# Finalizing Addendum to the

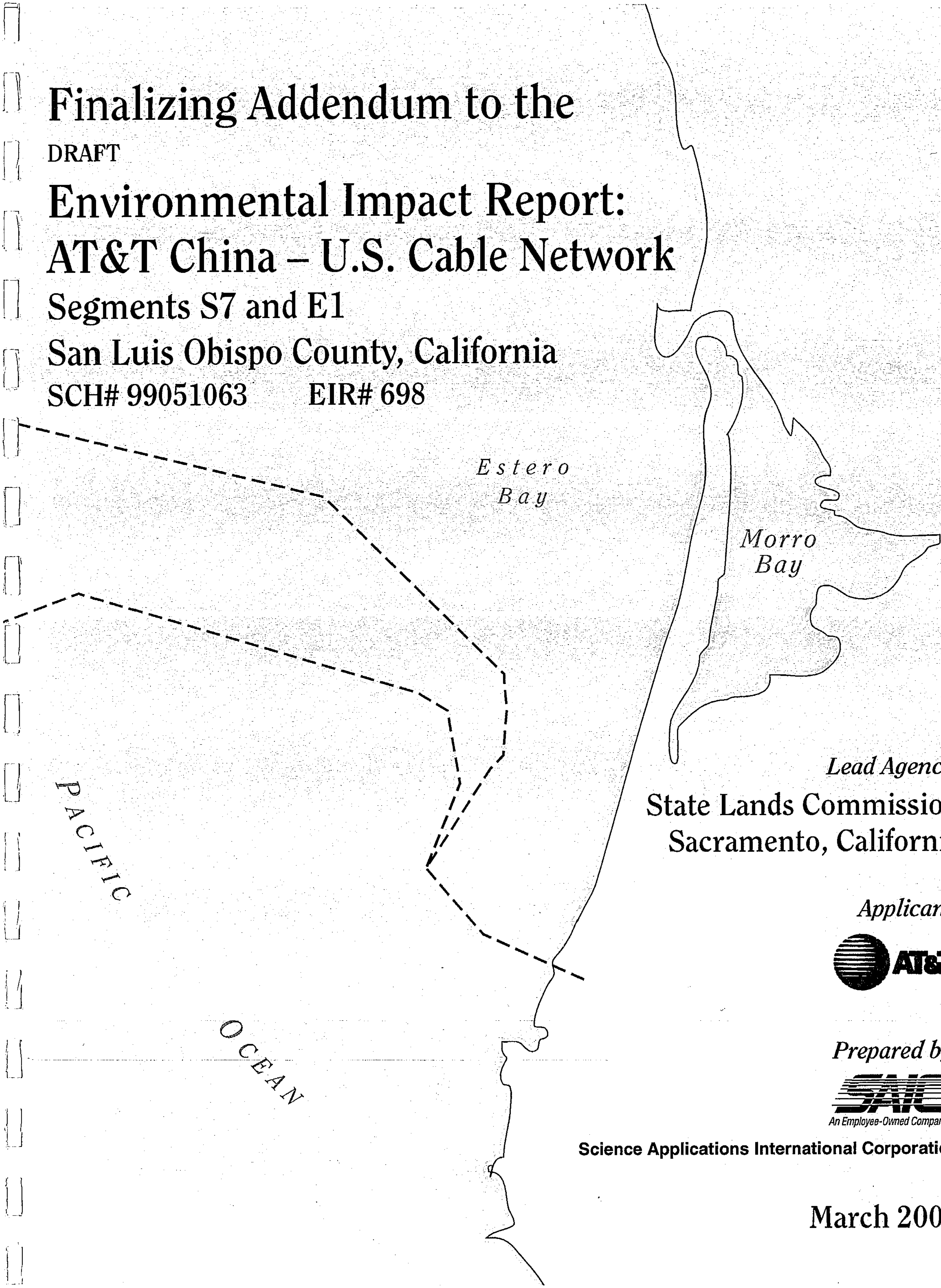
DRAFT

# Environmental Impact Report: AT&T China – U.S. Cable Network

## Segments S7 and E1

## San Luis Obispo County, California

SCH# 99051063 EIR# 698

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Sacramento, California

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March 2000

# FINALIZING ADDENDUM TO THE AT&T CHINA-U.S. DEIR

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## PREFACE

This Finalizing Addendum to the Draft Environmental Impact Report (DEIR) on the proposed AT&T China-US Cable Network project contains: (A) discussion of Project Implementation Options regarding a potential minor realignment of one of the two cable segments in nearshore shallow waters and the specification of the cable-laying vessel that will be used to install both cables; (B) a Summary of Project Impacts, Mitigation Measures, and a Mitigation Monitoring and Reporting Plan; (C) letters of comment on the DEIR submitted to the California State Lands Commission (CSLC); (D) transcript of the testimony received at the public hearing held on the DEIR at Morro Bay on February 1, 2000; (E) responses to the letters of comment submitted to the CSLC and the testimony heard at the public hearing; and (F) a listing of the revisions to the DEIR. Collectively, these documents, including the DEIR, constitute the Final Environmental Impact Report for this project.

The discussion of Project Implementation Options is presented in the first main portion of this document following the first blue divider sheet. The first part of this discussion is an analysis of the "2 in 2 Option" which is a potential minor realignment of one of the two cable segments in the nearshore shallow waters. The second part is a letter submitted on behalf of the project applicant giving further detail on the equipment intended to be used to complete the project. Correspondence with the San Luis Obispo County Air Pollution Control District (SLOAPCD) on the associated emissions and appropriate mitigation measures is included. As fully discussed and concluded in the section describing the Project Implementation Options, the information contained therein does not involve new significant environmental effects or a substantial increase in the severity of effects that are described in the DEIR.

Following the second blue divider sheet is a Summary of Project Impacts, Mitigation Measures, and the Mitigation Monitoring and Reporting Plan for this project, all of which are set forth in Table B-1.

A complete transcript of the public hearing on the DEIR conducted by CSLC in the town of Morro Bay on February 1, 2000 follows the fourth blue divider sheet. Four speakers from the public spoke at the hearing. Two represented the commercial fishing industry, one represented the Harbor District for the City of Morro Bay, and one represented Port San Luis Harbor District.

Following a fifth blue divider sheet, the responses to the comments are presented. Each written comment is identified by the name of the commenter (*e.g.*, the California Coastal Commission), and where known, an agency or organization is also identified with an abbreviated name (*e.g.*, CDFG for the California Department of Fish and Game). Each comment is reiterated with a specific response that follows. Included in this section of the response to comments is a response to the substantive issue raised at the public hearing.

Finally, the revisions to the DEIR prompted by the responses to comment are listed in the final section following the sixth blue divider sheet.

# A. PROJECT IMPLEMENTATION OPTIONS

1. Analysis of "2 in 2 Option"
2. Specification of Cable Laying Vessel

# ANALYSIS OF AT&T CHINA-U.S. CABLE NETWORK PROJECT "2 IN 2 OPTION"

## DESCRIPTION OF CONTINGENT MODIFICATION TO PROPOSED PROJECT

Contingent on the successful and timely installation of five (5) new bore pipes at Montaña de Oro as part of the MCIWorldCom project (CSLC Lease # PRC 8144.1), AT&T may prefer to realign the China-U.S. E1 cable into MCIWorldcom's southernmost new bore pipe, while the S7 cable would remain as proposed along the Maximum Burial Route, connecting as planned into the existing empty AT&T bore pipe. The name "2 in 2 Option" derives from the fact that the two China-U.S. cables (S7 and E1) would be landed in two separate bore pipes, as opposed to the planned "2 in 1" proposal where the two cables would be jointly pulled into one bore pipe. Implementing the 2 in 2 Option would increase the security of the system by placing the two China-U.S. cables in two separate bore pipes. Associated with the 2 in 2 Option is a realignment of the E1 cable route in the nearshore shallow water area from the yet-to-be-constructed MCIWorldcom bore pipe to a distance of about 1 mile offshore where the alignment would rejoin the Maximum Burial E1 Route (Figure A-1). If approved, AT&T would opt for the 2 in 2 Option only if the MCIWorldcom bore pipe were constructed and ready to accept cable at the time that the E1 cable is ready to be landed. If the MCIWorldcom bore pipe is not available, AT&T would land the E1 cable jointly with the S7 cable in the existing AT&T bore pipe.

As shown in Figure A-1, the E1 cable route associated with the 2 in 2 Option begins at the MCIWorldcom bore pipe, the offshore exit point of which is 330 feet (100 meters [m]) northeast of the offshore exit point of the existing AT&T bore pipe. The route then parallels the proposed Maximum Burial combined E1-S7 route for 2779 feet (847 m), then turns northward for 1000 feet (300 meters) whereupon it intersects the Maximum Burial route. The route crosses the same sedimentary substrates that are crossed by the Maximum Burial routes.

The use of separate bore pipes for the 2 in 2 Option would necessitate modifications to the installation procedures for the shore-end and nearshore components of the project relative to those of the original proposed project and Maximum Burial routes. These modifications are as follows:

1. Activity durations and equipment usage for shore-end operations at the Sandspit Beach parking lot would be increased by 3 – 5 days due to the installation of cables into the two separate bore pipes.

2. Equipment usage for nearshore operations would be greater than for the original proposed project, but activity duration is not expected to significantly change. Each cable would be installed into its own bore pipe then laid along its own course independently of the other cable. As a result, there would be two separate diver-assisted cable pulling operations at the two bore pipe exits instead of the single cable pulling operation; and two diver retro-burial operations in the shallow-water area

extending seaward in shallow water from the bore pipes, instead of a single retroburial operation out to about 23 m depth where the E1 and S7 Maximum Burial routes diverge.

Activity duration, however, is not expected to change significantly, if at all. Under the original proposed project, the cable-laying ship will land both cables in AT&T's remaining bore pipe and then steam seaward, laying out both along one of the predetermined alignments to a point 3.1 miles offshore. At that point, the cable ship will buoy off one of the cables (the Segment E1 cable), turn around, and slowly steam back to shore picking back up the other cable (Segment S7) to the point of divergence from the E1 alignment (about one mile offshore). At this juncture, it will steam seaward again, laying out the S7 cable along its predetermined course.

By contrast, the 2 in 2 Option requires that the cable-laying ship land one of the cables (E1), lay it out to its deep water splice point, buoy it off, and then turn around to steam directly and relatively quickly back to land the remaining cable (S7) and lay it on its predetermined course to its deep water splice point. Under the 2 in 2 Option, the cable-laying ship would not have to engage in the time-consuming and energy-consumptive process of picking back up the S7 cable after having laid the E1 cable. Since the two cables will be grounded at different landing points, it will not be necessary to land them simultaneously and lay and retrieve them as described above.

In all other respects, the 2 in 2 Option is the same as the Maximum Burial Alternative. The following sections assess the degree to which the environmental impacts and mitigation measures differ between the 2 in 2 Option and the Maximum Burial Alternative as described in the DEIR.

## COMPARATIVE IMPACT ANALYSIS

### Air Quality

The 2 in 2 Option would result in greater emissions of NOx due to increased equipment usage and activity durations in the parking lot and in the nearshore waters. The DEIR and Addendum regarding the use of the vessel CS Seaspread establish that the proposed project would exceed the San Luis Obispo County Air Pollution Control District (SLOAPCD) threshold for requiring best available control technology (BACT) and that additional offsets should be applied for the use of the Seaspread. In discussion between the CSLC and the SLOAPCD, it has been agreed that project modifications that increase NOx emissions above the 2.5 tons per quarter threshold shall provide additional mitigation in the form of proportionate contributions to an offset program developed by the SLOAPCD.

Tables A-1 through A-4 provide the analysis of emissions associated with the 2 in 2 Option. As indicated in Table A-4, total project emissions within the 3-mile limit would amount to 3.63 tons of NOx. The SLOAPCD and the CSLC will determine the appropriate contribution to offset this quantity of NOx emissions, based on the cost of offsets consistent with DEIR mitigation measure AQ-4.

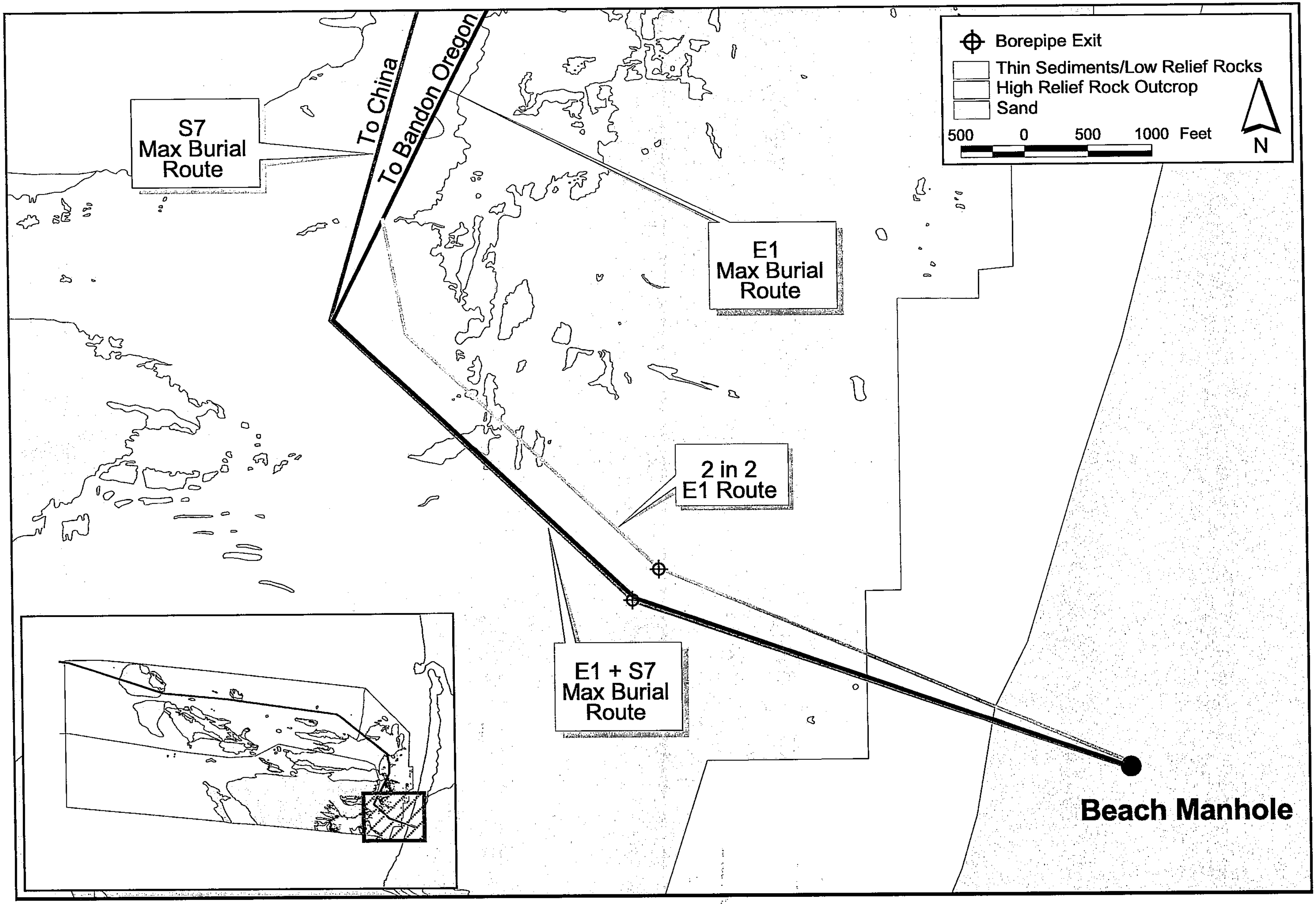


Figure A-1. 2 in 2 Option with Respect to Sea-Floor Geology

**Table A-1. Emission Source Data for Construction of the China-US Cable Network Project, 2 in 2 Option.**

| *Activity/Equipment Type* | *Horsepower (Hp)* | *Load Factor* | *Number Active* | *Total Hp* | *Gal/Hr* | *Hours /Day* | *Gal/Day* | *Work Days* | *Total Fuel (Gal)* |
|---|---|---|---|---|---|---|---|---|---|
| **Pipe Preparation** | | | | | | | | | |
| Primary Work Boat - Dive Platform | 800 | 0.15 | 2 | 240 | 13 | 14 | 188 | 5 | 941 |
| Secondary Work Boat - Anchor Support/Shuttle | 350 | 0.37 | 2 | 259 | 15 | 14 | 203 | 5 | 1,015 |
| **Pre-lay Grapnel Run** | | | | | | | | | |
| SEASPREAD - Outside State Waters | 1,540 | 0.20 | 4 | 1,232 | 69 | 20 | 1,380 | 5 | 6,899 |
| SEASPREAD - w/i State Waters | 1,540 | 0.20 | 4 | 1,232 | 69 | 2 | 138 | 2 | 276 |
| **Near-Shore Cable Installation** | | | | | | | | | |
| SEASPREAD - Landing | 1,540 | 0.20 | 4 | 1,232 | 69 | 14 | 966 | 4 | 3,864 |
| Primary Work Boat - Dive Platform | 800 | 0.20 | 2 | 320 | 18 | 14 | 251 | 2 | 502 |
| Secondary Work Boat - Anchor Support/Shuttle | 350 | 0.26 | 2 | 182 | 10 | 14 | 143 | 2 | 285 |
| SEASPREAD - Near-Shore Lay | 1,540 | 0.50 | 4 | 3,080 | 172 | 12 | 2,070 | 2 | 4,140 |
| Secondary Work Boat - Support, Patrol & Shuttle | 350 | 0.50 | 2 | 350 | 20 | 14 | 274 | 2 | 549 |
| **Near-Shore Cable Retroburial** | | | | | | | | | |
| Primary Work Boat - Dive Platform | 800 | 0.18 | 2 | 288 | 16 | 14 | 226 | 4 | 903 |
| Secondary Work Boat - Anchor Support/Shuttle | 350 | 0.26 | 2 | 182 | 10 | 14 | 143 | 4 | 571 |
| **Cable Splice - Arrival & Return** | | | | | | | | | |
| Cable Lay Vessel - Cruising | 5,950 | 0.50 | 3 | 8,929 | 500 | 8 | 4,000 | 2 | 8,000 |
| Cable Lay Vessel - Holding | 5,950 | 0.19 | 3 | 3,348 | 188 | 24 | 4,500 | 2 | 9,000 |
| **Offshore Cable Installation** | | | | | | | | | |
| Cable Lay Vessel - Lay Cable | 5,950 | 0.25 | 3 | 4,464 | 250 | 24 | 6,000 | 4 | 24,000 |
| Cable Lay Vessel - Plow Cable | 5,950 | 0.19 | 3 | 3,348 | 188 | 24 | 4,500 | 6 | 27,000 |
| **Cable Ship Return** | | | | | | | | | |
| Cable Lay Vessel - Cruising | 5,950 | 0.50 | 3 | 8,929 | 500 | 8 | 4,000 | 2 | 8,000 |
| Cable Lay Vessel - Cruising w/i State Waters | 5,950 | 0.50 | 3 | 8,929 | 500 | 0.25 | 125 | 2 | 250 |
| **Cable Retroburial** | | | | | | | | | |
| SEASPREAD - ROV | 1,540 | 0.20 | 4 | 1,232 | 218 | 24 | 5,225 | 6.5 | 33,963 |
| SEASPREAD - ROV w/i State Waters | 1,540 | 0.20 | 4 | 1,232 | 218 | 18 | 3,919 | 2 | 7,838 |
| **Shore End Construction** | | | | | | | | | |
| Bore Rig (Pipe Cleaning) | 115 | 0.50 | 1 | 58 | 3.2 | 6 | 19.3 | 2 | 38.6 |
| Crane | 250 | 0.32 | 1 | 80 | 4.5 | 2 | 9.0 | 4 | 35.8 |
| Backhoe | 105 | 0.72 | 1 | 76 | 4.2 | 8 | 33.9 | 8 | 271.0 |
| Power Winch | 100 | 0.40 | 1 | 40 | 2.2 | 6 | 13.4 | 4 | 53.8 |
| Compressor | 40 | 0.48 | 1 | 19 | 1.1 | 2 | 2.2 | 4 | 8.6 |
| Generator | 50 | 0.74 | 1 | 37 | 2.1 | 3 | 6.2 | 20 | 124.3 |
| Supply Truck | 250 | 0.30 | 2 | 150 | 8.4 | 1 | 8.4 | 20 | 168.0 |

Notes: Fuel consumption (gal/hr) for all equipment based on 0.056 gallons per Hp-hr (diesel engines).
Horsepower and load factor data for vessels include consideration of the power needed to generate on-board electricity.

**Table A-2. Emission Factors for Sources Associated with the China-US Cable Network Project.**

| Equipment Type | Fuel Type | Emission Factors TOC | ROG | CO | NOx | SO2 | PM | PM10 | Units | Source |
|---|---|---|---|---|---|---|---|---|---|---|
| Primary Work Boat, SEASPREAD, & Cable Lay Vessel | D | 19.8 | 19.0 | 57.0 | 335.2 | 75.0 | 9.0 | 8.6 | lbs/1000 gal | (1) |
| Secondary Work Boat | D | 188.0 | 180.5 | 418.0 | 310.4 | 7.1 | 24.0 | 23.0 | lbs/1000 gal | (2) |
| Bore Rig | D | 1.44 | 1.38 | 9.20 | 8.81 | 0.93 | 1.44 | 1.38 | grams/Hp-hr | (3) |
| Crane | D | 1.29 | 1.24 | 4.20 | 8.24 | 0.93 | 1.44 | 1.38 | grams/Hp-hr | (3) |
| Backhoe | D | 1.43 | 1.37 | 6.80 | 8.08 | 0.85 | 1.05 | 1.01 | grams/Hp-hr | (3) |
| Power Winch | D | 1.14 | 1.09 | 3.03 | 14.06 | 0.93 | 1.00 | 1.00 | grams/Hp-hr | (4) |
| Compressor | D | 1.22 | 1.17 | 5.00 | 8.00 | 0.93 | 1.00 | 0.96 | grams/Hp-hr | (3) |
| Generator | D | 1.22 | 1.17 | 5.00 | 8.00 | 0.93 | 1.00 | 0.96 | grams/Hp-hr | (3) |
| Supply Truck | D | 0.86 | 0.83 | 2.80 | 7.68 | 0.89 | 0.80 | 0.77 | grams/Hp-hr | (3) |

Notes: (1) *Marine Vessel Emissions Inventory and Control Strategies*, Final Report FR-119-96 (Acurex 1996). Fuel contains 0.5% sulfur. NOx emission factors reduced by 20 percent to account for reduction due to application of injection timing retard.

(2) *Development of an Improved Inventory of Emissions from Pleasure Craft in California*, Table 3-3b (ARB 1995).

(3) *Nonroad Engine and Vehicle Emission Study - Report*, Table 2.07 (EPA 1991).

(4) AP-42, Table 3.3-1, Vol. 1 (EPA 1996).

D = diesel

TOC = total organic compounds

ROG = reactive organic gases

CO = carbon monoxide

NOx = nitrogen oxides

SO2 = sulfur dioxide

PM = particulate matter

PM10 = particulate matter less than or equal to 10 microns in diameter

**Table A-3. Daily Emissions for Construction of the China-US Cable Project.**

| Activity/ Equipment Type | Pounds Per Day TOC | ROG | CO | NOx | SO2 | PM | PM10 |
|---|---|---|---|---|---|---|---|
| **Pipe Preparation** | | | | | | | |
| Primary Work Boat - Dive Platform | 3.7 | 3.6 | 10.7 | 63.1 | 14.1 | 1.7 | 1.6 |
| Secondary Work Boat - Anchor Support/Shuttle | 38.2 | 36.6 | 84.9 | 63.0 | 1.4 | 4.9 | 4.7 |
| **Total Activity Emissions (All w/i State Waters)** | **41.9** | **40.2** | **95.6** | **126.1** | **15.6** | **6.6** | **6.3** |
| **Pre-lay Grapnel Run** | | | | | | | |
| SEASPREAD - Outside State Waters | 27.3 | 26.2 | 78.7 | 462.5 | 103.5 | 12.4 | 11.9 |
| SEASPREAD - w/i State Waters | 2.7 | 2.6 | 7.9 | 46.3 | 10.3 | 1.2 | 1.2 |
| **Total Activity Emissions** | **30.0** | **28.8** | **86.5** | **508.8** | **113.8** | **13.7** | **13.1** |
| **Emissions w/i State Waters** | **2.7** | **2.6** | **7.9** | **46.3** | **10.3** | **1.2** | **1.2** |
| **Near-Shore Cable Installation** | | | | | | | |
| SEASPREAD - Landing | 19.1 | 18.4 | 55.1 | 323.8 | 72.4 | 8.7 | 8.3 |
| Primary Work Boat - Dive Platform | 5.0 | 4.8 | 14.3 | 84.1 | 18.8 | 2.3 | 2.2 |
| Secondary Work Boat - Anchor Support/Shuttle | 26.8 | 25.8 | 59.6 | 44.3 | 1.0 | 3.4 | 3.3 |
| SEASPREAD - Near-Shore Lay | 41.0 | 39.3 | 118.0 | 693.8 | 155.2 | 18.6 | 17.9 |
| Secondary Work Boat - Support, Patrol & Shuttle | 51.6 | 49.5 | 114.7 | 85.2 | 1.9 | 6.6 | 6.3 |
| **Total Activity Emissions (All w/i State Waters)** | **143.5** | **137.7** | **361.7** | **1,231.1** | **249.5** | **39.6** | **38.0** |
| **Near-Shore Cable Retroburial** | | | | | | | |
| Primary Work Boat - Dive Platform | 4.5 | 4.3 | 12.9 | 75.7 | 16.9 | 2.0 | 2.0 |
| Secondary Work Boat - Anchor Support/Shuttle | 26.8 | 25.8 | 59.6 | 44.3 | 1.0 | 3.4 | 3.3 |
| **Total Activity Emissions (All w/i State Waters)** | **31.3** | **30.0** | **72.5** | **120.0** | **17.9** | **5.5** | **5.2** |
| **Cable Splice - Arrival & Return** | | | | | | | |
| Cable Lay Vessel - Cruising | 79.2 | 76.0 | 228.0 | 1,340.8 | 300.0 | 36.0 | 34.6 |
| Cable Lay Vessel - Holding | 89.1 | 85.5 | 256.5 | 1,508.4 | 337.5 | 40.5 | 38.9 |
| **Total Activity Emissions (All outside State Waters)** | **168.2** | **161.5** | **484.5** | **2,849.2** | **637.5** | **76.5** | **73.4** |
| **Offshore Cable Installation** | | | | | | | |
| Cable Lay Vessel - Lay Cable | 118.8 | 114.0 | 342.0 | 2,011.2 | 450.0 | 54.0 | 51.8 |
| Cable Lay Vessel - Plow Cable | 89.1 | 85.5 | 256.5 | 1,508.4 | 337.5 | 40.5 | 38.9 |
| **Total Activity Emissions (All outside State Waters)** | **207.8** | **199.5** | **598.5** | **3,519.6** | **787.5** | **94.5** | **90.7** |
| **Cable Ship Return** | | | | | | | |
| Cable Lay Vessel - Cruising | 79.2 | 76.0 | 228.0 | 1,340.8 | 300.0 | 36.0 | 34.6 |
| Cable Lay Vessel - Cruising w/i State Waters | 2.5 | 2.4 | 7.1 | 41.9 | 9.4 | 1.1 | 1.1 |
| **Total Activity Emissions** | **81.6** | **78.4** | **235.1** | **1,382.7** | **309.4** | **37.1** | **35.6** |
| **Emissions w/i State Waters** | **2.5** | **2.4** | **7.1** | **41.9** | **9.4** | **1.1** | **1.1** |
| **Cable Retroburial** | | | | | | | |
| SEASPREAD - ROV | 103.4 | 99.3 | 297.8 | 1,751.4 | 391.9 | 47.0 | 45.1 |
| SEASPREAD - ROV w/i State Waters | 77.6 | 74.5 | 223.4 | 1,313.6 | 293.9 | 35.3 | 33.9 |
| **Total Activity Emissions** | **181.0** | **173.7** | **521.2** | **3,065.0** | **685.8** | **82.3** | **79.0** |
| **Emissions w/i State Waters** | **77.6** | **74.5** | **223.4** | **1,313.6** | **293.9** | **35.3** | **33.9** |
| **Shore End Construction** | | | | | | | |
| Bore Rig (Pipe Cleaning) | 1.1 | 1.1 | 7.0 | 6.7 | 0.7 | 1.1 | 1.1 |
| Crane | 0.5 | 0.4 | 1.5 | 2.9 | 0.3 | 0.5 | 0.5 |
| Backhoe | 1.9 | 1.8 | 9.1 | 10.8 | 1.1 | 1.4 | 1.3 |
| Power Winch | 0.6 | 0.6 | 1.6 | 7.4 | 0.5 | 0.5 | 0.5 |
| Compressor | 0.1 | 0.1 | 0.4 | 0.7 | 0.1 | 0.1 | 0.1 |
| Generator | 0.3 | 0.3 | 1.2 | 2.0 | 0.2 | 0.2 | 0.2 |
| Supply Truck | 0.3 | 0.3 | 0.9 | 2.5 | 0.3 | 0.3 | 0.3 |
| **Total Activity Emissions (All w/i State Waters)** | **4.7** | **4.6** | **21.7** | **33.0** | **3.3** | **4.1** | **4.0** |
| **Peak Daily Emissions (1)** | **143.5** | **137.7** | **361.7** | **1,231.1** | **249.5** | **39.6** | **38.0** |
| **APCD Daily Significance Thresholds** | **NA** | **185.0** | **NA** | **185.0** | **NA** | **NA** | **NA** |

Note: (1) Peak daily emissions within state waters would occur during Cable Retroburial activities.

**Table A-4. Total Emissions from Construction of the China-US Cable Project.**

| *Activity/ Equipment Type* | *Total Tons* | | | | | | |
|---|---|---|---|---|---|---|---|
| | *TOC* | *ROG* | *CO* | *NOx* | *SO2* | *PM* | *PM10* |
| **Pipe Preparation** | | | | | | | |
| Primary Work Boat - Dive Platform | 0.01 | 0.01 | 0.03 | 0.16 | 0.04 | 0.00 | 0.00 |
| Secondary Work Boat - Anchor Support/Shuttle | 0.10 | 0.09 | 0.21 | 0.16 | 0.00 | 0.01 | 0.01 |
| **Total Activity Emissions (All w/i State Waters)** | **0.10** | **0.10** | **0.24** | **0.32** | **0.04** | **0.02** | **0.02** |
| **Pre-lay Grapnel Run** | | | | | | | |
| SEASPREAD - Outside State Waters | 0.07 | 0.07 | 0.20 | 1.16 | 0.26 | 0.03 | 0.03 |
| SEASPREAD - w/i State Waters | 0.00 | 0.00 | 0.01 | 0.05 | 0.01 | 0.00 | 0.00 |
| **Total Activity Emissions** | **0.07** | **0.07** | **0.20** | **1.20** | **0.27** | **0.03** | **0.03** |
| **Emissions w/i State Waters** | **0.00** | **0.00** | **0.01** | **0.05** | **0.01** | **0.00** | **0.00** |
| **Near-Shore Cable Installation** | | | | | | | |
| SEASPREAD - Landing | 0.04 | 0.04 | 0.11 | 0.65 | 0.14 | 0.02 | 0.02 |
| Primary Work Boat - Dive Platform | 0.00 | 0.00 | 0.01 | 0.08 | 0.02 | 0.00 | 0.00 |
| Secondary Work Boat - Anchor Support/Shuttle | 0.03 | 0.03 | 0.06 | 0.04 | 0.00 | 0.00 | 0.00 |
| SEASPREAD - Near-Shore Lay | 0.04 | 0.04 | 0.12 | 0.69 | 0.16 | 0.02 | 0.02 |
| Secondary Work Boat - Support, Patrol & Shuttle | 0.05 | 0.05 | 0.11 | 0.09 | 0.00 | 0.01 | 0.01 |
| **Total Activity Emissions (All w/i State Waters)** | **0.16** | **0.16** | **0.42** | **1.55** | **0.32** | **0.05** | **0.05** |
| **Near-Shore Cable Retroburial** | | | | | | | |
| Primary Work Boat - Dive Platform | 0.01 | 0.01 | 0.03 | 0.15 | 0.03 | 0.00 | 0.00 |
| Secondary Work Boat - Anchor Support/Shuttle | 0.05 | 0.05 | 0.12 | 0.09 | 0.00 | 0.01 | 0.01 |
| **Total Activity Emissions (All w/i State Waters)** | **0.06** | **0.06** | **0.15** | **0.24** | **0.04** | **0.01** | **0.01** |
| **Cable Splice - Arrival & Return** | | | | | | | |
| Cable Lay Vessel - Cruising | 0.08 | 0.08 | 0.23 | 1.34 | 0.30 | 0.04 | 0.03 |
| Cable Lay Vessel - Holding | 0.09 | 0.09 | 0.26 | 1.51 | 0.34 | 0.04 | 0.04 |
| **Total Activity Emissions (All outside State Waters)** | **0.09** | **0.09** | **0.26** | **1.51** | **0.34** | **0.04** | **0.04** |
| **Offshore Cable Installation** | | | | | | | |
| Cable Lay Vessel - Lay Cable | 0.24 | 0.23 | 0.68 | 4.02 | 0.90 | 0.11 | 0.10 |
| Cable Lay Vessel - Plow Cable | 0.27 | 0.26 | 0.77 | 4.53 | 1.01 | 0.12 | 0.12 |
| **Total Activity Emissions (All outside State Waters)** | **0.50** | **0.48** | **1.45** | **8.55** | **1.91** | **0.23** | **0.22** |
| **Cable Ship Return** | | | | | | | |
| Cable Lay Vessel - Cruising | 0.08 | 0.08 | 0.23 | 1.34 | 0.30 | 0.04 | 0.03 |
| Cable Lay Vessel - Cruising w/i State Waters | 0.00 | 0.00 | 0.01 | 0.04 | 0.01 | 0.00 | 0.00 |
| **Total Activity Emissions** | **0.08** | **0.08** | **0.24** | **1.38** | **0.31** | **0.04** | **0.04** |
| **Emissions w/i State Waters** | **0.00** | **0.00** | **0.01** | **0.04** | **0.01** | **0.00** | **0.00** |
| **Cable Retroburial** | | | | | | | |
| SEASPREAD - ROV | 0.34 | 0.32 | 0.97 | 5.69 | 1.27 | 0.15 | 0.15 |
| SEASPREAD - ROV w/i State Waters | 0.08 | 0.07 | 0.22 | 1.31 | 0.29 | 0.04 | 0.03 |
| **Total Activity Emissions** | **0.41** | **0.40** | **1.19** | **7.01** | **1.57** | **0.19** | **0.18** |
| **Emissions w/i State Waters** | **0.08** | **0.07** | **0.22** | **1.31** | **0.29** | **0.04** | **0.03** |
| **Shore End Construction** | | | | | | | |
| Bore Rig (Pipe Cleaning) | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| Crane | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| Backhoe | 0.01 | 0.01 | 0.04 | 0.04 | 0.00 | 0.01 | 0.01 |
| Power Winch | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| Compressor | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Generator | 0.00 | 0.00 | 0.01 | 0.02 | 0.00 | 0.00 | 0.00 |
| Supply Truck | 0.00 | 0.00 | 0.01 | 0.03 | 0.00 | 0.00 | 0.00 |
| **Total Activity Emissions (All w/i State Waters)** | **0.02** | **0.02** | **0.07** | **0.12** | **0.01** | **0.01** | **0.01** |
| **Total Project Emissions** | **1.51** | **1.45** | **4.21** | **21.87** | **4.80** | **0.62** | **0.59** |
| **Total Project Emissions w/i State Waters** | **0.43** | **0.41** | **1.11** | **3.63** | **0.72** | **0.13** | **0.12** |
| **APCD Significance Thresholds (per calendar quarter)** | **NA** | **2.50** | **NA** | **2.50** | **NA** | **NA** | **2.50** |

### Geology

The 2 in 2 Option has been overlaid on the detailed seafloor geology map (Figure 14 of the DEIR) to determine how it differs from the Maximum Burial E1 route. From the bore pipe exit to their point of intersection, the difference between the two is that the 2 in 2 Option route crosses 395 feet (120 m) of thin sediments versus 236 feet (72 m) over the same substrate type for the Maximum Burial route; and 3313 feet (1010 m) of sandy bottom versus 4206 feet (1282 m) along the Maximum Burial route. These differences amount to a 10 percent increase in the overlap and impact on the thin sediments habitat and a 7.3 percent decrease in the overlap and impact on sandy substrate. As in the DEIR (section 4.3.3), the extent of potential alteration of these substrate types is still very small, amounting to less than one tenth of one percent of the existing areas, and the impacts are therefore considered less than significant. Diver-assisted burial of the cables in both cases is planned.

### Water Quality

Water quality impacts, limited to turbidity, would be slightly greater for the 2 in 2 Option due to the use of a second bore pipe. The impacts in either case would not be significant or different than the water quality impacts described in the DEIR at Section 4.4.3.

### Biology

The 2 in 2 Option involves a slightly increased duration of activities in the Sandspit parking lot, but in any case the impacts on terrestrial biological resources are less than significant as discussed in section 4.5 of the DEIR.

ROV transects to assess marine biological communities along the original proposed and Maximum Burial routes and anchor lanes were done in close proximity on either side of the 2 in 2 Option route (DEIR Figure 16). As a result, the soft-bottom and low-relief communities described in the DEIR in section 4.5.1 are the same as would be expected along the 2 in 2 Option route. A large boulder was crossed by the ROV survey and is mapped as high relief (transect V-10) in DEIR Figure 16. The immediate area of the WorldCom offshore bore pipe exit is also described in that project's DEIR prepared by San Luis Obispo County as lead agency (Morro Group 1999).

As noted above under Geology, the 2 in 2 Option would increase the impact on the thin sediments habitat by about 10 percent, and reduce the impact on sandy substrate by 7.3 percent. These impacts are less than significant as discussed in the DEIR because the affected areas are not considered to be high quality habitats since they do not support diverse or abundant communities or concentrations of species of potential concern and, in any case, the impacted area is not substantial, representing a very small fraction (less than 0.01 percent) of that which is available. As it would for the Maximum Burial routes, the large high-relief boulder mentioned above should be mapped for avoidance, consistent with DEIR mitigation measure MB-1.

### Cultural Resources

The evaluation of marine cultural resources for the Maximum Burial routes in the DEIR overlaps the area of the 2 in 2 Option E1 route and hence is applicable. A single sonar target of possible cultural significance has been identified in 26 m depth (Hunter 2000). As for the Maximum Burial route, this target would require either avoidance by a safe distance to assure no impact, or additional evaluation by divers or ROV, consistent with DEIR mitigation measure CR-1.

**Commercial and Recreational Fishing, Socioeconomics**

The 2 in 2 Option has essentially the same impacts and applicable mitigation measures on Commercial and Recreational Fishing and Socioeconomics as discussed for the Maximum Burial Alternative in the DEIR. The slight differences in substrate types affected in the shallow water are of no consequence to these resources.

**Land Use and Recreation**

The 2 in 2 Option may have slightly greater impact on Land Use and Recreation because use of the second bore pipe in the Sandspit parking lot may require occupation of the lot 3 – 5 days longer than proposed. However, depending on the timing of the MCIWorldcom construction activities in the parking lot, the total number of lot occupation days by the contractors may not increase because the contractors for the two companies (AT&T and MCIWorldcom) have coordinated their respective work plans to allow concurrent construction. Regardless, the same DEIR mitigation measure, REC-1, which will ensure the availability of parking, restrooms, and access to the beach during the project's use of the parking lot, would be applicable.

**Aesthetics and Noise**

The 2 in 2 Option would have slightly greater impact on Aesthetics and Noise because of the use of the second bore pipe in the Sandspit parking lot, but in any case, the impacts would be less than significant.

**Marine Transportation, System Safety/Risk of Upset**

The 2 in 2 Option would have the same impacts as the original proposed routes or the Maximum Burial routes.

**Onshore Traffic, Public Services and Utilities**

The 2 in 2 Option would have the same impacts as the original proposed routes or the Maximum Burial routes.

## CONCLUSION

Relative to the Maximum Burial Alternative, the 2 in 2 Option would have impacts that are the same in terms of significance, but incrementally greater in several resource areas. All impacts are either less than significant or mitigable to less than significant, and the same mitigation measures that would be required for the Maximum Burial Alternative would be required if the 2 in 2 Option were to be adopted.

*Specification of Cable Laying Vessel*

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March 28, 2000

Daniel Gorfain
State Lands Commission
Division of Environmental Planning and
Management
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

Re: AT&T's China-US Cable Network Project

Dear Dan:

As discussed on the phone, AT&T had intended to use the *Seaspread* cable-laying ship operating out of Victoria, B.C. for the nearshore and California Shelf cable installation process. Due to events beyond the control of AT&T, this vessel may not be available for this work. However, it is anticipated that the cable-laying ship to be used will be similar to the *Seaspread* in terms of capabilities and specifications. For this reason, the *Seaspread* vessel is described in this letter, including its air emission impacts and associated mitigation. Should a different cable-laying ship ultimately be used for this project, AT&T will notify you and the San Luis Obispo Air Pollution Control District (SLOAPCD) in advance of construction activities and secure State Lands Commission staff clearance on use of such vessel, including adjustments, if any, to the prescribed air emission mitigation.

The *Seaspread* is a cableship that will carry and lay the nearshore cables for both the S-7 and E-1 routes from the landing point out to approximately 3.1 miles offshore where the cables will be temporarily buoyed off prior to commencing the main cable lay and burial operations on the California Shelf. The *Seaspread* is slightly larger than the *MV American Patriot* that is described for reference purposes in the draft EIR for this project, and will be capable of installing these cables without deploying anchors that would have been required by the *American Patriot*. As described in the project description, it is a vessel that is "similar to the *MV American Patriot*" in that it is specifically designed for this type of work. The *Seaspread* is more stable and as a result better suited to installing the cables along the Maximum Burial routes.

### 4.2.6 Mitigation Measures

Applicant-proposed commitments are incorporated here as mitigation measures.

**AQ-1.** The injection timing on diesel-powered vessels and construction equipment will be retarded 4° prior to and throughout cable installation with the exception of the main cable ships which will be operated at 3° retardation. These measures will produce a 20-25 percent reduction in emissions of nitrogen oxides (NOx).

**AQ-2.** Onshore equipment will use low-sulfur/low-aromatic diesel fuel as designated by the ARB. Ocean vessels will burn low-sulfur diesel fuel as designated by the EPA.

Table 7. **Emission Source Data for Construction of the China-US Cable Network Project.**

| *Activity/Equipment Type* | *Horsepower (Hp)* | *Load Factor* | *Number Active* | *Total Hp* | *Gal/Hr* | *Hours /Day* | *Gal/Day* | *Work Days* | *Total Fuel (Gal)* |
|---|---|---|---|---|---|---|---|---|---|
| **Pipe Preparation** | | | | | | | | | |
| Primary Work Boat - Dive Platform | 800 | 0.15 | 2 | 240 | 13 | 14 | 188 | 3 | 564 |
| Secondary Work Boat - Anchor Support/Shuttle | 350 | 0.37 | 2 | 259 | 15 | 14 | 203 | 3 | 609 |
| **Pre-lay Grapnel Run** | | | | | | | | | |
| SEASPREAD - Outside State Waters | 1,540 | 0.20 | 4 | 1,232 | 69 | 20 | 1,380 | 5 | 6,899 |
| SEASPREAD - w/i State Waters | 1,540 | 0.20 | 4 | 1,232 | 69 | 2 | 138 | 2 | 276 |
| **Near-Shore Cable Installation** | | | | | | | | | |
| SEASPREAD - Landing | 1,540 | 0.20 | 4 | 1,232 | 69 | 14 | 966 | 1 | 966 |
| Primary Work Boat - Dive Platform | 800 | 0.20 | 2 | 320 | 18 | 14 | 251 | 1 | 251 |
| Secondary Work Boat - Anchor Support/Shuttle | 350 | 0.26 | 2 | 182 | 10 | 14 | 143 | 1 | 143 |
| SEASPREAD - Near-Shore Lay | 1,540 | 0.50 | 4 | 3,080 | 172 | 12 | 2,070 | 2 | 4,140 |
| Secondary Work Boat - Support, Patrol & Shuttle | 350 | 0.50 | 2 | 350 | 20 | 14 | 274 | 2 | 549 |
| **Near-Shore Cable Retroburial** | | | | | | | | | |
| Primary Work Boat - Dive Platform | 800 | 0.18 | 2 | 288 | 16 | 14 | 226 | 4 | 903 |
| Secondary Work Boat - Anchor Support/Shuttle | 350 | 0.26 | 2 | 182 | 10 | 14 | 143 | 4 | 571 |
| **Cable Splice - Arrival & Return** | | | | | | | | | |
| Cable Lay Vessel - Cruising | 5,950 | 0.50 | 3 | 8,929 | 500 | 8 | 4,000 | 2 | 8,000 |
| Cable Lay Vessel - Holding | 5,950 | 0.19 | 3 | 3,348 | 188 | 24 | 4,500 | 2 | 9,000 |
| **Offshore Cable Installation** | | | | | | | | | |
| Cable Lay Vessel - Lay Cable | 5,950 | 0.25 | 3 | 4,464 | 250 | 24 | 6,000 | 4 | 24,000 |
| Cable Lay Vessel - Plow Cable | 5,950 | 0.19 | 3 | 3,348 | 188 | 24 | 4,500 | 6 | 27,000 |
| **Cable Ship Return** | | | | | | | | | |
| Cable Lay Vessel - Cruising | 5,950 | 0.50 | 3 | 8,929 | 500 | 8 | 4,000 | 2 | 8,000 |
| Cable Lay Vessel - Cruising w/i State Waters | 5,950 | 0.50 | 3 | 8,929 | 500 | 0.25 | 125 | 2 | 250 |
| **Cable Retroburial** | | | | | | | | | |
| SEASPREAD - ROV | 1,540 | 0.20 | 4 | 1,232 | 218 | 24 | 5,225 | 6.5 | 33,963 |
| SEASPREAD - ROV w/i State Waters | 1,540 | 0.20 | 4 | 1,232 | 218 | 18 | 3,919 | 2 | 7,838 |
| **Shore End Construction** | | | | | | | | | |
| Bore Rig (Pipe Cleaning) | 115 | 0.50 | 1 | 58 | 3.2 | 6 | 19.3 | 1 | 19.3 |
| Crane | 250 | 0.32 | 1 | 80 | 4.5 | 2 | 9.0 | 2 | 17.9 |
| Backhoe | 105 | 0.72 | 1 | 76 | 4.2 | 8 | 33.9 | 4 | 135.5 |
| Power Winch | 100 | 0.40 | 1 | 40 | 2.2 | 6 | 13.4 | 2 | 26.9 |
| Compressor | 40 | 0.48 | 1 | 19 | 1.1 | 2 | 2.2 | 2 | 4.3 |
| Generator | 50 | 0.74 | 1 | 37 | 2.1 | 3 | 6.2 | 10 | 62.2 |
| Supply Truck | 250 | 0.30 | 2 | 150 | 8.4 | 1 | 8.4 | 10 | 84.0 |

Notes: Fuel consumption (gal/hr) for all equipment based on 0.056 gallons per Hp-hr (diesel engines)
Horsepower and load factor data for vessels include consideration of the power needed to generate on-board electricity

**Table 8. Emission Factors for Sources Associated with the China-US Cable Network Project.**

| Equipment Type | Fuel Type | Emission Factors | | | | | | | Units | Source |
|---|---|---|---|---|---|---|---|---|---|---|
| | | *TOC* | *ROG* | *CO* | *NOx* | *SO2* | *PM* | *PM10* | | |
| Primary Work Boat, SEASPREAD, & Cable Lay Vessel | D | 19.8 | 19.0 | 57.0 | 335.2 | 75.0 | 9.0 | 8.6 | lbs/1000 gal | (1) |
| Secondary Work Boat | D | 188.0 | 180.5 | 418.0 | 310.4 | 7.1 | 24.0 | 23.0 | lbs/1000 gal | (2) |
| Bore Rig | D | 1.44 | 1.38 | 9.20 | 8.81 | 0.93 | 1.44 | 1.38 | grams/Hp-hr | (3) |
| Crane | D | 1.29 | 1.24 | 4.20 | 8.24 | 0.93 | 1.44 | 1.38 | grams/Hp-hr | (3) |
| Backhoe | D | 1.43 | 1.37 | 6.80 | 8.08 | 0.85 | 1.05 | 1.01 | grams/Hp-hr | (3) |
| Power Winch | D | 1.14 | 1.09 | 3.03 | 14.06 | 0.93 | 1.00 | 1.00 | grams/Hp-hr | (4) |
| Compressor | D | 1.22 | 1.17 | 5.00 | 8.00 | 0.93 | 1.00 | 0.96 | grams/Hp-hr | (3) |
| Generator | D | 1.22 | 1.17 | 5.00 | 8.00 | 0.93 | 1.00 | 0.96 | grams/Hp-hr | (3) |
| Supply Truck | D | 0.86 | 0.83 | 2.80 | 7.68 | 0.89 | 0.80 | 0.77 | grams/Hp-hr | (3) |

Notes: (1) *Marine Vessel Emissions Inventory and Control Strategies*, Final Report FR-119-96 (Acurex 1996). Fuel contains 0.5% sulfur.
NOx emission factors reduced by 20 percent to account for reduction due to application of injection timing retard.
(2) *Development of an Improved Inventory of Emissions from Pleasure Craft in California*, Table 3-3b (ARB 1995).
(3) *Nonroad Engine and Vehicle Emission Study - Report*, Table 2.07 (EPA 1991).
(4) AP-42, Table 3.3-1, Vol. 1 (EPA 1996).

D = diesel
TOC = total organic compounds
ROG = reactive organic gases
CO = carbon monoxide
NOx = nitrogen oxides
SO2 = sulfur dioxide
PM = particulate matter
PM10 = particulate matter less than or equal to 10 microns in diameter

Table 9. Daily Emissions for Construction of the China-US Cable Project.

| Activity/ Equipment Type | Pounds Per Day | | | | | | |
|---|---|---|---|---|---|---|---|
| | TOC | ROG | CO | NOx | SO2 | PM | PM10 |
| **Pipe Preparation** | | | | | | | |
| Primary Work Boat - Dive Platform | 3.7 | 3.6 | 10.7 | 63.1 | 14.1 | 1.7 | 1.6 |
| Secondary Work Boat - Anchor Support/Shuttle | 38.2 | 36.6 | 84.9 | 63.0 | 1.4 | 4.9 | 4.7 |
| **Total Activity Emissions (All w/i State Waters)** | **41.9** | **40.2** | **95.6** | **126.1** | **15.6** | **6.6** | **6.3** |
| **Pre-lay Grapnel Run** | | | | | | | |
| SEASPREAD - Outside State Waters | 27.3 | 26.2 | 78.7 | 462.5 | 103.5 | 12.4 | 11.9 |
| SEASPREAD - w/i State Waters | 2.7 | 2.6 | 7.9 | 46.3 | 10.3 | 1.2 | 1.2 |
| **Total Activity Emissions** | **30.0** | **28.8** | **86.5** | **508.8** | **113.8** | **13.7** | **13.1** |
| **Emissions w/i State Waters** | **2.7** | **2.6** | **7.9** | **46.3** | **10.3** | **1.2** | **1.2** |
| **Near-Shore Cable Installation** | | | | | | | |
| SEASPREAD - Landing | 19.1 | 18.4 | 55.1 | 323.8 | 72.4 | 8.7 | 8.3 |
| Primary Work Boat - Dive Platform | 5.0 | 4.8 | 14.3 | 84.1 | 18.8 | 2.3 | 2.2 |
| Secondary Work Boat - Anchor Support/Shuttle | 26.8 | 25.8 | 59.6 | 44.3 | 1.0 | 3.4 | 3.3 |
| SEASPREAD - Near-Shore Lay | 41.0 | 39.3 | 118.0 | 693.8 | 155.2 | 18.6 | 17.9 |
| Secondary Work Boat - Support, Patrol & Shuttle | 51.6 | 49.5 | 114.7 | 85.2 | 1.9 | 6.6 | 6.3 |
| **Total Activity Emissions (All w/i State Waters)** | **143.5** | **137.7** | **361.7** | **1,231.1** | **249.5** | **39.6** | **38.0** |
| **Near-Shore Cable Retroburial** | | | | | | | |
| Primary Work Boat - Dive Platform | 4.5 | 4.3 | 12.9 | 75.7 | 16.9 | 2.0 | 2.0 |
| Secondary Work Boat - Anchor Support/Shuttle | 26.8 | 25.8 | 59.6 | 44.3 | 1.0 | 3.4 | 3.3 |
| **Total Activity Emissions (All w/i State Waters)** | **31.3** | **30.0** | **72.5** | **120.0** | **17.9** | **5.5** | **5.2** |
| **Cable Splice - Arrival & Return** | | | | | | | |
| Cable Lay Vessel - Cruising | 79.2 | 76.0 | 228.0 | 1,340.8 | 300.0 | 36.0 | 34.6 |
| Cable Lay Vessel - Holding | 89.1 | 85.5 | 256.5 | 1,508.4 | 337.5 | 40.5 | 38.9 |
| **Total Activity Emissions (All outside State Waters)** | **168.2** | **161.5** | **484.5** | **2,849.2** | **637.5** | **76.5** | **73.4** |
| **Offshore Cable Installation** | | | | | | | |
| Cable Lay Vessel - Lay Cable | 118.8 | 114.0 | 342.0 | 2,011.2 | 450.0 | 54.0 | 51.8 |
| Cable Lay Vessel - Plow Cable | 89.1 | 85.5 | 256.5 | 1,508.4 | 337.5 | 40.5 | 38.9 |
| **Total Activity Emissions (All outside State Waters)** | **207.8** | **199.5** | **598.5** | **3,519.6** | **787.5** | **94.5** | **90.7** |
| **Cable Ship Return** | | | | | | | |
| Cable Lay Vessel - Cruising | 79.2 | 76.0 | 228.0 | 1,340.8 | 300.0 | 36.0 | 34.6 |
| Cable Lay Vessel - Cruising w/i State Waters | 2.5 | 2.4 | 7.1 | 41.9 | 9.4 | 1.1 | 1.1 |
| **Total Activity Emissions** | **81.6** | **78.4** | **235.1** | **1,382.7** | **309.4** | **37.1** | **35.6** |
| **Emissions w/i State Waters** | **2.5** | **2.4** | **7.1** | **41.9** | **9.4** | **1.1** | **1.1** |
| **Cable Retroburial** | | | | | | | |
| SEASPREAD - ROV | 103.4 | 99.3 | 297.8 | 1,751.4 | 391.9 | 47.0 | 45.1 |
| SEASPREAD - ROV w/i State Waters | 77.6 | 74.5 | 223.4 | 1,313.6 | 293.9 | 35.3 | 33.9 |
| **Total Activity Emissions** | **181.0** | **173.7** | **521.2** | **3,065.0** | **685.8** | **82.3** | **79.0** |
| **Emissions w/i State Waters** | **77.6** | **74.5** | **223.4** | **1,313.6** | **293.9** | **35.3** | **33.9** |
| **Shore End Construction** | | | | | | | |
| Bore Rig (Pipe Cleaning) | 1.1 | 1.1 | 7.0 | 6.7 | 0.7 | 1.1 | 1.1 |
| Crane | 0.5 | 0.4 | 1.5 | 2.9 | 0.3 | 0.5 | 0.5 |
| Backhoe | 1.9 | 1.8 | 9.1 | 10.8 | 1.1 | 1.4 | 1.3 |
| Power Winch | 0.6 | 0.6 | 1.6 | 7.4 | 0.5 | 0.5 | 0.5 |
| Compressor | 0.1 | 0.1 | 0.4 | 0.7 | 0.1 | 0.1 | 0.1 |
| Generator | 0.3 | 0.3 | 1.2 | 2.0 | 0.2 | 0.2 | 0.2 |
| Supply Truck | 0.3 | 0.3 | 0.9 | 2.5 | 0.3 | 0.3 | 0.3 |
| **Total Activity Emissions (All w/i State Waters)** | **4.7** | **4.6** | **21.7** | **33.0** | **3.3** | **4.1** | **4.0** |
| **Peak Daily Emissions (1)** | **143.5** | **137.7** | **361.7** | **1,231.1** | **249.5** | **39.6** | **38.0** |
| **APCD Daily Significance Thresholds** | **NA** | **185.0** | **NA** | **185.0** | **NA** | **NA** | **NA** |

Note: (1) Peak daily emissions within state waters would occur during Cable Retroburial activities.

Table 10. Total Emissions from Construction of the China-US Cable Project.

| Activity/ Equipment Type | Total Tons | | | | | | |
|---|---|---|---|---|---|---|---|
| | TOC | ROG | CO | NOx | SO2 | PM | PM10 |
| **Pipe Preparation** | | | | | | | |
| Primary Work Boat - Dive Platform | 0.01 | 0.01 | 0.02 | 0.09 | 0.02 | 0.00 | 0.00 |
| Secondary Work Boat - Anchor Support/Shuttle | 0.06 | 0.05 | 0.13 | 0.09 | 0.00 | 0.01 | 0.01 |
| **Total Activity Emissions (All w/i State Waters)** | **0.06** | **0.06** | **0.14** | **0.19** | **0.02** | **0.01** | **0.01** |
| **Pre-lay Grapnel Run** | | | | | | | |
| SEASPREAD - Outside State Waters | 0.07 | 0.07 | 0.20 | 1.16 | 0.26 | 0.03 | 0.03 |
| SEASPREAD - w/i State Waters | 0.00 | 0.00 | 0.01 | 0.05 | 0.01 | 0.00 | 0.00 |
| **Total Activity Emissions** | **0.07** | **0.07** | **0.20** | **1.20** | **0.27** | **0.03** | **0.03** |
| **Emissions w/i State Waters** | **0.00** | **0.00** | **0.01** | **0.05** | **0.01** | **0.00** | **0.00** |
| **Near-Shore Cable Installation** | | | | | | | |
| SEASPREAD - Landing | 0.01 | 0.01 | 0.03 | 0.16 | 0.04 | 0.00 | 0.00 |
| Primary Work Boat - Dive Platform | 0.00 | 0.00 | 0.01 | 0.04 | 0.01 | 0.00 | 0.00 |
| Secondary Work Boat - Anchor Support/Shuttle | 0.01 | 0.01 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 |
| SEASPREAD - Near-Shore Lay | 0.04 | 0.04 | 0.12 | 0.69 | 0.16 | 0.02 | 0.02 |
| Secondary Work Boat - Support, Patrol & Shuttle | 0.05 | 0.05 | 0.11 | 0.09 | 0.00 | 0.01 | 0.01 |
| **Total Activity Emissions (All w/i State Waters)** | **0.12** | **0.11** | **0.30** | **1.01** | **0.20** | **0.03** | **0.03** |
| **Near-Shore Cable Retroburial** | | | | | | | |
| Primary Work Boat - Dive Platform | 0.01 | 0.01 | 0.03 | 0.15 | 0.03 | 0.00 | 0.00 |
| Secondary Work Boat - Anchor Support/Shuttle | 0.05 | 0.05 | 0.12 | 0.09 | 0.00 | 0.01 | 0.01 |
| **Total Activity Emissions (All w/i State Waters)** | **0.06** | **0.06** | **0.15** | **0.24** | **0.04** | **0.01** | **0.01** |
| **Cable Splice - Arrival & Return** | | | | | | | |
| Cable Lay Vessel - Cruising | 0.08 | 0.08 | 0.23 | 1.34 | 0.30 | 0.04 | 0.03 |
| Cable Lay Vessel - Holding | 0.09 | 0.09 | 0.26 | 1.51 | 0.34 | 0.04 | 0.04 |
| **Total Activity Emissions (All outside State Waters)** | **0.09** | **0.09** | **0.26** | **1.51** | **0.34** | **0.04** | **0.04** |
| **Offshore Cable Installation** | | | | | | | |
| Cable Lay Vessel - Lay Cable | 0.24 | 0.23 | 0.68 | 4.02 | 0.90 | 0.11 | 0.10 |
| Cable Lay Vessel - Plow Cable | 0.27 | 0.26 | 0.77 | 4.53 | 1.01 | 0.12 | 0.12 |
| **Total Activity Emissions (All outside State Waters)** | **0.50** | **0.48** | **1.45** | **8.55** | **1.91** | **0.23** | **0.22** |
| **Cable Ship Return** | | | | | | | |
| Cable Lay Vessel - Cruising | 0.08 | 0.08 | 0.23 | 1.34 | 0.30 | 0.04 | 0.03 |
| Cable Lay Vessel - Cruising w/i State Waters | 0.00 | 0.00 | 0.01 | 0.04 | 0.01 | 0.00 | 0.00 |
| **Total Activity Emissions** | **0.08** | **0.08** | **0.24** | **1.38** | **0.31** | **0.04** | **0.04** |
| **Emissions w/i State Waters** | **0.00** | **0.00** | **0.01** | **0.04** | **0.01** | **0.00** | **0.00** |
| **Cable Retroburial** | | | | | | | |
| SEASPREAD - ROV | 0.34 | 0.32 | 0.97 | 5.69 | 1.27 | 0.15 | 0.15 |
| SEASPREAD - ROV w/i State Waters | 0.08 | 0.07 | 0.22 | 1.31 | 0.29 | 0.04 | 0.03 |
| **Total Activity Emissions** | **0.41** | **0.40** | **1.19** | **7.01** | **1.57** | **0.19** | **0.18** |
| **Emissions w/i State Waters** | **0.08** | **0.07** | **0.22** | **1.31** | **0.29** | **0.04** | **0.03** |
| **Shore End Construction** | | | | | | | |
| Bore Rig (Pipe Cleaning) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Crane | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Backhoe | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 |
| Power Winch | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| Compressor | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Generator | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| Supply Truck | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| **Total Activity Emissions (All w/i State Waters)** | **0.01** | **0.01** | **0.04** | **0.06** | **0.01** | **0.01** | **0.01** |
| **Total Project Emissions** | **1.41** | **1.36** | **3.96** | **21.14** | **4.66** | **0.59** | **0.56** |
| **Total Project Emissions w/i State Waters** | **0.33** | **0.32** | **0.86** | **2.89** | **0.58** | **0.10** | **0.09** |
| **APCD Significance Thresholds (per calendar quarter)** | **NA** | **2.50** | **NA** | **2.50** | **NA** | **NA** | **2.50** |

AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN LUIS OBISPO

February 8, 2000

Mike Dungan, PhD
SAIC
816 State Street, Suite 500
Santa Barbara, CA 93101

SUBJECT: AT&T Use of Different Vessel for Cable Installations Off Morro Bay

Dear Mr. Dungan,

I am writing is in response to your letter dated February 4, 2000 in which you indicate that a larger ship, the *Seaspread* may be used during installation of the AT&T China-US cables instead of the smaller *American Patriot*. As per your request, I have reviewed the revised emission estimates submitted with your letter to assess the potential significance of using the larger *Seaspread*. The results of my review are provided in the following comments.

1. The methodology and assumptions employed in the revised emission estimates are consistent with adopted methodology and meet District staff expectations for overall quality.

2. (Section 4.2.6 Mitigation Measures) District staff request the addition a mitigation measure based on, or similar to, the following wording:

   *With the exception of marine vessel injection timing retard (AQ-1), all diesel powered construction equipment used in association with the project will be properly tuned, well maintained, and operated within manufacturers specifications.*

3. (AQ-1, Section 4.2.6) In August 1998, the California Air Resources Board (CARB) identified diesel exhaust as a toxic air contaminant (TAC). Since then, a carcinogenic unit risk factor and a chronic reference exposure limit have been adopted by the state, both of which utilize particulate matter emissions as a surrogate for total diesel exposure. Unfortunately, the universal application of fuel injection timing retard presented in AQ-1 to reduce NOx has the potential to increase hydrocarbon and particulate matter emissions. While the particulate matter and hydrocarbon emission increases are substantially smaller on a mass basis than the beneficial NOx reductions, we do not recommend implementing injection timing retard on shore based equipment where equipment has the potential to operate in the vicinity of the public. Rather, we recommend requiring the operation of shore based diesel powered equipment that is well tuned and maintained and operated within manufacturers specifications in conjunction with the use of California diesel fuel (Title 13, California Code of Regulations, Sections 2281 and 2282; last amended June 4, 1997). Potential particulate matter and hydrocarbon emission increases associated with fuel injection timing retard on marine engines associated with the project are outweighed by the very large NOx reductions that are achievable with this control strategy given the distance from shore that these engines will operate. We therefore recommend the following wording changes:

3433 Roberto Court • San Luis Obispo, CA 93401 • 805-781-5912 • FAX: 805-781-1002
cleanair@sloapcd.dst.ca.us ❖ www.sloapcd.dst.ca.us

*The injection timing on diesel-powered vessels ~~and construction equipment~~ will be retarded 4 degrees prior to and throughout cable installation with the exception of the main cable ships which will be operated at 3 degree retardation. These measures will produce a 20-25% reduction in emissions of nitrogen oxides (NOx).*

4. (Tables 9 and 10) Tables 9 and 10 present peak daily and total project emissions within state waters respectively. Projected NOx emissions are anticipated to exceed the District's daily mitigation threshold of 185 lb/day and lower quarterly mitigation threshold of 2.5 ton/quarter. With incorporation of the suggested mitigation measure in Comment 2 above, District staff consider the proposed level of mitigation to be consistent with District expectations as outlined on page 25 of the District's CEQA Air Quality Handbook. We therefore consider, from a CEQA perspective, the project's potential air quality impact to be *Class II, potentially significant adverse impacts that can be feasibly mitigated to less than significant levels.* This view is supported by the fact that the largest source of project related NOx emissions will be from the large marine vessels which are anticipated to operate within state waters for approximately seven days, a very short time period in staffs view. It should be noted that District staff are currently involved in revising the CEQA Air Quality Handbook and that the proposed mitigations measures for the China-US cable project as amended by this letter are consistent with staffs current expectations and recommendations.

Please feel free to contact me with any additional questions at (805) 781-5912.

Sincerely,

Barry Lajoie
Air Quality Specialist

BPL/bpl

H:\OIS\PLAN\RESPONSE\2038-2.doc

# B. SUMMARY OF PROJECT IMPACTS, MITIGATION MEASURES, AND MITIGATION MONITORING AND REPORTING PLAN

# SUMMARY OF PROJECT IMPACTS, MITIGATION MEASURES, AND MITIGATION MONITORING AND REPORTING PLAN

Table B-1 provides a summary of project impacts, mitigation measures, and a mitigation monitoring and reporting plan. This table fulfills the requirements of Public Resources Code Section 21081.6 (AB 3180, enacted 1994) for a Mitigation Monitoring and Reporting Plan to ensure the implementation of project mitigation measures. The table is based on Table ES-1 which was included in the DEIR, but incorporates additional information as to monitoring or documentation required and the agency or agencies responsible for each measure. The table also indicates by underlined or struck-through text the DEIR mitigation measures that are new or revised, based on consideration of public comments.

New or revised measures are identified in three areas: (1) under Air Quality, based on input from the San Luis Obispo County Air Pollution Control District, measure AQ-1 has been modified from the DEIR, and measures AQ-3 and AQ-4 added, to more effectively reduce and offset NOx emissions associated with a different cable lay vessel as discussed previously in Section A; (2) under Biology, measures MB-2 and MB-3 have been added to reduce the risk of harm or harassment to marine mammals during cable installation; and (3) under Commercial and Recreational Fishing, several changes in the wording of mitigation measures have been made in response to Coastal Commission comments.

**Table B-1: Summary of Impacts, Mitigation Measures, and Mitigation Monitoring and Reporting Plan (Page 1 of 10)**

| *Impact & Significance Class* [1] | *Mitigation Measure (Changes from DEIR shown as strikeouts [deleted text] or underlined text [additions])* | *Significance after Mitigation* | *Monitoring or Documentation Required* | *Responsible Party* |
|---|---|---|---|---|
| **Air Quality** | | | | |
| **Original routes:** Short-term exceedance of San Luis Obispo County APCD thresholds during cable installation (Class II).<br>**Proposed Maximum Burial Alternative Routes:** Impacts similar to those of the original routes (Class II), with same mitigation measures.<br>Cumulative impacts less than significant (Class III) | **AQ-1:** The injection timing on diesel-powered vessels ~~and construction equipment~~ will be retarded 4° prior to and throughout cable installation with the exception of the main cable ships which will be operated at 3° retardation. These measures will produce a 20-25 percent reduction in emissions of nitrogen oxides (NOx). | Less than significant with AQ-1 through AQ-4 (Class III) | AT&T installation contractor to provide SLO APCD with mechanic's records documenting application of emission reduction strategies.<br>Prior to installation, provide the SLO APCD with project schedules and equipment lists. | SLO APCD |
| | **AQ-2:** Onshore equipment will use low-sulfur/low-aromatic diesel fuel as designated by the ARB. Ocean vessels will burn low-sulfur diesel fuel as designated by the EPA. | Less than significant with AQ-1 through AQ-4 (Class III) | AT&T installation contractor to provide fuel tickets or other evidence of use of approved fuels to SLO APCD prior to and continuing during construction. | SLO APCD |
| | <u>**AQ-3:** With the exception of marine vessel injection timing retard (AQ-1), all diesel powered construction equipment will be properly tuned, well maintained, and operated within manufacturer's specifications.</u> | Less than significant with AQ-1 through AQ-4 (Class III) | AT&T installation contractor to provide equipment list and documentation of compliance to SLO APCD prior to and continuing during construction. | SLO APCD |
| | <u>**AQ-4:** AT&T will contribute $6,000 to a San Luis Obispo County APCD program, based on the average costs of air quality offsets provided by the APCD to offset NOx emissions.</u> | Less than significant with AQ-1 through AQ-4 (Class III) | AT&T to provide funds to SLO APCD. | SLO APCD |

**Table B-1: Summary of Impacts, Mitigation Measures, and Mitigation Monitoring and Reporting Plan**
**(Page 2 of 10)**

| *Impact & Significance Class* [1] | *Mitigation Measure (Changes from DEIR shown as strikeouts [deleted text] or underlined text [additions])* | *Significance after Mitigation* | *Monitoring or Documentation Required* | *Responsible Party* |
|---|---|---|---|---|
| **Geology** | | | | |
| **Original routes:** Disturbance of seafloor substrates (Class III).<br>**Proposed Maximum Burial Alternative Routes:** Impacts on rocky substrate substantially less (Class III).<br>Cumulative impacts less than significant (Class III) | **None** | N/A | N/A | N/A |
| **Water Quality** | | | | |
| **Original routes:** Small-scale, temporary increases in turbidity during cable installation (Class III); potential spills from vessels mitigated by project operating procedures and spill contingency plans (Class III).<br>**Proposed Maximum Burial Alternative Routes:** Impacts similar to original routes (Class III).<br>Cumulative impacts less than significant (Class III). | **None** | N/A | N/A | N/A |

**Table B-1: Summary of Impacts, Mitigation Measures, and Mitigation Monitoring and Reporting Plan**
**(Page 3 of 10)**

| *Impact & Significance Class* [1] | *Mitigation Measure (Changes from DEIR shown as strikeouts [deleted text] or underlined text [additions])* | *Significance after Mitigation* | *Monitoring or Documentation Required* | *Responsible Party* |
|---|---|---|---|---|
| | **Biology** | | | |
| **Original routes:** No impacts on terrestrial resources. Localized, mostly temporary disturbance of seafloor habitats (Class III), but 1,224 $m^2$ impact on high-relief rocky substrates would be significant and unmitigable (Class I). Possible anchor impacts on high relief rocky substrates (Class II).<br>**Proposed Maximum Burial Alternative Routes:** Impacts similar to original routes, except that impact on high-relief rocky substrate is limited to 9$m^2$ (Class III). Same mitigation applies for anchor impacts (Class II).<br>Cumulative impacts less than significant (Class III) | **MB-1:** Based on the most detailed and current maps of seafloor substrate conditions available, high-relief areas that could be subject to disturbance from anchoring by project vessels will be mapped with coordinate locations specified and designated as "no-anchor zones" on final approved plans for cable installation. These areas will continue to be shown on as-builts and project maps that could be used in future repair or abandonment activities. | Anchor impact less than significant (Class III). (Impact on high-relief mitigated by adoption of Maximum Burial Alternative Routes.) | Project plans submitted by AT&T to CSLC and CCC for approval prior to construction. | CSLC/ CCC |
| Possible risk of injury to marine mammals during cable installation (Class III). | <u>**MB-2:** A marine mammal training video or photographic presentation shall be reviewed by all shipboard personnel involved with cable operations to emphasize the types of mammals that may occur in the project area, general habits and distribution, and methods to avoid impacts. Included in the presentation shall be a listing of contact numbers to report marine mammals in distress, and a requirement to make a verbal report if any such mammals are observed during project operations.</u> | Less than significant (Class III) | CSLC and CCC to review and approve training materials and observer protocols, prior to construction. | CSLC/ CCC |

**Table B-1: Summary of Impacts, Mitigation Measures, and Mitigation Monitoring and Reporting Plan**
**(Page 4 of 10)**

| *Impact & Significance Class* [1] | *Mitigation Measure (Changes from DEIR shown as strikeouts [deleted text] or underlined text [additions])* | *Significance after Mitigation* | *Monitoring or Documentation Required* | *Responsible Party* |
|---|---|---|---|---|
| | **Biology (continued)** | | | |
| (see above) | <u>**MB-3:** A biologist familiar with marine mammal behavior shall be present during installation and repair activities to observe for marine mammals that approach the project area. The observer shall be authorized to call a halt to project activities that pose a risk of injury to marine mammals.</u> | Less than significant (Class III) | Agencies must approve qualifications of observer and procedures to be followed prior to construction. A Marine Mammal monitoring report submitted to NMFS, CDFG, CCC, and CSLC subsequent to completion of installation activities. | CSLC/ CCC/ NMFS/ CDFG |
| | **Cultural Resources** | | | |
| **Original routes:** Potential disturbance to previously unknown shipwrecks, mitigable by avoidance (Class II).<br>**Proposed Maximum Burial Alternative Routes:** Similar to original routes, potential impact mitigable by avoidance (Class II).<br>Cumulative impacts less than significant (Class III). | **CR-1:** Prior to the pre-lay grapnel run and cable installation, the applicant shall provide a detailed analysis by a qualified marine archaeologist of side scan sonar and magnetometer data for the cable route between the shoreline and the 3-nm limit. The analysis shall identify and analyze all magnetic and side scan sonar anomalies that occur in the cable corridor, which is defined by a lateral distance of 0.5 km on each side of the proposed cable route. The analysis shall also include investigation of the potential cultural significance of each anomaly identified within the cable corridor that cannot be avoided. The applicant must submit the side scan sonar and magnetometer data, and an accompanying report, which analyzes the data. Final approval from the State Lands Commission must be received prior to the pre-lay grapnel run and cable installation. | Less than significant (Class III) | Marine Archaeologist's report, verification of resource avoidance, including route modifications if necessary to ensure resource avoidance, to be approved by CSLC, CCC. | CSLC/ CCC |

**Table B-1: Summary of Impacts, Mitigation Measures, and Mitigation Monitoring and Reporting Plan**
**(Page 5 of 10)**

| *Impact & Significance Class* [1] | *Mitigation Measure (Changes from DEIR shown as strikeouts [deleted text] or underlined text [additions])* | *Significance after Mitigation* | *Monitoring or Documentation Required* | *Responsible Party* |
|---|---|---|---|---|
| | **Cultural Resources (continued)** | | | |
| (see above) | **CR-2:** Should a previously unknown shipwreck of potential cultural resource value be discovered within the proposed cable corridor as a result of the study required in CR-1, the proposed cable route or installation procedures shall be modified to avoid the potentially significant cultural resource. | Less than significant (Class III) | | |
| | **Commercial and Recreational Fishing** | | | |
| **Original routes:** Short-term localized preclusion of fishing during cable installation; potential economic losses if fishing is avoided over cables; potential economic losses due to gear entanglement on cables (Class II).<br>**Proposed Maximum Burial Alternative Routes:** Impacts substantially less for maximum burial alternative routes, although same mitigation measures would apply (Class II).<br>Cumulative impacts significant, mitigable through same measures (Class II). | **CRF-1:** To mitigate impacts on commercial and recreational fishing resulting from the China-U.S. project, the following measures shall be implemented:<br>a. Throughout the life of the project, AT&T will adhere to the noticing procedures that are specified in the project description (section 2.10.7). | Less than significant (Class III) | Copies of *Notice to Mariners* submitted to CSLC/CCC | CSLC/CCC (all measures) |
| | b. AT&T will participate in and fund the operations of the Morro Bay Joint Cable/Fisheries Liaison Committee. The purpose of the Committee is to discuss and resolve issues relating to telecommunications cables owned and operated by the cable companies, including AT&T, along the California coast adjacent to Morro Bay. | Less than significant (Class III) | AT&T to submit "Interim Agreement" with all up to date commitments, procedures, and signatures. | |

**Table B-1: Summary of Impacts, Mitigation Measures, and Mitigation Monitoring and Reporting Plan**
**(Page 6 of 10)**

| *Impact & Significance Class* [1] | *Mitigation Measure (Changes from DEIR shown as strikeouts [deleted text] or underlined text [additions])* | *Significance after Mitigation* | *Monitoring or Documentation Required* | *Responsible Party* |
|---|---|---|---|---|
| **Commercial and Recreational Fishing (continued)** | | | | |
| (see above) | c. Where feasible, AT&T cables will be buried to a ~~target~~ depth of 3 feet (0.9 m) in areas between 3 miles from shore and 1,000 fathoms (1,800 m) water depth. | Less than significant (Class III) | AT&T to provide videotapes or other documentation of successful cable burial to CSLC and CCC within 60 days following installation. | |
| | d. The timing and methods of construction and installation of the individual cables will be determined by AT&T in consultation with the Committee to avoid or minimize~~, with the goal of minimizing~~ any negative impacts to the fishing industry. | Less than significant (Class III) | AT&T and/or Committee provide record of discussions. | CSLC/ CCC (all measures) |
| | e. A Committee fisherman representative ~~may~~ will be offered the opportunity to be on board the cable installation vessel to observe cable installation. | Less than significant (Class III) | AT&T and Committee verify that the opportunity was made available. | |
| | f. Following installation of the cables, AT&T will provide cable "as built" coordinates to the fishermen in writing, electronically, and on navigational charts. | Less than significant (Class III) | Documents demonstrating compliance submitted to CSLC and CCC by AT&T within 60 days following installation. | |

**Table B-1: Summary of Impacts, Mitigation Measures, and Mitigation Monitoring and Reporting Plan**
**(Page 7 of 10)**

| *Impact & Significance Class* [1] | *Mitigation Measure (Changes from DEIR shown as strikeouts [deleted text] or underlined text [additions])* | *Significance after Mitigation* | *Monitoring or Documentation Required* | *Responsible Party* |
|---|---|---|---|---|
| **Commercial and Recreational Fishing (continued)** | | | | |
| (see above) | g. <u>AT&T will conduct burial verification of the cables by Remote Operated Vehicle every 18 to 24 months and after any event that may affect the cables. Such inspection will occur within approximately 30 days after the event, depending on weather. "Event" for the purposes of this measure is defined as: an incident or activity (such as a gear snag), the circumstances of which indicate the likelihood that a cable has become unburied; or act of God, such as an earthquake in the vicinity of the cables measuring 5.0 or greater on the Richter scale that could cause deformation of the sea floor or underwater land slides, or an unusually severe storm or tidal wave that could cause excessive ocean floor scouring. Copies of the videotapes recording the verification will be provided to the Committee, the CSLC, and the CCC.</u> | Less than significant (Class III) | Copies of videotapes provided to CSLC and CCC by AT&T within 60 days following installation. | |
| | h. Each licensed fisherman owning and operating vessels engaged in trawl fishing in the area of the proposed cables who signs the Fishing Agreement will receive a payment from the participating cable companies for upgrading communication and navigation equipment. | Less than significant (Class III) | AT&T to provide records of payments to fishermen to CSLC and CCC. | |
| | i. AT&T, either independently or in conjunction with other cable companies, will provide a 24-hour toll-free telephone "hotline" to receive calls from fishermen who believe they have snagged gear on a telecommunications cable. | Less than significant (Class III) | AT&T to provide hotline number and description of response process to CSLC and CCC. | CSLC/ CCC (all measures) |

**Table B-1: Summary of Impacts, Mitigation Measures, and Mitigation Monitoring and Reporting Plan**
**(Page 8 of 10)**

| *Impact & Significance Class* [1] | *Mitigation Measure* *(Changes from DEIR shown as strikeouts [deleted text] or underlined text [additions])* | *Significance after Mitigation* | *Monitoring or Documentation Required* | *Responsible Party* |
|---|---|---|---|---|
| **Commercial and Recreational Fishing (continued)** | | | | |
| | j. In the event that a fisherman sacrifices gear in order to avoid injury to an AT&T submarine cable, AT&T will pay 100% of the gear equipment replacement costs, and will pay an additional 50% of those gear replacement costs to compensate the fisherman for loss of catch and fishing opportunity. The full amount of this payment shall be available to any fisherman who sacrifices gear in order to avoid injury to an AT&T submarine cable, regardless of whether the fishermen has signed the Fishing Agreement. | Less than significant (Class III) | AT&T provide records of all gear claims and their resolution to CSCL and CCC. | |
| | k. AT&T will release any claims that it might have for damage to cables against fishermen that comply with the terms of the applicable Fishing Agreement and the Fishing Vessel Operating Procedures established by the Committee. | Less than significant (Class III) | AT&T provide copies of applicable agreement and operating procedures, as signed, to CSLC and CCC. | |
| | l. When the cables to be installed are taken out of service, AT&T will submit a plan for their removal ~~as necessary~~ so as not to interfere with commercial fishing activities in areas where such cables were previously installed. | Less than significant (Class III) | AT&T submit plan for cable removal to CSLC and CCC prior to lease expiration or taking cables out of service | |
| **Land Use and Recreation** | | | | |
| **Original routes:** Potential short-term interference with recreation at the Sandspit Parking Lot (Class II).<br>**Proposed Maximum Burial Alternative Routes:** Impact similar to original routes (Class II).<br>Cumulative impacts significant due to multiple projects' use of the parking lot (Class II). | **REC-1:** Prior to cable installation, AT&T shall obtain the approval of the Department of Parks and Recreation and the staff of the State Lands Commission for the scheduling and location of project activities at the parking lot, incorporating measures to ensure the availability of parking, restrooms, and pedestrian access to the beach during project activities. | Less than significant (Class III) | Approved schedule for installation provided in writing. | CDPR |

**Table B-1: Summary of Impacts, Mitigation Measures, and Mitigation Monitoring and Reporting Plan**
**(Page 9 of 10)**

| *Impact & Significance Class* [1] | *Mitigation Measure (Changes from DEIR shown as strikeouts [deleted text] or underlined text [additions])* | *Significance after Mitigation* | *Monitoring or Documentation Required* | *Responsible Party* |
|---|---|---|---|---|
| | **Aesthetics and Noise** | | | |
| **Original routes:** Temporary noise and the presence of working equipment and workers during cable installation (Class III).<br>**Proposed Maximum Burial Alternative Routes:** Impacts similar to original routes (Class III).<br>Cumulative impacts less than significant (Class III). | **None** | N/A | N/A | N/A |
| | **Marine Transportation** | | | |
| **Original routes:** Localized, short-term interference with vessel traffic, similar for proposed and maximum burial alternative routes; mitigated by proposed noticing procedures (Class III).<br>**Proposed Maximum Burial Alternative Routes:** impact similar to original routes (Class III).<br>Cumulative impacts less than significant (Class III). | **None** | N/A | N/A | N/A |
| | **System Safety/Risk of Upset** | | | |
| **Original routes:** Low likelihood of accidents, none with potentially severe consequences (Class III).<br>**Proposed Maximum Burial Alternative Routes:** impact similar to original routes (Class III)<br>Cumulative impacts less than significant (Class III). | **None** | N/A | N/A | N/A |

**Table B-1: Summary of Impacts, Mitigation Measures, and Mitigation Monitoring and Reporting Plan**
**(Page 10 of 10)**

| *Impact & Significance Class* [1] | *Mitigation Measure (Changes from DEIR shown as strikeouts [deleted text] or underlined text [additions])* | *Significance after Mitigation* | *Monitoring or Documentation Required* | *Responsible Party* |
|---|---|---|---|---|
| | **Socioeconomics** | | | |
| **Original routes:** Potential economic effects on fishermen as described for commercial and recreational fishing above (Class II).<br>**Proposed Maximum Burial Alternative Routes:** Impacts reduced relative to original routes, but still significant (Class II).<br>Cumulative impacts potentially significant, mitigable by same measures (Class II). | See mitigation measures above for commercial and recreational fishing (**CRF-1**) | Less than significant (Class III) | See CRF-1 above | CSLC/ CCC |
| | **Other Resources** | | | |
| **Original routes:** No effect on utilities; insignificant effect on onshore traffic associated with cable installation (Class III).<br>**Proposed Maximum Burial Alternative Routes:** Similar to original routes (Class III).<br>Cumulative impacts less than significant (Class III). | **None** | N/A | N/A | N/A |

1. Class I = significant but not mitigable to less than significant; Class II = significant but mitigable to less than significant; Class III = less than significant.

# C. LETTERS OF COMMENT RECEIVED ON DRAFT EIR

1. California Coastal Commission
2. California Department of Fish and Game
3. California Regional Water Quality Control Board, Central Coast Region
4. Port San Luis Harbor District
5. County of San Luis Obispo, Department of General Services

**CALIFORNIA COASTAL COMMISSION**
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200
FAX (415) 904-5400

February 28, 2000

Mr. Daniel Gorfain
California State Lands Commission
100 Howe Avenue, Suite 100 South
Sacramento, CA 95825-8202

Dear Mr. Gorfain:

Thank you for providing the *Draft, Environmental Impact Report: AT&T China – U.S. Cable Network Segments S7 and E1 San Luis Obispo County, California,* hereinafter "DEIR," for Coastal Commission staff to review. The project proposes the installation and operation of two new submarine fiber optic cables on the seafloor of Morro Bay, connecting to the existing AT&T onshore cable facilities at Montana de Oro State Park. Cable Segment S7 will head westerly to provide a direct link to the People's Republic of China. Cable Segment E1 will connect Morro Bay to Bandon, Oregon. An existing cable completes a "ring" from Bandon to China. Based on our conversations, it is our understanding that AT&T has abandoned its original proposal in favor of the *maximum burial alternative* also described in the DEIR.

As you know, the proposed project will require a coastal development permit for the area within the Commission's retained permitting jurisdiction, and a review of its consistency with the Commission's federally approved coastal management program. Our comments on the DEIR are provided below.

## General

*Increments*

1. We recommend that the DEIR be revised to utilize consistent increments of measurement, followed by alternative units in parentheses. A conversion table in the appendix would also assist project analysis.

## Project Description

*Project Schedule*

2. The Activity Duration Table [Table 5 (p. 2-20)] should be expanded to include the predicted schedule for the project.

3. The DEIR states that shore-end activities have been approved by San Luis Obispo County and the California Department of Parks and Recreation (2.3.1, p. 2-7) Please provide copies of this permission in appendix C. Additionally, please provide detailed maps of project locations.

*Burial of the Submarine Cable System*

4. Once installed, it is anticipated that the cable will be buried at a depth of 0.6 to 1.5 meters, depending on water depth (2.2.3, p. 2-6). If these are target depths, than the MND should provide some documentation of the possible variance between target and actual depths, and further explanation of why the 1.5 meter burial depth is not planned for the entire burial length.

5. AT&T proposes to inspect cables "...after any event, such as an earthquake in the offshore area, that may affect cables, to ensure that they remain buried, and to retrobury when necessary and feasible...." (2.2.3, p. 2-7). Please elaborate on the following: 1) quantify what constitutes an "event" that warrants inspection; 2) What constitutes "necessary" retroburial; and 3) What might make retroburial infeasible.

6. The DEIR states that videos documenting the results of the inspections will be provided to the California Joint Cable/Fisheries Liaison Committee (JCFLC) for verification. (2.2.3, p. 2-7 and 1.10.2, p. 2-23) Please add the Coastal Commission to the list of recipients for burial and reburial verification, including video, and magnetic sensor recording device records, and state this in the DEIR so that concerned parties may access this information conveniently.

7. During the pre-cable laying operation the grapnel run will collect debris, and then bring it aboard ship for later disposal in port (2.3.2, p. 2-10). What sort of debris is anticipated, and how will disposal proceed?

8. Suspending cables by buoys during the cable laying operation is a significant aspect of this project proposal (2.3.2.2, p. 2-12). The reasonable worst-case scenario outlines a situation whereby two suspended cables extend from the end of the borehole to 3.1 miles offshore. Potential impacts to fishermen are alleged to be mitigated by the fact that the suspended cable is located within the three-mile limit, inside of which trawling and gill-netting do not occur. However, a suspended cable poses as much of a risk to a troller as to a trawler, and to other forms of fishing gear, as well as marine mammals, particularly cetaceans. The DEIR poses the possibility that cables will remain suspended and buoyed for two to four weeks. Please explain, in greater detail, how risks to marine mammals, commercial fishermen and boaters utilizing various gear types will be avoided.

9. AT&T has proposed a process by which the cables are laid directly on the ocean floor, and then retroburied up to one month later with ROV technology (2.3.2.4, p. 2-13). It is unclear why the cable is not proposed for immediate burial in order to avoid or minimize risks to boaters, fishermen and marine mammals, and why ROV is preferred to seaplow burial. Can the significant delays in cable burial described in Step 4 (2.3.2.4, p. 2-13) be avoided?

10. In section 2.9.4 the DEIR discusses abandonment options for the project (2.9.4, p. 2-22). The DEIR mentions four scenarios, and proposes one; partial removal. Please provide analysis of partial removal and complete removal.

*Cable System Repair*

11. According to a recent analysis, "Out of 539 fiber-optic cable faults documented worldwide in the last 10 years...44% were caused by fishing gear/cable interaction...21 percent were caused by anchors, 12 percent were caused by other third parties, and 23 percent were not caused by third parties...." (Evans and Byous 1999) Please include a more extensive description of the causes of faults or problems in the operation of submarine fiber optic cable systems worldwide in the EIR, and how such problems will be avoided or mitigated by AT&T.

**Environmental Setting, Project Impacts, and Mitigation Measures**

12. In describing cable abrasion of soft sedimentary rocks, the DEIR describes a "slack" level of 1% in nearshore areas (4.3.3, p. 4.3-7). What constitutes "nearshore areas," and how does this affect the hectares off hard-bottom habitat potentially impacted by cable movement?

13. Have landslides down submarine canyons, such as those described in section 4.3-3 p. 4.3-7 effected cable burial or operations along the Central Coast? What is the likelihood that such events could effect future burial and/or operations?

*Water Quality*

14. The DEIR has not evaluated how ocean currents, waves, or storms would mobilize and transport sediments disturbed during project construction and reburial operations. Is there the potential for invertebrates or other nearby species to be smothered, and to what extent? We request that these possibilities be evaluated in the EIR. If the analysis demonstrates the potential to smother marine organisms during construction or operation of the proposed project, then their populations should be estimated and the results included in the EIR so that avoidance or mitigation measures may be considered.

15. Please describe how far outside of the project area the chemical dump is located. (See 4.4.1, p. 4.4-1)

*Biological Resources*

16. The DEIR, without analysis or data, concludes that noise levels will be limited to the daylight hours, and have no impacts on terrestrial resources near the project work site. (4.5.1, p. 4.5-1) Please explain or justify this conclusion.

17. Under the Biological Resources section, a variety of marine mammals, such as Blue and other whales, are omitted from the discussion of sensitive species, though they could be imperiled by the presence of suspended or unburied cables. Please provide a broader and more thorough analysis of this risk, particularly any information available regarding cetacean trends and behavior in the vicinity of the proposed project. Blue whales, for example, feed at depth in the Channel Islands during the summer months, but are omitted from discussion. They should be evaluated, particularly given their population level.

18. What have surveys of existing cables indicated about the effects of cable movement on hard bottom habitat areas? (4.5, p.4.5-23)

19. In table 16 (4.5-29) and the accompanying text, it is difficult to determine what the observed densities of benthic taxa were during the marine surveys. In many cases, no species density levels are provided. Please describe observed densities, and how that information was collected.

20. How does AT&T intend to avoid harm to marine mammals during cable laying operations? Will a biologist with expertise in marine mammals accompany the laying vessel, and have authority to cease operations if marine mammals enter the project area? If so, please provide information on the qualifications of the monitor and the specific criterion which will be used to determine if marine mammals are being "endangered." Additionally, please explain under what particular circumstances work will stop.

**Commercial and Recreational Fishing**

21. Please provide in the appendices any agreements entered into between AT&T and the commercial fishermen discussed in this document. If similar agreements are not envisioned for other mariners, than please describe what proactive steps AT&T intends to take to minimize cable interactions between mariners and cables.

22. In order to help assess AT&T's ability to identify and mitigate previous impacts to marine resources and commercial fishing interests stemming from existing cables, please enumerate and describe the scenarios and claims for lost or damaged fishing gear entangled on AT&T's existing cables, particularly the abandoned HAW-2 and HAW-3 cables.

23. To what extent has AT&T patrolled existing cable locations for possible fishing gear/cable interactions? Will such patrolling take place in the future, and if so, how?

24. The DEIR should analyze the potential impacts to fishermen if fishing gear snags cables and the resulting tension causes fishing vessels to capsize.

25. When describing the offshore project area and the current environment for sport and commercial fishing, the DEIR should include the existing AT&T cables landing at Montana de Oro, and the Chevron Estero area, both of which may contribute to creating a de facto fishing exclusion zone. If some fishermen do avoid these cables and the area surrounding them, then the DEIR should consider the area in an assessment of cumulative impacts to fishermen that could result from the proposed project.

26. The space between the proposed cables and the existing cables appears to be as little as 500 feet (152 m.) at times (4.7.3, p. 4.7-10). Elsewhere in the document, a minimum gap of two-times the water depth is suggested as necessary to safely perform repair operations. Please explain this discrepancy.

27. The DEIR attempts to quantify the project's long-term effects on fishermen forced to avoid unburied cables in rocky areas (4.7.3, p. 4.7-10). In such areas, fishermen are compelled to avoid fishing, due to the risk of entanglement. However, in attempting to quantify this effect, the DEIR

makes an apparently faulty assumption; the analysis assumes that hard and soft bottom habitats are of equal biological wealth, and of equal importance to fishermen. In essence, the DEIR takes identified Department of Fish and Game fishing blocks, calculates the area restricted to fishing due to the cable presence, and then makes a direct economic evaluation based on the percentage of restricted area. What the DEIR fails to take into consideration is the relative abundance of marine life in rocky areas, compared to soft bottom habitat. Presumably, the relative importance of these areas to fishermen is also greater. Please attempt to provide a more balanced valuation of these respective habitat types.

28. Regardless of the agreement reached with the commercial fishermen of the Morro Bay area, the loss of a significant reach of submarine habitat to fishing constitutes the taking of a publicly managed resource and a public trust resource with significant environmental and ecological value. This impact should be discussed, and mitigated in the EIR.

29. The following mitigation measures, underlined for emphasis, in the DEIR are troubling due to their uncertainty, and should be strengthened:

- <u>Where feasible</u>, AT&T cables will be buried to a <u>target depth</u> of three feet (0.9 m) in areas between three miles from shore and 1,000 fathoms (1,800 m) water depth.

- The timing and methods of construction and installation of the individual cables will be determined by AT&T in consultation with the Committee, <u>with the goal of</u> minimizing any negative impacts to the fishing industry.

- A Committee fisherman representative <u>may be</u> on board the cable installation vessel to observe cable installation.

- <u>When</u> the cables to be installed are taken out of service, AT&T <u>will</u> submit a plan for their removal <u>as necessary</u> so as not to interfere with commercial fishing activities in areas where such cables were previously installed (4.7-17).

30. Please add the Coastal Commission to the list of recipients for the following information:

"AT&T will conduct burial verification of the cables every 18-24 months by Remote Operated Vehicle (ROV) and will provide to the Committee videotapes recording the verification (4.7-16)."

31. Since AT&T does not propose to provide non-signators of the fishing agreement with payments for upgrading communication and navigation equipment, how does AT&T intend to proactively and equally minimize the risk of the cables to these fishermen? (4.7-17)

32. Are fishermen to be held harmless for unintentional damage to a buried cable in the project area? If so, the DEIR should define what actions AT&T would consider to be "unintentional" and what actions they would consider to be "intentional."

33. The DEIR does not quantify the likelihood of gear entanglement with cables, nor any protocol for the handling of such incidents. Given an approximate 200 entanglements worldwide of fishing gear with cables, the DEIR should describe in detail the reported incidents of entanglements in the Morro Bay vicinity (4.12.3, p. 4.12-3), and evaluate fully the potential entanglement and retrieval of fishing gear, including a plan for the complete removal of entangled gear.

34. Whereas commercial fishing contributes approximately $700,000 annually to the State economy, sportfishing contributes approximately $5 billion (McWilliams 1995). Please provide an analysis of sportfishing and its contribution to the local economy, as well as any possible impact the project may have on sportfishermens' ability to access marine resources in the Montana de Oro area.

**Land Use and Recreation**

*Environmental Setting*

35. Please clarify the usage levels at the Sandspit parking lot in the Montana de Oro State Park. In particular, please address the apparent high level of usage (600 persons per day) in relation to the low estimated occupation of parking spaces (50% at any one time) and low number of spots available (50). Assuming two persons per vehicle, this calculates to an average 30 minute visit to this State Park (4.8.1, p. 4.8-1).

36. Please clarify what scheduling and incorporated measures will be taken to ensure the availability of parking, restrooms, and pedestrian access to the beach during project activities. Please address this particularly in relation to the cumulative impacts caused by this project in conjunction with the MCI/WorldCom project, also planned to take place at the Sandspit parking lot.

37. Does AT&T foresee no land-based impacts other than the usage of the parking lot for cable pulling through the existing conduit? For example, will equipment be stored off of the parking lot in vegetated areas? Will heavy machinery degrade the parking area?

38. Please correct section 4.12.3 to reflect the fact that AT&T only intends to provide equipment upgrade funding to fishermen who agree to become signators to the agreement cited earlier in the document. Also, please add the CSLC and the CCC to the list of recipients for the cable reburial verification information (4.12.3, 4.12-4).

**Comparison of Alternatives**

*Maximum Burial Alternative*

39. According to the DEIR, "....The Maximum Burial Alternative avoids nearly all areas of rocky seafloor and is estimated to allow burial along greater than 99 percent of both cable routes, versus 95-96 percent along the proposed routes." (5.1.3, p. 5-4) Please clarify these percentages. In particular, please provide the percentage of rocky seafloor contacted within the 3-mile limit,

within the 1000 fathom sea-depth limit, and within individual fishing blocks, as well as the entire cable length.

## Appendices

*Appendix A*

40. Do all of the data included in the appendices pertain to both the proposed project and the Maximum Burial Alternative?

41. The Pacific Scarab One, utilized for cable repair and reburial, can only jet to a depth of 0.6 meters on a single pass, and 1.2 meters on a multi-pass. Are multi-passes planned for cable reburial operations? If so, please incorporate this need for multi-pass operations into the text, and any subsequent effects such operations may have.

42. The sonar device utilized for the sonar survey is less than three meters tall. During the survey, the device contacted 28 objects higher than three meters, and identified them as "probable boulders." Please describe with what certainty the sonar device can distinguish boulders from reefs or other rocky areas likely to host diverse marine resources. Explain also how this assessment is consistent with Table 11 which finds no isolated rock.

*Appendix B*

43. Do all of the data pertain to both the proposed project and the Maximum Burial Alternative?

44. Please elaborate on the communications between the study consultants and CSLC and CCC staff cited on page 2-4. Were these methods recommended by CSLC and CCC staff?

45. Photographic examples of soft bottom biota and habitat should be included in this presentation. (3-36)

46. Please provide both scientific and common names of identified species (3-43).

47. What is a "small box?" (4-2)

48. Do the ROV Video and Photographic Data indicate any occurrences of slides? If so, please describe. Site E1, recorded on 5/23/99, page 2 of 8 seems to contain a possible slide zone.

## Other Concerns

49. A similar project proposed for nearby Grover Beach discusses the risk which subsurface and submarine gaseous sediments and plumes may have on cable burial. Is AT&T convinced that no "pockmarking" or other evidence indicates the presence of such gaseous deposits which could effect cable burial?

50. The project crosses active fault zones (Los Osos and Hosgri Faults), but the DEIR concludes that "...the potential for damage to the cable is minimal and less than significant given the

avoidance of submarine canyons or escarpments and AT&T's inspection and maintenance of the cables in response to seismic events...." (ES-2) What nature of seismic event on these faults, or the nearby San Andreas fault, would qualify as an "event" worthy of examining the status of cable burial?

51. Please provide more detailed information on anchoring plans for the Maximum Burial Alternative. In particular, outline proximity to and any risks to nearby hard bottom habitats.

We appreciated the opportunity to review the DEIR and to provide these comments. If you have any questions about our comments, please feel free to call me at (415) 904-5249.

Sincerely,

Michael Bowen
Coastal Program Analyst

cc: Nancy Lucast, Lucast Consulting

STATE OF CALIFORNIA—THE RESOURCES AGENCY

GRAY DAVIS, *GOVERNOR*

**CALIFORNIA COASTAL COMMISSION**

45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200
FAX (415) 904-5400

March 1, 2000

Mr. Daniel Gorfain
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

RE: Errata for Coastal Commission Comments on AT&T DEIR #698

Dear Mr. Gorfain:

The purpose of this letter is to correct three items contained in my February 28, 2000 comments concerning the proposed AT&T China-U.S. Cable Network.

1. No. 25 should end with, "....If some fishermen do avoid these cables and the areas surrounding them, then the EIR should further consider those areas in an assessment of cumulative impacts to fishermen that could result from the proposed project, and suggest appropriate mitigation measures, as necessary. Additional attention should be paid to fishermen not party to the Agreement.
2. No. 28 was inadvertently left in the comment letter, and should be stricken from the comments.
3. No. 34 cites the economic contribution of commercial fishing as $700,000. The actual figure should read $700,000,000.

I apologize for any confusion this may have caused, and appreciate your willingness to correct these errors.

Sincerely,

Michael Bowen
Coastal Program Analyst

STATE OF CALIFORNIA—THE RESOURCES AGENCY

GRAY DAVIS, *Governor*

**DEPARTMENT OF FISH AND GAME**
MARINE REGION
20 LOWER RAGSDALE DRIVE, SUITE 100
MONTEREY, CA 93940
(831) 649-2870

February 14, 2000

Mr. Daniel Gorfain
State Lands Commission
Division of Environmental Planning and Management
100 Howe Ave, Suite 100-South
Sacramento, CA 95825-8202

Dear Mr. Gorfain:

The Department of Fish and Game (Department) has reviewed the Draft Environmental Impact Report (DEIR) for the AT&T China-U.S. Cable Network (State Clearing House #99051063). The proposed project is the installation of two new fiber optic cables on the sea floor off Morro Bay, San Luis Obispo County, California. The two cables (segments E1 and S7) will provide links to China from the existing AT&T San Luis Obispo terminal at Montana de Oro State Park. Activities associated with the proposed project include the following: laying cable over rocky areas, burying cable in sand and silt/clay areas, and connecting the new cable to existing cables.

The proposed cable routes are located in the vicinity of several existing AT&T cables and several more proposed cable routes. Five of the cables are routed through the existing bore pipe which terminates in the parking lot of Montana de Oro State Park at the existing AT&T terminal. The principal concern of the Department is the potential loss of fishing areas to commercial and recreational fishers in the Morro Bay/Estero Bay area. The DEIR acknowledges that fishing may be precluded over the cable routes or that gear may become entangled in the cables resulting in potential economic loses. The DEIR identifies the Maximum Burial Route as the preferred route for both cables. To further minimize the areas no longer available to be fished, the Department recommends that a realignment of the Maximum Burial Route be selected as the preferred route. The Department recommends that the two cables be buried in the same trench along a variation of the S7 Maximum Burial Route (which avoids the most areas of high and low relief) to the approximate 150-m contour at which point the two cables can be directed to which ever route provides the most direct line to their destination. This revised route minimizes the area closed to fishing and reduces the amount of cable placed directly over high and low relief rocky areas.

Table 15 in the DEIR should be corrected as follows: Morro Bay kangaroo rat is a California fully protected species, in addition to endangered, and the southern sea otter is a California fully protected species, but is not endangered.

Thank you for the opportunity to comment on the proposed routes and recommend an alternative route that minimizes effects to fishers and biologically sensitive habitats. Department personnel are available to discuss our concerns, comments, and recommendations in further detail. To arrange for discussion, please contact Ms. Deborah Johnston, 20 Lower Ragsdale Dr., Suite 100, Monterey, CA 93940 telephone (831) 649-7141.

Sincerely,

Robert N. Tasto

Robert N. Tasto, Supervisor
Project Review and Water Quality Program
Marine Region

cc: Ms. Deborah Johnston
Department of Fish and Game
Monterey, California

Mr. Scott Morgan
State Clearinghouse
1400 Tenth Street
Sacramento, California 95814

# California Regional Water Quality Control Board
## Central Coast Region

/inston H. Hickox
*Secretary for Environmental Protection*

Internet Address: hhttp://www.swrcb.ca.gov/~rwqcb3
81 Higuera Street, Suite 200, San Luis Obispo, California 93401-5427
Phone (805) 549-3147 • FAX (805) 543-0397

Gray Davis
*Governor*


February 28, 2000

Mr. Daniel Gorfain
California State Lands Commission
100 Howe Avenue, Suite 100-So.
Sacramento, CA 95825

Dear Mr. Gorfain:

**DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) FOR AT&T CHINA – U.S. CABLE NETWORK (SCH 99061063)**

Thank you for the opportunity to review and comment on your Draft Environmental Impact Report (DEIR) regarding the proposed project. We understand that the project involves installation of two fiber optic cables into an existing empty bore pipe and landing site at Sandspit parking lot, Montana de Oro in Morro Bay.

General Comments:

The State Water Resources Control Board issues a statewide general NPDES permit which covers short term intermittent discharge of pollutants by utility companies to waters of the United States. Utility companies may have discharges from underground utility vaults. These underground structures may have small quantities of oil and grease and other pollutants present. Contact the SWRCB, Division of Water Quality, Program Support, PO Box 944213, Sacramento, CA 94244-2130 for a copy of the notice of intent.

Specific Comments:

1. The EIR should include a discussion of the potential impacts the cable laying activities may have on marine organisms and water quality from disturbed sediments and increased turbidity.

2. An anchoring plan needs to be developed that includes procedures for deployment and recovery in a manner that not only avoids sensitive areas, but also employs methods that will prevent dragging.

3. A detailed contingency plan needs to be developed for all spills (petroleum, oil, sewage, ballast water, etc.) that could occur from vessel(s) used to install, repair, or remove the cable. Crews need to be fully aware of illegally discharging materials, of spill cleanup procedures and trained in correct and immediate implementation of spill response procedures.

4. It is unclear what your assessment of the asphalt and other coatings proposed for used on the cables is. A discussion of possible impacts to the marine environment should be discussed.

5. The DEIR states that no lubricants will be used for pulling the cable. In the event that a lubricant may become necessary an assessment of the components of any lubricants that could be used for water quality impacts must be made.

6. The Regional Board may require more project specific information at the time of formal application in order to determine how to appropriately regulate any potential discharges, properly assess impacts and develop conditions for any water quality certification under Section 401 of the Clean Water Act.

If you have questions, please call **Corinne Huckaby at (805) 549-3504** or Sorrel Marks at (805) 549-3695.

Sincerely,

for: Roger W. Briggs
Executive Officer

ch:\AT&T_china.401
Electronic File location: s:\southern\staff\corinne\ AT&T_china.401
Mainfile: 401 program

cc: State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814

PORT SAN LUIS HARBOR DISTRICT

P.O. BOX 249 • AVILA BEACH
CALIFORNIA 93424
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JAY K. ELDER *Harbor Manager*
THOMAS D. GREEN *Legal Counsel*
PHILLIP J. SEXTON, CPA *Treasurer*

February 25, 2000

Mr. Dan Gorfain
State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

faxed and mailed

RE: A. T. & T. China–U. S. Cable Network
Environmental Impact Report #698
SCM #99051063

Dear Mr. Gorfain:

Thank you for allowing us to comment on the above referenced Environmental Impact Report (EIR). The Port San Luis Harbor Commission has reviewed this document and find that it satisfies the concerns of the Harbor District. We appreciate the State Lands Commission efforts in a thorough review of the project.

The mitigation measures for this project reduces the effects to the environment to our satisfaction. We urge your adoption and certification of a final EIR and approving the project. Inclusion of the mitigation measures as special conditions to the lease/permit is supported by the Port.

Thank you for the detailed work on this important project.

Sincerely yours,

Jay K. Elder

Jay K. Elder
Harbor Manager

C: Ms. Jime C. Kooser, Coastal Commission

COUNTY OF SAN LUIS OBISPO

# department of general services

COUNTY GOVERNMENT CENTER • SAN LUIS OBISPO, CALIFORNIA 93408 • (805) 781-5200

DUANE P. LEIB, DIRECTOR

RECEIVED

STATE LANDS COMMISSION

February 11, 2000

Paul Thayer
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

RE: Draft EIR AT&T China-U.S. Cable Network (January 10, 2000)

This letter is regarding the Draft EIR for the AT&T China - U.S. Cable Network. County Parks Division has reviewed the Draft EIR. If the Morro Beach alternative is pursued County Parks would like to comment further. As noted on page 3-3, the Morro Beach alternative would require roughly 15 miles of new onshore construction. Proposed onshore construction would potentially impact a proposed County Park and Trail located in this area.

Thank you for the opportunity to comment. If you have any questions or concerns please give me a call at (805) 781-4089.

Jeanette Di Leo

JEANETTE DI LEO,
Parks Planner

Copy forwarded to:

Date: 2/17/00 by KL

# D. TRANSCRIPT OF PUBLIC HEARING

**CERTIFIED COPY**

NOTICE OF PUBLIC HEARING ON )
THE DRAFT ENVIRONMENTAL IMPACT REPORT: )
AT&T CHINA - U.S. CABLE NETWORK )
SEGMENTS S7 and E1 )
)

# REPORTER'S TRANSCRIPT OF PROCEEDINGS

Tuesday, February 1, 2000

Veterans Memorial Building

Morro Bay, California

3:20 p.m.

Reported by: JERI CAIN, CSR #2460, RMR-CRP-CRR
File No. 202940


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PUBLIC HEARING DRAFT EIR

AT&T CHINA - U.S. CABLE NETWORK

## APPEARANCES

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## AUDIENCE SPEAKERS

JODY GIANNINI
RICK ALGERT
JAY ELDER
RANDY LARSEN

MORRO BAY, CALIFORNIA

TUESDAY, FEBRUARY 1, 2000, 3:20 P.M.

- oOo -

**DAN GORFAIN:** Good afternoon. Thank you for coming. My name is Dan Gorfain. I am the project manager for this project for the California State Lands Commission. We are here for a public hearing on the Draft Environmental Impact Report for AT&T's China-U.S. Cable Network project involving the construction of two cables; S7 and E1. We are here to receive comments on the adequacy of the Draft Environmental Impact Report prepared by SAIC of Santa Barbara.

I would like to ask that, before you leave, you each sign the sign-in sheet in the back. Please fill in a speaker slip if you wish to speak this afternoon.

AT&T has applied to the State Lands Commission for a lease for two proposed cables. The State Lands Commission has determined that an EIR was to be prepared for this project and, as I said, the EIR was prepared by Science Applications International, Inc. (SAIC) under contract to AT&T.

The EIR is an informational document about the potential adverse and beneficial environmental effects of the proposed action and its alternatives. The EIR also analyzes the cumulative impacts of the project and proposes mitigation measures to reduce adverse impacts identified to a level of insignificance or at least to the maximum extent possible. It is to the adequacy of this EIR that we ask you to address your comments today.

Following this hearing the State Lands Commission staff will consider your comments today, as well as written comments received at our office by Monday, February 28th; respond to these comments and prepare the Final EIR for certification by the Commission, prior to the Commission's consideration of AT&T's application.

What we would like to do today is to first have a brief presentation by AT&T of this project. We will then take any clarifying questions from any of you as to aspects of the project itself. We will then go ahead and open this hearing for comments on the adequacy of the environmental document.

At this time I would like to introduce two people; Mike Dungan of SAIC who is their project manager for the preparation of this Draft EIR and Paul Shorb of AT&T who will make a brief presentation about the project itself.

**PAUL SHORB:** Thank you, Dan. My name is Paul Shorb. I am employed by AT&T, and my primary job is helping get governmental approvals needed for undersea cable projects like this one and help the project get implemented in compliance with those approvals.

The purpose of this project, to say it briefly, is to respond to the increasing demand for telecommunication services, particularly driven by Internet use by individuals and businesses and governments and nongovernmental organizations.

This China-U.S. System will have a huge capacity. The China-U.S. Cable Network, which is what we call it, will have the huge capacity typical of modern fiber optic cables. It will have the equivalent of four million simultaneous voice calls as its capacity. It will be the first direct link between the United States and the People's Republic of China. There are actually two transpacific links as part of this overall project. It is a typical configuration nowadays for these kinds of fiber optic projects, with huge capacities in each cable only about an-inch-and-a-fourth wide. When you look at it from a map or from outer space, you see, in effect, a ring configuration. It looks kind of like a large rectangle. What this map is showing is the part of the project that is within the purview of the CEQA analysis, but to give you a sense of the larger picture, the landings in Morro Bay are essentially what you might call the southeastern --

**DAN GORFAIN:** You might want to take one of these mikes with you.

**PAUL SHORB:** Can you hear me all right without the mike?

(Audience responds affirmatively.)

**DAN GORFAIN:** Are you recording this as well?

**THE REPORTER:** No, I'm not recording it.

**DAN GORFAIN:** Okay.

**MR. SHORB:** So for anybody who doesn't already know this, if you imagine the large scale of the United States, at Morro Bay we have what you might call the southeastern corner of this ring system. So this cable that we call E1 goes up to Bandon, Oregon. From Bandon, Oregon, it goes across the Pacific. This link that we call S7 goes across the Pacific and there it touches down in Japan, Korea, and Guam. It goes right to China.

The reason it is a ring is to provide double capacity but, more importantly, if anything does happen to cut one of these, you haven't just lost this huge capacity and you can just reroute it around the other side of the ring.

The reason we put this corner of the ring in Morro Bay is we don't need any new construction there. We already have bore pipes drilled from the parking lot at Sandspit Beach, going underground, and emerging underwater three-quarters of a mile offshore. We installed four of these bore pipes in 1991. Three of them were used for other cables, which you can see on this map; the ones in blue. So we have one bore pipe left and both of the China-U.S. cables we'll pull into this one pipe.

The installation process is essentially a cable ship with both cables rolled up on parallel spools. The cables are brought into the underwater end of the bore pipe only about three-quarters of a mile offshore. There's a wire already in there used to pull them up, and there'll be a winch in the parking lot to winch them up. Then the cable ship moves out and the cables will be buried to a target depth of three feet, about one meter, all the way until you get to a depth of 1,000 fathoms, which is about an equivalent of 6,000 feet, which is about 30 miles offshore.

We contrast on this chart the project as proposed versus one of the major mitigation steps that we made in working with State Lands Commission in the CEQA process. It is essentially to slightly change the route of the cables to allow us to achieve greater than 99 percent burial within that area I just described. Again, the blue are the existing cables; so-called TPC-5 and HAW-5. "TPC" is for "transpacific cable." HAW is going to Hawaii.

The colors here indicate red for relatively high-relief rock. You can't bury when you cross there. Pink is lower-relief rock. The existing cables cross a fair amount of rock. As originally proposed, we were going to cluster them near the existing cables. But in response to concerns expressed by trawl fishermen and others, we rerouted these two cables and the other projects, which are not part of these CEQA documents, but are also coming into this landing point about the same time, and they were all coordinated together to reroute all of these projects to find the route where each would cross hardly any rock. So we are going to achieve more than 99 percent burial for these cables. The ones in light green are the China-U.S. cables.

So the point of that is to mitigate, number one, potential "socioeconomic impacts," in CEQA-talk, to commercial fishermen. When they are buried, we don't believe they will, in effect, restrict fishermen's ability to trawl in any of those areas; and secondarily, they will avoid landing on rocky areas or maybe biological life which would be slightly impacted by the cables.

There are a number of other impacts which I would call of lesser extent identified in this EIR, and mitigation steps identified for all of them in the EIR. The conclusion, then, is that the project has no significant impacts once the mitigation steps are added to the project. AT&T is willing to perform all of the mitigation steps identified in the EIR.

Finally, I just want to say that we really appreciate all of the hard work the State Lands Commission staff has put into this project since we submitted our application in October '98. We have put a lot of work into it, and I think State Lands should be proud of this EIR. Thank you for your attention.

**DAN GORFAIN:** Thank you very much, Paul. Are there any questions about the project itself clarifying any aspects of it?

Okay.

**PAUL SHORB:** I would like to add a point.

**DAN GORFAIN:** Go ahead, Paul.

**PAUL SHORB:** I also want to thank the representatives of the fishing community, some of whom are here tonight, who worked -- who helped us work through the details of what would be appropriate mitigation, a lot of which is represented in this EIR.

**DAN GORFAIN:** Well, if there are no questions about the project itself, is there anyone who wishes to address us regarding the adequacy of the Draft EIR?

**JOSEPH GIANNINI:** My name is Joseph Giannini, Jr. and I just had one question. I did go through MCI's page by page of that document and I did not go through every page of AT&T's, but I just had a question on the findings. I know we had basically come to an agreement on the removal -- I only have one point -- is HAW-3, the abandoned cable, and I was just wondering if that was a condition in the mitigation measures that was to be removed. We are hoping it is.

**DAN GORFAIN:** Removal of HAW-3 is not, at this time, included as a condition or a mitigation measure for this project.

**JOSEPH GIANNINI:** Uh-huh.

**DAN GORFAIN:** We did talk with AT&T about that, and it is our understanding that AT&T does foresee the use of HAW-3 for research purposes. Perhaps AT&T wishes to elaborate on that, but that's my understanding.

**JOSEPH GIANNINI:** That wasn't what we were told.

**PAUL SHORB:** I don't know actually what the position is.

**JAMES BURROUGHS:** I'm Jim Burroughs on behalf of AT&T, and I think where it stands with regard to HAW-3 is that AT&T has committed to, in the context of the fishing agreement, to remove HAW-3 when feasible, but that it is still a matter that is being developed. And Dan, as to your point as to the future possible use of HAW-3 for scientific research purposes, that is one possible option for the use of that cable in the future, but that hasn't been decided as far as use of that cable -- correct me if I'm wrong, Paul -- for scientific research purposes. But as far as AT&T is concerned, in connection with the fishermen, AT&T is committed to removing that cable in cooperation with the fishermen if it turns out that that is in the best interests of all the particular parties.

**JOSEPH GIANNINI:** Clear as mud. I just want to -- you know, that's a real critical point to us. I realize the other one is something with Hawaii, applies to you, Randy. The other one; that they are using that for scientific data but this has been a lot of our trouble on that cable laid on top of the bottom there, and HAW-3 has been our big thing and, you know, if we can see our way through to get some kind of language in there to get -- I don't like "where feasible." That's bad words for us. And they have been straight with us. We've been straight with them, and I just want to level the playing field here that that cable -- I don't care if it's part of the permit condition. It needs to be out of there. Or if we can come up with some language in the joint committee, that's fine, too, but I know "where feasible" can be an awful long time, so we would like to see it removed from the fishing community as part of this.

**DAN GORFAIN:** Thank you very much.

**RICK ALGERT:** I am Rick Algert of the Harbor District for the City of Morro Bay.

**THE REPORTER:** Rick --

**RICK ALGERT:** Rick Algert, A-l-g-e-r-t, Commissioner for the Harbor District, and this was a question that has come up based on what I heard before, but I believe that there's a condition on the removal eventually of all of the -- maybe you could remind he how that's going to be handled. What will happen when the existing cables are no longer needed?

**DAN GORFAIN:** It is the standard practice of the State Lands Commission at the time of termination of the lease or sooner, if the lease is abandoned by the applicant, to have facilities removed. In this case, what we say is that at the time that that happens, if AT&T wishes to retain the cables, they will have to apply to the Commission to do so and we can consider it at that time, but typically, the Commission requires facilities to be removed from these leaseholds at the time that the lease terminates.

**RICK ALGERT:** Is there an expiration date on the lease permit?

**DAN GORFAIN:** It's a 25-year lease.

**RICK ALGERT:** A 25-year lease?

**DAN GORFAIN:** Yes.

**RICK ALGERT:** How about the HAW-3 existing cable? What's the term on that?

**DAN GORFAIN:** I don't know off the top of my head. That cable still is under lease from the State

Lands Commission and certainly we will take a look at that and talk with AT&T and with the fishermen to see what can be worked out on that.

**RICK ALGERT:** So your understanding at this point is that no later than 25 -- well, in 25 years, this -- well, what potentially would be recommended by the State Lands Commission is issuance of a 25-year lease or permit on this project proposed today which could be extended but also potentially in 25 years, if it's just allowed to terminate, then the most likely occurrence is that AT&T would be required to remove it?

**DAN GORFAIN:** Uh-huh; yes. Let me just read to you the mitigation measure because I think that might help.

**RICK ALGERT:** Great.

**DAN GORFAIN:** "When the cables to be installed are taken out of service, AT&T will submit a plan for the removal as necessary so as not to interfere with commercial fishing activities in the areas such cables were previously installed."

**RICK ALGERT:** So would that be interpreted -- as best you can tell here today, would you interpret that to mean if they are taken out of service in five years, say; at that time that AT&T would submit a plan for removal?

**DAN GORFAIN:** That is correct.

**RICK ALGERT:** That would be what I had understood.

**DAN GORFAIN:** That's correct.

**RICK ALGERT:** It's good to hear that because that, I think, is an important issue, too, that if the cables like HAW-3 just aren't allowed to sit out there being unused, but who knows what the technology will be in five years.

**DAN GORFAIN:** That's true.

**RICK ALGERT:** And that was kind of my assumption, too, and that's good to hear.

**PAUL SHORB:** Can I offer comment on that maybe to hopefully clarify it better?

**RICK ALGERT:** Sure.

**PAUL SHORB:** My understanding of this language is that the threshold test is interference with commercial fishing activities, so if at that time, due to the meter burial of these, there's not perceived to be any interference with commercial fishing activities, this mitigation step does not assume it will be removed.

**DAN GORFAIN:** That is not correct. The policy of the Commission typically is, as I said earlier, that when a lease terminates, the improvements on that lease are removed unless the Commission opts to retain them. But the first position is to have facilities removed.

**PAUL SHORB:** Right. I didn't mean to restate your general policy, but as to interpreting this language, it seems to me it doesn't add to your policy. Your policy is your policy and this says the mitigation is to remove it if it's interfering, so clearly, you still have the authority to implement your policy with regard to removal.

**DAN GORFAIN:** Yes.

**RICK ALGERT:** The other issue, obviously, is the termination date isn't necessarily until 25 years unless both parties voluntarily agree to terminate earlier, so maybe you're talking about a condition kicking in before a termination date which kind of seems to me he's trying to qualify that -- in other words, what I am understanding AT&T saying is or my understanding at this point with them, at least, might be that the cable wouldn't necessarily be removed unless it was presenting an obstruction. I don't find that unsatisfactory on the surface. And off the top of my head, it seems like if the cable isn't presenting a problem and no one is objecting, that doesn't seem unreasonable to me. I think if one fisherman or independent user does find the cable to be inhibiting or would object, I would think that would be enough to potentially meet the threshold to merit at least looking at removal even if the lease wasn't terminated.

**DAN GORFAIN:** I think the general position of the Commission and its general policy is that we don't want our lands to become dumping grounds for past activities, so we always look at removal of facilities.

**RICK ALGERT:** That's a good policy and there are a number of cables, I think, in a lot of places in the tide lands.

**DAN GORFAIN:** And a lot of other remnants of development. And I will tell you that the state has also spent millions of dollars removing various remnants of prior facilities up and down the coast, and it's been a nightmare in many areas and a public hazard.

**RICK ALGERT:** Okay. The question I had kind of was to future process, and I was going to make a comment. What would happen after this hearing? Could you explain to me the State Lands Commission's time chart?

**DAN GORFAIN:** Yes. As I said, the public comment period is open until the 28th of February. At that time we will take all the comments received in writing and verbally at the hearing this afternoon and this evening, prepare responses to each of the comments and prepare the Final EIR which may include modifications based on the comments received. At that point the EIR will go to the Commission for certification as meeting the requirements of CEQA and for consideration of AT&T's application for a lease.

**RICK ALGERT:** And what was the date on that again? I'm sorry.

**DAN GORFAIN:** February 28th is the close of comments.

**RICK ALGERT:** Right. And did you give a date for the Commission's meeting?

**DAN GORFAIN:** No, we don't have one. We expect it will be held at either the end of March or early April.

**RICK ALGERT:** Does the State Lands Commission meet on a monthly basis or --

**DAN GORFAIN:** It does not at this time. It meets approximately every two months. It does not have a regular meeting date.

**RICK ALGERT:** So the meeting in February and the meeting in April?

**DAN GORFAIN:** There is a meeting on February 8th, and so two months hence will probably be early April.

**RICK ALGERT:** Okay. And this may be -- you know, I don't know that you can answer this, but once they would receive the State Lands Commission's approval of the lease, there is a coastal permit, I presume, or that may go concurrently? Maybe AT&T could answer that.

**DAN GORFAIN:** A Coastal Commission permit will be considered consecutively. I'm not sure the Coastal Commission will deem the application complete before the State Lands Commission acts.

**RICK ALGERT:** But that is a possibility; that that application is going forward?

**DAN GORFAIN:** The Coastal Commission will not act on this project until after the State Lands Commission has acted.

**RICK ALGERT:** The EIR would have to be certified to be complete for their application to --

**DAN GORFAIN:** Actually, not really, because the Coastal Commission doesn't strictly rely on CEQA. The Coastal Commission process is certified by the Secretary for Resources as being a functional equivalent of CEQA. They do their own analysis and prepare their own findings based on the Coastal Act.

**RICK ALGERT:** After the Coastal Commission permits, what would be required in terms of regulatory before construction could commence?

**PAUL SHORB:** There are a couple of other permits; for example, the U.S. Army Corps of Engineers typically would wait until all the State permits have been granted. They typically, and we hope in this case they would, issue their approval as soon as feasible afterwards. In some cases, they have done it the next day.

**RICK ALGERT:** Okay.

**PAUL SHORB:** So our hope is we would begin construction days after Coastal Commission approval.

**RICK ALGERT:** And my understanding is that you're now proposing to coordinate the construction with the MCI WorldCom project?

**PAUL SHORB:** Correct.

**RICK ALGERT:** That's a good choice.

**PAUL SHORB:** Okay.

**RICK ALGERT:** I just wanted to comment to the State Lands Commission, and finally, I thank you for your answers. As I went back through my file today and I looked, it was in December of 1997 that the

City first wrote a letter to the Coastal Commission and the State Lands Commission and the Army Corps of Engineers asking to be kept informed of any pending applications they had on file, any agencies they had on file for offshore fiber optic cables.

Preceding that by about four months, we had been hearing rumors of new pending projects, and I would just let you know that when the AT&T cable was installed in '94-'95, that last one, I remember being told at that time, I believe by AT&T staff, that at that time, and I believe this is true, that was foreseen as the necessary fiber optic capacity for the next 15 or 20 years. I forget what the exact number was but I believe that that was everybody's expectation in 1994, and yet, in 1997, here we were hearing rumors of fantastic numbers of people showing interest in offshore fiber optic cables; all kinds of proposals going around. During that time we found out that there was no regulatory process virtually at all. There had been State Lands Commission leases issued with no environmental review and that's no criticism to you.

**DAN GORFAIN**: There was an environmental review. We prepared a Negative Declaration, not an EIR.

**RICK ALGERT:** Excuse me. There was an environmental review but there was no apparent public comment process. We were never asked to comment or to give any project review so --.

**DAN GORFAIN:** Well, again, there was a public review process. It was not as extensive and it did not include a public hearing. Prior projects were not as controversial. However, the Commission did follow the process required under the law.

**RICK ALGERT:** And I stand corrected. I'll just make a note that since we're being somewhat technical, then I don't believe the City of Morro Bay is the most -- the closest -- outside the County, the closest public agency that was notified of any official actions or permit applications on that project, which is somewhat remarkable in this modern day regulatory environment, but, then, again, I think that most of these projects were seen as rare. Obviously, the whole environment and demand for the thing had changed. They were seen as benign, relatively benign installations, and this all changed very, very quickly in '97-'98. We were trying to figure out how many were out there, what the process was, and we asked the State Lands Commission to help us and the State Lands Commission has. We asked in

1998 when we found out that the City -- it became clear to us that the City would have no regulatory jurisdiction, regulatory directive, including jurisdictional permitting authority on any of these projects because they are all outside the grant of lands of the City of Morro Bay.

We asked the State Lands Commission and the Coastal Commission to achieve three things for the City in its project reviews, and one was a full environmental review, which we feel has been done very well. We agree with AT&T that although there can be quibbled over very specific aspects of it, the process appears to have been achieved, both in the MCI WorldCom and the AT&T projects.

We also had asked for an agreement to be reached by these cable project proposals with the fishing industry and we applaud AT&T and MCI WorldCom for reaching those agreements. The cable-lands-on committee is underway and appears to be, although they have some things to work out, that appears to be a bright star for the future here.

And, finally, we asked them to continue to consider socioeconomics aspects of this project. And while we still feel like there's some things to argue there, we have recently forged a closer partnership holds with AT&T and MCI. They're participating in some community projects that we really appreciate.

So I just want to make it clear that the State Lands Commission has played an important role, not only for local jurisdictions here but for the citizens and state, I think, in setting a policy now that has a good process that has really been created in the last year and a half and you have done a good job.

**DAN GORFAIN:** Thank you. We appreciate your comments.

**RICK ALGERT:** Thank you.

**JAY ELDER:** I'm Jay Elder, Port San Luis Harbor manager. I indicated to the court stenographer that I was going to talk fast here so she couldn't catch me, but I don't normally do that.

I want to thank you for inviting us here today, and Rick asked the questions, the majority of the questions that I had on my mind. I do have a couple that he didn't cover.

Jumping off from some of this cost, I'm curious about the lease terms and conditions and if there is going to be a public document once they are signed or available prior to signing and if we can get that information to the City, the Harbor

District, and the fishermen. That could be important for us to take a look at that just to make sure that the fishing interests are answered.

**DAN GORFAIN:** Typically, it is our policy not to share lease documents until they are signed. Once they are signed, before the Commission meeting, they will be available. I can't tell you when they will be signed, but this is something that you certainly should request in writing.

**JAY ELDER:** And, again, I guess I should apologize for not being well-versed in the environmental impact report that's before us, but I've got another 26 days to go before I have to lick my stamp and send it to you. We do intend to make comment pending review from our Harbor Commissions, but today, I just wanted to share some of our interests and concerns with the State Lands Environmental consultant and AT&T.

It's our understanding that the lease under CEQA is a project that needs to be addressed in the EIR, so basic lease terms and conditions we would expect to be in there and, again, I apologize for not being well-versed in that document. I'm still spinning from the one I read last month.

**DAN GORFAIN:** Okay.

**JAY ELDER:** Thank you. If those issues are in there, we will look for them.

Number two, again, we are of the same feeling as the City of Morro Bay as stated by Mr. Algert, that we have come a long way with this project. We appreciate all the hard work that's gone into the State Lands Commission stepping up to the plate and orchestrating it; AT&T keeping the fishermen informed and the municipalities.

We are extremely pleased with the direction and the progress that's being made with the fishermen and Cable Committee situation. We look forward to working together with them. I think that went a long ways in making this EIR work. We still have some special interests in regards to the Cable Committee. I'm not sure what the EIR has to say about that, but we just want to go on record as supporting that and extend our appreciation to State Lands and AT&T for making that happen.

I think there's a lot of people in the audience that are probably in the same boat that I am, haven't fully digested the EIR, and maybe we could have the consultant give us a thumbnail sketch highlighting what the areas of review may have been, what the significant class 1 or class 2 impacts were identified and how they were mitigated. It would save me a little bit of reading maybe.

So in conclusion, I think that the Port San Luis Harbor District, in review of the information that we've looked at so far and, of course, based on the Fiber Optic Cable Committee with the fisheries, I think we are in strong support or will make a recommendation to our Harbor District that we support the mitigation measures in this EIR and intend to issue a letter commenting on the project. Thank you.

**DAN GORFAIN:** Thank you very much. Mike Dungan, maybe you can just summarize very quickly, maybe touch upon the key impact areas.

**MIKE DUNGAN:** I'll try here.

**DAN GORFAIN:** Maybe I should just do something before you do that; kind of narrow the scope a little bit by focusing on the key issue areas.

The EIR addresses a wide range of environmental issues, environmental issue areas that are required by law to be addressed as they apply to projects. And if you look at some of the chapter headings, we describe the project, look at alternatives and at the environmental setting. We then examine the environmental consequences of the project. The issue areas addressed in this EIR include air quality, geology, water quality, biological resources, cultural resources, land use and recreation, aesthetics and noise, marine transportation, system safety and risk of upset, socioeconomics and then some other issues; kind of a catch-all category. In looking at alternatives that are feasible where the "no-project" alternative is environmentally preferred to doing the project, the EIR identifies the Environmentally Superior Alternative which actually turns out to be the project that, as we understand it, AT&T is going to pursue before the Commission. Not the original project they filed for, but the "Maximum Burial Alternative."

**JAY ELDER:** Which is an alternative.

**DAN GORFAIN:** Yes, it is an alternative to the original project which would have much greater impact.

And, obviously, the key areas in this document that receive the most attention are the most controversial. Areas receiving the most attention are marine biology and the hard bottoms affected by the cable, commercial fishing and socioeconomic impacts. I will ask Mike to summarize those three areas rather than the whole range of issues unless you have questions about some of the others.

**MIKE DUNGAN:** Okay. Well, the, what we call the "Maximum Burial Alternative" as shown here was developed in response to the initial analysis and direction from State Lands Commission and comments from a variety of sources that we needed to look at an alternative that reduced the areas of nonburial of the cable and reduced the crossing of high-relief areas that may be considered sensitive for biological resources. So that's where this alternative came from, and the Draft EIR carries comparison between the original proposed routes and the maximum burial alternative routes through the whole document so you can see side by side.

In some areas the differences are not significant. In the areas that Dan mentioned; commercial fishing, marine biology, and overlapping commercial fishing, the socioeconomic issues, the differences are pretty profound, and the -- let's see. I'll back up a little bit.

The biological characteristics of the sea floor along the proposed alternative routes were studied pretty intensively by SAIC and others using ROV, basically to run transects along the routes and look at the biological communities along the different routes.

The sea floor conditions were mapped in great detail as shown here, and when we lay out the proposed alternative cable routes on the different sea floor conditions, you see that the original proposed routes result in about 95 percent of the cable being in soft-bottom areas where it could be buried, and the reroutes achieved better than 99 percent burial. And along with the 99 percent burial is lesser overlap of any rocky substrate habitat where biological impacts are created.

As far as the commercial fishing impacts, we attempted to identify the areas of conflict where placement of the cable could affect where and how fishermen are able to fish. We recognize the contribution of fishing to the local economy and the potential -- the relative vulnerability of fishermen who are out there to what may seem to be minor increases in cost or revenue that can really affect the viability of their operation and, in turn, affect the contributions of fishing to the local economy.

And in reviewing the measures that were sort of on the table between AT&T and the fishing community, to address their concerns, the EIR identifies specifically how various measures could mitigate those concerns. And we feel that for the "Maximum Burial Alternative," all the potentially-significant impacts would be mitigated.

I should highlight that the one impact that can't be mitigated for the original proposed routes involves the crossing of those high-relief rocky substrates and for that original route, that would be considered a significant unmitigable impact.

**DAN GORFAIN:** I just want to add that when you do get to reading this document, you will see that in the areas of commercial fishing and socioeconomics, we actually incorporated many of the provisions of the fishermen agreements that we felt were appropriate to include as mitigation measures. So a lot of them will look familiar to you.

**JAY ELDER:** Thank you.

**DAN GORFAIN:** Yes.

**RANDY LARSEN:** I'm Randy Larsen. I am a Morro Bay fishermen on the Cable Committee. And as regards to HAW-3, again, I just want to get cleared up that we were assured that that cable is not being used for research; specifically, from Ellen Brain and --

**DAN GORFAIN:** Specifically what?

**RANDY LARSEN:** Specifically by Ellen Brain from AT&T. She assured us that that cable is not for research and gave us her assurance for removal of that cable. The only problem she had foreseen with the removal was what to do with the old cable once it was brought out of the ocean; you know, where to store it, where to dump it. You just can't dump it anywhere. And I just want to state here; you said, well, that specifically, if they don't have a use for it, they must remove the cable. Well, how they get rid of the cable really isn't a concern of ours. They put the cable there. They need to figure out what to do with it once they take it out. So we just want to make sure that the State realizes we were told from AT&T that that's not used as research and so, again, we would like to see that HAW-3, possibly part of the permit process, removed specifically like the State says they want. Because, see, even though it's part of -- what you say is part of your plan; that all cables, once they're no longer used are removed. Well, to date, no cable has ever been removed. The only one that was ever removed was through HAW-2. That worked out to a thousand fathoms. And that had nothing to do with removing it for them to, ah, remove it for the purpose of what the State required. They removed it so they could bury the three cables that were put in in '93-'94; whenever. So to date, they've never removed a cable yet. That's why we are real concerned that they will follow through on what they said on HAW-3.

**DAN GORFAIN:** Just for your information, I'm trying to jog my memory, but I believe -- excuse me. We need some water here. I believe that this cable -- that HAW-3 is still under lease from the Commission. The lease has not expired. It doesn't mean that we cannot work something out with AT&T to have it removed. We will certainly pursue that. We've got two comments now from you and from Jody, and we will definitely pursue this issue.

**RANDY LARSEN:** Okay. That's what we would like to see. You know, I mean, we had assurances from Ellen from AT&T that that was the only drawback to the removal; was what to do with the old cable. Thank you.

**PAUL SHORB:** Let me just respond to Randy, to you and Jody, that Ellen is still engaged in this project. And I'm sorry I wasn't part of that discussion so I didn't know what was discussed.

**RANDY LARSEN:** No, you weren't.

**PAUL SHORB:** So I'm sure whatever we agreed to, I'm sure we will live up to.

**RANDY LARSEN:** Okay.

**PAUL SHORB:** Whatever that was.

**RANDY LARSEN:** Okay.

**JOSEPH GIANNINI:** And I don't think any of us are -- you guys have done a great job working with us, and this is just kind of a contentious issue, and like I say, we are not coming down on the project. It's just this particular issue was an old project that we'd like to see for sure taken care of for safety reasons. I mean, we have been hung up on that. Everybody's been hung up on that.

**RANDY LARSEN:** It is the only cable that has been a conflicting cable with the fishing community.

**DAN GORFAIN:** Thank you. Are there any other comments on the Draft EIR at this point?

Hearing none, I will adjourn this meeting until 7:00 this evening when we will reconvene and take any additional comments at that time. Thank you very much for coming.

Again, I do want to close by reminding you that the comment period is open until February 28th. We would like to have the comments in our office by then; any written comments. Thanks much.

**JODY GIANNINI:** Thank you.

**RICK ALGERT:** Thank you.

**RANDY LARSEN:** Thank you.

**JAY ELDER:** Thank you.

(At 4:05 p.m. a break was held until 7:33 p.m.)

**DAN GORFAIN:** Good evening. My name is Dan Gorfain. I am the project manager for the proposed AT&T China-U.S. Cable Network project in Morro Bay; S7 and E1.

Let the record show that we are at the Veterans Hall in Morro Bay. The time is 7:33 p.m. on February 1st, 2000, and in the audience are representatives of SAIC, AT&T, Beveridge & Diamond and one other person who was here at the hearing this afternoon and has indicated -- his name is Jack Schatz. Am I correct?

**JACK SCHATZ:** Yes.

**DAN GORFAIN:** And he has indicated he will not have any comments to make.

Considering that there's no member of the public present and it has been about 34 minutes since the evening hearing was to start, expecting no one else at this point, I will close the hearing, adjourn it, and thank you very much for coming.

(Proceedings concluded at 7:34 p.m.)

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REPORTER'S CERTIFICATE

STATE OF CALIFORNIA )
) SS.
COUNTY OF SAN LUIS OBISPO )

I, JERI CAIN, CSR #2460, RMR-CRP-CRR, Official Court Reporter Pro Tem for the Superior and Municipal Courts of the State of California, County of San Luis Obispo, do hereby certify that the foregoing pages comprise a full, true and correct transcript of the proceedings held in the within-entitled matter recorded by me by computer shorthand on the date and at the hour herein written and transcribed into this official transcript.

In compliance with Section 8016 of the Business and Professions Code, I certify under penalty of perjury that I am a Certified Shorthand Reporter with License No. 2460 in full force and effect.

WITNESS my hand this 11th day of February, 2000.

Jeri Cain
JERI CAIN, CSR #2460, RMR-CRP-CRR

# E. RESPONSES TO COMMENTS

1. California Coastal Commission
2. California Department of Fish and Game
3. California Regional Water Quality Control Board, Central Coast Region
4. Port San Luis Harbor District
5. County of San Luis Obispo, Department of General Services
6. Public Hearing

## CALIFORNIA COASTAL COMMISSION: RESPONSES TO COMMENTS

Comments from the letter contained in Section C of this document are reproduced below, numbered as in the letter, with each comment followed by a response.

*Increments*

1. We recommend that the DEIR be revised to utilize consistent increments of measurement, followed by alternative units in parentheses. A conversion table in the appendix would also assist project analysis.

RESPONSE: **Consistent increments of measurement are used to the maximum extent possible, usually followed by alternative units in parentheses. Different subject areas employ different conventions as to English vs. metric, and converting all of these measurements to one system can be awkward, as, for example, when "10 meters" in the original context is converted to "32.8 feet," giving a false sense of precision. A conversion table is included in the back cover of the document.**

*Project Description*

*Project Schedule*

2. The Activity Duration Table [Table 5 (p. 2-20)] should be expanded to include the predicted schedule for the project.

RESPONSE: **The durations presented in Table 5 on page 2-20 represent the estimated days of work needed to complete each individual task. Some tasks overlap and some may be delayed due to weather, vessel scheduling or mechanical difficulties. The total days from the beginning of the first task to the end of the last task may vary from the total estimated duration. The table, as revised below, includes a line item for pre-lay grapnel runs, 5 to 7 days, but the total estimated days of work remains the same, reflecting the likelihood that the grapnel run would occur concurrently with shore-end operations.**

**Commencement and completion of the project depend on time of receipt of all project approvals which is projected to be mid-May to June.**

3. The DEIR states that shore-end activities have been approved by San Luis Obispo County and the California Department of Parks and Recreation (2.3.1, p. 2-7) Please provide copies of this permission in appendix C. Additionally, please provide detailed maps of project locations.

RESPONSE: **See attachments. For a detailed map of the shore-end project locations, see DEIR Figure 6.**

**Table 5. Activity Duration Table**

| *Item* | *Duration* |
|---|---|
| *Shore-end operations* | |
| Set-up, expose onshore end of bore pipe, prepare pipe for pulling | 3-5 days |
| Pull cables into existing bore pipe | 1 day |
| Clean-up and parking lot restoration | 3 days |
| *Pre-Lay Grapnel Run* | 5-7 days |
| *Nearshore Cable Installation* | |
| Expose End of Bore Pipe and prepare for pulling (work boat / dive platform) | 2 days |
| Feed both cables into existing bore pipe (ship of opportunity) | 1 day |
| Lay E1 cable along it's course to a point 3.1 miles offshore and buoy the cable off (ship of opportunity) | 1 day |
| Back-track to end of bore pipes and lay S7 cable along its course to a point 3.1 miles offshore and buoy off (ship of opportunity) | 1 day |
| Retrobury Nearshore Cables (work boat / dive platform) | 4 days |
| *Off-Shore Cable Installation* | |
| Splice E1 cable and lay from 3.1 miles offshore to outer continental shelf. (main cable lay ship). | 5 days |
| Splice onto S7 cable at 3.1 miles offshore and lay cable toward the PRC (mail cable lay ship) | 5 days |
| Retrobury Nearshore & Offshore Cables (cable ship with ROV, Sea Plow) | 8-9 days |
| Total Estimated Duration | 33-37 days |

*Burial of the Submarine Cable System*

4. Once installed, it is anticipated that the cable will be buried at a depth of 0.6 to 1.5 meters, depending on water depth (2.2.3, p. 2-6). If these are target depths, than the MND should provide some documentation of the possible variance between target and actual depths, and further explanation of why the 1.5 meter burial depth is not planned for the entire burial length.

RESPONSE: **Proposed mitigation measure CRF-1 would require burial to a depth of 0.9 meters in areas between 3 miles from shore and 1,000 fathoms (1,800 meters) water depth. To achieve this, burial equipment will be set to bury the cable to 0.9 meters (3 feet), although actual burial results may vary slightly up or down depending on sediment conditions. During burial operations, various parameters from the plow or**

**Remote Operated Vehicle, depending on which is currently being used, are monitored real-time by shipboard staff to assure that the equipment is functioning properly and proper burial is achieved. These parameters include water depth, burial depth, tension, speed, pitch, roll and other operational variables.**

**Deeper burial is not planned for the project due to complications in removing the cable should the need arise for a repair, and because the extra depth is not required for purposes of avoiding impacts to marine mammals and fishing equipment. Cable repair complications have to do with the method by which the cables are retrieved. In deeper waters (i.e., waters beyond the 3-mile limit), a detrenching grapnel will be dragged a short distance through the ocean bottom sediments at a perpendicular angle to the cable for purposes of hooking the faulty cable and lifting it to the surface for repair. The deeper the cable is buried, the greater the force that is required to drag a the grapnel through the ocean bottom sediments. This corresponds to a heightened risk for damage to the cable when it is hooked by the grapnel. Once hooked, lifting the cable from deeper burial depths also increases the likelihood of damage to the cable as it is pulled out of the sediments by the cable repair vessel. Burial at the proposed mitigation measure of 0.9 meters (3 feet) reduces this repair risk to the cables while still achieving a depth, with an adequate margin for safety, that avoids the potential for interaction with marine mammals and fishing gear.**

5. AT&T proposes to inspect cables "...after any event, such as an earthquake in the offshore area, that may affect cables, to ensure that they remain buried, and to retrobury when necessary and feasible...." (2.2.3, p. 2-7). Please elaborate on the following: 1) quantify what constitutes an "event" that warrants inspection; 2) What constitutes "necessary" retroburial; and 3) What might make retroburial infeasible.

RESPONSE: **AT&T will be required to conduct burial verification of the cables every 18 to 24 months by Remote Operated Vehicle (CRF-1). Additionally, AT&T will be inspecting its cables after any event that may affect the cables. Such inspection will occur within approximately thirty days after the event, depending on weather. Specifically, (1) an "event" refers to an incident or activity (such as a gear snag), the circumstances of which indicate the likelihood that a cable has become unburied; or to an act of God, such as an earthquake in the vicinity of the cables measuring 5.0 or greater on the Richter scale that could cause deformation of the sea floor or underwater land slides, a hurricane that could cause excessive ocean turbulence, or an unusually severe winter storm or tidal wave that could cause excessive ocean floor scouring. (2) Retroburial will become necessary where a portion of the previously buried cable becomes unburied. (3) Retroburial would not be feasible if the "event" causing the cable to become exposed so significantly changed the ocean floor environmental that hard bottom substrate replaced the previously existing soft bottom sediments.**

6. The DEIR states that videos documenting the results of the inspections will be provided to the California Joint Cable/Fisheries Liaison Committee (JCFLC) for verification. (2.2.3, p. 2-7 and 1.10.2, p. 2-23) Please add the Coastal Commission to the list of recipients for burial and reburial verification, including video, and magnetic sensor recording device records, and state this in the DEIR so that concerned parties may access this information conveniently.

RESPONSE: **Agreed. The seventh bullet of mitigation measure CRF-1 is revised to read as follows:**

**AT&T will conduct burial verification of the cables by Remote Operated Vehicle every 18 to 24 months and after any event that may affect the cables. Such inspection will occur within approximately 30 days after the event, depending on weather. "Event" for the purposes of this measure is defined as: an incident or activity (such as a gear snag), the circumstances of which indicate the likelihood that a cable has become unburied; or act of God, such as an earthquake in the vicinity of the cables measuring 5.0 or greater on the Richter scale that could cause deformation of the sea floor or underwater landslides, or an unusually severe storm or tidal wave that could cause excessive ocean floor scouring. Copies of the videotapes recording the verification will be provided to the Committee, the CSLC, and the CCC.**

7. During the pre-cable laying operation the grapnel run will collect debris, and then bring it aboard ship for later disposal in port (2.3.2, p. 2-10). What sort of debris is anticipated, and how will disposal proceed?

RESPONSE: **The pre-lay grapnel run will collect debris such as abandoned fishing line, nets, anchor line, winch cables, and other similar debris that has been discarded over the years by fishing and other vessels. This debris will be contained on the vessel until the vessel reaches port. Once in port, the debris will be hauled to a commercial landfill by a refuse disposal company. Additionally, the video from the regular post-installation surveys will reveal any debris that may accumulate in the vicinity of the buried cables, and that information will be made available to the CSLC and the Coastal Commission in accordance with the response to Comment #6.**

8. Suspending cables by buoys during the cable laying operation is a significant aspect of this project proposal (2.3.2.2, p. 2-12). The reasonable worst-case scenario outlines a situation whereby two suspended cables extend from the end of the borehole to 3.1 miles offshore. Potential impacts to fishermen are alleged to be mitigated by the fact that the suspended cable is located within the three-mile limit, inside of which trawling and gill-netting do not occur. However, a suspended cable poses as much of a risk to a troller as to a trawler, and to other forms of fishing gear, as well as marine mammals, particularly cetaceans. The DEIR poses the possibility that cables will remain suspended and buoyed for two to four weeks. Please explain, in greater detail, how risks to marine mammals, commercial fishermen and boaters utilizing various gear types will be avoided.

RESPONSE: **As the cable is laid in its pre-determined course, it will sink to the bottom and either be plowed in or laid on the ocean bottom surface awaiting retro-burial by divers or a ROV, depending on the water depth. The cable will not be suspended at the ocean surface. There will be a temporary buoy to mark the end of the cable at approximately 3.1 miles offshore where it will be temporarily recovered to the surface for purposes of splicing it into the deep water cable that will be buried to the 1,000-fathom water depth and from there laid to its ultimate destination.**

9. AT&T has proposed a process by which the cables are laid directly on the ocean floor, and then retroburied up to one month later with ROV technology (2.3.2.4, p. 2-13). It is unclear why the cable is not proposed for immediate burial in order to avoid or minimize risks to boaters, fishermen and marine mammals, and why ROV is preferred to seaplow burial. Can the significant delays in cable burial described in Step 4 (2.3.2.4, p. 2-13) be avoided?

RESPONSE: **AT&T intends to begin the ROV retroburial as soon as the main cable ship vacates the areas. It is expected that the ROV retroburial will be completed in eight to nine days of continuous operation. The DEIR states that it may take up to one month to complete the operation because it may not be possible to begin immediately due to weather, vessel and ROV availability. Once begun, the retroburial may be delayed periodically due to weather or mechanical difficulties.**

**Retroburial is proposed for water depths greater that 1,200 meters due to two factors: (1) the ocean floor begins to drop rapidly at this point and the slope exceeds the safe operating slope for the cable plow; (2) the cable plow is not designed to operate at depths greater than 1200 meters. Only ROV burial is feasible at this point.**

10. In section 2.9.4 the DEIR discusses abandonment options for the project (2.9.4, p. 2-22). The DEIR mentions four scenarios, and proposes one; partial removal. Please provide analysis of partial removal and complete removal.

RESPONSE: **Detailed environmental analysis of the effects of cable removal will require an assessment of the environmental conditions at the time of removal. Although it is not possible to predict these conditions 25 years hence (the term of the proposed lease), environmental impacts associated with removal of buried cables can be expected to be somewhat comparable to the impacts associated with the installation and burial of the cables on the assumption that there is no significant change in the affected environment over the life of the cables. However, it is too speculative to consider how environmental conditions might change, if at all, over the life of the cables.**

**The State Lands Commission will require AT&T, upon abandonment of the cables, to remove all conduit and inactive cable from the Mean High Tide Line to the limit of the agency's jurisdiction. Prior to removal of any conduit or cable, AT&T will submit plans and specifications to the State Lands Commission and the California Coastal Commission that describe the proposed removal process. These plans and specifications will provide for removal of cables as necessary so as not to interfere with commercial fishing activities in areas where such cables were previously installed. No removal will be undertaken unless and until approved by these agencies.**

*Cable System Repair*

11. According to a recent analysis, "Out of 539 fiber-optic cable faults documented worldwide in the last 10 years...44% were caused by fishing gear/cable interaction...21 percent were caused by anchors, 12 percent were caused by other third parties, and 23 percent were not caused by third parties...." (Evans and Byous 1999) Please include a more extensive description of the causes of faults or problems in the operation of submarine fiber optic cable systems worldwide in the EIR, and how such problems will be avoided or mitigated by AT&T.

RESPONSE: **Fishing gear that affects submarine cables worldwide includes hydraulic clam dredges, scallop dredges and otter trawls. AT&T reports that it is impossible to tell after the fact what type of gear caused a particular fault, unless, as in the case of California offshore waters, there is only one type of gear used locally (otter trawls) that has the capability of damaging an unburied cable (buried cables offshore California have never been damaged or entangled in any way with fishing gear). Other fishing gear that causes faults elsewhere in the world include beam trawls in the North Sea and Stow Nets near the mouth of the Yangtze River in China. Faults caused by "other third parties" include seabed construction (including submarine cables) and oil and gas exploration and development. Component failures are included in the "not third party" category and could include failure of a repeater or optical amplifier, fiber, conductor or cable insulation. Underwater landslides, sometimes caused by earthquakes, hold the potential for causing a cable fault, but there have been no instances of such failure offshore California due to the relatively flat or gradually sloping terrain of the shelf that is crossed by the existing cables.**

**AT&T proposes to avoid or mitigate for these potential problems by (1) burying the proposed cables to avoid potential entanglements with fishing gear, (2) aligning the cables to minimize the potential for damage to or from other existing and proposed submarine cables in the offshore area, and (3) avoiding geologically unstable areas and steep slopes that could lead to landslide damage. There is no guarantee against component failures, but AT&T reports that it has had good success with its fiber optic submarine cables. None of the existing offshore California fiber optic cables, for example, have ever been the subject of a component failure.**

*Environmental Setting, Project Impacts, and Mitigation Measures*

12. In describing cable abrasion of soft sedimentary rocks, the DEIR describes a "slack" level of 1% in nearshore areas (4.3.3, p. 4.3-7). What constitutes "nearshore areas," and how does this affect the hectares off hard-bottom habitat potentially impacted by cable movement?

RESPONSE: **The "nearshore area" in the context of the referenced discussion of the originally proposed cable alignments is the area within about 12 km (7.5 miles) of the shore, to depths of about 150 m, that includes the areas of rocky substrate (DEIR Figure 14). According to the engineering designs prepared by Tyco Submarine Systems Limited (TSSL), cable slack throughout this area is 0.3 to 0.5 percent, continuing farther offshore to depths of 1100 m. This amount of slack, which translates to an additional 3 to 5 cm of cable for every 10 m along the route (1 to 2**

**inches for every 30 feet), limits the extent to which a cable can move back and forth and abrade soft sedimentary rocks. The width of this potential disturbance "corridor," estimated to be no more than 30 cm (1 foot) on an irregular rock surface, is multiplied by the length of rocky substrate that is traversed by the cable to determine the area (in hectares) of potential disturbance.**

13. Have landslides down submarine canyons, such as those described in section 4.3-3 p. 4.3-7 affected cable burial or operations along the Central Coast? What is the likelihood that such events could affect future burial and/or operations?

RESPONSE: **None of AT&T's existing or proposed fiber optic cables on the continental shelf off Central California cross submarine canyons. As a result of the avoidance of these areas, cable burial and performance have not been affected, and are not expected to be affected in the future, by landslides that can occur down the slopes of steep submarine canyons.**

*Water Quality*

14. The DEIR has not evaluated how ocean currents, waves, or storms would mobilize and transport sediments disturbed during project construction and reburial operations. Is there the potential for invertebrates or other nearby species to be smothered, and to what extent? We request that these possibilities be evaluated in the EIR. If the analysis demonstrates the potential to smother marine organisms during construction or operation of the proposed project, then their populations should be estimated and the results included in the EIR so that avoidance or mitigation measures may be considered.

RESPONSE: **The project's effects on turbidity, resulting from the transport of disturbed sediments by ocean currents, are considered in section 4.4.3. As discussed in that section, sediments disturbed during installation would disperse downcurrent in the near-bottom waters, gradually settling out of suspension. The project would not appreciably affect turbidity. The main effect of unusually large waves or storms would be to suspend and disperse additional amounts of sediment throughout the nearshore waters, eliminating any small-scale effect due to the project.**

**Chapter 4.5 in the DEIR and supporting material in Appendix B describe in detail the biological communities that occur along the proposed cable routes, and the nature of project impacts on them. As discussed in that chapter, potential project impacts on soft-bottom habitats and communities are limited to the immediate corridor of cable installation. It is not expected that there would be an appreciable accumulation or redeposition of sediments outside of these immediate areas of disturbance. The fishes and invertebrates inhabiting these unconsolidated sediments typically live by burrowing, and are unlikely to be affected by small amounts of fine sediments settling out of suspension adjacent to the corridor.**

15. Please describe how far outside of the project area the chemical dump is located. (See 4.4.1, p. 4.4-1)

RESPONSE: **The area of chemical munitions dumping, the use of which was discontinued about 30 years ago, is 30 - 40 nautical miles south of the cable routes in depths of over 2,000 fathoms.**

*Biological Resources*

16. The DEIR, without analysis or data, concludes that noise levels will be limited to the daylight hours, and have no impacts on terrestrial resources near the project work site. (4.5.1, p. 4.5-1) Please explain or justify this conclusion.

RESPONSE: **The first paragraph of Section 4.5.1 correctly describes the brief duration and confinement of project activities to the existing paved parking lot during the daylight hours when ambient noise levels are generally increased. The equipment planned for use at the parking lot is standard utility construction equipment (backhoe/ excavator, crane, compressor, winch, and generator) each piece of which will be fitted with a "residential" mufflers to reduce its noise level to between 65 and 75 dBA. These circumstances support the conclusion that there would be no adverse impacts on terrestrial resources.**

17. Under the Biological Resources section, a variety of marine mammals, such as Blue and other whales, are omitted from the discussion of sensitive species, though they could be imperiled by the presence of suspended or unburied cables. Please provide a broader and more thorough analysis of this risk, particularly any information available regarding cetacean trends and behavior in the vicinity of the proposed project. Blue whales, for example, feed at depth in the Channel Islands during the summer months, but are omitted from discussion. They should be evaluated, particularly given their population level.

RESPONSE: **In addition to California gray whales (discussed in the DEIR), whale species that, depending on time of year, may be present in the offshore waters where the cables would be installed. As include sperm, humpback, blue, and fin whales.**

**Sperm whales are present in California offshore waters year-round, reaching peak abundance (0.011 per km$^2$) from April through mid-June and from the end of August through mid-November (Orr and Helm 1989; Barlow 1995; Forney et al. 1995; SWFSC 1997b; MMS 1999). Sperm whales have been sighted inshore along submarine canyons, but typically prefer deepwater nutrient-rich shear zones along the edges of oceanic trenches. This species typically dives to depths of 300 to 600 m (985 to 1,965 feet) to feed on large squid and deepwater fishes (Orr and Helm 1989; ARPA 1995; MMS 1999). The eastern Pacific population of sperm whales appears to be relatively stable, with several thousand individuals inhabiting the waters off of California, Oregon, and Washington combined (Forney et al. 1999).**

**Humpback whales in the eastern North Pacific range from arctic waters south to California in the summer and can frequently be seen migrating along the California coast between April and November (Helm and Orr 1989; MMS 1999). Off California, humpback whales can be relatively common (0.009 per km$^2$), but typically occur 20 to 90 km (12 to 56 miles) offshore, and are rarely observed inshore (ARPA 1995; Barlow 1995; Forney et al. 1995). Humpback whales feed on krill and fishes at shallow**

depths. The eastern Pacific population of humpback whales appears to have increased slightly in recent years, with 800-900 individuals inhabiting the waters off of California, Oregon, and Washington combined (Forney et al. 1999).

Blue whales occur from the Aleutian Islands in the Bering Sea south, seasonally, to tropical waters, and can be observed migrating along the continental slope west of the Channel Islands from July to January (Orr and Helm 1989; Leet et al. 1992; MMS 1999). Blue whales are relatively common off California. Their population appears to be stable or possibly increasing, with a recent population survey estimate of 2,300 individuals (0.033 per $km^2$) off of California (Barlow 1995). In California waters, blue whales typically feed on planktonic organisms (e.g., diatoms) 90 to 370 km (56 to 229 miles) offshore in oceanic zones at depths to 150 m (490 ft) (Leet et al. 1992; ARPA 1995; SWFSC 1997a; MMS 1999).

Similar to blue whales, fin whales migrate northward from subtropical calving and wintering grounds to summer feeding grounds in Alaska. Fin whales are relatively common (0.013 per $km^2$) off California between March and October, but feed far offshore at great depths (Leet et al. 1992; Barlow 1995; MMS 1999). Their population appears to be stable, or possibly increasing. A recent survey estimated 933 individuals present off California in the summer (Barlow and Gerrodette 1996).

For reasons discussed in the DEIR on pages 4.5-24 to 4.5-26, project vessels and cable installation activities do not pose a significant risk to these and other marine mammals. However, to provide additional assurance of compliance with the Marine Mammal Protection Act, which does not allow harm or harassment to marine mammals, the CSLC will require two additional mitigation measures, MB-2 and MB-3, which are as follows:

*MB-2: A marine mammal training video or photographic presentation shall be reviewed by all shipboard personnel involved with cable operations to emphasize the types of mammals that may occur in the project area, general habits and distribution, and methods to avoid impacts. Included in the presentation shall be a listing of contact numbers to report marine mammals in distress, and a requirement to make a verbal report if any such mammals are observed during project operations.*

*MB-3: A biologist familiar with marine mammal behavior shall be present during installation and repair activities to observe for marine mammals that approach the project area. The observer shall be authorized to call a halt to project activities that pose a risk of injury to marine mammals.*

The implementation of these measures would be monitored by the CSLC and the CCC.

18. What have surveys of existing cables indicated about the effects of cable movement on hard bottom habitat areas? (4.5, p.4.5-23)

RESPONSE: See the discussion under *Post-Lay Occurrence of the Cable* (page 4.5-25) in the DEIR where it describes the observations made through ROV surveys. Existing cables were observed by SAIC to be heavily encrusted with turf and invertebrates,

**and essentially cemented in-place to the rock surface by the growth of these organisms. These observations suggest no movement or substantial effect on hard bottom habitat. Other observations made in support of the WorldCom EIR did, however, indicate shallow grooving of the rock surface in some areas. In assessing impacts, the EIR used a worst case assumption that cable movement could cause surficial disturbance in an area up to 30 cm wide.**

19. In table 16 (4.5-29) and the accompanying text, it is difficult to determine what the observed densities of benthic taxa were during the marine surveys. In many cases, no species density levels are provided. Please describe observed densities, and how that information was collected.

RESPONSE: **The main text of the DEIR provides a summary that includes both densities and percent cover, the latter being more appropriate for organisms with indeterminate growth. For example, see pages 4.5-14 and 4.5-15 and Tables 18 and 19 for species densities. All of the data are provided, and the methodology described, in the Appendix B ROV Survey Report. The inclusion of this technical appendix within the same document ensures that the reader has access to all of the information.**

20. How does AT&T intend to avoid harm to marine mammals during cable laying operations? Will a biologist with expertise in marine mammals accompany the laying vessel, and have authority to cease operations if marine mammals enter the project area? If so, please provide information on the qualifications of the monitor and the specific criterion which will be used to determine if marine mammals are being "endangered." Additionally, please explain under what particular circumstances work will stop.

RESPONSE: **As a condition of lease approval, CSLC will require that a biologist familiar with marine mammal behavior will be on the cable lay or support vessel to watch for marine mammals that approach the project area during operations. If an animal gets in proximity to the work area, the monitor will have the authority to direct the cessation of operations until the animal has left the area. Upon completion of the installation activities, a marine mammal monitoring report shall be submitted to NMFS, CDFG, the California Coastal Commission and the CSLC.**

*Commercial and Recreational Fishing*

21. Please provide in the appendices any agreements entered into between AT&T and the commercial fishermen discussed in this document. If similar agreements are not envisioned for other mariners, than please describe what proactive steps AT&T intends to take to minimize cable interactions between mariners and cables.

RESPONSE: **See attached agreements with representatives of the fishing community. As to other mariners, the location of the cables will be depicted on nautical charts used by mariners. Burial of the proposed cables by AT&T will minimize the already negligible chance of a cable interaction involving such mariners.**

22. In order to help assess AT&T's ability to identify and mitigate previous impacts to marine resources and commercial fishing interests stemming from existing cables, please enumerate and describe the scenarios and claims for lost or damaged fishing gear

entangled on AT&T's existing cables, particularly the abandoned HAW-2 and HAW-3 cables.

RESPONSE: As provided by AT&T, listed below are the known instances of cable entanglements on HAW-2 and HAW-3 and claims paid for same. All incidents involved commercial fish trawlers whose gear became entangled on these unburied cables. None involved loss of life or damage to the vessel, but all involved some degree of damage to the fishing gear, for which the fisherman was compensated by AT&T.

March 23, 1997, F/V POINT LOMA, Captain Barry Cohen for $37,735.73 on HAW-3.

May 7, 1994, F/V POINT LOMA, Captain David Wainscott for $32,825.76 on HAW-3.

June 20, 1990, F/V VIKING, Captain Ron Eachus for $24,479.00 on HAW-3.

December 14, 1989, F/V Vixen, Captain Mark Moreno for $14,523.20 on HAW-3.

June 12, 1987, F/V PHYLLIS J, Captain David Wainscott for $10,550.00 on HAW-2.

October 14, 1987, F/V PAULA SUE, Captain Cal Cutler for $9,975.10 on HAW-3.

May 27, 1984, F/V ELAINE DELL, Captain Don Stewart for $7,354.45 on HAW-3.

February 27, 1984, F/V RIP YEAGER, Captain Frank Donahue for $11,117.13 on HAW-2.

23. To what extent has AT&T patrolled existing cable locations for possible fishing gear/cable interactions? Will such patrolling take place in the future, and if so, how?

RESPONSE: AT&T reports that it patrols the Central California cables four to five times a month and has done so for at least ten years. The patrols commence at San Luis Obispo County airport and go to the end of the continental shelf. While patrolling over the ocean, the pilot flies the route of the submarine cable and looks for vessels actively engaged in trawling in the near vicinity of the cable alignment. If a trawling vessel is observed, the pilot will attempt to hail the vessel on VHF channel 16 which is the emergency channel and is constantly monitored. If the vessel responds to the hail, the pilot will request that the vessel change to an operational frequency so as not to interfere with the emergency channel. At this point, the pilot will inform the vessel that it is trawling near an underwater cable. If the vessel responds, the pilot will request that the vessel use extra care when fishing near the submarine cable. The pilot can provide contact information for updated charts and information on submarine cables in the area. However, in most cases, AT&T reports that the vessel does not respond to the hail. In all cases, the pilot records the vessel's position, heading, activity, name and hull documentation number. AT&T may follow up with additional information to the registered vessel owner at a later date.

Another reason for the regular cable patrol is to have a patrol on call in the event of an emergency. No charter company will accept a contract to perform on-call (24x7)

**flights without some incentive, and the regular monthly patrol flights provide that incentive.**

**AT&T reports that it reviews its air patrol contracts and conducts contract compliance audits on an annual basis. The future of these contracts is subject to business conditions that cannot be predicted.**

**As stated in the DEIR, aerial patrolling is not conducted with the intent of harassing fishermen or in any way discouraging their lawful activities in areas where submarine cables are placed.**

24. The DEIR should analyze the potential impacts to fishermen if fishing gear snags cables and the resulting tension causes fishing vessels to capsize.

RESPONSE: **This is not a plausible scenario and therefore does not require analysis. Fishing gear snagged on a cable is essentially the same as fishing gear snagged on a rock. If the vessel operator is unaware of the snag or otherwise continues to pull, gear will likely be damaged or lost. AT&T is unaware of any instance where a buried cable caused a vessel to capsize.**

25. When describing the offshore project area and the current environment for sport and commercial fishing, the DEIR should include the existing AT&T cables landing at Montaña de Oro, and the Chevron Estero area, both of which may contribute to creating a de facto fishing exclusion zone. If some fishermen do avoid these cables and the area surrounding them, then the DEIR should further consider those areas in an assessment of cumulative impacts to fishermen that could result from the proposed project, and suggest appropriate mitigation measures, as necessary. Additional attention should be paid to fishermen not party to the Agreement. [This comment reflects the Michael Bowen revisions to comment, dated March 1, 2000.]

RESPONSE: **See the discussion entitled, "Long-Term Effects If Fishermen Avoid the Cables" at page 4.7-10 of the DEIR; also see Section 4.7.5, "Cumulative Impacts," particularly page 4.7-15. With regard to appropriate mitigation measures, see Section 4.7.6, "Mitigation Measures," pages 4.7-15 to 4.7-17. With regard to fishermen that are not party to the Agreement, see in particular bullet numbers 10 (the 150% gear claim payment provision) and 11 (the release of liability provision) on pages 4.7-16 and 4.5-17, both of which apply regardless of whether the fisherman has signed the Agreement.**

26. The space between the proposed cables and the existing cables appears to be as little as 500 feet (152 m.) at times (4.7.3, p. 4.7-10). Elsewhere in the document, a minimum gap of two-times the water depth is suggested as necessary to safely perform repair operations. Please explain this discrepancy.

RESPONSE: **In order to provide system security and adequate margin for repair operations if required, AT&T's proposed routes incorporate wherever possible a minimum separation distance between existing and proposed cables that, at least in deep water, is approximately two times the water depth. Procedures to be followed where a new cable must cross a previously laid cable are described in section 2.7. In Morro Bay, the separation among existing and proposed cables (Figure 2-2; CSLC 2000) has in**

**some places been reduced to less than two times water depth because of the need to fit cable routes within corridors that avoid rocky substrates. These circumstances occur at shallow-to-moderate depths (less than 300 m), where the ability to retrieve and repair cables with ROV or divers substantially reduces the risks associated with closer spacing between cables.**

27. The DEIR attempts to quantify the project's long-term effects on fishermen forced to avoid unburied cables in rocky areas (4.7.3, p. 4.7-10). In such areas, fishermen are compelled to avoid fishing, due to the risk of entanglement. However, in attempting to quantify this effect, the DEIR makes an apparently faulty assumption; the analysis assumes that hard and soft bottom habitats are of equal biological wealth, and of equal importance to fishermen. In essence, the DEIR takes identified Department of Fish and Game fishing blocks, calculates the area restricted to fishing due to the cable presence, and then makes a direct economic evaluation based on the percentage of restricted area. What the DEIR fails to take into consideration is the relative abundance of marine life in rocky areas, compared to soft bottom habitat. Presumably, the relative importance of these areas to fishermen is also greater. Please attempt to provide a more balanced valuation of these respective habitat types.

RESPONSE: **The analysis beginning on page 4.7-10 in the DEIR establishes the fact that fishing does occur over buried cables, while the possibility that some fishermen may choose to avoid fishing over cables, and their reasons for doing so, are also discussed. The impact is somewhat conjectural, and the extent of such preclusion cannot be quantified, so the DEIR takes the conservative position that preclusion for the reasons described would in any case be a significant impact that can be mitigated as discussed. The DEIR goes on to consider the possible avoidance of fishing near cables that are not buried due to their being in rocky substrate. The DEIR notes the different types of fishing that occur in such areas as compared to the soft-bottom habitats discussed previously, and preceding Table 21 in the same chapter indicates which target species are being fished. The difference between habitat types in terms of their relative importance to different types of fishing is recognized in the DEIR, as are the greater impacts on certain types of fishing if the cable crosses extensive rocky areas where it cannot be buried.**

28. [Comment stricken by Michael Bowen's revisions to comments, dated March 1, 2000].

29. The following mitigation measures, underlined for emphasis, in the DEIR are troubling due to their uncertainty, and should be strengthened:

<u>Where feasible</u>, AT&T cables will be buried to a <u>target</u> depth of 3 feet (0.9 m) in areas between 3 miles from shore and 1,000 fathoms (1,800 m) water depth.

The timing and methods of construction and installation of the individual cables will be determined by AT&T in consultation with the Committee, <u>with the goal of</u> minimizing any negative impacts to the fishing industry.

A Committee fisherman representative <u>may be</u> on board the cable installation vessel to observe cable installation.

When the cables to be installed are taken out of service, AT&T will submit a plan for their removal as necessary so as not to interfere with commercial fishing activities in areas where such cables were previously installed (4.7-17).

RESPONSE: **Agreed. These statements, which are found at mitigation condition CRF-1 on pages 4.7-16 to 4.7-17, are revised to read as follows:**

**Where feasible, AT&T cables will be buried to a depth of 3 feet (0.9 m) in areas between 3 miles from shore and 1,000 fathoms (1,800 m) water depth.**

**The timing and methods of construction and installation of the individual cables will be determined by AT&T in consultation with the Committee to avoid or minimize any negative impacts to the fishing industry.**

**A Committee fisherman representative will be offered the opportunity to be on board the cable installation vessel to observe cable installation.**

**When the cables to be installed are taken out of service, AT&T will submit a plan for their removal so as not to interfere with commercial fishing activities in areas where such cables were previously installed (4.7-17).**

30. Please add the Coastal Commission to the list of recipients for the following information:

"AT&T will conduct burial verification of the cables every 18-24 months by Remote Operated Vehicle (ROV) and will provide to the Committee videotapes recording the verification (4.7-16)."

RESPONSE: **See response to Comment #6 above.**

31. Since AT&T does not propose to provide non-signators of the fishing agreement with payments for upgrading communication and navigation equipment, how does AT&T intend to proactively and equally minimize the risk of the cables to these fishermen? (4.7-17)

RESPONSE: **AT&T will issue a notice to mariners detailing the as-laid position of the cables and ensure that this information appears accurately on NOAA charts. Additionally, AT&T reports that it will continue its longstanding program of regular port visits in which AT&T representatives visit vessels at the dock and personally inform captains and crew of the latest information regarding submarine cables. This outreach will be in addition to work that is planned with the Central California Joint Cable Fisheries Committee that has been established and is already meeting pursuant to the Interim Agreement described at Section 4.7.6 on pages 4.7-15 to 4.7-16. This Agreement has been signed by all known local commercial trawl fishermen and representatives of the two local fishermen's organization (the Port San Luis Commercial Fishermen's Association and the Morro Bay Commercial Fishermen's Organization).**

32. Are fishermen to be held harmless for unintentional damage to a buried cable in the project area? If so, the DEIR should define what actions AT&T would consider to be "unintentional" and what actions they would consider to be "intentional."

RESPONSE: **There is no "intentional/unintentional" distinction in the release of liability. Fishermen are released from liability for damage to buried cable unless there is clear and convincing evidence that the damage occurred through actions contrary to the Fishing Vessel Operating Procedures adopted by the Committee.**

33. The DEIR does not quantify the likelihood of gear entanglement with cables, nor any protocol for the handling of such incidents. Given an approximate 200 entanglements worldwide of fishing gear with cables, the DEIR should describe in detail the reported incidents of entanglements in the Morro Bay vicinity (4.12.3, p. 4.12-3), and evaluate fully the potential entanglement and retrieval of fishing gear, including a plan for the complete removal of entangled gear.

RESPONSE: **Based on past experience, AT&T expects that the potential for gear entanglement with buried cables is near zero. Although AT&T is not privy to the details of the reported incidents of 200 entanglements worldwide, it has not experienced entanglements with any of its buried cables. As detailed in the response to Comment #22 above, AT&T has experienced entanglements with its older, unburied submarine cables. Fishing gear has become entangled with HAW-3 or HAW-2 approximately once every five years since they were installed in the early to mid 1970s, although HAW-2 has since been removed between the 3-mile limit and the 1,000-fathom water depth. AT&T is working with CSLC to submit a proposal pending at the CSLC to remove the HAW-3 cable.**

34. Whereas commercial fishing contributes approximately $700,000,000 annually to the State economy, sportfishing contributes approximately $5 billion (McWilliams 1995). Please provide an analysis of sportfishing and its contribution to the local economy, as well as any possible impact the project may have on sportfishermens' ability to access marine resources in the Montana de Oro area. [This comment reflects the Michael Bowen revisions to comment, dated March 1, 2000.]

RESPONSE: **As discussed in Chapter 4.7 of the DEIR, recreational fishing is important to the local economy, but impacts on sport or recreational fishing are limited to temporary preclusion during cable installation. Since sportfishing is by trolling or hook-and-line, once the cables are installed by burial in the seafloor, the potential impacts are less than significant.**

*Land Use and Recreation Land Use and Recreation*

35. Please clarify the usage levels at the Sandspit parking lot in the Montana de Oro State Park. In particular, please address the apparent high level of usage (600 persons per day) in relation to the low estimated occupation of parking spaces (50% at any one time) and low number of spots available (50). Assuming two persons per vehicle, this calculates to an average 30 minute visit to this State Park (4.8.1, p. 4.8-1).

RESPONSE: **While these numbers may seem high, they have been used in both this DEIR and the WorldCom EIR to provide a worst case scenario as to the extent of potential conflict with public use. The DEIR concludes that the impact is significant and requires mitigation measure REC-1 to ensure the availability of parking, restrooms, and access to the beach (see DEIR section 4.8.6).**

36. Please clarify what scheduling and incorporated measures will be taken to ensure the availability of parking, restrooms, and pedestrian access to the beach during project activities. Please address this particularly in relation to the cumulative impacts caused by this project in conjunction with the MCI/WorldCom project, also planned to take place at the Sandspit parking lot.

RESPONSE: **If AT&T and MCI/Worldcom receive all project approvals by or before May 2000, as currently projected by these applicants, both companies will be constructing in the parking lot at the same time. AT&T reports that its contractors have coordinated a construction work plan with MCI/Worldcom's contractors that will allow both to safely operate in the parking lot simultaneously. Either contractor alone would require a temporary closure of the lot to public parking, so there will be no cumulative impact if both contractors are working simultaneously. If, due to unanticipated permit or project delays, one company lags behind the other in gaining access to the parking lot for construction purposes, the effect on public access will be compounded by the sequential occupation of the parking lot by the respective contractors.**

37. Does AT&T foresee no land-based impacts other than the usage of the parking lot for cable pulling through the existing conduit? For example, will equipment be stored off of the parking lot in vegetated areas? Will heavy machinery degrade the parking area?

RESPONSE: **No land-based impacts are expected to occur. The cable pulling operation will be confined to the parking lot. No construction activities or parking will be allowed off the paved parking lot and road surfaces. AT&T conducted similar cable pulling operations in 1994 and stayed confined to the parking lot and road. Any damage to the parking lot or road surface will be repaired by AT&T.**

38. Please correct section 4.12.3 to reflect the fact that AT&T only intends to provide equipment upgrade funding to fishermen who agree to become signators to the agreement cited earlier in the document. Also, please add the CSLC and the CCC to the list of recipients for the cable reburial verification information (4.12.3, 4.12-4).

RESPONSE: **Agreed. The last clause of the first full paragraph on page 4.12-4 is corrected to read, "and providing funds to allow fishermen who are signatory to the Interim Agreement to upgrade their communication and navigation equipment and ensure its adequacy." Regarding cable reburial verification, see response to Comment #6.**

**Comparison of Alternatives**

*Maximum Burial Alternative*

39. According to the DEIR, "...The Maximum Burial Alternative avoids nearly all areas of rocky seafloor and is estimated to allow burial along greater than 99 percent of both cable routes, versus 95-96 percent along the proposed routes." (5.1.3, p. 5-4) Please clarify these percentages. In particular, please provide the percentage of rocky seafloor contacted within the 3-mile limit, within the 1,000 fathom sea-depth limit, and within individual fishing blocks, as well as the entire cable length.

RESPONSE: **Table 6 in the DEIR provides the burial statistics for the original and Maximum Burial Alternative routes. These numbers are reflected in Chapter 5. The areas of rocky seafloor that are contacted by the cable routes, with respect to distance offshore and fishing blocks, are readily seen by comparing Figures 14 and 18.**

## Appendices

### *Appendix A*

40. Do all of the data included in the appendices pertain to both the proposed project and the Maximum Burial Alternative?

RESPONSE: **Yes.**

41. The Pacific Scarab One, utilized for cable repair and reburial, can only jet to a depth of 0.6 meters on a single pass, and 1.2 meters on a multi-pass. Are multi-passes planned for cable reburial operations? If so, please incorporate this need for multi-pass operations into the text, and any subsequent effects such operations may have.

RESPONSE: **Yes. Multiple passes are indicated in the project description and assumed in calculating the duration of various activities.**

42. The sonar device utilized for the sonar survey is less than three meters tall. During the survey, the device contacted 28 objects higher than three meters, and identified them as "probable boulders." Please describe with what certainty the sonar device can distinguish boulders from reefs or other rocky areas likely to host diverse marine resources. Explain also how this assessment is consistent with Table 11 which finds no isolated rock.

RESPONSE: **These objects greater than 3 meters high represent areas of high relief, (including pinnacles), within areas of rocky substrate.**

### *Appendix B*

43. Do all of the data pertain to both the proposed project and the Maximum Burial Alternative?

RESPONSE: **Yes. The tables are keyed to the figures in the appendix.**

44. Please elaborate on the communications between the study consultants and CSLC and CCC staff cited on page 2-4. Were these methods recommended by CSLC and CCC staff?

RESPONSE: **The survey methods were discussed among Dr. Andrew Lissner of SAIC, Dr. John Dixon of the CCC, and Dr. Mary Bergen then of the CSLC (now with the Department of Fish and Game), and Drs. Dixon and Bergen approved the methods prior to the surveys being undertaken. Data analysis methods and draft results were subsequently discussed with Drs. Bergen and Dixon prior to publication of the DEIR.**

45. Photographic examples of soft bottom biota and habitat should be included in this presentation. (3-36)

RESPONSE: **Comment noted. CSLC considers the inclusion of photographs of the soft-bottom habitats to be of marginal value given that they show relatively little due to the low diversity and abundance of organisms found in soft-bottom areas.**

46. Please provide both scientific and common names of identified species (3-43).

RESPONSE: **Reference can be made to Table 3.4 earlier in the appendix for common names associated with scientific names.**

47. What is a "small box?" (4-2)

RESPONSE: **The "small box area" was simply a name applied for convenience to the area, shown for example in Figure 3-2, that was the focus of a supplemental survey conducted for the Maximum Burial Alternative routes.**

48. Do the ROV Video and Photographic Data indicate any occurrences of slides? If so, please describe. Site E1, recorded on 5/23/99, page 2 of 8 seems to contain a possible slide zone.

RESPONSE: **The area described in the observer logs is one of high relief rocky substrate and does not represent a slide zone. No such areas occur along the cable routes.**

*Other Concerns*

49. A similar project proposed for nearby Grover Beach discusses the risk which subsurface and submarine gaseous sediments and plumes may have on cable burial. Is AT&T convinced that no "pockmarking" or other evidence indicates the presence of such gaseous deposits which could affect cable burial?

RESPONSE: **Some minor areas of "pockmarks" were observed in the seafloor surveys along the S-7 cable route in the 260 - 275 meter water depth range. No pockmarks were found along the E-1 route. AT&T and its installation contractor (TSSL) do not view this area of pockmarks as a cable burial concern. AT&T reports that its experience with pockmarks is that they are soft and is confident of cable burial in this area.**

50. The project crosses active fault zones (Los Osos and Hosgri Faults), but the DEIR concludes that "...the potential for damage to the cable is minimal and less than significant given the avoidance of submarine canyons or escarpments and AT&T's inspection and maintenance of the cables in response to seismic events...." (ES-2) What nature of seismic event on these faults, or the nearby San Andreas fault, would qualify as an "event" worthy of examining the status of cable burial?

RESPONSE: **See response to Comment # 5 above. If the Maximum Burial Alternative routes are approved, nearly 100% of the cables would be buried in unconsolidated sediments. Under these circumstances, a strong earthquake could occur without posing any risk to the cables since the main effect of ground motion would likely be to loosen the sediments and allow the cable to settle deeper. Cable failures linked to seismic events have occurred only in areas of rugged submarine topography, such as**

**along island arcs in the western Pacific Ocean. Nevertheless, AT&T has agreed to inspect the cables after strong earthquakes. The threshold for such inspections is an earthquake of magnitude 5.0 or greater in the offshore area.**

51. Please provide more detailed information on anchoring plans for the Maximum Burial Alternative. In particular, outline proximity to and any risks to nearby hard bottom habitats.

RESPONSE: **As noted in Section A of this Finalizing Addendum to the DEIR, AT&T has specified the Seaspread cable-laying ship, or a vessel like it, as the vessel that is intended to be used for the nearshore and California Shelf cable installation process on this project. It is a vessel that is similar to the *MV American Patriot* that is described in the project description in that it is specifically designed for this type of work. The *Seaspread* is somewhat more stable and as a result better suited to installing the cables along the Maximum Burial routes. Also, unlike the *American Patriot,* it is equipped with a Dynamic Positioning (DP) System that will enable the vessel to hold station during the cable landing operations and install the cables along the predetermined routes without deploying anchors. Anchoring will be required of the small diver support vessel near the end of the bore pipe where the ocean bottom is sandy and free of any hard bottom habitat.**

**Due to the extreme directional changes (called "alter courses") required to place the cables on the Maximum Burial Alternative routes, temporary anchors placed in the soft bottom sediments will be required to hold the cables in place as they make hard turns to follow the soft bottom substrate. These anchors will hold the cables in place during the installation to reduce the possibility of the cables being pulled off their intended routes by the installation vessels. Upon completion of the installation of the cables, the temporary anchors will be removed and the cables buried.**

## REFERENCES

ARPA (Advanced Research Projects Agency), NOAA, and UC San Diego. 1995. *Final Environmental Impact Statement/Environmental Impact Report: California Acoustic Thermometry of Ocean Climate Project*. Marine Mammal Research Program and Scientific Research Permit Application.

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Forney, K.A., J. Barlow, and J.V. Carretta. 1995. The Abundance of Cetaceans in California Waters. Part II: Aerial Surveys in Winter and Spring of 1991 and 1992. *Fish. Bull.* 93:15-26.

Forney, K.A., M.M. Muto, and J. Baker. 1999. U.S. Pacific Marine Mammal Stock Assessments: 1999. U.S. Dept. of Commerce, NOAA Technical Memorandum. NMFS-SWFSC-282. Available at http://swfsc.ucsd.edu/sars.

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Orr, R.T. and R.C. Helm. 1989. Marine Mammals of California, California Natural History Guides: 29. Berkeley: University of California Press. 93 pp.

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# ATTACHMENTS IN SUPPORT OF RESPONSES TO COASTAL COMMISSION COMMENTS

# Further Response to Coastal Commission #3

SAN LUIS OBISPO COUNTY
DEPARTMENT OF PLANNING AND BUILDING

ALEX HINDS
DIRECTOR

BRYCE TINGLE
ASSISTANT DIRECTOR

ELLEN CARROLL
ENVIRONMENTAL COORDINATOR

BARNEY MCCAY
CHIEF BUILDING OFFICIAL

October 1, 1998

Bill A. Brungardt, Project Manager
Brungardt Honomichl & Co.
8575 West 110th St. Suite 210
Overland Park Ks 66210

Subject: Pulling Cable for AT&T into Existing Conduit System From Montana de Oro State Park to AT&T Terminal at 9401 Los Osos Valley Road

Thank you for your letter of August 26, 1998 with questions relating to this phase of the AT&T project. We have determined that pulling new lines through the existing conduit as described in your letter is consistent with the conditions of approval for the project approved by our Planning Commission in November 1991 under permit number D900132D.

Critical to our understanding of your proposal is the use of the Morro Group to assist with monitoring of the work in the field. If you should desire to use another field monitor, you will need to clear them with us and arrange for a meeting to go over the conditions of approval adopted by the County.

If you or the field monitor have any questions about the conditions or need any interpretations of issues that arise during construction, please feel free to contact me at (805)781-5618 of Steve McMasters at (805)781-5096. If there is a need to contact one of us and you only get our phone answering machines, please call (805)781-5600 and ask our receptionist for assistance.

Sincerely,

Michael Draze
Supervising Planner

att1098.mdl

SAN LUIS OBISPO COUNTY
DEPARTMENT OF PLANNING AND BUILDING

LAND USE AND COASTAL DEVELOPMENT PERMIT (D900132D)
(NOTICE OF FINAL COUNTY ACTION)

Department of Planning and Building
San Luis Obispo County

County Government Center
San Luis Obispo
California 93408
(805) 549-5600

NOTICE OF FINAL COUNTY ACTION

SUBJECT: D900132D / AT&T COMMUNICATIONS

The San Luis Obispo County Planning Commission approved the above-referenced application. Two copies of a Land Use Permit are enclosed. The conditions of approval adopted by the Planning Commission are attached to the Land Use Permit. The conditions of approval must be completed as set forth in this document.

Please sign and return one copy of the Land Use Permit to this office. Your signature will acknowledge your acceptance of all the attached conditions and applicable Land Use Ordinance, Coastal Zone Land Use Ordinance and Building and Construction Ordinance standards.

If you are dissatisfied with any aspect of this approval, you have the right to appeal the decision to the Board of Supervisors. The appeal must be filed within 14 days of the date of the Planning Commission decision using the form provided by the Planning Department. There is no fee for the appeal to the county.

This action is also appealable to the California Coastal Commission pursuant to Coastal Act Section 30603 and County Coastal Zone Land Use Ordinance 23.01.043. These regulations contain specific time limits to appeal, criteria, and procedures that must be followed to appeal this action. We strongly recommend that you contact the county Department of Planning and Building to obtain the appeal form and information handout explaining the rights of appeal.

Exhaustion of appeals at the county is required prior to appealing the matter to the California Coastal Commission. This appeal must be made directly to the California Coastal Commission Office. Contact the Commission's Santa Barbara Office at (805) 963-6871 for further information on appeal procedures.

If you have any questions regarding these procedures, please contact me at (805) 546-5600.

Sincerely,

Mikille Pesenti

Development Review Section

D-54 [395k/3288k2]
03/31/89

COUNTY OF SAN LUIS OBISPO

# LAND USE AND COASTAL DEVELOPMENT PERMIT

PERMIT NO. D900132D

This Land Use/Coastal Development Permit allows the approved use described below to be established on the site referenced by the Assessor Parcel Number listed below. Any attached conditions of approval must be completed by the applicant as set forth by the condition. In addition to the conditions of approval, the approved use must also satisfy all applicable provisions of the Coastal Zone Land Use Ordinance and the Building and Construction Ordinance.

APPROVAL GRANTED
APPROVED USE: approval of fiber optic cable proj. within a typical easement width of app. 30 ft. & typical trench width 24 inches for a distance of app. 10.5 miles

ASSESSOR PARCEL NUMBER(S): Various

ISSUED TO: AT&T Communications of Calif. Inc.
4430 Rosewood Dr. Rm. 3684
Pleasanton, CA. 94588

CONDITIONS ATTACHED: ☑ YES ☐ NO
FINDINGS ATTACHED: ☑ YES ☐ NO

EFFECTIVE DATE

Unless an appeal is filed, this approval will become effective on December 16, 1991, and will be valid for two years. If an appeal if filed as provided by Section 23.01.042 and 23.01.043 of the Coastal Zone Land Use Ordinance, this approval may be affirmed, affirmed in part, or reversed. After two years the approval will expire and become void unless one of the following occurs:

a. The project has been completed.
b. Work has progressed beyond the completion of structural foundations.
c. A written extension request has been filed with the Planning Department prior to the date of expiration and has been granted.

NOTE: THIS IS NOT A BUILDING PERMIT

Applicant must sign and accept conditions or permit is void.

[signature] 12/4/91
Signature Date

DEPARTMENT OF PLANNING AND BUILDING VERIFICATION.

BY: MP DATE 11/27/91

COUNTY GOVERNMENT CENTER, SAN LUIS OBISPO, CA. 93408 (805) 549-5600

Plot Plan/Site Plan/MUP/Dev. Plan/ Variance - In CZ Appealable

# Department of Planning and Building
# San Luis Obispo County

Alex Hinds, Director
Bryce Tingle, Assistant Director
Barney McCay, Chief Building Official
Norma Salisbury, Administrative Services Officer


Nov 27, 1991

APPLICANT:

SUBJECT: PLANNING COMMISSION APPROVAL RESOLUTION

The County Planning Commission recently approved your application by adopting an official resolution and a copy is enclosed for your records. The Findings and Conditions approved by the Commission area attached to the resolution and referred to as Exhibit A and B.

If you are dissatisfied with any aspect of this approval, you have the right to appeal this decision to the Board of Supervisors up to 14 days after the date of approval, in writing, to the Planning Department. The appeal fee is $365 and must accompany your appeal letter.

If you have any questions regarding this matter, please contact me at 549-5600.

Sincerely,

Diane Tingle

DIANE R. TINGLE
SECRETARY
COUNTY PLANNING COMMISSION

PLANNING COMMISSION
COUNTY OF SAN LUIS OBISPO, STATE OF CALIFORNIA

November 14, 1991

PRESENT: Commissioners Anna Alexander, Shirley Bianchi, Don Keefer, David Oakley, Susan Ostrov, Chairman Ken Schwartz

ABSENT: None

RESOLUTION NO. 91-89
RESOLUTION RELATIVE TO THE GRANTING
OF A DEVELOPMENT PLAN

WHEREAS, The County Planning Commission of the County of San Luis Obispo, State of California, did, on the 14th day of November, 1991, grant a Development Plan to AT&T COMMUNICATIONS OF CALIFORNIA, INC./CLARK WHITTEN-COATES FIELD SERVICE, INC. to allow approval of a fiber optic cable project (onshore and offshore) within a typical easement width of approximately 30 feet and a typical trench width of 24 inches for a distance of approximately 10.5 miles, running from the existing AT&T facility on Los Osos Valley Road near Foothill Boulevard, through an existing easement paralleling Sycamore Canyon and Clark Valley, south of Los Osos, through the northern portion of Montana De Oro, and offshore for a distance of approximately three miles. County File Number: D900132D.

WHEREAS, The Planning Commission, after considering the facts relating to said application, approves this Permit subject to the Findings listed in Exhibit A.

WHEREAS, The Planning Commission, after considering the facts relating to said application, approves this permit subject to the Conditions listed in Exhibit B.

NOW, THEREFORE, BE IT RESOLVED, That the Planning Commission of the County of San Luis Obispo, State of California, in a regular meeting assembled on the 14th day of November, 1991, does hereby grant the aforesaid Permit, No. D900132D.

If the use authorized by this Permit approval has not been established or if substantial work on the property towards the establishment of the use is not in progress after a period of twenty-four (24) months from the date of this approval or such other time period as may be designated through conditions of approval of this Permit, this approval shall expire and become void unless an extension of time has been granted pursuant to the provisions of Section 22.02.050 of the Land Use Ordinance.

If the use authorized by this Permit approval, once established, is or has been unused, abandoned, discontinued, or has ceased for a period of six months (6) or conditions have not been complied with, such Permit approval shall become void.

On motion of Commissioner Bianchi, seconded by Commissioner Alexander, and on the following roll call vote, to-wit:

AYES: Commissioners Bianchi, Alexander, Keefer, Ostrov, Oakley, Chairman Schwartz

NOES: None

ABSENT: None

the foregoing resolution is hereby adopted.

/s/ Ken Schwartz
Chairman of the Planning Commission

ATTEST:

/s/ Diane Tingle
Secretary, Planning Commission

1450L

EXHIBIT A
FINDINGS

A. The project approved by this Development Plan is consistent with the San Luis Obispo County Coastal Zone Land Use Element and Inland Land Use Ordinance of the general plan because fiber optic cables are permissible land uses within the Agriculture, Recreation, and Rural Lands land use categories, and related improvements associated with this project are also consistent with the general plan. The parking lot and boardwalk improvements are consistent with overall park use.

B. As conditioned herein, the proposed project or use satisfies all applicable provisions of Titles 22 and 23 of the County Code.

C. The establishment and subsequent operation or conduct of the use will not because of the circumstances and conditions applied in the particular case be detrimental to the health, safety or welfare of the general public or persons residing or working in the neighborhood of the use, or be detrimental or injurious to property or improvements in the vicinity of the use because the project included in this request will include appropriate measures to mitigate any ill-effects associated with development ongoing use and maintenance activities associated with this project.

D. The proposed project or use will not be inconsistent with the character of the immediate neighborhood or contrary to its ultimate development because the easement is located in remote rural areas and will restore disturbed areas to the greatest extent feasible.

E. The improvements for the beach access parking lot and boardwalk approved under this development plan will not in and of themselves generate a volume of traffic beyond the safe capacity of all roads providing access to the project either existing or to be improved with the project because the project is located on Pecho Road which is currently capable of handling the (existing) traffic associated with the project. In addition, the project involves no new facilities which would generate additional traffic, but rather involves the relocation of an existing visitor access area from Army Road to the new area.

F. The site design and development incorporate adequate measures to ensure that archaeological resources will be acceptably and adequately protected because the applicant will stop work in the event historical resources are discovered.

G. Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the environmental effects of the project, and on the basis of the expanded initial study and all comments received there is no substantial evidence that the proposed project will have a significant effect on the environment.

H. The project is consistent with the relevant policies of the following chapters in the Coastal Plan Policies Document: Shoreline Access, Recreation and Visitor Serving Facilities, Environmentally Sensitive Habitats, Coastal Watersheds, Visual and Scenic Resources, Hazards, Archaeology, Air Quality; because the project successfully balances the two goals of facilitating public access and preserving the park's environmental resources.

I. The projects approved with this development plan are consistent with the following goals and policies of the ESTERO AREA PLAN: 3. PUBLIC FACILITIES AND SERVICES: RECREATION SERVICES; CHAPTER 4. CIRCULATION - A. ROADS - Pecho Road; B. OTHER TRANSPORTATION MODES - Transit, Bikeways; C. PLANNING AREA CIRCULATION PROGRAMS - Areawide - 4. Scenic Corridors - Pecho Road, South Bay - 3. Trails; CHAPTER 6 LAND USE - Recreation; with the conditions of approval.

J. The proposed beach access improvements are consistent with Coastal Policies of the Local Coastal Plan as replacement vehicular access for the Army Road closure.

K. The portion of the proposed project within the Montana de Oro State Park is consistent with those portions of the Park General Plan applicable to and approved by Development Plan/Coastal Development Permit D900119D

L. The project is consistent with the Local Coastal Plan as it pertains to Sensitive Resource Areas as follows:

(1) The development will not create significant adverse effects on the natural features of the site or vicinity that were the basis for the Sensitive Resource Area designation, and will preserve and protect such features through the site design.

(2) Natural features and topography have been considered in the design and siting of all proposed physical improvements.

(3) Any proposed clearing of topsoil, trees, or other features is the minimum necessary to achieve safe and convenient access and siting of proposed structures, and will not create significant adverse effects on the identified sensitive resource.

(4) The soil and subsoil conditions are suitable for any proposed excavation; site preparation and drainage improvements have been designed to prevent soil

erosion, and sedimentation of streams through undue surface runoff.

M. The project is consistent with the Local Coastal Plan as it pertains to Environmentally Sensitive Habitats as follows:

(1) There will be no significant negative impact on the identified sensitive habitat and the proposed use will be consistent with the biological continuance of the habitat because although some habitat disruption will occur in the southern portion of the habitat area, a more extensive area in the northern portion of the habitat known as Army Road will be closed to vehicular access and; an extensive habitat restoration project will be made possible.

(2) The proposed use will not significantly disrupt the environment because although it will involve an access road along the easement route West of Pecho Road and a parking area, vehicular and human disturbance will be controlled, minimizing long term disturbance in this area and; the project will make extensive habitat restoration possible at Army Road and; thereby allow for overall enhancement of the environment in the long term.

EXHIBIT D900132D:B
CONDITIONS OF APPROVAL

Approved Use

1. This approval authorizes trenching and horizontal boring for installation of a fiber optic cable from the County's western jurisdictional boundary easterly for approximately 10.5 miles to the AT&T facility located on Los Osos Valley Road; involving realignment of portions of the easement for the cable; a 50 space parking lot; boardwalk trail over the stabilized dunes to the beach, including continuous fencing and signing of the boardwalk; and habitat restoration and revegetation for all portions of the cable route with environmental monitoring. Project development and ongoing use shall be consistent with those portions of the Park General Plan applicable to and approved by the Master Development Plan/Coastal Development Permit (D900119D). The project shall be consistent with revised plans listed herein as well as the negative declaration/expanded initial study which further defines environmental mitigation measures for the project. For the purposes of administering various aspects of the project the following phases will be followed:

   Phase I - Horizontal bore from bore site to ocean including some enlarging of the existing denuded area at the bore site.

   Phase II - Trenching from bore site east to Pecho Road with subsequent construction of a roadway, parking lot, boardwalk to the beach, restrooms, fencing, signing program and revegetation program.

   Phase III - Trenching and cable placement under Pecho Road, along existing cable route and along a new route along Rim Trail. Also included is the continuation of trenching eastward to the boundary of Montana de Oro Park. This phase also includes a revegetation program.

   Phase IV - This Phase includes the Los Osos Creek dry crossing and the area between Phase III and Phase IV; and a revegetation program.

   Phase V - Includes the remaining portion of the project east of Los Osos Creek to the AT&T facility on Los Osos Valley Road; and a revegetation program.

   Phases I through III shall be followed sequentially. Phases IV and V may proceed simultaneously with Phases I through III, subject to the additional requirements of the conditions listed below.

   Socio Economic. Where feasible the applicant shall consider local hire for construction and environmental mitigations activities authorized in this Development Plan to maximize the employment of local residents where feasible.

Construction Schedule

2. Prior to commencing construction of any of the above phases, the applicant shall submit a construction schedule indicating the construction periods proposed and revegetation schedule.

Mitigation Monitoring

3. Prior to commencing construction of each phase the applicant shall retain a mitigation monitor approved by the Environmental Coordinator. The mitigation monitor shall submit a monitoring Plan to the Environmental Coordinator prior to construction for review and approval.

Staking of Disturbance Areas

4. Prior to commencing construction activities or any clearing in preparation for construction staging, for each phase, the applicant shall stake with lath and flag all areas proposed for disturbance to form construction control lines. Any disturbance outside of these areas shall be prohibited and construction crews shall be so informed.

Clearance and Inspection

5. Prior to commencing construction activities or any clearing in preparation for construction staging, the applicant shall obtain a letter of release from the Environmental Coordinator after field inspection of construction control staking by the Environmental Coordinator, State Parks and the mitigation monitor.

Revised Site Plan

Phase II Area Precise Plans

6. Prior to commencing construction of Phase II the applicant shall submit a set of precise plans to function as a revised site plan (including project detail plans) for all areas included within this Phase (see condition number 1 above).The revised site plan shall be at a scale to show sufficient detail of all aspects of the proposed improvements and shall include but not be limited to the following:

   (a) A practical Plan and Profile for the road leading from Pecho Road to the Parking Lot.

   (b) A parking lot detail to show the location of 50 parking spaces, fencing, signing the location of the restrooms and an interior planter area to be used to establish native plants to make the parking lot more aesthetically pleasing and in keeping with surrounding vegetation. Native vegetation shall be selected in conjunction with State Parks and the County, and shall be established during the revegetation portion of the project, prior to commencing with Phase III. The parking lot shall include bicycle racks to accommodate at least 25 bicycles.

(c) A site detail (or details) for the boardwalk to the beach showing width, height, anchoring, and length.

(d) A comprehensive fencing plan to ensure that visitors are contained within the parking lot, road and boardwalk areas and that human intrusion into sensitive habitats is minimized to the greatest extent feasible.

(e) A comprehensive signing plan coordinated with State Parks, to indicate that hiking is not allowed outside of fenced areas and to ensure that the public understands the sensitive nature of the surrounding habitat.

Phase II Area Overall Site Plan

7. Prior to commencing construction activities or any clearing in preparation for construction staging, the applicant shall submit a revised site plan for the area within Phase II the precise alignment of the cable route (realignment).

Ongoing Management of Beach Parking Lot and Boardwalk

8. The ongoing management of this area shall be in accordance with the Montana de Oro Park Plan with the additional mitigation measures established in these conditions of approval. If degradation due to human use occurs additional mitigation shall initiated, including but not limited to gating of the roadway to limit hours of use or possible closure for sufficient periods of time to allow recovery. Annual progress reports shall evaluate the overall condition of this area as required by the conditions of approval for the Master Development Plan/ Coastal Development Permit. Evaluation shall be by the Department of Parks and Recreation in conjunction with the county and any other appropriate agencies.

Agency Clearance

9. Prior to construction in any Phase, the applicant shall obtain clearance from the following agencies:

-Army Corps of Engineers
-State Lands Commission
-Coastal Commission (for coastal development permit)
-Regional Water Quality Control Board
-State Department of Fish and Game
-State Department of Parks and Recreation.

activities with the state park monitor. Within the state park, the state park monitor will be the principal monitor, and will be responsible for keeping the county Environmental Monitor appraised of compliance with the conditions set forth in this statement. The county monitor will be allowed to observe construction activities within the state park and will be responsible for informing the state park monitor if AT&T is not complying with county conditions. It will be up to the state park monitor to ensure compliance with the county conditions as well as state park conditions within the state park boundary.

b) <u>MITIGATION MEASURES INCLUDED IN THE PROJECT BY AT&T</u>

1) <u>General Construction Measures</u>. The applicant has committed to general construction measures as listed in Chapter III of the Onshore portion of the Expanded Initial Study. These construction measures shall be incorporated into the project to provide mitigation to reduce a variety of impacts.

c) <u>SOILS AND EROSION</u>

1) <u>Erosion of Cut and Fill Slopes</u>. In order to reduce the potential erosion of cut and fill slopes, the angle of the cut and fill slopes shall be decreased from the standard of 2:1 (horizontal to vertical) to 3:1 west of Pecho Valley Road. This will increase the area of disturbance, but it will decrease erosion prior to revegetation and will also facilitate revegetation.

2) <u>Erosion Control East of Pecho Valley Road</u>. Potential increased erosion in the segment underlain by sand east of Pecho Valley road along Rim Trail shall be controlled by providing waterbars at intervals no greater than 200 feet. Providing periodic diversion of runoff from the trail will reduce the rate of erosion now occurring along this segment.

3) <u>Erosion Control West of Pecho Valley Road</u>. The potential for increased erosion resulting from an increase in concentrated runoff from the access road shall be mitigated by:

   (a) Designing, to the satisfaction of the Department of Parks and Recreation, the access road west of Pecho Valley Road to shed runoff as sheet flow; or, 2) collecting runoff from the access road west of Pecho Valley Road and conveying it to canyon bottoms below the active knick points in non-erosive devices, providing energy dissipators at points of release; or 3), collecting runoff from that part of the access road downslope from the two major canyons and conveying it to the parking area where it can infiltrate into the sand, and provision of berms as necessary to retain runoff in the vicinity of the parking area, or conveying all the runoff from the access road to the parking area.

(b) Applicant shall prepare a detailed Grading and Drainage Plan for the area west of Pecho Valley Road, and submit it to the Department of Planning and Building for joint review and approval by the Environmental Coordinator and the Department of Parks and Recreation prior to commencing with any construction.

6) <u>Creek Crossings</u>. At any creek crossing, the conduits shall be installed when the creek is not flowing and rain is not forecast during the time necessary to complete the crossing.

d) <u>BIOLOGICAL RESOURCES</u>

1) <u>Revegetation Plan</u>. The applicant shall prepare a revegetation plan for all disturbed areas of the project. A qualified botanist acceptable to the county and the Department of Parks and Recreation shall review and make recommendations regarding the revegetation plan before implementation. The revegetation plan shall include the following measures:

2) <u>General Mitigation Measures applying to all routes and improvements</u>.

(a) Any revegetation shall utilize seeds or cuttings collected from adjacent areas.

(b) As practicable, revegetation shall occur within the same vicinity as the vegetation to be removed. If it is not possible to revegetate in the same vicinity, then the revegetation shall occur at designated locations as stipulated in the revegetation plan. Unless specified, eucalyptus and other non-native species need not be replanted, but shall be replaced with native species as specified in the revegetation plan.

(c) Arroyo de la Cruz manzanita, Morro manzanita and coast live oak trees shall be replaced at a ratio of 5:1, with plants established from cuttings or seeds collected from the local population. The revegetation areas for the manzanita shall be 1) in cleared areas adjacent to the right of way or within the right of way if it is not to be used for maintenance; or 2), in other areas designated by the Environmental Monitor (such as in areas that have been cleared of eucalyptus, trails to be abandoned or other suitable areas requiring revegetation).

(d) The revegetation plan shall include the following:

-Species to be replanted and source of seeds and plants to be used.

-Location of the revegetation areas

-Timetable for revegetation

-Method of revegetation (such as the size of plants, soil amendments, special techniques needed to ensure successful replanting, etc.).

-Irrigation method where needed

-Method to verify that replanting has been successful

-The standard county procedures for oak tree preservation shall be included

(e) Prior to commencement of construction activities, the applicant shall be required to clearly mark all of the trees to be removed during construction as well as any trees that will be trimmed. In the case of manzanita, the marking can be accomplished by stringing colored surveyors tape to denote the areas there plants will be affected.

(f) Any oak trees, or manzanita that are within ten feet of an area to be graded, not including those to be removed, shall be temporarily marked for protection (e.g., flagged with a different color surveyors tape). The purpose of the marking is to act as a reminder to the construction crew that these areas are not to be disturbed during grading. Marking shall be completed prior to commencement of any grading operations within the affected segment of the line (eg. the rim trail).

(g) During construction, the operation of heavy equipment shall avoid the area within the driplines of oaks. Such equipment shall not be parked under these trees in order to prevent oily residue from leaking into the root zone and to avoid soil compaction in this area.

(h) All trenching shall take place outside of the dripline and root zone of all oak trees. Remedial measures ensuring the health of these trees (i.e., pruning to eliminated growth stress) shall also be specified in the revegetation plan. If it is not possible to avoid the driplines of oak trees, the tree shall be considered damaged and shall be replaced as required in item #3 above.

(i) the Environmental Monitor shall record all trees that are impacted by removal, cutting and grading. The monitor will be responsible for monitoring the health of the replanted trees until it is determined that they can survive on their own, a minimum period of five years.

(j) The width of the disturbance necessary for construction shall be kept to a minimum. It should be noted that the applicant shall be required to replace all vegetation removed during construction, specifically with a 5:1 replacement of oak trees and manzanita a revegetation with an appropriate mix of native seeds and plants. If the Environmental Monitor deems that the width of the disturbance is excessive, work shall cease until it can be determined what the appropriate width should be. AT&T has indicated that the width of disturbance would no exceed 40 feet at crossings and in areas of difficult terrain, and would average 30 feet along the majority of the line. In areas of sensitive vegetation, it is possible to reduce the width of disturbance to 10 feet depending on terrain conditions.

3) SLO Junction to Clark Valley Road.

(a) Stipa pulchra (purple needle-grass), Stipa Lepida (slender needle-grass) seeds shall be included in the revegetation plans for grasslands between SLO junction and Clark Valley Road.

(b) In areas of coastal scrub and Arroyo de la Cruz manzanita, the route shall follow existing roads or trails as closely as possible to reduce vegetation removal. Revegetation shall be with fast growing herbs and shall include shrubs native to the local coastal scrub community.

(c) In areas of chaparral, construction shall follow the existing road, and disturb the vegetation along the side as little as possible.

(d) The new trench shall be realigned downslope from the serpentine outcrop located approximately 0.75 miles west of the SLO junction, and the outcrop shall be left undisturbed. The actual location of the route shall be marked by the applicant, and checked by a qualified botanist prior to construction.

4) Clark Valley Road to Los Osos Creek

(a) The existing road west of Clark Valley Road shall be followed where feasible to avoid the oaks and shrubs.

(b) All Morro manzanitas along the route shall be flagged and avoided where possible.

5) Los Osos Creek Crossing

(a) Creek and riparian vegetation shall be disrupted as little as possible at the Los Osos Creek Crossing. The area disturbed shall be revegetated with plants native to the riparian zone as listed in the revegetation plan. Arroyo willows should be included.

6) <u>Los Osos Creek Crossing to 0.2 Miles West of the Eastern Boundary of Montana De Oro State Park</u>

   (a) The alignment shall follow the existing open pathway through the oaks. All disturbance would be as far away from the trunks as possible and outside the dripline.

   (b) The line shall be routed upslope from the wet area shown in Figure V-4 of the Onshore portion of the Expanded Initial Study, and modifications to drainage patterns during construction should be avoided.

7) <u>0.2 Miles West of the Eastern Boundary of Montana De Oro State Park to Hazard Canyon Road</u>

   (a) Where Rim Trail is wide, no brush removal should be required and significant disruption to the root systems can be avoided. Trimming of manzanitas along the side of the trail may be required, but shall be kept to a minimum following proper pruning procedures.

   (b) Since the Rim Trail will be maintained as an access road for maintenance purposes and will require removal of manzanitas and trimming of manzanitas, maintenance will result in a long term loss of coverage. In order to mitigate this long term loss, particularly canopy loss, the applicant shall remove an area of eucalyptus canopy equal to the area of Morro manzanita canopy that will be required to continue the maintenance of the road. To determine the area of eucalyptus canopy to be removed, the applicant, in the revegetation plan, will map the total area of Morro manzanita to be removed on the Rim Trail and equate this removal to square feet of total coverage. This will allow field verification of the exact area of manzanita canopy that can be equated to eucalyptus canopy to be removed.

   (c) The State Department of Parks and Recreation has identified certain stands of non-plantation eucalyptus in natural habitat area near the proposed line that should be removed in order to provide additional habitat for Morro manzanita. For example, there are areas just east of Pecho Valley Road where Eucalyptus trees could be removed and Morro manzanita reestablished. These areas are clearly good habitat for manzanita as shown by the maritime chaparral in the fringe areas around the grove and scattered in the understory of the grove.

   (d) Once the area of manzanita canopy removal has been determined, the areas of eucalyptus canopy to be removed shall be determined after consultation with the Department of Parks and Recreation. Where the eucalyptus stand to be removed, is greater than the amount of manzanita calculated for removal, the entire stand should be removed if the majority of canopy is designated for removal.

(e) The location of the eucalyptus stand and the amount of canopy to be removed shall be included as part of the revegetation plan, and the area of canopy of eucalyptus to manzanita removal can be adjusted during construction with approval of the Environmental Monitor. The eucalyptus removal shall occur during or immediately after construction of the Rim Trail portion of the line.

(f) Once eucalyptus removal has occurred the applicant may utilize this area for revegetation with manzanita. This manzanita can be with those plantings required in the 5:1 replacement of manzanita removed in the project right of way.

(g) The alignment shall be routed outside the wetland area, and modifications to drainage patterns during construction should be avoided. If modifications to drainage patterns during construction cannot be avoided, the Environmental Monitor shall be informed prior to any alterations to drainage. The Environmental Monitor shall determine, in consultation with State Parks and Recreation and any necessary specialists, if the proposed alterations are necessary, and appropriate mitigation shall be determined at that time.

8) <u>Hazard Canyon Road to Pecho Valley Road</u>

(a) Morro manzanitas in this area shall be replaced with plants established from cuttings or seeds collected from the local population. Other plants used in the revegetation should include shrubs and herbs native to the local chaparral community.

9) <u>Pecho Valley Road to the Parking Area</u>

(a) The State Department of Parks and Recreation is proposing to restrict vehicle access to their portion of Army Road. The applicant shall be required to prepare a restoration plan for Army Road within the park. This plan will be prepared in consultation with a biologist with expertise in Morro Bay kangaroo rat habitats. The plan shall be reviewed by the State Department of Parks and Recreation and the U.S. Fish and Wildlife Service and shall be approved by the Environmental Coordinator's Office. The plan shall include the following:

(b) Area within the park to be affected by the restoration plan shall be equal to the area disturbed by AT&T activities.

(c) The plan shall include fencing of the State Parks boundary in the vicinity of Army Road.

(d) Remnants of road base along "A" Road and Army Road on State Park property shall be removed and transported to the future parking lot at the proposed boring site. This activity can be implemented after completion of the offshore boring and cable installation or at the time of construction of the parking lot.

(e) Any remaining compacted road areas within the park shall be ripped and contoured so that these areas can be revegetated.

(f) The plan shall include a revegetation plan for the road areas within the park to be affected and, where appropriate, an exotic plant removal plan such that the road areas can be returned to natural habitat.

(g) Areas of cut and fill shall be revegetation as soon as feasible after construction of the access road within the park. Revegetation shall include plants native and indigenous to the local area. A qualified botanist shall review and make recommendations regarding the revegetation mix before implementation.

(h) All Morro manzanitas and dune almonds removed shall be replaced at a ratio of 5:1 with plants established from cuttings or seeds collected from the local population. Other plants used in the revegetation shall include shrubs and herbs native to the local chaparral/coastal dune scrub community. A qualified botanist shall review and make recommendations regarding the revegetation mix before implementation. No introduced species shall be included.

(i) The access road shall be constructed to its full width as part of the proposed project to avoid recurrence of impacts at such time as the road were to be widened.

(j) Banded Dune Snail. Prior to construction of the segment of the project within 1,000 feet of the parking area (boring site), the limits of disturbance in this segment should be staked and flagged by the applicant, and this area should be re-surveyed for the presence of banded dune snails. Should any banded dune snails be found in this area, they should be removed and placed in suitable habitat west of the project area.

(k) Morro Blue Butterfly. The long-term loss of Morro blue butterfly habitat can be mitigated by closing the Army Road. Revegetation of areas within this portion of the project shall include silver beach lupine in the revegetation plan. Short-term losses of habitat in areas of cut and fill can be mitigated by including silver beach lupine in the revegetation of these slopes.

e) ARCHAEOLOGICAL RESOURCES

1) Pre-construction meeting. A pre-construction meeting shall be conducted by a qualified archaeologist to advise the construction crew of conditions to be aware of that may indicated the presence of a significant archaeological site.

2) CA-SLO-798. CA-SLO-798 shall be avoided by re-routing the alignment along one of several alternatives. Alternative C(one of three alternatives routes to avoid the site) as shown on Figure 1 of the archaeological report contained in the file, shall be the preferred route.

3) A qualified archeologist and Native American observer shall be present to monitor construction in Sensitive area 1 as designated in the confidential archaeological report available with the Office of Environmental Coordinator to mitigate potential impacts to CA-SLO-787.

f) VISUAL RESOURCES

1) Cable realignment. Significant adverse visual effects resulting from trenching throughout the Morro manzanita shall be minimized by moving the cable crossing approximately 50 feet northeast and following the marked horse trail shown on the Expanded Initial Study Figure V-8, bottom and Figure IV-6.

Recording Requested By:

AT&T

When Recorded Mail To:

AT&T
Right of Way Dept.
1200 Peachtree St.--PA168
Atlanta, GA 30309

Doc No: 1995-034057 Rec No: 00038714

Official Records
San Luis Obispo Co.
Julie L. Rodewald
Recorder
Aug 03, 1995
Time: 14:39

[ 10]

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|---|---|
| RF | 34.00 |
| TOTAL | 34.00 |

Space above for Recorder's Use

MONTANA DE ORO STATE PARK

undersigned declares that the Documentary Transfer
payable hereon is $ ∅
....Computed on full value of property conveyed.
....Computed on full value less liens and encumbrances
remaining at time of sale.
nature.....

AGREEMENT AND GRANT OF EASEMENT

THIS AGREEMENT AND GRANT OF EASEMENT is made and entered into by and between the STATE OF CALIFORNIA, acting by and through its DIRECTOR of the DEPARTMENT OF PARKS AND RECREATION, hereinafter called State, and AT&T COMMUNICATIONS INC., hereinafter called Grantee.

State, pursuant to the provisions of Section 5012 of the Public Resources Code of the State of California, hereby grants unto Grantee, its successors and assigns forever, an easement to locate, relocate, construct, reconstruct, alter, use, maintain, inspect, repair, replace and remove an underground fiber optic cable communication system consisting of underground conduits, wires, cables, manholes, hand-holes and including above-ground markers and other appurtenant fixtures and equipment deemed necessary therefor by Grantee, over, on, under and across that certain real property situated in the County of San Luis Obispo, State of California, as described in the attached EXHIBIT "A", consisting of three pages, and by this reference made a part thereof.

PROVIDED, this Grant of Easement is subject to the following terms and conditions:

1. This Grant is subject to existing contracts, leases, licenses, easements, encumbrances, and claims which may affect said property, and the use of the word "Grant" herein shall not be construed as a covenant against the existence of any thereof.

2. Grantee hereby waives all claims and recourse against the State, including the right to contribution, for injury to persons or damage to property arising from, growing out of, or in any way connected with or incident to this agreement except claims arising from the concurrent or sole negligence of State, its officers, agents, and employees.

Grantee shall indemnify, hold harmless, and defend State, its officers, agents, and employees against any and all claims, demands, damages, costs, expenses, or liability costs arising out of the acquisition, development, construction, operation, or maintenance of the property described herein which claims, demands, or causes of action arise under Government Code Section 895.2 or otherwise, except for liability arising out of the concurrent or sole negligence or State, its officers, agents, or employees.

In the event State is named as codefendant under .the provisions of the Government Code Section 895 et seq., Grantee shall notify State of such fact and shall represent State in such legal action unless State undertakes to represent itself as codefendant in such legal action, in which event State shall bear its own litigation costs, expenses, and attorney's fees.

In the event judgment is entered against State and Grantee because of concurrent negligence of State and Grantee, their officers, agents, or employees, an apportionment of liability to pay such judgment shall be made by a court of competent jurisdiction. Neither party shall request a jury apportionment.

3. State reserves the right to use said real property in any manner, provided such use does not unreasonably interfere with Grantee's rights hereunder.

4. State reserves the right to require Grantee, at State expense, to remove and relocate all improvements placed by Grantee upon said real property, upon determination by State that the same interfere with future development of State's property.

Within 180 days after State's written notice and demand for removal and relocation of the improvements, Grantee shall remove and relocate the improvements to a feasible location on the property of State, as designated by State, and State shall furnish Grantee with an easement in such new location, on the same terms and conditions as herein stated, all without cost to Grantee, and Grantee thereupon shall reconvey to State the Easement herein granted.

5. This Easement shall terminate in the event Grantee fails for a continuous period of 18 months to use the Easement for the purposes herein granted. Upon such termination, Grantee shall forthwith upon service of written demand, deliver to State a Quitclaim Deed, to this right, title, and interest hereunder, and shall, on State request, without cost to State, and within 90 days from written demand by State, remove all property placed by or for Grantee upon said property and restore said premises as nearly as possible to the same condition they were in prior to the execution of this Easement.

In the event Grantee should fail to restore the premises in accordance with such request, State may do so at the risk of Grantee, and all costs of such removal and restoration shall be paid by Grantee upon demand.

6. In making any excavation on said property of State, Grantee shall make the same in such manner as will cause the least injury to the surface of the ground around such excavation, and shall replace the earth so removed by it and restore the surface of the ground and any improvement thereon to as near the same condition as they were prior to such excavation as is practicable.

7. Full consideration to State for the Grant of this Easement shall be the faithful performance of the obligations undertaken by the Grantee herein and the construction by Grantee of access road and parking lot improvements, comfort station, picnic tables, benches and a disabled access boardwalk with erosion control structures. State acknowledges that said facilities have been constructed in a manner satisfactory to State.

Dated 3-17-95

STATE OF CALIFORNIA

DEPARTMENT OF PARKS AND RECREATION

By Donald W Murphy

AT&T COMMUNICATIONS, INC.

By Mike Wilson
MIKE WILSON
MANAGER-OUTSIDE PLANT ENGINEERING
& CONSTRUCTION

By Elizabeth A. Staats
Elizabeth A. Staats
Right of Way Eng.

APPROVED AS TO
FORM
1/31/95
AT&T [illegible] DIVISION
[illegible]

STATE OF GEORGIA

COUNTY OF DEKALB

Before me the undersigned authority, on this day personally appeared Mike Wilson, personally known to me to be the Manager - Outside Plant Engineering & Construction of AT&T Communications, Inc., acknowledged before me that the foregoing instrument was executed on behalf of said corporation under the powers granted by its Board of Directors.

IN WITNESS WHEREOF, I hereunto set my hand and official seal this 3rd day of February, 1995.

Vicki E. Davis

Notary Public

Notary Public, DeKalb County, Georgia
My Commission Expires June 9, 1998

State of California
County of Sacramento

On March 17, 1995 (DATE) before me, Theodore G. Crane, Notary Public, (NAME, TITLE OF OFFICER - I.E., "JANE DOE, NOTARY PUBLIC")

personally appeared Donald W. Murphy (NAME(S) OF SIGNER(S))

☒ personally known to me -OR- ☐ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

OFFICIAL SEAL
Theodore G. Crane
NOTARY PUBLIC - CALIFORNIA
SONOMA COUNTY
My Comm. Expires May 16, 1995

Witness my hand and official seal.

(SEAL)

Theodore G. Crane
(SIGNATURE OF NOTARY)

RIGHT THUMBPRINT (OPTIONAL)

TOP OF THUMB HERE

CAPACITY CLAIMED BY SIGNER(S)

☐ INDIVIDUAL(S)
☐ CORPORATE OFFICER(S) ________ (TITLE(S))
☐ PARTNER(S)
☐ ATTORNEY IN FACT
☐ TRUSTEE(S)
☐ GUARDIAN/CONSERVATOR
☒ OTHER: Director

SIGNER IS REPRESENTING:
(NAME OF PERSON(S) OR ENTITY(IES))
State of California
Dept of Parks & Recreation

ATTENTION NOTARY: The information requested below is OPTIONAL. It could, however, prevent fraudulent attachment of this certificate to any unauthorized document.

THIS CERTIFICATE MUST BE ATTACHED TO THE DOCUMENT DESCRIBED AT RIGHT:

Title or Type of Document ________
Number of Pages ________ Date of Document ________
Signer(s) Other Than Named Above ________

EXHIBIT "A"

A portion of land located in Sections 25, 24, and 23, Township 30 South, Range 10 east, M.D.B. & M., all being in San Luis Obispo County, California. Said portion of land is described as follows:

Beginning at the northeast corner of said Section 25, thence south along the east line of said Section 25, a distance of 406.70 feet to the True Point of Beginning;

thence Part A;

Said Part A of said portion of land is 20 feet in width, 10 feet on each side of the following described centerline:
Commencing at the True Point of Beginning,
thence north 78° 00′ 38" west a distance of 101.18 feet,
thence north 73° 16′ 59" west a distance of 67.63 feet,
thence north 54° 02′ 03" west a distance of 349.28 feet,
thence north 55° 12′ 08" west a distance of 152.56 feet,
thence north 61° 15′ 35" west a distance of 195.66 feet,
thence north 48° 26′ 41" west a distance of 137.26 feet,
thence north 40° 37′ 56" west a distance of 97.55 feet,
thence north 59° 39′ 19" west a distance of 76.63 feet,
thence north 32° 49′ 16" west a distance of 289.90 feet,
thence south 60° 02′ 19" west a distance of 70.16 feet,
thence south 79° 44′ 27" west a distance of 74.24 feet,
thence south 73° 15′ 00" west a distance of 184.76 feet,
thence south 89° 00′ 55" west a distance of 100.16 feet,
thence north 57° 43′ 33" west a distance of 84.06 feet,
thence north 46° 16′ 59" west a distance of 91.26 feet,
thence north 52° 17′ 39" west a distance of 176.21 feet,
thence north 65° 22′ 12" west a distance of 207.99 feet,
thence south 83° 29′ 40" west a distance of 216.91 feet,
thence north 86° 48′ 10" west a distance of 652.14 feet,
thence south 89° 30′ 59" west a distance of 315.15 feet,
thence south 87° 11′ 15" west a distance of 82.98 feet,
thence north 73° 50′ 49" west a distance of 149.61 feet,
thence north 70° 54′ 49" west a distance of 132.16 feet,
thence north 45° 01′ 48" west a distance of 122.02 feet,
thence north 77° 29′ 54" west a distance of 70.03 feet,
thence north 88° 43′ 24" west a distance of 80.38 feet,
thence north 51° 55′ 32" west a distance of 235.36 feet,
thence north 44° 47′ 13" west a distance of 169.62 feet,
thence north 70° 10′ 25" west a distance of 75.59 feet,
thence north 89° 34′ 24" west a distance of 62.18 feet,
thence north 79° 15′ 32" west a distance of 149.97 feet,
thence north 67° 13′ 57" west a distance of 43.68 feet,
thence north 52° 11′ 40" west a distance of 69.41 feet,
thence north 60° 08′ 19" west a distance of 70.47 feet,



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EXHIBIT—A

thence north 37° 28′ 41" west a distance of 128.60 feet,
thence north 30° 08′ 40" west a distance of 65.17 feet,
thence north 43° 04′ 51" west a distance of 58.23 feet,
thence north 48° 54′ 47" west a distance of 127.82 feet,
thence north 40° 24′ 53" west a distance of 75.72 feet,
thence north 68° 11′ 22" west a distance of 95.37 feet,
thence north 42° 10′ 02" west a distance of 416.21 feet,
thence north 54° 49′ 00" west a distance of 330.27 feet,
thence north 86° 01′ 02" west a distance of 166.68 feet,
thence south 30° 55′ 08" west a distance of 81.32 feet,
thence south 02° 19′ 47" east a distance of 167.27 feet,
thence south 29° 22′ 19" west a distance of 135.07 feet,
thence south 16° 48′ 22" west a distance of 210.37 feet,
thence south 58° 32′ 10" west a distance of 180.17 feet,
thence south 68° 46′ 11" west a distance of 116.10 feet,
thence south 58° 24′ 28" west a distance of 300.03 feet,
thence north 78° 19′ 10" west a distance of 231.75 feet,
thence south 64° 45′ 27" west a distance of 439.52 feet,
thence south 61° 07′ 55" west a distance of 673.43 feet,
thence south 41° 10′ 38" west a distance of 553.49 feet,
thence south 61° 58′ 40" west a distance of 186.99 feet,
thence south 52° 30′ 56" west a distance of 60.83 feet,
thence south 63° 25′ 36" west a distance of 204.89 feet,
thence north 69° 27′ 24" west a distance of 115.83 feet,
thence north 58° 42′ 50" west a distance of 25.67 feet,
thence north 40° 29′ 02" west a distance of 75.19 feet,
thence north 67° 59′ 38" west a distance of 7.63 feet,
thence south 60° 20′ 03" west a distance of 31.65 feet,
thence north 78° 28′ 50" west a distance of 7.74 feet,
to a point hereinafter referred to as Point "A";

thence Part B;

Said Part B of said portion of land is 35 feet in width, 10 feet on the easterly (inland) side and 25 feet on the westerly (seaward) side of the following described line:

Commencing at said Point "A",
thence north 49° 18′ 06" west a distance of 45.50 feet,
thence north 34° 45′ 04" west a distance of 19.68 feet,
thence along a tangent curve to the right having a central angle of 52° 06′ 36" and a radius of 229.00 feet and an arc distance of 208.27 feet,
thence north 17° 21′ 47" east a distance of 218.24 feet,
thence along a tangent curve to the right having a central angle of 28° 04′ 55" and a radius of 229.00 feet and an arc distance of 112.24 feet,
thence north 45° 26′ 42" east a distance of 24.98 feet,
thence along a tangent curve to the left having a central angle of 129° 28′ 15" and a radius of 251.00 feet and an arc distance of 567.18 feet,
thence north 84° 01′ 32" west a distance of 24.31 feet,

thence along a tangent curve to the right having a central angle of 67° 01′ 14" and a radius of 229.00 feet and an arc distance of 267.87 feet,
thence north 17° 00′ 18" west a distance of 214.50 feet,
thence along a tangent curve to the right having a central angle of 26° 54′ 46" and a radius of 229.00 feet and an arc distance of 107.57 feet,
thence north 09° 54′ 28" east a distance of 491.54 feet,
thence along a tangent curve to the right having a central angle of 78° 45′ 25" and a radius of 134.00 feet and an arc distance of 184.19 feet,
thence north 88° 39′ 53" east a distance of 0.29 feet,
thence along a tangent curve to the left having a central angle of 67° 02′ 25" and a radius of 40.00 feet and an arc distance of 46.80 feet,
thence north 21° 37′ 29" east a distance of 4.85 feet,
to a point hereinafter referred to as Point "B";

thence Part C;

Said Part C of said portion of land is 200 feet in width, 110 feet southerly and 90 feet northerly of the following described line:
Commencing at said Point "B",
thence north 68° 56′ 49" west a distance of 1,500 feet more or less, to the mean high water mark of the Pacific Ocean;

and also Part D;

Said Part D of said portion of land is a rectangular parcel bounded by the following described line:
Commencing at said Point "B",
thence south 39° 29′ 01" west a distance of 126.19 feet,
to a point hereinafter referred to as Point "C",
said Point C being the Point of Beginning of Part D,
thence north 20° 00′ 01" west a distance of 182.69 feet,
thence north 66° 10′ 33" east a distance of 236.55 feet,
thence south 20° 00′ 01" east a distance of 186.68 feet,
thence south 67° 08′ 29" west a distance of 236.32 feet,
to Point "C".

The above description (Part D) encompasses the entire Sandspit parking lot area as it now exists.

The sidelines of said described easement Parts A, B and C being shortened or lengthened to meet the property lines of the Grantor.

Basis of bearing: Bearings and distances are based on California State Plane Coordinate System Zone V NAD 83 DATUM.

*Attachments in Support of Response to Comment #21*

# INTERIM AGREEMENT

# BETWEEN CABLE COMPANIES AND FISHERMEN

**THIS INTERIM AGREEMENT** ("IA") dated this 22nd day of July, 1999, is made by and proposed between MFS Globenet, Inc., and AT&T Corp. (herein collectively called "Cable Companies") and the Morro Bay Commercial Fishermen's Association, a California Mutual Benefit Corporation, the Port San Luis Commercial Fishermen's Association, a California Mutual Benefit Corporation, and individual commercial fishermen licensed to fish along the California coast which later sign this IA (hereinafter collectively called the "Fishermen"), with regard to the following facts:

## RECITALS

**WHEREAS,** the Cable Companies have applied to the California State Lands Commission, and to the United States Army Corp of Engineers, in addition to other governmental agencies having jurisdiction thereover (hereinafter "Governmental Agencies"), for approval to construct, install, continue and maintain telecommunications cable networks along the California coast (hereinafter "Cable Projects"), and

**WHEREAS,** the Governmental Agencies are responsible for preparing and certifying environmental review documents in compliance with the requirements of the California Environmental Quality Act ("CEQA") and the National Environmental Policy Act ("NEPA"), to assess the potential environmental impacts of the Cable Projects, the cumulative impacts of such projects, alternatives to such projects, and appropriate mitigation measures for such projects, and

**WHEREAS,** this IA is intended to identify, establish, and confirm certain mitigation measures and monitoring programs which are intended to facilitate environmental review of the Cable Projects, reduce potential conflicts between the installation, continuation, and maintenance of the Cable Projects and commercial fishing activities along the California coast; and

**WHEREAS,** the parties acknowledge that commercial fishing activities are coastal dependent uses receiving the highest priority under the California Coastal Act, and the Federal Coastal Zone Management Act, the continuing viability of which is of critical importance to maintaining traditional and historic fishing activity along the California coast; and

**WHEREAS,** MFS Globenet, Inc.'s Cable Project is proposed to be installed in the areas identified on Exhibit "A" hereto, and

WHEREAS, AT&T's Cable Project is proposed to be installed in the areas identified on Exhibit "B" hereto; and

WHEREAS, Exhibit "A" and Exhibit "B" and additional exhibits denoting other cable projects together constitute the "Covered Area"; and

WHEREAS, the parties acknowledge that the commercial fishing industry is subject to substantial economic pressures, is vulnerable from a variety of regulatory, economic, and market sources, and that its continuing viability is subject to cumulative impacts which these Cable Projects may have upon the commercial fishing industry; and

WHEREAS, it is the intent of this IA to provide an enforceable agreement, and the Cable Companies acknowledge that in entering into this IA, the Fishermen are relying upon the good faith and representations by the Cable Companies that the provisions of this IA are enforceable and will be implemented in conjunction with any approved Cable Projects; and

WHEREAS, as a result of the environmental review by the Governmental Agencies, the Cable Projects may be conditioned and modified in order to appropriately mitigate impacts upon the commercial fishing industry.

**NOW, THEREFORE**, the Cable Companies and the fishermen hereby agree as follows:

## ARTICLE 1

## GENERAL MITIGATION PROVISIONS

The parties agree to the following general mitigation measures in order to compensate for impacts and to provide a process to resolve conflicts between the installation, continuation and maintenance of the Cable Projects:

1.1. Committee

(a) Formation. A Committee shall be formed, concurrently with the execution of this IA, for the purposes described in this IA, and shall be organized as a California non-profit Mutual Benefit Corporation.

(b) Name. The Committee shall be named the California Joint Cable/Fisheries Liaison Committee, Inc. (hereinafter "Committee").

(c) Representation. The Committee shall be governed by eight (8) voting Directors: four (4) Fishermen representatives and four (4) Cable Companies representatives. The Fishermen representatives shall be drawn from Port San Luis and Morro Bay harbors. There shall be two (2) Fishermen alternates.

Each Cable Company shall appoint two representatives. Any alternates for the Cable Companies shall be appointed by the Cable Companies by a method mutually acceptable to the Cable Companies.

The Committee shall adopt Bylaws to implement all aspects of this agreement. The Bylaws shall provide that in the event that the Directors of the Committee are deadlocked on any issue, then the deadlock shall be resolved by a designated mediator mutually agreeable to the parties, and appointed to serve as mediator within thirty (30) days of the date of this IA, and who shall continue serving as mediator until replaced by a majority of the Directors.

It is not the intent of this IA to create any liability of any kind or nature for any Directors of the Committee. The committee shall obtain liability insurance naming the Committee as the primary insured and each individual Director as an additional insured.

(d) Committee Jurisdiction. The Committee activities shall relate to the telecommunications cables owned, operated, installed, maintained, replaced, assigned, and/or repaired by the Cable Companies along the California coast between approximately Point Arguello and Piedras Blancas out to 1,000 fathoms of water (the "Committee Jurisdiction Area") and the activities within the Covered Area of licensed commercial fishermen operating out of Morro Bay or Port San Luis harbors.

(e) Initial Fishermen Representatives. The initial Fishermen representatives on the Committee shall be (1) John Doherty; (2) Joseph Giannini, Jr.; (3) "BJ" Johnson; and (4) Randy Larsen. The initial Fishermen alternates shall be: (1) Chris Kubiak and (2) Bill Ward.

(f) Committee/Liaison Office Fund. The Cable Companies shall fund a Committee/Liaison Office Fund to be used to pay for and reimburse Committee activities within the Committee Jurisdiction Area and Committee representatives as approved by the Committee. Each Cable Company shall make a deposit of Fifty Thousand dollars ($50,000) to the Committee/Liaison Office Fund upon execution of this IA. Thereafter, each Cable Company shall deposit Fifty Thousand Dollars ($50,000) to the Committee/Liaison Office Fund at the beginning of each calendar year thereafter. This obligation terminates if the Cable Company fails to place a fiberoptic cable in service by December 31, 2001. Funds in excess of $150,000 or the amount reasonably needed to fund the annual office administrative expense, shall be transferred to the Commercial Fishing Industry Improvement Fund.

The Committee shall establish an annual budget for all Committee activities to be paid from the Committee/Liaison Office Fund. The organizational budget shall include reasonable amounts for the activities described in Sections 1.1 (g) through (j). Accounting control procedures shall be developed by a San Luis Obispo County based certified public accountant selected by the Committee.

(g) Fishermen Representative Compensation. Committee Fishermen representatives shall be compensated out of the Committee/Liaison Office Fund for time and travel expenses reasonably incurred for Approved committee activities, including attendance at Committee meetings. The rate of compensation shall be Fifty Dollars ($50) per hour, capped at no more than Five Hundred Dollars ($500) per day plus reasonable travel expense.

(h) Fishermen Representative Compensation and Fishermen Attorney's Fees for Negotiating IA and the Final Agreement. Committee Fishermen representatives shall be compensated out of the Committee/Liaison Office Fund for time and travel expenses reasonably incurred to achieve execution of this IA and Final Agreement at rates and in amounts approved by the Committee. Fishermen's attorney time and expenses reasonably incurred in the preparation and review of this IA and the Final Agreement shall be paid by the Cable Companies.

(i) Committee Office. Office expenses reasonably incurred and approved by the Committee to carry out Committee activities shall be paid out of the Committee/Liaison Office Fund.

(j) Cable Committee Liaison Officer. The Committee shall develop procedures to select, hire and oversee a Committee Liaison Officer to carry out Committee activities and establish and run an office as necessary and approved by the Committee. The Committee Liaison Officer shall be paid out of the Committee/Liaison Office Fund at rates and in amounts approved by the Committee.

(k) Committee Procedures. The Committee shall establish policies and procedures, including proxy voting procedures and rules, to review and address claims, to publicize and advance the goals of this IA and to conduct other activities consistent with the provisions of this IA.

(l) Fishing Vessel Operating Procedures. On or before August 31, 1999, the Committee shall establish interim procedures which shall be followed by Fishermen to guide operation of vessels in the vicinity of cables. The interim procedures shall be replaced by final procedures by June 30, 2000. At a minimum, these procedures shall address requirements for up-to-date charts and navigational aids, a prohibition of trawling over cables known to be exposed and procedures to follow if forward motion stops. These procedures shall include reasonable measures that the vessel operator may employ to avoid damage to the cable.

1.2

(a) The Cable Company shall have the fiberoptic cable installed at a minimum depth of 36" beneath the seabed where feasible. In shallow water areas close to shore, the cable will be installed in a conduit. Each Cable Company's telecommunications cable is intended to be buried to the extent reasonably possible and to remain buried, except in locations where due to geophysical constraints that is infeasible. Each Cable Company shall examine the seafloor and subsurface within reasonable proximity to the intended cable route to determine a route with ideally less than 5% cable exposure due to hard ground, rock seabed or other features which prohibit burial between three miles from shore and 1,000 fathom water depth. Each Cable Company shall consult with the Committee, pursuant to paragraph (g) regarding the timing and method of construction and installation of the cable projects. Video equipment on the plow shall be used to record the burial operation. This shall serve as evidence of burial and will also indicate if the need exists to carry out post lay burial operations using an ROV. In all instances, state-of-the-art technology shall be utilized in the cable burial process including Remote Operated Vehicle ("ROV") inspected for problematic regions immediately following installation, and ROV post-lay burial as required. In all "crossings" of its cable over existing undersea cable or pipelines, each Cable Company shall employ state-of-the-art protection techniques, and ROV and/or diver inspection shall be utilized as required. If any length of cable or cable-crossing cannot be completely buried after the inspection and burial procedure, the precise location will be identified in "as-built" coordinates provided by the Cable Company to the Fishermen or other interested parties. In the course of any repair or maintenance, the fiber optic cable shall be buried to the extent possible to the same depth as it originally was buried. It is the intent of the parties to achieve Cable Projects objectives with minimal impacts upon the viability of the commercial fishing industry and the minimally affect the extent and traditional areas in which the commercial fishing industry is able to operate, and the practices and procedures used by the commercial fishing industry.

(b) Installation Observation. A Committee Fisherman representative or designee may be on board the Cable Company's cable installation vessel to observe cable installation within the Covered Area. A fisherman representative's reasonable fees and expenses shall be paid as outlined in Section 1.1(g) by each Cable Company in addition to and not including with the annual Committee/Liaison Office Fund, not to exceed Ten Thousand Dollars ($10,000).

(c) Post-Installation Information. Each Cable Company shall provide cable as built installations, latitude and longitude in WGS 84 datum and Loran C (in both 5990 and 9940 chains) coordinates to the Fishermen as soon as the Cable Companies' contractor for the installation of the cable delivers the information to Cable Companies. This data shall be provided in writing, electronically, and on navigational charts.

(d) Post-Installation Inspections. Each Cable Company shall conduct ROV Burial verification at minimum of every 18 months and not to exceed 24 months and after any events which may affect the Cable Project. Copies of videotapes recording the verification shall be provided to the Committee.

(e) Unforseen Consequences. The economic and environmental impacts of the Cable Projects and the appropriate level of mitigation shall be reviewed by the Committee after each of the first two years and adjusted, if necessary, for unforeseen consequences arising from the installation, assignment, operation, use, repair, replacement, continuation, and maintenance of the Cable Projects.

(f) Continuing jurisdictions. The parties agree that all of the approving Governmental Agencies for the Cable Projects shall reserve jurisdiction to amend or modify the terms, conditions, and project mitigation measures over the useful life of the Cable Projects, and shall have jurisdiction to impose additional mitigation measures based upon the monitored actual impacts of the Cable Projects upon fisheries and/or the commercial fishing industry. Such jurisdiction, and the ongoing authority of the Committee, shall include modifications of the approved projects and this IA and any Final Agreement, to address consistent with the purposes of this IA, future fishery gear types which may be affected by the Cable Projects.

(g) Construction and installation. The timing and methods of construction and installation of the Cable Projects shall be determined in consultation with the Committee, with the goal of minimizing any adverse impacts upon the commercial fishing industry. The Cable Companies agree to compensate any segments of the commercial fishing industry which are damaged as a result of the acts of installing, repairing, replacing, or maintaining of the Cable Projects, or any incidental activities in connection therewith. The amount of such compensation, as well as those entitled to receive it, shall be determined by the Committee. Such compensation shall be in addition to any funds provided in Sections 1.1 and 1.7 of this IA, and similar provisions in any final agreement.

## 1.3 24-Hour Telephone Hotline

Each Cable Company, either individually or in cooperation with other Cable Companies, shall provide and maintain a 24-hour, toll-free telephone hotline to receive calls from Fishermen who believe they have snagged their gear on the telecommunications cable owned and/or operated by that Cable Company. Furthermore, the Cable Companies will endeavor to include other telecommunication Cable Companies on one 24-hour toll-free hotline. There shall be a representative on duty at all times who has the authority, background, and experience to advise the Fisherman whether the reported position is in the vacinity of a telecommunications cable owned and/or operated by that Cable Company. Reporting procedures when using the hotline shall be developed by the Committee.

1.4 Gear Replacement Costs/Claims

Each Cable Company shall pay 100% of the costs of gear sacrificed by the Fishermen as a result of being snagged on a telecommunications cable owned and /or operated by that Cable Company, provided 1) the Fisherman has informed the 24-hour, toll-free telephone hotline of its situation at the time of, or immediately following being snagged and 2) the Fisherman conduct was consistent with the Fishing Vessel Operating Procedures established pursuant to paragraph 1.1 (l). The Cable Company shall also pay a premium in the amount of 50% of the value of the sacrificed gear to settle claims for loss of business incurred by the Fishermen. The Cable Company shall be responsible for promptly disbursing payments for the gear replacement costs and claims.

1.5 Cable Damage Claims/Release of Liability

(a) The Cable Companies agree to release any claims they might otherwise have, either individually, or collectively, against individual fishermen and refrain from taking any administrative, legal, or other action to sanction and/or recover damages against Fishermen who comply with the terms and conditions of this IA, and any procedures established by the Committee. The Cable Companies further agree to encourage all administrative, legal, judicial and other authorities to respect the terms and conditions of this IA, and the Final Agreement, and the procedures established by the Committee for the resolution of any cable damage claims. The Cable Companies hereby agree to assume all liability, responsibility, and risk for any damage which may occur to their Cable Projects resulting from their inability to construct, maintain, place, and continue those cables in a manner which does not interfere with traditional fishing operations. Fishermen operating within the area of any installed cable shall only have liability for damaging the cable or related facilities if it is established to the satisfaction of the Committee by clear and convincing evidence that such damage was inflicted through actions contrary to Fishing Vessel Operating Procedures established by the Committee pursuant to paragraph 1.1 (l). Consistent with this IA, the Cable Companies may seek compensation for any damage or destruction of its fiberoptic cables resulting from such conduct by any Fisherman pursuant to subsection (b) below.

(b) A three-step procedure shall be provided for resolution of claims for cable damages arising from actions alleged to be contrary to the Fishing Vessel Operating Procedures established pursuant to Paragraph 1.1 (l), which Cable Companies may elect to use as needed, to resolve claims for damages to their telecommunications cables by Fishermen. Pursuant to the procedure: (1) a Cable Company may submit a claim to the Committee to assist in resolution of the claim; (2) if the parties are unable to settle the claim within a reasonable period of time with the assistance of the Committee, the parties may request the Committee to hire an independent mediator to assist in the resolution of the claim; (3) if the parties are unable to settle the claim within a reasonable period of time with the assistance of the mediator, the parties shall submit to binding arbitration. The expenses for the process described in this paragraph (b) shall be paid by the Cable Company in addition to any other payments that are required under this IA.

1.6 Out-of-Service Cables

(a) As a condition of any governmental approvals, the Cable Companies agree to abandon and remove out-of-service telecommunications cables as necessary so as not to interfere with commercial fishing activities in the areas where such cables were previously installed.

(b) AT&T agrees to use its best efforts to secure the removal of the existing HAW-3 cable between the three-mile limit and 1000 fathoms water depth.

1.7 Commercial Fishing Industry Improvement Fund

Each Cable Company shall annually deposit One Hundred Thousand Dollars ($100,000) per project in a special fund for enhancement of commercial fisheries and the commercial fishing industry and support facilities. The Cable Company agrees that it will pay the full amount for calendar year 1999, provided it receives approval for its offshore lease prior to December 31, 1999. Lease applications for projects in addition to those projects specified in paragraph 1.9 shall constitute new projects for the purpose of this paragraph. In the event that any mitigation intended for the commercial fishing industry is ordered by action of a governmental agency, the payment of such ordered mitigation shall be offset by funds paid pursuant to this paragraph. The Committee shall have the sole authority for disbursement of such funds.

1.8 Parties

This IA and the final Agreement shall be by and between and for the benefit of the Cable Company and the Fishermen, and any other licensed commercial fisherman operating out of Morro Bay, Port San Luis, Monterey, Moss Landing, Santa Cruz or other harbors who signs the Final Agreement.

1.9 Covered Cables

This IA shall cover the following telecommunications cable projects of the Cable Companies: (a) MFS Globenet – Southern Cross (one cable); Japan-US (one cable); (b) AT&T – China-U.S. (two cables); Japan-US Interlink (one cable). These cable projects are depicted in Exhibits A and B attached hereto.

1.10 Assignment

This IA shall be assignable to future successors, assigns and donee's of the Cable Company, including their lenders as required, provided that such successor, assignee or donee agrees to be bound by the provisions of this IA and the Final Agreement.

1.11 Upgrading of Communications and Navigation Equipment

A one-time payment of Five Hundred Dollars ($500) shall be made by the Cable Company to each licensed commercial fisherman owning and operating vessels engaged in trawl fishing in the Covered Area for use in upgrading communication and navigation equipment for each such vessel owned by that licensed commercial fisherman who signs the Final Agreement.

## ARTICLE 2

## MISCELLANEOUS

2.1 Notification

Upon execution of this IA, the fishermen shall notify the Government Agencies that this IA has been developed between members of the commercial fishing community and the Cable Company to resolve issues concerning potential impact of cable installation and maintenance on commercial fishing activities along the California coast.

2.2 Agreement

Before utilizing the Cable Projects, the Cable Companies shall execute a Final Agreement as provided herein. Such Final Agreement shall be reviewed and approved by an attorney selected by the Fishermen.

2.3 Governing Law

This IA, the Final Agreement, and the rights and duties of the parties arising hereunder shall be governed by and construed in accordance with the laws of the State of California except provisions of that law referring governance or construction to the law of another jurisdiction.

2.4 Liabilities

No party shall have any rights or claims against the other or its respective parents or affiliates, whether for damages, lost profits, consequential loss, loss of opportunity, reimbursement of costs, expenses or payment or otherwise for failure to continue negotiations concerning the IA or the failure to enter into the IA, regardless of the circumstances or cause for any such failure.

2.5 Amendment

An amendment or modification of this IA shall be effective or binding on a party only if it is in writing and signed by each of the parties.

2.6 No Third Party Beneficiaries

This IA is solely for the benefit of the parties and their respective successors and permitted assigns, and this IA shall not otherwise be deemed to confer upon or give to any other third-party any remedy, claim, liability, reimbursement, cause of action or other right, with the exception of licensed commercial Fishermen within the affected area who comply with the terms hereof.

2.7 Binding Effect

The provisions of this IA set forth the binding agreement of the parties.

2.8 Counterparts

This IA may be executed in two or more counterparts, each of which shall be deemed an original, but all of which constitute but one Agreement.

2.9 Miscellaneous

(a) Unless specifically agreed in writing, no party may commit the other parties to any agreement or undertaking.

(b) Nothing in this IA shall be construed to create or constitute a partnership, agency or similar relationship or to create joint the several liability on the part of any of the parties. and ?

(c) This IA is binding on and for the benefit of, the parties, and their representatives, successors and assigns. No other person or entity has or shall acquire any rights based on the IA.

(d) All correspondence should be directed to the addressees and individuals indicated next to the signature of each party, or to such other address or individuals as a party may request in writing from time to time.

(e) This agreement shall terminate as to any Cable Company or its successors at such time as it ceases to operate commercial fiberoptic cables within the area of jurisdiction or if the Cable Company does not place a cable in service before December 31, 2001.

(f) This agreement may be amended only by unanimous agreement of the Committee.

IN WITNESS WHEREOF, the parties have entered into this IA as of this day and year first above written.

CABLE COMPANY

MFS Globenet, Inc.

Dated: July ______, 1999 By: ____________________
Clem Jones
Authorized Officer

AT&T Corp.

Dated: July ______, 1999 By: ____________________
Ellen Brain
Authorized Officer

FISHERMEN

Port San Luis Commercial
Fishermen's Association
PO Box 513
Avila Beach, CA 93424

Dated: July ______, 1999 By: ____________________
Authorized Officer

Dated: July ______, 1999 By: ____________________

Authorized Officer

Morro Bay Commercial
Fishermen's Organization
PO Box 450
Morro Bay, CA 93443

Dated: July ____, 1999 By: ______________________

Authorized Officer

Dated: July ____, 1999 By: ______________________

Authorized Officer

FISHERMEN

Dated: July 22 1999 By: ______________________
Name
F.V. Annalee / Vera Jean
Vessel Name

Dated: July 22, 1999 By: ______________________
Name
F/V Cynthia & F/V Alex
Vessel Name

Dated: July 22, 1999 By: Christopher J. Kulczak
Name
LILLE BAELT
Vessel Name

Dated: July ____, 1999 By: ______________________
Name
______________________
Vessel Name

Dated: ~~July~~ Aug 24, 1999 By: [illegible]
Name
"Anna Lee" "Verna J"
Vessel Name

Dated: ~~July~~ Aug 24, 1999 By: W. T. Ward
Name
DANCIN BEAR
Vessel Name

Dated: ~~July~~ Aug 24, 1999 By: [illegible]
Name
F/V TWO SONS
Vessel Name

Dated: ~~July~~ Aug 24, 1999 By: [illegible]
Name
Schooner JONATHAN
Vessel Name

Dated: ~~July~~ Aug 24, 1999 By: Randy R. Larsen
Name
F/V CYNTHIA & ALEX (TRAWLERS)
Vessel Name

Dated: ~~July~~ Aug 24, 1999 By: Christopher J. Kulczak
Name
F/V LILLE BAELT (TRAW...
Vessel Name

Dated: July ______, 1999 By: [illegible]
Name
F/V DAVID & CHRIS (TRAW...
Vessel Name

Dated: July ______, 1999 By: ____________
Name
____________
Vessel Name

Dated: FEBRUARY 9 ~~January~~y ______, 2000

By: Barry A. Cohen
Name

Point Loma
Vessel Name

# Procedures to Follow While Operating Near Morro Bay or San Luis Obispo Cables

-------------------------"Catch Fish Not Cables"-------------------------

## PURPOSE OF THESE PROCEDURES

The following are adopted as interim procedures under the "Interim Agreement Between Cable Companies and Fishermen" operating in the Morro Bay and San Luis Obispo areas, dated July 22, 1999. Following these procedures protects a fisherman who is signatory to the Interim Agreement from potential liability for damaging a cable under that agreement, and facilitates reimbursement for gear loss.

## SAFETY FIRST

While cable companies do not encourage trawling over submarine cables, these procedures define how vessels should behave when fishing in the vicinity of cables. These procedures do not change the vessel operator's authority and responsibility to care for the safety of crewmembers, passengers and the vessel, taking all relevant factors into account. **No step in these procedures should be followed if doing so would be unsafe.**

## PROCEDURES WHEN OPERATING NEAR A CABLE

For purposes of these procedures, a vessel is considered "near" a cable if the distance from the vessel to the charted position of the cable is equal to or less than:

- 3 times the depth of water, in depths 150 fathoms (300 meters) or more, or
- 4 times the depth of water, in depths less than 150 fathoms (300 meters).

A vessel relying on Loran instead of GPS or DGPS should assume a potential error of 1/2 mile in the vessel's position, and should consider itself "near" a cable if it is within 1/2 mile plus three times the depth of water of the charted position of the cable.

WHENEVER OPERATING "NEAR" A CABLE, A VESSEL MUST COMPLY WITH ALL OF THE FOLLOWING STEPS A THROUGH G:

A. The vessel shall have on board in useable form the most current nautical chart information, including:

1. the latest NOAA chart;
2. any updates from Local Notices to Mariners;
3. any updates made available by the Central California Joint Cable/Fisheries Liaison Committee (the "Committee"), such as regarding cable burial status; and
4. information made available by the Cable Companies.

B. Anyone acting as helmsman "near" a cable must understand and be able to implement these procedures.

C. If a vessel has an electronic or video chart plotter, the route of the cable shall be

*THESE PROCEDURES APPLY ONLY TO VESSELS THAT ARE SIGNATORY TO THE JULY 22, 1999 INTERIM AGREEMENT. THEY ARE APPLICABLE ONLY TO THE CABLES IN THE MORRO BAY REGION EAST OF 122° 15' WEST LATITUDE. FOR INFORMATION ABOUT THE INTERIM AGREEMENT CONTACT [XXX-XXX-XXXX].*

displayed on the plotter screen or display. If the vessel has gear on the bottom near a cable, the plotter shall be recording the tow.

D. When operating "near" a cable, special care should be observed. Gear should not be set or hauled up. No turns of more than 90 degrees should be executed and no activity that lays a door over should be executed.

E. No clam or scallop dredge, anchor, or other gear designed to significantly penetrate the surface of the seabed should be used "near" a cable. All trawl gear should be in good condition, free of elements that could snag cables.

F. Gear should not be in contact with the bottom over any location where a cable is reported or known to be unburied.

G. The helmsman should closely monitor the groundspeed by the most accurate means available when "near" a cable, and monitor the video plotter display for any sign of possible cable contact.

## PROCEDURES IN CASE OF POSSIBLE CABLE CONTACT

1. In case of any deviation from normal towing conditions the helmsman, if other than the master, should summon the master to the bridge. The master of the vessel shall take all appropriate action to keep the vessel safe and protect the cable.

2. If conditions (such as reduced speed near a cable) suggest possible cable contact, the operator should take the vessel out of gear.

3. Do not attempt to free the gear by hauling up gear or by powering up the vessel.

4. If it appears that the trawl gear is fouled on a cable, the gear should be cut away (sacrificed). In addition, the gear should be cut away if so advised after calling the contact number in paragraph 5. (For replacement of sacrificed gear, call the Committee at [insert number], to get the phone number of the relevant cable company.)

5. Before the leaving the scene of a suspected cable contact, the master should call 908-234-6771 and supply all information requested.

6. In any case of a possible or known cable contact, the master and helmsmen should file a report with the Committee immediately upon returning to port; preserve all related records (including tow records); and cooperate with any investigation by the Committee or by the affected cable company.

*THESE PROCEDURES APPLY ONLY TO VESSELS THAT ARE SIGNATORY TO THE JULY 22, 1999 INTERIM AGREEMENT. THEY ARE APPLICABLE ONLY TO THE CABLES IN THE MORRO BAY REGION EAST OF 122° 15' WEST LATITUDE. FOR INFORMATION ABOUT THE INTERIM AGREEMENT CONTACT [XXX-XXX-XXXX].*

## CALIFORNIA DEPARTMENT OF FISH AND GAME: RESPONSES TO COMMENTS

Comments from the letter in Section C of this document are reproduced below, each followed by the response.

*Comment:* "To further minimize the areas no longer available to be fished, the Department recommends that a realignment of the Maximum Burial Route be selected as the preferred route. The Department recommends that the two cables be buried in the same trench along a variation of the S7 Maximum Burial Route (which avoids the most areas of high and low relief) to the approximate 150-m contour at which point the two cables can be directed to which ever route provides the most direct line to their destination. This revised route minimizes the area closed to fishing and reduces the amount of cable placed directly over high and low relief rocky areas."

*Response:* **See "Long Term Effects if Fishermen Avoid the Cables" at DEIR pages 4.7-10 to 4.7-12, "Gear Entanglement" at pages 4.7-12 to 4.7-13, and "Maximum Burial Alternative" at page 4/7-14. The analysis establishes the fact that fishing does occur over buried cables, although the *possibility* that some fishermen may choose to avoid fishing over cables, and their reasons for doing so, are also discussed. The DEIR takes the conservative position that preclusion for the reasons described would in any case be a significant impact that can be mitigated as discussed. With the DEIR mitigation measures under CRF-1, there would be no areas closed to fishing, and, as a result, there would be no commercial fishing benefit to realigning the E1 cable into the S7 alignment.**

**As described in Table 11 of the DEIR, the Maximum Burial Alternative already reduces the crossing of high-relief rocky substrate--biologically the most sensitive and vulnerable habitat--by over 99 percent, from over 4,000 meters in the original routes down to 29 meters in the Maximum Burial Routes. As described in Table 12 of the DEIR, the area of impact is thereby reduced to a small fraction of one percent of the area of high relief that occurs in the vicinity. This impact is considered less than significant. Although burying the cables together along the S7 route could reduce this impact to zero, the reduction would be offset by an increase in the difficulty of burial, the risk of damage to the cables, the difficulty of repair to a damaged cable.**

**AT&T (R. Wargo, personal communication) states that the technology does not exist to bury multiple cables simultaneously at the referenced water depths without risk of damage to the bundled cables and to the burial tool. The same risk of damage arises in trying to add new cables with a seaplow to a common trench that already contains a cable. If instead of using a seaplow, the additional cable(s) were surface-laid with follow-up retroburial by an ROV, the operation may trap an existing cable, resulting in a significant risk of damage to the overlying cable should the underlying cable need to be recovered for repair purposes. In general, recovery of faulty cables in moderate to deeper water depths for repair at the surface is a risky undertaking if the submarine cables are positioned too close to each other. This risk is only slightly lessened in shallower depths of 30 meters or less because divers may be able to reach the cable. Once the cable is identified, the risk of damage to the overlying cable while recovering the underlying cable still exists and is still significant.**

**Finally, if cable failure is from an external source and not related to a component failure, it is very likely that both cables in the same trench or in close proximity to each other will be damaged. For all these reasons, burial of two or more cables in close proximity in moderate to deeper water depths has never been attempted.**

*Comment*: "Table 15 in the DEIR should be corrected as follows: Morro Bay kangaroo rat is a California fully protected species, in addition to endangered, and the southern sea otter is a California fully protected species, but is not endangered."

*Response*: **Agreed. The corrected version of Table 15 is reprinted below:**

## Table 15. Sensitive Species Potentially Occurring in the Vicinity of China-U.S. Project Activities at Montaña de Oro

| *Common Name* | *Scientific Name* | *Federal Status*[1] | *State Status*[1] | *Habitat* | *Occurrence in Project Area*[2] |
|---|---|---|---|---|---|
| ANIMALS | | | | | |
| Morro Bay kangaroo rat | *Dipodomys heermanii morroensis* | FE | SE/CFP | Dunes surrounding Morro Bay | Not found since 1979 at Montaña de Oro but remotely possible in undisturbed dune scrub (Morro Group 1999). |
| Southern sea otter | *Enhydra lutris nereis* | FT | CFP | Shoreline and offshore areas, especially where kelp beds are present. | Common off of Point Buchon, frequently seen foraging, in transit, in offshore area of cable installation (SAIC 1995). |
| American peregrine falcon | *Falco peregrinus anatum* | FT | CE/ CFP | Nests at Morro Rock, forages in Morro Bay and shoreline areas. | Possible transient occurrence in nearshore area. |
| California brown pelican | *Pelecanus occidentalis californicus* | FE | CE/ CFP | Fairly common in shoreline and offshore areas | Not expected at parking lot; common offshore. |
| Black legless lizard | *Anniella pulchra nigra* | FPE | CSC | Coastal dune scrub in Monterey and Morro Bay areas | Possible in dune scrub near parking lot. |
| Western snowy plover | *Charadrius alexandrinus nivosus* | FT | CSC | Nests on sandy beaches where human disturbance is minimal; more widely dispersed during migration, winter | Not known to nest in vicinity but possible as occasional foragers on the beach below the parking lot. |
| Morro blue butterfly | *Icaricia icarioides moroensis* | FSC | -- | Associated with dune lupine in central coast dunes | Likely in dune scrub near parking lot. |
| Morro shoulder band snail | *Helminthoglypta walkeriana* | FE | -- | Inhabits coastal dune scrub vegetation in the Morro Bay area. | Known to occur in dune scrub near parking lot (Morro Group 1999). |
| Monarch butterfly | *Danaus plexippus* | -- | (local concern) | Winter aggregations in eucalyptus groves. | Numerous locations in Los Osos, Montaña de Oro, but no habitat in vicinity of parking lot. |

**Table 15. Sensitive Species Potentially Occurring in the Vicinity of China-U.S. Project Activities at Montaña de Oro**

| *Common Name* | *Scientific Name* | *Federal Status*[1] | *State Status*[1] | *Habitat* | *Occurrence in Project Area*[2] |
|---|---|---|---|---|---|
| PLANTS | | | | | |
| Arroyo de la cruz manzanita | *Arctostaphylos cruzensis* | FSC | CNPS-1B | Coastal scrub, chaparral and other habitats, in sandy soils | Known from Montaña de Oro State Park but not known or likely in open dune areas such as surround the parking lot. |
| Monterey Spineflower | *Chorizanthe pungens var. pungens* | FT | CNPS-1B | Coastal dune and scrub communities, sandy soils | Variety of locations in Morro Bay, Los Osos areas, possible in dunes |
| Beach spectaclepod | *Dithyrea maritima* | FSC | ST<br>CNPS-1B | Coastal foredune habitats. | Known from Morro Bay shoreline but not found in dunes at Montaña de Oro (Morro Group 1999).. |
| Blochman's leafy daisy | *Erigeron blochmaniae* | FSC | CNPS-1B | Central coast dune scrub | Known to occur in dunes near parking lot. |

1 Codes:

| | Federal Status | | State Status |
|---|---|---|---|
| FE | Federally endangered | CE | California endangered |
| FT | Federally threatened | CT | California threatened |
| FSC | Federal species of concern | CSC | California species of concern (CDFG) |
| FPE | Federally proposed endangered | CFP | California fully protected |
| CNPS-1B | Considered rare and endangered by California Native Plant Society | | |

2 Project area is defined as the area surrounding the Sandspit Parking Lot at Montaña de Oro State Park.

*Sources*: Morro Group 1999; Skinner and Pavlik 1994; CNPS Electronic Inventory 1999; CNDDB 1999

## CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, CENTRAL COAST REGION: RESPONSE TO COMMENTS

Comments from the letter in Section C of this document are reproduced below, each followed by the response.

*Comment #1*: "The EIR should include a discussion of the potential impacts the cable laying activities may have on marine organisms and water quality from disturbed sediments and increased turbidity."

*Response*: **These impacts are discussed in section 4.4.3 under Water Quality and section 4.5.3 under Biology in the DEIR.**

*Comment #2*: "An anchoring plan needs to be developed that includes procedures for deployment and recovery in a manner that not only avoids sensitive areas, but also employs methods that will prevent dragging."

*Response*: **The proposed project's anchoring plan is described in section 2.3.2.1 and depicted in Figure 8 of the DEIR. As noted on Figure 8, anchors will be set and retrieved vertically and will not be dragged on the ocean floor. The only vessel that would anchor is the dive support boat. Mitigation measure MB-1 provides protection from anchoring for sensitive areas by requiring that high-relief rock outcrops, which are the most sensitive habitats both in terms of biota and vulnerability to impact, be transcribed onto project installation plans and designated as no-anchor zones.**

**Due to the extreme directional changes (called "alter courses") required to place the cables on the Maximum Burial Alternative routes, temporary anchors placed in the soft bottom sediments will be required to hold the cables in place as they make hard turns to follow the soft bottom substrate. These anchors will hold the cables in place during the installation to reduce the possibility of the cables being pulled off their intended routes by the installation vessels. Upon completion of the installation of the cables, the temporary anchors will be removed and the cables buried.**

*Comment #3*: "A detailed contingency plan needs to be developed for all spills (petroleum, oil, sewage, ballast water, etc.) that could occur from vessel(s) used to install, repair, or remove the cable. Crews need to be fully aware of illegally discharging materials, of spill cleanup procedures and trained in correct and immediate implementation of spill response procedures."

*Response*: **Ships operating in national and international waters are required to have oil pollution emergency plans for spill responses. AT&T has provided these emergency plans for the *CS Global Sentinel* and the *MV Dock Express* to CSLC. See Section 2.10.4 of the DEIR. An approved emergency plan (IMO #7814436, 1999) for the *CS Seaspread* has been provided to the CSLC and is available for review at its Sacramento office. With regard to ballast water management, see Section 2.10.5.**

*Comment #4:* "It is unclear what your assessment of the asphalt and other coatings proposed for use on the cables is. A discussion of possible impacts on the marine environment should be discussed."

*Response*: **As stated in section 2.2.1 of the DEIR, no coatings other than asphalt are used on the proposed cables. Because asphalt is an inert solid in cold seawater, it has no impacts on the marine environment, other than the provision of a hard substrate that would be colonized by algal turf and invertebrates as discussed on page 4.5-25 of the DEIR.**

*Comment #5*: "The DEIR states that no lubricants will be used for pulling the cable. In the event that a lubricant may become necessary an assessment of the components of any lubricants that could be used for water quality impacts must be made."

*Response*: **Lubricants will not be permitted for use in pulling the cable and therefore does not require analysis.**

## PORT SAN LUIS HARBOR DISTRICT COMMENT

**Comments noted, no response necessary.**

## COUNTY OF SAN LUIS OBISPO, DEPARTMENT OF GENERAL SERVICES: RESPONSE TO COMMENT

*Comment*: "If the Morro Beach alternative is pursued County Parks would like to comment further. As noted on page 3-3, the Morro Beach alternative would require roughly 15 miles of new onshore construction. Proposed onshore construction would potentially impact a proposed County Park and Trail located in this area."

*Response*: **The applicant has no intent of pursuing the referenced alternative.**

## DEIR PUBLIC HEARING COMMENT (FEBRUARY 1, 2000)

The substantive issue raised at the hearing concerned abandonment and removal of out-of-service cables. In particular, three of the four commenters raised questions about the future of the out-of-service HAW-3 telephone cable and expressed a desire that it should be removed to the extent that it interferes with existing commercial fishing practices (the fourth commenter expressed general support for the project while acknowledging that he was still reviewing the DEIR). The HAW-3 coaxial cable was surface-laid on the ocean bottom by AT&T in the mid-1970's and has since been the subject of six known fishing gear entanglements.

Questions and comments relating to the disposition of the HAW-3 cable were raised by Mr. Joseph Giannini (see "Reporter's Transcript of Proceedings" at pages 10 - 12), Mr. Rick Algert (see Transcript at pages 13 - 17), and Mr. Randy Larsen (see Transcript at pages 31 - 34).

## RESPONSE

With regard to the cables to be installed under the proposed China-U.S. Cable Network project which is the subject of this Environmental Impact Report, the CSLC will require AT&T, upon abandonment of the cables, to remove all conduit and inactive cable from the Mean High Tide Line to the limit of the agency's jurisdiction. Prior to removal of any conduit or cable, AT&T will submit plans and specifications to the CSLC and the California Coastal Commission that describe the proposed removal process. As provided in mitigation measure CRF-1, these plans and specifications will provide for removal of cables as necessary so as not to interfere with commercial fishing activities in areas where such cables were previously installed. No removal will be undertaken unless and until approved by these agencies.

With regard to the removal of the defunct HAW-3 cable, CSLC understands that the Interim Agreement with the Morro Bay and Port San Luis fishermen, attached to the response to Coastal Commission comment above in this document, requires AT&T to use its "best efforts" to secure removal of the existing HAW-3 cable. AT&T is currently working with CSLC to submit a proposal to remove the HAW-3 cable.

# F. REVISIONS TO THE DEIR

# REVISIONS TO THE DEIR

1. Changes in Air Quality Mitigation Measures resulting from correspondence and discussion with the SLOAPCD are as follows: AQ-1 is revised to read:

**AQ-1:** The injection timing on diesel-powered vessels ~~and construction equipment~~ will be retarded 4° prior to and throughout cable installation with the exception of the main cable ships which will be operated at 3° retardation. These measures will produce a 20-25 percent reduction in emissions of nitrogen oxides (NOx).

Measures AQ-3 and AQ-4 are added:

<u>**AQ-3:** With the exception of marine vessel injection timing retard (AQ-1), all diesel powered construction equipment will be properly tuned, well maintained, and operated within manufacturer's specifications.</u>

<u>**AQ-4:** AT&T will contribute $6,000 to a San Luis Obispo County APCD program, based on the average costs of air quality offsets provided by the APCD, to offset NOx emissions.</u>

2. Table 15 in the DEIR mischaracterizes the status of the Morro Bay kangaroo rat and the southern sea otter. The corrected version of Table 15 is as follows:

**Table 15. Sensitive Species Potentially Occurring in the Vicinity of China-U.S. Project Activities at Montaña de Oro**

| *Common Name* | *Scientific Name* | *Federal Status*[1] | *State Status*[1] | *Habitat* | *Occurrence in Project Area*[2] |
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| American peregrine falcon | *Falco peregrinus anatum* | FT | CE/ CFP | Nests at Morro Rock, forages in Morro Bay and shoreline areas. | Possible transient occurrence in nearshore area. |
| California brown pelican | *Pelecanus occidentalis californicus* | FE | CE/ CFP | Fairly common in shoreline and offshore areas | Not expected at parking lot; common offshore. |
| Black legless lizard | *Anniella pulchra nigra* | FPE | CSC | Coastal dune scrub in Monterey and Morro Bay areas | Possible in dune scrub near parking lot. |

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| *Common Name* | *Scientific Name* | *Federal Status*[1] | *State Status*[1] | *Habitat* | *Occurrence in Project Area*[2] |
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| Western snowy plover | *Charadrius alexandrinus nivosus* | FT | CSC | Nests on sandy beaches where human disturbance is minimal; more widely dispersed during migration, winter | Not known to nest in vicinity but possible as occasional foragers on the beach below the parking lot. |
| Morro blue butterfly | *Icaricia icarioides moroensis* | FSC | -- | Associated with dune lupine in central coast dunes | Likely in dune scrub near parking lot. |
| Morro shoulder band snail | *Helminthoglypta walkeriana* | FE | -- | Inhabits coastal dune scrub vegetation in the Morro Bay area. | Known to occur in dune scrub near parking lot (Morro Group 1999). |
| Monarch butterfly | *Danaus plexippus* | -- | (local concern) | Winter aggregations in eucalyptus groves. | Numerous locations in Los Osos, Montaña de Oro, but no habitat in vicinity of parking lot. |
| PLANTS | | | | | |
| Arroyo de la cruz manzanita | *Arctostaphylos cruzensis* | FSC | CNPS-1B | Coastal scrub, chaparral and other habitats, in sandy soils | Known from Montaña de Oro State Park but not known or likely in open dune areas such as surround the parking lot. |
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| Beach spectaclepod | *Dithyrea maritima* | FSC | ST CNPS-1B | Coastal foredune habitats. | Known from Morro Bay shoreline but not found in dunes at Montaña de Oro (Morro Group 1999).. |
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| FPE | Federally proposed endangered | CFP | California fully protected |
| CNPS-1B | Considered rare and endangered by California Native Plant Society | | |

2 Project area is defined as the area surrounding the Sandspit Parking Lot at Montaña de Oro State Park.

*Sources*: Morro Group 1999; Skinner and Pavlik 1994; CNPS Electronic Inventory 1999; CNDDB 1999

3. Table 5 of the DEIR is revised to include a line item for pre-lay grapnel runs. The total estimated days of work remains the same, reflecting the likelihood that the grapnel run would occur concurrently with shore-end operations. Table 5 is revised to read as follows:

**Table 5. Activity Duration Table**

| *Item* | *Duration* |
|---|---|
| *Shore-end operations* | |
| Set-up, expose onshore end of bore pipe, prepare pipe for pulling | 3-5 days |
| Pull cables into existing bore pipe | 1 day |
| Clean-up and parking lot restoration | 3 days |
| *Pre-Lay Grapnel Run* | 5-7 days |
| *Nearshore Cable Installation* | |
| Expose End of Bore Pipe and prepare for pulling (work boat / dive platform) | 2 days |
| Feed both cables into existing bore pipe (ship of opportunity) | 1 day |
| Lay E1 cable along it's course to a point 3.1 miles offshore and buoy the cable off (ship of opportunity) | 1 day |
| Back-track to end of bore pipes and lay S7 cable along its course to a point 3.1 miles offshore and buoy off (ship of opportunity) | 1 day |
| Retrobury Nearshore Cables (work boat / dive platform) | 4 days |
| *Off-Shore Cable Installation* | |
| Splice E1 cable and lay from 3.1 miles offshore to outer continental shelf. (main cable lay ship). | 5 days |
| Splice onto S7 cable at 3.1 miles offshore and lay cable toward the PRC (mail cable lay ship) | 5 days |
| Retrobury Nearshore & Offshore Cables (cable ship with ROV, Sea Plow) | 8-9 days |
| Total Estimated Duration | 33-37 days |

4. To provide additional assurance of compliance with the Marine Mammal Protection Act, two additional biological mitigation measures are added on page 4.5-28 of the DEIR as follows:

"**MB-2: A marine mammal training video or photographic presentation shall be reviewed by all shipboard personnel involved with cable operations to emphasize the types of mammals that may occur in the project area, general habits and distribution, and methods to avoid impacts. Included in the presentation shall be a listing of contact numbers to report marine mammals in distress, and a requirement to make a verbal report if any such mammals are observed during project operations.**

**MB-3: A biologist familiar with marine mammal behavior shall be present during installation and repair activities to observe for marine mammals that approach the project area. The observer shall be authorized to call a halt to project activities that pose a risk of injury to marine mammals.**

5. With regard to commercial and recreational fishing mitigation measure CRF-1, certain provisions of that mitigation measure are strengthened, clarified, or expanded on. This mitigation measure, as revised, reads in full:

**CRF-1:** To mitigate impacts on commercial and recreational fishing resulting from the China-U.S. project, the following measures shall be implemented:

a. **Throughout the life of the project, AT&T will adhere to the noticing procedures that are specified in the project description (section 2.10.7).**

b. **AT&T will participate in and fund the operations of the Morro Bay Joint Cable/Fisheries Liaison Committee. The purpose of the Committee is to discuss and resolve issues relating to telecommunications cables owned and operated by the cable companies, including AT&T, along the California coast adjacent to Morro Bay.**

c. **Where feasible, AT&T cables will be buried to a depth of 3 feet (0.9 m) in areas between 3 miles from shore and 1,000 fathoms (1,800 m) water depth.**

d. **The timing and methods of construction and installation of the individual cables will be determined by AT&T in consultation with the Committee to avoid or minimize any negative impacts to the fishing industry.**

e. **A Committee fisherman representative will be offered the opportunity to be on board the cable installation vessel to observe cable installation.**

f. **Following installation of the cables, AT&T will provide cable "as built" coordinates to the fishermen in writing, electronically, and on navigational charts.**

g. AT&T will conduct burial verification of the cables by Remote Operated Vehicle every 18 to 24 months and after any event that may affect the cables. Such inspection will occur within approximately 30 days after the event, depending on weather. "Event" for the purposes of this measure is defined as: an incident or activity (such as a gear snag), the circumstances of which indicate the likelihood that a cable has become unburied; or act of God, such as an earthquake in the vicinity of the cables measuring 5.0 or greater on the Richter scale that could cause deformation of the sea floor or underwater land slides, or an unusually severe storm or tidal wave that could cause excessive ocean floor scouring. Copies of the videotapes recording the verification will be provided to the Committee, the CSLC, and the CCC.

h. **Each licensed fisherman owning and operating vessels engaged in trawl fishing in the area of the proposed cables who signs the Fishing Agreement will receive a payment from the participating cable companies for upgrading communication and navigation equipment.**

i. **AT&T, either independently or in conjunction with other cable companies, will provide a 24-hour toll-free telephone "hotline" to receive calls from fishermen who believe they have snagged gear on a telecommunications cable.**

j. **In the event that a fisherman sacrifices gear in order to avoid injury to an AT&T submarine cable, AT&T will pay 100% of the gear equipment replacement costs, and will pay an additional 50% of those gear replacement costs to compensate the fisherman for loss of catch and fishing opportunity. The full amount of this payment shall be available to any fisherman who sacrifices gear in order to avoid injury to an AT&T submarine cable, regardless of whether the fishermen has signed the Fishing Agreement.**

k. **AT&T will release any claims that it might have for damage to cables against fishermen that comply with the terms of the applicable Fishing Agreement and the Fishing Vessel Operating Procedures established by the Committee.**

l. **When the cables to be installed are taken out of service, AT&T will submit a plan for their removal so as not to interfere with commercial fishing activities in areas where such cables were previously installed.**

6. In order to be consistent with other statements in the DEIR, the last clause of the first full paragraph on page 4.12-4 is corrected to read:

**"and providing funds to allow fishermen <u>who are signatory to the Interim Agreement</u> to upgrade their communication and navigation equipment and ensure its adequacy."**

This completes revisions to the DEIR.

**DRAFT**

# Environmental Impact Report:

# AT&T China — U.S. Cable Network

**Segments S7 and E1**
**San Luis Obispo County, California**
**SCH #99051063**
**EIR #698**
**W30112; WP 7603**

***Lead Agency:***

**State Lands Commission**
**100 Howe Avenue, Suite 100 South**
**Sacramento,California 95825-8202**
**Project Manager: Daniel Gorfain**
**(916) 574-1889**

***Applicant:***

**AT&T**

***Prepared by:***

**Science Applications International Corporation**
**816 State Street, Suite 500**
**Santa Barbara, California 93101**

**January 10, 2000**

# ACRONYMS

| | |
|---|---|
| ADT | average daily trips |
| APCD | Air Pollution Control District |
| ARB | California Air Resources Board |
| BACT | Best Available Control Technology |
| BAS | Burial Assessment Survey |
| CAAQS | California Ambient Air Quality Standards |
| CBACT | Construction Best Available Control Technology |
| CCC | California Coastal Commission |
| CDFG | California Department of Fish and Game |
| CDPR | California Department of Parks and Recreation |
| CEQA | California Environmental Quality Act |
| CNDDB | California Natural Diversity Data Base |
| CO | carbon monoxide |
| COTDR | Coherent optical time-domain reflectometer |
| CSLC | California State Lands Commission |
| CZMA | Coastal Zone Management Act |
| DA | Double armored |
| DC | direct current |
| DGPS | differential geographic positioning system |
| DTS | Desk Top Study |
| EIR | Environmental Impact Report |
| EPA | U.S. Environmental Protection Agency |
| GIS | Geographic Information System |
| HDD | horizontal directional drilling |
| Hz | Hertz (unit of electricity) |
| km | kilometer |
| LCV | large commercial vessel |
| LOS | level of service (traffic) |
| LWA | light-weight armored |
| m | meter |
| MHTL | Mean High Tide Line |
| MMPA | Marine Mammal Protection Act |
| MMS | Minerals Management Service |
| MRFSS | Marine Recreational Fisheries Statistics Survey |
| NAAQS | National Ambient Air Quality Standards |
| NEPA | National Environmental Policy Act |
| NHPA | National Historic Preservation Act |
| nm | nautical mile |
| NMFS | National Marine Fisheries Service |
| $NO_2$ | nitrogen dioxide |
| $NO_x$ | nitrogen oxide |
| NOP | Notice of Preparation |
| $O_3$ | ozone |
| OSHA | Occupational Safety and Health Act |
| OTDR | optical time-domain reflectometer |
| PAC | Pan-American Crossing Submarine Cable System |
| PC-1 | Pacific Crossing Submarine Cable |
| $PM_{10}$ | particulate matter less than 10 microns in diameter |
| PRC | Public Resource Code |
| ROG | reactive organic gases |
| ROV | Remote Operated Vehicle |
| RPL | Route Position List |
| RWQCB | Regional Water Quality Control Board |
| SCP | AT&T Submarine Cable Protection |
| SO2 | sulfur dioxide |
| SOPEP | Shipboard Oil Pollution Emergency Plan |
| SPA | Special armored |
| TSSL | Tyco Submarine Systems Ltd. |
| UNCLOS | United Nations Convention on Law of the Sea |
| USACE | U.S. Army Corps of Engineers |
| USC | U.S. Code |
| USCG | U.S. Coast Guard |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| WNI | Weathernews, Inc. |

## Conversion Factors

| | |
|---|---|
| 1 meter | 3.28 feet |
| 1 kilometer | 0.62 mile |
| 1 nautical mile | 6,080 feet = 1.15 statute mile |
| 1 knot | 1 nautical mile / hour |
| 1 hectare | 2.47 acres |

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# EXECUTIVE SUMMARY

## PROPOSED PROJECT AND ALTERNATIVES

The proposed project is the installation of two new fiber optic cables on the seafloor off of Morro Bay, San Luis Obispo County, California. The two cables constitute segments E1 and S7 of the China-U.S. Cable Network, a system that will serve the growing demand for telecommunications links to carry digital communications traffic between the United States, the People's Republic of China, and other Asian-Pacific Rim countries. Segments E1 and S7 will complete the China-U.S. Cable Network ring configuration, which requires a landing in the San Luis Obispo area to connect the system via existing conduit to AT&T's San Luis Obispo terminal. Segments E1 and S7 were designed to make use of previously permitted and constructed facilities, including a beach manhole at the Sandspit parking lot at Montaña de Oro State Park and an empty bore pipe that extends underground from the manhole to an exit point 0.5 nautical miles (nm) offshore in 13 meters (m) of water.

From the bore pipe, the two cables, each measuring approximately 1.25 inches in diameter, would be laid across the continental shelf. The cables would be buried beneath the surface, to depths of at least 0.9 m (3 feet) as mitigated, depending on substrate conditions, over 90 percent of their lengths out to a depth of 1,800 meters (6,000 feet [1,000 fathoms]). In remaining areas the cables would be direct-laid on the sea floor. Sea floor surveys and marine biological ROV surveys indicate that the rocky areas encountered are mostly low-relief, projecting less than 1 meter above the sea floor. Smaller areas of high-relief are crossed, but these are mostly 1-2 meters, with a few outcrops to 3-5 meters high. Larger outcrops or pinnacles would be avoided.

The project requires an amendment of AT&T's existing lease by the California State Lands Commission, which is the CEQA Lead Agency. Also required is a coastal development permit from the California Coastal Commission, a Section 404/Section 10 permit from the U.S. Army Corps of Engineers, and a water quality certification the Central Coast Regional Water Quality Control Board.

Alternatives to the proposed project are considered in this document. These include alternative landing sites at Islay Creek and the old AT&T cable landing site south of the proposed site; the Morro Beach area; and the Estero Marine Terminal. Relative to these alternative landing sites, the Estero Marine Terminal may be better able to provide cable routes that avoid rocky seafloor areas, and avoid impacts of offshore conduit installation because landings there could utilize existing pipelines. All of these alternative landing sites, however, would require new onshore conduit construction to reach AT&T's cable station, resulting in impacts that would not occur at the proposed landing site, where an onshore cable connecting to AT&T's cable station is already in place.

Alternative cable routes that are considered include an "E1 In the Wedge" alternative and a "Maximum Burial Alternative." Both of these alternatives involve use of the existing onshore infrastructure at Montaña de Oro. The E1 in the Wedge Alternative would result in both of the new cables being aligned within the "wedge" formed by existing cables, but it would cross additional areas of high relief rocky substrate and would be undesirable because of increased conflicts with fishing and marine biology. The Maximum Burial Alternative routes were designed to avoid nearly all areas of rocky seafloor and maximize cable burial in soft-bottom areas, thereby minimizing marine biological and commercial fishing (and potential socioeconomic) impacts.

Relative to the proposed project, the Maximum Burial Alternative results in a substantial reduction in the extent to which rocky seafloor is crossed. Whereas the proposed E1 and S7 routes would be buried along 94 and 96 percent of their respective lengths, the maximum burial routes would both achieve well over 99 percent burial. Whereas the proposed routes combined would cross slightly over 4,000 m of high relief (greater than 1 m high) rocky substrate, the maximum burial routes would cross only 29 m of this habitat type, which is of relatively high concern because of the fish and invertebrate communities it supports and because the placement of cables in such areas increases the chances of cable spans between rock projections.

The Maximum Burial Alternative is found to be the environmentally superior alternative because it avoids the placement of cables in rocky areas to the maximum extent possible, thereby minimizing potential conflicts with fishing activities, and minimizing the disturbance of marine invertebrate communities on the ocean floor rocks.

## PROJECT IMPACTS

Following are the main conclusions of the environmental analysis, by resource or issue area as applied to the proposed project and the Maximum Burial Alternative. Impacts are classified as follows:

- Class I = Significant but not mitigable to less than significance
- Class II = Significant but mitigable to less than significance
- Class III = Adverse but less than significant
- Class IV = Beneficial.

Impacts and corresponding mitigation measures are summarized in Table ES-1 at the end of this section.

### Air Quality

Emissions associated with project vessels during cable installation would have short-term adverse impacts on air quality that are mitigated to less-than-significance through the application of Best Available Control Technology (BACT), including injection timing retard and the use of low-sulfur diesel fuel. Emissions associated with the Maximum Burial Alternative can be similarly reduced to less-than-significance. Impacts would be similar for the proposed project and Maximum Burial Alternative routes.

### Geology

The project would cause minor disturbances on the sea floor. Unique features such as pinnacles would not be adversely impacted. Active fault zones (Los Osos and Hosgri) are crossed, but any potential for damage to the cable is minimal and less than significant given the avoidance of submarine canyons or escarpments and AT&T's inspection and maintenance of the cables in response to seismic events. As noted previously, the Maximum Burial Alternative routes would cross only 29 m of high-relief rocky substrate, as opposed to over 4,000 m crossed by the proposed routes. Placement of the cable in areas low-relief (less than 1 m) is also substantially reduced in the Maximum Burial Alternative routes, from a linear distance of over 4,000 m along the proposed routes, to less than 1,000 m along the alternative routes. The potential disturbance of rocky substrate is proportionately less along the Maximum Burial Alternative routes, although in either case, less than 0.01% of the available habitat area would be affected.

**Water Quality**

Cable installation would have temporary small-scale and insignificant effects on turbidity. The proposed project's inclusion of oil spill contingency planning and ballast water management mitigates spill or ballast discharge impacts. The Maximum Burial Alternative has equivalent impacts.

**Biological Resources**

The project would not adversely affect threatened or endangered species. A detailed ROV survey of the cable routes was conducted to establish the types and areal extent of biological communities that would be encountered and to assess potential cable laying impacts. The detailed report is included as Appendix B. Except in areas of high-relief rocky substrate the proposed project would cause temporary disturbance of seafloor biota that would be less than significant because of the limited spatial and temporal extent of the impacts and the lack of sensitive biological resources in the affected areas.

The proposed routes would impact an estimated 1,224 $m^2$ of high-relief rocky substrate, an impact which is considered significant because of its extent, and is unavoidable (Class I) for the proposed routes. In contrast, the Maximum Burial Alternative routes, would impact only 9 $m^2$ of high relief, which would be less than significant. High-relief areas that have been identified in the detailed seafloor surveys would be designated as no-anchor zones on project construction plans to mitigate the impact of anchoring on these habitats.

**Cultural Resources**

No known cultural resources occur along either the proposed routes or Maximum Burial Alternative Routes. For both the proposed and Maximum Burial Alternative routes there is some possibility that seafloor features identified in geophysical surveys could be previously unknown shipwrecks, of potential significance. For both the proposed and Maximum Burial Alternative routes, potentially significant impacts are avoidable by minor route adjustments to avoid features determined by a qualified marine archaeologist to be of potential significance.

**Commercial and Recreational Fishing**

Commercial and recreational fishing of a variety of types occur in the project area and contribute to an important industry in Morro Bay. The proposed project could affect most commercial and recreational fisheries for short period of time (one to two months) during installation of the two cables. Fishing would be precluded within 1 nm of vessels engaged in cable installation and within 0.25 nm of a buoyed cable. This impact is considered significant.

Fishermen may also choose to avoid fishing in areas where cables are placed due to concerns over gear loss or liability in the event that gear becomes entangled. Existing evidence indicates a very low risk of gear entanglement where cables are buried. The impact associated with cable avoidance is also considered significant because a reduction in catch or increased costs can affect the long-term profitability of fishing.

Finally, gear losses and the associated time lost from fishing can also be significant if fishermen lose gear that becomes entangled on a cable.

These impacts are significant at both the project-specific and cumulative levels and are proposed to be mitigated by a number of measures developed by AT&T in coordination with local fishing interests (see Table ES-1 for specifics).

The Maximum Burial Alternative routes have substantially reduced impacts, although the proposed mitigation measures remain appropriate.

**Land Use and Recreation**

The onshore portion of the project (cable pulling and connection to previously installed cables), as proposed, has been approved by the County and State Parks Department as within the scope of AT&T's existing easement and facilities at the Sandspit Parking lot at Montaña de Oro. The project could affect recreational activities associated with the Sandspit Parking Lot, a significant but mitigable impact (Table ES-1). The same conclusions apply to the Maximum Burial Alternative.

**Aesthetics/Noise**

Project vessels and activities would be visible at Montaña de Oro, and would cause localized, temporary increases in noise that would be less than significant if done in coordination with the State Park. The same conclusions apply to the Maximum Burial Alternative.

**Marine Transportation**

Project vessels would be operating in the nearshore to offshore waters for about five weeks. With appropriate communication through Notice to Mariners and other local means, the short duration of the activities, and their conspicuous nature, potential conflicts with other ocean-going vessels are less than significant. The same conclusions apply to the Maximum Burial Alternative.

**System Safety/Risk of Upset**

The potential for accidents involving fuel or hydraulic fluid spills is relatively low given the small amount of activity associated with the project. Potential impacts are mitigated by oil spill contingency plans, in compliance with state and federal laws. The same conclusions apply to the Maximum Burial Alternative.

**Socioeconomics**

The socioeconomic impacts of the project derive from its effects on commercial fishing. These are significant for reasons discussed previously, but would be mitigable by the same measures. The Maximum Burial Alternative has reduced potential conflicts but would require the same mitigation measures.

**Other Resources**

The project (either the proposed or Maximum Burial Alternative routes) would have less than significant impacts on onshore traffic and would have no effect on public services and utilities.

**Table ES-1. Summary of Project Impacts and Mitigation Measures**

| *Resource Area* | *Impact & Significance* | *Mitigation Measure* | *Significance after Mitigation* |
|---|---|---|---|
| ***Air Quality*** | **Proposed Routes:** Short-term exceedance of San Luis Obispo County APCD thresholds during cable installation (Class II).<br>**Maximum Burial Alternative Routes:** Impacts similar to those of the proposed routes (Class II), with same mitigation measures.<br><br>Cumulative impacts less than significant (Class III) | **AQ-1**. The injection timing on diesel-powered vessels and construction equipment will be retarded 4° prior to and throughout cable installation with the exception of the main cable ships which will be operated at 3° retardation. These measures will produce a 20-25 percent reduction in emissions of nitrogen oxides (NOx).<br>**AQ-2**. Onshore equipment will use low-sulfur/low-aromatic diesel fuel as designated by the ARB. Ocean vessels will burn low-sulfur diesel fuel as designated by the EPA. | Less than significant |
| ***Geology*** | **Proposed Routes:** Disturbance of seafloor substrates (Class III).<br>**Maximum Burial Alternative Routes:** Impacts on rocky substrate substantially less (Class III).<br><br>Cumulative impacts less than significant (Class III) | None | Less than significant. |
| ***Water Quality*** | **Proposed Routes:** Small-scale, temporary increases in turbidity during cable installation (Class III); potential spills from vessels mitigated by project operating procedures and spill contingency plans.<br>**Maximum Burial Alternative Routes:** Impacts similar to proposed routes (Class III).<br><br>Cumulative impacts less than significant (Class III). | None | Less than significant |

**Table ES-1. Summary of Project Impacts and Mitigation Measures**

| *Resource Area* | *Impact & Significance* | *Mitigation Measure* | *Significance after Mitigation* |
|---|---|---|---|
| ***Biology*** | **Proposed Routes:** No impacts on terrestrial resources. Localized, mostly temporary disturbance of seafloor habitats (Class III), but 1,224 $m^2$ impact on high-relief rocky substrates would be significant and unmitigable (Class I). Possible anchor impacts on high relief rocky substrates (Class II).<br>**Maximum Burial Alternative Routes:** Impacts similar to proposed routes, except that impact on high-relief rocky substrate is limited to 9$m^2$ (Class III). Same mitigation applies for anchor impacts (Class II).<br><br>Cumulative impacts less than significant (Class III) | **MB-1**. Based on the most detailed and current maps of seafloor substrate conditions available, high-relief areas that could be subject to disturbance from anchoring by project vessels should be mapped with coordinate locations specified and designated as "no-anchor zones" on final approved plans for cable installation. These areas should continue to be shown on as-builts and project maps that could be used in future repair or abandonment activities. | Less than significant |

**Table ES-1. Summary of Project Impacts and Mitigation Measures**

| *Resource Area* | *Impact & Significance* | *Mitigation Measure* | *Significance after Mitigation* |
|---|---|---|---|
| ***Cultural Resources*** | **Proposed Routes:** Potential disturbance to previously unknown shipwrecks, mitigable by avoidance (Class II).<br>**Maximum Burial Alternative Routes:** Similar to proposed routes, potential impact mitigable by avoidance (Class II).<br><br>Cumulative impacts less than significant. | **CR-1**. Prior to the pre-lay grapnel run and cable installation, the applicant shall provide a detailed analysis by a qualified marine archaeologist of side scan sonar and magnetometer data for the cable route between the shoreline and the 3-nm limit. The analysis shall identify and analyze all magnetic and side scan sonar anomalies that occur in the cable corridor, which is defined by a lateral distance of 0.5 kilometer on each side of the proposed cable route. The analysis shall also include investigation of the potential cultural significance of each anomaly identified within the cable corridor that cannot be avoided. The applicant must submit the side scan sonar and magnetometer data, and an accompanying report which analyzes the data. Final approval from the State Lands Commission must be received prior to the pre-lay grapnel run and cable installation.<br>**CR-2.** Should a previously unknown shipwreck of potential cultural resource value be discovered within the proposed cable corridor as a result of the study required in CR-1, the proposed cable route or installation procedures shall be modified to avoid the potentially significant cultural resource. | Less than significant |
| ***Commercial and Recreational Fishing*** | **Proposed Routes:** Short-term localized preclusion of fishing during cable installation; potential economic losses if fishing is avoided over cables; potential economic losses due to gear entanglement on cables (Class II).<br>**Maximum Burial Alternative Routes:** Impacts substantially less for maximum burial alternative routes, although same mitigation measures would apply (Class II). | ▪ CRF-1 To mitigate impacts on commercial and recreational fishing resulting from the China-U.S. project, the following measures shall be implemented:<br>▪ Throughout the life of the project, AT&T will adhere to the noticing procedures that are specified in the project description (section 2.10.7).<br>▪ AT&T will participate in and fund the operations of the Morro Bay Joint Cable/Fisheries Liaison Committee. The purpose of the Committee is to discuss and resolve issues relating to telecommunications cables owned | Less than significant |

**Table ES-1. Summary of Project Impacts and Mitigation Measures**

| *Resource Area* | *Impact & Significance* | *Mitigation Measure* | *Significance after Mitigation* |
|---|---|---|---|
| | Cumulative impacts significant, mitigable through same measures (Class II). | and operated by the cable companies, including AT&T, along the California coast adjacent to Morro Bay.<br>▪ Where feasible, AT&T cables will be buried to a target depth of three feet (0.9 m) in areas between three miles from shore and 1,000 fathoms (1,800 m) water depth.<br>▪ The timing and methods of construction and installation of the individual cables will be determined by AT&T in consultation with the Committee, with the goal of minimizing any negative impacts to the fishing industry.<br>▪ A Committee fisherman representative may be on board the cable installation vessel to observe cable installation.<br>▪ Following installation of the cables, AT&T will provide cable "as built" coordinates to the fishermen in writing, electronically, and on navigational charts.<br>▪ AT&T will conduct burial verification of the cables every 18 to 24 months by Remote Operated Vehicle (ROV) and will provide to the Committee videotapes recording the verification.<br>▪ AT&T will conduct burial verification of the cables every 18 to 24 months by Remote Operated Vehicle (ROV) and will provide to the Committee videotapes recording the verification.<br>▪ Each licensed fisherman owning and operating vessels engaged in trawl fishing in the area of the proposed cables who signs the Fishing Agreement will receive a payment from the participating cable companies for upgrading communication and navigation equipment.<br>▪ AT&T, either independently or in conjunction with other cable | |

**Table ES-1. Summary of Project Impacts and Mitigation Measures**

| *Resource Area* | *Impact & Significance* | *Mitigation Measure* | *Significance after Mitigation* |
|---|---|---|---|
| | | companies, will provide a 24-hour toll-free telephone "hotline" to receive calls from fishermen who believe they have snagged gear on a telecommunications cable.<br>▪ In the event that a fisherman sacrifices gear in order to avoid injury to an AT&T submarine cable, AT&T will pay 100% of the gear equipment replacement costs, and will pay an additional 50% of those gear replacement costs to compensate the fisherman for loss of catch and fishing opportunity. The full amount of this payment shall be available to any fisherman who sacrifices gear in order to avoid injury to an AT&T submarine cable, regardless of whether the fishermen has signed the Fishing Agreement.<br>▪ AT&T will release any claims that it might have for damage to cables against fishermen that comply with the terms of the applicable Fishing Agreement and the Fishing Vessel Operating Procedures established by the Committee.<br>▪ When the cables to be installed are taken out of service, AT&T will submit a plan for their removal as necessary so as not to interfere with commercial fishing activities in areas where such cables were previously installed.CRF-1 To mitigate impacts on commercial and recreational fishing resulting from the China-U.S. project, the following measures shall be implemented:<br>▪ AT&T will participate in and fund the operations of the Morro Bay Joint Cable / Fisheries Liaison Committee. The purpose of the Committee is to discuss and resolve issues relating to telecommunications cables owned and operated by the cable companies, including AT&T, along | |

**Table ES-1. Summary of Project Impacts and Mitigation Measures**

| *Resource Area* | *Impact & Significance* | *Mitigation Measure* | *Significance after Mitigation* |
|---|---|---|---|
| | | the California coast adjacent to Point Arena and Morro Bay, and to administer a fund to support the enhancement of commercial fisheries, the commercial fishing industry, and support facilities.<br>▪ Each licensed fisherman owning and operating vessels engaged in trawl fishing in the area of the proposed cables who signs one of the agreements will receive a payment from the participating cable companies for upgrading communication and navigation equipment.<br>▪ Where feasible, AT&T cables will be buried to a target depth of three feet (0.9 m) in areas between three miles from shore and 1,000 fathoms (1,800 m) water depth.<br>▪ The timing and methods of construction and installation of the individual cables will be determined by AT&T in consultation with the Committee, with the goal of minimizing any negative impacts to the fishing industry. | |

**Table ES-1. Summary of Project Impacts and Mitigation Measures**

| *Resource Area* | *Impact & Significance* | *Mitigation Measure* | *Significance after Mitigation* |
|---|---|---|---|
| ***Commercial and Recreational Fishing*** (continued) | | • Each licensed fisherman owning and operating vessels engaged in trawl fishing in the area of the proposed cables who signs the Fishing Agreement will receive a payment from the participating cable companies for upgrading communication and navigation equipment.<br>• AT&T, either independently or in conjunction with other cable companies, will provide a 24-hour toll-free telephone "hotline" to receive calls from fishermen who believe they have snagged gear on a telecommunications cable.<br>• In the event that a fisherman sacrifices gear in order to avoid injury to an AT&T submarine cable, AT&T will pay 100% of the gear equipment replacement costs, and will pay an additional 50% of those gear replacement costs to compensate the fisherman for loss of catch and fishing opportunity. The full amount of this payment shall be available to any fisherman who sacrifices gear in order to avoid injury to an AT&T submarine cable, regardless of whether the fishermen has signed the Fishing Agreement.<br>• AT&T will release any claims that it might have for damage to cables against fishermen that comply with the terms of the applicable Fishing Agreement and the Fishing Vessel Operating Procedures established by the Committee.<br>• When the cables to be installed are taken out of service, AT&T will remove them as necessary so as not to interfere with commercial fishing activities in areas where such cables were previously installed. | Less than significant |

**Table ES-1. Summary of Project Impacts and Mitigation Measures**

| *Resource Area* | *Impact & Significance* | *Mitigation Measure* | *Significance after Mitigation* |
|---|---|---|---|
| ***Land Use and Recreation*** | **Proposed Routes:** Potential short-term interference with recreation at the Sandspit Parking Lot (Class II).<br>**Maximum Burial Alternative Routes:** Impact similar to proposed routes (Class II).<br><br>Cumulative impacts significant due to multiple projects' use of the parking lot (Class II). | **REC-1**. Prior to cable installation, AT&T shall obtain the approval of the Department of Parks and Recreation and the staff of the State Lands Commission for the scheduling and location of project activities at the parking lot, incorporating measures to ensure the availability of parking, restrooms, and pedestrian access to the beach during project activities. | Less than significant |
| ***Aesthetics and Noise*** | **Proposed Routes:** Temporary noise and the presence of working equipment and workers during cable installation (Class III).<br>**Maximum Burial Alternative Routes:** Impacts similar to proposed routes (Class III).<br><br>Cumulative impacts less than significant (Class III). | None | Less than significant |
| ***Marine Transportation*** | **Proposed Routes:** Localized, short-term interference with vessel traffic, similar for proposed and maximum burial alternative routes; mitigated by proposed noticing procedures (Class III).<br>**Maximum Burial Alternative Routes:** impact similar to proposed routes (Class III).<br><br>Cumulative impacts less than significant. | None | Less than significant |

**Table ES-1. Summary of Project Impacts and Mitigation Measures**

| *Resource Area* | *Impact & Significance* | *Mitigation Measure* | *Significance after Mitigation* |
|---|---|---|---|
| ***System Safety/ Risk of Upset*** | **Proposed Routes:** Low likelihood of accidents, none with potentially severe consequences (Class III).<br>**Maximum Burial Alternative Routes:** impact similar to proposed routes (Class III)<br><br>Cumulative impacts less than significant. | None | Less than significant |
| ***Socioeconomics*** | **Proposed Routes:** Potential economic effects on fishermen as described for commercial and recreational fishing above (Class II).<br>**Maximum Burial Alternative Routes:** Impacts reduced relative to proposed routes, but still significant (Class II).<br><br>Cumulative impacts potentially significant, mitigable by same measures (Class II). | See mitigation measures above for commercial and recreational fishing (**CRF-1**) | Less than significant |
| ***Other Resources*** | **Proposed Routes:** No effect on utilities; insignificant effect on onshore traffic associated with cable installation (Class III).<br>**Maximum Burial Alternative Routes:** Similar to proposed routes (Class III).<br><br>Cumulative impacts less than significant. | None | Less than significant |

# 1.0 INTRODUCTION

## 1.1 PROJECT OBJECTIVES

The objective of the project is to provide a direct undersea telecommunication link between the U.S. and the People's Republic of China and other Pacific Rim countries. As proposed, the project would complete segments E1 and S7 of the China-U.S. Cable Network System by installing two submarine fiber optic cables that would connect into existing facilities near Morro Bay, California. Both of these cables are part of a "ring" system with landings in East Asia, Bandon, Oregon, and, as proposed here, Morro Bay. With the exception of the Morro Bay landings, all parts of the China-U.S. Network System have been connected. Segment E1 has been laid from Bandon, Oregon to a point 150 km offshore of Morro Bay in 3,740 m of water. Segment S7 has been laid from Asia to a point 152 km offshore of Morro Bay in 3,675 m of water. Additional background is provided below.

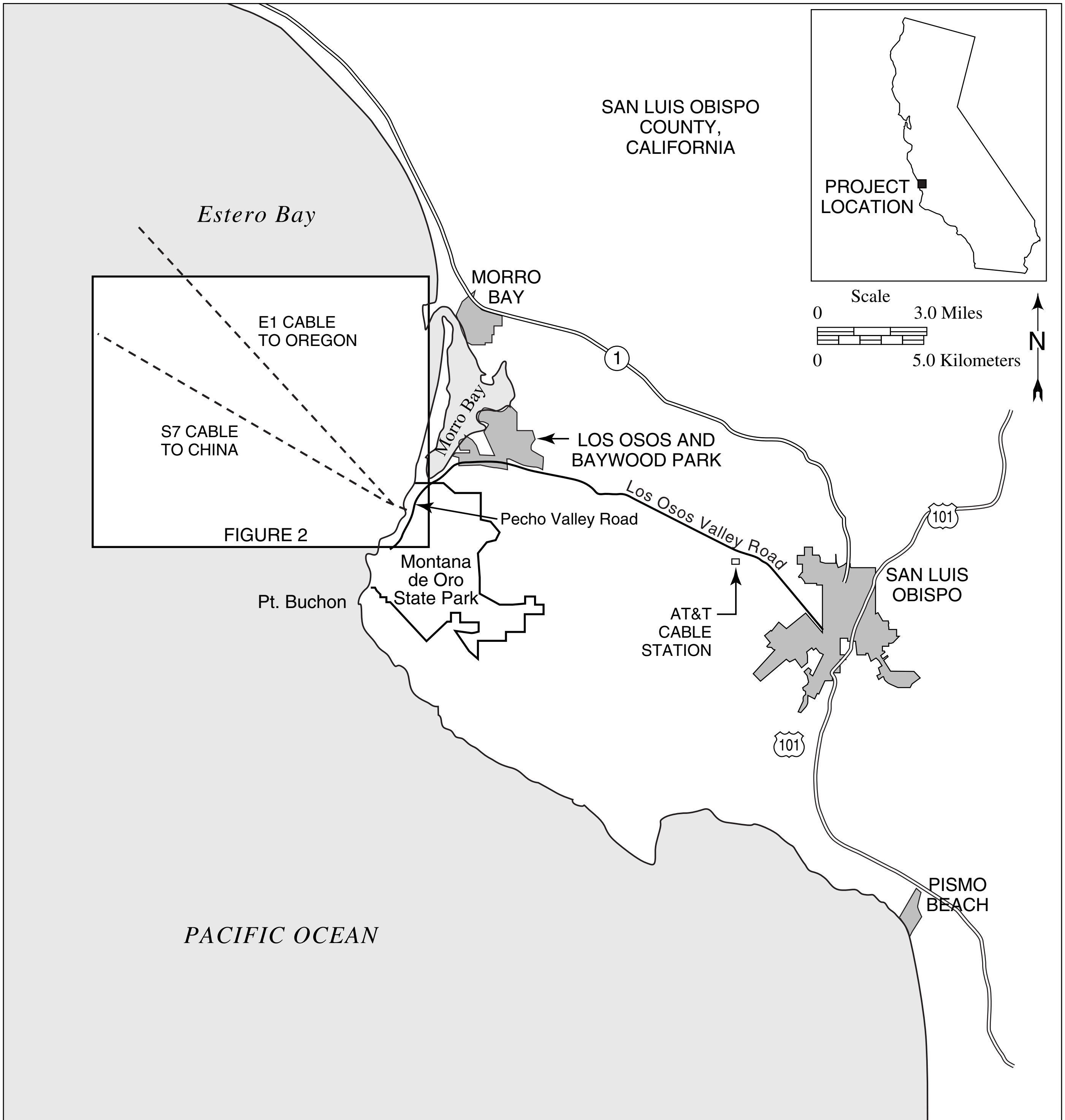
The China-U.S. Cable System was conceived in response to the increasing demand among the Asia-Pacific Rim countries for access to digital information technology. The system will provide the first direct telecommunications links between the People's Republic of China and the United States, with system connections to Japan, Korea, and Guam.

The resulting "ring" system has four primary segments: an eastern segment running along the Pacific coast of the United States between Bandon, Oregon and the proposed landing at Morro Bay, a western segment linking nations along the western side of the Pacific Ocean, and northern and southern segments connecting the eastern and western segments across the Pacific Ocean.

As a "node" for connecting the eastern and southern portions of the system to onshore infrastructure, the proposed landing site near Morro Bay, San Luis Obispo County, California was selected for several reasons, among which were the previous review, permitting, and installation of three AT&T submarine cables at the same location; the ability of AT&T's previously permitted and constructed shore facilities, consisting of a submerged bore pipe, beach manhole, and conduit system at Montaña de Oro State Park, to accommodate the two new China-U.S. cables without requiring additional construction; and existing conduit access to AT&T's cable station in San Luis Obispo.

## 1.2 BACKGROUND AND OVERVIEW

AT&T is continually expanding and upgrading its global fiber optic cable network system. AT&T is proposing to install two new ocean cables into the San Luis Obispo area, utilizing previously permitted and constructed facilities in Montaña de Oro State Park and the immediate nearshore area (Figure 1). Within State Waters (generally referred to as "the 3-mile limit" and legally extending to 3 nautical miles [nm] from shore) and continuing across the continental shelf, each of the cables will be placed within or adjoining a corridor occupied




| | | | |
|---|---|---|---|
| BHC<br>BRUNGARDT HONOMICHL & COMPANY, P.A.<br>CONSULTING ENGINEERS | CHINA-U.S. CABLE NETWORK<br>SAN LUIS OBISPO LANDINGS<br>VICINITY MAP | AT&T | DATE: 3/3/99<br>SCALE: 1:250,000<br>DWG. NO. FIGURE 1 |

**Figure 1. Vicinity Map for China-U.S. Cable Network, San Luis Obispo Landings**

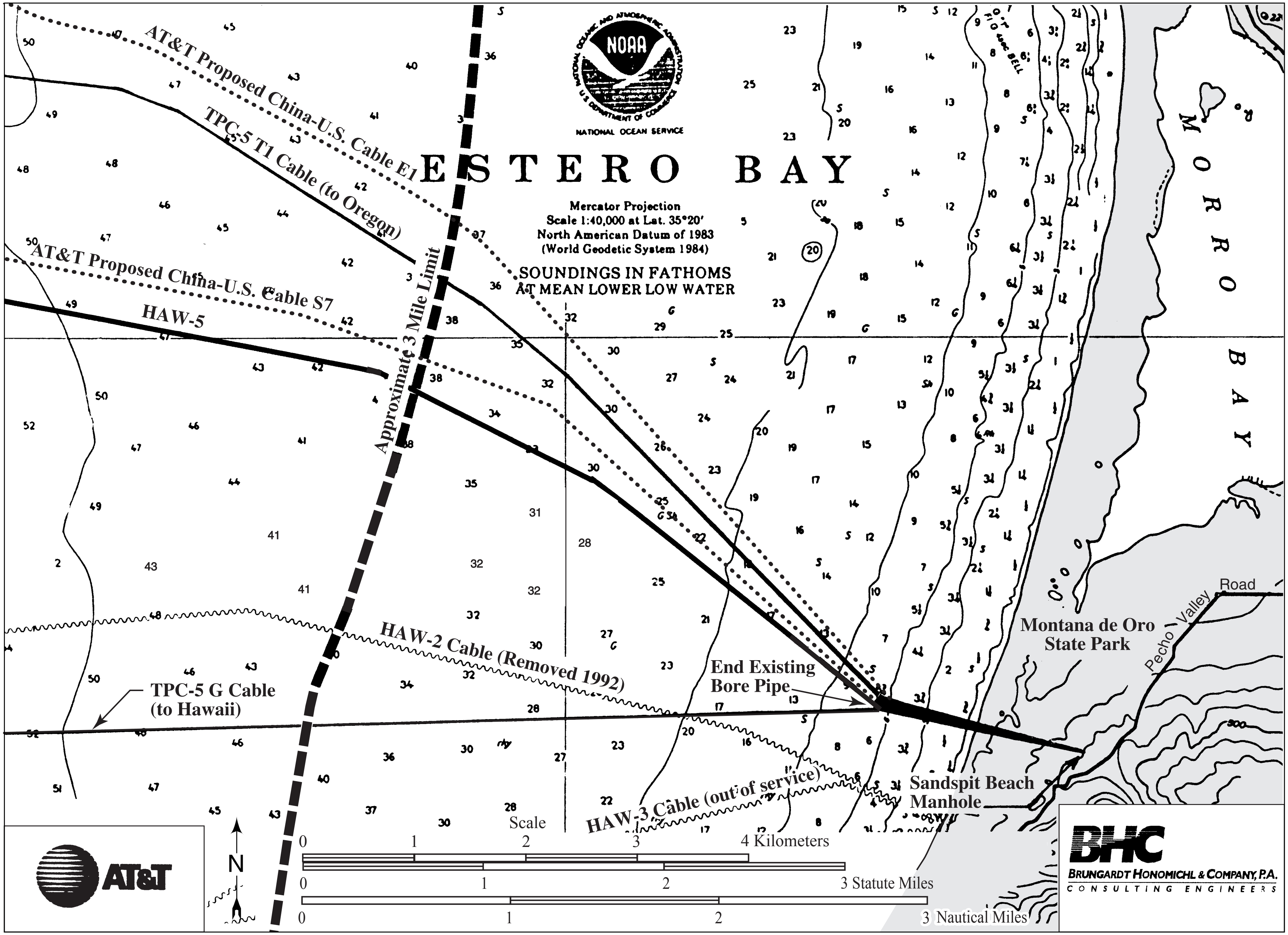



**Figure 2. AT&T Existing and Proposed China-US Cable Routes Nearshore**

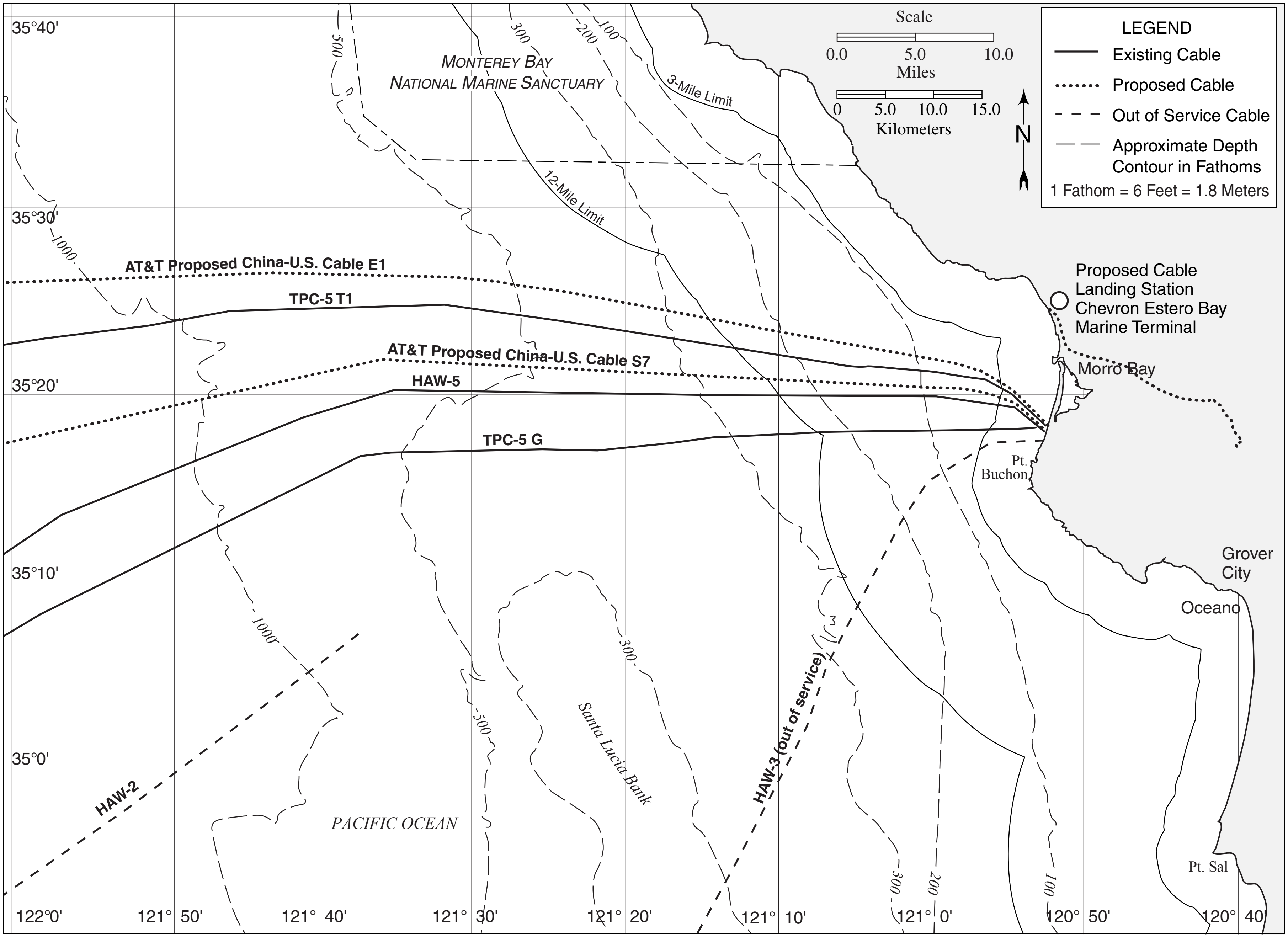



**Figure 3. Proposed China-US Cables in Relation to Existing Cables Near Morro Bay**

by other cables, as close as practicable to a previously installed cable (Figures 2 and 3). The new fiber optic cables will carry all types of digital communications traffic including voice, data, and video. Because the new cables are links in a global network, they can service all types of customers throughout the world including private individuals, businesses, and governmental entities.

AT&T has had undersea cables that served their San Luis Obispo terminal since the early 1960s. In 1991, as part of the HAW-5 project (Morro Group 1991), AT&T installed four directional bore pipes out into the ocean and set a beach manhole in Montaña de Oro State Park. At that time, they installed one cable into one of the bore pipes. Additionally, AT&T installed an overland conduit system from the beach manhole to the terminal building located 10 miles (16 km) inland near the City of San Luis Obispo. As part of the project, AT&T constructed the Sandspit Beach parking lot and appurtenances to improve beach access for visitors to the park, and to allow access to the cable conduit system for maintenance or future cable installation. Later, in 1994, as part of the TPC-5 project (CSLC 1994), AT&T installed two more fiber optic cables in two of the bore pipes and conduit system. This left one remaining bore pipe vacant.

Installation of the HAW-5 cable on State Tidelands (extending out to the 3-nm limit) required a lease from the California State Lands Commission (CSLC). This lease, identified as PRC 7603, was amended to allow the installation of the two TPC-5 cables.

## 1.3 PROPOSED PROJECT

AT&T Corporation, representing a consortium of 14 companies, proposes to install two fiber optic cables into the remaining vacant bore pipe at Montaña de Oro State Park. AT&T is the leaseholder on State Tidelands and is responsible for the project, which is part of the China-U.S. Cable Network. The other members of the consortium are MCI International, Inc.; SBCI-Pacific Networks, Inc.; Sprint Communications Company, L.P.; Teleglobe U.S.A., Inc.; China Telecom; Hong Kong Telecom International, Limited; Kokusai Denshin Denwa Co. Limited; Korea Telecom; NTT Worldwide Network Corporation, Limited; Singapore Telecommunications, Limited; International Telecommunications Development Corporation; Telstra Corporation, Limited; and Telekom Malaysia. One cable will provide service directly to the People's Republic of China and the other will provide a link to Bandon, Oregon before routing to the People's Republic of China. The cables will be installed by Tyco Submarine Systems Ltd. (TSSL) under contract to the consortium. The fiber optic cables are "armored," that is, protected, by one or more rings of galvanized steel wires and encased in a polypropylene-asphalt sheath, as described in more detail in Chapter 2 (see also Appendix A). The scope of the project is to pull the two cables (designated Segments S7 and E1), each with self contained power, into the last existing off-shore pipe to the beach manhole. From the ends of the pipe seaward, the cables will be buried to a point where the water depth reaches 6,000 feet (1,800 m) approximately 55 miles (90 km) offshore. From that point on the outer edge of the continental shelf, the cables will be laid directly on the ocean bottom along courses defined by AT&T and the consortium during the design of the system, toward their destinations in the People's Republic of China and Bandon, Oregon. Figure 2 shows the proposed project in relation to AT&T's previous projects in the Morro Bay area.

## 1.4 INTENDED USES OF THIS DOCUMENT

This Environmental Impact Report (EIR) analyzes the environmental impacts of the proposed project and alternatives and proposes appropriate mitigation measures as required by CEQA. The CSLC is the CEQA lead agency for the project because, consistent with section 15051(b) of the CEQA Guidelines, the CSLC is the public agency with the greatest responsibility for supervising or approving the project as a whole. The CSLC has jurisdiction over the State's sovereign lands (sovereign lands are those lands located from the Mean High Tide Line [MHTL] out to the 3-nm limit), where the project is proposed to be placed.

In conjunction with the CEQA analysis, the document is intended to provide information to assist state and federal permit decisions on the proposed project in State sovereign lands off San Luis Obispo County. This project would allow AT&T to complete the installation of the two submarine telecommunications cables that comprise segments S7 and E1 of the China-U.S. Cable System Project, as described in detail below. As mandated by CEQA, this is a public information document, intended to foster the public's understanding of the project and to provide full disclosure of the impacts of the project and alternatives, including no project.

This evaluation is focused on the potential environmental impacts of the project within State sovereign lands, from MHTL to 3 nm offshore and the potential impacts on recreational and commercial fisheries out to 1,000 fathoms water depth. To facilitate consistency with the permitting requirements of the U.S. Army Corps of Engineers (USACE), the California Coastal Commission (CCC), and the CSLC, and in the interest of providing information about the project to the general public, other additional descriptive and analytical information is provided on the project beyond the 3 nm limit.

## 1.5 PUBLIC SCOPING

As required by CEQA, a public Notice of Preparation (NOP) on the EIR was published and circulated by the CSLC on May 18, 1999. Pursuant to Section 15083, Title 14 California Code of Regulations, a public scoping meeting was held in Morro Bay on June 1, 1999. Public comments received through the NOP and scoping meeting include the following:

- Written and verbal comments from Ms. Cathy Novak, Marine Consultant, from Morro Bay, expressing concern over the impact of the China-US and other existing and proposed submarine cable projects on fishing and marine biology in the waters off of Morro Bay.
- Written and verbal comments from Mr. Rick Algert, of the City of Morro Bay Harbor Department, expressing concern over the socioeconomic impacts of proposed submarine cables on the Morro Bay Harbor.

- Verbal comments from Ms. Caroline Moffatt of the Port San Luis Harbor Commission suggesting the need to consider socioeconomic impacts and voicing concern over the adequacy of cable burial and potential loss of fishing areas.
- Verbal comments from Mr. Jim Wood, a marine surveyor, inquiring as to the need for separation between cables, the removal of old cables, and noting the relationships between fishing and other businesses in the Morro Bay area.
- Verbal comments from Ms. Mary Leizear, a member of the Morro Bay Harbor Commission and resident of the area, inquiring as to the amount and uses of monetary compensation being provided through agreements between fishermen and cable companies. A letter from Ms. Holly Sletteland of the Santa Lucia Chapter of the Sierra Club endorsing the need to address cumulative impacts of telecommunications projects in the Morro Bay area; requesting that the Los Osos Advisory Council be allowed to review the project; suggesting privately maintained buoys to identify where the cable is directly laid over rocky areas; asking that project activities not exclude the public from the Sandspit parking lot; and requesting information on cable installation in deep water and the effects on marine life.

These comments are considered in the appropriate section of the document. Copies of the NOP and correspondence received, including the letters cited above, are included in Appendix C. A transcript of the scoping meeting is on file with the CSLC.

## 1.6 ORGANIZATION OF THIS DOCUMENT

Chapter 2 provides a detailed description of the proposed project, including required permits and approvals and other relevant components of the "Regulatory Setting." Appendix A provides additional supporting technical information related to the proposed project.

Chapter 3 discusses alternatives to the proposed project, including "No Action."

Chapter 4 describes the approach of the analysis and identifies related projects to be considered as part of the cumulative impact analysis. Subsequent sections of Chapter 4 provide the environmental setting, determination of project impacts (both project-specific and cumulative), significance criteria, and identification of mitigation measures relevant to each resource and issue area of concern, for the proposed and alternative cable routes. Appendix B provides supporting technical information related to specific resource/issue areas, particularly marine biology.

Chapter 5 compares the impacts of the proposed project with those of alternatives, and identifies any substantive differences in level of impact or mitigation that would be required.

Chapters 6, 7, and 8 provide References, Persons and Agencies Contacted, and a List of Preparers, respectively. Appendix C provides correspondence and other written documentation relevant to the EIR analysis.

# 2.0 PROJECT DESCRIPTION

## 2.1 PROJECT LOCATION

The project includes shore-end, nearshore, and offshore activities. The location for the shore-end activities is the existing chip sealed parking lot at Sandspit Beach in Montaña de Oro State Park, located just south of Morro Bay. The nearshore activities will take place between the end of the existing bore pipe and the 3-nm limit offshore. The offshore locations are the cable alignments for both proposed cables beyond the 3-nm limit.

The China-U.S. S7 cable is the cable that will be installed from the beach manhole directly to the PRC. The China-U.S. E1 cable, once pulled into the existing bore pipe to the onshore manhole, will be laid along a predetermined course westerly off the continental shelf and then spliced to a cable that will connect to Bandon, Oregon. Cable position coordinates for the alignments from shore to a depth of 1,800 m (6,000 feet [1,000 fathoms]) are detailed in Tables 1 and 2. The tables include information on seafloor conditions and methods of installation. This information is represented graphically in Figure 4.

The China-U.S. E1 cable, once pulled into the existing bore pipe to the onshore manhole, will be laid along a predetermined course westerly off the continental shelf and then northerly to Bandon, Oregon. This cable will be laid parallel to and just north of the northernmost existing AT&T cable.

To design Segments E1 and S7 of the China-U.S. System, a Desk Top Study (DTS) was performed (NTT 1997). The DTS is a comprehensive study of a proposed cable system route which examines potential landing sites and routing options along with manmade and natural threats associated with them. The purpose of the study is to select a cost-effective route that attempts to minimize identified hazards to the system, prior to commencing marine route survey operations. Once the DTS was completed, the routes were surveyed using side scan sonar and a subbottom profiler. This method helps to determine the geological make-up of the sea floor and gives an indication where the rock outcroppings and hard bottom areas are located. This information was used during the cable routing and design process. Portions of the Final Route Survey Report (Cable & Wireless Marine 1998, Appendix A) have been provided to the CSLC in support of the project application.

## 2.2 DESIGN CRITERIA

### 2.2.1 Cable Designs

Three different cable types will be utilized to provide an appropriate degree of protection for the cable from geologic and sedimentary conditions encountered during installation, and from potential interactions with fishing gear. Specifications for the different cable types are provided in Appendix A. All cable types surround a core of optical fibers encased in rings of steel wires, copper sheathing, and polyethylene insulation. The greatest degree of protection

## Table 1. China—U.S. Segment E1 Description

| *Route Position* | *Latitude* | *Longitude* | *Depth (m)* | *Route Segment Length (km)* | *Distance from Shore (km[nm])* | *Cable Type (1)* | *Seafloor Condition & Method of Installation* |
|---|---|---|---|---|---|---|---|
| 089 | 35°18.041`N | 120°52.344`W | 0 | | 0 | SPA | San Luis Obispo Beach Manhole |
| | | | | 1.252 | | | |
| 088 | 35°18.252`N | 120°53.129`W | 13 | | 0.82[0.44] | | End of Bore Pipe |
| | | | | 0.050 | | DA | Seafloor is sandy with irregular areas of disturbed sediment with small sand waves and cobbles. Post-lay burial by divers and ROV. |
| 087 | 35°18.271`N | 120°53.152`W | 23 | | 0.91[0.49] | | |
| | | | | 0.625 | | | |
| 086 | 35°18.509`N | 120°53.445`W | 23 | | 1.5[0.81] | | |
| | | | | 0.181 | | | |
| 085 | 35°18.594`N | 120°53.503`W | 26 | | 1.63[0.88] | | |
| | | | | 0.578 | | | |
| 084 | 35°18.867`N | 120°53.690`W | 33 | | 2.05[1.11] | | |
| | | | | 0.151 | | | |
| 083 | 35°18.925`N | 120°53.760'W | 34 | | 2.19[1.18] | | Rock outcrop. Surface lay over rock. |
| | | | | 1.957 | | | |
| 082 | 35°19.680`N | 120°54.665`W | 54 | | 3.95[2.13] | | |
| | | | | 0.725 | | | |
| 081 | 35°19.960`N | 120°55.000`W | 61 | | 4.54[2.45] | | Sandy with two narrow bands of rock outcrops. Post-lay burial by ROV. |
| | | | | 1.078 | | | |
| 080 | 35°20.375`N | 120°55.500`W | 70 | | 5.64[3.05] | | |
| | | | | 1.182 | | | |
| 079 | 35°20.690`N | 120°56.179`W | 77 | | 6.31[3.41] | LWA | Sandy. Burial by sea plow if practical, or post-lay burial by ROV otherwise. |
| | | | | 1.535 | | | |
| 078 | 35°21.100`N | 120°57.060`W | 85 | | 7.59[4.10] | | |
| | | | | 1.788 | | | |
| 077 | 35°21.455`N | 120°58.158`W | 92 | | 9.02[4.87] | | |
| | | | | 1.301 | | | |
| 076 | 35°21.595`N | 120°59.000`W | 98 | | 10.33[5.58] | DA | Rock outcrop. Surface lay over rock outcrop. |
| | | | | 1.330 | | | |
| 075 | 35°21.740`N | 120°59.860`W | 109 | | 10.35[5.59] | | |
| | | | | 1.051 | | | |
| 074 | 35°21.960`N | 121°0.500`W | 125 | | 10.36[5.59] | | |
| | | | | 0.768 | | | |
| 073 | 35°22.029`N | 121°1.000`W | 153 | | 10.46[5.65] | LWA | Silty clay sediments. Burial by sea plow. |
| | | | | 23.645 | | | |
| 072 | 35°24.140`N | 121°16.400`W | 448 | | 22.41[12.10] | | |
| | | | | 19.946 | | | |
| 071 | 35°25.900`N | 121°16.400`W | 877 | | 31.91[17.23] | | |
| | | | | 6.136 | | | |
| 070 | 35°26.056`N | 121°33.450`W | 1010 | | 35.36[19.09] | | |
| | | | | 2.523 | | | |
| 069 | 35°26.120`N | 121°35.115'W | 1014 | | 36.89[19.92] | | |

## Table 1. China—U.S. Segment E1 Description

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | 1.605 | | | |
| 068 | 35°26.379`N | 121°36.127`W | 1080 | | 38.09[20.57] | | |
| | | | | 0.750 | | | |
| 067 | 35°26.500`N | 121°36.600`W | 1060 | | 38.19[20.62] | | |
| | | | | 3.780 | | | |
| 066 | 35°26.484`N | 121°39.098`W | 1100 | | 42.86[23.14] | | Silty clay sediments. Post-lay burial by ROV |
| | | | | 18.768 | | | |
| 065 | 35°26.400`N | 121°51.500`W | 1400 | | 57.72[31.17] | | |
| | | | | 5.141 | | | |
| 064 | 35°26.220`N | 121°54..890`W | 1500 | | 62.14[33.56] | SPA | |
| | | | | 6.688 | | | |
| 063 | 35°25.990`N | 121°59.300`W | 1800 | | 68.25[36.86] | | |

(1) Note: SPA = Special application, LWA = Light-wire armored, DA = Double armored. See text for additional description.

## Table 2. China—US Segment S7 Description

| *Route Position* | *Latitude* | *Longitude* | *Depth (m)* | *Route Segment Length (km)* | *Distance from shore (km[nm])* | *Cable Type (1)* | *Seafloor Condition & Method of Installation* |
|---|---|---|---|---|---|---|---|
| 190 | 35°18.041`N | 120°52.344`W | 0 | | 0 | SPA | San Luis Obispo Beach Manhole |
| | | | | 1.252 | | | |
| 189 | 35°18.252`N | 120°53.129`W | 13 | | 0.84[0.45] | | End of Bore Pipe |
| | | | | 0.050 | | DA | Seafloor is sandy with irregular areas of disturbed sediment with small sand waves and cobbles. Post-lay burial by divers and ROV. |
| 188 | 35°18.271`N | 120°53.152`W | 13 | | 0.96[0.52] | | |
| | | | | 0.746 | | | |
| 187 | 35°18.557`N | 120°53.500`W | 25 | | 1.6[0.86] | | |
| | | | | 0.812 | | | |
| 186 | 35°18.840`N | 120°53.910`W | 37 | | 2.32[1.25] | | Rock outcrop. Surface lay over rock. |
| | | | | 1.169 | | | |
| 185 | 35°19.247`N | 120°54.500`W | 47 | | 3.45[1.86] | | |
| | | | | 0.765 | | | |
| 184 | 35°19.480`N | 120°54.917`W | 57 | | 4.2[2.27] | | |
| | | | | 0.857 | | | |
| 183 | 35°19.740`N | 120°55.385`W | 66 | | 4.95[2.63] | | |
| | | | | 0.978 | | | |
| 182 | 35°19.910`N | 120°55.997`W | 74 | | 5.92[3.20] | | Seafloor is sandy with small rock outcrops. Post-lay burial by ROV. |
| | | | | 0.725 | | | |
| 181 | 35°20.035`N | 120°56.450`W | 79 | | 6.67[3.60] | | |
| | | | | 0.494 | | | |
| 180 | 35°20.053`N | 120°56.775`W | 82 | | 7.09[3.83] | | |
| | | | | 2.372 | | | |

**Table 2. China—US Segment S7 Description**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 179 | 35°20.040`N | 120°58.340`W | 99 | | 9.60[5.18] | LWA | Silty clay sediments. Burial by sea plow. |
| | | | | 4.110 | | | |
| 178 | 35°20.475`N | 121°1.000`W | 171 | | 12.81[6.92] | | |
| | | | | 17.128 | | | |
| 177 | 35°20.750`N | 121°12.300`W | 430 | | 21.79[11.77] | | |
| | | | | 40.589 | | | |
| 176 | 35°21.430`N | 121°39.080`W | 1100 | | 47.92[25.88] | | Silty clay sediments. Post-lay burial by ROV |
| | | | | 9.278 | | | |
| 175 | 35°20.317`N | 121°45.052`W | 1400 | | 55.95[30.21] | | |
| | | | | 4.325 | | | |
| 174 | 35°19.797`N | 121°47.834`W | 1500 | | 59.55[32.16] | SPA | |
| | | | | 7.020 | | | |
| 173 | 35°18.950`N | 121°52.350`W | 1800 | | 65.42[35.33] | | |

(1) Note: SPA = Special application, LWA = Light-wire armored, DA = Double armored. See text for additional description.

is provided by the "double-armored" design, which is used where the cable would be laid in rocky or coarse substrate areas and where protection from fishing gear is warranted.

The double-armored cable includes two surrounding layers of galvanized steel wires which are coated with asphalt to reduce corrosion, two layers of polypropylene sheathing, and two outer layers of asphalt-coated nylon yarn. The second cable type used is a "light-wire armored" cable, similar in design to the double-armored cable but with only a single surrounding polypropylene sheath and ring of galvanized steel wires. The light-wire armored cable is used where the risk of damage due to substrate conditions or fishing is reduced by the burial of the cable in soft sediments using sea plow or ROV. Where minimal protection is needed, as in existing onshore conduit and in waters deeper than 6,000 feet (1,800 m), a "special application" design is used. In this design, the core is wrapped in steel tape and encased in high-density polyethylene. No antifouling coatings or corrosion inhibitors other than asphalt coatings are used in any of the cables.

Optical fiber cables carry a constant DC current of 1.3 Amps to feed power to the underwater amplifiers. This current is fed along the copper clad steel inner conductor and depending on the length of the cable span it may require several thousands of volts to maintain it. In very approximate terms the cable resistance is about 1 Ohm per kilometer and the amplifiers, spaced at 50 kilometers (31 miles), drop about 30 volts each. Thus a cable spanning the 4,000 kilometers (2,485 miles) from Hawaii to California would have about 80 amplifiers and require a power feed voltage of about 6,500 volts. It is normal practice to apply half this voltage at positive polarity to one end of the system and half the voltage at negative polarity to the other end to establish a zero voltage point midway along the cable span. This reduces the level of voltage stress on the cable and amplifiers. There is no external electric

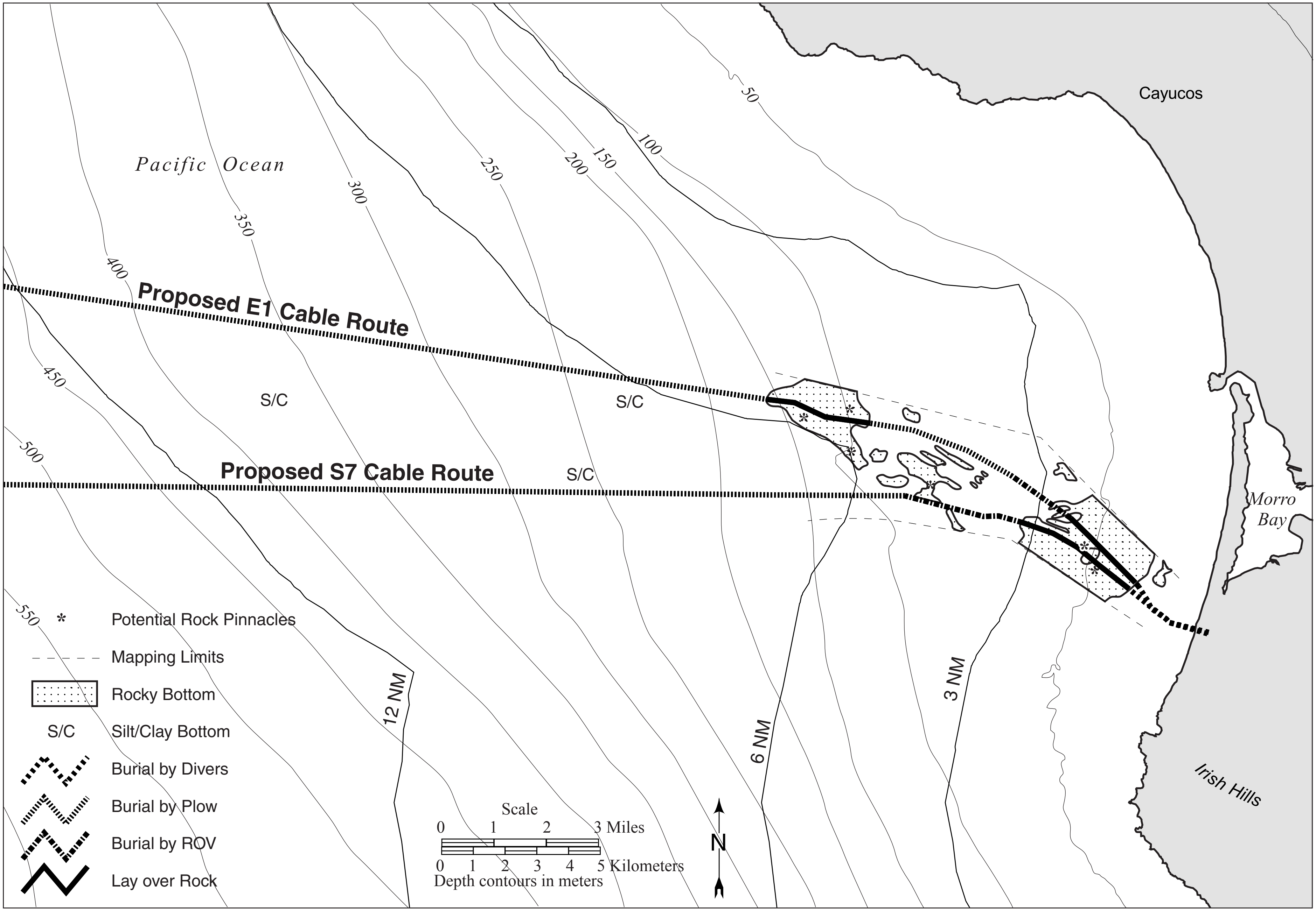



**Figure 4. Sea Floor Characteristics and Cable Installation Methods up to 12nm (See Tables 1 & 2 for Data)**

field associated with the power on the inner conductor. The ratio of the conductivity of the polyethylene insulation to that of seawater means that the electric field remains only within the cable insulation. However the DC current in the inner conductor does set up a stationary magnetic field in the form of concentric rings emanating from the cable. For a cable carrying 1.6 amps the magnetic flux density due to the cable at a distance one meter away would be about two orders of magnitude lower than the vertical component of the earth's magnetic field on the West Coast of the United States.

### 2.2.2 Minimum Distance between Cables

In order to provide system security and adequate margin for repair operations if required, AT&T's proposed routes incorporate a minimum separation distance between existing and proposed cables that, at least in deep water, is at least 2 times the water depth. This degree of separation is not proposed in shallow water (less than about 50 m depth) where cables can be recovered by divers if necessary. AT&T proposes this separation distance in deep water because in its experience, a minimum separation of twice the water depth is adequate to ensure that cable repair operations do not run the risk of violating international and federal law for injuring cables belonging to others. In particular, the United Nations Convention on Law of the Sea (UNCLOS) Article 79 (Submarine Cables and Pipelines on the Continental Shelf) states that "When laying submarine cables or pipelines, states shall have due regard to cables or pipelines already in position. In particular, possibilities of repairing existing cables or pipelines shall not be prejudiced." In addition, UNCLOS Article 114 and the U.S. Submarine Cable Act (U.S. Code [USC] Title 47, Chapter 2) impose liability on cable companies that damage other cables in repair operations.

### 2.2.3 Designed Cable Burial Depths

The burial depths proposed for this project are based on operational history of cables in the area, industry practices employed worldwide, and the capabilities of today's installation and maintenance tools. Cable burial is proposed wherever seafloor conditions allow. Where rock is encountered, the cable will be laid directly on the bottom (see Tables 1 and 2). No rock formations will be cut, and the cable will not be installed into or anchored to any rock formations.

The designed target burial depths of the cables are tied to the water depth and are given below in Table 3. The attainment of target burial depths depends on sediment properties. Burial will be accomplished by a combination of Sea Plow, Remote Operated Vehicle (ROV) and diver jet burial as illustrated in Figures 4 and 5 and described below (see section 2.3.2). For simplicity and consistency with international engineering and the system's design, depths are given in meters (1 meter = 3.3 feet).

AT&T proposes cable burial wherever possible out to water depths of 1,800 m in order to lessen the possibility of conflicts with commercial fishing, especially with bottom trawling.

AT&T Submarine Cable Protection (SCP) (personal communications, J. Murray and R. Wargo) arrived at this depth based on interviews with fishing vessel captains, discussion with fishing gear manufacturers, and discussion with industry experts and the scientific community, all of which indicated that future bottom trawling could occur to water depths of approximately 1,800 m.

**Table 3. Target Burial Depths Versus Water Depths and Distance from Shore**

| *Water Depth (in meters)* | *Target Design Burial Depth (in meters) Where Feasible* | *Approximate Distance from Shore (in miles)* |
|---|---|---|
| 0 - 200 | 1.5 | 0 - 10 |
| 200 – 600 | 1.1 - 1.2 | 10 - 25 |
| 600 - 1800 | 0.6 - 0.8 | 25 - 55 |

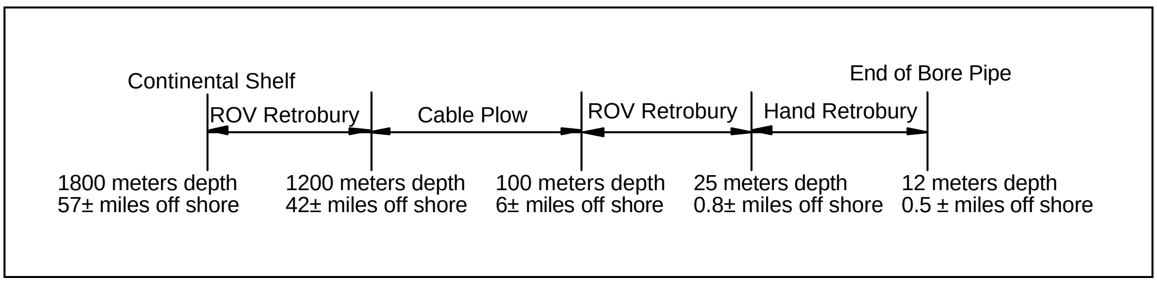



**Figure 5. Typical Burial Methods as Related to Water Depth and Distance from Shore**

The proposed cable burial depths are intended to avoid potential conflicts with bottom trawling, which is of concern because of the sediment disturbance associated with trawling and the potential for trawl gear (otter boards, chains, and weighted nets) to contact and potentially snag on or damage a cable that lies on the surface or is not sufficiently buried. The proposed burial depths are designed to be at least twice the depth of sediment disturbance usually attributed to bottom trawling (e.g., NMFS 1999; NRC 1999 CSLC 1999c). This issue is discussed in more detail in section 4.7.

The percentage of the cables that will be buried from the end of the bore pipe to 1,800 m (6,000 feet) in water depth is approximately 94 percent for Segment E1 and 96 percent for Segment S7. Except as noted in the following paragraphs, sediment cover in excess of 2 m occurs along both segments, and cable burial to the target depths described previously is expected.

Areas where the bottom is rocky are indicated in Tables 1 and 2 and Figure 4. For both segments, the inshore area within about 1 nm of shore (to depths of 34 m [110 feet] for E1 and 37 m [120 feet] for S7) consists of coarse sediments and cobbles disturbed by waves and currents. Sediment cover over rocky substrate is less than 2 m, and diver samples of shallow seafloor sediments indicate that there is frequently resistance to penetration beyond depths of 0.4 to 0.6 m (1.3 to 2 feet) due to rock or stiff sediments (Cable & Wireless Marine 1998). Hence burial to less than the target depth can be anticipated in this inshore area. Potential conflicts with fishing should be minimal because there is no trawling within 3 nm of the shore. Other types of fishing (sportfishing, diving, traps, and hook-and-line) do occur, but have much less potential to excavate a buried cable.

Rocky areas occur at depths of 34 to 61 m (110-200 feet) and 98 to 125 m (320-410 feet) along E1, and at 37 to 74 m (120-240 feet) along S7. In these areas the cables would be laid on the rock surface. In Segment S7 at water depths of 74 to 99 m (240-325 feet) and in Segment E1 at water depths of 61 to 77 m (200-250 feet), short portions of the route appear to have sand cover less than the 1.5 m (5 feet) needed for the target design burial depth. In those areas, the cables will be buried by ROV to the maximum depth feasible.

AT&T proposes to inspect the cables by ROV to depths of 1,800 m every 18 to 24 months, and after any event, such as an earthquake in the offshore area, that may affect the cables, to ensure that they remain buried, and to retrobury when necessary and feasible. AT&T would provide videotapes documenting the results of the inspections to the California Joint Cable/Fisheries Liaison Committee for verification.

## 2.3 CONSTRUCTION METHODS

A basic description of the construction methods that will be used for this project are described in this section. The methods are separated into shore-end activities, nearshore activities, and offshore activities.

### 2.3.1 Shore-End Activities

Shore-end activity consists of cleaning and testing the existing bore pipe and pulling the Segment S7 and E1 ocean cables into the beach manhole located in the existing parking lot in Montaña De Oro State Park. In that manhole, the cables will be connected to existing land power and fiber cables. Shore-end activities have been approved by San Luis Obispo County and the California Department of Parks and Recreation, and AT&T will continue to coordinate with these agencies during project construction (Appendix C). It is expected that cable installation activities at the Sandspit Parking Lot would take up about half of the available space (25 out of 50 parking spaces) in the parking lot, and may require closure for 1-2 weeks.

#### *2.3.1.1 Overland Cables*

AT&T's terminal building is located approximately 10 miles (16 km) inland on Los Osos Valley Road on the west side of the city of San Luis Obispo. The new ocean cables will be spliced to existing cables that were placed within an existing conduit system between the terminal building and the beach manhole. The overland cables are in place between the beach manhole and AT&T's San Luis Obispo terminal facility located on Los Osos Valley Road, as shown in Figure 6. No additional overland conduit or cable installations are necessary for this project.

#### *2.3.1.2 Bore Pipe Exposure, Cleaning and Preparation*

The pipe exposure, cleaning and preparation process will be a joint activity between shore end and near shore operations. For discussion of the shore end operations, see section 2.3.2.1.

In 1991, AT&T installed four directional bore pipes into the ocean. AT&T then installed a manhole and constructed a gravel parking lot at the shore end of the bore pipes. The parking lot was designed and constructed in order to assist current and future cable landing operations. Additionally, AT&T installed an air line from the end of the bore pipe to the manhole. This air line will be used to pump air down the pipe so that the end of the pipe can be found by the divers. The air will also flush out seawater and sediment that may have migrated into the bore pipe. The pipe has a check valve on the near shore end that would keep sediment migration to a minimum.

The shore-end contractor will excavate a trench in the beach parking lot to expose the end of the bore pipe (located about 20 feet [6 m] from the beach manhole). Divers will expose the near shore end of the bore pipe. After both ends of the bore pipe are exposed and prepared, the cleaning and testing of the pipe will begin. If pumping air through the pipe is not sufficient to remove sediment (it was during the installation of the TPC-5 cables in 1994), the pipe will be flushed with potable water to wash out sediments that may have settled in the pipe since its installation. A bore machine will be set-up over the exposed pipe and will be used to push various brushes, swabs and mandrels (metal rods) to clean the pipe. Several passes will be necessary to complete the cleaning operation. Once the pipe is clean, a 0.75-inch wire rope will be installed into the bore pipe for the cable pulling operation. The pipe preparation work will take approximately 3 to 5 days. Any discharge will be in compliance with requirements of the Regional Water Quality Control Board (RWQCB). The RWQCB issued a waiver of discharge requirements for the similar installation of the TPC-5 cables (CSLC 1994), but a determination has not yet been made for the current project.

#### *2.3.1.3 Cable Pulling*

A power winch positioned at the existing beach manhole will be used to pull cables from the lay vessel into and up through the bore pipe. Figure 7 provides a schematic of the operation in the vicinity of the bore pipe exit just offshore. The cable pulling support work will involve excavating a trench approximately 6 feet (1.8 m) wide by 20 feet (6 m) long to expose the end of the bore pipe (which is not connected to the beach manhole). The cable ship then positions itself approximately 100 m (330 feet) seaward of the end of the bore pipe into which the cables are to be pulled. Divers will then install feeder tubes and floats to the end of the pipe

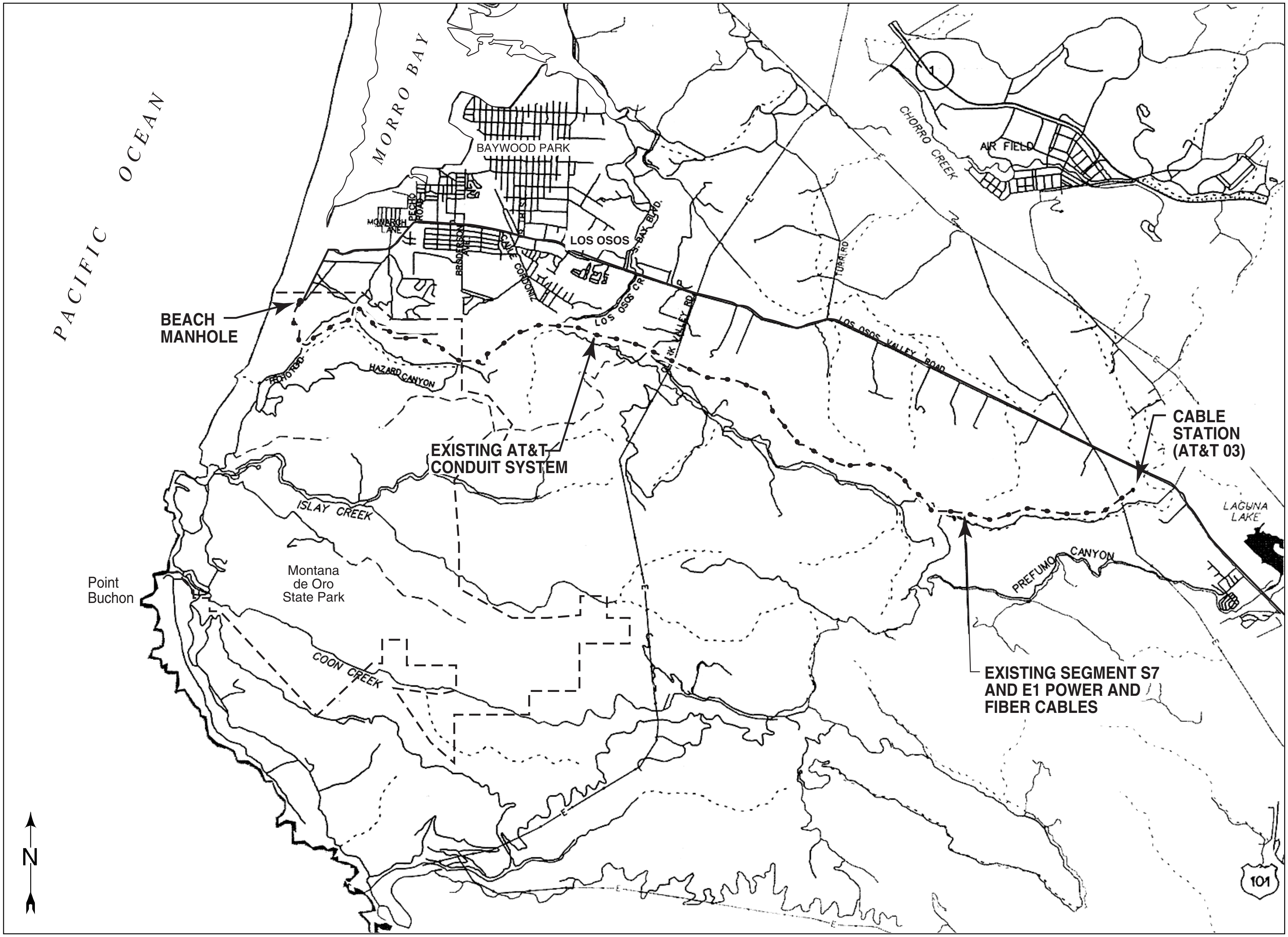



**Figure 6. Existing AT&T China-US Overland Cable Connections (Installed January 1999)**

and cables respectively in preparation of pulling. The end of the cables will be attached to a 0.75-inch wire rope which was placed during the last cleaning step and attached to the winch. Both the S7 and E1 cables will simultaneously be pulled into the beach manhole by a hydraulic winch and will be anchored to the beach manhole. The inside diameter of the bore pipe is 3.75 inches. The outside diameter of each cable is 1.25 inches and the pulling harness will add approximately a 0.5 inch to the two cables as they are laid side-by-side. The cables and harness together will have an approximate outside diameter of 3 inches and will easily fit within the bore pipe. The cable pulling and anchoring will take approximately one day. No lubricants will be used during the cleaning, testing or cable pulling processes. The cables will then be spliced to the existing overland cable system. Split steel pipe is then installed over the cables between the end of pipe and the beach manhole for protection. The excavation will be backfilled and compacted and the surface restored to original condition.

### 2.3.2 Nearshore and Offshore Activities

The nearshore activities include those activities necessary to install the E1 cable and the S7 cable into the existing bore pipe. These activities will involve a pre-lay grapnel run, feeding the cables off the stern of a ship, pulling them through the pipe and into the beach manhole, and laying them to a point 3.1 miles (5 km) offshore. Based on the results of seafloor surveys, cable engineering incorporates additional length or "slack" for portions of the routes which cross rocky areas, to allow the cable to lay flat on the surface and lessen the possibility of spans between rocks. Appendix A provides specifications on the vessels that will be employed in nearshore and offshore construction and includes diagrams of grapnels that could be used in cable installation or repair.

The purpose of a pre-lay grapnel run is to clear debris, such as discarded fishing gear, from the seafloor along the corridors where the cables would be buried. The pre-lay grapnel run would not be attempted in areas of hard bottom. To accomplish this, a grapnel, typically of the “flatfish” type (Appendix A), would be dragged along the cable routes prior to cable installation. The grapnel is attached to a length of chain to ensure its contact with the bottom and is towed by a work boat similar to the *MV American Endeavor,* at a speed of about 1 mph (~0.9 knot or 1.6 km/hr). The arms of the grapnel are designed to hook debris lying on the surface or shallowly buried to about 0.4 m (1.3 feet) on the seafloor. If debris is hooked and towing tension increases as a result, towing ceases and the grapnel is retrieved by winch. Any debris recovered during the operation is stowed on the vessel for subsequent disposal in port.

The pre-lay grapnel run would take approximately one week to cover both routes and would be completed separate from and in advance of the other activities (see below). As described below in section 2.10.7, a Notice to Mariners describing the pre-lay grapnel run would be published at least 15 days in advance of the operation. The notice will specify the location of the grapnel run along the planned cable routes, and request that fishermen avoid placing fixed gear (most likely crab pots) in the path of the operation. Also in advance of the

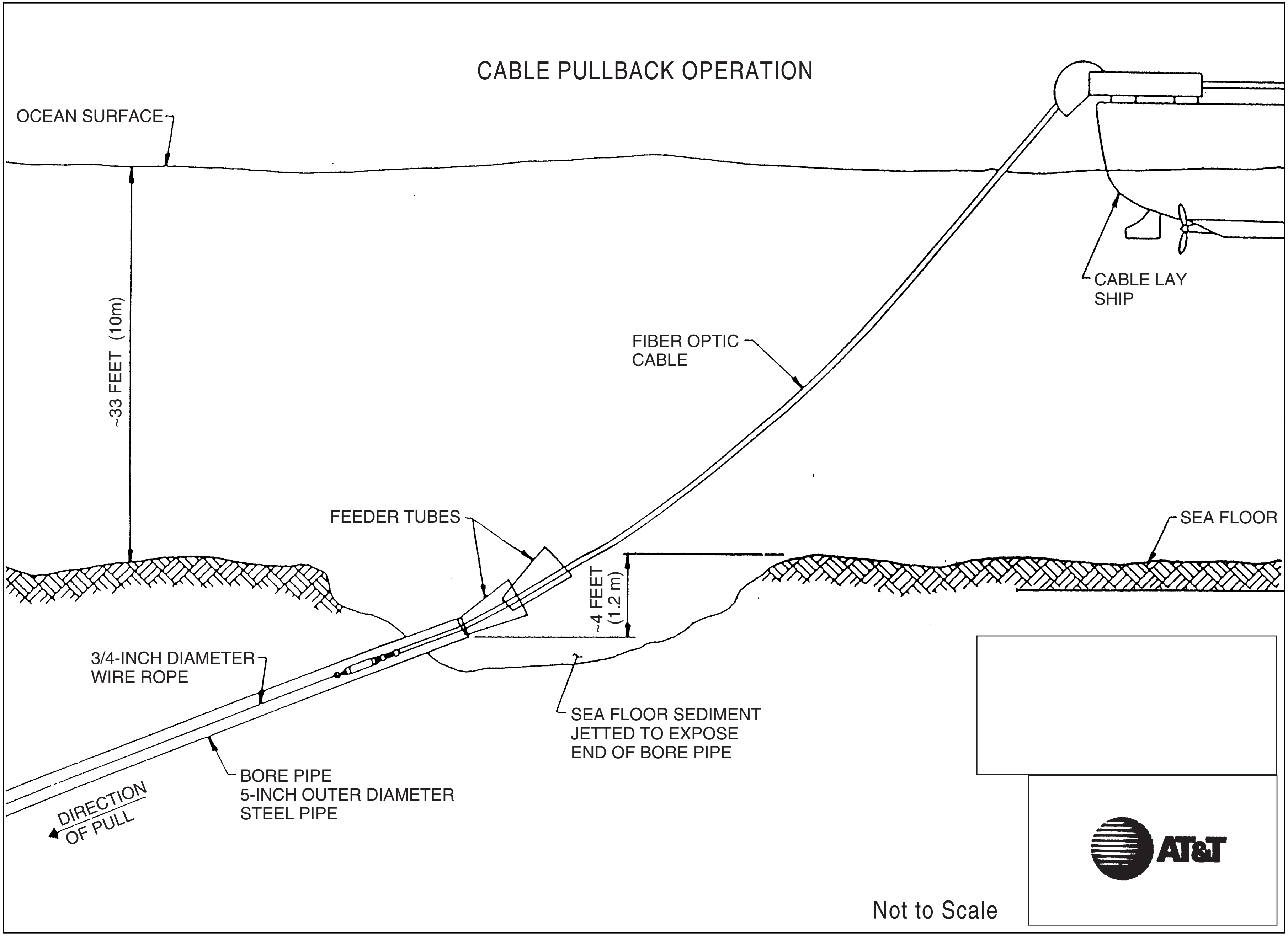



**Figure 7. Cable Pullback Operation**

operation, AT&T proposes to visit local ports and work with the Central California Joint Cable/Fisheries Committee to identify fishermen that may have fixed gear in place along the cable routes and ensure that they have the opportunity to relocate their gear. During the operation, a local fishing vessel will be employed to move any fixed gear out of the path of the pre-lay grapnel vessel. After the cable is laid, the gear will be replaced in its original position. In the event of any lost or damaged gear as a result of the operation, AT&T would pay replacement costs to the owner.

The subsequent offshore activities will include splicing a cable onto the nearshore cable segment and laying or plowing the offshore segment approximately to the continental shelf. These activities will take place in five steps. Step 1 will include exposing the bore pipe and preparing it for the cable landing. Step 2 will involve installing two submarine cables into the existing bore pipe and laying them to just beyond the 3-nm limit offshore. Step 3 will include the retro burial of the cables by hand jetting between the bore pipe and 0.8 mile (1.3 km) offshore. Step 4 will involve installing two submarine cables from 3.1 miles (5 km) to approximately 57 miles (92 km) offshore. Step 5 will include cable installation by retro-burial and plowing (Tables 1 and 2; Figure 4) from approximately 0.8 mile (1.3 km) offshore to approximately 57 miles (92 km) offshore. The following subsections describe these activities and cable installation techniques in more detail.

### *2.3.2.1 Step 1 — Bore Pipe Preparation*

The primary work boat, which will serve as a dive platform, will arrive and set up on station within 50 feet (15 m ) of the end of the bore pipe. This boat will be a 100- to 200-foot (~30-60 m) construction work boat similar to the *M/V American Patriot*. The work boat will use a four-point mooring with an anchor spread of approximately 330 feet (100 m) (Figure 8). This boat will be accompanied by a smaller secondary work boat, similar to the *M/V American Endeavor*, which will set and retrieve anchors as well as shuttle crew between the work boat and Morro Bay. All anchors will be set on previously surveyed soft bottom and retrieved vertically to avoid dragging them across the sea floor.

The contractor will send divers down to locate and expose the end of pipe. Air will be pumped through the bore pipe by the onshore crew. Divers will follow the air bubbles to the end of the bore pipe.

The volume of sea floor sediment that will be jetted to expose the end of the pipe will be approximately 10 to 15 cubic yards (8 to 11 cubic meters). Then they will remove the assembly from the end of the pipe and assist with pipe cleaning and preparation as described previously in section 2.3.1.2.

### *2.3.2.2 Step 2 — Nearshore Cable Installation*

The second step will involve installing two submarine cables into an existing bore pipe, and laying them along predetermined courses. With the work boat in place, a 150- to 250-foot

(~45-75 m) ship of opportunity (i.e., available to the project within the required time frame), again similar to the *M/V American Patriot*, will arrive on site carrying approximately 3.7 miles (6 km) of cable for each route. The cable ship will establish a position approximately 330-660 feet (100-200 m ) from the work boat.

The ends of the cables will be deployed from the cable ship and pulled into the bore pipe using a winch and pull line as described in the nearshore activities above. After the E1 and S7 cables are pulled into the beach manhole and anchored, and the cable ship will begin paying out both cables along the course for the E1. The ship will move away at a rate of approximately 0.4 knots paying out the cable to 3.1 miles (5 km) offshore. At this point the E1 cable will be temporarily buoyed off awaiting the main cable laying vessel. The ship will then reverse its track along the E1 course reeling in the S7 cable. After it has returned to near the end of the bore pipe, the ship will turn and lay the S7 cable on the ocean floor along its predetermined alignment. This cable will also be buoyed off at 3.1 miles (5 km) offshore awaiting the main cable lay vessel. Each cable laying operation will be completed in 1 to 2 days. The cables will remain buoyed until the main cable laying vessel, the *CS Global Sentinel* or similar vessel, arrives to complete the cable laying operation. Activities will be synchronized as closely as possible, but a reasonable worst case is that the cables could be left buoyed for 2 to 4 weeks. Buoys would be lighted and placed in accordance with Coast Guard regulations and industry practice. Cable locations and descriptions of the buoys would be published in a *Notice to Mariners*. Potential conflicts with commercial fishing are minimal because the ends of the cables extending seaward from the bore pipe would be buoyed at approximately the 3-mile limit and trawling and gill netting do not occur inside of this boundary. While the cable is temporarily buoyed, it would be protected by the U.S. Submarine Cable Protection Act (USC 47 862). The cable burial is described in Steps 3 and 5 below.

#### *2.3.2.3 Step 3 — Diver Retro Burial*

The third step will be to retrobury the cables from the end of the bore pipe to a 25-m (82-foot) water depth. After the cables are buoyed, and prior to offshore cable installation, divers will descend and, using hand jets, retrobury the cables between the end of the bore pipes and a water depth of approximately 25 meters (approximately 0.8 mile [1.3 km] offshore). The hand jets will open a narrow trench beneath the cable. This action allows the cable to drop into the trench as it is opened, and the disturbed sediments settle back over the cable. This fills the slot and restores the surface to original grade.

#### *2.3.2.4 Step 4 — Offshore Cable Installation*

The fourth step will include splicing onto the buoyed cables and completing the installation beyond 3.1 miles (5 km) to the 6,000 feet (1,800 m) depth. Because of the orientation of the cable routes with respect to the coastline, the cumulative distance along the cable routes is greater than the distance to the nearest point on the mainland. This step will be completed by the main Cable Ship, the *CS Global Sentinel* or a similar vessel.

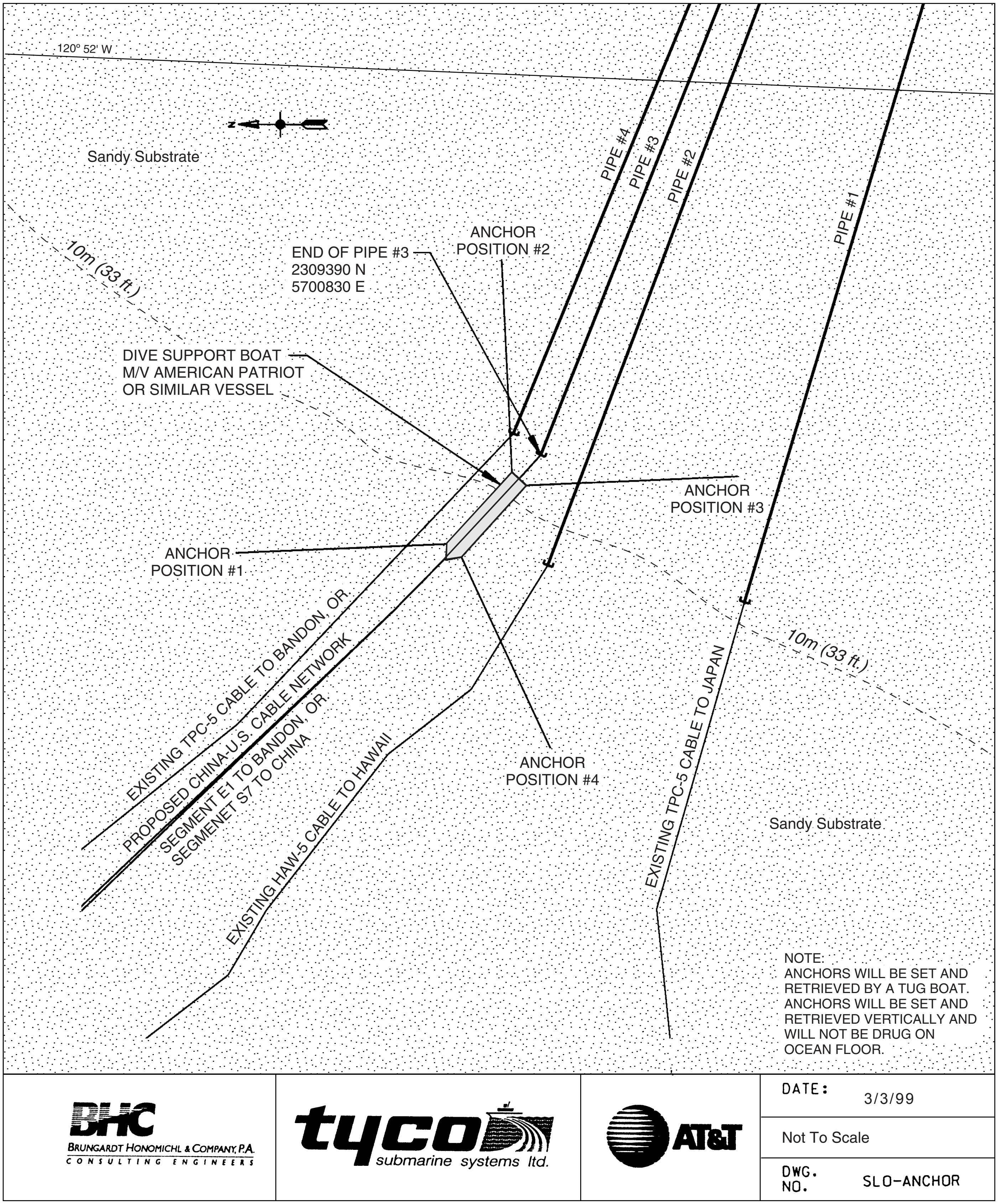



**Figure 8. Schematic Anchoring Plan for Primary Work Boat During Nearshore Cable Installation**

The main Cable Ship will begin work at the buoyed E1 cable as described in Step 2. The Cable Ship will then splice onto the E1 cable and proceed away from shore. The cable will be temporarily laid directly on the ocean floor to a water depth of 330 feet (100 m) for a period of up to 1 month until it is retroburied as described in Step 5. At a water depth of 330 feet (100 m) (approximately 6 miles [10 km] offshore), the Sea Plow (Figure 9) will be deployed, and the cable will be plowed to a point where the water depth reaches approximately 4,000 feet (1,200 m) a distance of approximately 42 miles (67 km) offshore. From this point, to the point where the water depth reaches approximately 6,000 feet (1,800 m) (a distance of approximately 57 miles [92 km] from shore), the E1 cable will be temporarily laid directly on the ocean floor until it is retroburied as described in Step 5.

Beyond the point where the water reaches approximately 6,000 feet (1,800 m), the cable will be laid directly on the ocean floor.

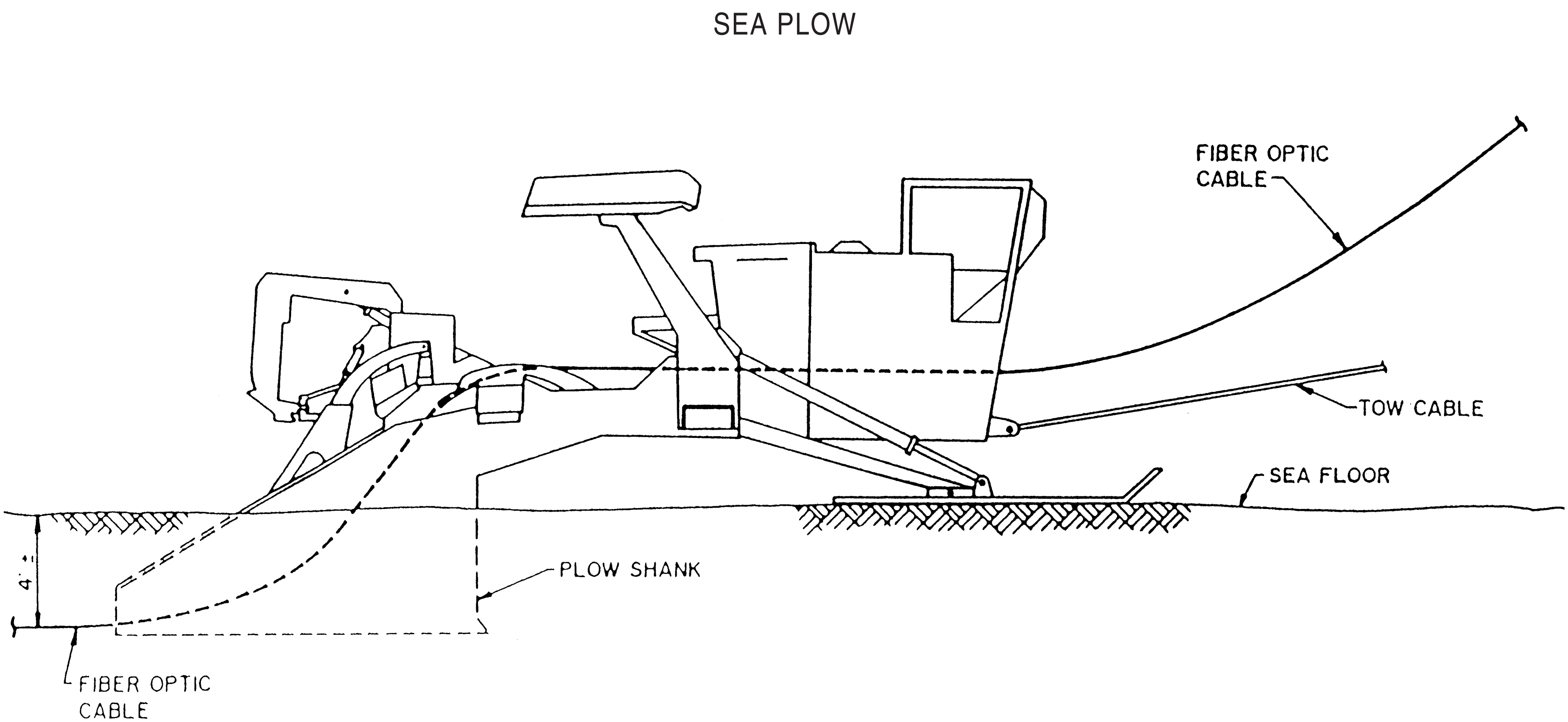
The main cable ship will then return to the buoyed nearshore segment of the S7 cable that was described in Step 2. The cable ship will then splice onto the S7 cable and proceed away from shore. The cable will be temporarily laid directly on the ocean floor to a water depth of 330 feet (100 m) until it is retroburied as described in Step 5. At a water depth of 330 feet (100 m) (approximately 6 miles (10 km) offshore), the sea plow will be deployed, and the cable will be plowed to a point where the water depth reaches approximately 1,200 m (approximately 42 miles [67 km] offshore). From this point, to the point where the water depth reaches approximately 6,000 feet (1,800 m) (approximately 57 miles [92 km] offshore) the S7 cable will be temporarily laid directly on the ocean floor until it is retroburied as described in Step 5. Beyond the point where the water reaches approximately 6,000 feet (1,800 m), the cable will be laid directly on the ocean floor.

#### *2.3.2.5 Step 5 — ROV Retro Burial*

The final step will be to retrobury the cables that were temporarily laid on the ocean floor during Steps 2 and 4. This occurs on both cables between the water depths of 25 to 100 m and 1,200 to 1,800 m. This will be accomplished by utilizing a ROV operated from the *CS Global Sentinel* or a similar vessel. The ROV (see Appendix A) moves under its own power and is tethered to and guided from the cable ship. In a similar manner to the hand jets, the ROV buries the cable by jetting a narrow trench in the sea floor sediment allowing the cable and sediments to fall into the trench. The ROV has a nominal speed of 0.56 km/hr when jetting, but the overall rate of forward progress depends on the number of passes needed to attain target burial depths, which in turn is a function of sediment qualities. Where rock is encountered, the cable will be left direct laid. No mechanical anchors will be placed into the rock.

## 2.4 ADDITIONAL SUPPORTING ACTIVITIES

Additional activities in support of cable installation will occur on the cable ship and onshore during cable landing operations as described below.




BHC
BRUNGARDT HONOMICHL & COMPANY, P.A.
CONSULTING ENGINEERS

Not to Scale

AT&T

**Figure 9. Sea Plow for Offshore Cable Burial**

**On the Cable Ship**. Cable Surveyors will prepare "as laid" documentation for the installation of the submarine cable. Plow engineers will be responsible for the operation of the sea plow that will bury the cable.

**Nearshore during Landing Operations.** A contractor will be hired to perform the nearshore and offshore cable operations. This contractor will provide two vessels, one dive platform for divers and one assist boat. The contractor will supply divers who will expose the end of the bore pipe and assist in the cable pulling into the pipe. They will also retrobury a portion of the cable as described in section 2.3.2.3. The assist boat will provide assistance to the main cable ship and to the dive boat as necessary.

**Shore-end during Landing Operations.** A contractor will be hired to perform the shore-end cable pulling operations as described in section 2.3.1. The contractor will be located near the beach manhole in the existing beach parking lot. The contractor's duties include cleaning and testing the existing bore pipe, pulling the cable into the pipe and final clean-up of the site.

## 2.5 SEVERE WEATHER CURTAILMENT

AT&T's application for the China-U.S. project, on file with the CSLC, includes a Critical Operations and Curtailment Plan, prepared by Tyco Submarine Systems Limited (TSSL). The plan is as follows.

In any cable installation, the forces of weather play a large part. Heavy seas can make precise navigation and cable placement increasingly difficult, and the resulting motion can hamper burial attempts using a sea plow or ROV that is tethered to the vessel on the surface (Diehl 1999). Many situations could arise which could unavoidably interrupt an operation. The purpose of this section is to discuss TSSL's methods of responding to these in a manner that provides for the safety of the ship, its personnel, and the environment.

Being aware of oncoming storms helps greatly to ensure that the ship is prepared for and in the best position to react to high winds and seas. TSSL ships receive daily weather reports from Weathernews Inc.'s (WNI) Oceanroutes weather agency. These reports include an extended forecast, which enable the ship's personnel to make decisions about critical operations with upcoming weather conditions in mind. If the extended forecast indicates weather is likely to exceed the capabilities of the vessel for cable operations, plans are made to discontinue cable operations. For reference, Table 4 provides wind scales and sea descriptions commonly used to describe severe weather conditions.

The main cable ships which are to be used for this project are the *CS Global Sentinel* and the *M/V Dock Express* 20 or similar vessel. While underway, the *Global Sentinel* can continue laying operations in storms of severity up to Beaufort Force 8, sea state 6. If it is engaged in ROV operations, the *M/V Dock Express* can continue up to Force 7, sea state 5, but launch and recovery operations are not conducted if conditions surpass Force 5. During station-keeping, both vessels can withstand Force 8, sea state 6. The other support vessels can operate up to Beaufort Force 7, sea state 5. If these conditions are exceeded, or are expected to worsen, measures will be taken to secure operations. Depending on the predicted severity of the storm, the ship will either lay out enough cable to give maneuvering room, or will suspend operations completely, and cut the cable away. It will then either stand offshore until the weather abates, or seek shelter in port, as necessary. The power to determine critical conditions and make these decisions resides with the captain of the ship, who is ultimately responsible for the safety of the ship and its personnel.

If cut-away is the only option, it is preferred to recover the ROV or sea plow, apply stoppers to the cable, cut the cable, seal the cable end to prevent water ingress into the cable, and cut the stoppers away. However, under extenuating circumstances, it may not be possible to safely work on the deck of the ship to conduct these operations, so the cable is merely cut and clears the ship. When the weather has eased, grapnel operations are conducted to recover the cable end, it is spliced back into the system, and installation continues.

## 2.6 VESSEL SPECIFICATIONS

Specifications and information are included in Appendix A for the following vessels:

*CS Global Sentinel*: This vessel or one like it will be the main cable lay ship. The *Global Sentinel* is based in Portland, Oregon where it will be prior to its work in the area off the coast at San Luis Obispo. This ship's specific project activities are described in section 2.3.2.4.

*M/V Dock Express 20*: This vessel or one like it will be a secondary cable ship and will be used as a platform for operating an ROV. It will be working in the Pacific Ocean off the coast of Oregon prior to its work in the area off the coast at San Luis Obispo. This ship's specific project activities are described in section 2.3.2.5.

*M/V American Patriot*: This vessel or one like it will be used as both a cable ship-of-opportunity and a primary work boat. As a ship-of-opportunity, the Patriot will land the cables and lay them in the nearshore area at San Luis Obispo. As a primary work boat, it will serve as a dive and construction platform for the pipe preparation, landing support, and diver retro burial.

This ship will be contracted locally and will come from the west coast of the United States. This boat's specific project activities are described in section 2.3.2.

*M/V American Endeavor*: This vessel or one like it will be used as a secondary work boat. It will assist the primary work boat by setting and retrieving anchors. The secondary work boat will also be used to shuttle personnel and equipment between the primary work boat and Morro Bay. This work boat will be contracted locally and will come from the west coast of the United States.

**Table 4. Wind Scales and Sea Descriptions**

| *Beaufort Scale* | *Seaman's Description of Wind* | *Wind Velocity* | *Estimating Wind Velocities on Sea* | *International Scale Sea Description and Wave Heights* | *International Code for State of Sea* |
|---|---|---|---|---|---|
| 0 | Calm | > 1 knot | Calm; sea like a mirror. | Calm glassy 0 | 0 |
| 1 | Light air | 1 to 3 knots | Light air; ripples-no foam crests. | 0 | |
| 2 | Light breeze | 4 to 6 knots | Light breeze; small wavelets, crests have glassy appearance and do not break. | Rippled 0 to 1 foot | 1 |
| 3 | Gentle breeze | 7 to 10 knots | Gentle breeze; large wavelets, crests begin to break. Scattered whitecaps. | Smooth 1 to 2 feet | 2 |
| 4 | Moderate breeze | 11 to 16 knots | Moderate breeze; small waves becoming longer. Frequent whitecaps. | Slight 2 to 4 feet | 3 |
| 5 | Fresh breeze | 17 to 21 knots | Fresh breeze; moderate waves taking a more pronounced long form; mainly whitecaps, some spray. | Moderate 4 to 8 feet | 4 |
| 6 | Strong breeze | 22 to 27 knots | Strong breeze; large waves begin to form extensive whitecaps everywhere, some spray. | Rough 8 to 13 feet | 5 |
| 7 | High wind (Moderate gale) | 28 to 33 knots | Moderate gale; sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind. | | 6 |
| 8 | Gale (Fresh gale) | 34 to 40 knots | Fresh gale; moderately high waves of greater length; edges of crests break into spindrift. The foam is blown in well-marked streaks along the direction of the wind. | Very rough 13 to 20 feet | |
| 9 | Strong gale | 41 to 47 knots | Strong gale; high waves, dense streaks of foam along the direction of the wind. Spray may affect visibility. Sea begins to roll. | | |
| 10 | Whole gale | 48 to 55 knots | Whole gale; very high waves. The surface of the sea takes on a white appearance. The rolling of sea becomes heavy and shocklike. Visibility affected. | High 20 to 30 feet | 7 |
| 11 | Storm | 56 to 63 knots | Storm; exceptionally high waves. Small and medium-sized ships are lost to view for long periods. | Very high 30 to 45 feet | 8 |
| 12 | Hurricane | 64 and above | Hurricane; the air is filled with foam and spray. Sea completely white with driving spray; visibility very seriously affected. | Phenomenal Over 45 feet | 9 |

*Source*: Bascom 1964.

The cable laying vessels will follow the cable courses to and from the Morro Bay area. Other support vessels will originate from somewhere on the west coast, most likely from Port Hueneme or Morro Bay. The route of travel for work and support boats that do not remain on site will be the most feasibly direct route from their port to the work site. Vessels that are not moored at the project site will travel to and from Morro Bay.

## 2.7 UTILITY CROSSINGS

The proposed E1 cable to Oregon will cross the existing TPC-5 T1 cable in the nearshore area at a depth of 26 m. Both cables are of the Double Armor (DA) type at the crossing. The TPC-5 cable is buried at the location where it will be crossed by AT&T's proposed cable. The crossing method will be to temporarily lay the E1 cable directly on the ocean floor where the existing cable is crossed until it can be retroburied by ROV. The crossing will be made as close to a perpendicular angle to the existing cable as practicable.

## 2.8 ACTIVITY DURATIONS

The project operations are currently expected to take place during March and April of 2000. The exact timing of the project does not substantially affect the nature of project impacts, although construction during winter-spring months (as currently anticipated) probably results in less interaction with fishing or recreational activities than would occur later in the year when the weather is milder. The shore-end and nearshore activities will be conducted during daylight hours seven days per week from when they are begun. Offshore activities will be conducted 24 hours per day from when they are begun. The general time frames of specific tasks are shown in Table 5.

## 2.9 CABLE OPERATIONS, MAINTENANCE, REPAIR, AND ABANDONMENT

### 2.9.1 Cable Identification

Differential geographic positioning system (DGPS) navigation is proposed to be used during the installation of these cables, and records will be maintained that track the exact location of the cable lay ship, seabed plows or ROVs during the installation process. After installation, these data are compiled into a standard format AT&T Submarine Cable record. These records will be distributed to all cable maintenance zone ships, government charting agencies and other data users. These records would then be used to locate the cables on the seabed in the event of a cable repair. These records are maintained throughout the system life and in the systems retirement years. Additionally, technicians in the cable station can inject a 25 Hertz (Hz) signal onto the copper conductor of the cable. Electroding devices on either the cable ship or an ROV are capable of picking up this tone as a means of locating and distinguishing project cables from others.

### 2.9.2 Cable Operations and Maintenance

Other than ensuring the power feed and transmission equipment in the terminal station are in proper working order, no routine maintenance is planned for the submerged portion of the China–U.S. cable network. As discussed previously (see also section 2.10), the cable would be inspected by ROV every 18 to 24 months, and after offshore earthquakes or other events that may affect cables, to confirm burial. The cable is warranted to last for 25 years. Owing to the stability of the ocean bottom environment, regular maintenance is unnecessary. Consistent with AT&T's worldwide maintenance program, periodic overflights by a small observation plane may be conducted by AT&T to monitor offshore activities in the vicinity of the cable routes.

### 2.9.3 Emergency Cable Repair

For a typical shallow-water repair, the location of the "fault" (point at which transmission is interrupted) is generally known very accurately because of the use of low-frequency

**Table 5. Activity Duration Table**

| *Item* | *Duration* |
|---|---|
| Shore-end operations | |
| Set-up, expose onshore end of bore pipe, prepare pipe for pulling | 3-5 days |
| Pull cables into existing bore pipe | 1 day |
| Clean-up and parking lot restoration | 3 days |
| Nearshore Cable Installation | |
| Expose End of Bore Pipe and prepare for pulling (work boat / dive platform) | 2 days |
| Feed both cables into existing bore pipe (ship of opportunity) | 1 day |
| Lay E1 cable along it's course to a point 3.1 miles offshore and buoy the cable off (ship of opportunity) | 1 day |
| Back-track to end of bore pipes and lay S7 cable along its course to a point 3.1 miles offshore and buoy off (ship of opportunity) | 1 day |
| Retrobury Nearshore Cables (work boat / dive platform) | 4 days |
| Off-Shore Cable Installation | |
| Splice E1 cable and lay from 3.1 miles offshore to outer continental shelf. (main cable lay ship). | 5 days |
| Splice onto S7 cable at 3.1 miles offshore and lay cable toward the PRC (mail cable lay ship) | 5 days |
| Retrobury Nearshore & Offshore Cables (cable ship with ROV, Sea Plow) | 8-9 days |
| Total Estimated Duration | 33-37 days |

electroding, and little, if any, extra cable need be added during the repair because of the shallow depth.

#### *2.9.3.1 Buried Repair*

If the cable is buried in the vicinity of the fault, the grapnel used by the repair vessel should be “sized” to match the burial depth attained during the installation. Different types of grapnels are shown in Appendix A. Typically, a standard “Flatfish” grapnel can be rigged to penetrate and recover cable from burial depths up to 20 inches (50 cm). If deeper burial is encountered, then a detrenching grapnel, divers, or an ROV can be used to remove the cable from the burial trench and bring it to the surface. There, the cable is repaired and then reburied in its original position to the maximum extent feasible, which is expected to be within 10 m. An ROV should be able to achieve burial similar to those attained in the original burial operation, although multiple passes may be required (Appendix A).

#### *2.9.3.2 Unburied Repair*

If the cable is not buried in the vicinity of the fault, it might be possible to engage and bring it to the surface without cutting, provided there is sufficient bottom slack to allow this. (The cable can be torch-cut at the bow.) If the fault has occurred in a rocky area, the cable would either be recovered by ROV, or by grapnel from soft-bottom habitat as close as possible to the fault location. Otherwise, a cutting blade can be fitted to an ROV or Flatfish grapnel, and the cable is cut close to the fault location prior to recovery. Gifford grapnels are then used for holding runs to recover each of the cut ends in soft-bottom areas, whereas an ROV would retrieve the cable ends from rocky areas. Generally, the “good” end is the first one recovered (i.e., it is expected that the fault is in the cable still on the bottom).

After the cable is recovered, the end is prepared and the fibers tested using a conventional optical time-domain reflectometer (OTDR). Additionally, the power conductor path is checked to verify the absence of a shunt fault (fault to the power conductor). If there is any reason to suspect that the fault is in or beyond the repeater, the Coherent OTDR (COTDR) can also be used. In any particular case, testing methods and sequence of tests depend on the fault characteristic previously observed from the cable station and/or from results of testing with probes that detect an electroding signal on the cable power conductor.

The recovered end is then sealed and buoyed off, for easy recovery later. Next, the other end is recovered and similarly tested to more precisely locate the fault. The repair vessel then recovers the cable until the fault is aboard. After the fault site (either cable or repeater) is removed from the system, repair cable is joined to the fault-free cable end and paid out as the vessel returns to the buoyed end. If the fault is in a repeater, it is replaced with a new repeater. When the buoy is recovered the two cable ends are joined. Before overboarding the joint, the system is powered and tested from the terminal stations to verify proper direct current (DC) and transmission performance. The overboarded cable is then buried by an

ROV if it came from a buried section or is laid on the bottom if it came from an unburied section.

### 2.9.4 Abandonment

The project as proposed does not include the specific details of abandonment. The cable is warranted to operate for a minimum of 25 years. It is unknown exactly how long the cable will be in use. Options upon retirement include donation to a research entity, sale to another owner-operator, retirement in place, or removal and salvage. For the purposes of this EIR, two possible scenarios are considered: (1) abandonment in place; and (2) removal. The CSLC lease terms state that upon the expiration or earlier termination of a lease, the CSLC, at its discretion, may take title to any or all improvements, or require that all or any portion of the cables be removed. Prior to removing any or all improvements, all permits or other governmental approvals will have to be obtained, including CSLC environmental review.

Upon expiration or termination of the lease, an ROV inspection will be conducted along the cable routes out to a water depth of 1,000 fathoms to evaluate the condition of the cable and determine whether there are any areas where the cable is exposed. If there are exposed cable segments, the applicant proposes to remove or rebury these segments and abandon the remainder of the cable in place. At that time, the applicant will present a specific proposal to the CSLC and other appropriate agencies addressing the disposition of the cables, and activities required to implement the proposal. The CSLC and other agencies with jurisdiction would review the environmental consequences that could result from the proposed activities, taking into account the current equipment and techniques for removal, project-specific information, historical data collected during the lifetime of the cable, and the current environmental conditions in the project area.

## 2.10 ENVIRONMENTAL COMMITMENTS INCORPORATED INTO THE PROJECT

The following measures have been incorporated into the project and will be implemented as part of the project. The project impact analyses (see Chapter 4 of this document) assume the implementation of these measures.

### 2.10.1 Cable Location

The two new cables to be installed will be placed as close as practicable to the existing cables in the area. Practicability in this case is defined by two things: the need to avoid damage to or from another cable during a repair operation; and the desirability of avoiding rock outcrops that leave the cable exposed. In relatively shallow water (e.g., 150 feet [50 m] or less), cables can be placed more closely because a damaged cable can be recovered by divers and/or ROV with minimal risk to nearby cables. In deeper water, where cable recovery is more likely to require a grapnel, cable spacing is approximately two-times water depth.

### 2.10.2 Cable Burial and Inspection

The cables will be buried to target depths as described in section 2.2.3 above wherever practicable in the ocean floor from the end of the existing bore pipes to the point where the water depth reaches 6,000 feet (1,800 m). Burial depths are well below the expected depths of sediment disturbance associated with bottom trawling (less than 1 foot [30 cm]) as discussed in section 2.2.3). AT&T will inspect the cables using an ROV every 18 to 24 months and after events such as offshore earthquakes that could affect the cables, and provide videotapes documenting the results of the inspections to the California Joint Cable/Fisheries Liaison Committee for verification. An exception to cable burial is described in Rock Outcroppings in section 2.10.3.

### 2.10.3 Rock Outcroppings

As described previously, a detailed survey of the proposed routes was conducted using side scan sonar (Cable & Wireless Marine 1998). This method helps to determine the geological make-up of the sea floor and gives an indication where the rock outcroppings are located. This information was used during the cable routing and design.

The cable will be buried using three methods, hand jetting, jetting with a ROV and plowing with a sea plow. The divers using the hand jetting will recognize the rock outcrops and will lay the cable around elevated rock projections. The ROV has video equipment as well as "arms" that enable it to grasp and move the cable so the operator on board the ship can make minor corrections or move the cable off of rock projections.

The sea plow used for the plowing operation has video equipment and minor corrections can be made. Plowing will proceed at a rate of 0.4 to 0.7 knots, depending on the sea floor conditions. Where rock outcrops are encountered, the plow shank will be raised and the cable laid directly on the rock surface. Minor course corrections may be made based upon the operator’s observations of bottom conditions using the Sea Plow’s instruments. No rock sawing will be performed, and the cable will not be mechanically anchored to the rock.

### 2.10.4 Emergency Spill Prevention and Response Plans

As part of its application, AT&T has provided a Spill Prevention and Contingency Plan, and the Shipboard Oil Pollution Emergency Plans (SOPEPs) for the *M/V Dock Express* and *CS Global Sentinel*. These documents, on file with the CSLC, contain preventative measures as well as procedures to be followed in the event of a spill, including hydraulic fluids as well as fuel and other types of oil spills. Additionally, the primary work vessel will carry on board a minimum of 400 feet (122 m) of sorbent boom, five bales of sorbent pads at least 18” x 18” (45 x 45 cm) square and a small powered boat for rapid deployment to contain and clean up any small spill or sheen on the water surface.

### 2.10.5 Debris and Ballast Management

All cable installation procedures are designed to minimize the possibility of introducing debris into the water. All debris produced on board of all vessels will be handled in accordance with international and national regulations. Very small amounts of waste may be generated by the project. Offshore vessels are equipped to manage, collect and properly dispose of waste products. Likewise, any waste generated during the shore-end activities will be collected and properly disposed.

To minimize the possibility of introducing non-native species into local waters, AT&T will require that any ballast discharges by non-local vessels take place in deep water beyond the 12-nm limit of the territorial seas. It is not expected that project-related vessels arriving from outside the area would unexpectedly encounter circumstances requiring ballast water discharge for safe navigation in the nearshore waters.

A log book will be maintained on all work vessels to keep track of all debris created by objects of any kind that fall into waters, as to types, date, time and location during offshore operations to facilitate identification and location of debris for debris recovery and site clearance verification. Any discharges of ballast water will be documented as to location of the vessel and volume discharged. Copies of ships' log books would be available to the CSLC, Coast Guard, or other agencies upon request to AT&T.

### 2.10.6 Air Quality

The injection timing on diesel-powered vessels and construction equipment will be retarded 4° prior to and throughout cable installation with the exception of the main cable ships which will be operated at 3° retardation. These measures will produce a 20-25 percent reduction in emissions of nitrogen oxides (NOx).

Onshore equipment will use low-sulfur/low-aromatic diesel fuel as designated by the California Air Resources Board (ARB) . Ocean vessels will burn low-sulfur diesel fuel as designated by the U.S. Environmental Protection Agency (EPA).

### 2.10.7 Notice to Mariners

AT&T will ensure the publication of a Notice to Mariners, describing the nature, location, and duration of cable installation activities, at least 15 days prior to initiation of activity. The notice will be given to the Commander, Eleventh Coast Guard District, 501 West Ocean Boulevard, Long Beach, California 90802 and will include the following information:

- The requirements of the U.S. Submarine Cable Act (47 USC Section 25) for fishermen to avoid deploying gear within 1 nm of a vessel engaged in cable installation and within 0.25 nm of a buoy marking the location of a cable.
- The location of the work sites, including bore pipe and cable route coordinates.

- The size and type of equipment that will be performing the work, and any distinguishing marks or flags that will enable boaters to identify the vessels.
- The name and radio call signs for working vessels if applicable.
- 24-hour telephone numbers of on-site contact representatives.
- The schedule for completing the project.

AT&T will also provide this information directly to the Harbormaster at Morro Bay, to the Morro Bay and Port San Luis Commercial Fishermen's Associations, other local fishermen who request it, and to the Cable Multi-Agency Coordinating Committee.

## 2.11 REGULATORY SETTING

The project requires the following permits and / or approvals:

- Approval of the project by the CSLC to allow placement of the new cables within State Waters.
- Approval by the CCC of an amendment to AT&T's existing Coastal Development Permit 4-91-561.
- A permit from the USACE under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act for the installation of cables in the marine environment. In conjunction with this permit, a Section 401 Water Quality Certification by the RWQCB must be obtained or waived, as was the case for the similar installation of the TPC-5 cables, is required from the RWQCB.

These permits and authorizations are in turn governed by a number of statutory and regulatory requirements, including the following:

- CEQA (Public Resources Code § 21000 *et seq.*). CEQA mandates the public disclosure and due consideration of a project's environmental impacts when that project is subject to approval by state agencies, and it establishes the requirements for an EIR.
- California Coastal Act (Public Resources Code Section 30000 *et. seq.)*
- National Environmental Policy Act (NEPA) (42 USC § 4321 *et seq.*). NEPA provides guidance analogous to CEQA to federal agencies , notably the USACE.
- Clean Water Act as Amended (33 USC § 1251 *et seq.*). The Clean Water Act, Section 404 in particular, governs the USACE's and RWQCB's issuance of permits or authorizations for discharges affecting the Waters of the United States.

- Rivers and Harbors Act (33 USC § 403 *et seq.*). Section 10 of this Act requires a permit from the USACE for the placement of a structure in the navigable waters of the United States.

- The Federal Clean Air Act as Amended (42 USC § 7401 *et seq.*) and California Clean Air Act (Health & Safety Code 40918-40920), establish air quality standards and provide for the development and enforcement of such standards by local Air Pollution Control Districts.

- Marine Mammal Protection Act (MMPA) (16 USC § 1361 *et seq.*). The MMPA prohibits the harm or harassment of marine mammals without authorization by the National Marine Fisheries Service (NMFS).

- Coastal Zone Management Act (CZMA) (16 USC § 1456 *et seq.*). This statute sets broad requirements for projects affecting the Nation's coastal zone. The CCC reviews federal approvals of projects affecting the coastal zone for consistency with the CZMA.

- The Federal Endangered Species Act (16 USC § 1531 *et seq.*) and California Endangered Species Act (Fish and Game Code Section 2050 *et seq.*) provide for the listing of threatened and endangered species by the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG), respectively, and protect such listed species from unauthorized take (harm or harassment).

- National Historic Preservation Act (NHPA) (16 USC § 470 *et seq.*). The NHPA provides for the recognition of significant cultural (historic and prehistoric) resources, while due consideration of cultural resources in connection with project approvals is required under both CEQA and NEPA.

# 3.0 ALTERNATIVES

## 3.1 ALTERNATIVE LANDING SITES

Prior to designing the final alignment of the cables, a Desk Top Study (DTS) was prepared to determine the best locations for the cables. As part of the study, alternatives to the proposed cable landing using the existing AT&T bore pipe, manhole, and conduit system at Montaña de Oro were investigated. This section provides information from the DTS and considers whether any alternative landing site(s) would offer advantages in terms of avoiding or substantially reducing a significant environmental effect of the project without introducing a new significant impact (CEQA Guidelines, Section 15126.6). Alternative landing sites are shown in Figure 10 and discussed below.

### 3.1.1 Islay Creek

An embayment in the rocky coastline about 1.5 miles (2.5 km) south of the existing cable landing was investigated as an alternate landing site. The embayment has a deep sandy beach about 660 feet (200 m) long and 130 feet (40 m) wide.

The cable could approach the beach on a straight line bearing about 295° from the center of the beach. From the beach there were no visible rocks or wave diffraction patterns (indicating shoal areas) along the possible cable route.

The beach at Islay Creek is a heavily used recreational area with good access by paved road, and there are developed parking areas both at the northern end of the beach and on the bluff overlooking the beach. There are buried telephone cables along Pecho Valley Road between Islay Creek and the present terrestrial conduit to the cable station, which might be usable as a conduit for the China–U.S. terrestrial link. The most likely scenario for use of this site would involve the use of one of the existing parking areas to install a new bore pipe by directional drilling. Bore pipe installation would require several weeks, during which recreational use of the area would be disrupted. Subsequent cable pulling operations would in concept be similar to those described for the proposed project, although new sections of terrestrial cable would have to be installed along Pecho Valley Road.

Both the local geological trends onshore, and annotations on published navigational charts, indicate that the seabed approaching this embayment is rocky. Judging from the thickly layered outcrops along the shoreline similar rock ledges can be expected offshore. Further, the kelp beds are present along the potential cable approach, consistent with a rocky bottom (Figure 10). Kelp beds are a sensitive habitat that is important for marine animals, including the threatened southern sea otter, so a cable route through them is not advised.

This site offers no advantages over the proposed landing at the existing Montaña de Oro bore pipe and manhole, and has greater impacts because of the rocky and sensitive marine habitat

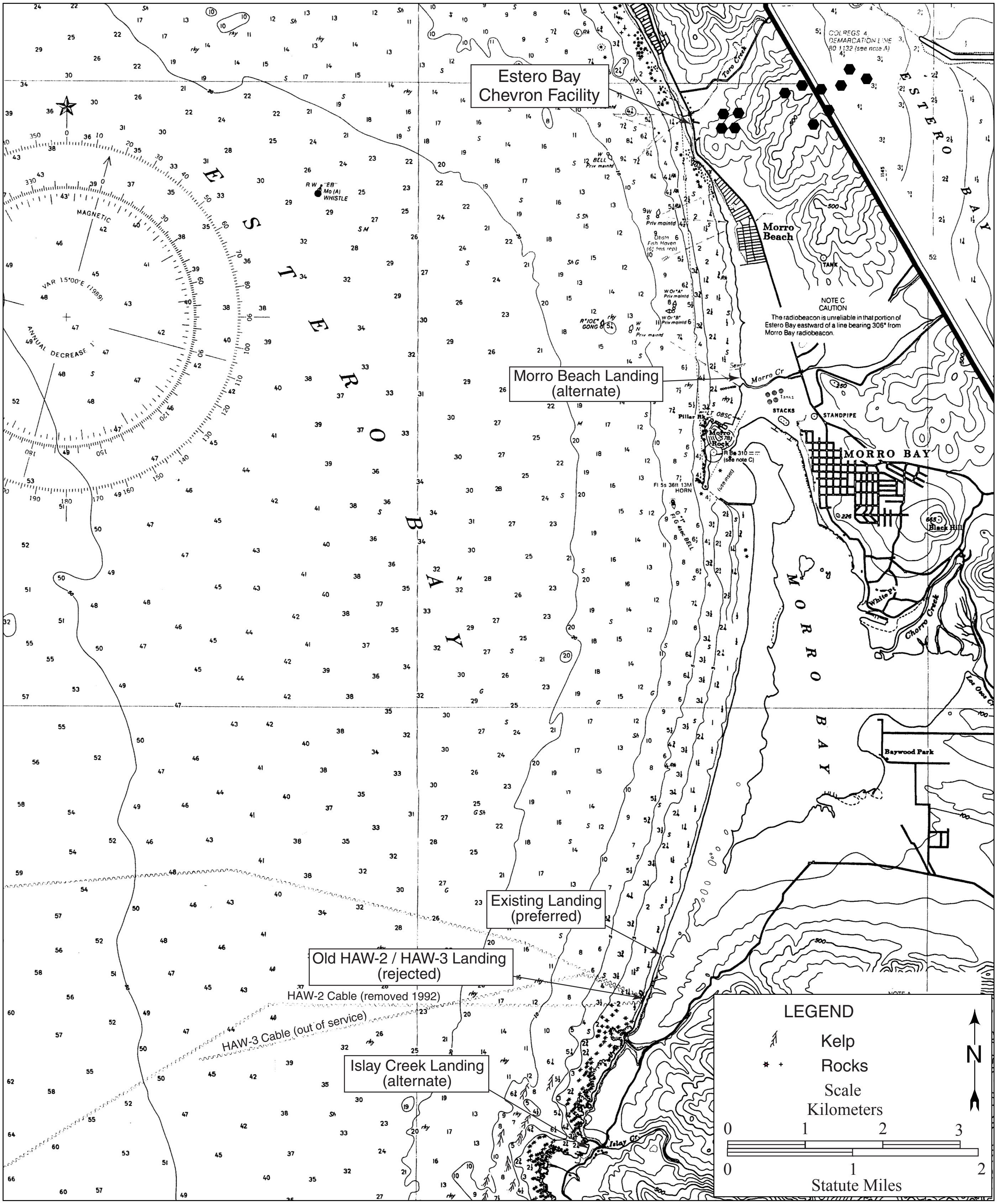



**Figure 10. Cable Landing Options at San Luis Obispo**

offshore, as well as the additional construction that would be required on State Parks land. State Parks staff have indicated that use of the existing landing site, which is already permitted, is preferable to attempting to establish a new site somewhere else within the park (personal communication, V. Cicero 1999).

### 3.1.2 HAW-3 / HAW-2 Landing

In order to cover all options, the abandoned landing site for the HAW-3 and HAW-2 cables, which is about 0.5 mile (800 m) south of the presently active landing was also considered. This landing crosses a 40-m-wide beach and the cables were laid in a trench that went up a steep, nearly 300 feet (100-m)-high vegetated bluff, then crossed through sand dunes about 2,000 feet (600 m) to the roadway. Trenching in the cables would have adverse effects in this protected and environmentally sensitive area, so the most likely scenario would involve directional drilling and cable installation from a new landing site that would have to be developed somewhere between the road and the edge of the bluff. The site is similar to the Islay Creek site in affording no advantages that would justify new environmental impacts and the efforts involved in permitting and constructing a new landing site (personal communication, V. Cicero 1999).

### 3.1.3 Morro Beach

North of Morro Bay, beginning about 5.5 miles (9 km) north of the existing cables, there is a very wide, sandy beach that runs for many kilometers to the north (Figure 10). An area about 3,000 feet (900 m) north of Morro Rock where there was convenient access to the beach was investigated in the desk top study. It is near where a short sewer outfall extends about 300 feet (100 m) offshore. Morro Rock is a volcanic plug that originally intruded into surrounding marine sediment and metamorphic rock. The surrounding material, being less resistant, has been eroded away leaving the spectacular volcanic edifice. The beach is very wide, over 100 m from vegetation to the water in most areas, and is covered by an apparently deep, coarse sand. There are no signs of geologic obstructions offshore, and no indications of anything but slowly deepening sedimented bottom based on published charts. In the absence of detailed seafloor survey information, the degree to which the two cables could be buried offshore from this location is unknown, but it is reasonable to expect that alignments could be found that would achieve burial at least as successfully as the proposed routes.

The DTS considered that cables could be buried by trenching across the beach, but this is considered infeasible given the recent designation of the beach as critical habitat for the threatened snowy plover (USFWS 1999). More likely, if this site were to be used a conduit system would be installed by horizontal directional drilling (HDD), from a construction area and beach manhole somewhere on the developed land between Highway 1 and the high tide line. Roughly 15 miles (25 km) of new onshore construction would be required from this location to connect the cables to the AT&T cable station.

This entire coastline used to have a series of oil tanker mooring/loading buoys. In the area of interest near Morro Bay there are two buoys, and associated pipelines and other structures on the sea floor, which were in the past used to offload fuel oil for what used to be the Pacific Gas and Electric (PG&E) Morro Bay Power Plant. The plant has since been converted to burn natural gas and is currently owned and operated by Duke Energy Morro Bay, LLC. Duke Energy has applied for permits for additional construction and modification (personal communication, G. Foose 1999; Duke Energy 1999). A few kilometers to the north, additional oil loading buoys were operated by the U.S. military to supply fuel to a nearby base. Both the Duke Energy and the military oil buoys have been removed, but the pipelines and other sea floor structures are still in place. In the case of the Duke Energy oil handling system, the seabed structures are to remain in place. These existing pipelines and other offshore structures would constrain cable routes through the nearshore area.

This alternative could allow the avoidance of areas of rocky seafloor that are crossed by the proposed routes. However, these rocky areas are also avoided by the maximum burial alternative routes discussed later in this chapter. A Morro Beach alternative would have new impacts that would not occur with either the proposed routes or maximum burial alternative routes. These new impacts include those that would result from the installation of new bore pipes in the marine environment, and the onshore ground disturbance required for cable installation. The latter could have significant, but most likely mitigable, impacts on air quality, geology and water quality, terrestrial biology, cultural resources, and traffic. Since this alternative would not substantially mitigate impacts associated with the proposed project without causing new impacts on a variety of resources further consideration is not recommended.

### 3.1.4 Estero Marine Terminal

An additional alternative landing site is at Chevron's abandoned Estero Marine Terminal, located on Highway 1 about 3 miles (5 km) north of Morro Bay. Until recently, crude oil from onshore fields in Monterey, San Luis Obispo, and Kern counties was transported to the facility by pipeline, stored, then pumped through loading lines to tankers at offshore moorings, for ocean transportation to refineries. Tankers also offloaded light "cutter stock" oil at the terminal, for transport via pipeline to interior oil fields where it was used as a diluent for heavy crude oil from the southern San Joaquin Valley. Construction of the All-American Pipeline and Pacific Pipeline projects eliminated the need for oil transportation to and from the marine terminal. As a result, Chevron applied for and has received CSLC approval of a Lease Termination Agreement that provides for the removal and/or abandonment in place of oil handling facilities, together with a new lease that allows the continued maintenance of three submerged onshore-to-offshore pipelines in non-operational status while they are evaluated for possible future use (CSLC 1999a,b). These three pipelines all begin on the 2,200-acre (900 hectare) marine terminal site and extend offshore about 0.5 mile (800 m) to an approximately 45-foot (15 m) water depth.

Currently, Chevron has applied to San Luis Obispo County for a permit to convert the terminal to a cable landing facility and use the offshore pipelines as conduits for fiber optic cables. If approved, the site may be made available as a consolidated landing point for future cable projects. However, as of the date of the publication of this document, the County has not accepted Chevron's application as "complete," and will not be in a position to pass on the merits of Chevron's proposal until a full CEQA review has been completed.

Assuming approval by the County of Chevron's pending conversion permit, use of these pipelines to land fiber optic cables may offer certain advantages inherent in the re-use of existing facilities. By comparison to the proposed project, however, AT&T already plans to use an existing bore pipe and existing upland conduit. Further comparative discussion of the Estero Marine Terminal as a feasible alternative landing site to the proposed landing at Montaña de Oro is found in section 5.1.2.

## 3.2 ALTERNATIVE CABLE ALIGNMENTS

In response to public and agency (CSLC and CCC) concerns, two alternative cable routing scenarios are being considered. The first is in response to commercial fishing concerns and involves realigning the E1 segment into the "wedge" of existing cables, thereby avoiding the north-south expansion of the area within which submarine cables are located off of Morro Bay. The second is in response to concerns associated with laying cables over rocky bottom substrates and involves realigning both the E1 and S7 cables to avoid areas of rocky seafloor and maximize burial. Each of these two scenarios is discussed below.

### 3.2.1 E1 Realignment into the "Wedge" of Existing Cables

#### *3.2.1.1 Background*

AT&T has historically requested, but cannot legally require, that fishing be avoided within 0.5 nm of the cables to reduce the risk of gear entanglement. As described in section 2.10, AT&T and other cable companies in the area have recently been working with commercial fishermen to identify fishing and installation procedures that would minimize the risk of gear entanglement and damage to cables. The risks of entanglement are clearly greatest where a cable is unburied and exposed to heavy fishing pressure (CSLC 1999b), especially in the case of commercial bottom trawling for demersal species, which involves dragging weighted nets across the seafloor, as opposed to midwater trawling for pelagic species. As discussed in section 2.3.3, the cables are buried wherever possible to minimize the risk of contact with fishing gear. The effectiveness of burial in avoiding fishing conflicts is indicated by the fact that AT&T has never had a fishing-related fault, or had a gear claim, on any of its buried cables (HAW-5 and the two TPC-5 cables) in the Morro Bay area (personal communication, R. Wargo 1999).

International and federal laws require AT&T to reimburse a fisherman for lost gear that is "sacrificed" after becoming entangled in order to avoid damage to a cable. In addition, under Section 23 of the U.S. Submarine Cable Protection Act (USC Title 47, Chapter 2), a fisherman cannot be held liable for breaking or injuring a cable ". . . in an effort to save the life or limb of himself or of any other person, or to save his own or any other vessel; provided that he takes reasonable precautions to avoid such breaking or injury."

Concerns have been raised by government agencies and by local fishermen over what may amount to a loss of access to fishing grounds when fishermen observe the traditionally requested 0.5 nm standoff or otherwise avoid fishing over cables to reduce the risks of damage to their gear or to cables. This potential indirect impact on fishing can be minimized by locating new cables between, and as close as possible, to preexisting cables. The application of this concept to the China-U.S. cables is discussed below.

As noted above in section 2.2.2, AT&T follows the industry standard of not placing cables closer horizontally than two times the depth of the overlying waters, in order to allow emergency repairs to a damaged cable without risking additional damage to the neighboring cable. This minimum safe distance is followed in the route design of both proposed cables except in shallow water, where the cables must converge to enter the same bore pipe, and their horizontal separation is less critical because divers can assist repairs and it is relatively easy to bring a cable to the surface. The proposed S7 cable is placed inside a wedge defined by the HAW-5 and TPC-5 T1 cables. The S7 cable is roughly equidistant from both cables, by approximately the minimum safe distance, out to a depth of about 50 m at about 1 nm offshore. From that point on, the cables diverge and the S7 cable maintains a safe distance from other cables while remaining within the wedge. It should be noted that the southern limits of the existing active cable area are defined by the TPC-5 G cable, which runs parallel to and just south of the HAW-5 cable.

The E1 cable is located as close as practicable to the TPC-5 T1 cable, but it is placed outside of the wedge formed by the TPC-5 T1 and HAW-5 cables. Early in the project's inception, the alignment of Segment E1 was placed north of TPC-5 T1 because it provided the best route between the two cable landings; it minimized the segment length; it was well clear of the Santa Lucia Bank (an area of known concern to commercial fishing interests); it provided "security" separation between the two segments of the China-U.S. "ring"; and it was on a route where good cable burial looked feasible. It was placed north of the "wedge" of existing cables based on input from the local fishermen and AT&T's experience with area's fisheries. This route was presented in 1997 to the local fishing community for comment, and no objections were received at that time.

A detailed seabed survey of the E1 alignment was then performed (NTT 1997; Cable & Wireless Marine 1998). Detailed route engineering, including burial assessment, was performed based on survey results. Segment length was determined, cable types were selected, and burial operations were planned. When final route engineering was completed, the information was given to the system manufacturer and Segment E1 was built to the custom specifications to lie or be buried along the selected surveyed route.

#### *3.2.1.2 Feasibility of Realigning E1 into the Wedge*

AT&T has researched the possibilities for realigning one or both of the China-U.S. cables to keep both within the wedge of existing cables. Although only one of the cables (E1) is currently routed outside of the wedge, its realignment would likely necessitate revisions to the alignment of the other cable (S7), which would remain within the wedge. This effort has taken into account the proposed MFS Globenet WorldCom project at San Luis Obispo (Morro Group 1999), with the goal of avoiding the need for that project in turn to redesign its cable alignments. The only alternative that appears technically feasible involves creating a new alignment for the E1 cable just north of the existing S7 cable route, with both cables remaining between the HAW-5 and TPC-5 T1 cables and running closely parallel to approximately 8 nm from shore. At that point, the redesigned E1 route would converge with the as-proposed S7 route and continue across the continental shelf. The S7 route would then be realigned parallel to and south of, but as close as possible to, the E1 cable.

In addition to adding significantly to the length (and costs) of the E1 cable, the technical drawbacks of this scenario include having the S7, HAW-5, and E1 cables all in close proximity in the nearshore area, which increases the risk that an accident would affect more than one of the cables; and the need for the E1 cable to cross back over the TPC-5 T1 cable at some point to get back into alignment for the landing at Bandon, Oregon. This is feasible from an engineering standpoint, although it requires additional protection for the cables and increases the risk of failure to both cables.

#### *3.2.1.3 Seafloor Conditions*

Previous seafloor surveys using sidescan sonar and sub-bottom profiling (Cable & Wireless Marine 1998) covered much of the area crossed by the alternative "in the wedge" routes. Subsequently, the inshore portions of the alternate routes associated with realigning E1 into the wedge were surveyed by ROV in June 1999 to obtain information on substrate conditions and biotic communities.

The locations of individual high-relief outcrops (potential pinnacles) along the as-proposed S7 route, as detected by side scan sonar, are listed in Appendix A. ROV survey results are displayed graphically in Figure 11. Both of these sources indicate that the new E1 route would be across a substantial area of high-relief, rocky substrate, potentially including rock pinnacles, between about 1 and 7 nm (1.8 and 13 km) offshore. The cable could not be buried in this area, and the larger outcrops would result in free-spanning sections of cable above the ocean floor. Beyond 7 nm, both of the realigned routes would cross silty clay sediments where the cables could be buried by sea plow, similar to the situation along the proposed E1 and S7 alignments.

#### *3.2.1.4 Conclusion*

The placement of the E1 cable across an extensive rocky area within the wedge where the cable could not be buried, in contrast to the situation along the proposed E1 alignment to the north (Figure 4, Figure 11), would result in greater impacts than the proposed project on fishing and marine biology. In particular, although different types of fishing gear are used in rocky versus soft-bottom areas (see section 4.7), free-spanning segments of cable present more risk of gear conflicts than buried cables, which historically have not been implicated in gear loss. In addition, state agencies have expressed concerns about marine biology impacts associated with having a cable free-spanning between large outcrops or pinnacles. For these reasons this alternative alignment is no longer being pursued.

### 3.2.2 Realignment to Avoid Rocky Areas and Maximize Burial

#### *3.2.2.1 Background*

As noted above, concerns have arisen over cable spans between rock outcrops, as may occur where the cable is installed in high-relief rocky areas. In response to concerns raised by the CSLC and CCC in particular, AT&T, together with MCI/WorldCom and the owners of the Southern Cross Cable Network have investigated the possibility of realigning the China-U.S. cables, and three others currently proposed (AT&T's Japan-U.S. Segment 9 and two other cables, Japan-U.S. Segment 1 and Southern Cross, that are part of an MCI/WorldCom project) for landing at Montaña de Oro, in order to avoid areas of rocky seafloor and maximize the extent to which the cables are buried. These companies have worked together to develop a feasible realignment strategy that addresses *all* of the proposed cables and avoids conflicts between projects in the event that the realignments are favored over the originally proposed routes.

#### *3.2.2.2 Feasibility of Realignment to Avoid Rocky Areas and Maximize Burial*

The occurrence of areas of rocky seafloor off Morro Bay has been assessed in seafloor surveys (e.g., Cable & Marine Wireless 1998; Racal-Pelagos and NRC) along proposed cable routes in support of AT&T's projects and others. As a result of multiple, and in some areas, overlapping surveys, it was possible for AT&T and MCI/WorldCom to assemble a comprehensive map of the distribution of substrate types, including high- and low-relief rocky areas (high relief being greater than 1 m), throughout the area of interest. AT&T and MCI/WorldCom then jointly reviewed the information to determine whether feasible alternative routes for all five proposed cables could be found that would avoid most or all of the rocky areas, maximizing burial, while providing acceptable separations between the cables. Additional geophysical and biological investigations of this area were conducted in August 1999, confirming both substrate and biological conditions.

**Table 5a. Route Position Lists (RPLs) for Maximum Burial Alternative**

| SEGMENT E1 | | | SEGMENT S7 | | |
|---|---|---|---|---|---|
| *Location* | *Latitude* | *Longitude* | *Location* | *Latitude* | *Longitude* |
| Bore Pipe | 35°18.25'N | 120°53.13'W | Bore Pipe | 35°18.25'N | 120°53.13'W |
| A/C 1 | 35°18.58'N | 120°53.54'W | A/C 1 | 35°18.58'N | 120°53.54'W |
| A/C 2 | 35°19.48'N | 120°53.05'W | A/C 2 | 35°19.15'N | 120°53.36'W |
| A/C 3 | 35°19.90'N | 120°53.14'W | A/C 3 | 35°19.51'N | 120°53.36'W |
| A/C 4 | 35°20.94'N | 120°54.65'W | A/C 4 | 35°19.67'N | 120°53.54'W |
| A/C 5 | 35°21.40'N | 120°58.00'W | A/C 5 | 35°20.21'N | 120°56.49'W |
| A/C 6 | 35°21.60'N | 121°00.00'W | A/C 6 | 35°19.92'N | 120°57.22'W |
| Joins original E1 route | 35°22.18'N | 121°02.00'W | A/C 7 | 35°19.90'N | 120°58.01'W |
| | | | Joins original S7 route | 35°20.48'N | 121°02.00'W |
| | | | | | |

Figure 12 shows the resulting alternative routes that are feasible for the two China-U.S. cables and the three other cables. Table 5a provides the route position lists (RPLs) in latitude and longitude for the alternative routes, which extend roughly 8 nm (15 km) offshore, whereupon they reconnect to the originally proposed routes. The cable routes successfully avoid nearly all of the rock outcrops and high-relief areas. This is accomplished, at the expense of increasing the length of all of the cables routes, by having the routes turn northward in the inshore area to go around the major area of high relief, and by locating the cables in close proximity to each other. Farther offshore, the cables detour around other areas of high relief.

#### *3.2.2.3 Seafloor Conditions*

Figure 12 illustrates the location of maximum-burial alternative routes with respect to seafloor conditions. Seafloor conditions have been interpreted and mapped for these based on a detailed composite, side-scan sonar mosaic of the area. As Figure 12 indicates, nearly all rocky areas are avoided. The E1 route crosses an area of rock outcrop 200 feet (60 m) wide at depths of 100 to 105 feet (30-32 m), while the S7 route crosses 165 feet (50 m) of outcrop at the same depth and an additional 655 feet (200 m) of rock outcrop/subcrop intermixed with sand, locally covered with sediment, where burial may or may not be practicable. These rocky areas are about 1 nm offshore. The results of biological investigations conducted during August 1999 in these areas and along soft-bottom portions of these routes are discussed in section 4.5. Table 6 compares these alternative routes to the proposed routes in terms of the extent of burial and installation methods.

With the exception of the area about 1 nm from shore, the alternative routes traverse areas of sand, mixed sediment (that may include locally hard-packed areas or flat outcrops mixed with coarse-grained sediment), coarse-grained sediments, and areas of silt and clay. Cable installation methods, including the use of divers, ROV, and the sea plow with respect to depth and distance from shore are essentially the same as those described for the proposed project. It may be necessary to temporarily anchor the cable to the bottom (on sandy substrate) where there are tight turns in the alignment to ensure the avoidance of rocky areas.

Based on cone-penetrometer tests conducted along the routes (original data made available for this analysis by NRC and Racal-Pelagos), apart from the rock outcrops mentioned above, the cables can be buried throughout the new routes. Some areas of shallow burial (less than 3 feet [1 m] depth) may be encountered in the sandy and mixed sediment areas less than 3 nm from shore, but in general, burial depths of 1 m are feasible. The alternative routes join the original routes at depths of approximately 600 feet (180 m). Continuing farther offshore, burial specifications are as previously described for the proposed routes.

#### *3.2.2.4 Conclusion*

The foregoing evaluation suggests the feasibility of alternative alignments that largely avoid rocky areas and maximize cable burial. Accordingly, this alternative, termed the “Maximum Burial Alternative” is carried forward for further analysis and comparison with the proposed routing in Chapter 4. Essentially the same installation procedures as described previously for the proposed routes would be used for this alternative, the major difference being that there would be longer areas of burial by ROV, and much shorter areas where the cables would be direct laid on rocky surfaces. All other procedures and commitments described for the proposed project in Chapter 2 would also apply to this alternative.

## 3.3 NO PROJECT ALTERNATIVE

Under the No Project Alternative, the E1 and S7 cables would not be landed at Morro Bay in any of the proposed or alternative configurations. Project impacts on air quality, cultural resources, commercial fishing, and recreation that are potentially significant but could be mitigated by measures identified in this EIR, and other less than significant impacts, would be avoided altogether if the No Project Alternative were adopted. At the same time, project objectives to complete the China-U.S. Cable Network System and provide a direct telecommunications link between China and the U.S. would not be met.

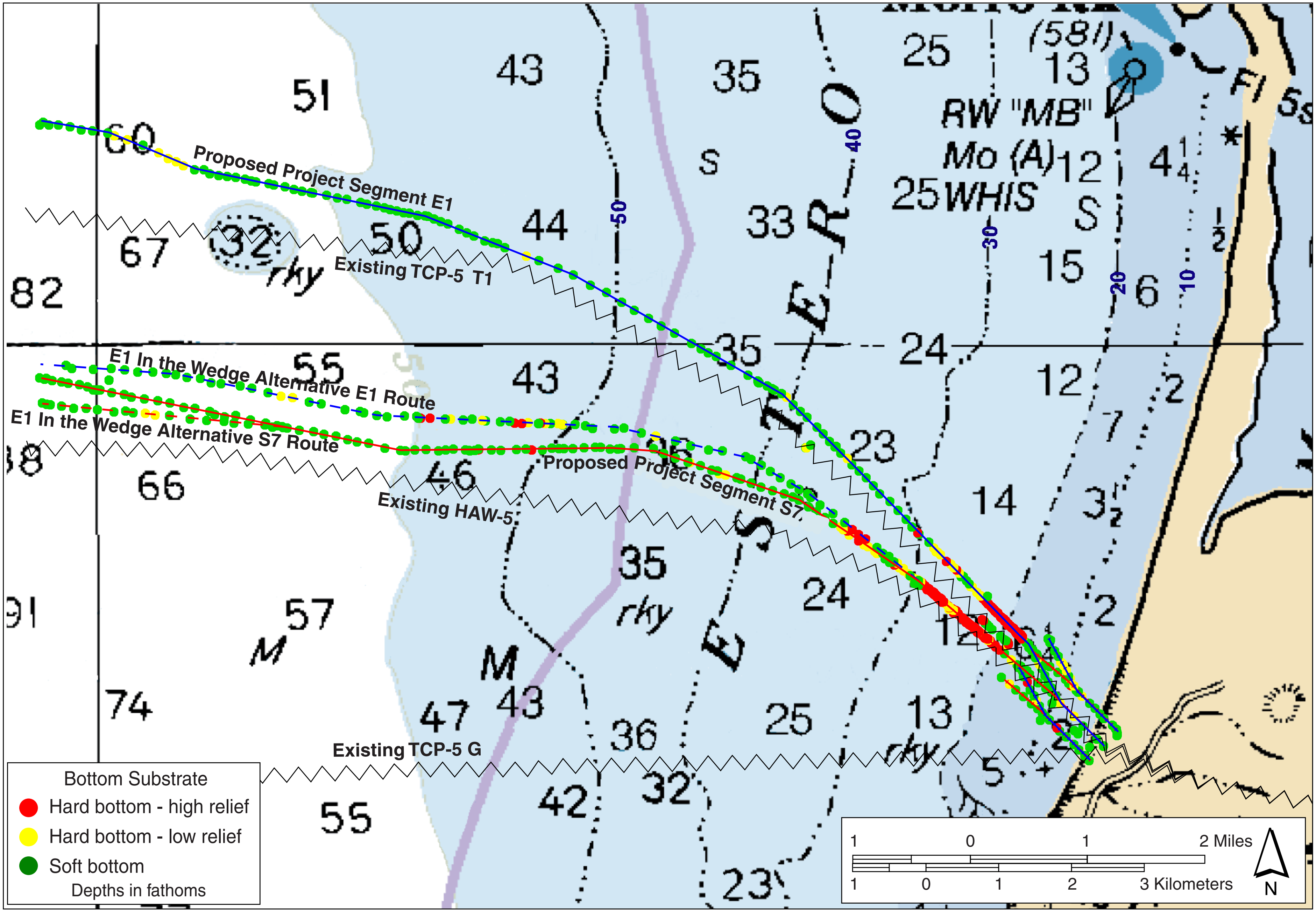
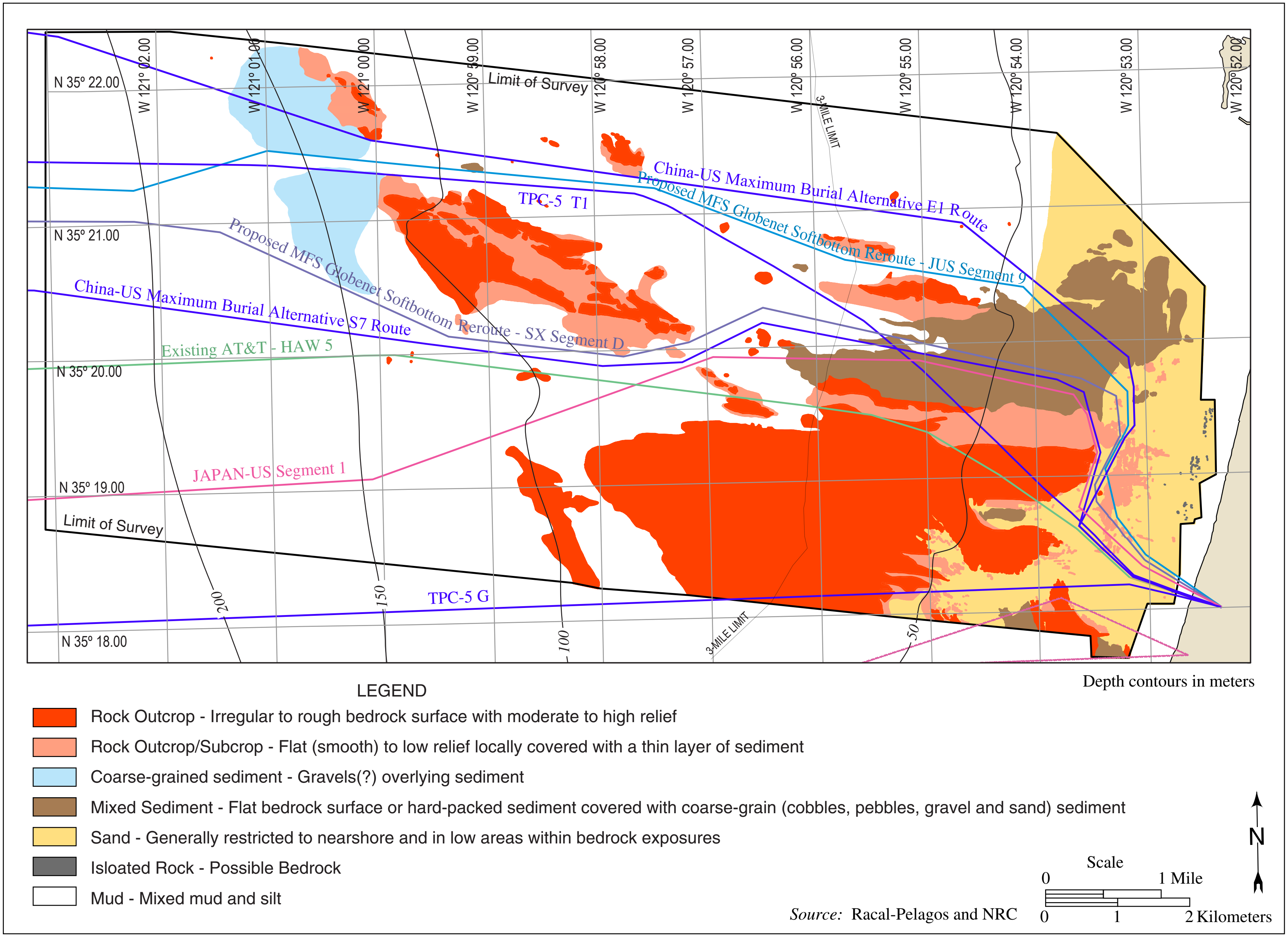



Figure 11. Substrate Conditions along Proposed and "In the Wedge" Alternative Cable Routes




*Source:* Racal-Pelagos and NRC

**Figure 12. Alternative Cable Routes Achieving Maximum Burial**

## Table 6. Burial Statistics for China-U.S. Proposed and Alternative Cable Routes

**Segment S7 Proposed Route**

| *Location/Depth* Begin | End | Cable Length (km) | Cumulative Distance from BMH (km) | Buried | Burial Method |
|---|---|---|---|---|---|
| BMH* | EOC* | 1.440 | 1.440 | yes | in pipe |
| EOC | 37m | 1.617 | 3.057 | yes | diver/ROV |
| 37m | 74m | 3.787 | 6.844 | no | surface laid |
| 74m | 99m | 3.608 | 10.452 | yes | ROV |
| 99m | 1100m | 62.013 | 72.465 | yes | Plow |
| 1100m | 1800m | 21.378 | 93.843 | yes | ROV |
| | | | 93.843 | Total Cable | |
| | | | 90.056 | Buried (95.96%) | |

**Segment S7 Maximum Burial Alternative Route**

| *Location/Depth* Begin | End | Cable Length (km) | Cumulative Distance from BMH (km) | Buried | Burial Method |
|---|---|---|---|---|---|
| BMH* | EOC* | 1.440 | 1.440 | yes | in pipe |
| EOC | 30m | 1.995 | 3.435 | yes | diver /ROV |
| 30m | 32m | 0.050 | 3.485 | no | surface laid |
| 32m | 35m | 0.200 | 3.685 | no | surface laid |
| 35m | 110m | 10.919 | 14.604 | yes | ROV |
| 110m | 1100m | 59.458 | 74.062 | yes | Plow |
| 1100m | 1800m | 21.378 | 95.440 | yes | ROV |
| | | | 95.440 | Total Cable | |
| | | | 95.190 | Buried (99.74%) | |

**Segment E1 Proposed Route**

| *Location/Depth* Begin | End | Cable Length (km) | Cumulative Distance from BMH (km) | Buried | Burial Method |
|---|---|---|---|---|---|
| BMH | EOC | 1.440 | 1.440 | yes | in pipe |
| EOC | 34m | 1.593 | 3.033 | yes | diver/ROV |
| 34m | 61m | 2.695 | 5.728 | no | surface laid |
| 61m | 77m | 2.272 | 8.000 | yes | ROV |
| 77m | 98m | 4.639 | 12.639 | yes | Plow |
| 98m | 153m | 3.163 | 15.802 | no | surface laid |
| 153m | 1010m | 49.874 | 65.676 | yes | Plow |
| 1010m | 1080m | 3.958 | 69.634 | yes | ROV |
| 1080m | 1100m | 4.544 | 74.178 | yes | Plow |
| 1100m | 1800m | 31.515 | 105.693 | yes | ROV |
| | | | 105.693 | Total Cable | |
| | | | 95.835 | Buried (94.46%) | |

**Segment E1 Maximum Burial Alternative Route**

| *Location/Depth* Begin | End | Cable Length (km) | Cumulative Distance from BMH (km) | Buried | Burial Method |
|---|---|---|---|---|---|
| BMH | EOC | 1.440 | 1.440 | yes | in pipe |
| EOC | 30m | 2.040 | 3.480 | yes | diver / ROV |
| 30m | 32m | 0.060 | 3.540 | no | surface laid |
| 32m | 153m | 14.258 | 17.798 | yes | ROV |
| 153m | 1010m | 49.942 | 67.740 | yes | Plow |
| 1010m | 1080m | 3.958 | 71.698 | yes | ROV |
| 1080m | 1100m | 4.544 | 76.242 | yes | Plow |
| 1100m | 1800m | 31.515 | 107.757 | yes | ROV |
| | | | 107.757 | Total Cable | |
| | | | 107.697 | Buried (99.94%) | |

*Note*: * BMH = Beach Manhole at Sandspit Parking Lot, EOC = end of conduit on seafloor
*Source*: AT&T (J. Murray)

# 4.0 ENVIRONMENTAL SETTING, PROJECT IMPACTS, AND MITIGATION MEASURES

## 4.1 ANALYTICAL APPROACH

### 4.1.1 Overview

For each resource and issue area of concern, the following sections identify the environmental setting; criteria used to determine the significance of project impacts; a description of the resource or issue-specific impacts, at both project-specific and cumulative levels (see section 4.1.2 below); and mitigation measures for significant impacts.

The EIR is focused on substantive issues relating to potentially significant project impacts and concerns that were identified through scoping and the CSLC's review.

Significance criteria reference elements of the regulatory setting (Chapter 2, section 2.11) or CEQA Guidelines as appropriate. Impacts are classified as follows:

- Class I = Significant but not mitigable to less than significance
- Class II = Significant but mitigable to less than significance
- Class III = Adverse but less than significant
- Class IV = Beneficial.

For any impact found to be significant, a mitigation measure which is both feasible and effective is identified to eliminate, reduce in magnitude, or compensate for the impact, if possible to a level that is less than significant, although this is not necessarily a level of zero impact. A Mitigation Monitoring and Reporting Plan will be included in the Final EIR.

For each resource and issue area, a concluding subsection compares the proposed project routes to the Maximum Burial Alternative routes described in Chapter 3. This section focuses on the factors that differentiate the two alternatives and are most relevant to the decision makers choice between them (CEQA Guidelines, Section 15126.6[d]).

### 4.1.2 Cumulative Impact Analysis

As discussed in the CEQA Guidelines [Section 15130(a)], a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR. An EIR must discuss the cumulative impacts of a project when the project's incremental effect is "cumulatively considerable," that is, considerable when viewed in connection with the effects of other past, present, and probable future projects.

For the AT&T China-U.S. project, the scope of the cumulative analysis includes projects with related or cumulative impacts on the same resources in the Morro Bay area. These projects include the submarine cable projects as shown in Figure 13 and are briefly described as follows.

1. **Proposed MFS Globenet/Worldcom Fiber Optic Project**. This project includes the installation of a new fiber optic cable landing site at Montaña de Oro State Park at the Sandspit Road Parking Lot; the installation of 5 new bore pipes by horizontal directional drilling from the landing site to points on the seafloor roughly 0.5 mile (800 m) offshore; the installation of three new cables, which would extend across the continental shelf and into these bore pipes as part of the Japan-U.S. (2 cables, JUS-1 and JUS-9 on Figure 12) and Southern Cross (one cable, SX-1 on Figure 13) projects; and the installation and use of a new conduit to connect these cables to existing telecommunications infrastructure in Los Osos. No specific project or cable routing has been identified at this time for the other two proposed bore pipes. Cable installation methods and impacts on the marine environment are expected to be similar to those of the proposed China-U.S. project and would occur in the same general area off of Montaña de Oro. A potential cumulative impact related to the use of the Sandspit Road Parking Lot by both projects must also be considered. Additional information on this project is available in a recently published Draft EIR (Morro Group 1999).

2. **Proposed Global West Fiber Optic Cable Project.** This project is a "festoon" system involving a cable that runs parallel to the coastline between San Diego and San Francisco at 3 to 12 miles (5 to 19 km) offshore, with onshore connections at various points, including Estero Bay. As proposed in Estero Bay, there would be two cables, one incoming, one outgoing, to connect the offshore cable to an onshore landing site that would be adjacent to the Chevron Estero Bay Marine Terminal. From this point the onshore cables would be installed by a combination of roadside trenching, placement on existing utility poles, and use of existing conduit to connect to infrastructure in San Luis Obispo. Cable installation methods and potential environmental impacts on the marine environment are expected to be similar to those of the proposed China-U.S. project, although overlap between the two projects is limited to where Global West sea cable would cross the two China-U.S. cables about 6 miles offshore. Additional information on this project is available in a recently published Draft EIR (CSLC 1999b).

3. **Proposed Tyco/Global Crossings Fiber Optic Cable Project.** The proposed Tyco/Global Crossing fiber optic cable project includes the offshore installation and landing of three new cables, at Grover Beach, California, about 20 miles (32 km) south of Morro Bay. Two of the cables are part of the Pacific Crossing Submarine Cable (PC-1) system, while the third cable is part of the Pan-American Crossing Submarine Cable System (PAC). Cable installation methods and potential impacts on the marine environment are expected to be similar to those of the proposed China-U.S. project, although all of the cables head west then southward out of Grover Beach, and thus do not overlap the China-U.S. routes on

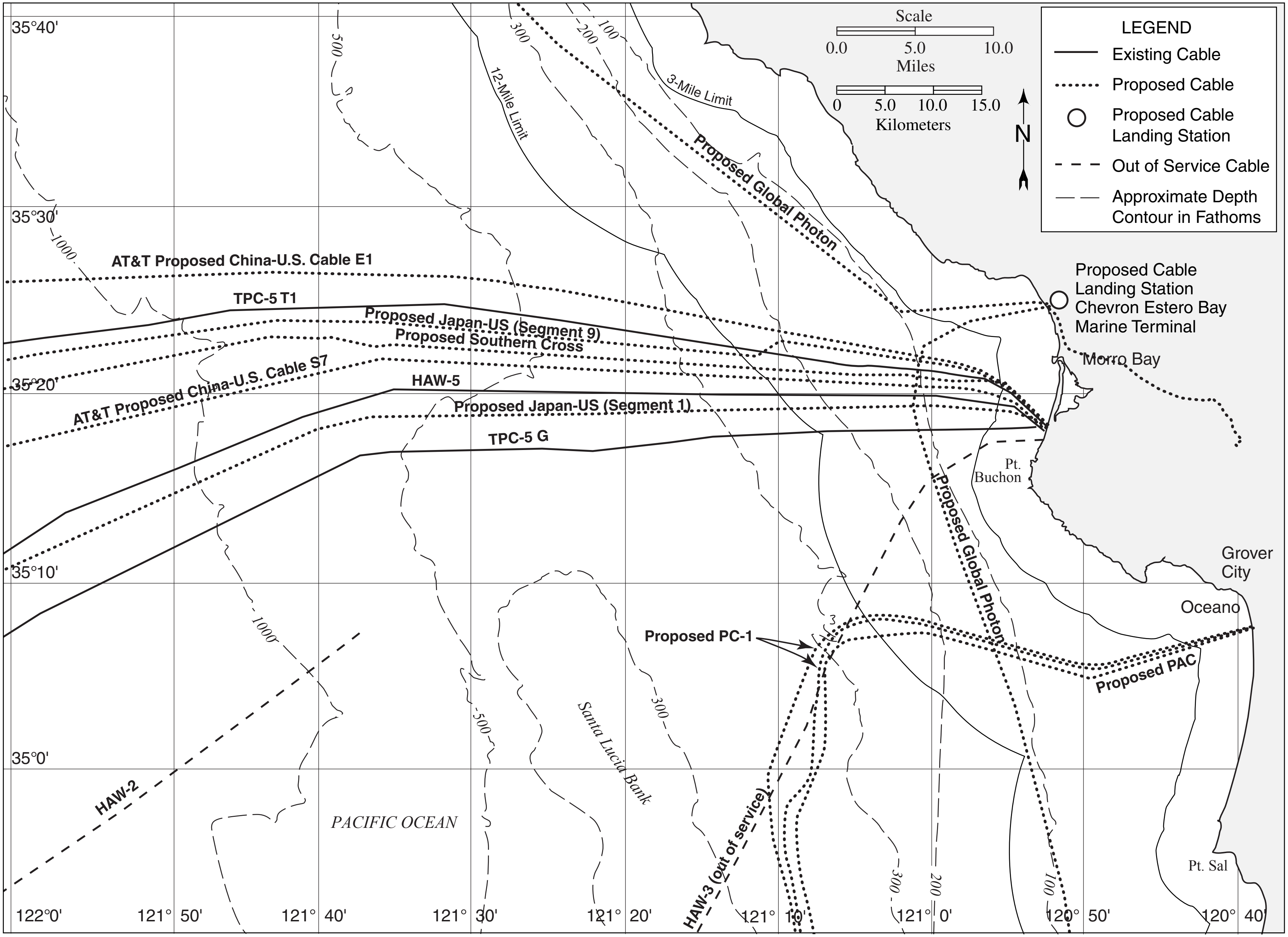



**Figure 13. Cumulative Projects**

the continental shelf. The applicant is currently preparing a Draft Mitigated Negative Declaration for this project.

4. **Proposed Chevron Estero Bay Marine Terminal Conversion.** The Chevron Estero Bay terminal conversion is a proposed project that entails the conversion of the Chevron Estero facility into a fiber optic cable landing site and transfer facility or switching center. This facility is located adjacent to the City of Morro Bay's northern limits and east/west crude oil transfer lines actually extend under City jurisdiction. The existing crude oil tanker transfer pipelines that run east from Morro Bay to points approximately 2,000 feet (600 m) offshore would be converted and used as large conduit with capacity to hold between 16 and 21 individual fiber optic cables. The individual cables, upon exiting the converted crude oil pipelines, would then extend to points north, south, and west. Cable installation methods and potential impacts on the marine environment are expected to be similar to those of the proposed China-U.S. project. Additional background information is available in the CSLC's Negative Declaration on the abandonment of oil transportation operations at the facility (CSLC 1999b) and from the County of San Luis Obispo — the CEQA lead agency for its re-use as a telecommunications facility.

5. **Existing Submarine Cables.** Three existing, in-service fiber optic cables (HAW-5, TPC-5 G, and TPC-5 T1) are present in the offshore area where the two new AT&T China-U.S. cables are proposed. As discussed in Chapter 2, these cables extend across the continental shelf and were placed in bore pipes installed as part of the HAW-5 project (Morro Group 1991; CSLC 1994). Installation methods were similar to those proposed for China-U.S., involving burial wherever sufficient sediment exists. There have been no reported instances of fishing gear loss on any of the three cables (personal communication, R. Wargo 1999). Two out-of-service cables (HAW-2 and HAW-3) are also present. The nearshore portions of HAW-2, out to a depth of about 730 fathoms, have been removed while the HAW-3 cable that extends southwest from Montaña de Oro is still in place. These are older, unburied cables that lay on the seafloor. During the past 10 years, AT&T has received and paid several claims for lost or damaged fishing gear that has become entangled on the HAW-2 and HAW-3 cables.

## 4.2 AIR QUALITY

### 4.2.1 Environmental Setting

Air quality in the project area is generally good, due to a high frequency of sea breezes and lack of substantial emission sources. The EPA has designated all areas of the United States as having air quality better than (attainment) or worse than (nonattainment) the National Ambient Air Quality Standards (NAAQS). Presently, San Luis Obispo County is in attainment of all NAAQS. The California Air Resources Board (ARB) also designates areas within the state as either in attainment or nonattainment of the California Ambient Air Quality Standards (CAAQS). Presently, San Luis Obispo County is in nonattainment of the CAAQS for ozone ($O_3$) and particulate matter less than or equal to 10 microns in diameter ($PM_{10}$) and in attainment for nitrogen dioxide ($NO_2$), sulfur dioxide ($SO_2$), and carbon monoxide (CO).

### 4.2.2 Significance Criteria

The project's potential air quality impacts are limited to the short-term emissions associated with cable installation activities. Accordingly, reference has been made to the San Luis Obispo County Air Pollution Control District (APCD) thresholds for construction emissions. These thresholds are used to determine when Best Available Control Technology for construction equipment (CBACT), and other mitigation measures, including offsets, may be required to reduce emissions to avoid potential violations of state and federal ambient air quality standards. The threshold for CBACT is (1) 185 pounds per day of reactive organic gases (ROG) or nitrogen oxides ($NO_x$) or (2) 2.5 tons of ROG or $NO_x$ during a calendar quarter (APCD 1997). Additional measures such as offsets are required if quarterly emissions would exceed 6 tons of ROG or $NO_x$. The threshold for determining when $PM_{10}$ mitigation measures are required is 2.5 tons per quarter.

In addition to the above emissions thresholds, the following criteria based on APCD rules and CEQA checklist items are used to determine significance. The project would cause a significant impact if: (1) visible emissions exceed the limits allowed by APCD Rule 401, (2) air contaminants are released in quantities sufficient to cause a nuisance, as defined by APCD Rule 402, (3) sensitive individuals are exposed to substantial pollutant concentrations (CEQA checklist), or (4) objectionable odors are created that affect a substantial number of people (CEQA checklist).

### 4.2.3 Project Impacts

Air quality impacts from cable installation activities would occur from combustive emissions due to the operation of the dive boat, support vessel, and cable laying vessel in the nearshore waters off Montaña de Oro, and from related shore-end activities at the Sandspit parking lot (see sections 2.3.2 and 2.9 of the project description). Emissions from these activities would be short-term, occurring intermittently over a period of about one to two months.

As described in section 2.11, the project has already committed to the incorporation of CBACT mitigation measures, including the use of low-sulfur diesel fuel and 3-4 degrees injection timing retard on all diesel engines. These measures were identified during the CEQA review of the previous TPC-5 project as being adequate to mitigate the short-term air quality impacts associated with similar cable installation procedures (CSLC 1994).

Emissions data for the project are provided in Tables 7 through 10 at the end of this section. Table 7 provides emission source data for project construction activities as described in Chapter 2, whereas Table 4 provides corresponding emissions factors. Emission factors take into account the use of low-sulfur diesel fuel, and injection timing retard is assumed to yield a 20 percent reduction in $NO_x$ emissions. Tables 8 and 9 provide daily and total project emissions.

Table 9 indicates that maximum $NO_x$ emissions within State Waters would exceed the APCD threshold of 185 pounds per day during nearshore cable installation, whereas the threshold for ROG would not be exceeded. Peak daily emissions within the limit of State Waters would occur during cable retroburial, when the cable lay vessel is deploying a ROV to retrobury the cable between 0.8 and 3 miles (1.3 and 5 km) offshore. This activity would take place on two separate 18-hour work days, one for each cable. Daily emissions would also exceed the threshold, by a smaller amount, for one day during the nearshore installation of each cable out to the 3-nm limit.

Table 10 indicates that total project emissions of ROG, $NO_x$, and $PM_{10}$ are below the APCD emission threshold of 2.5 tons per quarter within State Waters.

The APCD maximum daily threshold would be exceeded for very brief periods, a total of four days spanning a 1-2 month construction period. Most of the emissions are associated with vessels that will be moving as they retrobury the cable by ROV.

It is extremely unlikely that the short-term exceedance of the daily emission threshold for $NO_x$ by vessels moving in the nearshore waters off of Montaña de Oro would coincide with meteorological conditions that could lead to a violation of the State standard for $NO_2$. The peak daily emissions are similar to those estimated for the TPC-5 project (CSLC 1994), for which dispersion modeling indicated no exceedance of the State $NO_2$ standard under worst-case conditions. Given the fact that longer-term emission thresholds within State Waters are not exceeded and the incorporation of CBACT measures by AT&T into the project description, the project is considered sufficiently mitigated and unlikely to have a significant adverse effect on air quality.

The project would not discharge emissions that would exceed the visibility limits allowed by APCD Rule 401. Furthermore, since most emissions would occur more than 0.6 mile (1 km) offshore, it is not expected that the project would create a nuisance, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors affecting a substantial number of people. Overall, project impacts on air quality would be considered significant but mitigated to less than significance by applicant-proposed measures (Class II).

The APCD has reviewed the preceding analysis and agreed with the conclusions. The APCD's letter is contained in Appendix C.

### 4.2.4 Maximum Burial Alternative

The Maximum Burial Alternative has the same environmental setting as the proposed project. Installation procedures would be the same except for the greater lengths of the alternative routes out to 3 nm. In the maximum burial alternative, however, the two cables are co-located out to 1 nm such that they can be retro-buried during the same operation, rather than in two separate operations as for the proposed project. As for the proposed project, this element of cable installation is estimated to require two 18-hour days. Overall, the operating characteristics of the vessels and the duration of activities are estimated to be within what has been estimated for the proposed project (Tables 7 and 8), resulting in the same emissions and air quality impacts. These impacts are considered significant but mitigable (Class II) through CBACT measures as discussed above.

### 4.2.5 Cumulative Impacts

Cable installation activities associated with future projects could possibly occur simultaneously. However, due to the separation of cable-laying vessels, these activities would occur at a far enough distance, or at different times, from the proposed activities, that their emissions would be dispersed, and not expected to combine with project emissions and contribute to an exceedance of an ambient air quality standard. As a result, cumulative impacts would not differ substantially from those assessed for the proposed action and they would therefore be less than significant.

### 4.2.6 Mitigation Measures

Applicant-proposed commitments are incorporated here as mitigation measures.

**AQ-1.** The injection timing on diesel-powered vessels and construction equipment will be retarded 4° prior to and throughout cable installation with the exception of the main cable ships which will be operated at 3° retardation. These measures will produce a 20-25 percent reduction in emissions of nitrogen oxides (NOx).

**AQ-2.** Onshore equipment will use low-sulfur/low-aromatic diesel fuel as designated by the ARB. Ocean vessels will burn low-sulfur diesel fuel as designated by the EPA.

**Table 7. Emission Source Data for Construction of the China-US Cable Network Project**

| Activity/Equipment Type | Horsepower (Hp) | Load Factor | Number Active | Total Hp | Gal/Hr | Hours /Day | Gal/Day | Work Days | Total Fuel (Gal) |
|---|---|---|---|---|---|---|---|---|---|
| **Pipe Preparation** | | | | | | | | | |
| Primary Work Boat - Dive Platform | 800 | 0.15 | 2 | 240 | 13 | 14 | 188 | 3 | 564 |
| Secondary Work Boat - Anchor Support/ Shuttle | 350 | 0.37 | 2 | 259 | 15 | 14 | 203 | 3 | 609 |
| **Pre-lay Grapnel Run** | | | | | | | | | |
| Vessel-of-Opportunity - Outside State Waters | 800 | 0.20 | 2 | 320 | 18 | 20 | 358 | 5 | 1,792 |
| Vessel-of-Opportunity - w/i State Waters | 800 | 0.20 | 2 | 320 | 18 | 2 | 36 | 2 | 72 |
| **Near-Shore Cable Installation** | | | | | | | | | |
| Vessel-of-Opportunity - Landing | 800 | 0.20 | 2 | 320 | 18 | 14 | 251 | 1 | 251 |
| Primary Work Boat - Dive Platform | 800 | 0.20 | 2 | 320 | 18 | 14 | 251 | 1 | 251 |
| Secondary Work Boat - Anchor Support/ Shuttle | 350 | 0.26 | 2 | 182 | 10 | 14 | 143 | 1 | 143 |
| Vessel-of-Opportunity - Near-Shore Lay | 800 | 0.50 | 2 | 800 | 45 | 12 | 538 | 2 | 1,075 |
| Secondary Work Boat - Support, Patrol & Shuttle | 350 | 0.50 | 2 | 350 | 20 | 14 | 274 | 2 | 549 |
| **Near-Shore Cable Retroburial** | | | | | | | | | |
| Primary Work Boat - Dive Platform | 800 | 0.18 | 2 | 288 | 16 | 14 | 226 | 4 | 903 |
| Secondary Work Boat - Anchor Support/Shuttle | 350 | 0.26 | 2 | 182 | 10 | 14 | 143 | 4 | 571 |
| **Cable Splice - Arrival & Return** | | | | | | | | | |
| Cable Lay Vessel - Cruising | 5,950 | 0.50 | 3 | 8,929 | 500 | 8 | 4,000 | 2 | 8,000 |
| Cable Lay Vessel - Holding | 5,950 | 0.19 | 3 | 3,348 | 188 | 24 | 4,500 | 2 | 9,000 |
| **Offshore Cable Installation** | | | | | | | | | |
| Cable Lay Vessel - Lay Cable | 5,950 | 0.25 | 3 | 4,464 | 250 | 24 | 6,000 | 4 | 24,000 |
| Cable Lay Vessel - Plow Cable | 5,950 | 0.19 | 3 | 3,348 | 188 | 24 | 4,500 | 6 | 27,000 |
| **Cable Ship Return** | | | | | | | | | |
| Cable Lay Vessel - Cruising | 5,950 | 0.50 | 3 | 8,929 | 500 | 8 | 4,000 | 2 | 8,000 |
| Cable Lay Vessel - Cruising w/i State Waters | 5,950 | 0.50 | 3 | 8,929 | 500 | 0.25 | 125 | 2 | 250 |
| **Cable Retroburial** | | | | | | | | | |
| Cable Lay Vessel - ROV | 5,950 | 0.19 | 3 | 3,348 | 188 | 24 | 4,500 | 6.5 | 29,250 |
| Cable Lay Vessel - ROV w/i State Waters | 5,950 | 0.19 | 3 | 3,348 | 188 | 18 | 3,375 | 2 | 6,750 |
| **Shore End Construction** | | | | | | | | | |
| Bore Rig (Pipe Cleaning) | 115 | 0.50 | 1 | 58 | 3.2 | 6 | 19.3 | 1 | 19.3 |
| Crane | 250 | 0.32 | 1 | 80 | 4.5 | 2 | 9.0 | 2 | 17.9 |
| Backhoe | 105 | 0.72 | 1 | 76 | 4.2 | 8 | 33.9 | 4 | 135.5 |
| Power Winch | 100 | 0.40 | 1 | 40 | 2.2 | 6 | 13.4 | 2 | 26.9 |
| Compressor | 40 | 0.48 | 1 | 19 | 1.1 | 2 | 2.2 | 2 | 4.3 |
| Generator | 50 | 0.74 | 1 | 37 | 2.1 | 3 | 6.2 | 10 | 62.2 |
| Supply Truck | 250 | 0.30 | 2 | 150 | 8.4 | 1 | 8.4 | 10 | 84.0 |

Notes: Fuel consumption (gal/hr) for all equipment based on 0.056 gallons per Hp-hr (diesel engines).

**Table 8. Emission Factors for Sources Associated with the China-US Cable Network Project**

| *Equipment Type* | *Fuel Type* | *Emission Factors* *TOC* | *ROG* | *CO* | *NOx* | *SO2* | *PM* | *PM10* | *Units* | *Source* |
|---|---|---|---|---|---|---|---|---|---|---|
| Primary Work Boat, Vessel-of-Opportunity, & Cable Lay Vessel | D | 19.8 | 19.0 | 57.0 | 335.2 | 75.0 | 9.0 | 8.6 | lbs / 1000 gal | (1) |
| Secondary Work Boat | D | 188.0 | 180.5 | 418.0 | 310.4 | 7.1 | 24.0 | 23.0 | lbs / 1000 gal | (2) |
| Bore Rig | D | 1.44 | 1.38 | 9.20 | 8.81 | 0.93 | 1.44 | 1.38 | grams / Hp-hr | (3) |
| Crane | D | 1.29 | 1.24 | 4.20 | 8.24 | 0.93 | 1.44 | 1.38 | grams / Hp-hr | (3) |
| Backhoe | D | 1.43 | 1.37 | 6.80 | 8.08 | 0.85 | 1.05 | 1.01 | grams / Hp-hr | (3) |
| Power Winch | D | 1.14 | 1.09 | 3.03 | 14.06 | 0.93 | 1.00 | 1.00 | grams / Hp-hr | (4) |
| Compressor | D | 1.22 | 1.17 | 5.00 | 8.00 | 0.93 | 1.00 | 0.96 | grams / Hp-hr | (3) |
| Generator | D | 1.22 | 1.17 | 5.00 | 8.00 | 0.93 | 1.00 | 0.96 | grams / Hp-hr | (3) |
| Supply Truck | D | 0.86 | 0.83 | 2.80 | 7.68 | 0.89 | 0.80 | 0.77 | grams / Hp-hr | (3) |

*Notes*: 1 *Marine Vessel Emissions Inventory and Control Strategies*, Final Report FR-119-96 (Acurex 1996). Fuel contains 0.5% sulfur. NOx emission factors reduced by 20 percent to account for reduction due to application of injection timing retard.

2 *Development of an Improved Inventory of Emissions from Pleasure Craft in California*, Table 3-3b (ARB 1995).

3 *Nonroad Engine and Vehicle Emission Study - Report*, Table 2.07 (EPA 1991).

4 AP-42, Table 3.3-1, Vol. 1 (EPA 1996).

D = diesel
TOC = total organic compounds
ROG = reactive organic gases
TOC = total organic compounds
CO = carbon monoxide
NOx = nitrogen oxides

**Table 9. Daily Emissions for Construction of the China-US Cable Project**

| *Activity/ Equipment Type* | *Pounds Per Day* | | | | | | |
|---|---|---|---|---|---|---|---|
| | *TOC* | *ROG* | *CO* | *NOx* | *SO2* | *PM* | *PM10* |
| **Pipe Preparation** | | | | | | | |
| Primary Work Boat - Dive Platform | 3.7 | 3.6 | 10.7 | 63.1 | 14.1 | 1.7 | 1.6 |
| Secondary Work Boat - Anchor Support / Shuttle | 38.2 | 36.6 | 84.9 | 63.0 | 1.4 | 4.9 | 4.7 |
| **Total Activity Emissions (All w/i State Waters)** | **41.9** | **40.2** | **95.6** | **126.1** | **15.6** | **6.6** | **6.3** |
| **Pre-lay Grapnel Run** | | | | | | | |
| Vessel-of-Opportunity - Outside State Waters | 7.1 | 6.8 | 20.4 | 120.1 | 26.9 | 3.2 | 3.1 |
| Vessel-of-Opportunity - w / i State Waters | 0.7 | 0.7 | 2.0 | 12.0 | 2.7 | 0.3 | 0.3 |
| **Total Activity Emissions** | **7.8** | **7.5** | **22.5** | **132.1** | **29.6** | **3.5** | **3.4** |
| **Emissions w/i State Waters** | **0.7** | **0.7** | **2.0** | **12.0** | **2.7** | **0.3** | **0.3** |
| **Near-Shore Cable Installation** | | | | | | | |
| Vessel-of-Opportunity - Landing | 5.0 | 4.8 | 14.3 | 84.1 | 18.8 | 2.3 | 2.2 |
| Primary Work Boat - Dive Platform | 5.0 | 4.8 | 14.3 | 84.1 | 18.8 | 2.3 | 2.2 |
| Secondary Work Boat - Anchor Support / Shuttle | 26.8 | 25.8 | 59.6 | 44.3 | 1.0 | 3.4 | 3.3 |
| Vessel-of-Opportunity - Near-Shore Lay | 10.6 | 10.2 | 30.6 | 180.2 | 40.3 | 4.8 | 4.6 |
| Secondary Work Boat - Support, Patrol & Shuttle | 51.6 | 49.5 | 114.7 | 85.2 | 1.9 | 6.6 | 6.3 |
| **Total Activity Emissions (All w/i State Waters)** | **99.0** | **95.0** | **233.6** | **477.9** | **80.9** | **19.4** | **18.6** |
| **Near-Shore Cable Retroburial** | | | | | | | |
| Primary Work Boat - Dive Platform | 4.5 | 4.3 | 12.9 | 75.7 | 16.9 | 2.0 | 2.0 |
| Secondary Work Boat - Anchor Support / Shuttle | 26.8 | 25.8 | 59.6 | 44.3 | 1.0 | 3.4 | 3.3 |
| **Total Activity Emissions (All w/i State Waters)** | **31.3** | **30.0** | **72.5** | **120.0** | **17.9** | **5.5** | **5.2** |
| **Cable Splice - Arrival & Return** | | | | | | | |
| Cable Lay Vessel - Cruising | 79.2 | 76.0 | 228.0 | 1,340.8 | 300.0 | 36.0 | 34.6 |
| Cable Lay Vessel - Holding | 89.1 | 85.5 | 256.5 | 1,508.4 | 337.5 | 40.5 | 38.9 |
| **Total Activity Emissions (All outside State Waters)** | **168.2** | **161.5** | **484.5** | **2,849.2** | **637.5** | **76.5** | **73.4** |
| **Offshore Cable Installation** | | | | | | | |
| Cable Lay Vessel - Lay Cable | 118.8 | 114.0 | 342.0 | 2,011.2 | 450.0 | 54.0 | 51.8 |
| Cable Lay Vessel - Plow Cable | 89.1 | 85.5 | 256.5 | 1,508.4 | 337.5 | 40.5 | 38.9 |
| **Total Activity Emissions (All outside State Waters)** | **207.8** | **199.5** | **598.5** | **3,519.6** | **787.5** | **94.5** | **90.7** |
| **Cable Ship Return** | | | | | | | |
| Cable Lay Vessel - Cruising | 79.2 | 76.0 | 228.0 | 1,340.8 | 300.0 | 36.0 | 34.6 |
| Cable Lay Vessel - Cruising w / i State Waters | 2.5 | 2.4 | 7.1 | 41.9 | 9.4 | 1.1 | 1.1 |

**Table 9. Daily Emissions for Construction of the China-US Cable Project**

| *Activity/ Equipment Type* | *Pounds Per Day* | | | | | | |
|---|---|---|---|---|---|---|---|
| | *TOC* | *ROG* | *CO* | *NOx* | *SO2* | *PM* | *PM10* |
| **Total Activity Emissions** | **81.6** | **78.4** | **235.1** | **1,382.7** | **309.4** | **37.1** | **35.6** |
| **Emissions w/i State Waters** | **2.5** | **2.4** | **7.1** | **41.9** | **9.4** | **1.1** | **1.1** |
| **Cable Retroburial** | | | | | | | |
| Cable Lay Vessel - ROV | 89.1 | 85.5 | 256.5 | 1,508.4 | 337.5 | 40.5 | 38.9 |
| Cable Lay Vessel - ROV w/i State Waters | 66.8 | 64.1 | 192.4 | 1,131.3 | 253.1 | 30.4 | 29.2 |
| **Total Activity Emissions** | **155.9** | **149.6** | **448.9** | **2,639.7** | **590.6** | **70.9** | **68.0** |
| **Emissions w/i State Waters** | **66.8** | **64.1** | **192.4** | **1,131.3** | **253.1** | **30.4** | **29.2** |
| **Shore End Construction** | | | | | | | |
| Bore Rig (Pipe Cleaning) | 1.1 | 1.1 | 7.0 | 6.7 | 0.7 | 1.1 | 1.1 |
| Crane | 0.5 | 0.4 | 1.5 | 2.9 | 0.3 | 0.5 | 0.5 |
| Backhoe | 1.9 | 1.8 | 9.1 | 10.8 | 1.1 | 1.4 | 1.3 |
| Power Winch | 0.6 | 0.6 | 1.6 | 7.4 | 0.5 | 0.5 | 0.5 |
| Compressor | 0.1 | 0.1 | 0.4 | 0.7 | 0.1 | 0.1 | 0.1 |
| Generator | 0.3 | 0.3 | 1.2 | 2.0 | 0.2 | 0.2 | 0.2 |
| Supply Truck | 0.3 | 0.3 | 0.9 | 2.5 | 0.3 | 0.3 | 0.3 |
| **Total Activity Emissions (All w/i State Waters)** | **4.7** | **4.6** | **21.7** | **33.0** | **3.3** | **4.1** | **4.0** |
| **Peak Daily Emissions (1)** | **66.8** | **64.1** | **192.4** | **1,131.3** | **253.1** | **30.4** | **29.2** |
| **APCD Daily Significance Thresholds** | **NA** | **185.0** | **NA** | **185.0** | **NA** | **NA** | **NA** |

*Note*: (1) Peak daily emissions within state waters would occur during Cable Retroburial activities.

**Table 10. Total Emissions from Construction of the China-US Cable Project**

| *Activity/ Equipment Type* | TOTAL TONS | | | | | | |
|---|---|---|---|---|---|---|---|
| | *TOC* | *ROG* | *CO* | *NOx* | *SO2* | *PM* | *PM10* |
| **Pipe Preparation** | | | | | | | |
| Primary Work Boat - Dive Platform | 0.01 | 0.01 | 0.02 | 0.09 | 0.02 | 0.00 | 0.00 |
| Secondary Work Boat - Anchor Support / Shuttle | 0.06 | 0.05 | 0.13 | 0.09 | 0.00 | 0.01 | 0.01 |
| **Total Activity Emissions (All w/i State Waters)** | **0.06** | **0.06** | **0.14** | **0.19** | **0.02** | **0.01** | **0.01** |
| **Pre-lay Grapnel Run** | | | | | | | |
| Vessel-of-Opportunity - Outside State Waters | 0.02 | 0.02 | 0.05 | 0.30 | 0.07 | 0.01 | 0.01 |
| Vessel-of-Opportunity - w / i State Waters | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| **Total Activity Emissions** | **0.02** | **0.02** | **0.05** | **0.31** | **0.07** | **0.01** | **0.01** |
| **Emissions w/i State Waters** | **0.00** | **0.00** | **0.00** | **0.01** | **0.00** | **0.00** | **0.00** |
| **Near-Shore Cable Installation** | | | | | | | |
| Vessel-of-Opportunity - Landing | 0.00 | 0.00 | 0.01 | 0.04 | 0.01 | 0.00 | 0.00 |
| Primary Work Boat - Dive Platform | 0.00 | 0.00 | 0.01 | 0.04 | 0.01 | 0.00 | 0.00 |
| Secondary Work Boat - Anchor Support / Shuttle | 0.01 | 0.01 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 |
| Vessel-of-Opportunity - Near-Shore Lay | 0.01 | 0.01 | 0.03 | 0.18 | 0.04 | 0.00 | 0.00 |
| Secondary Work Boat - Support, Patrol & Shuttle | 0.05 | 0.05 | 0.11 | 0.09 | 0.00 | 0.01 | 0.01 |
| **Total Activity Emissions (All w/i State Waters)** | **0.08** | **0.08** | **0.19** | **0.37** | **0.06** | **0.02** | **0.01** |
| **Near-Shore Cable Retroburial** | | | | | | | |
| Primary Work Boat - Dive Platform | 0.01 | 0.01 | 0.03 | 0.15 | 0.03 | 0.00 | 0.00 |
| Secondary Work Boat - Anchor Support / Shuttle | 0.05 | 0.05 | 0.12 | 0.09 | 0.00 | 0.01 | 0.01 |
| **Total Activity Emissions (All w/i State Waters)** | **0.06** | **0.06** | **0.15** | **0.24** | **0.04** | **0.01** | **0.01** |
| **Cable Splice - Arrival & Return** | | | | | | | |
| Cable Lay Vessel - Cruising | 0.08 | 0.08 | 0.23 | 1.34 | 0.30 | 0.04 | 0.03 |
| Cable Lay Vessel - Holding | 0.09 | 0.09 | 0.26 | 1.51 | 0.34 | 0.04 | 0.04 |
| **Total Activity Emissions (All outside State Waters)** | **0.09** | **0.09** | **0.26** | **1.51** | **0.34** | **0.04** | **0.04** |
| **Offshore Cable Installation** | | | | | | | |
| Cable Lay Vessel - Lay Cable | 0.24 | 0.23 | 0.68 | 4.02 | 0.90 | 0.11 | 0.10 |
| Cable Lay Vessel - Plow Cable | 0.27 | 0.26 | 0.77 | 4.53 | 1.01 | 0.12 | 0.12 |
| **Total Activity Emissions (All outside State Waters)** | **0.50** | **0.48** | **1.45** | **8.55** | **1.91** | **0.23** | **0.22** |
| **Cable Ship Return** | | | | | | | |
| Cable Lay Vessel - Cruising | 0.08 | 0.08 | 0.23 | 1.34 | 0.30 | 0.04 | 0.03 |
| Cable Lay Vessel - Cruising w / i State Waters | 0.00 | 0.00 | 0.01 | 0.04 | 0.01 | 0.00 | 0.00 |
| **Total Activity Emissions** | **0.08** | **0.08** | **0.24** | **1.38** | **0.31** | **0.04** | **0.04** |

**Table 10. Total Emissions from Construction of the China-US Cable Project**

| *Activity/ Equipment Type* | TOTAL TONS | | | | | | |
|---|---|---|---|---|---|---|---|
| | *TOC* | *ROG* | *CO* | *NOx* | *SO2* | *PM* | *PM10* |
| **Emissions w/i State Waters** | **0.00** | **0.00** | **0.01** | **0.04** | **0.01** | **0.00** | **0.00** |
| **Cable Retroburial** | | | | | | | |
| Cable Lay Vessel - ROV | 0.29 | 0.28 | 0.83 | 4.90 | 1.10 | 0.13 | 0.13 |
| Cable Lay Vessel - ROV w/i State Waters | 0.07 | 0.06 | 0.19 | 1.13 | 0.25 | 0.03 | 0.03 |
| **Total Activity Emissions** | **0.36** | **0.34** | **1.03** | **6.03** | **1.35** | **0.16** | **0.16** |
| **Emissions w/i State Waters** | **0.07** | **0.06** | **0.19** | **1.13** | **0.25** | **0.03** | **0.03** |
| **Shore End Construction** | | | | | | | |
| Bore Rig (Pipe Cleaning) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Crane | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Backhoe | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 |
| Power Winch | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| Compressor | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Generator | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| Supply Truck | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| **Total Activity Emissions (All w/i State Waters)** | **0.01** | **0.01** | **0.04** | **0.06** | **0.01** | **0.01** | **0.01** |
| **Total Project Emissions** | **1.26** | **1.21** | **3.54** | **18.64** | **4.11** | **0.52** | **0.50** |
| **Total Project Emissions w/i State Waters** | **0.28** | **0.27** | **0.72** | **2.04** | **0.39** | **0.07** | **0.07** |
| **APCD Significance Thresholds (per calendar quarter)** | **NA** | **2.50** | **NA** | **2.50** | **NA** | **NA** | **2.50** |

## 4.3 GEOLOGY

### 4.3.1 Environmental Setting

***Seafloor Conditions***

The onset of glaciation in the Pleistocene Epoch caused at least six major oscillations in mean sea level of more than 300 feet (100 m), as the icecaps formed then receded. In the last major regression, just before the Holocene Epoch (20,000 years ago), global mean sea level dropped 390 feet (120 m). Thus the sediments that form the sea floor of shallow areas of continental shelf will have been subaerially exposed (to air, water and sun) for long periods of time, sometimes in excess of 15,000 years. In these periods the following geological features developed:

*Lithified Soil Strata* — During exposure, erosion and desiccation of the near-surface soils created a hard layer of crust, that overlaid the softer, thicker, more uniform material. A succession of these primarily over-consolidated clay crusts formed with the glacio-eustatic fluctuations, separated by relatively soft marine shelf deposits.

*Submerged Channel Features* — As the sea level regressions exposed parts of the floor of the Seas, migrating rivers eroded sizeable channels. This results in small/medium scale topographic variations which were later infilled by various sedimentary facies.

Sediments on the continental shelf off Morro Bay are generally sandy within 5 miles (8 km) of the shore, consistent with recent deposition under turbulent, shallow water conditions. Farther offshore, sediments consist of silty clays which are transported farther from shore before settling out of suspension. The E1 and S7 cable routes do not cross any submarine canyons on the continental shelf off Morro Bay (NTT 1997; Cable & Wireless Marine 1998).

The existence of rock “pinnacles,“ i.e., outcrops or projections that rise several meters above the surrounding sea floor, is of interest because of the difficulties such structures pose for cable installation. State agencies have expressed additional interest in these structures as habitats for fishes and other marine biota. The occurrence of these features along proposed cable routes was investigated through side scan sonar (Cable & Wireless Marine 1998). Appendix A includes all the resulting sonar contacts along the two routes, extending several hundred meters laterally from each of the routes. The E1 and S7 cable routes avoid areas where pinnacle-like structures were recorded. No outcrops larger than 6 feet (2 m) high occur within 300 feet (100 m) of the two routes. Larger structures, some 16 to 30 feet (5 to 9 m) high, occur at greater distances north and south of the cable routes as documented in Appendix A.

The previous HAW-5 and TPC-5 documents (Morro Group 1991; SLC 1994) provided background on regional and project-area geology that is incorporated herein by reference. Additional information is found in the *San Miguel Project Final Environmental Impact*

*Statement/Environmental Impact Report* (EIS / EIR) (URS 1986) and in the *WorldCom Draft EIR* (Morro Group 1999). Site-specific characterization of seafloor conditions along the proposed cable routes was provided in the Route Survey Report, which is on file with the SLC (Cable & Wireless Marine 1998). Figure 14 provides a generalized depiction of seafloor geology along the proposed cable and alternative routes within about 8 nm of the shore. This map (provided by Racal-Pelagos and NRC), was generated by combining the results of previous surveys and incorporating new data collected during 1999 as part of the effort to locate alternative routes achieving maximum burial for several projects. The map updates previously collected seafloor data in the area, including data collected for the HAW-5 and TPC-5 projects (Morro Group 1991; SLC 1994). Farther offshore along the routes, as discussed in Chapter 2, the seafloor consists of unconsolidated silty clay sediments (Cable & Wireless Marine 1998).

The shoreline of San Luis Obispo County is characterized by uplifted sedimentary rocks associated with the continental shelf. The onshore portion of the project is on old, wind blown sand, formed into dunes and stabilized by perennial vegetation. The nearest rock outcrops on the shoreline are approximately 0.5 mile (0.8 km) south of the beach parking area as shown on Figure 10 in Chapter 3. Rocky shoreline predominates beginning at Islay Creek and continuing southward around Point Buchon. These rock outcrops continue offshore and are associated with kelp beds south of the area crossed by the proposed cables (Figure 10).

The immediate nearshore area surrounding the bore exits is characterized by thick deposits of coarse sands, cobbles, and shell fragments which are poorly sorted due to the dynamic surf-zone environment, characterized by strong waves and currents. As indicated by survey data (Figure 14), sedimentary rock outcroppings appear frequently from approximately 1 to 3 nm offshore at depths of approximately 100 to 200 feet (30 m to 60 m). The rocks are folded and faulted due to movement along the Los Osos and Hosgri fault zones (Figure 14; discussed below). Rock outcrops are interspersed with sedimentary deposits of silts and sandy silts (Morro Group 1991). Approximately 5 to 7 nm (9 to 13 km) offshore between the areas traversed by the proposed China-U.S. cables as well as the previously installed HAW-5 and TPC-5 T-1 cable is another major area of high-relief rocky bottom that includes pinnacles rising as much as 100 feet (30 m) above the surrounding seafloor.

Proceeding farther offshore, the cable alignments traverse the sediment-filled Santa Maria Basin as the continental slope descends gradually to depths of approximately 4,600 feet (1,400 m) at 50 to 60 nm (3 to 110 km) offshore. No submarine canyons are crossed (Cable & Wireless Marine 1998). Approximately 30 nm (55 km) west-southwest of the cable landing, well outside of AT&T's existing or proposed cable routes, is the northern end of the Santa Lucia Bank, which rises to depths of approximately 1,600 feet (500 m), some 165 to 330 feet (50 to 100 m) shallower than the inshore basin.

Table 11 provides the areas of different substrate types that are crossed by proposed and alternative cable routes to approximately 8 miles (13 km) offshore, based on the interpretive geology map constructed by NRC and Racal-Pelagos. The table also describes the proposed and alternative routes in terms of their overlap of different substrate types. As the table indicates, the maximum burial alternative routes are roughly 1 mile (0.8 km) longer but essentially avoid areas of high relief and greatly reduce the area of low-relief/thin sediments that would be crossed.

***Faults***

The Hosgri Fault Zone extends 70 miles (112 km) from Point Pedernales to San Simeon, trending approximately northwest and remaining offshore for its entire length. It occurs in the area crossed by the proposed cable routes at 5 to 7 nm (9 to 13 km) offshore (Figure 14). This complex fault contains right-lateral slip, thrust and reverse components (USGS 1991; Woodward-Clyde 1998; SCEC 1999). The last known rupture occurred on November 4, 1927 and measured 7.3 on the Richter Scale. A recent extensive study of the Hosgri Fault Zone by PG&E concluded a maximum magnitude distribution for the zone of 7.0 (Woodward-Clyde 1998). The most recent surface rupture along the Hosgri Fault Zone is estimated within the last 8,000 years. The Hosgri Fault Zone is active and could produce displacement, although the slip rate and rupture interval are unknown.

Another local fault, the Los Osos, exists to the east of the Hosgri Fault Zone, and intersects in Morro Bay. From there, the fault zone continues south about 23 miles (37 km). The Los Osos Fault Zone contains discontinuous, sub-parallel and *en echelon* fault segments, exhibiting primarily reverse displacement (Woodward-Clyde 1998). The PG&E survey of the area assigned a maximum credible earthquake magnitude of 6.8 to the Los Osos Fault (Woodward-Clyde 1998).

***Mineral Resources***

There are no active or inactive offshore oil and gas leases in the areas crossed by the project. The nearest leases (inactive) are in the Lion Rock Unit in the northern Santa Maria Basin, south of the cable routes and approximately 10 nm (18 km) due south of Point Buchon (Morro Group 1991; MMS 1999). No production or exploration has occurred in these areas in recent years, nor is there likely to be any activity in the foreseeable future given low energy prices, the lack of available infrastructure onshore, and strict environmental controls on any future development. The recent decision to cease operation of the Chevron Estero Marine Terminal is indicative of the downward trend in offshore mineral resource activities.

### 4.3.2 Significance Criteria

A project impact is considered significant to geological resources when

- There is any change to unique geologic features;
- It triggers or accelerates any geologic processes such as erosion or terrestrial or marine landslides;

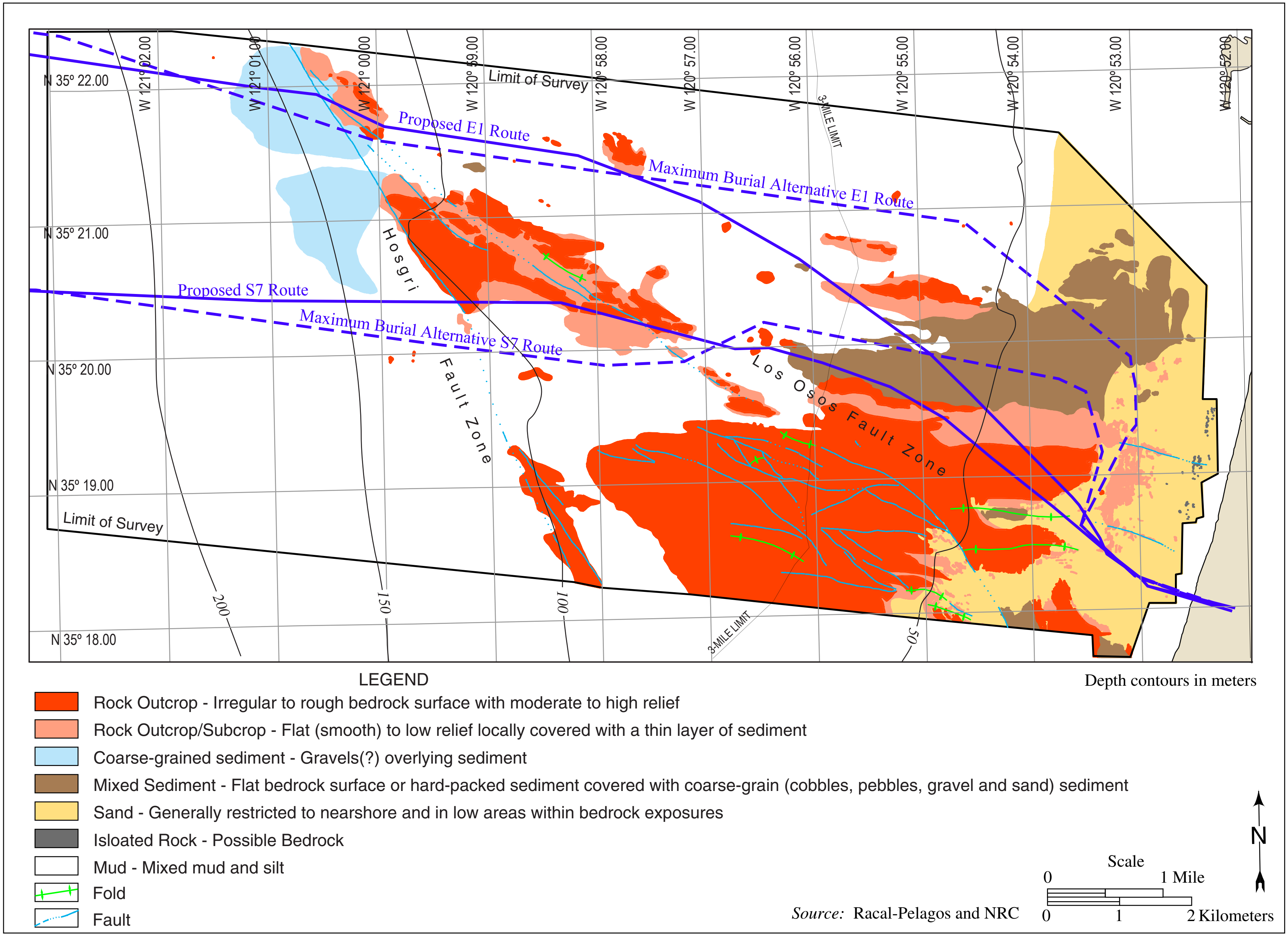



**Figure 14. Seafloor Geology and Proposed and Alternative China-U.S. Cable Routes**

- It increases the probability of additional environmental damage if earthquake induced ground motion damages project components;

- There is any alteration of topography that is not restored to its natural conditions within six months of the project's completion;

- Project installation prevents the recovery of economic minerals; or

- The project exposes people to increased risk of harm from seismic events beyond the construction period.

### 4.3.3 Project Impacts

*Cable Installation*

Within the nearshore area to about 6 miles (10 km) offshore, to depths of about 300 feet (100 m), the project entails minor disturbance of sediments due to the initial jetting away of sediment to expose the bore pipes, and subsequent jetting by divers and ROV to retrobury the cable. These operations entail a very localized displacement of sediment along the seafloor. Cable burial in this manner does not require a trench, because the weight of the cable causes it to sink into the underlying sediments when they are loosened by the action of the water jet. The width of the area disturbed in this manner would approximately equal twice the depth of burial, resulting in a nominal 8-feet (2.4 m) wide disturbance corridor assuming burial depths of 4 feet (1.2 m) in this area. A roughly equivalent area of surficial disturbance is estimated for installation in deeper waters using the Sea Plow, based on the combined effects of the furrow made by the plow shank plus the tracks of skis and wheels that maintain the instrument's contact with the seafloor.

The cables would be direct-laid over rock outcrops, and no alteration of these features is anticipated, although the weight and motion of the cable could result in grooving on the surface of soft sedimentary rocks. The extent to which the cable can move laterally is controlled by the amount of "slack," which is less than 1 percent in the nearshore area. Given this limitation, it is not expected that a cable laid over an irregular rock surface could move more than 1 foot laterally; hence the worst-case area of disturbance would be a 1-foot (=0.3 m) wide corridor.

Based on the foregoing (worst-case) estimates of disturbance and the linear distances of different substrate types crossed by the cables, Table 12 provides the extent of physical disturbance to the seafloor associated with the proposed and alternative cable routes. An extremely small fraction of existing substrates would be affected by cable installation. Given the small fraction of existing areas that are effected as well as the temporary nature of the disturbance, this disturbance is insignificant. There would be no effect on topography owing to the small size of the cables and their manner of installation.

**Table 11. Areas of Different Substrate Types and Linear Distances Crossed by Proposed and Alternative China-U.S. Cable Routes off of Morro Bay**

| *Substrate Type*[1] | *Hectares*[2] *Within Surveyed Area* | *Linear Distance (Meters) Crossed by Cable Route (% of total route length)* | | | |
|---|---|---|---|---|---|
| | | *Proposed Routes* | | *Maximum Burial Routes* | |
| | | *E1* | *S7* | *E1* | *S7* |
| Rock Outcrop With Moderate to High Relief (1m to > 3m) | 1,729 | 925 (5.1%) | 3,156 (18.6%) | 29 (0.15%) | 0 |
| Rock Outrop / Subcrop, Flat or Low Relief (<1m), Locally Covered With Sediment | 602 | 2113 (11.7%) | 2,183 (12.9%) | 405 (2.1%) | 523 (3.0%) |
| Isolated Rock | 1 | 0 | 0 | 0 | 0 |
| Coarse-Grained Surface Sediments Overlying Sediments | 350 | 1,367 (7.6%) | 0 | 2,078 (10.6%) | 0 |
| Mixed Sediment, May Include Flat Bedrock, Hard-Packed, or Coarse-Grained Sediment | 618 | 1,185 (6.6%) | 1,857 (10.9%) | 1,397 (7.1%) | 3,019 (17.1%) |
| Sand | 989 | 1,534 (8.8%) | 1,616 (10.0%) | 3,721 (19.0%) | 2,160 (12.2%) |
| Mixed Mud and Silt | 6,741 | 10,330 (57.4%) | 7,439 (43.9%) | 12,003 (61.1%) | 11,997 (67.8%) |
| Total | 11,029 | 17,454 | 16,251 | 19,633 | 17,699 |

[1] Based on Data as Shown in Figure 13, Provided by NRC and Racal-Pelagos
[2] 1 Hectare equals 10,000 $m^2$ equals 2.47 acres

The project would have no effect on unique offshore geologic features or on oil and gas extraction activities. In summary, impacts of the project on seafloor geology are insignificant, although adverse in minor respects (Class III).

Although active faults are present near the cable alignments, no submarine canyons or other potentially unstable areas such as might be affected by landslides are traversed. Landslides down submarine canyons have been known to cause cable failures elsewhere in the world (NTT 1997). The project proposes (section 2.10) to resurvey the cables following significant seismic events, such as may occur along the Hosgri or Los Osos faults, so that any motion of or potential threats to the cables can be identified and corrected. As a result the threat of system damage due to seismic events is less than significant (Class III).

The placement of the cable in any area of potential seafloor movement, especially any area that is so unstable as to be disturbed by the cable installation process, will be completely avoided. In areas where it is impossible for the cable to be buried (rock areas), the cable will be laid on the seafloor with no disturbance of the seafloor geologic materials. In addition, there is no possibility that either the installation or the presence of the cable on the seafloor would trigger a seismic event.

*Operations and Abandonment*

No geologic impacts would be expected during normal operations. Localized disturbance of the seafloor could occur at some point during the life of the project if a repair is necessary; this would be similar to but smaller in magnitude than the impacts of cable installation, and hence less than significant (Class III).

Future abandonment of the cable in place would have no impacts, whereas cable removal would have impacts similar to those of installation (Class III).

### 4.3.4 Maximum Burial Alternative

As shown in Table 12, the Maximum Burial Alternative routes would affect a substantially smaller area of rocky substrate, with a corresponding increase in the area of soft-bottom affected. In other respects, geologic impacts are similar between the proposed and alternative routes and would be less than significant (Class III).

### 4.3.5 Cumulative Impacts

The nature and scale of the proposed project are such that there will be no significant effects on the geology or geologic processes that occur along the marine route. The only project effect on the geology would be limited to the seafloor along the buried portion of the cable route. In these areas a narrow strip of seafloor (section 2.6.1) will be displaced and then replaced, during the cable burial phase of the project. Hence cumulative impacts on geology are generally less than significant (Class III).

**Table 12. Disturbance to Different Substrate Types along Proposed and Alternative Cable Routes off of Morro Bay**

| *Substrate Type* | *Hectares[1] Within Surveyed Area* | *Hectares[1] Potentially Impacted[1] by Cable Route (% of substrate type that is impacted within surveyed area) (see footnote)* | | | |
|---|---|---|---|---|---|
| | | *Proposed Routes* | | *Maximum Burial Routes* | |
| | | *E1* | *S7* | *E1* | *S7* |
| Rock Outcrop With Moderate to High Relief (1m to > 3m) | 1,729 | 0.02775 (0.0016%) | 0.09468 (0.0055%) | 0.00087 (0.00005%) | 0 |
| Rock Outrop / Subcrop, Flat or Low Relief (<1m), Locally Covered With Sediment | 602 | 0.06339 (0.0105%) | 0.06549 (0.0109%) | 0.0122 (0.0020%) | 0.01569 (0.0026%) |
| Isolated Rock | 1 | | | | |
| Coarse-Grained Surface Sediments Overlying Sediments | 350 | 0.32808 (0.0937%) | 0 | 0.4987 (0.1425%) | 0 |
| Mixed Sediment, May Include Flat Bedrock, Hard-Packed, or Coarse-Grained Sediment | 618 | 0.2844 (0.0460%) | 0.44568 (0.0721%) | 0.3353 (0.0545%) | 0.72456 (0.1172%) |
| Sand | 989 | 0.3682 (0.0372%) | 0.3878 (0.0392%) | 0.8930 (0.0903%) | 0.5184 (0.0524%) |
| Mixed Mud and Silt | 6,741 | 2.4792 (0.0368%) | 1.78536 (0.0265%) | 2.881 (0.0427%) | 2.87928 (0.0427%) |

[1] Note: Impacts are estimated as linear distance crossed (Table 11) multiplied by a nominal 0.3-meter wide disturbance area for rock outcrops, and an 2.4-meter disturbance corridor for other substrate types where the cable would be buried

For the purpose of quantifying cumulative substrate impacts, a calculation was made of the linear distances of various substrate types crossed by each of the existing and proposed cables within the area of detailed seafloor mapping (Figure 14). The results are shown in Table 13. Based on this information, the area of potential substrate disturbance was quantified as in Table 12. The results are shown in Table 14. As indicated, cumulative substrate disturbance amounts to substantially less than one percent for any substrate type, and roughly one one-hundredth of one percent for the high-relief areas that are of greatest concern. The small areas of total impact support the conclusion that the impacts are less than significant (Class III). Table 14 also illustrates the reductions in impacts on rocky substrates that are achieved by the maximum burial routes.

### 4.3.6 Mitigation Measures

Because impacts are less than significant, no mitigation measures are required.

**Table 13. Areas of Different Substrate Types and Linear Distances Crossed by Cumulative Project Cable Routes**

| *Substrate Type* | *Hectares Within Surveyed Area* | *Linear Distance(Meters) Crossed by Cable Route Within Surveyed Areas (% of total route length)* | | | | | |
|---|---|---|---|---|---|---|---|
| | | *TPC-5 T1* | *TPC 5G* | *Southern Cross* | *Japan-US 9* | *Japan-US 1* | *HAW 5* |
| Rock Outcrop With Moderate to High Relief (1m to >3m) | 1,729 | | | | | | |
| | | 1,154 | 2,278 | 0 | 0 | 0 | 2,711 |
| | | 6.8% | 41.8% | | | | 17.1% |
| Rock Outcrop / Subcrop, Flat or Low Relief (<1m), Locally Covered with Sediment. | 602 | | | | | | |
| | | 915 | 430 | 429 | 453 | 659 | 1,404 |
| | | 5.4% | 7.9% | 2.4% | 2.4% | 3.8% | 8.9% |
| Isolated Rock | 1 | | | | | | |
| | | 0 | 0 | 0 | 0 | 0 | 0 |
| Coarse-Grained Surface Sediments Overlying Sediment | 350 | | | | | | |
| | | 1,001 | 0 | 0 | 1,317 | 0 | 0 |
| | | 5.9% | | | 7.1% | | |
| Mixed Sediment, May Include Flat Bedrock, Hard-Packed, or Coarse-Grained Sediment | 618 | | | | | | |
| | | 1,400 | 0 | 2,428 | 1,477 | 4,239 | 0 |
| | | 8.2% | | 13.4% | 8.0% | 24.2% | |
| Sand | 989 | | | | | | |
| | | 1,513 | 2,741 | 2,392 | 2,596 | 1,994 | 1,609 |
| | | 8.9% | 50.3% | 13.2% | 14.0% | 11.4% | 10.2% |
| Mixed Mud and Silt | 6,741 | | | | | | |
| | | 11,009 | 0 | 12,843 | 12,662 | 10,622 | 10,108 |
| | | 64.8% | | 71.0% | 68.4% | 60.6% | 63.8% |
| Total | 11,029 | | | | | | |
| | | 16,992 | 5,449 | 18,092 | 18,505 | 17,514 | 15,832 |

*Notes*: 1 Based on data as shown in Figure 14, provided by NRC and Racal-Pelagos

2 Hectare equals 10,000 $m^2$ equals 2.47 acres

**Table 14. Cumulative Disturbance to Different Substrate Types, Comparing Proposed and Alternative Cable Routes**

| *Substrate Type* | *Hectares Within Surveyed Area* | *Cumulative Area (Hectares) Potentially Impacted by Cable Routes and Percentage of Substrate Type that is Impacted within Surveyed Area (see footnote)* | |
|---|---|---|---|
| | | *With Proposed Routes* | *With Maximum Burial Routes* |
| Rock Outcrop With Moderate to High Relief (1m to >3m) | 1,729 | 0.30672 | 0.18516 |
| | | 0.0177% | 0.0107% |
| Rock Outcrop / Subcrop, Flat or Low Relief (<1m), Locally Covered with Sediment. | 602 | 0.2576 | 0.1566 |
| | | 0.0428% | 0.0260% |
| Isolated Rock | 1 | 0.0000 | 0.0000 |
| Coarse-Grained Surface Sediments Overlying Sediment | 350 | 0.8844 | 1.0550 |
| | | 0.2527% | 0.3014% |
| Mixed Sediment, May Include Flat Bedrock, Hard-Packed, or Coarse-Grained Sediment | 618 | 3.0206 | 3.3504 |
| | | 0.4888% | 0.5421% |
| Sand | 989 | 3.8388 | 4.4942 |
| | | 0.3881% | 0.4544% |
| Mixed Mud and Silt | 6,741 | 18.0031 | 19.4988 |
| | | 0.2671% | 0.2893% |

*Notes*: 1 Impacts are estimated as linear distance crossed multiplied by a nominal 0.3-meter wide disturbance for rock outcrops and a 2.4-meter disturbance corridor for other substrate types where the cable would be buried.

2 1 Hectare equals 10,000 $m^2$ equals 2.47 acres

## 4.4 WATER QUALITY

### 4.4.1 Environmental Setting

Oceanographic conditions in the project area have been described in the previous HAW-5 document (Morro Group 1991), by URS (1986), and most recently by the Morro Group (1999). Nearshore conditions are dynamic, characterized by strong winds and associated waves and surface currents, particularly during winter and spring. Farther offshore to the edge of the continental shelf, the California Current system predominates. The system is composed of the generally offshore, southward flowing California current at the surface, a deep water undercurrent which flows northward and sometimes surfaces during fall and winter, and the inshore Davidson current, which flows northward during October to April.

Water quality in the waters over the continental shelf that would be crossed by the cables is generally good, as the marine waters are thoroughly mixed as a result of upwelling, waves and currents, and there are few and relatively small and/or distant potential sources of pollutants (e.g., Morro Group 1999). The nearest municipal outfall, serving Morro Bay and Cayucos, is off Cayucos about 6 miles (10 km) to the north. Sediments dredged from Morro Bay are occasionally deposited off of the sand spit just south of the harbor entrance. Inputs of terrestrial sediments from local creeks, the largest of which (Los Osos Creek and Chorro Creek) discharge into the sheltered waters of Morro Bay, occur primarily during brief periods of heavy runoff associated with winter storms. Incidental releases of small quantities of waste likely occur from recreational and commercial vessels.

As suggested by the foregoing, contaminated sediments are not known or expected to occur in any of the areas crossed by the cables. The only known area of contaminated sediments is a World War II chemical and munitions dumping area some 60 miles (100 km) southwest of Morro Bay, well outside of the areas under consideration. Refer to previous section 4.3.1 for additional discussion of sediment characteristics.

### 4.4.2 Significance Criteria

An impact would be considered significant if:

- It is persistent and not reversed by natural dispersive processes within a few days and extends more 10 m beyond the area of the activity;
- It results in visible oil or grease;
- It causes physicochemical changes that impact the marine ecosystem or are measurably different from ambient background conditions.

In addition, project-related activities would cause significant impacts if changes in marine water or sediment quality would persist for more than a few days and exceed established standards more than 30 feet (10 m) beyond the proposed project activities. The 10 m distance threshold is analogous to a zone of initial dilution where inputs from a point source are rapidly dispersed by turbulent mixing. This distance limits allowable water quality changes to a distance that is no greater than the shallowest depth at which project activities would occur.

Project-related changes in water properties are also considered significant if they are large compared to natural background variability in the surrounding marine environment, last more than one week after project completion, or cause permanent deleterious effects in marine organisms.

The established standards that are of relevance to the analysis of project impacts include the water quality objectives of the California Ocean Plan (SWRCB 1997) and Central Coast Region Water Quality Control Plan ("Basin Plan") (RWQCB 1994), as well as the beneficial uses that are set forth in the Basin Plan. Relevant water quality objectives include the following physical, chemical, and biological characteristics:

### *Physical Characteristics*

1. Floating particulates and grease and oil shall not be visible.

2. The discharge of waste shall not cause aesthetically undesirable discoloration of the ocean surface.

3. Natural light shall not be significantly reduced at any point outside the initial dilution zone as the result of the discharge of waste.

4. The rate of deposition of inert solids and the characteristics of inert solids in ocean sediments shall not be changed such that benthic communities are degraded.

### *Chemical Characteristics*

1. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste materials.

2. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.

3. The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions.

4. The concentration of substances set forth in Chapter IV, Table B, in marine sediments shall not be increased to levels which would degrade indigenous biota.

5. The concentration of organic materials in marine sediments shall not be increased to levels which would degrade marine life.

6. Nutrient materials shall not cause objectionable aquatic growths or degrade indigenous biota.

***Biological Characteristics***

1. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded.

2. The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered.

3. The concentration of organic materials in fish, shellfish or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

Beneficial uses identified for the waters of Estero Bay in the Basin Plan (RWQCB 1994) include recreation, industrial service supply, navigation, marine habitat, shellfish harvesting, ocean commercial and sport fishing, preservation of rare, threatened, or endangered species, and wildlife habitat. Substantial impairment of any of these uses would be a significant impact.

### 4.4.3 Project Impacts

*Cable Installation*

The only discharge associated with the project would occur when the bore pipe is flushed, using air pressure and potable water. This activity will disturb bottom sediments and result in their re-deposition around the opening of the pipe. No lubricants or chemicals are required in this activity. No accumulation of material in the bore pipes is expected other than naturally occurring sediment and small amounts of rust (insoluble iron oxide) from the inner surface of the pipe. Since these materials are non-toxic, no adverse effects on marine organisms or water quality are expected beyond the immediate area of physical disruption. The pipe has a check valve on the near shore end that would keep sediment migration to a minimum.

To expose the bore pipe which is below grade on the ocean floor, divers would hand-jet the overlying sediments away. As a result 10-15 cy (8-11 $m^3$) would be dispersed from a shallow pit surrounding the bore pipe. Sediments at the bore pipes are sandy (section 4.3.1; Morro Group 1991, 1999; CSLC 1999b), such that any re-suspended, particles would remain within a few feet in the bottom and settle out within a minute (e.g., EPA 1993; Morro Group 1999), resulting in a less-than-significant impact on turbidity (Class III).

The bore pipe is 4,100 feet (1,250 m) long, with an inner diameter of 3.75 inches (9.5 cm); the inner volume of the pipe is thus 314 cy (8.9 $m^3$), a volume which would be filled by about 2,350 gallons. Hence 3,000 gallons of freshwater should be sufficient to flush the pipe. The stream of freshwater would tend to rise (being lighter than seawater) and rapidly mix with surrounding seawater. Any appreciable effects on salinity (i.e. reductions on the order of 10 percent [several parts per thousand) would be limited to the period of actual discharge, which is about one hour, and the immediate area within about 15 feet (4.5 m) of the pipe, beyond which the freshwater discharge would be “diluted” more than 10-fold. The RWQCB previously confirmed that no permit or certification would be required for the same types of activities in conjunction with the TPC-5 cable installations (CSLC 1994). In any case, the bore pipe flushing operation will be conducted in accordance with any requirements imposed by the RWQCB as a result of its review of the project. The small-scale, temporary impacts on water quality that could occur are considered less than significant (Class III).

The pre-lay grapnel run, subsequent jetting of sediments by divers and ROV during cable installation in the nearshore area, and use of the Sea Plow farther offshore, would cause small-scale, temporary increases in turbidity. The dimensions and particle concentrations characterizing this turbidity plume depend on the initial disruptive forces generated by the equipment, sediment grain sizes and corresponding rates of settlement, and bottom currents. The initial displacement of sediment would be limited to a furrow a few inches wide, plus shallow surficial disturbance associated with the contact of the bottom by the divers, ROV, or sea plow. Sediments would be disturbed only momentarily at any particular point; disturbance would occur sequentially as installation progresses along the route. The small amounts of sediment stirred up along the cable corridors would remain near the bottom, probably within about 3 feet (1 m) (CSLC 1999b; Morro Group 1999), and gradually settle back down. The finer fractions could remain suspended for several minutes to hours (CSLC 1999b; Morro Group 1999), but would be dispersed away from the cable by bottom currents (up to 24 cm/sec as reported by the Morro Group [1999]). Suspended sediment concentrations would diminish rapidly with distance from the source, although the smallest particles may drift a considerable distance. With respect to a point on the seafloor adjacent to the corridor, the effect on turbidity would be transient, lasting a few seconds as the plume drifts and diffuses downcurrent in the near-bottom water. As a result, the project would have localized, temporary effects on turbidity that are considered less than significant (Class III).

In any marine construction project, the possibility exists for the spillage of fuel or other pollutants from work vessels. The risk to marine water quality in this case is considered adverse but less than significant (Class III) given the low probability of an accident during cable installation and protective measures adopted by the project, including the implementation of approved oil spill contingency plans in the event that a spill does occur (section 2.10). No impacts are associated with ballast water discharge from project vessels due to the project's prohibition of discharges within the 12-mile (19 km) limit of the territorial seas (section 2.10).

*Operations and Abandonment*

The cables are inert and do not normally require maintenance, resulting in no impact on water quality under normal conditions. If repair is needed at some time during the life of the project, the impacts would be qualitatively similar to those occurring during cable installation, although activities would be limited to only a small section of the cable. Excavating and re-burying a cable for repairs would have small-scale, temporary impacts on turbidity that would be less than significant (Class III).

If the cable were to be removed upon abandonment in the future, water quality impacts would be essentially the same as those of installation. Abandonment in place would have no impacts.

### 4.4.4 Maximum Burial Alternative

The environmental setting and impacts associated with the Maximum Burial Alternative are essentially similar to those of the proposed project, including potential impacts of operations and abandonment. The larger areas of sediment disruption associated with cable burial by ROV, as opposed to direct lay on rocky substrate, are not expected to have appreciable effects on turbidity in the water column because the differences with the proposed routes occur in the inshore area of coarse sediments (section 4.3.1), which rapidly settle out of suspension. Potential water quality impacts would be less than significant (Class III).

### 4.4.5 Cumulative Impacts

Each of several fiber optic cable projects proposed for installation off Morro Bay would have similar short-term, localized impacts on near-bottom turbidity. Since these turbidity effects would rapidly dissipate, and the projects would not be constructed in the same places and times without the potential for combining effects, cumulative impacts would be less than significant.

### 4.4.6 Mitigation Measures

Since impacts are less than significant, no mitigation measures would be required. Project commitments related to oil spill contingency planning and prohibitions on ballast water discharge should be reinforced through conditions of approval.

## 4.5 BIOLOGICAL RESOURCES

### 4.5.1 Environmental Setting

The environmental setting for the project is focused on the marine environment, which is where project activities that could affect biological resources would occur. Onshore activities are limited to short-term (1-2 weeks) use of the existing Sandspit Parking Lot for the purpose of pulling cables through an existing bore pipe and installing them into existing conduit. The parking lot is a popular day-use area for visitors to the park. Project activities would be confined to the paved parking area, would be limited to daylight hours, and have no potential impacts on terrestrial biological resources.

The region surrounding the project, including Morro Bay to the north and the rocky coastline of Point Buchon to the south (e.g., Figures 1, 10), includes important habitat for seabirds, sea otters and sea lions, and cetaceans (e.g., USFWS 1981; Dohl et al. 1983). In addition to the diverse habitats of the Morro Bay estuary and surrounding lands, specific areas of importance include nesting areas for seabirds (including black oystercatchers, pelagic cormorants, and pigeon guillemots), on the rocky coastline of Point Buchon; foraging habitat for shorebirds, including the threatened southwestern snowy plover, along Sandspit Beach inshore of the project; ; for sea lions, the rocky shoreline to the south, beginning in the area of Islay Point; and for sea otters, rocky areas and kelp beds to the south, also beginning at Islay Point (Figure 10), although sea otters are common in the nearshore areas off Sandspit Beach (SAIC 1995; CSLC 1994). Cetaceans that may be encountered in nearshore areas include harbor porpoises (during winter and spring), humpback whales (during summer and fall), and gray whales. Gray whales can occur from December to May, with greatest numbers in January during the southward migration, and a secondary peak in March during the northward migration. The whales come close to Point Buchon (Tenera 1994; personal communication, S. Krenn).

Table 15 lists threatened and endangered and other special-status species known from the general area and describes the likelihood of their occurrence in areas affected by the project. The only species likely to occur in areas affected by the project are the California brown pelican and the southern sea otter.

Seafloor conditions in the nearshore waters where the cables would be installed have been surveyed for previous AT&T cables (CSLC 1994), and were surveyed again for the China-U.S. system. Portions of the detailed Route Survey Report for the area off of San Luis Obispo County (Cable & Wireless Marine 1998) is on file with the CSLC. Diver surveys of the proposed route beginning at the bore pipe exit are consistent with previous descriptions (CSLC 1994) in noting shallow sandy sediments and cobbles disturbed by waves and currents, with scattered low rock outcrops extending along much of the route at depths of 25m to 100m.

Rocky substrates as a rule are more productive and support a greater diversity of species than soft-bottom habitats. As discussed in sections 3.2.2 and in Chapter 4.3, geophysical data were supplemented and synthesized during 1999 to develop the most detailed and complete picture possible of the nearshore area for the purpose of identifying alternative cable routes that would avoid rocky substrates. Figure 14 and Table 11 in section 4.3 describe the occurrence of different substrate types in the areas crossed by the proposed and Maximum Burial Alternative routes. The productivity, habitat values, and overall sensitivity to physical impacts of rocky substrates is roughly correlated with the amount of surface area and vertical relief they provide. Rock towers or "pinnacles" rising abruptly from the surrounding seafloor are considered most sensitive. These features do not occur within the proposed alignments. The seafloor survey (Cable & Wireless Marine 1998; Appendix A) detected a number of projections from 3 to 30 feet (1 to 9 m ) high in the area but none were within 165 feet (50 m ) of the proposed routes. However, high relief hard bottom features (greater than 3 feet [1 m] in height) such as boulders and rock ridges do occur along the proposed routes. These types of features are relatively sensitive. Low-relief areas such as flat outcrops and cobbles are of lower sensitivity, although they are still considered more sensitive than soft-bottom habitats. Geographic Information System (GIS) — based plots of the survey routes and habitat types are shown in Figures 15 and 16.

The occurrence of kelp, surf grass, or eelgrass beds is of interest because these habitats are generally considered sensitive by resource agencies because they are especially productive and provide habitat for a greater variety of fish and invertebrate species than otherwise occur in rocky or sandy areas. Neither surf grasses nor eelgrass occur in the sandy bottom habitat from the bore exit out to the rock outcrops, owing both to depth and substrate instability. The low rock outcrops in deeper water are expected to support sparse algal growth, owing to reduced light due to depth and turbidity, although small patches of kelp may be present on rock outcrops at inshore locations. The nearest kelp beds, which probably contain both giant kelp (*Macrocystis pyrifera*) and bull kelp (*Nereocystis leutkiana*), as well as palm kelp (*Pterygophora californica*), are associated with the rocky shoreline — which continues offshore — 1.5 to 2 miles (2.4 to 3.2 km) south at Islay Point, and more extensively farther south around Point Buchon (e.g., URS 1986; see also Figure 10).

Pismo clams (*Tivela stultorum*) occur in shallower waters in the project area. At the shallower depths crossed by the project, sanddollar beds (*Dendraster excentricus*) may be encountered, and large concentrations of white urchins (*Lytechinus* spp.) may occur along the cable route. Infaunal organisms that would be anticipated include a variety of amphipods, burrowing gastropods and clams, both tube-dwelling and errant polychaetes, brittle stars, and sea stars. Flatfishes (sanddabs, halibut, etc.) are especially prominent in this habitat (e.g., URS 1986).

The low rock outcrops in deeper water are expected to support sparse algal growth, owing to reduced light. Benthic communities are expected to be dominated by encrusting or colonial invertebrates, including a variety of sponges, anemones, gorgonians, tube-dwelling polychaetes, bryozoans, tunicates, and solitary corals. Associated mobile fauna typically

**Table 15. Sensitive Species Potentially Occurring in the Vicinity of China-U.S. Project Activities at Montaña de Oro**

| *Common Name* | *Scientific Name* | *Federal Status*[1] | *State Status*[1] | *Habitat* | *Occurrence in Project Area*[2] |
|---|---|---|---|---|---|
| ANIMALS | | | | | |
| Morro Bay kangaroo rat | *Dipodomys heermanii morroensis* | FE | SE | Dunes surrounding Morro Bay | Not found since 1979 at Montaña de Oro but remotely possible in undisturbed dune scrub (Morro Group 1999). |
| Southern sea otter | *Enhydra lutris nereis* | FT | SE | Shoreline and offshore areas, especially where kelp beds are present. | Common off of Point Buchon, frequently seen foraging, in transit, in offshore area of cable installation (SAIC 1995). |
| American peregrine falcon | *Falco peregrinus anatum* | FT | CE / CFP | Nests at Morro Rock, forages in Morro Bay and shoreline areas. | Possible transient occurrence in nearshore area. |
| California brown pelican | *Pelecanus occidentalis californicus* | FE | CE / CFP | Fairly common in shoreline and offshore areas | Not expected at parking lot; common offshore. |
| Black legless lizard | *Anniella pulchra nigra* | FPE | CSC | Coastal dune scrub in Monterey and Morro Bay areas | Possible in dune scrub near parking lot. |
| Western snowy plover | *Charadrius alexandrinus nivosus* | FT | CSC | Nests on sandy beaches where human disturbance is minimal; more widely dispersed during migration, winter | Not known to nest in vicinity but possible as occasional foragers on the beach below the parking lot. |
| Morro blue butterfly | *Icaricia icarioides moroensis* | FSC | -- | Associated with dune lupine in central coast dunes | Likely in dune scrub near parking lot. |
| Morro shoulder band snail | *Helminthoglypta walkeriana* | FE | -- | Inhabits coastal dune scrub vegetation in the Morro Bay area. | Known to occur in dune scrub near parking lot (Morro Group 1999). |
| Monarch butterfly | *Danaus plexippus* | -- | (local concern) | Winter aggregations in eucalyptus groves. | Numerous locations in Los Osos, Montaña de Oro, but no habitat in vicinity of parking lot. |

**Table 15. Sensitive Species Potentially Occurring in the Vicinity of China-U.S. Project Activities at Montaña de Oro**

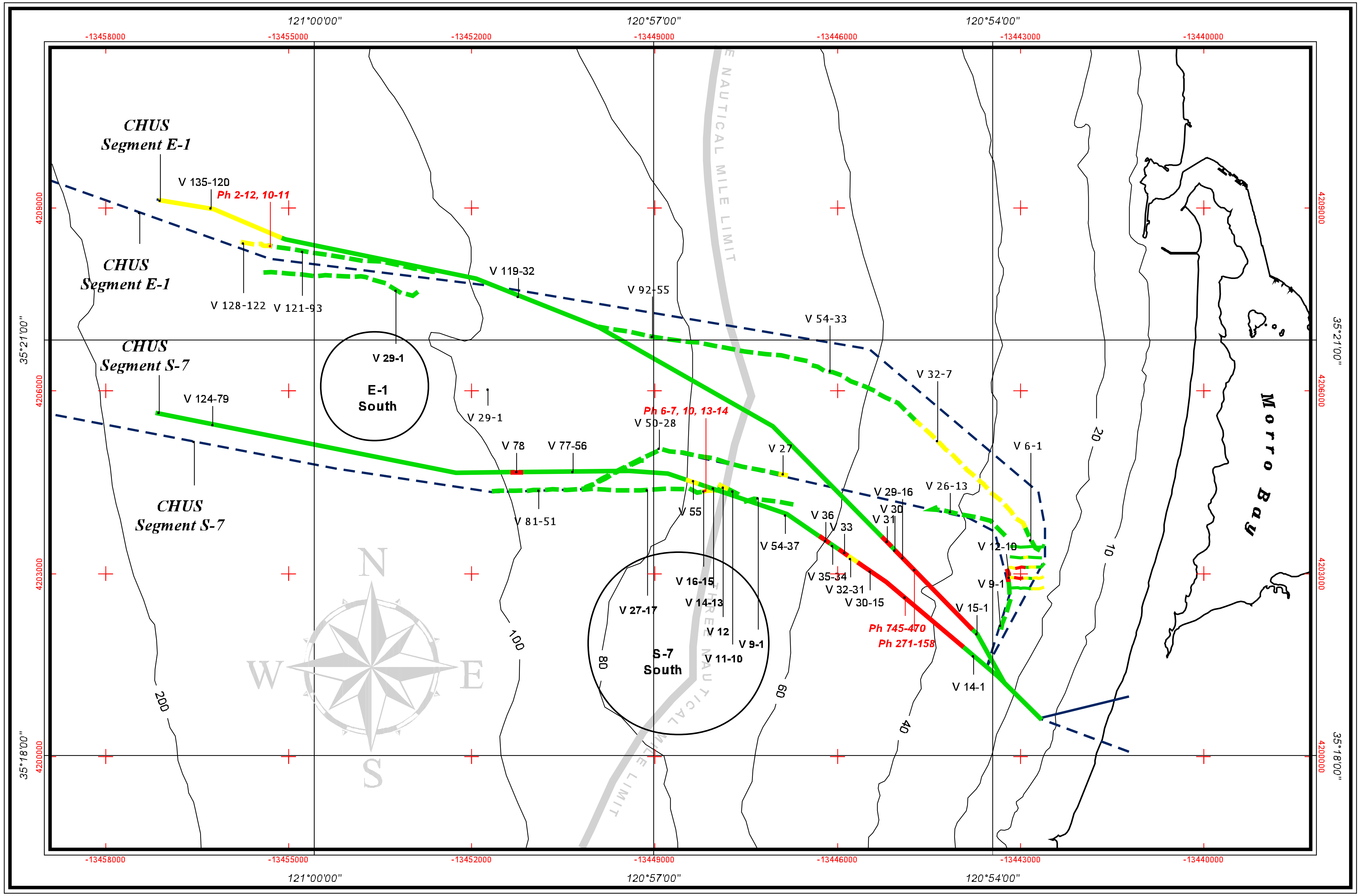
| *Common Name* | *Scientific Name* | *Federal Status*[1] | *State Status*[1] | *Habitat* | *Occurrence in Project Area*[2] |
|---|---|---|---|---|---|
| PLANTS | | | | | |
| Arroyo de la cruz manzanita | *Arctostaphylos cruzensis* | FSC | CNPS-1B | Coastal scrub, chaparral and other habitats, in sandy soils | Known from Montaña de Oro State Park but not known or likely in open dune areas such as surround the parking lot. |
| Monterey Spineflower | *Chorizanthe pungens var. pungens* | FT | CNPS-1B | Coastal dune and scrub communities, sandy soils | Variety of locations in Morro Bay, Los Osos areas, possible in dunes |
| Beach spectaclepod | *Dithyrea maritima* | FSC | ST<br>CNPS-1B | Coastal foredune habitats. | Known from Morro Bay shoreline but not found in dunes at Montaña de Oro (Morro Group 1999).. |
| Blochman's leafy daisy | *Erigeron blochmaniae* | FSC | CNPS-1B | Central coast dune scrub | Known to occur in dunes near parking lot. |

1 Codes:

| Federal Status | | State Status | |
|---|---|---|---|
| FE | Federally endangered | CE | California endangered |
| FT | Federally threatened | CT | California threatened |
| FSC | Federal species of concern | CSC | California species of concern (CDFG) |
| FPE | Federally proposed endangered | CFP | California fully protected |
| CNPS-1B | Considered rare and endangered by California Native Plant Society | | |

2 Project area is defined as the area surrounding the Sandspit Parking Lot at Montaña de Oro State Park.

***Sources*****: Morro Group 1999; Skinner and Pavlik 1994; CNPS Electronic Inventory 1999; CNDDB 1999**




## AT&T CHINA - US

### Fiber Optic Cable Routes

**Biological Habitat Analysis**

**China - US Cable Landfall**

**Morro Bay, CA**

## Biological Habitat Features

- HIGH RELIEF - Proposed
- LOW RELIEF - Proposed
- SOFT BOTTOM - Proposed
- HIGH RELIEF - M.B.A.
- LOW RELIEF - M.B.A.
- SOFT BOTTOM - M.B.A.
- PROPOSED ROUTE - Solid Line
- MAX. BURIAL ALT. - Dashed Line

0.5 0 0.5 1 1.5 Miles

0.5 0 0.5 1 1.5 2 2.5 Kilometers

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Figure 15. Proposed (solid lines) and Maximum Burial Alternative (dashed lines) Cable Routes Segments E-1 and S-7, Indicating Substrate Type (red, yellow, green) Based on Video and Photoquadrat ROV Data. Ranges of video (V) transect numbers indicated in black and photoquadrat (Ph) navigational fixes are in red italics for reference to biological community tables. High and low relief correspond to hard bottom habitats.

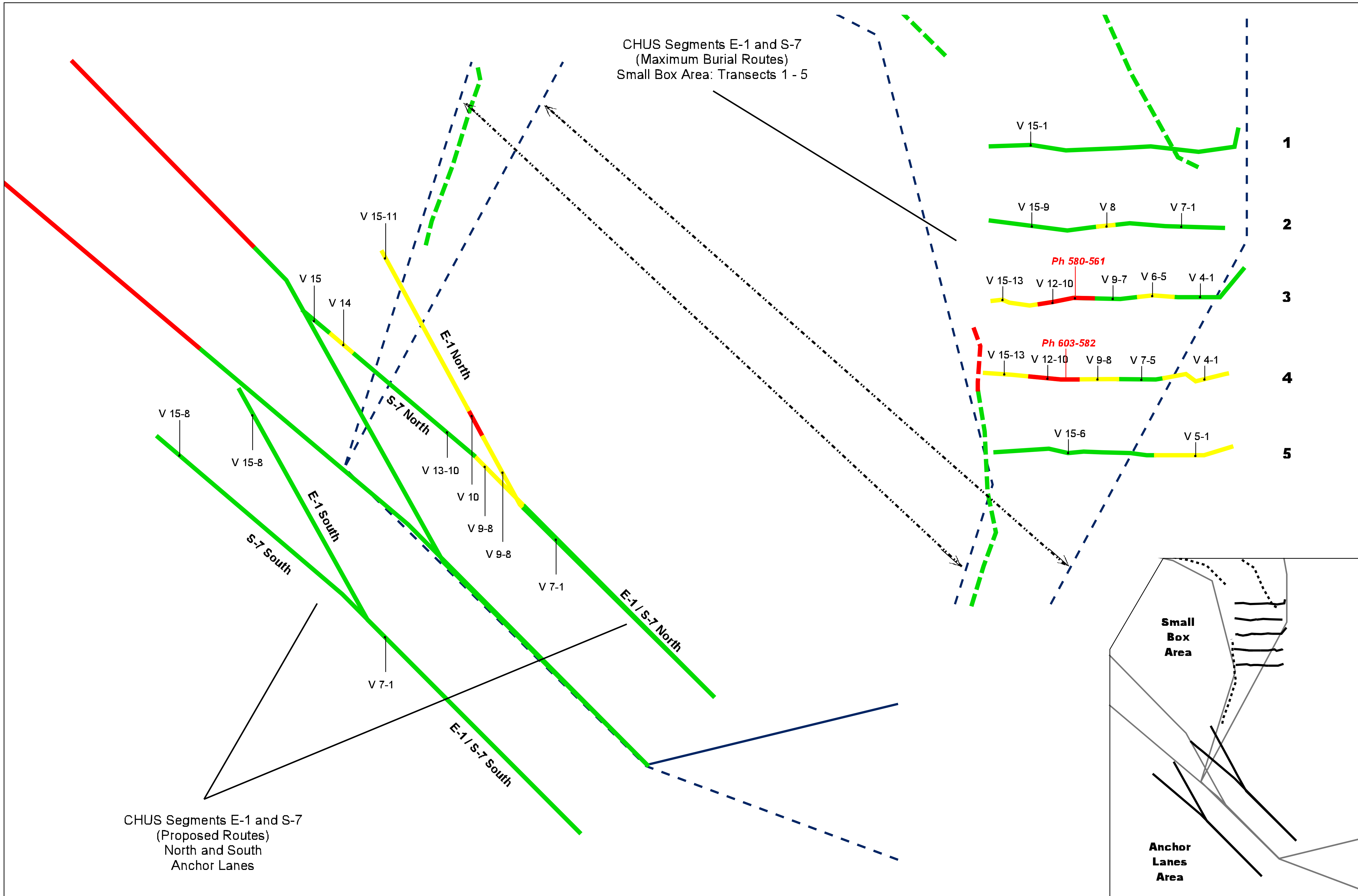
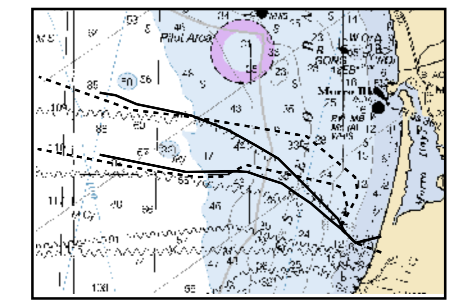



Figure 16. Proposed (solid lines) and Maximum Burial Alternative (dashed lines) Cable Routes Segments E-1 and S-7 (Bore Pipe and "Small Box" Vicinities), Indicating Substrate Type (red, yellow, green) Based on Video and Photoquadrat ROV Data. Ranges of video (V) transect numbers are indicated in black and photoquadrat (Ph) navigational fixes are in red italics for reference to biological community tables. High and low relief correspond to hard bottom habitats.

# AT&T CHINA - US

## BIOLOGICAL HABITAT ANALYSIS

### Anchor Lanes and Small Box Area



China - US Cable Landfall

Morro Bay, CA

## Biological Habitat Features

- HIGH RELIEF
- LOW RELIEF
- SOFT BOTTOM
- PROPOSED ROUTE
- MAX. BURIAL ALT.

Anchor Lanes

100 0 100 200 300 400 Meters

Small Box Area

100 0 100 200 300 Meters

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include gastropods, amphipods, crabs, seastars, brittle stars, and demersal fishes such as rockfishes (*Sebastes* spp.).

### *4.5.1.2 Benthic Surveys — 1999*

Remotely Operated Vehicle (ROV) surveys of the bottom fishes, epifaunal (surface-living) invertebrates, and algae species that characterize portions of the continental shelf off Morro Bay, California were conducted for the Proposed Route from May 23 to June 1, 1999, and for the Maximum Burial Alternative from June 26 to 29 and August 22 to 23, 1999 (Figures 15 and 16). Details of the surveys and methods are presented in Appendix B, Survey Report, including a comprehensive species list, data tables, and biological observer logs from the survey. General methods involved video data collection in all study areas (soft bottom and hard bottom), with still photographs taken in high-relief hard bottom habitats. High relief is defined as greater than one meter in height. Figures 15 and 16 show the proposed and alternative routes compared to the actual areas surveyed by the ROV. This indicates the coverage of data used to characterize the biological communities and habitats throughout the general region that would be traversed by the cables. These figures also show the location of survey data reference points (indicated as “V” for video and “Ph” for the photographic data) to allow cross-referencing with summary tables describing the biological communities. Survey data are provided in Tables 16 through 20 at the end of section 4.5, along with Exhibits 1-3 which show representative habitats and species.

#### *Proposed Route*

E1 and S7, the two primary cable routes proposed for the project, were surveyed along the entire nearshore length from approximately 65 to 490 feet (20-150 m) bottom depths. Each route runs in a general northwesterly direction representing a linear distance of approximately 10 to 11 miles (16 and 17.5 km), respectively (Figure 15). Anchor lanes (E1/S7-North Anchor Lane and EI/S7-South Anchor Lane, representing inshore branches of common segments for routes E1 and S7) for these routes were also surveyed (Figure 16). The anchor lanes correspond to 300-foot (100-m) corridors on either side of the nearshore portions of E1 and S7, but the center lines are offset by 900 feet (275 m) from the center line of the cable route (Figure 16). Localized areas of these corridors may be used for temporary anchoring by the cable installation vessel. This vessel will help pull the fiber optic cable through the existing bore pipe to approximately 30-foot (10-m) depths (see project description in Chapter 2). Each of the anchor lanes also has an offshore component for the E1/S7 North and South Anchor Lanes, referred to as E1-North Anchor Lane and S7-North Anchor Lane, and E1-South Anchor Lane and S7-South Anchor Lane, respectively (Figure 16).

#### *Maximum Burial Alternative*

E1 and S7 alternatives, the two primary, alternative cable routes for the project, were surveyed from approximately 78 to 475 feet (24 to 145-m) bottom depths, with ROV survey distances corresponding to approximately 8 and 6 miles (13.6 km and 9.8 km), respectively, along or adjacent to these routes (Figures 15 and 16). Each route runs in a general northwest to westerly direction, similar to the proposed route, but the nearshore area has a different, northerly trend to allow greater avoidance of hard bottom areas (Figures 15 and 16).

The so-called "small box" area shown in Figure 16 was used to confirm the location of substrate types and communities for the maximum burial alternative through this geologically complex nearshore region. This survey component consisted of five, generally east-west aligned ROV transects representing a combined length of 1.7 miles (2.8 km).

As indicated in Figures 15 and 16, the surveys along the proposed route provide substantial data to support the characterization of habitats and communities along and adjacent to the cable route for the Maximum Burial Alternative. These combined data help to provide a regional characterization of the environment within the offshore area covered by all of the routes (Proposed and Maximum Burial Alternative).

#### *4.5.1.2.1 Overview of Habitats and Communities*

This section presents an overview of the habitats and communities observed from the ROV surveys. A detailed evaluation to support this summary is presented in section 4.5.1.2.2. A species list providing scientific and common names is included in the Survey Report, Appendix B. This list is presented in alphabetical order to allow greater ease in locating a species name.

A key component of the evaluation for this EIR is to determine whether any habitats or species of potential concern occur within the project area. High-relief communities of the California continental shelf are generally characterized as being of potential concern to impacts from human-related disturbance (e.g., anchoring, commercial fishing, or drilling mud discharges; Lissner et al. 1991). This concern is due to the following:

- Relatively low areal coverage of high-relief habitats (generally less than 5 percent) compared to low-relief (less than 10 percent) and soft bottom (greater than 85-90 percent) habitats (SAIC and MEC 1995);

- Patchy distribution of high-relief habitat in many regions (SAIC and MEC 1995), thereby representing a potential limitation in colonization/recolonization by species that are only capable of short-distance (e.g., meters or less) dispersal of larvae or adults (Lissner et al. 1991); and

- Generally higher occurrence in high-relief habitats of species that may be more susceptible to impacts from mechanical disturbance such as cable installation. The most susceptible species to these types of impacts are usually large (e.g., more than 0.3 m in height), slow growing (e.g., a few to several centimeters per year), and relatively delicate/brittle or soft/friable in body form (e.g., branching corals and erect sponges, respectively) (SAIC 1988).

Species with these natural history characteristics are of greater potential concern because recolonization and recovery following natural or human-related disturbance may take years to accomplish, especially for species with limited dispersal abilities and slow growth, as noted above. However, to evaluate the significance of impacts that disturb portions of a larger community, such as would be most typical of a cable installation project, it is important to consider the size of the impacted area, intensity and frequency of disturbance, and abundance and life history of the affected species (Lissner et al. 1991).

Based on the above considerations, communities and associated species of potential concern, as used by this report and described by the above-listed studies for the U.S. Department of the Interior, are defined by the common occurrence of large branching corals (corresponding to *Allopora californica*, the California hydrocoral, in the project region) and erect sponges in high-relief habitats. Note that Cairns (1983) synonomized *A. californica* to *Stylaster californicus*. However, due to the continuing use and name recognition of "*Allopora*" by most scientists this report uses the original name to avoid confusion. Common occurrence of these species of potential concern is defined as 50 percent or more cover of the substrate locally (e.g., over a one to ten square meter area) or regionally. The corridor of potential impacts from a fiber optic cable in a hard bottom habitat primarily will be determined by the cable diameter (several centimeters) times the cable length (several kilometers). However, even allowing for a much larger width of initial impact during cable installation (e.g., 0.3 m), this would still represent a localized "patch" of disturbance (Lissner et al. 1991) within the overall community. High-relief habitats, per se, are not considered to be of significant concern from cable impacts without the common occurrence of species of potential concern. Nonetheless, these habitats are assumed to be of relatively greater potential concern than low-relief and soft bottom habitats. This is based on the smaller areal coverage and correspondingly restricted occurrence of many species associated primarily with high relief (see above).

*Allopora* has a calcareous skeleton and forms upright pink to dark blue branching colonies. This species is characterized by very slow growth (e.g., 5 to 10 years to reach sexual maturity, possibly more than 20 years to grow to a height of 30 cm) (Thompson et al., 1993; Gotshall, 1994). *Allopora* has no planktonic larval stage and fertilization between adult colonies more than 30 feet (10 m) apart is limited.

Large erect sponges (Demospongiae) in the study region are represented by few families, ranging in color from tan to yellow, orange, red, and blue. Many of these species are expected to be slow growing, and similar to *Allopora* in requiring several years to achieve sizes of 30 cm or more (e.g., Lissner et al. 1991).

### Proposed Route

In general, the species along this route are typical of soft-bottom and hard-bottom habitats at similar depths over many areas of the southern and central California shelf (e.g., SAIC 1986; SAIC and MEC 1989; Lissner et al. 1991; Lissner and Benech 1993; MMS 1995). The vast majority of the survey area is comprised of soft bottom (sand to mud) deeper than about 50-

60 m and shallower than about 35 m (Figures 15 and 16 and Table 16). High relief was primarily encountered along portions of cable routes E1 and S7 from about 35-49 m and 37-57 m, respectively, with additional isolated areas at 53, 60, 62, and 98 m (Figures 15 and 16 and Table 16).

Overall, soft bottom areas are characterized by sea pens (*Stylatula* and *Acanthoptilum*), tube-dwelling polychaetes (*Diopatra*), seastars (*Pisaster brevispinus*, *Luidia*, and *Astropecten*), and flatfishes (Table 16 and Appendix A of the Survey Report). Hard bottom areas are typified by low-growing "turf" species (mixtures of small hydroids, bryozoans, tunicates, and sponges), cup corals (*Paracyathus* and *Balanophyllia*), seastars (*Asterina* and *Henricia*), brittlestars (*Amphipholis*), various encrusting sponges, tunicates, bryozoans, red algae (at depths to about 30 m), rockfishes (*Sebastes* spp.), lingcod (*Ophiodon elongatus*), and painted greenling (*Oxylibius pictus*) ((Table 16 and Appendix A of the Survey Report). Additionally, the feather star *Florometra* and the anemone *Metridium* occurred at generally deeper depths (e.g., 300 feet [100 m+]) in the survey region.

As defined above, species of potential concern (i.e., the colonial coral *Allopora* and erect sponges) were observed in a few localized high-relief areas along Segments E1 and S7, but were uncommon and of small size, as detailed in section 4.5.1.2.2.

An overview of the habitat type in the general study region compared to the proposed cable route is shown in Figure 14. This EIR assumes that the maximum width of potential impacts to the bottom habitat and communities from cable installation would be 0.3 m in hard bottom and about 2.4 m in soft bottom areas. These widths are based on the small size of the cable (several centimeters) that would be surface-laid in hard substrate and the width of the seaplow that would be used to bury the cable in soft substrate (CSLC 1999b). Table 12 (section 4.3.3) summarizes the area (width corridor times the cable length) of potential impact compared to the available habitat. This indicates the cable will occupy about 0.01 percent of the available hard bottom (less than 0.01 percent of the high-relief habitat), and about 0.07 percent of the soft bottom habitat (Table 12).

### Maximum Burial Alternative

The species along this route are also typical of soft-bottom and hard-bottom habitats at similar depths over many areas of the southern and central California shelf, as noted for the proposed route. The majority of the survey area is soft bottom (sand to mud) and avoids the primary hard bottom area that would be crossed by the proposed route (Figures 15 and 16 and Table 17). Mixed soft bottom and low relief occurs over an approximately 3 km area from about 80 to 185 feet (24 to 56 m) and scattered over a couple of kilometer area from 425 to 475 feet (129 to 145 m) along the E1 alternate. The S7 alternate has very localized high-relief and low-relief habitat at about 80 and 210 feet (25 m and 64 m), respectively, and the S7 South segment has localized low relief at 250 and 253 feet (76 and 77 m) (Figures 15 and 16 and Table 19A). The only other high-relief habitat is along a localized area of two transects at about 88 to 100 feet (27 to 30 m) in the small box region used to define the E1 alternative.

Overall, the soft bottom and hard bottom areas of the maximum burial alternative are typified by the same species noted above for the proposed route (Table 19A as compared to 17). The principal difference is that in hard bottom areas for the alternative route, shallow habitats (e.g., 88 to 100 feet [27 to 30 m]) were additionally characterized by relatively high abundance of barnacles (e.g., 10 percent cover) and snails (e.g., 2-6 *Calliostoma* spp. per square meter). Further, some deep water habitats (e.g., 425 to 475 feet [129-145 m]) had a high percent cover of feather stars (*Florometra*) and sea anemones (*Metridium*), as detailed in section 4.5.1.2.2.

As defined above, species of potential concern (i.e., the colonial coral *Allopora* and erect sponges) were observed in a few localized high-relief areas of the small box region, but were uncommon and of small size, as detailed in section 4.5.1.2.2.

An overview of the habitat type in the general study region compared to the proposed cable route is shown in Figure 14. Assumptions for this analysis are as noted above for the proposed route. Table 12 summarizes the area (width corridor times the cable length) of potential impact compared to the available habitat. This indicates the cable will occupy about 0.001 percent of the available hard bottom, including 0.01 percent of the high-relief habitat, and less than 0.01 percent of the soft bottom habitat (Table 14). These values represent one order of magnitude less hard bottom area than would be crossed by the Maximum Burial Alternative, and similar amounts of soft bottom.

*4.5.1.2.2 Detailed Analysis of the Cable Routes*

A list of the scientific and common names for taxa identified from the surveys is presented in Table 3-4 of the Survey Report (Appendix B) for use in cross referencing the species addressed in this EIR and the associated raw data in the Survey Report. Scientific names are used preferentially when widely recognized common names are not available. Observer notes from the survey are also included in Survey Report.

Figures 15 and 16 provide a summary of (1) habitat types and (2) video band transect (“VBT” on the figures) and photoquadrat (“Ph” on the figures) identification numbers. These numbers are coded to the community data summarized in Tables 16 and 17, increasing for the VBTs from shallow to deep, and corresponding to navigational fix locations for the photoquadrats. The habitat types are coded for ease in reference using a “stoplight” sequence: green for soft bottom, yellow for low relief, and red for high relief. Raw data from which these summaries were produced are included in the Survey Report.

## Proposed Route

### *Segment E1*

The E1 route extends from 42 to 530 feet (13-161 m) depths and is predominated by soft-bottom habitat (Figure 15), based on ROV-collected video (entire route) and 35 mm photoquadrats (high relief areas only). High- and low-relief areas are mostly encountered along a nearshore band from about 115 to 175 feet (35-53 m) depths (VBTs 16-29 and P 158-271 in Figure 15), and intermittent low-relief mixed with soft-bottom was evident at 393 to 530 feet (120-161 m) (VBTs 120-135 in Figure 15).

In soft bottom areas the mean number of invertebrate taxa was low, ranging from 1-3.3 (Table 17) with a range of 1-6 (Table A-1 of the Survey Report) over the different segments and depth ranges. The greatest number of these taxa (4-6) occurred in deeper soft bottom areas (210 to 390 feet (64-119 m). In contrast, the mean number of low- and high-relief taxa was almost 2-3 times higher (4.9-9.3 taxa; 14) with a range of 1-10 taxa (Table A-1 of the Survey Report). Due to the greater resolution and smaller scale of data collection using the photoquadrats the number of invertebrate taxa identified in high-relief areas was about 60 (Table 18), while the number from video band transect data over the same habitats was less than half (about 25 taxa). The number of fish taxa was generally low over all habitats, typically ranging from 1-3 in shallow areas (13-80 m), with a slight increase to 3-5 taxa in deeper areas (80-106 m) (Table A-5 of the Survey Report). The total number of fish taxa for E1 was 27 (Table A-5 of the Survey Report).

Common soft bottom species, based on frequency of occurrence in 103 possible video band transects (1-15, 30, and 32-119 in Figure 15), were dominated by sea pens (23-80 VBTs) and cerianthid anemones (59 VBTs), although there was an evident difference in sea pen species between shallow and deep areas. Shallow areas less than about 245 feet (75 m) had a higher frequency of *Stylatula*, while *Virgularia* and *Acanthoptilum* predominated in areas deeper than about 75 m (Table A-1 of the Survey Report). Other frequently occurring species included the seastars *Astropecten* (19 VBTs), *Luidia* (9 VBTs), and *Pisaster brevispinus* (6 VBTs); *Octopus* (27 VBTs); free living polychaetes – likely amphinomids (16 VBTs), the tube-dwelling polychaete *Diopatra* ((15 VBTs) and combined flatfish taxa (87 VBTs) (Tables A-1 and A-5 of the Survey Report).

Common species in low-relief habitats, based on frequency of occurrence in 16 video band transects (120-135 in Figure 15), include the sea star *Mediaster* (3 VBTs), the feather star *Florometra* (9 VBTs), the anemone *Metridium* (11 VBTs), and the brachiopod *Laqueus* (5 VBTs) (Table A-1 of the Survey Report). The most frequently occurring fish were combined rockfish taxa (7 VBTs) (Table A-5 of the Survey Report).

A total of 111 photoquadrats from high-relief areas were analyzed for Segment E1. Based on these data the community occurs over a narrow depth range 115 to 175 feet (35-53 m) typified by turf species (as described above), cup corals (*Paracyathus* and *Balanophyllia*), seastars (*Asterina*, *Henricia*, and *Orthasterias*), encrusting sponges, foliose and encrusting red algae (mostly at depths shallower than 100 feet [30 m]), sea cucumbers (*Parastichopus*), sea anemones (*Urticina* and *Corynactis*, the latter mostly on shallow ridgetops) (Table A-1 of the Survey Report and Table 18). Mean abundance (per $m^2$) of the most common species (percent for colonial species and counts and percent cover for most discrete species) is presented in Table 18. For individual counts, *Paracyathus* had the highest average numbers (248 per $m^2$; n=111), followed by the sponge *Leucilla nuttingi* (36.5 per $m^2$), and the cup coral *Balanophyllia* (26 per $m^2$; n=74). The turf community had the highest percent cover (90 percent; n=111), while, "salmon" encrusting sponge accounted for an average of 20 percent cover (n=1), calcareous tubeworms was 3.0 percent (n=1) and red foliose algae was 2.8 percent (n=22). The video data did not add any additional taxa to the photoquadrat results, providing the greatest use in identifying areas with larger, typically more dispersed species such as the anemone *Metridium* (15 of 15 VBTs; Table A-1 of the Survey Report).

Dominant fishes in the hard bottom areas, based on frequency of occurrence in video band transects (15 in high relief – VBTs 16-29 and 31, and 16 in low relief – VBTs 120-135 in Figure 15), include rockfishes (*Sebastes* spp., 8 and 7 VBTs, respectively), and blackeye gobies (*Coryphopterus nicholsi*, 6 VBTs in high-relief only). Incidental species (e.g., 1-2 VBTs) included painted greenling (*Oxylebius pictus*), combfishes (*Zaneolepis* spp.), lingcod (*Ophiodon elongatus*).

Species of potential concern (i.e., erect sponges and the colonial coral *Allopora*) are poorly represented in the high-relief areas, based on the photoquadrat and video data. *Allopora* was present in 5 of 111 photoquadrats (Ph codes 211, 212, 229, 244, and 252 in Figure 15), but at less than or equal to 1 percent cover in each case, and only representing a few approximately 2-4 cm high colonies (Table 18). Large (approximately 10 cm high) sponges ("shelf" and "white anastomosing") were seen in 13 of 111 photoquadrats (Ph codes 158, 174, 186, 206, 209, 213, 215, 220-21, 229, 241, 262, and 266 in Figure 15), representing a mean of 5.7-10.7 percent cover (range 0.5 to 25 percent/ $m^2$). *Allopora* was not evident from the video data (Table A-1 of the Survey Report).

### *Segment S7*

The S7 route extends from 14-184 m depths and is predominated by soft-bottom habitat (Figure 15), based on ROV-collected video (entire route) and 35 mm photoquadrats (high-relief areas only). High- and low-relief areas are mostly encountered along a very similar nearshore band as noted above for E1, extending from about 37-57 m depths (VBTs 15-30) with intermittent hard bottom from 59-62 m (VBTs 31-33 and 36). Some isolated low- and high-relief areas were also noted at 83 m (VBT 55), and 98 m (VBT 78), respectively.

In soft bottom areas the mean number of invertebrate taxa was low, ranging from 1-4 (Table 16) with a range of 1-7 (Table A-2 of the Survey Report) over the different segments and depth ranges. The greatest number of these taxa (3-7) occurred in deeper soft bottom areas (72-83, 84-99, and 102-159 m). These trends are very similar to the results noted above for

E1. Also similar to E1, the mean number of low- and high-relief taxa observed in video transects was almost 2-3 times higher (3-8 taxa; Table 16) with a range of 3-8 taxa (Table A-2). Also as noted for E1, the greater resolution and smaller scale of data collection using the photoquadrats results in a higher total number of invertebrate taxa identified in high-relief areas (about 50), while the number from video band transect data over the same habitats was about 35 (Table 18).

The number of fish taxa was generally low over all habitats, typically ranging from 1-3 in shallow areas (14-87 m), with a slight increase to 3-5 taxa in deeper areas (80-105 m) (Table A-5 of the Survey Report). Overall, 32 fish taxa were observed in the video transects, with the most frequently occurring species including sanddabs (Citharichthys spp.; 56 of 100 VBTs in soft bottom), miscellaneous unidentifiable flatfish (32 of 100 VBTs), black belly eelpout (20 of 100 VBTs), and combined rockfish in hard bottom areas (Sebastes spp.; 40 of 122 total VBTs) (Table A-5).

Common soft bottom species, based on frequency of occurrence in 100 possible video band transects (1-14, 34-35, 56-77, and 79-124 in Figure 15), were dominated by sea pens (93 VBTs) and cerianthid anemones (36 VBTs), although there was an evident difference in sea pen species between shallow and deep areas. Shallow areas less than about 99 m had a higher frequency of *Stylatula*, while *Virgularia* and *Acanthoptilum* predominated in areas deeper than about 99 m (Table A-2 of the Survey Report). Other frequently occurring species included the seastars *Astropecten* (13 VBTs) and *Luidia* and *Pisaster brevispinus* (5 VBTs each); *Octopus* (32 VBTs); free living polychaetes – likely amphinomids (48 VBTs); the tube-dwelling polychaete *Diopatra* ((14 VBTs) and flatfishes (67 VBTs) (Tables A-2 and A-5). These results are generally consistent with the trends noted above for E1, although the break in sea pen species was somewhat deeper (by 24 m) along S7.

Common species in low-relief habitats, based on frequency of occurrence in 3 video band transects (31-32 and 55 in Figure 15), include the seastar *Mediaster* (2 VBTs). Other incidental species (1 VBT) that also were noted for segment E1 include the seastar *Asterina* and the anemone *Metridium*.

A total of 180 photoquadrats from high-relief areas were analyzed for Segment S7. Similar to E1 results, these data indicate the main community occurs over a narrow depth range (37-57 m). Mean abundance (per $m^2$) of the most common species (percent for colonial species and counts and percent cover for most discrete species) is presented in Table 19). Similar to results for Segment E1, *Paracyathus* had the highest average abundance in photoquadrats along Segment S7 (400 per $m^2$; n=180), followed by the brittlestar *Amphipholis* (29 per $m^2$; n=87), and *Leucilla nuttingi* (25 per $m^2$; n=6) (Table 19). Turf had the highest percent cover along Segment S7 (96 percent; n=180), followed by the hydroid *Aglaophenia* (5 percent; n=28), and anemone *Corynactis* (4 percent; n=16) (Table 19).

Species of potential concern (i.e., erect sponges and the colonial coral *Allopora*) were poorly represented in the hard-bottom areas, based on the photoquadrat and video data. *Allopora* was present in 3-4 of 180 photoquadrats (Ph codes 457, 460-61, and 491 in Figure 15), but at less than 1 percent cover in each case (Table 19), and only representing a few approximately 2-4 cm high colonies. *Allopora* was not evident from the video (Table 16 and Table A-2 of the Survey Report). Large (approximately 4-8 cm high) sponges ("shelf" and "white anastomosing") were seen in 3 of 180 photoquadrats (Ph codes 519, 560, and 619), occupying a range of 5 to 10 percent cover (Table 19).

Habitats and communities along the anchor lanes are comprised of the same species at similar depths and substrate types as noted above for E1 and S7. Differences between these routes and anchor lanes are presented below.

*Anchor Lane E1/S7-North*

This anchor lane ranges in depth from 11 to 19 m. Based on ROV-collected video, the habitat is sand bottom (Figure 16). This area has sparse communities with only two species observed over the entire lane: the polychaete *Diopatra* and the seastar *Pisaster brevispinus* (Table A-3 of the Survey Report).

No species of potential concern (e.g., erect sponges or the colonial coral *Allopora*) were noted in this study area due to the lack of suitable hard substrate (Table A-3 of the Survey Report).

*Anchor Lane E1-North*

This anchor lane ranges from about 20.5-28.5 m depths. The principal habitat is mixed low-relief and soft bottom, based on ROV-collected video (Figure 16). Scattered rocks occur near the inshore intersection with Anchor Lane E1/S7 North and a single high-relief (1-1.5 m) boulder was observed at about 25 m (V10 in Figure 16). Very few invertebrate taxa (2-5) were evident along any single transect, with 11 total taxa along the entire anchor lane, and only 3 fish taxa (Table A-3 of the Survey Report). The most common species based on frequency of occurrence (Table A-3) include *Diopatra* (6 of 8 VBTs), and *Stylatula* , *Pisaster brevispinus*, and flatfishes (4 of 8 VBTs each). The high-relief boulder was additionally characterized by the anemones *Metridium* and *Corynactis* (observer video log in the Survey Report), which were not evident in the video band transect review (see methods section in the Survey Report).

No species of potential concern (e.g., erect sponges or the colonial coral *Allopora*) were noted in this study area (Table A-3 of the Survey Report).

*Anchor Lane S7-North*

This anchor lane ranges from about 20.6-29.5 m and is typified by soft bottom over most of the route (V 10-13 and 15 in Figure 16), based on ROV-collected video. Similar to the E1/S7 North and E1 North anchor lanes, very few invertebrate species (2-6) were evident along any single transect, with 7 total taxa along the entire anchor lane, and only 3 fish taxa (Table A-3 of the Survey Report). The most common species based on frequency of occurrence (Table A-3) include *Diopatra* (8 of 8 transects), *Stylatula* and the hydroid *Clytia* (5 of 8 transects), *Pisaster brevispinus* and the polychaete *Pectinaria* (3 of 8 transects). Of additional interest were a few isolated rocks with high densities of tube-dwelling polychaetes (likely *Phyllochaetopterus*).

No species of potential concern (e.g., erect sponges or the colonial coral *Allopora*) were noted in this study area (Table A-3 of the Survey Report).

*Anchor Lane E1/S7-South*

This anchor lane ranged from about 13-22 m and was predominated by soft bottom habitat along the entire route (Figure 16), based on ROV-collected video. Similar to the northern anchor lanes, very few invertebrate species (1-3) were evident along any single transect, with 4 total taxa along the entire anchor lane, and only 3 fish taxa (Table A-4 of the Survey Report). The most common species based on frequency of occurrence (Table A-4) were *Diopatra* (8 of 8 transects) and the hydroid *Clytia* (3 of 8 transects).

No species of potential concern (e.g., erect sponges or the colonial coral *Allopora*) were noted in this study area (Table A-4 of the Survey Report).

*Anchor Lane E1-South*

This anchor lane ranged from 24-32 m and was typified by soft bottom habitat along the entire length (Figure 16), based on ROV-collected video. Similar to the northern anchor lanes, very few invertebrate species (1-3) were evident along any single transect, with 3 total taxa along the entire anchor lane, and only 4 fish taxa (Table A-4 of the Survey Report). The most common species based on frequency of occurrence (Table A-4) were *Diopatra* (7 of 7 transects) and the sea pen *Stylatula* (3 of 7 transects).

No species of potential concern (e.g., erect sponges or the colonial coral *Allopora*) were noted in this study area (Table A-4 of the Survey Report).

*Anchor Lane S7-South*

This anchor lane ranged from 24.5-31 m and was typified by soft bottom habitat along the entire length (Figure 16), based on ROV-collected video. Similar to the northern anchor lanes, very few invertebrate species (3-4) were evident along any single transect, with 5 total taxa along the entire anchor lane, and only 2 fish taxa (Table A-4 of the Survey Report). The most common species based on frequency of occurrence (Table A-4) were *Diopatra*, *Stylatula*, and *Clytia* (7 of 7 transects).

No species of potential concern (e.g., erect sponges or the colonial coral *Allopora*) were noted in this study area (Table A-4 of the Survey Report).

## Maximum Burial Alternative

Figures 15 and 16 provide a summary of (1) habitat types and (2) video band transect and photoquadrat identification numbers that correspond to the community data summarized in Table 17. As noted in section 4.5.1.2.1, a key difference between the Maximum Burial Alternative and the Proposed Route is the greater percentage of soft bottom habitat and associated species for the alternative (Table 11). For the Maximum Burial Alternative, the ROV survey data are offset from the cable route along much of the length. However, the offset distances are primarily small (50-200 or 300 m) and these general habitat regions are well characterized by the results from the three surveys addressed in this report. These data characterize the habitats as mostly soft bottom with discrete, smaller areas of low relief. Based on the relatively continuous nature of the substrate in these areas, it is assumed for this analysis that the ROV data collected adjacent to the Maximum Burial Alternative route are representative of the conditions along the proposed cable route (dashed lines in Figures 15 and 16). The only high relief habitat is along a portion (approximately 300 feet [100 m]) of two transects each within the small box area (Figure 16).

### *Maximum Burial Alternative Segment E1*

The E1 alternative extends from about 26-132 m depths and is predominated by soft-bottom habitat (VBTs 1-6 and 33-121 in Figure 15 and Table 17), based on ROV-collected video. Low-relief areas mostly occur along a nearshore band from about 33-51 m depths (VBTs 7-32 and 122-128), although it is assumed that these habitats and communities extend seaward from VBT 128, consistent with the data pattern for Segment E1 of the proposed route (VBTs 120-135 in Figure 15 and Table 16). Data from the E1 South alternative (VBTs 1-29 in Figure 15 and Table 17) also indicate soft bottom habitat from 99-126 m adjacent to the western edge of the E1 alternative route.

In soft bottom areas the mean number of invertebrate taxa was low, ranging from 2-4 (Table 17) with a range of 1-7 (Table A-6 of the Survey Report) over the different segments and depth ranges. The greatest number of these taxa (e.g., 3 or 4-7) occurred in deeper soft bottom areas greater than about 53 m. These trends are very similar to the results noted above for the proposed E1 route. Also similar to E1, the mean number of low-relief taxa observed in video transects was almost 2 times higher (6.6 taxa; Table 17) with a range of 5-8 taxa in deeper areas (117-132 m). In contrast, shallow low-relief areas (33-51 m) had the lowest mean number (1.2) and range (0-4) of taxa of any habitat type along the E1 alternate (Table A-6 of the Survey Report).

Common soft bottom species, based on frequency of occurrence in 95 possible video band transects (1-6 and 33-121 in Figure 15 and Table 17), were dominated by sea pens (42-73 VBTs), *Octopus* (66 VBTs), and flatfishes (45 VBTs). Similar to the proposed E1 route described above, there was a greater occurrence of *Stylatula* at shallower depths (in this case about 100 m or less) with *Acanthoptilum* and *Virgularia* occurring more frequently in areas deeper than about 100 m (Table A-6 of the Survey Report). The E1 South segment was consistent with this latter trend (predominance by *Acanthoptilum* and *Virgularia*, coupled with the common occurrence of *Octopus* and flatfishes) as related to the deeper depths (100-132 m) of this habitat.

The shallow low-relief areas of this segment had very low species numbers as noted above, typified by the seastar *Pisaster brevispinus* (7 of 26 VBTs) and even less frequent occurrences (6 VBTs) for all sea pens combined (Table A-6 of the Survey Report). This low abundance and representation by several soft bottom taxa indicates the mixed-habitat nature (very low relief and soft bottom) of this segment. The deeper low-relief areas also represented mixed habitat, but abundance of typical hard bottom taxa was higher. The most frequently occurring taxa of 7 possible VBTs were the anemone *Metridium* (7 VBTs), feather star *Florometra* (6 VBTs), and the sea star *Mediaster* and combined rockfish species (5 VBTs each) (Table A-6). These results are consistent with the low-relief areas noted above for the proposed E1 segment.

No species of potential concern (e.g., erect sponges or the colonial coral *Allopora*) were noted in this study area (Table 17 and Table A-7 of the Survey Report).

### *Maximum Burial Alternative Segment S7*

The S7 alternative extends from about 24-98 m depths and is predominated by soft bottom habitat (essentially all VBTs from 1-81, with the exception of one isolated high-relief area from VBTs 10-12 in Figure 15 and Table 17), based on ROV-collected video. Similar results were noted for the S7 South alternative, with a predominance of soft bottom along the entire segment (VBTs 1-27, with the exception of sparse low relief area at VBTs 12 and 15-16). This alternative ranges in depth from 64-85 m.

In soft bottom areas the mean number of taxa was generally low, ranging from less than 1 to 4.3 for the S7 alternative, and slightly higher (1.4-6 taxa) for the S7 South alternative (Table 17 and Table A-7 of the Survey Report). The range of taxa was 0-8 with an evident increase (e.g., generally 4 or more taxa per VBT) at depths greater than 70-75 m for S7 and S7 South (Table A-7). These trends are very similar to the results noted above for the E1 proposed and maximum burial alternative routes . The three high-relief VBTs for the E1 alternative all had 7 taxa, while the low-relief areas along S7 South ranged from 2-6 taxa (Table A-7). This represents a general increase in taxa compared to most of the soft bottom areas.

Common soft bottom species, based on frequency of occurrence in 102 possible video band transects (78 VBTs for the S7 alternative plus 24 for S7 South) were dominated by sea pens (66, 65, and 31 VBTs for *Stylatula*, *Virgularia*, and *Acanthoptilum*, respectively), *Octopus* (67 VBTs), and flatfishes (24 VBTs) (Table 17 and Table A-7 of the Survey Report). There was no obvious trend with depth for the sea pen species, as noted for E1, due to the relatively shallow depth range (24-89 m) compared to the other survey data, but the common species were consistent across all the soft bottom areas.

The isolated high-relief area along the S7 alternative was characterized, based on the frequency of occurrence in 3 possible video band transects, by the seastar *Asterina*, the anemone *Urticina*, and rockfishes, *Sebastes* (VBTs each), and the anemone *Metridium* (2 of 3 VBTs) (Table A-7 of the Survey Report). This is generally consistent with common species in the other high-relief areas along the proposed S7 route (Section 3.2.1).

The isolated low-relief areas along S7 South were typified by the anemone *Metridium* (3 of 3 VBTs) and characteristic soft bottom species such as *Octopus* and sea pens (2 of 3 VBTs each) (Table 17 and Table A-7 of the Survey Report). This indicates the mixed habitat (very low relief and soft bottom) nature of these segments, as also noted above for the E1 alternative.

No species of potential concern (e.g., erect sponges or the colonial coral *Allopora*) were noted in this study area (Table 17 and Table A-7 of the Survey Report).

**Small Box Area**

This site represents a very small overall area (about 800 X 900 m) and depth range (22-30 m) that was characterized based on five ROV transects (Figures 15 and 16, Table 17, and Table A-8 of the Survey Report). The northernmost transect (Transect 1) is soft bottom habitat and soft bottom predominates to the south at Transects 2 and 5. Low-relief habitat occurs in a localized area near the center and eastern one-third of these latter transects, respectively. In contrast, high- and low-relief habitat interspersed with soft bottom is more typical of Transects 3 and 4 (Figure 16).

Based on video data, the mean number of taxa per transect segment showed a typical pattern of generally lower numbers in soft bottom habitats (less than 1 to 4.3, with a principal range of 0-4 taxa) and higher mean numbers (1.9-5.8, with a principal range of 3-7) on hard bottom (Table 17 and Table A-8 of the Survey Report). The photoquadrat data were typified by the highest means (4.8-9.3) based on the smaller viewing area and better resolution compared to the video transects (Table 17 and Table A-8).

Soft bottom habitats over the five transects were typified, based on frequency of occurrence out of a possible 52 video band transects, by the seastar *Astropecten* (12 VBTs) and sanddabs (*Citharichthys*, 16 VBTs) (Table A-8 of the Survey Report). Other species such as sea pens were poorly represented (only 6 VBTs for all sea pen species combined). Of note, however, was the occurrence of squid eggs in Transect 1 (9 VBTs) and Transect 2 (1 VBT).

Low-relief habitats, represented by data from 17 video band transects (Table A-8 of the Survey Report), were characterized by the seastars *Asterina* (6 VBTs) and *Pisaster giganteus* (11 VBTs), the sea anemone *Urticina* (11 VBTs), white encrusting sponges and encrusting tunicates (10 VBTs each), and young of the year (YOY) rockfish (4 VBTs).

Photoquadrat data (Table 20 and Table A-8 of the Survey Report) provided the most complete characterization of high-relief habitats (indicated by Ph codes 561-580 in Transect 3 and 582-603 in Transect 4 on Figure 16) (see methods section in the Survey Report), but are consistent with the video data (6 video band transects) summarized in Table A-8. These combined data (mean values) indicate the predominant species are turf (78-85 percent cover), barnacles (10-22 percent cover), shelf sponge (23 percent cover along Transect 3 only), the cup corals *Paracyathus* (89-159 per $m^2$) and *Balanophyllia* (16-42 per $m^2$), the sea stars *Henricia*, *Mediaster*, *Asterina*, and *Pisaster giganteus* (mean range from about 5-12 per $m^2$), the snail *Calliostoma* (mean range from 6-19 per $m^2$), painted greenling (4-7 per $m^2$), and lingcod (4 per $m^2$).

Species of potential concern included *Allopora* and erect sponges (shelf sponge) in the high-relief areas along Transect 3 (Table 17). However, the *Allopora* was only observed in 2 of 20 photoquadrats (Ph codes 571-72 on Figure 16) and at low abundance (0.5 percent and 1 percent), representing small (several centimeters tall) colonies. Similarly, shelf sponges were only observed in 2 photoquadrats (Ph codes 569-70) at abundances of 5 percent and 40 percent, and were approximately 18 centimeters tall. No species of potential concern were observed in any other areas of the small box, including the high-relief areas of Transect 4.

*4.5.1.2.3 Summary Comparison with Other Studies*

The MCI WorldCom EIR (Morro Group 1999) and County of San Luis Obispo (CSLC 1999b) documented hard bottom communities in areas off Morro Bay that were generally higher in relief (e.g., nearshore areas to 5 m in height) to substantially higher in relief (e.g., offshore areas to 30 m in height) than observed along the China-U.S. routes (1-3 m in height). These higher relief areas appeared to be typified by more diverse and abundant communities than documented above for the Proposed Route and, particularly, the Maximum Burial Alternative. This is likely related to the sensitivity of many high relief species to natural or human-induced turbidity near the bottom (Lissner et al. 1991; Lissner and Benech 1993; Hyland et al. 1994). Higher relief habitats are typified by less turbid water for feeding by the many suspension feeding taxa that characterize these types of communities, with a corresponding increase in abundance and diversity (Lissner et al. 1991). These differences in relief height also appeared to influence conclusions related to fish abundance. Specifically, MFS Globenet (Morro Group 1999) reported large schools of pile perch (*Damalichthys vacca*) and rockfish (*Sebastes*), apparently in association with the high-relief features. In contrast, while the present study observed rockfish, throughout the survey area their occurrence was generally incidental, as related to the relatively lower relief of hard bottom habitat along the China-U.S. routes, and potentially some seasonal differences (spring survey for MFS Globenet and early to mid summer for China-U.S.).

The species observed by the present study and other studies in the region (Morro Group 1999; CSLC 1999c) were clearly consistent across the hard bottom habitats and depth ranges off Morro Bay. Shallower to mid-depth hard bottom habitats (e.g., 35-57 m; defined by MFS Globenet as less than 45 m and 45-85 m, respectively) were mostly typified by cup corals, various encrusting organisms (sponges and “turf” species), anemones, and seastars. Deeper hard bottom habitats (e.g., greater than about 80-85 m) were characterized by similar taxa, but with a notable increase in feather stars and the anemone *Metridium*. Rockfish were reported from all habitats by all the studies. Soft bottom epifaunal and demersal fish communities were not characterized quantitatively by MFS Globenet (Morro Group 1999), but the species (sea pens, *Octopus*, and flatfishes) are typical of these habitats over broad areas of the California coast (SAIC and MEC 1989).

In contrast to similarities among studies in the types of species, abundance estimates for some species are clearly different, apparently related in part to differences in methodologies for analyzing the photoquadrat data (point contact analysis for MFS Globenet and total counts for China-U.S.). The point contact method uses a grid of 48 dots to determine abundance, representing a subsampling estimate. In contrast, the total count method counts and identifies all taxa in each photoquadrat. As an example of differences between the study results, the mean density of the cup coral *Paracyathus* was estimated to be about 5 per $m^2$ by MFS Globenet versus 200-400 per $m^2$ by China-U.S., and the mean density of brittlestars (designated as the brittlestar *Amphipholis* for China-U.S.) was estimated as a maximum of about 3 per $m^2$ by MFS Globenet versus 29 per $m^2$ by China-U.S. In contrast, the mean density for another cup coral species, *Balanophyllia*, is approximately the same for both studies (about 26-30 per $m^2$). Where there is a difference the MFS Globenet (Morro Group 1999) values are always lower. The China-U.S. analysis initially attempted to apply a point contact methodology for analysis of the photoquadrats, but it was determined that the abundance of species like *Paracyathus*, seastars, and encrusting organisms was substantially understated compared to total counts. As a result a total count method was used for the China-U.S. analysis as described in the Survey Report (Appendix B).

However, despite these inter-study differences, the impact evaluation for the China-U.S. EIR is objectively based on an analysis of the percentage of available habitat that would be crossed (potentially impacted) by the cable routes, the occurrence of habitats and species of potential concern, and quantitative differences between the Proposed Routes and the Maximum Burial Alternative for this project.

### 4.5.2 Significance Criteria

A project impact is considered significant under the following conditions:

- A population of a threatened, endangered, regulated or other protected species (i.e., listed) is adversely affected, for example, by reduction in numbers: alteration in behavior, reproduction, or survival; or loss or disturbance of habitat. Any “take” of a listed species is considered significant.
- There is a substantial adverse effect on a species, natural community or habitat (e.g., kelp beds and eelgrass/surfgrass) that is specifically recognized as biologically significant in local, state or federal policies, statutes or regulations.

- Any impedance of fish or wildlife migration routes that lasts for a period that significantly disrupts that migration.
- Any substantial alteration or destruction of habitat that prevents reestablishment of biological communities that inhabited the area prior to the project.
- Extensive alteration or loss of biological communities in high-quality habitat that lasts longer than one year.

## 4.5.3 Project Impacts

### *4.5.3.1 Proposed Project*

*Terrestrial Biology*

Onshore activities would be confined to the Sandspit Parking Lot and would be coordinated with Montaña de Oro State Park and the County of San Luis Obispo to ensure consistency with prior approvals concerning use of the parking lot. No impacts on sensitive dune habitats and species are expected.

*Marine Biology*

No special status plants, sensitive habitats such as beds of kelp, surfgrass, or eelgrass, or rock pinnacles, are present in the marine environment affected by the project (CSLC 1994; Cable & Wireless Marine 1998). No significant effect on the abundance or diversity of marine plants or benthic invertebrates on low rock outcrops is expected, owing to the small diameter of the cables and the manner of installation, which would not cause substantial impacts to rock outcrops. Cable installation would represent a very localized, temporary and generally insignificant disturbance in marine habitats. The cables themselves may provide an additional microhabitat feature within the sedimentary or rock outcrop habitats, without materially affecting overall habitat quality. Additional discussion of project impacts taking into account the recent marine benthic survey follows below.

Results from the analysis of video and 35 mm photoquadrat data from the ROV survey (summarized above and detailed in Appendix B) indicate that the species occurring in soft-bottom and hard-bottom habitats are typical of biological communities at similar depths over many shelf regions of southern and central California (references noted above). Results from other studies in the Morro Bay region (e.g., Morro Group 1999) also confirm the broad occurrence of these same types of communities in the project vicinity. Important natural differences in the communities occurring on soft bottom, low-relief hard bottom, and high-relief hard bottom are evident, however, from each of the studies. A key component of impact evaluation for the China-U.S. project is therefore related to documenting the percentage of different habitat types that would potentially be impacted by the cable. This includes differences between the Proposed Route and Maximum Burial Alternative.

Types of disturbance that were considered for the impact evaluation include the potential for significant adverse effects to hard-bottom biological communities from (1) cable installation, (2) cable operations and abandonment, and (3) long-term (e.g., 25 years) occurrence of the cable in these habitats. Cable installation impacts could include dislodgment and/or crushing of the substrate or species of potential concern (defined in Section 4.5.1.2.1) while the cable is being laid on the bottom. Impacts from post-lay occurrence of the cable would similar if there was substantial movement of the cable that caused abrasion and dislodgment/crushing of the organisms or substrate.

*Cable Installation Impacts*

Potential impacts from cable installation would generally be greatest in high-relief habitat, followed by low-relief and soft bottom habitat. This is because of the higher number of species and abundance documented in the hard bottom habitats, particularly high-relief areas, as specified in section 4.5.1.2.2. However, as summarized in section 4.5.1.2.1, the potential area of impact from the cable is extremely small compared to the available habitat in the study region: about 0.01 percent of the hard bottom habitat, including 0.01% of high-relief area, and 0.07 percent of the soft bottom habitat (Table 12). These different habitat types are identified in Figures 15 and 16 based on the ROV survey results, generally showing the largest area of high-relief habitat along a nearshore band from about 35-57 m depths and more scattered in isolated areas to about 98 m. However, species of potential concern (i.e., the colonial coral *Allopora* and erect sponges) do not occur commonly in these or the other habitats (section 4.5.1.2.2), so that only a relatively small number of colonies could be affected, and significant impacts on populations of species of concern and their habitats would not occur (see definition in section 4.5.1.2.1). Further, the predominant species in these habitats are mostly very low-profile (e.g., 2-4 cm or less) and/or sturdy species such as cup corals and encrusting or turf forms, or are relatively to highly mobile, such as seastars, sea cucumbers, and fishes (section 4.5.1.2.2). Cable laying on these species would have a temporary and very localized scale of disturbance (maximally 0.3 m or less) and would be inconsequential given the frequent occurrence and relatively high abundance of these species throughout this habitat (section 4.5.1.2.2). Grapneling prior to cable installation would only occur in soft bottom areas, and would constitute a smaller area and disturbance than noted for the seaplow. Therefore, potentially adverse but less than significant impacts would result to soft bottom areas (Class III). No grapneling or potential impacts from this activity would occur to hard bottom areas.

Laying of the cable in hard bottom habitats would disrupt the bottom communities, possibly crushing and/or dislodging small, sessile or relatively sedentary macroinvertebrates along a narrow strip (e.g., 0.3 m wide). Most affected species would be expected to rapidly re-occupy any disturbed area via immigration, asexual propagation, or larval recruitment within a few months to a year (Lissner et al. 1991). Sessile species may experience repeated, localized disturbances throughout the life of the cable if the cable moves due to wave and current action. However, the area of impact would be very small relative to the overall habitat and associated communities throughout the project region (discussed above). Species of potential concern (e.g., *Allopora* and erect sponges) that would require many years to recolonize or recover from disturbance do not occur commonly (represent less than 50 percent cover in even a localized area – see definition in section 4.5.1.2.1) along the cable route. Therefore, no significant impacts would occur to these species. Nevertheless, the alteration of 1,224 $m^2$ of high-relief habitat (based on Table 12) is considered significant because of its extent, and would be unmitigable (Class I) without a major redesign of the proposed routes.

Species numbers and abundance of invertebrates and fishes is clearly greater in high-relief hard bottom habitats, followed by low relief and then soft-bottom areas. The majority of high-relief habitat occurs in the shallower portions of the E1 and S7 cable routes (Figures 14-16). As noted previously, the impact to high-relief areas is significant and unmitigable (Class I).

Even though the vast majority of the anchor lanes occur in soft-bottom habitat, the deeper northern branch of E1 is characterized by greater abundance of hard-bottom (low-relief and localized high-relief) habitat (Figure 16). Moreover, enough soft-bottom habitat exists along each anchor lane to allow avoidance of hard-bottom habitat, and high relief in particular (Figure 16). High-relief hard-bottom areas can be damaged by vessel anchoring, an impact that can be mitigated by the avoidance of anchoring in these areas (Class II).

Cable burial would cause surficial disturbance in a corridor up to 8-m wide (the width of the Sea Plow), and would create a furrow up to 1-m deep during cable burying. This operation would cause some mortality to benthic invertebrates, but would not substantially alter the seafloor. Wave- and current-induced turbulence and bioturbation are expected to thoroughly remix sediments within a few months following construction. It is expected that macroinvertebrates would recolonize the disturbed corridor primarily by immigration from adjoining areas, and that population densities within the disturbed area would be indistinguishable from surrounding areas within several months to a year (e.g., EPA 1993).

Human activity at the surface could temporarily disturb marine birds and mammals in the immediate vicinity. The routing of the cable avoids sensitive habitats such as sandy beach, rocky intertidal, and kelp bed habitats. The rate of construction across State Tidelands and beyond (0.4 to 0.7 knots) would be slow enough to allow fishes and marine birds and mammals to avoid areas of disturbance, yet would only briefly (i.e. minutes to, at most, a few hours) interfere with the use of benthic, water column, and surface habitat areas along the cable route.

In response to the U.S. Fish and Wildlife Service (USFWS) and U.S. Army Corps of Engineers stipulations for offshore construction, measures to protect the southern sea otter from incidental disturbance during cable installation were incorporated into the TPC-5 project by AT&T (CSLC 1994). Discussion with representatives of these agencies and with officials of the California Department of Fish and Game, and National Marine Fisheries Service in 1994 confirmed that these agencies did not believe the TPC-5 project could significantly affect marine wildlife, including marine mammals and other sensitive species (CSLC 1994). Sea otter monitoring that was conducted for the TPC-5 project and documented in a report submitted (SAIC 1995) to the responsible agencies confirmed that project's insignificant effect on sea otters in the nearshore area. Typical sea otter responses to the activities consisted of otters transiting the area briefly pausing and apparently taking notice of the activities. No behaviors suggesting any adverse reaction to the activities were observed.

The USFWS has considered whether the proposed installation of the China-U.S. cables could adversely affect sea otters and, if so, whether monitoring as was done during the TPC-5 project should be required again for the China-U.S. project. Based on the similarity of construction procedures and the results of the previous monitoring done for the TPC-5 project (SAIC 1995), the USFWS does not believe the project has the potential to adversely affect sea otters, or that monitoring for potential disturbance is necessary (personal communication, Lee Ann Naue 1999).

The Marine Mammal Protection Act specifically protects marine mammals from harm and harassment. The rate of progress of the cable ship (0.4 to 0.7 knots) is slow relative to the swimming speeds of marine mammals that could be present, and the ship itself and towed ROV or Sea Plow, as well as the cable as it descends from the ship to the sea floor would be conspicuous but small and easily detected and swum around by any marine mammals in the vicinity. Hence no impacts on migration are expected. The presence of migrating gray whales and other marine mammals that could be present in the area, and the legal protections that apply, are familiar to local vessel operators that could be contracted in support of the work. Project vessels in general, would be operating at slow speeds during cable installation, and the likelihood of injury to a marine mammal during these activities is less than significant.

The possibility that a project vessel could introduce foreign species into California waters is insignificant given the short duration of their stay in the nearshore waters and ballast handling procedures the vessels will follow (described at section 2.10.5).

The likelihood of a vessel fuel oil spill due to a collision during cable installation is extremely small given the brief duration of installation activities, Notice to Mariners, the conspicuousness of the vessels, and the standoffs that are required between non-project vessel traffic and the vessels engaged in cable laying (section 4.10). The potential consequences of such spills are further minimized by onboard Oil Spill Contingency Plans that each vessel is required to have. Impacts of potential oil spills are therefore considered less than significant (Class III).

In conclusion, cable installation is expected to have less-than-significant effects on biological resources (Class III).

*Operations and Abandonment*

The cable itself would remain as a permanent feature on the bottom in this habitat, and would not be expected to appreciably affect the benthic community other than by providing an additional surface, which plants and invertebrates will attach to, and small fishes and invertebrates will utilize for shelter or foraging. Repair or abandonment operations could have impacts similar to those of cable installation.

*Post-lay Occurrence of the Cable*

Inspection of Segments G and T-1 along previously installed (1995) cable route TPC-5 indicated there was no evidence of significant environmental damage due to cable movement and abrasion. This is based on (1) the lack of obvious abrasion or erosion of the hard-bottom substrate underlying the cable; (2) extensive growth of encrusting organisms on the cable; and (3) examples of encrusting sponges that had grown over the cable from the surrounding substrate. This last observation in particular provides evidence in this location that significant cable movement had not occurred recently (if at all). For example, large erect sponges observed in the video transects from TCP-5 would not have been able to grow over the cable if movement had occurred. Other studies (e.g., San Luis Obispo County 1999) have documented localized (e.g., 10-centimeter wide) abrasion due to movement of existing cables. However, the small scale of this disturbance, especially compared to the large area of available habitat (Table 12) indicates that there would be no significant adverse impacts associated with the post-lay occurrence of the cable on rocky substrates (Class III).

The electromagnetic field generated by the cables is sufficiently small (section 2.2.1) that no biological effects are expected. This conclusion is supported by the observed growth of invertebrates on the cables.

*Whale Entanglement*

Concerns exist over the possibility that whales, gray whales in particular, could become entangled or otherwise be injured by fiber optic cables, for example during feeding. These concerns stem in part from historic records of whale entanglements in telegraph cables owned by the Western Union Telegraph Company, the Commercial Cable Company, the All American Cable Company and the Commercial Pacific Company (Heezen 1957). The majority of the historic entanglements (Heezen 1957) involved sperm whales and occurred off the Pacific coast of South America in depths of water less than 600 fathoms (roughly 1,100 meters). All of these entanglements occurred prior to 1955 in telegraph cables that would have been unburied. It is likely that the historical entanglements occurred due to the lack of adequate slack control and burial on these telegraph systems. Since the advent of modern cable ships with slack control and plow burial no entanglements of any type of marine organism has been reported in fiber optic cables. It is likely that the lack of proper slack control and a proximity of a majority of the entanglements to a repair (Heezen 1957) caused several loops of cable to stand proud of the sea bed and the whales likely came into contact with the cables while pursuing their prey. In the water depths that these entanglements have occurred a plow will bury the cable, while adequate slack control will keep the cable on the sea bed in areas where plow burial cannot be accomplished. In the event that a repair is required, the repaired section would be re-buried, eliminating any sections of loose cable that could otherwise pose a risk of entanglements.

Other concerns relate to the possibility that marine mammals could be injured by colliding and/or entanglement with an unburied cable in an area of suspension between rocks. Obviously, the likelihood of any interaction with marine mammals is greatest where a cable is placed in an area of high relief and cannot be buried or laid flush with the bottom. The risk of impact in this regard appears to be extremely low, based on the ability of marine mammals to detect and navigate around natural and man-made structures in the marine environment. The double-armored cable used in rocky areas is about 2 inches in diameter (Appendix A) and should as a result be detectable by marine mammals.

Literature searches through the Internet and University of California at Santa Barbara library conducted for this EIR, along with inquiries to the International Whaling Commission, researchers and government scientists (personal communications, S. Duff, A. Chave, T. Fahy, S. Benech, and S. Krenn, respectively, 1999) yielded no reports of whales or other marine mammals being injured by a fiber optic cable.

Cables lying on the seafloor or buried in sediments are unlikely to pose a hazard to migrating gray whales in Central California. Gray whales do not normally feed during migration (Swartz 1986), and do not in any case feed on hard bottom substrates, although there are anecdotal observations of gray whales feeding opportunistically on krill at the surface during migration (personal communications S. Benech and S. Krenn 1999). Experienced biologists who have conducted gray whale monitoring studies off Point Buchon and other Central California locations report that they have never seen, nor heard of, gray whales feeding on the bottom during their migration through this area (personal communications, S. Benech, S. Krenn 1999).

### *4.5.3.2 Maximum Burial Alternative*

The environmental setting for the Maximim Burial Alternative routes differs in overlapping a much smaller area of hard bottom habitat, and avoids most areas of high relief in particular. As summarized in section 4.5.1.2.1, the potential area of impact from the cable is extremely small compared to the available habitat in the study region, about 0.001 percent of the hard bottom habitat, including 0.01 percent of high-relief areas, and 0.01 percent of the soft bottom habitat. This represents a reduction of an order of magnitude less hard bottom habitat for this alternative compared to the Proposed Route (section 4.5.1.2.1), and a similar percentage of soft bottom habitat. The different habitat types are identified in Figures 15 and 16 based on the ROV survey results, generally showing only a small area (e.g., two 100-m long segments) of high-relief habitat in a portion of the "small box" at about 30-m depths. Species and abundance noted in these various habitats are consistent with the results specified for the

Proposed Route (section 4.5.1.2.2). Species of potential concern (i.e., the colonial coral *Allopora* and erect sponges) were observed in the small box area, but do not occur commonly in these or the other habitats (section 4.5.1.2.2), so that only a relatively small number of colonies could be affected, and significant impacts on populations of species of concern and their habitats would not occur (see definition in section 4.5.1.2.1) (Class III). Further, due to the localized nature of this high-relief habitat, potential impacts could be additionally minimized by a mitigation measure to avoid this area during cable installation.

### 4.5.4 Cumulative Impacts

The proposed project in combination with other existing and proposed submarine cable projects (Figure 13) is unlikely to have significant cumulative impacts on biological resources. Each project is associated with temporary activities on the ocean surface and the temporary disturbance of small areas of existing benthic habitats (Table 14), and as a result, the combined effects of cumulative projects are unlikely to approach any of the significance criteria listed above under section 4.5.2.

Tables 13 and 14 in the Geology section (4.3) provide quantitative estimates of (1) the degree to which different substrate types are crossed by existing and proposed cables off of Morro Bay; and (2) the potential disturbance to various substrate types, both in absolute terms of areas affected and in relative terms as a percentage of the substrate that exists in the study area. As the tables indicate, an extremely small fraction (<<one percent) of any one substrate type would be affected. Approximately one one-hundredth of a percent of the habitats of greatest concern —high and low-relief rocky substrates — would be affected by all projects combined. This provides further support for the conclusion that the cumulative impacts would be less than significant (Class III).

### 4.5.5 Mitigation Measures

For either the proposed or alternative project routes, the following mitigation measure is recommended to avoid potentially significant impact (Class II) of project vessel anchoring on rocky substrate habitats:

**MB-1.** Based on the most detailed and current maps of seafloor substrate conditions available, high-relief areas that could be subject to disturbance from anchoring by project vessels should be mapped with coordinate locations specified and designated as “no-anchor zones” on final approved plans for cable installation. These areas should continue to be shown on as-builts and project maps that could be used in future repair or abandonment activities.

**Table 16. Summary of ROV Video and Photographic Data by Segment and Habitat for Proposed Cable Routes. Ranges of ROV data with the same habitat type are shown on Figures 15 and 16**

**VBT = video band transect; PHOTO = photoquadrat location listed by navigational fix point.**

| *ROV Segment* | *Segment Length (km)* | *Habitat Type* | *Depth (m)* | *Mean Number Taxa* | *Community Dominants* | *Species of Potential Concern* | *SOPC Abundance* |
|---|---|---|---|---|---|---|---|
| E1 VBT 15-1 | | Soft Bottom | 13-34 | 1.9 | Diopatra<br>Pisaster brevispinis<br>Stylatula | None | -- |
| E1 VBT 29-16 | | High Relief | 35-49 | 4.9 | Asterina<br>Balanophyllia<br>Encruster, white<br>Mediaster<br>Metridium<br>Paracyathus | None | -- |
| E1 PHOTO 271-158<br>(All species mean > 10%/m2 cover and mean > 25 indiv./m2) | | High Relief | 36-42 | 9.3 | Turf<br>Sponge, salmon encrusting<br>Sponge, shelf<br>Paracyathus stearnsi<br>Leucilla nuttingi<br>Balanophyllia elegans<br>Amphipholis sp. | Allopora californica<br>Sponge, shelf | 0.6 % per m2<br>2-20% per m2 |
| E1 VBT 30 | | Soft Bottom | 52 | 1 | Astropecten | None | -- |
| E1 VBT 31 | | High Relief | 53 | 9 | Asterina<br>Dendrochirotid red tentacle<br>Dendrochirotid white tentacle<br>Gorgonian, red<br>Henricia<br>Metridium<br>Paracyathus<br>Parastichopus<br>Sponge, foliose white | None | -- |
| E1 VBT 119-32 | | Soft Bottom | 55-119 | 3.3 | Acanthoptilum<br>Anemone, cerianthid<br>Luidia<br>Octopus<br>Pleurobranchea<br>Polychaete, free living<br>Ptilosarcus | None | -- |

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**VBT = video band transect; PHOTO = photoquadrat location listed by navigational fix point.**

| *ROV Segment* | *Segment Length (km)* | *Habitat Type* | *Depth (m)* | *Mean Number Taxa* | *Community Dominants* | *Species of Potential Concern* | *SOPC Abundance* |
|---|---|---|---|---|---|---|---|
| | | | | | Stylatula<br>Virgularia | | |
| E1 VBT 135-120 | | Low Relief | 120-161 | 5.4 | Acanthoptilum<br>Amphipholis<br>Florometra<br>Gorgornian, red<br>Laqueus<br>Mediaster<br>Metridium<br>Octopus<br>Polychaete, free living<br>Rathbunaster<br>Stomphia<br>Virgularia | None | -- |
| S7 VBT 14-1 | | Soft Bottom | 14-35 | 1.9 | Astropecten<br>Diopatra<br>Pisaster brevispinis<br>Stylatula | None | -- |
| S7 VBT 30-15 | | High Relief | 37-57 | 4.9 | Amphipholis<br>Asterina<br>Dendrochirotid white tentacle<br>Encruster, orange<br>Encruster, white<br>Henricia<br>Mediaster<br>Metridium<br>Paracyathus<br>Parastichopus<br>Urticina sp. | None | -- |
| S7 PHOTO 745-470<br>(All species mean > 10%/m2 cover and mean > 25 indiv./m2) | | High Relief | 37-57 | 8.7 | Paracyathus stearnsi<br>Amphipholis sp.<br>Leucilla nuttingi<br>Turf<br>Sponge, large white anastomosing | Allopora californica<br>Sponge, large white<br>anastomosing | 0.5 % per m2<br>10% per m2 |

**Table 16. Summary of ROV Video and Photographic Data by Segment and Habitat for Proposed Cable Routes. Ranges of ROV data with the same habitat type are shown on Figures 15 and 16**

**VBT = video band transect; PHOTO = photoquadrat location listed by navigational fix point.**

| *ROV Segment* | *Segment Length (km)* | *Habitat Type* | *Depth (m)* | *Mean Number Taxa* | *Community Dominants* | *Species of Potential Concern* | *SOPC Abundance* |
|---|---|---|---|---|---|---|---|
| S7 VBT 32-31 | | Low Relief | 59-61 | 3 | Astropecten<br>Henricia<br>Luidia<br>Mediaster<br>Stylatula | None | -- |
| S7 VBT 33 | | High Relief | 60 | 8 | Amphipholis<br>Dendrochirotid red tentacle<br>Dendrochirotid white tentacle<br>Encruster, white<br>Gorgonian, red<br>Henricia<br>Mediaster<br>Metridium | Allopora californica | 0.5 % per m2 |
| S7 VBT 35-34 | | Soft Bottom | 63-64 | 1 | Astropecten<br>Stylatula | None | -- |
| S7 VBT 36 | | High Relief | 62 | 7 | Asterina<br>Dendrochirotid red tentacle<br>Encruster, orange<br>Encruster, white<br>Encruster, yellow<br>Metridium<br>Parastichopus | Allopora californica | 0.5 % per m2 |
| S7 VBT 54-37 | | Soft Bottom | 66-83 | 2 | Acanthoptilum<br>Anemone, cerianthid<br>Astropecten<br>Octopus<br>Stylatula<br>Virgularia | None | -- |
| S7 VBT 55 | | Low Relief | 83 | 6 | Amphipholis<br>Asterina<br>Caryophillia alaskensis<br>Mediaster<br>Metridium<br>Stylatula | None | -- |

**Table 16. Summary of ROV Video and Photographic Data by Segment and Habitat for Proposed Cable Routes. Ranges of ROV data with the same habitat type are shown on Figures 15 and 16**

**VBT = video band transect; PHOTO = photoquadrat location listed by navigational fix point.**

| *ROV Segment* | *Segment Length (km)* | *Habitat Type* | *Depth (m)* | *Mean Number Taxa* | *Community Dominants* | *Species of Potential Concern* | *SOPC Abundance* |
|---|---|---|---|---|---|---|---|
| S7 VBT 77-56 | | Soft Bottom | 84-99 | 4 | Acanthoptilum<br>Anemone, cerianthid<br>Octopus<br>Polychaete, free living<br>Stylatula<br>Virgularia | None | -- |
| S7 VBT 78 | | High Relief | 98 | 7 | Balanophyllia<br>Caryophillia alaskensis<br>Encruster, white<br>Encruster, yellow<br>Monomastia<br>Paracyathus<br>Parastichopus | Allopora californica | 0.5 % per m2 |
| S7 VBT 124-79 | | Soft Bottom | 102-184 | 3.8 | Acanthoptilum<br>Anemone, cerianthid<br>Octopus<br>Pandalus jordani ?<br>Polychaete, free living<br>Stomphia<br>Stylatula<br>Virgularia | None | -- |
| E1/S7 North AL VBT 7-1 | | Soft Bottom | 14-23 | 1 | Diopatra<br>Pisaster brevispinis | None | -- |
| E1 North AL VBT 9-8 | | Low Relief | 23-25 | 3 | Asterina<br>Diopatra<br>Pisaster brevispinis | None | -- |
| E1 North AL VBT 10 | | High Relief | 27 | 5 | Asterina<br>Pisaster brevispinis<br>Sponge, white encrusting<br>Urticina piscivora<br>Rockfish (YOY) | None | -- |
| E1 North AL VBT 15-11 | | Low Relief | 28-31 | 3.8 | Diopatra<br>Flatfish, unident.<br>Stylatula | None | -- |

**Table 16. Summary of ROV Video and Photographic Data by Segment and Habitat for Proposed Cable Routes. Ranges of ROV data with the same habitat type are shown on Figures 15 and 16**

**VBT = video band transect; PHOTO = photoquadrat location listed by navigational fix point.**

| *ROV Segment* | *Segment Length (km)* | *Habitat Type* | *Depth (m)* | *Mean Number Taxa* | *Community Dominants* | *Species of Potential Concern* | *SOPC Abundance* |
|---|---|---|---|---|---|---|---|
| S7 North AL VBT 9-8 | | Low Relief | 23-25 | 3 | Cancer gracilis<br>Diopatra<br>Pisaster brevispinis | None | -- |
| S7 North AL VBT 13-10 | | Soft Bottom | 27-31 | 3.75 | Clytia bakeri<br>Diopatra<br>Stylatula | None | -- |
| S7 North AL VBT 14 | | Low Relief | 31 | 4 | Astropecten<br>Clytia bakeri<br>Diopatra<br>Stylatula | None | -- |
| S7 North AL VBT 15 | | Soft Bottom | 32 | 6 | Diopatra<br>Pectinaria californiensis<br>Stylatula<br>California lizardfish<br>Flatfish, unident.<br>Pacific snake prickleback ? | None | -- |
| E1/S7 South AL VBT 8-1 | | Soft Bottom | 15-24 | 2.25 | Blackeye goby<br>Clytia bakeri<br>Diopatra | None | -- |
| E1 South AL VBT 15-9 | | Soft Bottom | 26-35 | 2.4 | Clytia bakeri<br>Diopatra<br>Stylatula | None | -- |
| S7 South AL VBT 15-9 | | Soft Bottom | 27-34 | 4.1 | Blackeye goby<br>California lizardfish<br>Clytia bakeri<br>Diopatra<br>Pectinaria californiensis<br>Stylatula | None | -- |

Note: 1 Refer to Table 3-4 for common names corresponding to the scientific names.

**Table 17. Summary of ROV Video and Photographic Data by Segment and Habitat for Maximum Burial Alternative**
**Ranges of ROV data with the same habitat type are shown on Figures 15 and 16**
**VBT = video band transect; PHOTO = photoquadrat location listed by navigational fix point**

| *ROV Segment* | *Segment Length (km)* | *Habitat Type* | *Depth (m)* | *Mean Number Taxa* | *Community Dominants* | *Species of Potential Concern* | *SOPC Abundance* |
|---|---|---|---|---|---|---|---|
| Small Box-1 VBT 15-1 | | Soft Bottom | 24.5-30.0 | 2.8 | Astropecten<br>Diopatra<br>Squid, eggs<br>California lizardfish<br>Citharichthys spp. | None | -- |
| Small Box-2 VBT 7-1 | | Soft Bottom | 23.9-27.0 | 0.43 | Squid, eggs<br>Citharichthys spp. | None | -- |
| Small Box-2 VBT 8 | | Low Relief | 27 | 3 | Squid, eggs<br>Citharichthys spp. | None | -- |
| Small Box-2 VBT 15-9 | | Soft Bottom | 27.3-29.1 | 0.43 | Citharichthys spp. | None | -- |
| Small Box-3 VBT 4-1 | | Soft Bottom | 23.0-23.9 | 2 | Diopatra<br>Citharichthys spp. | None | -- |
| Small Box-3 VBT 6-5 | | Low Relief | 24.5-25.2 | 4.5 | Asterina<br>Pisaster giganteus | None | -- |
| Small Box-3 VBT 10-7 | | Soft Bottom | 25.8-27.0 | 2 | Diopatra<br>California lizardfish<br>Citharichthys spp. | None | -- |
| Small Box-3 VBT 15-11 | | Low Relief | 27.3-29.1 | 5.8 | Cup Corals (Bal.+ Parac)<br>Pisaster giganteus<br>Sponge, white encrusting<br>Tunicate, encrusting<br>Urticina piscivora | None | -- |
| Small Box-3 PHOTO (580-561) | | Low / High Relief | 26.4-28.5 | 8.5 | Amphipholis<br>Asterina<br>Balanophyllia<br>Barnacles<br>Barnacles?<br>Calliostoma annulatum<br>Calliostoma sp.<br>Corynactis | Allopora californica<br>Sponge, shelf | 0.5 % and 1.0 % / m2<br>5% and 40% / m2 |

**Table 17. Summary of ROV Video and Photographic Data by Segment and Habitat for Maximum Burial Alternative**
**Ranges of ROV data with the same habitat type are shown on Figures 15 and 16**
**VBT = video band transect; PHOTO = photoquadrat location listed by navigational fix point**

| *ROV Segment* | *Segment Length (km)* | *Habitat Type* | *Depth (m)* | *Mean Number Taxa* | *Community Dominants* | *Species of Potential Concern* | *SOPC Abundance* |
|---|---|---|---|---|---|---|---|
| | | | | | Encruster, orange<br>Encruster, white<br>Geodia<br>Henricia<br>Painted greenling<br>Paracyathus<br>Sponge, shelf | | |
| Small Box-4 VBT 4-1 | | Low Relief | 22.1-24.2 | 5.5 | Pisaster brevispinis<br>Sponge, white encrusting | None | -- |
| Small Box-4 VBT 7-5 | | Soft Bottom | 24.8-25.8 | 4.3 | Diopatra<br>Pisaster brevispinis | None | -- |
| Small Box-4 VBT 15-8 | | Low Relief | 26.1-27.6 | 1.9 | Pisaster giganteus<br>Sponge, white encrusting<br>Tunicate, encrusting<br>Urticina piscivora | None | -- |
| Small Box-4 PHOTO (582-587) | | Low / High Relief | 26.1 | 9.3 | Balanophyllia<br>Barnacles<br>Calliostoma annulatum<br>Encruster, purple<br>Encruster, white<br>Henricia<br>Paracyathus<br>Sponge, tan | None | -- |
| Small Box-4 PHOTO (588-591) | | Low / High Relief | 27.6 | 4.8 | Amphipholis<br>Balanophyllia<br>Barnacles<br>Encruster, orange<br>Paracyathus | None | -- |
| Small Box-4 PHOTO (593-603) | | Low / High Relief | 24.8-25.8 | 8.4 | Algae, foliose red<br>Balanophyllia<br>Barnacles<br>Calliostoma annulatum<br>Calliostoma sp. | None | -- |

**Table 17. Summary of ROV Video and Photographic Data by Segment and Habitat for Maximum Burial Alternative**
**Ranges of ROV data with the same habitat type are shown on Figures 15 and 16**
**VBT = video band transect; PHOTO = photoquadrat location listed by navigational fix point**

| *ROV Segment* | *Segment Length (km)* | *Habitat Type* | *Depth (m)* | *Mean Number Taxa* | *Community Dominants* | *Species of Potential Concern* | *SOPC Abundance* |
|---|---|---|---|---|---|---|---|
| | | | | | Encruster, orange<br>Encruster, white<br>Henricia<br>Painted greenling<br>Paracyathus<br>Pisaster giganteus<br>Sponge, salmon encrusting<br>Sponge, tan<br>Urticina piscivora | | |
| Small Box-5 VBT 5-1 | | Low Relief | 22.1-23.0 | 3.2 | Pisaster giganteus<br>Sponge, white encrusting<br>Tunicate, encrusting<br>Urticina piscivora | None | -- |
| Small Box-5 VBT 15-6 | | Soft Bottom | 24.2-27.9 | 0.9 | Stylatula<br>Citharichthys spp. | None | -- |
| E1 MBA VBT 6-1 | | Soft Bottom | 25.8-31.8 | 2 | Squid, eggs<br>Stylatula | None | -- |
| E1 MBA VBT 32-7 | | Low Relief | 32.7-51.2 | 1.2 | Asterina<br>Pisaster brevispinis<br>Squid, eggs<br>Stylatula<br>Virgularia | None | -- |
| E1 MBA VBT 54-33 | | Soft Bottom | 52.4-64.8 | 3.2 | Acanthoptilum<br>Anemone, cerianthid<br>Flatfish, unident.<br>Hydrozoa<br>Octopus<br>Stylatula | None | -- |
| E1 MBA VBT 92-55 | | Soft Bottom | 65.8-81.2 | 4.1 | Acanthoptilum<br>Anemone, cerianthid<br>Flatfish, unident.<br>Lycodes sp.<br>Mediaster<br>Octopus | None | -- |

**Table 17. Summary of ROV Video and Photographic Data by Segment and Habitat for Maximum Burial Alternative**
**Ranges of ROV data with the same habitat type are shown on Figures 15 and 16**
**VBT = video band transect; PHOTO = photoquadrat location listed by navigational fix point**

| *ROV Segment* | *Segment Length (km)* | *Habitat Type* | *Depth (m)* | *Mean Number Taxa* | *Community Dominants* | *Species of Potential Concern* | *SOPC Abundance* |
|---|---|---|---|---|---|---|---|
| | | | | | Pleurabranchea<br>Ptilosarcus<br>Stylatula<br>Virgularia | | |
| E1 MBA VBT 121-93 | | Soft Bottom | 65.8-117 | 4 | Acanthoptilum<br>Flatfish, unident.<br>Octopus<br>Rathbunaster<br>Stylatula<br>Virgularia | None | -- |
| E1 MBA VBT 128-122 | | Low Relief | 117-131.8 | 6.6 | Encruster, white<br>Florometra<br>Halfbanded rockfish<br>Laqueus<br>Mediaster<br>Metridium | None | -- |
| E1 SOUTH MBA VBT 29-1 | | Soft Bottom | 99.7-126.1 | 3.9 | Acanthoptilum<br>Flatfish, unident.<br>Mediaster<br>Octopus<br>Polychaete, free living<br>Stylatula<br>Surfperch, pink<br>Virgularia | None | -- |
| S7 MBA VBT 9-1 | | Soft Bottom | 24.2-25.5 | 1 | Diopatra | None | -- |
| S7 MBA VBT 12-10 | | High Relief | 24.2-25.5 | 7 | Asterina<br>Encruster, white<br>Metridium<br>Sebastes sp. (adult)<br>Sebastes sp. (yoy)<br>Urticina columbiana | None | -- |
| S7 MBA VBT 26-13 | | Soft Bottom | 33.3-48.2 | 0.57 | Asterina | None | -- |

**Table 17. Summary of ROV Video and Photographic Data by Segment and Habitat for Maximum Burial Alternative**
**Ranges of ROV data with the same habitat type are shown on Figures 15 and 16**
**VBT = video band transect; PHOTO = photoquadrat location listed by navigational fix point**

| *ROV Segment* | *Segment Length (km)* | *Habitat Type* | *Depth (m)* | *Mean Number Taxa* | *Community Dominants* | *Species of Potential Concern* | *SOPC Abundance* |
|---|---|---|---|---|---|---|---|
| S7 MBA VBT 27 | | Low Relief | 64.2 | 2 | Acanthoptilum<br>Stylatula | None | -- |
| S7 MBA VBT 50-28 | | Soft Bottom | 68.8-82.7 | 4 | Acanthoptilum<br>Octopus<br>Porichthys sp.<br>Stylatula<br>Virgularia | None | -- |
| S7 MBA VBT 81-51 | | Soft Bottom | 80.3-97.6 | 4.3 | Acanthoptilum<br>Cusk eel?<br>Flatfish, unident.<br>Lycodes sp.<br>Octopus<br>Sebastes sp. (yoy)<br>Stylatula<br>Virgularia | None | -- |
| S7 SOUTH MBA VBT 9-1 | | Soft Bottom | 64.2-71.2 | 1.4 | Astropecten<br>Mediaster | None | -- |
| S7 SOUTH MBA VBT 11-10 | | Soft Bottom | 75.2-75.8 | 6 | Acanthoptilum<br>Octopus<br>Stylatula<br>Virgularia | None | -- |
| S7 SOUTH MBA VBT 12 | | Low Relief | 75.8 | 6 | Hydrolagus colliei<br>Mediaster<br>Metridium<br>Octopus<br>Stylatula<br>Virgularia | None | -- |
| S7 SOUTH MBA VBT 14-13 | | Soft Bottom | 77 | 3.5 | Acanthoptilum<br>Stylatula<br>Virgularia | None | -- |
| S7 SOUTH MBA VBT 16-15 | | Low Relief | 77 | 2.5 | Encruster, white<br>Metridium | None | -- |

**Table 17. Summary of ROV Video and Photographic Data by Segment and Habitat for Maximum Burial Alternative**
**Ranges of ROV data with the same habitat type are shown on Figures 15 and 16**
**VBT = video band transect; PHOTO = photoquadrat location listed by navigational fix point**

| *ROV Segment* | *Segment Length (km)* | *Habitat Type* | *Depth (m)* | *Mean Number Taxa* | *Community Dominants* | *Species of Potential Concern* | *SOPC Abundance* |
|---|---|---|---|---|---|---|---|
| | | | | | Octopus | | |
| S7 SOUTH MBA VBT 27-17 | | Soft Bottom | 78.5-84.8 | 4 | Acanthoptilum<br>Octopus<br>Stylatula<br>Virgularia | None | -- |

**Table 18A. Summary of Photoquadrat Data (Count) from E1 Cable Route Survey, May and June 1999** (Number)/m²

| *Taxon* | *Sample Size (n)* | *Mean* | *Standard Error* | *Maximum* | *Minimum* |
|---|---|---|---|---|---|
| **Invertebrates** | | | | | |
| *Amphipholis* sp. | 59 | 16.98 | 2.50 | 122.64 | 5.11 |
| *Asterina miniata* | 11 | 6.04 | 0.62 | 10.22 | 5.11 |
| *Balanophyllia elegans* | 74 | 26.17 | 2.44 | 102.20 | 5.11 |
| *Calliostoma annulatum* | 8 | 5.11 | 0.00 | 5.11 | 5.11 |
| *Cancer antennarius* ? | 1 | 10.22 | -- | 10.22 | 10.22 |
| *Cancer* sp. | 1 | 5.11 | -- | 5.11 | 5.11 |
| Dendrochirotid, dark tentacle | 26 | 7.67 | 0.65 | 15.33 | 5.11 |
| Dendrochirotid, red tentacle | 22 | 5.11 | 0.00 | 5.11 | 5.11 |
| Dendrochirotid, white tentacle | 2 | 5.11 | 0.00 | 5.11 | 5.11 |
| Dendrochirotid,white | 1 | 5.11 | -- | 5.11 | 5.11 |
| *Flabellina iodinea* | 14 | 5.48 | 0.37 | 10.22 | 5.11 |
| *Geodia* sp. | 8 | 6.39 | 0.84 | 10.22 | 5.11 |
| *Geodia*? | 5 | 8.18 | 1.25 | 10.22 | 5.11 |
| Gorgonian, red | 2 | 5.11 | 0.00 | 5.11 | 5.11 |
| *Henricia leviuscula* | 37 | 6.49 | 0.55 | 20.44 | 5.11 |
| *Laqueus californica* | 2 | 5.11 | 0.00 | 5.11 | 5.11 |
| *Laqueus* ? | 2 | 5.11 | 0.00 | 5.11 | 5.11 |
| *Leucilla nuttingi* | 7 | 36.50 | 7.18 | 51.10 | 5.11 |
| *Mediaster aequalis* | 15 | 5.45 | 0.34 | 10.22 | 5.11 |
| *Metridium* ? | 1 | 5.11 | -- | 5.11 | 5.11 |
| Mitra idea | 2 | 5.11 | 0.00 | 5.11 | 5.11 |
| Nudibranch, dorid | 1 | 5.11 | -- | 5.11 | 5.11 |
| Nudibranch, eolid ? | 1 | 5.11 | -- | 5.11 | 5.11 |
| Nudibranch, white ? | 2 | 5.11 | 0.00 | 5.11 | 5.11 |
| *Orthasterias koehleri* | 5 | 6.13 | 1.02 | 10.22 | 5.11 |
| *Paracyathus stearnsi* | 111 | 248.32 | 15.02 | 812.49 | 20.44 |
| *Parastichopus californicus* | 12 | 5.11 | 0.00 | 5.11 | 5.11 |
| *Pteropurpura* ? | 1 | 5.11 | -- | 5.11 | 5.11 |
| Sponge, flesh colored ? | 1 | 5.11 | -- | 5.11 | 5.11 |
| Sponge tan glob | 2 | 7.67 | 2.56 | 10.22 | 5.11 |
| *Stylasterias forreri* | 1 | 5.11 | -- | 5.11 | 5.11 |
| *Sponge, tan globose* | 1 | 5.11 | -- | 5.11 | 5.11 |
| Tunicate, stalked | 3 | 5.11 | 0.00 | 5.11 | 5.11 |
| Tunicate, translucent | 11 | 6.04 | 0.62 | 10.22 | 5.11 |
| *Urticina piscivora* | 1 | 5.11 | -- | 5.11 | 5.11 |
| **Fishes** | | | | | |
| Blackeye goby | 2 | 5.11 | 0.00 | 5.11 | 5.11 |
| Blackeye goby ? | 1 | 5.11 | -- | 5.11 | 5.11 |
| Fish unident. | 4 | 5.11 | 0.00 | 5.11 | 5.11 |

**Table 18A. Summary of Photoquadrat Data (Count) from E1 Cable Route Survey, May and June 1999 (Number)/m²**

| *Taxon* | *Sample Size (n)* | *Mean* | *Standard Error* | *Maximum* | *Minimum* |
|---|---|---|---|---|---|
| **Fishes** | | | | | |
| Fish ronquil ? | 4 | 5.11 | 0 | 5.11 | 5.11 |
| Lingcod | 1 | 5.11 | -- | 5.11 | 5.11 |
| Longspine combfish | 1 | 5.11 | -- | 5.11 | 5.11 |
| Painted greenling | 4 | 5.11 | 0.00 | 5.11 | 5.11 |
| Rockfish gopher | 1 | 5.11 | -- | 5.11 | 5.11 |
| Rockfish rosy | 1 | 5.11 | -- | 5.11 | 5.11 |

**Table 18B. Summary of Photoquadrat Data (Percent Cover) from E1 Cable Route Survey, May and June 1999 [Percent Cover (%)/m2]**

| *Taxon* | *Sample Size (n)* | *Mean* | *Standard Error* | *Maximum* | *Minimum* |
|---|---|---|---|---|---|
| **Invertebrates** | | | | | |
| Algae, foliose red ? | 22 | 2.84 | 0.65 | 15.00 | 0.50 |
| Algae, foliose red | 1 | 1.00 | -- | 1.00 | 1.00 |
| Abietinaria (hydroid) | 2 | 1.25 | 0.75 | 2.00 | 0.50 |
| *Aglaophenia* sp. | 15 | 2.70 | 1.08 | 15.00 | 0.50 |
| *Allopora californica* | 5 | 0.60 | 0.10 | 1.00 | 0.50 |
| Bryozoa, tan | 1 | 0.50 | -- | 0.50 | 0.50 |
| Bryozoa, white branching | 10 | 0.55 | 0.05 | 1.00 | 0.50 |
| Calcareous tubeworms | 1 | 3.00 | -- | 3.00 | 3.00 |
| *Calliostoma annulatum* ? | 8 | 0.50 | 0.00 | 0.50 | 0.50 |
| *Corynactis californica* | 11 | 1.59 | 0.47 | 5.00 | 0.50 |
| Encruster, blue | 8 | 0.56 | 0.06 | 1.00 | 0.50 |
| Encruster, orange | 40 | 0.55 | 0.02 | 1.00 | 0.50 |
| Encruster, pink | 22 | 1.07 | 0.22 | 5.00 | 0.50 |
| Encruster, purple | 44 | 1.13 | 0.30 | 10.00 | 0.50 |
| Encruster, tan | 23 | 0.67 | 0.07 | 2.00 | 0.50 |
| Encruster, white | 97 | 0.55 | 0.02 | 2.00 | 0.50 |
| Encruster, yellow | 44 | 0.72 | 0.07 | 2.00 | 0.50 |
| Flabellina iodinea | 14 | 0.50 | 0.00 | 0.50 | 0.50 |
| *Laqueus californica* | 2 | 0.50 | 0.00 | 0.50 | 0.50 |
| *Laqueus* ? | 2 | 0.50 | 0.00 | 0.50 | 0.50 |
| *Leucilla nuttingi* | 7 | 0.50 | 0.00 | 0.50 | 0.50 |
| *Mitra idae* | 2 | 0.50 | 0.00 | 0.50 | 0.50 |
| Nudibranch, dorid | 1 | 0.50 | -- | 0.50 | 0.50 |
| Nudibranch, eolid ? | 1 | 0.50 | -- | 0.50 | 0.50 |
| Nudibranch, white ? | 2 | 0.50 | 0.00 | 0.50 | 0.50 |
| *Pteropurpura* ? | 1 | 0.50 | -- | 0.50 | 0.50 |
| Sediment | 6 | 3.83 | 1.47 | 10.00 | 1.00 |
| Shell hash | 23 | 4.39 | 1.62 | 35.00 | 1.00 |
| Sponge, gray | 1 | 0.50 | -- | 0.50 | 0.50 |
| Sponge, large white anastomosing | 10 | 5.65 | 2.34 | 25.00 | 0.50 |
| Sponge, orange | 45 | 7.88 | 1.43 | 38.00 | 0.50 |
| Sponge, salmon encrusting | 1 | 20.00 | -- | 20.00 | 20.00 |
| Sponge, shelf | 3 | 10.67 | 5.21 | 20.00 | 2.00 |
| Sponge, tan | 11 | 0.86 | 0.14 | 2.00 | 0.50 |
| Sponge, tan bulbous | 1 | 5.00 | -- | 5.00 | 5.00 |
| Sponge, white | 2 | 1.00 | 0.00 | 1.00 | 1.00 |
| Tunicate, stalked | 3 | 0.50 | 0.00 | 0.50 | 0.50 |
| Turf | 111 | 89.59 | 0.97 | 99.00 | 60.00 |

## Table 19A. Summary of Photoquadrat Data (Count) from S7 Cable Route Survey, May and June 1999

| | | (Number)/ m2 | | | |
|---|---|---|---|---|---|
| ***Taxon*** | ***Sample Size (n)*** | ***Mean*** | ***Standard Error*** | ***Maximum*** | ***Minimum*** |
| **Invertebrates** | | | | | |
| Actiniaria | 1 | 4.54 | -- | 4.54 | 4.54 |
| *Amphipholis* sp. | 87 | 29.119 | 4.221 | 181.6 | 4.54 |
| *Amphipholis*? | 1 | 13.62 | -- | 13.62 | 13.62 |
| *Anisodoris* ? | 1 | 4.54 | -- | 4.54 | 4.54 |
| Anthozoan pink | 1 | 9.08 | -- | 9.08 | 9.08 |
| *Asterina miniata* | 27 | 5.213 | 0.316 | 9.08 | 4.54 |
| *Asterina* ? | 1 | 4.54 | -- | 4.54 | 4.54 |
| *Balanophyllia elegans* | 98 | 20.43 | 2.004 | 95.34 | 4.54 |
| *Boltenia* sp. | 1 | 4.54 | -- | 4.54 | 4.54 |
| Bryozoa, white branching | 2 | 13.62 | 9.08 | 22.7 | 4.54 |
| *Cadalina* ? | 1 | 4.54 | -- | 4.54 | 4.54 |
| *Cadalina luteomarginata* | 3 | 4.54 | 0 | 4.54 | 4.54 |
| Calcareous tubeworms | 14 | 9.404 | 2.305 | 36.32 | 4.54 |
| *Calliostoma annulatum* ? | 6 | 5.297 | 0.757 | 9.08 | 4.54 |
| *Caryophyllia alaskensis* | 3 | 4.54 | 0 | 4.54 | 4.54 |
| *Caryophyllia*? | 1 | 4.54 | -- | 4.54 | 4.54 |
| *Ceratostoma*? | 1 | 4.54 | -- | 4.54 | 4.54 |
| Clavelina huntsmani | 1 | 4.54 | -- | 4.54 | 4.54 |
| Cluster, white club | 3 | 4.54 | 0 | 4.54 | 4.54 |
| Coralline algae | 2 | 4.54 | 0 | 4.54 | 4.54 |
| Dendrochirotid, dark tentacle | 34 | 6.543 | 0.669 | 18.16 | 4.54 |
| Dendrochirotid, red tentacle | 6 | 4.54 | -- | 4.54 | 4.54 |
| Dendrochirotid, tan tentacle | 1 | 4.54 | -- | 4.54 | 4.54 |
| Dendrochirotid, white tentacle | 25 | 7.082 | 1.018 | 22.7 | 4.54 |
| Dendrochirotid? | 3 | 6.053 | 1.513 | 9.08 | 4.54 |
| *Dendrodoris* sp. | 1 | 4.54 | -- | 4.54 | 4.54 |
| *Flabellina iodinea* | 20 | 4.767 | 0.227 | 9.08 | 4.54 |
| *Fusinus*? | 1 | 4.54 | -- | 4.54 | 4.54 |
| Gastropod | 1 | 4.54 | -- | 4.54 | 4.54 |
| Gastropod ? | 3 | 4.54 | 0 | 4.54 | 4.54 |
| *Geodia*? | 19 | 5.974 | 0.854 | 18.16 | 4.54 |
| Gorgonian red | 6 | 4.54 | -- | 4.54 | 4.54 |
| Gorgonian red ? | 1 | 4.54 | -- | 4.54 | 4.54 |
| *Henricia leviuscula* | 64 | 6.313 | 0.424 | 22.7 | 4.54 |
| Holothuroid red | 1 | 4.54 | -- | 4.54 | 4.54 |
| *Lanice conchile* | 1 | 4.54 | -- | 4.54 | 4.54 |
| *Laqueus californica* | 9 | 5.549 | 0.667 | 9.08 | 4.54 |
| *Laqueus* ? | 3 | 4.54 | 0 | 4.54 | 4.54 |

**Table 19A. Summary of Photoquadrat Data (Count) from S7 Cable Route Survey, May and June 1999**

| | | (Number)/ m2 | | | |
|---|---|---|---|---|---|
| ***Taxon*** | ***Sample Size (n)*** | ***Mean*** | ***Standard Error*** | ***Maximum*** | ***Minimum*** |
| *Leucilla nuttingi* | 6 | 24.97 | 4.798 | 40.86 | 9.08 |
| *Loxorhynchus crispatus* | 1 | 4.54 | -- | 4.54 | 4.54 |
| *Mediaster aequalis* | 20 | 4.994 | 0.312 | 9.08 | 4.54 |
| *Mitra idae* | 1 | 4.54 | -- | 4.54 | 4.54 |
| Nudibranch dorid | 1 | 4.54 | -- | 4.54 | 4.54 |
| Nudibranch dorid white | 1 | 4.54 | -- | 4.54 | 4.54 |
| Nudibranch dorid yellow | 1 | 4.54 | -- | 4.54 | 4.54 |
| Nudibranch white ? | 3 | 4.54 | 0 | 4.54 | 4.54 |
| Ophionereis sp. | 2 | 4.54 | 0 | 4.54 | 4.54 |
| *Orthasterias koehleri* | 4 | 4.54 | 0 | 4.54 | 4.54 |
| Pagurid | 1 | 4.54 | -- | 4.54 | 4.54 |
| Pandalid shrimp | 2 | 4.54 | 0 | 4.54 | 4.54 |
| *Paracyathus stearnsi* | 180 | 399.797 | 15.532 | 1044.2 | 27.24 |
| *Parastichopus californicus* | 13 | 5.588 | 0.552 | 9.08 | 4.54 |
| *Peridontaster crassus* | 1 | 4.54 | -- | 4.54 | 4.54 |
| Pholad ? | 1 | 4.54 | -- | 4.54 | 4.54 |
| Polychaete, featherduster ? | 1 | 4.54 | -- | 4.54 | 4.54 |
| *Polymastia* sp. | 1 | 4.54 | -- | 4.54 | 4.54 |
| **Fishes** | | | | | |
| Blackeye goby | 7 | 4.54 | 0 | 4.54 | 4.54 |
| Bluebarred prickleback? | 5 | 4.54 | 0 | 4.54 | 4.54 |
| *Citharichthys* spp. | 1 | 4.54 | -- | 4.54 | 4.54 |
| Cusk eel ? | 2 | 4.54 | 0 | 4.54 | 4.54 |
| Fish unident. | 3 | 4.54 | 0 | 4.54 | 4.54 |
| Longspine combfish ? | 5 | 4.54 | 0 | 4.54 | 4.54 |
| Longspine combfish ? | 3 | 4.54 | 0 | 4.54 | 4.54 |
| Painted greenling | 8 | 4.54 | 0 | 4.54 | 4.54 |

**Table 19B. Summary of Photoquadrat Data (Percent Cover) from S7 Cable Route Survey, May and June 1999.**

| *Taxon* | *Sample Size (n)* | (Percent Cover)/m2 *Mean* | *Standard Error* | *Maximum* | *Minimum* |
|---|---|---|---|---|---|
| Algae, foliose red | 8 | 1.125 | 0.324 | 3 | 0.5 |
| Aglaophenia sp. | 28 | 4.964 | 1.947 | 50 | 0 |
| Allopora californica | 3 | 0.5 | 0 | 0.5 | 0.5 |
| Allopora ? | 1 | 0.5 | -- | 0.5 | 0.5 |
| Anisodoris ? | 1 | 0.5 | -- | 0.5 | 0.5 |
| Boltenia sp. | 1 | 0.5 | -- | 0.5 | 0.5 |
| Bryozoa tan | 4 | 0.625 | 0.125 | 1 | 0.5 |
| Bryozoa, tan branching | 3 | 0.833 | 0.167 | 1 | 0.5 |
| Bryozoa, white branching | 66 | 0.674 | 0.079 | 5 | 0.5 |
| Bugula ? White | 1 | 0.5 | -- | 0.5 | 0.5 |
| Cadalina ? | 1 | 0.5 | -- | 0.5 | 0.5 |
| Cadalina luteomarginata | 3 | 0.5 | 0 | 0.5 | 0.5 |
| Calcareous tubeworms | 14 | 0.5 | 0 | 0.5 | 0.5 |
| Calliostoma annulatum ? | 6 | 0.5 | 0 | 0.5 | 0.5 |
| Caryophyllia | 2 | 0.5 | 0 | 0.5 | 0.5 |
| Caryophyllia alaskensis | 1 | 0.5 | -- | 0.5 | 0.5 |
| Caryophillia? | 1 | 0.5 | -- | 0.5 | 0.5 |
| Cellaria sp. | 1 | 1 | -- | 1 | 1 |
| Ceratostoma? | 1 | 0.5 | -- | 0.5 | 0.5 |
| Clavelina huntsmani | 1 | 0.5 | -- | 0.5 | 0.5 |
| Cluster, white club | 4 | 0.5 | 0 | 0.5 | 0.5 |
| Corynactis californica | 16 | 3.938 | 3.075 | 50 | 0.5 |
| Dendrodoris sp. | 1 | 0.5 | -- | 0.5 | 0.5 |
| Diaperoecia sp. | 2 | 0.75 | 0.25 | 1 | 0.5 |
| Encruster, blue | 5 | 0.5 | 0 | 0.5 | 0.5 |
| Encruster, orange | 101 | 0.713 | 0.144 | 15 | 0.5 |
| Encruster, pink | 27 | 0.667 | 0.0962 | 3 | 0.5 |
| Encruster, purple | 14 | 0.75 | 0.0693 | 1 | 0.5 |
| Encruster, tan | 90 | 0.606 | 0.029 | 2 | 0.5 |
| Encruster, white | 95 | 0.516 | 0.00902 | 1 | 0.5 |
| Encruster, yellow | 42 | 0.774 | 0.0838 | 3 | 0.5 |
| Flabellina iodinea | 20 | 0.5 | 0 | 0.5 | 0.5 |
| Fusinus? | 1 | 0.5 | -- | 0.5 | 0.5 |
| Gastropod | 1 | 0.5 | -- | 0.5 | 0.5 |
| Gastropod ? | 3 | 0.5 | 0 | 0.5 | 0.5 |
| Hippodiplosia ? | 1 | 0.5 | -- | 0.5 | 0.5 |
| Lanice conchilega | 1 | 0.5 | -- | 0.5 | 0.5 |
| Laqueus californica | 9 | 0.5 | 0 | 0.5 | 0.5 |
| Laqueus ? | 3 | 0.5 | 0 | 0.5 | 0.5 |

**Table 19B. Summary of Photoquadrat Data (Percent Cover) from S7 Cable Route Survey, May and June 1999.**

| | | (Percent Cover)/m2 | | | |
|---|---|---|---|---|---|
| ***Taxon*** | ***Sample Size (n)*** | ***Mean*** | ***Standard Error*** | ***Maximum*** | ***Minimum*** |
| Leucilla nuttingi | 6 | 0.5 | 0 | 0.5 | 0.5 |
| Mitra idae | 1 | 0.5 | -- | 0.5 | 0.5 |
| Nudibranch, dorid | 1 | 0.5 | -- | 0.5 | 0.5 |
| Nudibranch dorid white | 1 | 0.5 | -- | 0.5 | 0.5 |
| Nudibranch dorid yellow | 1 | 0.5 | -- | 0.5 | 0.5 |
| Nudibranch, white ? | 3 | 0.5 | 0 | 0.5 | 0.5 |
| Polymastia sp. | 1 | 0.5 | -- | 0.5 | 0.5 |
| Polymastia ? | 1 | 0.5 | -- | 0.5 | 0.5 |
| Pteropurpura sp. | 1 | 0.5 | -- | 0.5 | 0.5 |
| Pteropurpura ? | 1 | 0.5 | -- | 0.5 | 0.5 |
| Sediment | 14 | 2.071 | 0.381 | 5 | 0.5 |
| Shell hash | 30 | 1.383 | 0.214 | 5 | 0.5 |
| Sponge grey | 2 | 0.5 | 0 | 0.5 | 0.5 |
| Sponge, large white anastomosing | 2 | 10 | 0 | 10 | 10 |
| Sponge orange | 5 | 1 | 0.5 | 3 | 0.5 |
| Sponge, salmon encrusting | 2 | 0.75 | 0.25 | 1 | 0.5 |
| Sponge shelf | 1 | 5 | -- | 5 | 5 |
| Sponge tan | 3 | 0.5 | 0 | 0.5 | 0.5 |
| Sponge, tan foliose | 5 | 0.9 | 0.292 | 2 | 0.5 |
| Sponge white | 5 | 0.6 | 0.1 | 1 | 0.5 |
| Sponge yellow | 3 | 2 | 1.5 | 5 | 0.5 |
| Terebratulina sp. | 1 | 0.5 | -- | 0.5 | 0.5 |
| Triopha catalinae | 2 | 0.5 | 0 | 0.5 | 0.5 |
| Turf | 180 | 95.578 | 0.472 | 99 | 48 |

**Table 20A. Summary of Photoquadrat Data (Count) for Maximum Burial Alternative, June 1999**

| *Taxon* | *Sample Size* | *Count/m2 Mean* | *Standard Error* | *Maximum* | *Minimum* |
|---|---|---|---|---|---|
| **Small Box-3** | | | | | |
| Amphipholis | 7 | 20.57 | 3.54 | 32 | 4 |
| Balanophyllia | 6 | 16 | 8.2 | 56 | 4 |
| Calliostoma annulatum | 7 | 8 | 1.75 | 16 | 4 |
| Calliostoma sp. | 6 | 15.33 | 6.73 | 48 | 4 |
| Dendrochirotid, orange tentacle | 2 | 8 | 0 | 8 | 8 |
| Dendrochirotid, red tentacle | 1 | 8 | -- | 8 | 8 |
| Dendrochirotid, white tentacle | 4 | 11 | 3 | 16 | 4 |
| Geodia | 4 | 7 | 1 | 8 | 4 |
| Henricia | 5 | 7.2 | 0.8 | 8 | 4 |
| Leucilla nuttingi | 1 | 20 | -- | 20 | 20 |
| Lingcod | 1 | 4 | -- | 4 | 4 |
| Mediaster | 1 | 12 | -- | 12 | 12 |
| Ophiuroids | 1 | 40 | -- | 40 | 40 |
| Painted greenling | 4 | 7 | 1 | 8 | 4 |
| Paracyathus | 11 | 89.45 | 12.61 | 152 | 28 |
| Piddock | 1 | 4 | -- | 4 | 4 |
| Pisaster giganteus | 2 | 4 | 0 | 4 | 4 |
| Urticina piscivora | 1 | 8 | -- | 8 | 8 |
| **Small Box-4** | | | | | |
| Amphipholis | 5 | 22.4 | 6.88 | 48 | 8 |
| Asterina | 6 | 8.67 | 3.17 | 24 | 4 |
| Balanophyllia | 14 | 42.29 | 8.92 | 112 | 4 |
| Calliostoma annulatum | 6 | 6 | 0.89 | 8 | 4 |
| Calliostoma sp. | 4 | 19 | 5 | 32 | 8 |
| Dendrochirotid, red tentacle | 2 | 6 | 2 | 8 | 4 |
| Dendrochirotid, white tentacle | 2 | 4 | 0 | 4 | 4 |
| Henricia | 7 | 5.71 | 0.81 | 8 | 4 |
| Leucilla nuttingi | 1 | 20 | -- | 20 | 20 |
| Lingcod | 1 | 4 | -- | 4 | 4 |
| Mediaster | 1 | 4 | -- | 4 | 4 |
| Northern ronquil | 1 | 4 | -- | 4 | 4 |
| Orthasterias | 2 | 6 | 2 | 8 | 4 |
| Painted greenling | 2 | 4 | 0 | 4 | 4 |
| Paracyathus | 16 | 159 | 26.79 | 400 | 8 |
| Pisaster brevispinus | 1 | 4 | -- | 4 | 4 |
| Pisaster giganteus | 3 | 5.33 | 1.33 | 8 | 4 |
| Sebastes carnatus | 1 | 4 | -- | 4 | 4 |
| Speckled sanddab | 1 | 4 | -- | 4 | 4 |
| Tethya | 1 | 4 | -- | 4 | 4 |
| Urticina piscivora | 2 | 4 | 0 | 4 | 4 |

**Table 20A. Summary of Photoquadrat Data (Count) for Maximum Burial Alternative, June 1999**

| Taxon | Sample Size | Count/m2 Mean | Standard Error | Maximum | Minimum |
|---|---|---|---|---|---|
| **S7** | | | | | |
| Balanophyllia | 3 | 5.67 | 3.18 | 12 | 2 |
| Ceramaster | 2 | 1 | 0 | 1 | 1 |
| Dendrochirotid, red tentacle | 1 | 1 | -- | 1 | 1 |
| Dendrochirotid, white tentacle | 2 | 1 | 0 | 1 | 1 |
| Gorgonian, red ? | 1 | 4 | -- | 4 | 4 |
| Gorgonian, red | 1 | 1 | -- | 1 | 1 |
| Mediaster | 2 | 1 | 0 | 1 | 1 |
| Metridium | 1 | 4 | -- | 4 | 4 |
| Northern ronquil | 2 | 1 | 0 | 1 | 1 |
| Paracyathus | 6 | 52.67 | 20.65 | 126 | 2 |
| Poraniopsis inflata | 1 | 1 | -- | 1 | 1 |
| Urticina sp. | 1 | 1 | -- | 1 | 1 |
| **E1** | | | | | |
| Calliostoma sp. | 1 | 1 | -- | 1 | 1 |
| Caryophillia | 1 | 5 | -- | 5 | 5 |
| Caryophillia? | 1 | 6 | -- | 6 | 6 |
| Gorgonian, red | 2 | 1.5 | 0.5 | 2 | 1 |
| Half banded rockfish | 5 | 2.8 | 0.97 | 6 | 1 |
| Laqueus | 2 | 1.5 | 0.5 | 2 | 1 |
| Metridium | 6 | 1.67 | 0.21 | 2 | 1 |
| Ophiocantha diplasia | 3 | 14 | 7.09 | 28 | 5 |
| Ophiuroids | 2 | 8 | 6 | 14 | 2 |
| Paracyathus | 5 | 6.4 | 1.21 | 10 | 3 |
| Protula? | 1 | 1 | -- | 1 | 1 |
| Sebastes sp. (yoy) | 1 | 2 | -- | 2 | 2 |

**Table 20B. Summary of Photoquadrat Data (Percent Cover) for Maximum Burial Alternative, June 1999**

| Taxon | Sample Size | Mean | Standard Error | Maximum | Minimum |
|---|---|---|---|---|---|
| | | *(Percent)/m2* | | | |
| **Small Box-3** | | | | | |
| Allopora | 2 | 0.75 | 0.25 | 1 | 0.5 |
| Barnacles | 2 | 13 | 12 | 25 | 1 |
| Barnacles? | 3 | 21.67 | 14.24 | 50 | 5 |
| Bryozoa, tan branching | 1 | 2 | -- | 2 | 2 |
| Bryozoa, white | 1 | 1 | -- | 1 | 1 |
| Corynactis | 5 | 4.3 | 1.96 | 10 | 0.5 |
| Encruster, orange | 4 | 0.88 | 0.13 | 1 | 0.5 |
| Encruster, pink | 1 | 1 | -- | 1 | 1 |
| Encruster, purple | 3 | 1.83 | 0.73 | 3 | 0.5 |
| Encruster, tan | 1 | 10 | -- | 10 | 10 |
| Encruster, white | 5 | 2.1 | 0.78 | 5 | 0.5 |
| Leucilla nuttingi | 1 | 0.5 | -- | 0.5 | 0.5 |
| Sponge, grey encrusting | 1 | 1 | -- | 1 | 1 |
| Sponge, shelf | 2 | 22.5 | 17.5 | 40 | 5 |
| Sponge, tan foliose | 1 | 5 | -- | 5 | 5 |
| Sponge, white foliose | 1 | 15 | -- | 15 | 15 |
| Tunicate, translucent | 1 | 0.5 | -- | 0.5 | 0.5 |
| Turf | 12 | 78.08 | 7.07 | 97 | 30 |
| Urticina piscivora | 1 | 10 | -- | 10 | 10 |
| **Small Box-4** | | | | | |
| Algae, foliose | 3 | 0.83 | 0.17 | 1 | 0.5 |
| Barnacles | 8 | 9.63 | 2.27 | 20 | 2 |
| Bryozoa, tan branching | 3 | 0.67 | 0.17 | 1 | 0.5 |
| Corynactis | 3 | 3.67 | 1.33 | 5 | 1 |
| Diaperoecia | 1 | 1 | -- | 1 | 1 |
| Encruster, oran | 9 | 0.83 | 0.17 | 2 | 0.5 |
| Encruster, pink | 1 | 1 | -- | 1 | 1 |
| Encruster, purple | 5 | 1 | 0.27 | 2 | 0.5 |
| Encruster, white | 7 | 1.86 | 0.62 | 5 | 0.5 |
| Leucilla nuttingi | 1 | 25 | -- | 25 | 25 |
| Phragmatopoma | 1 | 70 | -- | 70 | 70 |
| Sediment | 5 | 70.6 | 17.74 | 98 | 10 |
| Sponge, orange | 1 | 1 | -- | 1 | 1 |
| Sponge, salmon | 3 | 1.67 | 0.33 | 2 | 1 |
| Sponge, tan | 5 | 4.3 | 1.71 | 10 | 0.5 |
| Sponge, tan globose | 1 | 0.5 | -- | 0.5 | 0.5 |
| Sponge, yellow | 1 | 1 | -- | 1 | 1 |
| Tunicate, translucent | 2 | 1.25 | 0.75 | 2 | 0.5 |
| Turf | 12 | 84.58 | 4.65 | 98 | 45 |
| Urticina piscivora | 2 | 7.5 | 2.5 | 10 | 5 |

**Table 20B. Summary of Photoquadrat Data (Percent Cover) for Maximum Burial Alternative, June 1999**

| | | *(Percent)/m2* | | | |
|---|---|---|---|---|---|
| *Taxon* | *Sample Size* | *Mean* | *Standard Error* | *Maximum* | *Minimum* |
| **S7** | | | | | |
| Bryozoa, white | 1 | 0.5 | -- | 0.5 | 0.5 |
| Corynactis | 2 | 15 | 10 | 25 | 5 |
| Encruster, tan | 4 | 1.13 | 0.31 | 2 | 0.5 |
| Encruster, white | 3 | 0.83 | 0.17 | 1 | 0.5 |
| Encruster, yellow | 1 | 1 | -- | 1 | 1 |
| Sediment | 2 | 67 | 7 | 74 | 60 |
| Tunicate, translucent | 1 | 0.5 | -- | 0.5 | 0.5 |
| Turf | 7 | 74.57 | 11.62 | 99 | 25 |
| **E1** | | | | | |
| Cellaria? | 1 | 1 | -- | 1 | 1 |
| Encruster, white | 6 | 6.17 | 1.3 | 10 | 2 |
| Florometra | 6 | 40 | 11.4 | 85 | 15 |
| Sediment | 1 | 20 | -- | 20 | 20 |
| Turf | 4 | 62.5 | 10.9 | 75 | 30 |

## 4.6 CULTURAL RESOURCES

### 4.6.1 Environmental Setting

The waters along coastal California have a potential to contain intact prehistoric sites as well as shipwrecks and other historic resources, although this potential varies greatly from place to place.

#### *Prehistoric Setting*

Archaeological evidence demonstrates that prehistoric people have occupied and exploited Central California's coastal habitats for at least 13,000 years (Johnson 1999) and early coastal sites are often found associated with estuary and bay shore environments and near the mouths of perennial streams (Moratto 1984; Breschini and Haversat 1991; Snethkamp et al. 1990; Erlandson 1988). The potential for submerged prehistoric sites derives from the changes in sea levels that have occurred during the span of prehistoric occupation. During the Wisconsin glaciation (20,000 to 17,000 years Before Present), sea levels were as much as 400 feet (120 m) lower than they are today and the coastline along San Luis Obispo County would have been approximately 6 nm farther offshore than at present (Hunter 1999). Even as recently as 8,000 years ago, sea levels were as much as 50 to 65 feet (15 to 20 m) lower than at present (Breschini and Haversat 1991; Bickel 1978). As the world's glaciers retreated during the Holocene, sea levels rose until they stabilized near their present elevations approximately 7,000 to 9,000 years ago (Bloom 1977, Hunter 1999). Landforms that were once exposed and available for prehistoric use and occupation were inundated. Although most prehistoric sites in the coastal zone were probably destroyed by high-energy waves and coastal erosion, there is general agreement that some sites may have been preserved as estuaries, bays and coastal drainages filled with sediment (Snethkamp et al. 1990: 101-105; Carbone 1991: 12; Masters 1983; Inman 1983).

Areas of the Outer Continental Shelf predicted to be sensitive for submerged prehistoric resources have been identified by the U.S. Minerals Management Service (Snethkamp et al. 1990: 106, Table III-2). These areas correspond to the locations of sensitive landforms (paleo-embayments, submerged channel systems, and island complexes) along the shoreline at various temporal periods ranging from approximately 18,000 to 7,500 years ago. The submarine channel system that extends offshore from Morro Bay was considered sensitive (Snethkamp et al. 1990: Volume 5, Map 31-D). However, the MMS cautioned that the site predictions had to be made with available data that were "very limited, generalized, and lacking in localized details (Snethkamp et al. 1990: I-16)." As Hunter notes (1999), there are no known occurrences of prehistoric sites in this area.

#### *Historic Setting*

General patterns of historic maritime exploration and use of the Pacific coast have been well documented by the MMS (Gearhart et al. 1990). More recently, Hunter (1999) summarized the maritime history of California, with an emphasis on Estero Bay. Historic use of local waters begins in 1542, when Juan Rodriguez Cabrillo, a Portuguese pilot and navigator, commanded a Spanish expedition to explore the coast of what is now the State of California. From Acapulco, Cabrillo sailed his ships the *San Salvador* and the *Victoria* as far north as Point Reyes, where they had to turn back because of rough weather. In doing so, Cabrillo became the first European to sail the waters of San Luis Obispo County. Having turned back south to avoid poor weather, Cabrillo sailed his ships to San Miguel Island near Santa Barbara. It was there that Cabrillo died from injuries. The pilot of the *Victoria*, Bartolome Ferrello, assumed command and early in 1543 headed back north. Eventually the expedition made its way almost to the modern border of California and Oregon before returning safely to Mexico.

The Cabrillo voyage was a success as an expedition but it failed to locate the riches that many hoped to find north of Mexico. "It did nothing to encourage additional explorations up the coast and California did not compete well for the divided attention of the Viceroy of Spain over the next two decades (Hunter 1999: 3)".

California maritime activity greatly increased after the 1565 discovery of an eastbound sailing route from Manila to Acapulco. As the route became known, it stimulated a galleon trade between Spain and Manila that lasted 250 years. Spanish galleons laden with silks, spices, and other Asian goods traveled from Manila each year. The route was long and hazardous and crews often reached the California coast without adequate food, water or knowledge of safe harbors (Gearhart et al. 1990: V-5; Hunter 1999). Over 30 galleons were lost over the 250-year period, at least some of which are suspected to have been lost in California waters (Hunter 1999). To help reduce losses, ship captains began to explore and map the California coastline with increasing frequency. An account of Vizcaino's 1603 exploration contains the first mapped reference to what is now called Morro Rock in Estero Bay.

The establishment of the Spanish Mission system in Upper California stimulated trade and interaction throughout California, but did little to increase maritime activity within Estero Bay (Hunter 1999). Estero Bay was probably hunted as part of the sea otter trade but was otherwise little used until the 1860s. By then, farms, dairies and ranches in the Estero Bay region began maritime shipments to the growing markets of San Francisco, Los Angeles, and San Diego (Hunter 1999). A makeshift wharf built around 1864 was replaced in 1872 by a good wharf at Morro Bay. Nonetheless, most shipping went through Cave Landing in San Luis Obispo Bay to the south (Hunter 1999).

Barge traffic through the area was stimulated in the 1890s by excavation of a quarry on Morro Rock to produce construction materials for the San Luis Harbor breakwater. Several locations inside Estero Point were probably used by liquor smugglers in the 1920s (Hunter 1999). In 1929, Standard Oil of California opened a offshore mooring oil transfer facility known as the Estero Bay Marine Terminal. Other historic maritime activities in Estero Bay include naval training operations during World War II, fishing, and commercial abalone harvesting (Hunter 1999).

### *Known Resources in the Project area*

There are no known prehistoric, historic cultural resources or paleontological resources along the offshore cable routes. USACE and CSLC archaeological staff previously reviewed existing databases and found no historic/archaeological sites along the TPC-5 and HAW-5 cable routes which are closely followed within State Waters and the adjacent territorial seas (CSLC 1994). For this EIR, the current Minerals Management Service (MMS) (Camarillo office) database on historic and prehistoric resources was also reviewed, confirming previous conclusions that no known resources are present. Onshore work has been previously reviewed and permitted to the satisfaction of State Parks (CSLC 1994).

MMS marine archaeological studies and databases (Pierson et al. 1987; Gearhart et al. 1990; Snethkamp et al. 1990) indicate that a small offshore area centered on the north side of Morro Bay is considered sensitive for historic shipwrecks. The China-U.S. project does not cross any of these sensitive areas. The MMS data and the TPC-5 and HAW-5 documents (Morro Group 1991; CSLC 1994) indicate at least five ships have been reported wrecked in the general vicinity of Morro Bay. The location of one wreck has been well established north of Morro Bay, approximately 2.3 miles (3.7 km) north of the China-U.S. project area (Gearhart et al. 1990: confidential shipwreck location map sheet 31-E on file at MMS). The locations of the remaining four wrecks are not known with any certainty (Pierson et al. 1987).

Previous seafloor surveys using ROV, sidescan sonar, seismic subbottom profiling, and magnetometer have not detected any anomalies likely to be cultural resources (Morro Group 1991; CSLC 1994). In the recent China-U.S. route surveys (Cable & Wireless 1998), sidescan sonar identified no potential shipwrecks within the surveyed swathe.

Submerged prehistoric sites have not been documented along the Central California coast (Hunter 1999), although there is some potential for them to occur (Snethkamp et al. 1990). Future geotechnical studies utilizing continuous cores, high resolution sub-bottom profilers and other techniques should provide a better understanding of the nature and locations of relict landforms that were exposed and available for use by early prehistoric groups (Hunter 1999: 1).

### 4.6.2 Significance Criteria

A significant cultural/historical resource is defined as:

- A resource listed in, or determined to be eligible for listing in the California Register of Historical Resources (Pub Res. Code 5024.1, Title 14 CCR, Section 4800 et seq.

- A resource included in a local register of Historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code or meeting the criteria of Title 36 CFR Part 800 shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

- Historical resources may include, but are not limited to, any object, building, structure, site, area, place, record or manuscript which a lead agency determines to be historically or archaeologically significant or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military or cultural annals of California may be considered to be an historic resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

Criteria for listing on the California Register of Historical Resources (Pub. Res. Code 5024.1, Title 14 CCR, Section 4800.3) will be consulted in determining if an historical resource may be eligible for listing.

***Federal Criteria***. Federal criteria may be applied to future permitting activities (e.g., Section 404 permit by the USACE). Title 36 CFR Part 800 defines effects and adverse effects on archaeological, historical, or architectural resources as follows:

> Section 800.9(a) Criterion of Effect: An undertaking has an effect on a historic property when the undertaking may alter characteristics of the property that may qualify the property for inclusion in the National Register. For the purpose of determining effect, alteration to features of a property's location, setting, or use may be relevant depending on a property's significant characteristics and should be considered.
>
> Section 800.9(b) Criteria of Adverse Effect: An undertaking is considered to have an adverse effect when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

### 4.6.3 Project Impacts

Based on the survey results, where the sediments are shallow and / or the substrate is rocky, the cable will be laid on the surface, for later retroburial by divers and ROV using water jets, a technique which minimizes the possibility of damage to any previously undetected objects buried in the sediments. The cable would not be allowed to drape over objects projecting above the surrounding seafloor. In relatively level areas of hard bottom, the tactic of laying the cables directly on bottom, in conjunction with the small size (1- to 2-inch [2.5 to 5 cm] diameter) of the cables, effectively eliminates possible adverse effects on objects that might rest on areas of hard bottom.

In deeper waters the Sea Plow would be used to bury the cable. Instrumentation on the Sea Plow (Appendix A) increases the operator’s ability to detect and avoid (go around) buried obstructions in order to avoid risking damage to the cable or to the Sea Plow.

No effects on ethnic cultural values are known or expected. No effects on religious sites are known or expected. Given non-destructive cable placement techniques (direct lay on hard bottom, burial in unconsolidated sediments), the project has no potential effects on paleontological resources or unique geologic features.

Side-scan sonar data (Appendix A) indicate 19 sonar contacts, 3 of which are within the 3-nm limit, within 500 m of the proposed E1 route. Along the S7 route there were 21 sonar contacts, 9 of which occurred within the 3-nm limit, within 500 m of the proposed route. While these were considered to be rock features in the geophysical evaluation (Cable & Wireless Marine 1998), the possibility exists that some of these features could be cultural resources. As a result, there is a possibility that the pre-lay grapnel run or cable installation could potentially damage or destroy a previously unknown shipwreck of potential significance. These features are widely scattered along the routes, and impacts can be avoided through implementation of mitigation measures CR-1 and CR-2.

### 4.6.4 Maximum Burial Alternative

The Maximum Burial Alternative routes were designed to avoid rock outcrops and previously known shipwreck locations. A comprehensive marine survey utilizing side-scan sonar, sub-bottom profiler, and magnetometer to assess geophysical conditions and to locate and avoid previously unknown cultural resources and obstacles hazardous to cable installation was conducted by Racal-Pelagos during August 1999.

The data have been analyzed to determine the presence of potential cultural resources within areas that could be affected by cable installation. A survey corridor slightly larger than 0.5 km wide on either side of the cable routes (i.e. a > 1 km wide swathe) has been evaluated along the Maximum Burial Alternative E1 and S7 routes, extending out to approximately 18 km offshore.

Based on the combined sources of data, there are 12 bottom features of potential cultural resource significance within the 1 km wide survey swathe covering the Maximum Burial Alternative E1 cable route, whereas there are 7 bottom features of potential cultural resource significance within the 1 km wide survey swathe covering the Maximum Burial Alternative S7 cable route. Additional smaller objects of probable cultural origin, not believed to be of historical significance are also noted.

Of the 12 features along the E1 route, 9 are within the 3-nm limit of State Waters, while 3 of the 7 features noted along the S7 route are within the 3-nm limit. All of the features are in soft-bottom habitat where, if necessary, minor adjustments to the cable routes to avoid these features appear feasible.

The final cable routes will be positioned so as to avoid these features by an appropriate distance unless they are investigated and determined to not be of historical significance. It is expected that, with minimal field investigation, a small correction of the cable routes should be sufficient to avoid impacting features that prove to be of significance. Therefore, the impacts are considered potentially significant but mitigable through measures CR-1 and CR-2 described below (Class II).

### 4.6.5 Cumulative Impacts

The project is not expected to affect cultural or paleontological resources, and cumulative impacts are not expected.

### 4.6.6 Mitigation Measures

**CR-1** Prior to the pre-lay grapnel run and cable installation, the applicant shall provide a detailed analysis by a qualified marine archaeologist of side scan sonar and magnetometer data for the cable route between the shoreline and the 3-nm limit. The analysis shall identify and analyze all magnetic and side scan sonar anomalies that occur in the cable corridor, which is defined by a lateral distance of 0.5 kilometer on each side of the proposed cable route. The analysis shall also include investigation of the potential cultural significance of each anomaly identified within the cable corridor that cannot be avoided. The applicant must submit the side scan sonar and magnetometer data, and an accompanying report which analyzes the data. Final approval from the State Lands Commission must be received prior to the pre-lay grapnel run and cable installation.

**CR-2** Should a previously unknown shipwreck of potential cultural resource value be discovered within the proposed cable corridor as a result of the study required in CR-1, the proposed cable route or installation procedures shall be modified to avoid the potentially significant cultural resource.

## 4.7 COMMERCIAL AND RECREATIONAL FISHING

### 4.7.1 Environmental Setting

Commercial fishing in the vicinity of Morro Bay targets a variety of species ranging from invertebrates such as crab and shrimp to finfish and sharks. Gear types used to harvest these resources include trawl, gill net, trap, diving, round-haul nets, and hook-and-line. Table 21 provides a summary of fisheries using these gear types. The locations, depths, and time of year fished by each gear vary due to limitations in the gear, distribution of target species, and regulations (open seasons and quotas). Vessels fishing in this area are primarily from Morro Bay, although some vessels from Avila and other, more distant ports (such as from the Santa Barbara area or Monterey to San Francisco area) also may fish the area. Specific fisheries (by gear type and species) have open and closed seasons that are set primarily by the CDFG, although some fisheries are regulated by NMFS (through recommendations by the Pacific Fisheries Management Council), while other fisheries are open all year. For some fisheries, catch limits are set as well. For example, bottom fish (groundfish) catches are regulated by the NMFS who sets quotas for each fishing season by species. These quotas were reduced in 1998 for eight species to help protect stocks all along the Pacific Coast (Washington, Oregon, and California). CDFG also sets trip limits (daily and cumulative) per vessel to achieve the federal quotas along the California coast.

The primary ports in the project area that provide facilities for commercial and recreational vessels, including facilities for landing commercial catch, are Morro Bay and Port San Luis/Avila. Approximately 250 commercial fishing vessels use these harbors regularly with less than 15 percent being trawlers (Morro Group 1999). The number of recreational fishing charter vessels operating from these ports is usually 6 to 10 (Morro Group 1999), while a larger number of private recreational fishing vessels operate out of the ports.

Trawling is of special interest because it is the fishery with the highest potential for conflict with submarine cables. Trawling involves towing an otter trawl (a conical-shaped net) along the bottom for 1 to 10 hours (longer tows are in deeper water). It is usually conducted parallel to depth contours (increasing the likelihood that cable routes perpendicular to contours would be crossed), although some rockfish trawling occurs from deeper to shallower water (Centaur Associates 1984). The trawl nets are generally 30 to 125 feet (9 to 38 m) wide and 12 to 35 feet (4 to 11.5 m) in height. Otterboards (also called trawl doors) are used to keep the nets open during trawling. These are rounded rectangles (6 to 9 feet [2 to 3 m] on a side) of steel, or sometimes wood, that weigh from 200 to 2,000 pounds. The otterboards generally do not penetrate the bottom substrate more than about 6 inches (15 cm) except when sharp turns are made (personal communication, J. June 1999; Kaiser and Spencer 1996; Churchill 1989; Kaiser et al. 1996). Roller gear (rubber bobbins 4 to 18 inches [10 to 46 cm] in diameter) are added to the bottom edge of the net for fishing over irregular hard bottom areas, and mudlines (between the towline and otterboards) are used when fishing for flatfish.

Trawling occurs beyond the 3-nm state waters limit (pursuant to section 8836 of the California Fish and Game Code trawling is not allowed in state waters in this area), out to depths of approximately 600 fathoms (3,600 feet [1,100 m]), with some trawling reported to 800 fathoms (1,460 m) (Morro Group 1999). Most trawling is in soft bottom areas although low-relief rocky areas may also be trawled using roller gear. The Santa Lucia Bank, located approximately 30 nm (55 km) southwest of Morro Bay, is a very important trawling area for local vessels and for that reason is included in the environmental setting, although it is well outside of the proposed cable routes. For finfish, the trawling season is open all year, as weather permits. In the Morro Bay area, trawling is primarily by local fishermen (personal communication, B. Hardy 1999). In 1997, 38 trawl vessels (21 open entry and 17 limited entry) from Morro Bay and Avila had permits to fish (personal communication, D. Dugan 1999).

Hook-and-line commercial fishing, particularly horizontal bottom set and vertical longline, also has the potential for conflicts with submarine cables that are not buried. Cables suspended between rocks could be hooked by the fishing gear or snagged by anchors of vessels fishing there, resulting in loss of the equipment. Both types of longline fishing occur primarily over rocky to gravel substrates throughout the year, although peak activity is from January through July for horizontal longlining and March through August for vertical longlining (NRC 1999). Longline fishing for halibut occurs primarily over sandy bottom. Trolling for salmon occurs near the surface in waters greater than 1,000 feet (300 m) deep. Rod and reel or jig fishing occurs primarily in rocky areas (NRC 1999) (see Figure 17).

**Table 21. Commercial Fisheries in the Project Area**

| *Gear* | *Target Species* | *Notes* |
|---|---|---|
| Hook-and-line | Rockfish, salmon, albacore, sablefish, lingcod | Trolling (salmon and albacore) in late summer and fall; long line fishing all year |
| Set gill net / trammel net | Rockfish (on Santa Lucia Bank), sharks, halibut, white seabass | Nets anchored to the bottom and checked regularly; most set in less than 55 fathoms (100 m for halibut) and 275 fathoms (500 m) for other species |
| Drift gill net | Thresher shark, swordfish, seabass, barracuda | Fished at night 3 to 80 miles (5 to 130 km) offshore |
| Purse seine / lampara net | Mackerel, anchovy, squid, herring, sardine | For pelagic, schooling fish; lampara nets used in depths less than 25 fathoms (45 m) |
| Trawl | Rockfish, halibut / sole, sablefish, shrimp / prawns | Fished all year beyond the 3-nm state waters limit, except pink shrimp (1 April-31 October); most sole fished at depths of 200 to 300 fathoms (365 to 550 m) although some to 520 fathoms (950 m), halibut at less than 45 fathoms (82 m), rockfish at 60 to 150 fathoms (110 to 275 m), shrimp / prawns at 55 to 220 fathoms (100 to 400 m) over green mud |
| Hookah | Urchins, cucumbers | Divers work from small boats in water usually less than 20 fathoms (36 m) |
| Trap | Crab, prawns, sablefish, rockfish | Traps set on the bottom (at depths of 10 to 60 fathoms [18 to 110 m] for crabs and prawns, <275 fathoms [500 m] for sablefish, and <110 fathoms [200 m] for rockfish) with marker buoys |

*Source*: URS 1986; MBC 1989; CDFG 1999a; Dugan 1999; NRC 1999

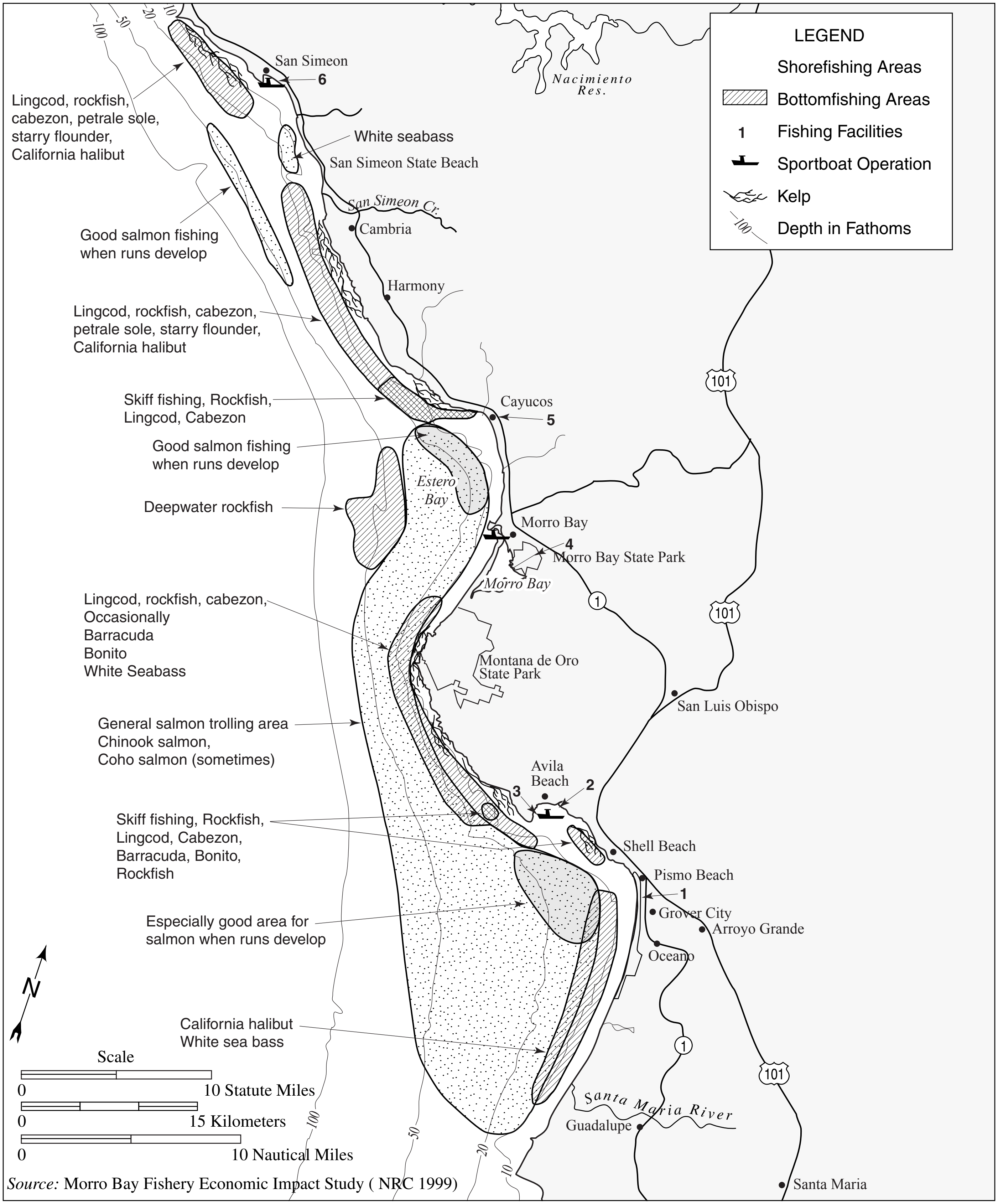


**Figure 17. The Location of Popular Fishing Areas of Morro Bay, California**

Recreational fishing is by hook-and-line, primarily within 3 nm (5.5 km) of shore (Figure 17). Rocky headland areas in the Point Buchon area are fished for species such as rockfish, lingcod, and cabezon. Other target species in this area include barracuda, bonito, and white seabass. Nearshore areas from Cayucos to just north of Cambria are fished for lingcod, rockfish, cabezon, petrale sole, starry flounder, and California halibut. Just off shore from Morro Bay, at depths of about 50 fathoms (90 m), is an area recreational fishers target for rockfish. Trolling for salmon occurs parallel to the shore out to depths just over 50 fathoms from near Point Sal to Cayucos (NRC 1999). Charter boats also troll for albacore farther offshore.

Catch data are compiled by CDFG. The nearshore areas along the coast have been divided into numbered blocks that are generally 10 minutes longitude by 10 minutes latitude. The proposed AT&T cables lie in blocks 607-613, 615-621, and 649 (see Figure 18). Blocks 607-613 are located immediately north of blocks 615-621 with increasing numbers offshore. Block 649 is 30 minutes longitude by 40 minutes latitude located just west of the other blocks. Fishermen report catch by block, and CDFG keeps records of catch by all gear combined with separate records of trawl catch.

Trawling effort (number of tows) for the CDFG blocks within the existing cables is considerably lower than for the Santa Lucia Bank area (NRC 1999). Blocks 607 and 615 containing the only rock outcrops where the cables are not buried beyond the 3-nm limit had very little groundfish trawling in 1994 through 1996 (average of 1 tow per year in block 615 and none in 607). Shrimp and prawn trawling effort was also low (average of 35 tows per year in 615 and none in 607) compared to blocks 624, 633, and 639 where the effort averaged 454 tows per block in 1996 through 1998 (NRC 1999). Both vertical and horizontal longline fishing occurs in the CDFG blocks crossed by the existing cables. Effort in 1997 ranged from moderate to high in the CDFG blocks with rock outcrops (607 and 615). Trapping for fish, prawns, and crab showed moderate to high numbers of landings in 1997 for CDFG blocks 607 and 615. Set gillnet effort was generally low to moderate in the cable area in 1997 (NRC 1999).

Trawling catch data were analyzed by block for the years 1993 through 1996. These were the most current data available for the analysis and they provide a reasonable indication of where the most fish have been caught in recent years. Year-to-year variations in fishing effort and catch can be considerable, and fishery stocks, market prices, fishing regulations, and fishing technology are all subject to change (Morro Group 1999; NRC 1999), making it appropriate to average catch data over several recent years. The data showed that 80 to 90 percent of the catch in most blocks was rockfish and flatfish, with over 90 percent in blocks 624-628 (CDFG 1999b). The remainder was predominantly sablefish with smaller amounts of other species such as lingcod and cabezon. The average annual catch for blocks 608-613 and 616-621 (12 blocks) was about 702,000 pounds with Dover sole comprising 53 percent. The catch by block ranged from 23 to 79 percent rockfish and 0 to 59 percent flatfish (see Figure 19). For blocks 602-606 (5 blocks) the annual average catch was about 401,000 pounds while for blocks 623-628 (6 blocks) the annual average catch was 729,000 pounds. Catch was generally higher in the blocks where depths are less than 500 fathoms (915 m) (Figures 18 and 19), with the exception of inshore blocks 608, 623, and 624 where bottom type or limited fish abundance may have reduced the fishing effort. The catch in blocks 625 and 626 averaged over 200,000 pounds while only block 604 had over 200,000 pounds. Block 627 is located on Santa Lucia Bank. The annual average catch per block varied from north to south (see Figure 20). Blocks 602-608 and 616-619 showed

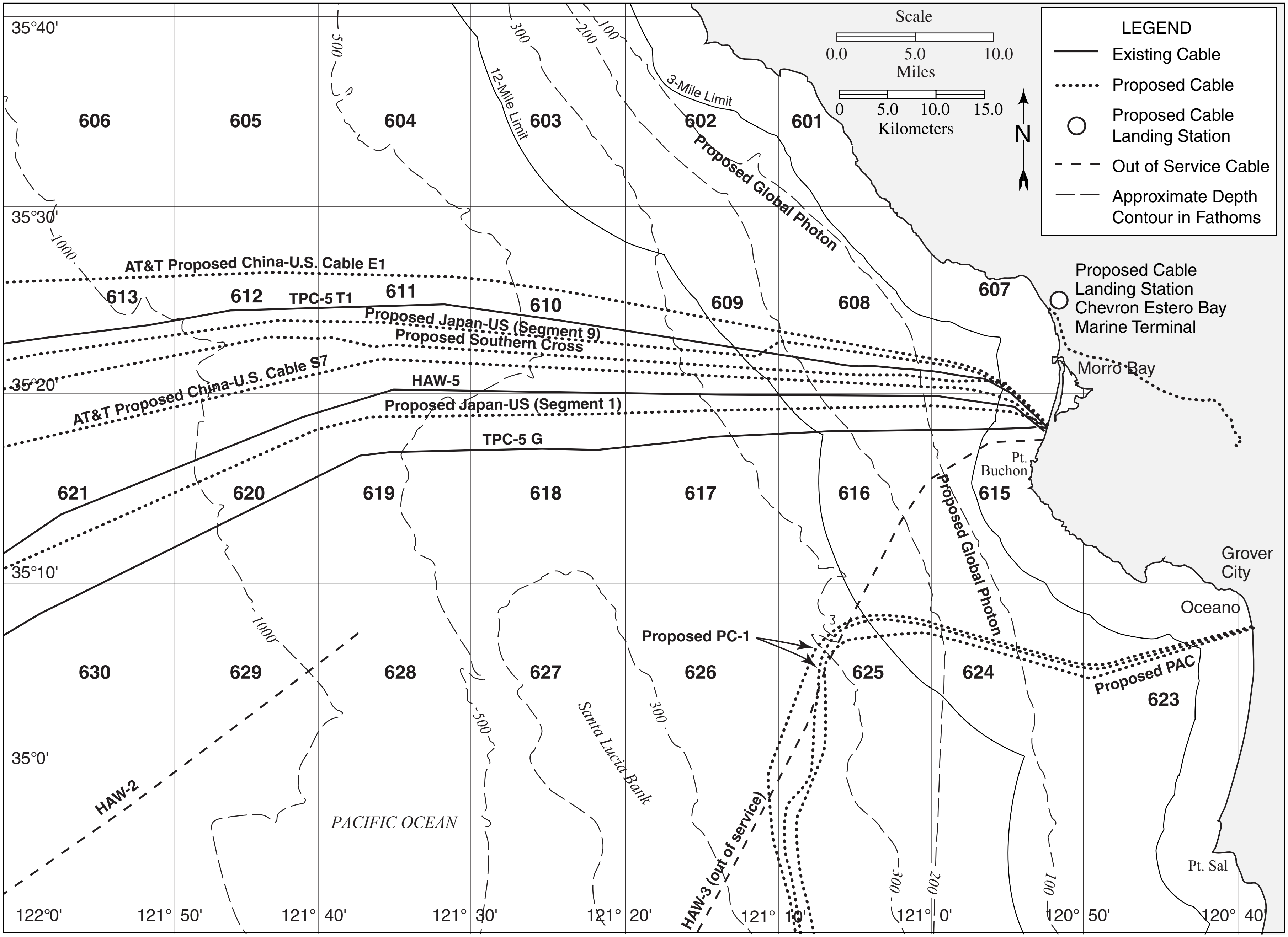


**Figure 18. Location of Existing and Proposed Submarine Cables and CDFG Fishing Blocks**

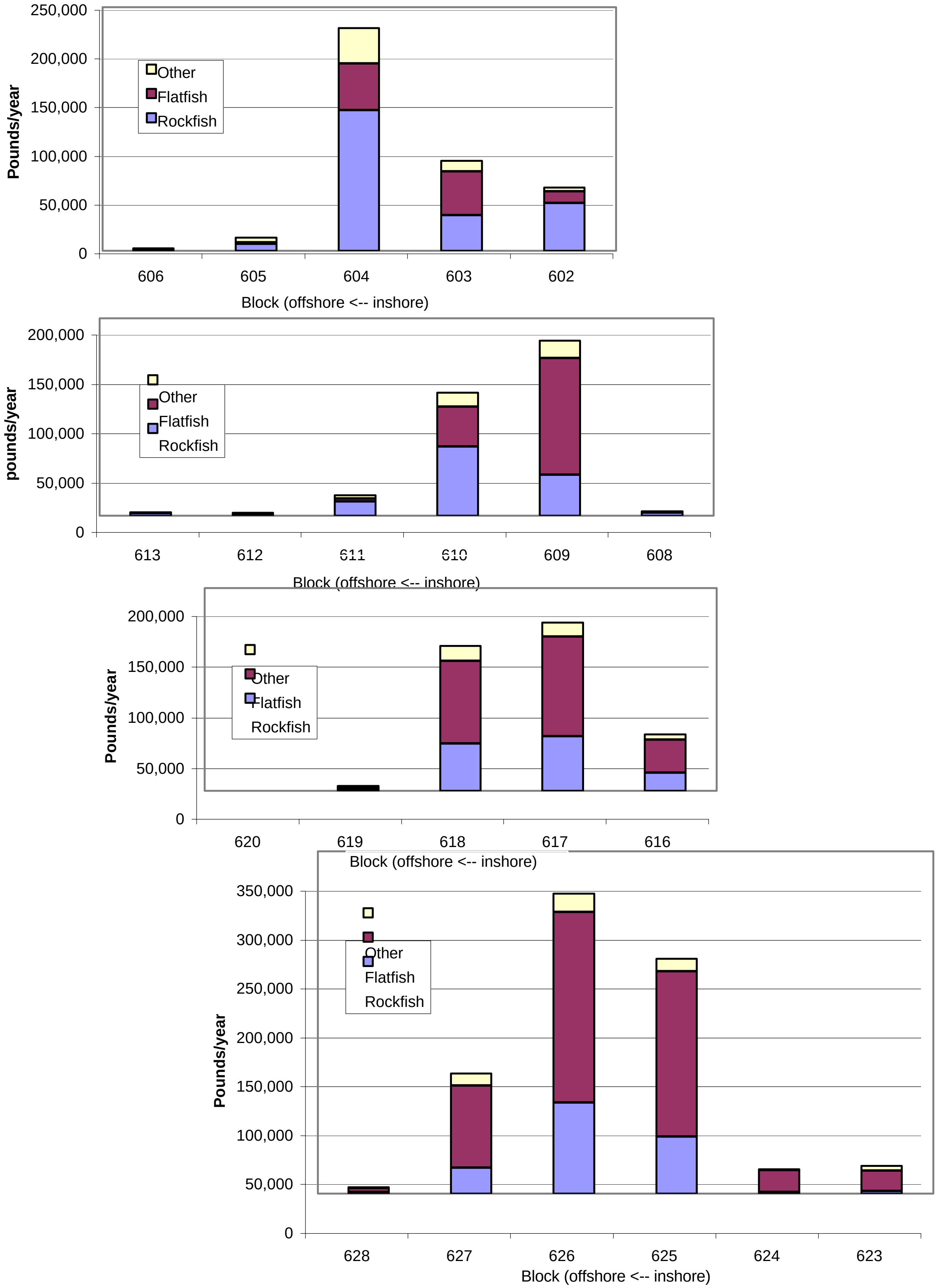


**Figure 19. Trawl catch data (1993-96) by block for the project vicinity. (See Figure 18 for block locations.)**

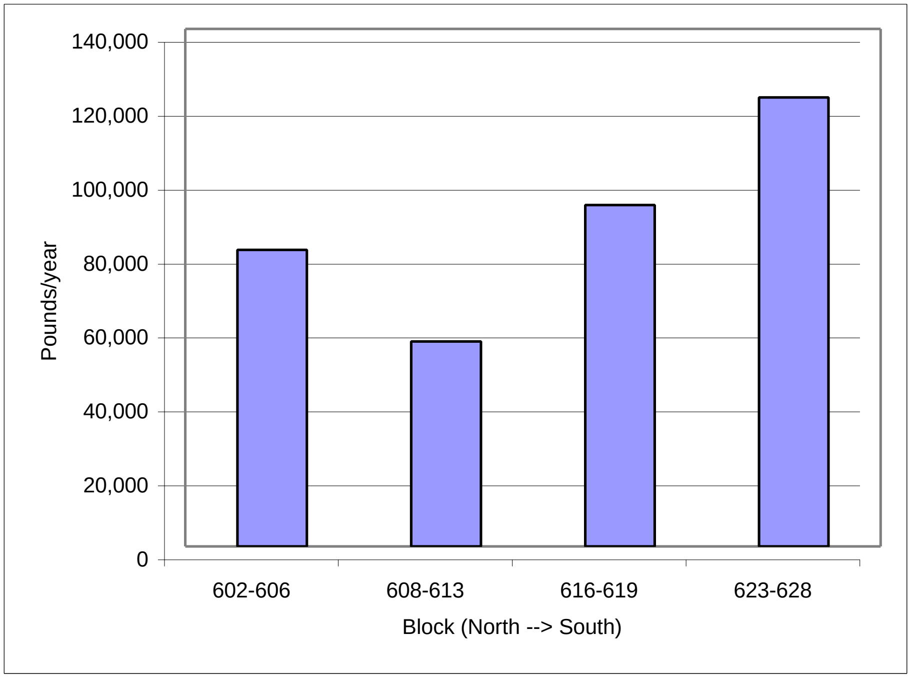


**Figure 20. Average Annual Trawl Catch (1993-96) for Blocks in the Project Area**

similar catches while blocks 608-613 had a lower catch and blocks 623-628 had a higher catch. The latter is to be expected since Santa Lucia Bank is in those blocks.

Landings of commercial fish are also reported by port. Commercial fish landings in Morro Bay and Port San Luis/Avila are predominantly from trawling, and the weight landed has declined steadily from 1995 through 1998 (Morro Group 1999). The reasons for the decline have been attributed to reduced fish stocks and/or decreased catch limits. For Morro Bay, trawl landings of Dover sole/thornyhead/sablefish and rockfish were 2,840,989 pounds from July 1996 through June 1997 (CDFG 1999c). Landings varied by month (see Figure 21) with an average of 258,272 pounds per month. From 1994 through 1998, trawl landings of fish in the Morro Bay area represented 74 percent of the total landings by weight (NRC 1999). Trawl landings of shrimp were 10 percent, hook-and-line landings were 12 percent, trap landings were one percent, and gillnet landings were three percent.

Recreational charter vessel fish landings have also declined in recent years (1993 through 1996). Rockfish dominate the catch (72 to 98 percent) with lingcod the next most abundant species landed (Morro Group 1999). No data are available for private boat landings.

### 4.7.2 Significance Criteria

A project impact is considered significant when it causes:

- Short-term financial losses due to loss of gear and related loss of catch and fishing opportunity;

- Long-term (more than one year) interference to commercial or recreational fishing operations in the project area;
- Long-term (more than one year) exclusion of fishing areas that have historically been important to the local commercial and recreational fishing industries; or

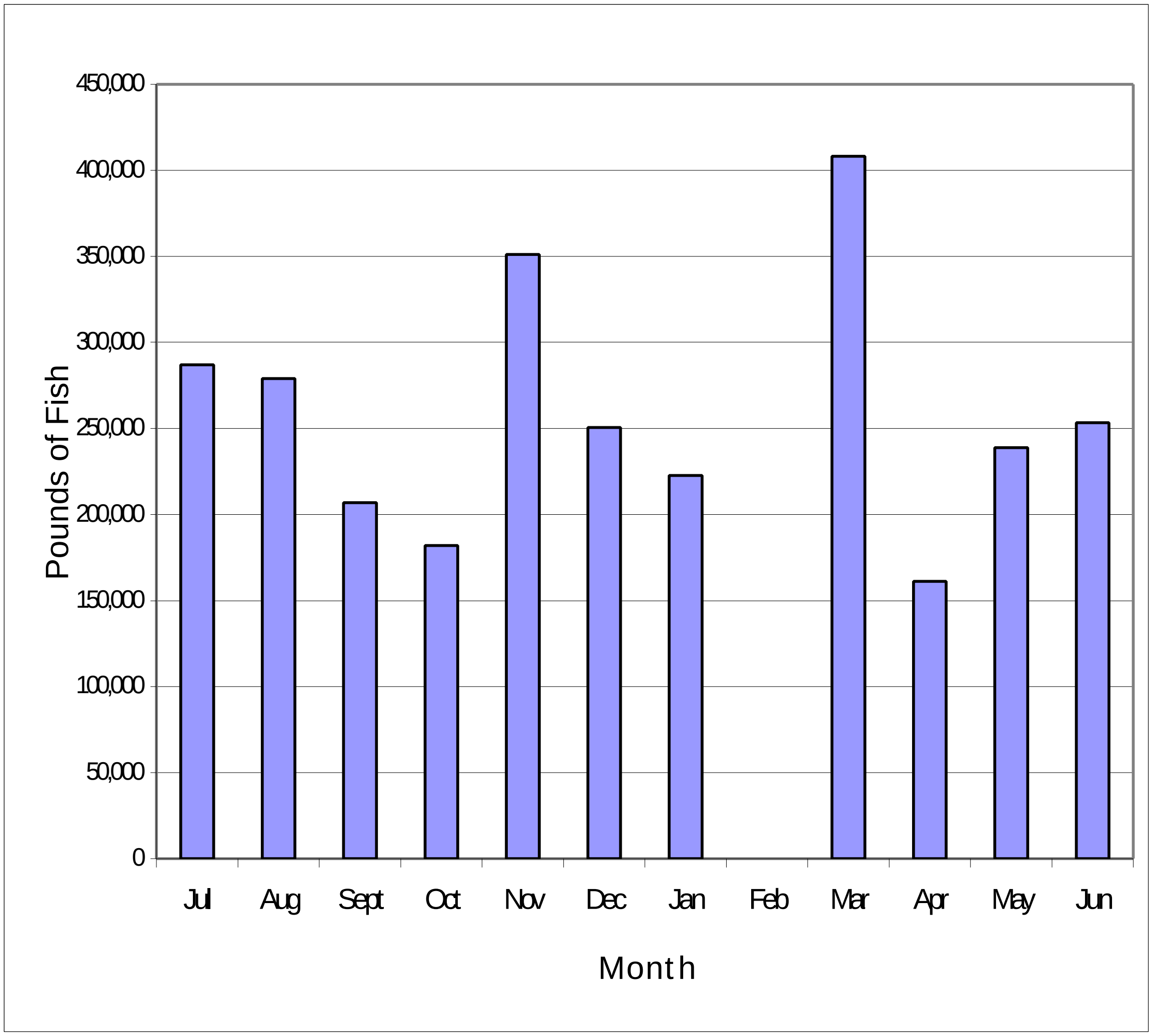


**Figure 21. Trawl Landings of Fish at Morro Bay from July 1996 to June 1997**

- Economic loss over the long-term (more than one year) to the local commercial and recreational fishing industries.

### 4.7.3 Project Impacts

Commercial and recreational fisheries could be affected by the proposed project through (1) short-term preclusion from fishing grounds during cable installation, (2) bottom disturbance during cable laying, (3) long-term effects if fishermen avoid the cables, and (4) entanglement of fishing gear in the cables where they are not buried resulting in loss of gear and fishing time while gear is being replaced.

### *Short-Term Preclusion During Cable Installation*

The proposed project has the potential to affect most commercial and recreational fisheries for short periods of time during installation of the two cables. Cable laying would occur in two phases: (1) shore to approximately 3 nm (5.5 km) offshore and (2) from 3 nm to about 50 nm (92 km) offshore. The cables would be fed through the bore pipe onto shore from a ship, and then the cables would be laid out to about 3 nm and buoyed off. This process would take a few days (less than one week). After that, the cables would be buried in soft bottom areas where sediment depths are sufficient for burial, using divers in shallow water and using an ROV in deeper waters. There would be short-term preclusion of commercial fishing within about 1 nm (1.8 km) of the work vessel for several days, in accordance with the Submarine Cable Act (47 USC Section 24). The ends of the cables would be left buoyed for approximately two to four weeks until the larger cable laying vessel arrives to finish installation of the cables out to about 50 nm. There would also be short-term preclusion of commercial fishing within 0.25 nm (0.5 km) of the buoyed ends of the cables during that period, as provided for in the U.S. Submarine Cable Act.

The larger cable laying vessel would traverse the fishing grounds from 3 nm to about 50 nm offshore twice (once for each cable) in less than one month. Cable-laying would proceed from offshore to the buoyed end of the E1 cable and then from the buoyed end of the S7 cable offshore. Commercial and recreational fishing would be temporarily precluded only in the immediate vicinity (1 nm) of the cable laying vessel as it moves along the cable routes at less than one knot (1.8 km/hr). Thus, fishing could occur at locations within the route, but away from the vessel, throughout the installation period. The small area around the cable buoys would be approximately at the 3-nm limit and would be unlikely to affect any commercial trawling present in that area since none was reported in recent years. Some longline, gillnet, and trap fishing could be precluded from about 50 acres (20 ha) for up to one month. Recreational fishing in this area is primarily trolling.

Although the potential effects on fishing are small, some fishermen could be adversely affected, depending on the timing, location, and methods of cable installation. Given the seasonality of fishing, a short-term disruption could still affect a fisherman's net revenues and have longer-term repercussions. In order to minimize the potential for disruption, AT&T, upon approval of the project, would participate in the Morro Bay Joint Cable/Fisheries Liaison Committee that has been established by the cable companies and the local fishermen and their representatives. This Committee would discuss and resolve issues relating to telecommunications cables owned and operated by the cable companies with the goal of minimizing any impacts to the fishing industry. AT&T would consult with the Committee on the timing and methods of cable installation, and AT&T would allow a Committee fisherman representative to be on board the cable installation vessel to observe cable installation. The impact is therefore considered potentially significant but mitigable (Class II).

### *Bottom Disturbance During Cable Laying*

The installation process would have minimal adverse effects on fishery resources (i.e., habitat would not be permanently altered and target species would not be killed). From about 6 to 50 nm (11 to 90 km) offshore the bottom is predominantly deep, silty clay sediments, and the cables would be buried using a towed sled or ROV. Depth of burial is planned to be approximately 3.6 to 5 feet (1 to 2 m) from shore to about 25 nm (46 km) offshore and 2 to 2.6 feet (0.6 to 0.8 m) between 25 and 50 nm (46 to 90 km) offshore. Beyond 50 nm the cables would be laid on the surface of the sea floor. The sled would have minimal effects on bottom topography and would not cause any impediments to trawling gear. As a worst case, assuming that the burial process causes a loss of benthic (bottom) organisms used as food by commercial fish species for one year, harvest of those species could decrease in proportion to the area affected. Installation of two cables would affect approximately 90 acres (37 ha) of sea floor (2 x 50 nm x 2 m) in Blocks 607-613 and represents 0.02 percent of those blocks. Fish trawl harvest from those blocks in 1993-1996 averaged 332,490 pounds (50,816 kg) per year. At an ex-vessel price of $0.50 per pound (NRC 1999), the loss to commercial trawl fishermen would be approximately $33.25 (0.02 percent x 332,490 pounds x $0.50/pound) in the worst case. Economic loss to other commercial fisheries would be less since not all of the species harvested would be affected and less than 50 percent of the value harvested results from those fisheries. This loss would have negligible effects on the economic viability of the local commercial fisheries. Any effect of the one-time surface disturbance on benthic invertebrate production is unlikely to last longer than one year, and so would be less than significant by the criteria listed above (Class III).

Cable laying over rocky habitat is expected to damage an even narrower band of encrusting animals in the three rocky areas crossed. Within 3 nm of shore the area affected would be approximately 0.5 acre (0.2 ha) while the area beyond 3 nm would be approximately 0.3 acre (0.1 ha). These small areas of temporary disturbance would have no significant effects on the abundance of fish available for commercial or recreational fishing.

### *Long-Term Effects If Fishermen Avoid the Cables*

Trawl catch data indicate that trawling currently occurs in the vicinity of the existing cables (within the blocks where the cables are located). That trawlers fish over existing buried cables has been confirmed through observations made during routine flyover inspections of the cables, performed 4 to 5 times per month. During 1998, for example, three different vessels from the Morro Bay area were observed fishing over the TPC-5 and HAW-5 cables (personal communication, R. Wargo 1999). Interviews with fishers have also verified that they fish over the cables (personal communication, J. June 1999). It should be noted that worldwide, AT&T routinely conducts occasional flyovers of its submarine cables for the purpose of being aware of activities that are occurring in their vicinity, and that these inspections are not intended to intimidate fishermen or discourage fishing around them.

To the extent that commercial and recreational fishing would continue to occur over the cables where buried, the new cables would have no impacts on either fishery in those areas. Fishing over buried cables will not be precluded or discouraged by AT&T through overflights or any other actions.

Notwithstanding past practices, however, some fishermen may choose to avoid the area of the proposed buried cables, due to uncertainty as to the adequacy of burial and concerns over gear loss or liability for damage to a cable. This could affect their net revenues through either reduced catch or increased fuel costs. The two new proposed cables would be located north of and adjacent to the existing HAW-5 and TPC-5 Segment T1 cables (see Figure 18). The distance between the existing and new cables ranges from approximately 500 feet (152 m) at the 3-nm state waters limit to about 2 nm at the maximum depth fished by trawling 40 to 48 nm [74 to 90 km] offshore). This cable "corridor" overlaps some areas of low to moderately heavy fishing activity, with the areas of highest trawl catch to the north and south of the corridor (Figures 18-19).

In those areas where the proposed cables are not buried, avoiding the use of trawl or other commercial or recreational fishing gear (out of concern for gear entanglement) could result in long-term effects on fishing. The proposed cables cross rocky outcrops for a linear distance of approximately 2.25 nm (4 km) beyond the 3-nm limit and 3.6 nm (6.6 km) inside that limit. Assuming that trawling is avoided in this area, the areal extent beyond the 3-nm limit is about 935 acres (380 ha) of rocky habitat (assuming a 0.25-nm avoidance width), some of which is not likely to be trawled due to the presence of rock pinnacles. This represents about 1.5 percent of a single fishing block. Inside the 3-nm limit, the affected area would be 645 acres (261 ha). This represents about one percent of a single CDFG fishing block.

The economic impacts where the cables cannot be buried are expected to be low. Where the cables will be unburied inside the 3-nm limit, commercial trawling is already not allowed, and the potential for entanglement with traps, longline, set gillnet, and recreational fishing is low because these gear types are set vertically and/or not dragged across the bottom. To completely avoid the potential for gear entanglement with a cable, however, fishermen might still choose to avoid areas where the cables are not buried.

Outside of the 3-nm limit, the areas where the cables cannot be buried cross the southern edge of block 607 and extend a short distance into block 615. No trawling for fish or shrimp has been reported for block 607 in recent years (NRC 1999). Trawling for fish in block 615 was very low (average of one tow per year) for 1994 through 1996 while shrimp trawling averaged 35 tows per year (NRC 1999). However, shrimp trawling is generally over green mud, and the small area of rocky substrate crossed by the proposed cables in block 615 would generally not be trawled for shrimp even in the absence of an unburied cable. Losses to other gear types, if any, are expected to be low as well because the area actually affected by the unburied cables over rocky bottom would be small (less than two percent of a CDFG fish block).

The foregoing indicates that the potential economic losses to fishermen who avoid fishing over the cables are low, but such losses could be long-term. Given the narrow profit margins that many local fishermen operate under (Morro Group 1999), even small effects on revenues or costs can substantially affect the profitability of fishing. In order to minimize these negative impacts to the fishing industry, it is important that the fishermen know exactly where the cables – both buried and unburied – have been installed, that they have confidence in the veracity of the cable location data, and that they have adequate communication and navigation equipment to navigate in and around the cables.

The impacts described in this section are considered potentially significant, but mitigable (Class II). Measures that would reduce the potential economic consequences to fishermen and enable them to fish in the vicinity of the cables include consultation with the Morro Bay Joint Cable/Fisheries Liaison Committee on the timing and methods of construction; presence of a Committee fisherman representative during cable installation; provision of "as-built" coordinates in writing, electronically, and on navigation charts to fishermen; conducting ROV inspections to confirm cable burial every 18 to 24 months, and providing the resulting videotapes to the committee for verification; and providing funds to allow fishermen to upgrade their communication and navigation equipment and ensure its adequacy.

### *Gear Entanglement*

Studies conducted in support of cable system design (personal communication, J. June 1999; NRC 1999; CSLC 1999c), as well as research into the ecosystem effects of bottom trawling (Watling and Norse 1998; Pilskaln et al. 1998; Schwinghamer et al. 1998; Engel and Kvitek 1998; Kaiser et al. 1996; Kaiser and Spencer 1996; de Groot and Lindeboom 1994; Anon. 1991; NMFS 1999) indicate that bottom trawling generally results in sediment disturbance to depths of less than 0.3 m, although the exact depth depends on sediment conditions, the weight of the gear, power of the vessel, and nature of maneuvers being conducted (deeper penetration can occur for short distances during tight turns). The National Marine Fisheries Service (NMFS 1999), in an evaluation of bottom trawling effects on fisheries resources, similarly concluded that disturbance of the sea floor by trawling extends to 0.3 m. A detailed study of potential fishing/cable interactions in the study area concluded that a burial depth of 0.5 m would be adequate to minimize the possibility of contact between fishing gear and cables (NRC 1999).

Cable burial has apparently been effective in protecting cables from damage by bottom trawling, and in avoiding gear entanglement and losses to fishermen who fish over cables. AT&T reports that since 1967, it has never had an instance of a cable becoming unburied, or of fishing gear loss on a buried cable (personal communication, R. Wargo 1999). During survey operations for prior installations, paths of previously installed cables were crossed and not detected in the side scan survey data, indicating that they have remained buried. An evaluation of cable fault (i.e., service interruption) history on the west coast of North America also finds no cases of damage to a properly buried cable by trawling, whereas unburied cables in heavily trawled regions have proven vulnerable to damage (CSLC 1999c).

As suggested above, fishing gear entanglement is a potential effect associated primarily with unburied cables. For the proposed cable routes, approximately 2.25 nm would not be buried beyond the 3-nm limit where trawling occurs. This represents roughly 5 percent of the cable length in waters fished by trawl gear. Within 3 nm of shore, the two cables would be exposed for 1.8 and 1.6 nm each approximately parallel to each other (see Figure 4). Where the cable is not buried, there is a potential for gear entanglement. Loss of hook-and-line and trap gear would be limited to one or more weights, hooks, and line for hook-and-line gear while for traps, only one trap with weight and line would be lost. Set gill nets are used primarily over soft bottom areas (NRC 1999) where the cables would be buried. Any gill nets set near or over rocky areas would have as great a chance of hanging up on rock projections as on the smooth cables.

The probability of trawling or hook-and-line gear hanging up on the cables is low, however, because the cables are to be buried (except over hard substrate). Rocky substrates were avoided to the extent feasible during design of the cable routes. This low probability is supported by records of fishing gear loss from entanglement with submarine cables (personal communication, R. Wargo 1999). In the past 17 years, AT&T has paid fishermen for a total of 11 incidents in the Atlantic and Pacific oceans combined, where 40 cables are in service and another approximately 40 are out of service. All of the incidents have been with unburied cables.

The economic impacts of gear loss to individual fishermen can range from less than $100 for loss of a horizontal longline anchor to tens of thousands of dollars for loss of a trawl net with otterboards plus loss of fishing time while the gear is being replaced (NRC 1999). The probability of gear loss resulting from the project is low, but it may affect one or at most a few individual fishers. International agreements and customary international law establish an obligation on cable owners to indemnify a vessel owner who sacrificed any fishing gear in order to avoid injuring a submarine cable. Nevertheless a loss of gear and fishing time, including any fish catch that might be contained in the lost gear, can affect the profitability of individual fishermen, with the potential for longer term repercussions.

To minimize the disruptive effects resulting from gear entanglement, measures are required in addition to the existing obligation imposed by law on the cable companies to replace sacrificed gear. The project's minimum proposed burial depth is 0.6 m to 0.8 m, from 25 to 55 miles offshore. Although the above evidence (e.g., NRC 1999) suggests that this would be sufficient to avoid gear entanglement, increasing minimum burial depth to 0.9 m wherever feasible, as has been requested by the local fishermen, in combination with surveys at 18- to 24-month intervals to verify that the buried cables remain buried, would provide an additional safeguards against the likelihood of entanglement. Finally, when the cables to be installed are taken out of service, they should be removed as necessary so as not to interfere with commercial fishing activities in areas where such cables were previously installed. These measures would mitigate the risks of entanglement to less than significant (Class II).

In the event that fishing gear does become entangled with submarine cable and must be sacrificed, there could be a significant short-term economic impact due to the cost of the gear, loss of catch, and loss of fishing opportunity until gear is replaced. This impact could be mitigated by payment of 100% of the gear equipment replacement costs, plus an additional 50% of those gear replacement costs to compensate the fisherman for lost catch and fishing opportunity. The full amount of this payment should be available to any fisherman who sacrifices gear in order to avoid injury to an AT&T submarine cable, regardless of whether the fishermen has signed the Fishing Agreement. A fisherman’s concern and potential economic loss that may arise from liability imposed for damaging a cable with fishing gear can be allayed and avoided if AT&T will release any claims that it might have for damage to cables against fishermen that comply with the terms of the applicable Fishing Agreement and the Fishing Vessel Operating Procedures established by the Committee. Finally, a 24-hour toll-free telephone “hotline” staffed by AT&T and the other cable companies operating in the area would enable fishermen to receive real-time information about possible entanglements with the undersea cables, thereby giving the master of the vessel timely data that can better inform his actions. The above measures, that are in addition to international agreements and customs, would mitigate the impact of gear losses due to entanglement on cables (Class II).

### *Summary*

The short- and long-term effects of the cables on commercial and recreational fishing are expected to be low for several reasons. Cable burial minimizes potential conflicts, and the routes have been selected to minimize encounters with rocky bottom. As noted above, the laying and burying process causes minimal disturbance to the sea floor that would not adversely affect use of commercial fishing gear. Since the cables are to be buried or laid on the surface of rocky substrates, interference with trap, gillnet, diving, and round-haul net fishing is not expected.

In the small area where the cables are not proposed to be buried outside of the 3-nm limit (2.25 nm out of a cable length of approximately 40 to 48 nm in fishable waters), a potential exists for trawl gear entanglement. Where buried, commercial trawl fishermen are generally expected to continue to fish over the cables. However, over the long term (more than one year), some trawl fishermen could experience a reduction in fishing area to the extent they choose to avoid the proposed cables (see Figure 18), buried or not, in order to lessen even further the risk of gear entanglement and potential liability for cable damage.

Although the magnitude of potential economic effects appears to be small based on the relatively small areas that are affected by cable placement, any resulting reductions in revenues or increases in costs can have a disproportionate effect on the profitability of individual fishermen, due to the narrow profit margins many fishermen operate under (Morro Group 1999). As a result, the impacts of short-term preclusion, loss of fishing area due to avoidance by fishermen, and potential gear losses, are considered potentially significant, but mitigable with adoption of the measures described above. (Class II).

### 4.7.4 Maximum Burial Alternative

The environmental setting for the maximum burial alternative routes is similar to that of the proposed project, except that potential conflicts with commercial and recreational fishing are reduced even further by the avoidance of rocky areas outside of the 3-nm limit (as shown in Figure 12) where the commercial trawlers operate. Inside of the 3-nm limit, the alternative cable routes initially diverge northward from the originally proposed routes within the inshore area to minimize the crossing of rocky outcrops. Here, the cables would be buried except for approximately 1,000 feet (310 m) (E1 + S7 combined) where they would cross rocky bottom. In comparison, the proposed project routes cross approximately 4 miles (6 km) (E1 + S7 combined) of rocky bottom within the 3-nm limit. As a result, potential long-term conflicts with commercial and recreational fishing due to segments of the cable remaining unburied over rock outcrops would be minimized even further by adoption of the alternative routes in the inshore areas.

Although the impacts on commercial and recreational fishing associated with the maximum burial alternative are greatly reduced relative to the proposed routes, they are still considered potentially significant if concerns over gear entanglement and potential cable damage liability cause some fishermen to avoid fishing along portions of the cable routes, regardless of the cable burial status. These impacts are mitigable (Class II) by the same measures that have been described above in Section 4.7.3 with respect to the proposed routes.

### 4.7.5 Cumulative Impacts

To the extent that each project may incrementally increase the risks of gear entanglement, or incrementally reduce the area where trawling is free of these risks, there may at some point be a cumulative effect on fishing in the area.

The addition of nine new cables in the project region increases the probability of an incident where commercial fishing gear (primarily trawls) becomes entangled in one of the cables. The potential for impacts to all types of commercial and recreational fishing are very unlikely where the cables are buried because buried cables -generally do not interfere with use of fishing gear nor do they affect the distribution and abundance of target species. Where the cables are on or suspended above the surface of the sea floor in rocky areas, the cables could increase the risks of gear entanglement, especially beyond the 3-nm territorial limit where commercial trawling is allowed. Fishing may be avoided over the area of the unburied cables.

The other potential impact on commercial fishing involves the possibility of a *de facto* loss of access to fishing grounds, even over the buried cables, to the extent, if any, that fishers choose to avoid these areas. As noted previously, fishing is not legally precluded, and does occur, over cables. However, some fishers might still choose to avoid the area of the buried cables due uncertainty as to the adequacy of burial and concerns over gear loss or liability for damage to a cable.

Each project (Figure 18) would add incrementally to the temporary preclusion that occurs during installation; each would add to the potential reduction of fishing area if some fishers choose to avoid the cables (existing and proposed) to lessen risks of gear entanglement; and each would add to the possibility of gear loss, which is primarily due to cable placement in locations where cables cannot be buried. Comparing Figures 18 and 19, it is apparent that some of the more heavily trawled blocks are outside the area affected by proposed cable projects, which are largely within or immediately adjacent to the “wedge” of existing cables, but that some areas of moderately heavily trawled blocks would be crossed by the cumulative projects' routes.

The AT&T China-U.S. project's contribution to the cumulative impact is considered potentially significant for the same reasons discussed for the project-specific impact, and the same mitigation measures described in Section 4.7.3 would apply (Class II).

The Maximum Burial Alternative routes depicted in Chapter 3, Figure 12 reduce potential conflicts with commercial and recreational fishing vessels that deploy or use gear such as set gill nets, hook--and--line, and crab pots in rocky areas. Because rocky areas are avoided altogether beyond 3 nm by the alternative routes, cable burial minimizes potential conflicts with bottom trawling activities. Thus, the differences between the proposed and alternative routes are substantive, amounting to the reduction of conflicts with certain types of gear (not including bottom trawling) relatively close to shore, and the further reliance on burial to minimize conflicts with bottom trawling beyond the 3-nm limit. However, if concerns over gear entanglement cause fishermen to avoid portions of the routes, impacts could still be potentially significant. Accordingly, the mitigation measures identified for the proposed routes would still be applicable in the event that the alternative routes are adopted, and impacts would similarly be considered mitigated to less than significant (Class II).

### 4.7.6 Mitigation Measures

Recognizing that several proposals for new submarine cable projects offshore of Morro Bay have raised concerns over cumulative impacts on fishing, AT&T and other cable companies have worked together with local fishermen and their representatives from Morro Bay and Port San Luis to identify measures that would minimize potential conflicts between fishing and the installation and operation of fiber optic cable projects offshore of Morro Bay in the area of the proposed project. These measures have been incorporated into an Interim Agreement, dated July 22, 1999, which AT&T is committed to finalizing prior to installing the China-U.S. cables. The following incorporates terms of the Agreement as required mitigation measures. Proposed project noticing procedures (section 2.10.7) are also incorporated herein as mitigation.

**CRF-1** To mitigate impacts on commercial and recreational fishing resulting from the China-U.S. project, the following measures shall be implemented:

- Throughout the life of the project, AT&T will adhere to the noticing procedures that are specified in the project description (section 2.10.7).
- AT&T will participate in and fund the operations of the Morro Bay Joint Cable / Fisheries Liaison Committee. The purpose of the Committee is to discuss and resolve issues relating to telecommunications cables owned and operated by the cable companies, including AT&T, along the California coast adjacent to Morro Bay.
- Where feasible, AT&T cables will be buried to a target depth of three feet (0.9 m) in areas between three miles from shore and 1,000 fathoms (1,800 m) water depth.
- The timing and methods of construction and installation of the individual cables will be determined by AT&T in consultation with the Committee, with the goal of minimizing any negative impacts to the fishing industry.
- A Committee fisherman representative may be on board the cable installation vessel to observe cable installation.
- Following installation of the cables, AT&T will provide cable “as built” coordinates to the fishermen in writing, electronically, and on navigational charts.
- AT&T will conduct burial verification of the cables every 18 to 24 months by Remote Operated Vehicle (ROV) and will provide to the Committee videotapes recording the verification.
- Each licensed fisherman owning and operating vessels engaged in trawl fishing in the area of the proposed cables who signs the Fishing Agreement will receive a payment from the participating cable companies for upgrading communication and navigation equipment.
- AT&T, either independently or in conjunction with other cable companies, will provide a 24-hour toll-free telephone “hotline” to receive calls from fishermen who believe they have snagged gear on a telecommunications cable.
- In the event that a fisherman sacrifices gear in order to avoid injury to an AT&T submarine cable, AT&T will pay 100% of the gear equipment replacement costs, and will pay an additional 50% of those gear replacement costs to compensate the fisherman for

loss of catch and fishing opportunity. The full amount of this payment shall be available to any fisherman who sacrifices gear in order to avoid injury to an AT&T submarine cable, regardless of whether the fishermen has signed the Fishing Agreement.

- AT&T will release any claims that it might have for damage to cables against fishermen that comply with the terms of the applicable Fishing Agreement and the Fishing Vessel Operating Procedures established by the Committee.

- When the cables to be installed are taken out of service, AT&T will submit a plan for their removal as necessary so as not to interfere with commercial fishing activities in areas where such cables were previously installed.

## 4.8 LAND USE AND RECREATION

### 4.8.1 Environmental Setting

The environmental setting for potential impacts on land use and related recreational activity is limited to the Sandspit Parking Lot, which is a public parking lot 1 mile (1.6 km) off of Pecho Valley Road, along Sandspit Road, in Montaña de Oro State Park. The parking lot contains 50 parking spaces, telephone, tables, and restrooms, and is at the head of a trail to Sandspit Beach. Recent estimates are that approximately 50 percent of the parking spaces are occupied at any one time, and that 600 persons per day use the parking lot, during peak summer months (Morro Group 1999).

Recreation and other uses of the marine environment are discussed in sections 4.7 and 4.10.

### 4.8.2 Significance Criteria

A project impact is considered significant to land use and recreation when it creates:

- A temporary loss of recreational beach use for which there is no mitigation for the project duration;
- A temporary disruption of land-based recreational resources, such as access to parks or recreational bicycle paths, for a period of more than two days, for which there is no mitigation;
- An interference with the public's right of access to the sea; or
- A long-term preemption of a recreational use or substantial temporary preemption during a peak use season.

### 4.8.3 Project Impacts

The project would not physically affect an established community and would not conflict with local natural resource planning and conservation on land or in the waters offshore. The cable alignments are outside of any marine sanctuary boundaries. All activities on land will be coordinated with the State Parks Department, and activities on the water will be coordinated with the Coast Guard.

The project would not increase the use of recreational facilities or lead to the construction of new facilities. Onshore activities have been coordinated with State Park personnel and are authorized under a previously issued easement. All corresponding conditions of approval will be satisfied.

The project could temporarily (for 1-2 weeks) affect recreational activities at the Sandspit Parking Lot. As proposed, and described in Chapter 2, cable installation activities in the parking lot would occur during March and/or April, at which times the intensity of use would vary depending on vacation schedules and weather. If the project's need for the parking lot coincides with a period of heavy visitor use of the park, recreational activities could be disrupted, e.g., by limiting parking or beach access. This impact would be significant but mitigable (Class II).

### 4.8.4 Comparison of Proposed Project with Maximum Burial Alternative

The environmental setting and impacts associated with the alternative routes are the same as those of the proposed project (Class II).

### 4.8.5 Cumulative Impacts

The current proposal for the MCI/WorldCom project (Morro Group 1999) also includes use of the Sandspit Parking Lot, resulting in a potential cumulative impact at this location. This impact would be significant but mitigable in conjunction with the project-specific impact discussed above (Class II). Mitigation of the project-specific impact would effectively mitigate the cumulative impact.

### 4.8.6 Mitigation Measures

**REC-1.** Prior to cable installation, AT&T shall obtain the approval of the Department of Parks and Recreation and the Executive Officer of the State Lands Commission for the scheduling and location of project activities at the parking lot, incorporating measures to ensure the availability of parking, restrooms, and pedestrian access to the beach during project activities.

## 4.9 AESTHETICS AND NOISE

These two issue areas are included together in this section for the sake of brevity because for both, potential impacts are limited to short-term, relatively minor changes in the physical environment during cable installation, that may in turn affect the visual and auditory perceptions of visitors to Montaña de Oro State Park or nearby residents.

### 4.9.1 Environmental Setting

***Aesthetics***

Views of the marine environment from the shoreline of Montaña de Oro State Park are essentially pristine except for seagoing traffic, including nighttime traffic.

***Noise***

No ambient noise measurements are available, but natural background noise is generally high due to the frequent strong winds and surf. No noise sensitive receptors are located in the vicinity of the onshore site, except Montaña de Oro State Park.

### 4.9.2 Significance Criteria

***Aesthetics***

An impact on aesthetics (visual resources) would be considered significant if it resulted in:

- Degradation of the character of the site, degradation of an existing viewshed, or alteration of the character of a viewshed by introduction of anomalous structures or elements;
- Altered expectations of viewers and a negative impression of the viewshed; or
- New sources of light or glare that adversely affect day or nighttime views in the area.

***Noise***

A project impact is considered significant when noise levels from either onshore or offshore sources exceed criteria defined in the General Plan of the jurisdiction nearest to the construction site.

In this case the applicable criteria are in the San Luis Obispo County Noise Element, which specifies a maximum daytime (7 A.M. to 10 P.M.) sound level of 70 decibels at outdoor recreation sites.

### 4.9.3 Project Impacts

***Aesthetics***

The project will result in human activity and vessel traffic in a very small area of the nearshore marine environment intermittently over a period of 1 to 2 months. Lighted ships will be visible at night. The activities associated with the project are more likely to be of casual interest than offensive to viewers. In any case, they represent a temporary and small-scale effect on views from the park. This activity would not result in degradation or alteration of the character of the site or an existing viewshed, would not alter expectations of viewers, and would not introduce new sources of light or glare that would adversely affect day or nighttime views in the area. Therefore, the project would have less than significant visual aesthetic impacts (Class III).

***Noise***

The nearshore cable laying activities would produce noise similar to noise generated by other vessels of similar size. Hence, noise levels would be consistent with noise from existing vessel activities. The noise impact in the nearshore area would be intermittent over a period of 1 to 2 months, with vessels operating at varying distances from shore, but never closer than 0.5 mile (0.8 km). It is reasonable to assume that non-project vessels would be aware of project activities through the published Notice to Mariners, and would observe the required standoff of 1 nm from cable-laying vessels. Given the separation of offshore activities from receptors either on or offshore, project noise would not approach the 70-decibel level. As such, nearshore cable installation noise impacts would be short term and less than significant (Class III).

At the Sandspit Parking Lot, noise-generating activities would occur during the bore pipe cleaning and cable pulling operations. Assuming typical diesel engines would be operating at these times, they could produce noise levels approaching 95 decibels at a distance of 10 feet (3 m). Noise levels decrease 6 decibels with each doubling of the distance from the noise source. This means that noise levels would be below the applicable significance criteria at a distance of approximately 200 feet. Given coordination of all activities with State Parks personnel as described in section 4.8 and the short-term nature of the shore-end construction activity, the noise impact would be less than significant (Class III).

### 4.9.4 Maximum Burial Alternative

As specified in section 3.2.2.4, it is assumed that essentially the same installation procedures as described previously for the proposed routes would be used for this alternative. Hence, the potential aesthetic and noise impacts would be essentially the same as for the proposed project (Class III).

### 4.9.5 Cumulative Impacts

No other cable projects are expected to be undergoing simultaneous installation in the same area as the proposed project, and hence no cumulative noise impacts are anticipated. As for the proposed project alone, the presence of another vessel or group of vessels operating in the marine environment is not expected to negatively affect views.

### 4.9.6 Mitigation Measures

Since impacts would be less than significant, no mitigation measures would be required.

## 4.10 MARINE TRANSPORTATION

Federal regulations concerning marine navigation are codified in 33 CFR Parts 1 through 399 and are implemented by the U.S. Coast Guard (USCG) and the U.S. Army Corps of Engineers. Federal regulations for marine shipping are codified in 46 CFR Parts 1 through 599 and are implemented by the USCG, Maritime Administration, and Federal Maritime Commission. California laws concerning marine navigation are codified in the Harbors and Navigation Code and are implemented by local city and county governments.

A vessel engaged in laying an undersea cable is defined by the USCG as a "vessel restricted in her ability to maneuver." This definition refers to vessels that, due to the nature of their work, are unable to keep out of the way of other vessels. Thus, cable-laying vessels are granted special considerations. The Submarine Cable Protection Act requires that other vessels maintain a 1-nautical mile (nm) separation from a vessel laying or repairing an undersea cable (47 USC § 24).

The project is in the 11th Coast Guard District, which includes all of California and the offshore U.S. waters, as well as the states of Nevada, Arizona, and New Mexico. Each USCG District publishes a weekly Local Notice to Mariners (LNM), which is the primary means for disseminating information pertaining to navigational safety and other items of interest to mariners. Information contained in the LNM includes reports of hazards to navigation, channel conditions, obstructions, dangers, anchorages, restricted areas, regattas, construction or modification of bridges, construction or removal of oil platforms, and *laying of undersea cable*. The LNM is available on the Internet (http://www.navcen.uscg.mil/lnm/d11/default.htm) and from other sources at no charge.

### 4.10.1 Environmental Setting

Shipping activity along the central California coast includes all types of vessels: tankers, container ships, bulk carriers, military vessels, research vessels, cruise ships, tugs and tows, registered fishing vessels, and other types of commercial vessels. Total vessel traffic is an estimated 4,000 coastal transits per year by large vessels. About 20 percent of these transits are crude oil tankers. The majority of the remainder are large commercial vessels (LCVs) greater than 300 gross tons, including container ships and bulk carriers. (USCG and NOAA 1998)

Between San Francisco and Point Conception, where shipping lanes have not been established, navigation practice has produced a pattern of traffic flow at various distances from shore based on transit direction, vessel type, and cargo. Members of the Western States Petroleum Association, whose tankers carry crude oil from Alaska, agreed in 1990 to voluntarily keep laden vessels a minimum of 50 nm (90 km) from shore along the central coast. Slower-going ocean tank barges currently transit the central coast approximately 15 to 25 nm (28 to 46 km) from shore to minimize interaction with the oil tankers further out and the speedier container ships closer in. LCVs transiting between California ports generally remain about 5 nm (9 km) off Point Sur when northbound and 10 nm (10 km) when southbound. LCVs navigate at speeds between 10 and 25 knots along the coast. Bulk carriers and older vessels operate at the lower end of this range. Container ships, vehicle carriers, and passenger ships operate at the higher end.

A wide variety of vessels traverse the proposed project area. The majority of them are fishing and recreational vessels that operate out of Morro Bay and to a lesser extent, Port San Luis. Morro Bay is a popular recreational boating area. The greatest concentration of boating activity is near the mouth of Morro Bay about 5 miles (8 km) north of the cable landing at Montaña de Oro State Park. Port San Luis is about 18 miles (30 km) southeast of the cable landing.

Two primary categories of vessel operators use the harbors at Morro Bay and Port San Luis. The first is a resident fleet, and the second is a transient or migrant fleet that is seasonal in nature. The resident fleet is estimated at 450 vessels. About 150 of them are commercially licensed while the remainder are recreational or pleasure craft. The transient or seasonal fleet consists of visiting yachts (about 500 to 800 visits per year), fishing vessels (about 20 to 30 visits per year), and recreational craft that are primarily of the small trailer-boat variety. Peak visitation of the transient or seasonal fleet is during the late spring and summer fishing months (e.g., salmon and albacore season). In a typical year, 10,000 to 12,000 trailer-boat launches occur at Morro Bay and during the salmon fishing season, 200 to 300 launches per day can be expected. Military vessels do not use Morro Bay or Port San Luis on a regular basis (Morro Group 1999).

About 250 vessels are anchored at Port San Luis and about half of them are commercially licensed fishing vessels. Although it varies according to season, between three and 12 of the fishing vessels are trawlers. The remaining fishing vessels are engaged in long-line or non-trawling fishing activities (Morro Group 1999).

### 4.10.2 Significance Criteria

Marine transportation impacts would be considered significant if cable installation, operations, or abandonment activities were to result in:

- Military, commercial, or recreational marine traffic delays of over 1 hour.

### 4.10.3 Project Impacts

Appendix A provides specifications on the vessels that will be employed in nearshore and offshore construction. These include the following vessels:

- *CS Global Sentinel*: This vessel, or one like it, will be the main cable laying ship. This ship's specific project activity is offshore cable installation, as described in section 2.3.2.4.

- *M/V Dock Express 20*: This vessel, or one like it, will be a secondary cable ship and will be used as a platform for operating an ROV. This ship's specific project activity is ROV retro burial, as described in section 2.3.2.5.

- *M/V American Patriot*: This vessel, or one like it will be used as both a cable ship-of-opportunity and a primary work boat. As a ship-of-opportunity, the Patriot will land the cables and lay them in the nearshore area at San Luis Obispo. As a primary work boat, it will serve as a dive and construction platform for the pipe preparation, landing support, and diver retro burial. This boat's specific project activities are described in section 2.3.2.

- *M/V American Endeavor*: This vessel or one like it will be used as a secondary work boat. It will assist the primary work boat by setting and retrieving anchors. The secondary work boat will also be used to shuttle personnel and equipment between the primary work boat and Morro Bay.

The cable laying vessels will follow the cable courses to and from the Morro Bay area. The route of travel for work and support boats that do not remain on site will be the most feasibly direct route from their port to the work site. Vessels that are not moored at the project site will travel to and from Morro Bay.

***Cable Installation***

During cable installation activities, the vessel would fly the appropriate day shapes (brightly colored flags that vessels use to communicate with each other) identifying it as a cable-laying vessel and, therefore, as a "vessel restricted in her ability to maneuver." While operating at night, the vessel would be well lighted and display the recognized light signal indicating that it is a vessel laying cable. Also, notification would be posted in the USCG Local Notice to Mariners to ensure that mariners on commercial and military vessels as well as recreational boaters would have prior notice of the cable-laying activities.

While installing cable, the cable-laying vessel must stay on course and, therefore, would have restricted maneuverability. However, the vessel would be highly visible, displaying recognized flags and signal lights of a vessel laying cable. It would be well-lighted at night, and, and its presence and activity would be posted in the LNM. These measures would provide sufficient notice to other vessels to enable them to maintain a safe distance, thereby avoiding navigational delays or unsafe situations. Thus, any potential impact on marine transportation due to restricted maneuverability of the cable-laying vessel would be less than significant (Class III).

Recreational boating in the vicinity of the cable route and near the cable landing area would not be significantly affected by the cable-laying activities, although boaters would be required to maintain a minimum distance of 1 nm (1.8 km) from the cable-laying vessel. Because of their greater maneuverability, recreational boaters (sailboats, motor boats, charter boats, etc.) would be able to maintain a safe distance from the cable ship during installation. Thus, impacts on recreational boating would be short term and less than significant (Class III).

***Operations and Abandonment***

Ongoing cable maintenance would not be required and any cable repair events, although unlikely, would be of short duration. Other vessels would be required to maintain a minimum distance of 1 nm (1.8 km) from the cable-laying vessel during repair events, thereby avoiding navigational delays or unsafe situations. Any required cable removal at end of system life would be subject to the same navigational constraints and durations. Thus, marine transportation impacts during repair events would be short term and less than significant (Class III).

### 4.10.4 Maximum Burial Alternative

As specified in section 3.2.2.4, it is assumed that essentially the same installation procedures as described previously for the proposed routes would be used for this alternative, the major difference being that there would be longer areas of burial by ROV, and shorter areas where the cables would be direct laid on rocky surfaces. Hence, the potential marine transportation impacts would be essentially the same as for the proposed project.

### 4.10.5 Cumulative Impacts

No other cable projects are expected to be undergoing installation at the same time as the proposed project, hence, no cumulative impacts on marine transportation are anticipated.

### 4.10.6 Mitigation Measures

Because impacts on marine transportation would be less than significant, no mitigation measures are required.

## 4.11 SYSTEM SAFETY/RISK OF UPSET

This section addresses the potential impact of upsets (accidents or collisions) that could result in spillage of hazardous material (e.g., fuel, oil, or other petroleum product) at sea or on land.

### 4.11.1 Environmental Setting

The international rules and regulations governing operations at sea were formalized in the Convention on the International Regulations for Preventing Collisions at Sea in 1972 and became effective on July 15, 1977. Congress adopted these rules and regulations as the International Navigational Rules Act of 1977, commonly called 72 COLREGS. These rules, with 1989 amendments, identify all the regulations that govern operations on U.S. navigable waters. The rules are administered and enforced by the USCG. Additional regulatory information regarding marine navigation is provided in section 4.10.

### 4.11.2 Significance Criteria

System safety/risk of upset impacts would be considered significant if cable installation, operations, or abandonment activities were to result in:

- a release of hazardous material that would pose risk to human health or the environment;
- exposure of workers or the public to conditions that are not in compliance with the Occupational Safety and Health Act (OSHA) (Title 8 CCR § 330 et seq.); or
- imposition of an undue risk to workers, the public, or the environment

### 4.11.3 Project Impacts

Two descriptors determine the level of impact potentially resulting from an upset: *criticality* and *frequency*. Criticality classifications, which range from negligible to disastrous, are defined in Table 22. Frequency classifications, which range from extraordinary to frequent, are defined in Table 23. When these two descriptors are evaluated together, they define thresholds of significance. This is shown in Table 24 where the shaded areas in the matrix represent significant impacts.

**Table 22. Criticality Classification**

| *Classification* | *Description of Hazard* |
|---|---|
| Negligible | No significant risk to the public, with no minor injuries |
| Minor | Small level of public risk, with at most a few minor injuries |
| Major | Major level of public risk with up to 10 severe injuries |
| Severe | Severe public risk with up to 100 severe injuries or up to 10 fatalities |
| Disastrous | Disastrous public risk involving more than 100 severe injuries or more than 10 fatalities |

**Table 23. Frequency Classification**

| *Type* | *Frequency per Year* | *Description* |
|---|---|---|
| Extraordinary | Less than once in 1,000,000 years | An event which has never occurred but could occur |
| Rare | Between once in 10,000 years and once in 1,000,000 years | An event which has occurred on a worldwide basis, but only a few times |
| Unlikely | Between once in 100 years and once in 10,000 years | An event which is not expected to occur during the project lifetime |
| Likely | Between once in 1 year and once in 100 years | An event which probably would occur during the project lifetime |
| Frequent | Greater than once a year | An event which would occur once a year on the average |

**Table 24. Definition of Significant Impact**

| *FREQUENCY OF OCCURRENCE* | SEVERITY OF CONSEQUENCE | | | | |
|---|---|---|---|---|---|
| | *Negligible* | *Minor* | *Major* | *Severe* | *Disastrous* |
| Frequent | | | | | |
| Likely | | | | | |
| Unlikely | | | | | |
| Rare | | | | | |
| Extraordinary | | | | | |

Note: The shaded areas in the matrix represent significant impacts.

Marine navigational safety concerns that could result in significant impacts include:

- Increased marine traffic or disruption of marine traffic in local ports and harbors;
- Navigational hazards caused by project vessels working offshore; and
- Potential increase in marine accidents that result in injury or increase in any public risk caused by project vessels or activities.

The risk of spills or upsets from the cable-laying or repair vessels is low due to normal operational restrictions on vessel activities during more severe sea states. In the remote event of any spill, the emergency protocol to be followed is described in the ship's emergency response guidelines. Cable-laying, repair, and route-survey vessels are fully designed and equipped to carry out these activities anywhere in the world and under all safe sea and weather conditions. All vessels would operate in accordance with Title 33 CFR Parts 154-156.

At the cable landing sites, the risk of spills or upsets would be minimized by scheduling construction or repair activities when nearshore weather and working conditions are moderate to mild. This is an important scheduling consideration, because rough sea conditions are common along the coastal region.

In the unlikely event of a spill that exceeds the vessel's clean-up capability, the vessel would immediately coordinate with the USCG to avoid or minimize any effects. A Shipboard Oil Pollution Emergency Plan (SOPEP) for the cable ship will be in place as required by the USCG. The cable-laying vessel will carry onboard a minimum of 400 feet of sorbent boom and at least five bales of sorbent pads (10"x18"). The *Global Sentinel* will also have a small powered boat (Zodiac or Boston Whaler) to rapidly deploy the absorption materials to collect any spill or sheen at the surface. The SOPEP provides the location and means for contacting additional cleanup resources to be used if the spill exceeds the clean-up capability of the cable laying ship. The Vessel Master is responsible for overseeing all oil spill containment activities and is identified in the SOPEP of the cable ship.

Notification of cable-laying, cable repair, and landing site construction would be posted in the USCG's Local Notice to Mariners to ensure that mariners on commercial and military vessels, as well as recreational boaters would be advised of the activity. At each landing area, any local guidelines for public notification would be followed, as required. Additional information concerning existing vessel traffic and vessel safety during cable-laying activities is provided in section 4.10.3.

The project does not involve the transport, use, or disposal of hazardous material other than the fuel, lubricants, and other petroleum products normal to vessel operations. All international, federal, state, and local rules and regulations regarding use, transport, management, and disposal of these materials would be followed. Compliance with the rules and regulations would not result in any impact or risk of upset.

The parking lot where shore-end activities would occur is not a hazardous materials site. All project activities would occur several miles from the nearest schools in Los Osos, and many miles from the nearest airfield. The project would not result in potential conflicts with emergency response or evacuation plans. Shore-end activities at the parking lot pose no risk of injuries or property losses due to wildfire because of the lack of vegetation in the parking lot and the low density of vegetation in the surrounding dunes.

Given coordination of the project with the Coast Guard and precautionary noticing to mariners, an accident during the one-time activities associated with cable installation is extremely unlikely and consequences in any case would not be severe. No conflicts with established shipping traffic are foreseen. As cable installation is a one-time, relatively short-term activity, the risk of upset is considered minimal. In a worst case, i.e. sinking of one of the project vessels or detachment of the Sea Plow, a spillage of fuel oil or hydraulic fluid into ocean waters and loss of equipment on the sea bottom could occur. AT&T has committed to retrieving any lost equipment to ensure that no obstructions are placed on the seafloor. The likelihood of an accident during cable installation is minimized by procedures for curtailment of activities during rough weather (section 2.5), on-board instrumentation that detects potential obstructions during the burial operation, plus the fact that installation procedures take into account the detailed seafloor survey information that establishes where there are rocky areas that could damage the equipment and lead to a spillage of fluids.

The cable lay vessels will have on board the required SOPEPs, copies of which have been provided to the CSLC. AT&T has also provided a Spill Prevention and Contingency Plan for the project to the CSLC. These plans, which describe the steps to be taken to prevent or to respond to a spill or other shipboard oil pollution emergency, are available for review from the CSLC.

The foregoing indicates a low likelihood of accidents, coupled with a low probability of substantial impact on habitat resources. Accordingly, the impacts associated with potential spills are considered less than significant (Class III).

As to the possibility of a failure, the likelihood of upset is extremely low given the fact that no failures have occurred in modern buried cables on the west coast. Failures have occurred elsewhere in the world, due to trawling accidents and seismic activity or sediment flows occurring in areas where cables cross steep submarine topography (NTT 1997). Given the precautions that are part of the proposed project design (Chapter 2) the likelihood of system failure due to accidents is extremely low, and the impact is considered less than significant (Class III).

### 4.11.4 Maximum Burial Alternative

As specified in section 3.2.2.4, it is assumed that essentially the same installation procedures as described previously for the proposed routes would be used for this alternative. Hence, the potential system safety/risk of upset impacts would be essentially the same as for the proposed project (Class III).

### 4.11.5 Cumulative Impacts

No other cable projects are expected to be undergoing installation simultaneously in the same area as the proposed project, hence, no cumulative system safety/risk of upset impacts are anticipated.

### 4.11.6 Mitigation Measures

Because system safety/risk of upset impacts would be less than significant, no mitigation measures are required.

## 4.12 SOCIOECONOMICS

### 4.12.1 Environmental Setting

Potential socioeconomic impacts associated with the proposed AT&T project could result from possible interruption and/or disruption of commercial fishing activities. To the degree that commercial fishing operations might be hampered, there could be reductions in net revenues accruing to commercial fishers which, in turn, could have effects on local employment and the fiscal well-being of public harbor operations as well as related businesses.

Section 4.7 describes commercial fishing activities in the offshore area where cables are proposed to be placed. Vessels fishing in the area are primarily from the Morro Bay and Port San Luis harbors. Morro Bay harbor is administered by the City of Morro Bay Harbor Department and is used primarily by commercial fishing vessels, of which about 100-150 are typically present. The current annual budget of the Harbor Department is $1,074,000, which comes almost entirely from the fees paid for harbor leases, dockage and mooring, and slip rentals (Morro Group 1999). The Port San Luis harbor is administered by the Port San Luis Harbor District, which includes adjacent tidelands. Typically, about 250 vessels, half of which are commercial fishing vessels, are anchored at the harbor. The District has a current budget of $2,565,000, 27 percent of which comes from leasing, dockage, and other fees paid by users of the harbor, while 73 percent comes from County property taxes (Morro Group 1999).

For the years 1990-1998, combined ex-vessel values of fishery landings at Morro Bay and Port San Luis have averaged $6-7 million, with a peak of $9.5 million in 1995. The importance of trawling has increased during this period, and trawl landings in recent years have accounted for about 60 percent of the total (Morro Group 1999). Based on CDFG fishing block data It is estimated that about 45 percent of the value of all fishery resources taken from offshore waters is landed at Morro Bay, while 20 percent is landed at Port San Luis.

Area businesses that also benefit from commercial fishing include fish processors, restaurants, and businesses that sell ice, bait, food, provisions, fuel, and insurance to fishers (Morro Group 1999). Commercial fishing is part of the region's heritage and further contributes to the local economy by making the area attractive for both residents and visitors.

Fishing operations are highly vulnerable to the weather, and are constrained by the abundance and/or catchability of fisheries resources as well as by quotas and seasonal restrictions set by the California Department of Fish and Game. An analysis of economic information provided by fishermen suggests that fishermen, especially trawlers, operate under narrow profit margins due to relatively high operating expenses in relation to income (Morro Group 1999). This magnifies any effects of disruptions of fishing activity or increases in the cost of fishing.

### 4.12.2 Significance Criteria

A project impact is considered significant to socioeconomics when it:

- Adversely affects the contribution of the local commercial fishing industry to the local economy;

- Induces substantial growth or concentration of population;
- Induces a substantial increase in demand for housing, public services, and utilities that exceeds existing capacity.

For the short term (less than one year) impacts would be significant if:

- Businesses, users, or activity levels would be adversely impacted by more than 10 percent by the construction and installation activities of the cable(s).
- The net fiscal position of any unit of local government is adversely impacted by more than 1 percent of total revenues.

For the long term (over one year) impacts would be significant if:

- Businesses, users, or activity levels would be adversely impacted by more than 5 percent by the presence, normal operation, and necessary maintenance of the cable(s).
- The net fiscal position of any unit of local government is adversely impacted by more than 1 percent of total revenues.

### 4.12.3 Project Impacts

Impacts of two types can occur as a result of implementation of the project: direct and secondary. Direct impacts are associated with: (1) possible revenue losses to fishers as a result of decreased access to fishing grounds or the avoidance of fishing in areas where cables are placed; and (2) potential increases in operating costs resulting from damage and loss of fishing gear associated with the snagging of gear on exposed cable segments.

Secondary impacts are derived from potential "trickle down" effects initiated by direct effects. This might result in changes in employment in non-fishery sectors of the local economy (including recreation) and the fiscal conditions of the harbor authority.

#### *Direct Impacts*

*Cable Installation*

During cable installation, which is expected to have a maximum duration of 5 weeks, commercial fishing vessels are required by the U.S. Submarine Cable Protection Act (USC Title 47 Chapter 2) to avoid the area in the immediate vicinity (less than 1 nautical mile [nm]) of the cable installation vessel and to avoid the location of a buoyed cable undergoing installation by 0.25 nm. Cable installation activities have a short duration, and the location of the restricted area is relatively small and will vary over time. Thus, restrictions on physical access to traditional fishing grounds during cable installation would have temporary and very localized effects on fishing (section 4.7) that could translate into a small reduction in revenue or increased costs for an affected fisher. This type of impact is potentially significant given the narrow profit margins that many fishers operate under (Morro Group 1999). In order to minimize this impact to less than significance, AT&T would, upon approval of the proposed project, participate in the Morro Bay Joint Cable/Fisheries Liaison Committee that has been established by the cable companies and the local fishermen and their representatives. The purpose of the Committee is to discuss and resolve issues relating to telecommunications cables owned and operated by the cable companies, including AT&T, along the California coast adjacent to Morro Bay. AT&T would consult with the committee on the timing and methods of construction and installation of the individual cables, and a Committee fisherman representative may be on board the cable installation vessel to observe cable installation, with the goal of minimizing any negative impacts to the fishing industry. The impact is therefore considered potentially significant but mitigable (Class II).

Cable installation activities will disturb soft bottom habitat and could temporarily affect productivity of the habitat along the cable route that could, in turn, reduce the harvest of commercial fish. The area potentially affected in this manner would comprise an exceedingly small proportion of available fishing grounds and result in negligible changes to the fish harvest and revenues to fishers (section 4.7).

Cable installation will involve a team of engineers and associated workers. It is likely that between 10 and 20 workers (some of whom will come from outside the region) will be engaged in land-based activities at Montaña de Oro State Park. Additionally, the cable-laying vessel will have a crew of about 20 people with some additional persons operating a service vessel which provides ship-to-shore services. These activities will continue for about 5 weeks, during which time expenditures (for personal services and goods and supplies) will be made in the local economy. Expenditures would include food and lodging (typically about $100 per person per day), car rental and other incidentals for non-local workers, as well as dockage fees paid to the Morro Bay Harbor for vessels that temporarily come to shore.

In terms of its immediate effect on local harbor facilities, the AT&T China-U.S. project, represents a temporary use that would result in a small short-term economic benefit due to the payment of dockage fees and expenditures in the harbor area during project installation (Class IV). However, in connection with scoping for the EIR, concerns have been expressed by the Morro Bay Harbor Department over the economic effects of multiple cable projects on commercial fishing, which in turn would affect revenues from fishing and the Harbor's continuing ability to provide services.

*Project Operations, Maintenance, and Abandonment*

Once cables are installed, there are no legal restrictions on fishing in the vicinity, but potential economic impacts on fishers are associated with the possibility of gear entanglement.

There have been reported entanglements of commercial fishing gear with unburied cables in the Morro Bay vicinity, but no incidents involving buried cables. All claims associated with loss and/or damage have been settled as discussed in section 4.7. Trawlers are known to fish over buried cables (personal communication, R. Wargo 1999), and the lack of incidents of gear loss or cable damage on buried cables indicates a very low likelihood of conflicts or economic impacts associated with buried cables. The likelihood of an impact on either the cable or the fisherman increases with the degree to which cables are not buried. Commercial fishing in areas where cables are not buried can be impacted either directly, through gear entanglement, or indirectly, if these areas are avoided because of the perceived risk of gear entanglement, thereby causing fishers to seek out alternative fishing grounds that, in turn, involve higher operating costs and potentially reduced net revenues.

An adverse economic effect on commercial fishing due to gear loss and associated lost catch and fishing time, loss or avoidance of fishing grounds due to the suspected but unknown presence of cables, or increased operating costs required to avoid unburied cables, would be potentially significant but mitigable (Class II) as follows. In order to minimize these negative impacts to the fishing industry, it is important that the fishermen know exactly where the cables – both buried and unburied – have been installed, that they have confidence in the veracity of the cable location data, and that they have adequate communication and navigation equipment to navigate in and around the cables. Measures that would reduce the potential economic consequences to fishermen and enable them to fish in the vicinity of the cables include: consultation with the Morro Bay Joint Cable/Fisheries Liaison Committee on the timing and methods of construction; presence of a Committee fisherman representative during cable installation; provision of "as-built" coordinates in writing, electronically, and on navigation charts to fishermen; conducting ROV inspections to confirm cable burial every 18 to 24 months and providing the resulting videotapes to the Committee for verification; and providing funds to allow fishermen to upgrade their communication and navigation equipment and ensure its adequacy.

To further minimize loss or avoidance of fishing grounds, an effective means to allay concerns about fishing in the vicinity of cables is to ensure that the proposed cables are buried at an adequate depth. As discussed in section 4.7, increasing the project's cable burial depth to 0.9 m wherever feasible, as has been requested by the local fishermen, in combination with surveys at 18- to 24-month intervals to verify that the buried cables remain buried, would provide additional safeguards against the likelihood of entanglement. Finally, when the cables to be installed are taken out of service, they should be removed as necessary so as not to interfere with commercial fishing activities in areas where such cables were previously installed. These measures would mitigate the risks of entanglement to less than significant (Class II).

Finally, in the event that fishing gear does become entangled with submarine cable and must be sacrificed, economic impacts would be minimized by requiring that when a fisherman sacrifices gear in order to avoid injury to an AT&T submarine cable, AT&T will pay 100% of the gear equipment replacement costs, and will pay an additional 50% of those gear replacement costs to compensate the fisherman for loss of catch and fishing opportunity. The full amount of this payment should be available to any fisherman who sacrifices gear in order to avoid injury to an AT&T submarine cable, regardless of whether the fishermen has signed the Fishing Agreement.

A fisherman's concern and potential economic loss that may arise from liability imposed for damaging a cable with fishing gear can be allayed and avoided if AT&T will release any claims that it might have for damage to cables against fishermen that comply with the terms of the applicable Fishing Agreement and the Fishing Vessel Operating Procedures established by the Committee. A 24-hour toll-free telephone "hotline" staffed by AT&T and the other cable companies operating in the area would enable fishermen to receive real-time information about possible entanglements with the undersea cables, thereby giving the master of the vessel timely data that can better inform his actions.

These types of measures, taken together, would render adverse economic effects on the commercial fishing industry less than significant, thereby avoiding any adverse effect on the local economy that may be caused by the proposed projects impacts on the commercial fishing industry (Class II).

Cable repair or abandonment activities would temporarily disrupt commercial fishing similar to what would occur during installation. These short-term, localized impacts would be significant but mitigable through adoption of the same procedures that would apply to cable installation (Class II).

***Secondary Impacts***

*Employment*

A reduction in fishing activity and associated incomes of the persons engaged in the activity caused by having to avoid areas during cable installation and ocean bottom areas where the cables cannot be buried could reduce spending in other sectors of the local economy and, thus, impact employment.

*Harbor Operations and Finances*

If there were adverse economic effects on commercial fishermen, commercial fishing activities and expenditures could ultimately be reduced, as fishermen might leave the area or pursue other businesses. This could demands for moorage and cause a fall in license fees and rent payments made to the harbor, thus reducing total revenues.

*Visitors, Tourism and Recreation*

Use of public parking facilities by project personnel during cable installation could reduce visitor levels. Recreational boaters would need to avoid cable-laying vessels while operating near to shore which, in turn, could reduce activity levels to a nominal extent.

*Secondary Impact Summary*

The magnitude of any adverse secondary impact would be correlated directly with the level of decreased fishing activity resulting from implementation of the project. Implementation of the mitigation measures described in the above “Direct Impacts” discussion would ensure that secondary impacts remain less than significant.

### 4.12.4 Maximum Burial Alternative

The Maximum Burial Alternative would have reduced socioeconomic impacts relative to the proposed project. This is because the much greater extent of cable burial for this alternative reduces the potential for conflicts with commercial fishing. Impacts may still be considered potentially significant but mitigable (Class II), although they are much less likely to occur.

### 4.12.5 Cumulative Impacts

The project would add incrementally to the cumulative effects of several existing and proposed submarine cables on commercial fishing. The project’s proposed cables are two of the ten proposed for installation in the general vicinity of Morro Bay (Figure 18). The project’s contribution to this cumulative impact is therefore significant, but with adoption of mitigation measures described in the "Direct Impacts" discussion in Section 4.12.3 which are designed to minimize any reduction in fishing activity, would be rendered less than significant (Class II).

### 4.12.6 Mitigation Measures

Recognizing that several proposals for new submarine cable projects offshore of Morro Bay have raised concerns over cumulative impacts on fishing and the associated socioeconomic impacts to the local economy, AT&T and other cable companies have worked together with local fishermen and their representatives from Morro Bay and Port San Luis to identify measures that would minimize potential conflicts between fishing and the installation and operation of fiber optic cable projects offshore of Morro Bay in the area of the proposed project. These measures have been incorporated into an Interim Agreement, dated July 22, 1999, which AT&T is committed to finalizing prior to installing the China-U.S. cables (Fishing Agreement). In light of the connection between fishery activity and socioeconomic impacts, implementation of these mitigation measures will avoid an adverse effect on the local economy and render overall socioeconomic impacts (both short-term and long-term effects on businesses and local government) less than significant.

To mitigate potential socioeconomic impacts, the following measures shall be implemented:

- Throughout the life of the project, AT&T will adhere to the noticing procedures that are specified in the project description (section 2.10.7).
- AT&T will participate in and fund the operations of the Morro Bay Joint Cable / Fisheries Liaison Committee. The purpose of the Committee is to discuss and resolve issues relating to telecommunications cables owned and operated by the cable companies, including AT&T, along the California coast adjacent to Morro Bay.
- Where feasible, AT&T cables will be buried to a target depth of three feet (0.9 m) in areas between three miles from shore and 1,000 fathoms (1,800 m) water depth.
- The timing and methods of construction and installation of the individual cables will be determined by AT&T in consultation with the Committee, with the goal of minimizing any negative impacts to the fishing industry.
- A Committee fisherman representative may be on board the cable installation vessel to observe cable installation.
- Following installation of the cables, AT&T will provide cable "as built" coordinates to the fishermen in writing, electronically, and on navigational charts.
- AT&T will conduct burial verification of the cables every 18 to 24 months by Remote Operated Vehicle (ROV) and will provide to the Committee videotapes recording the verification.
- Each licensed fisherman owning and operating vessels engaged in trawl fishing in the area of the proposed cables who signs the Fishing Agreement will receive a payment

from the participating cable companies for upgrading communication and navigation equipment.

- AT&T, either independently or in conjunction with other cable companies, will provide a 24-hour toll-free telephone “hotline” to receive calls from fishermen who believe they have snagged gear on a telecommunications cable.

- In the event that a fisherman sacrifices gear in order to avoid injury to an AT&T submarine cable, AT&T will pay 100% of the gear equipment replacement costs, and will pay an additional 50% of those gear replacement costs to compensate the fisherman for loss of catch and fishing opportunity. The full amount of this payment shall be available to any fisherman who sacrifices gear in order to avoid injury to an AT&T submarine cable, regardless of whether the fishermen has signed the Fishing Agreement.

- AT&T will release any claims that it might have for damage to cables against fishermen that comply with the terms of the applicable Fishing Agreement and the Fishing Vessel Operating Procedures established by the Committee.

- When the cables to be installed are taken out of service, AT&T submit a plan for their removal as necessary so as not to interfere with commercial fishing activities in areas where such cables were previously installed.

## 4.13 OTHER ISSUES

For a number of issue areas, the project's potential impacts are clearly less than significant because they are extremely small in magnitude, localized in occurrence, and/or of temporary duration. In these cases, lengthy treatment of the issue areas in the EIR, beyond what is sufficient to demonstrate that impacts are less than significant (based on accepted significance criteria), is not warranted. The following sections briefly describe project effects on onshore traffic and on public services and utilities.

### 4.13.1 Onshore Traffic

A project impact on onshore traffic would be significant in the event of the following:

- Lane closures or impedance of traffic flow during morning and evening peak hours on roadways currently at a Level of Service (LOS) D or worse;
- Permanent damage to traffic control systems such as striping, signing or traffic lights.

During 1-2 weeks of shore-end activities, between 10 and 20 workers associated with the project would travel along Pecho Valley Road, most likely via Los Osos Valley Road, to and from the Sandspit Parking Lot on Sandspit Road. For comparison, Los Osos Valley Road supports many thousands of average daily trips (ADTs), Pecho Valley Road approaching Montaña de Oro State Park supports 1,100 to 2,500 ADTs, and Sandspit Road supports 200 ADTs (Morro Group 1999). Given the limited duration and small volume of traffic associated with project activities, potential traffic impacts are clearly below the significance criteria.

### 4.13.2 Public Services and Utilities

Use of State Parks' property has been previously permitted and all relevant conditions of approval will be followed. The project has no foreseeable effect on other governmental services, including areas of fire, police protection, schools, and roads. The project requires no new utilities or service systems and would not increase demands on existing public services. No impacts on power, natural gas, communications systems, water, sewer, storm drainage, or solid waste will occur.

A project impact is considered significant to utilities when it creates

- Disruption of utility services; or
- Removal or rerouting of existing utility lines.

The project would have no impact on utility services or on existing utility lines.

# 5.0 COMPARISON OF ALTERNATIVES AND OTHER CONSIDERATIONS REQUIRED BY CEQA

## 5.1 COMPARISON OF ALTERNATIVES

### 5.1.1 Impacts and Mitigation Measures Applicable to Either Project Alternative

The proposed project has several significant but mitigable impacts. For air quality, applicant-proposed mitigation is the same as was implemented for the similar installation of the TPC-5 cables to mitigate short-term emissions in excess of APCD standards. For marine cultural resources, potential impacts are to be mitigated by avoidance, based on the review of detailed side-scan sonar and magnetometer data by a marine archaeologist to confirm the absence of potential resources from cable routes, prior to installation activities. The proposed project may contribute to a potentially significant cumulative impact of submarine cable projects in the Morro Bay area on commercial fishing. Several measures developed through negotiation between cable companies and the fishing community are identified to mitigate this impact. Finally, to avoid short-term (1-2 weeks) disruption of recreational beach access at the Sandspit Parking Lot, AT&T would coordinate with California Department of Parks and Recreation (CDPR) to ensure that adequate parking, restrooms, and pathways to the beach are maintained. All of the foregoing impacts and mitigation measures would apply to either the proposed project or Maximum Burial Alternative.

### 5.1.2 Proposed Project Versus Alternative Landing Sites

As more fully explained below, the Estero Marine Terminal landing site offers the potential for full burial of the proposed cables in the seafloor sediments, and for this reason, is preferable to the proposed cable route alignments which cross some rocky substrate. However, this landing site offers no clear advantage over the cable route alignments presented in the maximum burial alternative, and raises the prospect of onshore resource impacts that are not associated with the proposed landing site. Landing the proposed cables at the marine terminal would require the installation of over 20 miles (32 km) of overland conduit to connect with AT&T's existing cable station in San Luis Obispo. Conversely, landing the proposed cables at the proposed landing site in the Sandspit parking lot in the Montaña de Oro State Park would require no new onshore construction because the cables would connect directly into existing overland facilities.

The other alternative landing sites discussed in Chapter 3 do not offer any clear advantages that would outweigh the negative and potentially significant impacts associated with requiring construction of a new landing site.

*Estero Marine Terminal*

Chevron's abandoned Estero Marine Terminal is located on Highway 1 about 3 miles (5 km) north of Morro Bay. Until recently, crude oil from onshore fields in Monterey, San Luis

Obispo, and Kern counties was transported to the facility by pipeline, stored, then pumped through loading lines to tankers at offshore moorings, for ocean transportation to refineries. Tankers also offloaded light “cutter stock” oil at the terminal, for transport via pipeline to interior oil fields where it was used as a diluent for heavy crude oil from the San Ardo field. Construction of the All-American Pipeline and Pacific Pipeline projects eliminated the need for oil transportation to and from the marine terminal. As a result, Chevron applied for and has received CSLC approval of a Lease Termination Agreement that provides for the removal and/or abandonment in place of oil handling facilities, together with a new lease that allows the continued maintenance of three submerged onshore-to-offshore pipelines in non-operational status while they are evaluated for possible future use (CSLC 1999a,b). These three pipelines all begin on the 2,200-acre (900 hectare) marine terminal site and extend offshore about 0.5 mile (800 m) to an approximate 45-foot (15-m) water depth.

Currently, Chevron has applied to San Luis Obispo County for a permit to convert the terminal to a cable landing facility and use the offshore pipelines as conduits for fiber optic cables. If approved, the site may be made available as a consolidated landing point for future cable projects. However, as of the date of the publication of this document, the County has not accepted Chevron’s application as “complete,” and will not be in a position to pass on the merits of Chevron’s proposal until a full CEQA review has been completed. Assuming approval by the County of Chevron’s pending conversion permit, use of these pipelines to land fiber optic cables would require, at a minimum, cleaning, inspection, construction of a shore end beach manhole to land the cables, and construction of onshore conduit facilities to carry the fiber optic cable or cables to their ultimate cable station destination. The following discussion addresses how impacts on various resources would likely differ between this alternative landing site and the project’s proposed landing at Montaña de Oro.

If the China-U.S. cables were to be landed at the abandoned Estero Marine Terminal, new overland conduit would be required to carry the fiber optic cables for approximately 20 miles (32 km) from the beach landing to AT&T’s existing cable station in San Luis Obispo. Installation would require a combination of trenching, boring and possibly attachment to existing bridges. The onshore cable alignment route could follow existing public road right-of-ways (with approval from the County and, where appropriate, the California Department of Transportation), although some overland construction work may be required in the Chevron terminal facility itself. Impacts associated with this overland construction work are expected to be mostly temporal, including temporary disruptions to public road traffic during conduit installation along the public road right-of-way. Erosion and sediment control measures would be required, as would Streambed Alteration Agreements from the Department of Fish and Game and a Section 404 permit from the U.S. Army Corps of Engineers, incorporating appropriate mitigation, where the conduit would cross streams on its way to AT&T’s cable station in San Luis Obispo. Archaeological sites have been recorded in the vicinity of the marine terminal, including several large prehistoric habitation sites areas of significant archaeological research potential, and a potential for buried remains identified by reference to historic maps (CSLC 1999b). Trenching and boring required for installation of overland conduit originating in the marine terminal and terminating at AT&T's existing cable station would have to avoid or minimize impacts to the known and potential cultural resource sites to the maximum extent practicable.

Overall, impacts would be greater to the extent, if any, that the required conduit installation would follow an overland route in some areas (as opposed to a public roadway route), but for purposes of this analysis, it is assumed that these additional impacts (mostly biological) would be mitigated to less than significance.

No new onshore construction would be required for the proposed cable landings at Montaña de Oro. The proposed China-U.S. cables would be pulled into the remaining empty bore pipe built by AT&T for this purpose and spliced into existing overland conduit in the beach manhole located in the Sandspit parking lot in the Montaña de Oro State Park. There would be a temporary displacement (7 to 10 days) of public parking spots in the Sandspit parking lot while the cables are winched through the remaining bore pipe. This temporary parking lot disruption would have to be mitigated in consultation with the State Park. Unlike the onshore conduit installation required by use of the marine terminal, there would be no other onshore impacts (temporal or long term) associated with the use of the existing bore pipe and conduit facilities in the Sandspit parking lot.

Proceeding offshore, the seafloor conditions encountered by cables that would be landed at the Estero Marine Terminal are uncertain as comprehensive survey data across the continental shelf at this location are not available. The Global West project proposes two cables at this location, and the corresponding DEIR (CSLC 1999c) indicates some high- and low-relief rocky substrate, but mostly soft-bottom habitat along that project's proposed cable routes into the terminal area from 6 nm (11 km) offshore.

However, assuming for this analysis that the limited high- and low-relief rocky substrate in the general offshore vicinity of the marine terminal can be avoided, thereby achieving burial of the cables, impacts to marine and commercial fishery resources to the 6,000-foot (1,000-fathom) depth contour would be the same as for the maximal burial cable alternative alignment described herein at section 3.2.2. Both alternatives would achieve burial, thereby avoiding conflicts with marine uses, especially the commercial fish trawlers operating seaward of the 3 nm (5 km) limit.

By comparison to the project's proposed alignments, the offshore portion of the marine terminal alternative is superior (assuming full burial) because the proposed alignments cross significant lengths of rocky bottom substrate, both within and outside of the 3 nm limit.

The foregoing indicates that the Estero Marine Terminal may provide a viable cable landing point for future cable projects. From the standpoint of seafloor conditions and cable burial, it appears likely that cable routes that are environmentally preferable to AT&T's proposed cable alignments could be developed for this alternative. However, the Estero Marine Terminal does not provide a clear advantage in this respect over the maximum burial alternative alignment (described in section 3.2.2) that is proposed to land in the existing bore pipe and existing conduit facilities at Montaña de Oro. Use of the marine terminal site (if ever approved by the County) would require the new construction of approximately 20 miles (32 km) of new overland conduit to connect to AT&T's existing cable station and would have corresponding impacts on onshore resources. In contrast, landing either the proposed routes or the maximum burial alternative at the Sandspit parking lot would not require new onshore construction and would avoid even temporal impacts.

### 5.1.3 Proposed Project Versus Alternative Cable Alignments

***E1 in the Wedge Alternative***

The proposed cable routes avoid the larger rock structures (pinnacles) detected in seafloor surveys. An alternative (the "E1 in the Wedge Alternative") that reduces the spread of cables off of Morro Bay by realigning segment E1 to the south, closer to the S7 segment, results in greater overlap of high-relief rocky substrate and potential pinnacles, and is objectionable for that reason. Although the impact is less than significant, it is preferable to avoid cable placement in rocky areas for reasons of cable protection, to minimize potential impacts on rock structures and marine biota in these areas--which are generally more productive and support a greater diversity of marine life than soft-bottom or low-relief habitats; and to lessen potential conflicts with fishing due to the greater likelihood of fishing gear entanglement on cables that are not buried. For these reasons, the E1 in the Wedge Alternative does not merit further consideration.

***Maximum Burial Alternative***

The Maximum Burial Alternative avoids nearly all areas of rocky seafloor and is estimated to allow burial along greater than 99 percent of both cable routes, versus 95-96 percent along the proposed routes. As a result, this alternative substantially reduces any potential physical damage to rock structures and the organisms that inhabit them; and it minimizes potential conflicts with commercial and recreational fishing that arise from the risk of gear entanglement and damage to cables where the latter cannot be buried. In other resource areas, the Maximum Burial Alternative has impacts that are equivalent to those of the proposed project, and the same mitigation measures would apply.

It is noteworthy that the Maximum Burial Alternative routes for China-U.S. have been developed in coordination with alternative cable routing for other projects (AT&T's Japan-U.S., MCI/WorldCom, and Southern Cross). As a result, the cables for all these projects can be re-routed to achieve maximum burial along all routes. This substantially reduces potential cumulative impacts for marine biology and commercial fishing as well.

### 5.1.4 Proposed Project Versus No Project Alternative

The No Project Alternative would avoid environmental impacts that are non-significant, including the indirect effect on commercial fishing, which would be mitigated. Failure to complete the E1 and S7 segments of the China-US Cable System would prevent the attainment of project objectives to improve modern telecommunications access to countries of the Pacific Rim.

### 5.1.5 Environmentally Superior Alternative

Where the No Project Alternative is the Environmentally Superior Alternative, CEQA requires the identification of an Environmentally Superior Alternative other than No Project. As a means of achieving project objectives while minimizing environmental impacts, the Maximum Burial Alternative, landing in the existing bore pipe and existing conduit facilities at the Sandspit parking lot location, is environmentally superior to the proposed project and to the other project alternatives. This is because potential impacts on marine biology and commercial and recreational fishing, at both project-specific and cumulative levels, as well as risks of damage to cables, are substantially reduced where cables can be buried to a sufficient depth to avoid conflicts.

## 5.2 OTHER CONSIDERATIONS REQUIRED BY CEQA

### 5.2.1 Unavoidable Significant Adverse Effects

Neither the proposed project nor any of the alternatives would have unavoidable significant adverse effects.

### 5.2.2 Relationship Between Short-Term Use and Long-Term Productivity

The proposed project and alternatives would not adversely affect the long-term productivity of the marine environment. There are no indications of a long-term adverse impact on marine organisms in areas of cable placement.

### 5.2.3 Irreversible and Irretrievable Commitment of Resources

The proposed project does not make an irreversible or irretrievable commitment of resources.

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