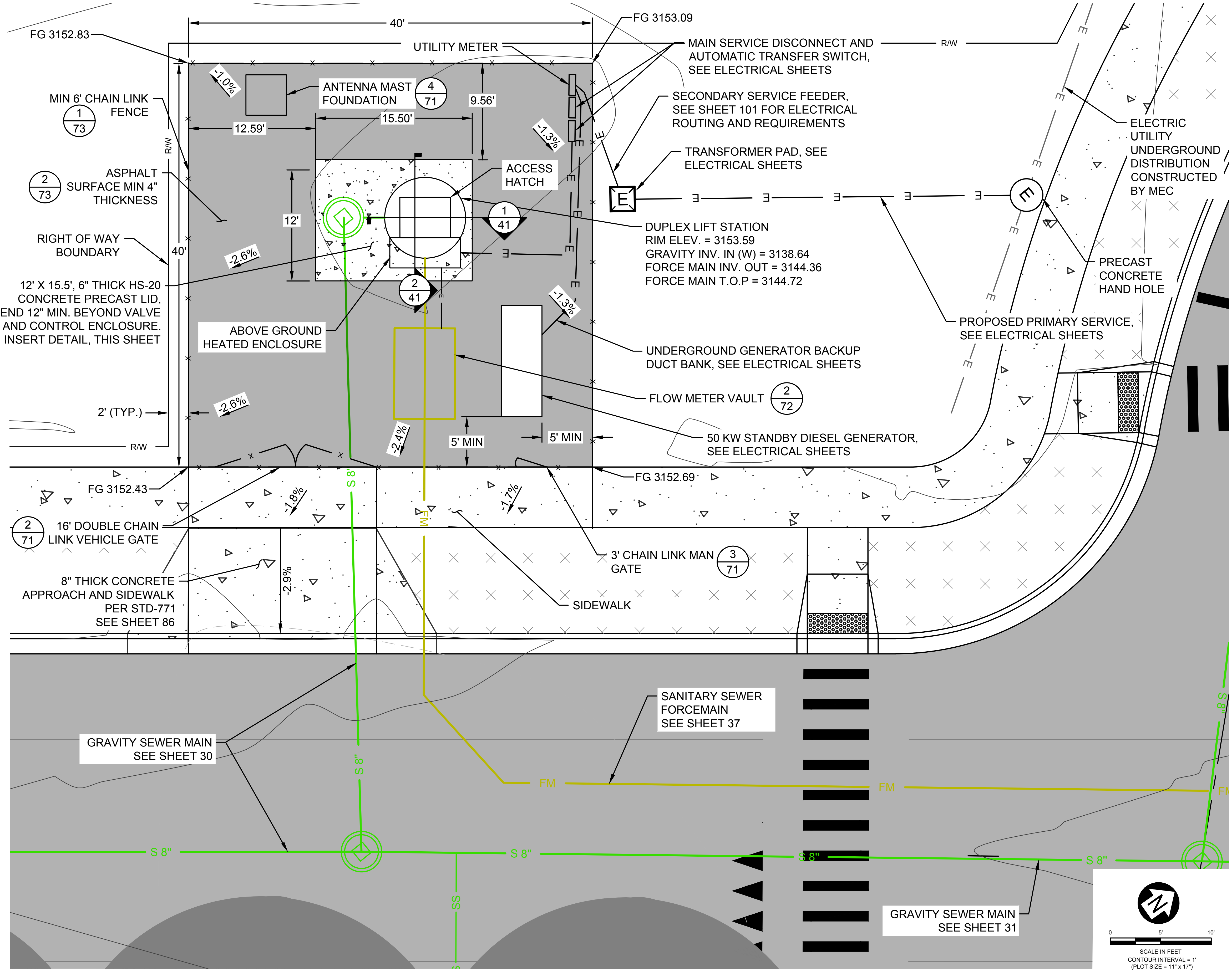
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

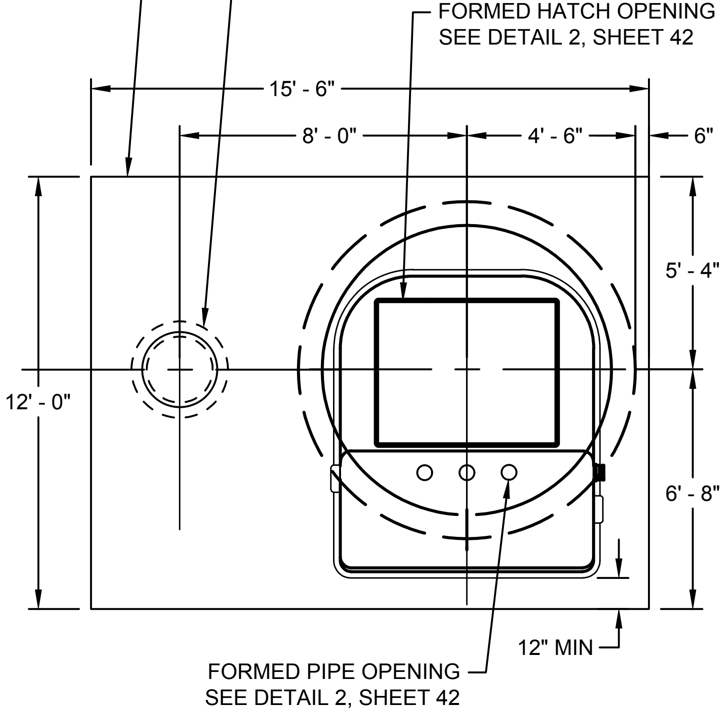
FORCE MAIN SEWER STA 610+00 - STA 613+42

SHEET
39 OF 105

NOTES:

1. A PROPOSED ELECTRICAL SERVICE POINT LOCATION WILL BE COORDINATED WITH MISSOULA ELECTRIC COOP. CURRENTLY THE UNDERGROUND PRIMARY IS NOT INSTALLED.
2. CONTROL AND SCADA REQUIREMENTS FOR THIS LIFT STATION WILL BE COORDINATED WITH THE CITY OF MISSOULA DEPARTMENT OF PUBLIC WORKS AND IN COMPLIANCE WITH THEIR STANDARDS.


FG 3152.83
40'
FG 3153.09
UTILITY METER
MAIN SERVICE DISCONNECT AND AUTOMATIC TRANSFER SWITCH, SEE ELECTRICAL SHEETS
R/W
-1.0%
ANTENNA MAST FOUNDATION 4/71
9.56'
MIN 6' CHAIN LINK FENCE 1/73
12.59'
15.50'
SECONDARY SERVICE FEEDER, SEE SHEET 101 FOR ELECTRICAL ROUTING AND REQUIREMENTS
ELECTRIC UTILITY UNDERGROUND DISTRIBUTION CONSTRUCTED BY MEC
-1.3%
R/W
TRANSFORMER PAD, SEE ELECTRICAL SHEETS
ACCESS HATCH
ASPHALT SURFACE MIN 4" THICKNESS 2/73
12'
1/41
DUPLEX LIFT STATION
RIM ELEV. = 3153.59
GRAVITY INV. IN (W) = 3138.64
FORCE MAIN INV. OUT = 3144.36
FORCE MAIN T.O.P = 3144.72
RIGHT OF WAY BOUNDARY
40'
-2.6%
PRECAST CONCRETE HAND HOLE
12' X 15.5', 6" THICK HS-20 CONCRETE PRECAST LID, EXTEND 12" MIN. BEYOND VALVE AND CONTROL ENCLOSURE. SEE INSERT DETAIL, THIS SHEET
2/41
-1.3%
ABOVE GROUND HEATED ENCLOSURE
PROPOSED PRIMARY SERVICE, SEE ELECTRICAL SHEETS
UNDERGROUND GENERATOR BACKUP DUCT BANK, SEE ELECTRICAL SHEETS
FLOW METER VAULT 2/72
2' (TYP.)
-2.6%
-2.4%
5' MIN
5' MIN
R/W
50 KW STANDBY DIESEL GENERATOR, SEE ELECTRICAL SHEETS
FG 3152.43
S 8"
-1.8%
-1.7%
FM
FG 3152.69
16' DOUBLE CHAIN LINK VEHICLE GATE 2/71
3' CHAIN LINK MAN GATE 3/71
-2.9%
8" THICK CONCRETE APPROACH AND SIDEWALK PER STD-771 SEE SHEET 86
SIDEWALK
SANITARY SEWER FORCEMAIN SEE SHEET 37
GRAVITY SEWER MAIN SEE SHEET 30
S 8"
FM
FM
S 8"
S 8"
S 8"
S 8"
SS
GRAVITY SEWER MAIN SEE SHEET 31
0 5' 10'
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")


BOTTOM OF PRECAST LID TO BE FLUSH WITH ASPHALT
MANHOLE LID TO BE FLUSH WITH PRECAST LID. GROUT ANNULAR SPACE BETWEEN FRAME AND FORMED OPENING ONCE PLACED
FORMED HATCH OPENING SEE DETAIL 2, SHEET 42
15' - 6"
8' - 0"
4' - 6"
6"
5' - 4"
12' - 0"
6' - 8"
12" MIN
FORMED PIPE OPENING SEE DETAIL 2, SHEET 42

NOTES:

1. CONTRACTOR TO CONFIRM FINAL LOCATIONS AND SIZES OF ALL PIPE, CONDUIT, AND PUMP OIL LINE PENETRATIONS BEFORE INSTALLATION. WET WELL, HATCH AND PUMP DIMENSIONS, SEE SHEET 42.
2. PRECAST CONCRETE LID SHALL BE HS-20 AND RATED TO 4,000 PSI. MANUFACTURER SHALL SUBMIT AN ENGINEERED SHOP DRAWING WITH REBAR SCHEDULE STAMPED BY A LICENSED ENGINEER IN THE STATE OF MONTANA.

1/40 PRECAST LID DETAIL INSERT
NTS

4/24/26 12:41 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C5.1 LIFT STATION.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA PROJ. NO. 7486
DRAWN EA DATE 10.23.2026
CHECKED KG SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

LIFT STATION SITE PLAN

SHEET 40 OF 105

DESIGN CRITERIA

PUMP NOTES:

1. PUMPS TO BE VAUGHAN S4K OR APPROVED EQUAL.
2. CAPABLE OF PASSING 3" SOLIDS
3. DESIGN CONDITION: 200 GPM @ 65' TDH
4. MOTOR: 15 HP, 1750 RPM, EXPLOSION PROOF 480V 3-PHASE
5. IMPELLER: 8.9"
7. MODEL BASED ON A 4" DR18 C900 PVC FORCE MAIN.
8. PUMPS, BASE ELBOWS, AND GUIDERAIL SYSTEM TO BE PROVIDED AS A PACKAGE FROM A SINGLE MANUFACTURER.

LEVEL SETTINGS:

HIGH LEVEL ALARM/LAG PUMP ON -	3138.14
LEAD PUMP ON -	3137.34
PUMPS OFF -	3136.54
LOW LEVEL ALARM/REDUNDANT OFF -	3136.14

ENCLOSURE AND CONTROL NOTES:

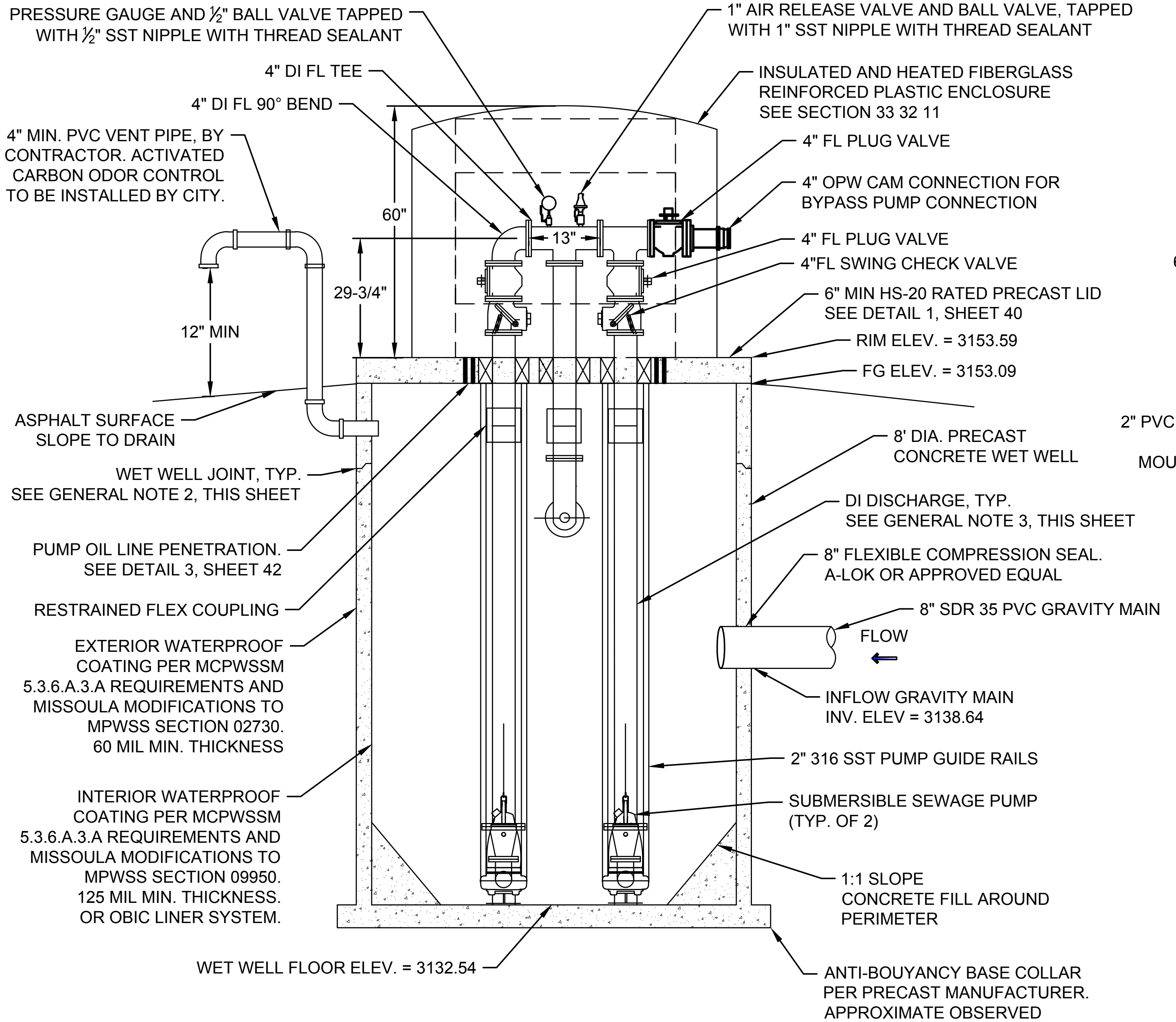
1. LIFT STATION ENCLOSURE, VALVES, AND CONTROLS TO BE GORMAN-RUPP RELIASOURCE ABOVE GROUND SUBMERSIBLE VALVE PACKAGE (ASVP) TYPE E OR APPROVED EQUAL. CONTRACTOR TO ENSURE CORRECT ENCLOSURE SIZING.
2. ENCLOSURE TO BE HEATED WITH (2) 120V CERAMIC SPACE HEATERS.

WET WELL ELEVATIONS:

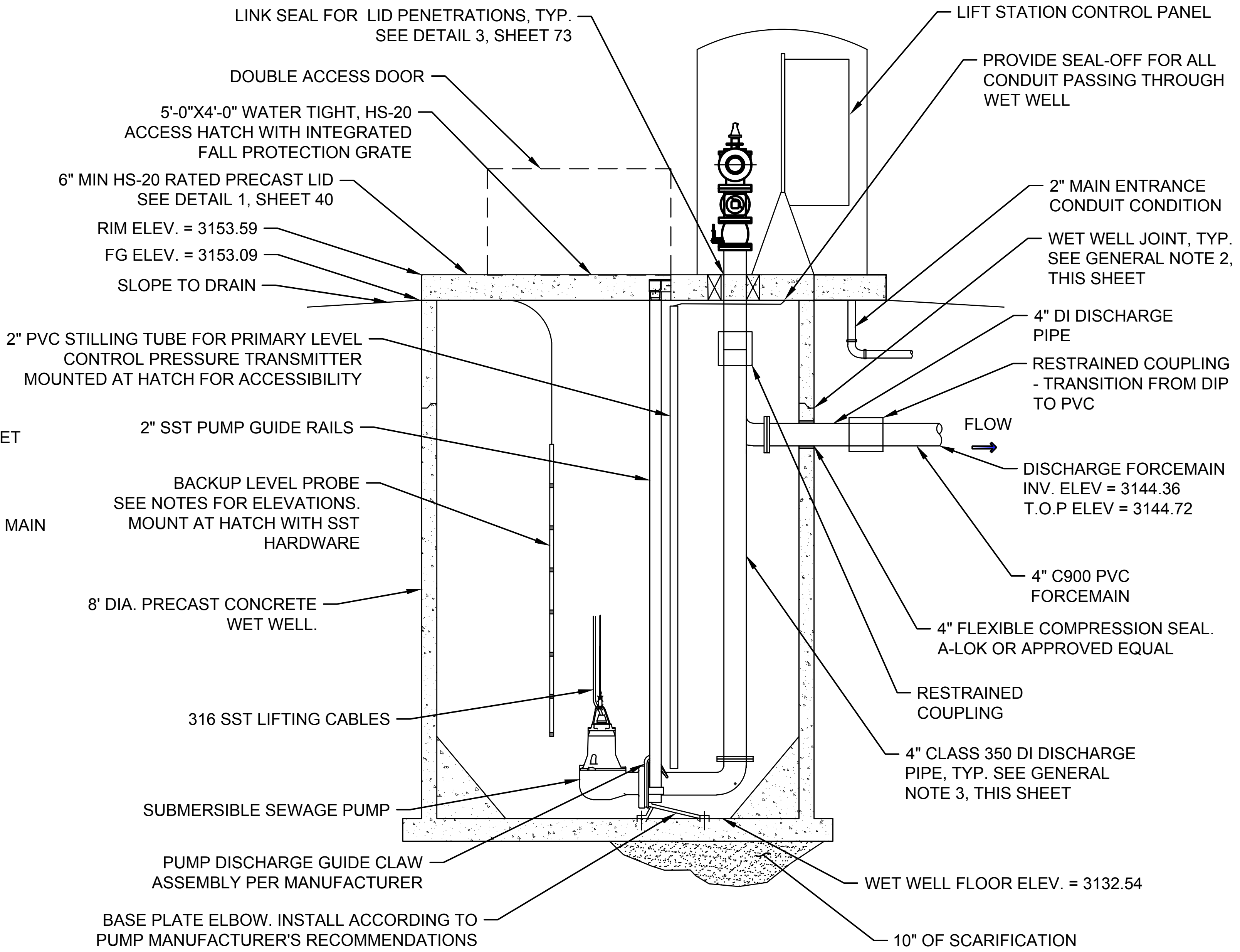
RIM -	3153.59
FINISHED GRADE -	3153.09
INVERT IN -	3138.64
INVERT OUT -	3144.36
FLOOR -	3132.54

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. CONTRACTOR SHALL INSTALL EXTERNAL JOINT WRAP ON ALL WET WELL JOINTS PRIOR TO APPLYING EXTERNAL COATING.
3. ALL EXPOSED DUCTILE IRON PIPE AND FITTINGS SHALL BE FIELD COATED WITH A POLYAMIDE EPOXY COATING PER MPWSS SECTION 02730 AS MODIFIED BY THE CITY OF MISSOULA.
4. INSTALL EQUIPMENT PER MANUFACTURER RECOMMENDATIONS. ALL EQUIPMENT INSIDE WET WELL SHALL MEET REQUIREMENTS FOR CLASS 1 DIVISION 1 LOCATION.
5. ALL METALLIC ITEMS (NUTS, BOLTS, BRACKETS, SUPPORTS, CHAINS, ETC) WITHIN THE WET WELL SHALL BE STAINLESS STEEL.
6. NO UNRESTRAINED JOINTS PERMITTED IN THE LIFT STATION.
7. VALVES AND FITTING SHALL HAVE FLANGED CONNECTIONS UNLESS OTHERWISE INDICATED ON THESE PLANS.
8. A 3RD (SPARE) PUMP & MOTOR WITH CABLE SHALL BE PROVIDED TO CITY.


PRESSURE GAUGE AND ½" BALL VALVE TAPPED WITH ½" SST NIPPLE WITH THREAD SEALANT
1" AIR RELEASE VALVE AND BALL VALVE, TAPPED WITH 1" SST NIPPLE WITH THREAD SEALANT
4" DI FL TEE
4" DI FL 90° BEND
INSULATED AND HEATED FIBERGLASS REINFORCED PLASTIC ENCLOSURE SEE SECTION 33 32 11
4" MIN. PVC VENT PIPE, BY CONTRACTOR. ACTIVATED CARBON ODOR CONTROL TO BE INSTALLED BY CITY.
4" FL PLUG VALVE
4" OPW CAM CONNECTION FOR BYPASS PUMP CONNECTION
60"
13"
4" FL PLUG VALVE
4"FL SWING CHECK VALVE
29-3/4"
12" MIN
6" MIN HS-20 RATED PRECAST LID SEE DETAIL 1, SHEET 40
RIM ELEV. = 3153.59
FG ELEV. = 3153.09
ASPHALT SURFACE SLOPE TO DRAIN
8' DIA. PRECAST CONCRETE WET WELL
WET WELL JOINT, TYP. SEE GENERAL NOTE 2, THIS SHEET
DI DISCHARGE, TYP. SEE GENERAL NOTE 3, THIS SHEET
PUMP OIL LINE PENETRATION. SEE DETAIL 3, SHEET 42
8" FLEXIBLE COMPRESSION SEAL. A-LOK OR APPROVED EQUAL
RESTRAINED FLEX COUPLING
8" SDR 35 PVC GRAVITY MAIN
FLOW
EXTERIOR WATERPROOF COATING PER MCPWSSM 5.3.6.A.3.A REQUIREMENTS AND MISSOULA MODIFICATIONS TO MPWSS SECTION 02730. 60 MIL MIN. THICKNESS
INFLOW GRAVITY MAIN INV. ELEV = 3138.64
2" 316 SST PUMP GUIDE RAILS
INTERIOR WATERPROOF COATING PER MCPWSSM 5.3.6.A.3.A REQUIREMENTS AND MISSOULA MODIFICATIONS TO MPWSS SECTION 09950. 125 MIL MIN. THICKNESS. OR OBIC LINER SYSTEM.
SUBMERSIBLE SEWAGE PUMP (TYP. OF 2)
1:1 SLOPE CONCRETE FILL AROUND PERIMETER
WET WELL FLOOR ELEV. = 3132.54
ANTI-BOUYANCY BASE COLLAR PER PRECAST MANUFACTURER. APPROXIMATE OBSERVED GROUNDWATER ELEV = 3130.00 (DECEMBER)

1/41 LIFT STATION PROFILE VIEW 1
NTS


LINK SEAL FOR LID PENETRATIONS, TYP. SEE DETAIL 3, SHEET 73
LIFT STATION CONTROL PANEL
DOUBLE ACCESS DOOR
PROVIDE SEAL-OFF FOR ALL CONDUIT PASSING THROUGH WET WELL
5'-0"X4'-0" WATER TIGHT, HS-20 ACCESS HATCH WITH INTEGRATED FALL PROTECTION GRATE
6" MIN HS-20 RATED PRECAST LID SEE DETAIL 1, SHEET 40
2" MAIN ENTRANCE CONDUIT CONDITION
RIM ELEV. = 3153.59
WET WELL JOINT, TYP. SEE GENERAL NOTE 2, THIS SHEET
FG ELEV. = 3153.09
SLOPE TO DRAIN
4" DI DISCHARGE PIPE
2" PVC STILLING TUBE FOR PRIMARY LEVEL CONTROL PRESSURE TRANSMITTER MOUNTED AT HATCH FOR ACCESSIBILITY
RESTRAINED COUPLING - TRANSITION FROM DIP TO PVC
FLOW
2" SST PUMP GUIDE RAILS
DISCHARGE FORCEMAIN INV. ELEV = 3144.36 T.O.P ELEV = 3144.72
BACKUP LEVEL PROBE SEE NOTES FOR ELEVATIONS. MOUNT AT HATCH WITH SST HARDWARE
4" C900 PVC FORCEMAIN
8' DIA. PRECAST CONCRETE WET WELL.
4" FLEXIBLE COMPRESSION SEAL. A-LOK OR APPROVED EQUAL
RESTRAINED COUPLING
316 SST LIFTING CABLES
4" CLASS 350 DI DISCHARGE PIPE, TYP. SEE GENERAL NOTE 3, THIS SHEET
SUBMERSIBLE SEWAGE PUMP
PUMP DISCHARGE GUIDE CLAW ASSEMBLY PER MANUFACTURER
WET WELL FLOOR ELEV. = 3132.54
BASE PLATE ELBOW. INSTALL ACCORDING TO PUMP MANUFACTURER'S RECOMMENDATIONS
10" OF SCARIFICATION COMPACTED TO 98% AND 12" OF STRUCTURAL FILL COMPACTED TO 98%

2/41 LIFT STATION PROFILE VIEW 2
NTS

4/24/26 12:41 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C5.1 LIFT STATION.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

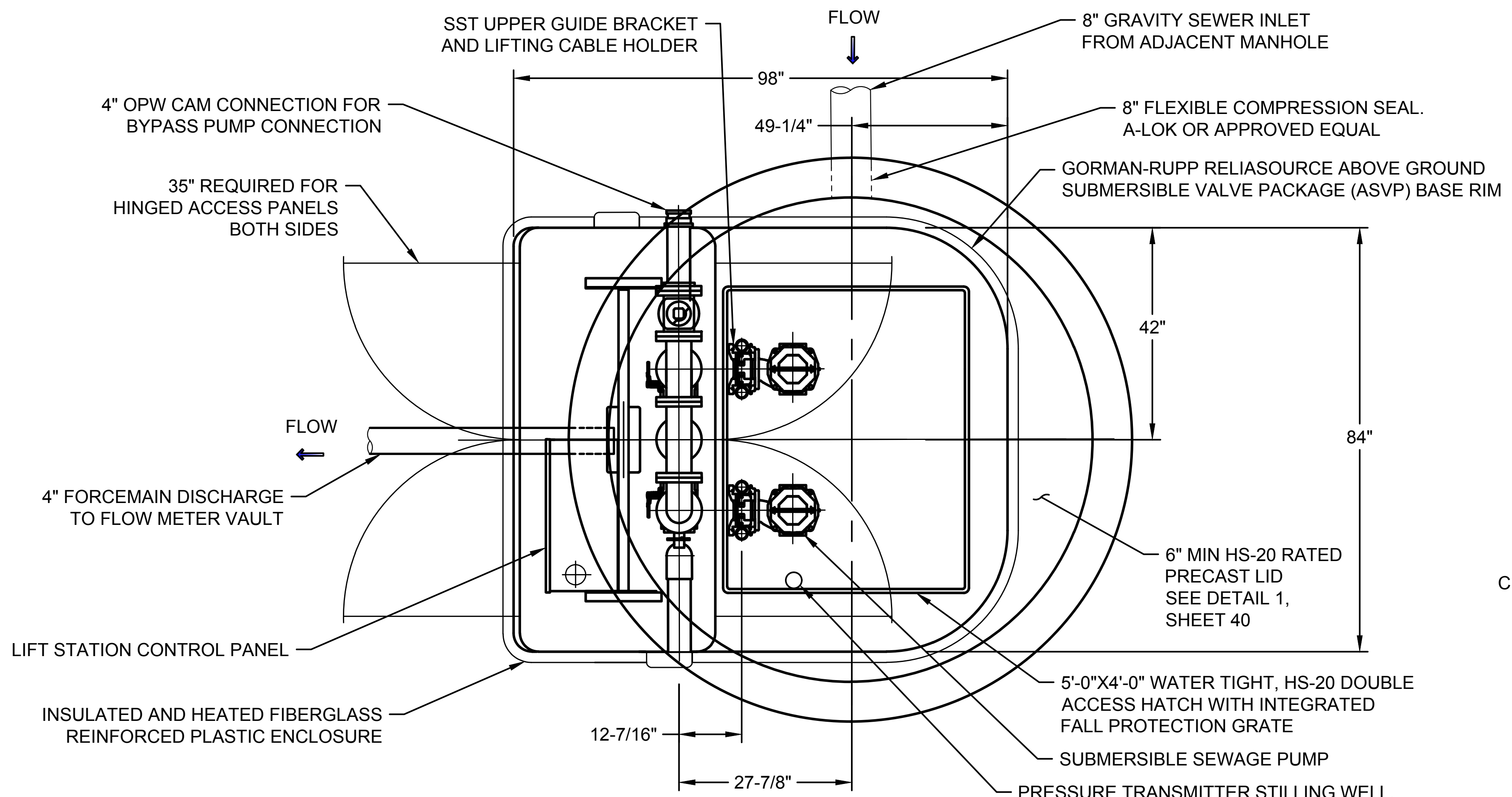
DESIGNER EA
PROJ. NO. 7486
DRAWN EA
DATE 10.23.2026
CHECKED KG
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

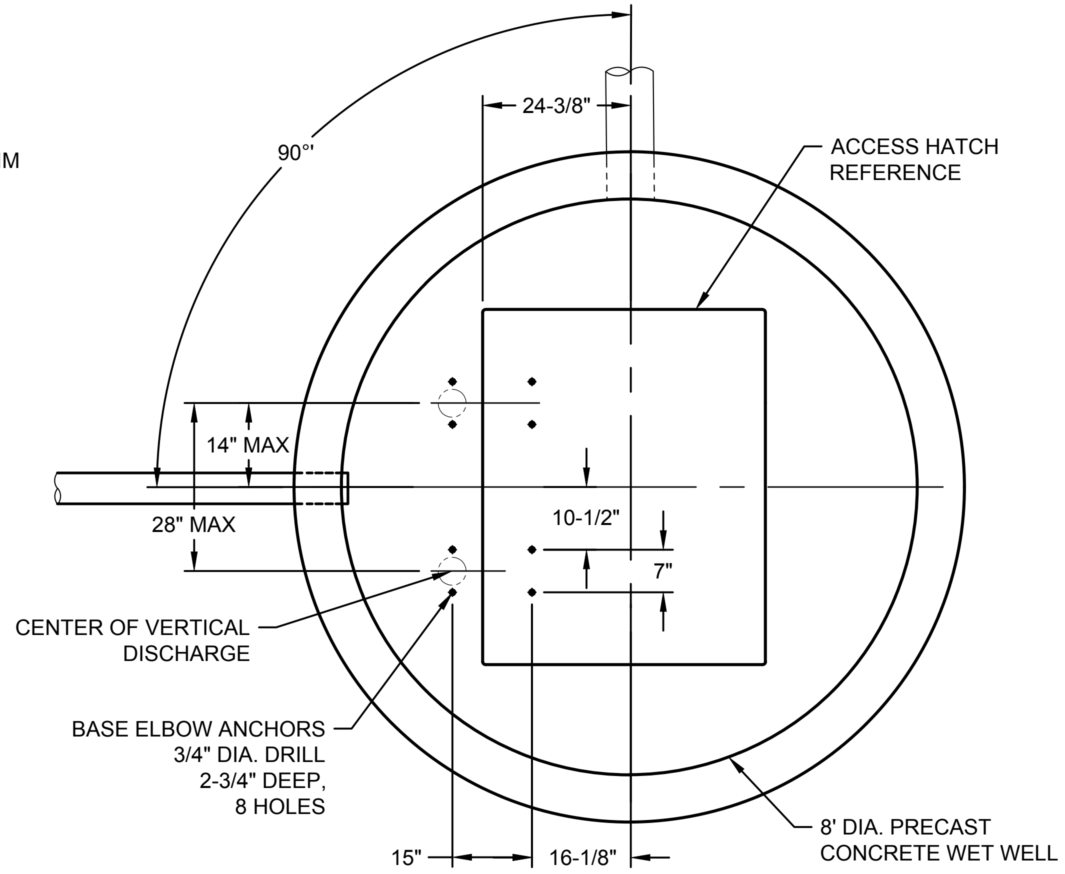
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

LIFT STATION SECTIONS

SHEET 41 OF 105

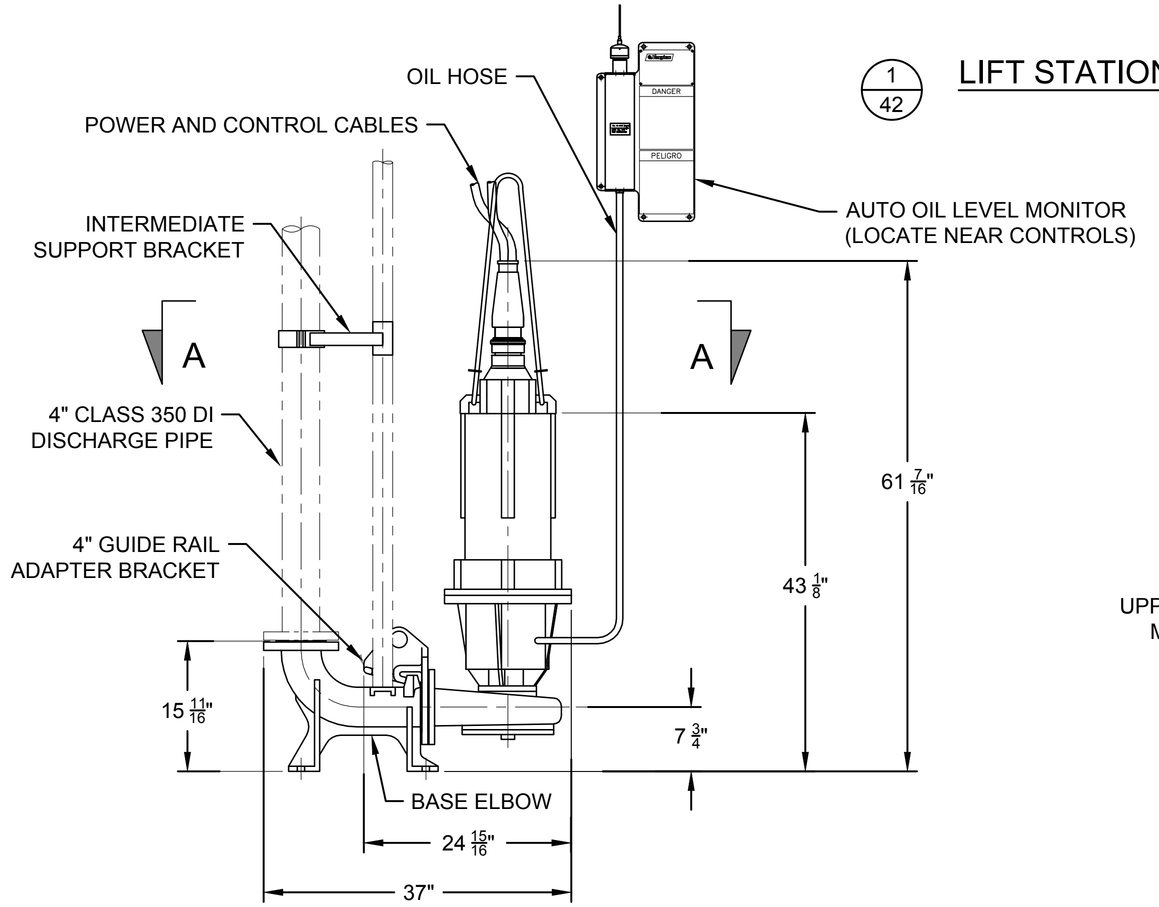


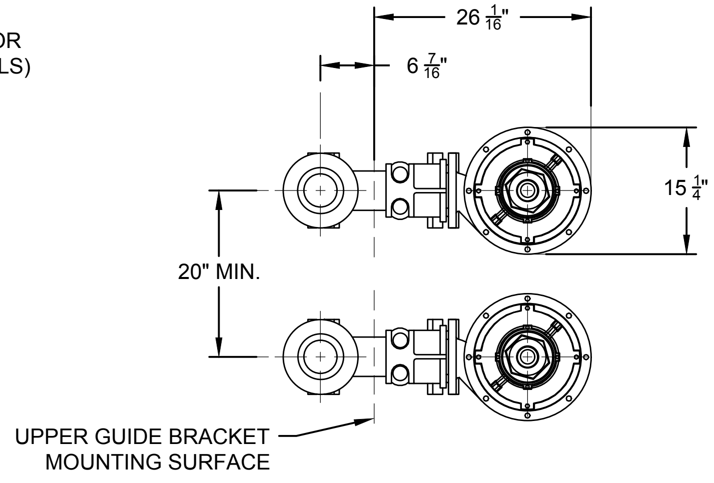
1
42
LIFT STATION PLAN VIEW DETAIL
NTS



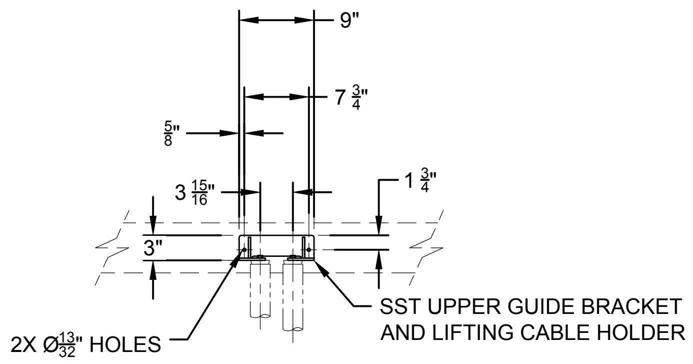
NOTE: CONTRACTOR IS RESPONSIBLE FOR PUMP AND PIPE SPACING.
CONTRACTOR TO CONFIRM FINAL PUMP SPACING BEFORE INSTALLATION.

2
42
LIFT STATION BASE PLATE ELBOW ANCHOR LOCATION
NTS





SECTION A-A



GUIDE RAIL MOUNTING

3
42
PUMP MOUNTING DETAILS
NTS

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA PROJ. NO. 7486
DRAWN EA DATE 10.23.2026
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DJ&A
ENGINEERS
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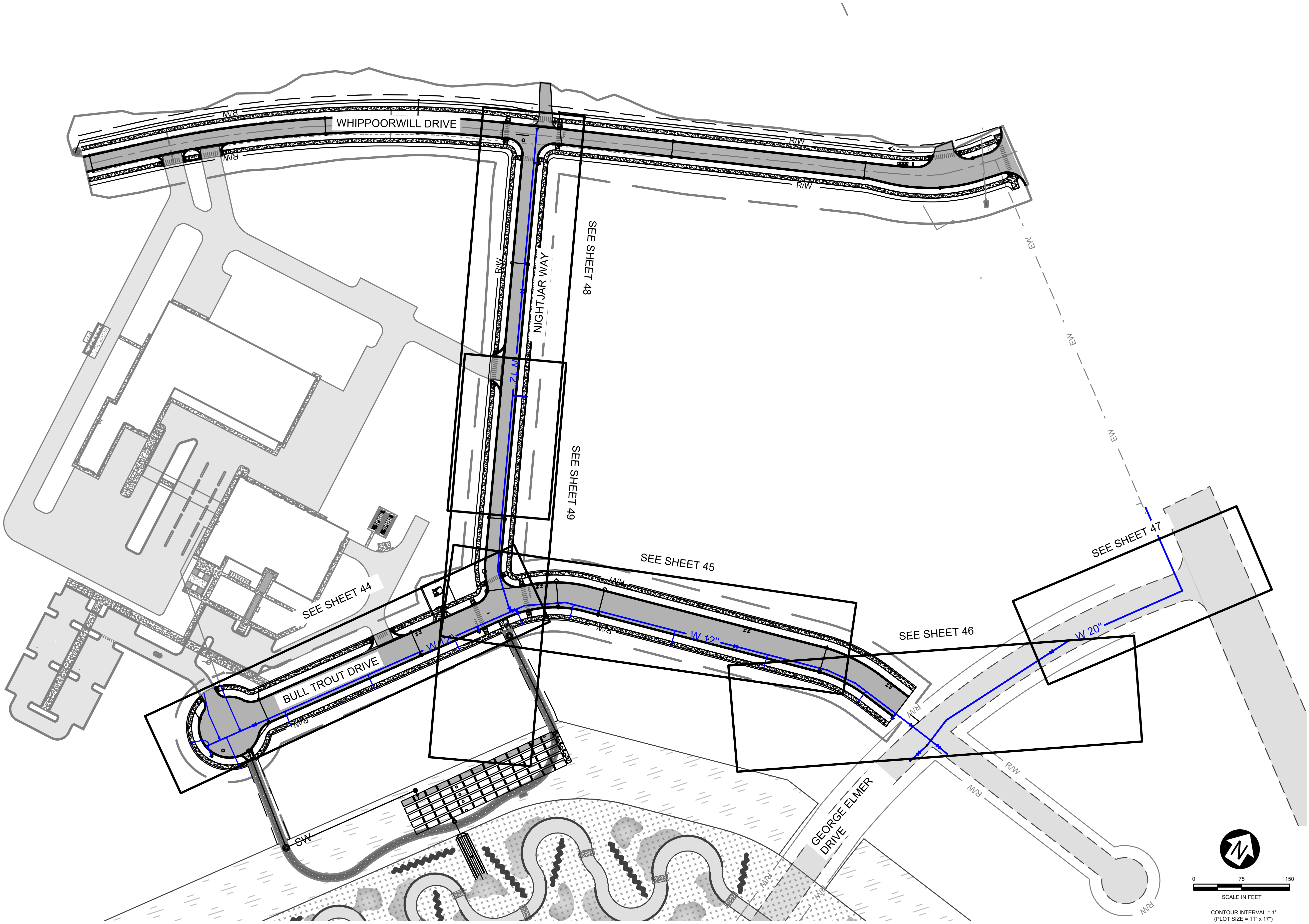
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

LIFT STATION SECTIONS

SHEET
42
OF
105

4/24/26 12:41 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C5.1 LIFT STATION.DWG;



CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER EA
DRAWN EA
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

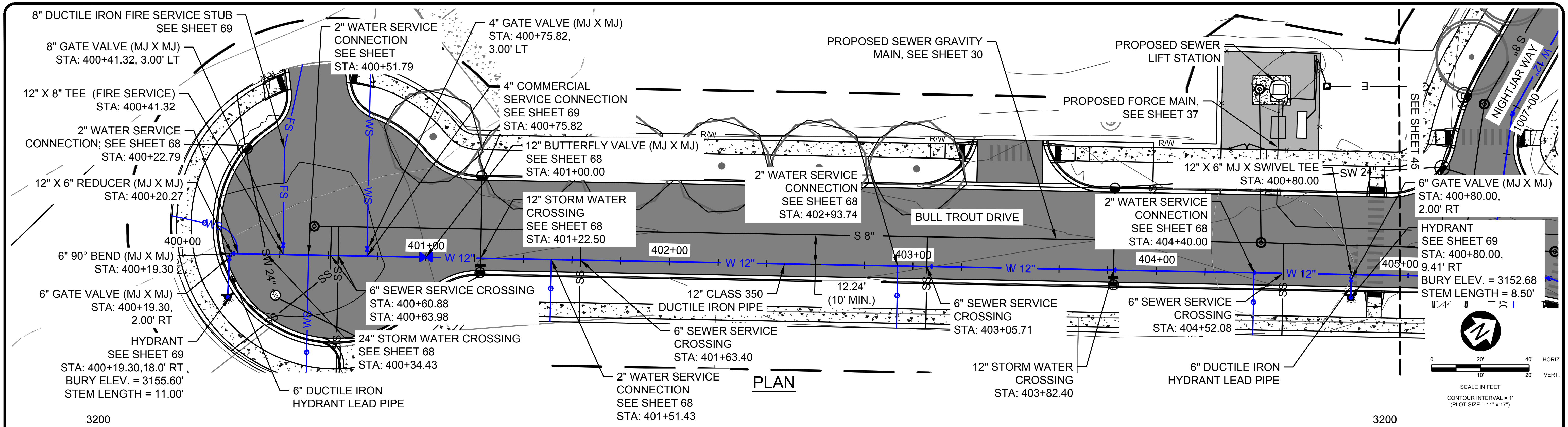
DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

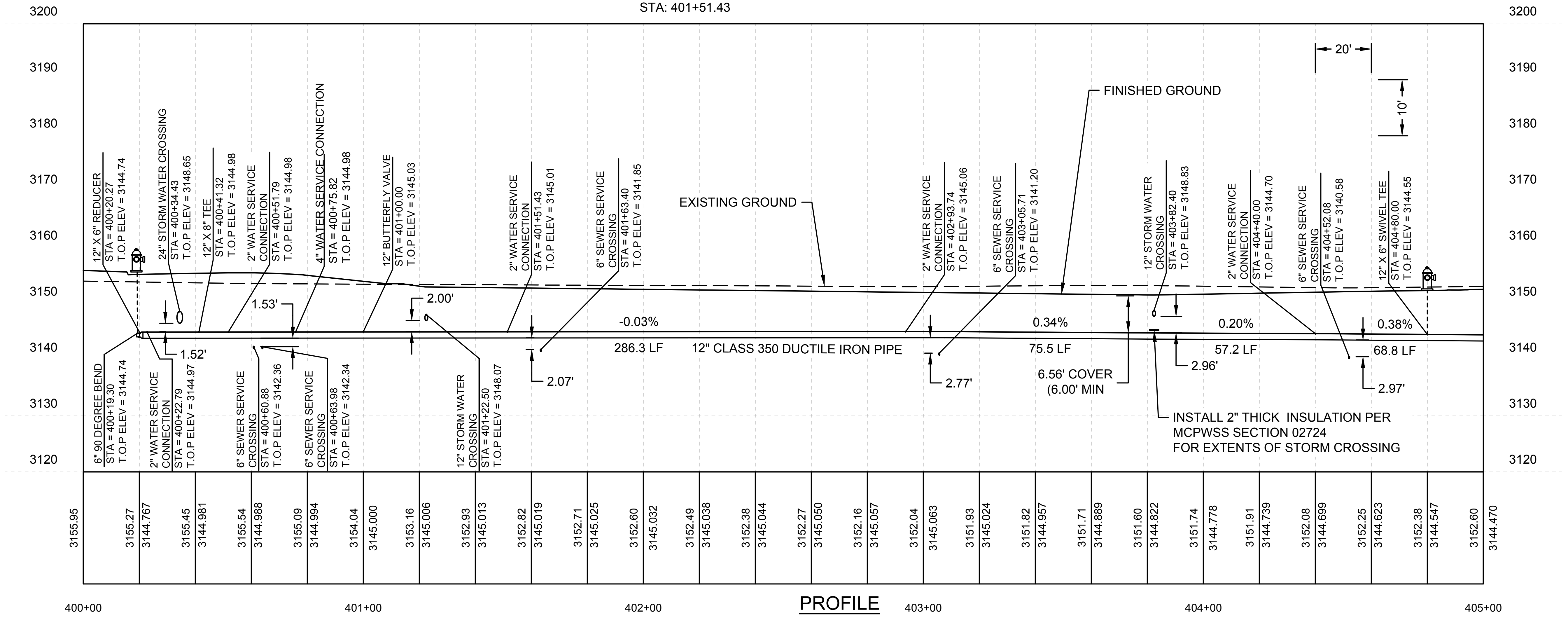
WATER MAIN P&P KEY

SHEET
43 OF 105

10/19/26 09:08 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C6.0 WATER P&P.DWG;


8" DUCTILE IRON FIRE SERVICE STUB SEE SHEET 69
8" GATE VALVE (MJ X MJ) STA: 400+41.32, 3.00' LT
12" X 8" TEE (FIRE SERVICE) STA: 400+41.32
2" WATER SERVICE CONNECTION; SEE SHEET 68 STA: 400+22.79
12" X 6" REDUCER (MJ X MJ) STA: 400+20.27
400+00
6" 90° BEND (MJ X MJ) STA: 400+19.30
6" GATE VALVE (MJ X MJ) STA: 400+19.30, 2.00' RT
HYDRANT SEE SHEET 69 STA: 400+19.30,18.0' RT BURY ELEV. = 3155.60' STEM LENGTH = 11.00'
6" DUCTILE IRON HYDRANT LEAD PIPE
2" WATER SERVICE CONNECTION SEE SHEET STA: 400+51.79
4" GATE VALVE (MJ X MJ) STA: 400+75.82, 3.00' LT
4" COMMERCIAL SERVICE CONNECTION SEE SHEET 69 STA: 400+75.82
12" BUTTERFLY VALVE (MJ X MJ) SEE SHEET 68 STA: 401+00.00
12" STORM WATER CROSSING SEE SHEET 68 STA: 401+22.50
401+00
W 12"
FS
WS
SW 24"
SS
6" SEWER SERVICE CROSSING STA: 400+60.88 STA: 400+63.98
24" STORM WATER CROSSING SEE SHEET 68 STA: 400+34.43
402+00
12" CLASS 350 DUCTILE IRON PIPE
6" SEWER SERVICE CROSSING STA: 401+63.40
2" WATER SERVICE CONNECTION SEE SHEET 68 STA: 401+51.43
2" WATER SERVICE CONNECTION SEE SHEET 68 STA: 402+93.74
R/W
S 8"
12.24' (10' MIN.)
BULL TROUT DRIVE
403+00
6" SEWER SERVICE CROSSING STA: 403+05.71
12" STORM WATER CROSSING STA: 403+82.40
PROPOSED SEWER GRAVITY MAIN, SEE SHEET 30
PROPOSED SEWER LIFT STATION
PROPOSED FORCE MAIN, SEE SHEET 37
2" WATER SERVICE CONNECTION SEE SHEET 68 STA: 404+40.00
404+00
6" SEWER SERVICE CROSSING STA: 404+52.08
6" DUCTILE IRON HYDRANT LEAD PIPE
12" X 6" MJ X SWIVEL TEE STA: 400+80.00
SW 24"
405+00
SEE SHEET 45
6" GATE VALVE (MJ X MJ) STA: 400+80.00, 2.00' RT
HYDRANT SEE SHEET 69 STA: 400+80.00, 9.41' RT BURY ELEV. = 3152.68 STEM LENGTH = 8.50'
NIGHTJAR WAY
W 12"
S 8"
1007+00
0 20' 40' HORIZ.
10' 20' VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

PLAN


3200
3190
3180
3170
3160
3150
3140
3130
3120
20'
10'
FINISHED GROUND
EXISTING GROUND
12" X 6" REDUCER STA = 400+20.27 T.O.P ELEV = 3144.74
24" STORM WATER CROSSING STA = 400+34.43 T.O.P ELEV = 3148.65
12" X 8" TEE STA = 400+41.32 T.O.P ELEV = 3144.98
2" WATER SERVICE CONNECTION STA = 400+51.79 T.O.P ELEV = 3144.98
4" WATER SERVICE CONNECTION STA = 400+75.82 T.O.P ELEV = 3144.98
12" BUTTERFLY VALVE STA = 401+00.00 T.O.P ELEV = 3145.03
2" WATER SERVICE CONNECTION STA = 401+51.43 T.O.P ELEV = 3145.01
6" SEWER SERVICE CROSSING STA = 401+63.40 T.O.P ELEV = 3141.85
2" WATER SERVICE CONNECTION STA = 402+93.74 T.O.P ELEV = 3145.06
6" SEWER SERVICE CROSSING STA = 403+05.71 T.O.P ELEV = 3141.20
12" STORM WATER CROSSING STA = 403+82.40 T.O.P ELEV = 3148.83
2" WATER SERVICE CONNECTION STA = 404+40.00 T.O.P ELEV = 3144.70
6" SEWER SERVICE CROSSING STA = 404+52.08 T.O.P ELEV = 3140.58
12" X 6" SWIVEL TEE STA = 404+80.00 T.O.P ELEV = 3144.55
1.53'
2.00'
1.52'
-0.03%
286.3 LF
12" CLASS 350 DUCTILE IRON PIPE
2.07'
0.34%
75.5 LF
2.77'
6.56' COVER (6.00' MIN
0.20%
57.2 LF
2.96'
0.38%
68.8 LF
2.97'
INSTALL 2" THICK INSULATION PER MCPWSS SECTION 02724 FOR EXTENTS OF STORM CROSSING
6" 90 DEGREE BEND STA = 400+19.30 T.O.P ELEV = 3144.74
2" WATER SERVICE CONNECTION STA = 400+22.79 T.O.P ELEV = 3144.97
6" SEWER SERVICE CROSSING STA = 400+60.88 T.O.P ELEV = 3142.36
6" SEWER SERVICE CROSSING STA = 400+63.98 T.O.P ELEV = 3142.34
12" STORM WATER CROSSING STA = 401+22.50 T.O.P ELEV = 3148.07
3155.95
3155.27 3144.767
3155.45 3144.981
3155.54 3144.988
3155.09 3144.994
3154.04 3145.000
3153.16 3145.006
3152.93 3145.013
3152.82 3145.019
3152.71 3145.025
3152.60 3145.032
3152.49 3145.038
3152.38 3145.044
3152.27 3145.050
3152.16 3145.057
3152.04 3145.063
3151.93 3145.024
3151.82 3144.957
3151.71 3144.889
3151.60 3144.822
3151.74 3144.778
3151.91 3144.739
3152.08 3144.699
3152.25 3144.623
3152.38 3144.547
3152.60 3144.470
400+00
401+00
402+00
403+00
404+00
405+00

PROFILE

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

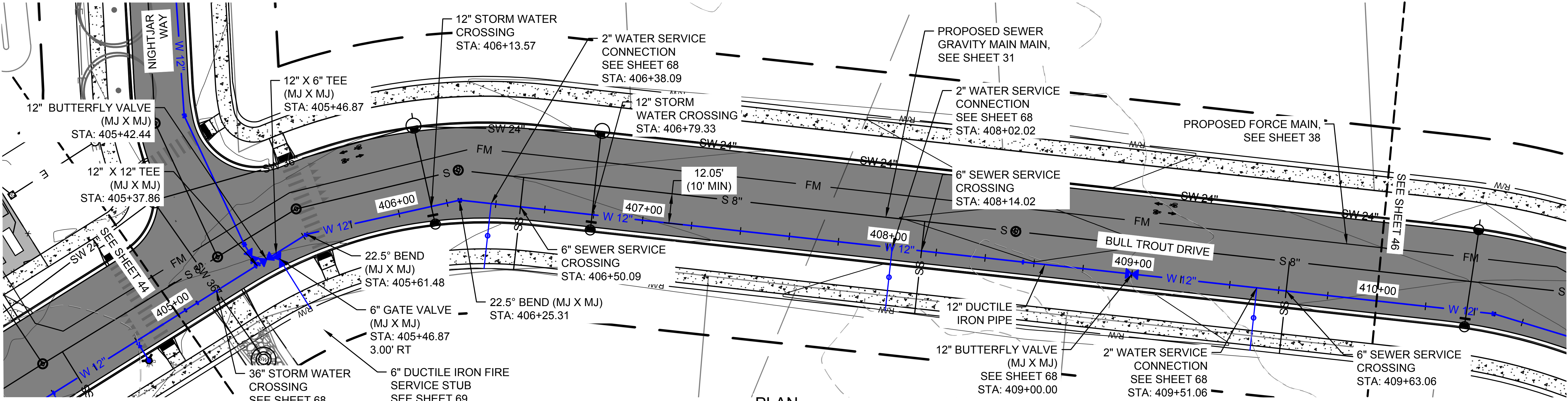
DESIGNER EA PROJ. NO. 7486
DRAWN EA DATE 10.23.2026
CHECKED KG SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

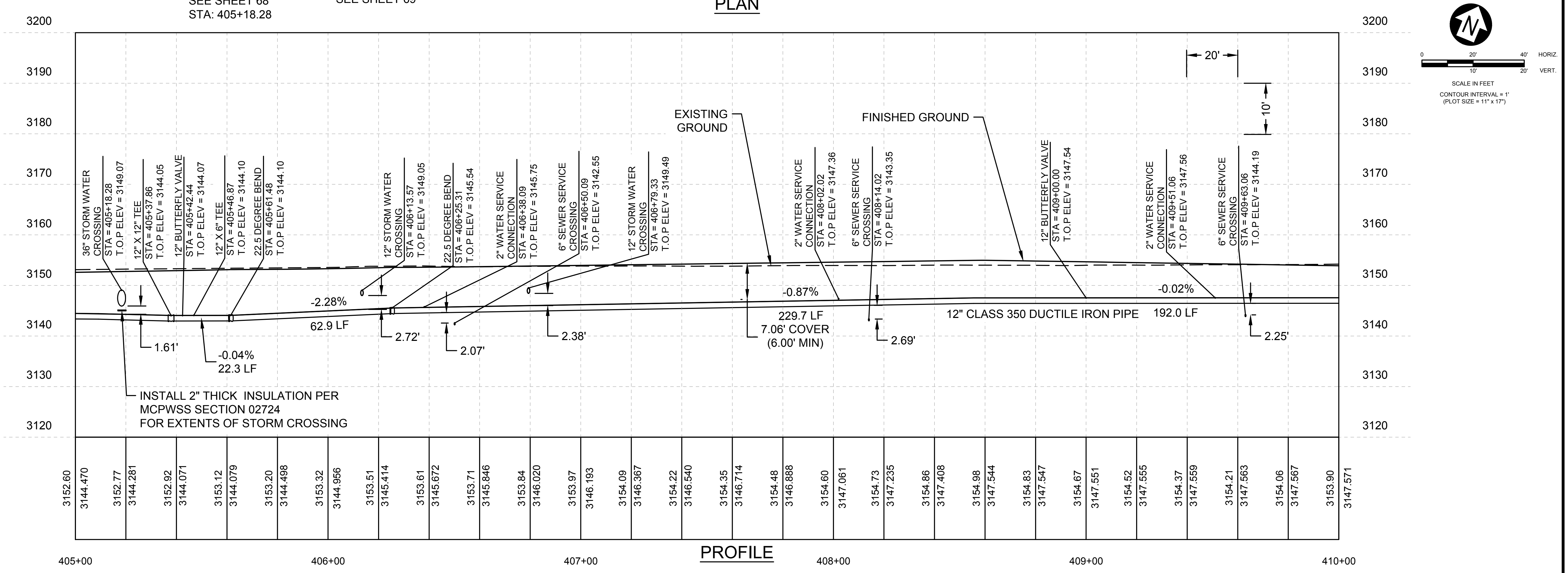
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

WATER MAIN STA 400+00 - STA 405+00

SHEET
44 OF 105


NIGHTJAR WAY
W 12"
12" STORM WATER CROSSING STA: 406+13.57
2" WATER SERVICE CONNECTION SEE SHEET 68 STA: 406+38.09
12" X 6" TEE (MJ X MJ) STA: 405+46.87
12" BUTTERFLY VALVE (MJ X MJ) STA: 405+42.44
12" STORM WATER CROSSING STA: 406+79.33
PROPOSED SEWER GRAVITY MAIN MAIN, SEE SHEET 31
2" WATER SERVICE CONNECTION SEE SHEET 68 STA: 408+02.02
PROPOSED FORCE MAIN, SEE SHEET 38
12" X 12" TEE (MJ X MJ) STA: 405+37.86
SW 24"
FM
S
SW 36"
406+00
407+00
12.05' (10' MIN)
S 8"
6" SEWER SERVICE CROSSING STA: 408+14.02
SEE SHEET 46
SEE SHEET 44
W 12'
22.5° BEND (MJ X MJ) STA: 405+61.48
6" SEWER SERVICE CROSSING STA: 406+50.09
408+00
BULL TROUT DRIVE
409+00
W 12"
410+00
R/W
6" GATE VALVE (MJ X MJ) STA: 405+46.87 3.00' RT
22.5° BEND (MJ X MJ) STA: 406+25.31
12" DUCTILE IRON PIPE
405+00
12" BUTTERFLY VALVE (MJ X MJ) SEE SHEET 68 STA: 409+00.00
2" WATER SERVICE CONNECTION SEE SHEET 68 STA: 409+51.06
6" SEWER SERVICE CROSSING STA: 409+63.06
36" STORM WATER CROSSING SEE SHEET 68 STA: 405+18.28
6" DUCTILE IRON FIRE SERVICE STUB SEE SHEET 69
SS

PLAN


3200
3190
3180
3170
3160
3150
3140
3130
3120
36" STORM WATER CROSSING STA = 405+18.28 T.O.P ELEV = 3149.07
12" X 12" TEE STA = 405+37.86 T.O.P ELEV = 3144.05
12" BUTTERFLY VALVE STA = 405+42.44 T.O.P ELEV = 3144.07
12" X 6" TEE STA = 405+46.87 T.O.P ELEV = 3144.10
22.5 DEGREE BEND STA = 405+61.48 T.O.P ELEV = 3144.10
12" STORM WATER CROSSING STA = 406+13.57 T.O.P ELEV = 3149.05
22.5 DEGREE BEND STA = 406+25.31 T.O.P ELEV = 3145.54
2" WATER SERVICE CONNECTION STA = 406+38.09 T.O.P ELEV = 3145.75
6" SEWER SERVICE CROSSING STA = 406+50.09 T.O.P ELEV = 3142.55
12" STORM WATER CROSSING STA = 406+79.33 T.O.P ELEV = 3149.49
2" WATER SERVICE CONNECTION STA = 408+02.02 T.O.P ELEV = 3147.36
6" SEWER SERVICE CROSSING STA = 408+14.02 T.O.P ELEV = 3143.35
12" BUTTERFLY VALVE STA = 409+00.00 T.O.P ELEV = 3147.54
2" WATER SERVICE CONNECTION STA = 409+51.06 T.O.P ELEV = 3147.56
6" SEWER SERVICE CROSSING STA = 409+63.06 T.O.P ELEV = 3144.19
EXISTING GROUND
FINISHED GROUND
20'
10'
-2.28%
62.9 LF
-0.87%
229.7 LF
7.06' COVER (6.00' MIN)
12" CLASS 350 DUCTILE IRON PIPE
-0.02%
192.0 LF
1.61'
-0.04%
22.3 LF
2.72'
2.07'
2.38'
2.69'
2.25'
INSTALL 2" THICK INSULATION PER MCPWSS SECTION 02724 FOR EXTENTS OF STORM CROSSING
3152.60
3144.470
3152.77
3144.281
3152.92
3144.071
3153.12
3144.079
3153.20
3144.498
3153.32
3144.956
3153.51
3145.414
3153.61
3145.672
3153.71
3145.846
3153.84
3146.020
3153.97
3146.193
3154.09
3146.367
3154.22
3146.540
3154.35
3146.714
3154.48
3146.888
3154.60
3147.061
3154.73
3147.235
3154.86
3147.408
3154.98
3147.544
3154.83
3147.547
3154.67
3147.551
3154.52
3147.555
3154.37
3147.559
3154.21
3147.563
3154.06
3147.567
3153.90
3147.571
405+00
406+00
407+00
408+00
409+00
410+00
N
0
20'
40'
HORIZ.
10'
20'
VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

PROFILE

8/18/26 16:39 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C6.0 WATER P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

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PROJ. NO. 7486
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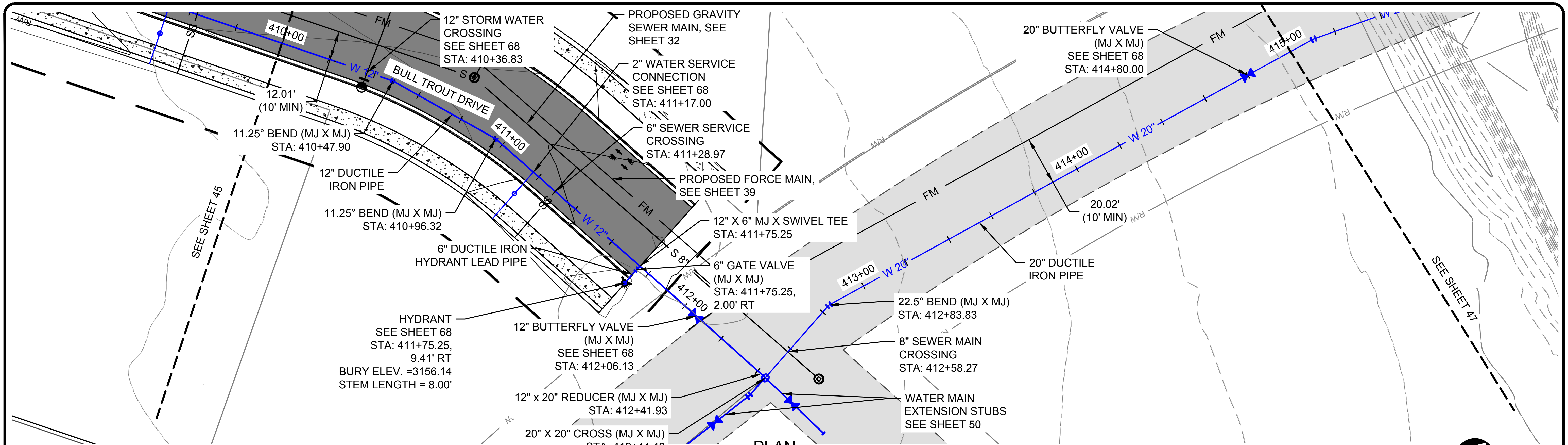
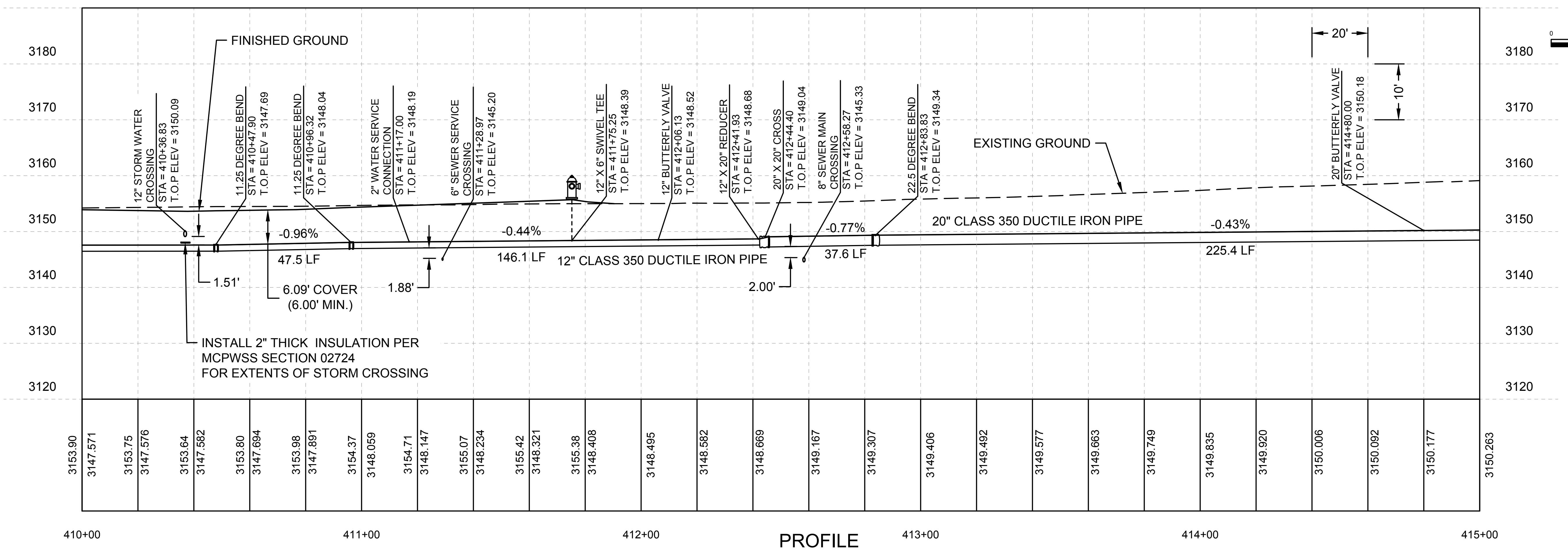
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

WATER MAIN STA 405+00 - STA 410+00

SHEET
45
OF
105



PLAN



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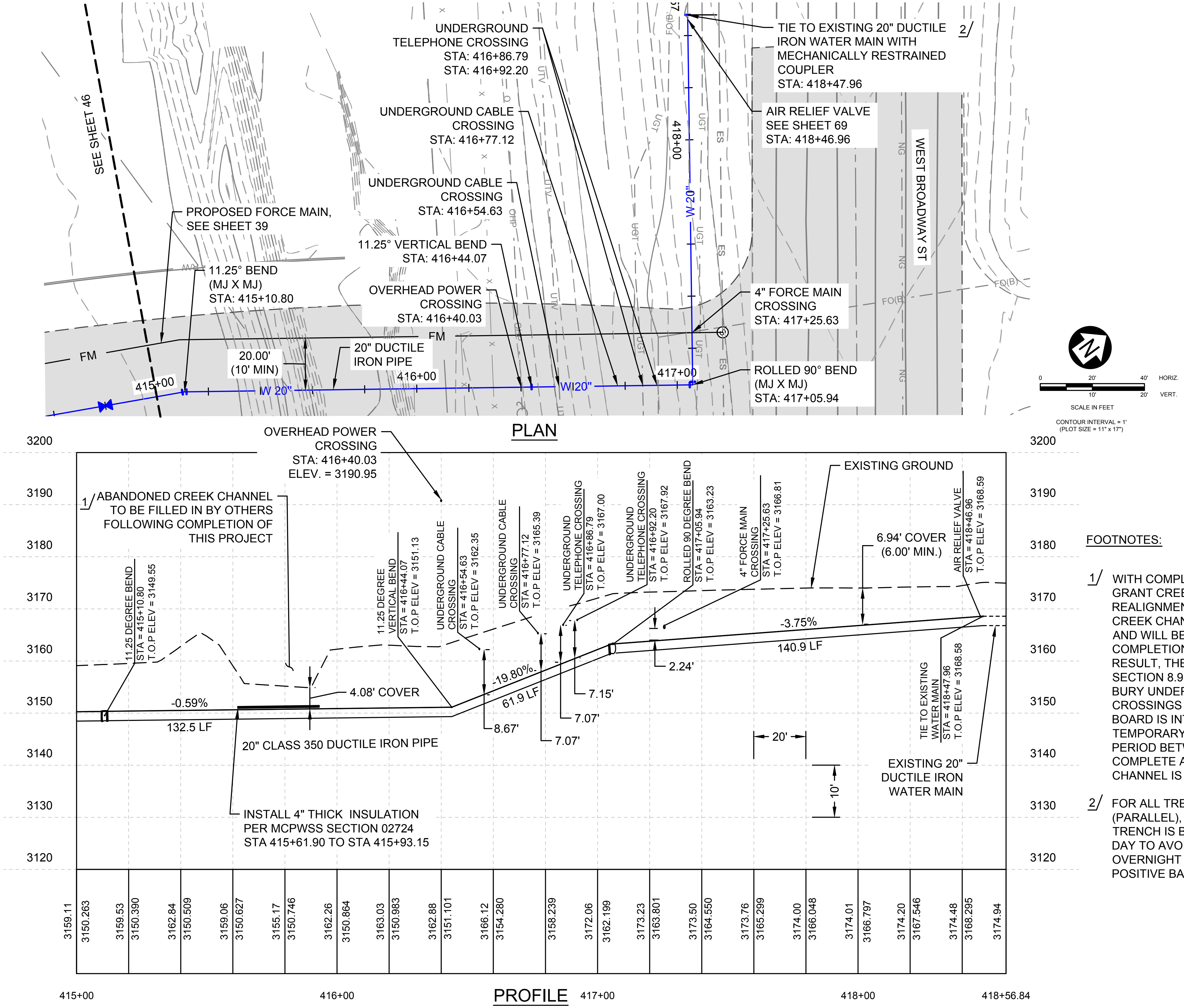
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

WATER MAIN STA 410+00 - STA 415+00

SHEET
46 OF 105

8/18/26 16:39 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C6.0 WATER P&P.DWG;



FOOTNOTES:

1/ WITH COMPLETION OF THE ONGOING GRANT CREEK RESTORATION AND REALIGNMENT PROJECT. THE EXISTING CREEK CHANNEL HAS BEEN ABANDONED AND WILL BE FILLED IN FOLLOWING COMPLETION OF THIS PROJECT. AS A RESULT, THE REQUIREMENTS IN MDEQ-1 SECTION 8.9.2 REQUIRING 5' MINIMUM BURY UNDER SURFACE WATER CROSSINGS DOES NOT APPLY. INSULATION BOARD IS INTENDED TO PROVIDE TEMPORARY PROTECTION DURING THE PERIOD BETWEEN WHEN THIS PROJECT IS COMPLETE AND THE ABANDONED CREEK CHANNEL IS FILLED IN.

2/ FOR ALL TRENCHING ALONG BROADWAY (PARALLEL), CONTRACTOR TO ENSURE TRENCH IS BACKFILLED WITHIN THE SAME DAY TO AVOID ANY OPEN TRENCHING OVERNIGHT OR INSTALL MDT APPROVED POSITIVE BARRIER.

8/18/26 16:39 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C6.0 WATER P&P.DWG;

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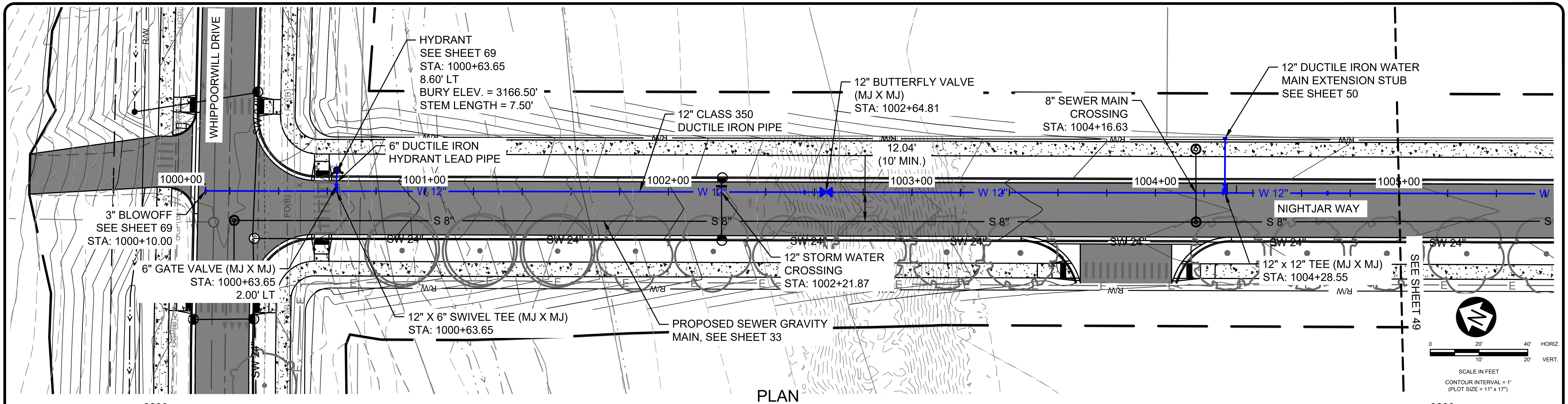
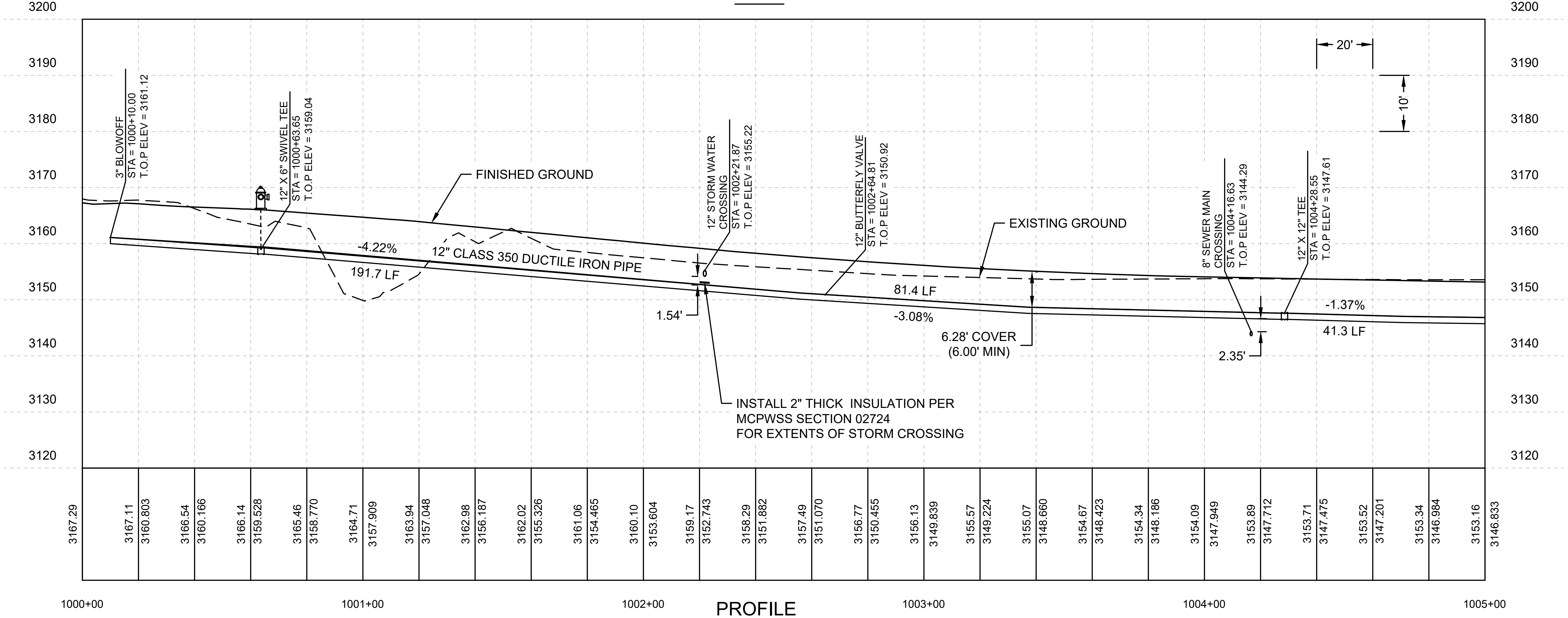
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

WATER MAIN STA 415+00 - STA 417+65

SHEET
47 OF 105



PLAN



PROFILE

10/19/26 09:08 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C6.0 WATER P&P.DWG;

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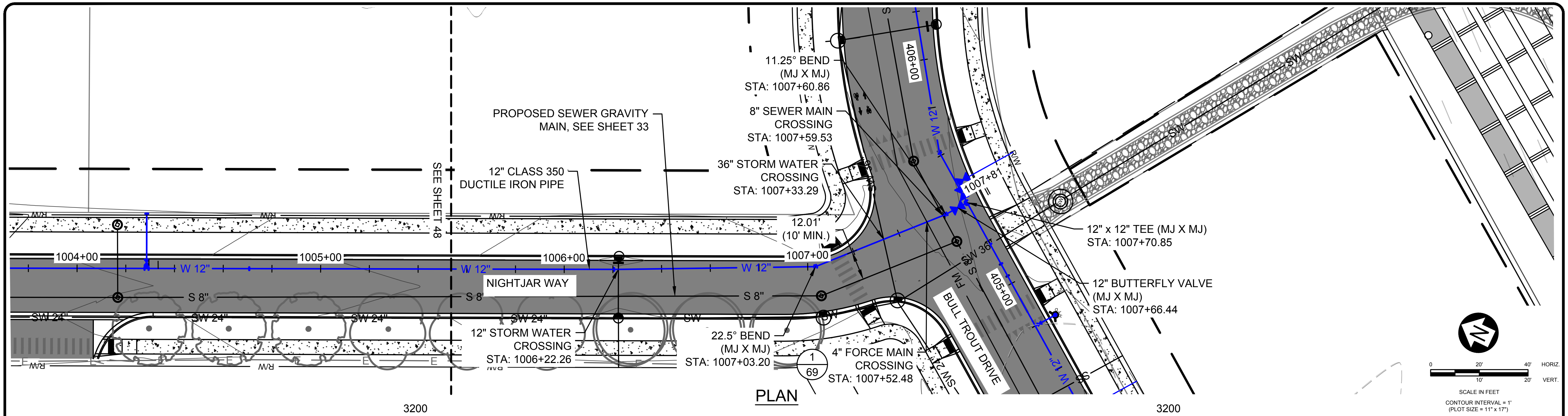
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

WATER MAIN STA 1000+00 - STA 1005+00

SHEET
48
OF
105



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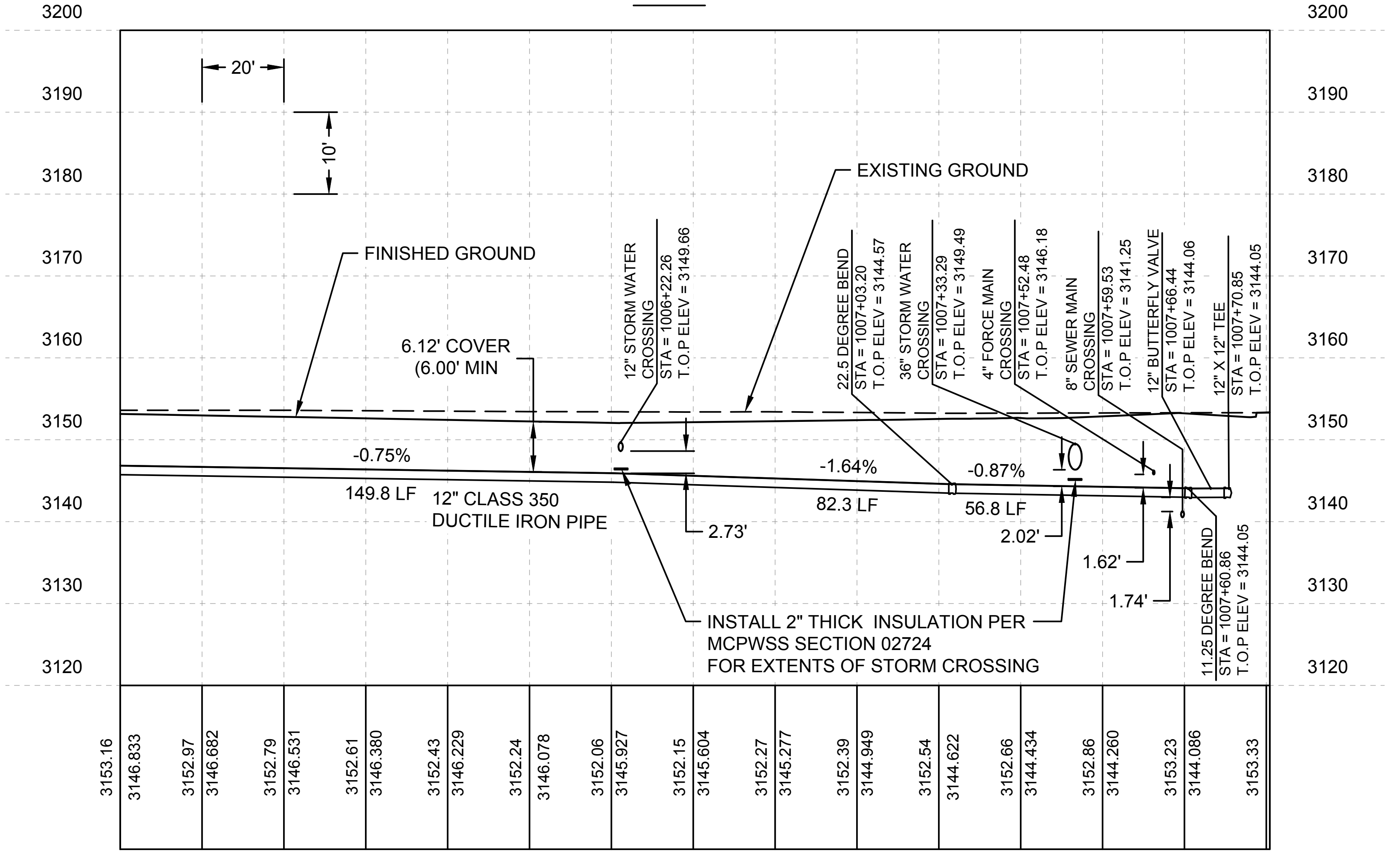

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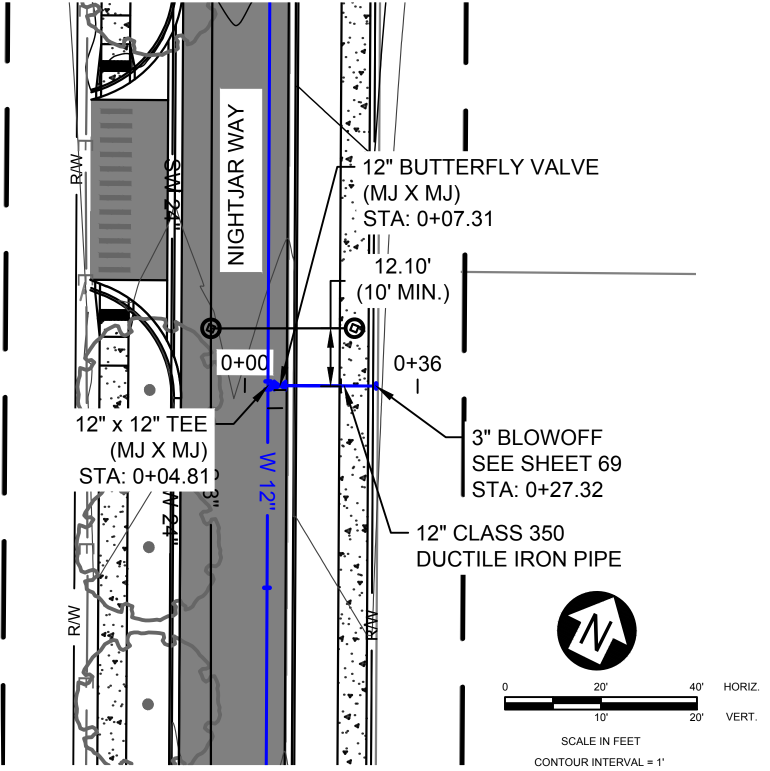
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

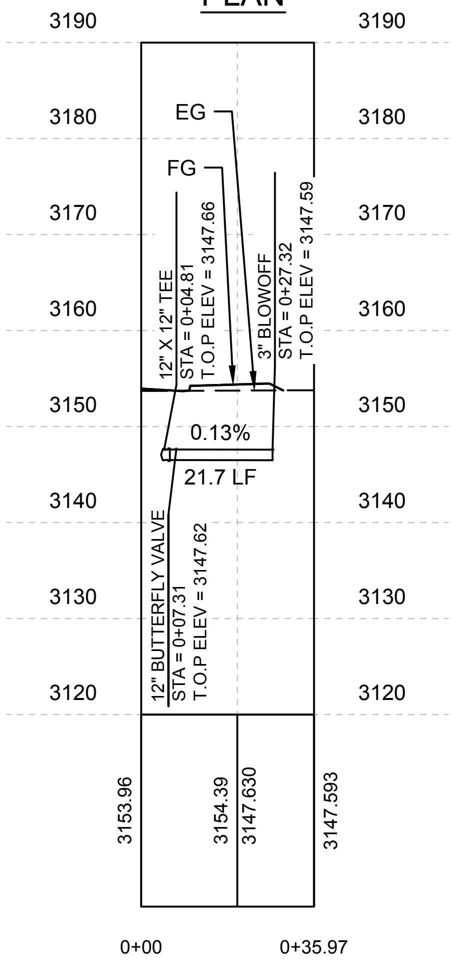
WATER MAIN STA 1005+00 - STA 1007+27

SHEET
49
OF
105

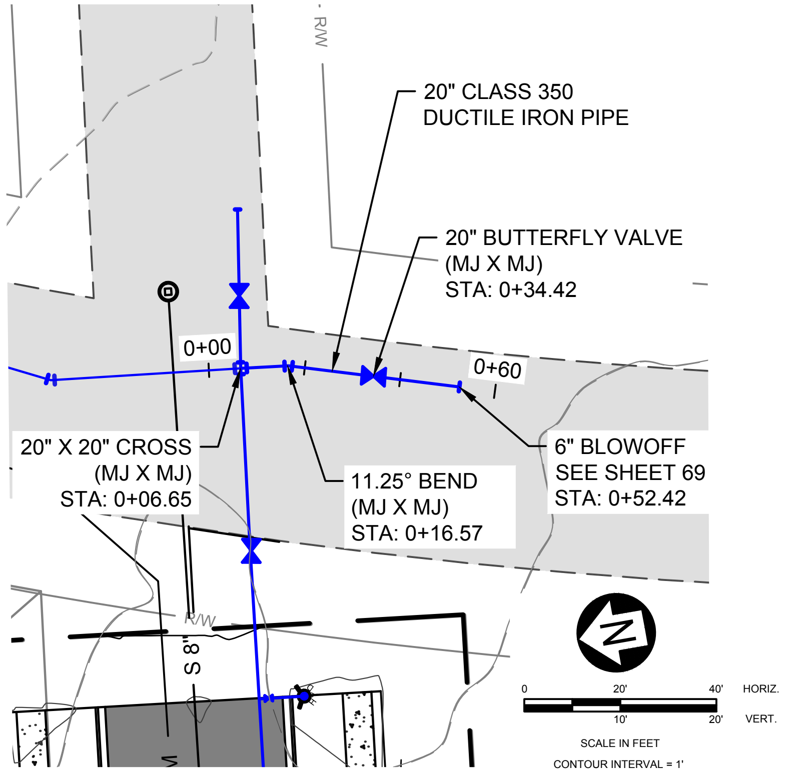
8/18/26 16:39 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C6.0 WATER P&P.DWG;



PLAN



PROFILE



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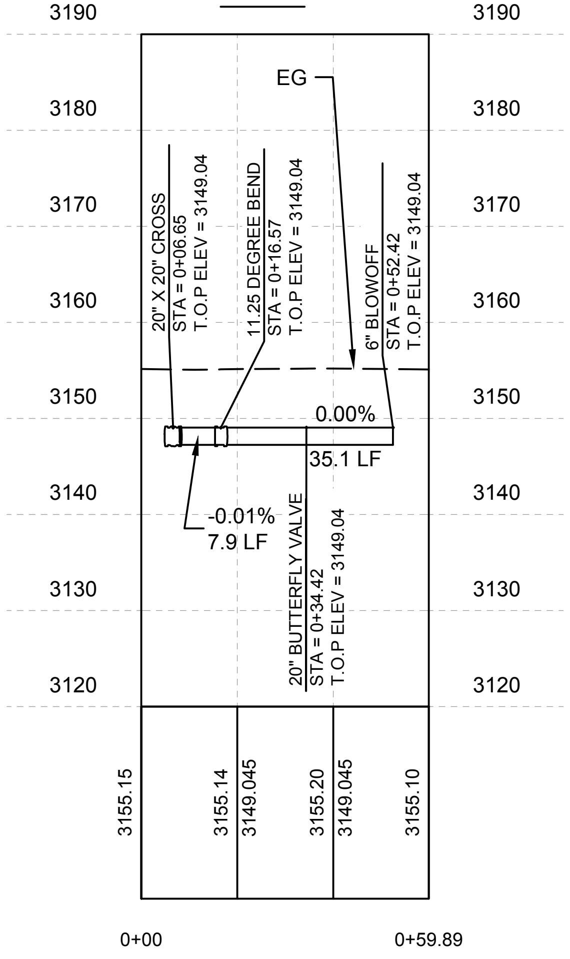

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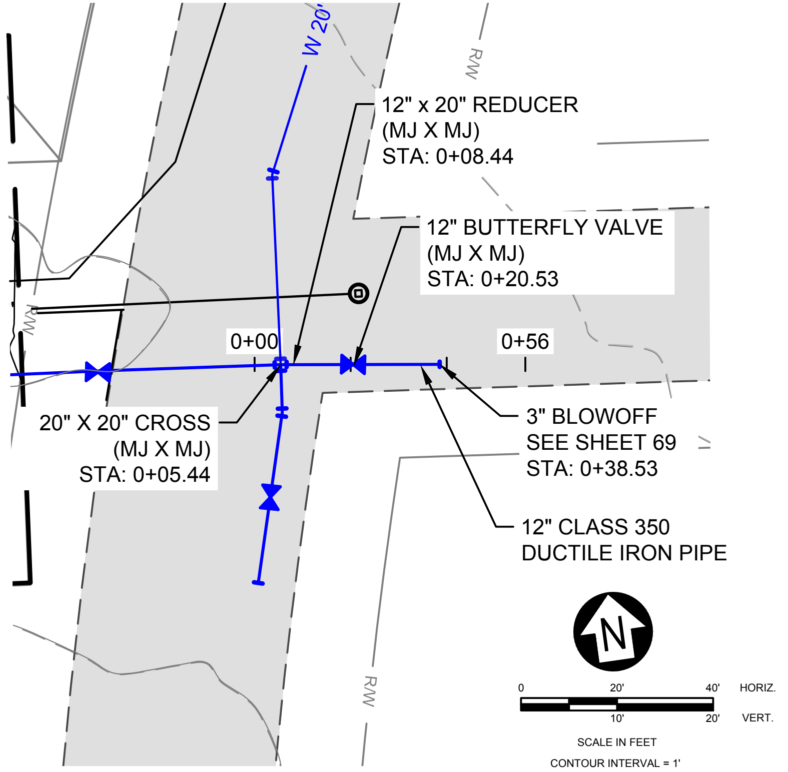

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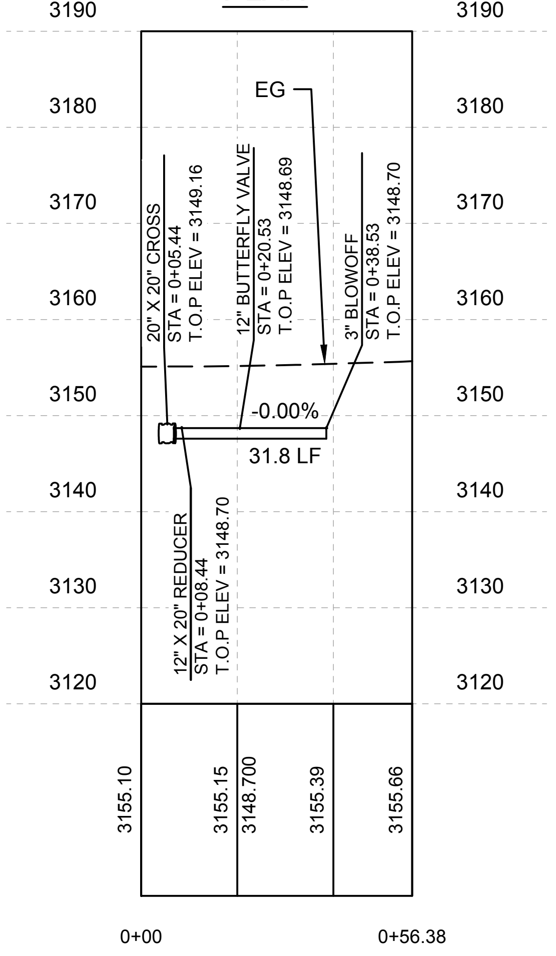

PROFILE

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MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

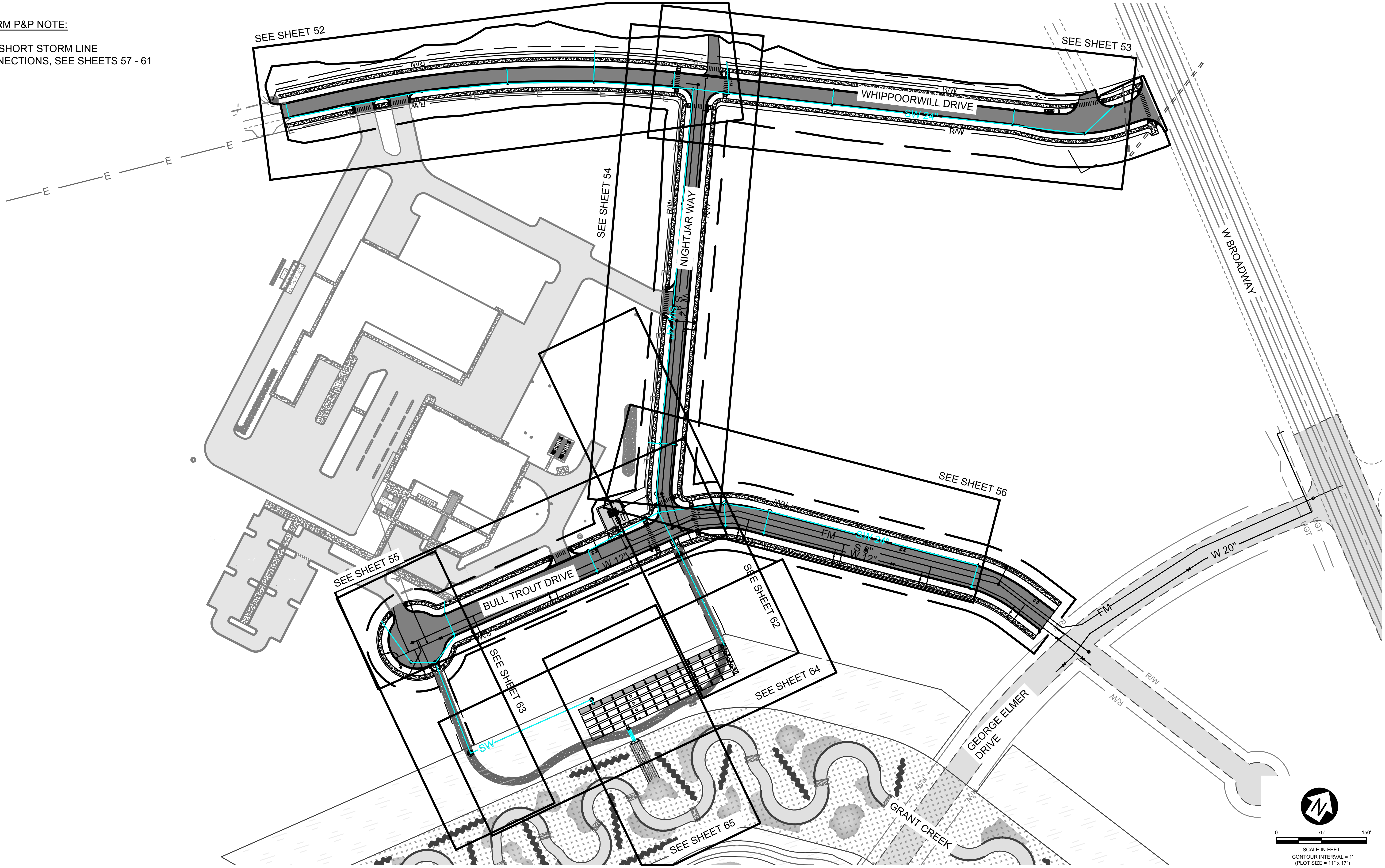
WATER MAIN STUBS

SHEET 50 OF 105

8/18/26 16:39 EVAN.ANDERSON C:\DJA-PWWORK\DJA-PROD\DMS72465\C6.0 WATER P&P.DWG;

STORM P&P NOTE:

FOR SHORT STORM LINE CONNECTIONS, SEE SHEETS 57 - 61



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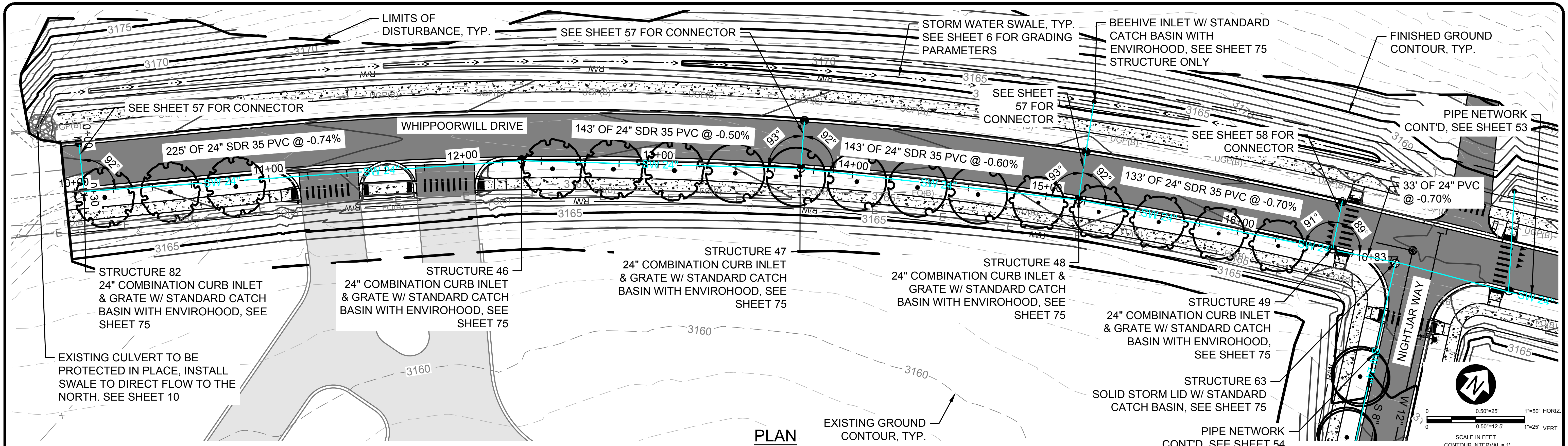
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

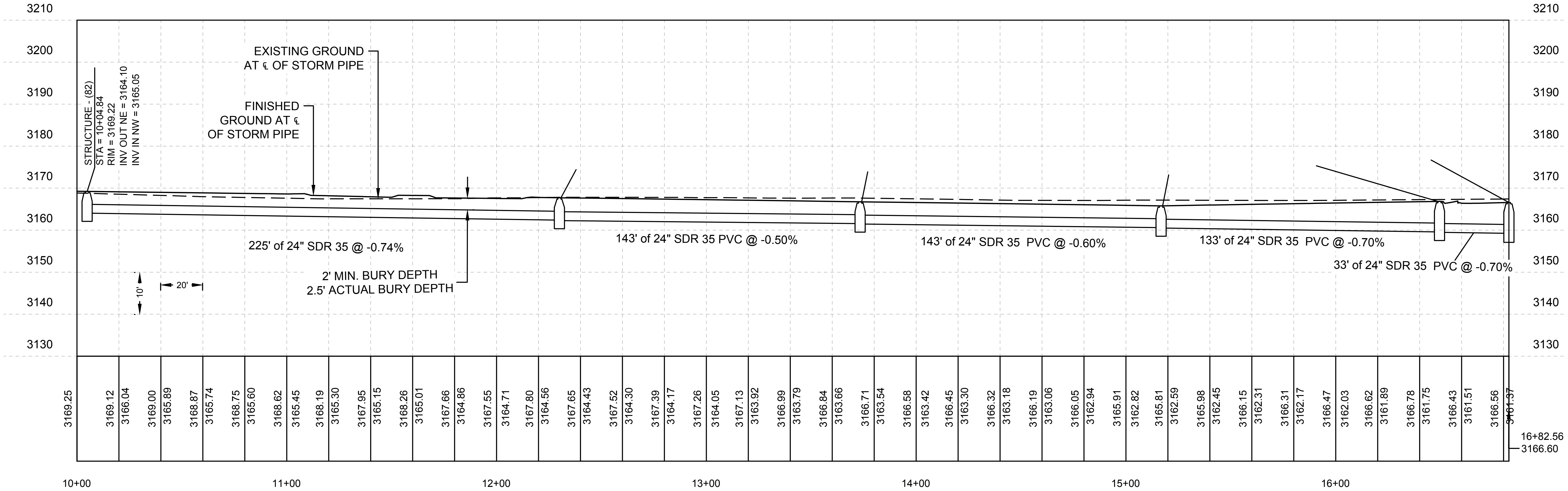
STORM SEWER MAIN P&P KEY

SHEET
51 OF 105

7/17/26 10:41 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C7.0 STORMWATER P&P.DWG;


LIMITS OF DISTURBANCE, TYP.
SEE SHEET 57 FOR CONNECTOR
STORM WATER SWALE, TYP. SEE SHEET 6 FOR GRADING PARAMETERS
BEEHIVE INLET W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75 STRUCTURE ONLY
FINISHED GROUND CONTOUR, TYP.
SEE SHEET 57 FOR CONNECTOR
WHIPPOORWILL DRIVE
225' OF 24" SDR 35 PVC @ -0.74%
143' OF 24" SDR 35 PVC @ -0.50%
143' OF 24" SDR 35 PVC @ -0.60%
133' OF 24" SDR 35 PVC @ -0.70%
33' OF 24" PVC @ -0.70%
SEE SHEET 57 FOR CONNECTOR
SEE SHEET 58 FOR CONNECTOR
PIPE NETWORK CONT'D, SEE SHEET 53
10+00
11+00
12+00
13+00
14+00
15+00
16+00
16+83
92°
93°
92°
93°
92°
91°
89°
SW 24"
3175
3170
3169
3165
3160
NIGHTJAR WAY
STRUCTURE 82 24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 46 24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 47 24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 48 24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 49 24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 63 SOLID STORM LID W/ STANDARD CATCH BASIN, SEE SHEET 75
EXISTING CULVERT TO BE PROTECTED IN PLACE, INSTALL SWALE TO DIRECT FLOW TO THE NORTH. SEE SHEET 10
EXISTING GROUND CONTOUR, TYP.
PIPE NETWORK CONT'D, SEE SHEET 54
N
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")
1"=50' HORIZ.
1"=25' VERT.

PLAN



PROFILE

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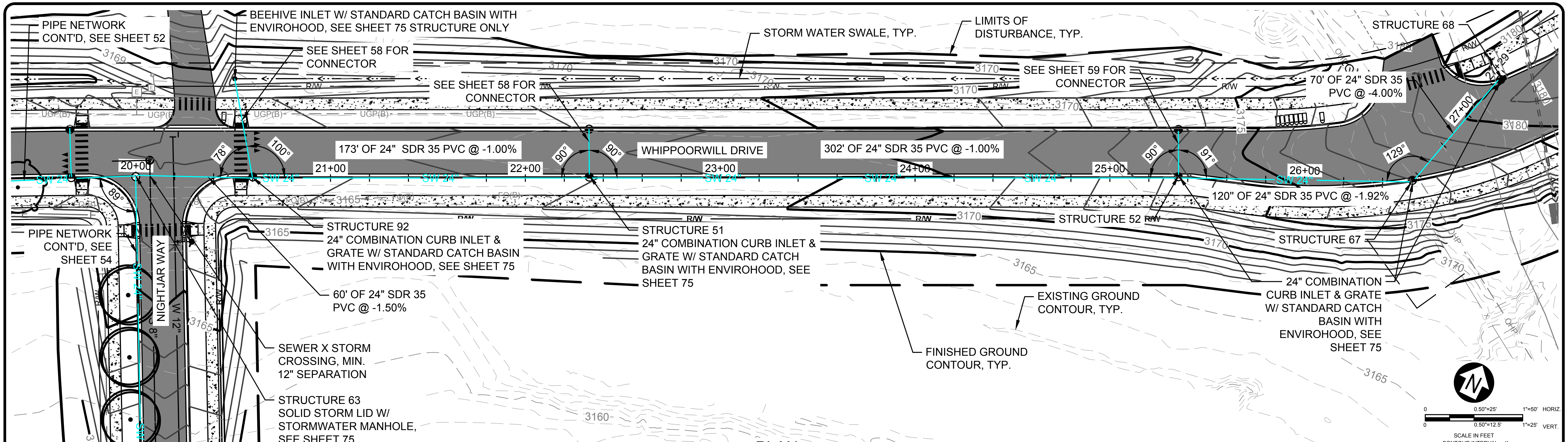
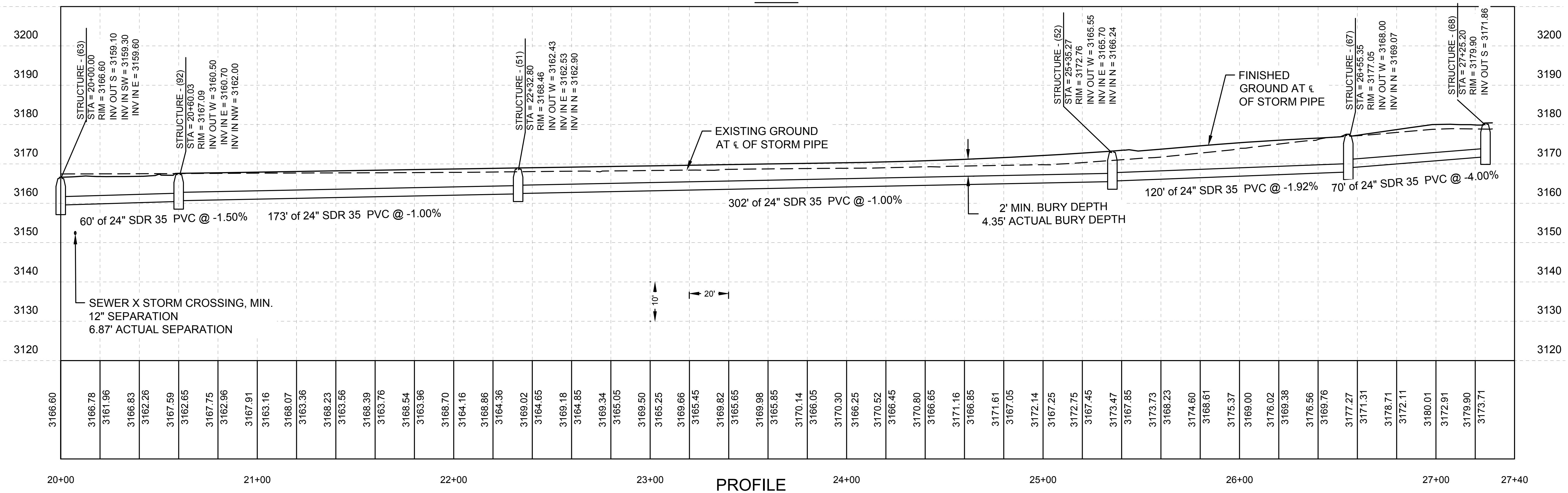
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

STORM SEWER MAIN - WHIPPORWILL ROAD (1)

SHEET 52 OF 105


PIPE NETWORK CONT'D, SEE SHEET 52
BEEHIVE INLET W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75 STRUCTURE ONLY
SEE SHEET 58 FOR CONNECTOR
SEE SHEET 58 FOR CONNECTOR
STORM WATER SWALE, TYP.
LIMITS OF DISTURBANCE, TYP.
STRUCTURE 68
SEE SHEET 59 FOR CONNECTOR
70' OF 24" SDR 35 PVC @ -4.00%
173' OF 24" SDR 35 PVC @ -1.00%
WHIPPOORWILL DRIVE
302' OF 24" SDR 35 PVC @ -1.00%
120" OF 24" SDR 35 PVC @ -1.92%
20+00
21+00
22+00
23+00
24+00
25+00
26+00
27+00
78°
100°
90°
90°
90°
91°
129°
89°
SW 24"
3169
3170
3165
3175
3180
3160
R/W
UGP(B)
FO(B)
PIPE NETWORK CONT'D, SEE SHEET 54
STRUCTURE 92
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 51
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 52
STRUCTURE 67
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
60' OF 24" SDR 35 PVC @ -1.50%
NIGHTJAR WAY
W 12"
8"
SEWER X STORM CROSSING, MIN. 12" SEPARATION
STRUCTURE 63
SOLID STORM LID W/ STORMWATER MANHOLE, SEE SHEET 75
EXISTING GROUND CONTOUR, TYP.
FINISHED GROUND CONTOUR, TYP.
N
0
0.50"=25'
1"=50'
HORIZ.
0
0.50"=12.5'
1"=25'
VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

PLAN



PROFILE

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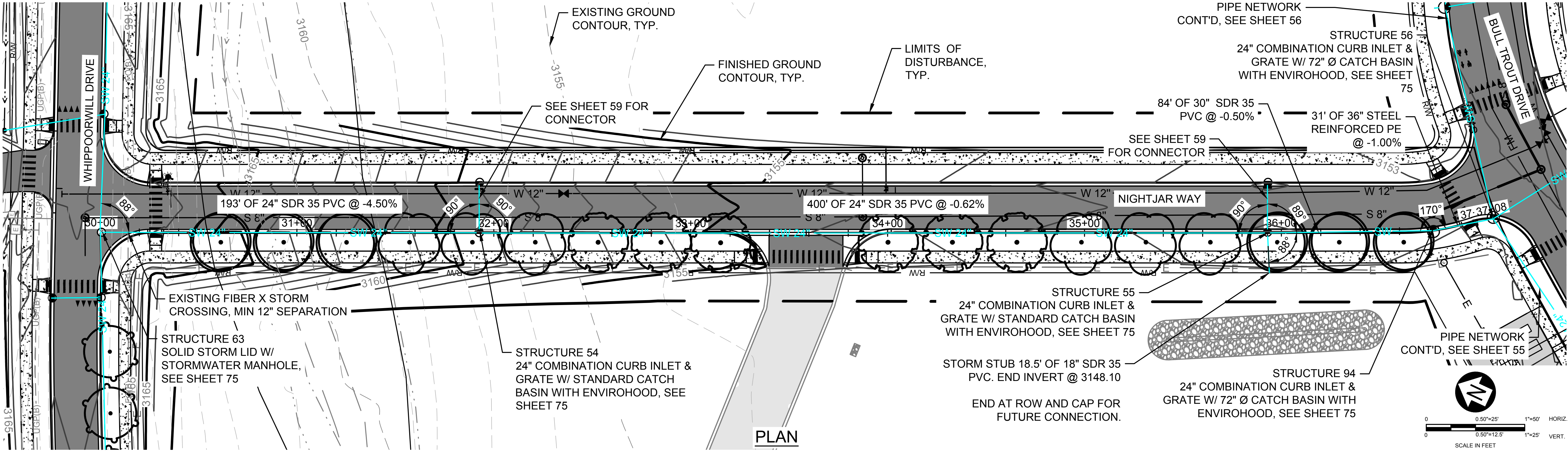
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

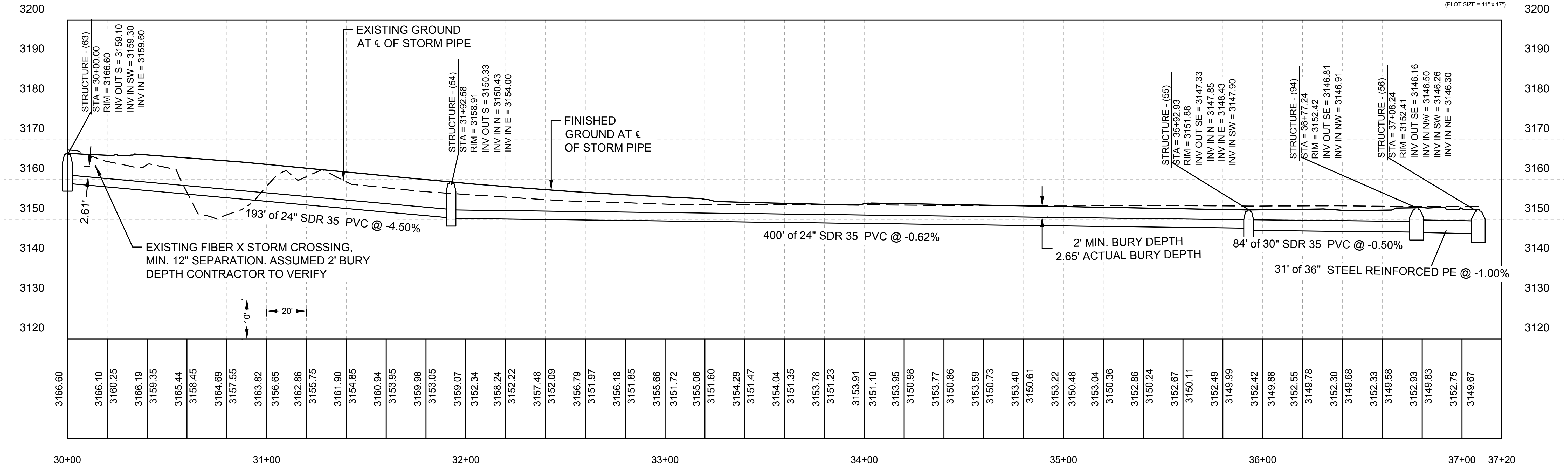
STORM SEWER MAIN - WHIPPORWILL ROAD (2)

SHEET
53 OF 105

7/17/26 10:41 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C7.0 STORMWATER P&P.DWG;


EXISTING GROUND CONTOUR, TYP.
FINISHED GROUND CONTOUR, TYP.
LIMITS OF DISTURBANCE, TYP.
SEE SHEET 59 FOR CONNECTOR
PIPE NETWORK CONT'D, SEE SHEET 56
STRUCTURE 56
24" COMBINATION CURB INLET & GRATE W/ 72" Ø CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
84' OF 30" SDR 35 PVC @ -0.50%
31' OF 36" STEEL REINFORCED PE @ -1.00%
SEE SHEET 59 FOR CONNECTOR
BULL TROUT DRIVE
WHIPPOORWILL DRIVE
NIGHTJAR WAY
193' OF 24" SDR 35 PVC @ -4.50%
400' OF 24" SDR 35 PVC @ -0.62%
30+00
31+00
32+00
33+00
34+00
35+00
36+00
37+37.08
88°
90°
90°
90°
89°
88°
170°
W 12"
S 8"
SW 24"
3160
3155
3165
3153
EXISTING FIBER X STORM CROSSING, MIN 12" SEPARATION
STRUCTURE 63
SOLID STORM LID W/ STORMWATER MANHOLE, SEE SHEET 75
STRUCTURE 54
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 55
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STORM STUB 18.5' OF 18" SDR 35 PVC. END INVERT @ 3148.10
END AT ROW AND CAP FOR FUTURE CONNECTION.
STRUCTURE 94
24" COMBINATION CURB INLET & GRATE W/ 72" Ø CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
PIPE NETWORK CONT'D, SEE SHEET 55
R/W
UGP(B)
N
0
0.50"=25'
1"=50'
HORIZ.
0
0.50"=12.5'
1"=25'
VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

PLAN



PROFILE

7/17/26 10:41 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C7.0 STORMWATER P&P.DWG;

REVISION	DATE	DESCRIPTION
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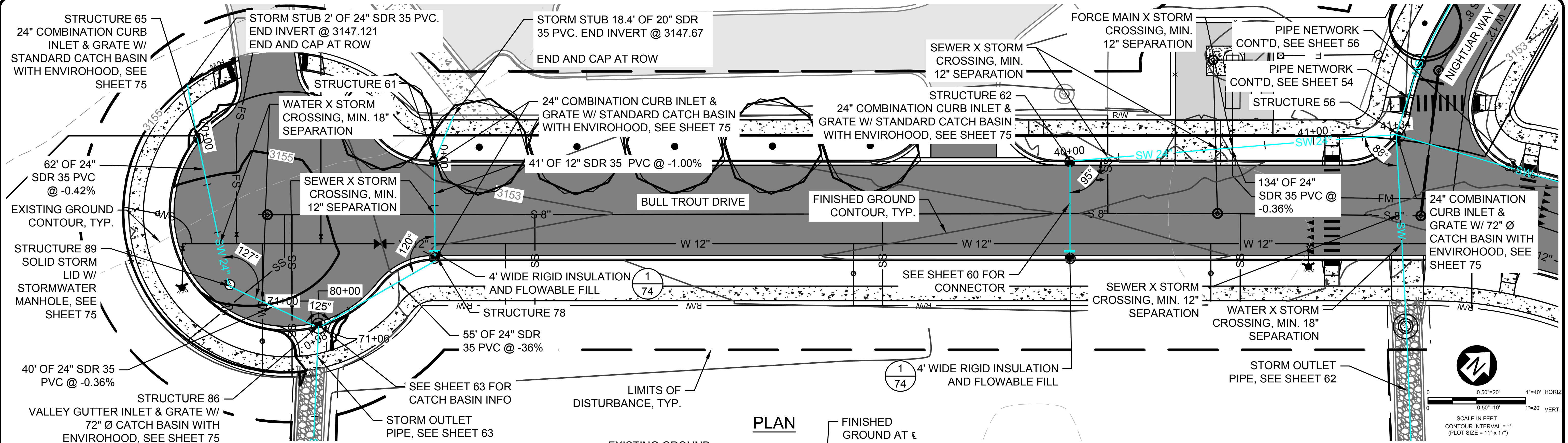
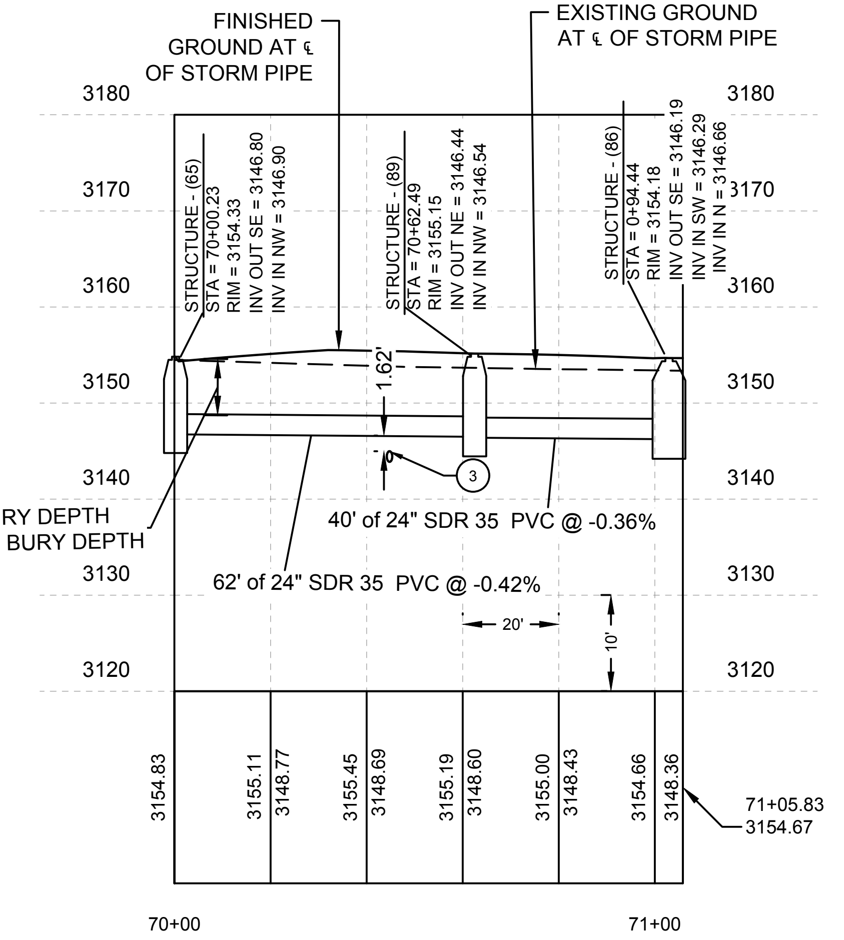
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

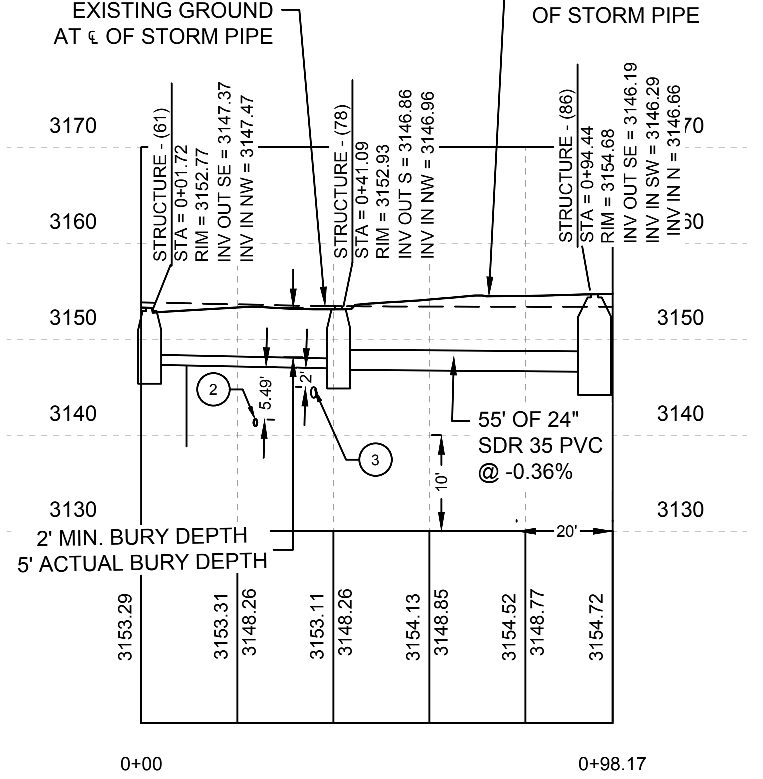
STORM SEWER MAIN - NIGHTJAR WAY

SHEET
54
OF
105

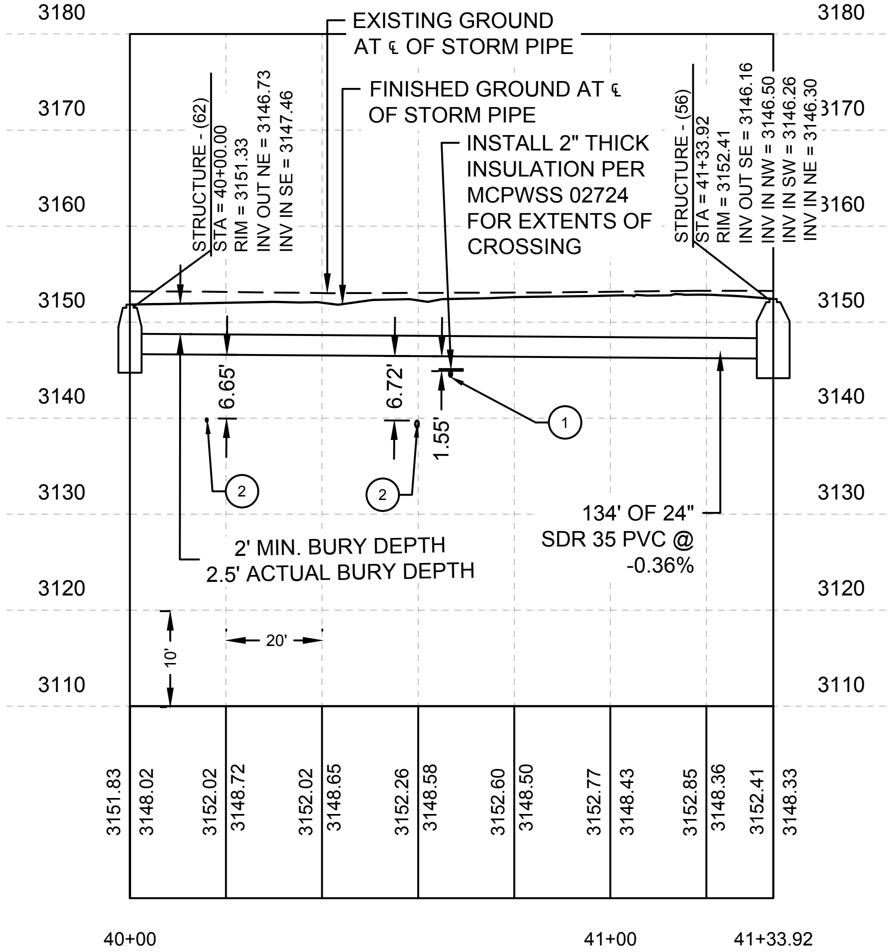

STRUCTURE 65
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STORM STUB 2' OF 24" SDR 35 PVC. END INVERT @ 3147.121 END AND CAP AT ROW
STORM STUB 18.4' OF 20" SDR 35 PVC. END INVERT @ 3147.67
END AND CAP AT ROW
FORCE MAIN X STORM CROSSING, MIN. 12" SEPARATION
SEWER X STORM CROSSING, MIN. 12" SEPARATION
PIPE NETWORK CONT'D, SEE SHEET 56
PIPE NETWORK CONT'D, SEE SHEET 54
NIGHTJAR WAY
STRUCTURE 61
WATER X STORM CROSSING, MIN. 18" SEPARATION
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 62
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 56
62' OF 24" SDR 35 PVC @ -0.42%
41' OF 12" SDR 35 PVC @ -1.00%
EXISTING GROUND CONTOUR, TYP.
SEWER X STORM CROSSING, MIN. 12" SEPARATION
BULL TROUT DRIVE
FINISHED GROUND CONTOUR, TYP.
134' OF 24" SDR 35 PVC @ -0.36%
24" COMBINATION CURB INLET & GRATE W/ 72" Ø CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 89
SOLID STORM LID W/ STORMWATER MANHOLE, SEE SHEET 75
4' WIDE RIGID INSULATION AND FLOWABLE FILL
1
74
SEE SHEET 60 FOR CONNECTOR
SEWER X STORM CROSSING, MIN. 12" SEPARATION
WATER X STORM CROSSING, MIN. 18" SEPARATION
STRUCTURE 78
55' OF 24" SDR 35 PVC @ -36%
40' OF 24" SDR 35 PVC @ -0.36%
SEE SHEET 63 FOR CATCH BASIN INFO
LIMITS OF DISTURBANCE, TYP.
4' WIDE RIGID INSULATION AND FLOWABLE FILL
STORM OUTLET PIPE, SEE SHEET 62
STRUCTURE 86
VALLEY GUTTER INLET & GRATE W/ 72" Ø CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STORM OUTLET PIPE, SEE SHEET 63
70+00
80+00
71+00
71+06
0+98
127°
125°
120°
95°
88°
40+00
41+00
41+34
SW 24"
W 12"
S 8"
SS
FS
FM
R/W
3153
3155
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11"x 17")
1"=40' HORIZ.
1"=20' VERT.

PLAN





PROFILE KEY NOTES:
1. FORCE MAIN X STORM CROSSING, MIN. 12" SEPARATION
2. SEWER X STORM CROSSING, MIN. 12" SEPARATION
3. WATER X STORM CROSSING, MIN. 18" SEPARATION



PROFILE

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER KD
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CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
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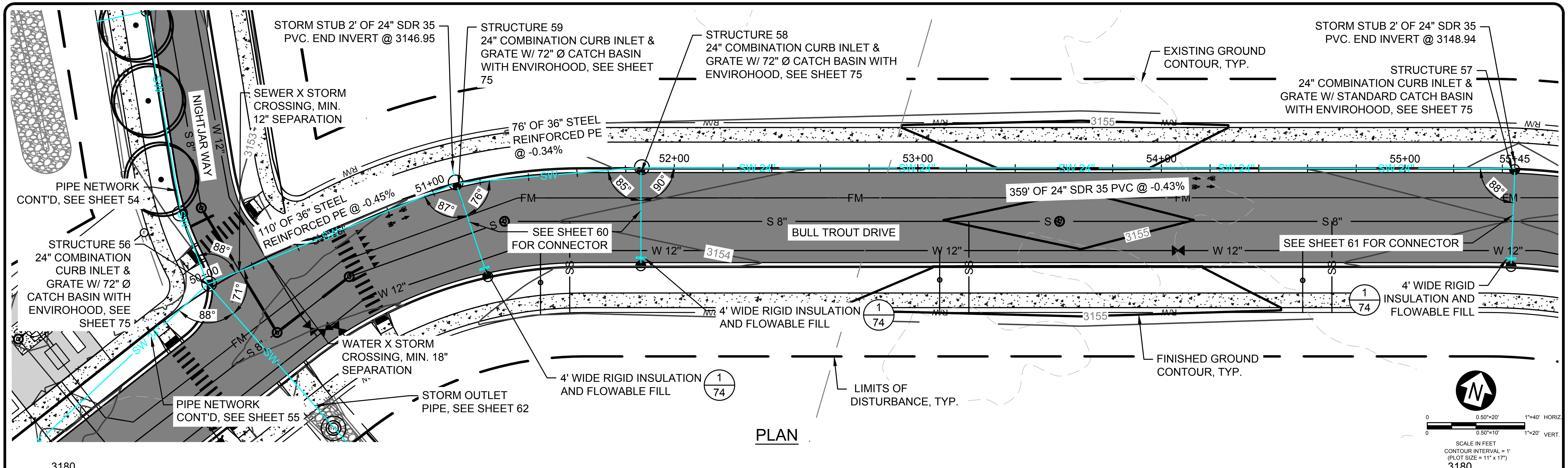
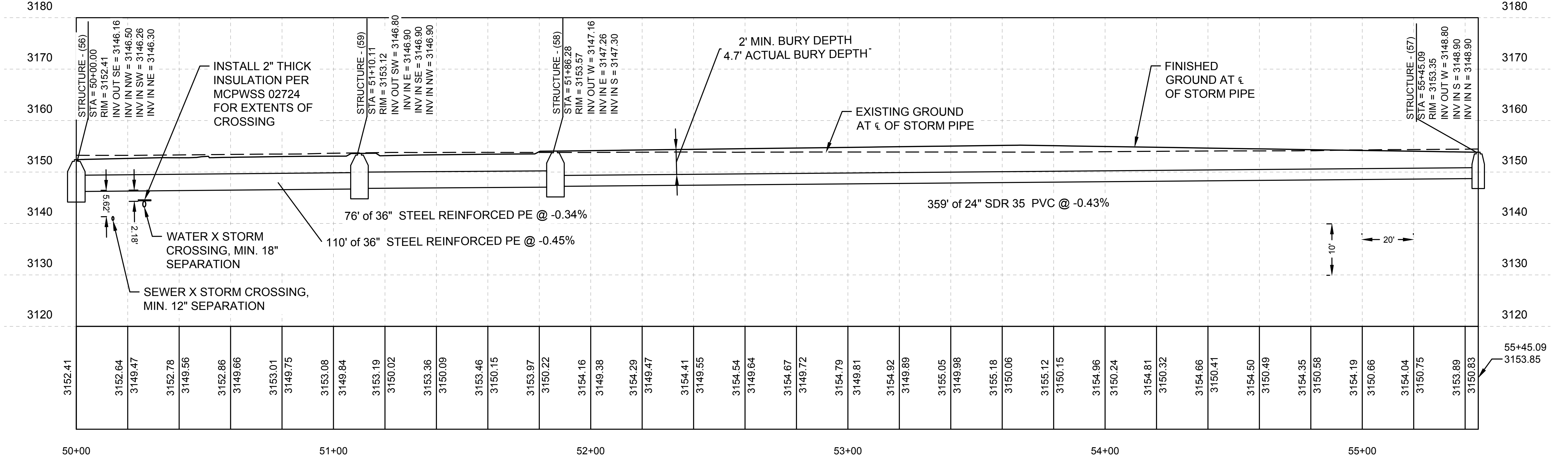
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

STORM SEWER MAIN - BULL TROUT DRIVE (0)


STORM STUB 2' OF 24" SDR 35 PVC. END INVERT @ 3146.95
STRUCTURE 59
24" COMBINATION CURB INLET & GRATE W/ 72" Ø CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 58
24" COMBINATION CURB INLET & GRATE W/ 72" Ø CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
EXISTING GROUND CONTOUR, TYP.
STORM STUB 2' OF 24" SDR 35 PVC. END INVERT @ 3148.94
STRUCTURE 57
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
SEWER X STORM CROSSING, MIN. 12" SEPARATION
NIGHTJAR WAY
W 12"
S 8"
SW
3153
76' OF 36" STEEL REINFORCED PE @ -0.34%
R/W
3155
PIPE NETWORK CONT'D, SEE SHEET 54
51+00
52+00
53+00
54+00
55+00
55+45
SW 24"
85°
90°
87°
76°
88°
71°
88°
88°
110' OF 36" STEEL REINFORCED PE @ -0.45%
FM
359' OF 24" SDR 35 PVC @ -0.43%
S 8"
SEE SHEET 60 FOR CONNECTOR
BULL TROUT DRIVE
STRUCTURE 56
24" COMBINATION CURB INLET & GRATE W/ 72" Ø CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
50+00
W 12"
3154
SS
SEE SHEET 61 FOR CONNECTOR
4' WIDE RIGID INSULATION AND FLOWABLE FILL
1
74
4' WIDE RIGID INSULATION AND FLOWABLE FILL
WATER X STORM CROSSING, MIN. 18" SEPARATION
FINISHED GROUND CONTOUR, TYP.
4' WIDE RIGID INSULATION AND FLOWABLE FILL
1
74
LIMITS OF DISTURBANCE, TYP.
PIPE NETWORK CONT'D, SEE SHEET 55
STORM OUTLET PIPE, SEE SHEET 62
N
0
0.50"=20'
1"=40'
HORIZ.
0
0.50"=10'
1"=20'
VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

PLAN



PROFILE

7/17/26 10:41 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C7.0 STORMWATER P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

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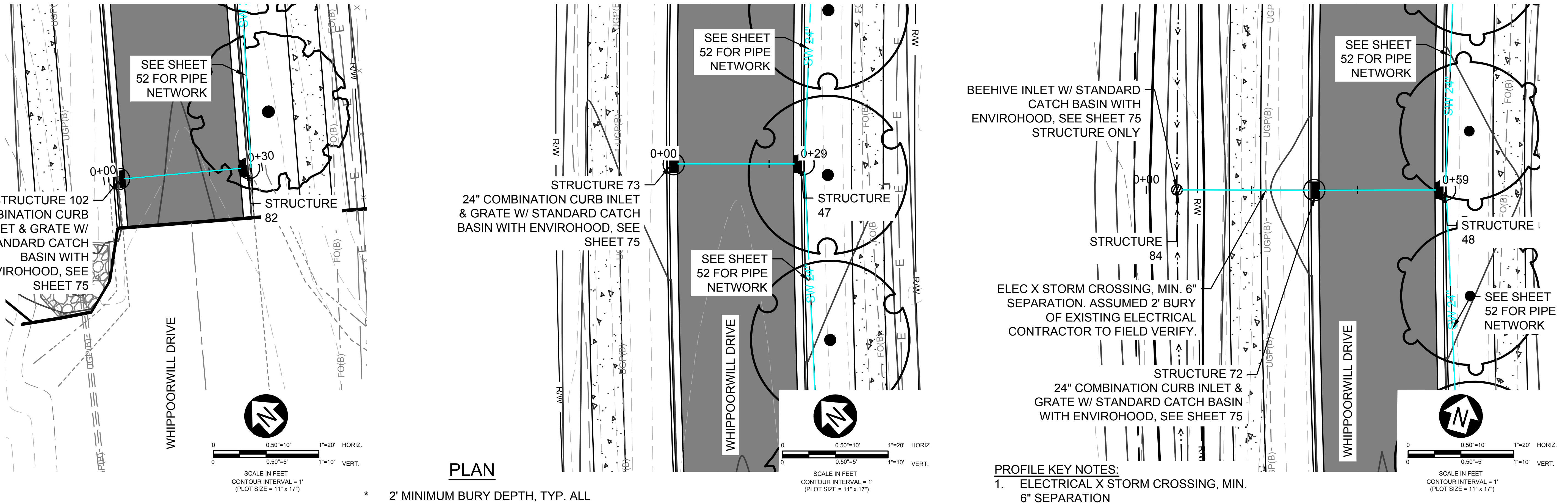
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

STORM SEWER MAIN - BULL TROUT DRIVE (2)

SHEET
56 OF 105

PLAN

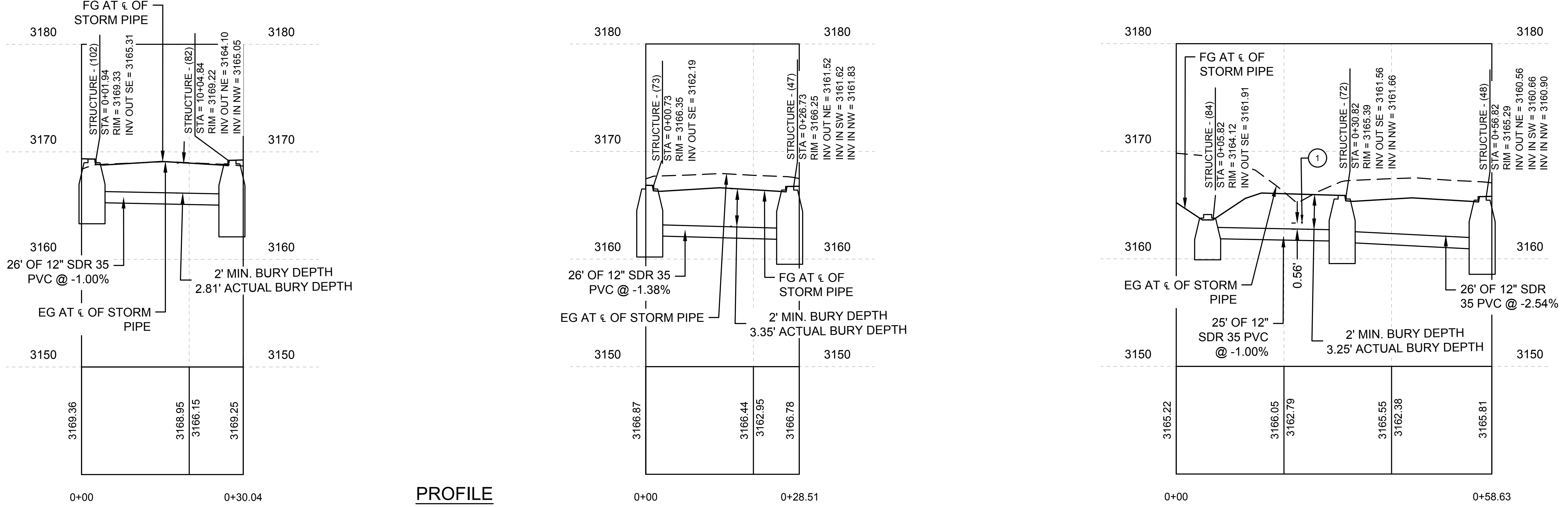


SEE SHEET 52 FOR PIPE NETWORK
0+00
0+30
STRUCTURE 102
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 82
WHIPPOORWILL DRIVE
R/W
UGP(B)
FO(B)
E
0+00
0+29
STRUCTURE 73
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 47
SEE SHEET 52 FOR PIPE NETWORK
SW 24"
BEEHIVE INLET W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75 STRUCTURE ONLY
0+00
0+59
STRUCTURE 84
STRUCTURE 48
ELEC X STORM CROSSING, MIN. 6" SEPARATION. ASSUMED 2' BURY OF EXISTING ELECTRICAL CONTRACTOR TO FIELD VERIFY.
STRUCTURE 72
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
N
0 0.50"=10' 1"=20' HORIZ.
0 0.50"=5' 1"=10' VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

* 2' MINIMUM BURY DEPTH, TYP. ALL

PROFILE KEY NOTES:

1. ELECTRICAL X STORM CROSSING, MIN. 6" SEPARATION



PROFILE

REVISION	DATE	DESCRIPTION
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-	-	-

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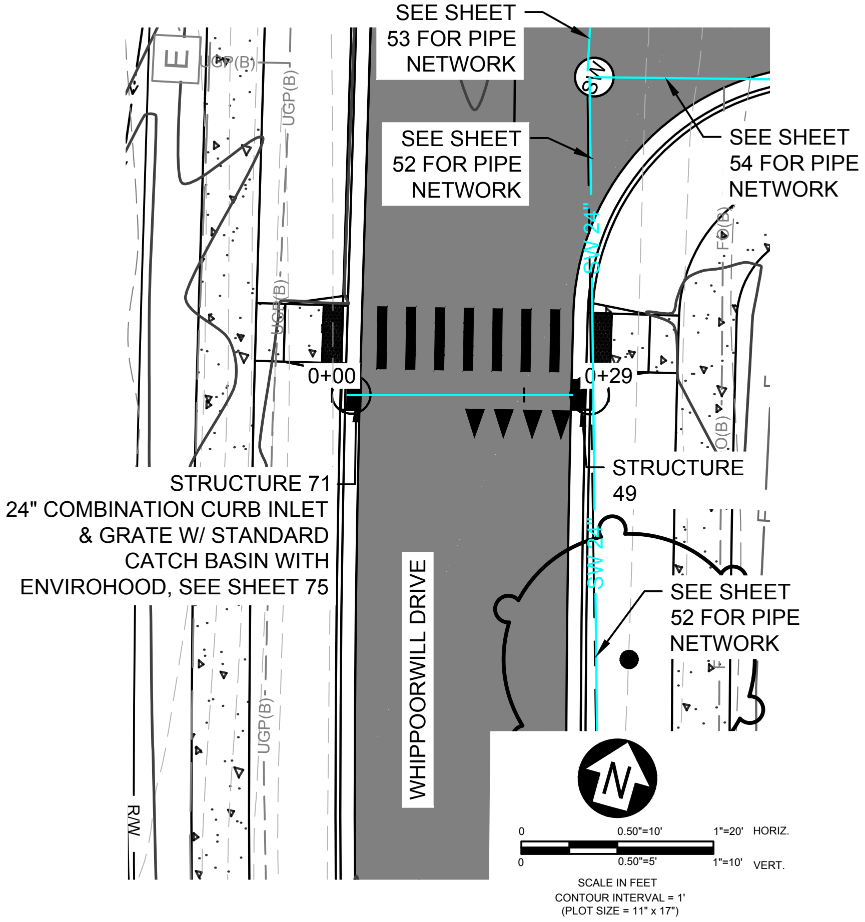
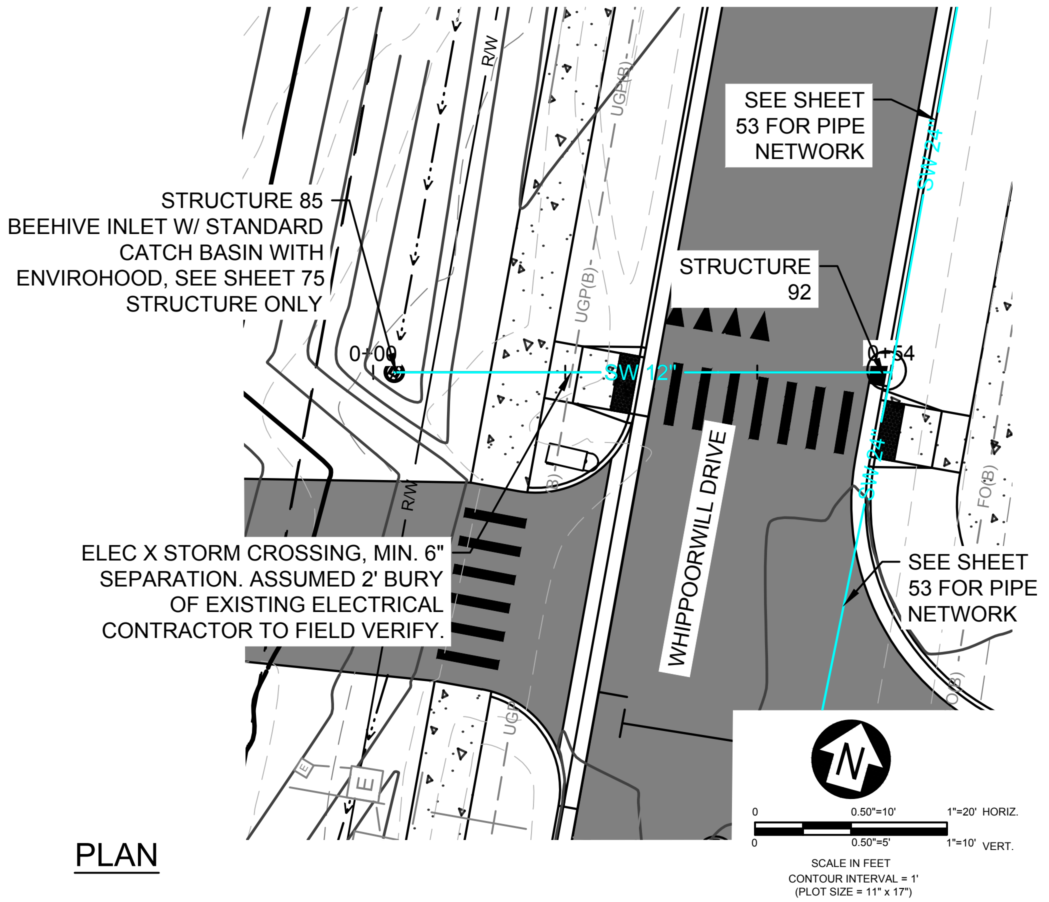
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

STORM SEWER - CONNECTORS (1)

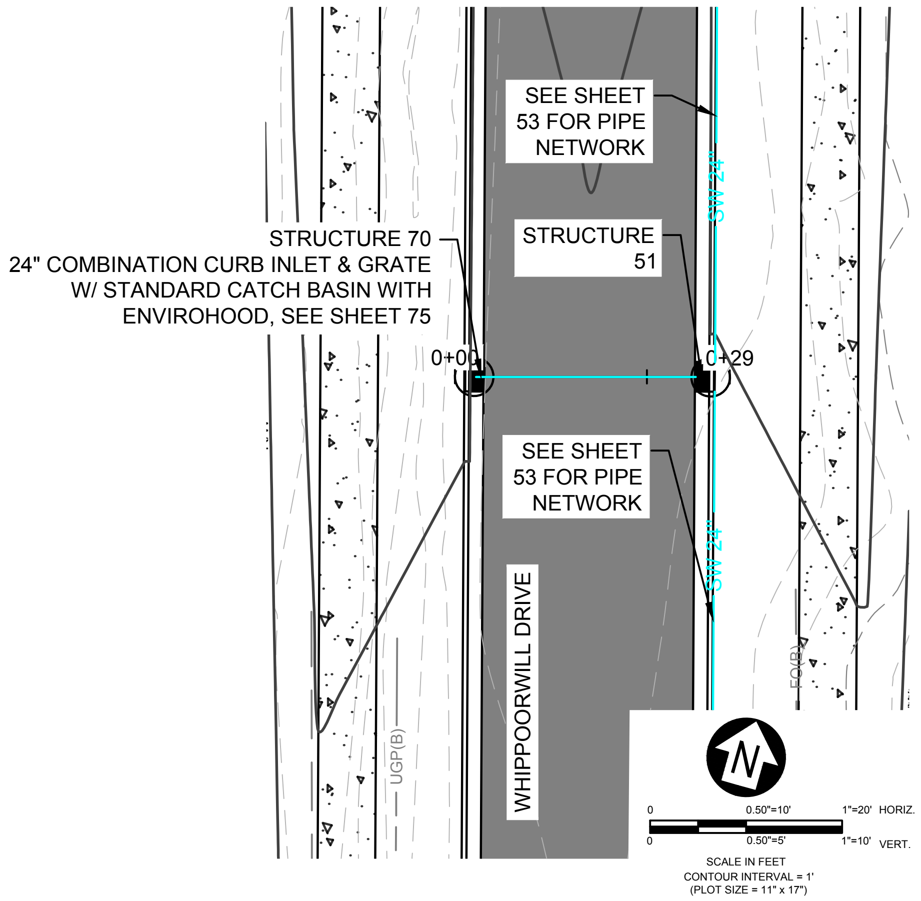
SHEET
57 OF 105

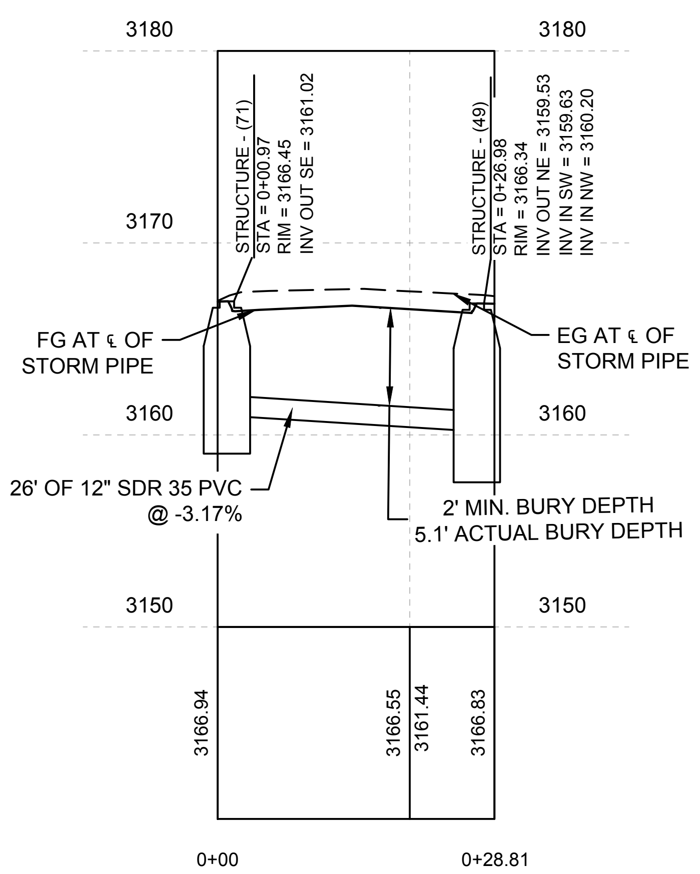
7/17/26 10:41 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C7.0 STORMWATER P&P.DWG;

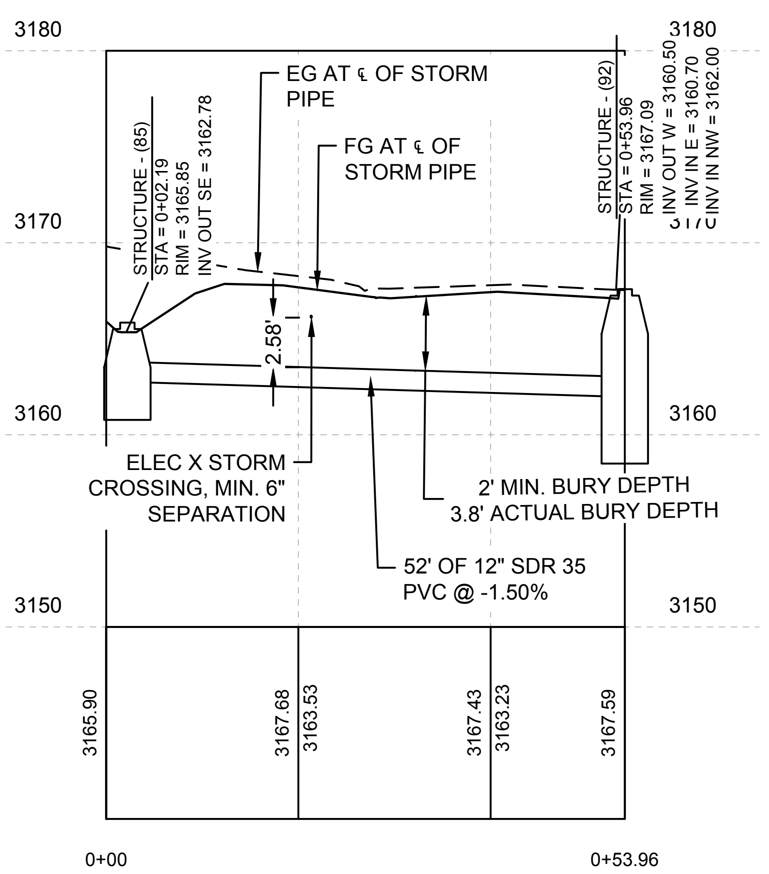

SEE SHEET 53 FOR PIPE NETWORK
SEE SHEET 52 FOR PIPE NETWORK
SEE SHEET 54 FOR PIPE NETWORK
E
UGP(B)
SW
SW 24"
0+00
0+29
STRUCTURE 49
STRUCTURE 71
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
SEE SHEET 52 FOR PIPE NETWORK
SW 18"
WHIPPOORWILL DRIVE
R/W
N
0 0.50"=10' 1"=20' HORIZ.
0 0.50"=5' 1"=10' VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")


R/W
UGP(B)
SEE SHEET 53 FOR PIPE NETWORK
SW 24"
STRUCTURE 85
BEEHIVE INLET W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75 STRUCTURE ONLY
STRUCTURE 92
0+00
SW 12"
0+54
SW 18"
ELEC X STORM CROSSING, MIN. 6" SEPARATION. ASSUMED 2' BURY OF EXISTING ELECTRICAL CONTRACTOR TO FIELD VERIFY.
WHIPPOORWILL DRIVE
SEE SHEET 53 FOR PIPE NETWORK
FO(B)
E
N
0 0.50"=10' 1"=20' HORIZ.
0 0.50"=5' 1"=10' VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

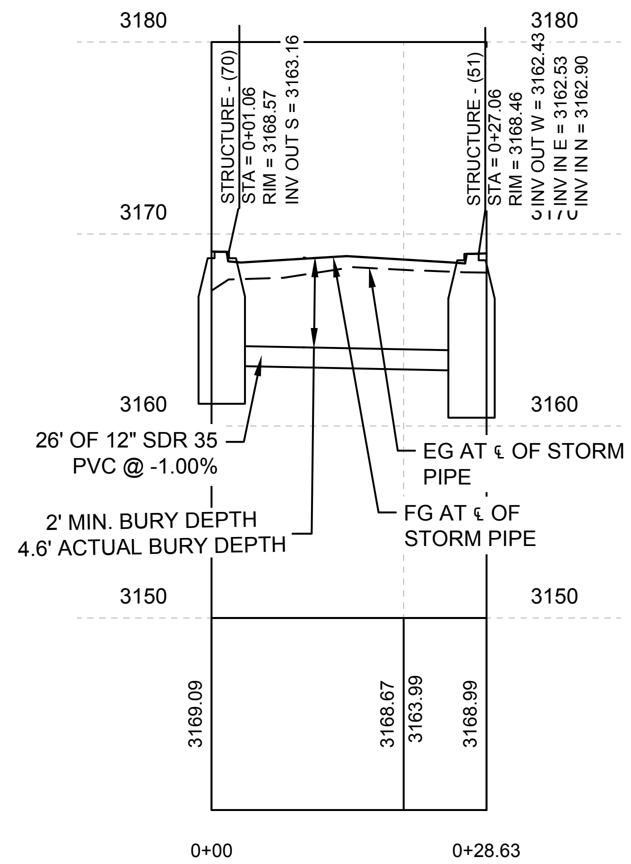
PLAN


SEE SHEET 53 FOR PIPE NETWORK
SW 24"
STRUCTURE 51
STRUCTURE 70
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
0+00
0+29
SEE SHEET 53 FOR PIPE NETWORK
SW 24"
WHIPPOORWILL DRIVE
UGP(B)
FO(B)
N
0 0.50"=10' 1"=20' HORIZ.
0 0.50"=5' 1"=10' VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")





PROFILE



7/17/26 10:41 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C7.0 STORMWATER P&P.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER KD
DRAWN KD
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
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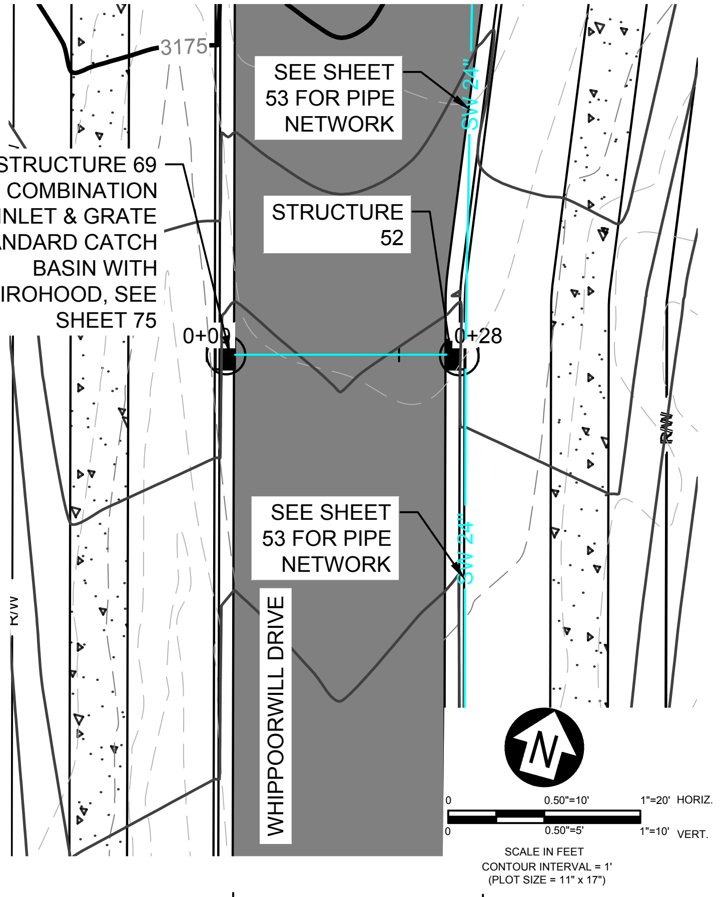
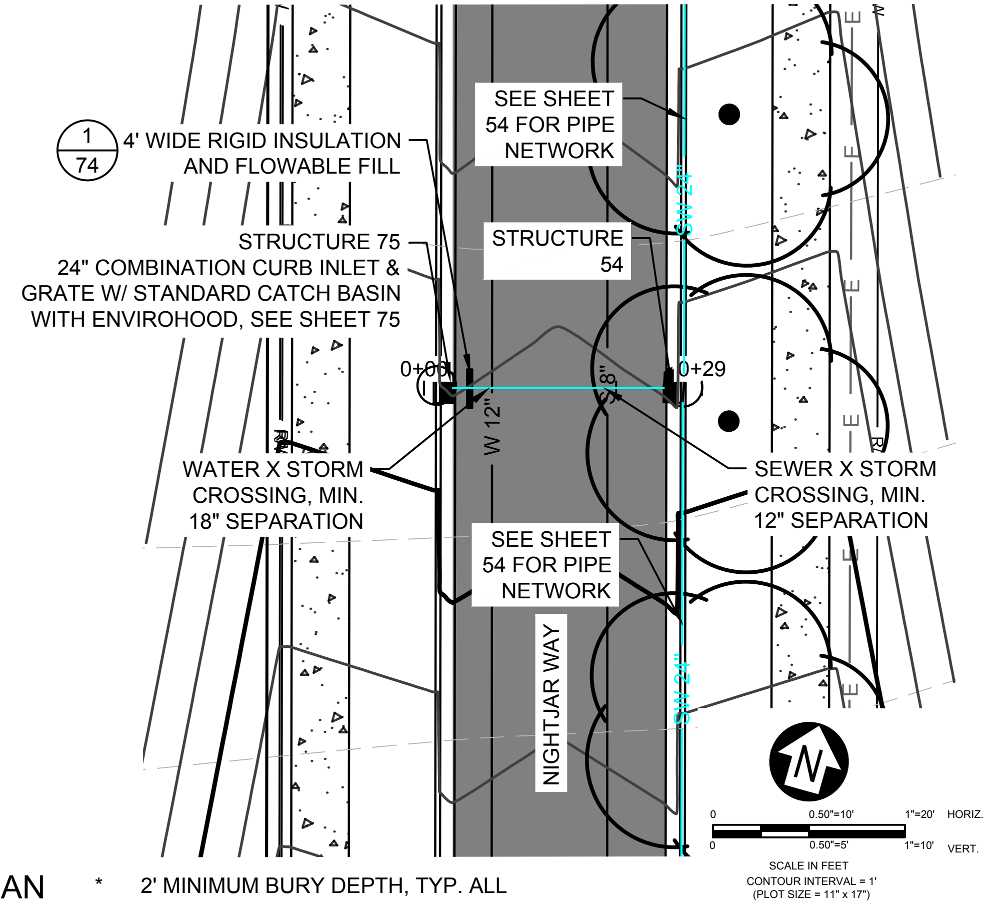
PLANNERS
SURVEYORS

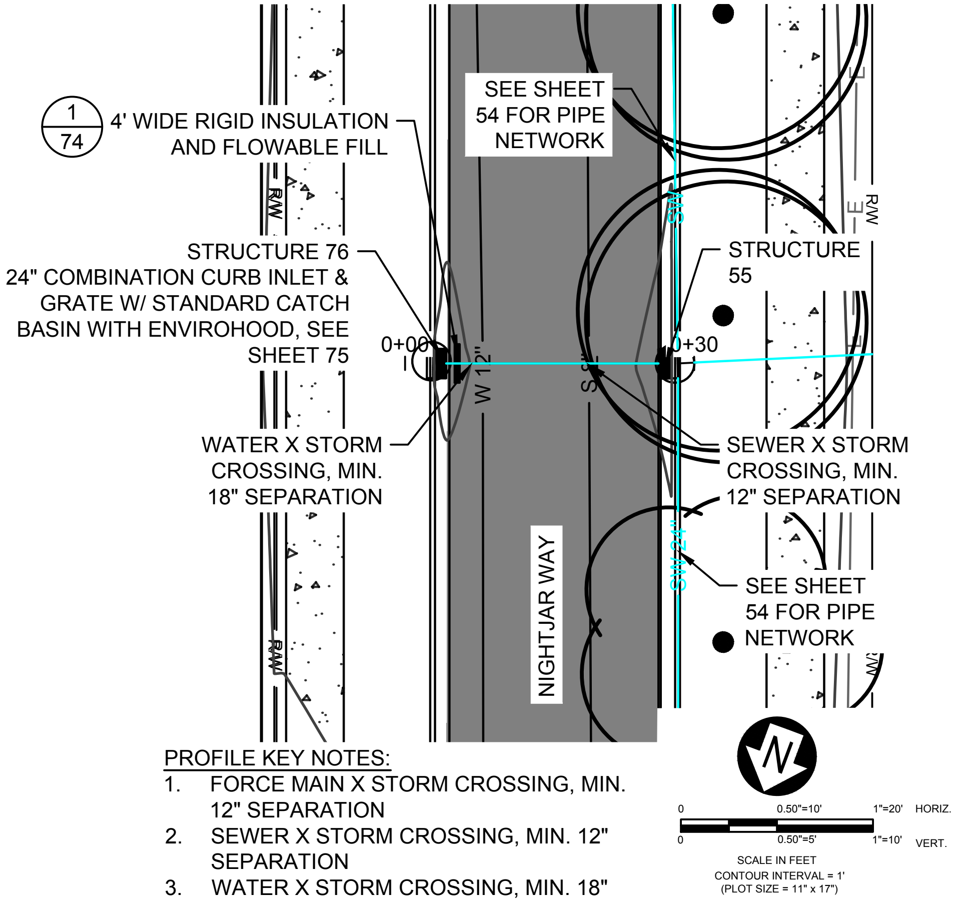
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

STORM SEWER - CONNECTORS (2)

SHEET 58 OF 105




1
74
4' WIDE RIGID INSULATION AND FLOWABLE FILL
SEE SHEET 54 FOR PIPE NETWORK
STRUCTURE 75
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 54
0+00
0+29
S 8"
W 12"
SW 24"
WATER X STORM CROSSING, MIN. 18" SEPARATION
SEWER X STORM CROSSING, MIN. 12" SEPARATION
SEE SHEET 54 FOR PIPE NETWORK
NIGHTJAR WAY
R/W
E
0
0.50"=10'
1"=20'
HORIZ.
0
0.50"=5'
1"=10'
VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

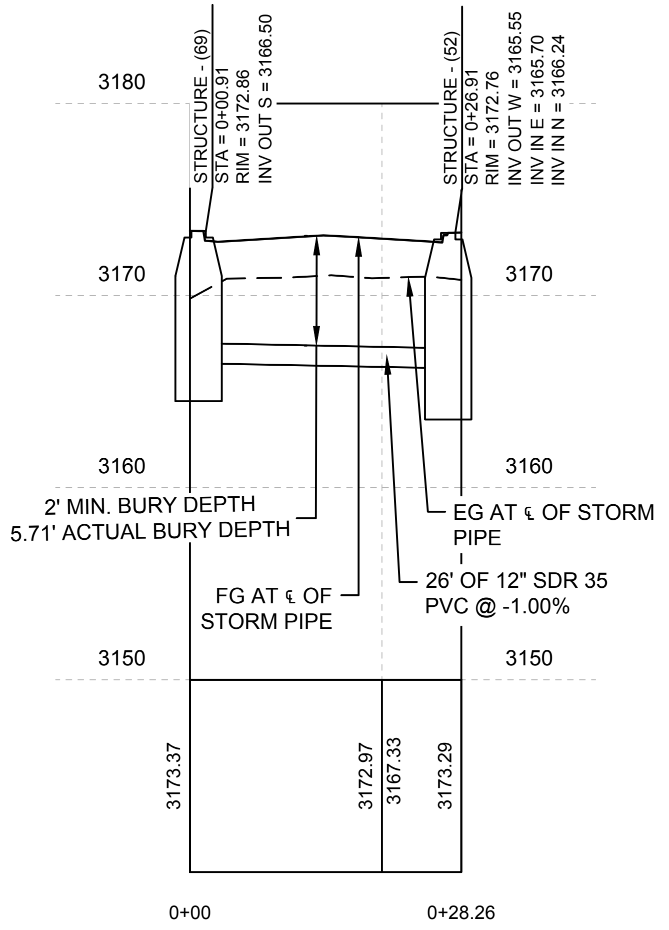

1
74
4' WIDE RIGID INSULATION AND FLOWABLE FILL
SEE SHEET 54 FOR PIPE NETWORK
STRUCTURE 76
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 55
0+00
0+30
R/W
W 12"
S 8"
SW 24"
WATER X STORM CROSSING, MIN. 18" SEPARATION
SEWER X STORM CROSSING, MIN. 12" SEPARATION
SEE SHEET 54 FOR PIPE NETWORK
NIGHTJAR WAY
E
0
0.50"=10'
1"=20'
HORIZ.
0
0.50"=5'
1"=10'
VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

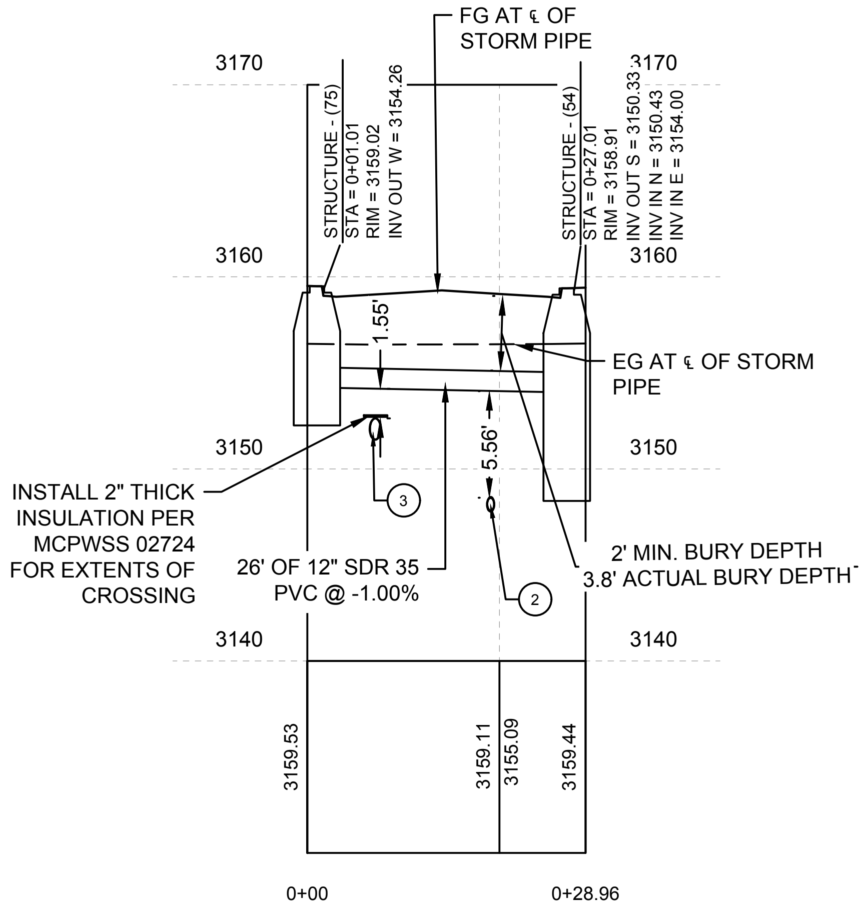
PROFILE KEY NOTES:

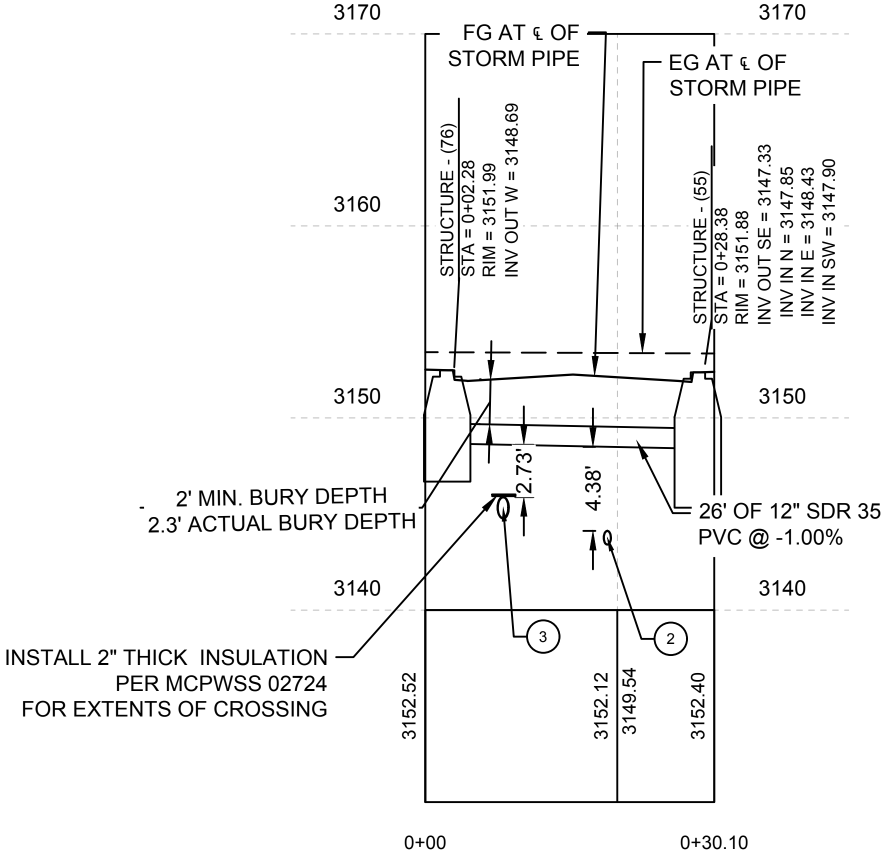
1. FORCE MAIN X STORM CROSSING, MIN. 12" SEPARATION
2. SEWER X STORM CROSSING, MIN. 12" SEPARATION
3. WATER X STORM CROSSING, MIN. 18" SEPARATION

PLAN

* 2' MINIMUM BURY DEPTH, TYP. ALL







PROFILE

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER	KD	PROJ. NO.	7486
DRAWN	KD	DATE	10.23.2026
CHECKED	KG	SURVEYED	DJ&A, P.C.

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ENGINEERS
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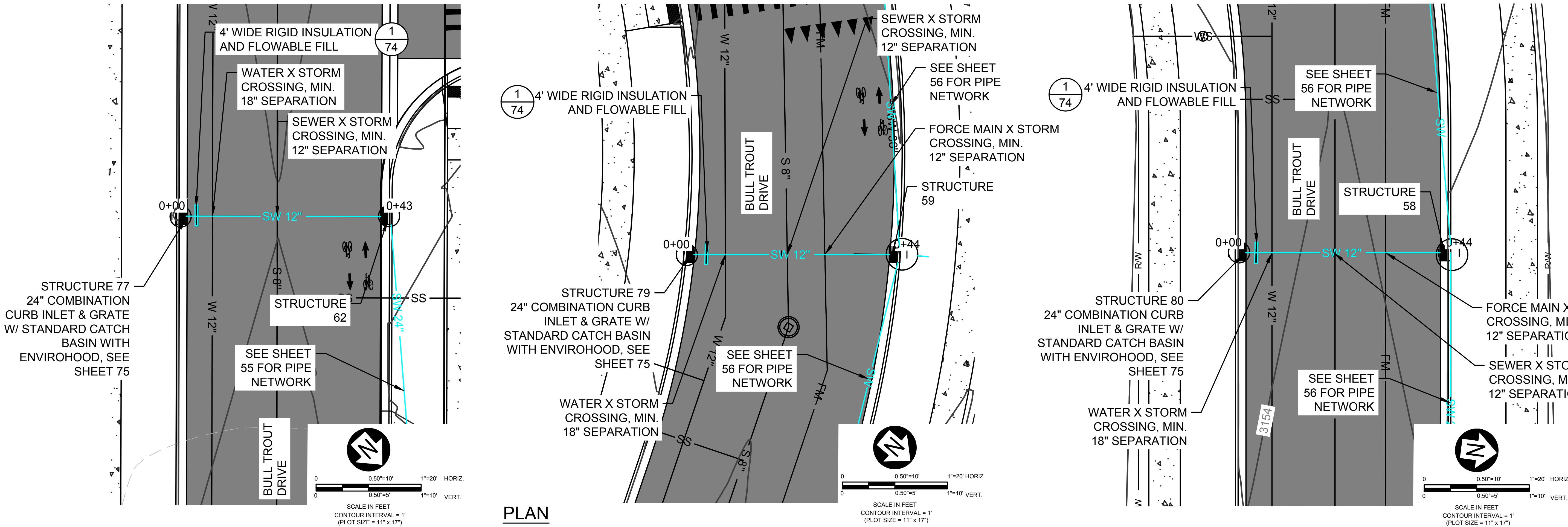
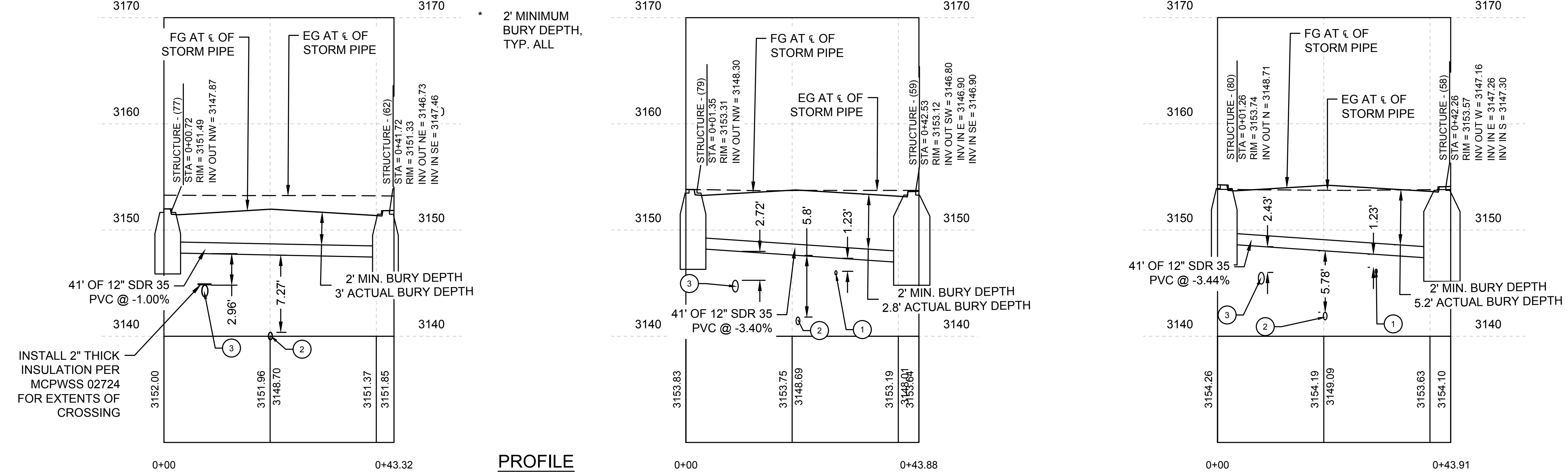
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

STORM SEWER - CONNECTORS (3)


4' WIDE RIGID INSULATION AND FLOWABLE FILL
1 / 74
WATER X STORM CROSSING, MIN. 18" SEPARATION
SEWER X STORM CROSSING, MIN. 12" SEPARATION
0+00
0+43
SW 12"
S 8"
W 12"
SS
SW 24"
STRUCTURE 77
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 62
SEE SHEET 55 FOR PIPE NETWORK
BULL TROUT DRIVE
SEWER X STORM CROSSING, MIN. 12" SEPARATION
SEE SHEET 56 FOR PIPE NETWORK
FORCE MAIN X STORM CROSSING, MIN. 12" SEPARATION
STRUCTURE 59
0+44
FM
STRUCTURE 79
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
WATER X STORM CROSSING, MIN. 18" SEPARATION
SEE SHEET 56 FOR PIPE NETWORK
STRUCTURE 58
STRUCTURE 80
24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
SEE SHEET 56 FOR PIPE NETWORK
R/W
3154
0 0.50"=10' 1"=20' HORIZ.
0 0.50"=5' 1"=10' VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

PLAN



* 2' MINIMUM BURY DEPTH, TYP. ALL

PROFILE

7/17/26 10:41 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C7.0 STORMWATER P&P.DWG;

REVISION	DATE	DESCRIPTION
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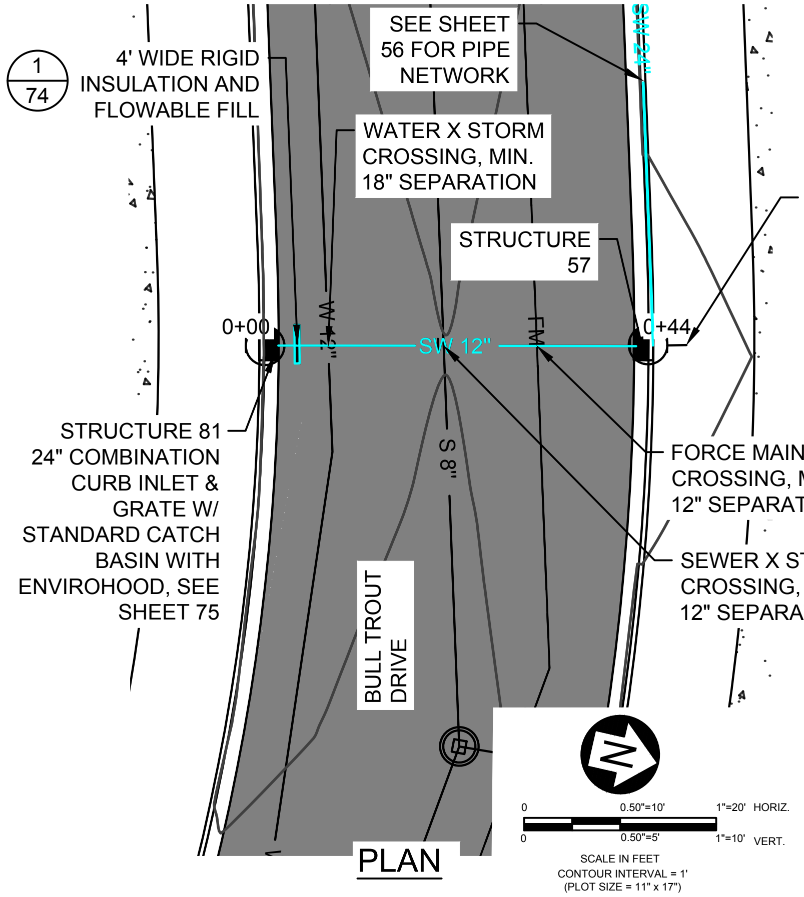
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

STORM SEWER - CONNECTORS (4)

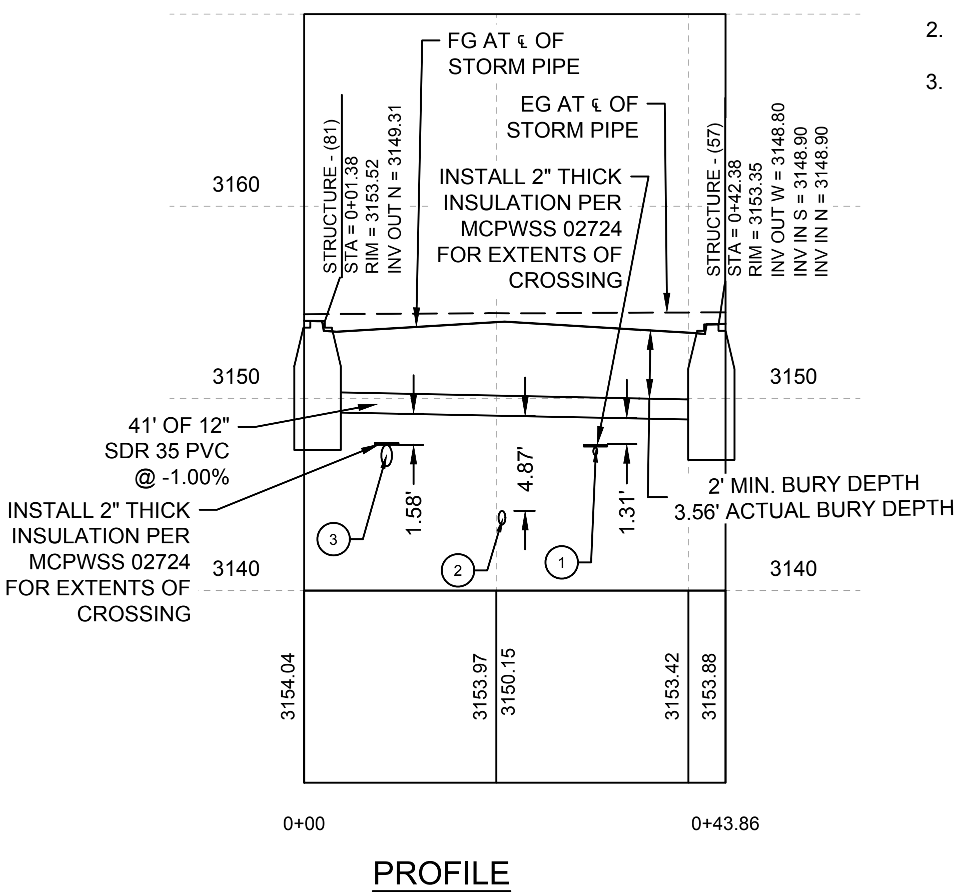
SHEET 60 OF 105


1
74
4' WIDE RIGID INSULATION AND FLOWABLE FILL
SEE SHEET 56 FOR PIPE NETWORK
WATER X STORM CROSSING, MIN. 18" SEPARATION
STRUCTURE 57
STORM STUB 2' OF 24" SDR 35 PVC. END INVERT @ 3148.94
0+00
0+44
W 12"
SW 12"
FM
S 8"
STRUCTURE 81 24" COMBINATION CURB INLET & GRATE W/ STANDARD CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
FORCE MAIN X STORM CROSSING, MIN. 12" SEPARATION
SEWER X STORM CROSSING, MIN. 12" SEPARATION
BULL TROUT DRIVE
N
0
0.50"=10'
1"=20' HORIZ.
0
0.50"=5'
1"=10' VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")
PLAN

* 2' MINIMUM BURY DEPTH, TYP. ALL

PROFILE KEY NOTES:

1. FORCE MAIN X STORM CROSSING, MIN. 12" SEPARATION
2. SEWER X STORM CROSSING, MIN. 12" SEPARATION
3. WATER X STORM CROSSING, MIN. 18" SEPARATION



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-	-	-

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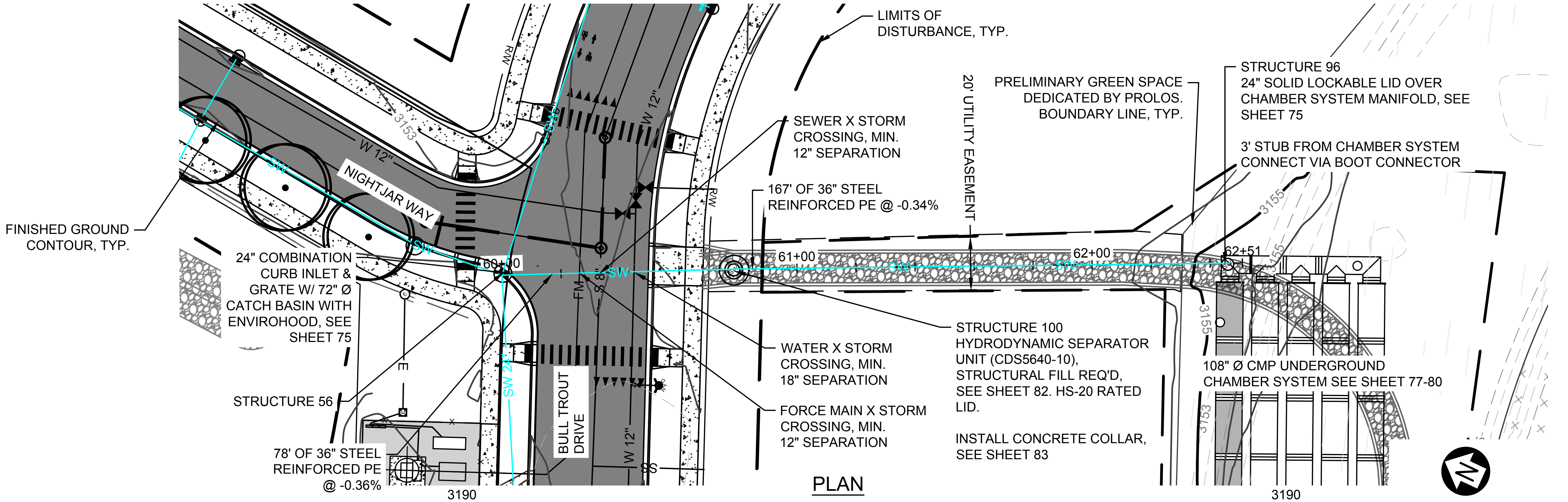
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

61 - STORM SEWER - CONNECTORS (5)

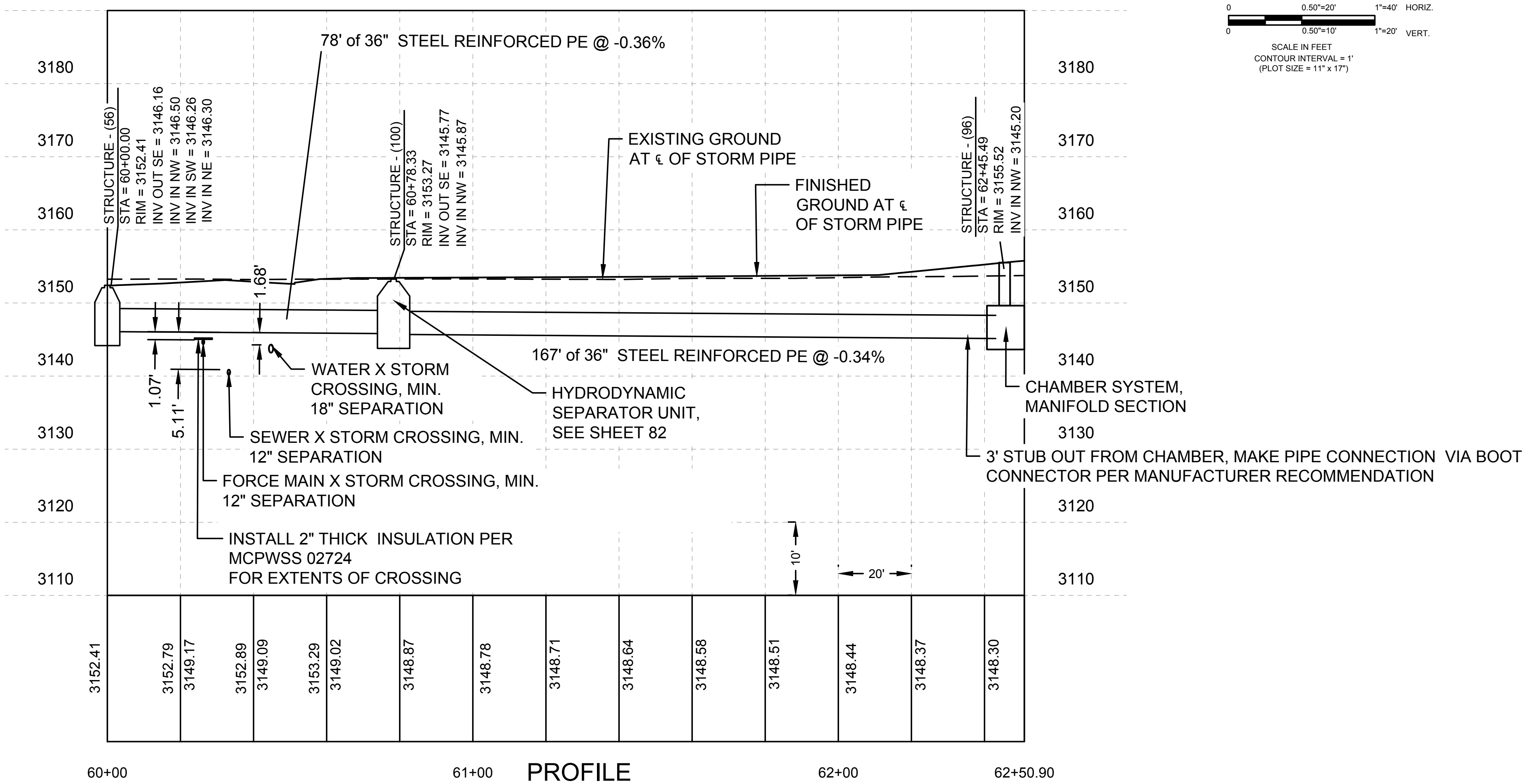
SHEET
61 OF 105

7/17/26 10:41 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C7.0 STORMWATER P&P.DWG;


LIMITS OF DISTURBANCE, TYP.
PRELIMINARY GREEN SPACE DEDICATED BY PROLOS. BOUNDARY LINE, TYP.
20' UTILITY EASEMENT
STRUCTURE 96
24" SOLID LOCKABLE LID OVER CHAMBER SYSTEM MANIFOLD, SEE SHEET 75
3' STUB FROM CHAMBER SYSTEM CONNECT VIA BOOT CONNECTOR
SEWER X STORM CROSSING, MIN. 12" SEPARATION
167' OF 36" STEEL REINFORCED PE @ -0.34%
FINISHED GROUND CONTOUR, TYP.
24" COMBINATION CURB INLET & GRATE W/ 72" Ø CATCH BASIN WITH ENVIROHOOD, SEE SHEET 75
STRUCTURE 56
78' OF 36" STEEL REINFORCED PE @ -0.36%
WATER X STORM CROSSING, MIN. 18" SEPARATION
FORCE MAIN X STORM CROSSING, MIN. 12" SEPARATION
STRUCTURE 100
HYDRODYNAMIC SEPARATOR UNIT (CDS5640-10), STRUCTURAL FILL REQ'D, SEE SHEET 82. HS-20 RATED LID.
INSTALL CONCRETE COLLAR, SEE SHEET 83
108" Ø CMP UNDERGROUND CHAMBER SYSTEM SEE SHEET 77-80
NIGHTJAR WAY
BULL TROUT DRIVE
W 12"
RW
SW
SW 24"
FM
S 8"
SS
E
3153
3155
60+00
61+00
62+00
62+51

PLAN

0 0.50"=20' 1"=40' HORIZ.
0 0.50"=10' 1"=20' VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")


3190
3180
3170
3160
3150
3140
3130
3120
3110
78' of 36" STEEL REINFORCED PE @ -0.36%
STRUCTURE - (56)
STA = 60+00.00
RIM = 3152.41
INV OUT SE = 3146.16
INV IN NW = 3146.50
INV IN SW = 3146.26
INV IN NE = 3146.30
STRUCTURE - (100)
STA = 60+78.33
RIM = 3153.27
INV OUT SE = 3145.77
INV IN NW = 3145.87
STRUCTURE - (96)
STA = 62+45.49
RIM = 3155.52
INV IN NW = 3145.20
EXISTING GROUND AT ℄ OF STORM PIPE
FINISHED GROUND AT ℄ OF STORM PIPE
1.68'
1.07'
5.11'
WATER X STORM CROSSING, MIN. 18" SEPARATION
HYDRODYNAMIC SEPARATOR UNIT, SEE SHEET 82
167' of 36" STEEL REINFORCED PE @ -0.34%
CHAMBER SYSTEM, MANIFOLD SECTION
SEWER X STORM CROSSING, MIN. 12" SEPARATION
FORCE MAIN X STORM CROSSING, MIN. 12" SEPARATION
3' STUB OUT FROM CHAMBER, MAKE PIPE CONNECTION VIA BOOT CONNECTOR PER MANUFACTURER RECOMMENDATION
INSTALL 2" THICK INSULATION PER MCPWSS 02724 FOR EXTENTS OF CROSSING
10'
20'
3152.41
3152.79
3149.17
3152.89
3149.09
3153.29
3149.02
3148.87
3148.78
3148.71
3148.64
3148.58
3148.51
3148.44
3148.37
3148.30
60+00
61+00
62+00
62+50.90

PROFILE

REVISION	DATE	DESCRIPTION
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-	-	-

DESIGNER KD
DRAWN KD
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
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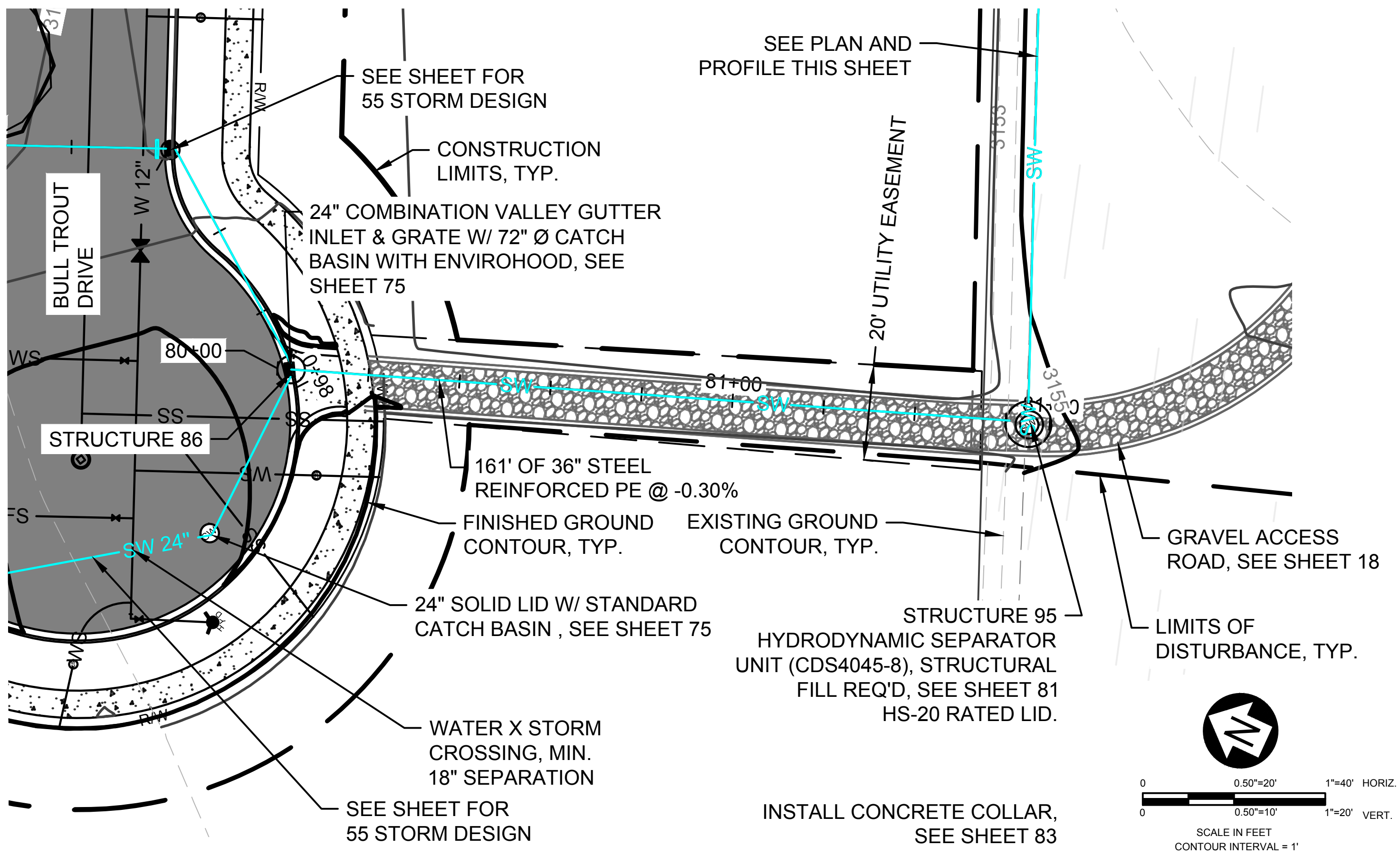
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

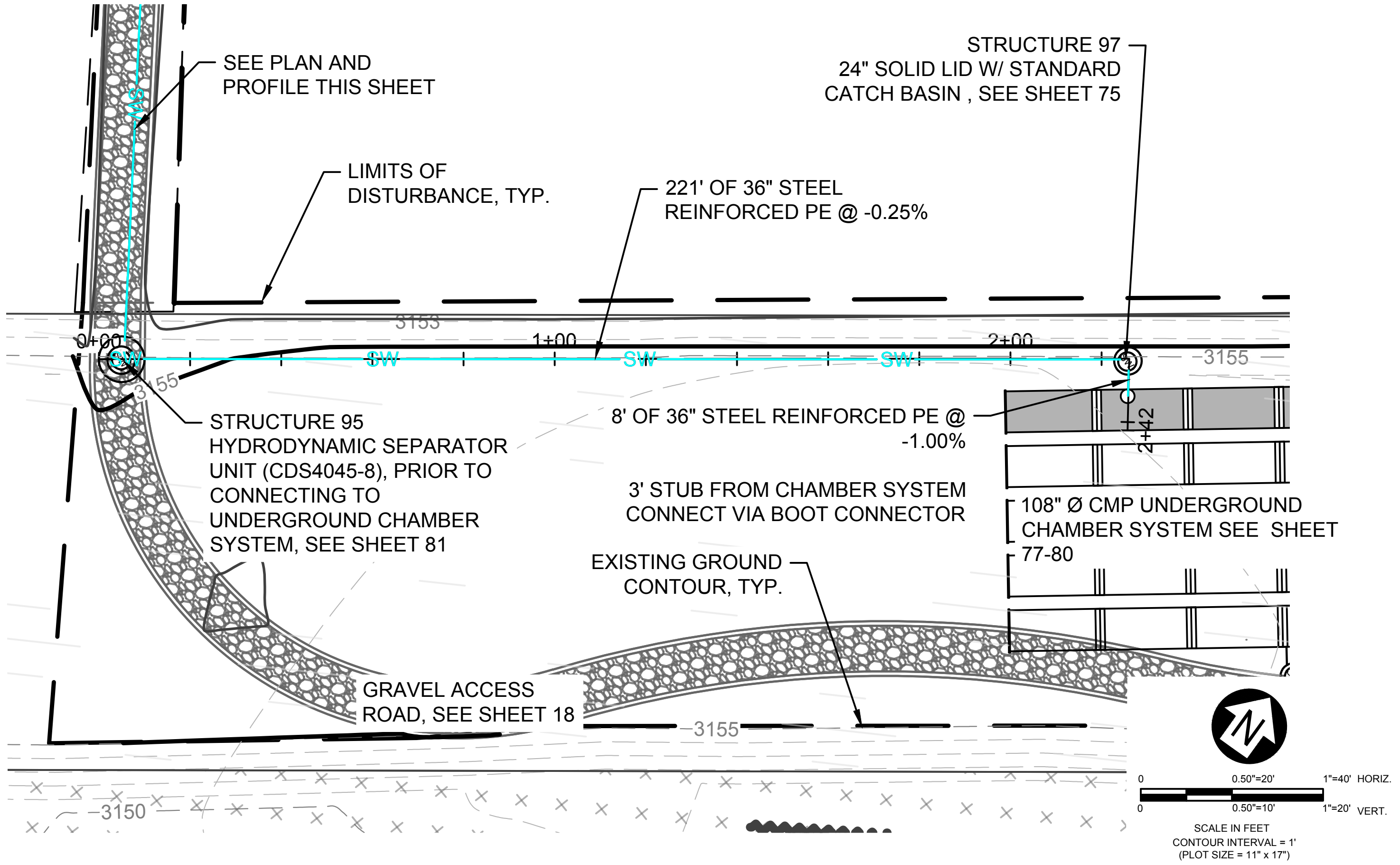
STORM SEWER MAIN OUTLET

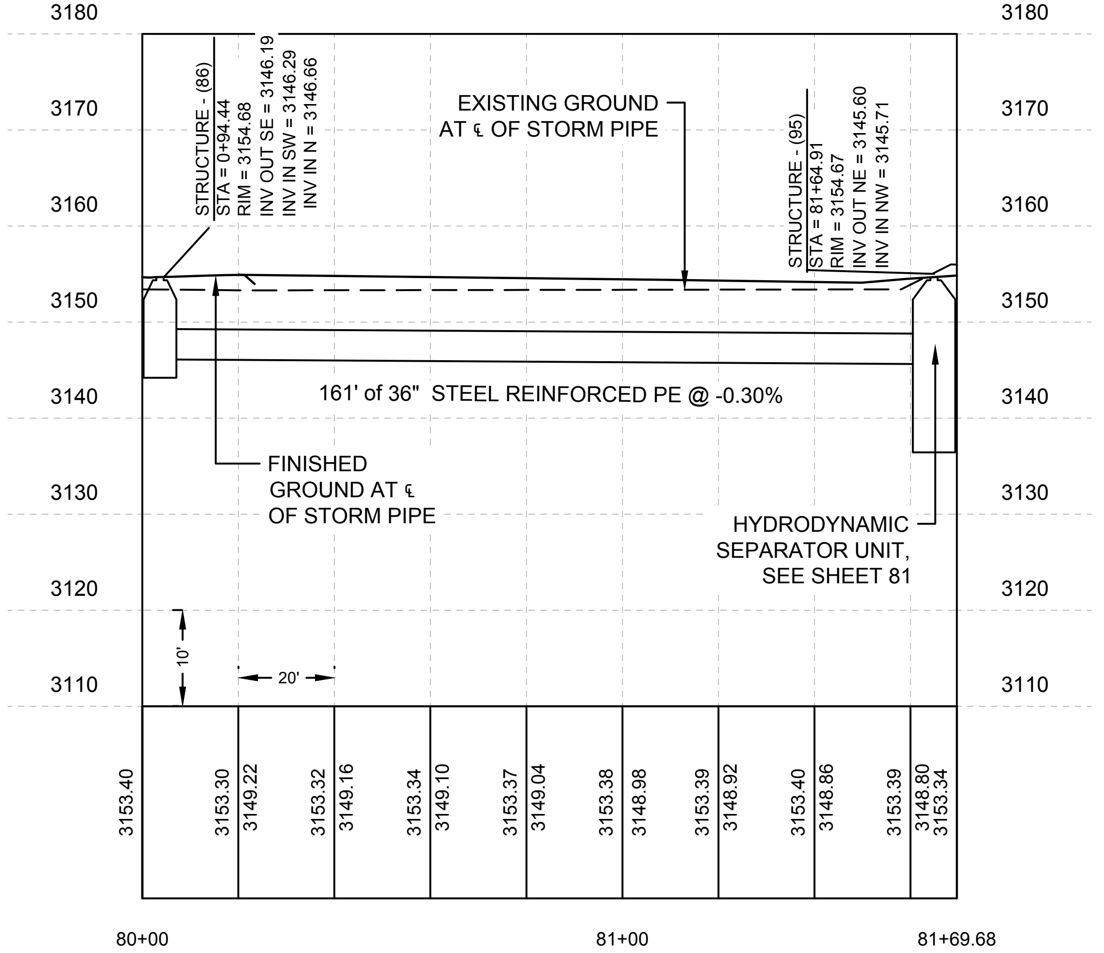
SHEET
62
OF
105

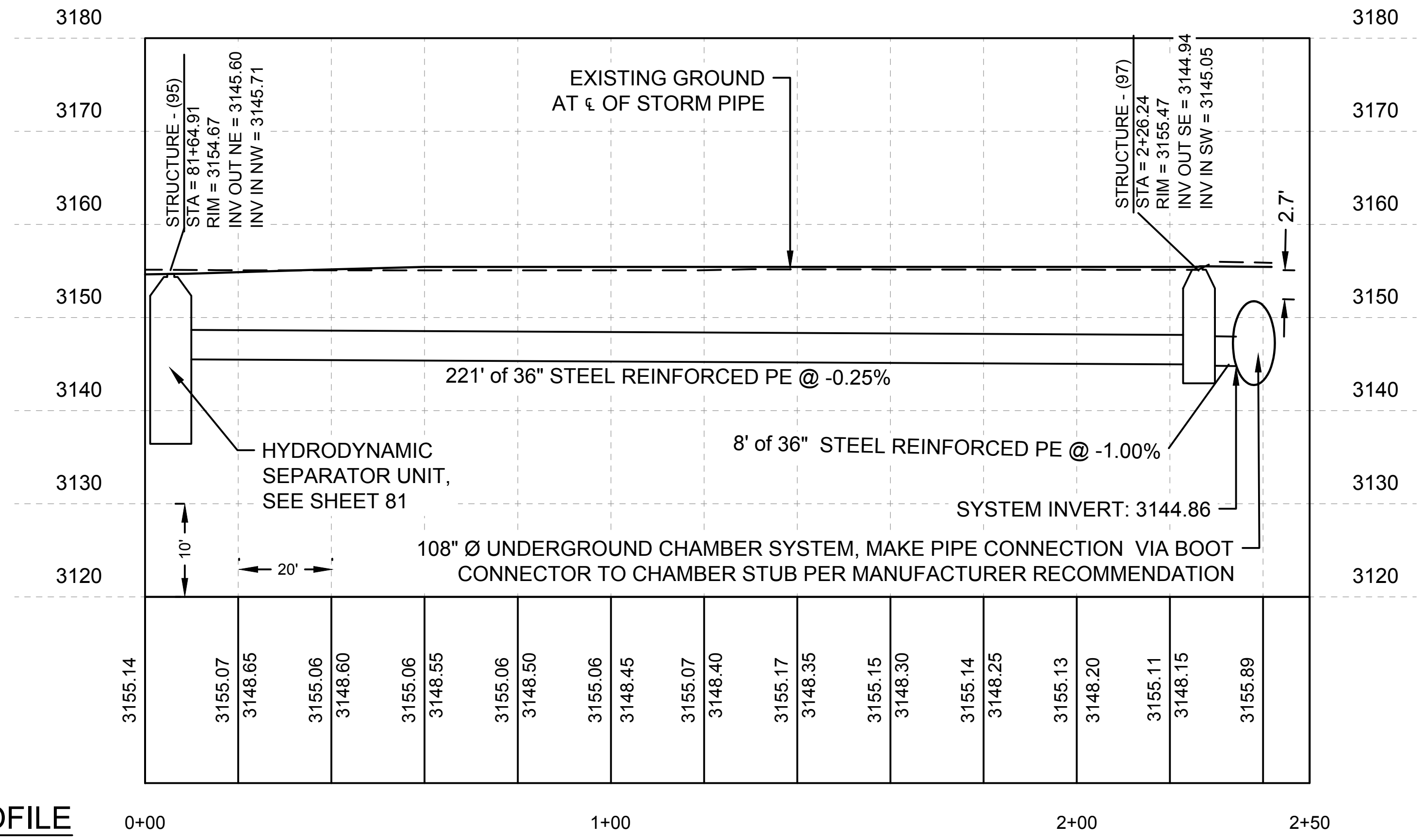
7/17/26 10:41 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C7.0 STORMWATER P&P.DWG;



PLAN







PROFILE

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REVISION	DATE	DESCRIPTION
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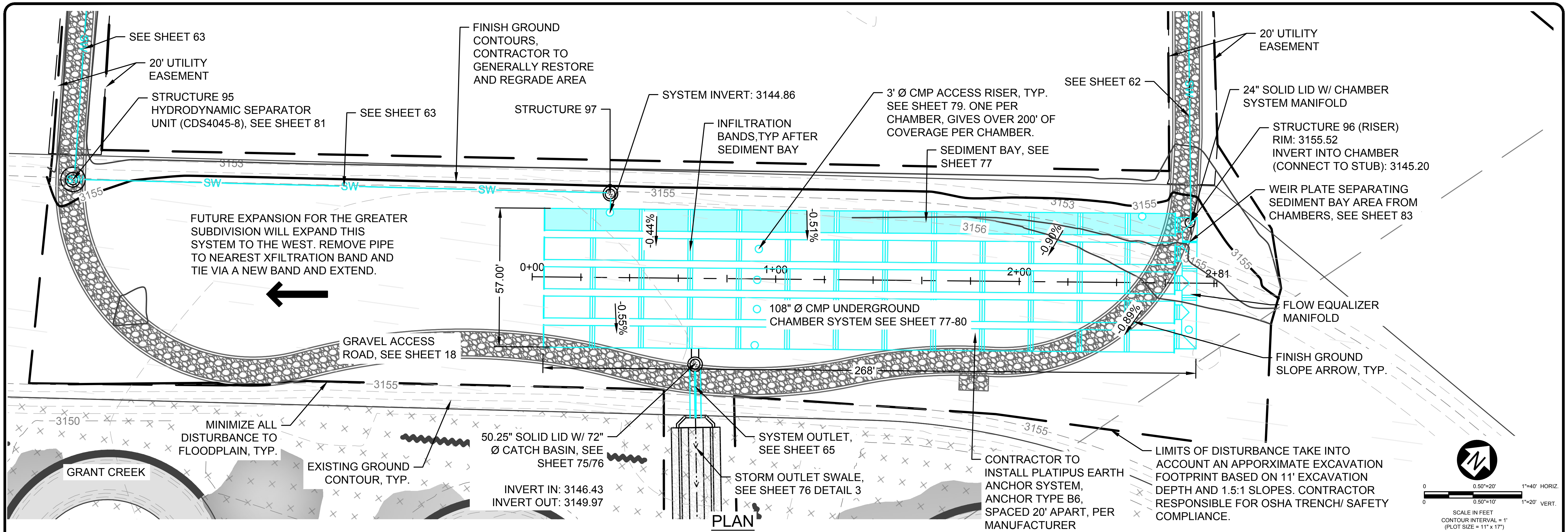
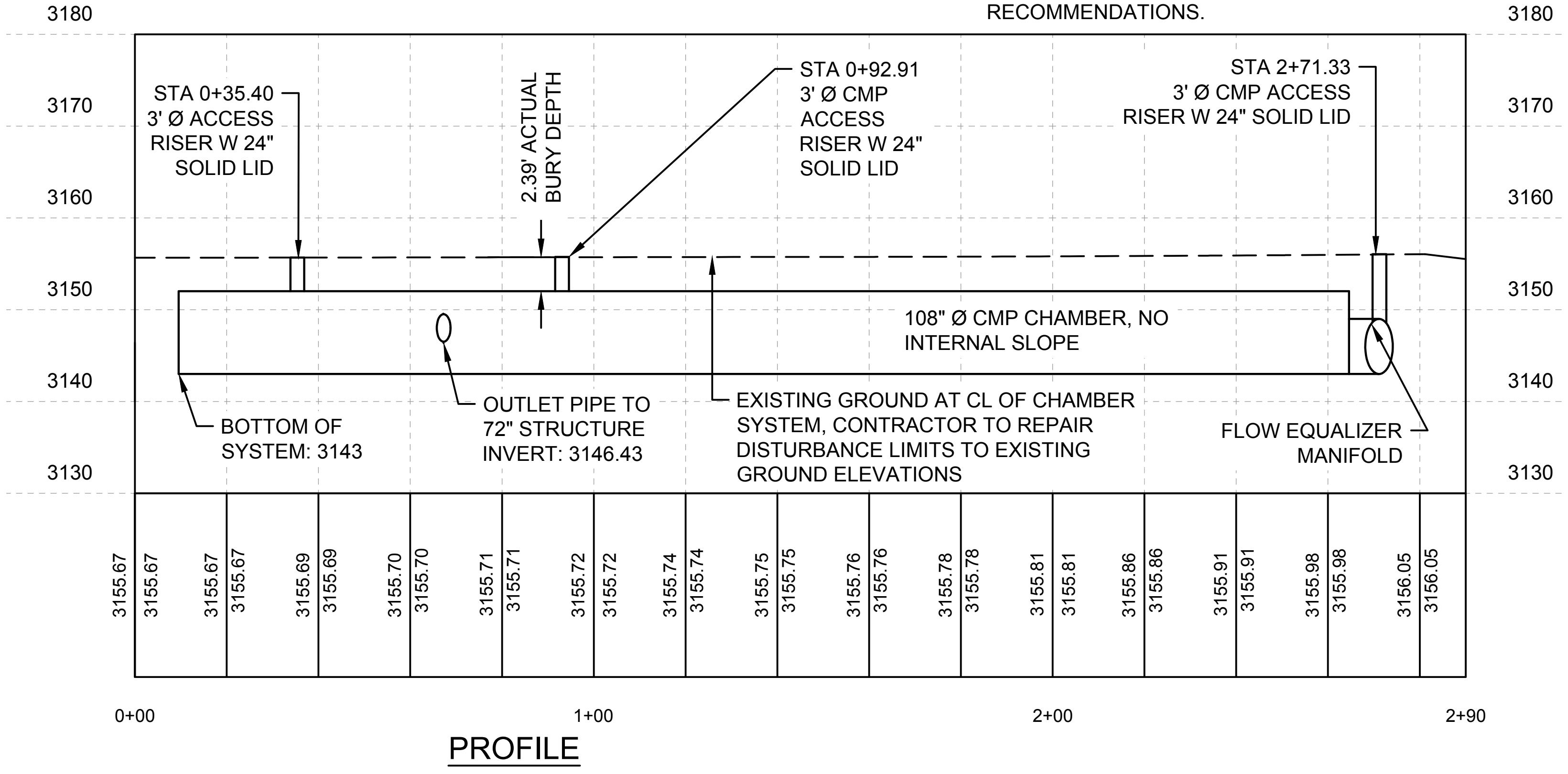
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

STORM SEWER MAIN OUTLET (2)

SHEET
63
OF
105


SEE SHEET 63
20' UTILITY EASEMENT
STRUCTURE 95 HYDRODYNAMIC SEPARATOR UNIT (CDS4045-8), SEE SHEET 81
SEE SHEET 63
FINISH GROUND CONTOURS, CONTRACTOR TO GENERALLY RESTORE AND REGRADE AREA
STRUCTURE 97
SYSTEM INVERT: 3144.86
INFILTRATION BANDS,TYP AFTER SEDIMENT BAY
3' Ø CMP ACCESS RISER, TYP. SEE SHEET 79. ONE PER CHAMBER, GIVES OVER 200' OF COVERAGE PER CHAMBER.
SEDIMENT BAY, SEE SHEET 77
SEE SHEET 62
20' UTILITY EASEMENT
24" SOLID LID W/ CHAMBER SYSTEM MANIFOLD
STRUCTURE 96 (RISER) RIM: 3155.52 INVERT INTO CHAMBER (CONNECT TO STUB): 3145.20
WEIR PLATE SEPARATING SEDIMENT BAY AREA FROM CHAMBERS, SEE SHEET 83
FLOW EQUALIZER MANIFOLD
FINISH GROUND SLOPE ARROW, TYP.
FUTURE EXPANSION FOR THE GREATER SUBDIVISION WILL EXPAND THIS SYSTEM TO THE WEST. REMOVE PIPE TO NEAREST XFILTRATION BAND AND TIE VIA A NEW BAND AND EXTEND.
3153
3155
SW
SW
SW
3155
3153
3155
3156
3155
3155
-0.44%
-0.51%
-0.90%
-0.55%
-0.89%
57.00'
0+00
1+00
2+00
2+81
268'
108" Ø CMP UNDERGROUND CHAMBER SYSTEM SEE SHEET 77-80
GRAVEL ACCESS ROAD, SEE SHEET 18
3155
3150
3155
MINIMIZE ALL DISTURBANCE TO FLOODPLAIN, TYP.
GRANT CREEK
EXISTING GROUND CONTOUR, TYP.
50.25" SOLID LID W/ 72" Ø CATCH BASIN, SEE SHEET 75/76
INVERT IN: 3146.43
INVERT OUT: 3149.97
SYSTEM OUTLET, SEE SHEET 65
STORM OUTLET SWALE, SEE SHEET 76 DETAIL 3
PLAN
CONTRACTOR TO INSTALL PLATIPUS EARTH ANCHOR SYSTEM, ANCHOR TYPE B6, SPACED 20' APART, PER MANUFACTURER RECOMMENDATIONS.
LIMITS OF DISTURBANCE TAKE INTO ACCOUNT AN APPORXIMATE EXCAVATION FOOTPRINT BASED ON 11' EXCAVATION DEPTH AND 1.5:1 SLOPES. CONTRACTOR RESPONSIBLE FOR OSHA TRENCH/ SAFETY COMPLIANCE.
N
0
0.50"=20'
1"=40'
HORIZ.
0
0.50"=10'
1"=20'
VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")


3180
3170
3160
3150
3140
3130
STA 0+35.40 3' Ø ACCESS RISER W 24" SOLID LID
2.39' ACTUAL BURY DEPTH
STA 0+92.91 3' Ø CMP ACCESS RISER W 24" SOLID LID
STA 2+71.33 3' Ø CMP ACCESS RISER W 24" SOLID LID
108" Ø CMP CHAMBER, NO INTERNAL SLOPE
BOTTOM OF SYSTEM: 3143
OUTLET PIPE TO 72" STRUCTURE INVERT: 3146.43
EXISTING GROUND AT CL OF CHAMBER SYSTEM, CONTRACTOR TO REPAIR DISTURBANCE LIMITS TO EXISTING GROUND ELEVATIONS
FLOW EQUALIZER MANIFOLD
3155.67
3155.67
3155.67
3155.67
3155.69
3155.69
3155.70
3155.70
3155.71
3155.71
3155.72
3155.72
3155.74
3155.74
3155.75
3155.75
3155.76
3155.76
3155.78
3155.78
3155.81
3155.81
3155.86
3155.86
3155.91
3155.91
3155.98
3155.98
3156.05
3156.05
0+00
1+00
2+00
2+90
PROFILE

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER KD
PROJ. NO. 7486
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PLANNERS
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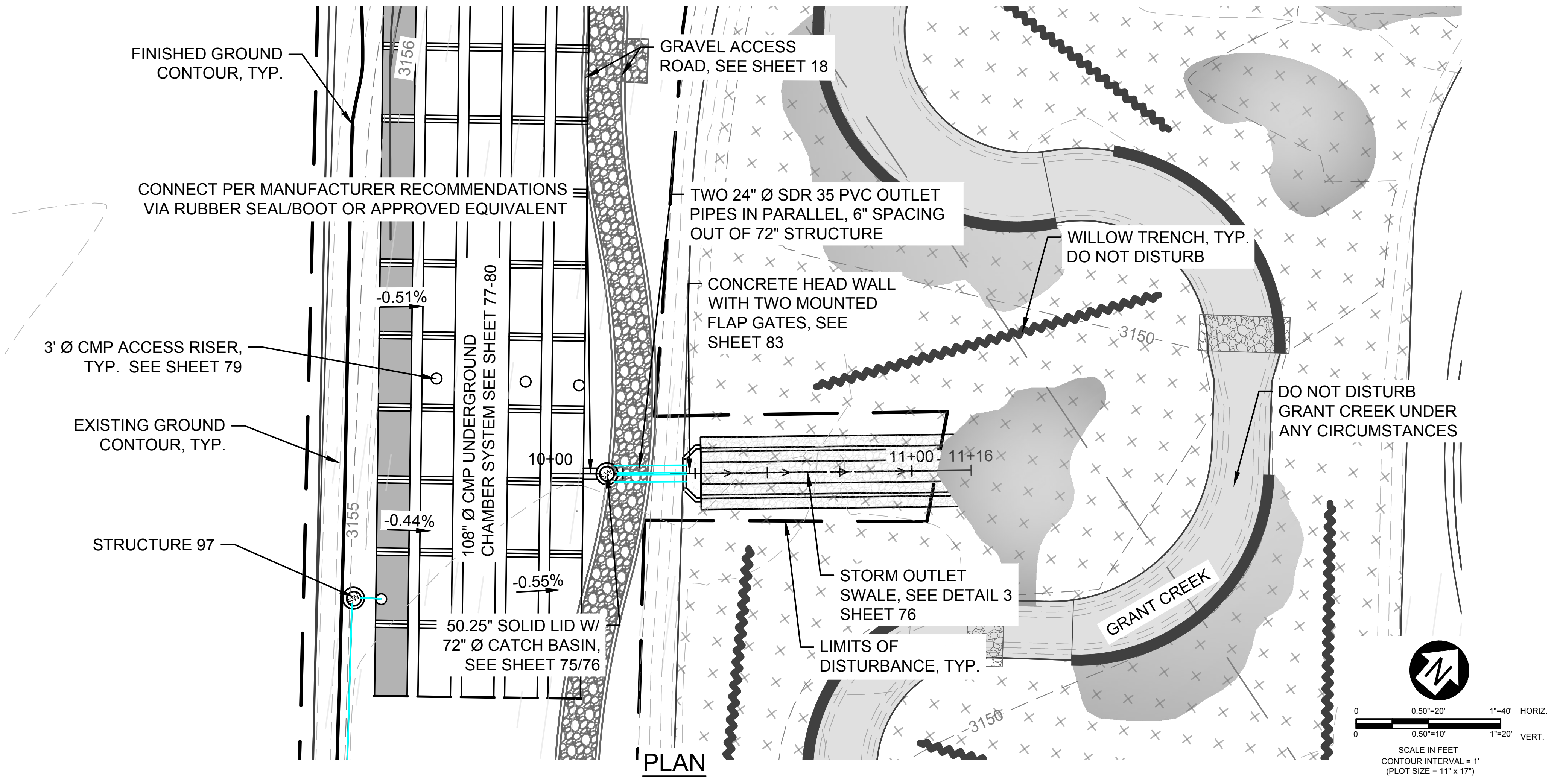
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

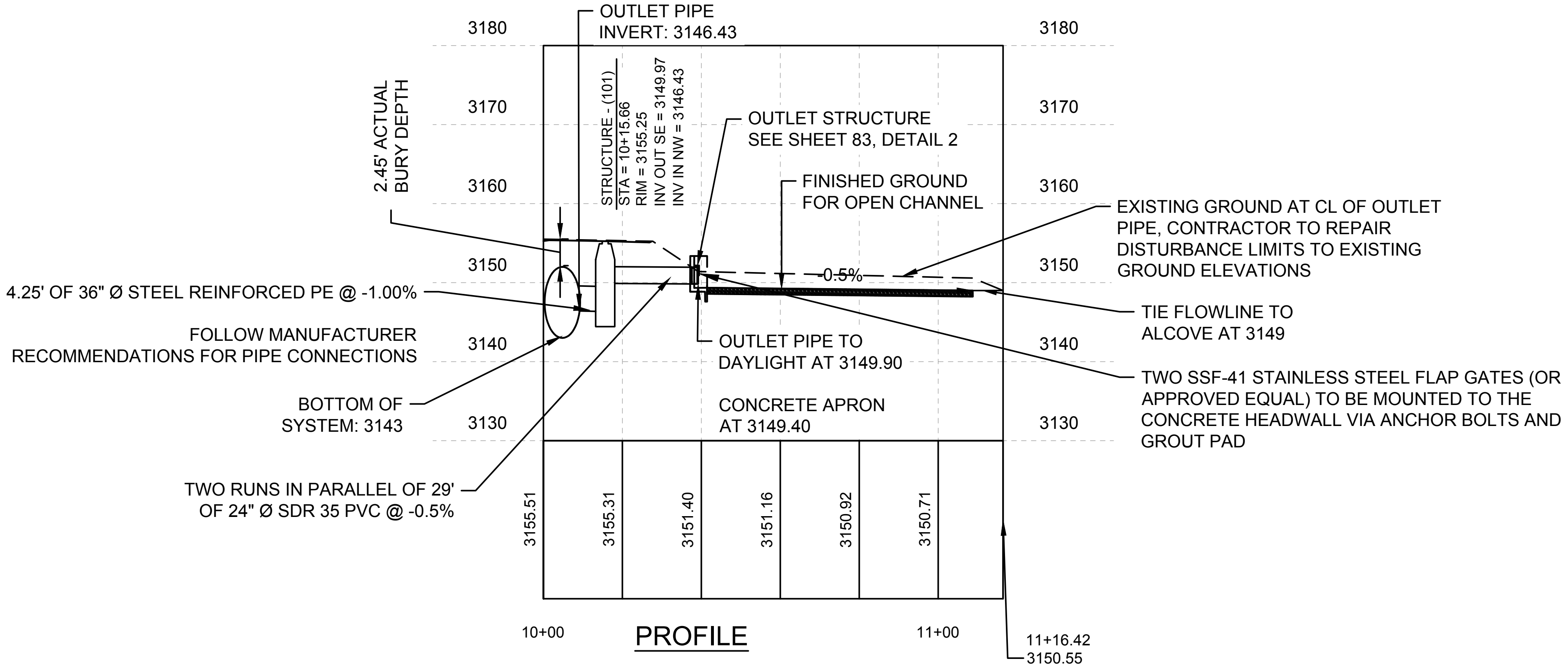
UNDERGROUND CHAMBER SYSTEM P&P

SHEET
64
OF
105

7/17/26 10:41 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C7.0 STORMWATER P&P.DWG;


FINISHED GROUND CONTOUR, TYP.
3156
GRAVEL ACCESS ROAD, SEE SHEET 18
CONNECT PER MANUFACTURER RECOMMENDATIONS VIA RUBBER SEAL/BOOT OR APPROVED EQUIVALENT
TWO 24" Ø SDR 35 PVC OUTLET PIPES IN PARALLEL, 6" SPACING OUT OF 72" STRUCTURE
WILLOW TRENCH, TYP. DO NOT DISTURB
CONCRETE HEAD WALL WITH TWO MOUNTED FLAP GATES, SEE SHEET 83
-0.51%
108" Ø CMP UNDERGROUND CHAMBER SYSTEM SEE SHEET 77-80
3' Ø CMP ACCESS RISER, TYP. SEE SHEET 79
3150
DO NOT DISTURB GRANT CREEK UNDER ANY CIRCUMSTANCES
EXISTING GROUND CONTOUR, TYP.
10+00
11+00
11+16
-0.44%
3155
STRUCTURE 97
-0.55%
STORM OUTLET SWALE, SEE DETAIL 3 SHEET 76
GRANT CREEK
50.25" SOLID LID W/ 72" Ø CATCH BASIN, SEE SHEET 75/76
LIMITS OF DISTURBANCE, TYP.
3150
0
0.50"=20'
1"=40'
HORIZ.
0
0.50"=10'
1"=20'
VERT.
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

PLAN


OUTLET PIPE INVERT: 3146.43
3180
3180
2.45' ACTUAL BURY DEPTH
3170
3170
STRUCTURE - (101)
STA = 10+15.66
RIM = 3155.25
INV OUT SE = 3149.97
INV IN NW = 3146.43
OUTLET STRUCTURE SEE SHEET 83, DETAIL 2
3160
FINISHED GROUND FOR OPEN CHANNEL
3160
EXISTING GROUND AT CL OF OUTLET PIPE, CONTRACTOR TO REPAIR DISTURBANCE LIMITS TO EXISTING GROUND ELEVATIONS
3150
-0.5%
3150
4.25' OF 36" Ø STEEL REINFORCED PE @ -1.00%
TIE FLOWLINE TO ALCOVE AT 3149
FOLLOW MANUFACTURER RECOMMENDATIONS FOR PIPE CONNECTIONS
3140
OUTLET PIPE TO DAYLIGHT AT 3149.90
3140
TWO SSF-41 STAINLESS STEEL FLAP GATES (OR APPROVED EQUAL) TO BE MOUNTED TO THE CONCRETE HEADWALL VIA ANCHOR BOLTS AND GROUT PAD
BOTTOM OF SYSTEM: 3143
3130
CONCRETE APRON AT 3149.40
3130
TWO RUNS IN PARALLEL OF 29' OF 24" Ø SDR 35 PVC @ -0.5%
3155.51
3155.31
3151.40
3151.16
3150.92
3150.71
10+00
11+00
11+16.42
3150.55

PROFILE

7/17/26 10:41 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C7.0 STORMWATER P&P.DWG;

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MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

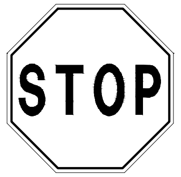
UNDERGROUND CHAMBER SYSTEM OUTLET P&P

SHEET
65
OF
105

# NOTES: PERMANENT TRAFFIC CONTROL

1. INSTALL NEW STOP SIGN (30"W x 30"H), MUTCD R1-1. SEE DETAIL STD 720, SHEET 86.
2. INSTALL STREET IDENTIFICATION SIGN. BLOCK 4100.
3. INSTALL NO MOTORIZED VEHICLES ON TRAILS SIGN, MUTCD K2-0381. SEE DETAIL STD-720, SHEET 86.
4. INSTALL NEW CROSSWALK SIGN ASSEMBLY, MUTCD W11-2 & W16-7P. SEE DETAIL STD 720, SHEET 86.
5. INSTALL NEW WHIPPORWILL DR SIGN. BLOCK NUMBER 4700. SEE DETAIL STD - 721, SHEET 86.
6. TYPICAL INTERSECTION MARKING, SEE DETAIL STD - 730, SHEET 86.
7. INSTALL NO OUTLET SIGN, MUTCD W14-2A. SEE DETAIL STD 720, SHEET 86.
8. INSTALL 25 MPH SPEED LIMIT SIGN, MUTCD R2-1. SEE DETAIL STD-720, SHEET 86.
9. INSTALL NO ON STREET PARKING SIGN, MUTCD R7-1. SEE DETAIL STD-720, SHEET 86.
10. INSTALL NO MOTOR VEHICLES SIGN, MUTCD R5-03. SEE DETAIL STD-720, SHEET 86.
11. INSTALL ROAD CLOSURE SIGN, R11-2 ON TYPE III BARRICADE.
12. CONTRACTOR TO PROPOSE AND DEVELOP A TEMPORARY TRAFFIC CONTROL PLAN FOR WHIPPOORWILL DRIVE/BROADWAY. NO TRAFFIC CONTROL NECESSARY ALONG NEW ROADWAYS, AS THEY WILL BE CLOSED OFF UNTIL CONSTRUCTION IS COMPLETED

① MUTCD R1.1 STOP SIGN, TYP.



④ MUTCD W11-2 CROSS WALK SIGN, TYP.

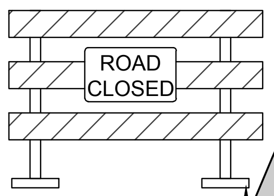
④ MUTCD W14-2A NO OUTLET SIGN, TYP.

⑧ MUTCD R2-1 25 MPH SPEED LIMIT SIGN, TYP.

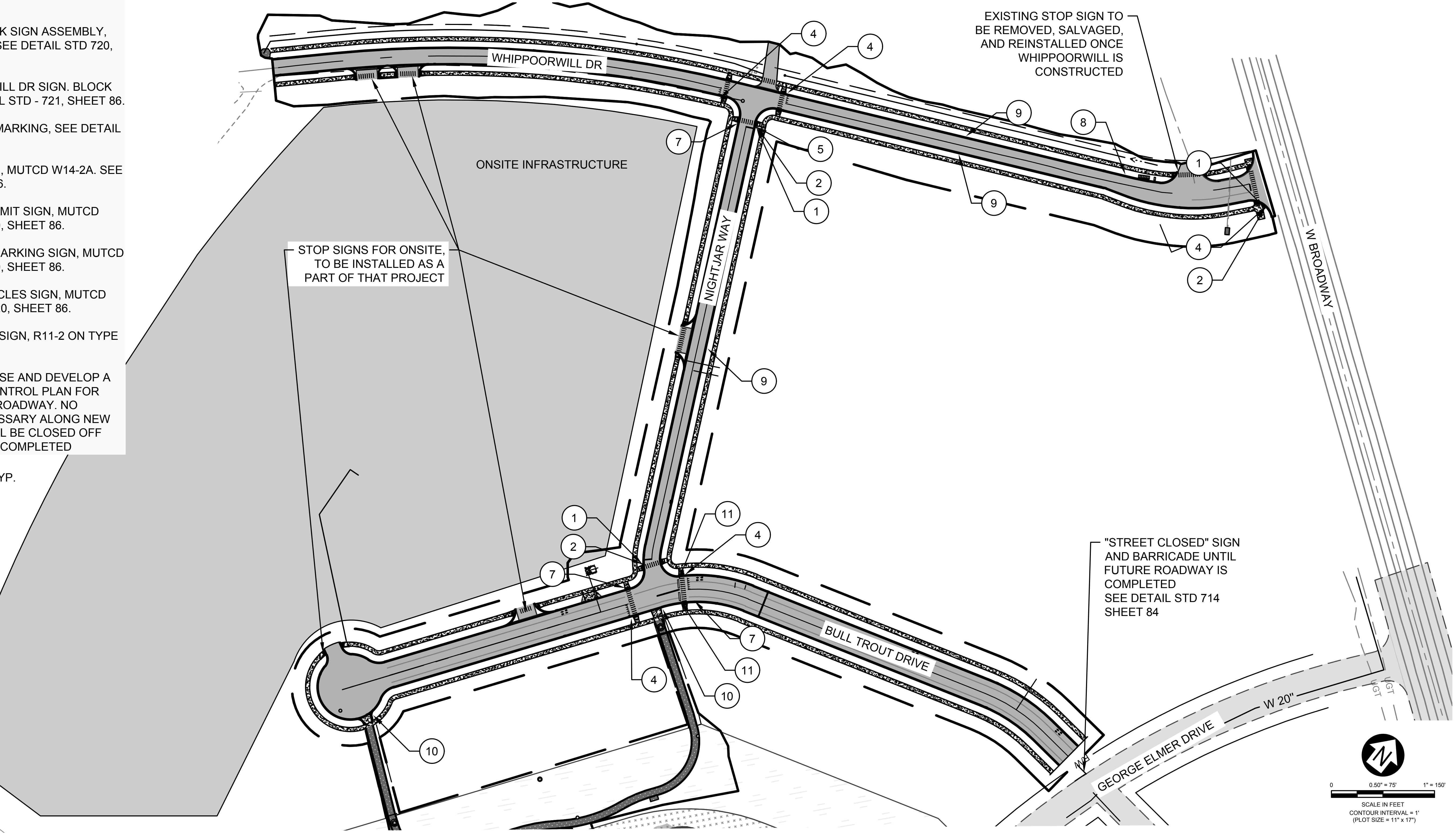
⑨ MUTCD R7-1 NO ON STREET PARKING SIGN, TYP.

⑩ MUTCD R5-03 NO MOTOR VEHICLES SIGN, TYP.

⑪ TYPE III BARRICADE, TYP.



CONTRACTOR TO UTILIZE ANCHOR BOLTS OR SPIKES TO SEMI-PERMANENTLY SECURE SIGNS IN PLACE. THESE BOLTS OR SPIKES WILL NEED TO BE REMOVED ONCE STREET IS OPEN IN COMING YEARS. AT WHICH TIME, THE BOLTS WILL NEED TO BE UNSCREWED, CUT FLUSH, OR DRILLED OUT AND PATCHED.



EXISTING STOP SIGN TO BE REMOVED, SALVAGED, AND REINSTALLED ONCE WHIPPOORWILL IS CONSTRUCTED

STOP SIGNS FOR ONSITE, TO BE INSTALLED AS A PART OF THAT PROJECT

"STREET CLOSED" SIGN AND BARRICADE UNTIL FUTURE ROADWAY IS COMPLETED SEE DETAIL STD 714 SHEET 84

0 0.50" = 75' 1" = 150'
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

REVISION	DATE	DESCRIPTION
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MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

PERMANENT TRAFFIC CONTROL

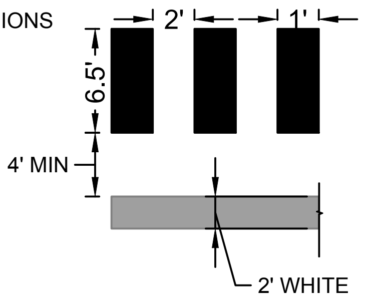
SHEET 66 OF 105

10/13/26 14:17 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C8.0 TRAFFIC CONTROL-STRIPING.DWG;

CONSTRUCTION NOTES: STRIPING

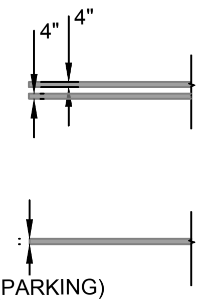
1. STOP BAR, TYP. 2' WIDE, WHITE EPOXY PER CITY OF MISSOULA STD-730, DETAIL 14, SHEET 86.
2. PEDESTRIAN CROSSING STRIPING, TYP. SEE DETAIL 2, SHEET 86.
3. STANDARD 4" DOUBLE LINE, YELLOW EPOXY PER CITY OF MISSOULA STD-730 & MUTCD CHAPTER 3B.
4. "NO PARKING" CURB MARKING PER MUTCD SECTION 3B.20, TYP.
5. BIKE LANE DELINEATING LINE, 6" WHITE EPOXY
6. ON STREET PARKING DELINEATING LINE, 4" WHITE EPOXY
7. YIELD TRIANGLES, PER CITY OF MISSOULA STD-730
8. BIKE LANE SYMBOL, WHITE EPOXY PER MUTCD CHAPTER 9C

PEDESTRIAN STRIPING DIMENSIONS WITH STOP BAR



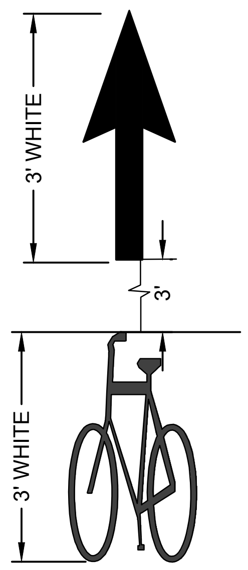
CENTERLINE DIMENSIONS

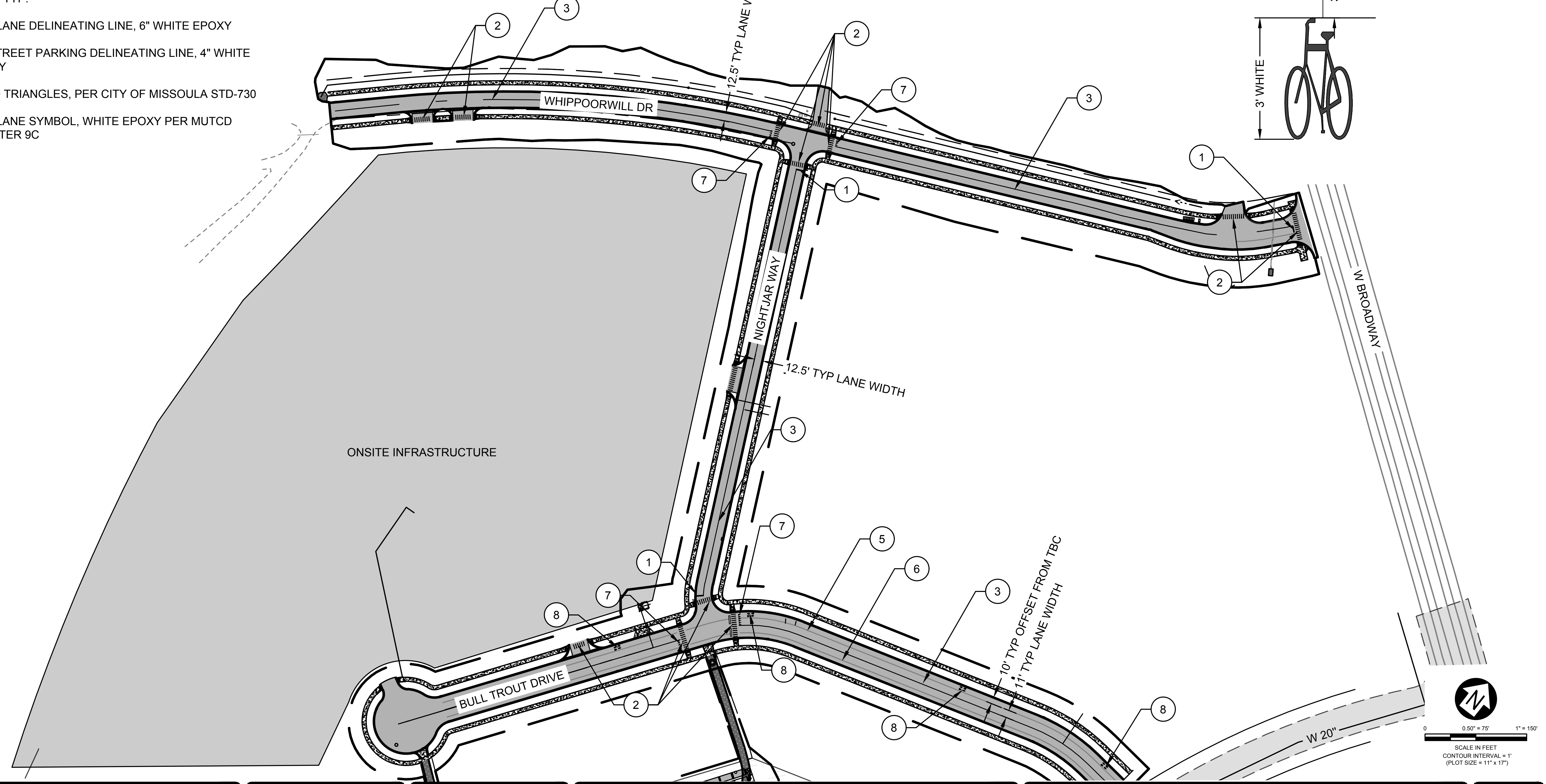
DELINEATING LINE DIMENSIONS



4" WHITE (PARKING)
6" WHITE (BIKE)

BIKE LANE SYMBOL





0 0.50" = 75' 1" = 150'
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

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-	-	-
-	-	-

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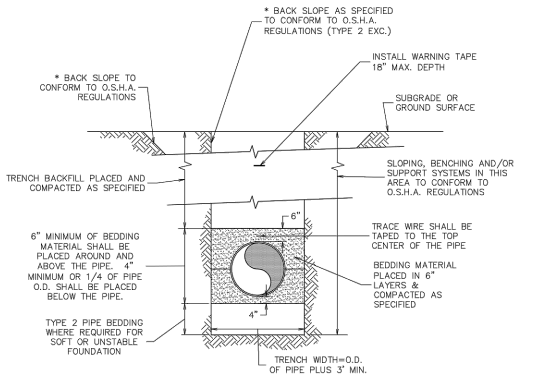
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

PAVEMENT STRIPING PLAN

SHEET 67 OF 105

10/13/26 14:17 KYLE.DRUYVESTEIN C:\DJA-PWWORK\DJA-PROD\DMS72465\C8.0 TRAFFIC CONTROL-STRIPING.DWG;

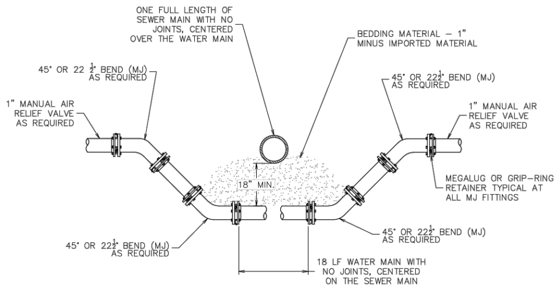

* BACK SLOPE AS SPECIFIED TO CONFORM TO O.S.H.A. REGULATIONS (TYPE 2 EXC.)
INSTALL WARNING TAPE 18" MAX. DEPTH
* BACK SLOPE TO CONFORM TO O.S.H.A. REGULATIONS
SUBGRADE OR GROUND SURFACE
TRENCH BACKFILL PLACED AND COMPACTED AS SPECIFIED
SLOPING, BENCHING AND/OR SUPPORT SYSTEMS IN THIS AREA TO CONFORM TO O.S.H.A. REGULATIONS
6"
6" MINIMUM OF BEDDING MATERIAL SHALL BE PLACED AROUND AND ABOVE THE PIPE. 4" MINIMUM OR 1/4 OF PIPE O.D. SHALL BE PLACED BELOW THE PIPE.
TRACE WIRE SHALL BE TAPED TO THE TOP CENTER OF THE PIPE
BEDDING MATERIAL PLACED IN 6" LAYERS & COMPACTED AS SPECIFIED
4"
TYPE 2 PIPE BEDDING WHERE REQUIRED FOR SOFT OR UNSTABLE FOUNDATION
TRENCH WIDTH=O.D. OF PIPE PLUS 3' MIN.

* SEE O.S.H.A. CONSTRUCTION STANDARDS FOR EXCAVATIONS, SECTION 1926, SUBPART P.

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2–A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. CASING PIPE (IF ANY) INSTALLED BY TRENCH CONSTRUCTION METHODS SHALL BE BEDDED AS SHOWN IN THIS DETAIL.

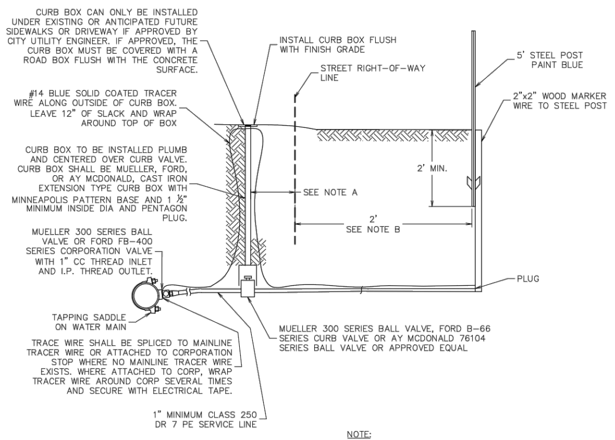
Engineering Division
Typical Utility Trench Detail
Logan McInnis
Approved By
Utilities Engineer
Logan McInnis, PE
Adopted: 09/28/2020
Revised: 01/01/2023
STD - 401


ONE FULL LENGTH OF SEWER MAIN WITH NO JOINTS, CENTERED OVER THE WATER MAIN
BEDDING MATERIAL – 1" MINUS IMPORTED MATERIAL
45° OR 22 ½° BEND (MJ) AS REQUIRED
45° OR 22½° BEND (MJ) AS REQUIRED
1" MANUAL AIR RELIEF VALVE AS REQUIRED
1" MANUAL AIR RELIEF VALVE AS REQUIRED
18" MIN.
MEGALUG OR GRIP–RING RETAINER TYPICAL AT ALL MJ FITTINGS
45° OR 22½° BEND (MJ) AS REQUIRED
45° OR 22½° BEND (MJ) AS REQUIRED
18 LF WATER MAIN WITH NO JOINTS, CENTERED ON THE SEWER MAIN

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2–A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.

Engineering Division
Typical Water Main Crossing @ Sewer Mains
Logan McInnis
Approved By
Utilities Engineer
Logan McInnis, PE
Adopted: 09/28/2020
Revised: 01/01/2023
STD - 402


CURB BOX CAN ONLY BE INSTALLED UNDER EXISTING OR ANTICIPATED FUTURE SIDEWALKS OR DRIVEWAY IF APPROVED BY CITY UTILITY ENGINEER. IF APPROVED, THE CURB BOX MUST BE COVERED WITH A ROAD BOX FLUSH WITH THE CONCRETE SURFACE.
INSTALL CURB BOX FLUSH WITH FINISH GRADE
STREET RIGHT–OF–WAY LINE
5' STEEL POST PAINT BLUE
2"x2" WOOD MARKER WIRE TO STEEL POST
#14 BLUE SOLID COATED TRACER WIRE ALONG OUTSIDE OF CURB BOX. LEAVE 12" OF SLACK AND WRAP AROUND TOP OF BOX
CURB BOX TO BE INSTALLED PLUMB AND CENTERED OVER CURB VALVE. CURB BOX SHALL BE MUELLER, FORD, OR AY MCDONALD, CAST IRON EXTENSION TYPE CURB BOX WITH MINNEAPOLIS PATTERN BASE AND 1 ½" MINIMUM INSIDE DIA AND PENTAGON PLUG.
2' MIN.
SEE NOTE A
2'
SEE NOTE B
MUELLER 300 SERIES BALL VALVE OR FORD FB–400 SERIES CORPORATION VALVE WITH 1" CC THREAD INLET AND I.P. THREAD OUTLET.
PLUG
TAPPING SADDLE ON WATER MAIN
MUELLER 300 SERIES BALL VALVE, FORD B–66 SERIES CURB VALVE OR AY MCDONALD 76104 SERIES BALL VALVE OR APPROVED EQUAL
TRACE WIRE SHALL BE SPLICED TO MAINLINE TRACER WIRE OR ATTACHED TO CORPORATION STOP WHERE NO MAINLINE TRACER WIRE EXISTS. WHERE ATTACHED TO CORP, WRAP TRACER WIRE AROUND CORP SEVERAL TIMES AND SECURE WITH ELECTRICAL TAPE.
1" MINIMUM CLASS 250 DR 7 PE SERVICE LINE

NOTE:

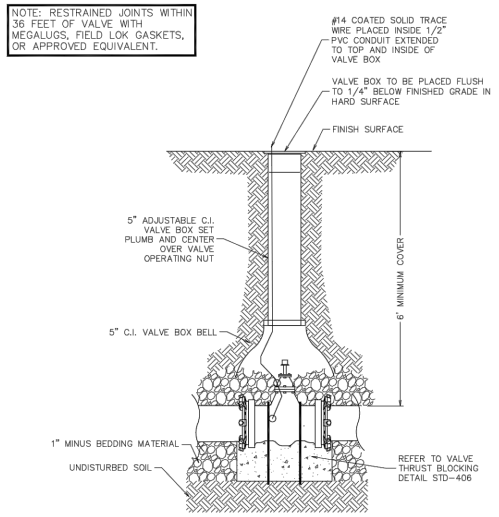
- A. INSTALL CURB BOX IN MIDDLE OF BOULEVARD WHERE APPLICABLE OR 2' FROM EDGE OF RIGHT–OF–WAY
- B. WHERE THERE IS A UTILITY EASEMENT ADJACENT TO THE RIGHT–OF–WAY, METER PIT CAN BE LOCATED 2' ON THE HOUSE SIDE OF THE EASEMENT.

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2–A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. WATER SERVICES SHALL BE BURIED A MINIMUM OF 6' DEEP.
3. FOR WATER SERVICES STUBS LARGER THAN 2" SEE CITY STANDARD DETAIL STD–413.
4. IF PROPERTY DOES NOT FRONT A STREET WITH A WATER MAIN, CONTACT CITY FOR SPECIFIC REQUIREMENTS RELATED TO EASEMENTS.
5. SERVICE LINE SHALL END AT WOOD POST. NO ABOVE GROUND WHIPS ALLOWED. IT IS THE INSTALLER'S RESPONSIBILITY TO REMOVE AIR FROM THE SERVICE LINES AS NECESSARY.
6. WATER SERVICE STUBS SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS OR AS SPECIFIED BY CITY ENGINEERING.

Engineering Division
Typical Residential Water Service Stub Detail
Logan McInnis
Approved By
Utilities Engineer
Logan McInnis, PE
Adopted: 09/28/2020
Revised: 01/01/2023
STD - 404B

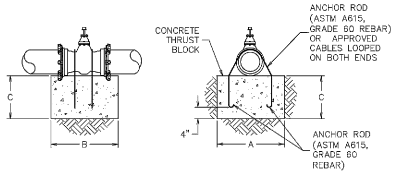
NOTE: RESTRAINED JOINTS WITHIN 36 FEET OF VALVE WITH MEGALUGS, FIELD LOK GASKETS, OR APPROVED EQUIVALENT.


#14 COATED SOLID TRACE WIRE PLACED INSIDE 1/2" PVC CONDUIT EXTENDED TO TOP AND INSIDE OF VALVE BOX
VALVE BOX TO BE PLACED FLUSH TO 1/4" BELOW FINISHED GRADE IN HARD SURFACE
FINISH SURFACE
5" ADJUSTABLE C.I. VALVE BOX SET PLUMB AND CENTER OVER VALVE OPERATING NUT
6' MINIMUM COVER
5" C.I. VALVE BOX BELL
1" MINUS BEDDING MATERIAL
UNDISTURBED SOIL
REFER TO VALVE THRUST BLOCKING DETAIL STD–406

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2–A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.

Engineering Division
Valve Detail
Logan McInnis
Approved By
Utilities Engineer
Logan McInnis, PE
Adopted: 09/28/2020
Revised: 01/01/2023
STD - 405


CONCRETE THRUST BLOCK
ANCHOR ROD (ASTM A615, GRADE 60 REBAR) OR APPROVED CABLES LOOPED ON BOTH ENDS
C
B
C
4"
A
ANCHOR ROD (ASTM A615, GRADE 60 REBAR)

STANDARD THRUST BLOCK DIMENSIONS

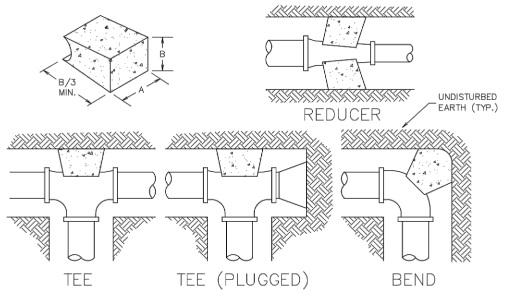
ANCHOR ROD SIZE	VALVE SIZE	100 PSI			150 PSI			200 PSI			250 PSI			300 PSI	
		"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"
3/4"	6" & 8"	2'–0"	2'–0"	2'–0"	2'–0"	2'–0"	2'–0"	2'–0"	2'–0"	2'–0"	2'–0"	2'–0"	2'–0"	2'–0"	2'–0"
3/4"	10"	2'–0"	2'–0"	2'–0"	2'–6"	2'–6"	2'–0"	2'–9"	2'–6"	2'–6"	3'–0"	3'–0"	3'–0"	3'–7"	3'–0"
3/4"	12"	2'–3"	2'–0"	2'–0"	3'–0"	3'–0"	2'–8"	3'–5"	3'–0"	3'–0"	4'–3"	3'–0"	3'–0"	5'–1"	3'–0"
1"	14"	2'–3"	2'–0"	2'–4"	3'–5"	3'–0"	3'–0"	4'–6"	3'–0"	3'–0"	4'–0"	4'–0"	4'–0"	4'–9"	4'–0"
1 1/8"	16"	3'–0"	3'–0"	2'–11"	4'–4"	3'–0"	3'–0"	4'–1"	4'–0"	4'–0"	5'–1"	4'–0"	4'–0"	6'–1"	4'–0"
1 1/4"	18"	3'–8"	3'–0"	3'–0"	5'–5"	3'–0"	3'–0"	5'–1"	4'–0"	4'–0"	6'–4"	4'–0"	4'–0"	5'–9"	5'–0"
1 3/8"	24"	4'–4"	4'–0"	4'–0"	6'–5"	4'–0"	4'–0"	6'–6"	5'–0"	5'–0"	6'–5"	6'–0"	6'–0"	7'–8"	6'–0"

NOTE: PRESSURES SHOWN ABOVE ARE MAXIMUM WORKING PRESSURE IN SYSTEM.

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2–A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. DIAGRAM DEPICTS GATE VALVES ONLY, VALVES 12 INCH AND LARGER TO BE BUTTERFLY, AND INSTALLED PER MANUFACTURERS RECOMMENDATIONS WITH BLOCKS CENTERED UNDER LOAD BEARING PORTION OF VALVE.
3. STEEL CABLE (3/4" MINIMUM DIA. OR AS APPROVED BY THE ENGINEER) W/ANCHOR BOLTS MAY BE SUBSTITUTED FOR ANCHOR ROD.

Engineering Division
Valve Thrust Blocking Detail
Logan McInnis
Approved By
Utilities Engineer
Logan McInnis, PE
Adopted: 09/28/2020
Revised: 01/01/2023
STD - 406



DIMENSIONS FOR THRUST BLOCKING								
FITTING SIZES	TEES & PLUGS		90° BEND		45° BEND & WYES		REDUCERS & 22 1/2" BEND	
	A	B	A	B	A	B	A	B
4" & 6"	2'–0"	1'–11"	2'–5"	2'–2"	1'–10"	1'–7"	1'–9"	0'–10"
8"	2'–8"	2'–6"	3'–2"	3'–0"	2'–5"	2'–1"	1'–9"	1'–6"
10"	4'–0"	3'–3"	4'–0"	3'–10"	3'–0"	2'–9"	2'–2"	1'–11"
12"	4'–0"	3'–10"	4'–8"	4'–8"	3'–8"	3'–3"	2'–7"	2'–3"
16"	4'–6"	4'–0"	5'–0"	4'–8"	4'–0"	3'–0"	3'–0"	2'–6"
20"	5'–0"	5'–0"	7'–0"	5'–0"	4'–6"	4'–0"	3'–0"	3'–0"
24"	6'–10"	5'–0"	10'–0"	5'–0"	5'–8"	4'–6"	3'–8"	3'–8"

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2–A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. THIS TABLE IS BASED ON 2000 PSF SOIL BEARING PRESSURE AND 150 PSI MAIN PRESSURE.
3. WRAP ALL FITTINGS WITH POLYETHLENE PRIOR TO PLACING CONCRETE.

Engineering Division
Thrust Block Detail
Logan McInnis
Approved By
Utilities Engineer
Logan McInnis, PE
Revised: 01/01/2023
STD - 407

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

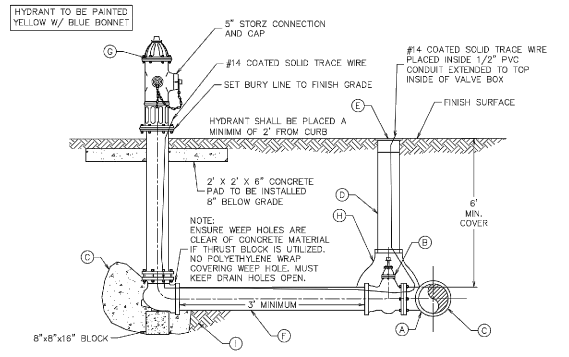
DESIGNER KD
DRAWN KD
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONSTRUCTION DETAILS - WATER

SHEET
68 OF 105


HYDRANT TO BE PAINTED YELLOW W/ BLUE BONNET
5" STORZ CONNECTION AND CAP
#14 COATED SOLID TRACE WIRE
SET BURY LINE TO FINISH GRADE
#14 COATED SOLID TRACE WIRE PLACED INSIDE 1/2" PVC CONDUIT EXTENDED TO TOP INSIDE OF VALVE BOX
FINISH SURFACE
HYDRANT SHALL BE PLACED A MINIMIM OF 2' FROM CURB
2' X 2' X 6" CONCRETE PAD TO BE INSTALLED 8" BELOW GRADE
NOTE: ENSURE WEEP HOLES ARE CLEAR OF CONCRETE MATERIAL IF THRUST BLOCK IS UTILIZED. NO POLYETHYLENE WRAP COVERING WEEP HOLE. MUST KEEP DRAIN HOLES OPEN.
6' MIN. COVER
3' MINIMUM
8"x8"x16" BLOCK
A
B
C
D
E
F
G
H
I

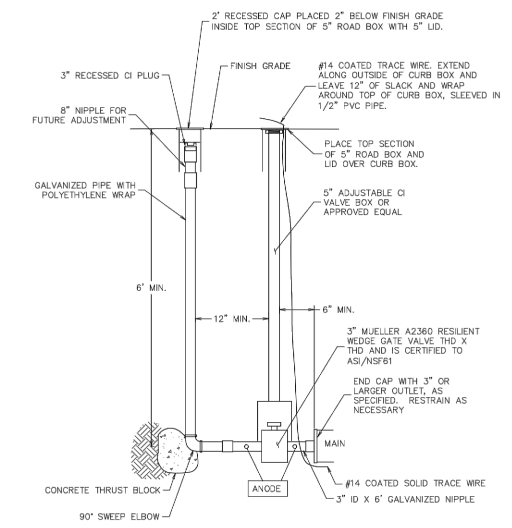
Ⓐ APPROPRIATE SIZE X 6" SWIVEL OR MJ TEE AS REQUIRED.
Ⓑ 6" MJ GATE VALVE--MUELLER OR APPROVED EQUAL
Ⓒ CONCRETE THRUST BLOCK IN ADDITION TO MEGALUG OR TIE-BOLT RESTRAINTS.
Ⓓ 5" ADJUSTABLE C.I. VALVE BOX
Ⓔ 5" VALVE BOX LID
Ⓕ 6" DUCTILE IRON PIPE WITH #14 COATED SOLID TRACE WIRE
Ⓖ 6" MUELLER CENTURION HYDRANT ASSEMBLY--MJ OR FLANGED (AS REQUIRED)
Ⓗ 5" C.I. VALVE BOX BELL
Ⓘ PROVIDE IN ALL SOILS 1/2YD MIN. OF 3/4" CRUSHED ROCK. IN CLAY SOILS, PROVIDE 1 YD MIN.

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. DUCTILE IRON PIPE, INCLUDING HYDRANT BARREL, SHALL BE WRAPPED WITH 8 MIL POLYETHYLENE.
3. IF MAIN IS BELOW OR ABOVE STANDARD DEPTH, USE BENDS AS REQUIRED TO INSURE THAT THE HYDRANT IS PLACED ABOVE GRADE AS SHOWN. PLACE BENDS BETWEEN HYDRANT VALVE & MAIN TO RAISE VALVE TO NORMAL DEPTH WHEN MAIN IS BELOW DEPTH SHOWN.
4. ALL JOINTS ON HYDRANT LEADS SHALL BE RESTRAINED.
5. HYDRANT EXTENSIONS WILL ONLY BE ALLOWED WITH WRITTEN PERMISSION FROM MISSOULA WATER.

MISSOULA
Engineering Division
Hydrant Detail
Approved By
Utilities Engineer
Logan McInnis, PE
Adopted: 09/28/2020
Revised: 01/01/2024
STD - 408

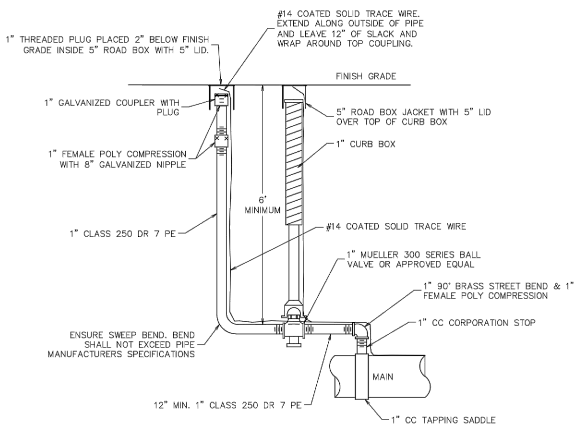
NOTE: NO UNRESTRAINED JOINTS WITHIN 36 FEET OF BLOWOFF


2' RECESSED CAP PLACED 2" BELOW FINISH GRADE INSIDE TOP SECTION OF 5" ROAD BOX WITH 5" LID.
3" RECESSED CI PLUG
FINISH GRADE
#14 COATED TRACE WIRE. EXTEND ALONG OUTSIDE OF CURB BOX AND LEAVE 12" OF SLACK AND WRAP AROUND TOP OF CURB BOX, SLEEVED IN 1/2" PVC PIPE.
8" NIPPLE FOR FUTURE ADJUSTMENT
PLACE TOP SECTION OF 5" ROAD BOX AND LID OVER CURB BOX.
GALVANIZED PIPE WITH POLYETHYLENE WRAP
5" ADJUSTABLE CI VALVE BOX OR APPROVED EQUAL
6' MIN.
12" MIN.
6" MIN.
3" MUELLER A2360 RESILIENT WEDGE GATE VALVE THD X THD AND IS CERTIFIED TO ASI/NSF61
END CAP WITH 3" OR LARGER OUTLET, AS SPECIFIED. RESTRAIN AS NECESSARY
MAIN
ANODE
CONCRETE THRUST BLOCK
#14 COATED SOLID TRACE WIRE
3" ID X 6' GALVANIZED NIPPLE
90° SWEEP ELBOW

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. ROAD BOXES TO BE PLACED FLUSH TO 1/4" BELOW FINISHED GRADE IN HARD SURFACE.

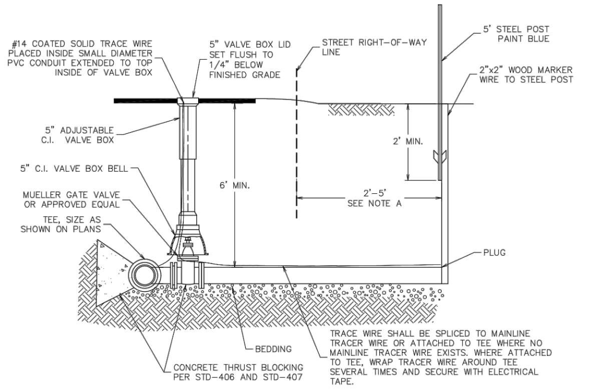
MISSOULA
Engineering Division
Typical Blow-Off Assembly
Approved By
Utilities Engineer
Logan McInnis, PE
Adopted: 09/28/2020
Revised: 01/01/2023
STD - 409


1" THREADED PLUG PLACED 2" BELOW FINISH GRADE INSIDE 5" ROAD BOX WITH 5" LID.
#14 COATED SOLID TRACE WIRE. EXTEND ALONG OUTSIDE OF PIPE AND LEAVE 12" OF SLACK AND WRAP AROUND TOP COUPLING.
FINISH GRADE
1" GALVANIZED COUPLER WITH PLUG
5" ROAD BOX JACKET WITH 5" LID OVER TOP OF CURB BOX
1" CURB BOX
1" FEMALE POLY COMPRESSION WITH 8" GALVANIZED NIPPLE
6' MINIMUM
1" CLASS 250 DR 7 PE
#14 COATED SOLID TRACE WIRE
1" MUELLER 300 SERIES BALL VALVE OR APPROVED EQUAL
1" 90° BRASS STREET BEND & 1" FEMALE POLY COMPRESSION
1" CC CORPORATION STOP
ENSURE SWEEP BEND. BEND SHALL NOT EXCEED PIPE MANUFACTURERS SPECIFICATIONS
MAIN
12" MIN. 1" CLASS 250 DR 7 PE
1" CC TAPPING SADDLE

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. WHERE AIR RELIEF VALVES (ARVs) ARE IDENTIFIED ON THE PLANS AS TEMPORARY, TRACER WIRE IS NOT REQUIRED AND ALL MATERIALS CAN BE SALVAGED AFTER THE CORP IS CLOSED, THE LINE IS CAPPED WITH A BRASS CAP AND FITTINGS ARE WRAPPED IN 10-MIL TAPE.
3. ROAD BOX TO BE PLACED FLUSH TO 1/4" BELOW FINISHED GRADE IN HARD SURFACE

MISSOULA
Engineering Division
Manual Air Relief Detail
Approved By
Utilities Engineer
Logan McInnis, PE
Revised: 01/01/2023
STD - 410

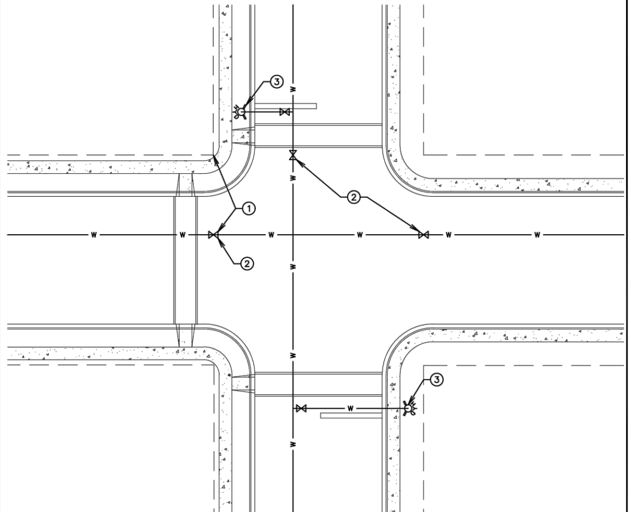

#14 COATED SOLID TRACE WIRE PLACED INSIDE SMALL DIAMETER PVC CONDUIT EXTENDED TO TOP INSIDE OF VALVE BOX
5" VALVE BOX LID SET FLUSH TO 1/4" BELOW FINISHED GRADE
STREET RIGHT-OF-WAY LINE
5' STEEL POST PAINT BLUE
2"x2" WOOD MARKER WIRE TO STEEL POST
5" ADJUSTABLE C.I. VALVE BOX
2' MIN.
5" C.I. VALVE BOX BELL
6' MIN.
2'-5' SEE NOTE A
MUELLER GATE VALVE OR APPROVED EQUAL
TEE, SIZE AS SHOWN ON PLANS
PLUG
BEDDING
CONCRETE THRUST BLOCKING PER STD-406 AND STD-407
TRACE WIRE SHALL BE SPLICED TO MAINLINE TRACER WIRE OR ATTACHED TO TEE WHERE NO MAINLINE TRACER WIRE EXISTS. WHERE ATTACHED TO TEE, WRAP TRACER WIRE AROUND TEE SEVERAL TIMES AND SECURE WITH ELECTRICAL TAPE.

NOTE:
A. WHERE THERE IS A UTILITY EASEMENT ADJACENT TO THE RIGHT-OF-WAY, METER PIT CAN BE LOCATED 2' ON THE BUILDING SIDE OF THE EASEMENT.

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. FOR COMMERCIAL SERVICES SMALLER THAN 4", SEE CITY STANDARD DETAIL STD-404B.
3. VALVE SHALL REMAIN CLOSED UNTIL CONNECTION TO THE BUILDING.
4. WATER SERVICES SHALL BE BURIED A MINIMUM OF 6' DEEP.
5. IF PROPERTY DOES NOT FRONT A STREET WITH A WATER MAIN, CONTACT CITY FOR SPECIFIC REQUIREMENTS RELATED TO EASEMENTS.
6. SERVICE LINE SHALL END AT WOOD POST. IT IS THE INSTALLER'S RESPONSIBILITY TO REMOVE AIR FROM THE SERVICE LINES AS NECESSARY.
7. WATER SERVICE STUBS SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS OR AS SPECIFIED BY CITY ENGINEERING.
8. 4" AND LARGER STUBS ARE TO BE PRESSURE TESTED TO END OF PIPE, NOT TO GATE VALVE.

MISSOULA
Engineering Division
Typical 4-Inch and Larger Water Service Stub Detail
Approved By
Utilities Engineer
Logan McInnis, PE
Revised: 01/01/2023
STD - 413



KEYED NOTES:

① WATER MAIN VALVES SHALL BE MECHANICAL JOINT AND SHOULD BE PLACED IN LINE WITH THE RIGHT-OF-WAY LINES BUT NO FURTHER THAN 15 FEET FROM THE CURB PC AND NOT WITHIN A CROSSWALK.

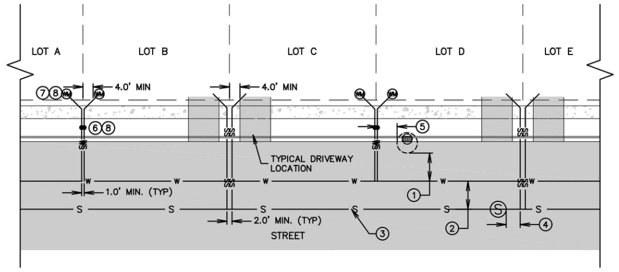
② VALVES SHALL BE INSTALLED IN AT LEAST TWO DIRECTIONS AT EACH TEE AND IN AT LEAST THREE DIRECTIONS AT EACH CROSS. VALVES SHALL HAVE MECHANICAL JOINTS. VALVES SHALL BE PLACED SO THAT ONLY A SINGLE FIRE HYDRANT IS OUT OF SERVICE WHEN THE MAIN IS SHUTDOWN.

③ FIRE HYDRANTS SHOULD BE LOCATED 3 FT FROM EDGE OF LAYDOWN AND A MINIMUM OF 5 FT FROM VALVE. PUMPER NOZZLE NUT SHALL BE A MINIMUM OF 2 FT FROM THE TOP BACK OF CURB OR SIDEWALK WHERE SIDEWALK IS LOCATED ADJACENT TO THE CURB. FIRE HYDRANT SHALL BE LOCATED NO FURTHER THAN 12 FT FROM THE CURB. MINIMUM ROAD WIDTH AT A HYDRANT SHALL BE 26 FT.

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.

MISSOULA
Engineering Division
Typical Valve Location Detail
Approved By
Utilities Engineer
Logan McInnis, PE
Adopted:
Revised: 01/01/2023
STD - 415



GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. WET UTILITY MAIN ALIGNMENTS SHOULD PARALLEL THE STREET RIGHT-OF-WAY TO MAXIMIZE RIGHT-OF-WAY AVAILABLE FOR FUTURE UTILITIES. ADDITIONAL SANITARY SEWER AND STORM WATER MANHOLES WILL LIKELY BE REQUIRED ON CURVES.
3. WET UTILITY S'ERVICE LINES SHALL BE PERPENDICULAR TO THE MAIN.
4. WET UTILITY MAINS AND SERVICE LINES SHALL NOT BE LOCATED IN BIOSWALES
5. STREET TREES SHALL NOT BE INSTALLED WITHIN 10 FEET OF WET UTILITY MAINS, AS MEASURED FROM CENTER OF TREE TO CENTER OF PIPE.
6. AS AN ALTERNATIVE TO THE WATER AND SEWER SERVICE LAYOUT SHOWN, WATER AND SEWER SERVICE LINES CAN BE INSTALLED IN THE SAME TRENCH AS A WAY TO PRESERVE MORE ROOM FOR STREET TREES. WATER AND SEWER SERVICES SHALL BE SEPARATED BY 1.0' MINIMUM.

LEGEND-PROPOSED

——W——	WATER MAIN
——WS——	WATER SERVICE
——S——	SANITARY SEWER MAIN
——SS——	SANITARY SEWER SERVICE
— — — —	PROPERTY LINE
●	CURB BOX
WM	METER PIT
Ⓢ	SANITARY SEWER MANHOLE
◎	DRY WELL

KEYED NOTES:

① NO WATER MAIN SHALL BE WITHIN 5 FEET OF THE NEAREST POINT OF ANY SANITARY OR STORM MANHOLE OR DRY WELL. THE DISTANCE TO A DRY WELL SHALL BE MEASURED TO THE EDGE OF THE STRUCTURE. WATER MAINS CLOSER THAN 10 FEET FROM A DRY WELL WILL REQUIRE A DEVIATION FROM DEQ. NO SEWER MAIN SHALL BE WITHIN 5 FEET OF THE NEAREST POINT OF ANY STORM MANHOLE, CATCH BASIN OR DRY WELL. THE DISTANCE TO A DRY WELL SHALL BE MEASURED TO THE EDGE OF THE STRUCTURE.

② WATER AND SEWER MAINS SHALL BE SEPARATED BY A MINIMUM OF 10 FEET AS MEASURED FROM EDGE OF PIPE TO EDGE OF PIPE.

③ MANHOLES SHOULD BE LOCATED IN THE CENTERLINE OF THE ROAD OR THE CENTER OF THE DRIVE LANE.

④ SEWER SERVICE LINES SHALL BE LOCATED A MINIMUM OF 5 FEET FROM EDGE OF MANHOLE.

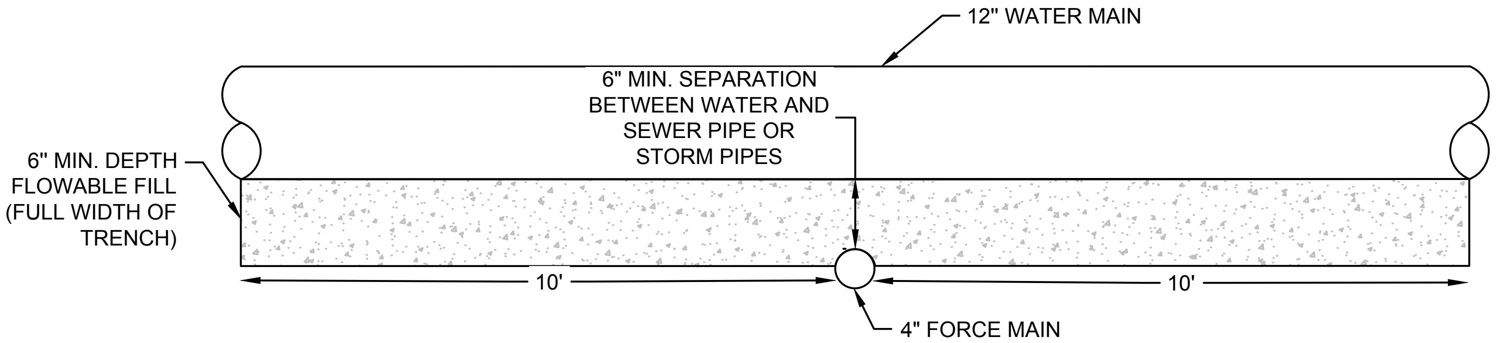
⑤ WATER SERVICE LINES SHALL BE LOCATED A MINIMUM OF 7 FEET FROM EDGE OF DRY WELL CONCRETE STRUCTURE.

⑥ CURB BOXES SHALL BE LOCATED IN THE CENTER OF THE BOULEVARD WHERE APPLICABLE OR 2 FEET FROM EDGE OF RIGHT-OF-WAY.

⑦ METER PITS SHALL BE LOCATED 2 TO 5 FEET ON THE PROPERTY SIDE OF THE RIGHT-OF-WAY LINE OR AS SHOWN IN DETAIL STD-404A.

⑧ CURB BOXES AND METER PITS SHALL NOT BE INSTALLED WITHIN SIDEWALKS OR TRAFFIC AREAS WITHOUT PRIOR APPROVAL BY CITY UTILITY ENGINEER.

MISSOULA
Engineering Division
Typical Service Line Location Detail
Approved By
Utilities Engineer
Logan McInnis, PE
Adopted:
Revised: 01/01/2023
STD - 416


12" WATER MAIN
6" MIN. SEPARATION BETWEEN WATER AND SEWER PIPE OR STORM PIPES
6" MIN. DEPTH FLOWABLE FILL (FULL WIDTH OF TRENCH)
10'
10'
4" FORCE MAIN

NOTES (BASED ON MDEQ-1, SECTION 8.8.3 AND MDEQ-2, SECTION 38.32):

1. SEWERS MUST BE CONSTRUCTED OF SLIP ON OR MECHANICAL JOINT PIPE COMPLYING WITH PUBLIC WATER SUPPLY DESIGN STANDARDS AND PRESSURE TESTED TO A MINIMUM OF 150 PSI TO ASSUME WATER TIGHTNESS.

2. AT CROSSINGS, ONE STANDARD LENGTH OF PIPE MUST BE CENTERED AT APPROXIMATELY 90° ANGLE IN RESPECT TO THE EXISTING PIPE.

3. SEWER SERVICES UTILIZING IN-LINE FITTINGS AND EXTENDED TO PROPERTY LINES, OR BEYOND, MUST BE INSTALLED AND TESTED WITHIN 10' OF THE CROSSING. SADDLES ARE NOT ACCEPTABLE.

4. CONTRACTOR TO ENSURE THAT ALL REQUIREMENTS IN MDEQ-1, SECTION 8.8.3 AND MDEQ-2, SECTION 38.32 ARE MET.

1 PIPE CROSSING FLOWABLE FILL DETAIL
69 NTS

6/4/26 15:33 TYLER.PALLEN C:\DJA-PW\WORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

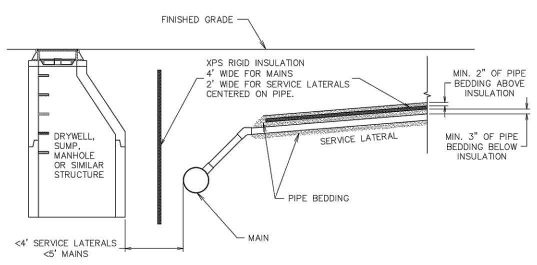
DESIGNER KD
PROJ. NO. 7486
DRAWN KD
DATE 10.23.2026
CHECKED KG
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONSTRUCTION DETAILS - WATER

SHEET
69 OF 105


FINISHED GRADE
XPS RIGID INSULATION
4' WIDE FOR MAINS
2' WIDE FOR SERVICE LATERALS
CENTERED ON PIPE.
MIN. 2" OF PIPE BEDDING ABOVE INSULATION
DRYWELL, SUMP, MANHOLE OR SIMILAR STRUCTURE
SERVICE LATERAL
MIN. 3" OF PIPE BEDDING BELOW INSULATION
PIPE BEDDING
MAIN
<4' SERVICE LATERALS
<5' MAINS

FLOWABLE FILL NOTES:

1. IF THE INSTALLATION INVOLVES INSTALLING OR EXPOSING THE WATER MAIN, THE WATER MAIN SHOULD BE ENCASED IN A MINIMUM OF 6 INCHES OF FLOWABLE FILL ABOVE AND BELOW THE MAIN, EXTENDING 10 FEET ALONG THE WATER MAIN IN BOTH DIRECTIONS FROM THE LOCATION NOT MEETING SEPARATION REQUIREMENTS. IF THE SUMP ROCK IS LESS THAN 6 FEET FROM THE WATER MAIN, A 4-FOOT X 8-FOOT X 2-INCH-THICK SHEET OF INSULATION SHOULD ALSO BE INSTALLED VERTICALLY AT THE EDGE OF THE DRY WELL EXCAVATION NEAREST THE WATER MAIN. THE LONG DIMENSION OF THE INSULATION SHOULD BE IN THE VERTICAL DIRECTION

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2–A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. INSULATION IS REQUIRED WHEN A SANITARY SEWER PIPE IS LESS THAN 4 FEET FOR A SERVICE LATERAL, AND LESS THAN 5 FEET FOR A SEWER MAIN, FROM FINISHED GRADE, A DRYWELL SUMP, IRRIGATION PIPE OR ANY STRUCTURE THAT HAS THE POTENTIAL TO TRANSFER COLD OR PROMOTE FREEZING.
3. PROVIDE TWO INCHES OF INSULATION THICKNESS, EQUIVALENT TO AN R–VALUE OF 10, PER FOOT OF MISSING COVER OR VOID SPACE LESS THAN FIVE FEET.
4. USE A HIGH DENSITY, RIGID INSULATION (PINK BOARD) WITH 35 PSI OR GREATER RATING IN TRAFFIC AREAS.

Engineering Division

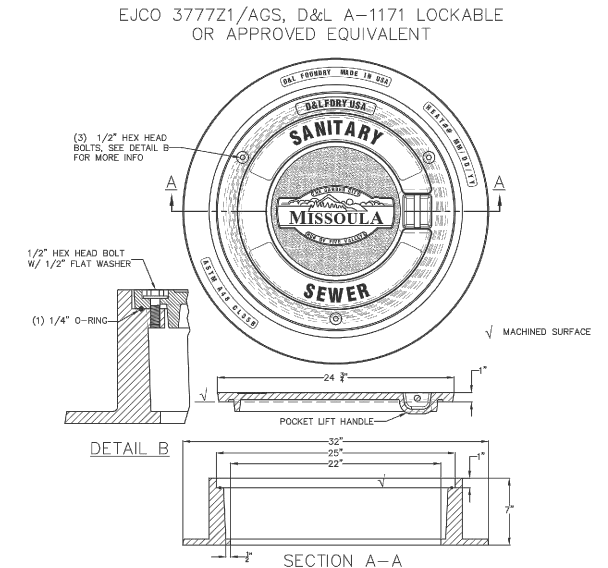
Sanitary Sewer Service and Main Insulation Requirements

Ross Mollenhauer

Approved By Utility
Project Manager –
Ross Mollenhauer, PE

Revised: 01/01/2023

STD - 500



GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2–A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. D&L FOUNDRY A–1171 BOLT DOWN, WATER TIGHT LIDS ARE REQUIRED FOR ALL CITY–OWNED AND PRIVATELY–OWNED MANHOLES. PRIVATELY OWNED MANHOLES SHALL BE TEXTURED SLIP RESISTANT LID WITHOUT CITY LOGO AND LABELED WITH THE WORDS "SANITARY SEWER".
3. PROVIDE LIDS AND RINGS THAT MEET AASHTO 306 HS20 LOADING RATING OR HIGHER.
4. COMPOSITE TAPERED GRADE RINGS SHALL BE USED TO MATCH FRAME & GRATE TO THE CURB LINE CROSS SLOPE AND RUNNING SLOPE OR STREET CROSS SLOPE AND RUNNING SLOPE WHERE NOT IN CONCRETE.
5. A 4–INCH MANHOLE RING MAY BE USED IN LIEU OF A 7–INCH RING ONLY WITH PRIOR APPROVAL FROM CITY ENGINEERING.

Engineering Division

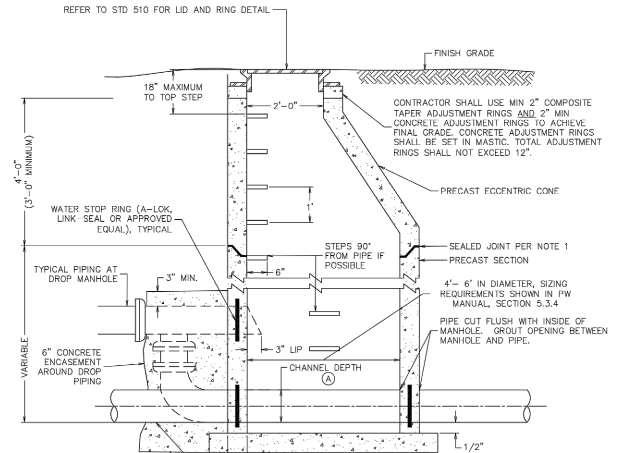
Sanitary Sewer Lid

Ross Mollenhauer

Approved By Utility
Project Manager –
Ross Mollenhauer, PE

Adopted: 09/28/2020
Revised: 01/01/2023

STD - 510


REFER TO STD 510 FOR LID AND RING DETAIL
FINISH GRADE
18" MAXIMUM TO TOP STEP
2'–0"
CONTRACTOR SHALL USE MIN 2" COMPOSITE TAPER ADJUSTMENT RINGS AND 2" MIN CONCRETE ADJUSTMENT RINGS TO ACHIEVE FINAL GRADE. CONCRETE ADJUSTMENT RINGS SHALL BE SET IN MASTIC. TOTAL ADJUSTMENT RINGS SHALL NOT EXCEED 12".
4'–0" (3'–0" MINIMUM)
PRECAST ECCENTRIC CONE
1'
WATER STOP RING (A–LOK, LINK–SEAL OR APPROVED EQUAL), TYPICAL
STEPS 90° FROM PIPE IF POSSIBLE
SEALED JOINT PER NOTE 1
PRECAST SECTION
TYPICAL PIPING AT DROP MANHOLE
3" MIN.
6"
4'– 6' IN DIAMETER, SIZING REQUIREMENTS SHOWN IN PW MANUAL, SECTION 5.3.4
PIPE CUT FLUSH WITH INSIDE OF MANHOLE. GROUT OPENING BETWEEN MANHOLE AND PIPE.
VARIABLE
6" CONCRETE ENCASEMENT AROUND DROP PIPING
3" LIP
CHANNEL DEPTH
A
1/2"
4" MIN, SIZING REQUIREMENTS SHOWN IN PW MANUAL, SECTION 5.3.4
TYPICAL PIPING AT STANDARD MANHOLE, REFER TO PW MANUAL SECTION 5.3.4 FOR FALL ACROSS MANHOLE

NOTE:

Ⓐ 8–INCH DIAMETER SEWER MAINS AND SMALLER SHALL HAVE A FLOW CHANNEL FORMED AT LEAST TO THE SPRING LINE OF THE PIPE. PIPES GREATER THAN 8" IN DIAMETER SHALL HAVE FLOW CHANNELS FORMED TO THE FULL HEIGHT OF THE CROWN OF THE OUTLET SEWER.

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2–A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. ALL JOINTS BETWEEN MANHOLE SECTIONS, ADJUSTING RINGS, MANHOLE RING AND TOP SECTION, SHALL BE WATERTIGHT. JOINTING MATERIAL SHALL BE "CONSEAL" OR EQUAL.
3. CONCRETE FOR DROP STRUCTURES SHALL BE FORMED.
4. FLAT–TOP BARREL SHALL BE USED WHEN DISTANCE FROM TOP OF PIPE TO RIM IS LESS THAN 5–FEET.
5. BOLT–DOWN LIDS WILL BE REQUIRED AS PER STD 510. DUSTPANS ARE NOT REQUIRED WITH BOLT–DOWN LIDS.
6. ADDITIONAL FLEX–JOINTS MAY BE INSTALLED WITHIN 2–3 FEET OF MANHOLE WHERE NECESSARY.

Engineering Division

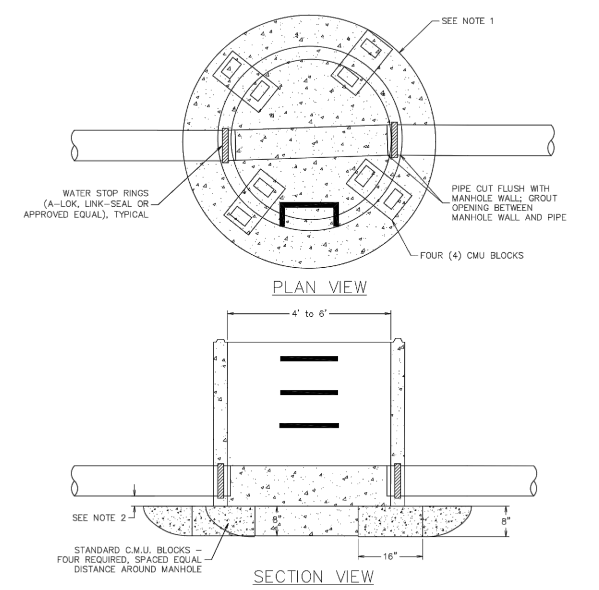
Sanitary Sewer Manhole (Sheet 1 of 3)

Ross Mollenhauer

Approved By City
Engineer for Utilities
Ross Mollenhauer, PE

Adopted: 09/28/2020
Revised: 01/01/2023

STD - 512-1


SEE NOTE 1
WATER STOP RINGS (A–LOK, LINK–SEAL OR APPROVED EQUAL), TYPICAL
PIPE CUT FLUSH WITH MANHOLE WALL; GROUT OPENING BETWEEN MANHOLE WALL AND PIPE
FOUR (4) CMU BLOCKS
PLAN VIEW
4' to 6'
SEE NOTE 2
8"
8"
8"
16"
STANDARD C.M.U. BLOCKS – FOUR REQUIRED, SPACED EQUAL DISTANCE AROUND MANHOLE
SECTION VIEW

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2–A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. BASE AND FILL CONCRETE MAY BE POURED MONOLITHICALLY.
3. ONE–HALF (1/2") INCH SPACING MAY BE OMITTED WHEN BASE AND FILL CONCRETE ARE POURED MONOLITHICALLY.

Engineering Division

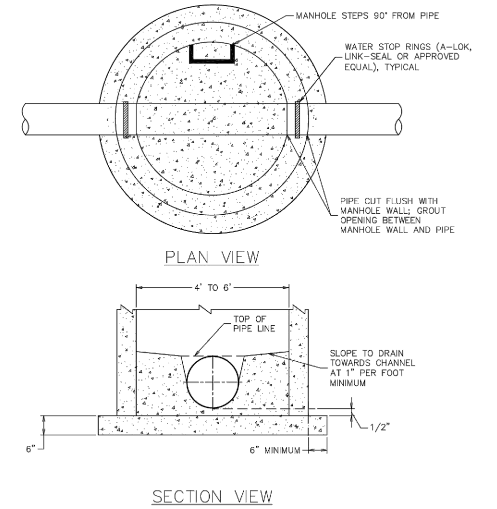
Sanitary Sewer Manhole - Dog House Base (Sheet 2 of 3)

Ross Mollenhauer

Approved By City
Engineer for Utilities
Ross Mollenhauer, PE

Adopted: 09/28/2020
Revised: 01/01/2023

STD - 512-2


MANHOLE STEPS 90° FROM PIPE
WATER STOP RINGS (A–LOK, LINK–SEAL OR APPROVED EQUAL), TYPICAL
PIPE CUT FLUSH WITH MANHOLE WALL; GROUT OPENING BETWEEN MANHOLE WALL AND PIPE
PLAN VIEW
4' TO 6'
TOP OF PIPE LINE
SLOPE TO DRAIN TOWARDS CHANNEL AT 1" PER FOOT MINIMUM
1/2"
6"
6" MINIMUM
SECTION VIEW

GENERAL NOTE:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2–A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.

Engineering Division

Sanitary Sewer Manhole - Precast Base (Sheet 3 of 3)

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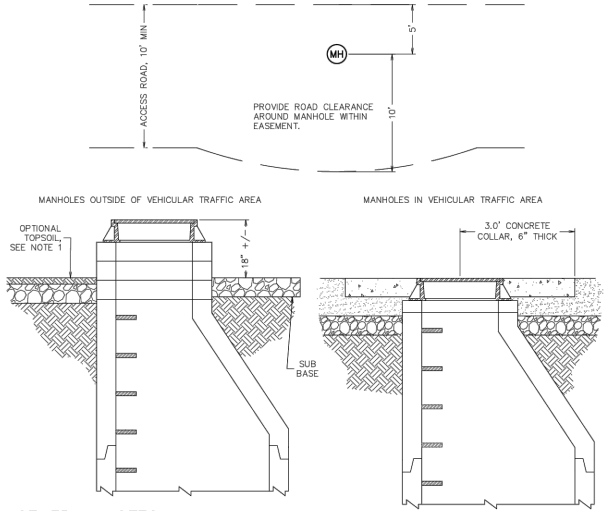
Approved By City
Engineer for Utilities
Ross Mollenhauer, PE

Adopted: 09/28/2020
Revised: 01/01/2023

STD - 512-3


ACCESS ROAD, 10' MIN
MH
5'
10'
PROVIDE ROAD CLEARANCE AROUND MANHOLE WITHIN EASEMENT.
MANHOLES OUTSIDE OF VEHICULAR TRAFFIC AREA
MANHOLES IN VEHICULAR TRAFFIC AREA
OPTIONAL TOPSOIL, SEE NOTE 1
18" +/-
3.0' CONCRETE COLLAR, 6" THICK
SUB BASE

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2–A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. TWO (2") INCHES OF TOPSOIL MAY BE ALLOWED UPON OWNER REQUEST
3. CONCRETE COLLARS ARE REQUIRED FOR MANHOLES INSTALLED IN AREAS SUBJECT TO VEHICULAR TRAFFIC IF FINAL PAVING AROUND THE MANHOLE WILL OCCUR MORE THAN 3 MONTHS AFTER THE INSTALLATION OF THE MANHOLE. CONCRETE COLLAR SHALL BE FLUSH WITH EDGE OF MANHOLE AND SURROUNDING SURFACE.
4. CARSONITE MARKER SHALL BE SET ADJACENT TO MANHOLE AT EDGE OF UTILITY ACCESS ROAD.
5. CARSONITE MARKER SHALL CONTAIN THE APPROPRIATE UTILITY SPECIFIC LABEL AND COLOR AS PER CITY ENGINEER.
6. MINIMUM OF SIX (6") INCHES OF BASE COMPACTED TO 95% PROCTOR DENSITY FOR ASPHALT AND CONCRETE SURFACES.
   a) MINIMUM OF SIX (6") INCHES OF SUB BASE COMPACTED TO 95% PROCTOR DENSITY
7. MINIMUM OF SIX (6") INCHES OF SUB BASE COMPACTED TO 95% PROCTOR DENSITY FOR OTHER SURFACE TREATMENTS.
   a) EXTEND ROAD BASE OUT TO EDGES OF EASEMENT AROUND MANHOLES.

Engineering Division

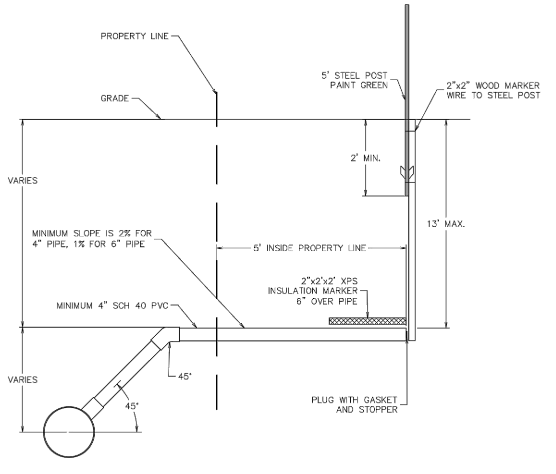
Utility Access Road

Ross Mollenhauer

Approved By Utility
Project Manager
Ross Mollenhauer, PE

Revised: 01/01/2023

STD - 514


PROPERTY LINE
5' STEEL POST PAINT GREEN
2"x2" WOOD MARKER WIRE TO STEEL POST
GRADE
2' MIN.
VARIES
13' MAX.
MINIMUM SLOPE IS 2% FOR 4" PIPE, 1% FOR 6" PIPE
5' INSIDE PROPERTY LINE
2"x2'x2' XPS INSULATION MARKER 6" OVER PIPE
MINIMUM 4" SCH 40 PVC
45°
VARIES
45°
PLUG WITH GASKET AND STOPPER

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2–A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. MAXIMUM LINE DEPTH IS 13'. DEVIATIONS MAY BE ALLOWED BY CITY ENGINEERING.
3. CONNECTIONS TO EXISTING SEWER MAINS SHALL BE TAPPED AT THE CONTRACTORS EXPENSE, AND PREDCO FAST FIT SADDLES OR APPROVED EQUAL SHALL BE USED. WHEN THE SEWER MAIN AND SEWER SERVICE LATERALS ARE INSTALLED UNDER ONE CONTRACT, IN–LINE TEES ONLY SHALL SHALL BE PROVIDED FOR THE SERVICE LATERALS. TEES SHALL BE ROLLED TO A 45 DEGREE ANGLE.
4. AN EXCAVATION PERMIT IS REQUIRED FOR EACH STUB.
5. SEWER SERVICE STUBS SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS OR AS SPECIFIED BY CITY ENGINEERING.
6. IN ORDER TO KEEP SERVICE LINES DEEP ENOUGH TO SERVE EACH HOME AND PASS UNDER WATER MAINS, A 22 DEGREE FITTING MAY BE ALLOWED BY THE CITY ENGINEER AT THE SEWER MAIN TAP.
7. ALL COMMERCIAL SERVICE STUBS SHALL BE 6" MINIMUM DIAMETER.
8. ALL SINGLE DWELLING UNIT SERVICE STUBS SHALL BE 4" MINIMUM DIAMETER.

Engineering Division

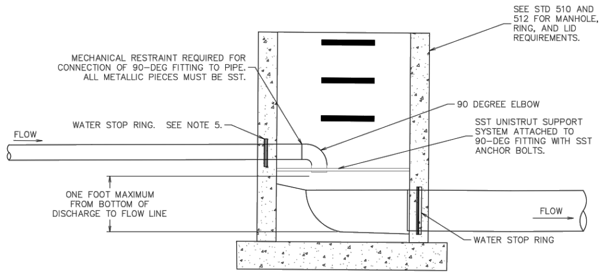
Standard Sewer Service Stub

Ross Mollenhauer

Approved By Utility
Project Manager
Ross Mollenhauer, PE

Revised: 01/01/2023

STD - 520


SEE STD 510 AND 512 FOR MANHOLE, RING, AND LID REQUIREMENTS.
MECHANICAL RESTRAINT REQUIRED FOR CONNECTION OF 90–DEG FITTING TO PIPE. ALL METALLIC PIECES MUST BE SST.
90 DEGREE ELBOW
WATER STOP RING. SEE NOTE 5.
SST UNISTRUT SUPPORT SYSTEM ATTACHED TO 90–DEG FITTING WITH SST ANCHOR BOLTS.
FLOW
ONE FOOT MAXIMUM FROM BOTTOM OF DISCHARGE TO FLOW LINE
FLOW
WATER STOP RING

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2–A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. FORCE MAIN SHALL HAVE BOTH MECHANICAL RESTRAINERS AND THRUST BLOCKS.
3. ALIGN THE 90–DEGREE BEND WITH THE CENTER OF THE GRAVITY PIPE CHANNEL.
4. ENTIRE MANHOLE, AS WELL AS TWO MANHOLES DOWNSTREAM, SHALL BE COATED PER CITY OF MISSOULA MODIFICATIONS TO MPWSS SECTION 09950.
5. STAINLESS STEEL LINK SEALS SHALL BE USED WHEN CORING A FORCE MAIN INTO AN EXISTING MANHOLE.

Engineering Division

FORCE MAIN TERMINATION DETAIL

Ross Mollenhauer

Approved By Utility
Project Manager –
Ross Mollenhauer, PE

Revised: 01/01/2023

STD - 555

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;

REVISION	DATE	DESCRIPTION
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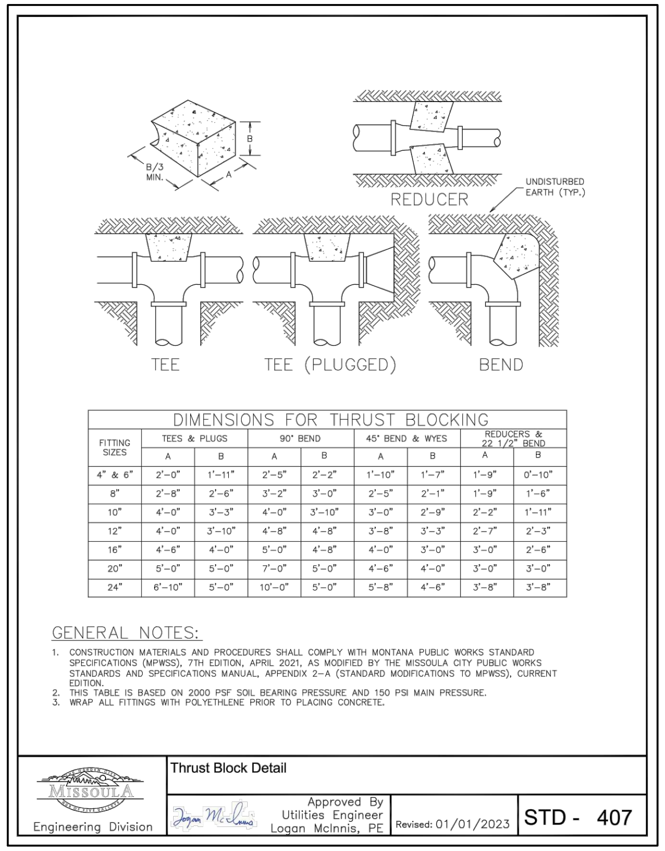
SURVEYED DJ&A, P.C.

ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONSTRUCTION DETAILS - SEWER

SHEET
70
OF
105



DIMENSIONS FOR THRUST BLOCKING

FITTING SIZES	TEES & PLUGS		90° BEND		45° BEND & WYES		REDUCERS & 22 1/2" BEND	
	A	B	A	B	A	B	A	B
4" & 6"	2'-0"	1'-11"	2'-5"	2'-2"	1'-10"	1'-7"	1'-9"	0'-10"
8"	2'-8"	2'-6"	3'-2"	3'-0"	2'-5"	2'-1"	1'-9"	1'-6"
10"	4'-0"	3'-3"	4'-0"	3'-10"	3'-0"	2'-9"	2'-2"	1'-11"
12"	4'-0"	3'-10"	4'-8"	4'-8"	3'-8"	3'-3"	2'-7"	2'-3"
16"	4'-6"	4'-0"	5'-0"	4'-8"	4'-0"	3'-0"	3'-0"	2'-6"
20"	5'-0"	5'-0"	7'-0"	5'-0"	4'-6"	4'-0"	3'-0"	3'-0"
24"	6'-10"	5'-0"	10'-0"	5'-0"	5'-8"	4'-6"	3'-8"	3'-8"

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. THIS TABLE IS BASED ON 2000 PSF SOIL BEARING PRESSURE AND 150 PSI MAIN PRESSURE.
3. WRAP ALL FITTINGS WITH POLYETHLENE PRIOR TO PLACING CONCRETE.

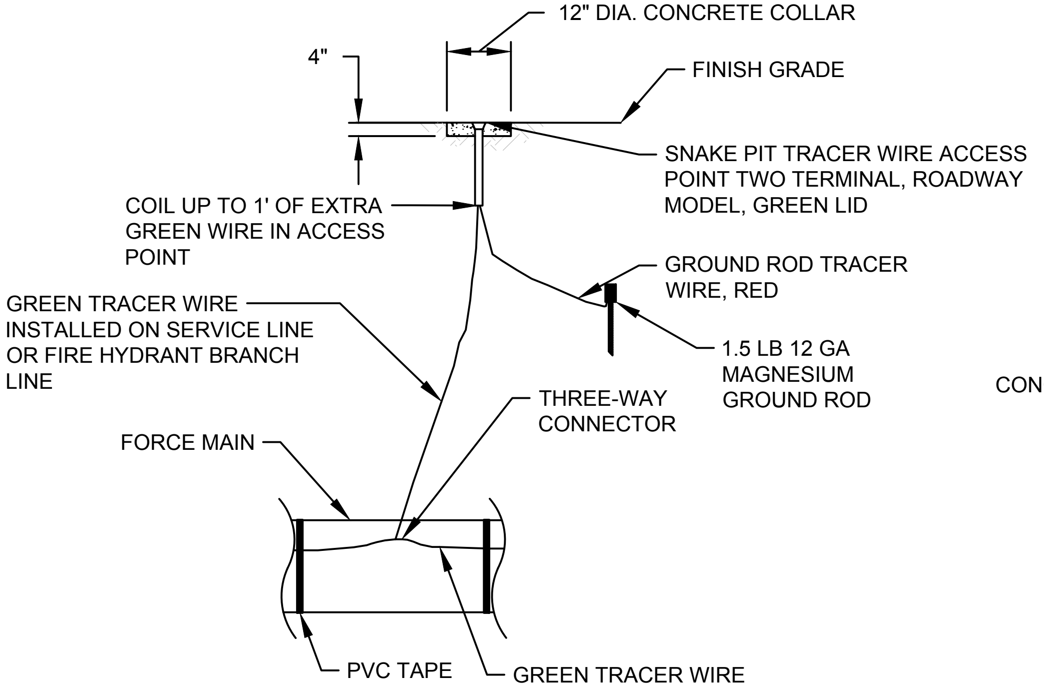
MISSOULA
Engineering Division

Thrust Block Detail

Logan McInnis
Approved By
Utilities Engineer
Logan McInnis, PE

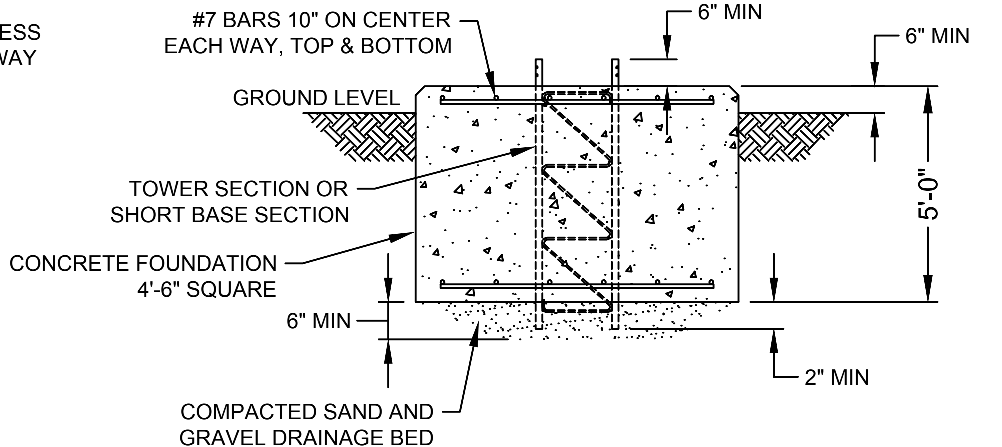
Revised: 01/01/2023

STD - 407


12" DIA. CONCRETE COLLAR
4"
FINISH GRADE
SNAKE PIT TRACER WIRE ACCESS POINT TWO TERMINAL, ROADWAY MODEL, GREEN LID
COIL UP TO 1' OF EXTRA GREEN WIRE IN ACCESS POINT
GROUND ROD TRACER WIRE, RED
GREEN TRACER WIRE INSTALLED ON SERVICE LINE OR FIRE HYDRANT BRANCH LINE
1.5 LB 12 GA MAGNESIUM GROUND ROD
THREE-WAY CONNECTOR
FORCE MAIN
PVC TAPE
GREEN TRACER WIRE

1/71 TRACER WIRE ACCESS POINT

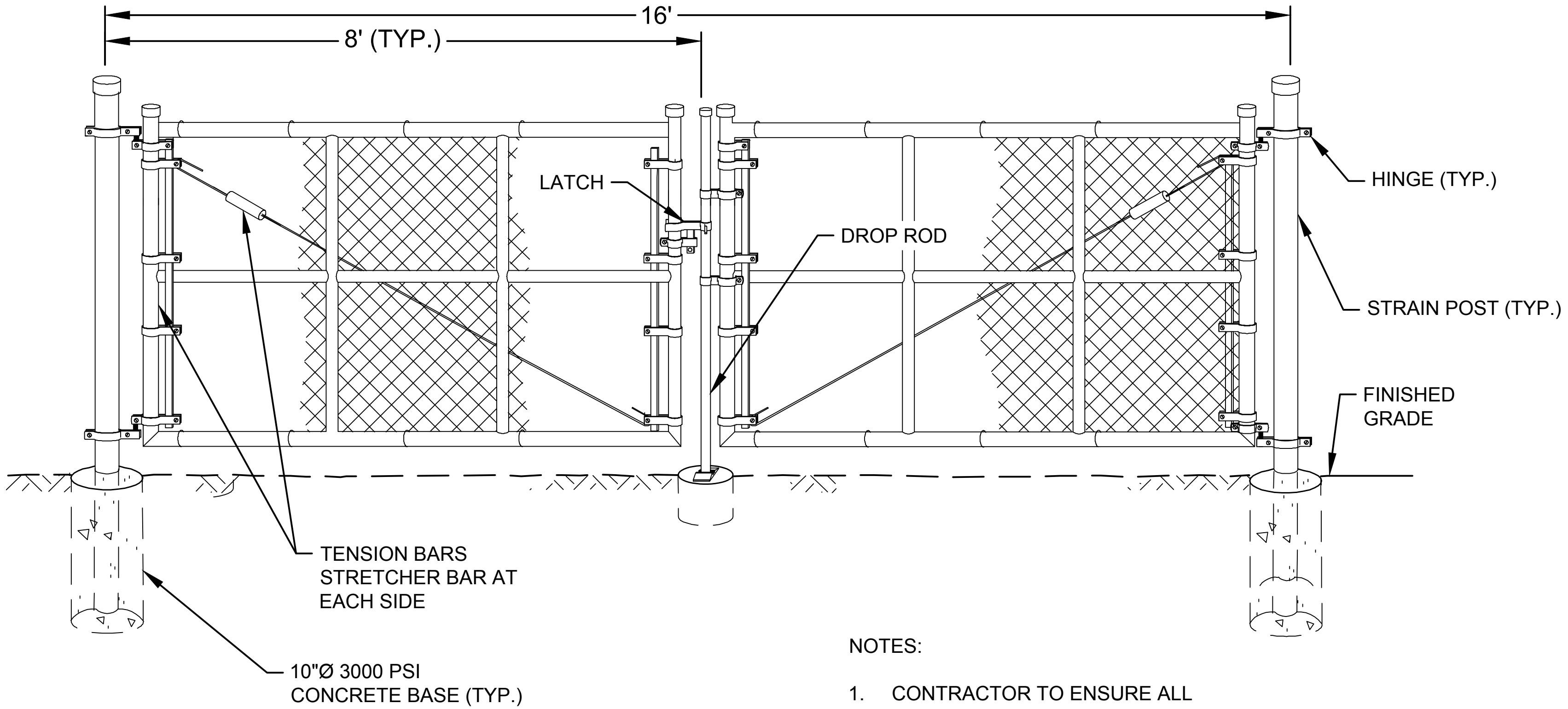
NTS


#7 BARS 10" ON CENTER EACH WAY, TOP & BOTTOM
6" MIN
6" MIN
GROUND LEVEL
TOWER SECTION OR SHORT BASE SECTION
5'-0"
CONCRETE FOUNDATION 4'-6" SQUARE
6" MIN
2" MIN
COMPACTED SAND AND GRAVEL DRAINAGE BED

ELEVATION VIEW

4/71 SCADA ANTENNA FOUNDATION

NTS

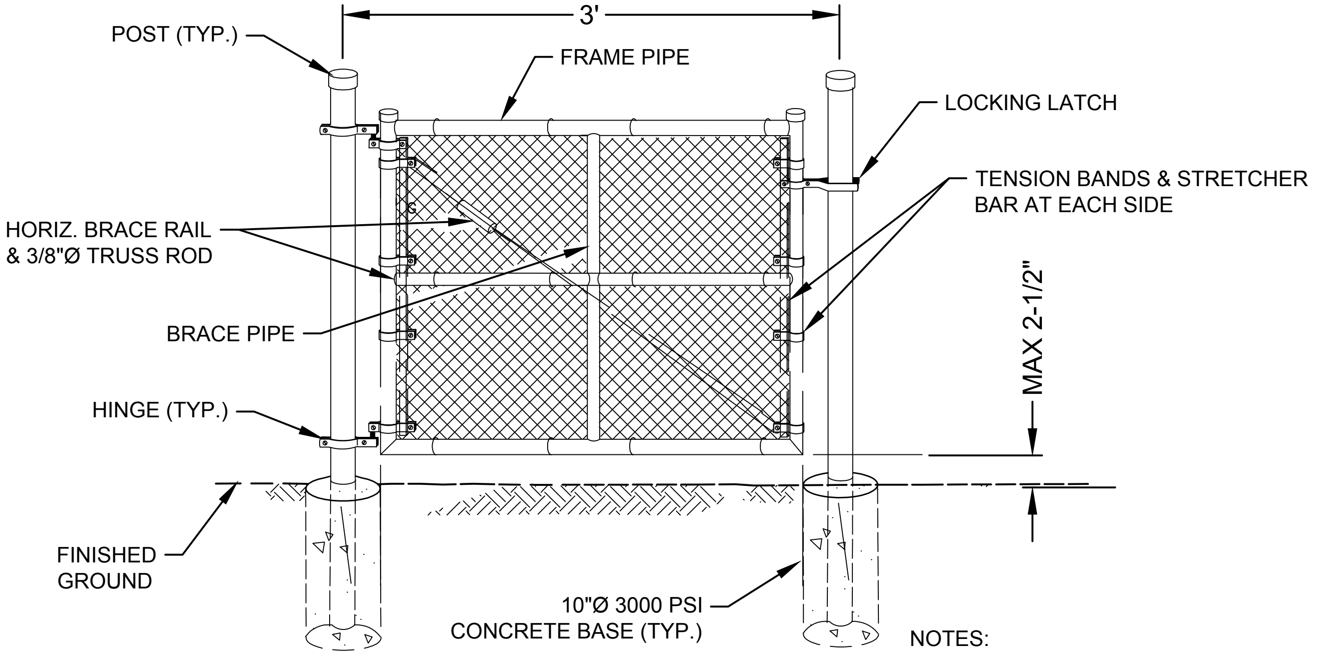

16'
8' (TYP.)
LATCH
DROP ROD
HINGE (TYP.)
STRAIN POST (TYP.)
FINISHED GRADE
TENSION BARS STRETCHER BAR AT EACH SIDE
10"Ø 3000 PSI CONCRETE BASE (TYP.)

NOTES:

1. CONTRACTOR TO ENSURE ALL FENCING MATERIAL FOR THE 16' DOUBLE SWING GATE TO MATCH DETAIL 1/72.

2/71 16' WIDE DOUBLE SWING GATE

NTS


3'
POST (TYP.)
FRAME PIPE
LOCKING LATCH
TENSION BANDS & STRETCHER BAR AT EACH SIDE
HORIZ. BRACE RAIL & 3/8"Ø TRUSS ROD
BRACE PIPE
MAX 2-1/2"
HINGE (TYP.)
FINISHED GROUND
10"Ø 3000 PSI CONCRETE BASE (TYP.)

NOTES:

1. CONTRACTOR TO ENSURE ALL FENCING MATERIAL FOR THE 3' MAN GATE TO MATCH DETAIL 1/72.

3/71 3' WIDE MAN GATE

NTS

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;

REVISION	DATE	DESCRIPTION
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PLANNERS
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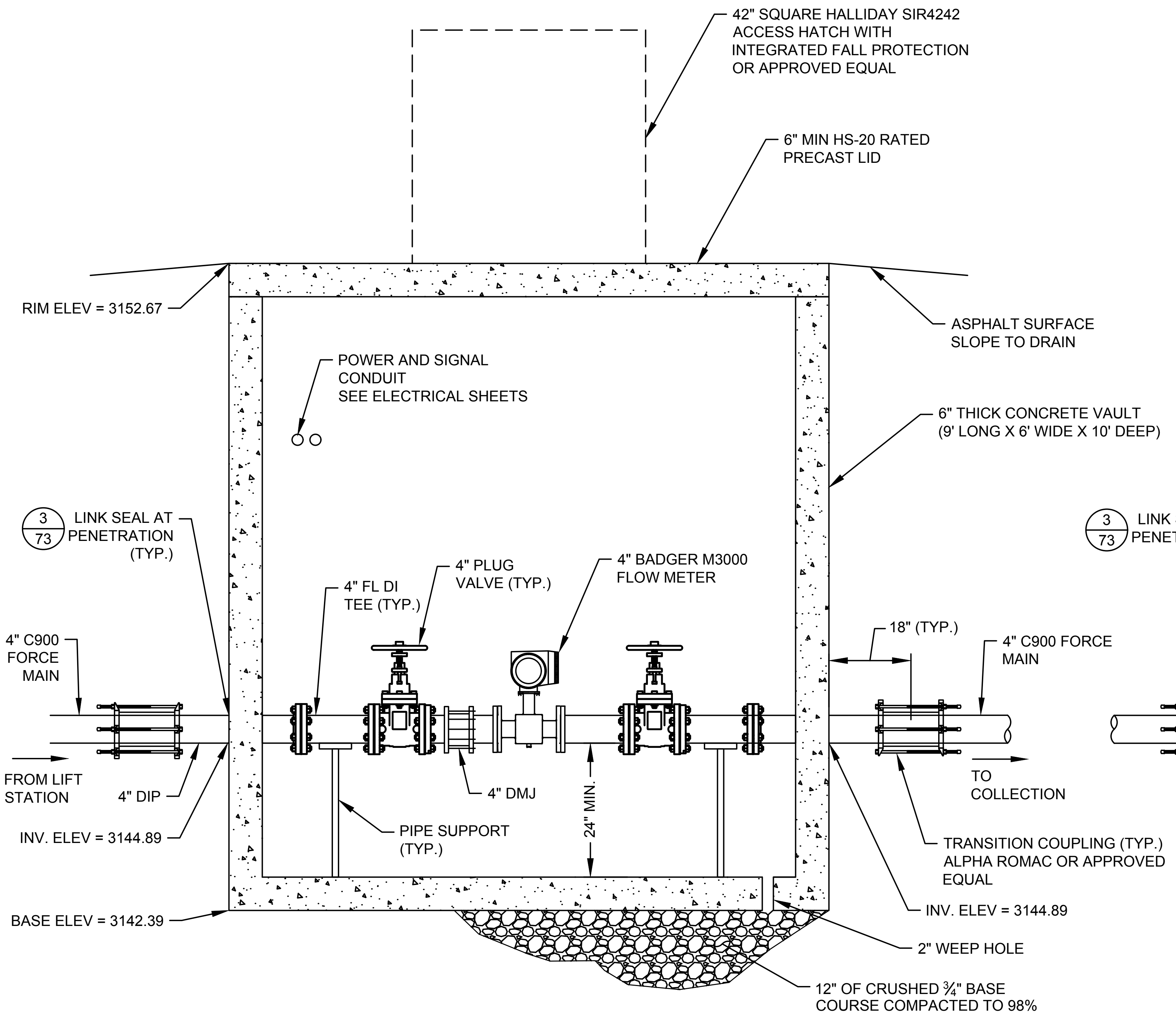
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

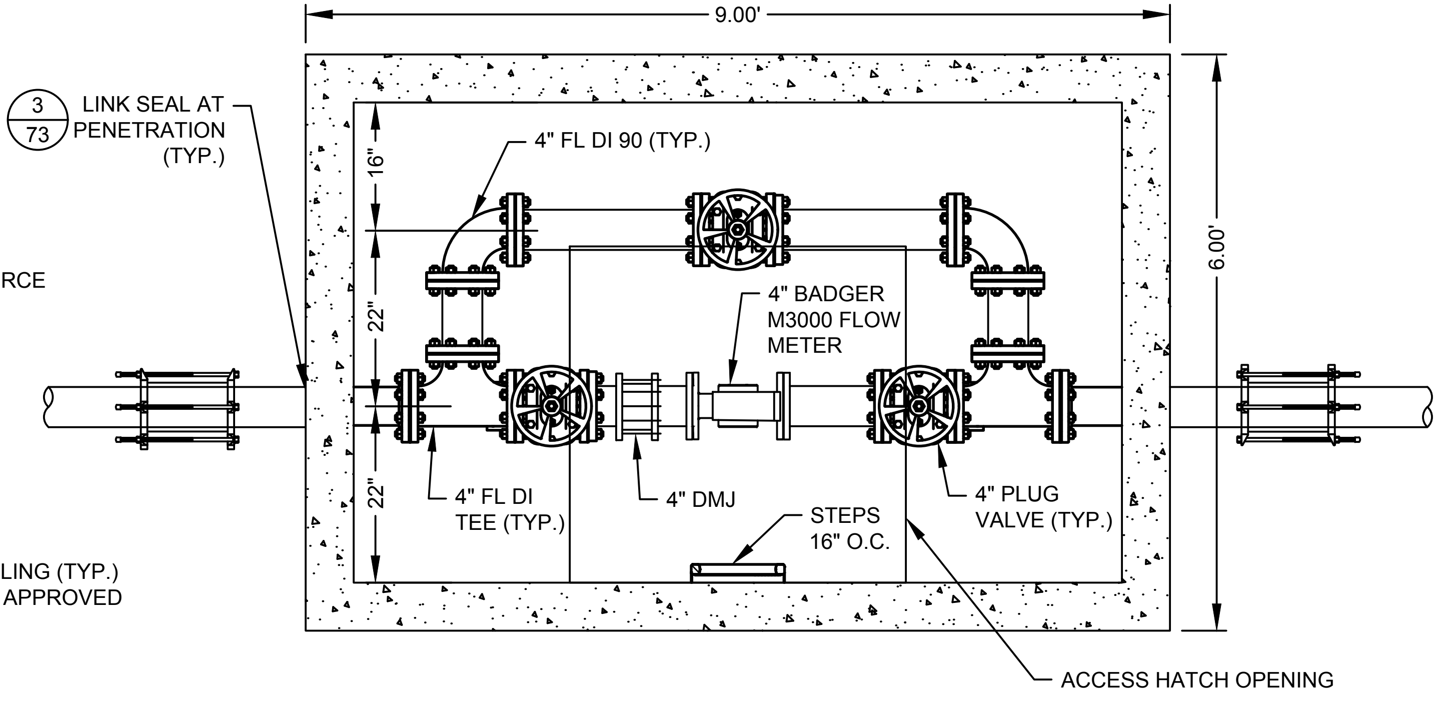
CONSTRUCTION DETAILS - SEWER

SHEET
71
OF
105


42" SQUARE HALLIDAY SIR4242 ACCESS HATCH WITH INTEGRATED FALL PROTECTION OR APPROVED EQUAL
6" MIN HS-20 RATED PRECAST LID
RIM ELEV = 3152.67
ASPHALT SURFACE SLOPE TO DRAIN
POWER AND SIGNAL CONDUIT SEE ELECTRICAL SHEETS
6" THICK CONCRETE VAULT (9' LONG X 6' WIDE X 10' DEEP)
3/73 LINK SEAL AT PENETRATION (TYP.)
4" FL DI TEE (TYP.)
4" PLUG VALVE (TYP.)
4" BADGER M3000 FLOW METER
18" (TYP.)
4" C900 FORCE MAIN
4" C900 FORCE MAIN
FROM LIFT STATION
4" DIP
4" DMJ
24" MIN.
TO COLLECTION
INV. ELEV = 3144.89
PIPE SUPPORT (TYP.)
TRANSITION COUPLING (TYP.) ALPHA ROMAC OR APPROVED EQUAL
INV. ELEV = 3144.89
BASE ELEV = 3142.39
2" WEEP HOLE
12" OF CRUSHED ¾" BASE COURSE COMPACTED TO 98%

1/72 MAGNETIC FLOW METER VAULT - SECTION VIEW

NTS



NOTES: INSTALL FLOW METER PER MANUFACTURER INSTRUCTIONS.
ENSURE METER IS PROPERLY GROUNDED

2/72 MAGNETIC FLOW METER VAULT - PLAN VIEW

NTS

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

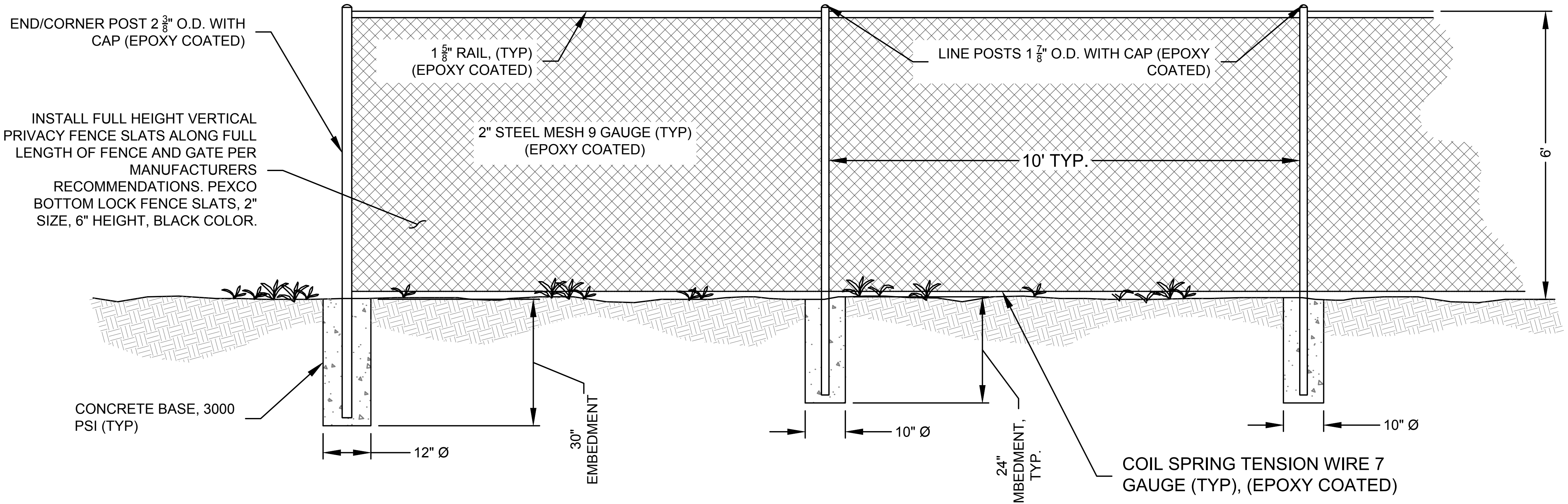
DESIGNER KD
DRAWN KD
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONSTRUCTION DETAILS - SEWER

SHEET 72 OF 105

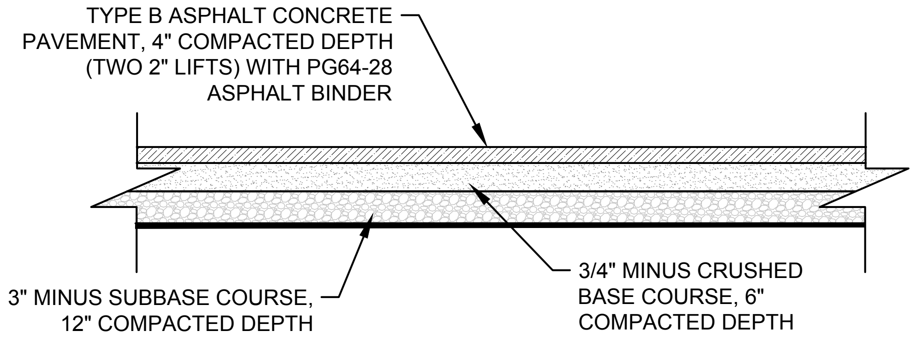

END/CORNER POST 2 $\frac{3}{8}$" O.D. WITH CAP (EPOXY COATED)
1 $\frac{5}{8}$" RAIL, (TYP) (EPOXY COATED)
LINE POSTS 1 $\frac{7}{8}$" O.D. WITH CAP (EPOXY COATED)
INSTALL FULL HEIGHT VERTICAL PRIVACY FENCE SLATS ALONG FULL LENGTH OF FENCE AND GATE PER MANUFACTURERS RECOMMENDATIONS. PEXCO BOTTOM LOCK FENCE SLATS, 2" SIZE, 6" HEIGHT, BLACK COLOR.
2" STEEL MESH 9 GAUGE (TYP) (EPOXY COATED)
10' TYP.
6'
CONCRETE BASE, 3000 PSI (TYP)
12" Ø
30" EMBEDMENT
10" Ø
24" EMBEDMENT, TYP.
10" Ø
COIL SPRING TENSION WIRE 7 GAUGE (TYP), (EPOXY COATED)

GENERAL CHAIN-LINK FENCING NOTES:

1. SET ALL CHAIN-LINK FENCE POSTS IN CONCRETE. SET CORNER, END, AND LINE POSTS TO THE DIMENSIONS SHOWN.
2. ADJUST THE CHAIN-LINK POST TOP ELEVATIONS TO PROVIDE A SMOOTH VISUAL FENCE PROFILE. INSTALL CORNER POSTS AT HORIZONTAL BREAKS IN THE FENCE OF 15° OR MORE.
3. ALL CHAIN LINK FENCE COMPONENTS SHALL BE EPOXY COATED (BLACK). SUBMIT A SAMPLE OF THE FENCE MATERIALS TO THE OWNER FOR APPROVAL BEFORE INSTALLING FENCE.

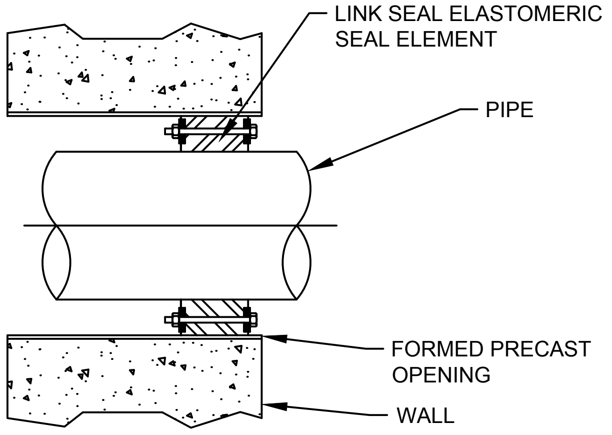
1/73 6' HEIGHT BLACK CHAIN LINK FENCE

NTS


TYPE B ASPHALT CONCRETE PAVEMENT, 4" COMPACTED DEPTH (TWO 2" LIFTS) WITH PG64-28 ASPHALT BINDER
3" MINUS SUBBASE COURSE, 12" COMPACTED DEPTH
3/4" MINUS CRUSHED BASE COURSE, 6" COMPACTED DEPTH

2/73 LIFT STATION EASEMENT ASPHALT SECTION

NTS



NOTE: CONTRACTOR TO VERIFY ALL PENETRATION AND SEAL SIZES PRIOR TO INSTALLATION. CONTRACTOR TO SUBMIT SEAL MODEL AND MATERIAL FOR APPROVAL.

3/73 LINK SEAL AND FORMED OPENING DETAIL

NTS

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;

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-	-	-
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DJ&A
ENGINEERS
PLANNERS
SURVEYORS

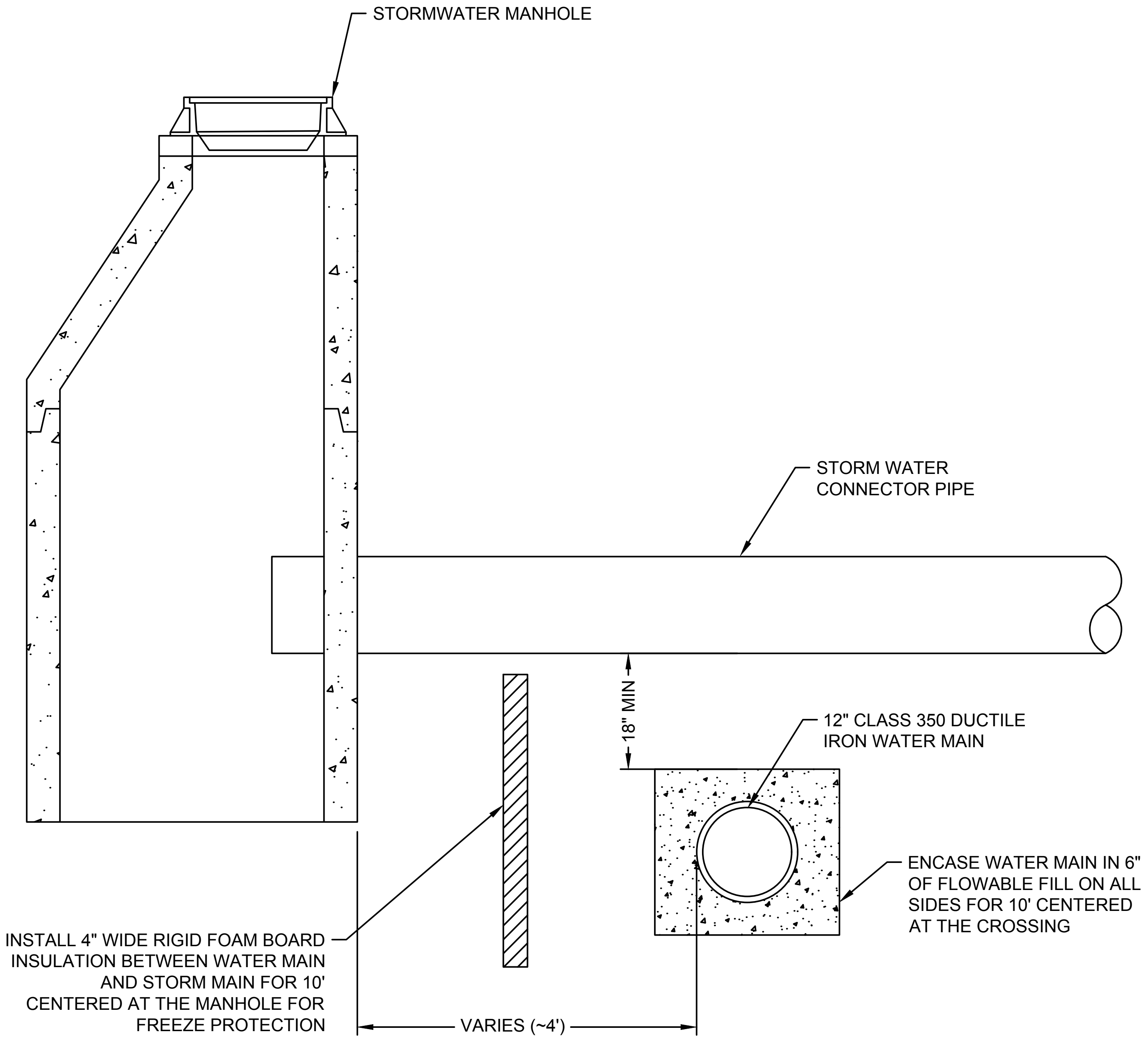
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONSTRUCTION DETAILS - SEWER

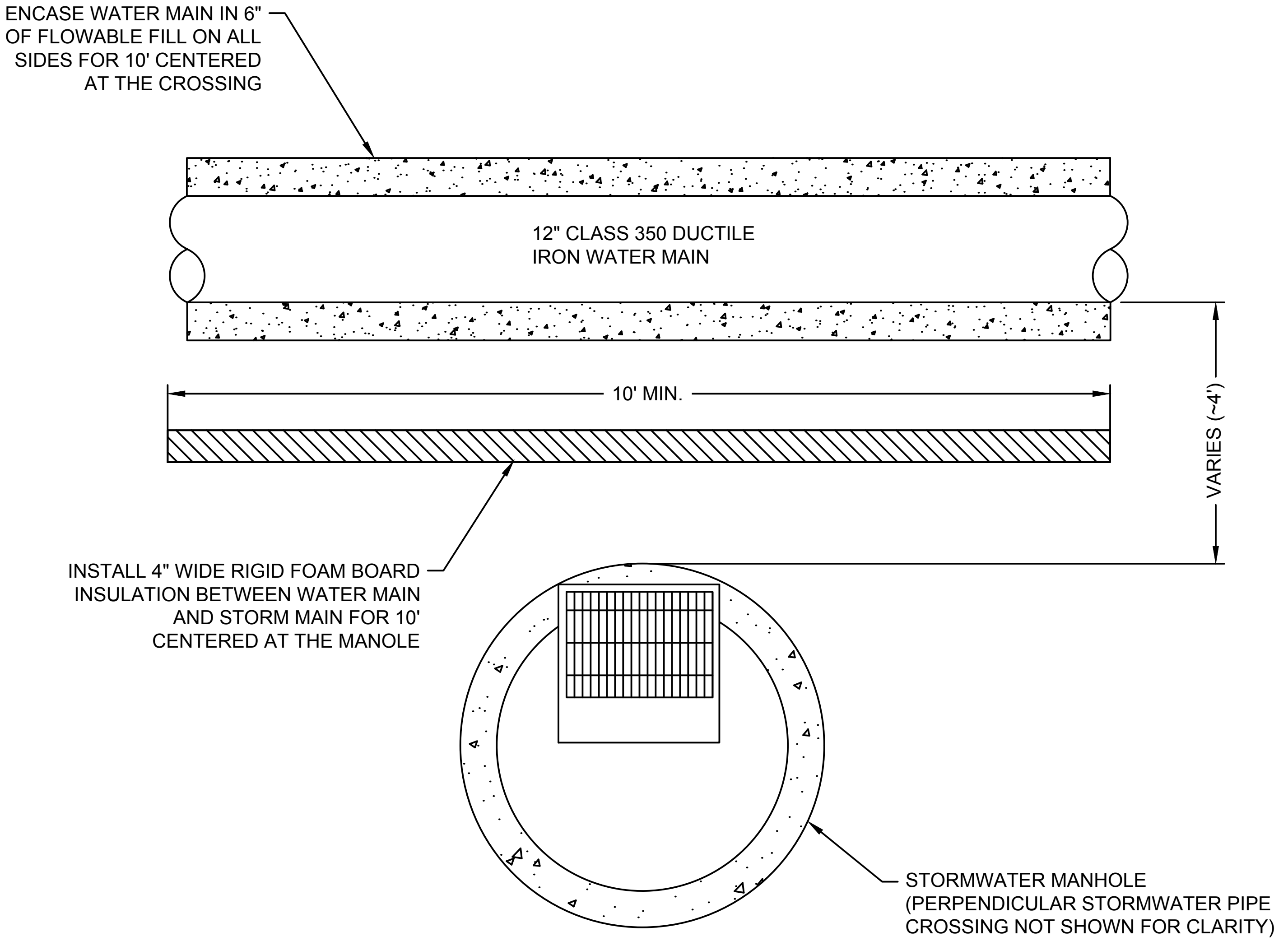
SHEET 73 OF 105

NOTES:

1. CONTRACTOR TO ENSURE THAT THERE ARE NO JOINTS PRESENT IN THE WATER MAIN FOR THE EXTENTS OF THE INSULATION AND FLOWABLE FILL.
2. CONTRACTOR TO ENSURE THAT THE WATER MAIN IS PRESSURE TESTED FOR LEAKS PRIOR TO BACKFILL.
3. STORM MANHOLE SHALL BE WATER TIGHT CONSTRUCTION. CONTRACTOR TO ENSURE ALL MANHOLE JOINTS AND PIPE PENETRATIONS ARE WATER TIGHT PRIOR TO BACKFILL.
4. CONTRACTOR TO FOLLOW REQUIREMENTS FOR INSULATION INSTALLATION PER MCPWSS SECTION 02724.
5. THERE ARE NO INSTANCES WHERE WATER MAINS RUN PARALLEL TO STORM MAINS WHERE THE 10' HORIZONTAL SEPARATION IS NOT ACHIEVED.
6. THERE ARE NO INSTANCES WHERE 18" OF VERTICAL SEPARATION FROM WATER AND STORM MAINS CAN NOT BE MET.


STORMWATER MANHOLE
STORM WATER CONNECTOR PIPE
18" MIN
12" CLASS 350 DUCTILE IRON WATER MAIN
ENCASE WATER MAIN IN 6" OF FLOWABLE FILL ON ALL SIDES FOR 10' CENTERED AT THE CROSSING
INSTALL 4" WIDE RIGID FOAM BOARD INSULATION BETWEEN WATER MAIN AND STORM MAIN FOR 10' CENTERED AT THE MANHOLE FOR FREEZE PROTECTION
VARIES (~4')

SECTION


ENCASE WATER MAIN IN 6" OF FLOWABLE FILL ON ALL SIDES FOR 10' CENTERED AT THE CROSSING
12" CLASS 350 DUCTILE IRON WATER MAIN
10' MIN.
VARIES (~4')
INSTALL 4" WIDE RIGID FOAM BOARD INSULATION BETWEEN WATER MAIN AND STORM MAIN FOR 10' CENTERED AT THE MANOLE
STORMWATER MANHOLE (PERPENDICULAR STORMWATER PIPE CROSSING NOT SHOWN FOR CLARITY)

PLAN

1 / 74 WATER MAIN/STORM MANHOLE PROTECTION DETAIL

NTS

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER KD
PROJ. NO. 7486
DRAWN KD
DATE 10.23.2026
CHECKED KG
SURVEYED DJ&A, P.C.

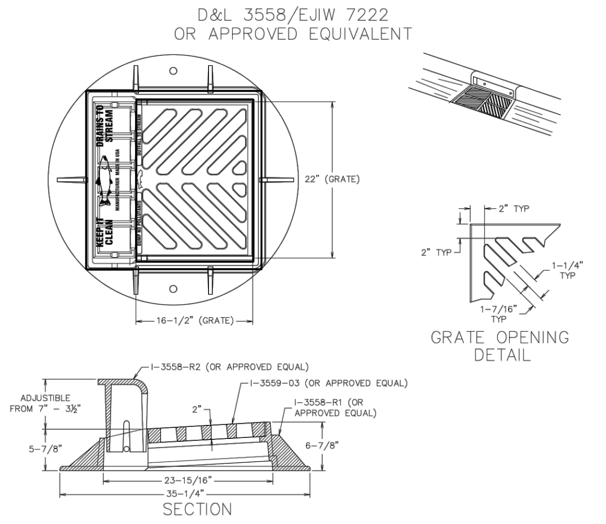
DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONSTRUCTION DETAILS - WATER & STORM

SHEET
74 OF 105

D&L 3558/EJIW 7222
OR APPROVED EQUIVALENT



GENERAL NOTES:

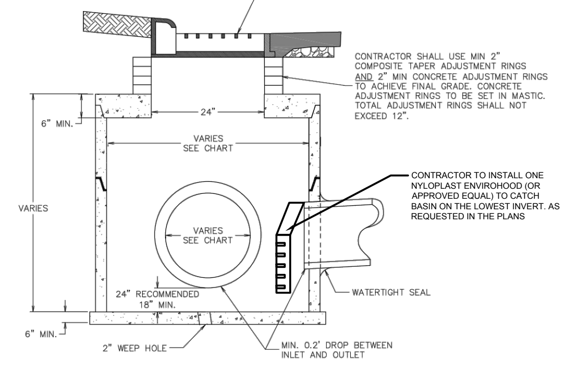
1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. COMBINATION CURB INLET FRAME AND GRATE SHALL BE USED WHERE INLET OR DRY WELL IS LOCATED IN TYPICAL "L" TYPE CURB & GUTTER (STD-740).
3. DUE TO PROVISIONS IN THE INTERMODAL SURFACE TRANSPORTATION ACT, VENDORS MUST AUTHENTICATE U.S. ORIGIN OF CASTINGS FOR FEDERALLY FUNDED PROJECTS.
4. VANED GRATE (D&L I-3559-04 OR APPROVED EQUAL) SHALL BE USED WHEN SLOPE EXCEEDS 5%.
3. PROVIDE LIDS AND RINGS THAT MEET AASHTO 306 H20 LOADING RATING OR HIGHER.
4. COMPOSITE TAPERED GRADE RINGS SHALL BE USED TO MATCH FRAME & GRATE TO THE RUNNING SLOPE OF THE CURB.
5. GRATE SHALL MATCH RUNNING SLOPE OF STREET.
6. GROUT BOLT SLOTS LOCATED IN THE CURB LINE AND ALL OTHER OPENINGS TO BASE COURSE AND BACKFILL MATERIAL.

Engineering Division
24" COMBINATION CURB INLET FRAME & GRATE
Approved By Utility Engineer Andy Schultz, PE
Adopted: 09/28/2020
Revised: 01/01/2023
STD - 601

USE ONLY APPROVED COMPONENTS:

STD-600 36" COMBINATION CURB INLET FRAME & GRATE
STD-601 24" COMBINATION CURB INLET FRAME & GRATE

VANED GRATE SHALL BE USED WHEN GRADE EXCEEDS 5%


CONTRACTOR SHALL USE MIN 2" COMPOSITE TAPER ADJUSTMENT RINGS AND 2" MIN CONCRETE ADJUSTMENT RINGS TO ACHIEVE FINAL GRADE. CONCRETE ADJUSTMENT RINGS TO BE SET IN MASTIC. TOTAL ADJUSTMENT RINGS SHALL NOT EXCEED 12".
24"
6" MIN.
VARIES SEE CHART
VARIES
CONTRACTOR TO INSTALL ONE NYLOPLAST ENVIROHOOD (OR APPROVED EQUAL) TO CATCH BASIN ON THE LOWEST INVERT. AS REQUESTED IN THE PLANS
VARIES SEE CHART
24" RECOMMENDED 18" MIN.
WATERTIGHT SEAL
6" MIN.
2" WEEP HOLE
MIN. 0.2' DROP BETWEEN INLET AND OUTLET

PIPE-TO-MANHOLE DATA TABLE

PIPE DIA ≤	PIPE DIA >	WALL THICKNESS	MANHOLE DIA
12"*	---	0'-3 ½"	2'-6"
24"	---	0'-5"	4'-0"
36"	24"	0'-6"	5'-0"
48"	36"	0'-7"	6'-0"
---	48"	---	JUNCTION BOX

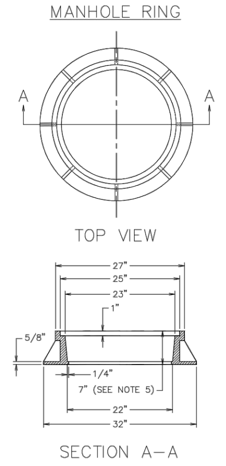
*SINGLE PIPE ONLY. MAXIMUM DEPTH 6 FT.
MINIMUM PIPE SIZE FOR PUBLIC MAINS/LATERALS = 12"

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. CATCH BASINS PIPED TO DRY WELLS (STD-616) ARE ENCOURAGED AS A PRE-TREATMENT METHOD OR TO AVOID UTILITY CONFLICTS.

Engineering Division
Standard Catch Basin
Approved By Utility Engineer Andy Schultz, PE
Adopted: 09/28/2020
Revised: 01/01/2024
STD - 614

EJIW / 3777
OR APPROVED EQUIVALENT



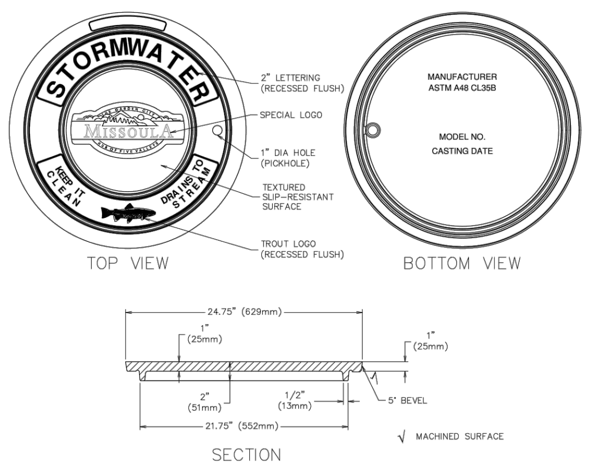
USE ONLY APPROVED COVERS:
STD-604B STORMWATER SOLID LID MANHOLE COVER
STD-604C AREA DRAIN GRATE
STD-604D ADA AREA DRAIN GRATE

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. DUE TO PROVISIONS IN THE INTERMODAL SURFACE TRANSPORTATION ACT, VENDORS MUST AUTHENTICATE U.S. ORIGIN OF CASTINGS FOR FEDERALLY FUNDED PROJECTS.
3. PROVIDE LIDS AND RINGS THAT MEET AASHTO 306 H20 LOADING RATING OR HIGHER.
4. COMPOSITE TAPERED GRADE RINGS SHALL BE USED TO MATCH FRAME & GRATE TO THE CURB LINE CROSS SLOPE AND RUNNING SLOPE OR STREET CROSS SLOPE AND RUNNING SLOPE WHERE NOT IN CONCRETE.
5. 4-INCH MANHOLE RING MAY BE USED IN LIEU OF A 7" RING ONLY WITH PRIOR APPROVAL FROM CITY ENGINEERING.

Engineering Division
Stormwater Ring
Approved By Utility Engineer Andy Schultz, PE
Adopted: 09/28/2021
Revised: 01/01/2023
STD - 604A

EJIW 3777-M / D&L A-1171
OR APPROVED EQUIVALENT

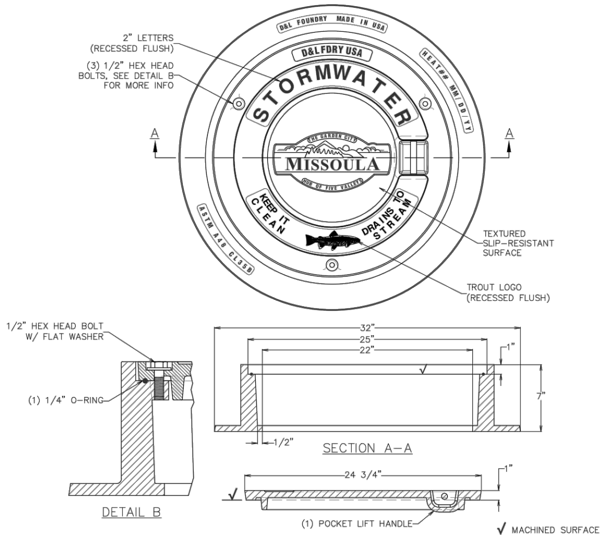


GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. FOR CITY-OWNED INFRASTRUCTURE ONLY. FOR PRIVATE STRUCTURES WITHIN THE RIGHT-OF-WAY PROVIDE A TEXTURED SLIP RESISTANT LID WITHOUT CITY LOGO - MUST HAVE "STORMWATER" ON LID.
3. DUE TO PROVISIONS IN THE INTERMODAL SURFACE TRANSPORTATION ACT, VENDORS MUST AUTHENTICATE U.S. ORIGIN OF CASTINGS FOR FEDERALLY FUNDED PROJECTS.
4. PROVIDE LIDS AND RINGS THAT MEET AASHTO 306 H20 LOADING RATING OR HIGHER.
5. COMPOSITE TAPERED GRADE RINGS SHALL BE USED TO MATCH FRAME & GRATE TO THE CURB LINE CROSS SLOPE AND RUNNING SLOPE OR STREET CROSS SLOPE AND RUNNING SLOPE WHERE NOT IN CONCRETE.
6. SEE STD-604A FOR STANDARD MANHOLE RING SPECIFICATIONS.
7. WHEN LOCATED WHERE MANHOLE MAY BECOME PRESSURIZED USE STD-605, "STORMWATER LOCKABLE LID AND FRAME".

Engineering Division
Stormwater Solid Lid
Approved By Utility Engineer Andy Schultz, PE
Adopted: 09/28/2020
Revised: 01/01/2023
STD - 604B

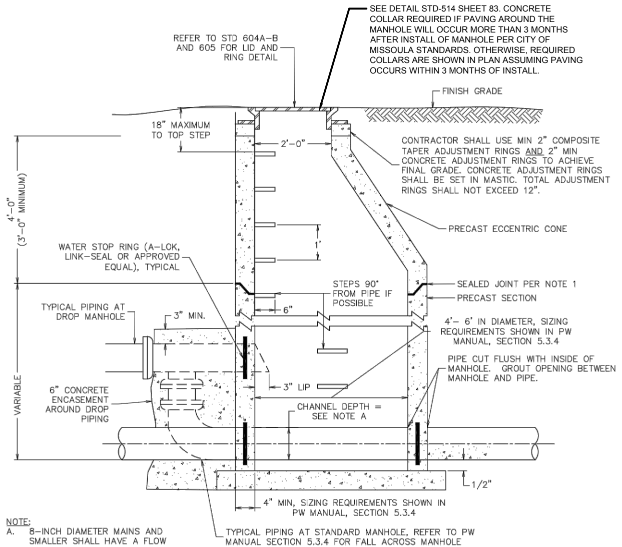
EJCO 3777Z1/AGS, D&L A-1171 LOCKABLE
OR APPROVED EQUIVALENT



GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. FOR USE WHEN THE MANHOLE CAN BECOME PRESSURIZED.
3. FOR CITY-OWNED INFRASTRUCTURE ONLY. FOR PRIVATE STRUCTURES WITHIN THE RIGHT-OF-WAY PROVIDE A TEXTURED SLIP RESISTANT LID WITHOUT CITY LOGO - MUST HAVE "STORMWATER" ON LID.
4. PROVIDE LIDS AND RINGS THAT MEET AASHTO 306 HS20 LOADING RATING OR HIGHER.
5. COMPOSITE TAPERED GRADE RINGS SHALL BE USED TO MATCH FRAME & GRATE TO THE CURB LINE CROSS SLOPE AND RUNNING SLOPE OR STREET CROSS SLOPE AND RUNNING SLOPE WHERE NOT IN CONCRETE.
6. 4-INCH MANHOLE RING MAY BE USED IN LIEU OF A 7" RING ONLY WITH PRIOR APPROVAL FROM CITY ENGINEERING.

Engineering Division
Stormwater Lockable Lid and Frame
Approved By Utility Engineer Andy Schultz, PE
Adopted: 09/28/2020
Revised: 01/01/2023
STD - 605


SEE DETAIL STD-514 SHEET 83. CONCRETE COLLAR REQUIRED IF PAVING AROUND THE MANHOLE WILL OCCUR MORE THAN 3 MONTHS AFTER INSTALL OF MANHOLE PER CITY OF MISSOULA STANDARDS. OTHERWISE, REQUIRED COLLARS ARE SHOWN IN PLAN ASSUMING PAVING OCCURS WITHIN 3 MONTHS OF INSTALL.
REFER TO STD 604A-B AND 605 FOR LID AND RING DETAIL
FINISH GRADE
18" MAXIMUM TO TOP STEP
2'-0"
CONTRACTOR SHALL USE MIN 2" COMPOSITE TAPER ADJUSTMENT RINGS AND 2" MIN CONCRETE ADJUSTMENT RINGS TO ACHIEVE FINAL GRADE. CONCRETE ADJUSTMENT RINGS SHALL BE SET IN MASTIC. TOTAL ADJUSTMENT RINGS SHALL NOT EXCEED 12".
4'-0" (3'-0" MINIMUM)
PRECAST ECCENTRIC CONE
1'
WATER STOP RING (A-LOK, LINK-SEAL OR APPROVED EQUAL), TYPICAL
STEPS 90° FROM PIPE IF POSSIBLE
SEALED JOINT PER NOTE 1
PRECAST SECTION
TYPICAL PIPING AT DROP MANHOLE
3" MIN.
6"
4'- 6' IN DIAMETER, SIZING REQUIREMENTS SHOWN IN PW MANUAL, SECTION 5.3.4
PIPE CUT FLUSH WITH INSIDE OF MANHOLE. GROUT OPENING BETWEEN MANHOLE AND PIPE.
VARIABLE
6" CONCRETE ENCASEMENT AROUND DROP PIPING
3" LIP
CHANNEL DEPTH = SEE NOTE A
1/2"
4" MIN, SIZING REQUIREMENTS SHOWN IN PW MANUAL, SECTION 5.3.4
TYPICAL PIPING AT STANDARD MANHOLE, REFER TO PW MANUAL SECTION 5.3.4 FOR FALL ACROSS MANHOLE

NOTE:
A. 8-INCH DIAMETER MAINS AND SMALLER SHALL HAVE A FLOW CHANNEL FORMED AT LEAST TO THE SPRING LINE OF THE PIPE. PIPES GREATER THAN 8" IN DIAMETER SHALL HAVE FLOW CHANNELS FORMED TO THE FULL HEIGHT OF THE CROWN OF THE OUTLET.

MANHOLE-TO-PIPE DATA TABLE

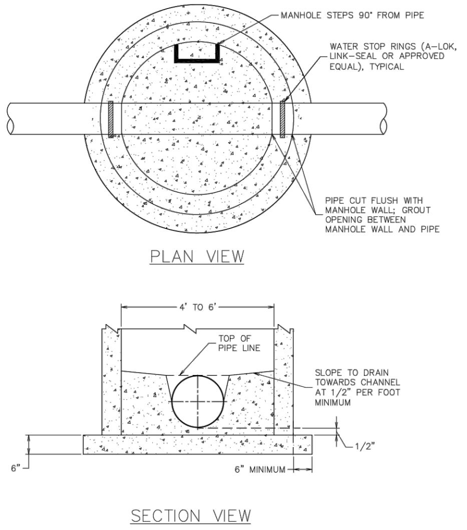
MANHOLE DIA.	WALL THICKNESS	PIPE DIA >	PIPE DIA ≤
4'-0"	0'-5"	---	24"
5'-0"	0'-6"	24"	36"
6'-0"	0'-7"	36"	48"
JUNCTION BOX	---	48"	---

*MINIMUM PIPE DIAMETER FOR PUBLIC MAINS/LATERALS = 12 INCHES

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. ALL JOINTS BETWEEN MANHOLE SECTIONS, ADJUSTING RINGS, MANHOLE RING AND TOP SECTION, SHALL BE WATERTIGHT. JOINTING MATERIAL SHALL BE "CONSEAL" OR EQUAL.
3. CONCRETE FOR DROP STRUCTURES SHALL BE FORMED.
4. FLAT-TOP BARREL SHALL BE USED WHEN DISTANCE FROM TOP OF PIPE TO RIM IS LESS THAN 5-FEET.

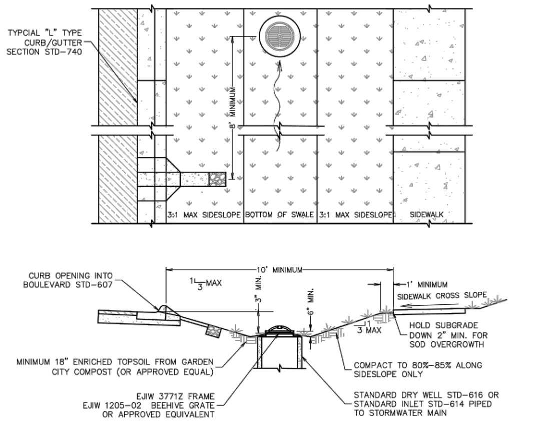
Engineering Division
Stormwater Manhole (Sheet 1 of 3)
Approved By Utility Engineer Andy Schultz, PE
Adopted: 09/28/2020
Revised: 01/01/2023
STD - 612-1


MANHOLE STEPS 90° FROM PIPE
WATER STOP RINGS (A-LOK, LINK-SEAL OR APPROVED EQUAL), TYPICAL
PIPE CUT FLUSH WITH MANHOLE WALL; GROUT OPENING BETWEEN MANHOLE WALL AND PIPE
PLAN VIEW
4' TO 6'
TOP OF PIPE LINE
SLOPE TO DRAIN TOWARDS CHANNEL AT 1/2" PER FOOT MINIMUM
1/2"
6"
6" MINIMUM
SECTION VIEW

GENERAL NOTES

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.

Engineering Division
Stormwater Manhole - Precast Base (Sheet 3 of 3)
Approved By Utility Engineer Andy Schultz, PE
Adopted: 09/28/2020
Revised: 01/01/2023
STD - 612-3


TYPCIAL "L" TYPE CURB/GUTTER SECTION STD-740
8' MINIMUM
3:1 MAX SIDESLOPE
BOTTOM OF SWALE
3:1 MAX SIDESLOPE
SIDEWALK
CURB OPENING INTO BOULEVARD STD-607
10' MINIMUM
1/3 MAX
3" MIN.
6" MIN.
1' MINIMUM
SIDEWALK CROSS SLOPE
1/3 MAX
HOLD SUBGRADE DOWN 2" MIN. FOR SOD OVERGROWTH
MINIMUM 18" ENRICHED TOPSOIL FROM GARDEN CITY COMPOST (OR APPROVED EQUAL)
COMPACT TO 80%-85% ALONG SIDESLOPE ONLY
EJIW 3771Z FRAME EJIW 1205-02 BEEHIVE GRATE OR APPROVED EQUIVALENT
STANDARD DRY WELL STD-616 OR STANDARD INLET STD-614 PIPED TO STORMWATER MAIN

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2-A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. SWALE DESIGN WIDTH, LENGTH AND DEPTH WILL VARY AS REQUIRED TO PROVIDE ADEQUATE TREATMENT STORAGE FOR THE GIVEN STORM VOLUME.
3. DRY WELL/INLET SHALL BE INSTALLED A MINIMUM OF 8 FT FROM THE NEAREST CURB OPENING TO PREVENT DIRECT INFLOW INTO THE OVERFLOW GRATE. PROVIDE A MINIMUM OF 3 INCH FREEBOARD BETWEEN THE LOWEST SWALE INLET AND THE BASE OF THE TOP OF THE BEEHIVE GRATE.
4. SWALES WITH LONGITUDINAL SLOPE STEEPER THAN 2% SHALL HAVE CHECK DAMS INSTALLED.
5. PROVIDE A MINIMUM 1 FT FLAT AREA ADJACENT TO SIDEWALK WHEN USING A SIDE-SLOPE NO STEEPER THAN 3:1. IF FLAT AREA IS NOT PROVIDED ADJACENT TO SIDEWALK, THEN USE A SIDE-SLOPE NO STEEPER THAN 4:1.
6. NO COMPACTION IN SWALE BOTTOM.
7. UTILITY SERVICE LINES SHALL NOT BE INSTALLED THROUGH BIOSWALES.
8. UNDERDRAINS SHALL BE UTILIZED IF SOIL BELOW IS FOUND TO DRAIN POORLY OR IF BIOSWALE IS UPSTREAM OF A PIPED STORMWATER SYSTEM
9. BIOSWALE LANDSCAPING SHALL COMPLY WITH MISSOULA CITY MODIFICATION TO MPWSS SECTION 02900. BIOSWALES SHALL INCLUDE TREE PLANTINGS, EXCEPT DIRECTLY OVER UNDERDRAIN SYSTEMS, AND SHALL COMPLY WITH THE PARKS APPROVED STREET TREE LIST FOR "SWALE SUITABLE" TREES. TREES SHALL BE PLANTED PER PARKS AND RECREATION BALL AND BURLAP PLANTING SPECIFICATION WITH THE EXCEPTION THAT THEY ARE TO BE PLANTED 6" ABOVE FINAL GRADE.
10. TREES SHALL BE PLANTED A MINIMUM OF 10 FT FROM THE EDGE OF THE DRY WELL CONCRETE STRUCTURE.

Engineering Division
Bioswale
Approved By Utility Engineer Andy Schultz, PE
Revised: 01/01/2023
STD - 620

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER KD
PROJ. NO. 7486
DRAWN KD
DATE 10.23.2026
CHECKED KG
SURVEYED DJ&A, P.C.

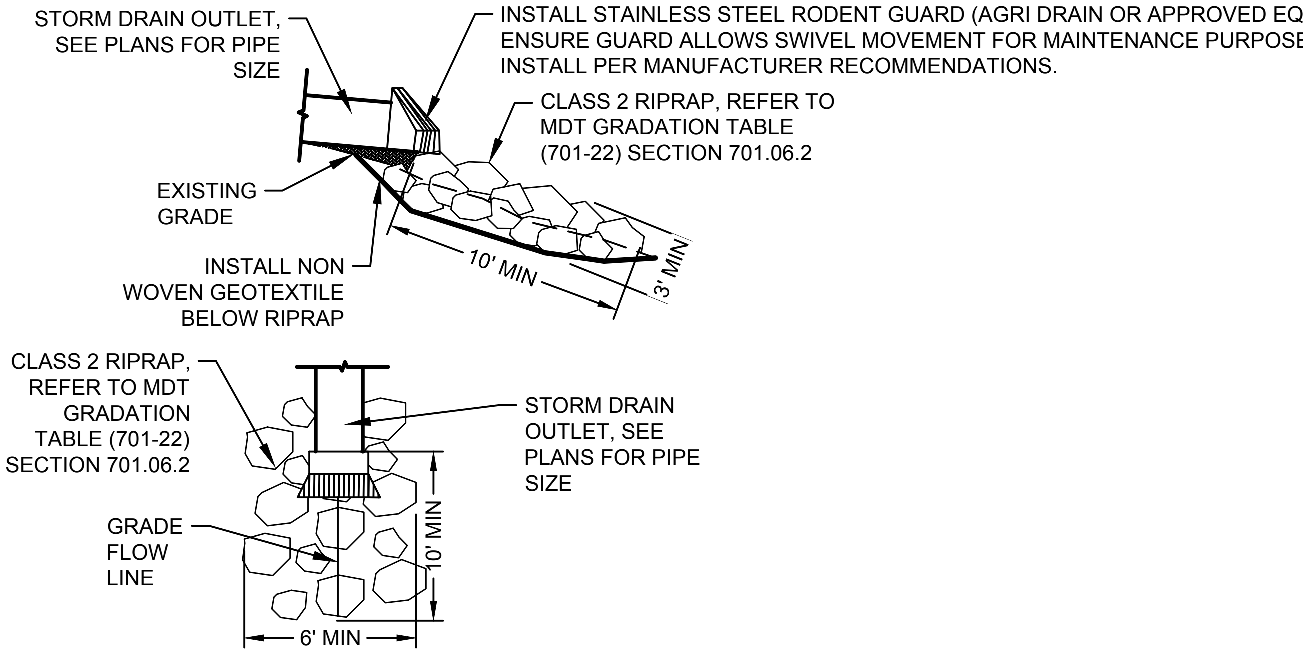
DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONSTRUCTION DETAILS - STORM

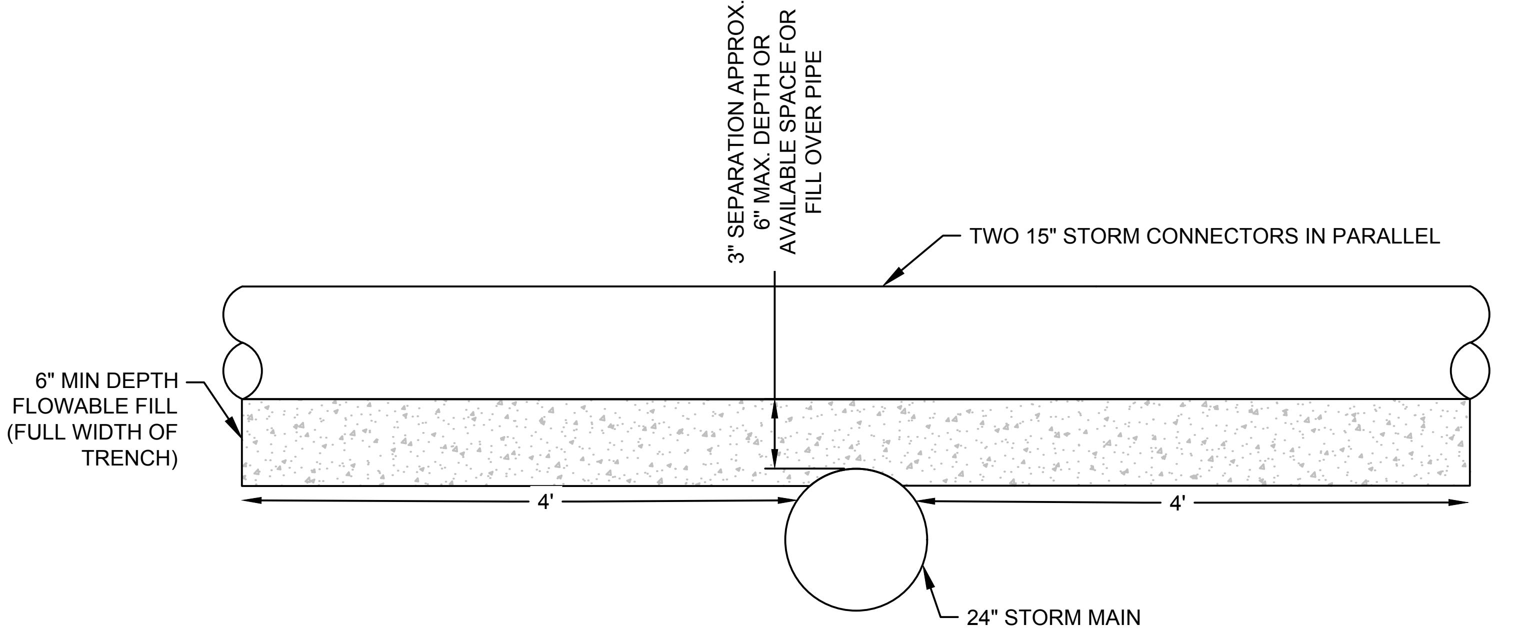
SHEET
75 OF 105

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;


STORM DRAIN OUTLET, SEE PLANS FOR PIPE SIZE
INSTALL STAINLESS STEEL RODENT GUARD (AGRI DRAIN OR APPROVED EQUAL), ENSURE GUARD ALLOWS SWIVEL MOVEMENT FOR MAINTENANCE PURPOSES. INSTALL PER MANUFACTURER RECOMMENDATIONS.
CLASS 2 RIPRAP, REFER TO MDT GRADATION TABLE (701-22) SECTION 701.06.2
EXISTING GRADE
INSTALL NON WOVEN GEOTEXTILE BELOW RIPRAP
10' MIN
3' MIN
CLASS 2 RIPRAP, REFER TO MDT GRADATION TABLE (701-22) SECTION 701.06.2
STORM DRAIN OUTLET, SEE PLANS FOR PIPE SIZE
GRADE FLOW LINE
10' MIN
6' MIN

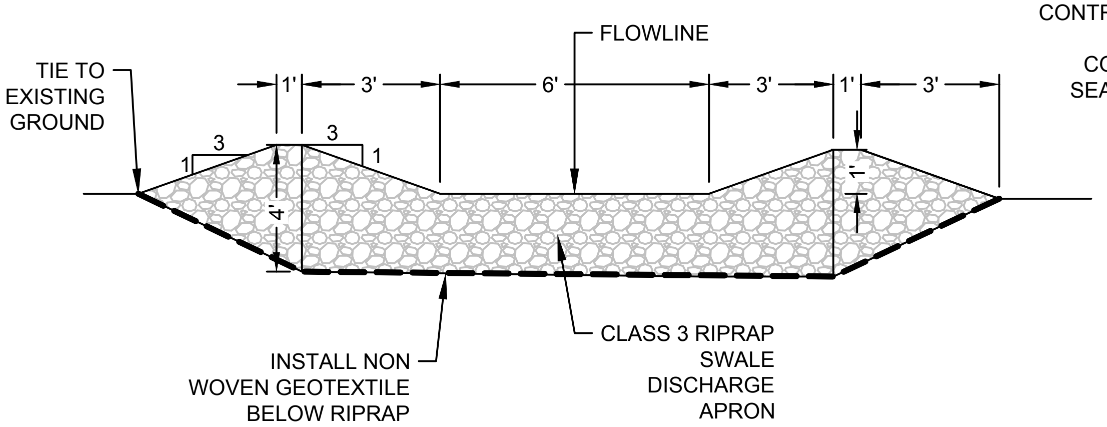
1/76 STORM CULVERT END SECTION

NTS


3" SEPARATION APPROX. 6" MAX. DEPTH OR AVAILABLE SPACE FOR FILL OVER PIPE
TWO 15" STORM CONNECTORS IN PARALLEL
6" MIN DEPTH FLOWABLE FILL (FULL WIDTH OF TRENCH)
4'
4'
24" STORM MAIN

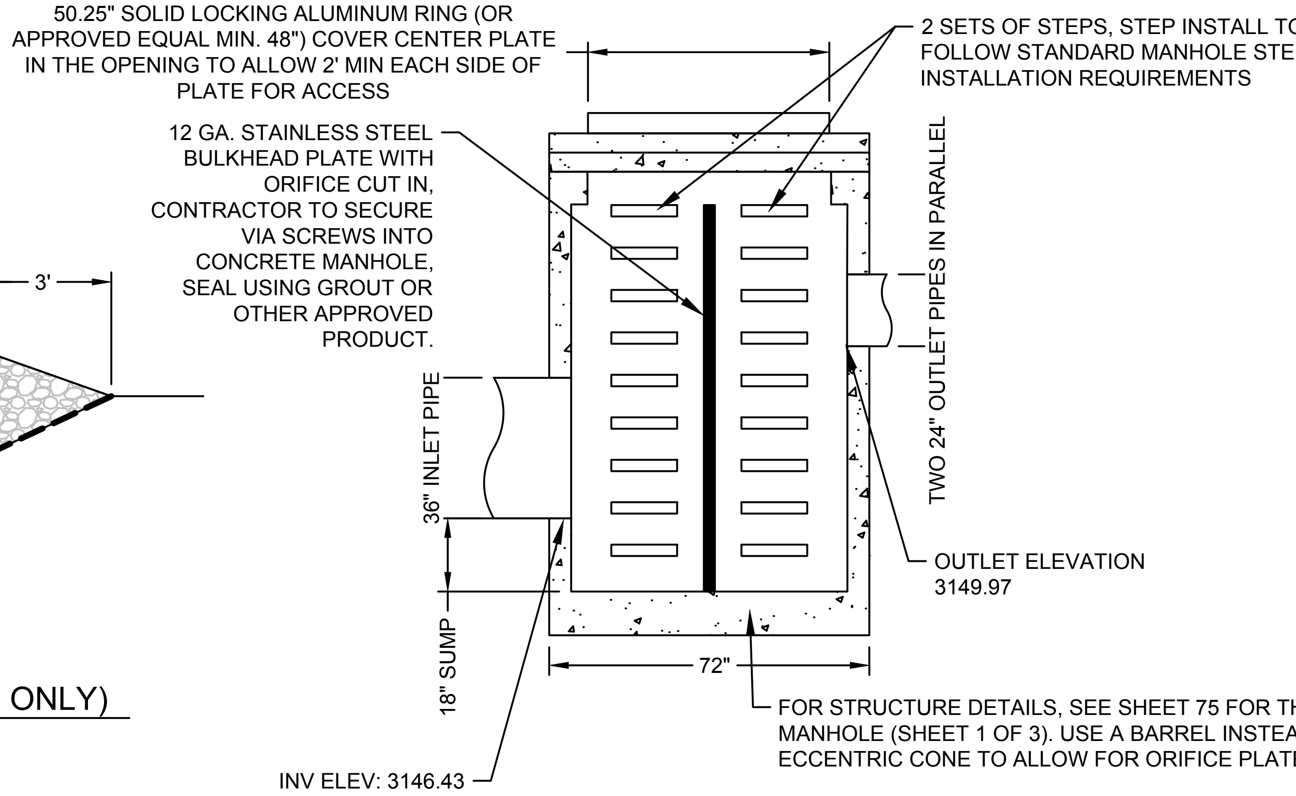
2/76 STORM PIPE CROSSING FLOWABLE FILL DETAIL

NTS

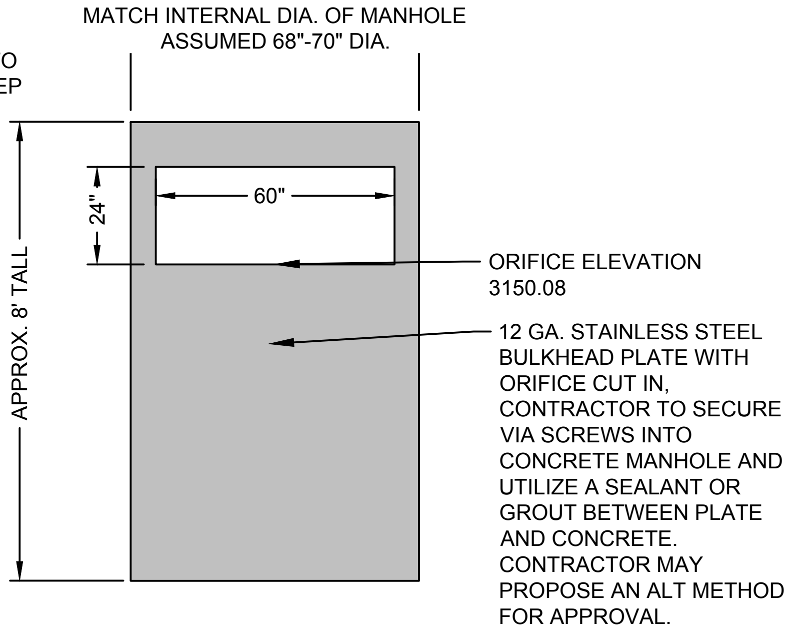

TIE TO EXISTING GROUND
FLOWLINE
1'
3'
6'
3'
1'
3'
3
1
3
1
4'
1'
INSTALL NON WOVEN GEOTEXTILE BELOW RIPRAP
CLASS 3 RIPRAP SWALE DISCHARGE APRON

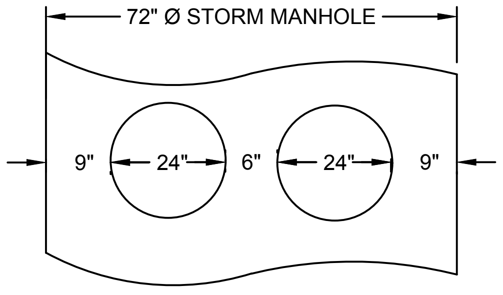
3/76 STORM OUTLET SWALE (CHAMBER SYSTEM ONLY)

NTS


50.25" SOLID LOCKING ALUMINUM RING (OR APPROVED EQUAL MIN. 48") COVER CENTER PLATE IN THE OPENING TO ALLOW 2' MIN EACH SIDE OF PLATE FOR ACCESS
2 SETS OF STEPS, STEP INSTALL TO FOLLOW STANDARD MANHOLE STEP INSTALLATION REQUIREMENTS
12 GA. STAINLESS STEEL BULKHEAD PLATE WITH ORIFICE CUT IN, CONTRACTOR TO SECURE VIA SCREWS INTO CONCRETE MANHOLE, SEAL USING GROUT OR OTHER APPROVED PRODUCT.
TWO 24" OUTLET PIPES IN PARALLEL
36" INLET PIPE
OUTLET ELEVATION 3149.97
18" SUMP
72"
INV ELEV: 3146.43

FOR STRUCTURE DETAILS, SEE SHEET 75 FOR THE STORMWATER MANHOLE (SHEET 1 OF 3). USE A BARREL INSTEAD OF AN ECCENTRIC CONE TO ALLOW FOR ORIFICE PLATE


MATCH INTERNAL DIA. OF MANHOLE ASSUMED 68"-70" DIA.
24"
60"
APPROX. 8' TALL
ORIFICE ELEVATION 3150.08
12 GA. STAINLESS STEEL BULKHEAD PLATE WITH ORIFICE CUT IN, CONTRACTOR TO SECURE VIA SCREWS INTO CONCRETE MANHOLE AND UTILIZE A SEALANT OR GROUT BETWEEN PLATE AND CONCRETE. CONTRACTOR MAY PROPOSE AN ALT METHOD FOR APPROVAL.



TWO 24" OUTLET PIPES IN PARALLEL

4/76 OUTLET ORIFICE PLATE

NTS

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER KD
PROJ. NO. 7486
DRAWN KD
DATE 10.23.2026
CHECKED KG
SURVEYED DJ&A, P.C.

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MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONSTRUCTION DETAILS - STORM

SHEET 76 OF 105

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;

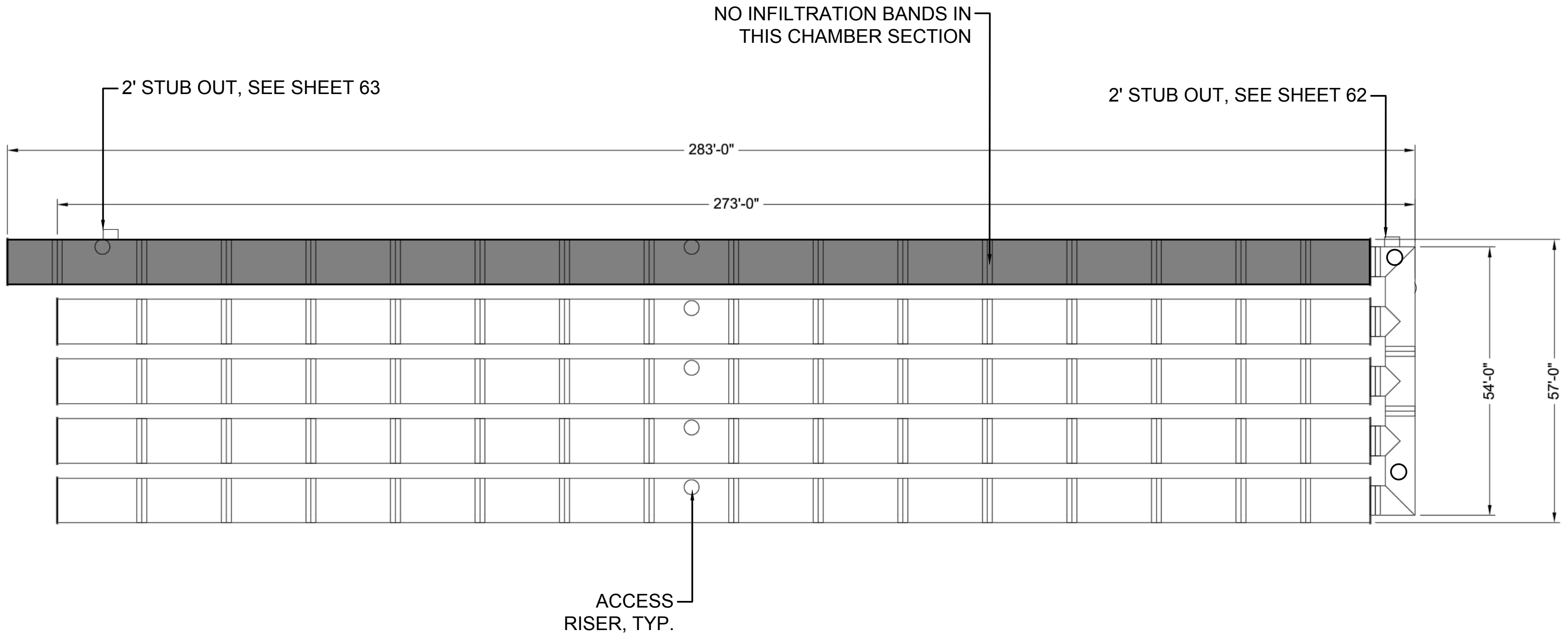
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20/HS25
- APPROX. LINEAR FOOTAGE = 1,394 LF

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 110,000 CF
- PIPE STORAGE VOLUME = 86,421 CF
- BACKFILL STORAGE VOLUME = 24,763 CF
- TOTAL STORAGE PROVIDED = 111,183 CF
- STONE VOID = 37%

PIPE DETAILS
- DIAMETER = 108"
- CORRUGATION = 5x1
- GAGE = 14
- COATING = ALT2
- WALL TYPE = XFILTRATION (SOLID WALL FOR HATCHED SECTION)
- BARREL SPACING = 36"

BACKFILL DETAILS ~ 2.4'
- WIDTH AT ENDS = 24"
- ABOVE PIPE = ~ 2.4'
- WIDTH AT SIDES = 24"
- BELOW PIPE = ~4" STONE BOTTOM PER FOLLOWING SHEET


NO INFILTRATION BANDS IN THIS CHAMBER SECTION
2' STUB OUT, SEE SHEET 63
2' STUB OUT, SEE SHEET 62
283'-0"
273'-0"
54'-0"
57'-0"
ACCESS RISER, TYP.

NOTES

- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE. ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE $2\frac{2}{3}$" x $\frac{1}{2}$" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.
- THE PROJECT SUMMARY IS REFLECTIVE OF THE DYODS DESIGN, QUANTITIES ARE APPROX. AND SHOULD BE VERIFIED UPON FINAL DESIGN AND APPROVAL. FOR EXAMPLE, TOTAL EXCAVATION DOES NOT CONSIDER ALL VARIABLES SUCH AS SHORING AND ONLY ACCOUNTS FOR MATERIAL WITHIN THE ESTIMATED EXCAVATION FOOTPRINT.
- THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

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CONTECH®
CMP DETENTION SYSTEMS
CONTECH
DYODS
DRAWING

DYO105295 MOAB
Regional facility - 108" -Revised
Missoula, MT
DETENTION SYSTEM

PROJECT No.: 69870	SEQ. No.: 105295	DATE: 3/27/2026
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: 1		

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER KD PROJ. NO. 7486
DRAWN KD DATE 10.23.2026
CHECKED KG SURVEYED DJ&A, P.C.

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MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

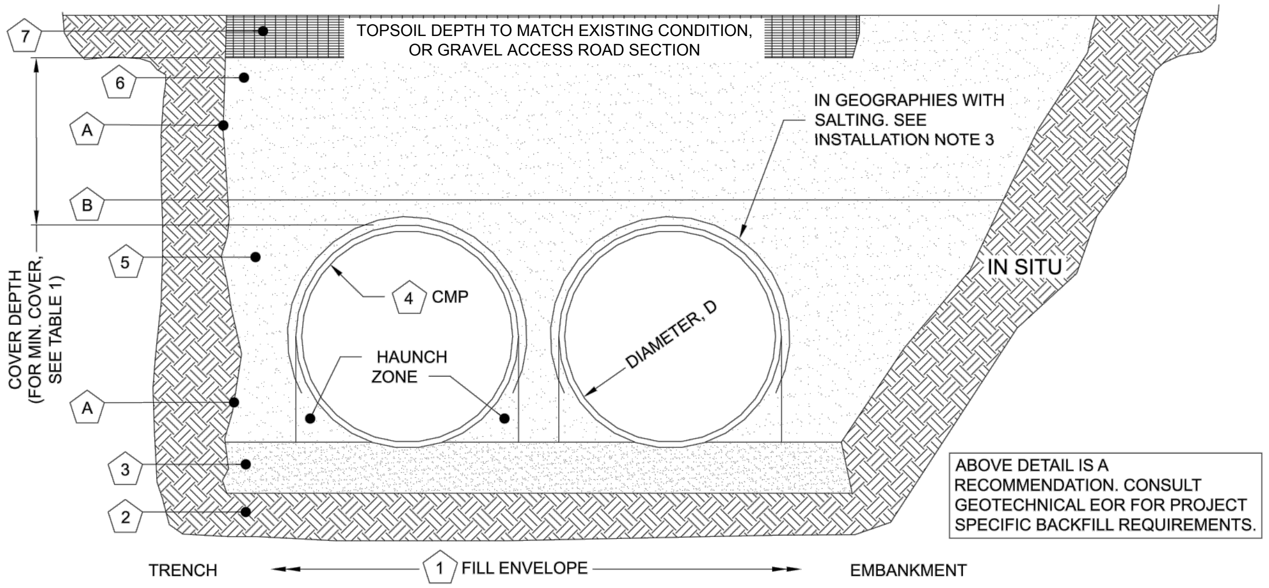
CONSTRUCTION DETAILS - STORM SYSTEM (1)

SHEET
77 OF 105

TABLE 1:

DIAMETER, D	MIN. COVER	CORR. PROFILE
6"-10"	12"	1 1/2" x 1/4"
12"-48"	12"	2 2/3" x 1/2"
>48"-96"	12"	3" x 1", 5" x 1"
>96"	D/8	3" x 1", 5" x 1"

- STRUCTURAL BACKFILL MUST EXTEND TO LIMITS OF THE TABLE
- TOTAL HEIGHT OF COMPACTED COVER FOR CONVENTIONAL HIGHWAY LOADS IS MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT.


7
TOPSOIL DEPTH TO MATCH EXISTING CONDITION, OR GRAVEL ACCESS ROAD SECTION
6
A
B
5
COVER DEPTH (FOR MIN. COVER, SEE TABLE 1)
IN GEOGRAPHIES WITH SALTING. SEE INSTALLATION NOTE 3
IN SITU
4 CMP
HAUNCH ZONE
DIAMETER, D
A
3
2
TRENCH
1 FILL ENVELOPE
EMBANKMENT

ABOVE DETAIL IS A RECOMMENDATION. CONSULT GEOTECHNICAL EOR FOR PROJECT SPECIFIC BACKFILL REQUIREMENTS.

MINIMUM WIDTH DEPENDS ON SITE CONDITIONS AND ENGINEERING JUDGEMENT

INSTALLATION NOTES

1. WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES.
2. OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS, AS APPROVED BY SITE ENGINEER.
3. IF SALTING AGENTS FOR SNOW AND ICE REMOVAL ARE USED ON OR NEAR THE PROJECT, A GEOMEMBRANE BARRIER IS RECOMMENDED OVER THE UPPER HALF OF THE PIPE. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM A CHANGE IN THE SURROUNDING ENVIRONMENT OVER A PERIOD OF TIME. PLEASE REFER TO THE CORRUGATED METAL PIPE DETENTION DESIGN GUIDE FOR ADDITIONAL INFORMATION.

TABLE 2: xFiltration

XFILTRATION© JOINT STANDARD BACKFILL SPECIFICATIONS

	MATERIAL LOCATION	MATERIAL SPECIFICATION	DESCRIPTION	
1	FILL ENVELOPE WIDTH	PER ENGINEER OF RECORD	MINIMUM TRENCH WIDTH MUST ALLOW ROOM FOR PROPER COMPACTION OF HAUNCH MATERIALS UNDER THE PIPE. THE SUGGESTED MINIMUM TRENCH WIDTH, OR EOR RECOMMENDATION: PIPE ≤ 12": D + 16" PIPE > 12": 1.5D + 12"	MINIMUM EMBANKMENT WIDTH (IN FEET) FOR INITIAL FILL ENVELOPE: PIPE < 24": 3.0D PIPE 24" - 144": D + 4'0" PIPE > 144": D + 10'0"
2	FOUNDATION	**AASHTO 26.5.2** - PER ENGINEER OF RECORD	PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND FOUNDATION BROUGHT BACK TO GRADE WITH A FILL MATERIAL APPROVED BY THE ENGINEER OF RECORD.	
3	BEDDING	**AASHTO M 43: 3, 357, 4, 467, 5, 56, 57**	PIPE SHOULD BE PLACED ON THE FOUNDATION BOTTOM WITH A 4"-6" MINIMUM STONE DEPTH ROUGHLY SHAPPED TO FIT THE BOTTOM OF THE PIPE. IF THE ENGINEER OF RECORD DETERMINES THAT STONE BEDDING IS NOT NEEDED, THE PIPE MAY BE PLACED ON THE TRENCH BOTTOM SEPERATED WITH A NON-WOVEN GEOTEXTILE PLACED AT THE INVERT OF A RELATIVELY LOOSE MATERIAL THAT IS ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE, 2" MIN DEPTH.	
4	CORRUGATED METAL PIPE			
5	BACKFILL	FREE-DRAINING, ANGULAR, NATURALLY OCCURRING WASHED-STONE PER **AASHTO M 43: 3, 357, 4, 467, 5, 56, 57** OR APPROVED EQUAL *	HAUNCH ZONE MATERIAL SHALL BE HAND SHOVELED OR SHOVEL SLICED INTO PLACE TO ALLOW FOR PROPER COMPACTION WITHOUT SOFT SPOTS. BACKFILL SHALL BE PLACED IN 8" +/- LOOSE LIFTS AND COMPACTED TO 90% STANDARD PROCTOR PER AASHTO T 99. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO LIFT (16") DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY TIME DURING THE BACKFILL PROCESS. THE BACKFILL SHOULD BE ADVANCED ALONG THE LENGTH OF THE SYSTEM TO AVOID DIFFERENTIAL LOADING. WHERE CONVENTIONAL COMPACTION TESTING IS NOT PRACTICAL, THE MATERIAL SHALL BE MECHANICALLY COMPACTED UNTIL NO FURTHER YIELDING OF MATERIAL IS OBSERVED UNDER THE COMPACTOR. **IN AREAS WITH HIGH WATER TABLE FLUCTUATIONS THAT INTERACT WITH THE PIPE ZONE, CONSIDER INSTALLING A GEOTEXTILE SEPARATION LAYER TO PREVENT SOIL MIGRATION.	
6	COVER MATERIAL	UP TO MIN. COVER - **AASHTO M 145: A-1, A-2, A-3** ABOVE MIN. COVER - PER ENGINEER OF RECORD	COVER MATERIAL MAY INCLUDE NON-BITUMINOUS, GRANULAR ROADBASE MATERIAL WITHIN MIN COVER LIMITS	
7	RIGID OR FLEXIBLE PAVEMENT (IF APPLICABLE)	PER ENGINEER OF RECORD	FLEXIBLE PAVEMENT SHOULD NOT BE COUNTED AS PART OF THE FILL HEIGHT OVER THE CMP. FINAL BACKFILL MATERIAL SELECTION AND COMPACTION REQUIREMENTS SHALL FOLLOW THE PROJECT PLANS AND SPECIFICATIONS PER THE ENGINEER OF RECORD.	
A	SIDE GEOTEXTILE	YES	GEOTEXTILE LAYER IS RECOMMENDED ON SIDES OF EXCAVATION TO PREVENT SOIL MIGRATION WHEN STONE BEDDING IS USED. IF NO STONE BEDDING IS USED, THEN SIDE GEOTEXTILE IS REQUIRED.	
B	GEOTEXTILE BETWEEN LAYERS	YES, OVER SYSTEM	IF SOIL TYPES DIFFER AT ANY POINT ABOVE PIPE INVERT, A GEOTEXTILE LAYER IS RECOMMENDED TO BE PLACED BETWEEN THE LAYERS TO PREVENT SOIL MIGRATION.	

NOTES:

- FOR MULTIPLE BARREL INSTALLATIONS, THE RECOMMENDED STANDARD SPACING BETWEEN PARALLEL PIPE RUNS SHALL BE THE PIPE DIAMETER /2 BUT NO LESS THAN 12" FOR DIAMETERS <72". FOR 72" AND LARGER DIAMETERS, THE MINIMUM SPACING IS 36". CONTACT YOUR CONTECH REPRESENTATIVE FOR NONSTANDARD SPACING.

* APPROVED REGIONAL EQUIVALENTS FOR SECTION 5 INCLUDE CA-7, MIDOT 6AA, 6A, OR 5G, PROVIDED THEY MEET THE PARTICLE SIZES INDICATED.

MANUFACTURER RECOMMENDED BACKFILL

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DYO105295 MOAB
Regional facility - 108" -Revised
Missoula, MT
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
69870	105295	3/27/2026

DESIGNED: DYO
DRAWN: DYO
CHECKED: DYO
APPROVED: DYO
SHEET NO.: 1

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;

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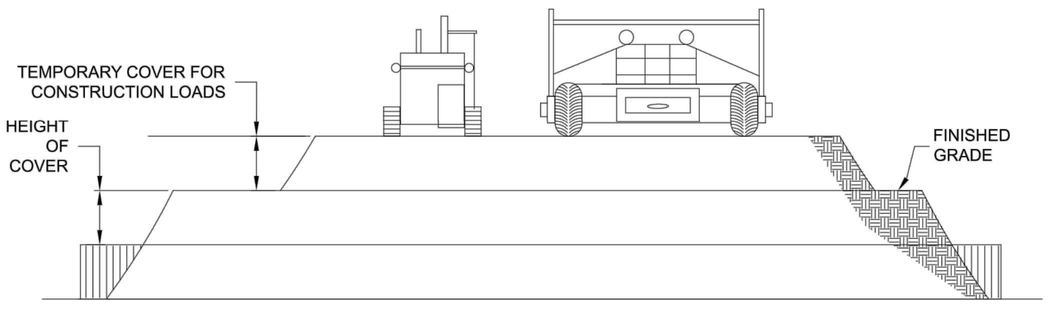
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONSTRUCTION DETAILS - STORM SYSTEM (2)



CONSTRUCTION LOADS

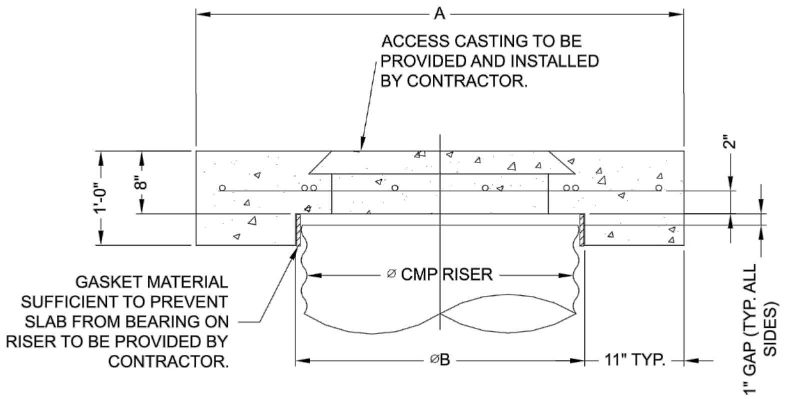
FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
	MINIMUM COVER (FT)			
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

CONSTRUCTION LOADING DIAGRAM

SCALE: N.T.S.

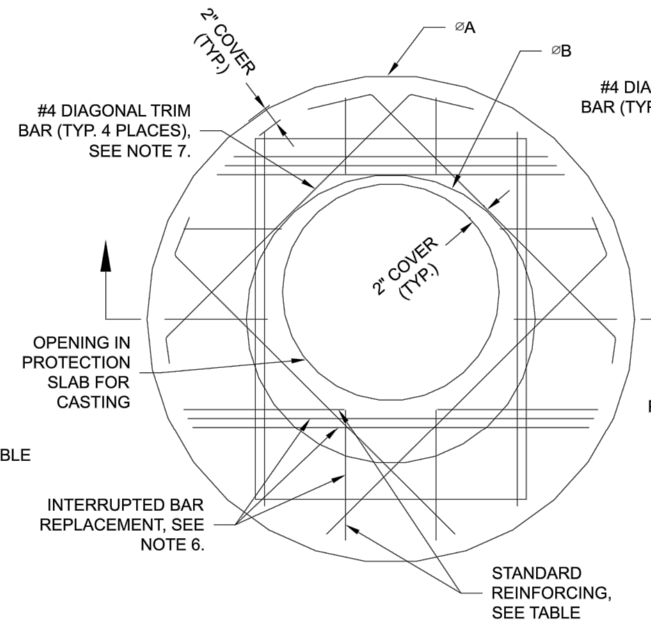

A
ACCESS CASTING TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
2"
1'-0"
8"
GASKET MATERIAL SUFFICIENT TO PREVENT SLAB FROM BEARING ON RISER TO BE PROVIDED BY CONTRACTOR.
⌀ CMP RISER
⌀B
11" TYP.
1" GAP (TYP. ALL SIDES)

SECTION VIEW

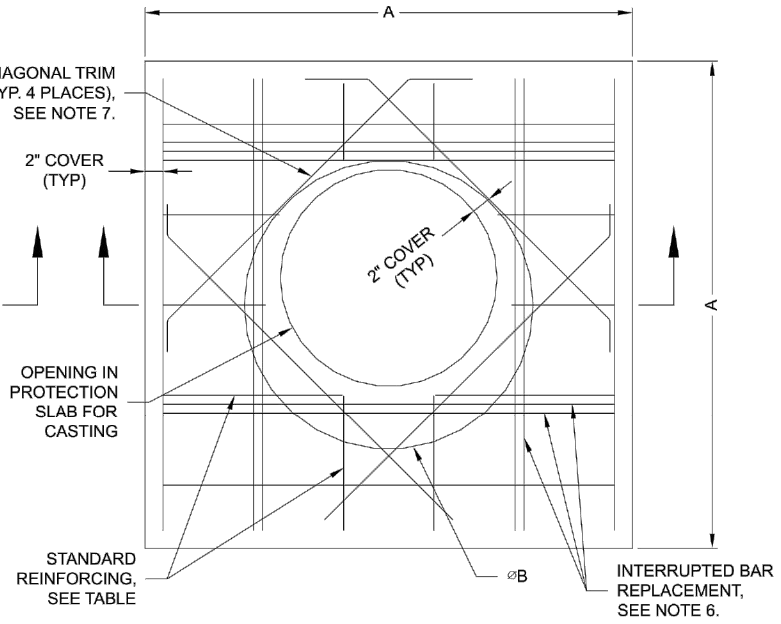
REINFORCING TABLE

⌀ CMP RISER	A	⌀ B	REINFORCING	**BEARING PRESSURE (PSF)
24"	⌀ 4' 4'X4'	26"	#5 @ 12" OCEW #5 @ 12" OCEW	2,410 1,780
30"	⌀ 4'-6" 4'-6" X 4'-6"	32"	#5 @ 12" OCEW #5 @ 12" OCEW	2,120 1,530
36"	⌀ 5' 5' X 5'	38"	#5 @ 10" OCEW #5 @ 10" OCEW	1,890 1,350
42"	⌀ 5'-6" 5'-6" X 5'-6"	44"	#5 @ 10" OCEW #5 @ 9" OCEW	1,720 1,210
48"	⌀ 6' 6' X 6'	50"	#5 @ 9" OCEW #5 @ 8" OCEW	1,600 1,100

** ASSUMED SOIL BEARING CAPACITY


2" COVER (TYP.)
⌀A
⌀B
#4 DIAGONAL TRIM BAR (TYP. 4 PLACES), SEE NOTE 7.
2" COVER (TYP.)
OPENING IN PROTECTION SLAB FOR CASTING
INTERRUPTED BAR REPLACEMENT, SEE NOTE 6.
STANDARD REINFORCING, SEE TABLE

ROUND OPTION PLAN VIEW


A
#4 DIAGONAL TRIM BAR (TYP. 4 PLACES), SEE NOTE 7.
2" COVER (TYP)
2" COVER (TYP)
A
OPENING IN PROTECTION SLAB FOR CASTING
STANDARD REINFORCING, SEE TABLE
⌀B
INTERRUPTED BAR REPLACEMENT, SEE NOTE 6.

SQUARE OPTION PLAN VIEW

NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION.
2. DESIGN LOAD HS25.
3. EARTH COVER = 1' MAX.
4. CONCRETE STRENGTH = 3,500 psi
5. REINFORCING STEEL = ASTM A615, GRADE 60.
6. PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.
7. TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING, BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
8. PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
9. DETAIL DESIGN BY DELTA ENGINEERING, BINGHAMTON, NY.

MANHOLE CAP DETAIL

SCALE: N.T.S.

SPECIFICATION FOR DESIGNED DETENTION SYSTEM:

SCOPE
THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE DESIGNED DETENTION SYSTEM DETAILED IN THE PROJECT PLANS.

MATERIAL
THE MATERIAL SHALL CONFORM TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-274 OR ASTM A-92.

THE GALVANIZED STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-218 OR ASTM A-929.

THE POLYMER COATED STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-246 OR ASTM A-742.

THE ALUMINUM COILS SHALL CONFORM TO THE APPLICABLE OF AASHTO M-197 OR ASTM B-744.

CONSTRUCTION LOADS
CONSTRUCTION LOADS MAY BE HIGHER THAN FINAL LOADS. FOLLOW THE MANUFACTURER'S OR NCSPA GUIDELINES.

PIPE
THE PIPE SHALL BE MANUFACTURED IN ACCORDANCE TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2: AASHTO M-36 OR ASTM A-760

GALVANIZED: AASHTO M-36 OR ASTM A-760

POLYMER COATED : AASHTO M-245 OR ASTM A-762

ALUMINUM: AASHTO M-196 OR ASTM B-745 APPLICABLE

HANDLING AND ASSEMBLY
SHALL BE IN ACCORDANCE WITH NCSP'S (NATIONAL CORRUGATED STEEL PIPE ASSOCIATION) FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL. SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR ALUMINUM PIPE. REQUIREMENTS

INSTALLATION
SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II DIVISION II OR ASTM A-798 (FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL) OR ASTM B-788 (FOR ALUMINUM PIPE) AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.

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9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH®
CMP DETENTION SYSTEMS
CONTECH
DYODS
DRAWING

DYO105295 MOAB
Regional facility - 108" -Revised
Missoula, MT
DETENTION SYSTEM

PROJECT No.: 69870	SEQ. No.: 105295	DATE: 3/27/2026
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: 1		

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER KD PROJ. NO. 7486
DRAWN KD DATE 10.23.2026
CHECKED KG SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONSTRUCTION DETAILS - STORM SYSTEM (3)

SHEET
79 OF 105

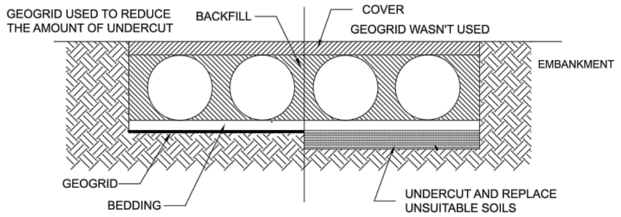
CMP DETENTION INSTALLATION GUIDE

PROPER INSTALLATION OF A FLEXIBLE UNDERGROUND DETENTION SYSTEM WILL ENSURE LONG-TERM PERFORMANCE. THE CONFIGURATION OF THESE SYSTEMS OFTEN REQUIRES SPECIAL CONSTRUCTION PRACTICES THAT DIFFER FROM CONVENTIONAL FLEXIBLE PIPE CONSTRUCTION. CONTECH ENGINEERED SOLUTIONS STRONGLY SUGGESTS SCHEDULING A PRE-CONSTRUCTION MEETING WITH YOUR LOCAL SALES ENGINEER TO DETERMINE IF ADDITIONAL MEASURES, NOT COVERED IN THIS GUIDE, ARE APPROPRIATE FOR YOUR SITE.

FOUNDATION

CONSTRUCT A FOUNDATION THAT CAN SUPPORT THE DESIGN LOADING APPLIED BY THE PIPE AND ADJACENT BACKFILL WEIGHT AS WELL AS MAINTAIN ITS INTEGRITY DURING CONSTRUCTION.

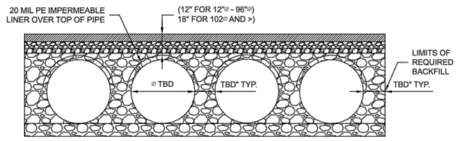
IF SOFT OR UNSUITABLE SOILS ARE ENCOUNTERED, REMOVE THE POOR SOILS DOWN TO A SUITABLE DEPTH AND THEN BUILD UP TO THE APPROPRIATE ELEVATION WITH A COMPETENT BACKFILL MATERIAL. THE STRUCTURAL FILL MATERIAL GRADATION SHOULD NOT ALLOW THE MIGRATION OF FINES, WHICH CAN CAUSE SETTLEMENT OF THE DETENTION SYSTEM OR PAVEMENT ABOVE. IF THE STRUCTURAL FILL MATERIAL IS NOT COMPATIBLE WITH THE UNDERLYING SOILS AN ENGINEERING FABRIC SHOULD BE USED AS A SEPARATOR. IN SOME CASES, USING A STIFF REINFORCING GEOGRID REDUCES OVER EXCAVATION AND REPLACEMENT FILL QUANTITIES.


GEOGRID USED TO REDUCE THE AMOUNT OF UNDERCUT
BACKFILL
COVER
GEOGRID WASN'T USED
EMBANKMENT
GEOGRID
BEDDING
UNDERCUT AND REPLACE UNSUITABLE SOILS

GRADE THE FOUNDATION SUBGRADE TO A UNIFORM OR SLIGHTLY SLOPING GRADE. IF THE SUBGRADE IS CLAY OR RELATIVELY NON-POROUS AND THE CONSTRUCTION SEQUENCE WILL LAST FOR AN EXTENDED PERIOD OF TIME, IT IS BEST TO SLOPE THE GRADE TO ONE END OF THE SYSTEM. THIS WILL ALLOW EXCESS WATER TO DRAIN QUICKLY, PREVENTING SATURATION OF THE SUBGRADE.

GEOMEMBRANE BARRIER

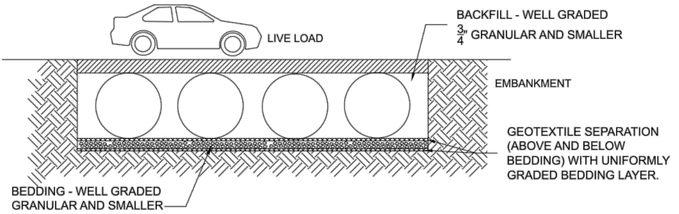
THE RESISTIVITY OF A PROJECT SITE MAY CHANGE OVER TIME DUE TO THE USE OF VARIOUS SALTING, DE-ICING, AND AGRICULTURAL AGENTS APPLIED ON OR NEAR THE AREA. TO MITIGATE THE POTENTIAL IMPACT OF THESE AGENTS, AN HDPE MEMBRANE LINER WILL BE INSTALLED ON THE CROWN OF EACH PIPE, CREATING AN IMPERMEABLE BARRIER. THIS MEASURE IS DESIGNED TO PROTECT THE SYSTEM FROM ENVIRONMENTAL CHANGES THAT COULD LEAD TO PREMATURE CORROSION AND REDUCE THE OVERALL SERVICE LIFE.


20 MIL PE IMPERMEABLE LINER OVER TOP OF PIPE
(12" FOR 12"⌀ - 96"⌀) 18" FOR 102⌀ AND >)
LIMITS OF REQUIRED BACKFILL
⌀ TBD
TBD" TYP.
TBD" TYP.

IN-SITU TRENCH WALL

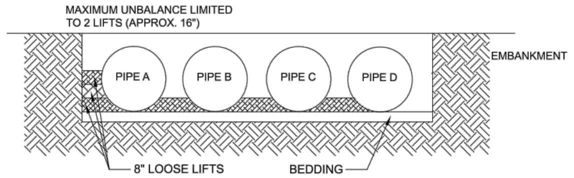
IF EXCAVATION IS REQUIRED, THE TRENCH WALL NEEDS TO BE CAPABLE OF SUPPORTING THE LOAD THAT THE PIPE SHEDS AS THE SYSTEM IS LOADED. IF SOILS ARE NOT CAPABLE OF SUPPORTING THESE LOADS, THE PIPE CAN DEFLECT. PERFORM A SIMPLE SOIL PRESSURE CHECK USING THE APPLIED LOADS TO DETERMINE THE LIMITS OF EXCAVATION BEYOND THE SPRING LINE OF THE OUTER MOST PIPES.

IN MOST CASES THE REQUIREMENTS FOR A SAFE WORK ENVIRONMENT AND PROPER BACKFILL PLACEMENT AND COMPACTION TAKE CARE OF THIS CONCERN.


LIVE LOAD
BACKFILL - WELL GRADED $\frac{3}{4}$" GRANULAR AND SMALLER
EMBANKMENT
GEOTEXTILE SEPARATION (ABOVE AND BELOW BEDDING) WITH UNIFORMLY GRADED BEDDING LAYER.
BEDDING - WELL GRADED GRANULAR AND SMALLER

BACKFILL PLACEMENT

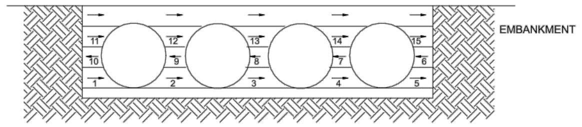
MATERIAL SHALL BE WORKED INTO THE PIPE HAUNCHES BY MEANS OF SHOVEL-SLICING, RODDING, AIR TAMPER, VIBRATORY ROD, OR OTHER EFFECTIVE METHODS.



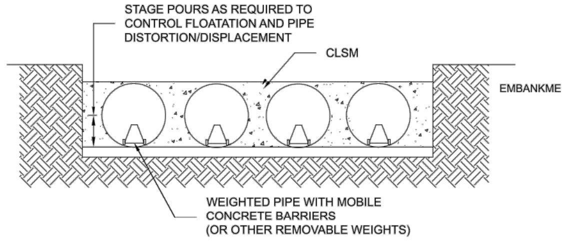
IF AASHTO T99 PROCEDURES ARE DETERMINED INFEASIBLE BY THE GEOTECHNICAL ENGINEER OF RECORD, COMPACTION IS CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR, OR UNDER FOOT, AND THE GEOTECHNICAL ENGINEER OF RECORD (OR REPRESENTATIVE THEREOF) IS SATISFIED WITH THE LEVEL OF COMPACTION.

FOR LARGE SYSTEMS, CONVEYOR SYSTEMS, BACKHOES WITH LONG REACHES OR DRAGLINES WITH STONE BUCKETS MAY BE USED TO PLACE BACKFILL. ONCE MINIMUM COVER FOR CONSTRUCTION LOADING ACROSS THE ENTIRE WIDTH OF THE SYSTEM IS REACHED, ADVANCE THE EQUIPMENT TO THE END OF THE RECENTLY PLACED FILL, AND BEGIN THE SEQUENCE AGAIN UNTIL THE SYSTEM IS COMPLETELY BACKFILLED. THIS TYPE OF CONSTRUCTION SEQUENCE PROVIDES ROOM FOR STOCKPILED BACKFILL DIRECTLY BEHIND THE BACKHOE, AS WELL AS THE MOVEMENT OF CONSTRUCTION TRAFFIC. MATERIAL STOCKPILES ON TOP OF THE BACKFILLED DETENTION SYSTEM SHOULD BE LIMITED TO 8- TO 10-FEET HIGH AND MUST PROVIDE BALANCED LOADING ACROSS ALL BARRELS. TO DETERMINE THE PROPER COVER OVER THE PIPES TO ALLOW THE MOVEMENT OF CONSTRUCTION EQUIPMENT SEE TABLE 1, OR CONTACT YOUR LOCAL CONTECH SALES ENGINEER.

TYPICAL BACKFILL SEQUENCE



WHEN FLOWABLE FILL IS USED, YOU MUST PREVENT PIPE FLOATATION. TYPICALLY, SMALL LIFTS ARE PLACED BETWEEN THE PIPES AND THEN ALLOWED TO SET-UP PRIOR TO THE PLACEMENT OF THE NEXT LIFT. THE ALLOWABLE THICKNESS OF THE CLSM LIFT IS A FUNCTION OF A PROPER BALANCE BETWEEN THE UPLIFT FORCE OF THE CLSM, THE OPPOSING WEIGHT OF THE PIPE, AND THE EFFECT OF OTHER RESTRAINING MEASURES. THE PIPE CAN CARRY LIMITED FLUID PRESSURE WITHOUT PIPE DISTORTION OR DISPLACEMENT, WHICH ALSO AFFECTS THE CLSM LIFT THICKNESS. YOUR LOCAL CONTECH SALES ENGINEER CAN HELP DETERMINE THE PROPER LIFT THICKNESS.

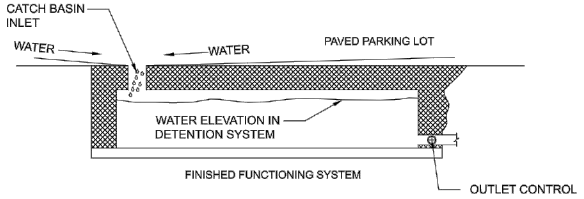

STAGE POURS AS REQUIRED TO CONTROL FLOATATION AND PIPE DISTORTION/DISPLACEMENT
CLSM
EMBANKMENT
WEIGHTED PIPE WITH MOBILE CONCRETE BARRIERS (OR OTHER REMOVABLE WEIGHTS)

CONSTRUCTION LOADING

TYPICALLY, THE MINIMUM COVER SPECIFIED FOR A PROJECT ASSUMES H-20 LIVE LOAD. BECAUSE CONSTRUCTION LOADS OFTEN EXCEED DESIGN LIVE LOADS, INCREASED TEMPORARY MINIMUM COVER REQUIREMENTS ARE NECESSARY. SINCE CONSTRUCTION EQUIPMENT VARIES FROM JOB TO JOB, IT IS BEST TO ADDRESS EQUIPMENT SPECIFIC MINIMUM COVER REQUIREMENTS WITH YOUR LOCAL CONTECH SALES ENGINEER DURING YOUR PRE-CONSTRUCTION MEETING.

ADDITIONAL CONSIDERATIONS

BECAUSE MOST SYSTEMS ARE CONSTRUCTED BELOW-GRADE, RAINFALL CAN RAPIDLY FILL THE EXCAVATION; POTENTIALLY CAUSING FLOATATION AND MOVEMENT OF THE PREVIOUSLY PLACED PIPES. TO HELP MITIGATE POTENTIAL PROBLEMS, IT IS BEST TO START THE INSTALLATION AT THE DOWNSTREAM END WITH THE OUTLET ALREADY CONSTRUCTED TO ALLOW A ROUTE FOR THE WATER TO ESCAPE. TEMPORARY DIVERSION MEASURES MAY BE REQUIRED FOR HIGH FLOWS DUE TO THE RESTRICTED NATURE OF THE OUTLET PIPE.


CATCH BASIN INLET
WATER
WATER
PAVED PARKING LOT
WATER ELEVATION IN DETENTION SYSTEM
FINISHED FUNCTIONING SYSTEM
OUTLET CONTROL

CMP DETENTION SYSTEM INSPECTION AND MAINTENANCE

UNDERGROUND STORMWATER DETENTION AND INFILTRATION SYSTEMS MUST BE INSPECTED AND MAINTAINED AT REGULAR INTERVALS FOR PURPOSES OF PERFORMANCE AND LONGEVITY.

INSPECTION

INSPECTION IS THE KEY TO EFFECTIVE MAINTENANCE OF CMP DETENTION SYSTEMS AND IS EASILY PERFORMED. CONTECH RECOMMENDS ONGOING, ANNUAL INSPECTIONS. SITES WITH HIGH TRASH LOAD OR SMALL OUTLET CONTROL ORIFICES MAY NEED MORE FREQUENT INSPECTIONS. THE RATE AT WHICH THE SYSTEM COLLECTS POLLUTANTS WILL DEPEND MORE ON SITE SPECIFIC ACTIVITIES RATHER THAN THE SIZE OR CONFIGURATION OF THE SYSTEM.

INSPECTIONS SHOULD BE PERFORMED MORE OFTEN IN EQUIPMENT WASHDOWN AREAS, IN CLIMATES WHERE SANDING AND/OR SALTING OPERATIONS TAKE PLACE, AND IN OTHER VARIOUS INSTANCES IN WHICH ONE WOULD EXPECT HIGHER ACCUMULATIONS OF SEDIMENT OR ABRASIVE/ CORROSIVE CONDITIONS. A RECORD OF EACH INSPECTION IS TO BE MAINTAINED FOR THE LIFE OF THE SYSTEM

MAINTENANCE

CMP DETENTION SYSTEMS SHOULD BE CLEANED WHEN AN INSPECTION REVEALS ACCUMULATED SEDIMENT OR TRASH IS CLOGGING THE DISCHARGE ORIFICE.

ACCUMULATED SEDIMENT AND TRASH CAN TYPICALLY BE EVACUATED THROUGH THE MANHOLE OVER THE OUTLET ORIFICE. IF MAINTENANCE IS NOT PERFORMED AS RECOMMENDED, SEDIMENT AND TRASH MAY ACCUMULATE IN FRONT OF THE OUTLET ORIFICE. MANHOLE COVERS SHOULD BE SECURELY SEATED FOLLOWING CLEANING ACTIVITIES. CONTECH SUGGESTS THAT ALL SYSTEMS BE DESIGNED WITH AN ACCESS/INSPECTION MANHOLE SITUATED AT OR NEAR THE INLET AND THE OUTLET ORIFICE. SHOULD IT BE NECESSARY TO GET INSIDE THE SYSTEM TO PERFORM MAINTENANCE ACTIVITIES, ALL APPROPRIATE PRECAUTIONS REGARDING CONFINED SPACE ENTRY AND OSHA REGULATIONS SHOULD BE FOLLOWED.

ANNUAL INSPECTIONS ARE BEST PRACTICE FOR ALL UNDERGROUND SYSTEMS. DURING THIS INSPECTION, IF EVIDENCE OF SALTING/DE-ICING AGENTS IS OBSERVED WITHIN THE SYSTEM, IT IS BEST PRACTICE FOR THE SYSTEM TO BE RINSED, INCLUDING ABOVE THE SPRING LINE SOON AFTER THE SPRING THAW AS PART OF THE MAINTENANCE PROGRAM FOR THE SYSTEM.

MAINTAINING AN UNDERGROUND DETENTION OR INFILTRATION SYSTEM IS EASIEST WHEN THERE IS NO FLOW ENTERING THE SYSTEM. FOR THIS REASON, IT IS A GOOD IDEA TO SCHEDULE THE CLEANOUT DURING DRY WEATHER.

THE FOREGOING INSPECTION AND MAINTENANCE EFFORTS HELP ENSURE UNDERGROUND PIPE SYSTEMS USED FOR STORMWATER STORAGE CONTINUE TO FUNCTION AS INTENDED BY IDENTIFYING RECOMMENDED REGULAR INSPECTION AND MAINTENANCE PRACTICES. INSPECTION AND MAINTENANCE RELATED TO THE STRUCTURAL INTEGRITY OF THE PIPE OR THE SOUNDNESS OF PIPE JOINT CONNECTIONS IS BEYOND THE SCOPE OF THIS GUIDE.

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CONTECH CMP DETENTION SYSTEMS
CONTECH
DYODS
DRAWING

DYO105295 MOAB
Regional facility - 108" -Revised
Missoula, MT
DETENTION SYSTEM

PROJECT No.:	SEQ. No.:	DATE:
69870	105295	3/27/2026

DESIGNED: DYO
DRAWN: DYO
CHECKED: DYO
APPROVED: DYO
SHEET NO.: 1

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REVISION	DATE	DESCRIPTION
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-	-	-

DESIGNER KD
PROJ. NO. 7486
DRAWN KD
DATE 10.23.2026
CHECKED KG
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONSTRUCTION DETAILS - STORM SYSTEM (4)

SHEET 80 OF 105

EXCAVATION AND STRUCTURAL FILL

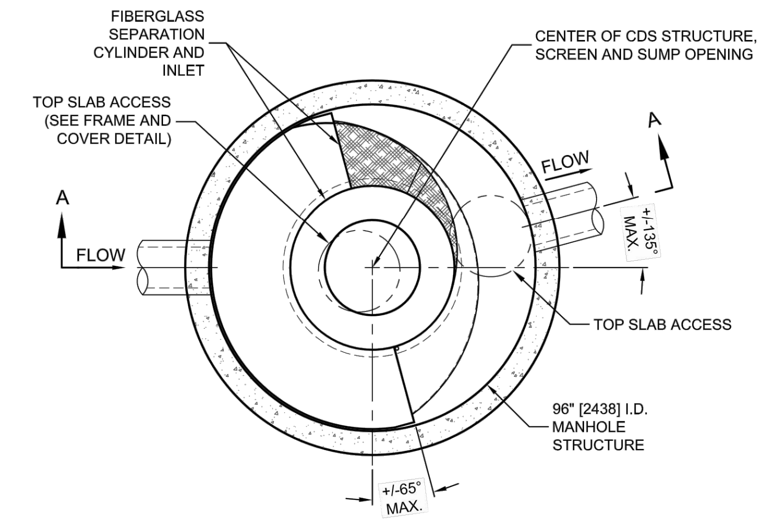
1.) CONTRACTOR TO EXCAVATE/OVER EXCAVATE TO NATIVE GRAVELS, REMOVING UNDERLYING SILT/CLAY.

2. CONTRACTOR TO THEN BACKFILL 6' MIN. OF STRUCTURAL FILL BENEATH THE BOTTOM OF THE CDS UNITS. REFERENCE GEOTECH REPORT FOR STRUCTURAL FILL PLACEMENT AND COMPACTION REQUIREMENTS.

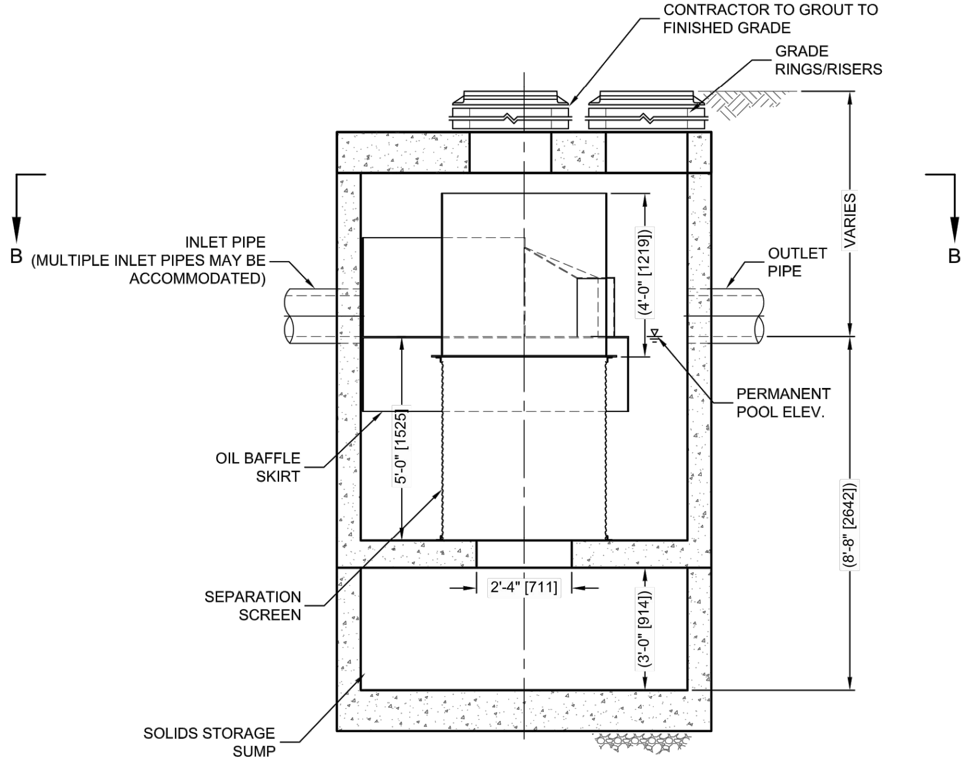
STRUCTURAL FILL TO BE IMPORTED AGGREGATE, SHOULD MEET FOLLOWING CRITERIA:

GRADATION (ASTM C136)

1 ½"	100%
NO.4	30-60%
NO.200	12% (MAX)
LIQUID LIMIT	25% (MAX)
PLASTIC INDEX	10% (MAX)


FIBERGLASS SEPARATION CYLINDER AND INLET
TOP SLAB ACCESS (SEE FRAME AND COVER DETAIL)
CENTER OF CDS STRUCTURE, SCREEN AND SUMP OPENING
A
A
FLOW
FLOW
+/-135° MAX.
TOP SLAB ACCESS
96" [2438] I.D. MANHOLE STRUCTURE
+/-65° MAX.

PLAN VIEW B-B
N.T.S.



ELEVATION A-A
N.T.S.

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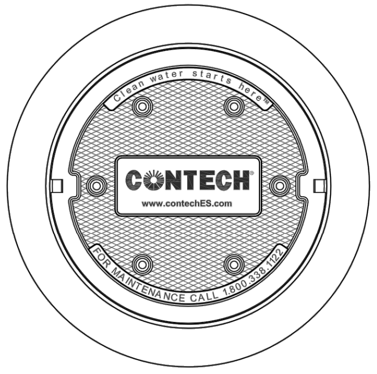
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,788,848; 6,641,720; 6,511,595; 6,581,783; RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

CDS4045-8-C DESIGN NOTES

THE STANDARD CDS4045-8-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			6.7 CFS
PEAK FLOW RATE (CFS OR L/s)			27.75 CFS
RETURN PERIOD OF PEAK FLOW (YRS)			100
SCREEN APERTURE (2400 OR 4700)			2400
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	3145.71	SR PE	36"
INLET PIPE 2	N/A	N/A	N/A
OUTLET PIPE	3145.60	SR PE	36"
RIM ELEVATION			3155.07
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		N/A	N/A

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

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800-338-1122 513-645-7000 513-645-7993 FAX

CDS4045-8-C
INLINE CDS
STANDARD DETAIL

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER KD PROJ. NO. 7486
DRAWN KD DATE 10.23.2026
CHECKED KG SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONSTRUCTION DETAILS - CDS SYSTEM (1)

EXCAVATION AND STRUCTURAL FILL

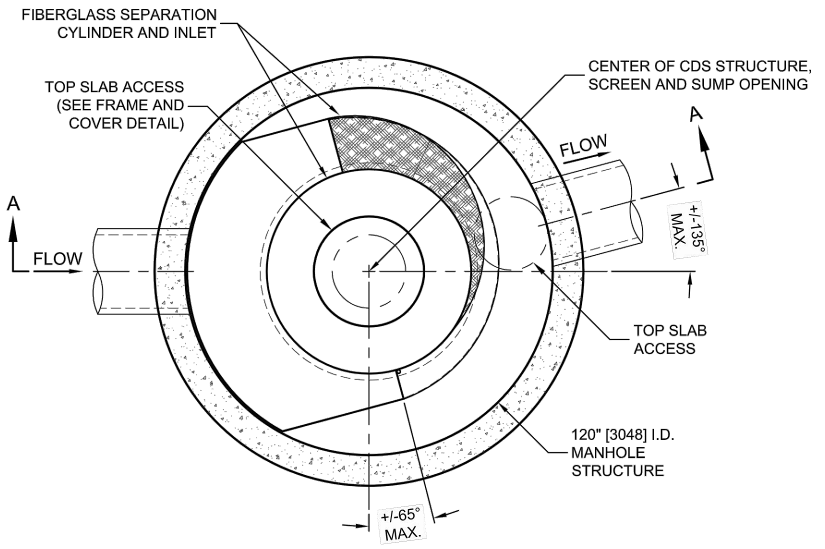
1.) CONTRACTOR TO EXCAVATE/OVER EXCAVATE TO NATIVE GRAVELS, REMOVING UNDERLYING SILT/CLAY.

2. CONTRACTOR TO THEN BACKFILL 6' MIN. OF STRUCTURAL FILL BENEATH THE BOTTOM OF THE CDS UNITS. REFERENCE GEOTECH REPORT FOR STRUCTURAL FILL PLACEMENT AND COMPACTION REQUIREMENTS.

STRUCTURAL FILL TO BE IMPORTED AGGREGATE, SHOULD MEET FOLLOWING CRITERIA:

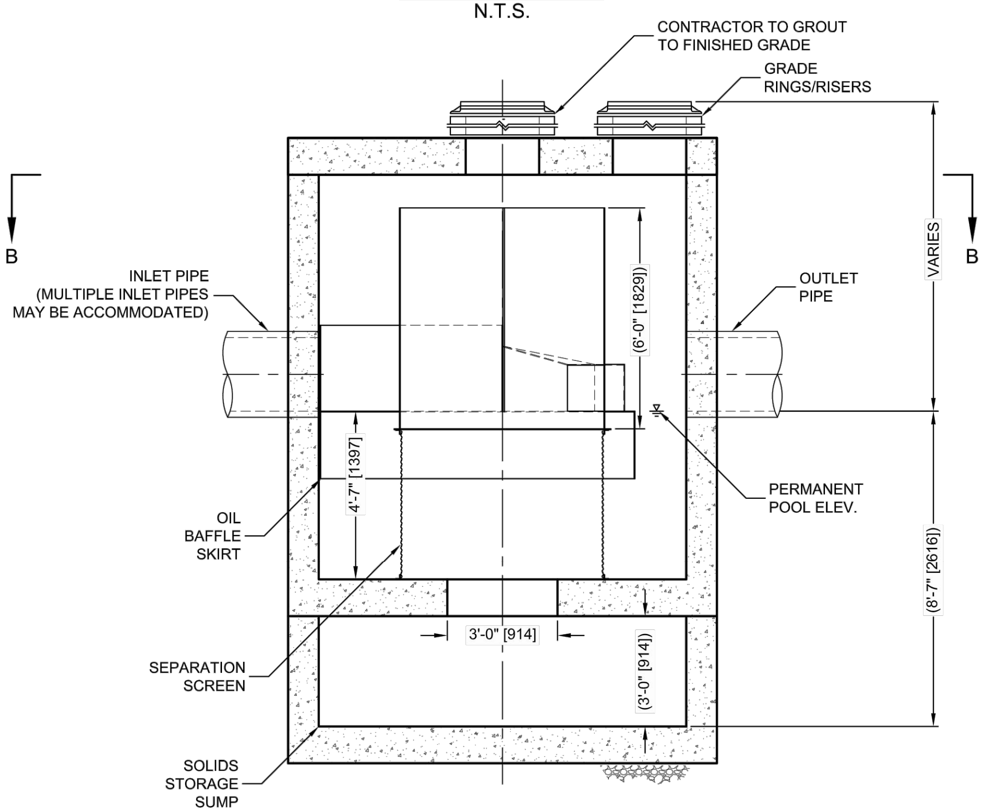
GRADATION (ASTM C136)

$1\frac{1}{2}$"	100%
NO.4	30-60%
NO.200	12% (MAX)
LIQUID LIMIT	25% (MAX)
PLASTIC INDEX	10% (MAX)


FIBERGLASS SEPARATION CYLINDER AND INLET
TOP SLAB ACCESS (SEE FRAME AND COVER DETAIL)
CENTER OF CDS STRUCTURE, SCREEN AND SUMP OPENING
A
FLOW
A
FLOW
+/-135° MAX.
TOP SLAB ACCESS
120" [3048] I.D. MANHOLE STRUCTURE
+/-65° MAX.

PLAN VIEW B-B

N.T.S.



ELEVATION A-A

N.T.S.

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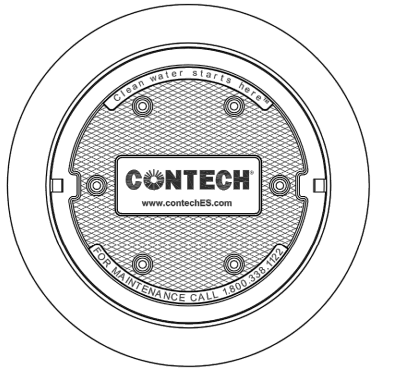
CDS5640-10-C DESIGN NOTES

THE STANDARD CDS5640-10-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS



FRAME AND COVER

(DIAMETER VARIES)

N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	
WATER QUALITY FLOW RATE (CFS OR L/s)	9 CFS
PEAK FLOW RATE (CFS OR L/s)	52.48 CFS
RETURN PERIOD OF PEAK FLOW (YRS)	100
SCREEN APERTURE (2400 OR 4700)	2400

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	3145.87	SR PE	36"
INLET PIPE 2	N/A	N/A	N/A
OUTLET PIPE	3145.77	SR PE	36"

RIM ELEVATION	3153.27

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	N/A	N/A

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES

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2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH®
ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS5640-10-C
INLINE CDS
STANDARD DETAIL

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

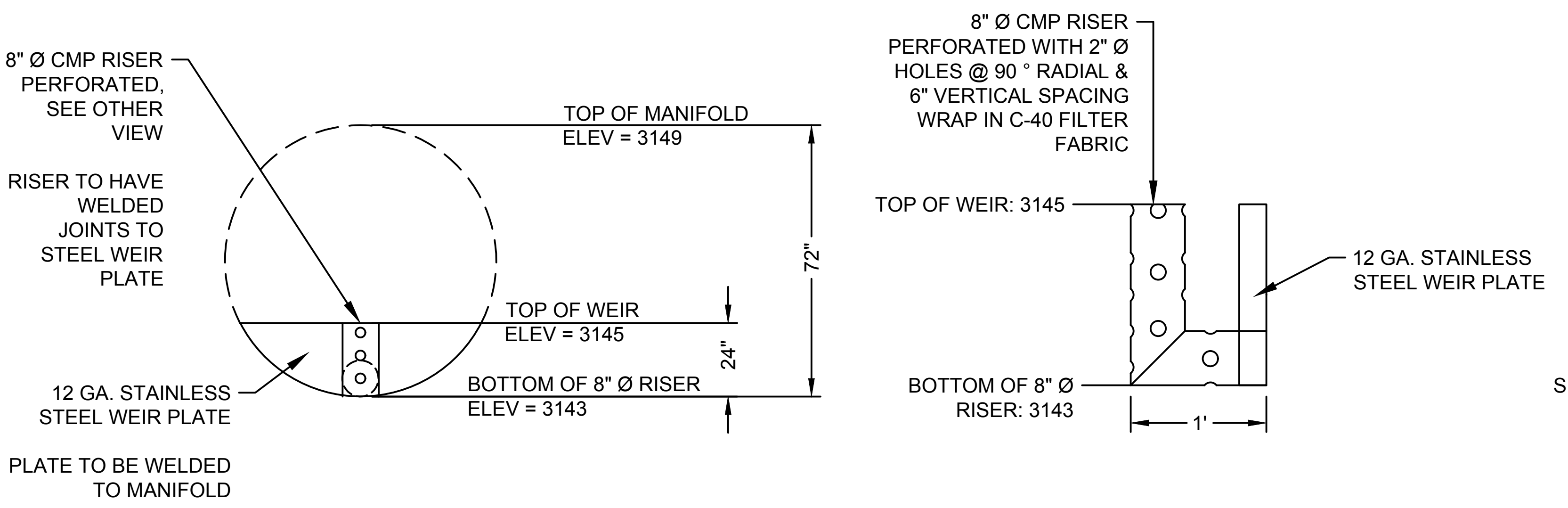
DESIGNER KD
DRAWN KD
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONSTRUCTION DETAILS - CDS SYSTEM (2)

SHEET
82 OF 105



8" Ø CMP RISER PERFORATED, SEE OTHER VIEW

RISER TO HAVE WELDED JOINTS TO STEEL WEIR PLATE

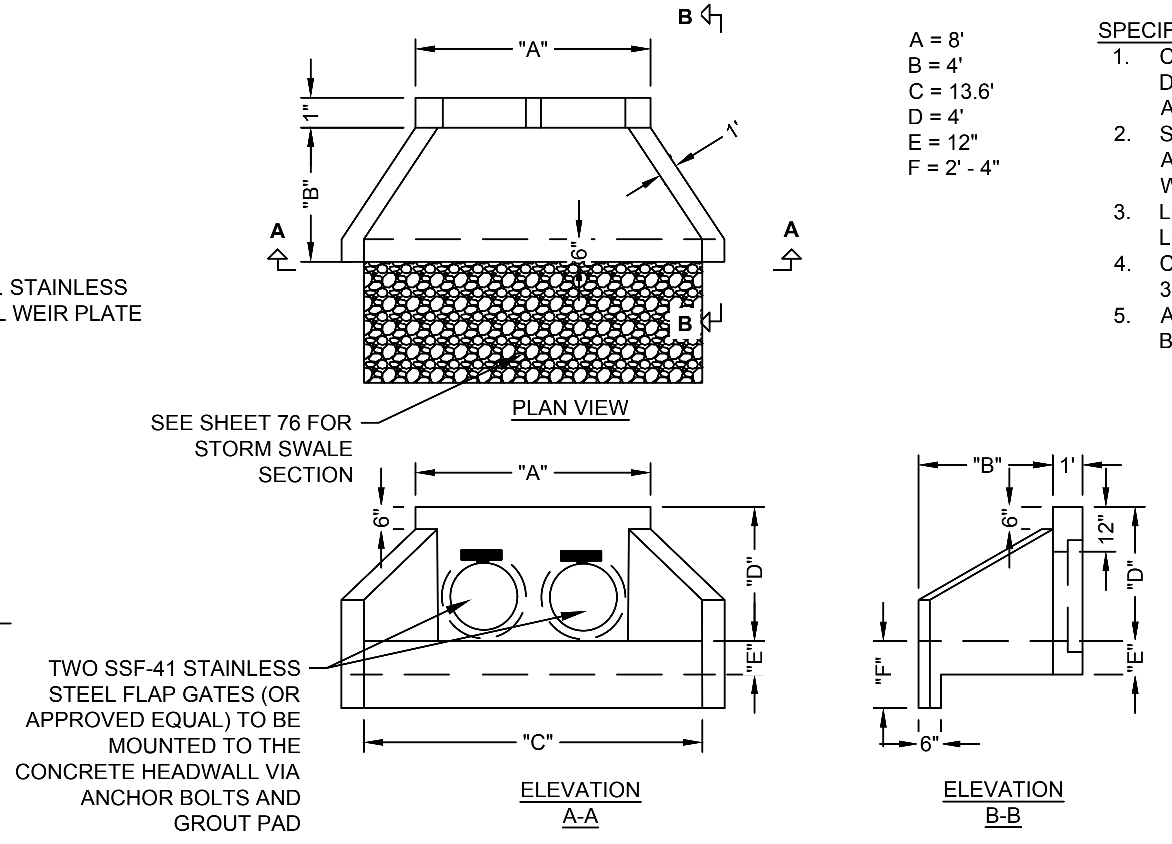
12 GA. STAINLESS STEEL WEIR PLATE

PLATE TO BE WELDED TO MANIFOLD

8" Ø CMP RISER PERFORATED WITH 2" Ø HOLES @ 90 ° RADIAL & 6" VERTICAL SPACING WRAP IN C-40 FILTER FABRIC

12 GA. STAINLESS STEEL WEIR PLATE

1 WEIR PLATE DETAIL
83 NTS



SEE SHEET 76 FOR STORM SWALE SECTION

TWO SSF-41 STAINLESS STEEL FLAP GATES (OR APPROVED EQUAL) TO BE MOUNTED TO THE CONCRETE HEADWALL VIA ANCHOR BOLTS AND GROUT PAD

PLAN VIEW

ELEVATION
A-A

ELEVATION
B-B

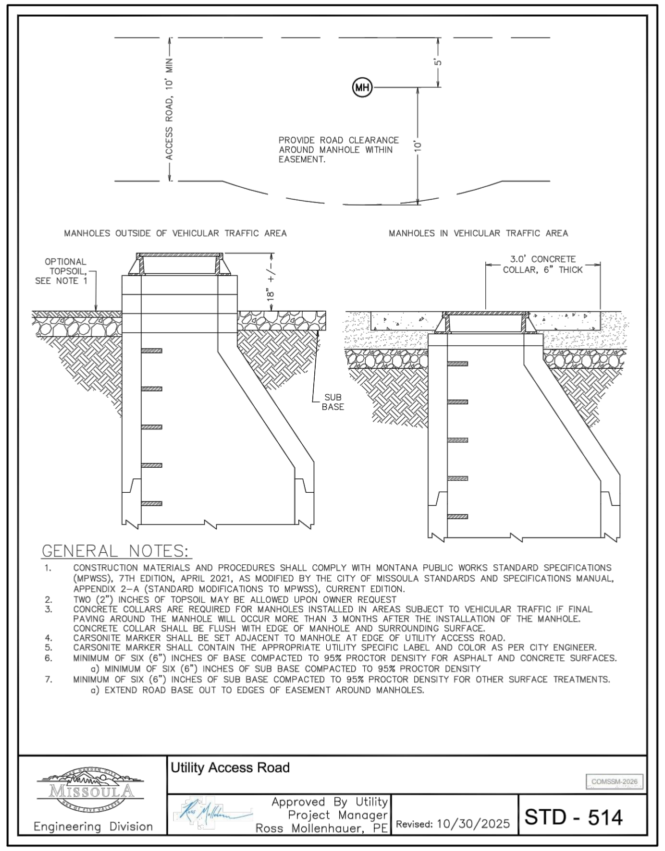
A = 8'
B = 4'
C = 13.6'
D = 4'
E = 12"
F = 2' - 4"

SPECIFICATIONS:

1. CONCRETE: CLASS "C" WITH DESIGN STRENGTH OF 5000 PSI AT 28 DAYS.
2. STEEL REINFORCEMENT: ASTM A-615 GRADE 60 OR ASTM A-497 WELDED WIRE FABRIC.
3. LOADING: DESIGNED FOR H20 LOADING.
4. C.I. CASTINGS: ASTM A48, CLASS 30/35
5. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".

2 CONCRETE HEADWALL
83 NTS

*CONTRACTOR IS REQUIRED TO SUBMIT STRUCTURAL PLANS FOR THIS HEADWALL THAT ARE STAMPED AND DESIGNED BY MT LICENSED PROFESSIONAL ENGINEER


ACCESS ROAD, 10' MIN
MH
5'
10'
PROVIDE ROAD CLEARANCE AROUND MANHOLE WITHIN EASEMENT.
MANHOLES OUTSIDE OF VEHICULAR TRAFFIC AREA
MANHOLES IN VEHICULAR TRAFFIC AREA
OPTIONAL TOPSOIL, SEE NOTE 1
18" +/-
SUB BASE
3.0' CONCRETE COLLAR, 6" THICK

GENERAL NOTES:

1. CONSTRUCTION MATERIALS AND PROCEDURES SHALL COMPLY WITH MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), 7TH EDITION, APRIL 2021, AS MODIFIED BY THE CITY OF MISSOULA STANDARDS AND SPECIFICATIONS MANUAL, APPENDIX 2–A (STANDARD MODIFICATIONS TO MPWSS), CURRENT EDITION.
2. TWO (2") INCHES OF TOPSOIL MAY BE ALLOWED UPON OWNER REQUEST
3. CONCRETE COLLARS ARE REQUIRED FOR MANHOLES INSTALLED IN AREAS SUBJECT TO VEHICULAR TRAFFIC IF FINAL PAVING AROUND THE MANHOLE WILL OCCUR MORE THAN 3 MONTHS AFTER THE INSTALLATION OF THE MANHOLE. CONCRETE COLLAR SHALL BE FLUSH WITH EDGE OF MANHOLE AND SURROUNDING SURFACE.
4. CARSONITE MARKER SHALL BE SET ADJACENT TO MANHOLE AT EDGE OF UTILITY ACCESS ROAD.
5. CARSONITE MARKER SHALL CONTAIN THE APPROPRIATE UTILITY SPECIFIC LABEL AND COLOR AS PER CITY ENGINEER.
6. MINIMUM OF SIX (6") INCHES OF BASE COMPACTED TO 95% PROCTOR DENSITY FOR ASPHALT AND CONCRETE SURFACES.
    a) MINIMUM OF SIX (6") INCHES OF SUB BASE COMPACTED TO 95% PROCTOR DENSITY
7. MINIMUM OF SIX (6") INCHES OF SUB BASE COMPACTED TO 95% PROCTOR DENSITY FOR OTHER SURFACE TREATMENTS.
    a) EXTEND ROAD BASE OUT TO EDGES OF EASEMENT AROUND MANHOLES.

MISSOULA
Engineering Division

Utility Access Road

COMSSM-2026

Ross Mollenhauer
Approved By Utility
Project Manager
Ross Mollenhauer, PE

Revised: 10/30/2025

STD - 514

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER KD
DRAWN KD
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

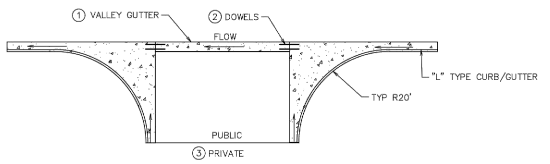
DJ&A
ENGINEERS
PLANNERS
SURVEYORS

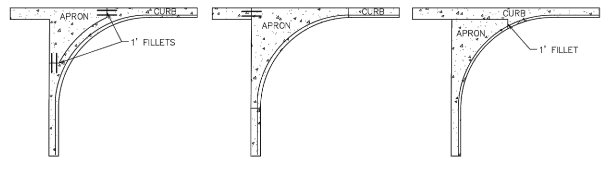
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONSTRUCTION DETAILS - STORM

SHEET
83
OF
105

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;





CONFIGURATION 1
POUR CURBS THROUGH RADIUS FIRST

CONFIGURATION 2
POUR TRIANGULAR APRON FIRST

CONFIGURATION 3
POUR CURB THROUGH STREET FIRST

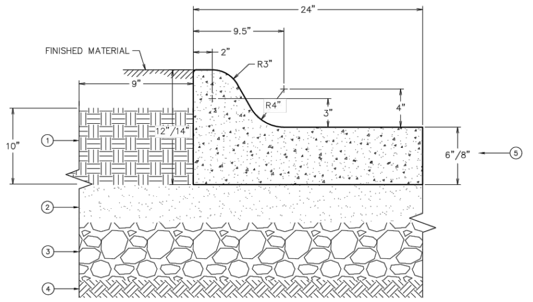
KEYED NOTES:

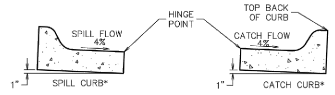
① VALLEY GUTTER: SEE STD–745
② DOWELS: REINFORCE WITH TWO #4 X 24" EPOXY COATED REBAR EVENLY SPACED WITH 3 ½" COVER
③ PRIVATE STREETS MUST BE CONSTRUCTED SO PRIVATE STORM WATER REMAINS ON SITE

GENERAL NOTES:

1. INTERSECTIONS MUST RETAIN THE CAPACITY OF STREET DRAINAGE.

Typical Street with Valley Gutter Intersection
Engineering Division
Approved By
City Engineer
Kevin J. Slovarp
Adopted: 02/29/1996
Revised: 01/01/2023
STD - 708



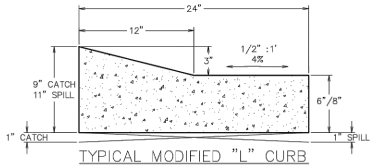


* DESIGN NOTE:
WHEN DESIGNING 'SPILL CURB' ROTATE CURB AT TOP FRONT OF GUTTER PAN HINGE POINT, NOT TOP BACK OF CURB.

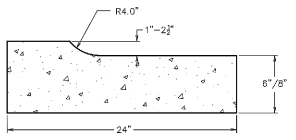
KEYED NOTES:

① IMPERVIOUS FILL MATERIAL (FOR CURB WITH BOULEVARD): SEE CITY OF MISSOULA MODIFICATION TO MPWSS SECTION 02528
② BASE COURSE: SEE TABLE 7–3 IN MCPWSS AND CITY OF MISSOULA MODIFICATION TO MPWSS SECTIONS 02235 & 02528
③ SUBBASE COURSE: SEE TABLE 7–4 IN MCPWSS AND CITY OF MISSOULA MODIFICAITON TO MPWSS SECTION 02234
④ SUBGRADE: SEE CITY OF MISSOULA MODIFICATION TO MPWSS SECTION 02230 & 02528
⑤ GUTTER PANS SHALL BE 8 INCHES MINIMUM THICKNESS FROM PC TO PT AT COLLECTOR AND ARTERIAL INTERSECTIONS, ROUNDABOUTS AND SPLITTER ISLANDS, THROUGH COMMERCIAL AND INDUSTRIAL APPROACHES, OR WHERE TRUCK TRAFFIC IS ASSUMED

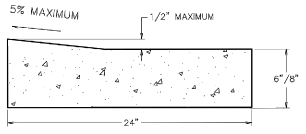
Typical "L" Type Curb/Gutter Section
Engineering Division
Approved By
City Engineer
Kevin J. Slovarp
Adopted: 01/30/1980
Revised: 01/01/2023
STD - 740



TYPICAL MODIFIED "L" CURB
'A'



TYPICAL DRIVEWAY LAYDOWN
'B'

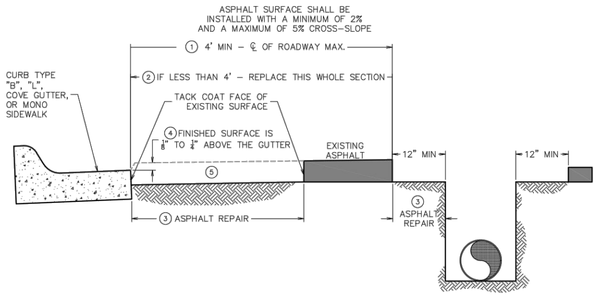


TYPICAL CURB RAMP LAYDOWN
'C'

GENERAL NOTES:

1. SEE CITY OF MISSOULA STD–740 FOR BASE, SUB BASE, SUB GRADE, FILL MATERIAL, AND EIGHT (8") INCH THICKNESS REQUIREMENTS.
2. MODIFIED "L" TYPE GUTTER SHALL NOT BE USED IN LIEU OF MOUNTABLE CURB

Modified "L" Type Curb/Gutter Section
Engineering Division
Approved By
City Engineer
Kevin J. Slovarp
Adopted: 04/18/1974
Revised: 01/01/2023
STD - 741


ASPHALT SURFACE SHALL BE INSTALLED WITH A MINIMUM OF 2% AND A MAXIMUM OF 5% CROSS–SLOPE
① 4' MIN – ℄ OF ROADWAY MAX.
CURB TYPE "B", "L", COVE GUTTER, OR MONO SIDEWALK
② IF LESS THAN 4' – REPLACE THIS WHOLE SECTION
TACK COAT FACE OF EXISTING SURFACE
④ FINISHED SURFACE IS ⅛" TO ¼" ABOVE THE GUTTER
EXISTING ASPHALT
12" MIN
12" MIN
⑤
③ ASPHALT REPAIR
③ ASPHALT REPAIR

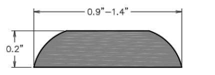
KEYED NOTES:

① ASPHALT SHALL BE CUT & REMOVED TO AN EXTENT WHERE THE ASPHALT PATCH IS A MINIMUM OF FOUR (4') FEET FROM THE FACE OF THE GUTTER PAN AND MAY REQUIRE ADDITIONAL WIDTH (UP TO CENTERLINE), AS REQUIRED BY THE CITY ENGINEER. THE 4' MINIMUM ASPHALT REPLACEMENT IS REQUIRED TO ENSURE ADEQUATE COMPACTION IS ACHIEVED.
② IF THE ASPHALT CUT LINE FOR A TRENCH PATCH IS LESS THAN FOUR (4') FEET FROM THE FACE OF EXISTING GUTTER PAN, EDGE OF EXISTING ASPHALT, OR A SEAM, REMOVE AND REPLACE THE ENTIRE ASPHALT SECTION BETWEEN THE TRENCH CUT LINE AND EDGE OF THE FACE OF THE GUTTER PAN, ASPHALT, OR SEAM.
③ FOR ASPHALT REPAIR SECTION SEE CITY OF MISSOULA MODIFICATIONS TO MPWSS SECTION 02230
④ FINISHED ASPHALT SURFACE SHALL BE ⅛" TO ¼" ABOVE GUTTER LIP
⑤ ASPHALT SURFACE: FOR THICKNESS SEE TABLE 7–2 IN MCPWSS

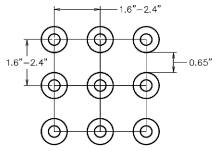
GENERAL NOTES:

1. ASPHALT SURFACE SHALL BE SQUARE CUT (PARALLEL AND/OR PERPENDICULAR TO CURB OR EDGE OF ASPHALT)
2. ALL ASPHALT PATCH JOINTS SHALL BE SEALED IN ACCORDANCE WITH CITY OF MISSOULA STANDARD MODIFICATIONS TO MPWSS SECTION 02510.
3. FOR SHORT SPANS OF CURB REPLACEMENT, EXISTING ASPHALT EDGE MAY BE USED AS A FRONT FORM IF EXISTING ASPHALT IS SOUND AND SQUARE FACED, AND ONLY UPON PRIOR APPROVAL OF THE CITY ENGINEER.

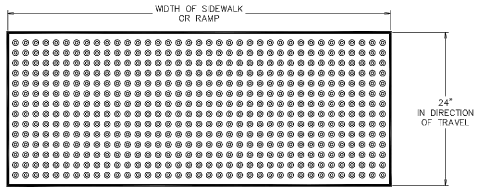
Asphalt Cutting, Removal and Replacement
Engineering Division
Approved By
City Engineer
Kevin J. Slovarp
Adopted: 02/06/1986
Revised: 01/01/2024
STD - 744



TRUNCATED DOME SIZE



TRUNCATED DOME
PATTERN & SPACING



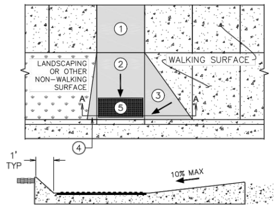
DETECTABLE WARNING PANEL

NOTES:

1. DETECTABLE WARNING SURFACE SHALL FULLY COMPLY WITH PROWAG REQUIREMENTS AND SPECIFICATIONS
2. DETECTABLE WARNING SURFACE SHALL EXTEND THE FULL WIDTH OF THE CROSSING OR RAMP
3. SEE CITY OF MISSOULA MODIFICATION TO MPWSS SECTION 02529 FOR MATERIAL REQUIREMENTS
4. DETECTABLE WARNING SURFACE SHALL BE PLACED TWO (2") INCHES FROM BACK EDGE OF CURB (RADIAL DOMES MAY BE REQUIRED)

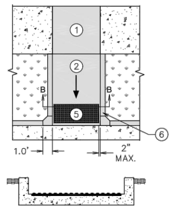
Detectable Warning Surface
Engineering Division
Approved By
City Engineer
Kevin J. Slovarp
Adopted: 03/12/2004
Revised: 01/01/2023
STD - 750

PERPENDICULAR CURB RAMP



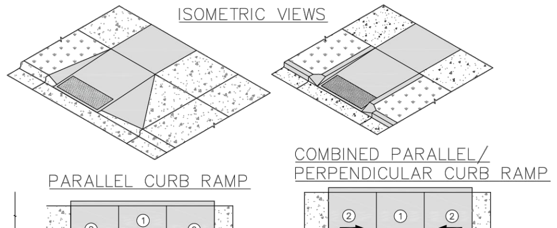
Section A–A

ALTERNATE CONFIGURATION

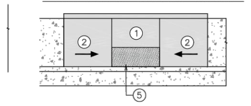


Section B–B

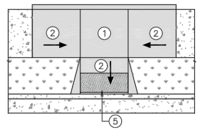
ISOMETRIC VIEWS



PARALLEL CURB RAMP



COMBINED PARALLEL/
PERPENDICULAR CURB RAMP



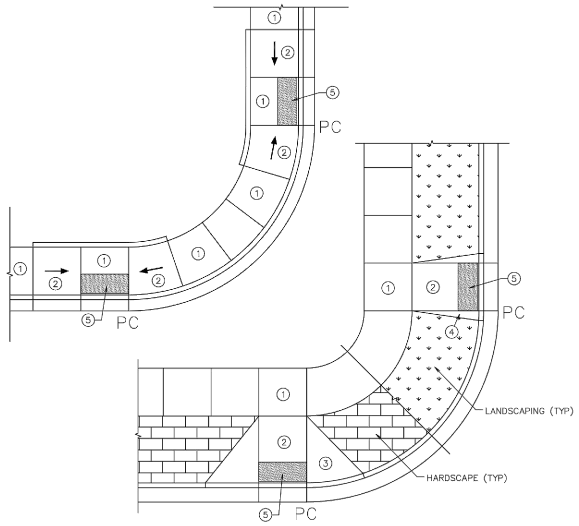
KEYED NOTES:

① LANDING.
② RAMP.
③ RAMP FLARE.
④ 1' FLARED TRANSITION.
⑤ DETECTABLE WARNING SURFACE.
⑥ LANDSCAPE CURB.

GENERAL NOTES:

1. SEE MCPWSS FOR CURB RAMP TECHNICAL REQUIREMENTS.

Curb Ramp Details (Sheet 1 of 4)
Engineering Division
Approved By
City Engineer
Kevin J. Slovarp
Adopted: 01/30/1980
Revised: 01/01/2023
STD - 751-1



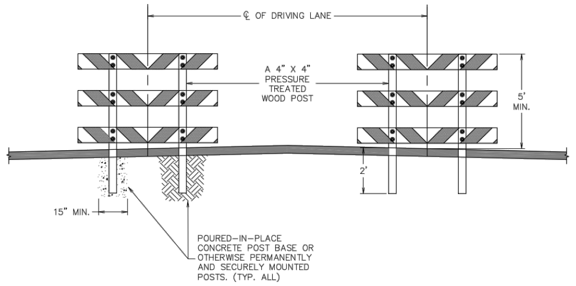
KEYED NOTES:

① LANDING.
② RAMP.
③ FLARED SIDE.
④ 1' FLARED TRANSITION.
⑤ DETECTABLE WARNING SURFACE.

GENERAL NOTES:

1. SEE MCPWSS FOR CURB RAMP TECHNICAL REQUIREMENTS.

Curb Ramp Details (Sheet 3 of 4)
Engineering Division
Approved By
City Engineer
Kevin J. Slovarp
Adopted: 01/30/1980
Revised: 01/01/2023
STD - 751-3


℄ OF DRIVING LANE
A 4" X 4" PRESSURE TREATED WOOD POST
5' MIN.
2'
15" MIN.
POURED–IN–PLACE CONCRETE POST BASE OR OTHERWISE PERMANENTLY AND SECURELY MOUNTED POSTS. (TYP. ALL)

GENERAL NOTES:

1. BARRICADE POSTS SHALL BE PRESSURE TREATED 4" X 4" WOOD POSTS.
1.1. OTHER MATERIAL MAY BE CONSIDERED, PRIOR REVIEW AND APPROVAL BY THE CITY ENGINEER IS REQUIRED.
2. BARRICADE POSTS SHALL BE EMBEDDED TWENTY–FOUR (24") INCHES MINIMUM IN POURED–IN–PLACE CONCRETE OR OTHERWISE PERMANENTLY AND SECURELY MOUNTED POSTS.
3. BARRICADE RAILS SHALL BE 8" TO 12" WIDE PRESSURE TREATED WOOD OR COMPOSITE TRAFFIC CONTROL MATERIAL. FOUR (4') FOOT MINIMUM LENGTH.
3.1. OTHER MATERIAL MAY BE CONSIDERED, PRIOR REVIEW AND APPROVAL BY THE CITY ENGINEER IS REQUIRED.
4. BARRICADE RAILS SHALL BE SECURED WITH FOUR (4) EACH, PER RAIL – THREE–EIGHTS (3/8") INCH DIAMETER BY THREE AND ONE–HALF (3–1/2") INCH LENGTH HOT–DIP GALVANIZED HEX LAG SCREWS AND FOUR (4) EACH, PER RAIL – ONE (1") INCH, OUTSIDE DIAMETER, HOT–DIP GALVANIZED WASHERS, AS SHOWN ABOVE.
5. BARRICADE RAILS SHALL BE SECURED ON POSTS FACING SIDEWALK SECTION / PEDESTRIAN TRAVEL WAY.
6. RETROREFLECTIVE TAPE SHALL BE APPLIED IN SIX (6") INCH BANDS SPACED SIX (6") INCHES APART ALTERNATING RETROREFLECTIVE WHITE AND RETROREFLECTIVE RED [RED = BLACK INK ILLUSTRATED ABOVE], PLACED AT A FORTY–FIVE (45°) DEGREE ANGLE TO THE RAIL, AS SHOWN ABOVE.
7. BARRICADES MUST FULLY COMPLY WITH CURRENT MUTCD STANDARDS.

Typical End-of-Roadway Barricade
Engineering Division
Approved By
City Engineer
Kevin J. Slovarp
Adopted: 10/30/2014
Revised: 01/01/2023
STD - 714

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER KD
DRAWN KD
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

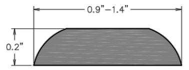
DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

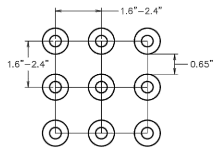
CONSTRUCTION DETAILS - TRANSPORTATION

SHEET
84
OF
105

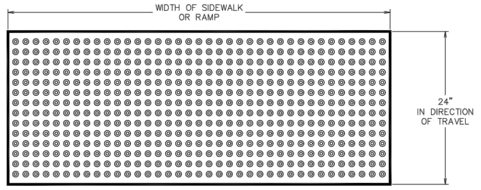
6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;



TRUNCATED DOME SIZE



TRUNCATED DOME
PATTERN & SPACING



DETECTABLE WARNING PANEL

NOTES:

1. DETECTABLE WARNING SURFACE SHALL FULLY COMPLY WITH PROWAG REQUIREMENTS AND SPECIFICATIONS
2. DETECTABLE WARNING SURFACE SHALL EXTEND THE FULL WIDTH OF THE CROSSING OR RAMP
3. SEE CITY OF MISSOULA MODIFICATION TO MPWSS SECTION 02529 FOR MATERIAL REQUIREMENTS
4. DETECTABLE WARNING SURFACE SHALL BE PLACED TWO (2") INCHES FROM BACK EDGE OF CURB (RADIAL DOMES MAY BE REQUIRED)

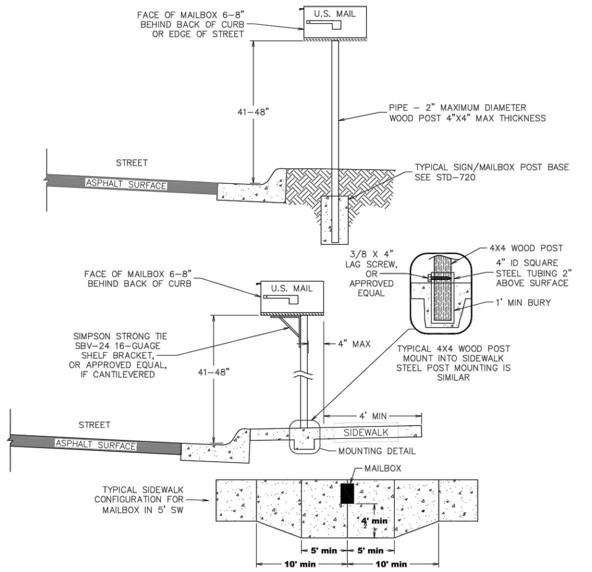
MISSOULA
Engineering Division

Detectable Warning Surface

Approved By
City Engineer
Kevin J. Slovarp

Adopted: 03/12/2004
Revised: 01/01/2023

STD - 750


FACE OF MAILBOX 6–8" BEHIND BACK OF CURB OR EDGE OF STREET
U.S. MAIL
41–48"
PIPE – 2" MAXIMUM DIAMETER WOOD POST 4"X4" MAX THICKNESS
STREET
ASPHALT SURFACE
TYPICAL SIGN/MAILBOX POST BASE SEE STD–720
FACE OF MAILBOX 6–8" BEHIND BACK OF CURB
U.S. MAIL
3/8 X 4" LAG SCREW, OR APPROVED EQUAL
4X4 WOOD POST
4" ID SQUARE STEEL TUBING 2" ABOVE SURFACE
1' MIN BURY
SIMPSON STRONG TIE SBV–24 16–GUAGE SHELF BRACKET, OR APPROVED EQUAL, IF CANTILEVERED
41–48"
4" MAX
TYPICAL 4X4 WOOD POST MOUNT INTO SIDEWALK STEEL POST MOUNTING IS SIMILAR
4' MIN
STREET
ASPHALT SURFACE
SIDEWALK
MOUNTING DETAIL
MAILBOX
TYPICAL SIDEWALK CONFIGURATION FOR MAILBOX IN 5' SW
4' min
5' min
5' min
10' min
10' min

MOUNTING POST REQUIREMENTS FOR MAILBOXES LOCATED UPON / WITHIN THE PUBLIC RIGHT–OF–WAY:

1. MAILBOX POSTS SHALL NOT EXCEED;
  1.A. TWO (2") INCHES OUTSIDE DIAMETER METAL (PIPE) POSTS
    1.A.1. SOLID METAL POSTS OR CONCRETE FILLED POSTS SHALL NOT BE PERMITTED
  1.B. FOUR (4") INCHES BY FOUR (4") INCHES (NOMINAL) WOOD POSTS
2. NO MAILBOXES OR MOUNTINGS SHALL BE CONSTRUCTED OF BRICK, STONE OR MASONRY WITHIN THE PUBLIC RIGHT–OF–WAY
3. MAILBOXES SHALL NOT BE LOCATED SO AS TO OBSTRUCT THE PUBLIC SIDEWALK, MINIMUM OF FOUR (4') FEET SHALL BE MAINTAINED CLEAR OF ANY OBSTRUCTION(S) TO PEDESTRIANS.
4. MAXIMUM FOUR (4") INCHES MAILBOX OVERHANG INTO CLEAR SPACE. OVERHANGING MAILBOXES GREATER THAN FOUR (4") INCHES INTO THE CLEAR SPACE WILL BE REQUIRED TO PROVIDE A BASE EXTENSION, MINIMUM FOUR (4") INCHES IN HEIGHT TO WITHIN FOUR (4") INCHES OF OVERHANG EXTENT.

MISSOULA
Engineering Division

Typical Mailbox Location and Mounting Height

Approved By
City Engineer
Kevin J. Slovarp

Adopted: 07/25/1984
Revised: 01/01/2023

STD - 760

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;

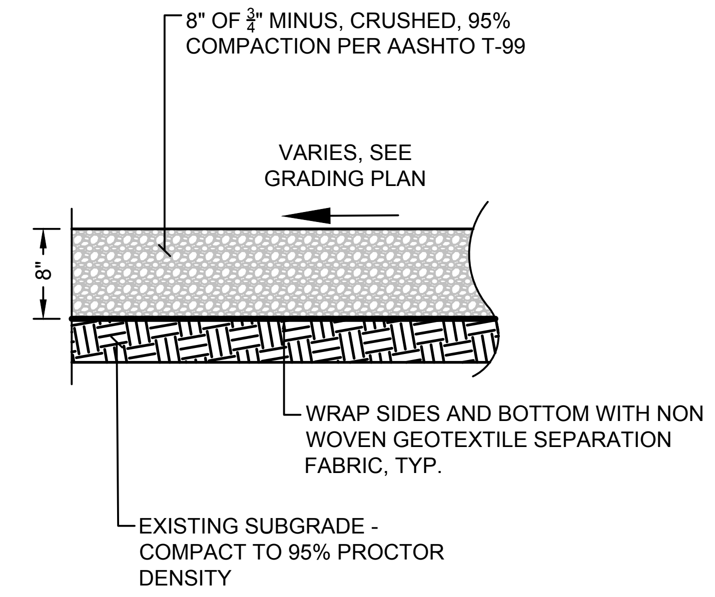
REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER KD
DRAWN KD
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

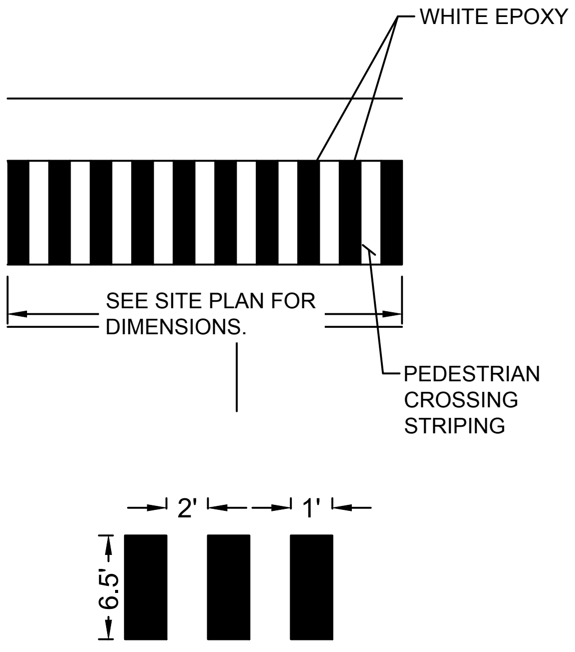
DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONSTRUCTION DETAILS - TRANSPORTATION (2)

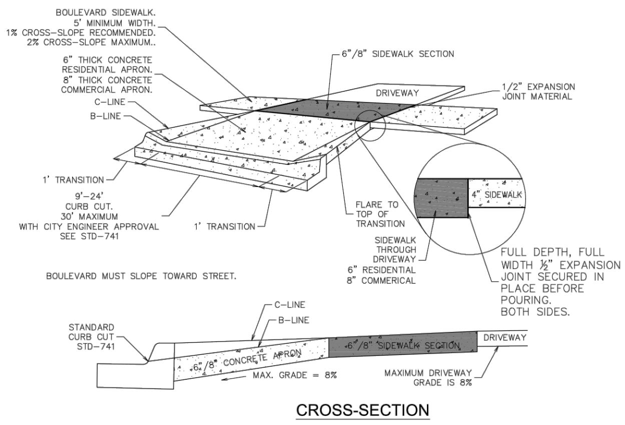

8" OF ¾" MINUS, CRUSHED, 95% COMPACTION PER AASHTO T-99
VARIES, SEE GRADING PLAN
8"
WRAP SIDES AND BOTTOM WITH NON WOVEN GEOTEXTILE SEPARATION FABRIC, TYP.
EXISTING SUBGRADE - COMPACT TO 95% PROCTOR DENSITY

1 GRAVEL ACCESS ROAD SECTION
86 NTS



PEDESTRIAN STRIPING DIMENSIONS

2 TYPICAL CROSSWALK DETAILS
86 NTS


BOULEVARD SIDEWALK. 5' MINIMUM WIDTH. 1% CROSS-SLOPE RECOMMENDED. 2% CROSS-SLOPE MAXIMUM..
6" THICK CONCRETE RESIDENTIAL APRON. 8" THICK CONCRETE COMMERCIAL APRON.
C-LINE
B-LINE
6"/8" SIDEWALK SECTION
DRIVEWAY
1/2" EXPANSION JOINT MATERIAL
1' TRANSITION
9'-24' CURB CUT. 30' MAXIMUM WITH CITY ENGINEER APPROVAL SEE STD-741
1' TRANSITION
FLARE TO TOP OF TRANSITION
4" SIDEWALK
SIDEWALK THROUGH DRIVEWAY 6" RESIDENTIAL 8" COMMERICAL
FULL DEPTH, FULL WIDTH ½" EXPANSION JOINT SECURED IN PLACE BEFORE POURING. BOTH SIDES.
BOULEVARD MUST SLOPE TOWARD STREET.
C-LINE
B-LINE
STANDARD CURB CUT STD-741
6"/8" CONCRETE APRON
6"/8" SIDEWALK SECTION
DRIVEWAY
MAX. GRADE = 8%
MAXIMUM DRIVEWAY GRADE IS 8%

CROSS-SECTION

GENERAL NOTES:

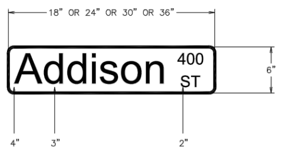
1. RESIDENTIAL CURB CUT IS 9' TO 12' WIDE FOR SINGLE GARAGE.
2. MAXIMUM RESIDENTIAL CURB CUT IS 24' WIDE FOR DOUBLE GARAGE..
3. COMMERCIAL CURB CAN NOT BE SAW CUT, MUST BE REMOVED AND RE-POURED..
4. APRON AND SIDEWALK MUST BE POURED SEPARATELY.
5. SIDEWALK AND APRON THROUGH RESIDENTIAL (SINGLE FAMILY AND DUPLEX) DRIVEWAY MUST BE SIX (6") INCHES MINIMUM THICKNESS.
6. SIDEWALK AND APRON THROUGH MULTI-FAMILY (TRI-PLEX AND LARGER), COMMERCIAL OR INDUSTRIAL DRIVEWAYS MUST BE EIGHT (8") INCHES MINIMUM THICKNESS.
7. SEE STANDARD DRAWING STD-772 FOR ALTERNATIVE SIDEWALK/DRIVEWAY ADA REQUIREMENTS THROUGH DRIVEWAY.
8. ADDITIONAL EXPANSION JOINT MATERIAL MAY BE REQUIRED BY CITY ENGINEER.

BEDDING UNDER APRON MUST MEET SPECIFICATIONS FOR CONCRETE SIDEWALK PER STD-752

9. FOR EXISTING BOULEVARD RETROFIT, NEW SIDEWALK REPLACEMENT SECTION SHALL EXTEND TO NEAREST FULL SIDEWALK PANELS.

December 2021

MISSOULA
Engineering Division
Standard Driveway Opening for Boulevard Sidewalk
(Less than 25 Parking Spaces)
Approved By City Engineer Kevin J. Slovarp
Adopted: 04/09/1973
Revised: 04/04/2017
STD - 771



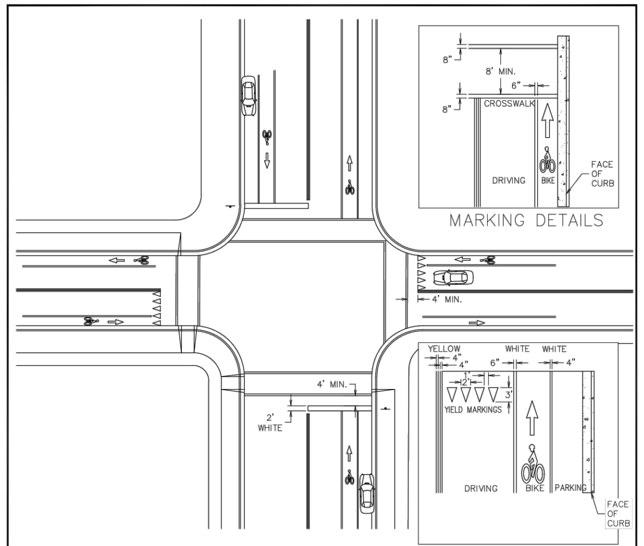
STREET NAME SIGN MATERIAL SPECIFICATIONS:

1. ALUMINUM BLANKS
   6" X 18", 24", 30", 36" X .08"
2. MARKINGS SHALL BE PLACED ON ONE SIDE OF SIGN ONLY.
3. TEXT SIZE SPECIFICATION:
   - 3.1. 4" INITIAL UPPERCASE.
   - 3.2. 3" NOMINAL LOOP LOWERCASE – NOT INCLUDING ASCENDING AND/OR DESCENDING TAIL.
   - 3.3. 2" BLOCK NUMBER.
   - 3.4. 2" ROUTE DESIGNATION – ALL CAPS – CENTER WITH BLOCK NUMBER.
4. TWO SIGNS SHALL BE MOUNTED BACK TO BACK ON EITHER SIDE OF THE SIGN POST. 2 SIGNS ARE REQUIRED.
5. GREEN BACKGROUND WITH WHITE TEXT FOR PUBLIC STREETS.
6. WHITE BACKGROUND WITH GREEN TEXT FOR PRIVATE STREETS.
7. PROVIDE 'T2000 HWYC' FONT.

STREET NAME SIGN MATERIAL AND SPACING SPECIFICATIONS:

1. ALL STREET NAME SIGNS SHALL COMPLY WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), MOST CURRENT VERSION, REVISION AND/OR SUPPLEMENT, FOR SIGN MATERIAL(S), SIZE, THICKNESS, SHAPE, COLOR(S), MESSAGE, SYMBOLOGY AND RETROREFLECTIVITY.
2. FINAL STREET NAME SIGN LOCATION AND/OR PLACEMENT SHALL BE IN ACCORDANCE WITH THE MUTCD AND AS DETERMINED AND APPROVED BY THE CITY ENGINEER OR SIGN SHOP SUPERVISOR.
3. SPACING BETWEEN EACH SIGN ON A SINGLE POLE SHALL BE NO GREATER THAN 1" AND MUST NOT OVERLAP.
4. ALL OTHER SIGNS SHALL DEFAULT TO MUTCD STANDARDS AND SPECIFICATIONS.

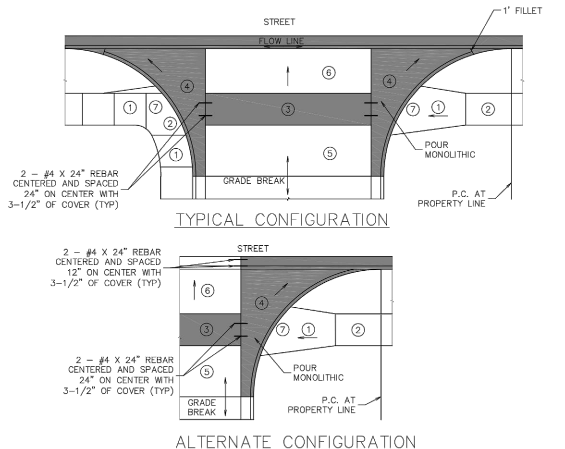
MISSOULA
Engineering Division
Typical Street Name Sign Standard
Approved By City Engineer Kevin J. Slovarp
Adopted: 03/15/2006
Revised: 01/01/2023
STD - 721



GENERAL NOTES:

1. ALL MATERIALS, SAMPLING, TESTING, AND APPLICATION PROCEDURES SHALL CONFORM WITH THE MOST CURRENT VERSION, REVISION, AND/OR SUPPLEMENT OF THE FOLLOWING;
   - 1.1. MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR DIMENSIONS (SIZE), PLACEMENT, COLOR, MESSAGE, SYMBOLOGY, AND RETROREFLECTIVITY COMPLIANCE.
   - 1.2. MONTANA DEPARTMENT OF TRANSPORTATION – STANDARD SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 620 – PAVEMENT MARKING APPLICATION.
   - 1.2. MONTANA DEPARTMENT OF TRANSPORTATION – STANDARD SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 714 – PAVEMENT MARKING MATERIALS
   - 1.3. MONTANA DEPARTMENT OF TRANSPORTATION – TRAFFIC ENGINEERING MANUAL, CHAPTER 19 – PAVEMENT MARKINGS.
   - 1.4. MONTANA DEPARTMENT OF TRANSPORTATION – METHODS OF SAMPLING AND TESTING MT 410-04 – METHOD OF INSPECTION, SAMPLING, TESTING, AND ACCEPTANCE OF PAINT, EPOXY, AND THERMOPLASTIC PAVEMENT MARKING MATERIAL.
2. EPOXY PAVEMENT MARKING MATERIAL CAN INCLUDE, BUT SHALL NOT BE LIMITED TO; EPOXY PAINT, GLASS BEADS, HOT AND/OR COLD APPLIED THERMOPLASTIC TAPES, ETC, AS REQUIRED AND APPROVED BY THE CITY ENGINEER.
3. THIS DRAWING SHALL BE USED AS A GUIDANCE ONLY – ALL FINAL STREET MARKINGS SHALL BE DETERMINED AND APPROVED BY THE CITY ENGINEER.

MISSOULA
Engineering Division
Typical Street Marking Standard
Approved By City Engineer Kevin J. Slovarp
Adopted: 01/30/1980
Revised: 01/01/2023
STD - 730


STREET
1' FILLET
FLOW LINE
④
⑥
④
① ⑦ ②
③
⑦ ① ②
①
⑤
POUR MONOLITHIC
2 – #4 X 24" REBAR CENTERED AND SPACED 24" ON CENTER WITH 3-1/2" OF COVER (TYP)
GRADE BREAK
P.C. AT PROPERTY LINE
TYPICAL CONFIGURATION
2 – #4 X 24" REBAR CENTERED AND SPACED 12" ON CENTER WITH 3-1/2" OF COVER (TYP)
STREET
⑥
④
③
⑦ ① ②
2 – #4 X 24" REBAR CENTERED AND SPACED 24" ON CENTER WITH 3-1/2" OF COVER (TYP)
⑤
POUR MONOLITHIC
GRADE BREAK
P.C. AT PROPERTY LINE
ALTERNATE CONFIGURATION

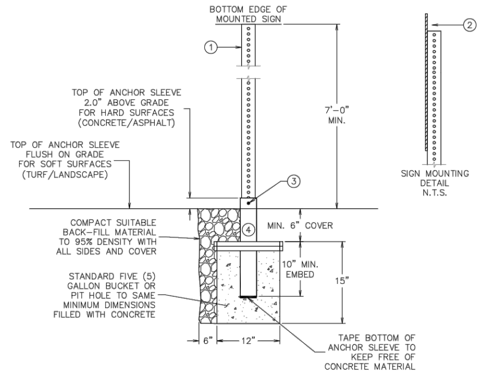
KEYED NOTES:

① RAMP
② LANDING
③ SIDEWALK/CROSSWALK
④ FILLET. POUR MONOLITHIC AS SHOWN TO ELIMINATE CONCRETE TAPERS. 8" CONCRETE DEPTH
⑤ DRIVEWAY SECTION. CONCRETE OR ASPHALT
⑥ APRON SECTION. 8" CONCRETE DEPTH
⑦ DETECTABLE WARNING PANEL. REQUIRED WHEN STOP/YIELD CONTROL SIGNAGE IS PRESENT OR REQUIRED

GENERAL NOTES:

1. SEE MCPWSS CH. 7 AND CITY OF MISSOULA MODIFICATION TO MPWSS SECTION 02529 FOR ADDITIONAL TECHNICAL REQUIREMENTS
2. GRADE SHALL BE DESIGNED TO CONFINE STORM RUNOFF TO THE STREET. SLOPE DRIVEWAY FILLET TOWARDS STREET
3. GRADES SHALL NOT EXCEED 2% THROUGH THE SIDEWALK/CROSSWALK PORTIONS OF THE APRON AND FILLETS

MISSOULA
Engineering Division
Standard Approach - Boulevard Sidewalk
(25 or More Parking Spaces)
Approved By City Engineer Kevin J. Slovarp
Adopted: 02/29/1996
Revised: 01/01/2023
STD - 775


BOTTOM EDGE OF MOUNTED SIGN
①
②
TOP OF ANCHOR SLEEVE 2.0" ABOVE GRADE FOR HARD SURFACES (CONCRETE/ASPHALT)
7'-0" MIN.
TOP OF ANCHOR SLEEVE FLUSH ON GRADE FOR SOFT SURFACES (TURF/LANDSCAPE)
③
SIGN MOUNTING DETAIL N.T.S.
COMPACT SUITABLE BACK-FILL MATERIAL TO 95% DENSITY WITH ALL SIDES AND COVER
④
MIN. 6" COVER
10" MIN. EMBED
15"
STANDARD FIVE (5) GALLON BUCKET OR PIT HOLE TO SAME MINIMUM DIMENSIONS FILLED WITH CONCRETE
6"
12"
TAPE BOTTOM OF ANCHOR SLEEVE TO KEEP FREE OF CONCRETE MATERIAL

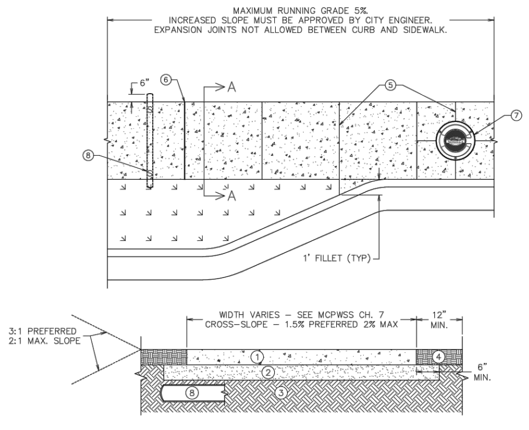
KEYED NOTES:

① 2" 12 GAUGE TELESPAR® PERFORATED STEEL SQUARE TUBING SIGN POST, OR CITY ENGINEER APPROVED EQUIVALENT, SHALL BE USED FOR ALL SIGN INSTALLATIONS UPON/WITHIN THE RIGHT-OF-WAY (UNLESS SIGN AREA (SQ- FT) EXCEEDS YIELD ACCORDING TO AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS). TELESPAR ®OR EQUAL MATERIAL SPECIFICATIONS: STEEL CONFORMING TO ASTM A-1011 GRADE 50 AND GALVANIZING CONFORMING TO ASTM A-653.
② SET SIGN FLUSH WITH OR ABOVE TOP OF POST. TOP OF SIGN SHALL NOT BE PLACED BELOW TOP OF POST. SIGN SHOULD BE FULLY SUPPORTED BY POST.
③ FASTEN SIGN POST TO THROUGH-DRILLED ANCHOR SLEEVE WITH 5/16" X 3" GRADE 2 BOLT WITH FLAT WASHERS AND NYLON-INSERT LOCK NUT. PLACE BOLT 1" BELOW THE TOP OF ANCHOR SLEEVE.
④ GALVANIZED 2-1/2" X 2-1/2" X 18" LONG (MIN.), 7 GAUGE NON-PERFORATED STEEL SQUARE TUBING ANCHOR SLEEVE.

GENERAL NOTES:

1. ALL SIGNS SHALL COMPLY WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), MOST CURRENT VERSION, REVISION AND / OR SUPPLEMENT, FOR SIGN MATERIAL(S), SIZE, THICKNESS, SHAPE, COLOR(S), MESSAGE, SYMBOLOGY AND RETROREFLECTIVITY.
2. ALL SIGNS LOCATED UPON/WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE SLEEVE-MOUNTED FOR BREAKAWAY AND REPLACEABILITY.
3. FINAL SIGN LOCATION AND / OR PLACEMENT SHALL BE IN ACCORDANCE WITH THE MUTCD AND AS DETERMINED AND APPROVED BY THE CITY ENGINEER OR SIGN SHOP SUPERVISOR.
4. 2-1/2" 12 GAUGE SHALL BE USED FOR LARGER SIGN AREA INSTALLATIONS. THE CITY ENGINEER MAY REQUIRE ALTERNATE SIZES, GAUGES, ETC, BASED ON SIGN SURFACE AREA.

MISSOULA
Engineering Division
Typical Boulevard Sign Base
Public Right-of-Way
Approved By City Engineer Kevin J. Slovarp
Adopted: 01/27/1999
Revised: 01/01/2023
STD - 720


MAXIMUM RUNNING GRADE 5%. INCREASED SLOPE MUST BE APPROVED BY CITY ENGINEER. EXPANSION JOINTS NOT ALLOWED BETWEEN CURB AND SIDEWALK.
6"
⑥
A
⑤
⑦
⑧
A
1' FILLET (TYP)
3:1 PREFERRED 2:1 MAX. SLOPE
WIDTH VARIES – SEE MCPWSS CH. 7 CROSS-SLOPE – 1.5% PREFERRED 2% MAX
12" MIN.
①
④
②
6" MIN.
⑧
③

SECTION A–A

KEYED NOTES:

① SEE MCPWSS CH. 7 FOR SIDEWALK WIDTH & THICKNESS REQUIREMENTS
② BASE COURSE. SEE CITY OF MISSOULA MODIFICATIONS TO MPWSS SECTIONS 02235 AND 02529
③ SUBGRADE. SEE CITY OF MISSOULA MODIFICATION TO MPWSS SECTION 02230
④ SHOULDER. SEE CITY OF MISSOULA MODIFICATION TO MPWSS SECTION 02529
⑤ CONTRACTION JOINTS. SEE CITY OF MISSOULA MODIFICATION TO MPWSS SECTION 02529
⑥ EXPANSION JOINTS. SEE CITY OF MISSOULA MODIFICATION TO MPWSS SECTION 02529
⑦ ISOLATION JOINTS. FOR USE AROUND OBJECTS WITHIN OR PROTRUDING FROM SIDEWALK (E.G. AROUND MANHOLES LIDS, VALVE BOXES, UTILITY POLES, HYDRANTS, POLE BASES, ETC.)
⑧ SLEEVE. TYP 4" SCH 40 PVC. MUST BE BELOW BASE AND IN SUBGRADE. EXTEND 6" BEYOND EDGE OF SIDEWALK. STAMP "S" IN THE FINISH SURFACE DIRECTLY ABOVE THE SLEEVE AT BOTH EDGES OF SIDEWALK.

MISSOULA
Engineering Division
Typical Sidewalk Section
Approved By City Engineer Kevin J. Slovarp
Adopted: 02/29/1996
Revised: 01/01/2023
STD - 752

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

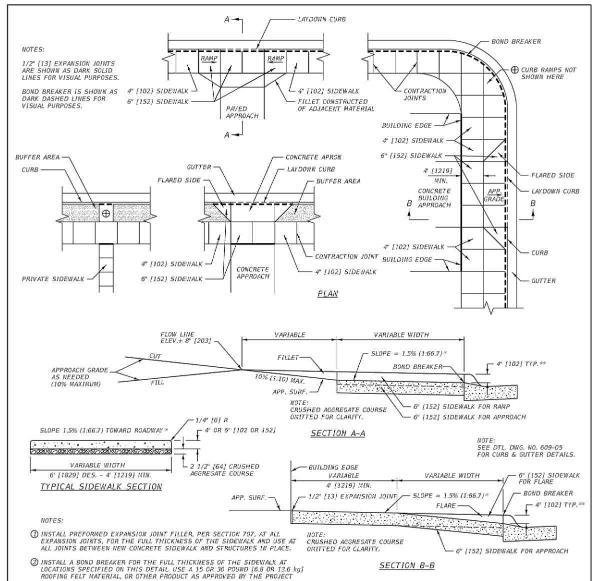
DESIGNER KD
PROJ. NO. 7486
DRAWN KD
DATE 10.23.2026
CHECKED KG
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONSTRUCTION DETAILS - TRANSPORTATION (3)

SHEET
86 OF 105


PLAN
SECTION A-A
SECTION B-B
TYPICAL SIDEWALK SECTION
SLOPE 1.5% (1:66.7) TOWARD ROADWAY *
1/4" [6] R
4" OR 6" [102 OR 152]
VARIABLE WIDTH
6' [1829] DES. - 4' [1219] MIN.
2 1/2" [64] CRUSHED AGGREGATE COURSE
BUILDING EDGE
VARIABLE
4' [1219] MIN.
APP. SURF.
1/2" [13] EXPANSION JOINT
SLOPE = 1.5% (1:66.7)*
FLARE
6" [152] SIDEWALK FOR FLARE
BOND BREAKER
4" [102] TYP.**
6" [152] SIDEWALK FOR RAMP
6" [152] SIDEWALK FOR APPROACH
NOTE: CRUSHED AGGREGATE COURSE OMITTED FOR CLARITY.
NOTE: SEE DTL. DWG. NO. 609-05 FOR CURB & GUTTER DETAILS.

NOTES:

① INSTALL PREFORMED EXPANSION JOINT FILLER, PER SECTION 707, AT ALL EXPANSION JOINTS, FOR THE FULL THICKNESS OF THE SIDEWALK AND USE AT ALL JOINTS BETWEEN NEW CONCRETE SIDEWALK AND STRUCTURES IN PLACE.

② INSTALL A BOND BREAKER FOR THE FULL THICKNESS OF THE SIDEWALK AT LOCATIONS SPECIFIED ON THIS DETAIL. USE A 15 OR 30 POUND [6.8 OR 13.6 kg] ROOFING FELT MATERIAL, OR OTHER PRODUCT AS APPROVED BY THE PROJECT MANAGER, FOR THE BOND BREAKER. DO NOT USE EXPANSION JOINT MATERIAL AS A BOND BREAKER.

③ CONSTRUCT ALL JOINTS STRAIGHT AND PERPENDICULAR TO THE CENTERLINE AND THE SURFACE OF THE SIDEWALK. WHERE PRACTICAL, ALIGN ALL JOINTS WITH LIKE JOINTS IN ADJOINING WORK. USE JOINTS TO OUTLINE ALL PANELS IN THE SIDEWALK, WHICH ARE TO BE, SO FAR AS POSSIBLE, SQUARE. THE LENGTHS OF THE PANELS ARE DETERMINED BY THE WIDTH OF THE SIDEWALK.

④ THE MINIMUM WIDTH OF NEW SIDEWALK IS 4 FEET [1219]. THE CONTINUOUS CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES IS 4 FEET [1219] MIN. THE CLEAR WIDTH BETWEEN OBSTRUCTIONS OR AN OBSTRUCTION AND THE EDGE OF SIDEWALK IS 4' [1219] MIN.

⑤ WHERE FACTORS SUCH AS LIMITED RIGHT-OF-WAY DICTATE THE INSTALLATION OF A NEW SIDEWALK LESS THAN 5 FEET [1525] IN WIDTH THE NEW SIDEWALK MUST HAVE PASSING AREAS AT A MAXIMUM SPACING OF 200 FEET [61 m]. A PASSING AREA IS A MINIMUM OF 5 FEET BY 5 FEET [1524 BY 1524] IN SIZE.

⑥ PROVIDE CONTRACTION JOINTS NO LESS THAN 1/8" [3] WIDE AND NO MORE THAN 1/4" [6] WIDE AND NO LESS THAN 1" [25] IN DEPTH. CONTRACTION JOINTS MAY BE CUT BY A GROOVE FORMING TOOL.

⑦ LOCATE EXPANSION JOINTS EVERY 100 FEET (± 30 FT.) [30 m (± 10 m)] AT INTERVALS EQUAL TO THE NEAREST MULTIPLE OF THE CONTRACTION JOINT INTERVAL.

⑧ USE A LONGITUDINAL CONTRACTION JOINT IN THE CENTERLINE OF ALL SIDEWALKS 8 FEET [2438] WIDE AND WIDER.

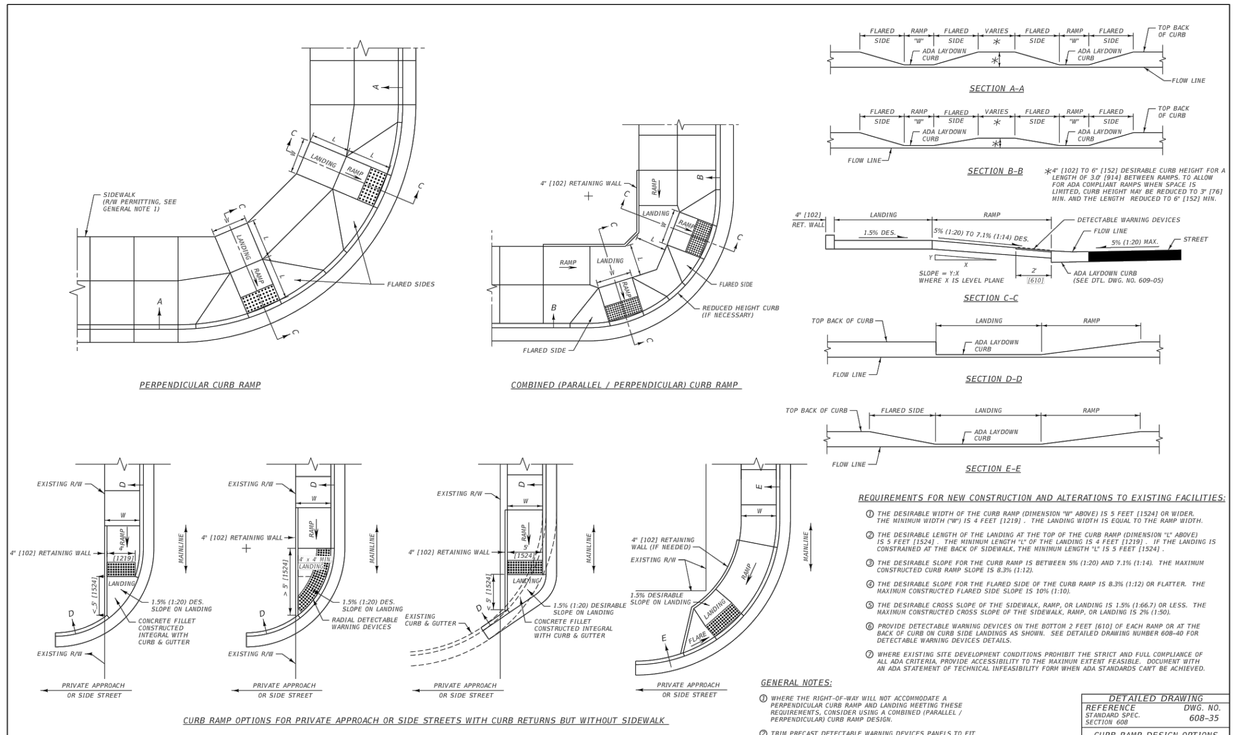
* THE MAXIMUM CONSTRUCTED CROSS SLOPE OF THE SIDEWALK IS 2% (1:50).

** THIS DEPTH IS STANDARD IN NEW CONSTRUCTION. ALTERATIONS TO EXISTING FACILITIES MAY RESULT IN A LARGER DEPTH, WHICH WILL REQUIRE A GREATER RAMP LENGTH.

⊕ SEE DTL. DWG. NO. 608-15 AND 608-20 FOR GUIDELINES ON RAMP DESIGN WHEN RAMPS ARE REQUIRED FOR ADA ACCESSIBILITY.

UNITS SHOWN IN BRACKETS [ ] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWING
REFERENCE
STANDARD SPEC.
SECTION 608
DWG. NO.
608-05
CONCRETE SIDEWALK
MDT MONTANA DEPARTMENT OF TRANSPORTATION


PERPENDICULAR CURB RAMP
COMBINED (PARALLEL / PERPENDICULAR) CURB RAMP
SECTION A-A
SECTION B-B
SECTION C-C
SECTION D-D
SECTION E-E
FLARED SIDE
RAMP
LANDING
ADA LAYDOWN CURB
TOP BACK OF CURB
FLOW LINE
DETECTABLE WARNING DEVICES
4" [102] RETAINING WALL
EXISTING R/W
MAINLINE
PRIVATE APPROACH OR SIDE STREET
CURB RAMP OPTIONS FOR PRIVATE APPROACH OR SIDE STREETS WITH CURB RETURNS BUT WITHOUT SIDEWALK

REQUIREMENTS FOR NEW CONSTRUCTION AND ALTERATIONS TO EXISTING FACILITIES:

① THE DESIRABLE WIDTH OF THE CURB RAMP (DIMENSION "W" ABOVE) IS 5 FEET [1524] OR WIDER. THE MINIMUM WIDTH ("W") IS 4 FEET [1219] . THE LANDING WIDTH IS EQUAL TO THE RAMP WIDTH.

② THE DESIRABLE LENGTH OF THE LANDING AT THE TOP OF THE CURB RAMP (DIMENSION "L" ABOVE) IS 5 FEET [1524] . THE MINIMUM LENGTH "L" OF THE LANDING IS 4 FEET [1219] . IF THE LANDING IS CONSTRAINED AT THE BACK OF SIDEWALK, THE MINIMUM LENGTH "L" IS 5 FEET [1524] .

③ THE DESIRABLE SLOPE FOR THE CURB RAMP IS BETWEEN 5% (1:20) AND 7.1% (1:14). THE MAXIMUM CONSTRUCTED CURB RAMP SLOPE IS 8.3% (1:12).

④ THE DESIRABLE SLOPE FOR THE FLARED SIDE OF THE CURB RAMP IS 8.3% (1:12) OR FLATTER. THE MAXIMUM CONSTRUCTED FLARED SIDE SLOPE IS 10% (1:10).

⑤ THE DESIRABLE CROSS SLOPE OF THE SIDEWALK, RAMP, OR LANDING IS 1.5% (1:66.7) OR LESS. THE MAXIMUM CONSTRUCTED CROSS SLOPE OF THE SIDEWALK, RAMP, OR LANDING IS 2% (1:50).

⑥ PROVIDE DETECTABLE WARNING DEVICES ON THE BOTTOM 2 FEET [610] OF EACH RAMP OR AT THE BACK OF CURB ON CURB SIDE LANDINGS AS SHOWN. SEE DETAILED DRAWING NUMBER 608-40 FOR DETECTABLE WARNING DEVICES DETAILS.

⑦ WHERE EXISTING SITE DEVELOPMENT CONDITIONS PROHIBIT THE STRICT AND FULL COMPLIANCE OF ALL ADA CRITERIA, PROVIDE ACCESSIBILITY TO THE MAXIMUM EXTENT FEASIBLE. DOCUMENT WITH AN ADA STATEMENT OF TECHNICAL INFEASIBILITY FORM WHEN ADA STANDARDS CAN'T BE ACHIEVED.

GENERAL NOTES:

① WHERE THE RIGHT-OF-WAY WILL NOT ACCOMMODATE A PERPENDICULAR CURB RAMP AND LANDING MEETING THESE REQUIREMENTS, CONSIDER USING A COMBINED (PARALLEL / PERPENDICULAR) CURB RAMP DESIGN.

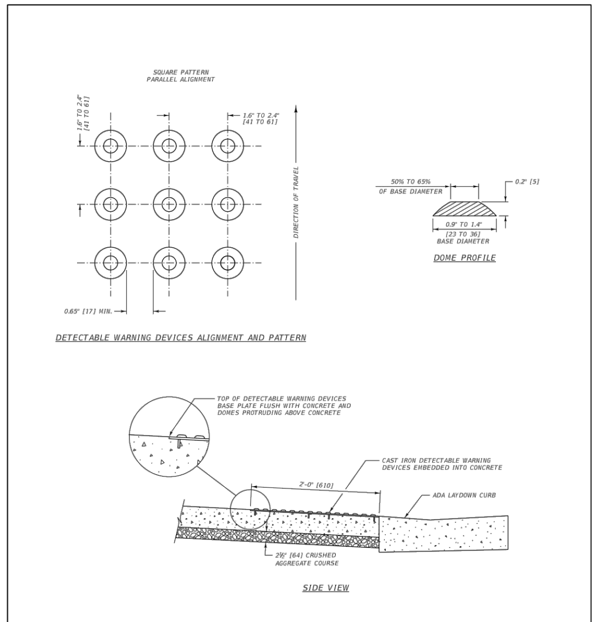
② TRIM PRECAST DETECTABLE WARNING DEVICES PANELS TO FIT ON PRIVATE APPROACH SIDEWALK CURB RAMPS AS SHOWN ABOVE.

③ THE COST OF RETAINING WALLS IS INCLUDED IN THE UNIT PRICE BID FOR CONCRETE SIDEWALK.

④ THERE IS NO TOLERANCE FOR EXCEEDING MAXIMUM STANDARDS.

UNITS SHOWN IN BRACKETS [ ] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWING
REFERENCE
STANDARD SPEC.
SECTION 608
DWG. NO.
608-35
CURB RAMP DESIGN OPTIONS FOR CURB-TIGHT SIDEWALKS
MDT MONTANA DEPARTMENT OF TRANSPORTATION


SQUARE PATTERN PARALLEL ALIGNMENT
DIRECTION OF TRAVEL
50% TO 65% OF BASE DIAMETER
0.2" [5]
0.9" TO 1.4" [23 TO 36] BASE DIAMETER
DOME PROFILE
DETECTABLE WARNING DEVICES ALIGNMENT AND PATTERN
TOP OF DETECTABLE WARNING DEVICES BASE PLATE FLUSH WITH CONCRETE AND DOMES PROTRUDING ABOVE CONCRETE
CAST IRON DETECTABLE WARNING DEVICES EMBEDDED INTO CONCRETE
ADA LAYDOWN CURB
2'-0" [610]
2½" [64] CRUSHED AGGREGATE COURSE
SIDE VIEW

CONSTRUCTION REQUIREMENTS:

① INSTALL DETECTABLE WARNING DEVICES THAT EXTEND THE FULL WIDTH OF THE RAMP, 2 FEET [610] IN DEPTH.

② INSTALL THE DETECTABLE WARNING DEVICES ADJACENT TO THE BACK OF CURB UNLESS OTHERWISE SHOWN IN THE PLANS.

③ EMBED THE DETECTABLE WARNING DEVICES DIRECTLY INTO THE CONCRETE, SO THE TOP OF THE BASE PLATE IS FLUSH WITH THE CONCRETE AND THE DOMES PROTRUDE ABOVE THE ADJACENT CONCRETE SURFACE.

⑤ USE CAST IRON DETECTABLE WARNING DEVICES FROM THE DEPARTMENT'S QUALIFIED PRODUCTS LIST (QPL).

④ ENSURE A UNIFORM GRADE ON THE DETECTABLE WARNING DEVICES FREE OF SAGS AND IRREGULAR EDGES.

⑥ USE DETECTABLE WARNING DEVICES THAT VISUALLY CONTRAST WITH ADJACENT WALKWAY SURFACES.

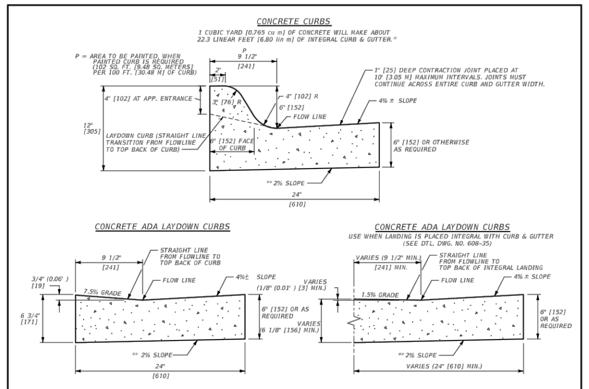
⑦ ENSURE THE ALIGNMENT AND PATTERN OF THE DOMES IS CONTINUED ACROSS ANY JOINTS BETWEEN DETECTABLE WARNING DEVICES BASE PLATE.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWING
REFERENCE
STANDARD SPEC.
SECTION 608
DWG. NO.
608-40
DETECTABLE WARNING DEVICES
MDT MONTANA DEPARTMENT OF TRANSPORTATION

CONCRETE CURBS

1 CUBIC YARD [0.765 cu m] OF CONCRETE WILL MAKE ABOUT 22.3 LINEAR FEET [6.80 lin m] OF INTEGRAL CURB & GUTTER.*


P = AREA TO BE PAINTED, WHEN PAINTED CURB IS REQUIRED (102 SQ. FT. [9.48 SQ. METERS] PER 100 FT. [30.48 M] OF CURB)
P
9 1/2" [241]
2" [51]
4" [102] AT APP. ENTRANCE
3" [76] R
4" [102] R
6" [152]
FLOW LINE
1" [25] DEEP CONTRACTION JOINT PLACED AT 10' [3.05 M] MAXIMUM INTERVALS. JOINTS MUST CONTINUE ACROSS ENTIRE CURB AND GUTTER WIDTH.
4% ± SLOPE
12" [305]
LAYDOWN CURB (STRAIGHT LINE TRANSITION FROM FLOWLINE TO TOP BACK OF CURB)
6" [152] FACE OF CURB
6" [152] OR OTHERWISE AS REQUIRED
** 2% SLOPE
24" [610]
CONCRETE ADA LAYDOWN CURBS
STRAIGHT LINE FROM FLOWLINE TO TOP BACK OF CURB
3/4" (0.06') [19]
7.5% GRADE
6 3/4" [171]
6" [152] OR AS REQUIRED
VARIES (1/8" (0.01') [3] MIN.)
VARIES (6 1/8" [156] MIN.)
CONCRETE ADA LAYDOWN CURBS
USE WHEN LANDING IS PLACED INTEGRAL WITH CURB & GUTTER (SEE DTL. DWG. NO. 608-35)
VARIES (9 1/2" MIN.) [241] MIN.
STRAIGHT LINE FROM FLOWLINE TO TOP BACK OF INTEGRAL LANDING
1.5% GRADE
6" [152] OR AS REQUIRED
VARIES (24" [610] MIN.)

JOINTS:

(A) WHEN INTEGRAL WITH, TIED TO, OR PLACED AGAINST PORTLAND CEMENT CONCRETE PAVEMENT (P.C.C.P.): MATCH TRANSVERSE CONTRACTION AND/OR EXPANSION JOINTS IN THE ADJACENT P.C.C.P. SLAB. IF REQUIRED, EXTEND 1/2" [13] MIN. WIDTH PREFORMED EXPANSION JOINTS COMPLETELY THROUGH CURB AND GUTTER THE SAME WIDTH AS THE P.C.C.P. SLAB JOINT. FILL CURB AND GUTTER EXPANSION JOINTS WITH PREFORMED EXPANSION JOINT FILLER.

(B) ALL OTHER CASES:
SPACE CONTRACTION JOINTS IN CURB AND GUTTER AT 10 FOOT [3.05 m] INTERVALS OR LESS EXCEPT AS SPECIFIED IN (A) ABOVE. EXTEND 1/2" [13] MIN. WIDTH EXPANSION JOINTS COMPLETELY THROUGH CURB AND GUTTER EVERY 100 FEET [30.48 m] (± 30 FEET [9.14 m]), AT INTERVALS EQUAL TO THE NEAREST MULTIPLE OF THE CONTRACTION JOINT INTERVAL, AND FILL WITH EXPANSION JOINT FILLER.

(C) CONTRACTION JOINTS:
CONTRACTION JOINTS ARE 1/8" [3] MIN. AND 3/8" [10] MAX. IN WIDTH. FORM JOINTS BY SAWING OR SCORING TO A MINIMUM DEPTH OF 1" [25]. JOINTS MUST HAVE ROUNDED CORNERS AND PREVENT AGGREGATE INTERLOCK TO AT LEAST 1".

(D) OTHER JOINTS:
SEPARATE THE CURB AND GUTTER FROM ADJACENT SIDEWALK AT POINTS SHOWN ON DTL. DWG. NO. 608-05 WITH A BOND BREAKER MATERIAL, EXCEPT AT APPROACH LAYDOWN CURB LOCATIONS, WHICH REQUIRE SEPARATION USING 1/2" [13] MIN. WIDTH PREFORMED EXPANSION JOINT MATERIAL. PLACE 1/2" [13] MIN. WIDTH PREFORMED EXPANSION JOINT MATERIAL AT ALL CURB RETURNS, BRIDGES, DROP INLETS, AND AT EXITING CURB AND GUTTER INTERFACES.

EXPANSION JOINT FILLER MATERIAL:
USE PREFORMED EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF SECTION 707.

BOND BREAKER MATERIAL:
USE A 15 OR 30 POUND [6.8 OR 13.6 KILOGRAM] ROOFING FELT MATERIAL, OR OTHER PRODUCT AS APPROVED BY THE PROJECT MANAGER. DO NOT USE EXPANSION JOINT MATERIAL.

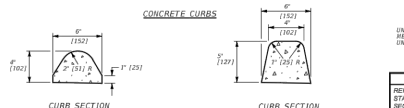
RADII:
MINIMUM CURB RETURN RADII = 10' [3.05 m]. 15' [4.57 m] RADII ARE DESIRABLE FOR STREETS.

CONCRETE:
UNLESS OTHERWISE SPECIFIED, CONSTRUCT CONCRETE CURBS AND CONCRETE INTEGRAL CURB AND GUTTER WITH CLASS GENERAL CONCRETE OR APPROVED EQUAL.

* QUANTITIES FOR ESTIMATING PURPOSES ONLY.

** MATCH GUTTER CROSS SLOPE TO ROADWAY SUPERELEVATION.

CONCRETE CURBS



CURB SECTION
1 CUBIC FOOT [0.305 cu m] OF CONCRETE WILL MAKE ABOUT 8 LINEAR FEET [2.44 lin m] OF CURB. *

CURB SECTION
1 CUBIC FOOT [0.305 cu m] OF CONCRETE WILL MAKE ABOUT 5 LINEAR FEET [1.52 lin m] OF CURB. *

NOTES:

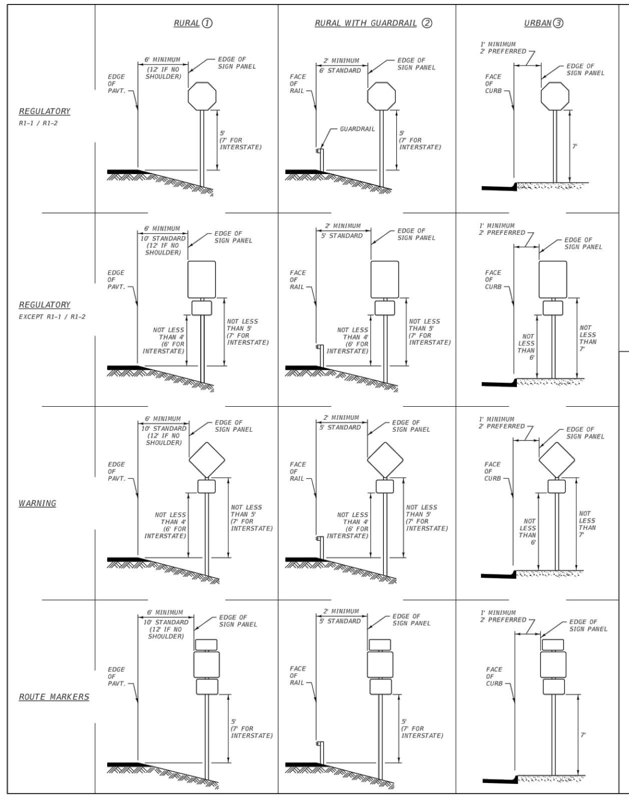
① USE 4" HIGH CURB IN VICINITY OF GUARDRAIL. USE EITHER SECTION NOT IN VICINITY OF GUARDRAIL.

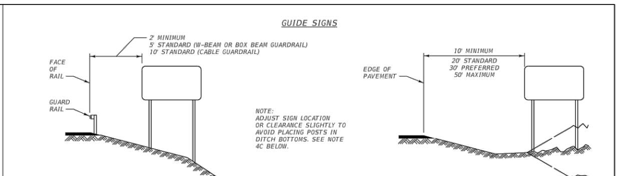
② MATERIALS AND CONSTRUCTION MUST BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 609.

③ FORM CONCRETE CURB CONTRACTION JOINTS PER NOTE (B) ABOVE.

UNITS SHOWN IN BRACKETS [ ] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWINGS
REFERENCE
STANDARD SPEC.
SECTION 609, 707
DWG. NO.
609-05
MISCELLANEOUS CURBS
EFFECTIVE: JAN 23, 2020
MONTANA Department of Transportation
--REVISED--
JUN 27, 2024
5/14/2024 9:00 AM
STDDRD609005.DWG





NOTE:
ADJUST SIGN LOCATION OR CLEARANCE SLIGHTLY TO AVOID PLACING POSTS IN DITCH BOTTOMS. SEE NOTE 4C BELOW.

NOTES:

1. PLACE ALL SIGNS AT THE CLEARANCE AND MOUNTING HEIGHTS SHOWN.

2. FOR REGULATORY, WARNING AND ROUTE MARKER SIGNS, AND THEIR ASSEMBLIES, ON HIGHWAYS OTHER THAN INTERSTATE:
A) USE DIAGRAMS LOCATED IN COLUMN ① WHEN PLACING THESE SIGNS IN STANDARD RURAL CONDITIONS. USE COLUMN ② WHEN PLACING THESE SIGNS BEHIND GUARDRAIL IN RURAL CONDITIONS. USE COLUMN ③ WHEN PLACING THESE SIGNS IN URBAN CONDITIONS WHERE THERE IS ADEQUATE CLEARANCE AND SIDEWALK WIDTH.
B) WHERE SIDEWALK WIDTH IS LIMITED IN URBAN CONDITIONS, SEE DTL. DWG. NO. 619-18 FOR PLACEMENT DETAILS.

3. FOR REGULATORY (ALL OTHER), WARNING AND ROUTE MARKER SIGNS, AND THEIR ASSEMBLIES, ON INTERSTATE HIGHWAYS:
THE CLEARANCE IS 20' FROM THE EDGE OF PAVEMENT IN COLUMN ① FOR STANDARD RURAL CONDITIONS. THE CLEARANCES LISTED IN COLUMNS ② AND ③ REMAIN AS SHOWN.

4. FOR GUIDE SIGNS AND THEIR ASSEMBLIES:
A) USE THE DIAGRAMS LOCATED ABOVE WHEN PLACING THESE SIGNS IN THE GIVEN RURAL CONDITIONS.
B) FOR PLACEMENT OF THESE SIGNS IN URBAN CONDITIONS, SEE THE SIGN LOCATION AND SPECIFICATION SHEETS IN THE SIGNING PLANS FOR EACH INDIVIDUAL SIGN.
C) THE MAXIMUM CLEARANCE OF THESE SIGNS IS 50' IN ANY CONDITION.
D) SEE DTL. DWG. NO. 619-08 FOR MOUNTING HEIGHTS.

5. WITHIN THE CITY LIMITS OR IN A SIDEWALK AND CURB AREA, MOUNT SIGNS TO HAVE THE PROPER CLEARANCES, BUT AVOID ANY CONFLICT BETWEEN THE POST AND THE MAIN WALKING AREA OF THE SIDEWALK, OR WITH DOORWAYS OR WINDOWS OF ADJACENT BUILDINGS. THE EXACT LOCATION OF THESE SIGN INSTALLATIONS WILL BE DETERMINED BY THE PROJECT MANAGER. SEE DTL. DWG. NO. 619-18 FOR VARIOUS CANTILEVER TYPE MOUNTINGS.

6. EVALUATE SIGNS WITHIN CLEAR ZONES (TABLES BELOW) FOR SUPPORT BREAKAWAY REQUIREMENTS (CONTACT MDT TRAFFIC SECTION FOR CRITERIA).

7. USE HARDWARE MEETING THE REQUIREMENTS OF SECTION 704.

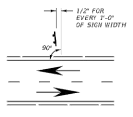
CLEAR ZONE DISTANCES
(IN FEET FROM EDGE OF DRIVING LANE)

DESIGN SPEED	DESIGN ADT	FILL SLOPES			CUT SLOPES		
		6:1 OR FLATTER	5:1 TO 4:1	3:1	3:1	4:1 TO 5:1	6:1 OR FLATTER
40 MPH OR LESS	UNDER 750	7-10	7-10	**	7-10	7-10	7-10
	750-1499	10-12	12-14	**	10-12	10-12	10-12
	1500-6000	12-14	14-16	**	12-14	12-14	12-14
	OVER 6000	14-16	16-18	**	14-16	14-16	14-16
45-50 MPH	UNDER 750	10-12	12-14	**	8-10	8-10	10-12
	750-1499	12-14	16-20	**	10-12	12-14	14-16
	1500-6000	16-18	20-26	**	12-14	14-16	16-18
	OVER 6000	18-20	24-28	**	14-16	18-20	20-22
55 MPH	UNDER 750	12-14	14-18	**	8-10	10-12	10-12
	750-1499	16-18	20-24	**	10-12	14-16	16-18
	1500-6000	20-22	24-30	**	14-16	16-18	20-22
	OVER 6000	22-24	26-32 *	**	16-18	20-22	22-24
60 MPH	UNDER 750	16-18	20-24	**	10-12	12-14	14-16
	750-1499	20-24	26-32 *	**	12-14	16-18	20-22
	1500-6000	26-30	32-40 *	**	14-18	18-22	24-26
	OVER 6000	30-32 *	36-44 *	**	20-22	24-26	26-28
65-70 MPH	UNDER 750	18-20	20-26	**	10-12	14-16	14-16
	750-1499	24-26	28-36 *	**	12-16	18-20	20-22
	1500-6000	28-32 *	34-42 *	**	16-20	22-24	26-28
	OVER 6000	30-34 *	38-46 *	**	22-24	26-30	28-30

HORIZONTAL CURVE ADJUSTMENTS
(APPLICABLE ON OUTSIDE OF CURVE ONLY)

RADIUS (FT)	DESIGN SPEED (MPH)						
	40	45	50	55	60	65	70
2860	1.1	1.1	1.1	1.2	1.2	1.2	1.3
2290	1.1	1.1	1.2	1.2	1.2	1.3	1.3
1910	1.1	1.2	1.2	1.2	1.3	1.3	1.4
1640	1.1	1.2	1.2	1.3	1.3	1.4	1.5
1430	1.2	1.2	1.3	1.3	1.4	1.4	
1270	1.2	1.2	1.3	1.3	1.4	1.5	
1150	1.2	1.2	1.3	1.4	1.5		
950	1.2	1.3	1.4	1.5	1.5		
820	1.3	1.3	1.4	1.5			
720	1.3	1.4	1.5				
640	1.3	1.4	1.5				
570	1.4	1.5					
380	1.5						

TO AVOID GLARE, SKEW SIGN AWAY FROM ROADWAY AT THE ANGLE SHOWN WHEN SIGN IS < 30' FROM SHOULDER. SKEW SIGN TOWARDS ROADWAY AT THE SAME ANGLE IF SIGN IS > 30' FROM SHOULDER.



SKEW DIAGRAM

* WHEN AN INVESTIGATION OR ACCIDENT HISTORY INDICATES A HIGH PROBABILITY OF ACCIDENTS, CLEAR ZONE DISTANCES GREATER THAN 30' MAY BE PROVIDED AS INDICATED. CLEAR ZONES MAY ALSO BE LIMITED TO 30' TO PROVIDE A CONSISTENT ROADWAY TEMPLATE WHEN EXPERIENCE WITH PREVIOUS SIMILAR PROJECTS INDICATES SATISFACTORY PERFORMANCE.

** FIXED OBJECTS, INCLUDING SIGN POSTS, SHOULD NOT BE ALLOWED IN THE VICINITY OF THE TOE OF THESE SLOPES. SEE AASHTO ROADSIDE DESIGN GUIDE FOR ADDITIONAL CONSIDERATIONS IN LOCATING SIGNS.

DETAILED DRAWING
REFERENCE
STANDARD SPEC.
SECTION 619, 704
DWG. NO.
619-00
SIGN CLEARANCES AND MOUNTING HEIGHTS
MDT MONTANA DEPARTMENT OF TRANSPORTATION

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

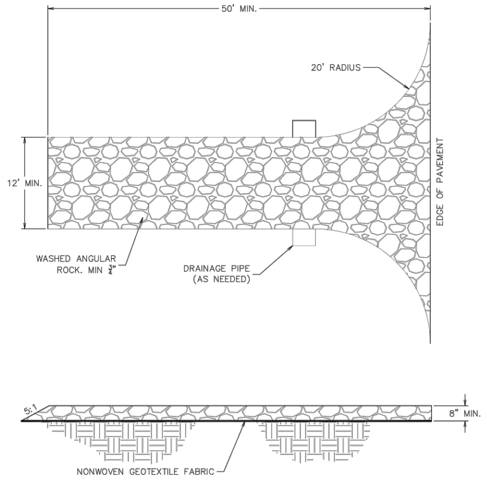
DESIGNER KD
PROJ. NO. 7486
DRAWN KD
DATE 10.23.2026
CHECKED KG
SURVEYED DJ&A, P.C.

DJ&A ENGINEERS PLANNERS SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

CONSTRUCTION DETAILS - TRANSPORTATION (MDT)

SHEET 87 OF 105


50' MIN.
20' RADIUS
12' MIN.
EDGE OF PAVEMENT
WASHED ANGULAR ROCK. MIN ¾"
DRAINAGE PIPE (AS NEEDED)
5:1
8" MIN.
NONWOVEN GEOTEXTILE FABRIC

GENERAL NOTES:

1. A TEMPORARY GRAVEL CONSTRUCTION ENTRANCE SHALL BE LOCATED AT POINTS OF VEHICULAR EGRESS ON A CONSTRUCTION SITE TO LIMIT THE AMOUNT OF SEDIMENT TRANSPORTED ONTO PUBLIC ROADS BY VEHICLES.
2. REMOVE AND REPLACE AGGREGATE WHEN VOIDS BECOME FILLED.
3. SWEEP AND REMOVE SEDIMENT TRACKED ONTO PAVED SURFACES.
4. PROPERLY GRADE INGRESS/EGRESS POINTS TO PREVENT RUNOFF FROM LEAVING THE SITE.
5. CONSIDER THE USE OF RUMBLE PADS, FODs, OR CATTLE GUARDS IN COMBINATION WITH THE GRAVEL CONSTRUCTION ENTRANCE TO IMPROVE EFFECTIVENESS

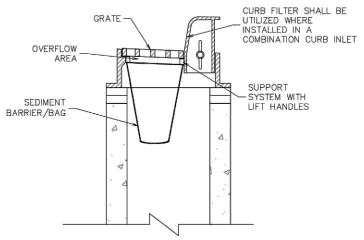
Engineering Division

Temporary Gravel Construction Entrance

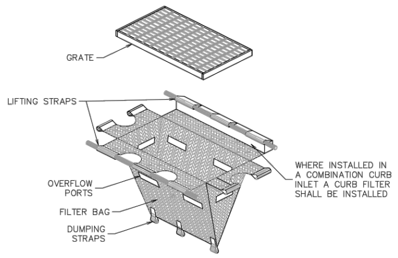
Approved By
Utility Engineer
Andy Schultz, PE

Revised: 01/01/2024

STD - 650


GRATE
CURB FILTER SHALL BE UTILIZED WHERE INSTALLED IN A COMBINATION CURB INLET
OVERFLOW AREA
SUPPORT SYSTEM WITH LIFT HANDLES
SEDIMENT BARRIER/BAG

SECTION


GRATE
LIFTING STRAPS
WHERE INSTALLED IN A COMBINATION CURB INLET A CURB FILTER SHALL BE INSTALLED
OVERFLOW PORTS
FILTER BAG
DUMPING STRAPS

INSTALLATION

GENERAL NOTES:

1. INLET PROTECTION SHALL BE USED AS A "LAST RESORT" BMP. CARE SHALL BE TAKEN TO MINIMIZE SEDIMENT LADEN STORMWATER FROM REACHING INLETS/DRY WELLS
2. INLET PROTECTION SHALL BE INSPECTED REGULARLY AND AFTER STORM EVENTS. IF UNIT IS MORE THAN 1/3 FULL OF ACCUMULATED SEDIMENT, THE UNIT MUST BE EMPTIED.
5. ALL TEMPORARY BMP'S TO BE REMOVED AT FINAL STABILIZATION.

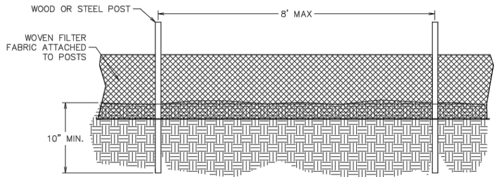
Engineering Division

Inlet Protection

Approved By
Utility Engineer
Andy Schultz, PE

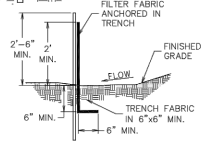
Revised: 09/28/2020

STD - 651



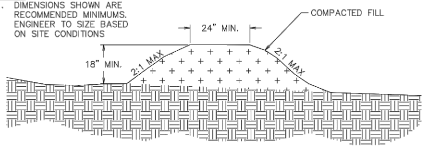
NOTES:
1. TURN SILT FENCE UP HILL AT ENDS
2. USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW

SILT FENCE

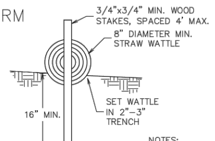


DETAIL

NOTES:
1. DIMENSIONS SHOWN ARE RECOMMENDED MINIMUMS. ENGINEER TO SIZE BASED ON SITE CONDITIONS



COMPACTED EARTHEN BERM


3/4"x3/4" MIN. WOOD STAKES, SPACED 4' MAX.
8" DIAMETER MIN. STRAW WATTLE
SET WATTLE IN 2"–3" TRENCH
16" MIN.

STRAW WATTLE

NOTES:
1. USE BIODEGRADABLE WRAP ON STRAW WATTLES IF THEY ARE TO BE LEFT IN PLACE.

GENERAL NOTES:

1. PRESERVING EXISTING VEGETATION SHALL BE USED AS THE PRIMARY PERIMETER CONTROL.
2. PERIMETER CONTROL BMPs SHALL BE INSTALLED BEFORE ANY EARTH REMOVAL OR EXCAVATION TAKES PLACE.
3. INSTALL PERIMETER CONTROL BMPs PARALLEL TO CONTOUR LINES.
4. FOLLOW MANUFACTURER'S INSTRUCTIONS TO OVERLAP THE SILT FENCE AND WATTLES AT JUNCTIONS.
5. ALL TEMPORARY BMP'S TO BE REMOVED AT FINAL STABILIZATION.

Engineering Division

Perimeter Control

Approved By
Utility Engineer
Andy Schultz, PE

Revised: 09/28/2020

STD - 652

6/4/26 15:33 TYLER.PALLEN C:\DJA-PWWORK\DJA-PROD\DMS72465\C9.0 CIVIL CONSTRUCTION DETAILS.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER KD
DRAWN KD
CHECKED KG

PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

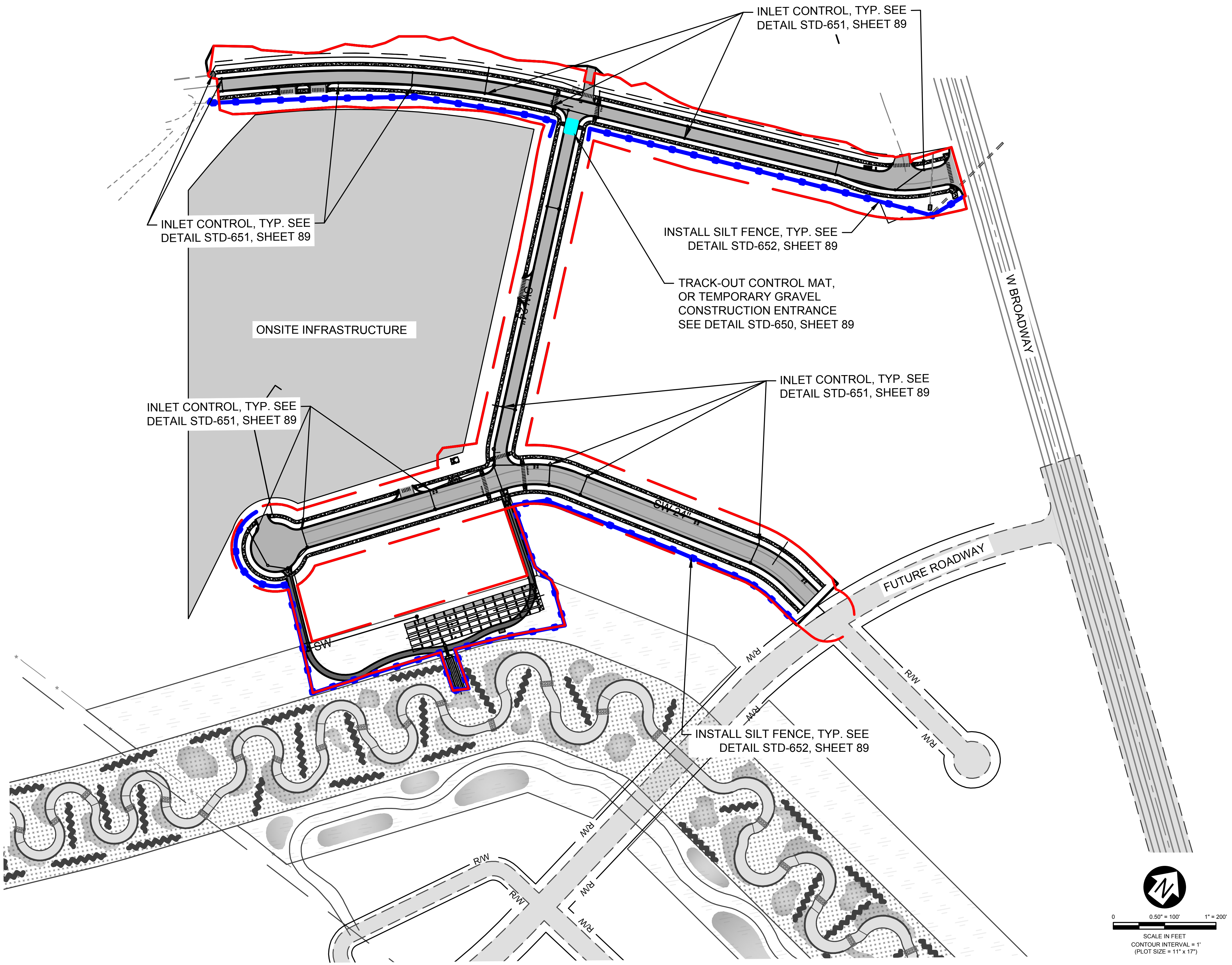
CONSTRUCTION DETAILS - EROSION CONTROL

EROSION CONTROL NOTES:

1. CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF CIVIL-RELATED WORK.
2. UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. NOT ALL UTILITIES ARE SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY LOCATIONS OF ALL UTILITIES WITHIN THE PROJECT LIMITS.
3. PERFORM CLEARING AND EARTH-MOVING ACTIVITIES ONLY DURING DRY WEATHER. MEASURES TO ENSURE ADEQUATE EROSION PREVENTION AND SEDIMENT CONTROL SHALL BE INSTALLED PRIOR TO EARTH-MOVING ACTIVITIES AND CONSTRUCTION.
4. MEASURES TO ENSURE ADEQUATE EROSION PREVENTION AND SEDIMENT CONTROL ARE REQUIRED YEAR-ROUND. STABILIZE ALL AREAS STRIPPED OF VEGETATION AND MAINTAIN EROSION PREVENTION MEASURES CONTINUOUSLY FROM MARCH 1 THROUGH NOVEMBER 1.
5. STORE, HANDLE, AND DISPOSE OF CONSTRUCTION MATERIALS AND WASTES PROPERLY, TO PREVENT THEIR CONTACT WITH STORM WATER. NO MATERIALS SHALL BE STORED ON THE STREETS.
6. CONTROL AND PREVENT DISCHARGE OF ALL POTENTIAL POLLUTANTS, INCLUDING PAVEMENT CUTTING WASTES, PAINTS, CONCRETE, PETROLEUM PRODUCTS, CHEMICALS, WASH WATER, OR SEDIMENTS, AND NON-STORM WATER DISCHARGES TO STORM DRAIN AND WATERCOURSES.
7. AVOID CLEANING, FUELING, OR MAINTAINING VEHICLES ON SITE, EXCEPT IN A DESIGNATED AREA WHERE WATER IS CONTAINED AND TREATED. LIMIT AND APPROPRIATELY TIME APPLICATIONS OF PESTICIDES AND FERTILIZERS TO PREVENT POLLUTED RUNOFF.
8. LIMIT CONSTRUCTION ACCESS ROUTES TO DESIGNATED STABILIZED ACCESS POINTS.
9. AVOID TRACKING DIRT OR OTHER MATERIALS OFF SITE; CLEAN OFF-SITE PAVED AREAS AND SIDEWALKS USING DRY SWEEPING METHODS.
10. TRAIN AND PROVIDE INSTRUCTION TO ALL EMPLOYEES AND SUBCONTRACTORS REGARDING THE CURRENT VERSION OF THE MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY FIELD GUIDE FOR BEST MANAGEMENT PRACTICES.
11. LOCATION OF CONSTRUCTION ENTRANCE WILL NEED TO BE ADJUSTED AND MOVED THROUGHOUT THE STAGES OF CONSTRUCTION.

EROSION CONTROL LEGEND:

DISTRUBANCE LIMITS	— — —
SILT FENCE	●—●—●—●
TRACK OUT MAT	▨



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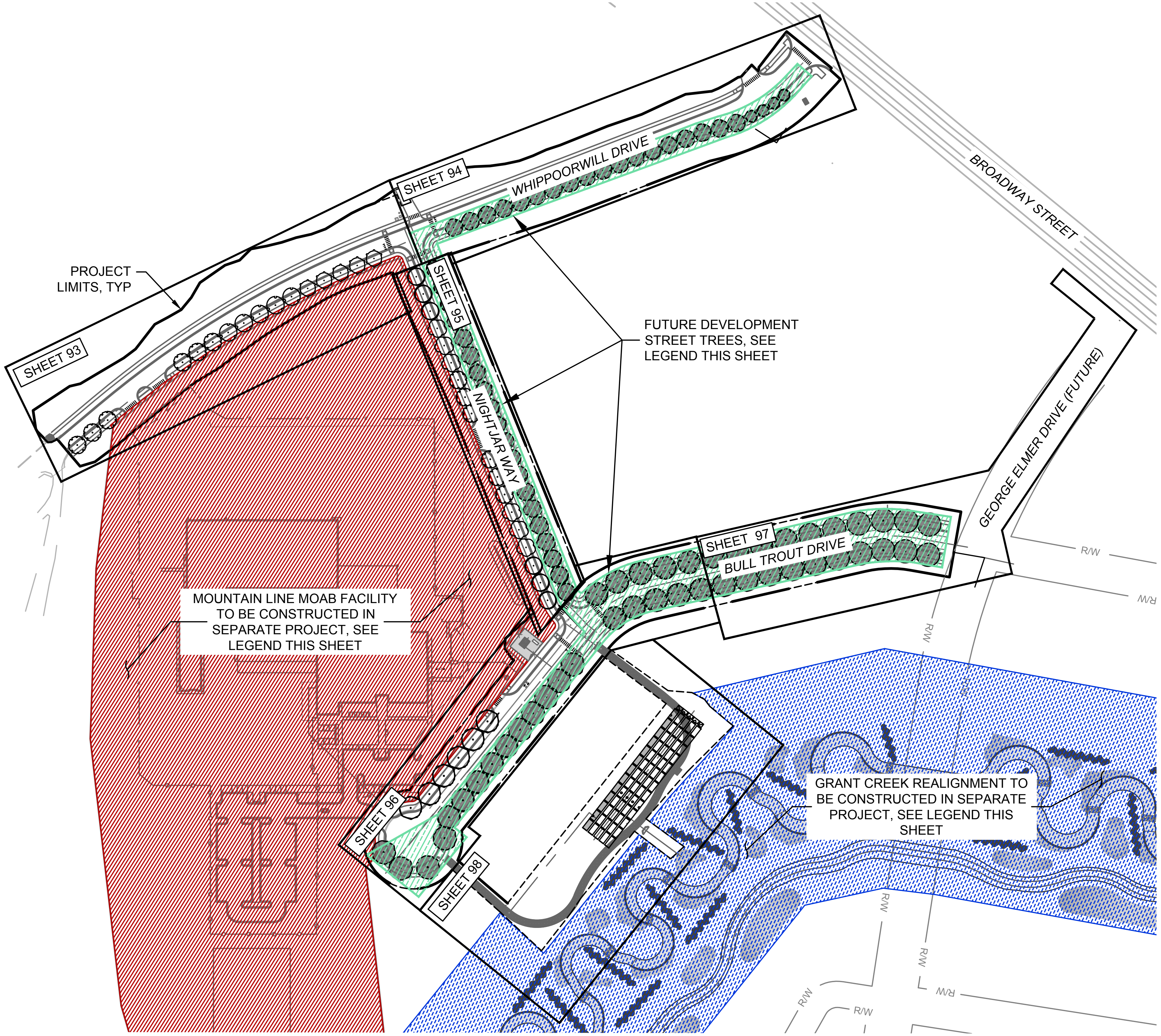
CHECKED KG
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

EROSION CONTROL

SHEET
89
OF
105



PROJECT LIMITS, TYP

FUTURE DEVELOPMENT STREET TREES, SEE LEGEND THIS SHEET

MOUNTAIN LINE MOAB FACILITY TO BE CONSTRUCTED IN SEPARATE PROJECT, SEE LEGEND THIS SHEET

GRANT CREEK REALIGNMENT TO BE CONSTRUCTED IN SEPARATE PROJECT, SEE LEGEND THIS SHEET

LANDSCAPE SHEET INDEX

91	PLANTING NOTES
92	PLANTING SCHEDULE
93 - 98	PLANTING PLANS
99	PLANTING DETAILS

BASIS OF DESIGN

1. STREET TREES IN BOULEVARDS ALONG WHIPPOORWILL DRIVE, NIGHTJAR WAY, AND BULL TROUT DRIVE THAT ARE IMMEDIATELY ADJACENT THE MOAB FACILITY ARE PART OF THE BASE CONTRACT.
2. ALL SEEDING AND GROUNDCOVER WITHIN THE PROJECT LIMITS ARE PART OF THE BASE CONTRACT, INCLUDING AREAS WITHIN THE FUTURE DEVELOPMENT STREET TREES AREA (GREEN HATCH) AND STORMWATER RETENTION SYSTEM AREA (SHEET 98).

LEGEND

▨ FUTURE DEVELOPMENT STREET TREES

1. PROPOSED STREET TREES SHOWN WITHIN THIS AREA AND LABELED ON THE PLANS AS "FUTURE DEVELOPMENT STREET TREES" ARE SHOWN FOR REFERENCE, PLANNING, AND APPROVAL PURPOSES ONLY. THESE TREES ARE NOT INCLUDED IN THE CONTRACT (NIC) AS PART OF THIS PROJECT AND WILL BE INSTALLED AT A FUTURE DATE AS PART OF THE DEVELOPMENT OF INDIVIDUAL ADJACENT LOTS WITHIN THE OVERALL SUBDIVISION.
2. ALL SEEDING AND GROUNDCOVER RESTORATION WORK WITHIN THIS AREA SHALL BE INCLUDED AS PART OF THE BASE CONTRACT.

▨ MOUNTAIN LINE MOAB FACILITY

1. MOUNTAIN LINE MOAB FACILITY TO BE CONSTRUCTED IN SEPARATE PROJECT. SHOWN FOR REFERENCE PURPOSES ONLY. NOT IN THIS CONTRACT (NIC).

▨ GRANT CREEK

1. GRANT CREEK REALIGNMENT TO BE CONSTRUCTED IN SEPARATE PROJECT. SHOWN FOR REFERENCE PURPOSES ONLY. NOT IN THIS CONTRACT (NIC).

N

0 0.50" = 100' 1" = 200'

SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

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PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

PLANTING PLAN KEY

SHEET
90
OF
105

CITY OF MISSOULA DEVELOPMENT STANDARDS REQUIREMENTS

PERFORM ALL WORK SHOWN ON PLANS IN CONFORMANCE WITH THE 2026 EDITION OF THE MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS MANUAL (COMSSM).

BOULEVARD LANDSCAPING - DESIGN STANDARDS

1. LANDSCAPE MATERIALS SHALL CONFORM WITH CITY OF MISSOULA MODIFICATIONS TO MONTANA PUBLIC WORKS STANDARDS AND SPECIFICATIONS (MPWSS) SECTIONS 02900 - 02940, FOUND IN 2026 COMSSM.

TOPSOIL

1. ON-SITE AND IMPORTED TOPSOIL SHALL BE IN CONFORMANCE WITH CITY OF MISSOULA MODIFICATIONS TO MPWSS 02900 SURFACE PREP AND TOPSOIL.
   1.1.1. ALL BOULEVARD AND STORMWATER RETENTION SYSTEM SEEDED AREAS SHALL HAVE 6 INCHES MINIMUM DEPTH OF PLANTING TOPSOIL.
   1.1.2. DECOMPACT AND SCARIFY 12 INCHES OF SUBSOIL PER SPECIFICATIONS PRIOR TO PLANTING SOIL APPLICATION.
   1.1.3. SEE PLANTING DETAILS FOR PREPARED TOPSOIL DETAIL.
   1.1.4. SEE PLANTING DETAILS FOR REQUIRED TOPSOIL DEPTH FOR TREES.
   1.1.5. TOPSOIL IN BOULEVARDS AND STORMWATER RETENTION SYSTEM AREA DO NOT REQUIRE TESTING IF ON-SITE NATIVE SOIL IS USED AND GENERALLY MEET THE STANDARDS AS DESCRIBED IN THE SPECIFICATIONS SECTION 02900. IF IMPORTED TOPSOIL MUST BE USED TO ACHIEVE SPECIFIED DEPTH, THE IMPORTED SOIL MUST BE FROM THE APPROVED SOURCE LISTED IN THE SPECIFICATIONS, OR MEET TESTING REQUIREMENTS. PROVIDE TESTING REPORTS AND RECOMMENDATIONS, AS SPECIFIED.

SEEDING

1. SEEDING SHALL BE IN CONFORMANCE WITH CITY OF MISSOULA MODIFICATIONS TO MPWSS 02910 SEEDING.
2. PERFORM SEEDING WHEN TEMPERATURE AND MOISTURE ARE FAVORABLE TO GERMINATION AND PLANT GROWTH. SEEDING DATES MUST BE APPROVED BY THE CITY PROJECT MANAGER.

STREET TREES

1. GENERAL
   1.3. TREE INSTALLATION SHALL COMPLY WITH CITY OF MISSOULA DRAWING STD-901, SEE PLANTING DETAILS.
   1.4. TREE INSTALLATION SHALL COMPLY WITH CITY OF MISSOULA MODIFICATIONS TO MPWSS, 02930 TREE PLANTING.
   1.5. TREE PLANTING MATERIAL SHALL MEET THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1).
   1.6. STREET TREES SHALL BE BALL AND BURLAP WITH A MINIMUM CALIPER SIZE OF 2" AT TIME OF PLANTING.
   1.7. PROVIDE A CLEAN, DRY, FIR BARK MULCH CIRCLE, AS SPECIFIED, TO A 3-FOOT MINIMUM RADIUS AND 4-INCH MINIMUM DEPTH SURROUNDING ALL TREES, AS SHOWN IN TREE PLANTING DETAIL. DO NOT USE AN UNDERLAYMENT SUCH AS PLASTIC SHEET OR LANDSCAPE FABRIC.
2. MAINTENANCE
   2.1. TREE MAINTENANCE SHALL COMPLY WITH THE ANSI A300 TREE CARE STANDARDS.
3. SELECTION FOR STREET TREES
   3.1. STREET TREES SHALL BE SELECTED FROM THE APPROVED STREET TREES FOR MISSOULA AS FOUND IN THE COMSSM APPENDIX 7B. THE SELECTION OF TREE CLASS AND SPECIES SHALL BE REVIEWED AND APPROVED BY THE CITY FORESTER.
   3.2. TREE SELECTION SHALL BE CLASS II OR III, COINCIDING WITH PLANTING AREA AND SOIL VOLUMES.
   3.3. FOLLOW THE 10-20-30 RULE FOR TREE SPECIES DIVERSITY. NO ONE TAXONOMIC FAMILY MAY COMPRISE MORE THAN 30% OF THE TOTAL STREET TREES; NO ONE TAXONOMIC GENUS MAY COMPRISE MORE THAN 20% OF THE TOTAL STREET TREES; AND NO ONE TAXONOMIC SPECIES MAY COMPRISE MORE THAN 10% OF THE TOTAL STREET TREES OF THE IMPROVEMENT PLAN. IF THE DEVELOPMENT IS PHASED, THE MUST ALSO APPLY ACROSS ALL PHASES OF DEVELOPMENT.
   3.4. EXCEPTIONS TO REQUIREMENTS SHALL ONLY BE CONSIDERED FOR EXISTING UTILITY CONFLICTS, GRADES THAT PRECLUDE BOULEVARD ESTABLISHMENT, OR SIGHT VISIBILITY CONFLICTS. DECISIONS SHALL BE MADE AT THE DISCRETION OF THE URBAN FORESTER OR DESIGNEE.
      3.4.1. WHERE THERE ARE EXISTING OVERHEAD UTILITIES, CLASS I TREES SHALL BE USED FOR STREET TREES PER THE SPACING REQUIREMENTS.
4. QUANTITY AND SPACING FOR STREET TREES
   4.1. SPACING: STREET TREES SHALL BE SPACED PER THE MINIMUM REQUIREMENTS SHOWN IN TABLE 7-3.

Table 7-3 – Boulevard Street Tree Spacing

Boulevard Width	Tree Class	Standard Spacing	Allowable Range	Allowable range with design exception(2)
6′-10′	Class II	30′	25′-35′	20′-40′
10′ or greater	Class III	40′	35′-45′	30-50′
Less than 6′	Class I(1)	20′	15′-25′	15′-25′

   4.2. SETBACK:
      4.2.1. VISIBILITY TRIANGLE AT INTERSECTIONS: STREET TREES MAY BE PLANTED WITHIN AN INTERSECTION'S VISIBILITY TRIANGLE, SEE STD-711 DETAIL ON PLANTING DETAILS SHEET, BUT MUST FOLLOW THE REQUIREMENTS IN MMC 12.28 OBSTRUCTIONS.
      4.2.2. CONFLICTS: STREET TREES SHALL BE LOCATED PER THE RECOMMENDED MINIMUM SETBACKS IN TABLE 7-4.

Table 7-4 – Tree Setback Requirements

Location	Class I	Class II	Class III
Adjacent to curb face or sidewalk(1)	1.5′	3′	5′
Adjacent to any building or structure	4′	10′	20′
Adjacent to meter boxes and transformers pad	10′	10′	10′
Residential driveways approach	10′	5′	5′
Commercial driveways approach	15′	10′	10′
Alleyways approach	15′	10′	10′
Fire hydrants and utility poles	10′	10′	10′
Water Mains (measured from center of pipe)	5′	5′	5′
Sewer Mains (measured from center of pipe)	8′	8′	8′
Stormwater Mains (measured from edge of pipe)	2.5′	2.5′	2.5′
Dry Wells	10′	10′	10′
Wet Utility Service Lines	5′	5′	5′
Street lights(2)	10′	20′	20′
Stop and yield traffic control signs(3)	22′	22′	22′

5. UNCOMPACTED SOIL VOLUMES
   5.1. STREET TREES PLANTED IN CONTINUOUS PLANTING STRIPS (BOULEVARDS) ARE EXEMPT FROM UNCOMPACTED SOIL VOLUMES REQUIREMENTS AS LONG AS THEY ARE AT LEAST 8' IN WIDTH.

MAINTENANCE & WARRANTY

1. CONTRACTOR SHALL PERFORM MAINTENANCE ACTIVITIES IN ACCORDANCE WITH THE FOLLOWING:
   1.1. MPWSS SECTION 02910 SEEDING AND 02930 TREE PLANTING.
   1.2. MAINTENANCE FOR ALL SEEDED AREAS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR DURING THE CONSTRUCTION MAINTENANCE PERIOD AND TO MEET THE REQUIREMENTS OF THE DRYLAND ESTABLISHMENT PERIOD AS SPECIFIED IN MPWSS SECTION 02910 SEEDING, ASSUMED TO BE THE FIRST TWO GROWING SEASONS.
2. WARRANTY: ALL TREES SHALL BE WARRANTED TO REMAIN ALIVE AND IN THRIVING CONDITION ONE YEAR FROM FINAL ACCEPTANCE, OR SHALL BE REPLACED FREE OF CHARGE WITH THE SAME GRADE AND SPECIES.

GENERAL PLANTING NOTES

1. LANDSCAPE CONTRACTOR SHALL COORDINATE INSTALLATION OF ALL LANDSCAPE MATERIALS WITH GENERAL CONTRACTOR.
2. CONTRACTOR TO EVALUATE EXISTING SITE CONDITIONS AND REMEDY AS REQUIRED TO PROVIDE FOR HEALTHY PLANT GROWTH AND MITIGATE UNSIGHTLY CONDITIONS. REMOVE ALL CONSTRUCTION DEBRIS AND MATERIALS INJURIOUS TO PLANT GROWTH FROM PLANTING PITS AND BEDS PRIOR TO BACKFILLING WITH PLANTING MEDIUM.
3. BE FAMILIAR WITH UNDERGROUND UTILITIES BEFORE DIGGING. COORDINATE LOCATION OF ALL UTILITIES (LINES, DUCTS, CONDUITS, SLEEVES,FOOTINGS, ETC.) WITH LOCATIONS OF PROPOSED LANDSCAPE ELEMENTS (FENCE, FOOTINGS, TREE ROOTBALLS, ETC.). CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO OWNER'S REPRESENTATIVE PRIOR TO CONTINUING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ALL DAMAGE OF UTILITY LINES.
4. RESTORATION: ALL AREAS DISTURBED SHALL BE RESTORED TO PRE-DISTURBANCE CONDITION OR BETTER, PER PLANS AND SPECIFICATIONS, AT NO ADDITIONAL COST TO THE OWNER. A DISTURBED AREA SHALL BE WHERE CONSTRUCTION ACTIVITIES OCCUR, INCLUDING TRENCHING; DEMOLITION; EARTHWORK; MATERIAL STORAGE; STAGING; PARKING; OR WHERE ANY OTHER FORM OF EXCAVATION, COMPACTION, OR TRAFFIC RESULTS IN THE REMOVAL OR DISPLACEMENT OF EXISTING GROUND COVER OR GRADE.
5. SATISFACTORY SOIL MATERIAL:
   5.1. EXISTING TOPSOIL SHALL BE STRIPPED AND SALVAGED FOR REUSE ON-SITE, SEE DEMOLITION PLAN. STOCKPILED SOIL ARE REQUIRED TO COMPLY WITH CITY OF MISSOULA MODIFICATIONS TO MPWSS 02900 SURFACE PREP AND TOPSOIL.
   5.2. ADDITIONAL OR SUPPLEMENTAL TOPSOIL MAY BE REQUIRED TO MEET PLANTING REQUIREMENTS AS SPECIFIED FOR AMENDED SOIL.
   5.3. CONTRACTOR SHALL CONDITION OR SUPPLY AND INSTALL PLANTING SOIL TO DEPTH REQUIRED PER PLANTING DETAILS, NOTES, AND SPECIFICATIONS IN ALL VEGETATED AREAS.
6. ALL PLANT MATERIALS SHALL BE TRUE TO THEIR SCIENTIFIC NAME AND SIZE AS INDICATED IN THE PLANT SCHEDULE.
7. ALL PLANT MATERIAL SHALL BE INSTALLED AS DETAILED AND SPECIFIED. IF NOT SHOWN, INSTALL ACCORDING TO MONTANA ASSOCIATION OF NURSERYMEN STANDARDS.
8. DURING INSTALLATION OF PLANT MATERIAL, CONTRACTOR SHALL KEEP ALL WORK AREAS AND WALKING AND DRIVEWAY SURFACES CLEAN OF DEBRIS. PROTECT ALL PLANT MATERIALS FROM DAMAGE DUE TO LANDSCAPE OPERATIONS OR ACTIVITIES BY OTHER CONTRACTORS AND TRADES. MAINTAIN PROTECTION DURING INSTALLATION AND MAINTENANCE PERIODS. TREAT, REPAIR, OR REPLACE ANY DAMAGED PLANTINGS OR MATERIALS IMMEDIATELY.
9. IN THE EVENT OF ANY DISCREPANCIES, NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY.
10. CONTRACTOR'S PRICES SHALL INCLUDE ALL LABOR AND MATERIAL NECESSARY TO COMPLETE THE WORK. IE: MULCH, PLANTINGS, TOPSOIL AND SOIL AMENDMENTS, STAKING MATERIAL, TEMPORARY IRRIGATION, ETC.
11. ANY PROPOSED SUBSTITUTIONS OF PLANT SPECIES SHALL BE MADE WITH PLANTS OF EQUIVALENT OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT AND CULTURE. NO PLANT SUBSTITUTIONS WILL BE ALLOWED WITHOUT WRITTEN CONSENT FROM THE OWNER'S REPRESENTATIVE.
    11.1. ANY REQUESTED SUBSTITUTIONS OF STREET TREES SHALL BE REQUIRED TO MEET DEVELOPMENT STANDARDS OF COMSSM AND AS OUTLINED WITHIN THESE CONSTRUCTION DOCUMENTS.
12. THE OWNER'S REPRESENTATIVE SHALL FIELD LOCATE PLANT MATERIALS ON-SITE WITH THE LANDSCAPE CONTRACTOR.
13. PLANTING PLANS INDICATE DIAGRAMMATIC LOCATIONS ONLY. SITE ADJUSTMENTS OF PLANTING DESIGN AND RELOCATION OF PLANT MATERIAL INSTALLED PRIOR TO PROJECT OWNER'S REPRESENTATIVE'S APPROVAL SHALL BE DONE WITHOUT PENALTY OR ADDITIONAL COST TO OWNER. STAKE PLANT LOCATIONS AT SITE AND OBTAIN OWNER'S REPRESENTATIVE'S APPROVAL PRIOR TO PLANT INSTALLATION.
14. INDICATED QUANTITIES ARE ESTIMATES AND SHOULD BE CONFIRMED BY THE CONTRACTOR. IF DISCREPANCIES EXIST BETWEEN THE NUMBER OF PLANTS DRAWN ON THE PLANTING PLAN AND THE NUMBER OF PLANTS IN THE SCHEDULE, THE PLANTING PLAN SHALL GOVERN.

TEMPORARY IRRIGATION REQUIREMENTS

1. CONTRACTOR SHALL BE RESPONSIBLE FOR IRRIGATION OF TREES AND SEEDED AREAS DURING ESTABLISHMENT PERIOD, AS SPECIFIED.
2. PROVIDE WATERING BAGS FOR ALL NEWLY PLANTED TREES, AS SHOWN IN PLANTING DETAILS.
   2.1. INSTALL ONE 20-GALLON CAPACITY BAG PER TREE. FILL COMPLETELY TWICE WEEKLY DURING GROWING SEASON (APRIL-OCTOBER) AND ONCE WEEKLY DURING DORMANT SEASON.
3. MAINTAIN TEMPORARY IRRIGATION FOR TWO GROWING SEASONS FROM DATE OF SUBSTANTIAL COMPLETION.
4. DOCUMENT ALL WATERING EVENTS AND SUBMIT MONTHLY LOGS TO OWNER.
5. REPLACE DAMAGED BAGS IMMEDIATELY. ADJUST WATERING FREQUENCY AS DIRECTED BY OWNER'S REPRESENTATIVE.
6. REMOVE ALL TEMPORARY IRRIGATION COMPONENTS, UPON WRITTEN APPROVAL FROM THE OWNER'S REPRESENTATIVE, AT END OF ESTABLISHMENT PERIOD.

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SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

PLANTING NOTES

SHEET
91 OF 105

SEE NOTE 1 THIS SHEET

PLANT SCHEDULE

SYMBOL	CODE	BOTANICAL / COMMON NAME	SIZE	CONTAINER		FUTURE DEV STREET TREES (NIC)	ML OFFSITE STREET TREES	REMARKS
STREET TREES								
⊙	AS2	ACER RUBRUM 'BAILCRAIG' SCARLET JEWELL™ RED MAPLE	2" CAL.	B&B			12	CLASS II
⊙	AM	ACER SACCHARUM 'PNI 0285' GREEN MOUNTAIN® SUGAR MAPLE	2" CAL.	B&B		9		CLASS III
⊙	GA	GINKGO BILOBA `AUTUMN GOLD` AUTUMN GOLD MAIDENHAIR TREE	2" CAL.	B&B		7	5	CLASS II
⊙	GS	GLEDITSIA TRIACANTHOS INERMIS 'SHADEMASTER' SHADEMASTER HONEY LOCUST	2" CAL.	B&B		6	6	CLASS II
⊙	GI	GLEDITSIA TRIACANTHOS INERMIS 'SKYCOLE' SKYLINE® HONEY LOCUST	2" CAL.	B&B		7	5	CLASS II
⊙	MP	MALUS X 'PRAIRIFIRE' PRAIRIFIRE CRABAPPLE	2" CAL.	B&B		4		CLASS I (FOR USE ONLY UNDER OVERHEAD POWER LINES)
⊙	OV	OSTRYA VIRGINIANA AMERICAN HOPHORNBEAM	2" CAL.	B&B		12		CLASS II
⊙	QB	QUERCUS BICOLOR SWAMP WHITE OAK	2" CAL.	B&B		5	6	CLASS III
⊙	QM	QUERCUS MACROCARPA BUR OAK	2" CAL.	B&B		10		CLASS III
⊙	TG	TILIA CORDATA 'GREENSPIRE' GREENSPIRE LITTLELEAF LINDEN	2" CAL.	B&B		6	6	CLASS II
⊙	UV	ULMUS AMERICANA 'VALLEY FORGE' VALLEY FORGE AMERICAN ELM	2" CAL.	B&B		10		CLASS III
○	UA	ULMUS X 'MORTON' ACCOLADE™ ELM	2" CAL.	B&B		10		CLASS III

NOTES:

1. PROPOSED STREET TREES LISTED IN THE SCHEDULE COLUMN 'FUTURE DEVELOPMENT STREET TREES' AND AS SHOWN WITH A GRAY HATCH ON THE LANDSCAPE PLANS, ARE FOR REFERENCE PURPOSES ONLY AND NOT INCLUDED IN THE CONTRACT (NIC) AS PART OF THIS PROJECT.
2. TREES LISTED IN THE 'ML OFFSITE STREET TREES' COLUMN ARE TO BE INCLUDED WITHIN THIS PROJECT BASE CONTRACT AND PLANTED PER DRAWINGS AND SPECIFICATIONS.
3. ALL SEEDING AND GROUNDCOVER RESTORATION WORK SHALL BE INCLUDED WITHIN THIS PROJECT BASE CONTRACT.
4. SEE SHEET 91 FOR PLANTING NOTES.
5. SEE SHEETS 93 - 98 FOR PLANTING PLANS.

GROUNDCOVER SCHEDULE

SYMBOL	DESCRIPTION	QTY
▦	STORMWATER AREA NATIVE SEED MIX	14,502 SF
×	BOULEVARD DRYLAND SEED MIX	244,225 SF

SEED MIXES

ZONE	SEED MIX / MIX %			RATE
BOULEVARD DRYLAND SEED MIX	BOTANIC NAME	COMMON NAME	MIX %	35 LBS / AC
	FESTUCA IDAHOENSIS	IDAHO FESCUE	60%	
	FESTUCA OVINA	SHEEP FESCUE	25%	
	POA SECUNDA SANDBERG	SANDBERG'S BLUEGRASS	10%	
	DRYLAND WILDFLOWERS, INCLUDE AT LEAST 3 OF THE FOLLOWING SPECIES: BLANKET FLOWER (GAILLARDIA ARISTATA) WHITE YARROW (ACHILLEA MILLEFOLIUM) FRINGED SAGE (ARTEMESIA FRIGIDA) SHORT PENSTEMON (PENSTEMON PROCERUS) HAIRY GOLDEN ASTER (HETEROTHECA VILLOSA)		5%	
STORMWATER AREA NATIVE SEED MIX	BOTANIC NAME	COMMON NAME	MIX %	40 LBS / AC
	PESUDOROEGNERIA SPICATA	BLUEBUNCH WHEATGRASS VARIETY GOLDAR	50%	
	AGROPYRON SMITHII	WESTERN WHEATGRASS	25%	
	FESTUCA IDAHOENSIS	IDAHO FESCUE	15%	
	KOELARIA MACRANTHA	PRAIRIE JUNEGRASS	5%	
	POA SECUNDA SANDBERG	SANDBERG'S BLUEGRASS	5%	

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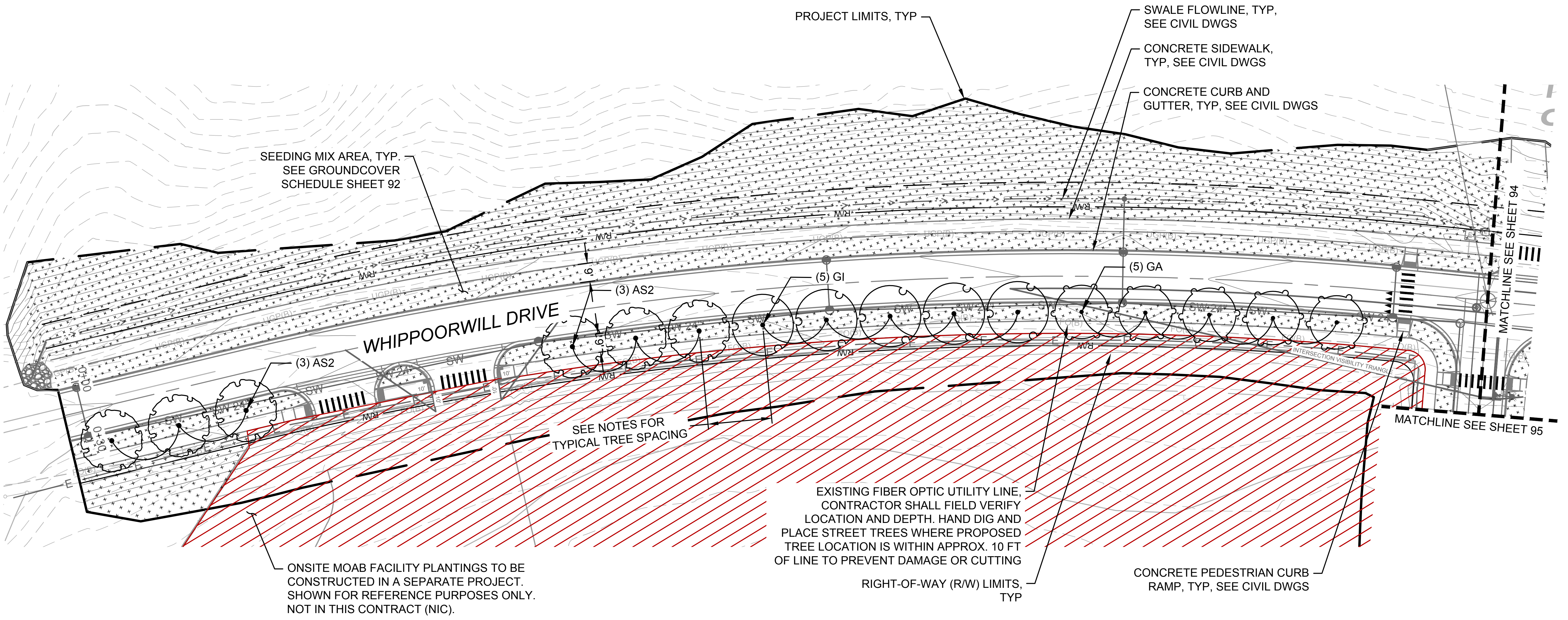
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

PLANTING SCHEDULE

SHEET
92 OF 105


PROJECT LIMITS, TYP
SWALE FLOWLINE, TYP, SEE CIVIL DWGS
CONCRETE SIDEWALK, TYP, SEE CIVIL DWGS
CONCRETE CURB AND GUTTER, TYP, SEE CIVIL DWGS
SEEDING MIX AREA, TYP. SEE GROUNDCOVER SCHEDULE SHEET 92
WHIPPOORWILL DRIVE
(3) AS2
(3) AS2
(5) GI
(5) GA
MATCHLINE SEE SHEET 94
MATCHLINE SEE SHEET 95
INTERSECTION VISIBILITY TRIANGLE
SEE NOTES FOR TYPICAL TREE SPACING
R/W
SW
E
UGP(B)
10'
6'
0+00
0+30
EXISTING FIBER OPTIC UTILITY LINE, CONTRACTOR SHALL FIELD VERIFY LOCATION AND DEPTH. HAND DIG AND PLACE STREET TREES WHERE PROPOSED TREE LOCATION IS WITHIN APPROX. 10 FT OF LINE TO PREVENT DAMAGE OR CUTTING
RIGHT-OF-WAY (R/W) LIMITS, TYP
CONCRETE PEDESTRIAN CURB RAMP, TYP, SEE CIVIL DWGS
ONSITE MOAB FACILITY PLANTINGS TO BE CONSTRUCTED IN A SEPARATE PROJECT. SHOWN FOR REFERENCE PURPOSES ONLY. NOT IN THIS CONTRACT (NIC).

LEGEND

PLANT SYMBOLOGY VARIES WITH VEGETATION SPECIES, SEE PLANTING SCHEDULE

○	TREE INCLUDED WITHIN THIS PROJECT
●	TREE NOT INCLUDED WITHIN THIS PROJECT (NIC), WILL BE PLANTED WITH ADJACENT FUTURE LAND DEVELOPMENT(S)
▨	MOUNTAIN LINE MOAB FACILITY ONSITE PROJECT AREA (NIC)
⊠	BOULEVARD DRYLAND SEED MIX

PLANTING PLAN NOTES

1. SEE SHEET 92 FOR PLANTING NOTES.
2. SEE SHEET 92 FOR PLANTING SCHEDULE.
3. SEE SHEET 99 FOR PLANTING DETAILS.
4. REQUIRED TREE SPACING SHALL BE APPROX. 30' O.C. FOR CLASS II AND 40' O.C. FOR CLASS III TREES, EXCEPT AS REQUIRED TO AVOID CONFLICTS. TREES SHALL BE SPACED TO PROVIDE REQUIRED SETBACK DISTANCE AS OUTLINED IN GENERAL PLANTING NOTES.
5. SEE GENERAL PLANTING NOTES AND PLANTING DETAILS FOR INFORMATION ON SITE VISIBILITY TRIANGLES AT INTERSECTIONS AND DRIVEWAYS.
6. PROVIDE TEMPORARY WATERING BAGS FOR ALL TREES AND TEMPORARY ESTABLISHMENT WATERING FOR ALL SEEDED AREAS. SEE PLANTING NOTES, SPECIFICATIONS, AND DETAILS FOR ADDITIONAL INFORMATION.
7. MOUNTAIN LINE MOAB FACILITY ONSITE PROJECT INFORMATION SHOWN FOR REFERENCE PURPOSES ONLY.

0 0.50" = 25' 1" = 50'
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

4/22/26 07:43 RACHEL.BAKKER C:\DJA-PWWORK\DJA-PROD\DMS72465\L2.0 PLANTING PLAN.DWG;

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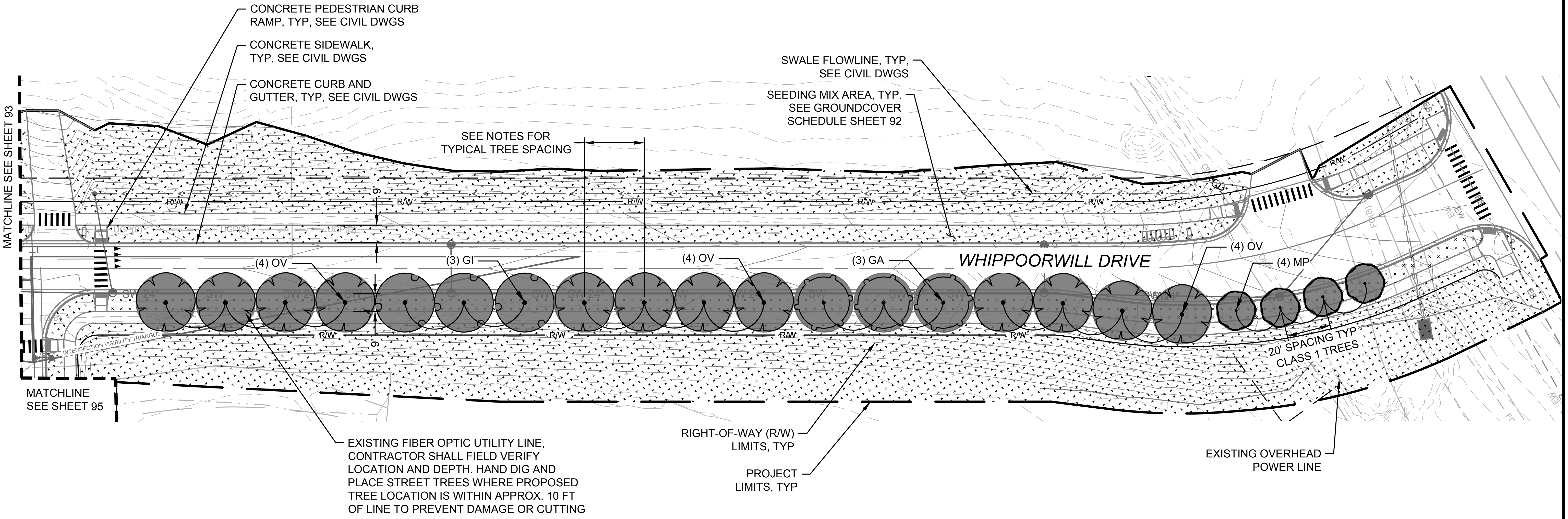
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

PLANTING PLAN - BOULEVARD 1

SHEET
93 OF 105



CONCRETE PEDESTRIAN CURB RAMP, TYP, SEE CIVIL DWGS

CONCRETE SIDEWALK, TYP, SEE CIVIL DWGS

CONCRETE CURB AND GUTTER, TYP, SEE CIVIL DWGS

SEE NOTES FOR TYPICAL TREE SPACING

SWALE FLOWLINE, TYP, SEE CIVIL DWGS

SEEDING MIX AREA, TYP. SEE GROUNDCOVER SCHEDULE SHEET 92

EXISTING FIBER OPTIC UTILITY LINE, CONTRACTOR SHALL FIELD VERIFY LOCATION AND DEPTH. HAND DIG AND PLACE STREET TREES WHERE PROPOSED TREE LOCATION IS WITHIN APPROX. 10 FT OF LINE TO PREVENT DAMAGE OR CUTTING

RIGHT-OF-WAY (R/W) LIMITS, TYP

PROJECT LIMITS, TYP

EXISTING OVERHEAD POWER LINE

LEGEND

PLANT SYMBOLOGY VARIES WITH VEGETATION SPECIES, SEE PLANTING SCHEDULE

○ TREE INCLUDED WITHIN THIS PROJECT

● TREE NOT INCLUDED WITHIN THIS PROJECT (NIC), WILL BE PLANTED WITH ADJACENT FUTURE LAND DEVELOPMENT(S)

▨ BOULEVARD DRYLAND SEED MIX

PLANTING PLAN NOTES

1. SEE SHEET 92 FOR PLANTING NOTES.
2. SEE SHEET 92 FOR PLANTING SCHEDULE.
3. SEE SHEET 99 FOR PLANTING DETAILS.
4. REQUIRED TREE SPACING SHALL BE APPROX. 30' O.C. FOR CLASS II AND 40' O.C. FOR CLASS III TREES, EXCEPT AS REQUIRED TO AVOID CONFLICTS OR AS NOTED ON THE PLANS. TREES SHALL BE SPACED TO PROVIDE REQUIRED SETBACK DISTANCE AS OUTLINED IN GENERAL PLANTING NOTES.
5. SEE GENERAL PLANTING NOTES AND PLANTING DETAILS FOR INFORMATION ON SITE VISIBILITY TRIANGLES AT INTERSECTIONS AND DRIVEWAYS.
6. PROVIDE TEMPORARY WATERING BAGS FOR ALL TREES AND TEMPORARY ESTABLISHMENT WATERING FOR ALL SEEDED AREAS. SEE PLANTING NOTES, SPECIFICATIONS, AND DETAILS FOR ADDITIONAL INFORMATION.
7. MOUNTAIN LINE MOAB FACILITY ONSITE PROJECT INFORMATION SHOWN FOR REFERENCE PURPOSES ONLY.

N

0 0.50" = 25' 1" = 50'

SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

4/22/26 07:43 RACHEL.BAKKER C:\DJA-PWWORK\DJA-PROD\DMS72465\L2.0 PLANTING PLAN.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

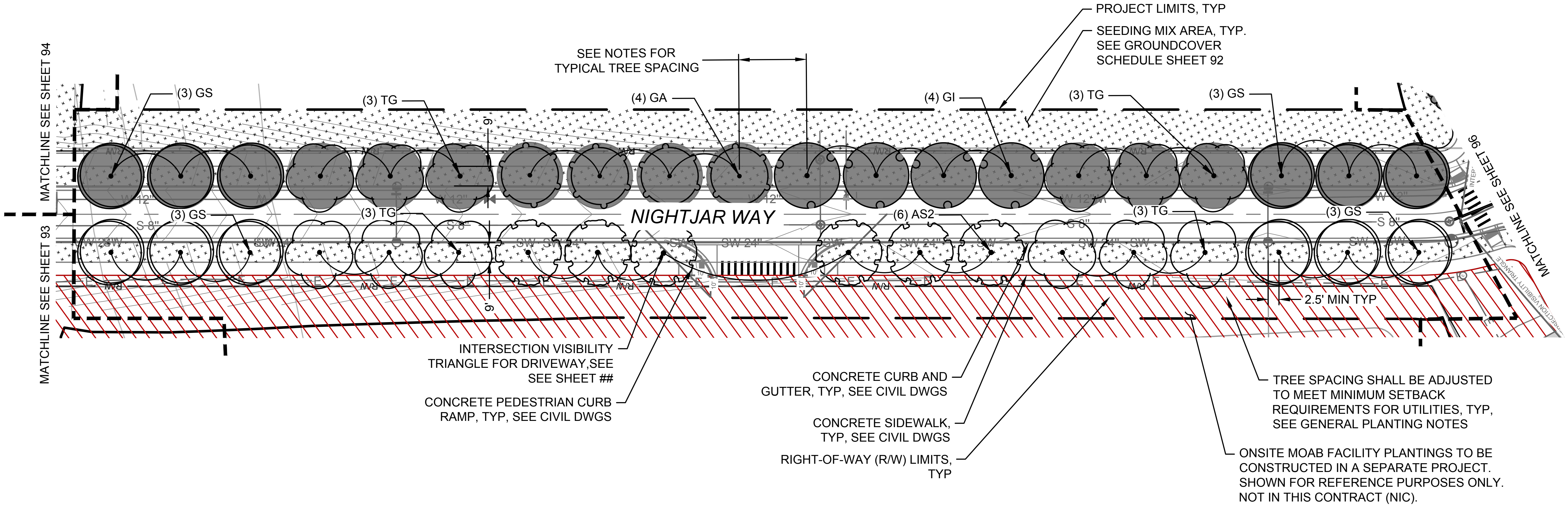
DESIGNER RB
DRAWN RB
CHECKED CB
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

PLANTING PLAN - BOULEVARD 2

SHEET
94
OF
105



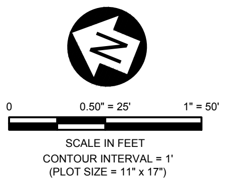
LEGEND

PLANT SYMBOLOGY VARIES WITH VEGETATION SPECIES, SEE PLANTING SCHEDULE

○	TREE INCLUDED WITHIN THIS PROJECT
●	TREE NOT INCLUDED WITHIN THIS PROJECT (NIC), WILL BE PLANTED WITH ADJACENT FUTURE LAND DEVELOPMENT(S)
▨	MOUNTAIN LINE MOAB FACILITY ONSITE PROJECT AREA (NIC)
⁙	BOULEVARD DRYLAND SEED MIX

PLANTING PLAN NOTES

1. SEE SHEET 92 FOR PLANTING NOTES.
2. SEE SHEET 92 FOR PLANTING SCHEDULE.
3. SEE SHEET 99 FOR PLANTING DETAILS.
4. REQUIRED TREE SPACING SHALL BE APPROX. 30' O.C. FOR CLASS II AND 40' O.C. FOR CLASS III TREES, EXCEPT AS REQUIRED TO AVOID CONFLICTS. TREES SHALL BE SPACED TO PROVIDE REQUIRED SETBACK DISTANCE AS OUTLINED IN GENERAL PLANTING NOTES.
5. SEE GENERAL PLANTING NOTES AND PLANTING DETAILS FOR INFORMATION ON SITE VISIBILITY TRIANGLES AT INTERSECTIONS AND DRIVEWAYS.
6. PROVIDE TEMPORARY WATERING BAGS FOR ALL TREES AND TEMPORARY ESTABLISHMENT WATERING FOR ALL SEEDED AREAS. SEE PLANTING NOTES, SPECIFICATIONS, AND DETAILS FOR ADDITIONAL INFORMATION.
7. MOUNTAIN LINE MOAB FACILITY ONSITE PROJECT INFORMATION SHOWN FOR REFERENCE PURPOSES ONLY.



SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

4/22/26 07:43 RACHEL.BAKKER C:\DJA-PWWORK\DJA-PROD\DMS72465\L2.0 PLANTING PLAN.DWG;

REVISION	DATE	DESCRIPTION
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-	-	-

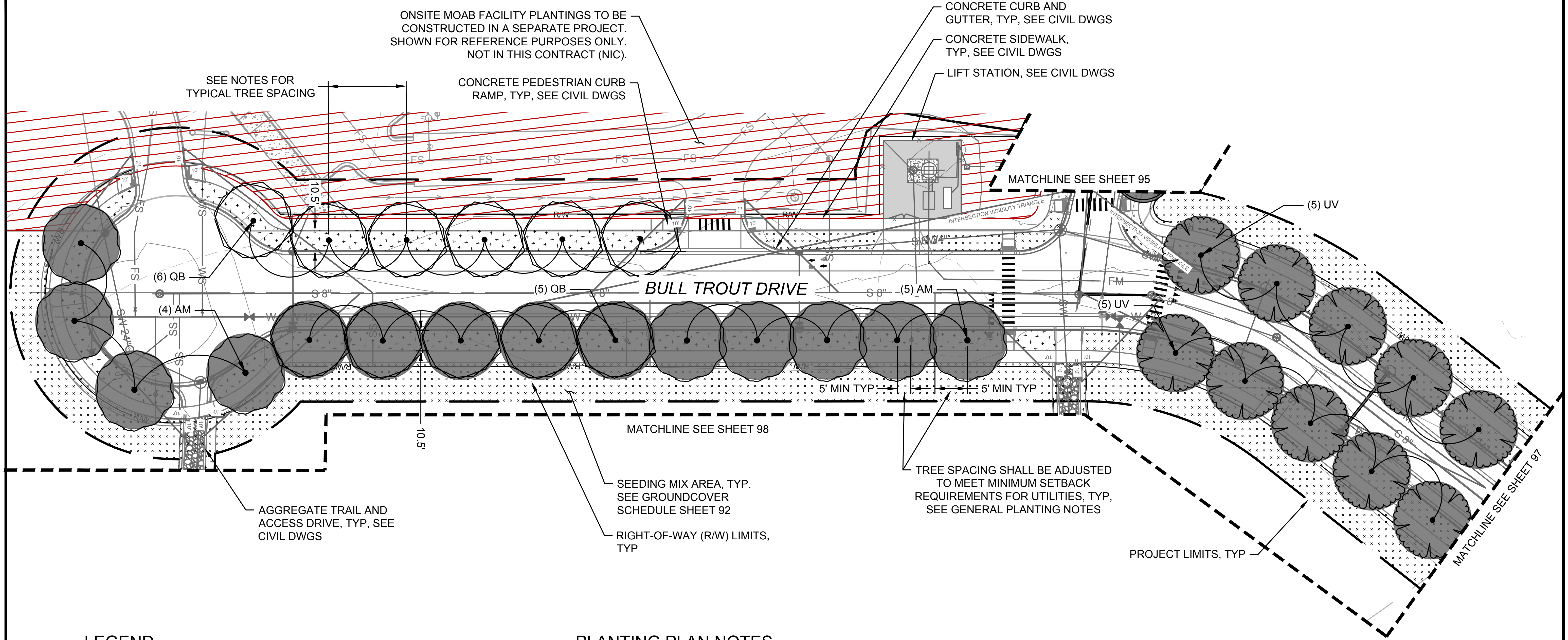
DESIGNER	RB	PROJ. NO.	7486
DRAWN	RB	DATE	10.23.2026
CHECKED	CB	SURVEYED	DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

PLANTING PLAN - BOULEVARD 3

SHEET 95 OF 105


ONSITE MOAB FACILITY PLANTINGS TO BE CONSTRUCTED IN A SEPARATE PROJECT. SHOWN FOR REFERENCE PURPOSES ONLY. NOT IN THIS CONTRACT (NIC).
SEE NOTES FOR TYPICAL TREE SPACING
CONCRETE PEDESTRIAN CURB RAMP, TYP, SEE CIVIL DWGS
CONCRETE CURB AND GUTTER, TYP, SEE CIVIL DWGS
CONCRETE SIDEWALK, TYP, SEE CIVIL DWGS
LIFT STATION, SEE CIVIL DWGS
MATCHLINE SEE SHEET 95
(5) UV
(6) QB
(4) AM
(5) QB
BULL TROUT DRIVE
(5) AM
(5) UV
10.5'
5' MIN TYP
5' MIN TYP
MATCHLINE SEE SHEET 98
MATCHLINE SEE SHEET 97
INTERSECTION VISIBILITY TRIANGLE
AGGREGATE TRAIL AND ACCESS DRIVE, TYP, SEE CIVIL DWGS
SEEDING MIX AREA, TYP. SEE GROUNDCOVER SCHEDULE SHEET 92
RIGHT-OF-WAY (R/W) LIMITS, TYP
TREE SPACING SHALL BE ADJUSTED TO MEET MINIMUM SETBACK REQUIREMENTS FOR UTILITIES, TYP, SEE GENERAL PLANTING NOTES
PROJECT LIMITS, TYP

LEGEND

○	TREE INCLUDED WITHIN THIS PROJECT
●	TREE NOT INCLUDED WITHIN THIS PROJECT (NIC), WILL BE PLANTED WITH ADJACENT FUTURE LAND DEVELOPMENT(S)
▨	MOUNTAIN LINE MOAB FACILITY ONSITE PROJECT AREA (NIC)
⊠	BOULEVARD DRYLAND SEED MIX

PLANT SYMBOLOGY VARIES WITH VEGETATION SPECIES, SEE PLANTING SCHEDULE

PLANTING PLAN NOTES

1. SEE SHEET 92 FOR PLANTING NOTES.
2. SEE SHEET 92 FOR PLANTING SCHEDULE.
3. SEE SHEET 99 FOR PLANTING DETAILS.
4. REQUIRED TREE SPACING SHALL BE APPROX. 30' O.C. FOR CLASS II AND 40' O.C. FOR CLASS III TREES, EXCEPT AS REQUIRED TO AVOID CONFLICTS. TREES SHALL BE SPACED TO PROVIDE REQUIRED SETBACK DISTANCE AS OUTLINED IN GENERAL PLANTING NOTES.
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7. MOUNTAIN LINE MOAB FACILITY ONSITE PROJECT INFORMATION SHOWN FOR REFERENCE PURPOSES ONLY.

0 0.50" = 25' 1" = 50'
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

4/22/26 07:43 RACHEL.BAKKER C:\DJA-PWWORK\DJA-PROD\DMS72465\L2.0 PLANTING PLAN.DWG;

REVISION	DATE	DESCRIPTION
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-	-	-

DESIGNER RB PROJ. NO. 7486
DRAWN RB DATE 10.23.2026
CHECKED CB SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

PLANTING PLAN - BOULEVARD 4

SHEET 96 OF 105

LEGEND

PLANT SYMBOLOGY VARIES WITH VEGETATION SPECIES, SEE PLANTING SCHEDULE

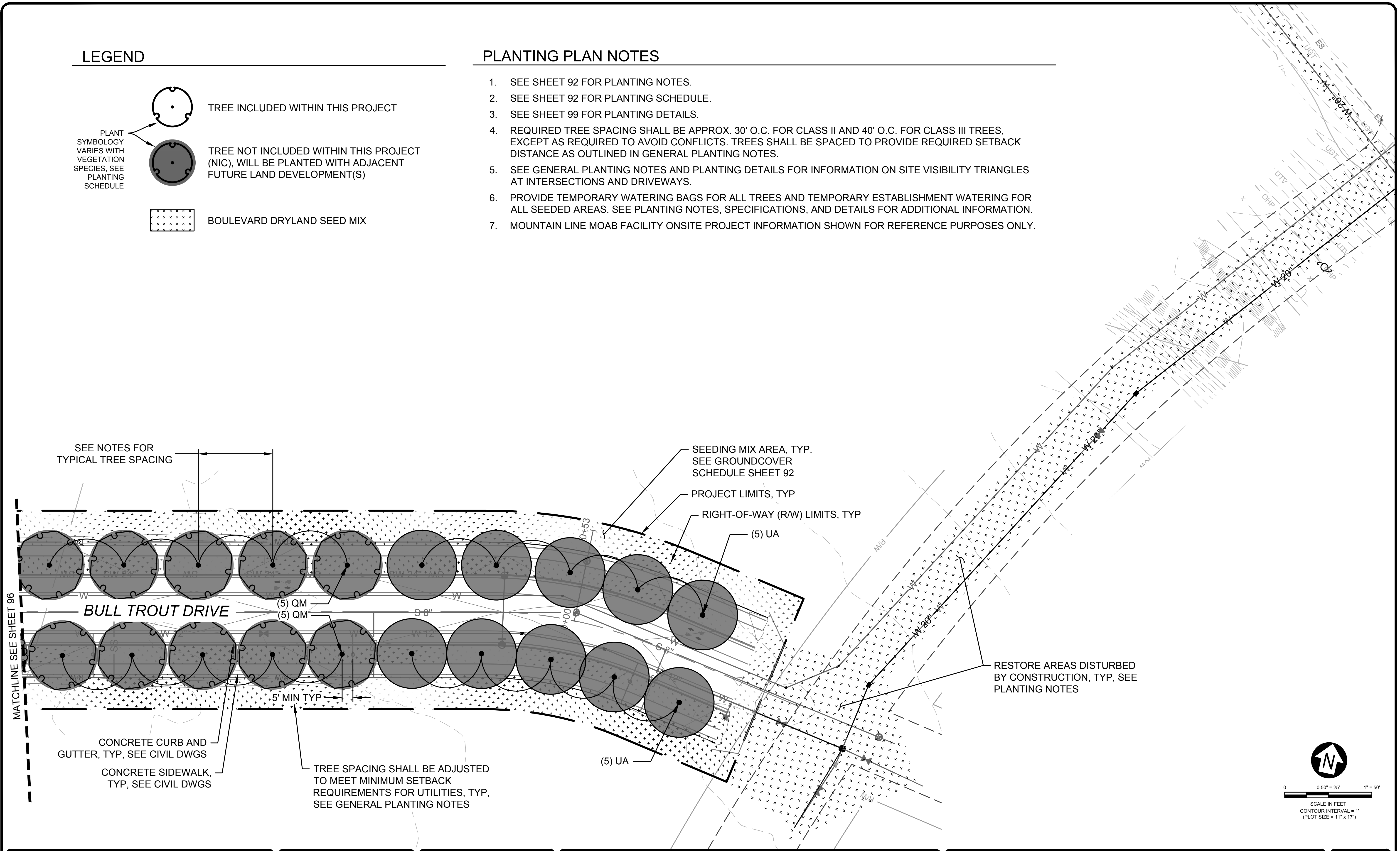
○ TREE INCLUDED WITHIN THIS PROJECT

● TREE NOT INCLUDED WITHIN THIS PROJECT (NIC), WILL BE PLANTED WITH ADJACENT FUTURE LAND DEVELOPMENT(S)

▨ BOULEVARD DRYLAND SEED MIX

PLANTING PLAN NOTES

1. SEE SHEET 92 FOR PLANTING NOTES.
2. SEE SHEET 92 FOR PLANTING SCHEDULE.
3. SEE SHEET 99 FOR PLANTING DETAILS.
4. REQUIRED TREE SPACING SHALL BE APPROX. 30' O.C. FOR CLASS II AND 40' O.C. FOR CLASS III TREES, EXCEPT AS REQUIRED TO AVOID CONFLICTS. TREES SHALL BE SPACED TO PROVIDE REQUIRED SETBACK DISTANCE AS OUTLINED IN GENERAL PLANTING NOTES.
5. SEE GENERAL PLANTING NOTES AND PLANTING DETAILS FOR INFORMATION ON SITE VISIBILITY TRIANGLES AT INTERSECTIONS AND DRIVEWAYS.
6. PROVIDE TEMPORARY WATERING BAGS FOR ALL TREES AND TEMPORARY ESTABLISHMENT WATERING FOR ALL SEEDED AREAS. SEE PLANTING NOTES, SPECIFICATIONS, AND DETAILS FOR ADDITIONAL INFORMATION.
7. MOUNTAIN LINE MOAB FACILITY ONSITE PROJECT INFORMATION SHOWN FOR REFERENCE PURPOSES ONLY.



SEE NOTES FOR TYPICAL TREE SPACING

SEEDING MIX AREA, TYP. SEE GROUNDCOVER SCHEDULE SHEET 92

PROJECT LIMITS, TYP

RIGHT-OF-WAY (R/W) LIMITS, TYP

RESTORE AREAS DISTURBED BY CONSTRUCTION, TYP, SEE PLANTING NOTES

5' MIN TYP

CONCRETE CURB AND GUTTER, TYP, SEE CIVIL DWGS

CONCRETE SIDEWALK, TYP, SEE CIVIL DWGS

TREE SPACING SHALL BE ADJUSTED TO MEET MINIMUM SETBACK REQUIREMENTS FOR UTILITIES, TYP, SEE GENERAL PLANTING NOTES

0 0.50" = 25' 1" = 50'
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

4/22/26 07:43 RACHEL.BAKKER C:\DJA-PWWORK\DJA-PROD\DMS72465\L2.0 PLANTING PLAN.DWG;

REVISION	DATE	DESCRIPTION
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-	-	-

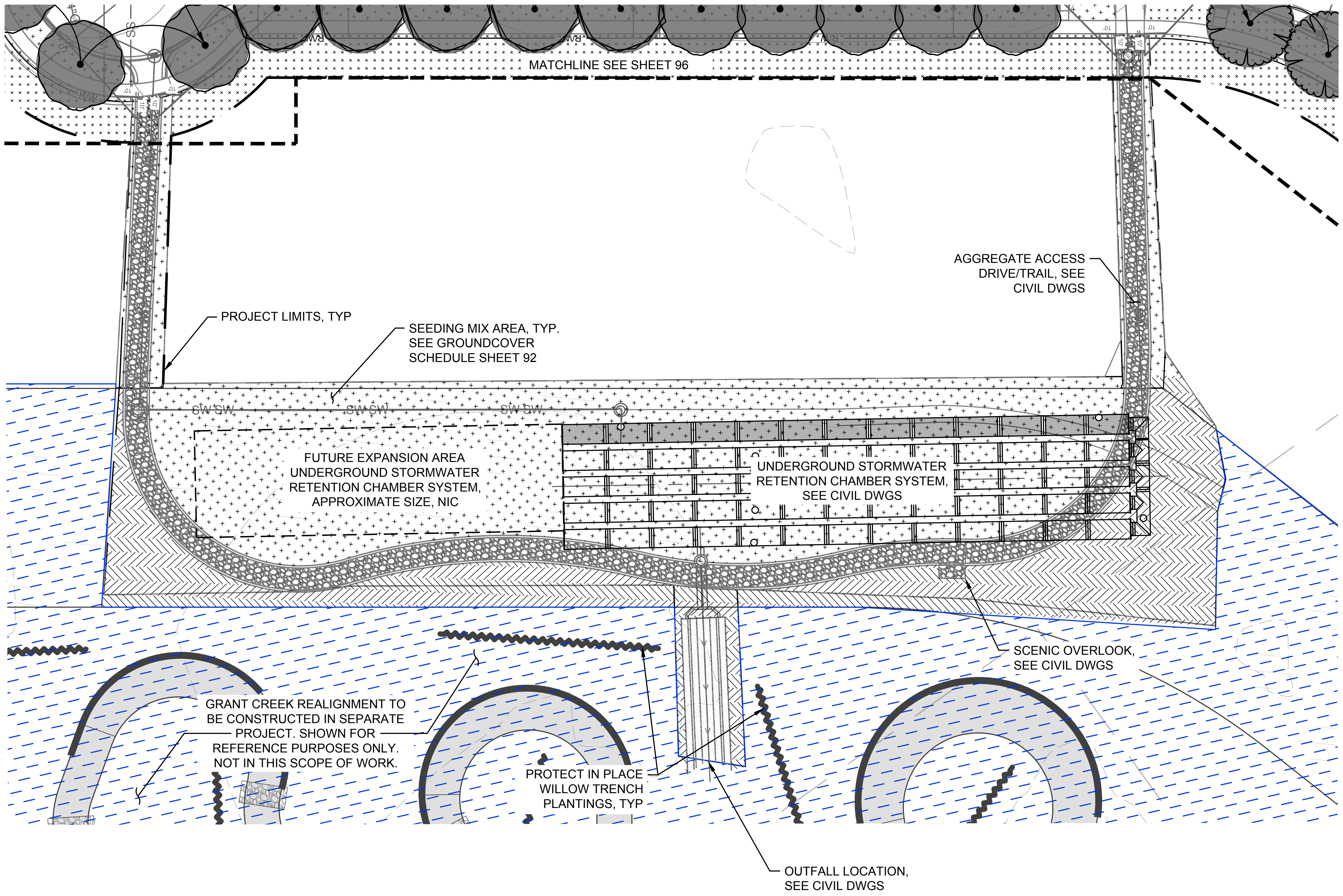
DESIGNER RB
DRAWN RB
CHECKED CB
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

PLANTING PLAN - BOULEVARD 5

SHEET
97
OF
105


MATCHLINE SEE SHEET 96
AGGREGATE ACCESS DRIVE/TRAIL, SEE CIVIL DWGS
PROJECT LIMITS, TYP
SEEDING MIX AREA, TYP. SEE GROUNDCOVER SCHEDULE SHEET 92
SW SW
SW SW
SW SW
FUTURE EXPANSION AREA UNDERGROUND STORMWATER RETENTION CHAMBER SYSTEM, APPROXIMATE SIZE, NIC
UNDERGROUND STORMWATER RETENTION CHAMBER SYSTEM, SEE CIVIL DWGS
SCENIC OVERLOOK, SEE CIVIL DWGS
GRANT CREEK REALIGNMENT TO BE CONSTRUCTED IN SEPARATE PROJECT. SHOWN FOR REFERENCE PURPOSES ONLY. NOT IN THIS SCOPE OF WORK.
PROTECT IN PLACE WILLOW TRENCH PLANTINGS, TYP
OUTFALL LOCATION, SEE CIVIL DWGS

LEGEND

▨	GRANT CREEK REALIGNMENT PROJECT AREA (NIC)
⁙	BOULEVARD DRYLAND SEED MIX
▨	NATIVE LOW-STATURE SEED MIX

PLANTING PLAN NOTES

1. SEE SHEET 92 FOR PLANTING NOTES.
2. SEE SHEET 92 FOR PLANTING SCHEDULE.
3. SEE SHEET 99 FOR PLANTING DETAILS.
4. GRANT CREEK REALIGNMENT PROJECT INFORMATION SHOWN FOR REFERENCE PURPOSES ONLY, NIC.

0 0.50" = 25' 1" = 50'
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

4/22/26 07:43 RACHEL.BAKKER C:\DJA-PWWORK\DJA-PROD\DMS72465\L2.0 PLANTING PLAN.DWG;

REVISION	DATE	DESCRIPTION
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DESIGNER RB PROJ. NO. 7486
DRAWN RB DATE 10.23.2026
CHECKED CB SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
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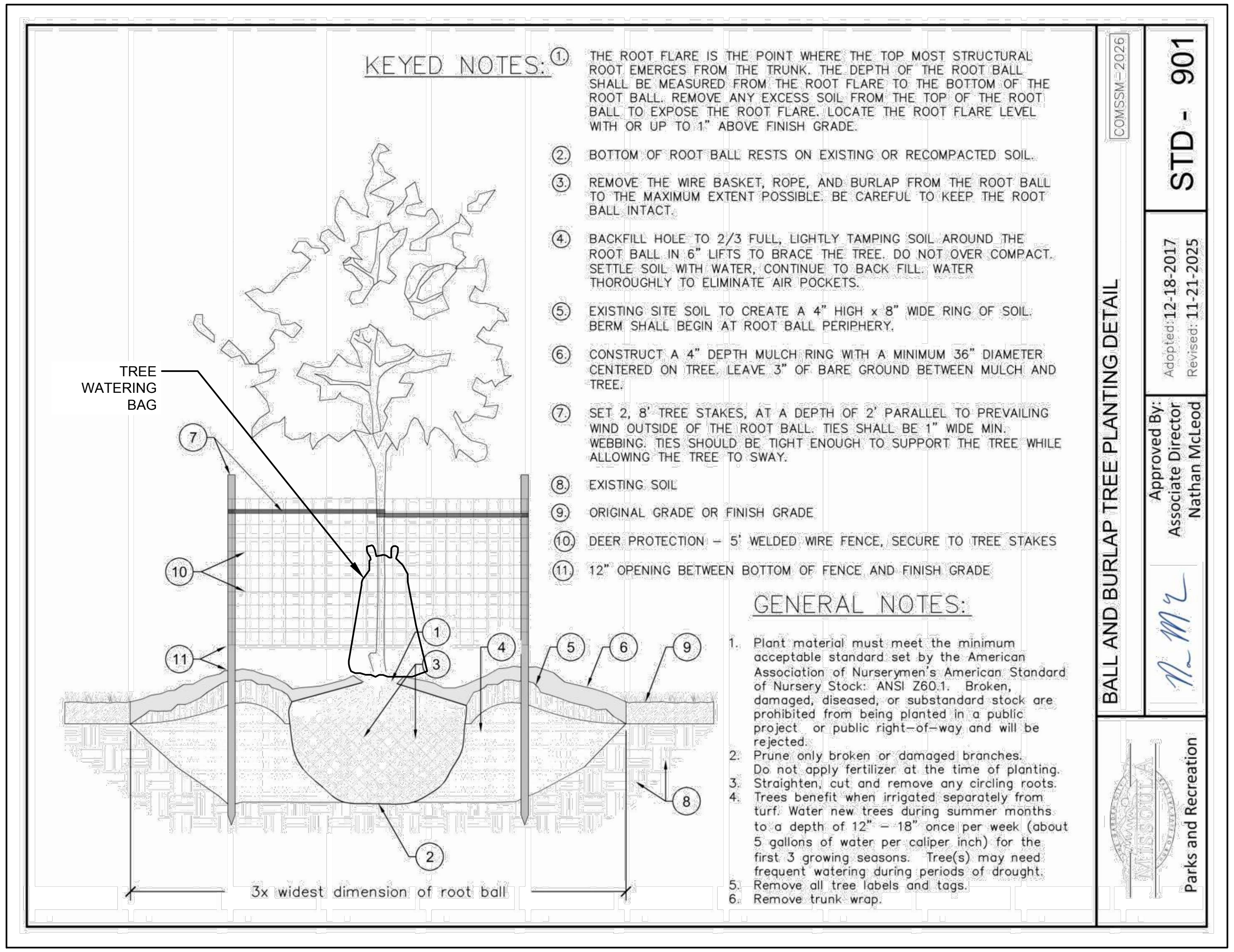
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

PLANTING PLAN - RETENTION SYSTEM AREA

SHEET 98 OF 105



KEYED NOTES:

① THE ROOT FLARE IS THE POINT WHERE THE TOP MOST STRUCTURAL ROOT EMERGES FROM THE TRUNK. THE DEPTH OF THE ROOT BALL SHALL BE MEASURED FROM THE ROOT FLARE TO THE BOTTOM OF THE ROOT BALL. REMOVE ANY EXCESS SOIL FROM THE TOP OF THE ROOT BALL TO EXPOSE THE ROOT FLARE. LOCATE THE ROOT FLARE LEVEL WITH OR UP TO 1" ABOVE FINISH GRADE.

② BOTTOM OF ROOT BALL RESTS ON EXISTING OR RECOMPACTED SOIL.

③ REMOVE THE WIRE BASKET, ROPE, AND BURLAP FROM THE ROOT BALL TO THE MAXIMUM EXTENT POSSIBLE. BE CAREFUL TO KEEP THE ROOT BALL INTACT.

④ BACKFILL HOLE TO 2/3 FULL, LIGHTLY TAMPING SOIL AROUND THE ROOT BALL IN 6" LIFTS TO BRACE THE TREE. DO NOT OVER COMPACT. SETTLE SOIL WITH WATER, CONTINUE TO BACK FILL. WATER THOROUGHLY TO ELIMINATE AIR POCKETS.

⑤ EXISTING SITE SOIL TO CREATE A 4" HIGH x 8" WIDE RING OF SOIL. BERM SHALL BEGIN AT ROOT BALL PERIPHERY.

⑥ CONSTRUCT A 4" DEPTH MULCH RING WITH A MINIMUM 36" DIAMETER CENTERED ON TREE. LEAVE 3" OF BARE GROUND BETWEEN MULCH AND TREE.

⑦ SET 2, 8' TREE STAKES, AT A DEPTH OF 2' PARALLEL TO PREVAILING WIND OUTSIDE OF THE ROOT BALL. TIES SHALL BE 1" WIDE MIN. WEBBING. TIES SHOULD BE TIGHT ENOUGH TO SUPPORT THE TREE WHILE ALLOWING THE TREE TO SWAY.

⑧ EXISTING SOIL

⑨ ORIGINAL GRADE OR FINISH GRADE

⑩ DEER PROTECTION – 5' WELDED WIRE FENCE, SECURE TO TREE STAKES

⑪ 12" OPENING BETWEEN BOTTOM OF FENCE AND FINISH GRADE

GENERAL NOTES:

1. Plant material must meet the minimum acceptable standard set by the American Association of Nurserymen's American Standard of Nursery Stock: ANSI Z60.1. Broken, damaged, diseased, or substandard stock are prohibited from being planted in a public project or public right-of-way and will be rejected.
2. Prune only broken or damaged branches. Do not apply fertilizer at the time of planting.
3. Straighten, cut and remove any circling roots.
4. Trees benefit when irrigated separately from turf. Water new trees during summer months to a depth of 12" – 18" once per week (about 5 gallons of water per caliper inch) for the first 3 growing seasons. Tree(s) may need frequent watering during periods of drought.
5. Remove all tree labels and tags.
6. Remove trunk wrap.

BALL AND BURLAP TREE PLANTING DETAIL

COMSSM–2026

STD - 901

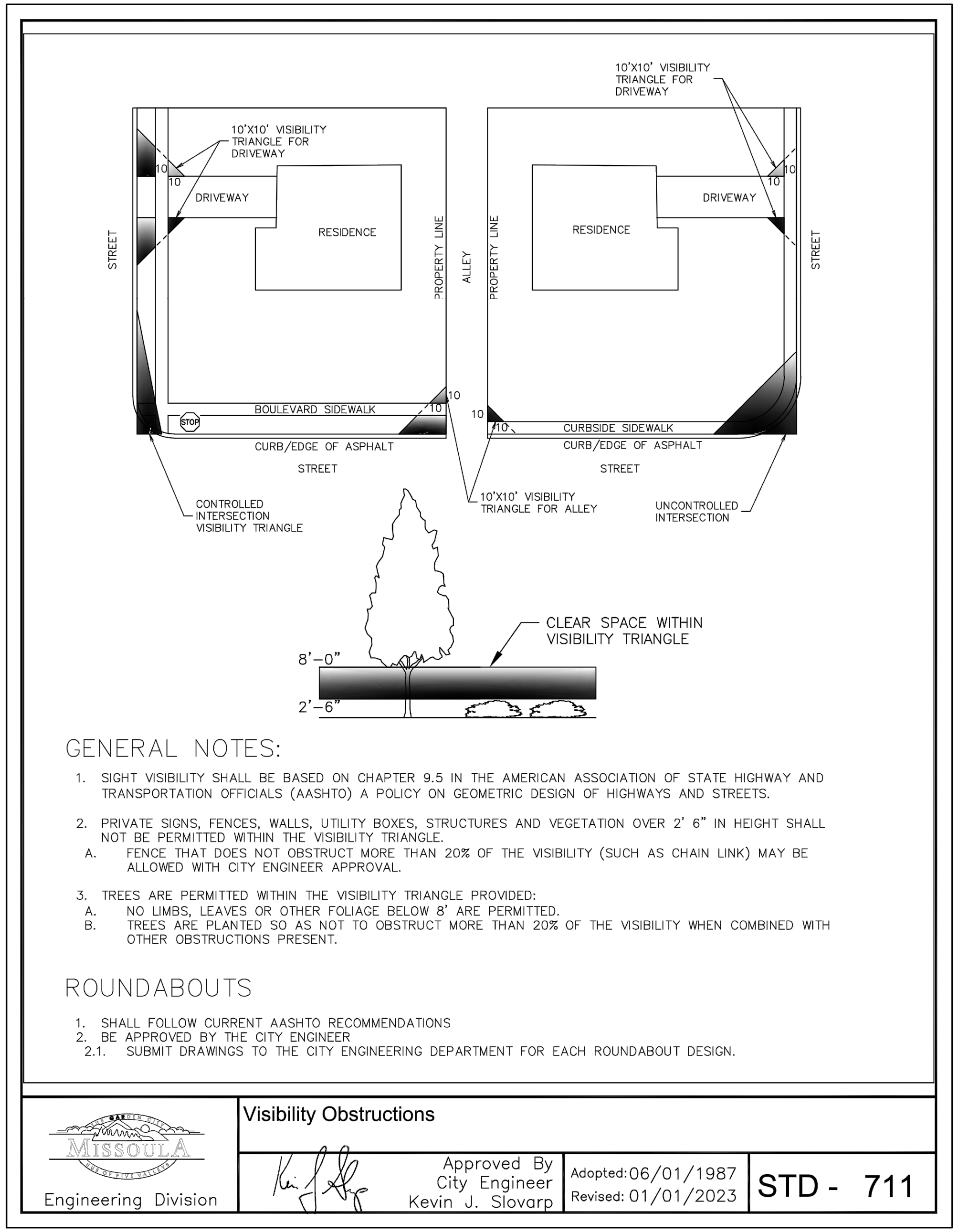
Adopted: 12-18-2017
Revised: 11-21-2025

Approved By:
Associate Director
Nathan McLeod

Parks and Recreation

NOTES:
CONTRACTOR TO PROVIDE ONE SINGLE SLOW RELEASE WOVEN POLYETHYLENE WATERING BAG PER TREE FOR ALL PROPOSED TREES FOR TEMPORARY IRRIGATION, SEE PLANTING NOTES. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO COORDINATE WITH OWNER'S REPRESENTATIVE TIMELINE FOR REMOVAL OF WATERING BAGS.

A
99
BALL AND BURLAP TREE PLANTING
NO SCALE



GENERAL NOTES:

1. SIGHT VISIBILITY SHALL BE BASED ON CHAPTER 9.5 IN THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS.

2. PRIVATE SIGNS, FENCES, WALLS, UTILITY BOXES, STRUCTURES AND VEGETATION OVER 2' 6" IN HEIGHT SHALL NOT BE PERMITTED WITHIN THE VISIBILITY TRIANGLE.
   A. FENCE THAT DOES NOT OBSTRUCT MORE THAN 20% OF THE VISIBILITY (SUCH AS CHAIN LINK) MAY BE ALLOWED WITH CITY ENGINEER APPROVAL.

3. TREES ARE PERMITTED WITHIN THE VISIBILITY TRIANGLE PROVIDED:
   A. NO LIMBS, LEAVES OR OTHER FOLIAGE BELOW 8' ARE PERMITTED.
   B. TREES ARE PLANTED SO AS NOT TO OBSTRUCT MORE THAN 20% OF THE VISIBILITY WHEN COMBINED WITH OTHER OBSTRUCTIONS PRESENT.

ROUNDABOUTS

1. SHALL FOLLOW CURRENT AASHTO RECOMMENDATIONS
2. BE APPROVED BY THE CITY ENGINEER
   2.1. SUBMIT DRAWINGS TO THE CITY ENGINEERING DEPARTMENT FOR EACH ROUNDABOUT DESIGN.

Engineering Division

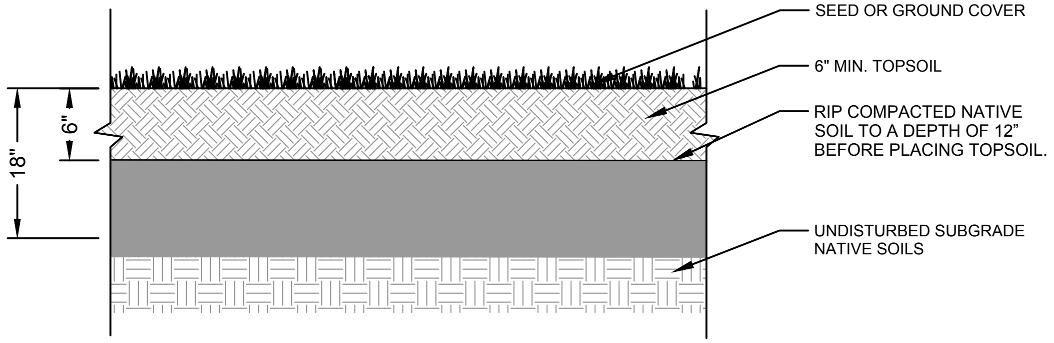
Visibility Obstructions

Approved By
City Engineer
Kevin J. Slovarp

Adopted: 06/01/1987
Revised: 01/01/2023

STD - 711

B
99
VISIBILTY OBSTRUCTIONS
NO SCALE


SEED OR GROUND COVER
6" MIN. TOPSOIL
RIP COMPACTED NATIVE SOIL TO A DEPTH OF 12" BEFORE PLACING TOPSOIL.
UNDISTURBED SUBGRADE NATIVE SOILS
18"
6"

NOTES:

1. SEE DEMOLITION PLAN FOR INFORMATION ON STRIPPED AND STOCKPILED ON-SITE TOPSOIL.
2. SEE PLANTING DETAILS FOR REQUIRED TOPSOIL DEPTH FOR PLANTING BEDS AND TREES.
3. SEE PLANTING NOTES AND SPECIFICATIONS FOR ACCEPTABLE PARAMETERS FOR TOPSOIL COMPOSITION AND TESTING REQUIREMENTS.
4. SCARIFY THE FIRST LIFT OF TOPSOIL INTO THE NATIVE SOIL A MINIMUM OF 10 INCHES TO ELIMINATE SOIL TEXTURE BARRIERS.
5. ENSURE PROPER COMPACTION. PREPARED TOPSOIL SURFACE SHALL BE FIRM ENOUGH TO PREVENT SETTLEMENT ONCE INSTALLED.

C
99
PREPARED TOPSOIL DETAIL
NO SCALE

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER RAB
DRAWN RAB
CHECKED -
PROJ. NO. 7486
DATE 10.23.2026
SURVEYED DJ&A, P.C.

DJ&A
ENGINEERS
PLANNERS
SURVEYORS

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

PLANTING DETAILS 1

SYMBOLS & ABBREVIATIONS SCHEDULE

RECEPTACLES

LP2,12	DUPLEX RECEPTACLE OUTLET, 18" A.F.F., TAMPER RESISTANT, 20AMP COMMERCIAL GRADE GROUNDING TYPE WITH MATCHING COVERPLATE. TAG INDICATES PANELBOARD & BRANCH CIRCUIT THAT IT IS CONNECTED TO.
LP2,12	GFCI RECEPTACLE OUTLET, 18" A.F.F., TAMPER RESISTANT, 20AMP COMMERCIAL GRADE GROUNDING TYPE WITH MATCHING COVERPLATE. TAG INDICATES PANELBOARD & BRANCH CIRCUIT THAT IT IS CONNECTED TO.
LP2,12	DUPLEX RECEPTACLE OUTLET, 18" AFF., TAMPER RESISTANT, 20AMP COMMERCIAL GRADE GROUNDING TYPE WITH MATCHING COVERPLATE. TAG INDICATES PANELBOARD & DEDICATED BRANCH CIRCUIT THAT IT IS CONNECTED TO. RECEPTACLE SHALL BE SUPPLIED BY A GFCI CIRCUIT BREAKER. PROVIDE LABEL ON COVER "PROTECTED BY GFCI"
LP2,12	INDICATES (2) TAMPER RESISTANT, 20 AMP, COMMERCIAL GRADE RECEPTACLES IN 2-GANG BOX UNDER A COMMON MATCHING COVERPLATE. RECEPTACLES SHALL BE GROUNDING TYPE. TAG INDICATES PANELBOARD & BRANCH CIRCUIT THAT IT IS CONNECTED TO.
LP2,12	(2) GFCI RECEPTACLE OUTLETS, 18" A.F.F., TAMPER RESISTANT, 20AMP COMMERCIAL GRADE GROUNDING TYPE IN 2-GANG BACKBOX WITH MATCHING COMMON COVERPLATE. TAG INDICATES PANELBOARD & BRANCH CIRCUIT THAT IT IS CONNECTED TO.
LP2,10,12	RANGE OR DRYER OUTLET VERIFY RECEPTACLE NEMA CONFIGURATION, RATING & INSTALLATION HEIGHT WITH SELECTED EQUIPMENT SUPPLIER. TAG INDICATES PANELBOARD & BRANCH CIRCUIT THAT IT IS CONNECTED TO. COVER PLATES SHALL BE STAINLESS STEEL.
LP2,12	SPECIAL PURPOSE RECEPTACLE AS CALLED FOR ON DRAWINGS OR AS REQUIRED BY EQUIPMENT MANUFACTURER. VERIFY NEMA CONFIGURATION. TAG INDICATES PANELBOARD & BRANCH CIRCUIT THAT IT IS CONNECTED TO.
LP2,12	FLOOR MOUNTED RECEPTACLE AS CALLED FOR ON DRAWINGS OR AS REQUIRED BY EQUIPMENT MANUFACTURER. UNLESS OTHERWISE NOTED, PROVIDE RECESSED IN CONCRETE WITH A METAL COVER. TAG INDICATES PANELBOARD & BRANCH CIRCUIT THAT IT IS CONNECTED TO.
WALL—J FLOOR—J	PROVIDE COMPLETE ELECTRICAL POWER CONNECTION TO MODULAR FURNITURE. WHIP TO BE PROVIDED WITH FURNITURE. CONNECTION SHALL INCLUDE MINIMUM WALL OR FLOOR JUNCTION BOX, WIRING TO CIRCUIT INDICATED, FINAL CONNECTION TO APPROPRIATE FURNITURE GROUP.
FB1● LP2,12	TYPE #1 FLOOR BOX WITH (1) DUPLEX RECEPTACLE . UNLESS OTHERWISE NOTED, PROVIDE RECESSED IN CONCRETE WITH A METAL COVER. TAG INDICATES PANELBOARD & BRANCH CIRCUIT THAT IT IS CONNECTED TO.

POWER

J	WALL MOUNTED JUNCTION BOX, SIZE AS INDICATED OR PROVIDE MINIMUM SIZE REQUIRED BY LATEST EDITION OF NATIONAL ELECTRICAL CODE (NFPA 70-NEC).
J	CEILING MOUNTED JUNCTION BOX, SIZE AS INDICATED OR PROVIDE MINIMUM SIZE REQUIRED BY LATEST EDITION OF NATIONAL ELECTRICAL CODE (NFPA 70-NEC).
	PROVIDE COMPLETE ELECTRICAL CONNECTION TO EQUIPMENT INDICATED (INCLUDING DISCONNECT, CONDUCTORS, RACEWAY, & OTHER REQUIRED HARDWARE. XX-X INDICATES EQUIPMENT TAG. REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.
	PROVIDE COMPLETE ELECTRICAL CONNECTION TO MOTOR INDICATED (INCLUDING DISCONNECT, STARTER, CONDUCTORS, RACEWAY, & OTHER REQUIRED HARDWARE. XX-X INDICATES EQUIPMENT TAG. REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.
▣	EMERGENCY POWER OFF BUTTON (EPO). PROVIDE WHERE INDICATED ON DRAWINGS. PROVIDE ALL REQUIRED INTERFACES AS CALLED FOR ON DRAWINGS OR REQUIRED BY EQUIPMENT MANUFACTURER.
TYPICAL WALL	ELECTRICAL PANELBOARD, SURFACE MOUNTED. UNLESS OTHERWISE NOTED, INSTALL AT 72" A.F.F. TO THE TOP OF THE BOX.
TYPICAL WALL	ELECTRICAL PANELBOARD, FLUSH MOUNTED. UNLESS OTHERWISE NOTED, INSTALL AT 72" A.F.F. TO THE TOP OF THE BOX.
	TYPICAL DISCONNECT (SAFETY SWITCH). REFER TO DRAWINGS FOR SIZE & ADDITIONAL FUSING REQUIREMENTS.
⊠ ⊠	TYPICAL DRY-TYPE TRANSFORMER (SIZE MIGHT VARY). UNLESS OTHERWISE NOTED, PROVIDE FLOOR MOUNTED WITH CONCRETE EQUIPMENT PAD.
▭	ELECTRICAL PIECE OF EQUIPMENT. REFER TO DRAWINGS FOR ADDITIONAL INFORMATION.

POWER ONE-LINE

	POWER TRANSFORMER, DELTA PRIMARY, WYE SECONDARY OR AS INDICATED. PROVIDE ALL REQUIRED GROUNDING.
XXAF XXAT	MOLDED CASE CIRCUIT BREAKER. AF INDICATES FRAME SIZE, AT INDICATES TRIP SETTING
XXAF XXAT	DRAWOUT TYPE CIRCUIT BREAKER. AF INDICATES FRAME SIZE, AT INDICATES TRIP SETTING
XXAS XXAS XXAF XXAF	DISCONNECT SWITCH & FUSIBLE SWITCH. XXAS INDICATES SWITCH AMPERE SIZE XXAF INDICATES FUSE AMPERE SIZE
XX A	FUSE, XX A INDICATES FUSE SIZE IN AMPERES.
1PP1 225 MLO 208Y/120V 3-PHASE 4-WIRE	PANELBOARD
E N	TRANSFER SWITCH.
GFP	GROUND FAULT PROTECTION.
SPD	SURGE PROTECTION.
PQM	POWER QUALITY METER.
DVM	DIGITAL VOLT METER.
65000	AVAILABLE FAULT CURRENT TAG (AMPS)

Wendel Project #: 630102

GENERAL NOTES: (FOR ALL DRAWINGS)

A. THE DRAWINGS ARE DIAGRAMMATIC & INDICATE GENERALLY THE LOCATIONS OF THE MATERIAL & EQUIPMENT. THESE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE.

B. MINOR DETAILS NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER INSTALLATION & OPERATION, SHALL BE INCLUDED IN THE CONTRACTOR'S BID, THE SAME AS IF HEREIN SPECIFIED OR SHOWN.

C. ALL MATERIAL & INSTALLATION SHALL BE IN ACCORDANCE WITH LATEST EDITION OF THE NATIONAL ELECTRIC CODE, LATEST EDITION OF LOCAL CODES, & ORDINANCES.

D. ALL CONDUITS ON EXPOSED WORK SHALL BE RUN AT RIGHT ANGLES TO, & PARALLEL WITH, THE SURROUNDING WALL & SHALL CONFORM TO THE FORM OF THE CEILING. DIAGONAL RUNS WILL NOT BE ALLOWED. BENDS IN PARALLEL CONDUIT RUNS SHALL BE CONCENTRIC. ALL CONDUIT SHALL RUN PERFECTLY STRAIGHT & TRUE.

E. ALL CONDUIT RUNS ARE TO BE CONCEALED IN WALLS, CEILINGS, OR IN THE SLAB. CONTRACTOR SHALL COORDINATE CONDUIT INSTALLATION DURING BUILDING CONSTRUCTION WITH OTHER TRADES. RUN SURFACE RACEWAY ONLY WHERE CALLED FOR OR SHOWN ON THE DRAWINGS. EXPOSED CONDUIT SHALL ONLY BE INSTALLED WHERE MEANS OF CONCEALING DOES NOT EXIST. CONTRACTOR IS TO NOTIFY ENGINEER & GET OWNERS APPROVAL PRIOR TO RUNNING EXPOSED CONDUITS.

F. CONTRACTOR SHALL PROVIDE INFORMATION LABELS ON ALL RECEPTACLES, PANELBOARDS, JUNCTION BOXES, WALL SWITCHES, DISCONNECT SWITCHES, MAIN DISTRIBUTION PANELBOARD, & MINI-POWER CENTER. LABELS SHALL BE PHENALIC TYPE WITH BLACK BACKGROUND & WHITE ENGRAVED LETTERING. LABEL SHALL INDICATED CIRCUIT/FEEDER SOURCE & EQUIPMENT ID NAME.

ABBREVIATIONS:

WP	INDICATES WEATHERPROOF DEVICE OR EQUIPMENT
WG	INDICATES DEVICE SHALL HAVE WIRE GUARD PROTECTION
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
(ETR)	EXISTING EQUIPMENT SHALL REMAIN IN PLACE
OC	OVER COUNTER (INSTALL 12" ABOVE COUNTER HEIGHT)
UC	UNDER COUNTER (INSTALL 18" ABOVE FINISHED FLOOR)
VNAC	VISUAL NOTIFICATION APPLIANCE CIRCUIT
ANAC	AUDIO NOTIFICATION APPLIANCE CIRCUIT
SLC	SIGNALING LINE CIRCUIT
ATS	AUTOMATIC TRANSFER SWITCH
HP	HORSEPOWER
kW	KILOWATT
kVA	KILOVOLT-AMPERES
VFD	VARIABLE FREQUENCY DRIVE
EM	EMERGENCY
NL	NIGHTLIGHT (TYPICAL FOR LIGHTING, 'ON' ALL THE TIME)
LTG	LIGHTING
CPWR	CONTINUOUS LOAD (POWER)
PWR	POWER
EH	ELECTRIC HEAT
KIT	KITCHEN EQUIPMENT
LMTR	LARGEST MOTOR
EQP	SHOP EQUIPMENT
NEC	NATIONAL ELECTRICAL CODE
MLO	MAIN LUGS ONLY
MCB	MAIN CIRCUIT BREAKER
AWG	AMERICAN WIRE GAGE

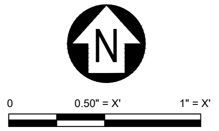
BRANCH CIRCUIT WIRING NOTES:

A. UNLESS OTHERWISE NOTED, MINIMUM HOMERUN (HOMERUN SHALL BE CONSIDERED TOTAL LENGTH FROM SOURCE TO LAST DEVICE ON THE CIRCUIT) CONDUCTORS FOR 20A/1P BRANCH CIRCUITS INCLUDING LIGHTING SHALL BE AS FOLLOWS:
- 1-100FT - #12 AWG
- 101-150FT - #10 AWG
- 151-250FT - #8 AWG
- 251-400FT - #6 AWG.
- 401 & LONGER - #4 AWG.

REDUCE CONDUCTORS SIZE TO A MAXIMUM CONDUCTOR SIZE THAT THE LOAD TERMINALS CAN ACCOMMODATE, REDUCED SIZE NOT LONGER THAN ONE FOOT. INCREASE RACEWAY SIZE AS NEEDED PER NEC, FOR THE LARGER SIZES OF CONDUCTORS.

GENERAL SYMBOLS NOTE:

THIS SYMBOLS & ABBREVIATIONS SCHEDULE IS FOR THE ELECTRICAL CONTRACTOR REFERENCE ONLY. NOT ALL SYMBOLS OR ABBREVIATIONS MAY APPLY TO THIS PARTICULAR PROJECT. ANY ADDITIONS OR OMISSIONS FROM THIS SCHEDULE DOES NOT IMPLY INCLUSION AND / OR EXCLUSION OF ANY PARTICULAR ITEM FROM THE PROJECT.



SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

REVISION	DATE	DESCRIPTION
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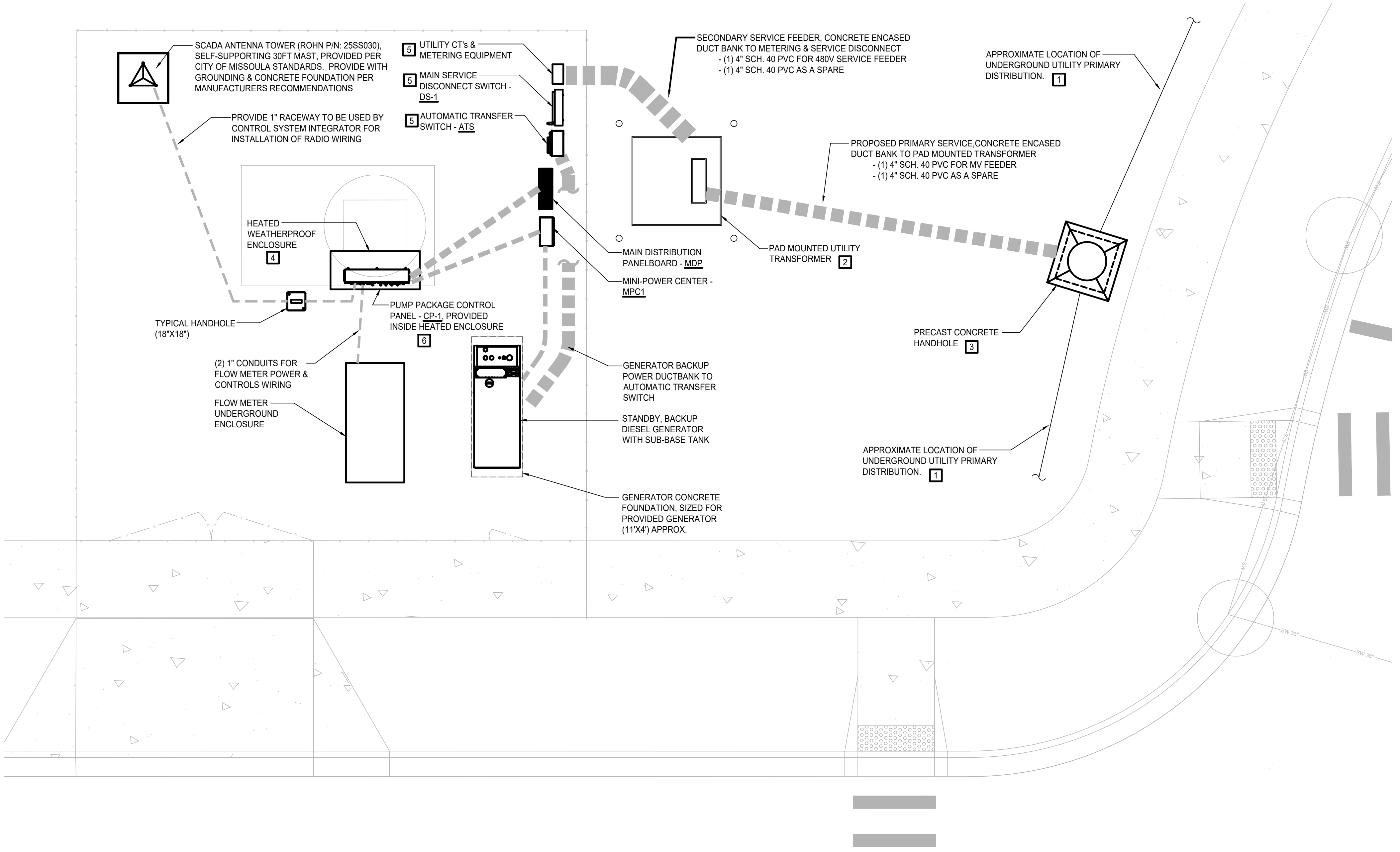
DESIGNER RB
DRAWN RB
CHECKED JFW
PROJ. NO. 7486
DATE 10/23/26
SURVEYED DJ&A, P.C.

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

ELECTRICAL SYMBOLS, ABBREVIATIONS, & NOTES

Wendel Project #: 630102


SCADA ANTENNA TOWER (ROHN P/N: 25SS030), SELF-SUPPORTING 30FT MAST, PROVIDED PER CITY OF MISSOULA STANDARDS. PROVIDE WITH GROUNDING & CONCRETE FOUNDATION PER MANUFACTURERS RECOMMENDATIONS
5 UTILITY CT's & METERING EQUIPMENT
5 MAIN SERVICE DISCONNECT SWITCH - DS-1
5 AUTOMATIC TRANSFER SWITCH - ATS
SECONDARY SERVICE FEEDER, CONCRETE ENCASED DUCT BANK TO METERING & SERVICE DISCONNECT
- (1) 4" SCH. 40 PVC FOR 480V SERVICE FEEDER
- (1) 4" SCH. 40 PVC AS A SPARE
APPROXIMATE LOCATION OF UNDERGROUND UTILITY PRIMARY DISTRIBUTION. 1
PROVIDE 1" RACEWAY TO BE USED BY CONTROL SYSTEM INTEGRATOR FOR INSTALLATION OF RADIO WIRING
PROPOSED PRIMARY SERVICE,CONCRETE ENCASED DUCT BANK TO PAD MOUNTED TRANSFORMER
- (1) 4" SCH. 40 PVC FOR MV FEEDER
- (1) 4" SCH. 40 PVC AS A SPARE
HEATED WEATHERPROOF ENCLOSURE 4
MAIN DISTRIBUTION PANELBOARD - MDP
PAD MOUNTED UTILITY TRANSFORMER 2
MINI-POWER CENTER - MPC1
TYPICAL HANDHOLE (18"X18")
PUMP PACKAGE CONTROL PANEL - CP-1, PROVIDED INSIDE HEATED ENCLOSURE 6
PRECAST CONCRETE HANDHOLE 3
(2) 1" CONDUITS FOR FLOW METER POWER & CONTROLS WIRING
GENERATOR BACKUP POWER DUCTBANK TO AUTOMATIC TRANSFER SWITCH
FLOW METER UNDERGROUND ENCLOSURE
STANDBY, BACKUP DIESEL GENERATOR WITH SUB-BASE TANK
APPROXIMATE LOCATION OF UNDERGROUND UTILITY PRIMARY DISTRIBUTION. 1
GENERATOR CONCRETE FOUNDATION, SIZED FOR PROVIDED GENERATOR (11'X4') APPROX.

① LIFT STATION ELECTRICAL SITE PLAN
SCALE: 1"=10'-0"

GENERAL NOTES:

A. THE COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE, & LOCAL REGULATIONS. CONTRACTOR SHALL OBTAIN NECESSARY PERMITS & INSPECTIONS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. ALL WORK SHALL BE DONE IN A NEAT, WORKMANLIKE, FINISHED, & SAFE MANNER, ACCORDING TO THE LATEST PUBLISHED NECA STANDARDS OF INSTALLATION, UNDER COMPETENT SUPERVISION.

B. UNLESS OTHERWISE NOTED, ALL UNDERGROUND CONDUIT SHALL BE INSTALLED MINIMUM OF 24" COVER.

C. ALL ELECTRICAL WORK FOR THIS PROJECT SHALL CONFORM TO NFPA 70, ARTICLE 500, & ALL OTHER APPLICABLE NFPA STANDARDS AS IT APPLIES TO WET WELL TYPE INSTALLATIONS.

H. AREA INSIDE THE WET WELL SHALL BE CONSIDERED CLASS 1, DIVISION 1.

I. PROVIDE LARGE CAPACITY SEALS WHERE REQUIRED TO ACHIEVE 40% CONDUIT FILL CAPACITY.

J. PROVIDE SEAL-OFF FITTING AT ALL HANDHOLES FOR CONDUITS LEAVING THE CLASSIFIED AREA IN ACCORDANCE WITH NEC 501.15(B)(2).

K. ALL ELECTRICAL EQUIPMENT SCHEDULED FOR INSTALLATION IN CLASSIFIED LOCATIONS SHALL BE LABELED & LISTED FOR USE IN THAT LOCATION IN ACCORDANCE WITH NEC 500.8.

L. LIFT STATION CONTROLS ENCLOSURE & ALL PUMP SKID CONTROLS ACCESSORIES ARE TO BE PROVIDED AS PART OF THE SKID PUMPING PACKAGE PROVIDED BY GORMAN-RUPP RELIASOURCE ABOVE GROUND SUBMERSIBLE VALVE PACKAGE (ASVP) TYPE E IN COMPLIANCE WITH CITY OF MISSOULA STANDARDS.

X CONSTRUCTION NOTES:

1. UTILITY PRIMARY UNDERGROUND DISTRIBUTION IS PLANNED TO BE PROVIDED AS PART OF A FUTURE SITE DEVELOPMENT PROJECT. INDICATED ROUTING IS APPROXIMATE. EXACT LOCATION OF THIS PRIMARY ARE CURRENTLY UNKNOWN & SHALL BE VERIFIED DURING CONSTRUCTION PHASE.

2. PROVIDE TRANSFORMER PAD PER THE MISSOULA ELECTRIC COOPERATIVE REQUIREMENTS. CONTRACTOR SHALL PROVIDE CONCRETE PAD, BOLLARDS, GROUNDING, ETC. AS NECESSARY. TRANSFORMER INSTALLATION & FINAL TERMINATION OF PRIMARY & SECONDARY CONDUCTORS SHALL BE PERFORMED BY THE UTILITY COMPANY.

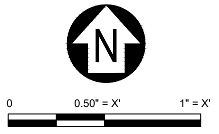
3. PRECAST CONCRETE HANDHOLE SHALL BE PROVIDED BY THE UTILITY COMPANY TO ACCOMMODATE THIS ELECTRICAL SERVICE REQUEST. EXACT LOCATION OF THIS TAP SHALL BE VERIFIED WITH THE UTILITY COMPANY PRIOR TO CONSTRUCTION

4. INSULATED & HEATED FIBERGLASS REINFORCED PLASTIC ENCLOSURE TO BE WIRED WITH THE FOLLOWING 20A/1P, 120V BRANCH CIRCUITS:
    - (2) 1" RACEWAYS, EACH WITH 2#12AWG, #12G, (1) RACEWAY FOR EACH OF TWO CERAMIC HEATERS WITHIN THE ENCLOSURE
    - (1) 1" RACEWAY WITH 2#12AWG, #12G FOR CONVENIENCE GFCI RECEPTACLE.

   BRANCH CIRCUITS FOR THIS EQUIPMENT SHALL BE PROVIDED FROM MCP1. VERIFY LOCATION OF ENCLOSURE HEATERS & STUB EACH RACEWAY AS CLOSE TO THE LOCATION AS POSSIBLE. PROVIDE GFCI RECEPTACLE ABOUT 18" ABOVE FINISHED GRADE UTILIZING STRUT TYPE SUPPORT.

5. EQUIPMENT SHALL BE PROVIDED ON FREE-STANDING STRUT TYPE SUPPORTS CONSTRUCTED AS NECESSARY TO MOUNT ALL THIS EQUIPMENT. REFER TO DRAWING 103, DETAIL #4 FOR ADDITIONAL INFORMATION.

6. THIS CONTROL PANEL SHALL BE PROVIDED AS PART OF THE STANDARD PUMPING PACKAGE APPROVED BY THE CITY OF MISSOULA. CONTACTOR SHALL COORDINATE INSTALLATION & WIRING REQUIREMENTS PRIOR START OF CONSTRUCTION.



SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

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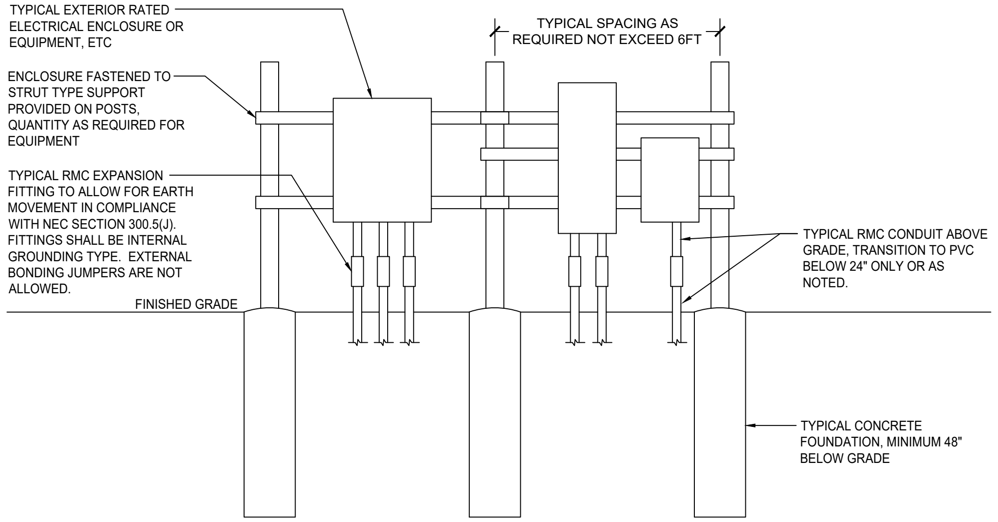
PROJ. NO. 7486
DATE 10/23/26
SURVEYED DJ&A, P.C.

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

ELECTRICAL SITE PLAN

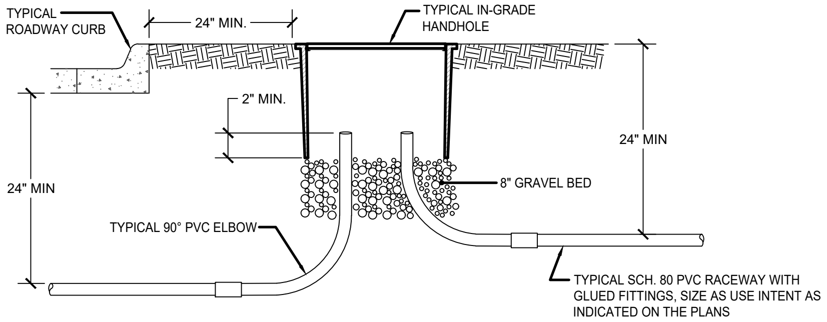
SHEET
101
OF
105

Wendel Project #: 630102


TYPICAL EXTERIOR RATED ELECTRICAL ENCLOSURE OR EQUIPMENT, ETC
TYPICAL SPACING AS REQUIRED NOT EXCEED 6FT
ENCLOSURE FASTENED TO STRUT TYPE SUPPORT PROVIDED ON POSTS, QUANTITY AS REQUIRED FOR EQUIPMENT
TYPICAL RMC EXPANSION FITTING TO ALLOW FOR EARTH MOVEMENT IN COMPLIANCE WITH NEC SECTION 300.5(J). FITTINGS SHALL BE INTERNAL GROUNDING TYPE. EXTERNAL BONDING JUMPERS ARE NOT ALLOWED.
TYPICAL RMC CONDUIT ABOVE GRADE, TRANSITION TO PVC BELOW 24" ONLY OR AS NOTED.
FINISHED GRADE
TYPICAL CONCRETE FOUNDATION, MINIMUM 48" BELOW GRADE

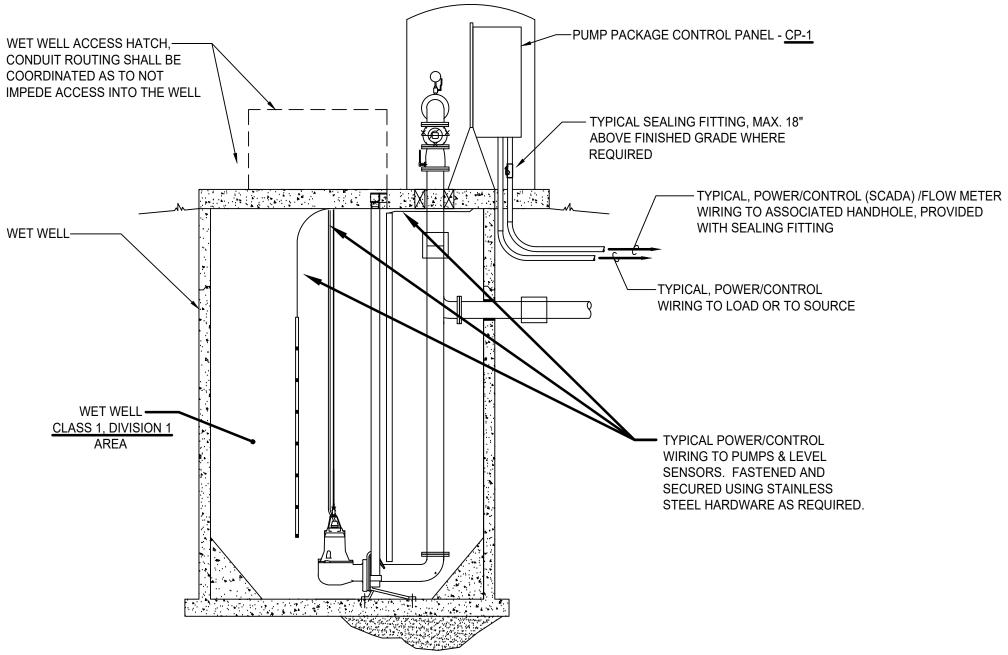
4 TYPICAL FREE-STANDING EQUIPMENT MOUNTING

SCALE: NONE


TYPICAL ROADWAY CURB
24" MIN.
TYPICAL IN-GRADE HANDHOLE
2" MIN.
24" MIN
24" MIN
8" GRAVEL BED
TYPICAL 90° PVC ELBOW
TYPICAL SCH. 80 PVC RACEWAY WITH GLUED FITTINGS, SIZE AS USE INTENT AS INDICATED ON THE PLANS

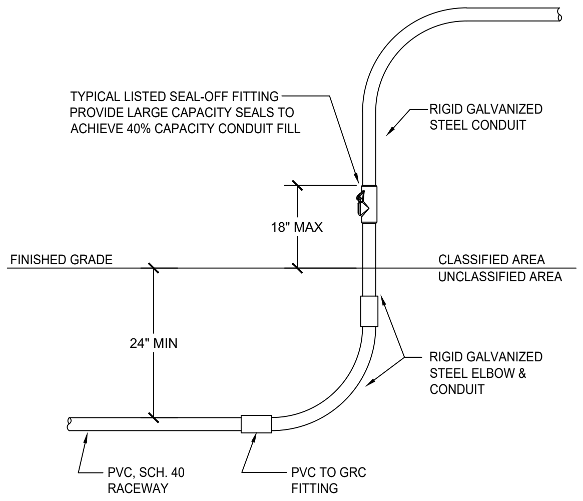
5 HANDHOLE INSTALLATION DETAIL

SCALE: NONE

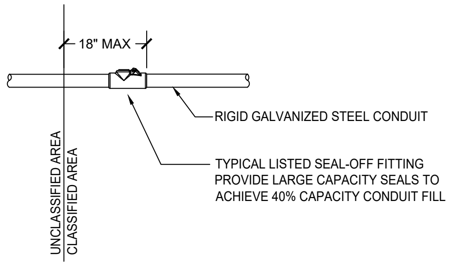

WET WELL ACCESS HATCH, CONDUIT ROUTING SHALL BE COORDINATED AS TO NOT IMPEDE ACCESS INTO THE WELL
PUMP PACKAGE CONTROL PANEL - CP-1
TYPICAL SEALING FITTING, MAX. 18" ABOVE FINISHED GRADE WHERE REQUIRED
TYPICAL, POWER/CONTROL (SCADA) /FLOW METER WIRING TO ASSOCIATED HANDHOLE, PROVIDED WITH SEALING FITTING
WET WELL
TYPICAL, POWER/CONTROL WIRING TO LOAD OR TO SOURCE
WET WELL CLASS 1, DIVISION 1 AREA
TYPICAL POWER/CONTROL WIRING TO PUMPS & LEVEL SENSORS. FASTENED AND SECURED USING STAINLESS STEEL HARDWARE AS REQUIRED.

6 TYPICAL WET WELL RACEWAY INSTALLATION DETAIL

SCALE: NONE


TYPICAL LISTED SEAL-OFF FITTING PROVIDE LARGE CAPACITY SEALS TO ACHIEVE 40% CAPACITY CONDUIT FILL
RIGID GALVANIZED STEEL CONDUIT
18" MAX
FINISHED GRADE
CLASSIFIED AREA
UNCLASSIFIED AREA
24" MIN
RIGID GALVANIZED STEEL ELBOW & CONDUIT
PVC, SCH. 40 RACEWAY
PVC TO GRC FITTING

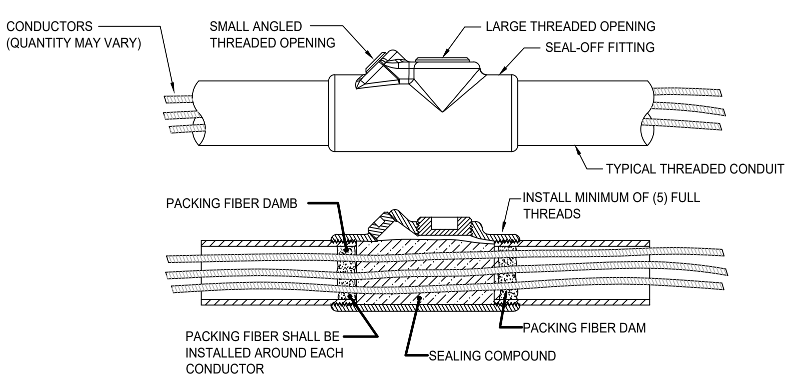
METHOD 1


18" MAX
RIGID GALVANIZED STEEL CONDUIT
TYPICAL LISTED SEAL-OFF FITTING PROVIDE LARGE CAPACITY SEALS TO ACHIEVE 40% CAPACITY CONDUIT FILL
UNCLASSIFIED AREA
CLASSIFIED AREA

METHOD 2

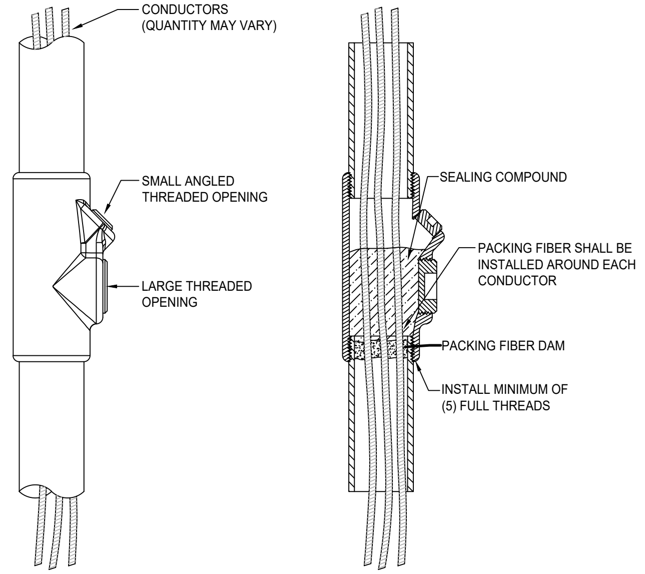
3 TYPICAL SEAL-OFF FITTING LOCATION

SCALE: NONE


CONDUCTORS (QUANTITY MAY VARY)
SMALL ANGLED THREADED OPENING
LARGE THREADED OPENING
SEAL-OFF FITTING
TYPICAL THREADED CONDUIT
PACKING FIBER DAMB
INSTALL MINIMUM OF (5) FULL THREADS
PACKING FIBER DAM
PACKING FIBER SHALL BE INSTALLED AROUND EACH CONDUCTOR
SEALING COMPOUND

1 HORIZONTAL SEAL-OFF FITTING DETAIL

SCALE: NONE


CONDUCTORS (QUANTITY MAY VARY)
SMALL ANGLED THREADED OPENING
LARGE THREADED OPENING
SEALING COMPOUND
PACKING FIBER SHALL BE INSTALLED AROUND EACH CONDUCTOR
PACKING FIBER DAM
INSTALL MINIMUM OF (5) FULL THREADS

2 VERTICAL SEAL-OFF FITTING DETAIL

SCALE: NONE

N

0 0.50" = X' 1" = X'

SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

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REVISION	DATE	DESCRIPTION
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DESIGNER RB PROJ. NO. 7486
DRAWN RB DATE 10/23/26
CHECKED JFW SURVEYED DJ&A, P.C.

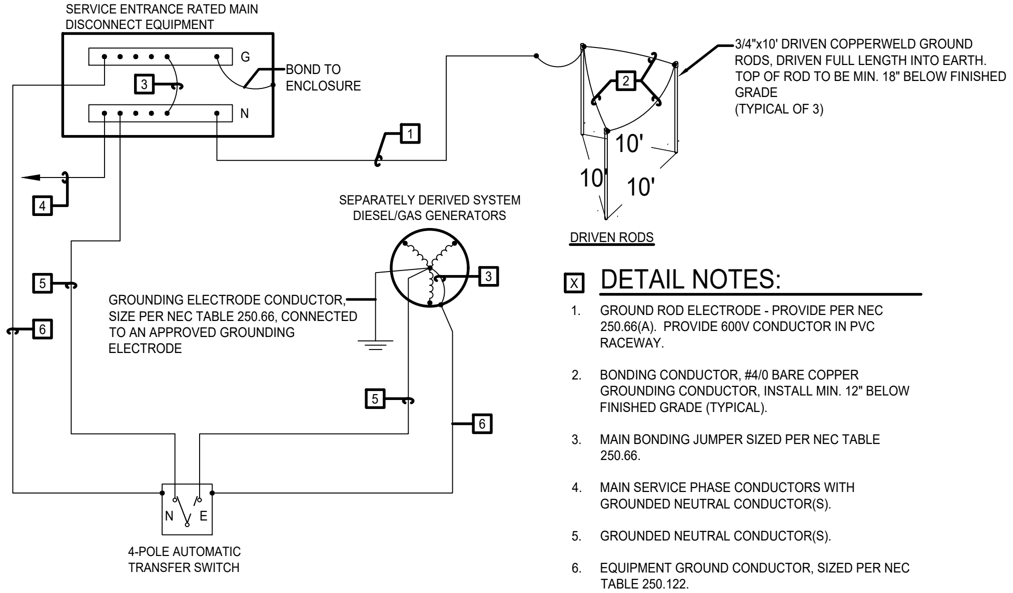
MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

ELECTRICAL DETAILS

SHEET 102 OF 105

wendel

Wendel Project #: 630102

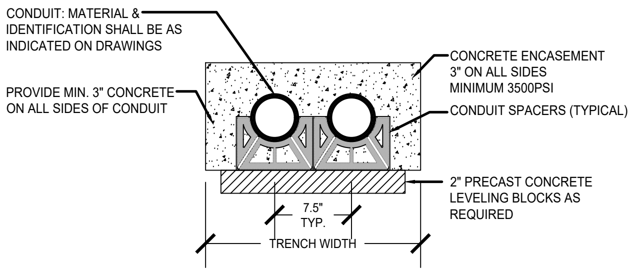

SERVICE ENTRANCE RATED MAIN DISCONNECT EQUIPMENT
G
N
BOND TO ENCLOSURE
3
1
4
5
6
3/4"x10' DRIVEN COPPERWELD GROUND RODS, DRIVEN FULL LENGTH INTO EARTH. TOP OF ROD TO BE MIN. 18" BELOW FINISHED GRADE (TYPICAL OF 3)
2
10'
10'
10'
DRIVEN RODS
SEPARATELY DERIVED SYSTEM DIESEL/GAS GENERATORS
3
GROUNDING ELECTRODE CONDUCTOR, SIZE PER NEC TABLE 250.66, CONNECTED TO AN APPROVED GROUNDING ELECTRODE
5
6
N
E
4-POLE AUTOMATIC TRANSFER SWITCH

☒ DETAIL NOTES:

1. GROUND ROD ELECTRODE - PROVIDE PER NEC 250.66(A). PROVIDE 600V CONDUCTOR IN PVC RACEWAY.
2. BONDING CONDUCTOR, #4/0 BARE COPPER GROUNDING CONDUCTOR, INSTALL MIN. 12" BELOW FINISHED GRADE (TYPICAL).
3. MAIN BONDING JUMPER SIZED PER NEC TABLE 250.66.
4. MAIN SERVICE PHASE CONDUCTORS WITH GROUNDED NEUTRAL CONDUCTOR(S).
5. GROUNDED NEUTRAL CONDUCTOR(S).
6. EQUIPMENT GROUND CONDUCTOR, SIZED PER NEC TABLE 250.122.

③ TYPICAL SERVICE GROUNDING ELECTRODE SYSTEM WIRING DIAGRAM

SCALE: NONE


CONDUIT: MATERIAL & IDENTIFICATION SHALL BE AS INDICATED ON DRAWINGS
PROVIDE MIN. 3" CONCRETE ON ALL SIDES OF CONDUIT
CONCRETE ENCASEMENT 3" ON ALL SIDES MINIMUM 3500PSI
CONDUIT SPACERS (TYPICAL)
2" PRECAST CONCRETE LEVELING BLOCKS AS REQUIRED
7.5" TYP.
TRENCH WIDTH

② 2x1 CONCRETE ENCASED DUCTBANK SECTION (TYPICAL)

SCALE: NONE

NOTES FOR ALL DUCTBANK SECTIONS:

A. PROVIDE CONTINUOUS MARKER TAPE IN TRENCH BACKFILL, PER NEC.

B. TIE ALL CONDUIT DOWN TO PREVENT SHIFTING DURING CONCRETE POUR.

C. ALL NEW SPARE CONDUITS SHALL INCLUDE PULL ROPES, PROVIDED BY ELECTRICAL CONTRACTOR.

D. DUCTBANKS SHALL BE INSTALLED TO SLOPE TOWARD MANHOLES OR HANDHOLE, & SLOPED AWAY FROM THE BUILDINGS. VALLEYS IN CONDUIT SYSTEM ARE NOT ACCEPTABLE.

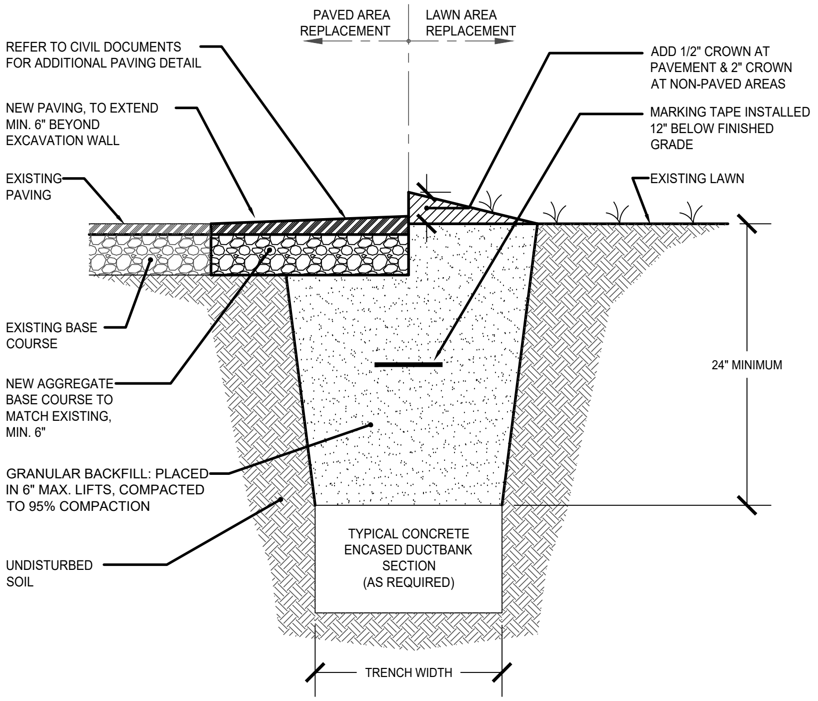
E. UNLESS OTHERWISE NOTED, PROVIDE REINFORCEMENT IN DUCTBANK WHERE UNDER ROADWAYS, PARKING LOTS, & SIDEWALKS. REINFORCEMENT NOT REQUIRED UNDER GRASS AREAS. PROVIDE REINFORCEMENT IN DUCTBANK AT MANHOLE ENTRIES WHERE INDICATED.

F. COORDINATE DUCTBANK ROUTING IN-FIELD WITH EXISTING SITE FEATURES & UNDERGROUND UTILITIES.

G. UNLESS OTHERWISE NOTED, ALL NEW DUCTBANKS SHALL BE INSTALLED A MINIMUM 24" BELOW FINISHED GRADE TO TOP OF CONDUIT.

H. DUCTBANK ENTRANCES INTO MANHOLES SHALL ENTER TO AVOID PLACEMENT OF CONDUITS DIRECTLY BELOW OR ADJACENT TO THE MANHOLE COVER.

I. PREMANUFACTURED CONDUIT SUPPORTS SHALL BE UTILIZED FOR BOTH REINFORCED & NON-REINFORCED CONCRETE DUCTBANKS, & SHALL BE SPACED PER THE MANUFACTURERS RECOMMENDATIONS.


PAVED AREA REPLACEMENT
LAWN AREA REPLACEMENT
REFER TO CIVIL DOCUMENTS FOR ADDITIONAL PAVING DETAIL
NEW PAVING, TO EXTEND MIN. 6" BEYOND EXCAVATION WALL
EXISTING PAVING
EXISTING BASE COURSE
NEW AGGREGATE BASE COURSE TO MATCH EXISTING, MIN. 6"
GRANULAR BACKFILL: PLACED IN 6" MAX. LIFTS, COMPACTED TO 95% COMPACTION
UNDISTURBED SOIL
ADD 1/2" CROWN AT PAVEMENT & 2" CROWN AT NON-PAVED AREAS
MARKING TAPE INSTALLED 12" BELOW FINISHED GRADE
EXISTING LAWN
24" MINIMUM
TYPICAL CONCRETE ENCASED DUCTBANK SECTION (AS REQUIRED)
TRENCH WIDTH

① CONCRETE ENCASED ELECTRICAL TRENCH DETAIL

SCALE: NONE

0 0.50" = X' 1" = X'

SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

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DESIGNER RB PROJ. NO. 7486
DRAWN RB DATE 10/23/26
CHECKED JFW SURVEYED DJ&A, P.C.

DJ
&A

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

ELECTRICAL DETAILS

SHEET
103
OF
105

wendel

Wendel Project #: 630102

PANELBOARD SCHEDULE

PANELBOARD **MDP** NAME

VOLTS: **480 Y/277** 3Ø 4-WIRE

BUS CAPACITY: **225** A AIC: **42kA**

MCB: MTG: **SURFACE**

MLO: **225** A ENCL: **NEMA 4X**

EXTERIOR LOCATION

No.	BKR	DESCRIPTION	TYPE	LOAD	L1	L2	L3	LOAD	TYPE	DESCRIPTION	BKR	No.
1					0							2
3						0						4
5							0					6
7					0							8
9						0						10
11							0					12
13					0							14
15						0						16
17							0					18
19	90A/3P	MINI-POWER CENTER - MPC1		3300	3300							20
21				3300		3300						22
23				1200			1200					24
25	100A/3P	LIFT STATION CONTROL PANEL	PWR	16667	16667					SPARE	100A/3P	26
27			PWR	16667		16667						28
29			PWR	16667			16667					30

MINI-POWER CENTER SCHEDULE

PANELBOARD **MPC1** NAME

INPUT VOLTS: **480** V 3Ø 4-WIRE

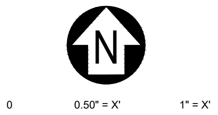
OUTPUT VOLTS: **208/120** A CAP: **15kVA**

PRIMARY MAIN: **90** A

SECONDARY MAIN: **100** A ENCL: **SURFACE, NEMA 4X**

LIFT STATION ENCLOSED AREA LOCATION

No.	BKR	DESCRIPTION	TYPE	LOAD	L1	L2	L3	LOAD	TYPE	DESCRIPTION	BKR	No.
1	20A/1P	ENCLOSURE HEATER	EH	1500	2100			600	REC	ENCLOSURE CONVENIENCE GFCI	20A/1P	2
3	20A/1P	ENCLOSURE HEATER	EH	1500		3000		1500	PWR	GENERATOR BLOCK HEATER	20A/1P	4
5	20A/1P	SPARE					1200	1200	PWR	GENERATOR BATTERY CHARGER	20A/1P	6
7	20A/1P	SPARE			1200			1200	EH	GENERATOR ENCLOSURE HEATER	20A/1P	8
9	20A/1P	SPARE				300		300	PWR	GENERATOR GFCI & LIGHTING	20A/1P	10
11							0					12
13					0							14
15						0						16
17							0					18
19					0							20
21						0						22
23							0					24



SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

10/2/26 11:11 RB1 P:\630102 MISSOULA MOAB OFFSITE INFRASTRUCTURE\16. CAD\DWG\ELEC\COMPOSITE\104.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

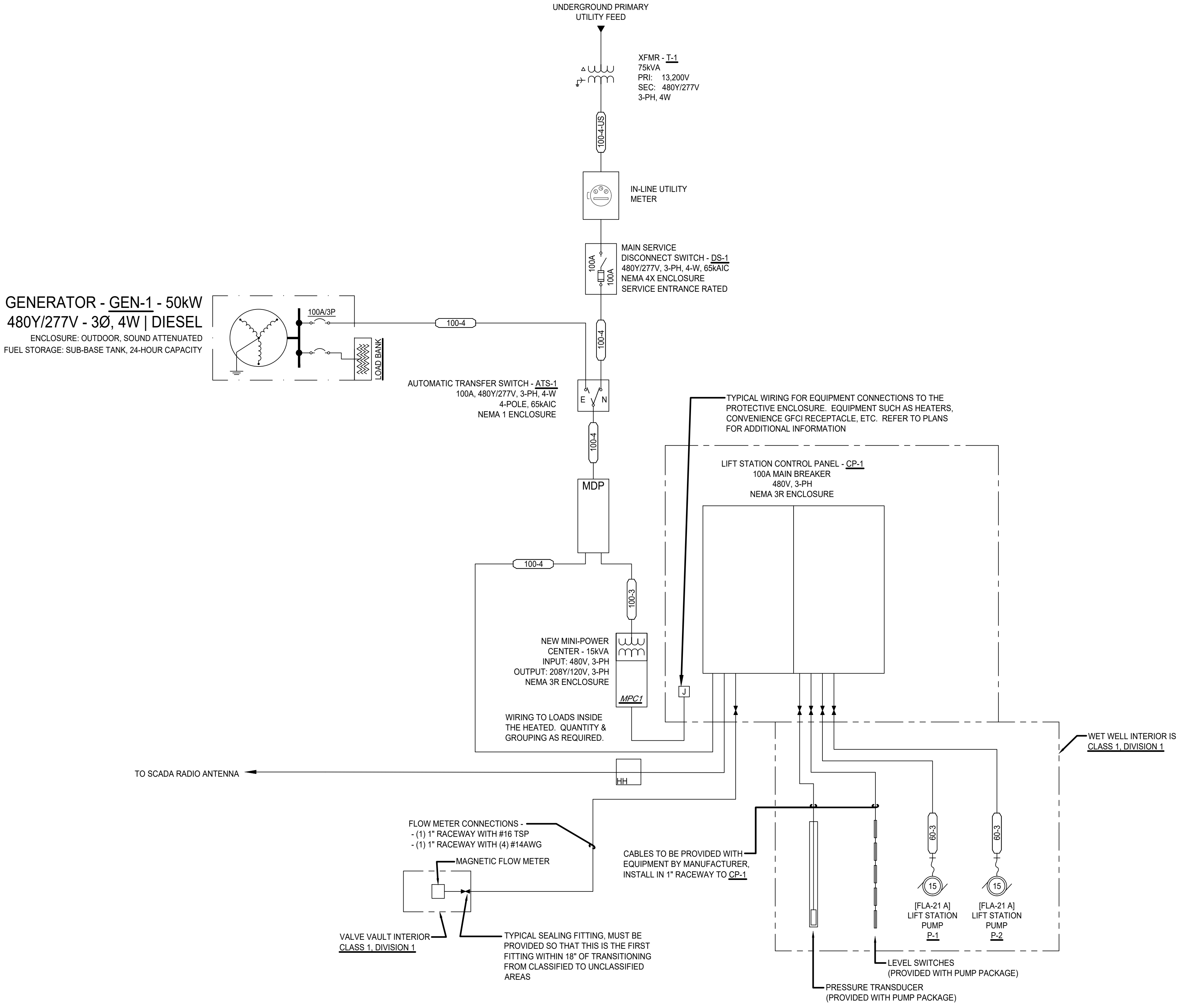
DESIGNER RB
DRAWN RB
CHECKED JFW
PROJ. NO. 7486
DATE 10/23/26
SURVEYED DJ&A, P.C.

DJ&A

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

ELECTRICAL SCHEDULES

SHEET 104 OF 105


UNDERGROUND PRIMARY
UTILITY FEED
XFMR - T-1
75kVA
PRI: 13,200V
SEC: 480Y/277V
3-PH, 4W
100-4-US
IN-LINE UTILITY
METER
MAIN SERVICE
DISCONNECT SWITCH - DS-1
480Y/277V, 3-PH, 4-W, 65kAIC
NEMA 4X ENCLOSURE
SERVICE ENTRANCE RATED
100A
100A
GENERATOR - GEN-1 - 50kW
480Y/277V - 3Ø, 4W | DIESEL
ENCLOSURE: OUTDOOR, SOUND ATTENUATED
FUEL STORAGE: SUB-BASE TANK, 24-HOUR CAPACITY
100A/3P
LOAD BANK
100-4
100-4
AUTOMATIC TRANSFER SWITCH - ATS-1
100A, 480Y/277V, 3-PH, 4-W
4-POLE, 65kAIC
NEMA 1 ENCLOSURE
E
N
100-4
MDP
TYPICAL WIRING FOR EQUIPMENT CONNECTIONS TO THE PROTECTIVE ENCLOSURE. EQUIPMENT SUCH AS HEATERS, CONVENIENCE GFCI RECEPTACLE, ETC. REFER TO PLANS FOR ADDITIONAL INFORMATION
LIFT STATION CONTROL PANEL - CP-1
100A MAIN BREAKER
480V, 3-PH
NEMA 3R ENCLOSURE
100-4
100-3
NEW MINI-POWER
CENTER - 15kVA
INPUT: 480V, 3-PH
OUTPUT: 208Y/120V, 3-PH
NEMA 3R ENCLOSURE
MPC1
J
WIRING TO LOADS INSIDE THE HEATED. QUANTITY & GROUPING AS REQUIRED.
WET WELL INTERIOR IS
CLASS 1, DIVISION 1
TO SCADA RADIO ANTENNA
HH
FLOW METER CONNECTIONS -
- (1) 1" RACEWAY WITH #16 TSP
- (1) 1" RACEWAY WITH (4) #14AWG
MAGNETIC FLOW METER
CABLES TO BE PROVIDED WITH EQUIPMENT BY MANUFACTURER, INSTALL IN 1" RACEWAY TO CP-1
60-3
60-3
15
15
[FLA-21 A]
LIFT STATION
PUMP
P-1
[FLA-21 A]
LIFT STATION
PUMP
P-2
VALVE VAULT INTERIOR
CLASS 1, DIVISION 1
TYPICAL SEALING FITTING, MUST BE PROVIDED SO THAT THIS IS THE FIRST FITTING WITHIN 18" OF TRANSITIONING FROM CLASSIFIED TO UNCLASSIFIED AREAS
LEVEL SWITCHES
(PROVIDED WITH PUMP PACKAGE)
PRESSURE TRANSDUCER
(PROVIDED WITH PUMP PACKAGE)

1 SINGLE LINE DIAGRAM
SCALE: NONE

wendel
Wendel Project #: 630102

FEEDER SIZE SCHEDULE | 3-PHASE
600V & BELOW (COPPER)

OVER-CURRENT DEVICE RATING	CONDUCTOR SIZE AWG OR KCMIL		4-WIRE FEEDERS WITH EQUIPMENT GROUND		3-WIRE FEEDERS WITH EQUIPMENT GROUND (NO NEUTRAL)		4-WIRE SEPARATELY DERIVED SYSTEM FEEDERS GROUNDING ELECTRODE CONDUCTOR (GEC)			4-WIRE FEEDERS W/O EQUIPMENT GROUND (UTILITY SECONDARY)	
	PHASE & NEUTRAL	EQUIP. GND.	xxxx-4	CONDUIT SIZE	xxxx-3	CONDUIT SIZE	xxxx-4-SD	GEC	CONDUIT SIZE	xxxx-4-US	CONDUIT SIZE
20	12	12	20-4	3/4"	20-3	3/4"	20-4-SD	8	3/4"	20-4-US	3/4"
30	10	10	30-4	3/4"	30-3	3/4"	30-4-SD	8	3/4"	30-4-US	3/4"
40	8	10	40-4	3/4"	40-3	3/4"	40-4-SD	8	3/4"	40-4-US	3/4"
60	6	10	60-4	1"	60-3	1"	60-4-SD	8	1"	60-4-US	1"
70	4	10	70-4	1-1/4"	70-3	1-1/4"	70-4-SD	8	1-1/4"	70-4-US	1-1/4"
100	2	8	100-4	1-1/4"	100-3	1-1/4"	100-4-SD	8	1-1/4"	100-4-US	1-1/4"
110	1	6	110-4	1-1/2"	110-3	1-1/2"	110-4-SD	6	1-1/2"	110-4-US	1-1/2"
125	1/0	6	125-4	2"	125-3	2"	125-4-SD	6	2"	125-4-US	2"
150	1/0	6	150-4	2"	150-3	2"	150-4-SD	6	2"	150-4-US	2"
175	2/0	6	175-4	2"	175-3	2"	175-4-SD	4	2"	175-4-US	2"
200	3/0	6	200-4	2"	200-3	2"	200-4-SD	4	2"	200-4-US	2"
225	4/0	4	225-4	2-1/2"	225-3	2-1/2"	225-4-SD	2	2-1/2"	225-4-US	2-1/2"
250	250	4	250-4	2-1/2"	250-3	2-1/2"	250-4-SD	2	2-1/2"	250-4-US	2-1/2"
300	350	4	300-4	3"	300-3	3"	300-4-SD	2	3"	300-4-US	3"
350	500	2	350-4	3"	350-3	3"	350-4-SD	2	3"	350-4-US	3"
400	600	2	400-4	3-1/2"	400-3	3"	400-4-SD	1/0	3"	400-4-US	3"
450	(2) 4/0	2	450-4	(2) 2-1/2"	450-3	(2) 2-1/2"	450-4-SD	1/0	(2) 2-1/2"	450-4-US	(2) 2"
500	(2) 250	2	500-4	(2) 2-1/2"	500-3	(2) 2-1/2"	500-4-SD	1/0	(2) 2-1/2"	500-4-US	(2) 2-1/2"
600	(2) 350	1	600-4	(2) 4"	600-3	(2) 4"	600-4-SD	3/0	(2) 4"	600-4-US	(2) 3"
700	(2) 500	1/0	700-4	(2) 4"	700-3	(2) 4"	700-4-SD	3/0	(2) 4"	700-4-US	(2) 3"
800	(2) 600	1/0	800-4	(2) 4"	800-3	(2) 4"	800-4-SD	3/0	(2) 4"	800-4-US	(2) 3"
1000	(3) 500	2/0	1000-4	(3) 4"	1000-3	(3) 4"	1000-4-SD	3/0	(3) 4"	1000-4-US	(3) 3"
1200	(3) 600	3/0	1200-4	(3) 4"	1200-3	(3) 4"	1200-4-SD	3/0	(3) 4"	1200-4-US	(3) 3-1/2"
1600	(4) 600	4/0	1600-4	(4) 4"	1600-3	(4) 4"	1600-4-SD	3/0	(4) 4"	1600-4-US	(4) 3-1/2"
2000	(5) 600	250	2000-4	(5) 4"	2000-3	(5) 4"	2000-4-SD	3/0	(5) 4"	2000-4-US	(5) 3-1/2"
2500	(6) 600	350	2500-4	(6) 4"	2500-3	(6) 4"	2500-4-SD	3/0	(6) 4"	2500-4-US	(6) 3-1/2"
3000	(8) 500	500	3000-4	(8) 4"	3000-3	(8) 4"	3000-4-SD	3/0	(8) 4"	3000-4-US	(8) 3-1/2"
4000	(10) 600	500	4000-4	(10) 4"	4000-3	(10) 4"	4000-4-SD	3/0	(10) 4"	4000-4-US	(10) 3-1/2"
5000	(12) 600	(2) 500	5000-4	(12) 4"	5000-3	(12) 4"	5000-4-SD	3/0	(12) 4"	5000-4-US	(12) 3-1/2"
6000	(16) 500	(2) 500	6000-4	(16) 4"	6000-3	(16) 4"	6000-4-SD	3/0	(16) 4"	6000-4-US	(16) 3"

FEEDER SCHEDULE GENERAL NOTES

A. ROUTES, LENGTHS & ABNORMAL ENVIRONMENTAL CONDITIONS SHALL BE VERIFIED TO BE COMPATIBLE WITH THE CABLE TYPE & SIZE. CONSULT ENGINEER WHEN RELATED ISSUES ARISE.

B. NOTE ALL FEEDERS ARE NECESSARILY USED. REFER TO SINGLE LINE DIAGRAM, SCHEDULES, & PLANS FOR REQUIRED FEEDERS.

C. FOR ALL FEEDERS WITH MULTIPLE CONDUITS PROVIDE THE INDICATED NUMBER OF PHASE, NEUTRAL, & GROUND CONDUCTORS IN EACH CONDUIT.

D. UNLESS OTHERWISE INDICATED, ALL CONDUCTORS ARE COPPER, TYPE THWN/THHN INSULATION FOR DRY, INDOOR AREAS & XHHW INSULATION FOR OUTDOOR INSTALLATIONS.

E. UNLESS OTHERWISE INDICATED, FEEDER SIZING SHALL MATCH THE SIZE INDICATED ABOVE FOR THE APPROPRIATE OVERCURRENT PROTECTIVE DEVICE PROVIDED TO PROTECT THE FEEDER OR LARGER WHERE INDICATED. NOTE THAT THE CONDUCTOR SIZE MAY BE LARGER THAN THE OCPD SIZE FOR THE ASSOCIATED CIRCUIT.

F. FOR BREAKER SIZE OF 100A & SMALLER 60°C AMPACITY WAS UTILIZED TO SIZE FEEDERS, 75°C AMPACITY WAS USED FOR FEEDERS PROTECTED BY A BREAKER LARGER THEN 100A.

GENERAL NOTES:

A. ALL EQUIPMENT SHALL BE INSTALLED & LABELED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE & ALL APPLICABLE REQUIREMENTS OF UTILITY COMPANY AS WELL AS THE LOCAL AUTHORITY HAVING JURISDICTION.

B. REFER TO E414 FOR ADDITIONAL INFORMATION ON POWER & CONTROL WIRING REQUIREMENTS IN BETWEEN CHARGING SYSTEM COMPONENTS.

0 0.50" = X' 1" = X'
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

10/2/26 11:29 RB1 P:\630102 MISSOULA MOAB OFFSITE INFRASTRUCTURE\16. CAD\DWG\ELEC\COMPOSITE\105.DWG;

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-

DESIGNER RB PROJ. NO. 7486
DRAWN RB DATE 10/23/26
CHECKED JFW SURVEYED DJ&A, P.C.

DJ &a

MOUNTAIN LINE - OFFSITE INFRASTRUCTURE

SINGLE LINE DIAGRAM

SHEET
105 OF 105