

- LEGEND**
- EXISTING 2' CONTOUR
 - EXISTING 10' CONTOUR
 - EXISTING LITTLE NACHES RIVER ALIGNMENT
 - EXISTING ROAD
 - EXISTING 2-YEAR WSE
 - EXISTING 100-YEAR WSE
 - SURVEYED CONTROL POINT

LITTLE NACHES CONTROL POINTS

POINT#	ELEVATION	NORTHING	EASTING	DESCRIPTION
100	2728.69	616240.24	1480762.52	CP
101	2716.33	614601.97	1482012.34	CP
102	2748.23	616140.53	1480326.27	CP

TETRA TECH
www.tetra-tech.com
1800 North Olin Parkway
Bellevue, Washington 98011
Phone: 425-482-7000 Fax: 425-482-7802

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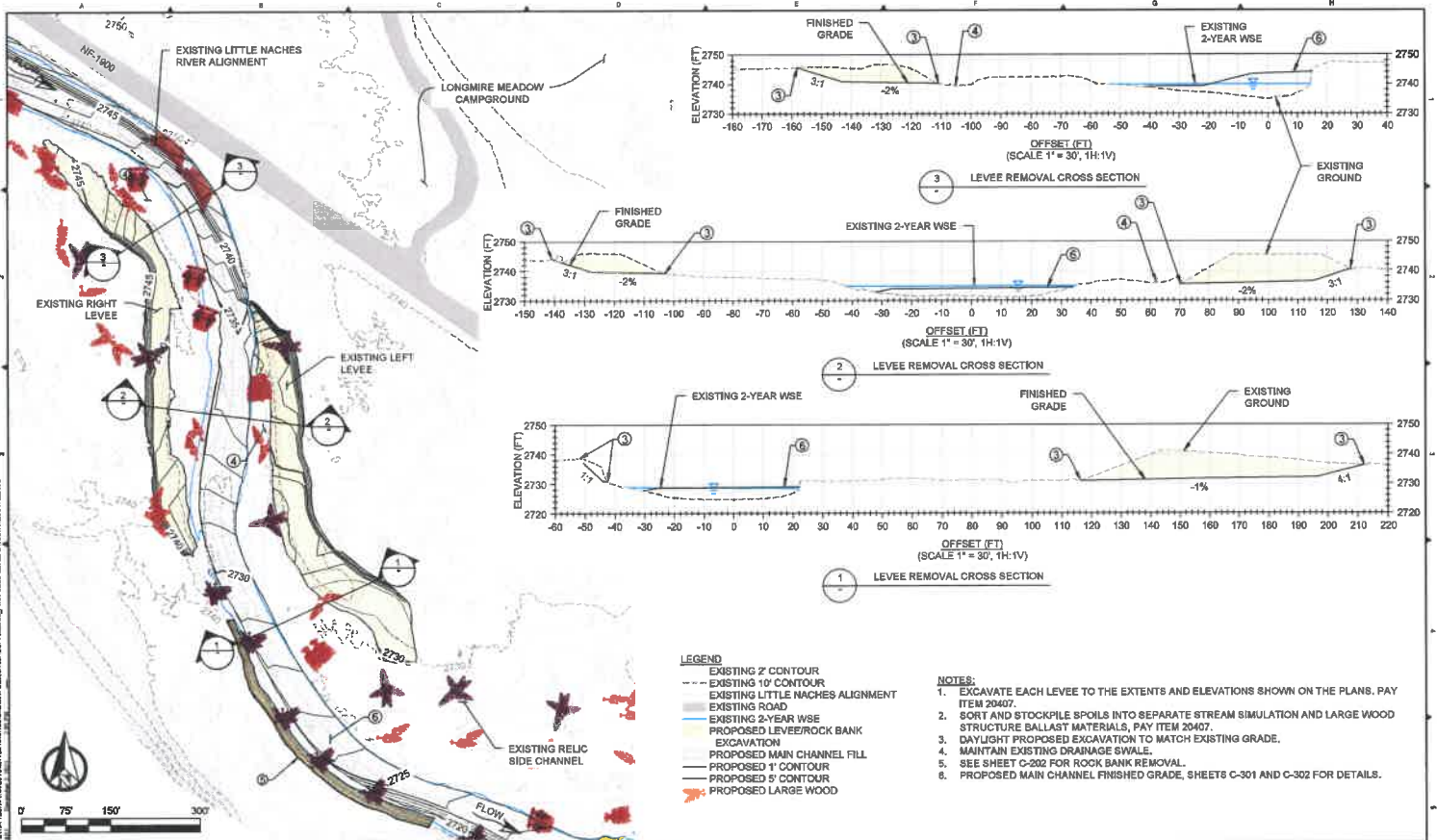
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**LITTLE NACHES RIVER
RM 3.25 - 4.49 RESTORATION**

EXISTING CONDITIONS

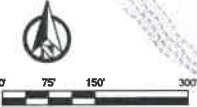
DWG NO: **E-001**
CREATED: 1/29/2020
SHEET: 4 OF 26

DIVISION OF LAND AND WATER RESOURCES, TETRA TECH, PROJECT TITLE: LITTLE NACHES RIVER RESTORATION, DRAWING NUMBER: E-001, SHEET NUMBER: 4 OF 26



- LEGEND**
- EXISTING 2' CONTOUR
 - EXISTING 10' CONTOUR
 - EXISTING LITTLE NACHES ALIGNMENT
 - EXISTING ROAD
 - EXISTING 2-YEAR WSE
 - PROPOSED LEVEE/ROCK BANK EXCAVATION
 - PROPOSED MAIN CHANNEL FILL
 - PROPOSED 1' CONTOUR
 - PROPOSED 5' CONTOUR
 - PROPOSED LARGE WOOD

- NOTES:**
1. EXCAVATE EACH LEVEE TO THE EXTENTS AND ELEVATIONS SHOWN ON THE PLANS. PAY ITEM 20407.
 2. SORT AND STOCKPILE SPOILS INTO SEPARATE STREAM SIMULATION AND LARGE WOOD STRUCTURE BALLAST MATERIALS, PAY ITEM 20407.
 3. DAYLIGHT PROPOSED EXCAVATION TO MATCH EXISTING GRADE.
 4. MAINTAIN EXISTING DRAINAGE SWALE.
 5. SEE SHEET C-202 FOR ROCK BANK REMOVAL.
 6. PROPOSED MAIN CHANNEL FINISHED GRADE, SHEETS C-301 AND C-302 FOR DETAILS.



TETRA TECH
 1800 North Creek Parkway
 Bend, Oregon 97701
 Phone: 425-462-7800 Fax: 425-462-7462

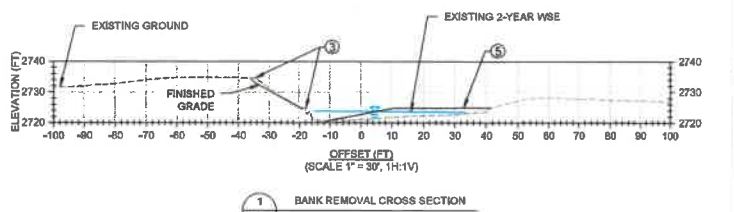
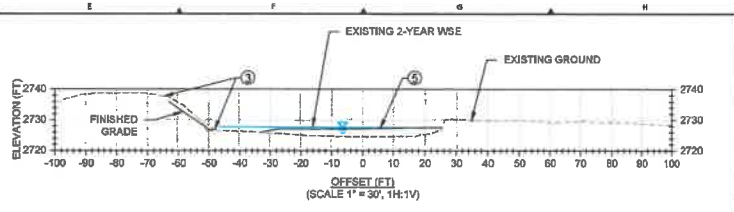
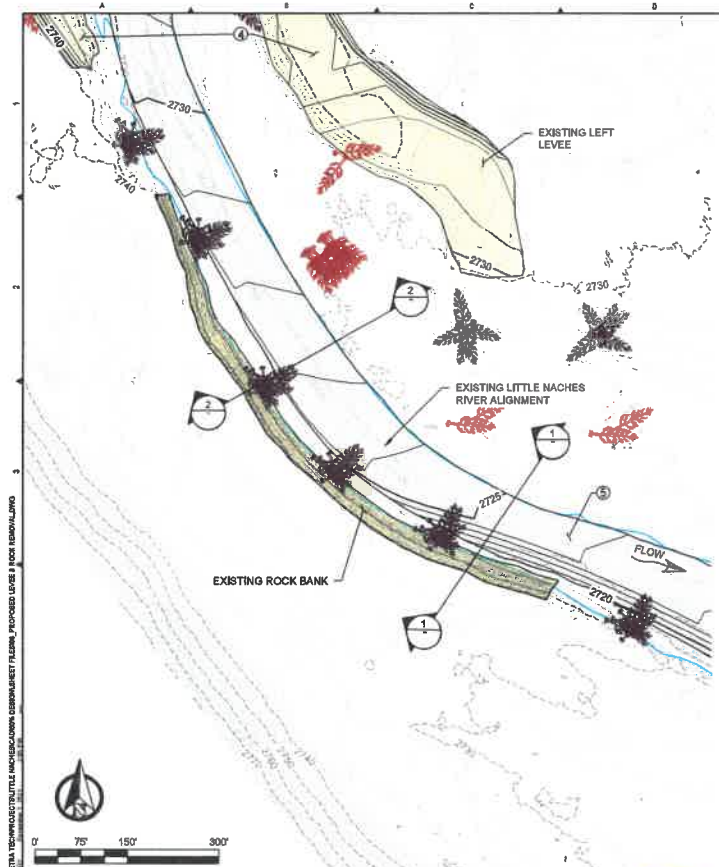
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2	01/20/21	50 PERCENT DESIGN	DR	DM	JA	JT

LITTLE NACHES RIVER
 RM 3.25 - 4.49 RESTORATION
**PROPOSED LEVEE
 REMOVAL**

DWG. NO.: **C-201**
 CREATED: 10/29/20
 SHEET: 10 OF 26



- LEGEND**
- - - EXISTING 2' CONTOUR
 - - - EXISTING 10' CONTOUR
 - - - EXISTING LITTLE NACHES ALIGNMENT
 - - - EXISTING ROAD
 - - - EXISTING 2-YEAR WSE
 - - - PROPOSED LEVEE/ROCK BANK
 - - - EXCAVATION
 - - - PROPOSED MAIN CHANNEL FILL
 - - - PROPOSED 1' CONTOUR
 - - - PROPOSED 5' CONTOUR
 - - - PROPOSED LARGE WOOD

- NOTES:**
1. EXCAVATE ROCK BANK TO THE EXTENTS AND ELEVATIONS SHOWN ON THE PLANS, PAY ITEM 20407.
 2. SORT AND STOCKPILE SPOILS INTO SEPARATE CHANNEL FILL AND LARGE WOOD STRUCTURE BALLAST MATERIALS, PAY ITEM 20407.
 3. DAYLIGHT PROPOSED ROCK EXCAVATION TO MATCH EXISTING GRADE.
 4. SEE SHEET C-201 FOR LEVEE REMOVAL.
 5. PROPOSED MAIN CHANNEL FINISHED GRADE, SHEETS C-301 AND C-302 FOR DETAILS.

TETRA TECH
 1902 North Creek Parkway
 Renton, WA 98057-0001
 Phone: 425-482-7600 Fax: 425-482-7662

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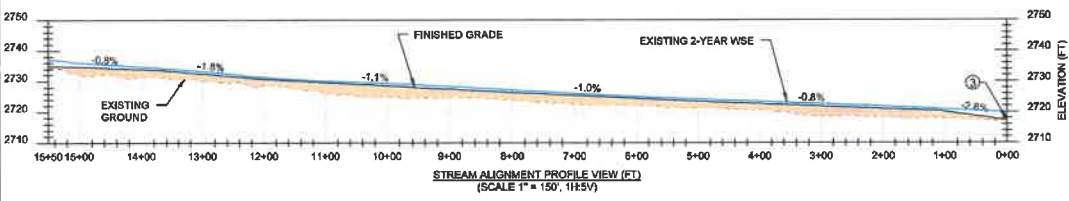
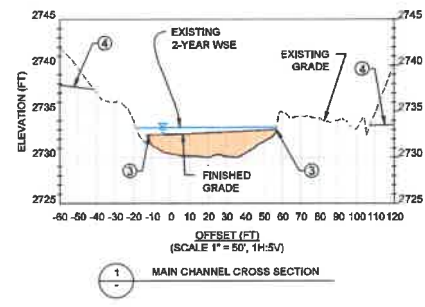
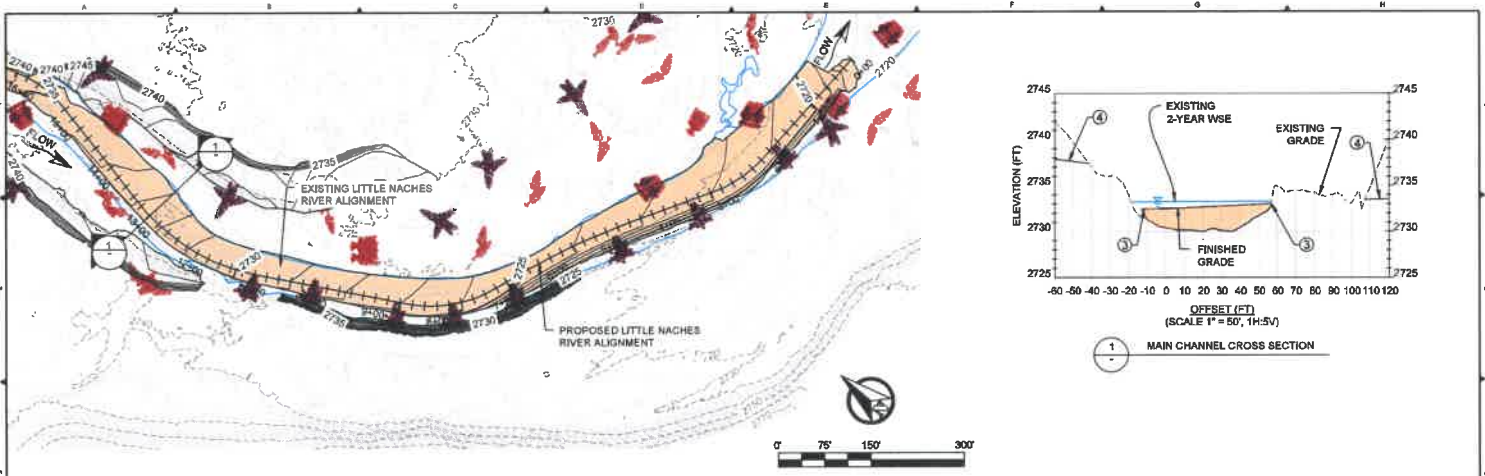


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B	3/18/21	PERMITTING DESIGN	CM	CM	JA	JE
A	4/24/20	33 PERCENT DESIGN	CM	CM	JA	JE

**LITTLE NACHES RIVER
 RM 3.25 - 4.49 RESTORATION**

**PROPOSED ROCK BANK
 REMOVAL**

DRAWING NO: **C-202**
 CREATED: 1/29/2021
 SHEET: 11 OF 20



- NOTES:**
1. INSTALL STREAM DIVERSION MEASURES AT UPSTREAM AND DOWNSTREAM LIMITS OF DISTURBANCE TO ISOLATE AND DEWATER EARTHWORK AREAS. SEE SHEET C-302 FOR DETAILS. FISH SALVAGE SHALL BE PERFORMED BY A QUALIFIED FISH BIOLOGIST, REWATER WORK AREAS UPON COMPLETION. SEE SHEETS C-701 THROUGH C-703 FOR DETAILS, PAY ITEMS 15713 AND 15761.
 2. PLACE STREAMBED SIMULATION MATERIAL TO THE EXTENTS AND ELEVATIONS SHOWN ON THE PLANS, PAY ITEM 64901.
 3. DAYLIGHT PROPOSED CHANNEL FILL TO MATCH EXISTING GRADE.
 4. PROPOSED LEVEE AND ROCK BANK REMOVAL FINISHED GRADE, SEE SHEETS C-201 AND C-202 FOR DETAILS.

- LEGEND**
- EXISTING 2' CONTOUR
 - EXISTING 10' CONTOUR
 - EXISTING LITTLE NACHES RIVER ALIGNMENT
 - EXISTING ROAD
 - EXISTING 2-YEAR WSE
 - PROPOSED LITTLE NACHES RIVER ALIGNMENT
 - PROPOSED CHANNEL FILL
 - PROPOSED 1' CONTOUR
 - PROPOSED 5' CONTOUR
 - PROPOSED LEVEE AND ROCK BANK EXCAVATION
 - PROPOSED LARGE WOOD



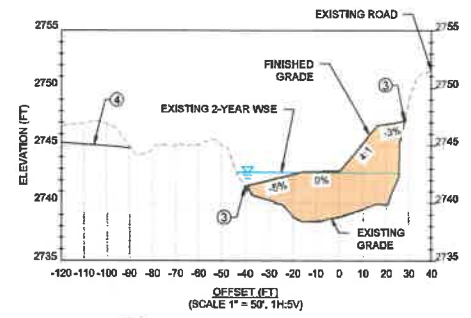
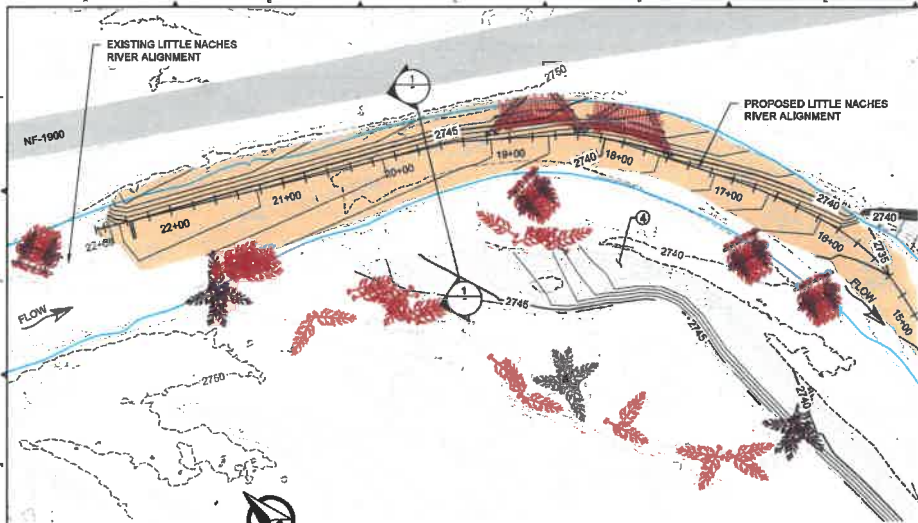
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REV.	DATE	REVISION DESCRIPTION	DRN	ENR	CHK	APP
1	3/18/21	PERMITTING DESIGN	SM	SM	SM	SM
2	4/24/21	50 PERCENT DESIGN	SM	SM	SM	SM

LITTLE NACHES RIVER
RM 3.25 - 4.49 RESTORATION
PROPOSED MAIN CHANNEL

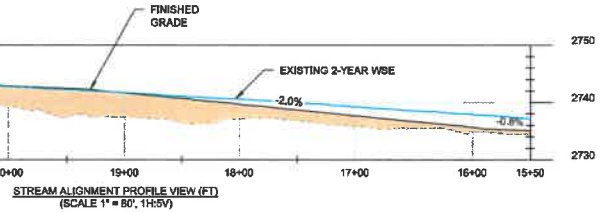
DWG. NO.: **C-301**
CREATED: 1/29/2020
SHEET: 12 OF 26



1 MAIN CHANNEL CROSS SECTION
(SCALE 1" = 50', 1H:5V)

- LEGEND**
- - - EXISTING 2' CONTOUR
 - - - EXISTING 10' CONTOUR
 - - - EXISTING LITTLE NACHES RIVER ALIGNMENT
 - EXISTING ROAD
 - EXISTING 2-YEAR WSE
 - PROPOSED LITTLE NACHES RIVER ALIGNMENT
 - PROPOSED CHANNEL FILL
 - PROPOSED 1' CONTOUR
 - PROPOSED 2' CONTOUR
 - PROPOSED LEVEE AND ROCK BANK
 - EXCAVATION
 - PROPOSED LARGE WOOD

- NOTES:**
1. INSTALL STREAM DIVERSION MEASURES AT UPSTREAM AND DOWNSTREAM LIMITS OF DISTURBANCE TO ISOLATE AND DEWATER EARTHWORK AREAS. FISH SALVAGE SHALL BE PERFORMED BY A QUALIFIED FISH BIOLOGIST. REWATER WORK AREAS UPON COMPLETION. SEE SHEETS C-701 THROUGH C-703 FOR DETAILS. PAY ITEMS 15713 AND 15781.
 2. PLACE STREAM SIMULATION MATERIAL TO THE EXTENTS AND ELEVATIONS SHOWN ON THE PLANS, PAY ITEM 64801.
 3. DAYLIGHT PROPOSED CHANNEL FILL TO MATCH EXISTING GRADE.
 4. PROPOSED LEVEE AND ROCK BANK REMOVAL FINISHED GRADE, SEE SHEETS C-201 AND C-202 FOR DETAILS.



STREAM ALIGNMENT PROFILE VIEW (FT)
(SCALE 1" = 80', 1H:5V)

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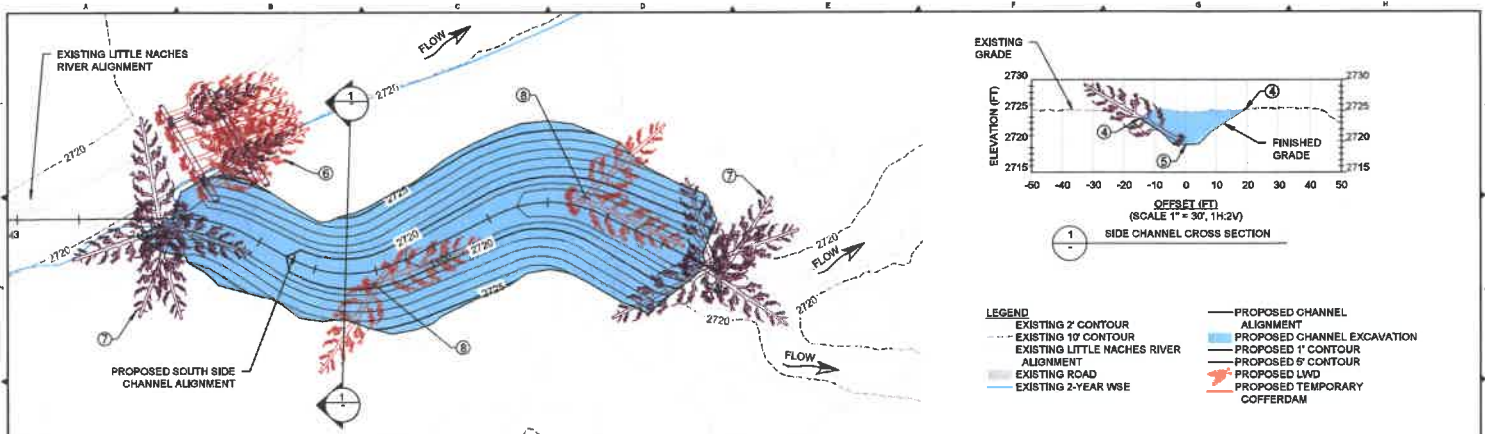
TETRA TECH
www.tetra-tech.com
1800 North Green Parkway
Burien, Washington 98011
Phone: 425-482-7800 Fax: 425-482-7802

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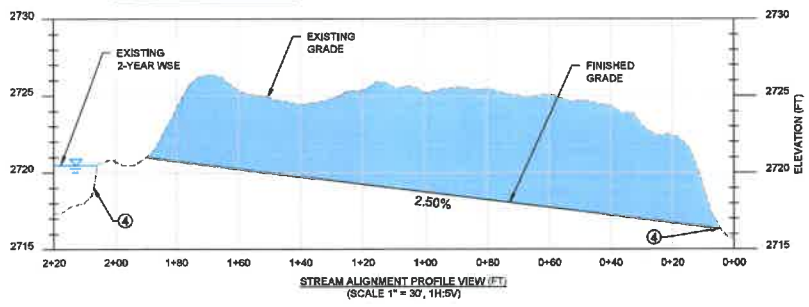
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A	4/9/20	30 PERCENT DESIGN	CM	CM	AS	IT

LITTLE NACHES RIVER RM 3.25 - 4.49 RESTORATION		DWG. NO. C-302
PROPOSED MAIN CHANNEL		CREATED: 10/20/20
		SHEET: 18 OF 20



- LEGEND**
- EXISTING 2' CONTOUR
 - EXISTING 1' CONTOUR
 - EXISTING LITTLE NACHES RIVER ALIGNMENT
 - EXISTING ROAD
 - EXISTING 2-YEAR WSE
 - PROPOSED CHANNEL ALIGNMENT
 - PROPOSED CHANNEL EXCAVATION
 - PROPOSED 1' CONTOUR
 - PROPOSED 0' CONTOUR
 - PROPOSED LWD
 - PROPOSED TEMPORARY COFFERDAM

- NOTES:**
- INSTALL COFFERDAMS AND WATER BYPASS MEASURES AT UPSTREAM AND DOWNSTREAM LIMITS OF DISTURBANCE TO ISOLATE AND DEWATER EARTHWORK AREAS, SEE SHEET C-002. FISH SALVAGE SHALL BE PERFORMED BY A QUALIFIED FISH BIOLOGIST, REWATER WORK AREAS UPON COMPLETION. SEE SHEETS C-701 THROUGH C-703 FOR DETAILS, PAY ITEMS 15713 AND 15751.
 - EXCAVATE SOUTH SIDE CHANNEL TO THE EXTENTS AND ELEVATIONS SHOWN ON THE PLANS, PAY ITEM 20407.
 - STREAMBED SIMULATION MATERIAL IN THE SIDE CHANNELS SHALL MEET THE REQUIREMENTS OF BED CLASS 6, SECTION 705 ROCK, IN THE PROJECT SPECIFICATIONS.
 - DAYLIGHT PROPOSED CHANNEL FILL TO MATCH EXISTING GRADE.
 - SHAPE CHANNEL BOTTOM WITH A 5% SLOPE TOWARDS THE CENTER.
 - INSTALL LOG JAM STRUCTURE PER DETAILS ON SHEET C-503, PAY ITEM 64805C.
 - INSTALL 5-LOG HABITAT STRUCTURE PER DETAILS ON SHEET C-506, PAY ITEM 64805A.
 - RANDOMLY PLACE SINGLE LOGS AS SHOWN ON THIS PLAN, PAY ITEM 64805F.



TETRA TECH
www.tetra-tech.com
1880 South Ocean Parkway
Ft. Mill, Washington, PA 15127
Phone: 412-462-7900 Fax: 412-462-7901

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A	4/24/20	30 PERCENT DESIGN	SM	SM	BT

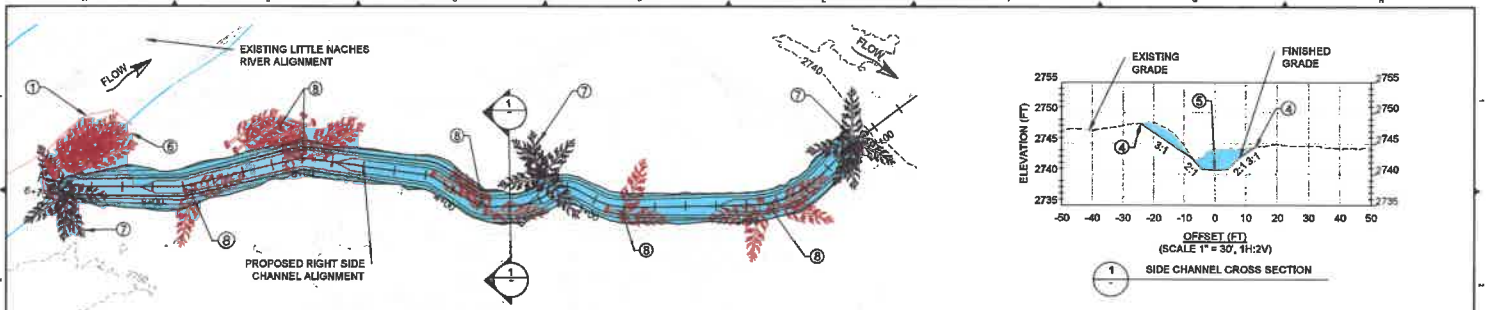
**LITTLE NACHES RIVER
RM 3.25 - 4.49 RESTORATION**

PROPOSED SIDE CHANNELS

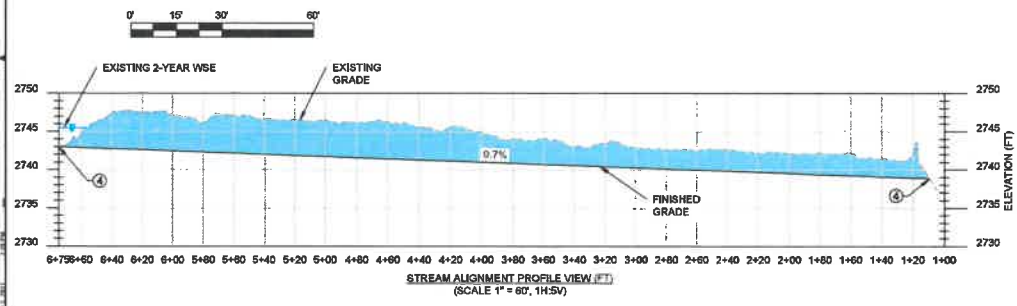
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CREATED: 1/20/21

SHEET: 14 OF 28



- LEGEND**
- EXISTING 2' CONTOUR
 - EXISTING 10' CONTOUR
 - EXISTING LITTLE NACHES RIVER ALIGNMENT
 - EXISTING ROAD
 - EXISTING 2-YEAR WSE
 - PROPOSED CHANNEL ALIGNMENT
 - PROPOSED CHANNEL EXCAVATION
 - PROPOSED 1' CONTOUR
 - PROPOSED 5' CONTOUR
 - PROPOSED LWD
 - PROPOSED TEMPORARY COFFERDAM



- NOTES:**
- INSTALL COFFERDAMS AND WATER BYPASS MEASURES AT UPSTREAM AND DOWNSTREAM LIMITS OF DISTURBANCE TO ISOLATE AND DEWATER EARTHWORK AREAS. SEE SHEET C-002. FISH SALVAGE SHALL BE PERFORMED BY A QUALIFIED FISH BIOLOGIST. REWATER WORK AREAS UPON COMPLETION. SEE SHEETS C-701 THROUGH C-703 FOR DETAILS. PAY ITEMS 15713 AND 15761.
 - EXCAVATE RIGHT SIDE CHANNEL TO THE EXTENTS AND ELEVATIONS SHOWN ON THE PLANS. PAY ITEM 20407.
 - STREAMBED SIMULATION MATERIAL IN THE SIDE CHANNELS SHALL MEET THE REQUIREMENTS OF BED CLASS 6, SECTION 703 ROCK, IN THE PROJECT SPECIFICATIONS.
 - DAYLIGHT PROPOSED CHANNEL FILL TO MATCH EXISTING GRADE. SHAPE CHANNEL BOTTOM WITH A 5% SLOPE TOWARDS THE CENTER.
 - INSTALL LOG JAM STRUCTURE PER DETAILS ON SHEET C-603, PAY ITEM 64805C.
 - INSTALL 5-LOG HABITAT STRUCTURE PER DETAILS ON SHEET C-506, PAY ITEM 64805A.
 - RANDOMLY PLACE SINGLE LOGS AS SHOWN ON THIS PLAN, PAY ITEM 64805F.

TETRA TECH
 www.tetra-tech.com
 1803 North Creek Parkway
 Bend, Washington 98011
 Phone: 425-802-7800 Fax: 425-482-7562

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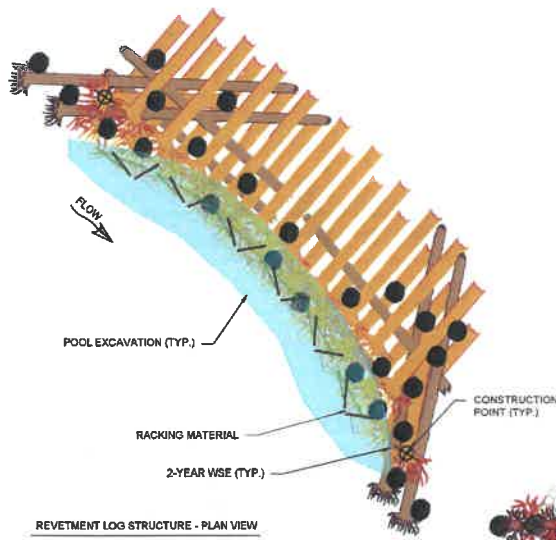
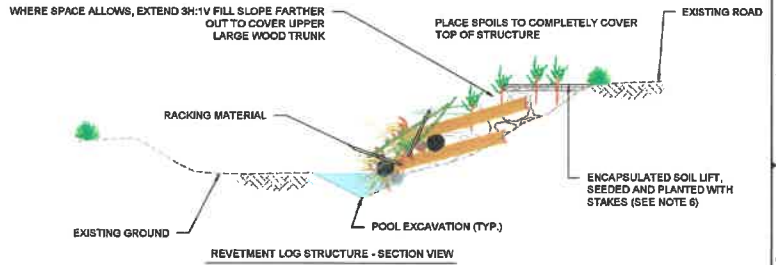
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B	2/16/21	PERMITTING DESIGN	DR	DR	DR
A	4/24/20	30 PERCENT DESIGN	DR	DR	DR

LITTLE NACHES RIVER
 RM 3.25 - 4.49 RESTORATION
PROPOSED SIDE CHANNELS

DWG. NO.	C-402
CREATED:	10/20/20
SHEET:	16 OF 26

CONSTRUCTION QUANTITIES:

COMPONENT	DESCRIPTION	QUANTITY
LOG WITH ROOTWAD	LARGE (18" DBH, 20-30 FT, 4' MIN ROOTWAD)	23
	MEDIUM (16-18" DBH, 35' MIN, 3' MIN ROOTWAD)	4
LOG WITHOUT ROOTWAD	MEDIUM (16-18" DBH, 12-14 FT)	16
	MEDIUM (16-18" DBH, 35' MIN FT)	4
RACKING	MISC. (4-10" DBH, 10 FT MIN, 20 FT MAX)	60
BOULDER	2 TO 3 FT DIA	25
BALLAST	SPOILS/FLOODPLAIN ALLUVIUM	185 CY



RETVEMENT LOG STRUCTURE NOTES:

1. SEE SHEET C-502 FOR RETVEMENT LOG STRUCTURE CONSTRUCTION SEQUENCE.
2. SUITABLE SPOILS FROM EXCAVATION SHALL BE USED TO BACKFILL STRUCTURE AS CONSTRUCTION ADVANCES. MATERIAL SHALL BE COMPACTED WITH EXCAVATOR BUCKET. ADDITIONAL ALLUVIAL FLOODPLAIN MATERIAL MAY BE NEEDED TO BURY STRUCTURE AS SHOWN. BALLAST MATERIAL INCIDENTAL TO STRUCTURE COST.
3. RACKING MATERIAL MAY BE ADDED TO FRONT OF STRUCTURE WHEN AVAILABLE.
4. EXCAVATE MINIMUM 2-FOOT DEPTH POOLS AROUND RETVEMENT STRUCTURES.
5. 2-YEAR WSE WITH RESPECT TO STRUCTURE LOCATION IS A TYPICAL REPRESENTATION AND MAY VARY AT EACH STRUCTURE LOCATION. FINAL CONFIGURATION OF STRUCTURE SHALL BE AS DIRECTED IN FIELD.
6. INSTALL ENCAPSULATED SOIL LIFT ON TOP OF RETVEMENT AND SEED. NATIVE VEGETATION AND LIVE STAKES TO BE PLANTED BY OTHERS.
7. RACKING MATERIAL MAY CONSIST OF TOPS AND LIMBS OF WHOLE TREES, AND/OR SMALL WHOLE TREES WITH ROOTWADS.



DATE: 10/20/2015 10:58:11 AM PROJECT: LITTLE NACHES RIVER RESTORATION SHEET: RM 3.25 - 4.49 RESTORATION LWD CONSTRUCTION

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TETRA TECH
www.tetra-tech.com
1803 North Owen Parkway
Burrill, Washington 98011
Phone: 425-482-7000 Fax: 425-482-7002

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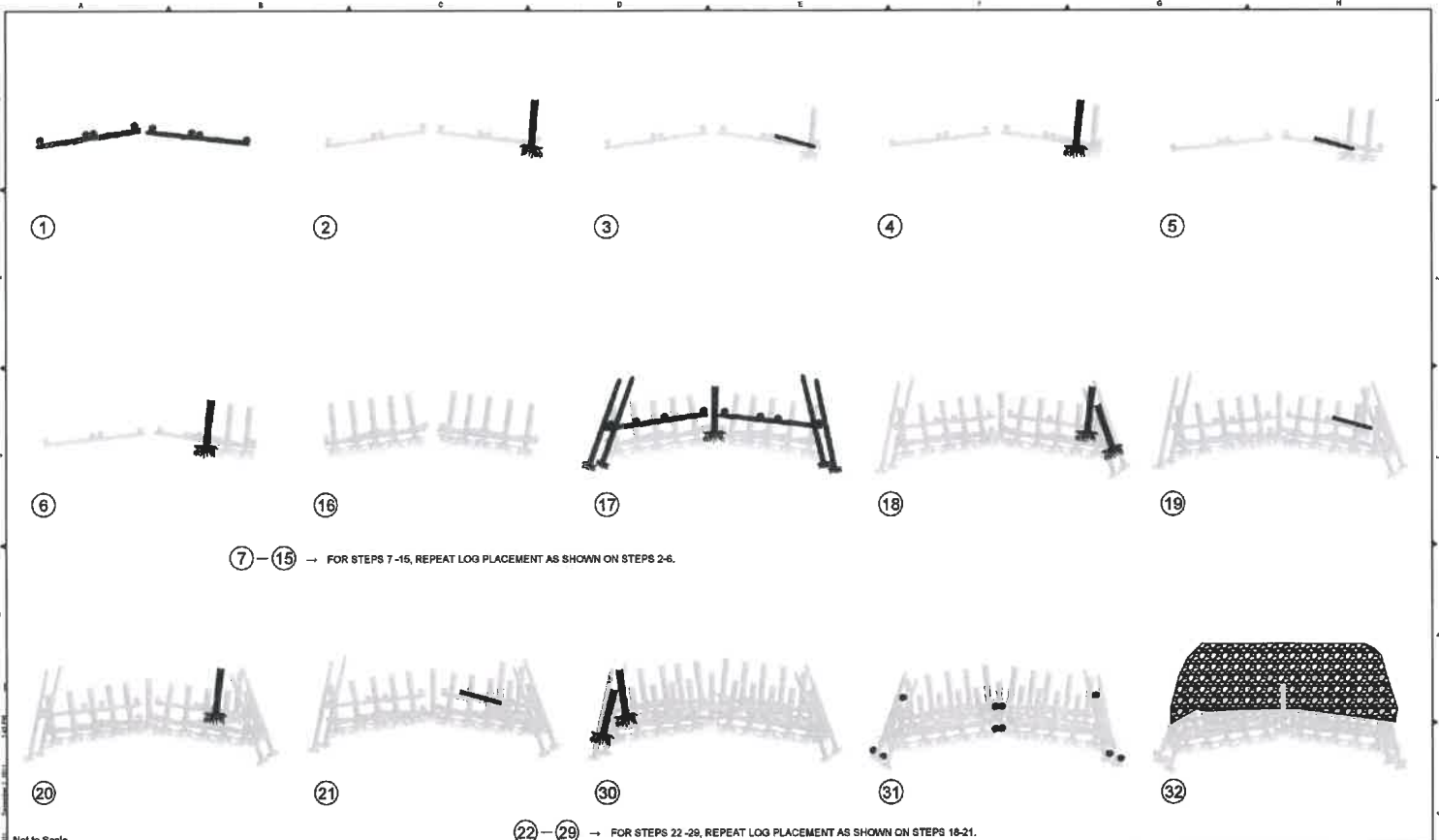
WASH. DEPT. OF ECOLOGY
FISHERIES ENHANCEMENT GROUP

U.S. FOREST SERVICE

REV.	DATE	REVISION DESCRIPTION	DRW	ENG	CHK	APP
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A	4/24/20	30 PERCENT DESIGN	CM	SM	JK	JT

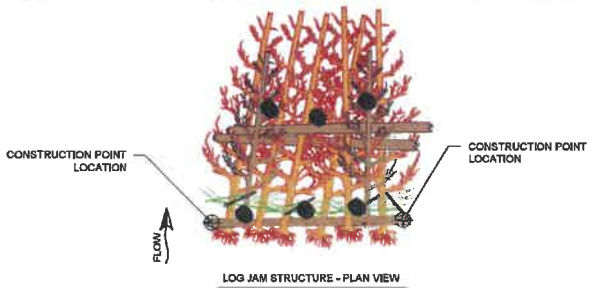
LITTLE NACHES RIVER
RM 3.25 - 4.49 RESTORATION
DETAILS
LWD CONSTRUCTION

DWG. NO.:	C-601
CREATED:	1/20/2020
SHEET:	17 OF 20

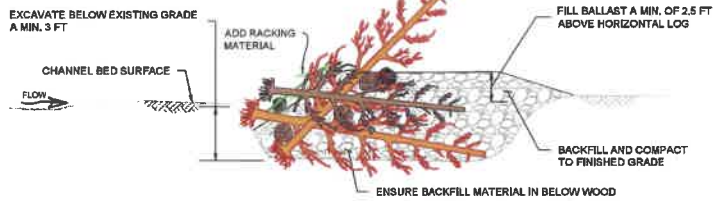


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<p>TETRA TECH www.tetra-tech.com 13003 North Creek Parkway Berwyn, Pennsylvania 19011 Phone: 478-442-7700 Fax: 478-442-7162</p>	<p>NOT FOR CONSTRUCTION</p>	<p>FISHERIES ENHANCEMENT GROUP</p>	<p>U.S. ARMY CORPS OF ENGINEERS</p>	<table border="1"> <thead> <tr> <th>REV.</th> <th>DATE</th> <th>REVISION DESCRIPTION</th> <th>DRW</th> <th>CHK</th> <th>APP.</th> </tr> </thead> <tbody> <tr> <td>B</td> <td>2/18/21</td> <td>PERMITTING DESIGN</td> <td>CM</td> <td>CM</td> <td>JA</td> </tr> <tr> <td>A</td> <td>4/16/20</td> <td>50 PERCENT DESIGN</td> <td>CM</td> <td>CM</td> <td>JT</td> </tr> </tbody> </table>	REV.	DATE	REVISION DESCRIPTION	DRW	CHK	APP.	B	2/18/21	PERMITTING DESIGN	CM	CM	JA	A	4/16/20	50 PERCENT DESIGN	CM	CM	JT	<p>LITTLE NACHES RIVER RM 3.25 - 4.49 RESTORATION</p> <p>DETAILS LWD CONSTRUCTION</p>	<p>DWG. NO.: C-602</p> <p>CREATED: 12/09/20</p> <p>SHEET: 18 OF 26</p>
REV.	DATE	REVISION DESCRIPTION	DRW	CHK	APP.																			
B	2/18/21	PERMITTING DESIGN	CM	CM	JA																			
A	4/16/20	50 PERCENT DESIGN	CM	CM	JT																			



LOG JAM STRUCTURE - PLAN VIEW



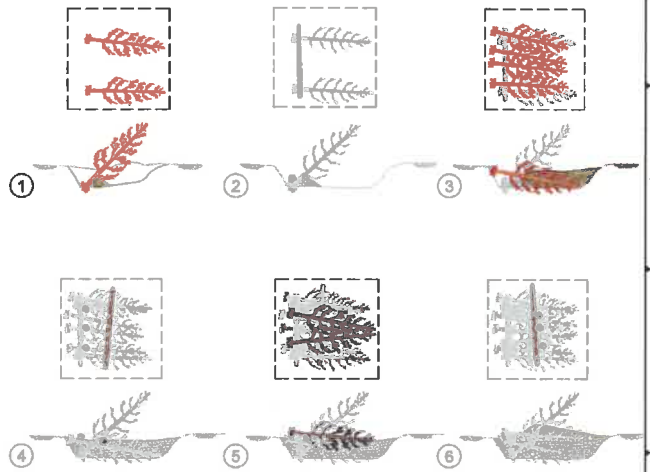
LOG JAM STRUCTURE - SECTION VIEW

LOG JAM STRUCTURE NOTES:

1. INSTALL TEMPORARY COFFERDAM UPSTREAM OF STRUCTURE WHEN NEEDED.
2. FISH SALVAGE TO BE DONE BY QUALIFIED FISH BIOLOGIST. CONSTRUCTION WORK IN THE IMMEDIATE VICINITY OF SALVAGE EFFORTS WILL BE DELAYED (TYPICALLY 2 TO 24 HOURS) DURING SALVAGE. DELAYS MAY BE LONGER IN SOME CASES. SEE C-602 FOR FISH SALVAGE DETAILS.
3. A QUANTITY OF 6 ROCKS (2-3 FT DIA) SHALL BE USED IN STRUCTURE CONSTRUCTION.
4. EXCAVATE TRENCH TO COMPLETELY BURY BOTTOM LAYER OF STRUCTURE. EXCAVATE UPSTREAM PORTION OF TRENCH TO PROVIDE ELEVATED TIPS OF LOGS IN SEQUENCE #1 WHEN ROOTWADS ARE PLACED IN TRENCH.
5. PLACE SMALLER DIAMETER LOGS WITH ROOTWADS ON BOTTOM LAYER OF STRUCTURE.
6. LOGS PLACED IN SEQUENCE #2, #4, AND #8 DO NOT REQUIRE BRANCHES, ROOTWADS ARE OPTIONAL.
7. LOGS PLACED IN SEQUENCE #1, #3, AND #5 SHALL HAVE BRANCHES AND ROOTWADS ATTACHED.
8. RISER LOG PLACED IN SEQUENCE #4 AND #8 SHALL BE PLACED AT BACK OF STRUCTURE AND PUSHED FORWARD INTO PLACE TO FURTHER ELEVATE TIPS OF LOGS IN SEQUENCE #1.
9. PLACE LARGEST DIAMETER LOGS IN SEQUENCE #3.
10. SPOILS FROM EXCAVATION SHALL BE USED TO BACKFILL STRUCTURE AS CONSTRUCTION PROGRESSES. MATERIAL SHALL BE COMPACTED WITH EXCAVATOR BUCKET.
11. RACKING MATERIAL MAY BE ADDED TO FRONT OF STRUCTURE WHEN AVAILABLE.
12. BURY STRUCTURE A MINIMUM OF 3 FT. ADDITIONAL BACKFILL MAY BE NEEDED TO BURY STRUCTURE AS SHOWN.
13. 15 TO 25 WILLOW STAKES WILL BE PLANTED BY OTHERS TO COMPLETE CONSTRUCTION OF THE STRUCTURE.

CONSTRUCTION QUANTITIES:

COMPONENT	DESCRIPTION	QUANTITY
WHOLE TREE	LARGE (18" DBH, 40' MIN, 4' MIN ROOTWAD)	6
	MEDIUM (16-18" DBH, 35' MIN, 3' MIN ROOTWAD)	2
LOG WITH OPTIONAL ROOTWAD	MEDIUM (16-18" DBH, 35' MIN, OPTIONAL 3' MIN ROOTWAD)	3
RACKING MATERIAL	MISC. (4-10" DBH, 10 FT MIN, 20 FT MAX)	30
BOULDER	2 TO 3 FT DIA.	6
BALLAST	SPOILS/FLOODPLAIN ALLUVIUM	95 CY



LOG JAM STRUCTURE - LOG PLACEMENT SEQUENCING

Not to Scale



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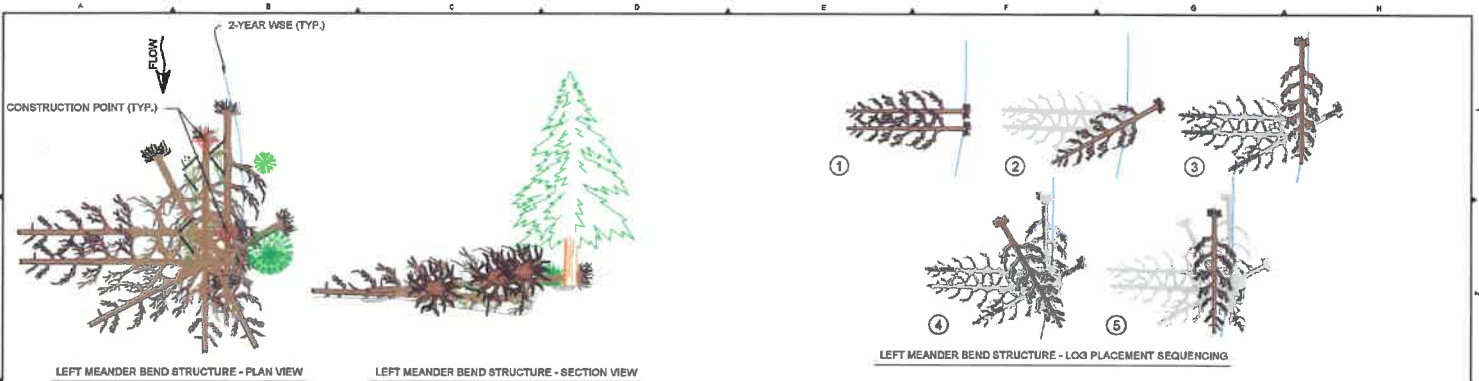
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B	4/24/21	99 PERCENT DESIGN	EN	CM	AT	

LITTLE NACHES RIVER
RM 3.25 - 4.49 RESTORATION

DWG. NO.: C-603

DETAILS
LWD CONSTRUCTION

CREATED: 1/29/2020
SHEET: 19 OF 20



LEFT MEANDER BEND STRUCTURE - PLAN VIEW

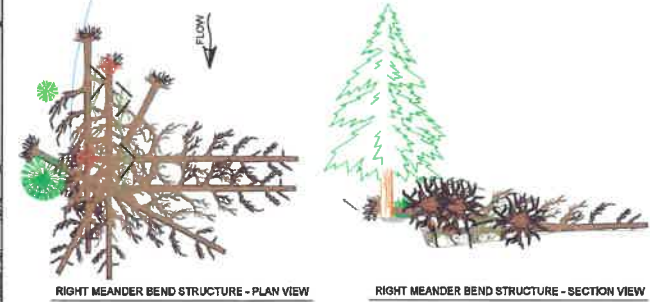
LEFT MEANDER BEND STRUCTURE - SECTION VIEW

LEFT MEANDER BEND STRUCTURE - LOG PLACEMENT SEQUENCING

MEANDER BEND STRUCTURE NOTES:

1. INSTALL TEMPORARY COFFERDAM TO ISOLATE WORK AREA WHEN NEEDED
2. FISH SALVAGE TO BE SUPERVISED BY QUALIFIED FISH BIOLOGIST.
3. FIRST TWO LOGS PLACED SHALL BE LARGEST OF THREE LOGS USED TO CONSTRUCT STRUCTURES.
4. PLACE ROOTWAD OF LOGS PLACED IN SEQUENCE #1 TO 2 FEET FROM BANK FACE.
5. PLACE ROOTWAD OF THIRD LOG ON TOP OF BANK, PLACE UPSTREAM OF ANY EXISTING VEGETATION.
6. PLACE ROOTWAD OF FOURTH LOG IN CHANNEL.
7. PLACE ROOTWAD OF FIFTH LOG ON OPPOSITE EDGE OF WATER.
8. PLACE ROOTWAD OF SIXTH LOG IN CHANNEL.
9. 2-YEAR WSE WITH RESPECT TO STRUCTURE ORIENTATION IS A TYPICAL REPRESENTATION AND WILL VARY AT EACH STRUCTURE LOCATION.

CONSTRUCTION QUANTITIES:		
COMPONENT	DESCRIPTION	QUANTITY
WHOLE TREE	MEDIUM (16-18" DBH, 35 FT MIN, 3 FT MIN ROOTWAD)	6
RACKING MATERIAL	MISC. (4-10" DBH, 10 FT MIN, 20 FT MAX)	15
BALLAST	SPOILS/FLOODPLAIN ALLUVIUM	40 CY



RIGHT MEANDER BEND STRUCTURE - PLAN VIEW

RIGHT MEANDER BEND STRUCTURE - SECTION VIEW

RIGHT MEANDER BEND STRUCTURE - LOG PLACEMENT SEQUENCING

TETRA TECH
www.tetra-tech.com
19023 North Creek Parkway
Norfolk, Virginia 23502
Phone: 424-462-7800 Fax: 424-462-7862

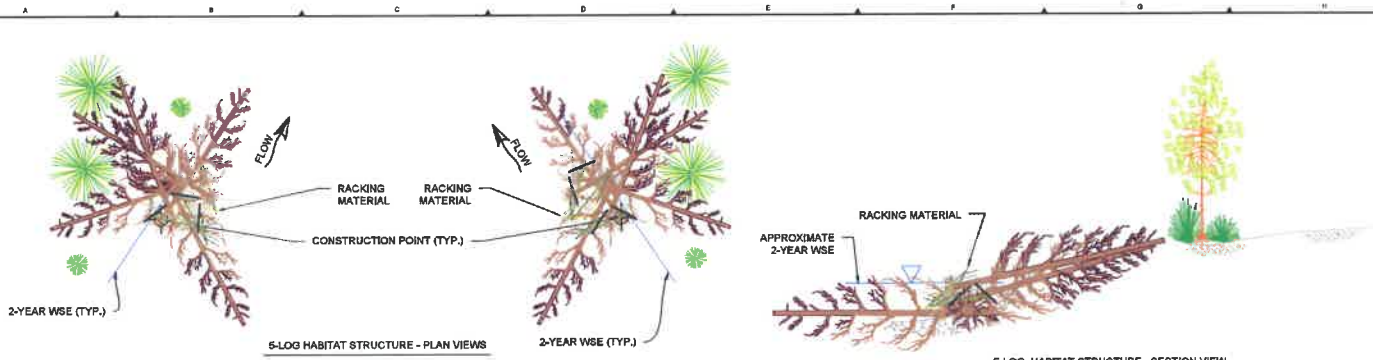
NOT FOR CONSTRUCTION



REV.	DATE	REVISION DESCRIPTION	DRW	ENG	CIV	APP
B	2/20/21	PERMITTING DESIGN	CM	CM	JA	JT
A	4/24/20	IN PERMIT DESIGN	CM	CM	JA	JT

LITTLE NACHES RIVER
RM 3.25 - 4.49 RESTORATION
DETAILS
LWD CONSTRUCTION

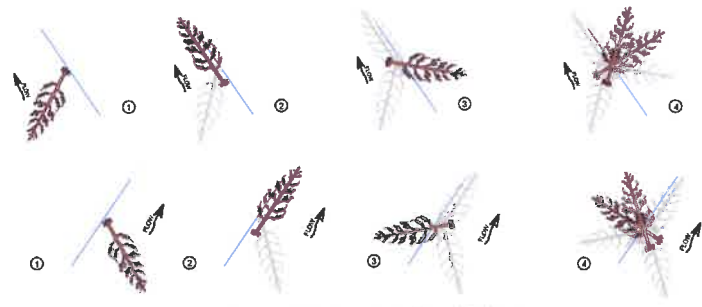
DWG. NO.: **C-605**
CREATED: 1/20/2020
SHEET: 21 OF 26



- 5-LOG HABITAT STRUCTURE NOTES:**
1. INSTALL TEMPORARY COFFERDAM TO ISOLATE WORK AREA WHEN NEEDED.
 2. FISH SALVAGE TO BE SUPERVISED BY QUALIFIED FISH BIOLOGIST.
 3. PARTIAL BURIAL OF TREES MAY BE REQUIRED. DETERMINATION WILL BE MADE IN THE FIELD AND AS DIRECTED BY ENGINEER OR OWNER'S REPRESENTATIVE.
 4. ANY SPOILS FROM EXCAVATION SHALL BE USED TO BACKFILL STRUCTURE AS CONSTRUCTION PROGRESSES. MATERIAL SHALL BE COMPACTED WITH EXCAVATOR BUCKET.
 5. 2-YEAR WSE WITH RESPECT TO STRUCTURE LOCATION IS A TYPICAL REPRESENTATION AND MAY VARY AT EACH STRUCTURE LOCATION. FINAL CONFIGURATION OF STRUCTURE SHALL BE AS DIRECTED IN FIELD.
 6. RACKING MATERIAL MAY CONSIST OF TOPS AND LIMBS OF WHOLE TREES, AND/OR SMALL WHOLE TREES WITH ROOTWADS.

CONSTRUCTION QUANTITIES:

COMPONENT	DESCRIPTION	QUANTITY
WHOLE TREE WITH ROOTWAD	MEDIUM (16-18" DBH, 35' MIN, 3' MIN ROOTWAD)	5
RACKING MATERIAL	MISC. (4-10" DBH, 10 FT MIN, 20 FT MAX)	15
BALLAST	SPOILS/FLOODPLAIN ALLUVIUM	20 CY



Not to Scale

TETRA TECH
www.tetra-tech.com
18023 North Creek Parkway
Scottsdale, Arizona 85258-1001
Phone: 480-462-7800 Fax: 480-462-7802

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ARIZONA DEPARTMENT OF FISH AND GAME
FISHERIES ENHANCEMENT GROUP

U.S. ARMY CORPS OF ENGINEERS
CORPS OF ENGINEERS

REV.	DATE	DESCRIPTION	DESIGNED BY	CHECKED BY	APP. BY
B	2/18/23	PERMITTING DESIGN	CM	CM	JL
A	4/24/23	30 PERCENT DESIGN	CM	CM	JL

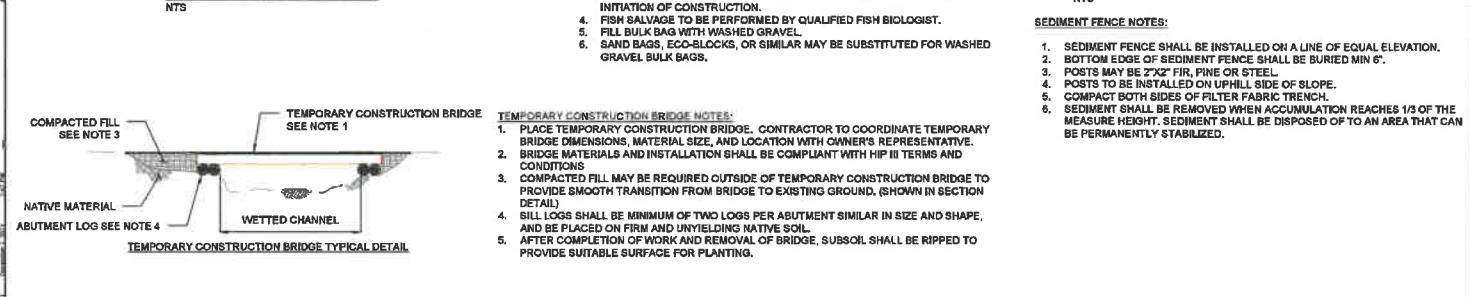
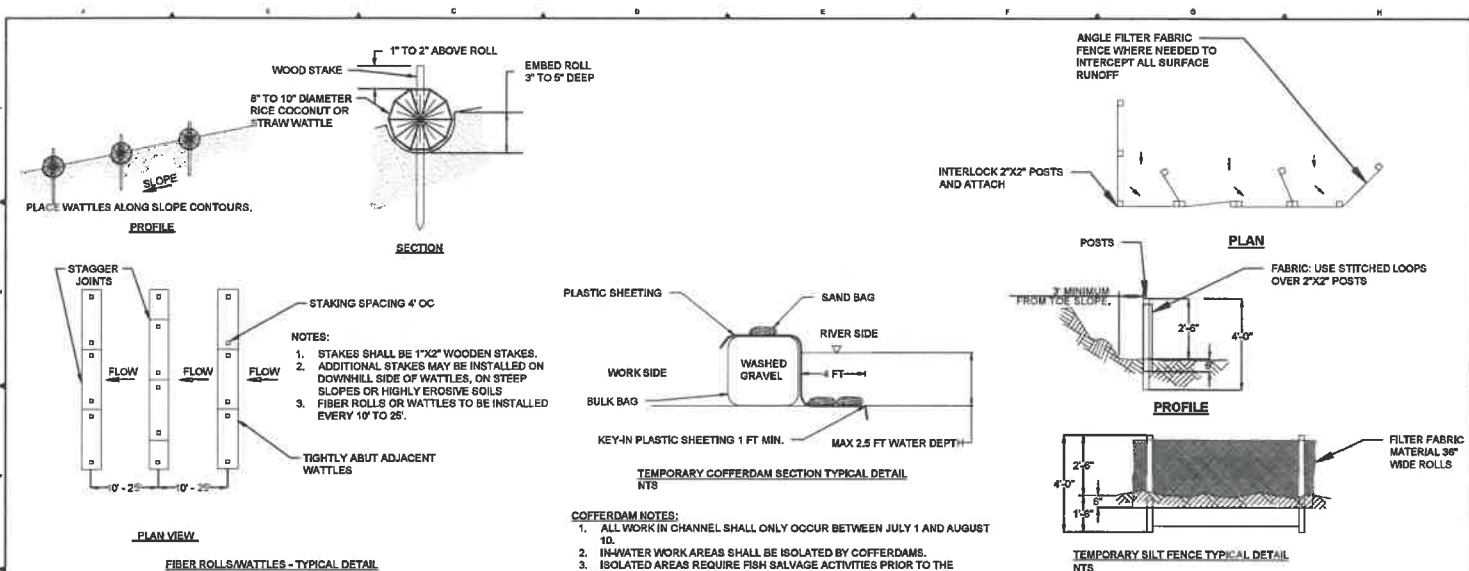
LITTLE NACHES RIVER
RM 3.25 - 4.49 RESTORATION

DETAILS
LWD CONSTRUCTION

DWG. NO.: **C-606**

CREATED: 1/20/2024

SHEET: 22 OF 20



TETRA TECH
www.tetra-tech.com
1800 North Creek Parkway
Boise, Washington 98711
Phone: 425-452-7600 Fax: 425-452-7562

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FISHERIES
ENHANCEMENT
GROUP

UAS

REV.	DATE	REVISION DESCRIPTION	DRW	ENG	CHK	APP
1	01/20/20	PERMITTING DESIGN	CM	CM	JA	JT
2	01/20/20	10 PERCENT DESIGN	CM	CM	JA	JT

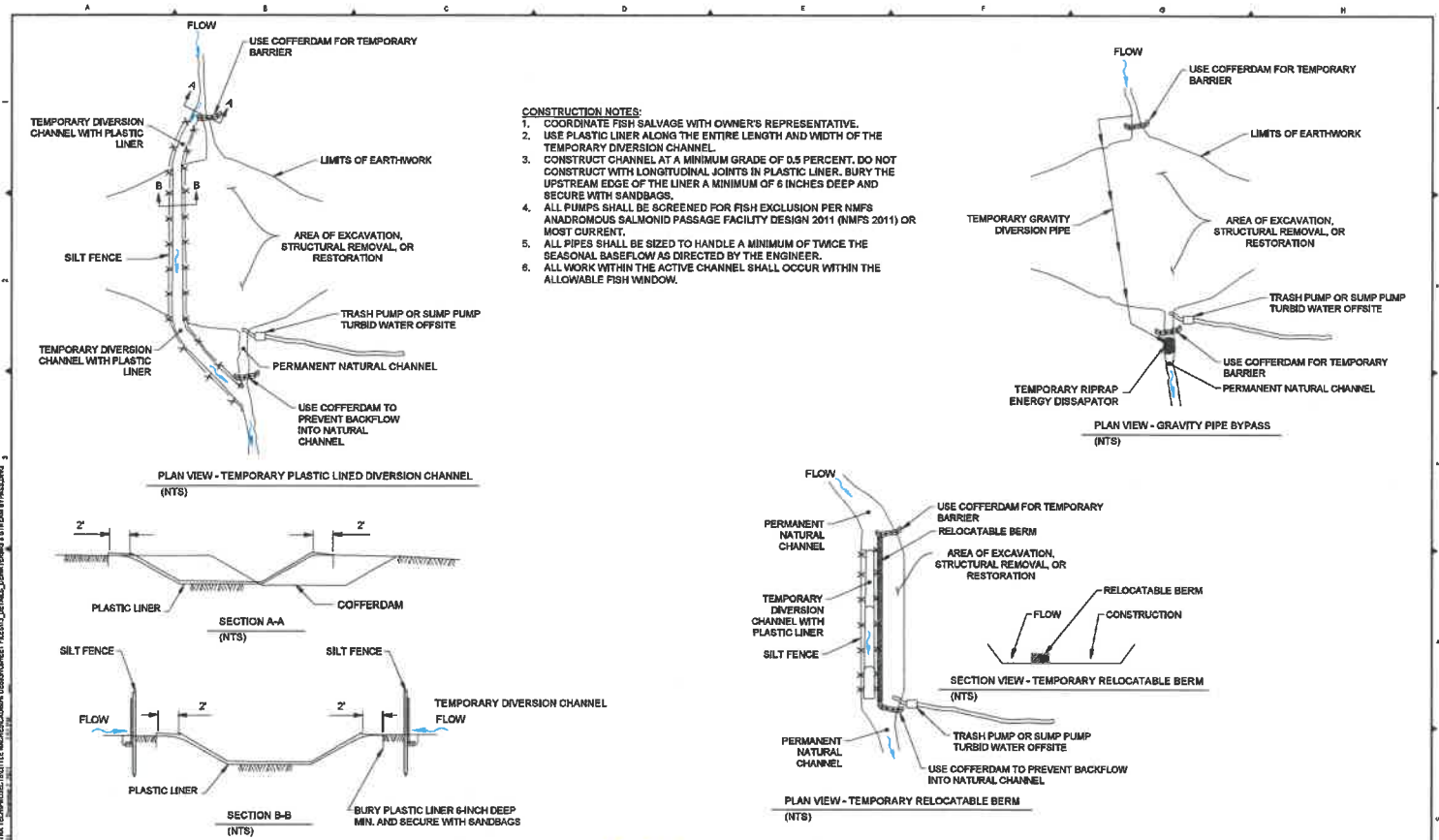
LITTLE NACHES RIVER
RM 3.25 - 4.49 RESTORATION

DETAILS
TESSC

DWG. NO.: **C-701**

CREATED: 1/20/2020

SHEET: 23 OF 28



- CONSTRUCTION NOTES:**
1. COORDINATE FISH SALVAGE WITH OWNER'S REPRESENTATIVE.
 2. USE PLASTIC LINER ALONG THE ENTIRE LENGTH AND WIDTH OF THE TEMPORARY DIVERSION CHANNEL.
 3. CONSTRUCT CHANNEL AT A MINIMUM GRADE OF 0.5 PERCENT. DO NOT CONSTRUCT WITH LONGITUDINAL JOINTS IN PLASTIC LINER. BURY THE UPSTREAM EDGE OF THE LINER A MINIMUM OF 6 INCHES DEEP AND SECURE WITH SANDBAGS.
 4. ALL PUMPS SHALL BE SCREENED FOR FISH EXCLUSION PER NMFS ANADROMOUS SALMONID PASSAGE FACILITY DESIGN 2011 (NMFS 2011) OR MOST CURRENT.
 5. ALL PIPES SHALL BE SIZED TO HANDLE A MINIMUM OF TWICE THE SEASONAL BASEFLOW AS DIRECTED BY THE ENGINEER.
 6. ALL WORK WITHIN THE ACTIVE CHANNEL SHALL OCCUR WITHIN THE ALLOWABLE FISH WINDOW.

TETRA TECH
 www.tetra-tech.com
 1803 North Creek Parkway
 Seattle, Washington 98111
 Phone: 425-405-1800 Fax: 425-405-7802

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REV.	DATE	REVISION DESCRIPTION	DRW	ENG	CHK	APP
0	07/2017	PERMITTING DESIGN	CE	CE	JA	JA
1	03/2019	30 PERCENT DESIGN	CE	CE	JA	JA

**LITTLE NACHES RIVER
 RM 3.25 - 4.49 RESTORATION**

DETAILS
 DEWATERING & STREAM BYPASS

DRAWING NO: **C-703**
 CREATED: 1/29/2019
 SHEET: 25 OF 26

