FORPRIEM

Forest Practice Rules Implementation & Effectiveness Monitoring
(Formerly known as Modified Completion Report (MCR) Monitoring)

Monitoring Procedures and Methods

Revised September 14, 2007

Overview

The objective of the Forest Practice Rules Implementation & Effectiveness Monitoring (FORPRIEM) Program is to provide abundant data on the adequacy of the implementation and effectiveness of those Forest Practice Rules (FPRs) specifically designed to protect water quality and riparian/aquatic habitat. FORPRIEM (pronounced "for-prime") uses information collected during completion inspections for Timber Harvesting Plans (THPs). FORPRIEM is a continuation of monitoring that was previously completed under the Modified Completion Report (MCR) Monitoring Program (Brandow, Cafferata and Munn 2006). The results from the MCR Monitoring Program conducted from 2001 to 2004 are available on-line in report published by CAL FIRE in 2006 at:

http://www.bof.fire.ca.gov/pdfs/MCRFinal_Report_2006_07_7B.pdf

Following are the FORPRIEM Methods and Procedures, which are an updated revision of the MCR Methods and Procedures. USE THESE METHODS AND PROCEDURES FOR FORPRIEM MONITORING. DO NOT USE THE MCR METHODS AND PROCEDURES. FORPRIEM includes three sampling protocols:

1) **WLPZ Canopy/Surface Cover Sampling Method**
2) **Road Sampling Method**
3) **Watercourse Crossing Sampling Method**

These methods will be applied to a random selection of approximately 10% of THPs with filing dates between 2002 and 2011, as the selected plans are completed. Lists of THP numbers randomly selected for FORPRIEM monitoring are included Appendix A-1.

On each listed THP, the following four randomly selected sample sites will be evaluated: 1) a 200-foot segment of Class I or II WLPZ, 2) a 660-foot ($1/8^{th}$ mile) segment of road, and 3) two Class I, II or III watercourse crossings. In the event a suitable sample site is not available on a listed THP, the method form should be turned in with a notation: "Not applicable to this THP."

The selected monitoring sites will be evaluated at the time of the final Completion Report inspection(s). The sample road and the two sample watercourse crossings can be monitored for both implementation and effective on this first evaluation if each has gone through at least one winter season. In the event the selected road segment and/or the two sample watercourse crossings have not yet been through at least one winter season, a return visit (maintenance inspection) to those sites will be necessary to monitor for

effectiveness in preventing erosion, sediment transport, and sediment transport to stream channels.

The FORPRIEM monitoring forms are attached to these instructions in Appendices A-2, A-3 and A-4 and are suitable for photocopying. Copies of the completed forms along with a photocopy of the THP map showing the location of the sample sites shall be sent to the Audit Forester for the Forest Practice Area where the THP is filed.

Field instruction on selecting the sample sites, evaluating the sites and completing the forms is available by contacting Clay Brandow at clay.brandow@fire.ca.gov or (916) 653-0719. If you have questions regarding FORPRIEM please contact Clay Brandow, Pete Cafferata, John Munn or your Audit Forester at their respective email addresses and phone numbers listed in CAL FIRE Outlook.

List of Items to take to the Field

- FORPRIEM Methods and Procedures for reference
- FORPRIEM Forms: WLPZ (1), Road (1), and Watercourse Crossings (2)
- THP file for reference
- THP WLPZ Map(s) with WLPZs segmented and sample segment randomly selected
- THP Road Map(s) with roads segmented and sample segment randomly selected
- Erosion Hazard Rating (EHR) from THP for randomly selected road segment
- Map scale or ruler, plus dividers (optional)
- Pencil, clipboard, and extra paper or notebook
- White flagging and marking pen
- Sighting tube
- Clinometer
- Hip-chain (String Box) with extra string
- Pocket tape measure or logger's tape
- Digital camera

Random Selection of THPs

FORPRIEM evaluations will be conducted at the time of the completion inspections on an approximately 10% random sample of THPs that have been or will be filed with CAL FIRE between the year 2002 and the year 2011. The middle number in a typical THP number indicates the year it was filed. For example, for the hypothetical THP number 1-04-999, the filing year would be 2004. Appendix A-1 contains randomly selected lists of FORPRIEM THPs for each filing year up to 2011.

THP numbers on the lists that will not go through an inspection report in the future for one reason or another should be crossed-off. Examples are THPs that have been withdrawn, administratively closed or that have already gone through a final completion inspection. Also, for years prior to the current calendar-year, cross-off hypothetical THPs numbers that were never assigned to a THP. Crossing-off these numbers does not

affect the sample size of approximately 10% of the THP going through completion report inspections.

Theses lists were generated using a Monte Carlo type method, which is basically a roll of the dice on each hypothetical THP number that was run through the program. This method eliminates the need to know how many plans will be filed by Region in future years. It also eliminates the need to know in advance which plans will not receive a completion inspection is the future. The program for generating these lists was written by Tim Robards in collaboration with Clay Brandow.

1) WLPZ Canopy/Surface Cover Sampling Method

Figure 1. Pete Cafferata making WLPZ canopy cover measurements using a sighting tube.

The WLPZ canopy/surface cover sampling procedure is to be completed once at the time of the Completion Report inspection. This FORPRIEM method is a modified version of Procedure 1 of the PHI and potential enforcement actions method developed by Robards (1999). The number of sighting tube observations is 50, as compared to 100 for the enforcement procedure. The inspector will also record the average WLPZ width based on pacing within the segment sampled for canopy cover and will record erosion features in the sample segment (i.e., gullies, rills, mass failures, or areas of sediment deposition).

Using a similar procedure for FORRIEM WLPZ canopy/surface cover sampling, pre-harvest inspections (PHIs), and enforcement has several advantages, including simplicity, continuity, and reducing the need for additional training. In addition, the data will be comparable. The enforcement data represents the worst-case post-harvest WLPZ conditions, while FORPRIEM represents the average WLPZ conditions. FORPRIEM data also allows us to look at trends in average post-harvest WLPZ conditions.

Selecting a WLPZ segment. The FORPRIEM method differs from Procedure 1 in the way the sample WLPZ segment is selected. Rather than selecting the least stocked reach for sampling, as in the enforcement method, in the FORPRIEM method the Class I and II watercourses on the THP are divided into 200-foot long, numbered segments on the THP map. Then using a random number table or calculator with a random number generator function, the inspector will generate a random number between the highest and lowest road number segment on the THP map. The segment that matches this number is the WLPZ segment to be evaluated, with two possible exceptions: 1) the WLPZ segment contains a road, watercourse crossing, cable yarding corridor or some other permitted large opening in the canopy, or 2) the WLPZ is deemed to be too dangerous to monitor

due to extreme terrain or some other reason. In the case of these two exceptions, randomly select an alternate WLPZ segment to evaluate. (Note that when using a random number table, cross off numbers as they are used, so they will not be used a second time.)

Figure 2 shows a typical THP map with 200-foot WLPZ segments marked off and numbered. The randomly selected segment is circled. A copy of the marked-up map used for selecting the WLPZ segment shall be submitted with the completed FORPRIEM WLPZ monitoring form.

Note that in many situations, like the one presented in Figure 2, more then one map will be needed. All segments shall be consecutively numbered for any given THP regardless of the number of maps. These maps often overlap, so care must be used to assign only one number to each 200-foot WLPZ segment.

Where only one side of the creek was harvested along the WLPZ segment to be evaluated, measure the side of the creek where this harvesting took place. Where both sides of the creek were harvested along the WLPZ segment to be evaluated, a flip of a coin shall be used to determine whether to measure the right or the left bank of the WLPZ.

WLPZ Canopy Sampling Procedure. Regardless of the size of the area, 50 points will be the target sample size. The following formula calculates the distance (D) between points. Width and length refer to the width and length of the WLPZ section to be sample.

$$D = \sqrt{\frac{width \times length}{50}}$$

Since for FORPRIEM the sample length is a standard 200 feet, this equation can be simplified, as follows:

$$D = 2\sqrt{width}$$

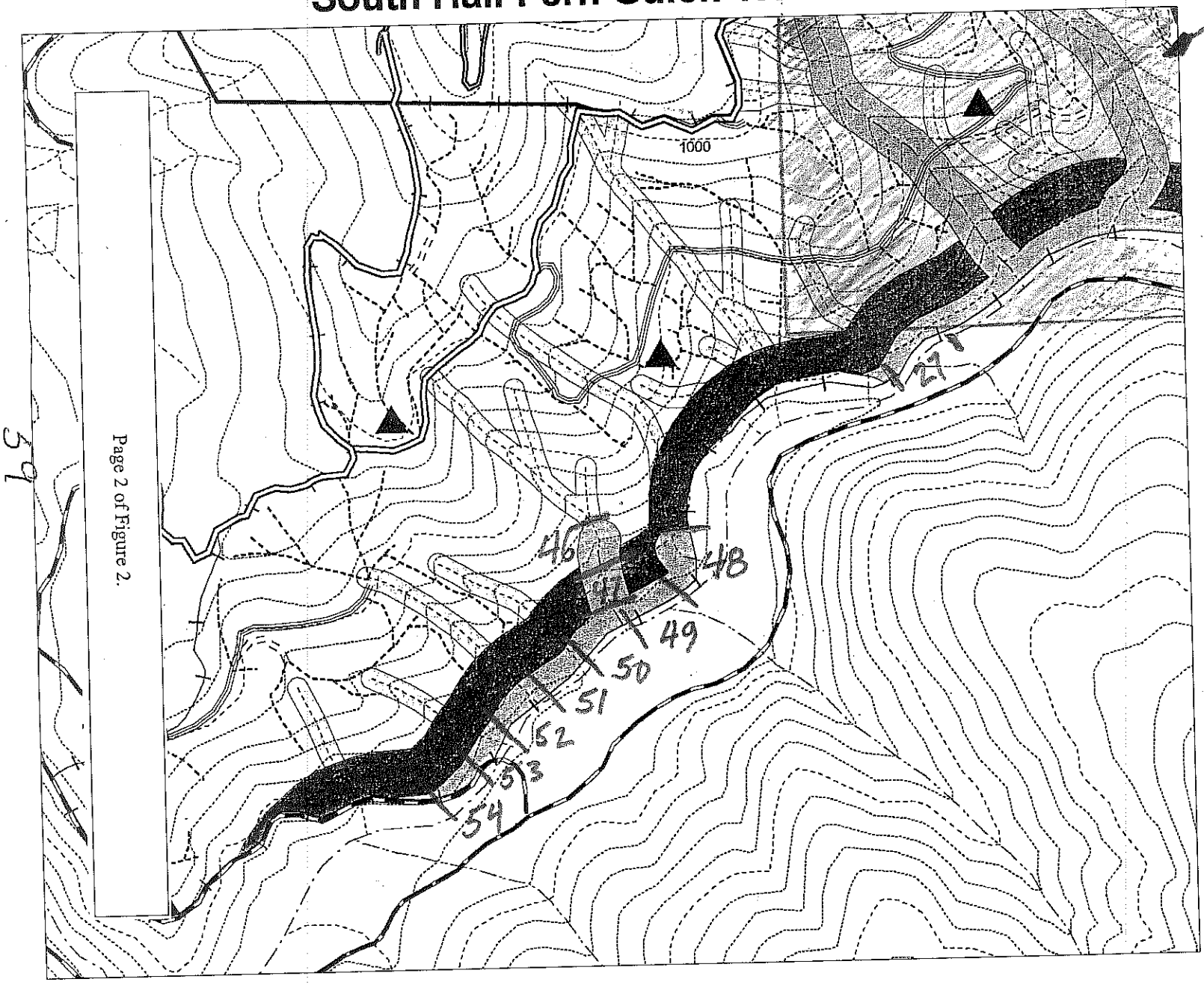
Using this formula for standard WLPZ widths of 50, 75, 100, 150 and 200 feet, D is 14, 17, 20, 24 and 28 feet, respectively. For other WLPZ widths, the inspector will need to calculate D using the above formula.

The WLPZ width to utilize when calculating D is the width stated in the THP. **Once the field sampling begins, continue to use the calculated D, even if the actual WLPZ width flagged on the ground is considerably wider than that stated in the plan. If the WLPZ width varies due to slope and the flagging results in a narrower WLPZ than was anticipated, do not take a sample point above the flag line.** Simply turn 90 degrees and begin a new line going in the downhill direction. Stop when 50 points are achieved, regardless of whether this results in a line being completed.

Figure 2. Typical THP maps with 200-foot WLPZ segments marked off and numbered, and the randomly selected segment circled. Note the north half map and the south half map overlap. In this situation be careful to assign only one number to each 200-foot WLPZ segment. Please include a copy of the marked-up map you used for WLPZ segment selection (like this one) with your completed FORPIEM WLPZ monitoring form.

Silviculture Methods

South Half Fern Gulch THP



Page 2 of Figure 2.

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Area Overlaps with North Half Fern Gulch THP Map

Legend

SDSF Roads
- Existing Seasonal
- Reconstruction Seasonal
- Proposed Seasonal
- Proposed Temporary
- Private Road (No Tresspass)
- County Road
- Tractor Road

Watercourse
- Class I
- Class II
- Class III

THP Boundary

Soquel State Forest

Alternative Regen.Method

Selection Silviculture
Class I & II WLPZ
Late Seral Management Area
Class III ELZ

Soquel Demonstration State Forest

N
W E
S

Contour Interval = 40'

0 200 400 600 800 Feet

1

Start in the corner of WLPZ segment at the watercourse transition line. The first measurement needs to be randomized. To randomize the first point, generate a random number between 0 and 1 using a random number table or random number generator. Then multiply this random number times D to calculate to distance to the first measurement point. For example, if D is 17 feet and the random number generated is 0.3, then the distance to the first measurement point from the watercourse transition line is 17 feet x 0.3 = 5.1 ≈ 5 feet. Pace 5 feet away from and perpendicular to the watercourse transition line. This is your first point. Collect **total canopy** data for this point using a vertical sighting tube **(i.e., do not try to differentiate between overstory and understory vegetation).** After the first sighting tube point, the distance to the next measurement point will always be D. From the first sighting tube measurement point, pace D feet to the next point away from and perpendicular to the watercourse. Continue to collect points on the line until the next point will exit the WLPZ. Then change direction 90°, pace D feet, and start a new line, this time heading towards the watercourse. The resulting pattern will look something like Figure 3.

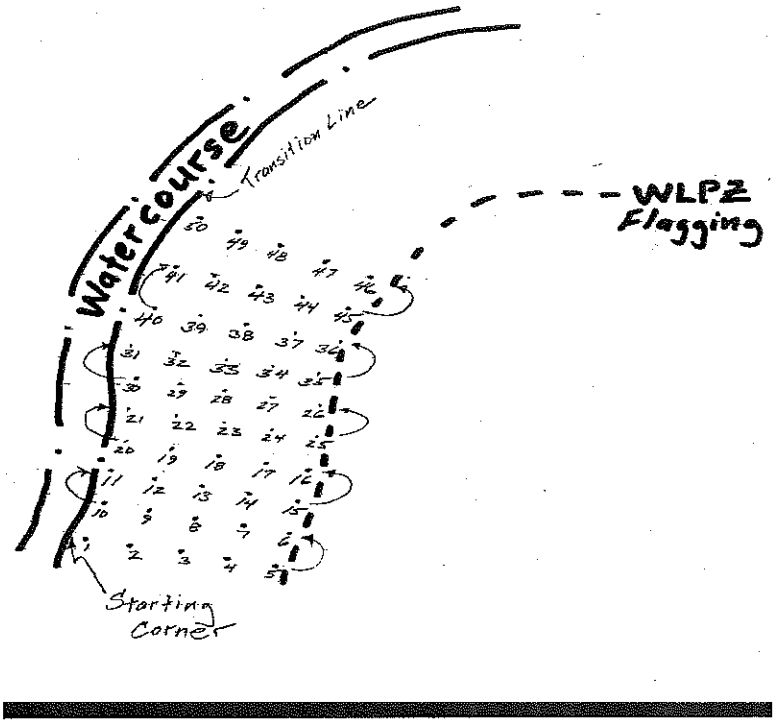

Figure 3. Typical pattern of canopy sighting and groundcover observation points within a typical randomly sampled WLPZ segment.

When using the vertical sighting tube at each point, first level it using the horizontal and vertical bubbles. Align the dot center by holding the tube steady and moving your head to put your eye in the correct position. The dot is then evaluated as to whether it intercepts canopy. Figure 4 shows a typical sighting tube. Hits are recorded as "+" in the hit column and misses are recorded as "-" in the miss column on the form provided. A blank form, suitable for photocopying, is included in Appendix A-2. If deciduous trees are encountered in the winter without leaves, it is permissible to assume that leaf cover

would be present in the summer. However, if hardwoods are present, it is best to attempt to do this work prior to winter.

On the bottom of the first page, there are a series eight (8) questions requiring ocular estimates with the WLPZ sample segment. Carefully observe the conditions within the WLPZ sample segment and circle the appropriate answer to each question based on what was observed.

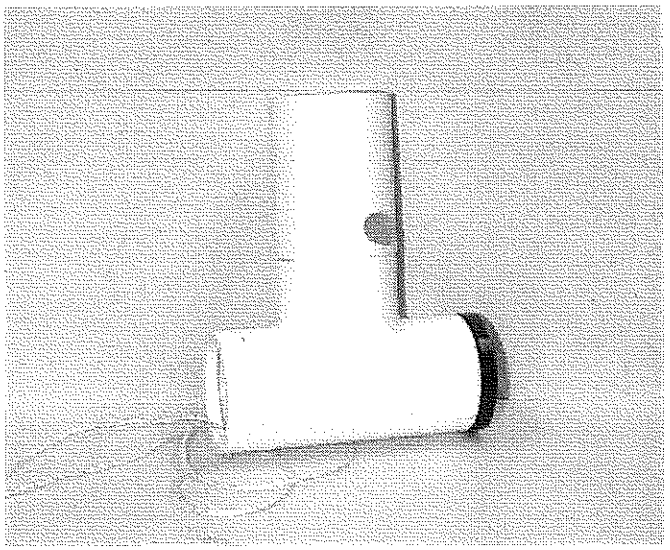

Figure 4. Example of a sighting tube used for making WLPZ canopy measurements.

Additionally, note and record fresh erosion features in the sample segment on the second page of the WLPZ form. A copy of this form that is suitable for photocopying is provided in Appendix A-2. A check box for "No erosion features observed in the sample WLPZ segment" is included on this form. In the event there are erosion features present, at each point in the sample WPLZ segment where erosion or deposition is observed, note the nearest canopy sample point by number, the type of erosion feature (i.e., gully, rilling, mass failure, or areas of sediment deposition), whether the feature is related to the current logging or not (yes or no), and the feature's approximate size (width, depth, and length) in feet. Record dimensions to the nearest half foot (0.5 feet). Record each erosion feature (e.g., gully, rill) only one time, even though if may be crossed or observed at several sample points. In the comments column, note the cause of the problem and if any sediment was transported to the channel.

Figure 5 is a completed WLPZ sample form. The first page records WLPZ canopy and the second page records erosion features. It is important to fill the forms out completely to assure good quality data. It is also very important to record the THP number, observer(s) and date on each page of the form in case the pages get separated.

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WLPZ Canopy Sampling Form

Revised 9/14/07

THP No. 1-04-XXX
Observer(s) C. Brandow, P. Cafferata, J. Munn
Date 2-29-07

Estimated total length of Class I stream in this THP 5 600 feet.
Estimated total length of Class II stream in this THP 4 800 feet.
(Estimate by counting the number of segments delineated on the THP map for the random selection of sample a 200 foot WLPZ segment and multiply by 200.)

CALWATER Planning Watershed No. 3304.13010
Watercourse Class I or (II) (Circle the class that applies to the sampled segment.)

Target sample length is 200 feet.
Actual WLPZ sample length 200 feet.

Prescribed WLPZ width (from THP) 75 feet.
Actual WLPZ width (based on flagging) 75 feet.
Sampled WLPZ width 75 feet.

D = Distance between sample points.
(For standard WLPZ widths of 50, 75, 100, 150 and 200 feet, D is 14, 17, 20, 24 and 28 feet, respectively.)

$D = 2\sqrt{\text{width}}$ = 17 feet.

100 x (Hits) / (Hits + Misses) = 88 % Canopy Cover.

Ocular Estimates within the WLPZ sample segment (circle one per question):

1. Harvesting in WLPZ segment this entry? (YES) NO
2. Percent Canopy removed this entry? 0-10% (10-30%) 30-50% ≥ 50%
3. Understory canopy remaining ≥ 50%? (YES) NO
4. Overstory canopy remaining ≥ 50%? (YES) NO
5. Class I watercourse in a T&I watershed? (YES) NO
6. Overstory meets T&I standards? N/A (YES) NO
7. WPLZ Groundcover (live&dead) ≥75 %? (YES) NO
8. Untreated patches of bare mineral soil in WLPZ ≥ 800 sq.ft. or as specified in THP? (ABSENT) PRESENT

Points	Hit (+)	Miss (-)
1.	+	
2.	+	
3.	+	
4.	+	
5.	+	
6.	+	
7.	+	
8.	+	
9.	+	
10.	+	
11.	+	
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.	+	
Totals	44	6

Figure 5. Example of a completed FORPRIEM WLPZ form for purposes of demonstration. Note that both pages of the form are completed and that the THP number, the names of the observers and the date have been filled in on each page.

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WLPZ Erosion Features Form

Revised 9/14/07

THP No. 1-04-XXX
Observer(s) C. Brandow P. Cafferata, J. Munn
Date 2-29-07

1. Were erosion features observed in the sample WLPZ segment (circle one)?

(YES) **NO**

2. If the answer to the above question is YES, please complete one row in the table below for each erosion feature observed. Use additional sheets if necessary.

Point Number (Nearest WLPZ canopy measurement point.)	Erosion Feature Type (rills, gully, or sediment deposition.)	Related to the Current Entry (circle one)	Width (feet)	Depth (feet)	Length (feet)	Comments (Please note the cause of the problem and if any sediment was transported to the channel.)
45	Gully	(Yes) No	2	1.5	16	Originated at skid trail just outside WLPZ. Deposition in Channel
		Yes No				
		Yes No				
		Yes No				

Figure 5.
Page 2 of 2 .

2) Road Sampling Method

Figure 6. Pete Cafferata recording road observations at a rolling dip. Orange box on his right hip is a hip-chain which meters-out string for tracking distances of specific road-related features along the sample segment.

One 660-foot (1/8 mile) road segment will be sampled on each selected THP if available. To randomly select a road segment, make a copy of the THP map(s) showing the roads. Using a scale or dividers and a pencil, divide the THP roads into 660-foot segments. Then number the segments. Do not include roads, such as county roads, where the landowner does not control road use and maintenance. Using a calculator with a random number generator or a random number table (see Appendix A-5), generate a random number between the lowest and highest numbered road segment. Circle the road segment that corresponds to this number. This is the segment to be evaluated. Please include a copy of the segmented THP map(s) with the completed FORPRIEM road evaluation forms. Figure 7 shows a typical set of THP maps with the roads divided into approximately 660-foot segments, the segments numbered, and the randomly selected road segment circled.

The selected road segment will be rated for implementation and effectiveness. Implementation can be rated at the time of the Completion Report inspection. Effectiveness may be rated during the same visit if the selected road segment has been through at least one winter period. If the selected road segment has not been through at least one winter period at the Completion inspection, another visit after the winter period to the site will be necessary to evaluate the road segment for effectiveness.

The road form has six (6) pages. The first page records site information, pages 2, 3 and 4 record implementation, and pages 5 and 6 record effectiveness. With exception of the space provided for comments at the end of page 6, pages 5 and 6 should not be completed until the watercourse crossing being evaluated has been through at least one winter period. A blank road form suitable for photo copying is included in Appendix A-3.

Road Construction and Reconstruction

North Half Fern Gulch THP

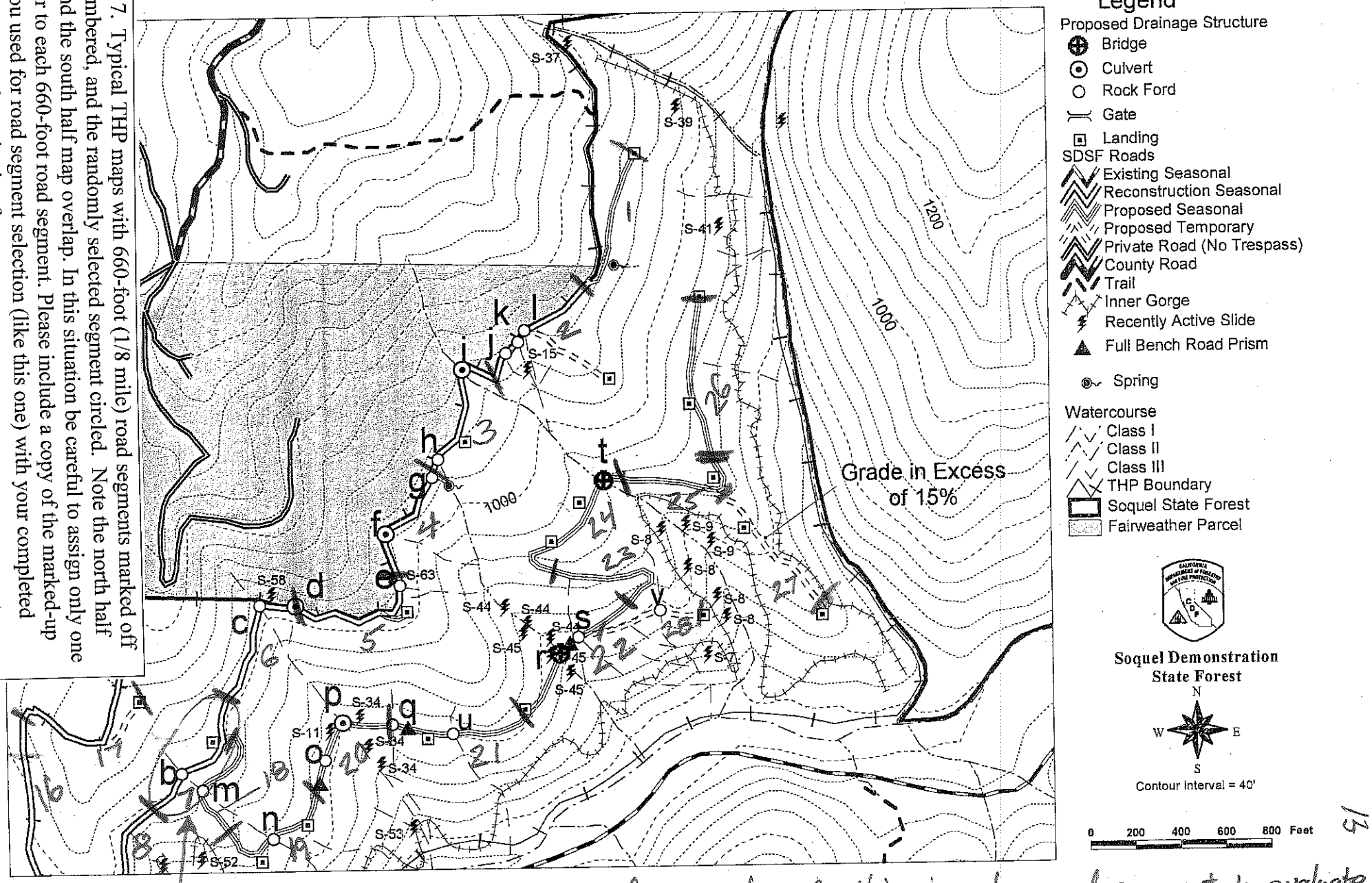

Figure 7. Typical THP maps with 660-foot (1/8 mile) road segments marked off and numbered, and the randomly selected segment circled. Note the north half map and the south half map overlap. In this situation be careful to assign only one number to each 660-foot road segment. Please include a copy of the marked-up map you used for road segment selection (like this one) with your completed FORPRIEM road monitoring form.

"7" was the number generated at random, so this is the road segment to evaluate.

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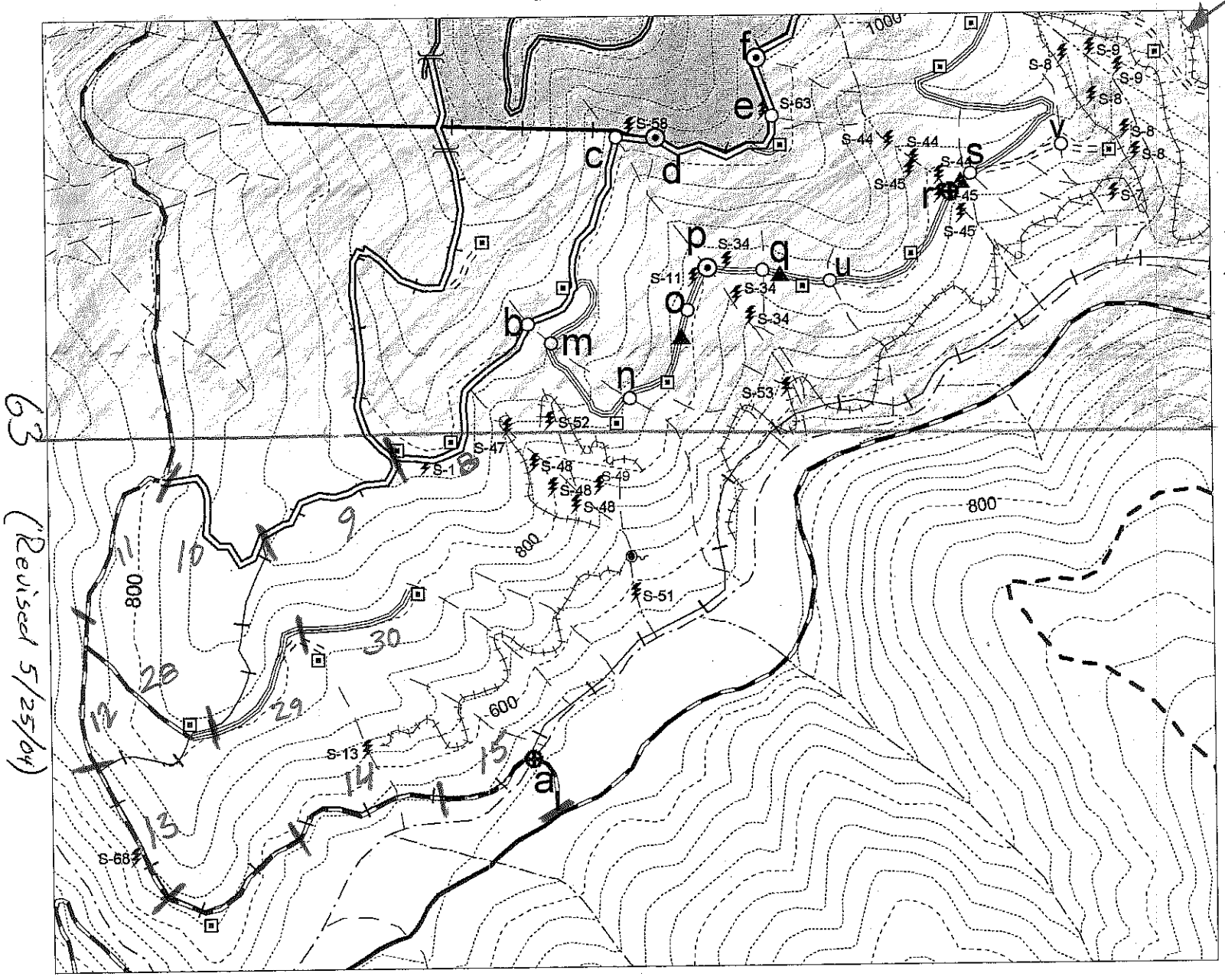
Road Construction and Reconstruction

South Half Fern Gulch THP

Area Overlaps with North Half Fern Gulch THP Map



Legend

Proposed Drainage Structure
- Bridge
- Culvert
- Rock Ford
- Gate
- Landing

SDSF Roads
- Existing Seasonal
- Reconstruction Seasonal
- Proposed Seasonal
- Proposed Temporary
- Private Road (No Trespass)
- County Road
- Trail
- Inner Gorge
- Recently Active Slide
- Full Bench Road Prism
- Spring

Watercourse
- Class I
- Class II
- Class III
- THP Boundary
- Soquel State Forest
- Fairweather Parcel

Soquel Demonstration State Forest

N
W E
S

Contour Interval = 40'

0 200 400 600 800 Feet

63 (Revised 5/25/04)

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Figure 7.
Page 2 of 2.

Find the starting point of the selected road segment and flag it with the following information "THP# X-XX-XXX start FORPRIEM road segment." Complete the site information on the first page of the road form. You will need to look-up the Erosion Hazard Rating (EHR) for the selected road segment in the THP. The last question on the first page is "Recommend follow-up monitoring of this site based on problems found?" If significant erosion or any sediment transport to channels is found, circle "yes" in response to this question. Follow-up monitoring may be recommended for other reasons as well, such as failure of an adequately implemented FPR or mitigation measure to adequately control erosion.

Complete pages 2, 3 and 4 of the road form based on your observations of the road segment and drainage system. The form segments the road into sixty-six (66) 10-foot increments, starting on page 2 and ending on page 4. On the line labeled "Road Construction", choose the appropriate letters for each increment from the following: "CF" for cut & fill, "TC" for through-cut, "TF" for through-fill, or "FB" for full-bench cut. Indicate the location of each watercourse crossing in the road segment by inserting the appropriate following letter symbol in the corresponding box:

B = bridge	C = culvert	P-A = pipe-arch	OBA = open-bottom arch
Ford = Ford	A = abandoned	O = other	

On the line labeled "Road Surface," choose the appropriate letters for each increment from the following: "OS" for out-slope, "IS" for in-slope, "FL" for flat, or CR "crowned road surface" (i.e., road drains away from the highpoint in the middle towards both edges). Mark the appropriate boxes where there is an outside berm with a break. Mark the appropriate boxes where there is an inside ditch and indicate the location of ditch relief features with either a "C" for culvert, a "D" for dip, or an "O" for other. Rate the maintenance of each inside ditch and by circling "E" for exceeds rule, "A" for acceptable, "MA" for marginally acceptable, or "D" for departure.

Mark the location of waterbreaks and other road drainage structures with a "WB" for waterbar, an "RD" for rolling dip, "NL" natural low point, or "O" for other. Using a clinometer, measure the gradient between waterbreaks and record it on the next line about mid-way between waterbreaks indicated on the line above. Indicate whether it is upgrade (+) or downgrade (-) to the next waterbreak by using a plus (+) or minus (-) symbol or a minus in front of the percent road gradient. On the next line directly below each measurement of road gradient, record the estimated side slope of the natural terrain. Rate each waterbreak/drainage structure for implementation by circling the appropriate letter (E for exceeds rule, A for acceptable, MA for marginally-acceptable, or D for departure). Rate each waterbreak/drainage structure on whether it discharges into cover and not on to erodible fills by circling the appropriate letter (E, A, MA or D). Note any other implementation problems by making X-marks in the appropriate boxes on the line labeled "Other implementation problems explained in comments section." Briefly explain each of these problem in the comments section or additional sheets of paper. Refer to each problem by the road increment it affects. For example, if you observe an implementation

problem at 175 feet from the staring point, mark the box "170-180" and refer to it in the your comments as problem 170-180.

After the road segment has been through at least one winter, complete page 5 and 6 of the road form based on your observations of erosion, sediment transport beyond the road prism (e.g., toe of the fill), and sediment transport to watercourse channels. The form uses the same 10-foot increments as used for the implementation evaluation starting on page 5 and ending on page 6. Using the erosion symbols listed (both below and on the form), record erosion observed on the cut slope, the road surface, and the fill slope. Use the comment section at the end of page 6 to record the location and the estimated dimensions (length, width and depth) of gully, mass wasting, and sloughing erosion with a volume of approximately 3 cubic yards or more.

RT = ruts
R = rills (< 6" deep)
G = gullies (≥ 6" deep)
M = mass wasting
S = cutbank or sidecast sloughing
O = other erosion

Where evidence of sediment transport beyond the road prism (e.g., toe of the fill) is found in the selected road segment, write "ST" in the appropriate "Sediment Transport" box to indicate its location. Likewise, where evidence of sediment transport to a channel from the road is found, write "STC" in the appropriate box to indicate the point along road from which the sediment originated. **This step is extremely important – you must determine if sediment reached the stream channel.** Sediment transport beyond the road prism and sediment transport to the transition line of a channel can usually be detected by observing deposition of small amounts of fine sediment left along the margins of the path where sediment was transported (i.e., sediment plumes).

Figure 8 shows a completed road form. If possible, document significant erosion features with annotated digital photos and attach them to the completed road form. Also send labeled digital photos to the appropriate audit/monitoring forester for cataloging.

FORPRIEM

Forest Practice Rules Implementation & Effectiveness Monitoring

(formerly known as Modified Completion Report (MCR) Monitoring)

ROAD FORM

Revised 9/14/07

Site Information

THP No. 1 - 04 - XXX **Observer(s)** C. Brandow, P. Cafferata, J. Munn **Date** 2-29-07

Erosion Hazard Rating (EHR from THP)(circle one): extreme high (moderate) low

Type of road (circle one): permanent (seasonal) temporary abandoned other_____

Type of road surface (circle one): (native-surface) oiled gravel/rocked paved other_____

Position of road segment on slope (circle one): road in WLPZ road adjacent to WLPZ

(mid-slope road) upper-slope road ridge-road

Date of construction (circle one): (prior to THP) part of THP

Current status (circle one): (existing) abandoned

Photos of this road segment were taken, annotated and attached to this monitoring form? Yes (No)

Recommend follow-up monitoring of this site based on problems found? (Yes) No

Figure 8. Example of a completed FORPRIEM road form for purposes of demonstration. Note that all three pages of the form are completed and that the THP number, the names of the observers and the date have been filled in on each page.

ROAD IMPLEMENTATION FORM Appendix A-3

THP No. 1 - 04 - XXX **Observer(s)** C. Brandow P. Cafferata J. Munn **Date** 2-29-07 Page 2 of 6

Distance from the Starting Point in 10-Foot Increments Revised 9/14/07

	000 010	010 020	020 030	030 040	040 050	050 060	060 070	070 080	080 090	090 100	100 110	110 120	120 130	130 140	140 150	150 160	160 170	170 180	180 190	190 200	200 210	210 220
Road Construction CF=Cut & Fill, TC=Thru-Cut TF=Thru-Fill FB= Full Bench Cut	TF	—	—	—	—	—	TF	CF	—	—	—	—	—	—	—	—	—	—	—	—	—	CF
Watercourse Xing B, C, P-A, OBA, F, A, O			C																			
Road Surface OS=Out-Sloped IS=In-Sloped FL= Flat CR=Crowned	FL	—	—	—	—	—	FL	OS	—	—	—	—	—	—	—	—	—	—	—	—	—	OS
Outside Berm																						
Inside Ditch & Ditch Relief Culvert, Dip or Other	—	C			D	—	—	—														
Rate Maintenance of Inside Ditch & Ditch Relief: (Circle E, A, MA or D)	~~E~~ ~~A~~ MA D	~~E~~ ~~A~~ MA D	E A MA D	E A MA D	(A) MA D	~~A~~ ~~A~~ MA D	~~A~~ ~~A~~ MA D	~~A~~ ~~A~~ MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D
Waterbreaks WB, RD, NL					NL				RD								RD					
Percent Road Gradient between Waterbreaks		-3%				+5%							+3%							+4%		
Percent Side Slope between Waterbreaks		6%				10%							25%							30%		
Rate Waterbreaks constructed with a depth ≥6" into firm roadbed: (circle E, A, MA or D)	E A MA D	E A MA D	E A MA D	E A MA D	(A) MA D	E A MA D	E A MA D	E A MA D	(A) MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	(A) MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D
Rate Waterbreaks discharge into cover and not onto erodible fills: (circle E, A, MA or D)	E A MA D	E A MA D	E A MA D	E A MA D	E A MA (D)	E A MA D	E A MA D	E A MA D	(A) MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A (MA) D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D
Other implementation problems explained in comments section.					X																	

* **E** (Exceeds Rule), **A** (Acceptable), **MA** (Marginally Acceptable), **D** (Departure)

Figure 8.
Page 2 of 6.

ROAD IMPLEMENTATION FORM

THP No. 1 - 04 - XXX **Observer(s)** C. Brandow, P. Cafferata, J. Munn **Date** 2-29-07

Appendix A-3
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Distance from the Starting Point in 10-Foot Increments

Revised9/14/07

	220 230	230 240	240 250	250 260	260 270	270 280	280 290	290 300	300 310	310 320	320 330	330 340	340 350	350 360	360 370	370 380	380 390	390 400	400 410	410 420	420 430	430 440
Road Construction CF=Cut & Fill, TC=Thru-Cut TF=Thru-Fill FB= Full Bench Cut	CF	—	—	—	—	—	—	—	—	—	—	CF	TC	—	—	—	—	—	—	—	TC	CF
Watercourse Xing B, C, P-A, OBA, F, O																						
Road Surface OS=Out-Sloped IS=In-Sloped FL= Flat CR=Crowned	OS	—	—	—	—	—	—	—	—	—	—	OS	FL	—	—	—	—	—	—	—	FL	OS
Outside Berm																						
Inside Ditch & Ditch Relief Culvert, Dip or Other																						
Rate Maintenance of Inside Ditch & Ditch Relief: E, A, MA or D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D
Waterbreaks WB, RD, NL, NH				RD								RD										RD
Percent Road Gradient between Waterbreaks									+6%									+2%				
Percent Side Slope between Waterbreaks									35%									40%				
Rate Waterbreaks constructed with a depth ≥6" into firm roadbed: (circle E, A, MA or D)	E A MA D	E A MA D	E A MA D	E (A) MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	(E) A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E (A) MA D
Rate Waterbreaks discharge into cover and not onto erodible fills: (circle E, A, MA or D)	E A MA D	E A MA D	E A MA D	E (A) MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E (A) MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E (A) MA D
Other implementation problems explained in comments section.																						

* **E** (Exceeds Rule), **A** (Acceptable), **MA** (Marginally Acceptable), **D** (Departure)

Figure 8.
Page 3 of 6.

ROAD IMPLEMENTATION FORM Appendix A-3

THP No. 1 - 04 - XXX **Observer(s)** C. Brandow, P. Cafferata, J. Munn **Date** 2-29-07 Page 4 of 6

Distance from the Starting Point in 10-Foot Increments Revised 9/14/07

	440 450	450 460	460 470	470 480	480 490	490 500	500 510	510 520	520 530	530 540	540 550	550 560	560 570	570 580	580 590	590 600	600 610	610 620	620 630	630 640	640 650	650 660
Road Construction CF=Cut & Fill, TC=Thru-Cut TF=Thru-Fill FB= Full Bench Cut	CF	—	—	—	—	—	—	—	—	—	—	—	CF	TF	—	—	—	—	—	—	—	TF
Watercourse Xing B, C, P-A, OBA, F, O																						
Road Surface 0S=Out-Sloped IS=In-Sloped FL= Flat CR=Crowned	0S	—	—	—	—	—	—	—	—	—	—	—	0S	CR	—	—	—	—	—	—	—	CR
Outside Berm																						
Inside Ditch & Ditch Relief Culvert, Dip or Other											—	—	—	—	C					O	—	—
Rate Maintenance of Inside Ditch & Ditch Relief: E, A, MA or D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D
Waterbreaks WB, RD, NL													RD							NL		
Percent Road Gradient between Waterbreaks					+7%												-3%				+4%	
Percent Side Slope between Waterbreaks					30%												10%				20%	
Rate Waterbreaks constructed with a depth ≥6" into firm roadbed: (circle E, A, MA or D)	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D
Rate Waterbreaks discharge into cover and not onto erodible fills: (circle E, A, MA or D)	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D
Other implementation problems explained in comments section.																						

* **E** (Exceeds Rule), **A** (Acceptable), **MA** (Marginally Acceptable), **D** (Departure)

Figure 8.
Page 4 of 6.

ROAD EFFECTIVENESS FORM

THP No. 1 - 04 - XXX **Observer(s)** C. Barnow, P. Cafferata, J. Munn **Date** 2-29-07

Evidence erosion features associated with this road segment (circle one): **present** **absent**

Erosion Codes: RT=Ruts R=Rills G=Gullies M=Mass Wasting S=Cutbank or Sidecast Sloughing O=Other Erosion

Distance from the Starting Point in 10-Foot Increments

	000 010	010 020	020 030	030 040	040 050	050 060	060 070	070 080	080 090	090 100	100 110	110 120	120 130	130 140	140 150	150 160	160 170	170 180	180 190	190 200	200 210	210 220
Erosion on Cut Slope (insert erosion code)											R	—	—	—	—	—	—	R				
Erosion on Road Surface (insert erosion code)																						
Erosion on Fill Slope (insert erosion code)	RT	—	—	—	—	RT																
Erosion downslope of Fill (insert erosion code)			G																			
Sediment Transport beyond road prism (toe of fill) (insert "ST" in appropriate boxes)			ST																			
Sediment Transport to Channel Transition Line (insert "STC" in appropriate boxes)			STC																			
Other problems (explain in the comments section)																						

Distance from the Starting Point in 10-Foot Increments

	220 230	230 240	240 250	250 260	260 270	270 280	280 290	290 300	300 310	310 320	320 330	330 340	340 350	350 360	360 370	370 380	380 390	390 400	400 410	410 420	420 430	430 440
Erosion on Cut Slope (insert erosion code)		R	—	—	—	—	—	R														
Erosion on Road Surface (insert erosion code)												RT	—	—	—	—	—	RT				
Erosion on Fill Slope (insert erosion code)																						
Erosion downslope of Fill (insert erosion code)																						
Sediment Transport beyond road prism (toe of fill) (insert "ST" in appropriate boxes)																						
Sediment Transport to Channel Transition Line (insert "STC" in appropriate boxes)																						
Other problems (explain in the comments section)												X	—	—	—	—	—	X				

Figure 8.
Page5 of 6.

ROAD EFFECTIVENESS FORM

THP No. 1-04-XXX **Observer(s)** C. Brandow, B. Catterata, J. Munn **Date** 2-29-07

Erosion Codes: RT=Ruts R=Rills G=Gullies M=Mass Wasting S=Cutbank or Sidecast Sloughing O=Other Erosion

Distance from the Starting Point in 10-Foot Increments

	440 450	450 460	460 470	470 480	480 490	490 500	500 510	510 520	520 530	530 540	540 550	550 560	560 570	570 580	580 590	590 600	600 610	610 620	620 630	630 640	640 650	650 660
Erosion on Cut Slope (insert erosion code)																						
Erosion on Road Surface (insert erosion code)																						
Erosion on Fill Slope (insert erosion code)																				R	—	R
Erosion downslope of Fill (insert erosion code)																						
Sediment Transport beyond road prism (toe of fill) (insert "ST" in appropriate boxes)																						
Sediment Transport to Channel Transition Line (insert "STC" in appropriate boxes)																						
Other problems																						

Comments (use additional sheets if needed)

Distance from Starting Point (10-Foot Increments)	Brief Description or Explanation of the feature. (Use additional pages if necessary. Annotated photos may also be attached.)	If applicable: Average Dimensions (Length x Width x Depth to the nearest foot)
000-060	Soil Stabilization needed on loose sidecast materials near watercourse (923.4 (i))	—
020-050	Gully near Crossing.	L x W x D 20' x 2' x 3'
340-390	Rutting on Road Surface in Thru-Cut due to traffic when road was wet. Needs Maintenance.	—

Figure 8.
Page 6 of 6.

3) Watercourse Crossing Sampling Method

Figure 9. Clay Brandow rating implementation and effectiveness of water quality related FPRs at a watercourse crossing.

Two (2) watercourse crossings will be sampled on each selected THP, if available. Each watercourse crossing will be rated for FPR implementation and effectiveness. Implementation can be rated on the first visit at the time of the Completion Report inspection. Effectiveness may be rated the same first visit if the watercourse crossing being evaluated has been through at least one winter period. If the watercourse crossing being evaluated has not been through at least one winter period at the time of first visit, a second visit after the winter period to the site will be necessary to evaluate the watercourse crossing for effectiveness. The watercourse crossing form has three (3) pages. The first page records site information, the second page records implementation and, the third page records effectiveness. The third page should not be completed until the watercourse crossing being evaluated has been through at least one winter period. A blank watercourse crossing form suitable for photo copying is included in Appendix A-4. You need to make two (2) copies of the form for each THP.

Selecting the two (2) Class I, II or III watercourse crossings for FORPRIEM monitoring. Step through the following process until two (2) watercourse crossings (Class I, II or III) are selected (include crossings abandoned as part of the current THP):

1. Select the first Class I, II or III watercourse crossing encountered within the 660-foot randomly selected road segment, if any. (Do not include cross-drain culverts. These are typically used for inside-ditch relief.)
2. Select the second Class I, II or III watercourse crossing encountered within the 660-foot randomly selected road segment, if any.
3. Select the Class I, II or III watercourse crossing that is closest to the 660-foot randomly selected road segment, if any.
4. Select the next closest Class I, II or III watercourse crossing to the 660-foot randomly selected road segment, if any.
5. If steps 1 through 4 did not yield two (2) watercourse crossings for monitoring, repeat steps 1 through 4, this time looking for Class IV watercourse crossings.
6. If steps 1 through 4 did not yield two (2) watercourse crossings for monitoring, crossings on a nearby skid road may be selected for monitoring.
7. If the THP includes no watercourse crossing, fill-out a watercourse crossing form with the THP number, the observer(s) and date. Then write on the form "Not applicable to this THP."

Instructions for Watercourse Crossings.
After selecting the two (2) Class I, II or III watercourse crossings for FORPRIEM monitoring using the stepwise process above, go to the first of the two watercourses. Flag the crossing with the following information "THP# X-XX-XXX FORPRIEM X-ing #1 month-day-year." Mark the location of the crossing on the copy of the THP map to be stapled to the FORPRIEM monitoring forms, and label it either "x-ing #1" or "x-ing #2," as appropriate.

From the watercourse crossing, walk the road in both directions. The length of road to be evaluated is determined by the points where drainage from the road surface, cuts, and fills no longer carries to the watercourse crossing. The evaluation includes the cut-off drainage structure that should route water away from the crossing.

Complete the first page of the watercourse crossing with information about the crossing site. Be sure to include the THP number, crossing number, observer's name(s) and the date.

Complete the second page by rating each of the applicable FPRs for implementation. For all crossings, rate each FPR under the section titled "All Watercourse Crossings" by circling the appropriate rating symbol on each line. If the crossing is a culver/pipe arch, is abandoned/removed, or is a tractor road crossing, then circle one of following titles as appropriate for this crossing: "Culvert/Pipe Arch Crossings," "Abandoned/Removed" or "Tractor Road Crossings." Rate each FPR under the title circled by selecting the appropriate rating symbol on each line. Do <u>not</u> rate the FPRs under the two titles not circled. Be sure to include the THP number, crossing number, observer's name(s) and the

date at the top of this page of the form. The rating symbols stand for the following:

ER (Exceeds Rule/THP requirements)
A (Acceptable)
MA (Marginally Acceptable)
D (Departure)
N/A (Not Applicable)

Complete the third page by evaluating effectiveness after the crossing has gone through at least one winter. For all crossings, rate effectiveness on the fill slopes (lines 1-3) and road surfaces draining the crossing (lines 1-5) by checking the appropriate box. If this crossing is a bridge, stop here. If the crossing is not a bridge, circle one of following titles as appropriate for this crossing: "Culvert Design/Configuration," "Non-Culvert Crossing", or "Removed/Abandoned Crossings." Under the circled title, rate each line item by checking the appropriate box. Do not rate the line items under the two titles not circled. Be sure to include the THP number, crossing number, observer's name(s) and the date at the top of this page of the form.

Repeat the above process for the second selected watercourse crossing.

Figure 10 is a completed watercourse crossing sample form, including the first page recording general information, the second page rating the implementation and third page rating effectiveness. It is important to fill the forms out completely to assure good quality data. It is also very important to record the THP number, observer(s) and date on each page of the form in case the pages get separated.

An expanded description of each line item (parameters) to be rated for effectiveness is provided below.

FILL SLOPES

Gullies: Gullies are greater than 6" deep. Determine as best as possible if the gullies appear to be enlarging and whether there is deposition into watercourse channels.

Cracks: As you survey the fillslopes, also note any evidence of cracks on the slope. Often these are present at the upper edge of the fillslope. Cracks are common as fill settles. Assess whether the cracks appear to be stabilized or widening (active). Look for signs of vegetation, litter or rounded edges to identify older features, and for sharp edges that indicate recent cracking.

Slope Failures: While surveying the fillslope, note instances of slope failure. Slope failures are indicated by movement of soil in blocks or slumps, rather than by rills, gullies or sheet erosion. Estimate whether the failures total between 0 and 1 cubic yard, 1 to 10 cubic yards, or greater than 10 cubic yards.

ROAD SURFACE DRAINING TO THE CROSSING

Gullies: Determine if gullies are present on the road surface draining towards the crossing. Determine if the gullies appear to be enlarging and whether there is deposition into watercourse channels.

Cutoff Drainage Structure: Evaluate the cutoff drainage structures to determine if they are preventing the passage of water down to the crossing location.

Inside Ditch Condition: If an inside ditch is present, evaluate its condition and how functional it is in routing water down to the inlet of the culvert.

Ponding: Observe the road surface for evidence of ponding of surface runoff. Normally, ponds form at the low points of the surface, where a berm or other feature prevents drainage. Minor ponding is to be expected, so examine the fillslope below areas where ponding is evident, to determine if the ponding has resulted or could result in slippage or failure of the fill.

Rutting (from vehicles): Determine if ruts from vehicles are present, and whether the ruts impair road drainage.

CULVERT DESIGN/CONFIGURATION

Crossing Failure: Note whether the crossing catastrophically failed.

Scour at Inlet and Outlet: Observe the stream channel at both the inlet and outlet of the culvert. If scour is evident, rate as minor or major scour. Major scour extends more than 2 channel widths below outlet, or undercuts crossing fill at either the inlet or the outlet.

Diversion Potential: Examine the grade of the roadway at the crossing. If the crossing fails (plugs up or fails to carry all of the flow), will the stream be diverted out of its channel and down the roadway, or will flow continue across the road and down the channel?

Plugging: Examine the inlet of the culvert and determine the presence and degree of blocking of the capacity of the culvert by debris (woody debris, soil, or rock).

Alignment: Observe the channel as it enters the culvert inlet and determine if there is basically a straight shot for water and debris to enter the pipe, or if there is a considerable angle between the channel and crossing center lines.

Degree of Corrosion: Use a screwdriver or similar tool and test the competency of the metal for steel pipes.

Crushed Inlet/Outlet: Determine if machinery or other impacts have deformed the pipe inlet or outlet.

Pipe Length: Determine if the pipe length is appropriate for the fill placed at the crossing, or if the pipe length is causing erosion problems.

Gradient: Determine if the gradient is appropriate or inappropriate. Improper gradient is evident when the pipe inlet or outlet is set too low in the channel or too high in the fill.

Piping: Examine the crossing fill and determine if piping of water around the culvert is occurring, whereby water is passing through the fill without going through the culvert.

NON-CULVERT CROSSINGS (e.g., Rocked Class III crossings)

Armoring: Evaluate the armoring present and determine if it is preventing downcutting at the crossing location.

Scour at Outlet: Observe the stream channel at the outlet of the crossing. Estimate the total amount of scour that has occurred and is likely to occur in the next 2 years, and rate accordingly.

Diversion of Flow: Examine the watercourse crossing and approaches to determine if they have been maintained to prevent diversion of stream overflow down the road should the crossing structure become plugged.

REMOVED OR ABANDONED CROSSINGS

Bank Stabilization: Determine if exposed soil on bank cuts have been stabilized to prevent transport of deleterious quantities of eroded soils to a watercourse.

Gullies: Gullies are greater than 6" deep. Determine if the gullies appear to be enlarging and whether there is deposition into watercourse channels.

Slope Failure: Slope failures are evidenced by movement of soil in blocks or slumps, rather than by rills, gullies or sheet erosion. Estimate whether the failures total less than 1 cubic yard, greater than one cubic yard without channel entry, or greater than 1 cubic yard with channel entry.

Channel Configuration: Examine restored channel configuration to determine if it is as wide or wider than the natural channel and as close as feasible to the natural watercourse grade and orientation.

Excavated Material: Examine sites where excavated soil material has been placed to determine if they are sloped back from the channel and stabilized to prevent slumping and minimize input into the channel.

Maintenance Free Drainage: Determine if the abandonment procedure does, and will continue to, provide permanent, maintenance free drainage.

FORPRIEM

Forest Practice Rules Implementation & Effectiveness Monitoring

(formerly known as Modified Completion Report (MCR) Monitoring)

WATERCOURSE CROSSING FORM

Revised 9/14/07

1. Site Information

THP No. 1 - 04 - XXX **Crossing No.** 1 **Observer(s)** E. Brandow E. Cafferata J. Munn **Date** 2-29-07

Watercourse Class (circle one): I (II) III IV

Type of road (circle one): (permanent) seasonal temporary abandoned other_____

Type of crossing (circle one): bridge (culvert) pipe-arch open-bottom-arch ford other_____

Date of the Installation was (circle one): (prior to THP) part of THP

Current status (circle one): (existing) abandoned

Culvert diameter (circle one): N/A 12" 18" 24" 30" (36") 42" 48" 60" 72" Other_____"

Multiple Culverts: (N/A) number of pipes _____ sizes_____ Other _____

Photos of this crossing/approaches taken, annotated and attached to this monitoring form? Yes (No)

Recommend follow-up monitoring of this site based on problems found? Yes (No)

2. Rate this crossing for implementation by circling **ER** (Exceeds Rule), **A** (Acceptable), **MA** (Marginally Acceptable), **D** (Departure), or **N/A** (Not Applicable) for each Forest Practice Rule on the following implementation rating page (pg. 2).

3. Rate this crossing for effectiveness by checking the appropriate box on each line of the effectiveness page, which follows the implementation page. Make sure that the crossing has been through at least one winter season prior to rating for effectiveness (pg. 3).

4. Make sure the THP Map showing the watercourse crossings sampled is attached.

Figure 10. Example of a completed FORPRIEM watercourse crossing form for purposes of demonstration. Note that all three pages of the form are completed and that the THP number, the names of the observers and the date have been filled in on each page.

THP No. 1 -- 04 -- XXX Crossing No. 1 Observer(s) C. Brandow, D. Cafferata, T. Munn Date 2-29-07

Type of Crossing/Rule No.	Brief Rule Description	Implementation Rating (circle one for each rule)					Comments
All Watercourse Crossings							
923.2(h)	size, #, location of structures sufficient to carry runoff	ER	(A)	MA	D	N/A	
923.2(h)	size, #, location of structures minimizes erosion	ER	(A)	MA	D	N/A	
923.2(h)	size, #, location of structures-natural drainage pattern	ER	(A)	MA	D	N/A	
923.3(a)	permanent xings shown on THP map (+pipe diameter(s) if appropriate)	ER	(A)	MA	D	N/A	
923.3(c)	unrestricted passage of all life stages of fish allowed (where applicable)	ER	A	MA	D	(N/A)	
923.3(f)	crossing/fills built or maintained to prevent diversion	ER	A	(MA)	D	N/A	
923.4(c)	waterbreaks maintained as specified in 914.6	ER	(A)	MA	D	N/A	
923.4(d)	crossing open to unrestricted passage of water	ER	(A)	MA	D	N/A	
923.4(e)	permanent constructed/reconstructed--100-year flood flow + sediment and debris passage	ER	(A)	MA	D	N/A	
923.4(m)	Inlet/outlet structures, additional drainage structures, etc. repaired/replaced/installed as needed to protect water	ER	(A)	MA	D	N/A	
923.4(n)	crossing/approaches maintained to prevent diversion	ER	A	MA	(D)	N/A	Cut-off WB needed.
Culvert/Pipe Arch							
923.2(d)(Coast)	fills across channels built to minimize erosion	ER	(A)	MA	D	N/A	
923.2(i)	where evidence of debris likely to significantly reduce culvert capacity below design flow, oversize culverts, trash racks, or similar devices installed in a manner that minimizes culvert blockage	ER	A	MA	D	(N/A)	
923.2(o)	no discharge on fill unless energy dissipators used	ER	A	(MA)	D	N/A	
923.4(d)	trash racks installed where needed at inlets	ER	A	MA	D	(N/A)	
923.4(l)	drainage structure & trash rack maintained/repaired to prevent blockage	ER	A	MA	D	(N/A)	
Abandoned/Removed							
923.3(d)(1)	removed--fills excavated to reform channel	ER	A	MA	D	N/A	
923.3(d)(2)	removed--cut bank sloped back to prevent slumping	ER	A	MA	D	N/A	
923.3(d)(2) [required]	removed--where needed, stabilizing treatment applied	ER	A	MA	D	N/A	
923.8	abandonment--maintenance free drainage	ER	A	MA	D	N/A	
923.8	Abandonment--minimize concentration of runoff	ER	A	MA	D	N/A	
923.8(b)	abandonment--stabilization of exposed cuts/fills	ER	A	MA	D	N/A	
923.8(c)	abandonment--grading of road for dispersal of water	ER	A	MA	D	N/A	
923.8(d)	abandonment--pulling/shaping of fills	ER	A	MA	D	N/A	
923.8(e)	abandonment--fills excavated to reform channel	ER	A	MA	D	N/A	
923.8(e)	abandonment--cutbanks sloped back	ER	A	MA	D	N/A	
923.8(e)	removal not feasible--diversion potential handled	ER		MA	D	N/A	
Tractor Road Crossing							
914.8(b)	structure (bridge, culvert, etc.) used where water present during life of the crossing	ER	A	MA	D	N/A	
914.8(c)	unrestricted fish passage in Class I watercourse	ER	A	MA	D	N/A	
914.8(d)	skid crossing fill removed and banks sloped properly	ER	A	MA	D	N/A	

THP No. 1 - 04 - XXX Crossing No. 1 Observer(s) C. Brandow P. Cafferata T. Munn Date 2-29-07

WATERCOURSE CROSSING EFFECTIVENESS

[ALL] Fill Slopes (Check appropriate box on each line for all crossings.)

1)	Gullies (>6" in deep)	☐ N/A	☐ None	☑ Small gullies, but not enlarging	☐ Large gullies or enlarging
2)	Cracks	☐ N/A	☑ None	☐ cracks present but stabilized	☐ cracks threaten stability of fill
3)	Slope Failure	☐ N/A	☑ None	☐ 0-1 cubic yard ☐ 1-10 cubic yard	☐ >10cubic yard

[ALL] Road Surface Draining to Crossing (Check appropriate box on each line for all crossings.)

1)	Gullies (>6 in deep)	☐ N/A	☐ None	☑ Small gullies, but not enlarging	☐ Large gullies and enlarging
2)	Cutoff Drainage Structure	☐ N/A	☐ Functional	☑ Allows some water to reach crossing	☐ Allows all water to reach crossing
3)	Inside Ditch Condition	☑ N/A	☐ Open	☐ Some sediment/debris accumulation	☐ Blocked with sediment and debris
4)	Ponding	☐ N/A	☑ None	☐ Ponding present but does not threaten stability of fill material	☐ Ponding present and threatens the stability of the fill material
5)	Rutting	☐ N/A	☑ None	☐ Some ruts but drainage not impaired	☐ Rutting impairs road drainage

[X] Culvert Design/Configuration (For culvert crossings, check box and check appropriate box on each line below, 1 thru 10.)

1)	Scour at Inlet	☐ N/A	☑ None	☐ Minor scour—not undercutting fill	☐ Major scour, may be undercutting fill
2)	Scour at Outlet	☐ N/A	☐ No evidence of scour	☑ Minor scour—extends < 2 channel widths and no undercut of crossing fill	☐ Major scour, extends > 2 channel widths or scour undercuts crossing fill
3)	Diversion Potential	☐ N/A	☐ Not possible	☑ Road slopes downward in one direction with drainage structure	☐ If culvert fails, overflow will be diverted out of channel and down road
4)	Plugging	☐ N/A	☑ None	☐ Sediment/debris blocking <30%	☐ Sediment/debris blocking >30% of inlet/outlet
5)	Alignment	☐ N/A	☑ Appropriate	☐ Low angle channel approach	☐ High angle channel approach
6)	Degree of Corrosion	☐ N/A	☑ None/minor	☐ Moderate—some metal missing	☐ Severe—pipe easily punctured
7)	Crushing Inlet/Outlet	☐ N/A	☑ None	☐ Pipe deformed but <30% blocked	☐ Pipe deformed and >30% blocked
8)	Pipe Length	☐ N/A	☑ Appropriate	☐ Length causing minor fill erosion	☐ Length related to major erosion around pipe
9)	Gradient	☐ N/A	☑ Appropriate	☐ Inlet slightly too low or high in fill	☐ Inlet too high or low—causing debris to collect
10)	Piping	☐ N/A	☑ None		☐ Flow passes beneath or around culvert

[ ] Non-Culverted Crossing (For non-culverted crossings, check box and check appropriate box on each line below, 1 thru 3.)

1)	Armoring	☐ N/A	☐ Appropriate	☐ Minor downcutting evident	☐ Major downcutting evident
2)	Scour at Outlet	☐ N/A	☐ None	☐ Minor scour—not undercutting fill	☐ Major scour, maybe undercutting fill
3)	Diversion	☐ N/A	☐ Not possible	☐ Road slopes downward in one direction but unlikely to divert flow	☐ Overflow will be diverted down road

[ ] Removed/Abandoned Crossings (For removed/abandoned crossings, check box and check appropriate box on each line below.)

1)	Bank Stabilization	☐ N/A	☐ Dense cover or stabilized	☐ >50% of banks covered and/or stabilized	☐ <50% of banks have effective cover or or stabilized
2)	Gullies (>6 in deep)	☐ N/A	☐ None	☐ Small gullies, not enlarging	☐ Large gullies or enlarging
3)	Slope Failure	☐ N/A	☐ <1 cu yd	☐ >1 cu yd but does not enter stream	☐ >1 cu yd and enters channel
4)	Channel Configuration	☐ N/A	☐ Near natural	☐ Minor difference from natural channel	☐ Major difference from natural channel
5)	Excavated Material	☐ N/A	☐ Sloped to min. erosion	☐ <1 cubic yard transported to channel	☐ >1 cubic yard transported to channel
6)	Maintenance Free Drainage	☐ N/A	☐ Sufficient	☐ Minor problem(s) noted	☐ Major problem(s) noted

Revised 9/14/07

Figure 10.
Page 3 of 3.

REFERENCES

Brandow, C. A., Cafferata, P.H. and Munn, J.R. 2006. Modified Completion Report Monitoring Program, Implementation and Effectiveness of the forest Practice rules related to Water Quality Protection, Monitoring results from 2001 through 2004. California Department of Forestry and Fire Protection. Sacramento, 80p. http://www.bof.fire.ca.gov/board/msg_supportedreports.asp

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Robards, T. 1999. Instructions for WLPZ Canopy /Surface Cover Sampling (Canopy Enforcement Protocol). California Department of Forestry and Fire Protection –Forest Practice. Sacramento, CA. 9 p. http://cdfweb/Forestry/tools_trade/InstructionsforWLPZSampling.pdf

FORPRIEM

Forest Practice Rules Implementation & Effectiveness Monitoring

(formerly known as Modified Completion Report (MCR) Monitoring)

Appendices

Randomly selected THP numbers for THPS dated 2002 thru 2011.....Appendix A-1

FORPREIM WLPZ form.....Appendix A-2

FORPREIM road form.....Appendix A-3

FORPREIM watercourse crossing form.....Appendix A-4

Random number table.....Appendix A-5

(Note: Provided for convenience. Any random number table or random number generating calculator may be used to randomly select WLPZ reaches and road segments.)

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Forest Practice Rules Implementation and Effectiveness Monitoring

Region-1 Randomly Selected THPs Numbers (Page 1 of 3)

(version 2/02/07)

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1-02-027	1-03-006	1-04-009	1-05-004	1-06-007	1-07-008	1-08-014	1-09-005	1-10-009	1-11-007
1-02-050	1-03-024	1-04-016	1-05-028	1-06-017	1-07-025	1-08-022	1-09-007	1-10-016	1-11-012
1-02-065	1-03-029	1-04-023	1-05-030	1-06-023	1-07-040	1-08-028	1-09-026	1-10-021	1-11-023
1-02-078	1-03-040	1-04-026	1-05-041	1-06-032	1-07-062	1-08-063	1-09-060	1-10-025	1-11-024
1-02-079	1-03-041	1-04-033	1-05-049	1-06-045	1-07-064	1-08-128	1-09-066	1-10-051	1-11-039
1-02-097	1-03-042	1-04-046	1-05-064	1-06-049	1-07-082	1-08-135	1-09-073	1-10-056	1-11-049
1-02-105	1-03-060	1-04-050	1-05-089	1-06-060	1-07-100	1-08-140	1-09-084	1-10-066	1-11-062
1-02-121	1-03-062	1-04-051	1-05-097	1-06-066	1-07-112	1-08-144	1-09-091	1-10-070	1-11-070
1-02-122	1-03-065	1-04-091	1-05-098	1-06-073	1-07-124	1-08-171	1-09-095	1-10-107	1-11-082
1-02-137	1-03-067	1-04-097	1-05-116	1-06-076	1-07-131	1-08-175	1-09-117	1-10-108	1-11-098
1-02-143	1-03-078	1-04-101	1-05-129	1-06-090	1-07-138	1-08-176	1-09-122	1-10-110	1-11-108
1-02-155	1-03-098	1-04-120	1-05-134	1-06-107	1-07-146	1-08-180	1-09-129	1-10-113	1-11-134
1-02-159	1-03-117	1-04-124	1-05-152	1-06-115	1-07-147	1-08-181	1-09-135	1-10-116	1-11-140
1-02-167	1-03-126	1-04-125	1-05-155	1-06-117	1-07-149	1-08-223	1-09-147	1-10-136	1-11-141
1-02-176	1-03-127	1-04-130	1-05-161	1-06-135	1-07-160	1-08-247	1-09-157	1-10-138	1-11-143
1-02-177	1-03-129	1-04-132	1-05-174	1-06-146	1-07-161	1-08-255	1-09-167	1-10-141	1-11-152
1-02-182	1-03-137	1-04-133	1-05-176	1-06-170	1-07-181	1-08-260	1-09-168	1-10-152	1-11-164
1-02-191	1-03-141	1-04-139	1-05-181	1-06-187	1-07-198	1-08-261	1-09-175	1-10-153	1-11-165
1-02-194	1-03-153	1-04-141	1-05-182	1-06-188	1-07-203	1-08-263	1-09-176	1-10-168	1-11-169
1-02-196	1-03-170	1-04-146	1-05-188	1-06-210	1-07-238	1-08-271	1-09-186	1-10-172	1-11-180
1-02-217	1-03-177	1-04-164	1-05-199	1-06-217	1-07-260	1-08-274	1-09-190	1-10-185	1-11-184
1-02-218	1-03-189	1-04-171	1-05-229	1-06-224	1-07-271	1-08-286	1-09-194	1-10-190	1-11-206
1-02-223	1-03-193	1-04-176	1-05-246	1-06-249	1-07-273	1-08-292	1-09-198	1-10-192	1-11-208
1-02-226	1-03-194	1-04-184	1-05-253	1-06-252	1-07-278	1-08-301	1-09-211	1-10-197	1-11-214
1-02-236	1-03-206	1-04-185	1-05-260	1-06-259	1-07-282	1-08-310	1-09-218	1-10-206	1-11-256
1-02-239	1-03-209	1-04-204	1-05-264	1-06-291	1-07-302	1-08-322	1-09-219	1-10-221	1-11-265
1-02-240	1-03-211	1-04-235	1-05-280	1-06-292	1-07-338	1-08-324	1-09-228	1-10-227	1-11-267
1-02-245	1-03-223	1-04-243	1-05-303	1-06-304	1-07-339	1-08-333	1-09-231	1-10-235	1-11-274
1-02-250	1-03-229	1-04-244	1-05-308	1-06-309	1-07-356	1-08-336	1-09-241	1-10-240	1-11-276
1-02-252	1-03-233	1-04-254	1-05-310	1-06-324	1-07-367	1-08-346	1-09-277	1-10-251	1-11-298
1-02-259	1-03-234	1-04-260	1-05-311	1-06-336	1-07-374	1-08-349	1-09-282	1-10-275	1-11-322
1-02-271	1-03-243	1-04-262	1-05-315	1-06-345	1-07-397	1-08-350	1-09-287	1-10-277	1-11-323
1-02-277	1-03-247	1-04-263	1-05-335	1-06-349	1-07-402	1-08-356	1-09-288	1-10-281	1-11-327
1-02-279	1-03-249	1-04-267	1-05-338	1-06-354	1-07-422	1-08-365	1-09-293	1-10-294	1-11-328
1-02-283	1-03-265	1-04-298	1-05-353	1-06-357	1-07-425	1-08-377	1-09-303	1-10-300	1-11-342
1-02-293	1-03-269	1-04-301	1-05-355	1-06-360	1-07-435	1-08-378	1-09-309	1-10-306	1-11-345
1-02-296	1-03-280	1-04-314	1-05-372	1-06-362	1-07-442	1-08-385	1-09-321	1-10-307	1-11-364
1-02-316	1-03-285	1-04-320	1-05-388	1-06-368	1-07-453	1-08-422	1-09-332	1-10-310	1-11-366
1-02-321	1-03-288	1-04-334	1-05-396	1-06-389	1-07-454	1-08-431	1-09-352	1-10-323	1-11-367
1-02-329	1-03-301	1-04-335	1-05-401	1-06-395	1-07-464	1-08-432	1-09-354	1-10-327	1-11-386
1-02-335	1-03-304	1-04-350	1-05-402	1-06-421	1-07-473	1-08-436	1-09-356	1-10-329	1-11-391
1-02-340	1-03-330	1-04-352	1-05-407	1-06-425	1-07-477	1-08-442	1-09-365	1-10-338	1-11-397
1-02-341	1-03-331	1-040367	1-05-408	1-06-426	1-07-492	1-08-457	1-09-375	1-10-345	1-11-413

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Region-1 Randomly Selected THPs Numbers (Page 2 of 3)

(version 2/02/07)

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1-02-373	1-03-354	1-04-369	1-05-410	1-06-427	1-07-504	1-08-461	1-09-385	1-10-359	1-11-418
1-02-378	1-03-358	1-04-372	1-05-411	1-06-466	1-07-505	1-08-462	1-09-398	1-10-366	1-11-436
1-02-379	1-03-363	1-04-377	1-05-418	1-06-499	1-07-506	1-08-463	1-09-412	1-10-372	1-11-440
1-02-381	1-03-366	1-04-385	1-05-419	1-06-508	1-07-542	1-08-470	1-09-414	1-10-384	1-11-446
1-02-383	1-03-371	1-04-396	1-05-422	1-06-513	1-07-552	1-08-475	1-09-422	1-10-391	1-11-462
1-02-388	1-03-373	1-04-409	1-05-427	1-06-520	1-07-553	1-08-482	1-09-425	1-10-403	1-11-469
1-02-396	1-03-379	1-04-412	1-05-428	1-06-549	1-07-556	1-08-491	1-09-428	1-10-405	1-11-476
1-02-402	1-03-398	1-04-415	1-05-439	1-06-560	1-07-557	1-08-501	1-09-438	1-10-410	1-11-489
1-02-413	1-03-409	1-04-422	1-05-442	1-06-568	1-07-563	1-08-502	1-09-444	1-10-419	1-11-498
1-02-422	1-03-410	1-04-444	1-05-466	1-06-580	1-07-564	1-08-503	1-09-450	1-10-421	1-11-507
1-02-435	1-03-416	1-04-456	1-05-473	1-06-591	1-07-583	1-08-505	1-09-456	1-10-437	1-11-511
1-02-436	1-03-435	1-04-485	1-05-479	1-06-595	1-07-594	1-08-509	1-09-461	1-10-451	1-11-523
1-02-470	1-03-441	1-04-490	1-05-493	1-06-604	1-07-602	1-08-525	1-09-508	1-10-456	1-11-531
1-02-475	1-03-457	1-04-495	1-05-500	1-06-605	1-07-609	1-08-542	1-09-517	1-10-486	1-11-540
1-02-476	1-03-461	1-04-517	1-05-502	1-06-607	1-07-622	1-08-552	1-09-527	1-10-493	1-11-562
1-02-481	1-03-462	1-04-521	1-05-522	1-06-619	1-07-628	1-08-564	1-09-528	1-10-495	1-11-569
1-02-487	1-03-473	1-04-548	1-05-523	1-06-629	1-07-652	1-08-574	1-09-537	1-10-503	1-11-576
1-02-497	1-03-484	1-04-549	1-05-542	1-06-644	1-07-658	1-08-580	1-09-538	1-10-505	1-11-591
1-02-504	1-03-491	1-04-553	1-05-553	1-06-650	1-07-663	1-08-584	1-09-541	1-10-508	1-11-596
1-02-505	1-03-516	1-04-555	1-05-554	1-06-679	1-07-667	1-08-588	1-09-548	1-10-510	1-11-610
1-02-552	1-03-523	1-04-564	1-05-562	1-06-690	1-07-676	1-08-607	1-09-571	1-10-519	1-11-612
1-02-553	1-03-531	1-04-565	1-05-593	1-06-699	1-07-689	1-08-620	1-09-572	1-10-522	1-11-638
1-02-566	1-03-537	1-04-608	1-05-594	1-06-700	1-07-696	1-08-643	1-09-575	1-10-536	1-11-644
1-02-567	1-03-546	1-04-611	1-05-599	1-06-701	1-07-700	1-08-646	1-09-590	1-10-561	1-11-647
1-02-570	1-03-554	1-04-612	1-05-625	1-06-713	1-07-732	1-08-652	1-09-611	1-10-565	1-11-659
1-02-572	1-03-567	1-04-622	1-05-629	1-06-726	1-07-740	1-08-664	1-09-636	1-10-574	1-11-670
1-02-575	1-03-568	1-04-649	1-05-640	1-06-732	1-07-745	1-08-675	1-09-642	1-10-580	1-11-671
1-02-576	1-03-569	1-04-653	1-05-642	1-06-734	1-07-758	1-08-691	1-09-646	1-10-583	1-11-681
1-02-589	1-03-579	1-04-670	1-05-645	1-06-745	1-07-760	1-08-696	1-09-649	1-10-584	1-11-685
1-02-609	1-03-584	1-04-674	1-05-649	1-06-761	1-07-772	1-08-698	1-09-660	1-10-588	1-11-696
1-02-625	1-03-601	1-04-693	1-05-652	1-06-770	1-07-774	1-08-705	1-09-663	1-10-594	1-11-697
1-02-626	1-03-602	1-04-708	1-05-662	1-06-785	1-07-780	1-08-725	1-09-676	1-10-602	1-11-718
1-02-633	1-03-603	1-04-734	1-05-691	1-06-794	1-07-790	1-08-736	1-09-679	1-10-611	1-11-747
1-02-641	1-03-604	1-04-741	1-05-716	1-06-806	1-07-794	1-08-743	1-09-704	1-10-619	1-11-753
1-02-664	1-03-611	1-04-750	1-05-721	1-06-832	1-07-797	1-08-751	1-09-709	1-10-621	1-11-757
1-02-668	1-03-621	1-04-753	1-05-748	1-06-840	1-07-812	1-08-755	1-09-724	1-10-631	1-11-764
1-02-682	1-03-625	1-04-770	1-05-771	1-06-857	1-07-817	1-08-774	1-09-749	1-10-636	1-11-767
1-02-687	1-03-626	1-04-771	1-05-776	1-06-861	1-07-820	1-08-785	1-09-753	1-10-652	1-11-787
1-02-689	1-03-645	1-04-776	1-05-782	1-06-866	1-07-849	1-08-790	1-09-772	1-10-659	1-11-796
1-02-727	1-03-662	1-04-806	1-05-835	1-06-871	1-07-856	1-08-794	1-09-780	1-10-670	1-11-797
1-02-736	1-03-677	1-04-814	1-05-841	1-06-872	1-07-857	1-08-801	1-09-792	1-10-673	1-11-801
1-02-757	1-03-681	1-04-817	1-05-886	1-06-883		1-08-827	1-09-806	1-10-674	1-11-809
1-02-765	1-03-682	1-04-833	1-05-888	1-06-885		1-08-849	1-09-809	1-10-690	1-11-810

Region-1 Randomly Selected THPs Numbers (Page 3 of 3)

(version 2/02/07)

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1-02-769	1-03-701	1-04-838	1-05-897	1-06-900		1-08-860	1-09-819	1-10-692	1-11-815
1-02-771	1-03-716	1-04-842				1-08-866	1-09-828	1-10-696	1-11-854
1-02-779	1-03-728	1-04-855				1-08-872	1-09-833	1-10-701	1-11-857
1-02-780	1-03-733	1-04-864				1-08-887	1-09-856	1-10-706	1-11-872
1-02-782	1-03-738	1-04-868					1-09-864	1-10-708	1-11-879
1-02-787	1-03-747	1-04-894					1-09-870	1-10-730	1-11-886
1-02-793	1-03-756	1-04-896					1-09-871	1-10-751	
1-02-815	1-03-769						1-09-881	1-10-780	
1-02-818	1-03-774						1-09-884	1-10-783	
1-02-821	1-03-777						1-09-888	1-10-785	
1-02-823	1-03-786						1-09-898	1-10-786	
1-02-844	1-03-789							1-10-794	
1-02-861	1-03-795							1-10-795	
1-02-873	1-03-804							1-10-804	
1-02-876	1-03-810							1-10-809	
1-02-880	1-03-813							1-10-819	
1-02-896	1-03-821							1-10-823	
1-02-897	1-03-842							1-10-831	
	1-03-860							1-10-864	
	1-03-862							1-10-886	
	1-03-867							1-10-891	
	1-03-871								
	1-03-894								
	1-03-900								

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Forest Practice Rule Implementation and Effeffectiveness Monitoring

Region-2 Randomly Selected THPs Numbers (Page 1 of 2)

(version 2/02/07)

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
2-02-027	2-03-008	2-04-011	2-05-016	2-06-007	2-07-001	2-08-004	2-09-023	2-10-012	2-11-007
2-02-037	2-03-014	2-04-018	2-05-022	2-06-027	2-07-012	2-08-009	2-09-034	2-10-018	2-11-023
2-02-046	2-03-026	2-04-023	2-05-028	2-06-044	2-07-023	2-08-026	2-09-042	2-10-039	2-11-026
2-02-050	2-03-044	2-04-024	2-05-029	2-06-046	2-07-025	2-08-041	2-09-061	2-10-056	2-11-027
2-02-052	2-03-079	2-04-035	2-05-065	2-06-073	2-07-028	2-08-043	2-09-070	2-10-057	2-11-035
2-02-054	2-03-085	2-04-066	2-05-068	2-06-077	2-07-072	2-08-046	2-09-081	2-10-069	2-11-074
2-02-060	2-03-094	2-04-069	2-05-070	2-06-085	2-07-084	2-08-052	2-09-093	2-10-075	2-11-078
2-02-062	2-03-118	2-04-077	2-05-077	2-06-086	2-07-101	2-08-071	2-09-096	2-10-084	2-11-098
2-02-099	2-03-143	2-04-083	2-05-078	2-06-087	2-07-110	2-08-098	2-09-118	2-10-090	2-11-107
2-02-100	2-03-154	2-04-090	2-05-094	2-06-093	2-07-120	2-08-124	2-09-120	2-10-092	2-11-120
2-02-103	2-03-161	2-04-125	2-05-101	2-06-114	2-07-138	2-08-127	2-09-122	2-10-103	2-11-127
2-02-104	2-03-169	2-04-132	2-05-113	2-06-118	2-07-142	2-08-143	2-09-138	2-10-111	2-11-131
2-02-108	2-03-174	2-04-143	2-05-115	2-06-124	2-07-151	2-08-151	2-09-145	2-10-112	2-11-133
2-02-137	2-03-175	2-04-144	2-05-133	2-06-132	2-07-152	2-08-163	2-09-170	2-10-118	2-11-156
2-02-156	2-03-190	2-04-167	2-05-134	2-06-134	2-07-154	2-08-172	2-09-171	2-10-128	2-11-175
2-02-157	2-03-191	2-04-192	2-05-137	2-06-141	2-07-165	2-08-178	2-09-177	2-10-129	2-11-180
2-02-164	2-03-195	2-04-193	2-05-139	2-06-156	2-07-172	2-08-183	2-09-181	2-10-136	2-11-182
2-02-172	2-03-199	2-04-195	2-05-148	2-06-173	2-07-176	2-08-196	2-09-188	2-10-147	2-11-186
2-02-182	2-03-203	2-04-207	2-05-160	2-06-184	2-07-186	2-08-198	2-09-191	2-10-162	2-11-195
2-02-197	2-03-205	2-04-211	2-05-172	2-06-199	2-07-191	2-08-200	2-09-193	2-10-166	2-11-212
2-02-206	2-03-225	2-04-216	2-05-179	2-06-212	2-07-222	2-08-205	2-09-199	2-10-175	2-11-245
2-02-216	2-03-229	2-04-218	2-05-184	2-06-232	2-07-228	2-08-233	2-09-200	2-10-176	2-11-261
2-02-219	2-03-232	2-04-227	2-05-209	2-06-234	2-07-251	2-08-240	2-09-201	2-10-193	2-11-263
2-02-228	2-03-248	2-04-233	2-05-214	2-06-243	2-07-263	2-08-243	2-09-206	2-10-196	2-11-269
2-02-232	2-03-250	2-04-234	2-05-224	2-06-265	2-07-275	2-08-245	2-09-227	2-10-197	2-11-302
2-02-255	2-03-251	2-04-243	2-05-245	2-06-279	2-07-284	2-08-263	2-09-229	2-10-211	2-11-327
2-02-259	2-03-276	2-04-247	2-05-257	2-06-288	2-07-297	2-08-264	2-09-240	2-10-217	2-11-342
2-02-263	2-03-283	2-04-251	2-05-263	2-06-295	2-07-306	2-08-271	2-09-249	2-10-222	2-11-361
2-02-264	2-03-294	2-04-257	2-05-281	2-06-311	2-07-318	2-08-278	2-09-257	2-10-227	2-11-380
2-02-269	2-03-301	2-04-265	2-05-291	2-06-314	2-07-325	2-08-293	2-09-266	2-10-230	2-11-386
2-02-276	2-03-327	2-04-267	2-05-292	2-06-337	2-07-340	2-08-299	2-09-283	2-10-244	2-11-391
2-02-283	2-03-331	2-04-271	2-05-311	2-06-346	2-07-341	2-08-329	2-09-286	2-10-249	2-11-418
2-02-287	2-03-347	2-04-272	2-05-314	2-06-378	2-07-345	2-08-333	2-09-288	2-10-285	2-11-422
2-02-297	2-03-349	2-04-278	2-05-339	2-06-386	2-07-382	2-08-348	2-09-289	2-10-286	2-11-425
2-02-299	2-03-353	2-04-291	2-05-343	2-06-406	2-07-420	2-08-353	2-09-292	2-10-289	2-11-430
2-02-300	2-03-377	2-04-293	2-05-350	2-06-419	2-07-434	2-08-355	2-09-313	2-10-290	2-11-458
2-02-302	2-03-380	2-04-297	2-05-351	2-06-427	2-07-443	2-08-357	2-09-319	2-10-303	2-11-472
2-02-307	2-03-382	2-04-302	2-05-354	2-06-429	2-07-470	2-08-370	2-09-327	2-10-306	2-11-478
2-02-352	2-03-384	2-04-305	2-05-360	2-06-431	2-07-487	2-08-381	2-09-331	2-10-307	2-11-482
2-02-358	2-03-391	2-04-307	2-05-389	2-06-432	2-07-489	2-08-382	2-09-350	2-10-313	
2-02-360	2-03-399	2-04-321	2-05-398	2-06-438	2-07-491	2-08-385	2-09-398	2-10-335	
2-02-373	2-03-402	2-04-340	2-05-401	2-06-439	2-07-495	2-08-407	2-09-401	2-10-345	
2-02-386	2-03-405	2-04-345	2-05-411	2-06-443	2-07-498	2-08-410	2-09-417	2-10-355	

FORPREIM

Forest Practice Rule Implementation and Effeffectiveness Monitoring

Region-2 Randomly Selected THPs Numbers (Page 2 of 2)

(version 2/02/07)

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
2-02-388	2-03-438	2-04-353	2-05-419	2-06-467		2-08-413	2-09-425	2-10-363	
2-02-403	2-03-443	2-04-354	2-05-426	2-06-470		2-08-418	2-09-443	2-10-370	
2-02-409	2-03-447	2-04-358	2-05-452	2-06-476		2-08-428	2-09-460	2-10-378	
2-02-420	2-03-451	2-04-366	2-05-475	2-06-478		2-08-451	2-09-477	2-10-386	
2-02-430	2-03-458	2-04-371		2-06-485		2-08-462	2-09-485	2-10-397	
2-02-434	2-03-464	2-04-382		2-06-490		2-08-499		2-10-406	
2-02-439	2-03-486	2-04-392		2-06-496		2-08-500		2-10-407	
2-02-444	2-03-488	2-04-395						2-10-411	
2-02-455	2-03-495	2-04-408						2-10-416	
2-02-460	2-03-500	2-04-422						2-10-421	
2-02-463		2-04-424						2-10-447	
2-02-471		2-04-451						2-10-452	
2-02-487		2-04-454						2-10-459	
2-02-489		2-04-0455						2-10-460	
2-02-492		2-04-0465						2-10-468	
2-02-497		2-04-0471						2-10-477	
2-02-498		2-04-0499						2-10-484	
								2-10-494	

FORPRIEM

Forest Practice Rules Implementation and Effectiveness Monitoring

Region-4 Randomly Selected THPs Numbers (Page 1 of 2)

(version 2/02/07)

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
4-02-019	4-03-015	4-04-020	4-05-002	4-06-001	4-07-006	4-08-002	4-09-027	4-10-012	4-11-007
4-02-022	4-03-026	4-04-030	4-05-004	4-06-007	4-07-033	4-08-003	4-09-028	4-10-020	4-11-012
4-02-025	4-03-063	4-04-033	4-05-010	4-06-014	4-07-046	4-08-009	4-09-040	4-10-033	4-11-047
4-02-033	4-03-070	4-04-061	4-05-016	4-06-016	4-07-047	4-08-030	4-09-048	4-10-041	4-11-053
4-02-038	4-03-077	4-04-066	4-05-036	4-06-020	4-07-050	4-08-051	4-09-067	4-10-048	4-11-060
4-02-044	4-03-089	4-04-074	4-05-039	4-06-033	4-07-054	4-08-054	4-09-071	4-10-083	4-11-069
4-02-058	4-03-115	4-04-087	4-05-042	4-06-071	4-07-076	4-08-060	4-09-084	4-10-086	4-11-081
4-02-065	4-03-117	4-04-101	4-05-060	4-06-073	4-07-078	4-08-065	4-09-106	4-10-133	4-11-086
4-02-068	4-03-134	4-04-123	4-05-061	4-06-077	4-07-089	4-08-066	4-09-109	4-10-141	4-11-087
4-02-085	4-03-136	4-04-125	4-05-069	4-06-081	4-07-093	4-08-092	4-09-122	4-10-144	4-11-108
4-02-091	4-03-149	4-04-137	4-05-081	4-06-083	4-07-095	4-08-100	4-09-125	4-10-146	4-11-113
4-02-099	4-03-153	4-04-149	4-05-088	4-06-085	4-07-100	4-08-102	4-09-133	4-10-150	4-11-116
4-02-105	4-03-155	4-04-160	4-05-097	4-06-100	4-07-136	4-08-118	4-09-140	4-10-189	4-11-122
4-02-131	4-03-178	4-04-172	4-05-107	4-06-103	4-07-143	4-08-125	4-09-144	4-10-204	4-11-131
4-02-135	4-03-190	4-04-178	4-05-112	4-06-118	4-07-152	4-08-132	4-09-150	4-10-208	4-11-133
4-02-137	4-03-191	4-04-195	4-05-123	4-06-123	4-07-187	4-08-147	4-09-169	4-10-210	4-11-140
4-02-140	4-03-197	4-04-196	4-05-136	4-06-127	4-07-201	4-08-152	4-09-172	4-10-211	4-11-161
4-02-155	4-03-208	4-04-211	4-05-142	4-06-137	4-07-207	4-08-163	4-09-192	4-10-221	4-11-163
4-02-169	4-03-214	4-04-212	4-05-149	4-06-146	4-07-224	4-08-183	4-09-223	4-10-222	4-11-169
4-02-170	4-03-219	4-04-218	4-05-152	4-06-169	4-07-233	4-08-189	4-09-226	4-10-238	4-11-170
4-02-191	4-03-233	4-04-236	4-05-155	4-06-182	4-07-236	4-08-195	4-09-228	4-10-245	4-11-180
4-02-201	4-03-238	4-04-259	4-05-167	4-06-196	4-07-261	4-08-200	4-09-235	4-10-248	4-11-192
4-02-220	4-03-246	4-04-282	4-05-171	4-06-217	4-07-274	4-08-213	4-09-239	4-10-285	4-11-193
4-02-226	4-03-250	4-04-286	4-05-176	4-06-229	4-07-298	4-08-225	4-09-240	4-10-300	4-11-204
4-02-227	4-03-255	4-04-293	4-05-179	4-06-233	4-07-299	4-08-227	4-09-243	4-10-322	4-11-210
4-02-228	4-03-261	4-04-299	4-05-197	4-06-251	4-07-302	4-08-238	4-09-253	4-10-324	4-11-213
4-02-257	4-03-277	4-04-305	4-05-202	4-06-264	4-07-304	4-08-263	4-09-261	4-10-339	4-11-219
4-02-262	4-03-288	4-04-310	4-05-205	4-06-266	4-07-312	4-08-264	4-09-263	4-10-340	4-11-238
4-02-263	4-03-294	4-04-324	4-05-230	4-06-273	4-07-313	4-08-271	4-09-265	4-10-343	4-11-247
4-02-269	4-03-296	4-04-326	4-05-237	4-06-278	4-07-316	4-08-277	4-09-267	4-10-354	4-11-270
4-02-279	4-03-299	4-04-328	4-05-238	4-06-290	4-07-325	4-08-285	4-09-297	4-10-378	4-11-277
4-02-285	4-03-311	4-04-353	4-05-240	4-06-296	4-07-329	4-08-295	4-09-302	4-10-385	4-11-282
4-02-287	4-03-351	4-04-360	4-05-244	4-06-300	4-07-331	4-08-311	4-09-318		4-11-289
4-02-291	4-03-353	4-04-363	4-05-248	4-06-307	4-07-342	4-08-313	4-09-351		4-11-312
4-02-294	4-03-360	4-04-368	4-05-257	4-06-318	4-07-364	4-08-315	4-09-362		4-11-314
4-02-329	4-03-380	4-04-378	4-05-268	4-06-339	4-07-375	4-08-318	4-09-394		4-11-319
4-02-341	4-03-390	4-04-382	4-05-269	4-06-349	4-07-382	4-08-320			4-11-323
4-02-345	4-03-400	4-04-384	4-05-281	4-06-350		4-08-323			4-11-345
4-02-346		4-04-392	4-05-289	4-06-361		4-08-342			4-11-360
4-02-350		4-04-396	4-05-293	4-06-366		4-08-346			4-11-368
4-02-352			4-05-304	4-06-368		4-08-351			4-11-371
4-02-397			4-05-305	4-06-375		4-08-357			4-11-372

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Forest Practice Rules Implementation and Effectiveness Monitoring

Region-4 Randomly Selected THPs Numbers (Page 2 of 2)

(version 2/02/07)

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
			4-05-319	4-06-377		4-08-363			4-11-376
			4-05-323	4-06-380		4-08-365			4-11-381
			4-05-353	4-06-384		4-08-385			4-11-382
			4-05-354	4-06-391		4-08-393			4-11-386
			4-05-366			4-08-397			4-11-391
			4-05-378			4-08-398			
			4-05-381			4-08-400			
			4-05-386						
			4-05-388						
			4-05-391						
			4-05-400						

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Forest Practice Rules Implementation & Effectiveness Monitoring
(formerly known as Modified Completion Report (MCR) Monitoring)

WLPZ Canopy Sampling Form

Revised 9/14/07

THP No._____
Observer(s)_____
Date_____

Estimated total length of Class I stream in this THP _____ feet.
Estimated total length of Class II stream in this THP _____ feet.
(Estimate by counting the number of segments delineated on the THP map for the random selection of sample a 200 foot WLPZ segment and multiply by 200.)

CALWATER Planning Watershed No. _____
Watercourse Class I or II (Circle the class that applies to the sampled segment.)

Target sample length is 200 feet.
Actual WLPZ sample length _____ feet.

Prescribed WLPZ width (from THP) _____ feet.
Actual WLPZ width (based on flagging) _____ feet.
Sampled WLPZ width _____ feet.

D = Distance between sample points.
(For standard WLPZ widths of 50, 75, 100, 150 and 200 feet, D is 14, 17, 20, 24 and 28 feet, respectively.)

$D = 2\sqrt{\text{width}}$ = _____ feet.

100 x (Hits) / (Hits + Misses) = _____ % Canopy Cover.

Ocular Estimates
within the WLPZ sample segment (circle one per question):

1. Harvesting in WLPZ segment this entry? YES NO
2. Percent Canopy removed this entry? 0-10% 10-30% 30-50% > 50%
3. Understory canopy remaining ≥ 50%? YES NO
4. Overstory canopy remaining ≥ 50%? YES NO
5. Class I watercourse in a T&I watershed? YES NO
6. Overstory meets T&I standards? N/A YES NO
7. WPLZ Groundcover (live&dead) ≥75 %? YES NO
8. Untreated patches of bare mineral soil in WLPZ ≥ 800 sq.ft. or as specified in THP? ABSENT PRESENT

Points	Hit (+)	Miss (-)
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
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42.		
43.		
44.		
45.		
46.		
47.		
48.		
49.		
50.		
Totals		

FORPRIEM

Forest Practice Rules Implementation & Effectiveness Monitoring
(formerly known as Modified Completion Report (MCR) Monitoring)

WLPZ Erosion Features Form

Revised 9/14/07

THP No._____
Observer(s)_____
Date_____

1. **Were erosion features observed in the sample WLPZ segment (circle one)?**

   YES NO

2. **If the answer to the above question is YES, please complete one row in the table below for each erosion feature observed. Use additional sheets if necessary.**

Point Number (Nearest WLPZ canopy measurement point.)	Erosion Feature Type (rills, gully, or sediment deposition.)	Related to the Current Entry (circle one)	Width (feet)	Depth (feet)	Length (feet)	Comments (Please note the cause of the problem and if any sediment was transported to the channel.)
		Yes No				
		Yes No				
		Yes No				
		Yes No				

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Forest Practice Rules Implementation & Effectiveness Monitoring

(formerly known as Modified Completion Report (MCR) Monitoring)

ROAD FORM

Revised 9/14/07

Site Information

THP No. ____-____-_____ **Observer(s)** _____ **Date**_____

Erosion Hazard Rating (EHR from THP)(circle one): extreme high moderate low

Type of road (circle one): permanent seasonal temporary abandoned other_____

Type of road surface (circle one): native-surface oiled gravel/rocked paved other_____

Position of road segment on slope (circle one): road in WLPZ road adjacent to WLPZ

mid-slope road upper-slope road ridge-road

Date of construction (circle one): prior to THP part of THP

Current status (circle one): existing abandoned

Photos of this road segment were taken, annotated and attached to this monitoring form? Yes No

Recommend follow-up monitoring of this site based on problems found? Yes No

ROAD IMPLEMENTATION FORM

THP No. ____ - ____ - _____ **Observer(s) _____** **Date_____**

Distance from the Starting Point in 10-Foot Increments

Revised 9/14/07

	000 010	010 020	020 030	030 040	040 050	050 060	060 070	070 080	080 090	090 100	100 110	110 120	120 130	130 140	140 150	150 160	160 170	170 180	180 190	190 200	200 210	210 220
Road Construction CF=Cut & Fill, TC=Thru-Cut TF=Thru-Fill FB= Full Bench Cut																						
Watercourse Xing B, C, P-A, OBA, F, A, O																						
Road Surface 0S=Out-Sloped IS=In-Sloped FL= Flat CR=Crowned																						
Outside Berm																						
Inside Ditch & Ditch Relief Culvert, Dip or Other																						
Rate Maintenance of Inside Ditch & Ditch Relief: (Circle E, A, MA or D)	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D
Waterbreaks WB, RD, NL																						
Percent Road Gradient between Waterbreaks																						
Percent Side Slope between Waterbreaks																						
Rate Waterbreaks constructed with a depth ≥6" into firm roadbed: (circle E, A, MA or D)	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D
Rate Waterbreaks discharge into cover and not onto erodible fills: (circle E, A, MA or D)	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D
Other implementation problems explained in comments section.																						

* **E** (Exceeds Rule), **A** (Acceptable), **MA** (Marginally Acceptable), **D** (Departure)

ROAD IMPLEMENTATION FORM

THP No. ____ - ____ - _____ **Observer(s) _____** **Date_____**

Distance from the Starting Point in 10-Foot Increments

Revised9/14/07

	220 230	230 240	240 250	250 260	260 270	270 280	280 290	290 300	300 310	310 320	320 330	330 340	340 350	350 360	360 370	370 380	380 390	390 400	400 410	410 420	420 430	430 440
Road Construction CF=Cut & Fill, TC=Thru-Cut TF=Thru-Fill FB= Full Bench Cut																						
Watercourse Xing B, C, P-A, OBA, F, O																						
Road Surface 0S=Out-Sloped IS=In-Sloped FL= Flat CR=Crowned																						
Outside Berm																						
Inside Ditch & Ditch Relief Culvert, Dip or Other																						
Rate Maintenance of Inside Ditch & Ditch Relief: E, A, MA or D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D
Waterbreaks WB, RD, NL																						
Percent Road Gradient between Waterbreaks																						
Percent Side Slope between Waterbreaks																						
Rate Waterbreaks constructed with a depth ≥6" into firm roadbed: (circle E, A, MA or D)	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D
Rate Waterbreaks discharge into cover and not onto erodible fills: (circle E, A, MA or D)	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D
Other implementation problems explained in comments section.																						

* **E** (Exceeds Rule), **A** (Acceptable), **MA** (Marginally Acceptable), **D** (Departure)

ROAD IMPLEMENTATION FORM

THP No. ____ - ____ - ____ **Observer(s)** _____ **Date** _____

Distance from the Starting Point in 10-Foot Increments

Revised 9/14/07

	440 450	450 460	460 470	470 480	480 490	490 500	500 510	510 520	520 530	530 540	540 550	550 560	560 570	570 580	580 590	590 600	600 610	610 620	620 630	630 640	640 650	650 660
Road Construction CF=Cut & Fill, TC=Thru-Cut TF=Thru-Fill FB= Full Bench Cut																						
Watercourse Xing B, C, P-A, OBA, F, O																						
Road Surface 0S=Out-Sloped IS=In-Sloped FL= Flat CR=Crowned																						
Outside Berm																						
Inside Ditch & Ditch Relief Culvert, Dip or Other																						
Rate Maintenance of Inside Ditch & Ditch Relief: E, A, MA or D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D
Waterbreaks WB, RD, NL, NH																						
Percent Road Gradient between Waterbreaks																						
Percent Side Slope between Waterbreaks																						
Rate Waterbreaks constructed with a depth ≥6" into firm roadbed: (circle E, A, MA or D)	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D
Rate Waterbreaks discharge into cover and not onto erodible fills: (circle E, A, MA or D)	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D	E A MA D
Other implementation problems explained in comments section.																						

* **E** (Exceeds Rule), **A** (Acceptable), **MA** (Marginally Acceptable), **D** (Departure)

ROAD EFFECTIVENESS FORM

THP No. __-__-_____ Observer(s) _____ Date_____

Evidence erosion features associated with this road segment (circle one): **present** **absent**

Erosion Codes: RT=Ruts R=Rills G=Gullies M=Mass Wasting S=Cutbank or Sidecast Sloughing O=Other Erosion

Distance from the Starting Point in 10-Foot Increments

	000 010	010 020	020 030	030 040	040 050	050 060	060 070	070 080	080 090	090 100	100 110	110 120	120 130	130 140	140 150	150 160	160 170	170 180	180 190	190 200	200 210	210 220
Erosion on Cut Slope (insert erosion code)																						
Erosion on Road Surface (insert erosion code)																						
Erosion on Fill Slope (insert erosion code)																						
Erosion downslope of Fill (insert erosion code)																						
Sediment Transport beyond road prism (toe of fill) (insert "ST" in appropriate boxes)																						
Sediment Transport to Channel Transition Line (insert "STC" in appropriate boxes)																						
Other problems (explain in the comments section)																						

Distance from the Starting Point in 10-Foot Increments

	220 230	230 240	240 250	250 260	260 270	270 280	280 290	290 300	300 310	310 320	320 330	330 340	340 350	350 360	360 370	370 380	380 390	390 400	400 410	410 420	420 430	430 440
Erosion on Cut Slope (insert erosion code)																						
Erosion on Road Surface (insert erosion code)																						
Erosion on Fill Slope (insert erosion code)																						
Erosion downslope of Fill (insert erosion code)																						
Sediment Transport beyond road prism (toe of fill) (insert "ST" in appropriate boxes)																						
Sediment Transport to Channel Transition Line (insert "STC" in appropriate boxes)																						
Other problems (explain in the comments section)																						

ROAD EFFECTIVENESS FORM

THP No. __-__-_____ **Observer(s)** _____ **Date**_____

Erosion Codes: RT=Ruts R=Rills G=Gullies M=Mass Wasting S=Cutbank or Sidecast Sloughing O=Other Erosion

Distance from the Starting Point in 10-Foot Increments

	440 450	450 460	460 470	470 480	480 490	490 500	500 510	510 520	520 530	530 540	540 550	550 560	560 570	570 580	580 590	590 600	600 610	610 620	620 630	630 640	640 650	650 660
Erosion on Cut Slope (insert erosion code)																						
Erosion on Road Surface (insert erosion code)																						
Erosion on Fill Slope (insert erosion code)																						
Erosion downslope of Fill (insert erosion code)																						
Sediment Transport beyond road prism (toe of fill) (insert "ST" in appropriate boxes)																						
Sediment Transport to Channel Transition Line (insert "STC" in appropriate boxes)																						
Other problems																						

Comments (use additional sheets if needed)

Distance from Starting Point (10-Foot Increments)	Brief Description or Explanation of the feature. (Use additional pages if necessary. Annotated photos may also be attached.)	If applicable: Average Dimensions (Length x Width x Depth to the nearest foot)

FORPRIEM

Forest Practice Rules Implementation & Effectiveness Monitoring

(formerly known as Modified Completion Report (MCR) Monitoring)

WATERCOURSE CROSSING FORM

Revised 9/14/07

1. Site Information

THP No. ____ - ____ - _____ Crossing No. _____ Observer(s) _____ Date_____

Watercourse Class (circle one): I II III IV

Type of road (circle one): permanent seasonal temporary abandoned other_____

Type of crossing (circle one): bridge culvert pipe-arch open-bottom-arch ford other_____

Date of the Installation was (circle one): prior to THP part of THP

Current status (circle one): existing abandoned

Culvert diameter (circle one): N/A 12" 18" 24" 30" 36" 42" 48" 60" 72" Other_____"

Multiple Culverts: N/A number of pipes _____ sizes____", ____", ____", ____", ____", ____" Other _____

Photos of this crossing/approaches taken, annotated and attached to this monitoring form? Yes No

Recommend follow-up monitoring of this site based on problems found? Yes No

2. Rate this crossing for implementation by circling **ER** (Exceeds Rule), **A** (Acceptable), **MA** (Marginally Acceptable), **D** (Departure), or **N/A** (Not Applicable) for each Forest Practice Rule on the following implementation rating page (pg. 2).

3. Rate this crossing for effectiveness by checking the appropriate box on each line of the effectiveness page, which follows the implementation page. Make sure that the crossing has been through at least one winter season prior to rating for effectiveness (pg. 3).

4. Make sure the THP Map showing the watercourse crossings sampled is attached.

THP No. -- -- Crossing No. Observer(s) Date

Type of Crossing/Rule No.	Brief Rule Description	Implementation Rating (circle one for each rule)					Comments
All Watercourse Crossings							
923.2(h)	size, #, location of structures sufficient to carry runoff	ER	A	MA	D	N/A	
923.2(h)	size, #, location of structures minimizes erosion	ER	A	MA	D	N/A	
923.2(h)	size, #, location of structures-natural drainage pattern	ER	A	MA	D	N/A	
923.3(a)	permanent xings shown on THP map (+pipe diameter(s) if appropriate)	ER	A	MA	D	N/A	
923.3(c)	unrestricted passage of all life stages of fish allowed (where applicable)	ER	A	MA	D	N/A	
923.3(f)	crossing/fills built or maintained to prevent diversion	ER	A	MA	D	N/A	
923.4(c)	waterbreaks maintained as specified in 914.6	ER	A	MA	D	N/A	
923.4(d)	crossing open to unrestricted passage of water	ER	A	MA	D	N/A	
923.4(e)	permanent constructed/reconstructed--100-year flood flow + sediment and debris passage	ER	A	MA	D	N/A	
923.4(m)	Inlet/outlet structures, additional drainage structures, etc. repaired/replaced/installed as needed to protect water	ER	A	MA	D	N/A	
923.4(n)	crossing/approaches maintained to prevent diversion	ER	A	MA	D	N/A	
Culvert/Pipe Arch							
923.2(d)(Coast)	fills across channels built to minimize erosion	ER	A	MA	D	N/A	
923.2(i)	where evidence of debris likely to significantly reduce culvert capacity below design flow, oversize culverts, trash racks, or similar devices installed in a manner that minimizes culvert blockage	ER	A	MA	D	N/A	
923.2(o)	no discharge on fill unless energy dissipators used	ER	A	MA	D	N/A	
923.4(d)	trash racks installed where needed at inlets	ER	A	MA	D	N/A	
923.4(l)	drainage structure & trash rack maintained/repaired to prevent blockage	ER	A	MA	D	N/A	
Abandoned/Removed							
923.3(d)(1)	removed--fills excavated to reform channel	ER	A	MA	D	N/A	
923.3(d)(2)	removed--cut bank sloped back to prevent slumping	ER	A	MA	D	N/A	
923.3(d)(2) [required]	removed--where needed, stabilizing treatment applied	ER	A	MA	D	N/A	
923.8	abandonment--maintenance free drainage	ER	A	MA	D	N/A	
923.8	Abandonment--minimize concentration of runoff	ER	A	MA	D	N/A	
923.8(b)	abandonment--stabilization of exposed cuts/fills	ER	A	MA	D	N/A	
923.8(c)	abandonment--grading of road for dispersal of water	ER	A	MA	D	N/A	
923.8(d)	abandonment--pulling/shaping of fills	ER	A	MA	D	N/A	
923.8(e)	abandonment--fills excavated to reform channel	ER	A	MA	D	N/A	
923.8(e)	abandonment--cutbanks sloped back	ER	A	MA	D	N/A	
923.8(e)	removal not feasible--diversion potential handled	ER		MA	D	N/A	
Tractor Road Crossing							
914.8(b)	structure (bridge, culvert, etc.) used where water present during life of the crossing	ER	A	MA	D	N/A	
914.8(c)	unrestricted fish passage in Class I watercourse	ER	A	MA	D	N/A	
914.8(d)	skid crossing fill removed and banks sloped properly	ER	A	MA	D	N/A	

THP No.____ - ____ - _____ Crossing No. _____ Observer(s) _____ Date_____

WATERCOURSE CROSSING EFFECTIVENESS

[ALL] Fill Slopes (Check appropriate box on each line for all crossings.)

1)	Gullies (>6" in deep)	☐ N/A	☐ None	☐ Small gullies, but not enlarging	☐ Large gullies or enlarging
2)	Cracks	☐ N/A	☐ None	☐ cracks present but stabilized	☐ cracks threaten stability of fill
3)	Slope Failure	☐ N/A	☐ None	☐ 0-1 cubic yard ☐ 1-10 cubic yard	☐ >10cubic yard

[ALL] Road Surface Draining to Crossing (Check appropriate box on each line for all crossings.)

1)	Gullies (>6 in deep)	☐ N/A	☐ None	☐ Small gullies, but not enlarging	☐ Large gullies and enlarging
2)	Cutoff Drainage Structure	☐ N/A	☐ Functional	☐ Allows some water to reach crossing	☐ Allows all water to reach crossing
3)	Inside Ditch Condition	☐ N/A	☐ Open	☐ Some sediment/debris accumulation	☐ Blocked with sediment and debris
4)	Ponding	☐ N/A	☐ None	☐ Ponding present but does not threaten stability of fill material	☐ Ponding present and threatens the stability of the fill material
5)	Rutting	☐ N/A	☐ None	☐ Some ruts but drainage not impaired	☐ Rutting impairs road drainage

[ ] Culvert Design/Configuration (For culvert crossings, check box and check appropriate box on each line below, 1 thru 10.)

1)	Scour at Inlet	☐ N/A	☐ None	☐ Minor scour—not undercutting fill	☐ Major scour, may be undercutting fill
2)	Scour at Outlet	☐ N/A	☐ No evidence of scour	☐ Minor scour—extends < 2 channel widths and no undercut of crossing fill	☐ Major scour, extends > 2 channel widths or scour undercuts crossing fill
3)	Diversion Potential	☐ N/A	☐ Not possible	☐ Road slopes downward in one direction with drainage structure	☐ If culvert fails, overflow will be diverted out of channel and down road
4)	Plugging	☐ N/A	☐ None	☐ Sediment/debris blocking <30%	☐ Sediment/debris blocking >30% of inlet/outlet
5)	Alignment	☐ N/A	☐ Appropriate	☐ Low angle channel approach	☐ High angle channel approach
6)	Degree of Corrosion	☐ N/A	☐ None/minor	☐ Moderate—some metal missing	☐ Severe—pipe easily punctured
7)	Crushing Inlet/Outlet	☐ N/A	☐ None	☐ Pipe deformed but <30% blocked	☐ Pipe deformed and >30% blocked
8)	Pipe Length	☐ N/A	☐ Appropriate	☐ Length causing minor fill erosion	☐ Length related to major erosion around pipe
9)	Gradient	☐ N/A	☐ Appropriate	☐ Inlet slightly too low or high in fill	☐ Inlet too high or low—causing debris to collect
10)	Piping	☐ N/A	☐ None		☐ Flow passes beneath or around culvert

[ ] Non-Culverted Crossing (For non-culverted crossings, check box and check appropriate box on each line below, 1 thru 3.)

1)	Armoring	☐ N/A	☐ Appropriate	☐ Minor downcutting evident	☐ Major downcutting evident
2)	Scour at Outlet	☐ N/A	☐ None	☐ Minor scour—not undercutting fill	☐ Major scour, maybe undercutting fill
3)	Diversion	☐ N/A	☐ Not possible	☐ Road slopes downward in one direction but unlikely to divert flow	☐ Overflow will be diverted down road

[ ] Removed/Abandoned Crossings (For removed/abandoned crossings, check box and check appropriate box on each line below.)

1)	Bank Stabilization	☐ N/A	☐ Dense cover or stabilized	☐ >50% of banks covered and/or stabilized	☐ <50% of banks have effective cover or or stabilized
2)	Gullies (>6 in deep)	☐ N/A	☐ None	☐ Small gullies, not enlarging	☐ Large gullies or enlarging
3)	Slope Failure	☐ N/A	☐ <1 cu yd	☐ >1 cu yd but does not enter stream	☐ >1 cu yd and enters channel
4)	Channel Configuration	☐ N/A	☐ Near natural	☐ Minor difference from natural channel	☐ Major difference from natural channel
5)	Excavated Material	☐ N/A	☐ Sloped to min. erosion	☐ <1 cubic yard transported to channel	☐ >1 cubic yard transported to channel
6)	Maintenance Free Drainage	☐ N/A	☐ Sufficient	☐ Minor problem(s) noted	☐ Major problem(s) noted

Appendix A-5: Random Number Table

(Note: Provided for convenience . Any random number table or random number generating calculator may be used to randomly select WLPZ reaches and road segments.)

97	58	55	23	12	87	39	84	32	23	26	91	01	11	26	01	24	06	58	20	33	46	38	86	23
84	95	87	34	95	31	23	12	64	75	89	28	38	15	91	81	89	08	86	08	88	20	02	11	67
11	52	38	09	94	32	47	35	42	67	39	33	89	97	16	28	94	86	93	86	96	13	43	85	99
38	69	94	97	10	44	42	85	46	88	56	56	63	58	22	89	19	26	82	25	94	15	54	65	62
23	99	36	33	41	99	76	22	29	19	92	53	92	15	71	47	57	74	69	03	65	57	90	53	17
09	15	95	74	87	09	63	82	63	29	84	57	45	80	07	13	57	40	58	34	21	93	90	39	21
55	75	91	36	57	38	30	89	64	42	01	84	83	12	79	32	09	56	03	81	90	88	00	71	02
84	62	29	92	42	03	92	37	46	19	90	75	68	84	49	53	80	62	19	20	31	14	42	11	17
79	25	70	07	80	85	32	53	87	11	33	79	14	20	04	12	40	31	74	39	80	21	37	65	20
40	10	91	52	27	21	18	64	61	04	85	55	16	90	71	31	95	15	86	74	87	80	75	71	27
93	18	86	63	72	22	53	44	23	89	38	06	46	04	79	67	77	33	21	75	40	51	74	60	53
63	71	69	30	23	12	85	90	05	07	67	33	56	52	60	21	50	72	26	28	48	67	31	87	61
05	29	95	78	06	10	41	62	18	37	42	91	98	43	33	20	58	62	80	65	19	90	07	84	49
30	04	29	90	89	64	25	66	36	41	99	59	15	43	86	34	10	05	99	83	08	02	18	01	22
75	50	83	42	46	80	76	77	34	16	04	05	06	28	86	60	70	04	13	28	98	76	78	43	69
68	82	44	11	33	11	20	42	00	22	40	03	06	12	45	06	32	34	44	18	01	26	36	78	42
51	38	78	69	65	25	98	73	40	31	12	04	99	51	09	49	04	32	68	68	54	64	15	25	68
98	41	81	63	70	58	43	39	93	18	54	46	98	33	01	47	85	39	81	11	48	84	07	64	76
08	44	37	01	53	59	67	11	11	53	16	98	16	52	52	39	32	22	18	22	04	03	06	77	17
17	30	92	82	09	42	37	88	43	35	11	54	89	05	61	10	46	27	43	33	88	92	72	62	01
74	87	89	10	02	19	45	29	65	70	77	81	98	78	67	05	62	57	08	79	30	32	62	91	87
61	81	52	99	80	11	55	21	98	02	08	26	01	20	16	07	42	88	56	51	31	96	14	85	49
55	08	43	08	22	50	28	03	18	00	80	79	60	18	33	92	36	13	50	41	43	59	82	16	65
44	38	47	15	16	96	03	51	42	15	35	96	40	87	91	56	91	13	58	85	40	06	36	04	30
12	45	97	68	57	62	36	61	03	29	46	60	79	85	99	91	13	99	95	58	75	14	74	88	12
19	95	23	05	45	01	87	81	18	92	36	94	07	14	08	90	32	51	29	61	50	60	34	92	25
71	55	86	72	94	77	08	55	65	50	33	53	94	81	52	36	31	53	12	74	88	59	99	35	95
07	32	94	03	20	66	29	98	75	65	70	30	56	59	08	24	51	75	48	73	11	29	77	08	36
10	35	58	59	25	89	62	60	77	71	24	13	38	20	83	02	48	11	67	95	38	97	15	58	18
62	99	34	08	06	81	46	09	16	82	95	17	13	46	36	51	36	87	56	10	80	79	40	48	82
19	44	35	31	20	16	05	25	26	38	98	94	18	38	88	10	90	29	01	12	48	85	52	97	22
77	76	94	64	49	45	39	58	07	88	32	11	43	09	51	32	69	31	63	02	33	47	08	94	85
97	43	81	59	46	59	26	04	63	86	87	31	55	50	66	11	37	04	68	14	57	17	08	82	48
09	77	93	46	95	36	98	08	77	39	71	44	48	10	19	54	80	24	83	47	06	79	01	78	43
71	09	43	23	16	33	93	21	87	89	16	53	05	53	16	98	96	30	89	49	83	32	23	13	32
25	19	47	70	48	16	91	39	59	80	66	77	96	02	08	59	58	48	91	81	04	31	64	65	15
43	23	23	81	42	61	42	37	17	76	75	40	18	81	33	51	68	04	41	00	72	82	28	68	03
50	57	81	53	79	98	04	75	77	30	49	18	17	01	70	06	01	53	04	76	49	93	39	68	00
81	04	78	50	20	33	21	64	10	00	49	43	08	86	53	25	50	24	70	63	01	08	52	66	67
19	62	59	60	23	26	11	30	12	63	26	60	61	15	83	27	41	02	61	80	72	19	91	56	53
32	52	48	94	61	60	43	08	29	67	86	20	90	03	18	48	22	42	82	59	84	31	00	92	15
79	73	88	64	27	89	92	95	64	78	40	06	16	28	66	54	93	14	19	00	39	11	13	27	55
05	12	93	24	38	18	25	64	65	51	81	15	80	43	36	94	49	89	58	80	80	76	25	65	69
59	72	45	18	64	49	67	78	83	66	72	92	63	42	78	21	14	35	00	16	05	92	74	20	31
22	75	30	52	34	00	43	50	50	91	10	64	18	60	30	48	99	84	23	37	20	03	50	50	05
86	21	48	23	45	01	80	49	33	99	57	92	46	06	55	60	98	81	40	20	72	45	67	83	67
47	02	27	40	96	41	44	06	54	76	83	52	32	56	15	09	45	22	54	07	49	70	54	48	84
36	76	21	72	44	85	55	63	87	29	62	84	18	48	29	23	75	29	90	68	02	56	04	32	34
43	84	04	45	20	18	42	25	25	95	70	15	92	80	82	47	10	21	18	57	83	54	02	09	53
88	82	00	84	16	82	67	66	77	89	78	31	98	11	56	27	07	76	59	71	87	56	99	27	28

90	78	82	54	47	20	83	80	10	41	35	22	23	03	98	79	74	41	35	05	78	73	95	47	83
78	58	68	87	41	11	08	81	29	89	71	23	10	01	79	25	06	00	45	80	64	70	95	34	29
51	42	21	03	88	20	05	35	93	00	68	12	09	55	09	36	54	95	22	82	48	30	09	56	87
93	15	07	60	86	67	37	94	24	35	82	44	19	92	96	21	84	29	04	29	83	32	05	10	48
27	12	31	66	62	09	54	17	31	23	27	30	37	36	79	75	50	39	57	12	67	23	22	09	33
79	44	83	55	47	96	50	93	56	82	58	16	35	18	87	64	08	22	47	93	86	43	43	30	17
89	73	43	91	03	57	91	35	40	64	13	61	94	37	16	09	93	96	25	87	30	23	42	54	31
29	30	90	00	58	15	99	93	33	67	80	08	59	21	66	13	54	56	85	25	05	32	03	52	52
97	33	17	26	25	04	73	18	10	05	34	40	32	65	07	28	68	29	31	97	89	57	95	55	16
07	15	44	92	47	28	50	93	03	53	37	70	19	68	59	95	39	87	90	46	98	64	46	24	71
82	50	35	50	80	23	67	81	25	02	83	08	12	70	00	25	31	33	80	06	19	86	14	59	27
59	21	86	16	30	27	85	16	26	34	50	15	87	22	69	71	36	95	90	76	90	99	79	63	21
04	19	60	33	05	29	02	33	74	56	38	84	21	07	35	93	54	70	18	47	14	62	75	45	02
96	91	44	09	94	06	89	50	88	83	82	50	11	82	51	30	68	91	06	28	86	65	17	45	20
31	71	03	53	38	94	02	52	72	15	44	49	53	42	43	00	36	97	67	64	12	27	46	00	18
03	70	22	67	59	98	10	64	68	08	79	06	89	48	41	85	72	10	87	24	96	04	20	68	00
08	45	79	46	89	74	73	67	60	15	70	37	61	44	07	67	89	81	54	26	57	17	63	27	74
37	80	05	75	64	48	51	68	68	27	71	75	45	32	27	76	35	26	58	88	67	74	48	90	94
90	63	56	69	37	19	74	48	63	31	52	36	84	40	66	72	66	03	41	87	65	29	12	36	64
22	69	38	02	88	89	71	43	01	87	41	79	42	99	29	41	08	47	32	19	45	29	59	69	90
05	79	69	67	64	36	14	82	65	26	40	51	63	42	48	85	48	34	12	04	33	26	52	26	52
48	91	53	03	82	64	24	06	31	03	97	44	82	24	89	88	48	66	54	10	41	27	09	11	61
94	64	97	27	25	62	23	94	40	54	56	32	97	78	90	58	86	41	75	19	42	90	85	36	68
15	85	82	52	08	52	96	26	92	88	93	11	03	23	52	78	23	57	85	43	53	90	42	22	22
09	81	37	66	56	99	08	59	19	48	29	69	21	64	95	12	08	15	24	45	59	25	22	76	96
43	83	99	02	76	12	16	45	52	66	35	70	93	09	52	75	40	34	35	62	65	42	27	20	59
31	98	09	80	62	75	26	64	57	26	46	41	47	90	97	99	46	10	51	42	73	28	98	89	91
81	35	42	62	84	37	02	59	78	16	17	96	05	71	39	88	05	34	05	92	22	43	89	66	89
97	95	56	39	75	65	47	61	86	33	14	88	55	33	69	70	87	79	94	46	17	61	72	27	01
37	63	35	93	23	17	30	14	51	51	17	28	21	74	67	12	11	57	19	27	38	70	73	82	92
39	22	96	00	48	52	49	62	09	40	08	30	27	54	70	96	06	52	12	80	36	12	38	68	05
61	29	84	34	51	60	19	77	82	16	64	45	02	27	04	65	55	90	95	04	20	39	29	96	28
38	84	18	10	29	19	09	66	06	78	37	09	60	50	21	52	72	01	52	70	29	65	05	37	16
64	29	48	04	08	55	72	25	25	77	54	26	27	24	39	66	67	06	40	00	99	35	70	69	58
64	02	32	99	63	62	42	89	32	20	81	14	08	40	45	22	15	37	49	38	96	51	19	08	27
13	83	39	51	30	31	49	94	83	66	02	50	95	18	98	58	84	90	58	81	00	40	91	12	46
83	30	90	09	35	41	12	87	93	66	85	96	20	65	34	23	13	05	41	01	91	48	95	59	45
46	63	53	97	63	18	86	37	56	20	35	62	66	11	37	30	91	89	97	51	64	78	06	95	65
54	43	40	02	41	55	70	52	96	87	02	82	61	21	88	60	65	98	42	09	03	61	20	83	01
27	18	65	62	01	97	45	79	51	37	74	47	20	11	48	97	93	73	86	50	46	61	95	01	24
45	42	16	13	20	34	51	08	71	52	39	17	71	39	84	97	27	72	49	42	81	62	32	87	22
35	92	97	02	34	93	32	95	81	13	92	05	40	70	95	71	66	61	24	08	77	32	73	66	79
60	55	35	57	24	52	95	84	90	64	38	39	72	70	17	98	42	85	96	67	41	11	83	17	78
43	17	21	09	60	58	86	12	31	11	66	61	43	96	00	93	97	00	15	20	37	96	73	56	63
07	85	74	58	28	38	74	68	32	61	87	14	71	83	47	90	11	96	70	08	67	04	34	46	08
33	00	29	08	87	42	59	40	24	97	44	99	13	56	87	95	02	47	97	89	23	51	45	37	83
97	14	00	42	23	72	03	19	02	41	11	23	36	98	32	19	91	42	03	58	62	23	74	45	06
68	58	32	80	82	40	49	71	83	37	93	49	99	60	72	88	14	26	88	95	48	69	35	40	63
39	87	38	16	06	82	92	62	32	75	67	64	50	49	39	29	55	53	92	97	04	48	60	53	90
37	73	01	84	87	42	88	30	93	75	01	18	34	73	30	28	44	28	18	01	00	38	26	38	57

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