COOS BAY SALE NO. ORC00-TS-2017.0031
CRYSTAL CLEAR

COOS BA/Y DISTRICT OFFICE
MYRTLEWOOD FIELD OFFICE

SALE DATE: JUNE 23, 2017
SALE TIME: 10:00 a.m.

LOCKED GATES - KEY REQUIRED

SALE NO.: ORC00-TS-2017.0031, CRYSTAL CLEAR **SET-ASIDE SALE**

CURRY COUNTY: OREGON: O&C, PD: ORAL AUCTION: Bid deposit required: $109,800.00

All timber designated for cutting on: T. 31 S., R. 14 W., Sec. 28, 29, 30 & 32 Will. Mer.

Approx. No. Merch. Trees	Est. Vol. MBF 32' Log	Species	Est. Vol. MBF 16' Log	Appraised Price Per MBF	Estimated Vol. Times Appraised Price
24,364	4,528	Douglas-fir	5,563	$196.90	$1,095,354.70
212	22	western hemlock	27	$45.10	$1,217.70
119	10	red alder	15	$74.50	$1,117.50
24,695	**4,560**	**Total**	**5,605**		**$1,097,689.90**

THIS TIMBER SALE HAS BEEN CRUISED, APPRAISED, AND ADVERTISED BASED UPON SCRIBNER BOARD FOOT MEASURE (16 FOOT LOG). THE MINIMUM BID FIGURES SHOWN BY SPECIES ARE DOLLARS PER THOUSAND BOARD FEET (MBF). THE MINIMUM BID INCREMENT WILL BE $0.50 PER MBF. SCRIBNER BOARD FOOT VOLUMES (32 FOOT LOG) BY SPECIES ARE DISPLAYED FOR INFORMATIONAL PURPOSES.

LOG EXPORT AND SUBSTITUTION: All timber sales, including timber from Federal rights-of-ways, shall be subject to the restrictions relating to the export and substitution of unprocessed timber from the United States in accordance with P.L. 94-165 and 43 CFR 5400 and 5424 as amended.

LOG EXPORT AND SUBSTITUTION RESTRICTIONS: Excepting Port-Orford-cedar, all timber offered for sale hereunder is restricted from export from the United States in the form of unprocessed timber and is prohibited from being used as a substitute for exported private timber.

CRUISE INFORMATION: With respect to merchantable trees of all species in all cruise strata: the average DBHOB is 15.1 inches, the average gross merchantable log contains 55 bd. ft., the total gross volume is approximately 5,911 thousand bd. ft., and 95 % recovery is expected. The average DBHOB for the dominant species of Douglas-fir is 15.1 inches, and the average gross merchantable log contains 55 bd. ft. None of the total sale volume is salvage material. The following cruise methods were used for volume determination:

VARIABLE PLOT: Timber volumes in Units 1 thru 6 were calculated using the variable plot system to select 94 sample trees. Sample trees were cruised and their volumes computed using form class tables for estimating board foot volumes of trees in 16-foot logs. The volumes are then expanded to a total sale volume.

100% CRUISE: Timber volumes within the rights-of-way were based on a 100% cruise using form class tables

for estimating board foot volume of trees in 16-foot logs.

CUTTING AREA: Six units totaling approximately 99 acres must be regeneration cut and 2 acres of Right of Way must be cut. Acreage data was collected using a Trimble Geo XT Global Positioning System receiver. Acreage was calculated based on Global Positioning System traverse procedures including differential correction.

ACCESS: Access to the sale area is provided via: United States highways, Curry County roads, privately controlled roads, and Government controlled roads. Please contact Moore Mill & Lumber Company, 440 1st St SW Bandon, OR. 97411, (541) 347-2412 for access to the sale area via the Plum Trees or Crystal Creek Mainlines. A 72 hour notice and a refundable $250 key deposit will be required.

DIRECTIONS TO SALE AREA: From Coos Bay, Oregon, travel south on Highway 101 for approximately forty five miles. Turn east onto Crystal Creek County Road and travel 1.76 miles. Continue on Moore Mill Road No. 35-15-35.0 for approximately 5.11 miles. Refer to Exhibits A and A-1 for unit locations.

ROAD USE, ROCKWEAR & MAINTENANCE: Refer to Exhibit E Summary attached. Operator maintenance required on 2.56 miles of road.

Rockwear Fees Payable to BLM:	$524.22
Rockwear & Maintenance Fees Payable to Moore Mill & Lumber Co.:	$78,990.03
Road Use Fees Payable to Moore Mill & Lumber Co.:	$166,614.99
Road Use Fees Payable to Teton Timber Company, LLC:	$11,522.52

ROAD CONSTRUCTION: Road Construction estimates include the following:

New Construction:

105.26 stations

Road Renovation:

20.59 stations

Road Improvement:

12.98 stations

Aggregate (All quantities are truck measurement):

3” minus hardrock: 4,633 L.C.Y.
1 ½” minus hardrock: 1,839 L.C.Y
1 ½” minus maintenance hardrock: 500 L.C.Y
Riprap Energy Dissipater: 64 L.C.Y.

Drainage:

18" CPE double wall: 470'
24" CPE double wall: 82'
36" CPE double wall: 40'
Culvert Markers: 17

Soil Stabilization:

Dry Seed, fertilizer, & mulch: 8.5 acres (Pre-haul)
Dry Seed, fertilizer, & mulch: 3.8 acres (Post-haul)

Roadside Brushing:

0.38 acres

Road Decommissioning:

Normal Decommissioning: 113.85 stations
Earthen Barriers: 7

DURATION OF CONTRACT: Shall be 36 months for cutting and removal of timber. The contract will contain special stipulations regarding logging, road construction, road use and maintenance, fire prevention, hazard reduction and logging residue reduction, log export and substitution, optional scale check of lump sum sales, equal opportunity in employment, cultural resource protection, and sensitive, threatened, or endangered plants or animals.

SPECIAL PROVISIONS: This list is not comprehensive. Please review the entire contract.

1. License agreement is required with Moore Mill & Lumber Company, RWA- C-364. A performance bond in the amount of $10,000.00 and comprehensive liability insurance will be required for this license agreement. Please contact Moore Mill & Lumber Company, 440 1st St SW Bandon, OR. 97411, (541) 347-2412 for access to the sale area via the Plum Trees or Crystal Creek Mainlines. A 72 hour notice and a refundable $250 key deposit will be required.
2. License agreement is required with Pacific West Timber Company (Oregon), LLC, RWA- C-354. A performance bond in the amount of $2,000.00 and comprehensive liability insurance will be required for this license agreement. Payment of road maintenance & rockwear fees for timber haul on Pacific West Road No. 31-14-4.0 B shall be made to Moore Mill & Lumber Company.
3. License agreement is required with Teton Timber Company, LLC, RWA- C-877A. A performance bond in the amount of $10,000.00 and comprehensive liability insurance will be required for this license agreement.
4. All trees within the right-of-way on private property are marked with teal green paint. Purchaser will be required to fell, buck and deck trees/logs in a location approved by the Authorized Officer. The Purchaser shall contact Moore Mill's office 30 days prior to cutting any R/W timber; Moore Mill will provide log lengths and diameter specifications to the Purchaser at that time.
5. All equipment must be washed prior to entry into the contract area to control the spread of noxious

weeds.

6. BLM Road Nos. 31-14-29.7, 31-14-29.8, 31-14-29.9, 31-14-30.1 and 31-14-30.2 are restricted to dry-season haul (June 1 through October 15) only. All other roads are approved for wet-season haul. All wet-season hauling shall be done using the Plum Trees mainline haul route.
7. No trees shall be felled into the Reserve Area or Reserve Area - Green Tree Retention, as shown on the Exhibit A. Line pulling, jacking, or other mechanical devices shall be used as necessary.
8. Lift trees and intermediate support trees may be necessary.
9. One-end suspension required in cable and ground-based yarding areas.
10. A forwarder, log loader, tractor, or rubber tire skidder may be used to yard logs within the Ground-Based Yarding areas. Ground-based equipment are restricted to areas with slopes less than 35%.
11. Purchaser shall verify all landing locations and stake required clearing limits prior to construction.
12. Shape and restore all landings to a natural contour to prevent erosion.
13. Seed and fertilize all landings, road cuts and fills, and waste areas.
14. Soil stabilization, water bar construction, road decommissioning, and road barrier construction shall be conducted after the completion of harvest activities but no later than October 15.
15. BLM will assume supervisory responsibility for disposal of logging slash.
16. Personnel supplied by the Purchaser for landing pile and machine pile burning shall include four (4) people qualified at a minimum, as Type-II Firefighters (FFT2). Personnel required for broadcast burning include one (1) Crew Boss (CRWB), two (2) Type-I Firefighters (FFT1) and eighteen (18) Type-II Firefighters (FFT2) as well as two (2) qualified water tender operators, (National Wildfire Coordinating Group (NWCG) Wildland Fire Qualifications System guide, PMS 310-1).
17. Machine piling or scattering of logging slash are required at all landing areas and along all roads.
18. After yarding is complete, the purchaser shall girdle 222 conifer trees and fall 158 conifer trees in Units 1 through 6.

Seasonal Restriction Matrix ORC00-TS-2017.0031 CRYSTAL CLEAR Timber Sale Prospectus

***Restricted periods are Shaded; Conditional periods are hatched; See Exhibit A for portions of units affected.**

		Jan		Feb		Mar		Apr		May		June		July		Aug		Sept		Oct		Nov		Dec	
	Activity	**1**	**15**	**1**	**15**	**1**	**15**	**1**	**15**	**1**	**15**	**1**	**15**	**1**	**15**	**1**	**15**	**1**	**15**	**1**	**15**	**1**	**15**	**1**	**15**
General All Units	Road Construction, Renovation, or Improvement Work[1]																								
	Hauling[1]																								
	Hauling on approved rocked roads[3]																								
	Ground based yarding[3]											25 %													

[1] Wet season restrictions may be shortened or extended depending on weather conditions.
[2] Ground based yarding restricted to periods when soil moisture levels are below 25% as determined by the Authorized Officer.
[3] Wet season haul on rocked roads may be suspended during periods of heavy rain (>1" in 24 hours).

SCHEDULE I

Sec 41. TIMBER RESERVED FROM CUTTING. The following timber on the Contract Area, shown on Exhibit A, which is attached hereto and made a part hereof, is hereby reserved from cutting and removal under the terms of this contract and is retained as the property of the Government:

a. All timber in the Reserve Areas, as shown on Exhibit A, and all blazed, orange painted and/or posted trees which are on or mark the boundaries of the Reserve Area.

b. All timber marked, by the Government, with orange paint above and below stump height within the Harvest Area, shown on Exhibit A. Approximately 380 trees are reserved with orange paint within Harvest Area to meet the post-harvest girdling and falling requirements of Sec. 42b.10.

c. All existing standing dead trees, except those snags that must be felled to permit safe working operation provided that all snags felled must be retained on site;

d. All existing downed wood in decay classes 3-5 and all existing downed wood 20 inches or larger in diameter measured on the large end regardless of decay class.

e. Approximately 177 trees marked with blue paint above and below stump height within the Right-of-Way of roads to be constructed or renovated within the Reserve Area are the property of the Purchaser.

f. Approximately 34 Douglas-fir and 1 western hemlock trees, each marked with an orange painted “W” above stump height and orange painted below stump height in Unit 1. Approximately 38 Douglas-fir trees each marked with an orange painted “W” above stump height and orange painted below stump height in Unit 3. Approximately 30 Douglas-fir trees each marked with an orange painted “W” above stump height and orange painted below stump height in Unit 4. Approximately 18 Douglas-fir and 1 western hemlock trees each marked with an orange painted “W” above stump height and orange painted below stump height in Unit 5. All “W” reserve trees are as shown on Exhibit A. These trees are selected wildlife trees and are specially valued as a component of the Wildlife Habitat Management program. Selected wildlife trees damaged or destroyed by the Purchaser shall be valued for purposes of determining damages at either current market value of the merchantable volume, whichever is greater, plus the cost to replace the damages or destroyed trees. The Purchaser will be liable under applicable sections of this contract for the removal or destruction of these selected wildlife tress, except for such trees which the Authorized Officer determines to be a safety hazard as defined by applicable safety codes and regulations. When selected wildlife trees are determined to be danger trees, written approval to cut such trees shall be obtained from the Authorized Officer conforming to all requirements of Section 8 of this contract.

g. All Bearing Trees with metal tags and/or red paint that mark property corners.

Sec 42. SPECIAL PROVISIONS. Purchaser shall comply with the special provisions which are attached hereto and made a part hereof unless otherwise authorized, in writing, by the Authorized Officer:

a. Periodic Payment and First Installment Adjustment

(1) Notwithstanding the provisions of Sec. 3(b), the amount of the first installment may be reduced by the Government when the Contracting Officer requests the Purchaser to interrupt or delay operations for a period expected to last more than 30 days during the operating season. Such interruption or delay must be beyond the Purchaser's control. Operating Season shall be defined, for this purpose, as the time of year in which operations of the type required are normally conducted and not specifically restricted under the contract. The first installment may be reduced to 5% of the installment amount listed in Sec. 3(b), during the delay period. The Purchaser must request such a reduction in writing. When the Contracting Officer notifies the Purchaser that operations may proceed, the purchaser shall have 15 days after such notification to return the first installment to the full value specified in Sec. 3(b). Failure to return the first installment to the full value within the allotted time will be considered a material breach of contract. No timber shall be cut or removed from the contract area until the first installment is restored to the full amount.

(2) Notwithstanding the provisions of Sec. 3(b), adjustments in the due dates for periodic payments may be made by the Government if the Contracting Officer interrupts or delays contract operations for a period expected to last at least 30 days, and the interruption or delay is beyond the Purchaser’s control. Any adjustment made shall provide the Purchaser with an equal amount of operating time as would have been available without the delay. The Purchaser shall request such adjustment in writing before the due date for a periodic payment contained in Sec. 3(b).

b. Logging

(1) Prior to commencement of operations, the Purchaser shall obtain from the Authorized Officer written approval of a written operations and logging plan commensurate with the terms and conditions of the contract which shall include measures needed to assure protection of the environment and watershed. A pre-work conference between the Purchaser's authorized representative and the Authorized Officer's representative must be held at a location designated by the Authorized Officer before the logging plan will be approved.

(2) Before beginning operations on the contract area for the first time, or after a shutdown of ten or more days, the Purchaser shall notify the Authorized Officer in writing of the date they plan to begin operations. The Purchaser shall also notify the Authorized Officer in writing if they intend to cease operations for any period of ten or more days.

(3) No trees may be felled into the Reserve Area or Reserve Area - Green Tree Retention as shown on the Exhibit A. Line pulling, jacking, or other mechanical devices shall be used as necessary to prevent trees from falling into these areas.

(4) All trees three (3) inches DBHOB or larger and/or twenty five (25) feet or taller designated for cutting shall be felled concurrently with all other trees designated for cutting.

(5) In all Units, (except within the Broadcast Burn Area shown on the Exhibit A) trees will be whole tree yarded when feasible to the landing areas.

(6) In all Units, yarding (except for road Rights-of-Way and Ground-based Yarding Area), as shown on Exhibit A, shall be done with a skyline cable system according to the following:

a. One-end log suspension is required during yarding operations. Intermediate supports and/or lift trees may be required to obtain the required suspension.

b. The Purchaser shall make all cable sky road changes by completely re-spooling cables and restringing the layout from head spar to tailhold.

c. Where road locations allow, yarding will be done so that corridors run parallel to each other rather than radiate from a central landing.

(7) In the Ground-based Yarding Area and within road Right-of-Ways, cutting and yarding shall be done according to the following:

a. In addition to the requirements set forth in Sec. 26 of this contract, no ground-based logging operations shall be conducted on the contract area between October 15 of one calendar year and June 1 of the following calendar year, both days inclusive.

b. Ground-based operations shall be conducted when soil moisture content is below 25%, as determined by the Authorized Officer; unseasonably dry or wet weather may shorten or extend the operating season. The Purchaser shall be notified in writing when weather conditions extend the operating season. The Purchaser shall cease operations during periods of rain and shall be notified, after a soil-moisture assessment by the Authorized Officer, when operations may resume.

c. The yarding machine must be approved by the Authorized Officer. It must be equipped with a grapple or an extendable and retractable arch and fairlead that is an integral part of the machine that is capable of lifting the leading end of the turn clear of the ground. All logs in the Ground Base Area shall be yarded with their leading end clear of the ground. A forwarder or tracked log loader may also be used to yard logs.

d. Primary skid roads/trails shall use existing trails wherever possible, designate skid trails with the objective of having less than 12 percent of a harvest area affected by compaction.

e. Primary skid trails shall be blocked with cull material after completion of harvest where the Authorized Officer determines vehicle access is possible.

f. All ground-based equipment shall be restricted to operating on slopes less than 35%.

g. Primary skid trails with a slope greater than 15% and/or are left with more than 100 feet of continuous bare ground shall have water bars installed and/or be covered with slash for erosion control prior to October 15 as directed by the Authorized Officer.

(8) Prior to attaching any logging equipment to any tree within the Reserve Area, or Reserve Area - Green Tree Retention, the Purchaser shall obtain written approval from the Authorized Officer, and shall take precautions to protect the trees from damage, as directed in writing by the Authorized Officer.

(9) To control the spread of noxious weeds and Port-Orford-cedar root disease, the purchaser shall conduct all operations involving the transportation and use of equipment and vehicles in strict accordance with the requirements shown on Exhibit F, which is attached hereto and made a part hereof. All road building and logging equipment shall be washed prior to moving in the Contract Area to minimize the spread of noxious

weeds.

(10) After completion of yarding activities, the Purchaser shall girdle 222 conifer trees and fall 158 conifer trees in Units 1 through 6, as shown on the Exhibit A and as directed by the Authorized Officer, according to the following:

a. Unit 1: girdle 140 conifer trees (marked with “S”) and fall 99 conifer trees (marked with “DW”)
b. Unit 2: girdle 8 conifer trees (marked with “S”) and fall 6 conifer trees (marked with “DW”)
c. Unit 3: girdle 12 conifer trees (marked with “S”) and fall 12 conifer trees (marked with “DW”)
d. Unit 4: girdle 10 conifer trees (marked with “S”) and fall 7 conifer trees (marked with “DW”)
e. Unit 5: girdle 28 conifer trees (marked with “S”) and fall 21 conifer trees (marked with “DW”)
f. Unit 6: girdle 24 conifer trees (marked with “S”) and fall 13 conifer trees (marked with “DW”)

The Purchaser shall girdle at DBH. Girdling will consist of removing a four inch band of bark (all sapwood shall remain intact) completely around the bole of the tree. Girdling will not be permitted on trees less than 100 feet from roads. Girdled trees shall have a number painted at breast height with fluorescent paint such that they are visible from at least 150 feet, felled trees shall have the butt ends painted. Number and location of treated trees shall be depicted on a map by the Purchaser such that they may be easily verified.

c. Road Construction

(1) The Purchaser shall construct and renovate roads in strict accordance with the road plans and specifications, shown on Exhibit C, which is attached hereto and made a part hereof.

(2) Any required construction or renovation of structures and roads shall be completed and accepted prior to the removal of any timber, except right-of-way timber, over that road.

(3) In addition to the requirements set forth in Sec. 26 of this contract, the Purchaser shall complete erosion control and soil stabilization measures on all cuts, fills, waste areas, and scarified areas, as designated by the Authorized Officer, along all sections of roadway disturbed during the year prior to October 15 of each year. The Authorized Officer may set time limits for the beginning and completion of erosion control and soil stabilization measures and modify seasonal dates to conform to existing weather conditions and changes in the construction schedule. Such work shall be accomplished in accordance with Erosion Control and Soil Stabilization, 1700 and 1800 Series, contained in Exhibit C.

(4) The Purchaser, prior to construction of landings, shall stake all landing locations in accordance with the requirements set forth in Exhibit C. Concurrently with, or at the termination of logging operations, the Purchaser shall pull back and shape onto the landings all overhanging materials to prevent erosion in accordance with the requirements set forth in Exhibit C.

d. Road Use and Maintenance

(1) The Purchaser shall be required to secure written approval to use or haul equipment over Government owned or controlled structures when that equipment exceeds the maximum allowable weights or dimensions established by the State for vehicles operating without a permit.

(2) Tracked type equipment shall not be allowed to cross over concrete bridge decks, other concrete surfaced structures or asphalt surfaced roads without the proper protection of that surface. Prior approval shall be obtained from the Authorized Officer when crossing with protective devices. Details of such equipment shall be furnished to the Authorized Officer for evaluation of load characteristics, at least 15 days prior to proposed move in. Details shall include:

a. Axle weights when fully loaded;
b. Axle spacing;
c. Transverse wheel spacing;
d. Tire size;
e. Outside width of vehicle;
f. Operating speed;
g. Frequency of use; and,
h. Special features (e.g. running tracks, overhang loads, etc.).

The Purchaser shall be responsible for repair of any damage to structures caused by the use of overweight or over-dimension vehicles: (1) without written approval, (2) in violation of the conditions of a written approval or (3) in a negligent manner. The amount of actual damage shall be determined by the Authorized Officer following a technical inspection and evaluation.

(3) The Purchaser is authorized to use the roads shown on Exhibit E, attached hereto and made a part hereof, for the removal of Government timber sold under the terms of this contract and for haul of mineral material required under the terms of this contract; provided, that the Purchaser shall pay the road maintenance fees and rockwear fees totaling $524.22 as shown on Exhibit E. Unless the total maintenance and rockwear fees due BLM are paid prior to commencement of operations on the contract area, payments shall be made in installments payable in the same manner as and together with payments required by Sec. 3 of this contract.

(4) The Purchaser shall perform maintenance and repair of such roads shown on Exhibit D in accordance with the maintenance specifications listed in Exhibit D, attached hereto and made a part hereof.

(5) At all times during the period of his operations on the contract area, and upon completion of said operations, the Purchaser shall be liable for maintenance and repair of such roads shown on Exhibit D resulting from wear or damage in accordance with the maintenance specifications as shown on Exhibit D.

(6) With the prior written approval of the Authorized Officer, the Purchaser may arrange for cooperative maintenance with other users of any BLM controlled road included in Sec. 42.c.(1) and 42.d.(3) of this contract; provided, that such cooperative arrangement shall not relieve the Purchaser of his liability for the maintenance and repair of such roads resulting from wear or damage, in accordance with this contract. The Purchaser shall furnish the Authorized Officer a copy of any cooperative maintenance agreements entered into with other users on these roads.

(7) The Authorized Officer may at any time, by written notice, terminate the Purchaser's operator road maintenance obligations and require instead payment of current Bureau of Land Management road maintenance fees for the particular surface type of the road(s) involved. These fees will be applied to the remaining contract

volume on the sale area, as determined by the Authorized Officer, to be transported over the roads listed in Sec. 42.c.(1) and 42.d.(3). If the total road maintenance fee does not exceed $500.00, the Purchaser shall pay such amount in full prior to use of such roads. If the total road maintenance fee exceeds $500.00, the Authorized Officer shall establish an installment schedule of payments of the maintenance obligation.

(8) The following management practices shall be used to prevent delivery of haul-related sediment to the stream network during wet season haul:

Apply additional lift of rock to the area of road that can influence the stream if rill erosion is evident or likely in the road near a stream crossing. Hard rock shall be in place at the start of winter haul and additional rock shall be applied as necessary to maintain the stream crossing for the duration of wet season haul.

Contain offsite movement of sediment from the road or ditch flow near stream by installing a silt fence or other sediment-trapping device. Such control measures must allow for the free flow of water without detention or plugging. The control measure must receive frequent maintenance with accumulated sediment disposed of in accordance with Authorized Officer instructions. Silt fences or sediment traps shall be in place prior to the start of winter haul.

Hauling during the wet season may be suspended if more than 1 inch of rain is expected in a 24-hour period and the Authorized Officer determines that the soils in the contract area are already saturated and the sediment prevention measures in described in Sec 42.d(8) would be ineffective at preventing sediment delivery to the stream network. The NOAA - National Weather Service - Hydrometeorological Prediction Center web site, http://www.hpc.ncep.noaa.gov (Quantitative Precipitation Forecast) shall be used as the rainfall forecast tool unless otherwise directed by the Authorized Officer.

(9) BLM Road Nos. 31-14-29.7, 31-14-29.8, 31-14-29.9, 31-14-30.1, 31-14-30.2 and 31-15-35.0 Segment A are restricted to dry season haul only between June 1 and October 15 unless dry conditions extend the hauling season, as directed by the Authorized Officer. Hauling between October 15 and June 1 shall be done using the Plum Trees mainline.

(10) All trees within the Right-of-Way to be cut on private property are marked with teal green paint. Purchaser will be required to fell, buck, and deck logs in a location approved by the Authorized Officer. The Purchaser shall contact Moore Mill's office 30 days prior to cutting any R/W timber for current log lengths and diameter specifications.

(11) In the use of required company roads shown on the Exhibit E, the Purchaser shall comply with the conditions of the Right-of-Way and Road Use Agreement between the United States and Moore Mill & Lumber Company, RWA C-364. The agreement is available for inspection at the Bureau of Land Management, Coos Bay, Oregon. A performance bond in the amount of $10,000.00 and comprehensive liability insurance will be required by Licensor.

The Purchaser shall also comply with the conditions of the Right-of-Way and Road Use Agreement between the United States and Pacific West Timber Company (Oregon), LLC, RWA- C-354. The agreement is available for inspection at the Bureau of Land Management, Coos Bay, Oregon. A performance bond in the amount of

$2,000.00 and comprehensive liability insurance will be required by Licensor. Payment of rockwear and maintenance fees in the amount of $4,369.98 for timber haul on Pacific West Road No. 31-14-4.0 Seg. B shall be made to Moore Mill & Lumber Company as shown on the Exhibit E.

The Purchaser shall also comply with the conditions of the Right-of-Way and Road Use Agreement between the United States and Teton Timber Company, LLC, RWA- C-877A. The agreement is available for inspection at the Bureau of Land Management, Coos Bay, Oregon. A performance bond in the amount of $10,000.00 and comprehensive liability insurance will be required by Licensor. In lieu of the payment of rockwear fees, the Purchaser shall, at the completion of haul, place 50 CY of 1 ½" minus maintenance rock on Teton Timber Road No. 31-15-35.0 Seg. B in accordance with the maintenance specifications listed in Exhibit D.

Prior to commencement of operations, the Purchaser shall furnish to the Authorized Officer a copy of the executed License Agreements issued under the terms of the Right-of-Way Agreements. Default by the Purchaser of said Right-of-Way and Road Use Agreements, of any License Agreements executed pursuant thereto, for failure to pay appropriate road use fees or road maintenance fees shall be considered a violation of this contract. The amount of unpaid fees shall be considered as the amount of damage suffered by the Government as a result of the violation of this provision. Road maintenance fees may change during the course of the contract as determined by the Licensor. It is the responsibility of the Purchaser to pay fees current at time of haul. The road use fees payable to the Licensors are as follows:

a. Rockwear and Road Maintenance Fees Payable to Moore Mill & Lumber Co.: $78,990.03
b. Road Use Fees Payable to Moore Mill & Lumber Co.: $166,614.99
c. Road Use Fees Payable to Teton Timber Company, LLC.: $11,522.52

e. Fire Prevention and Control

Primarily for purposes of fire prevention and control, the Purchaser shall comply with the following provisions:

(1) At least three (3) days prior to the operation of power-driven equipment during any operations under this contract during the closed fire season or periods of fire danger, prepare a fire prevention and control plan to the satisfaction of the Authorized Officer.

(2) Provide and maintain on the contract area in good working order, and immediately available, the following equipment for use during the closed fire season or periods of fire danger:

a. Fire fighting tools shall be kept at each landing or at such other place as the Authorized Officer shall designate whenever employees are working on the contract area. All fire fighting tools shall be kept in a sturdily constructed box which shall be painted red and lettered on the front or top in large letters, "For Fire Only." The box shall have a hinged lid and a hasp by which the lid can be sealed. One box may serve two (2) landings not over six hundred (600) feet apart. When filled, the box shall not weigh over two hundred (200) pounds. The fire tools shall be in good condition, be tight on strong handles, and have sharp cutting edges. There shall be not less than four (4) tools in each box nor less than one (1) tool for each employee working on the contract area. Three-fourths (3/4) of all fire tools shall be shovels, hazel hoes, or other scraping tools. The fire tools shall be used only for fighting fire.

b. At each landing during periods of operation one (1) tank truck of three thousand (3,000) gallons or more capacity with one thousand (1,000) feet of one and one-half (1 ½) inch hose, two (2) nozzles and a gated-wye. Two (2) fifteen hundred (1,500) gallon tank trucks or portable tanks may be substituted for each required three thousand (3,000) gallon tank truck, provided that the total capability to pump and deliver water remains unchanged. Each tank truck shall be equipped with a pump capable of delivering a minimum of twenty (20) gallons per minute (gpm) water flow at one hundred ten (110) pounds per square inch (psi) engine pressure through fifty (50) feet of 1 ½ inch fire hose. The pump may be either power take off driven or truck-mounted auxiliary engine driven, or portable. All equipment shall be acceptable to and approved by the Authorized Officer and shall conform to the standards set forth in Oregon Revised Statutes 477.645 through 477.670. All hose couplings shall have the standard thread adopted by the BLM (1 ½ inches National Hose Thread (NH), 1 inch National Pipe Straight Hose Thread (NPSH) or be provided with suitable adapters use. All tank trucks shall be filled with water and made available for immediate use.

f. Logging Residue Reduction

In addition to the requirements of Sections 15 and 25 of this contract, and notwithstanding the Purchaser's satisfactory compliance with State laws and regulations regarding offsetting or abating the additional fire hazard created by this operation and the State's willingness to release Purchaser for such hazard, the Purchaser shall remain responsible to the Government for performance of the following hazard reduction and logging residue reduction measures required of them by this contract:

(1) Within thirty (30) feet of the edge of each landing, all tops, broken pieces, limbs and debris more than one (1) inch in diameter at the large end and longer than three (3) feet in length shall be piled within fifteen (15) days of completion of hauling logs from that landing. Landing piles shall be kept free of dirt and located adjacent to roads at least twenty (20) feet from any Reserve Tree and/or as directed by the Authorized Officer.

Upon completion of landing piling, and no later than September 30 of the same year of piling, the Purchaser shall prepare the landing piles for burning by securely covering each pile with a 10-foot by 10-foot cover of four (4) millimeter polyethylene or alternate material as set forth in OAR 629-048-0210. Covering shall cap each landing pile to maintain a dry ignition point. The cover shall be firmly fixed to each pile to hold it in place. Maximum pile size shall be twenty (20) feet in diameter by ten (10) feet in height. To meet ignition and combustion needs, larger piles may require additional PE sheeting. The Purchaser shall contact the Authorized Officer before any pile covering begins. At that time, the Authorized Officer will identify all piles that are approved for covering in excess of the one-hundred (100) square foot maximum size. Piles with material extending more than two (2) feet beyond the general contour of the pile shall be flattened or trimmed to create a uniform surface and to prevent the PE sheeting from tearing during wind events. Pile trimming or flattening shall be done prior to pile covering. Pieces of burnable material shall be placed on top of the plastic to secure it from moving and to prevent it from blowing off during strong wind episodes. The Purchaser is required to furnish the covering materials. The timing of this covering work shall be in accordance with instructions from the Authorized Officer. If the structure of the landing piles will not permit adequate consumption of piled debris by burning, the Purchaser shall re-pile them at the direction of the Authorized Officer.

(2) Lop and scatter all brush species one foot (1) or greater in height, damaged residual conifers and hardwoods not designated for cutting, and slash within the Broadcast Burn Area, as shown on the Exhibit A. All top and side branches must be cut free of the central stem so that such stem is reduced to the extent that it is within twelve (12) inches of the ground at all points. Slash includes all woody material (brush, limbs, tops, unmerchantable stems, or chunks) severed, uprooted, or broken from live plants as a result of Purchaser's operations under the terms of this contract.

(3) In the Broadcast Burn Area shown on Exhibit A, all logs or debris more than two (2) feet long and between one quarter (1/4) inches and six (6) inches at the large end shall be completely removed at least twenty five (25) feet from existing snags, down wood or reserve trees to reduce the fire hazard. Larger material which has a portion meeting this specification must be bucked at the six (6) inch diameter and that portion pulled back. Slash shall not be piled or windrowed. Slash shall be scattered over the site so that the resulting slash is no more than one foot in depth, measured from mineral soil.

(4) Fire Control Lines to mineral soil shall be constructed and maintained as directed by the Authorized Officer, in the locations shown on the Exhibit A. The Authorized Officer shall designate the width location, time and method of construction for the fire lines. Fire Control Lines shall be constructed in accordance with the following specifications:

a. Fire Control Line may be constructed by either hand crews or utilizing machinery approved by the Authorized Officer. Machinery may only be used in areas approved by the Authorized Officer for ground-based operations and shall be done during periods of suitable soil moisture conditions between June 1 and October 15, both days inclusive.

b. Fire Control Lines shall be cleared of overhanging and adjacent vegetation to a width of no more than eight feet. Fire control line shall be cleared down to mineral soil to a minimum of three (3) feet and a maximum of eight (8) feet in width. Soil and litter berms from construction of the line shall be pulled to the "outside" of the fire control line whenever possible. Cup trenches shall be constructed in areas where rollout could occur.

c. Unless otherwise approved by the Authorized Officer, all slash and vegetation removed from the fire control line shall be pulled or thrown back into the burn unit a sufficient distance from the Fire Control Line to prevent holding problems. Heavy concentrations of slash shall be scattered within the Broadcast Burn Area.

d. Water bars shall be constructed in all fire control lines following the slope guidelines below. Water bars shall consist of a diagonal ditch six inches deep across the fire control line and extend six inches beyond the width of the fire control line. Water bars shall be reconstructed after prescribed burning and mop-up is complete.

Trail Slope:	0% to 9%	1 water bar every 300 feet
	10% to 29%	1 water bar every 200 feet
	30 % to 100 %	1 water bar every 100 feet

(5) Notwithstanding the provisions of Sec. 15 of this contract, the Government shall be responsible for disposing of slash created by the Purchaser's operations on Government lands, except for slash created by clearing of rights-of-way for roads to be constructed, and except for assistance as required herein. In accordance with written instructions to be issued by the Authorized Officer at least ten (10) days in advance of earliest date of required performance, the Purchaser shall, under supervision of the Authorized Officer, assist with landing pile burning, broadcast burning, fire control, mop-up and patrol by furnishing, at their own expense, the services of personnel and equipment as follows:

a. The purchaser shall begin burning within fourteen hours (14) of notification by the Authorized Officer.

b. For each entry, the Purchaser may provide more personnel, equipment and materials than indicated, but no less than the minimum requirements listed below. Minimum personnel, equipment and materials requirements are:

1) Landing Pile Burning:

a. One (1) English-speaking crew supervisor
b. Three (3) person burn crew
c. Three (3) drip torches and sufficient fuel to complete all pile burning

2) Broadcast Burning Ignition & Holding:

a. One (1) English-speaking supervisor for crew and equipment operators (minimum CRWB).
b. 20-person burn crew (minimum 2 red carded FFT1, 18 red carded FFT2).
c. 2 water tenders (with operators) with 2500 gallons or more capacity equipped with a pump or pumps, capable of filling the tank at a rate of 300 gallons per minute (GPM) or more and discharging at 20.5 GPM through a 1/4" tip on the end of 50' of 1-1/2" hose. Water tenders must have a dump valve of at least 4" diameter or more for filling portable tanks. Water tenders shall be filled with water before arriving on site.
d. 6 drip torches and 35 gallons of mixed slash fuel.
e. 2 chain saws.
f. 3 portable pressure pumps (Mark III type).
g. 3-1500 gallon or larger, portable water tanks.
h. 2500 feet of 1-1/2" cotton- or synthetic-jacket rubber-lined wildland fire hose.
i. 2500 feet of 1" cotton- or synthetic-jacket rubber-lined wildland fire hose.
j. 40 hose lay fittings; 10 1½” gated wyes, 10 reducers (1½” to 1”), 10 1" gated wyes, 10 forester nozzles.
k. 20 hand tools; 5 shovels, 7 pulaskis, 8 hazel hoes (or equivalent).

All listed personnel shall be qualified as a Type-II Firefighter (FFT2) or higher as specified (National Wildfire Coordinating Group (NWCG) Wildland Fire Qualifications System guide, (PMS 310-1). All personnel shall be physically fit, experienced and fully capable of functioning as required. All personnel shall arrive at the project area with the following personal safety equipment: Lug-soled leather boots with a minimum of eight (8) inch uppers that provide ankle support; an approved hart hat; leather gloves; long-

sleeve shirt and full-length trousers made of approved aramid fabric (Nomex or equivalent) and an approved fire shelter. All tools and equipment shall be in good condition. All power-driven equipment shall be fully fueled and available for immediate use. During periods of use under this subsection, the Purchaser shall provide fuel and maintenance for all such power-driven equipment.

c. The Purchaser shall remove and dispose of all PE sheeting on landing piles exceeding the one-hundred (100) square foot maximum size. The sheeting shall not be removed until directed by the Authorized Officer. The Purchaser shall dispose of removed PE sheeting in accordance with applicable Federal, State and municipal laws. Removed PE sheeting shall not be disposed of in burn piles.

d. A minimum of eighty (80) percent consumption of landing piles is required.

e. No mop-up of landing piles is required of the Purchaser.

f. If necessary, before and/or following broadcast burning, the Purchaser shall provide one (1) set of fallers to cut any snags, wildlife or reserve trees that are deemed by the Authorized Officer to be a safety hazard or holding risk.

Except as provided hereafter for slash fire escapement, the Purchaser shall continue the required assistance in mop up for seventy-two hours (72), as directed by the Authorized Officer within a five (5) day period beginning at 8:00 a.m. the day following completion of ignition in the unit or until released from such services by the Authorized Officer, whichever occurs first.

In event of a slash fire escapement and under the supervision of the Authorized Officer or designated representative, the Purchaser's personnel and equipment shall take action to control, suppress, and mop-up the escaped fire until released from such service by the Government. If it becomes necessary to use furnished personnel and equipment for the suppression of a fire which has been declared escaped from the slash disposal area for a period beyond the remainder of the day in which the fire escaped, then the Government shall, at its option, either:

a) reimburse the Purchaser for such additional use of personnel and equipment at wage rates shown in the current Administratively Determined Pay Rates for the Western Area and at equipment rates shown in the current Oregon-Washington Interagency Fire Fighting Equipment Rental Rates schedule, until the Purchaser is released from such service by the Government, or

b) release the Purchaser from additional suppression work and assume responsibility for suppressing the escaped fire.

In situations where an escaped fire is controlled and contained by an adequate fire break (i.e., trail, road, stream, rock formation etc.), the Government may permit the Purchaser to remove personnel for that day; provided that, all mop up work on the escaped fire area is included with mop up work on the prescribed fire area. In such an event, the Purchaser must sign a statement of agreement to complete mop up work on all escaped fire areas concurrently with mop up work on the prescribed fire area.

In case of injury to personnel or damage to equipment furnished as required by this subsection, liability shall be borne by the Purchaser, unless such injury or damage is caused by Government negligence.

Time is of the essence in complying with burning provisions. In the event the Purchaser fails to provide the personnel, equipment and materials required herein, the Purchaser shall be responsible for all additional costs incurred by the Government in completing the logging residue reduction. Additional costs may include, but are not limited to, wages and associated expenses of providing federal employees or others as a substitute labor force, the cost of providing substitute equipment, and appropriate additional overhead expenses. If the Purchaser's failure results in deferral of burning, and new conditions necessitate additional site preparation work and/or the use of additional personnel and equipment to accomplish the planned burn, the Purchaser also shall be responsible for such additional costs.

g. Log Export and Substitution

All timber sales, including timber from Federal rights-of-ways, shall be subject to the restrictions relating to the export and substitution of unprocessed timber from the United States in accordance with P.L. 94165 and 43 CFR 5400 and 5424 as amended.

(1) All timber sold to the Purchaser under the terms of this contract is restricted from export from the United States in the form of unprocessed timber, and is prohibited from being used as a substitute for exported private timber. For the purpose of this contract, unprocessed timber is defined as (1) any logs except those of utility grade or below, such as sawlogs, peeler logs, and pulp logs; (2) cants or squares to be subsequently remanufactured exceeding eight and three-quarters (8-3/4) inches in thickness; (3) split or round bolts or other roundwood not processed to standards and specifications suitable for end-product uses; or (4) western red cedar lumber which does not meet lumber of American Lumber Standards Grades of Number 3 dimension or better, or Pacific Lumber Inspection Bureau R-List Grades of Number 3 Common or better. Thus, timber manufactured into the following will be considered processed: (1) lumber and construction timbers, regardless of size, manufactured to standards and specifications suitable for end-product uses; (2) chips, pulp and pulp products; (3) green or dry veneer and plywood; (4) poles and piling cut or treated for use as such; (5) cants, squares, and lumber cut for remanufacturing of eight and three-quarters (8-3/4) inches in thickness or less; (6) shakes and shingles.

Substitution will be determined under the definition found in 43 CFR 5400.0-5(n).

The Purchaser is required to maintain and upon request to furnish the following information:

a. date of last export sale;
b. volume of timber contained in last export sale;
c. volume of timber exported in the past 12 months from the date of last export sale;
d. volume of Federal timber purchased in the past 12months from the date of last export sale;
e. volume of timber exported in succeeding 12 months from date of last export sale; and,
f. volume of Federal timber purchased in succeeding 12 months from date of last export sale.

(2) In the event the Purchaser elects to sell any or all of the timber sold under this contract in the form of unprocessed timber, the Purchaser shall require each party buying, exchanging, or receiving such timber to execute a "Certificate as to Nonsubstitution and the Domestic Processing of Timber" (Form 5460-16). The original of such certification shall be filed with the Authorized Officer. Additionally, when the other party is an affiliate of the Purchaser, the Purchaser will be required to update information under item (2) of Form 5450-17 (Export Determination) and file the form with the Authorized Officer.

(3) In the event an affiliate of the Purchaser has exported private timber within 12 months prior to purchasing or otherwise acquiring Federal timber sold under this contract, the Purchaser shall, upon request, obtain from the affiliate information in a form specified by the Authorized Officer and furnish the information

(4) Prior to the termination of this contract, the Purchaser shall submit to the Authorized Officer a "Log Scale and Disposition of Timber Removed Report" (Form 5460-15) which shall be executed by the Purchaser. In addition, the Purchaser is required under the terms of this contract to retain for a three-year period from the date of termination of the contract the records of all sales or transfer of logs involving timber from the sale for inspection and use of the Bureau of Land Management.

(5) Unless otherwise authorized in writing by the Contracting Officer, the Purchaser shall brand clearly and legibly one end of all logs with a scaling diameter (small end inside bark) of over ten inches, prior to the removal of timber from the contract area. All loads of eleven (11) logs or more will have a minimum of ten logs clearly and legibly branded on one end regardless of the diameter of the logs. All logs will be branded on loads of ten logs or less. One end of all branded logs to be processed domestically will be marked with a three square inch spot of highway yellow paint. The Purchaser will stop trucks for accountability monitoring at mutually agreed upon locations when notified by the Authorized Officer.

If multiple trailers (mule trains) are used, each bunked load shall be considered an individual load, and these guidelines will apply to each bunked load. If a flatbed stake trailer is used, each bundle will be treated as a separate load. At the discretion of the Contracting Officer, the Purchaser may be required to brand and paint all logs. Any increased costs for log branding and painting shall be the responsibility of the Purchaser.

(6) In the event of the Purchaser's noncompliance with this subsection of the contract, the Authorized Officer may take appropriate action as set forth in Sec. 10 of this contract. In addition, the Purchaser may be declared ineligible to receive future awards of Government timber for a period of one year.

h. Optional Scale Check of Lump Sum Sales

(1) The Government, at its option, may administratively check scale any portion of the timber removed from the contract area, and if necessary, conduct check scaling of independent scalers contracted to BLM for administrative check scaling purposes. The Purchaser hereby agrees to make such contract timber available for such scaling at a location or locations to be approved in writing by the Authorized Officer. At the approved location or locations, the Purchaser shall provide an area for logs to be safely rolled out for scaling, to unload logs from trucks, place logs in a manner so that both ends and three faces of each log are visible for scaling, and to reload or remove logs after scaling has been completed.

(2) In the event that BLM elects to administratively check scale and if such check scaling causes a delay in log transportation time, an adjustment will be made to the purchase price as follows. If the entire sale is check scaled by yard scale, the purchase price of this contract shall be reduced by $4,203.75. In the event only a portion of the contract timber is scaled, the purchase price shall be reduced by that portion of $4,203.75 which is equal to the percentage of timber sold which was actually scaled by the Government. For purposes of computing this price reduction, the percentage of timber sold which has been scaled shall be determined by the Government. Any reduction in purchase price under the terms of this provision shall be full compensation to the Purchaser for any expense or loss incurred as a result of such scaling. Scaling shall be conducted in accordance with the Eastside Scribner Scaling Rules by BLM scalers, and/or independent scalers contracted to BLM. A copy of the scale report will be made available to the Purchaser upon request.

i. Cultural Resource Protection

(1) If in connection with operations under this contract, the Purchaser, his contractors, sub-contractors, or the employees of any of them, discovers, encounters or becomes aware of any objects or sites of cultural value on the contract area such as historical or prehistorical ruins, fossils, or artifacts, the Purchaser shall immediately suspend all operations in the vicinity of the cultural value and notify the Authorized Officer of the findings. Operations may resume at the discovery site upon receipt of written instructions and authorization by the Authorized Officer.

(2) Pursuant to 43 CFR 10.4(g) the holder of this authorization must notify the Authorized Officer, by telephone, with written confirmation, immediately upon discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the Authorized Officer.

j. Sensitive, Threatened, or Endangered Plants or Animals

The Purchaser shall immediately discontinue specified construction or timber harvesting operations upon written notice from the Contracting Officer that:

a. threatened or endangered plants or animals protected under the Endangered Species Act of 1973, as amended, may be affected by the operation, and a determination is made that consultation or reinitiation of consultation is required concerning the species prior to continuing operation, or;

b. when, in order to comply with the Endangered Species Act, or to protect occupied marbled murrelet sites and to prevent incidental take of northern spotted owls in accordance with the Standards and Guidelines or management direction of the Record of Decision (ROD) and Resource Management Plan (RMP), the Contracting Officer determines it may be necessary to modify or terminate the contract, or;

c. federal proposed, federal candidate, Bureau sensitive or State listed species protected under BLM Manual 6840 - Special Status Species Management - have been identified, and a determination is made that continued operations would affect the species or its habitat, or;

d. other active raptor nests have been discovered, and a determination is made that continued operations

under this contract would adversely affect the present use of the discovered nesting area by the raptor, or;

e. when, in order to comply with a court order which enjoins operations on the sale or otherwise requires the Bureau of Land Management to suspend operations, or;

f. when, in order to comply with a court order, the Contracting Officer determines it may be necessary to modify or terminate the contract, or;

g. species have been discovered which were identified for protection through survey and manage and/or protection buffer standards and guidelines established in the ROD and RMP, and the Contracting Officer determines that continued operations would affect the species or its habitat, or; when, in order to protect species which were identified for protection through survey and manage and/or protection buffer standards and guidelines established in the ROD and RMP, the Contracting Officer determines it may be necessary to modify or terminate the contract.

Those operations necessary for a safe removal of personnel and equipment from the contract area and those directed by the Contracting Officer which are required in order to leave the contract area in an acceptable condition will be permitted. Discontinued operations may be resumed upon receipt of written instructions and authorization by the Contracting Officer.

During any period of suspension, the Purchaser may withdraw performance and payment bond coverage aside from that deemed necessary by the Authorized Officer to secure cut and/or removed timber for which the Bureau of Land Management has not received payment, and/or unfulfilled contract requirements associated with harvest operations that have already occurred and associated post-harvest requirements.

In the event of a suspension period or a combination of suspension periods that exceed a total of 30 days, the First Installment held on deposit may be temporarily reduced upon the written request of the Purchaser. For the period of suspension extending beyond 30 days, the First Installment on deposit may be reduced to five (5) percent of the First Installment amount listed in Sec. 3.b. of the contract. Any First Installment amount temporarily reduced may be refunded or transferred to another BLM contract at the request of the Purchaser. However, if the Purchaser has outstanding debt owing the United States, the Contracting Officer must first apply the amount of First Installment that could be refunded to the debt owed in accordance with the Debt Collection Improvement Act, as amended (31 USC 3710, *et seq.*). Upon Purchaser's receipt of a bill for collection and written notice from the Contracting Officer lifting the suspension, the Purchaser shall restore the First Installment to the full amount shown in Sec. 3.b. of the contract within 15 days after the bill for collection is issued, subject to Sec. 3.h. of the contract. The Purchaser shall not resume contract operations until the First Installment amount is fully restored.

In the event of a suspension period or a combination of suspension periods that exceed a total of 30 days, the unamortized Out-of-Pocket Expenses for road or other construction required pursuant to Exhibit C of the contract shall be refunded or transferred to another BLM contract at the request of the Purchaser. Upon written notice from the Contracting Officer lifting the suspension, the Purchaser shall reimburse the Government the

amounts refunded or transferred. The Purchaser may choose to pay this reimbursement at once or in installments payable at the same time as payments are due for the timber under the contract and in amounts approximately equal to the expenses associated with the timber for which payment is due.

In the event that operating time is lost as a result of the incorporation of additional contract requirements, or delays due to Endangered Species Act consultation with the U.S. Fish and Wildlife Service or U.S. National Marine Fisheries Service, or court-ordered injunctions, the Purchaser agrees that an extension of time, without reappraisal, will constitute a full and complete remedy for any claim that delays due to the suspension hindered performance of the contract or resulted in damages of any kind to the Purchaser.

The Contracting Officer may determine that it is necessary to modify the contract or terminate the cutting and removal rights under the contract in order to comply with the Endangered Species Act, prevent incidental take of northern spotted owls and protect occupied marbled murrelet sites in accordance with the ROD and RMP, protect species that have been discovered which were identified for protection through survey and manage and/or protection buffer standards and guidelines or management direction established in the ROD and RMP, or comply with a court order. Following the issuance of a written notice that cutting and removal rights will be terminated, the Purchaser will be permitted to remove timber cut under the contract, if allowed by the Endangered Species Act, if able to proceed without causing incidental take of northern spotted owls and marbled murrelet occupied site protection in accordance with the ROD and RMP, consistent with survey and manage and/or protection buffer standards and guidelines established in the ROD and RMP, or court order requirements necessitating the modification or termination.

In the event cutting and removal rights are terminated under this subsection the Purchaser agrees that the liability of the United States shall be limited to the actual costs incurred by the Purchaser which have not been amortized by timber removed from the contract area. This calculation of liability shall utilize actual Purchaser costs and Government estimates of timber volumes. At the Authorized Officer's request, the Purchaser agrees to provide documentation of the actual costs incurred in the performance of the contract. In addition, the Purchaser shall be released from the obligation to pay the contract price for any timber which is not authorized to be removed from the contract area.

The Purchaser specifically and expressly waives any right to claim damages, other than those described in the preceding paragraphs, based on an alleged breach of any duty to the Purchaser, whether express or implied, in regard to the manner in which the Government defended the litigation which resulted in the court order affecting the operation of the contract. This waiver also extends to any claims based on effects on the operation of the contract that arise from litigation against another agency. Furthermore, the Purchaser specifically acknowledges and agrees that a court ruling that the Government violated the Administrative Procedures Act cannot be interpreted, in itself, to mean that the Government had not acted reasonably in regard to its duties to the Purchaser under this contract.

k. Safety

Purchaser’s operations shall facilitate BLM’s safe and practical inspection of Purchaser’s operations and BLM’s conduct of other official duties on Contract Area. Purchaser has all responsibility for compliance with safety requirements for Purchaser’s employees, contractors and subcontractors.

In the event that the Authorized Officer identifies a conflict between the requirements of this contract or agreed upon methods of proceeding hereunder and State or Federal safety requirements, the contract may be modified. If the cost of such contract modification is of a substantial nature ($2,000.00 or more), the Purchaser may request, in writing, an adjustment in the total contract purchaser price specified in Section 2 of the timber sale contract, as amended, to compensate for the changed conditions.

Unless otherwise specified in writing, when operations are in progress adjacent to or on roads and/or trails in the harvest unit area, Purchaser shall furnish, install, and maintain all temporary traffic controls that provide the road or trail user with adequate warning of and protection from hazardous or potentially hazardous conditions associated with its operations. Purchaser shall prepare a Traffic Control Plan, which the Purchaser has determined is compliant with state and local OSHA and Transportation standards no later than the pre-work meeting and prior to commencing operations. Traffic control devices shall be appropriate to current operating and/or weather conditions and shall be covered or removed when not needed. Flagmen and devices shall be as specified in state OSHA and Transportation standards for logging roads or the “Manual on Uniform Traffic Control Devices for Streets and Highways” (MUTCD) published by the U.S. Department of Transportation – Federal Highway Administration. Included in the Traffic Control Plan, Purchaser shall note traffic control device locations on a Purchaser produced copy of the contract Exhibit “A” Map.

l. Small Business Administration (SBA) Set Aside

The purchaser agrees not to sell and/or exchange more than 30 percent of the timber or log volume from this preferential sale to concerns that do not meet the Small Business Administration small business size standard (13 CFR 121).

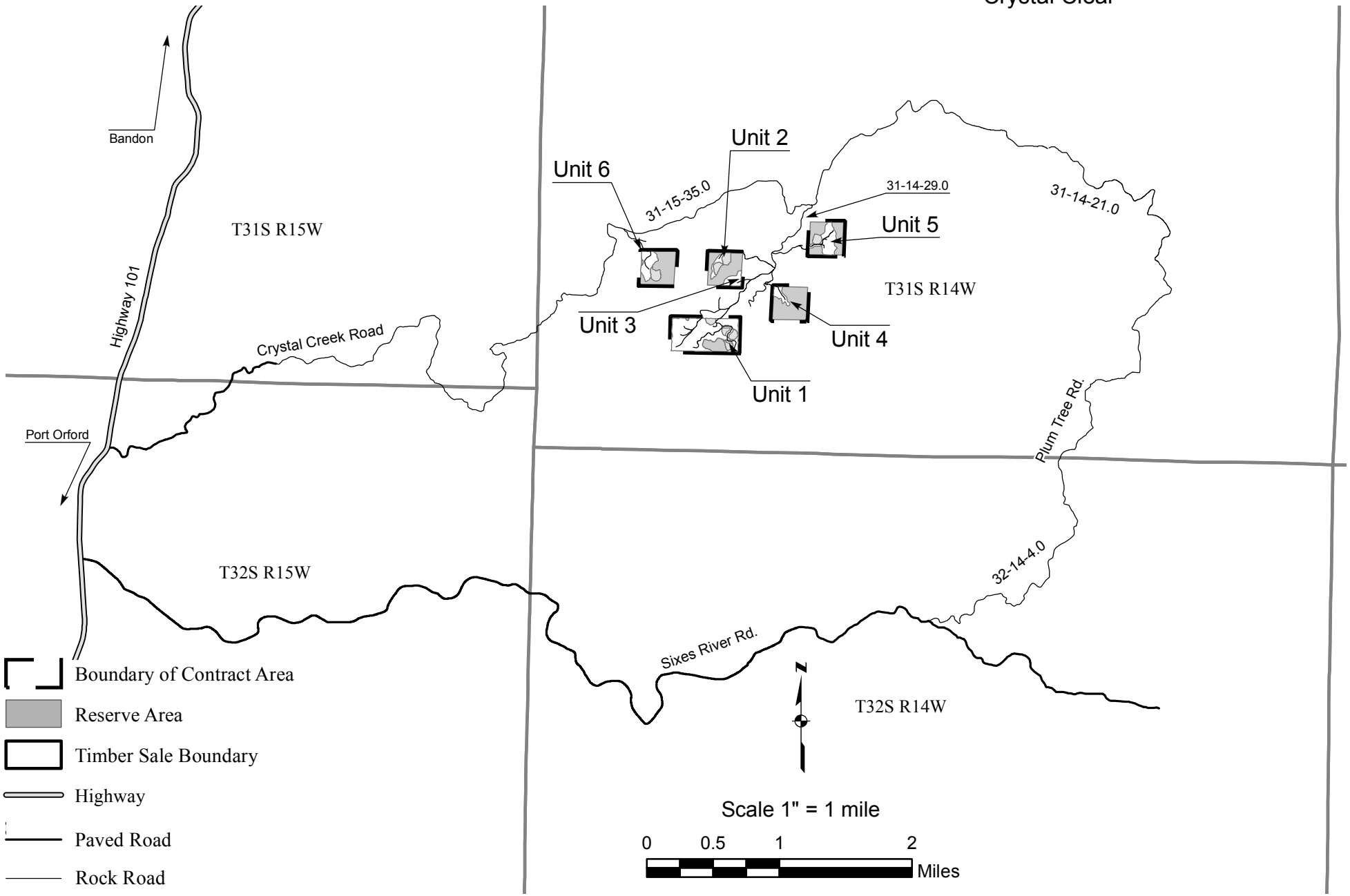
The purchaser understands that in addition to other penalties which may be imposed for violating the foregoing, the purchaser may be declared ineligible to participate in future Federal timber sales that are set-aside for preferential bidding by small business qualified concerns for two semi-annual triggered periods succeeding the violation.

The purchaser shall provide a current, interim Log Scale and Disposition of Timber Removed Report (Form 5460-15) upon request by the Authorized Officer at any time during the contract period for cutting and removal specified in Section 4 of this contract as amended.

TIMBER SALE CONTRACT MAP
USDI-BLM COOS BAY DISTRICT
T. 31 S., R. 14 W., Sec. 28, 29, 30 & 32, Will. Mer.

SALE NO. ORC00-TS-2017.0031
EXHIBIT A-1

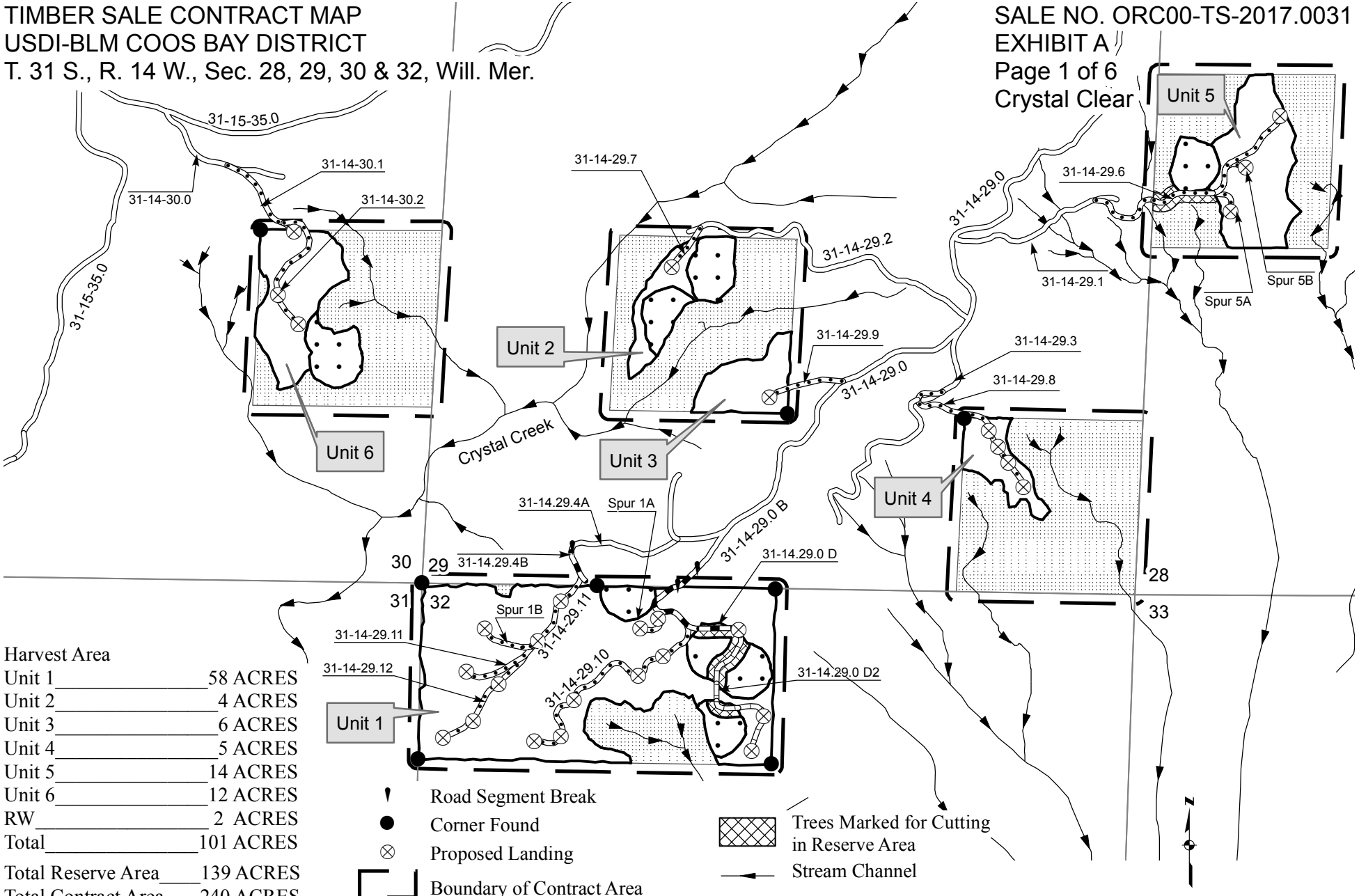
Crystal Clear



TIMBER SALE CONTRACT MAP
USDI-BLM COOS BAY DISTRICT
T. 31 S., R. 14 W., Sec. 28, 29, 30 & 32, Will. Mer.

SALE NO. ORC00-TS-2017.0031
EXHIBIT A

Crystal Clear



Harvest Area

Unit 1	58 ACRES
Unit 2	4 ACRES
Unit 3	6 ACRES
Unit 4	5 ACRES
Unit 5	14 ACRES
Unit 6	12 ACRES
RW	2 ACRES
Total	101 ACRES
Total Reserve Area	139 ACRES
Total Contract Area	240 ACRES

Acreage data was collected using a Trimble Geo XT Global Positioning System receiver. Acreage was calculated based on Global Positioning System traverse procedures including differential correction.

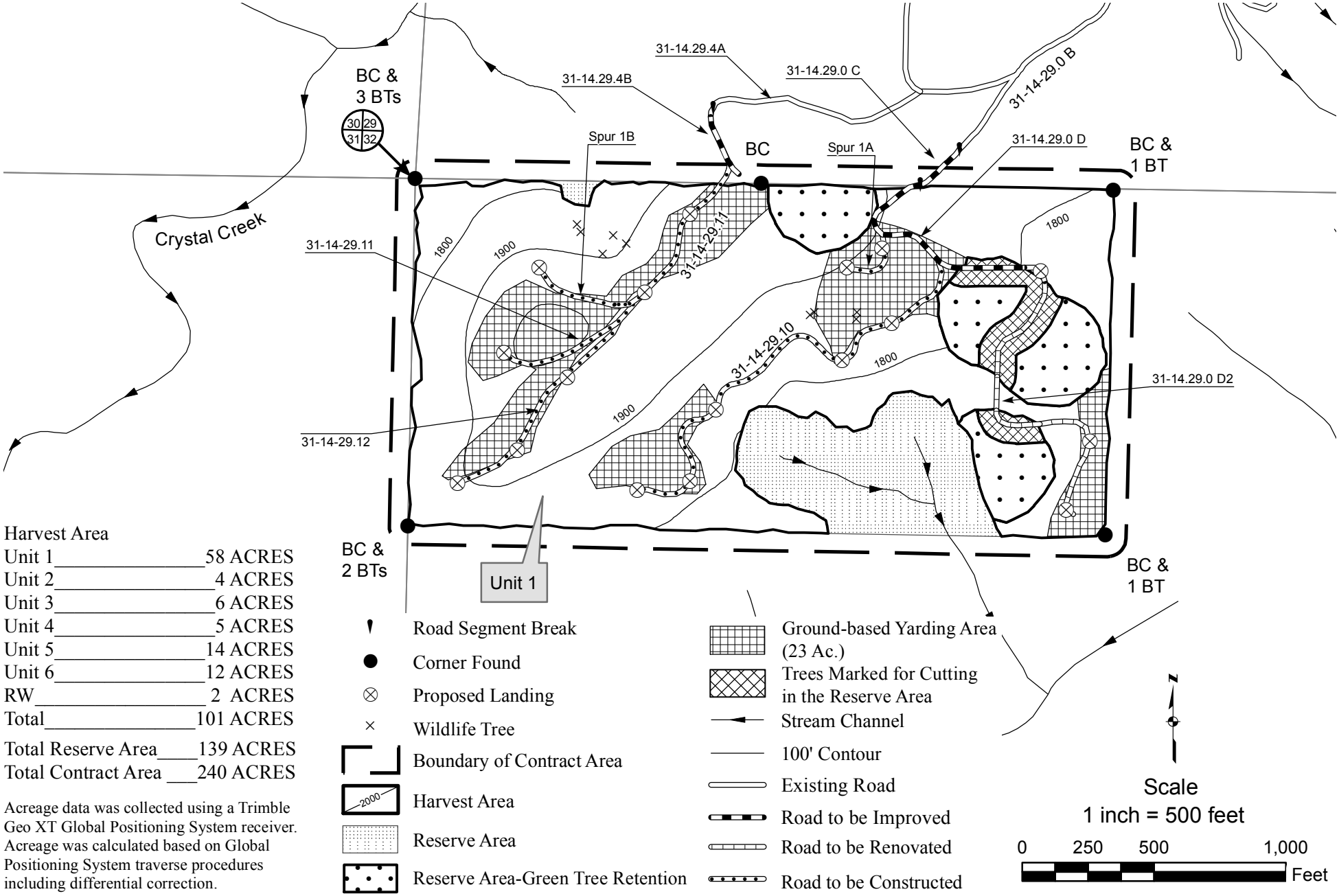
- Road Segment Break
- Corner Found
- Proposed Landing
- Boundary of Contract Area
- Harvest Area (2000)
- Reserve Area
- Reserve Area-Green Tree Retention
- Trees Marked for Cutting in Reserve Area
- Stream Channel
- Existing Road
- Road to be Improved
- Road to be Renovated
- Road to be Constructed

Scale
1 inch = 1,000 feet
0 500 1,000 2,000
Feet

TIMBER SALE CONTRACT MAP
USDI-BLM COOS BAY DISTRICT
T. 31 S., R. 14 W., Sec. 28, 29, 30 & 32, Will. Mer.

SALE NO. ORC00-TS-2017.0031
EXHIBIT A

Crystal Clear



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Acreage data was collected using a Trimble Geo XT Global Positioning System receiver. Acreage was calculated based on Global Positioning System traverse procedures including differential correction.

- Road Segment Break
- Corner Found
- Proposed Landing
- Wildlife Tree
- Boundary of Contract Area
- 2000 — Harvest Area
- Reserve Area
- Reserve Area-Green Tree Retention
- Ground-based Yarding Area (23 Ac.)
- Trees Marked for Cutting in the Reserve Area
- Stream Channel
- 100' Contour
- Existing Road
- Road to be Improved
- Road to be Renovated
- Road to be Constructed

N

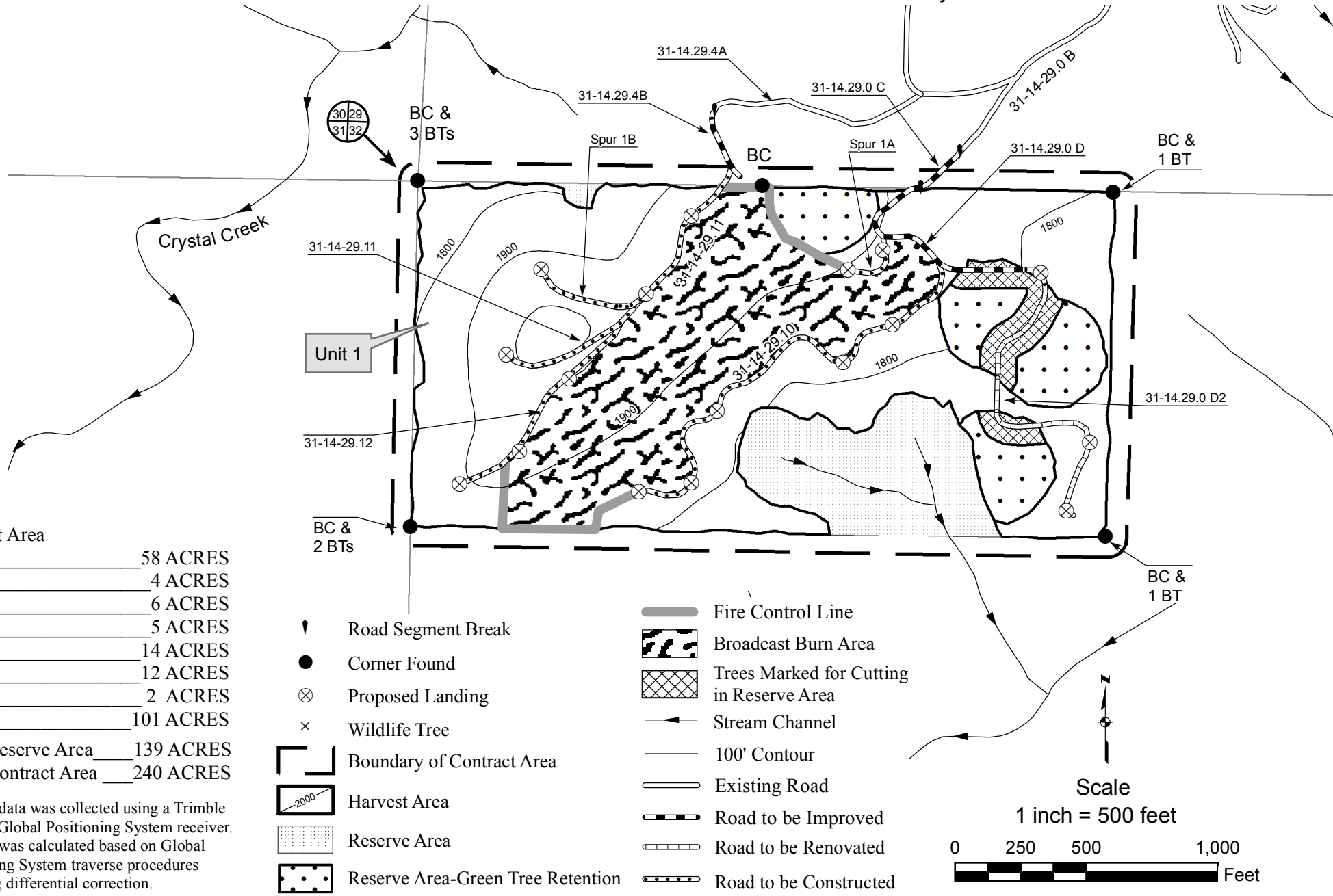
Scale
1 inch = 500 feet

0 250 500 1,000
Feet

TIMBER SALE CONTRACT MAP
USDI-BLM COOS BAY DISTRICT
T. 31 S., R. 14 W., Sec. 28, 29, 30 & 32, Will. Mer.

SALE NO. ORC00-TS-2017.0031
EXHIBIT A

Crystal Clear



Harvest Area

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Total Reserve Area	139 ACRES
Total Contract Area	240 ACRES

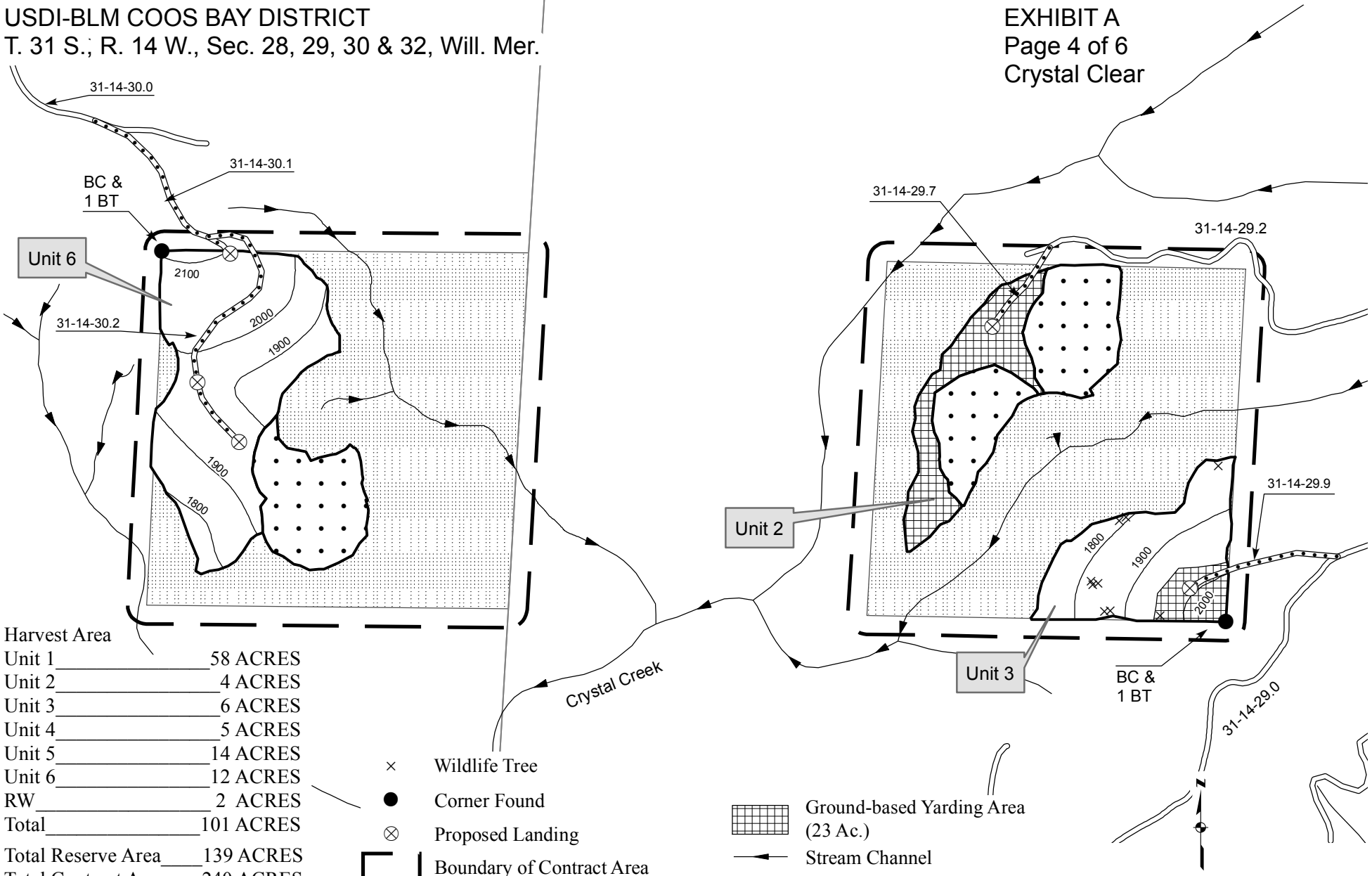
Acreage data was collected using a Trimble Geo XT Global Positioning System receiver. Acreage was calculated based on Global Positioning System traverse procedures including differential correction.

- Road Segment Break
- Corner Found
- Proposed Landing
- Wildlife Tree
- Boundary of Contract Area
- Harvest Area (2000)
- Reserve Area
- Reserve Area-Green Tree Retention
- Fire Control Line
- Broadcast Burn Area
- Trees Marked for Cutting in Reserve Area
- Stream Channel
- 100' Contour
- Existing Road
- Road to be Improved
- Road to be Renovated
- Road to be Constructed

TIMBER SALE CONTRACT MAP
USDI-BLM COOS BAY DISTRICT
T. 31 S.; R. 14 W., Sec. 28, 29, 30 & 32, Will. Mer.

SALE NO. ORC00-TS-2017.0031
EXHIBIT A

Crystal Clear



Harvest Area

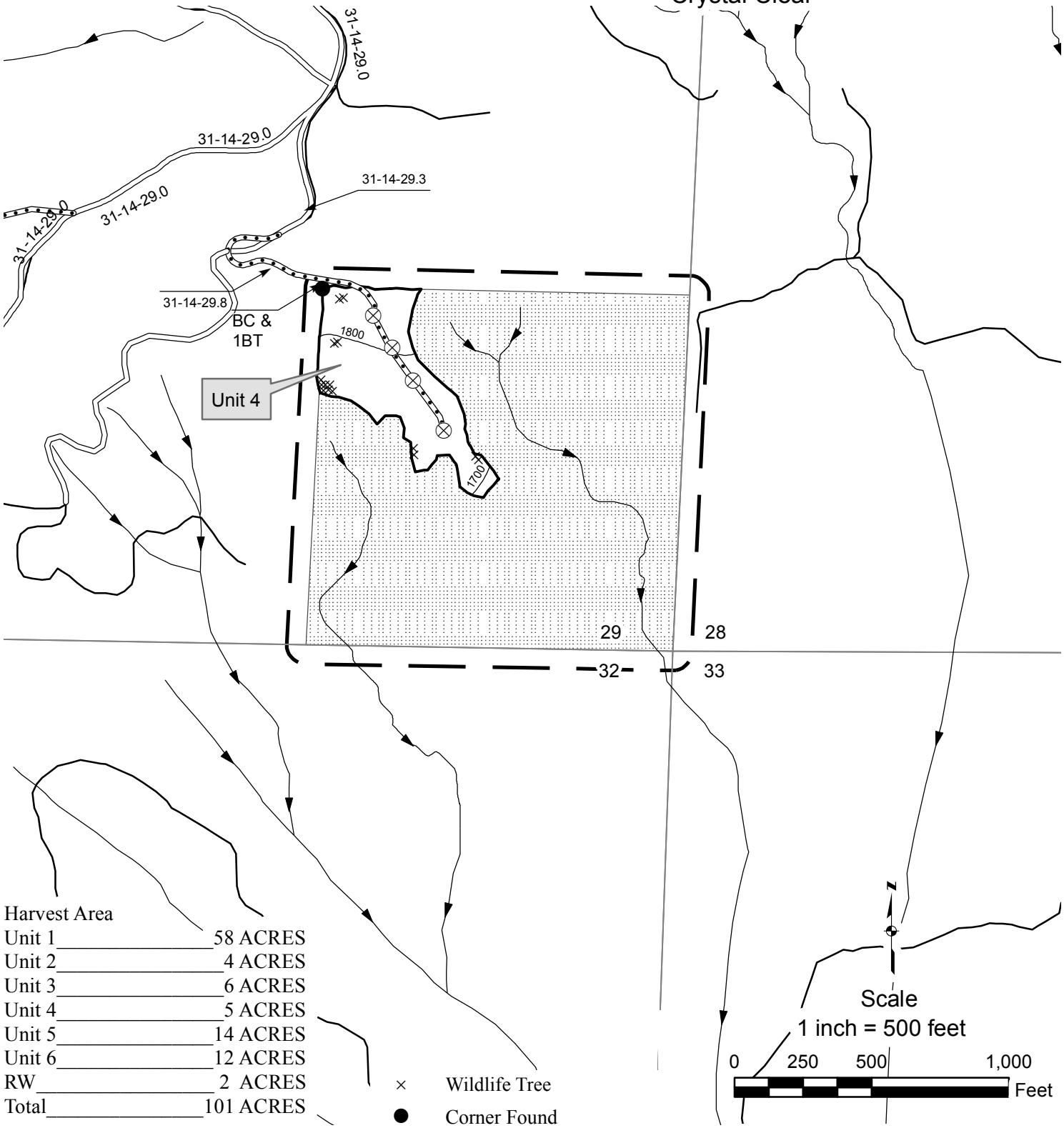
Unit 1	58 ACRES
Unit 2	4 ACRES
Unit 3	6 ACRES
Unit 4	5 ACRES
Unit 5	14 ACRES
Unit 6	12 ACRES
RW	2 ACRES
Total	101 ACRES
Total Reserve Area	139 ACRES
Total Contract Area	240 ACRES

Acreage data was collected using a Trimble Geo XT Global Positioning System receiver. Acreage was calculated based on Global Positioning System traverse procedures including differential correction.

- × Wildlife Tree
- ● Corner Found
- ⊗ Proposed Landing
- Boundary of Contract Area
- 2000 Harvest Area
- Reserve Area
- Reserve Area-Green Tree Retention
- Ground-based Yarding Area (23 Ac.)
- Stream Channel
- 100' Contour
- Existing Road
- Road to be Renovated
- Road to be Constructed

TIMBER SALE CONTRACT MAP
USDI-BLM COOS BAY DISTRICT
T. 31 S., R. 14 W., Sec. 28, 29, 30 & 32, Will. Mer.

SALE NO. ORC00-TS-2017.0031
EXHIBIT A
Page 5 of 6
Crystal Clear



Harvest Area

Unit 1	58 ACRES
Unit 2	4 ACRES
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Unit 5	14 ACRES
Unit 6	12 ACRES
RW	2 ACRES
Total	101 ACRES
Total Reserve Area	139 ACRES
Total Contract Area	240 ACRES

Acreage data was collected using a Trimble Geo XT Global Positioning System receiver. Acreage was calculated based on Global Positioning System traverse procedures including differential correction.

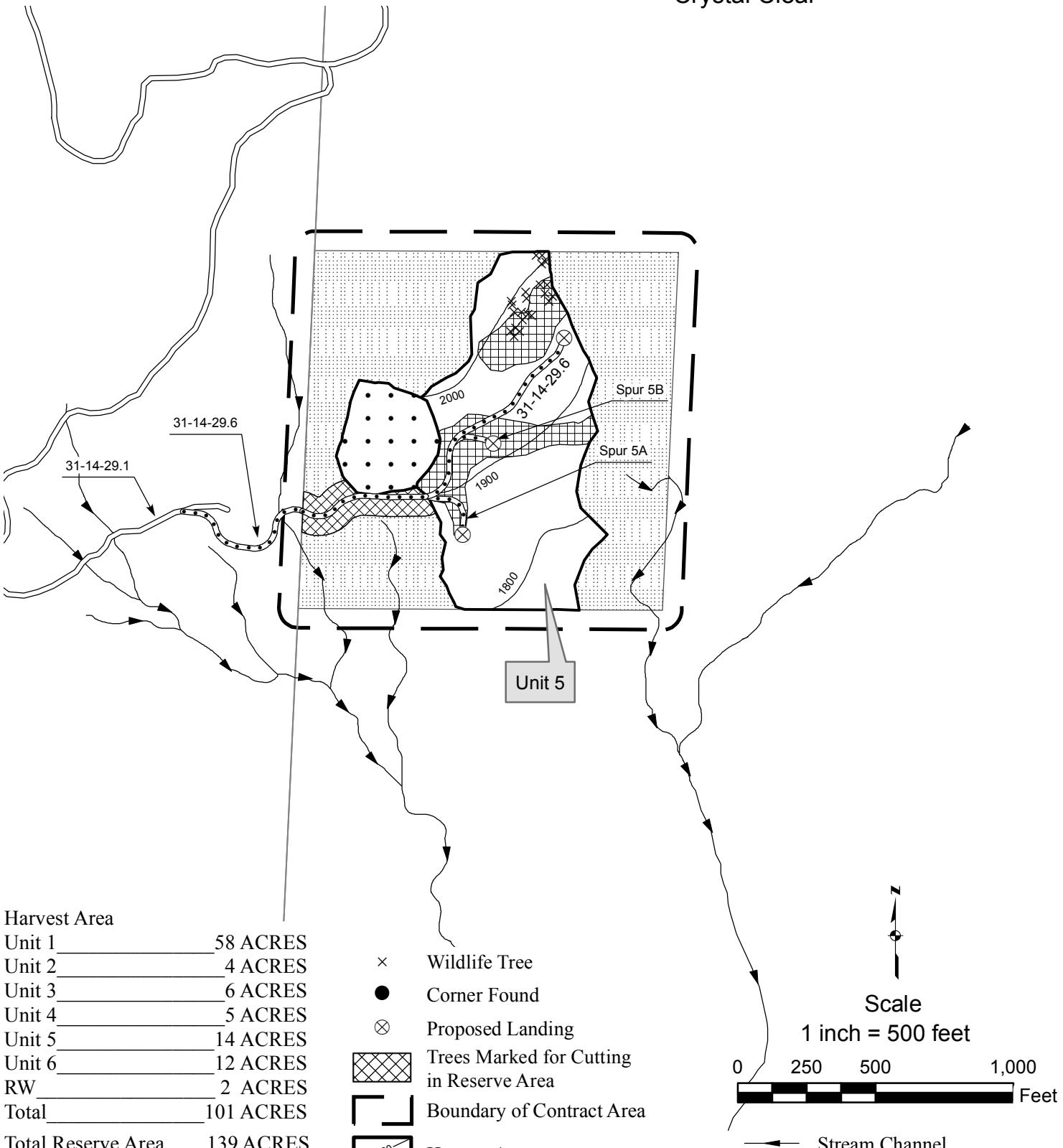
× Wildlife Tree
● Corner Found
⊗ Proposed Landing
Boundary of Contract Area
2000 Harvest Area
Reserve Area

Stream Channel
100' Contour
Existing Road
Road to be Renovated
Road to be Constructed

TIMBER SALE CONTRACT MAP
USDI-BLM COOS BAY DISTRICT
T. 31 S., R. 14 W., Sec. 28, 29, 30 & 32, Will. Mer.

SALE NO. ORC00-TS-2017.0031
EXHIBIT A

Crystal Clear



Harvest Area

Unit 1	58 ACRES
Unit 2	4 ACRES
Unit 3	6 ACRES
Unit 4	5 ACRES
Unit 5	14 ACRES
Unit 6	12 ACRES
RW	2 ACRES
Total	101 ACRES
Total Reserve Area	139 ACRES
Total Contract Area	240 ACRES

Acreage data was collected using a Trimble Geo XT Global Positioning System receiver. Acreage was calculated based on Global Positioning System traverse procedures including differential correction.

- × Wildlife Tree
- ● Corner Found
- ⊗ Proposed Landing
- Trees Marked for Cutting in Reserve Area
- Boundary of Contract Area
- 2000 Harvest Area
- Reserve Area
- Ground-based Yarding Area (23 Ac.)
- Reserve Area-Green Tree Retention
- Stream Channel
- 100' Contour
- Existing Road
- Road to be Renovated
- Road to be Constructed

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EXHIBIT B
LUMP SUM SALE

Contract No: ORC00-TS-2017.0031

SALE NAME: Crystal Clear

The following estimates and calculations of value of timber sold are made solely as an administrative aid for determining: (1) adjustments made or credits given in accordance with Secs. 6, 9, or 11, (2) when payments are due; and (3) value of timber subject to any special bonding provisions. Except as provided in Sec. 2, Purchaser shall be liable for total purchase price even though quantity of timber actually cut or removed or designated for taking is less than the estimated volume or quantity shown. Cutting areas are shown on Exhibit A.

SPECIES	ESTIMATED VOL. in MBF	APPRAISED PRICE PER UNIT	PRICE PER UNIT	AMOUNT OF ESTIMATED VOLUME OR QUANTITY x UNIT PRICE
Douglas-fir	5563 MBF	$196.90		$1,095,354.70
grand fir	0 MBF	$0.00		$0.00
western hemlock	27 MBF	$45.10		$1,217.70
Port-Orford-cedar	0 MBF	$0.00		$0.00
western redcedar	0 MBF	$0.00		$0.00
red alder	15 MBF	$74.50		$1,117.50
bigleaf maple	0 MBF	$0.00		$0.00
Oregon myrtle	0 MBF	$0.00		$0.00
tanoak	0 MBF	$0.00		$0.00
Totals	5605 MBF			$1,097,689.90

The apportionment of the total purchase price is as follows:

Approx. No. of Trees	UNIT NO. 1	EST. NET MBF VOL.			
14174	Douglas-fir	3233	$196.90		$636,577.70
0	grand fir	0	$0.00		$0.00
121	western hemlock	15	$45.10		$676.50
0	Port-Orford-cedar	0	$0.00		$0.00
0	incense cedar	0	$0.00		$0.00
0	western redcedar	0	$0.00		$0.00
70	red alder	8	$74.50		$596.00
0	bigleaf maple	0	$0.00		$0.00
0	Oregon myrtle	0	$0.00		$0.00
0	tanoak	0	$0.00		$0.00
14365	TOTALS	3256			
			58	Acres =	$10,997.42 /Ac.
					Unit Total $637,850.20

Approx. No. of Trees	UNIT NO. 2	EST. NET MBF VOL.			
978	Douglas-fir	223	$196.90		$43,908.70
0	grand fir	0	$0.00		$0.00
9	western hemlock	1	$45.10		$45.10
0	Port-Orford-cedar	0	$0.00		$0.00
0	incense cedar	0	$0.00		$0.00
0	western redcedar	0	$0.00		$0.00
5	red alder	1	$74.50		$74.50
0	bigleaf maple	0	$0.00		$0.00
0	Oregon myrtle	0	$0.00		$0.00
0	tanoak	0	$0.00		$0.00
992	TOTALS	225			
			4	Acres =	$11,007.08 /Ac.
					Unit Total $44,028.30

Approx. No. of Trees	UNIT NO. 3	EST. NET MBF VOL.			
1466	Douglas-fir	334	$196.90		$65,764.60
0	grand fir	0	$0.00		$0.00
12	western hemlock	2	$45.10		$90.20
0	Port-Orford-cedar	0	$0.00		$0.00
0	incense cedar	0	$0.00		$0.00
0	western redcedar	0	$0.00		$0.00
7	red alder	1	$74.50		$74.50
0	bigleaf maple	0	$0.00		$0.00
0	Oregon myrtle	0	$0.00		$0.00
0	tanoak	0	$0.00		$0.00
1485	TOTALS	337			
			6	Acres =	$10,988.22 /Ac.
					Unit Total $65,929.30

Approx. No. of Trees	UNIT NO. 4	EST. NET MBF VOL.			
1222	Douglas-fir	279	$196.90		$54,935.10
0	grand fir	0	$0.00		$0.00
10	western hemlock	1	$45.10		$45.10
0	Port-Orford-cedar	0	$0.00		$0.00
0	incense cedar	0	$0.00		$0.00
0	western redcedar	0	$0.00		$0.00
6	red alder	1	$74.50		$74.50
0	bigleaf maple	0	$0.00		$0.00
0	Oregon myrtle	0	$0.00		$0.00
0	tanoak	0	$0.00		$0.00
1238	TOTALS	281			
			5	Acres =	$11,010.94 /Ac.
					Unit Total $55,054.70

Approx. No. of Trees	UNIT NO. 5	EST. NET MBF VOL.			
3421	Douglas-fir	780	$196.90		$153,582.00
29	western hemlock	4	$45.10		$180.40
17	red alder	2	$74.50		$149.00
3467	TOTALS	786			
			14	Acres =	$10,993.67 /Ac.
					Unit Total $153,911.40

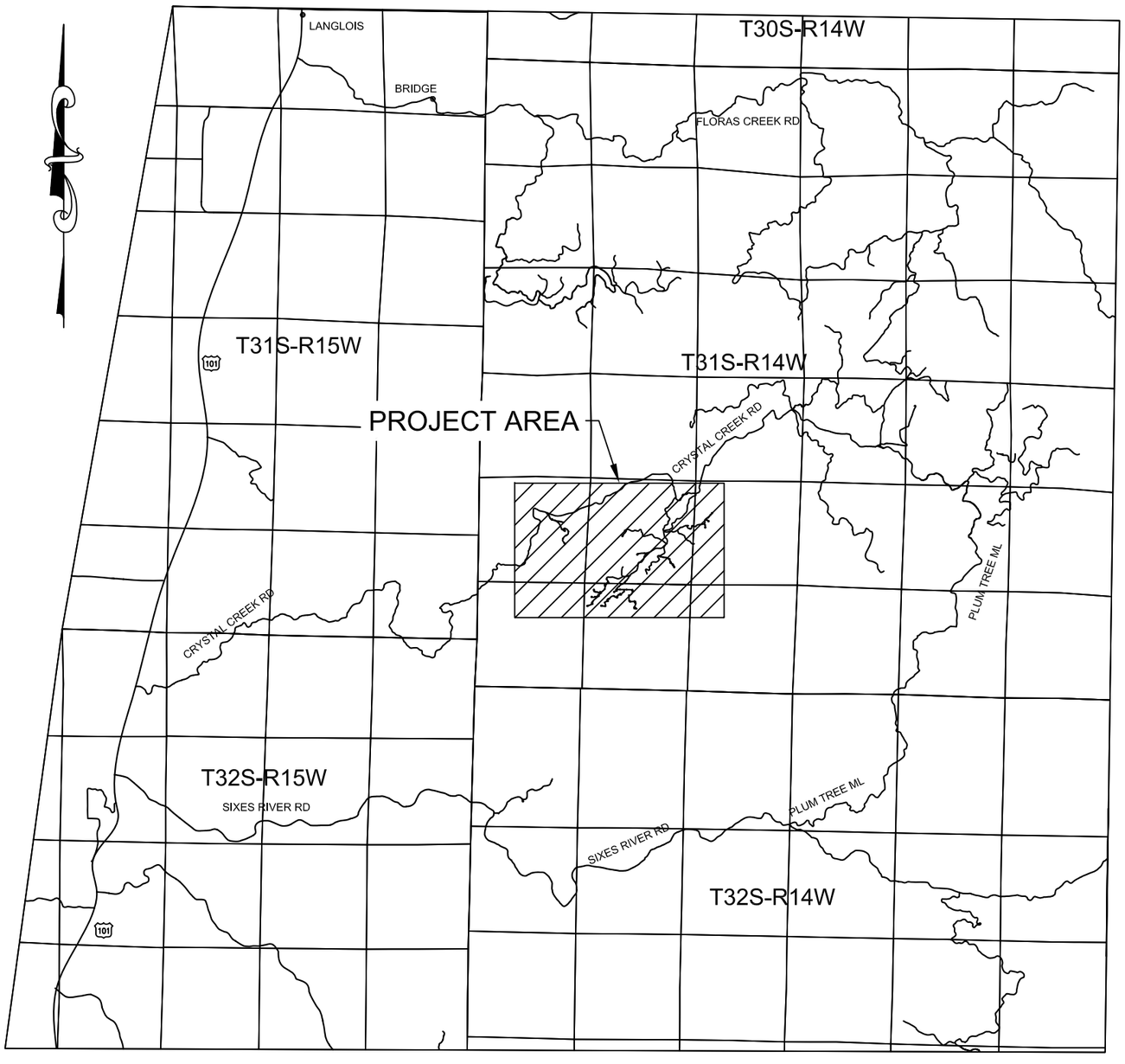
Approx. No. of Trees	UNIT NO. 6	EST. NET MBF VOL.			
2932	Douglas-fir	669	$196.90		$131,726.10
25	western hemlock	3	$45.10		$135.30
14	red alder	2	$74.50		$149.00
2971	TOTALS	674			
			12	Acres =	$11,000.87 /Ac.
					Unit Total $132,010.40

Approx. No. of Trees	R/W	EST. NET MBF VOL.			
171	Douglas-fir	45	$196.90		$8,860.50
6	western hemlock	1	$45.10		$45.10
0	red alder	0	$74.50		$0.00
177	TOTALS	46			
			2	Acres =	$4,452.80 /Ac.
					Unit Total $8,905.60

EXHIBIT C
TIMBER SALE NAME: CRYSTAL CLEAR
TIMBER SALE NO. ORC00-TS-2017.0031

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

COOS BAY DISTRICT OFFICE
MYRTLEWOOD RESOURCE AREA



SHEET	CONTENTS
1	TITLE SHEET
2 - 4	WORK LOCATION MAPS
5	TYPICAL CROSS SECTION DETAIL
6	CULVERT INSTALLATION DETAILS
7	CULVERT CONT. & ROADSIDE BRUSHING DETAIL
8 - 18	PLAN & PROFILE FULL DESIGN ROADS
19	ESTIMATE OF QUANTITIES
20	SPECIAL PROVISIONS
21 - 24	SPECIAL DETAILS
25 - 41	CONSTRUCTION DETAILS
42 - 66	ROAD CONSTRUCTION SPECIFICATIONS

ALWAYS THINK SAFETY

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

TITLE SHEET

DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN
DRAWN M. HEMMER | SCALE NONE
DATE 07/16 | SHEET 1 OF 66
DRAWING NO. CRYSTALCLEAR.DWG

R 14 W

T
31
S

30

29

31-15-35.0 - CRYSTAL CREEK ML

MP 5.000
= MP 0.000

MP 0.125 = STA 0+00

31-14-30.0

31-14-30.1

STA 6+10 = STA 0+00

MOORE MILL
LUMBER

BLM

STA 7+12

31-14-30.2

STA 10+45

MOORE MILL
LUMBER

MOORE MILL
LUMBER

BLM

BLM

MOORE MILL
LUMBER

31-15-35.0
CRYSTAL CREEK ML

LEGEND

- NEW CONSTRUCTION
- RENOVATION
- EXISTING ROAD
- PROPERTY LINE
- PURCHASER SELECT LANDING
- NEW CONSTRUCTION LANDING

31-14-29.5 B

ALWAYS
THINK
SAFETY

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

TIMBER SALE: CRYSTAL CLEAR

WORK LOCATION MAP

DESIGNED	G. ZARTMAN
REVIEWED	J. VAN AGTMAEL
APPROVED	G. ZARTMAN
DRAWN	M. HEMMER
SCALE	NONE
DATE	07/16
SHEET	2 OF 66

DRAWING NO. CRYSTALCLEAR.DWG

R 14 W

20

21

29

28

T
31
S

31-15-35.0
CRYSTAL CREEK ML

MOORE MILL
LUMBER

BLM

BLM

31-14-29.0

STA 18+20

STA 13+09 =
STA 0+00

SPUR 5B

STA 1+30

31-14-29.6

MP 0.235 =
STA 0+00

31-14-29.1

SPUR 5A

STA 10+36 =
STA 0+00

STA 2+30

MP 0.473 =
STA 0+00

31-14-29.2

31-14-29.7

STA 4+00

31-14-29.0

31-14-29.9

STA 5+70

31-14-29.0

MP 0.133 =
STA 0+00

MP 0.881 =
STA 0+00

31-14-29.3

STA 6+39

STA 7+69

STA 9+30

STA 11+39

31-14-29.8

31-14-29.0 B

LEGEND

NEW CONSTRUCTION

RENOVATION

EXISTING ROAD

PROPERTY LINE

PURCHASER SELECT LANDING

NEW CONSTRUCTION LANDING

ALWAYS
THINK
SAFETY

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

TIMBER SALE: CRYSTAL CLEAR

WORK LOCATION MAP

DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN

DRAWN M. HEMMER | SCALE NONE
DATE 07/16 | SHEET 3 OF 66
DRAWING NO. CRYSTALCLEAR.DWG

R 14 W

T 31 S

30

29

31

32

JCT MP 1.175 = MP 0.000

31-14-29.0 B

JCT MP 0.224

31-14-29.4 A

31-14-29.4 B

MP 0.264 = STA 0+00

JCT MP 1.244

JCT MP 1.274

31-14-29.0 C

MOORE MILL LUMBER

MOORE MILL LUMBER

MOORE MILL LUMBER

MOORE MILL LUMBER

BLM

STA 1+55

MP 1.330 = STA 0+00

31-14-29.0 D

BLM

WAYNE FOSTER

MP 1.381 = STA 0+00

STA 3+50

STA 1+51

SPUR 1B

31-14-29.11

SPUR 1A

STA 12+80

STA 2+50

STA 2+95

MP = 1.450

-29.11

STA 6+60 = STA 0+00

31-14-29.10

STA 8+00 = STA 0+00

STA 5+60

MP = 1.644

STA 5+52

STA 12+45

31-14-29.12

31-14-29.0 D2

STA 15+85

MP = 1.711

EOP MP 1.715

MOORE MILL LUMBER

BLM

STA 7+90

STA 18+10

BLM

AL PIERCE

AL PIERCE

AL PIERCE

WAYNE FOSTER

LEGEND

- NEW CONSTRUCTION
- RENOVATION
- IMPROVEMENT
- EXISTING ROAD
- PROPERTY LINE
- PURCHASER SELECT LANDING
- NEW CONSTRUCTION LANDING

ALWAYS THINK SAFETY

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

TIMBER SALE: CRYSTAL CLEAR

WORK LOCATION MAP

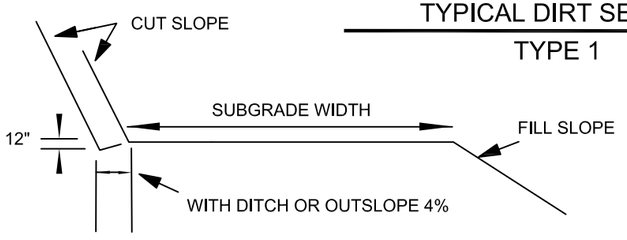
DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN

DRAWN M. HEMMER | SCALE NONE
DATE 06/16 | SHEET 4 OF 66

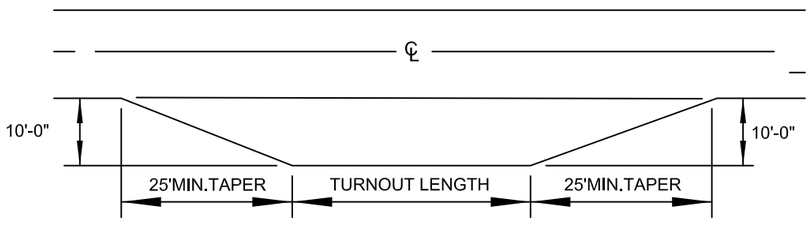
DRAWING NO. CRYSTALCLEAR.DWG

ROAD NUMBER ***	FROM MILEPOST	TO MILEPOST	LENGTH MILES	TYPICAL SECTION TYPE	ROAD WIDTH[1]		CLEARING WIDTH		BRUSHING WIDTH		SURFACING								
					SUBGRADE	DITCH	BEYOND		EXISTING ROADS		BASE COURSE				SURFACE COURSE				
							TOP CUT	TOE FILL	L	R	Min Top Width	Comp. Depth	Type[2]	Grading	Min Top Width	Comp. Depth	Type[2]	Grading	
31-14-29.0 C	1.244	1.274	0.030	4	16'	2'			10	10	13'	8"	D	3-0"	12'	4"	D	1.5"-0"	2% CROWNED W/ DITCH
31-14-29.0 D2	1.450	1.715	0.265	1	14'	0'			10	10	ROAD DOES NOT INCLUDE BASE OR SURFACE COURSE AGG.								2% CROWNED W/ DITCH
31-14-29.0 D	1.274	1.450	0.176	4	16'	2'			10	10	13'	8"	D	3-0"	12'	4"	D	1.5"-0"	2% CROWNED W/ DITCH
31-14-29.10	0.000	0.343	0.343	4	16'	2'	10	5			13'	8"	D	3-0"	12'	4"	D	1.5"-0"	2% CROWNED W/ DITCH
31-14-29.11	0.000	0.242	0.242	4	16'	2'	10	5			13'	8"	D	3-0"	12'	4"	D	1.5"-0"	2% CROWNED W/ DITCH
31-14-29.12	0.000	0.150	0.150	4	16'	2'	10	5			13'	8"	D	3-0"	12'	4"	D	1.5"-0"	2% CROWNED W/ DITCH
31-14-29.4 B	0.153	0.193	0.040	4	16'	2'			10	10	13'	8"	D	3-0"	12'	4"	D	1.5"-0"	2% CROWNED W/ DITCH
31-14-29.6	0.000	0.345	0.345	4	16'	2'	10	5			13'	8"	D	3-0"	12'	4"	D	1.5"-0"	2% CROWNED W/ DITCH
31-14-29.7	0.000	0.076	0.076	1	14'	0'	10	5			ROAD DOES NOT INCLUDE BASE OR SURFACE COURSE AGG.								2% OUTSLOPE W/ NO DITCH
31-14-29.8	0.000	0.216	0.216	4	16'	2'	10	5			ROAD DOES NOT INCLUDE BASE OR SURFACE COURSE AGG.								2% CROWNED W/ DITCH
31-14-29.9	0.000	0.108	0.108	4	16'	2'	10	5			ROAD DOES NOT INCLUDE BASE OR SURFACE COURSE AGG.								2% CROWNED W/ DITCH
31-14-30.0	0.000	0.125	0.125	4	16'	2'			10	10	ROAD DOES NOT INCLUDE BASE OR SURFACE COURSE AGG.								2% CROWNED W/ DITCH
31-14-30.1	0.000	0.134	0.134	4	16'	2'	10	5			ROAD DOES NOT INCLUDE BASE OR SURFACE COURSE AGG.								2% CROWNED W/ DITCH
31-14-30.2	0.000	0.198	0.198	4	16'	2'	10	5			ROAD DOES NOT INCLUDE BASE OR SURFACE COURSE AGG.								2% CROWNED W/ DITCH
SPUR 1A	0.000	0.047	0.047	4	16'	2'	10	5			13'	8"	D	3-0"	12'	4"	D	1.5"-0"	2% CROWNED W/ DITCH
SPUR 1B	0.000	0.067	0.067	4	16'	2'	10	5			13'	8"	D	3-0"	12'	4"	D	1.5"-0"	2% CROWNED W/ DITCH
SPUR 5A	0.000	0.044	0.044	4	16'	2'	10	5			13'	8"	D	3-0"	12'	4"	D	1.5"-0"	2% CROWNED W/ DITCH
SPUR 5B	0.000	0.025	0.025	4	16'	2'	10	5			13'	8"	D	3-0"	12'	4"	D	1.5"-0"	2% CROWNED W/ DITCH

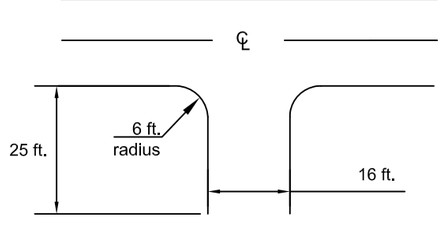
TYPICAL DIRT SECTION
TYPE 1



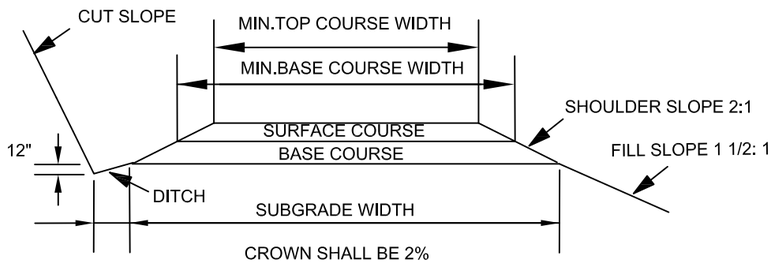
PLAN: TYPICAL TURNOUT



PLAN: TYPICAL TURNAROUND

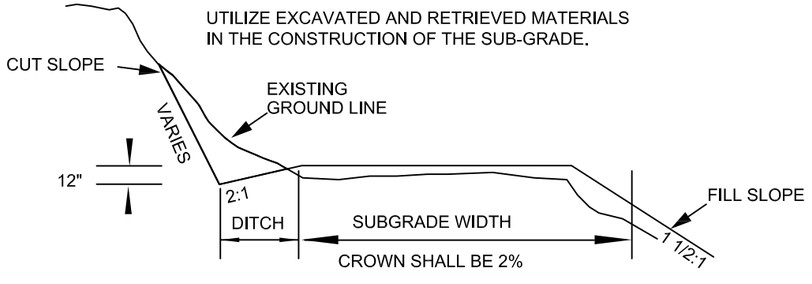


TYPICAL SURFACING SECTION
TYPE 4



TYPICAL GRADING SECTION

UTILIZE EXCAVATED AND RETRIEVED MATERIALS IN THE CONSTRUCTION OF THE SUB-GRADE.



NOTES

(1) EXTRA SUBGRADE WIDTHS

FILL WIDENING:
- 1 FT TO SHOULDER WIDTH FOR FILLS 1-6 FT IN HEIGHT
- 2 FT OF SHOULDER WIDTH FOR FILLS 6-10 FT IN HEIGHT
- 3 FT OF SHOULDER WIDTH FOR FILLS > 10 FT IN HEIGHT

CURVE WIDENING: ADD ADDITIONAL SURFACING WIDTH TO INSIDE OF CURVE FOR CURVE WIDENING AS SHOWN ON THE PLANS OR AS FOLLOWS:
- ADD 4 FT FOR CURVES 90'-120' RADIUS
- ADD 5 FT FOR CURVES 60'-90' RADIUS

(2) CUT AND FILL SLOPES

CUT AND FILL SLOPES WILL BE AS FOLLOWS BY MATERIAL TYPE AND ALSO AS SHOWN ON THE PLANS & SPECIFICATIONS:

MATERIALS	CUT SLOPES	FILL SLOPES
COMMON	3/4:1	1 1/2:1
SOFT ROCK & SHALE	1/2:1	1 1/2:1
SOLID ROCK	1/4:1	REPOSE

(3) FULL BENCH

FULL BENCH CONSTRUCTION IS REQUIRED ON ALL SLOPES EXCEEDING 60% UNLESS OTHERWISE SHOWN ON THE PLANS.

(4) SURFACING TYPE
- A. PIT RUN ROCK MATERIAL
- B. GRID ROLLED ROCK MATERIAL
- C. SCREENED ROCK MATERIAL
- D. CRUSHED ROCK MATERIAL

(5) SURFACING

TURNOUTS, CURVE WIDENING AND ROAD APPROACH APRONS SHALL BE SURFACED.

(6) DITCHES

2:1 INSLOPE FROM ROAD SUBGRADE. DITCH OUTSLOPE WILL BE AS SPECIFIED IN NOTE 2 ABOVE.

(7) TURNOUTS
- A. WIDTH 10 FT. IN ADDITION TO SUBGRADE WIDTH, OR AS SHOWN ON THE PLANS
- B. LOCATED APPROXIMATELY AS SHOWN ON THE PLANS

* CLEAR BEYOND: CULVERT INSTALLATIONS, DITCHLINES, WIDENINGS, FRENCH DRAIN LANDINGS, WASTE AREAS

ALWAYS THINK SAFETY

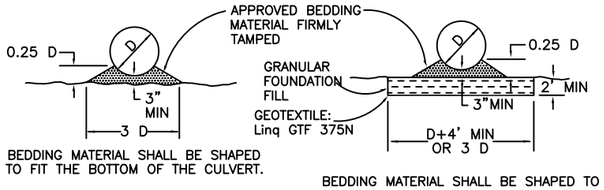
U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

TIMBER SALE: CRYSTAL CLEAR

TYPICAL SECTIONS DETAILS

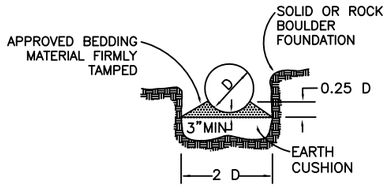
DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN
DRAWN M. HEMMER | SCALE NONE
DATE 06/16 | SHEET 5 OF 66
DRAWING NO. CRYSTALCLEAR.DWG

BEDDING OF CULVERTS



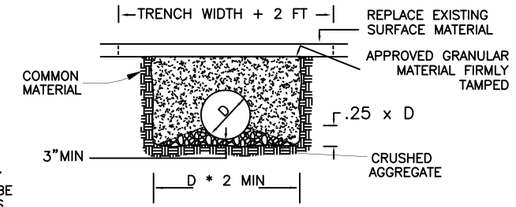
BEDDING OF CULVERTS ON STABLE NATURAL GROUND FOUNDATION OR COMPACTED EMBANKMENT

BEDDING OF CULVERTS ON SOFT SPONGY OR UNSTABLE SOIL FOUNDATION



BEDDING MATERIAL SHALL BE SHAPED TO FIT THE BOTTOM OF THE CULVERT. EARTH CUSHIONING OF SILTY CLAY LOAM OR SAND MAY BE USED IF MATERIAL CAN BE PLACED IN THE DRY CONDITION. IF THE EXCAVATION IS WET, USE GRANULAR FOUNDATION FILL MATERIAL. MAINTAIN 8" MIN. DEPTH BETWEEN HIGH POINTS OF ROCKS AND/OR BOULDERS AND THE BOTTOM OF THE CULVERT.

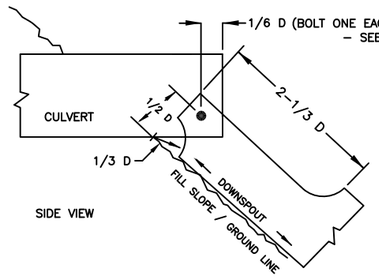
BEDDING OF CULVERT IN SOLID ROCK OR BOULDER FOUNDATION



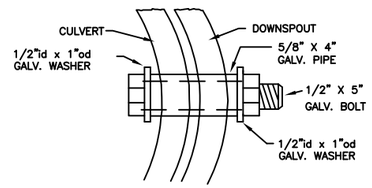
BEDDING MATERIAL SHALL BE SHAPED TO FIT THE BOTTOM OF THE CULVERT. BACKFILL MATERIAL SHALL BE APPROVED GRANULAR MATERIAL.

BEDDING OF CULVERTS ON EXISTING SURFACED ROADS

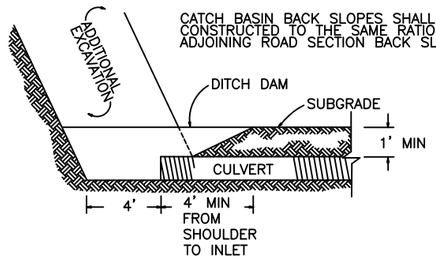
USE "ADJUSTABLE ELBOW" FOR CPE AND CMP DOWNSPOUTS



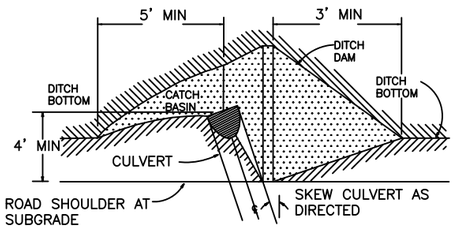
BOLT ASSEMBLY DETAIL**



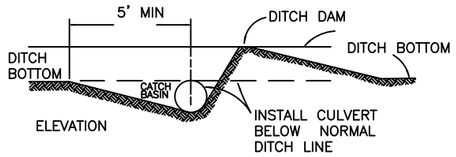
★ NOTE: ANCHOR DOWNSPOUTS ACCORDING TO SECTION 407b OF THE ROAD CONSTRUCTION SPECIFICATIONS



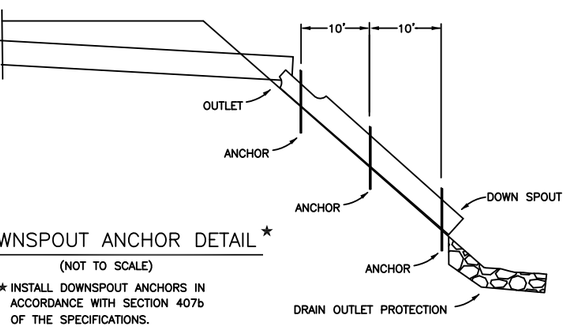
CROSS SECTION AT CATCH BASIN



PLAN VIEW



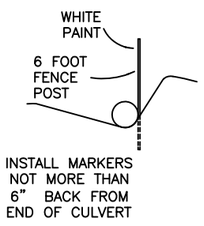
CATCH BASIN



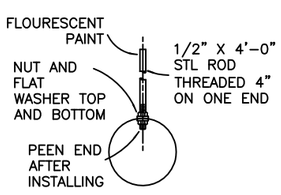
DOWNSPOUT ANCHOR DETAIL ★

(NOT TO SCALE)

★ INSTALL DOWNSPOUT ANCHORS IN ACCORDANCE WITH SECTION 407b OF THE SPECIFICATIONS.

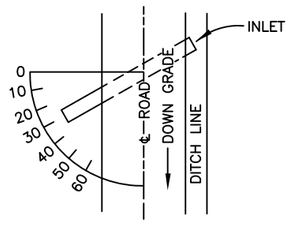


CPE



CMP

CULVERT MARKERS

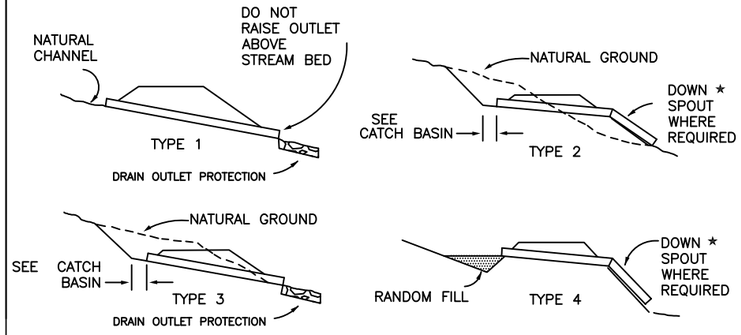


SKEW DIAGRAM

HORIZONTAL SKEW SHALL BE AS SHOWN, OR PERPENDICULAR TO DITCH LINE IN GRADE DIPS. THE GRADE OF CROSSDRAINS SHALL BE AT LEAST 2% GREATER THAN THE GRADE OF THE DITCH, WITH A MAXIMUM GRADIENT OF 5%.

BANDS SHALL MEET MANUFACTURER'S SPECIFICATIONS

CULVERT INSTALLATION TYPES



ALWAYS THINK SAFETY

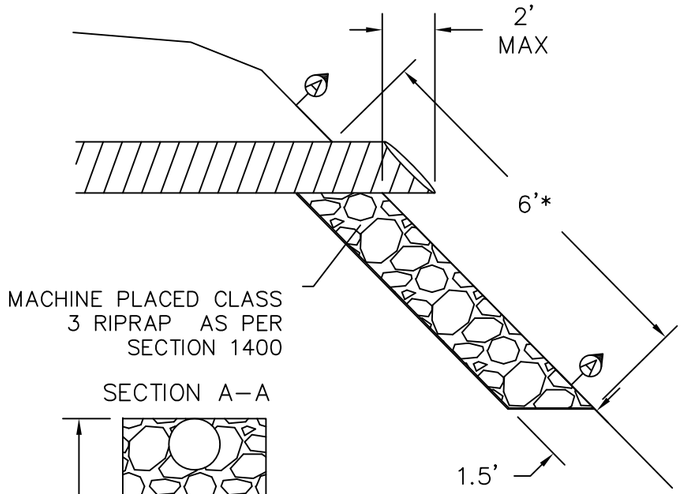
U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

TIMBER SALE: CRYSTAL CLEAR

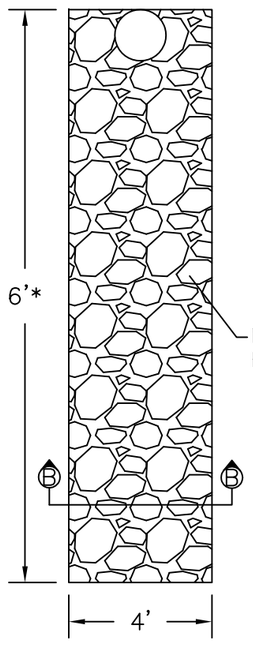
CULVERT INSTALLATION DETAILS

DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN
DRAWN M. HEMMER | SCALE NONE
DATE 07/16 | SHEET 6 OF 66
DRAWING NO. CRYSTALCLEAR.DWG

CROSS DRAIN OUTLET PROTECTION DETAIL



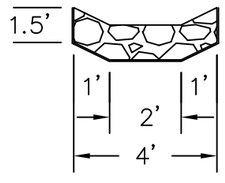
SECTION A–A



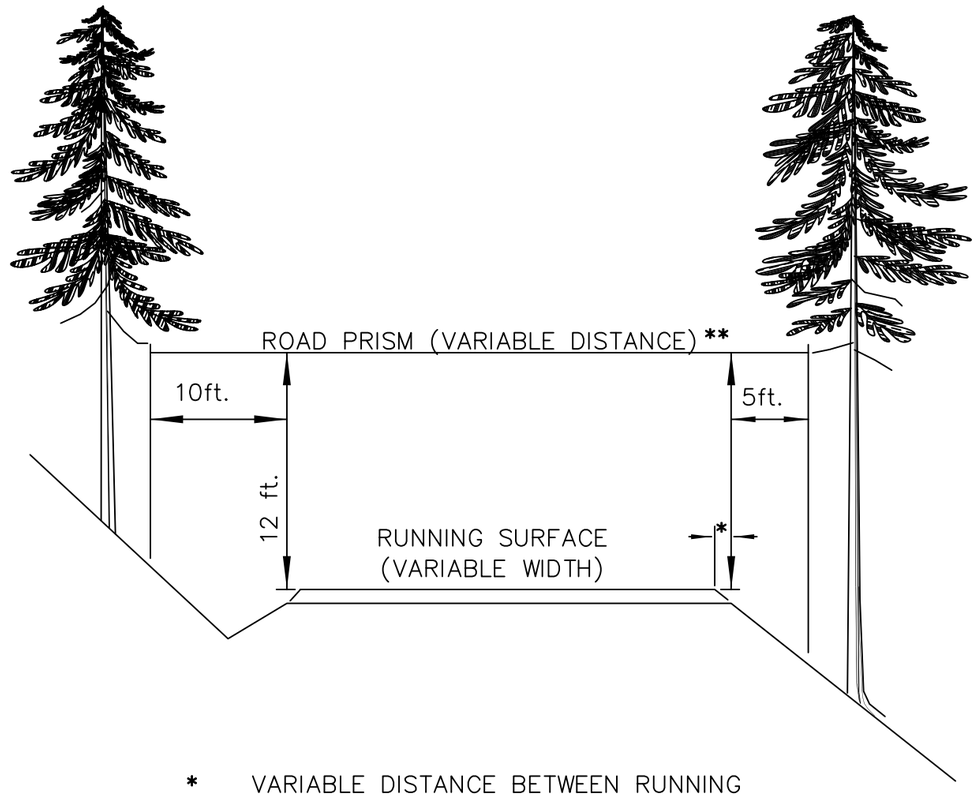
* 6' MIN OR AS DIRECTED BY AO.

MACHINE PLACED CLASS 3
RIPRAP AS PER SECTION 1400

SECTION B–B



ROADSIDE BRUSHING DIAGRAM



* VARIABLE DISTANCE BETWEEN RUNNING SURFACE AND START OF FILL SLOPE.

** ALL AREAS WITHIN THE VARIABLE DISTANCE SHALL BE FREE OF ALL VEGETATION CAPABLE OF GROWING ONE (1) FOOT IN HEIGHT OR HIGHER, AND FREE OF ALL OVER–HANGING LIMBS AND BRANCHES 12 FEET IN ELEVATION ABOVE THE RUNNING SURFACE.

ALWAYS THINK SAFETY

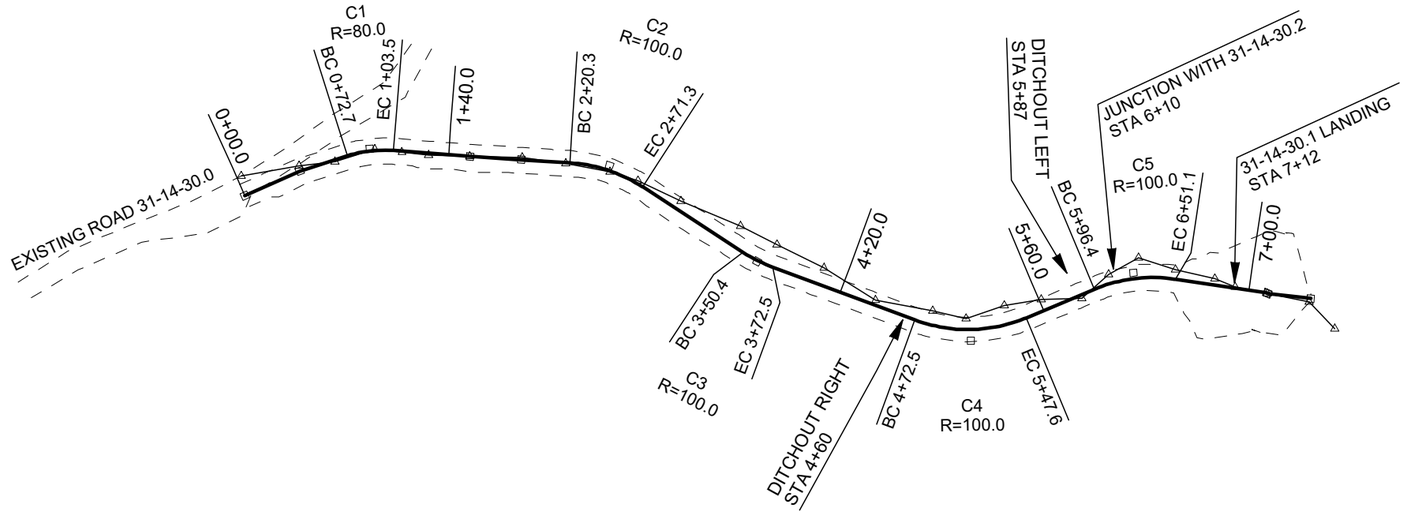
U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

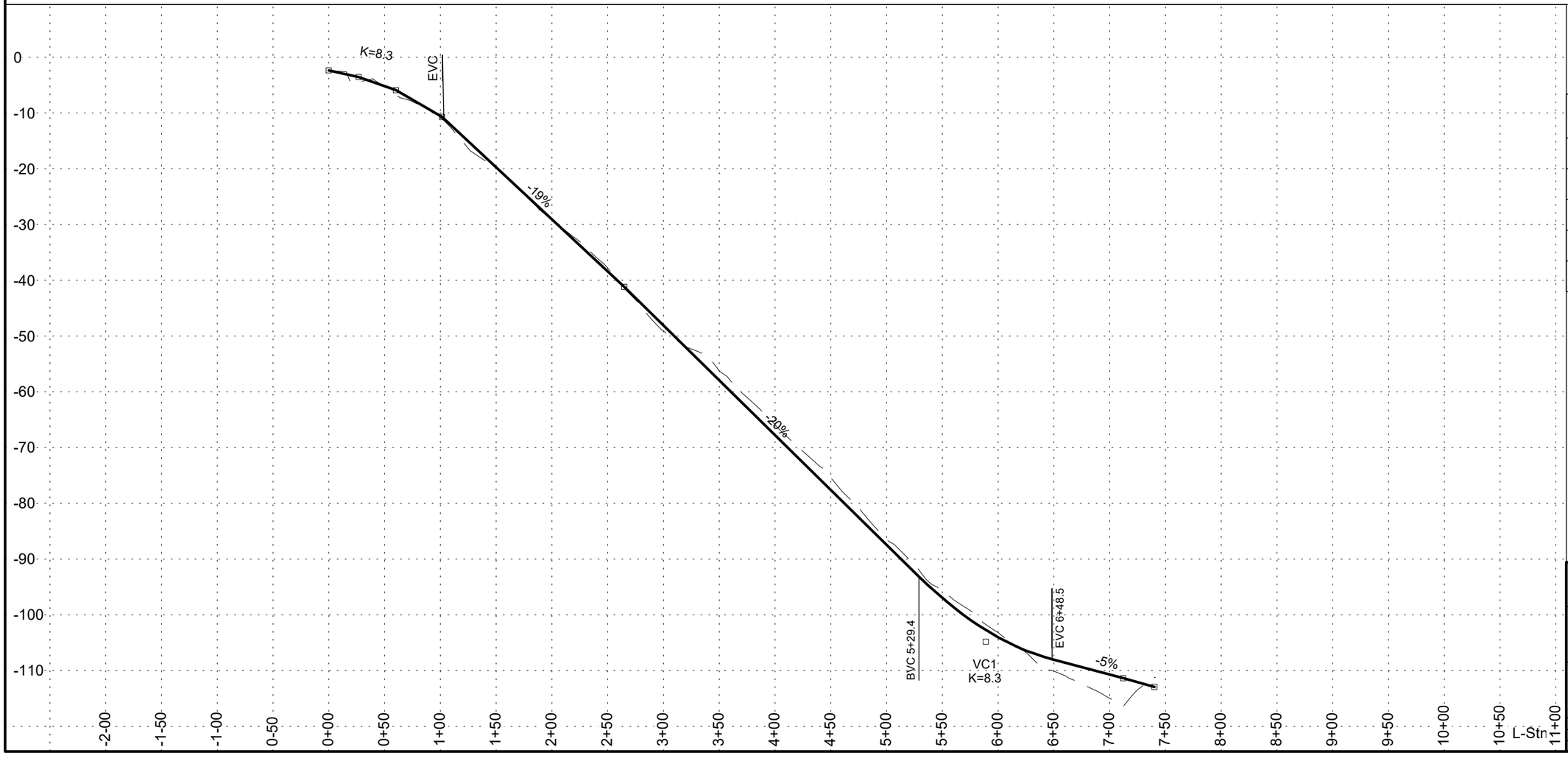
TIMBER SALE: CRYSTAL CLEAR

ROAD BRUSHING DIAGRAM

DESIGNED	G. ZARTMAN
REVIEWED	J. VAN AGTMAEL
APPROVED	G. ZARTMAN
DRAWN M. HEMMER	SCALE NONE
DATE 07/16	SHEET 7 OF 66

DRAWING NO. CRYSTALCLEAR.DWG





LEGEND

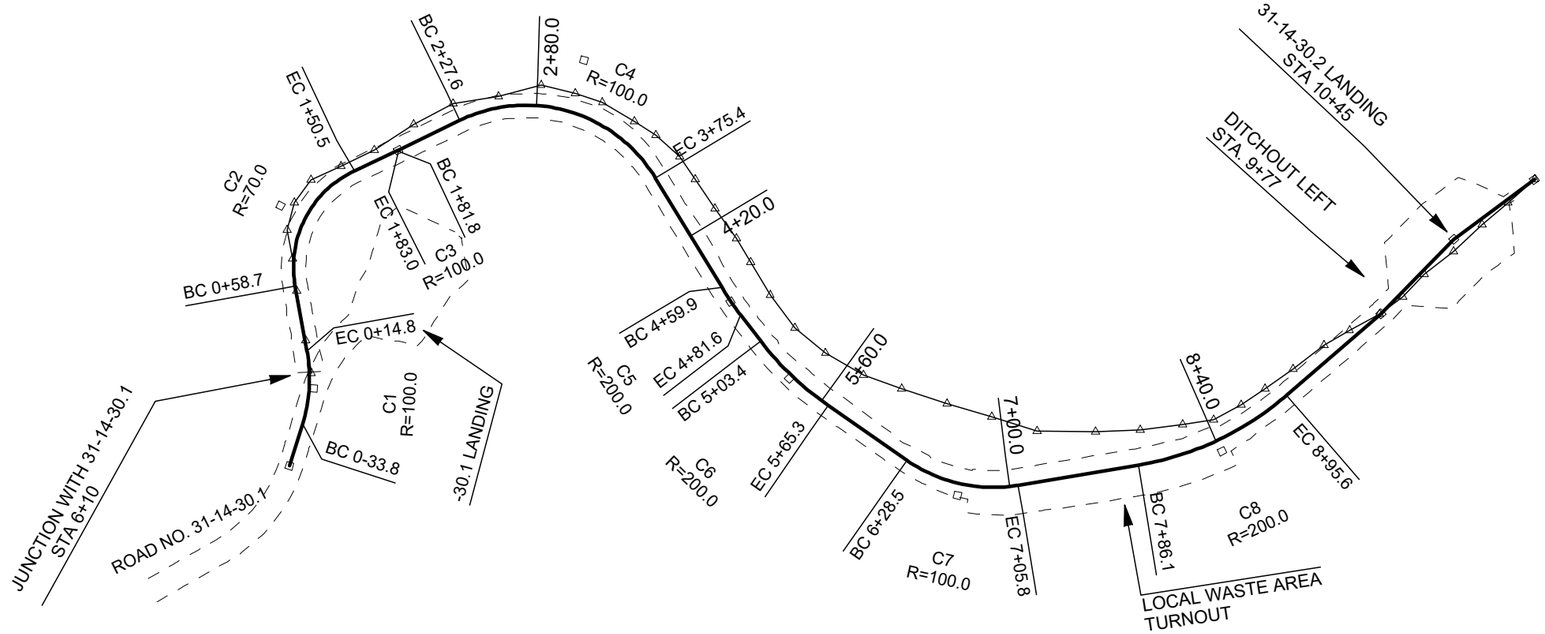
- PLAN P-LINE
- PLAN ROAD EDGES
- DESIGN ALIGNMENT
- PROFILE TOPO
- CULVERT

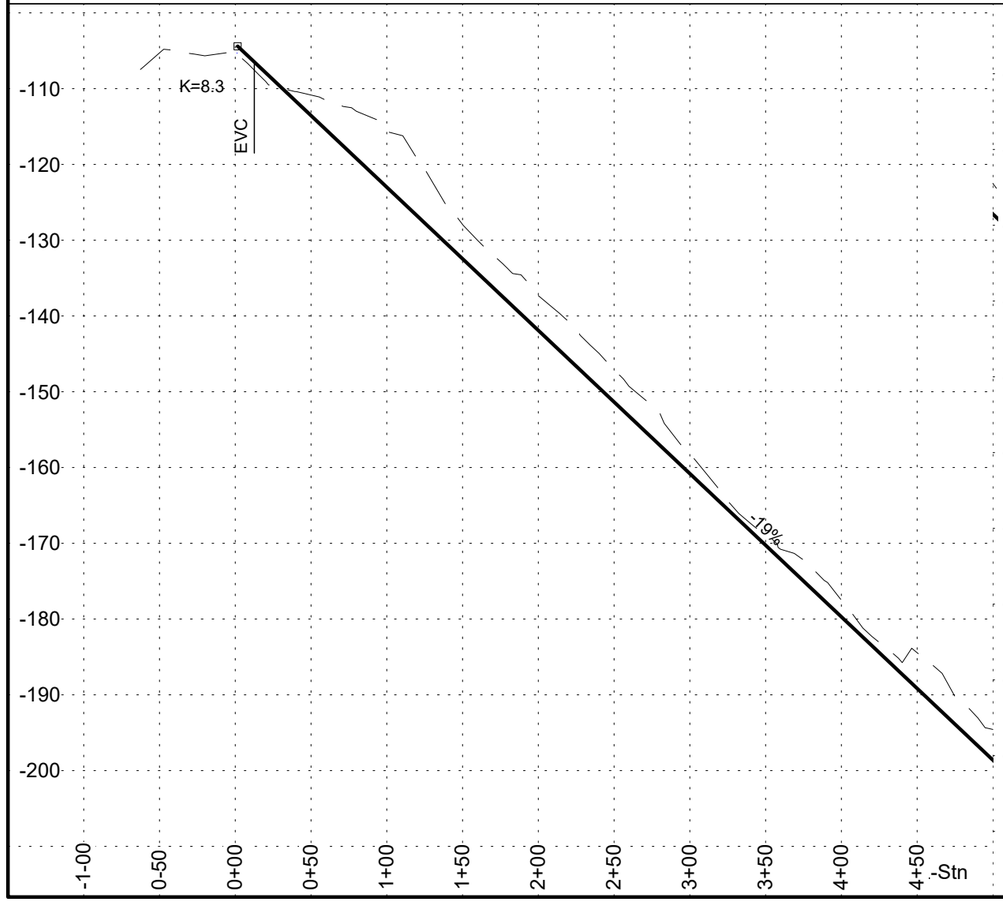
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT, OREGON

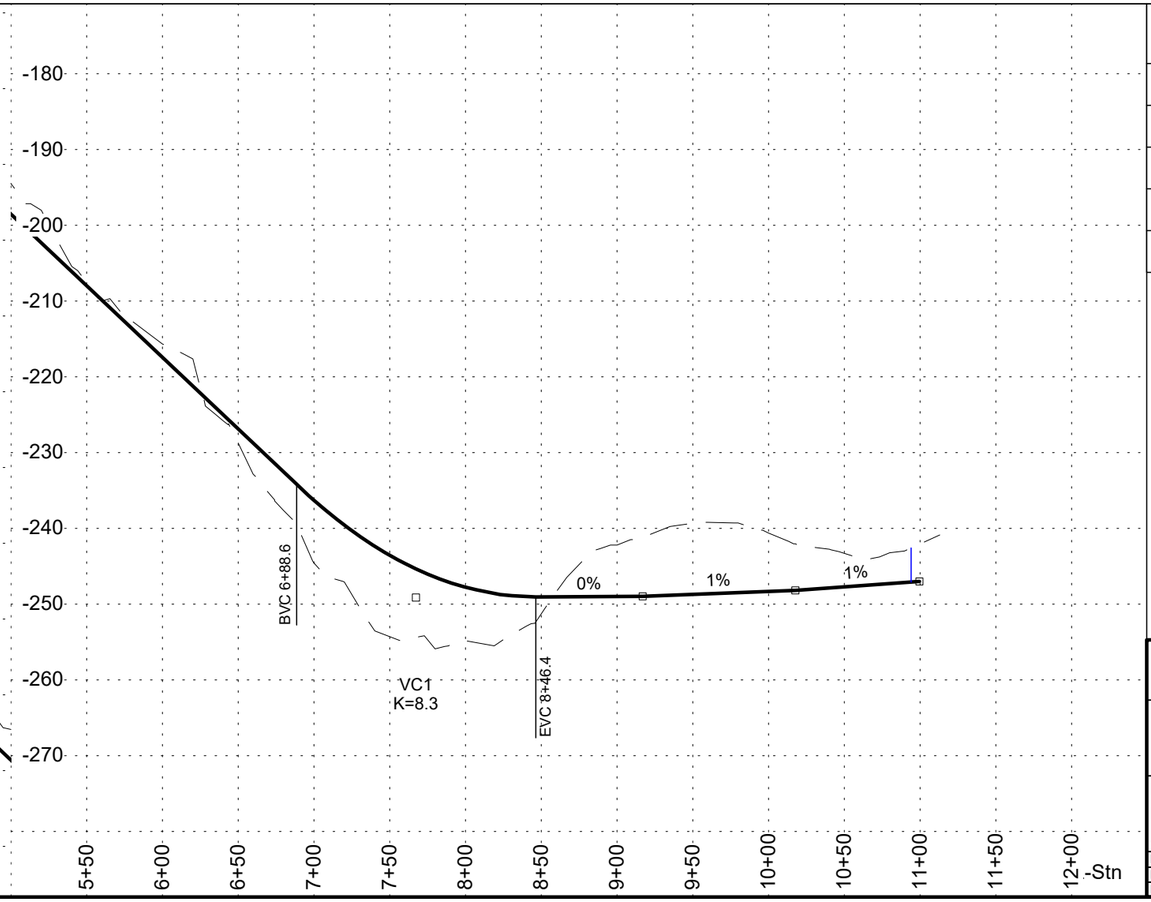
TIMBER SALE: CRYSTAL CLEAR
PLAN & PROFILE
ROAD NO. 31–14–30.1

DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN

DRAWN: M. HEMMER	Plan Scale 1:1200
DATE 7/16	Sheet 8 of 66
DRAWING NO. 31_14_301.dsn	







LEGEND

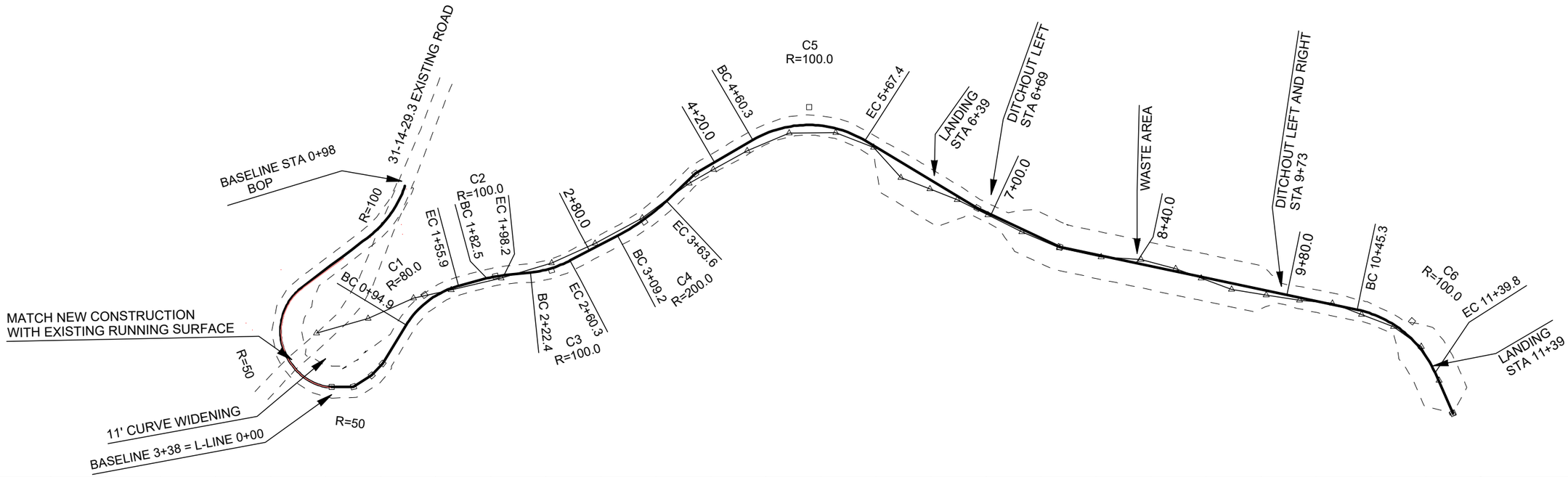
- PLAN P-LINE
- PLAN ROAD EDGES
- DESIGN ALIGNMENT
- PROFILE TOPO
- CULVERT

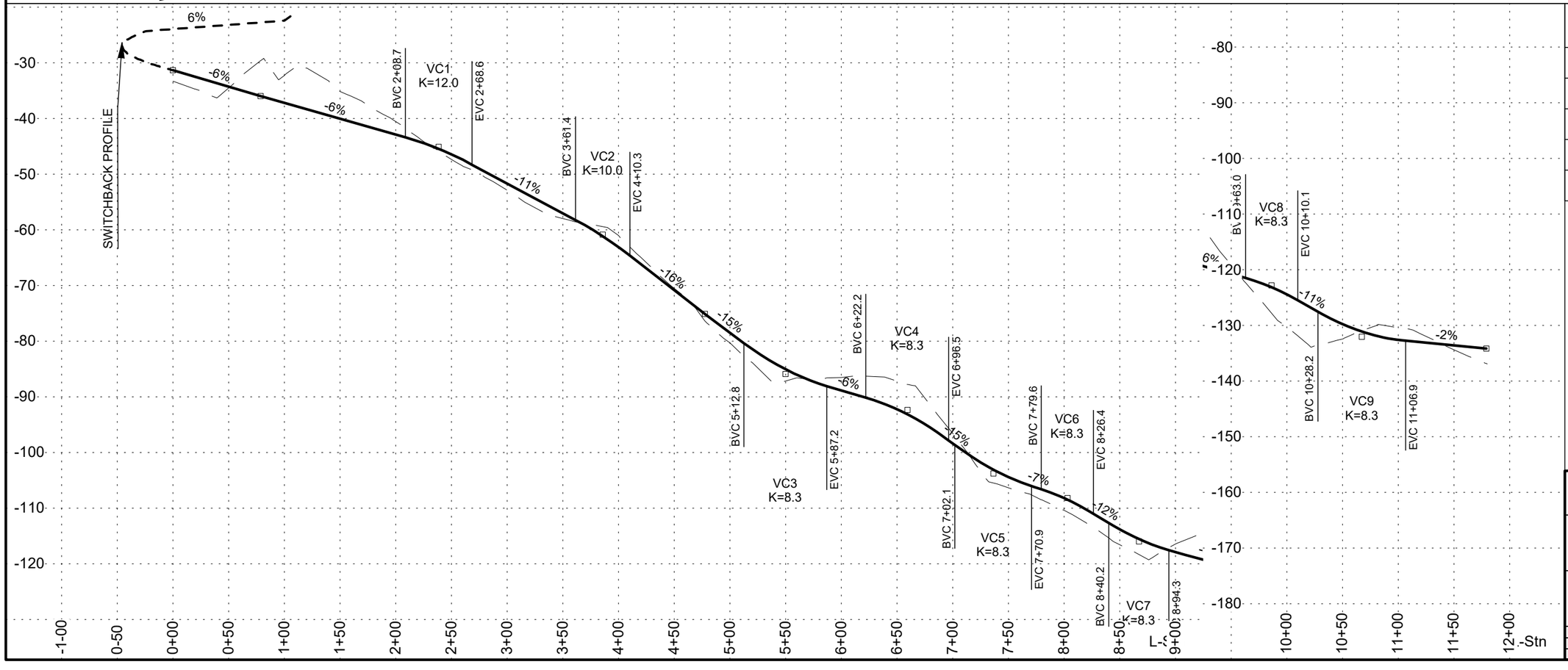
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT, OREGON

TIMBER SALE: CRYSTAL CLEAR
PLAN & PROFILE
ROAD NO. 31–14–30.2

DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN

DRAWN: M. HEMMER	Plan Scale 1:1200
DATE 7/16	Sheet 9 of 66
DRAWING NO. PL03-3-Design.dsn	





LEGEND

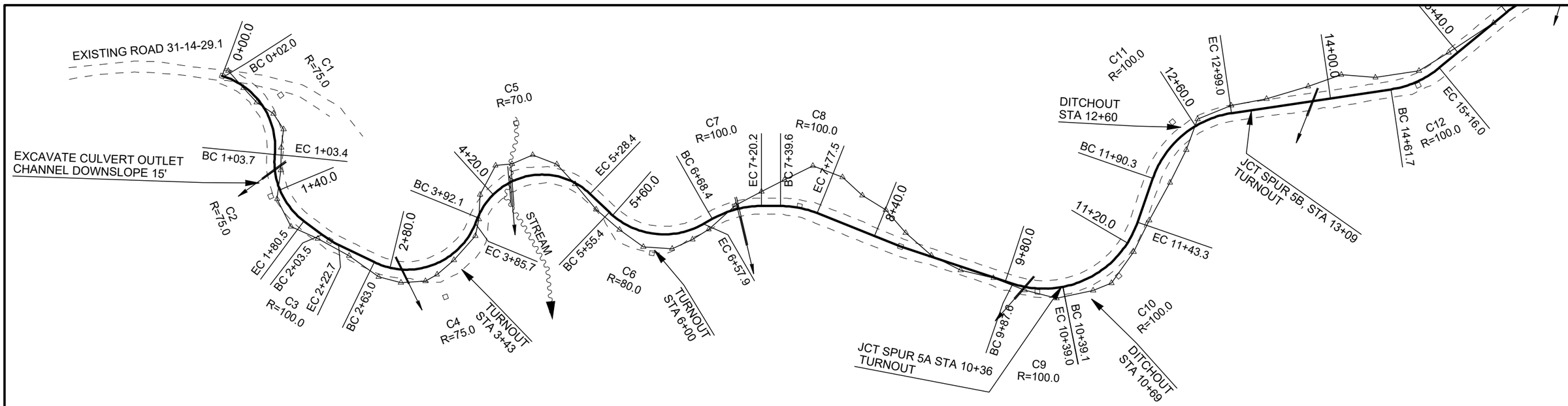
- PLAN P-LINE
- PLAN ROAD EDGES
- DESIGN ALIGNMENT
- PROFILE TOPO
- CULVERT

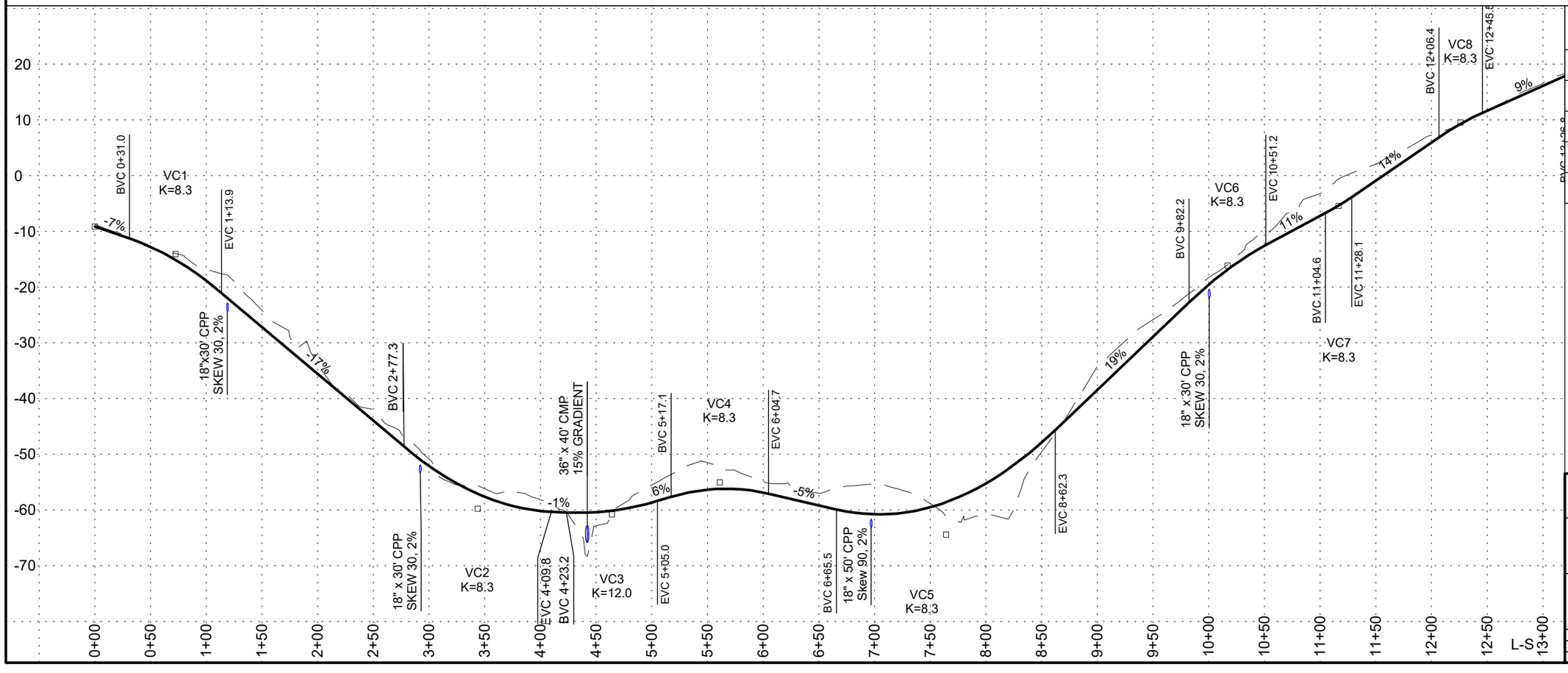
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT, OREGON

TIMBER SALE: CRYSTAL CLEAR
PLAN & PROFILE
ROAD NO. 31–14–29.8

DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN

DRAWN: M. HEMMER	Plan Scale 1:1200
DATE 7/16	Sheet 10 of 66
DRAWING NO. 31_14_298.dsn	





LEGEND

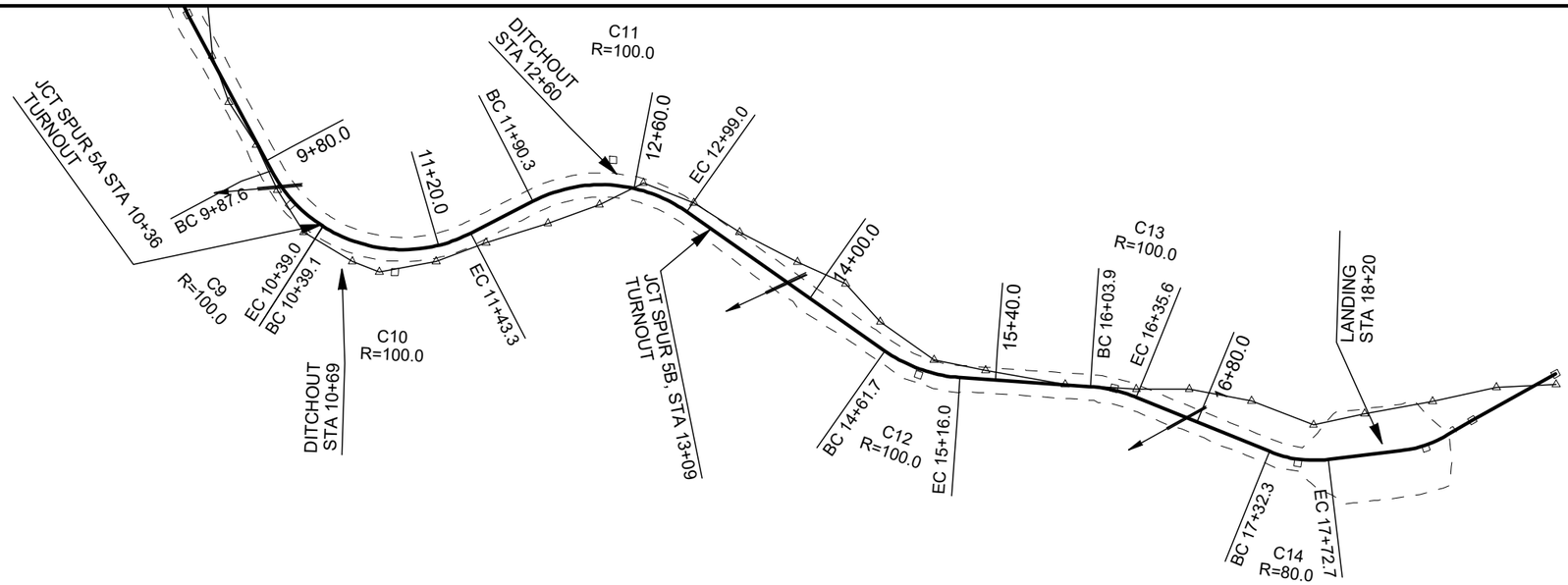
- PLAN P-LINE
- PLAN ROAD EDGES
- DESIGN ALIGNMENT
- PROFILE TOPO
- CULVERT

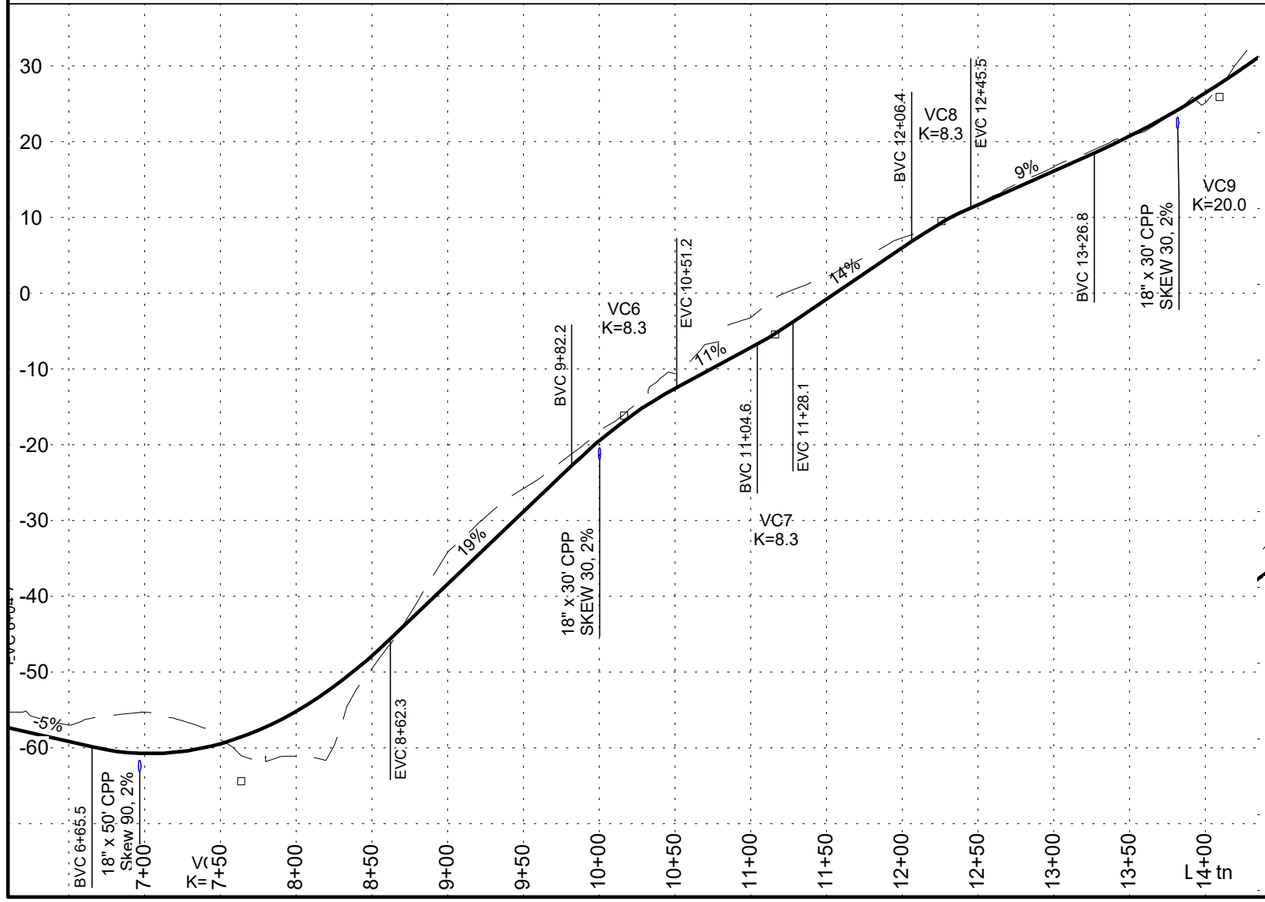
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT, OREGON

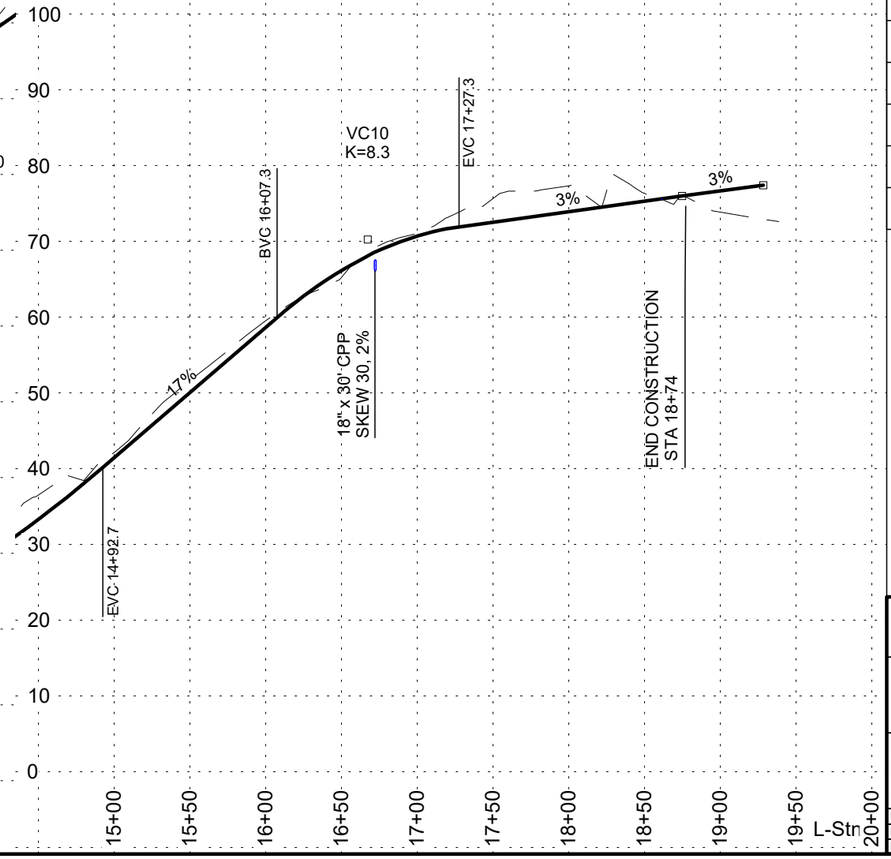
TIMBER SALE: CRYSTAL CLEAR
PLAN & PROFILE
ROAD NO. 31–14–29.6

DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN

DRAWN: M. HEMMER	Plan Scale 1:1200
DATE 7/16	Sheet 11 of 66
DRAWING NO. 31_14_296.dsn	







LEGEND

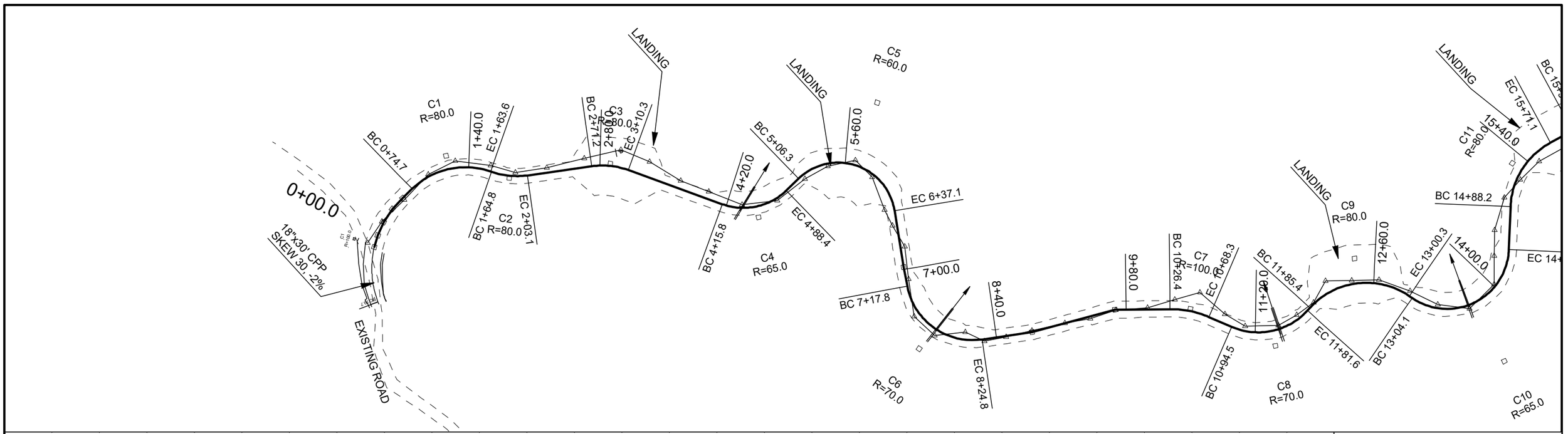
- PLAN P-LINE
- PLAN ROAD EDGES
- DESIGN ALIGNMENT
- PROFILE TOPO
- CULVERT

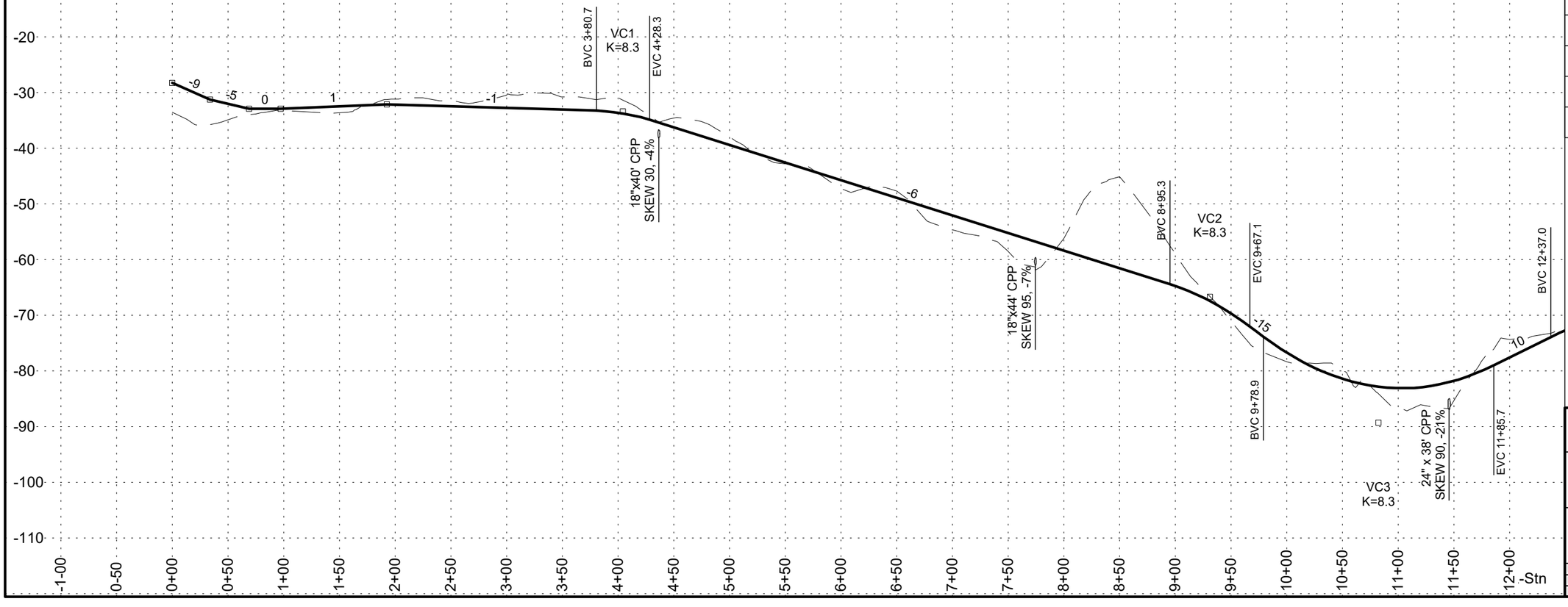
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT, OREGON

TIMBER SALE: CRYSTAL CLEAR
PLAN & PROFILE
ROAD NO. 31–14–29.6

DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN

DRAWN: M. HEMMER	Plan Scale 1:1200
DATE 7/16	Sheet 12 of 66
DRAWING NO. 31_14_296.dsn	





LEGEND

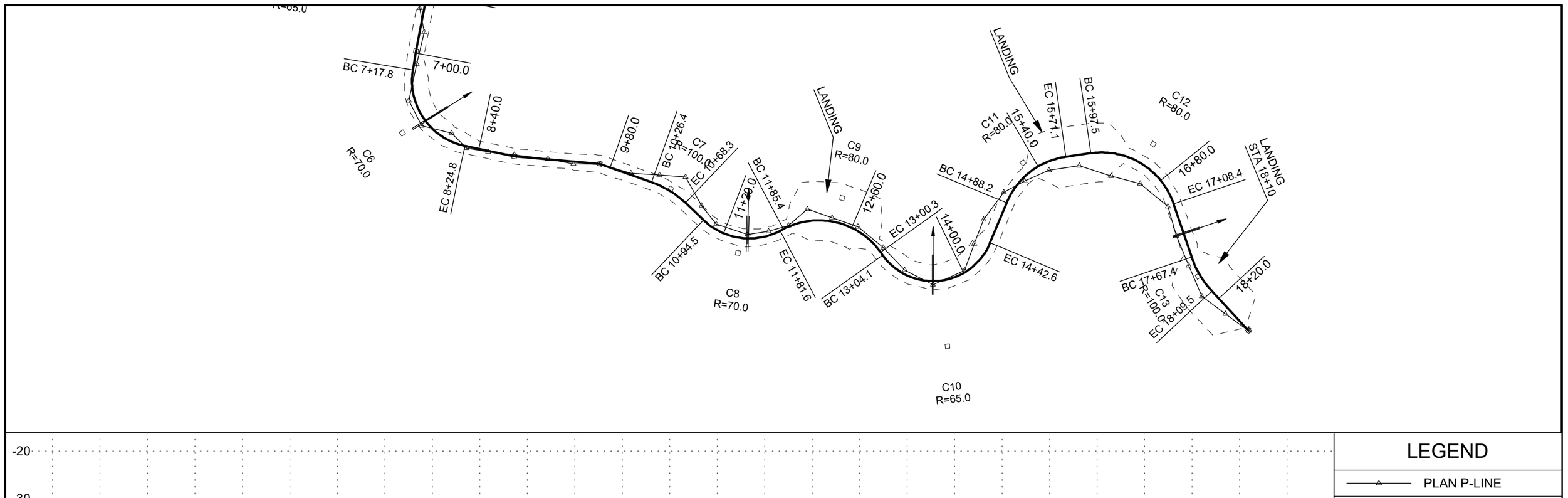
- PLAN P-LINE
- PLAN ROAD EDGES
- DESIGN ALIGNMENT
- PROFILE TOPO
- CULVERT

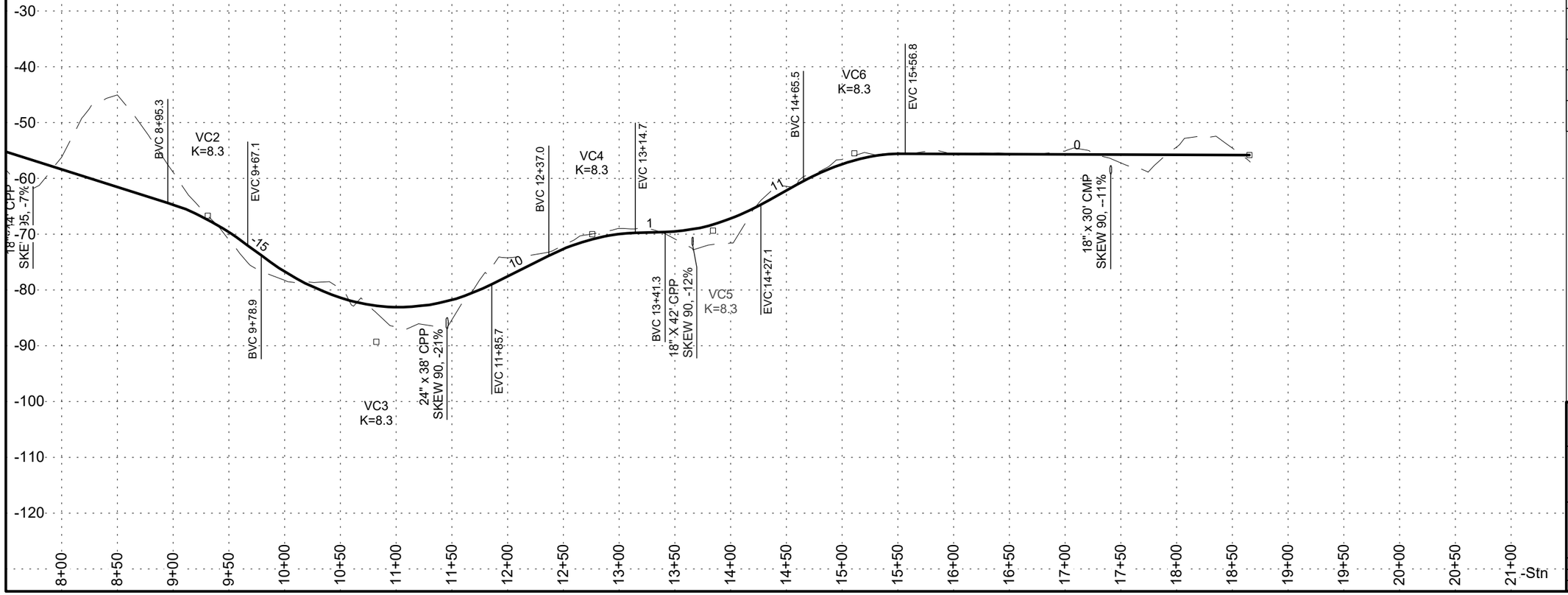
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT, OREGON

TIMBER SALE: CRYSTAL CLEAR
PLAN & PROFILE
ROAD NO. 31-14-29.10

DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN

DRAWN: M. BAILEY	Plan Scale 1:1200
DATE 2/15	Sheet 13 of 66
DRAWING NO. 31_14_2910.dsn	





LEGEND

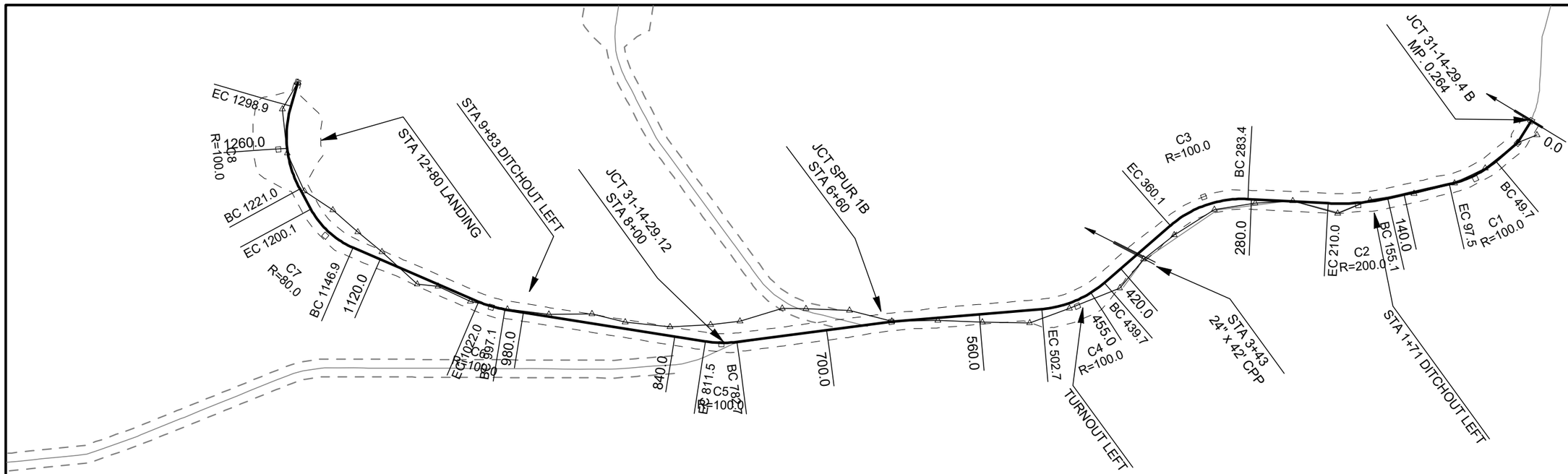
- PLAN P-LINE
- PLAN ROAD EDGES
- DESIGN ALIGNMENT
- PROFILE TOPO
- CULVERT

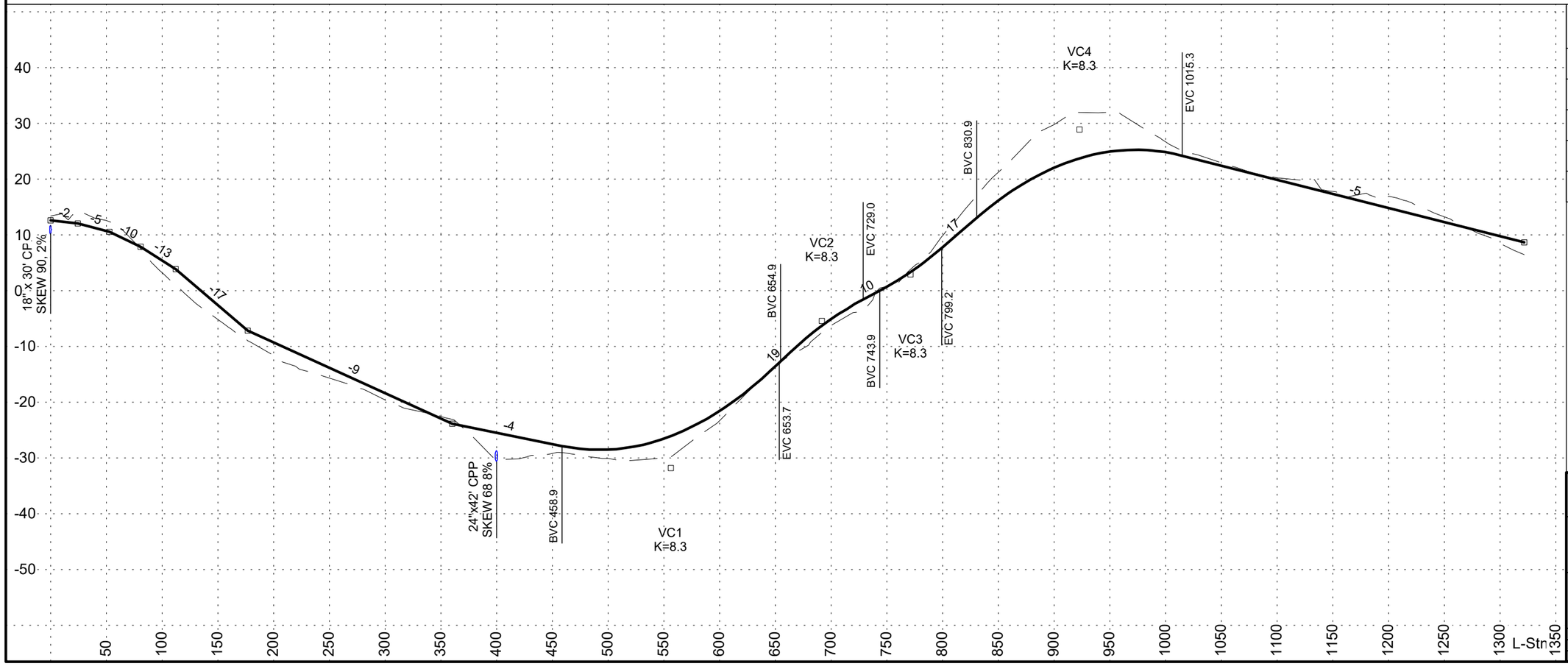
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT, OREGON

TIMBER SALE: CRYSTAL CLEAR
PLAN & PROFILE
ROAD NO. 31-14-29.10

DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN

DRAWN: M. BAILEY	Plan Scale 1:1200
DATE 2/15	Sheet 14 of 66
DRAWING NO. 31_14_2910.dsn	





LEGEND

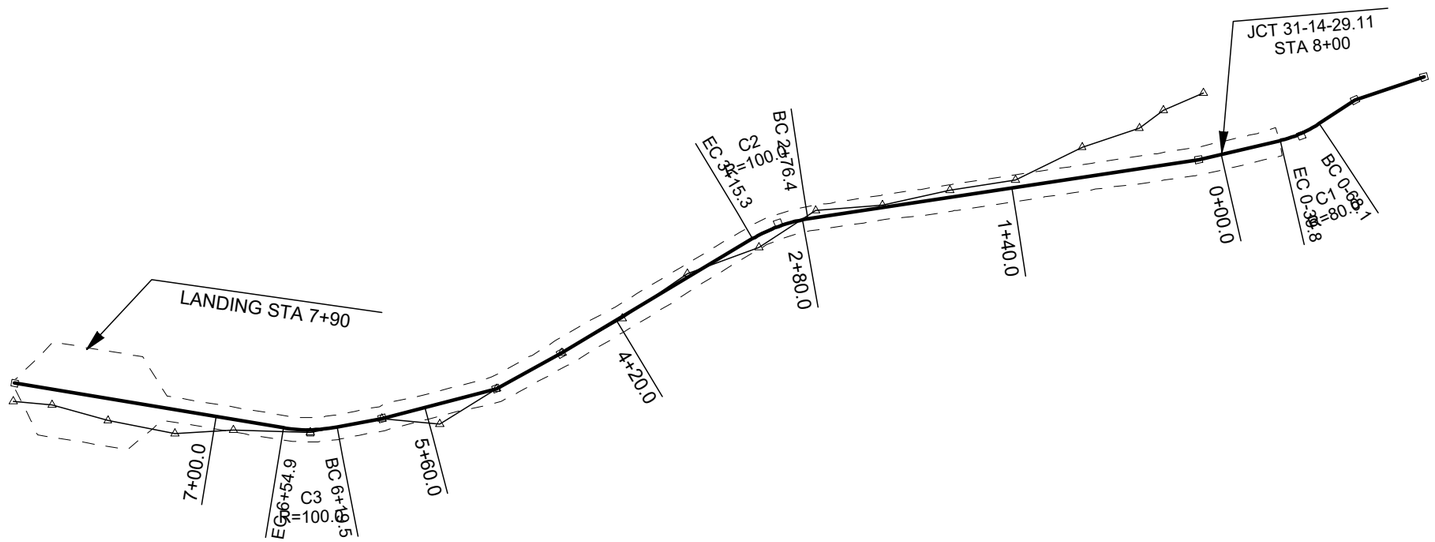
- PLAN P-LINE
- PLAN ROAD EDGES
- DESIGN ALIGNMENT
- PROFILE TOPO
- CULVERT

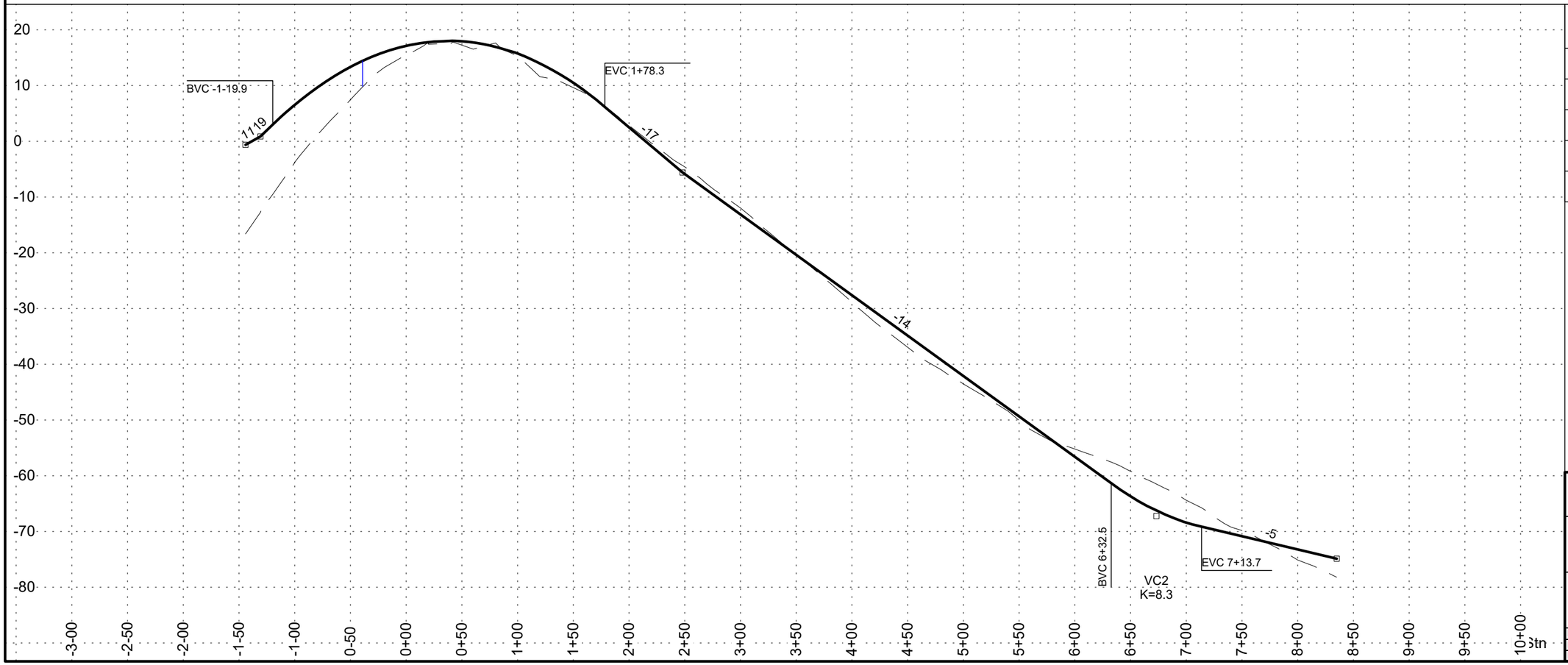
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT, OREGON

TIMBER SALE: CRYSTAL CLEAR
PLAN & PROFILE
ROAD NO. 31-14-29.11

DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN

DRAWN: M. BAILEY	Plan Scale 1:1200
DATE 2/15	Sheet 15 of 66
DRAWING NO. 31_14_2911.dsn	





LEGEND

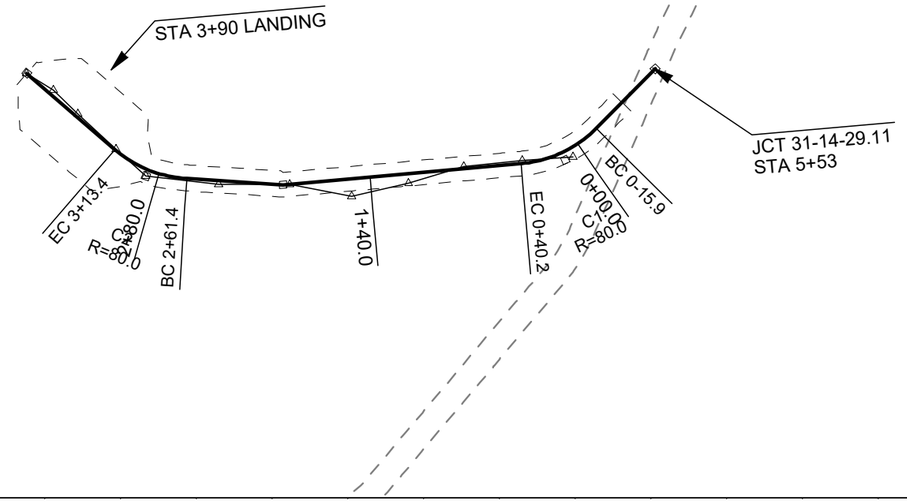
- PLAN P-LINE
- PLAN ROAD EDGES
- DESIGN ALIGNMENT
- PROFILE TOPO

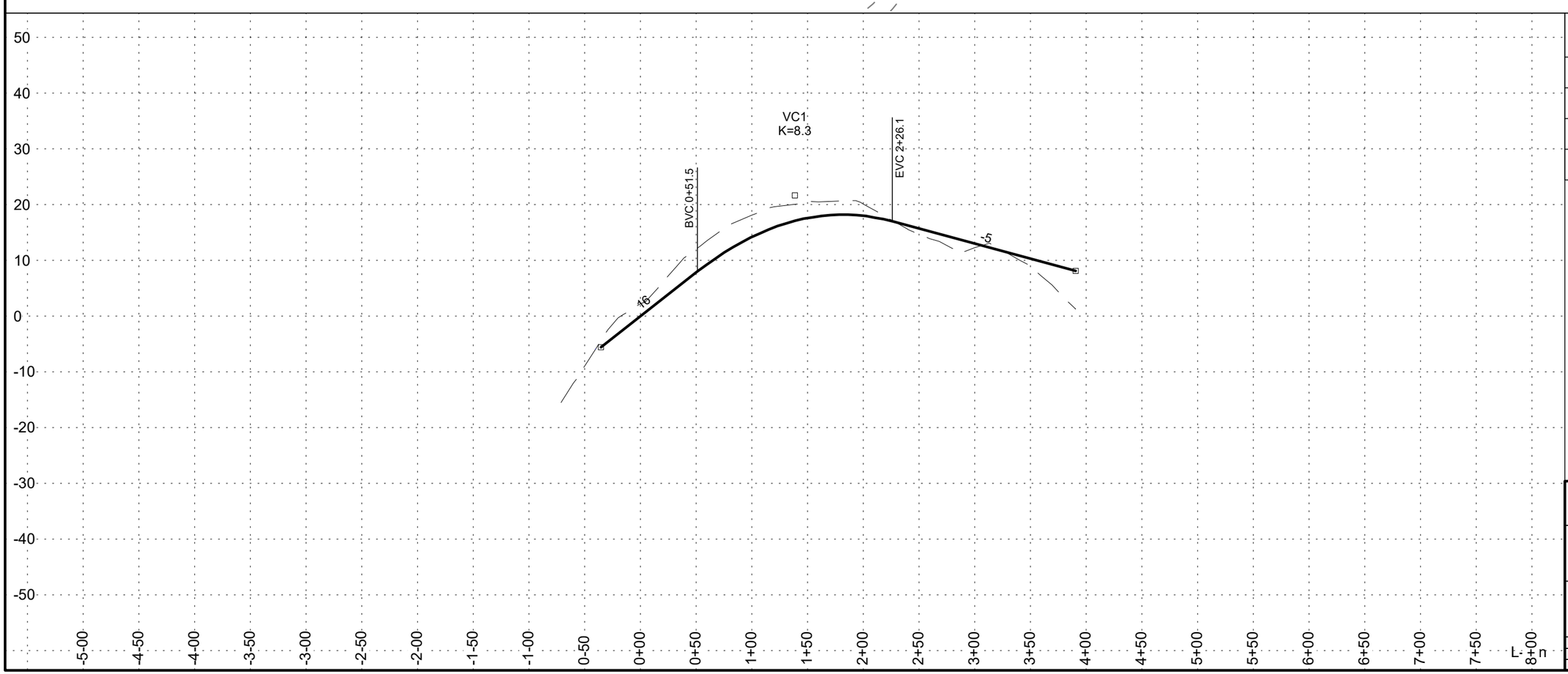
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT, OREGON

TIMBER SALE: CRYSTAL CLEAR
PLAN & PROFILE
ROAD NO. 31-14-29.12

DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN

DRAWN: M. BAILEY	Plan Scale 1:1200
DATE 2/15	Sheet 16 of 66
DRAWING NO. 31_14_2912.dsn	





LEGEND

- PLAN P-LINE
- PLAN ROAD EDGES
- DESIGN ALIGNMENT
- PROFILE TOPO

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT, OREGON

TIMBER SALE: CRYSTAL CLEAR
PLAN & PROFILE
SPUR 1B

DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN

DRAWN: M. BAILEY	Plan Scale 1:1200
DATE 2/15	Sheet 17 of 66
DRAWING NO. Spur1B.dsn	

ROAD NUMBER	NEW CONSTRUCTION	RENOVATION	IMPROVEMENT	GRUBBING	ROADSIDE BRUSHING	EARTHWORK (DESIGNED) (3, 4)						SURFACING (3, 4)				CPP (1, 2)						SEEDING	ENG.
						COMMON	FILL	WASTE	MATERIAL DRIFTED 100-500'	SHORT HAUL 100-500'	LONG HAUL >500'	3"-0" BASE ROCK ROADWAY	3"-0" BASE ROCK TURNOUT LANDING JUNCTION	1.5-0" SURFACE ROCK ROADWAY	1.5-0" SURFACE ROCK TURNOUT JUNCTION	18"	24"	36"	MARKERS	RIPRAP	1.5"-0" CULVERT BEDDING ROCK	SEED, FERTILIZE & MULCH (DRY)	SLOPE STAKING
SECTION NO.	300	500	500	200	2100	300	300	300	300	300	300	1000	1000	1200	1200	400	400	400	400	1400	400/1200	1800	2300
UNITS	STA.	STA.	STA.	AC.	AC.	C.Y.	C.Y.	C.Y.	STA.YD.	STA.YD.	YD.MI.	C.Y.	C.Y.	C.Y.	C.Y.	L.F.	L.F.	L.F.	EA.	C.Y.	C.Y.	AC.	STA.
31-14-29.0 C			1.58									104		45									
31-14-29.0 D			9.29				80 (11)			80		360	85	170		90			3	11	5	0.2	
31-14-29.0 D2		13.99		1.28	0.30	215	131		131													1.0	
31-14-29.10	18.10			2.63		5156	5145		4565	580		625	475	560		170	40		5	19	11	0.8	18.10
31-14-29.11	12.80			1.41		2533	2230	303 (8)	1263	438	832	603	107	246	8	30	42		2	8	8	0.4	12.80
31-14-29.12	7.90			0.90		925	1452 (5)		926		526	372	98	155								0.2	7.90
31-14-29.4 B			2.11									77		33									
31-14-29.6	18.20			2.06		5692	2163	3529 (9)	2573	1115	2004	812	157	345	24	180		40	7	26	12	0.8	
31-14-29.7	4.00			0.51		1027	1027		1027													0.3	
31-14-29.8	11.39			1.87		4043	4043		1562	672	1799											1.3	
31-14-29.9	5.70			0.70		1845	1793		1793													0.4	
31-14-30.0		6.60		0.33	0.08	158	158		158													0.5	
31-14-30.1	7.12			0.78		787	1167		720		410 (10)											0.7	
31-14-30.2	10.45			1.38		4784	4379	410 (7)	3039		1340											1.4	
Spur 1A	2.50			0.41		1396	1345		1345			92	95	39								0.1	
Spur 1B	3.50			0.52		1086	905	181	905		181	177	98	123								0.2	3.50
Spur 5A	2.30			0.27			2665 (6)					44	98	40								0.2	
Spur 5B	1.30			0.26			954 (6)					56	98	15									
Totals:	105.26	20.59	12.98	15.30	0.38	29647	29637	4423	20007	2885	7092	3322	1311	1771	32	470	82	40	17	64	36	8.5	42.30

NOTES:

1. CPP - CORRUGATED PLASTIC PIPE.
2. SEE CULVERT INSTALLATION SHEET NO. 6.
3. VOLUMES ARE TRUCK (LOOSE) CUBIC YARDS.
4. INCLUDES TURNOUTS, LANDINGS, & JUNCTIONS.
5. BORROW FROM ROAD NO. 31-14-29.11 AND SPUR 1B.
6. BORROW FROM ROAD NO. 31-14-29.6.
7. WASTE TO BUILD ROAD NO. 31-14-30.1.
8. WASTE TO BUILD ROAD NO. 31-14-29.12.
9. WASTE 2,665 C.Y. TO BUILD SPUR 5A., WASTE 1,053 C.Y. TO BUILD SPUR 5B.
10. BORROW FROM ROAD NO. 31-14-30.2.
11. BORROW FROM ROAD 31-14-29.0D RENOVATION.

SECTION	GRADE	SIZE
400/1200	C	1.5"-0"
700	PR	PITRUN
900	DR	3"-1"
1000	A	3"-0"
1200	C	1.5"-0"
1400	3	Class 3
1400	5	Class 5

GRADE INDICATED IN CIRCLE ◯

ALWAYS THINK SAFETY

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

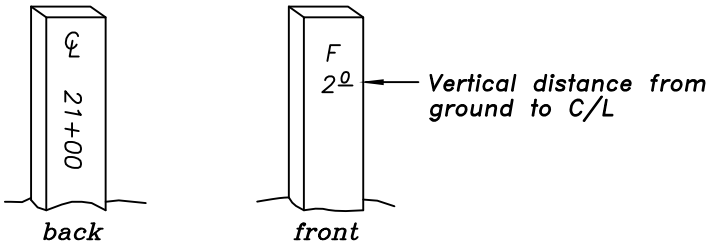
TIMBER SALE: CRYSTAL CLEAR

ESTIMATE OF QUANTITIES

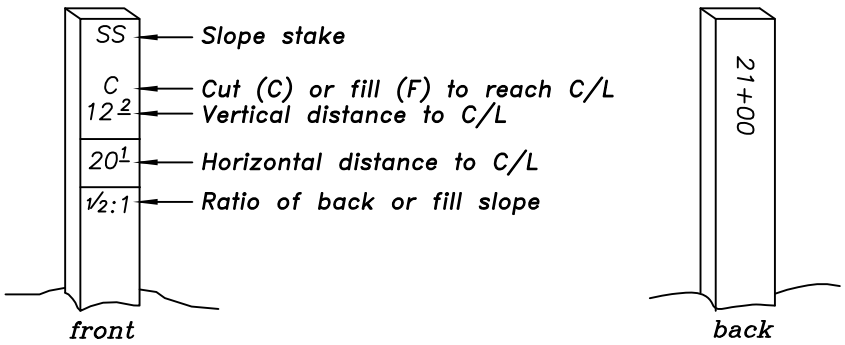
DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN

DRAWN M. HEMMER | SCALE NONE
DATE 07/16 | SHEET 18 OF 66
DRAWING NO. CRYSTALCLEAR.DWG

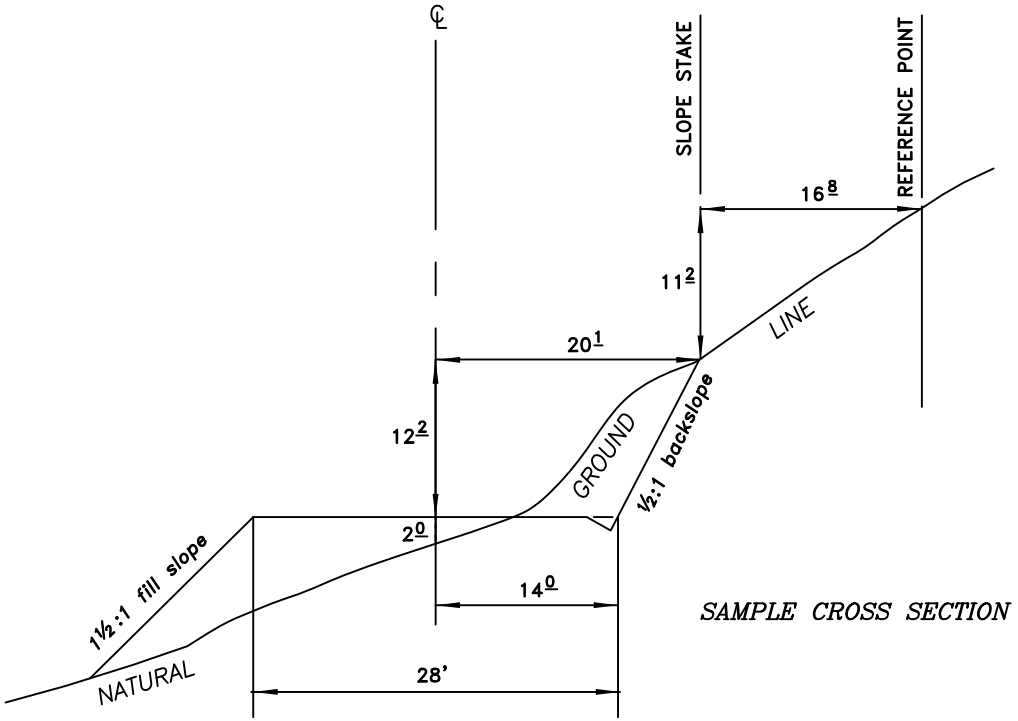
Minimum information on stakes shall be as follows:



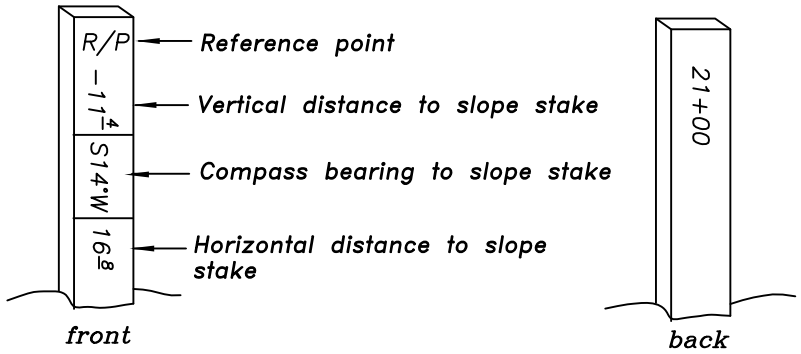
CENTERLINE STAKE



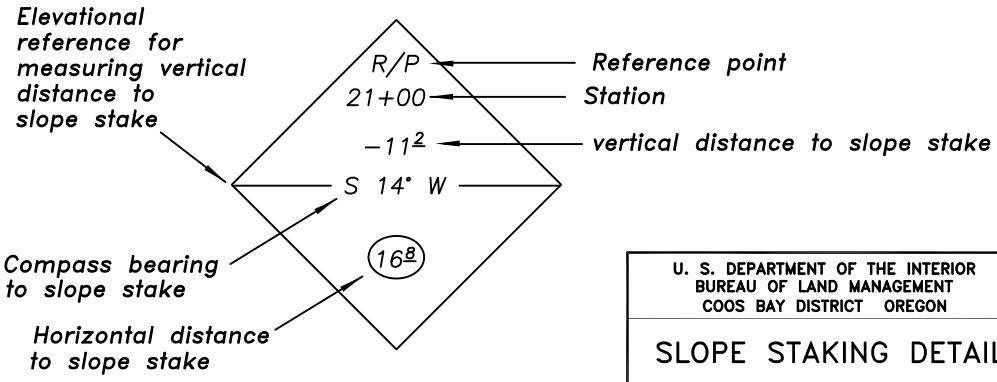
SLOPE STAKE



SAMPLE CROSS SECTION



REFERENCE POINT – STAKE



REFERENCE POINT – TAG

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

SLOPE STAKING DETAIL

DESIGNED	M. BAILEY
REVIEWED	G. CLARY
APPROVED	K. WESTENSKOW
DRAWN MGB	SCALE NONE
DATE 2/17	SHEET 19 OF 66

SPECIAL PROVISIONS

Purchaser Responsibility

The Purchaser shall avoid damaging any aggregate surfaced roads, and will be responsible for the repair of any road damaged as a result of the activity. Aggregate roads shall be left in the same condition that they were prior to logging operations.

Restrictions

All road construction, renovation, and decommissioning work shall be done during the dry construction season, avoiding precipitation periods, between June 1 and October 15.

Seasonal restrictions apply to native surfaced roads.

In-stream work restrictions limit stream culvert installation to the period between July 15 and September 30.

Over-wintering

All natural-surfaced new construction shall not over-winter without being either decommissioned, as specified in the Exhibit D, or winterized, in accordance with the 1700 Erosion Control specifications, prior to the first rains of the wet season, but no later than October 15 in the year of construction.

Excavated Material/Compaction

Excavated material shall not be wasted as sidecast or perched. All material perched or lost over the side will be retrieved and disposed of at the Purchaser's expense and at the direction of the Authorized Officer. All fillslopes shall be compacted equal to 85% of maximum density, either by walking with cat/excavator tracks or by pressing with excavator bucket, to prevent surface erosion and raveling.

Waste Areas

All waste areas shall be sloped, shaped to drain, seeded, fertilized, and mulched in accordance with Sections 200, 300, and 1800 of the Road Construction Specifications.

Spill Containment

Spill containment kit is required on-site during work. Kit contents shall include absorbent booms (two bales, four 8” x 10” booms/bale), absorbent pads (two bales, one hundred 17” x 19” x ¼” pads/bale), heavy duty garbage bags, gloves (PVC and latex), and goggles.

Equipment Washing

The Purchaser is responsible for vehicle/equipment entrance cleaning in accordance with the Exhibit F.

SPECIAL DETAILS FOR IMPROVEMENT OF
ROAD NO. 31-14-29.0 C
Milepost 1.244 to Milepost 1.274

Milepost	Remarks
General	Road is to be brushed, graded, and compacted prior to the placement of base and surfacing rock. Establish roadway per type 4 standard detail on Sheet No 5: Widen subgrade as needed and establish 2' ditch. Cut slopes shall be 3/4H:1V and the fill slopes shall be 1 1/2H:1V, or as shown on the plans. Surfacing: • Base: 8" lift of 3"-0" Crushed Base Rock, conforming to Section 1000, as directed by the Authorized Officer. • Cap: 4" lift of 1-1/2"-0" Crushed Surfacing Rock, conforming to Section 1200, as directed by the Authorized Officer. • All surfacing shall be spread and compacted in accordance with the Road Specifications, 1000 and 1200 Sections. Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications on all exposed soils.
1.244	End Road No. 31-14-29.0 Segment B. Begin road improvement
1.274	Gate. End Road No. 31-14-29.0 Segment C.

SPECIAL DETAILS FOR IMPROVEMENT OF
ROAD NO. 31-14-29.0 D
Milepost 1.274 to Milepost 1.450

Milepost	Remarks
General	Road is to be brushed, graded, and compacted prior to the placement of base and surfacing rock. Establish roadway per type 4 standard detail on Sheet No 5: Widen subgrade 4ft left and establish 2' ditch. Cut slopes shall be 3/4H:1V and the fill slopes shall be 1 1/2H:1V, or as shown on the plans. Surfacing: • Base: 8" lift of 3"-0" Crushed Base Rock, conforming to Section 1000, as directed by the Authorized Officer. • Cap: 4" lift of 1-1/2"-0" Crushed Surfacing Rock, conforming to Section 1200, as directed by the Authorized Officer. • All surfacing shall be spread and compacted in accordance with the Road Specifications, 1000 and 1200 Sections. Clearing and grubbing will be required to establish the type 4 roadway section. Roadway shall be reconstruction/constructed within posted or painted right-of-way boundaries. Minimum curve radius shall be sixty (60) feet. Maximum road grade shall be 4% favorable and 17% adverse. Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications on all exposed soils.
1.274	Gate. Begin road improvement.
1.330	Junction with new construction Spur 1A. Install 18"x30' CPP, skew 30, and catch basin. Place 3 C.Y. of Class 3 rip rap at outlet for erosion control and energy dissipation.
1.381	Junction with new construction Road No. 31-14-29.10. Blend 5.4' fill at junction with roadbed at a rate of change of grade of not greater than 8% in 50' length. Install 18"x30' CPP, skew 30, and

catch basin. Place 3 C.Y. of Class 3 rip rap at outlet for erosion control and energy dissipation.

1.443 Install 18”x30’ CPP, skew 30, and catch basin. Place 3 C.Y. of Class 3 rip rap at outlet for erosion control and energy dissipation.

1.450 Center of landing LZ1-6, construction landing (70 feet by 60 feet). Place 6” lift 3”-0” Crushed Base Rock over width and length of landing, conforming to Section 1000, as directed by the Authorized Officer. End road improvement.

SPECIAL DETAILS FOR IMPROVEMENT OF ROAD NO. 31-14-29.4 B

Milepost 0.224 to Milepost 0.264

Milepost	Remarks
General	Road is to be brushed, graded, and compacted prior to the placement of base and surfacing rock. Establish roadway per type 4 standard detail on Sheet No 5: Widen subgrade as needed and establish 2’ ditch. Cut slopes shall be 3/4H:1V and the fill slopes shall be 1 1/2H:1V, or as shown on the plans. Surfacing: • Base: 8” lift of 3”-0” Crushed Base Rock, conforming to Section 1000, as directed by the Authorized Officer. • Cap: 4” lift of 1-1/2”-0” Crushed Surfacing Rock, conforming to Section 1200, as directed by the Authorized Officer. • All surfacing shall be spread and compacted in accordance with the Road Specifications, 1000 and 1200 Sections. Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications on all exposed soils.
0.224	End Road No. 31-14-29.4 Segment A. Begin road improvement.
0.264	Junction with new construction Road No. 31-14-29.11. End road improvement.

SPECIAL DETAILS RENOVATION OF
ROAD NO. 31-14-29.0 D2
Milepost 1.450 to Milepost 1.715

Milepost	Remarks
General	Road is to be renovated and reconstructed to establish roadway per type 1 standard detail on Sheet No 5. This work will include: 1. Clearing and Grubbing: Roadway will be cleared within the posted and painted right-of-way limited and grubbed per the standard specifications. All excavated material shall be bunched and end-hauled to the designated waste area. 2. Reconstruct roadway prism: • Out-sloped 14' width subgrade. • Cut slopes shall be 3/4H:1V and the fill slopes shall be 1 1/2H:1V, or as shown on the plans. • 60 feet minimum radius horizontal curves with curve widening. • Maximum road grade shall be 17% adverse and 4% favorable. 3. Surfacing: Road surfacing shall be native dirt surface. Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications on all exposed soils.
1.450	Begin renovation.
1.711	Center of landing LZ1-16, construction landing (70 feet by 60 feet). Landing shall be native surfacing.
1.715	End road renovation.

SPECIAL DETAILS RENOVATION OF
ROAD NO. 31-14-30.0 (ROAD NAME 03-1)
Milepost 0.000 to Milepost 0.125

Milepost	Remarks
General	Road is to be brushed, graded, and compacted. Establish roadway per type 4 standard detail on Sheet No 5 (Note: Less rock surfacing): Widen subgrade 4ft left and establish 2' ditch. Cut slopes shall be 3/4H:1V and the fill slopes shall be 1 1/2H:1V, or as shown on the plans. Surfacing: Native surfacing. Clearing and grubbing will be required to establish the type 4 roadway section. Roadway shall be reconstructed/constructed within posted or painted right-of-way boundaries. Minimum curve radius shall be sixty (60) feet. Maximum road grade shall be 5% adverse. Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications on all exposed soils. Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications on all exposed soils.
0.000	Jct. with existing Road No. 31-15-35.0 (Crystal Creek Mainline), MP 5.000. Begin renovation.
0.082	Begin full width clear and grub.
0.125	Jct. with New Road No. 31-14-30.1. End road renovation.

CONSTRUCTION DETAIL SHEET
ROAD NO. 31-14-30.1 (ROAD NAME 03-2)

GENERAL

Purchaser shall construct Road No. 31-14-30.1 from Sta. 0+00 to Sta. 7+12 as shown on the location map. This work shall be accomplished in accordance with details and road specifications which follow:

SHAPING

The roadway shall be constructed and shaped to conform to standards shown on Sheet No. 5 (16' subgrade w/ 2' ditch; 12' surfaced width), type 4 standard detail (Note: Less rock surfacing). Cut slopes shall be 3/4H:1V and the fill slopes shall be 1 1/2H:1V, or as shown on the plans.

TURNOUTS

Truck turnouts and turnarounds are provided by way of the junction with existing Road No. 31-14-30.0, the junction with new construct Road No. 31-14-30.2 and the landing at the terminus of this road.

SUBGRADE

The subgrade shall be excavated and compacted in accordance with the Road Specifications, 200 and 300 Sections. All excavated material shall be used as fill in the subgrade and compacted in accordance with the Road Specifications, 200 and 300 Sections. Maximum Fill depth is 6' at road centerline and Maximum Cut depth is 2' at road centerline.

DRAINAGE FEATURES

Crowned at 2% with 2' ditch to achieve drainage (double ditch through-cuts). Construct ditch-outs where possible.

SURFACING

None.

ALIGNMENT

Roadway shall be constructed within posted or painted right-of-way boundaries. Minimum curve radius shall be eighty (80) feet. Road has been slope staked and L-Line locations marked.

Sta. 0+00: Junction with existing Road No. 31-14-30.0 at MP 0.125.

Sta. 6+10: Junction with new Road No. 31-14-30.2 at MP 0.000 (Sta. 0+00).

Sta. 6+61: Property Line.

GRADE

Grade shall not exceed 20% adverse grade. No favorable road grades present.

LANDINGS

Construct end landing (60ft diameter) at Sta. 7+12. Grade of landings shall not exceed 6%.

SOIL STABILIZATION

Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications.

CONSTRUCTION DETAIL SHEET
ROAD NO. 31-14-30.2 (ROAD NAME 03-3)

GENERAL

Purchaser shall construct Road No. 31-14-30.2 from Sta. 0+00 to Sta. 10+45 as shown on the location map. This work shall be accomplished in accordance with details and road specifications which follow:

SHAPING

The roadway shall be constructed and shaped to conform to standards shown on Sheet No. 5 (16' subgrade w/ 2' ditch; 12' surfaced width), type 4 standard detail (Note: Less rock surfacing). Cut slopes shall be 3/4H:1V and the fill slopes shall be 1 1/2H:1V, or as shown on the plans.

TURNOUTS

Construct a truck turnout at Sta. 7+89, as designated in the plans. Truck turnouts and turnarounds are also provided by way of the junction the landing at the terminus of Road No. 31-14-30.1 and the landing at the terminus of Road No. 31-14-30.2.

SUBGRADE

The subgrade shall be excavated and compacted in accordance with the Road Specifications, 200 and 300 Sections. All excavated material shall be used as fill in the subgrade and compacted in accordance with the Road Specifications, 200 and 300 Sections. Maximum Fill depth is 9' at road centerline and Maximum Cut depth is 9' at road centerline.

DRAINAGE FEATURES

Crowned at 2% with 2' ditch to achieve drainage (double ditch through-cuts). Construct ditch-outs where possible.

SURFACING

None.

ALIGNMENT

Roadway shall be constructed within posted or painted right-of-way boundaries. Minimum curve radius shall be seventy (70) feet. Road has been slope staked and L-Line locations marked.

Sta. 0+00: Junction with new Road No. 31-14-30.1 at MP 0.116 (Sta. 6+10).

Sta. 2+19: Property Line.

A local waste area is located from Sta. 6+73 – Sta. 8+45. This waste area consists of widening of the road subgrade by an additional 10' right of centerline, as further detailed in the plans. Waste area material will be placed in accordance with the specifications for road subgrade embankment placement.

GRADE

Grade shall not exceed 17% adverse.

LANDINGS

Construct end landing (60ft diameter) at Sta. 10+45. Grade of landings shall not exceed 4%.

SOIL STABILIZATION

Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications.

CONSTRUCTION DETAIL SHEET
ROAD NO. 31-14-29.11 (ROAD NAME 04-3)

GENERAL

Purchaser shall construct Road No. 31-14-29.11 from Sta. 0+00 to Sta. 12+80 as shown on the location map. This work shall be accomplished in accordance with details and road specifications which follow:

SHAPING

The roadway shall be constructed and shaped to conform to standards shown on Sheet No. 5 (16' subgrade w/ 2' ditch; 12' surfaced width), type 4 standard detail. Cut slopes shall be 3/4H:1V and the fill slopes shall be 1 1/2H:1V, or as shown on the plans.

TURNOUTS

Construct at turnout left at Sta. 4+79, per the standard details.

SUBGRADE

The subgrade shall be excavated and compacted in accordance with the Road Specifications, 200 and 300 Sections. All excavated material shall be used as fill in the subgrade and compacted in accordance with the Road Specifications, 200 and 300 Sections. Maximum Fill depth is 4' at road centerline and Maximum Cut depth is 3' at road centerline.

DRAINAGE FEATURES

Crowned at 2% with 2' ditch to achieve drainage (double ditch through-cuts).

Install Cross Drains and Ditch-outs at the following locations:

- Sta. 0+00: 18"x 30' CPP with 3 C.Y. Class 3 Riprap energy dissipation outfall, conforming to Section 1400, as directed by the Authorized Officer. Install a culvert inlet marker.
- Sta. 1+71: Ditch-out left.
- Sta. 3+43: 24"x 42' CPP with 3 C.Y. Class 3 Riprap energy dissipation outfall, conforming to Section 1400, as directed by the Authorized Officer. Install a culvert inlet marker.
- Sta. 7+00: Ditch-out left and right.
- Sta. 9+83: Ditch-out left.

SURFACING

Base: 8" lift of 3"-0" Crushed Base Rock, conforming to Section 1000, as directed by the Authorized Officer.

Cap: 4" lift of 1-1/2"-0" Crushed Surfacing Rock, conforming to Section 1200, as directed by the Authorized Officer.

All surfacing shall be spread and compacted in accordance with the Road Specifications, 1000 and 1200 Sections.

ALIGNMENT

Roadway shall be constructed within posted or painted right-of-way boundaries. Minimum curve radius shall be eighty (80) feet.

Road shall have slope stake and L-Line locations marked by the Purchaser in accordance with Section 2300.

Sta. 0+00: Junction with existing road 31-14-29.4 at MP 0.264.

Sta. 1+24: Property Line.

Sta. 6+60: Junction with new road Spur 1B at MP 0.000 (Sta. 0+00).

Sta. 8+00: Junction with new road 31-14-29.12 at MP 0.000 (Sta. 0+00).

GRADE

Grade shall not exceed 11% favorable and 9% adverse.

LANDINGS

Construct end landing (60ft diameter) at Sta. 12+80. Grade of landings shall not exceed 5%.

SOIL STABILIZATION

Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications.

CONSTRUCTION DETAIL SHEET
SPUR 1B (ROAD NAME 04-4)

GENERAL

Purchaser shall construct Spur 1B from Sta. 0+00 to Sta. 3+50 as shown on the location map. This work shall be accomplished in accordance with details and road specifications which follow:

SHAPING

The roadway shall be constructed and shaped to conform to standards shown on Sheet No. 5 (16' subgrade w/ 2' ditch; 12' surfaced width), type 4 standard detail. Cut slopes shall be 3/4H:1V and the fill slopes shall be 1 1/2H:1V, or as shown on the plans.

TURNOUTS

Truck turnouts and turnarounds are provided by way of the junction with Road No. 31-14-29.12 and the landing at the terminus of this road.

SUBGRADE

The subgrade shall be excavated and compacted in accordance with the Road Specifications, 200 and 300 Sections. All excavated material shall be used as fill in the subgrade and compacted in accordance with the Road Specifications, 200 and 300 Sections. Maximum Fill depth is 5' at road centerline and Maximum Cut depth is 9' at road centerline.

DRAINAGE FEATURES

Crowned at 2% with 2' ditch to achieve drainage (double ditch through-cuts).

Install Ditch-outs at the following locations:

- Sta. 2+68: Ditch-out left and right.

SURFACING

Base: 8" lift of 3"-0" Crushed Base Rock, conforming to Section 1000, as directed by the Authorized Officer.

Cap: 4" lift of 1-1/2"-0" Crushed Surfacing Rock, conforming to Section 1200, as directed by the Authorized Officer.

All surfacing shall be spread and compacted in accordance with the Road Specifications, 1000 and 1200 Sections.

ALIGNMENT

Roadway shall be constructed within posted or painted right-of-way boundaries. Minimum curve radius shall be eighty (80) feet.

Road shall have slope stake and L-Line locations marked by the Purchaser in accordance with Section 2300.

Sta. 0+00: Junction with Road No. 31-14-29.11 at MP 0.105 (Sta. 6+60).

GRADE

Grade shall not exceed 16% favorable and 5% adverse.

LANDINGS

Construct end landing (60ft diameter) at Sta. 3+50. Grade of landing shall not exceed 5%.

SOIL STABILIZATION

Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications.

CONSTRUCTION DETAIL SHEET
ROAD NO. 31-14-29.12 (ROAD NAME 04-7)

GENERAL

Purchaser shall construct Road No. 31-14-29.12 from Sta. 0+00 to Sta. 7+90 as shown on the location map. This work shall be accomplished in accordance with details and road specifications which follow:

SHAPING

The roadway shall be constructed and shaped to conform to standards shown on Sheet No. 5 (16' subgrade w/ 2' ditch; 12' surfaced width), type 4 standard detail. Cut slopes shall be 3/4H:1V and the fill slopes shall be 1 1/2H:1V, or as shown on the plans.

TURNOUTS

Truck turnouts and turnarounds are provided by way of the junction with Road No. 31-14-29.11 and the landing at the terminus of this road.

SUBGRADE

The subgrade shall be excavated and compacted in accordance with the Road Specifications, 200 and 300 Sections. All excavated material shall be used as fill in the subgrade and compacted in accordance with the Road Specifications, 200 and 300 Sections. Maximum Fill depth is 5' at road centerline and Maximum Cut depth is 5' at road centerline.

DRAINAGE FEATURES

Crowned at 2% with 2' ditch to achieve drainage (double ditch through-cuts).

Install Ditch-outs at the following locations:

- Sta. 3+90: Ditch-out left and right.

SURFACING

Base: 8" lift of 3"-0" Crushed Base Rock, conforming to Section 1000, as directed by the Authorized Officer.

Cap: 4" lift of 1-1/2"-0" Crushed Surfacing Rock, conforming to Section 1200, as directed by the Authorized Officer.

All surfacing shall be spread and compacted in accordance with the Road Specifications, 1000 and 1200 Sections.

ALIGNMENT

Roadway shall be constructed within posted or painted right-of-way boundaries. Minimum curve radius shall be eighty (80) feet.

Road shall have slope stake and L-Line locations marked by the Purchaser in accordance with Section 2300.

Sta. 0+00: Junction with Road No. 31-14-29.11 at MP 0.152 (Sta. 8+00)

GRADE

Grade shall not exceed 14% adverse.

LANDINGS

Construct end landing (60ft diameter) at Sta. 7+90. Grade of landing shall not exceed 5%.

SOIL STABILIZATION

Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications.

CONSTRUCTION DETAIL SHEET
ROAD NO. 31-14-29.10 (ROAD NAME 04-8)

GENERAL

Purchaser shall construct Road No. 31-14-29.10 from Sta. 0+00 to Sta. 18+10 as shown on the location map. This work shall be accomplished in accordance with details and road specifications which follow:

SHAPING

The roadway shall be constructed and shaped to conform to standards shown on Sheet No. 5 (16' subgrade w/ 2' ditch; 12' surfaced width), type 4 standard detail. Cut slopes shall be 3/4H:1V and the fill slopes shall be 1 1/2H:1V, or as shown on the plans.

TURNOUTS

Truck turnouts and turnarounds are provided by way of the junction with existing Road No. 31-14-29.0; and landings at Sta. 2+95, 5+60, 12+45, 15+85, and 18+10.

SUBGRADE

The subgrade shall be excavated and compacted in accordance with the Road Specifications, 200 and 300 Sections. All excavated material shall be used as fill in the subgrade and compacted in accordance with the Road Specifications, 200 and 300 Sections. Maximum Fill depth is 6' at road centerline and Maximum Cut depth is 13' at road centerline.

DRAINAGE FEATURES

Crowned at 2% with 2' ditch to achieve drainage (double ditch through-cuts).

Install Cross Drains and Ditch-outs at the following locations:

- Sta. 0+61: Ditch-out right.
- Sta. 4+37: 18" x 40' CPP with 3 C.Y. Class 3 Riprap energy dissipation outfall, conforming to Section 1400, as directed by the Authorized Officer. Install a culvert inlet marker.
- Sta. 7+75: 18" x 44' CPP in small drainage conforming to Section 1400, as directed by the Authorized Officer. Install a culvert inlet marker.
- Sta. 9+30: Ditch-out right.
- Sta. 11+45: 24" x 40' CPP with 3 C.Y. Class 3 Riprap energy dissipation outfall, conforming to Section 1400, as directed by the Authorized Officer. Install a culvert inlet marker.
- Sta. 13+66: 18" x 42' CPP with 3 C.Y. Class 3 Riprap energy dissipation outfall, conforming to Section 1400, as directed by the Authorized Officer. Install a culvert inlet marker.
- Sta. 17+41: 18" x 30' CPP with 3 C.Y. Class 3 Riprap energy dissipation outfall, conforming to Section 1400, as directed by the Authorized Officer. Install a culvert inlet marker.

SURFACING

Base: 8" lift of 3"-0" Crushed Base Rock, conforming to Section 1000, as directed by the Authorized Officer.

Cap: 4" lift of 1-1/2"-0" Crushed Surfacing Rock, conforming to Section 1200, as directed by the Authorized Officer.

All surfacing shall be spread and compacted in accordance with the Road Specifications, 1000 and 1200 Sections.

ALIGNMENT

Roadway shall be constructed within posted or painted right-of-way boundaries. Minimum curve radius shall be eighty (80) feet.

Road shall have slope stake and L-Line locations marked by the Purchaser in accordance with Section 2300.

Sta. 0+00: Junction with Road No. 31-14-29.0 at MP 1.381

GRADE

Grade shall not exceed 10% favorable and 9% adverse.

LANDINGS

Construct roadside landings at Sta. 2+95, 5+60, 12+45, and 15+85. Landings shall be approximately 60' in length with 25' straight line tapers to standard roadway section at either end of landing. Landing width shall be not less than 35' width and not more than 60' width, as shown on the plans. Grade through roadside landings shall not exceed 8%; except for the landing at Sta. 12+45, which shall not exceed 10% gradient.

Construct end landing (60ft diameter) at Sta. 18+10. Grade of this landing shall not exceed 4%.

SOIL STABILIZATION

Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications.

CONSTRUCTION DETAIL SHEET
SPUR 1A (ROAD NAME 04-9)

GENERAL

Purchaser shall construct Spur 1A from Sta. 0+00 to Sta. 2+50 as shown on the location map. This work shall be accomplished in accordance with details and road specifications which follow:

SHAPING

The roadway shall be constructed and shaped to conform to standards shown on Sheet No. 5 (16' subgrade w/ 2' ditch; 12' surfaced width), type 4 standard detail. Cut slopes shall be 3/4H:1V and the fill slopes shall be 1 1/2H:1V, or as shown on the plans.

TURNOUTS

None.

SUBGRADE

The subgrade shall be excavated and compacted in accordance with the Road Specifications, 200 and 300 Sections. All excavated material shall be used as fill in the subgrade and compacted in accordance with the Road Specifications, 200 and 300 Sections. Maximum Fill depth is 3' at road centerline and Maximum Cut depth is 10' at road centerline.

DRAINAGE FEATURES

Crowned at 2% with 2' ditch to achieve drainage (double ditch through-cuts).

Install Ditch-out left at Sta. 0+21.

SURFACING

Base: 8" lift of 3"-0" Crushed Base Rock, conforming to Section 1000, as directed by the Authorized Officer.

Cap: 4" lift of 1-1/2"-0" Crushed Surfacing Rock, conforming to Section 1200, as directed by the Authorized Officer.

All surfacing shall be spread and compacted in accordance with the Road Specifications, 1000 and 1200 Sections.

ALIGNMENT

Roadway shall be constructed within posted or painted right-of-way boundaries. Minimum curve radius shall be sixty (60) feet.

Sta. 0+00: Junction with Road No. 31-14-29.0 D at MP 1.330.

GRADE

All road grades for this new road are favorable and shall not exceed 11%.

LANDINGS

Construct end landing (60ft diameter) at Sta. 2+50. Grade of landings shall not exceed 5%.

SOIL STABILIZATION

Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications.

CONSTRUCTION DETAIL SHEET
ROAD NO. 31-14-29.9 (ROAD NAME 05-1)

GENERAL
Purchaser shall construct Road No. 31-14-29.9 from Sta. 0+00 to Sta. 5+70 as shown on the location map. This work shall be accomplished in accordance with details and road specifications which follow:

SHAPING
The roadway shall be constructed and shaped to conform to standards shown on Sheet No. 5 (16' subgrade w/ 2' ditch; 12' surfaced width), type 4 standard detail (Note: Less rock surfacing). Cut slopes shall be 3/4H:1V and the fill slopes shall be 1 1/2H:1V, or as shown on the plans.

TURNOUTS
None.

SUBGRADE
The subgrade shall be excavated and compacted in accordance with the Road Specifications, 200 and 300 Sections. All excavated material shall be used as fill in the subgrade and compacted in accordance with the Road Specifications, 200 and 300 Sections. Maximum Fill depth is 7' at road centerline and Maximum Cut depth is 6' at road centerline.

DRAINAGE FEATURES
Crowned at 2% with 2' ditch to achieve drainage (double ditch through-cuts).

Install Ditch-outs at the following locations:
- Sta. 1+40: Ditch-out right

SURFACING
None.

ALIGNMENT
Roadway shall be constructed within posted or painted right-of-way boundaries. Minimum curve radius shall be one hundred (100) feet.

Sta. 0+00: Junction with Road No. 31-14-29.0 at MP 0.881

Sta. 4+17: Property Line

GRADE
Grade shall not exceed 20% favorable and 5% adverse.

LANDINGS
Construct end landing (60ft diameter) at Sta. 5+70. Grade of landings shall not exceed 5%.

SOIL STABILIZATION
Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications.

CONSTRUCTION DETAIL SHEET
ROAD NO. 31-14-29.7 (ROAD NAME 06-2)

GENERAL

Purchaser shall construct Road No. 31-14-29.7 from Sta. 0+00 to Sta. 4+00 as shown on the location map. This work shall be accomplished in accordance with details and road specifications which follow:

SHAPING

The roadway shall be constructed and shaped to conform to standards shown on Sheet No. 5 (14' subgrade w/ 0' ditch; 0' surfaced width), type 1 standard detail.

TURNOUTS

None.

SUBGRADE

The subgrade shall be excavated and compacted in accordance with the Road Specifications, 200 and 300 Sections. All excavated material shall be used as fill in the subgrade and compacted in accordance with the Road Specifications, 200 and 300 Sections. Maximum Fill depth is 5' at road centerline and Maximum Cut depth is 4' at road centerline.

DRAINAGE FEATURES

4% outslope to achieve drainage.

SURFACING

None.

ALIGNMENT

Roadway shall be constructed within posted or painted right-of-way boundaries. Minimum curve radius shall be one hundred (100) feet.

Sta. 0+00: Junction with Road No. 31-14-29.2 at MP 0.473.

Sta. 3+25: Property Line.

GRADE

Grade shall not exceed 4% favorable and 17% adverse.

LANDINGS

Construct end landing (60ft diameter) at Sta. 4+00. Grade of landings shall not exceed 5%.

SOIL STABILIZATION

Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications.

CONSTRUCTION DETAIL SHEET
ROAD NO. 31-14-29.8 (ROAD NAME 07-2)

GENERAL

Purchaser shall construct Road No. 31-14-29.8 from Sta. 0+00 to Sta. 11+39 as shown on the location map. Purchaser shall also construct a switchback adjacent to the existing Road No. 31-14-29.3 to provide a junction between the existing road and Road No. 31-14-29.8, which includes 2.5 Sta. of new road construction as shown on the location map and in the plans. This work shall be accomplished in accordance with details and road specifications which follow:

SHAPING

The roadway shall be constructed and shaped to conform to standards shown on Sheet No. 5 (16' subgrade w/ 2' ditch; 12' surfaced width), type 4 standard detail (Note: Less rock surfacing). Cut slopes shall be 3/4H:1V and the fill slopes shall be 1 1/2H:1V, or as shown on the plans.

TURNOUTS

Truck turnouts and turnarounds are provided by way of the junction with existing Road No. 31-14-29.3 and landings at Sta. 6+39, 7+69, 9+30, and 11+39.

SUBGRADE

The subgrade shall be excavated and compacted in accordance with the Road Specifications, 200 and 300 Sections. All excavated material shall be used as fill in the subgrade and compacted in accordance with the Road Specifications, 200 and 300 Sections. Maximum Fill depth is 4' at road centerline and Maximum Cut depth is 7' at road centerline.

DRAINAGE FEATURES

Crowned at 2% with 2' ditch to achieve drainage (double ditch through-cuts).

Install Ditch-outs at the following locations:

- Sta. 6+69: Construct ditch-out left.
- Sta. 9+73: Construct ditch-out left and right.

SURFACING

None.

ALIGNMENT

Roadway shall be constructed within posted or painted right-of-way boundaries. Minimum curve radius shall be seventy (80) feet, except for the switchback at the junction with existing Road No. 31-14-29.3 which shall be a fifty (50) feet radius switchback with 11' of curve widening. Road has been slope staked and L-Line locations marked.

Sta. 0+00: Junction with existing Road No. 31-14-29.3 MP 0.133.

Sta. 5+04: Property Line

A local waste area is located from Sta. 7+32 - 9+73. This station range also coincides with the placement of logging landings. The local waste area consists of widening of the road subgrade by an additional 20' to 30' or as shown on the plans. Waste area material will be placed in accordance with the specifications for road subgrade embankment placement.

GRADE

Grade shall not exceed 2% favorable and 16% adverse.

LANDINGS

Construct roadside landings at Sta. 6+39, 7+69, and 9+30. Landings shall be approximately 60' in length with 25'

straight line tapers to standard roadway section at either end of landing. Landing width shall be not less than 35' width and not more than 60' width, as shown on the plans. Grade through roadside landings shall not exceed 8%.

Construct end landing (60ft diameter) at Sta. 11+39. Grade of this landing shall not exceed 2%.

SOIL STABILIZATION

Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications.

CONSTRUCTION DETAIL SHEET
ROAD NO. 31-14-29.6 (ROAD NAME 08-2)

GENERAL

Purchaser shall construct Road No. 31-14-29.6 from Sta. 0+00 to Sta. 18+20 as shown on the location map. This work shall be accomplished in accordance with details and road specifications which follow:

SHAPING

The roadway shall be constructed and shaped to conform to standards shown on Sheet No. 5 (16' subgrade w/ 2' ditch; 12' surfaced width), type 4 standard detail. Cut slopes shall be 3/4H:1V and the fill slopes shall be 1 1/2H:1V, or as shown on the plans.

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TURNOUTS

Construct at turnouts Sta. 3+43 and Sta. 6+00, per the standard details and plans. Additional truck turnouts and turnarounds are provided by way of the junction with existing Road No. 31-14-29.1, the junction with Spur 5A at Sta. 10+36, the junction with Spur 5B at Sta. 13+09, and the landing at the terminus of this road.

SUBGRADE

The subgrade shall be excavated and compacted in accordance with the Road Specifications, 200 and 300 Sections. All excavated material shall be used as fill in the subgrade and compacted in accordance with the Road Specifications, 200 and 300 Sections. Maximum Fill depth is 8' at road centerline and Maximum Cut depth is 5' at road centerline.

DRAINAGE FEATURES

Crowned at 2% with 2'. ditch to achieve drainage (double ditch through-cuts).

Install Cross Drains and Ditch-outs at the following locations:

- Sta. 1+75: Construct ditch-out right.
- Sta. 1+19: 18" x 30' CPP with 3 C.Y. Class 3 Riprap energy dissipation outfall, conforming to Section 1400, as directed by the Authorized Officer. Install a culvert inlet marker.
- Sta. 2+92: 18" x 30' CPP with 3 C.Y. Class 3 Riprap energy dissipation outfall, conforming to Section 1400, as directed by the Authorized Officer. Install a culvert inlet marker.
- Sta. 5+17: Property Line.
- Sta. 6+56: 18" x 30' CPP with 3 C.Y. Class 3 Riprap energy dissipation outfall, conforming to Section 1400, as directed by the Authorized Officer. Install a culvert inlet marker.
- Sta. 8+43: 18" x 30' CPP with 3 C.Y. Class 3 Riprap energy dissipation outfall, conforming to Section 1400, as directed by the Authorized Officer. Install a culvert inlet marker.
- Sta. 10+36: 18" x 30' CPP with 3 C.Y. Class 3 Riprap energy dissipation outfall, conforming to Section 1400, as directed by the Authorized Officer. Install a culvert inlet marker.
- Sta. 10+99: Construct ditch-out right.
- Sta. 12+80: Construct ditch-out left.
- Sta. 14+24: 18" x 30' CPP with 3 C.Y. Class 3 Riprap energy dissipation outfall, conforming to Section 1400, as directed by the Authorized Officer. Install a culvert inlet marker.
- Sta. 17+15: 18" x 30' CPP with 3 C.Y. Class 3 Riprap energy dissipation outfall, conforming to Section 1400, as directed by the Authorized Officer. Install a culvert inlet marker.

Live Stream Crossings at the following location:

- Sta. 4+41: 36" x 40' CPP in small drainage conforming to Section 400, as directed by the Authorized Officer. Install a culvert inlet marker. In-stream work is restricted to the period of July 15 through September 30.

SURFACING

Base: 8” lift of 3”-0” Crushed Base Rock, conforming to Section 1000, as directed by the Authorized Officer.

Cap: 4” lift of 1-1/2”-0” Crushed Surfacing Rock, conforming to Section 1200, as directed by the Authorized Officer.

All surfacing shall be spread and compacted in accordance with the Road Specifications, 1000 and 1200 Sections.

ALIGNMENT

Roadway shall be constructed within posted or painted right-of-way boundaries. Minimum curve radius shall be seventy (70) feet. Road has been slope staked and L-Line locations marked.

Sta. 0+00: Junction with existing Road No. 31-14-29.1 at MP 0.235.

Sta. 5+17: Property Line

Sta. 10+36: Junction with new road construction Spur 5A at MP 0.000 (Sta. 0+00).

Sta. 13+09: Junction with new road construction Spur 5B at MP 0.000 (Sta. 0+00).

Approximately 1,100 C. Y. of excess waste will be generated from Sta.0+00 – 4+41, prior to the location of the stream crossing at Sta. 4+41. This excess waste shall be hauled and used in the construction of Spur 5A, located at Sta. 10+36. It will be necessary for the purchaser to construct the crossing at Sta. 4+41 prior to hauling this excess waste. The Authorized Officer must approve construction of the crossing at Sta. 4+41 before the Purchaser may haul excess waste beyond Sta.4+41.

GRADE

Grade shall not exceed 17% favorable and 17% adverse.

LANDINGS

Construct end landing (60ft diameter) at Sta. 18+20. Grade of landings shall not exceed 3%.

SOIL STABILIZATION

Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications.

CONSTRUCTION DETAIL SHEET
SPUR 5A (ROAD NAME 08-3)

GENERAL

Purchaser shall construct Spur 5A from Sta. 0+00 to Sta. 2+30 as shown on the location map. This work shall be accomplished in accordance with details and road specifications which follow:

SHAPING

The roadway shall be constructed and shaped to conform to standards shown on Sheet No. 5 (16' subgrade w/ 2' ditch; 12' surfaced width), type 4 standard detail. Cut slopes shall be 3/4H:1V and the fill slopes shall be 1 1/2H:1V, or as shown on the plans.

TURNOUTS

None.

SUBGRADE

The subgrade shall be excavated and compacted in accordance with the Road Specifications, 200 and 300 Sections. All excavated material shall be used as fill in the subgrade and compacted in accordance with the Road Specifications, 200 and 300 Sections. Maximum Fill depth is 9' at road centerline and Maximum Cut depth is 2' at road centerline.

DRAINAGE FEATURES

Crowned at 2% with 2' ditch to achieve drainage (double ditch through-cuts).

There are no culverts nor ditch-outs required for this road.

SURFACING

Base: 8" lift of 3"-0" Crushed Base Rock, conforming to Section 1000, as directed by the Authorized Officer.

Cap: 4" lift of 1-1/2"-0" Crushed Surfacing Rock, conforming to Section 1200, as directed by the Authorized Officer.

All surfacing shall be spread and compacted in accordance with the Road Specifications, 1000 and 1200 Sections.

ALIGNMENT

Roadway shall be constructed within posted or painted right-of-way boundaries. Minimum curve radius shall be sixty (60) feet.

Sta. 0+00: Junction with new construction Road No. 31-14-29.6 at Sta. 10+36.

GRADE

Grade shall not exceed 5% favorable and 5% adverse.

LANDINGS

Construct end landing (60ft diameter) at Sta. 2+30. Grade of landings shall not exceed 5%.

SOIL STABILIZATION

Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications.

CONSTRUCTION DETAIL SHEET
SPUR 5B (ROAD NAME 08-4)

GENERAL

Purchaser shall construct Spur 5B from Sta. 0+00 to Sta. 1+30 as shown on the location map. This work shall be accomplished in accordance with details and road specifications which follow:

SHAPING

The roadway shall be constructed and shaped to conform to standards shown on Sheet No. 5 (16' subgrade w/ 2' ditch; 12' surfaced width), type 4 standard detail. Cut slopes shall be 3/4H:1V and the fill slopes shall be 1 1/2H:1V, or as shown on the plans.

TURNOUTS

None.

SUBGRADE

The subgrade shall be excavated and compacted in accordance with the Road Specifications, 200 and 300 Sections. All excavated material shall be used as fill in the subgrade and compacted in accordance with the Road Specifications, 200 and 300 Sections. Maximum Fill depth is 5' at road centerline and Maximum Cut depth is 1' at road centerline.

DRAINAGE FEATURES

Crowned at 2% with 2' ditch to achieve drainage (double ditch through-cuts).

There are no culverts nor ditch-outs required for this road.

SURFACING

Base: 8" lift of 3"-0" Crushed Base Rock, conforming to Section 1000, as directed by the Authorized Officer.

Cap: 4" lift of 1-1/2"-0" Crushed Surfacing Rock, conforming to Section 1200, as directed by the Authorized Officer.

All surfacing shall be spread and compacted in accordance with the Road Specifications, 1000 and 1200 Sections.

ALIGNMENT

Roadway shall be constructed within posted or painted right-of-way boundaries. Minimum curve radius shall be sixty (60) feet.

Sta. 0+00: Junction with new construction Road No. 31-14-29.6 at Sta. 13+09.

GRADE

Grade shall not exceed 13% favorable and 5% adverse.

LANDINGS

Construct end landing (60ft diameter) at Sta. 1+30. Grade of landings shall not exceed 5%.

SOIL STABILIZATION

Apply seed, fertilizer, and mulch in accordance with Section 1800 of the Road Construction Specifications.

ROAD CONSTRUCTION SPECIFICATIONS

General road construction specifications are designated by numeric symbols according to the type of road work to be performed, as follows:

Section	
100	GENERAL
200	CLEARING AND GRUBBING
300	EXCAVATION AND EMBANKMENT
400	PIPE CULVERTS
500	RENOVATION AND IMPROVEMENT OF EXISTING ROADS
600	WATERING
700	AGGREGATE BASE COURSE (PIT-RUN ROCK)
900	AGGREGATE BASE COURSE (SCREENED ROCK)
1000	AGGREGATE BASE COURSE (CRUSHED ROCK)
1200	AGGREGATE SURFACE COURSE (CRUSHED ROCK)
1400	SLOPE PROTECTION
1700	EROSION CONTROL
1800	SOIL STABILIZATION
2100	ROADSIDE BRUSHING
2300	SLOPE STAKING

GENERAL - 100

101 - Pre-work Conference(s):

A pre-work conference will be held prior to the start of operations. The Purchaser shall request the conference at least 48 hours prior to the time it is to be held. The conference will be attended by the Purchaser and/or his representative(s), subcontractor(s) and/or his or their representative(s) and the Authorized Officer and/or his representative(s).

The purpose will be to review the required work, exhibits and specifications, and to establish a work schedule and a list of the Purchaser's representatives and subcontractor(s).

102 - Definitions:

AASHTO - American Association of State Highway and Transportation Officials. Current editions of tests and specifications.

Abrasion Resistance - The ability of a fabric surface to resist wear by friction.

ACI - American Concrete Institute

Apparent Opening Size (AOS) - Number of the U.S. Bureau of Standard sieve (or its opening size in millimeters or inches) having openings closest in size to the diameter of uniform particles which will allow 5 percent by weight to pass through the geotextile material when shaken in a prescribed manner. Also referred to as Equivalent Opening Size (EOS).

ASTM - American Society for Testing and Materials.

Base Course - Surfacing structure consisting of crushed gravel or stone, crushed sandstone, pitrun rock, bank or river-run gravels, etc., to provide support and, in the event no surface course is placed, the running surface for traffic load.

BLM - Bureau of Land Management

Borrow - Excavated material required for embankments and other portions of the work.

Burst Strength - The resistance of a geotextile material to rupture from pressure applied at right angles to the plane of the geotextile material under specified conditions, usually expressed as the amount of pressure causing failure. Rupture or burst results from tensile failure of the geotextile material.

Culvert - A pipe, pipe-arch, arch, or box structure constructed of metal, concrete, plastic or wood which provides an opening under the roadway primarily for the conveyance of liquids, pedestrians or livestock.

Curve Widening - Widening required on inside of curves to accommodate long log and equipment hauling trucks.

Embankment - A structure of soil, aggregate, or rock material placed on a prepared ground surface and constructed to subgrade.

End Haul - Excavated material moved, other than by dozer, to an embankment or waste area to prevent sidecasting material outside of the road prism.

Excess Excavation - Material from the roadway in excess of that needed for construction of the designed roadway (waste).

Grab Tensile Strength - A modified tensile strength of a geotextile material. The strength of a specific width of geotextile material together with the additional strength contributed by adjacent areas. Typically, grab strength is determined on a 12-inch-wide strip of geotextile material, with the tensile load applied at the midpoint of the geotextile material width through 1-inch-wide jaw faces.

Grading - Leveling to grade, shaping and smoothing of a road subgrade; the shaping of roadside ditches as to grade and contour. In some instances includes smoothing of the cut bank.

Nonwoven Geotextile Material - A textile structure produced by bonding or interlocking of fibers, or both, accomplished by mechanical or chemical means.

Overhaul - Distance excavated material is transported in excess of the distance included in the cost for excavation.

Pioneer Road - Temporary construction access built along the route of the project.

Penetration Resistance - The geotextile material property determined by the force required to penetrate a geotextile material with a sharp pointed object. Initial penetration is by separating the fibers. Further penetration is essentially a tearing process.

Percent Open Area - The net area of a geotextile material that is not occupied by geotextile material filaments, normally determinable only for woven and nonwoven geotextile material having distinct, visible, and measurable openings that continue directly through the geotextile material.

Permeability - The geotextile material property which permits water to be transmitted in the longitudinal or transverse planes of the geotextile material.

Piping - The process by which soil particles are washed in or through pore spaces in drains and filters or poorly compacted fill/backfill material.

Plans - The approved drawings, or exact reproductions thereof which show the locations, character, dimensions, and details of the work to be done.

Pore Size - The size of an opening between geotextile material filaments; apparent opening size (AOS) is used to quantify this geotextile material property.

Puncture Resistance - The geotextile material property determined by the force required to penetrate a geotextile material with a blunt object. Failure results in a tearing of the geotextile material.

Purchaser - The individual, partnership, joint venture, or corporation contracting with the Government under the terms of a Timber Sale Contract and acting independently or through their, or its agents, employees, or contractors.

Reasonably Close Conformity - Compliance with reasonable and customary manufacturing and construction tolerances where working tolerances are not specified.

Reinforcement - Strengthening of concrete with iron bars or mesh: geotextile with geotextile material inclusion: subgrade with aggregate: etc.

Roadbed - The graded portion of the road within top and side slopes, prepared as a foundation for the pavement structure and shoulders.

Road Centerline - Longitudinal center of roadbed.

Road Improvement - Work done to an existing road which improves it over its original design standard.

Road Renovation - Work done to an existing road which restores it to its original design.

Roadway - The portion of a road within limits of construction. Usually from the toe of the fill slope to a point where the cut slope intersects natural ground line. Synonym - road prism.

Scale - In quarrying, consists of the removal of loose or overhanging rock adhering to the solid face after a shot or a round of shots has been fired.

Scarification - The process of loosening or breaking up of the surface layer of soil or road, usually to a specified depth.

Separation - Function of geotextile material as a partition between adjacent materials to prevent mixing of those materials.

Shoulder - The portion of the roadbed contiguous with the traveled way designed for accommodation of stopped vehicles, safety, and lateral support of base and surface courses.

Spalls - Flakes or chips of stone.

Specifications - A general term applied to all directions, provisions, and requirements pertaining to performance of the work.

Specific Gravity - The ratio of the density of a material to the density of water obtained by weighing known volumes of both items in air. A specific gravity less than one implies that the material will float.

Structures - Bridges, culverts, catch basins, retaining walls, underdrains, flumes, splash pads, downspouts, and other project features which may be involved in the work and not otherwise classified in these specifications.

Subbase - Reinforcement of the subgrade with large particles of pitrun or crushed stone. Usually confined to roads having wet subgrades or subgrades with weak support characteristics.

Surface Course - Top layer of a road structure consisting of finely crushed gravels or asphalt designed to provide a smooth running surface for traffic load.

Subgrade - The top surface of a roadbed upon which the traveled way and shoulders are constructed.

Tackifier - A compound which penetrates into the earth and assists in creating a crust through the cohesive bonding of the surface materials to a depth sufficient to stabilize the soil surface and/or a compound used to mat together mulching material.

Tensile Strength - The strength shown by a geotextile material subjected to tension as distinct from torsion, compression, or shear.

Tensile Stress - Strain Modulus - A measure of the resistance to elongation under stress. The ratio of the change in tensile stress to the corresponding change in strain.

Tensile Test - A test which subjects geotextile material to tensile forces and measures resultant stresses and strains.

Timber - Standing trees, downed trees, or logs, or portions thereof, which are capable of being measured in board feet.

Traveled Way - The portion of the roadbed used for the movement of vehicles, exclusive of shoulders.

Typical Cross Sections - Cross-sectional plane of a typical roadway; showing natural ground line and designed roadway in relation to cut and fill, through cut, and through fill.

Turnout - Extra widening of the roadbed at appropriate intervals on single-lane roads for passing purposes.

Ultraviolet (UV) Radiation Stability - The ability of geotextile material to resist deterioration from exposure to sunlight.

Unaged Cloth - Cloth in condition received from the manufacturer or distributor.

Woven Geotextile Material - A textile structure comprising two or more sets of filaments of yarns interlaced in such a way that the elements pass each other at essentially right angles with one set of elements parallel to the geotextile material axis.

102a - Tests Used in These Specifications:

AASHTO T 11	Quantity of rock finer than No. 200 sieve.
AASHTO T 27	Sieve analysis of fine and coarse aggregate using sieves with square openings; gradation.
AASHTO T 89	Liquid limit of material passing the No. 40 sieve. Water content at which the soil passes from a plastic to a liquid state.
AASHTO T 90	Plastic limits and plasticity index of soil. a. Plastic limit - lowest water content at which the soil remains plastic. b. Plasticity index - range of water content, within which the material is in a plastic state. Numerical difference between the liquid and plastic limits of the soil.
AASHTO T 96	Resistance to abrasion of small size coarse aggregate by use of the Los Angeles machine.
AASHTO T 99	Relationship between soil moisture and maximum density of soil. Method A - 4" mold, soil passing a No. 4 Sieve. 25 blows/layer & 3 layers.

Method D - 6" mold, soil passing a 19.00 mm (3/4 inches) sieve.
56 blows/layer & 5 layers.

AASHTO T 176 Shows relative portions of fine dust or clay-like materials in soil or graded aggregate.

AASHTO T 180 (OSHD 106-71) moisture density relationship of soil same as AASHTO T 99 proctor but uses a 10-lb rammer & 18-in drop.

AASHTO T 191 Sand Cone. Density of soil in place: For subgrade use 6-inch or 12-inch cone. For rock surfacing for 1-1/2-inch minus to 3-inch minus use 12-inch cone.

AASHTO T 205 Rubber balloon. Density of soil in place. Use for compacted or firmly bonded soil.

AASHTO T 210 Durability of aggregates based on resistance to produce fines.

AASHTO T 224 Correction for coarse particles in the soil.

AASHTO T 238 Determination of density of soil and soil-aggregates in place by nuclear methods.

AASHTO T 248 Reducing field samples of aggregate to testing size by mechanical splitter, quartering, or miniature stockpile sampling.

DES. E-12 Determination of relative density of cohesionless soils.
DMSO (dimethyl sulfide) - Determines volume of expanding clays in aggregates. Usually associated with marine basalts.

103 - Compaction equipment shall meet the following requirements:

103b - Sheepfoot roller. A tamping roller unit shall consist of two watertight metal drums mounted in frames in such manner as to be fully oscillating, together with a tractor having sufficient weight and power under actual working conditions to pull the roller drums at a minimum speed of 2.5 miles per hour. The drums shall be no less than 60 inches in diameter and no less than 54 inches in length, measured at the drum's surface, and shall be studded with tamping feet projecting not less than 7 inches from the face of the drums.

The distance between circumferential rows of tamper feet shall be such that the diagonal distance from any foot to the nearest foot in each adjacent row shall be not more than 12 inches. The cross-sectional area of the face of each tamper foot, measured perpendicular to the axis of the stud, shall be not less than 5-1/2 square inches nor more than 8 square inches.

The weight of the tamping-roller unit shall be such as to exert a minimum pressure of 250 pounds per square inch on the ground area in contact with the tamping feet, and the roller shall be so designed that the weight may be increased to exert a pressure up to 500 pounds per square inch on the ground area in contact with the tamping feet. The ground pressure shall be determined by dividing the total weight of the roller unit, not including the weight of the tractor, by the total cross-sectional area of the tamping feet in one row of tamping feet parallel to the axis of the roller.

103e - Grid roller. A grid roller shall consist of two or more cylindrical drums independently mounted on a common shaft in a rigid frame. Each drum shall have a minimum outside diameter of 5 feet and a minimum width of 2 feet 6 inches. The overall width of the roller exclusive of frame shall be not less than 5 feet 6 inches of which not more than 6 inches shall be used for center spacing between two roller drums. The face of the drums shall have the appearance of woven open-mesh made by interlacing bars of not less than 1-1/4 inches nor more than 1-3/4 inches diameter space spaced on 4-1/2 inches to 5-1/2 inches center. Net opening between the bars shall be not less than 3-inches nor more than 4 inches. The roller shall be so constructed that counterweights can be used to adjust the gross weight of the roller to not less than 27,000 pounds. The grid roller shall be drawn by a power unit capable of propelling the fully loaded roller at a speed of at least 4 miles

per hour.

103f - Vibratory roller. The drum diameter shall be not less than 48 inches, the drum width not less than 58 inches, and have a turning radius of 15 feet or less. Vibration frequency shall be regulated in steps to 1400, 1500, and 1600 vibrations per minute (VPM), corresponding to engine speeds of 1575, 1690, and 1800 RPM. The centrifugal force developed shall be 7 tons at 1600 RPM. It shall be activated by a power unit of not less than 25 horsepower. The vibratory roller shall be self-propelled or drawn by a vehicle of sufficient horsepower to enable the unit to travel through a loose layer of material at a speed ranging from 0.9 mile to 1.8 miles per hour, as directed by the Authorized Officer.

The towing vehicle and roller or self-propelled unit meeting the above requirements shall be considered a vibratory roller unit.

103i - Other. Compaction equipment approved by the Authorized Officer.

CLEARING AND GRUBBING - 200

201 - This work shall consist of clearing, grubbing, removing and disposing of vegetation, debris, surface objects, and protruding obstructions within the clearing limits in accordance with these specifications and conforming to the lines, grades, dimensions and typical cross sections as shown on the plans.

202 - Where clearing limits have not been staked, established by these specifications or shown on the plans, the limits shall extend 10 feet back of the top of the cut slope and 5 feet out from the toe of the fill slope.

203 - Clearing shall consist of the removal and disposal of trees, logs, rotten material, brush, and other vegetative materials and surface objects in accordance with these specifications and within the limits established for clearing as specified under Subsection 202 and as shown on the plans.

203a - Brush under 2 feet in height need not be cut within the limits established for clearing.

203b - Standing trees and snags to be cleared shall be felled within the limits established for clearing unless otherwise authorized.

204 - Grubbing shall consist of the removal and disposal of stumps, roots, and other wood material embedded in the ground and protruding obstacles remaining as a result of the clearing operation in accordance with Subsection(s) 204a, 204b, 204c, 204d, 204e between the top of the cut slope and the toe of the fill slope. Undisturbed stumps, roots and other solid objects which will be a minimum of 3 feet below subgrades or slope surfaces or embankments are excepted.

204a - Stumps, including those overhanging cut banks, shall be removed within the required excavation limits.

204b - Stumps and other protruding objects shall be completely removed within the limits of required embankments having heights of less than 4 feet. When authorized, stumps and other nonperishable objects may be left provided they do not extend more than 6 inches above the existing ground line.

204c - On excavated areas, roots and embedded wood shall be removed to a depth not less than 6 inches below the subgrade.

204d - On areas to be occupied by embankments having heights greater than 4 feet, no stump or portion thereof shall remain within 3 feet of embankment subgrades or slope surfaces after grubbing is completed.

204e - Roots and embedded wood material shall be removed to a depth not less than 1 foot below embankment subgrades or slope surfaces.

205 - Clearing and grubbing debris shall not be placed or permitted to remain in or under road embankment sections.

206 - Clearing and grubbing debris shall be disposed of by scattering in accordance with Subsection 210.

210 - Disposal of clearing and grubbing debris shall be by scattering over government owned lands outside of established clearing limits in a manner acceptable to the Authorized Officer. The areas for such scattering shall have the prior approval of the Authorized Officer.

213 - No clearing or grubbing debris shall be left lodged against standing trees.

EXCAVATION AND EMBANKMENT - 300

301 - This work shall consist of excavating, overhaul, placement of embankments, backfilling, borrowing, leveling, ditching, grading, insloping, outsloping, crowning and scarification of the subgrade, compaction, disposal of excess and unsuitable materials, and other earth-moving work in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans.

302 - Excavation shall also consist of the excavation of road and landing cut sections, borrow sites, backfilling, leveling, ditching, grading, compaction, and other earth moving work necessary for the construction of the roadway in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans.

303 - Suitable material removed from the excavation shall be used in the formation of embankment subgrade, shoulders, slopes, bedding, backfill for structures, and for other purposes as shown on the plans.

303a - Excavated material shall not be wasted as sidecast or perched. All material perched or sidecast as waste shall be retrieved and disposed of at the Purchaser's expense and at the direction of the Authorized Officer.

305 - Embankment construction shall consist of the placement of excavated and borrowed materials, backfilling, leveling, grading, compaction, and other earth-moving work necessary for the construction of the roadway and landings in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans.

305a - Material used in the construction of embankment sections shall be free of stumps, cull logs, brush, muck, sod, roots, frozen material, and other deleterious materials and shall be placed and compacted as specified.

305b - Embankment materials shall be placed in successive parallel layers on areas cleared of stumps, cull logs, brush, sod, and other vegetative and deleterious materials, except as provided under Subsection 204. Roadway embankments of earth material shall be placed in horizontal layers not exceeding 8 inches in depth.

305c - Embankments formed of material containing less than 25 percent rock not larger than 8 inches in the greatest dimension shall be placed in 12-inch layers. Material containing more than 25 percent rock not larger than 12 inches in the greatest dimension shall be placed in successive layers not exceeding 2 feet in thickness. Individual rocks and boulders greater than 12 inches in diameter may be used to construct 2-foot embankment layers, provided they are carefully distributed, with interstices filled with fine material to form a dense and compact mass.

305d - Where embankments are constructed predominantly of blasted rock material, depth of layers shall not exceed 4 feet. Rock fragments having dimensions greater than 4 feet will be permitted provided that they have no dimensions greater than 6 feet and that clearance between adjacent fragments is adequate for the placing and compacting of material in horizontal layers as specified, and that no part of the larger fragments comes within 4 feet of subgrade.

306 - Layers of embankment and final subgrade material as specified under Subsection(s) 305a and 305b shall be moistened or dried to a uniform optimum moisture content suitable for maximum density and compacted to full width with compacting equipment conforming to requirements of Subsection 103b or 103f, as directed by the Authorized Officer, and in accordance with the following table:

Road No.	From Sta./M.P.	To Sta./M.P.
31-14-29.0 C	1.244	1.274
31-14-29.0 D	1.274	1.450
31-14-29.0 D2	1.450	1.715
31-14-29.10	0.000	0.353
31-14-29.11	0.000	0.250
31-14-29.12	0.000	0.158
31-14-29.4 B	0.224	0.264
31-14-29.6	0.000	0.355
31-14-29.7	0.000	0.087
31-14-29.8	0.000	0.223
31-14-29.9	0.000	0.118
31-14-30.0	0.000	0.125
31-14-30.1	0.000	0.135
31-14-30.2	0.000	0.207
Spur 1A	0.000	0.058
Spur 1B	0.000	0.074
Spur 5A	0.000	0.048
Spur 5B	0.000	0.037

306d - Compacted materials within 1 foot of the established subgrade elevation shall have a density in place of not less than 95 percent of maximum density, and below the 1-foot limit, these materials shall have a density in place of not less than 90 percent of maximum density. Maximum density shall be determined by AASHTO T 99, Method A or Method D.

306f - Compaction of embankment layers placed as specified under Subsection 305b above shall be accomplished by routing construction equipment over full width of embankment structures except as specified in Subsection 306.

306g - The face of all fill slopes shall be compacted to 85% of maximum density, either by walking with cat/excavator or by pressing with excavator bucket, to prevent surface erosion and raveling.

311 - In solid rock cuts where pockets that will not drain are formed by blasting below the subgrade elevation, drainage shall be provided by ditching to the edge of the subgrade and backfilling to grade and compacting both the pockets and the ditch with rock fragments, gravel, or other suitable porous material.

312 - When material, except solid rock, encountered in cuts at subgrade, is suitable for use in forming the finished roadbed, the top 6-inch layer of the subgrade shall be thoroughly scarified for the full width of the roadbed.

Roots, sod, and other deleterious material or stones that will not pass a 6-inch square opening shall be removed. The scarified material shall be processed to the optimum moisture content suitable for maximum density and compacted in accordance with Subsection 306.

313 - In cut areas where solid rock is encountered at or near subgrade, the rock shall be excavated to a minimum

depth of 6 inches below subgrade elevation and the excavated area backfilled with suitable material. The backfill material shall be processed to the optimum moisture content suitable for maximum density and compacted to full width in accordance with the requirements of Subsection 306.

314 - When heavy clays, muck, clay shale, or other deleterious material for forming the roadbed is encountered in cuts at subgrade, it shall be excavated to a minimum depth of 2 feet below the subgrade elevation and the excavated area backfilled with a selected borrow material approved by the Authorized Officer. The backfill material shall be uniformly moistened or dried to the optimum moisture content suitable for maximum density in accordance with the requirements of Subsection 306. Unsuitable material shall be disposed of as directed by the Authorized Officer.

320 - Ditches shall conform to the slope, grade, dimensions, and shape of the required cross section shown on the plans. Roots, stumps, rocks, and other projections shall be removed to form smooth, even slopes.

321 - Excess excavated, unsuitable, or slide materials shall not be disposed of on areas where the material will encroach on a stream course or other body of water. Such materials shall be disposed of in accordance with Subsection 321c.

NOTE: Any material being hauled over gravel surfaced roads will be done in vehicles which meet legal highway weight requirements while hauling.

321c - End-dumping will be permitted for the placement of excess materials under Subsection 321 in designated disposal areas or within areas approved by the Authorized Officer. Placement in layers is required. Materials placed shall be sloped, shaped, and otherwise brought to a neat and sightly condition acceptable to the Authorized Officer.

324 - Excavated material shall not be allowed to cover boles of standing trees to a depth in excess of 2 feet on the uphill side.

327 - The finished grading shall be approved in writing by the Authorized Officer. The Purchaser shall give the Authorized Officer 3 days' notice prior to final inspection of the grading operations.

328 - The Purchaser shall adopt methods and procedures in using explosives which will prevent damage to adjacent landscape features and which will minimize scattering rocks and other debris outside the road prism.

PIPE CULVERTS - 400

401 - This work shall consist of furnishing and installing pipe culverts, pipe arch culverts, full rounds, flume(s), perforated pipe culverts, downspout(s), elbow(s), and other erosion control device(s) in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans. Individual lengths and locations are approximate; final lengths and locations will be determined by the Authorized Officer. Additional pipe and erosion control devices may be required at the option of the Authorized Officer, in which case a reduction in the total purchase price shall be made to offset the cost of furnishing and installing such items. Costs will be based upon the unit prices set forth in the current BLM Timber Appraisal Production Cost Schedule.

403 - Grade culverts shall have a gradient of from 2 percent to 4 percent greater than the adjacent road grade and shall be skewed down grade 30 degrees as measured from the perpendicular to the centerline unless otherwise specified on the plans.

404 - Damage to the spelter, or burn back in excess of 3/8 inch, shall be wire brushed and painted with two coats of zinc-rich paint on zinc-coated, steel pipe and aluminum-rich paint on aluminum or aluminum-coated pipe.

405 - Corrugated steel riveted and helical pipe culverts and pipe-arch culverts and special sections shall conform to the requirements of AASHTO M 36 and AASHTO M 218 or AASHTO M 274 as specified on the plans.

405a - Corrugated-steel-welded pipe culverts and pipe-arch culverts and special sections shall conform to the

requirements of AASHTO M 36 and AASHTO M 218 or AASHTO M 274 as specified on the plans.

405e - Corrugated-polyethylene pipe for culverts 12-inch through 24-inch diameter shall meet the requirements of AASHTO M 294 for type S. Installation will be subject to the same specification as other pipe materials.

406 - Coupling bands shall conform to the requirements of AASHTO M 36 and AASHTO M 218 or AASHTO M 274 with the exception of band widths and the "Hugger"-type band which shall conform to the details, dimensions, and typical diagram shown on the plans.

406a - "Hugger"-type coupling bands shall only be used with annular corrugated pipe and pipe-arch culverts or helically corrugated pipe and pipe-arch culverts having annular reformed ends. Annular reformed ends shall consist of 2 annular corrugations.

406b - Coupling bands produced from flat galvanized steel sheets with impressed dimples will be permitted only for connecting annular corrugated steel pipe to helically corrugated steel pipe. Such coupling bands shall conform to the width requirements shown on the plans.

406f - Channel-type or flanged-end coupling bands may be used on helical pipe with reformed rolled ends and flanged specifically to receive these bands. Such coupling bands shall conform to the requirements shown on the plans.

407 - Special sections, such as elbows, branch connections, and flared end sections, shall be of the same gauge as the pipe to which they are joined and shall conform to the requirements of AASHTO M 36 and AASHTO M 218 or AASHTO M 274.

407b - Full round culvert downspouts conforming to the material and construction requirements as shown on the plans shall be anchored with two six-foot steel fence posts (one on each side of the pipe) wired together with No. 12 galvanized wire in a manner approved by the Authorized Officer. These anchors shall be placed every ten feet along the pipe beginning at the outlet of the culvert pipe.

408 - Pipe culverts and pipe-arch culverts shall be placed on the bed starting at the downstream end with the inside circumferential laps pointing downstream and with the longitudinal laps at the side or quarter points. Coupling bands of the type required under these specifications shall be installed so as to provide the circumferential and longitudinal strength necessary to preserve the pipe alignment, prevent separation of the pipe sections, and minimize infiltration of fill material.

409 - Structural-plate pipe culverts and pipe-arch culverts shall be installed in accordance with the plans and detailed erection instructions furnished by the manufacturer. One copy of the erection instructions shall be furnished to the Authorized Officer prior to erection.

410 - Pipe shall be unloaded and handled with reasonable care. If the Authorized Officer determines any structure is damaged to the extent that it is unsuitable for use in the road construction, it shall be replaced at the Purchaser's expense.

411 - Trenches necessary for the installation of pipe culverts shall conform to the lines, grades, dimensions, and typical diagram included in the plans shown on Exhibit C and the Culvert Installation Detail Sheet.

412 - Where ledge rock, boulders, soft, or spongy soils are encountered, they shall be excavated a minimum of 24 inches below the invert grade for a width of at least one pipe diameter or span on each side of the pipe and shall be backfilled with selected granular or fine readily compactable soil material.

413 - Pipe culverts and pipe-arch culverts shall be bedded on a selected granular or fine readily compactable soil material. Foundation material shall be of uniform density throughout the length of the structure and shall be shaped to fit the pipe.

413a - Bedding material for pipe culverts on existing surfaced roads shall be 1½ inch minus crushed aggregate meeting the requirements of Sections 1204, 1205, 1206, 1207, and 1208 of these specifications.

414a - The invert grade of the bedding shall be cambered at the middle ordinate a minimum of 1 percent of the total length of the drainage structure. Camber shall be developed on a parabolic curve.

415 - Inspection of pipe culverts having a diameter of 48 inches and pipe-arch culverts having a height of 40 inches or a cross sectional area of 13 square feet or larger shall be made before backfill is placed. Culverts found to be out of alignment or damaged shall be replaced, reinstalled, or repaired as directed by the Authorized Officer at the Purchaser's expense.

416 - Side-fill material for pipe culverts shall be placed within 1 pipe diameter, or a minimum of 2 feet, of the sides of the pipe barrel and to 1 foot over the pipe with fine, readily compactable soil or granular fill material free of excess moisture, muck, frozen material, roots, sod, or other deleterious or caustic material and devoid of rocks or stones of sizes which may impinge upon and damage the pipe or otherwise interfere with proper compaction.

417 - For pipe culvert(s) side-fill material conforming to the requirements of Subsection 416 shall be placed and compacted under the haunches of the pipe and shall be brought up evenly and simultaneously on both sides of the pipe to 1 foot above the pipe in layers not exceeding 6 inches in depth and 1 pipe diameter/span or a minimum of 2 feet in width each side of, and adjacent to, the full length of the pipe barrel. Each layer shall be moistened or dried to a uniform moisture content suitable for maximum compaction and immediately compacted by approved hand or pneumatic tampers until a uniform density of 95 percent of the maximum density is attained as determined by AASHTO T 99, Method C.

418 - Side fills beyond the compaction limits specified under Subsection 417 shall be compacted as specified under Section 300.

423 - Construction of catch basins and ditch dams conforming to lines, grades, dimensions and typical diagrams shown on the plans, shall be required for grade culverts.

425 - Where pervious materials are used for backfill and bedding, collars consisting of selected impervious material shall be placed at the inlet and at various intervals along the pipe barrel as shown on the plans and as directed by the Authorized Officer.

426 - Culvert marker(s) consisting of ½-inch round steel bars 4 feet in length bolted to the culvert at the inlet or 6 foot steel fence posts painted white, shall be furnished, fabricated, and installed by the Purchaser at all grade culverts.

RENOVATION AND IMPROVEMENT OF EXISTING ROADS - 500

501 - This work shall consist of reconditioning and preparing the roadbed and shoulders, cleaning and shaping drainage ditches, trimming vegetation from cut and embankment slopes, and cleaning and repairing drainage structures of existing roads in accordance with these specifications and as shown on the plans.

501a - This work shall include the removal and disposal of slides in accordance with these specifications.

502 - The existing road surface shall be scarified to its full width and to a sufficient depth to eliminate surface irregularities and bladed and shaped to the lines, grades, dimensions, and typical cross sections shown on the plans at the following location(s):

Road No.	From Sta./M.P.	To Sta./M.P.
31-14-29.0 C	1.244	1.274
31-14-29.0 D	1.274	1.450
31-14-29.0 D2	1.450	1.715
31-14-29.4 B	0.224	0.264

31-14-30.0	0.000	0.125

502a Rocks larger than 4 inches in maximum dimension shall be removed from the scarified layers of the roadbed. Material so removed will not be permitted to remain on road shoulders or in ditches.

502b - Drainage ditches shall be bladed and shaped in accordance with the lines, grades, dimensions, and typical cross sections shown on the plans. Drainage ditches that are vegetated, capable of adequate water flow, and are in accordance with the lines, grades, dimensions, and typical cross sections shown on the plans shall not be bladed.

503 - Debris from slides shall be disposed of as directed by the Authorized Officer.

504 - Scarified material and existing road surface shall be uniformly moistened or dried to the optimum moisture content suitable for maximum density and compacted to full width with equipment conforming to requirements of Subsection 103f and in accordance with the following table:

Road No.	From Sta./M.P.	To Sta./M.P.
31-14-29.0 C	1.244	1.274
31-14-29.0 D	1.274	1.450
31-14-29.0 D2	1.450	1.715
31-14-29.4 B	0.224	0.264
31-14-30.0	0.000	0.125

504a - Minimum compaction required shall be 1 hour of continuous rolling for each 4 stations of road, or fraction thereof, as measured along the centerline per layer of material.

506 - The inlet end of existing drainage structures shall be cleared of vegetative debris and boulders that are of sufficient size to obstruct normal stream flow. Pipe inverts shall be cleared of sediment and other debris lodged in the barrel of the pipe. The outflow area of designated pipe structures shall be cleared of rock and vegetative obstructions which will impede the structure's designed outflow configuration. Catch basins shall conform to the lines, grade, dimensions, and typical diagram shown on the plans.

507 - The finished grading shall be approved in writing by the Authorized Officer. The Purchaser shall give the Authorized Officer 3 days- notice prior to final inspection of the grading operations.

WATERING - 600

601 - This work shall consist of furnishing and applying water required for the compaction of embankments, roadbeds, backfills, base courses, surface courses, finishing and reconditioning of existing roadbeds laying dust, or for other uses in accordance with these specifications.

602 - Water, when needed for compaction shall be applied at the locations in the amounts and during the hours as directed by the Authorized Officer. Amounts of water to be provided will be the minimum needed to properly execute the compaction requirements in conformance with these specifications.

603 - Water trucks used in this work shall be equipped with a distributing device of ample capacity and of such design as to ensure uniform application of water on the road bed.

AGGREGATE BASE COURSE - 700
PITRUN ROCK MATERIAL

701 - This work shall consist of furnishing, hauling and placing one or more layers of pitrun rock material on roadbeds and landing(s) approved for placing pitrun materials in accordance with these specifications and conforming to the dimensions and typical cross sections shown on the plans.

702a - Pitrun rock materials used in this work may be obtained from source(s) selected by the Purchaser at his option, providing the materials furnished comply with these specifications and the source is approved in writing by the Authorized Officer prior to use.

703 - Pitrun rock materials shall consist of talus rock, bank run or river run gravels, partly decomposed granite or basalt, cinders, or other approved materials. The materials shall be reasonably free from vegetative matter or other deleterious material.

704 - Pitrun rock material shall consist of native materials of such a size and grading that it can be taken directly from the source and placed on the road without crushing or screening. The material shall contain only occasional oversize particles to be removed. The term "oversize" shall be construed to mean material greater than ((2/3) the compacted thickness of the layer in which it is placed) ((6) inches).

705 - Pitrun rock material shall be placed in layers of sufficient thickness to accommodate the material, except that the maximum thickness of any layer shall not exceed (6) inches. Where the total specified thickness is greater than (6) inches the material shall be placed in two or more layers of equal thickness.

706 - Oversize material that cannot be accommodated in the layer shall be removed at the source or on the road, and shall be disposed of (as shown on the plans) (or) (as directed by the Authorized Officer).

707 - When so indicated by the plans, filler or binder obtained from the source(s) shown on the plans shall be uniformly blended with pitrun rock material on the road.

708 - The roadbed as shaped and compacted under section(s) (300) (500) of these specifications shall be approved (in writing) by the Authorized Officer prior to placement of pitrun rock material. (Notification for final inspection prior to rocking shall be (72) hours prior to the inspection and shall be (10) days prior to start of surfacing operations.)

709 - Pitrun rock material shall be placed on roadbed, blade processed and spread to required dimensions.

710 - Pitrun rock material shall be compacted by routing construction and hauling equipment over the full width of each layer placed.

711 - Layers of pitrun rock material placed and shaped as specified shall be uniformly moistened or dried to the optimum moisture content for maximum density and compacted to full width by compacting equipment conforming to the requirements of Subsections(s) 103a, 103b, 103d, 103e, 103g, 103h, and 103i. Minimum compaction shall be [(1) hour of continuous compacting for each (250) cubic yards of pitrun rock material placed per layer] [(6) passes over each full-width layer], or fraction thereof.

712 - Pitrun rock material shall be surface bladed during the compaction operation to remove irregularities and to produce a smooth running surface.

713 - Pitrun rock material used to repair or reinforce soft, muddy, frozen, yielding, or rutted subgrades shall not be construed as surfacing required under this specification (unless approved in writing by the Authorized Officer prior to placement).

AGGREGATE BASE COURSE - 900
DRAIN ROCK MATERIAL

901 - This work shall consist of furnishing, hauling, and placing one or more lifts of drain rock material on roadbed(s) and landing(s) approved for placing drain rock material in accordance with these specifications and conforming to the dimensions and typical cross sections shown on the plans.

902a - Drain rock materials to be used in this work may be obtained from a source selected by the Purchaser, at his option, providing the rock materials furnished comply with these specifications (and the source(s) is approved in writing by the Authorized Officer prior to use).

903 - Drain rock material shall conform to the following gradation requirements:

Table 903
DRAIN ROCK MATERIAL GRADATION REQUIREMENTS
Percentage by Weight Passing Square Mesh Sieves
(AASHTO T 27)

Sieve Designation	A
4 inch	-
3 inch	100
2 inch	95-100

904a - Drain rock material shall show a durability value of not less than 35 as determined by AASHTO T 210.

905 - The roadbed as shaped and compacted under section(s) (300) (and) (500) of these specifications, shall be approved (in writing) by the Authorized Officer prior to placement of drain rock materials. Notification for final inspection, prior to rocking, shall be (72) hours prior to that inspection and shall be (10) days prior to start of rock operations.

906 - Drain rock material shall be placed in layers not to exceed (6) inches in thickness. Where the required total thickness is more than (6) inches, the rock material shall be shaped and compacted in two or more layers of approximately equal thickness.

906a - Drain rock materials used to repair or reinforce a soft, muddy, frozen, yielding, or rutted subgrade(s) shall not be construed as surfacing under this specification.

907 - Drain rock shall be free from vegetative matter and other deleterious materials.

908 - Drain rock material shall be blade-processed and spread to required dimensions. Processing shall be performed in such a manner as to minimize aggregate segregation.

912 - Acceptance tests will be made at the source from samples taken of drain rock materials being produced. Test data obtained by BLM from testing screened rock materials shall be made available to the Purchaser.

AGGREGATE BASE COURSE AND LANDING ROCK - 1000
CRUSHED ROCK MATERIAL

1001 - This work shall consist of furnishing, hauling, and placing one or more lifts of crushed rock material on roadbeds and landings approved for placing crushed rock material, in accordance with these specifications and conforming to the dimensions and typical cross sections shown on the plans. Material not conforming to these specifications will be rejected and shall be removed from the road.

1002a - Crushed rock materials may be obtained from commercial sources selected by the Purchaser at his option and expense providing that the rock materials selected comply with the specifications in this section.

1003 - Crushed rock material produced from gravel shall have 3 manufactured fractured face(s) on 75 percent, by weight, of the material retained on the No. 4 sieve.

1004 - Crushed rock materials shall consist of hard durable rock fragments conforming to the following gradation requirements:

TABLE 1004
AGGREGATE BASE COURSE
CRUSHED ROCK MATERIAL
Percentage by Weight Passing Square Mesh Sieves
(AASHTO T 11 & T 27)
GRADATION

Sieve Designation	A
4-inch	-
3-inch	100
2-inch	90-95
1½-inch	-
1-inch	45-75
3/4-inch	-
½-inch	-
3/8-inch	-
No. 4	15-45
No. 8	-
No. 10	-
No. 30	-
No. 40	5-25
No. 200	2-15

1005 - Crushed rock material retained on the No. 4 sieve shall have a percentage of loss of not more than 35 at 500 revolutions, as determined by AASHTO T 96.

1006 - Crushed rock material shall show durability value of not less than 35 as determined by AASHTO T 210.

1007 - That portion of crushed rock material passing the No. 40 sieve, including blending filler, shall have liquid limits of not more than 35 and a plasticity index of not less than 4 and not more than 12, as determined by AASHTO T 89 and AASHTO T 90.

1007a - That portion of crushed rock material passing No. 4 sieve, including blending filler, shall have a sand equivalent of not less than 35 as determined by AASHTO T 176, except where that portion exhibits a sand equivalent of less than 35, the aggregate will be accepted if it complies with the additional requirement as follows:

Sand Equivalent AASHTO T 176 Maximum	Percentage Passing No. 200 Sieve AASHTO T 27 Maximum
34	9
33	8
32	7
31	6
30	5
29 or less	4

1008 - If additional binder or filler is necessary in order to meet the grading or plasticity requirements, or for satisfactory bonding of the material, it shall be uniformly blended with the crushed rock material at the crushing and screening plant prior to placing on the road, unless otherwise agreed. The material for such purposes shall be obtained from sources approved by the Authorized Officer and shall be free from stones, vegetative matter, and other deleterious materials.

1008a - Each layer of crushed rock material shall be thoroughly mixed on the roadbed by alternately blading to full depth until a uniform mixture has been obtained. The mixture shall then be spread to full width. When completed, the spreading shall produce a surface which is smooth, presents uniform shoulder lines, and conforms to the specified cross section.

1009 - The roadbed, as shaped and compacted under Sections 300 and 500 of these specifications, shall be approved in writing by the Authorized Officer prior to placement of crushed rock materials. Notification for subgrade approval prior to rocking shall be 3 days prior to that approval and shall be 6 days prior to start of rocking operations.

1010 - Crushed rock materials shall be placed and processed on the approved roadbed in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans and compacted in layers not to exceed 4 inches in depth. When more than one layer is required, each shall be shaped, processed, and compacted, before the succeeding layer is placed. Irregularities or depressions that develop during compaction of the top layer shall be corrected by loosening the material at these places and adding or removing crushed rock material until the surface is smooth and uniform.

1010a - Crushed rock material used to repair or reinforce a soft, muddy, frozen, yielding, or rutted roadbed shall not be construed as surfacing under this specification.

1012 - Each layer of crushed rock material shall be placed, processed, shaped, moistened, or dried to a uniform moisture content suitable for maximum compaction, and compacted to full width by compaction equipment conforming to the requirements of Subsection 103f. Minimum compaction shall be one (1) hour of continuous compacting for each 150 cubic yards, or fraction thereof, of crushed rock material placed per layer.

AGGREGATE SURFACE COURSE, SPOT, AND MAINTENANCE ROCK - 1200
CRUSHED ROCK MATERIAL

1201 - This work shall consist of furnishing, hauling, and placing one or more layers of crushed rock material on roadbeds and base courses approved for placing crushed rock material in accordance with these specifications and conforming to the dimensions and typical cross sections shown on the plans. Material not conforming to these specifications will be rejected and shall be removed from the road.

1202a - Crushed rock materials used in this work may be obtained from commercial source(s) selected by the Purchaser at his option and expense, providing rock materials furnished comply with the specifications in this section.

1203 - When crushed rock material is produced from gravel, not less than 75 percent by weight of the particles retained on the No. 4 sieve will have 3 manufactured fractured face(s).

1204 - Crushed rock material shall consist of hard durable rock fragments conforming to the following gradation requirements:

TABLE 1204

AGGREGATE SURFACE COURSE
CRUSHED ROCK MATERIAL
Percentage by weight passing square mesh sieves
AASHTO T 11 & T 27

GRADATION

Sieve Designation	A
1-1/2-inch	100
1-inch	-
3/4-inch	50-90
½-inch	-
No. 4	25-50
No. 8	-
No. 30	-
No. 40	5-25
No. 200	2-15

1205 - Crushed rock material retained on the No. 4 sieve shall have a percentage of loss of not more than 35 at 500 revolutions, as determined by AASHTO T 96.

1206 - Crushed rock material shall show a durability value of not less than 35 as determined by AASHTO T 210. 1207

- That portion of crushed rock material passing the No. 40 sieve, including blending filler, shall have liquid limits of not more than 35 and a plasticity index of not less than 4 and not more than 12 as determined by AASHTO T 89 and AASHTO T 90.

1207a - That portion of crushed rock material passing No. 4 sieve, including blending filler, shall have a sand equivalent of not less than 35, as determined by AASHTO T 176, except where that portion exhibits a sand equivalence of less than 35, the aggregate will be accepted if it complies with the additional requirement as follows:

Sand Equivalent AASHTO T 176 Maximum	Liquid Limit AASHTO T 89 Maximum	Plasticity Index AASHTO T 90 Maximum	Percentage Passing No. 200 Sieve AASHTO T 27 Maximum
34	25	9	9
33	25	8	8
32	25	7	7
31	25	6	6
30	25	5	5
29 or less	25	4	4

1208 - If additional binder or filler material is necessary to meet the grading or plasticity requirements or for satisfactory bonding of the material, it shall be uniformly blended with the crushed rock material at the crushing and screening plant prior to placing on the road, unless otherwise agreed. The material for such purposes shall be obtained from sources approved by the Authorized Officer and shall be free from stones, vegetative matter, and other deleterious materials.

1208a - Each layer of crushed rock material shall be thoroughly mixed on the roadbed by alternately blading, to full depth, until a uniform mixture has been obtained. The mixture shall then be spread to full width. When completed, the spreading shall produce a surface which is smooth, presents uniform shoulder lines, and conforms to the specified cross section.

1209 - Shaping and compacting of roadbed shall be completed and approved in writing, prior to placing crushed rock material, in accordance to the requirements of Subsections 500 for placing on the roadbeds. Notification for roadbed inspection, prior to rocking, shall be 3 days prior to that inspection and shall be 6 days prior to start of rocking operations.

1210 - Crushed rock material conforming to the requirements of these specifications shall be placed on the approved roadbed in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans. Compacted layers shall not exceed 4 inches in depth. When more than one layer is required, each shall be shaped, processed, compacted, and approved by the Authorized Officer before the succeeding layer is placed. Irregularities or depressions that develop during compaction of the top layer shall be corrected by loosening the material at these places and then adding or removing crushed rock material until the surface is smooth and uniform.

1210a - Crushed rock material used to repair or reinforce soft, muddy, frozen, yielding, or rutted roadbed shall not be construed as surfacing required by this specification.

1212 - Each layer of crushed rock material placed, processed, and shaped as specified shall be moistened or dried to a uniform moisture content suitable for maximum compaction and compacted to full width by compacting equipment conforming to the requirements of Subsection 103i. Minimum compaction shall be 1 hour of continuous compacting for each 150 cubic yards or fraction thereof, of crushed rock material placed per layer.

SLOPE PROTECTION – 1400

1401 - This work shall consist of furnishing, hauling, and placing stone materials (riprap) for slope protection structures (energy dissipaters at culvert outlets) in accordance with these specifications. Material not conforming to these specifications will be rejected, and shall be removed from the slope protection structure as directed by the Authorized Officer.

1402 - Riprap shall be hard, durable, angular in shape, and resistant to weathering and water action. Thickness of a single stone should be more than one-third its length. Do not use rounded rock or boulders. Stone shall be free from overburden, spoil, shale, and organic material and conforming to the following:

a. Apparent Specific Gravity (AASHTO T85) 2.50 Min.

b. Absorption (AASHTO T85) 4.2% Max.

c. Coarse Durability Index (AASHTO T210) 20 Min.

1403 - Loose riprap shall meet the following gradation:

Equivalent Cubic Dimensions	Total Size Smaller Than Given
34 inches	100
27 inches	80
22 inches	50
10 inches	10

1404 - The placement of slope protection riprap by the end dumping method is not permitted.

1405 - Riprap shall be placed to produce a well keyed mass of rock with the least practical amount of void spaces. The foundation course is the course placed in contact with the ground surface, and shall be placed on a stable key bench. Bearing shall not be on smaller rocks that may be used for filling voids.

1405a - Riprap shall be placed directly under the culvert outlet and extend to the point where a 45-degree angle from the outlet invert intersects the key bench. Riprap shall extend a minimum distance equal to the culvert diameter on all sides.

1406 Determination of the acceptability of the slope protection structure will be by visual inspection and / or physical measurements by the Authorized Officer.

EROSION CONTROL - 1700

1701 - This work shall consist of measures to control soil erosion or water pollution during the construction operation through the use of berms, dikes dams, sediment basins, fiber mats, netting, gravel, mulches, grasses, slope drains and other erosion control devices or methods in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans.

1702 - The Purchaser shall construct dike(s), dam(s), diversion channel(s), settling basin(s) and other erosion control structure(s) as directed by the Authorized Officer.

1704 - The erosion control provisions specified under this subsection shall be coordinated with the soil stabilization requirement(s) of Section 1800.

1705 - The surface area of erodible earth material exposed at any one time by clearing and grubbing shall not exceed 25,000 square feet without prior approval by the Authorized Officer.

1706 - The surface area of erodible earth material exposed at one time by excavation, borrow, or fill within the right-of-way shall not exceed 25,000 square feet without prior approval by the Authorized Officer.

1706a - The Purchaser shall perform, during the same construction season, erosion control measures specified in the plans on all exposed excavation, borrow, and embankment areas.

1707 - Completed and partially completed segments of road(s) to be carried over the winter and early spring periods shall be stabilized by mulching exposed areas at the rate of 2,000 pounds per acre.

1708a - Road segments not completed during dry weather periods shall be winterized, by providing a well-drained roadway by waterbarring, maintaining drainage, and performing additional measures necessary to minimize erosion and other damage to the roadway, as directed by the Authorized Officer. Portions of roads not having surface rock in place will be blocked or barricaded to prevent vehicular traffic.

SOIL STABILIZATION - 1800

1801 - This work shall consist of seeding, fertilizing and mulching on designated cut, fill, borrow, disposal, and special areas in accordance with these specifications and as shown on the plans. This work is not required for road acceptance under Section 18 of this contract.

1802a - Soil stabilization work consisting of seeding, fertilizing and mulching shall be performed on new road construction, road renovation, improvements, landings and disturbed areas in accordance with these specifications and as shown on the plans.

1803 - Soil stabilization work as specified under Subsection 1802a shall be performed during the following seasonal periods:

From:	March 15	To:	April 30
From:	September 1	To:	October 15

If soil stabilization of disturbed areas is not completed by the specified fall date, the Purchaser shall treat disturbed areas in accordance with Section 1707 and then complete the requirements of Soil Stabilization 1800 the next construction season.

The Authorized Officer may modify the above seasonal dates to conform to existing weather conditions and changes in the construction schedule.

1806 - The Purchaser shall apply the seed mixtures specified under Subsection 1805 to the corresponding seeding projects as shown on Sheet No. 18.

1806a - Additional soil stabilization work consisting of seeding, fertilizing and mulching may be required at the option of the Authorized Officer. Providing the additional stabilization is not due to Purchaser negligence as specified in Section 12 of the contract, a reduction in the total purchased price shall be made to offset the cost of furnishing and applying such additional stabilization material. Cost shall be based upon the unit price set forth in the current BLM Timber Appraisal Production Cost Schedule.

1808 - Fertilizer shall be a standard commercial grade of fertilizer conforming to all State and Federal regulations and to the standards of the Association of Official Agricultural Chemists. Fertilizer furnished shall provide the minimum percentage of available nutrients as specified below:

Available nitrogen	16%
Available phosphoric acid	20%
Potassium	16%

The Authorized Officer will take what samples he deems necessary for determining compliance with the above requirements.

Fertilizer shall be furnished in new sealed and properly labeled containers with name, weight, and guaranteed analysis of contents clearly marked. Material failing to meet these requirements, or that which has become wet or otherwise damaged in transit or storage, will be subject to rejection by the Authorized Officer.

1809 - Mulch materials conforming to the requirements of Subsections 1809b, 1809d or 1809e shall be furnished by the Purchaser in the amounts specified under Subsection 1812.

1809b - Natural wood cellulose or grass fiber shall have the property of dispersing readily in water and shall have no toxic effect when combined with seed or other materials. The homogeneous slurry or mixture shall be capable of application with power spray equipment. A green colored dye which is noninjurious to plant growth shall be used. Processed wood cellulose or grass fiber shall be packaged in new, labeled containers in an air dry condition. Processed wood cellulose or grass fiber furnished by the Purchaser shall be one of the following brand names or approved equal :

Silva Fiber	-	Weyerhaeuser Timber
Co. Conweb Fiber	-	Wood Conversion Co.
Spra-Mulch	-	Spra-Mulch Industries,
Inc. Grass-Mulch	-	Grass Mulch, Inc.

If the Purchaser proposes using a wood or grass fiber other than those listed above, he shall furnish a sample and descriptive literature to the Authorized Officer for approval prior to application. Processed wood cellulose or grass fiber furnished by the Purchaser which has become wet or otherwise damaged in transit or storage will not be accepted.

1809d - Straw mulch shall be from oats, wheat, rye, or other approved grain crops which are free from noxious weeds, mold, or other objectionable materials. Straw mulch shall be in an air-dry condition and suitable for placing with power spray equipment.

1809e - Grass straw mulch shall be from perennial grass or, if specified, an annual rye grass, from which the seed has been removed. The straw shall be free from noxious weed seed, mold, or other objectionable materials.

1810 - Mulch material shall be delivered to the work area in a dry state. Material found to be wet will not be accepted. Material to be used in the mulching operation may be stockpiled along the road designated for treatment provided that it be maintained in a dry state and has the approval of the Authorized Officer.

1811 - Bulk mulching material required under these specifications shall be delivered to the work area bound either by twine, string, or hemp rope. Wire binding and plastic twine will not be permitted.

1812 - The Purchaser shall furnish and apply to approximately 8.5 acres designated for treatment as shown on the plans and as specified under Subsection 1806, a mixture of water, grass seed, fertilizer and mulch material, or a mixture of grass seed and fertilizer material at the following rate of application:

a. Single Stage (Hydraulic):

Water	3,000	gals./acre
Grass Seed	60	lbs./acre
Fertilizer	200	lbs./acre
Mulch	3,000	lbs./acre

b. Dry Application:

Grass Seed	60 lbs./acre
Fertilizer	200 lbs./acre
Mulch/Straw	3,000 lbs./acre

The above proportion and application rate are subject to adjustment by the Authorized Officer during the application operation.

1815 - The Purchaser may reduce the application rate on partially covered slopes and no application on areas already well stocked with grass or on rock surfaces.

1816 - The seed, fertilizer and mulch materials shall be placed by the hydraulic or dry method in accordance with the requirements set forth in Subsection 1816a and 1816b.

1816a - Hydraulic Method - The seed, fertilizer and mulch materials shall be mixed with water to form a slurry and then applied under pressure by hydroseeder. When processed wood cellulose or grass fiber mulch material is to be incorporated as an integral part of the slurry mix, it shall be added after the seed and fertilizer have been thoroughly mixed.

1816b - Dry Method - Blowers, mechanical seeders, seed drills, landscape seeders, cultipaker seeders, fertilizer spreaders, or other approved mechanical seeding equipment may be used when seed and fertilizer are to be applied in dry form.

1817 - Hydraulic equipment used for the application of slurry shall meet the following requirements:

The equipment shall have a built-in agitation system. The slurry distribution lines shall be large enough to prevent stoppage. Discharge line shall be equipped with a set of hydraulic spray nozzles which will provide even distribution of the slurry on the various slopes to be treated. The slurry tank shall have a minimum operation capacity of 1,300 gallons and shall be mounted on a traveling unit which will place the slurry tank and spray nozzles within sufficient proximity to the areas to be treated so as to provide uniform distribution without waste. Lug- or track type units are not authorized. The hydro seeder must be capable of spraying the slurry a minimum distance of 100 feet. The nozzle, mounted on a stand, must be capable of traversing 360 degrees on a horizontal plane and a minimum of 70 degrees on a vertical plane.

1817a - Hydromulch slurry mixing shall be with water and seed first, followed by fertilizer, and finally fiber. The time between mixing and application shall not exceed 1 hour.

1819 - The maximum distance to be seeded, fertilized and mulched from the road centerline shall be 100 feet for the cut slopes and 150 feet for the fill slopes.

1820 - The Purchaser shall notify the Authorized Officer at least 3 days in advance of date he intends to commence the specified soil stabilization work.

1822 - Mulch that collects at the end of culverts or accumulates to excessive depths on the slopes shall be evenly spread by hand methods, as directed by the Authorized Officer.

1823 - No materials shall be applied when wind velocities would prevent a uniform application of the mix or slurry or when winds would drift the mix or slurry spray outside of the designated treatment area.

1826 - Twine, rope, sacks, and other debris resulting from the soil stabilization operation shall be picked up and disposed of to the satisfaction of the Authorized Officer.

ROADSIDE BRUSHING - 2100

2101 - This work shall consist of cutting and the removal of vegetation from the road prism - variable distance and inside curves in accordance with these specifications. This work shall conform to the lines, grades, dimensions, and typical cross sections shown on the Roadside Brushing Detail Sheet, at designated locations as shown in the plans.

2102 - Roadside brushing may be performed mechanically with self-powered, self-propelled equipment and/or manually with hand tools, including chainsaws.

2103 - Vegetation cut manually or mechanically less than 6 inches in diameter at D.B.H. shall be cut to a maximum height of 6 inches above the ground surface or above obstructions such as rocks or stumps on cut and fill sloped and all limbs will be severed from the trunk.

2103a - Vegetation shall be cut and removed from the road bed between the outside shoulders and the ditch centerline and such vegetation shall be cut to a maximum height of 1 inch above the ground and running surface. All limbs will be severed from the trunk. Sharp pointed ends will not be permitted. Cuts shall be parallel to the ground line or running surface.

2104 - Trees in excess of 6 inches in diameter at D.B.H. shall be limbed, so that no limbs extend into the treated area or over the roadbed to a height of 12 feet above the running surface of the roadway on cut and fill slopes, within the road prism variable distance. Limbs shall be cut to within 1 inch of the trunk to produce a smooth vertical face. Removal of trees larger than 6 inches in diameter for sight distance or safety may be directed by the Authorized Officer.

2105 - Vegetation that is outside of the road prism variable distance that protrudes into the road prism and within 12 feet in elevation above the running surface shall be cut, to within 1 inch of the trunk to produce a smooth vertical face.

2106 - Vegetative growth capable of growing 1 foot in height or higher shall be cut within the road prism/variable distance or as directed by the Authorized Officer.

2108 - Self-propelled equipment shall not be permitted on cut and fill slopes or in ditches.

2109 - Debris resulting from roadside brushing shall be scattered downslope from the roadway. Debris shall not be allowed to accumulate in concentrations. Debris in excess of 1 foot in length and 2 inches in diameter shall not be allowed to remain on cut slopes, ditches, roadways or water courses, or as directed by the Authorized Officer.

2113 - Roadside brushing shall be accomplished as specified on the roads listed on Sheet No. 5.

2116 - Mechanical brush cutters shall not be operated when there are people and occupied vehicles within 400 feet of the immediate operating area.

2117 - Traffic warning signs shall be required at each end of the work area. Signs shall meet the requirements of the Manual on Uniform Traffic Devices.

SLOPE STAKING - 2300

2301 - This work shall consist of slope staking and referencing road locations from notes furnished by the BLM in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections on the plans.

2302 - Slope stakes shall consist of 1 3/4 inch x 1/4 inch smooth-finished wood slates of good quality, approximately 18 inches in length and tipped with red luminous paint.

2303 - Slope stakes shall be set as follows:

(a) A slope stake shall be set at the top of the cut slope for cut sections and / or at the toe of the fill for fill sections as shown on the typical road sections sheet included in the plans.

(b) For through cut sections both sides of the road shall be staked.

(d) For through fill sections both sides of the road shall be staked.

(e) For balanced sections both sides of the road shall be staked.

(f) Stakes shall be set at every section or as directed by the Authorized Officer.

(g) Daylight locations will be staked as directed by the Authorized Officer. A reference marker is not required for daylight points.

(f) The slope stake shall be moved back to the reference stake at time of staking. Slope stake and daylight locations shall be marked with a wire flag or equivalent approved by the Authorized Officer. Wire flags shall be colors approved by the Authorized Officer. The Purchaser shall reset the slope stakes after completion of clearing and grubbing operations, where needed.

2304 - A reference marker consisting of an aluminum or plastic tag nailed or stapled to the base of a stump or tree shall be set for each slope stake. If no stumps or trees are available, a stake identical to that used for slope staking may be used. Reference markers shall be readily visible from the slope stake. The markers shall be set at least 10 feet beyond the slope stake.

2305 - Slope stakes and reference stakes shall be marked as shown on the plans on Sheet No. 19.

2306a - If clearing limits are not posted, a plastic ribbon shall be hung 10-feet horizontal distance past the slope stake set for a cut, 10-feet horizontal distance past the wire flag set for a daylight point, or 5-feet horizontal distance past the slope stake set for a fill. The plastic ribbon shall be inter-visible between sections and of a florescent color approved by the Authorized Officer.

2309 - Stationing used is “L” or final location stationing.

2310 - Stakes shall be marked with black-lumber crayon or with a permanent waterproof felt-tip marker.

2311 - Slope and reference stakes shall be set to the following standards of accuracy:

Maximum allowable horizontal error +/- 0.2 feet
Maximum allowable vertical error +/- 0.2 feet

2312 - The Purchaser shall complete the required slope staking a minimum of 5 days in advance of construction unless otherwise agreed. Staking and slope staking notes shall be approved in writing by the Authorized Officer prior to right-of-way clearing, timber falling, and construction.

2313 - The Purchaser will slope stake, reference, and furnish the BLM the resulting notes in advance of construction on the road(s) shown below:

Road No.	Total Sta.	Approximate Number of Sections to Stake (Both Sides)
31-14-29.10	18.66	65
31-14-29.11	13.22	39
31-14-29.12	8.35	21

Spur 1B	3.91	12
Total:	44.14	137

2314 - Data for slope staking is available at the BLM Coos Bay District Office. P - Ground, Grade, Shift, and Template information shall be used to determine actual slope staked location.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Version: 5.2.0.79

Summary of All Roads and Projects Updated: 4/13/2016

T.S. Contract Name: Crystal Clear Tract No: 2017.0031 Sale Date: 06/23/2017
Prepared by: M. Bailey Ph: 5417514234 Print Date: 5/2/2017 9:00:10 AM
Construction: 105.26 sta
Improve: 12.98 sta Renov: 20.59 sta Decom: 0.00 sta Temp: 0.00 sta

200 Clearing and Grubbing: 15.3 acres	$39,744.09
300 Excavation: 29,647 cy	$95,202.62
Haul < 500 ft: 2,885 sta-yds	
Haul > 500 ft: 7,092 yd-mi	
400 Drainage:	$31,343.58
Culvert: 0 lf DownSpout: 0 lf	
PolyPipe: 592 lf	
500 Renovation:	$1,291.16
Blading 0.64 mi	
700-1200 Surfacing:	$260,664.44
Commercial Quarry Name: S. Floras CR-SURFACE 1,803 LCY	
Commercial Quarry Name: S. Floras CR-BASE 4,633 LCY	
1300 Geotextiles:	$0.00
1400 Slope Protection:	$2,782.34
Gradation Class 3: 64 cy	
1800 Soil Stabilization: 8.5 acres	$7,630.25
Includes Small Quantity Factor of 1.09	
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.4 acres	$219.11
2300 Engineering: 42.30 sta.	$6,295.93
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $12,865.60 Surf. $5,094.90	$17,960.50
Quarry Development:	$0.00
Total: 5,605 mbf @ $82.629/mbf =	$463,134.00

Notes:
Quantities shown are estimates only and not pay items.
Surfacing Quantities are loose cubic yards.

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: 31-14-29.0 C Road Name:
Road Improvement: 0.03 mi 16 ft Subgrade 2 ft ditch 4/13/2016

200 Clearing and Grubbing: acres	$0.00
300 Excavation:	$0.00
400 Drainage:	$0.00
Culvert: 0 lf	
DownSpout: 0 lf	
PolyPipe: 0 lf	
500 Renovation:	$80.70
Blading 0.04 mi	
700-1200 Surfacing:	$6,034.65
Quarry Name: S. Floras CR-SURFACE 45 LCY	
Quarry Name: S. Floras CR-BASE 104 LCY	
1300 Geotextiles:	$0.00
1400 Slope Protection:	$0.00
1800 Soil Stabilization: 0.0 acres	$0.00
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.0 acres	$0.00
2300 Engineering: 0.00 sta.	$0.00
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $176.73 Surf. $117.95.....	$294.69
Quarry Development:	$0.00
Total:	$6,410.03

Notes:
Quantities shown are estimates only and not pay items.
Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: 31-14-29.0 C Road Name:

Section 200 Clearing and Grubbing:

Subtotal: $0.00

Section 300 Excavation:

Subtotal: $0.00

Section 400 Drainage:

Subtotal: $0.00

Section 500 Renovation:
Blading: $720.50/mi x 0.04 mi = $28.82
Scarification: $893.46/mi x 0.04 mi = $35.74
Compaction: $403.47/mi x 0.04 mi = $16.14

Subtotal: $80.70

Section 700-1200 Surfacing:

Commercial Quarry Name: S. Floras CR-SURFACE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
0.04mi	12ft	13.33ft	4in	0%					

Rock Volume = 45 LCY
Purchase Price / Royalty: $12.50/LCY x 45 LCY = $562.50
Processing: $0.90/LCY x 45 LCY = $40.50
Compaction: $1.34/LCY x 45 LCY = $60.30
Basic Rock Haul cost: $0.74/LCY x 45 LCY = $33.30
Rock Haul +15% grades: $2.21/LCY-mi x 45 LCY x 4.50 mi= $447.53
Rock Haul -15% grades: $1.10/LCY-mi x 45 LCY x 4.90 mi= $242.55
Rock Haul St& Co Roads: $0.49/LCY-mi x 45 LCY x 17.40 mi= $383.67
Basic Water Haul cost: $0.60/LCY x 45 LCY = $27.00
Water Haul +15% grades: $0.28/LCY-mi x 45 LCY x 1.00 mi= $12.60
Water Haul -15% grades: $0.14/LCY-mi x 45 LCY x 2.00 mi= $12.60

Commercial Quarry Name: S. Floras CR-BASE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
0.04mi	13.33ft	16ft	8in	0%					

Rock Volume = 104 LCY
Purchase Price / Royalty: $12.50/LCY x 104 LCY = $1,300.00
Processing: $0.90/LCY x 104 LCY = $93.60
Compaction: $1.34/LCY x 104 LCY = $139.36
Basic Rock Haul cost: $0.74/LCY x 104 LCY = $76.96
Rock Haul +15% grades: $2.21/LCY-mi x 104 LCY x 4.50 mi= $1,034.28
Rock Haul -15% grades: $1.10/LCY-mi x 104 LCY x 4.90 mi= $560.56
Rock Haul St& Co Roads: $0.49/LCY-mi x 104 LCY x 17.40 mi= $886.70
Basic Water Haul cost: $0.60/LCY x 104 LCY = $62.40
Water Haul +15% grades: $0.28/LCY-mi x 104 LCY x 1.00 mi= $29.12
Water Haul -15% grades: $0.14/LCY-mi x 104 LCY x 2.00 mi= $29.12

Subtotal: $6,034.65

Section 1300 Geotextiles:

Subtotal: $0.00

Section 1400 Slope Protection:

Subtotal: $0.00

Section 1800 Soil Stabilization:

Subtotal: $0.00

Section 1900 Cattleguards:

Subtotal: $0.00

Section 2100 Roadside Brushing:

Subtotal: $0.00

Section 2300 Engineering:

Subtotal: $0.00

Section 2400 Minor Concrete:

Subtotal: $0.00

Section 2500 Gabions:

Subtotal: $0.00

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
  Construction - 1.37% of total Costs = $176.73
  Surfacing - 2.32% by rock volume = $117.95

Subtotal: $294.69

Quarry Development:
  Based on 2.32% of total rock volume

Subtotal: $0.00

Total: $6,410.03

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: 31-14-29.0 D Road Name: 31-14-29.0 I
Road Improvement: 0.18 mi 16 ft Subgrade 2 ft ditch 4/13/2016

200 Clearing and Grubbing: 0.0 acres	$25.99
300 Excavation:	$479.37
Haul < 500 ft: 80 sta-yds	
400 Drainage:	$4,323.20
Culvert: 0 lf	
DownSpout: 0 lf	
PolyPipe: 90 lf	
500 Renovation:	$363.14
Blading 0.18 mi	
700-1200 Surfacing:	$24,908.12
Quarry Name: S. Floras CR-SURFACE 170 LCY	
Quarry Name: S. Floras CR-BASE 445 LCY	
1300 Geotextiles:	$0.00
1400 Slope Protection:	$478.21
Gradation Class 3: 11 cy	
1800 Soil Stabilization: 0.2 acres	$135.29
Includes Small Quantity Factor of 1.09	
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.0 acres	$0.00
2300 Engineering: 0.00 sta.	$0.00
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $887.62 Surf. $486.85	$1,374.47
Quarry Development:	$0.00
Total:	$32,087.79

Notes:
Quantities shown are estimates only and not pay items.
Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: 31-14-29.0 D Road Name: 31-14-29.0 I

Section 200 Clearing and Grubbing:
Clearing - Medium (Clearing): Adjustment Factor (1.67)
31-45% (Avg Side Slopes): Adjustment Factor (0.2)
Windrow (Slash): Adjustment Factor (1.07)
20-40' (Avg Clearing Widths): Adjustment Factor (0.1)
Total Adjustment Factor:1.67 + 0.2 + 1.07 + 0.1 = 3.04
Base Cost/Acre: $855.05 x Adjustment Factor: 3.04 x Total Acres: .01 = $25.99

Subtotal: $25.99

Section 300 Excavation:
Embankment Placement & Compaction 306.f - Common: $0.26/cy x 80 cy = $20.80
Subgrade Compaction: 4 Sta/hr $33.62/sta. x 9.3 sta = $312.33
End Hauling - 100 to 500 ft: $0.15/sta-yd x 80 sta-yd = $12.00
Blading with ditch: $14.45/station x 9.29 stations = $134.24

Subtotal: $479.37

Section 400 Drainage:
Poly Pipe MP 1.330 18 inch 30 lf x $44.98/lf = $1,349.40
Poly Pipe MP 1.381 18 inch 30 lf x $44.98/lf = $1,349.40
Poly Pipe MP 1.443 18 inch 30 lf x $44.98/lf = $1,349.40
CULVERTS
MARKERS 3 EA x $50.00/EA = $150.00
BEDDING 5 LCY x $25.00/LCY = $125.00

Subtotal: $4,323.20

Section 500 Renovation:
Blading: $720.50/mi x 0.18 mi = $129.69
Scarification: $893.46/mi x 0.18 mi = $160.82
Compaction: $403.47/mi x 0.18 mi = $72.62

Subtotal: $363.14

Section 700-1200 Surfacing:

Commercial Quarry Name: S. Floras CR-SURFACE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									170 LCY

Rock Volume = 170 LCY
Purchase Price / Royalty: $12.50/LCY x 170 LCY = $2,125.00
Processing: $0.90/LCY x 170 LCY = $153.00
Compaction: $1.34/LCY x 170 LCY = $227.80
Basic Rock Haul cost: $0.74/LCY x 170 LCY = $125.80
Rock Haul +15% grades: $2.21/LCY-mi x 170 LCY x 4.50 mi= $1,690.65
Rock Haul -15% grades: $1.10/LCY-mi x 170 LCY x 4.90 mi= $916.30
Rock Haul St& Co Roads: $0.49/LCY-mi x 170 LCY x 17.40 mi= $1,449.42
Basic Water Haul cost: $0.60/LCY x 170 LCY = $102.00
Water Haul +15% grades: $0.28/LCY-mi x 170 LCY x 1.00 mi= $47.60
Water Haul -15% grades: $0.14/LCY-mi x 170 LCY x 2.00 mi= $47.60
Water Haul St&Co Roads: $0.08/LCY-mi x 170 LCY x 0.00 mi= $0.00

Commercial Quarry Name: S. Floras CR-BASE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									445 LCY

Rock Volume = 445 LCY
Purchase Price / Royalty: $12.50/LCY x 445 LCY = $5,562.50
Processing: $0.90/LCY x 445 LCY = $400.50
Compaction: $1.34/LCY x 445 LCY = $596.30
Basic Rock Haul cost: $0.74/LCY x 445 LCY = $329.30
Rock Haul +15% grades: $2.21/LCY-mi x 445 LCY x 4.50 mi= $4,425.53
Rock Haul -15% grades: $1.10/LCY-mi x 445 LCY x 4.90 mi= $2,398.55

Road Number: 31-14-29.0 D 31-14-29.0 I Continued

Rock Haul St& Co Roads: $0.49/LCY-mi x 445 LCY x 17.40 mi= $3,794.07
Basic Water Haul cost: $0.60/LCY x 445 LCY = $267.00
Water Haul +15% grades: $0.28/LCY-mi x 445 LCY x 1.00 mi= $124.60
Water Haul -15% grades: $0.14/LCY-mi x 445 LCY x 2.00 mi= $124.60
Water Haul St&Co Roads: $0.08/LCY-mi x 445 LCY x 0.00 mi= $0.00

Subtotal: $24,908.12

Section 1300 Geotextiles:

Subtotal: $0.00

Section 1400 Slope Protection:
Rock Source: S. Floras CR-RIPRAP
Purchase Price / Royalty: $10.00/cy x 11cy = $110.00
Furnish Class 3 type rock
Basic Rock Haul cost: $1.35/cy x 11cy = $14.85
Rock Haul +15% grades: $2.69/cy-mi x 11cy x 4.50 mi= $133.16
Rock Haul -15% grades: $1.35/cy-mi x 11cy x 4.90 mi= $72.77
Rock Haul St& Co Roads: $0.60/cy-mi x 11cy x 17.40 mi= $114.84
Placement on Fill slopes: 11cy x ($2.85/cy x 1.04) = $32.60

Subtotal: $478.21

Section 1800 Soil Stabilization:
Dry Method with Mulch: $415.92/acre x 0.15 acres = $62.39
Includes Small Quantity Factor of 1.09
+ Seed Cost: $132.00/acre x 0.15 acres = $19.80
+ Fertilizer Cost: $34.00/acre x 0.15 acres = $5.10
+ Mulch Cost: $320.00/acre x 0.15 acres = $48.00

Subtotal: $135.29

Section 1900 Cattleguards:

Subtotal: $0.00

Section 2100 Roadside Brushing:

Subtotal: $0.00

Section 2300 Engineering:

Subtotal: $0.00

Section 2400 Minor Concrete:

Subtotal: $0.00

Section 2500 Gabions:

Subtotal: $0.00

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
Construction - 6.90% of total Costs = $887.62
Surfacing - 9.56% by rock volume = $486.85

Subtotal: $1,374.47

Quarry Development:
Based on 9.56% of total rock volume

Subtotal: $0.00

Total: $32,087.79

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: 31-14-29.0 D2 Road Name: 31-14-29.0 R
Road Renovation: 0.27 mi 16 ft Subgrade 2 ft ditch 4/13/2016

200 Clearing and Grubbing: 1.3 acres	$3,327.17
300 Excavation: 215 cy	$651.17
400 Drainage:	$0.00
Culvert: 0 lf	
DownSpout: 0 lf	
PolyPipe: 0 lf	
500 Renovation:	$524.53
Blading 0.26 mi	
700-1200 Surfacing:	$0.00
1300 Geotextiles:	$0.00
1400 Slope Protection:	$0.00
1800 Soil Stabilization: 1.0 acres	$901.92
Includes Small Quantity Factor of 1.09	
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.3 acres	$172.98
2300 Engineering: 0.00 sta.	$0.00
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $161.20 Surf. $0.00	$161.20
Quarry Development:	$0.00
Total:	$5,738.97

Notes:
- Quantities shown are estimates only and not pay items.
- Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: 31-14-29.0 D2 Road Name: 31-14-29.0 R

Section 200 Clearing and Grubbing:
   Clearing - Medium (Clearing): Adjustment Factor (1.67)
   31-45% (Avg Side Slopes): Adjustment Factor (0.2)
   Windrow (Slash): Adjustment Factor (1.07)
   20-40' (Avg Clearing Widths): Adjustment Factor (0.1)
   Total Adjustment Factor:1.67 + 0.2 + 1.07 + 0.1 = 3.04
   Base Cost/Acre: $855.05 x Adjustment Factor: 3.04 x Total Acres: 1.28 = $3,327.17
Subtotal: $3,327.17

Section 300 Excavation:
  Excavation - Common: $1.93/cy x 215 cy = $414.95
  Embankment Placement & Compaction 306.f - Common: $0.26/cy x 131 cy = $34.06
  Blading with ditch: $14.45/station x 13.99 stations = $202.16
Subtotal: $651.17

Section 400 Drainage:
Subtotal: $0.00

Section 500 Renovation:
  Blading: $720.50/mi x 0.26 mi = $187.33
  Scarification: $893.46/mi x 0.26 mi = $232.30
  Compaction: $403.47/mi x 0.26 mi = $104.90
Subtotal: $524.53

Section 700-1200 Surfacing:
Surfacing:
Subtotal: $0.00

Section 1300 Geotextiles:
Subtotal: $0.00

Section 1400 Slope Protection:
Subtotal: $0.00

Section 1800 Soil Stabilization:
  Dry Method with Mulch: $415.92/acre x 1.00 acres = $415.92
        Includes Small Quantity Factor of 1.09
        + Seed Cost: $132.00/acre x 1.00 acres = $132.00
        + Fertilizer Cost: $34.00/acre x 1.00 acres = $34.00
        + Mulch Cost: $320.00/acre x 1.00 acres = $320.00
Subtotal: $901.92

Section 1900 Cattleguards:
Subtotal: $0.00

Section 2100 Roadside Brushing:
  RoadSide Brushing Medium: $576.60/acre x 0.30 acres = $172.98
Subtotal: $172.98

Section 2300 Engineering:
Subtotal: $0.00

Section 2400 Minor Concrete:
Subtotal: $0.00

Section 2500 Gabions:
Subtotal: $0.00

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
Construction - 1.25% of total Costs = $161.20
Surfacing - 0.00% by rock volume = $0.00

Subtotal: $161.20

Quarry Development:
Based on 0.00% of total rock volume

Subtotal: $0.00

Total: $5,738.97

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: 31-14-29.10 Road Name: 04-8
Road Construction: 0.34 mi 16 ft Subgrade 2 ft ditch 4/13/2016

200 Clearing and Grubbing: 2.6 acres	$6,836.30
300 Excavation: 5,156 cy	$14,889.25
Haul < 500 ft: 580 sta-yds	
400 Drainage:	$10,703.20
Culvert: 0 lf	
DownSpout: 0 lf	
PolyPipe: 210 lf	
500 Renovation:	$0.00
700-1200 Surfacing:	$67,231.66
Quarry Name: S. Floras CR-SURFACE 560 LCY	
Quarry Name: S. Floras CR-BASE 1,100 LCY	
1300 Geotextiles:	$0.00
1400 Slope Protection:	$826.01
Gradation Class 3: 19 cy	
1800 Soil Stabilization: 0.8 acres	$694.48
Includes Small Quantity Factor of 1.09	
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.0 acres	$0.00
2300 Engineering: 18.10 sta.	$2,694.00
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $3,002.00 Surf. $1,314.10	$4,316.10
Quarry Development:	$0.00
Total:	$108,190.99

Notes:
- Quantities shown are estimates only and not pay items.
- Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: 31-14-29.10 Road Name: 04-8

Section 200 Clearing and Grubbing:
Clearing - Medium (Clearing): Adjustment Factor (1.67)
31-45% (Avg Side Slopes): Adjustment Factor (0.2)
Windrow (Slash): Adjustment Factor (1.07)
20-40' (Avg Clearing Widths): Adjustment Factor (0.1)
Total Adjustment Factor:1.67 + 0.2 + 1.07 + 0.1 = 3.04
Base Cost/Acre: $855.05 x Adjustment Factor: 3.04 x Total Acres: 2.63 = $6,836.30

Subtotal: $6,836.30

Section 300 Excavation:
Excavation - Common: $1.93/cy x 5,156 cy = $9,951.08
Embankment Placement & Compaction 306.f - Common: $0.26/cy x 5,145 cy = $1,337.70
Subgrade Compaction: 4 Sta/hr $33.62/sta. x 18.7 sta = $627.35
End Hauling - 100 to 500 ft: $0.15/sta-yd x 580 sta-yd = $87.00
Blading with ditch: $14.45/station x 18.66 stations = $269.64
SUBGRADE
Tractor: D7 with rippers 16 hr x $163.53/hr = $2,616.48

Subtotal: $14,889.25

Section 400 Drainage:

Poly Pipe	11+46	24 inch 40 lf x $63.29/lf = $2,531.60
Poly Pipe	13+66	18 inch 50 lf x $44.98/lf = $2,249.00
Poly Pipe	17+41	18 inch 30 lf x $44.98/lf = $1,349.40
Poly Pipe	4+37	18 inch 40 lf x $44.98/lf = $1,799.20
Poly Pipe	7+75	18 inch 50 lf x $44.98/lf = $2,249.00

CULVERTS
CULVERT BEDDING 11 LCY x $25.00/LCY = $275.00
CULVERT MARKERS 5 EA x $50.00/EA = $250.00

Subtotal: $10,703.20

Section 500 Renovation:

Subtotal: $0.00

Section 700-1200 Surfacing:

Commercial Quarry Name: S. Floras CR-SURFACE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									560 LCY

Rock Volume = 560 LCY
Purchase Price / Royalty: $12.50/LCY x 560 LCY = $7,000.00
Processing: $0.90/LCY x 560 LCY = $504.00
Compaction: $1.34/LCY x 560 LCY = $750.40
Basic Rock Haul cost: $0.74/LCY x 560 LCY = $414.40
Rock Haul +15% grades: $2.21/LCY-mi x 560 LCY x 4.50 mi= $5,569.20
Rock Haul -15% grades: $1.10/LCY-mi x 560 LCY x 4.90 mi= $3,018.40
Rock Haul St& Co Roads: $0.49/LCY-mi x 560 LCY x 17.40 mi= $4,774.56
Basic Water Haul cost: $0.60/LCY x 560 LCY = $336.00
Water Haul +15% grades: $0.28/LCY-mi x 560 LCY x 1.00 mi= $156.80
Water Haul -15% grades: $0.14/LCY-mi x 560 LCY x 2.00 mi= $156.80
Water Haul St&Co Roads: $0.08/LCY-mi x 560 LCY x 0.00 mi= $0.00

Commercial Quarry Name: S. Floras CR-BASE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									1100 LCY

Rock Volume = 1,100 LCY
Purchase Price / Royalty: $12.50/LCY x 1,100 LCY = $13,750.00
Processing: $0.90/LCY x 1,100 LCY = $990.00
Compaction: $1.34/LCY x 1,100 LCY = $1,474.00
Basic Rock Haul cost: $0.74/LCY x 1,100 LCY = $814.00

Rock Haul +15% grades: $2.21/LCY-mi x 1,100 LCY x 4.50 mi= $10,939.50
Rock Haul -15% grades: $1.10/LCY-mi x 1,100 LCY x 4.90 mi= $5,929.00
Rock Haul St& Co Roads: $0.49/LCY-mi x 1,100 LCY x 17.40 mi= $9,378.60
Basic Water Haul cost: $0.60/LCY x 1,100 LCY = $660.00
Water Haul +15% grades: $0.28/LCY-mi x 1,100 LCY x 1.00 mi= $308.00
Water Haul -15% grades: $0.14/LCY-mi x 1,100 LCY x 2.00 mi= $308.00
Water Haul St&Co Roads: $0.08/LCY-mi x 1,100 LCY x 0.00 mi= $0.00

Subtotal: $67,231.66

Section 1300 Geotextiles:

Subtotal: $0.00

Section 1400 Slope Protection:
Rock Source: S. Floras CR-RIPRAP
Purchase Price / Royalty: $10.00/cy x 19cy = $190.00
Furnish Class 3 type rock
Basic Rock Haul cost: $1.35/cy x 19cy = $25.65
Rock Haul +15% grades: $2.69/cy-mi x 19cy x 4.50 mi= $230.00
Rock Haul -15% grades: $1.35/cy-mi x 19cy x 4.90 mi= $125.69
Rock Haul St& Co Roads: $0.60/cy-mi x 19cy x 17.40 mi= $198.36
Placement on Fill slopes: 19cy x ($2.85/cy x 1.04) = $56.32

Subtotal: $826.01

Section 1800 Soil Stabilization:
Dry Method with Mulch: $415.92/acre x 0.77 acres = $320.26
Includes Small Quantity Factor of 1.09
+ Seed Cost: $132.00/acre x 0.77 acres = $101.64
+ Fertilizer Cost: $34.00/acre x 0.77 acres = $26.18
+ Mulch Cost: $320.00/acre x 0.77 acres = $246.40

Subtotal: $694.48

Section 1900 Cattleguards:

Subtotal: $0.00

Section 2100 Roadside Brushing:

Subtotal: $0.00

Section 2300 Engineering:
Both Sides Normal: $148.84/sta x 18.10 sta = $2,694.00

Subtotal: $2,694.00

Section 2400 Minor Concrete:

Subtotal: $0.00

Section 2500 Gabions:

Subtotal: $0.00

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
Construction - 23.33% of total Costs = $3,002.00
Surfacing - 25.79% by rock volume = $1,314.10

Subtotal: $4,316.10

Quarry Development:
Based on 25.79% of total rock volume

Subtotal: $0.00

Total: $108,190.99

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: 31-14-29.11 Road Name: 04-3
Road Construction: 0.24 mi 16 ft Subgrade 2 ft ditch 4/13/2016

200 Clearing and Grubbing: 1.4 acres	$3,665.09
300 Excavation: 2,533 cy	$9,812.68
Haul < 500 ft: 438 sta-yds	
Haul > 500 ft: 832 yd-mi	
400 Drainage:	$4,307.58
Culvert: 0 lf	
DownSpout: 0 lf	
PolyPipe: 72 lf	
500 Renovation:	$0.00
700-1200 Surfacing:	$39,042.96
Quarry Name: S. Floras CR-SURFACE 254 LCY	
Quarry Name: S. Floras CR-BASE 710 LCY	
1300 Geotextiles:	$0.00
1400 Slope Protection:	$347.79
Gradation Class 3: 8 cy	
1800 Soil Stabilization: 0.4 acres	$396.84
Includes Small Quantity Factor of 1.09	
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.0 acres	$0.00
2300 Engineering: 12.80 sta.	$1,905.15
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $1,718.93 Surf. $763.13	$2,482.06
Quarry Development:	$0.00
Total:	$61,960.15

Notes:
- Quantities shown are estimates only and not pay items.
- Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: 31-14-29.11 Road Name: 04-3

Section 200 Clearing and Grubbing:
Clearing - Medium (Clearing): Adjustment Factor (1.67)
31-45% (Avg Side Slopes): Adjustment Factor (0.2)
Windrow (Slash): Adjustment Factor (1.07)
20-40' (Avg Clearing Widths): Adjustment Factor (0.1)
Total Adjustment Factor:1.67 + 0.2 + 1.07 + 0.1 = 3.04
Base Cost/Acre: $855.05 x Adjustment Factor: 3.04 x Total Acres: 1.41 = $3,665.09

Subtotal: $3,665.09

Section 300 Excavation:
Excavation - Common: $1.93/cy x 2,533 cy = $4,888.69
Embankment Placement & Compaction 306.f - Common: $0.26/cy x 2,230 cy = $579.80
Subgrade Compaction: 4 Sta/hr $33.62/sta. x 13.2 sta = $444.46
End Hauling - 100 to 500 ft: $0.15/sta-yd x 438 sta-yd = $65.70
End Hauling > 500 ft and 10 mph: $2.69/yd-mi x 416 yd-mi = $1,119.04
End Hauling > 500 ft and 20 mph: $1.35/yd-mi x 416 yd-mi = $561.60
Blading with ditch: $14.45/station x 13.22 stations = $191.03
SUBGRADE
Tractor: D7 with rippers 12 hr x $163.53/hr = $1,962.36

Subtotal: $9,812.68

Section 400 Drainage:
Poly Pipe 0+00 18 inch 30 lf x $44.98/lf = $1,349.40
Poly Pipe 4+00 24 inch 42 lf x $63.29/lf = $2,658.18
CULVERTS
CULVERT BEDDING 8 LCY x $25.00/LCY = $200.00
CULVERT MARKERS 2 EA x $50.00/EA = $100.00

Subtotal: $4,307.58

Section 500 Renovation:

Subtotal: $0.00

Section 700-1200 Surfacing:

Commercial Quarry Name: S. Floras CR-SURFACE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									254 LCY

Rock Volume = 254 LCY
Purchase Price / Royalty: $12.50/LCY x 254 LCY = $3,175.00
Processing: $0.90/LCY x 254 LCY = $228.60
Compaction: $1.34/LCY x 254 LCY = $340.36
Basic Rock Haul cost: $0.74/LCY x 254 LCY = $187.96
Rock Haul +15% grades: $2.21/LCY-mi x 254 LCY x 4.50 mi= $2,526.03
Rock Haul -15% grades: $1.10/LCY-mi x 254 LCY x 4.90 mi= $1,369.06
Rock Haul St& Co Roads: $0.49/LCY-mi x 254 LCY x 17.40 mi= $2,165.60
Basic Water Haul cost: $0.60/LCY x 254 LCY = $152.40
Water Haul +15% grades: $0.28/LCY-mi x 254 LCY x 1.00 mi= $71.12
Water Haul -15% grades: $0.14/LCY-mi x 254 LCY x 2.00 mi= $71.12
Water Haul St&Co Roads: $0.08/LCY-mi x 254 LCY x 0.00 mi= $0.00

Commercial Quarry Name: S. Floras CR-BASE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									710 LCY

Rock Volume = 710 LCY
Purchase Price / Royalty: $12.50/LCY x 710 LCY = $8,875.00
Processing: $0.90/LCY x 710 LCY = $639.00
Compaction: $1.34/LCY x 710 LCY = $951.40
Basic Rock Haul cost: $0.74/LCY x 710 LCY = $525.40
Rock Haul +15% grades: $2.21/LCY-mi x 710 LCY x 4.50 mi= $7,060.95

Rock Haul -15% grades: $1.10/LCY-mi x 710 LCY x 4.90 mi= $3,826.90
Rock Haul St& Co Roads: $0.49/LCY-mi x 710 LCY x 17.40 mi= $6,053.46
Basic Water Haul cost: $0.60/LCY x 710 LCY = $426.00
Water Haul +15% grades: $0.28/LCY-mi x 710 LCY x 1.00 mi= $198.80
Water Haul -15% grades: $0.14/LCY-mi x 710 LCY x 2.00 mi= $198.80
Water Haul St&Co Roads: $0.08/LCY-mi x 710 LCY x 0.00 mi= $0.00

Subtotal: $39,042.96

Section 1300 Geotextiles:

Subtotal: $0.00

Section 1400 Slope Protection:
Rock Source: S. Floras CR-RIPRAP
Purchase Price / Royalty: $10.00/cy x 8cy = $80.00
Furnish Class 3 type rock
Basic Rock Haul cost: $1.35/cy x 8cy = $10.80
Rock Haul +15% grades: $2.69/cy-mi x 8cy x 4.50 mi= $96.84
Rock Haul -15% grades: $1.35/cy-mi x 8cy x 4.90 mi= $52.92
Rock Haul St& Co Roads: $0.60/cy-mi x 8cy x 17.40 mi= $83.52
Placement on Fill slopes: 8cy x ($2.85/cy x 1.04) = $23.71

Subtotal: $347.79

Section 1800 Soil Stabilization:
Dry Method with Mulch: $415.92/acre x 0.44 acres = $183.00
Includes Small Quantity Factor of 1.09
+ Seed Cost: $132.00/acre x 0.44 acres = $58.08
+ Fertilizer Cost: $34.00/acre x 0.44 acres = $14.96
+ Mulch Cost: $320.00/acre x 0.44 acres = $140.80

Subtotal: $396.84

Section 1900 Cattleguards:

Subtotal: $0.00

Section 2100 Roadside Brushing:

Subtotal: $0.00

Section 2300 Engineering:
Both Sides Normal: $148.84/sta x 12.80 sta = $1,905.15

Subtotal: $1,905.15

Section 2400 Minor Concrete:

Subtotal: $0.00

Section 2500 Gabions:

Subtotal: $0.00

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
Construction - 13.36% of total Costs = $1,718.93
Surfacing - 14.98% by rock volume = $763.13

Subtotal: $2,482.06

Quarry Development:
Based on 14.98% of total rock volume

Subtotal: $0.00

Total: $61,960.15

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: 31-14-29.12 Road Name: 04-7
Road Construction: 0.15 mi 16 ft Subgrade 2 ft ditch 4/13/2016

200 Clearing and Grubbing: 0.9 acres	$2,339.42
300 Excavation: 925 cy	$4,934.91
Haul > 500 ft: 526 yd-mi	
400 Drainage:	$0.00
Culvert: 0 lf	
DownSpout: 0 lf	
PolyPipe: 0 lf	
500 Renovation:	$0.00
700-1200 Surfacing:	$25,313.13
Quarry Name: S. Floras CR-SURFACE 155 LCY	
Quarry Name: S. Floras CR-BASE 470 LCY	
1300 Geotextiles:	$0.00
1400 Slope Protection:	$0.00
1800 Soil Stabilization: 0.2 acres	$216.46
Includes Small Quantity Factor of 1.09	
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.0 acres	$0.00
2300 Engineering: 7.90 sta.	$1,175.84
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $982.02 Surf. $494.77	$1,476.79
Quarry Development:	$0.00
Total:	$35,456.54

Notes:
Quantities shown are estimates only and not pay items.
Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: 31-14-29.12 Road Name: 04-7

Section 200 Clearing and Grubbing:
Clearing - Medium (Clearing): Adjustment Factor (1.67)
31-45% (Avg Side Slopes): Adjustment Factor (0.2)
Windrow (Slash): Adjustment Factor (1.07)
20-40' (Avg Clearing Widths): Adjustment Factor (0.1)
Total Adjustment Factor:1.67 + 0.2 + 1.07 + 0.1 = 3.04
Base Cost/Acre: $855.05 x Adjustment Factor: 3.04 x Total Acres: 0.90 = $2,339.42

Subtotal: $2,339.42

Section 300 Excavation:
Excavation - Common: $1.93/cy x 925 cy = $1,785.25
Embankment Placement & Compaction 306.f - Common: $0.26/cy x 1,452 cy = $377.52
Subgrade Compaction: 4 Sta/hr $33.62/sta. x 8.4 sta = $280.73
End Hauling > 500 ft and 10 mph: $2.69/yd-mi x 263 yd-mi = $707.47
End Hauling > 500 ft and 20 mph: $1.35/yd-mi x 263 yd-mi = $355.05
Blading with ditch: $14.45/station x 8.35 stations = $120.66
SUBGRADE
Tractor: D7 with rippers 8 hr x $163.53/hr = $1,308.24

Subtotal: $4,934.91

Section 400 Drainage:

Subtotal: $0.00

Section 500 Renovation:

Subtotal: $0.00

Section 700-1200 Surfacing:

Commercial Quarry Name: S. Floras CR-SURFACE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									155 LCY

Rock Volume = 155 LCY
Purchase Price / Royalty: $12.50/LCY x 155 LCY = $1,937.50
Processing: $0.90/LCY x 155 LCY = $139.50
Compaction: $1.34/LCY x 155 LCY = $207.70
Basic Rock Haul cost: $0.74/LCY x 155 LCY = $114.70
Rock Haul +15% grades: $2.21/LCY-mi x 155 LCY x 4.50 mi= $1,541.48
Rock Haul -15% grades: $1.10/LCY-mi x 155 LCY x 4.90 mi= $835.45
Rock Haul St& Co Roads: $0.49/LCY-mi x 155 LCY x 17.40 mi= $1,321.53
Basic Water Haul cost: $0.60/LCY x 155 LCY = $93.00
Water Haul +15% grades: $0.28/LCY-mi x 155 LCY x 1.00 mi= $43.40
Water Haul -15% grades: $0.14/LCY-mi x 155 LCY x 2.00 mi= $43.40
Water Haul St&Co Roads: $0.08/LCY-mi x 155 LCY x 0.00 mi= $0.00

Commercial Quarry Name: S. Floras CR-BASE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									470 LCY

Rock Volume = 470 LCY
Purchase Price / Royalty: $12.50/LCY x 470 LCY = $5,875.00
Processing: $0.90/LCY x 470 LCY = $423.00
Compaction: $1.34/LCY x 470 LCY = $629.80
Basic Rock Haul cost: $0.74/LCY x 470 LCY = $347.80
Rock Haul +15% grades: $2.21/LCY-mi x 470 LCY x 4.50 mi= $4,674.15
Rock Haul -15% grades: $1.10/LCY-mi x 470 LCY x 4.90 mi= $2,533.30
Rock Haul St& Co Roads: $0.49/LCY-mi x 470 LCY x 17.40 mi= $4,007.22
Basic Water Haul cost: $0.60/LCY x 470 LCY = $282.00
Water Haul +15% grades: $0.28/LCY-mi x 470 LCY x 1.00 mi= $131.60
Water Haul -15% grades: $0.14/LCY-mi x 470 LCY x 2.00 mi= $131.60
Water Haul St&Co Roads: $0.08/LCY-mi x 470 LCY x 0.00 mi= $0.00

Subtotal: $25,313.13

Section 1300 Geotextiles:

Subtotal: $0.00

Section 1400 Slope Protection:

Subtotal: $0.00

Section 1800 Soil Stabilization:
  Dry Method with Mulch: $415.92/acre x 0.24 acres = $99.82
        Includes Small Quantity Factor of 1.09
        + Seed Cost: $132.00/acre x 0.24 acres = $31.68
        + Fertilizer Cost: $34.00/acre x 0.24 acres = $8.16
        + Mulch Cost: $320.00/acre x 0.24 acres = $76.80

Subtotal: $216.46

Section 1900 Cattleguards:

Subtotal: $0.00

Section 2100 Roadside Brushing:

Subtotal: $0.00

Section 2300 Engineering:
  Both Sides Normal: $148.84/sta x 7.90 sta = $1,175.84

Subtotal: $1,175.84

Section 2400 Minor Concrete:

Subtotal: $0.00

Section 2500 Gabions:

Subtotal: $0.00

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
  Construction - 7.63% of total Costs = $982.02
  Surfacing - 9.71% by rock volume = $494.77

Subtotal: $1,476.79

Quarry Development:
  Based on 9.71% of total rock volume

Subtotal: $0.00

Total: $35,456.54

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: 31-14-29.4 B Road Name:
Road Improvement: 0.04 mi 16 ft Subgrade 2 ft ditch 4/13/2016

200 Clearing and Grubbing: acres	$0.00
300 Excavation:	$0.00
400 Drainage:	$0.00
Culvert: 0 lf	
DownSpout: 0 lf	
PolyPipe: 0 lf	
500 Renovation:	$60.52
Blading 0.03 mi	
700-1200 Surfacing:	$4,455.11
Quarry Name: S. Floras CR-SURFACE 33 LCY	
Quarry Name: S. Floras CR-BASE 77 LCY	
1300 Geotextiles:	$0.00
1400 Slope Protection:	$0.00
1800 Soil Stabilization: 0.0 acres	$0.00
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.0 acres	$0.00
2300 Engineering: 0.00 sta.	$0.00
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $130.50 Surf. $87.08	$217.58
Quarry Development:	$0.00
Total:	$4,733.21

Notes:
- Quantities shown are estimates only and not pay items.
- Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: 31-14-29.4 B Road Name:

Section 200 Clearing and Grubbing:

Subtotal: $0.00

Section 300 Excavation:

Subtotal: $0.00

Section 400 Drainage:

Subtotal: $0.00

Section 500 Renovation:
Blading: $720.50/mi x 0.03 mi = $21.62
Scarification: $893.46/mi x 0.03 mi = $26.80
Compaction: $403.47/mi x 0.03 mi = $12.10

Subtotal: $60.52

Section 700-1200 Surfacing:

Commercial Quarry Name: S. Floras CR-SURFACE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
0.03mi	12ft	13.33ft	4in	0%					

Rock Volume = 33 LCY
Purchase Price / Royalty: $12.50/LCY x 33 LCY = $412.50
Processing: $0.90/LCY x 33 LCY = $29.70
Compaction: $1.34/LCY x 33 LCY = $44.22
Basic Rock Haul cost: $0.74/LCY x 33 LCY = $24.42
Rock Haul +15% grades: $2.21/LCY-mi x 33 LCY x 4.50 mi= $328.19
Rock Haul -15% grades: $1.10/LCY-mi x 33 LCY x 4.90 mi= $177.87
Rock Haul St& Co Roads: $0.49/LCY-mi x 33 LCY x 17.40 mi= $281.36
Basic Water Haul cost: $0.60/LCY x 33 LCY = $19.80
Water Haul +15% grades: $0.28/LCY-mi x 33 LCY x 1.00 mi= $9.24
Water Haul -15% grades: $0.14/LCY-mi x 33 LCY x 2.00 mi= $9.24

Commercial Quarry Name: S. Floras CR-BASE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
0.03mi	13.33ft	16ft	8in	0%					

Rock Volume = 77 LCY
Purchase Price / Royalty: $12.50/LCY x 77 LCY = $962.50
Processing: $0.90/LCY x 77 LCY = $69.30
Compaction: $1.34/LCY x 77 LCY = $103.18
Basic Rock Haul cost: $0.74/LCY x 77 LCY = $56.98
Rock Haul +15% grades: $2.21/LCY-mi x 77 LCY x 4.50 mi= $765.77
Rock Haul -15% grades: $1.10/LCY-mi x 77 LCY x 4.90 mi= $415.03
Rock Haul St& Co Roads: $0.49/LCY-mi x 77 LCY x 17.40 mi= $656.50
Basic Water Haul cost: $0.60/LCY x 77 LCY = $46.20
Water Haul +15% grades: $0.28/LCY-mi x 77 LCY x 1.00 mi= $21.56
Water Haul -15% grades: $0.14/LCY-mi x 77 LCY x 2.00 mi= $21.56

Subtotal: $4,455.11

Section 1300 Geotextiles:

Subtotal: $0.00

Section 1400 Slope Protection:

Subtotal: $0.00

Section 1800 Soil Stabilization:

Subtotal: $0.00

Section 1900 Cattleguards:

Subtotal: $0.00

Section 2100 Roadside Brushing:

Subtotal: $0.00

Section 2300 Engineering:

Subtotal: $0.00

Section 2400 Minor Concrete:

Subtotal: $0.00

Section 2500 Gabions:

Subtotal: $0.00

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
  Construction - 1.01% of total Costs = $130.50
  Surfacing - 1.71% by rock volume = $87.08

Subtotal: $217.58

Quarry Development:
  Based on 1.71% of total rock volume

Subtotal: $0.00

Total: $4,733.21

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: 31-14-29.6 Road Name: 08-2
Road Construction: 0.34 mi 16 ft Subgrade 2 ft ditch 4/13/2016

200 Clearing and Grubbing: 2.1 acres	$5,354.67
300 Excavation: 5,692 cy	$16,761.09
Haul < 500 ft: 1,115 sta-yds	
Haul > 500 ft: 2,004 yd-mi	
400 Drainage:	$12,009.60
Culvert: 0 lf	
DownSpout: 0 lf	
PolyPipe: 220 lf	
500 Renovation:	$0.00
700-1200 Surfacing:	$54,190.34
Quarry Name: S. Floras CR-SURFACE 369 LCY	
Quarry Name: S. Floras CR-BASE 969 LCY	
1300 Geotextiles:	$0.00
1400 Slope Protection:	$1,130.32
Gradation Class 3: 26 cy	
1800 Soil Stabilization: 0.8 acres	$721.54
Includes Small Quantity Factor of 1.09	
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.0 acres	$0.00
2300 Engineering: 0.00 sta.	$0.00
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $2,605.86 Surf. $1,059.19	$3,665.05
Quarry Development:	$0.00
Total:	$93,832.61

Notes:
- Quantities shown are estimates only and not pay items.
- Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: 31-14-29.6 Road Name: 08-2

Section 200 Clearing and Grubbing:
Clearing - Medium (Clearing): Adjustment Factor (1.67)
31-45% (Avg Side Slopes): Adjustment Factor (0.2)
Windrow (Slash): Adjustment Factor (1.07)
20-40' (Avg Clearing Widths): Adjustment Factor (0.1)
Total Adjustment Factor:1.67 + 0.2 + 1.07 + 0.1 = 3.04
Base Cost/Acre: $855.05 x Adjustment Factor: 3.04 x Total Acres: 2.06 = $5,354.67

Subtotal: $5,354.67

Section 300 Excavation:
Excavation - Common: $1.93/cy x 5,692 cy = $10,985.56
Embankment Placement & Compaction 306.f - Common: $0.26/cy x 2,573 cy = $668.98
Subgrade Compaction: 4 Sta/hr $33.62/sta. x 18.5 sta = $623.31
End Hauling - 100 to 500 ft: $0.15/sta-yd x 1,115 sta-yd = $167.25
End Hauling > 500 ft and 10 mph: $2.69/yd-mi x 1,002 yd-mi = $2,695.38
End Hauling > 500 ft and 20 mph: $1.35/yd-mi x 1,002 yd-mi = $1,352.70
Blading with ditch: $14.45/station x 18.54 stations = $267.90

Subtotal: $16,761.09

Section 400 Drainage:

Poly Pipe	1+19	18 inch 30 lf x $44.98/lf = $1,349.40
Poly Pipe	10+00	18 inch 30 lf x $44.98/lf = $1,349.40
Poly Pipe	13+82	18 inch 30 lf x $44.98/lf = $1,349.40
Poly Pipe	16+72	18 inch 30 lf x $44.98/lf = $1,349.40
Poly Pipe	2+92	18 inch 30 lf x $44.98/lf = $1,349.40
Poly Pipe	4+42	36 inch 40 lf x $81.58/lf = $3,263.20
Poly Pipe	6+97	18 inch 30 lf x $44.98/lf = $1,349.40

CULVERTS
MARKERS 7 EA x $50.00/EA = $350.00
BEDDING 12 LCY x $25.00/LCY = $300.00

Subtotal: $12,009.60

Section 500 Renovation:

Subtotal: $0.00

Section 700-1200 Surfacing:

Commercial Quarry Name: S. Floras CR-SURFACE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									369 LCY

Rock Volume = 369 LCY
Purchase Price / Royalty: $12.50/LCY x 369 LCY = $4,612.50
Processing: $0.90/LCY x 369 LCY = $332.10
Compaction: $1.34/LCY x 369 LCY = $494.46
Basic Rock Haul cost: $0.74/LCY x 369 LCY = $273.06
Rock Haul +15% grades: $2.21/LCY-mi x 369 LCY x 4.50 mi= $3,669.71
Rock Haul -15% grades: $1.10/LCY-mi x 369 LCY x 4.90 mi= $1,988.91
Rock Haul St& Co Roads: $0.49/LCY-mi x 369 LCY x 17.40 mi= $3,146.09
Basic Water Haul cost: $0.60/LCY x 369 LCY = $221.40
Water Haul +15% grades: $0.28/LCY-mi x 369 LCY x 1.00 mi= $103.32
Water Haul -15% grades: $0.14/LCY-mi x 369 LCY x 2.00 mi= $103.32
Water Haul St&Co Roads: $0.08/LCY-mi x 369 LCY x 0.00 mi= $0.00

Commercial Quarry Name: S. Floras CR-BASE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									969 LCY

Rock Volume = 969 LCY
Purchase Price / Royalty: $12.50/LCY x 969 LCY = $12,112.50
Processing: $0.90/LCY x 969 LCY = $872.10

Compaction: $1.34/LCY x 969 LCY = $1,298.46
Basic Rock Haul cost: $0.74/LCY x 969 LCY = $717.06
Rock Haul +15% grades: $2.21/LCY-mi x 969 LCY x 4.50 mi= $9,636.71
Rock Haul -15% grades: $1.10/LCY-mi x 969 LCY x 4.90 mi= $5,222.91
Rock Haul St& Co Roads: $0.49/LCY-mi x 969 LCY x 17.40 mi= $8,261.69
Basic Water Haul cost: $0.60/LCY x 969 LCY = $581.40
Water Haul +15% grades: $0.28/LCY-mi x 969 LCY x 1.00 mi= $271.32
Water Haul -15% grades: $0.14/LCY-mi x 969 LCY x 2.00 mi= $271.32
Water Haul St&Co Roads: $0.08/LCY-mi x 969 LCY x 0.00 mi= $0.00

Subtotal: $54,190.34

Section 1300 Geotextiles:

Subtotal: $0.00

Section 1400 Slope Protection:
Rock Source: S. Floras CR-RIPRAP
Purchase Price / Royalty: $10.00/cy x 26cy = $260.00
Furnish Class 3 type rock
Basic Rock Haul cost: $1.35/cy x 26cy = $35.10
Rock Haul +15% grades: $2.69/cy-mi x 26cy x 4.50 mi= $314.73
Rock Haul -15% grades: $1.35/cy-mi x 26cy x 4.90 mi= $171.99
Rock Haul St& Co Roads: $0.60/cy-mi x 26cy x 17.40 mi= $271.44
Placement on Fill slopes: 26cy x ($2.85/cy x 1.04) = $77.06

Subtotal: $1,130.32

Section 1800 Soil Stabilization:
Dry Method with Mulch: $415.92/acre x 0.80 acres = $332.74
Includes Small Quantity Factor of 1.09
+ Seed Cost: $132.00/acre x 0.80 acres = $105.60
+ Fertilizer Cost: $34.00/acre x 0.80 acres = $27.20
+ Mulch Cost: $320.00/acre x 0.80 acres = $256.00

Subtotal: $721.54

Section 1900 Cattleguards:

Subtotal: $0.00

Section 2100 Roadside Brushing:

Subtotal: $0.00

Section 2300 Engineering:

Subtotal: $0.00

Section 2400 Minor Concrete:

Subtotal: $0.00

Section 2500 Gabions:

Subtotal: $0.00

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
Construction - 20.25% of total Costs = $2,605.86
Surfacing - 20.79% by rock volume = $1,059.19

Subtotal: $3,665.05

Quarry Development:
Based on 20.79% of total rock volume

Subtotal: $0.00

Total: $93,832.61

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: 31-14-29.7 Road Name: 06-2
Road Construction: 0.08 mi 14 ft Subgrade 0 ft ditch 4/13/2016

200 Clearing and Grubbing: 0.5 acres	$1,325.67
300 Excavation: 1,027 cy	$3,124.37
400 Drainage:	$0.00
Culvert: 0 lf	
DownSpout: 0 lf	
PolyPipe: 0 lf	
500 Renovation:	$0.00
700-1200 Surfacing:	$0.00
1300 Geotextiles:	$0.00
1400 Slope Protection:	$0.00
1800 Soil Stabilization: 0.3 acres	$270.58
Includes Small Quantity Factor of 1.09	
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.0 acres	$0.00
2300 Engineering: 0.00 sta.	$0.00
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $136.43 Surf. $0.00	$136.43
Quarry Development:	$0.00
Total:	$4,857.04

Notes:
Quantities shown are estimates only and not pay items.
Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: 31-14-29.7 Road Name: 06-2

Section 200 Clearing and Grubbing:
Clearing - Medium (Clearing): Adjustment Factor (1.67)
31-45% (Avg Side Slopes): Adjustment Factor (0.2)
Windrow (Slash): Adjustment Factor (1.07)
20-40' (Avg Clearing Widths): Adjustment Factor (0.1)
Total Adjustment Factor:1.67 + 0.2 + 1.07 + 0.1 = 3.04
Base Cost/Acre: $855.05 x Adjustment Factor: 3.04 x Total Acres: 0.51 = $1,325.67
Subtotal: $1,325.67

Section 300 Excavation:
Excavation - Common: $1.93/cy x 1,027 cy = $1,982.11
Embankment Placement & Compaction 306.f - Common: $0.26/cy x 1,027 cy = $267.02
Subgrade Compaction: 4 Sta/hr $33.62/sta. x 4.6 sta = $154.65
Blading with ditch: $14.45/station x 4.60 stations = $66.47
SUBGRADE
Tractor: D7 with rippers 4 hr x $163.53/hr = $654.12
Subtotal: $3,124.37

Section 400 Drainage:
Subtotal: $0.00

Section 500 Renovation:
Subtotal: $0.00

Section 700-1200 Surfacing:
Surfacing:
Subtotal: $0.00

Section 1300 Geotextiles:
Subtotal: $0.00

Section 1400 Slope Protection:
Subtotal: $0.00

Section 1800 Soil Stabilization:
Dry Method with Mulch: $415.92/acre x 0.30 acres = $124.78
Includes Small Quantity Factor of 1.09
+ Seed Cost: $132.00/acre x 0.30 acres = $39.60
+ Fertilizer Cost: $34.00/acre x 0.30 acres = $10.20
+ Mulch Cost: $320.00/acre x 0.30 acres = $96.00
Subtotal: $270.58

Section 1900 Cattleguards:
Subtotal: $0.00

Section 2100 Roadside Brushing:
Subtotal: $0.00

Section 2300 Engineering:
Subtotal: $0.00

Section 2400 Minor Concrete:
Subtotal: $0.00

Section 2500 Gabions:
Subtotal: $0.00

Road Number: 31-14-29.7 06-2 Continued

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
  Construction - 1.06% of total Costs = $136.43
  Surfacing - 0.00% by rock volume = $0.00

Subtotal: $136.43

Quarry Development:
  Based on 0.00% of total rock volume

Subtotal: $0.00

Total: $4,857.04

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: 31-14-29.8 Road Name: 07-2
Road Construction: 0.22 mi 16 ft Subgrade 2 ft ditch 4/13/2016

200 Clearing and Grubbing: 1.9 acres	$4,860.79
300 Excavation: 4,043 cy Haul < 500 ft: 672 sta-yds Haul > 500 ft: 1,799 yd-mi	$13,277.02
400 Drainage: Culvert: 0 lf DownSpout: 0 lf PolyPipe: 0 lf	$0.00
500 Renovation:	$0.00
700-1200 Surfacing:	$0.00
1300 Geotextiles:	$0.00
1400 Slope Protection:	$0.00
1800 Soil Stabilization: 1.3 acres Includes Small Quantity Factor of 1.09	$1,172.50
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.0 acres	$0.00
2300 Engineering: 0.00 sta.	$0.00
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $558.07 Surf. $0.00	$558.07
Quarry Development:	$0.00
Total:	$19,868.38

Notes:
Quantities shown are estimates only and not pay items.
Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: 31-14-29.8 Road Name: 07-2

Section 200 Clearing and Grubbing:
   Clearing - Medium (Clearing): Adjustment Factor (1.67)
   31-45% (Avg Side Slopes): Adjustment Factor (0.2)
   Windrow (Slash): Adjustment Factor (1.07)
   20-40' (Avg Clearing Widths): Adjustment Factor (0.1)
   Total Adjustment Factor:1.67 + 0.2 + 1.07 + 0.1 = 3.04
   Base Cost/Acre: $855.05 x Adjustment Factor: 3.04 x Total Acres: 1.87 = $4,860.79
Subtotal: $4,860.79

Section 300 Excavation:
  Excavation - Common: $1.93/cy x 4,043 cy = $7,802.99
  Embankment Placement & Compaction 306.f - Common: $0.26/cy x 4,043 cy = $1,051.18
  Subgrade Compaction: 4 Sta/hr $33.62/sta. x 14.3 sta = $480.77
  End Hauling - 100 to 500 ft: $0.15/sta-yd x 672 sta-yd = $100.80
  End Hauling > 500 ft and 10 mph: $2.69/yd-mi x 900 yd-mi = $2,421.00
  End Hauling > 500 ft and 20 mph: $1.35/yd-mi x 899 yd-mi = $1,213.65
  Blading with ditch: $14.45/station x 14.30 stations = $206.64
Subtotal: $13,277.02

Section 400 Drainage:
Subtotal: $0.00

Section 500 Renovation:
Subtotal: $0.00

Section 700-1200 Surfacing:
Surfacing:
Subtotal: $0.00

Section 1300 Geotextiles:
Subtotal: $0.00

Section 1400 Slope Protection:
Subtotal: $0.00

Section 1800 Soil Stabilization:
  Dry Method with Mulch: $415.92/acre x 1.30 acres = $540.70
        Includes Small Quantity Factor of 1.09
        + Seed Cost: $132.00/acre x 1.30 acres = $171.60
        + Fertilizer Cost: $34.00/acre x 1.30 acres = $44.20
        + Mulch Cost: $320.00/acre x 1.30 acres = $416.00
Subtotal: $1,172.50

Section 1900 Cattleguards:
Subtotal: $0.00

Section 2100 Roadside Brushing:
Subtotal: $0.00

Section 2300 Engineering:
Subtotal: $0.00

Section 2400 Minor Concrete:
Subtotal: $0.00

Section 2500 Gabions:
Subtotal: $0.00

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
  Construction - 4.34% of total Costs = $558.07
  Surfacing - 0.00% by rock volume = $0.00

Subtotal: $558.07

Quarry Development:
  Based on 0.00% of total rock volume

Subtotal: $0.00

Total: $19,868.38

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: 31-14-29.9 Road Name: 05-1
Road Construction: 0.11 mi 16 ft Subgrade 2 ft ditch 4/13/2016

200 Clearing and Grubbing: 0.7 acres	$1,819.55
300 Excavation: 1,845 cy	$5,145.12
400 Drainage:	$0.00
Culvert: 0 lf	
DownSpout: 0 lf	
PolyPipe: 0 lf	
500 Renovation:	$0.00
700-1200 Surfacing:	$0.00
1300 Geotextiles:	$0.00
1400 Slope Protection:	$0.00
1800 Soil Stabilization: 0.4 acres	$360.77
Includes Small Quantity Factor of 1.09	
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.0 acres	$0.00
2300 Engineering: 0.00 sta.	$0.00
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $211.71 Surf. $0.00	$211.71
Quarry Development:	$0.00
Total:	$7,537.14

Notes:
Quantities shown are estimates only and not pay items.
Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: 31-14-29.9 Road Name: 05-1

Section 200 Clearing and Grubbing:
   Clearing - Medium (Clearing): Adjustment Factor (1.67)
   31-45% (Avg Side Slopes): Adjustment Factor (0.2)
   Windrow (Slash): Adjustment Factor (1.07)
   20-40' (Avg Clearing Widths): Adjustment Factor (0.1)
   Total Adjustment Factor:1.67 + 0.2 + 1.07 + 0.1 = 3.04
   Base Cost/Acre: $855.05 x Adjustment Factor: 3.04 x Total Acres: 0.70 = $1,819.55
Subtotal: $1,819.55

Section 300 Excavation:
  Excavation - Common: $1.93/cy x 1,845 cy = $3,560.85
  Embankment Placement & Compaction 306.f - Common: $0.26/cy x 1,793 cy = $466.18
  Subgrade Compaction: 4 Sta/hr $33.62/sta. x 6.3 sta = $210.13
  Blading with ditch: $14.45/station x 6.25 stations = $90.31
  SUBGRADE
   Tractor: D7 with rippers 5 hr x $163.53/hr = $817.65
Subtotal: $5,145.12

Section 400 Drainage:
Subtotal: $0.00

Section 500 Renovation:
Subtotal: $0.00

Section 700-1200 Surfacing:
Surfacing:
Subtotal: $0.00

Section 1300 Geotextiles:
Subtotal: $0.00

Section 1400 Slope Protection:
Subtotal: $0.00

Section 1800 Soil Stabilization:
  Dry Method with Mulch: $415.92/acre x 0.40 acres = $166.37
        Includes Small Quantity Factor of 1.09
        + Seed Cost: $132.00/acre x 0.40 acres = $52.80
        + Fertilizer Cost: $34.00/acre x 0.40 acres = $13.60
        + Mulch Cost: $320.00/acre x 0.40 acres = $128.00
Subtotal: $360.77

Section 1900 Cattleguards:
Subtotal: $0.00

Section 2100 Roadside Brushing:
Subtotal: $0.00

Section 2300 Engineering:
Subtotal: $0.00

Section 2400 Minor Concrete:
Subtotal: $0.00

Section 2500 Gabions:
Subtotal: $0.00

Road Number: 31-14-29.9 05-1 Continued

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
  Construction - 1.65% of total Costs = $211.71
  Surfacing - 0.00% by rock volume = $0.00

Subtotal: $211.71

Quarry Development:
  Based on 0.00% of total rock volume

Subtotal: $0.00

Total: $7,537.14

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: 31-14-30.0 Road Name: 03-1
Road Renovation: 0.13 mi 16 ft Subgrade 2 ft ditch 4/13/2016

200 Clearing and Grubbing: 0.3 acres	$857.79
300 Excavation: 158 cy	$1,153.87
400 Drainage:	$0.00
Culvert: 0 lf	
DownSpout: 0 lf	
PolyPipe: 0 lf	
500 Renovation:	$262.27
Blading 0.13 mi	
700-1200 Surfacing:	$0.00
1300 Geotextiles:	$0.00
1400 Slope Protection:	$0.00
1800 Soil Stabilization: 0.5 acres	$450.96
Includes Small Quantity Factor of 1.09	
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.1 acres	$46.13
2300 Engineering: 0.00 sta.	$0.00
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $80.08 Surf. $0.00	$80.08
Quarry Development:	$0.00
Total:	$2,851.10

Notes:
- Quantities shown are estimates only and not pay items.
- Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: 31-14-30.0 Road Name: 03-1

Section 200 Clearing and Grubbing:
   Clearing - Medium (Clearing): Adjustment Factor (1.67)
   31-45% (Avg Side Slopes): Adjustment Factor (0.2)
   Windrow (Slash): Adjustment Factor (1.07)
   20-40' (Avg Clearing Widths): Adjustment Factor (0.1)
   Total Adjustment Factor:1.67 + 0.2 + 1.07 + 0.1 = 3.04
   Base Cost/Acre: $855.05 x Adjustment Factor: 3.04 x Total Acres: 0.33 = $857.79
Subtotal: $857.79

Section 300 Excavation:
  Excavation - Common: $1.93/cy x 158 cy = $304.94
  Embankment Placement & Compaction 306.f - Common: $0.26/cy x 158 cy = $41.08
  Subgrade Compaction: 4 Sta/hr $33.62/sta. x 6.6 sta = $221.89
  Blading with ditch: $14.45/station x 6.60 stations = $95.37
  SUBGRADE
   Tractor: D7 with rippers 3 hr x $163.53/hr = $490.59
Subtotal: $1,153.87

Section 400 Drainage:
Subtotal: $0.00

Section 500 Renovation:
  Blading: $720.50/mi x 0.13 mi = $93.67
  Scarification: $893.46/mi x 0.13 mi = $116.15
  Compaction: $403.47/mi x 0.13 mi = $52.45
Subtotal: $262.27

Section 700-1200 Surfacing:
Surfacing:
Subtotal: $0.00

Section 1300 Geotextiles:
Subtotal: $0.00

Section 1400 Slope Protection:
Subtotal: $0.00

Section 1800 Soil Stabilization:
  Dry Method with Mulch: $415.92/acre x 0.50 acres = $207.96
        Includes Small Quantity Factor of 1.09
        + Seed Cost: $132.00/acre x 0.50 acres = $66.00
        + Fertilizer Cost: $34.00/acre x 0.50 acres = $17.00
        + Mulch Cost: $320.00/acre x 0.50 acres = $160.00
Subtotal: $450.96

Section 1900 Cattleguards:
Subtotal: $0.00

Section 2100 Roadside Brushing:
  RoadSide Brushing Medium: $576.60/acre x 0.08 acres = $46.13
Subtotal: $46.13

Section 2300 Engineering:
Subtotal: $0.00

Section 2400 Minor Concrete:
Subtotal: $0.00

Section 2500 Gabions:

Subtotal: $0.00

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
  Construction - 0.62% of total Costs = $80.08
  Surfacing - 0.00% by rock volume = $0.00

Subtotal: $80.08

Quarry Development:
  Based on 0.00% of total rock volume

Subtotal: $0.00

Total: $2,851.10

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: 31-14-30.1 Road Name: 03-2
Road Construction: 0.13 mi 16 ft Subgrade 2 ft ditch 4/13/2016

200 Clearing and Grubbing: 0.8 acres	$1,949.51
300 Excavation: 787 cy	$2,992.31
Haul > 500 ft: 410 yd-mi	
400 Drainage:	$0.00
Culvert: 0 lf	
DownSpout: 0 lf	
PolyPipe: 0 lf	
500 Renovation:	$0.00
700-1200 Surfacing:	$0.00
1300 Geotextiles:	$0.00
1400 Slope Protection:	$0.00
1800 Soil Stabilization: 0.7 acres	$631.34
Includes Small Quantity Factor of 1.09	
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.0 acres	$0.00
2300 Engineering: 0.00 sta.	$0.00
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $161.07 Surf. $0.00	$161.07
Quarry Development:	$0.00
Total:	$5,734.23

Notes:
Quantities shown are estimates only and not pay items.
Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: 31-14-30.1 Road Name: 03-2

Section 200 Clearing and Grubbing:
   Clearing - Medium (Clearing): Adjustment Factor (1.67)
   31-45% (Avg Side Slopes): Adjustment Factor (0.2)
   Windrow (Slash): Adjustment Factor (1.07)
   20-40' (Avg Clearing Widths): Adjustment Factor (0.1)
   Total Adjustment Factor:1.67 + 0.2 + 1.07 + 0.1 = 3.04
   Base Cost/Acre: $855.05 x Adjustment Factor: 3.04 x Total Acres: 0.75 = $1,949.51
Subtotal: $1,949.51

Section 300 Excavation:
  Excavation - Common: $1.93/cy x 787 cy = $1,518.91
  Embankment Placement & Compaction 306.f - Common: $0.26/cy x 1,167 cy = $303.42
  Subgrade Compaction: 4 Sta/hr $33.62/sta. x 7.1 sta = $239.04
  End Hauling > 500 ft and 10 mph: $2.69/yd-mi x 205 yd-mi = $551.45
  End Hauling > 500 ft and 20 mph: $1.35/yd-mi x 205 yd-mi = $276.75
  Blading with ditch: $14.45/station x 7.11 stations = $102.74
Subtotal: $2,992.31

Section 400 Drainage:
Subtotal: $0.00

Section 500 Renovation:
Subtotal: $0.00

Section 700-1200 Surfacing:
Surfacing:
Subtotal: $0.00

Section 1300 Geotextiles:
Subtotal: $0.00

Section 1400 Slope Protection:
Subtotal: $0.00

Section 1800 Soil Stabilization:
  Dry Method with Mulch: $415.92/acre x 0.70 acres = $291.14
        Includes Small Quantity Factor of 1.09
        + Seed Cost: $132.00/acre x 0.70 acres = $92.40
        + Fertilizer Cost: $34.00/acre x 0.70 acres = $23.80
        + Mulch Cost: $320.00/acre x 0.70 acres = $224.00
Subtotal: $631.34

Section 1900 Cattleguards:
Subtotal: $0.00

Section 2100 Roadside Brushing:
Subtotal: $0.00

Section 2300 Engineering:
Subtotal: $0.00

Section 2400 Minor Concrete:
Subtotal: $0.00

Section 2500 Gabions:
Subtotal: $0.00

Road Number: 31-14-30.1 03-2 Continued

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
  Construction - 1.25% of total Costs = $161.07
  Surfacing - 0.00% by rock volume = $0.00

Subtotal: $161.07

Quarry Development:
  Based on 0.00% of total rock volume

Subtotal: $0.00

Total: $5,734.23

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: 31-14-30.2 Road Name: 03-3
Road Construction: 0.20 mi 16 ft Subgrade 2 ft ditch 4/13/2016

200 Clearing and Grubbing: 1.4 acres	$3,587.11
300 Excavation: 4,784 cy Haul > 500 ft: 1,340 yd-mi	$13,604.35
400 Drainage: Culvert: 0 lf DownSpout: 0 lf PolyPipe: 0 lf	$0.00
500 Renovation:	$0.00
700-1200 Surfacing:	$0.00
1300 Geotextiles:	$0.00
1400 Slope Protection:	$0.00
1800 Soil Stabilization: 1.4 acres Includes Small Quantity Factor of 1.09	$1,244.65
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.0 acres	$0.00
2300 Engineering: 0.00 sta.	$0.00
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $532.81 Surf. $0.00	$532.81
Quarry Development:	$0.00
Total:	$18,968.91

Notes:
Quantities shown are estimates only and not pay items.
Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: 31-14-30.2 Road Name: 03-3

Section 200 Clearing and Grubbing:
   Clearing - Medium (Clearing): Adjustment Factor (1.67)
   31-45% (Avg Side Slopes): Adjustment Factor (0.2)
   Windrow (Slash): Adjustment Factor (1.07)
   20-40' (Avg Clearing Widths): Adjustment Factor (0.1)
   Total Adjustment Factor:1.67 + 0.2 + 1.07 + 0.1 = 3.04
   Base Cost/Acre: $855.05 x Adjustment Factor: 3.04 x Total Acres: 1.38 = $3,587.11
Subtotal: $3,587.11

Section 300 Excavation:
  Excavation - Common: $1.93/cy x 4,784 cy = $9,233.12
  Embankment Placement & Compaction 306.f - Common: $0.26/cy x 4,379 cy = $1,138.54
  Subgrade Compaction: 4 Sta/hr $33.62/sta. x 10.9 sta = $367.80
  End Hauling > 500 ft and 10 mph: $2.69/yd-mi x 670 yd-mi = $1,802.30
  End Hauling > 500 ft and 20 mph: $1.35/yd-mi x 670 yd-mi = $904.50
  Blading with ditch: $14.45/station x 10.94 stations = $158.08
Subtotal: $13,604.35

Section 400 Drainage:
Subtotal: $0.00

Section 500 Renovation:
Subtotal: $0.00

Section 700-1200 Surfacing:
Surfacing:
Subtotal: $0.00

Section 1300 Geotextiles:
Subtotal: $0.00

Section 1400 Slope Protection:
Subtotal: $0.00

Section 1800 Soil Stabilization:
  Dry Method with Mulch: $415.92/acre x 1.38 acres = $573.97
        Includes Small Quantity Factor of 1.09
        + Seed Cost: $132.00/acre x 1.38 acres = $182.16
        + Fertilizer Cost: $34.00/acre x 1.38 acres = $46.92
        + Mulch Cost: $320.00/acre x 1.38 acres = $441.60
Subtotal: $1,244.65

Section 1900 Cattleguards:
Subtotal: $0.00

Section 2100 Roadside Brushing:
Subtotal: $0.00

Section 2300 Engineering:
Subtotal: $0.00

Section 2400 Minor Concrete:
Subtotal: $0.00

Section 2500 Gabions:
Subtotal: $0.00

Road Number: 31-14-30.2 03-3 Continued

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
  Construction - 4.14% of total Costs = $532.81
  Surfacing - 0.00% by rock volume = $0.00

Subtotal: $532.81

Quarry Development:
  Based on 0.00% of total rock volume

Subtotal: $0.00

Total: $18,968.91

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: Spur 1A Road Name: 04-9
Road Construction: 0.05 mi 16 ft Subgrade 2 ft ditch 4/13/2016

200 Clearing and Grubbing: 0.4 acres	$1,065.73
300 Excavation: 1,396 cy	$3,517.65
400 Drainage:	$0.00
Culvert: 0 lf	
DownSpout: 0 lf	
PolyPipe: 0 lf	
500 Renovation:	$0.00
700-1200 Surfacing:	$9,153.23
Quarry Name: S. Floras CR-SURFACE 39 LCY	
Quarry Name: S. Floras CR-BASE 187 LCY	
1300 Geotextiles:	$0.00
1400 Slope Protection:	$0.00
1800 Soil Stabilization: 0.1 acres	$117.25
Includes Small Quantity Factor of 1.09	
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.0 acres	$0.00
2300 Engineering: 0.00 sta.	$0.00
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $400.38 Surf. $178.91	$579.29
Quarry Development:	$0.00
Total:	$14,433.15

Notes:
Quantities shown are estimates only and not pay items.
Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: Spur 1A Road Name: 04-9

Section 200 Clearing and Grubbing:
Clearing - Medium (Clearing): Adjustment Factor (1.67)
31-45% (Avg Side Slopes): Adjustment Factor (0.2)
Windrow (Slash): Adjustment Factor (1.07)
20-40' (Avg Clearing Widths): Adjustment Factor (0.1)
Total Adjustment Factor:1.67 + 0.2 + 1.07 + 0.1 = 3.04
Base Cost/Acre: $855.05 x Adjustment Factor: 3.04 x Total Acres: 0.41 = $1,065.73

Subtotal: $1,065.73

Section 300 Excavation:
Excavation - Common: $1.93/cy x 1,396 cy = $2,694.28
Embankment Placement & Compaction 306.f - Common: $0.26/cy x 1,345 cy = $349.70
Subgrade Compaction: 4 Sta/hr $33.62/sta. x 3.1 sta = $102.54
Blading with ditch: $14.45/station x 3.05 stations = $44.07
SUBGRADE
Tractor: D7 with rippers 2 hr x $163.53/hr = $327.06

Subtotal: $3,517.65

Section 400 Drainage:

Subtotal: $0.00

Section 500 Renovation:

Subtotal: $0.00

Section 700-1200 Surfacing:

Commercial Quarry Name: S. Floras CR-SURFACE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									39 LCY

Rock Volume = 39 LCY
Purchase Price / Royalty: $12.50/LCY x 39 LCY = $487.50
Processing: $0.90/LCY x 39 LCY = $35.10
Compaction: $1.34/LCY x 39 LCY = $52.26
Basic Rock Haul cost: $0.74/LCY x 39 LCY = $28.86
Rock Haul +15% grades: $2.21/LCY-mi x 39 LCY x 4.50 mi= $387.86
Rock Haul -15% grades: $1.10/LCY-mi x 39 LCY x 4.90 mi= $210.21
Rock Haul St& Co Roads: $0.49/LCY-mi x 39 LCY x 17.40 mi= $332.51
Basic Water Haul cost: $0.60/LCY x 39 LCY = $23.40
Water Haul +15% grades: $0.28/LCY-mi x 39 LCY x 1.00 mi= $10.92
Water Haul -15% grades: $0.14/LCY-mi x 39 LCY x 2.00 mi= $10.92
Water Haul St&Co Roads: $0.08/LCY-mi x 39 LCY x 0.00 mi= $0.00

Commercial Quarry Name: S. Floras CR-BASE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									187 LCY

Rock Volume = 187 LCY
Purchase Price / Royalty: $12.50/LCY x 187 LCY = $2,337.50
Processing: $0.90/LCY x 187 LCY = $168.30
Compaction: $1.34/LCY x 187 LCY = $250.58
Basic Rock Haul cost: $0.74/LCY x 187 LCY = $138.38
Rock Haul +15% grades: $2.21/LCY-mi x 187 LCY x 4.50 mi= $1,859.72
Rock Haul -15% grades: $1.10/LCY-mi x 187 LCY x 4.90 mi= $1,007.93
Rock Haul St& Co Roads: $0.49/LCY-mi x 187 LCY x 17.40 mi= $1,594.36
Basic Water Haul cost: $0.60/LCY x 187 LCY = $112.20
Water Haul +15% grades: $0.28/LCY-mi x 187 LCY x 1.00 mi= $52.36
Water Haul -15% grades: $0.14/LCY-mi x 187 LCY x 2.00 mi= $52.36
Water Haul St&Co Roads: $0.08/LCY-mi x 187 LCY x 0.00 mi= $0.00

Subtotal: $9,153.23

Road Number: Spur 1A 04-9 Continued

Section 1300 Geotextiles:

Subtotal: $0.00

Section 1400 Slope Protection:

Subtotal: $0.00

Section 1800 Soil Stabilization:
  Dry Method with Mulch: $415.92/acre x 0.13 acres = $54.07
        Includes Small Quantity Factor of 1.09
        + Seed Cost: $132.00/acre x 0.13 acres = $17.16
        + Fertilizer Cost: $34.00/acre x 0.13 acres = $4.42
        + Mulch Cost: $320.00/acre x 0.13 acres = $41.60

Subtotal: $117.25

Section 1900 Cattleguards:

Subtotal: $0.00

Section 2100 Roadside Brushing:

Subtotal: $0.00

Section 2300 Engineering:

Subtotal: $0.00

Section 2400 Minor Concrete:

Subtotal: $0.00

Section 2500 Gabions:

Subtotal: $0.00

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
  Construction - 3.11% of total Costs = $400.38
  Surfacing - 3.51% by rock volume = $178.91

Subtotal: $579.29

Quarry Development:
  Based on 3.51% of total rock volume

Subtotal: $0.00

Total: $14,433.15

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: Spur 1B Road Name: 04-4
Road Construction: 0.07 mi 16 ft Subgrade 2 ft ditch 4/13/2016

200 Clearing and Grubbing: 0.5 acres	$1,351.66
300 Excavation: 1,086 cy	$3,376.11
Haul > 500 ft: 181 yd-mi	
400 Drainage:	$0.00
Culvert: 0 lf	
DownSpout: 0 lf	
PolyPipe: 0 lf	
500 Renovation:	$0.00
700-1200 Surfacing:	$16,119.40
Quarry Name: S. Floras CR-SURFACE 123 LCY	
Quarry Name: S. Floras CR-BASE 275 LCY	
1300 Geotextiles:	$0.00
1400 Slope Protection:	$0.00
1800 Soil Stabilization: 0.2 acres	$144.31
Includes Small Quantity Factor of 1.09	
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.0 acres	$0.00
2300 Engineering: 3.50 sta.	$520.94
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $621.71 Surf. $315.07	$936.78
Quarry Development:	$0.00
Total:	$22,449.20

Notes:
Quantities shown are estimates only and not pay items.
Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: Spur 1B Road Name: 04-4

Section 200 Clearing and Grubbing:
Clearing - Medium (Clearing): Adjustment Factor (1.67)
31-45% (Avg Side Slopes): Adjustment Factor (0.2)
Windrow (Slash): Adjustment Factor (1.07)
20-40' (Avg Clearing Widths): Adjustment Factor (0.1)
Total Adjustment Factor:1.67 + 0.2 + 1.07 + 0.1 = 3.04
Base Cost/Acre: $855.05 x Adjustment Factor: 3.04 x Total Acres: 0.52 = $1,351.66

Subtotal: $1,351.66

Section 300 Excavation:
Excavation - Common: $1.93/cy x 1,086 cy = $2,095.98
Embankment Placement & Compaction 306.f - Common: $0.26/cy x 905 cy = $235.30
Subgrade Compaction: 4 Sta/hr $33.62/sta. x 3.9 sta = $131.45
End Hauling > 500 ft and 10 mph: $2.69/yd-mi x 91 yd-mi = $244.79
End Hauling > 500 ft and 20 mph: $1.35/yd-mi x 90 yd-mi = $121.50
Blading with ditch: $14.45/station x 3.91 stations = $56.50
SUBGRADE
Tractor: D7 with rippers 3 hr x $163.53/hr = $490.59

Subtotal: $3,376.11

Section 400 Drainage:

Subtotal: $0.00

Section 500 Renovation:

Subtotal: $0.00

Section 700-1200 Surfacing:

Commercial Quarry Name: S. Floras CR-SURFACE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									123 LCY

Rock Volume = 123 LCY
Purchase Price / Royalty: $12.50/LCY x 123 LCY = $1,537.50
Processing: $0.90/LCY x 123 LCY = $110.70
Compaction: $1.34/LCY x 123 LCY = $164.82
Basic Rock Haul cost: $0.74/LCY x 123 LCY = $91.02
Rock Haul +15% grades: $2.21/LCY-mi x 123 LCY x 4.50 mi= $1,223.24
Rock Haul -15% grades: $1.10/LCY-mi x 123 LCY x 4.90 mi= $662.97
Rock Haul St& Co Roads: $0.49/LCY-mi x 123 LCY x 17.40 mi= $1,048.70
Basic Water Haul cost: $0.60/LCY x 123 LCY = $73.80
Water Haul +15% grades: $0.28/LCY-mi x 123 LCY x 1.00 mi= $34.44
Water Haul -15% grades: $0.14/LCY-mi x 123 LCY x 2.00 mi= $34.44
Water Haul St&Co Roads: $0.08/LCY-mi x 123 LCY x 0.00 mi= $0.00

Commercial Quarry Name: S. Floras CR-BASE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									275 LCY

Rock Volume = 275 LCY
Purchase Price / Royalty: $12.50/LCY x 275 LCY = $3,437.50
Processing: $0.90/LCY x 275 LCY = $247.50
Compaction: $1.34/LCY x 275 LCY = $368.50
Basic Rock Haul cost: $0.74/LCY x 275 LCY = $203.50
Rock Haul +15% grades: $2.21/LCY-mi x 275 LCY x 4.50 mi= $2,734.88
Rock Haul -15% grades: $1.10/LCY-mi x 275 LCY x 4.90 mi= $1,482.25
Rock Haul St& Co Roads: $0.49/LCY-mi x 275 LCY x 17.40 mi= $2,344.65
Basic Water Haul cost: $0.60/LCY x 275 LCY = $165.00
Water Haul +15% grades: $0.28/LCY-mi x 275 LCY x 1.00 mi= $77.00
Water Haul -15% grades: $0.14/LCY-mi x 275 LCY x 2.00 mi= $77.00
Water Haul St&Co Roads: $0.08/LCY-mi x 275 LCY x 0.00 mi= $0.00

Road Number: Spur 1B 04-4 Continued

Subtotal: $16,119.40

Section 1300 Geotextiles:

Subtotal: $0.00

Section 1400 Slope Protection:

Subtotal: $0.00

Section 1800 Soil Stabilization:
  Dry Method with Mulch: $415.92/acre x 0.16 acres = $66.55
        Includes Small Quantity Factor of 1.09
        + Seed Cost: $132.00/acre x 0.16 acres = $21.12
        + Fertilizer Cost: $34.00/acre x 0.16 acres = $5.44
        + Mulch Cost: $320.00/acre x 0.16 acres = $51.20

Subtotal: $144.31

Section 1900 Cattleguards:

Subtotal: $0.00

Section 2100 Roadside Brushing:

Subtotal: $0.00

Section 2300 Engineering:
  Both Sides Normal: $148.84/sta x 3.50 sta = $520.94

Subtotal: $520.94

Section 2400 Minor Concrete:

Subtotal: $0.00

Section 2500 Gabions:

Subtotal: $0.00

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
  Construction - 4.83% of total Costs = $621.71
  Surfacing - 6.18% by rock volume = $315.07

Subtotal: $936.78

Quarry Development:
  Based on 6.18% of total rock volume

Subtotal: $0.00

Total: $22,449.20

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: Spur 5A Road Name: 08-3
Road Construction: 0.04 mi 14 ft Subgrade 0 ft ditch 4/13/2016

200 Clearing and Grubbing: 0.3 acres	$701.83
300 Excavation:	$978.05
400 Drainage:	$0.00
Culvert: 0 lf	
DownSpout: 0 lf	
PolyPipe: 0 lf	
500 Renovation:	$0.00
700-1200 Surfacing:	$7,371.18
Quarry Name: S. Floras CR-SURFACE 40 LCY	
Quarry Name: S. Floras CR-BASE 142 LCY	
1300 Geotextiles:	$0.00
1400 Slope Protection:	$0.00
1800 Soil Stabilization: 0.2 acres	$144.31
Includes Small Quantity Factor of 1.09	
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.0 acres	$0.00
2300 Engineering: 0.00 sta.	$0.00
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $265.75 Surf. $144.08	$409.82
Quarry Development:	$0.00
Total:	$9,605.18

Notes:
Quantities shown are estimates only and not pay items.
Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: Spur 5A Road Name: 08-3

Section 200 Clearing and Grubbing:
Clearing - Medium (Clearing): Adjustment Factor (1.67)
31-45% (Avg Side Slopes): Adjustment Factor (0.2)
Windrow (Slash): Adjustment Factor (1.07)
20-40' (Avg Clearing Widths): Adjustment Factor (0.1)
Total Adjustment Factor:1.67 + 0.2 + 1.07 + 0.1 = 3.04
Base Cost/Acre: $855.05 x Adjustment Factor: 3.04 x Total Acres: 0.27 = $701.83

Subtotal: $701.83

Section 300 Excavation:
Embankment Placement & Compaction 306.f - Common: $0.26/cy x 2,665 cy = $692.90
Subgrade Compaction: 4 Sta/hr $33.62/sta. x 2.5 sta = $85.06
Blading with ditch: $14.45/station x 2.53 stations = $36.56
SUBGRADE
Tractor: D7 with rippers 1 hr x $163.53/hr = $163.53

Subtotal: $978.05

Section 400 Drainage:

Subtotal: $0.00

Section 500 Renovation:

Subtotal: $0.00

Section 700-1200 Surfacing:

Commercial Quarry Name: S. Floras CR-SURFACE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									40 LCY

Rock Volume = 40 LCY
Purchase Price / Royalty: $12.50/LCY x 40 LCY = $500.00
Processing: $0.90/LCY x 40 LCY = $36.00
Compaction: $1.34/LCY x 40 LCY = $53.60
Basic Rock Haul cost: $0.74/LCY x 40 LCY = $29.60
Rock Haul +15% grades: $2.21/LCY-mi x 40 LCY x 4.50 mi= $397.80
Rock Haul -15% grades: $1.10/LCY-mi x 40 LCY x 4.90 mi= $215.60
Rock Haul St& Co Roads: $0.49/LCY-mi x 40 LCY x 17.40 mi= $341.04
Basic Water Haul cost: $0.60/LCY x 40 LCY = $24.00
Water Haul +15% grades: $0.28/LCY-mi x 40 LCY x 1.00 mi= $11.20
Water Haul -15% grades: $0.14/LCY-mi x 40 LCY x 2.00 mi= $11.20
Water Haul St&Co Roads: $0.08/LCY-mi x 40 LCY x 0.00 mi= $0.00

Commercial Quarry Name: S. Floras CR-BASE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									142 LCY

Rock Volume = 142 LCY
Purchase Price / Royalty: $12.50/LCY x 142 LCY = $1,775.00
Processing: $0.90/LCY x 142 LCY = $127.80
Compaction: $1.34/LCY x 142 LCY = $190.28
Basic Rock Haul cost: $0.74/LCY x 142 LCY = $105.08
Rock Haul +15% grades: $2.21/LCY-mi x 142 LCY x 4.50 mi= $1,412.19
Rock Haul -15% grades: $1.10/LCY-mi x 142 LCY x 4.90 mi= $765.38
Rock Haul St& Co Roads: $0.49/LCY-mi x 142 LCY x 17.40 mi= $1,210.69
Basic Water Haul cost: $0.60/LCY x 142 LCY = $85.20
Water Haul +15% grades: $0.28/LCY-mi x 142 LCY x 1.00 mi= $39.76
Water Haul -15% grades: $0.14/LCY-mi x 142 LCY x 2.00 mi= $39.76
Water Haul St&Co Roads: $0.08/LCY-mi x 142 LCY x 0.00 mi= $0.00

Subtotal: $7,371.18

Section 1300 Geotextiles:

Road Number: Spur 5A 08-3 Continued

Subtotal: $0.00

Section 1400 Slope Protection:

Subtotal: $0.00

Section 1800 Soil Stabilization:
  Dry Method with Mulch: $415.92/acre x 0.16 acres = $66.55
        Includes Small Quantity Factor of 1.09
        + Seed Cost: $132.00/acre x 0.16 acres = $21.12
        + Fertilizer Cost: $34.00/acre x 0.16 acres = $5.44
        + Mulch Cost: $320.00/acre x 0.16 acres = $51.20

Subtotal: $144.31

Section 1900 Cattleguards:

Subtotal: $0.00

Section 2100 Roadside Brushing:

Subtotal: $0.00

Section 2300 Engineering:

Subtotal: $0.00

Section 2400 Minor Concrete:

Subtotal: $0.00

Section 2500 Gabions:

Subtotal: $0.00

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
  Construction - 2.07% of total Costs = $265.75
  Surfacing - 2.83% by rock volume = $144.08

Subtotal: $409.82

Quarry Development:
  Based on 2.83% of total rock volume

Subtotal: $0.00

Total: $9,605.18

ROAD CONSTRUCTION SUMMARY

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017
Road Number: Spur 5B Road Name: 08-4
Road Construction: 0.02 mi 14 ft Subgrade 0 ft ditch 4/13/2016

200 Clearing and Grubbing: 0.3 acres	$675.83
300 Excavation:	$505.31
400 Drainage:	$0.00
Culvert: 0 lf	
DownSpout: 0 lf	
PolyPipe: 0 lf	
500 Renovation:	$0.00
700-1200 Surfacing:	$6,844.67
Quarry Name: S. Floras CR-SURFACE 15 LCY	
Quarry Name: S. Floras CR-BASE 154 LCY	
1300 Geotextiles:	$0.00
1400 Slope Protection:	$0.00
1800 Soil Stabilization: 0.0 acres	$27.06
Includes Small Quantity Factor of 1.09	
1900 Cattleguards:	$0.00
2100 RoadSide Brushing: 0.0 acres	$0.00
2300 Engineering: 0.00 sta.	$0.00
2400 Minor Concrete:	$0.00
2500 Gabions:	$0.00
8000 Miscellaneous:	$0.00
Mobilization: Const. $232.73 Surf. $133.78	$366.51
Quarry Development:	$0.00
Total:	$8,419.38

Notes:
Quantities shown are estimates only and not pay items.
Surfacing Quantities shown are loose cubic yards.

Road Construction Worksheet

Road Number: Spur 5B Road Name: 08-4

Section 200 Clearing and Grubbing:
Clearing - Medium (Clearing): Adjustment Factor (1.67)
31-45% (Avg Side Slopes): Adjustment Factor (0.2)
Windrow (Slash): Adjustment Factor (1.07)
20-40' (Avg Clearing Widths): Adjustment Factor (0.1)
Total Adjustment Factor:1.67 + 0.2 + 1.07 + 0.1 = 3.04
Base Cost/Acre: $855.05 x Adjustment Factor: 3.04 x Total Acres: 0.26 = $675.83

Subtotal: $675.83

Section 300 Excavation:
Embankment Placement & Compaction 306.f - Common: $0.26/cy x 954 cy = $248.04
Subgrade Compaction: 4 Sta/hr $33.62/sta. x 2.0 sta = $65.56
Blading with ditch: $14.45/station x 1.95 stations = $28.18
SUBGRADE
Tractor: D7 with rippers 1 hr x $163.53/hr = $163.53

Subtotal: $505.31

Section 400 Drainage:

Subtotal: $0.00

Section 500 Renovation:

Subtotal: $0.00

Section 700-1200 Surfacing:

Commercial Quarry Name: S. Floras CR-SURFACE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									15 LCY

Rock Volume = 15 LCY
Purchase Price / Royalty: $12.50/LCY x 15 LCY = $187.50
Processing: $0.90/LCY x 15 LCY = $13.50
Compaction: $1.34/LCY x 15 LCY = $20.10
Basic Rock Haul cost: $0.74/LCY x 15 LCY = $11.10
Rock Haul +15% grades: $2.21/LCY-mi x 15 LCY x 4.50 mi= $149.18
Rock Haul -15% grades: $1.10/LCY-mi x 15 LCY x 4.90 mi= $80.85
Rock Haul St& Co Roads: $0.49/LCY-mi x 15 LCY x 17.40 mi= $127.89
Basic Water Haul cost: $0.60/LCY x 15 LCY = $9.00
Water Haul +15% grades: $0.28/LCY-mi x 15 LCY x 1.00 mi= $4.20
Water Haul -15% grades: $0.14/LCY-mi x 15 LCY x 2.00 mi= $4.20
Water Haul St&Co Roads: $0.08/LCY-mi x 15 LCY x 0.00 mi= $0.00

Commercial Quarry Name: S. Floras CR-BASE

Length	TopW	BotW	Depth	CWid	#TOs	Width	F.W.L	Taper	Other
									154 LCY

Rock Volume = 154 LCY
Purchase Price / Royalty: $12.50/LCY x 154 LCY = $1,925.00
Processing: $0.90/LCY x 154 LCY = $138.60
Compaction: $1.34/LCY x 154 LCY = $206.36
Basic Rock Haul cost: $0.74/LCY x 154 LCY = $113.96
Rock Haul +15% grades: $2.21/LCY-mi x 154 LCY x 4.50 mi= $1,531.53
Rock Haul -15% grades: $1.10/LCY-mi x 154 LCY x 4.90 mi= $830.06
Rock Haul St& Co Roads: $0.49/LCY-mi x 154 LCY x 17.40 mi= $1,313.00
Basic Water Haul cost: $0.60/LCY x 154 LCY = $92.40
Water Haul +15% grades: $0.28/LCY-mi x 154 LCY x 1.00 mi= $43.12
Water Haul -15% grades: $0.14/LCY-mi x 154 LCY x 2.00 mi= $43.12
Water Haul St&Co Roads: $0.08/LCY-mi x 154 LCY x 0.00 mi= $0.00

Subtotal: $6,844.67

Section 1300 Geotextiles:

Road Number: Spur 5B 08-4 Continued

Subtotal: $0.00

Section 1400 Slope Protection:

Subtotal: $0.00

Section 1800 Soil Stabilization:
  Dry Method with Mulch: $415.92/acre x 0.03 acres = $12.48
        Includes Small Quantity Factor of 1.09
        + Seed Cost: $132.00/acre x 0.03 acres = $3.96
        + Fertilizer Cost: $34.00/acre x 0.03 acres = $1.02
        + Mulch Cost: $320.00/acre x 0.03 acres = $9.60

Subtotal: $27.06

Section 1900 Cattleguards:

Subtotal: $0.00

Section 2100 Roadside Brushing:

Subtotal: $0.00

Section 2300 Engineering:

Subtotal: $0.00

Section 2400 Minor Concrete:

Subtotal: $0.00

Section 2500 Gabions:

Subtotal: $0.00

Section 8000 Miscellaneous:

Subtotal: $0.00

Mobilization:
  Construction - 1.81% of total Costs = $232.73
  Surfacing - 2.63% by rock volume = $133.78

Subtotal: $366.51

Quarry Development:
  Based on 2.63% of total rock volume

Subtotal: $0.00

Total: $8,419.38

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Mobilization Costs - Construction and Surfacing

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017

Average Mobilization distance = 50 miles Factor = 1.00

Mobilization: Construction

Hydro-Mulcher:	1 ea x (1.00 x $65.00/ea + 10 mi x $3.64/mi)	= $101.40
Fire Equipment:	1 ea x (1.00 x $65.00/ea + 10 mi x $3.64/mi)	= $101.40
Graders-all:	1 ea x (1.00 x $483.00/ea + 10 mi x $14.73/mi)	= $630.30
Brush Cutter:	1 ea x (1.00 x $483.00/ea)	= $483.00
Loaders < 3cy:	1 ea x (1.00 x $483.00/ea + 10 mi x $9.21/mi)	= $575.10
Rollers & Comp:	2 ea x (1.00 x $483.00/ea + 10 mi x $26.90/mi)	= $1,504.00
Excavators:	1 ea x (1.00 x $861.00/ea	= $861.00
Tractors <= D7:	1 ea x (1.00 x $672.00/ea + 10 mi x $32.67/mi)	= $998.70
Tractors >= D8:	1 ea x (1.00 x $861.00/ea + 10 mi x $46.13/mi)	= $1,322.30
Dump Truck<=15cy:	6 ea x (1.00 x $113.00/ea + 10 mi x $4.69/mi)	= $959.40
Water Truck:	1 ea x (1.00 x $107.00/ea + 10 mi x $4.48/mi)	= $151.80
Excavators(Small):	1 ea x (1.00 x $483.00/ea + 10 mi x $19.42/mi)	= $677.20
Equipment Washing:	18 ea x ($250.00) /ea	= $4,500.00

Subtotal: $12,865.60

Mobilization: Surfacing

Fire Equipment:	1ea x (1.00 x $65.00/ea + 10 mi x $3.64/mi)	= $101.40
Graders-all:	1ea x (1.00 x $483.00/ea + 10 mi x $14.73/mi)	= $630.30
Rollers & Comp:	1ea x (1.00 x $483.00/ea + 10 mi x $26.90/mi)	= $752.00
Dump Truck<=15cy:	6ea x (1.00 x $113.00/ea + 10 mi x $4.69/mi)	= $959.40
Water Truck:	1ea x (1.00 x $107.00/ea + 10 mi x $4.48/mi)	= $151.80
Equipment Washing:	10 ea x ($250.00) /ea	= $2,500.00

Subtotal: $5,094.90

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Summary of Construction Quantities

T.S. Contract Name: Crystal Clear Sale Date: 06/23/2017

Road Number	Const	Improv	Renov	Decomm	Temp
31-14-29.0 C		1.58			
31-14-29.0 D		9.29			
31-14-29.0 D2			13.99		
31-14-29.10	18.10				
31-14-29.11	12.80				
31-14-29.12	7.90				
31-14-29.4 B		2.11			
31-14-29.6	18.20				
31-14-29.7	4.00				
31-14-29.8	11.39				
31-14-29.9	5.70				
31-14-30.0			6.60		
31-14-30.1	7.12				
31-14-30.2	10.45				
Spur 1A	2.50				
Spur 1B	3.50				
Spur 5A	2.30				
Spur 5B	1.30				
Total Sta:	105.26	12.98	20.59		

200 Clearing and Grubbing	Clearing acres
31-14-29.0 C	0.0
31-14-29.0 D	0.0
31-14-29.0 D2	1.3
31-14-29.10	2.6
31-14-29.11	1.4
31-14-29.12	0.9
31-14-29.4 B	0.0
31-14-29.6	2.1
31-14-29.7	0.5
31-14-29.8	1.9
31-14-29.9	0.7
31-14-30.0	0.3
31-14-30.1	0.8
31-14-30.2	1.4
Spur 1A	0.4
Spur 1B	0.5
Spur 5A	0.3
Spur 5B	0.3
Totals:	15.3

300 Excavation	Excav LCY.s	Haul sta-yds	Haul yd-mi
31-14-29.0 D	0	80	0
31-14-29.0 D2	215	0	0
31-14-29.10	5,156	580	0
31-14-29.11	2,533	438	832
31-14-29.12	925	0	526
31-14-29.6	5,692	1,115	2,004
31-14-29.7	1,027	0	0

31-14-29.8	4,043	672	1,799
31-14-29.9	1,845	0	0
31-14-30.0	158	0	0
31-14-30.1	787	0	410
31-14-30.2	4,784	0	1,340
Spur 1A	1,396	0	0
Spur 1B	1,086	0	181
Totals:	29,647	2,885	7,092

SUBGRADE Spur 5B
Tractor: D7 with rippers . . . . . 1 hr
SUBGRADE Spur 5A
Tractor: D7 with rippers . . . . . 1 hr
SUBGRADE 31-14-29.7
Tractor: D7 with rippers . . . . . 4 hr
SUBGRADE 31-14-29.9
Tractor: D7 with rippers . . . . . 5 hr
SUBGRADE Spur 1A
Tractor: D7 with rippers . . . . . 2 hr
SUBGRADE 31-14-29.10
Tractor: D7 with rippers . . . . . 16 hr
SUBGRADE 31-14-29.12
Tractor: D7 with rippers . . . . . 8 hr
SUBGRADE Spur 1B
Tractor: D7 with rippers . . . . . 3 hr
SUBGRADE 31-14-29.11
Tractor: D7 with rippers . . . . . 12 hr
SUBGRADE 31-14-30.0
Tractor: D7 with rippers . . . . . 3 hr

400 Drainage

Road Number	Culvert	Polypipe	Downspout
31-14-29.0 D	0 lf	90 lf	0 lf
31-14-29.10	0 lf	210 lf	0 lf
31-14-29.11	0 lf	72 lf	0 lf
31-14-29.6	0 lf	220 lf	0 lf
Total Drainage:		592 lf	

CULVERTS 31-14-29.0 D
MARKERS . . . . . 3 EA
BEDDING . . . . . 5 LCY
CULVERTS 31-14-29.6
MARKERS . . . . . 7 EA
BEDDING . . . . . 12 LCY
CULVERTS 31-14-29.10
CULVERT BEDDING . . . . . 11 LCY
CULVERT MARKERS . . . . . 5 EA
CULVERTS 31-14-29.11
CULVERT BEDDING . . . . . 8 LCY
CULVERT MARKERS . . . . . 2 EA

500 Renovation

	Blade Miles	Slide cy
31-14-29.0 C	0.04	0
31-14-29.0 D	0.18	0
31-14-29.0 D2	0.26	0
31-14-29.4 B	0.03	0
31-14-30.0	0.13	0

Totals:	0.64	0

Surfacing (Loose Cubic Yards)
Note: Due to slight rounding differences between total LCY vs. subtotaled LCY, Totals shown here may not be exactly as shown in the road summaries and worksheets.

Quarry Name: S. Floras CR-SURFACE

Commercial	Roadway	Turnouts	Other	
31-14-29.11	0	0	254	254
Spur 1B	0	0	123	123
31-14-29.12	0	0	155	155
31-14-29.10	0	0	560	560
Spur 1A	0	0	39	39
31-14-29.6	0	0	369	369
Spur 5A	0	0	40	40
Spur 5B	0	0	15	15
31-14-29.0 D	0	0	170	170
31-14-29.0 C	45	0	0	45
31-14-29.4 B	33	0	0	33
Totals:	78	0	1,725	1,803

Quarry Name: S. Floras CR-BASE

Commercial	Roadway	Turnouts	Other	
31-14-29.11	0	0	710	710
Spur 1B	0	0	275	275
31-14-29.12	0	0	470	470
31-14-29.10	0	0	1,100	1,100
Spur 1A	0	0	187	187
31-14-29.6	0	0	969	969
Spur 5A	0	0	142	142
Spur 5B	0	0	154	154
31-14-29.0 D	0	0	445	445
31-14-29.0 C	104	0	0	104
31-14-29.4 B	77	0	0	77
Totals:	181	0	4,452	4,633

Quarry Name: S. Floras CR-RIPRAP

Commercial	Roadway	Turnouts	Other	
Totals:	0	0	0	0

1300 Geotextiles

Totals: No Quantities

1400 Slope Protection

Slope Protection Class 4	L.C.Y.s
31-14-29.0 D	11
31-14-29.10	19
31-14-29.11	8
31-14-29.6	26
Totals:	64

1800 Soil stabilization - acres	Dry W/O Mulch	Dry/with Mulch	Hydro Mulch
31-14-29.0 D	0.0	0.2	

Continuation of Construction Quantities

31-14-29.0 D2	0.0	1.0	
31-14-29.10	0.0	0.8	
31-14-29.11	0.0	0.4	
31-14-29.12	0.0	0.2	
31-14-29.6	0.0	0.8	
31-14-29.7	0.0	0.3	
31-14-29.8	0.0	1.3	
31-14-29.9	0.0	0.4	
31-14-30.0	0.0	0.5	
31-14-30.1	0.0	0.7	
31-14-30.2	0.0	1.4	
Spur 1A	0.0	0.1	
Spur 1B	0.0	0.2	
Spur 5A	0.0	0.2	
Spur 5B	0.0	0.0	
Totals:	0.0	8.5	0.0

Small Quantity Factor of 1.09 used

1900 Cattleguards

Totals: No Quantities

2100 RoadSide Brushing

	acres
31-14-29.0 D2	0.3
31-14-30.0	0.1
Totals:	0.4

2300 Engineering

	stations
31-14-29.10	18.10
31-14-29.11	12.80
31-14-29.12	7.90
Spur 1B	3.50
Totals:	42.30

2400 Minor Concrete

Totals: No Quantities

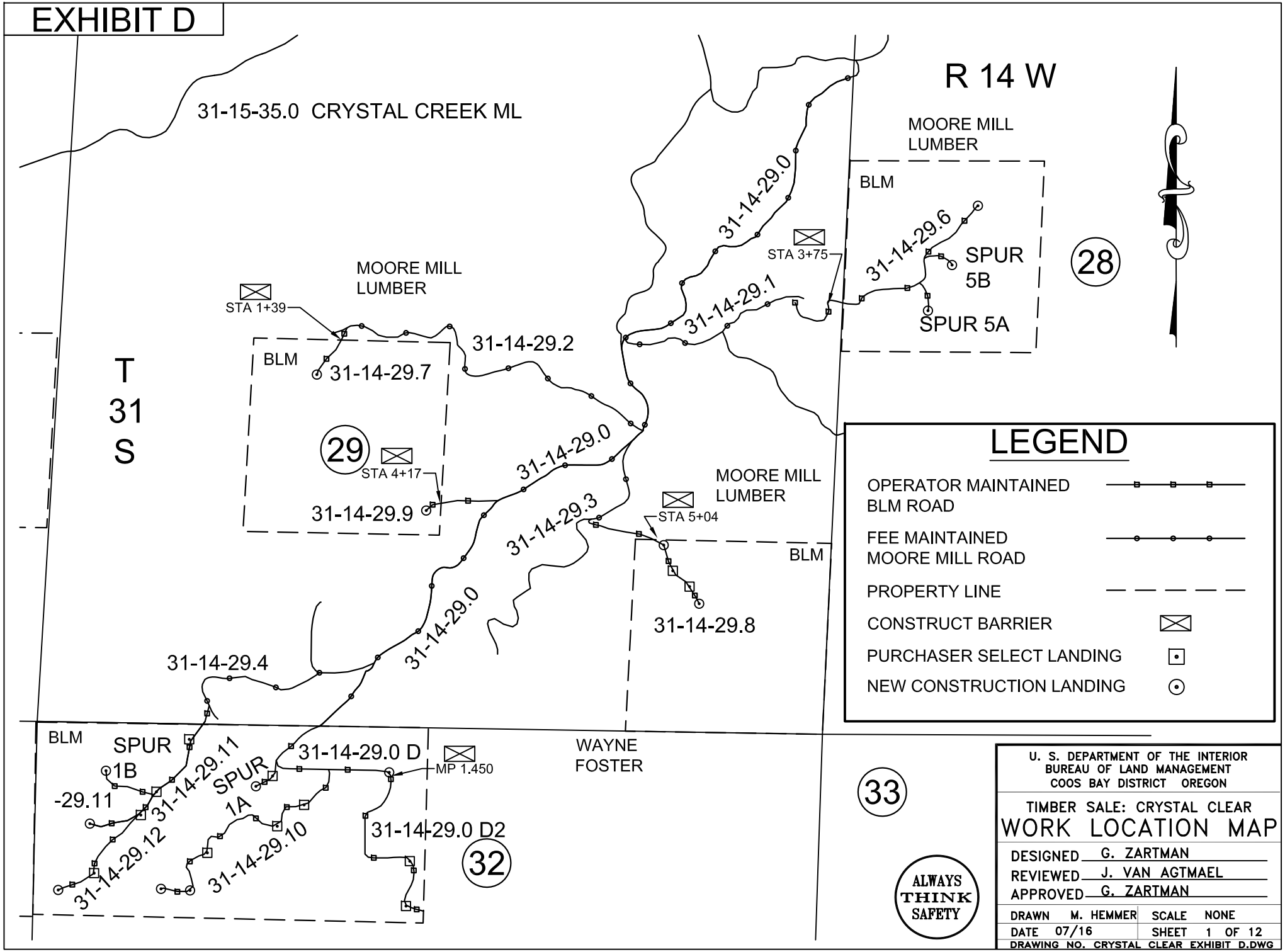
2500 Gabions

Totals: No Quantities

8000 Miscellaneous

Totals: No Quantities

EXHIBIT D



LEGEND

- OPERATOR MAINTAINED BLM ROAD
- FEE MAINTAINED MOORE MILL ROAD
- PROPERTY LINE
- CONSTRUCT BARRIER
- PURCHASER SELECT LANDING
- NEW CONSTRUCTION LANDING

ALWAYS THINK SAFETY

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

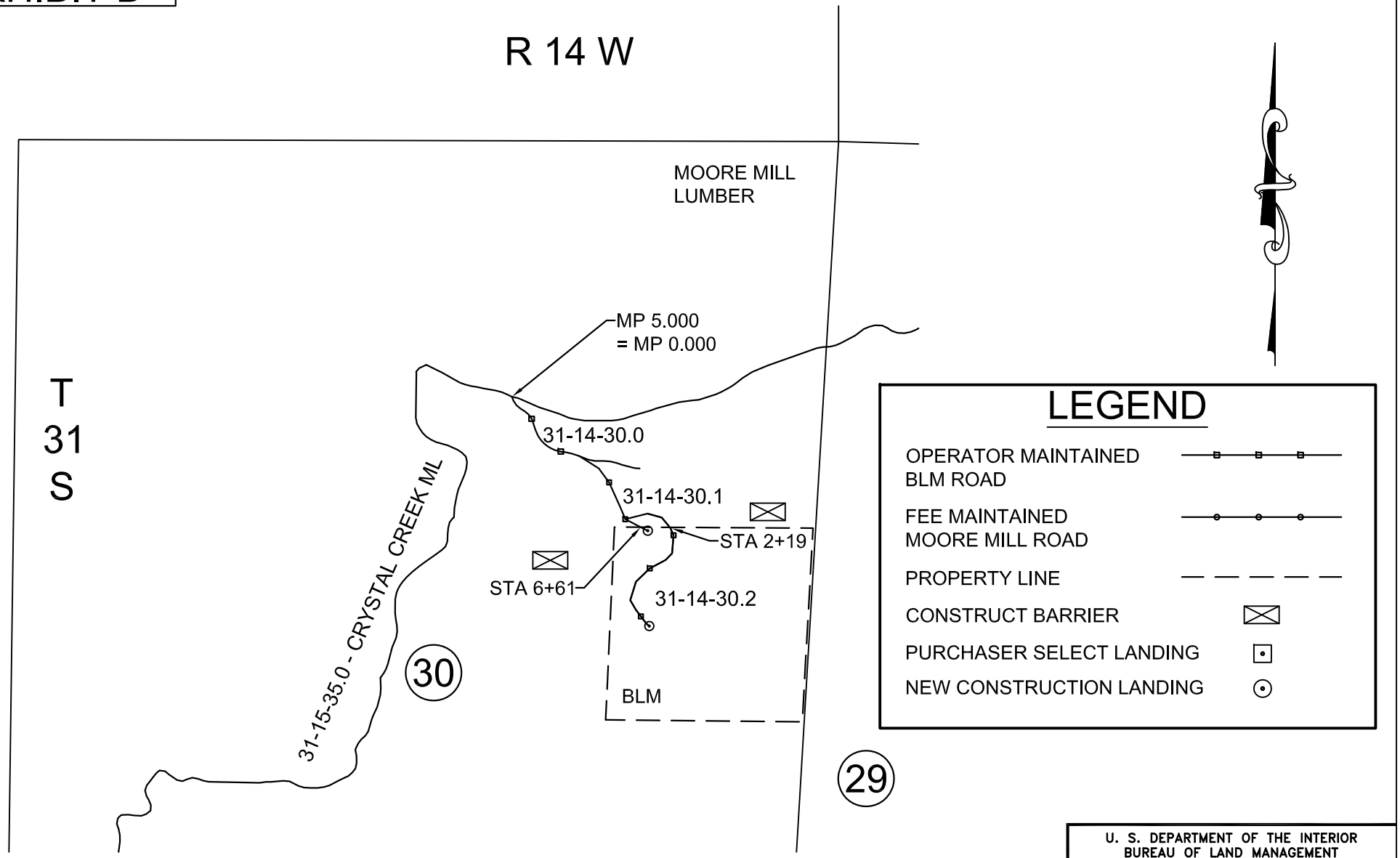
TIMBER SALE: CRYSTAL CLEAR

WORK LOCATION MAP

DESIGNED	G. ZARTMAN
REVIEWED	J. VAN AGTMAEL
APPROVED	G. ZARTMAN
DRAWN	M. HEMMER
SCALE	NONE
DATE	07/16
SHEET	1 OF 12

DRAWING NO. CRYSTAL CLEAR EXHIBIT D.DWG

EXHIBIT D



LEGEND

- OPERATOR MAINTAINED BLM ROAD
- FEE MAINTAINED MOORE MILL ROAD
- PROPERTY LINE
- CONSTRUCT BARRIER
- PURCHASER SELECT LANDING
- NEW CONSTRUCTION LANDING

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U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

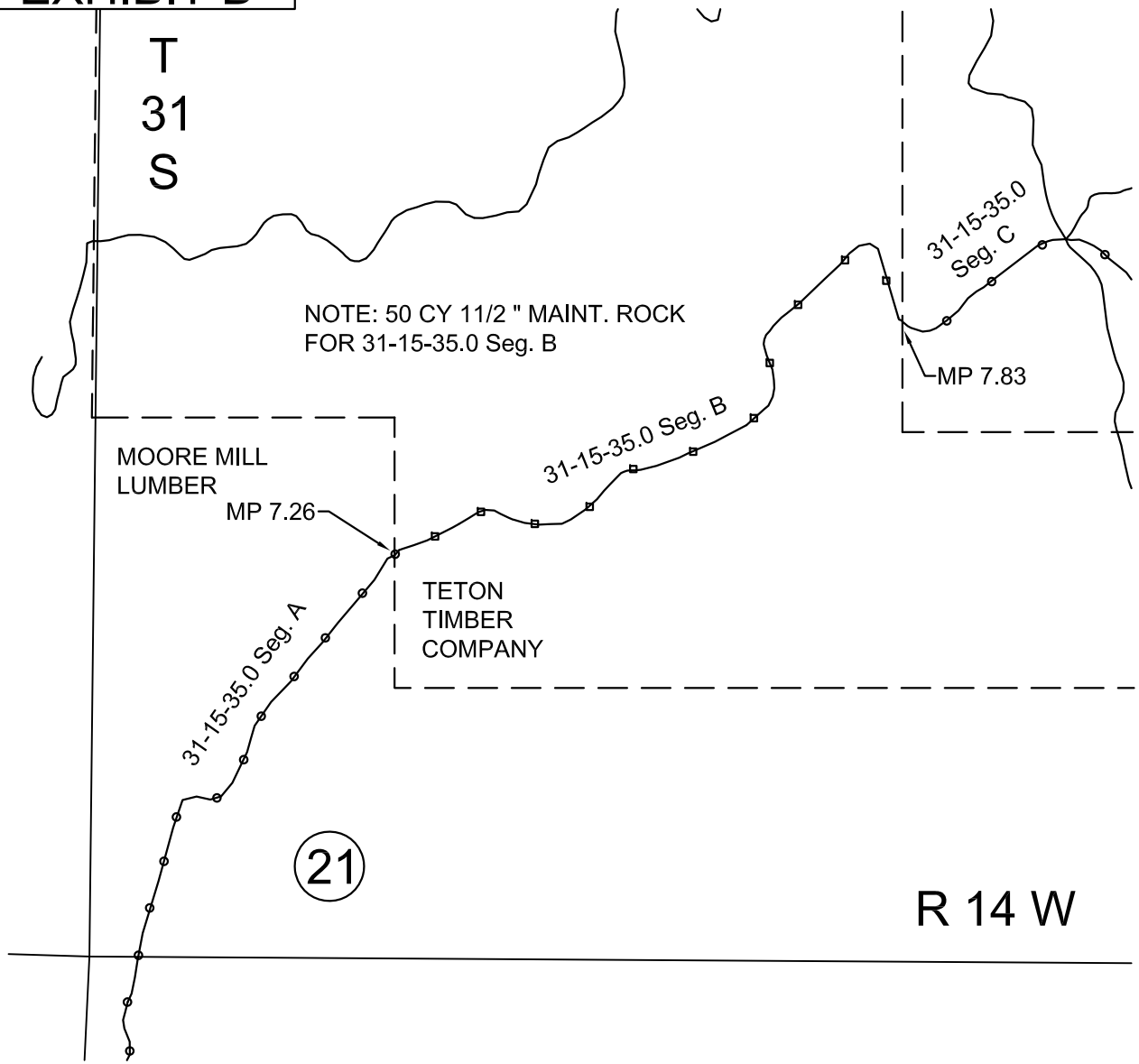
TIMBER SALE: CRYSTAL CLEAR

WORK LOCATION MAP

DESIGNED	G. ZARTMAN
REVIEWED	J. VAN AGTMAEL
APPROVED	G. ZARTMAN
DRAWN	M. HEMMER
SCALE	NONE
DATE	07/21
SHEET	2 OF 12

DRAWING NO. CRYSTAL CLEAR EXHIBIT D.DWG

EXHIBIT D



LEGEND

- OPERATOR MAINTAINED TETON TIMBER ROAD
- FEE MAINTAINED MOORE MILL ROAD
- PROPERTY LINE
- CONSTRUCT BARRIER
- PURCHASER SELECT LANDING
- NEW CONSTRUCTION LANDING

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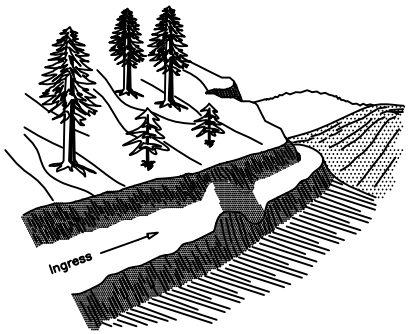
U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

TIMBER SALE: CRYSTAL CLEAR

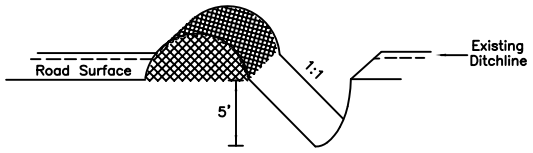
WORK LOCATION MAP

DESIGNED	G. ZARTMAN
REVIEWED	J. VAN AGTMAEL
APPROVED	G. ZARTMAN
DRAWN M. BAILEY	SCALE NONE
DATE 02/15	SHEET 3 OF 12

DRAWING NO. CRYSTAL CLEAR EXHIBIT D.DWG



BARRIERS



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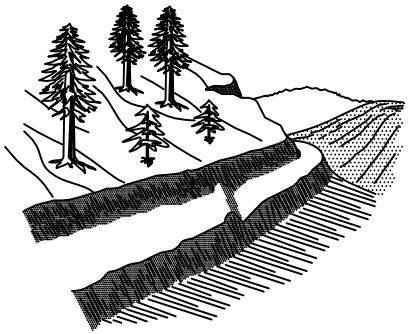
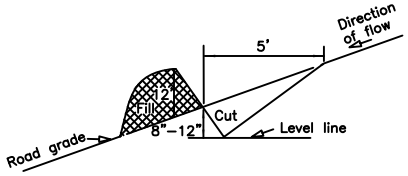


WATER BAR



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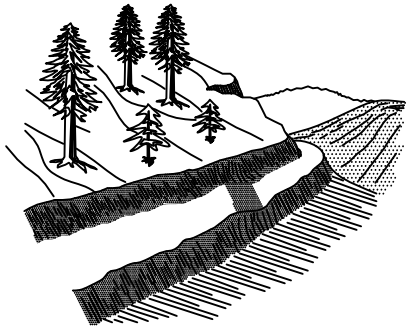
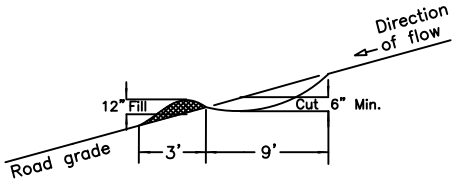


WATER DIP



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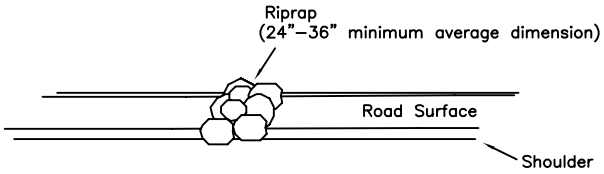
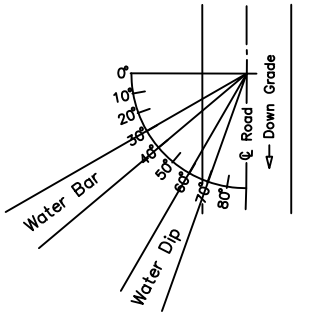


SKEW DIAGRAM



WATER DIP/BAR SPACING

ROAD GRADE	MAXIMUM SPACING
%	FEET
0–4	500
5–6	400
7–9	300
10–14	100
15–20	50

NOTES

1. ALL BARRIERS, WATER BARS, AND WATER DIPS AS REQUIRED SHALL BE CONSTRUCTED AS SHOWN.
2. LOCATIONS WILL BE AS DIRECTED BY THE AUTHORIZED OFFICER PRIOR TO CONSTRUCTION.
3. ALL WATER BARS SHALL BE SKEWED 30° – 40°.
4. ALL WATER DIPS SHALL BE SKEWED 60° – 70°.
5. ALL WATER BARS AND WATER DIPS SHALL BE CUT INTO THE ROADBED FROM THE DITCHLINE.
6. DITCHLINES SHALL BE BLOCKED WITH EXCAVATED MATERIAL (DITCH DAM) DOWNGRADE FROM ALL WATER BARS AND WATER DIPS.
7. EXCAVATED MATERIAL FROM BARRIER TRENCH SHALL BE PLACED ON THE SIDE NEAREST THE BEGINNING OF THE ROAD.
8. OUTLETS OF WATER DIPS MUST BE ROCKED ON FILL SLOPE.
9. RIPRAP BARRIERS SHALL BE AT LEAST 4' HIGH, 4' DEEP, AND OF SUFFICIENT WIDTH TO COMPLETELY BLOCK THE ROADWAY AND ANY ADJACENT SHOULDERS THAT CAN BE TRAVELED WITH A VEHICLE.
10. ALL BERMS INCLUDING WATER BARS, WATER DIPS, AND EARTHEN BARRIERS SHALL BE COMPACTED TO 85% OF MAXIMUM DENSITY.

ALWAYS THINK SAFETY

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

TIMBER SALE: CRYSTAL CLEAR
BARRIER/EROSION CONTROL DETAIL

DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN

DRAWN M. HEMMER | SCALE NONE
DATE 07/16 | SHEET 4 OF 12
DRAWING NO. CRYSTAL CLEAR EXHIBIT D.DWG

ROAD NUMBER	SURFACING				OTHER			SOIL STABILIZATION		OTHER	
	TOP **	AGG. MAINT. ROCK **	AGG. MAINT. ROCK **	BASE	RIPRAP BARRIER	RIPRAP ARMOR	JAWRUN ROCK	DRY	HYDRO-MULCH		EARTHEN BARRIER
SPEC. NO.	1200	1200	1000	1000	1400			1800	1800		
UNITS	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	ACRES	ACRES		
GRADE	C	C	B	B	A	B	A				
31-15-35.0 B		50									
31-14-29.0 C		10									
31-14-29.0 D		75						0.1			
31-14-29.0 D2								0.6			1
31-14-29.10		75						0.1			
31-14-29.11		75						0.1			
31-14-29.12		50						0.1			
31-14-29.4 B		10									
31-14-29.6		75						0.3			1
31-14-29.7								0.2			1
31-14-29.8								0.7			1
31-14-29.9								0.2			1
31-14-30.0								0.3			
31-14-30.1								0.3			1
31-14-30.2								0.5			1
Spur 1A		20						0.1			
Spur 1B		20						0.1			
Spur 5A		20						0.1			
Spur 5B		20						0.1			
Totals:		500						3.8			7

ITEM	SIZE	GRADE
PITRUN		
1000 (BASE)	3"	8
1100	4"	B
1200 (TOP)	1 ½"	C
1400 (RIPRAP)	34"	A
	28"	B
CHIP SEAL ROCK	¾"	S

* FOR INFORMATIONAL USE ONLY. QUANTITIES SHOWN ARE NPT PAY ITEMS.
** ROCK QUANTITIES ARE TRUCK MEASUREMENT.

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U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

TIMBER SALE: CRYSTAL CLEAR
ESTIMATE OF QUANTITIES

DESIGNED G. ZARTMAN
REVIEWED J. VAN AGTMAEL
APPROVED G. ZARTMAN

DRAWN M. HEMMER | SCALE NONE
DATE 07/16 | SHEET 5 OF 12
DRAWING NO. CRYSTAL CLEAR EXHIBIT D.DWG

ROAD MAINTENANCE SPECIFICATIONS

General road maintenance specifications are designated by numeric symbols according to the type of road work to be performed, as follows:

Section	
3000	GENERAL
3100	OPERATIONAL MAINTENANCE
3200	SEASONAL MAINTENANCE
3300	FINAL MAINTENANCE
3400	OTHER MAINTENANCE

GENERAL - 3000

3001 - The Purchaser shall be required to maintain all roads as shown on the Exhibit D map of this contract in accordance with Sections 3000, 3100, 3200, 3300, and 3400 of this exhibit.

3002 - The Purchaser shall maintain the cross section of existing dirt or graveled roads to the existing geometric standards. Any roads required to be constructed, improved, or renovated under terms of this contract shall be maintained to the standards required in Exhibit C of this contract.

3003 - The minimum required maintenance on any roads shall include the provisions specified in Subsections 3101, 3104, and 3105.

3004 - The Purchaser shall be responsible for providing timely maintenance and cleanup on any road(s) with logging units substantially completed prior to moving operations to other roads. Release of maintenance requirements may be granted, upon written request, when the conditions specified in Sections 3300 and 3400 are met satisfactorily.

OPERATIONAL MAINTENANCE - 3100

3101 - The Purchaser shall blade and shape the road surface and shoulders with a motor patrol grader. Banks shall not be undercut. Back blading with tractors or similar equipment will be allowed only around landings and other areas when approved by the Authorized Officer.

3102 - The Purchaser shall furnish and place 500 cu. yds. of aggregate conforming to the requirements in Section 1200 of Exhibit C of this contract on the roadway and landings at locations and in the amounts designated by the Authorized Officer.

3103 - The Purchaser shall maintain established berms and place additional berms using adjacent material where needed to protect fills as directed by the Authorized Officer.

3104 - The Purchaser shall perform other road cleanup including removal of debris, fallen timber, bank slough, and slides which can practicably be accomplished by a motor patrol grader, rubber-tired front-end bucket loader, rubber-tired backhoe or comparable equipment, and by the use of hand tools.

3104a - Removal of bank slough and slide material includes placement of material at the nearest suitable turnout or disposal site where material cannot erode into streams, lakes, or reservoirs or cause undue damage to road fill slopes which have been planted or mulched to control soil erosion.

3104b - The Purchaser shall be responsible for removal of all slides or slough, up to fifteen (15) station yards in quantity, at any one site. This work includes unlimited multiple sites on all roads required to be maintained by the Purchaser.

Prior to removal of any slough or slide material exceeding fifteen (15) station yards at any one site, the Purchaser and the Authorized Officer or their Authorized Representatives shall agree in writing, in the field, to the quantity of material, method of disposal, and the disposal site. Work may commence immediately after agreement.

Upon completion of agreed upon work, a reduction in timber sale purchase price will be made to offset the cost of work, based on current BLM Timber Appraisal Production Cost Schedules. Adjustments in purchase price for completed work shall be made as necessary and no less than once per year when actual work is ongoing.

3105 - The Purchaser shall be responsible for maintaining normal flow in drainage structures. This includes cleaning out drainage ditches, catch basins, clearing pipe inverts of sediment and other debris lodged in the barrel of the pipe and maintaining water dips and waterbars using equipment specified in Subsection 3104 and other culvert cleaning and flushing equipment.

3106 - The Purchaser shall be responsible for repair and replacement of all materials eroded from road shoulders and fill slopes, up to fifteen (15) station yards in quantity, at any one site. The work includes unlimited multiple sites on all roads required to be maintained by the Purchaser. Prior to repair and replacement of eroded material exceeding fifteen (15) station yards at any one site, the Purchaser and the Authorized Officer or their Authorized Representatives shall agree in writing, in the field, to the quantity of material, borrow source, and method of repair. Work may commence immediately after agreement.

Upon completion of agreed upon work, a reduction in timber sale purchase price will be made to offset the cost of the work, based upon current BLM Timber Sale Appraisal Production Cost Schedules. Adjustments in purchase price for completed work shall be made as necessary, and no less than once per year when actual work is ongoing.

3107 - The Purchaser shall cut or trim trees and brush which obstructs vision or prevents the safe passage of traffic along the traveled way, when directed by the Authorized Officer.

The Purchaser shall also cut trees or brush encroaching on the road prism that are a result of his activities or winter damage during the contract period. Disposal of such vegetative material shall be by scattering below the road.

3108 - The Purchaser shall avoid fouling gravel or bituminous surfaces through covering with earth and debris from side ditches, slides, or other sources. The Purchaser shall also avoid blading surfacing material off the running surface of the roadway. Skidding of logs on the roadway in or outside designated logging units is not authorized without prior written approval by the Authorized Officer. Repair required by such skidding activity is not considered maintenance and shall be performed at the Purchaser's expense.

3108a - The Purchaser shall perform logging operations on gravel and/or bituminous roadways only where the locations have been marked on the ground and/or approved by the Authorized Officer.

SEASONAL MAINTENANCE - 3200

3201 - The Purchaser shall perform preventive maintenance at the end of Purchaser's hauling each season and during nonhauling periods which occur between other operations on the contract area. This includes cross ditching, blockage, removing ruts or other surface irregularities, and all other requirements specified in Section 3100.

3202 - The Purchaser shall perform and complete maintenance, specified in Sections 3000, 3100, and 3200, on all roads maintained by him, prior to October 1 each year, except as specified in Subsection 3203, after initial commencement of construction or logging

operations. Thereafter all roads shall have continuous preventive maintenance and road cleanup until suspension of seasonal operations. This includes all roads used and not used during the preceding operating seasons.

3203 - The Purchaser shall complete road cleanup and maintenance, as specified in Section 3100, at the completion of logging operations on any road(s) located in an area separate from the area where logging activities will resume.

3204 - The Purchaser shall be responsible for performing post storm inspections and maintenance during the winter season to minimize erosion and potential road or watershed damage.

FINAL MAINTENANCE - 3300

3301 - The Purchaser shall complete final maintenance and/or damage repairs on all roads used under terms of their contract within 30 calendar days following the expiration of Purchaser's right to cut and remove timber (Sec. 4) and in accordance with Sec.16(b) of this contract. This work shall include any maintenance and/or damage repairs specified in Sections 3000, 3100, and 3200 necessary to meet the conditions specified in Subsection 3002 and shall be executed in accordance with Subsection 3302 of this section.

The Authorized Officer may grant acceptance of Purchaser's maintenance responsibility in part where certain individual roads or road segments are no longer of any use to the Purchaser's remaining removal operations, providing that all contract requirements as specified under Section 16(b), Special Provisions Sections 3000, 3100, 3200, and 3300 of the maintenance specifications have been completed and a relinquishment of cutting and removal rights on cutting units tributary to these roads is signed by the Purchaser. Request for partial acceptance must be submitted in writing by the Purchaser.

3302 - The Purchaser shall perform final road maintenance only when weather or soil moisture conditions are suitable for normal maintenance equipment operations as determined by the Authorized Officer.

If final maintenance is delayed after the date required in Subsection 3301 of this contract by adverse soil moisture or unsuitable equipment operating conditions, the Purchaser will be notified by the Authorized Officer when soil moisture and equipment operating conditions are suitable. The Purchaser shall then be required to complete final maintenance within 30 days.

OTHER MAINTENANCE – 3400

3401 - The Purchaser shall repair any damage to road surfaces that was specified under Subsections 3108 and 3108a. This repair includes restoring the roadway to the designed standard and replacement of surfacing with approved surface material. This repair is not limited to use of equipment specified in Subsection 3104.

3402 - The Purchaser shall be permitted to remove ice and snow from roads authorized for use under this contract only when prior written approval has been secured from the Authorized Officer. The Purchaser shall submit a written request for permission to remove ice and snow in advance of the date operations are to begin.

3420 - The Purchaser shall perform the following work:

Road No.	Work
31-15-35.0 B	Place 50 C.Y. of 1 ½" minus maintenance rock upon the completion of hauling.
31-14-30.0	Seed, fertilize, and mulch all disturbed areas in accordance with Section 1800 of the Exhibit C.
31-14-30.1	Construct water bars in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer. Construct an earthen berm barrier at the property line at Sta. 6+61 in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer. Seed, fertilize, and mulch all disturbed areas in accordance with Section 1800 of the Exhibit C.
31-14-30.2	Construct water bars in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer. Construct an earthen berm barrier at the property line at Sta. 2+19 in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer. Seed, fertilize, and mulch all disturbed areas in accordance with Section 1800 of the Exhibit C.
31-14-29.11	Seed, fertilize, and mulch any disturbed areas in accordance with Section 1800 of the Exhibit C. Construct water dips in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer.
Spur 1B	Seed, fertilize, and mulch any disturbed areas in accordance with Section 1800 of the Exhibit C. Construct water dips in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer.
31-14-29.12	Seed, fertilize, and mulch any disturbed areas in accordance with Section 1800 of the Exhibit C. Construct water dips in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer.
31-14-29.10	Seed, fertilize, and mulch any disturbed areas in accordance with Section 1800 of the Exhibit C. Construct water dips in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer.
Spur 1A	Seed, fertilize, and mulch any disturbed areas in accordance with Section 1800 of

	the Exhibit C.
	Construct water dips in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer.
31-14-29.9	Construct water bars in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer.
	Construct an earthen berm barrier at the property line at Sta. 4+17 in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer.
	Seed, fertilize, and mulch all disturbed areas in accordance with Section 1800 of the Exhibit C.
31-14-29.7	Construct water bars in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer.
	Construct an earthen berm barrier at the property line at Sta. 2+19 in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer.
	Seed, fertilize, and mulch all disturbed areas in accordance with Section 1800 of the Exhibit C.
31-14-29.8	Construct water bars in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer.
	Re-establish ditches along Moore Mill Road No. 31-14-29.3 at all three junctions.
	Construct an earthen berm barrier at the property line at Sta. 5+04 in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer.
	Seed, fertilize, and mulch all disturbed areas in accordance with Section 1800 of the Exhibit C.
31-14-29.6	Construct water bars in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer.
	Remove 36” culvert and fill material at Sta. 4+42 stream crossing. Legally dispose removed culvert off of Government lands. Utilize removed fill material to construct an earthen berm barrier at approximately Sta. 3+75 in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer.
	Seed, fertilize, and mulch all disturbed areas in accordance with Section 1800 of the Exhibit C.
Spur 5A	Construct water bars in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer.
	Seed, fertilize, and mulch any disturbed areas in accordance with Section 1800 of the Exhibit C.

Spur 5B	Construct water bars in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer. Seed, fertilize, and mulch any disturbed areas in accordance with Section 1800 of the Exhibit C.
31-14-29.0 D	Construct water dips from MP. 1.274 to MP. 1.450 in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer. Construct an earthen berm barrier at MP 1.450 in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer. Seed, fertilize, and mulch all disturbed areas in accordance with Section 1800 of the Exhibit C.
31-14-29.0 D2	Construct water bars from MP. 1.450 to MP. 1.715 in accordance with Sheet No. 3 of the Exhibit D and as directed by the Authorized Officer. Seed, fertilize, and mulch all disturbed areas in accordance with Section 1800 of the Exhibit C.

Sale: Crystal Clear
Sale Date: 04/28/2017
Prep. By : M. Bailey
Tract No: 2017.0031

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

ROAD MAINTENANCE AND ROAD USE APPRAISAL WORK SHEET

Purchaser Maintenance Allowances:

(5.2A) Move In	$1,986.39
(5.2B) Culverts, Catch Basins, Downspouts	$1,069.68
(5.2C) Grading, Ditching	$4,612.64
(5.2D) Slide Removal and Slump Repair	$0.00
(5.2E) Dust Palliative (Water)	$0.00
(5.2F) Surface Repair (Aggregate)	$22,760.00
(5.2G) Other	$0.00
Total Purchaser Maintenance Allowances (5.2A-5.2G)	$30,428.71
(2.1-5.2G) Cost/MBF ($0.00 + $30,428.71) /5605 MBF =	$5.43/MBF
(5.2H) Decommissioning	$7,382.95
(5.2H) Cost/MBF $7,382.95/5605 MBF =	$1.32/MBF
Total Cost/MBF (Excluding Road Use) $37,811.66/5605 MBF =	$6.75/MBF

Purchaser Operational Maintenance

Move In

Equipment	Units	No x in	Move x	Cost/ 50 Mi	Dist x Factor	= Sub-total
Motor Grader:	1		2	$483.00	0.63	$608.58
Back Hoe:	1		2	$149.00	0.63	$187.74
Loader:				$483.00	0.63	$0.00
Water Truck:	1		2	$107.00	0.63	$134.82
Dump Truck:	1		2	$113.00	0.63	$142.38
Excavator:	1		1	$483.00	0.63	$304.29
Roller:	1		2	$483.00	0.63	$608.58

(5.2A) Total $1,986.39

Culvert Maintenance - Including Catch basins and Downpipes

Miles	x Cost/Mi	= Subtotal
3.201	$334.17	$1,069.68

(5.2B) Total $1,069.68

Grading (Includes Ditches and Shoulders)

Miles	x Cost/Mi	x Freq	= Subtotal
Blade w/ Ditch:	3.20	$720.50	2	$4,612.64
Blade w/o Ditch:	0.00	$446.73	0	$0.00

(5.2C) Total $4,612.64

Surface Repair (Aggregate)

Production Cost:	500.0 CY x $12.50/CY	= 6,250.00
Haul to Stockpile:	500.0 CY x (($0.49/CY x 17.40 Mi) + $0.74)	= 4,633.00
Stockpile:	0.0 CY x $1.01/CY	= $0.00
Load from Stockpile:	0.0 CY x $1.11/CY	= $0.00
Haul from Stockpile:	500.0 CY x (($2.21/CY x 9.40 Mi) + $0.74)	= 0,757.00
Process with Grader:	500.0 CY x $0.90/CY	= $450.00
Compaction:	500.0 CY x $1.34/CY	= $670.00

(5.2F) Total $22,760.00

Decommissioning

31-14-29.6 Crew Cab or 3/4 Ton Pickup: 3 hr @ $48.38/hr	=$145.14
Spur 5A Seed, fertilizer, & mulch: 0.1 ac. @ $944.87/ac.	=$94.49
Spur 5A Backhoe: 1 hr @ $76.21/hr	=$76.21
Spur 5B Seed, fertilizer, & mulch: 0.1 ac. @ $944.87/ac.	=$94.49
Spur 5B Backhoe: 1 hr @ $76.21/hr	=$76.21
31-14-29.0 D Seed, fertilizer, & mulch: 0.1 ac. @ $944.87/ac.	=$94.49
31-14-29.0 D Motor Grader 14M: 1 hr @ $147.33/hr	=$147.33
31-14-29.0 D2 Seed, fertilizer, & mulch: 0.6 ac. @ $944.87/ac.	=$566.92
31-14-29.0 D2 Backhoe: 3 hr @ $76.21/hr	=$228.63
31-14-29.0 D2 Backhoe: 1 hr @ $76.21/hr	=$76.21
31-14-29.0 R Dry Mulcher: 8 hr @ $83.11/hr	=$664.88
31-14-30.0 Seed, fertillizer, & mulch: 0.3 ac. @ $944.87/ac.	=$283.46
31-14-30.1 Seed, fertillizer, & mulch: 0.3 ac. @ $944.87/ac.	=$283.46
31-14-30.1 Backhoe: 2 hr @ $76.21/hr	=$152.42
31-14-30.1 Backhoe: 1 hr @ $76.21/hr	=$76.21
31-14-30.2 Seed, fertillizer, & mulch: 0.5 ac. @ $944.87/ac.	=$472.44
31-14-30.2 Backhoe: 3 hr @ $76.21/hr	=$228.63
31-14-30.2 Backhoe: 1 hr @ $76.21/hr	=$76.21
31-14-29.11 Seed, fertillizer, & mulch: 0.1 ac. @ $944.87/ac.	=$94.49
31-14-29.11 Motor Grader 14M: 1 hr @ $147.33/hr	=$147.33
Spur 1B Seed, fertillizer, & mulch: 0.05 ac. @ $944.87/ac.	=$47.24
Spur 1B Motor Grader 14M: 0.5 hr @ $147.33/hr	=$73.67
31-14-29.12 Seed, fertillizer, & mulch: 0.1 ac. @ $944.87/ac.	=$94.49
31-14-29.12 Motor Grader 14M: 1 hr @ $147.33/hr	=$147.33
31-14-29.10 Seed, fertillizer, & mulch: 0.1 ac. @ $944.87/ac.	=$94.49
31-14-29.10 Motor Grader 14M: 1 hr @ $147.33/hr	=$147.33
Spur 1A Seed, fertilizer, & mulch: 0.05 ac. @ $944.87/ac.	=$47.24
Spur 1A Motor Grader 14M: 0.5 hr @ $147.33/hr	=$73.67
31-14-29.9 Seed, fertilizer, & mulch: 0.2 ac. @ $944.87/ac.	=$188.97
31-14-29.9 Backhoe: 1 hr @ $76.21/hr	=$76.21
31-14-29.9 Backhoe: 1 hr @ $76.21/hr	=$76.21
31-14-29.7 Seed, fertilizer, & mulch: 0.15 ac. @ $944.87/ac.	=$141.73
31-14-29.7 Backhoe: 1 hr @ $76.21/hr	=$76.21
31-14-29.7 Backhoe: 1 hr @ $76.21/hr	=$76.21
31-14-29.8 Seed, fertilizer, & mulch: 0.7 ac. @ $944.87/ac.	=$661.41
31-14-29.8 Backhoe: 2 hr @ $76.21/hr	=$152.42
31-14-29.8 Backhoe: 1 hr @ $76.21/hr	=$76.21
31-14-29.6 Seed, fertilizer, & mulch: 0.3 ac. @ $944.87/ac.	=$283.46
31-14-29.6 Excavator - Large (2 CY): 4 hr @ $128.90/hr	=$515.60
31-14-29.6 Backhoe: 2 hr @ $76.21/hr	=$152.42
31-14-29.6 General Laborer: 3 hr @ $33.60/hr	=$100.80

(5.2H) Total $7,382.95

SALE VOLUME: 5605 NET MBF

A. ROAD USE FEES - Payable to Private Company:

COMPANY NAME	AGREEMENT NUMBER	ROAD NUMBER	NET MBF	USE FEE per MBF	TOTAL FEES
Moore Mill	C-364	31-14-21.0 A-D	4086	$0.00	$0.00
Moore Mill	C-364	31-14-29.0 A-C	4931	$11.25	$55,473.75
Moore Mill	C-364	31-14-29.01	822	$19.74	$16,226.28
Moore Mill	C-364	31-14-29.02	227	$33.33	$7,565.91
Moore Mill	C-364	31-14-29.03	281	$0.00	$0.00
Moore Mill	C-364	31-14-29.04 A	1798	$14.01	$25,189.98
Moore Mill	C-364	31-14-29.04 B	1798	$1.46	$2,625.08
Moore Mill	C-364	31-14-30.0	674	$1.86	$1,253.64
Moore Mill	C-364	31-14-4.0 A	4086	$2.56	$10,460.16
Pacific West	C-354	31-14-4.0 B	4086	$0.00	$0.00
Moore Mill	C-364	31-15-35.0 A	5605	$7.81	$43,775.05
Teton Timber Co.	C-877A	31-15-35.0 B	4086	$2.82	$11,522.52
Moore Mill	C-364	31-15-35.0 C	4086	$0.99	$4,045.14
				TOTAL USE FEE:	$178,137.51

B. MAINTENANCE FEES:

1. Maintenance and Rockwear Fees Payable to the U.S. (BLM Maintained Roads):

a. Timber Haul:

Surface Type	ROAD NUMBER	NET MBF	ROAD MILES	ROCKWEAR /MBF/Mile	Subtotal	MAINT. /MBF/Mile	Subtotal	TOTAL FEES
					$0.00		$0.00	$0.00
			0.00		$0.00		$0.00	

2. ROCKWEAR Fees Payable to the U.S. (OPERATOR Maintained Roads):

a. Timber Haul:

Surface Type	ROAD NUMBER	NET MBF	ROAD MILES	SURFACE REPLACEMENT /MBF/Mile		TOTAL FEES
Rock	31-14-29.12	112	0.05	$0.60		$3.36
Rock	31-14-29.12	280	0.11	$0.60		$18.48
Rock	31-14-29.11	450	0.10	$0.60		$27.00
Rock	31-14-29.11	898	0.05	$0.60		$26.94
Rock	Spur 1B	280	0.07	$0.60		$11.76
Rock	31-14-29.11	1403	0.08	$0.60		$67.34
Rock	31-14-29.11	1798	0.02	$0.60		$21.58
Rock	31-14-29.10	112	0.05	$0.60		$3.36
Rock	31-14-29.10	280	0.06	$0.60		$10.08
Rock	31-14-29.10	392	0.13	$0.60		$30.58
Rock	31-14-29.10	560	0.05	$0.60		$16.80
Rock	31-14-29.10	728	0.06	$0.60		$26.21
Dirt	31-14-29.0	56	0.06	$0.00		$0.00
Dirt	31-14-29.0	168	0.19	$0.00		$0.00
Rock	31-14-29.0	393	0.07	$0.60		$16.51
Rock	31-14-29.0	1121	0.06	$0.60		$40.36
Rock	Spur 1A	225	0.06	$0.60		$8.10
Rock	31-14-29.0	1346	0.06	$0.60		$48.46
Dirt	31-14-29.09	337	0.12	$0.00		$0.00
Dirt	31-14-29.08	56	0.03	$0.00		$0.00
Dirt	31-14-29.08	112	0.03	$0.00		$0.00
Dirt	31-14-29.08	168	0.04	$0.00		$0.00
Dirt	31-14-29.08	281	0.12	$0.00		$0.00
Dirt	31-14-29.07	227	0.09	$0.00		$0.00
Rock	31-14-29.06	281	0.11	$0.60		$18.55
Rock	Spur 5B	336	0.04	$0.60		$8.06
Rock	31-14-29.06	617	0.05	$0.60		$18.51
Rock	Spur 5A	169	0.05	$0.60		$5.07
Rock	31-14-29.06	786	0.07	$0.60		$33.01
Rock	31-14-29.06	822	0.13	$0.60		$64.12
Dirt	31-14-30.02	224	0.11	$0.00		$0.00
Dirt	31-14-30.02	337	0.10	$0.00		$0.00
Dirt	31-14-30.01	337	0.02	$0.00		$0.00
Dirt	31-14-30.01	674	0.12	$0.00		$0.00
						$0.00
			2.56			$524.22

3. ROAD MAINTENANCE AND/OR ROCKWEAR FEES - Payable to Private Company:

Surface Type	COMPANY NAME	AGREEMENT NUMBER	ROAD NUMBER	NET MBF	ROAD MILES	& MAINT. /MBF/Mile		TOTAL FEES
Dirt	Moore Mill	C-364	31-14-29.04 B	1798	0.04	$0.00		$0.00
Rock	Moore Mill	C-364	31-14-29.04 A	1798	0.22	$1.55		$613.12
Dirt	Moore Mill	C-364	31-14-29.0 C	1466	0.03	$0.00		$0.00
Rock	Moore Mill	C-364	31-14-29.0 B	3264	0.29	$1.55		$1,467.17
Rock	Moore Mill	C-364	31-14-29.0 B	3601	0.24	$1.55		$1,339.57
Rock	Moore Mill	C-364	31-14-29.03	281	0.11	$1.55		$47.91
Rock	Moore Mill	C-364	31-14-29.0 B	3882	0.02	$1.55		$120.34
Rock	Moore Mill	C-364	31-14-29.02	227	0.48	$1.55		$168.89
Rock	Moore Mill	C-364	31-14-29.0 A	4109	0.22	$1.55		$1,401.17
Rock	Moore Mill	C-364	31-14-29.01	822	0.23	$1.55		$293.04
Rock	Moore Mill	C-364	31-14-29.0 A	4931	0.55	$1.55		$4,203.68
Dirt	Moore Mill	C-364	31-14-30.0	674	0.13	$0.00		$0.00
Rock	Moore Mill	C-364	31-15-35.0 A	4086	1.67	$1.55		$10,576.61
Rock	Teton Timber Co.	C-877A	31-15-35.0 B	4086	0.57	$0.00		$0.00
Rock	Moore Mill	C-364	31-15-35.0 C	4086	0.17	$1.55		$1,076.66
Rock	Moore Mill	C-364	31-14-21.0 A-D	4086	2.89	$1.55		$18,303.24
Rock	Moore Mill	C-364	31-14-4.0 A	4086	3.92	$1.55		$24,826.54
Rock	Pacific West (Payable to Moore Mill)	C-354	31-14-4.0 B	4086	0.69	$1.55		$4,369.98
Rock	Moore Mill	C-364	31-15-35.0 A	845	1.77	$1.55		$2,318.26
Rock	Moore Mill	C-364	31-15-35.0 A	1519	3.34	$1.55		$7,863.86
								$0.00
					17.58			$78,990.03

4. OPERATOR MAINTENANCE WILL BE REQUIRED ON APPROX. 2.35 MILES OF ROAD. (SEE EXHIBIT D)

SUMMARY OF ROAD USE & ROAD MAINTENANCE FEES	ROAD USE FEES		ROCKWEAR & MAINTENANCE FEES		MAINTENANCE FEES	
	TOTAL	$/MBF	TOTAL	$/MBF	TOTAL	$/MBF
1. COMPANY-OWNED ROADS:	$178,137.51	$31.78	$78,990.03	$14.09		$0.00
2. BLM MAINTAINED ROADS:			$0.00	$0.00	$0.00	$0.00
3. BLM OPERATOR-MAINTAINED ROADS:			$524.22	$0.09		$0.00
	$178,137.51	$31.78	$79,514.25	$14.19	$0.00	$0.00

	TOTAL	$/MBF
MAINTENANCE OBLIGATION PAYABLE TO BLM:	$524.22	$0.09

Exhibit F

SPECIAL PROVISIONS TO CONTROL THE SPREAD OF NOXIOUS WEEDS

Vehicle and Equipment Cleaning

1. Cleaning shall consist of the removal of soil and debris by washing with a high pressure hose or steam cleaning. Cleaning and inspection sites will be agreed to by Purchaser and BLM. All petroleum product residues shall be contained at wash sites and dealt with in accordance to DEQ standards. Contractor shall provide an approved plan for the cleaning station that demonstrates that the station meets all DEQ and water quality regulations. All necessary permits shall be obtained by the contractor.

2. All equipment parts shall be cleaned as designated by the Authorized Officer, including removal of tractor belly plates, in accordance with Sec.1 above.

All construction, logging and slash disposal equipment shall be cleaned prior to entering the contract area. The Authorized Officer will determine if log trucks and vehicles used for transportation of personnel shall be cleaned, based upon the location of use immediately prior to current timber sale. If the vehicles have been in a weed-infested area, they shall be washed before entering Contract Area, as shown on Exhibit A.

Legal Description of Contract Area

Land Status	County	Township	Range	Section	Subdivision	Meridian
PD	Curry	31S	14W	30	NE1/4SE1/4	Willamette
O&C	Curry	31S	14W	28	SW1/4NW1/4	Willamette
PD	Curry	31S	14W	29	NE1/4SW1/4,SE1/4SE1/4	Willamette
PD	Curry	31S	14W	32	N1/2NW1/4	Willamette

Species Totals

Species	Net	Gross Merch	Gross	# of Merch Logs	# of Cull Logs	# of Trees
Douglas Fir	5,563.0	5,802.0	5,861.0	105,488	3,381	24,364
Western Hemlock	27.0	32.0	32.0	792	5	212
Red Alder	15.0	16.0	18.0	239	119	119
Totals	**5,605.0**	**5,850.0**	**5,911.0**	**106,519**	**3,505**	**24,695**

Cutting Area Acres

Regeneration Harvest Acres	Partial Cut Acres	Right of Way Acres	Total Acres	Net Volume per Acre
99.0	0.0	2.0	101.0	55.5

Logging Costs

Stump to Truck	$539,933.58
Transportation	$454,438.00
Road Construction	$463,134.00
Maintenance/Rockwear	$116,801.69
Road Use	$178,137.51
Other Allowances	$46,097.78
Total:	**$1,798,542.56**
Total Logging Cost per MBF:	**$320.88**

Utilization Centers

Location	Distance	% of Net Volume
Coquille	66.1 miles	8 %
North Bend	66.7 miles	92 %

Profit & Risk

Basic Profit & Risk	10 %
Additional Risk	0 %
Total Profit & Risk	**10 %**

Tract Features

Quadratic Mean DBH	15.1 in
Average GM Log	55 bf
Average Volume per Acre	55.5 mbf
Recovery	95 %
Net MBF volume:	
Green	5,605.0 mbf
Salvage	0 mbf
Export	0 mbf
Ground Base Logging:	
Percent of Sale Volume	9 %
Average Yarding Slope	5 %
Average Yarding Distance	250 ft
Cable Logging:	
Percent of Sale Volume	91 %
Average Yarding Slope	35 %
Average Yarding Distance	200 ft
Aerial Logging:	
Percent of Sale Volume	0 %
Average Yarding Slope	0 %
Average Yarding Distance	0 ft

Cruise

Cruise Completed	November 2016
Cruised By	Craig Wooley, Brian Davis, Doug Stover

Cruise Method

All of the units in Crystal Clear where cruised using variable plot.

Stumpage Computation

Species	# of Trees	Net Volume	Pond Value	(-) Profit & Risk	(-) Logging Costs	(+) Marginal Log Value	Appraised Price/MBF	Appraised Value
Douglas Fir	24,364	5,563.0	$575.28	$57.53	$320.88	$0.00	$196.90	$1,095,354.70
Western Hemlock	212	27.0	$406.63	$40.66	$320.88	$0.00	$45.10	$1,217.70
Red Alder	119	15.0	$439.25	$43.92	$320.88	$0.00	$74.50	$1,117.50
Totals	**24,695**	**5,605.0**						**$1,097,689.90**

Percent of Volume By Log Grade

Species	No. 1 & 2 Peeler	No. 3 Peeler	Special Mill	No. 2 Sawmill	No. 3 Sawmill	No. 4 Sawmill	Camp Run
Douglas Fir				52.0 %	41.0 %	7.0 %	

Species	Peeler	No. 1 Sawmill	Special Mill	No. 2 Sawmill	No. 3 Sawmill	No. 4 Sawmill	Camp Run
Western Hemlock				36.0 %	51.0 %	13.0 %	

Species	No. 1 Sawmill	No. 2 Sawmill	No. 3 Sawmill	No. 4 Sawmill	No. 5 Sawmill		Camp Run
Red Alder		51.0 %	49.0 %				

Unit: 1

Net Volume/Acre: 56.1 MBF

Species	Net	Gross Merch	Gross	# of Trees
Douglas Fir	3,233.0	3,372.0	3,406.0	14,174
Western Hemlock	15.0	18.0	18.0	121
Red Alder	8.0	9.0	11.0	70
Totals:	**3,256.0**	**3,399.0**	**3,435.0**	**14,365**

Regeneration Harvest	58.0
Partial Cut	0.0
Right of Way	0.0
Total Acres:	**58.0**

Unit: 2

Net Volume/Acre: 56.3 MBF

Species	Net	Gross Merch	Gross	# of Trees
Douglas Fir	223.0	232.0	235.0	978
Western Hemlock	1.0	1.0	1.0	9
Red Alder	1.0	1.0	1.0	5
Totals:	**225.0**	**234.0**	**237.0**	**992**

Regeneration Harvest	4.0
Partial Cut	0.0
Right of Way	0.0
Total Acres:	**4.0**

Unit: 3

Net Volume/Acre: 56.2 MBF

Species	Net	Gross Merch	Gross	# of Trees
Douglas Fir	334.0	349.0	352.0	1,466
Western Hemlock	2.0	2.0	2.0	12
Red Alder	1.0	1.0	1.0	7
Totals:	**337.0**	**352.0**	**355.0**	**1,485**

Regeneration Harvest	6.0
Partial Cut	0.0
Right of Way	0.0
Total Acres:	**6.0**

Unit: 4

Net Volume/Acre: 56.2 MBF

Species	Net	Gross Merch	Gross	# of Trees
Douglas Fir	279.0	291.0	294.0	1,222
Western Hemlock	1.0	2.0	2.0	10
Red Alder	1.0	1.0	1.0	6
Totals:	**281.0**	**294.0**	**297.0**	**1,238**

Regeneration Harvest	5.0
Partial Cut	0.0
Right of Way	0.0
Total Acres:	**5.0**

Unit: 5

Net Volume/Acre: 56.1 MBF

Species	Net	Gross Merch	Gross	# of Trees
Douglas Fir	780.0	814.0	822.0	3,421
Western Hemlock	4.0	4.0	4.0	29
Red Alder	2.0	2.0	2.0	17
Totals:	**786.0**	**820.0**	**828.0**	**3,467**

Regeneration Harvest	14.0
Partial Cut	0.0
Right of Way	0.0
Total Acres:	**14.0**

Unit: 6

Net Volume/Acre: 56.2 MBF

Species	Net	Gross Merch	Gross	# of Trees
Douglas Fir	669.0	698.0	705.0	2,932
Western Hemlock	3.0	4.0	4.0	25
Red Alder	2.0	2.0	2.0	14
Totals:	**674.0**	**704.0**	**711.0**	**2,971**

Regeneration Harvest	12.0
Partial Cut	0.0
Right of Way	0.0
Total Acres:	**12.0**

Unit: R/W

Net Volume/Acre: 23.0 MBF

Species	Net	Gross Merch	Gross	# of Trees
Douglas Fir	45.0	46.0	47.0	171
Western Hemlock	1.0	1.0	1.0	6
Totals:	**46.0**	**47.0**	**48.0**	**177**

Regeneration Harvest	0.0
Partial Cut	0.0
Right of Way	2.0
Total Acres:	**2.0**

Total Stump To Truck	Net Volume	$/MBF
$539,933.58	5,605.0	$96.33

Stump to Truck: Falling, Bucking, Yarding, & Loading

Yarding System	Unit of Measure	# of Units of Measure	$/Unit of Measure	Total Cost	Remarks
Wheel Skidder	GM MBF	526.0	$97.87	$51,479.62	
Cable: Small Yarder	GM MBF	5,324.0	$90.29	$480,703.96	
Subtotal				**$532,183.58**	

Additional Costs

Item	Unit of Measure	# of Units of Measure	$/Unit of Measure	Total Cost	Remarks
Intermediate Support	Each	15.0	$150.00	$2,250.00	
Lift Tree	Each	25.0	$150.00	$3,750.00	
Subtotal				**$6,000.00**	

Additional Moves

Equipment	Unit of Measure	# of Units of Measure	$/Unit of Measure	Total Cost	Remarks
Cable: Small Yarder	Each	1.0	$750.00	$750.00	additional move for landing in different area
Shovel	Each	1.0	$500.00	$500.00	additional move for landing in different area
Feller Buncher	Each	1.0	$500.00	$500.00	additional move for landing in different area
Subtotal				**$1,750.00**	

Total	Net Volume	$/MBF
$454,438.00	5,605.0	$81.08

Utilization Center	One Way Mileage	Description	Unit of Measure	# of Units	$/Unit of Measure	Total Cost	% of Sale Volume
Coquille	66.1	Saw logs 17 +	GM MBF	478.0	$78.60	$37,570.80	8 %
North Bend	66.7	Saw logs < 17"	GM MBF	5,372.0	$77.60	$416,867.20	92 %

Engineering Allowances

Total	Net Volume	$/MBF
$758,073.20	5,605.0	$135.25

Cost Item	Total Cost
Road Construction:	$463,134.00
Road Maintenance/Rockwear:	$116,801.69
Road Use Fees:	$178,137.51

Comments:
Exhibit D Maintenence = $37,811.66
Exhibit E Maintenence = $78,990.03
Total Maintenence (D&E) = $116,801.69

Total	Net Volume	$/MBF
$46,097.78	5,605.0	$8.22

Miscellaneous

Cost item	Total Cost
CWD	$1,580.00
Snag creation	$4,995.00
Equipment Washing	$2,600.00
Cut and deck private right of way	$2,571.92
Subtotal	**$11,746.92**

Slash Disposal & Site Prep

Cost item	Total Cost
Landing pullback	$3,499.86
Broadcast burn prep	$1,249.00
Slash burning	$1,645.20
Broadcast burn	$7,271.51
Broadcast mop up	$9,768.32
Slash piling	$10,916.97
Subtotal	**$34,350.86**

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EQUAL OPPORTUNITY IN EMPLOYMENT
CERTIFICATION OF NONSEGREGATED FACILITIES

Bid, offer, or contract number or other identification

By the submission of this bid or offer and/or by entering into this contract, the bidder, offeror, lessee, subcontractor, or applicant certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. He certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The bidder, offeror, applicant, or subcontractor agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term "segregated facilities" means, but is not limited to, any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin, because of habit, local custom, or otherwise. He further agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause; that he will retain such certifications in his files; and that he will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods):

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT FOR CERTIFICATIONS OF NONSEGREGATED FACILITIES

A Certification of Nonsegregated Facilities, as required by the May 9, 1967, order (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a subcontract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

In accordance with 41 CFR 60, as amended May 19, 1967, and Executive Order No. 11246 of September 24, 1965, as amended, this certification is applicable to all bids, offers, contracts and subcontracts as well as agreements with applicants who are themselves performing federally assisted contracts, which may exceed $10,000 and are not exempt from the provisions of the Equal Opportunity clause of the Order.

1. *AUTHORITY* – Timber located on the revested Oregon and California Railroad Grant Lands and on the reconveyed Coos Bay Wagon Road Grant Lands is administered and sold pursuant to authority of the Act of August 28, 1937 (50 Stat. 874; 43 U.S.C. 1181a); timber located on other lands and other vegetative resources on all public lands of the United States under jurisdiction of the Bureau of Land Management are administered and sold pursuant to authority of the Act of July 31, 1947 (61 Stat. 681), as amended, by the Act of July 23, 1955 (69 Stat. 367; 30 U.S.C. 601 et. seq.). Regulations of the Secretary of the Interior governing sale of timber are codified in 43 CFR Group 5400.

2. *QUALIFICATIONS OF BIDDERS* – A bidder for sale of timber/vegetative resources must be either (a) a citizen of the United States, (b) a partnership composed wholly of such citizens, (c) an unincorporated association composed wholly of such citizens, or (d) a corporation authorized to transact business in the State in which the timber/vegetative resource is located.

3. *INSPECTION OF TIMBER/VEGETATIVE RESOURCES* – Bidder is invited, urged, and cautioned to inspect the timber/vegetative resource prior to submitting a bid. By executing the timber/vegetative resource sale contract, bidder warrants thatthecontractisaccepted on the basis of his examinationandinspection of the timber/vegetative resource and his opinion of its value.

4. *DISCLAIMER OF WARRANTY* – Government expressly disclaims any warranty of the fitness of the designated timber/vegetative resource for any purpose of the bidder; all timber/vegetative resources are to be sold "As Is" without any warranty of merchantability by Government. Any warranty as to the quantity or quality of timber/vegetative resource to be sold is expressly disclaimed by Government.

5. *BIDS* – Sealed or written bids for not less than the advertised appraised price, per timber/vegetative resource must be submitted in duplicate to the District Manager who issued *Timber/Vegetative Resource Sale Notice*.

(a) *Sealed Bid Sales* – Bids will be received until time for opening which is set out in the Notice. Enclose both copies of bid with required bid deposit in a sealed envelope marked on the outside *Bid for Timber/Vegetative Resources*, time bid is to be opened, tract number, and legal description of land on which timber/vegetative resource is located. In event of a tie, the high bidder shall be determined by lot from among those who submitted the tie bids.

(b) *Auction Sales* – Submission of the required bid deposit and a written bid is required to qualify for oral bidding. Oral bidding shall begin from the highest written bid. No oral bid will be considered which is not higher than the preceding bid. In the event there is a tie in high written bids, and no oral bidding occurs, the bidder who was the first to submit his bid deposit and written bid shall be declared the high bidder. If the officer conducting the sale cannot determine who made the first submission of high tie written bids, the high bidder shall be determined by lot. High bidder must confirm his bid, in writing, immediately upon being declared high bidder.

(c) Except as otherwise provided in 43 CFR 5442.2, bids will not be considered in resale of timber/vegetative resource remaining from an uncompleted contract from any person or affiliate of such person who failed to complete the original contract because of (1) cancellation for the purchaser's breach or (2) through failure to complete payment by expiration date.

(d) When it is in the interest of the Government to do so, it may reject any and all bids and may waive minor deficiencies in bids or in sale advertisement.

6. *BID FORMS* – All sealed, written bids, and confirmation of oral bids shall be submitted on forms provided by Government.

(a) *Lump Sum Sales* – Bids shall specify (1) Bureau of Land Management estimated volume, (2) price per unit, and (3) total purchase price. Estimated volume and price per unit are to be used for administrative and appraisal purposes only. Upon award of contract, high bidder shall be liable for total purchase price, including any adjustment which may be made as a result of reappraisal if an extension of time is granted, even though quantity of timber/vegetative resource actually cut, removed, or designated for taking is more or less than the estimated volume or quantity listed.

(b) *Timber Scale Sales* – Bids must state price per thousand board feet that will be paid for each species. High bidder will be determined by multiplying bid price per thousand board feet per species by Bureau of Land Management estimate of volume of each species. Purchaser shall be liable for purchase price of all merchantable timber sold under contract even though all such timber is not actually cut and removed prior to expiration of time for cutting and removal as specified in contract.*

7. *BID DEPOSIT* – All bidders must make a deposit of not less than the amount specified in the *Timber/Vegetative Resource Notice*. Deposit may be in the form of cash, money orders, bank drafts, cashiers or certified checks made payable to the Department of the Interior – BLM, bid bonds of a corporate surety shown on the approved list of the United States Treasury Department*, or any approved guaranteed remittance approved by the Contracting Officer. Upon conclusion of bidding, the bid deposit of all bidders, except high bidder, will be returned. The cash deposit of the successful bidder may be applied toward the required sale deposit and/or the purchase price. Cash not applied to the sale deposit or the purchase price, or a corporate surety bid bond, will be returned at the time the contract is signed by the Government.

8. *AWARD OF CONTRACT* – Government may require high bidder to furnish such information as is necessary to determine the ability of bidder to perform the obligation of contract. Contract will be awarded to high bidder, unless he is not qualified or responsible or unless all bids are rejected. If high bidder is not qualified or responsible or fails to sign and return the contract together with required performance bond and any required payment, contract may be offered and awarded to the highest bidders qualified, responsible, and willing to accept the contract.

9. *TIMBER/VEGETATIVE RESOURCE SALE CONTRACT* – To be executed by purchaser, has been prepared by Government, and may be examined in the District Manager's office.

10. *PERFORMANCE BOND* –

(a) A performance bond in an amount of not less than 20 percent of total purchase price is required, but the amount of the bond shall not be in excess of $500,000, except when the purchaser opts to increase the minimum bond to permit cutting prior to payment as provided in 43 CFR 5451.2, or in the event the purchaser is a holder of an unresolved default the bond may be increased as provided in 43 CFR 5450.1(b). Performance bond may be (1) bond of a corporate surety shown on approval list issued by the United States Treasury Department and executed on an approved standard form, (2) personal surety bond executed on an approved standard form if Government determines principals and bondsman are capable of carrying out the terms of the contract, (3) cash bonds, (4) negotiable securities of the United States, or (5) any guaranteed remittance approved by the Contracting Officer.

(b) If purchaser elects to cut timber without skidding or yarding it to a loading point or removing it prior to the payment of the second or subsequent installments, Government shall require an increase in amount of performance bond initially required by an amount equal to the value of timber to be cut. Such increase must be on a bond rider form supplied by Government and be approved, in writing, by Government prior to cutting timber covered by the bond increase. This increased amount of bond shall be used to assure payment for timber cut in advance of payment.*

11. *PAYMENT BOND* – If purchaser elects to (a) cut and remove timber, or (b) remove timber already cut which has been secured by an increased performance bond as provided in paragraph 10(b) above, before payment of the second or subsequent installments, Government shall require a payment bond on a form supplied by Government. Purchaser shall obtain written approval from Government of payment bond prior to cutting and/or removal of timber covered by the bond. Payment bond shall be used to assure payment for timber cut and/or removed in advance of payment.*

12. *PAYMENT OF PURCHASE PRICE* – For sales of $500 or more, Government may allow payment by installments. Except as discussed in paragraphs 10 and 11 above, no part of any timber/vegetative resource sold may be severed, cut, or removed unless advance payment has been made as provided in contract.

13. *LIQUIDATED DAMAGES* – Within thirty (30) days from receipt of *Timber/Vegetative Resources Sale Contract*, the successful bidder shall sign contract and return it to Government, together with required bond and any required payment. If successful bidder fails to comply within the stipulated time, his bid deposit shall be retained by Government as liquidated damages.

(Continued on page 4) (*Applies to Timber Only)

14. *NINETY-DAY SALES* – If no bid is received within time specified in the advertisement of sale and if Government determines that there has been no significant rise in the market value of timber/vegetative resource, it may, in its discretion, keep the sale open, not to exceed ninety (90) days.

15. *UNAUTHORIZED USE OF GOVERNMENT PROPERTY* – A sale may be refused to high bidder who has been notified that he has failed to make satisfactory arrangements for payment of damages resulting from unauthorized use of, or injury to, property of the United States.

16. *EQUAL OPPORTUNITY CLAUSE* – This contract is subject to the provisions of Executive Order No. 11246 of September 24, 1965, as amended, which sets forth the nondiscrimination clauses. Copies of this order may be obtained from the District Manager. 43 CFR 60-1.7(b) requires that the Equal Opportunity *Compliance Report Certification* will be completed by prospective contractors. Certification may be obtained from District Manager.

17. *LOG EXPORT* – All timber offered for sale except as noted in the *Timber Sale Notice* is restricted from export from the United States in the form of unprocessed timber and cannot be used as a substitute for exported private timber. For the purpose of this contract, unprocessed timber is defined as: (1) any logs except those of utility grade or below, such as sawlogs, peeler logs, and pulp logs; (2) cants or squares to be subsequently remanufactured exceeding eight and three quarters (8-3/4) inches in thickness; (3) split or round bolts or other roundwood not processed to standards and specifications suitable for end product use; or (4) western red cedar lumber which does not meet lumber of American Lumber Standards Grades of Number 3 dimensions or better, or Pacific Lumber Inspection Bureau R-List Grades of Number 3 common or better. Timber manufactured into the following will be considered processed: (1) lumber and construction timbers, regardless of size, manufactured to standards and specifications suitable for end product uses; (2) chips, pulp and pulp products; (3) green or dry veneer and plywood; (4) poles and piling cut or treated for use as such; (5) cants, squares, and lumber cut for remanufacture of eight and three quarters (8-3/4) inches in thickness or less; or (6) shakes and shingles. In event pur- chaser wishes to sell any or all of timber restricted from export in the form of unprocessed timber, the buyer, exchanges, or recipient shall be required to comply with contractual provisions relating to "*unprocessed timber*". Special reporting, branding and painting of logs may be included in contract provisions.*

18. *DETAILED INFORMATION* – Detailed information concerning contract provisions, bid, performance bond forms, tract location maps, and access conditions may be obtained from the District Manager. All persons interested in bidding on the products listed are encouraged to familiarize themselves with all such detailed information.

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Form 5440-9
(November 2011)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

DEPOSIT AND BID FOR

☐ ✓ **TIMBER or TIMBER AND OTHER WOOD PRODUCTS**

☐ **VEGETATIVE RESOURCES (Other Than Timber)**

Name of Bidder	
Tract Number	ORC00-TS-2017.0031
Sale Name	Crystal Clear
Sale Notice *(dated)*	May 18, 2017
BLM District	Coos Bay District

☐ Sealed Bid for Sealed Bid Sale	☐ Written Bid for Oral Auction Sale
Time for opening sealed bids ☐ a.m. ☐ p.m.	Sale commences 10:00 ☐ a.m. ☐ p.m.
On *(date)* Place	On *(date)* June 23, 2017 Place Coos Bay District Conf. Rm A

In response to the above dated Sale Notice, the required deposit and bid are hereby submitted for the purchase of designated timber/vegetative resource on the tract specified above.

Required bid deposit is $109,800.00 and is enclosed in the form of:

☐ cash ☐ money order ☐ cashier's check ☐ certified check ☐ bank draft

☐ bid bond of corporate surety on approved list of the United States Treasury ☐ guaranteed remittance approved by the authorized officer.

IT IS AGReeD That the bid deposit shall be retained by the United States as liquidated damages if the bid is accepted and the undersigned fails to execute and return the contract, together with any required performance bond and any required payment within 30 days after the contract is received by the successful bidder. It is understood that no bid for less than the appraised price on a unit basis per species will be considered. If the bid is rejected the deposit will be returned.

BID SCHEDULE – LUMP SUM SALE

NOTE: Bidders should carefully check computations in completing the Bid Schedule

BID SUBMITTED					ORAL BID MADE	
PRODUCT SPeCIeS	UNIT	eSTIMATeD VOLUMe OR QUANITY	UNIT PRICe	TOTAL VALUe	UNIT PRICe	TOTAL VALUe
Douglas-fir	MBF	5,563	x	=	x	=
western hemlock	MBF	27	x	=	x	=
red alder	MBF	15	x	=	x	=
			x	=	x	=
			x	=	x	=
			x	=	x	=
			x	=	x	=
			x	=	x	=
			x	=	x	=
			x	=	x	=
			x	=	x	=
			x	=	x	=
			x	=	x	=
			x	=	x	=
			x	=	x	=
			x	=	x	=
			x	=	x	=
TOTAL PURCHASE PRICE						

(Continued on page 2)

If sale contract is executed, undersigned is liable for total purchase price even though the quantity cut, removed, or designated for taking is more or less than the total estimated volume or quantity shown above. Undersigned certifies bid was arrived at by bidder or offeror independently, and was tendered without collusion with any other bidder or offeror. In submitting or confirming this bid, undersigned agrees to the foregoing provisions, applicable regulations, and certifies that he is authorized to act as, or on behalf of, the bidder.

Bid submitted on *(date)*

(Check appropriate box, sign in ink, and complete the following)

❑ Signature, if firm is individually owned	Name of firm *(type or print)*
❑ Signatures, if firm is a partnership or L.L.C.	Business address, include zip code *(type or print)*
❑ Corporation organized under the state laws of	*(To be completed following oral bidding)*
Signature of Authorized Corporate Signing Officer	I HEREBY confirm the above oral bid By *(signature)*
Title	Date

Submit bid, in *duplicate*, to qualify for either an oral auction or sealed bid sale together with the required bid deposit made payable to the Department of the Interior – BLM. Oral Auction – Submit to Sales Supervisor prior to closing of qualifying period for tract.	Sealed Bid – Send to District Manager, who issued the sale notice, in a sealed envelope marked on the outside: (1) "Bid for Timber" or (1a) "Vegetative Resources Other Than Timber" (2) Time bids are to be opened (3) Legal description

NOTICES

The Privacy Act and 43 CFR 2.48(d) require that you be furnished with the following information in connection with the information required by this form.

AUTHORITY: 38 FR 6280 and 43 CFR 5442.1

PRINCIPAL PURPOSE: To qualify an oral auction bidder, and then if successful, to bind bidder to certain contract conditions.

ROUTINE USES: To determine that an individual is qualified to participate in oral auction bidding, and, as surety that bidder will fulfill contract requirements.

EFFECT OF NOT PROVIDING INFORMATION: Filing this deposit and bid information is necessary only when an individual wishes to participate in a sealed or auction bid sale for timber or vegetative resources.

(Continued on page 3)

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Form 5440-9
(November 2011)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

DEPOSIT AND BID FOR

☐ **TIMBER or TIMBER AND OTHER WOOD PRODUCTS**

☐ **VEGETATIVE RESOURCES (Other Than Timber)**

Name of Bidder	
Tract Number	ORC00-TS-2017.0031
Sale Name	Crystal Clear
Sale Notice *(dated)*	May 18, 2017
BLM District	Coos Bay District

☐ Sealed Bid for Sealed Bid Sale	☐ Written Bid for Oral Auction Sale
Time for opening sealed bids ☐ a.m. ☐ p.m.	Sale commences 10:00 ☐ a.m. ☐ p.m.
On *(date)* Place	On *(date)* June 23, 2017 Place Coos Bay District Conf. Rm A

In response to the above dated Sale Notice, the required deposit and bid are hereby submitted for the purchase of designated timber/vegetative resource on the tract specified above.

Required bid deposit is $109,800.00 and is enclosed in the form of:

☐ cash ☐ money order ☐ cashier's check ☐ certified check ☐ bank draft

☐ bid bond of corporate surety on approved list of the United States Treasury ☐ guaranteed remittance approved by the authorized officer.

IT IS AGReeD That the bid deposit shall be retained by the United States as liquidated damages if the bid is accepted and the undersigned fails to execute and return the contract, together with any required performance bond and any required payment within 30 days after the contract is received by the successful bidder. It is understood that no bid for less than the appraised price on a unit basis per species will be considered. If the bid is rejected the deposit will be returned.

BID SCHEDULE – LUMP SUM SALE

NOTE: Bidders should carefully check computations in completing the Bid Schedule

BID SUBMITTED					ORAL BID MADE	
PRODUCT SPeCIeS	UNIT	eSTIMATeD VOLUMe OR QUANITY	UNIT PRICe	TOTAL VALUe	UNIT PRICe	TOTAL VALUe
Douglas-fir	MBF	5,563	x	=	x	=
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red alder	MBF	15	x	=	x	=
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			x	=	x	=
			x	=	x	=
TOTAL PURCHASE PRICE						

(Continued on page 2)

If sale contract is executed, undersigned is liable for total purchase price even though the quantity cut, removed, or designated for taking is more or less than the total estimated volume or quantity shown above. Undersigned certifies bid was arrived at by bidder or offeror independently, and was tendered without collusion with any other bidder or offeror. In submitting or confirming this bid, undersigned agrees to the foregoing provisions, applicable regulations, and certifies that he is authorized to act as, or on behalf of, the bidder.

Bid submitted on *(date)*

(Check appropriate box, sign in ink, and complete the following)

❑ Signature, if firm is individually owned	Name of firm *(type or print)*
❑ Signatures, if firm is a partnership or L.L.C.	Business address, include zip code *(type or print)*
❑ Corporation organized under the state laws of	*(To be completed following oral bidding)*
Signature of Authorized Corporate Signing Officer	I HEREBY confirm the above oral bid By *(signature)*
Title	Date

Submit bid, in *duplicate*, to qualify for either an oral auction or sealed bid sale together with the required bid deposit made payable to the Department of the Interior – BLM. Oral Auction – Submit to Sales Supervisor prior to closing of qualifying period for tract.	Sealed Bid – Send to District Manager, who issued the sale notice, in a sealed envelope marked on the outside: (1) "Bid for Timber" or (1a) "Vegetative Resources Other Than Timber" (2) Time bids are to be opened (3) Legal description

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(Continued on page 3)

Form 5430-1
(May 1965)
(formerly 4-1560)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SELF CERTIFICATION CLAUSE
BIDDERS STATEMENT

The bidder represents that he □is □is not a small business concern as defined by Title 13, Chapter 1, Part 121 of the Code of Federal Regulations, as amended.

(Date) _____ (Signature of Bidder) _____

Title 18 USC, sec. 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

INSTRUCTIONS

In order to qualify for a set-aside sale, all bidders must certify to being a small business concern by submitting an executed Self Certification Clause.

The date on the Self Certification Clause and the sale date must be the same.

A Self Certification Clause must accompany the deposit to qualify for each set-aside sale. After a sale award is made, the Self Certification Clause will be immediately returned, with the deposit, to the unsuccessful bidders but may be resubmitted to qualify for other set-aside sales offered on the same date.

The Self Certification Clause submitted by the successful bidder will be retained by the Bureau of Land Management.

GPO 850-444

GPO 905716