

## 4. Project Description

### 4.1 Introduction

The Olinda Last Mile Underserved Broadband Project (Olinda Project, or the proposed project) would involve construction of a second-generation, very-high-bit-rate digital subscriber line (VDSL2) fiber-optic cable network with 25-megabit-per-second (Mbps) download speed and 5-Mbps upload speed (25Mbps/5Mbps). Approximately 15.3 miles of new fiber-optic cable would be buried in protective conduit in trenches within easements along existing roads in southwestern Shasta County.

The proposed project would be funded in part by the California Advance Services Fund (CASF). On October 3, 2013, the California Public Utilities Commission (CPUC) adopted Resolution T-17411 approving CASF funding of the Grant Application for construction of TDS Telecom's (TDS's, or the applicant's) proposed project. On May 12, 2016, the CPUC adopted Resolution T-17517 to provide additional CASF funding for the environmental review and completion of the proposed project.

Resolution T-17411 stipulates that prior to receiving CASF funding, the applicant is required to provide a Proponent's Environmental Assessment (PEA) and the CPUC must complete California Environmental Quality Act review. The applicant submitted a PEA to the CPUC on August 5, 2015.<sup>1</sup>

### 4.2 Project Objectives

The CASF program provides funds for the deployment of broadband infrastructure in unserved and underserved areas of California. As described in Resolution T-17411, an underserved area is defined as where broadband is available, but no wireline or wireless facilities-based provider offers service at advertised speeds of at least 6 megabits per second (Mbps) downstream and 1.5 Mbps upstream (6 Mbps/ 1.5 Mbps). TDS has targeted the proposed project area for broadband deployment because the area is determined to be underserved. The applicant's stated objective is to make affordable broadband Internet services available to currently underserved areas in Shasta County.

The CPUC's Communications Division (CD) reviewed and analyzed data submitted by the TDS for the Olinda Last Mile Underserved Broadband Project to determine the project's eligibility for CASF funding. This data included but not limited to: description of current and proposed broadband infrastructure; shapefiles mapping the project areas, and assertion that the area is underserved. This helped to verify the existence or nonexistence of broadband service areas and broadband speeds, where available. CD determined that the project qualifies for funding under D. 12-02-015 and recommended Commission's approval of CASF funding for the Olinda Last Mile Underserved Broadband Project. When completed, the Olinda Project would reach an estimated 1,908 households at maximum advertised speeds of 25 Mbps/ 5 Mbps, which is above the served threshold of 6 Mbps/ 1.5 Mbps.

### 4.3 Project Location

The proposed project would be located approximately 11 miles south of the city of Redding in unincorporated portions of southwestern Shasta County, near the communities of Happy Valley, Olinda, and Igo (Figure 4-1). The proposed alignment would run alongside County roads for approximately 15.3 miles between Igo and the applicant's central office in Happy Valley. The majority of the proposed

<sup>1</sup> The applicant's PEA and other source documentation referenced herein is available as part of the project's administrative record accessible via <http://www.cpuc.ca.gov/environment/info/ene/olinda/olinda.html>

1 project area is used for agriculture, with limited residential and commercial properties dispersed  
2 throughout. Public land managed by the Bureau of Land Management (BLM) lies near the western  
3 portion of the proposed project area, but the proposed project is not within BLM jurisdiction.  
4

## 5 **4.4 Project Components**

6  
7 The proposed project would consist of:

- 8
- 9 • Installation of new high-speed broadband fiber-optic cable; and
- 10 • Installation of equipment cabinets on top of buried vaults and cross-connect boxes at Digital Loop  
11 Carrier (DLC) sites.  
12

### 13 **4.4.1 Fiber-Optic Cable**

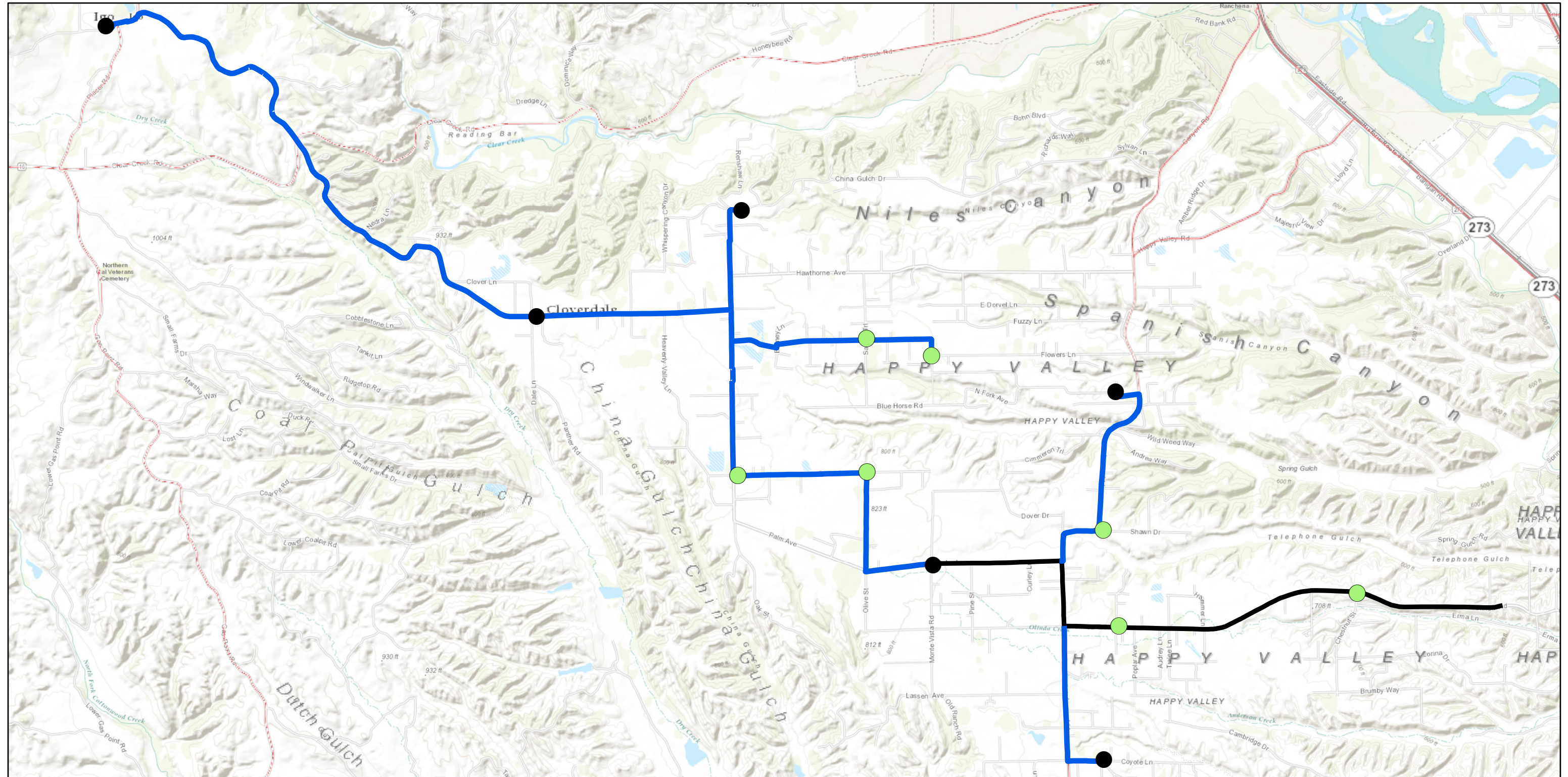
14  
15 The proposed project would involve the construction of a VDSL2 fiber-optic network capable of 25  
16 Mbps/5 Mbps download/upload speed. Approximately 15.3 miles of shielded fiber-optic  
17 telecommunications cable within 1.25-inch-diameter, high-density polyethylene conduits would be  
18 installed along existing roads within the proposed project area. Installation would occur using a mix of  
19 directional boring and plowing and trenching (Figure 4-2).  
20

### 21 **4.4.2 Digital Loop Carrier Sites**

22  
23 Seven new DLC sites would be established and up to six existing sites would be renovated. DLC sites  
24 serve as connection points for customers and splice boxes for the fiber-optic cable. Each DLC would  
25 consist of an equipment cabinet; a large, partially buried vault (handhole); and a cross-connect box.  
26 Equipment cabinets would be approximately 2 by 3 by 4 feet in size and would be installed on top of the  
27 buried handholes. Each handhole would comprise an approximately 3- by 2.5- by 4-foot prefabricated  
28 epoxy box with an approximately 1-foot raised step that would remain unburied and that would be  
29 attached to an equipment cabinet. A small (8-inch by 8-inch by 2-foot) cross connect box would be  
30 installed near each equipment cabinet. Gravel would be placed in a 20-square-foot area around each  
31 equipment cabinet.  
32

## 33 **4.5 Right-of-Way Requirements**

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35 Installations associated with the proposed project would be sited in and along existing, Shasta County  
36 roads, roadways and right of ways. The applicant does not anticipate the need to disturb or acquire any  
37 new public or private lands. The applicant will acquire encroachment permits from Shasta County to  
38 install facilities, as approved, in an orderly and safe manner. The applicant has completed permit  
39 applications and submitted plans to Shasta County for review as required in order to secure these permits.  
40 No construction work shall commence until the applicant has obtained all approvals.



- Existing DLC sites
- Proposed DLC sites
- Proposed telecom route
- Existing TDS fiber route

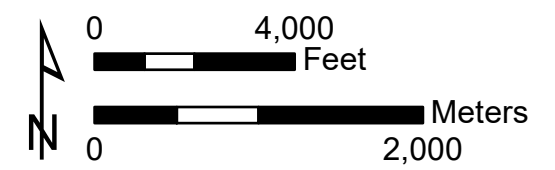


Figure 4-1  
Project Overview

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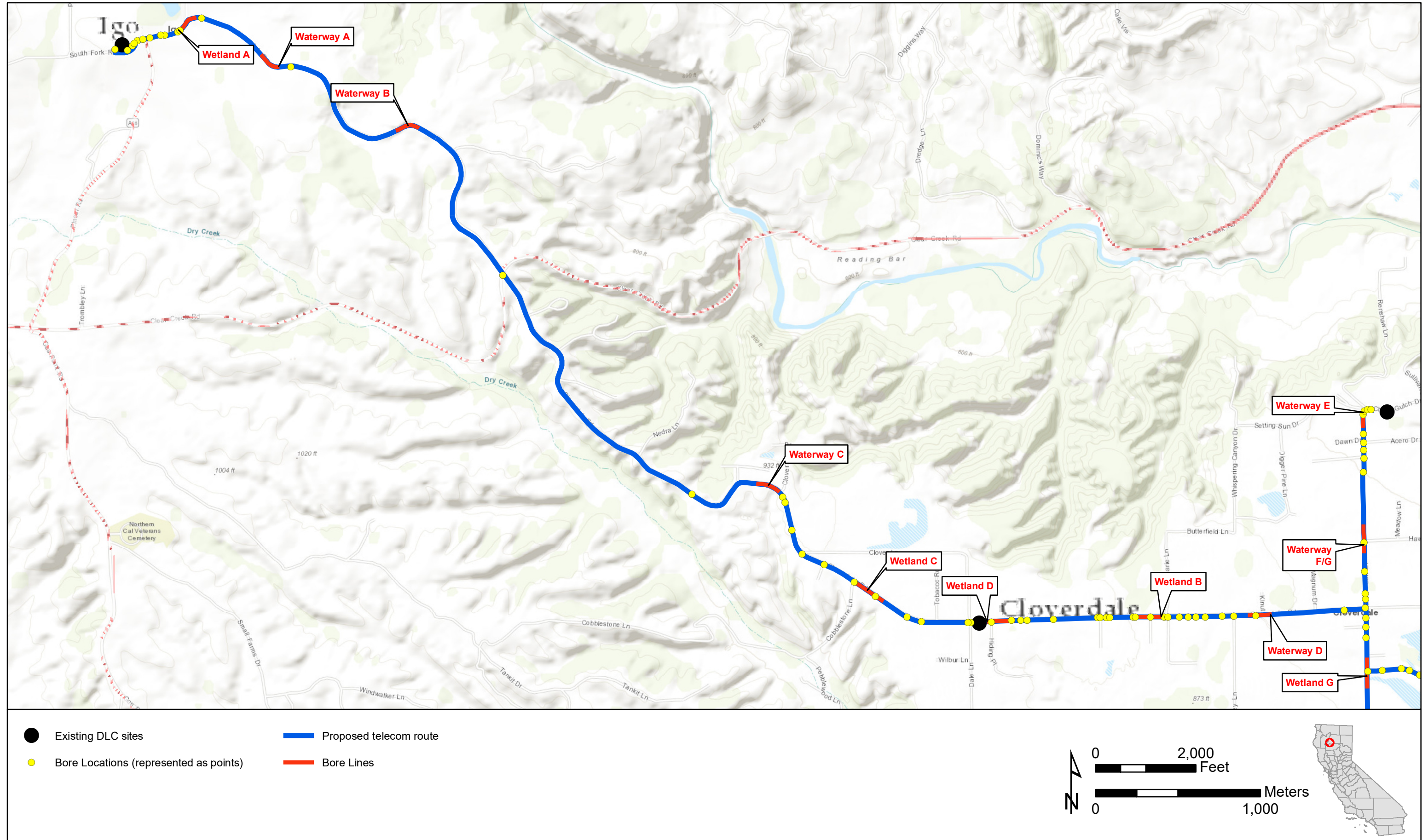
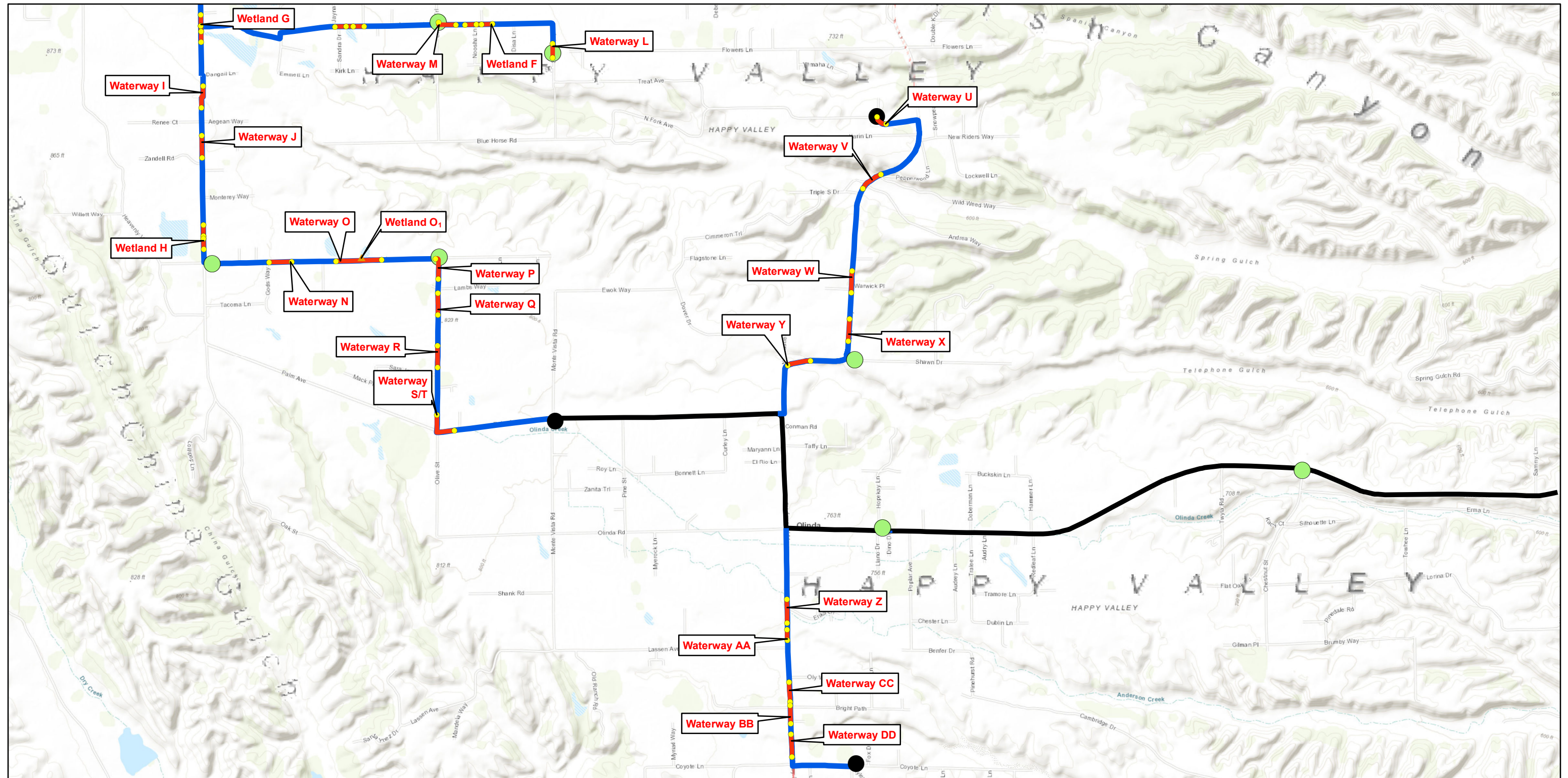


Figure 4-2  
Project Detail

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- ▲ Wetland O<sub>1</sub> = Vernal Pool
- Proposed telecom route
- Existing DLC sites
- Existing TDS fiber route
- Proposed DLC sites
- Bore Lines
- Bore Locations (represented as points)

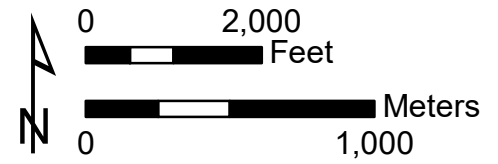


Figure 4.2B  
Project Detail

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1  
2 **4.6 Construction Activities**  
3

4 Construction would occur along County roads in the proposed project area and consist of several phases.  
5 The fiber optic line installation would be initiated in Igo and the network would be built out from west to  
6 east along the alignment.  
7

8 **4.6.1 Staging Areas**  
9

10 The applicant does not anticipate that staging areas will be required. All equipment and material staging  
11 would occur at the applicant’s Igo and/or Happy Valley Central office or at individual contractors’ offsite  
12 yards. Spoil piles and equipment used for boring, plowing, and other types of construction would be left  
13 overnight in the ROW as allowed by the County or on adjacent private properties if permission from  
14 landowners is granted.  
15

16 **4.6.2 Fiber-Optic Cable Installation**  
17

18 Fiber-optic cable would be installed using a three-step process. First, protective conduit would be  
19 installed using plowing, trenching, or directional boring construction methods (directional boring would  
20 be utilized whenever the alignment crosses a road, paved driveway, waterway, or other surficial feature  
21 that could be impacted by ground disturbance). Second, pigging (forcing a cleaning sponge, or pig,  
22 through the conduit) would be used to lightly lubricate the conduit. Third, fiber-optic cable would then be  
23 blown through the conduit using compressed air. The splicing crew would splice together sections of  
24 cable where necessary.  
25

26 **Plowing and Trenching**

27 Approximately 10.3 of the total 15.3 miles of the cable alignment would be plowed using a rubber-tread  
28 track-type bulldozer equipped with a specialized hydraulic single ripper. The hydraulic single ripper  
29 would enable plowing to occur offset from the bulldozer, allowing construction in the road shoulder while  
30 the equipment remains largely on the roadway. Conduit may be laid directly from a plow chute following  
31 the ripper or installed using a separate truck. Conduit would be placed at a nominal depth of 3.3 feet. A  
32 compaction machine would follow directly behind the plow bulldozer, restoring the ground surface to its  
33 original contour and burying the conduit. In cases where subsurface rock or other obstructions are present,  
34 a second bulldozer may be used to pre-rip the installation path and ease installation of the conduit. A  
35 single plow crew typically installs 1,000 feet of conduit per day.  
36

37 In areas too narrow for plowing equipment, and where directional drilling is not required, trenching  
38 would be performed using a small excavator to avoid surface disturbance. The maximum ground  
39 disturbance associated with this work is an approximately 8-foot-wide corridor along the route. During a  
40 site visit in November 2016, the applicant estimated that ground disturbance would be limited and would  
41 occur within a utility easement of approximately 2 feet in width from roadway travel lanes.  
42

43 **Directional Boring**

44 Approximately 5 miles of the total 15.3 miles of the cable alignment would be installed using directional  
45 boring. This method would be used to avoid disturbing resources on the surface such as cultural  
46 resources, large trees, roads, paved driveways, and water features. A directional boring crew can typically  
47 complete three to four bore shots per day. During each bore shot, up to 1,500 feet of conduit can be  
48 installed. Each bore shot begins with the creation of a boring pit and pilot hole. The operator guides a  
49 steerable drill bit through the pilot hole and along the desired boring path. After the hole has been bored,  
50 conduit is attached to the end of the drill string and pulled back through the bore.

This method would require two boring pits (one on either end of the bore shot) for bore ingress and egress. Bore pit locations and distance apart would be determined in the field and dependent on the anticipated bore path. Depth of bores would be at least 5 feet below the bed of waterways, surface of roads, or other surficial obstructions. Bore hole diameter would be slightly larger than the conduit diameter (2 inches) and drilled using drilling mud. Drilling mud, which is used to ease the drilling process, is typically a mix of water, bentonite, and clay. Following installation of the conduit, bore pits would be filled and compacted. Directional boring along the line would be completed prior to the installation of conduit using plowing or trenching techniques.

**4.6.3 Digital Loop Carrier Installation**

DLC site installation would last approximately five days per site and consist of excavating a 3-foot-wide by 6-foot-long by 4-foot-deep hole using a backhoe. At the bottom of each hole, 12 inches of crushed 1-inch gravel would be placed. The handhole would be placed in the hole and the hole backfilled using excavated material. Approximately 1 foot of the handhole would remain above ground and function as a step upon which an equipment cabinet would be installed. Excess excavated material would be used as needed for compaction or hauled offsite and disposed of by the contractor. Cross-connect boxes would be installed within 20 feet of equipment cabinets.

**4.6.4 Surface Restoration**

Site clean-up and surface restoration would take place following telecommunication line and DLC site installations, and would typically be required to be completed within 24 hours of installation completion. No more than 1,000 linear feet of disturbance would be allowed at any given time. Clean-up would include removing all construction debris and trash. Surface restoration would include compacting excavated soil and returning surface contours to pre-existing conditions. Where necessary, vegetation would be restored in a manner consistent with County and/or California Department of Transportation standards utilizing seed mixes specific to the region.

**4.6.5 Construction Workforce and Equipment**

The applicant anticipates that one plow-trenching crew, two directional-boring crews, one splice crew, and one clean-up crew would be required for installation of the fiber-optic cable. One additional crew would be necessary to install the DLC sites. Table 4-1 depicts the estimated workforce by project construction phase. A total of 22 workers are expected to be needed.

Table 4-1 Total Anticipated Workforce

Project Phase	Number of Crews	Maximum Workers per Crew	Total Workforce per Construction Phase
Plowing/trenching	1	4	4
Directional boring	2	4	8
Splice crew	1	4	4
Clean-up crew	1	4	4
Node (DLC) site crew	1	2	2
Maximum # of workers	-	-	22

Key:  
DLC Digital Loop Carrier

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1 **4.6.6 Construction Schedule**

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3 The applicant anticipates construction beginning 90-120 days following project approval. Project  
4 construction would take place over an approximately 60-120-day period. Work is anticipated to occur in  
5 phases, with some overlap in work activity. For any given portion of the proposed alignment, directional  
6 boring would occur prior to that portion being plowed or trenched. A splice crew would follow and  
7 connect portions of fiber-optic line together. Following construction of a portion of the alignment, crews  
8 would perform site clean-up and surface restoration.  
9

10 **4.7 Operation and Maintenance**

11  
12 Operation and maintenance associated with the new telecommunications network would be minimal.  
13 Occasional visits by TDS technicians to the DLC sites would be required in order to check on equipment  
14 and connect or disconnect customers.  
15

16 **4.8 Applicant Proposed Measures**

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18 TDS included applicant proposed measures (APMs) in its August 2015 PEA, as listed in Table 4-2. Since  
19 the PEA was submitted in August 2015, the applicant has modified the project alignment and  
20 incorporated several APMs into the project design. These APMs are noted in Table 4-2 as project design  
21 features (PDF) and are not discussed in the respective resource sections, nor included in Chapter 6  
22 “Mitigation Monitoring and Reporting Plan” because the measures are already incorporated into the  
23 project. The remaining APMs are categorized as avoidance/minimization measures (AMM), which are  
24 anticipated to reduce a potentially significant impact to a less-than-significant level. AMMs are included  
25 in Chapter 6 “Mitigation Monitoring and Reporting Plan.”  
26

27 Mitigation Measure (MM) GEN-1 requires implementation of these APMs, which are anticipated to  
28 mitigate, avoid, or minimize impacts regarding Biological Resources, Cultural Resources, Geology and  
29 Soils, Hazards and Hazardous Materials, Hydrology, Noise, and Traffic. Therefore, the impact analysis  
30 for these noted resource areas apply these APMs to reduce impacts to less than significant.  
31

Table 4-2 Applicant Proposed Measures

APM Number	Description	PDF/AMM
<b>Air Quality</b>		
APM AQ-1	<p>TDS will require all construction contractors to implement the following measures for fugitive Particulate Matter (PM) less than 10 microns in diameter (PM10) control during construction:</p> <ul style="list-style-type: none"> <li>• All disturbed areas, including bulk material storage that is not being actively utilized, shall be effectively stabilized, and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps, or other suitable material such as vegetative ground cover.</li> <li>• All on- and off-site unpaved roads will be effectively stabilized, and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by non-toxic chemical stabilizers, dust suppressants, and/or watering.</li> <li>• All track-out and carry-out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 15 linear m (50 linear feet) or more onto a paved road within an urban area.</li> </ul>	AMM

Table 4-2 Applicant Proposed Measures

APM Number	Description	PDF/AMM
	<ul style="list-style-type: none"> <li>Bulk material shall be stabilized prior to movement or at points of transfer with the application of sufficient water, the application of chemical stabilizers, or by sheltering or enclosing the operation and transfer line.</li> <li>Vehicle speed for all construction vehicles shall not exceed 24.1 km (15.0 miles) per hour on any unpaved surface at the construction site.</li> </ul>	
<b>Biological Resources</b>		
APM BIO-1	All waterways and wetlands in the project area will be bored beneath and avoided during construction.	PDF
APM BIO-2	Bore pits will be placed a minimum distance of 5 m (16 feet) beyond either the top of waterway banks or the maximum extent of any vegetation present along the waterways' margins.	AMM
APM BIO-3	Bore pits will be placed a minimum distance of 76 m (250 feet) beyond either the edge of seasonal wetlands or the maximum extent of any vegetation present along the wetlands' margins.	AMM
APM BIO-4	A Stormwater Pollution Prevention Plan (SWPPP) will be developed and will include Best Management Practices (BMPs) that will be implemented during construction to minimize or eliminate sediment transport from areas subject to ground disturbance.	AMM
APM BIO-5	All orchards will be avoided during construction.	AMM
APM BIO-6	No trees will be removed during project construction. If vegetation trimming is required to complete the installations, trimming will be kept to the absolute minimum necessary.	AMM
<b>Cultural Resources</b>		
APM CR-1	Happy Valley Ditch will be avoided via subsurface boring.	PDF
APM CR-2	Cloverdale Cemetery and the Igo Inn will be avoided by rerouting the fiber-optic lines to the opposite side of the road.	PDF
APM CR-3	In the event that undiscovered historical or archaeological resources are encountered by construction personnel, all ground-disturbing activities within 30.5 m (100.0 feet) of the find in non-urban areas and 15.2 m (50.0 feet) in urban areas will be temporarily halted or diverted and a qualified archaeologist will be contacted to assess the discovery.	AMM
APM CR-4	If human remains are discovered or recognized in any location, construction personnel will suspend further excavation or disturbance of the site and any nearby areas reasonably suspected to overlie adjacent human remains until the County coroner has been informed and has determined that no investigation of the cause of death is required.	AMM
APM CR-5	In the event that fossil remains are encountered by construction personnel, qualified paleontological specialists will be contacted. Construction within 30.5 m (100.0 feet) of the find in non-urban areas and 15.2 m (50.0 feet) in urban areas will be temporarily halted or diverted until a qualified vertebrate paleontologist examines the discovery.	AMM
<b>Geology and Soils</b>		
APM GEO-1	TDS will require the contractor to manage construction-induced sediment and excavated spoils in accordance with the requirements of the State Water Resources Control Board (SWRCB) and U.S. Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) permits for stormwater runoff associated with construction activities.	AMM
APM GEO-2	Prior to the onset of construction, TDS or its authorized contractor will complete a SWPPP that outlines BMPs to control discharges from construction areas.	AMM
APM GEO-3	No construction-related materials, wastes, spills, or residues will be discharged from the project.	AMM
APM GEO-4	The staging of construction materials, equipment, and excavation spoils will be performed outside of drainages.	AMM

Table 4-2 Applicant Proposed Measures

APM Number	Description	PDF/AMM
APM GEO-5	Excavated or disturbed soil will be kept within a controlled area surrounded by a perimeter barrier that may include silt fence, hay bales, straw wattles, or a similarly effective erosion control technique that prevents the transport of sediment from a given stockpile.	AMM
APM GEO-6	All stockpiled material will be covered or contained in such a way that off-site runoff is eliminated.	AMM
APM GEO-7	Upon completion of construction activities, excavated soil will be replaced and graded so that post-construction topography and drainage matches pre-construction conditions.	AMM
APM GEO-8	Surplus soil will be transported from the site and disposed of appropriately.	AMM
<b>Hazards and Hazardous Materials/Fire Safety</b>		
APM HAZ-1	TDS and/or their contractor will ensure proper labeling, storage, handling, and use of hazardous materials in accordance with BMPs and the Occupational Safety and Health Administration's (OSHA's) Hazardous Waste and Operations and Emergency Response (HAZWOPER) requirements.	AMM
APM HAZ-2	TDS and/or their contractor will ensure that employees are properly trained in the use and handling of hazardous materials and that each material is accompanied by a Material Safety Data Sheet (MSDS).	AMM
APM HAZ-3	Any small quantities of hazardous materials stored temporarily in staging areas will be stored on pallets within fenced and secured areas and protected from exposure to weather. Incompatible materials will be stored separately, as appropriate.	AMM
APM HAZ-4	All hazardous waste materials removed during construction will be handled and disposed of by a licensed waste disposal contractor and transported by a licensed hauler to an appropriately licensed and permitted disposal or recycling facility to the extent necessary to ensure the area can be safely traversed.	AMM
APM HAZ-5	Spill clean-up kits will be provided and kept on-site during construction, and equipment will remain in good working order to prevent spills. Significant releases or threatened releases of hazardous materials will be reported to the appropriate agencies.	AMM
APM HAZ-6	Workers shall be instructed regarding the danger of wildland fire and the need to carefully park equipment in areas without dry, brushy vegetation. All work vehicles shall be equipped with a working fire extinguisher. All cigarettes and trash shall be disposed of in proper containers and taken off-site at the end of the day.	AMM
<b>Noise</b>		
APM NOI-1	All construction equipment operation shall be limited to the hours of 7 a.m. to 7 p.m. Monday through Friday. No construction operations shall occur on weekends or holidays or during nighttime hours.	AMM
<b>Traffic</b>		
APM TRA-1	TDS and/or their contractors will require the project contractor to obtain all necessary local road encroachment permits prior to construction and will comply with all the applicable conditions of approval.	AMM
APM TRA-2	If required by the applicable jurisdiction issuing a road encroachment permit, TDS shall require the contractor to prepare a traffic control plan in accordance with professional engineering standards prior to construction.	AMM
APM TRA-3	TDS and/or their contractors will develop circulation and detour plans to minimize impacts to local street circulation. This will include the use of signing and flagging to guide vehicles through and/or around the construction zone.	AMM
APM TRA-4	TDS and/or their contractors will schedule truck trips outside of peak morning and evening commute hours.	AMM
APM TRA-5	TDS and/or their contractors will limit lane closures during peak hours to the extent possible.	AMM

Table 4-2 Applicant Proposed Measures

APM Number	Description	PDF/AMM
APM TRA-6	TDS and/or their contractors will include detours for bicycles and pedestrians in all areas potentially affected by project construction.	AMM
APM TRA-7	TDS and/or their contractors will install traffic control devices as specified in the <i>California Department of Transportation Manual of Traffic Controls for Construction and Maintenance Work Zones</i> .	AMM
APM TRA-8	TDS and/or their contractors will coordinate with local transit agencies for the temporary relocation of routes or bus stops in work zones as necessary.	AMM
<b>Utilities and Service Systems</b>		
APM PSU-1	TDS and/or their contractors will recycle solid waste generated during construction, to the extent practicable.	AMM

Key:

AMM	avoidance/minimization measure	NPDES	National Pollutant Discharge Elimination System
APM	applicant-proposed measure	OSHA	Occupational Safety and Health Administration
BMP	best management practices	PM	particulate matter
EPA	U.S. Environmental Protection Agency	PM10	particulate matter less than 10 microns in diameter
HAZWOPER	Hazardous Waste and Operations and Emergency Response	PDF	project design feature
km	kilometers	SWPPP	Stormwater Pollution Prevention Plan
m	meters	SWRCB	State Water Resources Control Board
MSDS	Material Safety Data Sheet	TDS	TDS Telecomm

## 4.9 Permits and Approvals

Table 4-3 lists permits and approvals necessary for the construction of the proposed project.

Table 4-3 Permits and Approvals Required for Construction

Agency	Permit/Approval	Requirement
California Department of Fish and Wildlife	Lake and Streambed Alteration Agreement	TDS would conduct work near or within waterways.
State Water Resources Control Board	Construction General Permit (Order 2009-0009-DWQ)	TDS would disturb more than 1 acre of land during proposed project construction.
Shasta County Public Works	Encroachment Permit	TDS would conduct work within Shasta County roadways.
California Public Utilities Commission	Mitigated Negative Declaration	
California Public Utilities Commission	<b>PROJECT APPROVAL ACTION</b>	

Note: Since waterways, wetlands, and threatened and endangered species and habitat will be avoided through directional drilling, no permits will be required from the United States Army Corps of Engineers or Regional Water Quality Control Board.