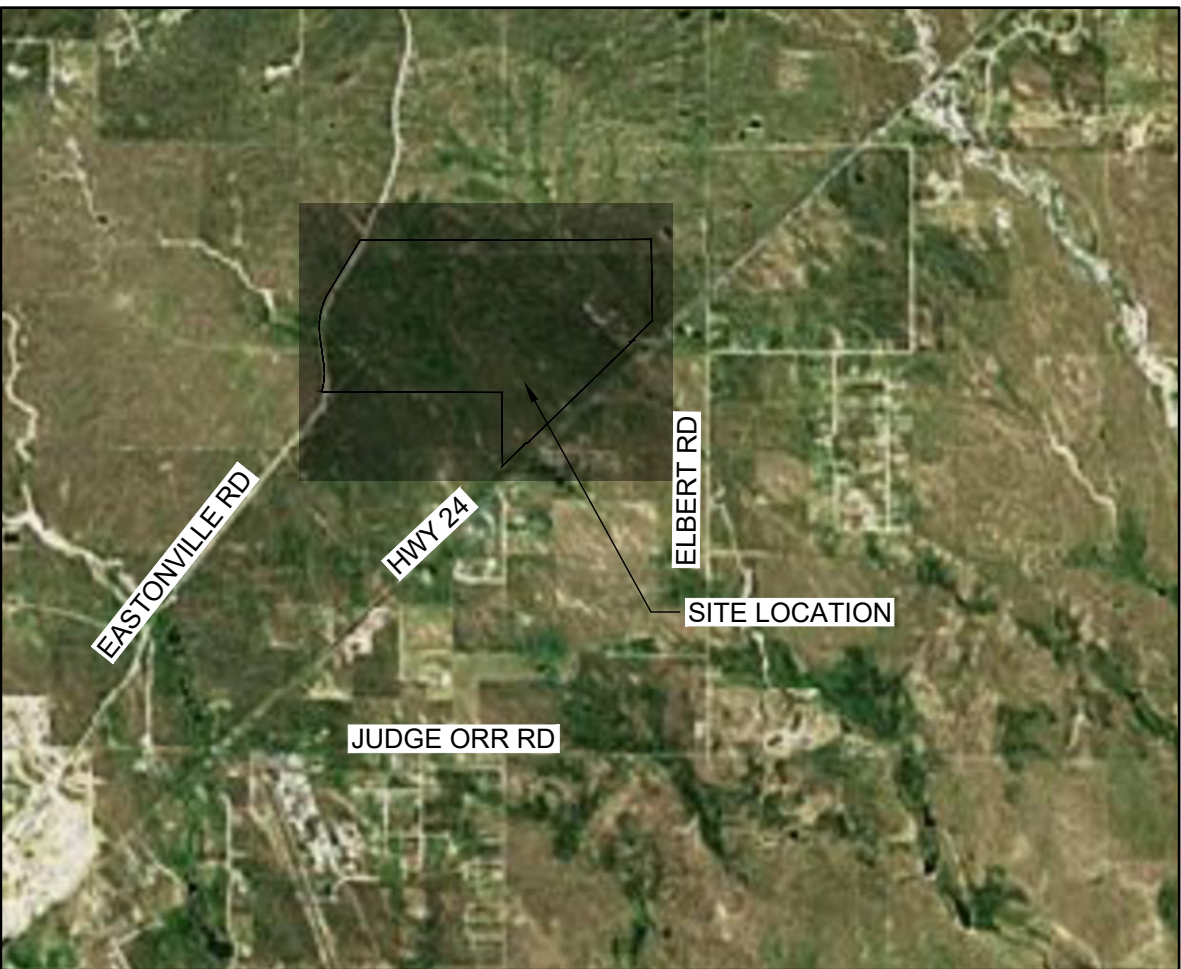


GRANDVIEW RESERVE (DRAINAGE A & B)  
GIECK RANCH TRIBUTARY, 1 GIECK RANCH  
TRIBUTARY 2

SECTIONS 21, 22, 27 & 28, TOWNSHIP 12 S, RANGE 64 W  
CITY OF FALCON, EL PASO COUNTY, STATE OF COLORADO



VICINITY MAP

SCALE: 1" = 5000'

SYMBOLS, ABBREVIATIONS, AND LINETYPES LEGEND

	CWA	CONCRETE WASHOUT AREA
	CF	CONSTRUCTION FENCE
	IP	INLET PROTECTION
	OP	OUTLET PROTECTION
	SF	SILT FENCE
	SSA	STABILIZED STAGING AREA
	VTC	VEHICLE TRACKING CONTROL
	LOC	LIMITS OF CONSTRUCTION
	CD	CHECK DAM
	SM	SEEDING AND MULCHING
	SB	SEDIMENT BASIN
	SR	SURFACE ROUGHENING
	ECB	EROSION CONTROL BLANKET
	CIP	CULVERT INLET PROTECTION
	RS	ROCK SOCK
		STORM INLET TYPE R
		STORM END SECTION
		STORM MANHOLE
		SANITARY MANHOLE
		FIRE HYDRANT
		LIGHT POLE
		WATER VALVE
		PROPERTY LINE
		ROAD CENTERLINE
		RIGHT-OF-WAY LINE
		PROPOSED DRAINAGE
		PROPOSED MAJOR CONTOUR
		PROPOSED MINOR CONTOUR
		EXISTING MAJOR CONTOUR
		EXISTING MINOR CONTOUR
		FLOW ARROW
		EFFECTIVE 100-YR FLOODPLAIN
		EFFECTIVE 100-YR FLOODWAY
		POTENTIAL WALL
		STORM SEWER
		WATERMAIN
		SANITARY SEWER
		SANITARY SERVICE
	ARV	AIR RELEASE VALVE
	CP	CATHODIC PROTECTION STATION
	MUE	MULTI USE EASEMENT
	APRX	APPROXIMATE
	FT	FEET
	DIA	DIAMETER
	LF	LINEAL FEET
	EL	ELEVATION

BASIS OF BEARINGS:

THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.

BENCHMARK:

DESIGNATION = F 24  
PID = JK0240  
DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT  
CONTROL POINT COORDINATE SYSTEM: NAVD88  
NORTHING: 1421049.80  
EASTING: 3273631.55  
ELEVATION: 6866.33

LEGAL DESCRIPTION:

A TRACT OF LAND BEING PORTIONS OF THE SOUTH HALF OF SECTION 21, SOUTH HALF OF SECTION 22, NORTH HALF OF SECTION 28 AND SECTION 27, TOWNSHIP 12 SOUTH, RANGE 64 WEST OF THE SIXTH PRINCIPAL MERIDIAN, EL PASO COUNTY, COLORADO, BEING DESCRIBED AS FOLLOWS:

BASIS OF BEARINGS: THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.

COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 21; THENCE NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST ON THE EAST LINE OF SAID SECTION, A DISTANCE OF 2845.09 FEET TO THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF SAID SECTION 21, SAID POINT BEING THE POINT OF BEGINNING; THENCE NORTH 89 DEGREES 41 MINUTES 03 SECONDS EAST ON THE NORTH LINE OF THE SOUTH HALF OF SAID SECTION 22, A DISTANCE OF 3938.20 FEET; THENCE SOUTH 00 DEGREES 41 MINUTES 58 SECONDS EAST ON THE EAST LINE OF THE WEST HALF OF THE SOUTHEAST QUARTER OF SECTION 22, A DISTANCE OF 2117.66 FEET TO A POINT ON THE NORTHWESTERLY RIGHT OF WAY LINE OF THE ROCK ISLAND REGIONAL TRAIL AS GRANTED TO EL PASO COUNTY IN THAT WARRANTY DEED RECORDED OCTOBER 21, 1994 IN BOOK 6548 AT PAGE 892, RECORDS OF EL PASO COUNTY, COLORADO; THENCE ON SAID NORTHWESTERLY RIGHT OF WAY, THE FOLLOWING FIVE (5) COURSES:

- (1) SOUTH 45 DEGREES 55 MINUTES 49 SECONDS WEST, A DISTANCE OF 758.36 FEET TO A POINT ON THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 22;
- (2) NORTH 89 DEGREES 38 MINUTES 06 SECONDS EAST ON SAID SOUTH LINE, A DISTANCE OF 36.18 FEET;
- (3) SOUTH 45 DEGREES 55 MINUTES 49 SECONDS WEST, A DISTANCE OF 3818.92 FEET TO A POINT ON THE NORTH LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 27;
- (4) SOUTH 89 DEGREES 39 MINUTES 01 SECONDS WEST ON SAID NORTH LINE, A DISTANCE OF 36.17 FEET;
- (5) SOUTH 45 DEGREES 55 MINUTES 49 SECONDS WEST, A DISTANCE OF 855.35 FEET TO A POINT ON THE EASTERLY LINE OF SAID SECTION 28;

THENCE NORTH 00 DEGREES 21 MINUTES 45 SECONDS WEST ON THE EAST LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 28, A DISTANCE OF 591.16 FEET TO THE NORTHEAST CORNER OF SAID SOUTHEAST QUARTER; THENCE NORTH 00 DEGREES 21 MINUTES 38 SECONDS WEST ON THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 28, A DISTANCE OF 1319.24 FEET TO THE SOUTH LINE OF THE NORTH HALF OF THE NORTH HALF OF SAID SECTION 28; THENCE NORTH 89 DEGREES 47 MINUTES 08 SECONDS WEST ON SAID SOUTH LINE, A DISTANCE OF 4692.55 FEET TO A POINT ON THE EASTERLY RIGHT OF WAY LINE OF EXISTING EASTONVILLE ROAD (60.00 FOOT WIDE); THENCE ON SAID EASTERLY RIGHT OF WAY AS DEFINED BY CERTIFIED BOUNDARY SURVEY, AS RECORDED JULY 18, 2001 UNDER RECEPTION NO. 201900096, THE FOLLOWING FIVE (5) COURSES:

- (1) ON THE ARC OF A CURVE TO THE LEFT, WHOSE CENTER BEARS NORTH 73 DEGREES 08 MINUTES 46 SECONDS WEST, HAVING A DELTA OF 24 DEGREES 31 MINUTES 32 SECONDS, A RADIUS OF 1630.00 FEET, A DISTANCE OF 697.73 FEET TO A POINT OF TANGENT;
- (2) NORTH 07 DEGREES 40 MINUTES 18 SECONDS WEST, A DISTANCE OF 777.34 FEET TO A POINT OF CURVE;
- (3) ON THE ARC OF A CURVE TO THE RIGHT, HAVING A DELTA OF 39 DEGREES 01 MINUTES 10 SECONDS, A RADIUS OF 1770.00 FEET, A DISTANCE OF 1205.40 FEET TO A POINT OF TANGENT;
- (4) NORTH 31 DEGREES 20 MINUTES 52 SECONDS EAST, A DISTANCE OF 1517.37 FEET TO A POINT OF CURVE;
- (5) ON THE ARC OF A CURVE TO THE LEFT, HAVING A DELTA OF 02 DEGREES 07 MINUTES 03 SECONDS, A RADIUS OF 1330.00 FEET, A DISTANCE OF 49.15 FEET TO A POINT ON THE NORTH LINE OF THE SOUTH HALF OF SAID SECTION 21;

THENCE SOUTH 89 DEGREES 50 MINUTES 58 SECONDS EAST ON SAID NORTH LINE, A DISTANCE OF 3635.53 FEET TO THE POINT OF BEGINNING;

ENGINEER'S STATEMENT

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECTION AND SUPERVISION. SAID PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR DETAILED ROADWAY, DRAINAGE, GRADING AND EROSION CONTROL PLANS AND SPECIFICATIONS, AND SAID PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH APPLICABLE MASTER DRAINAGE PLANS AND MASTER TRANSPORTATION PLANS. SAID PLANS AND SPECIFICATIONS MEET THE PURPOSES FOR WHICH THE PARTICULAR ROADWAY AND DRAINAGE FACILITIES ARE DESIGNED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARATION OF THESE DETAILED PLANS AND SPECIFICATIONS.

ENGINEER OF RECORD SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

OWNER'S STATEMENT

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN AND ALL OF THE REQUIREMENTS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATIONS.

OWNER SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

EL PASO COUNTY:

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT. FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL, AS AMENDED. IN ACCORDANCE WITH EGM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTOR'S DISCRETION.

COUNTY PROJECT ENGINEER SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

ENGINEER CONTACT(S):

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gpanza@hrgreen.com

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Phone: 720.602.4999 | Toll Free: 800.728.7805 | HRGreen.com



DRAWN BY: CMM	JOB DATE: 7/25/2022	BAR IS ONE INCH ON OFFICIAL DRAWINGS.
APPROVED: TBI	JOB NUMBER: 201662.03	0 1"
CAD DATE: 7/25/2022		IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.
CAD FILE: J:\2020\201662.03\CAD\dwgs\C\TITLE SHEET		

NO.	DATE	BY	REVISION DESCRIPTION



HR GREEN - DENVER  
5619 DTC PARKWAY SUITE 1150  
DENVER CO 80111  
PHONE: 720.602.4999  
FAX: 844.273.1057

GRANDVIEW RESERVE (DRAINAGE A & B)

DR HORTON  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS

TITLE SHEET

SHEET

TS1

01



STANDARD NOTES FOR EL PASO COUNTY CONSTRUCTION PLANS

- ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).
- CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:
  - EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
  - CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
  - COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
  - CDOT M & S STANDARDS
- NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
- IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
- CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT (PCD) - INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.
- CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
- ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY PCD.
- CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
- SIGHT VISIBILITY TRIANGLES AS IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED WITHIN SIGHT TRIANGLES.
- SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY AND MUTCD CRITERIA. [IF APPLICABLE, ADDITIONAL SIGNING AND STRIPING NOTES WILL BE PROVIDED.]
- CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DPW, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
- THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.

STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS

- STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
- NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
- A SEPARATE STORMWATER MANAGEMENT PLAN (SMWP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON-SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
- ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF.
- CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.
- ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.
- TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
- FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.
- ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
- EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.
- COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
- ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF-SITE.
- CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.
- DURING DEWATERING OPERATIONS, UNCONTAMINATED GROUNDWATER MAY BE DISCHARGED ON-SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.
- EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
- WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
- TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
- THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
- THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
- NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ON-SITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
- BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ON-SITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
- OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS) AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
- PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
- A WATER SOURCE SHALL BE AVAILABLE ON-SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
- THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY [COMPANY NAME, DATE OF REPORT] AND SHALL BE CONSIDERED A PART OF THESE PLANS.
- AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT  
WATER QUALITY CONTROL DIVISION  
WQCD – PERMITS  
4300 CHERRY CREEK DRIVE SOUTH  
DENVER, CO 80246-1530  
ATTN: PERMITS UNIT

CHANNEL DESIGN PARAMETERS

Design Parameter	Grandview Reserve Design Value	Design Value From MHFD	El Paso County
	5 ft	5 ft	5 ft
Roughness values	EPC Table 10-2	Per Table 8-5	EPC Table 10-2
Maximum 5-year velocity, main channel (within bankfull channel width) (ft/s)	5 ft/s	5 ft/s	EPC Table 10-3 and 10-4
Maximum 100-year velocity, main channel (within bankfull channel width) (ft/s)	7 ft/s	7 ft/s	EPC Table 10-3 and 10-4
Froude No., 5-year, main channel (within bankfull channel width)	0.7	0.7	
Froude No., 100-year, main channel (within bankfull channel width)	0.8	0.8	0.9 (From section 10.7)
Maximum shear stress, 100-year, main channel (within bankfull channel width)	1.2 lb/sf	1.2 lb/sf	
Minimum bankfull capacity of bankfull channel (based on future development conditions)	70% of 2 year, 10.5 cfs	70% of 2-year discharge or 10% of 100-yr discharge, whichever is greater*	10-yr storm, to be concrte lined or rip rap, ECM 10.5.4
Minimum bankfull channel geometry1		Per Table 8-2	
Design Channel Type	C4		
Entrenchment Ratio	2.7-31.65 (x=5.26)		
Width to depth ratio	13.5-75.0 (x=29.28)		
Sinuosity	1.43-2.80 (x=1.92)		
Slope	0.0001-0.0184 (x=0.0045)		
D50	12-14mm (~0.5 in)		
d84	32-48mm (~1.6in)		
Meander Length2	34-92 (x=56)		
Belt Width2	18-55 (x=32)		
Radius of Curvature2	7-28 (x=11)		
Minimum Floodplain Terrace	6 ft		
Maximum overbank side slope	4(H):1(V)	4(H):1(V)	4(H):1(V) when grassed, 2(H):1(V) when concrete, 2.5(H):1(V) when riprap
Maximum bankfull side slope	2.5(H):1(V)	2.5(H):1(V)	
Minimum bottom width	3.8 ft		At lease twice depth, but not less than 8 ft for channels conveying at least 400 cfs
Freeboard	1.5 ft	18 inch min	freeboard in ft = 1.0 + 0.025 (velocity in fps)(depth in ft)0.33, to be 12 inch minimum

\*THE DESIGN'S BANKFULL CROSS SECTION GEOMETRY WAS ESTIMATED ASSUMING 70% OF THE 2-YEAR FLOW (AN OPTION DESCRIBED IN MILE HIGH FLOOD DISTRICT'S DESIGN MANUAL VOLUME 1). LEOPOLD (A VIEW OF THE RIVER, 1994; FLUVIAL PROCESSES ON GEOMORPHOLOGY, 1992) SHOWED A VERY STRONG CORRELATION BETWEEN THE EFFECTIVE DISCHARGE CHANNEL AND FIELD-DETERMINED BANKFULL GEOMETRY WHERE THE OBSERVED EQUILIBRIUM CHANNEL'S SPILL-OVER POINT TO THE FLOODPLAIN. THIS POINT IS MOST OFTEN CORRELATED TO A FLOW RETURN INTERVAL BETWEEN 1.0-2.0 YEARS WITH AN AVERAGE OF 1.5-YEARS (THOUGH EXCEPTIONS DO EXIST). AS WE DO NOT HAVE GAUGE DATA TO PERFORM A FLOW FREQUENCY ANALYSIS FOR THIS PROJECT'S CHANNEL, NOR A SUITABLE REFERENCE REACH TO SERVE AS AN ANALOGUE WITH WHICH TO SCALE USING DIMENSIONLESS RATIOS RELATED TO THE BANKFULL WIDTH, WE HAVE CHOSEN TO USE THE 2-YEAR FREQUENCY RAINFALL TO APPROXIMATE THE HYDROLOGIC CONDITION OF THE WATERSHED THAT WOULD RESULT IN THE 1.5-1.8 YR FLOW INTERVAL (APPROXIMATELY 70% OF THE 2-YR FLOW INTERVAL).

MILE HIGH FLOOD DISTRICT'S (MHFD) DESIGN MANUAL VOLUME 1 ALSO PRESENTS THE OPTION OF USING 10% OF THE 100-YR DISCHARGE TO SIZE THE BANKFULL CHANNEL'S CAPACITY. IN THE CASE OF THIS PROJECT, WE HAVE NOT OPTED FOR THIS ALTERNATIVE. OUR CONCERN IS THAT THE RESULTING CHANNEL CROSS SECTIONAL AREA DERIVED FROM THIS ALTERNATIVE WOULD BE OVERSIZED AND LEAD TO SEDIMENT ACCUMULATION ON THE BED THROUGH TIME (AGGRADATION). AGGRADATION OCCURS WHEN INSUFFICIENT STREAM POWER IS PRESENT TO TRANSPORT SEDIMENT THROUGH THE CHANNEL, WHICH CAN RESULT FROM AN OVERSIZED BANKFULL CHANNEL. IN THESE CASES, MID-CHANNEL BARS CAN FORM WHICH PUSH FLOWS INTO THE BANKS INCREASING THE RISK OF EROSION AND LATERAL MIGRATION OF THE CHANNEL.

EXISTING FLOWS FOR MAIN STEM (DRAINAGE A)			
STATION	2-YR STORM	5-YR STORM	100-YR STORM
37+13	23 cfs	67 cfs	413 cfs
25+92	26.45 cfs	80.03 cfs	479.80 cfs
15+57	26.45 cfs	80.03 cfs	479.80 cfs

FUTURE FLOWS FOR MAIN STEM (DRAINAGE A)			
STATION	2-YR STORM	5-YR STORM	100-YR STORM
37+13	23 cfs	67 cfs	413 cfs
25+92	23 cfs	67 cfs	413 cfs
15+57	27.75 cfs	67.69 cfs	466.95 cfs

EXISTING FLOWS FOR MAIN STEM TRIBUTARY (DRAINAGE B)			
STATION	2-YR STORM	5-YR STORM	100-YR STORM
45+30	19 cfs	59 cfs	280 cfs
22+59	20.14 cfs	68.95 cfs	390.70 cfs
6+14	22.14 cfs	85.99 cfs	597.42 cfs

FUTURE FLOWS FOR MAIN STEM TRIBUTARY (DRAINAGE B)			
STATION	2-YR STORM	5-YR STORM	100-YR STORM
47+49	19 cfs	59 cfs	280 cfs
36+50	31.72 cfs	60.52 cfs	395.83 cfs
5+54	33.53 cfs	63.16 cfs	553.68 cfs

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DENVER CO 80111  
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GRANDVIEW RESERVE (DRAINAGE A & B)  
DR HORTON  
FALCON, COLORADO

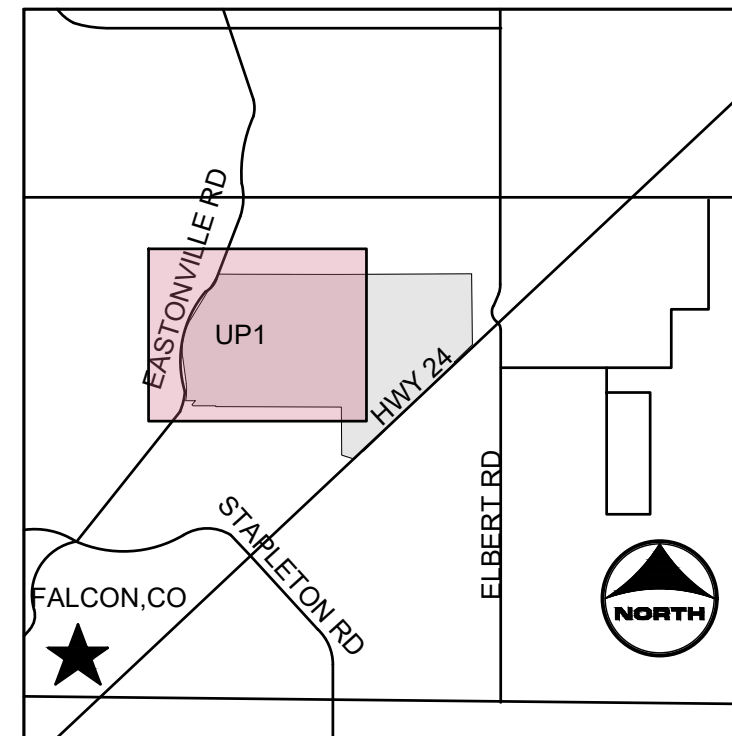
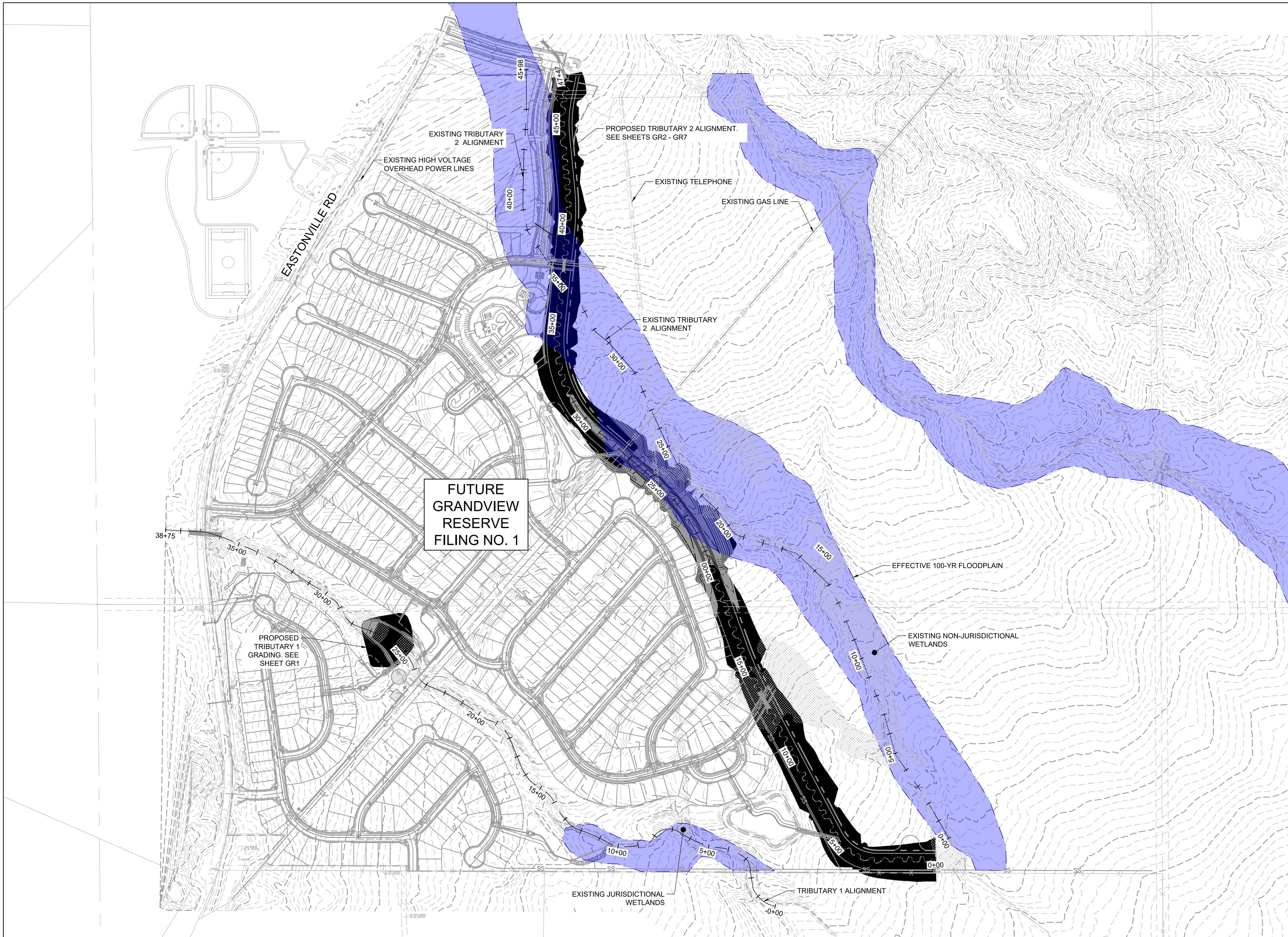
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GENERAL NOTES

SHEET  
GN1

02



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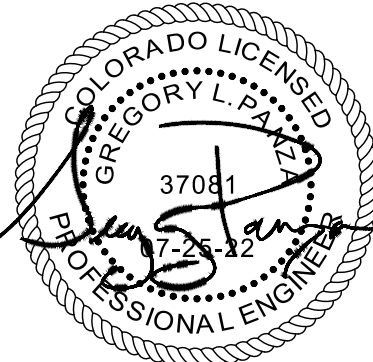
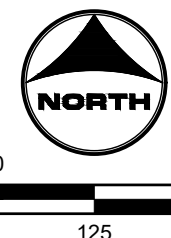
#### KEYMAP

#### PROJECT LEGEND:

- PROPERTY LINE
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- RIGHT-OF-WAY LINE
- PROPOSED DETENTION BASIN
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- EFFECTIVE 100-YR FLOODWAY
- POTENTIAL WALL
- STORM SEWER
- STORM INLET TYPE R
- STORM MANHOLE
- STORM END SECTION
- WATERMAIN
- WATER VALVE
- SANITARY SEWER
- SANITARY SERVICE
- SANITARY MANHOLE
- LIGHT POLE
- FIRE HYDRANT
- EXISTING WETLANDS

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PID = JK0240  
DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT  
CONTROL POINT COORDINATE SYSTEM:  
NAVD88  
NORTHING: 1421049.80  
EASTING: 3273631.55  
ELEVATION: 6866.33
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GRANDVIEW RESERVE (DRAINAGE A & B)  
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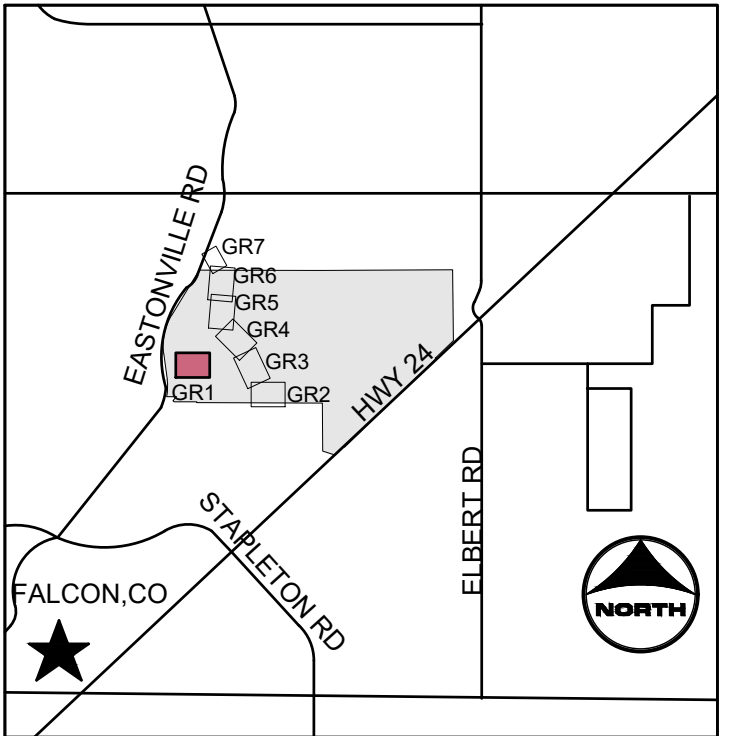
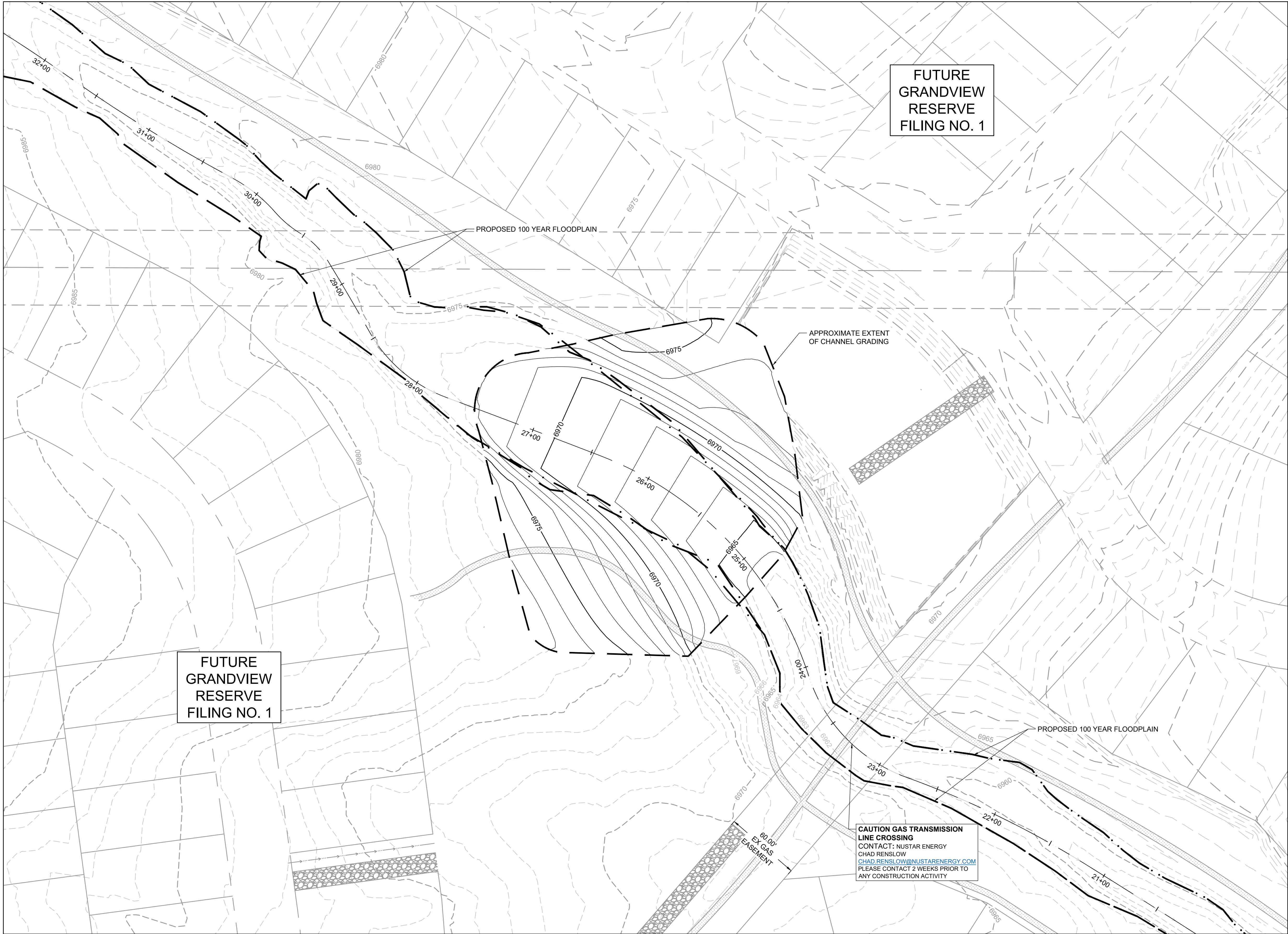
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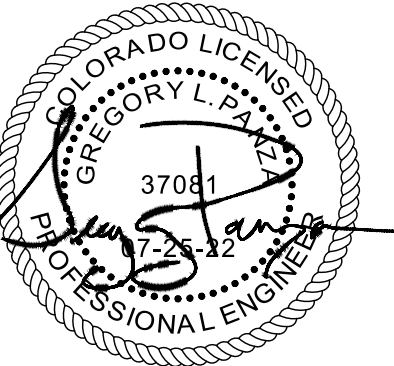
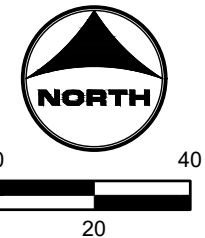


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**GRANDVIEW RESERVE (DRAINAGE A & B)**  
**DR HORTON**  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
TRIBUTARY 1 GRADING

SHEET  
GR1  
04



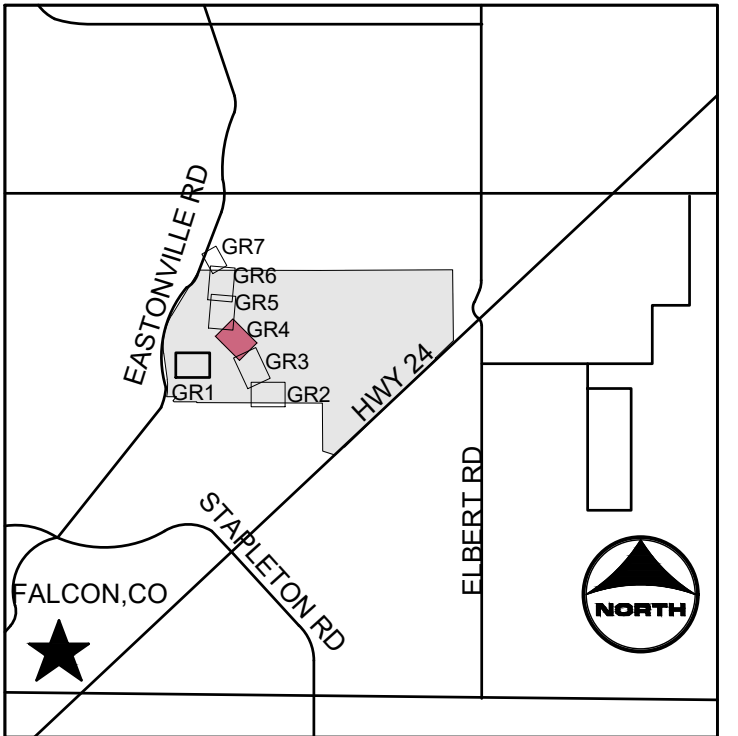
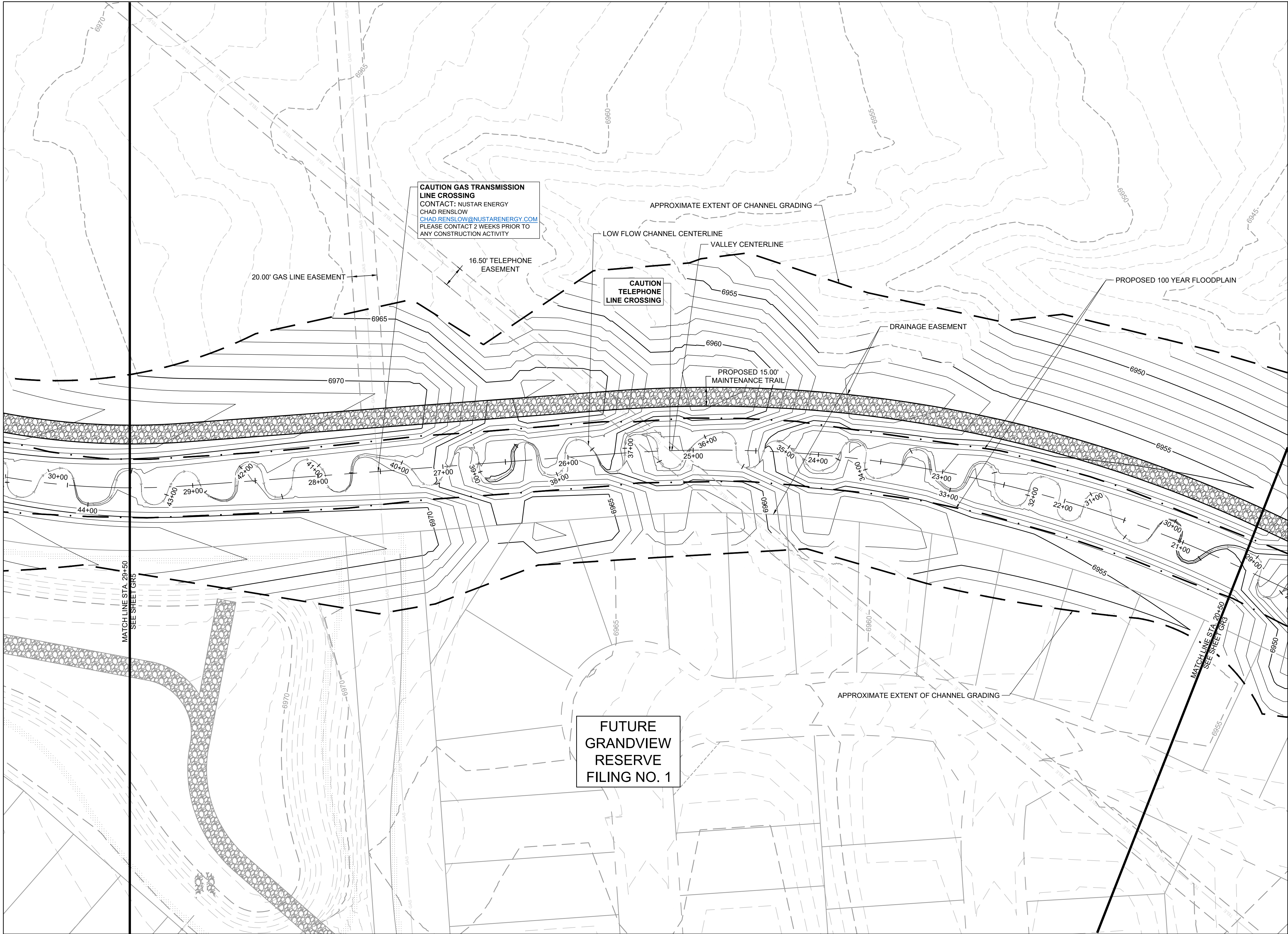






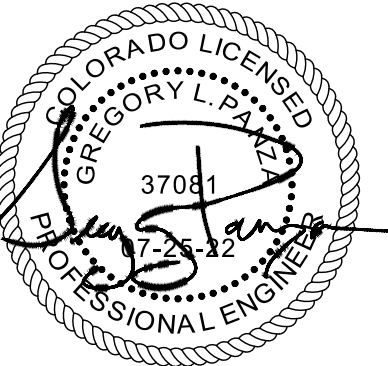
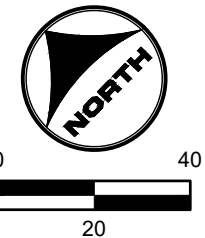


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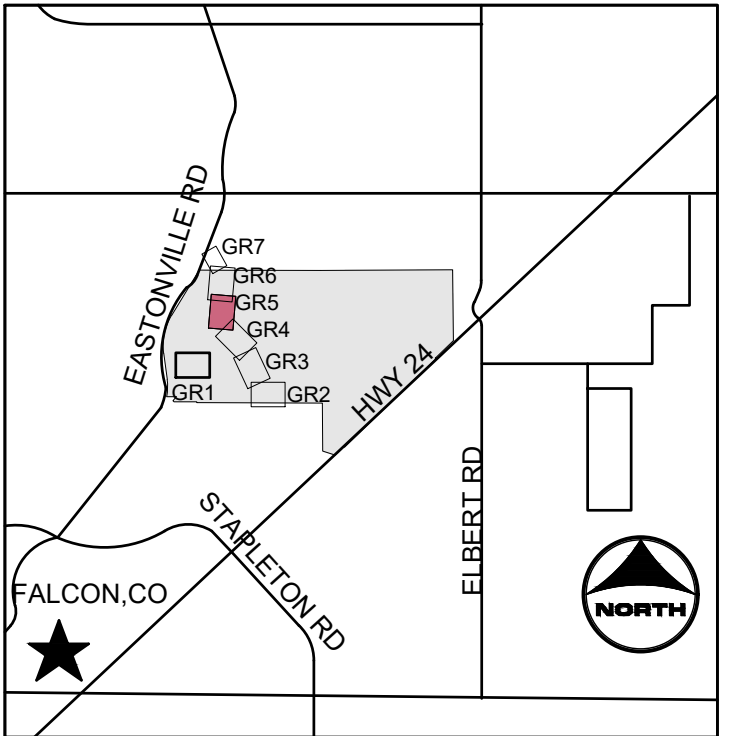
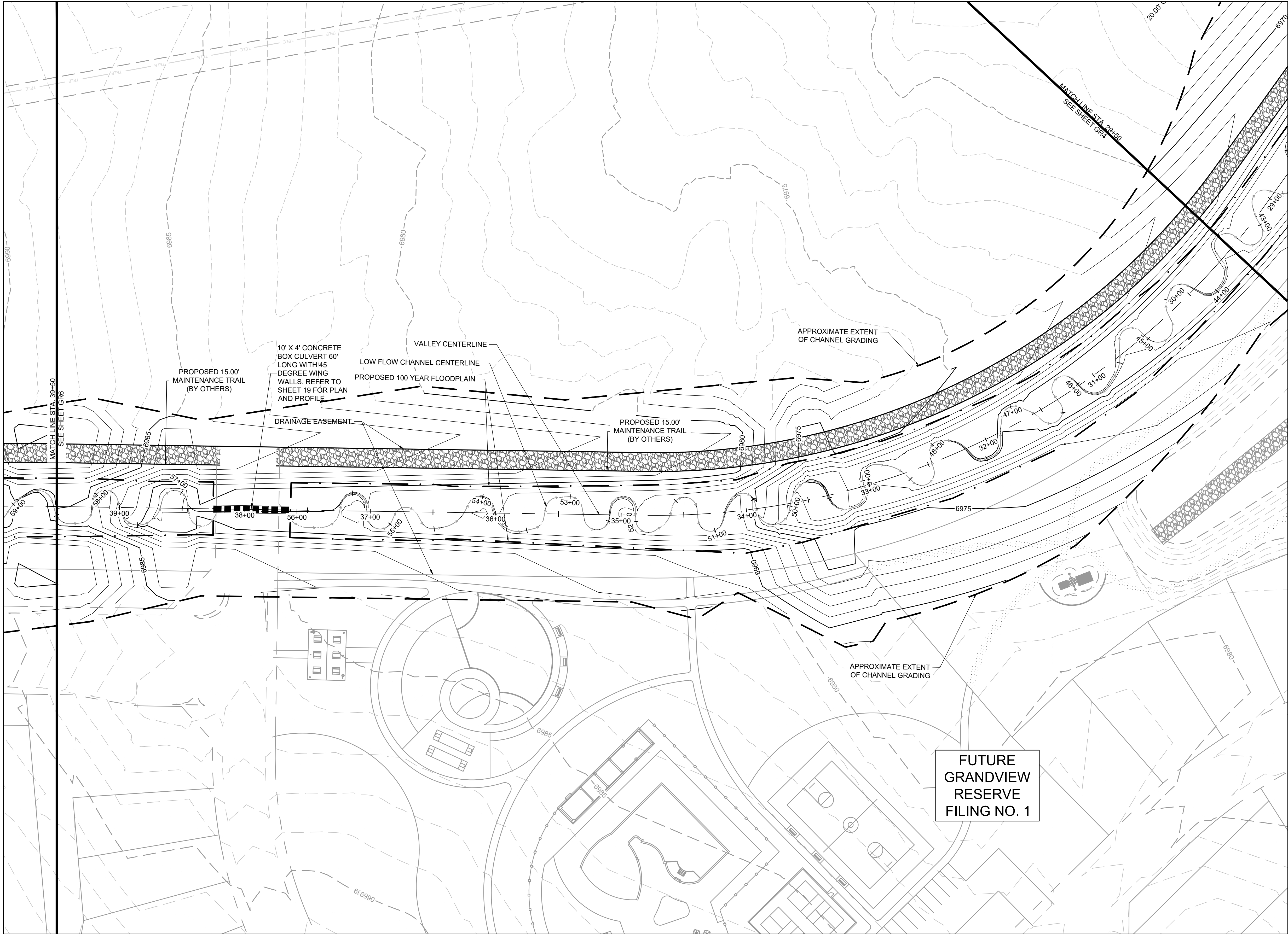
**GRANDVIEW RESERVE (DRAINAGE A & B)**  
**DR HORTON**  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
TRIBUTARY 2 GRADING

SHEET  
GR4  
07

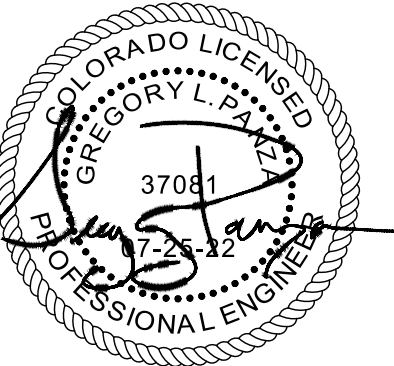
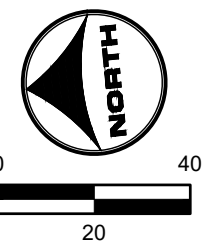


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**GRANDVIEW RESERVE (DRAINAGE A & B)**  
**DR HORTON**  
FALCON, COLORADO

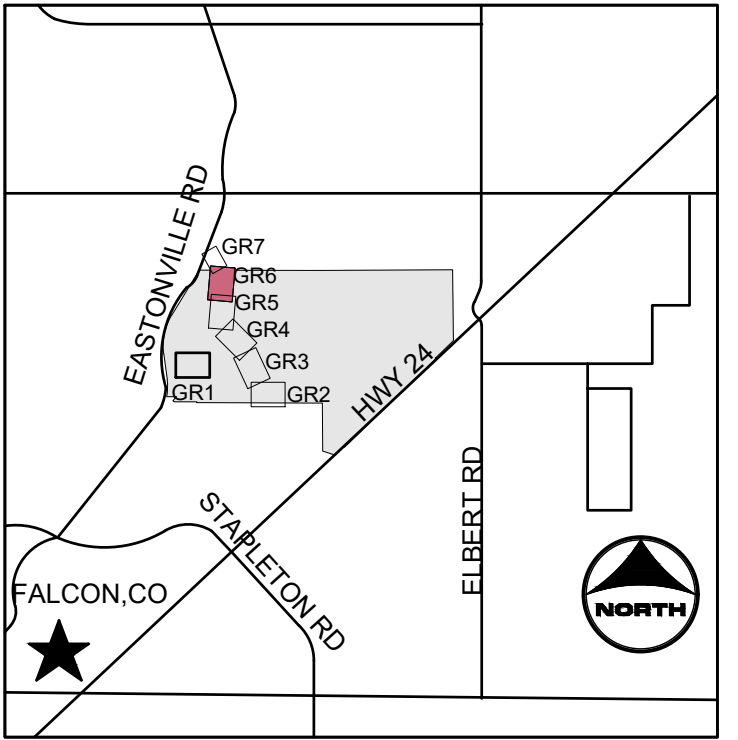
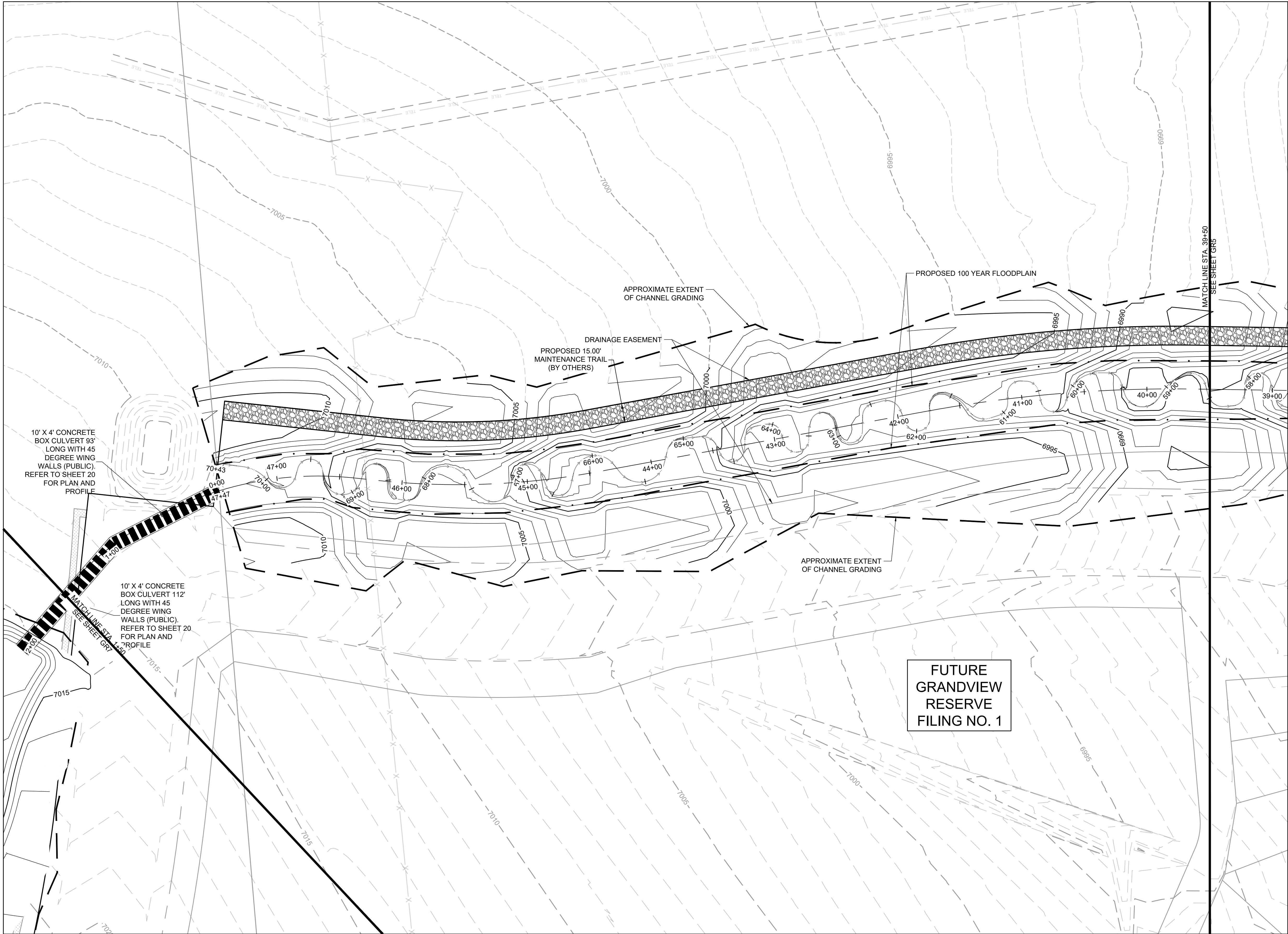
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GR5

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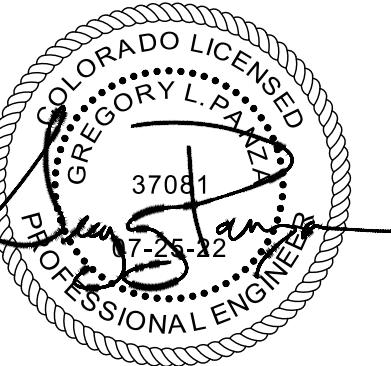
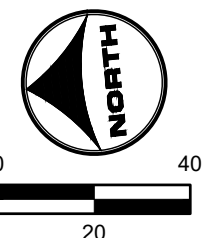


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CONTROL POINT COORDINATE SYSTEM: NAVD88  
NORTHING: 1421049.80  
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**GRANDVIEW RESERVE (DRAINAGE A & B)**  
**DR HORTON**  
FALCON, COLORADO

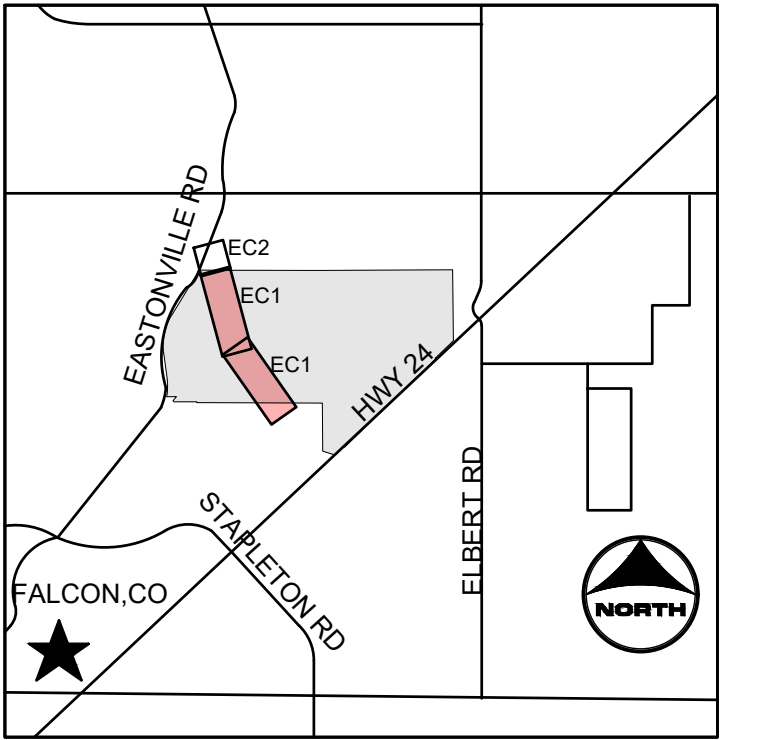
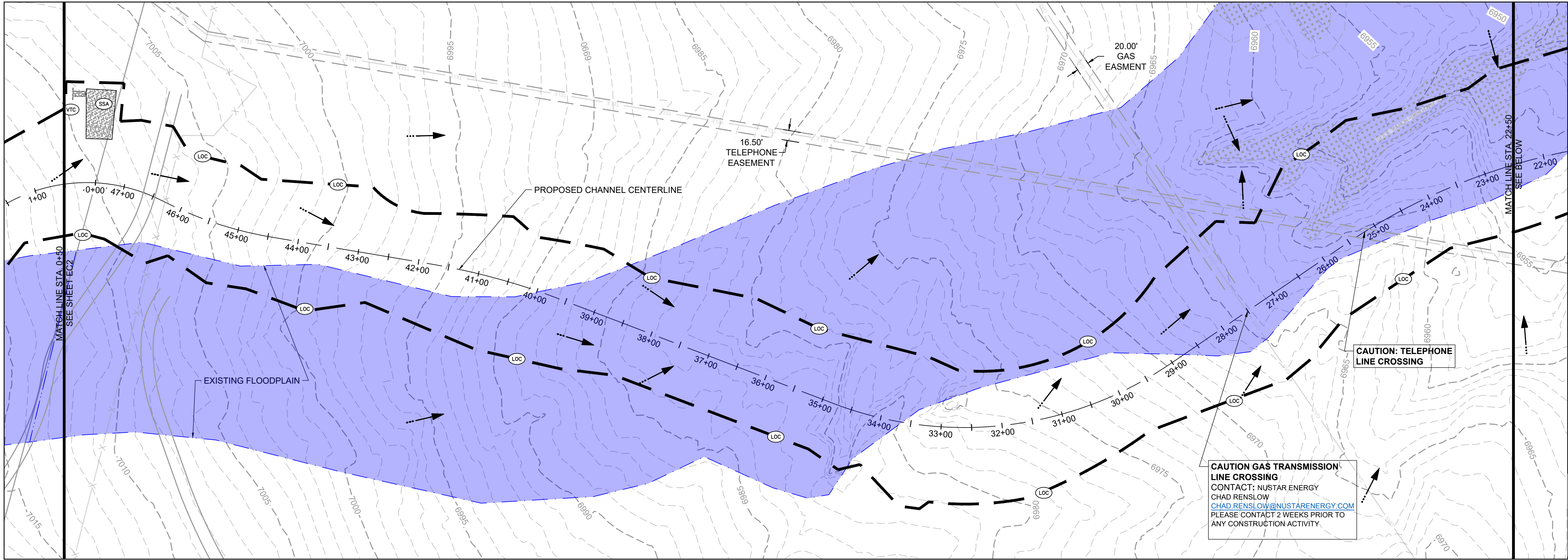
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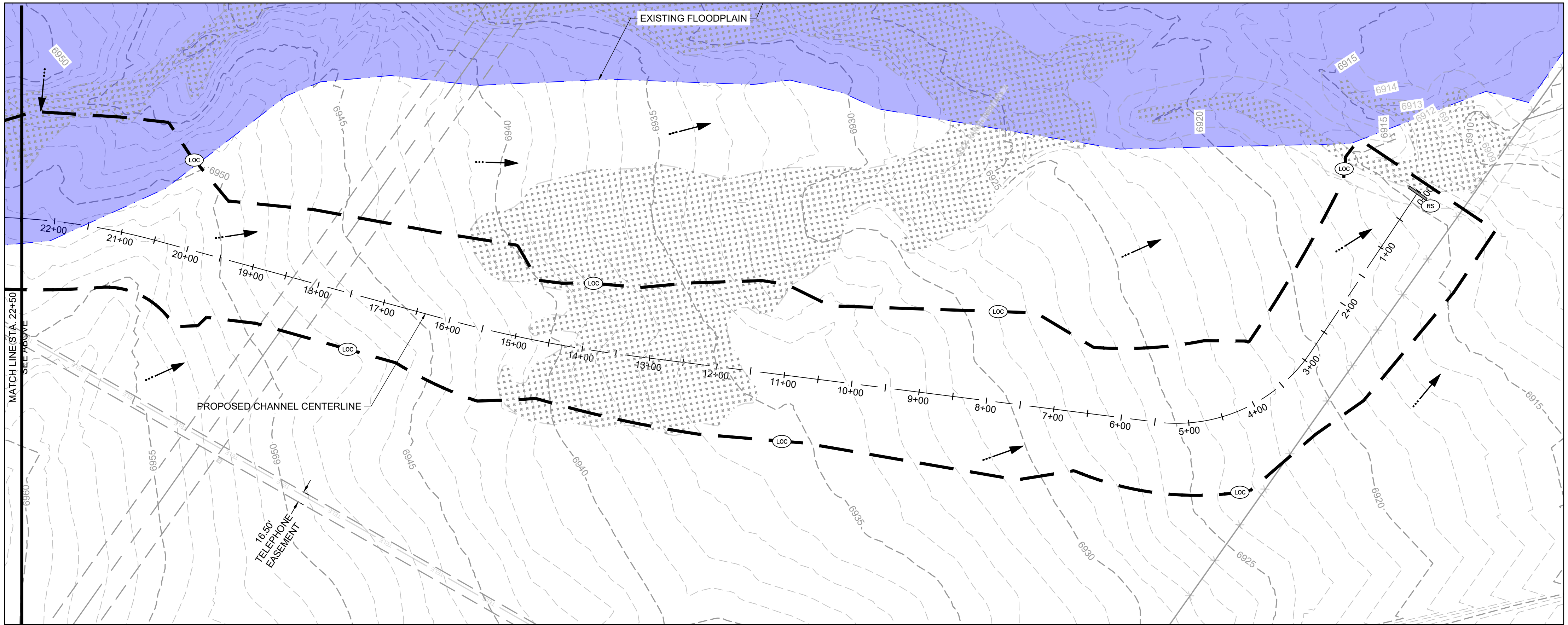






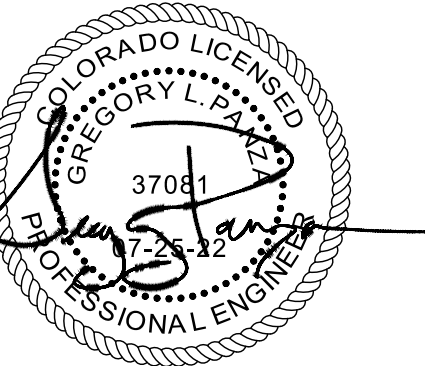


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CONTROL POINT COORDINATE SYSTEM:  
NAVD88  
NORTHING: 1421049.80  
EASTING: 3273631.55  
ELEVATION: 6866.33
  - EXISTING VEGETATION CONSISTS OF NATIVE GRASSES.

- BMP LEGEND:**
- CWA CONCRETE WASHOUT AREA
  - CF CONSTRUCTION FENCE
  - DD DIVERSION DITCH
  - IP INLET PROTECTION
  - OP OUTLET PROTECTION
  - SF SILT FENCE
  - SSA STABILIZED STAGING AREA
  - VTC VEHICLE TRACKING CONTROL
  - LOC LIMITS OF CONSTRUCTION
  - CD CHECK DAM
  - SM SEEDING AND MULCHING
  - SB SEDIMENT BASIN
  - SR SURFACE ROUGHENING
  - ECB EROSION CONTROL BLANKET
  - CIP CULVERT INLET PROTECTION
  - RS ROCK SOCK



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NO.	DATE	BY	REVISION DESCRIPTION



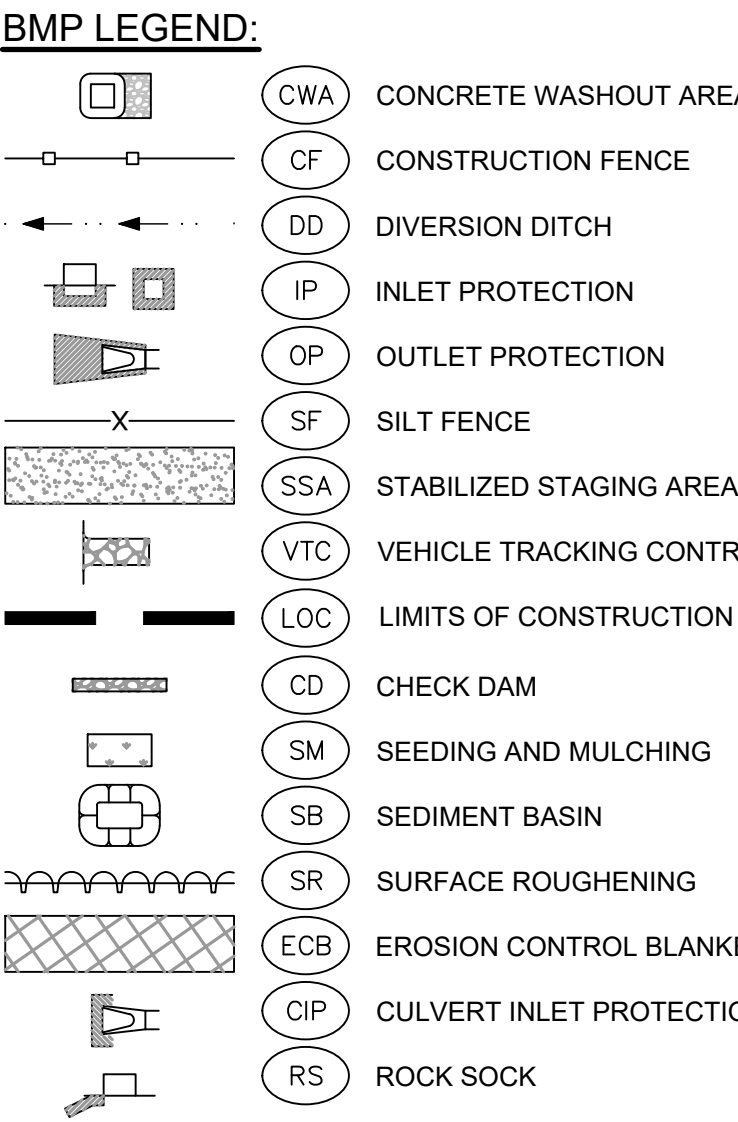
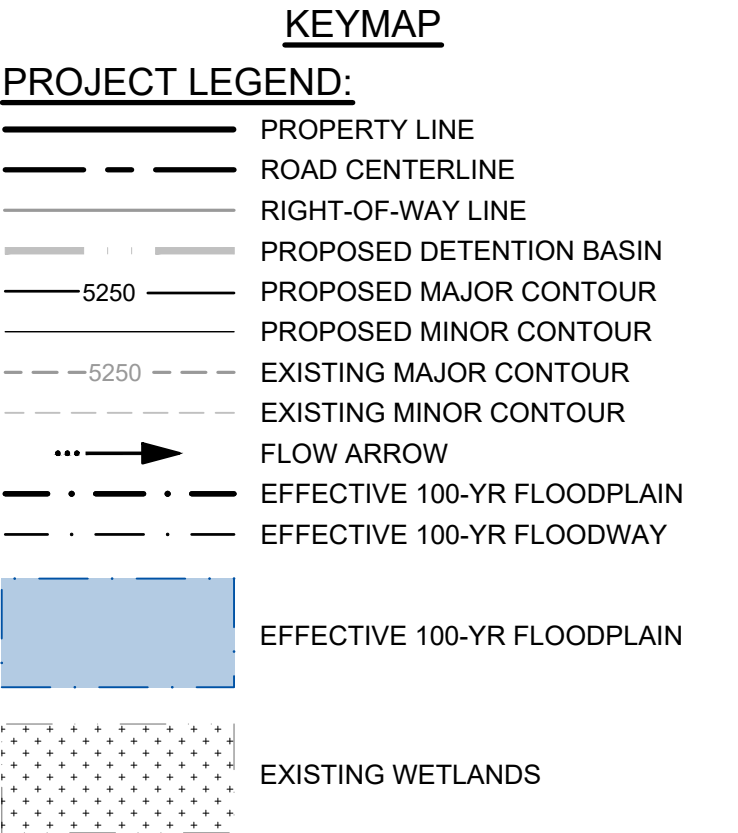
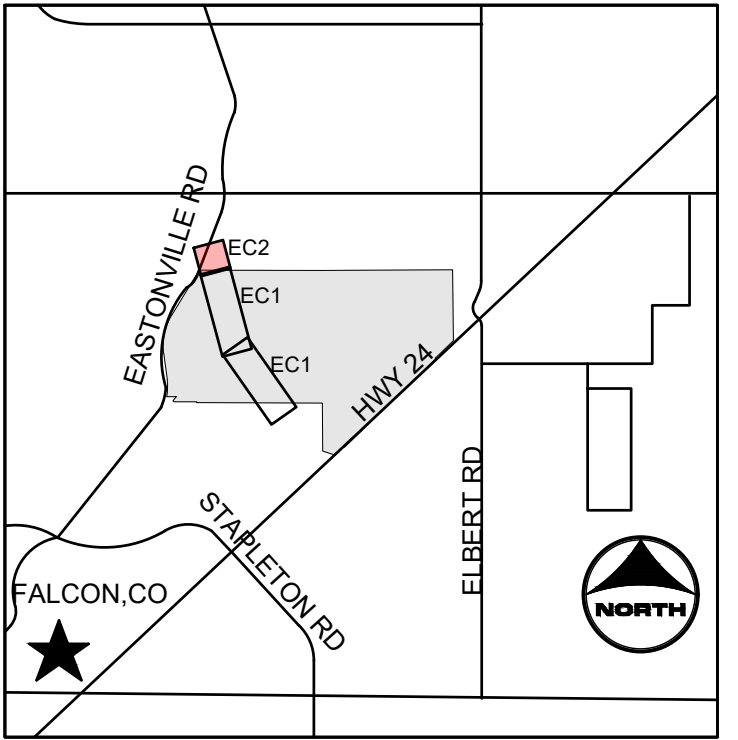
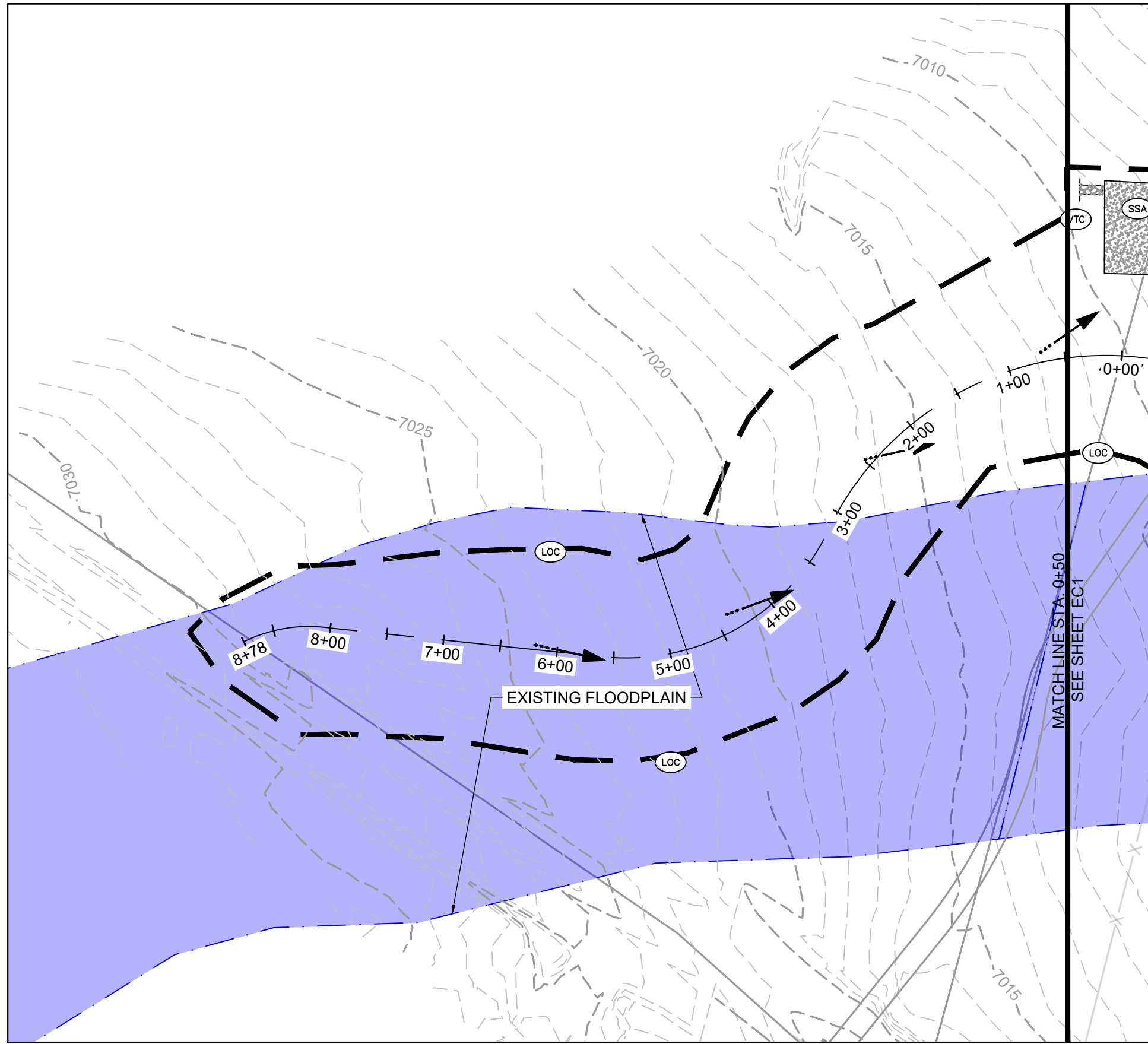
HR GREEN - DENVER  
5619 DTC PARKWAY SUITE 1150  
DENVER CO 80111  
PHONE: 720.602.4999  
FAX: 844.273.1057

GRANDVIEW RESERVE (DRAINAGE A & B)  
DR HORTON  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
INITIAL EROSION CONTROL

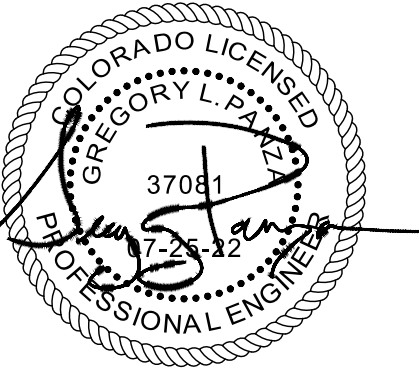
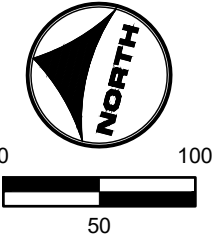
SHEET  
EC1  
11





**NOTES:**

- BASIS OF BEARINGS:** THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
- BENCHMARK:**  
DESIGNATION = F 24  
PID = JK0240  
DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT  
CONTROL POINT COORDINATE SYSTEM:  
NAVD88  
NORTHING: 1421049.80  
EASTING: 3273631.55  
ELEVATION: 6866.33
- EXISTING VEGETATION COI GRASSES.**



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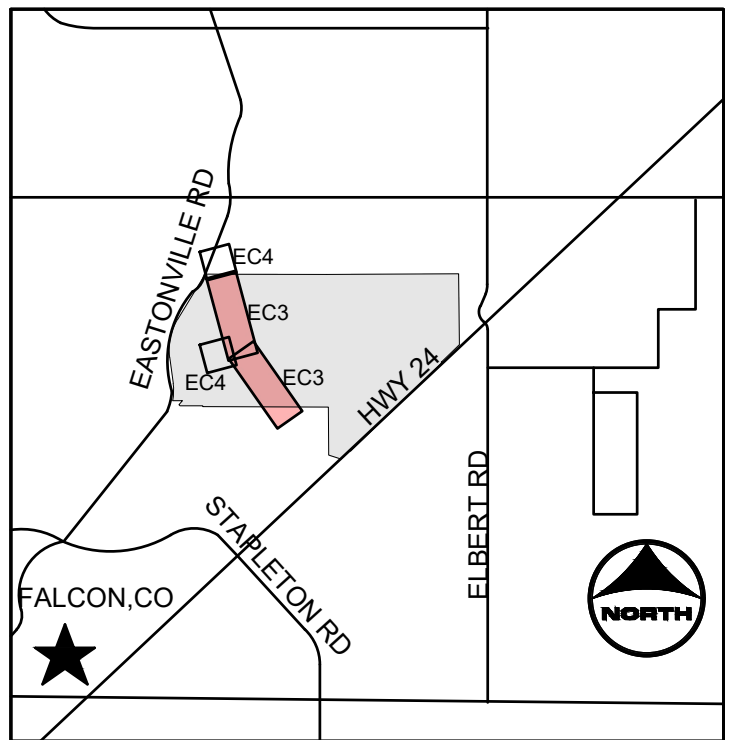
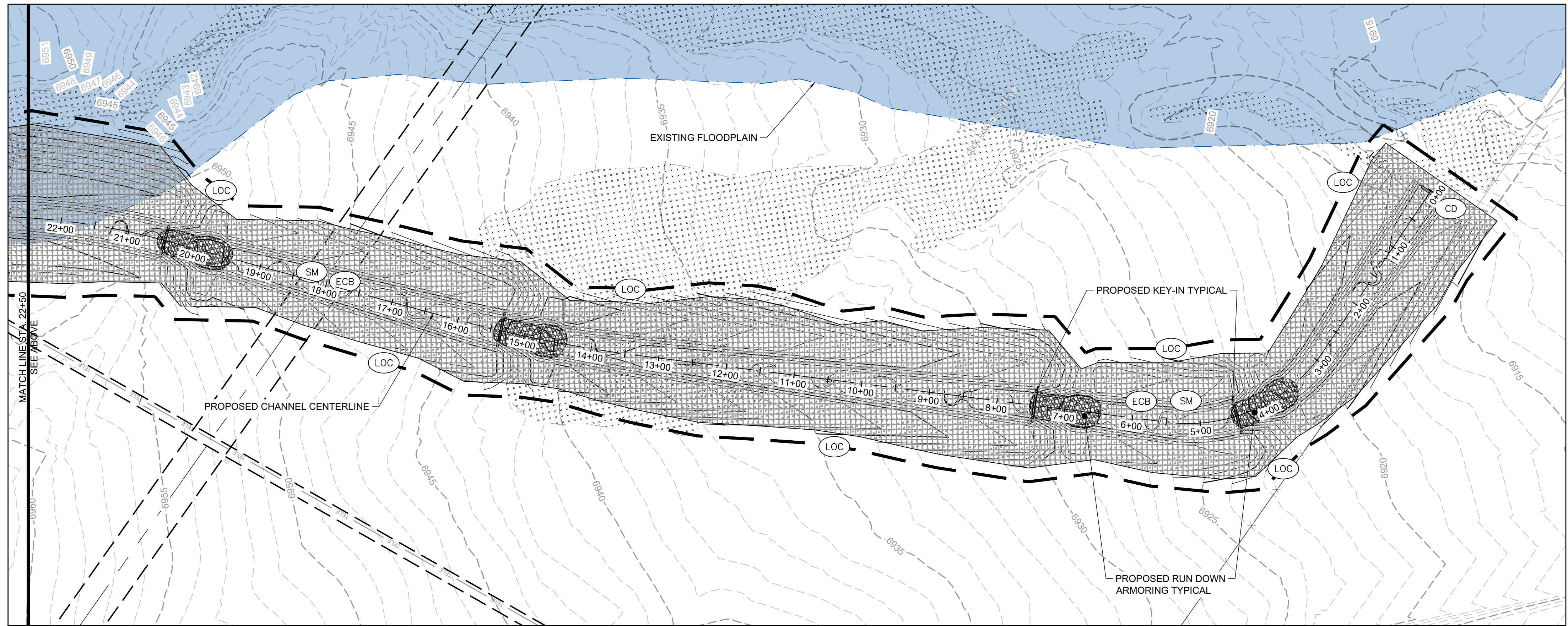
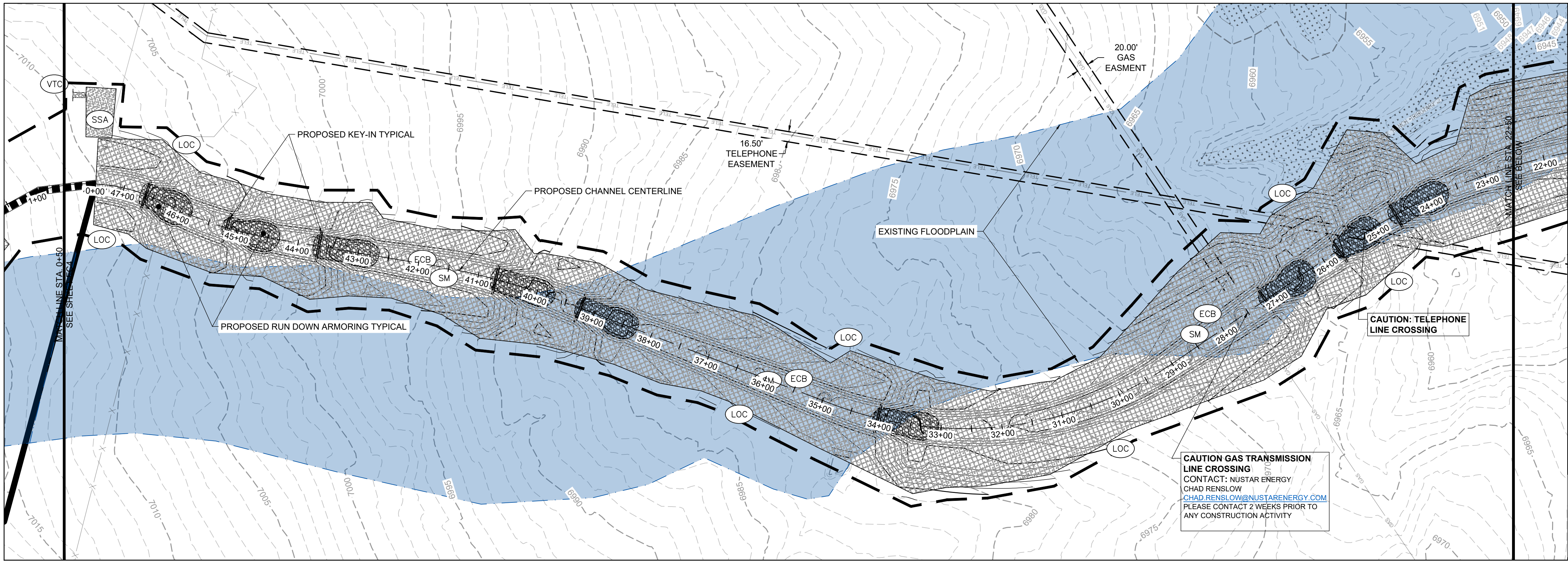
**HRGreen**  
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5619 DTC PARKWAY SUITE 1150  
DENVER CO 80111  
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FAX: 844.273.1057

**GRANDVIEW RESERVE (DRAINAGE A & B)**  
**DR HORTON**  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
INITIAL EROSION CONTROL

SHEET  
**EC2**  
12

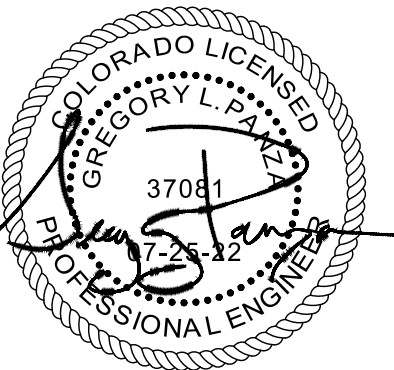




- KEYMAP**
- PROJECT LEGEND:**
- PROPERTY LINE
  - ROAD CENTERLINE
  - RIGHT-OF-WAY LINE
  - PROPOSED DETENTION BASIN
  - PROPOSED MAJOR CONTOUR
  - PROPOSED MINOR CONTOUR
  - EXISTING MAJOR CONTOUR
  - EXISTING MINOR CONTOUR
  - FLOW ARROW
  - EFFECTIVE 100-YR FLOODWAY
  - EFFECTIVE 100-YR FLOODPLAIN
  - EXISTING WETLANDS

- BMP LEGEND:**
- CWA CONCRETE WASHOUT AREA
  - CF CONSTRUCTION FENCE
  - DD DIVERSION DITCH
  - IP INLET PROTECTION
  - OP OUTLET PROTECTION
  - SF SILT FENCE
  - SSA STABILIZED STAGING AREA
  - VTC VEHICLE TRACKING CONTROL
  - LOC LIMITS OF CONSTRUCTION
  - CD CHECK DAM
  - SM SEEDING AND MULCHING
  - SB SEDIMENT BASIN
  - SR SURFACE ROUGHENING
  - ECB EROSION CONTROL BLANKET
  - CIP CULVERT INLET PROTECTION
  - RS ROCK SOCK

- NOTES:**
- BASIS OF BEARINGS:** THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1986", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1986", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 28 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
  - BENCHMARK:**  
DESIGNATION = F 24  
PID = JK0240  
DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT  
CONTROL POINT COORDINATE SYSTEM:  
NAVD88  
NORTHING: 1421049.80  
EASTING: 3273631.55  
ELEVATION: 6866.33
  - EXISTING VEGETATION CONSISTS OF NATIVE GRASSES.



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CAD DATE: 7/25/2022  
CAD FILE: J:\2020\201662.03\CAD\dwgs\C\FINAL EROSION CONTROL

NO.	DATE	BY	REVISION DESCRIPTION



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FAX: 844.273.1057

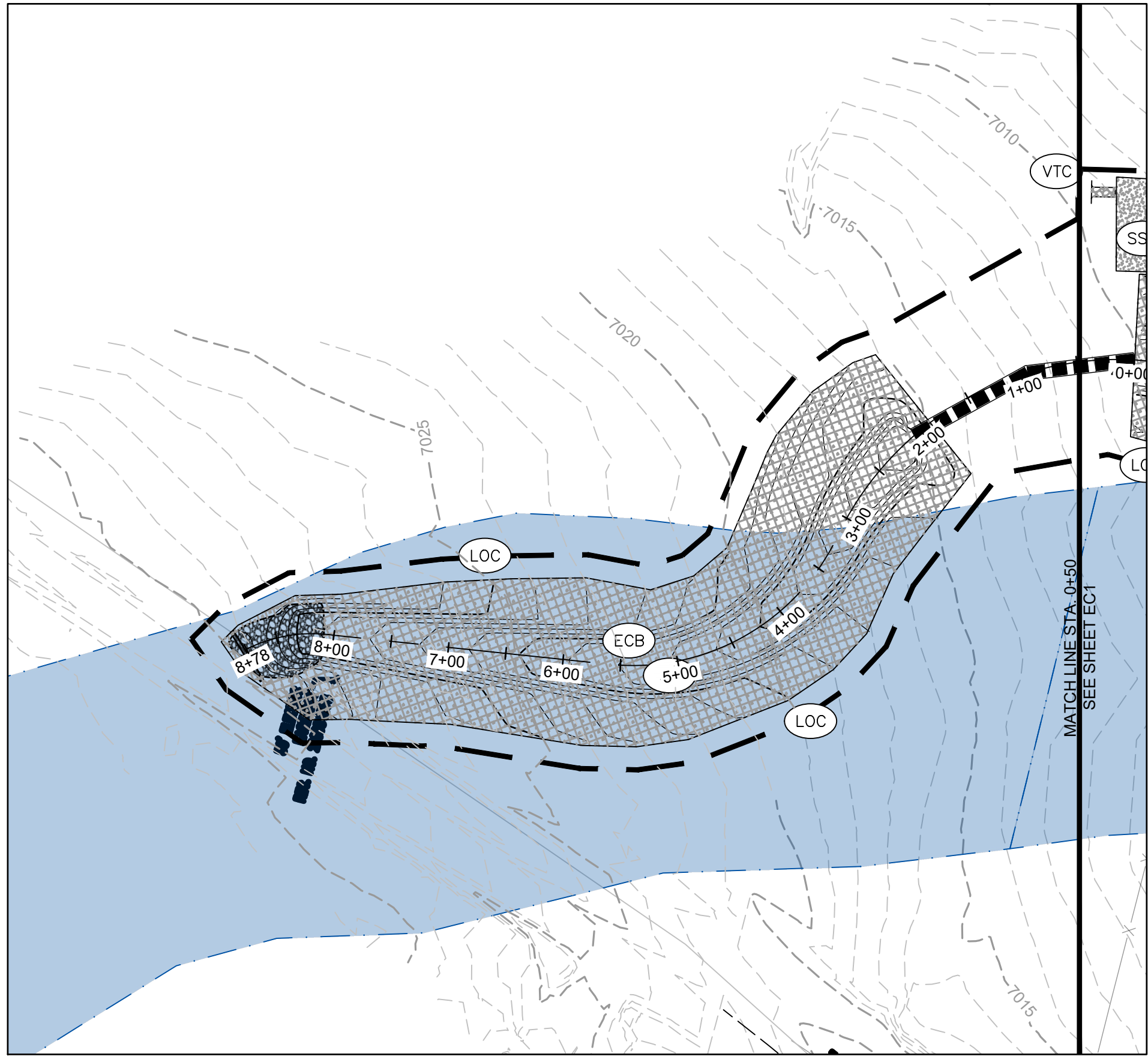
GRANDVIEW RESERVE (DRAINAGE A & B)  
DR HORTON  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
FINAL EROSION CONTROL

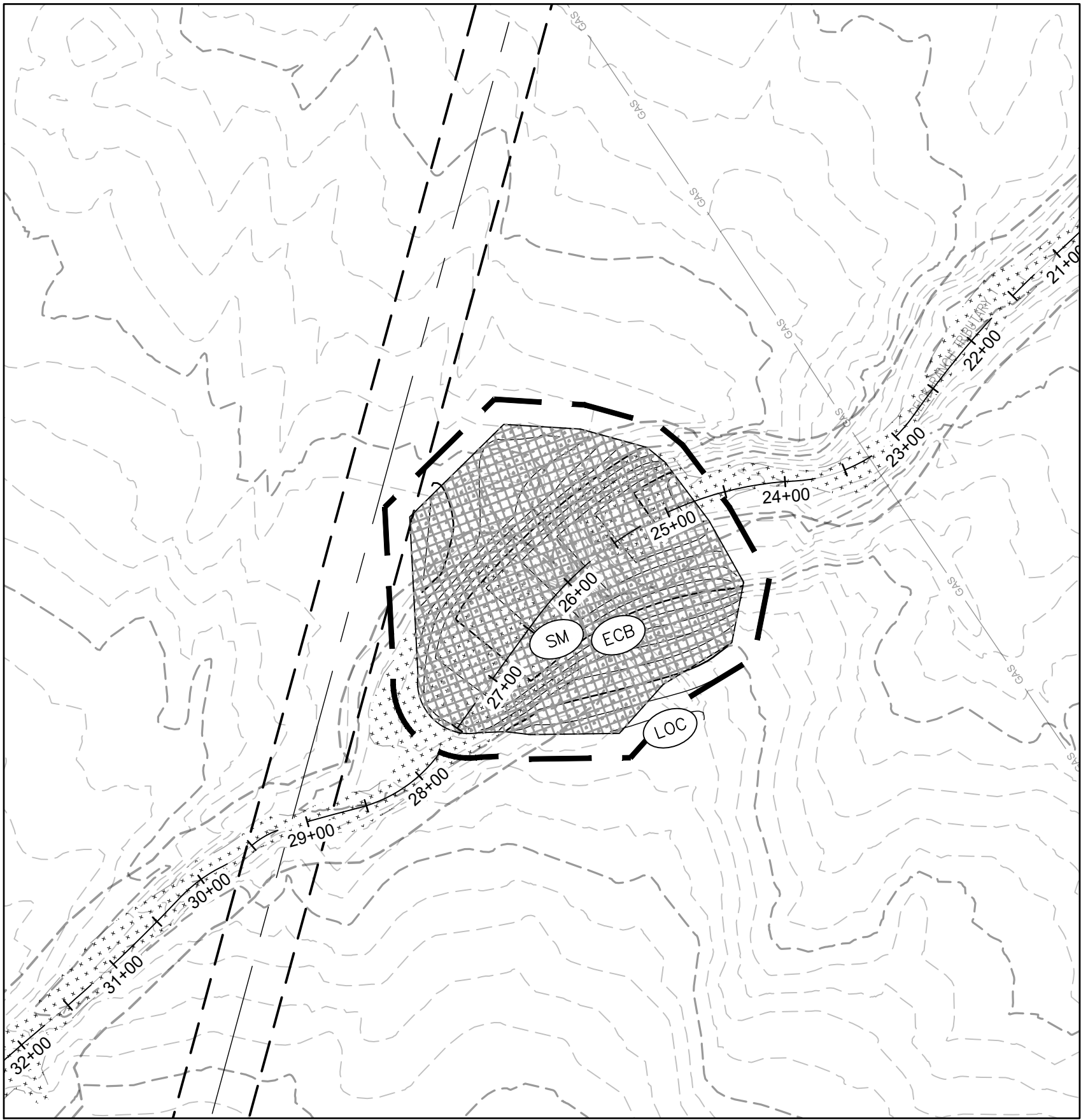
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EC3

13

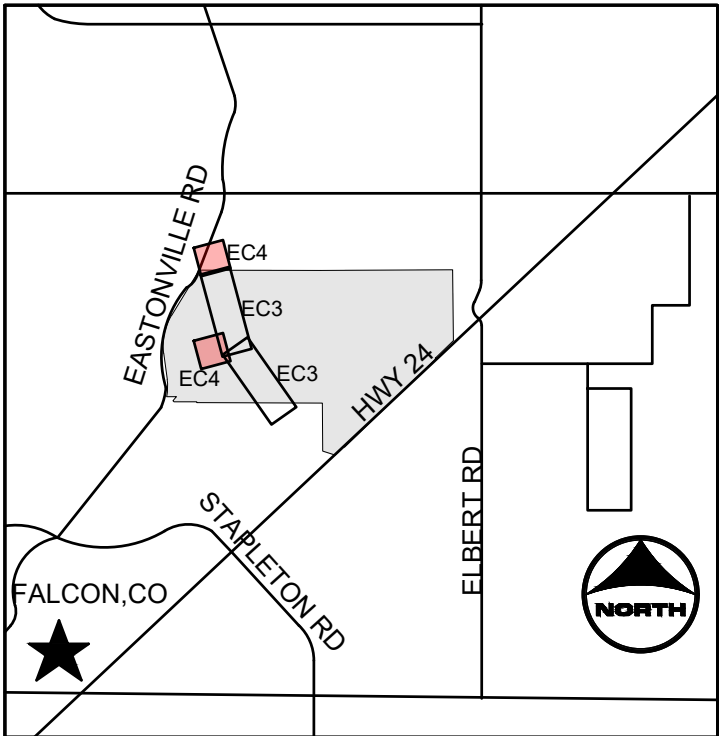




TRIBUTARY 2



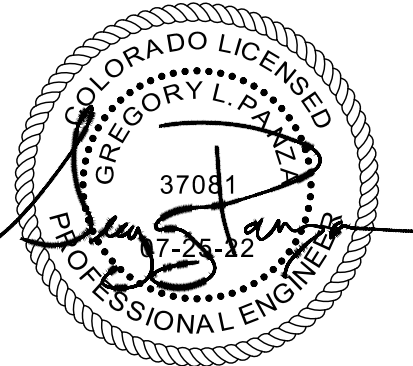
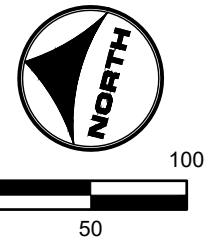
TRIBUTARY 1



- KEYMAP**
- PROJECT LEGEND:**
- PROPERTY LINE
  - ROAD CENTERLINE
  - RIGHT-OF-WAY LINE
  - PROPOSED DETENTION BASIN
  - PROPOSED MAJOR CONTOUR
  - PROPOSED MINOR CONTOUR
  - EXISTING MAJOR CONTOUR
  - EXISTING MINOR CONTOUR
  - FLOW ARROW
  - EFFECTIVE 100-YR FLOODWAY
  - EFFECTIVE 100-YR FLOODPLAIN
  - EXISTING WETLANDS

- BMP LEGEND:**
- CWA CONCRETE WASHOUT AREA
  - CF CONSTRUCTION FENCE
  - DD DIVERSION DITCH
  - IP INLET PROTECTION
  - OP OUTLET PROTECTION
  - SF SILT FENCE
  - SSA STABILIZED STAGING AREA
  - VTC VEHICLE TRACKING CONTROL
  - LOC LIMITS OF CONSTRUCTION
  - CD CHECK DAM
  - SM SEEDING AND MULCHING
  - SB SEDIMENT BASIN
  - SR SURFACE ROUGHENING
  - ECB EROSION CONTROL BLANKET
  - CIP CULVERT INLET PROTECTION
  - RS ROCK SOCK

- NOTES:**
- BASIS OF BEARINGS:** THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
  - BENCHMARK:**  
DESIGNATION = F 24  
PID = JK0240  
DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT  
CONTROL POINT COORDINATE SYSTEM:  
NAVD88  
NORTHING: 1421049.80  
EASTING: 3273631.55  
ELEVATION: 6866.33
  - EXISTING VEGETATION CONSISTS OF NATIVE GRASSES.



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APPROVED: CMM JOB NUMBER: 201662.03  
CAD DATE: 7/25/2022  
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FAX: 844.273.1057

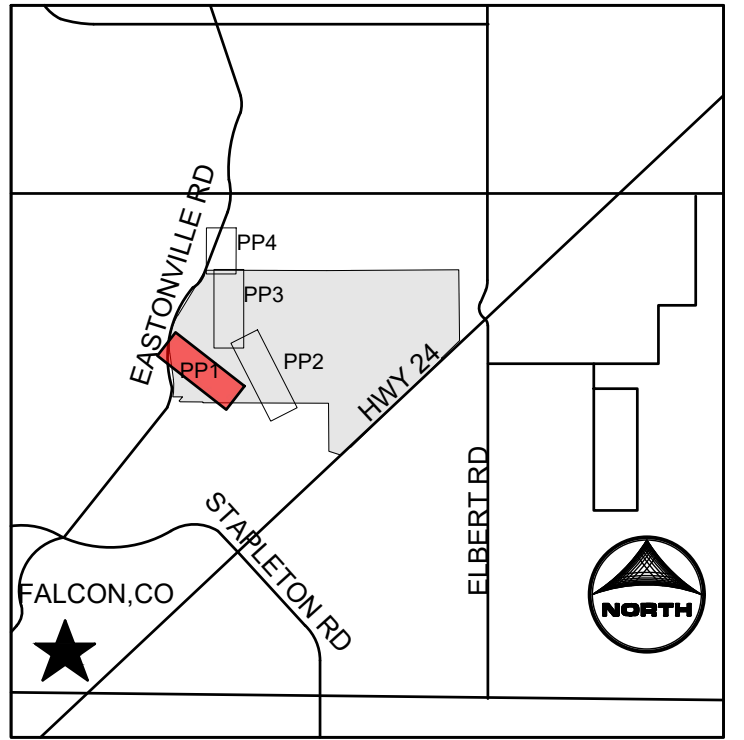
GRANDVIEW RESERVE (DRAINAGE A & B)  
DR HORTON  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
FINAL EROSION CONTROL

SHEET  
EC4

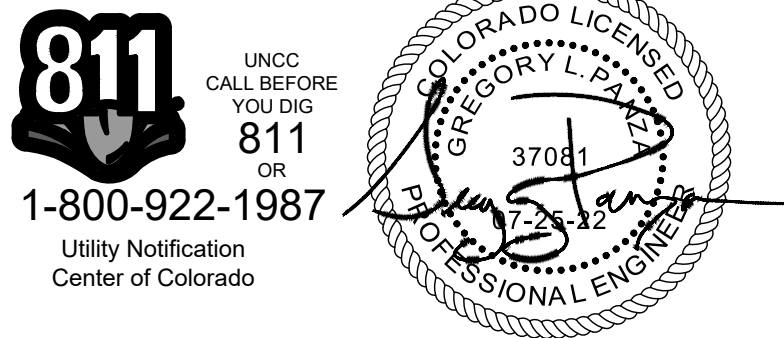
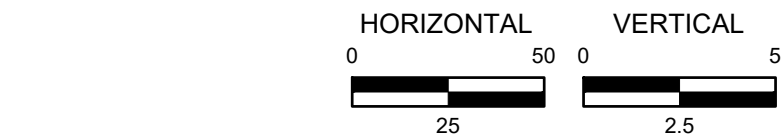
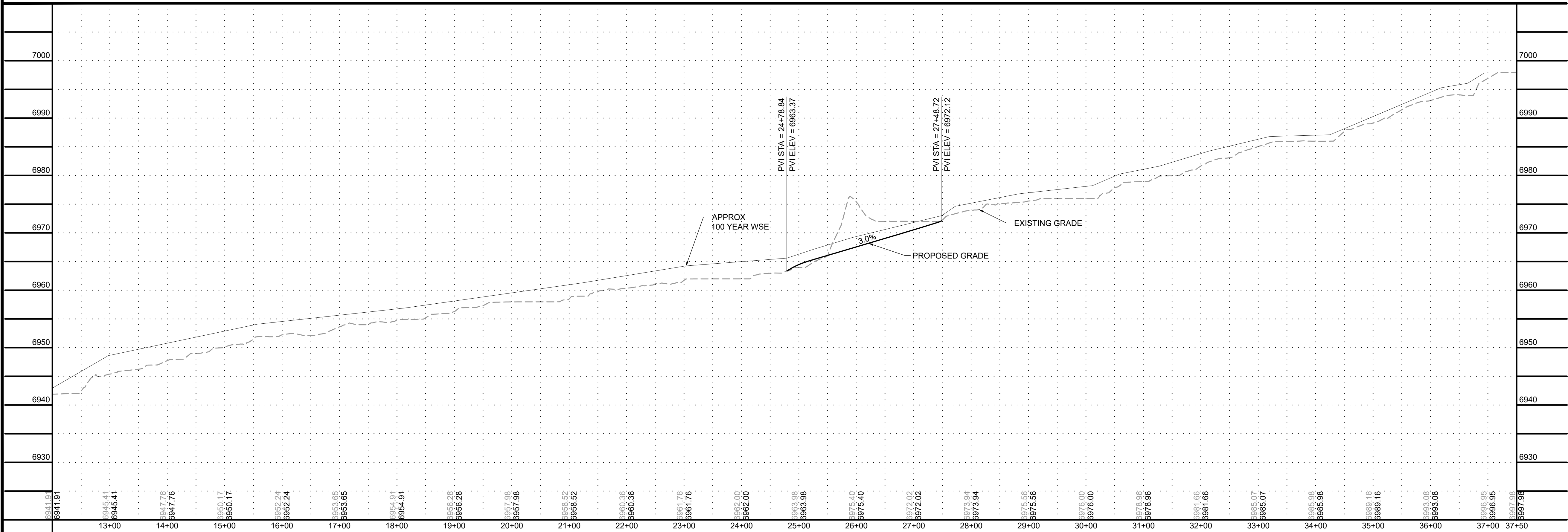
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- KEYMAP**
- PROJECT LEGEND:**
- PROPERTY LINE
  - ROAD CENTERLINE
  - RIGHT-OF-WAY LINE
  - PROPOSED D
  - PROPOSED MAJOR CONTOUR
  - PROPOSED MINOR CONTOUR
  - FUTURE MAJOR CONTOUR
  - FUTURE MINOR CONTOUR
  - EXISTING MAJOR CONTOUR
  - EXISTING MINOR CONTOUR
  - FLOW ARROW
  - EFFECTIVE 100-YR FLOODPLAIN
  - EFFECTIVE 100-YR FLOODWAY
  - POTENTIAL WALL
  - STORM SEWER
  - STORM INLET TYPE R
  - STORM MANHOLE
  - STORM END SECTION

- NOTES:**
- BASIS OF BEARINGS:** THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
  - BENCHMARK:**  
DESIGNATION = F 24  
PID = JK0240  
DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT  
CONTROL POINT COORDINATE SYSTEM: NAVD88  
NORTHING: 1421049.80  
EASTING: 3273631.55  
ELEVATION: 6866.33
  - ALIGNMENT NOT FOR USE IN CONSTRUCTION.**  
REFER TO NORTHINGS AND EASTINGS



DRAWN BY: TBI JOB DATE: 7/25/2022  
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CAD DATE: 7/25/2022  
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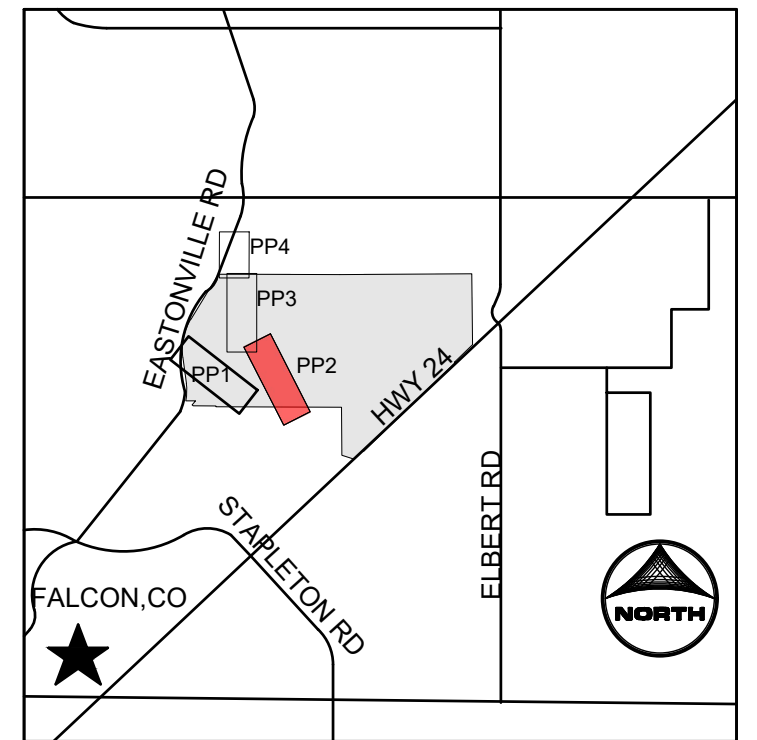
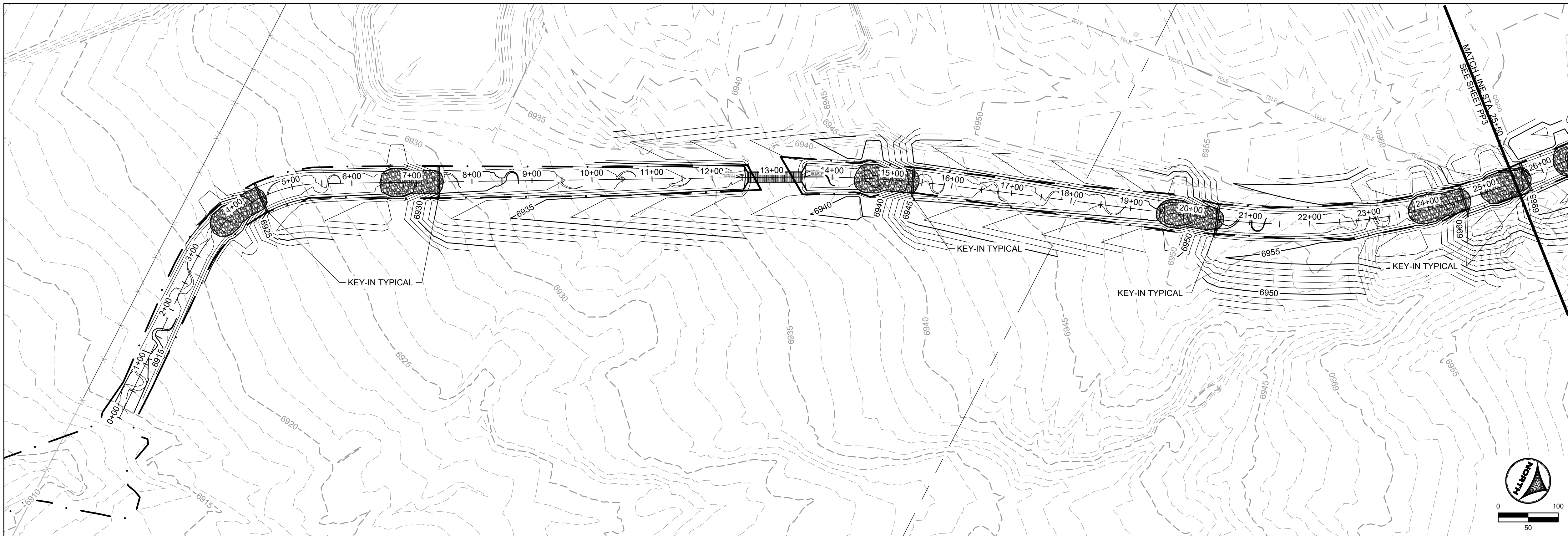
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PHONE: 720.602.4999  
FAX: 844.273.1057

**GRANDVIEW RESERVE (DRAINAGE A & B)**  
**DR HORTON**  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
DRAINAGE TRIBUTARY 1 PLAN AND PROFILE

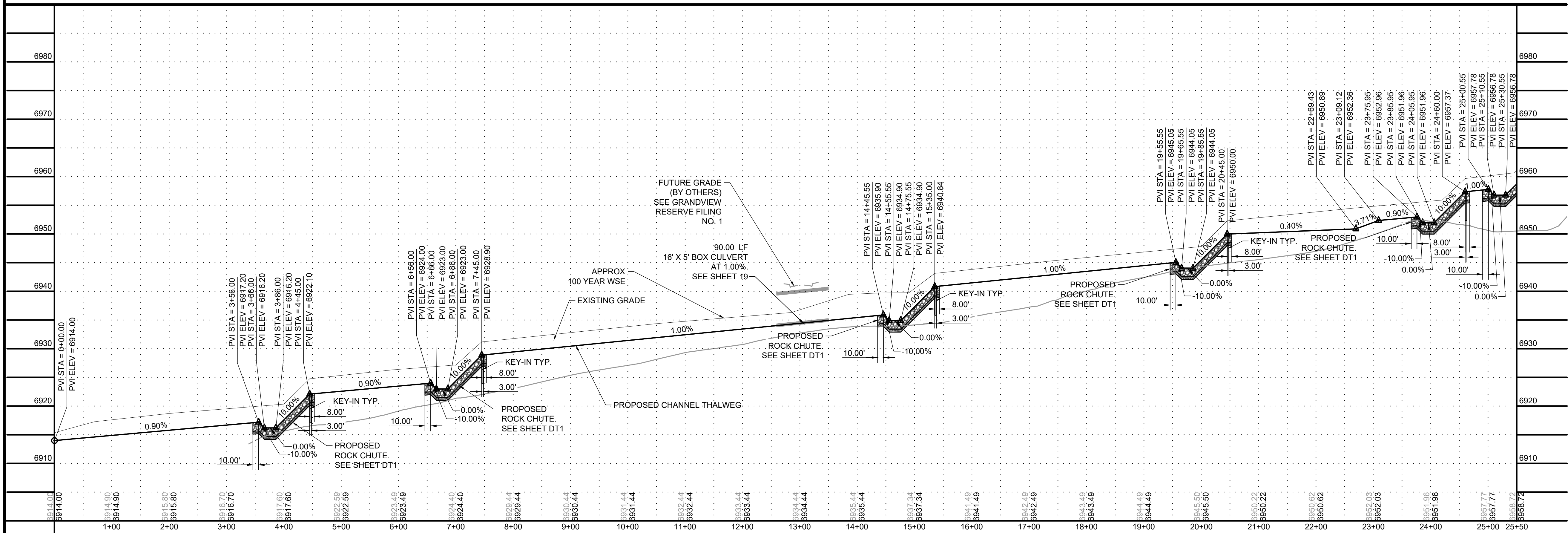
SHEET  
PP1  
15





- KEYMAP**
- PROJECT LEGEND:**
- PROPERTY LINE
  - ROAD CENTERLINE
  - RIGHT-OF-WAY LINE
  - PROPOSED D
  - PROPOSED MAJOR CONTOUR
  - PROPOSED MINOR CONTOUR
  - FUTURE MAJOR CONTOUR
  - FUTURE MINOR CONTOUR
  - EXISTING MAJOR CONTOUR
  - EXISTING MINOR CONTOUR
  - FLOW ARROW
  - EFFECTIVE 100-YR FLOODPLAIN
  - EFFECTIVE 100-YR FLOODWAY
  - POTENTIAL WALL
  - STORM SEWER
  - STORM INLET TYPE R
  - STORM MANHOLE
  - STORM END SECTION

- NOTES:**
- BASIS OF BEARINGS:** THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
  - BENCHMARK:**  
DESIGNATION = F 24  
PID = JK0240  
DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT  
CONTROL POINT COORDINATE SYSTEM: NAVD88  
NORTHING: 1421049.80  
EASTING: 3273631.55  
ELEVATION: 6886.33
  - ALIGNMENT NOT FOR USE IN CONSTRUCTION.**  
REFER TO NORTHINGS AND EASTINGS



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APPROVED: CMM JOB NUMBER: 201662.03  
CAD DATE: 7/25/2022  
CAD FILE: J:\2020\201662.03\CAD\dwg\CI\PLAN AND PROFILE

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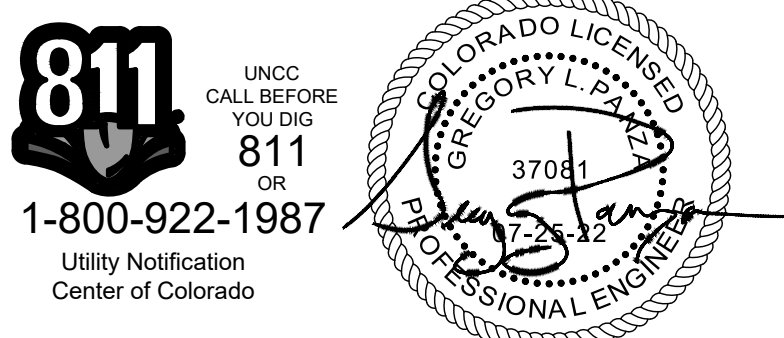
NO.	DATE	BY	REVISION DESCRIPTION

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DENVER CO 80111  
PHONE: 720.602.4999  
FAX: 844.273.1057

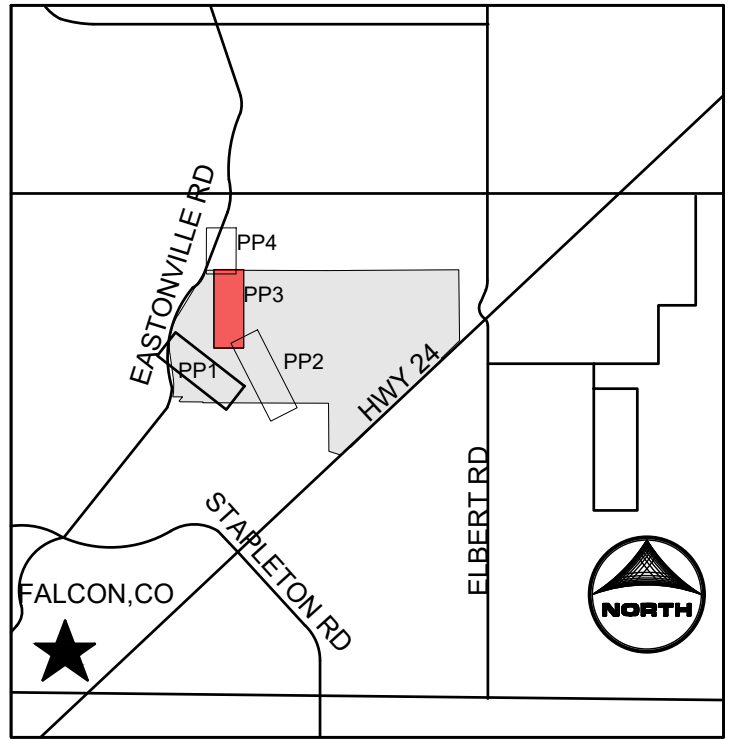
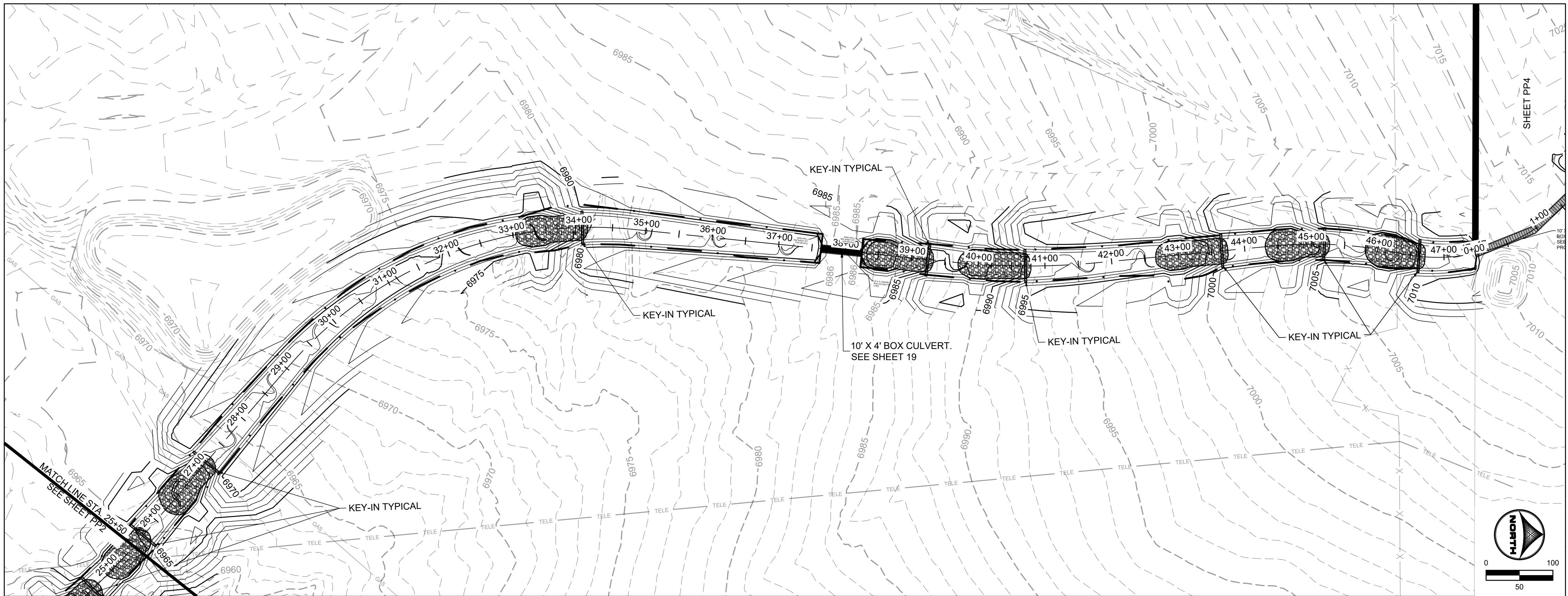
**GRANDVIEW RESERVE (DRAINAGE A & B)**  
**DR HORTON**  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
DRAINAGE TRIBUTARY 2 PLAN AND PROFILE

SHEET  
PP2  
16

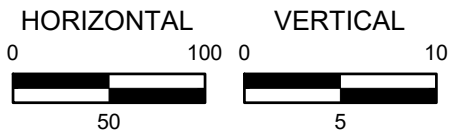
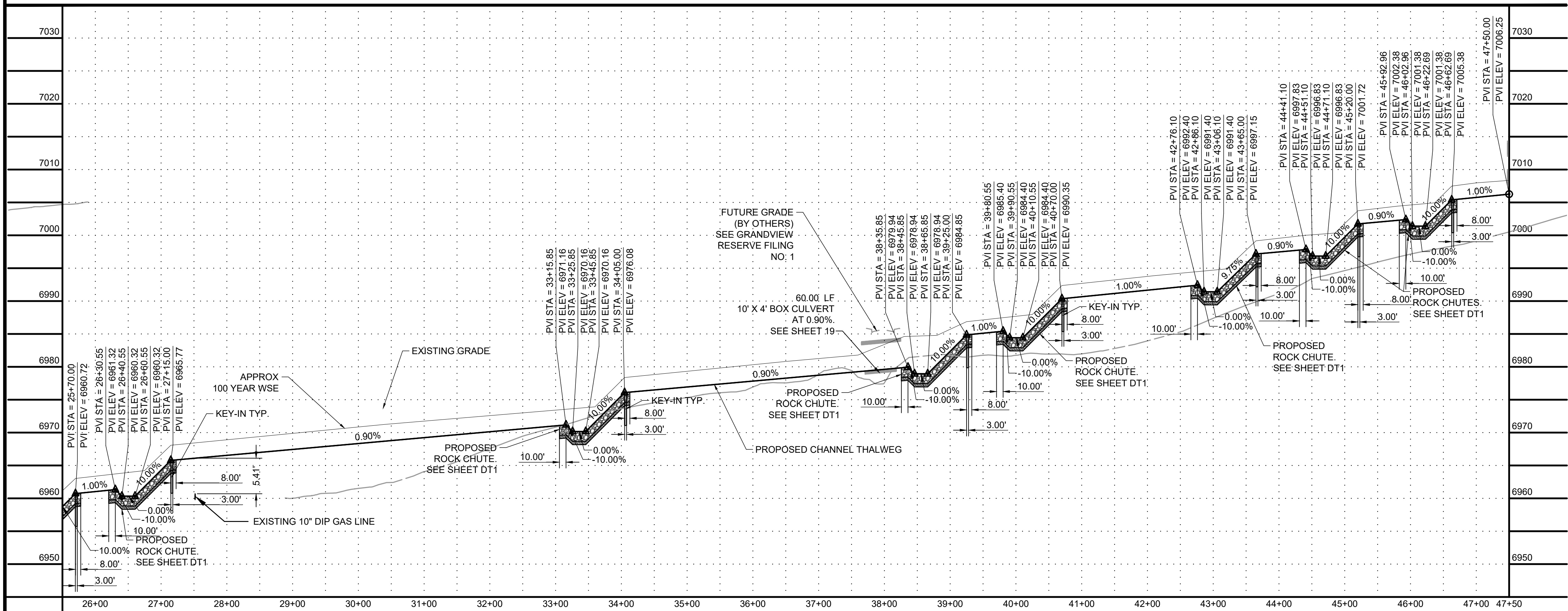






- KEYMAP**
- PROJECT LEGEND:**
- PROPERTY LINE
  - ROAD CENTERLINE
  - RIGHT-OF-WAY LINE
  - PROPOSED D
  - PROPOSED MAJOR CONTOUR
  - PROPOSED MINOR CONTOUR
  - FUTURE MAJOR CONTOUR
  - FUTURE MINOR CONTOUR
  - EXISTING MAJOR CONTOUR
  - EXISTING MINOR CONTOUR
  - FLOW ARROW
  - EFFECTIVE 100-YR FLOODPLAIN
  - EFFECTIVE 100-YR FLOODWAY
  - POTENTIAL WALL
  - STORM SEWER
  - STORM INLET TYPE R
  - STORM MANHOLE
  - STORM END SECTION

- NOTES:**
- BASIS OF BEARINGS:** THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
  - BENCHMARK:**  
DESIGNATION = F 24  
PID = JK0240  
DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT  
CONTROL POINT COORDINATE SYSTEM: NAVD88  
NORTHING: 1421049.80  
EASTING: 3273631.55  
ELEVATION: 6866.33
  - ALIGNMENT NOT FOR USE IN CONSTRUCTION.**  
REFER TO NORTHINGS AND EASTINGS



DRAWN BY: TBI JOB DATE: 7/25/2022  
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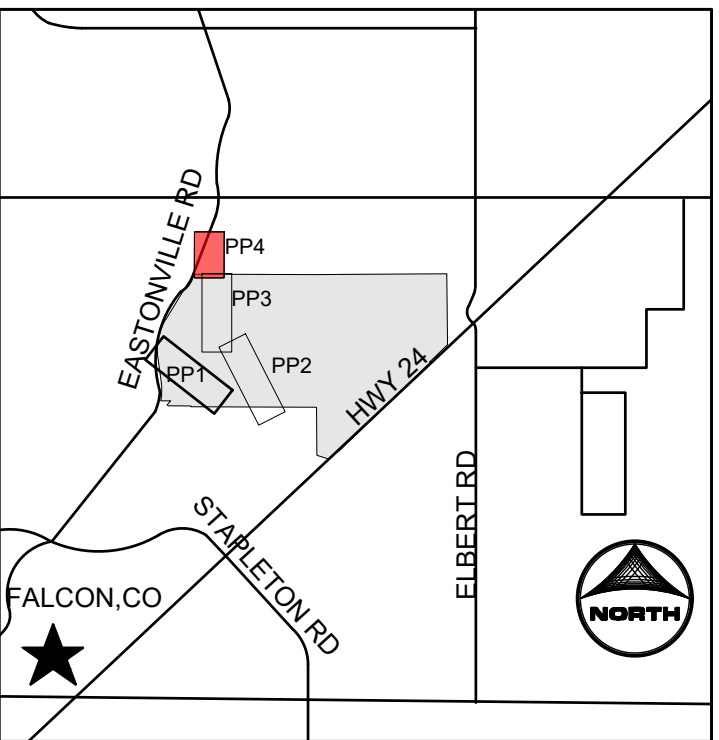
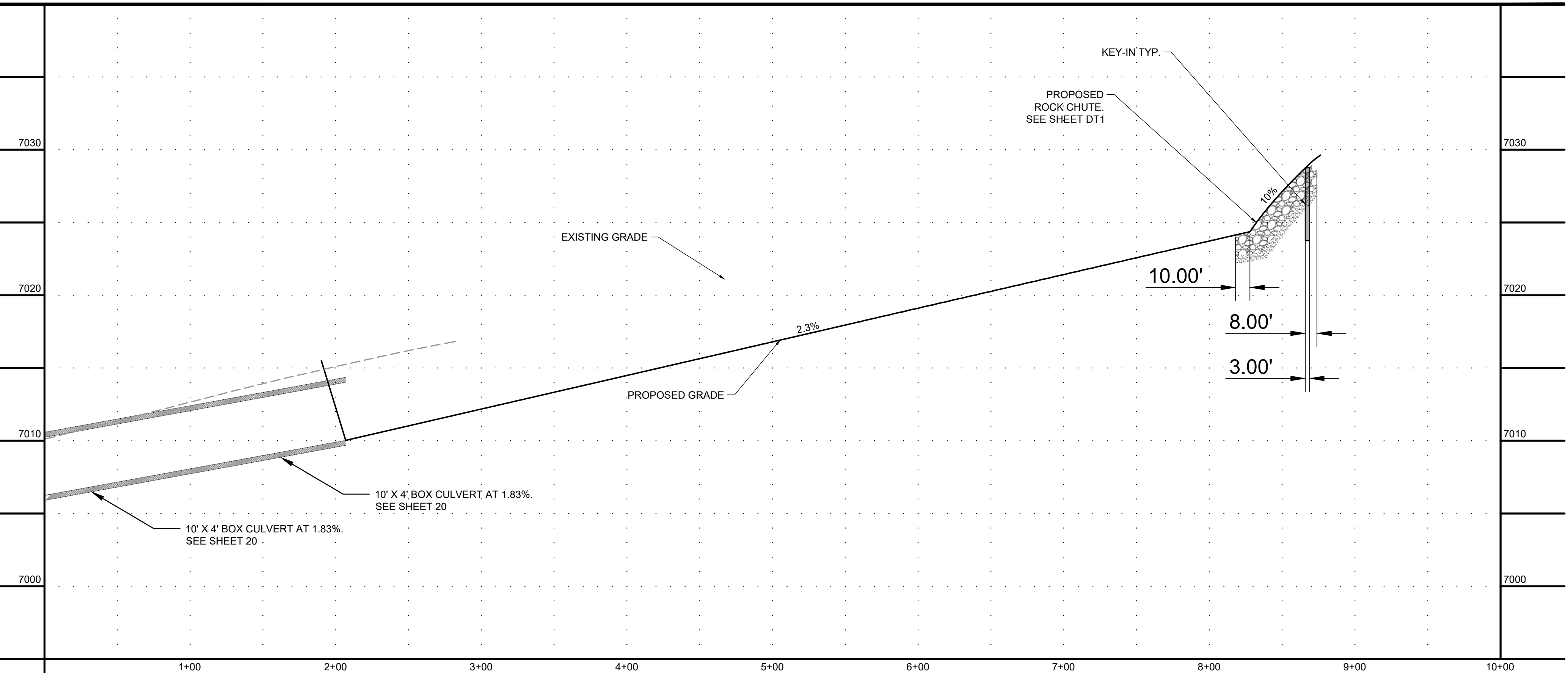
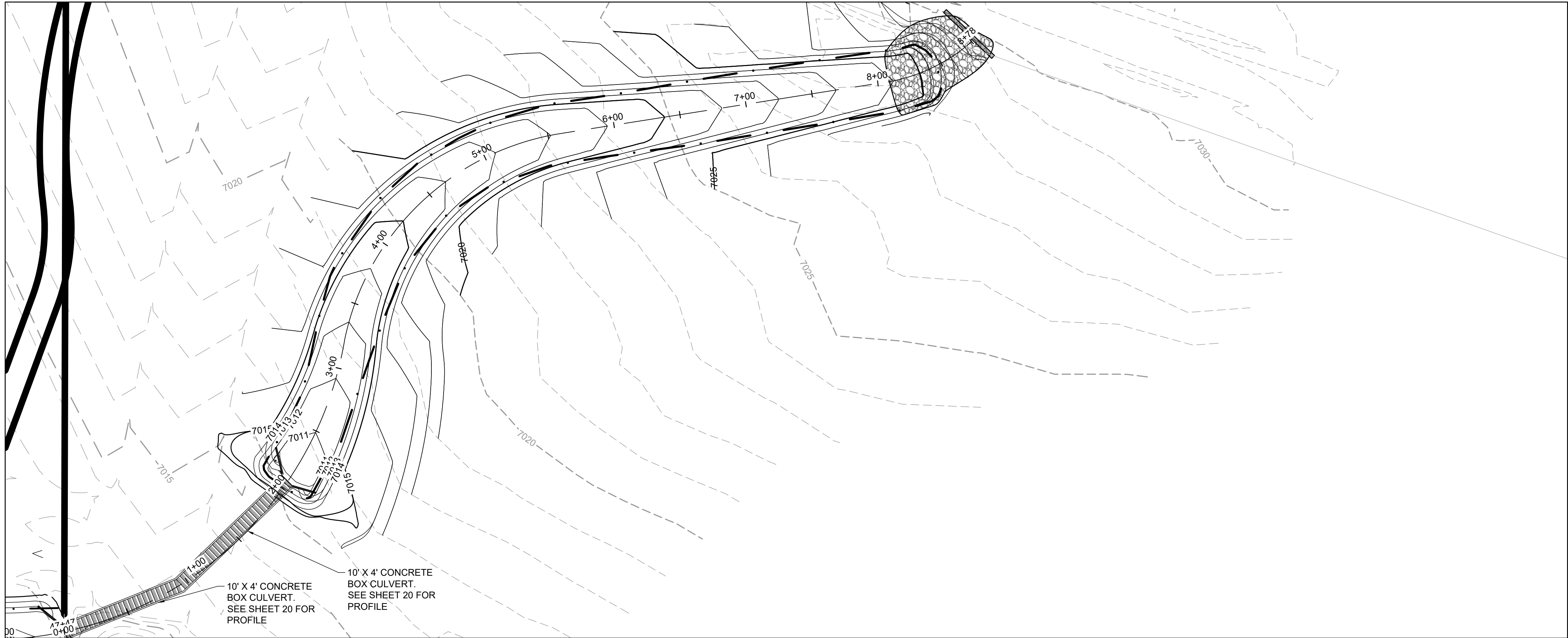
**HRGreen**  
HR GREEN - DENVER  
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DENVER CO 80111  
PHONE: 720.602.4999  
FAX: 844.273.1057

**GRANDVIEW RESERVE (DRAINAGE A & B)**  
**DR HORTON**  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
DRAINAGE TRIBUTARY 2 PLAN AND PROFILE

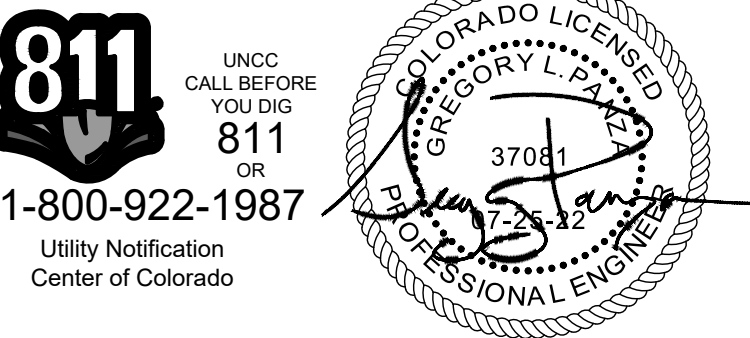
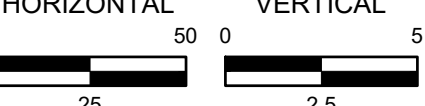
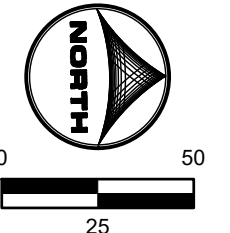
SHEET  
PP3  
17





- KEYMAP**
- PROJECT LEGEND:**
- PROPERTY LINE
  - ROAD CENTERLINE
  - RIGHT-OF-WAY LINE
  - PROPOSED D
  - PROPOSED MAJOR CONTOUR
  - PROPOSED MINOR CONTOUR
  - FUTURE MAJOR CONTOUR
  - FUTURE MINOR CONTOUR
  - EXISTING MAJOR CONTOUR
  - EXISTING MINOR CONTOUR
  - FLOW ARROW
  - EFFECTIVE 100-YR FLOODPLAIN
  - EFFECTIVE 100-YR FLOODWAY
  - POTENTIAL WALL
  - STORM SEWER
  - STORM INLET TYPE R
  - STORM MANHOLE
  - STORM END SECTION

- NOTES:**
- BASIS OF BEARINGS:** THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
  - BENCHMARK:**  
DESIGNATION = F 24  
PID = JK0240  
DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT  
CONTROL POINT COORDINATE SYSTEM:  
NAVD88  
NORTHING: 1421049.80  
EASTING: 3273631.55  
ELEVATION: 6866.33
  - ALIGNMENT NOT FOR USE IN CONSTRUCTION.**  
REFER TO NORTHINGS AND EASTINGS



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APPROVED: CMM JOB NUMBER: 201662.03  
CAD DATE: 7/25/2022  
CAD FILE: J:\2020\201662.03\CAD\dwgs\C\PLAN AND PROFILE

BAR IS ONE INCH ON OFFICIAL DRAWINGS.  
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NO.	DATE	BY	REVISION DESCRIPTION

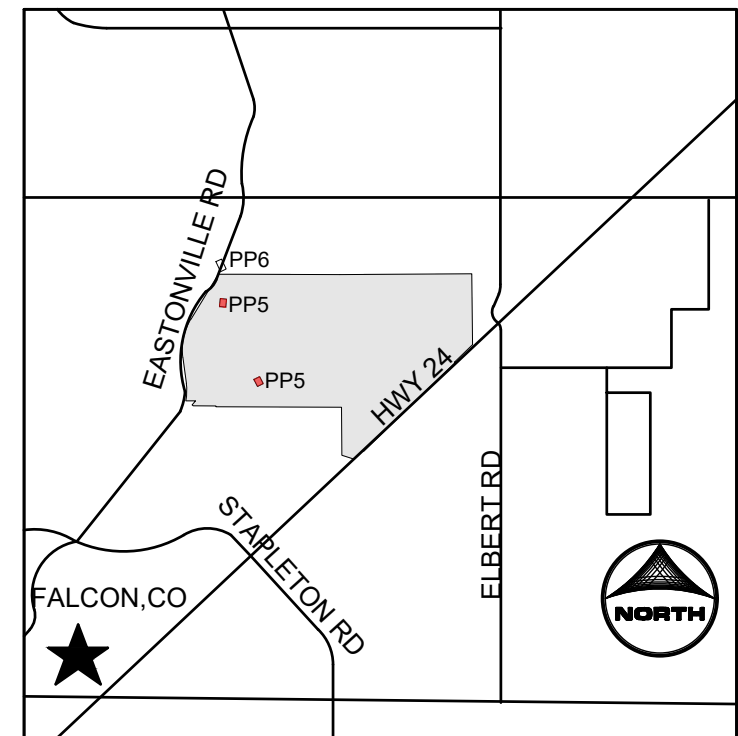
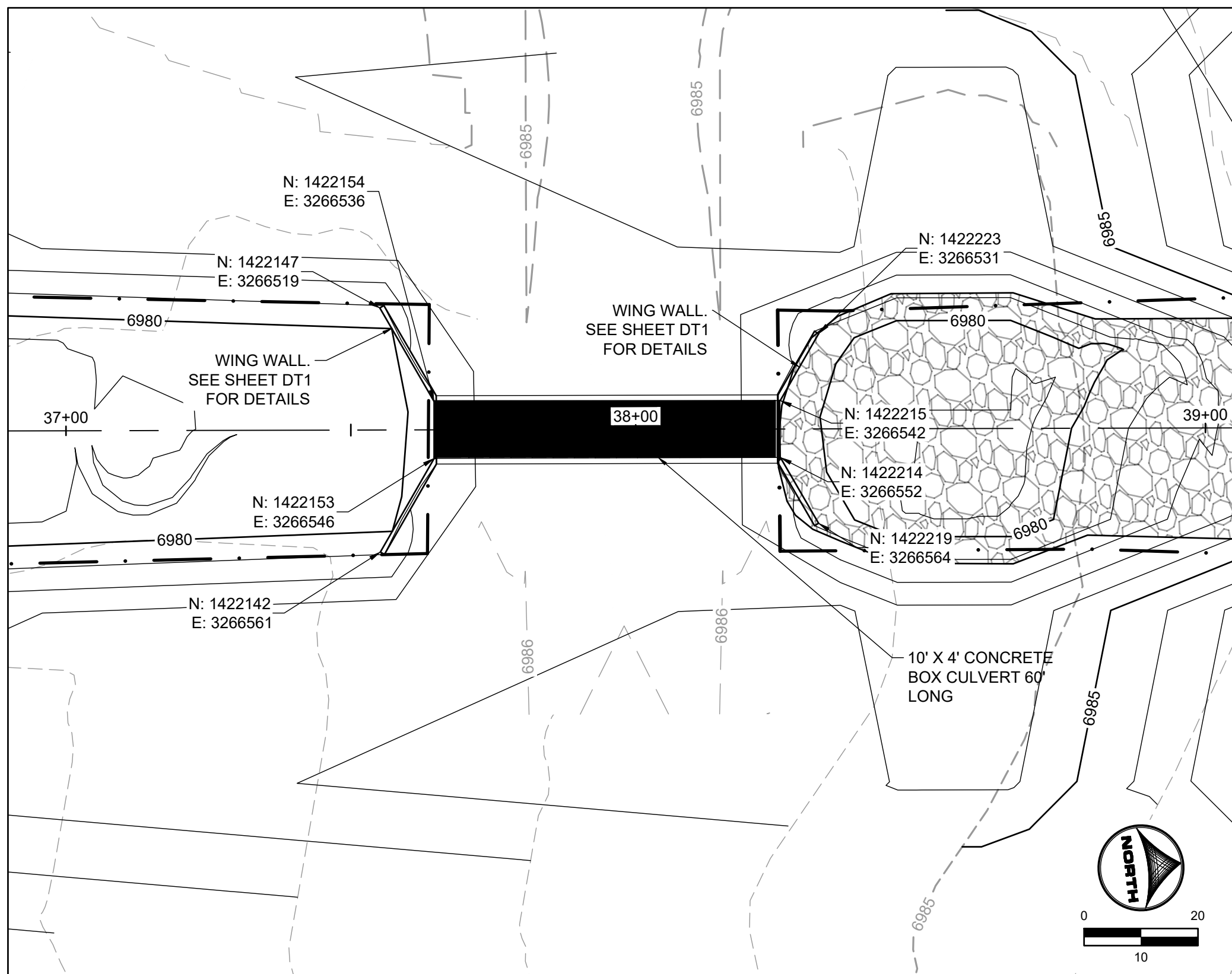
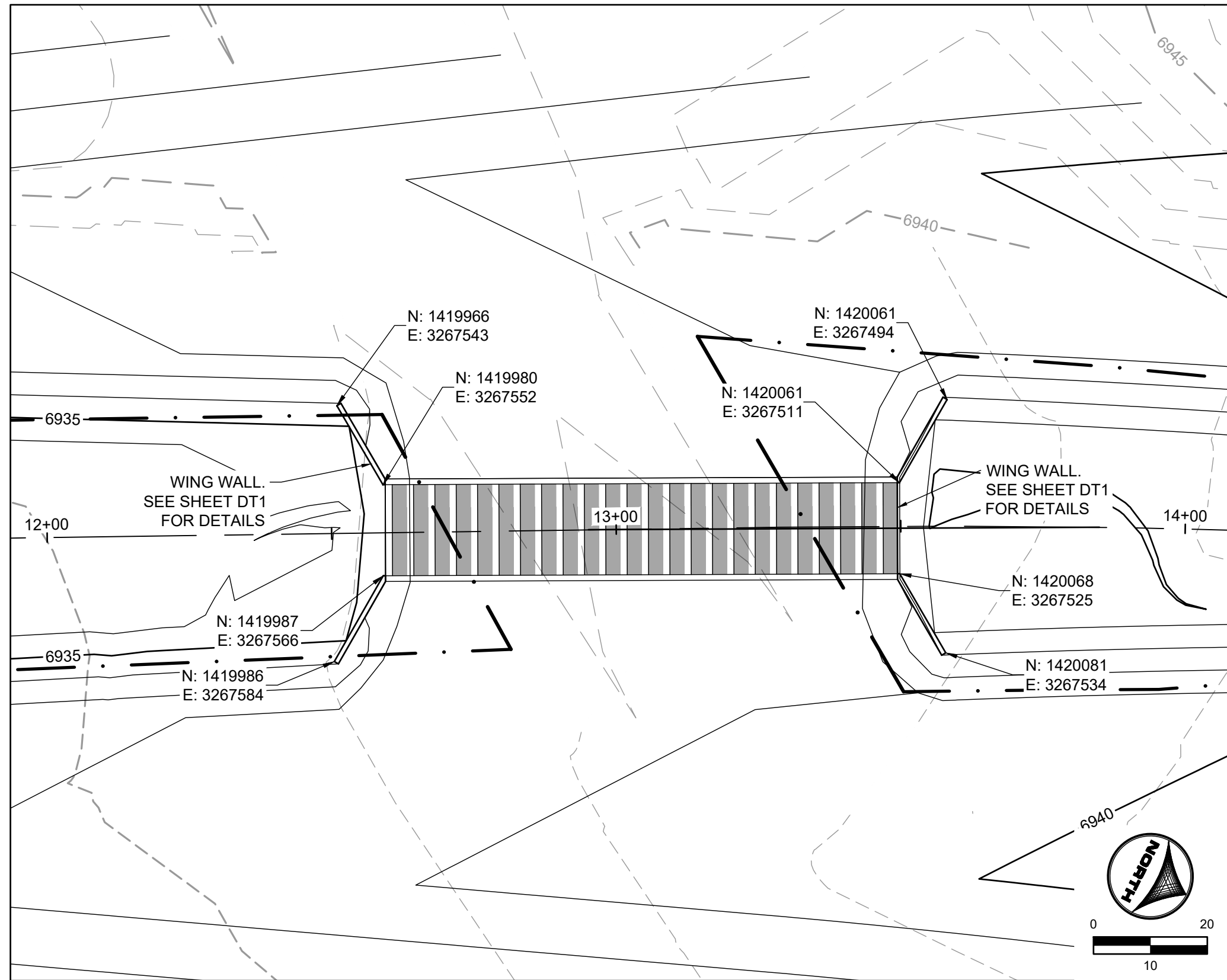
**HRGreen**  
HR GREEN - DENVER  
5619 DTC PARKWAY SUITE 1150  
DENVER CO 80111  
PHONE: 720.602.4999  
FAX: 844.273.1057

**GRANDVIEW RESERVE (DRAINAGE A & B)**  
**DR HORTON**  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
DRAINAGE TRIBUTARY 2 PLAN AND PROFILE

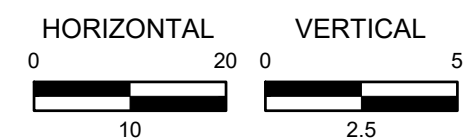
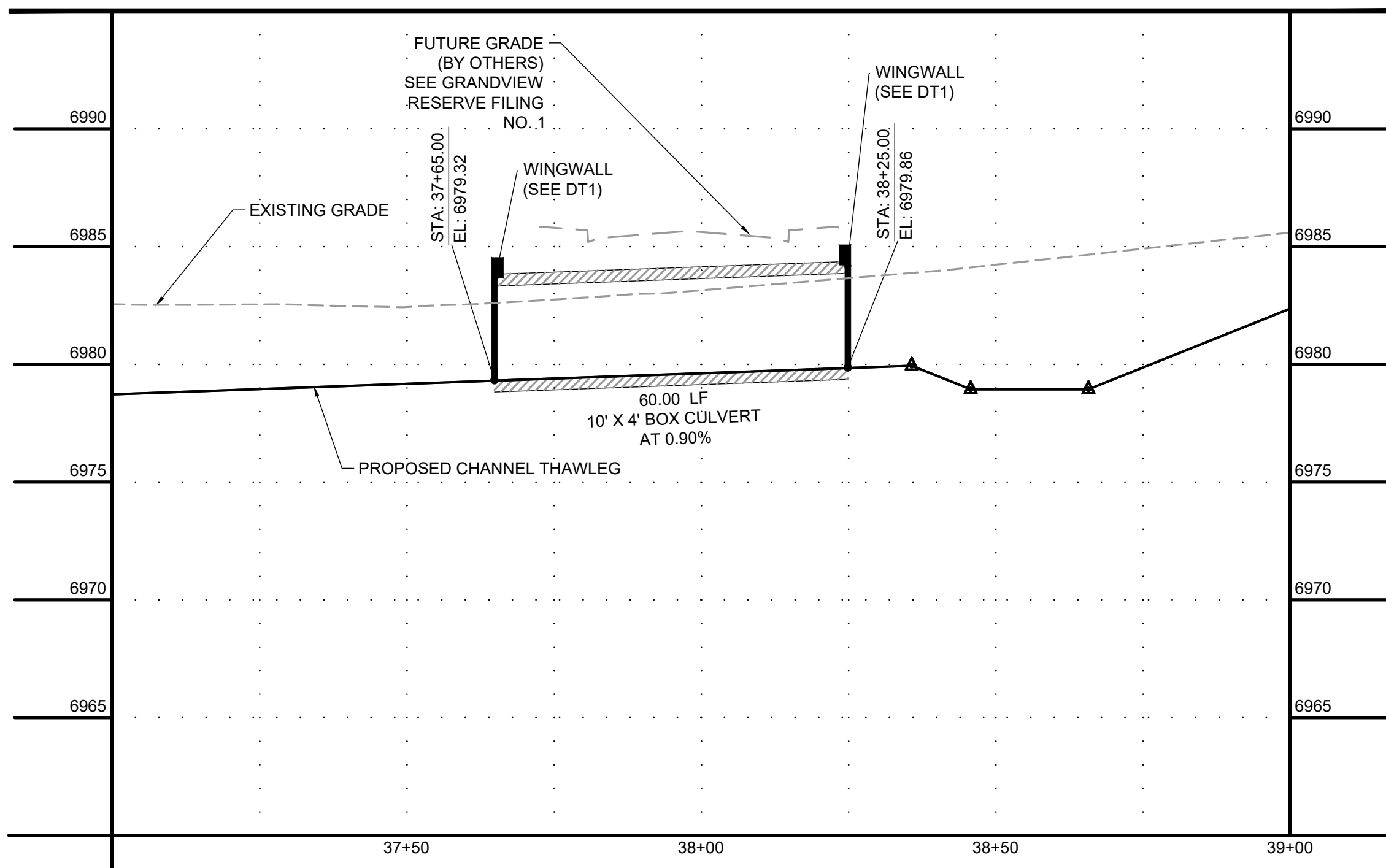
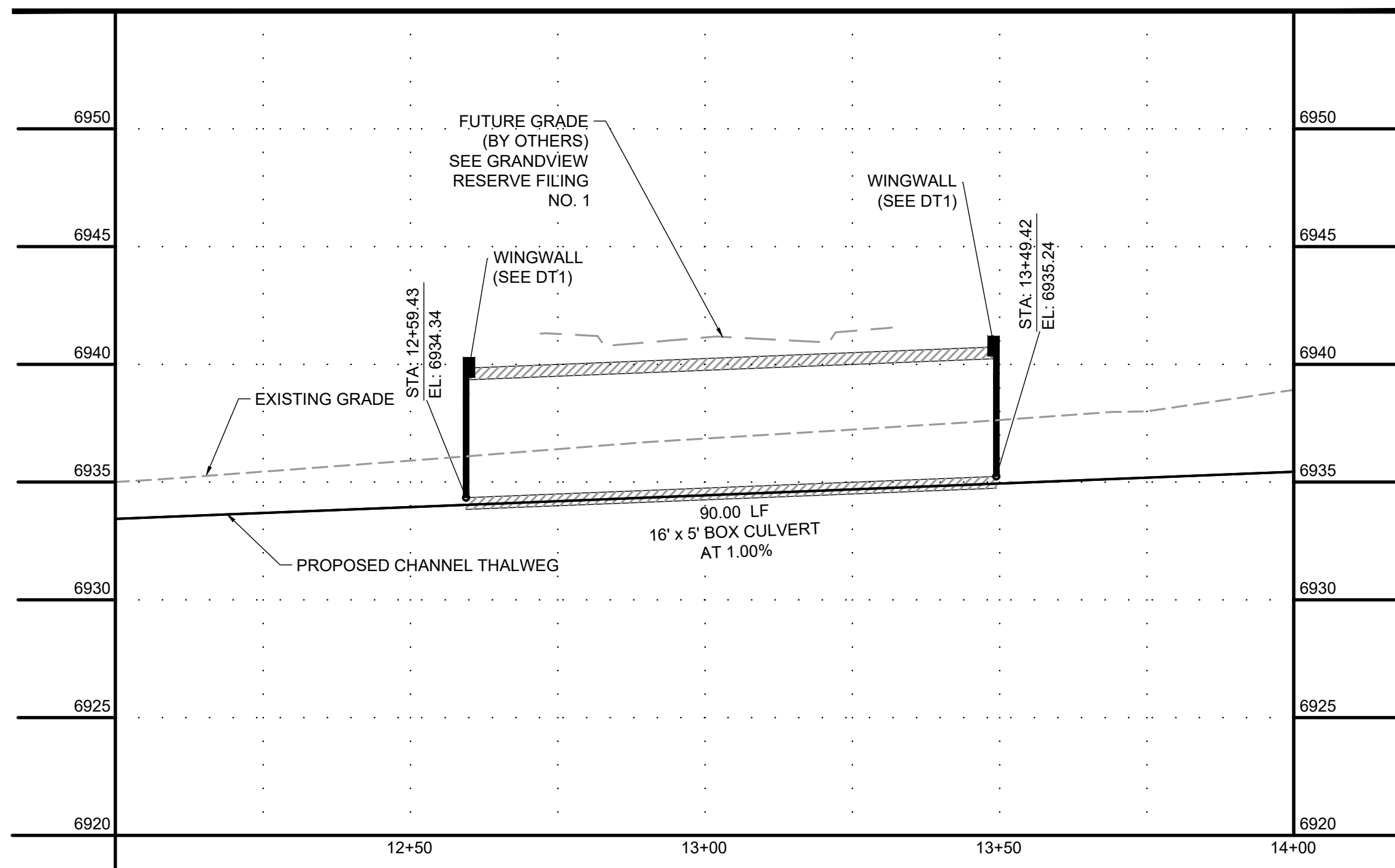
SHEET  
PP4  
18





- KEYMAP**
- PROJECT LEGEND:**
- PROPERTY LINE
  - ROAD CENTERLINE
  - RIGHT-OF-WAY LINE
  - PROPOSED D
  - 5250 PROPOSED MAJOR CONTOUR
  - PROPOSED MINOR CONTOUR
  - 5250 FUTURE MAJOR CONTOUR
  - FUTURE MINOR CONTOUR
  - EXISTING MAJOR CONTOUR
  - EXISTING MINOR CONTOUR
  - FLOW ARROW
  - EFFECTIVE 100-YR FLOODPLAIN
  - EFFECTIVE 100-YR FLOODWAY
  - POTENTIAL WALL
  - STORM SEWER
  - STORM INLET TYPE R
  - STORM MANHOLE
  - STORM END SECTION

- NOTES:**
- BASIS OF BEARINGS:** THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
  - BENCHMARK:**  
DESIGNATION = F 24  
PID = JK0240  
DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT  
CONTROL POINT COORDINATE SYSTEM:  
NAVD88  
NORTHING: 1421049.80  
EASTING: 3273631.55  
ELEVATION: 6866.33
  - ALIGNMENT NOT FOR USE IN CONSTRUCTIONS.**  
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**GRANDVIEW RESERVE (DRAINAGE A & B)**  
**DR HORTON**  
FALCON, COLORADO

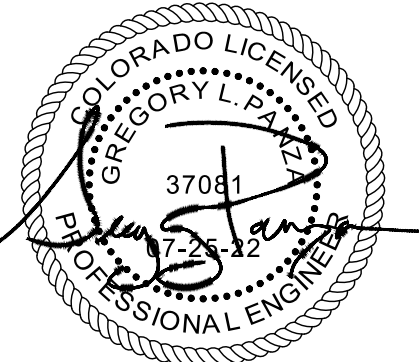
CONSTRUCTION DOCUMENTS  
DRAINAGE CULVERTS PLAN AND PROFILE

SHEET  
PP5

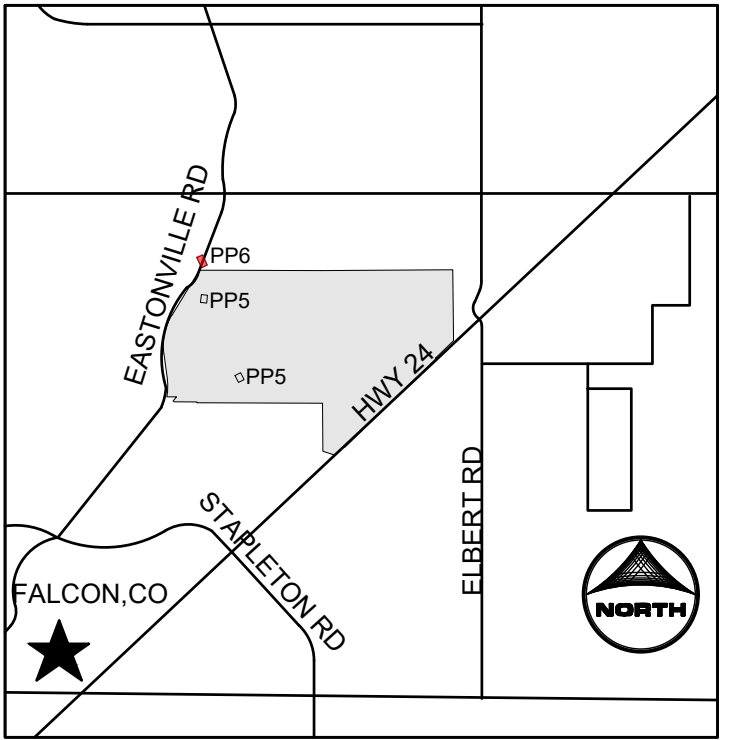
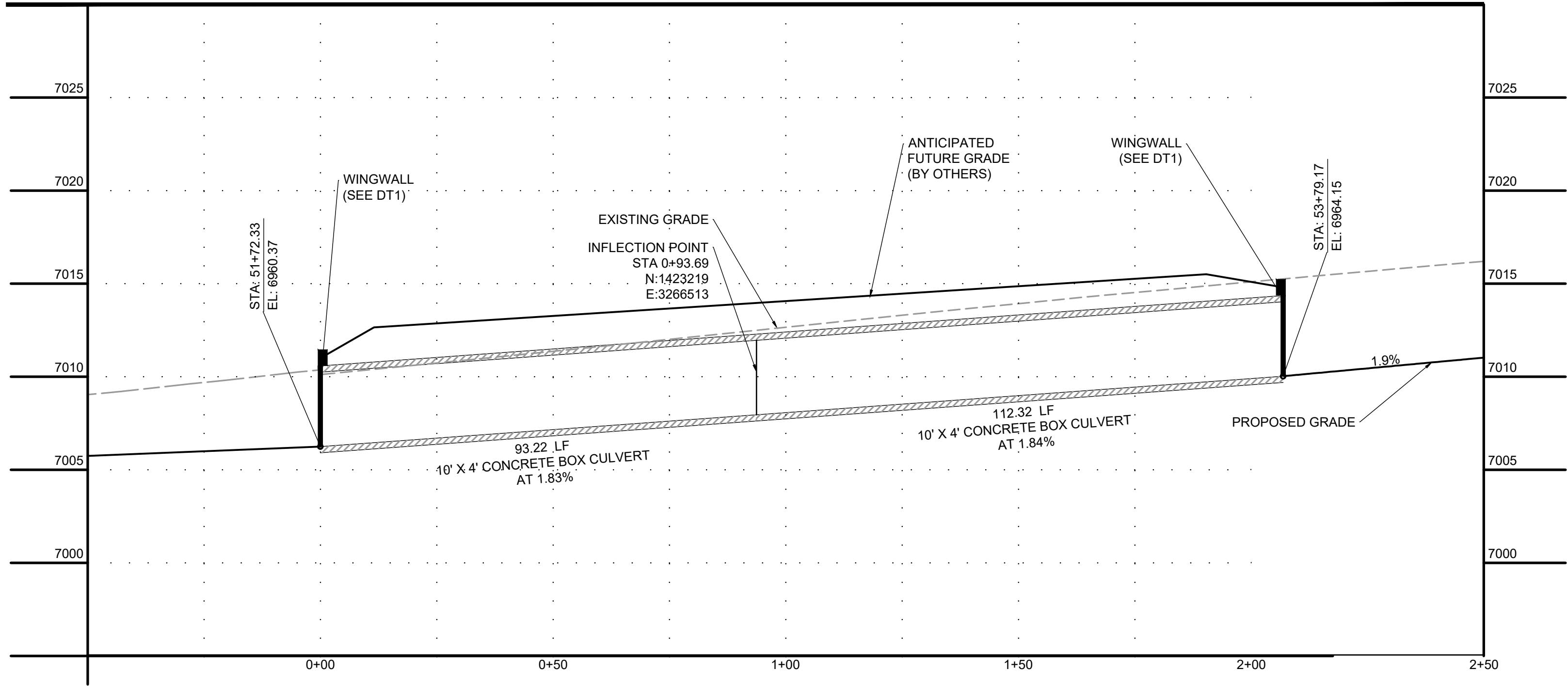
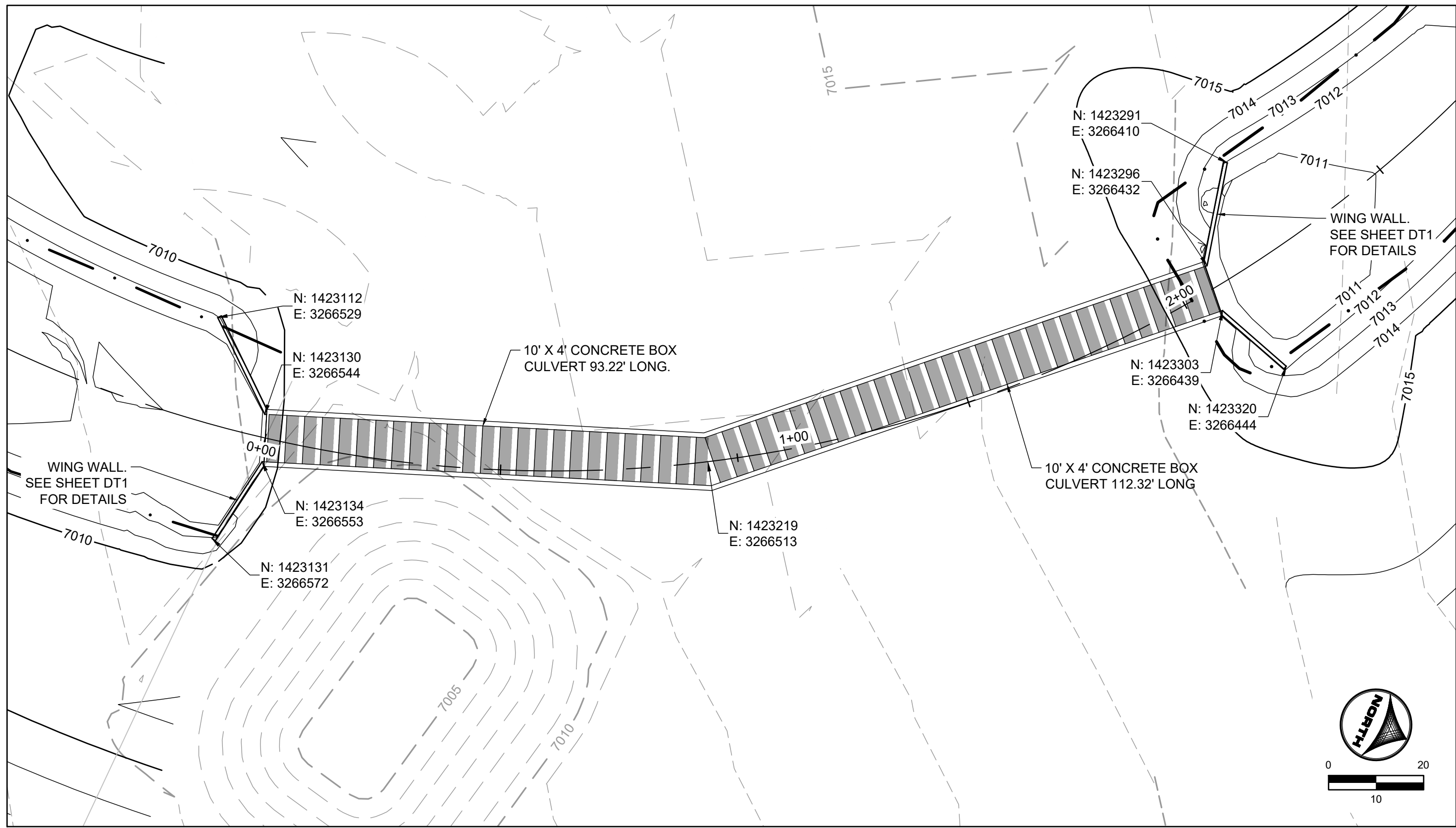
19



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

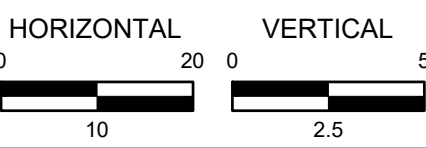
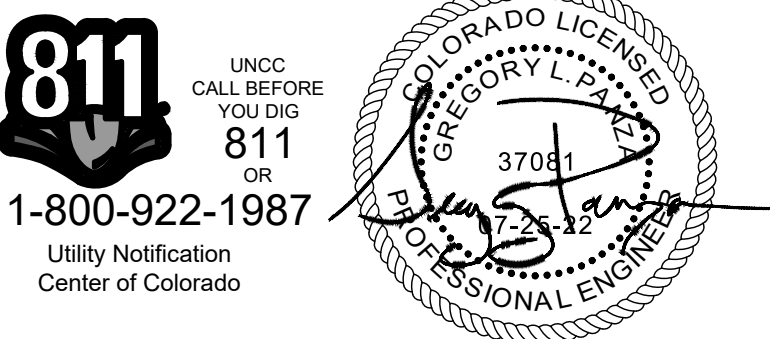






- KEYMAP**
- PROJECT LEGEND:**
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  - RIGHT-OF-WAY LINE
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  - PROPOSED MAJOR CONTOUR
  - PROPOSED MINOR CONTOUR
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  - FUTURE MINOR CONTOUR
  - EXISTING MAJOR CONTOUR
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  - STORM INLET TYPE R
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- NOTES:**
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  - BENCHMARK:**  
DESIGNATION = F 24  
PID = JK0240  
DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT  
CONTROL POINT COORDINATE SYSTEM:  
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NORTHING: 1421049.80  
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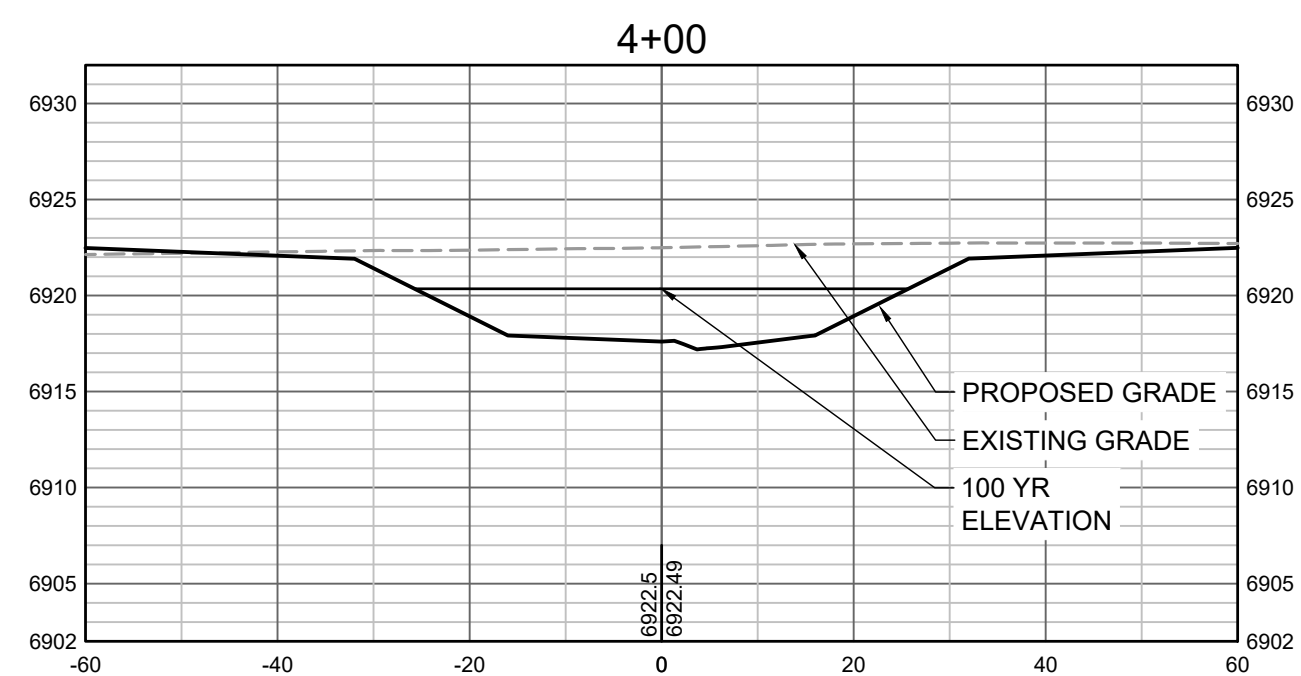
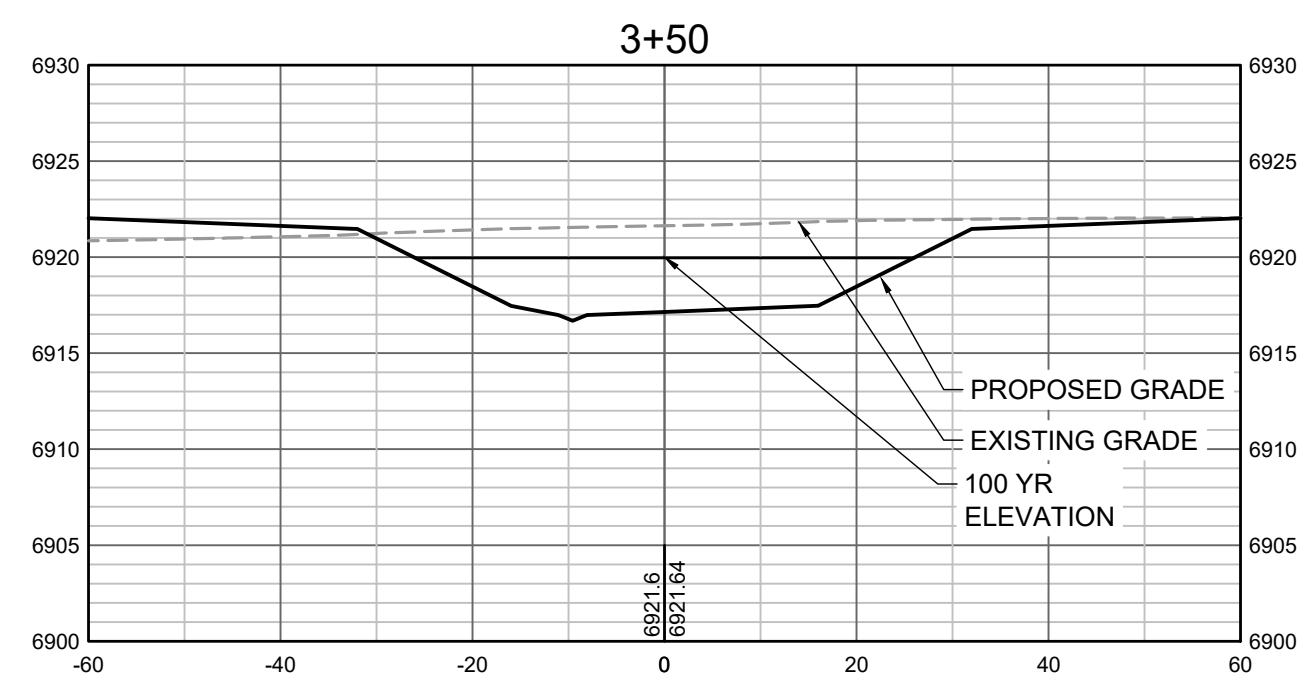
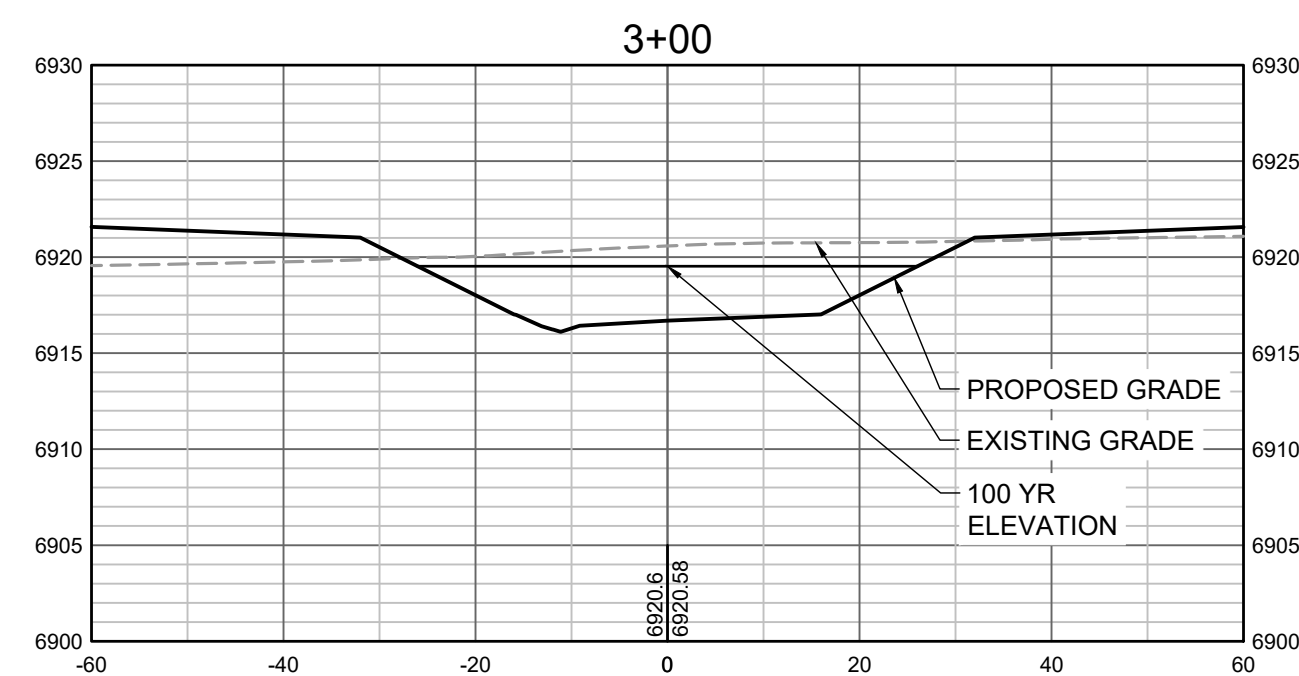
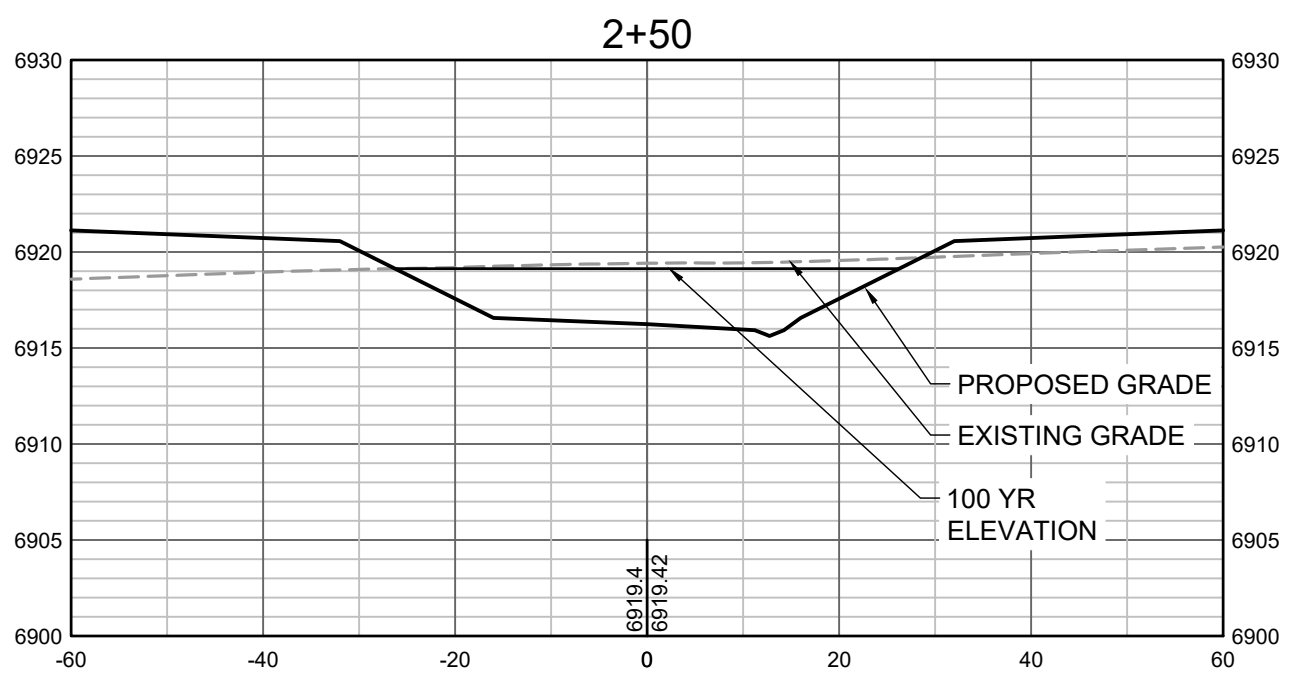
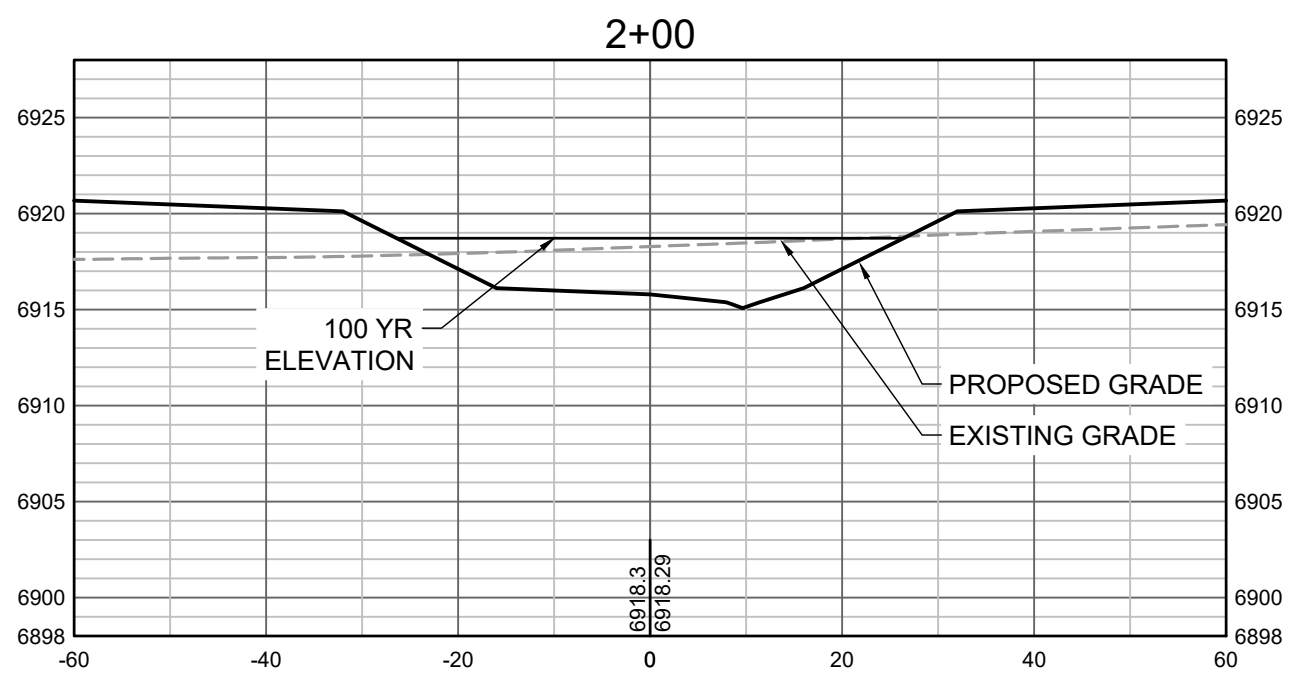
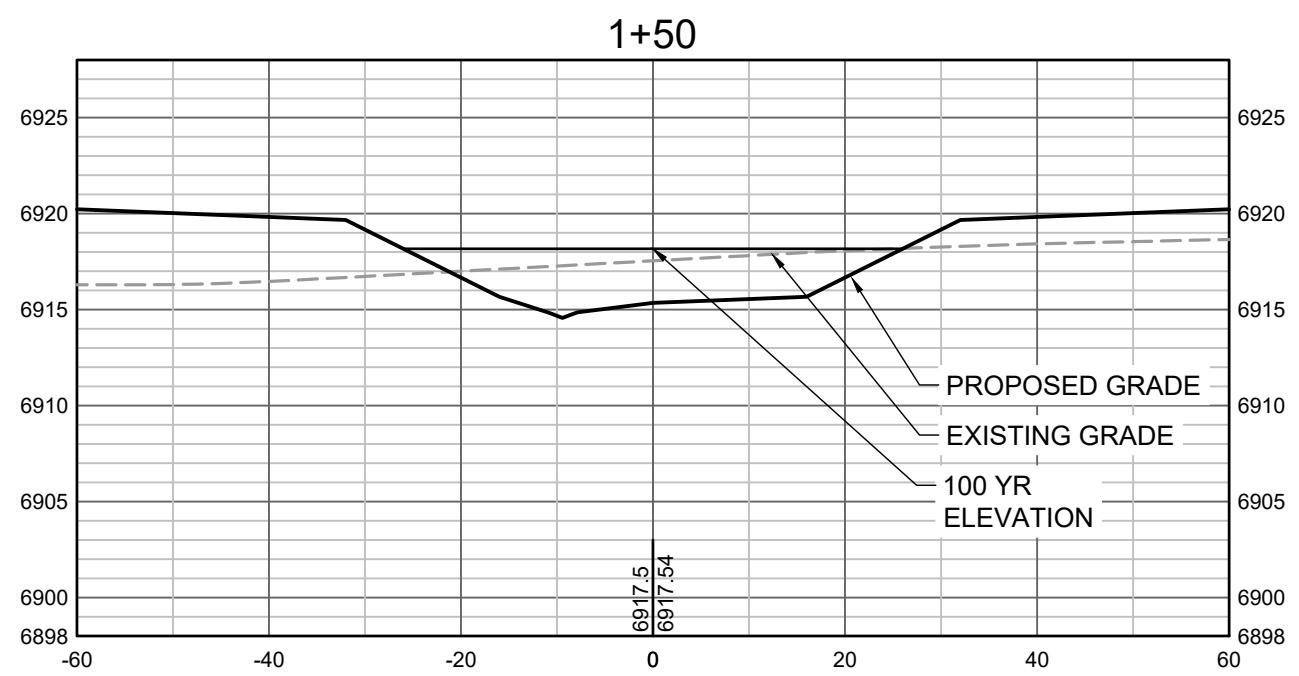
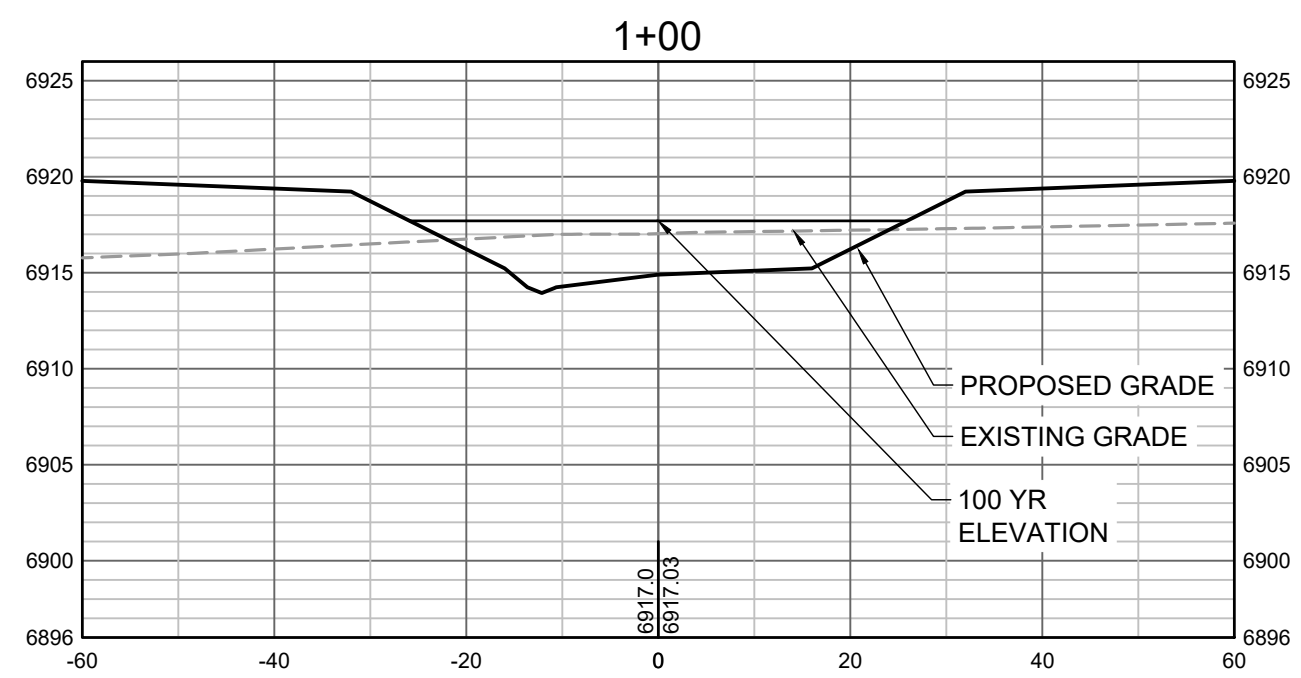
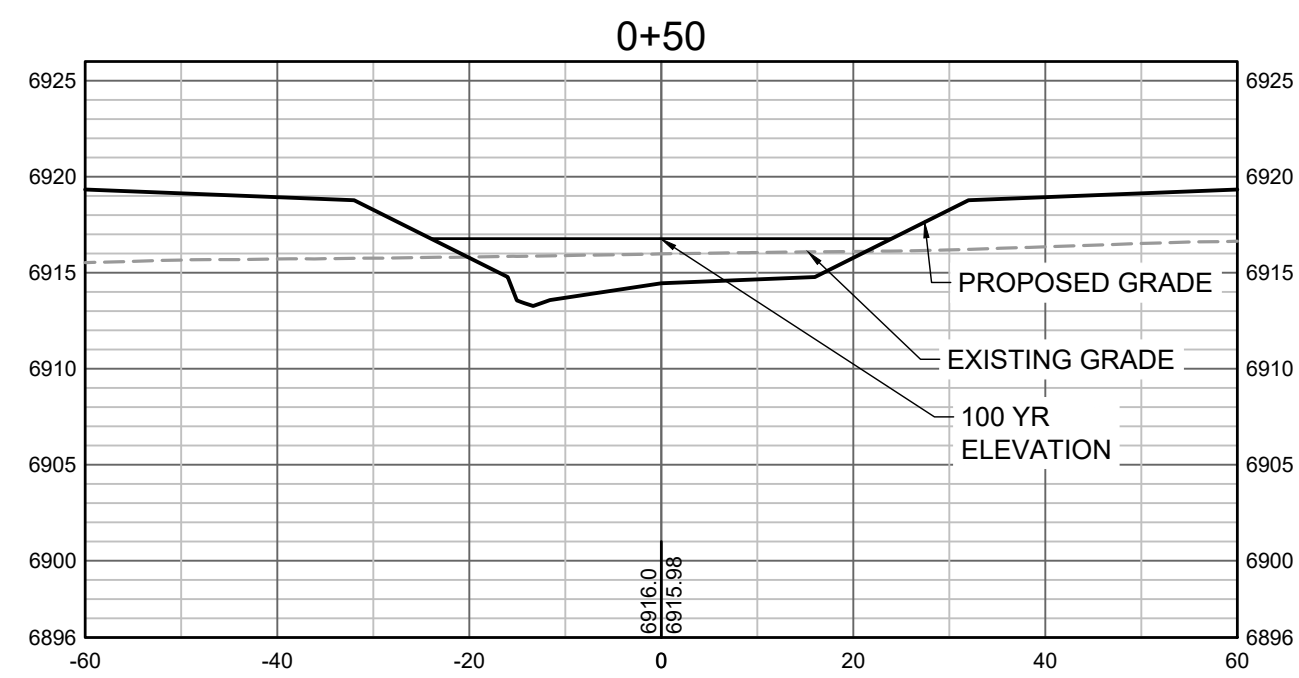
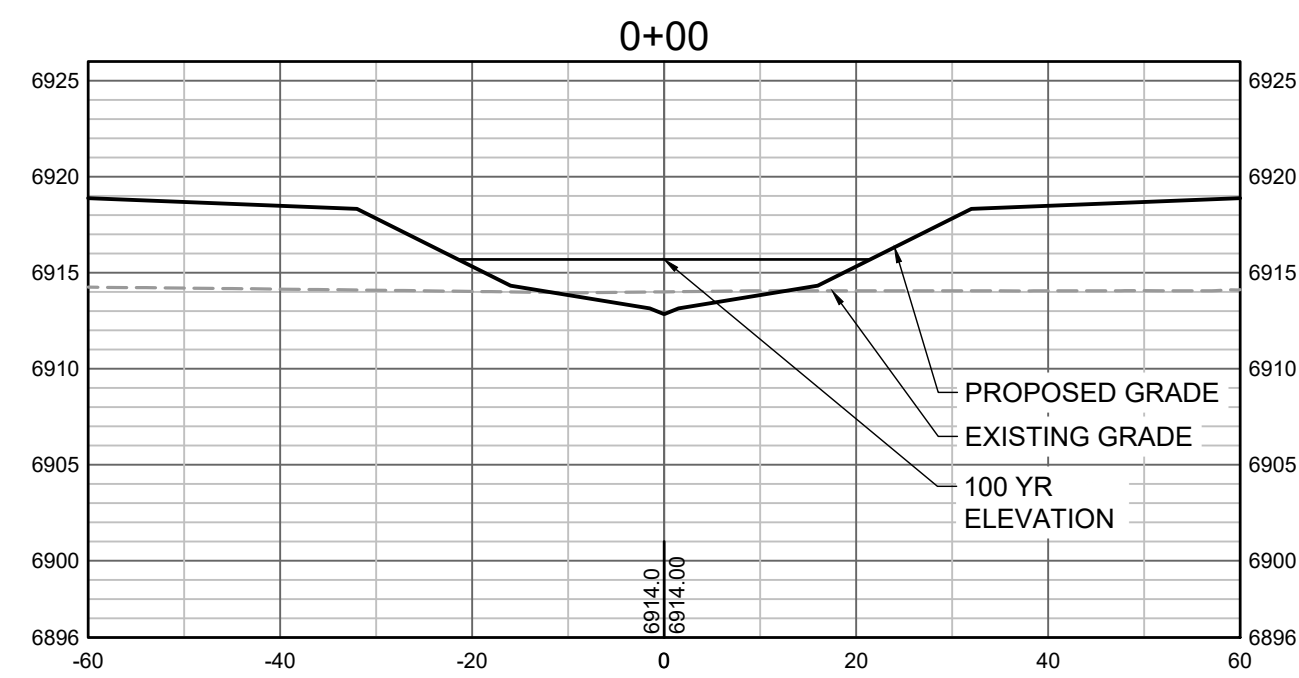
**HRGreen**  
HR GREEN - DENVER  
5619 DTC PARKWAY SUITE 1150  
DENVER CO 80111  
PHONE: 720.602.4999  
FAX: 844.273.1057

**GRANDVIEW RESERVE (DRAINAGE A & B)**  
**DR HORTON**  
FALCON, COLORADO

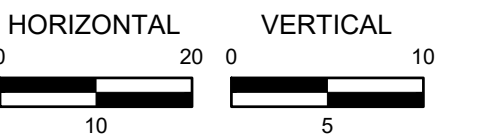
CONSTRUCTION DOCUMENTS  
DRAINAGE CULVERT PLAN AND PROFILE

SHEET  
PP6  
20





PROPOSED GRADES TO TIE INTO GRANDVIEW RESERVE FILING 1.  
REFER TO THE GRANDVIEW RESERVE FILING 1 PLAN SET FOR  
CONTINUATION OF GRADING THAT IS BEING TIED INTO OUTSIDE  
OF CHANNEL GRADING LIMITS.



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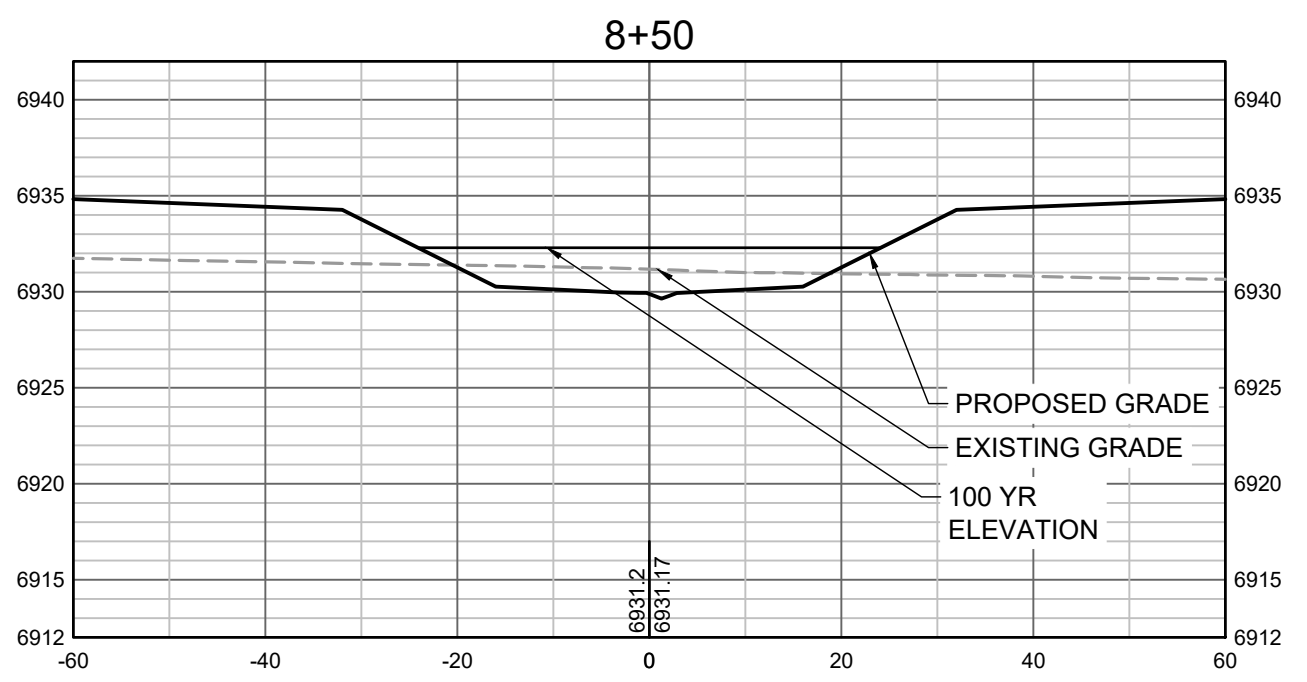
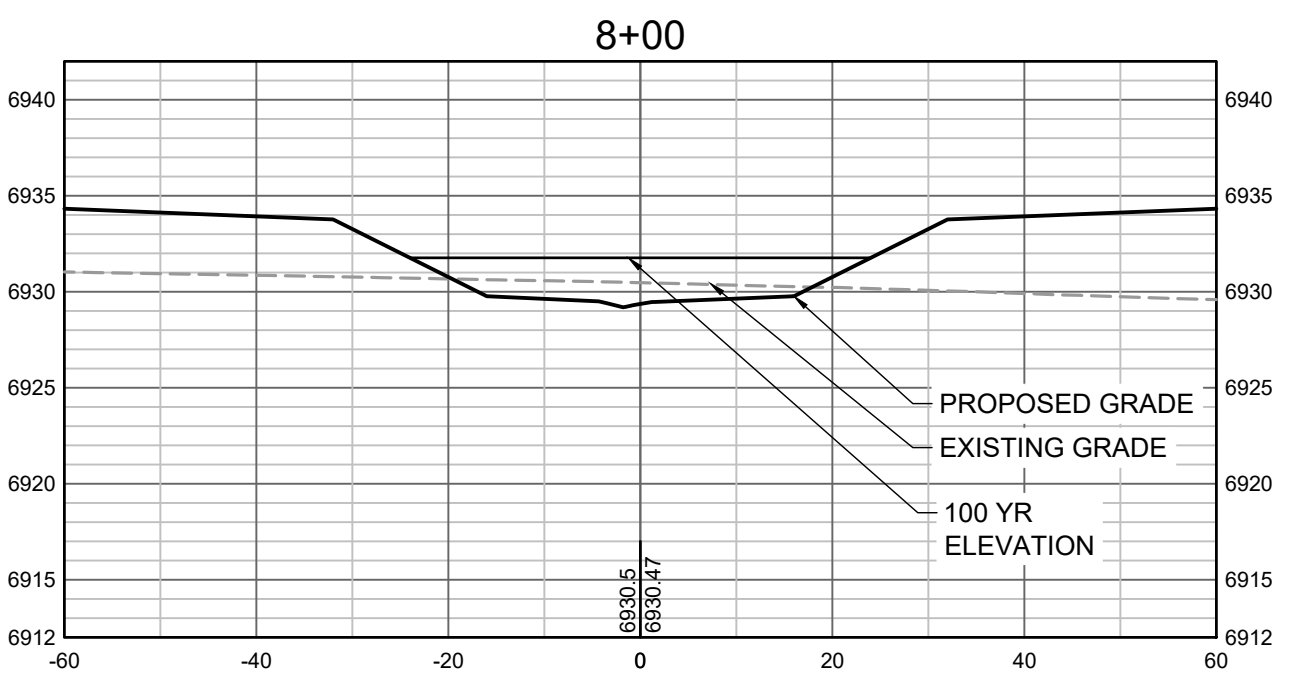
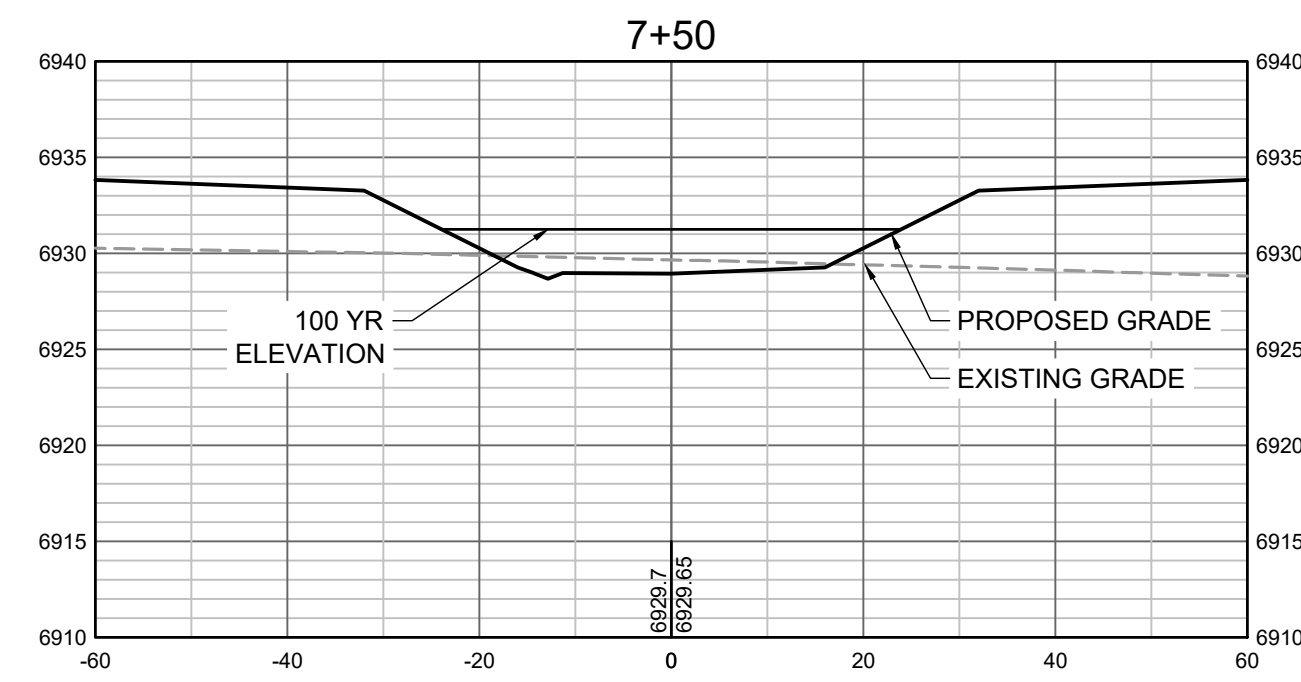
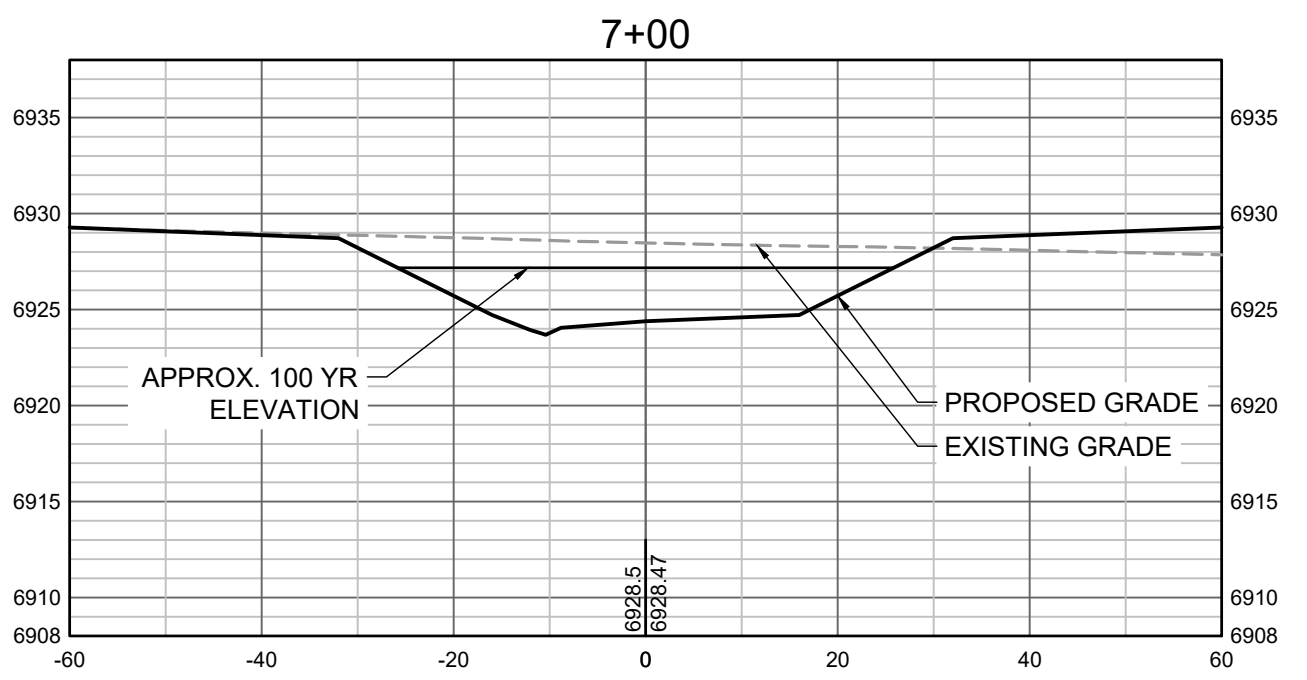
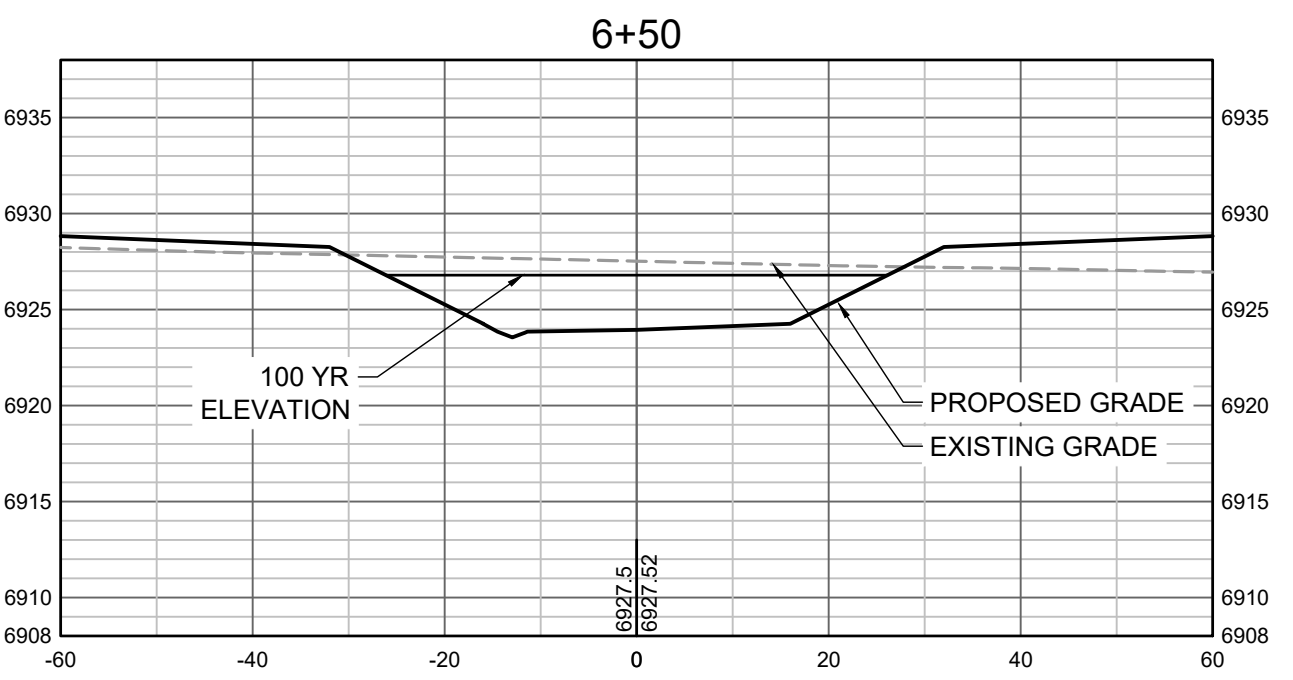
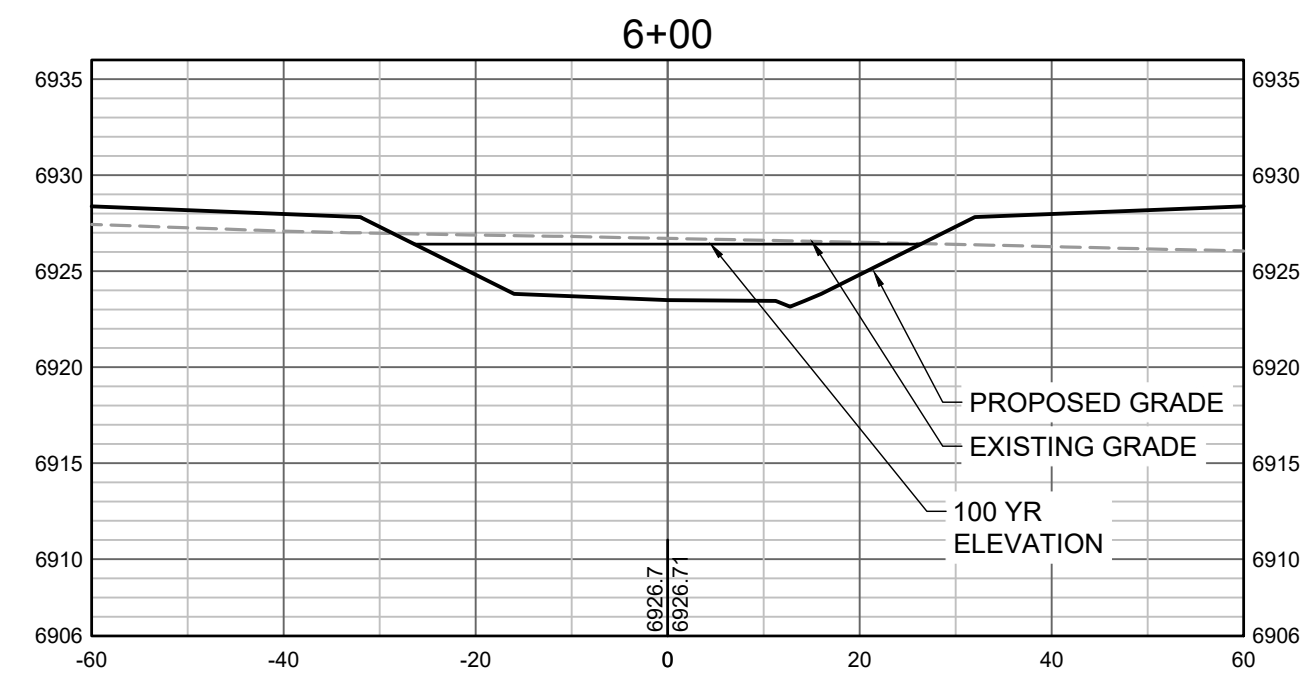
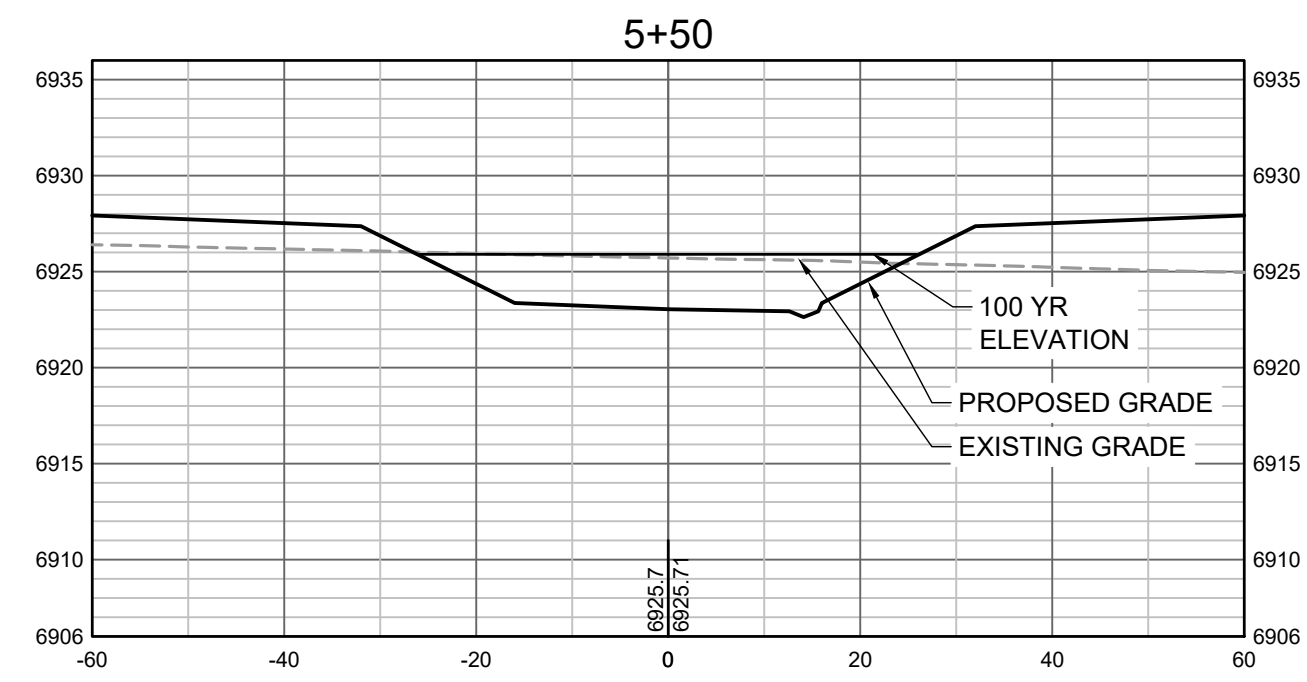
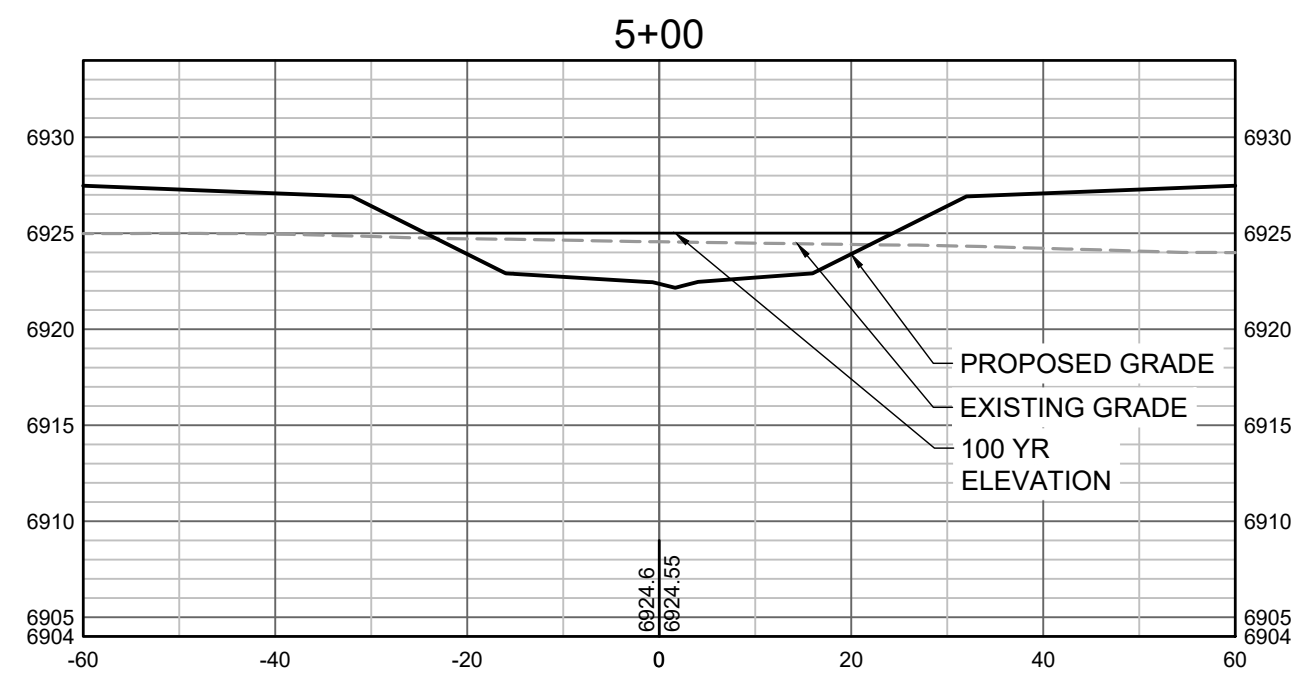
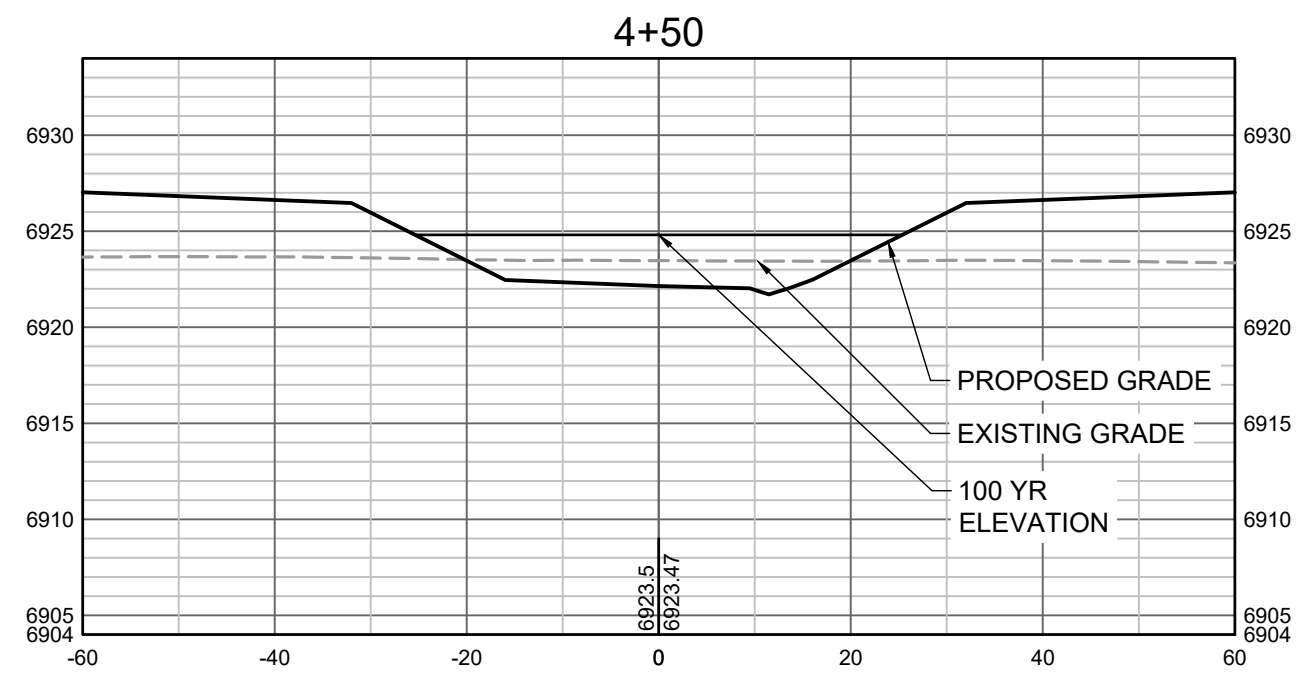
GRANDVIEW RESERVE (DRAINAGE A & B)  
DR HORTON  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
TRIBUTARY 2 CROSS SECTIONS

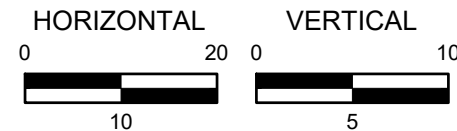
SHEET  
CS1

21





PROPOSED GRADES TO TIE INTO GRANDVIEW RESERVE FILING 1.  
REFER TO THE GRANDVIEW RESERVE FILING 1 PLAN SET FOR  
CONTINUATION OF GRADING THAT IS BEING TIED INTO OUTSIDE  
OF CHANNEL GRADING LIMITS.



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APPROVED: CMM JOB NUMBER: 201662.03  
CAD DATE: 7/25/2022  
CAD FILE: J:\2020\201662.03\CAD\Drawings\C\CROSS SECTIONS

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0 1"  
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NO.	DATE	BY	REVISION DESCRIPTION

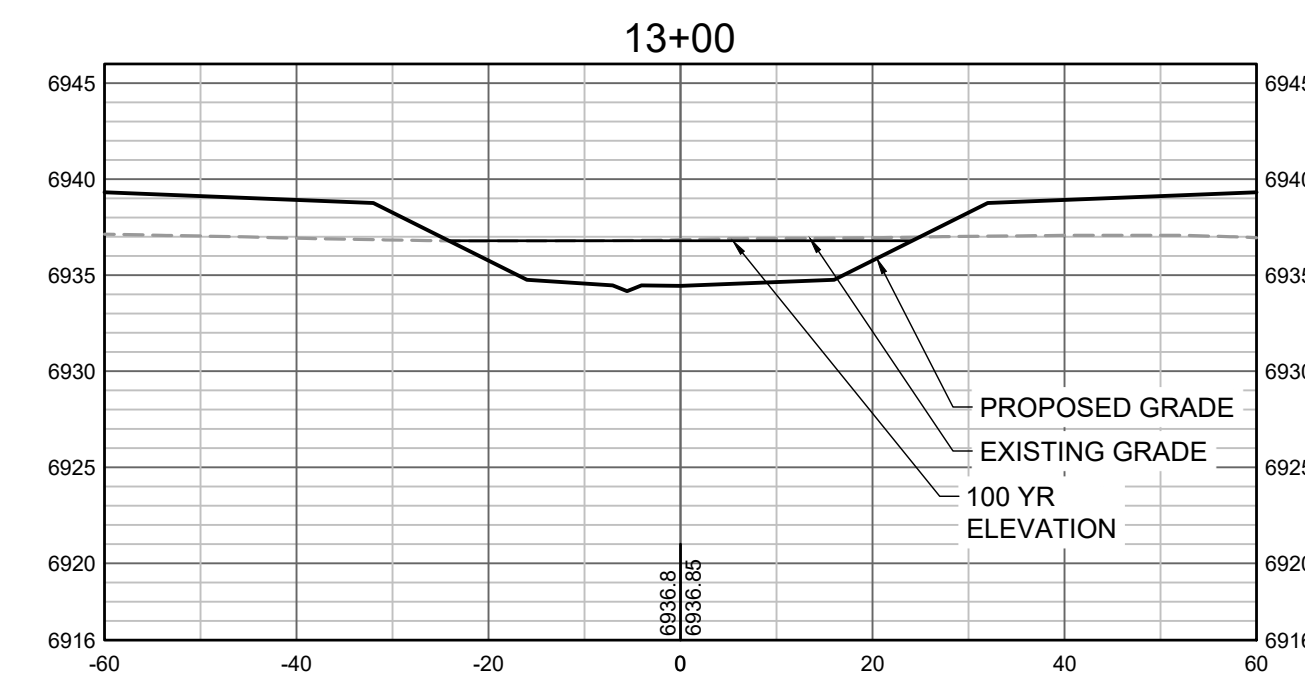
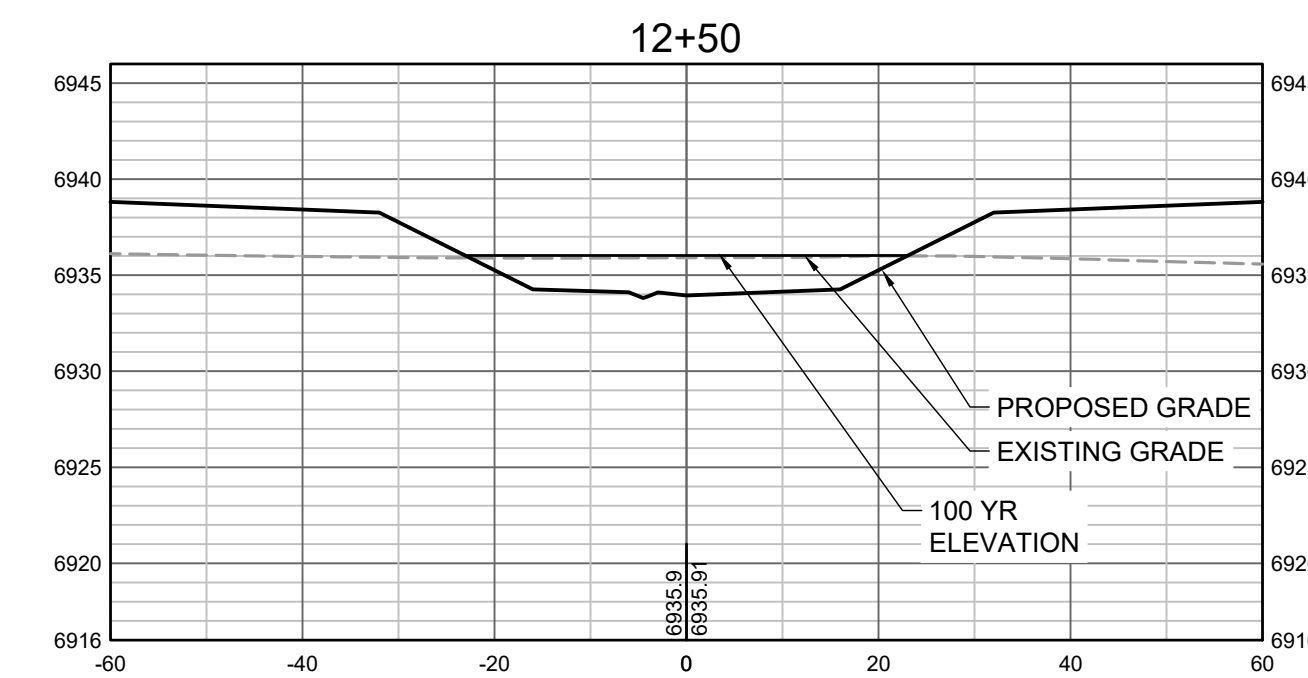
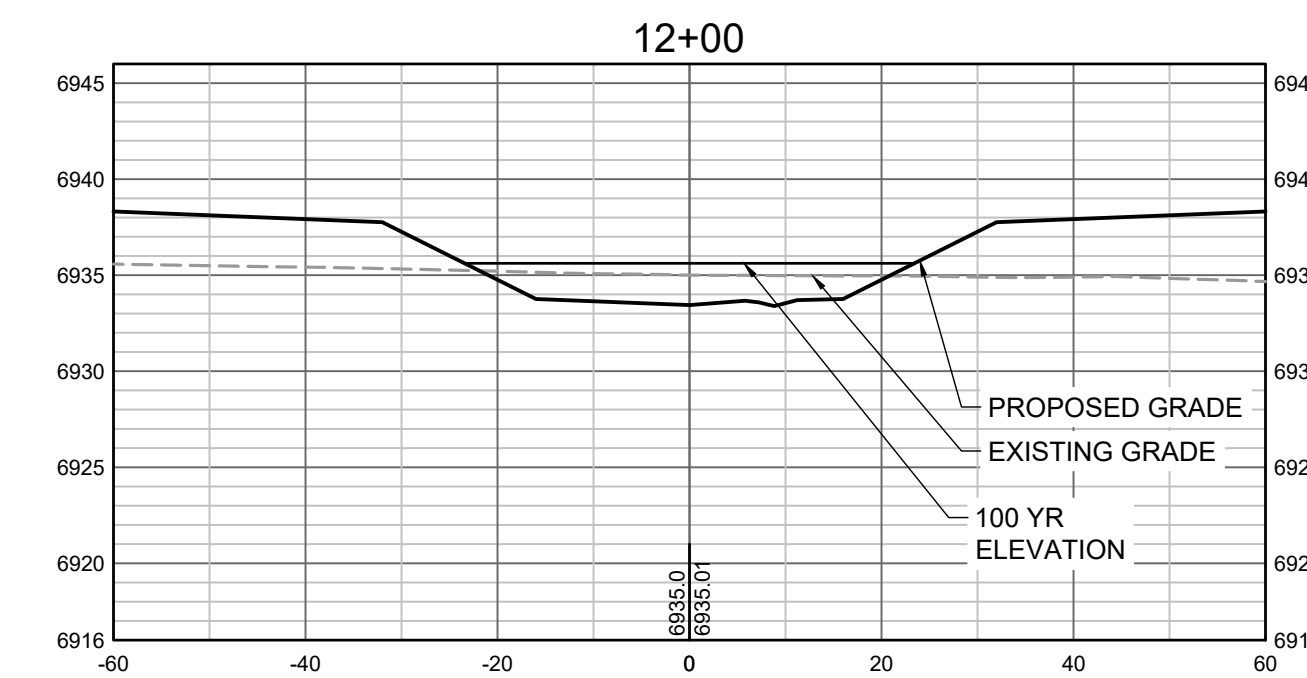
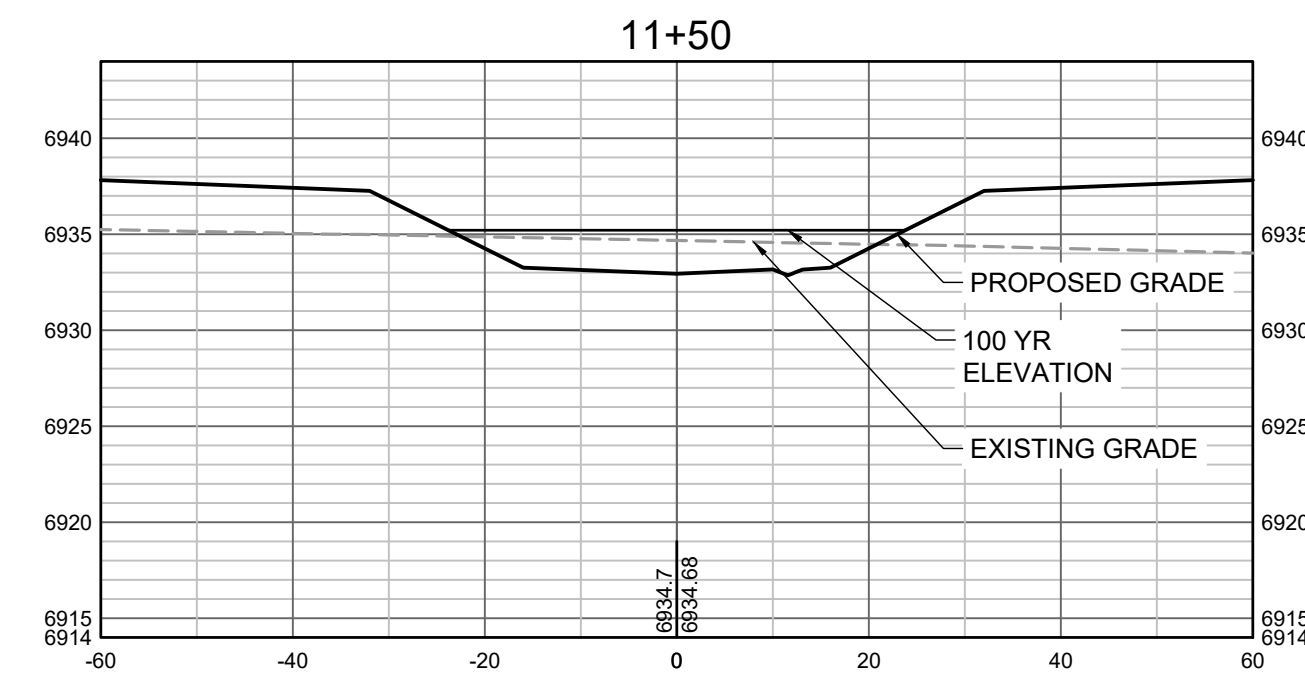
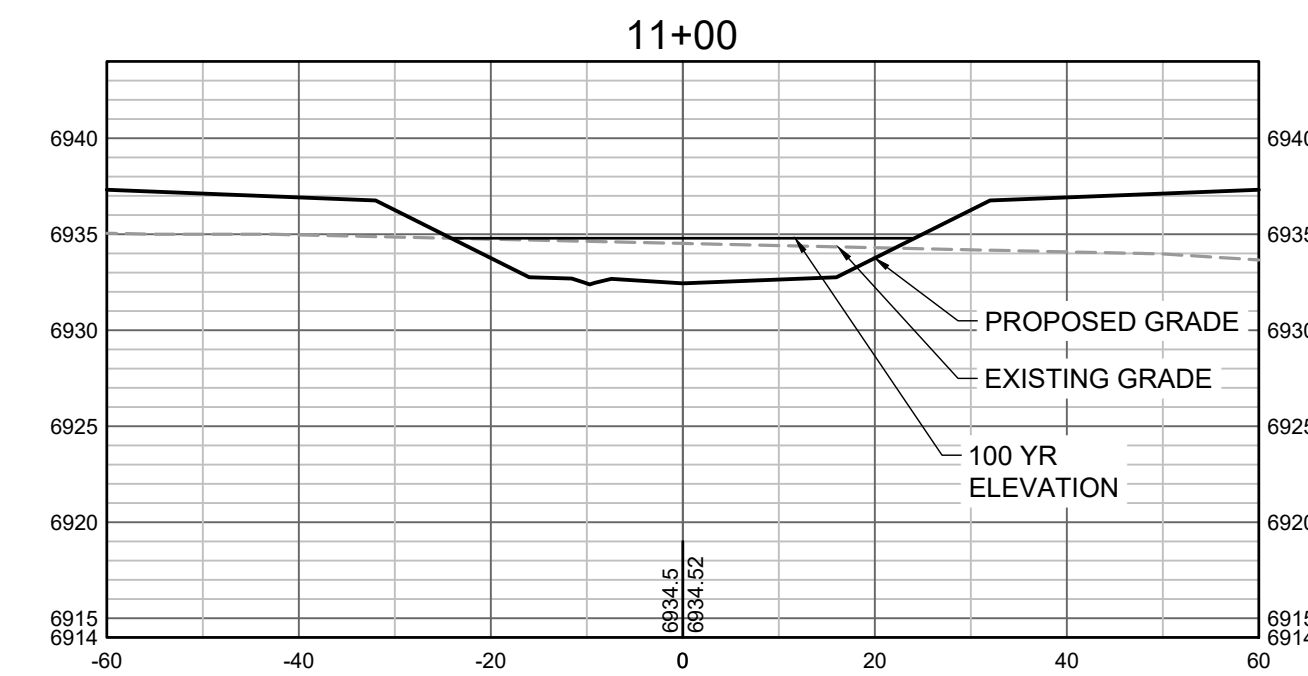
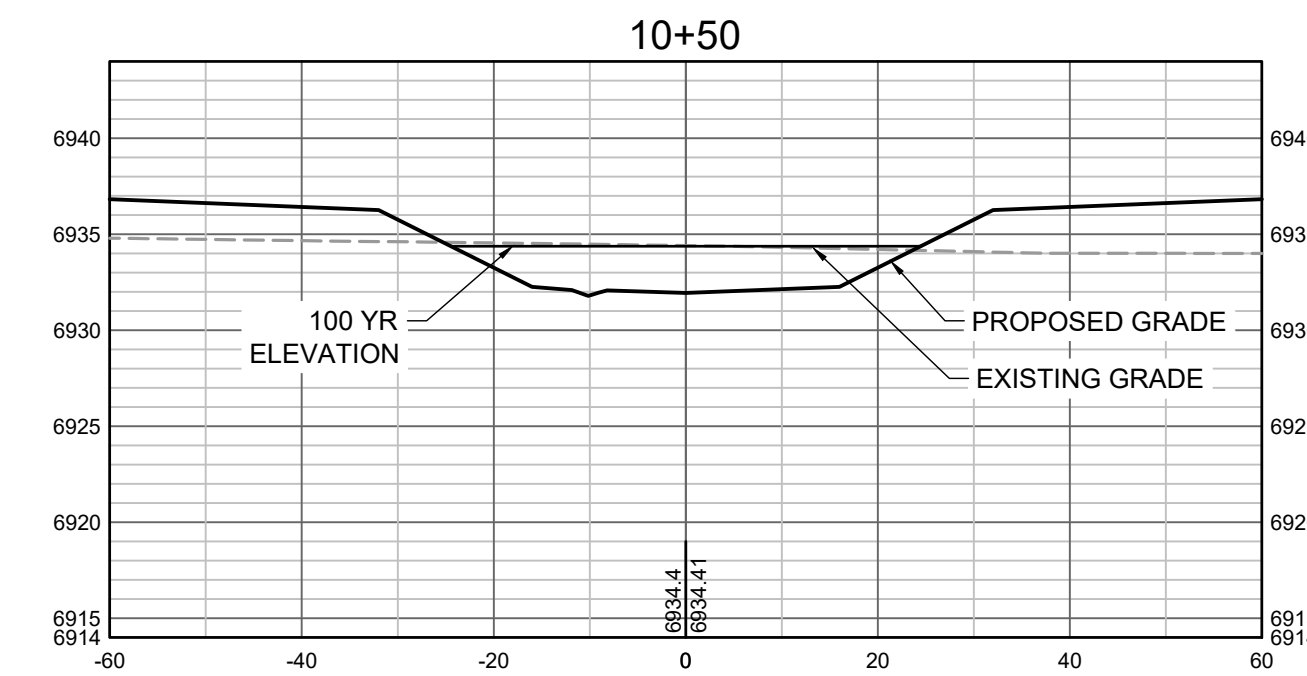
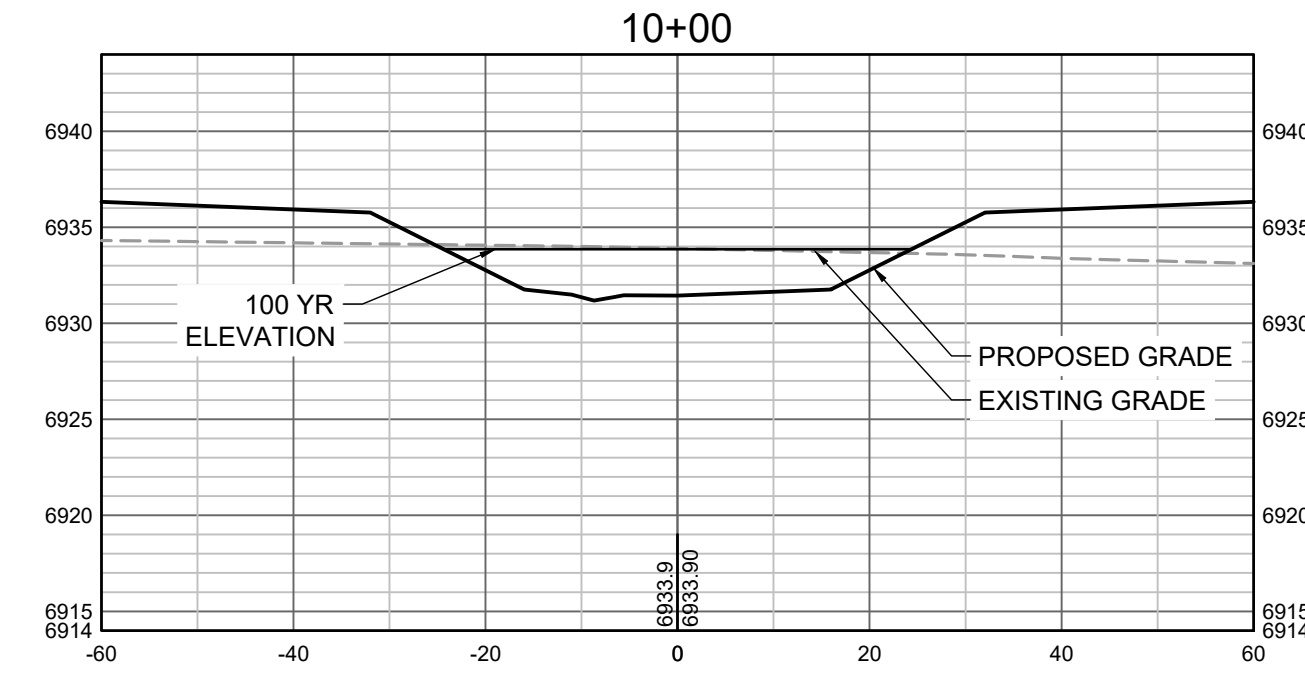
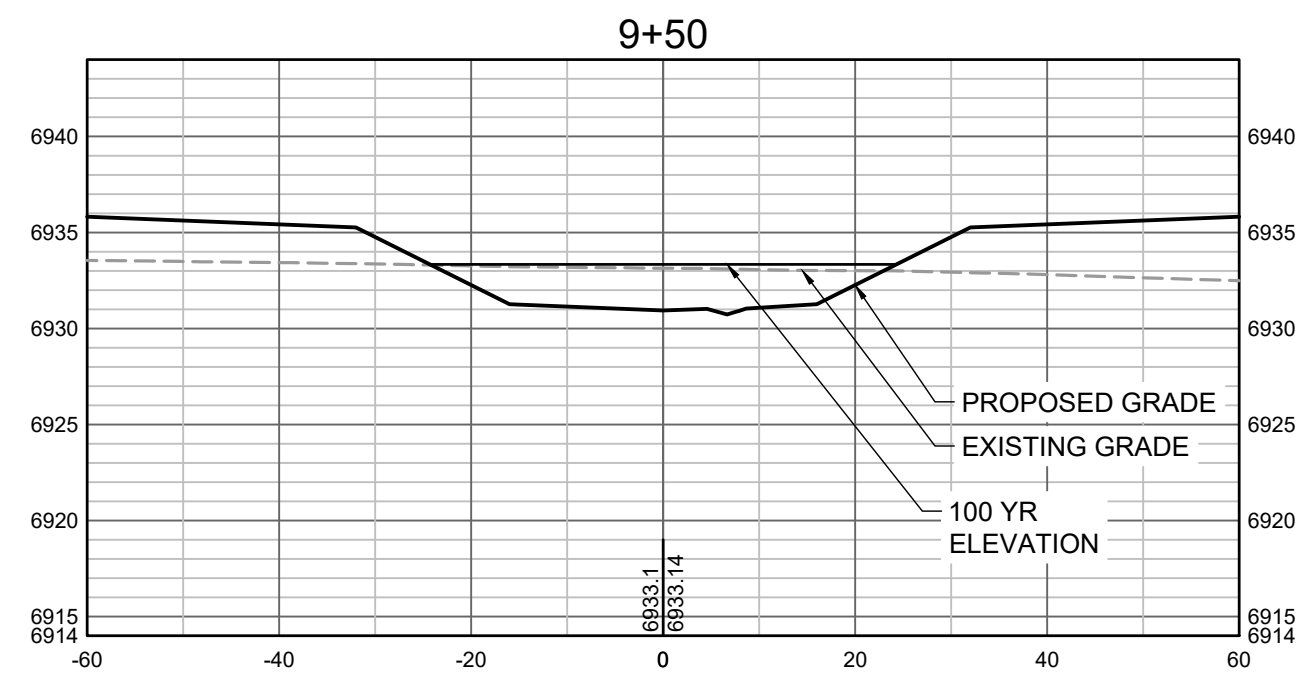
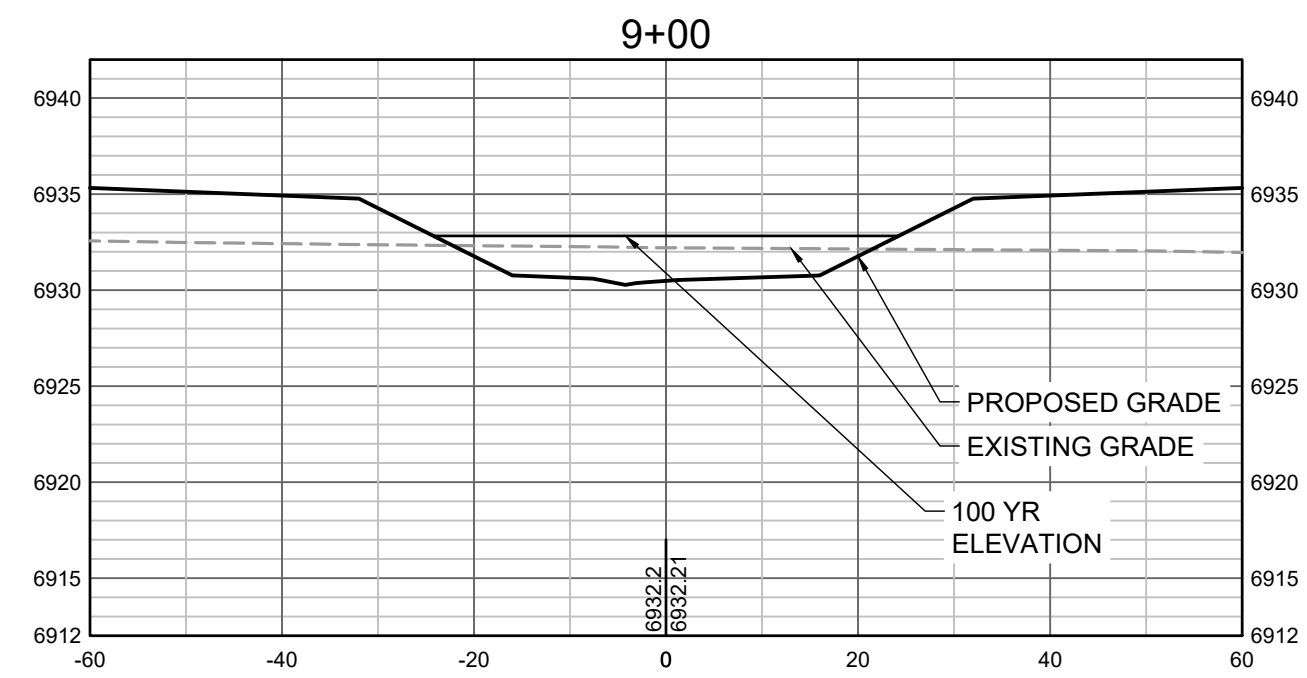
**HRGreen**  
HR GREEN - DENVER  
5619 DTC PARKWAY SUITE 1150  
DENVER CO 80111  
PHONE: 720.602.4999  
FAX: 844.273.1057

**GRANDVIEW RESERVE (DRAINAGE A & B)**  
**DR HORTON**  
FALCON, COLORADO

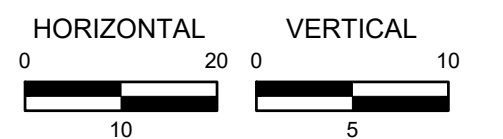
CONSTRUCTION DOCUMENTS  
TRIBUTARY 2 CROSS SECTIONS

SHEET  
**CS2**  
**22**





PROPOSED GRADES TO TIE INTO GRANDVIEW RESERVE FILING 1.  
REFER TO THE GRANDVIEW RESERVE FILING 1 PLAN SET FOR  
CONTINUATION OF GRADING THAT IS BEING TIED INTO OUTSIDE  
OF CHANNEL GRADING LIMITS.



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HR GREEN - DENVER  
5619 DTC PARKWAY SUITE 1150  
DENVER CO 80111  
PHONE: 720.602.4999  
FAX: 844.273.1057

**GRANDVIEW RESERVE (DRAINAGE A & B)**  
**DR HORTON**  
FALCON, COLORADO

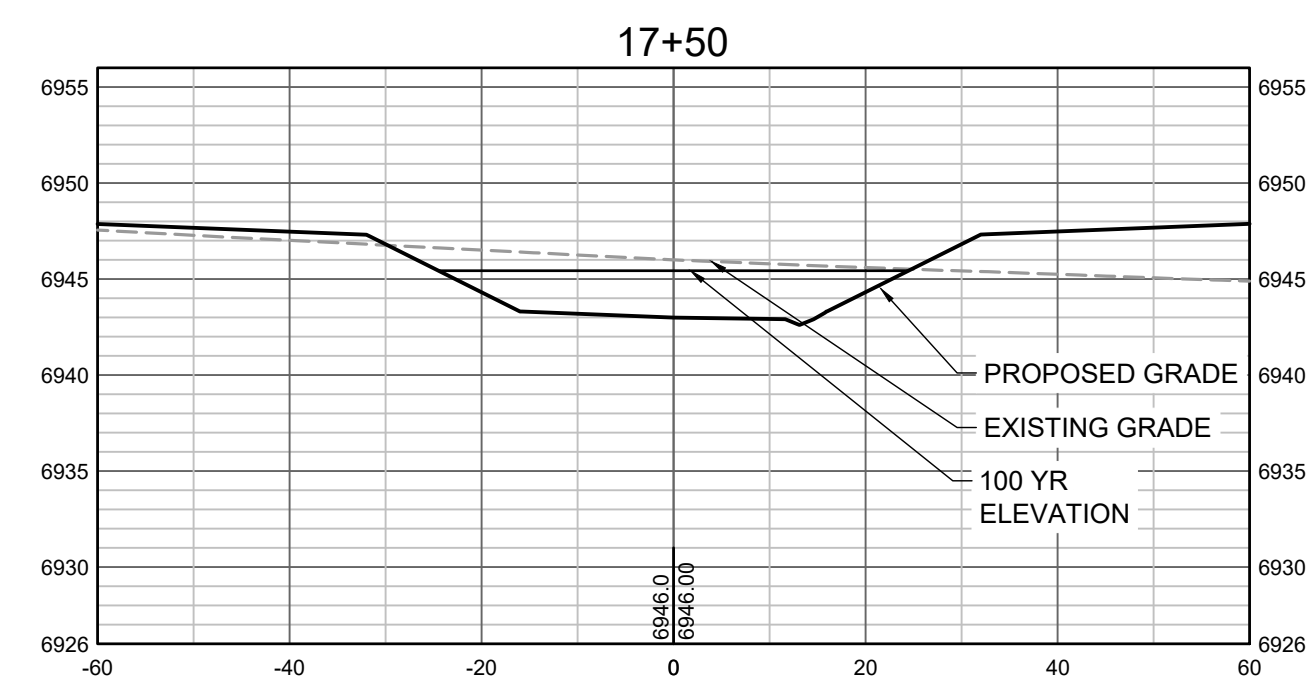
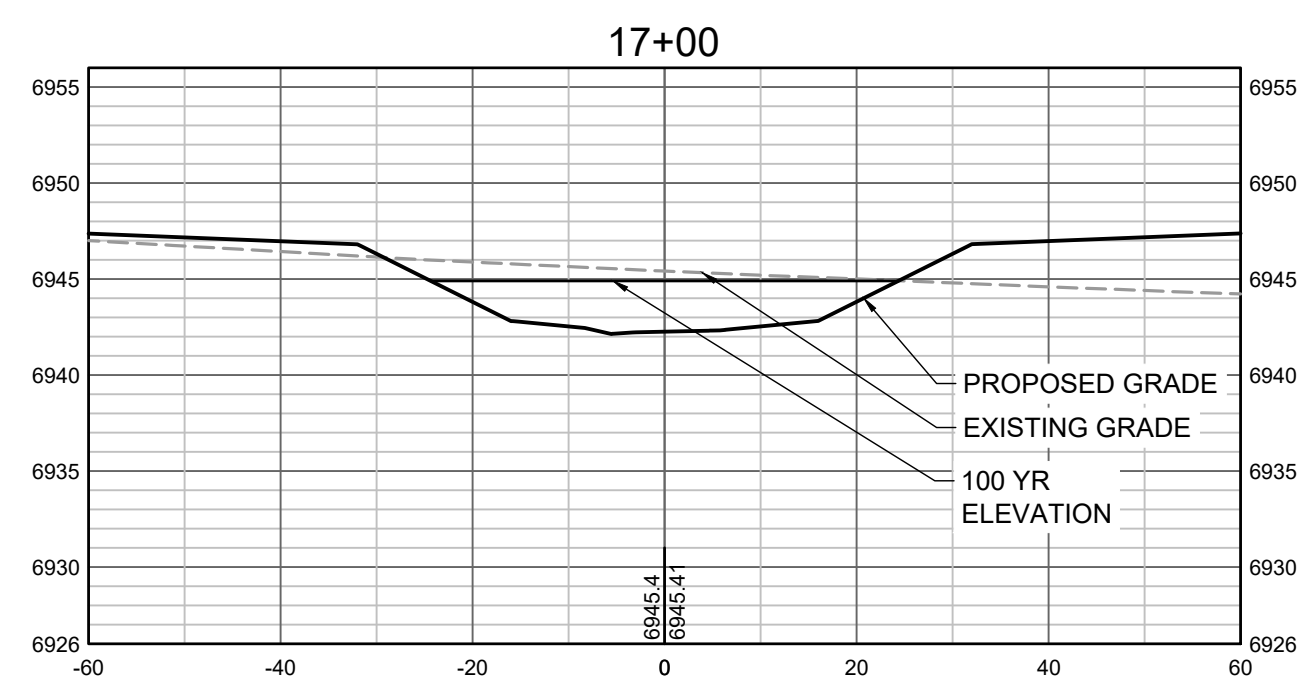
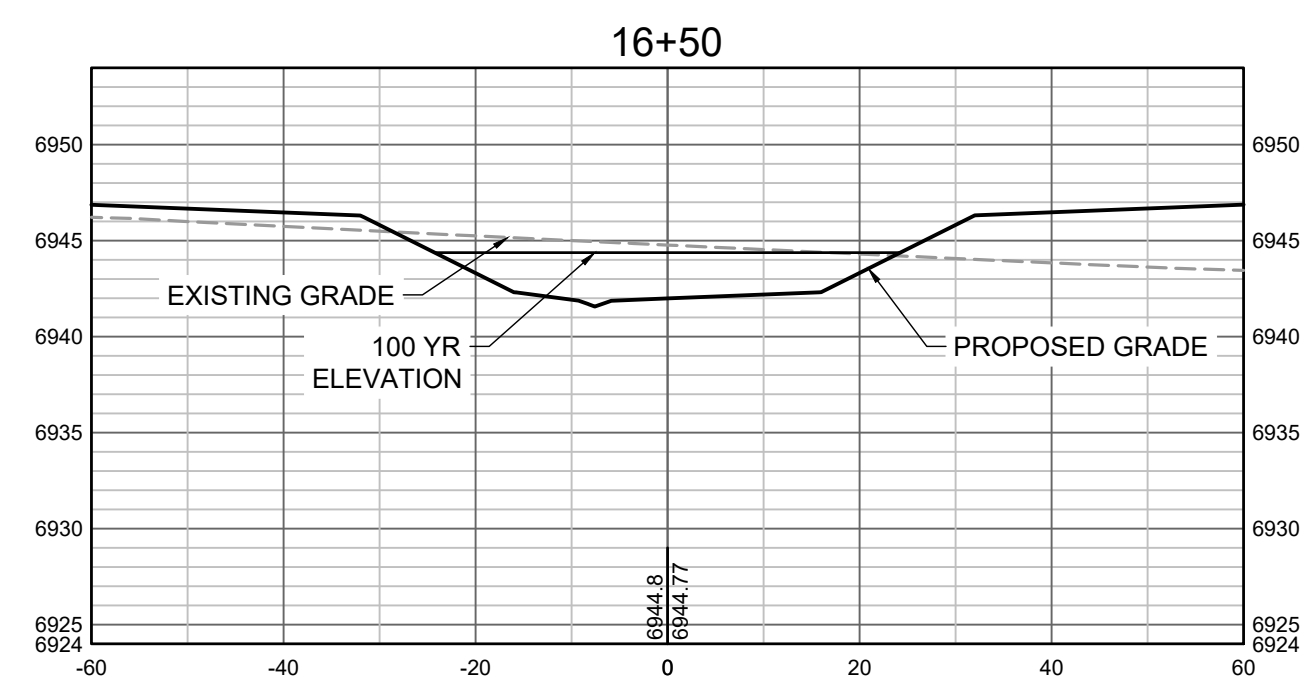
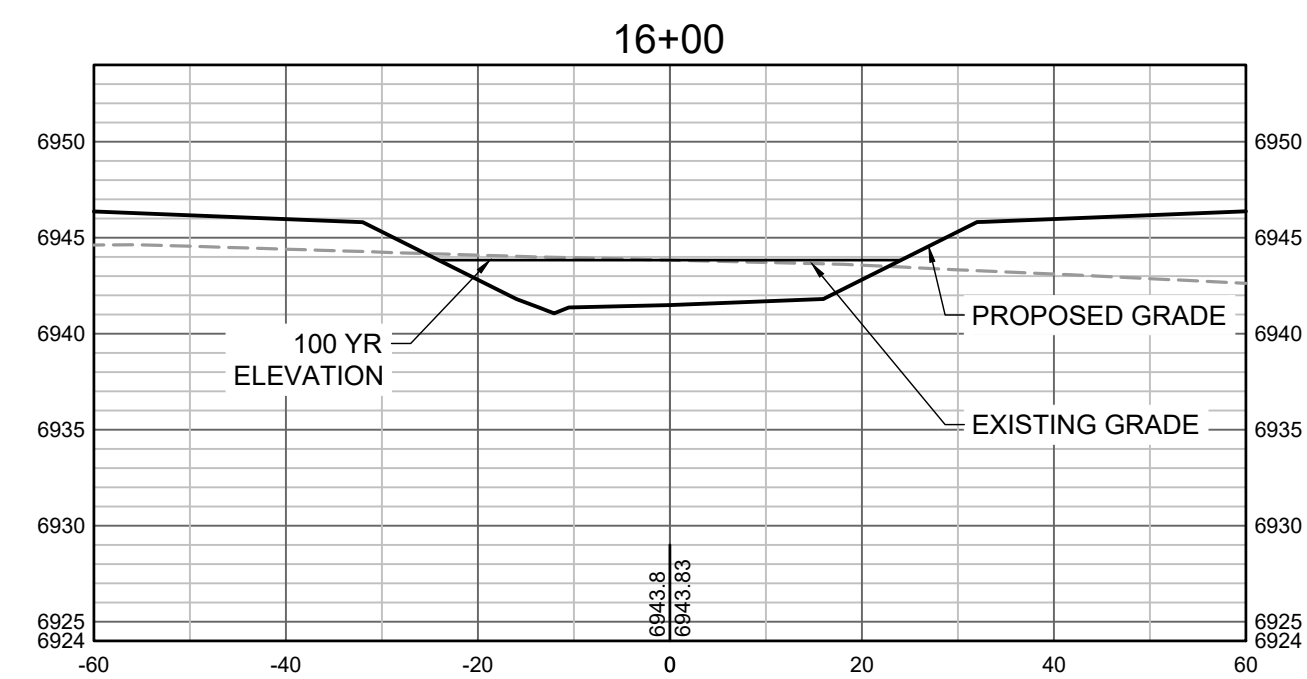
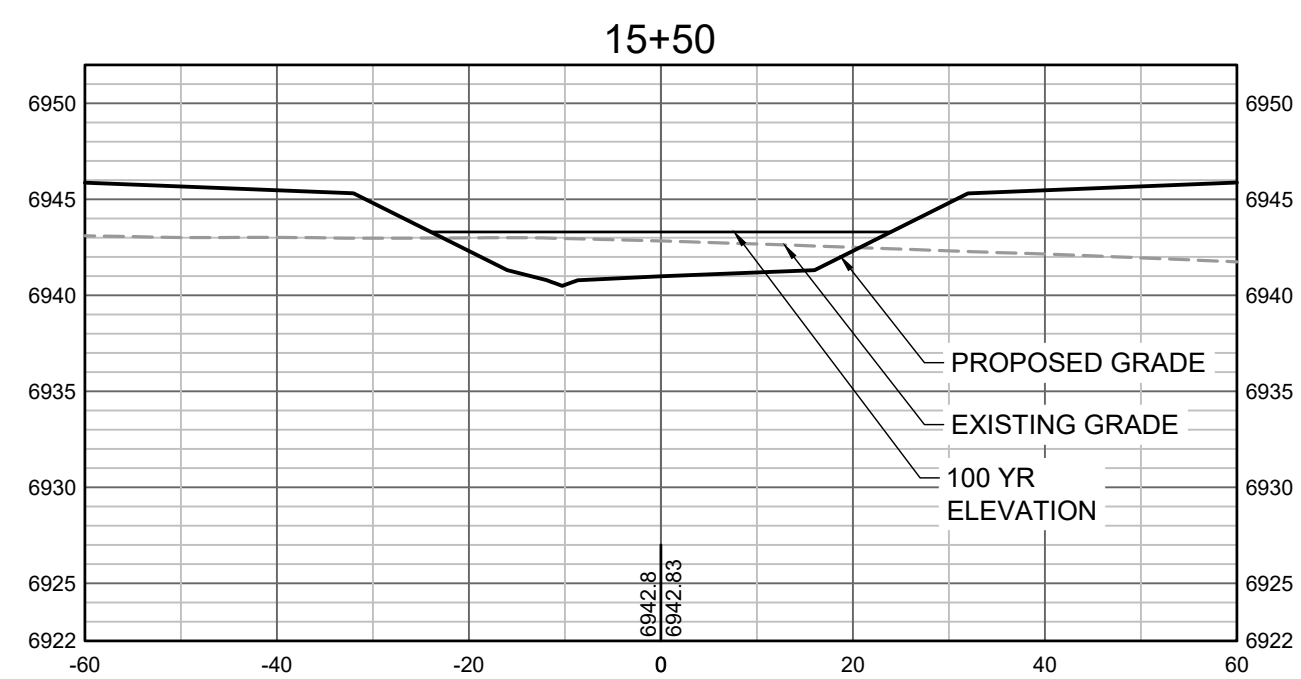
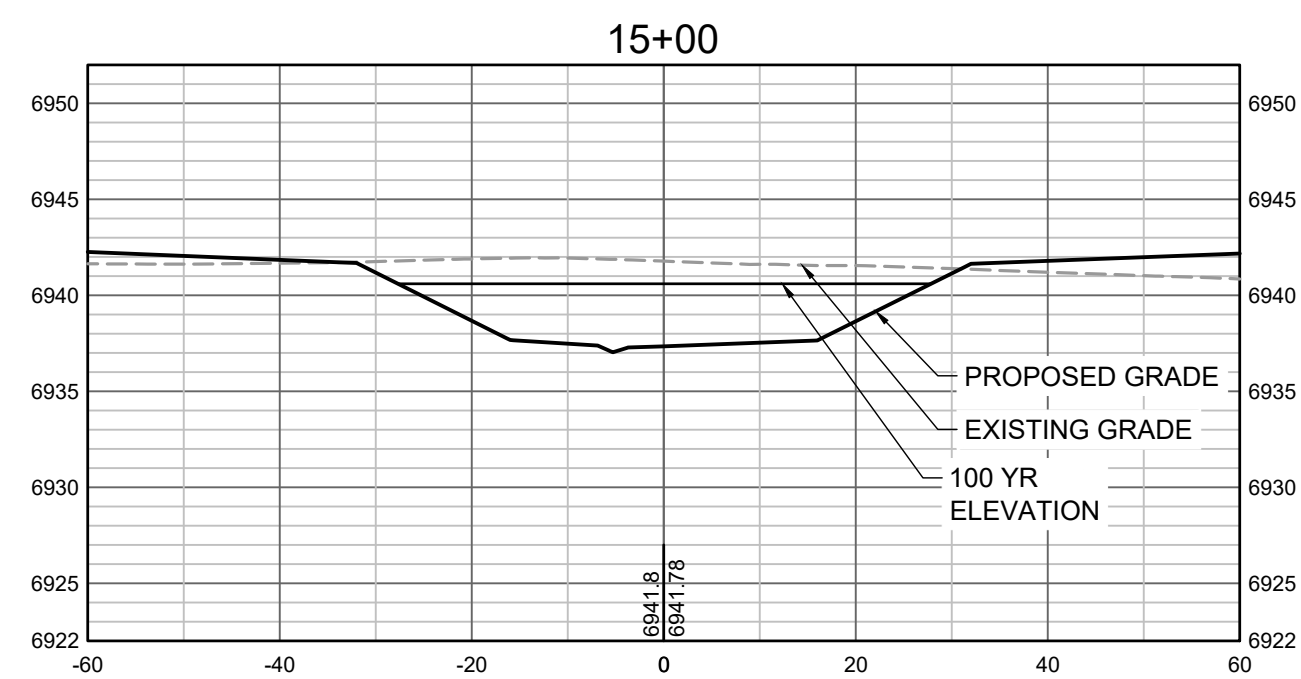
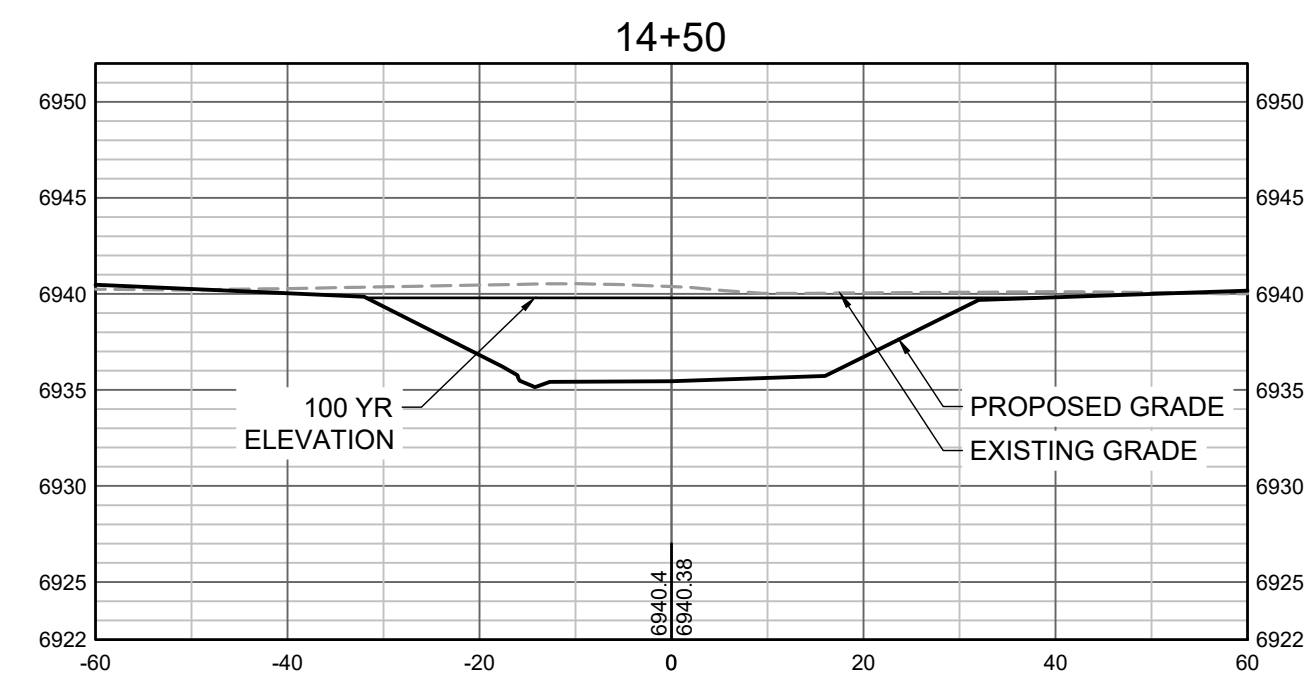
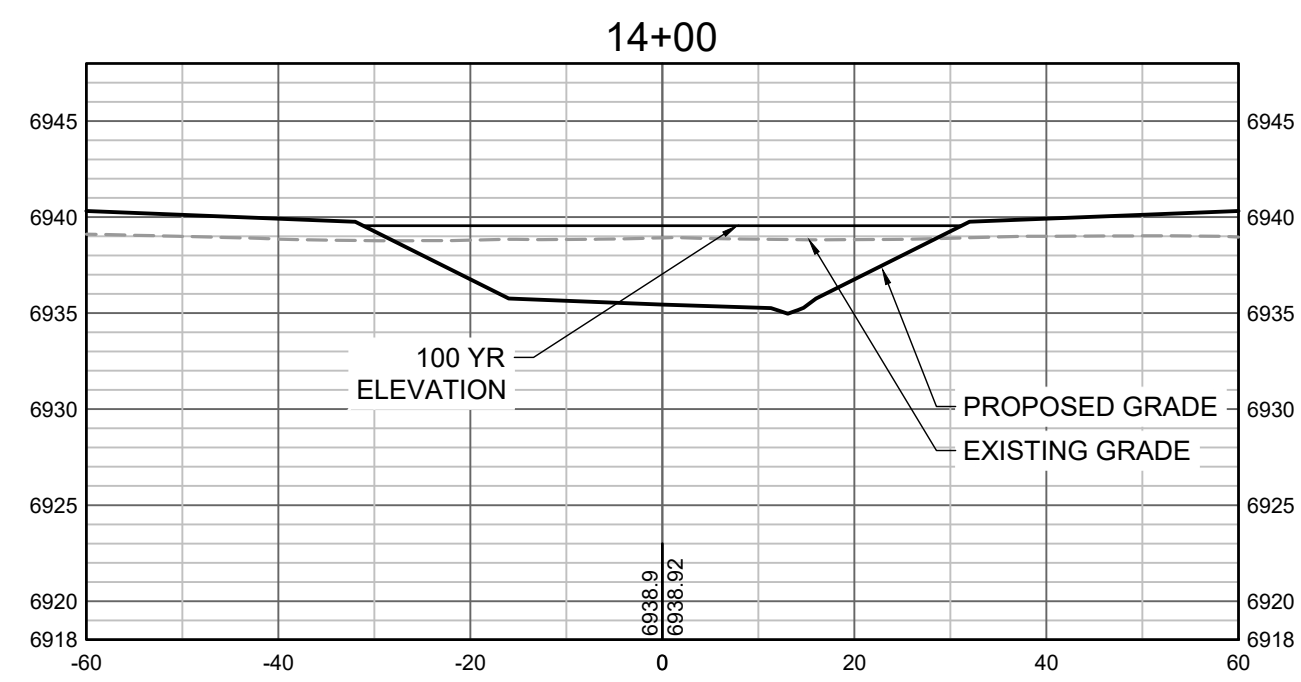
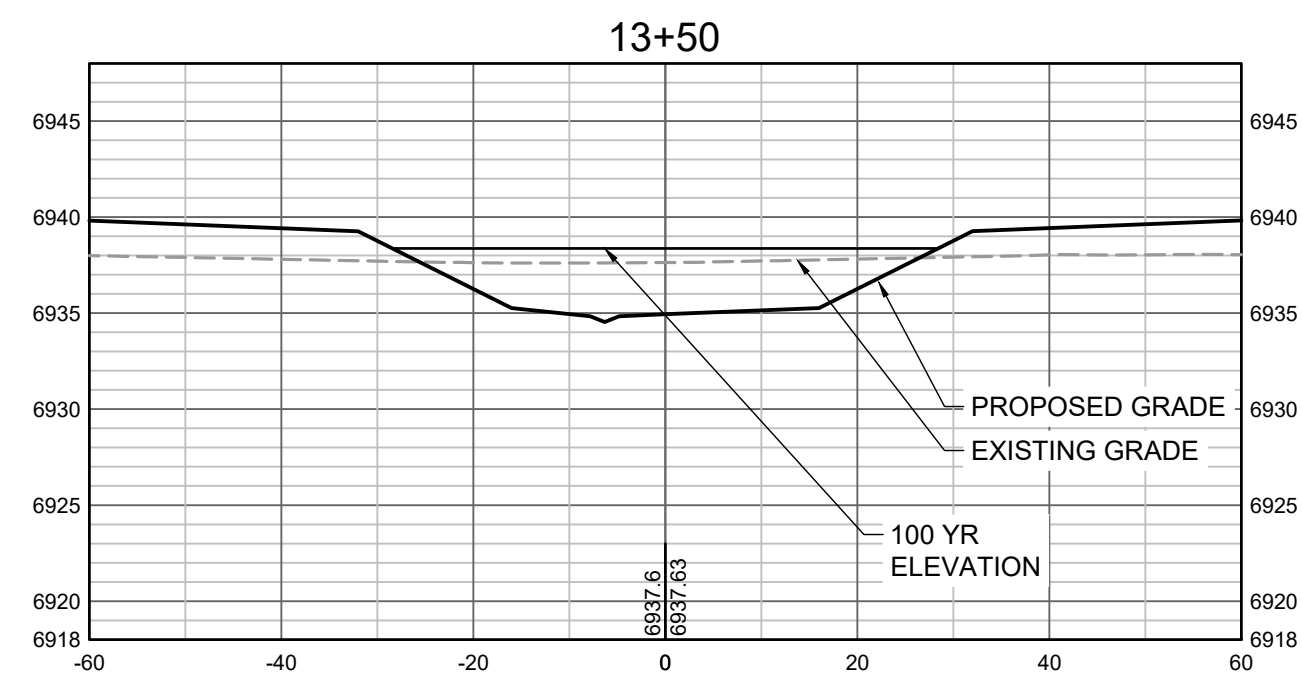
CONSTRUCTION DOCUMENTS  
TRIBUTARY 2 CROSS SECTIONS

SHEET  
CS3

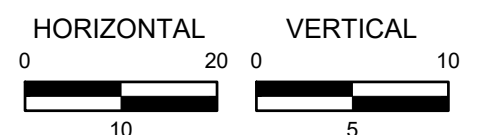
23

HR GREEN Xrefs.xgt-dh01





PROPOSED GRADES TO TIE INTO GRANDVIEW RESERVE FILING 1.  
REFER TO THE GRANDVIEW RESERVE FILING 1 PLAN SET FOR  
CONTINUATION OF GRADING THAT IS BEING TIED INTO OUTSIDE  
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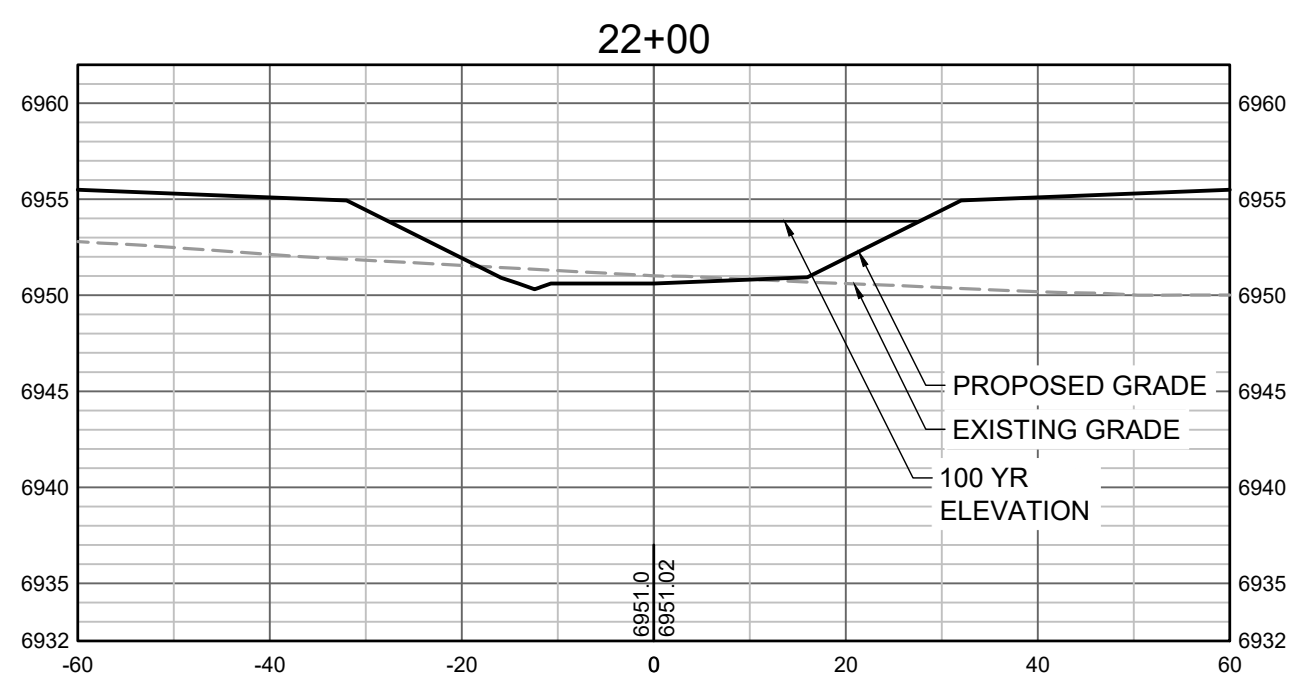
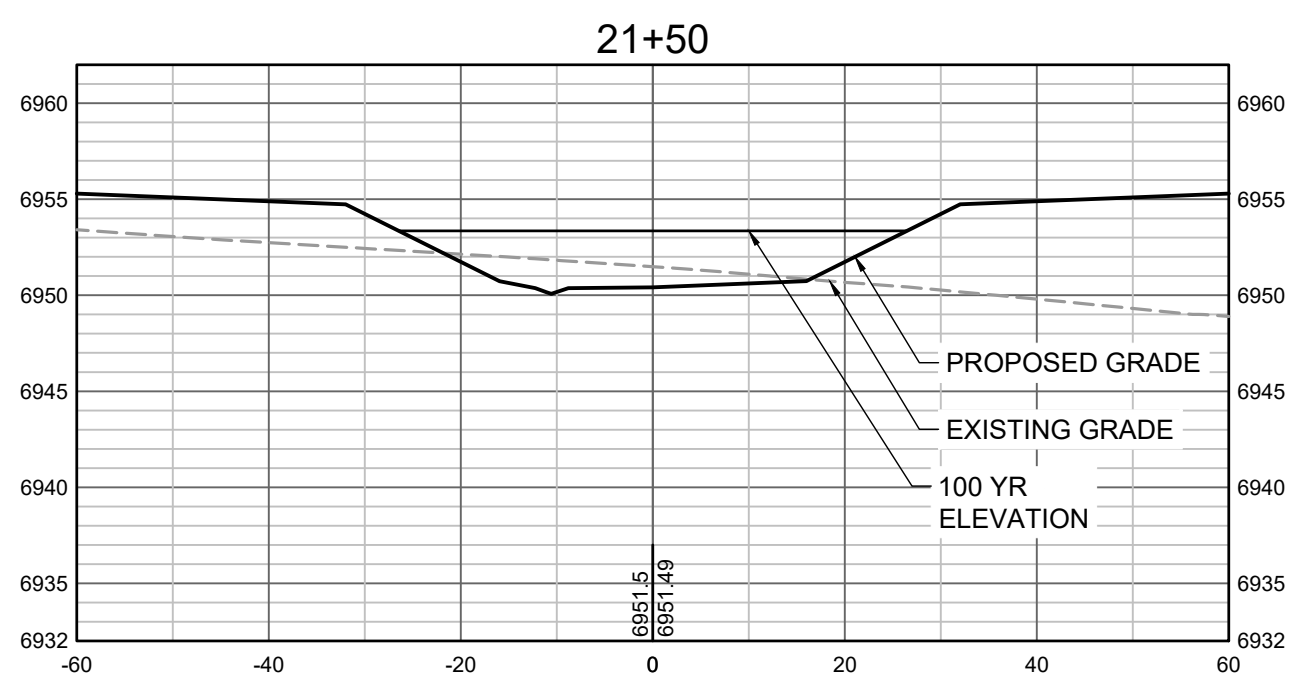
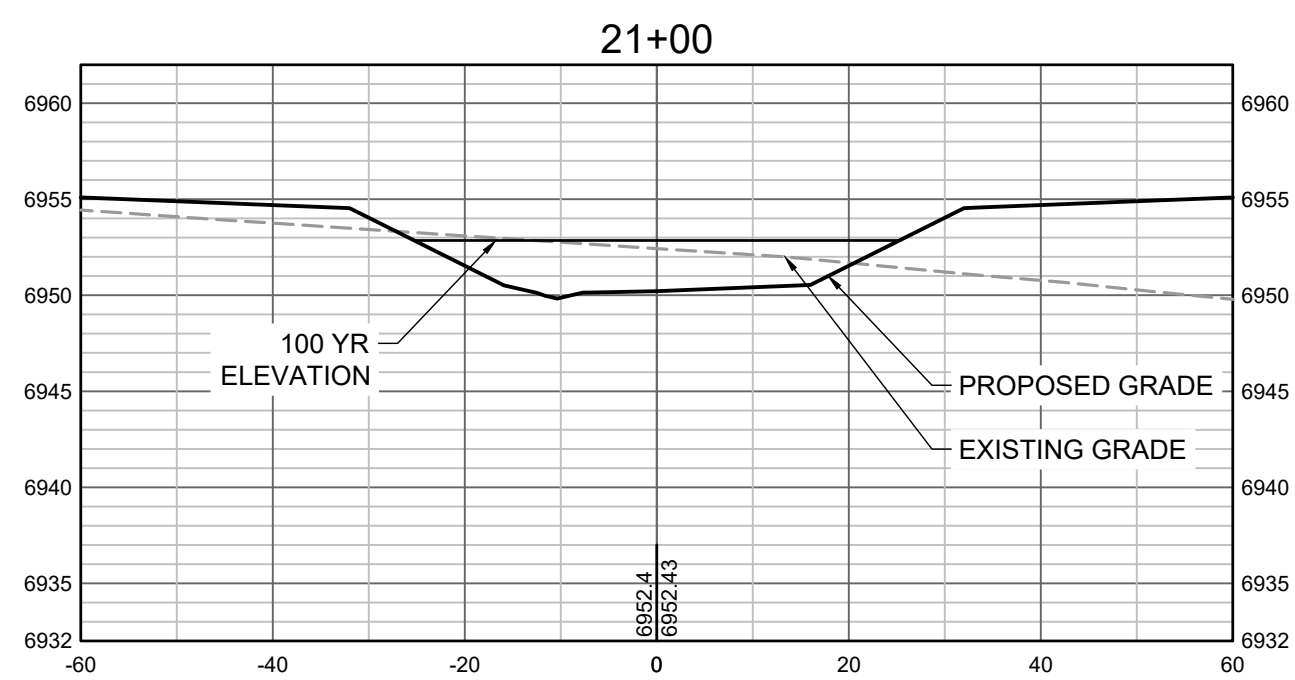
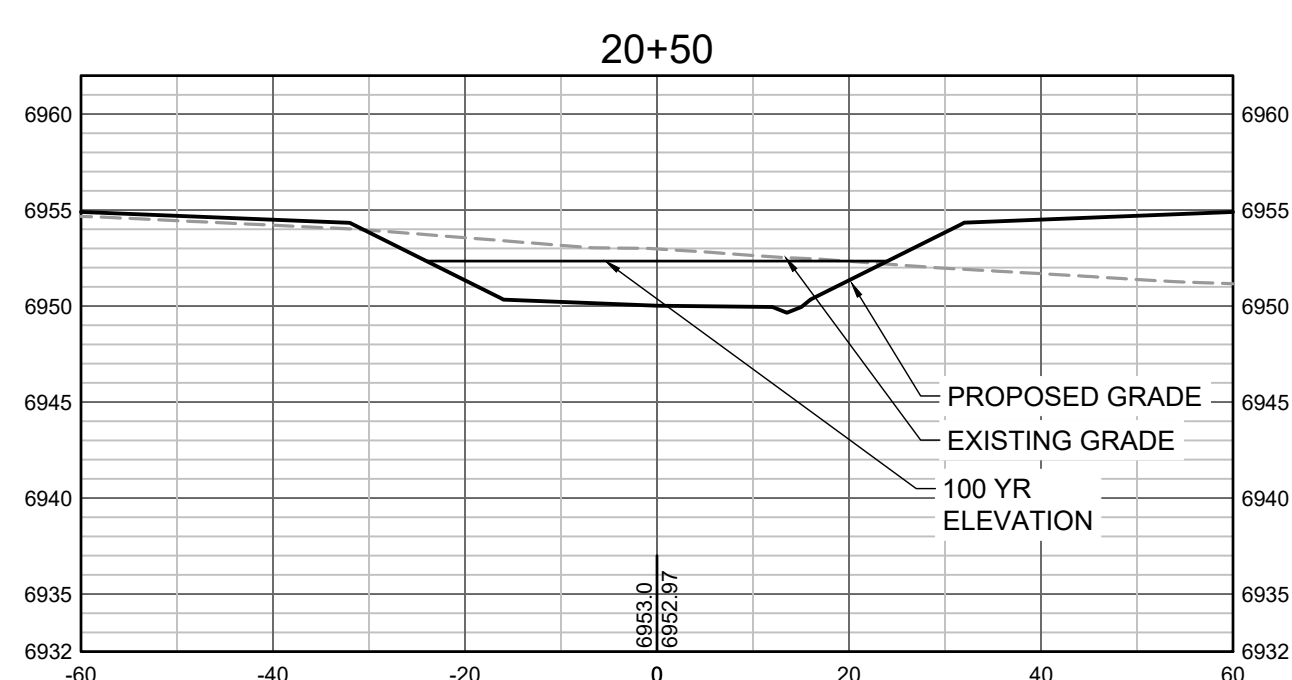
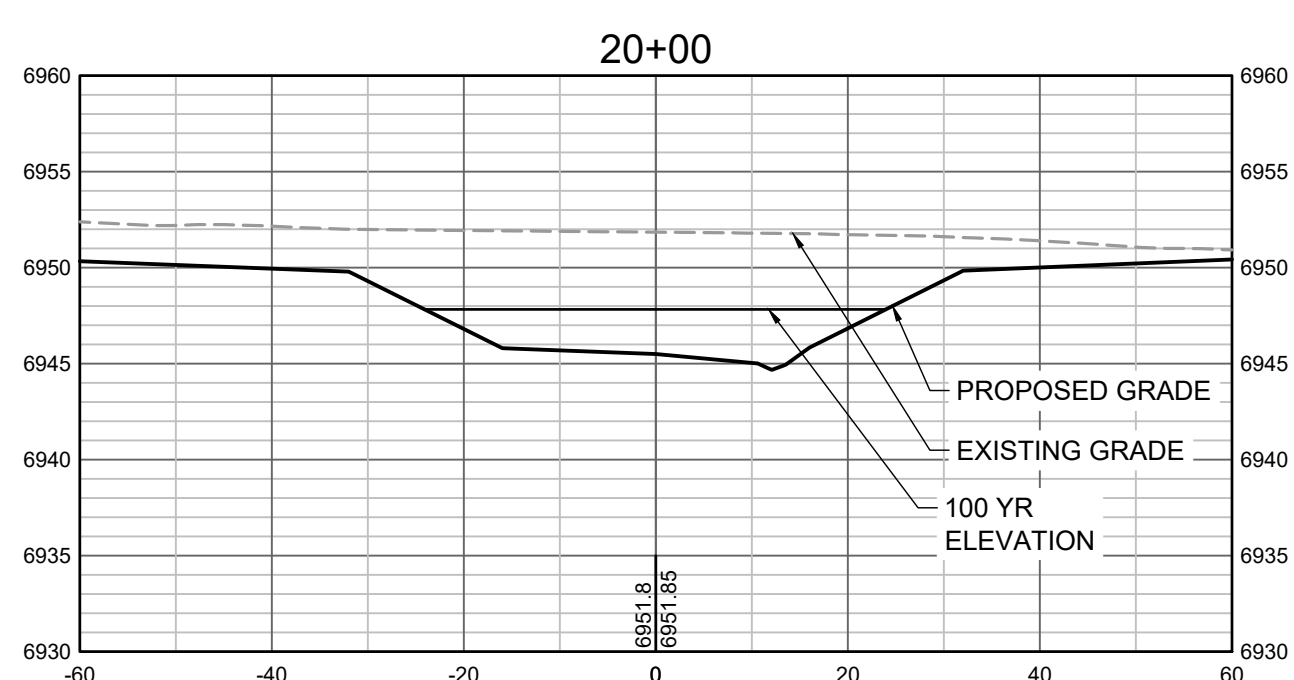
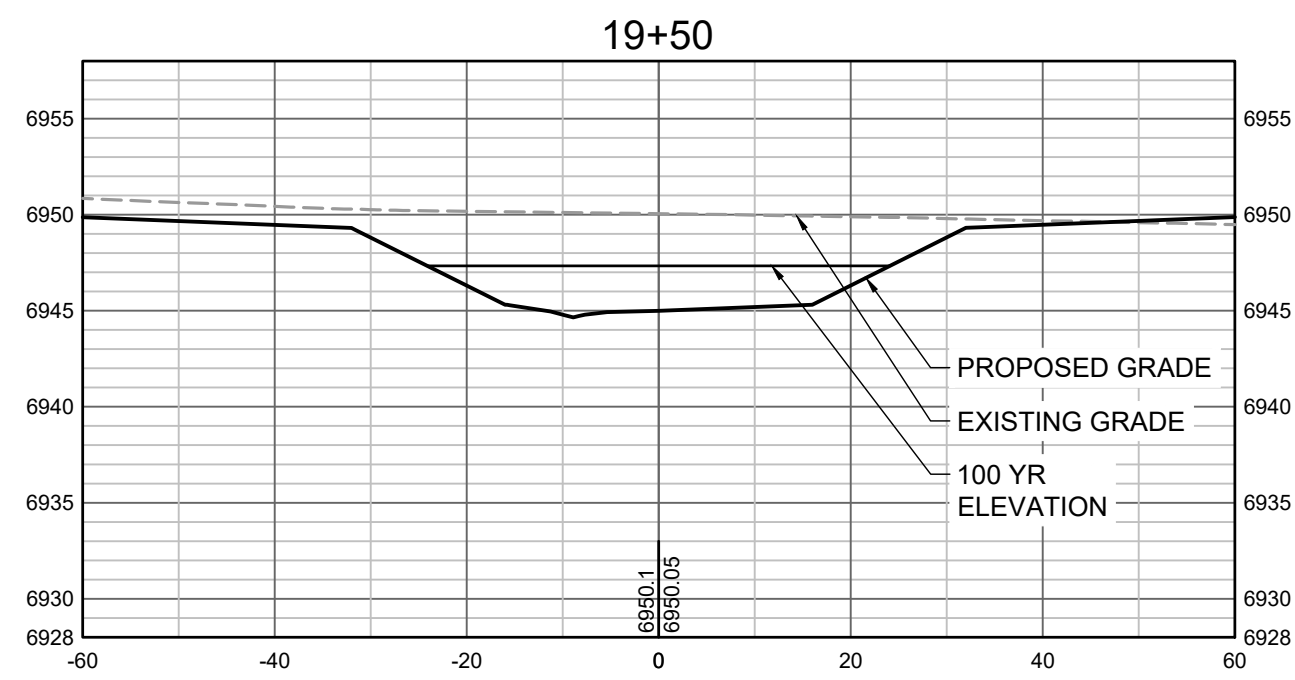
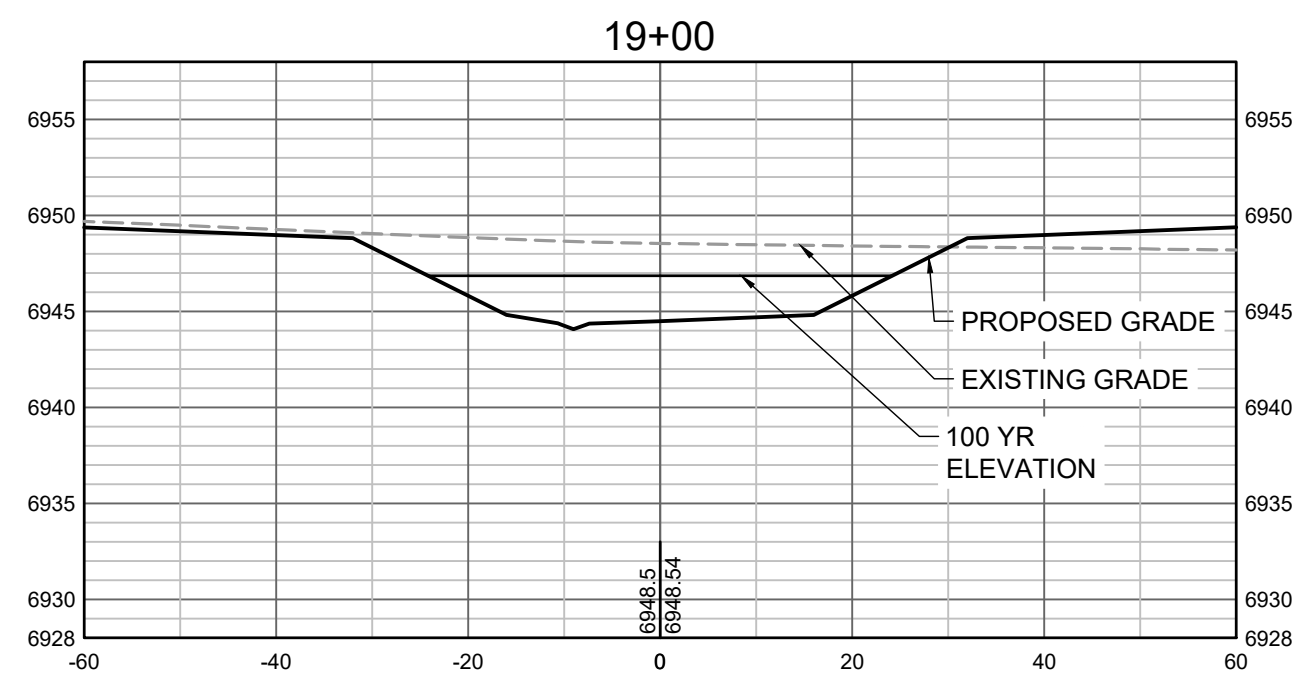
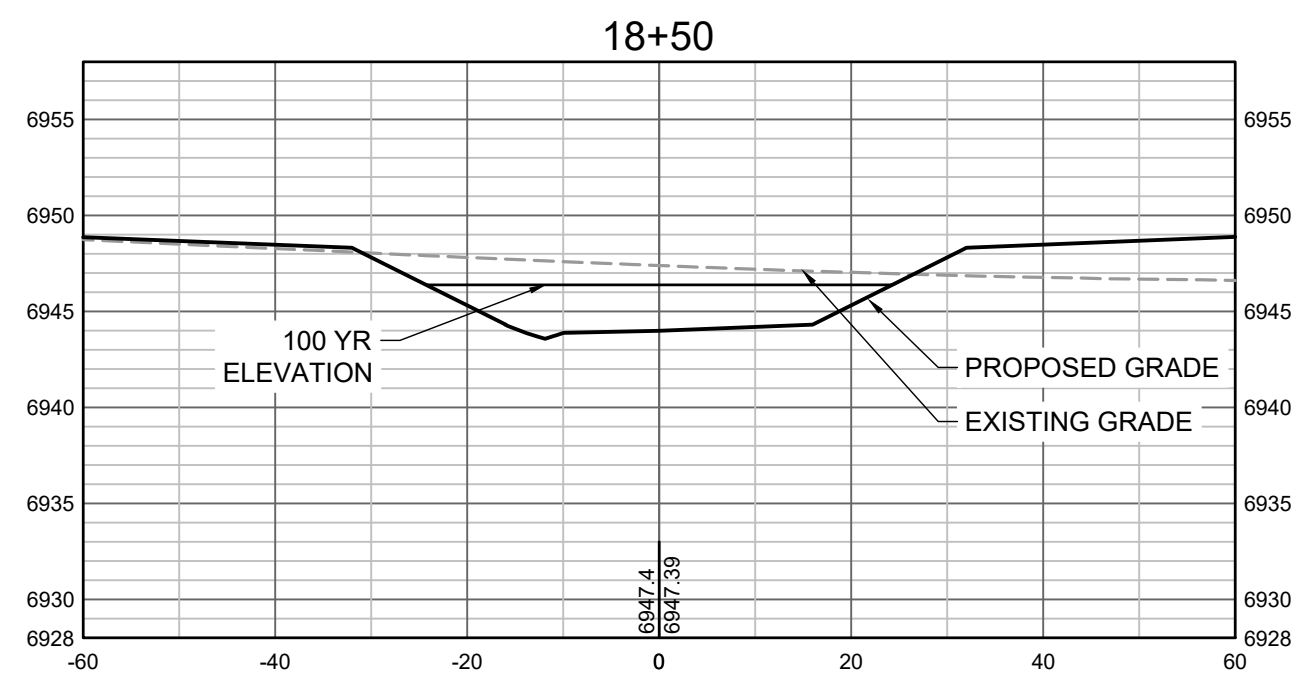
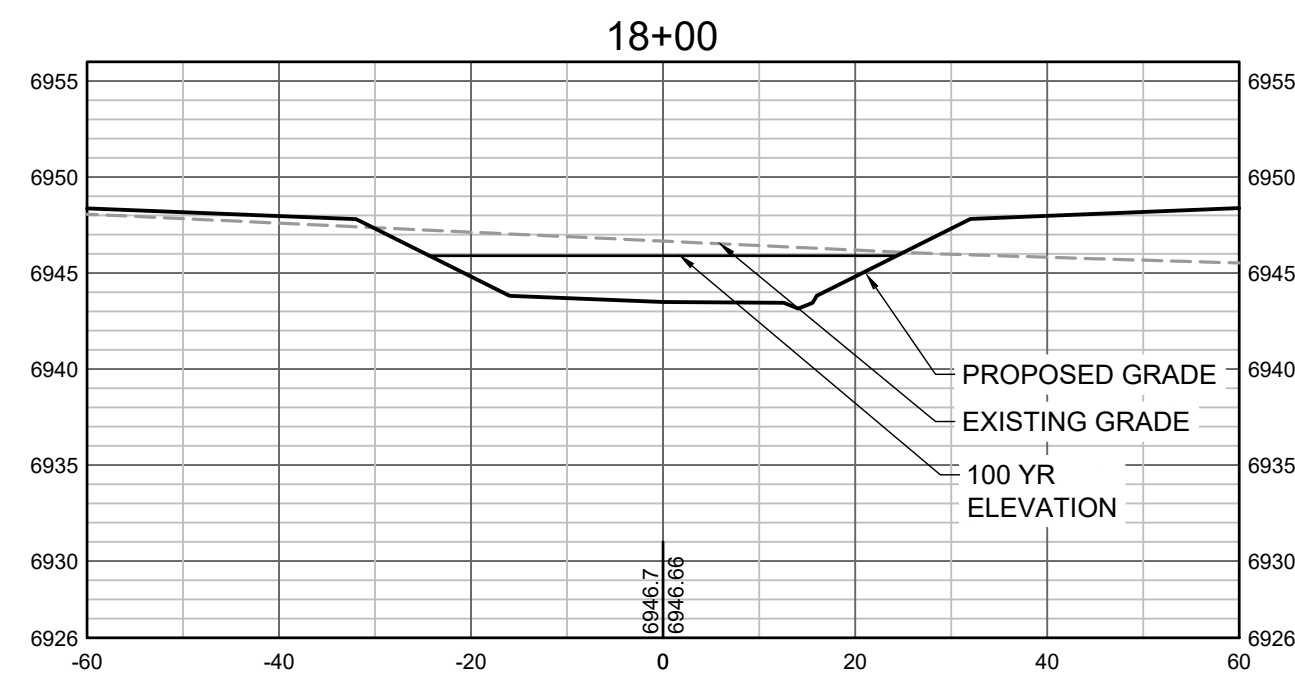
GRANDVIEW RESERVE (DRAINAGE A & B)  
DR HORTON  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
TRIBUTARY 2 CROSS SECTIONS

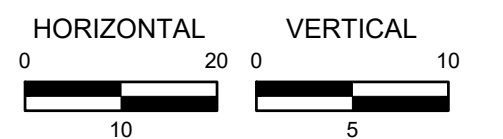
SHEET  
CS4

24





PROPOSED GRADES TO TIE INTO GRANDVIEW RESERVE FILING 1.  
REFER TO THE GRANDVIEW RESERVE FILING 1 PLAN SET FOR  
CONTINUATION OF GRADING THAT IS BEING TIED INTO OUTSIDE  
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5619 DTC PARKWAY SUITE 1150  
DENVER CO 80111  
PHONE: 720.602.4999  
FAX: 844.273.1057

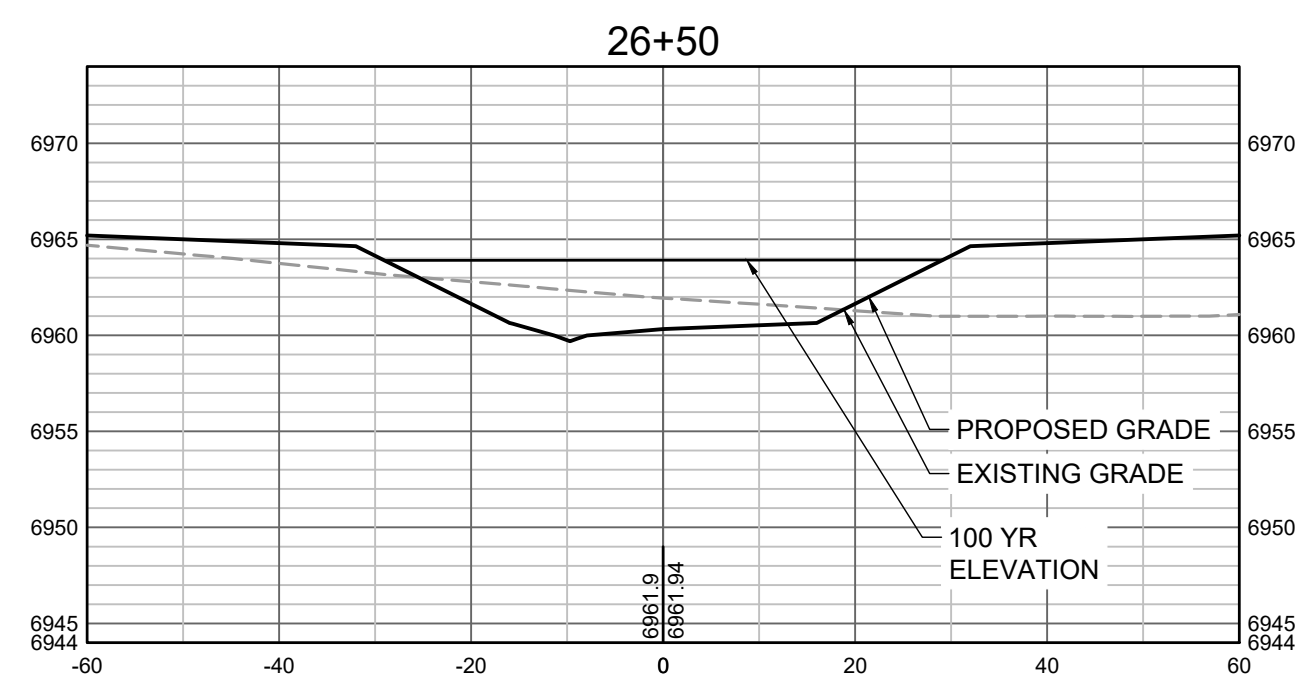
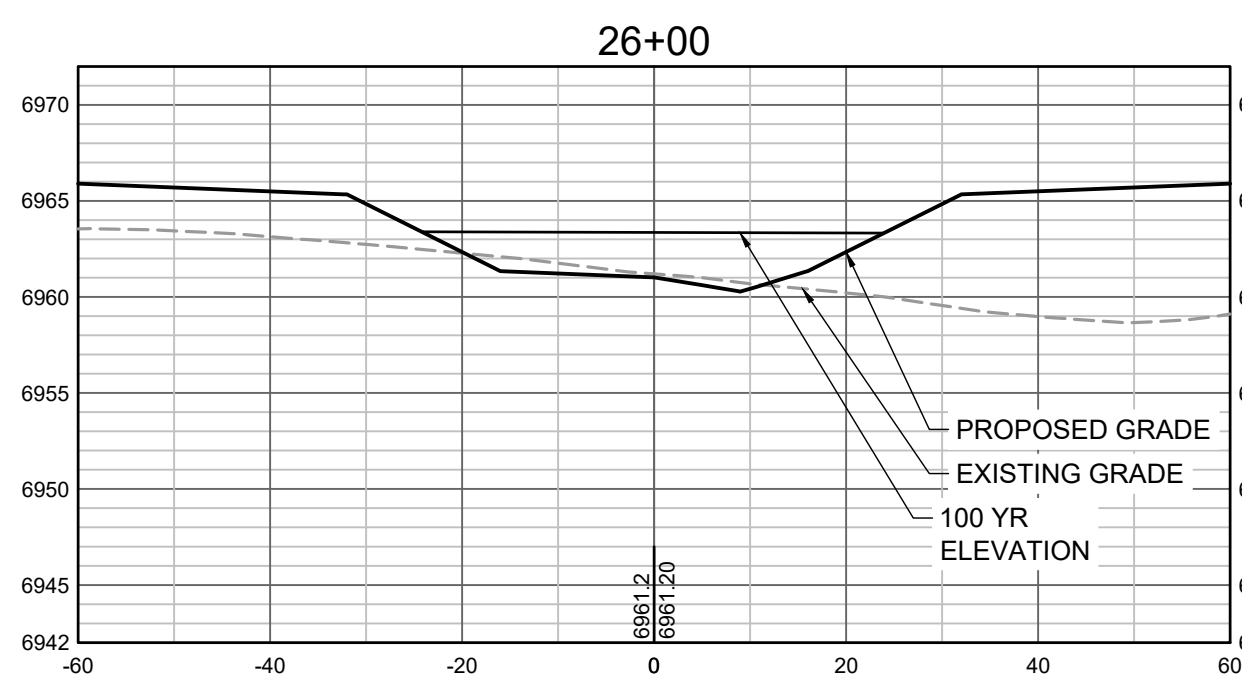
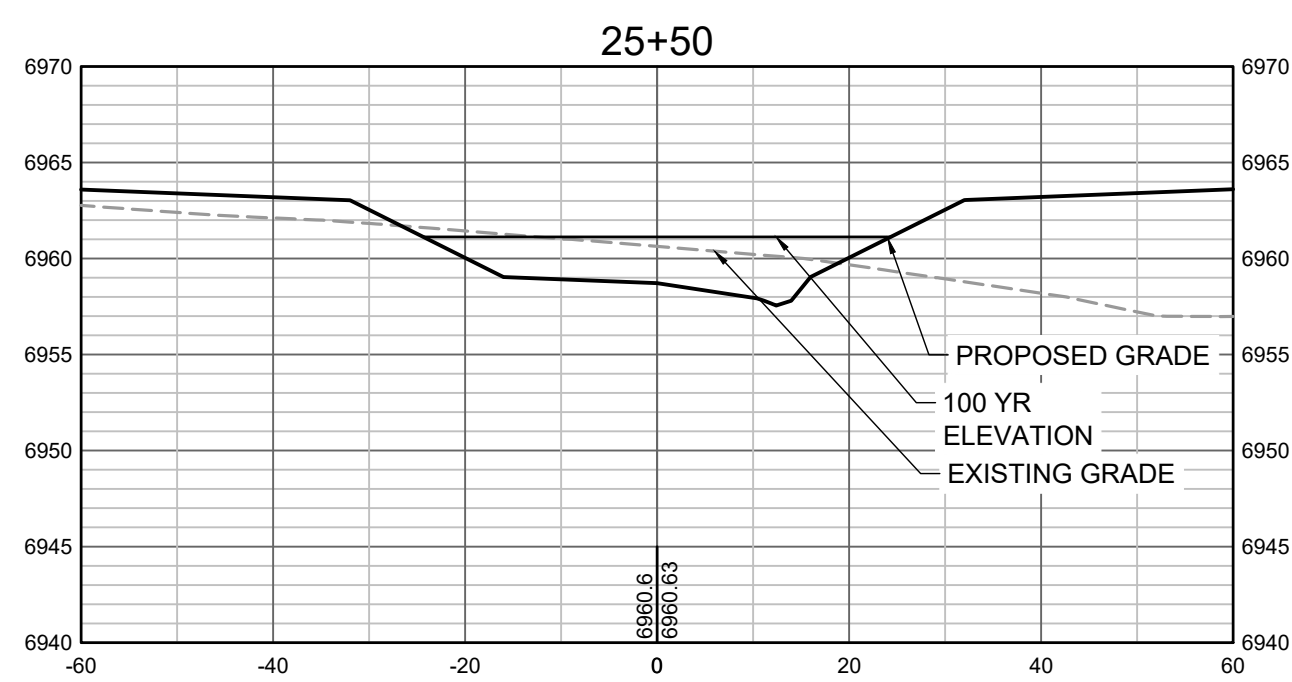
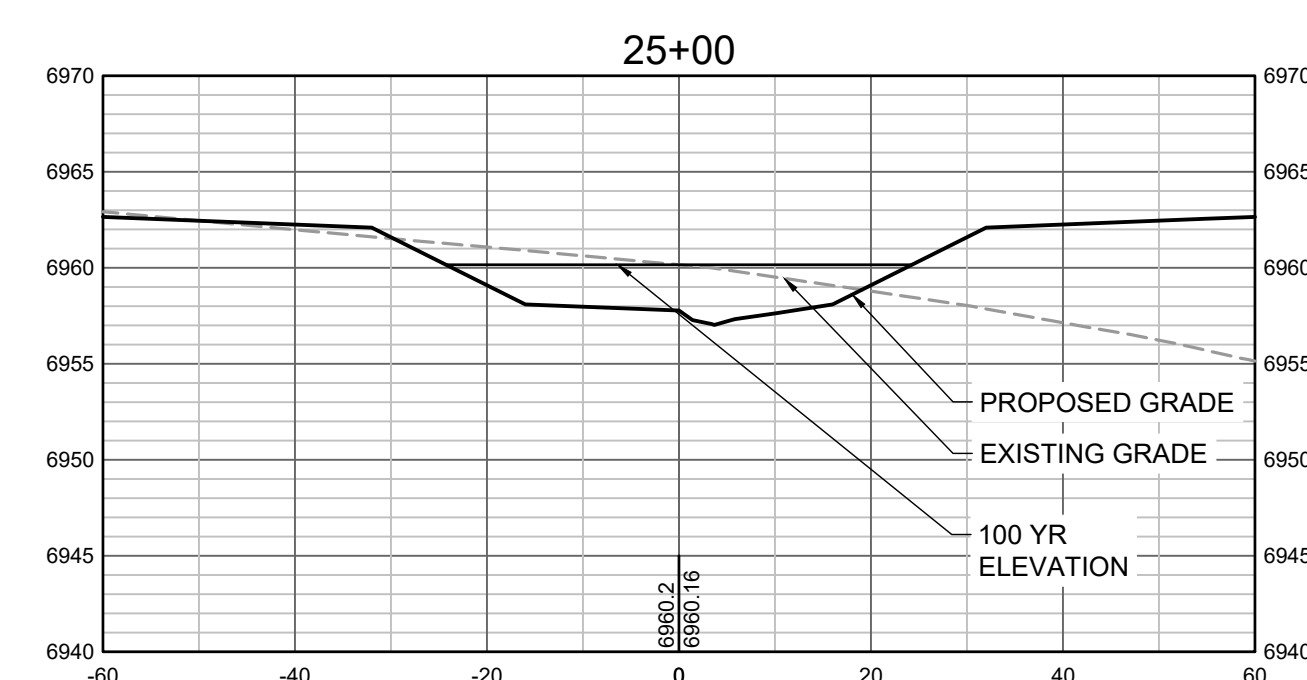
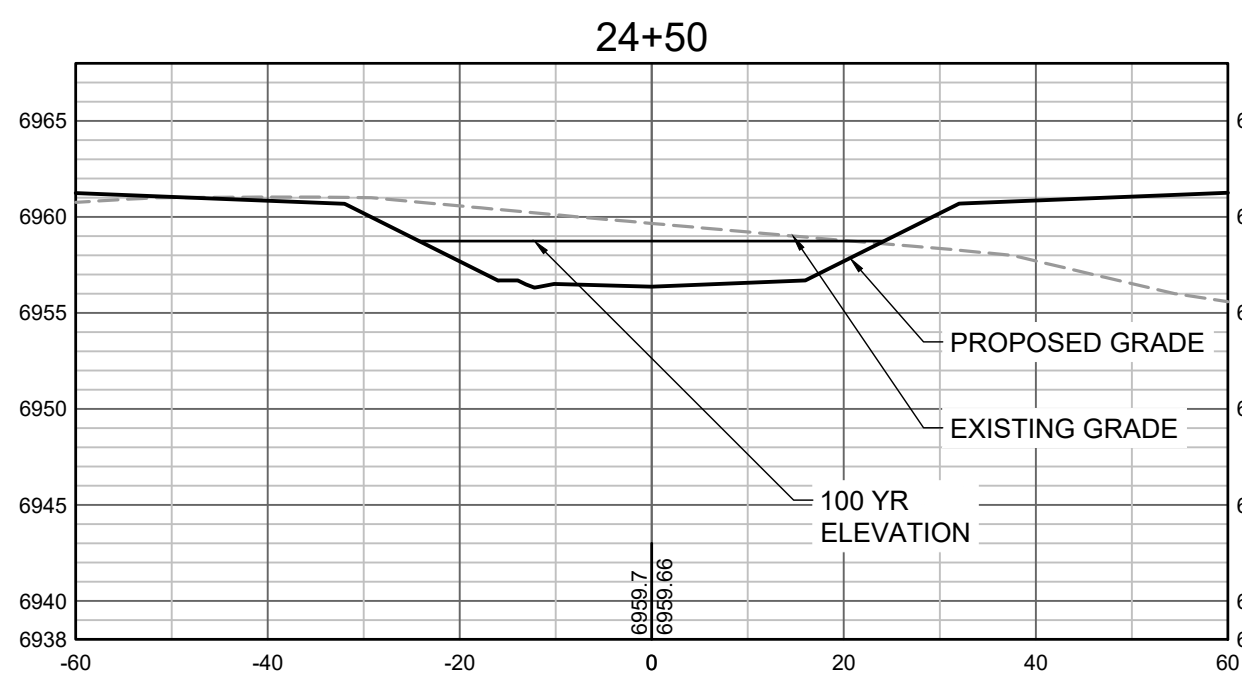
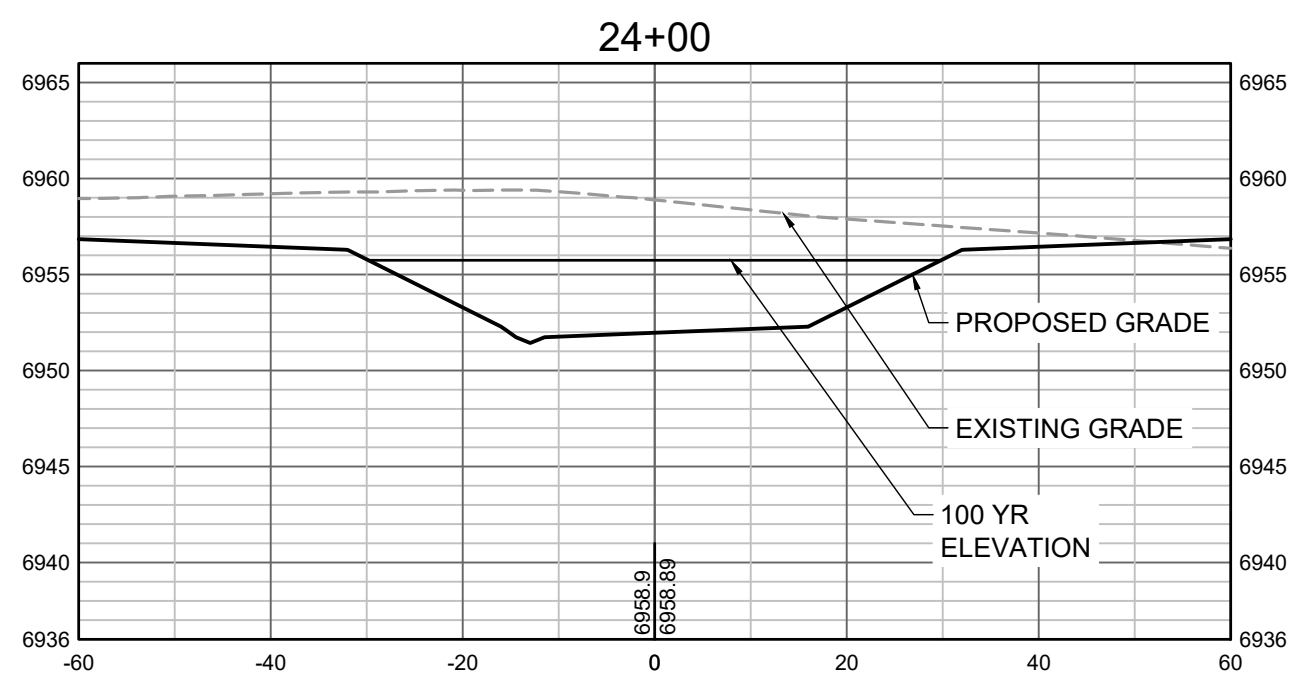
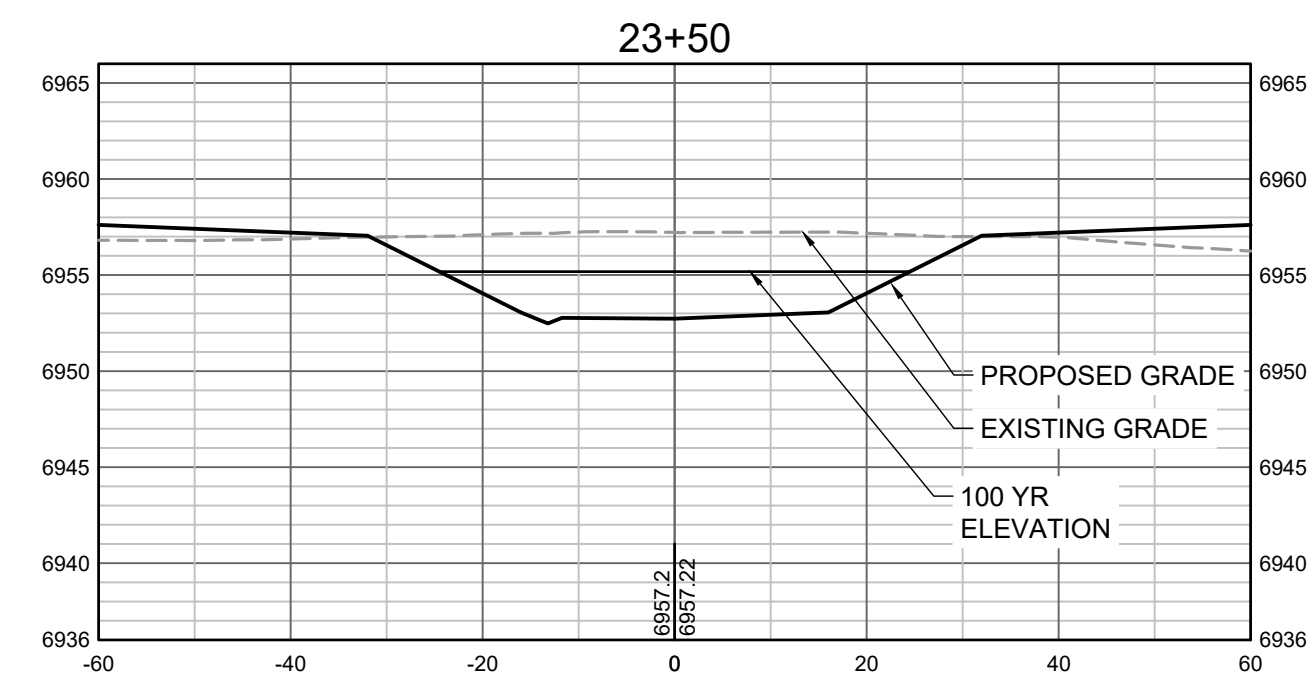
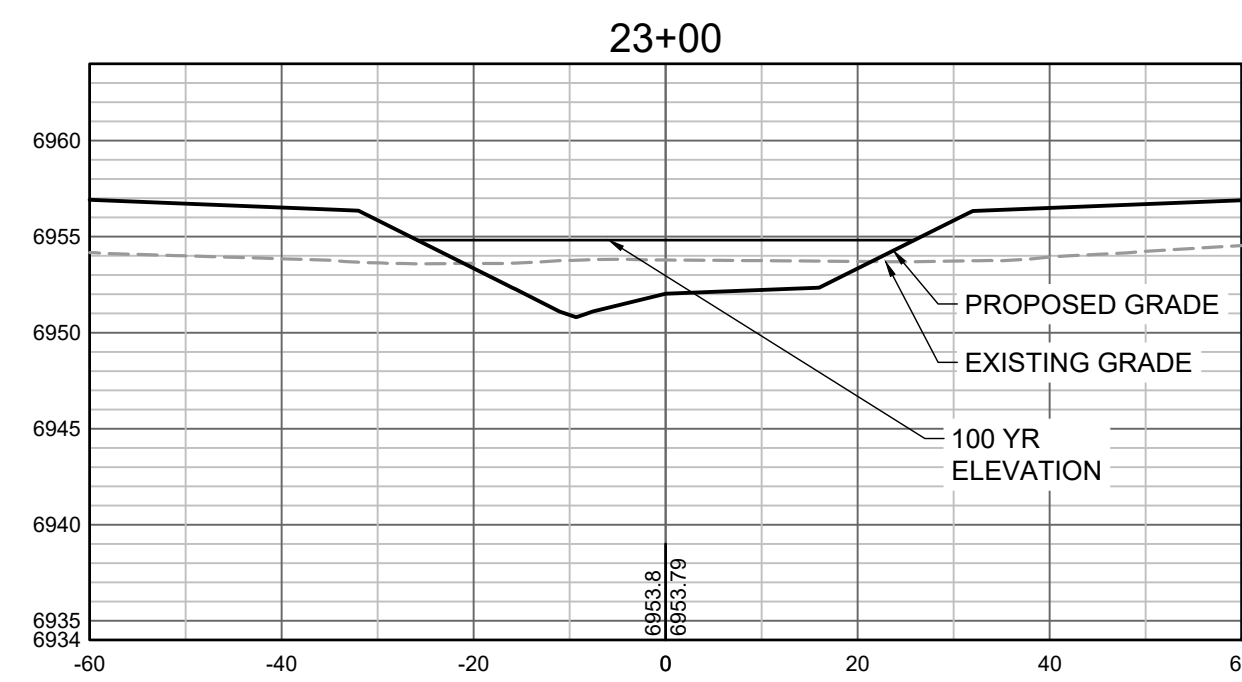
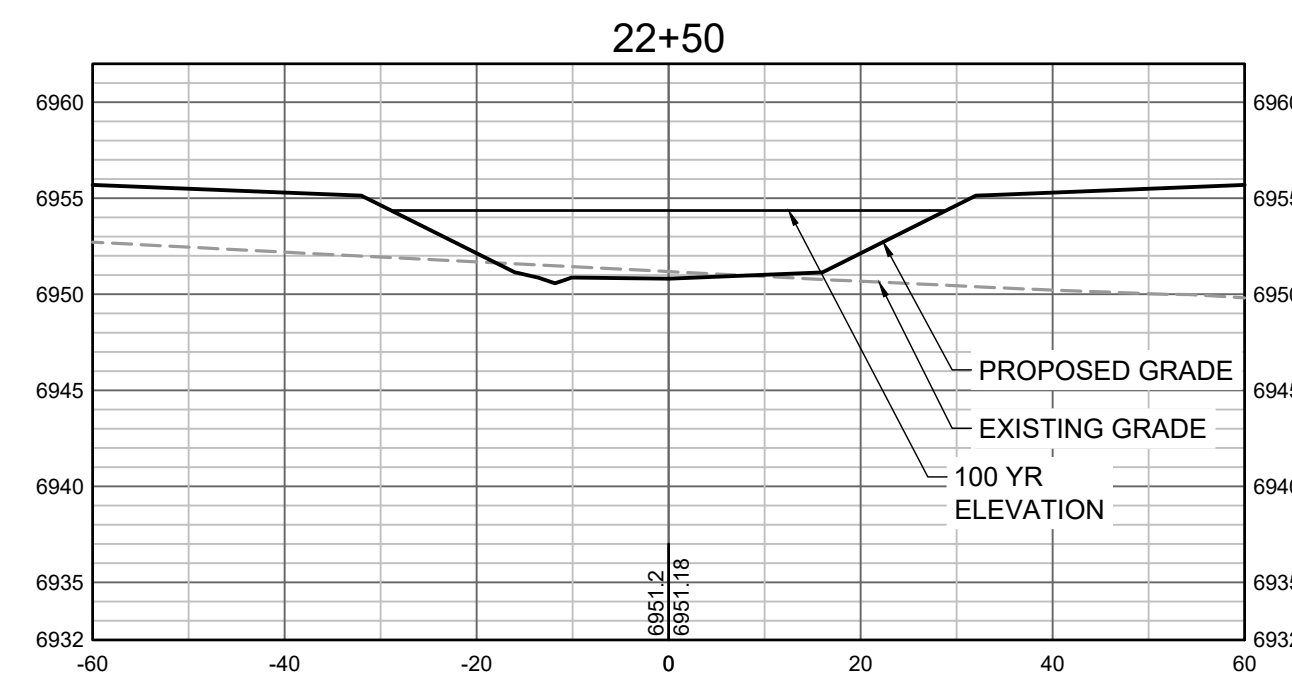
GRANDVIEW RESERVE (DRAINAGE A & B)  
DR HORTON  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
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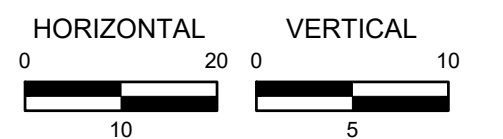
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25





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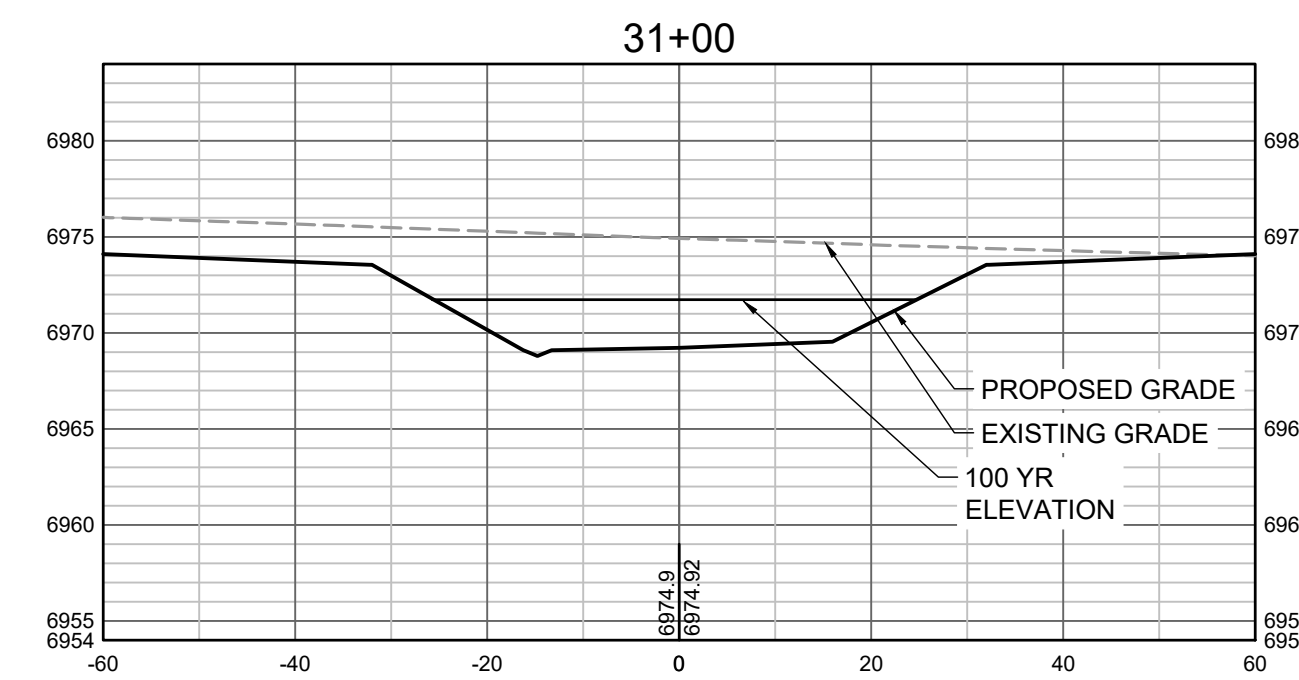
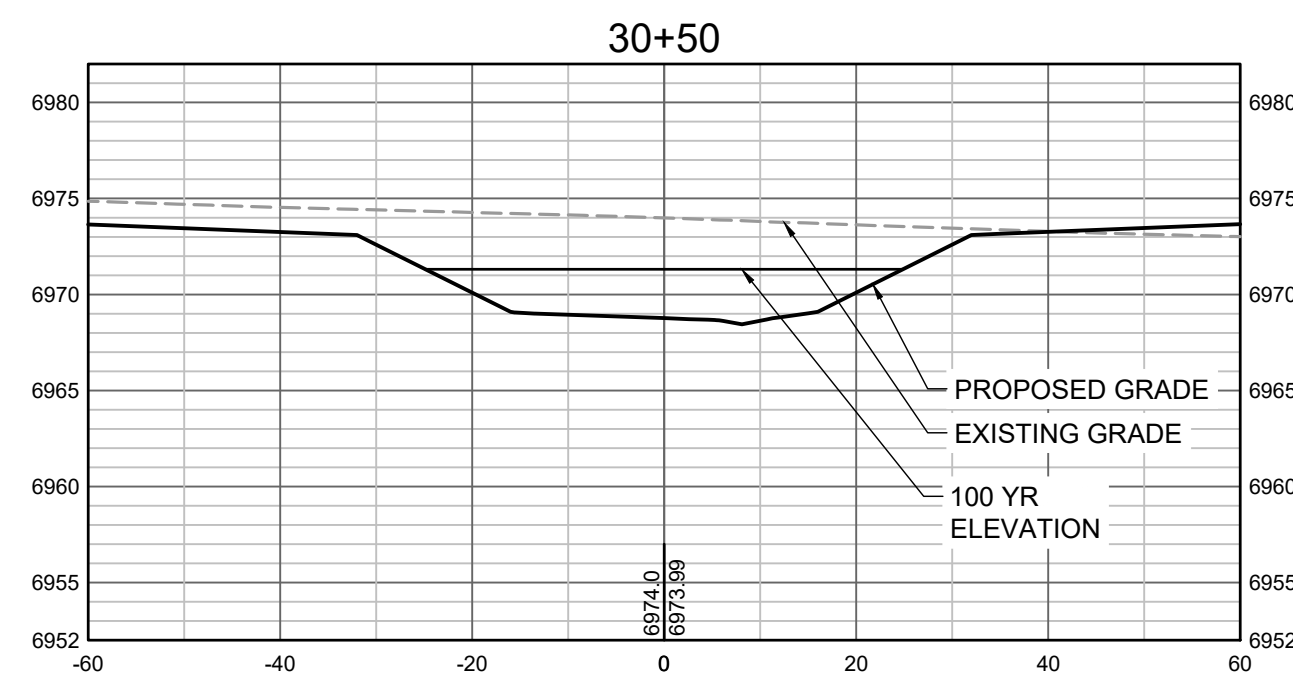
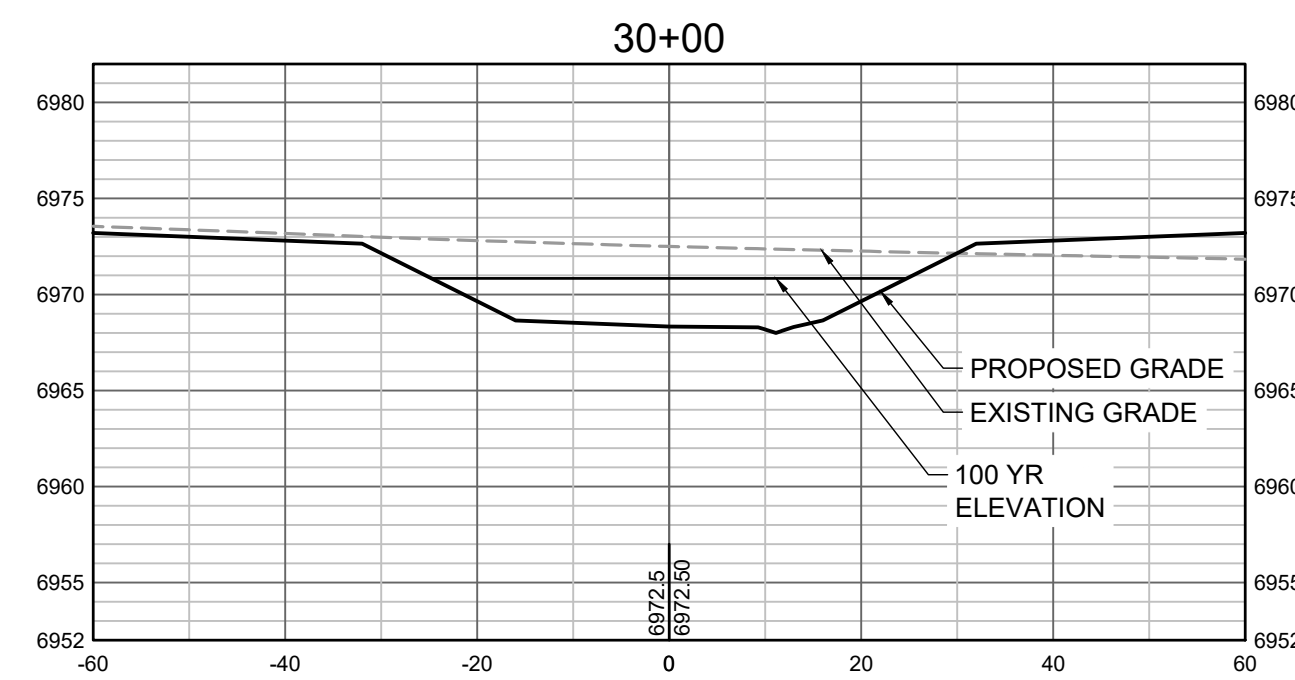
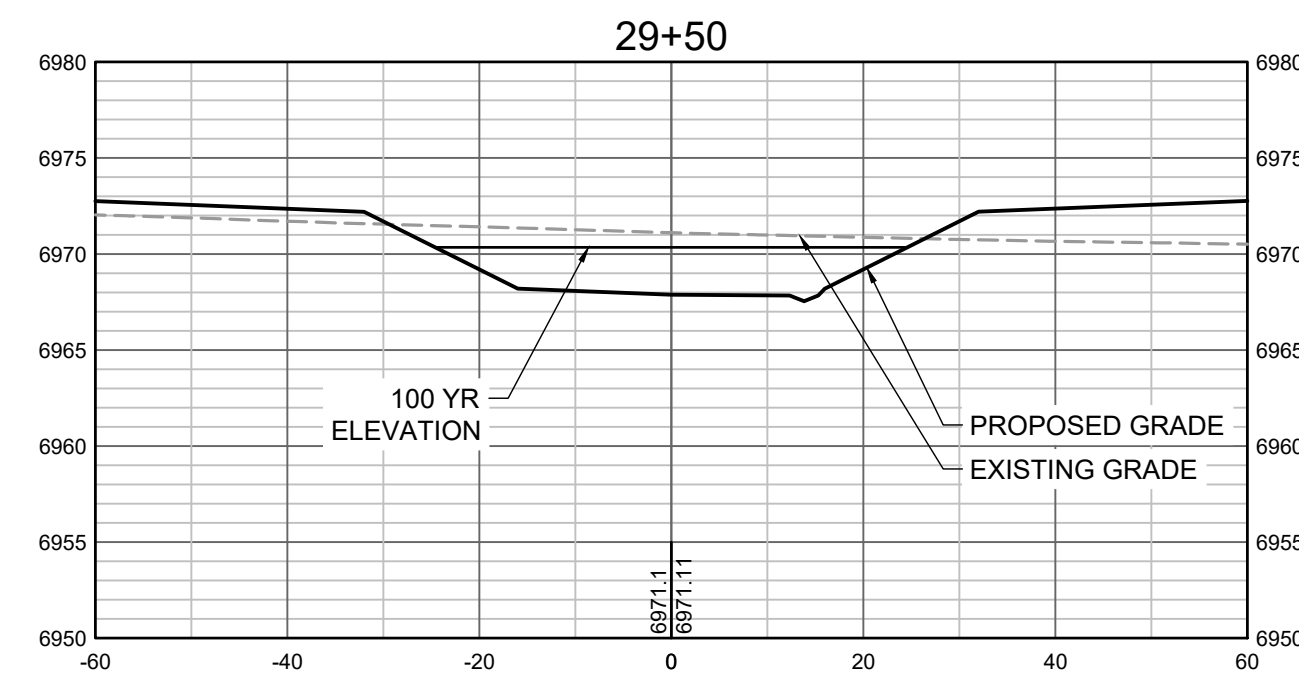
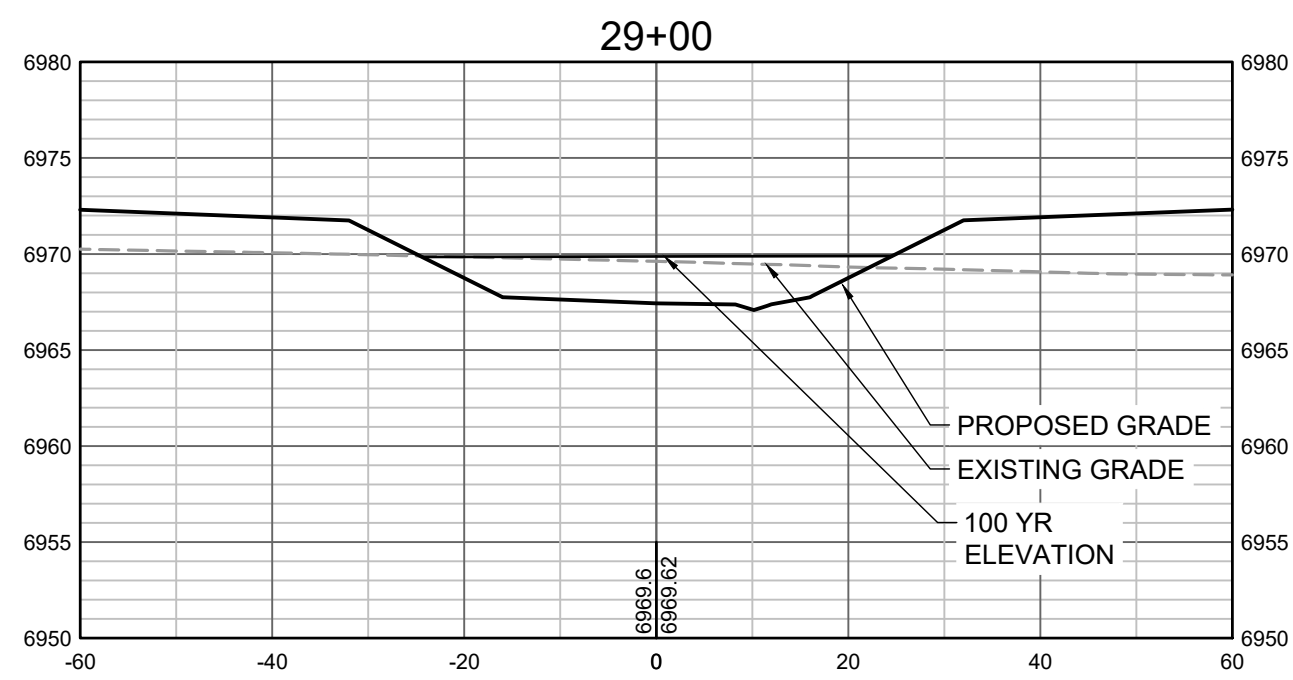
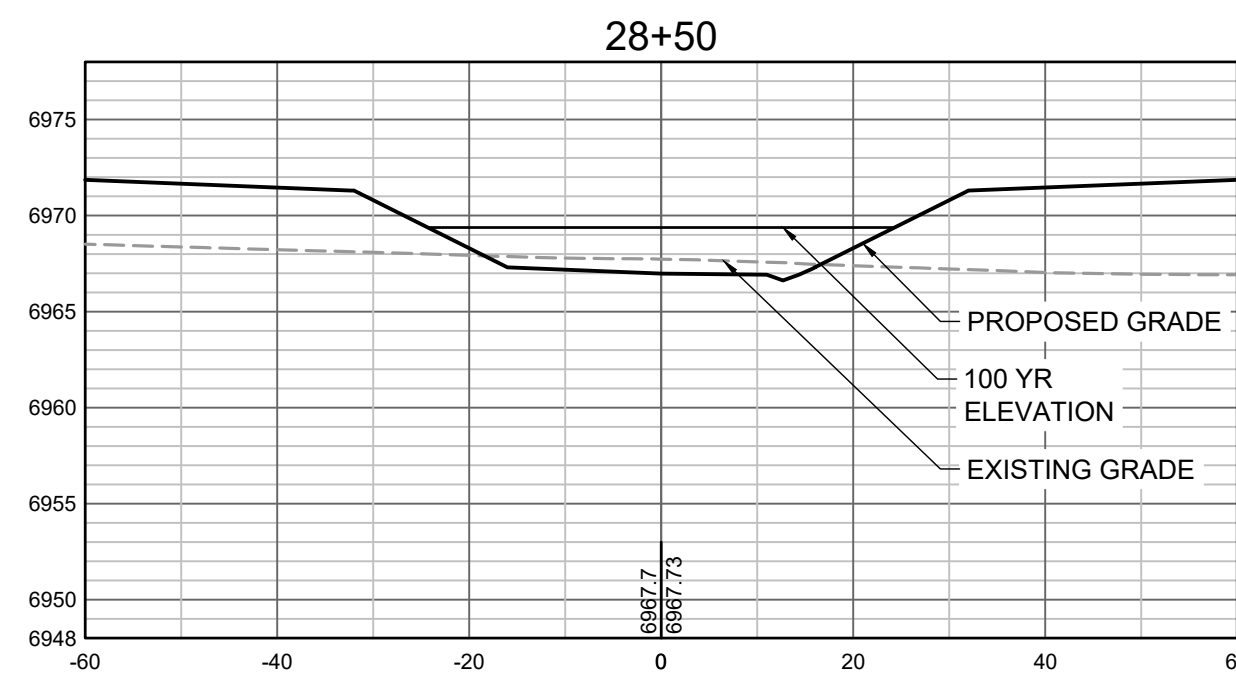
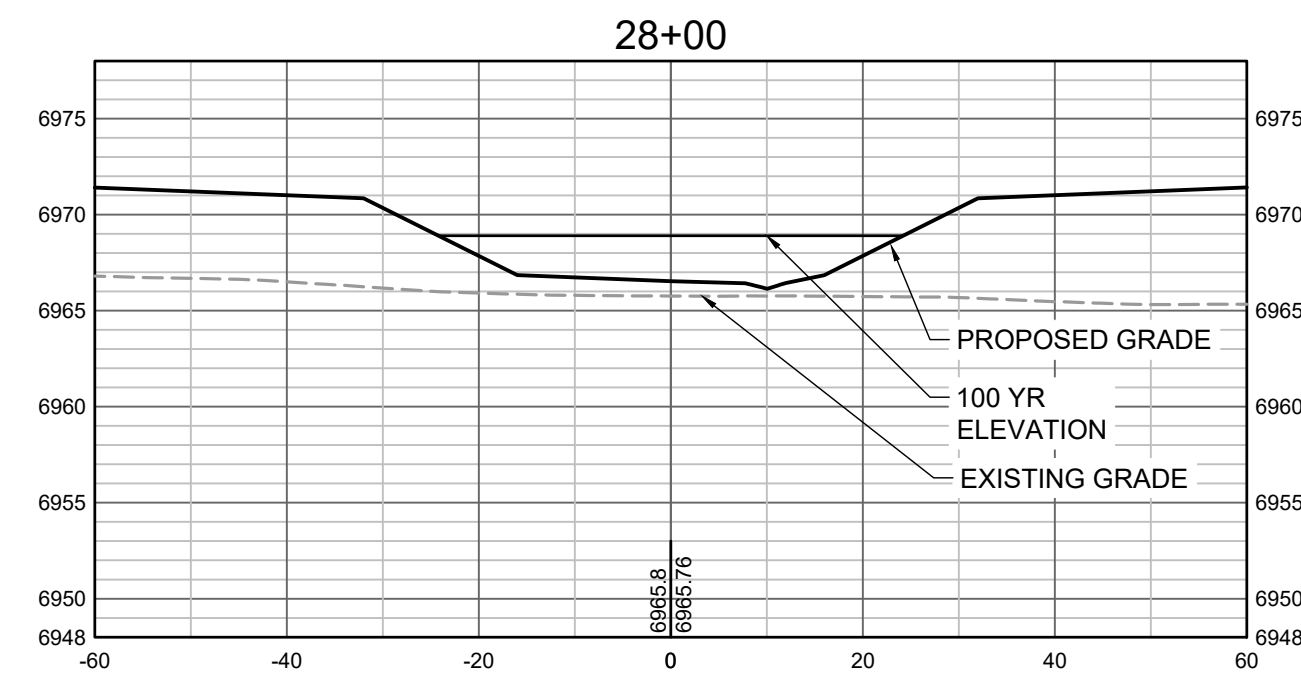
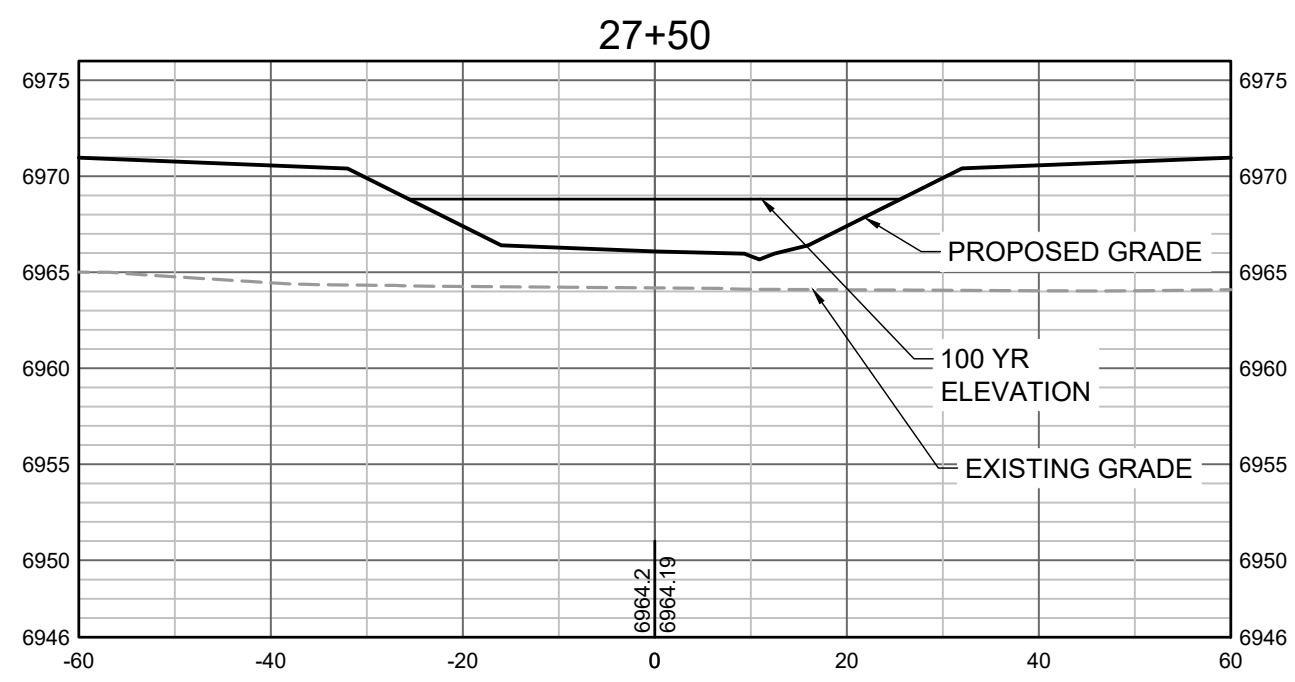
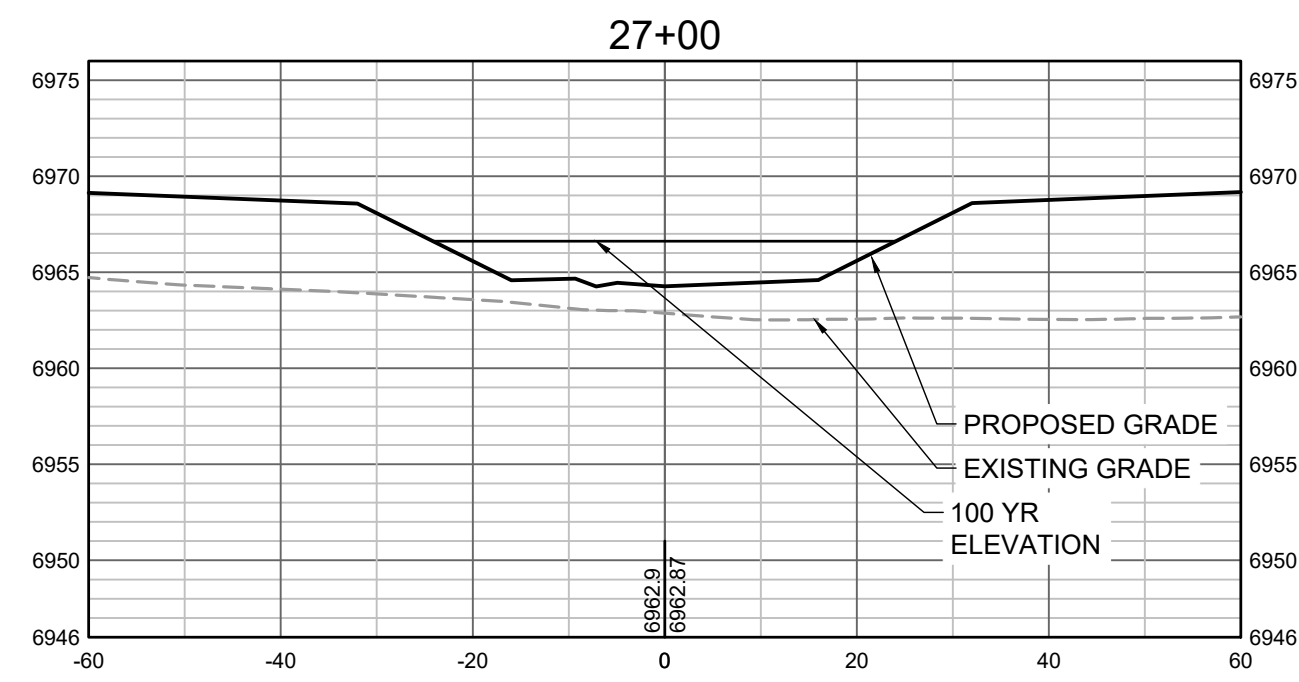
GRANDVIEW RESERVE (DRAINAGE A & B)  
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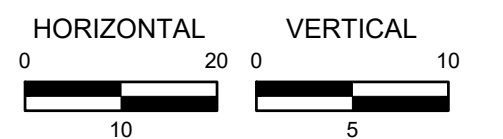
SHEET  
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26





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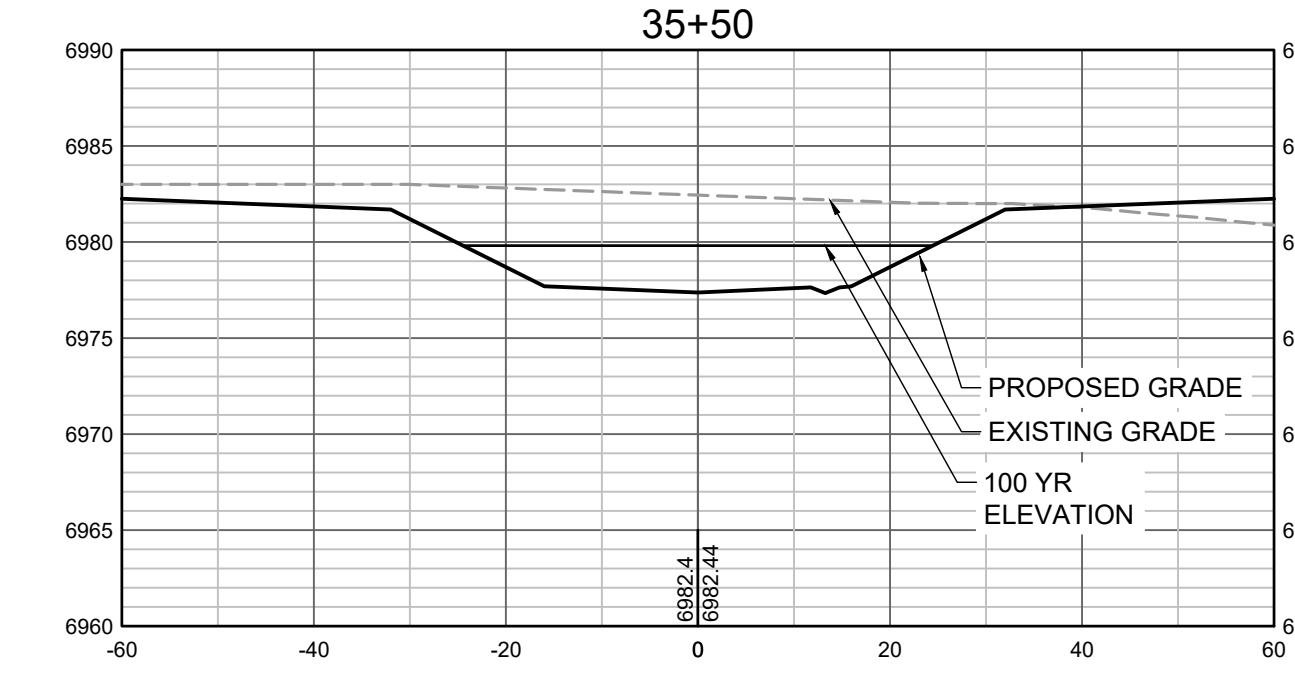
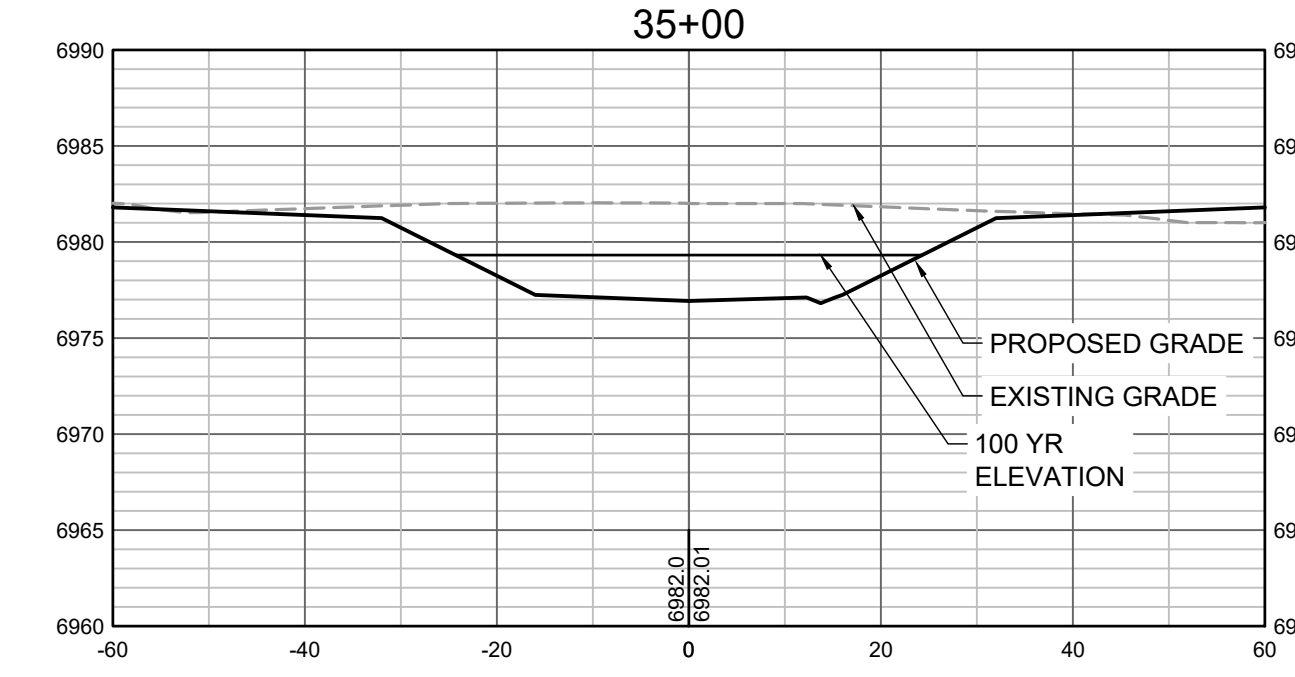
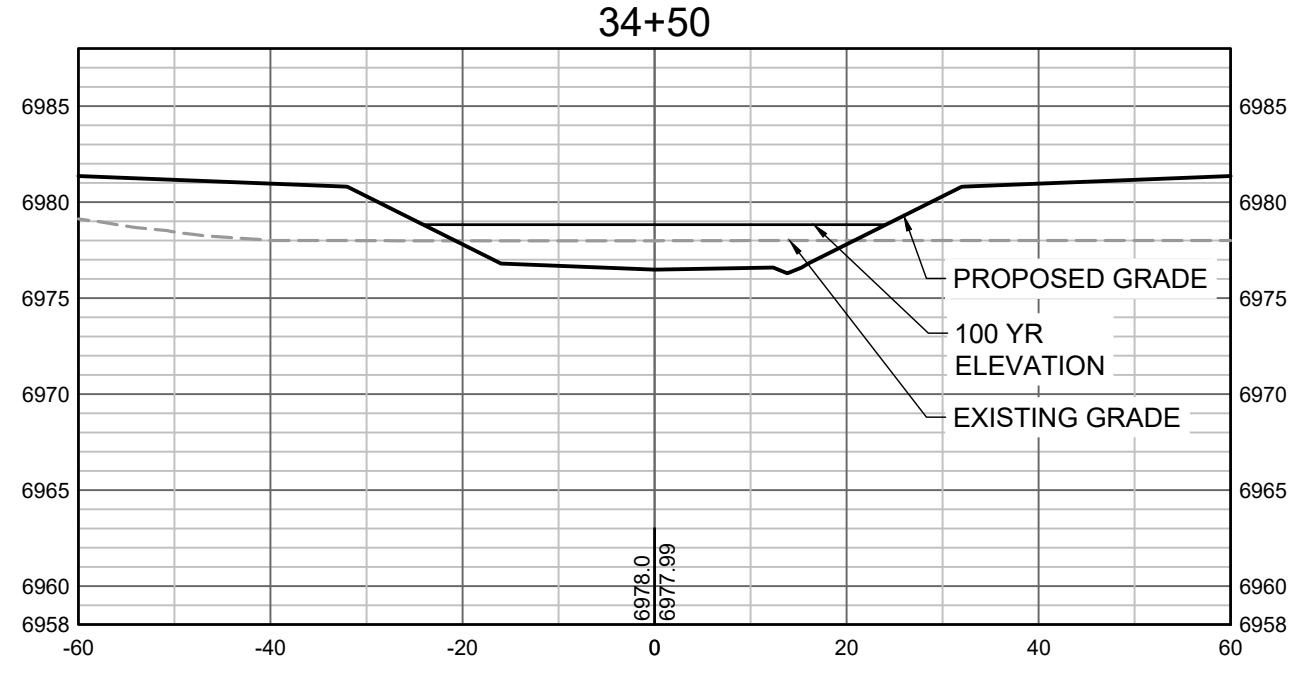
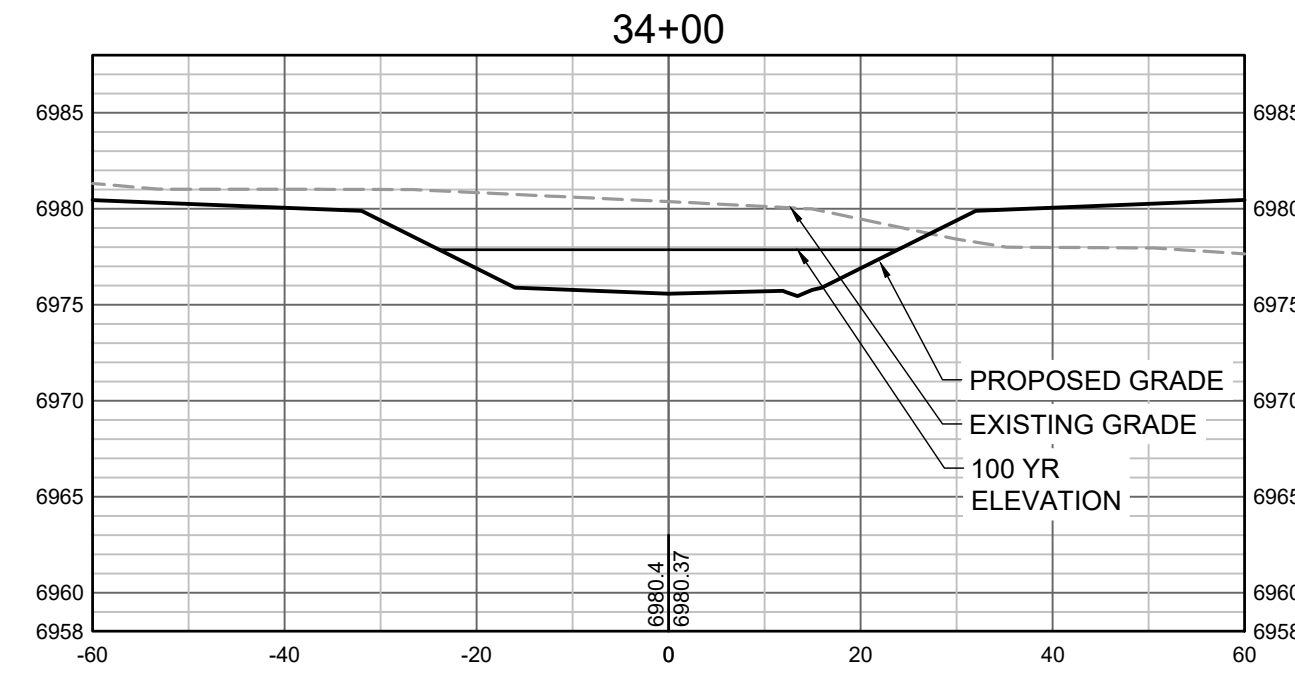
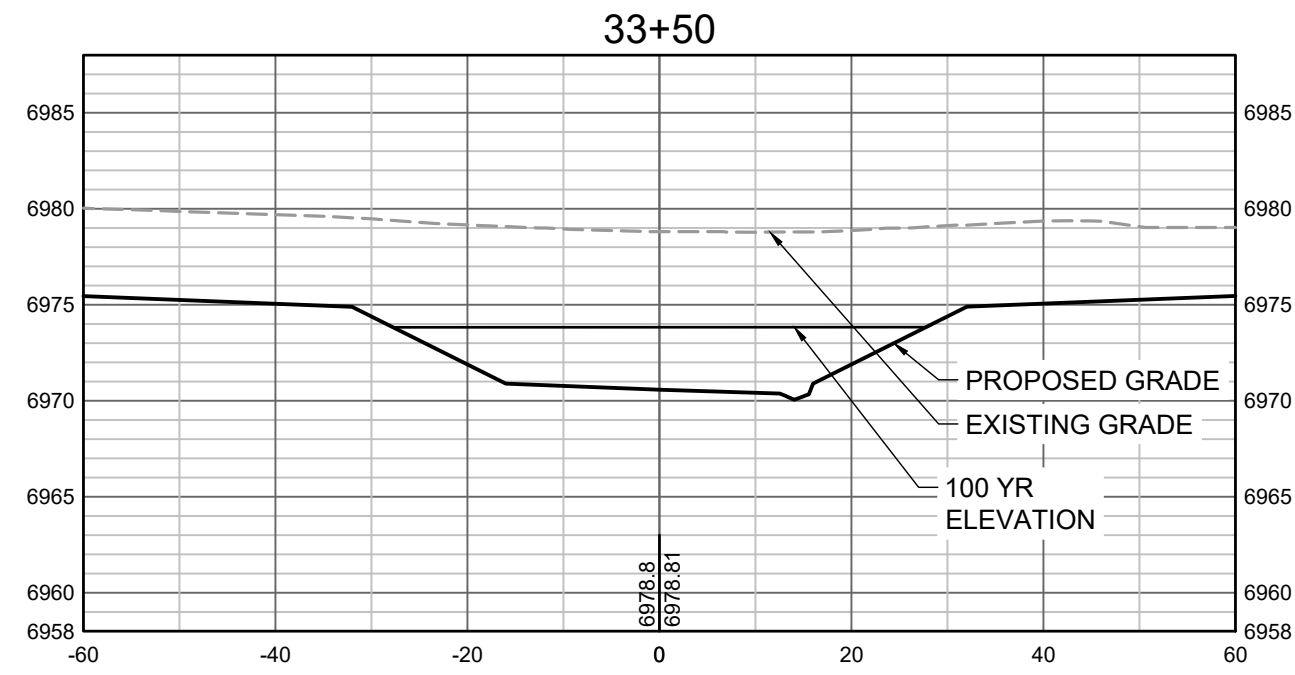
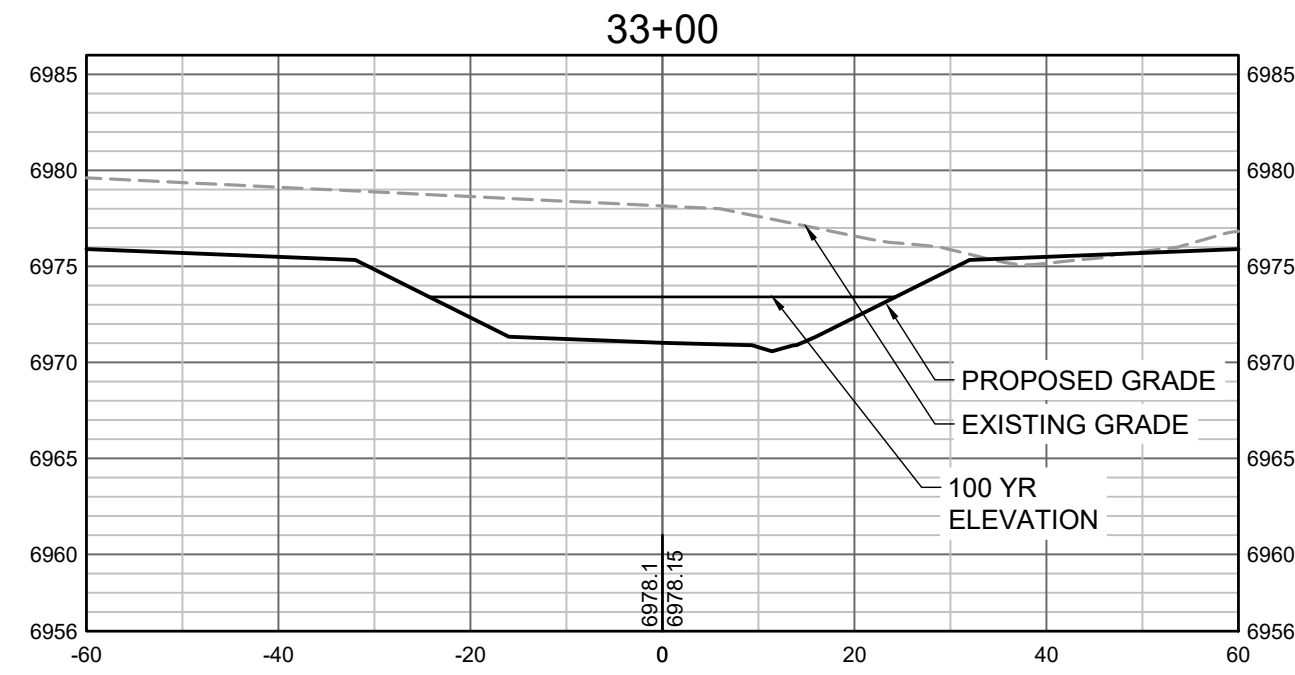
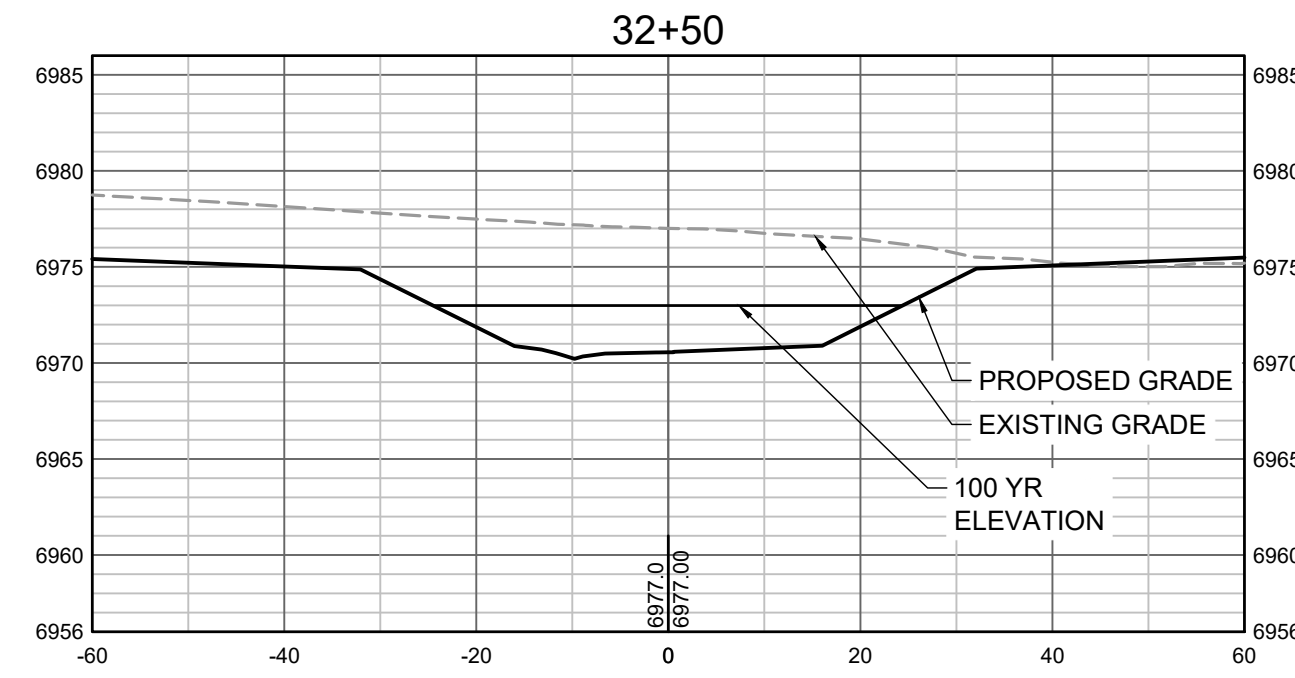
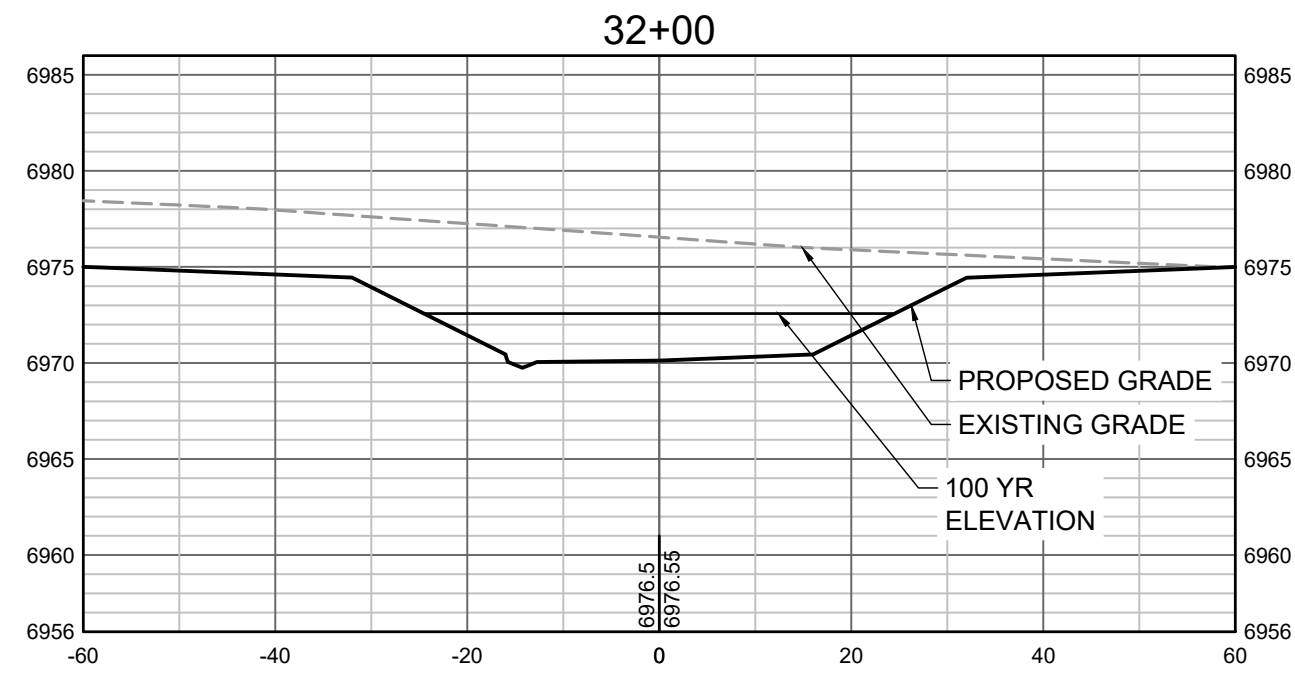
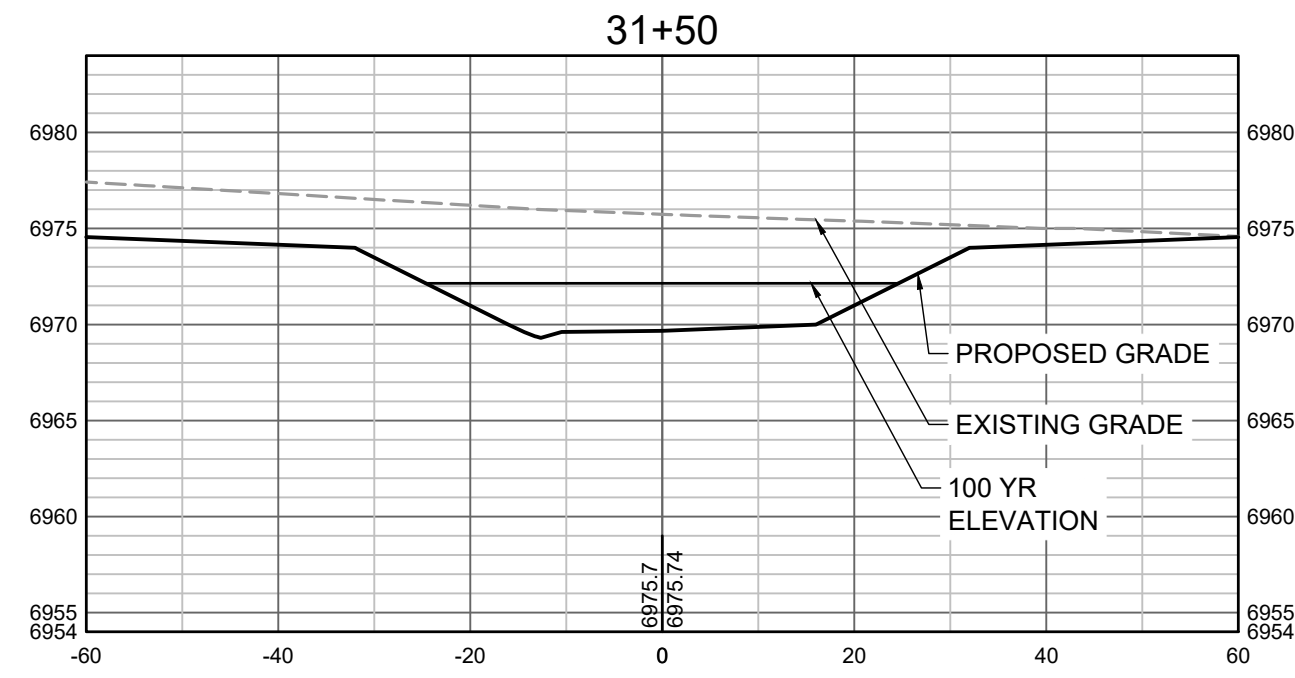
GRANDVIEW RESERVE (DRAINAGE A & B)  
DR HORTON  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
TRIBUTARY 2 CROSS SECTIONS

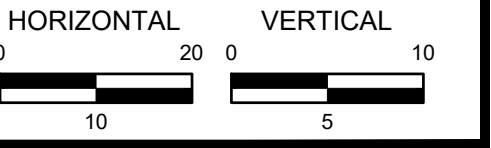
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CS7

27





PROPOSED GRADES TO TIE INTO GRANDVIEW RESERVE FILING 1.  
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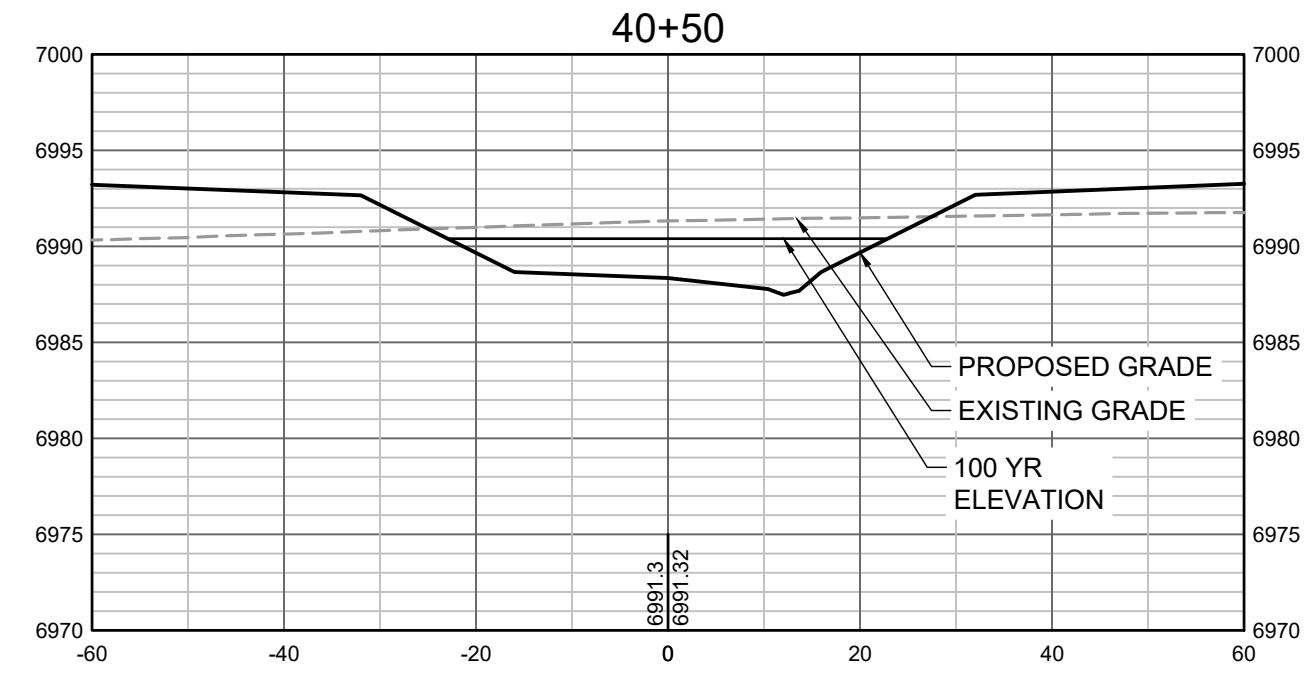
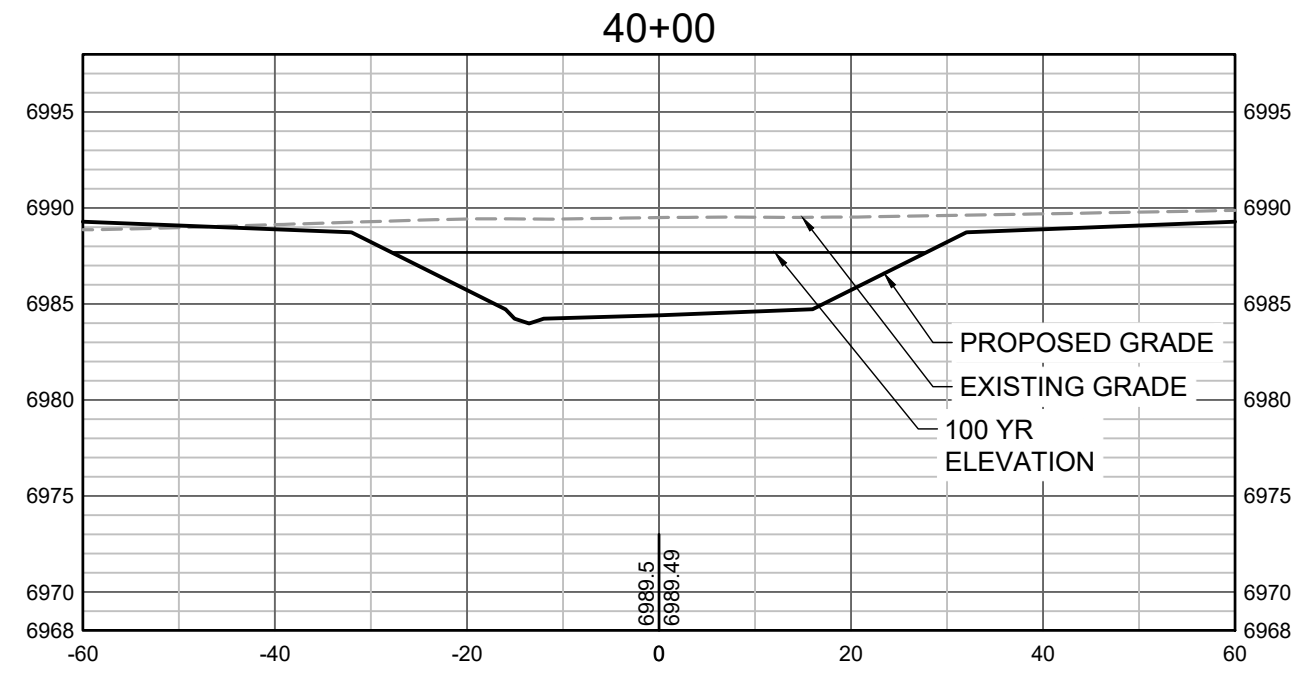
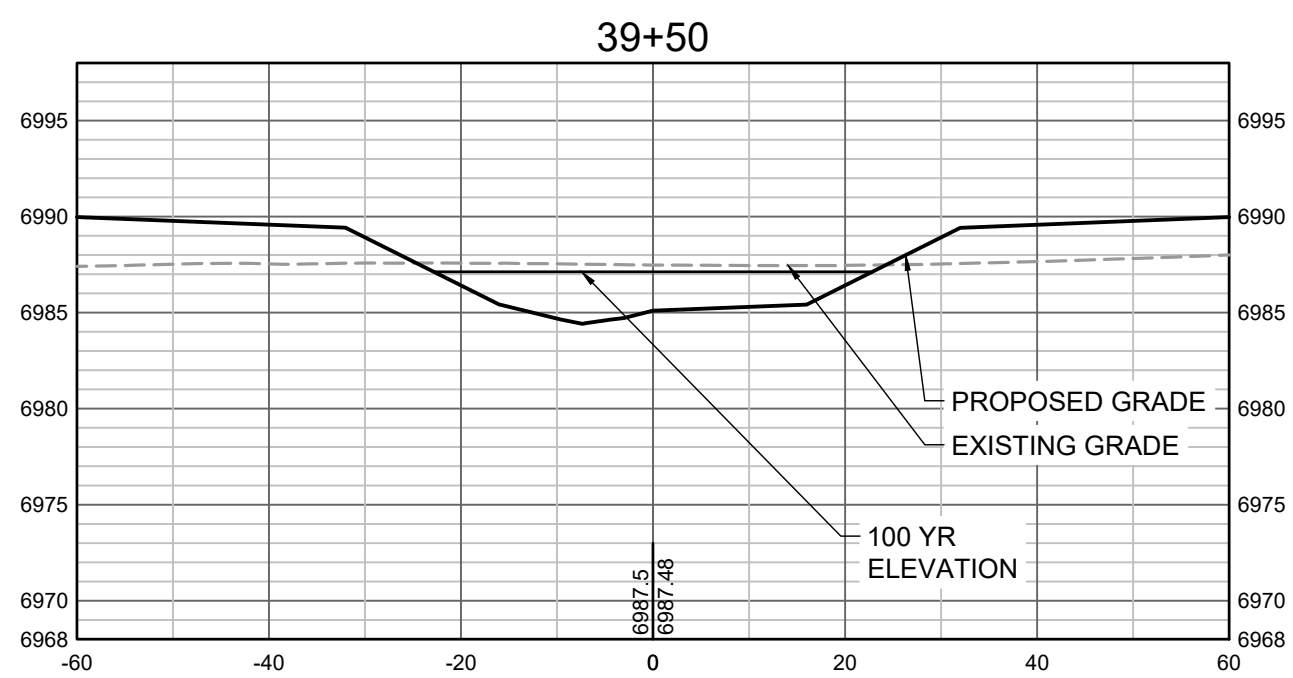
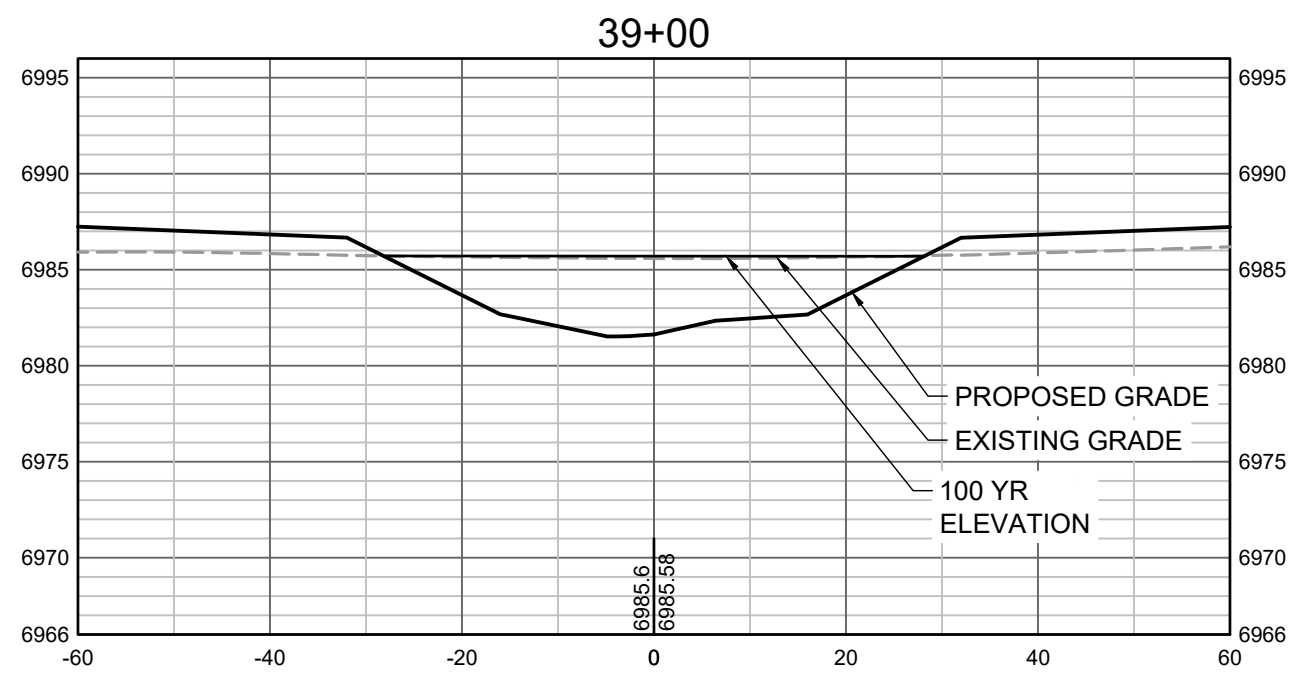
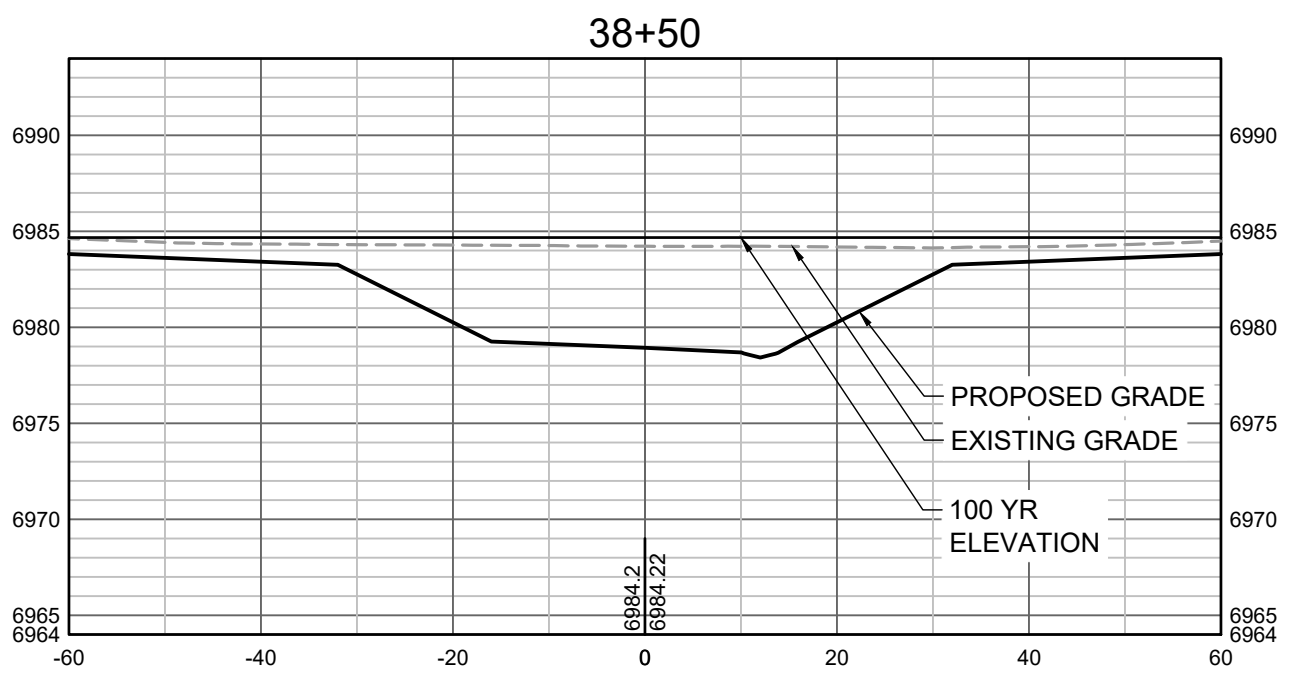
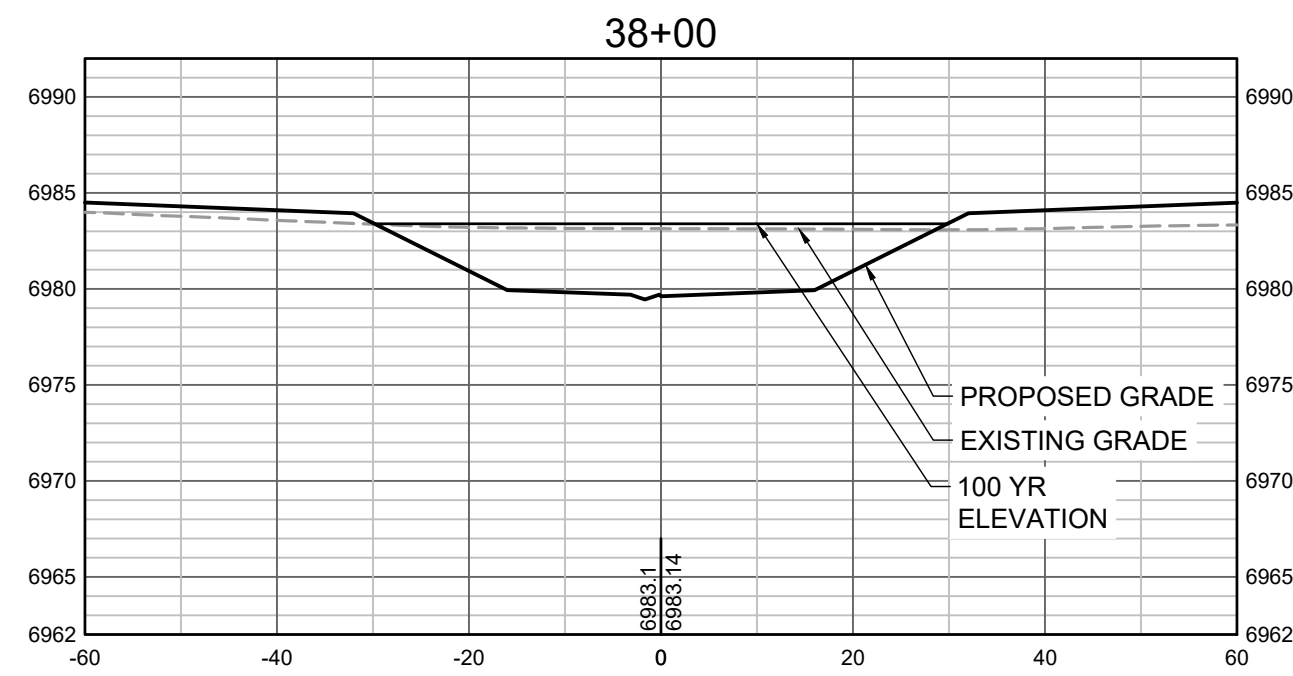
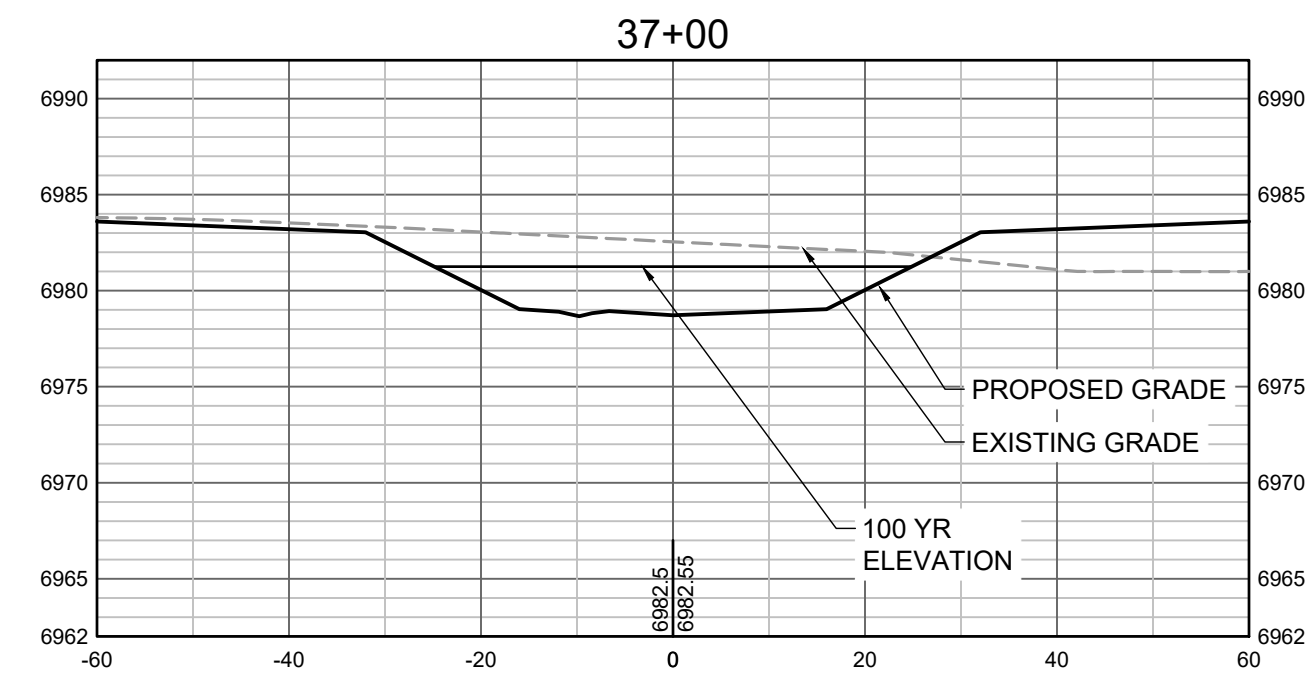
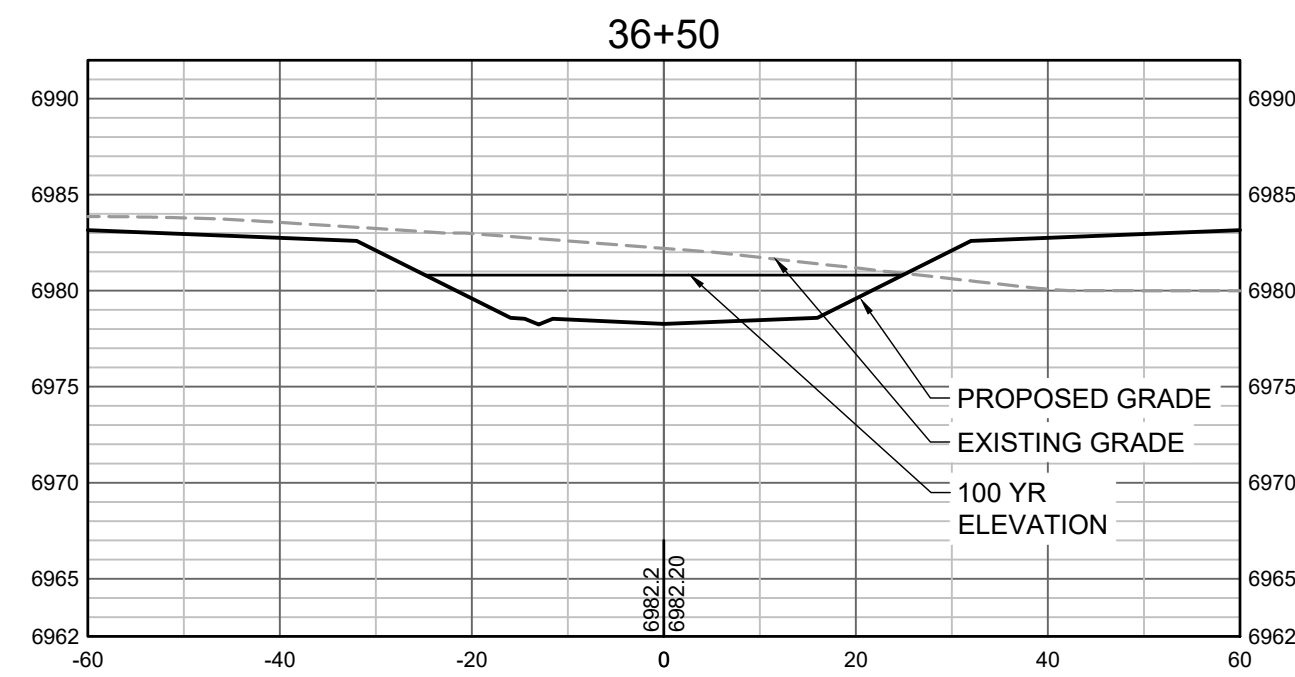
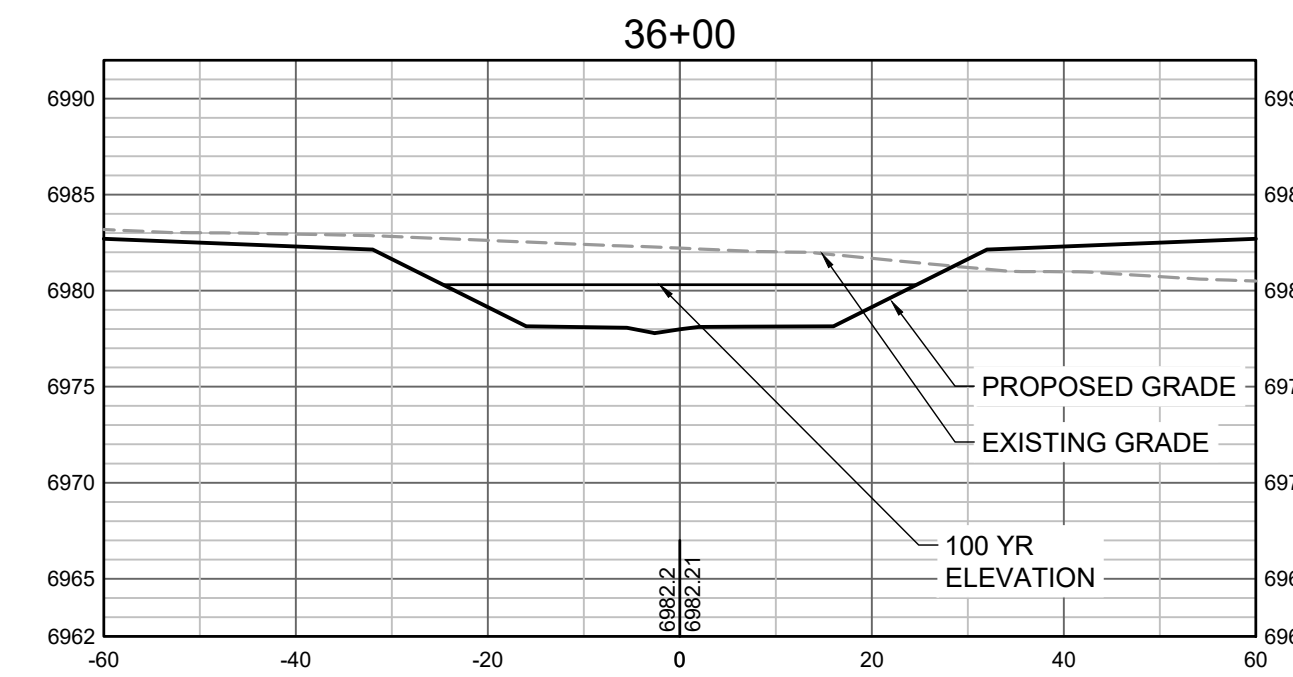
**GRANDVIEW RESERVE (DRAINAGE A & B)**  
**DR HORTON**  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
TRIBUTARY 2 CROSS SECTIONS

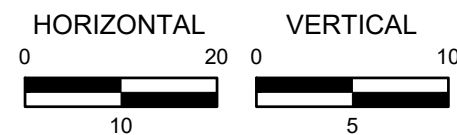
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**CS8**  
**28**

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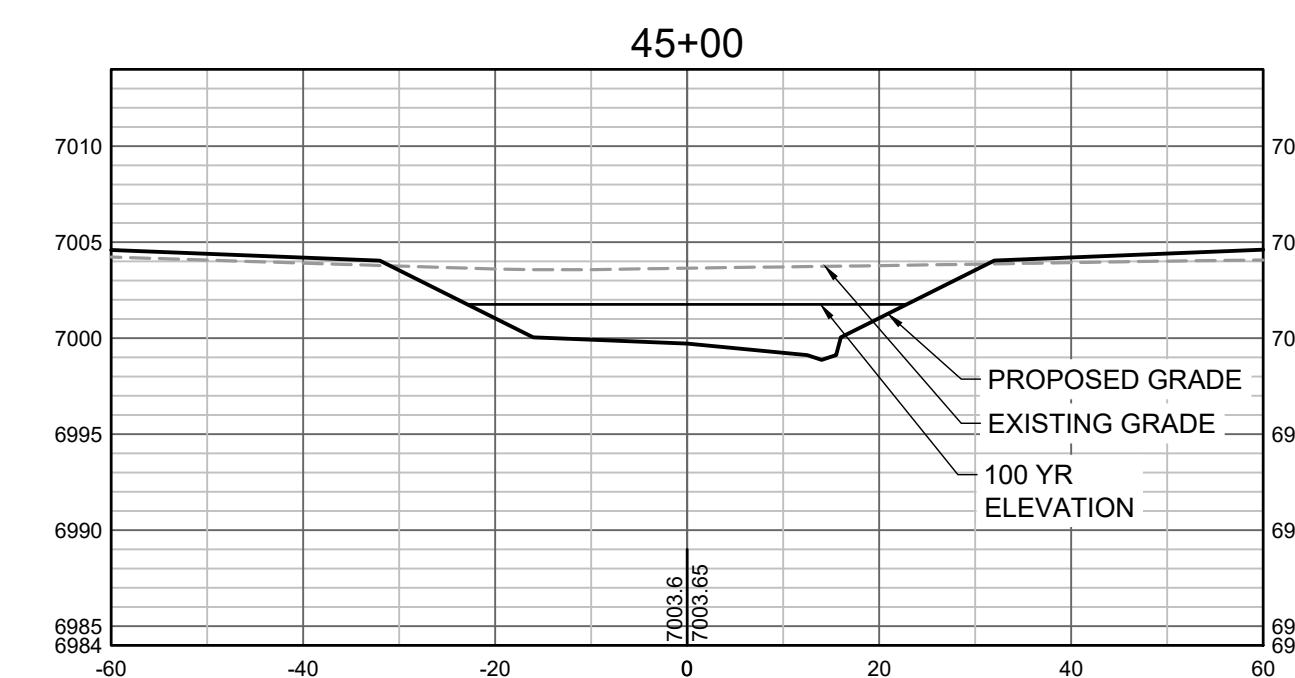
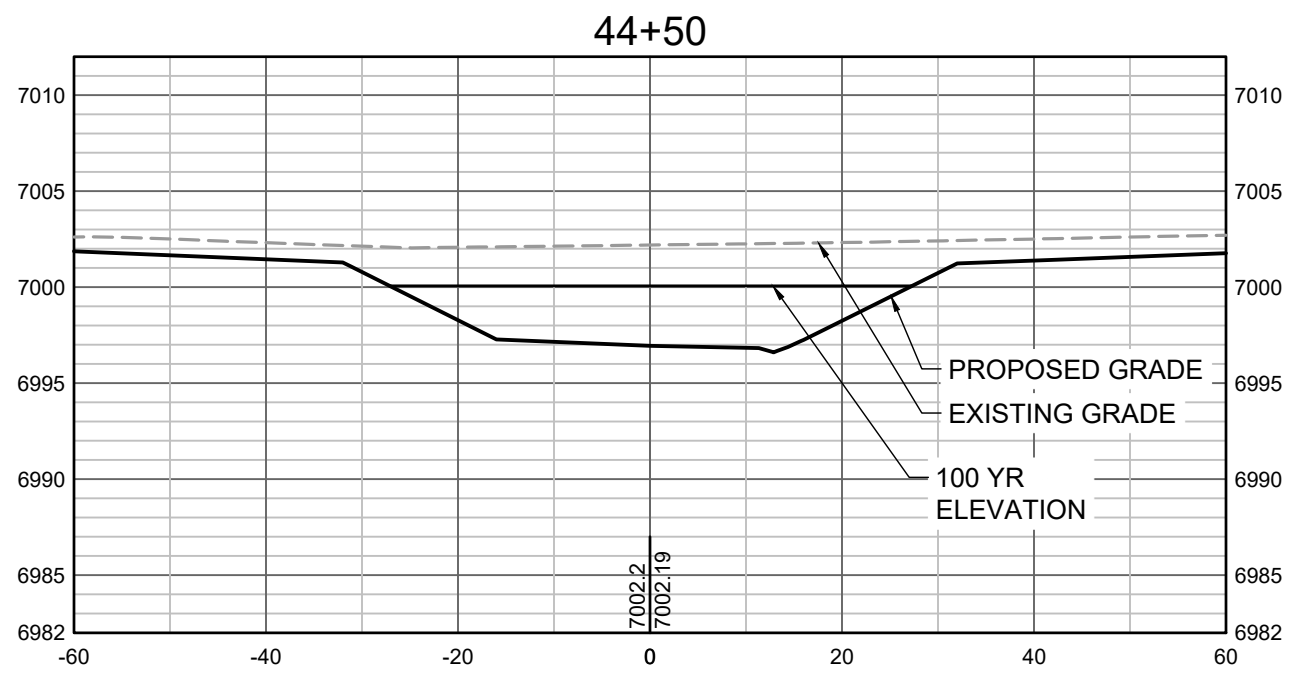
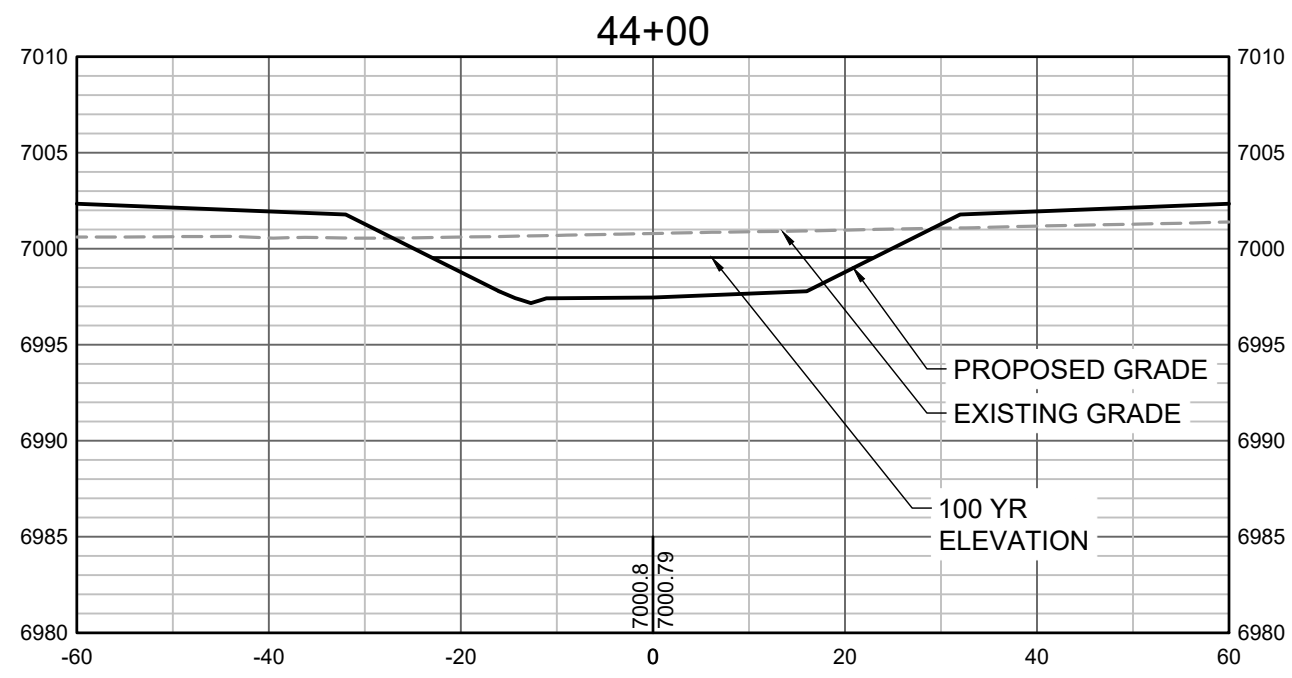
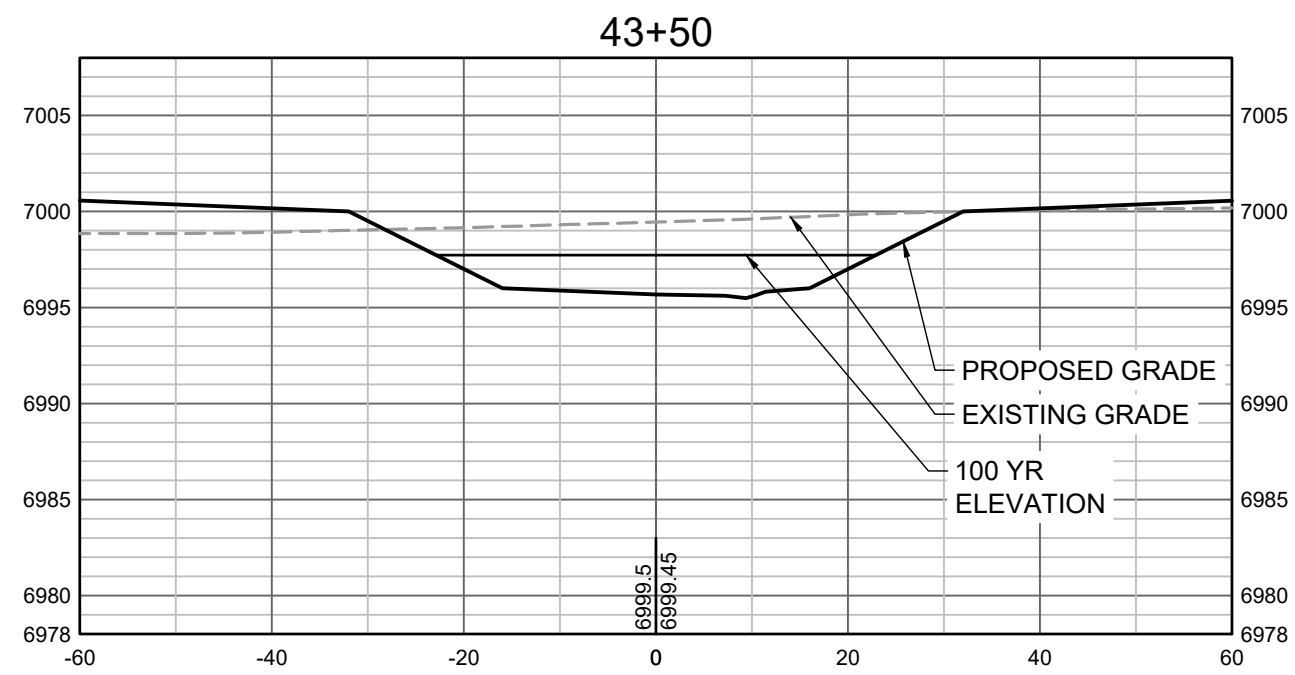
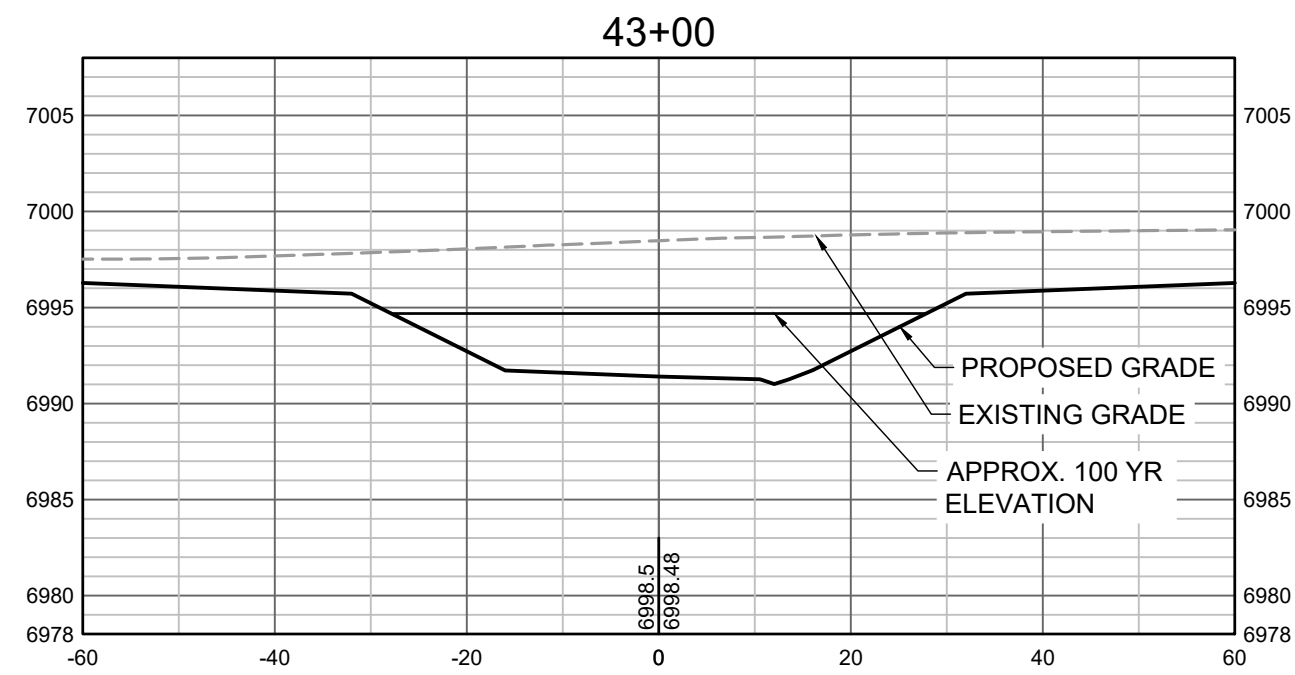
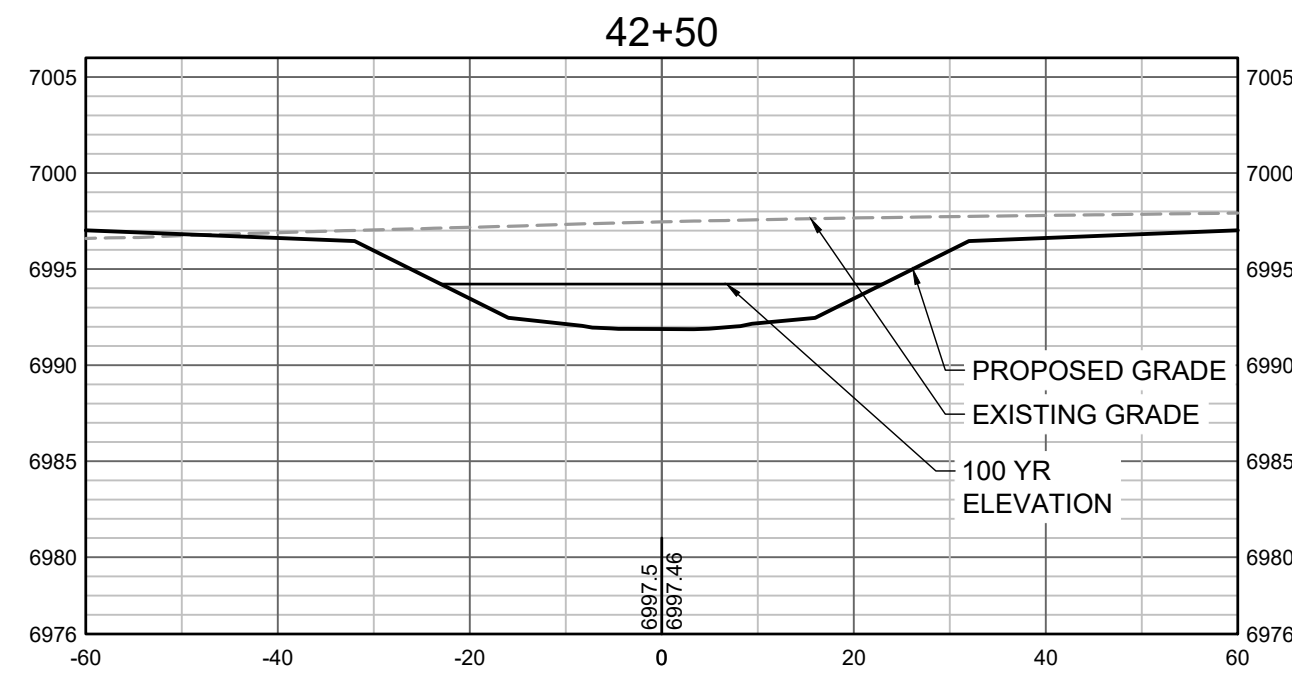
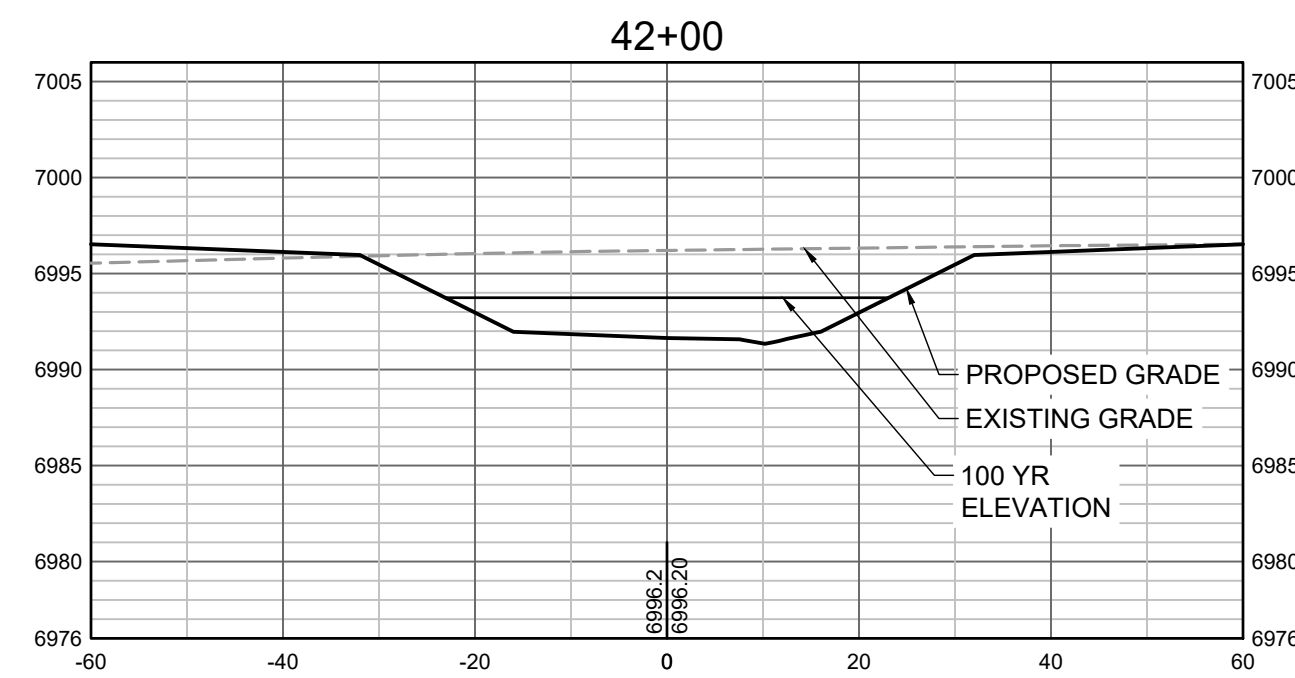
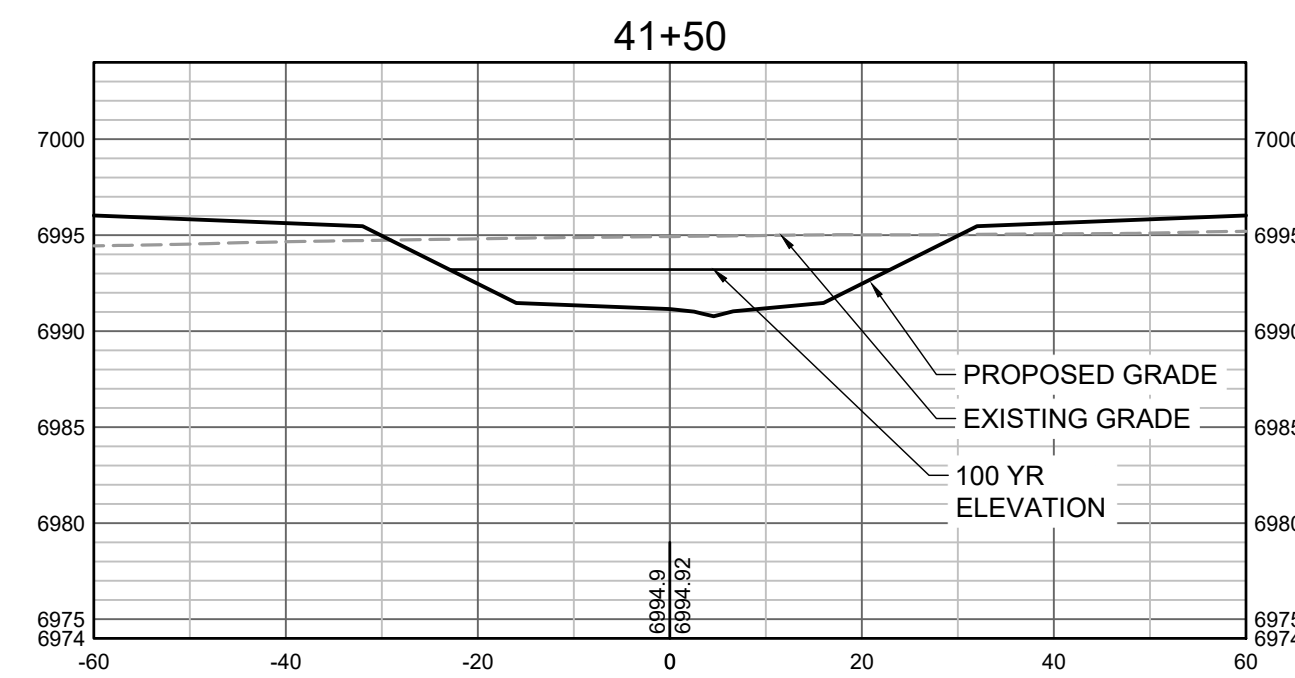
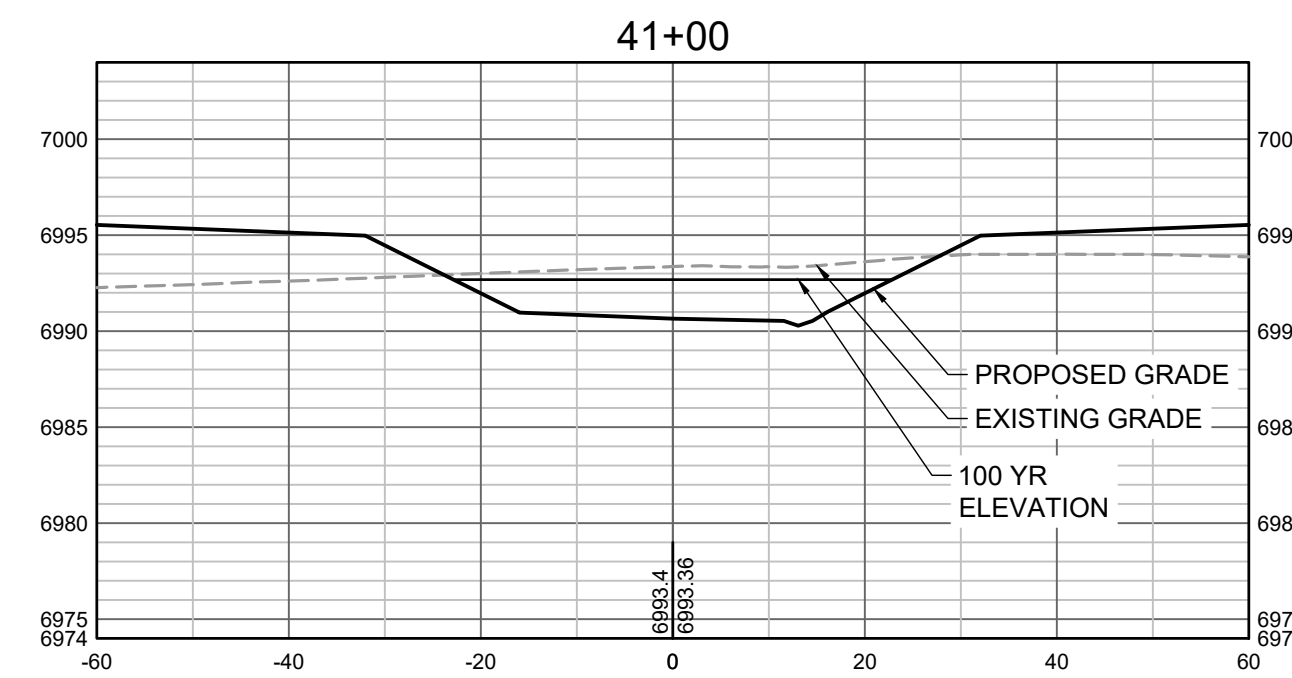
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**GRANDVIEW RESERVE (DRAINAGE A & B)**  
**DR HORTON**  
FALCON, COLORADO

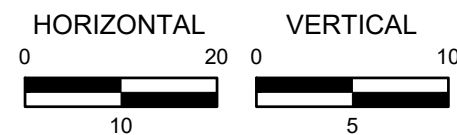
CONSTRUCTION DOCUMENTS  
TRIBUTARY 2 CROSS SECTIONS

SHEET  
CS9  
29





PROPOSED GRADES TO TIE INTO GRANDVIEW RESERVE FILING 1.  
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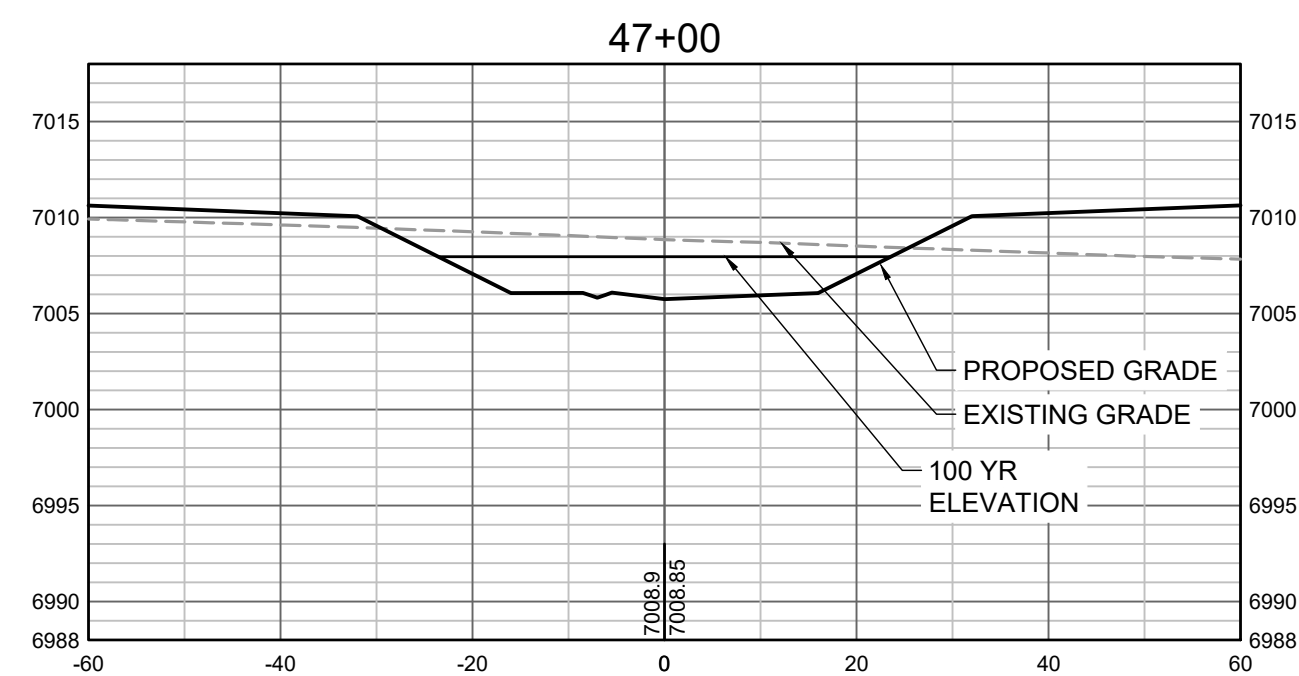
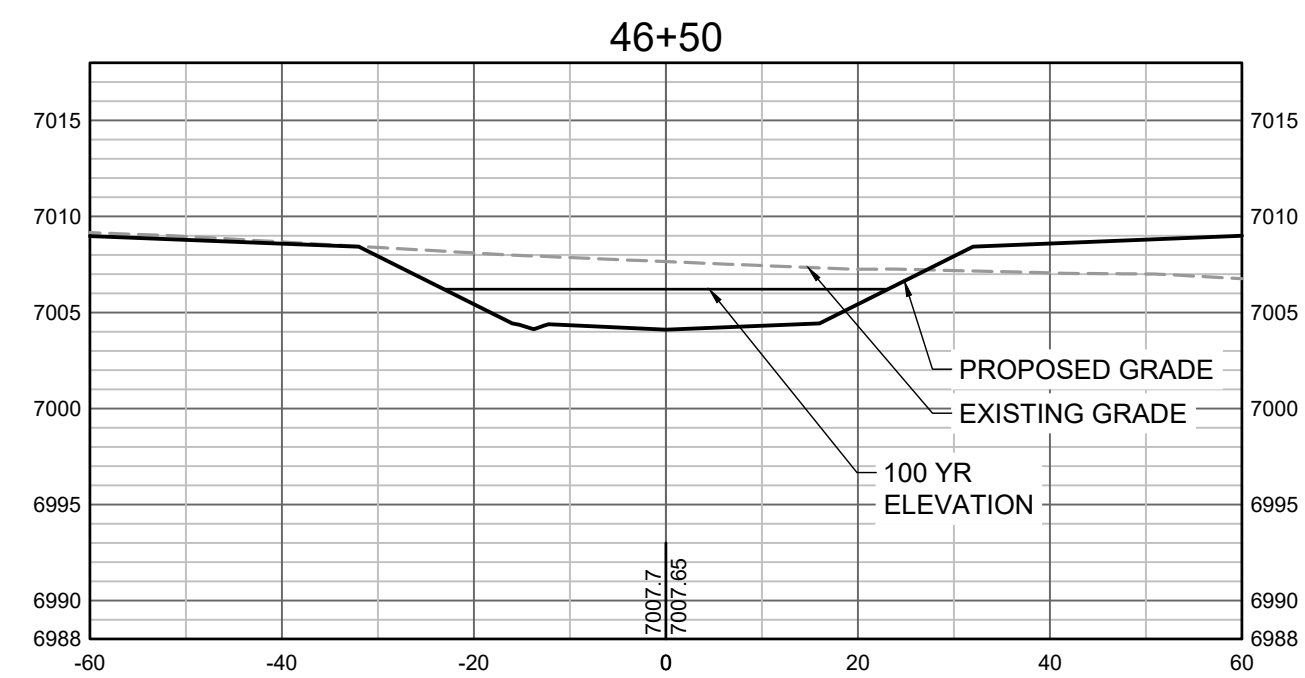
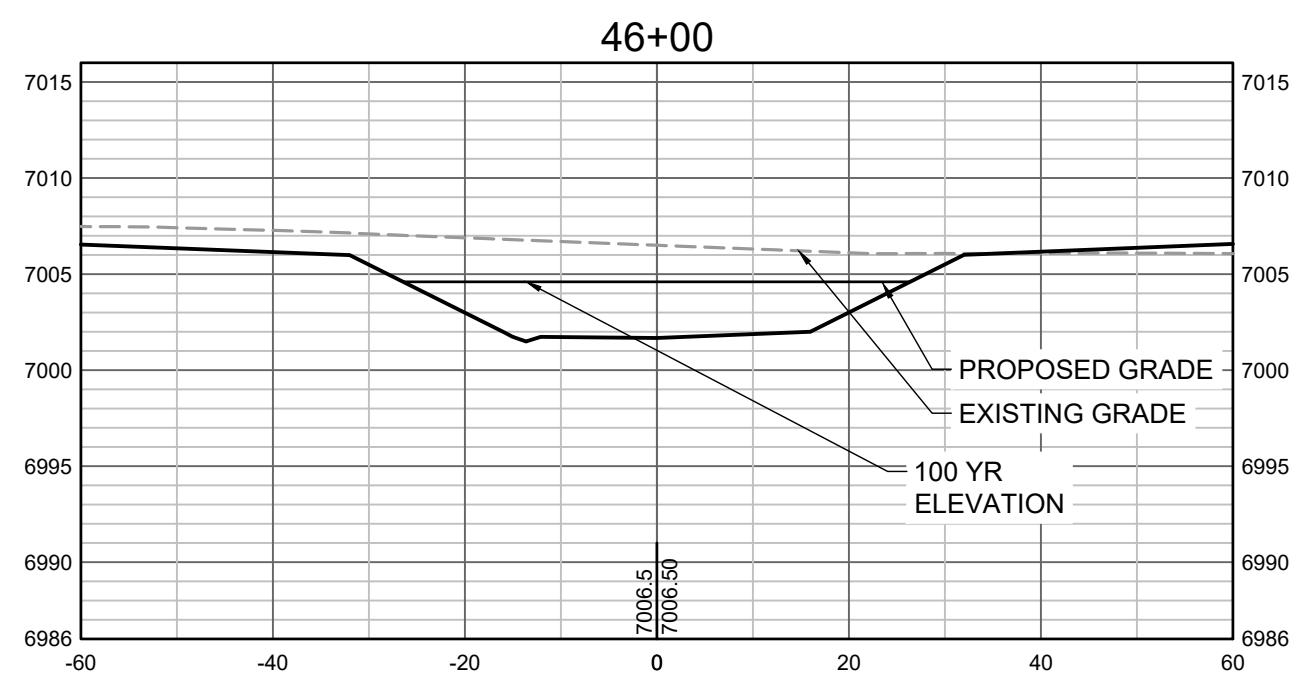
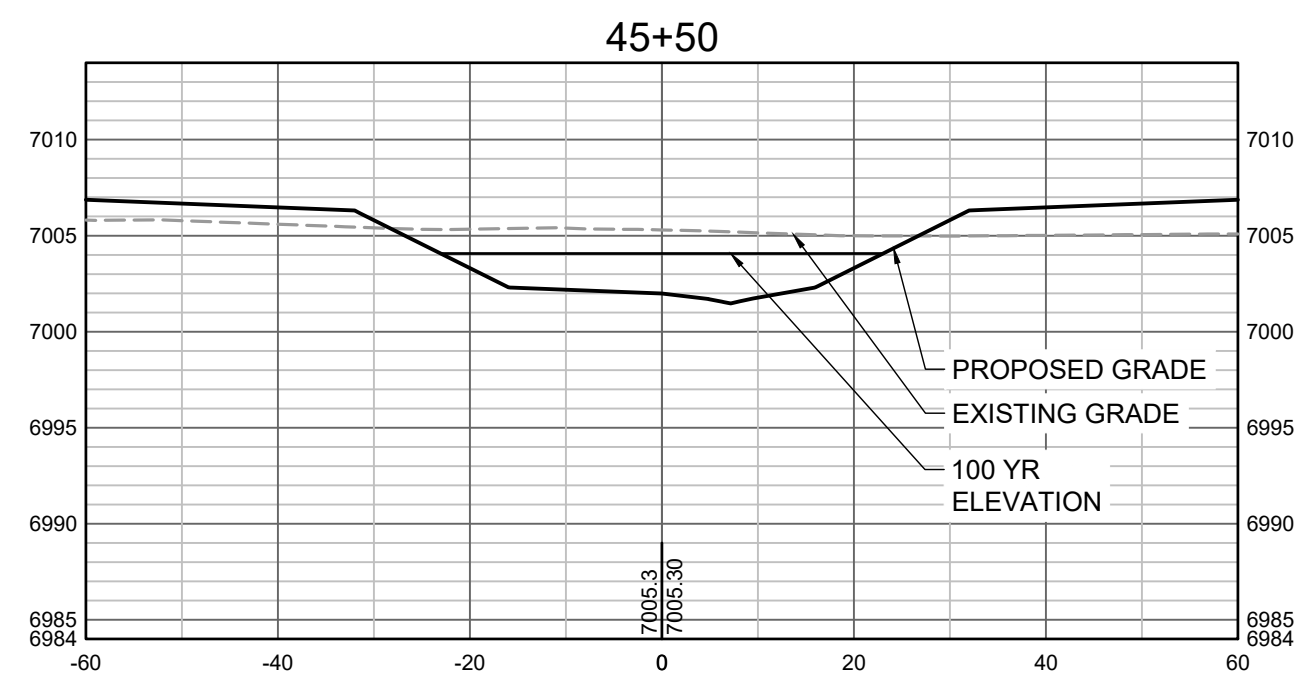
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**GRANDVIEW RESERVE (DRAINAGE A & B)**  
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SHEET  
**CS10**  
30





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FALCON, COLORADO

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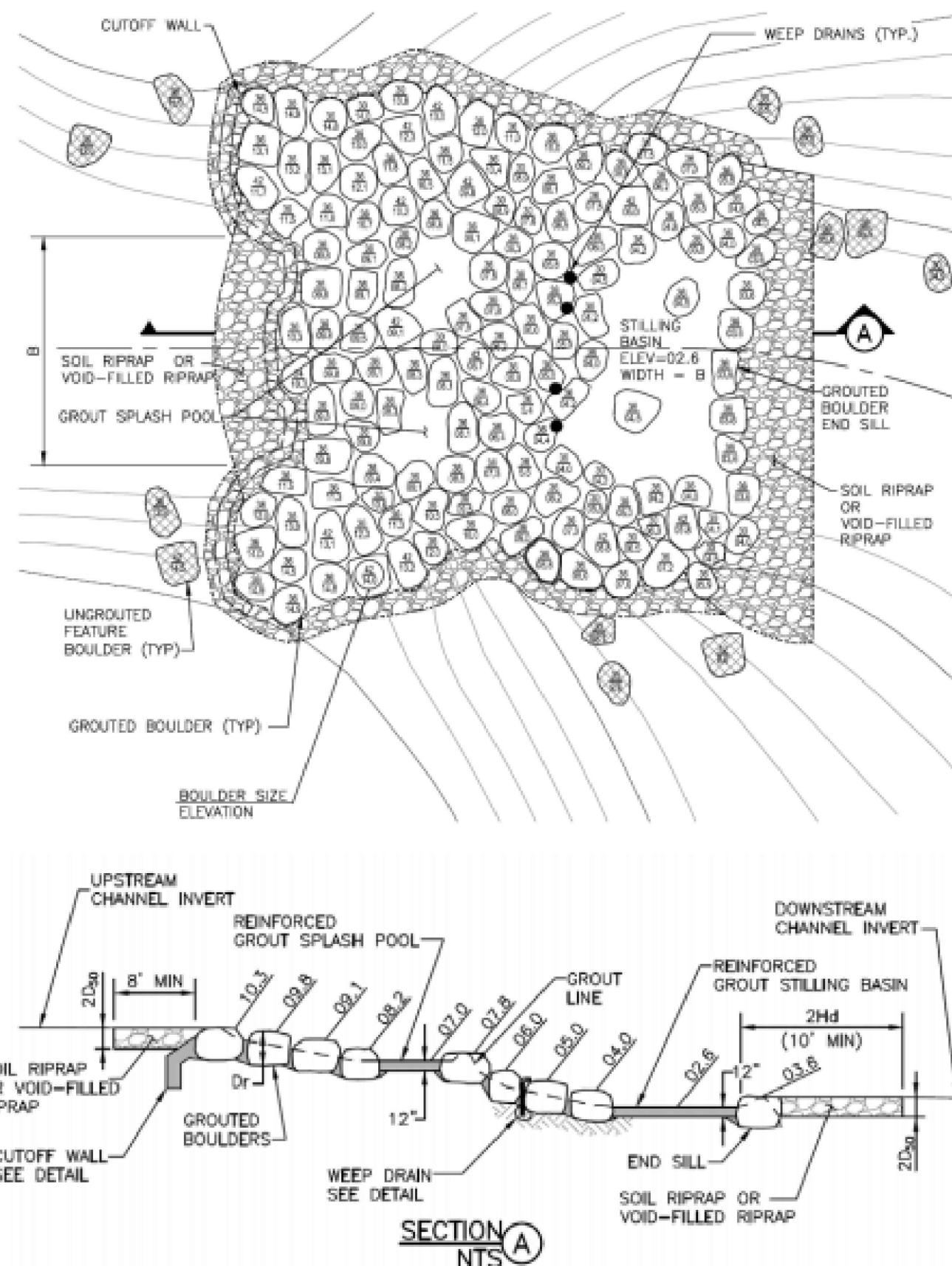
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Figure 1 is a cross-sectional diagram of a geotextile-lined ditch. The ditch is shown with a sloped bottom and vertical sides. The top layer is labeled "Existing ground". Below this is a layer of "Geotextile nonwoven class 1" (labeled "1"). The ditch is filled with "ft" (fine topsoil). The ditch has a minimum width of 4 ft at the inlet and 6 ft at the outlet. The depth is 2 ft. The bottom is labeled "Chute length" and the sides are labeled "Inlet length" and "Outlet length". Elevation markers are shown on the top and bottom.

TS14P-16 (210-VI-NEH, August 2007)



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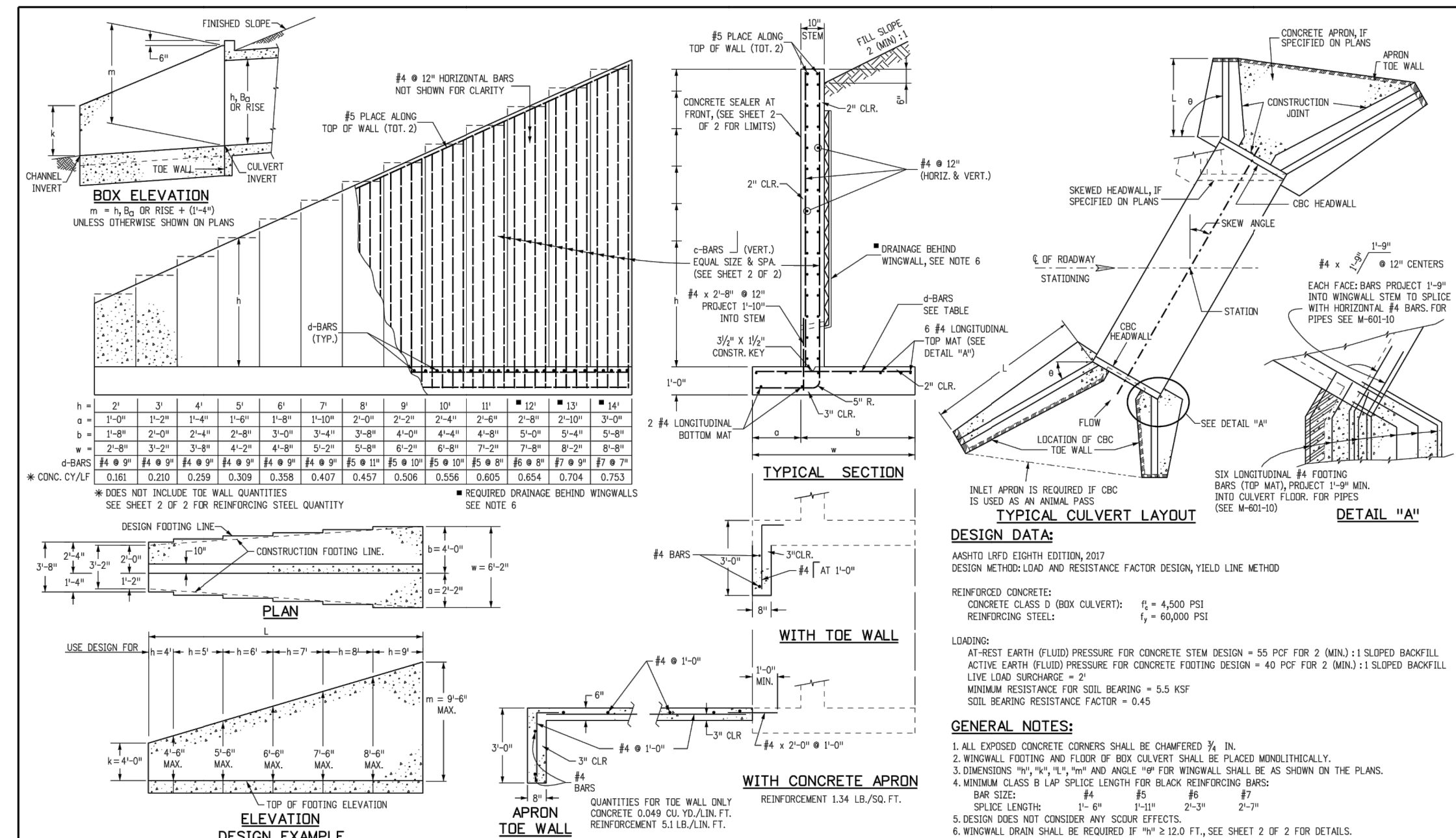


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GRANDVIEW RESERVE (DRAINAGE A & B)  
DR HORTON  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
DETAILS

SHEET DT1	32
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**DESIGN DATA:**  
AASHTO LRFD EIGHTH EDITION, 2017  
DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN, YIELD LINE METHOD

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

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

**GENERAL NOTES:**

1. ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED  $\frac{1}{4}$ " IN.
2. WINGWALL FLOTTING AND FLOOR OF BOX CULVERT SHALL BE PLACED MONOLITHICALLY.
3. DIMENSIONS "W", "H", "L", "H1" AND ANGLE "Ø" FOR WINGWALL SHALL BE AS SHOWN ON THE PLANS.
4. MINIMUM CLASS B LAP SPACE LENGTH FOR BLACK REINFORCING BARS:

BAR SIZE:	#4	#5	#6	#7
SPACE LENGTH:	1'-0"	1'-11"	2'-3"	2'-7"

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

Computer File Information		Sheet Revisions		Colorado Department of Transportation		WINGWALLS FOR PIPE OR BOX CULVERTS		STANDARD PLAN NO.	
Creation Date: 07/31/19		Date:                      Comments		 2829 West Howard Place 2827 HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch                      JIBK		Issued by the Project Development Branch July 31, 2019		M-601-20 Standard Sheet No. 1 of 2 Project Sheet Number:	
(C3D) Designer: Initials: djk									
(C3D) Last Modification Date: 07/31/19									
(C3D) Detailer: Initials: LTA									
CAD User: MicroStation V8    Scale: Not to Scale    Units: English		(C3D)							

c-BARS AND REINFORCING STEEL QUANTITY (EXCLUDE TOE WALL)										* REINFORCING STEEL QUANTITY INCLUDES STEEL AND FOOTING QUANTITIES, BUT DOES NOT INCLUDE TOE WALL QUANTITIES.										
L (M/PIECE OF)		S (0.25 m)		S (0.5 m)		S (0.75 m)		S (1.0 m)		S (1.25 m)		S (1.5 m)		S (1.75 m)		S (2.0 m)		S (2.25 m)		
m (T) x (D)	c-BARS	REINFC (L.B./F.)	REINFC (L.B./F.)	REINFC (L.B./F.)	REINFC (L.B./F.)	REINFC (L.B./F.)	REINFC (L.B./F.)	REINFC (L.B./F.)	REINFC (L.B./F.)	REINFC (L.B./F.)	REINFC (L.B./F.)	REINFC (L.B./F.)	REINFC (L.B./F.)	REINFC (L.B./F.)	REINFC (L.B./F.)	REINFC (L.B./F.)	REINFC (L.B./F.)	REINFC (L.B./F.)	REINFC (L.B./F.)	
14	4	#4	30.80	51.00	27.90	50.00	37.60	68.80	62.22	#4	26.43	45.00	60.38	58.00	65.15	67.30	60.00	66.94	66.70	70.64
	4	#6	50.80	84.43	47.00	79.10	67.10	122.30	110.54	#6	43.23	75.00	102.64	93.00	105.64	112.00	100.00	111.00	111.00	118.66
	4	#8	64.43	107.00	70.60	100.00	87.60	163.30	148.74	#8	54.70	94.00	126.84	114.00	130.44	140.00	125.00	137.00	137.00	146.66
	4	#10	87.29	142.00	97.10	136.00	122.63	225.00	205.34	#10	75.87	128.00	174.87	158.00	177.21	192.00	170.00	186.00	186.00	197.33
	4	#12	114.71	187.00	127.00	178.00	162.63	297.00	272.00	#12	100.00	168.00	230.00	208.00	232.00	255.00	230.00	252.00	252.00	266.67
13	4	#8	78.30	126.00	87.23	106.00	95.00	165.63	152.72	#8	67.33	113.00	151.33	137.00	154.33	165.00	145.00	160.00	160.00	168.33
	4	#10	102.51	167.00	112.00	153.00	137.00	250.00	227.00	#10	88.30	148.00	200.00	180.00	202.00	218.00	195.00	215.00	215.00	226.67
	4	#12	126.66	207.00	143.33	193.00	173.00	320.00	293.00	#12	109.00	188.00	258.00	233.00	263.00	285.00	255.00	280.00	280.00	293.33
	4	#14	154.92	257.00	174.00	236.00	213.00	397.00	363.00	#14	136.00	233.00	320.00	288.00	328.00	358.00	320.00	345.00	345.00	360.00
	4	#16	174.70	279.00	192.00	261.00	235.00	445.00	405.00	#16	153.00	268.00	368.00	328.00	378.00	412.00	370.00	400.00	400.00	416.67
12	4	#8	69.37	107.00	78.30	106.00	85.00	157.63	145.78	#8	60.00	90.00	120.00	108.00	125.00	135.00	120.00	130.00	130.00	136.67
	4	#10	93.56	143.00	106.00	143.00	118.00	212.00	192.00	#10	80.00	125.00	165.00	148.00	170.00	185.00	165.00	180.00	180.00	188.33
	4	#12	118.00	187.00	136.00	187.00	158.00	280.00	255.00	#12	103.00	170.00	230.00	205.00	235.00	258.00	230.00	250.00	250.00	260.00
	4	#14	143.00	230.00	165.00	230.00	200.00	340.00	305.00	#14	125.00	210.00	285.00	250.00	290.00	315.00	280.00	305.00	305.00	316.67
	4	#16	168.00	270.00	195.00	270.00	235.00	400.00	355.00	#16	145.00	245.00	335.00	295.00	340.00	370.00	330.00	355		
11	4	#8	60.00	90.00	69.37	106.00	58.33	106.00	58.33	#8	51.67	81.00	101.67	90.00	101.67	111.67	90.00	101.67	101.67	108.33
	4	#10	76.67	115.00	87.23	136.00	75.00	136.00	75.00	#10	66.67	105.00	131.67	115.00	131.67	146.67	115.00	131.67	131.67	138.33
	4	#12	93.33	142.00	106.00	161.00	91.67	161.00	91.67	#12	83.33	128.00	158.33	140.00	158.33	178.33	140.00	158.33	158.33	165.00
	4	#14	110.00	171.00	126.67	193.00	110.00	193.00	110.00	#14	100.00	153.00	188.33	165.00	188.33	213.33	165.00	188.33	188.33	195.00
	4	#16	126.67	193.00	143.33	214.00	126.67	214.00	126.67	#16	116.67	173.00	218.33	190.00	218.33	243.33	190.00	218.33	218.33	225.00
10	4	#8	51.67	81.00	60.00	90.00	51.67	81.00	51.67	#8	45.00	67.50	85.00	75.00	85.00	95.00	75.00	85.00	85.00	91.67
	4	#10	66.67	105.00	75.00	115.00	66.67	105.00	66.67	#10	58.33	88.33	111.67	100.00	111.67	126.67	100.00	111.67	111.67	118.33
	4	#12	83.33	128.00	91.67	138.33	83.33	128.00	83.33	#12	73.33	111.67	141.67	125.00	141.67	161.67	125.00	141.67	141.67	148.33
	4	#14	100.00	153.00	110.00	173.00	100.00	173.00	100.00	#14	90.00	133.33	168.33	150.00	168.33	193.33	150.00	168.33	168.33	175.00
	4	#16	116.67	173.00	126.67	193.00	116.67	193.00	116.67	#16	105.00	158.33	203.33	180.00	203.33	228.33	180.00	203.33	203.33	210.00
9	4	#8	45.00	67.50	51.67	81.00	45.00	67.50	45.00	#8	39.58	59.38	75.00	66.67	75.00	85.00	66.67	75.00	75.00	81.67
	4	#10	58.33	88.33	66.67	105.00	58.33	88.33	58.33	#10	51.67	78.33	101.67	90.00	101.67	116.67	90.00	101.67	101.67	108.33
	4	#12	73.33	111.67	83.33	128.00	73.33	111.67	73.33	#12	65.00	98.33	128.33	115.00	128.33	148.33	115.00	128.33	128.33	135.00
	4	#14	90.00	133.33	100.00	153.00	90.00	153.00	90.00	#14	80.00	123.33	158.33	140.00	158.33	183.33	140.00	158.33	158.33	165.00
	4	#16	105.00	158.33	116.67	173.00	105.00	173.00	105.00	#16	95.00	143.33	188.33	165.00	188.33	213.33	165.00	188.33	188.33	195.00
8	4	#8	39.58	59.38	45.00	67.50	39.58	59.38	39.58	#8	34.72	52.08	66.67	58.33	66.67	76.67	58.33	66.67	66.67	71.67
	4	#10	51.67	78.33	58.33	88.33	51.67	78.33	51.67	#10	45.00	67.50	85.00	75.00	85.00	95.00	75.00	85.00	85.00	91.67
	4	#12	65.00	98.33	73.33	111.67	65.00	98.33	65.00	#12	56.67	85.00	111.67	100.00	111.67	126.67	100.00	111.67	111.67	118.33
	4	#14	80.00	123.33	90.00	153.00	80.00	153.00	80.00	#14	70.00	103.33	138.33	120.00	138.33	163.33	120.00	138.33	138.33	145.00
	4	#16	95.00	143.33	105.00	173.00	95.00	173.00	95.00	#16	85.00	123.33	158.33	140.00	158.33	183.33	140.00	158.33	158.33	165.00
7	4	#8	34.72	52.08	39.58	59.38	34.72	52.08	34.72	#8	30.00	45.00	56.67	50.00	56.67	65.00	50.00	56.67	56.67	61.67
	4	#10	45.00	67.50	51.67	81.00	45.00	67.50	45.00	#10	39.58	59.38	75.00	66.67	75.00	85.00	66.67	75.00	75.00	81.67
	4	#12	56.67	85.00	65.00	98.33	56.67	85.00	56.67	#12	48.33	71.67	91.67	80.00	91.67	106.67	80.00	91.67	91.67	98.33
	4	#14	70.00	103.33	80.00	123.33	70.00	103.33	70.00	#14	60.00	93.33	118.33	100.00	118.33	143.33	100.00	118.33	118.33	125.00
	4	#16	85.00	123.33	95.00	143.33	85.00	143.33	85.00	#16	75.00	113.33	148.33	130.00	148.33	173.33	130.00	148.33	148.33	155.00

Computer File Information

Creation Date: 07/31/19  
Designer: JLB  
List Modification Date: 07/31/19  
Details: JLB  
CAD Version: V8  
Scale: Not Set (Units: English)

Sheet Revisions

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Colorado Department of Transportation

1001 N. 3rd Street  
Denver, CO 80202  
303-757-8021 FAX: 303-757-9868

Project Development Branch

JLB

WING WALLS FOR PIPE  
OR BOX CULVERTS

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

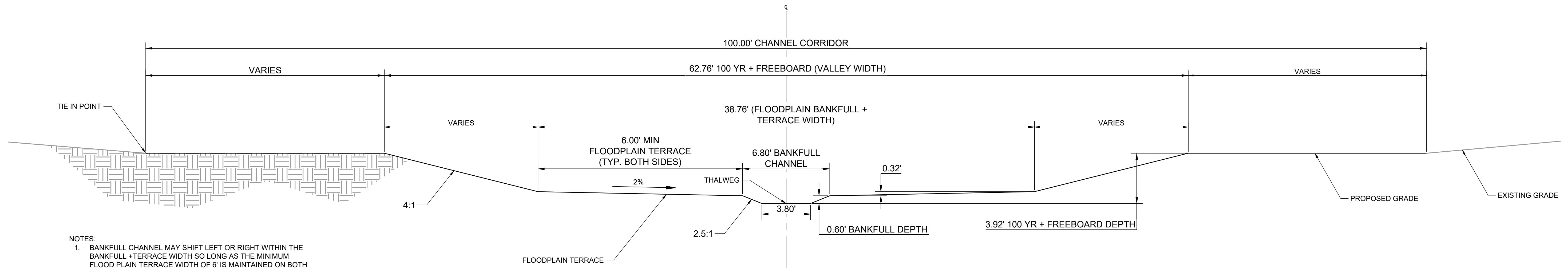
Project Sheet Number: 22

APPLY CONCRETE  
SLAB  
3'-0"  
PLASTIC GRADE CURB  
GEOTEXTILE (OR EROSION) CLAYS 2'  
SHALL BE ON DRAINAGE SIDE OF  
ON BOTH SIDE OF CURB  
3" GRANULAR FILL, 20'-0" MAX. TO  
TOE OF WALL. TOE OF WALL  
FINISHED GRADE 90° APPROX.

LIMITS OF CONCRETE SLAB  
AND WINGWALL DRAIN DETAILS

NOTES: 1. THE GEOTECHNIST SHALL BE SECURED TO THE WALL  
TO PREVENT MOVEMENT DURING BACKFILLING.  
2. 20% OF GEOTECHNIST DRAIN AND CONCRETE SLAB  
SHALL BE REINFORCED IN THE WORK.





- NOTES:
1. BANKFULL CHANNEL MAY SHIFT LEFT OR RIGHT WITHIN THE BANKFULL + TERRACE WIDTH SO LONG AS THE MINIMUM FLOOD PLAIN TERRACE WIDTH OF 6' IS MAINTAINED ON BOTH SIDES.
  2. VALLEY WIDTH MAY SHIFT WITHIN THE 100' CHANNEL CORRIDOR.
  3. SEE PROFILES FOR ELEVATION AT THALWEG.

1 TYPICAL CROSS SECTION  
SCALE: N.T.S.

DRAWN BY: TBI	JOB DATE: 7/25/2022	BAR IS ONE INCH ON OFFICIAL DRAWINGS.
APPROVED: CMM	JOB NUMBER: 201662.03	0 1"
CAD DATE: 7/25/2022		IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.
CAD FILE: J:\2020\201662.03\CAD\Drawings\C\DETAILS		

NO.	DATE	BY	REVISION DESCRIPTION

HRGreen

HR GREEN - DENVER

5619 DTC PARKWAY SUITE 1150

DENVER CO 80111

PHONE: 720.602.4999

FAX: 844.273.1057

GRANDVIEW RESERVE (DRAINAGE A & B)

DR HORTON

FALCON, COLORADO

CONSTRUCTION DOCUMENTS

DETAILS

SHEET

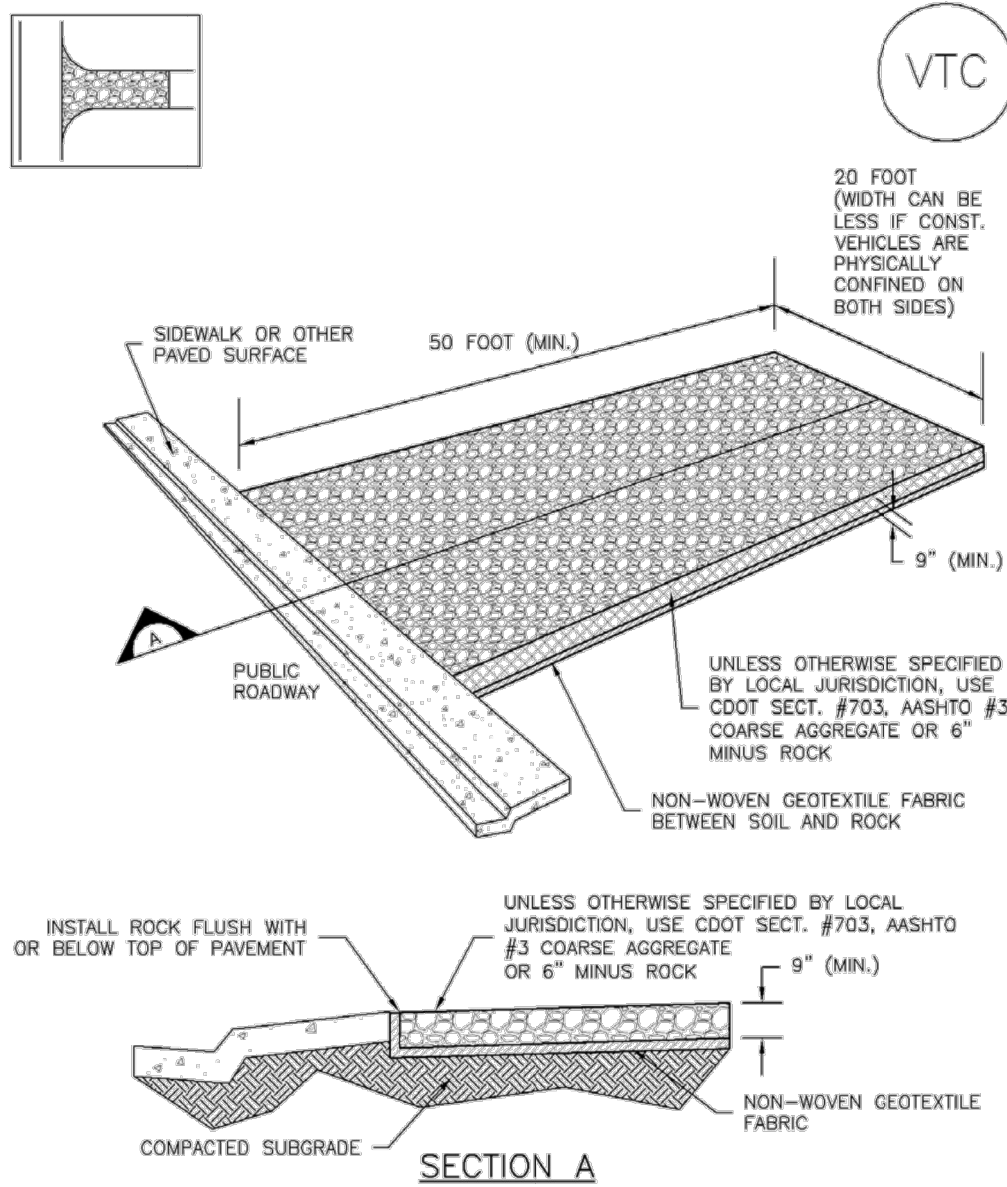
DT2

33



Vehicle Tracking Control (VTC)

SM-4

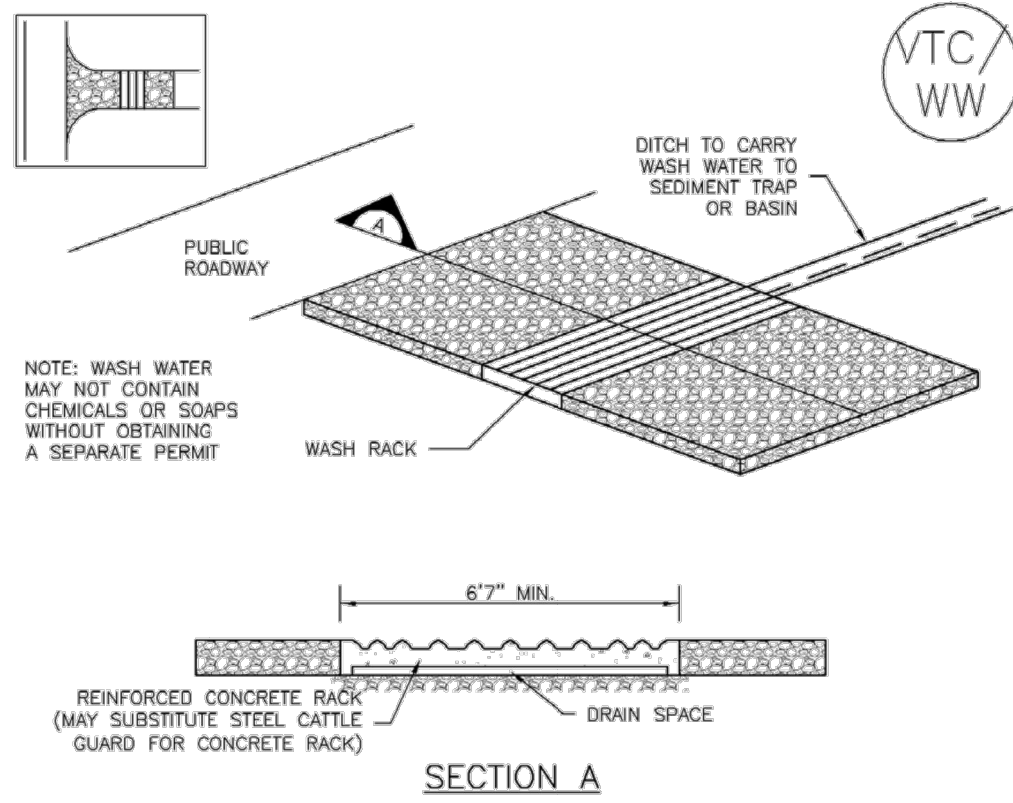


VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

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

SM-4

Vehicle Tracking Control (VTC)

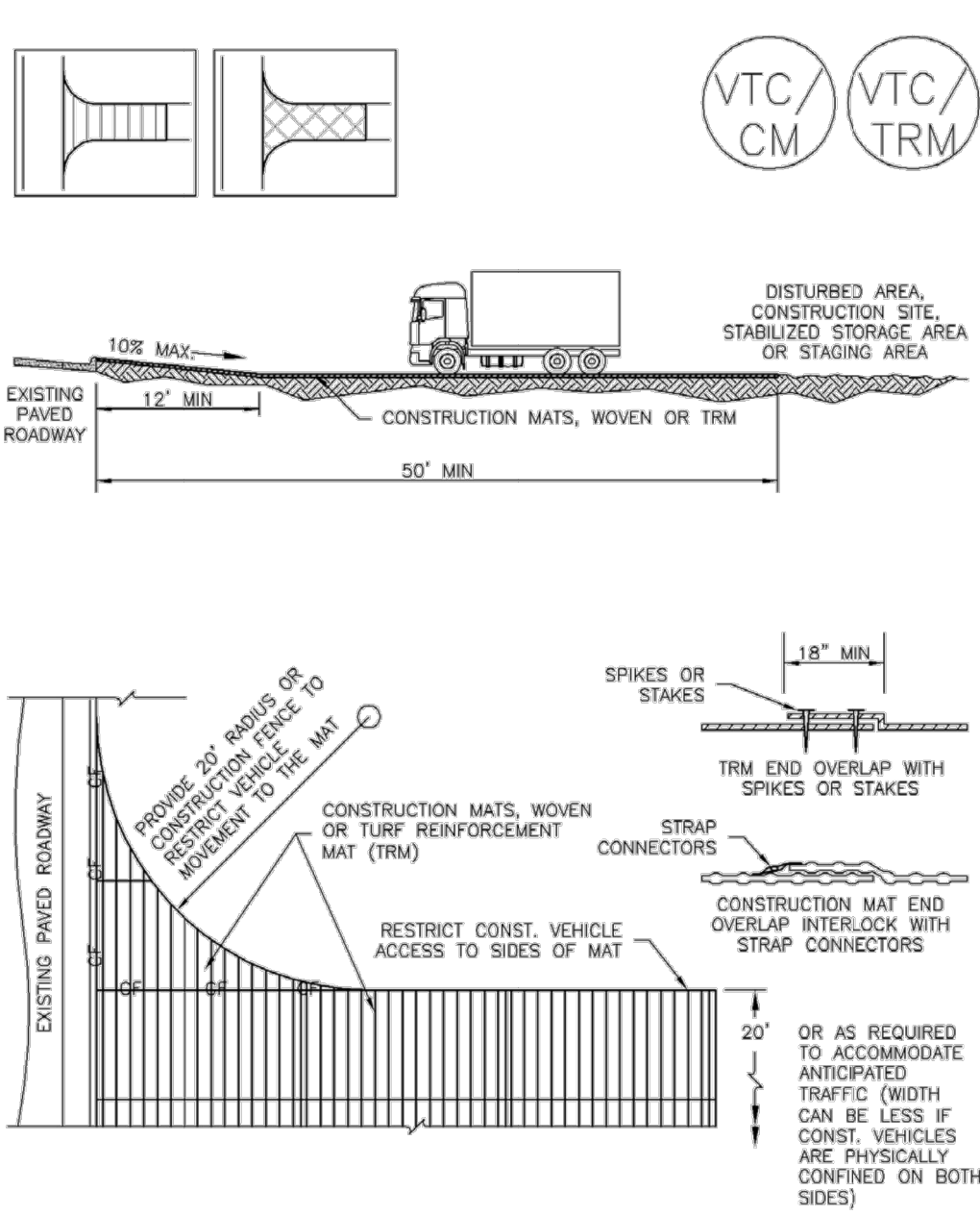


VTC-2. AGGREGATE VEHICLE TRACKING CONTROL WITH WASH RACK

VTC-4 Urban Drainage and Flood Control District November 2010  
Urban Storm Drainage Criteria Manual Volume 3

Vehicle Tracking Control (VTC)

SM-4



VTC-3. VEHICLE TRACKING CONTROL W/ CONSTRUCTION MAT OR TURF REINFORCEMENT MAT (TRM)

November 2010 Urban Drainage and Flood Control District VTC-5  
Urban Storm Drainage Criteria Manual Volume 3

SM-4

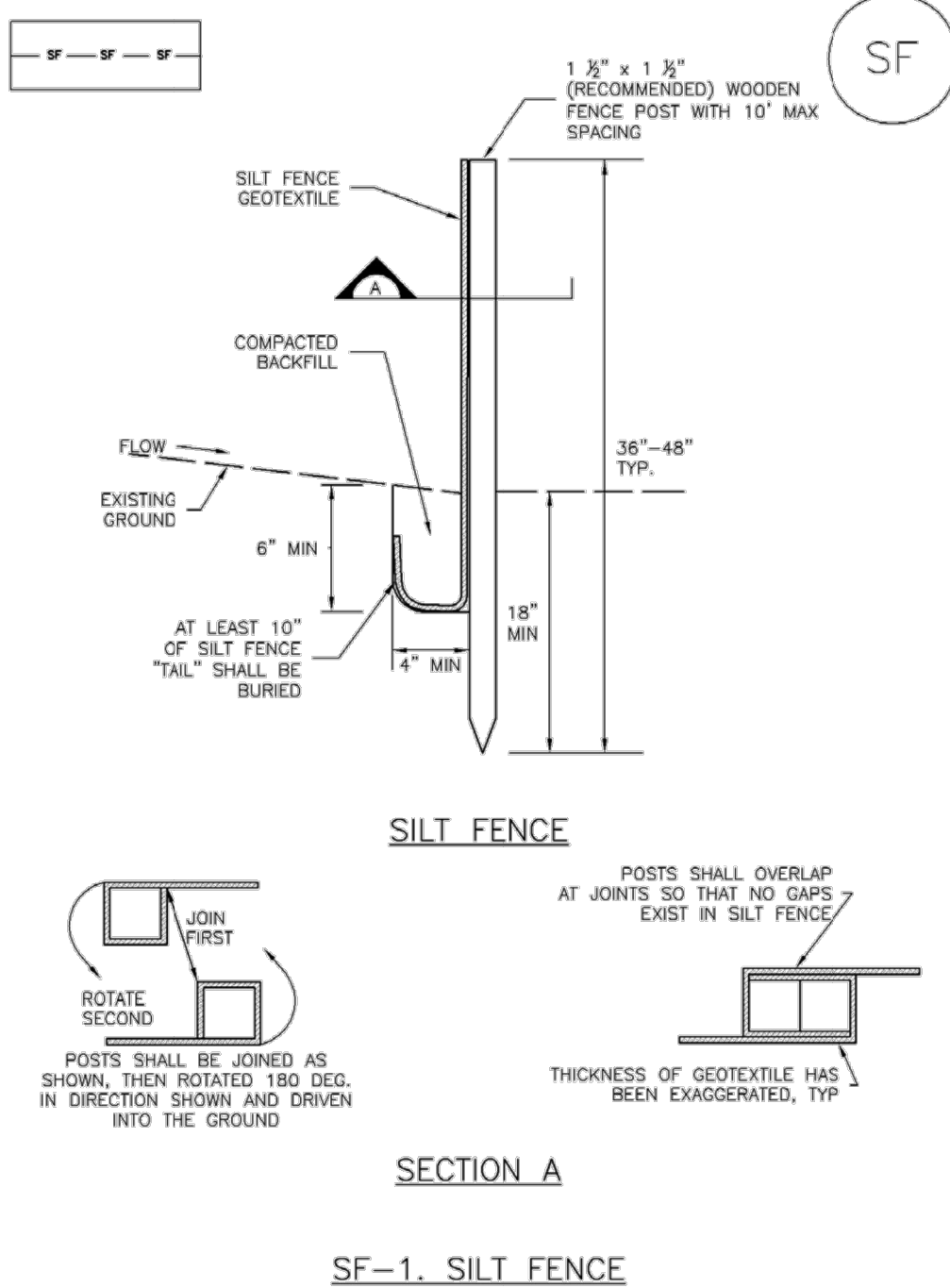
Vehicle Tracking Control (VTC)

- STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
    - LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
    - TYPE OF CONSTRUCTION ENTRANCE(S)/EXIT(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).
  - CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
  - A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
  - STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
  - A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
  - UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
- STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES**
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
  - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
  - ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
  - SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- (DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)

VTC-6 Urban Drainage and Flood Control District November 2010  
Urban Storm Drainage Criteria Manual Volume 3

Silt Fence (SF)

SC-1



SF-1. SILT FENCE

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

SC-1

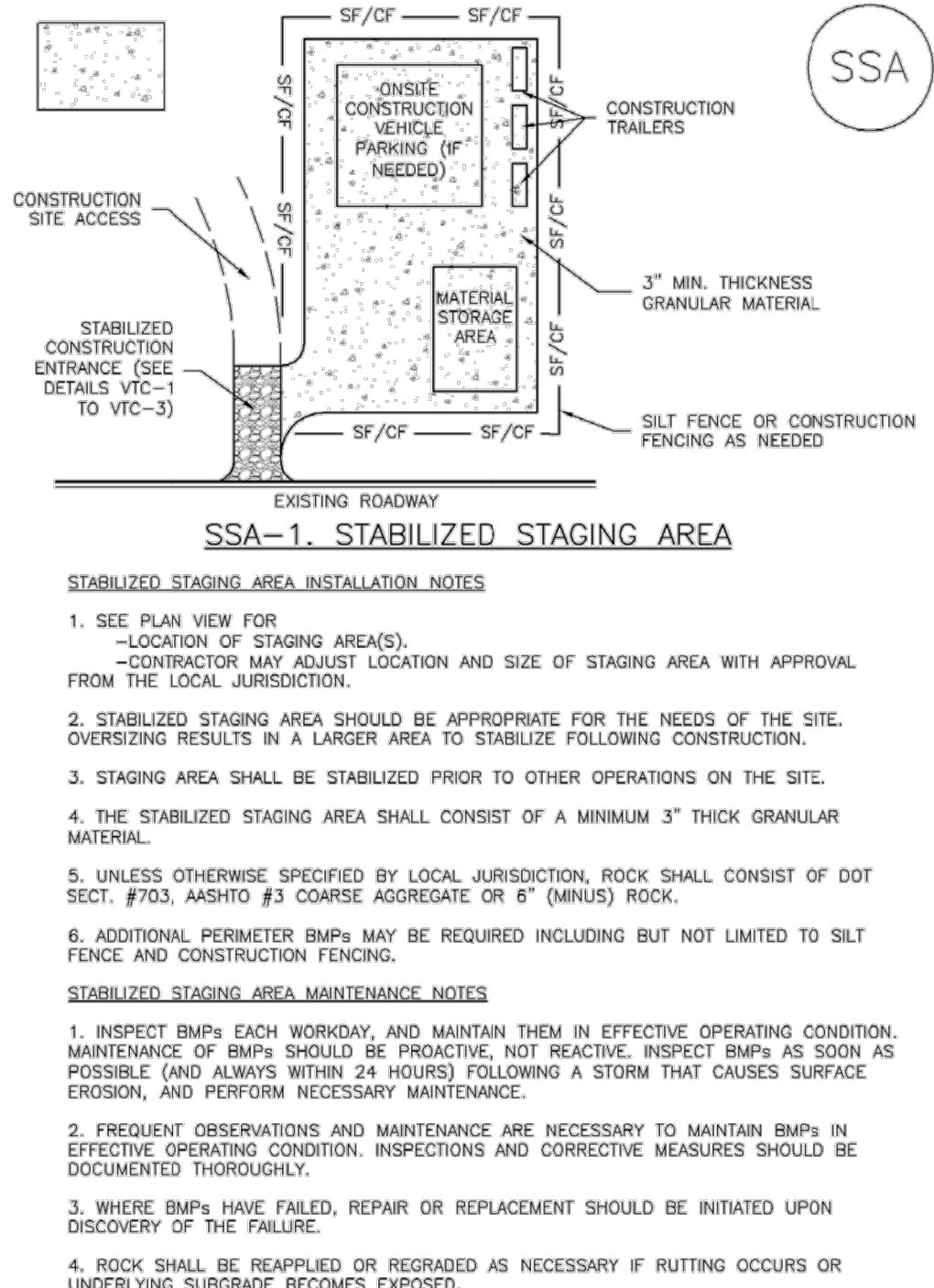
Silt Fence (SF)

- SILT FENCE INSTALLATION NOTES**
- SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.
  - A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.
  - COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
  - SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.
  - SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.
  - AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
  - SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- SILT FENCE MAINTENANCE NOTES**
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
  - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
  - SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".
  - REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
  - SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
  - WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

SF-4 Urban Drainage and Flood Control District November 2010  
Urban Storm Drainage Criteria Manual Volume 3

Stabilized Staging Area (SSA)

SM-6



SSA-1. STABILIZED STAGING AREA

- STABILIZED STAGING AREA INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
    - LOCATION OF STAGING AREA(S).
    - CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
  - STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
  - STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
  - THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
  - UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
  - ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.
- STABILIZED STAGING AREA MAINTENANCE NOTES**
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
  - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
  - ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

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

SM-6

Stabilized Staging Area (SSA)

- STABILIZED STAGING AREA MAINTENANCE NOTES**
- STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
  - THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.
- NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- (DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

SSA-4 Urban Drainage and Flood Control District November 2010  
Urban Storm Drainage Criteria Manual Volume 3

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CAD DATE: 7/25/2022  
CAD FILE: J:\2020\201662.03\CAD\dwgs\CDETAILS

BAR IS ONE INCH ON OFFICIAL DRAWINGS.  
0 1"  
IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

NO.	DATE	BY	REVISION DESCRIPTION



HR GREEN - DENVER  
5619 DTC PARKWAY SUITE 1150  
DENVER CO 80111  
PHONE: 720.602.4999  
FAX: 844.273.1057

GRANDVIEW RESERVE (DRAINAGE A & B)  
DR HORTON  
FALCON, COLORADO

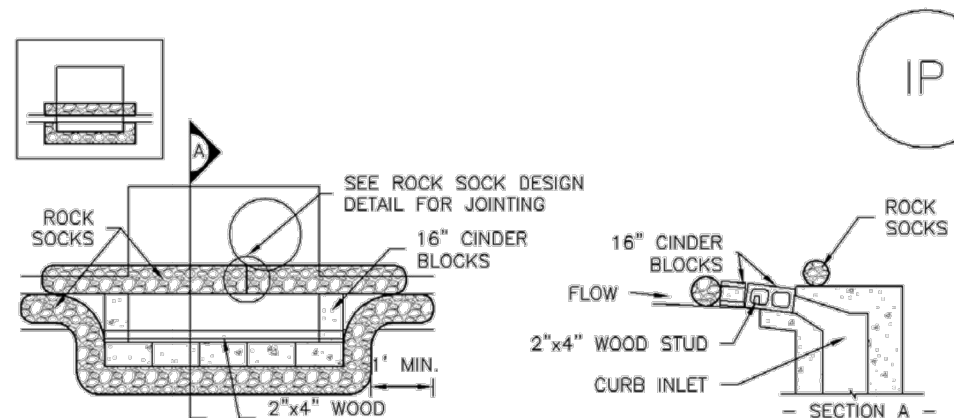
CONSTRUCTION DOCUMENTS  
DETAILS

SHEET  
DT3

34



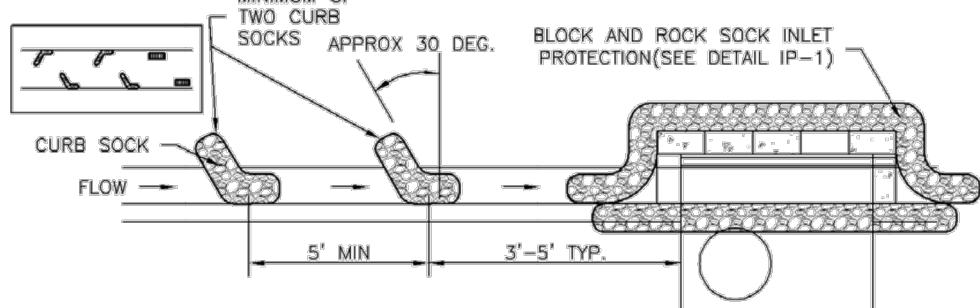
SC-6 Inlet Protection (IP)



IP-1. BLOCK AND ROCK SOCK SUMP OR ON GRADE INLET PROTECTION

BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.
3. GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.



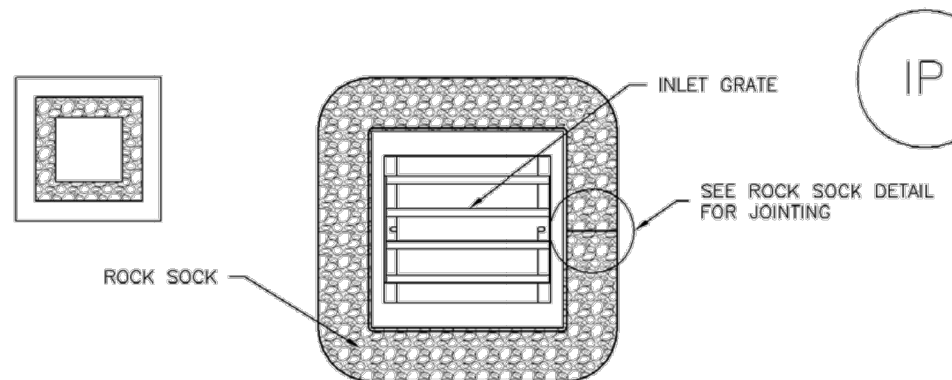
IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.
2. PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.
3. SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART.
4. AT LEAST TWO CURB SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADE INLETS.

IP-4 Urban Drainage and Flood Control District August 2013  
Urban Storm Drainage Criteria Manual Volume 3

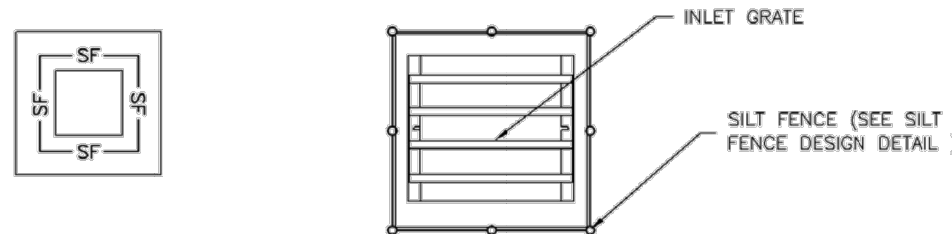
Inlet Protection (IP) SC-6



IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES

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



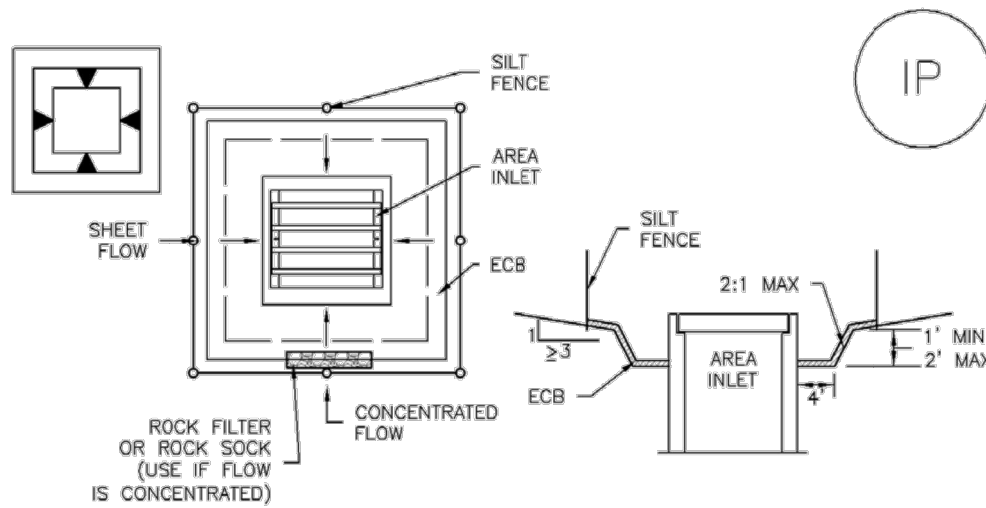
IP-4. SILT FENCE FOR SUMP INLET PROTECTION

SILT FENCE INLET PROTECTION INSTALLATION NOTES

1. SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET.
3. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.

August 2013 Urban Drainage and Flood Control District IP-5  
Urban Storm Drainage Criteria Manual Volume 3

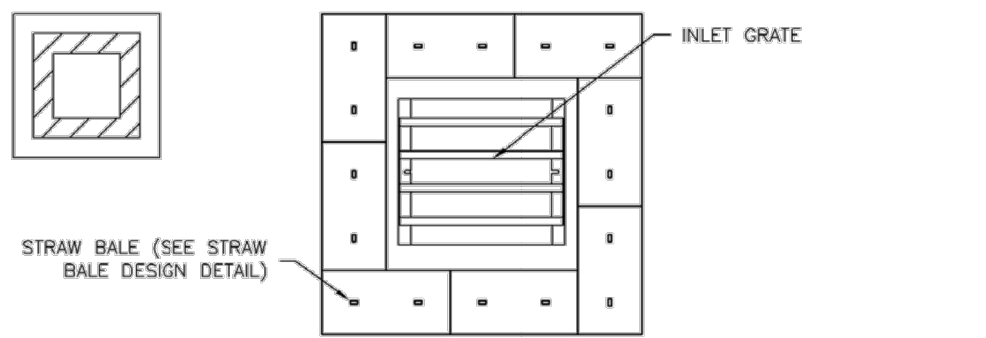
SC-6 Inlet Protection (IP)



IP-5. OVEREXCAVATION INLET PROTECTION

OVEREXCAVATION INLET PROTECTION INSTALLATION NOTES

1. THIS FORM OF INLET PROTECTION IS PRIMARILY APPLICABLE FOR SITES THAT HAVE NOT YET REACHED FINAL GRADE AND SHOULD BE USED ONLY FOR INLETS WITH A RELATIVELY SMALL CONTRIBUTING DRAINAGE AREA.
2. WHEN USING FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH ORIENTED TOWARDS DIRECTION OF FLOW.
3. SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVEREXCAVATED AREA.



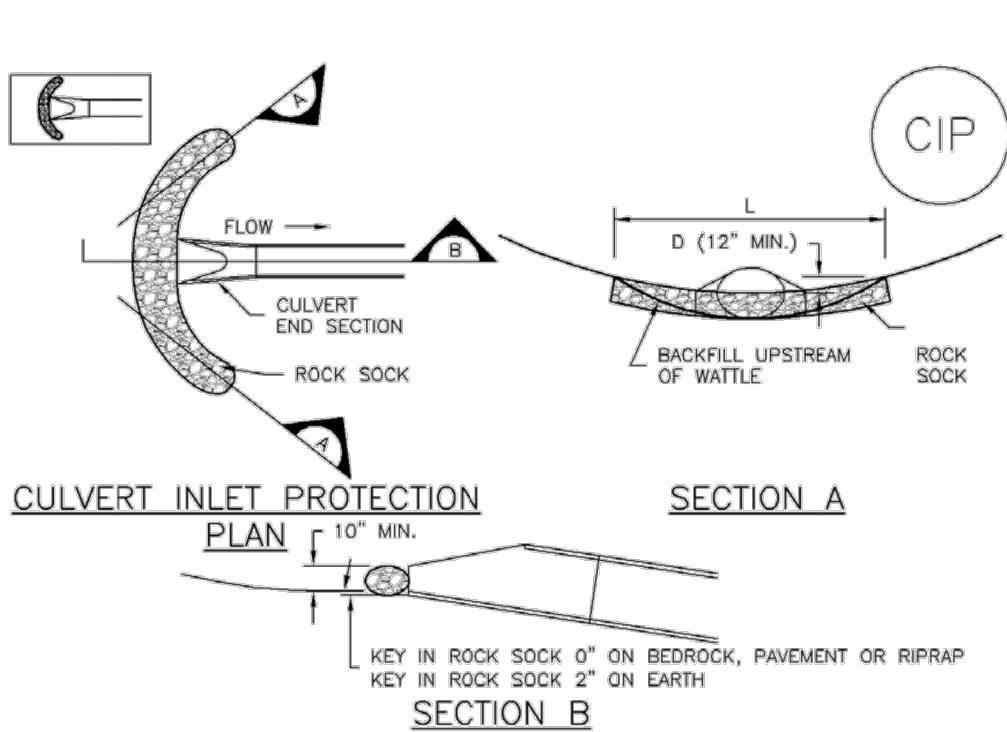
IP-6. STRAW BALE FOR SUMP INLET PROTECTION

STRAW BALE BARRIER INLET PROTECTION INSTALLATION NOTES

1. SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH ENDS OF BALES TIGHTLY ABUTTING ONE ANOTHER.

IP-6 Urban Drainage and Flood Control District August 2013  
Urban Storm Drainage Criteria Manual Volume 3

Inlet Protection (IP) SC-6



CIP-1. CULVERT INLET PROTECTION

CULVERT INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR -LOCATION OF CULVERT INLET PROTECTION.
2. SEE ROCK SOCK DESIGN DETAIL FOR ROCK GRADATION REQUIREMENTS AND JOINING DETAIL.

CULVERT INLET PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS  $\frac{1}{2}$  THE HEIGHT OF THE ROCK SOCK.
5. CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

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

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

August 2013 Urban Drainage and Flood Control District IP-7  
Urban Storm Drainage Criteria Manual Volume 3

SC-6 Inlet Protection (IP)

GENERAL INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:  
-LOCATION OF INLET PROTECTION.  
-TYPE OF INLET PROTECTION (IP-1, IP-2, IP-3, IP-4, IP-5, IP-6)
2. INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS). IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.
3. MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

INLET PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY, A DEPTH OF 6" WHEN SILT FENCE IS USED, OR  $\frac{1}{4}$  OF THE HEIGHT FOR STRAW BALES.
5. INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.
6. WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

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

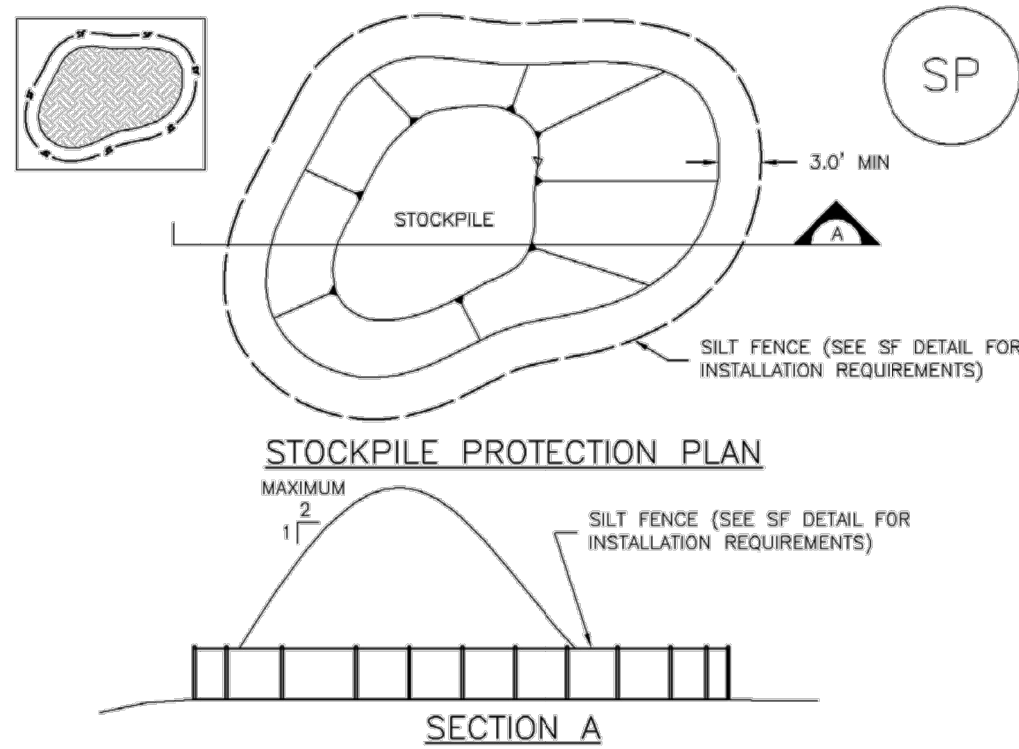
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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

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

IP-8 Urban Drainage and Flood Control District August 2013  
Urban Storm Drainage Criteria Manual Volume 3

Stockpile Management (SP) MM-2



SP-1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:  
-LOCATION OF STOCKPILES  
-TYPE OF STOCKPILE PROTECTION.
2. INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.
3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).
4. FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

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

MM-2 Stockpile Management (SM)

STOCKPILE PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

STOCKPILE PROTECTION MAINTENANCE NOTES

4. IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.
5. STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.

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

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

SP-4 Urban Drainage and Flood Control District November 2010  
Urban Storm Drainage Criteria Manual Volume 3

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

Seeding dates for the highest success probability of perennial species along the Front Range are generally in the spring from April through early May and in the fall after the first of September until the ground freezes. If the area is irrigated, seeding may occur in summer months, as well. See Table TS/PS-3 for appropriate seeding dates.

Table TS/PS-1. Minimum Drill Seeding Rates for Various Temporary Annual Grasses

Species <sup>a</sup> (Common name)	Growth Season <sup>b</sup>	Pounds of Pure Live Seed (PLS)/acre <sup>c</sup>	Planting Depth (inches)
1. Oats	Cool	35 - 50	1 - 2
2. Spring wheat	Cool	25 - 35	1 - 2
3. Spring barley	Cool	25 - 35	1 - 2
4. Annual ryegrass	Cool	10 - 15	$\frac{1}{2}$
5. Millet	Warm	3 - 15	$\frac{1}{2}$ - $\frac{3}{4}$
6. Sudangrass	Warm	5 - 10	$\frac{1}{2}$ - $\frac{3}{4}$
7. Sorghum	Warm	5 - 10	$\frac{1}{2}$ - $\frac{3}{4}$
8. Winter wheat	Cool	20 - 35	1 - 2
9. Winter barley	Cool	20 - 35	1 - 2
10. Winter rye	Cool	20 - 35	1 - 2
11. Triticale	Cool	25 - 40	1 - 2

<sup>a</sup> Successful seeding of annual grass resulting in adequate plant growth will usually produce enough dead-plant residue to provide protection from wind and water erosion for an additional year. This assumes that the cover is not disturbed or mowed closer than 8 inches.

Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.

<sup>b</sup> See Table TS/PS-3 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.

<sup>c</sup> Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

June 2012 Urban Drainage and Flood Control District TS/PS-3  
Urban Storm Drainage Criteria Manual Volume 3

DRAWN BY: TBI JOB DATE: 7/25/2022 BAR IS ONE INCH ON  
APPROVED: CMM JOB NUMBER: 201662.03 OFFICIAL DRAWINGS.  
CAD DATE: 7/25/2022 IF NOT ONE INCH,  
CAD FILE: J:\2020\201662.03\CAD\dwgs\C\DETAILS ADJUST SCALE ACCORDINGLY.

NO.	DATE	BY	REVISION DESCRIPTION



HR GREEN - DENVER  
5619 DTC PARKWAY SUITE 1150  
DENVER CO 80111  
PHONE: 720.602.4999  
FAX: 844.273.1057

GRANDVIEW RESERVE (DRAINAGE A & B)  
DR HORTON  
FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
DETAILS

SHEET  
DT4

35



## Appendix E Floodway Notice





▷ 5619 DTC Parkway | Suite 1150 | Greenwood Village, CO 80111  
Main 720.602.4999 + Fax 844.273.1057

▷ [HRGREEN.COM](https://www.hrgreen.com)

September 2021

Property owner

Property owner address

Re: Notification of increases in 1-percent-annual-chance water-surface elevations and/or future flood hazard revisions

The Flood Insurance Rate Map (FIRM) for a community depicts the Special Flood Hazard Area (SFHA), the area that has been determined to be subject to a 1-percent or greater chance of flooding in any given year. The floodway is the portion of the floodplain that includes the channel of a river or other watercourse and the adjacent land area that must be reserved in order to discharge the 1-percent-annual-chance (base) flood without cumulatively increasing the water-surface elevation by more than a designated height. The FIRM is used to determine flood insurance rates and to help the community with floodplain management.

{Revision Requester} is applying for a Conditional Letter of Map Revision (CLOMR) from the Federal Emergency Management Agency (FEMA) on behalf of {Revision requester's client} to revise FIRMs 08041C0552G and 08041C0556G for El Paso County along Gieck Ranch Tributary 2. {Revision requester's client} is proposing to realign and create a creek corridor as part of the Grandview Reserve Development.

Once the project has been completed, a Letter of Map Revision (LOMR) request should be submitted that will, in part, revise the following flood hazards along Gieck Ranch Tributary 2.

The floodway will be revised from the south-central project boundary to Eastonville Road near the northwest corner of GVR along Gieck Ranch Tributary 2.

This letter is to inform you of the proposed project that may affect flood elevations on your property at {insert physical address}. This letter is also to inform you of the potential changes to the effective flood hazard information that would result after the project is completed and a LOMR request is submitted to FEMA.

Maps and detailed analysis of the floodway revision can be reviewed at the {location TBD} at {location address TBD}. If you have any questions or concerns about the proposed project or its affect on your property, you may contact {name of appropriate community official} of {name of community} at {community official contact information} from {date TBD} to {date TBD} or {name of appropriate community official} with Mile High Flood District at {community official contact information} from {date TBD} to {date TBD}.

HR GREEN, INC

Chris McFarland, PE  
Lead Engineer



## Appendix F

### Endangered Species Act Compliance





## Informal Consultation Request

April 10, 2020

Mr. Drue DeBerry  
Acting Colorado Field Supervisor  
U.S. Fish and Wildlife Service  
Colorado Ecological Services Field Office  
134 Union Blvd., Suite 670  
Lakewood, Colorado 80228

**RE: Request for Technical Assistance Regarding the Likelihood of Take of Federally-listed Threatened and Endangered Species resulting from the proposed development of the Grandview Reserve Project in El Paso County, Colorado**

Dear Mr. DeBerry:

Ecosystem Services, LLC (ecos) has prepared the enclosed habitat evaluation on behalf of 4 Site Investments to describe the physical/ecological characteristics of the Grandview Reserve site (Site) and evaluate the potential effects of the proposed development project (Project) on the Federally-listed threatened and endangered (T&E) species protected under the Endangered Species Act (ESA).

The El Paso County Environmental Division has completed its review of the Project and has requested that 4 Site Investments provide a "Clearance Letter" obtained from the U.S. Fish and Wildlife Service (USFWS) to the Planning and Community Development Department prior to project commencement "where the project will result in ground disturbing activity in habitat occupied or potentially occupied by threatened or endangered species and/or where development will occur within 300 feet of the centerline of a stream or within 300 feet of the 100 year floodplain, whichever is greater."

At this time there is no Federal action and no Federal agency is making a formal effects determination under Section 7 (a)(2) of the ESA. Therefore, ecos is requesting technical assistance from USFWS regarding 4 Site Investments' (i.e., the non-federal party) responsibilities under the ESA, and specifically the likelihood of the Project (described herein) resulting in take of listed species. If the USFWS concurs with the findings presented herein we request that you issue an informal letter of concurrence for use in the El Paso County Project review process.

## **1.0 SITE LOCATION and PROJECT DESCRIPTION**

The Site is located in the Falcon/Peyton area of El Paso County and is bounded along the north by 4 Way Ranch Phase I, along the south by Waterbury, along the southeast by Highway 24, and along the west by Eastonville Road. There are no existing structures, roads, or other infrastructure on the Site. The Site is located approximately 4.14 miles southwest of Peyton, 4.16 miles northeast of Falcon and 4.66 miles south of Eastonville, in El Paso County, Colorado. The Site is generally located within the south ½ of Section 21, south ½ of Section 22, the north ½ of Section 27, and the north ½ of Section 28, Township 12 South, Range 64 West in El Paso County, Colorado. The center of the Site is situated at approximately Latitude 38.98541389 north, - 104.55472222 east (refer to Figure 1).

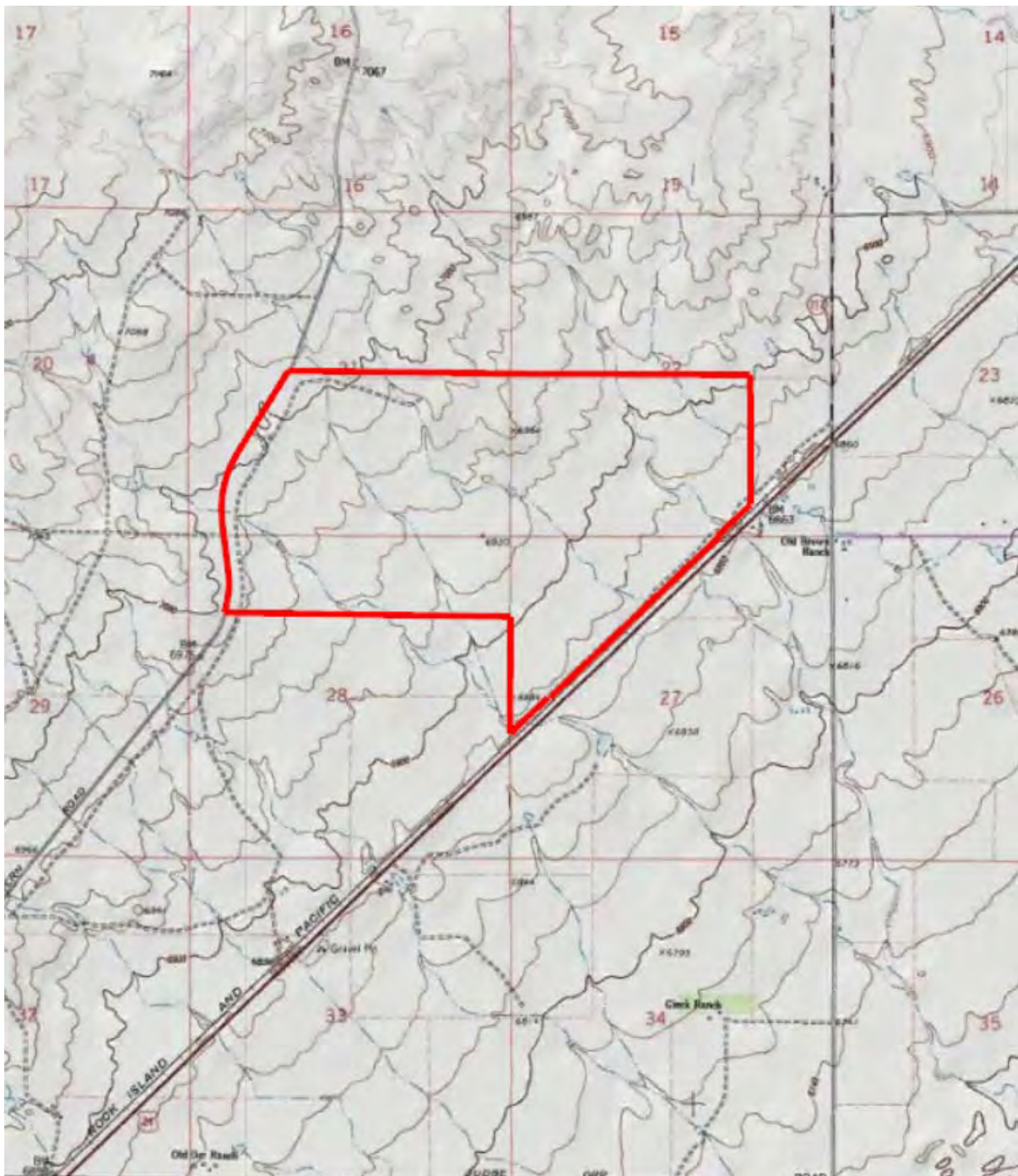


The Applicant proposes to develop the 768.2-acre Site as a mixed use residential and commercial community with the total number of units ranging from 2,496 to 3,261 as summarized below:

<b>Table 1 – Land Use Summary</b>						
<b>Land Use Category</b>	<b>Acreage</b>	<b>Acreage %</b>	<b>Density Units/Acre</b>		<b>Units</b>	
			<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>
Institutions	16.9 acres	2.2%	NA	NA	NA	NA
Low Density Residential	136.4 acres	17.8%	1	2	136	272
Medium Density Residential	258.4 acres	33.6%	3	4	775	1033
Medium-High Density Residential	68.6 acres	8.9%	6	8	411	548
High Density Residential	117.4 acres	15.3%	10	12	1174	1408
Commercial	17.0 acres	2.2%	NA	NA	NA	NA
Open Space <sub>1</sub>	132.5 acres	17.2%	NA	NA	NA	NA
Rex Rd. & Collector	21.0 acres	2.7%	NA	NA	NA	NA
<b>TOTAL</b>	<b>768.2 acres</b>	<b>100%</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
Note 1: Open Space includes: Detention Ponds, Drainage Corridors, General Open Space & Easements and R.O.W. Buffers of Eastonville Road and Highway 24						

Please refer to Figure 2.





USGS 7.5 min. Quad: Falcon  
Latitude: 38.985713°N  
Longitude: -104.552854°W  
Section 21, 22, 27 & 28, Township 12 South, Range 64 West







## **2.0 METHODOLOGY**

### **2.1 Office Assessment**

Ecos performed an office assessment in which available databases, resources, literature and field guides on local flora and fauna were reviewed to gather background information on the environmental setting of the Site. We consulted several organizations, agencies, and their databases, including:

- Colorado Department of Agriculture (CDA) Noxious Weed List;
- Colorado Natural Heritage Program (CNHP);
- Colorado Oil and Gas Conservation Commission (COGCC) GIS Online;
- Colorado Parks and Wildlife (CPW);
- El Paso County Master Plan;
- El Paso County, Sub-Area Plan (provided by Client);
- Federal Emergency Management Agency (FEMA);
- Google Earth current and historic aerial imagery;
- Survey of Critical Biological Resources, El Paso County, Colorado;
- Survey of Critical Wetlands and Riparian Areas in El Paso and Pueblo Counties, Colorado;
- U.S. Army Corps of Engineers (USACE) 1987 Corps of Engineers Wetlands Delineation Manual;
- USACE 2010 Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Great Plains Region;
- U.S. Department of Agriculture (USDA) PLANTS Database;
- U.S. Fish and Wildlife Service (USFWS) Region 6;
- USFWS National Wetland Inventory (NWI);
- USFWS IPaC database search; and
- U.S. Geological Survey (USGS).

Ecos also reviewed pertinent, site-specific background data provided by 4 Site Investments and their consulting Team, including topographic base mapping, site development plans, and other data pertinent to the assessment.

### **2.2 Onsite Assessment**

Following the collection and review of existing data and background information, ecos conducted a field assessment of the Site on October 10 and 11, 2018 to identify any potential impacts to natural resources associated with the Project. Field reconnaissance concentrated on identification of wetland habitat, waters of the U.S., wildlife habitat (including habitat suitable to support threatened and endangered wildlife) significant topographic features, noxious weeds and vegetation. Wetland habitat and waters of the U.S. boundaries, wildlife habitat, major vegetation communities, and significant weed stands were sketched on topographic and aerial base maps and located using a hand-held Global Positioning System as deemed necessary. Representative photographs were taken to assist in describing and documenting Site conditions and potential ecological impacts.



### 3.0 ENVIRONMENTAL SETTING

The Site is located in the Southwestern Tablelands Ecological Region (Chapman et al, 2006), which is primarily comprised of sub-humid grassland and semiarid rangeland. More specifically, the Site is located in the Foothills Grassland sub-region (26j) which contains a mix of grassland types with some small areas of isolated tallgrass prairie species that are more common much farther east. The proximity to runoff and moisture from the Front Range and the more loamy, gravelly, and deeper soils are able to support more tallgrass and midgrass species than neighboring ecoregions. Big and little bluestem, yellow indiangrass and switchgrass occur, along with foothill grassland communities. The annual precipitation of 14 to 20 inches tends to be greater than in regions farther east. Soils are loamy, gravelly, moderately deep, and mesic. Rangeland and pasture are common, with small areas of cropland. Urban and suburban development has increased in recent years, expanding out from Colorado Springs and the greater Denver area.

The Site contains no Colorado Natural Heritage Conservation Areas or Potential Conservation Areas according to the CNHP (CNHP, 2018), and no Wildlife Refuges or Hatcheries according to the USFWS IPaC Trust Resources Report (USFWS, 2016a) (refer to Appendix A).

#### 3.1 Topography

The Site is generally characterized as gently sloping from northwest to southeast with four ephemeral drainages (prairie sloughs) present, two of which are discontinuous and two are tributary to Black Squirrel Creek offsite. Naturally undulating swales drain toward the sloughs, which contain wetlands in low areas and dry areas where alluvial deposits have formed. Site topography ranges from a high elevation of 7020 feet above mean sea level (AMSL) in the northwestern corner to a low elevation of 6860 feet above AMSL where the northeastern tributary exits the Site on the east boundary along Highway 24; for a total elevation drop of 160 feet. An ill-defined and undulating hill, which is likely an eroded remnant bluff, is present in the north-central portion of the Site. Refer to Figure 3.

#### 3.2 Soils

Ecos utilized the U.S. Department of Agriculture, Natural Resource Conservation Service Web Soil Survey (USDA, NRCS, 2018) to determine if hydric soils are present within the Site, as this data assist in informing the presence/absence of potential wetland habitat regulated under the Clean Water Act. The soils data were also utilized to supplement the field observations of vegetation, as the USDA provides correlation of native vegetation species by soils types. Please refer to Figure 4, USDA NRCS Soil Map and Appendix A for additional USFWS wetland information.

#### 3.3 Vegetation

The vegetation within the Site is primarily comprised of shortgrass prairie with wetland vegetation in the swales and sloughs (Figure 5). The shortgrass prairie is dominated by little bluestem (*Schizachyrium scoparium*), blue grama (*Bouteloua gracilis*), and buffalograss (*Bouteloua dactyloides*) with occasional associative grass and forb species including western wheatgrass (*Pascopyrum smithii*), yellow Indiangrass (*Sorghastrum nutans*), Canada wildrye (*Elymus canadensis*), needle and thread (*Hesperostipa comata*), switchgrass (*Panicum virgatum*), Western yarrow (*Achillea millefolium*), broom snakeweed (*Gutierrezia sarothrae*), fringed sage (*Artemisia frigida*), Prickly pear (*Opuntia* spp.), and prairie aster spp. (*Symphotrichum* spp.). Occasional patches of snowberry (*Symphoricarpos albus*) and Wood's rose (*Rosa woodsii*) occupy the transitional areas between uplands and wetlands. A few, single plains cottonwood (*Populus deltoides*) occur along the drainages. The Site is heavily impacted by historic and ongoing grazing and there are weeds scattered throughout, including Canada thistle (*Cirsium arvense*), Scotch thistle (*Onopordum acanthium*),

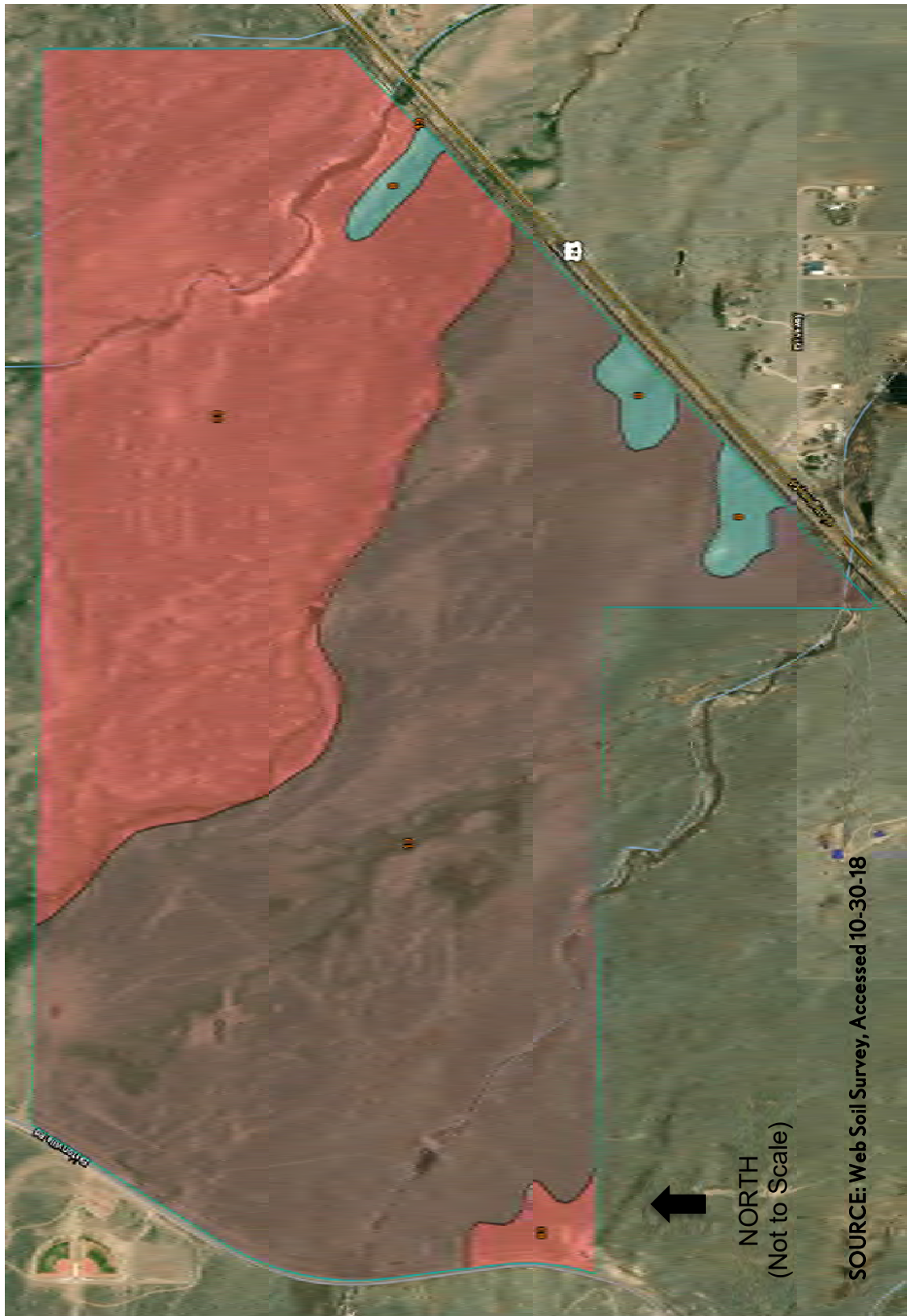


Russian thistle (*Salsola kali*), common mullein (*Verbascum thapsus*), and yellow toadflax spp. (*Linaria vulgaris*). Hydrophytic vegetation (wetland vegetation) is present within the swales and sloughs (refer to Section 3.4.2).









Summary by Map Unit — El Paso County Area, Colorado (CO625)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	Blakeland loamy sand, 1 to 9 percent slopes	17.5	2.3%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	Columbine gravelly sandy loam, 0 to 3 percent slopes	428.6	55.8%
83	Stapleton sandy loam, 3 to 8 percent slopes	Stapleton sandy loam, 3 to 8 percent slopes	322.2	41.9%
<b>Totals for Area of Interest</b>			<b>768.3</b>	<b>100.0%</b>





Figure 5



### 3.4 Wetland Habitat and Waters of the U.S.

#### 3.4.1 Methodology

Ecos utilized the National Wetland Inventory (NWI) Wetlands Mapper (USFWS 2018a); Colorado Wetland Inventory Mapping Tool (CNHP, 2018); historic and current Google Earth aerial photography; USGS 7.5-minute topographic mapping; and detailed Project topographic mapping to screen the Site for potential wetland habitat and waters of the U.S. Additionally, ecos performed a jurisdictional delineation to identify the Waters of the United States (WOUS), including wetlands.

The mapping data above were proofed during the field assessment and a wetland delineation was conducted to determine the presence/absence of potential WOUS, including wetland habitat. Once a feature was verified to be present, ecos determined whether it is a jurisdictional wetland/waters under the Clean Water Act. The U.S. Army Corps of Engineers (USACE), wetland delineation methodology was employed to document the 3 field indicators (parameters) of wetland habitat (i.e., wetland hydrology, hydric soils and a predominance of hydrophytic vegetation as explained in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) and supplemented by the Regional Supplement to the *Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2)* (USACE, 2010). The wetland delineation was surveyed by the project team surveyor

Consistent with the NWI and Colorado Wetland Inventory Mapping Tool (Figure 6) and topographic mapping, the wetland/waters delineation revealed the presence of four drainages with the potential to support wetland habitat (Figure 7). Two of the drainages (i.e. northeast Drainage D and southwest Drainage A) were preliminarily determined to be jurisdictional (pending USACE verification) and support predominantly palustrine emergent wetland (PEMC1) habitat with minor occurrences of palustrine scrub-shrub (PSS) and palustrine forested (PFO) species along their fringes. The central Drainage C and south-central Drainage B were investigated found to be discontinuous, prairie sloughs that are non-jurisdiction, “isolated” features. Please refer to Figure 6 for a composite of the NWI and CNHP Wetland and Riparian Areas mapping, Figure 7 for the ECOS Wetland and Waters Sketch Map, and Appendix B for representative photographs.

#### 3.4.2 Field Assessment Findings

The results of the onsite assessment for each of the four onsite drainages is summarized below, with an explanation of the field indicators (parameters) of wetland habitat/waters that were observed, and an explanation as to whether ecos preliminarily determined each feature was jurisdictional or non- jurisdictional under Section 404 of the Clean Water Act. Jurisdictional features are mapped on Figure 7.

##### 1) Jurisdictional wetland habitat and waters of the U.S.

- a. PEMC1 Wetland Habitat – Northeast Drainage D is classified as a Palustrine Emergent, Persistent, Seasonally Flooded wetland (PEMC1). Wetland Area A is tributary to Black Squirrel Creek off of the Site to the southeast. It is dominated by Nebraska sedge, redtop, clustered field sedge, three-square bulrush, swordleaf rush, soft-stem bulrush, poverty rush, Baltic rush, and watercress. Other species were present, including water mint, sporadic patches of sandbar willow, cutleaf evening primrose, fireweed, curly dock, and water milfoil, and snowberry, wild licorice and Wood’s rose along the high banks. Soil samples indicate the presence of field indicators of hydric soils (organic horizon from 0-2 inches, 10YR4/2 clay loam from 2-9 inches, 10YR4/1 clay loam from 9-14 inches, and 10YR5/1 sandy clay from 14-18+ inches). Sustaining hydrology was evident as flowing water is present within a defined channel and saturated soils are present at the surface and throughout the



floodplain, including groundwater driven side-slope seepage. This area meets all 3 parameters for jurisdictional wetland habitat.

- b. PEMC1 Wetland Habitat – Southwest Drainage A is classified as a Palustrine Emergent, Persistent, Seasonally Flooded wetlands (PEMC1 Wetland Area D is tributary to Black Squirrel Creek off of the Site to the southeast. It is dominated by Nebraska sedge, clustered field sedge, swordleaf rush, reedtop, poverty rush, Baltic rush, and pussytoes. Other species were present, including soft-stem bulrush, three-square bulrush, smartweed, saltgrass, foxtail barley, water mint, scouring rush, wild geranium, watercress, narrowleaf cattail, and snowberry, wild licorice and Wood’s rose along the high banks. Sporadic occurrences of sandbar willow, crack willow and plains cottonwood were present. Soil samples indicate the presence of field indicators of hydric soils (10YR2/2 loamy clay from 0-6 inches, 10YR4/2 sand from 6-12 inches, 10YR4/1 sand from 12-16 inches, and 10YR4/1 clayey sand from 16-18+ inches). Sustaining hydrology from groundwater seepage was evident as saturated soil is present at or within 8-12 inches of the ground surface. These areas meet all 3 parameters for jurisdictional wetland habitat.

- 2) Non-Jurisdictional, Isolated Wetlands - The central Drainage C and south-central Drainage B were investigated found to be discontinuous, prairie sloughs with reaches that are upland swales; they exhibited upland “breaks” in which they did not exhibit defined bed or bank (Figure 7); and they were also found to be “isolated” as they did not connect with downstream WOUS. Patches of PEMC1 Wetland exists in these drainages that exhibits the same characteristics of other wetlands on site and meets all 3 parameters for jurisdictional wetland habitat. However, they are clearly disconnected from Black Squirrel Creek by uplands that do not exhibit a defined bed or bank. Therefore, these drainages are isolated, non-jurisdictional features and as such were not delineated.

### **3.4.3 Summary of Jurisdictional and Non-Jurisdictional Wetlands and Waters**

Jurisdictional Habitat – Northeast Drainage D and southwest Drainage A (refer to Figure 7) are jurisdictional wetland habitat and WOUS as they are tributary to the jurisdictional habitat in Black Squirrel Creek. These natural features meet the criteria that the USACE uses to assert jurisdiction, as they are:

- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); and
- Wetlands that directly abut such tributaries.

Non-Jurisdictional Areas – The central Drainage C and south-central Drainage B are considered non-jurisdictional. They do not meet the criteria that the Corps uses to assert jurisdiction, as they are not:

- Traditional navigable waters;
- Wetlands adjacent to traditional navigable waters;
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); and
- Wetlands that directly abut such tributaries.

Furthermore, Drainages B and C are not considered “tributaries”, as “a tributary includes natural, man-altered, or man-made water bodies that carry flow directly or indirectly into a traditional navigable water.” These drainages are ephemeral swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow) over which the Corps does not assert jurisdiction.



#### **3.4.4 Verification by the U.S. Army Corps of Engineers**

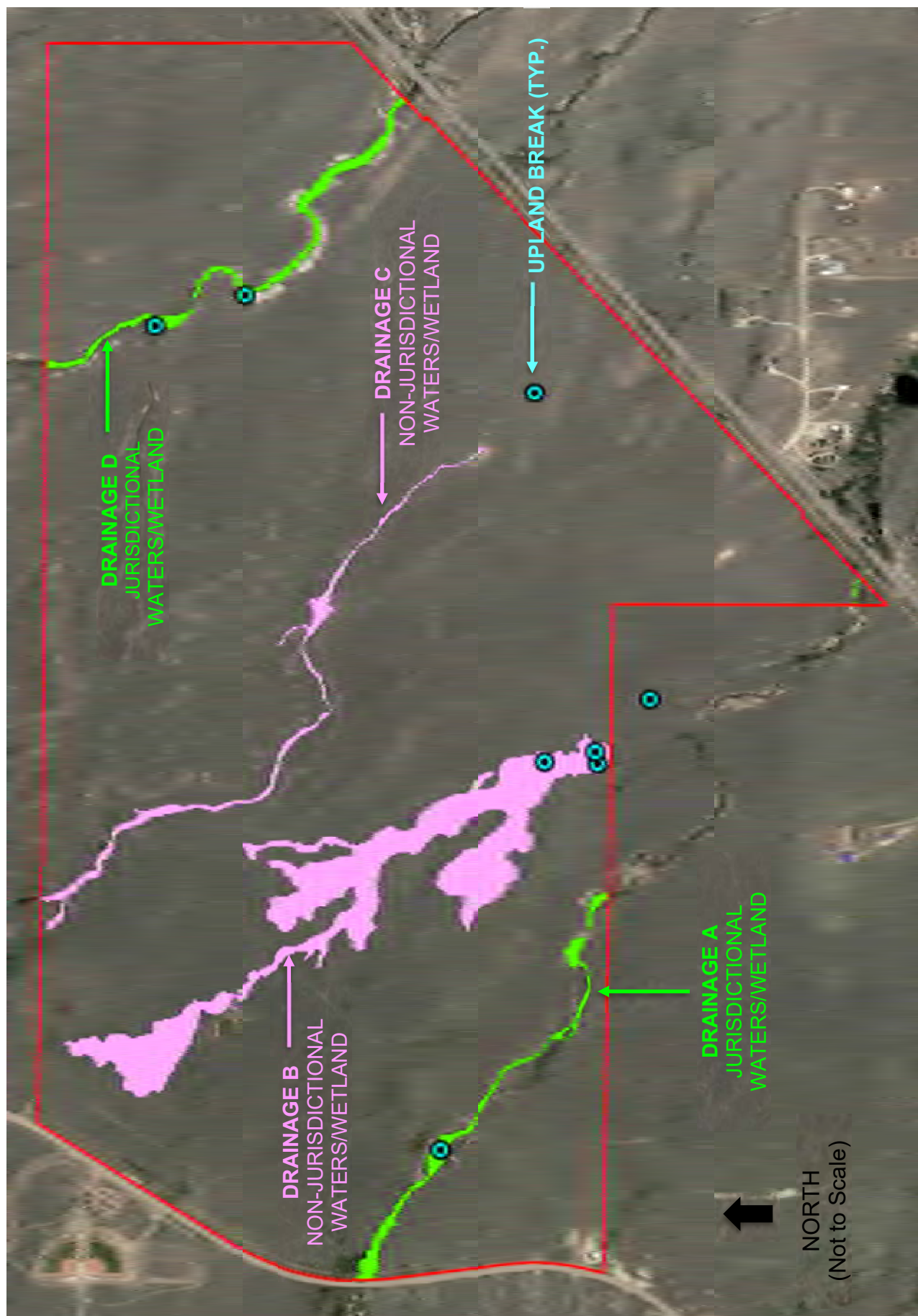
On July 5, 2019 the USACE provided an email to Ecos to confirm our findings of non-jurisdiction for Drainages B and C. Note that we did not request a jurisdictional determination of Drainages A and D as we have documented them to be jurisdictional. An excerpt of the USACE response from Tony Martinez, Regulatory Program Manager for the Albuquerque District, Southern Colorado Regulatory Branch of the USACE is copied below, and the original email is contained in Appendix C.

“Based on the information provided in the attached email and our site visit on June 21, 2019 our office concurs with your observations that central Drainage C and south-central Drainage B are isolated and are located entirely upland therefore, we conclude that No permit is required.”



**SOURCE: USFWS, National Wetland Inventory & CNHP, Colorado Wetland Inventory**





SOURCE: Ecosystem Services, LLC On-site Delineation, 10-11-18



### 3.5 Wildlife Communities

The stated purpose and intent of the “El Paso County Development Standards” section on wildlife is to ensure that proposed development is reviewed in consideration of the impacts on wildlife and wildlife habitat, and to implement the provisions of the Master Plan (El Paso County, 2018b). Ecos has determined that the wildlife impact potential for development of the Site is expected to be low.

The Site currently provides poor to moderate habitat for wildlife, as illustrated in the representative photographs (Appendix B). There are two primary vegetation types on the Site, including shortgrass prairie and wetland habitat.

The project would develop most of the shortgrass prairie, however the drainages and adjacent short grass prairie would be preserved as Open Space. A noxious weed management plan will be implemented per State and County requirements to improve wildlife habitat; and a native plant re-vegetation plan for the Open Space is recommended to provide additional benefit to wildlife habitat.

The habitat preferences of the observed species are reflective of the habitat on Site. Two species of raptors were observed and appear to either be residents or frequent hunters to this Site: ferruginous hawk (*Buteo regalis*) and great horned owl (*Bubo virginianus*). Sandhill crane (*Grus canadensis*) were observed flying over during their migration, although they are not likely to utilize the Site. Prairie species such as jackrabbit (*Lepus townsendii*), pronghorn (*Antilocapra americana*), black-tailed prairie dog (*Cynomys ludovicianus*) and thirteen-lined ground squirrel (*Ictidomys tridecemlineatus*) were present. The remaining species are considered generalists and included mourning doves (*Zenaida macroura*) and American crows (*Corvus brachyrhynchos*). The Site provides very limited tree nesting habitat for raptors; however, ferruginous hawks may also use ground nests. No existing nest sites for any raptors were noted during the Site visit.

The Site provides habitat for mammals including rodents, antelope, and carnivores. The site provides foraging and breeding habitat for predators such as coyote and fox. The Site also provides habitat for reptiles but limited habitat for amphibians due to the lack of persistent standing and flowing water.

The Site contains no Wildlife Refuges or Hatcheries according to the USFWS IPaC Trust Resources Report (USFWS, 2018b) (Appendix A).

### 4.0 FEDERAL LISTED SPECIES

A number of species that occur in El Paso County are listed as candidate, threatened or endangered by the USFWS (USFWS, 2018) under the ESA. Ecos compiled the Federally-listed species for the Site in Table 1 based on the Site-specific, USFWS IPaC Trust Resources Report we ran for the Project (Appendix A); and our onsite assessment. Ecos has provided our professional opinion regarding the probability that these species may occur within the Site and their probability of being impacted by the Project.

The likelihood that the Project would impact any of the species listed below is very low to none. Most are not expected occur in the Project area or on the Site; nor will they be affected by the direct or indirect effects of the project.



**TABLE 1 - FEDERAL LISTED SPECIES ASSESSED FOR THE PROJECT**

<b>Species</b>	<b>Status</b>	<b>Habitat Requirements and Presence</b>	<b>Probability of Impact by Project</b>
<b>FISH</b>			
Greenback cutthroat trout ( <i>Oncorhynchus clarki stomias</i> )	Threatened	Cold, clear, gravely headwater streams and mountain lakes that provide an abundant food supply of insects.	None. Suitable habitat does not exist on the Site.
Pallid sturgeon ( <i>Scaphirhynchus albus</i> )	Endangered	Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska.	None. The proposed Project is not located in the watershed of any of the listed river basins.
<b>REPTILES AND AMPHIBIANS</b>			
<b>BIRDS</b>			
Least tern ( <i>Sternula antillarum</i> )	Endangered	Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska.	None. The proposed Project is not located in the watershed of any of the listed river basins.
Mexican spotted owl ( <i>Strix occidentalis lucida</i> )	Threatened	Mature, old-growth forests of white pine, Douglas fir, and ponderosa pine; steep slopes and canyons with rocky cliffs. The closest USFWS designated Critical habitat is over 15 miles southwest of the Site in mountainous terrain (USFWS, 2018).	None. Suitable habitat does not exist on the Site.
Piping plover ( <i>Charadrius melodus</i> )	Threatened	Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska.	None. The proposed Project is not located in the watershed of any of the listed river basins.
Whooping crane ( <i>Grus americana</i> )	Endangered	Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska.	None. The proposed Project is not located in the watershed of any of the listed river basins.
<b>MAMMALS</b>			



**TABLE 1 - FEDERAL LISTED SPECIES ASSESSED FOR THE PROJECT**

Species	Status	Habitat Requirements and Presence	Probability of Impact by Project
Preble's meadow jumping mouse ( <i>Zapus hudsonius preblei</i> )	Threatened	Inhabits well-developed riparian habitat with adjacent, relatively undisturbed grassland communities, and a nearby water source. Well-developed riparian habitat includes a dense combination of grasses, forbs and shrubs; a taller shrub and tree canopy may be present. Has been found to regularly use uplands at least as far out as 100 meters beyond the 100-year floodplain.	None. Not likely to occur on Site due to: 1) the absence of habitat required to support the life requisites of the species (Figure 8 and Appendix B); 2) negative trapping results reported by USFWS adjacent to the Site (Figure 9); 3) 10.22-mile distance from closest CPW "Potential" Occupied Habitat - west/northwest of the Site in Colorado Springs (refer to Figure 8); 4) 6.5-mile distance from closest USFWS Critical Habitat - southwest of the Site along Black Squirrel Creek in Colorado Springs (refer to Figure 8); and 5) lack of habitat connection corridor from known habitat to the Site.
<b>PLANTS</b>			
Ute ladies'-tresses orchid ( <i>Spiranthes diluvialis</i> )	Threatened	Primarily occurs along seasonally flooded river terraces, sub-irrigated or spring-fed abandoned stream channels or valleys, and lakeshores. May also occur along irrigation canals, berms, levees, irrigated meadows, excavated gravel pits, roadside borrow pits, reservoirs, and other human-modified wetlands.	Very Low. Unlikely to occur as the Site is situated between 6,860 and 7,020 feet above mean sea level, which is higher than the 6,500-foot elevation limits documented for the species and recommended for conducting surveys by the USFWS.
Western prairie fringed orchid ( <i>Platanthera praeclara</i> )	Threatened	Occurs in tallgrass prairie in Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and Oklahoma. Upstream depletions to the Platte River system in Colorado and Wyoming may affect the species in Nebraska.	None. The proposed Project will not alter or deplete flows to the Platte River system.

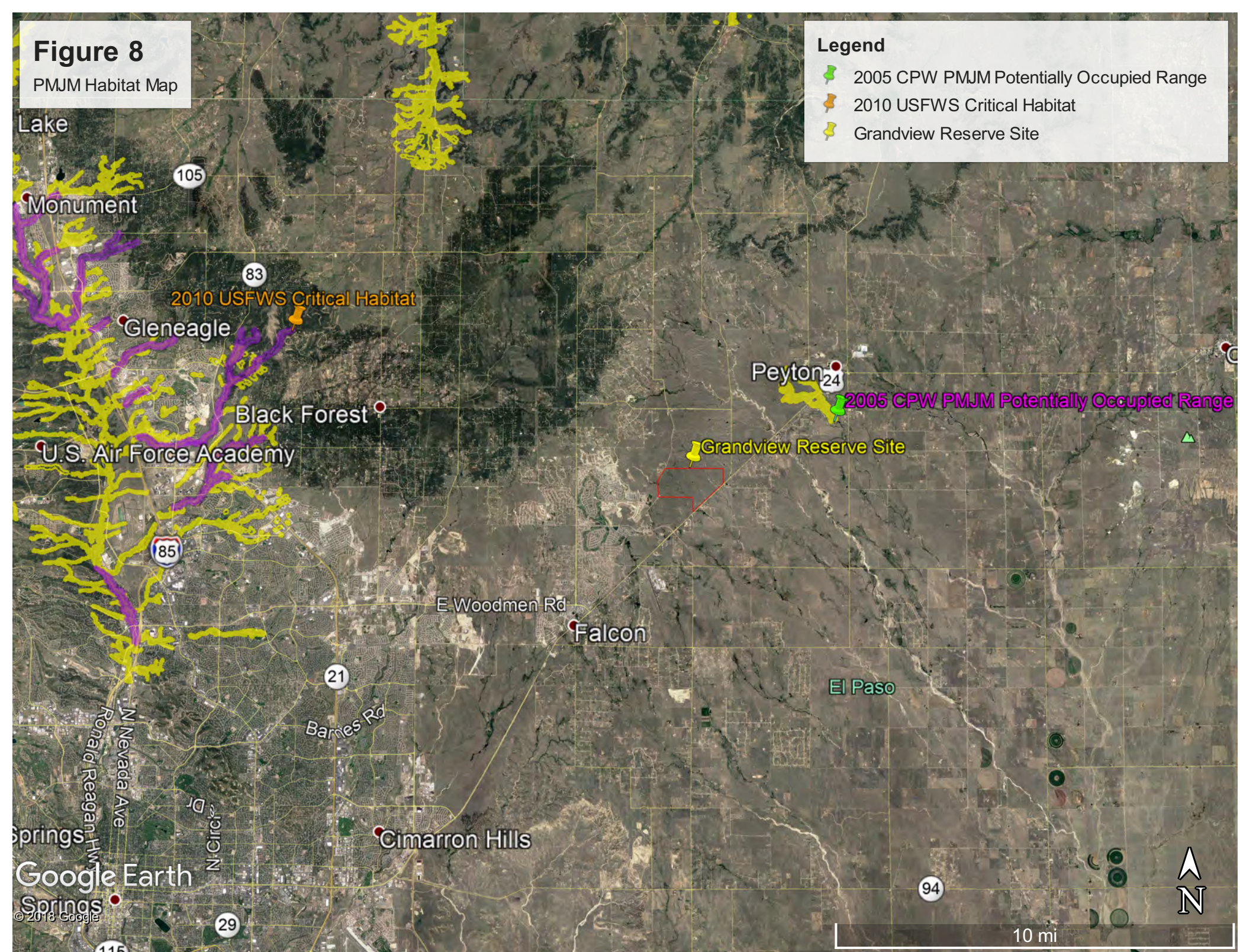


## Figure 8

PMJM Habitat Map

### Legend

- 2005 CPW PMJM Potentially Occupied Range
- 2010 USFWS Critical Habitat
- Grandview Reserve Site





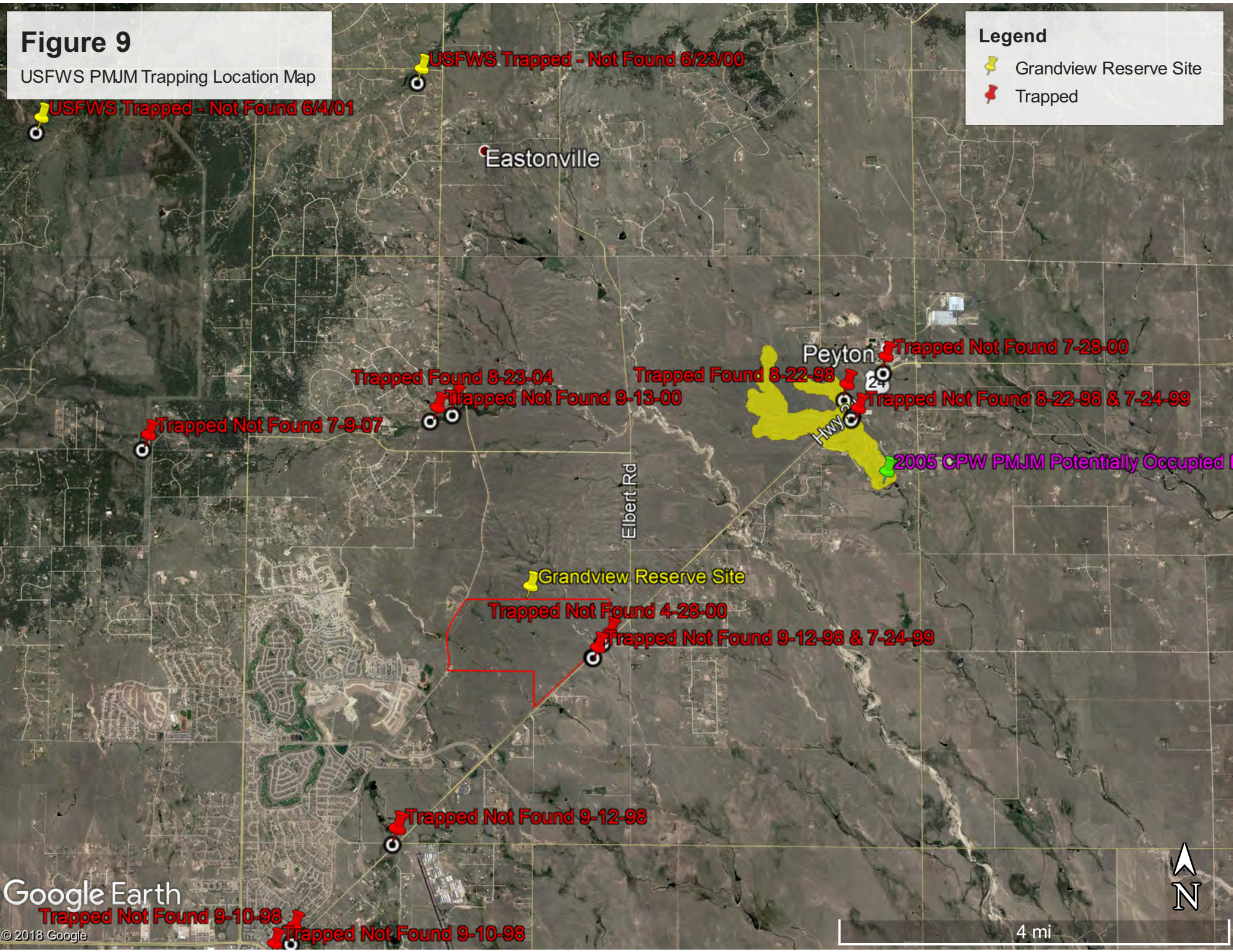


**Figure 9**

USFWS PMJM Trapping Location Map

**Legend**

-  Grandview Reserve Site
-  Trapped



Google Earth

© 2018 Google



4 mi



## 5.0 EFFECTS DETERMINATION

The Site is not located within any USFWS designated critical habitat or known occupied habitat for federally listed threatened or endangered species. Please refer to the IPaC database (Appendix A) and Table 1.

The Project will have **No Effect** on the following listed species:

- Listed species in Nebraska, as the Site is not located in the North Platte, South Platte or Laramie River basins.
- Greenback cutthroat trout, Mexican spotted owl and North American wolverine, as suitable habitat does not exist on the Site.
- Western prairie fringed orchid, as the Site will not alter or deplete flows to the Platte River system.
- Ute ladies'-tresses orchid is unlikely to occur as the Site is situated between 6,860 and 7,020 feet above mean sea level, which is higher than the 6,500-foot elevation limits documented for the species and recommended for conducting surveys by the USFWS.
- Preble's meadow jumping mouse: This species occurs in the County but is not known to occur on the Site due to:
  - The absence of habitat required to support the life requisites of the species;
  - Negative trapping results (i.e., Trapped – Not Found) reported by USFWS upstream and downstream of the Site on West Kiowa Creek, and east of the Site on Kiowa Creek;
  - 2.5 mile distance from the closest CPW "Potential" Occupied Habitat;
  - 6.5 mile distance from the closest USFWS Critical Habitat; and
  - The lack of viable habitat connection corridors from known, occupied habitat to the Site.

## 6.0 CONSERVATION MEASURES

Species that occur in wetland and riparian habitat are expected to benefit from the proposed change in land use. All four onsite drainages will be protected via drainage easements and will also be located in Open Space. Eliminating cattle grazing from the Site would allow for more native herbaceous and woody vegetation to grow along the drainages, thus improving habitat for many wildlife species. A noxious weed management plan will be implemented per State and County requirements to improve wildlife habitat; and a native plant re-vegetation plan for the Open Space is recommended to provide additional benefit to wildlife habitat. Implementation of the stormwater management plan will further assist in protecting water quality in all drainages, provide consistent flows to non-jurisdictional/ephemeral drainages, and ameliorate development impacts on aquatic wildlife species, such as leopard frogs.

The following, additional recommendations are intended to reduce potential impacts to wildlife:

1. Limit the use of herbicides, pesticides, and fertilizers as they can negatively impact aquatic wildlife species.
2. Minimize the installation of fencing. When fencing is needed, use wildlife friendly fences or include specific wildlife crossings along fence lines. Pronghorn are of particular concern because they do not jump over fences and can be injured by barbed-wire fences.
3. Road crossings over the Creek should be designed to enable wildlife underpass and allow use the Creek as a movement corridor to reduce collisions with vehicles.
4. Dogs should be kept in fenced pens and be leashed when on walks. At least one designated off-leash area for dogs should be provided, as this will increase compliance with leash rules in other areas.
5. Cats should not be allowed outdoors because they kill birds and native rodents.



## 7.0 CONCURRENCE REQUEST

Ecos requests informal concurrence from the USFWS with our No Effects Determination based on the information presented herein. The Project and its direct and indirect environmental effects don't occur in any designated critical habitat. The majority of the ESA-listed species don't occur in the Project area and are absent from all areas where the Project will have direct or indirect environmental effects. Preble's meadow jumping mouse and Ute ladies'-tresses orchid occur in the County but are not known to occur in the Project area and areas where the Project will have direct or indirect environmental effects.

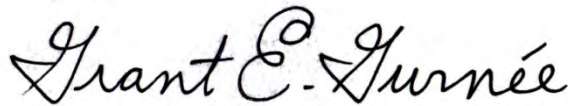
Thank you for your assistance with this project. Please feel free to call ecos (970) 812-3267 if you have any questions.

Sincerely,

**Ecosystem Services, LLC**



Jon Dauzvardis, P.W.S.  
*Owner - Restoration Ecologist*



Grant E. Gurnée, P.W.S.  
*Owner - Restoration Ecologist*

Cc: *Peter Martz, 4 Site Investments*



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## Appendix G

### MT – 2 Checklist



## MT-2 REVISION REQUEST SUBMITTAL CHECKLIST

### PART A: GENERAL REQUIREMENTS

ELEMENTS	Yes	N/A
<b>NARRATIVE:</b> Please provide a written description about the purpose of the request and the scope of the proposed/as-built project and the methodology used to analyze the project effects.	✗	
<b>MT-2 APPLICATION FORMS:</b> Please provide completed forms applicable to your request. Ensure that MT-2 Form 1 was signed by the requester, certifying engineer, and each community affected by the revision.	✗	
<b>HYDROLOGIC ANALYSIS:</b> If applicable, please provide a FEMA acceptable hydrologic analysis in digital format, drainage area map and associated backup information (e.g., calculations used to determine lag time, CN and loss values as well as landuse and soil maps). FEMA-acceptable models can be accessed at <a href="http://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/numerical-models-meeting-minimum-requirements">www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/numerical-models-meeting-minimum-requirements</a> .		✗
<b>HYDRAULIC ANALYSIS:</b> Please provide a FEMA acceptable hydraulic analysis in digital format. FEMA-acceptable models can be accessed at <a href="http://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/numerical-models-meeting-minimum-requirements">www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/numerical-models-meeting-minimum-requirements</a> .	✗	
<b>CERTIFIED TOPOGRAPHIC WORK MAP:</b> Please provide a certified topographic work map that meets the mapping requirements outlined in MT-2 Form 2. If available, please provide digital Computer-Aided Design (CAD) or Geographic Information System (GIS) data that is spatially referenced.	✗	
<b>ANNOTATED FIRM:</b> Please submit a revised FIRM, at the scale of the effective FIRM, which shows the revised boundary delineation of the base floodplain, 0.2-percent-annual-chance floodplain, and regulatory floodway and how it ties into the boundary delineation shown on the effective FIRM at the downstream and upstream ends of the revised reach.	✗	
<b>REVIEW FEE PAYMENT:</b> Please include the appropriate review fee payment. The current fee schedule is available on the FEMA Web site at <a href="https://www.fema.gov/flood-map-related-fees">https://www.fema.gov/flood-map-related-fees</a> .		✗
<b>MEET 65.10 REQUIREMENT:</b> If the request intends to show that a berm/levee/flood wall provides flood protection, please submit all of the data requirements outlined in Section 65.10 of the NFIP regulations.		✗
<b>OPERATION AND MAINTENANCE PLAN:</b> If the request involves a berm, levee, flood wall, dam, and/or detention basin project, please submit an officially adopted maintenance and operation plan.		✗
<b>PROPOSED/AS-BUILT PLANS:</b> If applicable, please submit proposed/as-built plans, certified by a registered Professional Engineer, for all the project elements.	✗	
<b>FLOODWAY NOTICE:</b> If the revision result in changing or establishing floodway boundaries, please provide floodway public notice or a statement by your community that it has notified all affected property owners, in compliance with NFIP regulation Subparagraph 65.7(b)(1).	✗	
<b>PROPERTY OWNER NOTIFICATION:</b> If the revision result in any widening/shifting/establishing of the base floodplain and/or any BFE increases/establishing BFEs, please provide copy of the individual legal notices sent to all the property owners affected by any increases in the flood hazard information.	✗	

### PART B: CLOMR SPECIFIC REQUIREMENTS

<b>Endangered Species Act COMPLIANCE:</b> Please submit documentation of compliance with the ESA Requirements. To learn more about ESA Compliance, please see the MT-2 Instructions manual.	✗	
<b>65.12 REGULATORY REQUIREMENTS:</b> If the Base (1-percent-annual-chance) Flood Elevation (BFE) increases greater than 0.00 foot as a result of encroachment within a floodway or 1.0 foot within Zone AE that has no floodway/Zone A, between the pre-project (existing) conditions and the proposed conditions as a result of the proposed project. Please submit a). Certification that no structures are affected by the increased BFE; b). Documentation of individual legal notice to all affected property owners, explaining the impact of the proposed action on their property; and c). An evaluation of alternatives that would not result in an increase in BFE.		✗

**Note:** Applicants are encouraged to submit their revision request using the Online LOMC tool. To learn more about the Online LOMC tool, visit the FEMA website at [www.fema.gov/online-lomc](http://www.fema.gov/online-lomc).



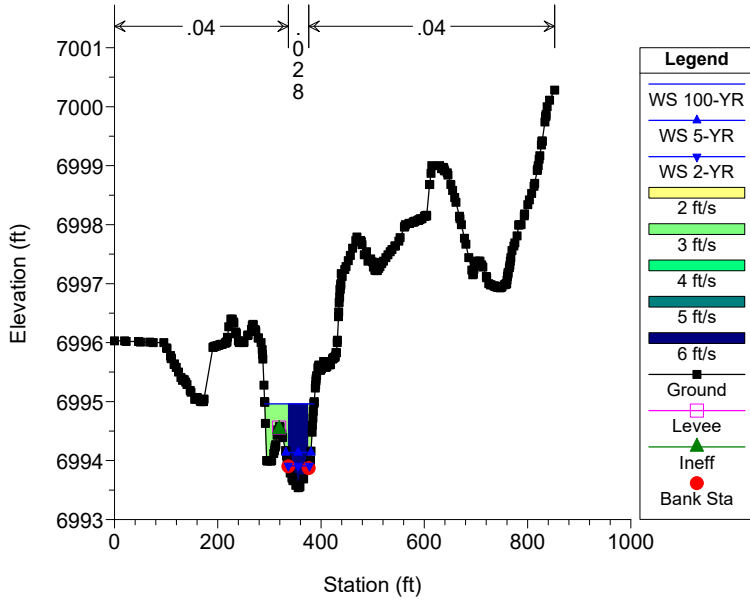
## Appendix H

### Existing Condition Cross Sections



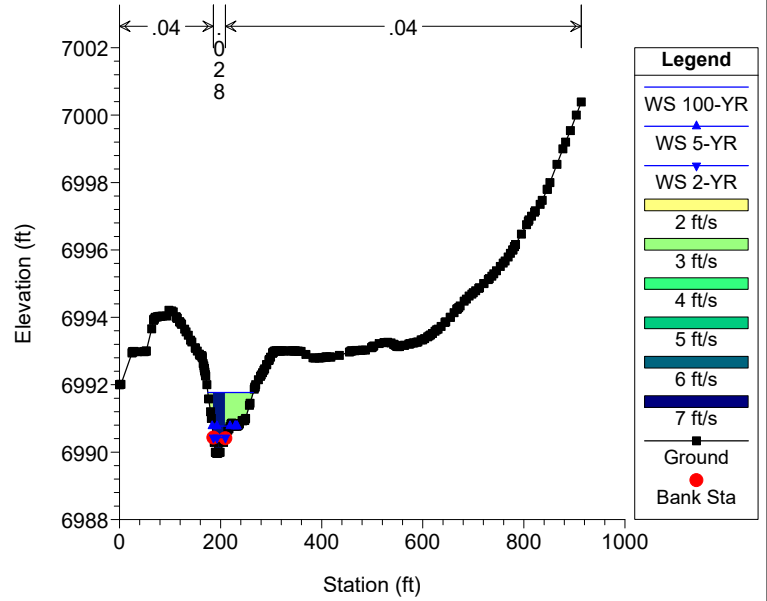
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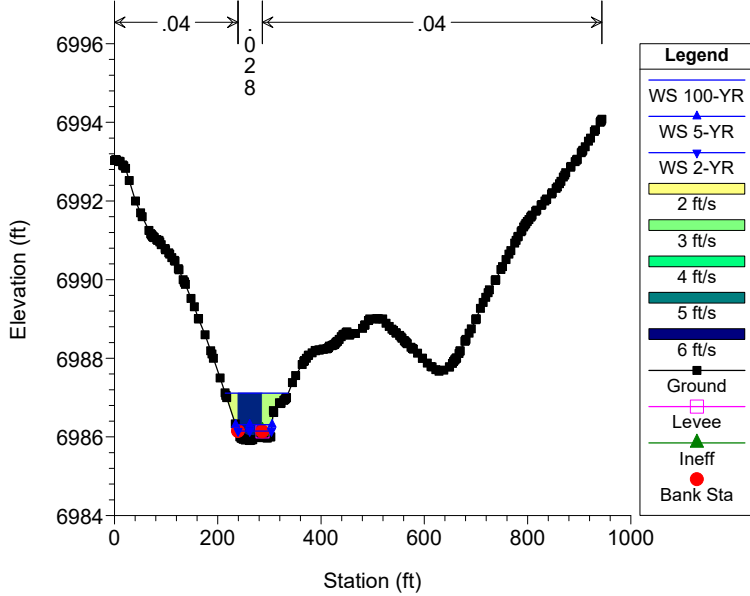
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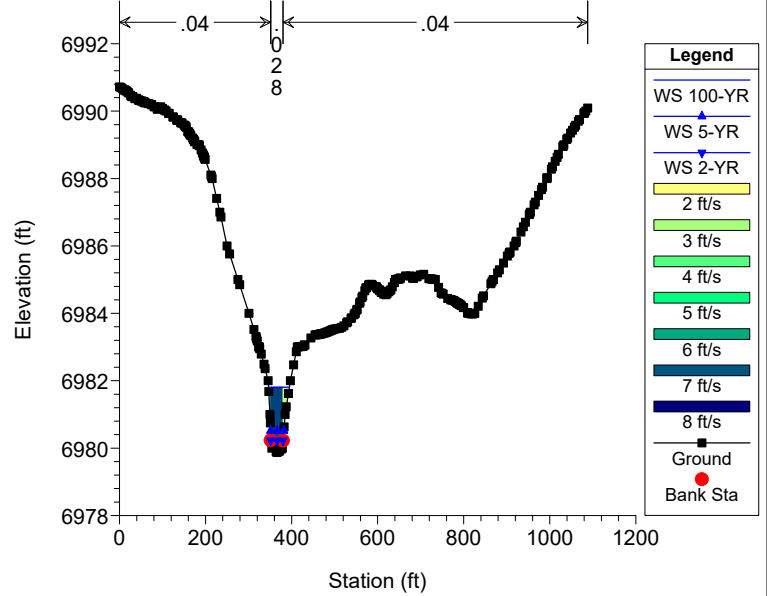
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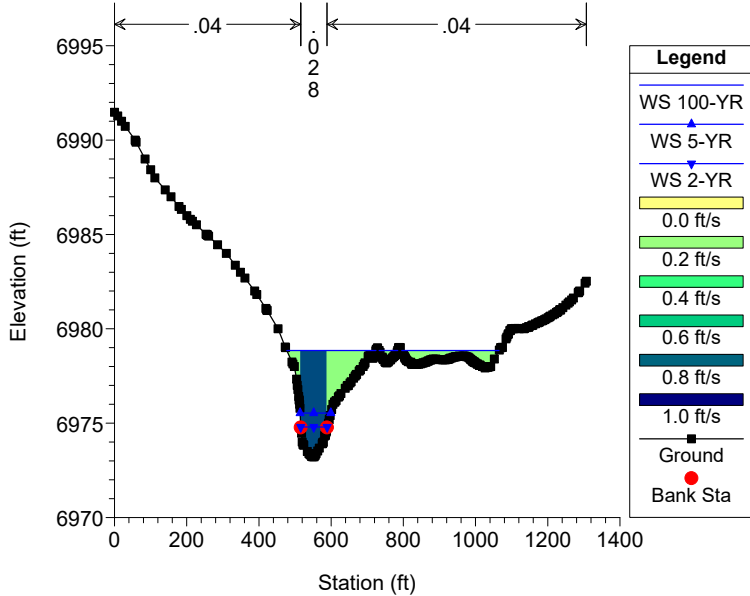
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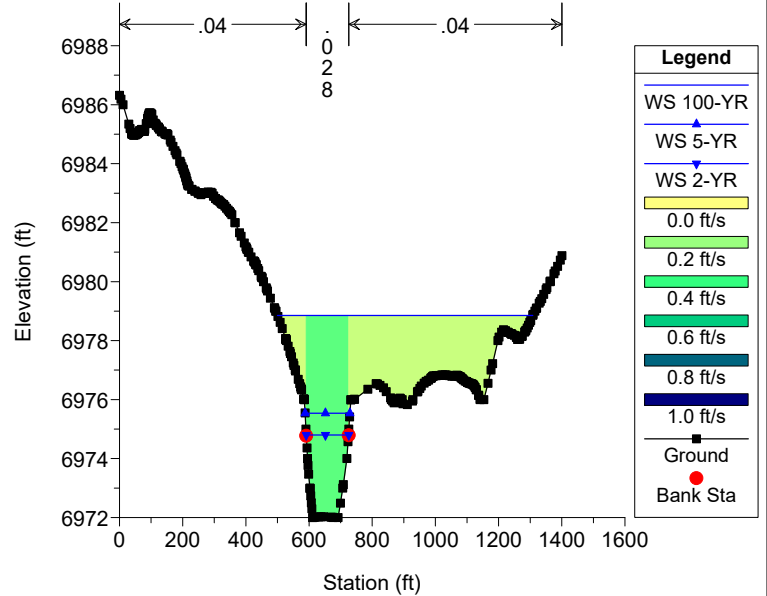
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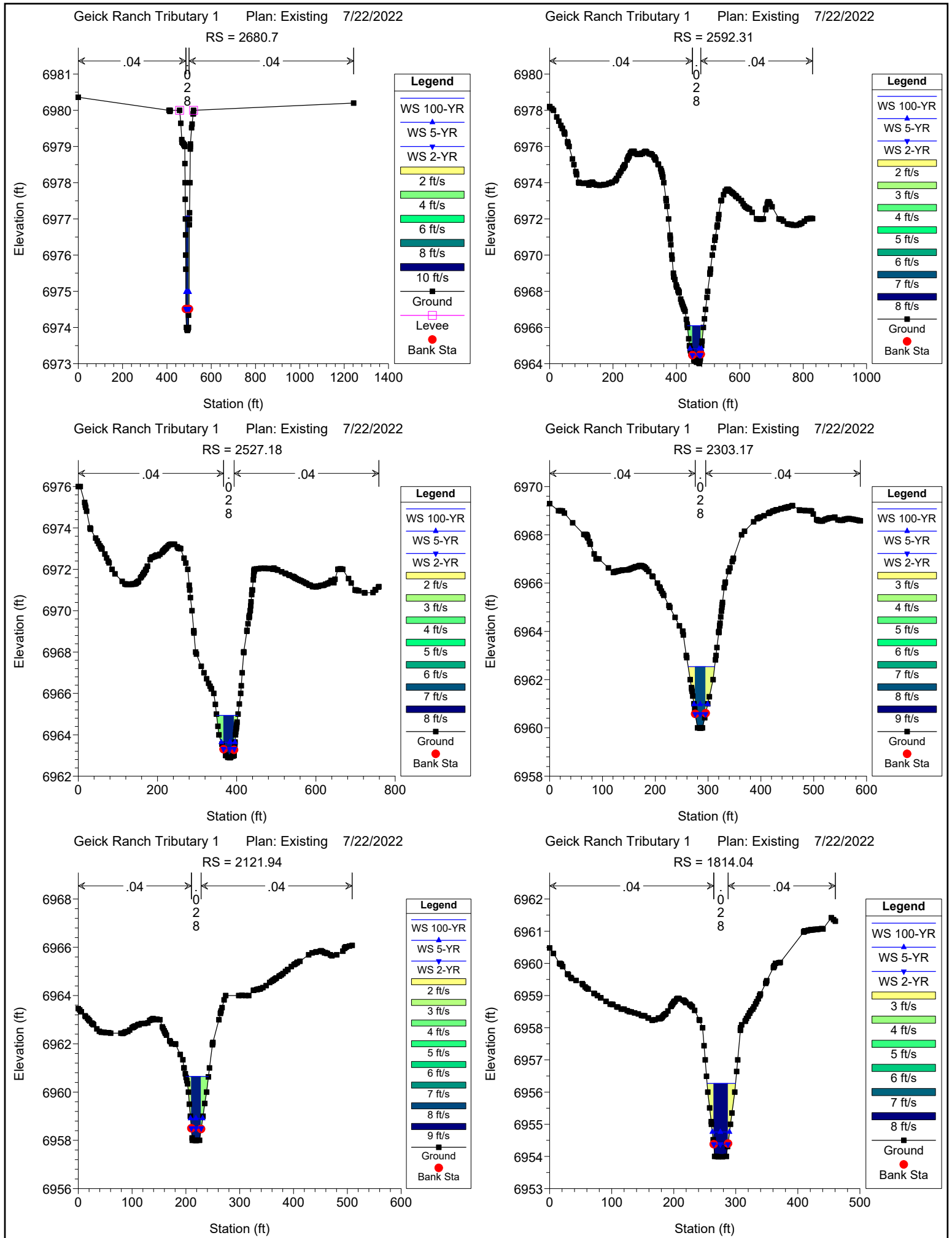


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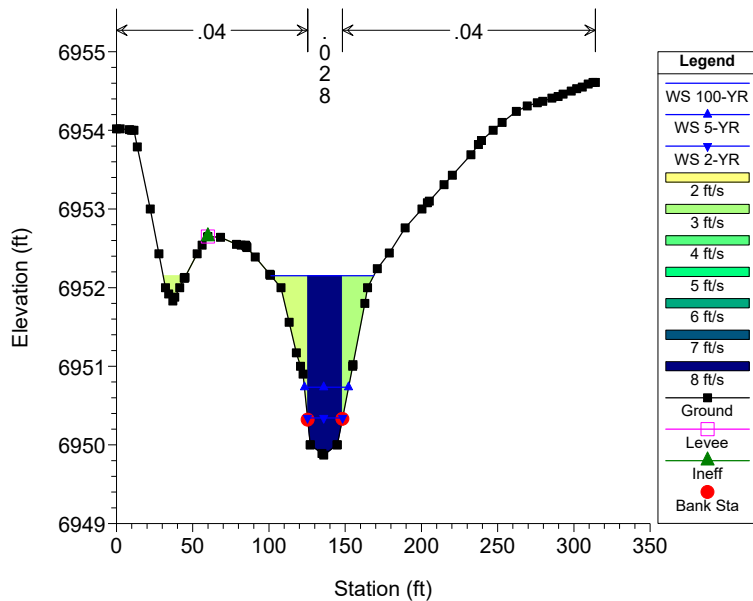






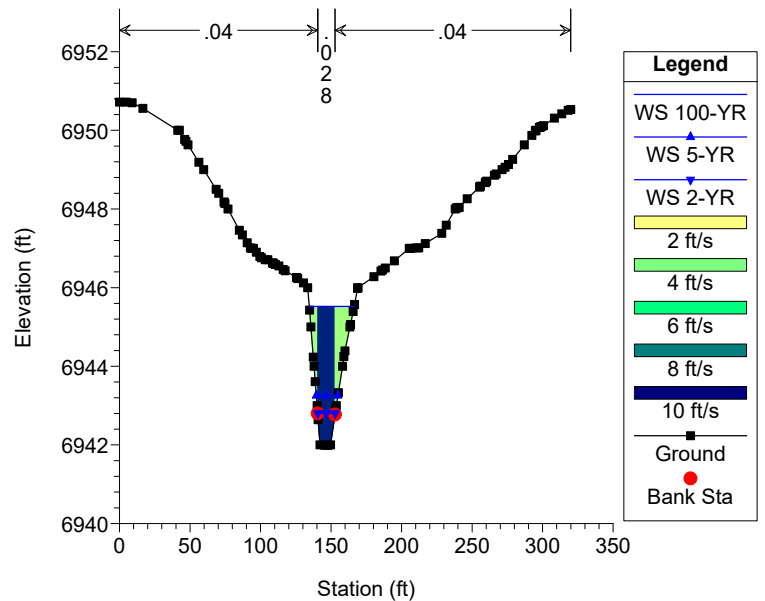
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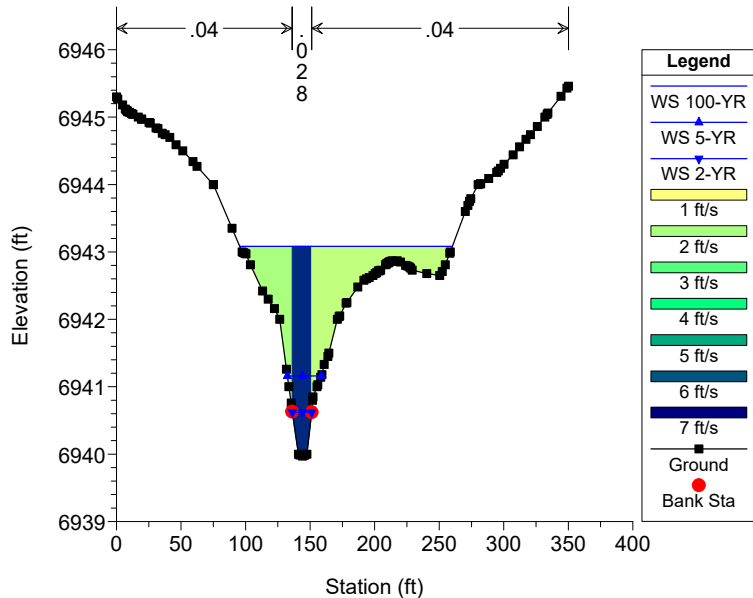
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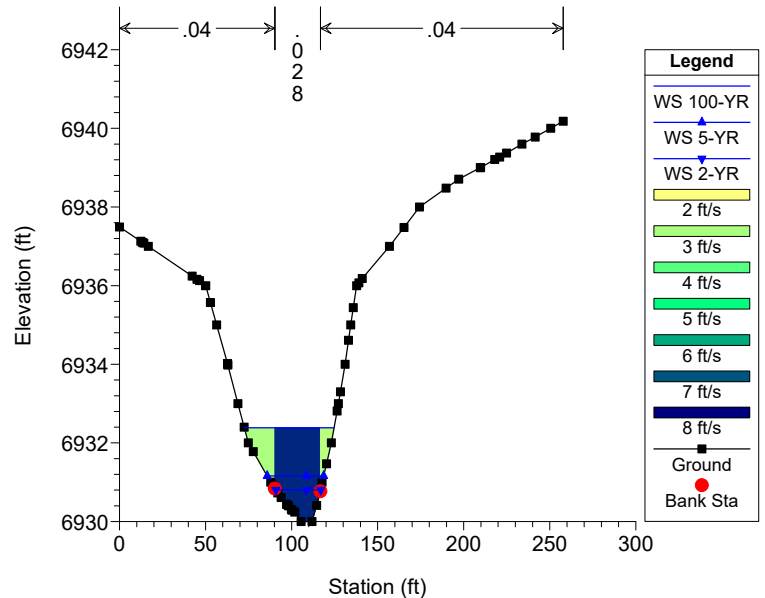
Geick Ranch Tributary 1 Plan: Existing 7/22/2022

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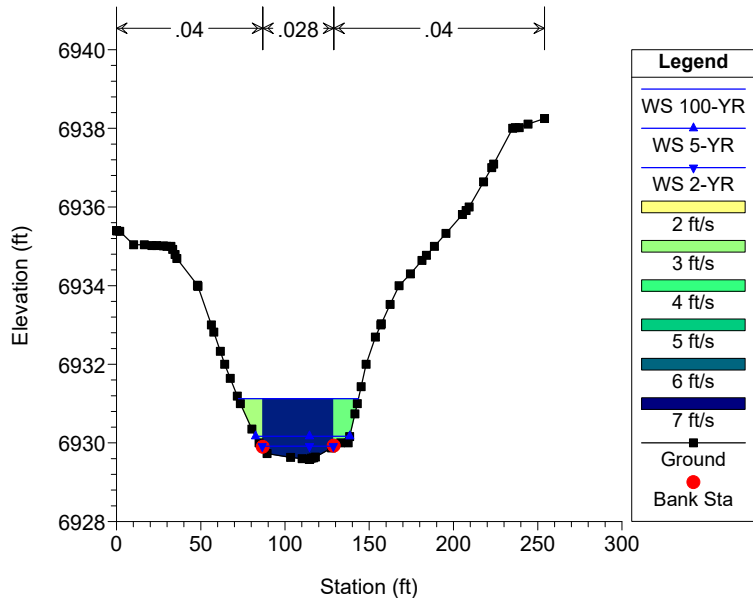
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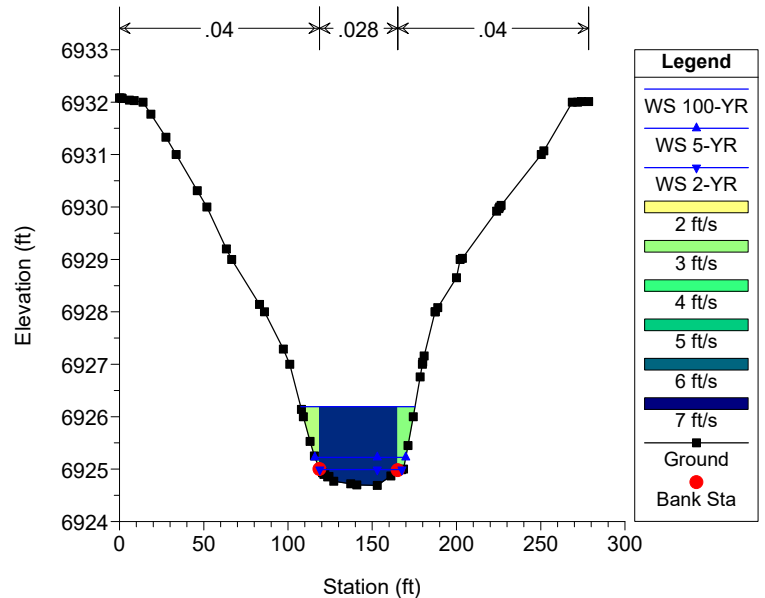
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Geick Ranch Tributary 1 Plan: Existing 7/22/2022

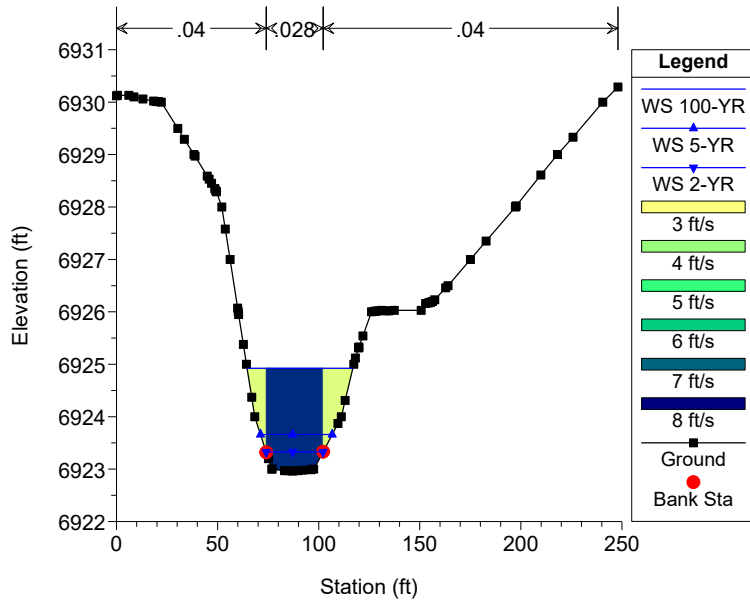
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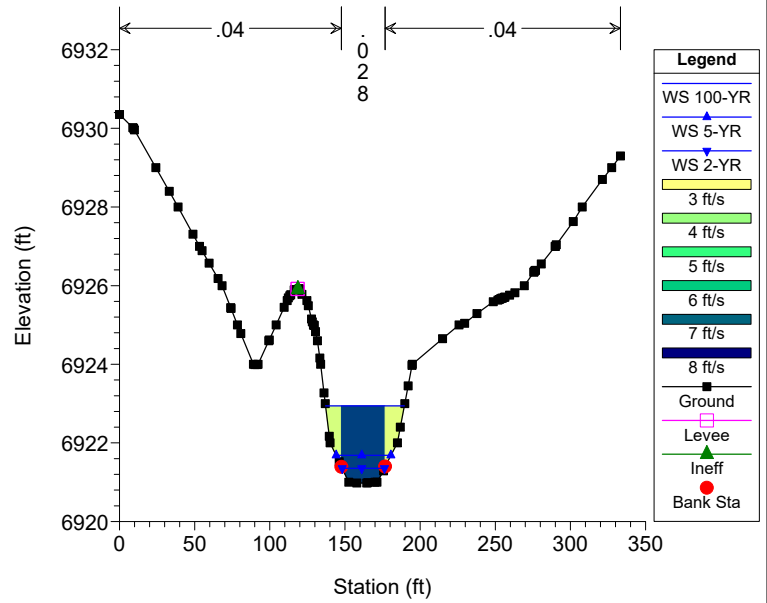
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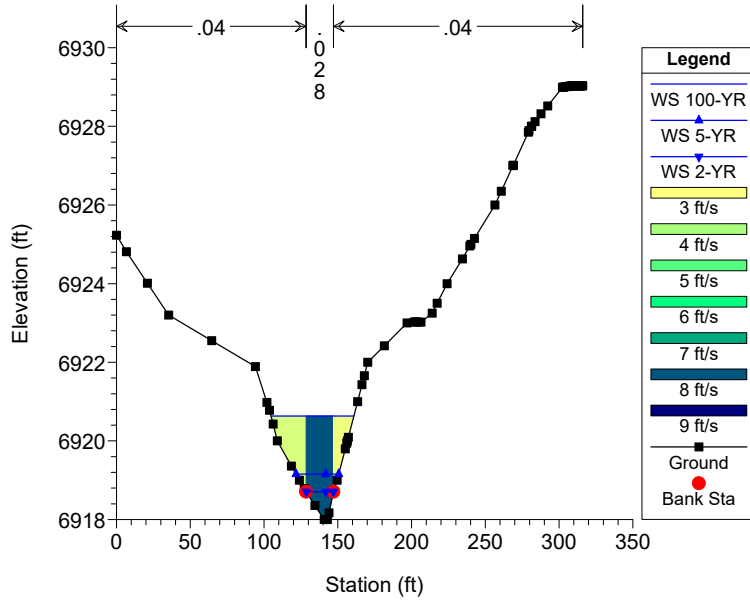
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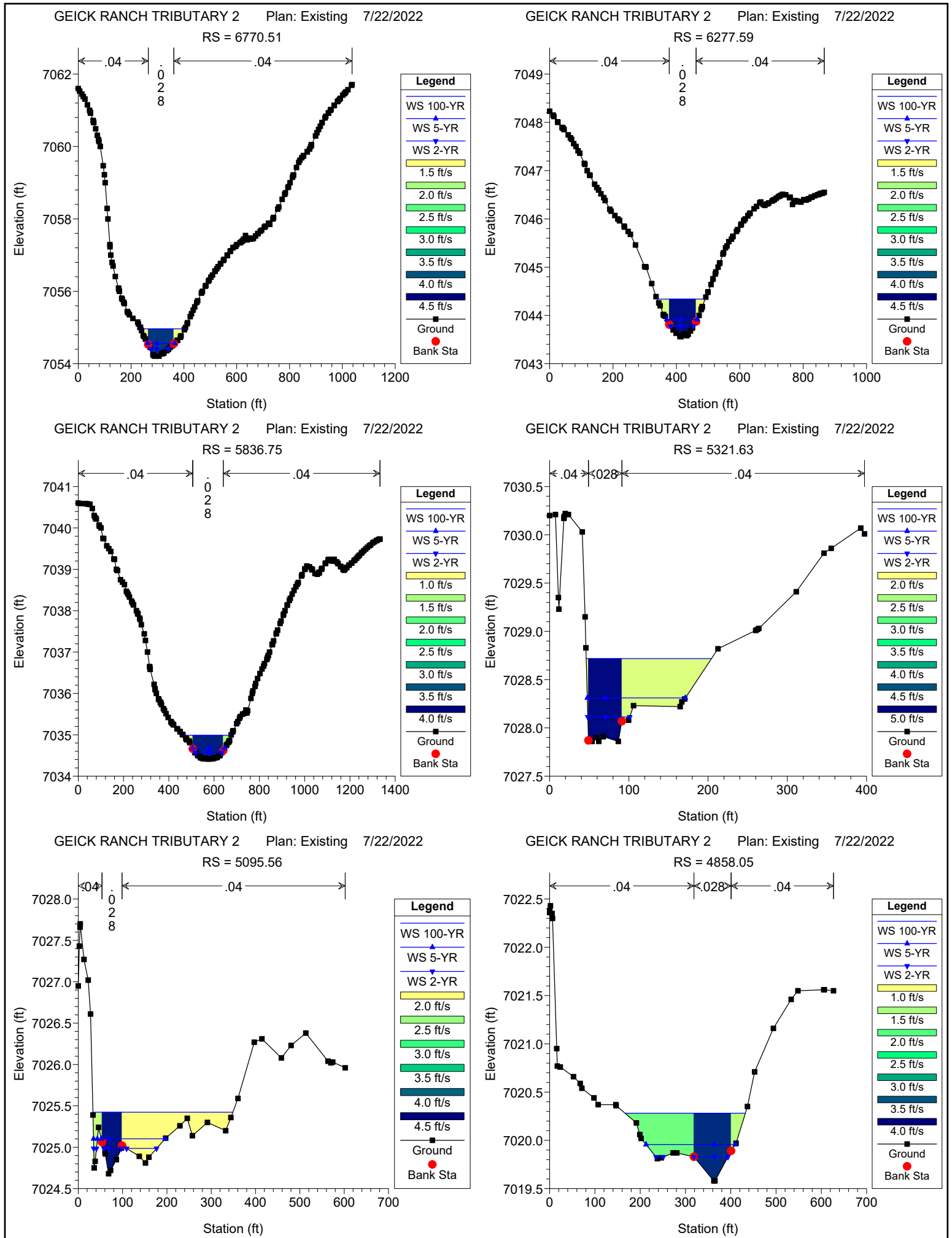


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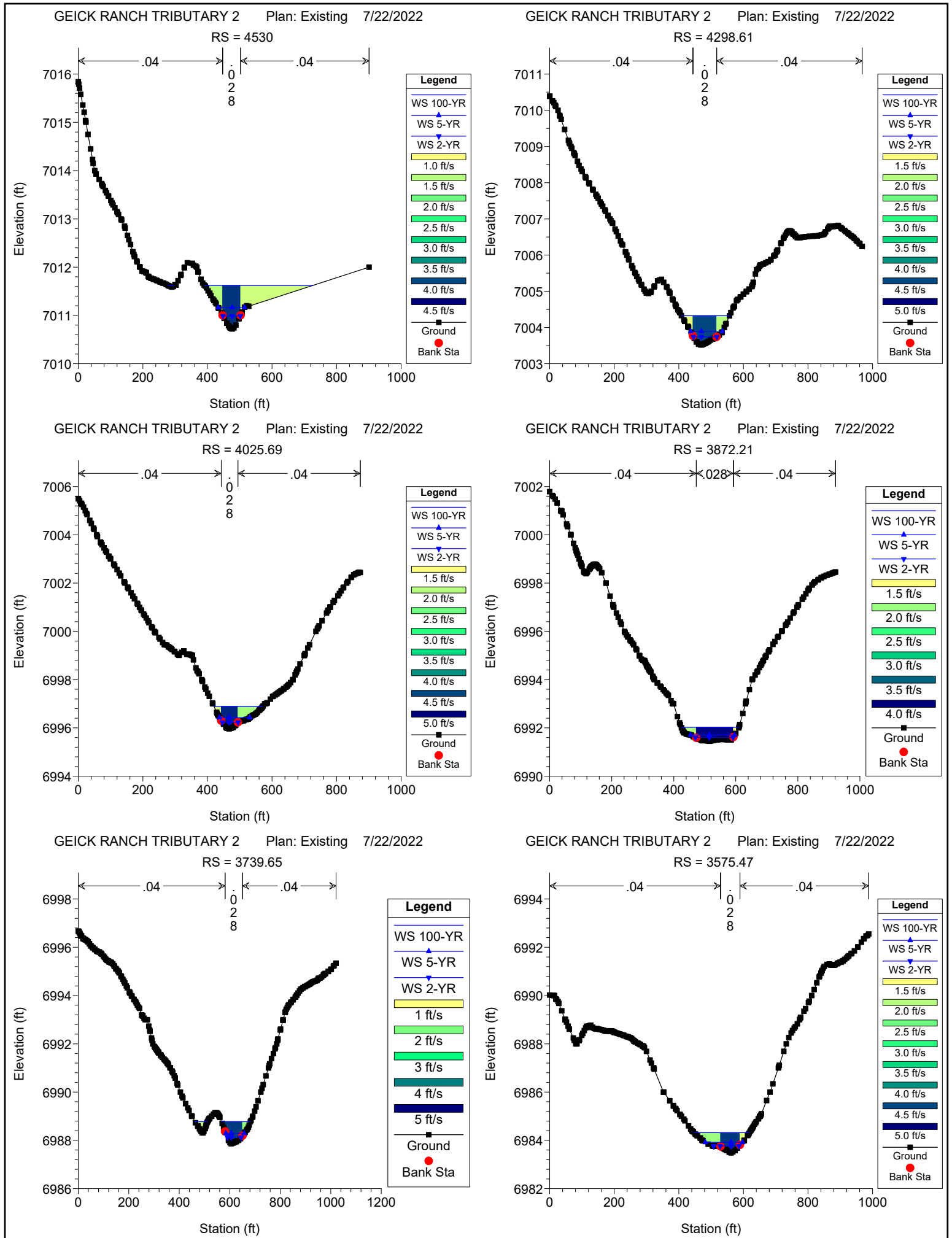
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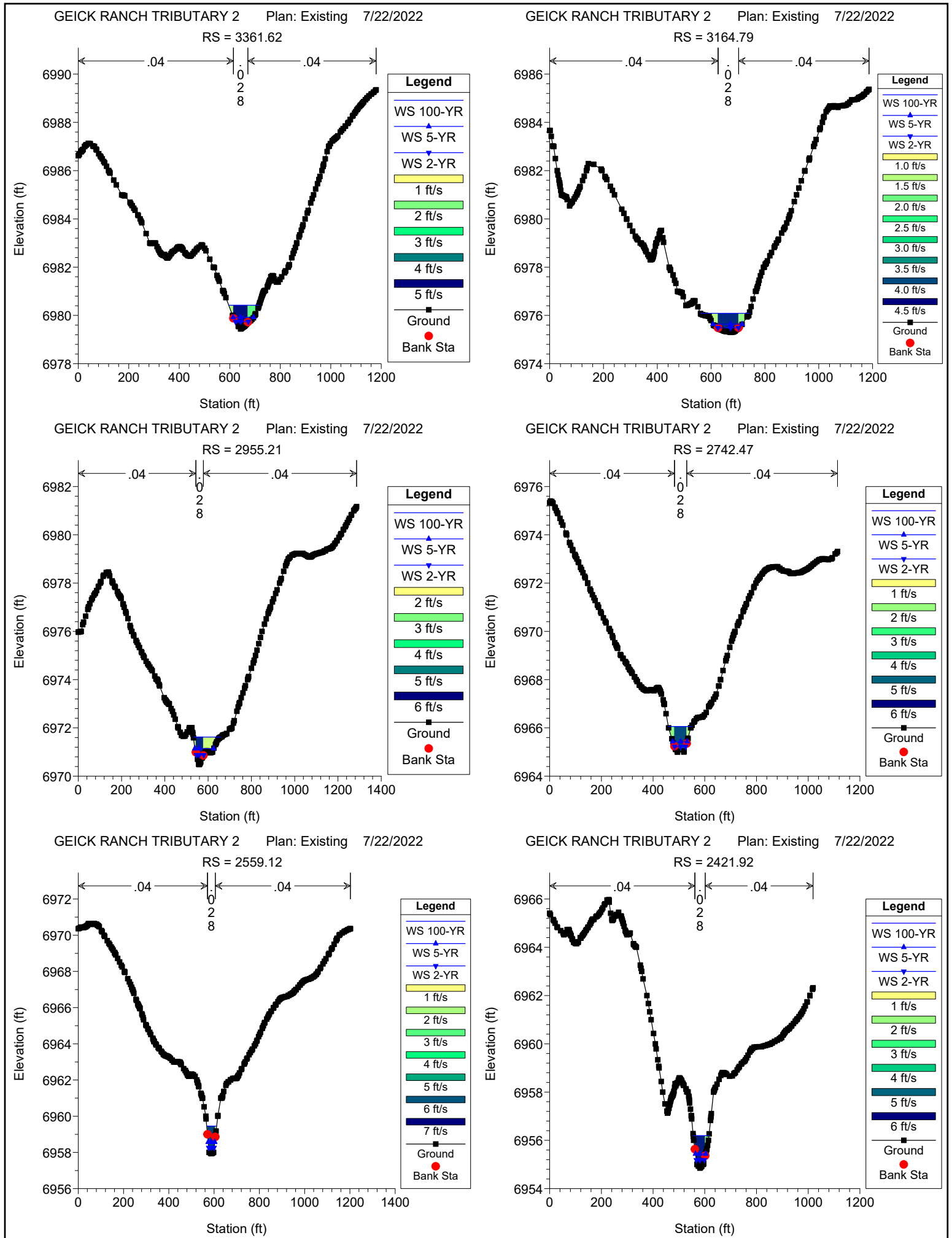




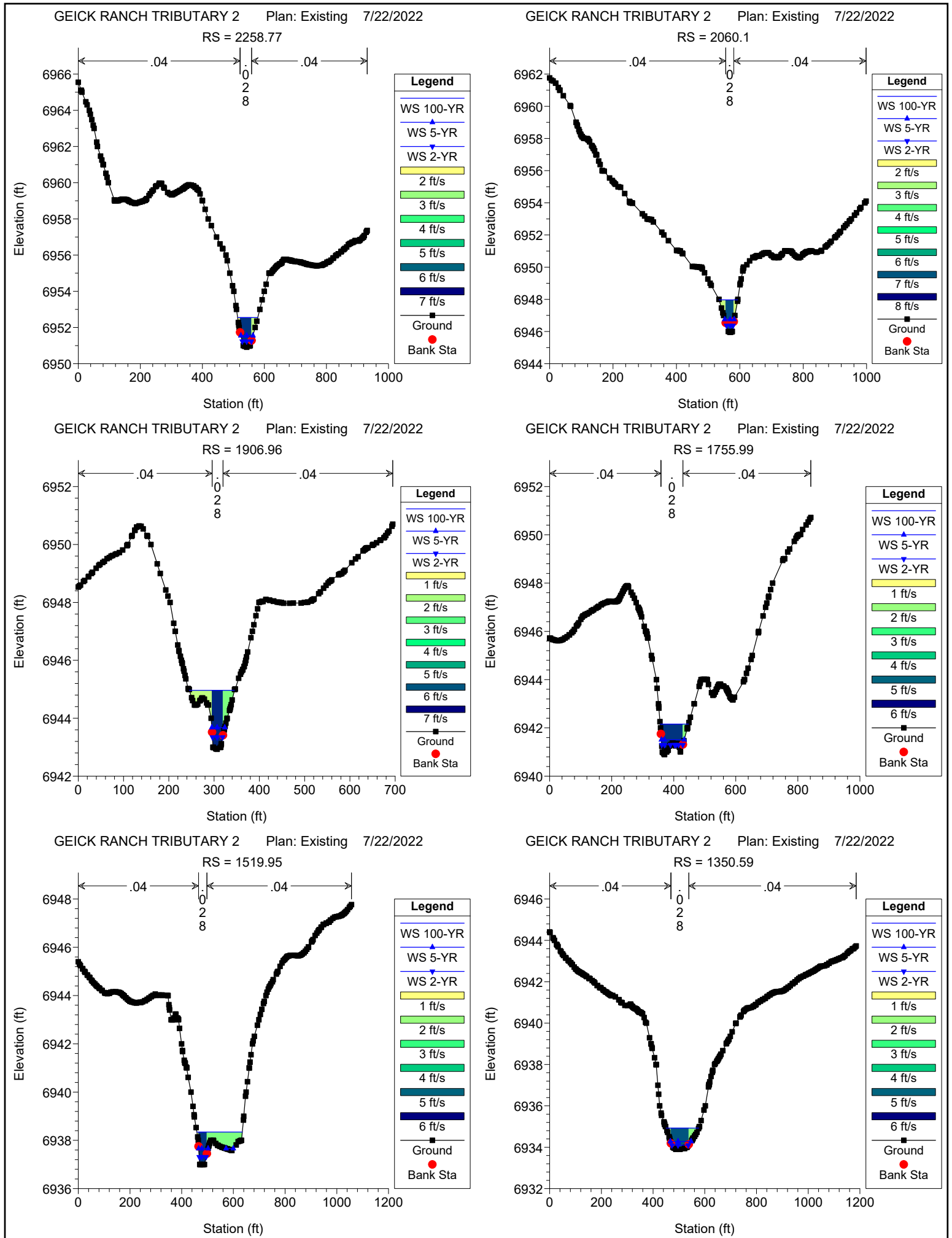




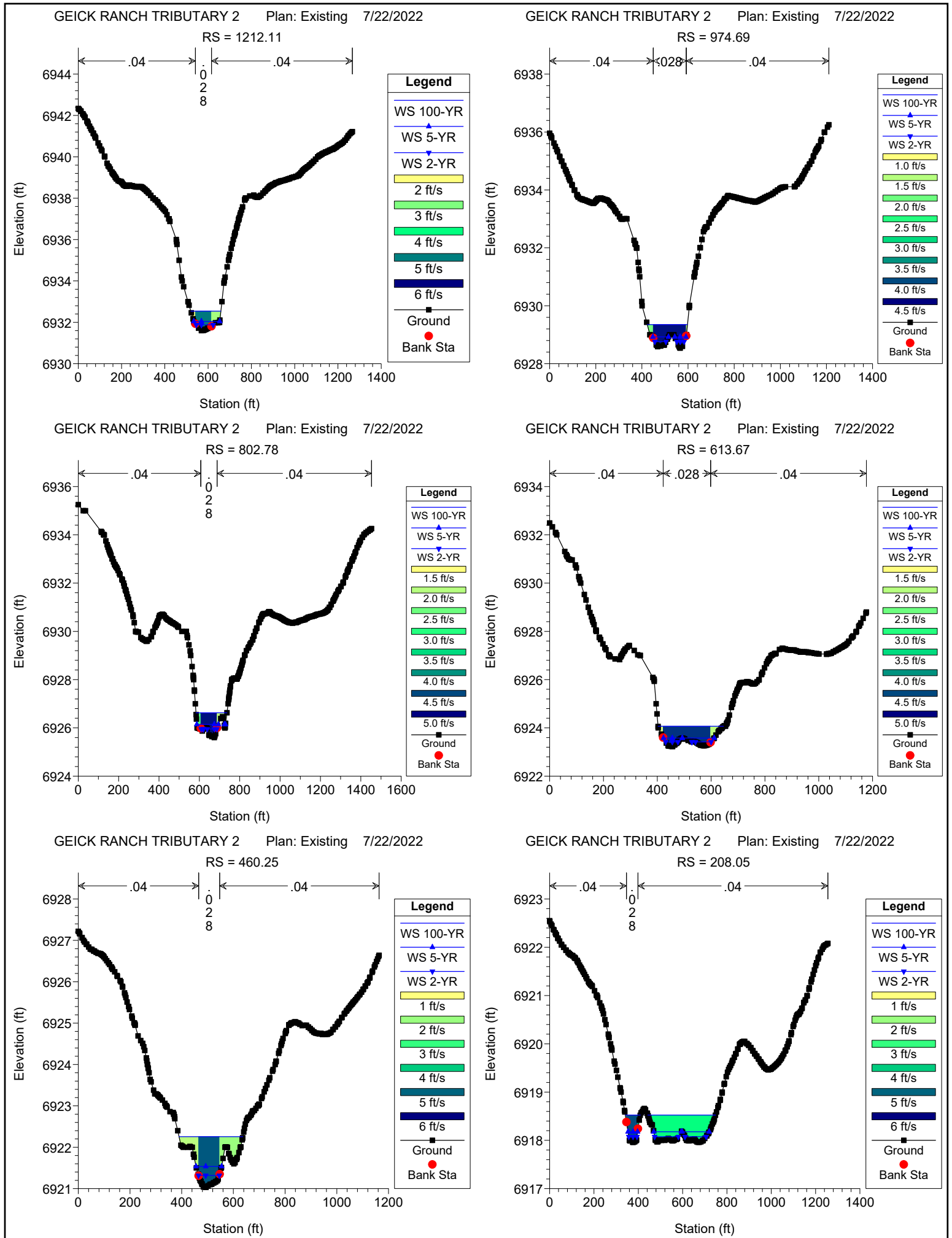






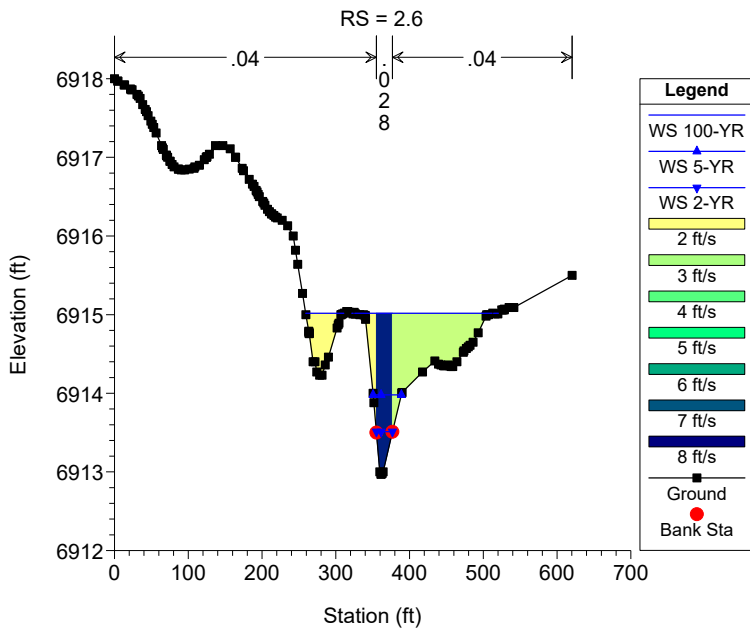




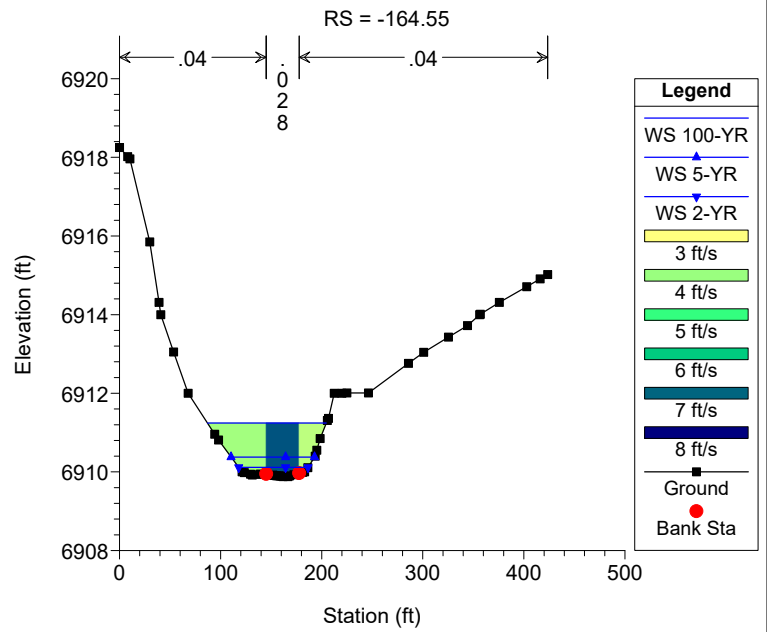




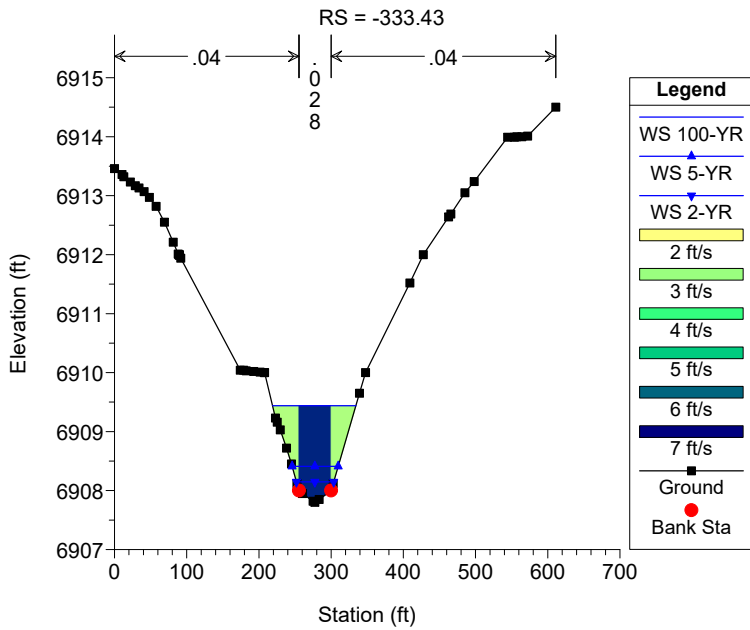
GEICK RANCH TRIBUTARY 2 Plan: Existing 7/22/2022



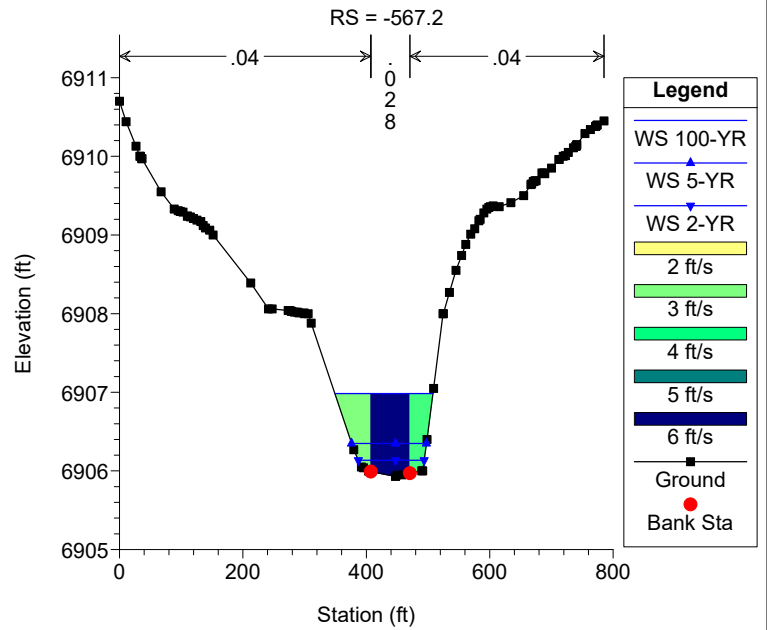
GEICK RANCH TRIBUTARY 2 Plan: Existing 7/22/2022



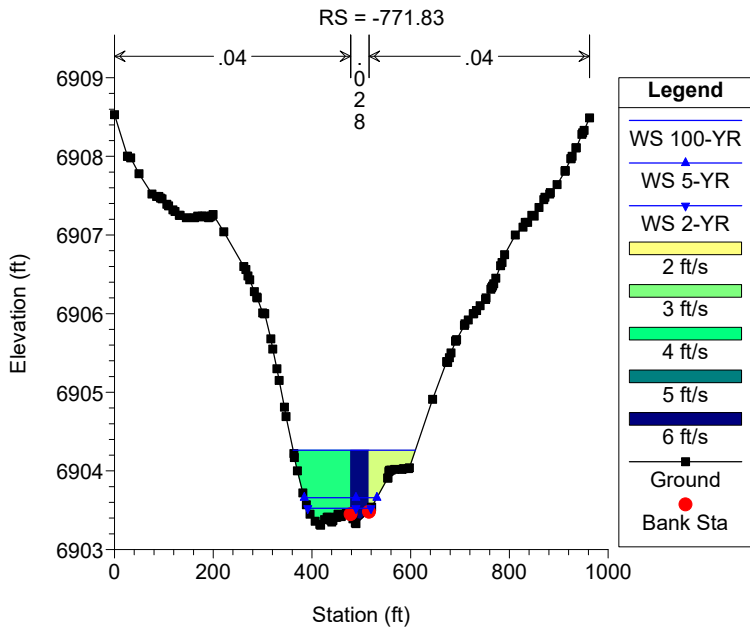
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GEICK RANCH TRIBUTARY 2 Plan: Existing 7/22/2022



GEICK RANCH TRIBUTARY 2 Plan: Existing 7/22/2022



## Appendix I

### Future Condition Cross Sections