

WIP (5/23/2023)

GENERAL HABITAT NOTES:

1. LARGE WOODY MATERIAL (LWM) ARE TO BE PLACED AS SHOWN ON PLANS.
2. PLACE ONE-MAN AND TWO-MAN BOULDERS APPROXIMATELY AS SHOWN ON PLANS.
3. MINOR CHANGES TO THE HABITAT FEATURES CAN BE MADE IN THE FIELD BY THE ENGINEER.
4. SEE LANDSCAPE RESTORATION PLANS FOR FINAL STABILIZATION REQUIREMENTS.

CONSTRUCTION PLAN NOTES:

1. RECONSTRUCT STREAM CHANNEL PER DETAIL, SEE SHEET C-409
2. CONSTRUCT SHORT STEP-POOL UNIT PER DETAILS, SEE SHEET C-409.
3. CONSTRUCT MEDIUM STEP-POOL UNIT PER DETAILS, SEE SHEET C-409.
4. CONSTRUCT LONG STEP-POOL UNIT PER DETAILS, SEE SHEET C-409.
5. TRANSITION BETWEEN STEP-POOL AND OTHER STREAM CHANNEL CONDITIONS.
6. INSTALL LOG A WHERE SHOWN AND PER DETAIL, SEE SHEET C-416
7. STREAMBED BOULDERS, PER LEGEND, SEE SHEET C-410.
8. RETAINING WALL W/ RAILING ATTACHED TO TOP, SEE SHEET C-421.
9. ROUGHENED CHANNEL AS SHOWN
10. INSTALL LOGS AS SHOWN AND PER DETAIL, SEE SHEET C-417.

PROPOSED HABITAT FEATURE LEGEND

LOG ID #	DIAMETER (Ø) ¹	LENGTH	
LOG-A	24"	12'	
LOG-B	18"	12'	
LOG-C	18"	12'	
LOG-D	18"	10'	
LOG-E	12"	12'	
LOG-F	12"	12'	
LOG-G	12"	10'	
LOG-H	12"	8'	
SLASH ²			
BOULDERS, ONE-MAN ³	12" - 18"		
BOULDERS, TWO-MAN ³	18" - 28"		
STREAMBED MIX ⁴			
CUT LINE			C C
FILL LINE			F F

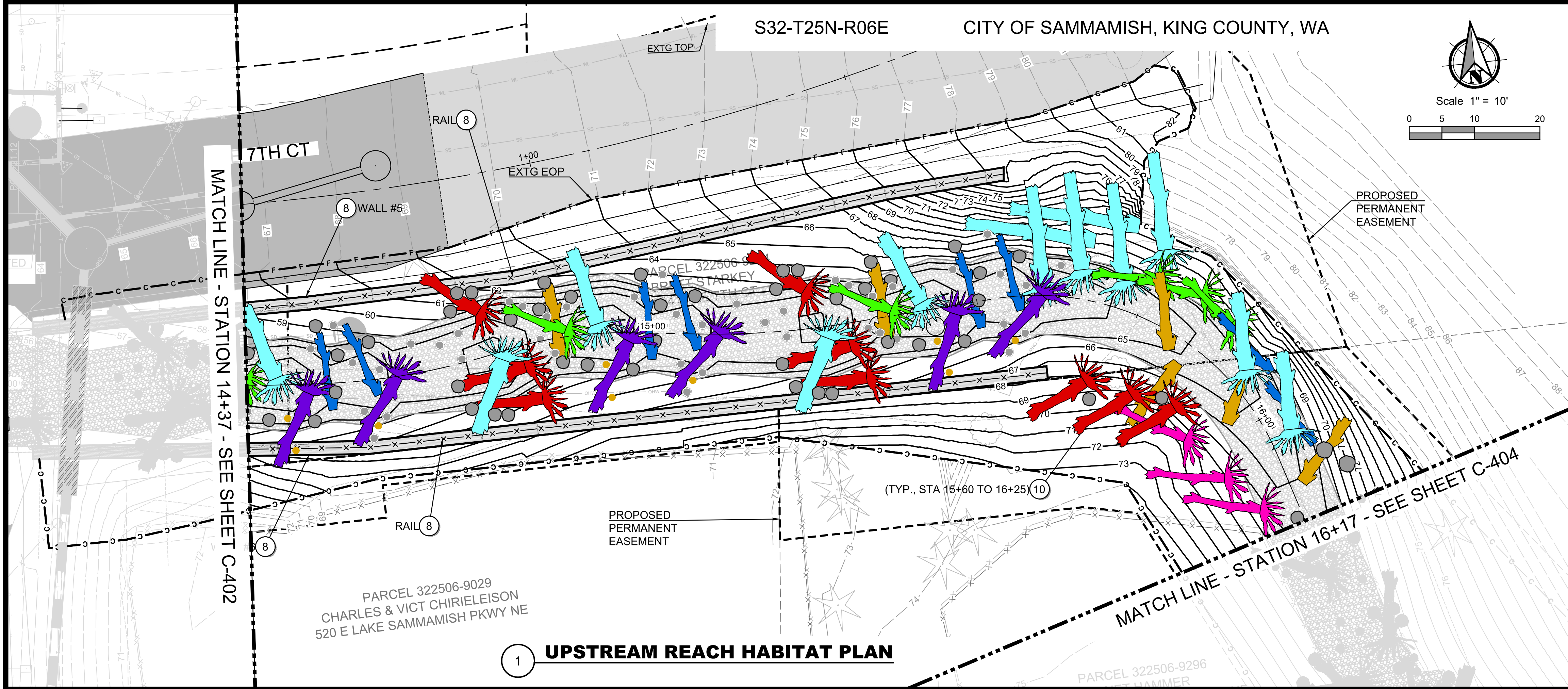
HABITAT LEGEND NOTES:

1. LOG PAY LIMIT Ø LISTED IN LEGEND ARE FOR BID PURPOSES. PROCURE LOGS WITH Ø WITHIN 6"± OF LOG PAY LIMIT Ø.
2. SLASH INSTALLED WITH LIVE STAKE CUTTINGS.
3. BOULDERS SHOWN ON PLANS ARE AVERAGE OF RANGES GIVEN IN LEGEND.
4. SEE SHEET C-409 FOR STREAMBED MIX AGGREGATE INFORMATION.

DESIGNED: PCB/KCS
CHECKED: CAB/CMK
MAY 2023
45015-004

SHEET ID
C-402

SHEET 33 OF --



WIP (5/23/2023)

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CONSTRUCTION PLAN NOTES:

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CUT LINE			C C
FILL LINE			F F

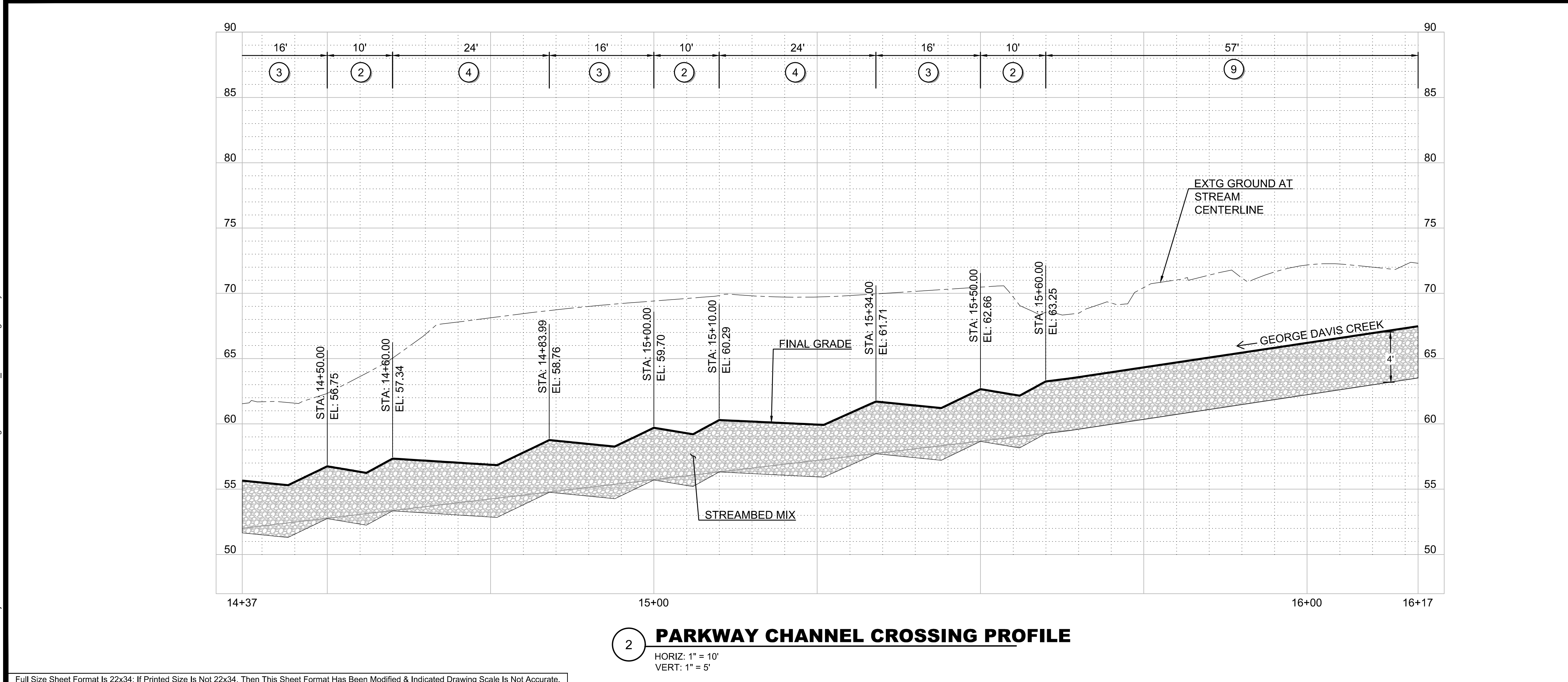
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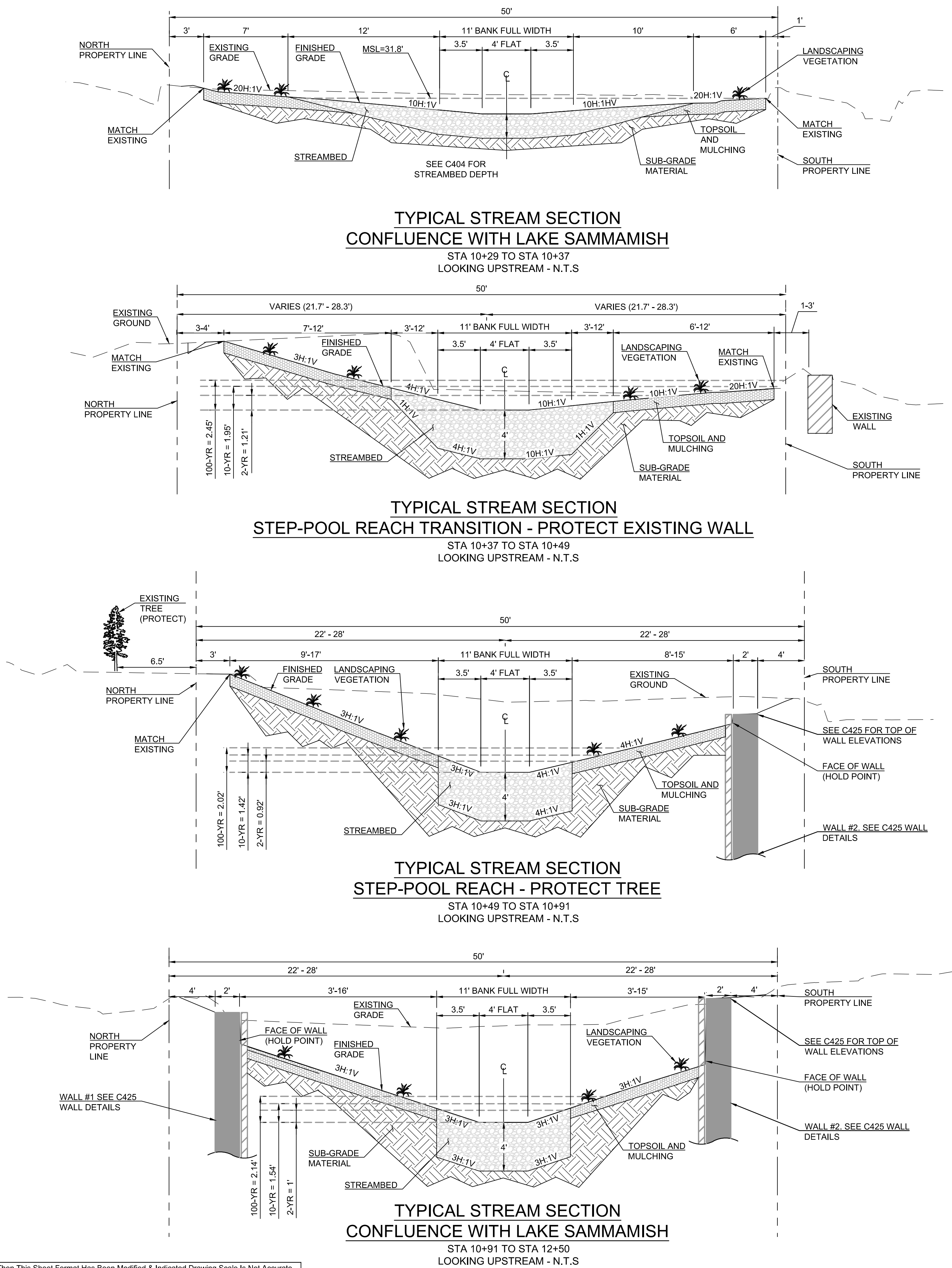
DESIGNED: PCB/KCS
CHECKED: CAB/CMK
MAY 2023
45015-004

SHEET ID
C-403

SHEET 34 OF --



File name: L:\Projects\45000\45015\45015-004\Civil\CAD\Working\Sheets\C-408 STREAM CROSS SECTIONS.dwg Layout Tab C-408 User: Kaylan Smyth CAD Plot Date/Time: 5/23/2023 5:50:15 PM



WIP (5/23/2023)

CONSTRUCTION NOTES:

1. PROPERTY OR EASEMENT DIMENSIONS ARE SHOWN AT DISTANCES PERPENDICULAR TO THE BOUDARY LINE. SEE C101-C103 FOR PROPERTY LINE, EASEMENT BOUNDARY, AND STREAM CENTERLINE CONTROL DATA.
2. SEE SHEET C-003 FOR GENERAL SITE AND SWPPS PLAN.
3. ALL FINISH GRADES SHOWN TAKEN AT CRESTS, UNLESS OTHERWISE NOTED. SEE C401-C404 FOR STREAM PROFILE AND C409 FOR STEP-POOL DETAILS
4. THE ENTIRE PROCESS OF PLACING ALL STREAMBED MATERIAL, ALL STREAMBED SAND, AND WATERING IN EACH LIFT SHALL BE A HOLD POINT, WITH ATTENDANCE BY QA AND NOTICE OF THE WORK SHALL BE GIVEN TO THE ENGINEER 14 CALENDAR DAYS PRIOR TO STARTING THE WORK. THE POTENTIAL FOR INCREASED TURBIDITY SHALL BE MINIMIZED IN ACCORDANCE WITH STATE WATER QUALITY STANDARDS AND CONTRACT REQUIREMENTS. ANY ACCUMULATED SEDIMENTS SHALL BE REMOVED.
5. SEE STREAM PLAN AND PROFILE PROFILE SHEETS FOR TRANSITION LENGTHS.
6. SEE RESTORATION REQUIREMENTS ON REVEGETATION AND LANDSCAPE RESTORATION PLANS.
7. SEE STREAM PLAN SHEETS FOR STATION/OFFSET DELINATION OF THE LIMITS OF EXCAVATION.
8. SEE C424 (WALL#5) AND C425 (WALL#6) FOR FACE OF WALL ALIGNMENT..
9. SEE C601 - C603 FOR 7TH COURT, PAVING AND GUARDRAIL INFORMATION AND DETAILS.
10. WATER AND 1-INCH DEPTH OF STREAMBED SAND SHALL BE APPLIED TO EACH LIFT TO FACILITATE FILLING THE INTERSTITIAL VOIDS OF THE STREAMBED MATERIALS. LIFTS SHALL BE INSTALLED AT A MAXIMUM DEPTH OF 12 INCHES. THE VOIDS ARE SATISFACTORILY FILLED WHEN WATER EQUIVALENT TO THE LOW FLOW RATE OF THE STREAM DOES NOT GO SUBSURFACE AND THERE IS NO PERCEIVABLE DIFFERENCE IN THE LOW FLOW RATE FROM UPSTREAM OF THE PROJECT LIMITS TO THE DOWNSTREAM OF PROJECT LIMITS. THE DESIGN-BUILDER SHALL APPLY WATER AT THE LOW FLOW RATE TO THE STREAM CHANNEL FOR VISUAL ACCEPTANCE BY QA AND THE ENGINEER OF RECORD, PRIOR TO PLACEMENT OF THE NEXT SUBSEQUENT LIFT OF STREAMBED MATERIAL. WATER SHALL BE FREE FROM CONTAMINANTS, CHLORINATION AND ANY ADDITIVE THAT HAS A RISK ON FISH AND OTHER ECOLOGICAL LIFE
11. BED MATERIAL GRADATION SHALL BE 80% WSDOT STREAMBED SEDIMENT MIX (WSDOT STANDARD SPECIFICATION 9-03.11(1))) AND 20% WSDOT 12-INCH STREAMBED COBBLES (9-03.11(2)).
12. SEE C-401 THROUGH C-404 FOR DIMENSIONS ON PROPOSED EASEMENTS FROM STREAM COMPONENTS.
13. SEE C-421 THROUGH C-425 FOR DESIGN TOP AND BOTTOM OF WALL HOLD POINT ELEVATIONS.

No.	Revision	Date	By	App'd

DOWNSTREAM TYPICAL STREAM SECTIONS FOR:

GEORGE DAVIS CREEK FISH PASSAGE PROJECT
SAMMAMISH, WASHINGTON

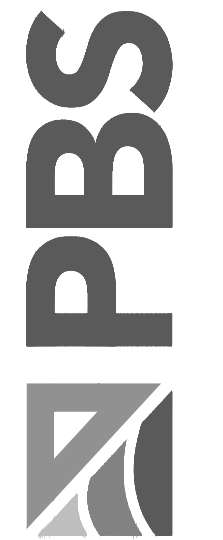


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MAY 2023
45015-004

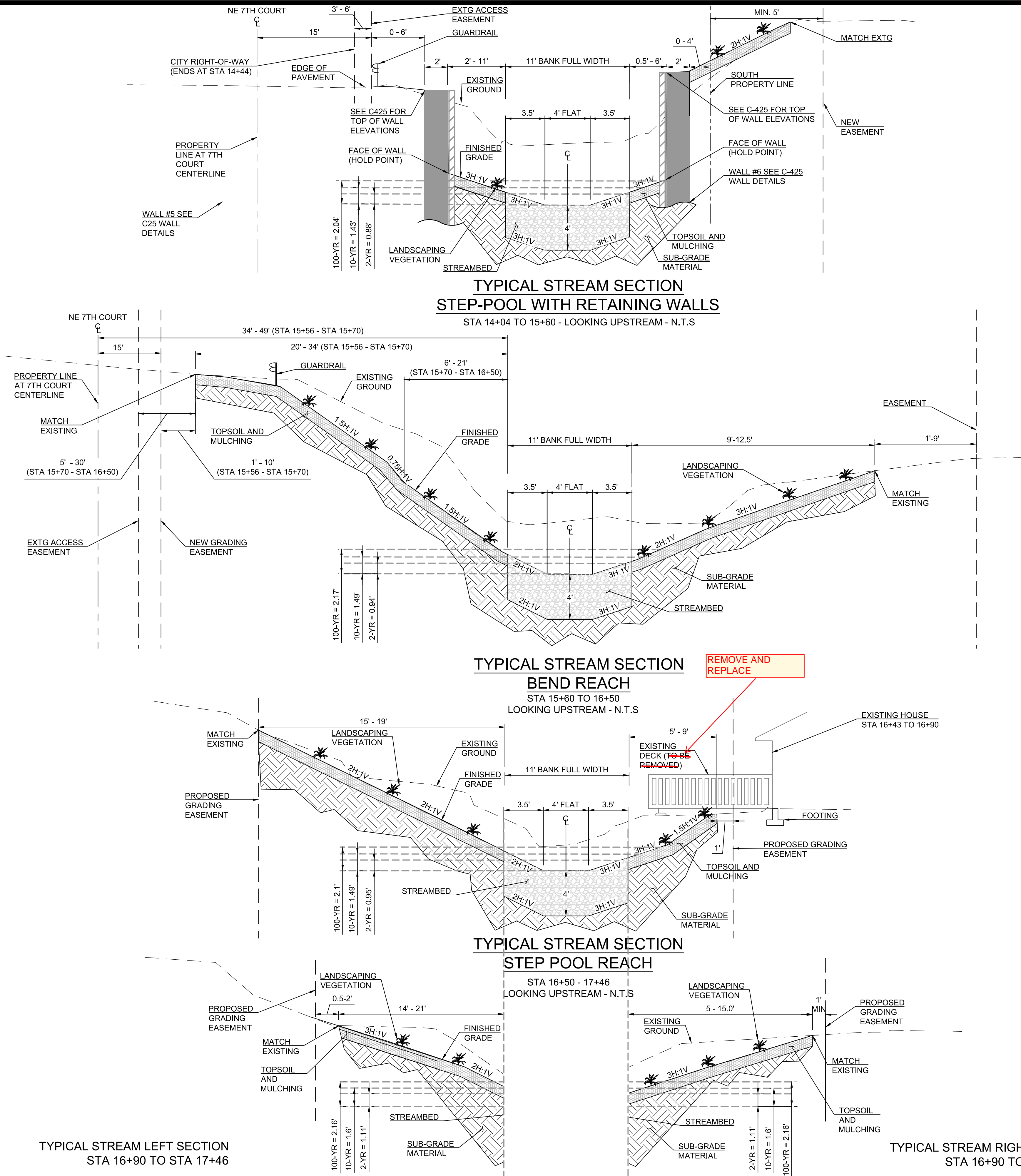
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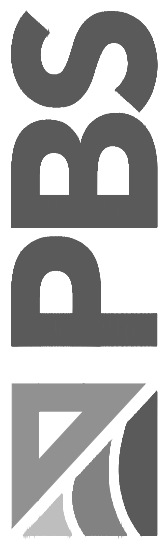
WIP (5/23/2023)

CONSTRUCTION NOTES:

1. PROPERTY OR EASEMENT DIMENSIONS ARE SHOWN AT DISTANCES PERPENDICULAR TO THE BOUDARY LINE. SEE C101-C103 FOR PROPERTY LINE, EASEMENT BOUNDARY, AND STREAM CENTERLINE CONTROL DATA.
2. SEE SHEET C-003 FOR GENERAL SITE AND SWPPS PLAN.
3. ALL FINISH GRADES SHOWN TAKEN AT CRESTS, UNLESS OTHERWISE NOTED. SEE C401-C404 FOR STREAM PROFILE AND C409 FOR STEP-POOL DETAILS
4. THE ENTIRE PROCESS OF PLACING ALL STREAMBED MATERIAL, ALL STREAMBED SAND, AND WATERING IN EACH LIFT SHALL BE A HOLD POINT, WITH ATTENDANCE BY QA AND NOTICE OF THE WORK SHALL BE GIVEN TO THE ENGINEER 14 CALENDAR DAYS PRIOR TO STARTING THE WORK. THE POTENTIAL FOR INCREASED TURBIDITY SHALL BE MINIMIZED IN ACCORDANCE WITH STATE WATER QUALITY STANDARDS AND CONTRACT REQUIREMENTS. ANY ACCUMULATED SEDIMENTS SHALL BE REMOVED.
5. SEE STREAM PLAN AND PROFILE PROFILE SHEETS FOR TRANSITION LENGTHS.
6. SEE RESTORATION REQUIREMENTS ON REVEGETATION AND LANDSCAPE RESTORATION PLANS.
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13. SEE C-421 THROUGH C-425 FOR DESIGN TOP AND BOTTOM OF WALL HOLD POINT ELEVATIONS.

No.	Revision	Date	By	App'd

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UPSTREAM TYPICAL STREAM SECTION FOR:
GEORGE DAVIS CREEK FISH PASSAGE PROJECT
SAMMAMISH, WASHINGTON

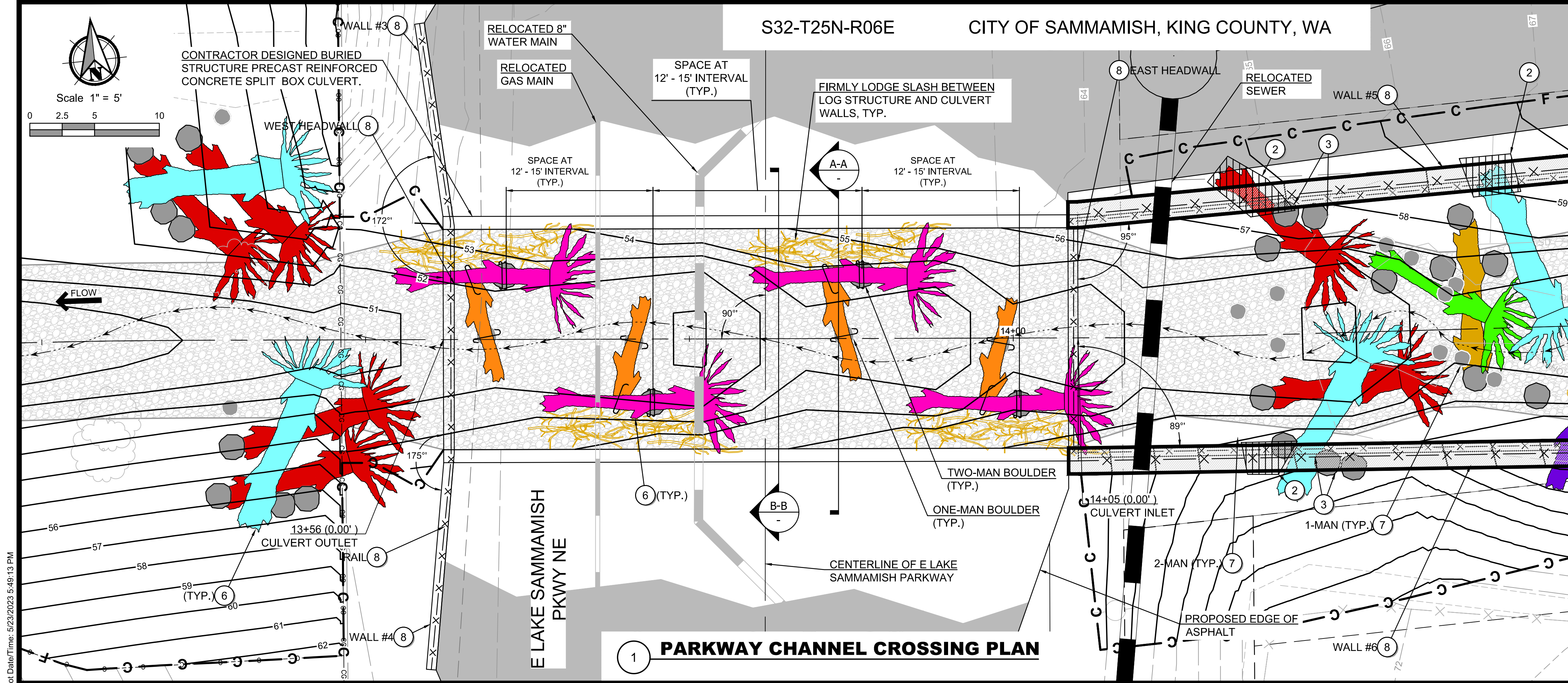


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MAY 2023
45015-004

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C-407

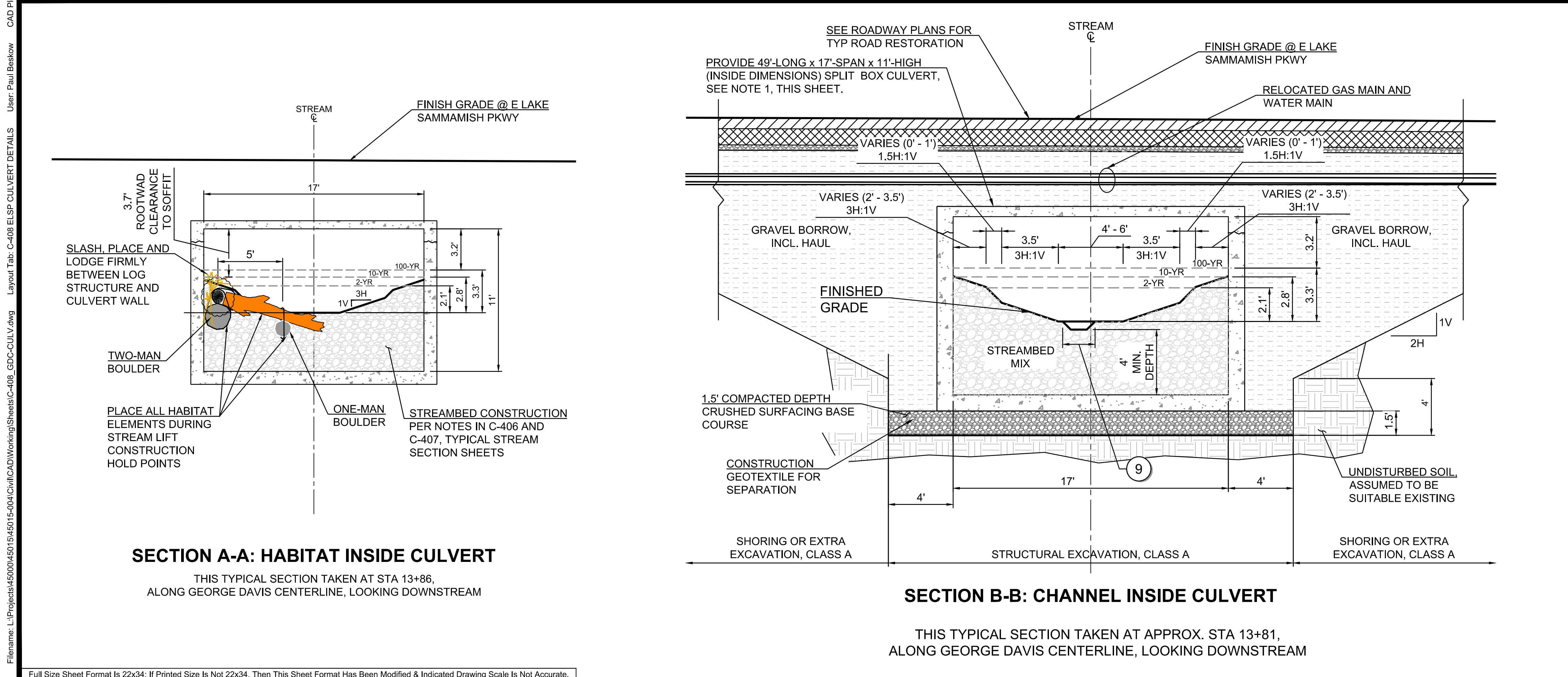
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- WIP (5/23/2023)**
- GENERAL NOTES:
- PROVIDE CONTRACTOR-DESIGNED BURIED STRUCTURE PRECAST REINFORCED CONCRETE SPLIT BOX CULVERT, PER WSDOT STD SPECS DIVISION 6-20.
 - SEE SHEET C-402 FOR LARGE WOODY MATERIAL (LWM) PLACEMENT PLAN. MINOR CHANGES TO THE HABITAT FEATURES CAN BE MADE IN THE FIELD BY THE ENGINEER.
 - SEE SHEET C-409 FOR MATERIAL GRADATION DATA.
 - CRUSHED SURFACING BASE COURSE (CSBC)
 - DEPTH SHOWN IS COMPACTED DEPTH
 - CSBC SHALL COMPLY WITH WSDOT SPECIFICATIONS 9-03.9(3). CSBC SHALL BE COMPACTED TO FIRM AND UNYIELDING CONDITION. FIELD VERIFICATION BY ENGINEER OR OWNER'S REPRESENTATIVE.
 - CONTRACTOR TO COORDINATE BETWEEN WALL AND CULVERT MANUFACTURER FOR STRUCTURAL CONNECTION AS NECESSARY.
 - CONTRACTOR TO SUBMIT PLAN TO ASSURE WATERTIGHT CONNECTION BETWEEN WALL AND CULVERT STRUCTURES.

CONSTRUCTION PLAN NOTES:

- RECONSTRUCT STREAM CHANNEL PER DETAIL, SEE SHEET C-409
- SAW OFF EXCESS LOG LENGTH IF LWM INTERFERES WITH WALL, CULVERT SIDE OR OTHER STRUCTURES.
- DO NOT INSTALL BOULDERS THAT INTERFERE WITH WALL, CULVERT SIDE OR OTHER STRUCTURES.
- NOT USED.
- TRANSITION BETWEEN STEP-POOL AND OTHER STREAM CHANNEL CONDITIONS.
- LARGE WOODY MATERIAL AT LENGTH AND DIAMETER SHOWN ON LEGEND AND PER SHEET C-402
- STREAMBED BOULDERS, PER LEGEND, SEE SHEET C-402.
- RETAINING WALL W/ RAILING ATTACHED TO TOP, SEE SHEET C-423 THROUGH C-425.
- 2'-WIDE X 0.5'-DEEP MEANDERING LOW-FLOW CHANNEL W/ 1H:1V SIDE SLOPES (THALWEG)



PROPOSED HABITAT FEATURE LEGEND			
LOG ID #	DIAMETER (Ø) ¹	LENGTH	
LOG-A	24"	12'	
LOG-B	18"	12'	
LOG-C	18"	12'	
LOG-D	18"	10'	
LOG-E	12"	12'	
LOG-F	12"	12'	
LOG-G	12"	10'	
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SLASH ²			
BOULDERS, ONE-MAN ³	12" - 18"		
BOULDERS, TWO-MAN ³	18" - 28"		
STREAMBED MIX ⁴			
CUT LINE			
FILL LINE			

- HABITAT LEGEND NOTES:
- LOG PAY LIMIT Ø LISTED IN LEGEND ARE FOR BID PURPOSES. PROCURE LOGS WITH Ø WITHIN 6"± OF LOG PAY LIMIT Ø.
 - SLASH INSTALLED WITH LIVE STAKE CUTTINGS.
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No.	Revision	Date	By	App'd

ELSP CULVERT DETAILS FOR:

GEORGE DAVIS CREEK FISH PASSAGE PROJECT

SAMMAMISH, WASHINGTON

811
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SHEET ID
C-408

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Full Size Sheet Format Is 22x34; If Printed Size Is Not 22x34, Then This Sheet Format Has Been Modified & Indicated Drawing Scale Is Not Accurate.

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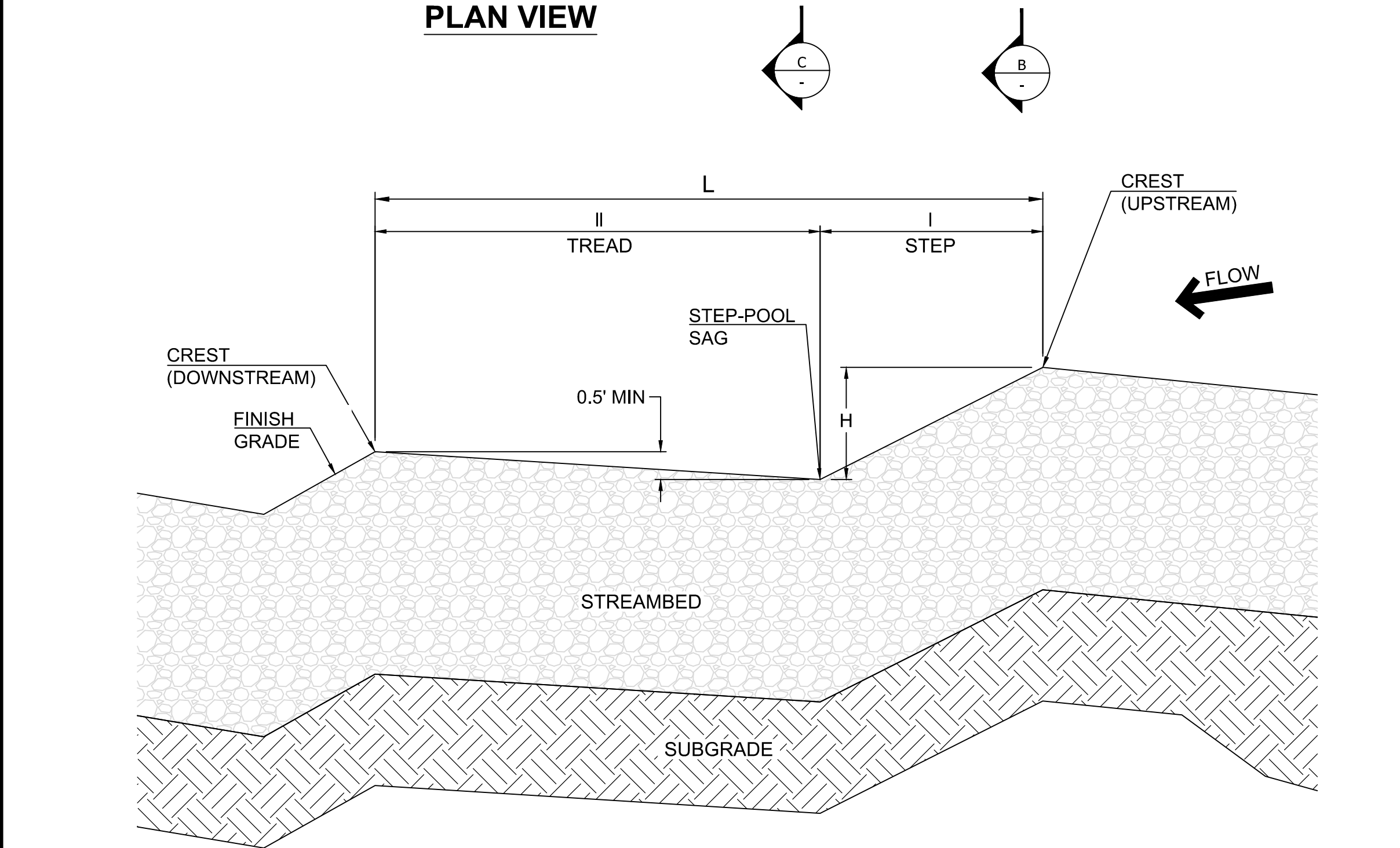
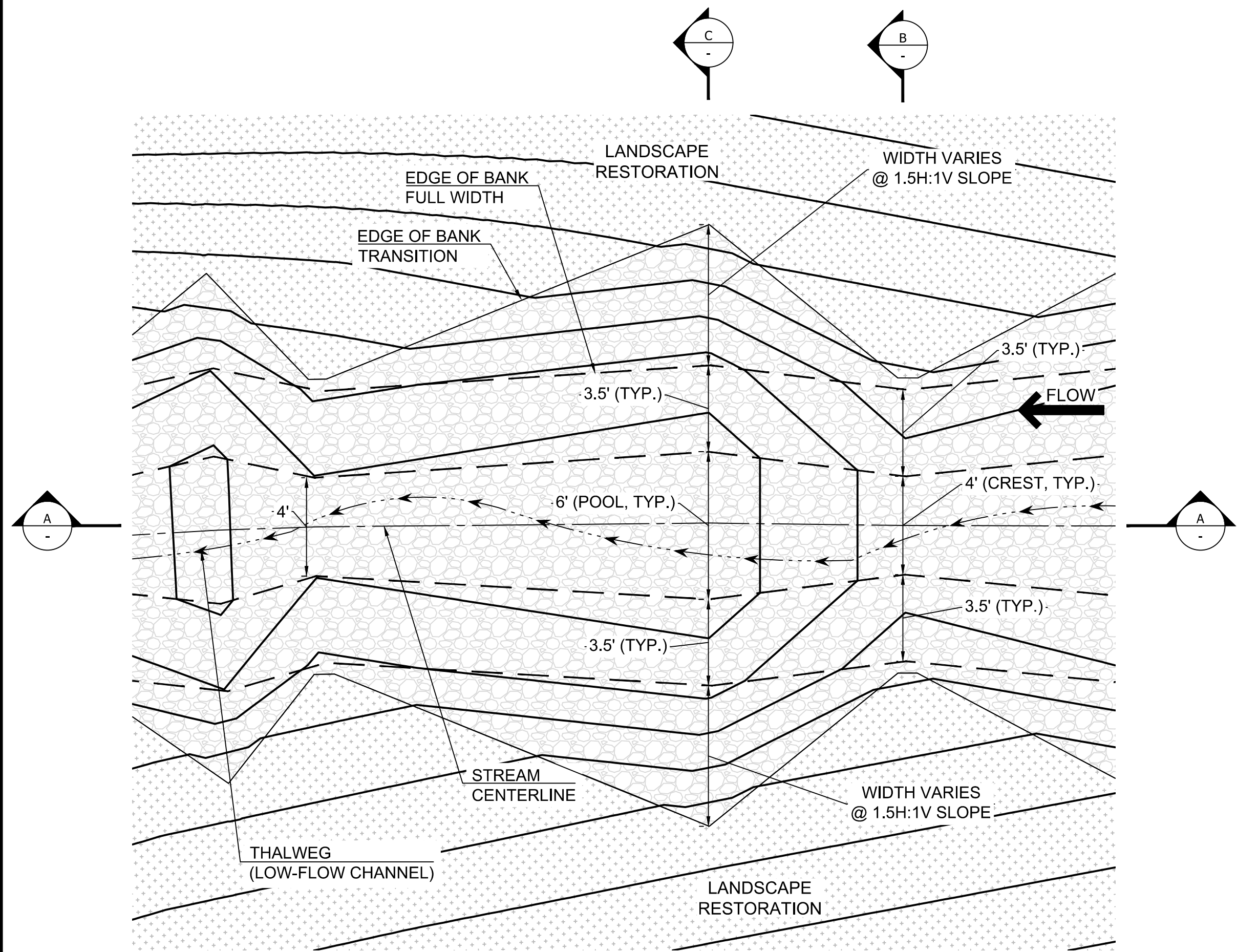
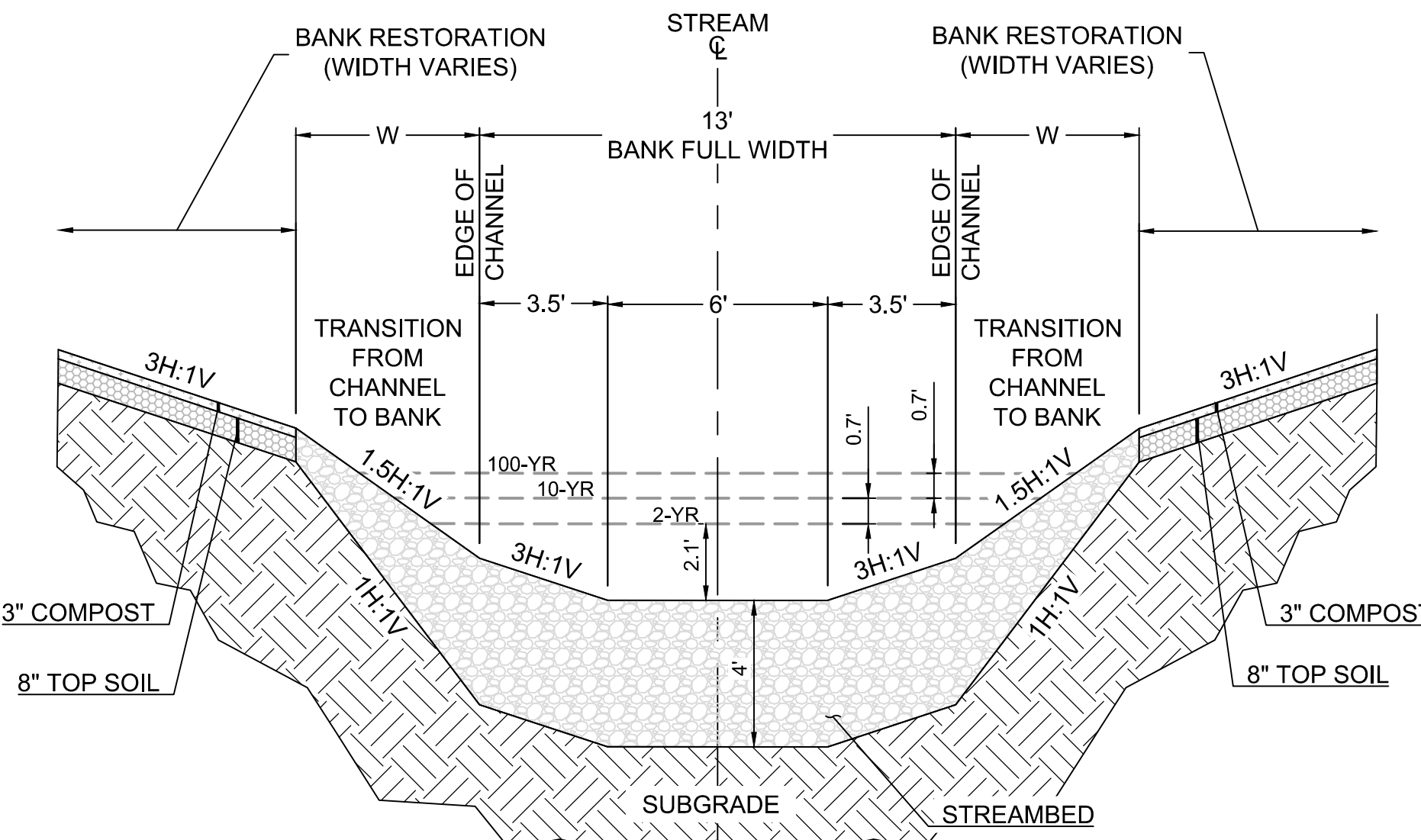
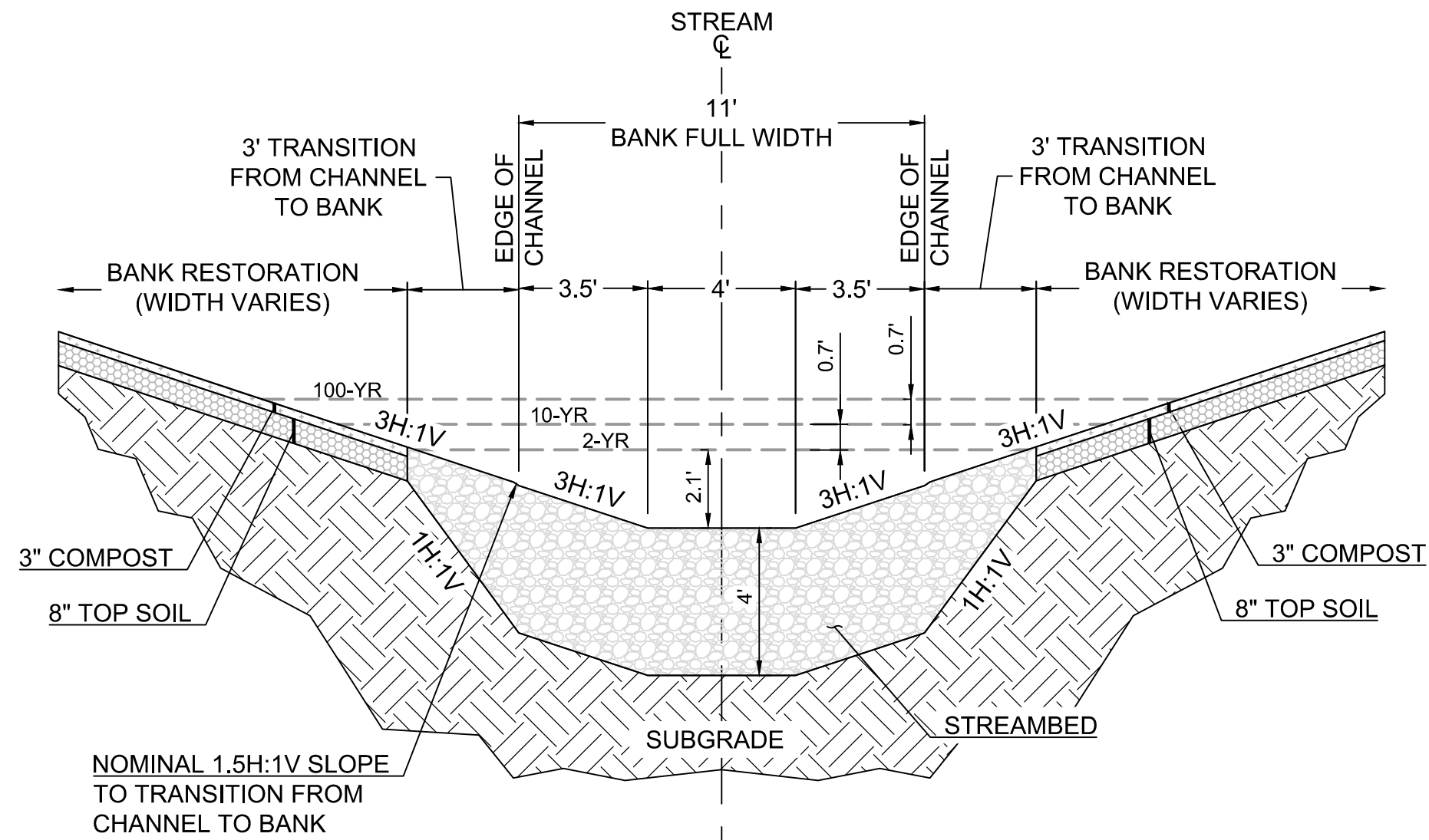


TABLE 1: STEP-POOL DIMENSIONS

TYPE	L	II (TREAD)	I (STEP)	H	W
SHORT	10'-0"	6'-0"	4'-0"	2'-4"	4'-0"
MEDIUM	16'-0"	10'-0"	6'-0"	3'-4"	4'-6"
LONG	24'-0"	16'-0"	8'-0"	4'-4"	5'-8"



WIP (5/23/2023)

GENERAL NOTES

- SEE RESTORATION REQUIREMENTS ON REVEGETATION AND LANDSCAPE RESTORATION PLANS.
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STREAMBED SAND GRADATION	
SIEVE SIZE	% PASSING
0.5"	99 - 100
0.375"	90 - 100
U.S. NO. 4	90 Max
U.S. NO. 8	32 - 67
U.S. NO. 200	2.0 - 7.0

STREAMBED SEDIMENT GRADATION	
SIEVE SIZE	% PASSING
2.5"	99 - 100
2"	85 - 100
1"	50 - 82
0.5"	28 - 68
U.S. NO. 40	10 - 20
U.S. NO. 200	5.0 - 10

12" STREAMBED COBBLES GRADATION	
APPROXIMATE SIZE	PERCENT PASSING
12"	99-100
10"	70-90
5"	30-60
3/4"	10 MAX

STREAMBED BOULDERS	
ROCK SIZE	APPROXIMATE SIZE
ONE MAN	12" - 18"
TWO MAN	18" - 28"

No.	Revision	Date	By	App'd

STEP-POOL DETAILS FOR:

GEORGE DAVIS CREEK FISH PASSAGE PROJECT

SAMMAMISH, WASHINGTON

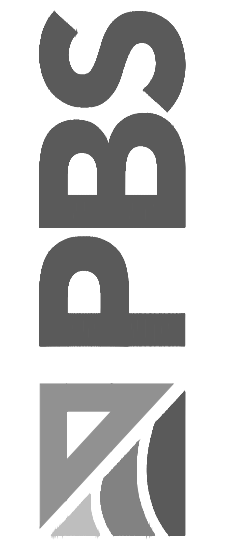


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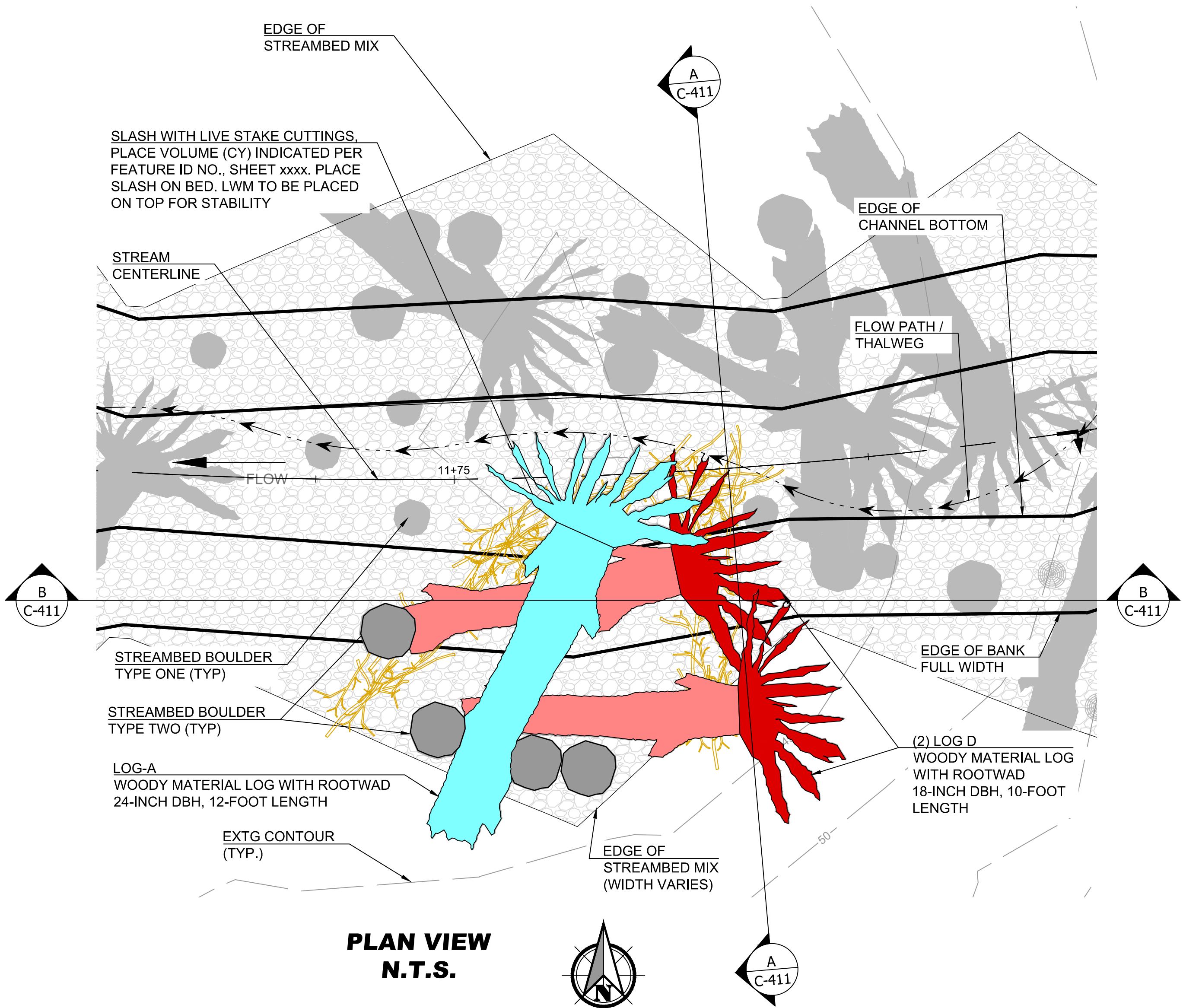
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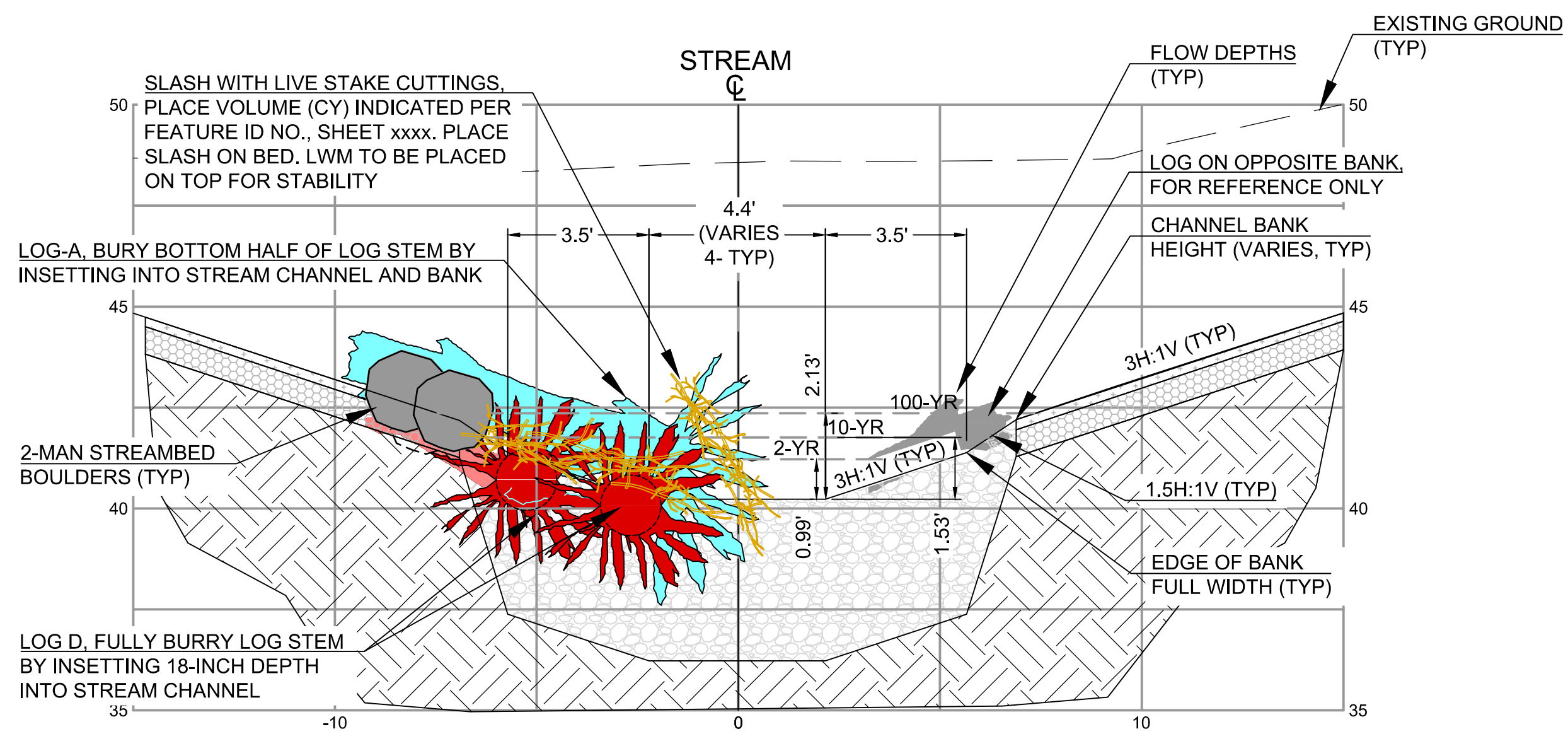
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PLAN VIEW
N.T.S.



SECTION A-A
N.T.S.

DETAILS FOR HABITAT FEATURE B

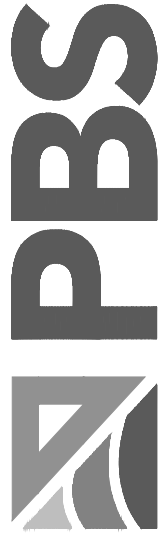
WIP (5/23/2023)

GENERAL NOTES

1. SEE SHEET C-003 FOR GENERAL SITE AND SWPPS PLAN.
2. LARGE WOODY MATERIAL, BOULDERS AND THALWEG LOCATIONS ARE TO BE PLACED AS SHOWN ON THE PLANS, MINOR CHANGES TO THE LWM CAN BE MADE IN THE FIELD BY THE ENGINEER.
3. LARGE WOODY MATERIAL SHALL BE NATIVE OR LOCALLY SOURCES CONIFEROUS FIR, HEMLOCK, CEDAR, AND/OR SPRUCE SPECIES WITH BRANCHES AND LIMBS ATTACHED.
4. REFER TO LWM CONTROL TABLE AND LOG SCHEDULE ON SHEETS C-XXX TO C-XXX FOR CONSTRUCTION DETAILS.
5. SEE BOULDER INSTALLATION DETAILS ON SHEET C-XXX.
6. APPLY ORGANIC SLASH (DEAD TREE BRANCHES, 4" MIN DIA.) NEAR AND UNDERNEATH LWM. DEAD BRANCHES CAN BE FROM ANY WOOD NATIVE, NON-INVASIVE PLANT SUCH AS CEDAR, OR DOUGLAS FIR. MINOR CHANGES CAN BE MADE IN THE FIELD BY THE ENGINEER. SLASH INCLUDES SHRUBS AND SMALL TREES REMOVED FROM WITHIN THE PROJECT LIMITS OF DISTURBANCE. SLASH FROM CLEARING SHALL BE INCORPORATED INTO LOG STRUCTURES AS DIRECTED BY THE ENGINEER. INTERMINGLE, STACK AND RACK SLASH MATERIAL TO BE INSTALLED LOGS AND PILES TO EMULATE NATURAL ACCUMULATIONS OF WOOD MATERIAL.
7. ADD MINIMUM 5-LIVE STAKES PER 10-LF OF STREAM WHERE SLASH IS LOCATED.
8. SEE RESTORATION REQUIREMENTS ON REVEGETATION AND LANDSCAPE RESTORATION PLANS.
9. SEE GENERAL NOTES, SHEET C-409 FOR STREAMBED CONSTRUCTION INFORMATION.

No.	Revision	Date	By	App'd

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LWM CONSTRUCTION DETAIL - HABITAT FEATURES FOR:
GEORGE DAVIS CREEK FISH PASSAGE PROJECT
SAMMAMISH, WASHINGTON



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C-411

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