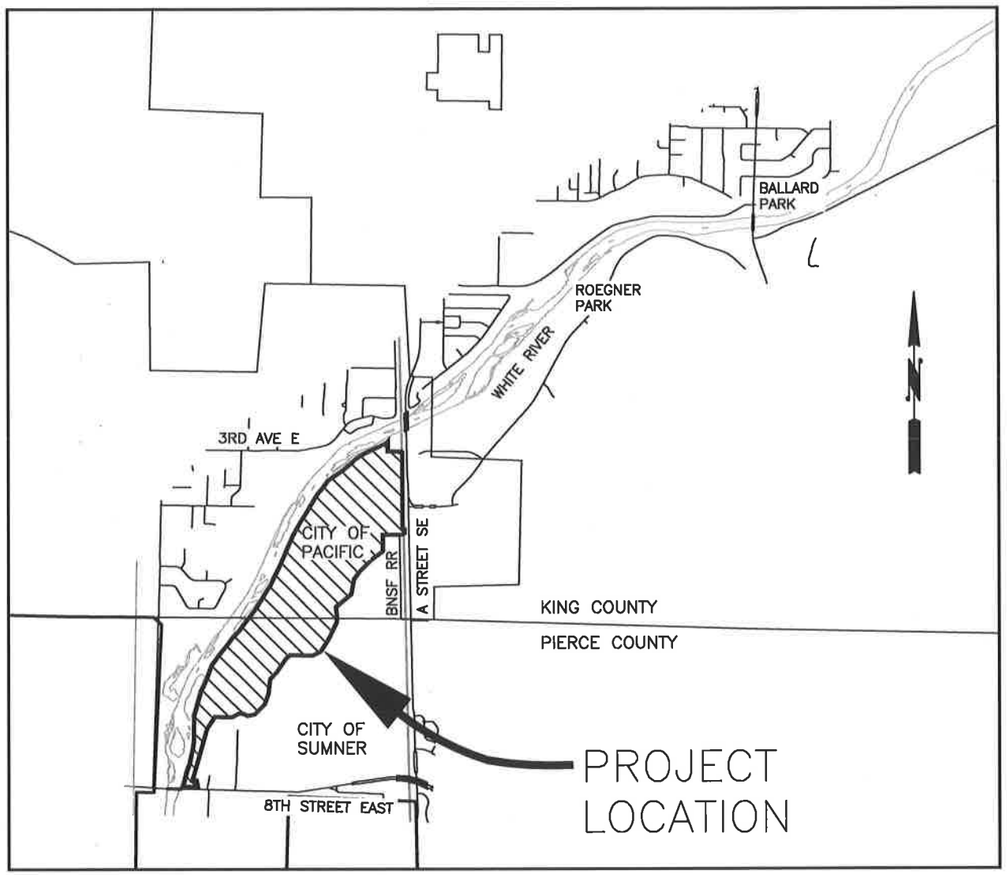
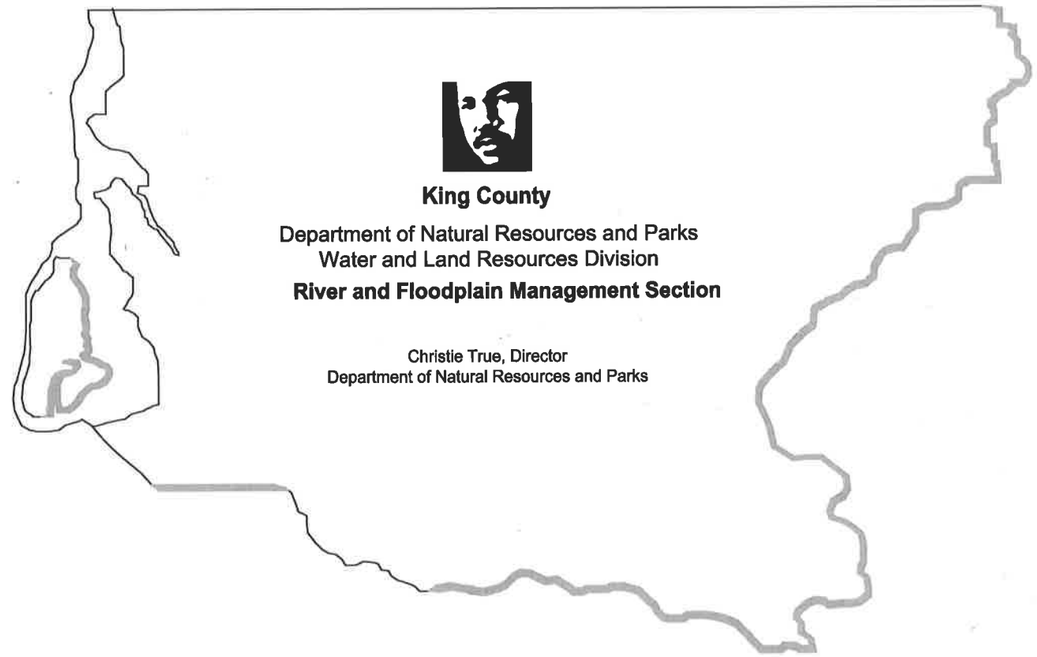
VICINITY MAP





King County

Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section

Christie True, Director
Department of Natural Resources and Parks

Countyline Levee Setback

White River, River Mile 5.00-6.33

INDEX

CALL 2 WORKING DAYS
BEFORE YOU DIG
1–800–424–5555
(UNDERGROUND UTILITY LOCATIONS ARE APPROX.)

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

NUM.	REVISION	BY	DATE
	CADD / 60% 5-2013		

APPROVED: JEANNE STYPULA, PE	4–2013	
PROJECT MANAGER: CHRIS BRUMMER, PE	4–2013	
DESIGNED: CHRIS BRUMMER, PE	4–2013	
ECOLOGIST: SARAH McCARTHY	4–2013	
DESIGN ENTERED: LICA DULAN	4–2013	

SRFB # RCO 087–1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER — STATE OF WASHINGTON — 20695 — REGISTERED PROFESSIONAL ENGINEER

JEANNE MARIE STYPULA — STATE OF WASHINGTON — 26602 — REGISTERED PROFESSIONAL ENGINEER

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

COVER SHEET

SHEET 1 OF 69 SHEETS

GN1

LINETYPES

EXIST.	DESCRIPTION
SURFACE FEATURES:	
	BUILDING LINE (EXISTING)
	CREEK/DITCH CENTERLINE (EXIST.)
	CURB/PAVEMENT/SIDEWALK (EX)
	FENCE (EXISTING)
	GUARDRAIL (EXISTING)
	FLOODPLAIN BOUNDARY
FB	FLOODWAY BOUNDARY
	OPEN WATER
	INFILTRATION AREAS
WB	WETLAND PERIMETER
	WETLAND BUFFER
	RAILROAD
	RIVERBANK/SHORELINE
SJ	SHORELINE JURISDICTION
OHW	ORDINARY HIGH WATER
	STREAM

SURVEY:

	CENTERLINE (EXISTING)
	MINOR CONTOUR (EXIST.)
70	MAJOR CONTOUR (EXIST.)
	MATCH LINE
℄	PROPERTY LINE (EXISTING)
	RIGHT-OF-WAY (CURRENT)
	STATE/COUNTY/CORPORATE LIMIT
℄	PROPERTY LINE (FUTURE)

UTILITIES (EXISTING):

TV	CABLE TELEVISION
FM	FORCE MAIN
G	GAS
P	POWER (AERIAL)
P ABAN	ABANDONED POWER LINE
UG-P	POWER (BURIED)
SS	SANITARY SEWER
SD	STORM DRAINAGE
T	TELEPHONE (AERIAL)
UG-T	TELEPHONE (BURIED)
W	WATER
6"G	GAS
12"CMP	STORM DRAIN

LEGEND

CONSTRUCT	DESCRIPTION
	CREEK/DITCH CENTERLINE
— X — X — X — X — X —	SILT FENCE
	CHAIN LINK FENCE
	EDGE OF OPEN WATER (APPROX.)
CLR	CLEARING LIMITS
	CENTERLINE
	MINOR CONTOUR (PROPOSED)
70	MAJOR CONTOURS (PROPOSED)
	SILT CURTAIN
	WORK AREA LIMITS
	IN-WATER WORK AREA ISOLATION
	LEVEE AND REVETMENT EXCAVATION
	ACCESS ROAD
	STAGING AREA
	ELJ ACCESS PATH AND WORK PLATFORM
	SETBACK LEVEE
	BANK DEFLECTOR ELJ
	LARGE APEX ELJ
	SMALL APEX ELJ
	BIOREVETMENT
	FLOODPLAIN ROUGHNING
	EX TREE
	EX TREE TO BE REMOVED
	RIPRAP TO BE REMOVED

GAS/POWER/TELEPHONE

SYMBOL EXIST.	SYMBOL CONSTRUCT	DESCRIPTION
		GAS METER
		GAS VALVE
		PAD MOUNTED TRANSFORMER
P	P	POWER VAULT
		TRANSMISSION TOWER (SCALEABLE)
		UTILITY POLE
		POWER POLE
		UTILITY POLE ANCHOR
		TELEPHONE RISER
T	T	TELEPHONE VAULT

SURVEY

SYMBOL	DESCRIPTION
	SOIL BORING
×	SPOT ELEVATION
	TAX LOT / PARCEL NUMBER

SOURCES OF TOPOGRAPHIC DATA

TOPOGRAPHY CREATED BY 3DI WEST OF EUGENE, OREGON
TOPOGRAPHY BASED UPON MARCH 2011 PHOTOGRAMMETRY (3DI WEST GEOTERRA INC.),
HORIZONTAL/VERTICAL CONTROL (MINISTER & GLAESER SURVEYING, INC. [MGS]), AIRBORNE
GPS (ORION GPS), AND GROUND AND BATHYMETRIC SURVEYS (MGS).
VERTICAL DATUM: NAVD 88, HORIZONTAL DATUM: NAD 83 / 91 (HARN)
COORDINATE SYSTEM: WASHINGTON STATE PLANE NORTH ZONE – US FEET

DRAINAGE

SYMBOL EXIST.	SYMBOL CONSTRUCT	DESCRIPTION
		STORM DRAIN CATCH BASIN
		STORM DRAIN INLET(NO CATCH)
		STORM DRAIN CULVERT
		STORM DRAIN MANHOLE
25 L.F. 12"		STORM PIPE(PROPOSED) DOUBLE LINE TO SIZE OF PIPE DIAMETER
X / X-X		STRUCTURE DETAILS NO. / CALL OUT DESIGNATION / DWG NO.

CONTRACTOR SHALL VERIFY LOCATION AND DEPTHS OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION

WATER

SYMBOL EXIST.	SYMBOL CONSTRUCT	DESCRIPTION
		GUARD POST
FIRE HYDRANTS:		
		FH
		WATER VALVE

ABBREVIATIONS

ABAND	ABANDONED
AC	ASPHALT CONCRETE
ACP	ASPHALT CONCRETE PAVEMENT
ADJ	ADJUST
APPROX.	APPROXIMATELY
AVE	AVENUE
AVG	AVERAGE
BK	BACK
℄	BASELINE
BR	BIOREVETMENT
BLDG	BUILDING
BLVD	BOULEVARD
BM	BENCH MARK
BMP	BEST MANAGEMENT PRACTICE
BRG	BEARING
BTWN	BETWEEN
CB	CATCH BASIN
CL	CLASS
℄	CENTERLINE
CMP	CORRUGATED METAL PIPE
COMPT	COMPACTED
CONC	CONCRETE
CONST	CONSTRUCTION
CSTC	CRUSHED SURFACING TOP COURSE
CY	CUBIC YARD
DIAM	DIAMETER
DIST	DISTANCE
DWG	DRAWING
DWY	DRIVEWAY
E	EAST, ELECTRICAL
EA	EACH
EL	ELEVATION
ELEC	ELECTRICAL
ELJ	ENGINEERED LOG JAM
EMB	EMBANKMENT
EP	EDGE OF PAVEMENT
EXCL	EXCLUDE
EX	EXISTING
FB	FLOODWAY BOUNDARY
FH	FIRE HYDRANT
FT OR '	FEET/FOOT
G	GAS LINE, GREEN
GALV	GALVANIZED
GB	GRADE BREAK
GR	GUARDRAIL
GRD	GROUND
GV	GAS VALVE
HORIZ	HORIZONTAL
HT	HEIGHT
HWY	HIGHWAY
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
INV	INVERT
IN	INCH
L	LENGTH OF ARC
LF	LINEAL FOOT/FEET
LT	LEFT
LUMIN	LUMINAIRE
LW	LARGE WOOD
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MON	MONUMENT
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DIVICES
N	NORTH
NO	NUMBER
NST	NOT STEEPER THAN
NTS	NOT TO SCALE
O-XING	OVERHEAD CROSSING
O.C.	ON CENTER
OD	OUTSIDE DIAMETER
OP	OVERHEAD POWER
OT	OVERHEAD TELEPHONE
P	POLE, POWER
PAVT	PAVEMENT
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVE
PED	PEDESTRIAN
PI	POINT OF INTERSECTION
℄	PROPERTY LINE
PP	POWER POLE
PRC	POINT OF REVERSE CURVE
PSI	POUND PER SQ IN
PT	POINT OF TANGENT
PVC	POLYVINYL CHLORIDE
PVCC	POINT OF VERTICAL COMPOUND CURVE
PVI	POINT OF VERTICAL INTERSECTION
PVRC	POINT OF VERTICAL REVERSE CURVE
QTY	QUANTITY
R	RADIUS
RD	ROAD
REINF	REINFORCED
REQ'D	REQUIRED
RT	RIGHT
R/W	RIGHT-OF-WAY
S	SOUTH/SLOPE
SAN	SANITARY
SCHED	SCHEDULE
SD	STORM DRAIN
SECT	SECTION
SF	SQUARE FEET/FOOT
SHLD	SHOULDER
SHT	SHEET
SJ	SHORELINE JURISDICTION
SPEC	SPECIAL
SPECS	SPECIFICATIONS
SQ	SQUARE
SR	STATE ROUTE
SS	SANITARY SEWER
ST	STREET
STA	STATION
S/W	SIDEWALK
T	TELEPHONE, TANGENT, TON
TAN	TANGENT
TBM	TEMPORARY BENCHMARK
TCE	TEMPORARY CONSTRUCTION EASEMENT
TEMP	TEMPORARY
TP	TELEPHONE POLE
TYP	TYPICAL
UD	UNDERDRAIN PIPE
U/G	UNDERGROUND
VAR	VARIES
VC	VERTICAL CURVE
VERT.	VERTICAL
W	WEST, WATER
W/	WITH
WBR	WETLAND BUFFER
WB	WETLAND BOUNDARY
WM	WATER METER
WM	WATERMAIN
W/O	WITHOUT
WV	WATER VALVE
WSE	WATER SURFACE ELEVATION
YDS	YARDS
&	AND

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60% 5-2013

NUM.	REVISION	BY	DATE

APPROVED: JEANNE STYPULA, PE	4-2013	
PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	
DESIGNED: CHRIS BRUMMER, PE	4-2013	
ECOLOGIST: SARAH McCARTHY	4-2013	
DESIGN ENTERED: LICA DULAN	4-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER — STATE OF WASHINGTON — 20695 — REGISTERED PROFESSIONAL ENGINEER

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION
LEGEND

SHEET 2 OF 69 SHEETS

GN2

CONSTRUCTION SEQUENCE NOTES:

1. CONSTRUCTION WILL BE DIVIDED INTO TWO CONSTRUCTION YEARS. THIS PLAN SET DESCRIBES THE PROJECT AS CONSTRUCTED AT COMPLETION OF CONSTRUCTION YEAR 2. THE CONSTRUCTION SEQUENCING DESCRIBED HERE WILL BE REFINED AND MODIFIED FOR THE FINAL CONSTRUCTION DRAWINGS TO MEET PERMIT REQUIREMENTS, FLOOD PROTECTION NEEDS, AND CONSTRUCTABILITY GOALS. THE CONTRACTOR SHALL SUBMIT A DETAILED CONSTRUCTION SEQUENCING PLAN MEETING PERMIT, FLOOD PROTECTION, AND CONSTRUCTABILITY REQUIREMENTS.

2. WATER MANAGEMENT METHODS SHALL BE USED TO DIVERT FLOW, ISOLATE WORK AREAS, PUMP CONSTRUCTION WATER, ESTABLISH INFILTRATION AREAS, MANAGE CONSTRUCTION WATER STORAGE AND DISCHARGE, AND AVOID IMPACTS TO WATER QUALITY. WATER PUMPED FROM EXCAVATIONS SHALL BE PUMPED TO APPROVED INFILTRATION AREAS OR ON-SITE STORAGE TANKS. AT NO TIME SHALL CONSTRUCTION WATER BE DISCHARGED TO THE WHITE RIVER, WETLANDS, OR OTHER WATER BODIES. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL SUBMIT A WORK AREA ISOLATION AND CONSTRUCTION WATER MANAGEMENT PLAN ADDRESSING SITE-SPECIFIC TECHNIQUES AND METHODS FOR EACH PHASE OF WORK THAT IS CONSISTENT WITH THE CONSTRUCTION SEQUENCING PLAN.

3. THE EXISTING LEVEE SHALL REMAIN INTACT DURING THE WINTER SEASON BETWEEN CONSTRUCTION YEARS 1 AND 2 IN ORDER TO MAINTAIN THE EXISTING LEVEL OF FLOOD PROTECTION.

4. CONSTRUCTION YEAR 1 WILL INCLUDE CONSTRUCTION OF MOST INTERIOR PROJECT ELEMENTS, INCLUDING; ACCESS ROADS, SETBACK LEVEE, BIOREVETMENT, BANK ROUGHENING STRUCTURES, ELJs, REVEGETATION OF THE WETLAND BUFFER, AND RELOCATION OF UTILITIES. WORK IN YEAR 1 MAY ALSO INCLUDE LIMITED EXCAVATION OF THE LANDWARD EDGE OF THE EXISTING LEVEE PRISM (FOR RE-USE AS BACKFILL), CONSTRUCTION OF POTENTIAL FLOODPLAIN ROUGHENING STRUCTURES, REMOVAL OF THE EXISTING CULVERT, AND DEMOLITION. CONSTRUCTION OF ELJs MAY SPAN TWO CONSTRUCTION SEASONS DUE TO IN-WATER CONSTRUCTION WORK WINDOW PERMIT REQUIREMENTS.

5. YEAR 2 CONSTRUCTION WILL INCLUDE THE COMPLETION OF ELJ AND SETBACK LEVEE CONSTRUCTION NOT COMPLETED IN YEAR 1, THE REMOVAL OF THE EXISTING LEVEE AND RIPRAP REVETMENT, CULVERT REMOVAL AND CONSTRUCTION OF THE OUTLET CHANNEL, ADDITIONAL REVEGETATION OF THE WETLAND BUFFER, AND RESTORATION ACTIVITIES NEEDED TO COMPLETE THE WORK.

EROSION AND SEDIMENTATION CONTROL NOTES:

1. THE BOUNDARIES OF WORK AREA LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED BY SURVEY TAPE OR FENCING PRIOR TO CONSTRUCTION. TREES TO BE LEFT UNDISTURBED OR SALVAGED SHALL BE TAGGED AND MARKED PRIOR TO CONSTRUCTION DURING THE CONSTRUCTION PERIOD. NO DISTURBANCE BEYOND THE WORK AREA LIMITS SHALL BE PERMITTED. THE WORK AREA SHALL BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION, INCLUDING PERIODS OF WORK STOPPAGE BETWEEN CONSTRUCTION YEARS 1 AND 2.

2. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS CONSTRUCTED WHEEL WASH SYSTEMS OR WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN AND TRACK OUT TO ROAD RIGHT OF WAY DOES NOT OCCUR FOR THE DURATION OF THE PROJECT.

3. THE EROSION AND SEDIMENTATION CONTROL FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. EROSION AND SEDIMENT CONTROL FOR IN-WATER WORK ELEMENTS INCLUDING LEVEE EXCAVATION, OUTLET CHANNEL EXCAVATION, BIOREVETMENT, FLOODPLAIN ROUGHENING, AND ELJ's WILL BE REFINED FOR THE FINAL CONSTRUCTION DRAWINGS. THESE FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND MODIFIED TO ACCOUNT FOR CHANGING SITE CONDITIONS (E.G. ADDITIONAL COVER MEASURES, RELOCATION OF DITCHES AND SILT FENCES, PERIMETER PROTECTION, ETC.) AS DIRECTED BY THE PROJECT REPRESENTATIVE.

4. ANY AREAS OF EXPOSED SOILS, INCLUDING ROADWAY EMBANKMENTS, THAT WILL NOT BE DISTURBED FOR TWO CONSECUTIVE DAYS DURING THE WET SEASON OR SEVEN (7) DAYS DURING THE DRY SEASON SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED ESC METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC.)

5. ANY AREA NEEDING ESC MEASURES THAT DO NOT REQUIRE IMMEDIATE ATTENTION SHALL BE ADDRESSED WITHIN SEVEN (7) DAYS.

6. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH DURING THE DRY SEASON, BI-MONTHLY DURING THE WET SEASON, OR WITHIN TWENTY FOUR (24) HOURS FOLLOWING A STORM EVENT.

7. COVER MEASURES WILL BE APPLIED IN CONFORMANCE WITH APPENDIX D OF THE KING COUNTY SURFACE WATER DESIGN MANUAL.

8. PRIOR TO THE BEGINNING OF THE WET SEASON (OCT. 1) ALL DISTURBED AREAS SHALL BE REVIEWED TO IDENTIFY WHICH ONES CAN BE SEEDED IN PREPARATION FOR WINTER RAINS. DISTURBED AREAS SHALL BE SEEDED WITHIN ONE WEEK OF THE BEGINNING OF THE WET SEASON. A SKETCH MAP OF THOSE AREAS TO BE SEEDED AND THOSE AREAS TO REMAIN UNCOVERED SHALL BE SUBMITTED BY THE CONTRACTOR.

CONSTRUCTION GENERAL NOTES:

1. THE WORK INCLUDES THE CONSTRUCTION OF ENGINEERED LOGJAMS (ELJs), LOG BIOREVETMENT, AND SETBACK LEVEE; THE REMOVAL OF AN EXISTING LEVEE; DEMOLITION; AND REVEGETATION. THE PROJECT ELEMENTS SHOWN ON THE PLANS ARE APPROXIMATE. ACTUAL LOCATIONS, ORIENTATION, AND DIMENSIONS WILL BE REFINED FOR FINAL CONSTRUCTION DRAWINGS BASED ON FURTHER ANALYSES, PERMIT REQUIREMENTS, AND CONSTRUCTABILITY REVIEW.

2. THE WORK SHOWN ON THE PLANS SHALL BE SEQUENCED AND PERFORMED IN A MANNER THAT MINIMIZES IMPACTS TO SURFACE WATERS, EXISTING VEGETATION, THE WORK SITE, AND ADJACENT PRIVATE PROPERTY AND PUBLIC INFRASTRUCTURE.

3. THE OWNER MAY DECIDE HOW TO SEQUENCE THE WORK. THIS PROJECT WILL BE CONSTRAINED BY AN IN-WATER WORK WINDOW SET FORTH IN THE PROJECT HPA PERMIT AND THE 404 PERMIT, OUTSIDE OF WHICH NO IN-WATER WORK MAY OCCUR.

4. THE CONTRACTOR SHALL STAKE FOR APPROVAL BY THE PROJECT REPRESENTATIVE PRIOR TO INITIATING CONSTRUCTION ACTIVITIES, THE LOCATIONS OF EACH ELJ STRUCTURE INCLUDING LENGTHS, WIDTHS, ORIENTATION, AND ELEVATIONS; TEMPORARY CONSTRUCTION ACCESS ROADS; TEMPORARY WATER MANAGEMENT FACILITIES; AND ALL GRADING/EXCAVATION EXTENTS.

5. THE CONTRACTOR SHALL STAKE CLEARING LIMITS FOR APPROVAL BY THE PROJECT REPRESENTATIVE AT LEAST 5 WORKING DAYS PRIOR TO COMMENCING CLEARING ACTIVITIES. CLEARING LIMITS FOR CONSTRUCTION SHALL BE LIMITED TO THE AREA REQUIRED FOR SAFE EQUIPMENT OPERATION AND TO MINIMIZE THE AREA OF DISTURBANCE. CLEARING LIMITS SHALL NOT BE EXPANDED UNLESS APPROVED IN WRITING BY THE OWNER OR ENGINEER.

6. TREES AND BRUSH NOT SHOWN ON THE DRAWINGS WILL BE ENCOUNTERED DURING CONSTRUCTION ACTIVITIES. THE OWNER SHALL IDENTIFY AND FLAG ALL TREES TO BE PROTECTED FROM DAMAGE PRIOR TO CONSTRUCTION. FOLLOWING CLEARING OF ALLOWED VEGETATION, THE CONTRACTOR SHALL STOCKPILE ALL TREES AND BRUSH IDENTIFIED BY THE PROJECT REPRESENTATIVE, PRIOR TO AND DURING CONSTRUCTION ACTIVITIES, FOR USE AS RACKING AND SLASH MATERIALS IN THE ELJ STRUCTURES, FOR USE IN AREAS AS SHOWN ON THE DRAWINGS, AND AS DIRECTED BY THE OWNER OR ENGINEER TO CREATE ROUGH FINISHED GRADED SURFACES. CERTAIN VEGETATION MAY BE FLAGGED BY THE PROJECT REPRESENTATIVE FOR SALVAGE, AND CARE SHALL BE TAKEN TO PROTECT THOSE PLANTS FROM DISTURBANCE DURING CONSTRUCTION. NOXIOUS WEEDS AND OTHER VEGETATION UNSUITABLE FOR SALVAGE AND REUSE SHALL BE SEGREGATED AS DIRECTED BY THE PROJECT REPRESENTATIVE AND HAULED OFF-SITE FOR PROPER DISPOSAL.

7. ALTERATION OR DISTURBANCE OF THE CHANNEL, FLOODPLAIN, AND ANY BANK AND FLOODPLAIN VEGETATION SHALL BE MINIMIZED TO THAT NECESSARY TO CONSTRUCT THE PROJECT. THE CONTRACTOR SHALL KEEP DISTURBED AREAS WITHIN THE WORK AREA LIMITS SHOWN ON THE DRAWINGS, AND SHALL NOT EXTEND THESE LIMITS UNLESS APPROVED BY THE PROJECT REPRESENTATIVE.

8. THE CONTRACTOR SHALL PROVIDE 24 HOURS ADVANCE NOTICE TO THE PROJECT REPRESENTATIVE PRIOR TO ANY REQUIRED INSPECTION.

9. CONSTRUCTION MATERIAL AND EQUIPMENT STAGING AREAS SHALL BE LOCATED AS SHOWN OR DESCRIBED ON THE DRAWINGS. CONSTRUCTION MATERIALS AND EQUIPMENT SHALL NOT BE STORED OUTSIDE OF IDENTIFIED STAGING AREAS UNLESS APPROVED BY THE PROJECT REPRESENTATIVE. THE CONTRACTOR SHALL PROTECT ALL CONSTRUCTION MATERIALS AND EQUIPMENT FROM DAMAGE AT ALL TIMES

10. NO EQUIPMENT SHALL BE STORED AT ANY TIME BELOW THE ORDINARY HIGH WATER (OHW) LINE.

11. EQUIPMENT USED FOR THIS PROJECT SHALL BE FREE OF EXTERNAL PETROLEUM-BASED PRODUCTS WHILE WORKING NEAR ANY SURFACE WATER OR WETLANDS. ACCUMULATION OF SOILS OR DEBRIS SHALL BE REMOVED FROM THE DRIVE MECHANISMS (WHEELS, TRACKS, TIRES, ETC.) AND UNDERCARRIAGE OF EQUIPMENT PRIOR TO ITS WORKING BELOW THE OHW LINE.

12. ALL EQUIPMENT OPERATING IN AREAS OTHER THAN EXISTING UNIMPROVED ACCESS ROADS SHALL USE ONLY BIODEGRADABLE, VEGETABLE-BASED HYDRAULIC FLUIDS OR APPROVED OTHER.

13. EQUIPMENT SHALL BE CHECKED AT THE BEGINNING OF EACH WORK SHIFT FOR LEAKS, AND ANY NECESSARY REPAIRS SHALL BE COMPLETED PRIOR TO COMMENCING WORK ACTIVITIES.

14. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT NO PETROLEUM PRODUCTS, HYDRAULIC FLUID, SEDIMENTS, SEDIMENT-LADEN WATER, CHEMICALS, OR ANY OTHER TOXIC OR DELETERIOUS MATERIALS ARE ALLOWED TO ENTER OR LEACH FROM EQUIPMENT OR SUPPLIES USED DURING CONSTRUCTION INTO THE PROJECT SITE OR ADJACENT WETLANDS AND OTHER ENVIRONMENTALLY SENSITIVE AREAS.

15. CONTRACTOR SHALL LIMIT MACHINERY MOVEMENT TO THE PROJECT CONSTRUCTION LIMITS DEFINED ON THE DRAWINGS OR IDENTIFIED AS ACCEPTABLE BY THE PROJECT REPRESENTATIVE.

16. IF AT ANY TIME, AS A RESULT OF PROJECT ACTIVITIES, FISH ARE OBSERVED IN DISTRESS, A FISH KILL OCCURS, OR WATER QUALITY PROBLEMS DEVELOP (INCLUDING EQUIPMENT LEAKS OR SPILLS), OPERATIONS SHALL CEASE AND THE OWNER SHALL BE NOTIFIED IMMEDIATELY. WASHINGTON DEPARTMENT OF FISH AND WILDLIFE AND WASHINGTON STATE DEPARTMENT OF ECOLOGY SHALL BE CONTACTED IMMEDIATELY BY THE PROJECT REPRESENTATIVE. WORK SHALL NOT RESUME UNTIL FURTHER APPROVAL BY THE OWNER.

17. WOOD MATERIAL USED FOR CONSTRUCTING ELJs, THE BIOREVETMENT, AND FLOODPLAIN ROUGHING STRUCTURES SHALL BE DECKED IN THE STAGING AREAS FOR INSPECTION BY THE PROJECT REPRESENTATIVE AND ORGANIZED BY LOG TYPE, DIAMETER AND LENGTH. LOG TYPE IDENTIFICATION SHALL BE PAINTED ON ALL LOGS WITH LEAD-FREE, BLAZE-ORANGE SURVEY MARKING PAINT AND BE VISIBLE FOR INSPECTION BY THE PROJECT REPRESENTATIVE PRIOR TO PLACEMENT WITHIN THE ENGINEERED LOG STRUCTURES.

FIELD BOOK: _____
SURVEYED: _____
SURVEY BASE MAP: _____
CHECKED: _____

NUM.	REVISION	BY	DATE
	CADD / 60% 5-2013		

APPROVED: JEANNE STYPULA, PE	4-2013	
PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	
DESIGNED: CHRIS BRUMMER, PE	4-2013	
ECOLOGIST: SARAH McCARTHY	4-2013	
DESIGN ENTERED: LICA DULAN	4-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER, STATE OF WASHINGTON, 21693, REGISTERED PROFESSIONAL ENGINEER

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION
CONSTRUCTION NOTES

SHEET 3 OF 69 SHEETS

GN3

DEWATERING NOTES:

1. THE DEWATERING PLAN AND NOTES WILL BE DEVELOPED FOR THE FINAL CONSTRUCTION PLANS TO MEET LOCAL, STATE, AND FEDERAL PERMIT REQUIREMENTS.

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

NUM.	REVISION	BY	DATE
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APPROVED: JEANNE STYPULA, PE	4-2013
PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013
DESIGNED: CHRIS BRUMMER, PE	4-2013
ECOLOGIST: SARAH McCARTHY	4-2013
DESIGN ENTERED: LICA DULAN	4-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

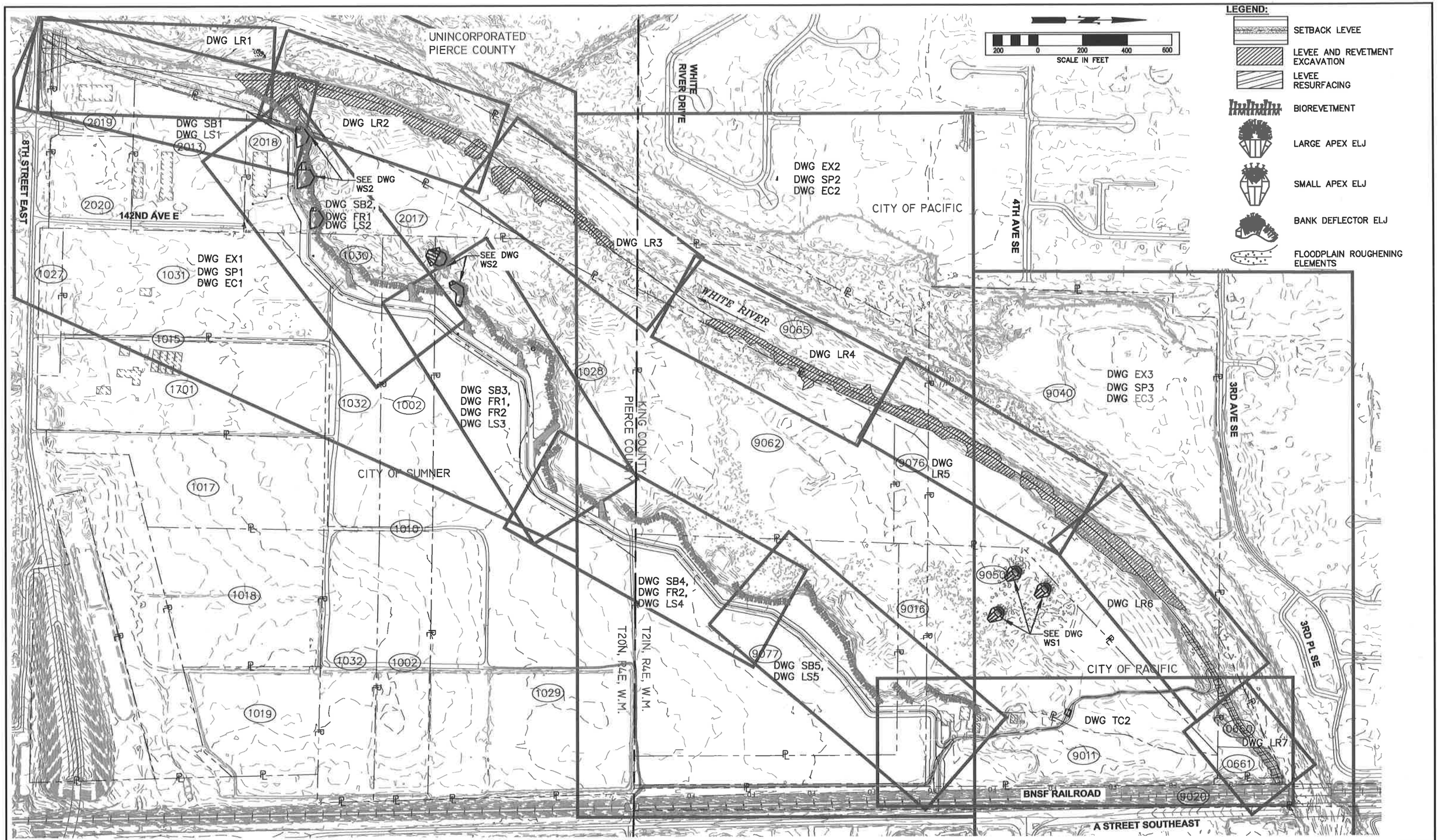
CHRISTOPHER JON BRUMMER — STATE OF WASHINGTON — 43665 — REGISTERED PROFESSIONAL ENGINEER

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION
CONSTRUCTION NOTES

SHEET 4 OF 69 SHEETS

GN4



FIELD BOOK:		NUM.	REVISION	BY	DATE	APPROVED: JEANNE STYPULA, PE	4-2013
SURVEYED:			CADD / 60% 5-2013			PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013
SURVEY BASE MAP:						DESIGNED: CHRIS BRUMMER, PE	4-2013
CHECKED:						ECOLOGIST: SARAH McCARTHY	4-2013
						DESIGN ENTERED: LICA DULAN	4-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER, STATE OF WASHINGTON, 20855, REGISTERED PROFESSIONAL ENGINEER

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK WHITE RIVER, RIVER MILE 5.00-6.33 LEVEE MODIFICATION

KEY SHEET

SHEET 5 OF 69 SHEETS

GN5

SURVEY CONTROL POINTS			
POINT NO.	NORTHING	EASTING	ELEVATION NAVD 88
101	94753.09	1290359.02	71.87
102	95085.99	1290417.75	71.23
103	95940.04	1290511.43	71.22

NOTES:
1. CONTROL POINTS SHOWN ARE EXISTING REBAR OR BRASS CAPS.
2. EXISTING UTILITIES ARE SHOWN ON T.E.S.C. PLAN (SHEET ED1).

LEGEND:
- NHC CONTROL
- MGS CONTROL
- PIERCE CO. CONTROL
- (9050) PARCEL NUMBER
- SOIL BORING

UNINCORPORATED PIERCE COUNTY

BUTTE AVENUE

FLOODPLAIN BOUNDARY PER 2005 PIERCE COUNTY PDFIRM

WHITE RIVER

GOVERNMENT CANAL

EXISTING 18" CULVERT AND FORD IN ROAD

EXISTING REVETMENT

NHC

POINT 103

WETLAND BOUNDARY

POINT 101

PIERCE CO. 1

200' SHORELINE JURISDICTION

MGS

POINT 102

CENTERLINE OF EXISTING ACCESS ROAD

EXISTING GATED ACCESS

FLOODPLAIN BOUNDARY PER 2005 PIERCE COUNTY PDFIRM

APPROXIMATE EDGE OF OPEN WATER

MATCHLINE - SEE SHEET EX2

6TH STREET EAST

142ND AVE E

125' WETLAND BUFFER

WETLAND BOUNDARY AND SHORELINE JURISDICTION

FLOODPLAIN BOUNDARY PER FEMA 1987 FLOOD STUDY

CITY OF SUMNER

SCALE IN FEET: 100 0 100 200 300

FIELD BOOK:				APPROVED: JEANNE STYPULA, PE	4-2013	SRFB # RCO 087-1910C	
SURVEYED:				PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	PROJECT No. 1112049 (FL9001)	
SURVEY BASE MAP:				DESIGNED: CHRIS BRUMMER, PE	4-2013		
CHECKED:				ECOLOGIST: SARAH McCARTHY	4-2013		
				DESIGN ENTERED: LICA DULAN	4-2013		
	NUM.	REVISION	BY	DATE			

CADD / 60% 5-2013

CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 19093 REGISTERED PROFESSIONAL ENGINEER

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

EXISTING SITE PLAN AND SURVEY CONTROL

SHEET 6 OF 69 SHEETS

EX1

SURVEY CONTROL POINTS			
POINT NO.	NORTHING	EASTING	ELEVATION NAVD 88
104	97163.27	1291291.81	75.31
105	98263.57	1291893.97	82.09

NOTES:
1. CONTROL POINTS SHOWN ARE EXISTING REBAR OR BRASS CAPS.

LEGEND:

- NHC CONTROL
- MGS CONTROL
- PIERCE CO. CONTROL
- (9050) PARCEL NUMBER
- SOIL BORING

MATCHLINE - SEE SHEET EX1

CITY OF PACIFIC
WHITE RIVER
EXISTING LEVEE
COE
POINT 105
POINT 104
NHC
CENTERLINE OF EXISTING ACCESS ROAD
WETLAND BOUNDARY
APPROX. EDGE OF OPEN WATER
APPROX. EDGE OF OPEN WATER
SHORELINE JURISDICTION
50' WETLAND BUFFER
EXISTING CRUSHED SURFACE ACCESS ROAD
SHORELINE JURISDICTION
WETLAND BOUNDARY AND SHORELINE JURISDICTION
FLOODPLAIN BOUNDARY PER KC 2009 DRAFT STUDY
SHORELINE JURISDICTION
EXISTING CRUSHED SURFACE ACCESS ROAD
FLOODPLAIN BOUNDARY PER FEMA 1987 FLOOD STUDY
125' WETLAND BUFFER
UNDERPASS DRIVEWAY
BNSF RAILROAD
CITY OF PACIFIC
KING COUNTY
PIERCE COUNTY
CITY OF SUMNER
T21N, R4E, W.M.
20N, R4E, W.M.
9060
9076
9016
9065
9062
9077
1028
1029
B1
B2
B10
B12
SCALE IN FEET

MATCHLINE - SEE SHEET EX3

NUM.	REVISION	BY	DATE
	CADD / 60%		5-2013

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

APPROVED: JEANNE STYPULA, PE	4-2013	
PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	
DESIGNED: CHRIS BRUMMER, PE	4-2013	
ECOLOGIST: SARAH McCARTHY	4-2013	
DESIGN ENTERED: LICA DULAN	4-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 19993 REGISTERED PROFESSIONAL ENGINEER

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

EXISTING SITE PLAN AND SURVEY CONTROL

SHEET 7 OF 69 SHEETS

EX2

SURVEY CONTROL POINTS			
POINT NO.	NORTHING	EASTING	ELEVATION NAVD 88
106	99547.48	1292845.85	91.19
107	99737.58	1293173.80	89.56

NOTES:
1. CONTROL POINTS SHOWN ARE EXISTING REBAR OR BRASS CAPS.

LEGEND:

- NHC CONTROL
- MGS CONTROL
- FLOW DIRECTION
- (9050) PARCEL NUMBER
- SOIL BORING

FLOODPLAIN BOUNDARY PER 2009 KC FLOOD STUDY

3RD PL SE

3RD AVE SE

CITY OF AUBURN

CITY OF PACIFIC

MGS

POINT 107

POINT 106

NHC

APPROX. EDGE OF OPEN WATER

STREAM A

WETLAND BOUNDARY AND SHORELINE JURISDICTION

A STREET SE

BNSF RAILROAD

WHITE RIVER

CENTERLINE OF EXISTING ACCESS ROAD

WETLAND BOUNDARY

EXISTING FOOT TRAIL

SHORELINE JURISDICTION

ORAVETZ ROAD

EXISTING LEVEE

9040 9050 9011 0660 0661

MATCHLINE - SEE SHEET EX2

100 0 100 200 300
SCALE IN FEET

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

NUM.	REVISION	BY	DATE
	CADD / 60% 5-2013		

APPROVED: JEANNE STYPULA, PE	4-2013	
PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	
DESIGNED: CHRIS BRUMMER, PE	4-2013	
ECOLOGIST: SARAH McCARTHY	4-2013	
DESIGN ENTERED: LICA DULAN	4-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 20693 REGISTERED PROFESSIONAL ENGINEER

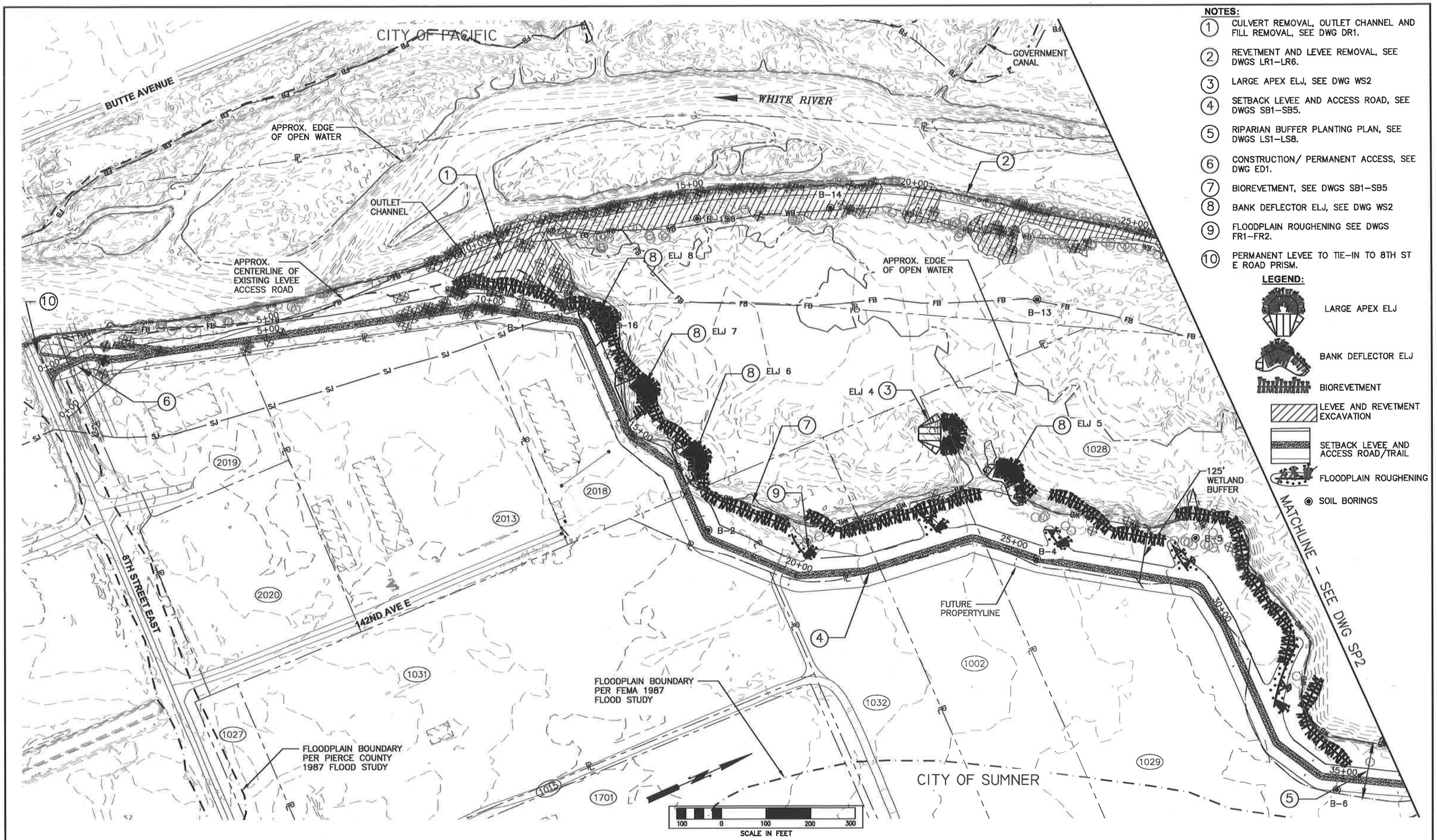
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

EXISTING SITE PLAN AND SURVEY CONTROL

SHEET 8 OF 69 SHEETS

EX3



NOTES:

1. CULVERT REMOVAL, OUTLET CHANNEL AND FILL REMOVAL, SEE DWG DR1.
2. REVETMENT AND LEVEE REMOVAL, SEE DWGS LR1–LR6.
3. LARGE APEX ELJ, SEE DWG WS2
4. SETBACK LEVEE AND ACCESS ROAD, SEE DWGS SB1–SB5.
5. RIPARIAN BUFFER PLANTING PLAN, SEE DWGS LS1–LS8.
6. CONSTRUCTION/ PERMANENT ACCESS, SEE DWG ED1.
7. BIOREVETMENT, SEE DWGS SB1–SB5
8. BANK DEFLECTOR ELJ, SEE DWG WS2
9. FLOODPLAIN ROUGHENING SEE DWGS FR1–FR2.
10. PERMANENT LEVEE TO TIE–IN TO 8TH ST E ROAD PRISM.

LEGEND:

- LARGE APEX ELJ
- BANK DEFLECTOR ELJ
- BIOREVETMENT
- LEVEE AND REVETMENT EXCAVATION
- SETBACK LEVEE AND ACCESS ROAD/TRAIL
- FLOODPLAIN ROUGHENING
- SOIL BORINGS

FIELD BOOK: _____
SURVEYED: _____
SURVEY BASE MAP: _____
CHECKED: _____

CADD / 60% 5-2013

NUM.	REVISION	BY	DATE

APPROVED: JEANNE STYPULA, PE	4-2013	
PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	
DESIGNED: CHRIS BRUMMER, PE	4-2013	
ECOLOGIST: SARAH McCARTHY	4-2013	
DESIGN ENTERED: LICA DULAN	4-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER — STATE OF WASHINGTON — 19985 — REGISTERED PROFESSIONAL ENGINEER

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

PROPOSED SITE PLAN

SHEET 9 OF 69 SHEETS

SP1

NOTES:

1. REVETMENT AND LEVEE REMOVAL, SEE SHEETS LR1–LR6.
2. SETBACK LEVEE AND ACCESS ROAD, SEE SHEETS SB1–SB5.
3. RIPARIAN BUFFER PLANTING PLAN, SEE SHEETS LS1–LS8.
4. BIOREVETMENT, SEE SHEETS SB1–SB5.
5. CONSTRUCTION/ PERMANENT ACCESS, SEE SHEET ED1.
6. TEMPORARY CONSTRUCTION ACCESS ROAD.
7. PROPOSED PERMANENT ACCESS ROAD.
8. SETBACK LEVEE TIE–IN AT BNSF RR, SEE SHEET SD4.
9. FLOODPLAIN ROUGHENING, SEE SHEETS FR1–FR2.

LEGEND:

- BIOREVETMENT
- LEVEE AND REVETMENT EXCAVATION
- SETBACK LEVEE
- FLOODPLAIN ROUGHENING
- SOIL BORINGS

MATCHLINE - SEE SHEET SP3

WHITE RIVER

APPROX. EDGE OF OPEN WATER

APPROX. EDGE OF OPEN WATER

REMOVE BUILDINGS

FUTURE PROPERTY LINE

50' WETLAND BUFFER

BNSF RAILROAD

CITY OF PACIFIC

CENTERLINE OF EXISTING ACCESS ROAD

KING COUNTY
PIERCE COUNTY

CITY OF SUMNER

T21N, R4E, W.M.
T20N, R4E, W.M.

SCALE IN FEET
100 0 100 200 300

MATCHLINE - SEE SHEET SP1

FIELD BOOK:	NUM.	REVISION	BY	DATE	APPROVED: JEANNE STYPULA, PE	4–2013	SRFB # RCO 087–1910C
SURVEYED:		CADD / 60% 5–2013			PROJECT MANAGER: CHRIS BRUMMER, PE	4–2013	PROJECT No. 1112049 (FL9001)
SURVEY BASE MAP:					DESIGNED: CHRIS BRUMMER, PE	4–2013	
CHECKED:					ECOLOGIST: SARAH McCARTHY	4–2013	
					DESIGN ENTERED: LICA DULAN	4–2013	

CHRISTOPHER JON BRUMMER — STATE OF WASHINGTON — 40995 — REGISTERED PROFESSIONAL ENGINEER

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

PROPOSED SITE PLAN

SHEET 10 OF 69 SHEETS

SP2

NOTES:

1. REVETMENT AND LEVEE REMOVAL, SEE SHEETS LR1–LR6.
2. SMALL APEX ELJ (TYP.), SEE SHEET WS1
3. AT–GRADE PERMANENT LEVEE ACCESS ROAD, SEE SHEET TC2.
4. EXISTING LEVEE TO REMAIN.
5. BIOREVETMENT, SEE SHEETS SB1–SB5

LEGEND:

- SMALL APEX ELJ
- BIOREVETMENT
- LEVEE AND REVETMENT EXCAVATION
- SOIL BORINGS

FLOODPLAIN BOUNDARY PER 2009 KC FLOOD STUDY

3RD PL SE

EXISTING TREE SURVEY TO BE PROVIDED AT 90% DESIGN

3RD AVE SE

CITY OF AUBURN

FLOODPLAIN BOUNDARY PER 2009 KING COUNTY FLOOD STUDY

CITY OF PACIFIC

WHITE RIVER

APPROX. EDGE OF OPEN WATER

ELJ–1

ELJ–2

ELJ 3

IMPROVE EXISTING AT–GRADE ACCESS ROAD

TEMPORARY CONSTRUCTION ACCESS, SEE EC3

REMOVE BUILDINGS

BNSF RAILROAD

A STREET SE

FLOODPLAIN BOUNDARY PER 2009 KC FLOOD STUDY

ORAVETZ ROAD

SCALE IN FEET: 100 0 100 200 300

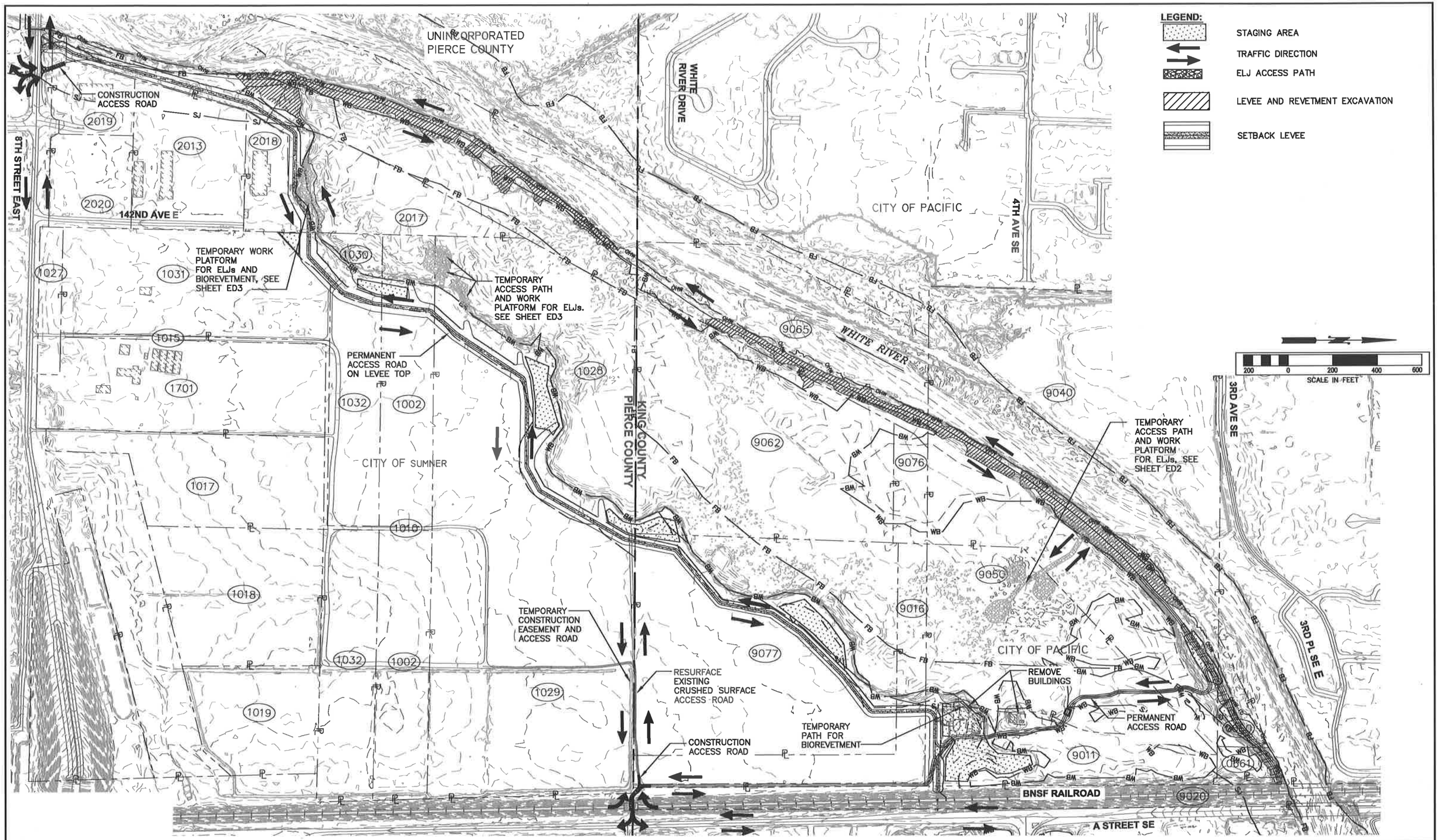
MATCHLINE - SEE SHEET SP2

APPROVED: JEANNE STYPULA, PE	4–2013	SRFB # RCO 087–1910C	King County Department of Natural Resources and Parks Water and Land Resources Division **River and Floodplain Management Section** *Christie True, Director*	COUNTYLINE LEVEE SETBACK WHITE RIVER, RIVER MILE 5.00–6.33 LEVEE MODIFICATION PROPOSED SITE PLAN	SHEET 11 OF 69 SHEETS SP3
PROJECT MANAGER: CHRIS BRUMMER, PE	4–2013	PROJECT No. 1112049 (FL9001)			
DESIGNED: CHRIS BRUMMER, PE	4–2013				
ECOLOGIST: SARAH McCARTHY	4–2013				
DESIGN ENTERED: LICA DULAN	4–2013				

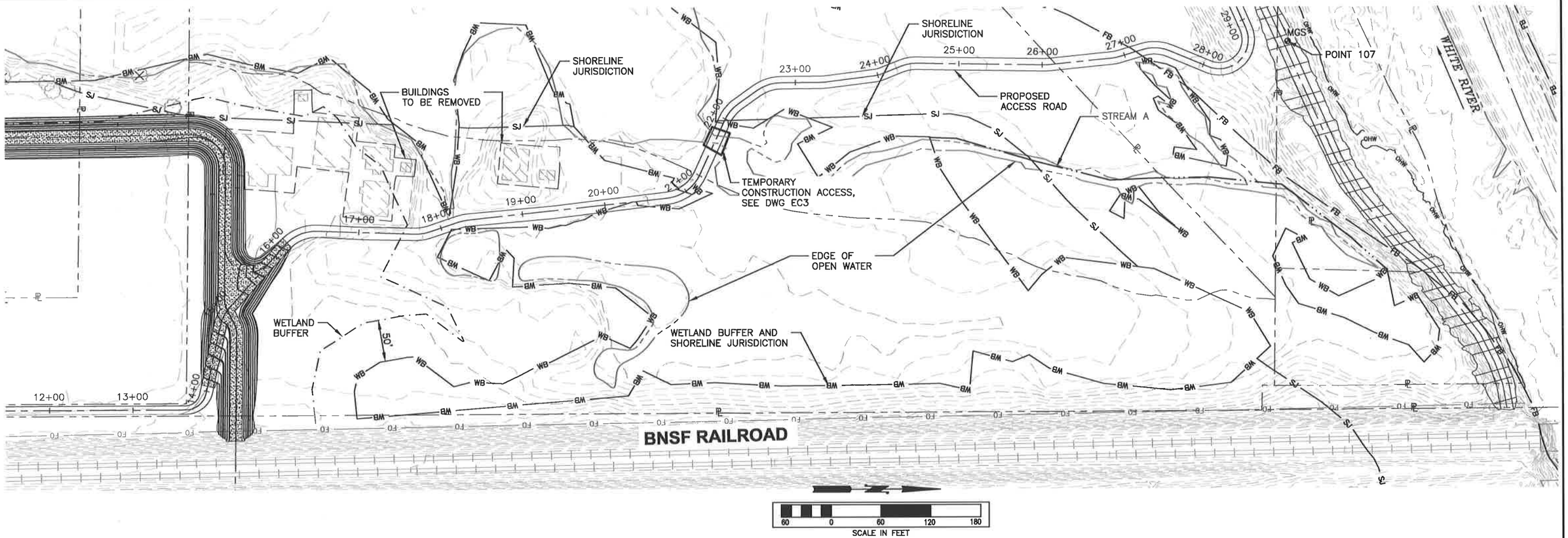
FIELD BOOK: _____
SURVEYED: _____
SURVEY BASE MAP: _____
CHECKED: _____

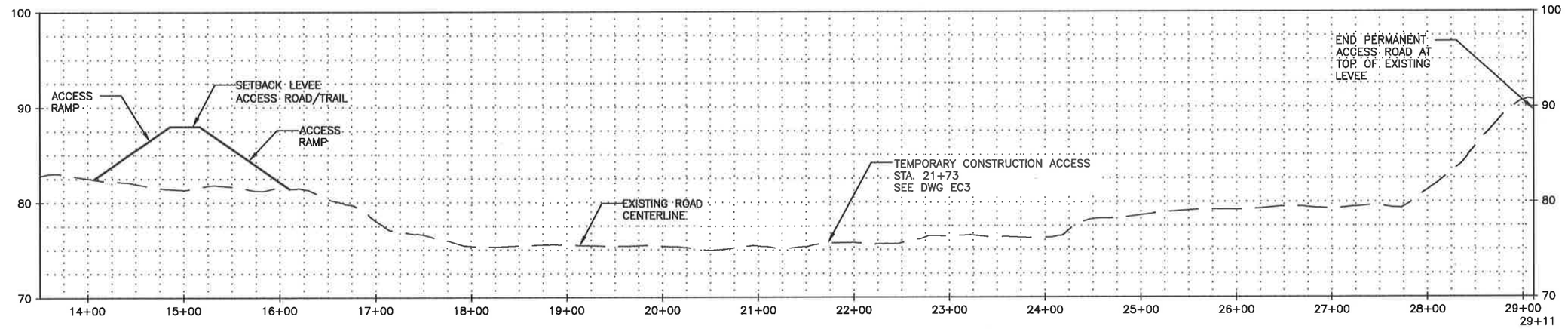
CADD / 60% 5–2013

NUM.	REVISION	BY	DATE



FIELD BOOK:		NUM.	REVISION	BY	DATE	APPROVED: JEANNE STYPULA, PE	4-2013	SRFB # RCO 087-1910C		King County Department of Natural Resources and Parks Water and Land Resources Division **River and Floodplain Management Section** *Christie True, Director*	COUNTYLINE LEVEE SETBACK WHITE RIVER, RIVER MILE 5.00-6.33 LEVEE MODIFICATION TRAFFIC, ACCESS AND STAGING PLAN	SHEET 12 OF 69 SHEETS TC1
SURVEYED:						PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	PROJECT No. 1112049 (FL9001)	CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 20695 REGISTERED PROFESSIONAL ENGINEER			
SURVEY BASE MAP:						DESIGNED: CHRIS BRUMMER, PE	4-2013					
CHECKED:						ECOLOGIST: SARAH McCARTHY	4-2013					
			CADD / 60% 5-2013			DESIGN ENTERED: LICA DULAN	4-2013					





FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60% 5-2013

NUM.	REVISION	BY	DATE

APPROVED: JEANNE STYPULA, PE	4-2013	
PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	
DESIGNED: CHRIS BRUMMER, PE	4-2013	
ECOLOGIST: SARAH McCARTHY	4-2013	
DESIGN ENTERED: LICA DULAN	4-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 40995 REGISTERED PROFESSIONAL ENGINEER

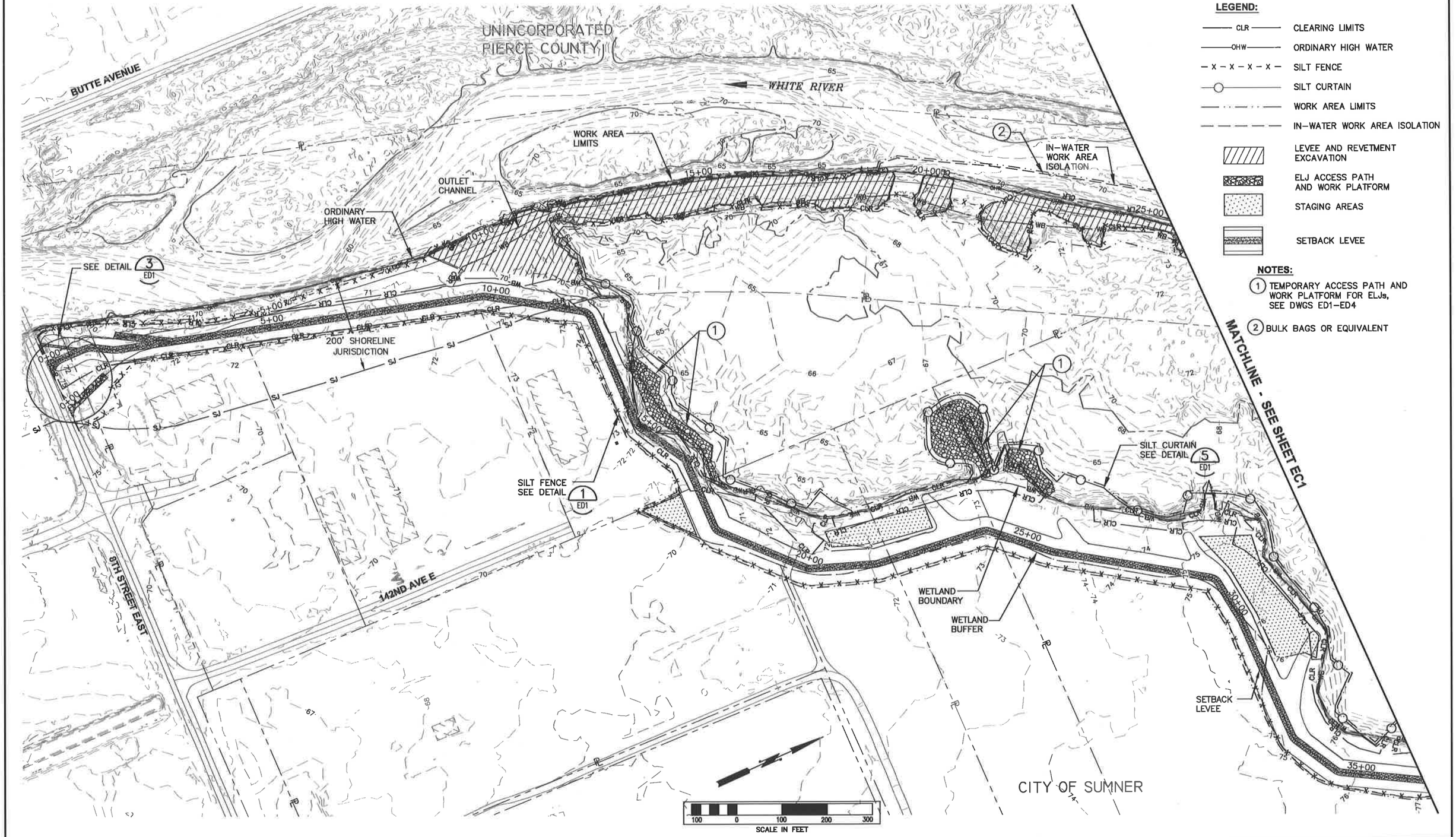
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK WHITE RIVER, RIVER MILE 5.00-6.33 LEVEE MODIFICATION

NORTH PERMANENT ACCESS PLAN, TYPICAL SECTIONS AND DETAILS

SHEET 13 OF 69 SHEETS

TC2



LEGEND:

- CLR — CLEARING LIMITS
- OHW — ORDINARY HIGH WATER
- SILT FENCE
- SILT CURTAIN
- WORK AREA LIMITS
- IN-WATER WORK AREA ISOLATION
- LEVEE AND REVETMENT EXCAVATION
- ELJ ACCESS PATH AND WORK PLATFORM
- STAGING AREAS
- SETBACK LEVEE

NOTES:

1. TEMPORARY ACCESS PATH AND WORK PLATFORM FOR ELJs, SEE DWGS ED1–ED4
2. BULK BAGS OR EQUIVALENT

FIELD BOOK:	APPROVED: JEANNE STYPULA, PE	4–2013	SRFB # RCO 087–1910C	King County Department of Natural Resources and Parks Water and Land Resources Division **River and Floodplain Management Section** *Christie True, Director*	COUNTYLINE LEVEE SETBACK WHITE RIVER, RIVER MILE 5.00–6.33 LEVEE MODIFICATION T.E.S.C. PLAN	SHEET 14 OF 69 SHEETS EC1
SURVEYED:	PROJECT MANAGER: CHRIS BRUMMER, PE	4–2013				
SURVEY BASE MAP:	DESIGNED: CHRIS BRUMMER, PE	4–2013	PROJECT No. 1112049 (FL9001)			
CHECKED:	ECOLOGIST: SARAH McCARTHY	4–2013				
CADD / 60% 5-2013	DESIGN ENTERED: LICA DULAN	4–2013				
NUM. REVISION BY DATE						

LEGEND:

- CLR — CLEARING LIMITS
- OHW — OHW
- SILT FENCE
- SILT CURTAIN
- WORK AREA LIMITS
- IN–WATER WORK AREA ISOLATION
- LEVEE AND REVETMENT EXCAVATION
- ELJ ACCESS PATH AND WORK PLATFORM
- STAGING AREAS
- SETBACK LEVEE

NOTES:

(1) BULK BAGS OR EQUIVALENT

MATCHLINE - SEE SHEET EC3

CONSTRUCTION DEWATERING INFILTRATION AREAS

CLEARING LIMITS

ORDINARY HIGH WATER

WHITE RIVER

CITY OF PACIFIC

CITY OF PACIFIC

WORK AREA LIMITS

SHORELINE JURISDICTION

WETLAND BOUNDARY

50' WETLAND BUFFER

WETLAND BOUNDARY AND SHORELINE JURISDICTION

SILT FENCE SEE DETAIL 1 ED1

4 ED1 SEE DETAIL

SCALE IN FEET 100 0 100 200 300

WHITE RIVER DRIVE

IN–WATER WORK AREA ISOLATION

KING COUNTY

PIERCE COUNTY

CITY OF SUMNER

T21N, R4E, W.M.

T20N, R4E, W.M.

MATCHLINE - SEE SHEET EC1

FIELD BOOK:				APPROVED: JEANNE STYPULA, PE	4–2013	SRFB # RCO 087–1910C	CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 10995 REGISTERED PROFESSIONAL ENGINEER		SHEET 15 OF 69 SHEETS
SURVEYED:				PROJECT MANAGER: CHRIS BRUMMER, PE	4–2013	PROJECT No. 1112049 (FL9001)		King County Department of Natural Resources and Parks Water and Land Resources Division River and Floodplain Management Section *Christie True, Director*	COUNTYLINE LEVEE SETBACK WHITE RIVER, RIVER MILE 5.00–6.33 LEVEE MODIFICATION
SURVEY BASE MAP:				DESIGNED: CHRIS BRUMMER, PE	4–2013				T.E.S.C. PLAN
CHECKED:				ECOLOGIST: SARAH McCARTHY	4–2013				EC2
		CADD / 60% 5–2013 EC1		DESIGN ENTERED: LICA DULAN	4–2013				
		NUM.	REVISION	BY	DATE				

LEGEND:

- CLR — CLEARING LIMITS
- OHW — ORDINARY HIGH WATER
- X – X – X – X — SILT FENCE
- WORK AREA LIMITS
- IN–WATER WORK AREA ISOLATION
- LEVEE AND REVETMENT EXCAVATION
- ELJ ACCESS PATH AND WORK PLATFORM
- STAGING AREAS

NOTES:

1. TEMPORARY ACCESS PATH AND WORK PLATFORM FOR ELJs, SEE SHEETS ED1–ED2
2. BULK BAGS OR EQUIVALENT

3RD PL SE
3RD AVE SE
CITY OF AUBURN
CITY OF PACIFIC
WHITE RIVER
ORDINARY HIGH WATER
A STREET SE
BNSF RAILROAD
ORAVETZ ROAD
SILT FENCE SEE DETAIL 1/ED1
CONSTRUCT TEMPORARY CONSTRUCTION ACCESS
CONSTRUCTION DEWATERING INFILTRATION AREAS
IN–WATER WORK AREA ISOLATION
WETLAND BOUNDARY
TEMP ACCESS PATH SEE DETAIL 6/ED1

MATCHLINE - SEE SHEET EC2

SCALE IN FEET: 100 0 100 200 300

FIELD BOOK: _____
SURVEYED: _____
SURVEY BASE MAP: _____
CHECKED: _____

CADD / 60% 5-2013

NUM.	REVISION	BY	DATE

APPROVED: JEANNE STYPULA, PE	4–2013
PROJECT MANAGER: CHRIS BRUMMER, PE	4–2013
DESIGNED: CHRIS BRUMMER, PE	4–2013
ECOLOGIST: SARAH McCARTHY	4–2013
DESIGN ENTERED: LICA DULAN	4–2013

SRFB # RCO 087–1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER — STATE OF WASHINGTON — 40695 — REGISTERED PROFESSIONAL ENGINEER

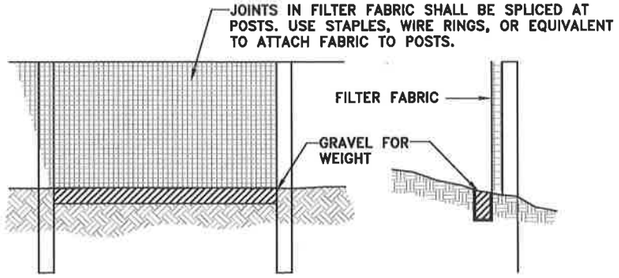
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

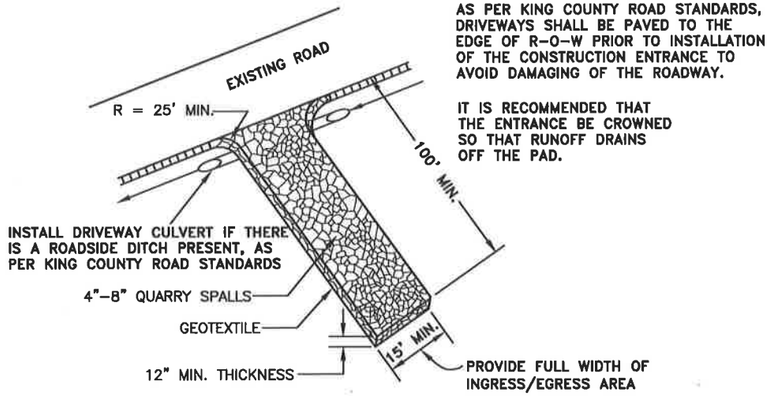
T.E.S.C. PLAN

SHEET 16 OF 69 SHEETS

EC3



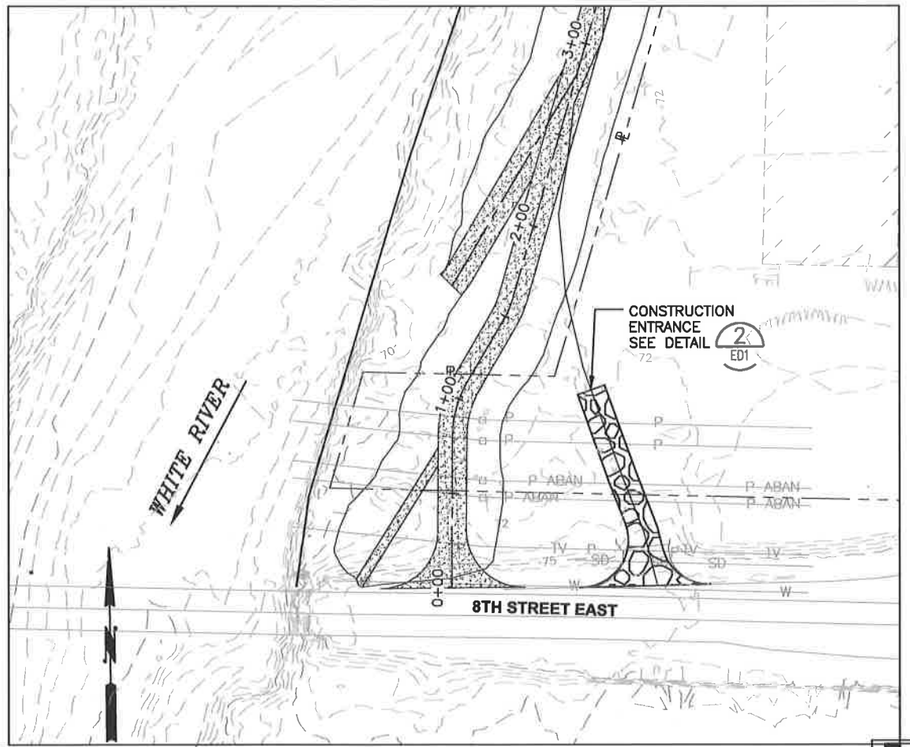
WEIGHTED SILT FENCE — NTS — 1 EC1–EC3



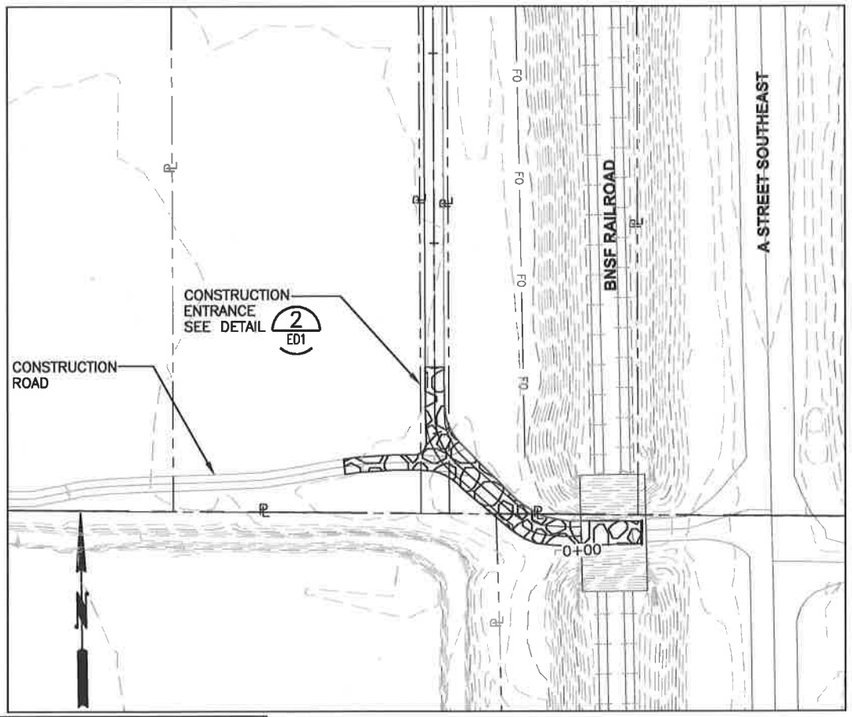
STABILIZED CONSTRUCTION ENTRANCE — NTS — 2 SP1,SP2

NOTES FOR TEMPORARY ACCESS PATH TO ELJs

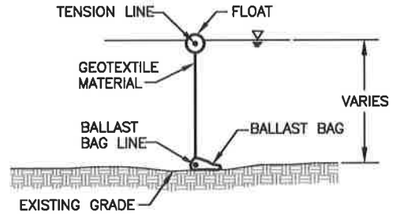
1. CLEARED ACCESS PATH TO BE ROUTED TO MINIMIZE VEGETATION DISTURBANCE AND FOREST CLEARING.
2. CONTRACTOR SHALL MARK CLEARING LIMITS WITH FLAGGING. CLEARING LIMITS TO BE APPROVED BY ENGINEER OR OWNER PRIOR TO ANY CLEARING ACTIVITIES.
3. NO STANDING TREES GREATER THAN 4 INCHES DIAMETER AT BREAST HEIGHT SHALL BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.
4. TREES WITH MARKED FOR REUSE CLEARED FOR ACCESS PATH CONSTRUCTION SHALL BE STOCKPILED FOR USE AS RACKING IN ELJ CONSTRUCTION. SHRUBS CLEARED FOR ACCESS PATH CONSTRUCTION SHALL BE STOCKPILED FOR USE AS SLASH IN ELJ CONSTRUCTION.
5. ACCESS PATH SHALL BE MAINTAINED BY MINOR GRADING AND IMPORTATION OF ALLUVIUM FROM THE EXIST LEVEE AS NECESSARY, OR AS DIRECTED BY THE ENGINEER. NON–NATIVE ANGULAR ROCK IS NOT ALLOWED TO BE PLACED ON TEMPORARY ACCESS PATHS.
6. CLEARED ACCESS PATH SHALL BE DECOMPACTED AT THE TERMINATION OF WORK.
7. ALL VEGETATION CLEARED FOR ACCESS PATH AND ELJ CONSTRUCTION THAT IS NOT USED IN THE ELJs SHALL BE PLACED ON THE DECOMPACTED PATH AND OTHER DISTURBED AREAS AS DIRECTED BY THE ENGINEER.
8. SOIL REMOVED AS PART OF ACCESS PATH CONSTRUCTION SHALL BE STOCKPILED AND THEN SPREAD BACK ONTO TEMPORARY ACCESS PATH ALIGNMENT FOLLOWING COMPLETION OF WORK. EXISTING GRADE OF ACCESS PATH SHALL BE RESTORED AS PART OF WORK TO REMOVE ACCESS PATH.

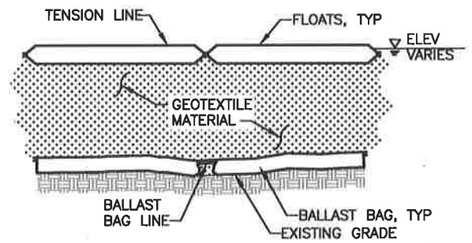


CONSTRUCTION ACCESS FROM 8TH ST E — 3 EC1

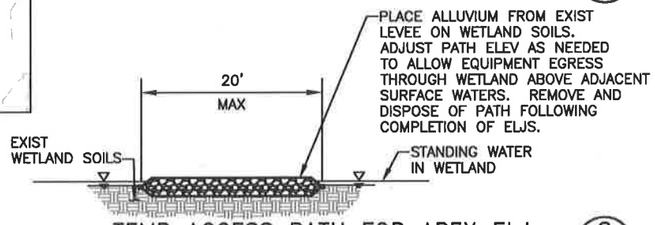


CONSTRUCTION ACCESS FROM A ST SE — 4 EC2





SILT CURTAIN — NTS — 5 EC1



TEMP ACCESS PATH FOR APEX ELJ — NTS — 6 EC1, EC3

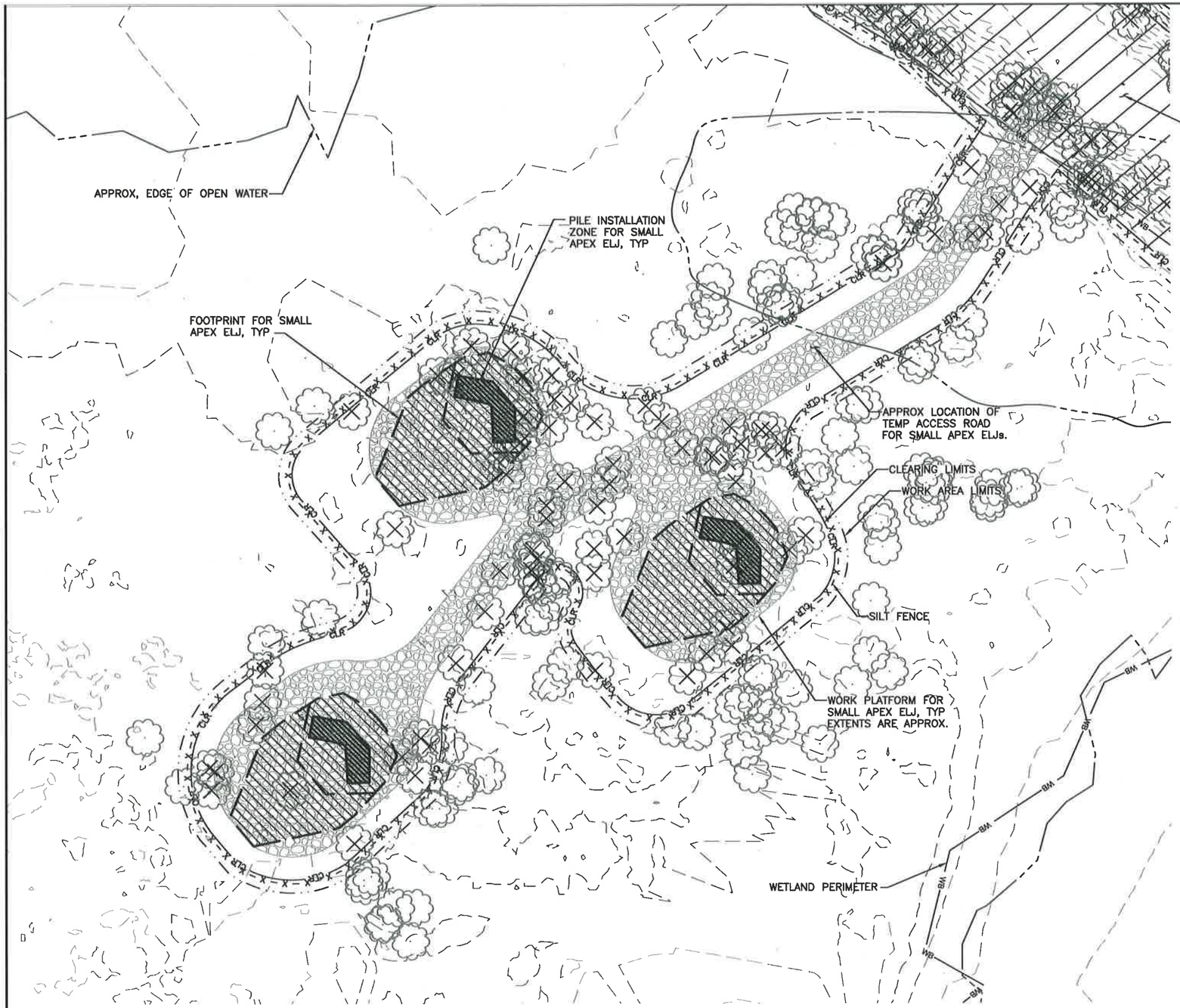
FIELD BOOK:		CADD / 60% 5-2013	APPROVED: JEANNE STYPULA, PE	4–2013	SRFB # RCO 087–1910C
SURVEYED:			PROJECT MANAGER: CHRIS BRUMMER, PE	4–2013	PROJECT No. 1112049 (FL9001)
SURVEY BASE MAP:			DESIGNED: CHRIS BRUMMER, PE	4–2013	
CHECKED:			ECOLOGIST: SARAH McCARTHY	4–2013	
		NUM. REVISION BY DATE	DESIGN ENTERED: LICA DULAN	4–2013	

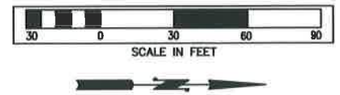
CHRISTOPHER JON BRUMMER — STATE OF WASHINGTON — 40695 — REGISTERED PROFESSIONAL ENGINEER

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION
T.E.S.C. DETAILS

SHEET 17 OF 69 SHEETS
ED1





LEVEE AND REVETMENT EXCAVATION

NOTES:

1. FOR ELJ PILE INSTALLATION CONSTRUCT WORK PLATFORM IN LOCATION SHOWN TO ALLOW PILE INSTALLATION TO OCCUR IN THE DRY. USE ALLUVIUM EXCAVATED FROM EXIST LEVEE AND PLACE SPOILS BY END-DUMPING AND COMPACT BY ROUTING EQUIPMENT OVER SPOILS. SPOILS WILL SLOPE FROM PILE PLACEMENT ZONE AT MATERIAL'S ANGLE OF REPOSE DOWN TO BOTTOM OF WETLAND. CONSTRUCT WORK PLATFORM ABOVE THE WSE AT THE TIME OF CONSTRUCTION.
2. ISOLATE ELJs FROM STANDING WATER IN WETLAND WITH A SILT CURTAIN OR APPROVED OTHER TO CONTAIN TURBID WATER WHILE CONSTRUCTING STRUCTURES.
3. FOLLOWING PILE INSTALLATION, EXCAVATE THROUGH WORK PLATFORM AS NEEDED TO COMPLETE STRUCTURE CONSTRUCTION. WORK PLATFORM MATERIAL MAY BE REUSED AS STRUCTURE BACKFILL MATERIAL.
4. IF NECESSARY TO COMPLETE CONSTRUCTION OF ELJs, PUMP WATER FROM EXCAVATION AND DISCHARGE TO INFILTRATION AREA OUTSIDE OF WETLAND BOUNDARY OR TO PORTABLE WATER TREATMENT SYSTEM PER PROJECT PERMIT REQUIREMENTS.
5. WORK AREA LIMITS SHOWN AROUND ELJ WORK AREAS REPRESENT THE MAXIMUM ALLOWABLE CLEARING LIMITS. THE CONTRACTOR SHALL MINIMIZE CLEARING WHERE POSSIBLE TO PRESERVE AS MUCH EXISTING VEGETATION AS POSSIBLE AND NOT DAMAGE OR DISTURB VEGETATION MARKED BY THE OWNER OR PROJECT REPRESENTATIVE FOR PRESERVATION. AT THE DISCRETION OF THE PROJECT REPRESENTATIVE CLEARING DEBRIS MAY BE USED AS SLASH IN THE ELJs EXCLUDING NON-NATIVE, INVASIVE AND NOXIOUS VEGETATION.

LEGEND:

- LEVEE AND REVETMENT EXCAVATION
- TEMPORARY ACCESS ROAD AND ELJ WORK PLATFORM
- WORK AREA LIMITS
- CLR — CLEARING LIMITS
- SILT FENCE
- EDGE OF OPEN WATER
- ELJ FOOTPRINT
- ELJ PILE INSTALLATION ZONE
- EXISTING TREE (TO REMAIN)
- EXISTING TREE (TO BE REMOVED)

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60%
5-2013

NUM.	REVISION	BY	DATE

APPROVED: IAN MOSTRENKO, PE	5-2013	
PROJECT MANAGER: MARK EWBANK, PE	5-2013	
DESIGNED: BRIAN SCOTT	5-2013	
ECOLOGIST:		
DESIGN ENTERED: TODD PRESCOTT	5-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

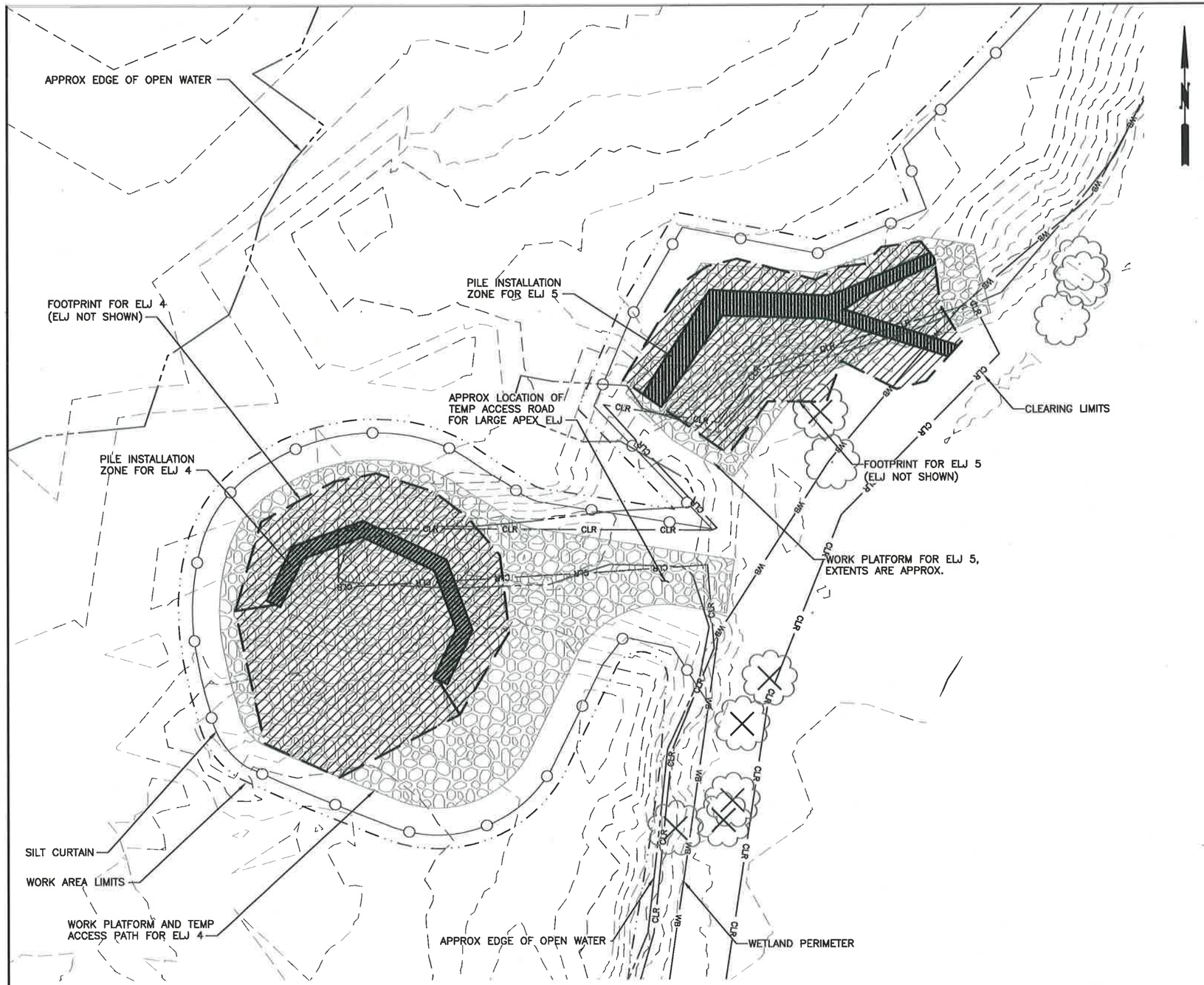
IAN R. MOSTRENKO STATE OF WASHINGTON 36069 REGISTERED PROFESSIONAL ENGINEER

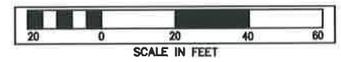
HERRERA

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION
TESC DETAILS FOR ELJs 1, 2, AND 3

SHEET 18 OF 69 SHEETS
ED2





NOTES:

1. FOR ELJ PILE INSTALLATION CONSTRUCT WORK PLATFORM IN LOCATION SHOWN TO ALLOW PILE INSTALLATION TO OCCUR IN THE DRY. USE ALLUVIUM EXCAVATED FROM EXIST LEVEE AND PLACE SPOILS BY END-DUMPING AND COMPACT BY ROUTING EQUIPMENT OVER SPOILS. SPOILS WILL SLOPE FROM PILE PLACEMENT ZONE AT MATERIAL'S ANGLE OF REPOSE DOWN TO BOTTOM OF WETLAND. CONSTRUCT WORK PLATFORM ABOVE THE WSE AT THE TIME OF CONSTRUCTION.
2. ISOLATE ELJs FROM STANDING WATER IN WETLAND WITH A SILT CURTAIN OR APPROVED OTHER TO CONTAIN TURBID WATER WHILE CONSTRUCTING STRUCTURES.
3. FOLLOWING PILE INSTALLATION, EXCAVATE THROUGH WORK PLATFORM AS NEEDED TO COMPLETE STRUCTURE CONSTRUCTION. WORK PLATFORM MATERIAL MAY BE REUSED AS STRUCTURE BACKFILL MATERIAL.
4. IF NECESSARY TO COMPLETE CONSTRUCTION OF ELJs, PUMP WATER FROM EXCAVATION AND DISCHARGE TO INFILTRATION AREA OUTSIDE OF WETLAND BOUNDARY OR TO PORTABLE WATER TREATMENT SYSTEM PER PROJECT PERMIT REQUIREMENTS.
5. WORK AREA LIMITS SHOWN AROUND ELJ WORK AREAS REPRESENT THE MAXIMUM ALLOWABLE CLEARING LIMITS. THE CONTRACTOR SHALL MINIMIZE CLEARING WHERE POSSIBLE TO PRESERVE AS MUCH EXISTING VEGETATION AS POSSIBLE AND NOT DAMAGE OR DISTURB VEGETATION MARKED BY THE OWNER OR PROJECT REPRESENTATIVE FOR PRESERVATION. AT THE DISCRETION OF THE PROJECT REPRESENTATIVE CLEARING DEBRIS MAY BE USED AS SLASH IN THE ELJs EXCLUDING NON-NATIVE, INVASIVE AND NOXIOUS VEGETATION.

LEGEND:

- TEMPORARY ACCESS ROAD AND ELJ WORK PLATFORM
- WORK AREA LIMITS
- CLR — CLEARING LIMITS
- SILT CURTAIN
- EDGE OF OPEN WATER
- ELJ FOOTPRINT
- ELJ PILE INSTALLATION ZONE
- EXISTING TREE (TO REMAIN)
- EXISTING TREE (TO BE REMOVED)

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60%
5-2013

NUM.	REVISION	BY	DATE

APPROVED: IAN MOSTRENKO, PE	5-2013	
PROJECT MANAGER: MARK EWBANK, PE	5-2013	
DESIGNED: BRIAN SCOTT	5-2013	
ECOLOGIST:		
DESIGN ENTERED: TODD PRESCOTT	5-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

IAN B. MOSTRENKO — STATE OF WASHINGTON — 36069 — REGISTERED PROFESSIONAL ENGINEER

HERRERA

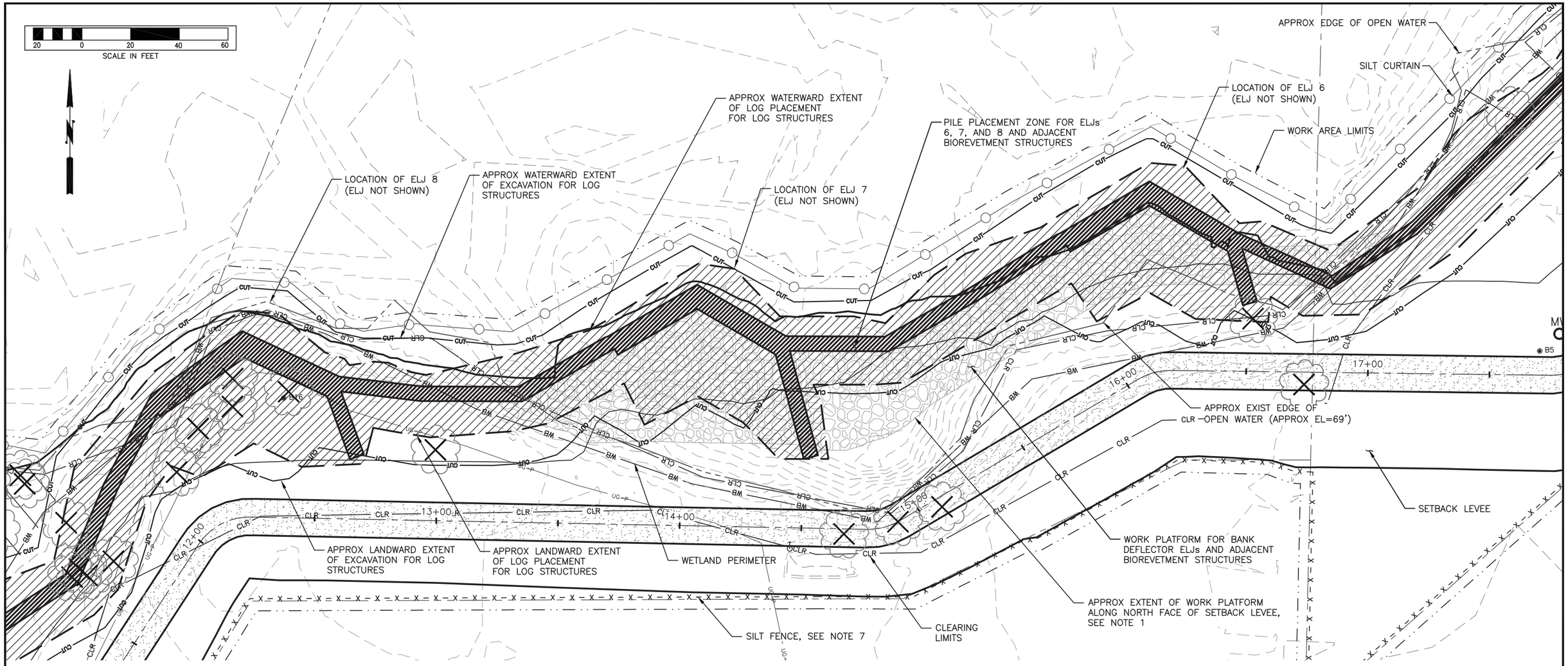
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

TESC DETAILS FOR ELJs 4 AND 5

SHEET 19 OF 69 SHEETS

ED3



NOTES:

1. FOR LOG STRUCTURE PILE INSTALLATION CONSTRUCT WORK PLATFORM BETWEEN PILE PLACEMENT ZONE AND NORTH FACE OF SETBACK LEVEE TO DISPLACE STANDING WATER AND ALLOW PILE INSTALLATION TO OCCUR IN THE DRY IN THE VICINITY OF ELJs 6, 7, AND 8, AND ADJACENT BIOREVETMENT STRUCTURES. USE ALLUVIUM EXCAVATED FROM EXIST LEVEE AND PLACE SPOILS BY END–DUMPING AND COMPACT BY ROUTING EQUIPMENT OVER SPOILS. SPOILS WILL SLOPE FROM PILE PLACEMENT ZONE AT MATERIAL'S ANGLE OF REPOSE DOWN TO BOTTOM OF WETLAND. CONSTRUCT WORK PLATFORM ABOVE THE WSE AT THE TIME OF CONSTRUCTION.
2. USE THE SETBACK LEVEE AS A TEMPORARY ACCESS ROAD AND STAGING AREA TO CONSTRUCT ELJs 6, 7, AND 8, AND ADJACENT BIOREVETMENT STRUCTURES.
3. ISOLATE ELJs AND BIOREVETMENT WORK AREAS FROM STANDING WATER IN WETLAND WITH A SILT CURTAIN OR APPROVED OTHER TO CONTAIN TURBID WATER WHILE CONSTRUCTING STRUCTURES. ISOLATE INDIVIDUAL AREAS AS NEEDED TO COMPLETE CONSTRUCTION AND CONTAIN TURBID WATER.
4. FOLLOWING PILE INSTALLATION, EXCAVATE THROUGH WORK PLATFORM AS NEEDED TO COMPLETE STRUCTURE CONSTRUCTION. WORK PLATFORM MATERIAL MAY BE REUSED AS STRUCTURE BACKFILL MATERIAL.
5. IF NECESSARY TO COMPLETE CONSTRUCTION OF LOG STRUCTURES, PUMP WATER FROM EXCAVATION AND DISCHARGE TO INFILTRATION AREA OUTSIDE OF WETLAND BOUNDARY OR TO PORTABLE WATER TREATMENT SYSTEM PER PROJECT PERMIT REQUIREMENTS.
6. WORK AREA LIMITS SHOWN AROUND ELJ WORK AREAS REPRESENT THE MAXIMUM ALLOWABLE CLEARING LIMITS. THE CONTRACTOR SHALL MINIMIZE CLEARING WHERE POSSIBLE TO PRESERVE AS MUCH EXISTING VEGETATION AS POSSIBLE AND NOT DAMAGE OR DISTURB VEGETATION MARKED BY THE OWNER OR PROJECT REPRESENTATIVE FOR PRESERVATION. AT THE DISCRETION OF THE PROJECT REPRESENTATIVE CLEARING DEBRIS MAY BE USED AS SLASH IN THE ELJs EXCLUDING NON–NATIVE, INVASIVE AND NOXIOUS VEGETATION.
7. SILT FENCE ALONG SETBACK LEVEE SHOWN OUTSIDE OF PROPERTY LINE FOR CLARITY AND SHALL BE PLACED WITHIN PROPERTY LINE.

LEGEND:

- ELJ WORK PLATFORM
- WORK AREA LIMITS
- CLR — CLEARING LIMITS
- — x – x – x — SILT FENCE
- SILT CURTAIN
- CUT — ELJ EXCAVATION EXTENTS (APPROX)
- EDGE OF OPEN WATER
- ELJ FOOTPRINT
- ELJ PILE INSTALLATION ZONE
- EXISTING TREE (TO REMAIN)
- EXISTING TREE (TO BE REMOVED)

FIELD BOOK: _____
SURVEYED: _____
SURVEY BASE MAP: _____
CHECKED: _____

CADD / 60%
5-2013

NUM.	REVISION	BY	DATE

APPROVED:	IAN MOSTRENKO, PE	5–2013
PROJECT MANAGER:	MARK EWBANK, PE	5–2013
DESIGNED:	BRIAN SCOTT	5–2013
ECOLOGIST:		
DESIGN ENTERED:	TODD PRESCOTT	5–2013

SRFB # RCO 087–1910C

PROJECT No. 1112049 (FL9001)

IAN B. MOSTRENKO STATE OF WASHINGTON 36069 REGISTERED PROFESSIONAL ENGINEER

HERRERA

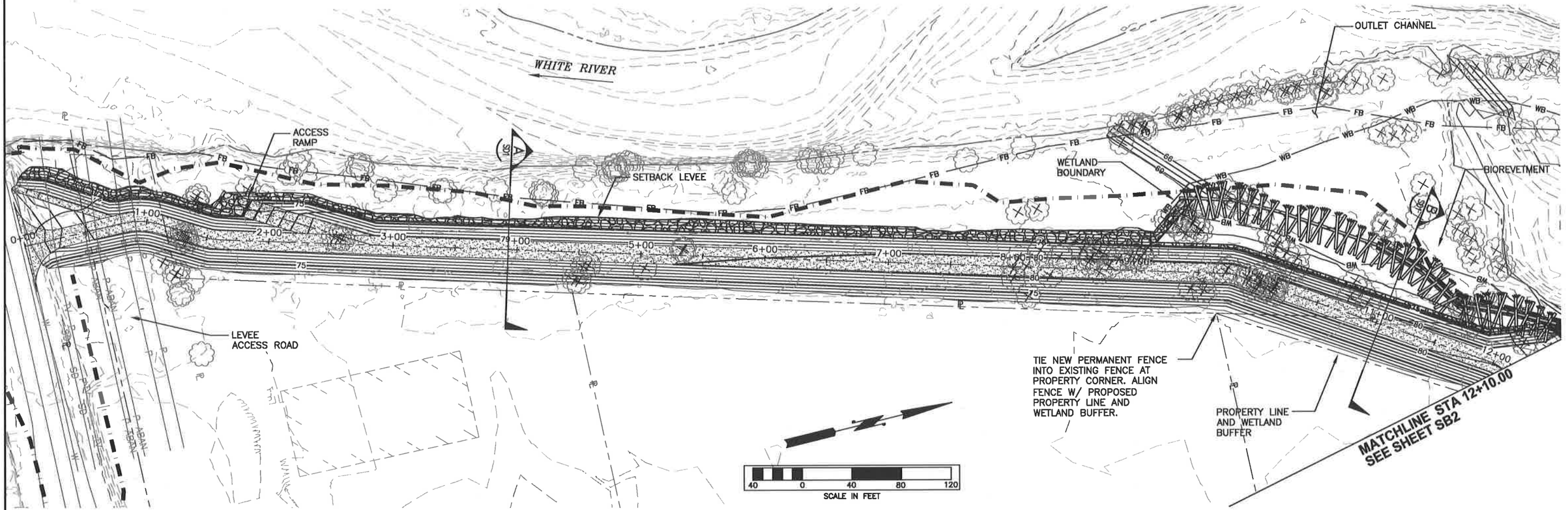
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

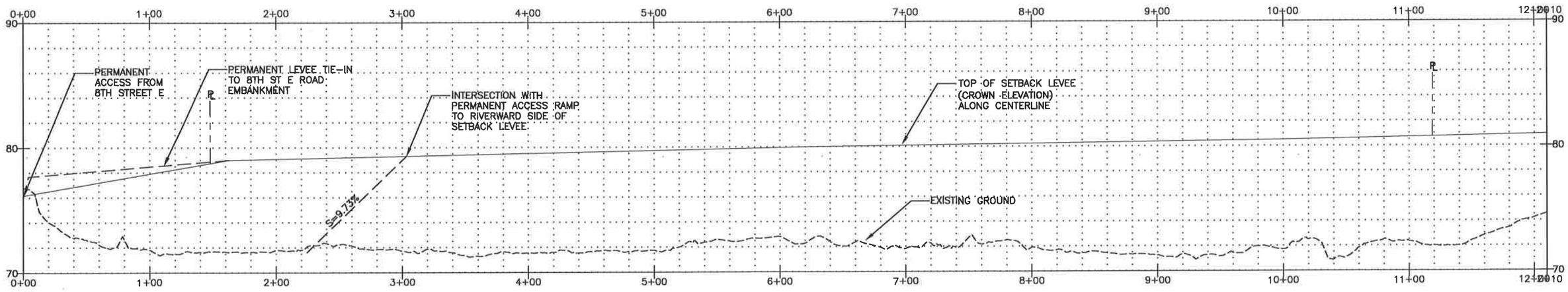
COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

TESC DETAILS FOR ELJs 6, 7, AND 8

SHEET 20 OF 69 SHEETS

ED4





FIELD BOOK:		NUM.	REVISION	BY	DATE	APPROVED: JEANNE STYPULA, PE	4-2013
SURVEYED:			CADD / 60% 5-2013			PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013
SURVEY BASE MAP:						DESIGNED: CHRIS BRUMMER, PE	4-2013
CHECKED:						ECOLOGIST: SARAH McCARTHY	4-2013
						DESIGN ENTERED: LICA DULAN	4-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER — STATE OF WASHINGTON — 40693 — REGISTERED PROFESSIONAL ENGINEER

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

SITE PLAN AND PROFILE FOR SETBACK LEVEE AND BIOREVETMENT

SHEET 21 OF 69 SHEETS

SB1

MATCHLINE STA 12+10.00
SEE SHEET SB1

MATCHLINE STA 23+57.00
SEE SHEET SB3

ELJ8
BR9
BR10
BR11
ELJ7
BR12
BR13
BR14
ELJ6
BR15
BR16
BR17
BR18
BR19
BR20
BR21
BR22
BR23
BR24
BR25
BR26
BR27
BR28

FLOODPLAIN ROUGHENING STRUCTURES AND HUMMOCK (TYP.)

125' WETLAND BUFFER

BIOREVETMENT SEE DWG WD7

APPROX. EDGE OF OPEN WATER

WETLAND BOUNDARY

REMOVE U.G. UTILITIES UP TO PROPERTY LINE

PROPERTY LINE AND WETLAND BUFFER

PERMANENT FENCE, MATCH ALIGNMENT WITH PROPOSED PROPERTY CORNERS AND LINES

PROPOSED PROPERTY LINE AND PERMANENT CHAIN-LINK FENCE

4 COTTONWOOD TREES AND 6 CHERRY TREES TO BE PROTECTED

SETBACK LEVEE

SCALE IN FEET
40 0 40 80 120

TOP OF SETBACK LEVEE ALONG CENTERLINE

EXISTING GROUND

12+10 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 23+57

90 80 70

FIELD BOOK:		NUM.	REVISION	BY	DATE	APPROVED: JEANNE STYPULA, PE	4-2013	SRFB # RCO 087-1910C	
SURVEYED:			CADD / 60% 5-2013			PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	PROJECT No. 1112049 (FL9001)	
SURVEY BASE MAP:						DESIGNED: CHRIS BRUMMER, PE	4-2013		
CHECKED:						ECOLOGIST: SARAH McCARTHY	4-2013		
						DESIGN ENTERED: LICA DULAN	4-2013		

CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 40695 REGISTERED PROFESSIONAL ENGINEER

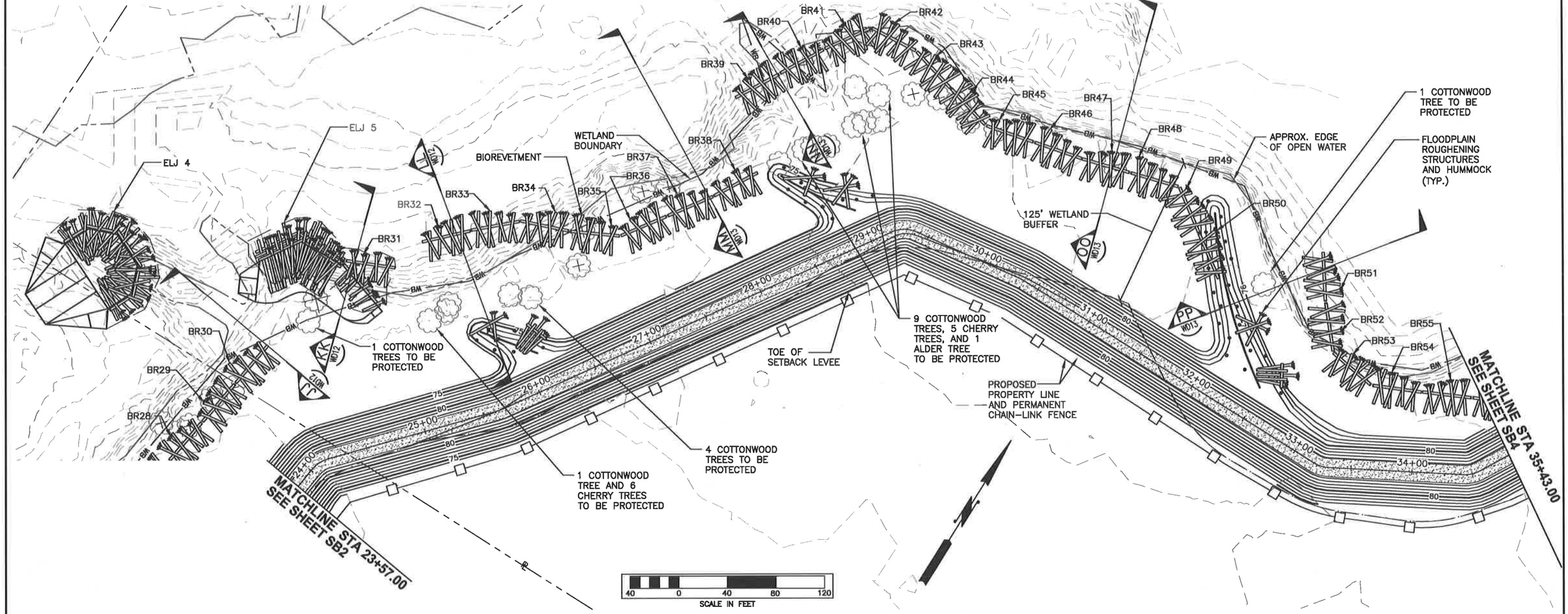
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

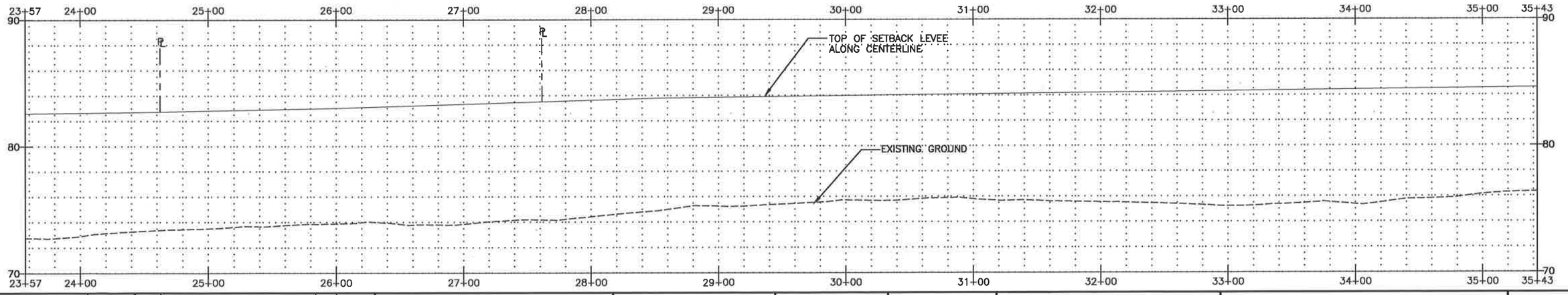
COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

SITE PLAN AND PROFILE FOR SETBACK LEVEE AND BIOREVETMENT

SHEET 22 OF 69 SHEETS

SB2





FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60% 5-2013

NUM.	REVISION	BY	DATE

APPROVED: JEANNE STYPULA, PE	4-2013	
PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	
DESIGNED: CHRIS BRUMMER, PE	4-2013	
ECOLOGIST: SARAH McCARTHY	4-2013	
DESIGN ENTERED: LICA DULAN	4-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 20855 REGISTERED PROFESSIONAL ENGINEER

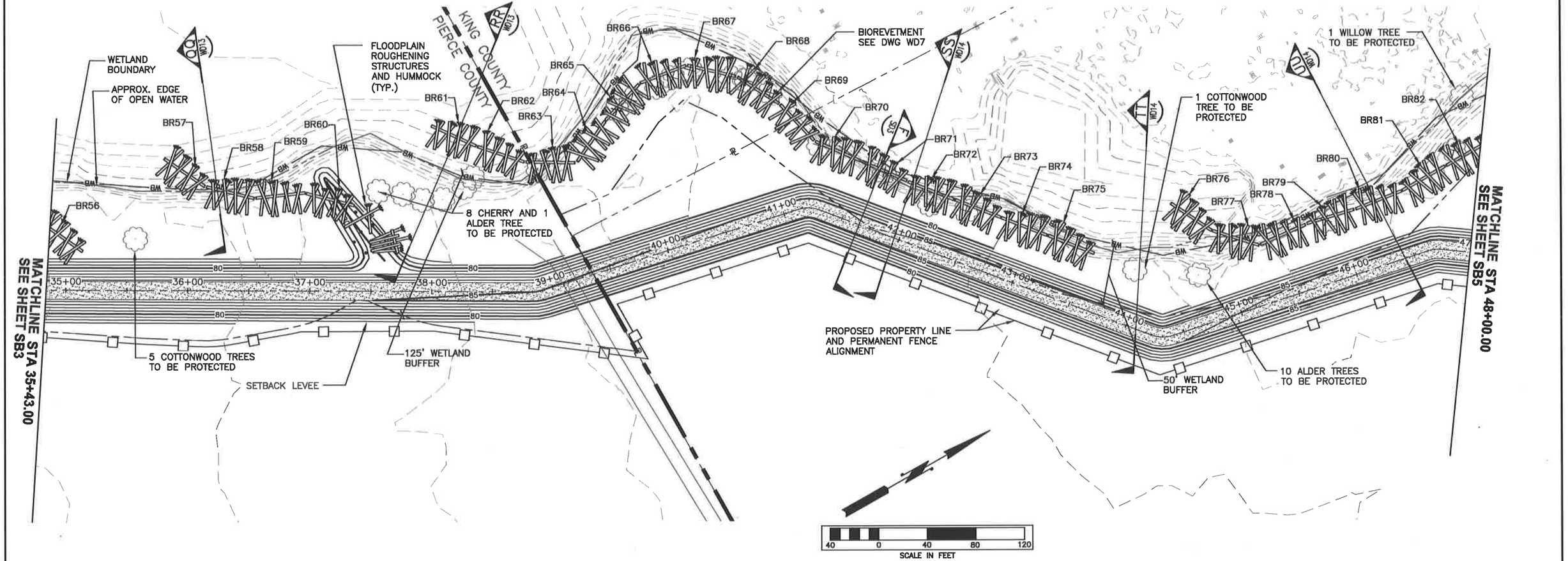
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

SITE PLAN AND PROFILE FOR SETBACK LEVEE AND BIOREVETMENT

SHEET 23 OF 69 SHEETS

SB3



FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60% 5-2013

NUM.	REVISION	BY	DATE

APPROVED: JEANNE STYPULA, PE	4-2013	
PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	
DESIGNED: CHRIS BRUMMER, PE	4-2013	
ECOLOGIST: SARAH McCARTHY	4-2013	
DESIGN ENTERED: LICA DULAN	4-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 20695 REGISTERED PROFESSIONAL ENGINEER

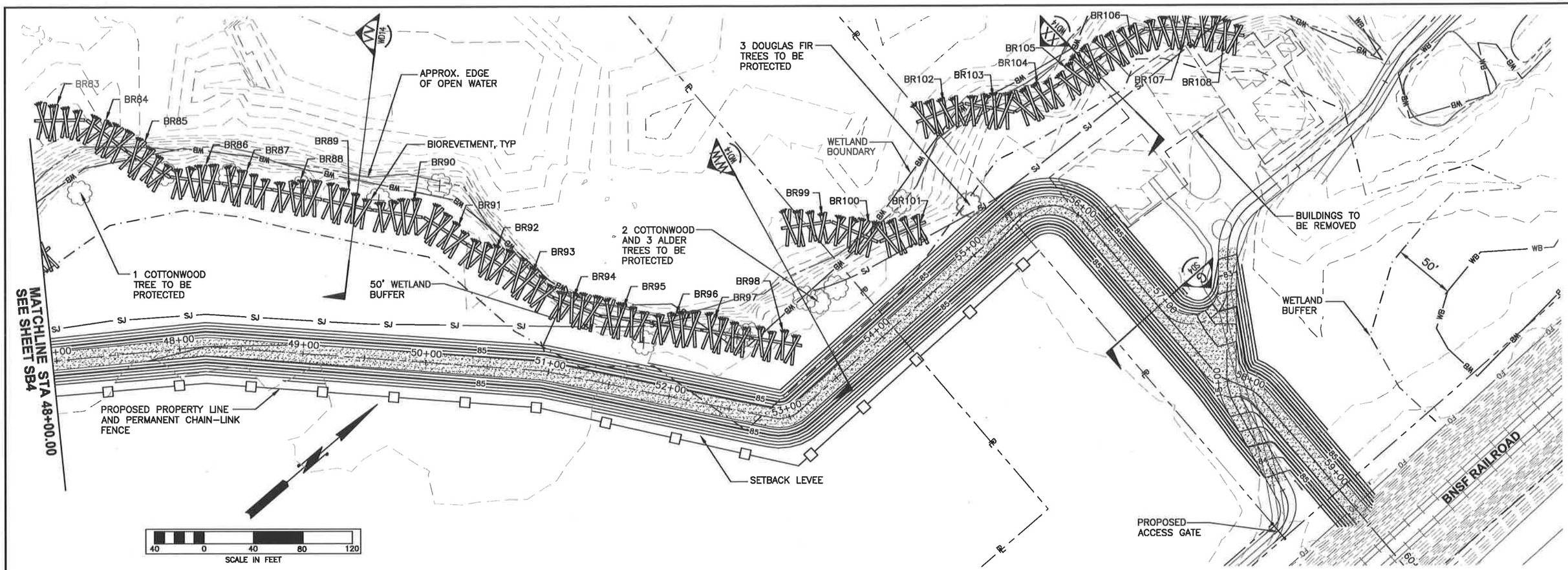
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

SITE PLAN AND PROFILE FOR SETBACK LEVEE AND BIOREVETMENT

SHEET 24 OF 69 SHEETS

SB4



FIELD BOOK:		NUM.	REVISION	BY	DATE	APPROVED: JEANNE STYPULA, PE	4-2013
SURVEYED:			CADD / 60% 5-2013			PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013
SURVEY BASE MAP:						DESIGNED: CHRIS BRUMMER, PE	4-2013
CHECKED:						ECOLOGIST: SARAH McCARTHY	4-2013
						DESIGN ENTERED: LICA DULAN	4-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 16695 REGISTERED PROFESSIONAL ENGINEER

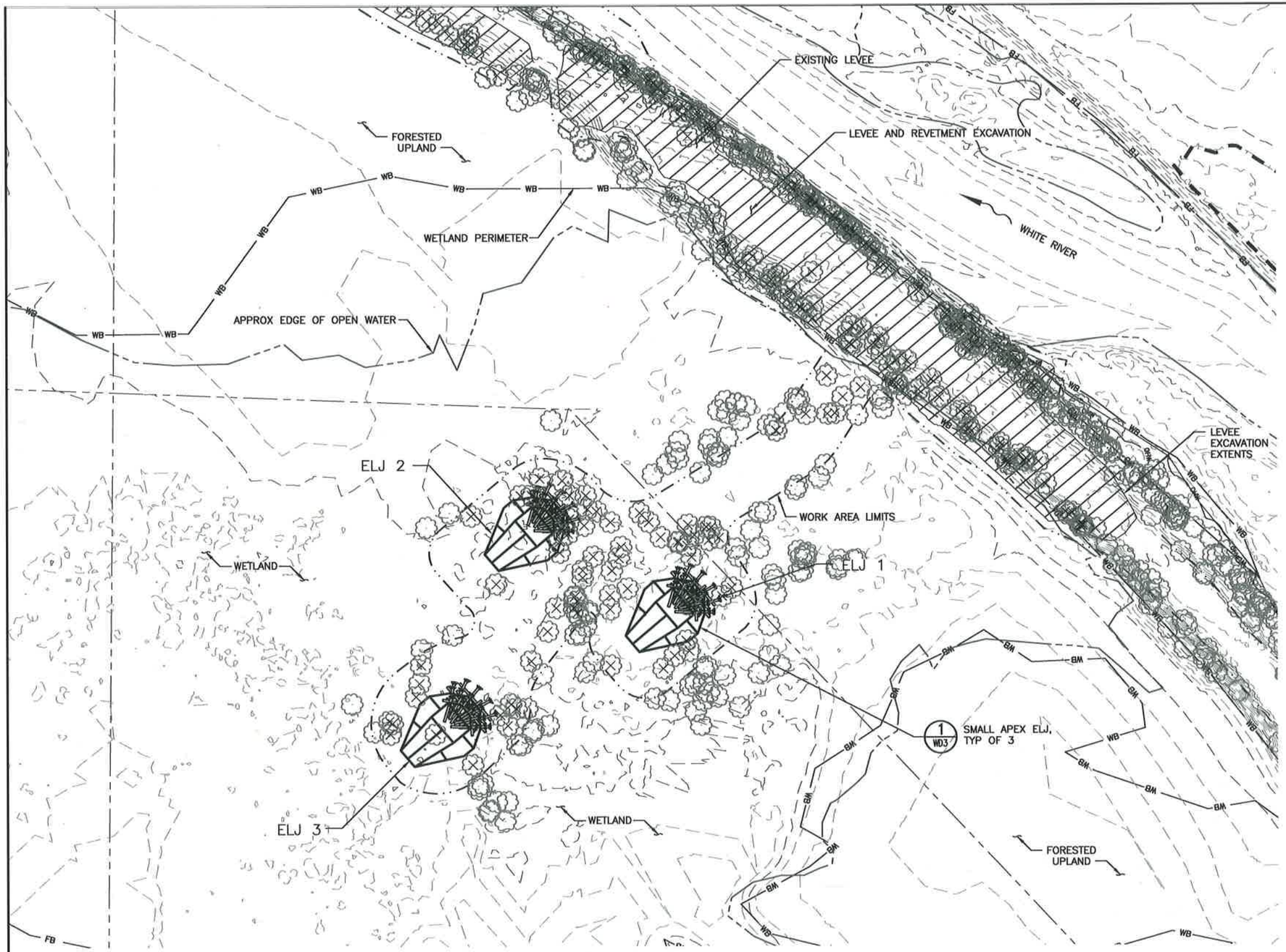
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

SITE PLAN AND PROFILE FOR SETBACK LEVEE AND BIOREVETMENT

SHEET 25 OF 69 SHEETS

SB5



50 0 50 100 150

SCALE IN FEET

NOTES:

1. SEE STRUCTURE LAYERING PLAN ON DWG WD4 FOR LOCATION OF CONTROL POINTS ON EACH STRUCTURE.
2. TEMPORARY ACCESS PATH FROM EXISTING LEVEE THROUGH WETLAND TO ELJs 1, 2 AND 3 SHOWN ON DWG ED2. ADJUST ELEVATION OF PATH AS NEEDED TO ALLOW EQUIPMENT EGRESS THROUGH WETLAND ABOVE ADJACENT SURFACE WATERS. REMOVE PATH FOLLOWING COMPLETION OF ELJ CONSTRUCTION. ADJUST SLOPE OF ACCESS PATH FROM EXISTING LEVEE TO WETLAND AS NEEDED TO ALLOW SAFE EQUIPMENT EGRESS.
3. PLACE VEGETATION THAT IS CLEARED FOR ELJ AND TEMPORARY ACCESS PATH CONSTRUCTION WITHIN LIMITS OF DISTURBED AREAS AND AS DIRECTED BY THE PROJECT REPRESENTATIVE.
4. WORK PLATFORM FOR ELJs 1, 2 AND 3 SHOWN ON DWG ED2. ISOLATE ELJ WORK AREA TO CONTAIN TURBID SURFACE WATER USING A SILT FENCE OR SILT CURTAIN AS SHOWN ON DWG ED2. SILT FENCE/CURTAIN NOT SHOWN FOR CLARITY. REMOVE WORK PLATFORM OUTSIDE OF FOOTPRINT OF ELJ FOLLOWING COMPLETION OF ELJ CONSTRUCTION.

SMALL APEX ELJ CONTROL POINT TABLE:

ITEM	CP	NORTHING	EASTING
ELJ 1	1		
	2		
ELJ 2	1		
	2		
ELJ 3	1		
	2		

NOTE: TABLE TO BE COMPLETED FOR FINAL DESIGN.

LEGEND:

- LEVEE AND REVETMENT EXCAVATION
- WORK AREA LIMITS
- EDGE OF OPEN WATER
- EXISTING TREE (TO REMAIN)
- EXISTING TREE (TO BE REMOVED)

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60% 5-2013

NUM.	REVISION	BY	DATE

APPROVED: IAN MOSTRENKO, PE	5-2013	
PROJECT MANAGER: MARK EWBANK, PE	5-2013	
DESIGNED: BRIAN SCOTT	5-2013	
ECOLOGIST:		
DESIGN ENTERED: TODD PRESCOTT	5-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

IAN B. MOSTRENKO STATE OF WASHINGTON 36069 REGISTERED PROFESSIONAL ENGINEER

HERRERA

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION
ELJ SITE PLAN (SHEET 1 OF 2)

SHEET 26 OF 69 SHEETS

WS1

SCALE IN FEET: 50 0 50 100 150

NOTES:

1. SEE STRUCTURE LAYERING PLANS ON DWGS WD2, WD6, AND WD8 FOR LOCATION OF CONTROL POINTS ON EACH STRUCTURE.
2. SEE DWGS SB1 THROUGH SB5 FOR DESIGN RELATED INFORMATION FOR THE BIOREVETMENT.
3. TEMPORARY ACCESS PATH FOR ELJ 4 SHOWN ON DWG ED3. ADJUST ELEVATION OF PATH AS NEEDED TO ALLOW EQUIPMENT EGRESS THROUGH WETLAND ABOVE ADJACENT SURFACE WATERS. REMOVE PATH FOLLOWING COMPLETION OF ELJ CONSTRUCTION.
4. WORK PLATFORM FOR ELJs 4, 5, 6, 7 AND 8 SHOWN ON DWGS ED3 AND ED4. ISOLATE ELJ WORK AREA TO CONTAIN TURBID SURFACE WATER USING A SILT FENCE OR SILT CURTAIN AS SHOWN ON DWGS ED3 AND ED4. SILT FENCE/CURTAIN NOT SHOWN FOR CLARITY. REMOVE WORK PLATFORM OUTSIDE OF FOOTPRINT OF EACH ELJ FOLLOWING COMPLETION OF ELJ CONSTRUCTION.
5. FINAL GRADE OVER BIOREVETMENT BETWEEN ELJs 5, 6, 7, AND 8 IS 73'.

LARGE APEX AND BANK DEFLECTOR ELJ CONTROL POINT TABLE:

ITEM	CP	NORTHING	EASTING
ELJ 4	1		
	2		
ELJ 5	1		
	2		
	3		
	4		
	5		
ELJ 6	1		
	2		
	3		
	4		
	5		
ELJ 7	1		
	2		
	3		
	4		
	5		
ELJ 8	1		
	2		
	3		
	4		
	5		

NOTE: TABLE TO BE COMPLETED FOR FINAL DESIGN.

LEGEND:

- LEVEE AND REVETMENT EXCAVATION
- WORK AREA LIMITS
- EDGE OF OPEN WATER
- EXISTING TREE (TO REMAIN)
- EXISTING TREE (TO BE REMOVED)

FIELD BOOK: _____
SURVEYED: _____
SURVEY BASE MAP: _____
CHECKED: _____

CADD / 60%
5-2013

NUM.	REVISION	BY	DATE

APPROVED: IAN MOSTRENKO, PE	5-2013	
PROJECT MANAGER: MARK EWBANK, PE	5-2013	
DESIGNED: BRIAN SCOTT	5-2013	
ECOLOGIST:		
DESIGN ENTERED: TODD PRESCOTT	5-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

IAN R. MOSTRENKO STATE OF WASHINGTON 36069 REGISTERED PROFESSIONAL ENGINEER

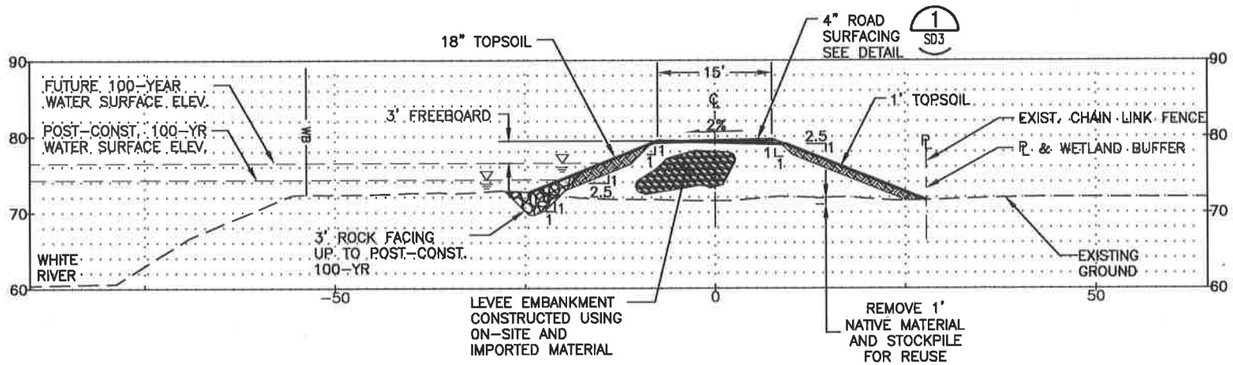
HERRERA

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

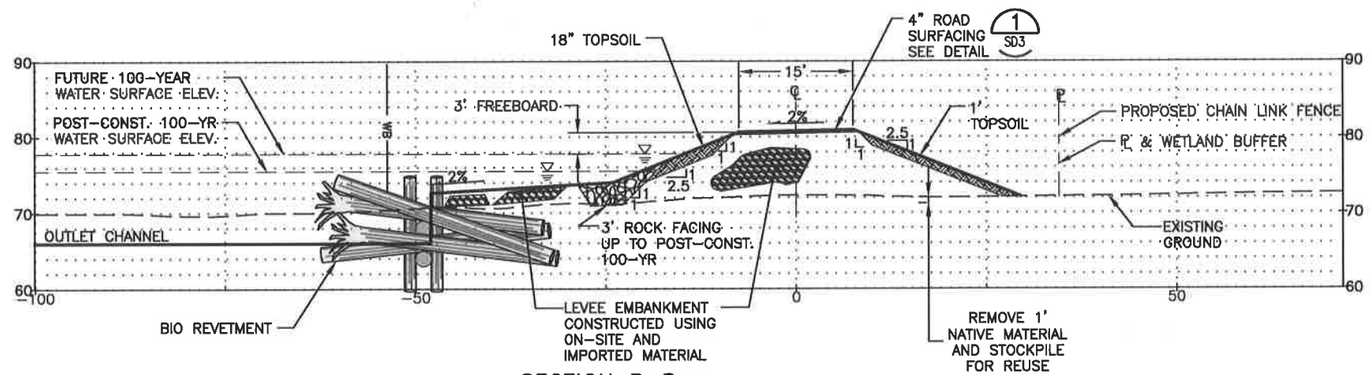
COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION
ELJ SITE PLAN (SHEET 2 OF 2)

SHEET 27 OF 69 SHEETS

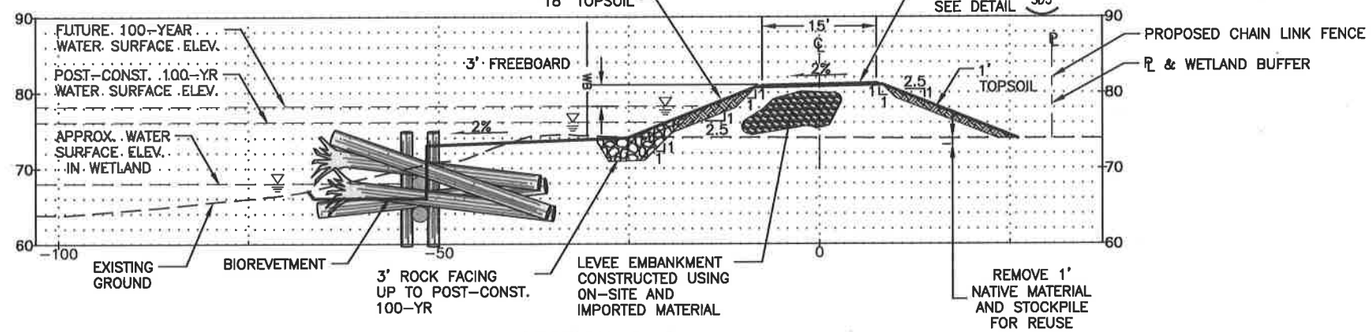
WS2



SECTION A-A
STA. 3+93
1"=10'
A
SB1



SECTION B-B
STA. 11+04
1"=10'
B
SB1



SECTION C-C
STA. 13+25
1"=10'
C
SB2

10 0 10 20 30
SCALE IN FEET

FIELD BOOK:		NUM.	REVISION	BY	DATE	APPROVED: JEANNE STYPULA, PE	4-2013
SURVEYED:			CADD / 60% 5-2013			PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013
SURVEY BASE MAP:						DESIGNED: CHRIS BRUMMER, PE	4-2013
CHECKED:						ECOLOGIST: SARAH McCARTHY	4-2013
						DESIGN ENTERED: LICA DULAN	4-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 40995 REGISTERED PROFESSIONAL ENGINEER

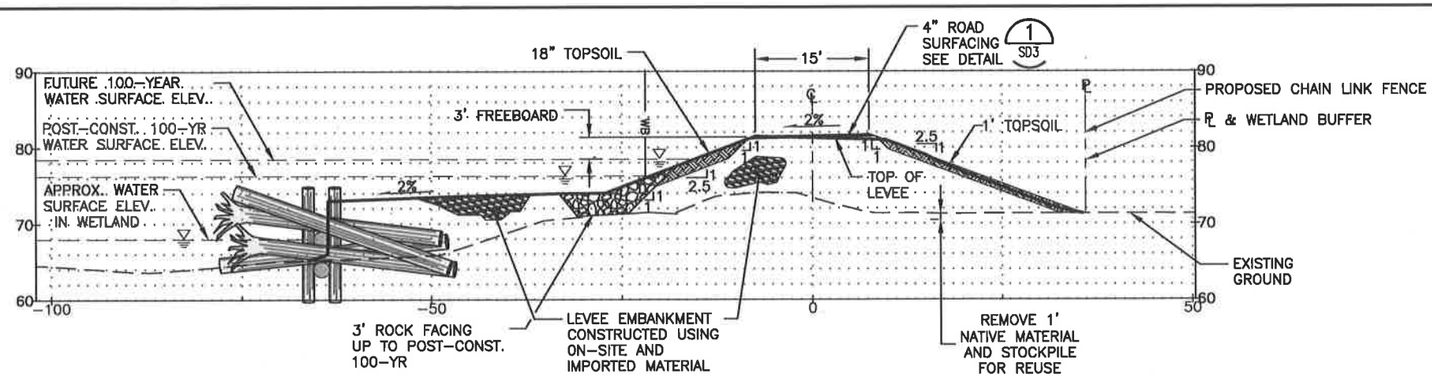
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

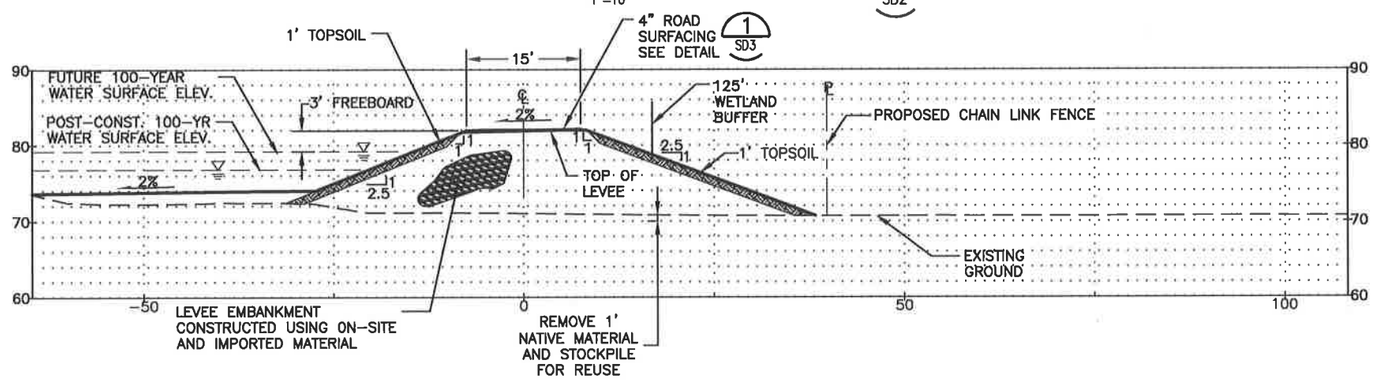
SETBACK LEVEE CROSS SECTIONS AND DETAILS

SHEET 28 OF 69 SHEETS

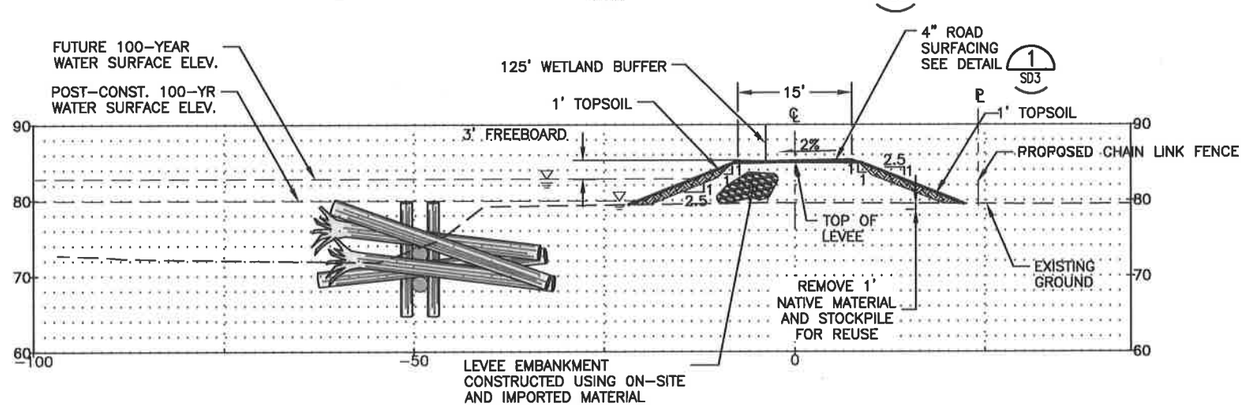
SD1



SECTION D-D
STA. 15+66
1"=10'
D SB2



SECTION E-E
STA. 19+20
1"=10'
E SB2



SECTION F-F
STA. 41+65
1"=10'
F SB4

10 0 10 20 30
SCALE IN FEET

FIELD BOOK:			APPROVED: JEANNE STYPULA, PE	4-2013	SRFB # RCO 087-1910C
SURVEYED:			PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	PROJECT No. 1112049 (FL9001)
SURVEY BASE MAP:			DESIGNED: CHRIS BRUMMER, PE	4-2013	
CHECKED:			ECOLOGIST: SARAH McCARTHY	4-2013	
			DESIGN ENTERED: LICA DULAN	4-2013	
	NUM.	REVISION / CADD / 60% 5-2013	BY	DATE	

CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 40095 REGISTERED PROFESSIONAL ENGINEER

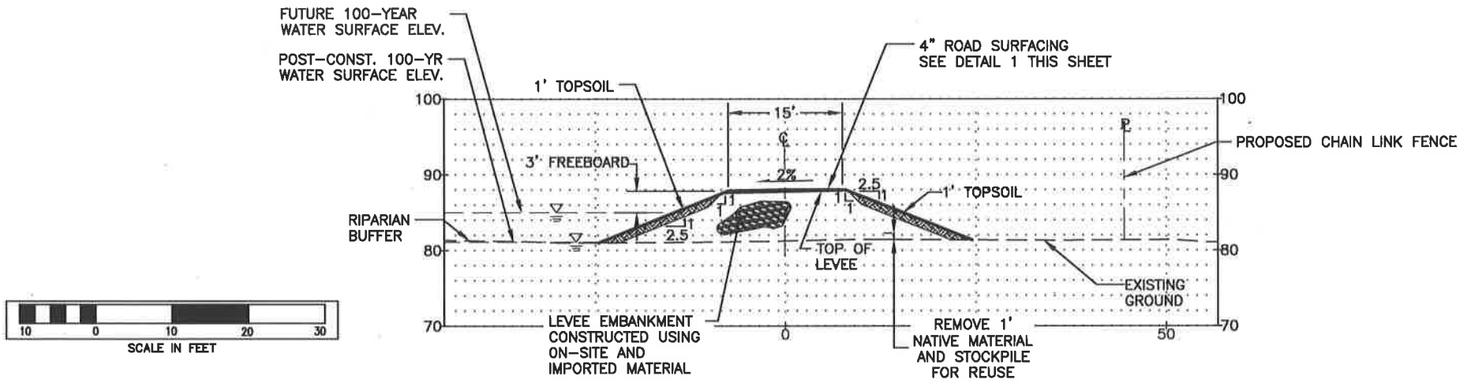
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

SETBACK LEVEE CROSS SECTIONS AND DETAILS

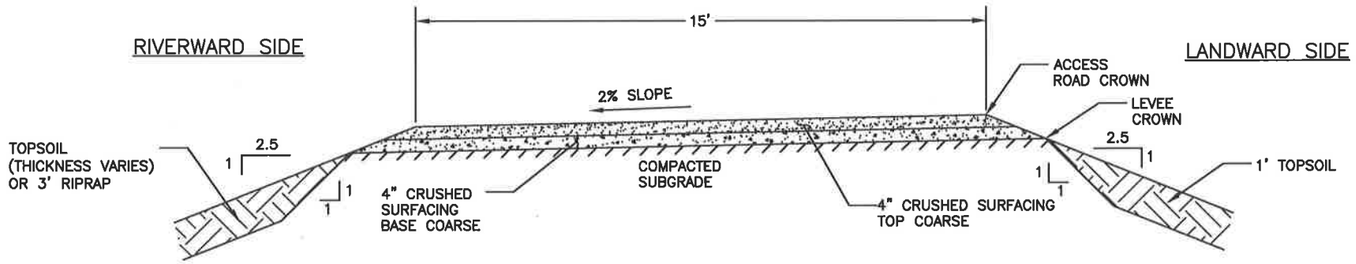
SHEET 29 OF 69 SHEETS

SD2



SECTION G-G
STA. 57+00
1"=10'

G
SB5



GRAVEL ACCESS ROAD/ TRAIL
ON TOP OF SETBACK LEVEE
TYPICAL SECTION
1"=2'

1
SP1-SP3

FIELD BOOK:		NUM.	REVISION	BY	DATE	APPROVED: JEANNE STYPULA, PE	4-2013
SURVEYED:			CADD / 60% 5-2013			PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013
SURVEY BASE MAP:						DESIGNED: CHRIS BRUMMER, PE	4-2013
CHECKED:						ECOLOGIST: SARAH McCARTHY	4-2013
						DESIGN ENTERED: LICA DULAN	4-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 40995 REGISTERED PROFESSIONAL ENGINEER

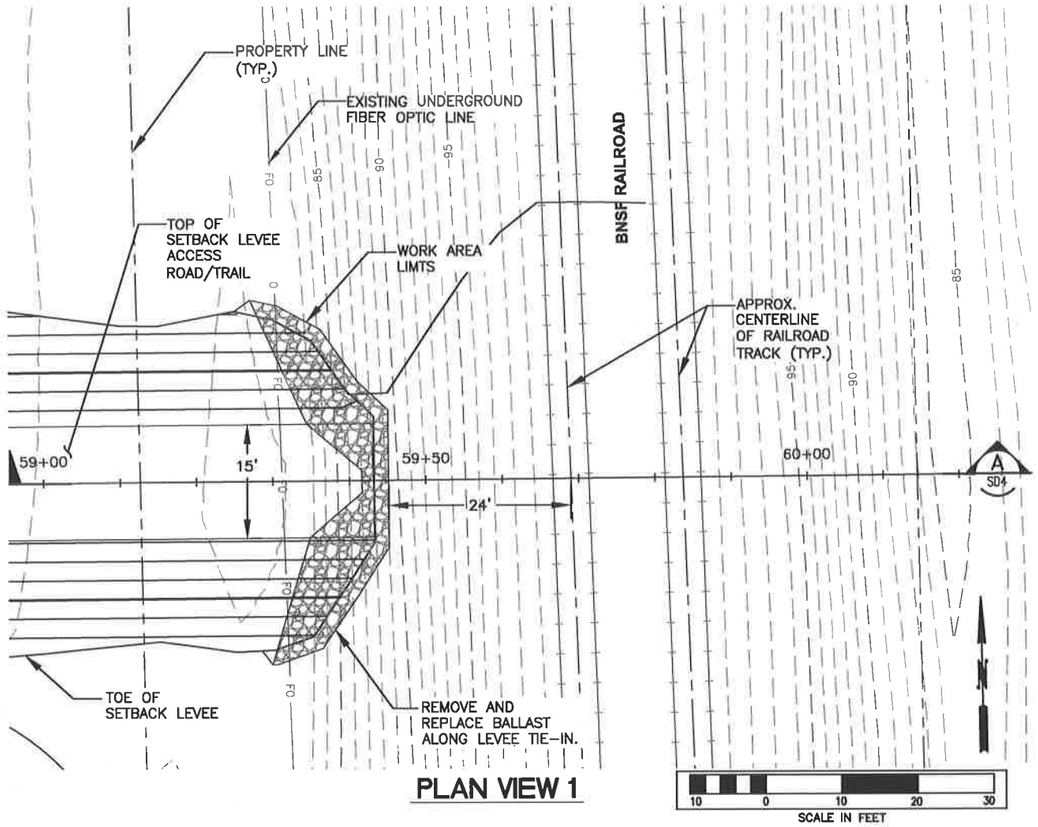
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

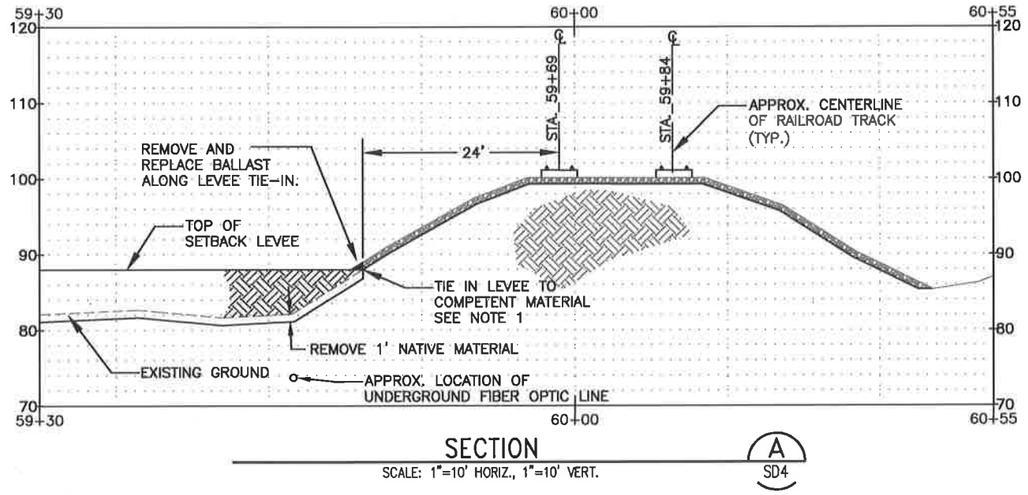
SETBACK LEVEE CROSS SECTIONS AND DETAILS

SHEET 30 OF 69 SHEETS

SD3



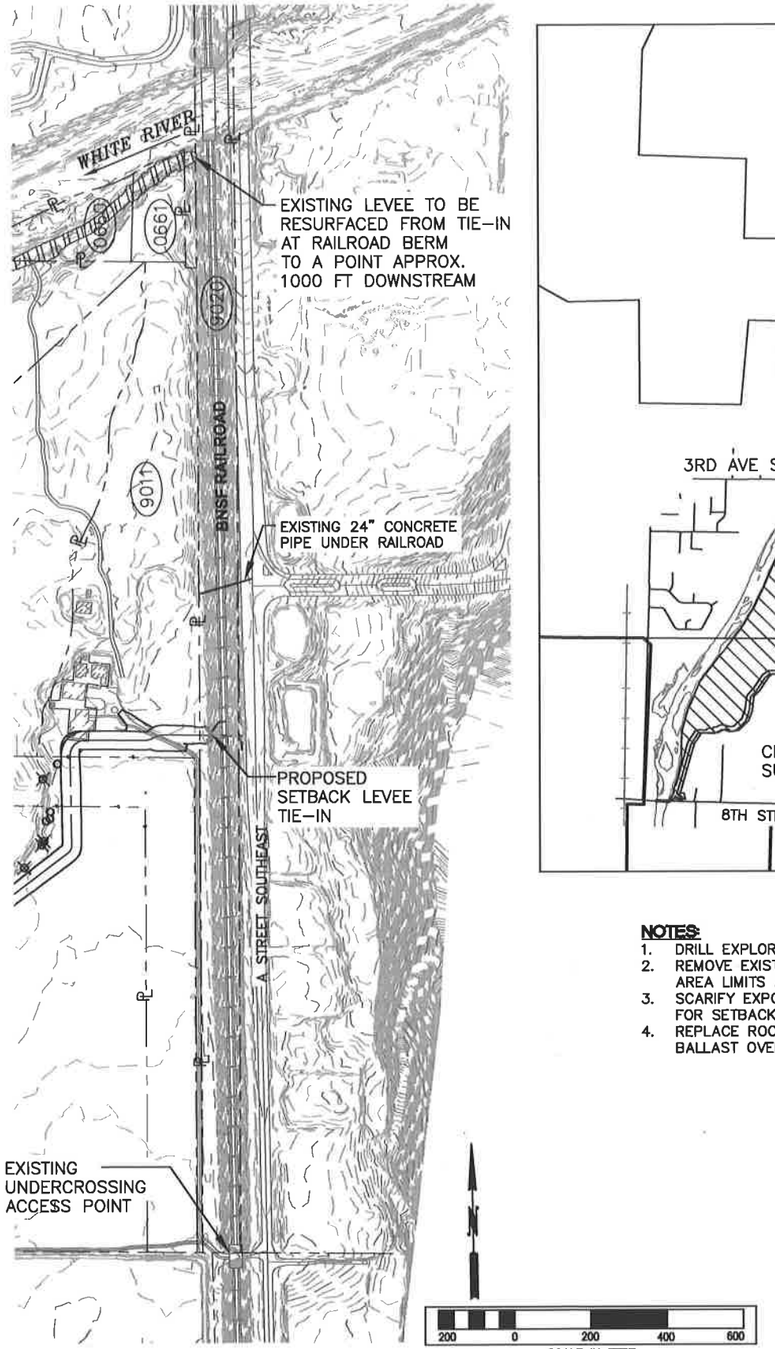
PLAN VIEW 1



SECTION

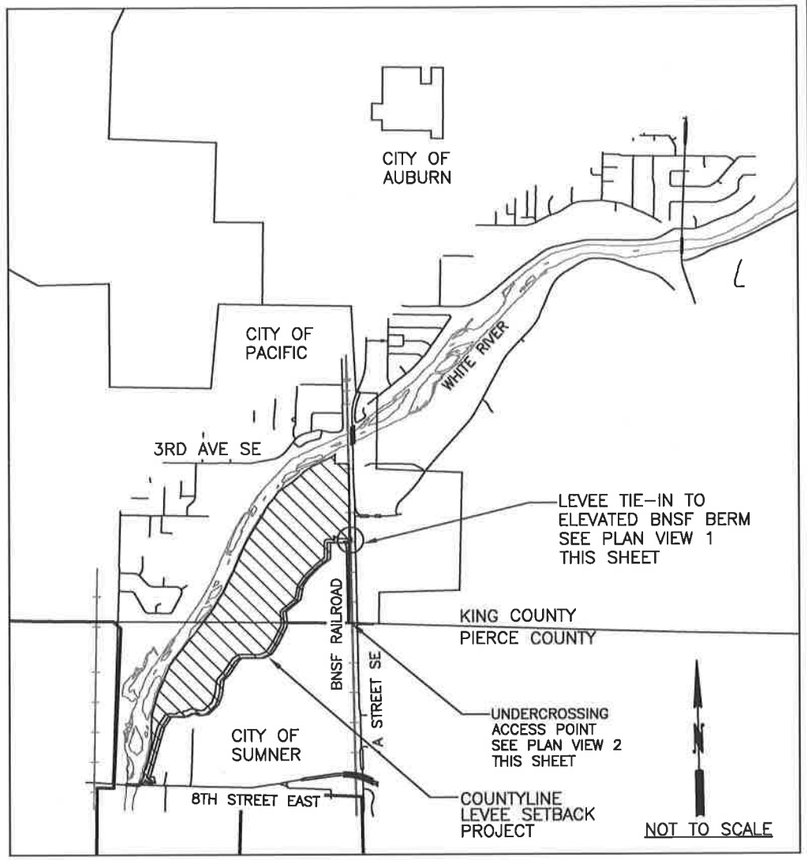
SCALE: 1"=10' HORIZ., 1"=10' VERT.

A SD4



PLAN VIEW 2

VICINITY MAP



NOTES:

1. DRILL EXPLORATORY BORING TO CONFIRM DEPTH TO COMPETENT MATERIAL.
2. REMOVE EXISTING ROCK BALLAST FROM RAILROAD BERM WITHIN WORK AREA LIMITS AND EXPOSE COMPETENT MATERIAL.
3. SCARIFY EXPOSED SURFACE OF RAILROAD BERM AND PLACE SOIL LIFTS FOR SETBACK LEVEE TO FINISHED GRADES AS SHOWN ON THE PLANS.
4. REPLACE ROCK BALLAST ON RAILROAD BERM AND PLACE ADDITIONAL BALLAST OVER SETBACK LEVEE SLOPE AS SHOWN ON THE PLANS.

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60% 5-2013

NUM.	REVISION	BY	DATE

APPROVED: JEANNE STYPULA, PE	4-2013
PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013
DESIGNED: CHRIS BRUMMER, PE	4-2013
ECOLOGIST: SARAH McCARTHY	4-2013
DESIGN ENTERED: LICA DULAN	4-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 19695 REGISTERED PROFESSIONAL ENGINEER

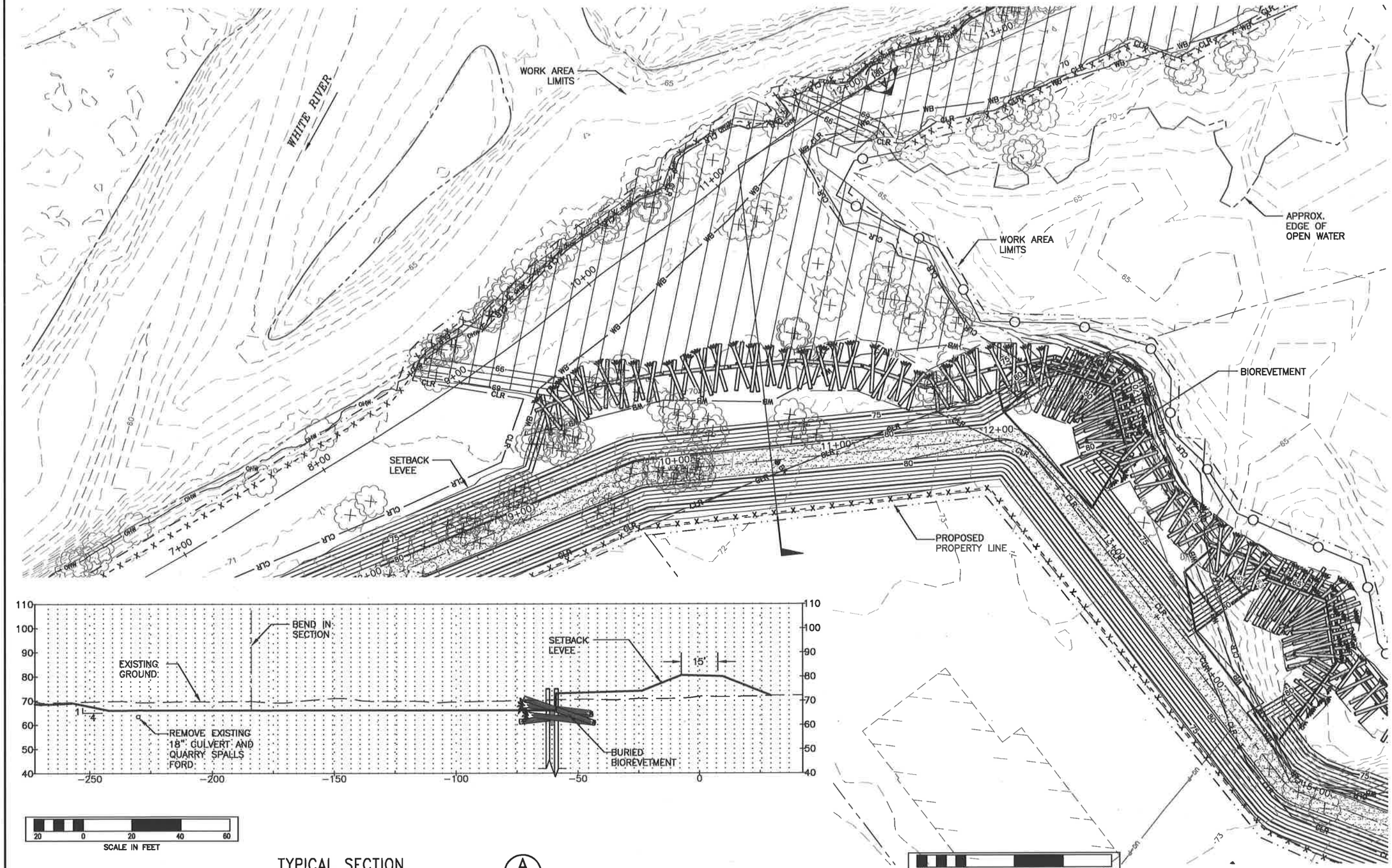
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

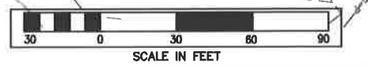
COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

SETBACK LEVEE TIE-IN PLAN AND DETAILS

SHEET 31 OF 69 SHEETS

SD4





TYPICAL SECTION A

DR1

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60%
5-2013

NUM.	REVISION	BY	DATE

APPROVED: JEANNE STYPULA, PE	4-2013	
PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	
DESIGNED: CHRIS BRUMMER, PE	4-2013	
ECOLOGIST: SARAH McCARTHY	4-2013	
DESIGN ENTERED: LICA DULAN	4-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 40695 REGISTERED PROFESSIONAL ENGINEER

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

SOUTH OUTLET CHANNEL PLAN AND SECTION

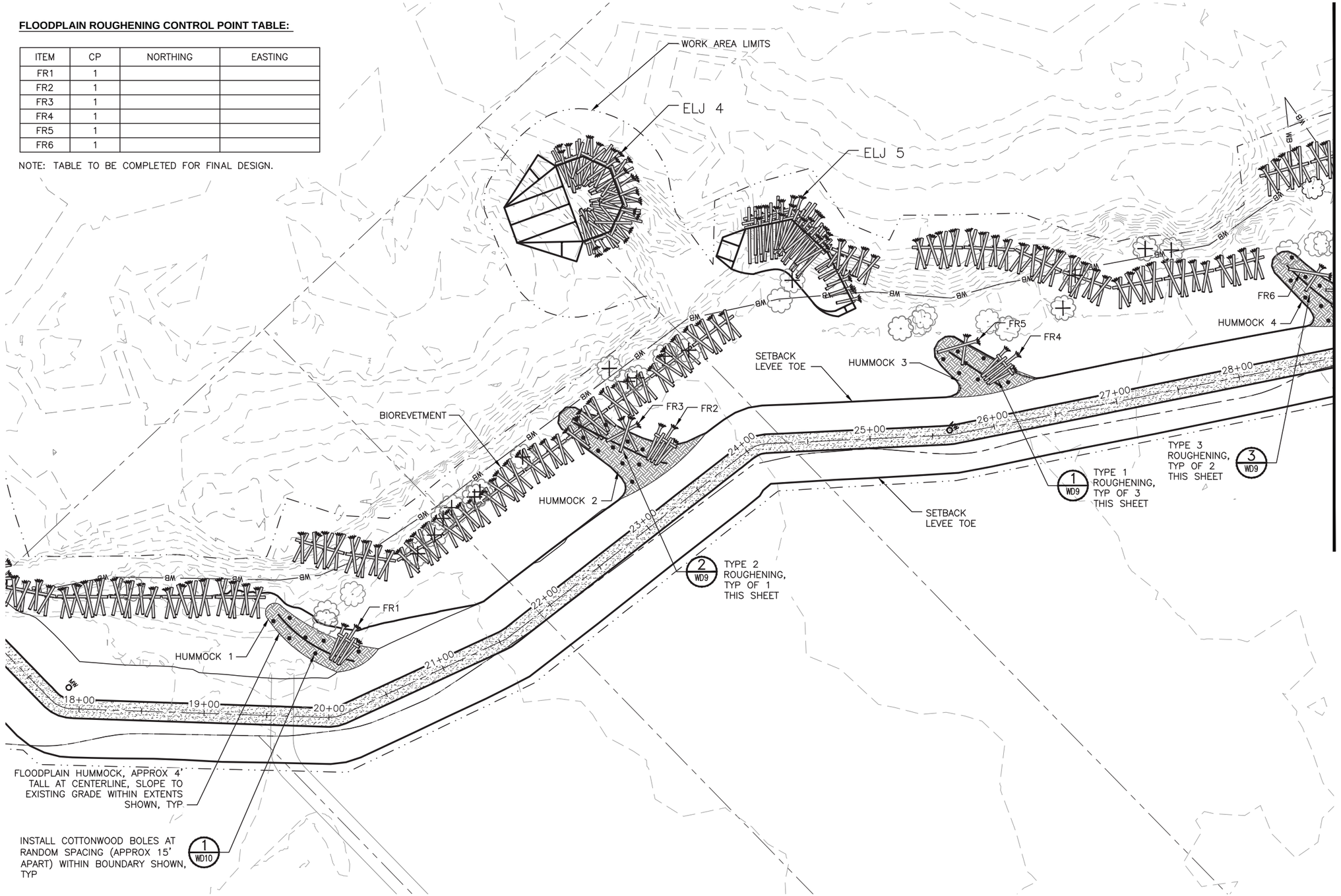
SHEET 32 OF 69 SHEETS

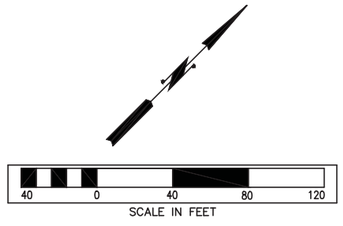
DR1

FLOODPLAIN ROUGHENING CONTROL POINT TABLE:

ITEM	CP	NORTHING	EASTING
FR1	1		
FR2	1		
FR3	1		
FR4	1		
FR5	1		
FR6	1		

NOTE: TABLE TO BE COMPLETED FOR FINAL DESIGN.



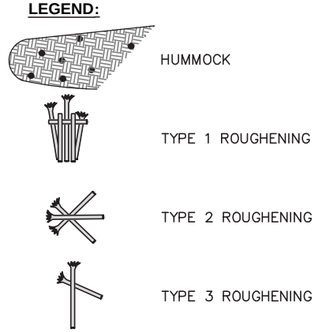


MATCHLINE - SEE SHEET FR2

NOTES:

1. CONSTRUCT FLOODPLAIN HUMMOCKS AFTER TYPES 1, 2, AND 3 ROUGHENING ELEMENTS HAVE BEEN INSTALLED.
2. EXTENTS AND ALIGNMENT OF FLOODPLAIN HUMMOCKS ARE APPROXIMATE AND WILL BE VERIFIED BY THE PROJECT REPRESENTATIVE PRIOR TO THEIR CONSTRUCTION.
3. SEE DWG WD9 FOR EXTENTS OF WOOD BURIAL FOR TYPES 1, 2, AND 3 ROUGHENING ELEMENTS.
4. EXTEND FLOODPLAIN HUMMOCKS TO SETBACK LEVEE AS SHOWN. CORE OF HUMMOCKS SHALL BE EITHER LEVEE REMOVAL SPOILS OR SURPLUS BIOREVETMENT EXCAVATION SPOILS PLACED IN 12" DEEP LAYERS. PLACE A 12" DEEP LAYER OF NATIVE TOPSOIL OVER CORE. COMPACT CORE LAYERS WITH BACKSIDE OF EXCAVATOR BUCKET. DO NOT COMPACT TOPSOIL.
5. SEE PLANTING PLAN FOR FLOODPLAIN HUMMOCK PLANTING DETAILS AND FOR PLANTING DETAILS OVER TYPES 1, 2, AND 3 ROUGHENING ELEMENTS.

LEGEND:



FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60%
5-2013

NUM.	REVISION	BY	DATE

APPROVED:	IAN MOSTRENKO, PE	5-2013
PROJECT MANAGER:	MARK EWBANK, PE	5-2013
DESIGNED:	BRIAN SCOTT	5-2013
ECOLOGIST:		
DESIGN ENTERED:	TODD PRESCOTT	5-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

IAN R. MOSTRENKO STATE OF WASHINGTON 36069 REGISTERED PROFESSIONAL ENGINEER

HERRERA

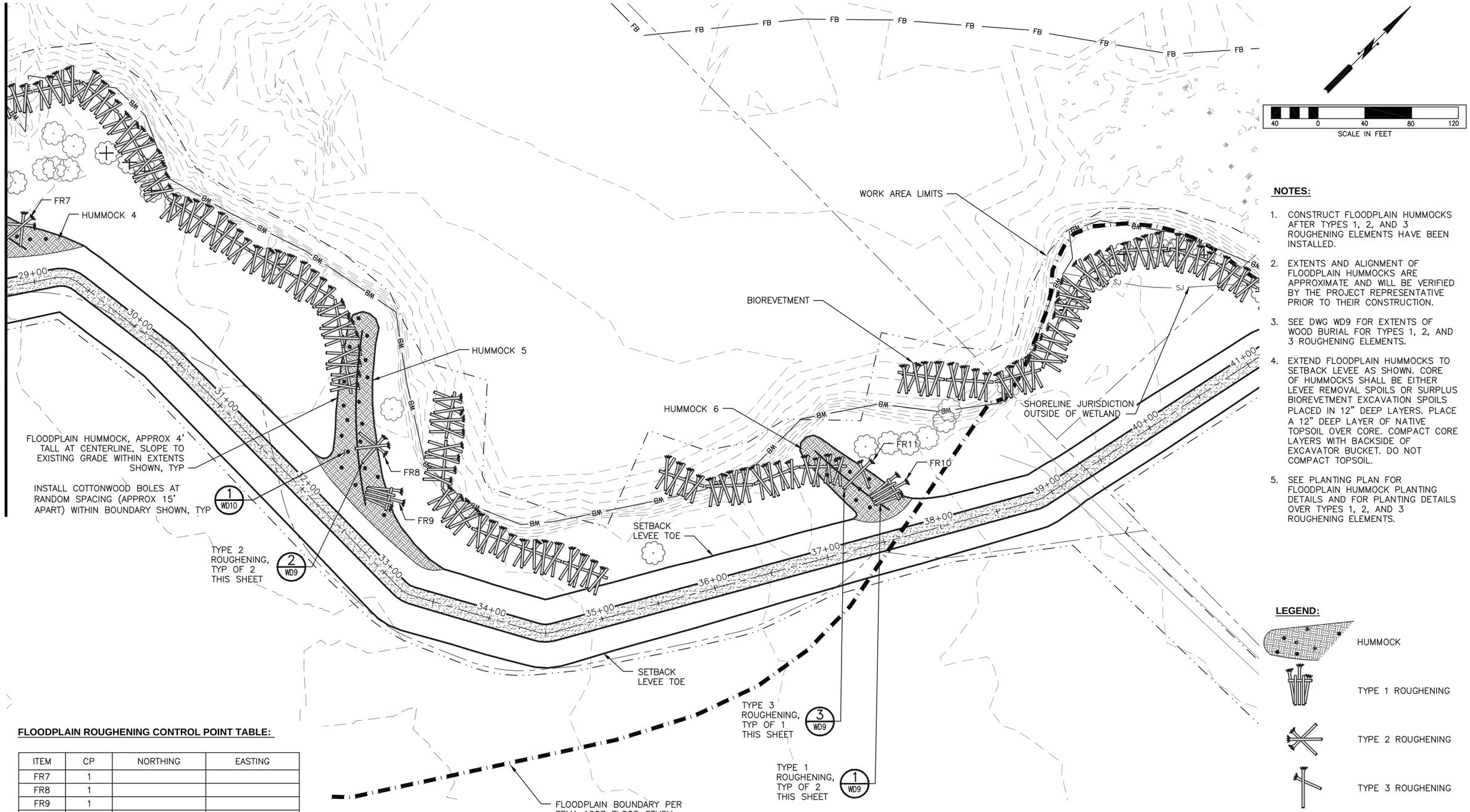
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

FLOODPLAIN ROUGHENING PLAN
(SHEET 1 OF 2)

SHEET 33 OF 69 SHEETS

FR1



NOTES:

1. CONSTRUCT FLOODPLAIN HUMMOCKS AFTER TYPES 1, 2, AND 3 ROUGHENING ELEMENTS HAVE BEEN INSTALLED.
2. EXTENTS AND ALIGNMENT OF FLOODPLAIN HUMMOCKS ARE APPROXIMATE AND WILL BE VERIFIED BY THE PROJECT REPRESENTATIVE PRIOR TO THEIR CONSTRUCTION.
3. SEE DWG WD9 FOR EXTENTS OF WOOD BURIAL FOR TYPES 1, 2, AND 3 ROUGHENING ELEMENTS.
4. EXTEND FLOODPLAIN HUMMOCKS TO SETBACK LEVEE AS SHOWN. CORE OF HUMMOCKS SHALL BE EITHER LEVEE REMOVAL SPOILS OR SURPLUS BIOREVETMENT EXCAVATION SPOILS PLACED IN 12" DEEP LAYERS. PLACE A 12" DEEP LAYER OF NATIVE TOPSOIL OVER CORE. COMPACT CORE LAYERS WITH BACKSIDE OF EXCAVATOR BUCKET. DO NOT COMPACT TOPSOIL.
5. SEE PLANTING PLAN FOR FLOODPLAIN HUMMOCK PLANTING DETAILS AND FOR PLANTING DETAILS OVER TYPES 1, 2, AND 3 ROUGHENING ELEMENTS.

LEGEND:

HUMMOCK

TYPE 1 ROUGHENING

TYPE 2 ROUGHENING

TYPE 3 ROUGHENING

FLOODPLAIN ROUGHENING CONTROL POINT TABLE:

ITEM	CP	NORTHING	EASTING
FR7	1		
FR8	1		
FR9	1		
FR10	1		
FR11	1		

NOTE: TABLE TO BE COMPLETED FOR FINAL DESIGN.

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60%
5-2013

NUM.	REVISION	BY	DATE

APPROVED:	IAN MOSTRENKO, PE	5-2013
PROJECT MANAGER:	MARK EWBANK, PE	5-2013
DESIGNED:	BRIAN SCOTT	5-2013
ECOLOGIST:		
DESIGN ENTERED:	TODD PRESCOTT	5-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

IAN B. MOSTRENKO STATE OF WASHINGTON 36069 REGISTERED PROFESSIONAL ENGINEER

HERRERA

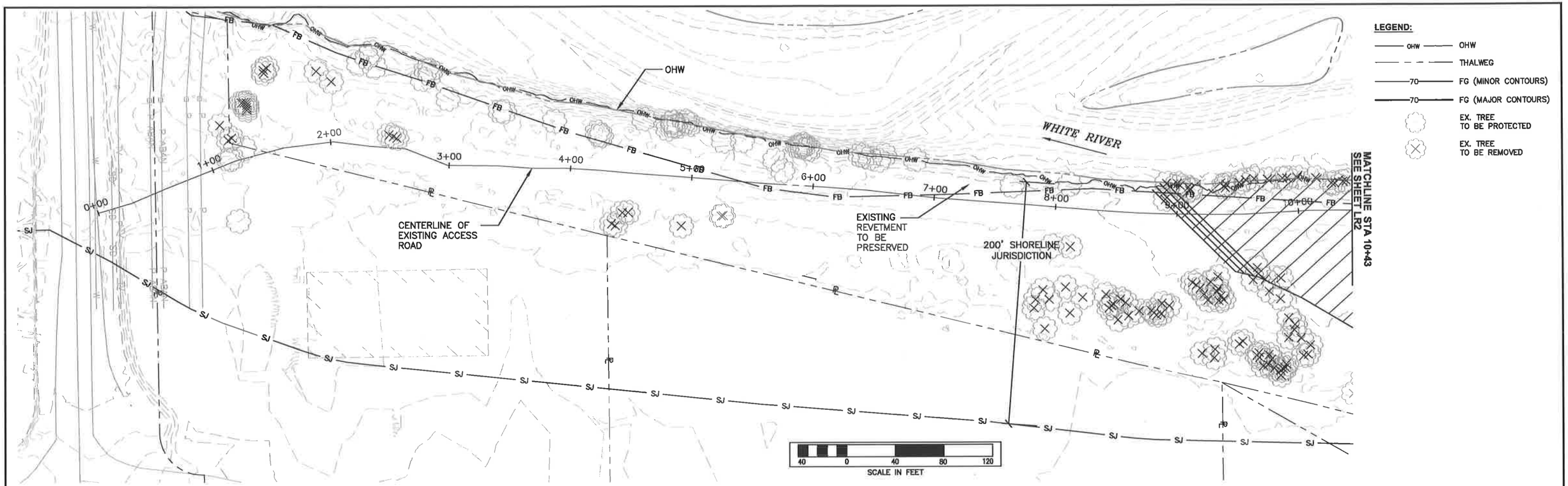
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

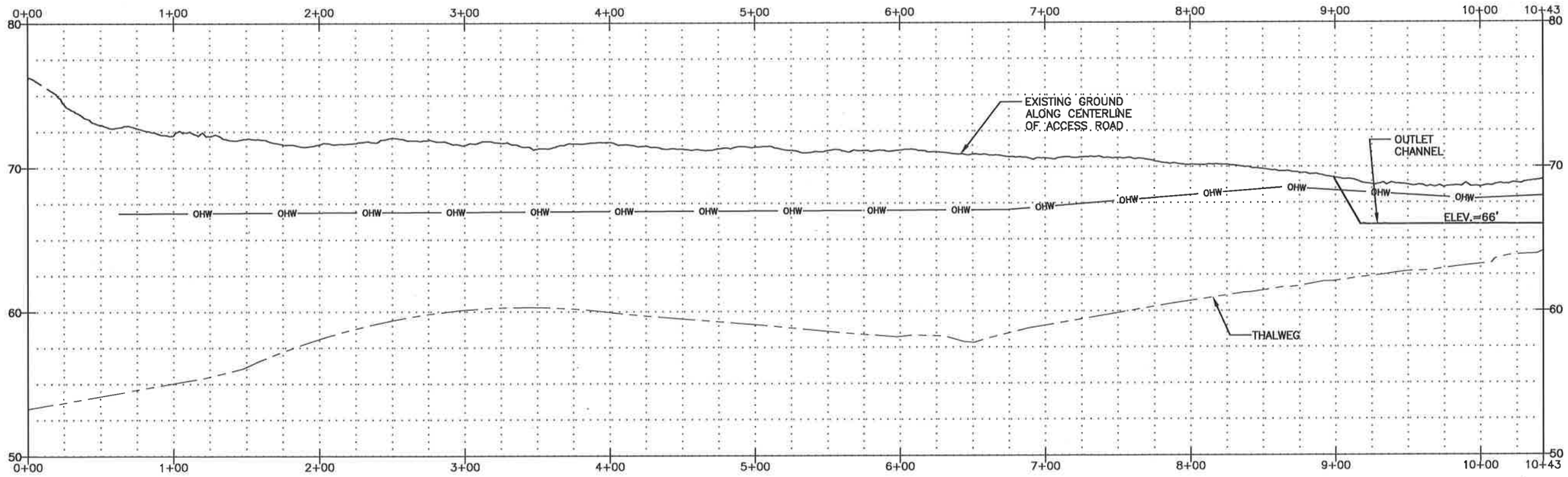
COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

FLOODPLAIN ROUGHENING PLAN
(SHEET 2 OF 2)

SHEET 34 OF 69 SHEETS

FR2





FIELD BOOK:		NUM.	REVISION	BY	DATE	APPROVED: JEANNE STYPULA, PE	4-2013
SURVEYED:			CADD / 60% 5-2013			PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013
SURVEY BASE MAP:						DESIGNED: CHRIS BRUMMER, PE	4-2013
CHECKED:						ECOLOGIST: SARAH McCARTHY	4-2013
						DESIGN ENTERED: LICA DULAN	4-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 40693 REGISTERED PROFESSIONAL ENGINEER

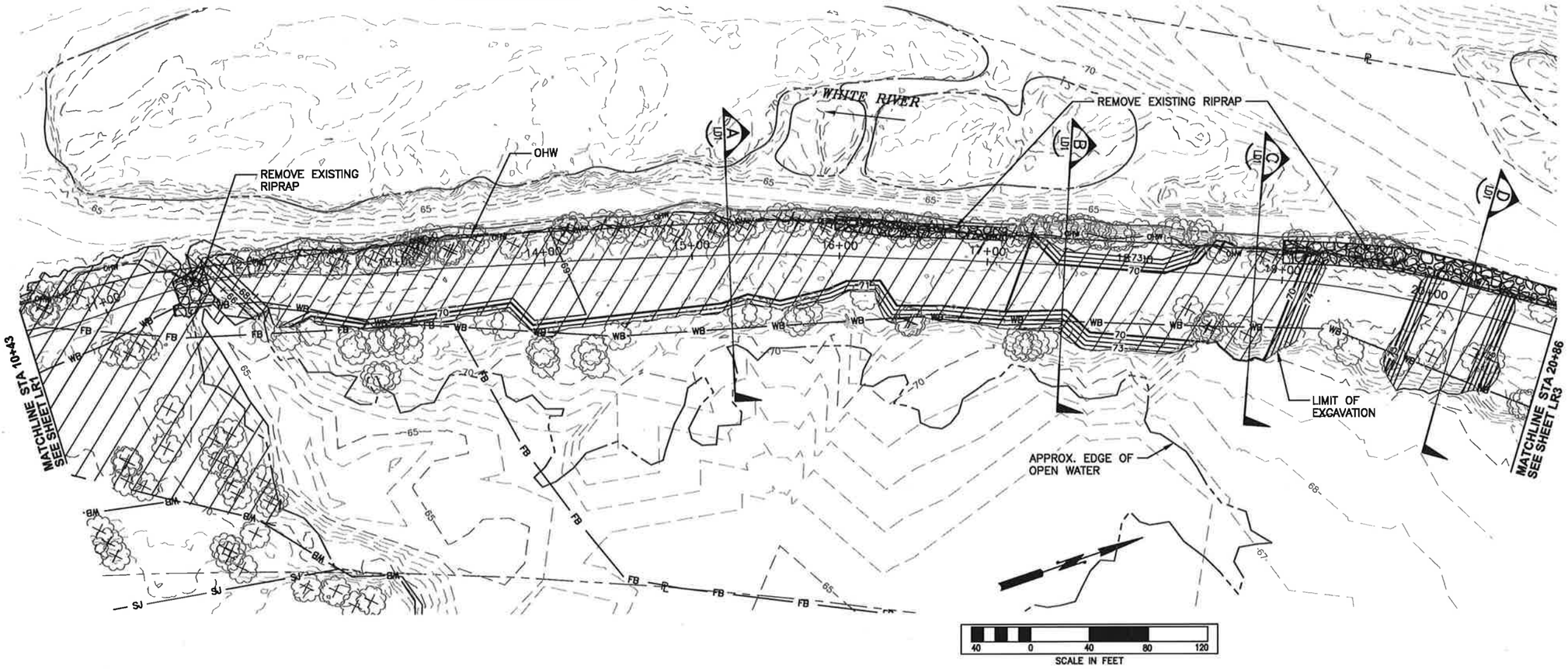
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

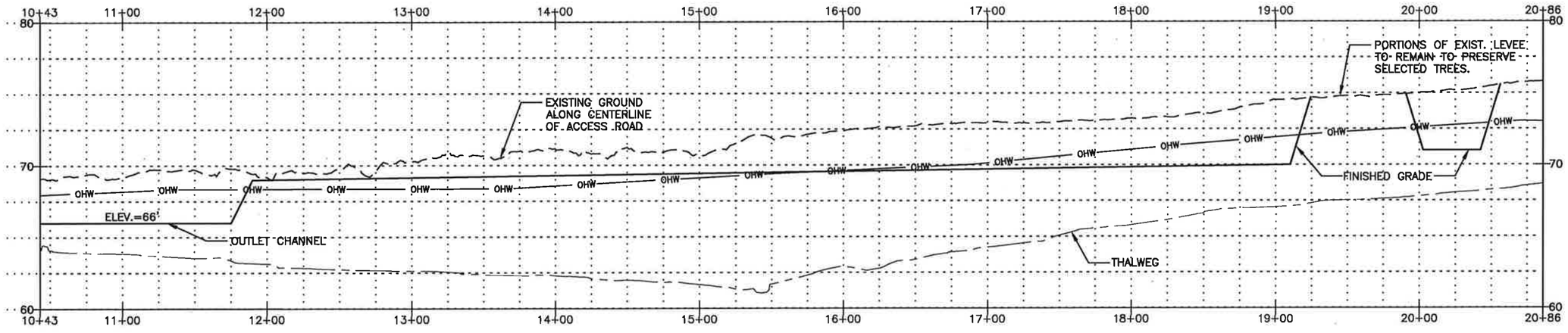
COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

LEVEE EXCAVATION PLAN AND PROFILE

SHEET 35 OF 69 SHEETS

LR1





FIELD BOOK:		NUM.	REVISION	BY	DATE
SURVEYED:			CADD / 60% 5-2013		
SURVEY BASE MAP:					
CHECKED:					

APPROVED:	JEANNE STYPULA, PE	4-2013
PROJECT MANAGER:	CHRIS BRUMMER, PE	4-2013
DESIGNED:	CHRIS BRUMMER, PE	4-2013
ECOLOGIST:	SARAH McCARTHY	4-2013
DESIGN ENTERED:	LICA DULAN	4-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 40093 REGISTERED PROFESSIONAL ENGINEER

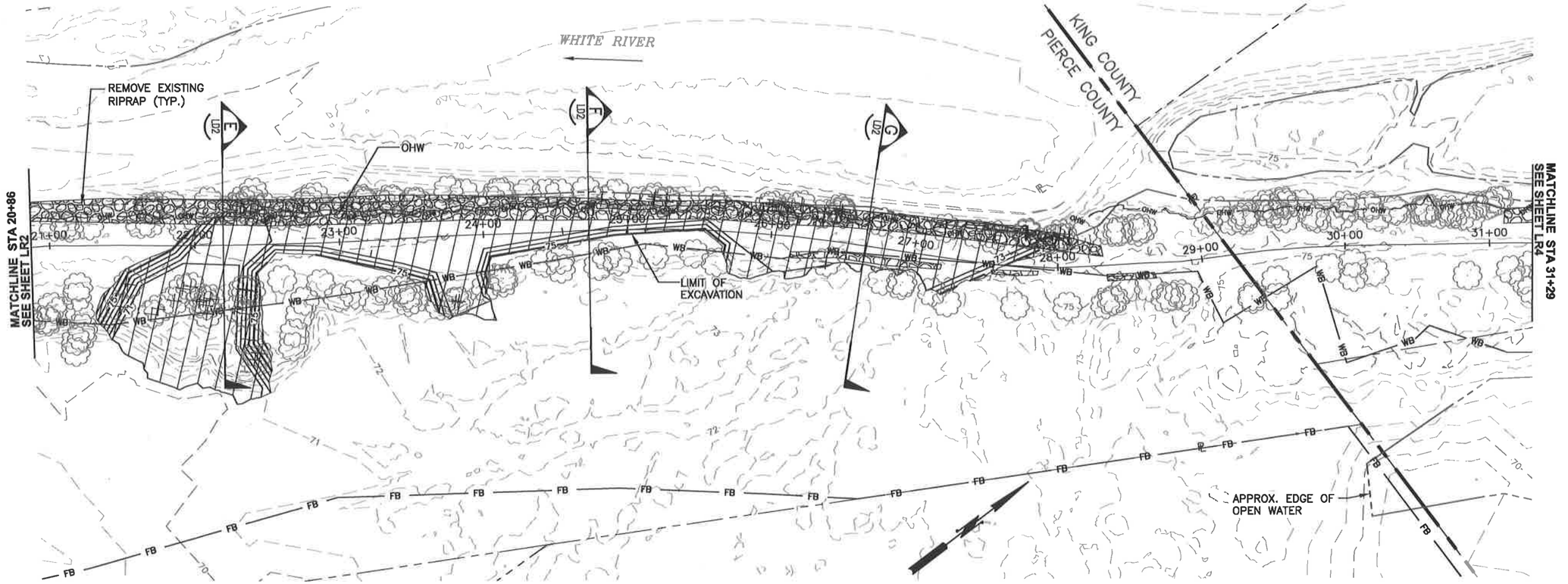
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

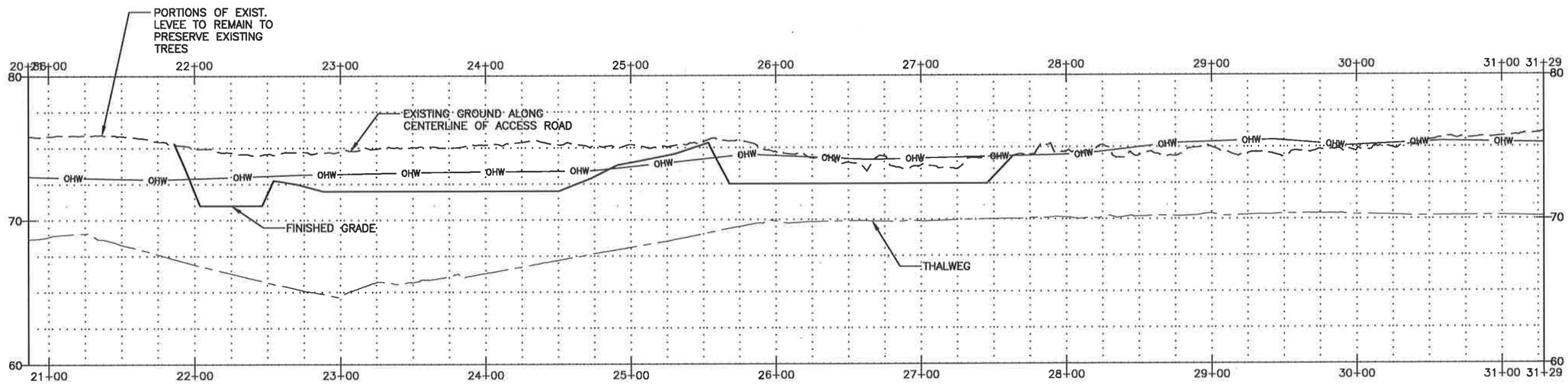
COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

LEVEE EXCAVATION PLAN AND PROFILE

SHEET 36 OF 69 SHEETS

LR2





FIELD BOOK:		NUM.	REVISION	BY	DATE	APPROVED: JEANNE STYPULA, PE	4-2013
SURVEYED:			CADD / 60% 5-2013			PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013
SURVEY BASE MAP:						DESIGNED: CHRIS BRUMMER, PE	4-2013
CHECKED:						ECOLOGIST: SARAH McCARTHY	4-2013
						DESIGN ENTERED: LICA DULAN	4-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

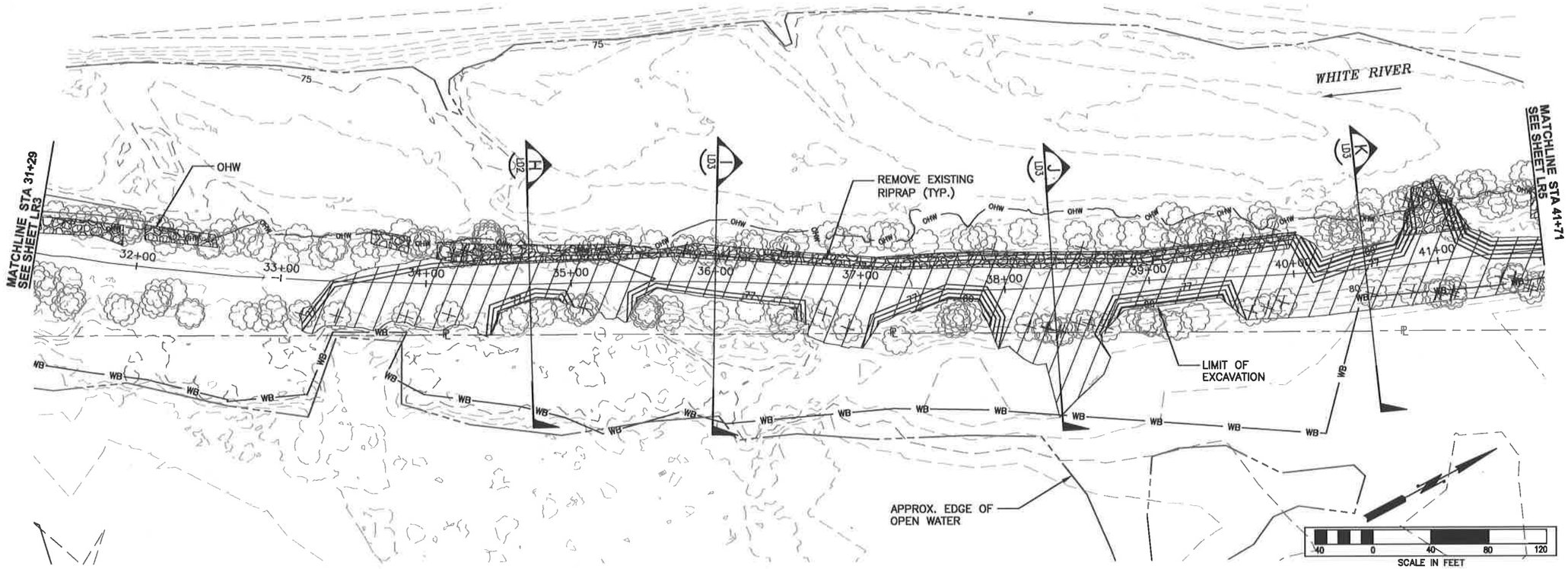
CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 20995 REGISTERED PROFESSIONAL ENGINEER

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION
LEVEE EXCAVATION PLAN AND PROFILE

SHEET 37 OF 69 SHEETS

LR3



31+29	32+00	33+00	34+00	35+00	36+00	37+00	38+00	39+00	40+00	41+00	41+71
90	80	70	60

FIELD BOOK: _____
SURVEYED: _____
SURVEY BASE MAP: _____
CHECKED: _____

CADD / 60%
5-2013

NUM.	REVISION	BY	DATE

APPROVED: JEANNE STYPULA, PE	4-2013
PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013
DESIGNED: CHRIS BRUMMER, PE	4-2013
ECOLOGIST: SARAH McCARTHY	4-2013
DESIGN ENTERED: LICA DULAN	4-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER
STATE OF WASHINGTON
10695
REGISTERED
PROFESSIONAL ENGINEER

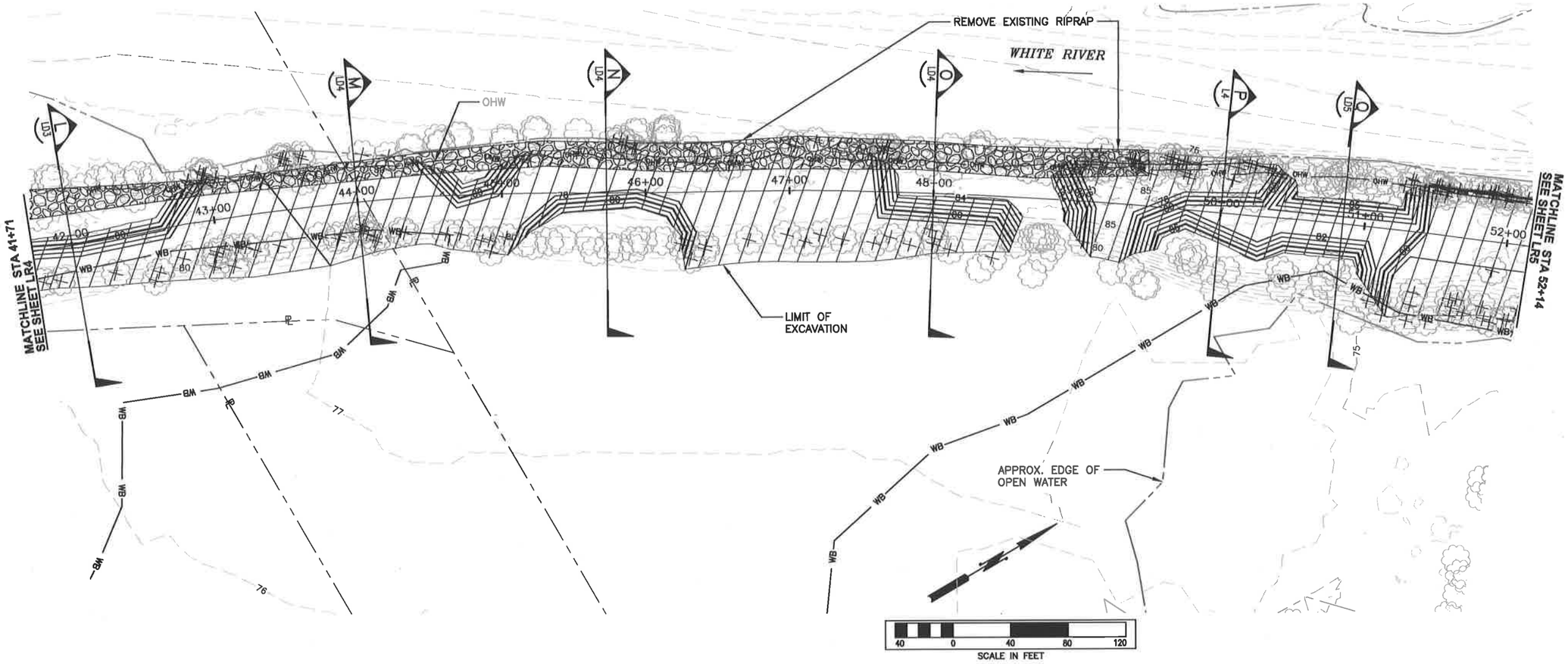
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

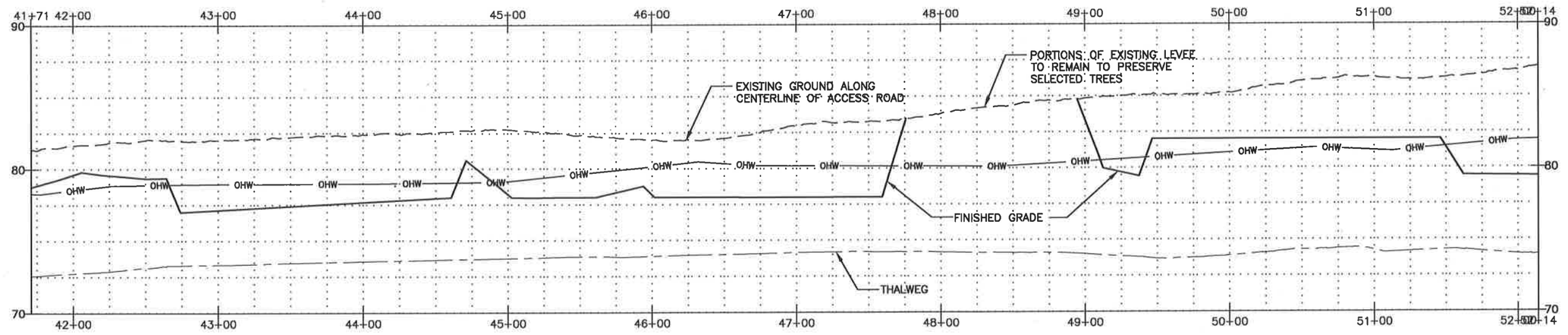
COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

LEVEE EXCAVATION PLAN AND PROFILE

SHEET 38 OF 69 SHEETS

LR4





FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60% 5-2013

NUM.	REVISION	BY	DATE

APPROVED: JEANNE STYPULA, PE	4-2013	
PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	
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SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 20695 REGISTERED PROFESSIONAL ENGINEER

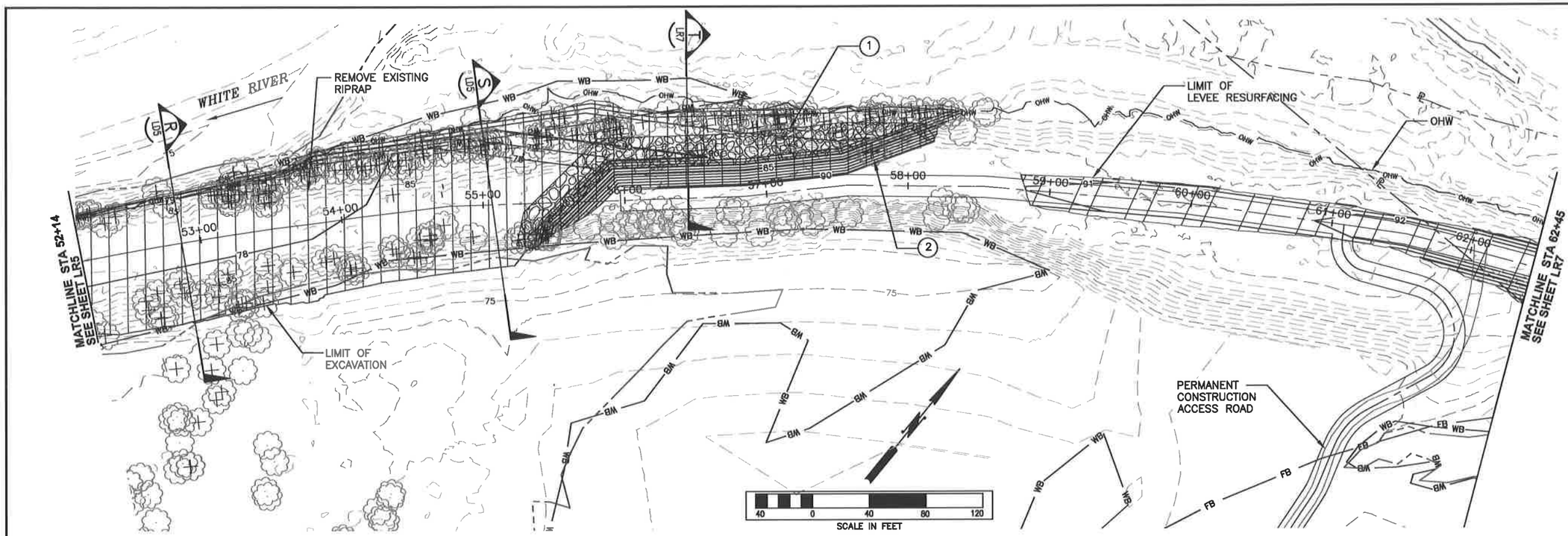
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

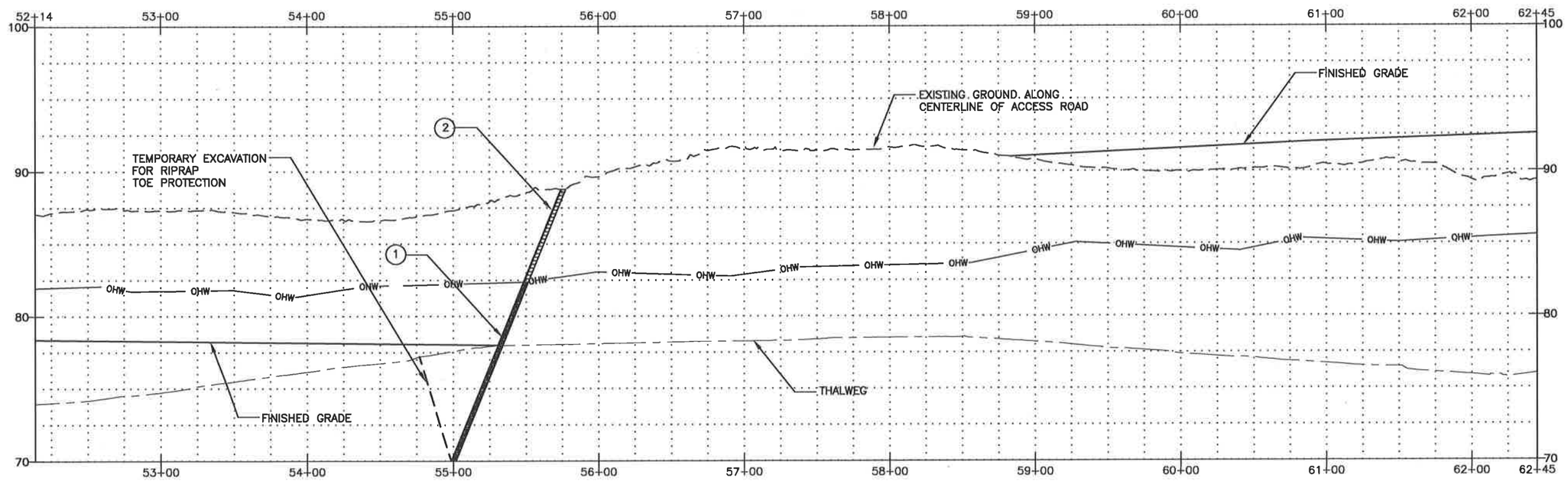
LEVEE EXCAVATION PLAN AND PROFILE

SHEET 39 OF 69 SHEETS

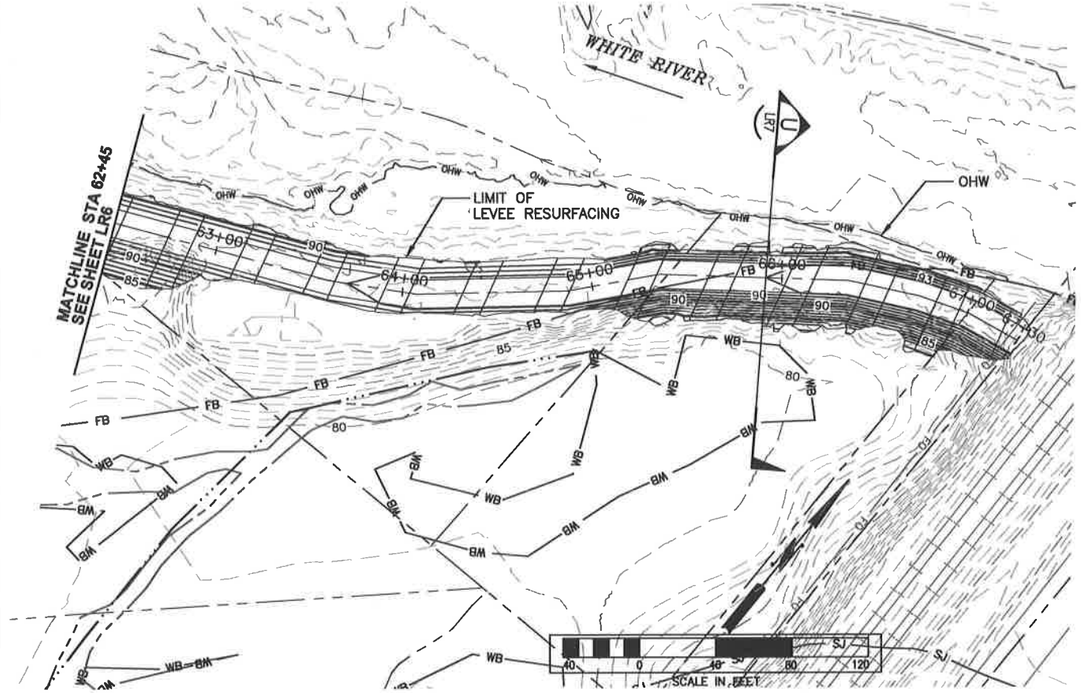
LR5

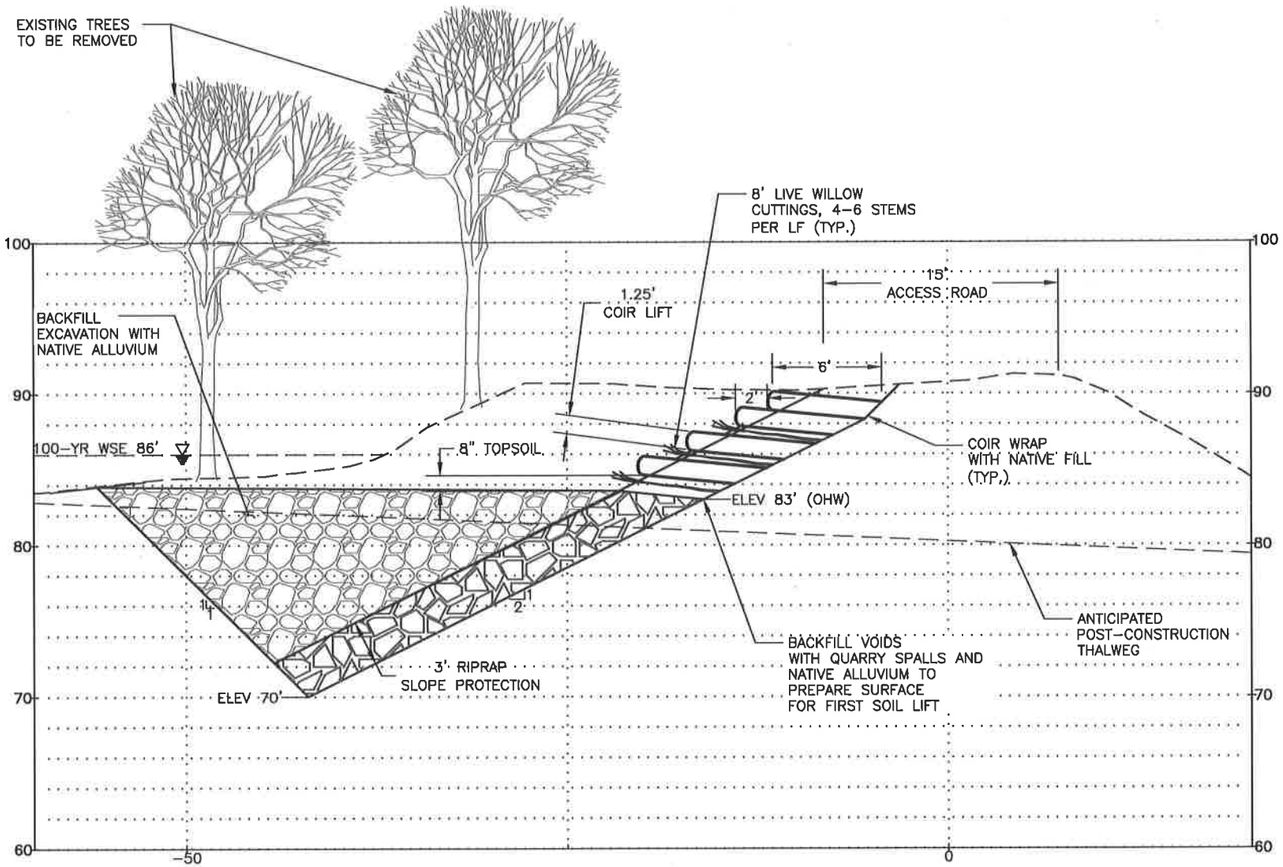


1. PLACE RIPRAP TOE PROTECTION BETWEEN ELEV 70' AND 83' (OHW)
2. INSTALL BIO-ENGINEERED BANK STABILIZATION FROM ELEV 83' (OHW) TO TOP OF BANK

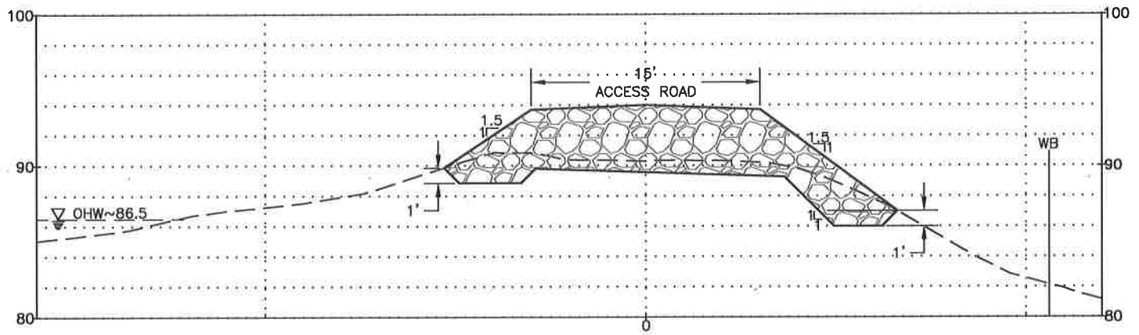


FIELD BOOK:		CADD / 60% 5-2013	APPROVED: JEANNE STYPULA, PE	4-2013	SRFB # RCO 087-1910C	CHRISTOPHER JON BRUMMER STATE OF WASHINGTON 40895 REGISTERED PROFESSIONAL ENGINEER	King County Department of Natural Resources and Parks Water and Land Resources Division River and Floodplain Management Section *Christie True, Director*	COUNTYLINE LEVEE SETBACK WHITE RIVER, RIVER MILE 5.00-6.33 LEVEE MODIFICATION	SHEET 40 OF 69 SHEETS
SURVEYED:			PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	PROJECT No. 1112049 (FL9001)			LEVEE EXCAVATION PLAN AND PROFILE	LR6
SURVEY BASE MAP:			DESIGNED: CHRIS BRUMMER, PE	4-2013					
CHECKED:			ECOLOGIST: SARAH McCARTHY	4-2013					
		NUM. REVISION BY DATE	DESIGN ENTERED: LICA DULAN	4-2013					

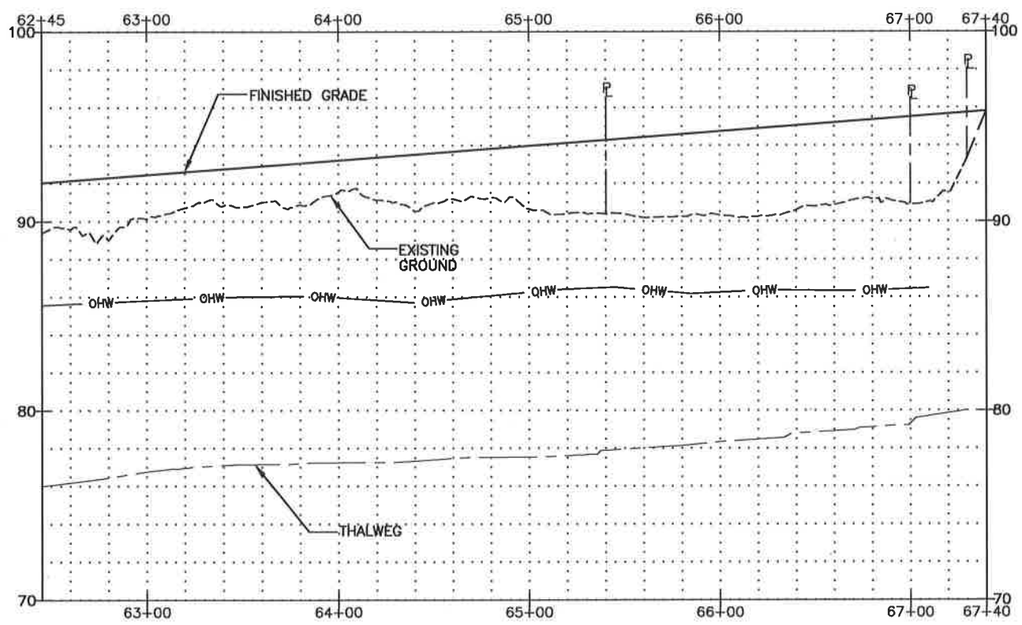




SECTION T–T
LEVEE TOE AND BANK PROTECTION
1"=5'
T
LR6



SECTION U–U
LEVEE RESURFACING
1"=5'
U
LR7



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SURVEYED:				PROJECT MANAGER: CHRIS BRUMMER, PE	4–2013		
SURVEY BASE MAP:				DESIGNED: CHRIS BRUMMER, PE	4–2013	PROJECT No. 1112049 (FL9001)	
CHECKED:				ECOLOGIST: SARAH McCARTHY	4–2013		
				DESIGN ENTERED: LICA DULAN	4–2013		
		NUM.	REVISION	BY	DATE		

CADD / 60%
5–2013

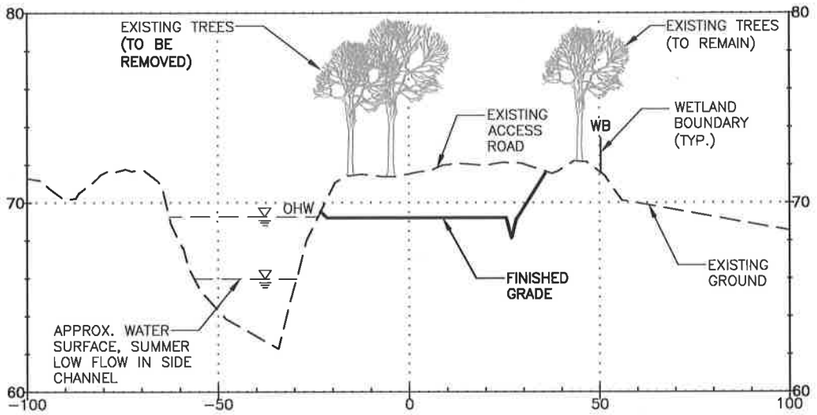
CHRISTOPHER JON BRUMMER — STATE OF WASHINGTON — 18993 — REGISTERED PROFESSIONAL ENGINEER

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION
LEVEE EXCAVATION PLAN AND PROFILE

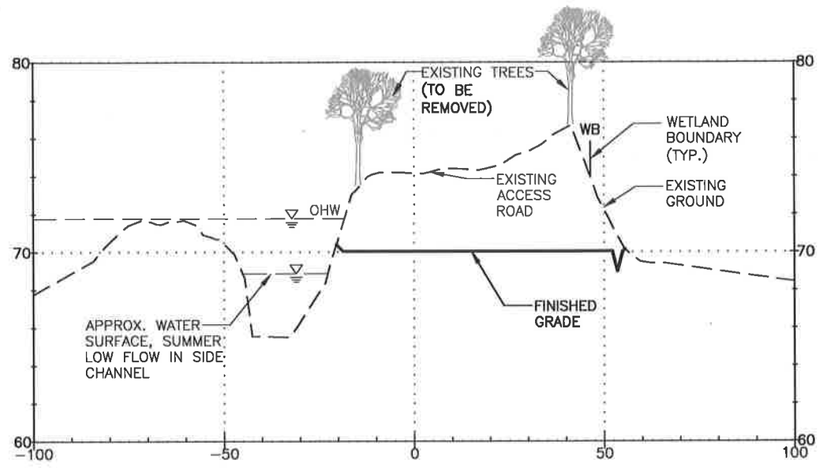
SHEET 41 OF 69 SHEETS
LR7

FIELD BOOK:		CADD / 60% 5-2013	APPROVED: JEANNE STYPULA, PE	4-2013	SRFB # RCO 087-1910C		King County Department of Natural Resources and Parks Water and Land Resources Division **River and Floodplain Management Section** *Christie True, Director*	COUNTYLINE LEVEE SETBACK WHITE RIVER, RIVER MILE 5.00-6.33 LEVEE MODIFICATION LEVEE EXCAVATION PLAN AND PROFILE	SHEET 42 OF 69 SHEETS
SURVEYED:			PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	PROJECT No. 1112049 (FL9001)				
SURVEY BASE MAP:			DESIGNED: CHRIS BRUMMER, PE	4-2013					
CHECKED:			ECOLOGIST: SARAH McCARTHY	4-2013					LR7
		NUM. REVISION BY DATE	DESIGN ENTERED: LICA DULAN	4-2013					



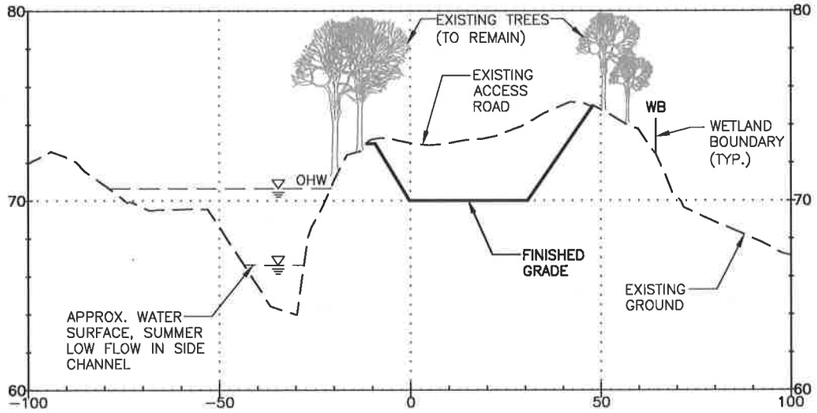
SECTION A–A
STA. 15+25
NTS

A
LR2



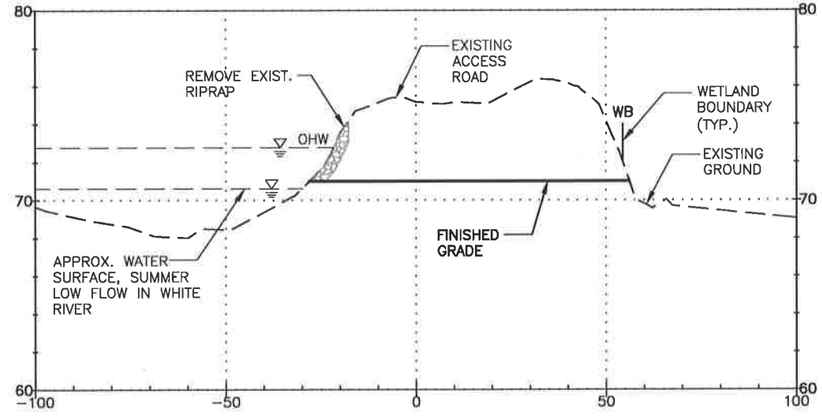
SECTION C–C
STA. 18+81
NTS

C
LR2



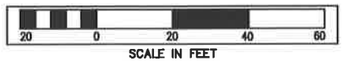
SECTION B–B
STA. 17+53
NTS

B
LR2



SECTION D–D
STA. 20+24
NTS

D
LR2



SCALE IN FEET

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5-2013

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SRFB # RCO 087–1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER — STATE OF WASHINGTON — 40695 — REGISTERED PROFESSIONAL ENGINEER

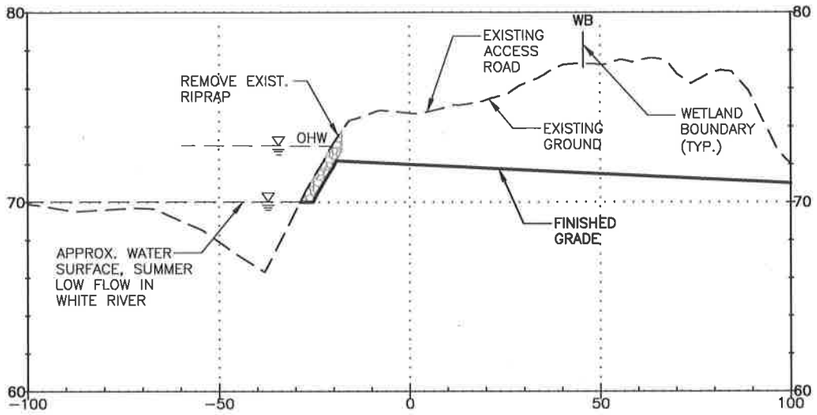
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

LEVEE EXCAVATION CROSS SECTIONS

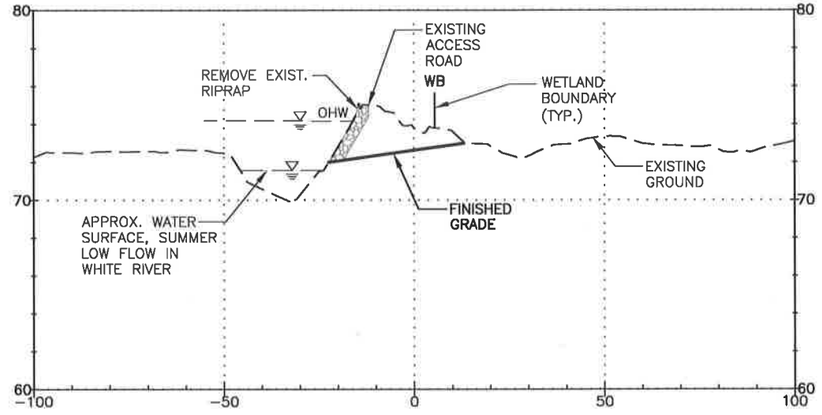
SHEET 43 OF 69 SHEETS

LD1



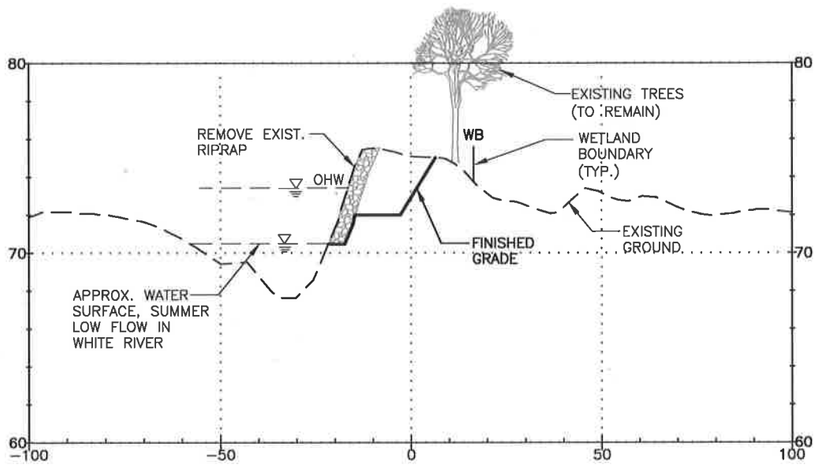
SECTION E–E
STA. 22+20
NTS

E
LR3



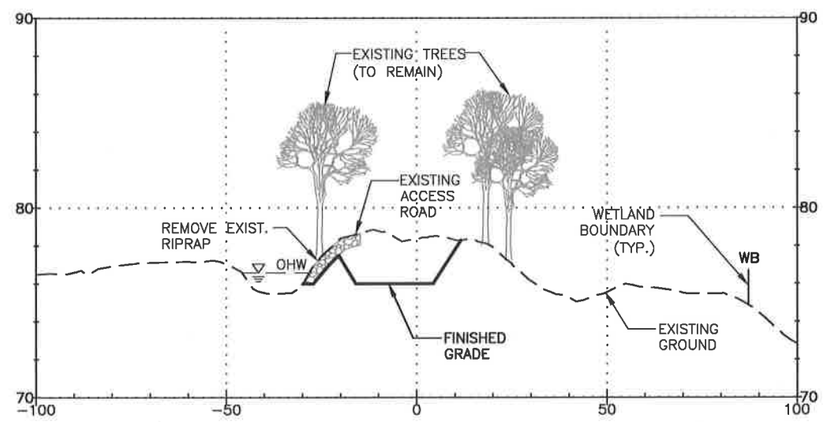
SECTION G–G
STA.26+66
NTS

G
LR3



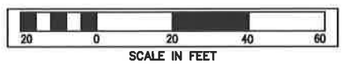
SECTION F–F
STA. 24+73
NTS

F
LR3



SECTION H–H
STA. 34+72
NTS

H
LR4



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SRFB # RCO 087–1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER — STATE OF WASHINGTON — 20693 — REGISTERED PROFESSIONAL ENGINEER

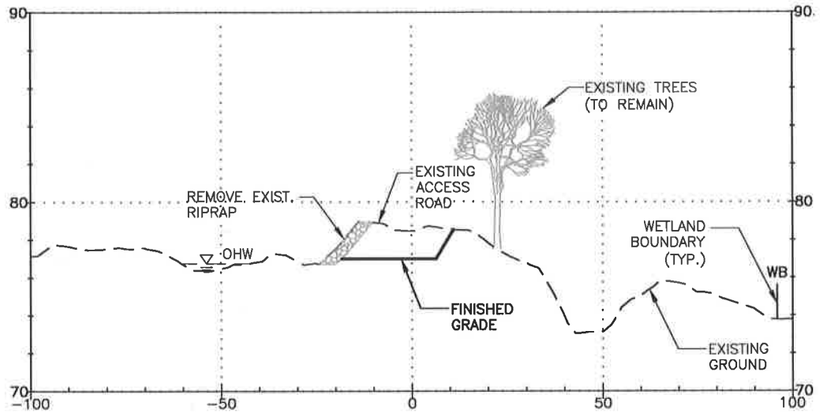
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

LEVEE EXCAVATION CROSS SECTIONS

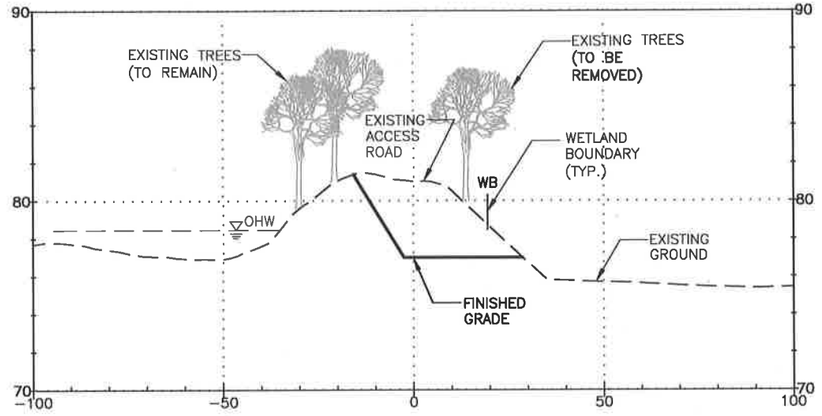
SHEET 44 OF 69 SHEETS

LD2



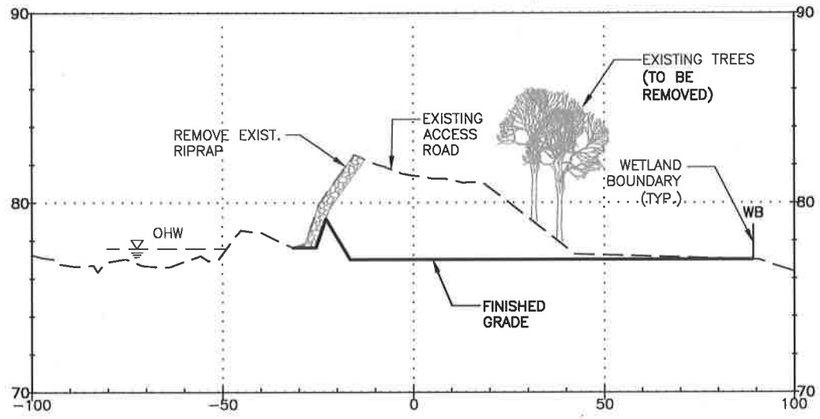
SECTION I–I
STA. 36+00
NTS

I
LR4



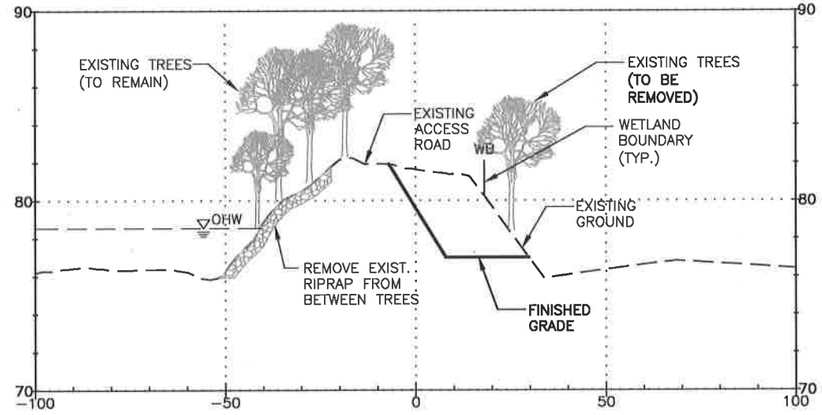
SECTION K–K
STA. 40+50
NTS

K
LR4



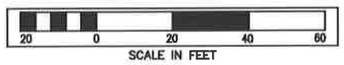
SECTION J–J
STA. 38+34
NTS

J
LR4



SECTION L–L
STA. 42+00
NTS

L
LR5



FIELD BOOK:
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SURVEY BASE MAP:
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DESIGN ENTERED: LICA DULAN	4–2013	

SRFB # RCO 087–1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER
STATE OF WASHINGTON
40693
REGISTERED
PROFESSIONAL ENGINEER

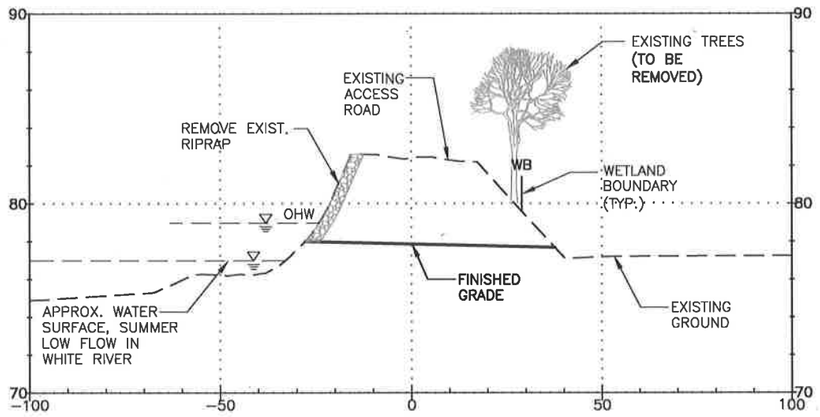
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

LEVEE EXCAVATION CROSS SECTIONS

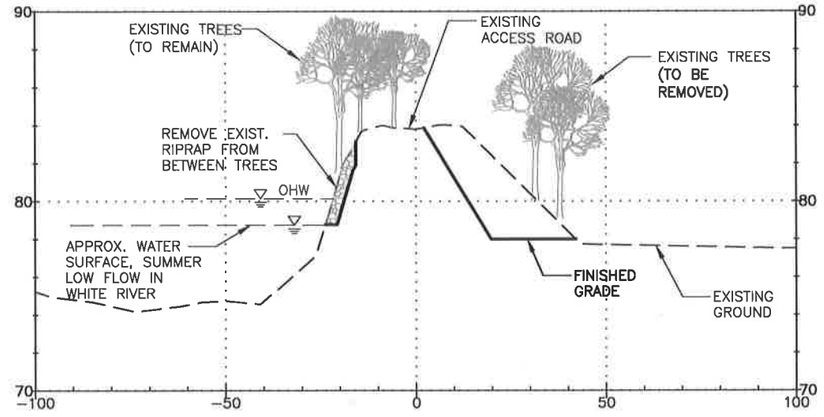
SHEET
45
OF
69
SHEETS

LD3



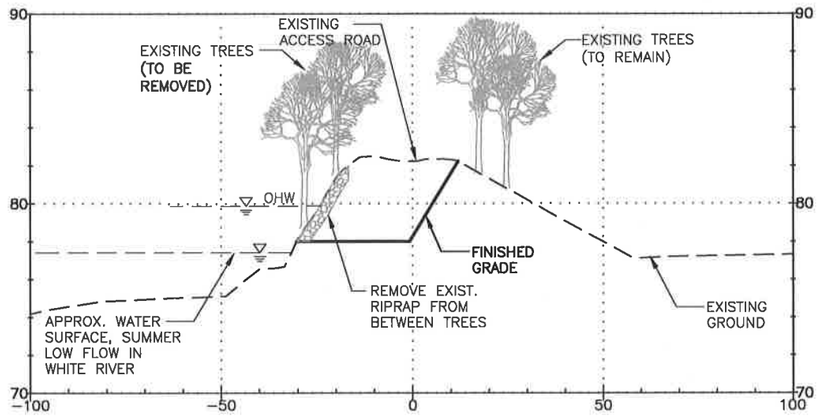
SECTION M–M
STA. 44+00
NTS

M
LR5



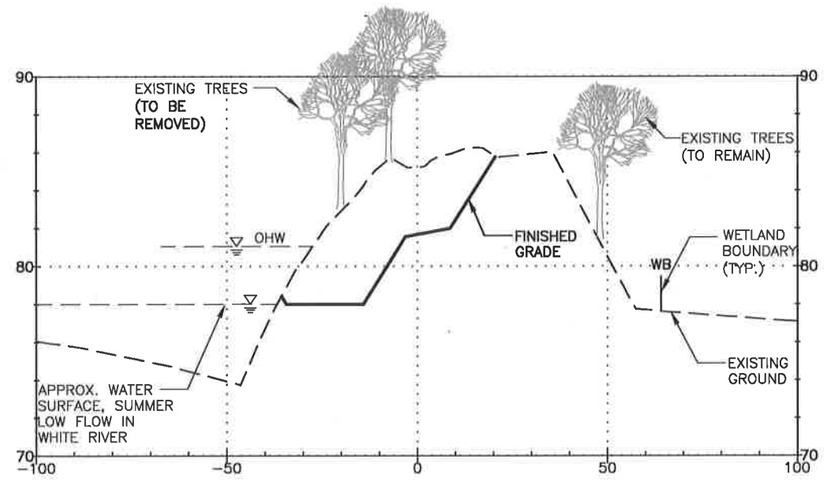
SECTION O–O
STA. 48+00
NTS

O
LR5



SECTION N–N
STA. 45+73
NTS

N
LR5



SECTION P–P
STA. 50+00
NTS

P
LR5

20 0 20 40 60
SCALE IN FEET

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

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APPROVED:	JEANNE STYPULA, PE	4-2013
PROJECT MANAGER:	CHRIS BRUMMER, PE	4-2013
DESIGNED:	CHRIS BRUMMER, PE	4-2013
ECOLOGIST:	SARAH McCARTHY	4-2013
DESIGN ENTERED:	LICA DULAN	4-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER — STATE OF WASHINGTON — 10095 — REGISTERED PROFESSIONAL ENGINEER

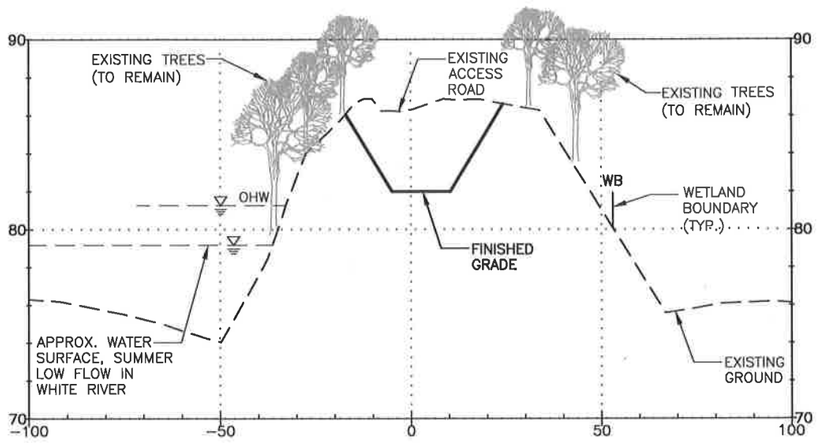
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

LEVEE EXCAVATION CROSS SECTIONS

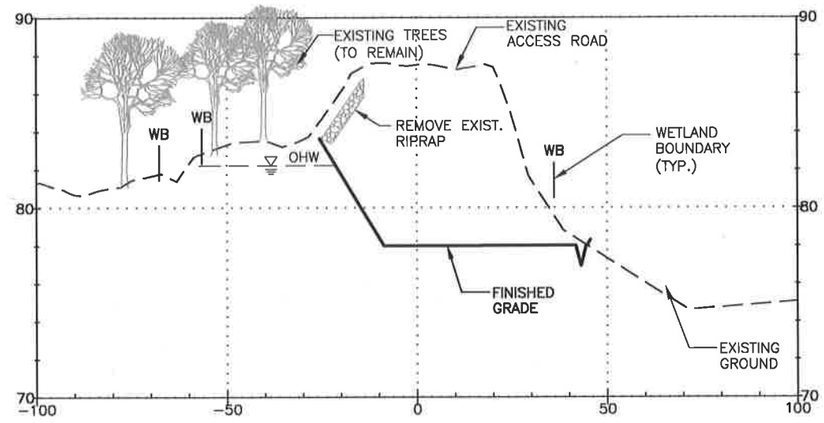
SHEET 46 OF 69 SHEETS

LD4



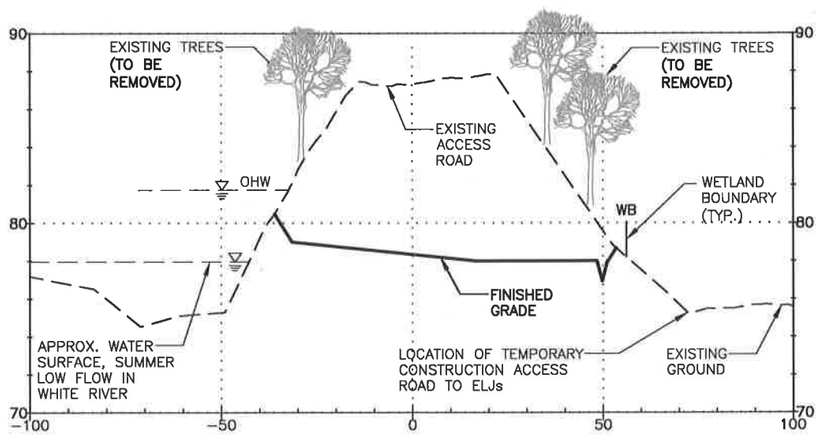
SECTION Q–Q
STA. 50+85
NTS

Q
LR5



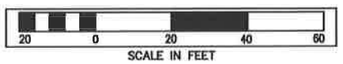
SECTION S–S
STA. 55+06
NTS

S
LR6



SECTION R–R
STA. 52+86
NTS

R
LR6



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PROJECT No. 1112049 (FL9001)

CHRISTOPHER JON BRUMMER — STATE OF WASHINGTON — 40605 — REGISTERED PROFESSIONAL ENGINEER

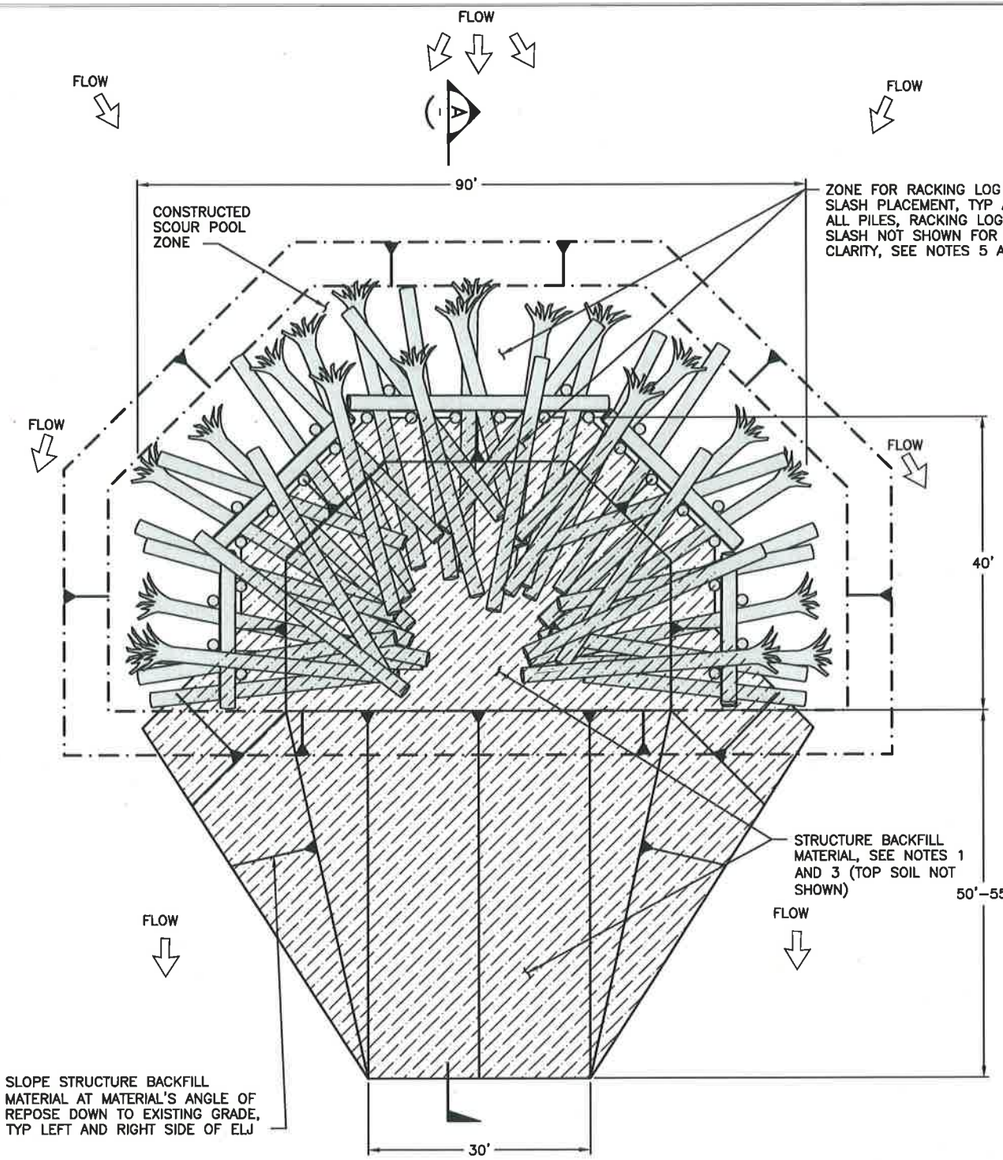
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

LEVEE EXCAVATION CROSS SECTIONS

SHEET 47 OF 69 SHEETS

LD5



PLAN – LARGE APEX ELJ 1 WS2

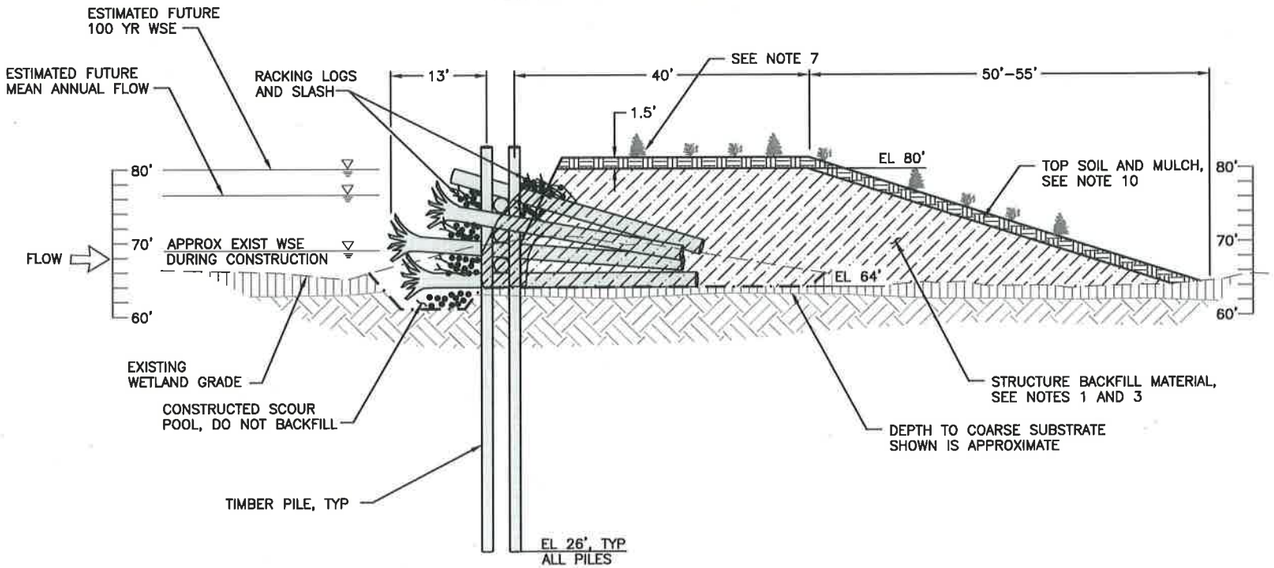
10 0 10 20 30
SCALE IN FEET

LEGEND:

- EXISTING GRADE
- PROPOSED GRADE
- EXCAVATION LIMITS
- SLASH PLACEMENT ZONE
- NATIVE TOP SOIL AND MULCH
- COARSE ALLUVIUM FROM EXISTING LEVEE
- EXISTING COARSE SUBSTRATE
- EXISTING FINE SUBSTRATE

NOTES:

1. EXTENTS OF BACKFILL ARE APPROXIMATE AND MAY VARY FROM THAT SHOWN.
2. EXCAVATION LIMITS SHOWN ARE APPROXIMATE AND WILL VARY BASED ON CONSTRUCTION MEANS AND METHODS, SUBSURFACE CONDITIONS, DEPTH OF SURFACE WATER (IF ANY), AND LOCATION OF STRUCTURE. CONTRACTOR SHALL ADJUST EXCAVATION LIMITS AS NECESSARY TO COMPLETE CONSTRUCTION.
3. PLACE ONLY DRY LEVEE REMOVAL SPOILS WITHIN INTERIOR CORE OF STRUCTURE AND OVER FINAL LAYER OF LOGS IN 2' LAYERS AND COMPACT WITH BACKSIDE OF EXCAVATOR BUCKET. SATURATED BACKFILL MATERIAL THAT CANNOT BE PROPERLY COMPACTED WILL NOT BE ALLOWED.
4. SEE LOG SCHEDULE ON STRUCTURE LAYERING PLAN FOR DIMENSIONS AND NUMBERS OF EACH LOG TYPE IN STRUCTURE.
5. PLACEMENT OF RACKING LOGS SHOWN IS APPROXIMATE. PLACE RACKING LOGS ALONG UPSTREAM FACE OF STRUCTURE. APPROXIMATELY 1/2 OF RACKING LOGS SHALL BE PLACED ACROSS PILE ROWS (PERPENDICULAR TO FLOW) AND 1/2 OF THE RACKING LOGS PARALLEL TO FLOW AND EXTENDING INTO THE CORE OF THE STRUCTURE BETWEEN HORIZONTAL KEY LOGS. RACKING SHALL BE PLACED WITH EACH LAYER OF KEY LOGS, SHALL BE ANGLED UP AND DOWN FROM THE HORIZONTAL, AND SHALL BE PLACED TO CREATE AN INTERLOCKING MATRIX OF LOGS SECURED BETWEEN VERTICAL PILE LOGS AND HORIZONTAL KEY LOGS. COORDINATE WITH THE PROJECT REPRESENTATIVE PRIOR TO PLACING RACKING LOGS, SLASH AND BACKFILLING.
6. SEE STRUCTURE LAYERING PLAN FOR SLASH PLACEMENT. PLACE SLASH AS SHOWN ON LAYERING PLAN TO FILL VOIDS BETWEEN RACKING LOGS.
7. SEE PLANTING PLAN FOR RECOMMENDED STRUCTURE PLANTING INFORMATION AND DETAILS.
8. CONSTRUCT TEMPORARY ACCESS PATH TO ELJ AND WORK PLATFORM AS NECESSARY USING ALLUVIUM EXCAVATED FROM THE EXISTING LEVEE AS SHOWN ON DWG ED2. ADJUST EXTENTS AND ELEVATION OF ACCESS PATH AND WORK PLATFORM AS NEEDED TO COMPLETE CONSTRUCTION. ACCESS PATH AND WORK PLATFORM NOT SHOWN HERE FOR CLARITY. SEE DWG ED2 FOR ADDITIONAL TESC AND WORK AREA ISOLATION MEASURES NEEDED TO COMPLETE STRUCTURE CONSTRUCTION.
9. INSTALL SILT CURTAIN, OR EQUIVALENT AS APPROVED BY THE PROJECT REPRESENTATIVE, AROUND PERIPHERY OF STRUCTURE AND WITHIN CONSTRUCTION LIMITS TO CONTAIN TURBID WATER DURING CONSTRUCTION. SILT CURTAIN NOT SHOWN HERE FOR CLARITY.
10. PLACE 18" OF NATIVE TOP SOIL OVER STRUCTURE BACKFILL MATERIAL, THEN CAP WITH 3"–6" OF MULCH, TO EXTENTS SHOWN OR AS DIRECTED BY THE PROJECT REPRESENTATIVE.
11. CABLE LASHING FOR KEY LOGS TO PILES NOT SHOWN FOR CLARITY. SEE STRUCTURE LAYERING PLAN FOR LASHING LOCATIONS.



SECTION – LARGE APEX ELJ A

10 0 10 20 30
SCALE IN FEET

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60%
5-2013

NUM.	REVISION	BY	DATE

APPROVED:	IAN MOSTRENKO, PE	5-2013
PROJECT MANAGER:	MARK EWBANK, PE	5-2013
DESIGNED:	BRIAN SCOTT	5-2013
ECOLOGIST:		
DESIGN ENTERED:	TODD PRESCOTT	5-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

IAN B. MOSTRENKO STATE OF WASHINGTON 36069 REGISTERED PROFESSIONAL ENGINEER

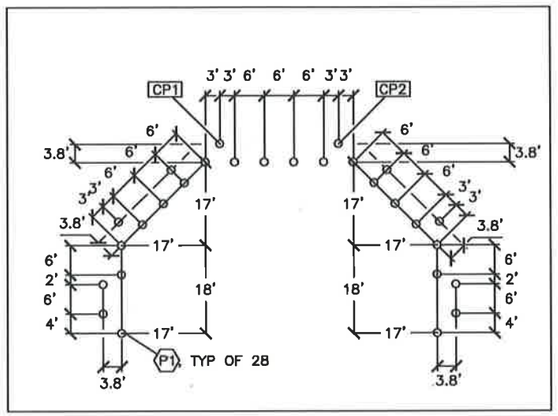
HERRERA

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

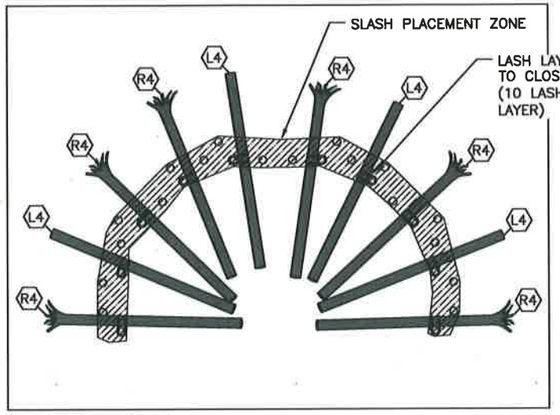
COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION
LARGE APEX ELJ PLAN AND SECTIONS

SHEET 48 OF 69 SHEETS

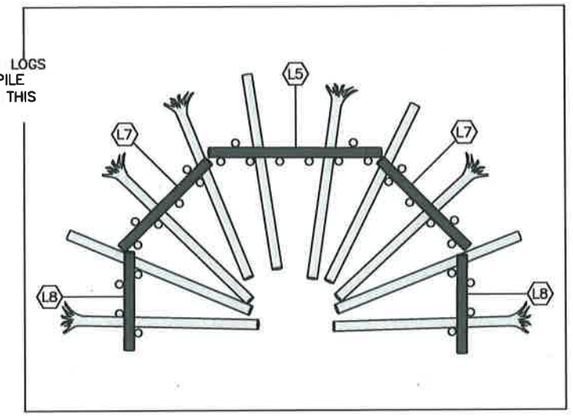
WD1



PILES



LAYER 1



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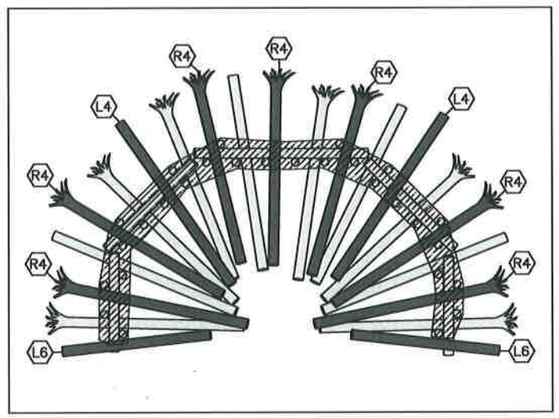

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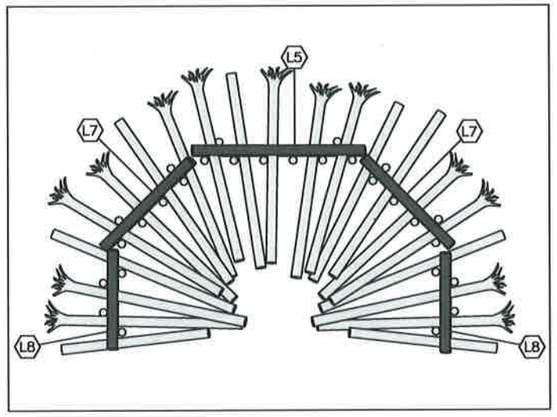

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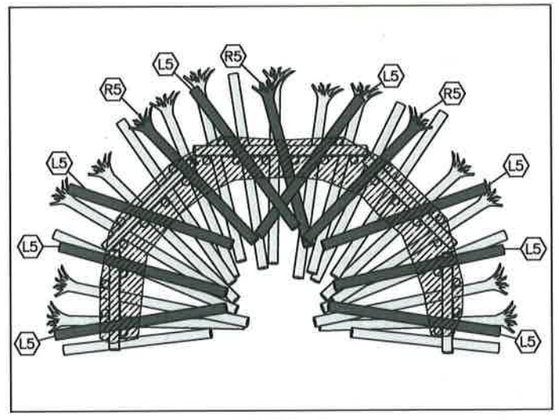

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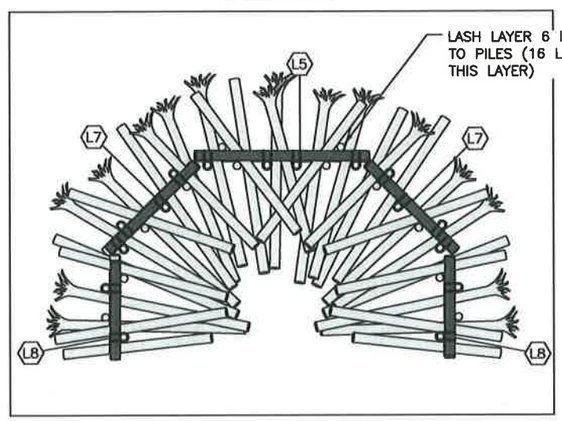

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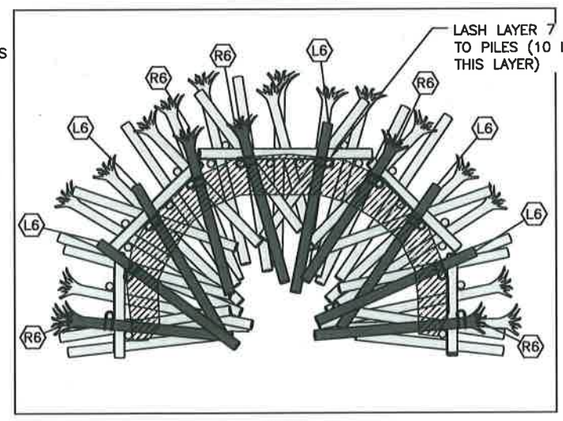

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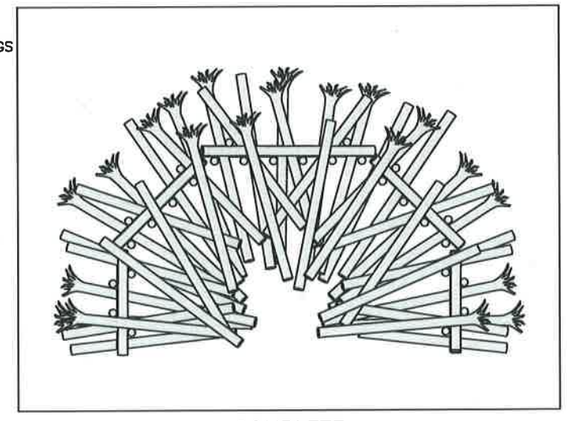


COMPLETE

LOG SCHEDULE:

LOG TYPE	MIN DIA (IN)	LENGTH (FT)	ROOTWAD	TOTAL QTY PER ELJ
P1	18 (BUTT)	55	NO	28
R4	24	40	YES	13
R5	24	35	YES	8
L4	24	40	NO	6
L5	24	35	NO	16
L6	24	30	NO	2
L7	24	25	NO	6
L8	24	20	NO	6
RACKING	6–16	15–30	OPTIONAL	200
SLASH	–	–	–	200 CY

LEGEND:

- CURRENT LAYER KEY LOG
- PREVIOUS LAYER KEY LOG (AFTER BACKFILLING)
- O VERTICAL PILE LOG
- SLASH PLACEMENT ZONE
- L1 KEY LOG TYPE ID (LOG TYPE L1)
- CP1 STRUCTURE CONTROL POINT (1)

NOTES:

1. STRUCTURE GENERAL LOCATION AND ORIENTATION SHALL BE STAKED BY THE CONTRACTOR. FINAL STRUCTURE LOCATION AND ORIENTATION TO BE FIELD VERIFIED BY THE PROJECT REPRESENTATIVE FOLLOWING CONTRACTOR STAKING.
2. ALL PILE LOCATIONS SHALL BE STAKED BY THE CONTRACTOR AND APPROVED BY THE PROJECT REPRESENTATIVE PRIOR TO PILE INSTALLATION.
3. ALL PILE LOCATIONS SHALL BE BASED ON THE LOCATION OF THE STRUCTURE CONTROL POINTS AND SHALL BE WITHIN 6" OF THE LOCATION SHOWN ON THE DRAWINGS.
4. PILE DIAMETERS SHALL BE MEASURED AT THE BUTT (LARGER) ENDS. PILES SHALL BE UNTREATED DOUGLAS FIR MEETING ASTM D25 REQUIREMENTS.
5. LOG MATERIALS SHALL BE PLACED AT THE LOCATIONS AND ORIENTATIONS SPECIFIED ON THE DRAWINGS OR AS DIRECTED BY THE PROJECT REPRESENTATIVE. TRIM CUT ENDS OF HORIZONTAL KEY LOGS TO FIT AS REQUIRED.
6. PLACE SLASH OVER AND BETWEEN KEY LOGS AND PILES AS SHOWN FOR EACH LAYER SPECIFIED FOLLOWING PLACEMENT OF KEY LOGS AND RACKING LOGS. PLACE APPROXIMATELY 2' TO 3' OF NATIVE ALLUVIUM OVER 1/2 THE WIDTH OF SLASH TO SECURE IN PLACE SUCH THAT SLASH IS VISIBLE FOLLOWING CONSTRUCTION. COORDINATE WITH THE PROJECT REPRESENTATIVE PRIOR TO PLACING RACKING AND SLASH.
7. BACKFILL EACH LAYER WITH DRY COARSE ALLUVIUM AND RIPRAP EXCAVATED FROM THE EXISTING LEVEE FLUSH TO TOP OF CURRENT LAYER PRIOR TO CONSTRUCTING SUBSEQUENT LAYER. COMPACT ALLUVIUM BACKFILL WITH EXCAVATOR BUCKET. FILL ALL VOIDS BETWEEN BOULDERS (ROCKS GREATER THAN 12" DIAMETER) WITH FINER ALLUVIUM TO ACHIEVE A WELL GRADED AND COMPACTED MASS.
8. SEE DWG WS2 FOR COORDINATES OF STRUCTURE CONTROL POINTS.
9. SEE DWG WD10 FOR CABLE LASHING DETAIL.

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60% 5-2013

NUM.	REVISION	BY	DATE

APPROVED: IAN MOSTRENKO, PE	5-2013	
PROJECT MANAGER: MARK EWBANK, PE	5-2013	
DESIGNED: BRIAN SCOTT	5-2013	
ECOLOGIST:		
DESIGN ENTERED: TODD PRESCOTT	5-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

IAN B. MOSTRENKO STATE OF WASHINGTON 36069 REGISTERED PROFESSIONAL ENGINEER

HERRERA

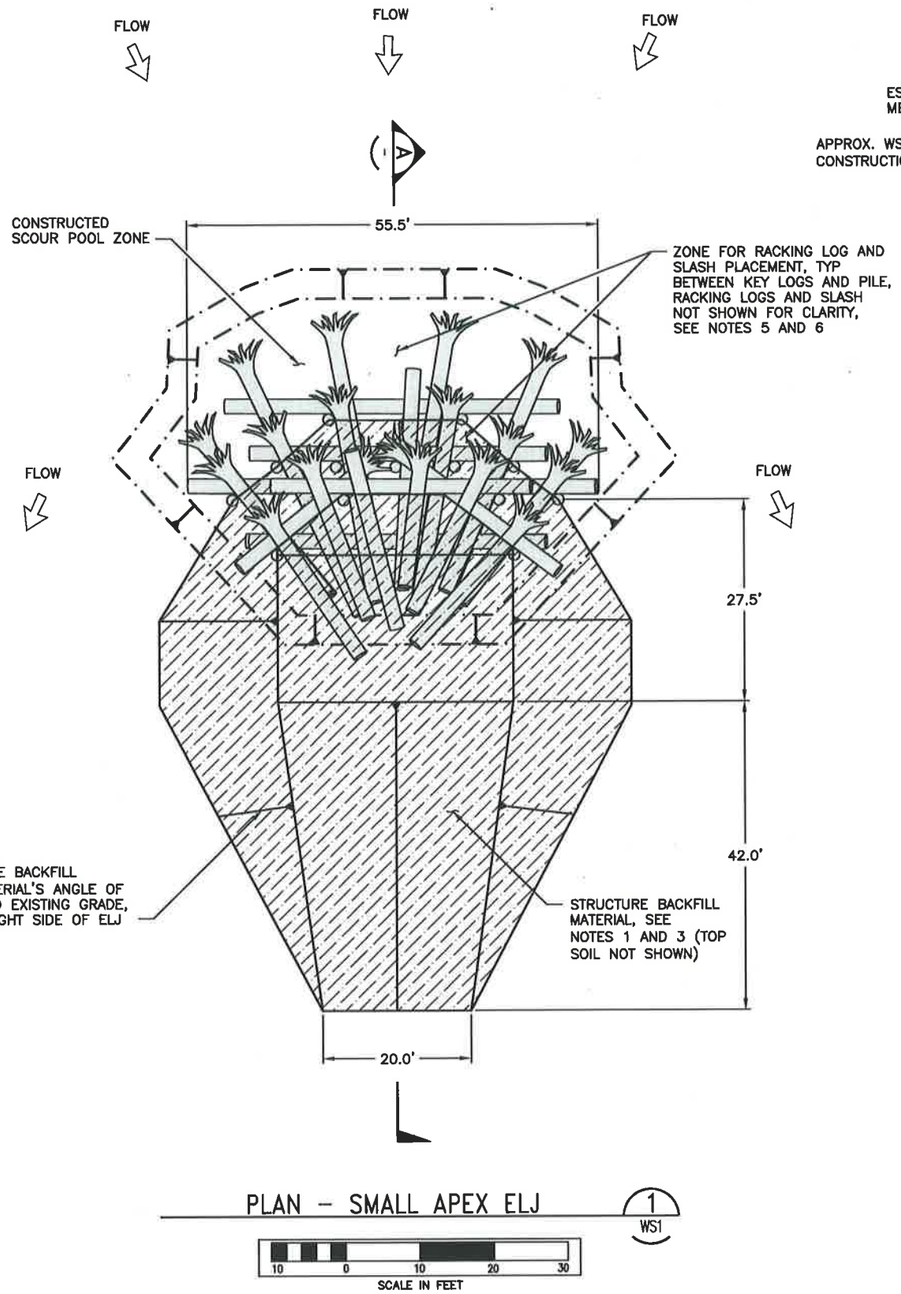
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

LARGE APEX ELJ LAYERING PLAN

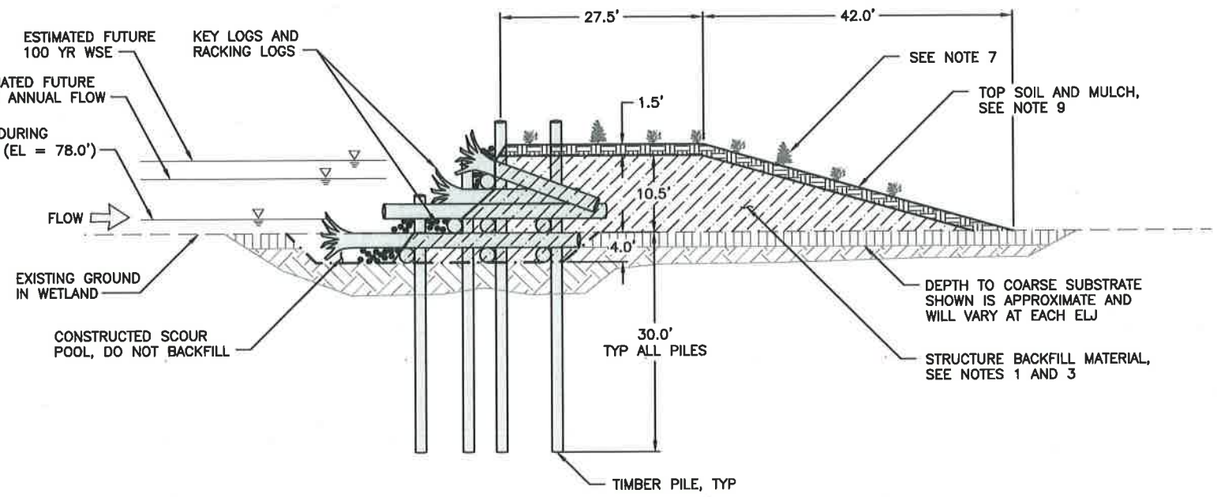
SHEET 49 OF 69 SHEETS

WD2



PLAN – SMALL APEX ELJ (1 / WS1)

10 0 10 20 30
SCALE IN FEET



SECTION – SMALL APEX ELJ (A)

10 0 10 20 30
SCALE IN FEET

NOTES:

1. EXTENTS OF BACKFILL SHOWN ARE APPROXIMATE AND WILL VARY FOR EACH ELJ.
2. EXCAVATION LIMITS SHOWN ARE APPROXIMATE AND WILL VARY BASED ON CONSTRUCTION MEANS AND METHODS, SUBSURFACE CONDITIONS AND LOCATION OF STRUCTURE. CONTRACTOR SHALL ADJUST EXCAVATION LIMITS AS NECESSARY TO COMPLETE CONSTRUCTION.
3. PLACE ONLY DRY LEVEE REMOVAL SPOILS WITHIN INTERIOR CORE OF STRUCTURE AND OVER FINAL LAYER OF LOGS IN 2 FOOT LAYERS AND COMPACT WITH BACKSIDE OF EXCAVATOR BUCKET. SATURATED BACKFILL MATERIAL THAT CANNOT BE PROPERLY COMPACTED WILL NOT BE ALLOWED.
4. SEE LOG SCHEDULE ON STRUCTURE LAYERING PLAN FOR DIMENSIONS AND NUMBERS OF EACH LOG TYPE IN STRUCTURE.
5. PLACEMENT OF RACKING LOGS SHOWN IS APPROXIMATE. PLACE RACKING LOGS ALONG UPSTREAM FACE OF STRUCTURE. APPROXIMATELY 1/2 OF RACKING LOGS SHALL BE PLACED ACROSS PILE ROWS (PERPENDICULAR TO FLOW) AND 1/2 OF THE RACKING LOGS PARALLEL TO FLOW AND EXTENDING INTO THE CORE OF THE STRUCTURE BETWEEN HORIZONTAL KEY LOGS. RACKING SHALL BE PLACED WITH EACH LAYER OF KEY LOGS, SHALL BE ANGLED UP AND DOWN FROM THE HORIZONTAL, AND SHALL BE PLACED TO CREATE AN INTERLOCKING MATRIX OF LOGS SECURED BETWEEN VERTICAL PILE LOGS AND HORIZONTAL KEY LOGS. COORDINATE WITH THE PROJECT REPRESENTATIVE PRIOR TO PLACING RACKING LOGS, SLASH AND BACKFILLING.
6. SEE STRUCTURE LAYERING PLAN FOR SLASH PLACEMENT. SLASH NOT SHOWN HERE FOR CLARITY. PLACE SLASH AS SHOWN ON LAYERING PLAN TO FILL VOIDS BETWEEN RACKING LOGS.
7. SEE PLANTING PLAN FOR RECOMMENDED STRUCTURE PLANTING INFORMATION AND DETAILS.
8. CONSTRUCT TEMPORARY ACCESS PATH TO ELJ AND WORK PLATFORM AS NECESSARY USING ALLUVIUM EXCAVATED FROM THE EXISTING LEVEE AS SHOWN ON DWG ED2. ADJUST EXTENTS AND ELEVATION OF ACCESS PATH AND WORK PLATFORM AS NEEDED TO COMPLETE CONSTRUCTION. ACCESS PATH AND WORK PLATFORM NOT SHOWN HERE FOR CLARITY. SEE DWG ED2 FOR ADDITIONAL TESC AND WORK AREA ISOLATION MEASURES NEEDED TO COMPLETE STRUCTURE CONSTRUCTION.
9. PLACE 18" OF NATIVE TOP SOIL OVER STRUCTURE BACKFILL MATERIAL, THEN CAP WITH 3"–6" OF MULCH, TO EXTENTS SHOWN OR AS DIRECTED BY THE PROJECT REPRESENTATIVE.

LEGEND:

- EXISTING GRADE
- PROPOSED GRADE
- EXCAVATION LIMITS
- NATIVE TOP SOIL AND MULCH
- COARSE ALLUVIUM FROM EXISTING LEVEE
- EXISTING COARSE SUBSTRATE
- EXISTING FINE SUBSTRATE

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60% 5-2013

NUM.	REVISION	BY	DATE

APPROVED: IAN MOSTRENKO, PE	5-2013	
PROJECT MANAGER: MARK EWBANK, PE	5-2013	
DESIGNED: BRIAN SCOTT	5-2013	
ECOLOGIST:		
DESIGN ENTERED: TODD PRESCOTT	5-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

IAN B. MOSTRENKO STATE OF WASHINGTON 36069 REGISTERED PROFESSIONAL ENGINEER

HERRERA

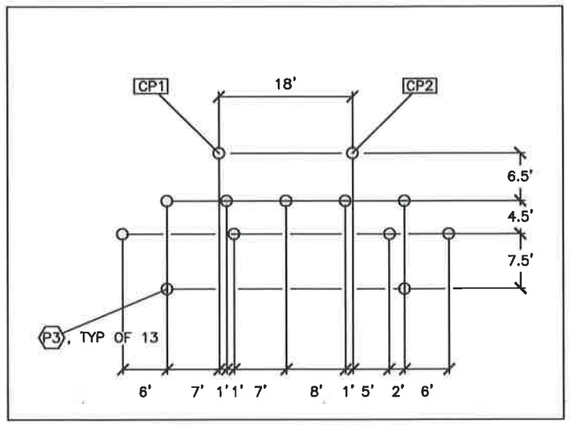
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

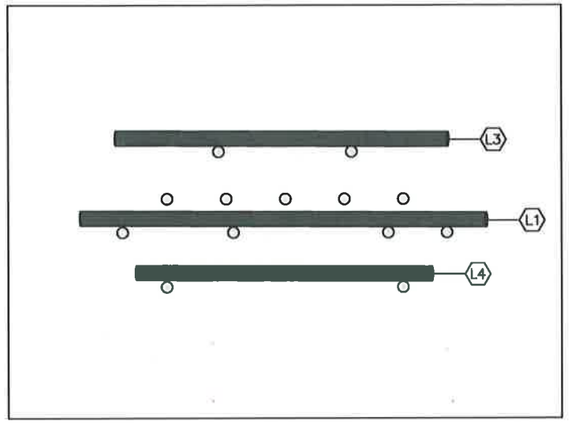
SMALL APEX ELJ PLAN AND SECTIONS

SHEET 50 OF 69 SHEETS

WD3



PILES



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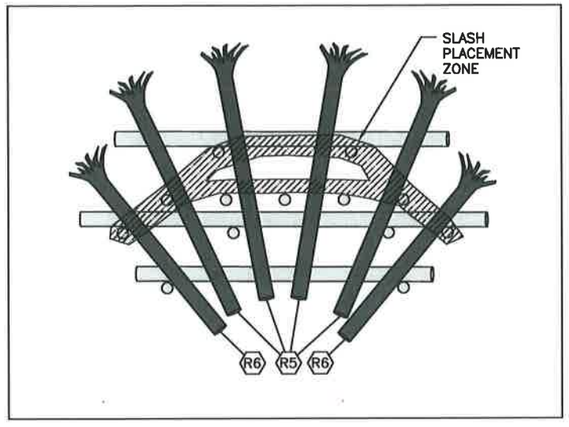
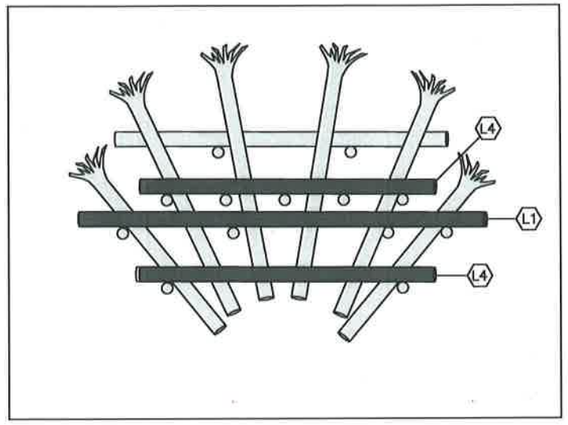


LAYER 2



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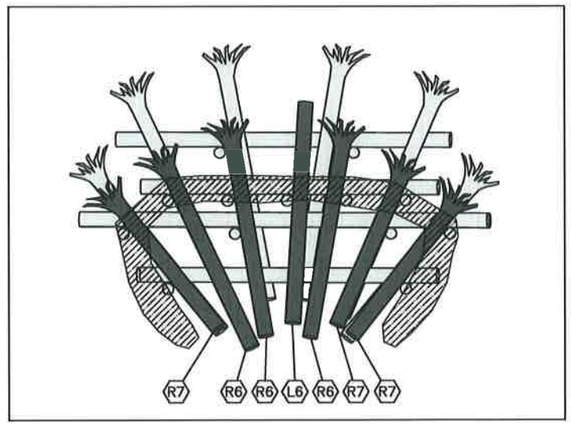

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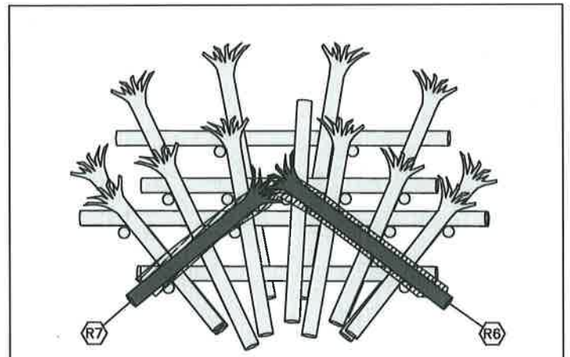

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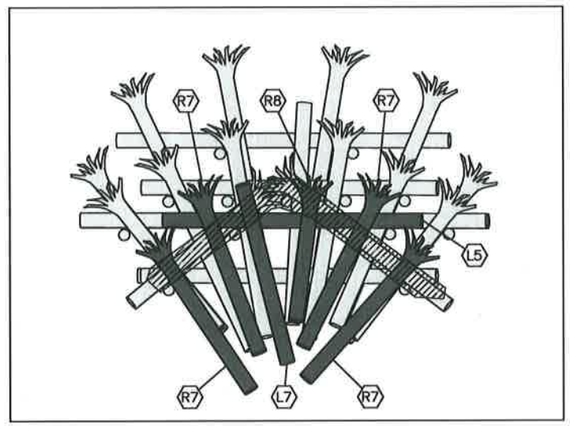

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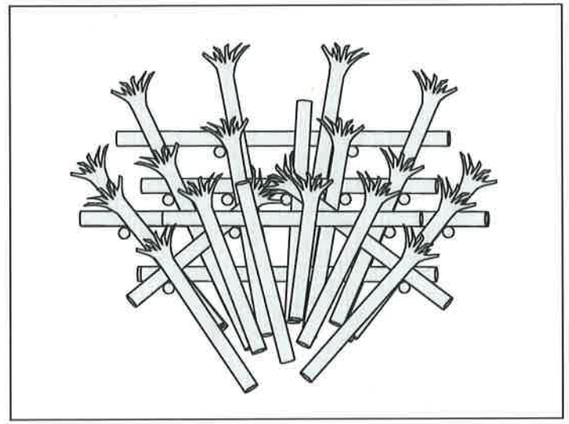


COMPLETE

LOG SCHEDULE:

LOG TYPE	MIN DIA (IN)	LENGTH (FT)	ROOTWAD	TOTAL QTY PER ELJ
P3	18 (BUTT)	45	NO	13
5	24	35	YES	4
6	24	30	YES	6
7	24	25	YES	8
8	24	20	YES	1
L1	24	55	NO	2
L3	24	45	NO	1
L4	24	40	NO	3
L5	24	35	NO	1
L6	24	30	NO	1
L7	24	25	NO	1
RACKING	6–16	15–30	OPTIONAL	100
SLASH				80 CY

NOTES:

1. STRUCTURE GENERAL LOCATION AND ORIENTATION SHALL BE STAKED BY THE CONTRACTOR. FINAL STRUCTURE LOCATION AND ORIENTATION TO BE FIELD VERIFIED BY THE PROJECT REPRESENTATIVE FOLLOWING CONTRACTOR STAKING.
2. ALL PILE LOCATIONS SHALL BE STAKED BY THE CONTRACTOR AND APPROVED BY THE PROJECT REPRESENTATIVE PRIOR TO PILE INSTALLATION.
3. ALL PILE LOCATIONS SHALL BE BASED ON THE LOCATION OF THE STRUCTURE CONTROL POINTS AND SHALL BE WITHIN 6" OF THE LOCATION SHOWN ON THE DRAWINGS.
4. PILE DIAMETERS SHALL BE MEASURED AT THE BUTT (LARGER) ENDS. PILES SHALL BE UNTREATED DOUGLAS FIR MEETING ASTM D25 REQUIREMENTS.
5. LOG MATERIALS SHALL BE PLACED AT THE LOCATIONS AND ORIENTATIONS SPECIFIED ON THE DRAWINGS OR AS DIRECTED BY THE PROJECT REPRESENTATIVE. TRIM CUT ENDS OF HORIZONTAL KEY LOGS TO FIT AS REQUIRED.
6. PLACE SLASH OVER AND BETWEEN KEY LOGS AND PILES AS SHOWN FOR EACH LAYER SPECIFIED FOLLOWING PLACEMENT OF KEY LOGS AND RACKING LOGS. PLACE APPROXIMATELY 2' TO 3' OF NATIVE ALLUVIUM OVER 1/2 THE WIDTH OF SLASH TO SECURE IN PLACE SUCH THAT SLASH IS VISIBLE FOLLOWING CONSTRUCTION. COORDINATE WITH THE PROJECT REPRESENTATIVE PRIOR TO PLACING RACKING AND SLASH.
7. BACKFILL EACH LAYER WITH DRY COARSE ALLUVIUM EXCAVATED FROM THE EXISTING LEVEE FLUSH TO TOP OF CURRENT LAYER PRIOR TO CONSTRUCTING SUBSEQUENT LAYER. COMPACT ALLUVIUM BACKFILL WITH EXCAVATOR BUCKET. FILL ALL VOIDS BETWEEN BOULDERS (ROCKS GREATER THAN 12" DIAMETER) WITH FINER ALLUVIUM TO ACHIEVE A WELL GRADED AND COMPACTED MASS.
8. SEE DWG WS1 FOR COORDINATES OF STRUCTURE CONTROL POINTS.

SCALE IN FEET: 10 0 10 20 30

LEGEND:

- CURRENT LAYER KEY LOG
- PREVIOUS LAYER KEY LOG (AFTER BACKFILLING)
- VERTICAL PILE LOG
- SLASH PLACEMENT ZONE
- L1 — KEY LOG TYPE ID (LOG TYPE L1)
- CP1 — STRUCTURE CONTROL POINT (1)

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60%
5-2013

NUM.	REVISION	BY	DATE

APPROVED: IAN MOSTRENKO, PE	5-2013	
PROJECT MANAGER: MARK EWBANK, PE	5-2013	
DESIGNED: BRIAN SCOTT	5-2013	
ECOLOGIST:		
DESIGN ENTERED: TODD PRESCOTT	5-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

IAN E. MOSTRENKO STATE OF WASHINGTON 36069 REGISTERED PROFESSIONAL ENGINEER

HERRERA

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

SAMLL APEX ELJ LAYERING PLAN

SHEET 51 OF 69 SHEETS

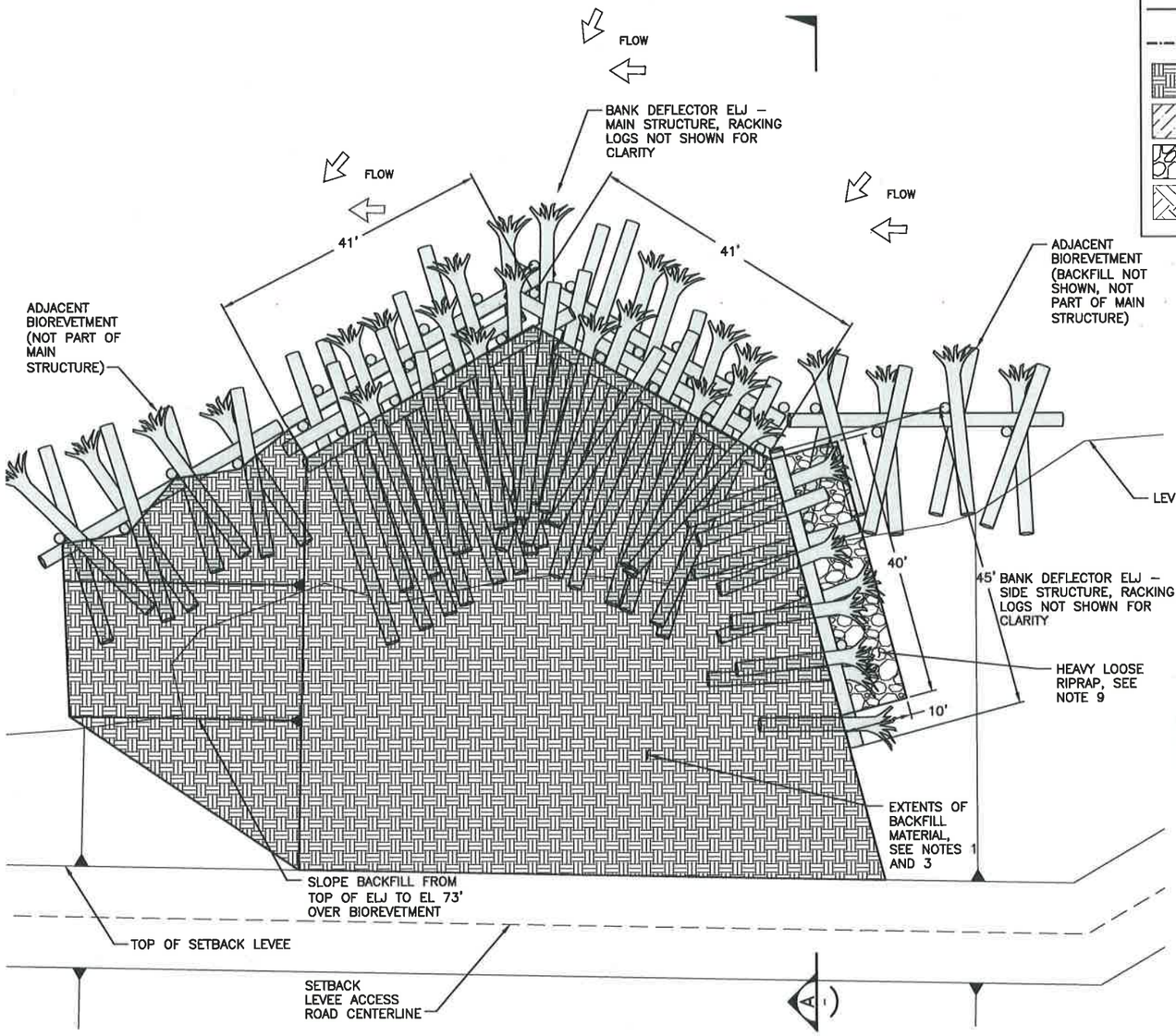
WD4

LEGEND:

- EXISTING GRADE
- PROPOSED GRADE
- EXCAVATION LIMITS
- TOP SOIL TYPE A AND MULCH
- COARSE ALLUVIUM FROM EXIST LEVEE
- HEAVY LOOSE RIPRAP
- EXISTING SUBSTRATE

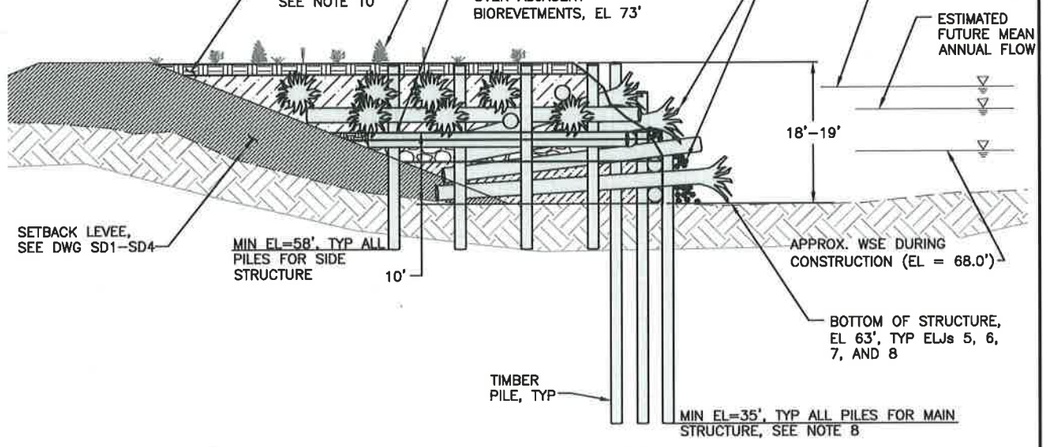
NOTES:

1. EXTENTS OF BACKFILL SHOWN ARE APPROXIMATE AND WILL VARY FOR EACH ELJ.
2. EXCAVATION LIMITS ARE APPROXIMATE AND WILL VARY BASED ON CONSTRUCTION MEANS AND METHODS, SUBSURFACE CONDITIONS AND LOCATION OF STRUCTURE. CONTRACTOR SHALL ADJUST EXCAVATION LIMITS AS NECESSARY TO COMPLETE CONSTRUCTION. SEE DWG ED4 FOR EXCAVATION LIMITS FOR ELJs 6, 7, AND 8.
3. PLACE ONLY DRY LEVEE REMOVAL SPOILS WITHIN INTERIOR CORE OF STRUCTURE AND OVER FINAL LAYER OF LOGS IN 2' LAYERS AND COMPACT WITH BACKSIDE OF EXCAVATOR BUCKET. SATURATED BACKFILL MATERIAL THAT CANNOT BE PROPERLY COMPACTED WILL NOT BE ALLOWED.
4. SEE LOG SCHEDULE ON STRUCTURE LAYERING PLAN FOR DIMENSIONS AND NUMBERS OF EACH LOG TYPE IN STRUCTURE.
5. PLACEMENT OF RACKING LOGS SHOWN IS APPROXIMATE. PLACE RACKING LOGS ALONG UPSTREAM FACE OF STRUCTURE. APPROXIMATELY 1/2 OF RACKING LOGS SHALL BE PLACED ACROSS PILE ROWS (PERPENDICULAR TO FLOW) AND 1/2 OF THE RACKING LOGS PARALLEL TO FLOW AND EXTENDING INTO THE CORE OF THE STRUCTURE BETWEEN HORIZONTAL KEY LOGS. RACKING SHALL BE PLACED WITH EACH LAYER OF KEY LOGS, SHALL BE ANGLED UP AND DOWN FROM THE HORIZONTAL, AND SHALL BE PLACED TO CREATE AN INTERLOCKING MATRIX OF LOGS SECURED BETWEEN VERTICAL PILE LOGS AND HORIZONTAL KEY LOGS. COORDINATE WITH THE PROJECT REPRESENTATIVE PRIOR TO PLACING RACKING LOGS, SLASH AND BACKFILLING.
6. SEE STRUCTURE LAYERING PLAN FOR SLASH PLACEMENT. SLASH NOT SHOWN HERE FOR CLARITY. PLACE SLASH AT SAME TIME AS RACKING LOGS TO FILL VOIDS BETWEEN RACKING LOGS.
7. SEE PLANTING PLAN FOR RECOMMENDED STRUCTURE PLANTING INFORMATION AND DETAILS.
8. PILE TIPS FOR MAIN STRUCTURE SHALL BE EMBEDDED A MINIMUM OF 10' BELOW THE TOP OF DENSE SOIL.
9. PLACE A 3' DEEP LAYER OF HEAVY LOOSE RIPRAP TO THE DIMENSIONS SHOWN. TOP OF RIPRAP SHALL BE 1' BELOW THE ELEVATION OF BACKFILL OVER THE ADJACENT BIOREVETMENT. PLACE 1' OF TOPSOIL THEN 3" OF MULCH OVER THE RIPRAP.
10. PLACE 18" OF NATIVE TOP SOIL OVER STRUCTURE BACKFILL MATERIAL, THEN CAP WITH 3"–6" OF MULCH, TO EXTENTS SHOWN OR AS DIRECTED BY THE PROJECT REPRESENTATIVE.



PLAN – BANK DEFLECTOR ELJ 1 WS2

10 0 10 20 30
SCALE IN FEET



SECTION – BANK DEFLECTOR ELJ A –

10 0 10 20 30
SCALE IN FEET

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60%
5-2013

NUM.	REVISION	BY	DATE

APPROVED: IAN MOSTRENKO, PE	5-2013	
PROJECT MANAGER: MARK EWBANK, PE	5-2013	
DESIGNED: BRIAN SCOTT	5-2013	
ECOLOGIST:		
DESIGN ENTERED: TODD PRESCOTT	5-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

IAN R. MOSTRENKO STATE OF WASHINGTON 36069 REGISTERED PROFESSIONAL ENGINEER

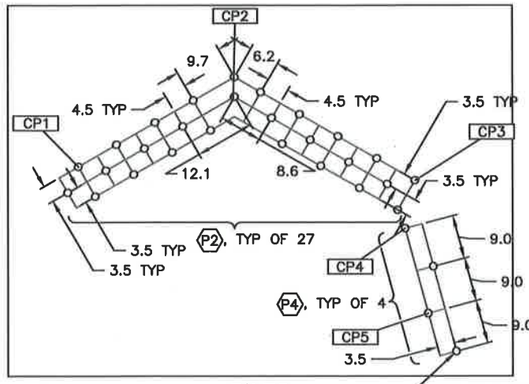
HERRERA

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

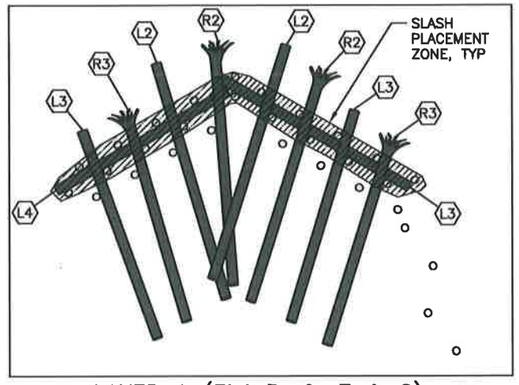
COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION
BANK DEFLECTOR ELJ PLAN AND SECTIONS

SHEET 52 OF 69 SHEETS

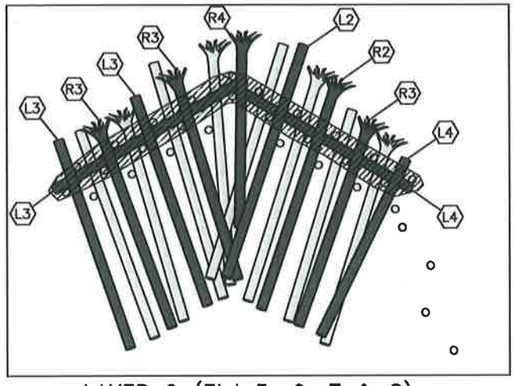
WD5



PILES



LAYER 1 (ELJ 5, 6, 7 & 8)



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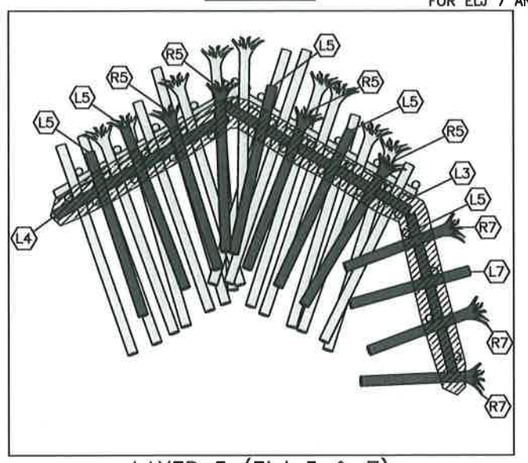
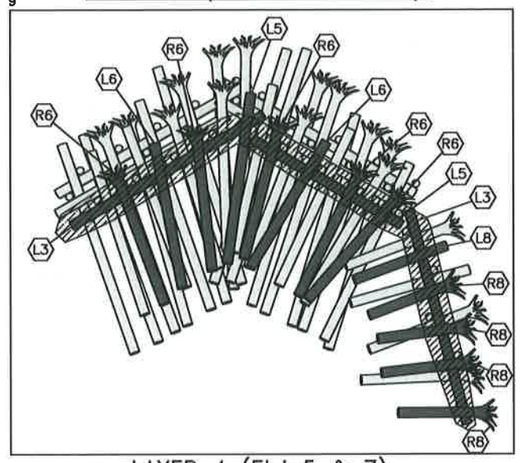


LAYER 3 (ELJ 5 & 7)



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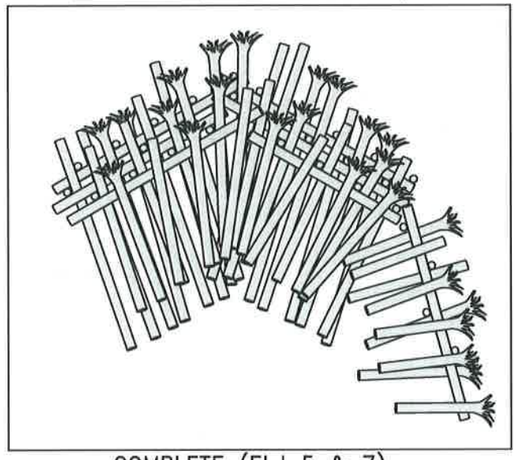
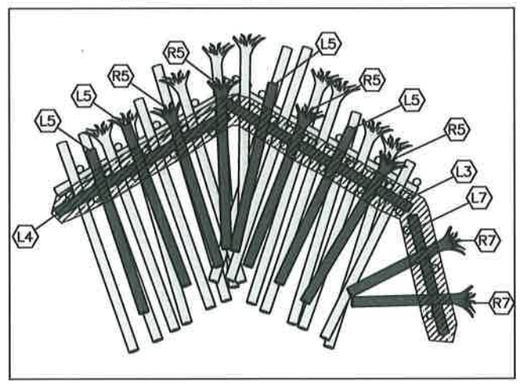
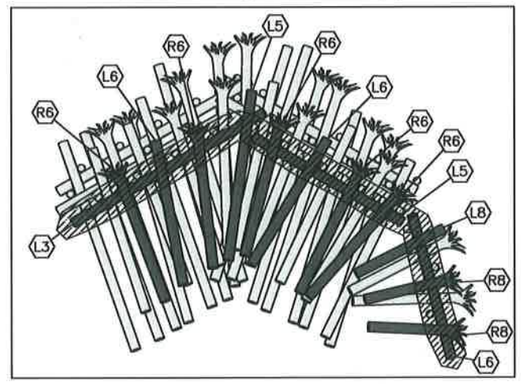


COMPLETE (ELJ 5 & 7)



LAYER 3 (ELJ 6 & 8)



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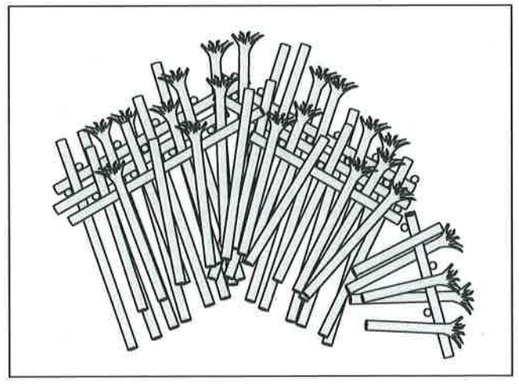


COMPLETE (ELJ 6 & 8)

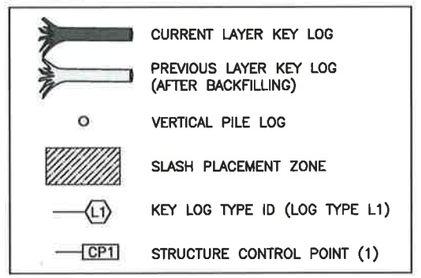
NOTES:

1. STRUCTURE GENERAL LOCATION AND ORIENTATION SHALL BE STAKED BY THE CONTRACTOR. FINAL STRUCTURE LOCATION AND ORIENTATION TO BE FIELD VERIFIED BY THE PROJECT REPRESENTATIVE FOLLOWING CONTRACTOR STAKING.
2. ALL PILE LOCATIONS SHALL BE STAKED BY THE CONTRACTOR AND APPROVED BY THE PROJECT REPRESENTATIVE PRIOR TO PILE INSTALLATION.
3. ALL PILE LOCATIONS SHALL BE BASED ON THE LOCATION OF THE STRUCTURE CONTROL POINTS AND SHALL BE WITHIN 6" OF THE LOCATION SHOWN ON THE DRAWINGS.
4. PILE DIAMETERS SHALL BE MEASURED AT THE BUTT (LARGER) ENDS. PILES SHALL BE UNTREATED DOUGLAS FIR MEETING ASTM D25 REQUIREMENTS.
5. LOG MATERIALS SHALL BE PLACED AT THE LOCATIONS AND ORIENTATIONS SPECIFIED ON THE DRAWINGS OR AS DIRECTED BY THE PROJECT REPRESENTATIVE. TRIM CUT ENDS OF HORIZONTAL KEY LOGS TO FIT AS REQUIRED.
6. PLACE SLASH OVER AND BETWEEN KEY LOGS AND PILES AS SHOWN FOR EACH LAYER FOLLOWING PLACEMENT OF KEY LOGS AND RACKING LOGS. PLACE APPROXIMATELY 2' TO 3' OF NATIVE ALLUVIUM OVER 1/2 THE WIDTH OF SLASH TO SECURE IN PLACE SUCH THAT SLASH IS VISIBLE FOLLOWING CONSTRUCTION. COORDINATE WITH THE PROJECT REPRESENTATIVE PRIOR TO PLACING RACKING AND SLASH.
7. BACKFILL EACH LAYER WITH DRY COARSE ALLUVIUM AND RIPRAP EXCAVATED FROM THE EXISTING LEVEE TO TOP OF CURRENT LAYER PRIOR TO CONSTRUCTING SUBSEQUENT LAYER. COMPACT BACKFILL WITH EXCAVATOR BUCKET. FILL ALL VOIDS BETWEEN BOULDERS (ROCKS GREATER THAN 12" DIAMETER) WITH FINER ALLUVIUM TO ACHIEVE A WELL GRADED AND COMPACTED MASS.
8. SEE DWG WS2 FOR COORDINATES OF STRUCTURE CONTROL POINTS.

LOG SCHEDULE:

LOG TYPE	MIN DIA (IN)	LENGTH (FT)	ROOTWAD	TOTAL QTY PER ELJ 5 & 7	TOTAL QTY PER ELJ 6 & 8
P2	18 (BUTT)	50	NO	27	27
P4	18 (BUTT)	25	NO	4	3
R2	24	50	YES	3	3
R3	24	45	YES	5	5
R4	24	40	YES	1	1
R5	24	35	YES	4	4
R6	24	30	YES	5	5
R7	24	25	YES	3	2
R8	24	20	YES	4	2
L2	24	50	NO	3	3
L3	24	45	NO	9	8
L4	24	40	NO	4	4
L5	24	35	NO	7	6
L6	24	30	NO	2	3
L7	24	25	NO	1	1
L8	24	20	NO	1	1
RACKING	6–16	15–30	OPTIONAL	200	200
SLASH				200 CY	200 CY

LEGEND:



FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

NUM.	REVISION	BY	DATE
	CADD / 60%		5-2013

APPROVED:	IAN MOSTRENKO, PE	5-2013
PROJECT MANAGER:	MARK EWBANK, PE	5-2013
DESIGNED:	BRIAN SCOTT	5-2013
ECOLOGIST:		
DESIGN ENTERED:	TODD PRESCOTT	5-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

IAN R. MOSTRENKO — STATE OF WASHINGTON — 36069 — REGISTERED PROFESSIONAL ENGINEER

HERRERA

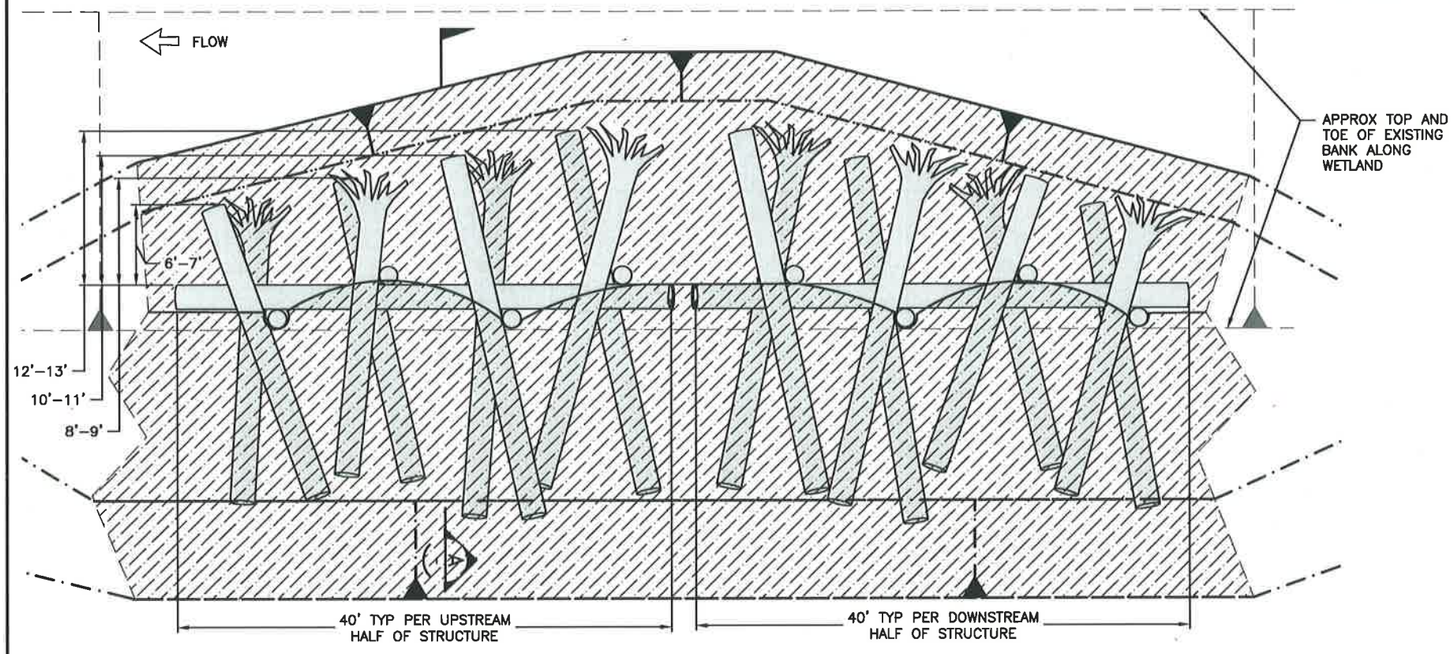
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

BANK DEFLECTOR ELJ LAYERING PLAN

SHEET 53 OF 69 SHEETS

WD6



PLAN – BIOREVETMENT (1 / WS2)

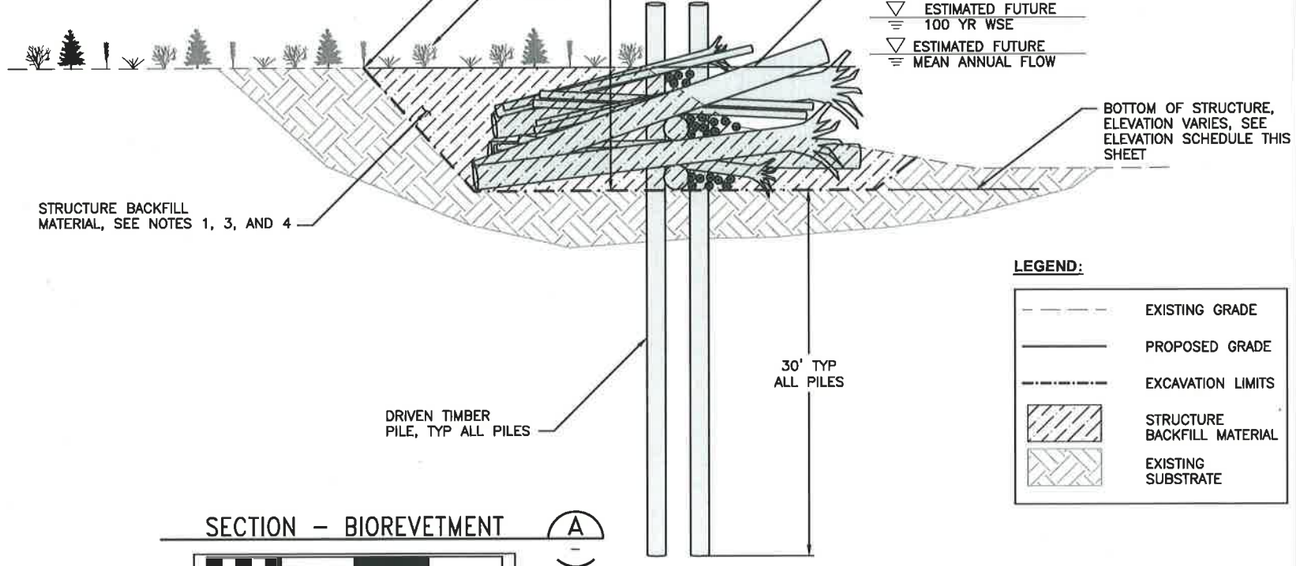
6 0 6 12 24
SCALE IN FEET

NOTES:

1. EXTENTS OF BACKFILL SHOWN ARE APPROXIMATE AND WILL VARY FOR EACH STRUCTURE.
2. EXCAVATION LIMITS SHOWN ARE APPROXIMATE AND WILL VARY BASED ON CONSTRUCTION MEANS AND METHODS, SUBSURFACE CONDITIONS AND LOCATION OF STRUCTURE. CONTRACTOR SHALL ADJUST EXCAVATION LIMITS AS NECESSARY TO COMPLETE CONSTRUCTION.
3. FOR "SHINGLED" BIOREVETMENT STRUCTURES, BACKFILL MATERIAL WILL CONSIST OF DRY LEVEE EXCAVATION SPOILS CAPPED WITH A 12" DEEP LAYER OF NATIVE TOPSOIL. PLACE SPOILS WITHIN INTERIOR CORE OF STRUCTURE AND OVER FINAL LAYER OF LOGS IN 2' LAYERS AND COMPACT WITH BACKSIDE OF EXCAVATOR BUCKET. SATURATED BACKFILL MATERIAL THAT CANNOT BE PROPERLY COMPACTED WILL NOT BE ALLOWED. SEE DWGS SB1–SB5 FOR LOCATION OF "SHINGLED" BIOREVETMENT STRUCTURES.
4. FOR NON–SHINGLED BIOREVETMENT STRUCTURES, PLACE ONLY DRY NATIVE EXCAVATION SPOILS WITHIN INTERIOR CORE OF STRUCTURE AND OVER FINAL LAYER OF LOGS IN 2' LAYERS AND COMPACT WITH BACKSIDE OF EXCAVATOR BUCKET. SATURATED BACKFILL MATERIAL THAT CANNOT BE COMPACTED PROPERLY WILL NOT BE ALLOWED.
5. SEE LOG SCHEDULE ON STRUCTURE LAYERING PLAN FOR DIMENSIONS AND NUMBERS OF EACH LOG TYPE IN STRUCTURE.
6. PLACEMENT OF RACKING LOGS SHOWN IS APPROXIMATE. PLACE RACKING LOGS ALONG UPSTREAM FACE OF STRUCTURE. APPROXIMATELY 1/2 OF RACKING LOGS SHALL BE PLACED ACROSS PILE ROWS (PERPENDICULAR TO FLOW) AND 1/2 OF THE RACKING LOGS PARALLEL TO FLOW AND EXTENDING INTO THE CORE OF THE STRUCTURE BETWEEN HORIZONTAL KEY LOGS. RACKING SHALL BE PLACED WITH EACH LAYER OF KEY LOGS, SHALL BE ANGLED UP AND DOWN FROM THE HORIZONTAL, AND SHALL BE PLACED TO CREATE AN INTERLOCKING MATRIX OF LOGS SECURED BETWEEN VERTICAL PILE LOGS AND HORIZONTAL KEY LOGS. COORDINATE WITH THE PROJECT REPRESENTATIVE PRIOR TO PLACING RACKING LOGS, SLASH AND BACKFILLING.
7. SEE STRUCTURE LAYERING PLAN FOR SLASH PLACEMENT. SLASH NOT SHOWN HERE FOR CLARITY. PLACE SLASH AS SHOWN ON LAYERING PLAN TO FILL VOIDS BETWEEN RACKING LOGS.
8. SEE PLANTING PLAN FOR RECOMMENDED STRUCTURE PLANTING INFORMATION AND DETAILS.
9. BIOREVETMENT CONTROL POINT TABLE TO BE PROVIDED FOR FINAL DESIGN.
10. SEE DWGS WD11 – WD14 FOR APPROX WSE DURING CONSTRUCTION.

ELEVATION SCHEDULE FOR ALL BIOREVETMENT STRUCTURES

STRUCTURE #	NO. OF STRUCTURES	BOTTOM OF STRUCTURE EL (FT)	TOP OF STRUCTURE EL (FT)
1–38	38	63	73
39–50	12	64	74
51–56	6	65	75
57–60	4	66	76
61–65	5	67	77
66–75	10	68	78
76–82	7	69	79
83–108	26	70	80



SECTION – BIOREVETMENT (A / –)

6 0 6 12 24
SCALE IN FEET

LEGEND:

- EXISTING GRADE
- PROPOSED GRADE
- EXCAVATION LIMITS
- STRUCTURE BACKFILL MATERIAL
- EXISTING SUBSTRATE

FIELD BOOK: —
SURVEYED: —
SURVEY BASE MAP: —
CHECKED: —

CADD / 60%
5-2013

NUM.	REVISION	BY	DATE

APPROVED: IAN MOSTRENKO, PE 5-2013
PROJECT MANAGER: MARK EWBANK, PE 5-2013
DESIGNED: BRIAN SCOTT 5-2013
ECOLOGIST: —
DESIGN ENTERED: TODD PRESCOTT 5-2013

SRFB # RCO 087-1910C
PROJECT No. 1112049 (FL9001)

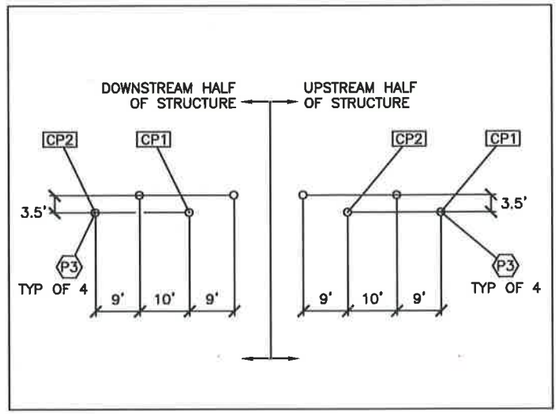
IAN B. MOSTRENKO — STATE OF WASHINGTON — 36069 — REGISTERED PROFESSIONAL ENGINEER

HERRERA

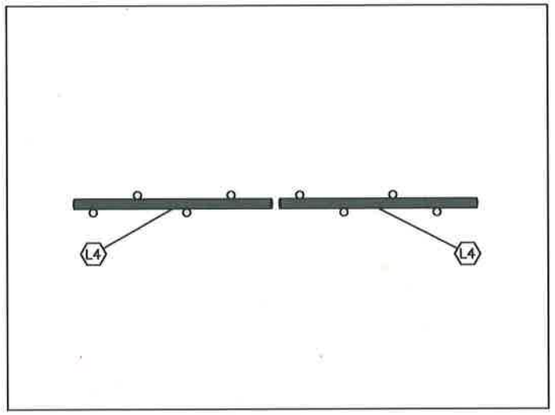
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION
BIOREVETMENT PLAN AND SECTIONS

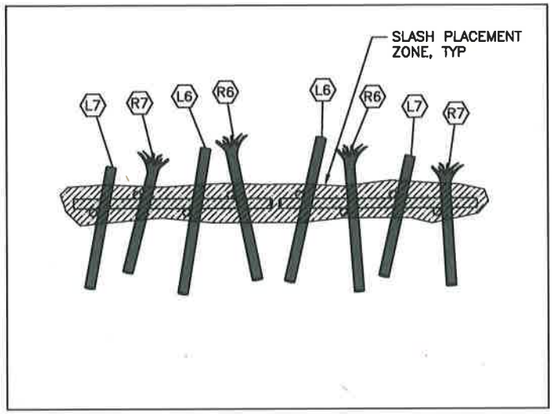
SHEET 54 OF 69 SHEETS
WD7



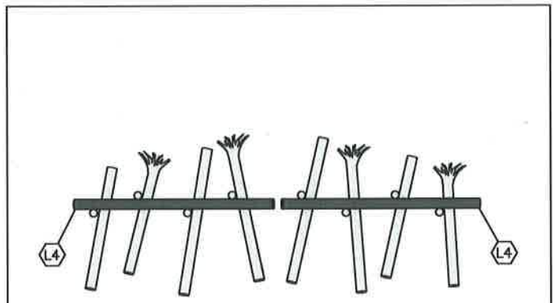
PILES



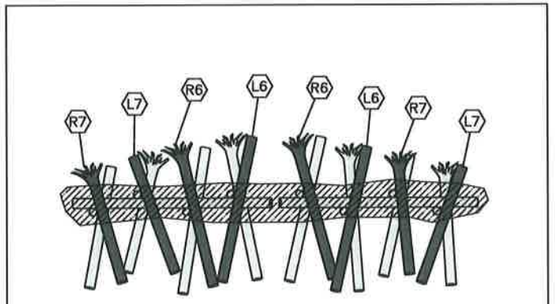
LAYER 1



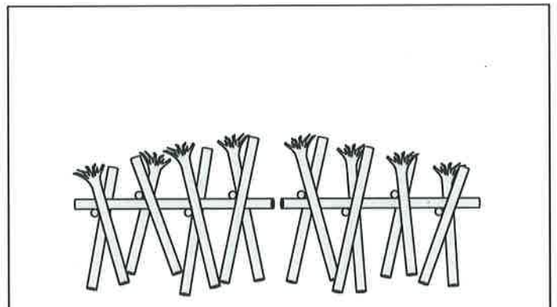
LAYER 2



LAYER 3



LAYER 4



COMPLETE

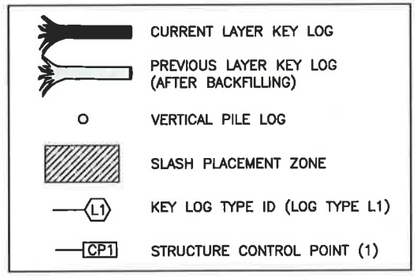
LOG SCHEDULE - PER 80' STRUCTURE

LOG TYPE	MIN DIA (IN)	LENGTH (FT)	ROOTWAD	TOTAL QTY PER ELJ
P3	18 (BUTT)	45	NO	8
6	24	30	YES	4
7	24	25	YES	4
L4	24	40	NO	4
L6	24	30	NO	4
L7	24	25	NO	4
RACKING	8–16	15–30	OPTIONAL	80
SLASH	–	–	–	80 CY

NOTES:

1. STRUCTURE GENERAL LOCATION AND ORIENTATION SHALL BE STAKED BY THE CONTRACTOR. FINAL STRUCTURE LOCATION AND ORIENTATION TO BE FIELD VERIFIED BY THE PROJECT REPRESENTATIVE FOLLOWING CONTRACTOR STAKING.
2. ALL PILE LOCATIONS SHALL BE STAKED BY THE CONTRACTOR AND APPROVED BY THE PROJECT REPRESENTATIVE PRIOR TO PILE INSTALLATION.
3. ALL PILE LOCATIONS SHALL BE BASED ON THE LOCATION OF THE STRUCTURE CONTROL POINTS AND SHALL BE WITHIN 6" OF THE LOCATION SHOWN ON THE DRAWINGS.
4. PILE DIAMETERS SHALL BE MEASURED AT THE BUTT (LARGER) ENDS. PILES SHALL BE UNTREATED DOUGLAS FIR MEETING ASTM D25 REQUIREMENTS.
5. LOG MATERIALS SHALL BE PLACED AT THE LOCATIONS AND ORIENTATIONS SPECIFIED ON THE DRAWINGS OR AS DIRECTED BY THE PROJECT REPRESENTATIVE. TRIM CUT ENDS OF HORIZONTAL KEY LOGS TO FIT AS REQUIRED.
6. PLACE SLASH OVER AND BETWEEN KEY LOGS AND PILES AS SHOWN FOR EACH LAYER SPECIFIED FOLLOWING PLACEMENT OF KEY LOGS AND RACKING LOGS. PLACE APPROXIMATELY 2' TO 3' OF NATIVE ALLUVIUM OVER 1/2 THE WIDTH OF SLASH TO SECURE IN PLACE SUCH THAT SLASH IS VISIBLE FOLLOWING CONSTRUCTION. COORDINATE WITH THE PROJECT REPRESENTATIVE PRIOR TO PLACING RACKING AND SLASH.
7. BACKFILL EACH LAYER WITH THE SPECIFIED MATERIAL FLUSH TO TOP OF CURRENT LAYER PRIOR TO CONSTRUCTING SUBSEQUENT LAYER. COMPACT ALLUVIUM BACKFILL WITH EXCAVATOR BUCKET. FILL ALL VOIDS BETWEEN BOULDERS (ROCKS GREATER THAN 12" DIAMETER) WITH FINER ALLUVIUM TO ACHIEVE A WELL GRADED AND COMPACTED MASS.

LEGEND:



FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

NUM.	REVISION	BY	DATE
	CADD / 60% 5-2013		

APPROVED: IAN MOSTRENKO, PE 5-2013
PROJECT MANAGER: MARK EWBANK, PE 5-2013
DESIGNED: BRIAN SCOTT 5-2013
ECOLOGIST:
DESIGN ENTERED: TODD PRESCOTT 5-2013

SRFB # RCO 087-1910C
PROJECT No. 1112049 (FL9001)

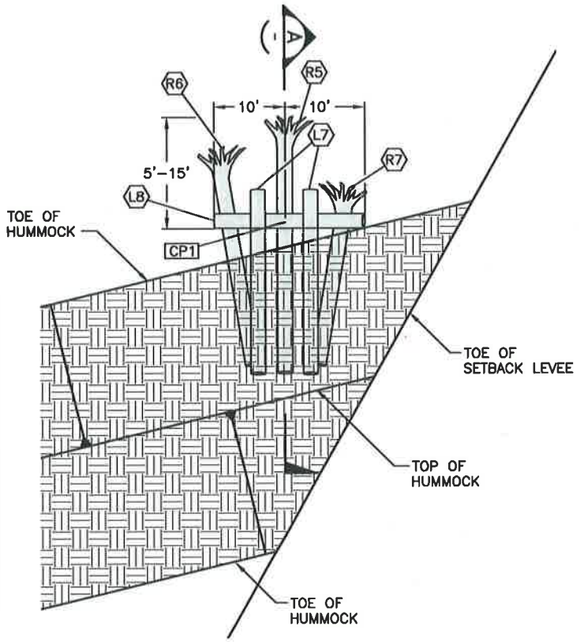
IAN B. MOSTRENKO STATE OF WASHINGTON 36069 REGISTERED PROFESSIONAL ENGINEER

HERRERA

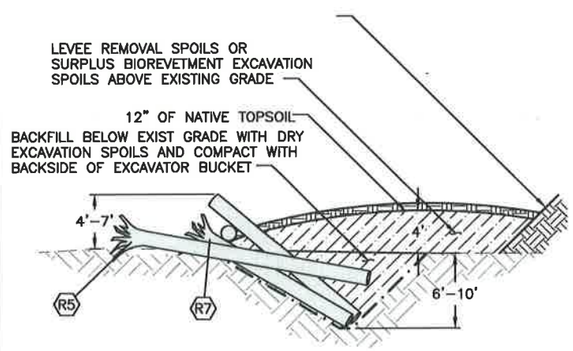
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION
BIOREVETMENT LAYERING PLAN

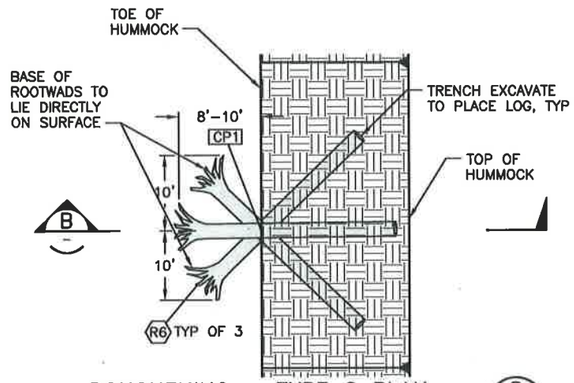
SHEET 55 OF 69 SHEETS
WD8



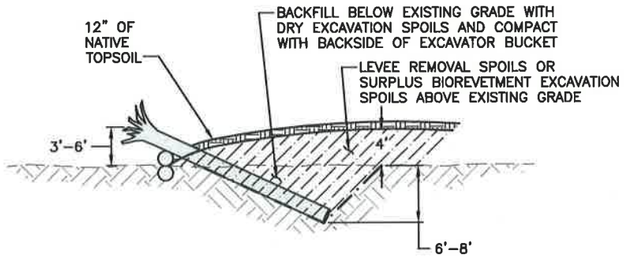
ROUGHENING – TYPE 1 PLAN 1 FR1, FR2



ROUGHENING – TYPE 1 SECTION A



ROUGHENING – TYPE 2 PLAN 2 FR1, FR2



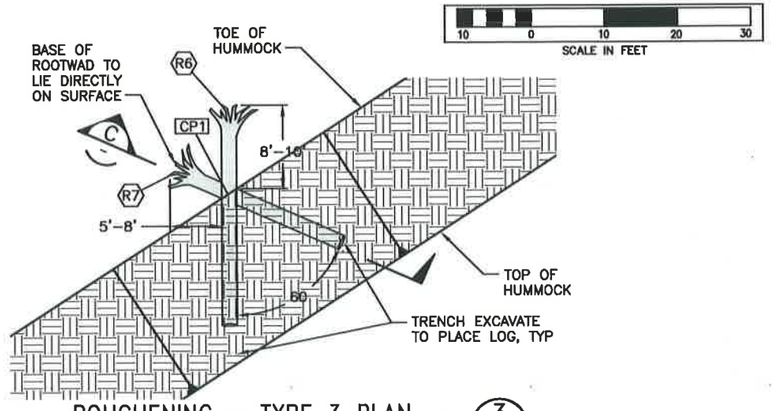
ROUGHENING – TYPE 2 SECTION B

LEGEND:

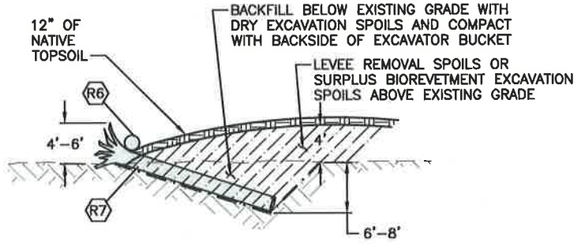
EXISTING GRADE	TOPSOIL
PROPOSED GRADE	STRUCTURE BACKFILL MATERIAL
EXCAVATION LIMITS	EXISTING SUBSTRATE
KEY LOG TYPE ID (LOG TYPE L1)	
STRUCTURE CONTROL POINT (1)	

NOTES:

1. EXTENTS OF BACKFILL SHOWN ARE APPROXIMATE AND WILL VARY FOR EACH LOG STRUCTURE.
2. EXCAVATION LIMITS SHOWN ARE APPROXIMATE AND WILL VARY BASED ON CONSTRUCTION MEANS AND METHODS, SUBSURFACE CONDITIONS AND LOCATION OF STRUCTURE. CONTRACTOR SHALL ADJUST EXCAVATION LIMITS AS NECESSARY TO COMPLETE CONSTRUCTION.
3. SEE LOG SCHEDULE FOR DIMENSIONS AND NUMBERS OF EACH LOG TYPE IN STRUCTURE.



ROUGHENING – TYPE 3 PLAN 3 FR1, FR2



ROUGHENING – TYPE 3 SECTION C

ROUGHENING - TYPE 1 LOG SCHEDULE

LOG TYPE	MIN DIA (IN)	LENGTH (FT)	ROOTWAD	TOTAL QTY PER ELJ
R5	24	35	Y	1
R6	24	30	Y	1
R7	24	25	Y	1
L7	24	25	N	2
L8	24	20	N	1

ROUGHENING - TYPE 2 LOG SCHEDULE

LOG TYPE	MIN DIA (IN)	LENGTH (FT)	ROOTWAD	TOTAL QTY PER ELJ
R6	24	30	Y	3

ROUGHENING - TYPE 3 LOG SCHEDULE

LOG TYPE	MIN DIA (IN)	LENGTH (FT)	ROOTWAD	TOTAL QTY PER ELJ
R6	24	30	Y	1
R7	24	25	Y	1

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60%
5-2013

NUM.	REVISION	BY	DATE

APPROVED: IAN MOSTRENKO, PE	5-2013	SRFB # RCO 087-1910C
PROJECT MANAGER: MARK EWBANK, PE	5-2013	PROJECT No. 1112049 (FL9001)
DESIGNED: BRIAN SCOTT	5-2013	
ECOLOGIST:		
DESIGN ENTERED: TODD PRESCOTT	5-2013	

IAN B. MOSTRENKO STATE OF WASHINGTON 36069 REGISTERED PROFESSIONAL ENGINEER

HERRERA

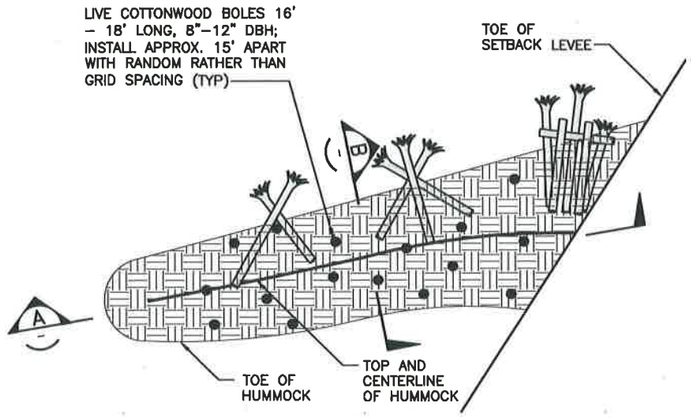
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION

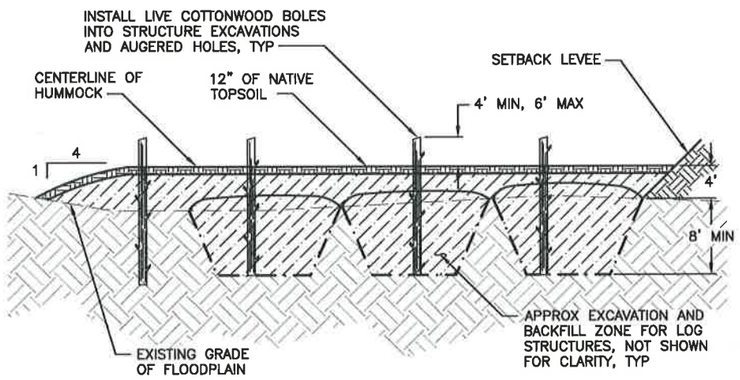
FLOODPAIN ROUGHENING DETAILS

SHEET 56 OF 69 SHEETS

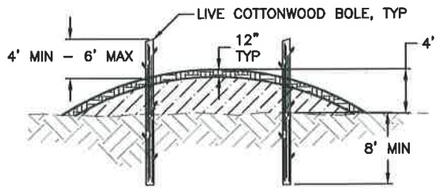
WD9



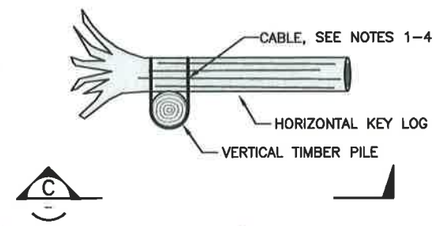
FLOODPLAIN HUMMOCK PLAN 1 FR1, FR2



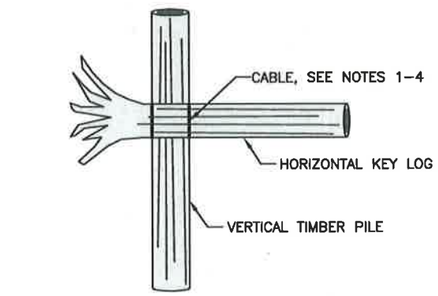
FLOODPLAIN HUMMOCK SECTION, TYP A



FLOODPLAIN HUMMOCK SECTION, TYP B



DETAIL – CABLE LASHING 1 WD2
SCALE: NTS



SECTION – CABLE LASHING C
SCALE: NTS

LEGEND:

- EXISTING GRADE
- PROPOSED GRADE
- EXCAVATION LIMITS
- TOPSOIL
- STRUCTURE BACKFILL MATERIAL
- EXISTING SUBSTRATE
- L1 — KEY LOG TYPE ID (LOG TYPE L1)
- CP1 — STRUCTURE CONTROL POINT (1)

NOTES:

1. LASH HORIZONTAL KEY LOGS TO VERTICAL TIMBER PILES WITH CABLE AS SHOWN ON STRUCTURE LAYERING PLAN OR AS DIRECTED BY THE PROJECT REPRESENTATIVE. CABLE LASHING SYSTEM SHALL BE PUT IN TENSION TO 1/4 OF THE CABLE WORKING LOAD LIMIT AND BE MAINTAINED DURING CABLE CLAMPING.
2. CABLE LENGTH NEEDED PER LASHING WILL VARY BASED ON DIAMETER OF LOGS BEING LASHED TOGETHER.
3. CABLE FOR LASHING SHALL BE 1/2 INCH DIAMETER GALVANIZED WIRE ROPE, CLASS 6X19, WITH A MINIMUM BREAKING STRENGTH OF 10 TONS. STEEL GRADE SHALL BE IMPROVED PLOWED STEEL (IPS). INTERNAL CORE SHALL BE INDEPENDENT WIRE ROPE CORE (IWRC).
4. ALL HARDWARE USED FOR LASHING SHALL BE GALVANIZED OR STAINLESS STEEL, AND CONNECTIONS SHALL BE OF THE TYPE SPECIFIED BY THE MANUFACTURER WITH AN EQUAL OR GREATER STRENGTH THAN THE CABLE BREAKING STRENGTH OR AS APPROVED BY THE PROJECT REPRESENTATIVE.

FIELD BOOK:			
SURVEYED:			
SURVEY BASE MAP:			
CHECKED:			

CADD / 60% 5-2013

NUM.	REVISION	BY	DATE

APPROVED: IAN MOSTRENKO, PE	5–2013	
PROJECT MANAGER: MARK EWBANK, PE	5–2013	
DESIGNED: BRIAN SCOTT	5–2013	
ECOLOGIST:		
DESIGN ENTERED: TODD PRESCOTT	5–2013	

SRFB # RCO 087–1910C

PROJECT No. 1112049 (FL9001)

IAN B. MOSTRENKO STATE OF WASHINGTON 36069 REGISTERED PROFESSIONAL ENGINEER

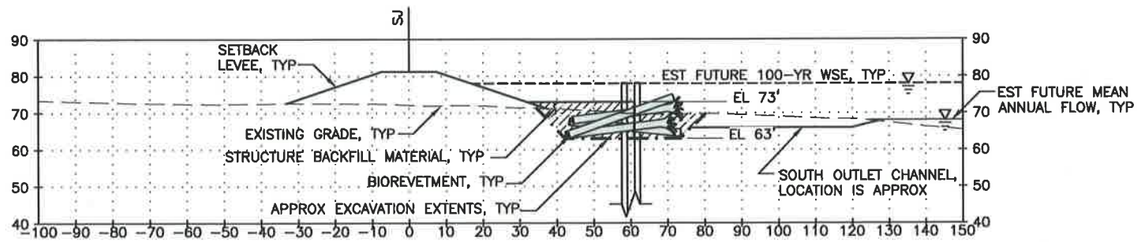
HERRERA

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00–6.33
LEVEE MODIFICATION
FLOODPAIN ROUGHENING DETAILS

SHEET 57 OF 69 SHEETS

WD10



SECTION AA-AA (AA, SB1)
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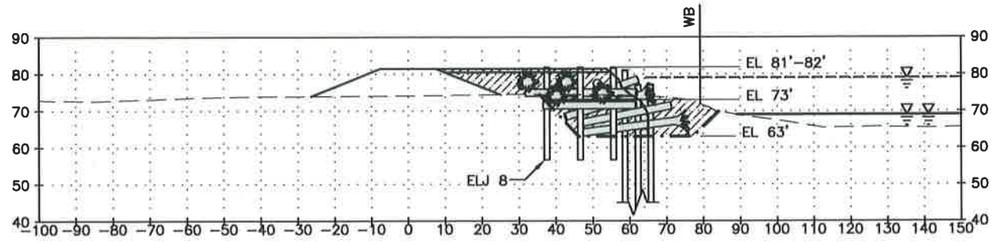
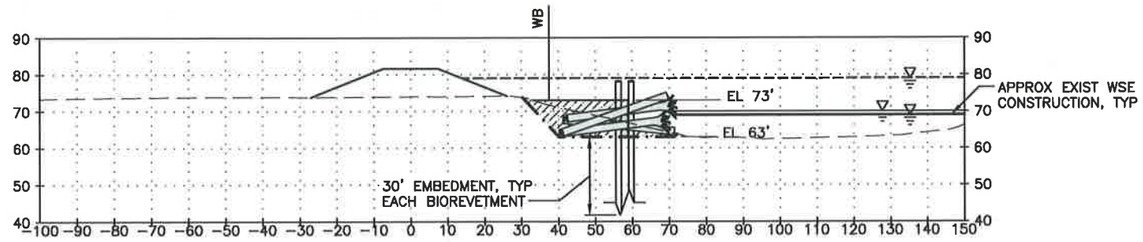


SECTION BB-BB (BB, SB2)
1"=20'



SECTION CC-CC (CC, SB2)
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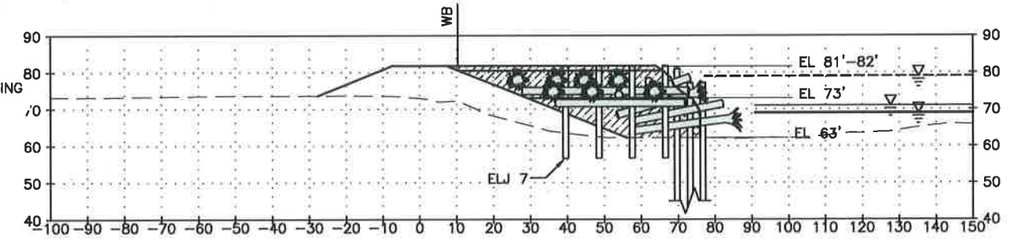

SECTION DD-DD (DD, SB2)
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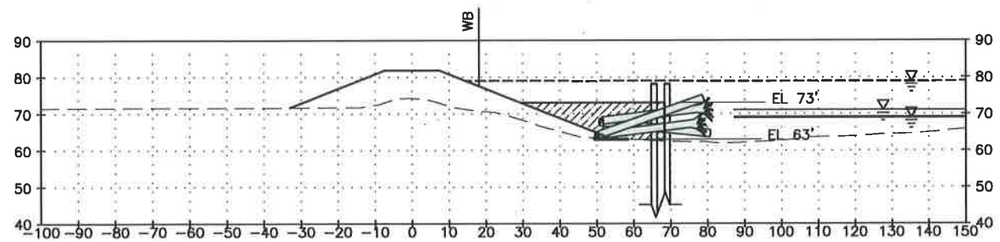

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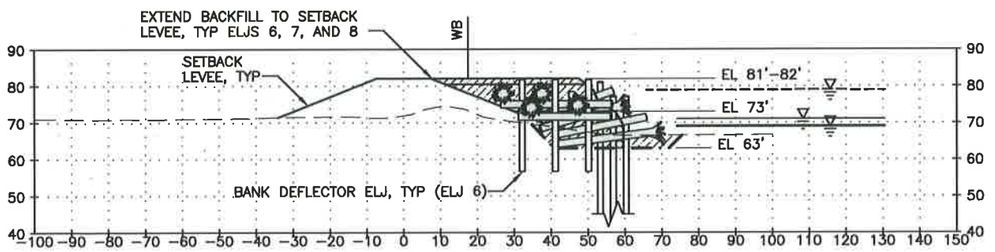


SECTION FF-FF (FF, SB2)
1"=20'

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60%
5-2013

NUM.	REVISION	BY	DATE

APPROVED: IAN MOSTRENKO, PE	5-2013	
PROJECT MANAGER: MARK EWBANK, PE	5-2013	
DESIGNED: BRIAN SCOTT	5-2013	
ECOLOGIST:		
DESIGN ENTERED: TODD PRESCOTT	5-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

IAN B. MOSTRENKO STATE OF WASHINGTON 36069 REGISTERED PROFESSIONAL ENGINEER

HERRERA

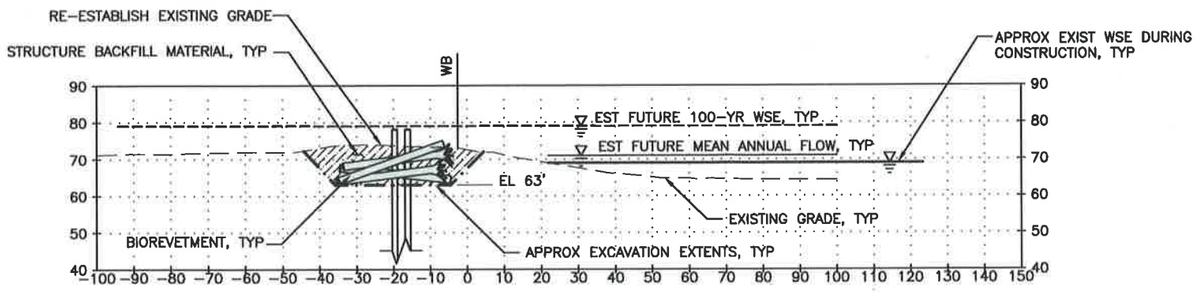
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

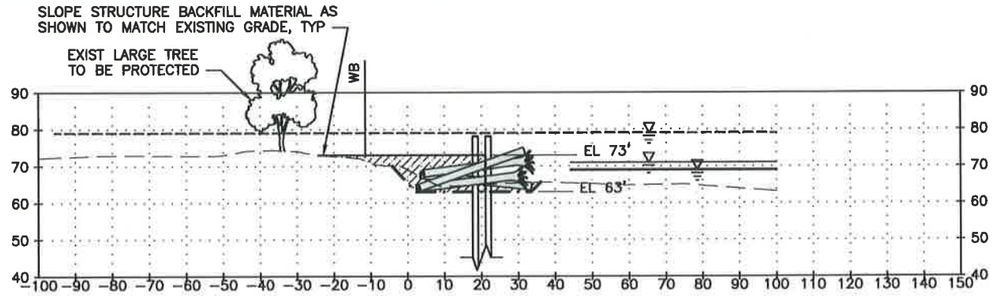
BIOREVETMENT SECTIONS

SHEET 58 OF 69 SHEETS

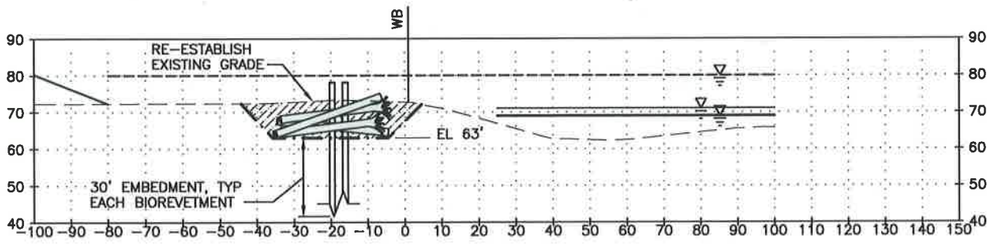
WD11

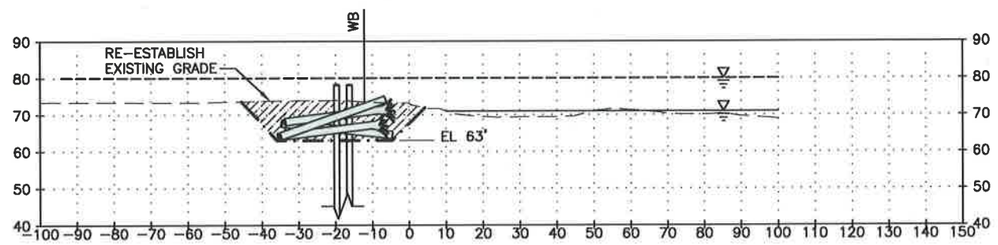


SECTION GG-GG
1"=20'
GG SB2



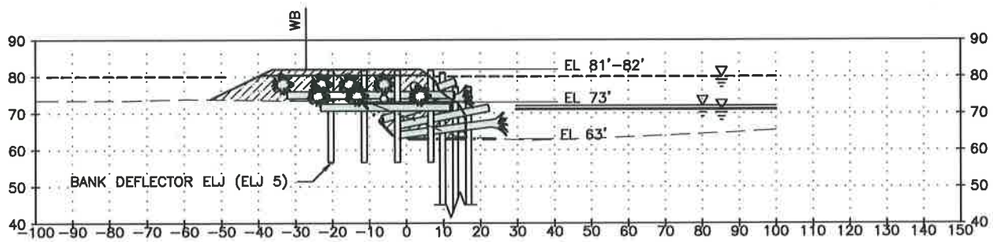
SECTION HH-HH
1"=20'
HH SB2

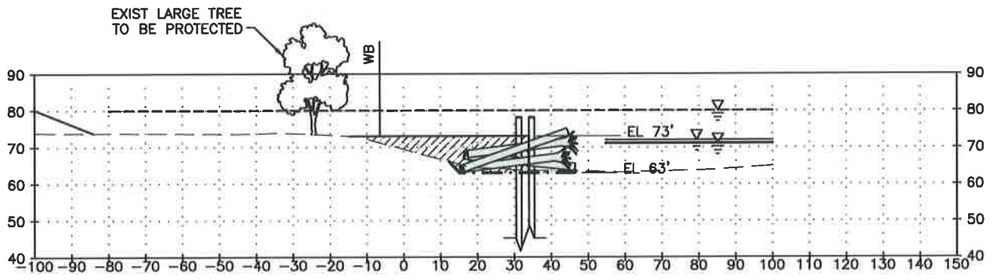




SECTION II-II
1"=20'
II SB2

SECTION JJ-JJ
1"=20'
JJ SB3





SECTION KK-KK
1"=20'
KK SB3

SECTION LL-LL
1"=20'
LL SB3

FIELD BOOK:	NUM.	REVISION	BY	DATE	APPROVED: IAN MOSTRENKO, PE	5-2013	SRFB # RCO 087-1910C
SURVEYED:		CADD / 60% 5-2013			PROJECT MANAGER: MARK EWBANK, PE	5-2013	PROJECT No. 1112049 (FL9001)
SURVEY BASE MAP:					DESIGNED: BRIAN SCOTT	5-2013	
CHECKED:					ECOLOGIST:		
					DESIGN ENTERED: TODD PRESCOTT	5-2013	

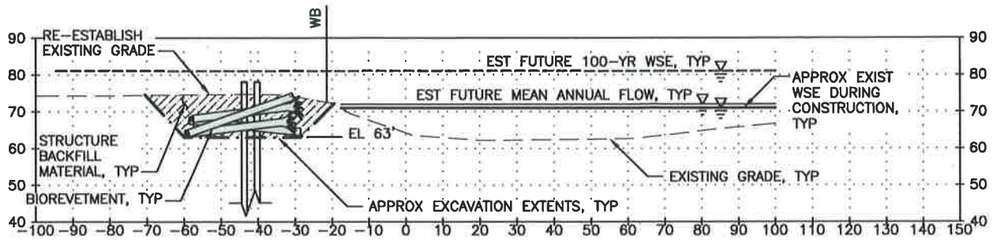
IAN B. MOSTRENKO STATE OF WASHINGTON 36069 REGISTERED PROFESSIONAL ENGINEER

HERRERA

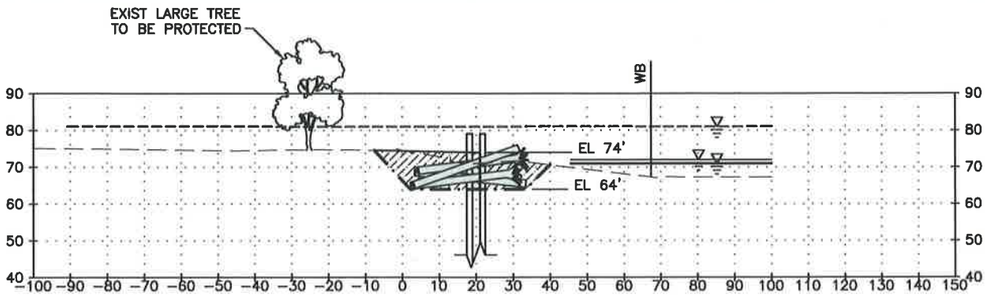
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION
BIOREVETMENT SECTIONS

SHEET 59 OF 69 SHEETS
WD12



SECTION MM-MM
1"=20'
MM SB3



SECTION NN-NN
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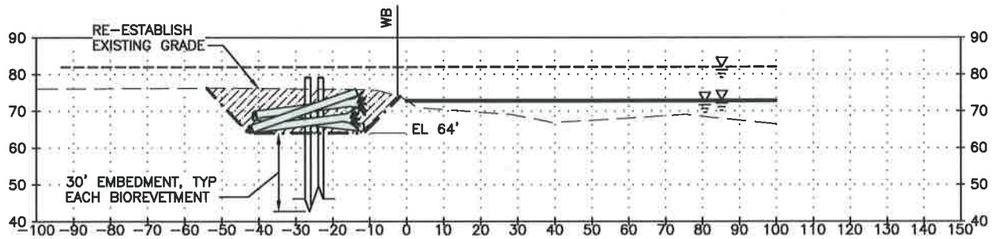
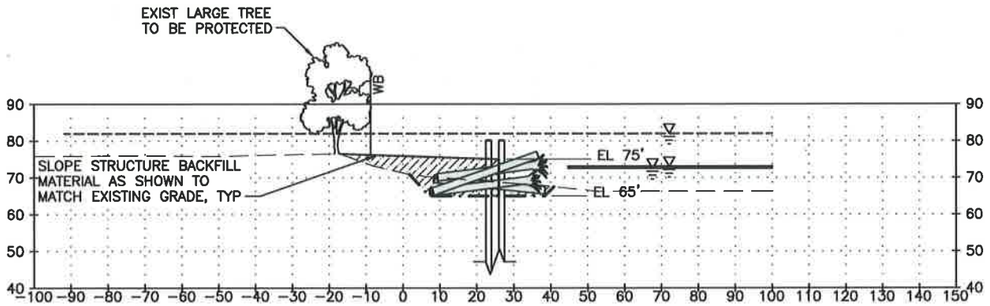
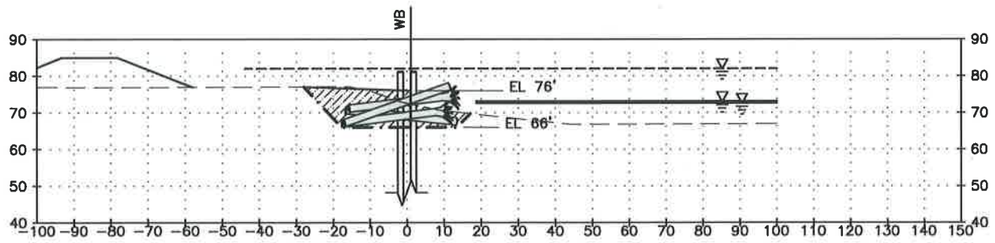
NN SB3



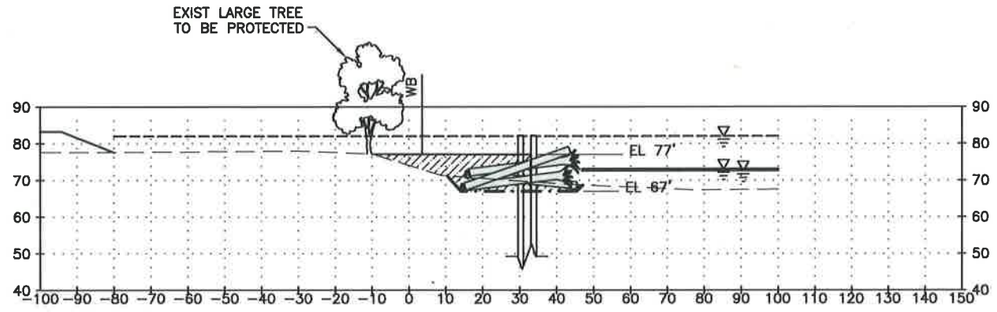
SECTION OO-OO
1"=20'
OO SB3



SECTION PP-PP
1"=20'
PP SB3



SECTION QQ-QQ
1"=20'
QQ SB4



SECTION RR-RR
1"=20'
RR SB4

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60%
5-2013

NUM.	REVISION	BY	DATE

APPROVED: IAN MOSTRENKO, PE	5-2013	
PROJECT MANAGER: MARK EWBANK, PE	5-2013	
DESIGNED: BRIAN SCOTT	5-2013	
ECOLOGIST:		
DESIGN ENTERED: TODD PRESCOTT	5-2013	

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

IAN B. MOSTRENKO STATE OF WASHINGTON 36069 REGISTERED PROFESSIONAL ENGINEER

HERRERA

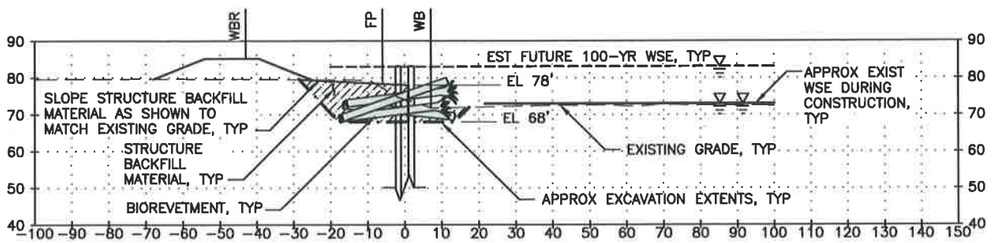
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

BIOREVETMENT SECTIONS

SHEET 60 OF 69 SHEETS

WD13



SECTION SS-SS (SS / SB4)
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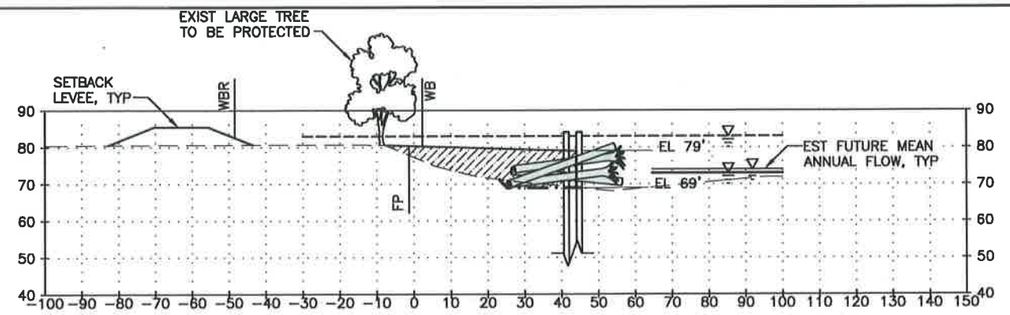
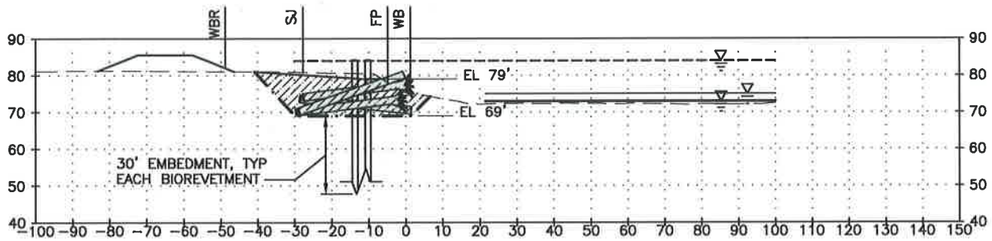
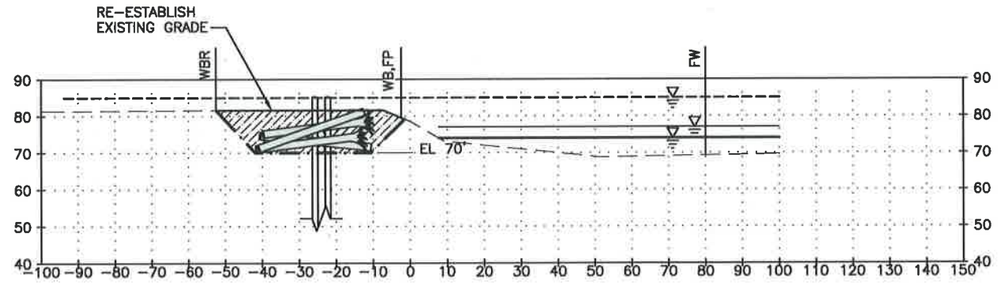


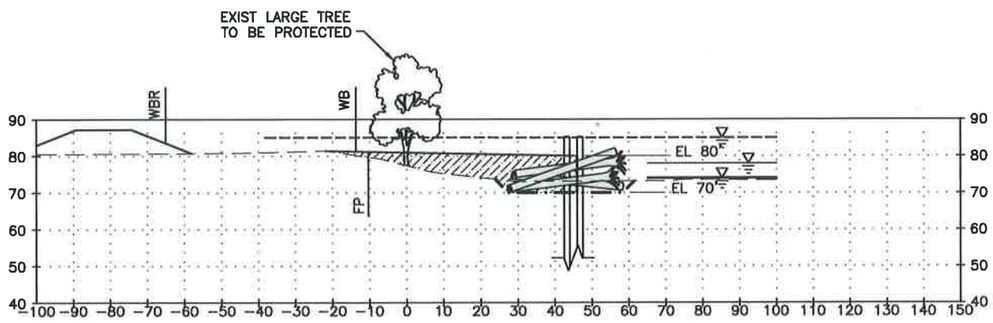
SECTION TT-TT (TT / SB4)
1"=20'



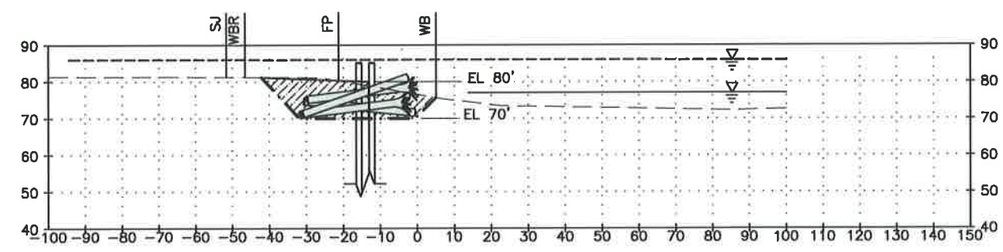
SECTION UU-UU (UU / SB4)
1"=20'



SECTION VV-VV (VV / SB5)
1"=20'



SECTION WW-WW (WW / SB5)
1"=20'



SECTION XX-XX (XX / SB5)
1"=20'

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60%
5-2013

NUM.	REVISION	BY	DATE

APPROVED:	IAN MOSTRENKO, PE	5-2013
PROJECT MANAGER:	MARK EWBANK, PE	5-2013
DESIGNED:	BRIAN SCOTT	5-2013
ECOLOGIST:		
DESIGN ENTERED:	TODD PRESCOTT	5-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

IAN B. MOSTRENKO, STATE OF WASHINGTON, 36069, REGISTERED PROFESSIONAL ENGINEER

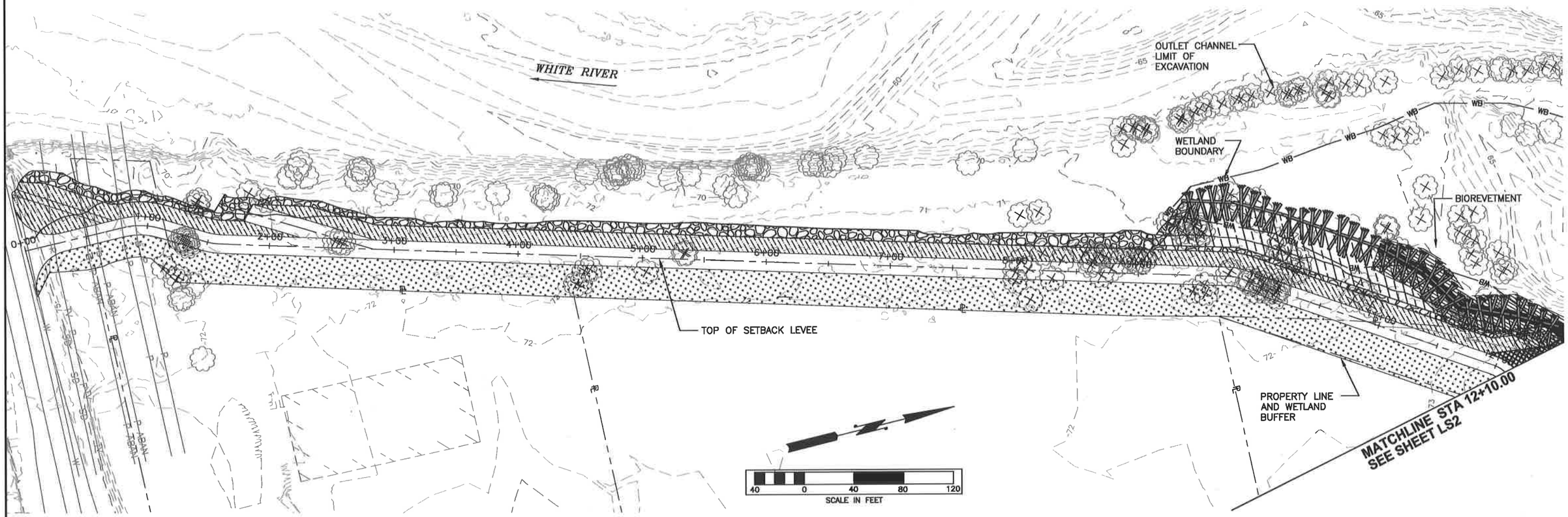
HERRERA

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION
BIOREVETMENT SECTIONS

SHEET 61 OF 69 SHEETS

WD14



NOTES:

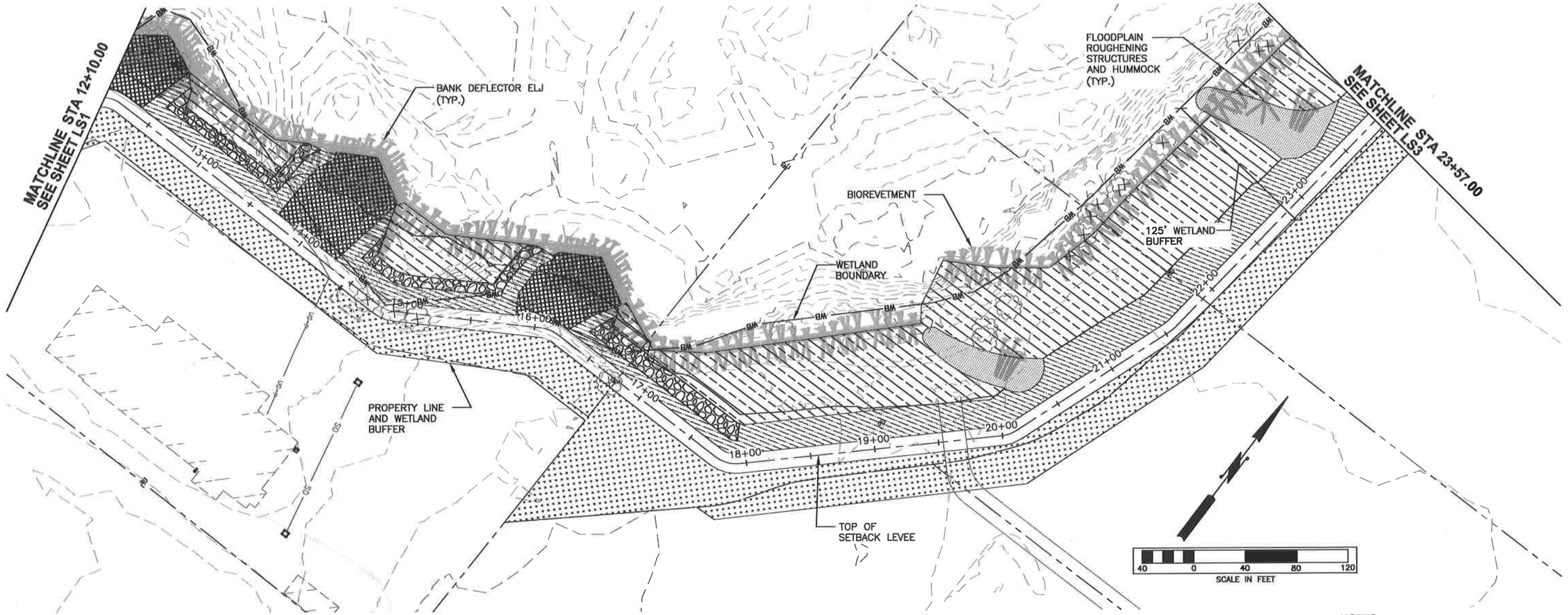
1. SEE DWG LS7 FOR LEGEND OF PLANT TYPES.

LEGEND:

EX. TREE
TO BE PROTECTED

EX. TREE
TO BE REMOVED

FIELD BOOK:		NUM.	REVISION	BY	DATE	APPROVED: JEANNE STYPULA, PE	4-2013	SRFB # RCO 087-1910C	King County Department of Natural Resources and Parks Water and Land Resources Division **River and Floodplain Management Section** *Christie True, Director*	COUNTYLINE LEVEE SETBACK WHITE RIVER, RIVER MILE 5.00-6.33 LEVEE MODIFICATION PLANTING PLAN	SHEET 62 OF 69 SHEETS LS1
SURVEYED:			CADD / 60% 5-2013			PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	PROJECT No. 1112049 (FL9001)			
SURVEY BASE MAP:						DESIGNED: KATE AKYUZ	4-2013				
CHECKED:						ECOLOGIST: SARAH McCARTHY	4-2013				
						DESIGN ENTERED: LICA DULAN	4-2013				



NOTES:

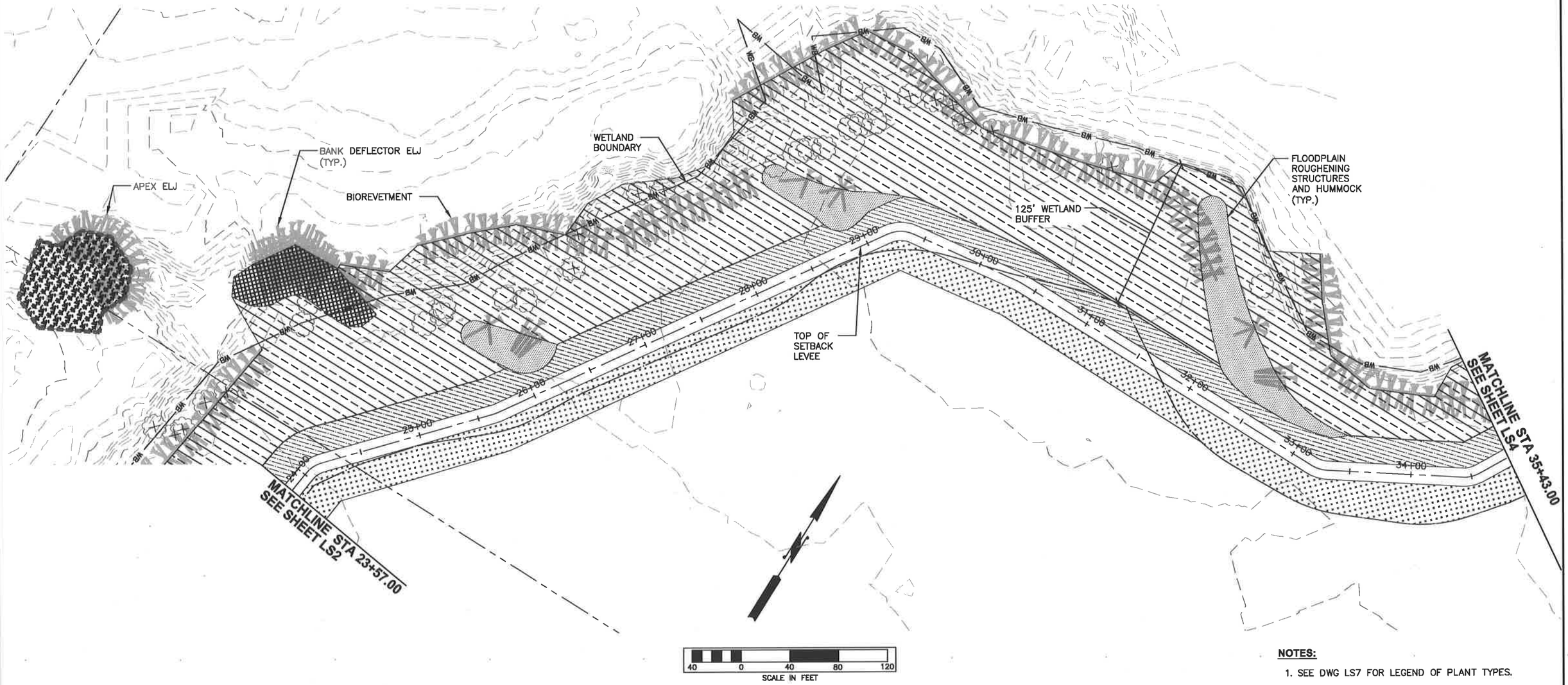
1. SEE DWG LS7 FOR LEGEND OF PLANT TYPES.

LEGEND:

EX. TREE
TO BE PROTECTED

EX. TREE
TO BE REMOVED

FIELD BOOK:		NUM.	REVISION	BY	DATE	APPROVED: JEANNE STYPULA, PE	4-2013	SRFB # RCO 087-1910C	King County Department of Natural Resources and Parks Water and Land Resources Division **River and Floodplain Management Section** *Christie True, Director*	COUNTYLINE LEVEE SETBACK WHITE RIVER, RIVER MILE 5.00-6.33 LEVEE MODIFICATION PLANTING PLAN	SHEET 63 OF 69 SHEETS LS2
SURVEYED:						PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013				
SURVEY BASE MAP:						DESIGNED: KATE AKYUZ	4-2013	PROJECT No. 1112049 (FL9001)			
CHECKED:						ECOLOGIST: SARAH McCARTHY	4-2013				
			CADD / 60% 5-2013			DESIGN ENTERED: LICA DULAN	4-2013				



NOTES:

1. SEE DWG LS7 FOR LEGEND OF PLANT TYPES.

LEGEND:

EX. TREE TO BE PROTECTED

EX. TREE TO BE REMOVED

FIELD BOOK:		NUM.	REVISION	BY	DATE	APPROVED: JEANNE STYPULA, PE	4-2013
SURVEYED:			CADD / 60% 5-2013			PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013
SURVEY BASE MAP:						DESIGNED: KATE AKYUZ	4-2013
CHECKED:						ECOLOGIST: SARAH McCARTHY	4-2013
						DESIGN ENTERED: LICA DULAN	4-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

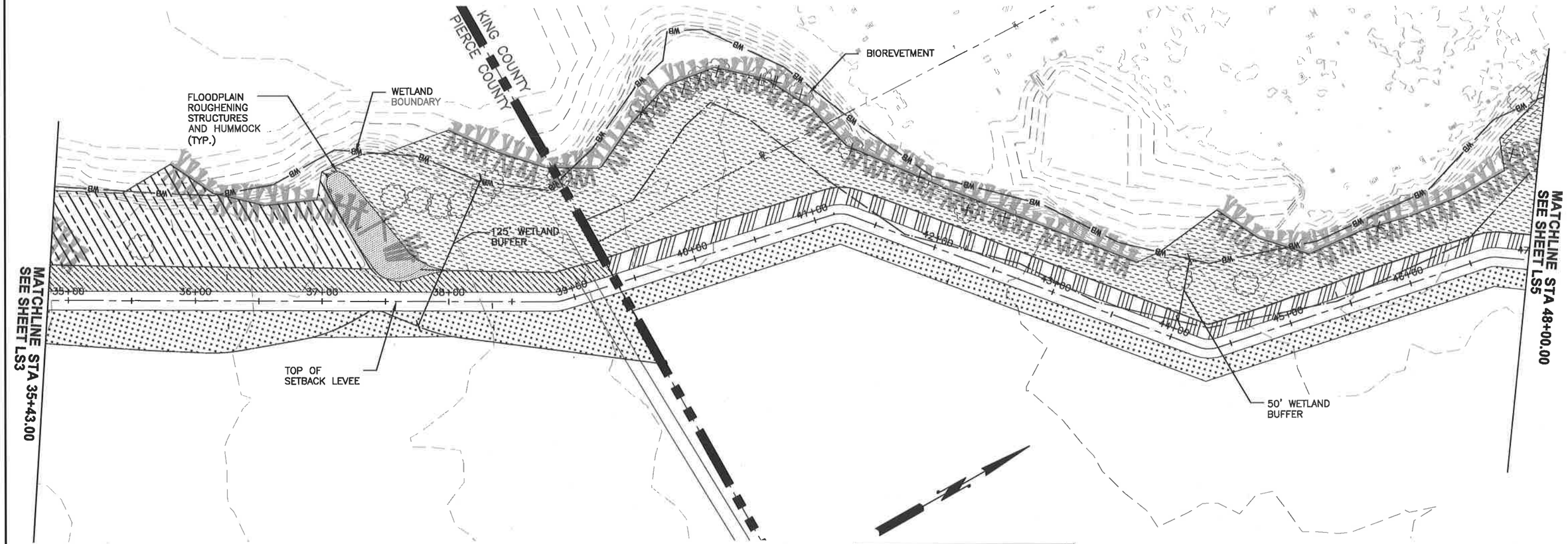
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION

PLANTING PLAN

SHEET 64 OF 69 SHEETS

LS3



NOTES:

1. SEE DWG LS7 FOR LEGEND OF PLANT TYPES.

LEGEND:

EX. TREE TO BE PROTECTED

EX. TREE TO BE REMOVED

NUM.	REVISION	BY	DATE
	CADD / 60% 5-2013		

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

APPROVED:	JEANNE STYPULA, PE	4-2013
PROJECT MANAGER:	CHRIS BRUMMER, PE	4-2013
DESIGNED:	KATE AKYUZ	4-2013
ECOLOGIST:	SARAH McCARTHY	4-2013
DESIGN ENTERED:	LICA DULAN	4-2013

SRFB # RCO 087-1910C

PROJECT No. 1112049 (FL9001)

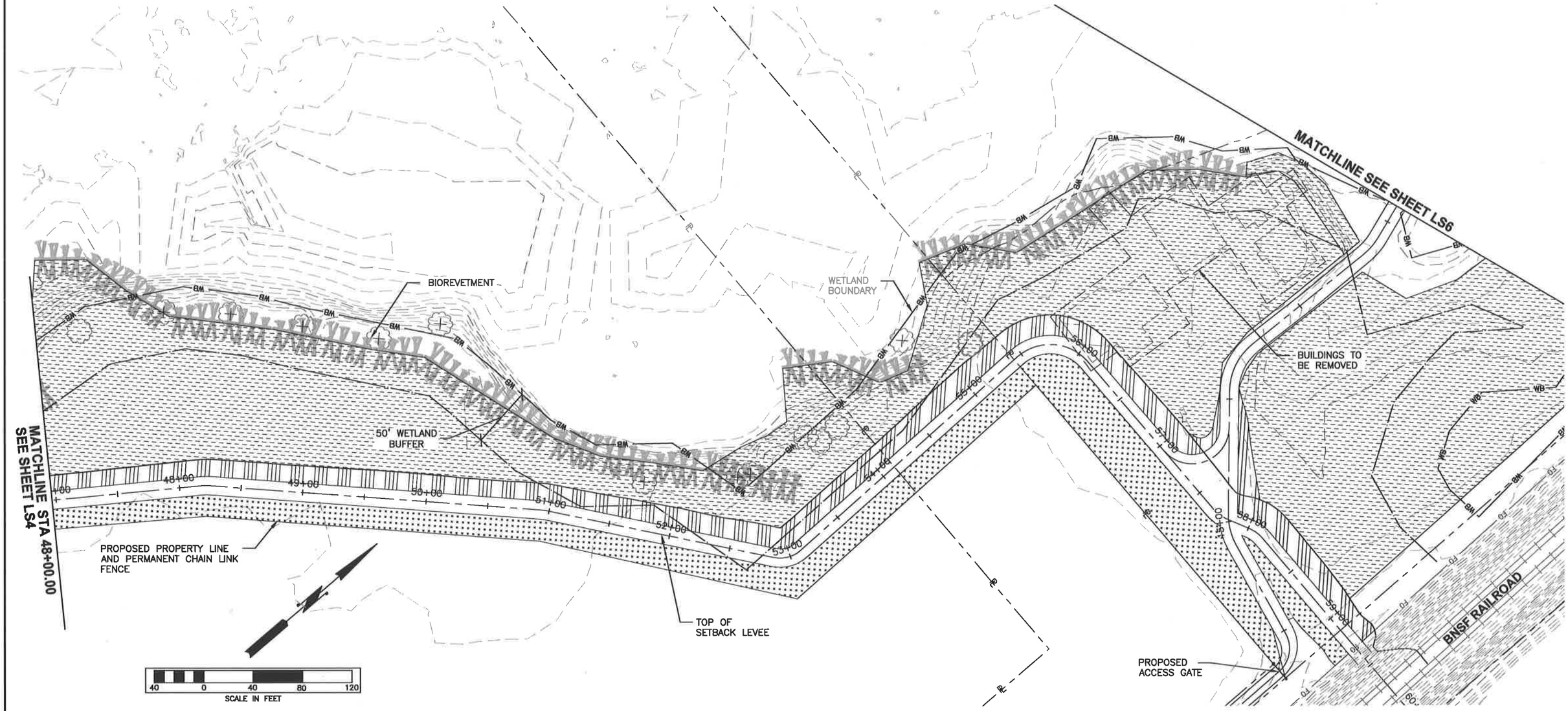
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK WHITE RIVER, RIVER MILE 5.00-6.33 LEVEE MODIFICATION

PLANTING PLAN

SHEET 65 OF 69 SHEETS

LS4



NOTES:

1. SEE DWG LS7 FOR LEGEND OF PLANT TYPES.

LEGEND:

EX. TREE TO BE PROTECTED

EX. TREE TO BE REMOVED

FIELD BOOK:			
SURVEYED:			
SURVEY BASE MAP:			
CHECKED:			

CADD / 60% 5-2013

NUM.	REVISION	BY	DATE

APPROVED: JEANNE STYPULA, PE	4-2013	SRFB # RCO 087-1910C
PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	PROJECT No. 1112049 (FL9001)
DESIGNED: KATE AKYUZ	4-2013	
ECOLOGIST: SARAH McCARTHY	4-2013	
DESIGN ENTERED: LICA DULAN	4-2013	

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

COUNTYLINE LEVEE SETBACK
WHITE RIVER, RIVER MILE 5.00-6.33
LEVEE MODIFICATION
PLANTING PLAN

SHEET 66 OF 69 SHEETS

LS5

NOTES:

1. SEE DWG LS7 FOR LEGEND OF PLANT TYPES.

LEGEND:

EX. TREE TO BE PROTECTED

EX. TREE TO BE REMOVED

FIELD BOOK:		NUM.	REVISION	BY	DATE	APPROVED: JEANNE STYPULA, PE	4-2013	SRFB # RCO 087-1910C	
SURVEYED:			CADD / 60% 5-2013			PROJECT MANAGER: CHRIS BRUMMER, PE	4-2013	PROJECT No. 1112049 (FL9001)	
SURVEY BASE MAP:						DESIGNED: KATE AKYUZ	4-2013		
CHECKED:						ECOLOGIST: SARAH McCARTHY	4-2013		
						DESIGN ENTERED: LICA DULAN	4-2013		

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SHEET 67 OF 69 SHEETS

LS6

Symbol	Scientific Name	Common Name	Wetland Indicator Status	Area (ft2)	% Cover Goal1	Spacing1 (ft o.c.)	Stock Type2	Quantity
	WETLAND BUFFER DRY							
	Acer Macrophyllum	Big-leaf maple	FACU	247,563	10.000000	10.000000	SD, GAL	248
	Populus trichocarpa	Black cottonwood	FAC	247,563	50.000000	10.000000	LS3	1,238
	Pseudotsuga menziesii	Douglas fir	FACU	247,563	20.000000	10 000000	PL, GAL	495
	Alnus rubra	Red alder	FAC	247,563	20.000000	10 000000	SD, GAL	495
	Rhamnus purshiana	Cascara	FAC	247,563	10.000000	6.000000	SD, GAL	688
	Salix scouleriana	Scouler's willow	FAC	247,563	10.000000	6.000000	SD, LS3	688
	Acer circinatum	Vine maple	FAC	247,563	10.000000	6.000000	TR, GAL	688
	Rosa gymnocarpa	Bald-hip rose	FACU	247,563	10.000000	4.000000	SD, GAL	1,547
	Corylus cornuta	Hazelnut	FACU	247,563	10.000000	6.000000	TR, GAL	688
	Oemleria cerasiformis	Indian plum	FACU	247,563	10.000000	6.000000	TR, GAL	688
	Vaccinium parvifolium	Red huckleberry	FACU	247,563	10.000000	6.000000	GAL	688
	Amelanchier alnifolia	Seskatoon	FACU	247,563	10.000000	6.000000	TR, GAL	688
	Symphoricarpos albus	Snowberry	FACU	247,563	20.000000	6.000000	TR, GAL	1,375
	Rubus parviflorus	Thimbleberry	FACU	247,563	10.000000	4.000000	SD, GAL	1,547
	Polystichum munitum	Sword fern	FACU	247,563	10.000000	4.000000	GAL	1,547
	WETLAND BUFFER WET							
	Populus trichocarpa	Black cottonwood	FAC	230,480	70.000000	10.000000	LS3	1,613
	Alnus rubra	Red alder	FAC	230,480	20.000000	10.000000	SD, GAL	461
	Thuja plicata	Western redcedar	FAC	230,480	10.000000	10.000000	PL, GAL	230
	Rhamnus purshiana	Cascara	FAC	230,480	10.000000	6.000000	SD, GAL	640
	Salix hookeriana	Hooker's willow	FACW	230,480	10.000000	6.000000	SD, LS3	640
	Salix sitchensis	Sitka willow	FACW	230,480	10.000000	6.000000	SD, LS3	640
	Acer circinatum	Vine maple	FAC	230,480	10.000000	6.000000	TR, GAL	640
	Rosa nootkana	Nootka rose	FAC	230,480	10.000000	4.000000	SD, GAL	1,441
	Cornus sericea	Red twig dogwood	FACW	230,480	20.000000	6.000000	TR, GAL	1,280
	Rubus spectabilis	Salmonberry	FAC	230,480	10.000000	4.000000	TR, GAL	1,441
	Athyrium felix-femina	Lady fern	FAC	230,480	10.000000	4.000000	GAL	1,441
	WATERWARD LEVEE SLOPE DRY - Plant big-leaf maple & Doug-fir alternately 25' o.c. in undulating line on mid-lower slope position. First 3' of slope adjacent to road seed with red fescue. Next 3' to be planted to sword fern and fringe cup.							
	Acer circinatum	Vine maple	FAC	30,304	10.000000	6.000000	GAL	84
	Acer Macrophyllum	Big-leaf maple	FACU	2,252 LF	10.000000	25' L	GAL	45
	Cornus sericea	Red twig dogwood	FACW	30,304	20.000000	6.000000	GAL	168
	Corylus cornuta	Hazelnut	FACU	30,304	10.000000	6.000000	GAL	84
	Festuca rubra	Red fescue	FAC	30,304	5.000000	14 lbs/ac	SEED	10
	Holodiscus discolor	Oceanspray	FACU	30,304	10 000000	6.000000	GAL	84
	Oemleria cerasiformis	Indian plum	FACU	30,304	10.000000	6.000000	GAL	84
	Polystichum munitum	Sword fern	FACU	30,304	10.000000	4.000000	GAL	189
	Pseudotsuga menziesii	Douglas fir	FACU	2,252 LF	10.000000	25' L	GAL	45
	Rhamnus purshiana	Cascara	FAC	30,304	10.000000	6.000000	GAL	84
	Rosa gymnocarpa	Bald-hip rose	FACU	30,304	10.000000	4.000000	GAL	189
	Rubus parviflorus	Thimbleberry	FACU	30,304	15.000000	4.000000	GAL	284
	Symphoricarpos albus	Snowberry	FACU	30,304	25.000000	6.000000	GAL	210
	Tellima grandiflora	Fringe cup	FACU	30,304	5.000000	4.000000	POT	95
	WATERWARD LEVEE SLOPE WET - Plant Western redcedar 25' o.c. in undulating line on mid-lower slope position. First 3' of slope adjacent to road seed with red fescue. Next 3' to be planted to lady fern and piggy-back plant.							
	Acer circinatum	Vine maple	FAC	67,881	10.000000	6.000000	GAL	189
	Alnus rubra	Red alder	FAC	67,881	20.000000	12.000000	GAL	94
	Athyrium felix-femina	Lady fern	FAC	67,881	10.000000	4.000000	GAL	424
	Cornus sericea	Red twig dogwood	FACW	67,881	25.000000	6.000000	GAL	471
	Corylus cornuta	Hazelnut	FACU	67,881	10.000000	6.000000	GAL	189
	Festuca rubra	Red fescue	FAC	67,881	5.000000	14 lbs/ac	SEED	22
	Oemleria cerasiformis	Indian plum	FACU	67,881	10.000000	6.000000	GAL	189
	Rosa nootkana	Nootka rose	FAC	67,881	10.000000	4.000000	GAL	424
	Rubus spectabilis	Salmonberry	FAC	67,881	10.000000	4.000000	GAL	424
	Salix hookeriana	Hooker's willow	FACW	67,881	10.000000	6.000000	LS3	189
	Salix sitchensis	Sitka willow	FACW	67,881	10.000000	6.000000	LS3	189
	Sambucus racemosa	Red elderberry	FACU	67,881	10.000000	6.000000	GAL	189
	Symphoricarpos albus	Snowberry	FACU	67,881	25 000000	6 000000	GAL	471
	Thuja plicata	Western redcedar	FAC	3,856	10.000000	25' L	GAL	154
	Tolmeia menziesii	Piggy-back plant	FAC	67,881	5.000000	4 000000	POT	212
	LANDWARD LEVEE SLOPE - Plant shore pine in straight line 25' o.c. in mid-slope position only. First 3' of slope adjacent to road seed with red fescue. Next 3' to be planted to sword fern and fringe cup only.							
	Amelanchier alnifolia	Seskatoon	FACU	152,170	10.000000	6.000000	GAL	423
	Corylus cornuta	Hazelnut	FACU	152,170	25.000000	6.000000	GAL	1,057
	Festuca rubra	Red fescue	FAC	152,170	5.000000	14 lbs/ac	SEED	49
	Holodiscus discolor	Oceanspray	FACU	152,170	40.000000	6.000000	GAL	1,691
	Pinus contorta v. con.	Shore pine	FAC	6,000 LF	25.000000	25' L	GAL	240
	Polystichum munitum	Sword fern	FACU	152,170	10.000000	4.000000	GAL	951
	Symphoricarpos albus	Snowberry	FACU	152,170	25.000000	6.000000	GAL	1,057
	Tellima grandiflora	Fringe cup	FACU	152,170	5.000000	4.000000	POT	476
	BANK DEFLECTOR ELIS							
	Acer circinatum	Vine maple	FAC	15,497	10.000000	6.000000	GAL	43
	Acer Macrophyllum	Big-leaf maple	FACU	15,497	30.000000	12.000000	GAL	32
	Alnus rubra	Red alder	FAC	15,497	30.000000	12.000000	GAL	32
	Corylus cornuta	Hazelnut	FACU	15,497	20.000000	6.000000	GAL	86
	Oemleria cerasiformis	Indian plum	FACU	15,497	15.000000	6.000000	GAL	65
	Polystichum munitum	Sword fern	FACU	15,497	10.000000	4.000000	GAL	106
	Pseudotsuga menziesii	Douglas fir	FACU	15,497	25.000000	12.000000	GAL	27
	Rhamnus purshiana	Cascara	FAC	15,497	20.000000	6.000000	GAL	86
	Rosa gymnocarpa	Bald-hip rose	FACU	15,497	20.000000	4.000000	GAL	194
	Symphoricarpos albus	Snowberry	FACU	15,497	20.000000	6.000000	GAL	86
	Thuja plicata	Western redcedar	FAC	15,497	15.000000	12.000000	GAL	16

	APEX ELIs							
	Upper 1/2 of Apex ELIs							
	Acer circinatum	Vine maple	FAC	7,448	20.000000	6 000000	GAL	41
	Alnus rubra	Red alder	FAC	7,448	25.000000	12.000000	GAL	39
	Corylus cornuta	Hazelnut	FACU	7,448	10.000000	6.000000	GAL	21
	Oemleria cerasiformis	Indian plum	FACU	7,448	10 000000	6.000000	GAL	21
	Rosa gymnocarpa	Bald-hip rose	FACU	7,448	10 000000	4.000000	GAL	47
	Rubus parviflorus	Thimbleberry	FACU	7,448	20.000000	4.000000	GAL	93
	Sambucus racemosa	Red elderberry	FACU	7,448	10.000000	6.000000	GAL	21
	Symphoricarpos albus	Snowberry	FACU	7,448	20.000000	6.000000	GAL	41
	Thuja plicata	Western redcedar	FAC	7,448	25.000000	12.000000	GAL	13
	Vaccinium parvifolium	Red huckleberry	FACU	7,448	10.000000	6.000000	GAL	21
	Lower 1/2 of Apex ELIs							
	Cornus sericea	Red twig dogwood	FACW	7,448	10.000000	6.000000	GAL	21
	Populus trichocarpa	Black cottonwood	FAC	7,448	100.000000	12.000000	LS3	52
	Rhamnus purshiana	Cascara	FAC	7,448	10.000000	6.000000	GAL	21
	Rosa nootkana	Nootka rose	FAC	7,448	10.000000	4.000000	GAL	47
	Rubus spectabilis	Salmonberry	FAC	7,448	20.000000	4.000000	GAL	93
	Salix hookeriana	Hooker's willow	FACW	7,448	20.000000	6.000000	LS3	41
	Salix sitchensis	Sitka willow	FACW	7,448	20 000000	6.000000	LS3	41
	ROUGHENING HUMMOCKS							
	Acer circinatum	Vine maple	FAC	18,794	10 000000	6.000000	GAL	52
	Athyrium felix-femina	Lady fern	FAC	18,794	10 000000	4.000000	GAL	117
	Cornus sericea	Red twig dogwood	FACW	18,794	20.000000	6.000000	GAL	104
	Polystichum munitum	Sword fern	FACU	18,794	10.000000	4.000000	GAL	117
	Populus trichocarpa	Black cottonwood	FAC	18,794	100.000000	12.000000	LS3	131
	Rhamnus purshiana	Cascara	FAC	18,794	10.000000	6.000000	GAL	52
	Rosa nootkana	Nootka rose	FAC	18,794	10.000000	4.000000	GAL	117
	Rubus spectabilis	Salmonberry	FAC	18,794	10.000000	4.000000	GAL	117
	Salix hookeriana	Hooker's willow	FACW	18,794	20.000000	6.000000	LS3	104
	Salix sitchensis	Sitka willow	FACW	18,794	20.000000	6.000000	LS3	104
	ROCK FACED LEVEE							
	Lower 1/2 of Rock Faced Levee - Install 6-8' 1-2" willow livestakes 2' o.c. in single layer in 2' topsoil immediately above rock layer of levee per design drawings.							
	Salix scouleriana	Scouler's willow	FAC	1,731	100.000000	2 L	LS6	866

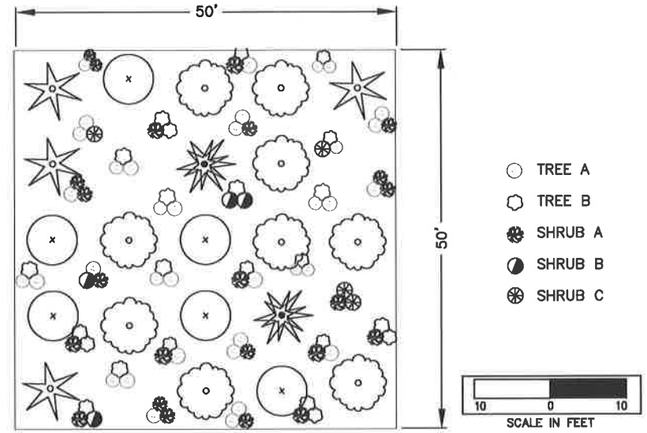
NOTES:
1. SPACING IN FT O.C. UNLESS LINEAR FT AS INDICATED BY "L". TREES TO BE PLANTED 10 OR 12 FEET O.C. FROM OTHER TREES IN PLANTING UNIT AS INDICATED. SHRUBS TO BE PLANTED 4 OR 6 FEET FROM OTHER SHRUBS AS INDICATED. QUANTITIES ARE BASED ON PERCENT COVER GOALS FOR EACH SPECIES AS OPPOSED TO SPACING.
2. ALTERNATIVE A INCLUDES MAINLY PLANTING CONTAINERS EXCEPT FOR WILLOW AND BLACK COTTONWOOD, WHICH WILL BE LIVESTAKES.
3. SD=SEEDLING, TR=TRANSPLANT, LS3=3' LIVE STAKE, LS6=6' LIVE STAKE, PL=PLUG, GAL=1-GALLON CONTAINER, POT= 4" POT, SEED=POUND OF SEED
4. WHERE TWO STOCK TYPES ARE INDICATED, SPLIT QUANTITIES HALF AND HALF FOR EACH TYPE.

GENERAL PLANTING NOTES:

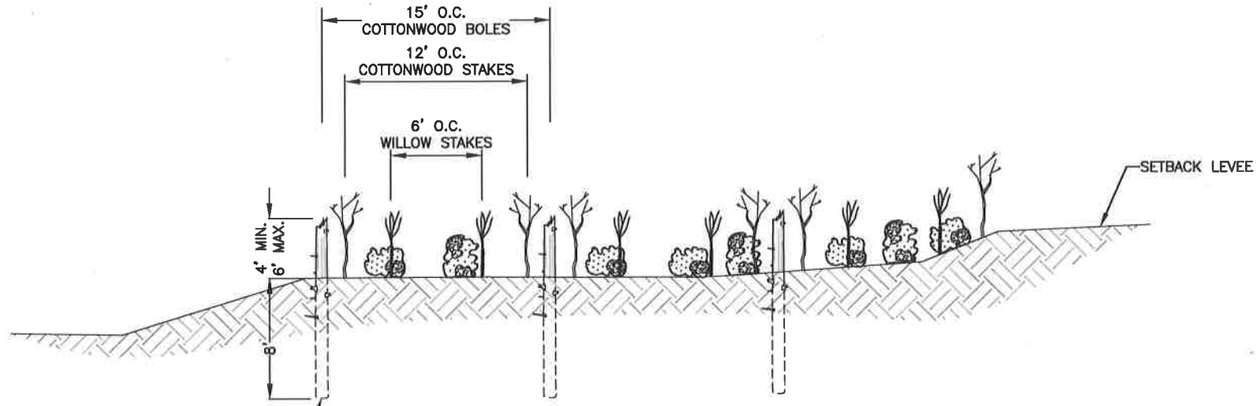
1. BIOREVETMENT WILL BE PLANTED WITH TALL SHRUBS (WILLOWS & DOGWOOD) ALONG THE EDGE OF THE STRUCTURE IN GAPS BETWEEN LOGS.
2. THE WETLAND BUFFER WET/DRY WILL BE PLANTED WITH A MIX OF TREES AND SHRUBS. SEE WETLAND BUFFER WET/DRY TYP. DETAIL, THIS SHEET.
3. THE LEVEE TOP/ACCESS ROAD WILL BE COVERED WITH GRAVEL.
4. LEVEE BACK SLOPES WILL BE PLANTED WITH SHRUBS AND SELECT TREE SPECIES.
5. APPLY COMPOST IN THE LEVEL PLANTING AREAS AND 18" TOPSOIL ON LEVEE SIDE SLOPES AS SHOWN ON PLANS.

PLANTING NOTES:

1. PLANT TREES AT VARIABLE SPACING AVERAGING 10' O.C.
2. PLANT SHRUBS BETWEEN TREES IN CLUSTER-GAP MOSAIC.
3. SHRUBS TO BE SPACED 1'-2' APART IN CLUSTERS OF THREE, APPROXIMATELY 7'-9' APART.
4. EACH CLUSTER TO CONTAIN AT LEAST TWO DIFFERENT SPECIES.



WETLAND BUFFER WET/DRY TYPICAL PLAN DETAIL



ROUGHENING HUMMOCK

NOTES:
1. PLANT COTTONWOOD LIVESTAKES 12' O.C. AND WILLOW LIVESTAKES 6' O.C. AMONG COTTONWOOD BOLES.
2. PLANT SHRUBS 4'-6' O.C. IN CLUSTER GAP MOSAIC AS PER WETLAND BUFFER PLAN DETAIL.

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

CADD / 60% 5-2013

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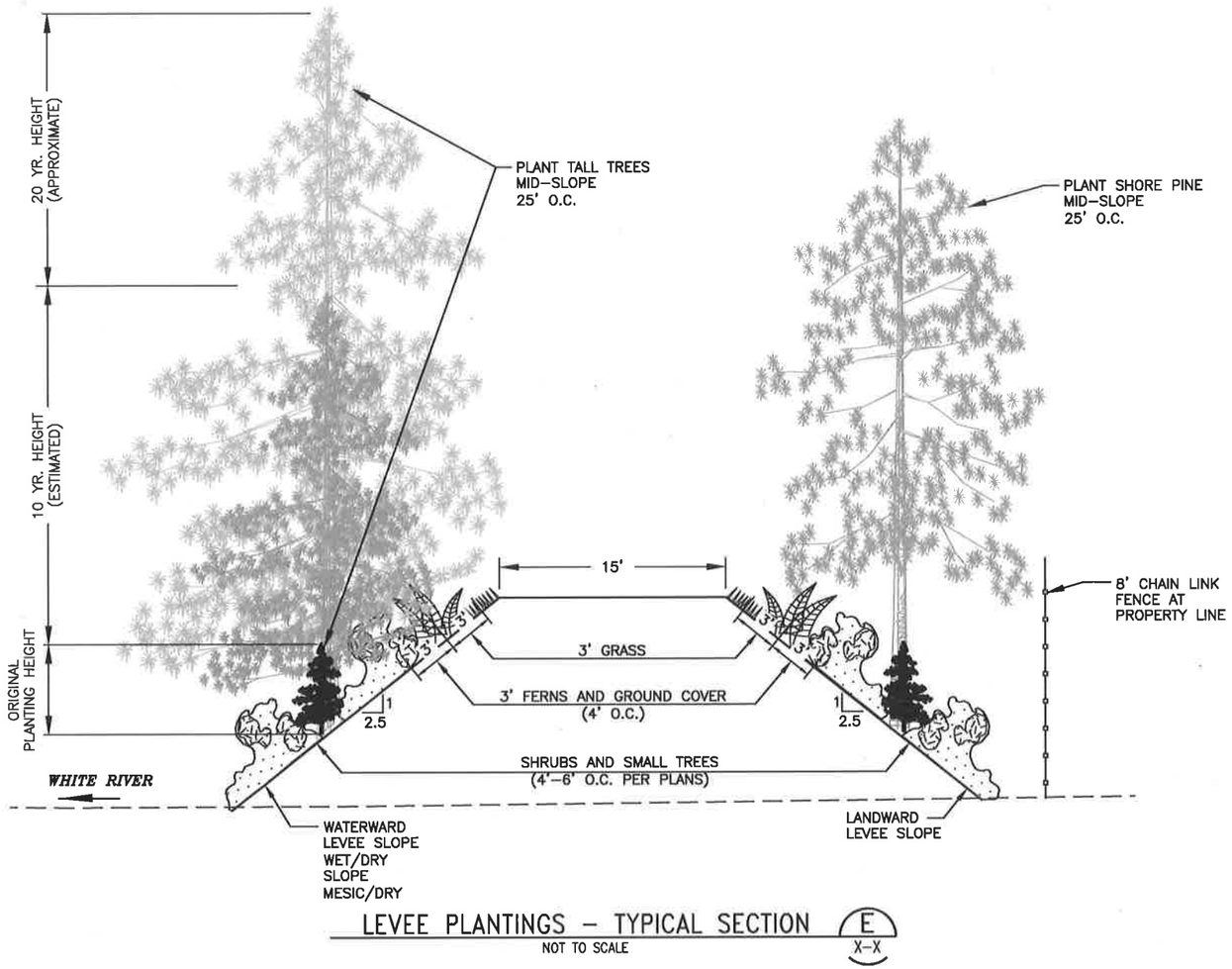
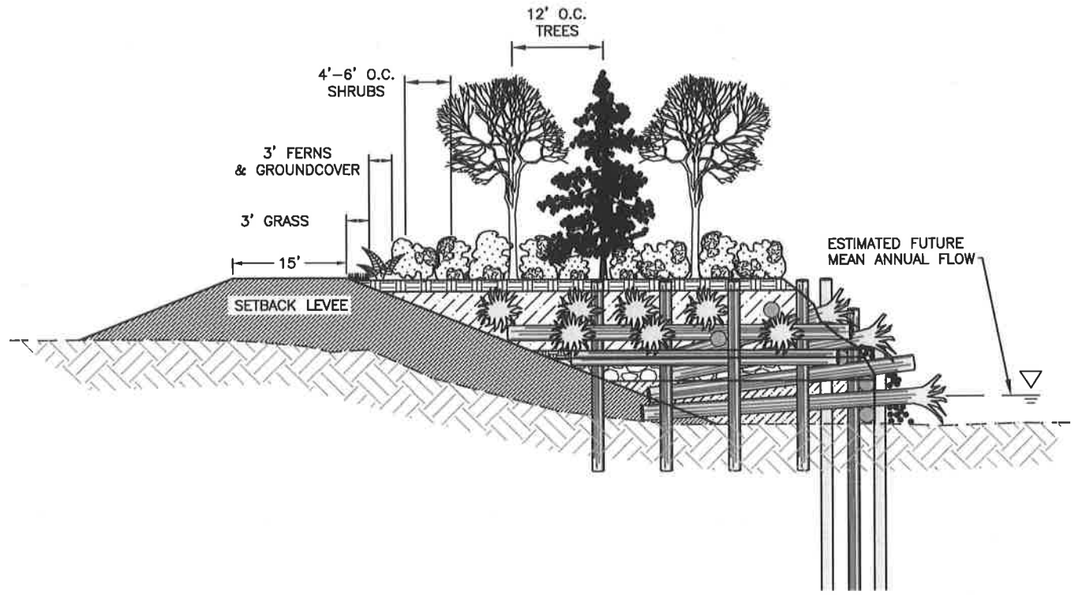
SHEET 68 OF 69 SHEETS

LS7

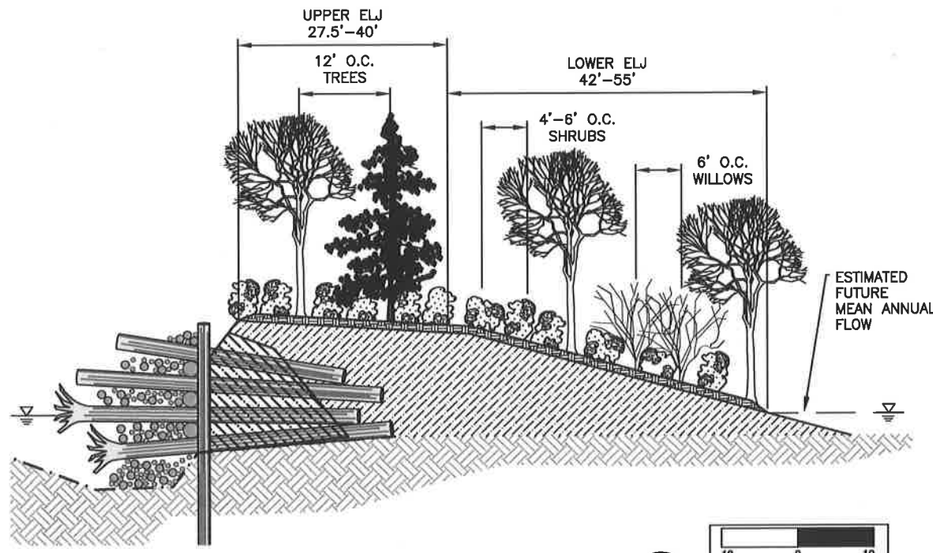


LEVEE PLANTINGS - TYPICAL SECTION (E, X-X)

NOT TO SCALE



BANK DEFLECTOR ELJ PLANTING-SECTION (X, X-X)



APEX ELJ PLANTING - SECTION (A, WD3)

NOTES:
1. SEE TABLE, DWG LS7 FOR PLANT SPACING.
2. PLANT "UPPER HALF ELJ" SPECIES AND "LOWER HALF ELJ" SPECIES ABOVE AND BELOW SLOPE BREAK, RESPECTIVELY.

FIELD BOOK:
SURVEYED:
SURVEY BASE MAP:
CHECKED:

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PLANTING DETAILS

SHEET 69 OF 69 SHEETS

LS8