

**Appendix C6**  
**Blasting Plan Framework**

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# Acronyms and Abbreviations

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B2H	Boardman to Hemingway Transmission Line Project
BLM	Bureau of Land Management
CIC	Compliance Inspection Contractor
IPC	Idaho Power Company
POD	Plan of Development
Project	Boardman to Hemingway Transmission Line Project
U.S.	United States
USFS	U.S. Forest Service

# APPENDIX C6 – BLASTING PLAN FRAMEWORK

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## C6.1 Introduction

The Blasting Plan Framework outlines methods to mitigate risks and potential impacts associated with blasting procedures that may be required for construction of the Boardman to Hemingway Transmission Line Project (Project). Also included in this section is a preliminary outline for the Blasting Plan to be prepared by the Construction Contractor(s) and submitted to Idaho Power Company (IPC) if blasting is required. The Compliance Inspection Contractor (CIC) and the Bureau of Land Management (BLM) or U.S. Forest Service (USFS) will be notified in advance of any required blasting so the area can be cleared. If blasting is to occur on federal lands, IPC will submit the Blasting Plan to the federal land-management agencies for final review and approval.

### C6.1.1 Plan Framework Updates

This plan framework will support the National Environmental Policy Plan of Development (POD) sufficiently to complete and execute the BLM and USFS Records of Decision, the BLM right-of-way grant and USFS special-use authorization for the Project. This plan framework serves as baseline document to guide development of the complete Blasting Plan developed with the POD before issuance of the Notice(s) to Proceed and commencement of construction. The complete Blasting Plan will be developed by the Construction Contractor(s) in consultation with IPC and the agencies as detailed engineering design of the Project is completed and will contain the detailed information necessary for site-specific guidance. This plan framework provides Project-specific guidance for development of the complete Blasting Plan by identifying treatments and measures required to avoid, minimize, and mitigate Project-related impacts; prevent unnecessary degradation of the environment; ensure blasting activities comply with federal, state, or other agency requirements; and meet any stipulations of the Records of Decision, BLM right-of-way grant and USFS special-use authorization. The Construction Contractor(s) will be responsible for preparing and implementing the complete Blasting Plan.

### C6.1.2 Blasting Plan Purpose

Once completed, the Blasting Plan will provide construction crews, the CIC, and environmental monitors with Project-specific information concerning blasting procedures, including the safe use and storage of explosives. The objective of the Blasting Plan is to prevent adverse impacts on human health and safety, property, and the environment that could potentially result from the use of explosives during Project construction.

Blasting may be needed in certain areas with rocky terrain to excavate tower footings, prepare station pads, and to construct access roads. Blasting will be used only in areas where traditional excavation and earth-moving equipment and practices are unable to accomplish the excavation. If hard rock is encountered within the planned drilling depth, blasting may be required to loosen or fracture the rock to reach the required depth to install the structure foundations. Precise locations where blasting is expected will be identified based on a site-specific geotechnical investigation carried out as part of detailed design. In addition, the Construction Contractor(s) may elect to use implosive sleeves during line-stringing activities to fuse conductor wire together.

## C6.2 Regulatory Compliance and Procedures

The Construction Contractor(s) will be responsible for preparing and implementing the Blasting Plan and must comply with all applicable federal, state, and local laws and regulations. No blasting operations will

be undertaken until approval and appropriate permits have been obtained from the applicable agencies. Failure to comply with such laws could result in substantial financial penalty and/or imprisonment.

The Construction Contractor(s) will use qualified, experienced, and licensed blasting personnel who will perform blasting using current and professionally accepted methods, products, and procedures to maximize safety during blasting operations. Blasting procedures will be carried out according to, and in compliance with, applicable laws and will be closely monitored by the CIC.

## **C6.3 Blasting Plan Guidance**

Prior to blasting, the Construction Contractor(s) shall prepare a Blasting Plan for review and approval by IPC, BLM, USFS, CIC, and any other relevant jurisdictional organization, as applicable. The plan will address safety as well as design for production and controlled blasting. The Blasting Plan also will contain the full details of the drilling and blasting patterns, as well as the controls the Construction Contractor proposes to use for both controlled and production blasting. Review of the plan by the parties shall not relieve the Construction Contractor(s) of the responsibility for the accuracy and adequacy of the Blasting Plan when implemented in the field. A minimum of 2 weeks should be allowed for review and approval of the Blasting Plan by the BLM, USFS, and other appropriate agencies. If at any time changes are proposed to the Blasting Plan, the Construction Contractor(s) shall submit them to IPC, who will then submit the proposed changes to the federal land-management agencies and CIC for review and approval.

### **C6.3.1 Overview of Blasting Principles**

#### **C6.3.1.1 Locations**

The Construction Contractor(s) will avoid blasting in potential rockslide/landslide areas to the maximum extent possible and will consult with a geologist before blasting in such areas. A common practice for fusing conductor wire together is the use of implosive sleeves, which use explosive materials. The Construction Contractor(s) should be knowledgeable about this practice and should coordinate with the CIC, particularly with regard to the locations of these practices.

#### **C6.3.1.2 Materials**

The Construction Contractor(s) will determine the specific materials needed for blasting operations. These materials will be included on the hazardous materials list for the Project, and their use and storage will comply with applicable federal, state, and local laws and regulations.

### **C6.3.2 Blasting Plan Components**

The Blasting Plan prepared by the Construction Contractor(s) shall contain the following minimum information in the following format:

1. Purpose
2. Scope of the Blasting
3. Definitions
4. Responsibilities
  - 4.1 Management Organization
  - 4.2 Authority Responsibility
  - 4.3 Blaster in Charge (licensed in Idaho and Oregon)
5. Location of Blasting Area
  - 5.1 Description of Blasting Area
  - 5.2 Description of Bedrock and Geological Problems
  - 5.3 Description of Adjacent Utility Facilities

- 6. Environmental Considerations
- 7. Safety Considerations
  - 7.1 General
  - 7.2 Warning Signs and Signals
  - 7.3 Procedures around Adjacent Utility Facilities
  - 7.4 Traffic Control
  - 7.5 Emergency Blast Initiation
  - 7.6 Safety Publications
  - 7.7 Fire Prevention
  - 7.8 Safety Hazards
  - 7.9 Emergency Services and Communication
  - 7.10 Minor or Nonemergency Medical Care
  - 7.11 First Aid
- 8. Risk Management
  - 8.1 Protection of Adjacent Utility Facilities
  - 8.2 Lightning
  - 8.3 Flyrock (Note: Flyrock will be controlled with blasting mats.)
  - 8.4 Carbon Monoxide
  - 8.5 Ground Vibrations
  - 8.6 Seismically Sensitive Receptors
  - 8.7 Preblast Survey and Inspection
  - 8.8 Blast Damage Complaints
  - 8.9 Airblast
- 9. Blast Design Concept
  - 9.1 Station limits of proposed shot
  - 9.2 Plan and section views of proposed drill pattern, including free face, burden, blasthole spacing, blasthole diameter, blasthole angles, lift height, and sub-drill depth
  - 9.3 Loading diagram showing type and amount of explosives, primers, initiators, and location and depth of stemming
  - 9.4 Initiation sequence of blastholes, including delay times and delay system
  - 9.5 Manufacturers' data sheets for all explosives, primers, and initiators to be employed
- 10. Procedures
  - 10.1 Delivery of Explosives
  - 10.2 Storage of Explosives and Blasting Agents
  - 10.3 Blast Hole Drilling
  - 10.4 General Handling of Explosives
  - 10.5 Blast Hole Loading
  - 10.6 Notification
  - 10.7 Initiation of Blast
  - 10.8 Misfire Management
  - 10.9 Test Blasting
- 11. Records
- 12. Attachments

### **C6.3.3 Safety Procedures**

Safe storage and use of explosive materials will be a top priority during construction. The safety measures discussed in this section are intended to prevent theft and/or vandalism of the explosive materials, protect

against fire, and prevent personal injury and property damage. These measures are intended as general guidelines and specific safety requirements will be identified by the construction contractor prior to construction.

### **C6.3.3.1 Storage**

Explosives must be stored in an approved structure (magazine) and kept cool, dry, and well-ventilated. IPC's Construction Contractor(s) will provide the respective states' Bureau of Alcohol, Tobacco, Firearms, and Explosives office with a list of dates and locations for the explosives and blasting-agent storage facilities to be used on the Project at least 14 days before the establishment of such storage facilities.

At a minimum, the following storage requirements will be implemented:

- Explosives must be stored in an approved structure (magazine), and storage facilities will be bullet, weather, theft, and fire resistant.
- Magazine sites will be located in remote (out-of-sight) areas with restricted access; will be kept cool, dry, and well ventilated; and will be properly labeled and signed.
- Detonators will be stored separately from other explosive materials.
- The most stringent spacing between individual magazines will be determined according to the guidelines contained in the Bureau of Alcohol, Tobacco, Firearms, and Explosives publication or state or local explosive storage regulations.
- Both the quantity and duration of temporary onsite explosives storage will be minimized.

The Construction Contractor(s) will handle and dispose of dynamite storage boxes in accordance with relevant federal, state, and local laws.

### **C6.3.3.2 Blasting Notification and Safety Procedures**

The Construction Contractor(s) will obtain a permit from the appropriate county as needed, for the period when blasting may occur and will comply with the following requirements developed by the federal land-management agencies:

- The holder shall publish a proposed blasting schedule in the local newspaper 1 week prior to any blasting taking place. The schedule shall identify the location, dates, and times blasting will occur. No blasting shall occur outside of the published schedule, except in emergency situations.
- The holder shall post warning signs at all entry points for the Project. Warning signs shall include information on blasting, including the general hours blasting might take place, and audible signals to be used warning of impending blasting and to indicate the site is all clear.
- Access points to areas where blasting will take place will be blocked to prevent access by the public at least 30 minutes prior to blasting. The site shall be swept 5 minutes prior to blasting to ensure no unauthorized personnel have wandered onto the site. An audible warning signal, capable of carrying for 0.5 mile, shall be used at least 2 minutes prior to blasting. An "all-clear" signal will be given once it has been determined the area is safe.
- Blasting in the vicinity of pipelines will be coordinated with the pipeline operator and will follow operator-specific procedures, as needed.
- Damages that result solely from the blasting activity will be repaired or the owner fairly compensated.

A determination that the blasting area is all clear of danger will be derived once the blasting area has been inspected for undetonated or misfired explosives. The blasting area also will be inspected for hazards, such as falling rock and rock slides. Once the area has been inspected and these issues have been



addressed, the all-clear signal as described above will sound and persons will be able to safely re-enter the blast zone. Additional safety precautions will be developed to address site-specific conditions at the time of the blast. Special attention will be given to preventing potential hazards in the blasting area resulting from flying rock, destabilized walls or structures, presence of low flying aircraft, and dispersion of smoke and gases.

### **C6.3.3.3 Fire Safety**

The presence of explosive materials on the Project site could potentially increase the risk of fire during construction. Special precautions will be taken to minimize this risk in conjunction with the Fire Protection Plan (Appendix B8), including the following:

- Prohibiting ignition devices within 50 feet of explosives storage areas
- Properly maintaining magazine sites so they are clear of fuels and combustible materials, well ventilated, and fire-resistant
- Protecting magazines from wildfires that could occur in the immediate area
- Posting fire suppression personnel at the blast site during high-fire danger periods
- Prohibiting blasting during extreme fire danger periods

### **C6.3.3.4 Transportation of Explosives**

Transportation of explosives will comply with all applicable federal, state, and local laws, including Title 49 of the Code of Federal Regulations, Chapter III. These regulations are administered by the U.S. Department of Transportation and govern the packaging, labeling, materials compatibility, and safety of transported explosives, as well as driver qualifications. In general, these regulations require vehicles carrying explosive materials be well-maintained, properly marked with placards, and have a non-sparking floor. Materials in contact with the explosives will be non-sparking, and the load will be covered with a fire- and water-resistant tarpaulin. Vehicles also must be equipped with fire extinguishers and a copy of the Emergency Response Guidebook (U.S. Department of Transportation 2008). Every effort will be made to minimize transportation of explosives through congested or heavily populated areas.

Prior to loading an appropriate vehicle for carrying explosives, the vehicle shall be fully fueled and inspected to ensure its safe operation. Refueling of vehicles carrying explosives shall be avoided. Smoking shall be prohibited during the loading, transporting, or unloading of explosives. In addition, the following specific restrictions apply to transport of other items in vehicles carrying explosives:

- Tools may be carried in the vehicle, but not in the cargo compartment.
- Detonation devices can, in some cases, be carried in the same vehicle as the explosives, but they must be stored in a specially constructed compartment(s).
- Batteries and firearms shall never be carried in a vehicle with explosives.
- Vehicle drivers must comply with the specific laws related to the materials being transported.

Vehicles carrying explosives shall not be parked or left unattended except in designated parking areas with approval of the State Fire Marshall. When traveling, vehicles carrying explosives will avoid congested areas to the maximum extent possible.

## **C6.3.4 Mitigation Measures**

Section C6.3.4.1 – Design Features of the Project for Environmental Protection, will serve as the baseline measures for inclusion in the complete Blasting Plan to be developed by the Construction Contractor(s).

#### **C6.3.4.1 Design Features of the Project for Environmental Protection**

Design features of the Project for environmental protection are applied Project-wide and will address many of the concerns associated with blasting. Design Features of the Project for Environmental Protection are developed in accordance with federal land-management agencies' standards. Following is a description of design features of the Project for environmental protection that relate to blasting during the construction and operation of Project facilities.

**Design Feature 2.** Prior to construction, the compliance inspection contractor (CIC) will instruct all personnel on the protection of cultural, paleontological, ecological, and other natural resources such as (a) federal and state laws regarding antiquities, paleontological resources, and plants and wildlife, including collection and removal; (b) the importance of these resources; (c) the purpose and necessity of protecting them; and (d) reporting and procedures for stop work.

**Design Feature 6.** In construction areas (e.g., staging areas, material laydown yards, fly yards, and wire pulling/splicing sites) where there is ground disturbance and where recontouring is required, surface reclamation will occur as required by the Reclamation, Revegetation, and Monitoring Plan or the landowner. The method of reclamation may consist of, but not be limited to, returning disturbed areas to their natural contour, replacement of displaced rocks and boulders in a manner that doesn't create strong edge conditions, reseeding, installing cross drains for erosion control, placing water bars in permanent roads, use of vertical pitting and mulching used for clearing in sage areas, and filling ditches where they were installed for temporary roads.

All areas disturbed as a part of the construction and/or maintenance of the proposed transmission line will be seeded with a seed mixture appropriate for those areas as identified in the Reclamation, Revegetation, and Monitoring Plan. The federal land-management agency or landowner(s) will approve a seed mixture that is compatible with the affected Ecological Site Description. Seeding methods typically will include drill seeding, where practicable; however, the federal land-management agency or landowner(s) may recommend broadcast seeding as an alternative method in some cases.

In construction areas where disturbing the existing contours is not required, vegetation will be left in place wherever possible, and original contours will be maintained to avoid excessive root damage and allow for resprouting in accordance with the Reclamation, Revegetation, and Monitoring Plan or landowner approval.

**Design Feature 11.** If ground-disturbing activities (e.g., vegetation clearing or construction activities) could not be avoided during the migratory bird nesting season (between April 1 and July 15), migratory bird and nest surveys will be required within 7 days of any ground disturbing activities. A spatial buffer will be placed around each active nest detected during the surveys in the area where the buffer intersects work areas where vegetation clearing or construction is taking place, until such time as the nest is determined, through monitoring, to be no longer occupied. Appropriate spatial nest buffers (by species or guild) and nest-monitoring requirements will be identified using the best available scientific information through coordination with USFWS and other appropriate agencies, and will be provided in a migratory-bird nest-management plan incorporated into the POD.

**Design Feature 14.** State standards for abandoning drill holes will be adhered to where groundwater is encountered.

**Design Feature 15.** Consistent with the BLM and USFS riparian management policies, surface-disturbing activities will be avoided in defined segments of Riparian Conservation Areas<sup>2</sup>, using the following delineation criteria, unless exception criteria defined by the BLM are met or with agency approval of acceptable measures to protect riparian resources and habitats by avoiding or minimizing stormwater runoff, sedimentation, and disturbance of riparian vegetation, habitats, and wildlife species:

- Fish-bearing streams: 300 feet slope distance on either side of the stream, or to the extent of additional delineation criteria, whichever is greatest.
- Perennial non-fish bearing streams: 150 feet slope distance on either side of the stream, or to the extent of additional delineation criteria, whichever is greatest.
- Ponds, lakes, reservoirs, and wetlands greater than 1 acre: 150 feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs, or from the edge of the wetland, pond or lake, or to the extent of additional delineation criteria, whichever is greatest.
- Intermittent or seasonally flowing streams and wetlands greater than 1 acre: In watersheds that support ESA-listed fish species and /or designated critical habitat, 100 feet slope distance from the edge of the stream channel or wetland to the outer edge of riparian vegetation, whichever is greatest.
- In watersheds that do not have current, documented presence of ESA-listed fish species and /or designated critical habitat, 50 feet slope distance from the edge of the stream channel or wetland to the outer edge of riparian vegetation, whichever is greatest.

Mitigation measures, such as micro-siting road locations, will be developed on a site-specific basis, in consultation and coordination with the BLM and other federal land-management agencies, and incorporated into the final POD.

**Design Feature 21.** Hazardous material will not be discharged onto the ground or into streams or drainage areas. Enclosed containment will be provided for all waste. All construction waste (i.e., trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials) will be removed to a disposal facility authorized to accept such materials within 1 month of B2H Project completion, except for hazardous waste which will be removed within 1 week of B2H Project completion.

Refueling and storing potentially hazardous materials will not occur within a 200-foot radius of all identified private water wells, and a 400-foot radius of all identified municipal or community water wells. Spill prevention and containment measures will be incorporated as needed.

**Design Feature 23.** Open burning of construction trash will not be allowed unless permitted by the appropriate authorities.

**Design Feature 32.** Watering facilities (tanks, natural springs and/or developed springs, water lines, wells, etc.) will be repaired or replaced if they are damaged or destroyed by construction and/or maintenance activities to their predisturbed condition as required by the landowner or land-management agency. Should construction and/or maintenance activities prevent use of a watering facility while livestock are grazing in that area, then the Applicant will provide alternate sources of water and/or alternate sources of forage where water is available.

## C6.4 Literature Cited

U.S. Department of Transportation. 2008. Emergency Response Guidebook. Available at <http://www.ehso.com/hmerg.php>.

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