

Yakima Mainstem Edge Project, Teaway Restoration

Scott Nicolai

Yakama Nation YKFP

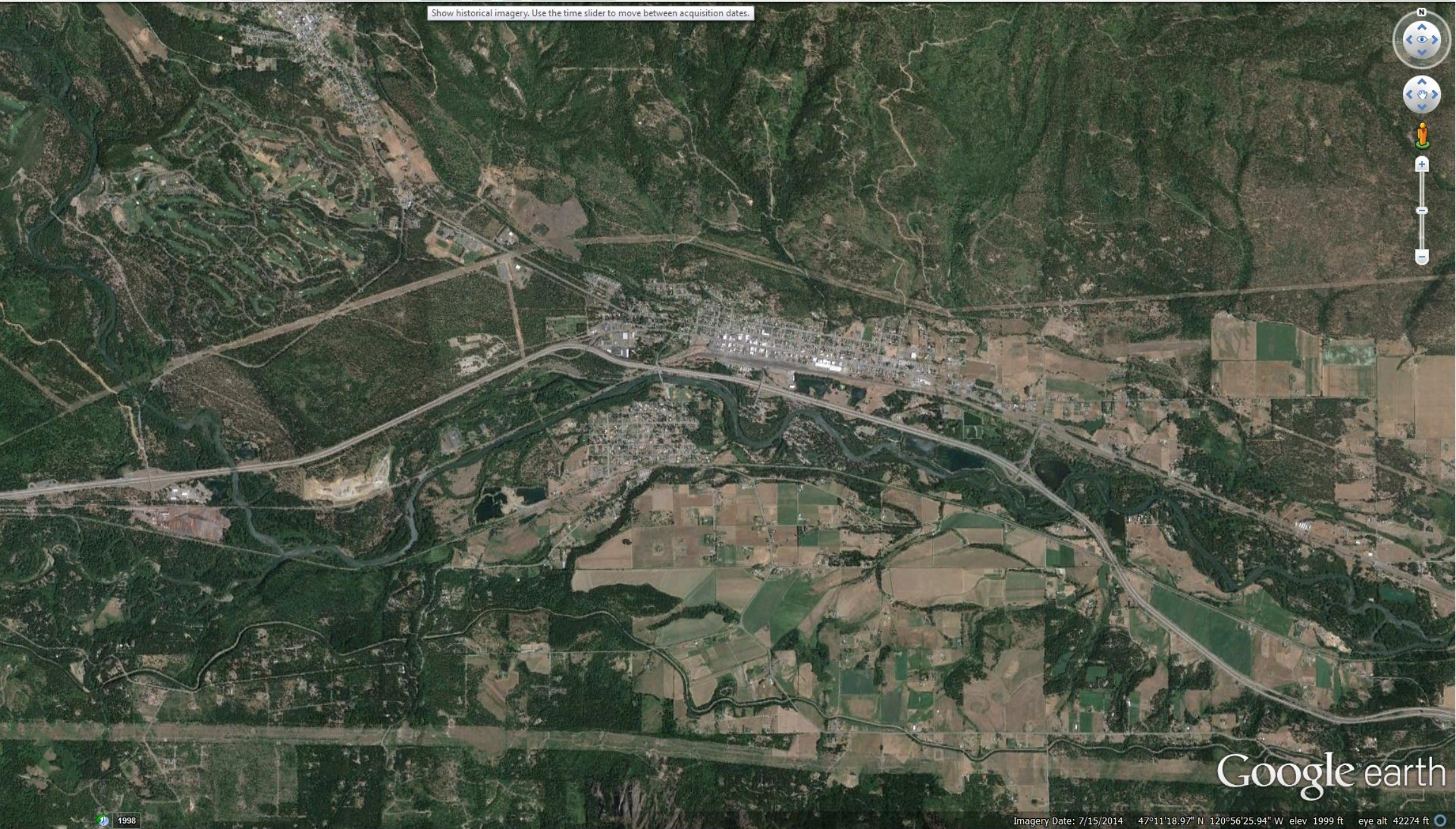


Natural Log Jam in Middle Fork Teanaway River, circa 1900,
Ponderosa forest on East slope of Cascades, Washington

Source: Russell, I. C. 1909. Rivers of North America. G.P. Putnam's Sons, New York. 327pp.
Figure B, Plate XII, page 239. (Scan by T. Abbe)



Show historical imagery. Use the time slider to move between acquisition dates.



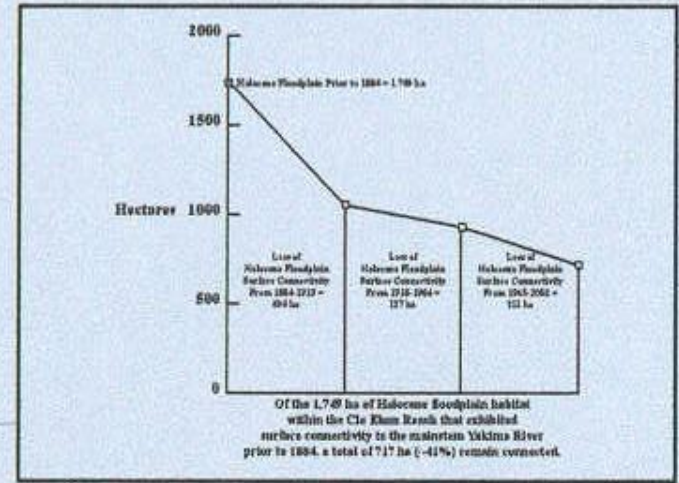
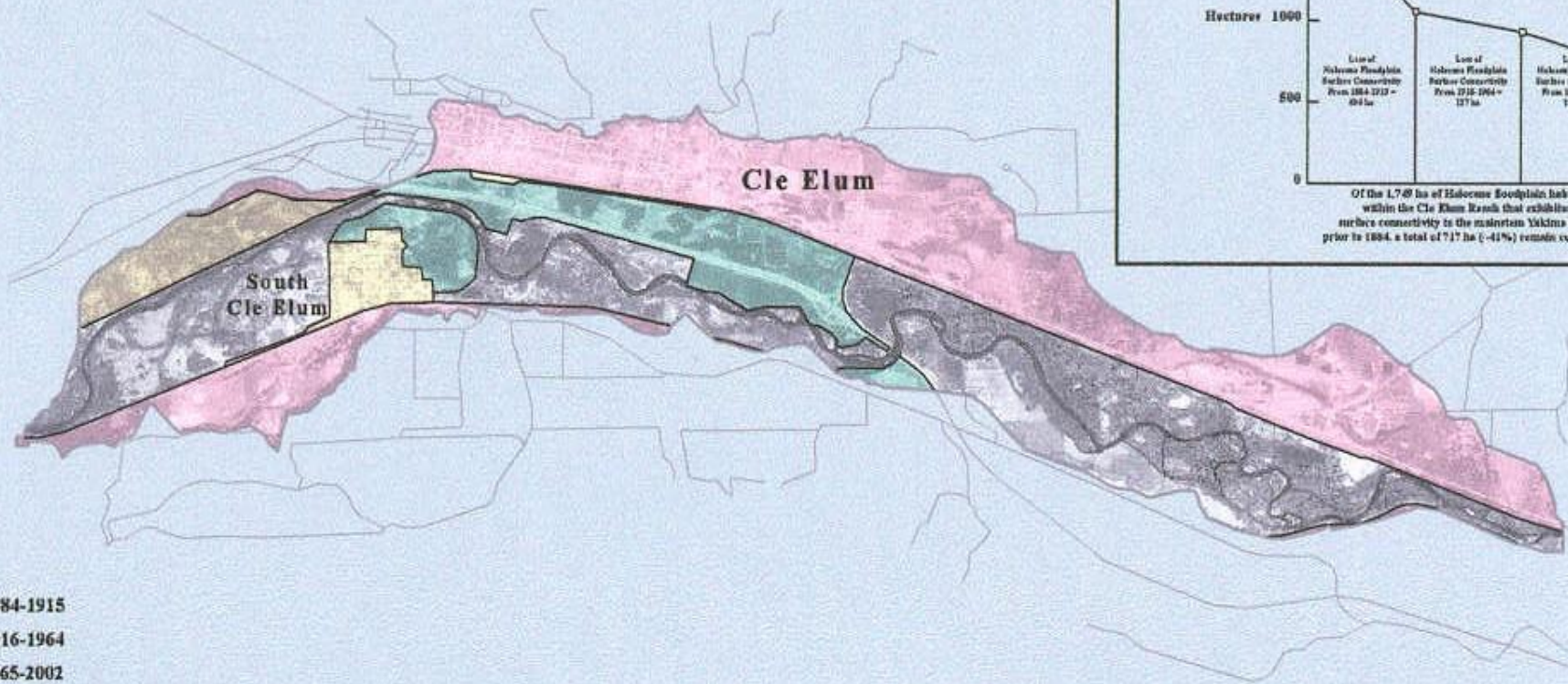
Google earth






1998

Imagery Date: 7/15/2014 47°11'18.97" N 120°56'25.94" W elev 1999 ft eye alt 42274 ft



Loss Of Lateral Connectivity To The Cle Elum Holocene Floodplain From 1884 To 2002



-  Revetments
-  Roads
-  Alterations 1884-1915
-  Alterations 1916-1964
-  Alterations 1965-2002

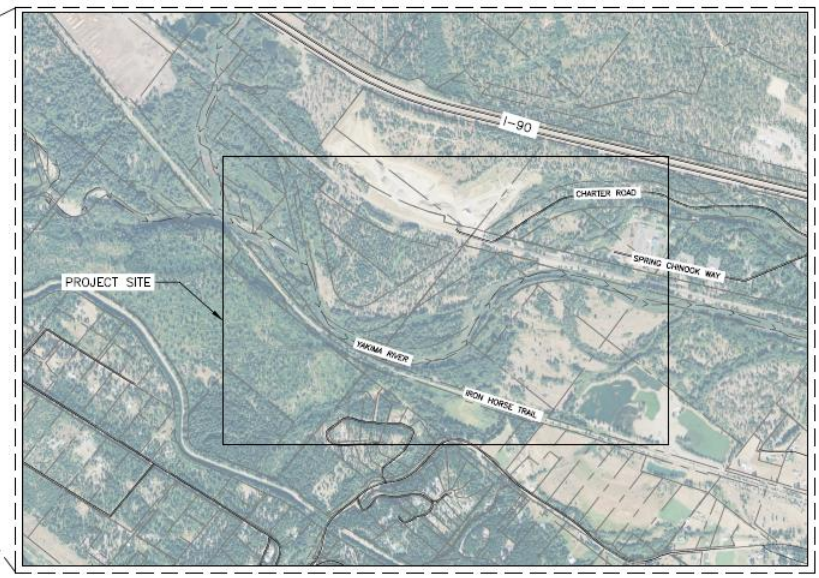


YAKIMA RIVER EDGE HABITAT PROJECT

YAKAMA NATION



WASHINGTON STATE
 SCALE: 1"=50 MILES



PROJECT VICINITY
 SCALE: 1"=1,000'



DRAWING LIST	
SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	GENERAL NOTES
3	LEGEND
4	PROPOSED
5	TYPE 1 ELJ DETAILS
6	TYPE 1 ELJ LAYERING PLAN
7	TYPE 2 ELJ DETAILS
8	TYPE 2 ELJ LAYERING PLAN
9	RESTORATION DETAILS

CONTACT INFORMATION

NATURAL SYSTEMS DESIGN, INC.
 1900 N NORTHLAKE WAY, SUITE 211
 SEATTLE, WA 98103
 (206) 834-0175

YAKAMA NATION
 ATTN: SCOTT NICOLAI
 YAKAMA NATION YAKIMA-KLICKITAT FISHERIES PROJECT
 ELLENSBURG, WA
 (509) 962-6142

\P\04\12\13\14\15\16\17\18\19\20\21\22\23\24\25\26\27\28\29\30\31\32\33\34\35\36\37\38\39\40\41\42\43\44\45\46\47\48\49\50\51\52\53\54\55\56\57\58\59\60\61\62\63\64\65\66\67\68\69\70\71\72\73\74\75\76\77\78\79\80\81\82\83\84\85\86\87\88\89\90\91\92\93\94\95\96\97\98\99\100\101\102\103\104\105\106\107\108\109\110\111\112\113\114\115\116\117\118\119\120\121\122\123\124\125\126\127\128\129\130\131\132\133\134\135\136\137\138\139\140\141\142\143\144\145\146\147\148\149\150\151\152\153\154\155\156\157\158\159\160\161\162\163\164\165\166\167\168\169\170\171\172\173\174\175\176\177\178\179\180\181\182\183\184\185\186\187\188\189\190\191\192\193\194\195\196\197\198\199\200\201\202\203\204\205\206\207\208\209\210\211\212\213\214\215\216\217\218\219\220\221\222\223\224\225\226\227\228\229\230\231\232\233\234\235\236\237\238\239\240\241\242\243\244\245\246\247\248\249\250\251\252\253\254\255\256\257\258\259\260\261\262\263\264\265\266\267\268\269\270\271\272\273\274\275\276\277\278\279\280\281\282\283\284\285\286\287\288\289\290\291\292\293\294\295\296\297\298\299\300\301\302\303\304\305\306\307\308\309\310\311\312\313\314\315\316\317\318\319\320\321\322\323\324\325\326\327\328\329\330\331\332\333\334\335\336\337\338\339\340\341\342\343\344\345\346\347\348\349\350\351\352\353\354\355\356\357\358\359\360\361\362\363\364\365\366\367\368\369\370\371\372\373\374\375\376\377\378\379\380\381\382\383\384\385\386\387\388\389\390\391\392\393\394\395\396\397\398\399\400\401\402\403\404\405\406\407\408\409\410\411\412\413\414\415\416\417\418\419\420\421\422\423\424\425\426\427\428\429\430\431\432\433\434\435\436\437\438\439\440\441\442\443\444\445\446\447\448\449\450\451\452\453\454\455\456\457\458\459\460\461\462\463\464\465\466\467\468\469\470\471\472\473\474\475\476\477\478\479\480\481\482\483\484\485\486\487\488\489\490\491\492\493\494\495\496\497\498\499\500\501\502\503\504\505\506\507\508\509\510\511\512\513\514\515\516\517\518\519\520\521\522\523\524\525\526\527\528\529\530\531\532\533\534\535\536\537\538\539\540\541\542\543\544\545\546\547\548\549\550\551\552\553\554\555\556\557\558\559\560\561\562\563\564\565\566\567\568\569\570\571\572\573\574\575\576\577\578\579\580\581\582\583\584\585\586\587\588\589\590\591\592\593\594\595\596\597\598\599\600\601\602\603\604\605\606\607\608\609\610\611\612\613\614\615\616\617\618\619\620\621\622\623\624\625\626\627\628\629\630\631\632\633\634\635\636\637\638\639\640\641\642\643\644\645\646\647\648\649\650\651\652\653\654\655\656\657\658\659\660\661\662\663\664\665\666\667\668\669\670\671\672\673\674\675\676\677\678\679\680\681\682\683\684\685\686\687\688\689\690\691\692\693\694\695\696\697\698\699\700\701\702\703\704\705\706\707\708\709\710\711\712\713\714\715\716\717\718\719\720\721\722\723\724\725\726\727\728\729\730\731\732\733\734\735\736\737\738\739\740\741\742\743\744\745\746\747\748\749\750\751\752\753\754\755\756\757\758\759\760\761\762\763\764\765\766\767\768\769\770\771\772\773\774\775\776\777\778\779\780\781\782\783\784\785\786\787\788\789\790\791\792\793\794\795\796\797\798\799\800\801\802\803\804\805\806\807\808\809\810\811\812\813\814\815\816\817\818\819\820\821\822\823\824\825\826\827\828\829\830\831\832\833\834\835\836\837\838\839\840\841\842\843\844\845\846\847\848\849\850\851\852\853\854\855\856\857\858\859\860\861\862\863\864\865\866\867\868\869\870\871\872\873\874\875\876\877\878\879\880\881\882\883\884\885\886\887\888\889\890\891\892\893\894\895\896\897\898\899\900\901\902\903\904\905\906\907\908\909\910\911\912\913\914\915\916\917\918\919\920\921\922\923\924\925\926\927\928\929\930\931\932\933\934\935\936\937\938\939\940\941\942\943\944\945\946\947\948\949\950\951\952\953\954\955\956\957\958\959\960\961\962\963\964\965\966\967\968\969\970\971\972\973\974\975\976\977\978\979\980\981\982\983\984\985\986\987\988\989\990\991\992\993\994\995\996\997\998\999\1000

Timothy B. Abbe

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.



NAME OR INITIALS AND DATE	GEOGRAPHIC INFORMATION
DESIGNED: JH, JA, MF	LATITUDE: 47°11'30"N
CHECKED: JH	LONGITUDE: 121°49'00"W
DRAWN: MS, CH	TM/SC/NO: 7/26/13/208F
CHECKED: JH	DATE: 8/19/2014

YAKIMA RIVER EDGE HABITAT PROJECT

COVER SHEET





GENE DANA, SHERIFF
KITTITAS COUNTY SHERIFF'S OFFICE
 307 W. Umptanum Rd • Ellensburg, WA 98926
 (509) 962-7525 • (509) 674-2584
 FAX (509) 962-7599

TO: Washington Department of Fish and Wildlife
 RE: DNS 14-067: Yakima River Edge Structures
 FROM: Kittitas County Sheriff's Office

The Sheriff's Office submits the following comments and concerns relating to the proposed wood structures slated for the Yakima River.

Background:

Undersheriff Clayton Myers received and reviewed the project overview and met with Apple and WDFW representatives. He also participated in a site visit with representatives of the project, WDFW, the county and geologist. After the site visit, the Sheriff's Office met with members of the Sheriff's Command

The Yakima River fluctuates in flow rate, level and temperature, making it a challenging area for agricultural use. It is also a destination resource for recreation, including fishing, kayaking and floating. The Yakima River is a popular destination for recreation, including fishing, kayaking and floating.

The Sheriff's Office, by Statute, is responsible for Sea Grant activities within the county's established boundaries of the county. The Sheriff is also responsible for public safety and law enforcement for the county and is responsible for public safety and law enforcement for the county.

One of the operational components of the Sheriff's Office is the Boating Safety and Education Program. As a state approved program, we receive dedicated Vessel Registration Funds and grant funding to help offset the costs associated with managing the public use on the inland waterways within the county. This management, which includes training for police and the public, education, enforcement and search & rescue, complies with the reporting and funding mandates directed by Washington State and US Coast Guard.

The Marine Unit, comprised of Boating Safety, Swift-Water Rescue Team, Ice Rescue Team and the Dive Team, provide services on the waterways that would be impacted by the Yakima River Edge Structure Project and the future associated projects.

The Marine Unit is managed by the Undersheriff, who has been the water rescue team leader for 27 years. All 7 of the team members are certified swift-water rescue and ice rescue technicians and two of those members are certified basic marine law enforcement instructors for Washington State.

The Marine Unit's combined experience with patrol, rescue and body recovery on the Cle Elum and Yakima Rivers exceeds 150 years.

State Environmental Policy Act Comments:

- Public Safety ...
- Impacts to Trail ...

File Edit View History Bookmarks Tools Help

Slide 1 - TuesdayPMNicolai.pdf x Slide 1 - TuesdayPMNicolai.pdf x file:///C:/User...nts%20again.htm x +

file:///C:/Users/Owner/Documents/Edge Project/RPA application - WSPR sepa comments again.htm

Most Visited Getting Started Latest Headlines

From: Harmon, Lynn (PARKS) [Lynn.Harmon@PARKS.WA.GOV]
 Sent: Monday, October 20, 2014 10:20 AM
 To: 'Scott Nicolai'
 Cc: Harmon, Lynn (PARKS); Griffith, Scott (PARKS); Both, Jason (PARKS); White, Joshua (PARKS)
 Subject: RPA application

Importance: High

Scott,

... of the structures need to be completed, if so how often? We really need to focus on reducing ...

... will head to the construction site and down the trail to Bullfrog. There isn't enough room for log trucks to turn around. Once trucks ... 12PM.

... with equipment operation. More detail is needed with regards to the following impacts on park land:

- ... from staging areas.
- ... hauling. (Re-grading and/or new gravel placement should be required)
- ... removal, what equipment will be used, where do they plan on pushing the snow and how will the trail grade be fixed?
- Dust abatement around the S Cle Elum depot/café and adjacent landowners. What is his plan?
- Plans for weed control and hydro-seeding within areas of park land that have been disturbed. Is he going to hire a private contractor?
- Servicing of equipment, which includes refueling and lubrication. Equipment servicing should be done in the designated work area. In the SEPA document, what does he mean by best management practices will be applied to the construction site to prevent accidental spills.

4) In section 4, Scott indicated that no trees will be removed. This is not accurate. On Wednesday, we identified some smaller trees that would have to be removed to build the staging areas and small roads. Also, a separate RPA should be required for the proposed timber thin just south of State Park property, which Scott brought to Keith's attention back in September.

5) Scott indicates in Section 5, that there will be no impacts to park land beyond the time frame required to implement the project. More detail is needed with regards to displacement of recreational users and easement holders due to trail closures and posting of work area signage for the safety of park personnel and/or the public. Mitigating measures should be described in detail for sections 3 & 5.

Some more comments from the park C&M;

Park property in the proposed work area is suitable for constructing a work / staging area adjacent to trail to the north side. Requiring a work area of this type would reduce the physical impact to the trail while at the same time providing the work contractor a designated area to work.

2. The cost added the project would be minimal.
3. Requiring the bypass / staging area to be constructed so that it can be easily removed and fully restored.
4. Restoration to include aggregate material removal, grading, erosion control and hydro seeding.
5. Requiring an onsite meeting prior to project approval to identify specific areas for constructing the work areas. Including flagging the boundaries.
6. Work areas would be adequate for staging and servicing equipment. A requirement that all log loading and unloading be performed in the designated work areas is recommended. This will reduce impact to the trail and create a safer work zone on Parks property.
7. Access roads to the worksite on the Yakima River could be constructed from the work / staging area off of Parks property.





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Background:

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The Yakima River fluctuates in flow rate, level and temperature, making it a popular agricultural use. It is also a destination resource for recreational use to include but not limited to adjacent trails, personal and guided fishing, Kayaking, rafting, canoeing, swimming and floating.

The Sheriff's Office, by Statute, is responsible for Search & Rescue operations within the established boundaries of the county. The Sheriff is also the Emergency Management Director for the county and is responsible for public safety and the protection of critical infrastructure.

One of the operational components of the Sheriff's Office is the Boating Safety and Education Program. As a state approved program, we receive dedicated Vessel Registration Funds and grant funding to help offset the costs associated with managing the public use on the inland waterways within the county. This management, which includes training for police and the public, education, enforcement and search & rescue, complies with the reporting and funding mandates directed by Washington State and US Coast Guard.

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Response to SEPA Comments:

- Reduced Scope of Work



3) Section 3 - Impact on park lands, Scott states that the only short term impacts would be noise associated with equipment operation. More detail is needed with regards to the following impacts on park land:

- Construction of small roads off of the trail grade. What equipment, materials and/or fill will be used. What are the plans for road removal and rehab once project is complete. Per our discussion, a staging area should be established to reduce impact to the trail (referenced in Josh's email). Require access roads to be constructed from staging areas.
- Impact to the trail grade from hauling. (Re-grading and/or new gravel placement should be required)
- Plan for snow removal, what equipment will be used, where do they plan on pushing the snow and how will the trail grade be fixed?
- Dust abatement around the S Cle Elum depot/café and adjacent landowners. What is his plan?
- Plans for weed control and hydro-seeding within areas of park land that have been disturbed. Is he going to hire a private contractor?
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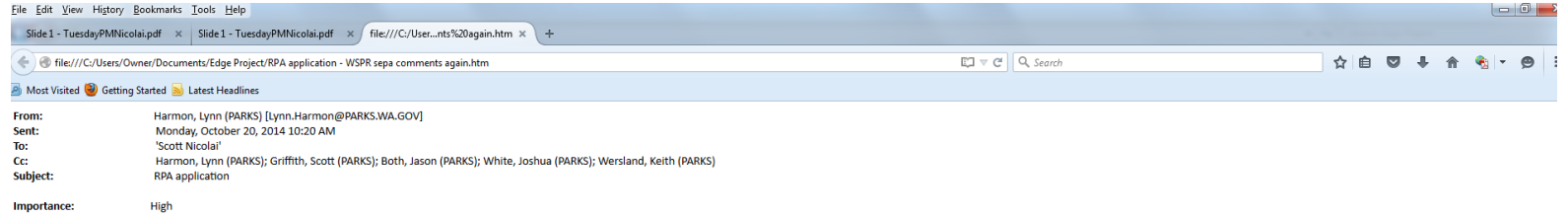
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Response to SEPA Comments: • Reduced Scope of Work • Delayed restoration on Washington State Parks Trail



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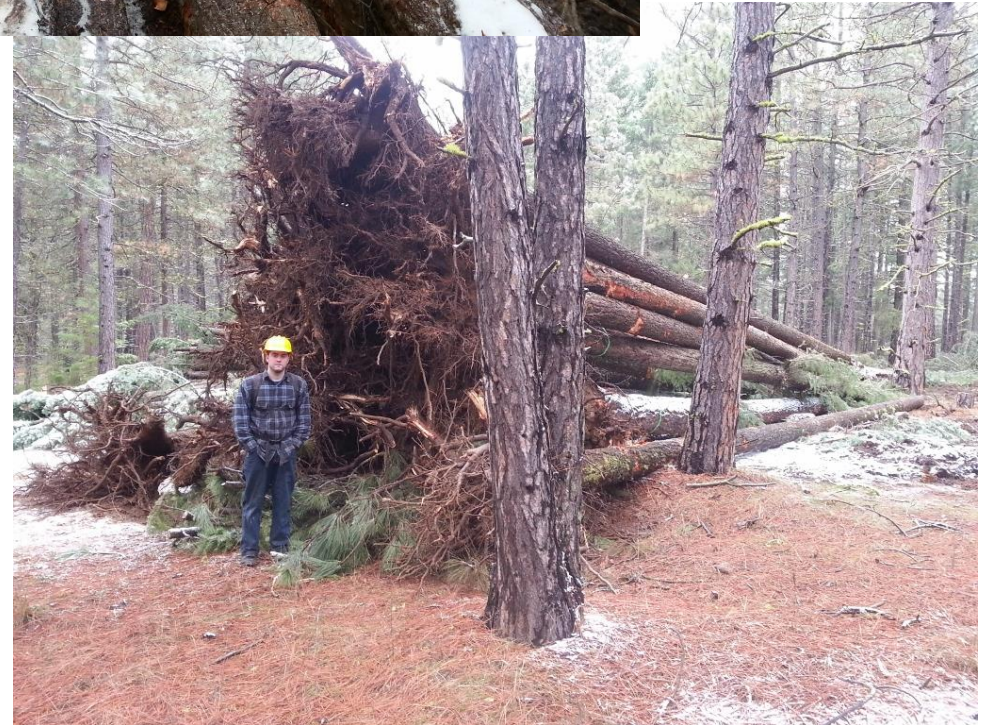
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Edge Analogs



Locally Harvested Restoration Material:

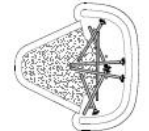
- Reduces Cost!
- Higher Quality Material!



GENERAL LEGEND

- PROPERTY LINE
- RIGHT OF WAY LINE
- ===== EXISTING ROAD
- ACCESS ROAD
- CL-CL CLEARING LIMIT
- CL-GL GRADING LIMIT
- S- EXISTING MAJOR CONTOUR
- s- EXISTING MINOR CONTOUR
- S PROPOSED MAJOR CONTOUR
- s PROPOSED MINOR CONTOUR
- ~ LOW FLOW CHANNEL
- >>> EXISTING FLOW
- HHM EXISTING OHWM
- OHM PROPOSED OHWM
- MHH MEAN HIGHER HIGH WATER
- MH MEAN HIGH WATER
- MLL MEAN LOWER LOW WATER
- 2-YR 2-YEAR FLOOD BOUNDARY
- 100-YR 100-YEAR FLOOD BOUNDARY
- SS EXISTING STORM SEWER
- SS EXISTING SANITARY SEWER
- WL EXISTING WETLAND
- WL PROPOSED WETLAND
- W EXISTING WATER
- W PROPOSED WATER

- [Hatched Box] TYPE 1 ELJ LOCATIONS
- [Dotted Box] EXPOSED GRAVEL BAR DURING LOW FLOW CONSTRUCTION PERIOD



TYPE 2 ELJ



TYPE 3 ELJ



CONTROL POINT LOCATION

DETAIL AND SECTION REFERENCING

- [Box] NOTE REFERENCING NUMBER
- (4/6) DETAIL REFERENCE NUMBER SHEET ON WHICH DETAIL APPEARS
- (4/2) DETAIL REFERENCE NUMBER SHEET ON WHICH DETAIL APPEARS
- (TYP) SPECIFIES THAT DETAIL IS UNIFORMLY TYPICAL THROUGHOUT PROJECT EXCEPT WHERE OTHERWISE NOTED
- (VAR) SPECIFIES THAT DETAIL WAS TAKEN FROM SEVERAL SHEETS
- A A SECTION A-A IS SHOWN ON SHEET 32
- L L

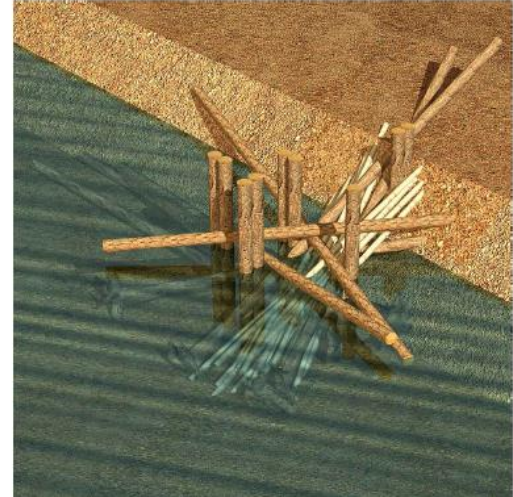
SECTION A-A 32 SECTION A-A IS SHOWN ON SHEET 32
SCALE: NTS



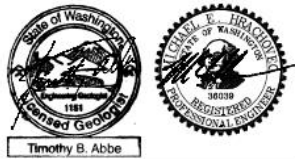
REFERENCE IMAGE OF NATURALLY-OCCURING LOGJAM FOR TYPE 3 ELJ



REFERENCE IMAGE OF NATURALLY-OCCURING LOGJAM FOR TYPE 1 ELJ



VISUALIZATION OF TYPE 1 ELJ DURING SPRING AND SUMMER FLOW



IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.



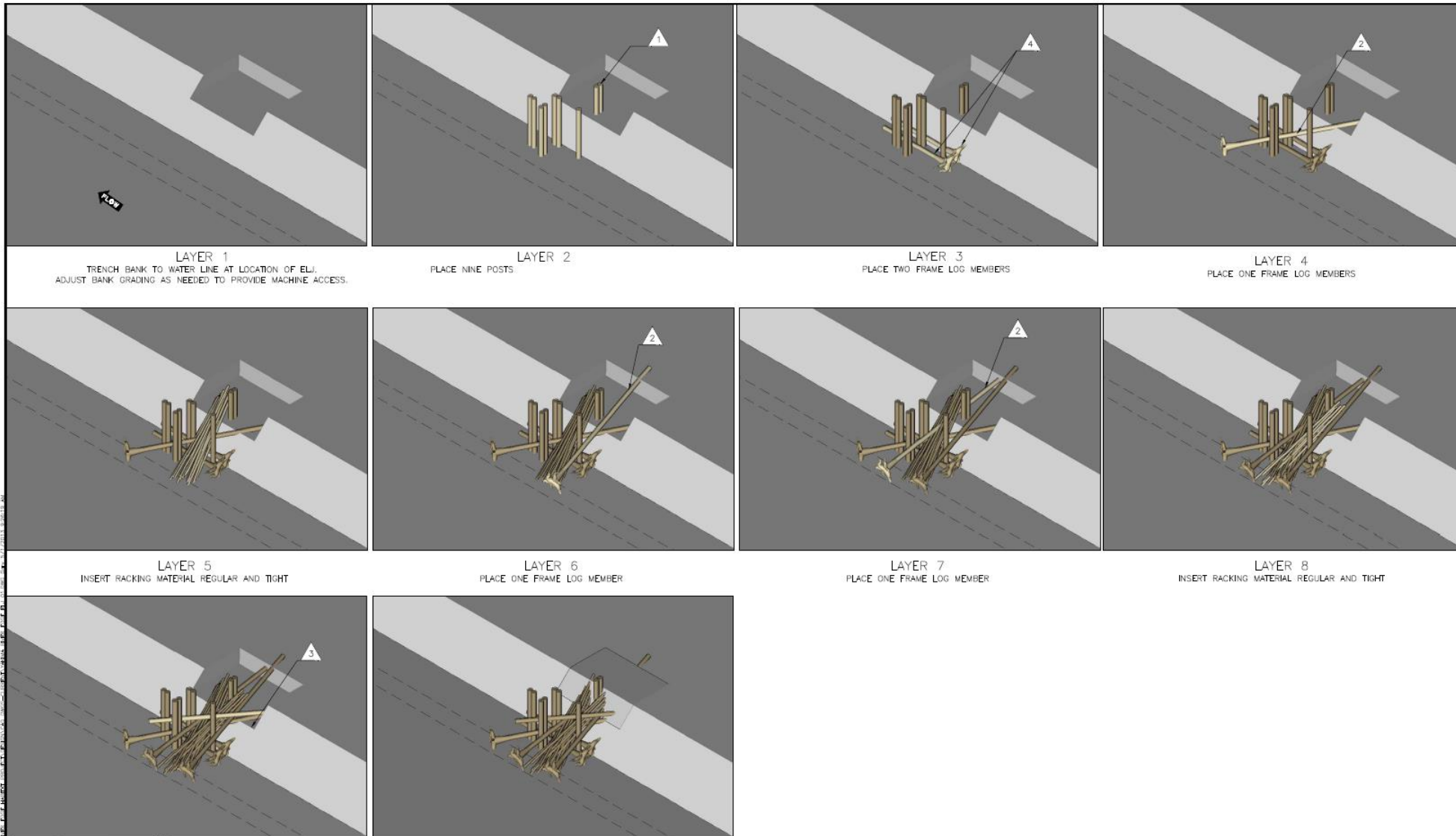
NAME OR INITIALS AND DATE: [Blank]
 GEOGRAPHIC INFORMATION: 47°11'00"N

YAKIMA RIVER EDGE HABITAT PROJECT

LEGEND

3
SHEET 3 OF 9

Jun 19, 2014 FINAL DRAWINGS



LAYER 1
TRENCH BANK TO WATER LINE AT LOCATION OF ELW.
ADJUST BANK GRADING AS NEEDED TO PROVIDE MACHINE ACCESS.

LAYER 2
PLACE NINE POSTS

LAYER 3
PLACE TWO FRAME LOG MEMBERS

LAYER 4
PLACE ONE FRAME LOG MEMBER

LAYER 5
INSERT RACKING MATERIAL REGULAR AND TIGHT

LAYER 6
PLACE ONE FRAME LOG MEMBER

LAYER 7
PLACE ONE FRAME LOG MEMBER

LAYER 8
INSERT RACKING MATERIAL REGULAR AND TIGHT

LAYER 9
PLACE ONE FRAME LOG MEMBER

LAYER 10
BACKFILL TRENCHED AREA WITH NATIVE ALLUVIUM

Timothy B. Abbe

0 1 2
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.



NAME OR INITIALS AND DATE	GEOGRAPHIC INFORMATION
DESIGNED: JH, DA, HF	LATITUDE: 47°11'00"N
DRAWN: JH, DM	LONGITUDE: 120°32'00"W
CHECKED: JH, DM	PROJECT: TYPICAL ELW
DATE: 6/16/2014	

YAKIMA RIVER EDGE HABITAT PROJECT

TYPE 1 ELW LAYERING PLAN

6
SHEET 6 OF 9

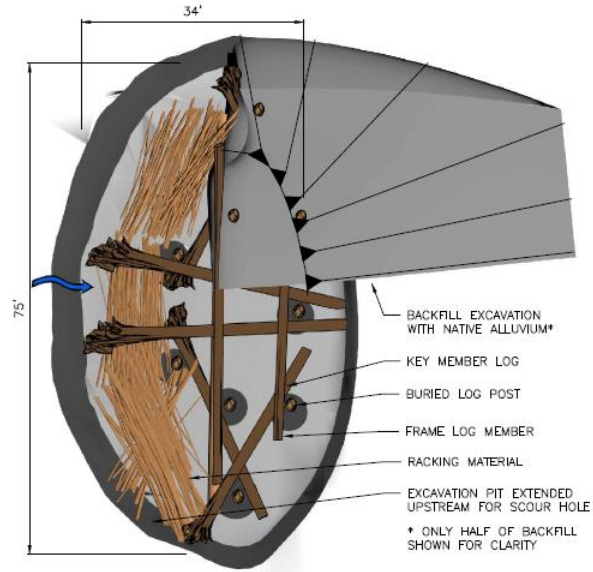
Jun 19, 2014 FINAL DRAWINGS







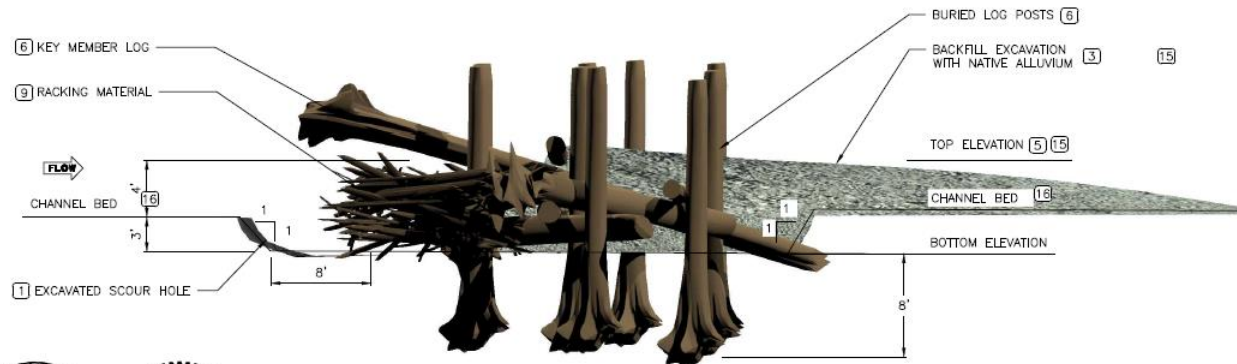




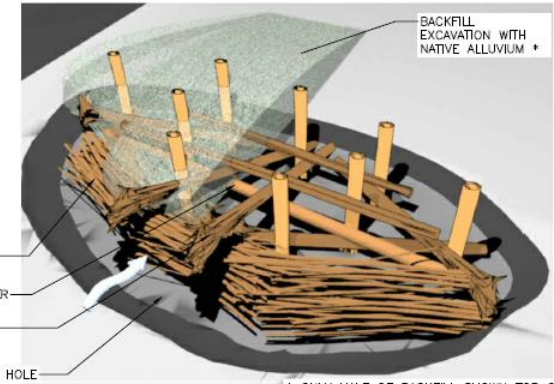
TYPE 2 ELJ PLAN
SCALE: 1" = 10'

TYPE 2 ELJ STRUCTURE NOTES

1. EXCAVATE IN FRONT OF LOGJAM FOR PLACEMENT OF RACKING MATERIAL. EXCAVATION AREA SHALL NOT BE BACKFILLED WITH ALLUVIUM, BUT LEFT AS A SCOUR HOLE.
2. EXCAVATION SPOILS SHALL BE STAGED ADJACENT TO THE LOGJAM. SPOILS SHALL ALSO BE STOCKPILED TO ALLOW LOG LAYER PLACEMENT AND CONSTRUCTION ACCESS.
3. BACKFILL EXTENTS MAY VARY AND TO BE CONSTRUCTED WITH NATIVE ALLUVIUM FROM EXCAVATION SPOILS.
4. BACKFILL EACH STRUCTURE LAYER WITH NATIVE ALLUVIUM FLUSH WITH THE CURRENT LAYER PRIOR TO PLACEMENT OF THE SUBSEQUENT LAYER.
5. FINAL ELJ HEIGHT TO BE ACHIEVED AS SPECIFIED REGARDLESS OF ACTUAL LOG DIAMETERS USED OR STACKING ARRANGEMENT.
6. ALL LARGE WOOD DIMENSIONS DO NOT INCLUDE BARK THICKNESS.
7. COVER TOP OF BACKFILL AREA AND BASE OF STRUCTURES 6-12 INCHES WITH LOOSE WOOD DEBRIS AND CHIPS.
8. TIE FRAME LOG MEMBERS PER INSTRUCTIONS ON LAYERING PLAN TO VERTICAL POSTS. TIE ROPE TO POST WITH CLOVE HITCH LEAVING A 4' LENGTH OF ROPE. THEN INSTALL 3 LOOPS OF 1" MANILA ROPE AROUND ADJACENT LOGS. ALL CLAMPS AND HAND SPLICING SHALL BE PER THE MANUFACTURER SPECIFICATIONS. TIGHTEN ROPE TO APPROXIMATELY 500-POUNDS TENSION WITH EXCAVATOR BUCKET. TIE OFF WITH A CLOVE HITCH THEN INSTALL 2 CLAMPS EACH TO FASTEN THE ROPE ENDS TO THE LOGS.
9. RACKING MATERIAL SHALL CONSIST OF APPROXIMATELY 150 CU. YDS PER STRUCTURE WITH 6" - 12" DIA DBH AND A MINIMUM OF 20-FOOT LENGTH. RACKING PLACEMENT SHALL OCCUR WITH EACH LAYER PLACEMENT TO ENSURE RACKING MATERIAL EXTENDS THROUGH STRUCTURE AND PINNED IN PLACE BY SUBSEQUENT LAYERS.
10. THE CONTRACTOR SHALL FIELD VERIFY WITH THE OWNER REPRESENTATIVE OR ENGINEER ALL STRUCTURE LOCATIONS, PILE LOCATIONS, LENGTHS, WIDTHS AND ELEVATIONS PRIOR TO EXCAVATION, ASSEMBLY AND INSTALLATION OF EACH STRUCTURE.
11. LOCATIONS FOR ALL STRUCTURE PLACEMENTS WILL BE STAKED IN FIELD BY THE ENGINEER OR OWNER REPRESENTATIVE PRIOR TO START OF CONSTRUCTION.
12. EXCAVATION LIMITS SHALL BE FIELD VERIFIED BY THE OWNER REPRESENTATIVE OR ENGINEER PRIOR TO EXCAVATION COMMENCING AND PLACEMENT OF ANY LARGE WOOD.
13. LOG TYPE IDENTIFICATION SHALL BE PAINTED ON ALL LOGS BY THE CONTRACTOR IN A PLACE VISIBLE FOR FIELD VERIFICATION PRIOR TO PLACEMENT WITH LEAD-FREE, BLAZE-ORANGE SURVEY MARKING PAINT.
14. THE WOOD LAYER PLACEMENT IN EACH LOGJAM LAYER SHALL BE FIELD VERIFIED BY ON-SITE OWNER REPRESENTATIVE PRIOR TO BACKFILLING.
15. BACKFILL NOT TO EXCEED TOP ELEVATION. EXCESS BACKFILL TO BE PLACED DOWNSTREAM OF FINISHED ELJ.
16. CHANNEL BED ELEVATION IS REPRESENTATIVE OF A LOCAL AVERAGE CHANNEL BED AT RIFFLES. CHANNEL BED ELEVATION SHOULD NOT BE TAKEN IN POOLS.



TYPE 2 ELJ PROFILE
SCALE: 1" = 5'



TYPE 2 ELJ PERSPECTIVE



IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.



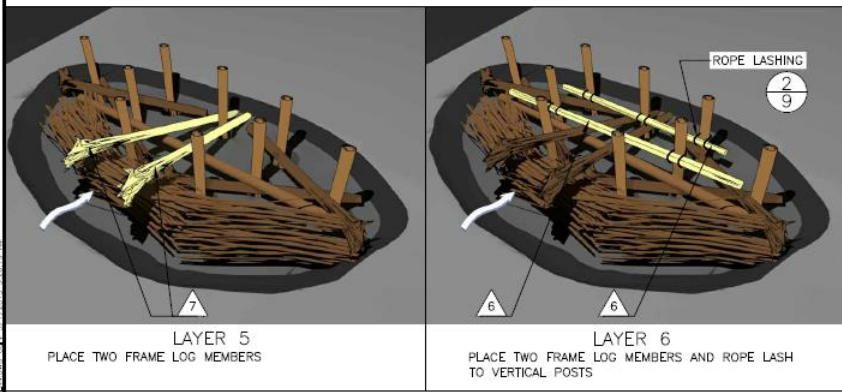
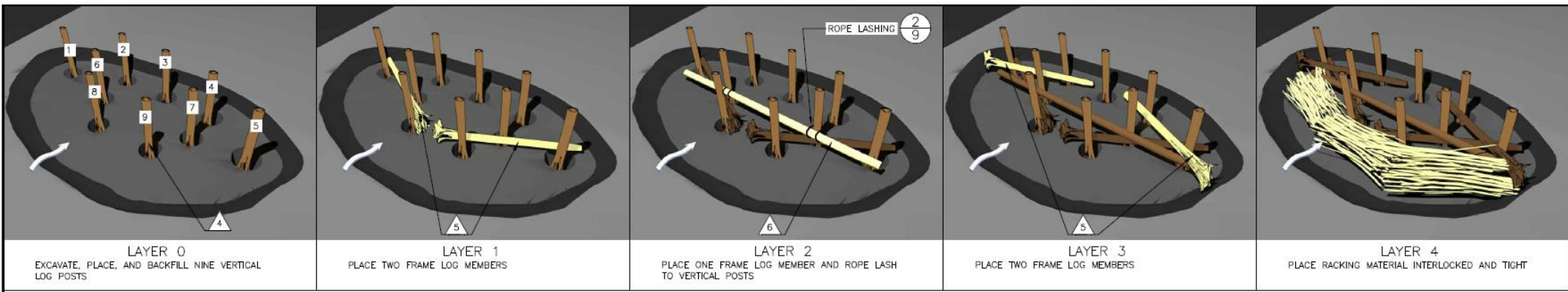
NAME OR INITIALS AND DATE	GEOGRAPHIC INFORMATION
DESIGNED: RJE, TLF	LATITUDE: 48°45'00"N
CHECKED: JM	LONGITUDE: 122°28'00"W
DRAWN: MFC, CM	TW/3C/RG T289/03/2014
CHECKED: RJE	DATE: 06/19/2014

YAKIMA RIVER EDGE HABITAT PROJECT

TYPE 2 ELJ DETAILS

7
SHEET 7 OF 9

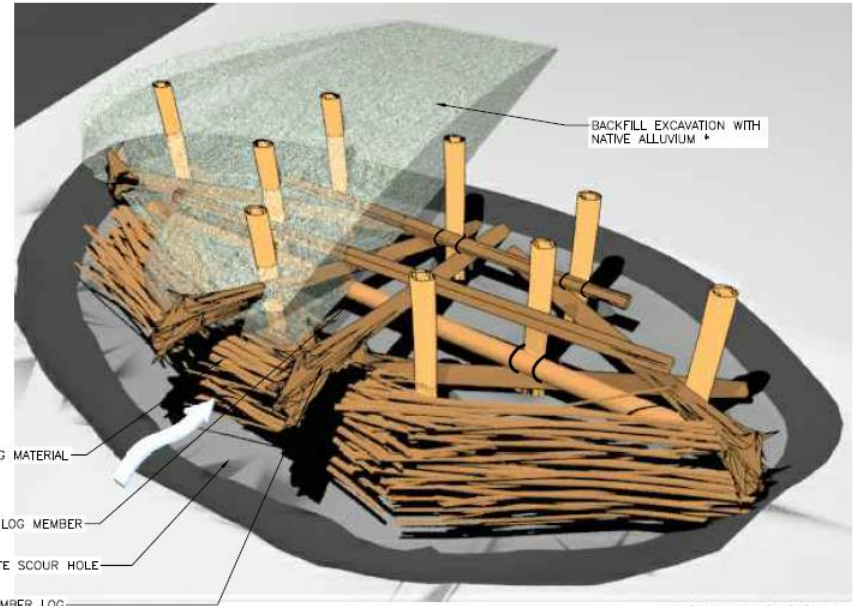
JUN 19, 2014 FINAL DRAWINGS



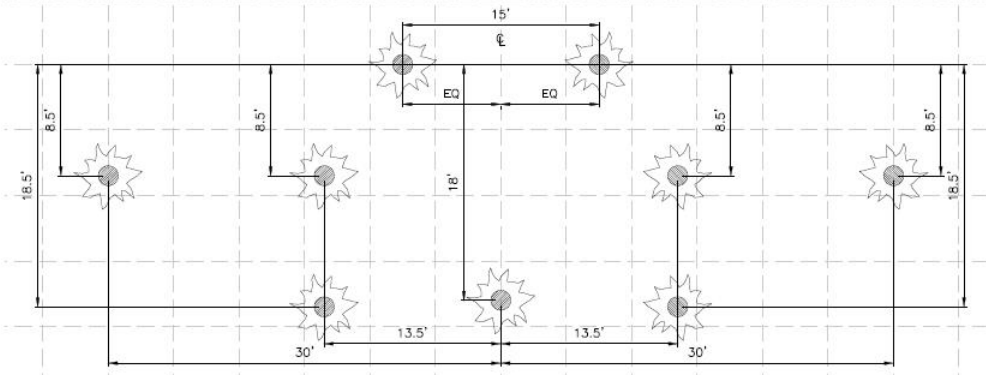
TYPE 2 ELJ - LOG SCHEDULE

LOG ID	DIA* (IN)	LENGTH** (FT)	ROOTWAD (Y/N)	QUANTITY PER STRUCTURE
△2	14	20	Y	9
△5	14	40	Y	4
△6	14	50	N	3
△9	14	50	Y	2

* DIAMETER AT BREAST HEIGHT
 ** TOTAL LENGTH INCLUDING ROOTWAD



* ONLY HALF OF BACKFILL SHOWN FOR CLARITY



TYPE 2 ELJ POST LAYOUT
SCALE: 1" = 5'

COMPLETED TYPE 2 ELJ

STATE OF WASHINGTON DEPARTMENT OF ECOLOGY DIVISION OF RESTORATION AND HABITAT MANAGEMENT 1000 EAST MAIN AVENUE, SUITE 1000, YAKIMA, WA 98901-3000

JUN 19, 2014 FINAL DRAWINGS

Timothy B. Abbe

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.



NAME OR INITIALS AND DATE		GEOGRAPHIC INFORMATION	
DESIGNED	JH, TA, AF	LATITUDE	42°11'30"N
CHECKED	JH	LONGITUDE	121°42'00"W
DRAWN	JH, CW	TW/SC/RG	TJUN/23/1/2014
CHECKED	JH	DATE	6/23/2014

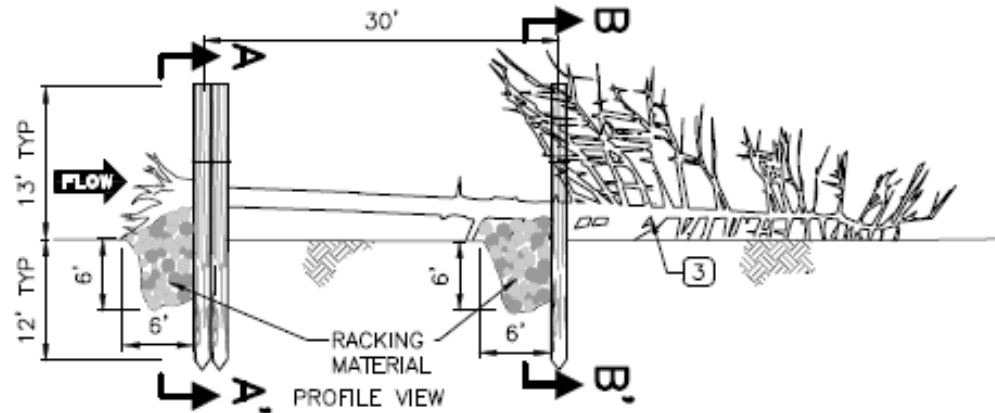
YAKIMA RIVER EDGE HABITAT PROJECT

TYPE 2 ELJ LAYERING PLAN

8
SHEET 8 OF 9

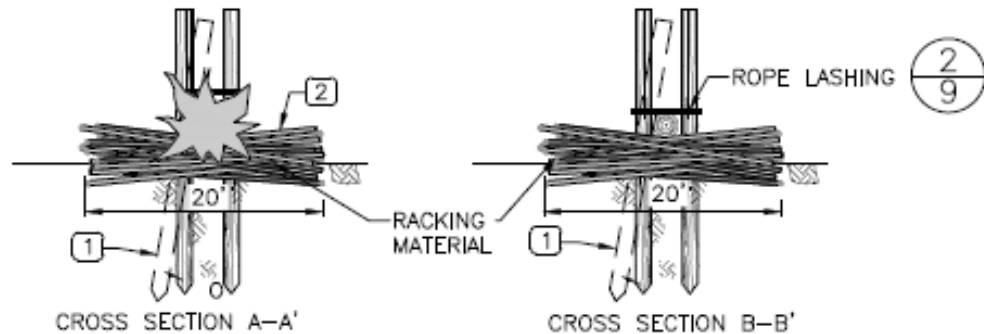






NOTES

- 1 LOG POSTS TO BE INSTALLED USING VIBRATORY-DRIVEN APPROACH OF TRACKHOE-MOUNTED HOE-PACK FITTED WITH STEEL RETAINING COLLAR WELDED TO FOOT OF HOE-PACK UNIT. IMPACT-DRIVING WITH PILE DRIVING EQUIPMENT WILL NOT BE ALLOWED. POSTS MAY BE INSTALLED AT UP TO 20-DEGREE ANGLE AS DIRECTED BY ENGINEER TO RETAIN KEY MEMBERS AND/OR RACKING MATERIAL. ARRANGEMENTS OF POSTS AND KEY MEMBERS AND RACKING MATERIAL MAY BE ADJUSTED BY ENGINEER TO SUIT SITE CONSTRAINTS. BROKEN POSTS SHALL BE AUGMENTED WITH ADDITIONAL POSTS ADJACENT TO THE ORIGINAL. UP TO TWO ADDITIONAL POSTS MAY BE INSTALLED AS DIRECTED BY ENGINEER IF NEEDED TO SUIT SITE CONDITIONS.
- 2 RACKING MATERIAL SHALL CONSIST OF APPROXIMATELY 40 INDIVIDUAL LOGS PER STRUCTURE WITH 6"- 12" AVERAGE DIAMETER AND A MINIMUM OF 20 FEET LENGTH. MATERIALS EXCAVATED TO ALLOW PLACEMENT OF RACKING MATERIAL WILL BE DISPERSED ON ADJACENT BAR AS DIRECTED BY ENGINEER.
- 3 KEY MEMBER TO BE WHOLE TREE, MIN 14" DBH WITH ROOT WAD MIN 8 FT DIAMETER, MIN LENGTH OF 60 FT, WITH BRANCHES INTACT. PROTECT ROOTS AND BRANCHES FROM DAMAGE WHILE STAGING AND INSTALLING TREE.



TYPE 3 FLJ 1
4
SCALE: 1" = 10'











Project Monitoring



Next work site...



Other Locations?

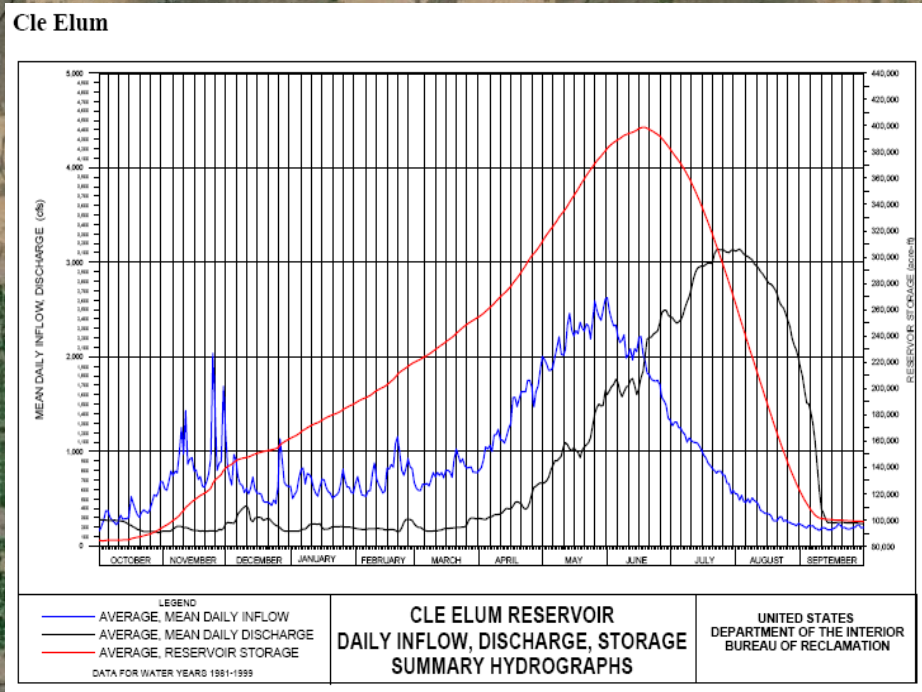


Image Landsat

Google earth

UPDATE: Indian Creek Restoration Project

Indian Creek

T21N R16E W.M., Section 16



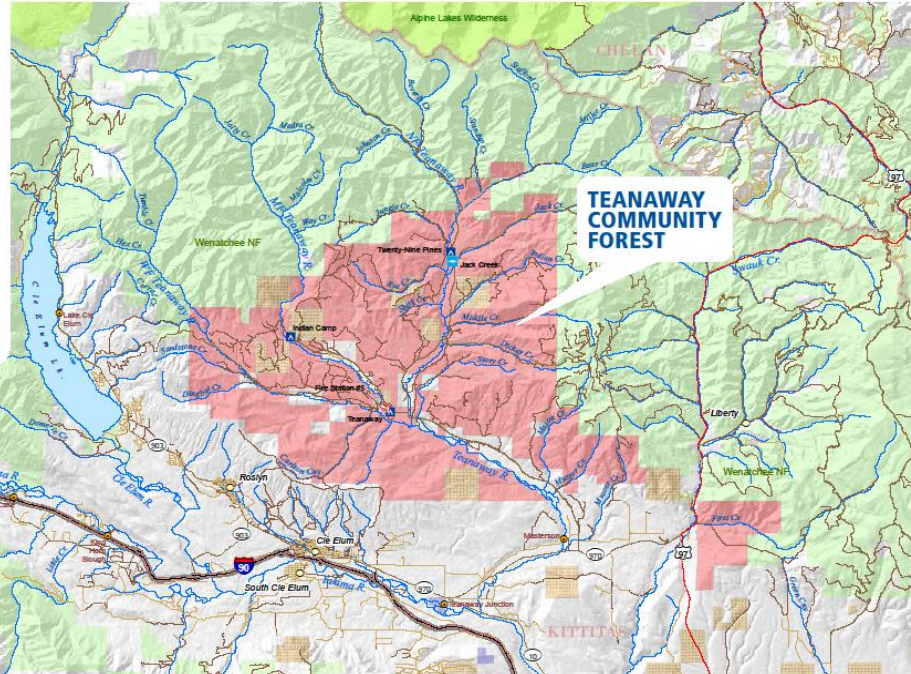
Teanaway Community Forest Land

TEANAWAY COMMUNITY FOREST

The Teanaway Community Forest is a 50,272-acre forest situated at the headwaters of the Yakima Basin watershed. The forest will be managed through a partnership between the Washington state departments of Natural Resources (DNR) and Fish & Wildlife, with input from the local community and interested stakeholders.

DNR designed the community forest model, which was approved by state lawmakers in 2011. The model is a tool to involve local citizens in protecting working forests that support healthy communities through grazing, forestry, recreation, and conservation.

The Teanaway property was identified as part of the Yakima Basin Integrated Plan as an area of importance to safeguard the Yakima Basin water supply and associated habitat, and to support the economy by preserving working lands and enhancing recreation opportunities. The Basin Plan was developed by a coalition of public and private organizations committed to increasing the quantity and quality of water in the Yakima River Basin.



FACILITIES

- Building
- Campground
- Acclimation Pond
- WDFW Water Access Sites

ROADS

- Interstate
- Major Highway
- Road
- Local Road
- Unimproved Road

HYDROGRAPHY

- Rivers
- Streams

LAND MANAGEMENT

- Teanaway Community Forest
- Washington Dept. of Natural Resources
- USFS Wilderness Areas
- US Forest Service
- Washington State Parks
- Washington Dept. of Fish & Wildlife

0 0.5 1 2 3 4 Miles

LEARN MORE
<http://bit.ly/teanaway>





This stream has lost its "rebar".
Channel Incision!
Dry Meadows!

Indian Creek Restoration Project

Approximate instream wood replenishment locations

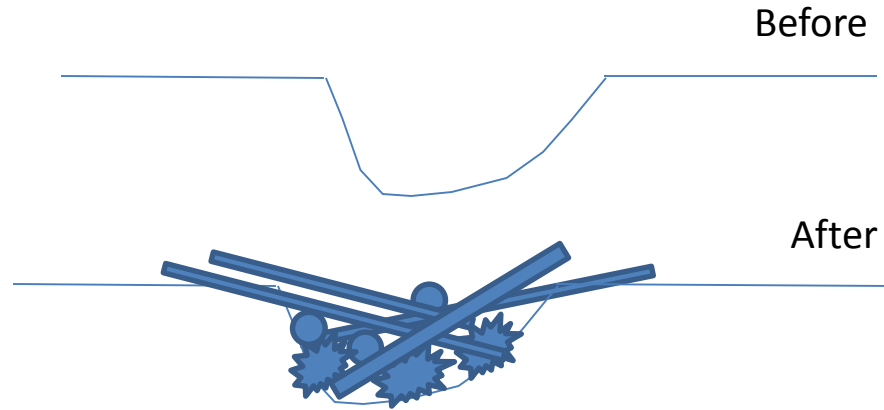
Indian Creek

Notes

- 25 total wood replenishment locations
- 30 logs placed at each site including 8 with rootwads



Indian Creek Restoration Project Stream channel cross-section



Notes

- Not to scale
- 25 wood replenishment jams are proposed in this phase
- Each would include 30 logs, 8 logs will include rootwads
- Photographs of typical replenishment jams shown below





03.31.2011 1

Permitting, Licensing, Use Agreement
Process...

Lengthy!

FOREST PRACTICE ACTIVITY MAP

TOWNSHIP 21 NORTH HALF 0, RANGE 16 EAST (W.M.) HALF 0, SECTION 16

Application #: _____

Indian Creek Floodplain Restoration Project

January, 2014

Submitted to Washington Department of Natural Resources

Introduction: Indian Creek is a fish-bearing tributary to the North Fork Teanaway River (Figure 1). Railroad logging, livestock grazing, and tractor logging have profoundly reduced riparian habitat and large woody material in the stream and adjacent floodplain. In response to the loss of channel roughness, the stream has incised (down-cut) along most of the lower two miles. Ditches along the former railroad are still containing and routing surface water off the landscape. Consequently, groundwater recharge has been sharply reduced and summer stream flow in the Teanaway is lower.

Habitat function in Indian is also degraded by historic and ongoing ungulate grazing in the area. Recruitment of cottonwood and other woody riparian vegetation appears to be much less than is observed in other watersheds where less grazing occurs.

Two recent projects have been implemented to improve habitat in Indian Creek. The DNR abandoned approximately a mile of stream-adjacent road. Also, Kittitas County Conservation District secured funding from the Salmon Recovery Funding Board to restore fish passage into Indian by replacing the old, undersized culvert at USFS Rd 9737 (mainline Teanaway road) with an arch culvert that provides good passage for all fish life stages.

Improving late-summer stream flow is critical for natural resource stewardship in the Teanaway watershed. Much has been done on private lands downstream – irrigation infrastructure has been improved and surface water rights have been leased or purchased. However, future predictions infer that low flows in the Teanaway are likely to worsen. Average monthly flows from April to July have declined between ~15% and 50% over the past 60 years according to US Geologic Survey. Restoration in the headwaters, such as Indian watershed, is needed.

Indian Creek provides a significant opportunity to support the water, fish, and wildlife enhancement goals in the Teanaway Community Forest (TCF). The actions described below are intended to improve ground water storage while also improving fish and wildlife habitat conditions for riparian-dependant species. Accordingly, this project is

INDIAN CREEK FLOODPLAIN RESTORATION PROJECT - TEANAWAY RIVER BASIN

SEPA Environmental Checklist (WAC 197-11-860)

JULY 23, 2014

PREPARED FOR:

WASHINGTON STATE DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE
15 WEST YAKAMA AVE, SUITE 200
YAKAMA, WASHINGTON 98902

PREPARED BY:

WASHINGTON STATE DEPARTMENT OF FISH AND WILDLIFE
201 NORTH PEARL STREET
ELLENBURG, WASHINGTON 99026

IN COORDINATION WITH
YAKAMA NATION YAKMA-KLIKITAT FISHERIES PROJECT
401 FORT ROAD
TOPPENISH, WASHINGTON 98948

AND
WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES
713 BOYERS ROAD
ELLENBURG, WASHINGTON 99026

Table of Contents



Confederated Tribes and Bands of the Yakama Nation

Established by the Treaty of June 9, 1855

August 29, 2014

Mr. Phil Anderson, Director
Washington Department of Fish and Wildlife
600 Capitol Way NE
Olympia, WA 98501-1091

Re: Indian Creek habitat restoration

Dear Phil,

I am writing to acquaint you with a cooperative effort between the Yakama Nation, WDFW, and WDNR to restore stream function and fish habitat in Indian Creek in the Teanaway watershed. Indian Creek is within lands currently owned and managed by WDNR for School Trust revenues. These lands are scheduled to be transferred into the Teanaway Community Forest when that process is finalized. The vision for the Community Forest includes habitat restoration projects that produce public benefits by improving the structure and function of stream habitat and increasing the capacity of the watershed to store water and to thereby improve stream temperature and flows.

We appreciate that WDFW is partnering with us to implement this project. As part of the partnership, WDFW has agreed to act as project sponsor for purposes of coordinating with WDNR. The partnership also includes an adaptive management plan (AMP) that describes project objectives, actions, monitoring, and responsible parties for ensuring that the project functions as intended for the next three years. The Yakama Nation will implement this project according to the terms of the AMP, including the project monitoring and response actions in the event they are needed.

**Request for Bids
Habitat Restoration Project
Phase 1
Monday, September 29, 2014**

This habitat restoration project is located in Indian Creek, a tributary to the North Fork Teanaway River. This is an adaptive project managed by Yakama Nation Fisheries, funded through an agreement with the Bonneville Power Administration (BPA), and will be done in collaboration with Washington Departments and Fish and Wildlife and Natural Resources. The project objectives are to improve habitat for fish and wildlife, reduce flood risk to downstream infrastructure, and improve stream flows during late summer.

The project will be done cooperatively with the contractor, tribal and state resource managers who will observe implementation and provide recommendations as needed to improve effectiveness. The manager (Yakama Nation) will require cooperative problem-solving and will adapt the project to maximize effectiveness given the limitations on funding that is available. The project area is large, funding is limited, thus the project activities will continue until all available funding is expended, unless adverse weather persists or unless problems arise with contract implementation.

The successful bidder will be required to comply with the Yakama Nation Tribal Employment Rights Ordinance (TERO), which requires that half of the laborers be enrolled tribal members or their descendants, and payment of 3% of the contract amount to the TERO office.

Interested contractors must provide examples of past restoration work involving heavy equipment and selective timber harvest work in sensitive areas including riparian floodplains. Operators and supervisor(s) for this project must have been involved in the example projects. Please provide responses to the following questions, and prices for fixed costs, lump sum and hourly rates as requested in the attached table.

- The portion of this project that will be implemented by a heavy equipment contractor involves the following:
1. Harvest and transport of trees with rootwads from a site near Cle Elum, Washington. The trees are owned by BPA, and the stand will be thinned to promote variable density down to 70 trees per acre. Average spacing of 22-30', leaving all Dominant Pine and Douglas fir. Trees will be thinned to retain trees with the fullest, deepest crown, and dominant tree height, with widest spacing around dominant trees. An objective is to release dominant trees and thin the mid story for 20 years of free growth with a low risk of insect and disease. Some of the trees may be removed and transported with rootwads intact.
 2. Harvest of trees within 200' of a 1.5 mile access road along the North side of Indian Creek. This road is not open to public, motorized use. Trees will be thinned from below to retain greater than 60% crown closure. Approximately 40-50 trees will be removed with rootwads attached from adjacent to the road.
 3. Transport and placement of all harvested material including forest slash in the stream and adjacent floodplains under the direction of a Yakama Nation Biologist.

The bidders are encouraged to include as an option in the bid response the use of biodiesel (B20 or greater) in all equipment associated with this work.

This project must be completed by February 1, 2015. Weather that will require temporary shutdown includes conditions that are wet enough to allow for soil displacement. Frozen ground is acceptable, but permit conditions will not allow for blading the roads, so snow depth is also a factor that could stop the project.

Davis Bacon wages will be required for all workers. A sample contract from Yakama Nation is included as a separate attachment.

CULTURAL RESOURCES REPORT COVER SHEET

Author: Jon D. Shellenberger, Gregg Klona

Title of Report: Cultural Resources Survey of the Indian Creek Floodplain Restoration Project

Date of Report: September 16, 2014

County(ies): Kittitas Section: 16Township; 21Range; 16E
 Quad: Red Top Mtn. Acres: 138 Acres

PDF of report submitted (REQUIRED) Yes No

Historic Property Inventory Forms to be Approved Online? Yes No

Archaeological Site(s)/Isolate(s) Found or Amended? Yes No

TCP(s) found? Yes No

Replace a draft? Yes No

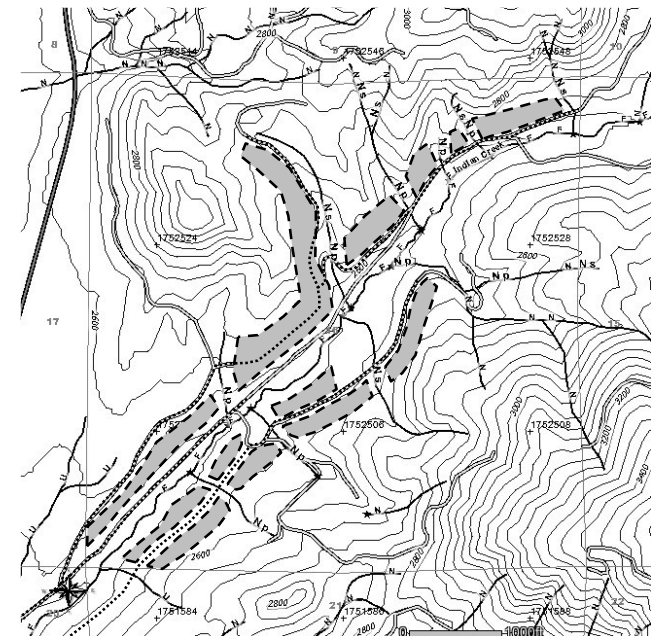
Satisfy a DAHP Archaeological Excavation Permit requirement? Yes No

Were Human Remains Found? Yes DAHP Case # No

DAHP Archaeological Site #:
 45KT3738
 45KT1262
 45KT1260
 45KT1244
 45KT3739

- Submission of PDFs is required.
- Please be sure that any PDF submitted is DAHP has its cover sheet, figures, graphics, appendices, attachments, correspondence, etc., compiled into one single PDF file.

Content status: Add text Subject: Specify the subject



5/13/2014, 1:05:30 PM
NAD 83
Contour Interval: 40 Feet



License No. 60-SE1303 DNR Region: Southeast
County: Kittitas

License Authorization Period: FROM February 1, 2013 THROUGH July 31, 2019

Specify other times as applicable: N/A

License Area (Legal description/other identifying description): Section 16, Township 21 North, Range 16 East, W.M.

Name of Licensee: Washington State Department of Fish and Wildlife (WDFW)

Address: 1701 S 24th Ave.
Yakima, WA 98902
Phone: 509-575-2740

hereinafter referred to as "Licensee," is hereby authorized by the Washington State Department of Natural Resources, hereinafter referred to as "DNR," during the specified time period to use State Trust Lands. The following activities are permitted uses granted by the State to WDFW, land as the above-described location, and/or the facilities (improvements) listed below:

1. Use motorized vehicles on Indian Creek Forest Road to access Indian Creek for restoration activities and stage equipment/store supplies;
2. Access to site to conduct surveys to continuously monitor the site to evaluate success of restoration efforts – request restoration efforts as necessary to ensure maximum ecological benefits; and
3. Access and opportunity to conduct stream flow monitoring that may include installing instrumentation (gauging stations, staff gauges, bench marks, hydrologs, etc), walking within the stream, and conducting water quality/quantity sampling.

Performance Security: None Required Amount \$

Liability Insurance Required: Yes
(see Addendum A, Insurance Requirements, for specifics)

Title of Project: Indian Creek Floodplain Restoration Phase One

Monday, July 21, 2014

Contents

1. Purpose of Adaptive Management
 The purpose of adaptive management for this restoration project is to ensure effective implementation, fulfillment of all habitat objectives, while fulfilling requirements for risk containment within specified parameters.

2. Project Background
Project proponent: Yakama Nation Yakma-Klikitat Fisheries Project
Project partners: Washington Department of Fish and Wildlife and Washington Department of Natural Resources
Project Purpose: The USGS has documented declining baseflows and earlier season runoff in the Teanaway over the last six decades. Neither of these phenomena bode well for cold-water fish including mid-Columbia steelhead and bull trout, both of which are ESA-listed "threatened". The purpose of the Indian Creek floodplain restoration project (project) is to improve stream base flow by reconnecting the stream to associated meadows. Indian Creek is a seven square mile watershed that flows in to the NF Teanaway River. Indian Creek is poorly connected to adjacent meadows due to past management including ranching, railroad construction and logging. The project will implement modest, silviculturally-sound forest thinning to generate woody material that is then placed strategically in the stream and floodplain. The woody material will impede the flow of water during high discharge, in turn inundating adjacent meadows. Meadows will become saturated with floodwater, the groundwater table will rise, which will flow during the summer in areas downstream of the project. This hydrograph dampening occurs where streams support and are well-connected to adjacent meadow/floodplain systems. Indian Creek will become better-connected to the meadow system with strategic wood placement. This project will build upon past successes utilizing low cost restoration techniques in other drainages to the Yakima including Break and Tanam Creeks.

Objectives of Adaptive Management Plan: The adaptive management objectives are tied to specific project goals.

Project Goal 1: Improve fish and wildlife habitat
 Adaptive Management Objective 1A: Increase stream base flow
 Adaptive Management Objective 1B: Improve riparian conditions
 Adaptive Management Objective 1C: Increase instream habitat complexity
 Adaptive Management Objective 1D: Reduce stream maximum temperature
 Adaptive Management Objective 1E: Increase suitable habitat for beaver recolonization

Project Goal 2: Maintain or improve access for recreation in project vicinity
 Adaptive Management Objective 2A: Maintain existing public access into Indian Creek watershed at the pre-project level.

Project Goal 3: Do not adversely affect flooding or erosion on downstream private properties
 Adaptive Management Objective 3A: Install the project in a manner that maintains or reduces peak discharges at the downstream terminus of the Indian Creek watershed.

Length of Adaptive Management Plan: Date of signature until September 30, 2017.

All aspects of this adaptive management plan have been agreed to by Yakama Nation YKFP and WDFW. (add date). These

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 Add text Subject: Specify the subject Date created: 7/25/2014 11:14 AM