

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION) 60% PLAN

B	ISSUED - 60% RESTORATION DESIGN SUBMITTAL	SMS	JFS	MFA	02/07/20
A	ISSUED - 30% RESTORATION DESIGN SUBMITTAL	SMS	JFS	MFA	10/11/19
REV	DESCRIPTION	BY	CHK	APP	DATE

WARNING

0 1/2 1

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PREPARED BY

Stantec **ores**

DESIGNED GH/KB

DRAWN SMS

REVIEWED JFS

IN CHARGE SDP

APPROVED MFA

PREPARED FOR

KLAMATH RIVER RENEWAL CORPORATION

PROJECT

KLAMATH RIVER RENEWAL PROJECT

SHEET TITLE

COPCO RESERVOIR-ASSISTED SEDIMENT EVACUATION AREAS

PROJ #

VA103-640/1

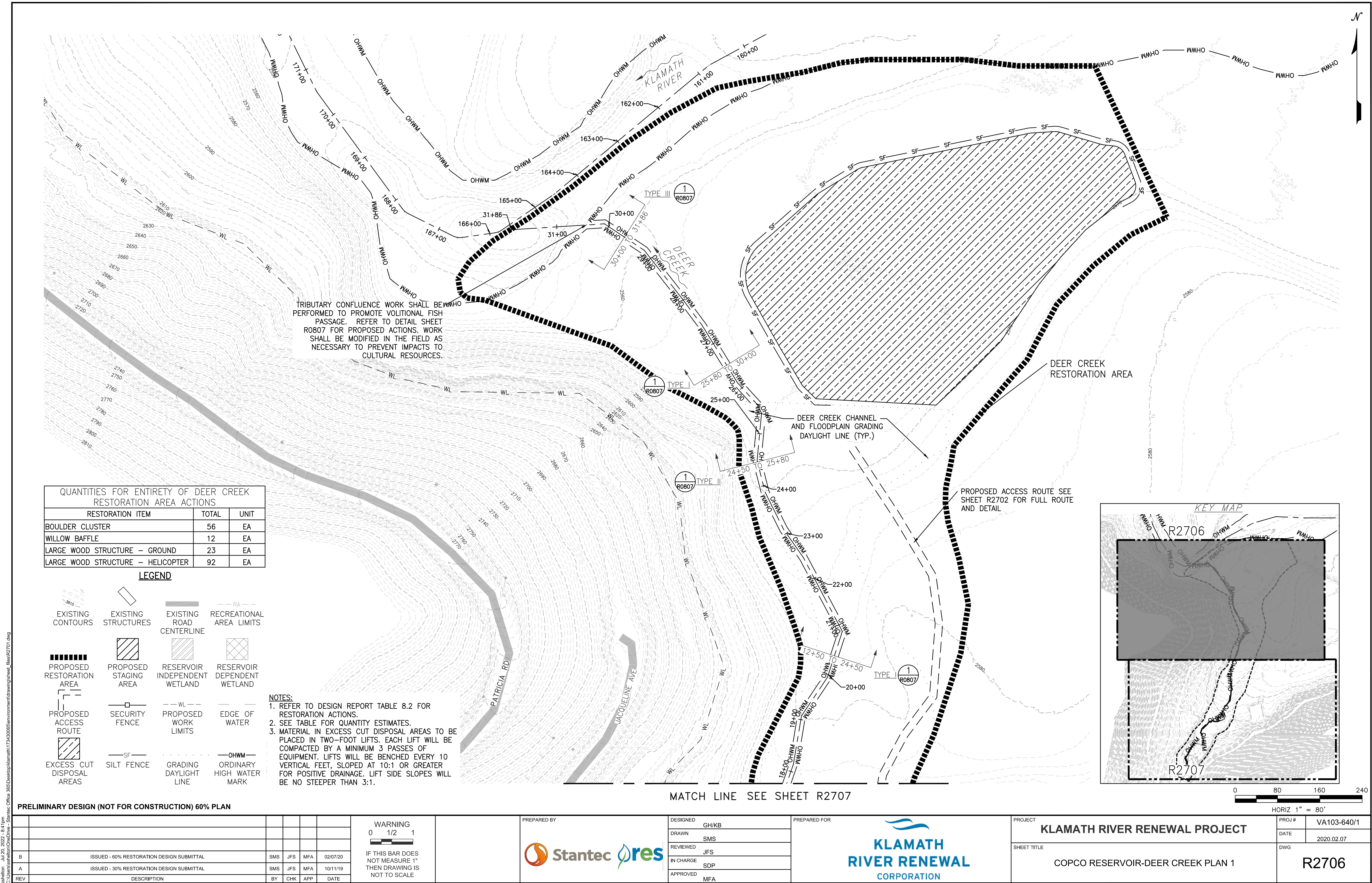
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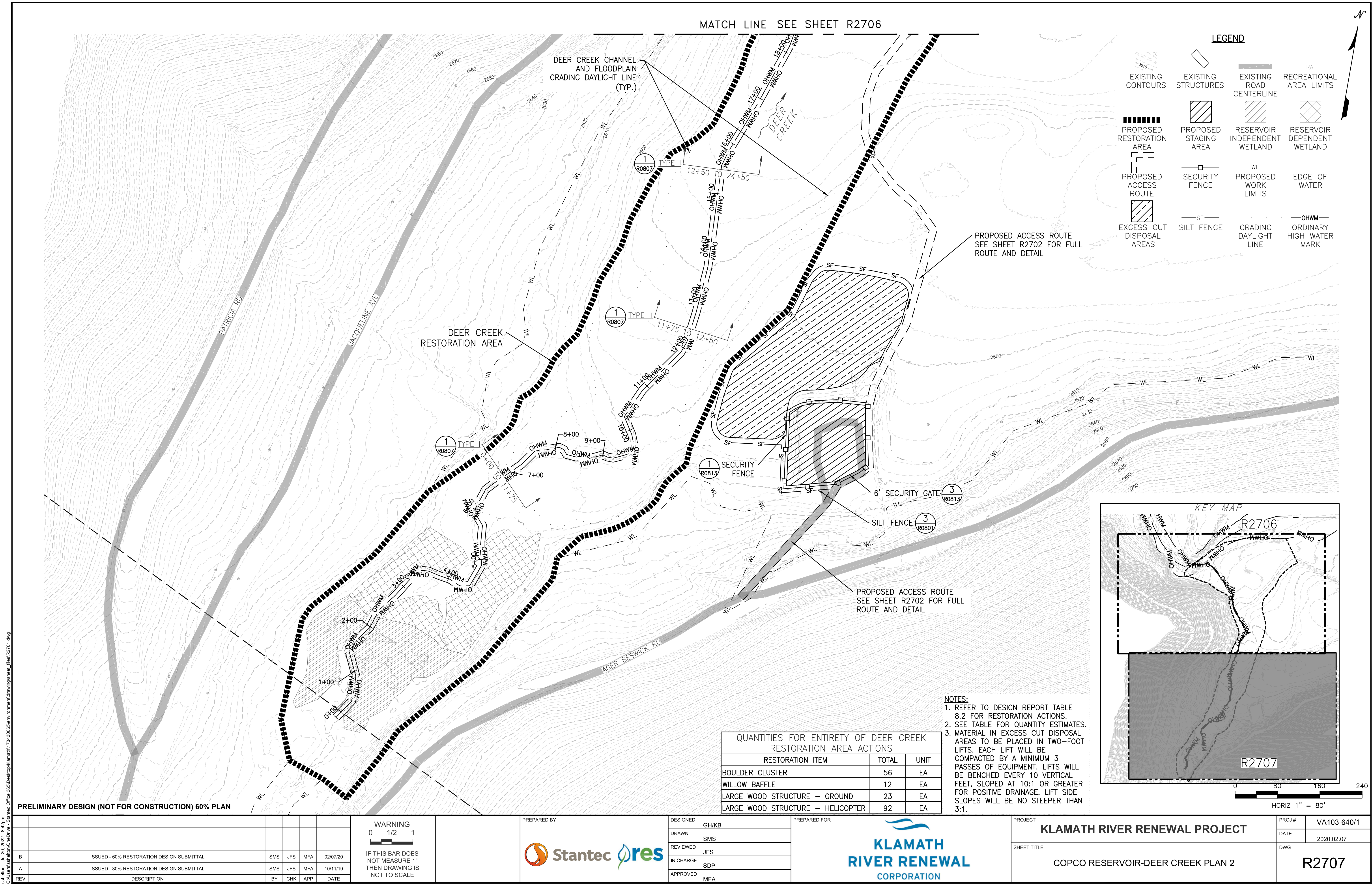
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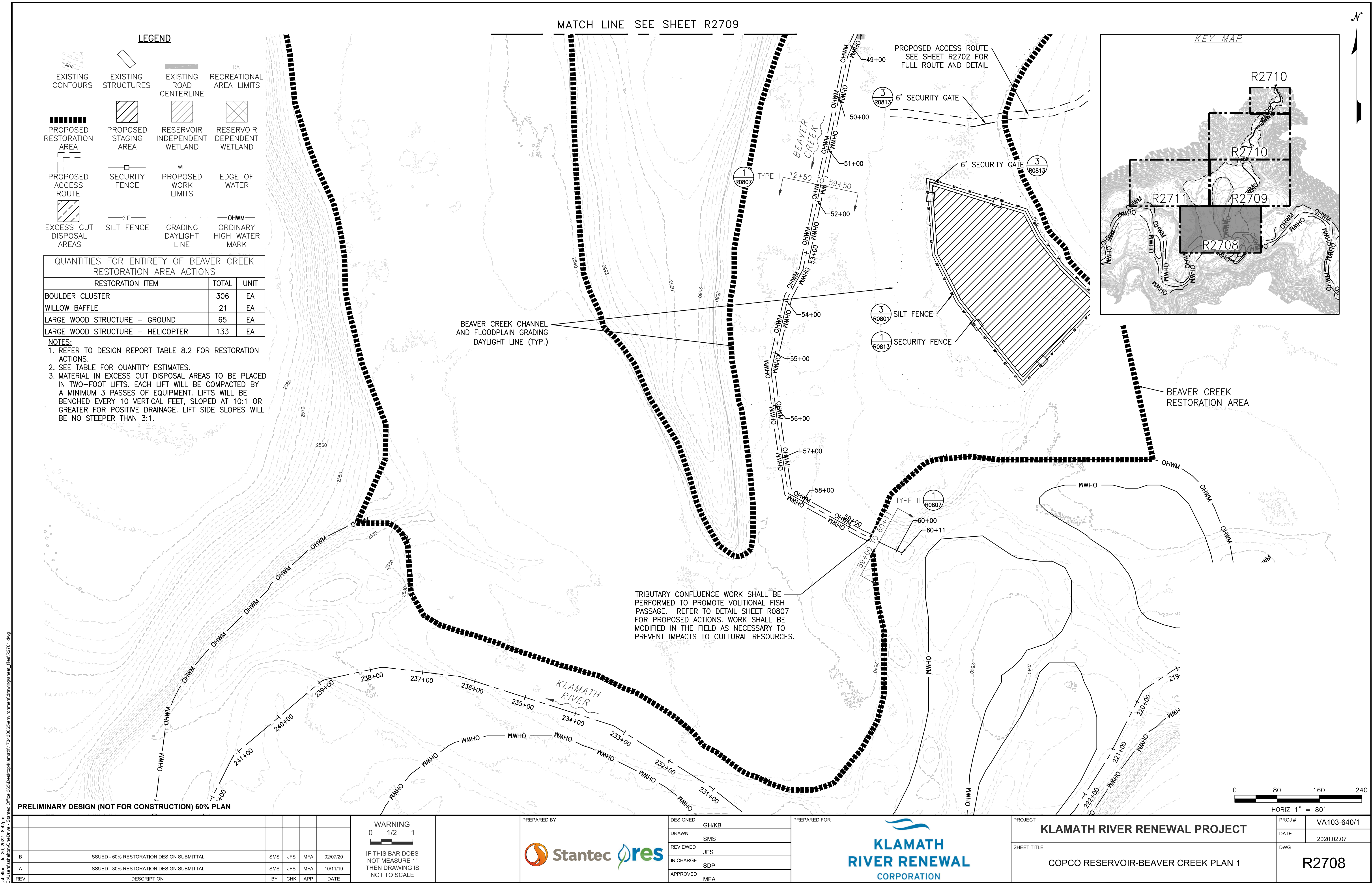
DWG

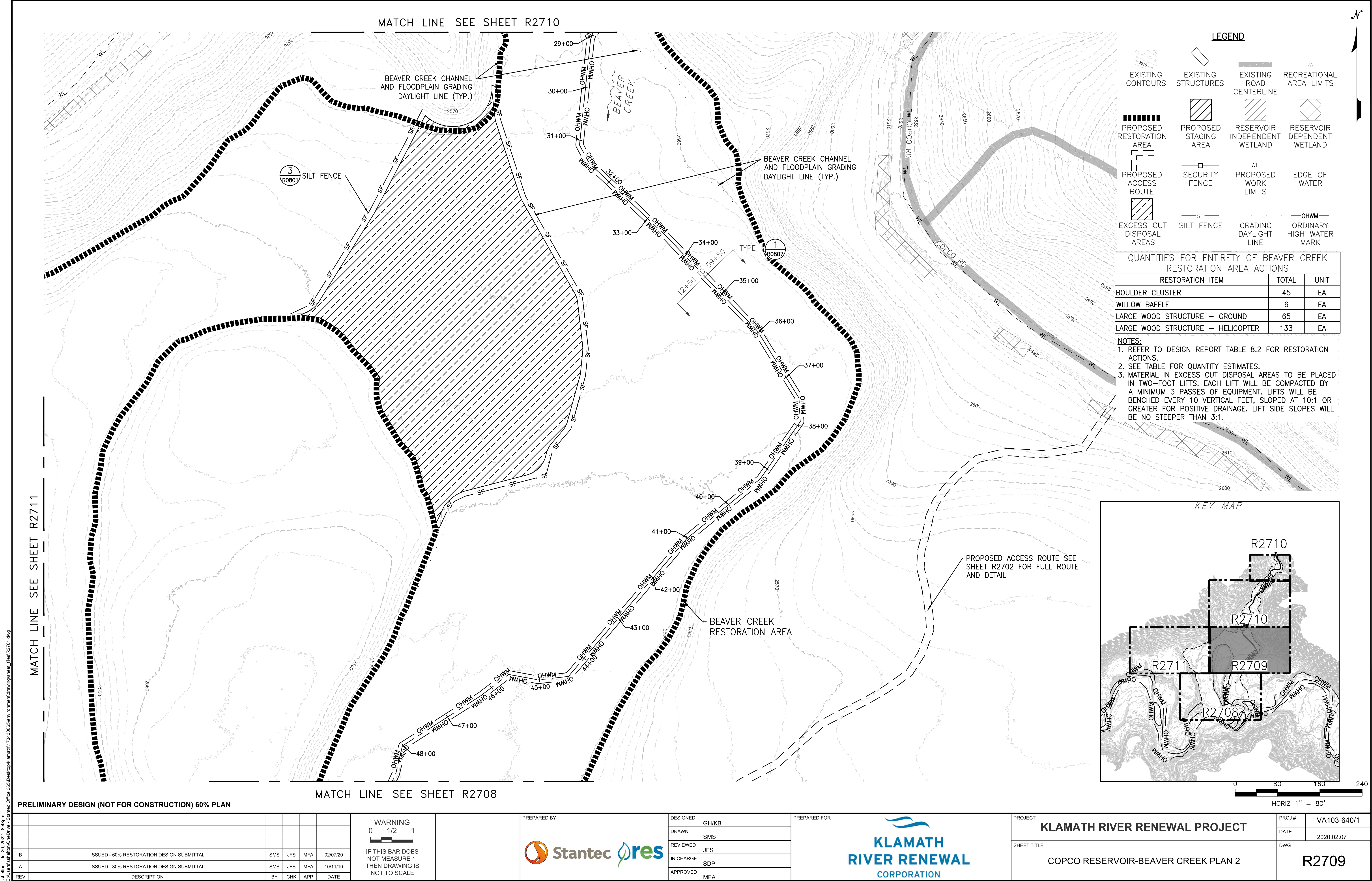
R2705

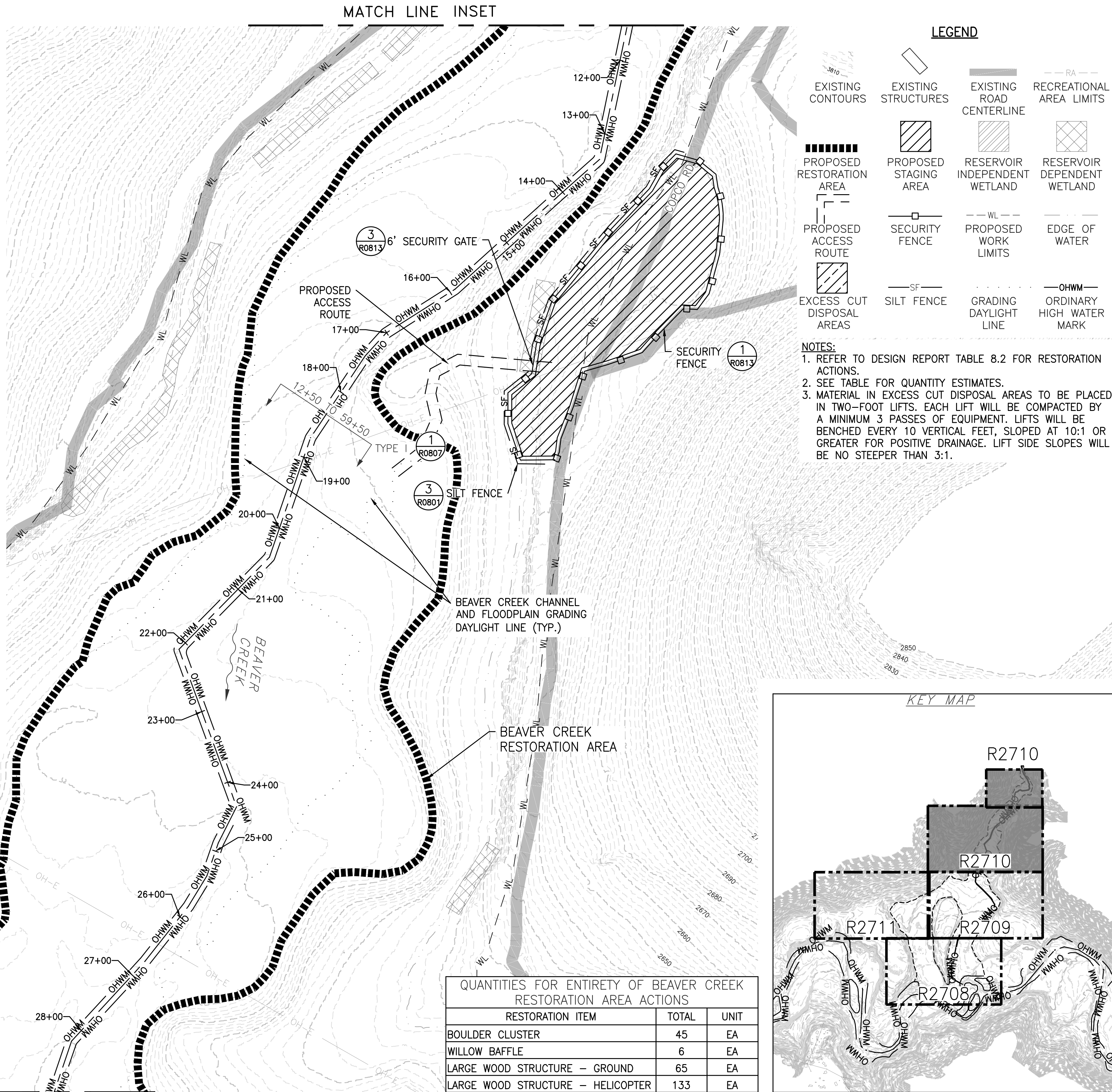
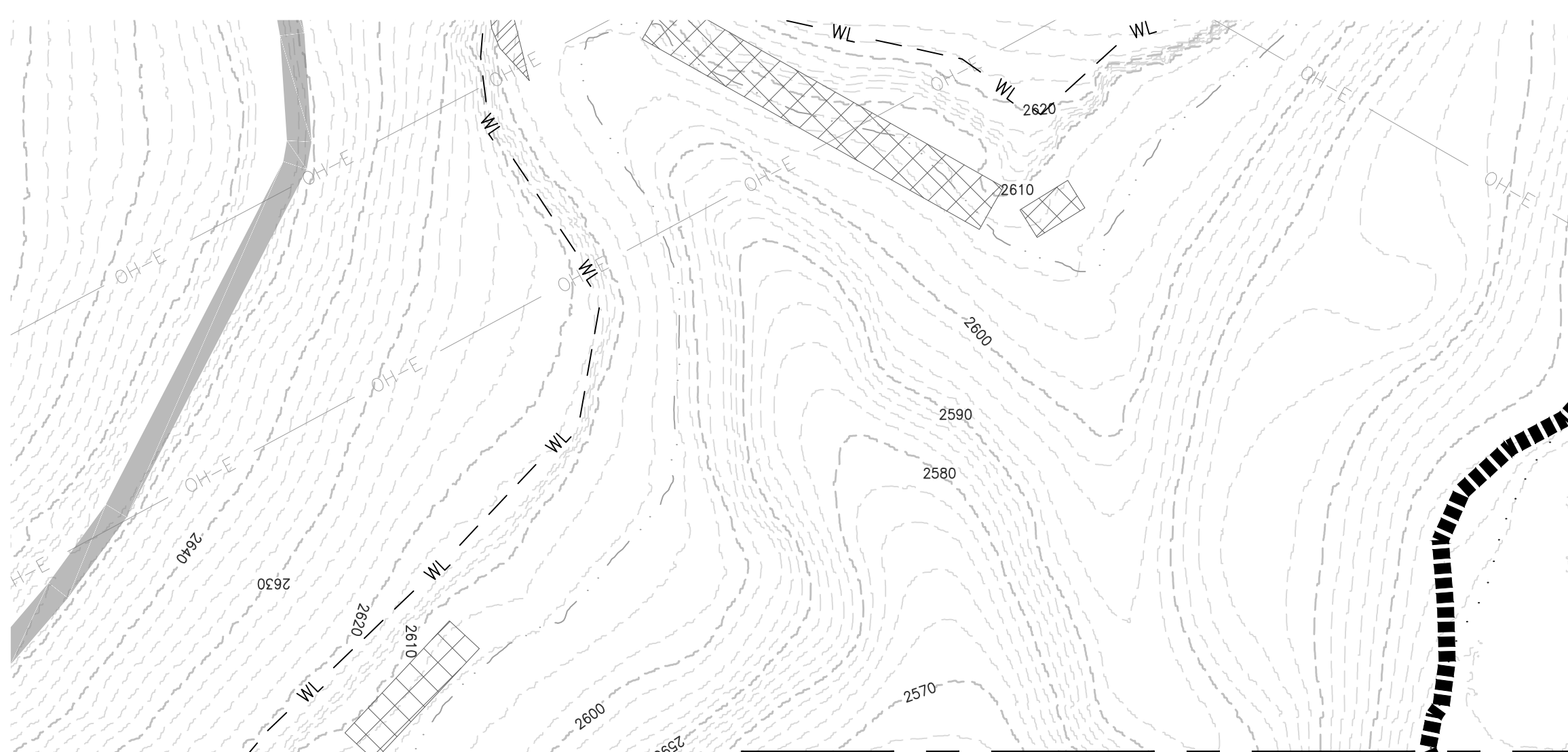
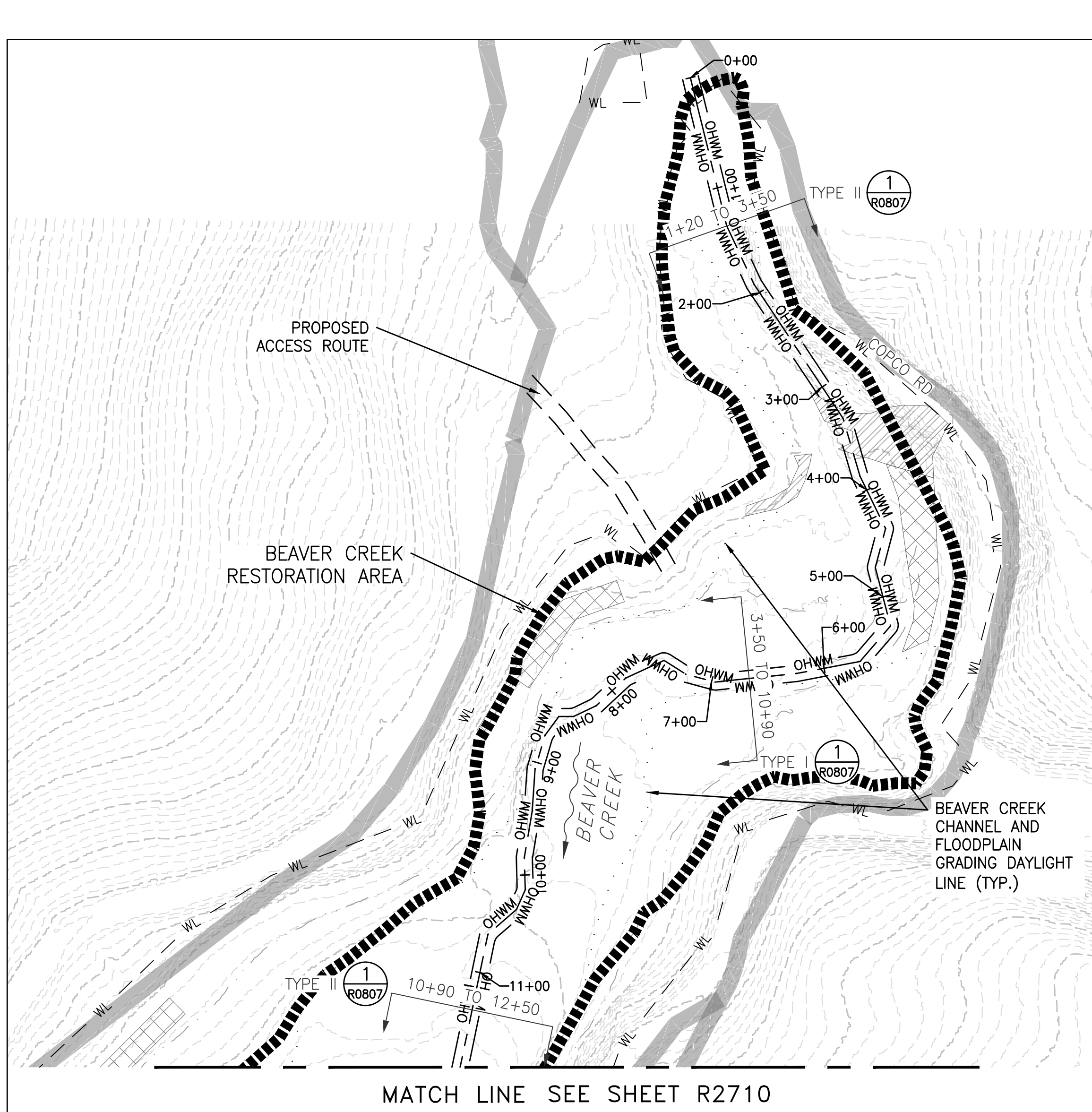
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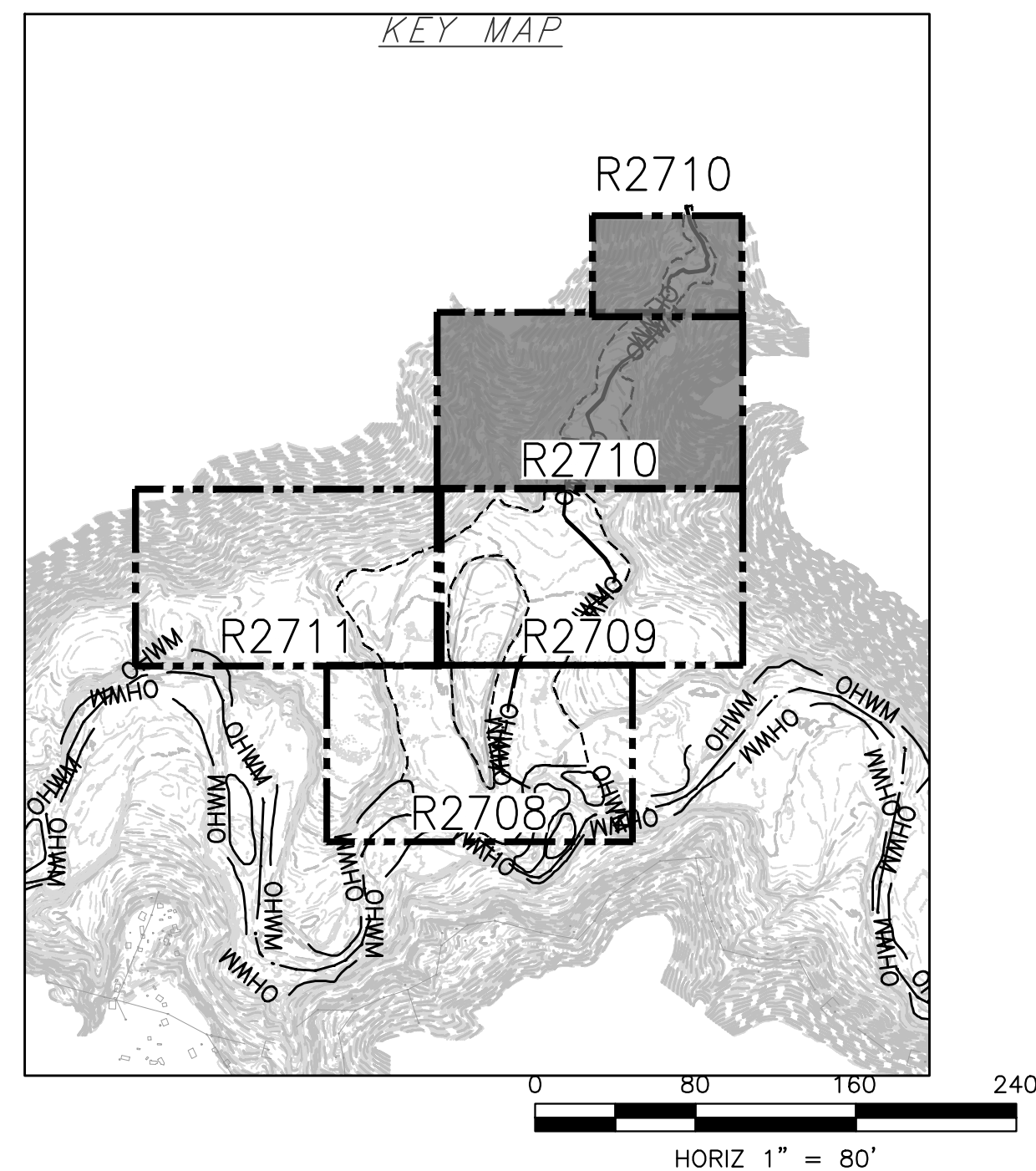


LEGEND

EXISTING CONTOURS	EXISTING STRUCTURES	EXISTING ROAD CENTERLINE	RECREATIONAL AREA LIMITS
PROPOSED RESTORATION AREA	PROPOSED STAGING AREA	RESERVOIR INDEPENDENT WETLAND	RESERVOIR DEPENDENT WETLAND
PROPOSED ACCESS ROUTE	SECURITY FENCE	PROPOSED WORK LIMITS	EDGE OF WATER
EXCESS CUT DISPOSAL AREAS	SILT FENCE	GRADING DAYLIGHT LINE	ORDINARY HIGH WATER MARK

NOTES:

1. REFER TO DESIGN REPORT TABLE 8.2 FOR RESTORATION ACTIONS.
2. SEE TABLE FOR QUANTITY ESTIMATES.
3. MATERIAL IN EXCESS CUT DISPOSAL AREAS TO BE PLACED IN TWO-FOOT LIFTS. EACH LIFT WILL BE COMPACTED BY A MINIMUM 3 PASSES OF EQUIPMENT. LIFTS WILL BE BENCHMARKED EVERY 10 VERTICAL FEET, SLOPED AT 10:1 OR GREATER FOR POSITIVE DRAINAGE. LIFT SIDE SLOPES WILL BE NO STEEPER THAN 3:1.



QUANTITIES FOR ENTIRETY OF BEAVER CREEK RESTORATION AREA ACTIONS		
RESTORATION ITEM	TOTAL	UNIT
BOULDER CLUSTER	45	EA
WILLOW BAFFLE	6	EA
LARGE WOOD STRUCTURE - GROUND	65	EA
LARGE WOOD STRUCTURE - HELICOPTER	133	EA

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DESIGNED

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SDP

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PROJECT

KLAMATH RIVER RENEWAL PROJECT

SHEET TITLE

COPCO RESERVOIR-BEAVER CREEK PLAN 3

PROJ #

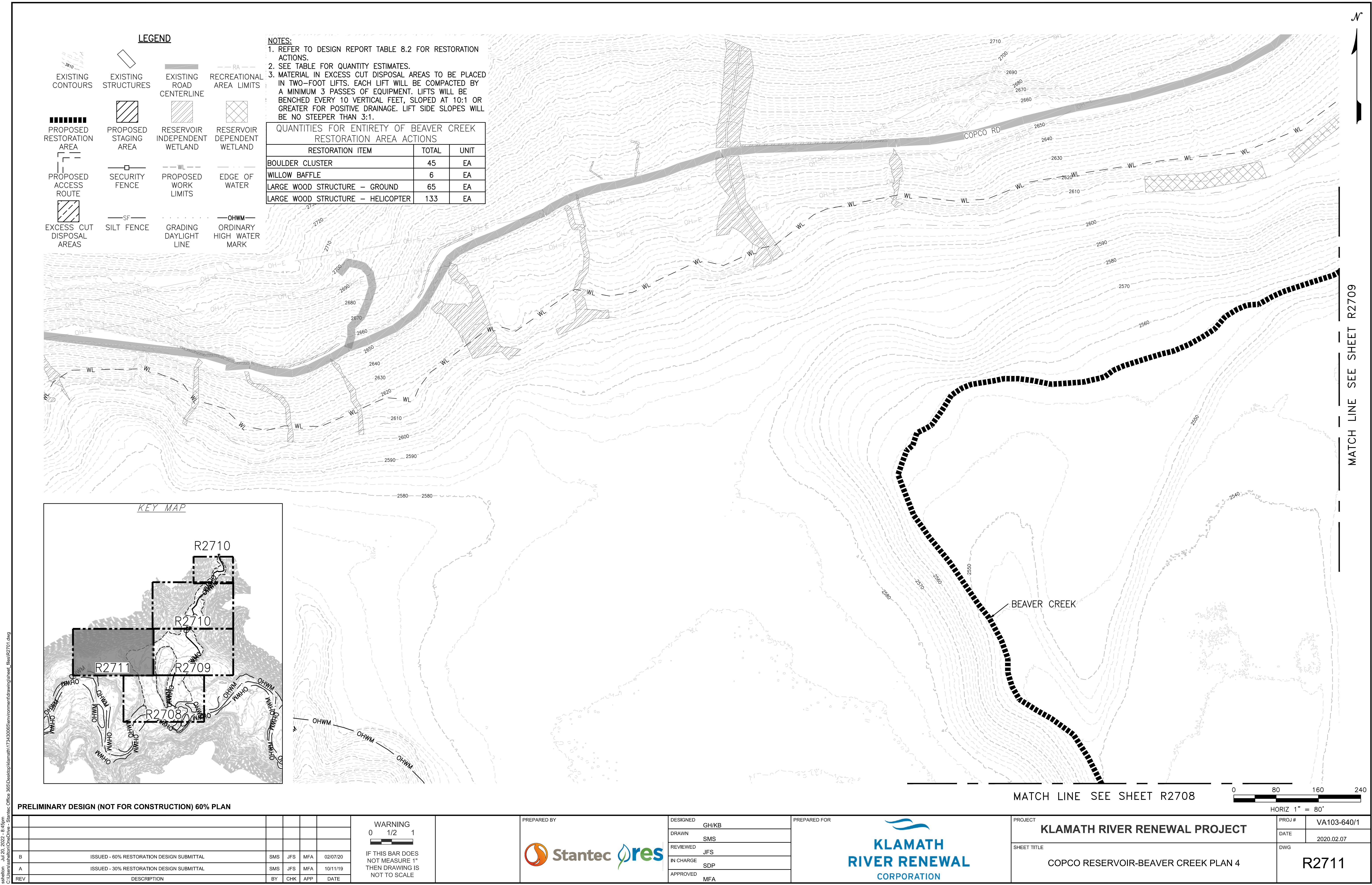
VA103-640/1

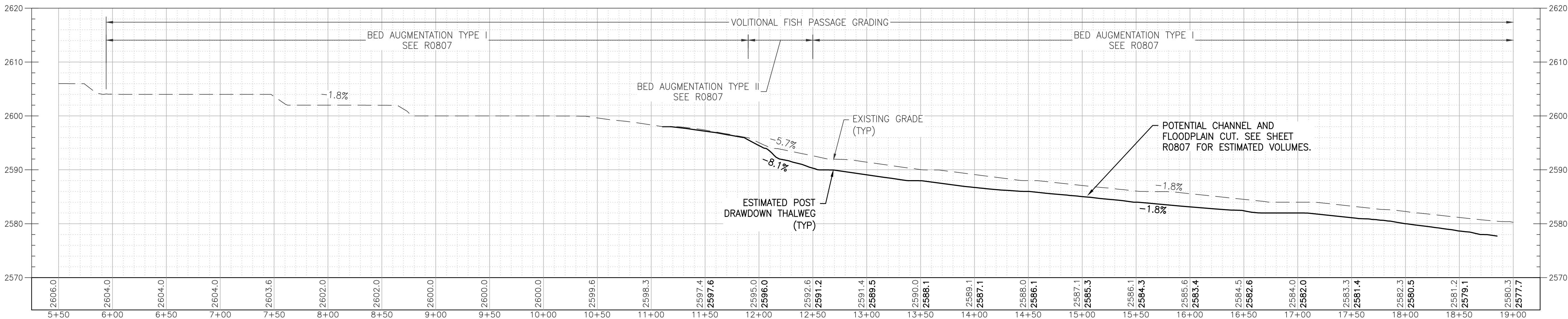
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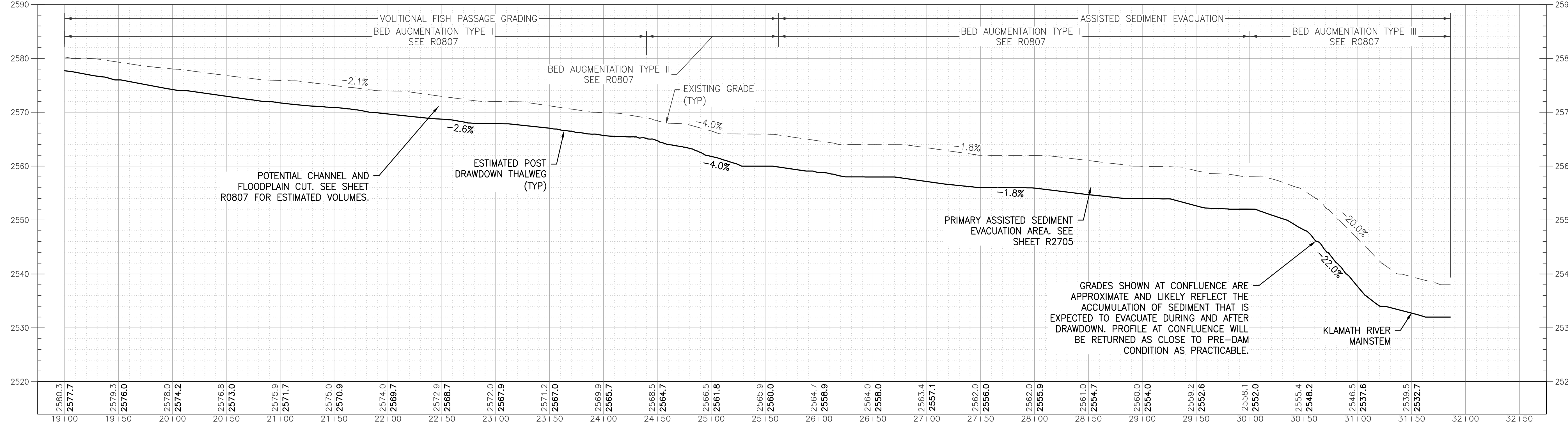
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R2710





DEER CREEK PROFILE
HORZ 1"=50', VERT 1"=5'

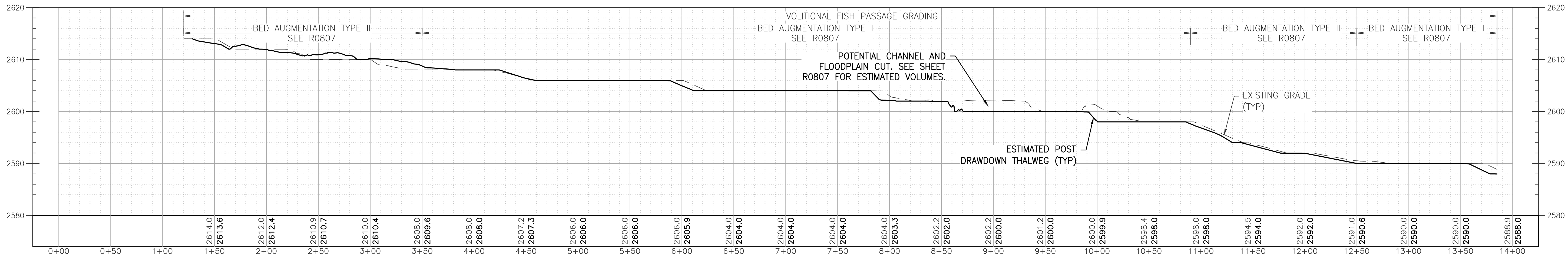


DEER CREEK PROFILE
HORZ 1"=50', VERT 1"=5'

- NOTES:**
- GRADES ARE APPROXIMATE AND BASED ON BEST AVAILABLE DATA; SEE NOTES BELOW.
 - EXISTING GRADE PROFILES ARE TAKEN FROM THE COMBINED 2018 BATHYMETRY AND LIDAR SURFACES PROVIDED TO KIEWIT BY KRRC.
 - POST DRAWDOWN PROFILES ARE INTENDED TO REPRESENT A PLAUSIBLE ENDPOINT FOR BASIN SEDIMENTS AFTER DAM REMOVAL, RESERVOIR DRAWDOWN, AND SEDIMENT EVACUATION IN A TYPICAL WATER YEAR.
 - POST DRAWDOWN PROFILES ARE NOT INTENDED TO PROVIDE A GRADING TARGET ELEVATION; HOWEVER, POST-DRAWDOWN GRADING OF RESIDUAL SEDIMENT OR OTHER IN-CHANNEL WORK (SEE SHEET R0808) MAY BE REQUIRED TO PROMOTE VOLITIONAL FISH PASSAGE IN CERTAIN TRIBUTARIES AND AT THEIR CONFLUENCES WITH THE KLAMATH RIVER. QUANTITY ESTIMATES ARE DERIVED FROM COMPARISON OF THE POST-DRAWDOWN SURFACE AND 2018 BATHYMETRY WITHIN ANTICIPATED CHANNEL EXTENTS.
 - POST DRAWDOWN SURFACES WERE GENERATED BY ESTIMATING MATERIAL CONSOLIDATION AFTER RESERVOIR DRAWDOWN, SUBTRACTING THE ESTIMATED CONSOLIDATION FROM THE 2018 EXISTING GROUND SURFACE, AND THEN SUBTRACTING ESTIMATED EVACUATION VOLUME WITHIN THE KLAMATH RIVER AND ITS TRIBUTARIES FROM THE RESULTANT SURFACE.
 - FULL SEDIMENT EVACUATION WAS ASSUMED WITHIN CHANNEL SECTIONS. FOR THE COPCO BASIN, REASONABLE PRE-DAM DATA WERE AVAILABLE TO ESTIMATE HISTORIC CONDITIONS. THESE DATA WERE USED TO SET POST-DRAWDOWN THALWEG ELEVATIONS OF THE KLAMATH RIVER AND ITS TRIBUTARIES. CHANNEL DIMENSIONS OF THE KLAMATH RIVER WERE TAKEN FROM THE EXISTING AECOM POST-DAM MODEL, AND CHANNEL SECTIONS OF THE TRIBUTARIES WERE GENERATED FROM HYDRAULIC GEOMETRY OF SECTIONS CUT FROM 2018 EXISTING GROUND SURFACE.
 - CHANNEL CORRIDORS WERE DAYLIGHTED TO THE EXISTING GROUND SURFACE USING THE ESTIMATED ANGLE OF REPOSE FOR RESIDUAL SEDIMENT (10H:1V).
 - POST DRAWDOWN SECTION DIMENSIONS REPRESENT GENERALIZED CHANNEL MORPHOLOGY BASED ON HYDRAULIC GEOMETRY AND MAY REQUIRE LOCALIZED WORK TO ALLOW VOLITIONAL FISH PASSAGE. REFER TO SHEET R0807 FOR ADAPTIVE MANAGEMENT ACTIONS AND GRADING APPROACHES.

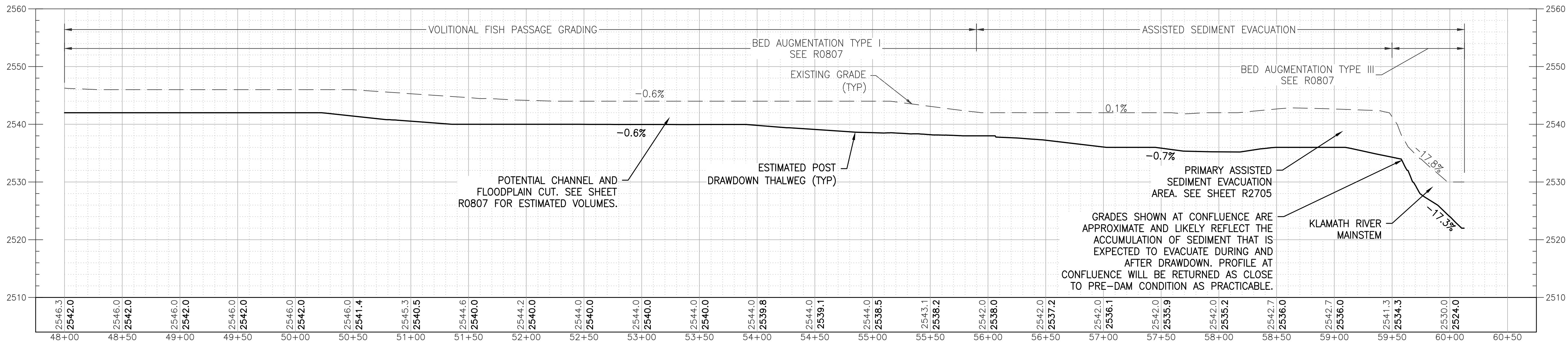
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								WARNING 0 1/2 1				PREPARED BY		DESIGNED JMR		PREPARED FOR		PROJECT KLAMATH RIVER RENEWAL PROJECT		PROJ # VA103-640/1	
												Stantec		DRAWN SMS		KLAMATH RIVER RENEWAL CORPORATION		DATE 2020.02.07			
														REVIEWED JFS				SHEET TITLE		DWG	
														IN CHARGE SDP				COPCO RESERVOIR-DEER CREEK PROFILES		R2712	
														APPROVED MFA							



BEAVER CREEK PROFILE

HORZ 1"=50', VERT 1"=10'



BEAVER CREEK PROFILE

HORZ 1"=50', VERT 1"=10'

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DESIGNED

JMR
DRAWN
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JFS
IN CHARGE
SDP
APPROVED
MFA

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PROJECT

KLAMATH RIVER RENEWAL PROJECT

SHEET TITLE

COPCO RESERVOIR-BEAVER CREEK PROFILES

PROJ #

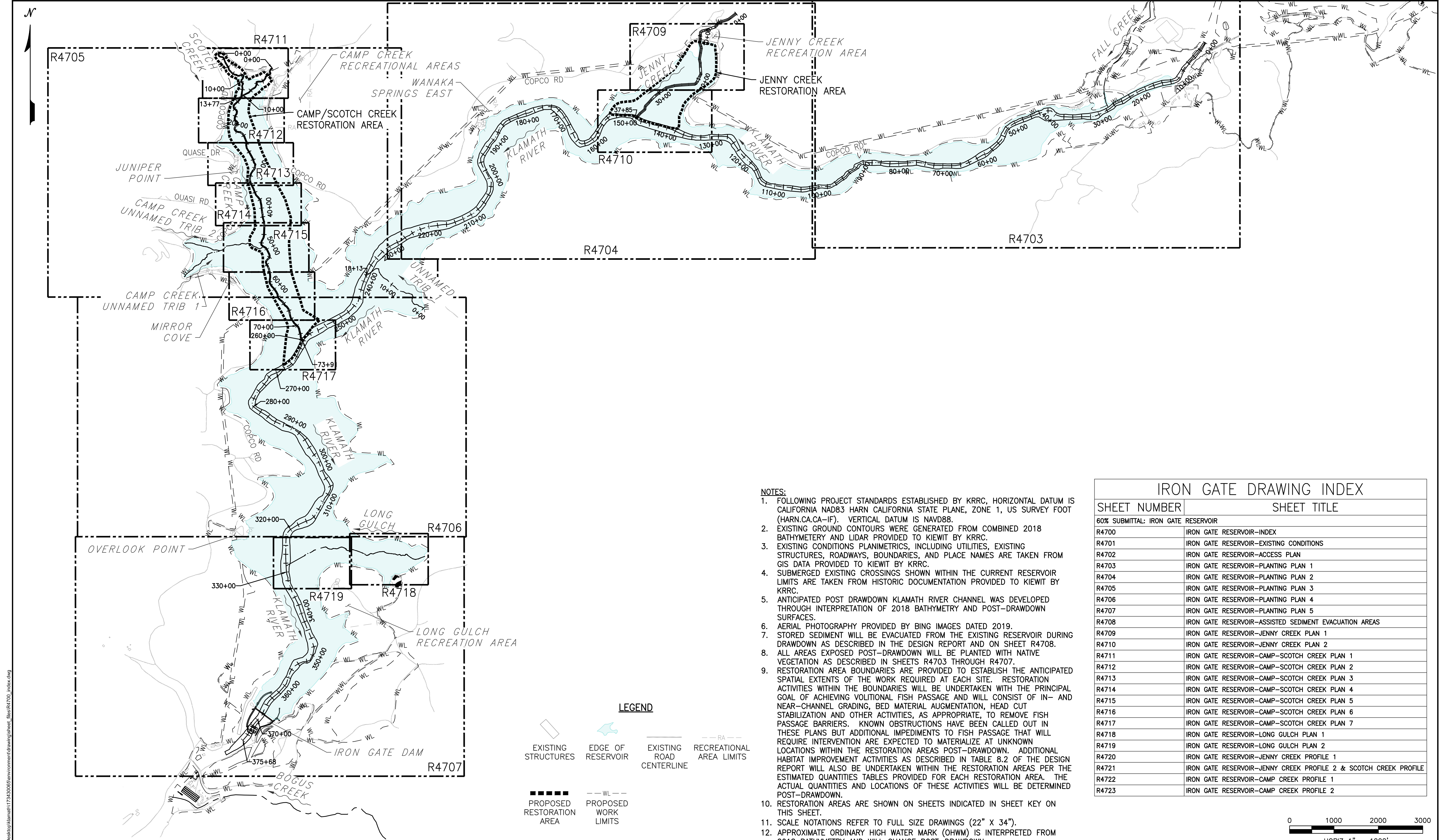
VA103-640/1

DATE

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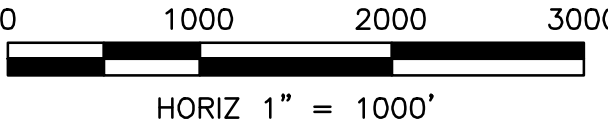
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R2713



- NOTES:
- FOLLOWING PROJECT STANDARDS ESTABLISHED BY KRRC, HORIZONTAL DATUM IS CALIFORNIA NAD83 HARN CALIFORNIA STATE PLANE, ZONE 1, US SURVEY FOOT (HARN.CA.CA-IF). VERTICAL DATUM IS NAVD88.
 - EXISTING GROUND CONTOURS WERE GENERATED FROM COMBINED 2018 BATHYMETRY AND LIDAR PROVIDED TO KIEWIT BY KRRC.
 - EXISTING CONDITIONS PLANIMETRICS, INCLUDING UTILITIES, EXISTING STRUCTURES, ROADWAYS, BOUNDARIES, AND PLACE NAMES ARE TAKEN FROM GIS DATA PROVIDED TO KIEWIT BY KRRC.
 - SUBMERGED EXISTING CROSSINGS SHOWN WITHIN THE CURRENT RESERVOIR LIMITS ARE TAKEN FROM HISTORIC DOCUMENTATION PROVIDED TO KIEWIT BY KRRC.
 - ANTICIPATED POST DRAWDOWN KLAMATH RIVER CHANNEL WAS DEVELOPED THROUGH INTERPRETATION OF 2018 BATHYMETRY AND POST-DRAWDOWN SURFACES.
 - AERIAL PHOTOGRAPHY PROVIDED BY BING IMAGES DATED 2019.
 - STORED SEDIMENT WILL BE EVACUATED FROM THE EXISTING RESERVOIR DURING DRAWDOWN AS DESCRIBED IN THE DESIGN REPORT AND ON SHEET R4708.
 - ALL AREAS EXPOSED POST-DRAWDOWN WILL BE PLANTED WITH NATIVE VEGETATION AS DESCRIBED IN SHEETS R4703 THROUGH R4707.
 - RESTORATION AREA BOUNDARIES ARE PROVIDED TO ESTABLISH THE ANTICIPATED SPATIAL EXTENTS OF THE WORK REQUIRED AT EACH SITE. RESTORATION ACTIVITIES WITHIN THE BOUNDARIES WILL BE UNDERTAKEN WITH THE PRINCIPAL GOAL OF ACHIEVING VOLITIONAL FISH PASSAGE AND WILL CONSIST OF IN- AND NEAR-CHANNEL GRADING, BED MATERIAL AUGMENTATION, HEAD CUT STABILIZATION AND OTHER ACTIVITIES, AS APPROPRIATE, TO REMOVE FISH PASSAGE BARRIERS. KNOWN OBSTRUCTIONS HAVE BEEN CALLED OUT IN THESE PLANS BUT ADDITIONAL IMPEDIMENTS TO FISH PASSAGE THAT WILL REQUIRE INTERVENTION ARE EXPECTED TO MATERIALIZE AT UNKNOWN LOCATIONS WITHIN THE RESTORATION AREAS POST-DRAWDOWN. ADDITIONAL HABITAT IMPROVEMENT ACTIVITIES AS DESCRIBED IN TABLE 8.2 OF THE DESIGN REPORT WILL ALSO BE UNDERTAKEN WITHIN THE RESTORATION AREAS PER THE ESTIMATED QUANTITIES TABLES PROVIDED FOR EACH RESTORATION AREA. THE ACTUAL QUANTITIES AND LOCATIONS OF THESE ACTIVITIES WILL BE DETERMINED POST-DRAWDOWN.
 - RESTORATION AREAS ARE SHOWN ON SHEETS INDICATED IN SHEET KEY ON THIS SHEET.
 - SCALE NOTATIONS REFER TO FULL SIZE DRAWINGS (22" X 34").
 - APPROXIMATE ORDINARY HIGH WATER MARK (OHWM) IS INTERPRETED FROM 2018 BATHYMETRY AND WILL CHANGE POST-DRAWDOWN.

IRON GATE DRAWING INDEX	
SHEET NUMBER	SHEET TITLE
60% SUBMITTAL: IRON GATE RESERVOIR	
R4700	IRON GATE RESERVOIR-INDEX
R4701	IRON GATE RESERVOIR-EXISTING CONDITIONS
R4702	IRON GATE RESERVOIR-ACCESS PLAN
R4703	IRON GATE RESERVOIR-PLANTING PLAN 1
R4704	IRON GATE RESERVOIR-PLANTING PLAN 2
R4705	IRON GATE RESERVOIR-PLANTING PLAN 3
R4706	IRON GATE RESERVOIR-PLANTING PLAN 4
R4707	IRON GATE RESERVOIR-PLANTING PLAN 5
R4708	IRON GATE RESERVOIR-ASSISTED SEDIMENT EVACUATION AREAS
R4709	IRON GATE RESERVOIR-JENNY CREEK PLAN 1
R4710	IRON GATE RESERVOIR-JENNY CREEK PLAN 2
R4711	IRON GATE RESERVOIR-CAMP-SCOTCH CREEK PLAN 1
R4712	IRON GATE RESERVOIR-CAMP-SCOTCH CREEK PLAN 2
R4713	IRON GATE RESERVOIR-CAMP-SCOTCH CREEK PLAN 3
R4714	IRON GATE RESERVOIR-CAMP-SCOTCH CREEK PLAN 4
R4715	IRON GATE RESERVOIR-CAMP-SCOTCH CREEK PLAN 5
R4716	IRON GATE RESERVOIR-CAMP-SCOTCH CREEK PLAN 6
R4717	IRON GATE RESERVOIR-CAMP-SCOTCH CREEK PLAN 7
R4718	IRON GATE RESERVOIR-LONG GULCH PLAN 1
R4719	IRON GATE RESERVOIR-LONG GULCH PLAN 2
R4720	IRON GATE RESERVOIR-JENNY CREEK PROFILE 1
R4721	IRON GATE RESERVOIR-JENNY CREEK PROFILE 2 & SCOTCH CREEK PROFILE
R4722	IRON GATE RESERVOIR-CAMP CREEK PROFILE 1
R4723	IRON GATE RESERVOIR-CAMP CREEK PROFILE 2



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REV	DESCRIPTION	BY	CHK	APP	DATE

WARNING

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DESIGNED

JM

DRAWN

CW

REVIEWED

JFS

IN CHARGE

SDP

APPROVED

MFA

PREPARED FOR



PROJECT

KLAMATH RIVER RENEWAL PROJECT

SHEET TITLE

IRON GATE RESERVOIR-INDEX

PROJ #

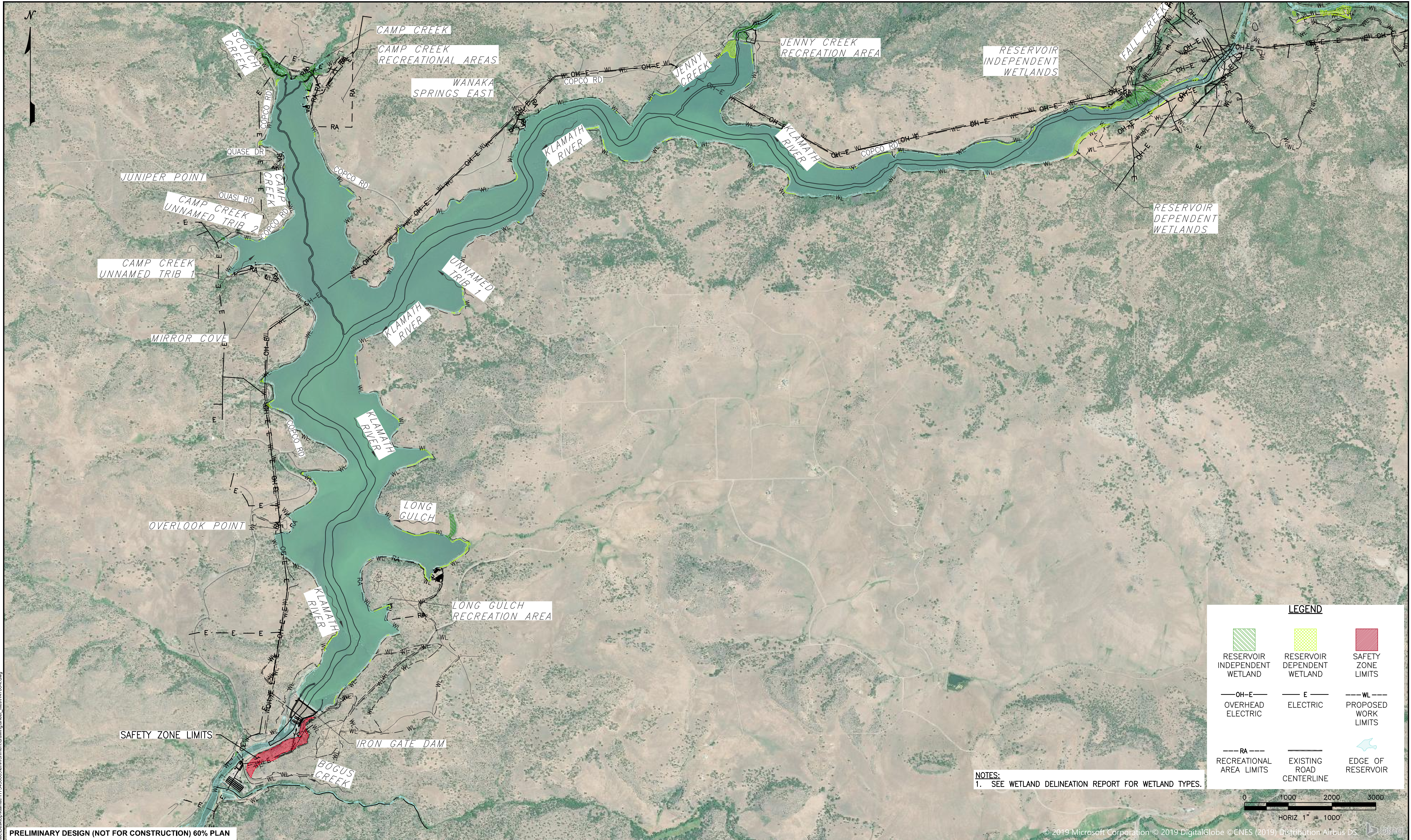
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R4700



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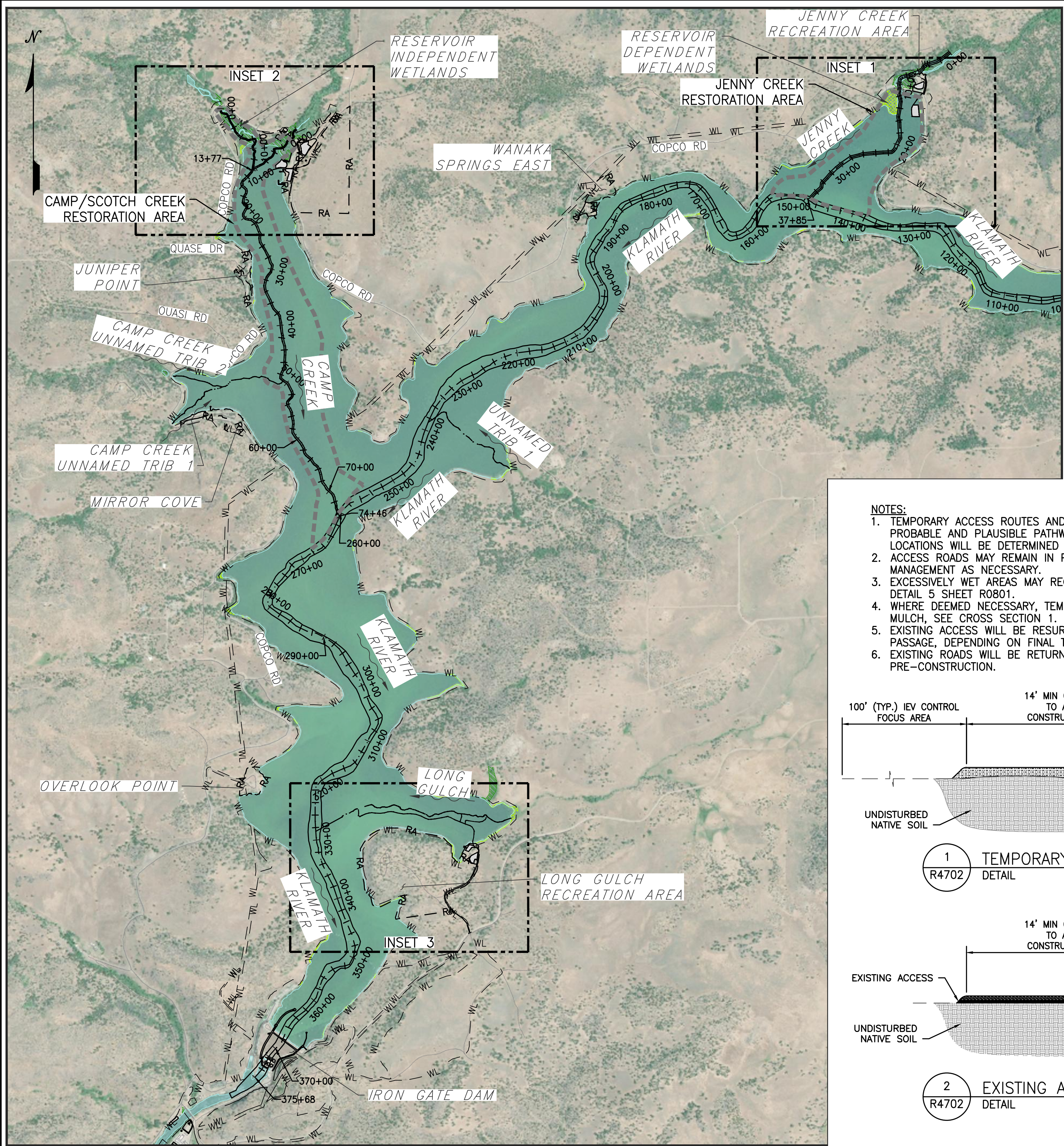
DESIGNED JM
DRAWN CW
REVIEWED JFS
IN CHARGE SDP
APPROVED MFA

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 KLAMATH RIVER RENEWAL CORPORATION

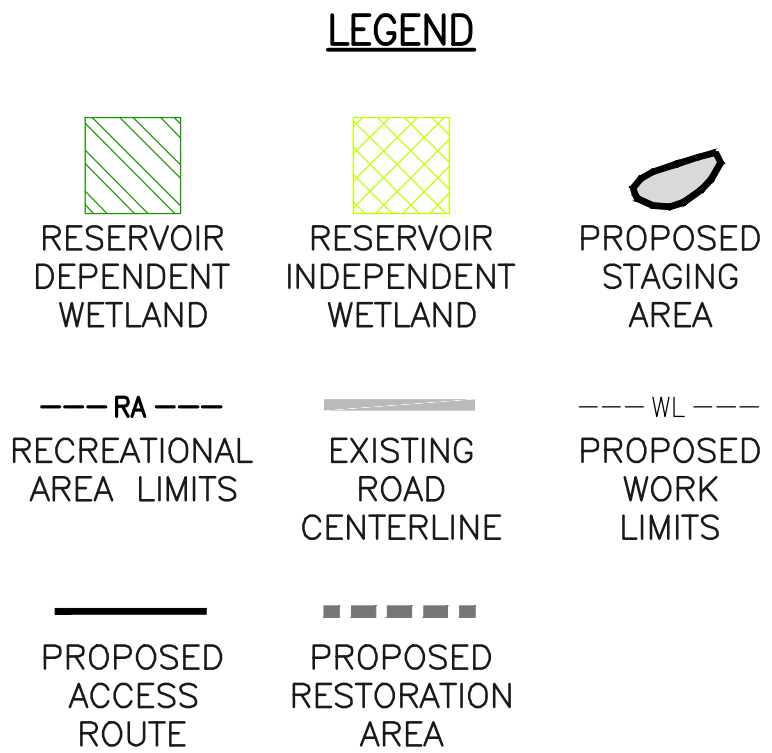
PROJECT
KLAMATH RIVER RENEWAL PROJECT
SHEET TITLE
IRON GATE RESERVOIR-EXISTING CONDITIONS

PROJ # VA103-640/1
DATE 2020.02.07
DWG R4701

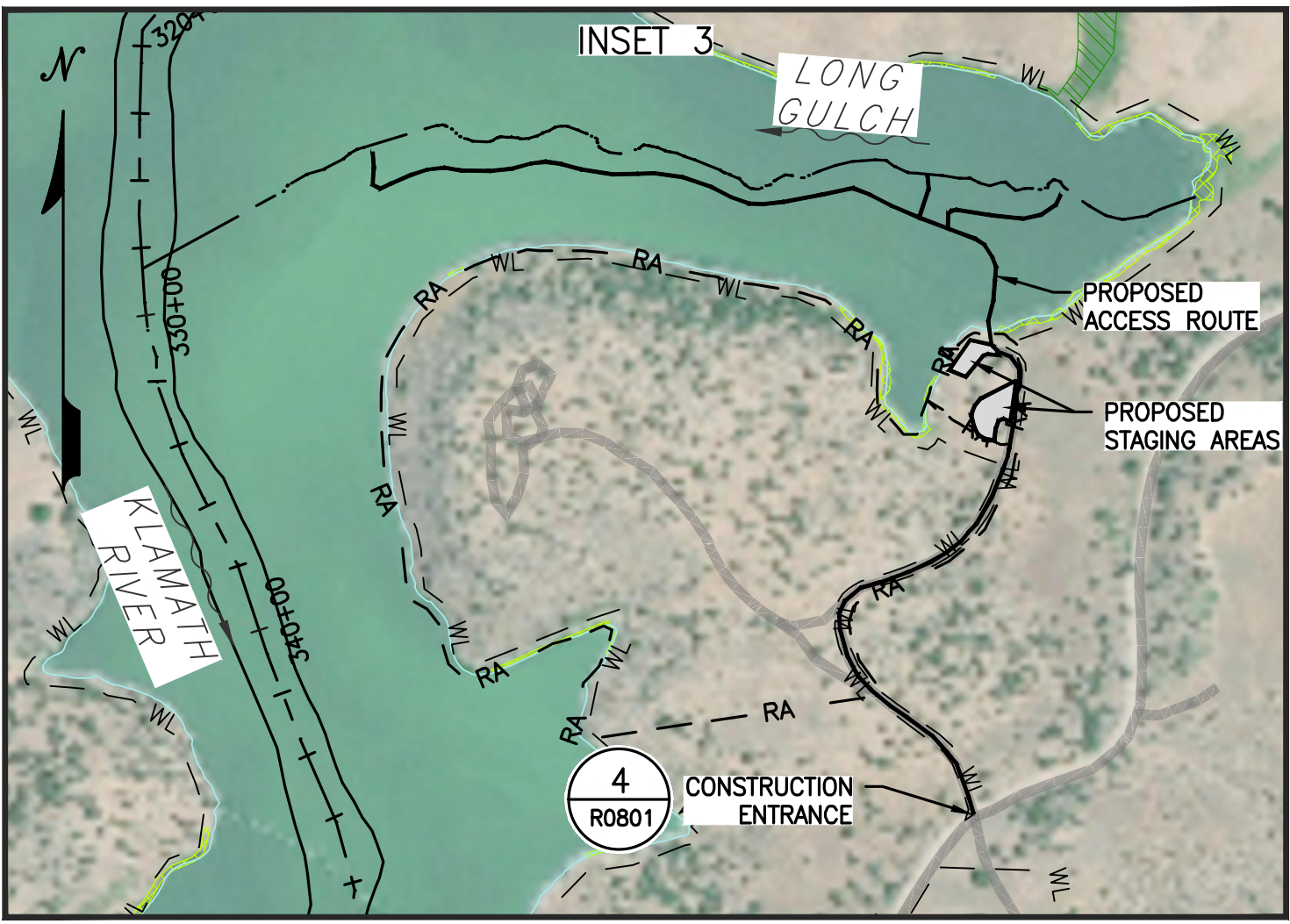
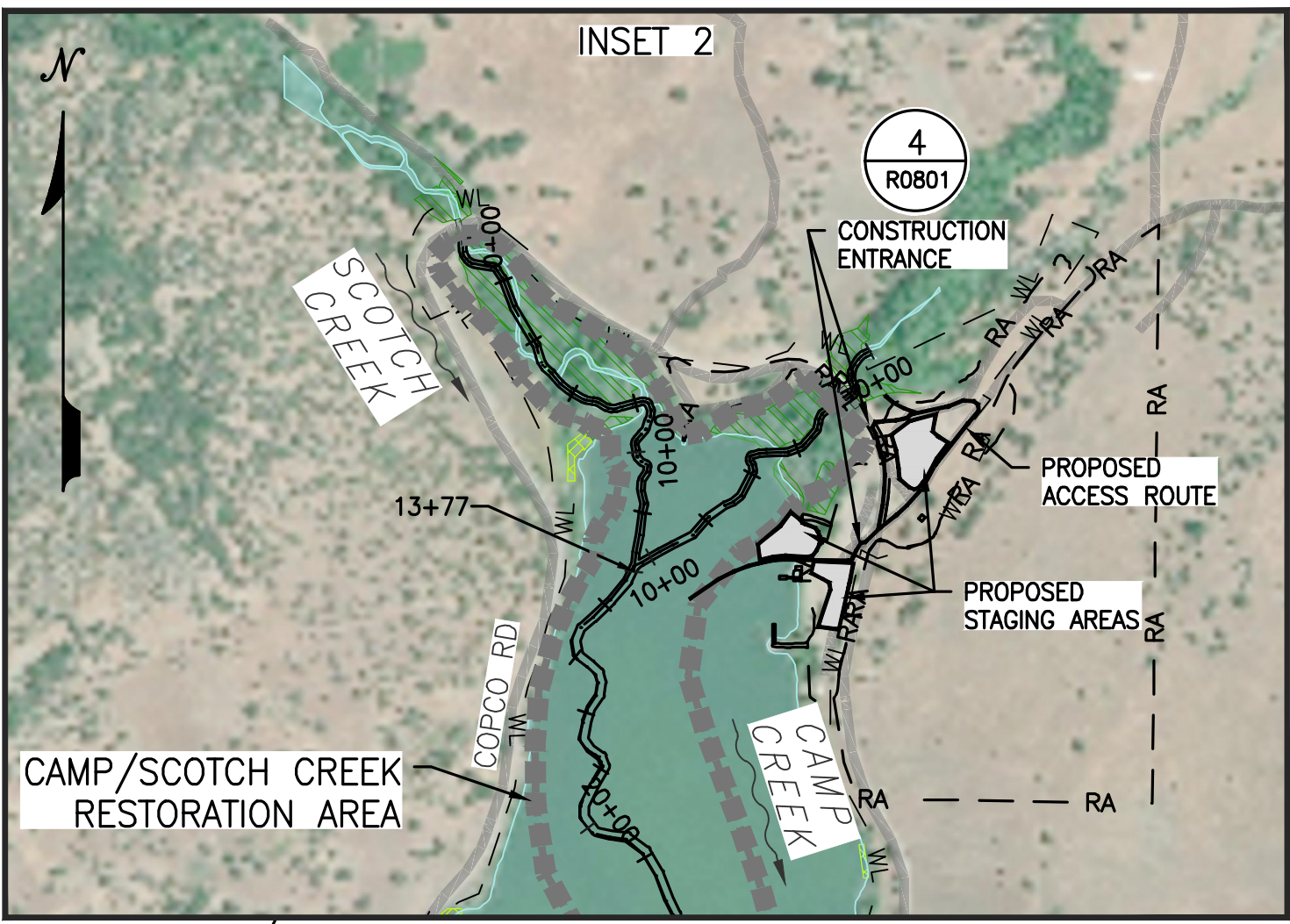
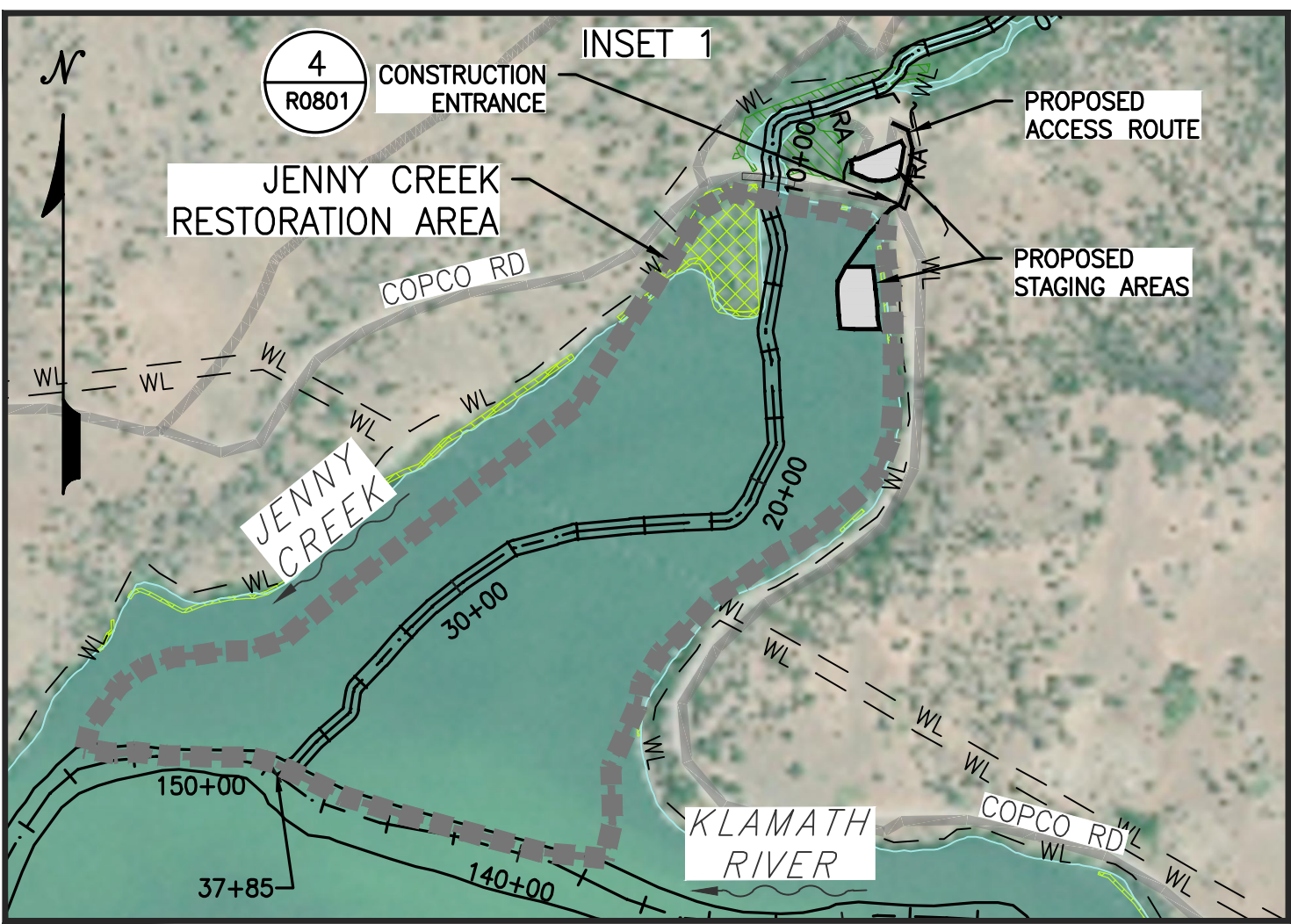
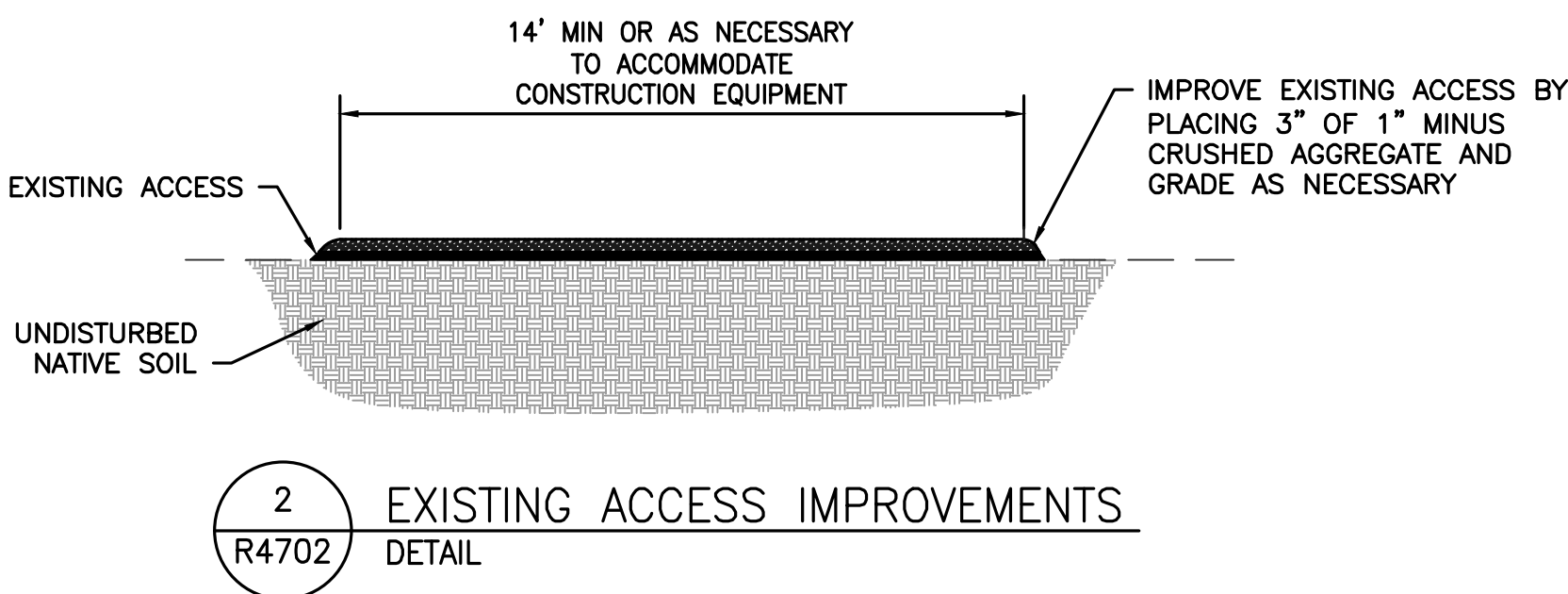
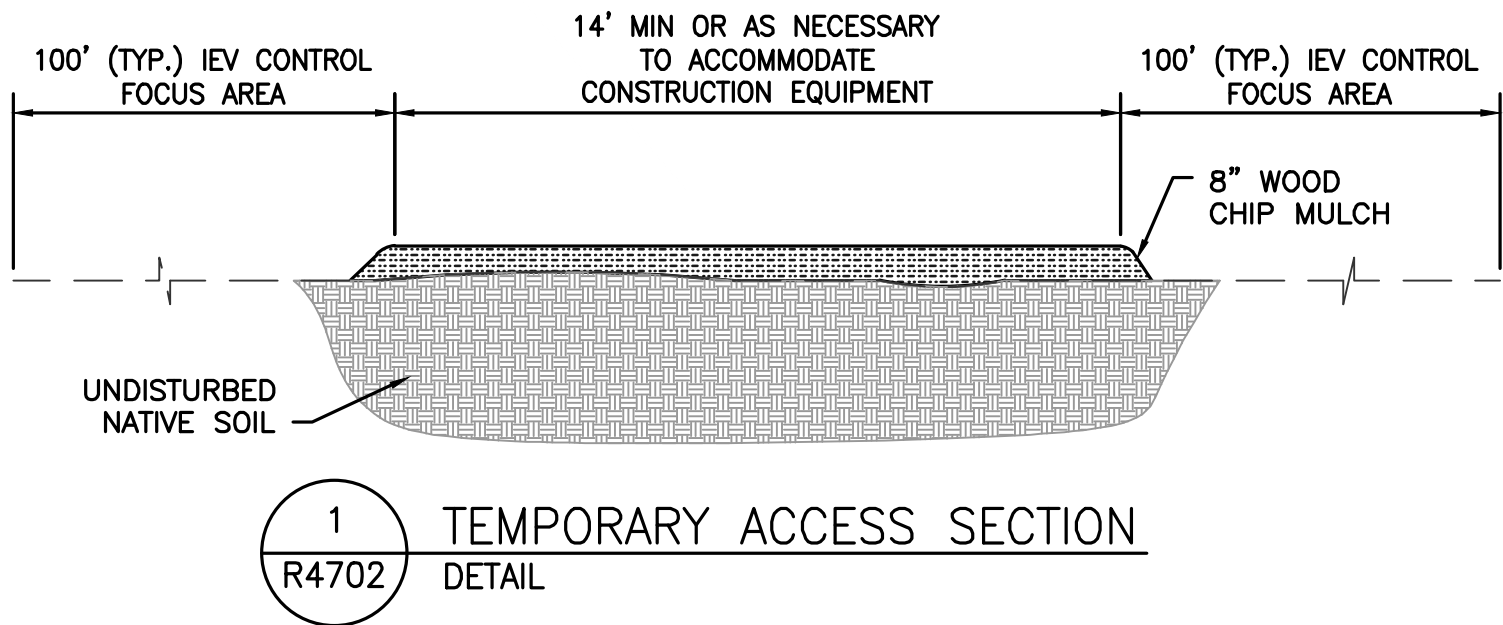
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IRON GATE RESERVOIR ACCESS PLAN QUANTITIES				
WORK AREA	PROP. ACCESS (LF)	EX. ACCESS IMPROVEMENT (LF)	PROP. STAGING AREA (SY)	SECURITY FENCE (LF)
JENNY CREEK	236	304	3,568	1,027
CAMP/SCOTCH CREEK	765	1,107	5,760	1,782
LONG GULCH	3,362	1,845	2,400	955



- NOTES:**
1. TEMPORARY ACCESS ROUTES AND STAGING AREAS SHOWN HERE REPRESENT A PROBABLE AND PLAUSIBLE PATHWAY TO WORK AREAS. FINAL TEMPORARY ACCESS ROUTE LOCATIONS WILL BE DETERMINED POST DRAWDOWN, PENDING FIELD CONDITIONS.
 2. ACCESS ROADS MAY REMAIN IN PLACE FOR MONITORING AND MAINTENANCE AND IEV MANAGEMENT AS NECESSARY.
 3. EXCESSIVELY WET AREAS MAY REQUIRE THE USE OF TIMBER MATS FOR ACCESS. SEE DETAIL 5 SHEET R0801.
 4. WHERE DEEMED NECESSARY, TEMPORARY ACCESS WILL BE SURFACED WITH WOOD CHIP MULCH, SEE CROSS SECTION 1.
 5. EXISTING ACCESS WILL BE RESURFACED AS NECESSARY TO FACILITATE EQUIPMENT PASSAGE, DEPENDING ON FINAL TEMPORARY ACCESS LOCATIONS.
 6. EXISTING ROADS WILL BE RETURNED TO A CONDITION EQUIVALENT TO OR BETTER THAN PRE-CONSTRUCTION.



OVERVIEW
1"= 1000'
0 1000 2000 3000
HORIZ 1" = 1000'

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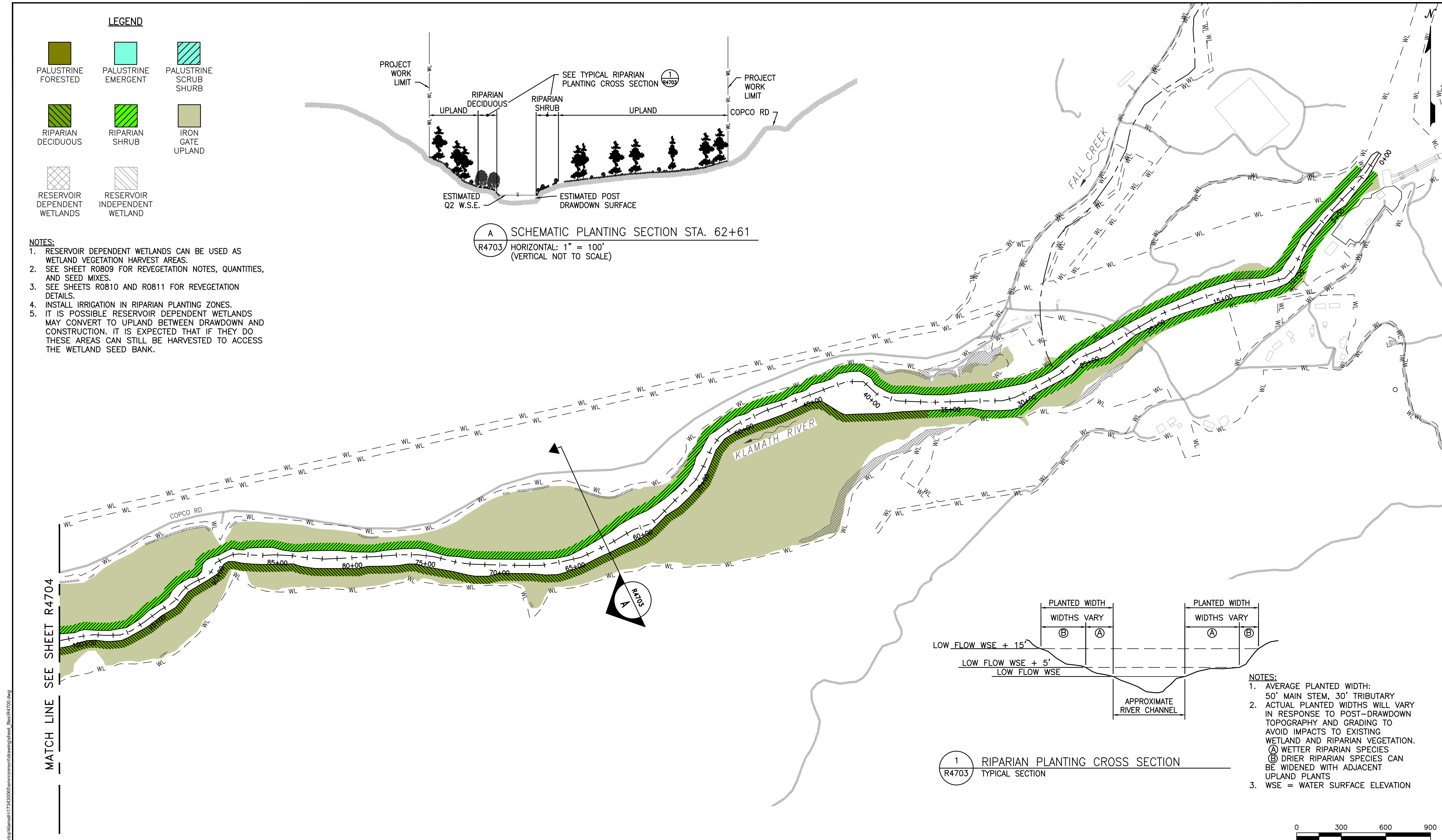
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DESIGNED	JM
DRAWN	CW
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IN CHARGE	SDP
APPROVED	MFA



PROJECT	KLAMATH RIVER RENEWAL PROJECT	
SHEET TITLE	IRON GATE RESERVOIR-ACCESS PLAN	
PROJ #	VA103-640/1	DATE
DWG	2020.02.07	R4702



- LEGEND**
- PALUSTRINE FORESTED
 - PALUSTRINE EMERGENT
 - PALUSTRINE SCRUB SHRUB
 - RIPARIAN DECIDUOUS
 - RIPARIAN SHRUB
 - IRON GATE UPLAND
 - RESERVOIR DEPENDENT WETLANDS
 - RESERVOIR INDEPENDENT WETLAND
- NOTES:**
1. RESERVOIR DEPENDENT WETLANDS CAN BE USED AS WETLAND VEGETATION HARVEST AREAS.
 2. SEE SHEET R0809 FOR REVEGETATION NOTES, QUANTITIES, AND SEED MIXES.
 3. SEE SHEETS R0810 AND R0811 FOR REVEGETATION DETAILS.
 4. INSTALL IRRIGATION IN RIPARIAN PLANTING ZONES.
 5. IT IS POSSIBLE RESERVOIR DEPENDENT WETLANDS MAY CONVERT TO UPLAND BETWEEN DRAWDOWN AND CONSTRUCTION. IT IS EXPECTED THAT IF THEY DO THESE AREAS CAN STILL BE HARVESTED TO ACCESS THE WETLAND SEED BANK.

A SCHEMATIC PLANTING SECTION STA. 62+61
R4703 HORIZONTAL: 1" = 100'
(VERTICAL NOT TO SCALE)

1 R4703 RIPARIAN PLANTING CROSS SECTION
TYPICAL SECTION

- NOTES:**
1. AVERAGE PLANTED WIDTH:
50' MAIN STEM, 30' TRIBUTARY
 2. ACTUAL PLANTED WIDTHS WILL VARY IN RESPONSE TO POST-DRAWDOWN TOPOGRAPHY AND GRADING TO AVOID IMPACTS TO EXISTING WETLAND AND RIPARIAN VEGETATION.
(A) WETTER RIPARIAN SPECIES
(B) DRIER RIPARIAN SPECIES CAN BE WIDENED WITH ADJACENT UPLAND PLANTS
 3. WSE = WATER SURFACE ELEVATION

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APPROVED: MFA

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KLAMATH RIVER RENEWAL CORPORATION

PROJECT
KLAMATH RIVER RENEWAL PROJECT

SHEET TITLE
IRON GATE RESERVOIR-PLANTING PLAN 1

PROJ #
VA103-640/1

DATE
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DWG
R4703

