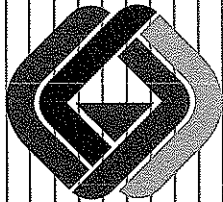


GEOTECHNICAL INVESTIGATION

CLASS I BIKE PATH IMPROVEMENTS
MISSOURI FLAT ROAD TO FORNI ROAD
EL DORADO COUNTY, CALIFORNIA



GEOCON

CONSULTANTS, INC

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED FOR

CUNNINGHAM ENGINEERING CORPORATION
DAVIS, CALIFORNIA

GEOCON PROJECT NO. S9275-06-01

DECEMBER 2007



Project No. S9275-06-01

December 19, 2007

Steve Greenfield, PE, GE
Associate Principal
Cunningham Engineering Corporation
2940 Spafford Street, Suite 200
Davis, California 95618

Subject: CLASS I BIKE PATH IMPROVEMENTS
MISSOURI FLAT ROAD TO FORNI ROAD
EL DORADO COUNTY, CALIFORNIA
GEOTECHNICAL INVESTIGATION

Dear Mr. Greenfield:

In accordance with your request, we have prepared this report presenting our geotechnical recommendations for the proposed bike path project located in El Dorado County, California. Approximate site location is depicted on the Vicinity Map, Figure 1.

SITE AND PROJECT DESCRIPTION

The project alignment is located within the Sacramento-Placerville Transportation Corridor (SPTC) and includes improvements to the Weber Creek Trestle and the construction of a Class I bike path within the SPTC, between Missouri Flat Road and Forni Road. The length of the proposed bike path will be approximately 2,700 feet within the City of Placerville jurisdiction and 11,500 feet within the County of El Dorado jurisdiction, or a total of 14,200 feet or 2.7 miles.

The alignment was formerly a Southern Pacific Railway Corporation corridor. Existing grade is mostly an approximate one percent decline from Missouri Flat Road to Station 60+50, except for a bypass over a hill between Station 27+50 and 37+50 with an incline and decline of approximately eight percent. From Station 60+50 to Forni Road existing grade is an approximate two percent incline. Proposed bike path grade will follow existing grade relatively close, except for minor fills (up to 4 feet thick) at each end of the hill bypass, as well as at the Weber Creek Trestle abutments where existing grade has been lowered presumably to prevent vehicular access.

PURPOSE AND SCOPE

The purpose of our geotechnical investigation was to evaluate subgrade soil conditions along the alignment and provide recommendations for the proposed bike path and trestle improvements. To prepare this report we:

- Reviewed aerial photographs, geologic maps and other geological and geotechnical literature to aid in evaluating geologic conditions at the site.
- Performed a site reconnaissance and notified subscribing utility companies via Underground Service Alert (USA) a minimum of 48 hours (as required by law) prior to performing exploratory excavations at the site.

- Performed twenty exploratory trenches (T1 through T20) using a John Deere 310E rubber-tire backhoe. Trenches were excavated to depths of approximately 3 to 4 feet. Approximate trench locations are shown on the Site Plans, Figures 2-1 through 2-9.
- Obtained representative bulk soil and rock samples from the exploratory trenches.
- Logged the trenches in accordance with the Unified Soil Classification System (USCS).
- Backfilled and bucket-tamped trenches upon completion with excavated soil.
- Performed laboratory tests to determine pertinent geotechnical parameters. Laboratory test results are included as an attachment to this report.
- Prepared this report summarizing our findings, conclusions and recommendations regarding the geotechnical aspects of currently proposed improvements at the site.

SOIL AND GEOLOGIC CONDITIONS

Soil and geologic conditions at the site generally consist of fill underlain by residual soil and bedrock. Material descriptions provided below include the USCS symbol where applicable.

We encountered fill material in the majority of our trenches ranging in thickness from a few inches to 4 feet, the maximum depth explored. The fill typically consisted of loose to medium dense silty sand (SM) with gravel content generally decreasing with depth. The fill was likely generated onsite and placed to construct the railroad alignment. The upper gravelly portion of the fill (former railroad ballast) varied in thickness where present. The approximate lateral extent and thickness of existing gravel material is shown on Figures 2-1 through 2-9.

A few of our trenches encountered residual soil below the fill generally consisting of medium dense to dense silty sand (SM) and silt (ML). Below the fill and residual soil, several of our trenches encountered weathered bedrock ranging from very dense siltstone and sandstone, to volcanic deposits.

Subsurface conditions described in the previous paragraphs are generalized. Therefore, we advise the reader to consult the exploratory trench logs attached. The logs include the soil and rock type, color, moisture, consistency, and USCS of the materials encountered at specific locations and elevations.

GROUNDWATER AND SEEPAGE

We did not observe groundwater or seepage in our exploratory trenches performed on October 10, 2007. Where shallow bedrock is present, perched groundwater will likely develop following periods of heavy rainfall.

It should be noted that fluctuations in the level of groundwater may occur due to variations in precipitation, temperature, and other factors. Depth to groundwater can also vary significantly due to localized pumping, irrigation practices, and seasonal fluctuations.

CONCLUSIONS AND RECOMMENDATIONS

General

No soil or geologic conditions were encountered during our investigation that would preclude the proposed bike path project as planned, provided the recommendations of this report are incorporated into design and construction. We should review the plans and specifications prior to construction, as

well as provide testing and observation services during construction, to confirm that our recommendations are properly followed.

Pavement Section Recommendations

We understand the bike path pavement section currently planned for this project consists of 3 inches of asphalt concrete over 6 inches of Caltrans Class 2 aggregate base. We evaluated the potential for reuse of the existing surficial gravel materials located along the project alignment as aggregate base. Two surficial bulk soil samples were collected from each end of the alignment and tested for grain size distribution in comparison with Caltrans Class 2 aggregate base ¾-inch operating range requirements. The results of our testing, as shown on Figure B1, indicate the samples were predominantly within the operating range requirements, except for some gravel up to 3 inches in size. Based on our testing and site observations, the existing surficial gravel materials may be used as aggregate base for this project provided the recommendations of this report are incorporated. Figures 2-1 through 2-9 depict the approximate lateral extent and thickness of existing gravel materials along the project alignment. Areas where the existing gravel thickness is greater than 6 inches may be used as borrow areas to provide aggregate base for areas where there is no existing gravel, or the thickness of existing gravel is less than 6 inches.

Excavation Characteristics

Excavations within existing fill and residual materials will require light to moderate effort with conventional grading equipment. Where bedrock is encountered, more difficult excavation characteristics will be experienced; however, we do not anticipate that blasting will be required.

Materials for Fill

Excavated fill, residual soil and weathered bedrock is suitable for reuse as engineered fill provided they are evaluated and selectively placed during grading in accordance with the following recommendations:

- Topsoil, deleterious material, and organic material should not be incorporated into engineered fill.
- In general, rock or concretions larger than 6 inches should not be incorporated into engineered fill.
- Rock or concretions greater than 6 inches may be selectively incorporated into engineered fill only if approved by a Geocon representative. Nesting of rock should be avoided.

Import fill soil (if required) should be primarily granular with a “low” expansion potential (Expansion Index less than 50), a Plasticity Index less than 15, be free of organic material and construction debris, and not contain rock larger than 6 inches in greatest dimension.

Proposed import materials should be sampled, tested, and approved by Geocon prior to transportation to the site.

Permanent Cut and Fill Slopes

Permanent cut and fill slopes should be constructed no steeper than 2:1 (horizontal to vertical). To mitigate potential erosion, slopes should be vegetated as soon as possible and surface drainage should be directed away from the tops of slopes.

Grading

Site preparation should begin with removal of deleterious material and vegetation within proposed development areas. Roots larger than 1 inch in diameter and topsoil containing greater than 3 percent organics by weight should be completely removed. Smaller roots and some topsoil may be left in-place as conditions warrant in the field during construction as determined by a representative of Geocon. Based on our current site observations, minimal site stripping is anticipated.

New bike path areas that have at least 6 inches of existing aggregate base that will remain based on proposed grades should be uniformly moisture-conditioned at or near optimum moisture content and compacted to at least 95% relative compaction in the upper 6 inches based on American Society for Testing and Materials (ASTM) Test Method D1557.

New bike path areas that have some existing aggregate base, but less than 6 inches, should be uniformly moisture-conditioned at or near optimum moisture content and compacted prior to receiving additional aggregate base. The full section of aggregate base should then be uniformly moisture-conditioned at or near optimum moisture content and compacted to at least 95% relative compaction.

New bike path areas that do not have existing aggregate base, or require cut to reach subgrade, should be uniformly moisture-conditioned at or near optimum moisture content and compacted to at least 90% relative compaction in the upper 6 inches of subgrade. Depending on the soil moisture content at the time of construction, scarification may be required in order to achieve suitable moisture content in the upper 6 inches. The full section of aggregate base should then be placed, uniformly moisture-conditioned at or near optimum moisture content and compacted to at least 95% relative compaction.

If fill will be placed on slopes steeper than 5H:1V (horizontal:vertical), we recommend that horizontal benches angled slightly into the slope be cut into competent formational material on the slopes prior to placing fill. Benches should roughly parallel slope contours and extend at least 3 feet into competent formational material. In addition, a keyway should be cut into the slope at the base of the fill. In general, keyways should be at least 10 feet wide and extend at least 3 feet into competent formational material. Subdrains may be required along the back edges of the keyways and/or benches if there is a potential for adverse seepage. Bench and keyway construction criteria may need revision during construction based on actual conditions encountered in the field.

If engineered fill material is required to obtain subgrade elevation, it may consist of onsite native sources and should be compacted in horizontal lifts not exceeding 8 inches (loose thickness) and brought to final subgrade elevations. Each lift should be uniformly moisture-conditioned at or near optimum moisture content and compacted to at least 90% relative compaction. Fill slopes should be overbuilt and cut back to finished grade such that soils are uniformly compacted to at least 90% relative compaction to the face of the completed slope.

Compaction operations should be performed in the presence of our representative to evaluate the performance of materials under compactive load. Final pavement subgrade should be finished to a smooth, unyielding surface. Asphalt concrete should be in conformance with Section 39 of the latest Caltrans Standard Specifications.

Weber Creek Trestle Seismic Design Parameters

Active Faults and Peak Bedrock Acceleration

As requested by the project structural engineer (Quincy Engineering), we developed seismic design parameters in accordance with *Caltrans Seismic Design Criteria* (Version 1.4, June 2006). We

identified active faults near the site in accordance with the *Caltrans California Seismic Hazard Map* (1996) and *Technical Report to Accompany the Caltrans California Seismic Hazard Map* (1996). Based on the map and accompanying report, the Big Bend-Wolf Creek-Bear Mountains East (BWM) Fault is located approximately 3.5 miles (5.7 kilometers) west of the site. In addition, the Foresthill-Melones (FHM) Fault is located approximately 3.5 miles (5.7 kilometers) east of the site; however, per Caltrans, the FHM Fault is no longer considered for seismic design¹. Seismic design parameters based on the BWM Fault as the controlling fault are summarized in Table 1.

**TABLE 1
SEISMIC DESIGN PARAMETERS**

Parameter	Value
Controlling Fault	BWM
Style of Fault	Normal
Distance from Fault to Site	3.5 miles (5.7 kilometers)
Maximum Credible Earthquake (MCE) Moment Magnitude (M_w)	6.5
Peak Bedrock Acceleration (PBA)	0.5g
Soil Profile Type	C

Acceleration Response Spectra (ARS) Curves

Based on the MCE moment magnitude and PBA, the standard ARS curve for Soil Profile Type C, $M_w=6.25\pm 0.25$, and a PBA of 0.5g is considered appropriate for seismic design (Caltrans *Seismic Design Criteria*, Version 1.4, June 2006, Figure B.4, *Elastic Response Spectra Curves (5% damping) for Soil Profile Type C ($M=6.5\pm 0.25$)*). However, since the project site is located within 10 miles (15 kilometers) of the BWM Fault, the spectral acceleration on the standard ARS curve should be magnified as follows, depending on the fundamental period (T) of vibration of the structure:

- Spectral acceleration magnification is not required for $T \leq 0.5$ seconds.
- Increase the spectral accelerations by 20% for $T \geq 1.0$ seconds.
- Spectral acceleration magnification for $0.5 \leq T \leq 1.0$ can be determined by linear interpolation.

LIMITATIONS

The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, we should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous materials or environmental contamination was not part of our scope of services.

Changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. Additionally, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated partially or wholly by

¹ Errata posted on Caltrans Office of Earthquake Engineering website:
http://www.dot.ca.gov/hq/esc/earthquake_engineering/Seismology/seismicmap.html

changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices used in the site area at this time. No warranty is provided, either express or implied.

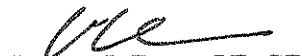
Please contact us if you have any questions regarding this report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.



Robert G. Nixon, PE, GE
Senior Engineer

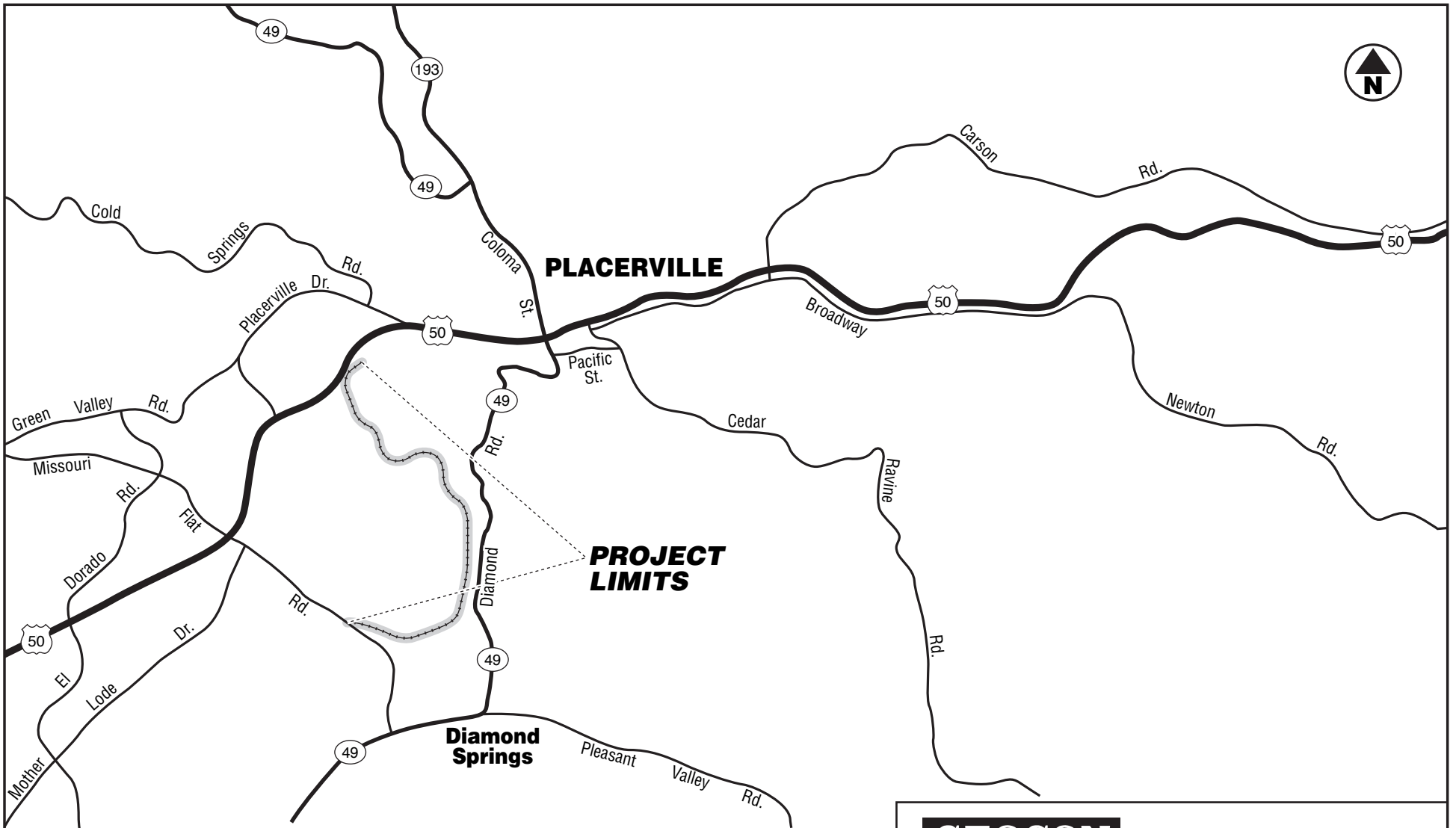


Jeremy J. Zorne, PE, GE
Senior Project Engineer

RGN:JJZ:jaj

- (6) Addressee (bound)
- (1) Addressee (electronic – CD)

Attachments: Figure 1, Vicinity Map
Figures 2-1 through 2-9, Site Plans
Figures A1 through A20, Exploratory Trench Logs
Figure B1, Grain Size Distribution



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El Dorado Trail

El Dorado County,
 California

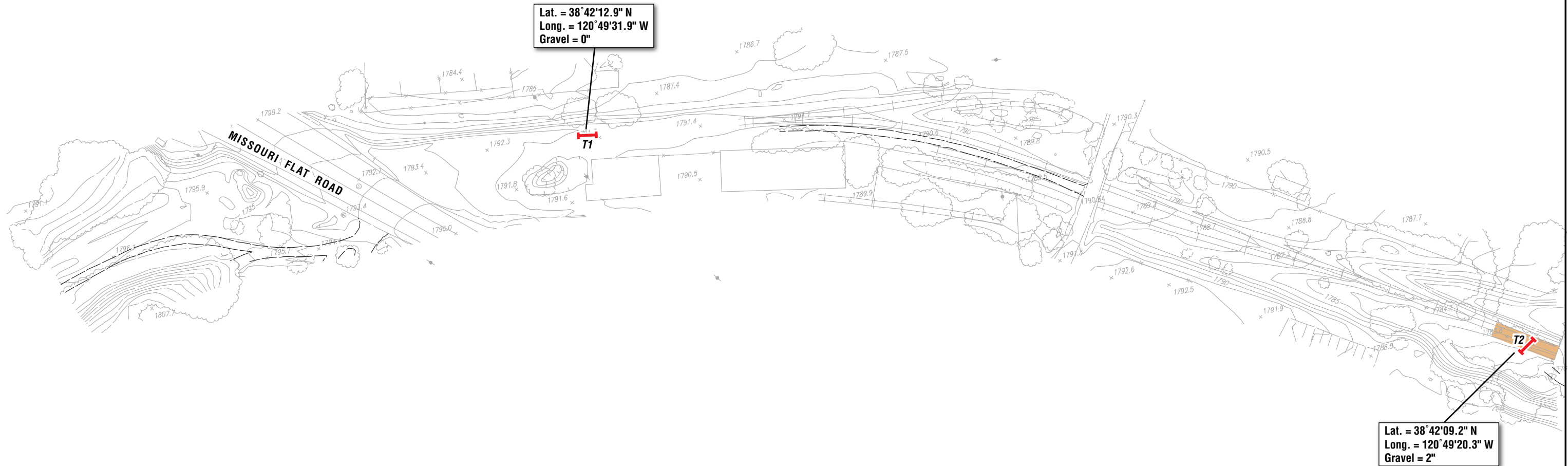
VICINITY MAP

S9275-06-01



November 2007

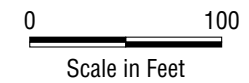
Figure 1





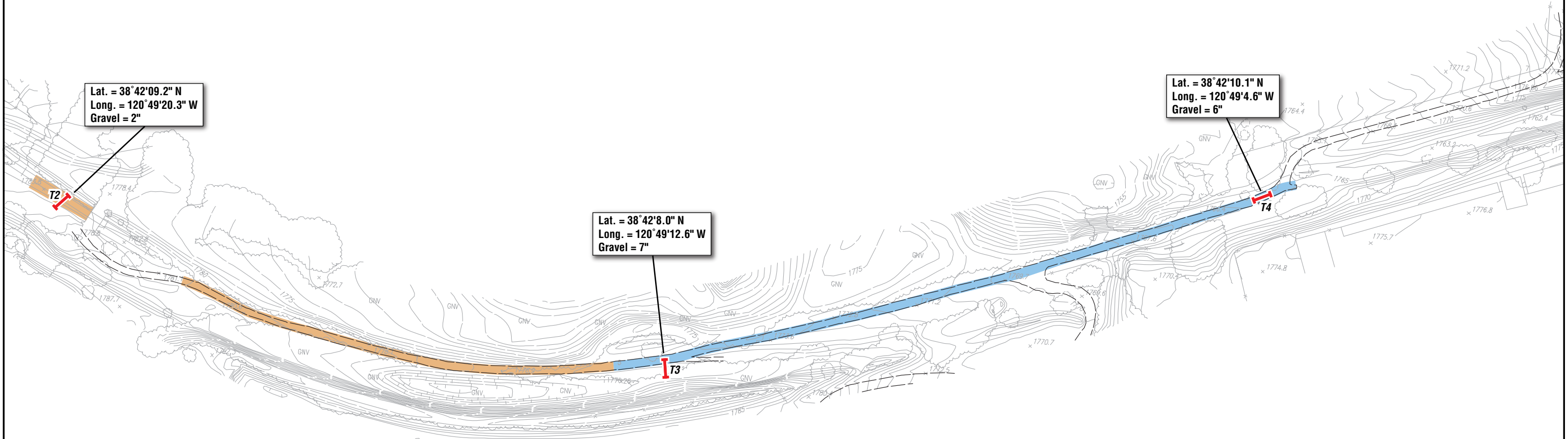
LEGEND:

-  Approximate Exploratory Trench Location
-  < 6" Gravel



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El Dorado Trail El Dorado County, California		
SITE PLAN		
S9275-06-01	November 2007	Figure 2-1





Lat. = 38°42'09.2" N
 Long. = 120°49'20.3" W
 Gravel = 2"

Lat. = 38°42'10.1" N
 Long. = 120°49'4.6" W
 Gravel = 6"

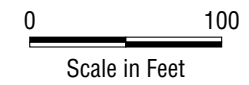
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 Long. = 120°49'12.6" W
 Gravel = 7"

LEGEND:

T1 Approximate Exploratory Trench Location

< 6" Gravel

≥ 6" Gravel



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El Dorado Trail

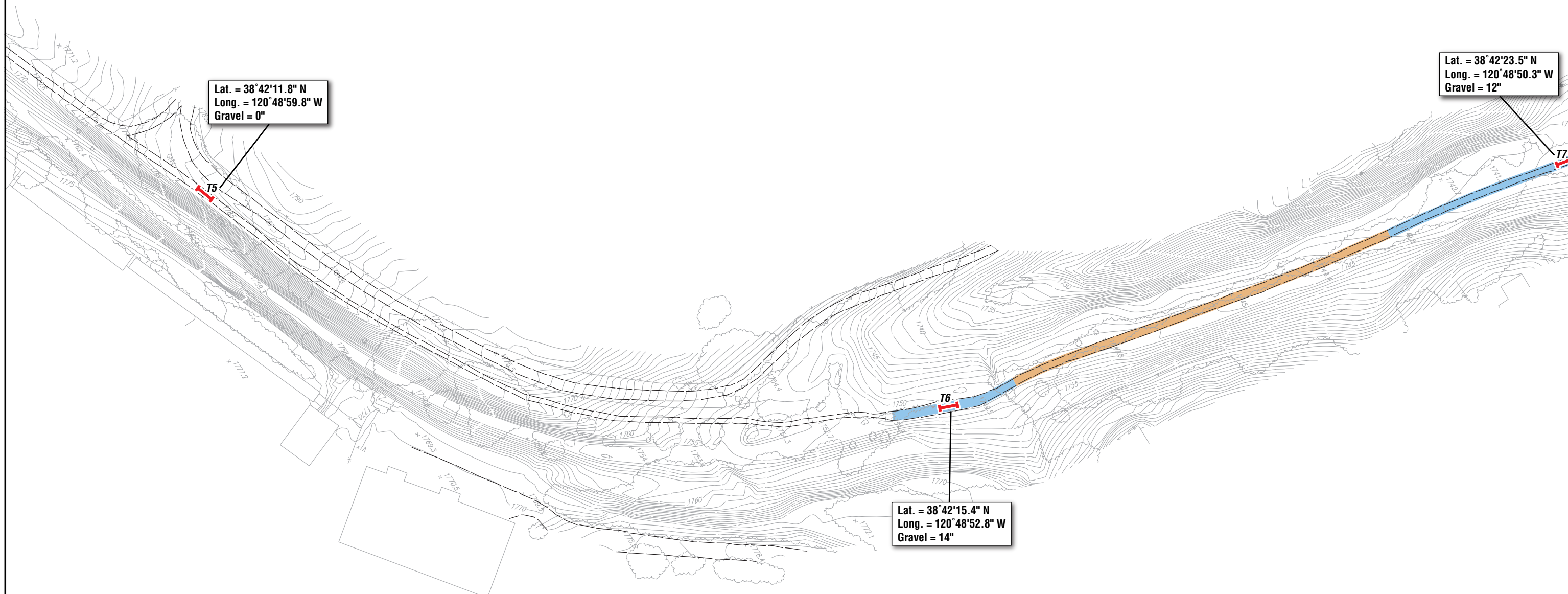
El Dorado County,
 California

SITE PLAN



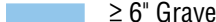
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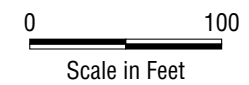
November 2007

Figure 2-2



LEGEND:

-  Approximate Exploratory Trench Location
-  < 6" Gravel
-  ≥ 6" Gravel



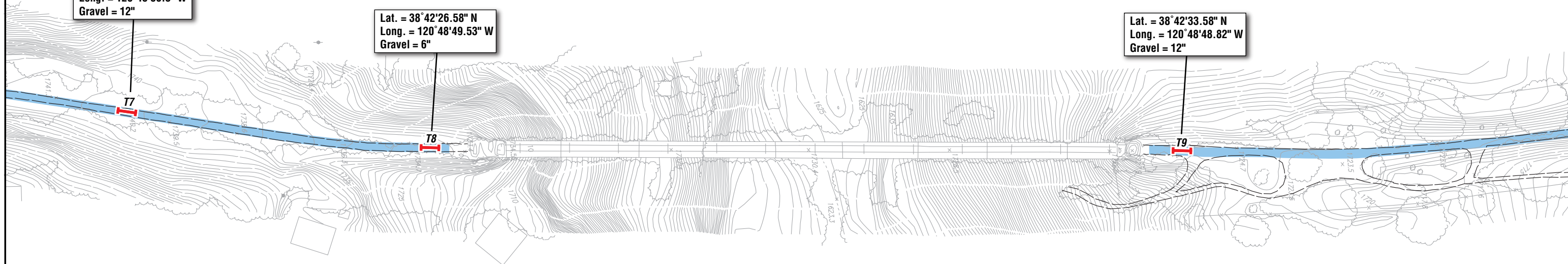
GEOCON CONSULTANTS, INC. <small>3160 GOLD VALLEY DR. - SUITE 800 - RANCHO CORDOVA, CA. 95742 PHONE 916 852-9118 - FAX 916 852-9132</small>			
El Dorado Trail			
El Dorado County, California			
SITE PLAN			
S9275-06-01	November 2007	Figure 2-3	



Lat. = 38° 42' 23.5" N
Long. = 120° 48' 50.3" W
Gravel = 12"


Lat. = 38° 42' 26.58" N
Long. = 120° 48' 49.53" W
Gravel = 6"

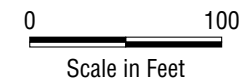
Lat. = 38° 42' 33.58" N
Long. = 120° 48' 48.82" W
Gravel = 12"



LEGEND:

 Approximate Exploratory Trench Location

 ≥ 6" Gravel



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El Dorado Trail

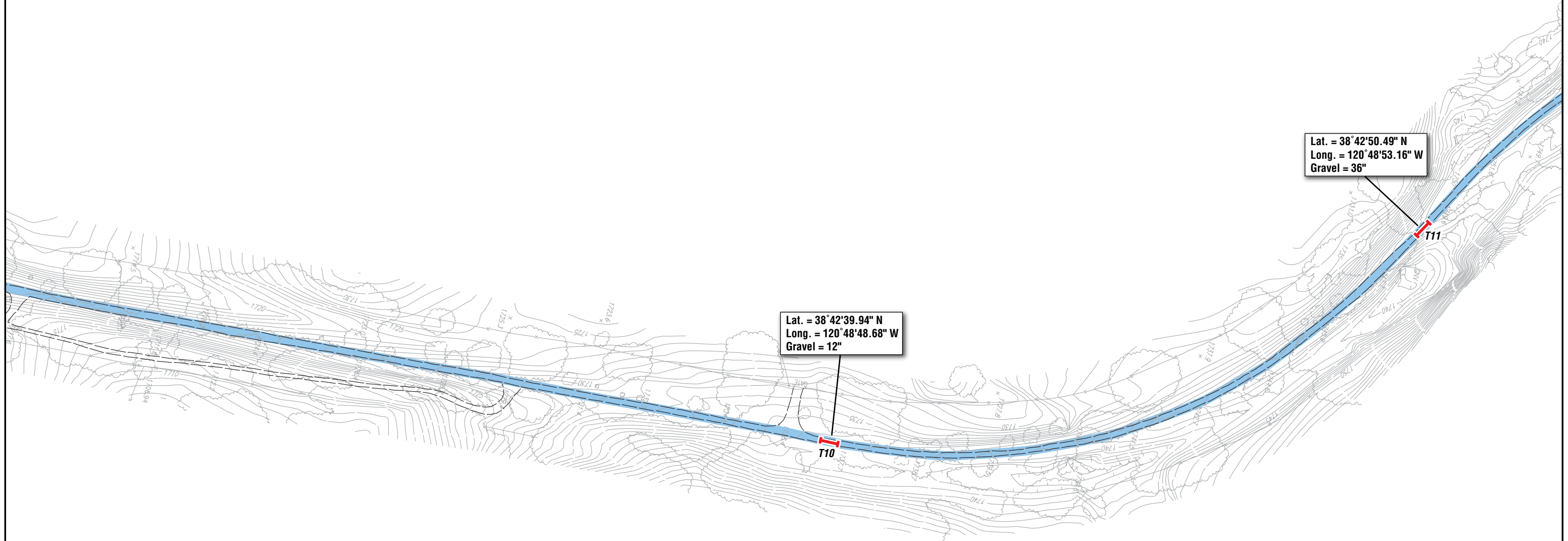
El Dorado County,
California

SITE PLAN



S9275-06-01

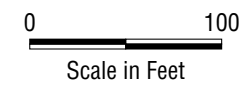
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Figure 2-4



LEGEND:

-  Approximate Exploratory Trench Location
-  ≥ 6" Gravel



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El Dorado County, California		
SITE PLAN		
S9275-06-01	November 2007	Figure 2-5





Lat. = 38°42'52.84" N
 Long. = 120°48'56.41" W
 Gravel = 6"

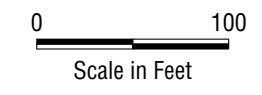
T12

Lat. = 38°43'2.36" N
 Long. = 120°48'59.07" W
 Gravel = 18"

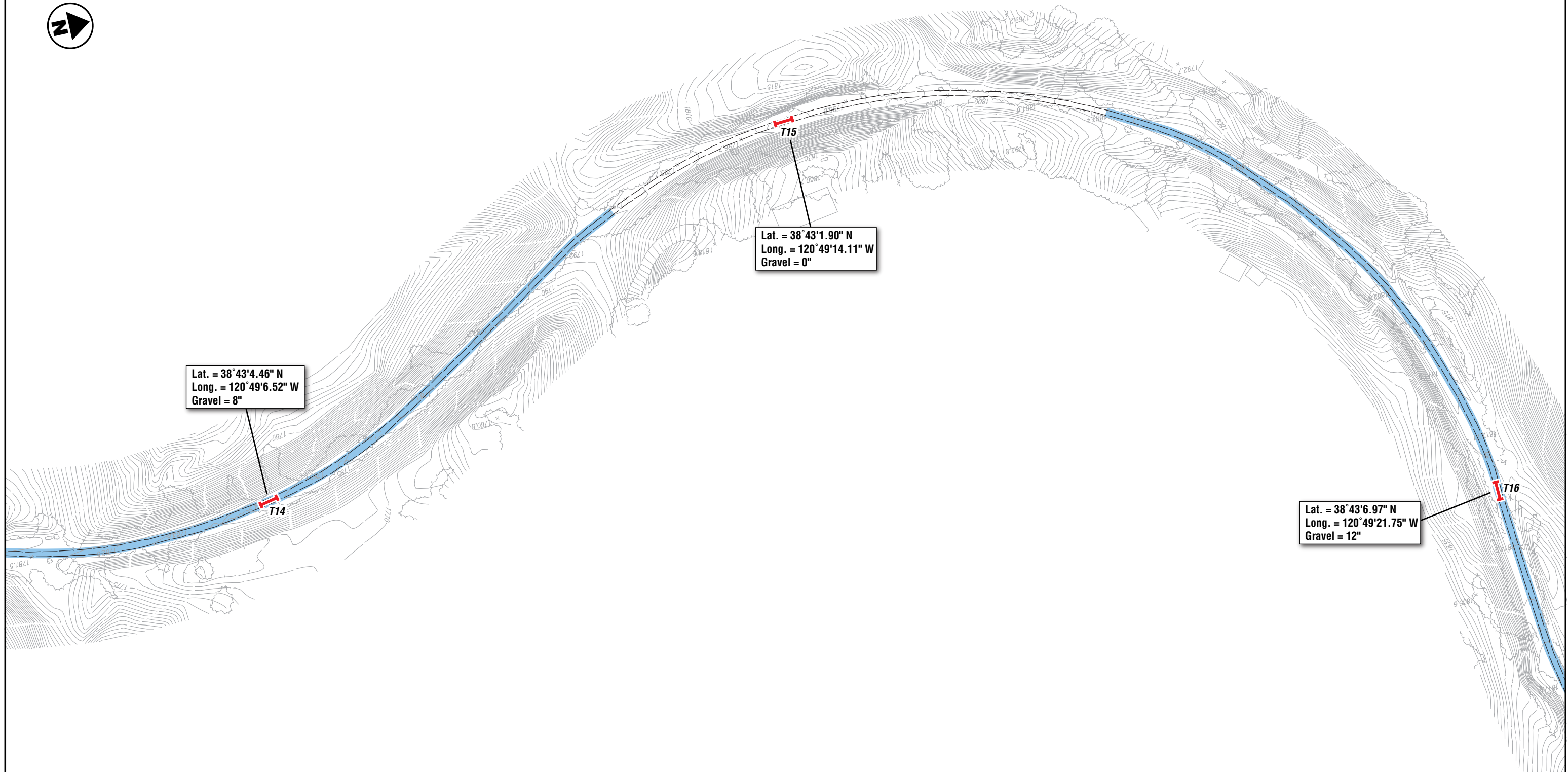
T13

LEGEND:

-  Approximate Exploratory Trench Location
-  ≥ 6" Gravel



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<p>El Dorado Trail</p>		
<p>El Dorado County, California</p>		
<p>SITE PLAN</p>		
S9275-06-01	November 2007	Figure 2-6




Lat. = 38°43'4.46" N
Long. = 120°49'6.52" W
Gravel = 8"

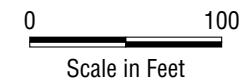
Lat. = 38°43'1.90" N
Long. = 120°49'14.11" W
Gravel = 0"

Lat. = 38°43'6.97" N
Long. = 120°49'21.75" W
Gravel = 12"

LEGEND:

 Approximate Exploratory Trench Location

 ≥ 6" Gravel



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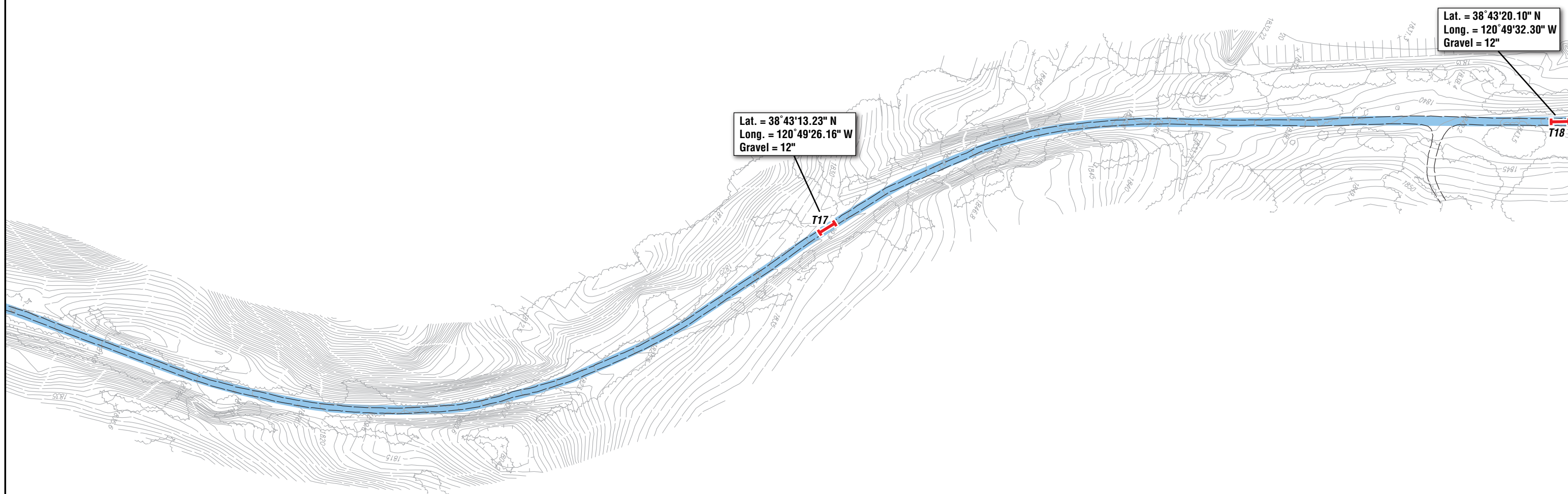
El Dorado County,
California

SITE PLAN



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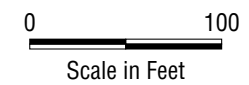
November 2007

Figure 2-7

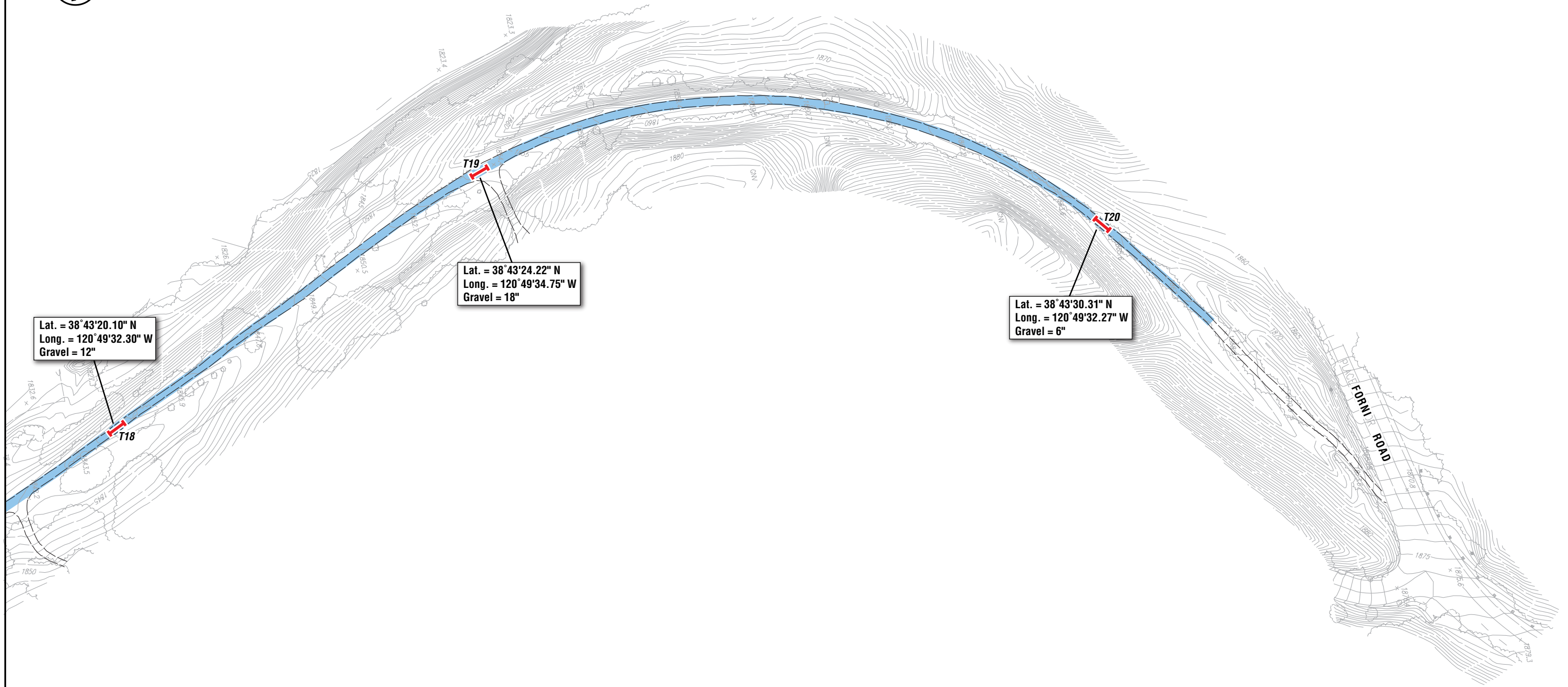


LEGEND:

-  Approximate Exploratory Trench Location
-  ≥ 6" Gravel



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El Dorado County, California			
SITE PLAN			
S9275-06-01	November 2007	Figure 2-8	




Lat. = 38° 43' 20.10" N
Long. = 120° 49' 32.30" W
Gravel = 12"

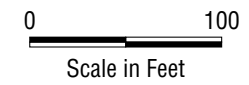
Lat. = 38° 43' 24.22" N
Long. = 120° 49' 34.75" W
Gravel = 18"

Lat. = 38° 43' 30.31" N
Long. = 120° 49' 32.27" W
Gravel = 6"

LEGEND:

 Approximate Exploratory Trench Location

 ≥ 6" Gravel



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El Dorado County, California		
SITE PLAN		
S9275-06-01	November 2007	Figure 2-9

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T1			PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					ELEV. (MSL.) _____	DATE COMPLETED	10-10-07			
					EQUIPMENT			John Deere 310 E Backhoe		
MATERIAL DESCRIPTION										
0	T1-1'-2'			SM	FILL Medium dense, slightly moist, yellowish brown, Silty SAND with gravel					
				GM	Medium dense, dry, light gray, Aggregate BASE					
					Crushed ASPHALT CONCRETE					
				SM	Medium dense, slightly moist, yellow brown, Silty SAND with gravel					
2										
					TRENCH TERMINATED AT 3 FEET NO FREE GROUNDWATER ENCOUNTERED					

Figure A1, Log of Trench T1, page 1 of 1

SAMPLE SYMBOLS		... SAMPLING UNSUCCESSFUL		... STANDARD PENETRATION TEST		... DRIVE SAMPLE (UNDISTURBED)
		... DISTURBED OR BAG SAMPLE		... CHUNK SAMPLE		... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

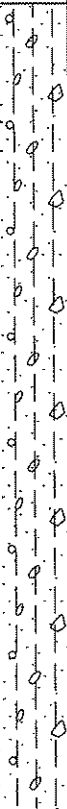
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T2 ELEV. (MSL.) _____ DATE COMPLETED <u>10-10-07</u> EQUIPMENT <u>John Deere 310 E Backhoe</u>	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	MATERIAL DESCRIPTION FILL Loose, dry, gray and brown, Silty SAND with gravel and cobbles -becomes slightly moist, yellowish brown			
2					TRENCH TERMINATED AT 3 FEET NO FREE GROUNDWATER ENCOUNTERED			

Figure A2, Log of Trench T2, page 1 of 1

SAMPLE SYMBOLS	☐ ... SAMPLING UNSUCCESSFUL	▣ ... STANDARD PENETRATION TEST	■ ... DRIVE SAMPLE (UNDISTURBED)
	☒ ... DISTURBED OR BAG SAMPLE	▤ ... CHUNK SAMPLE	▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.


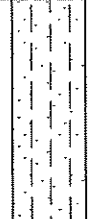







DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T3			PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					ELEV. (MSL.) _____	DATE COMPLETED	10-10-07			
					EQUIPMENT					
					John Deere 310 E Backhoe					
MATERIAL DESCRIPTION										
0	T3-0'-7"			SP-SM	FILL Medium dense, slightly moist, dark yellowish brown, Silty SAND with gravel					
				SM	Medium dense, slightly moist, light yellowish brown, Silty SAND					
2	T3-2'-3'				BEDROCK Very dense, dry, very pale brown, moderately weathered SILTSTONE					
TRENCH TERMINATED AT 3 FEET NO FREE GROUNDWATER ENCOUNTERED										

Figure A3, Log of Trench T3, page 1 of 1

SAMPLE SYMBOLS					
	... SAMPLING UNSUCCESSFUL		... STANDARD PENETRATION TEST		... DRIVE SAMPLE (UNDISTURBED)
	... DISTURBED OR BAG SAMPLE		... CHUNK SAMPLE		... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

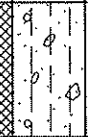

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T4			PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	
					ELEV. (MSL.) _____	DATE COMPLETED	10-10-07				
					EQUIPMENT <u>John Deere 310 E Backhoe</u>						
					MATERIAL DESCRIPTION						
0	T4-0'-6"			SM	FILL Loose, slightly moist, brown, Silty SAND with gravel, (contains metal slag)						
					BEDROCK Very dense, dry, strong brown, highly weathered SANDSTONE						
2					TRENCH TERMINATED AT 3 FEET NO FREE GROUNDWATER ENCOUNTERED						

Figure A4, Log of Trench T4, page 1 of 1

SAMPLE SYMBOLS	<input type="checkbox"/> ... SAMPLING UNSUCCESSFUL	<input type="checkbox"/> ... STANDARD PENETRATION TEST	<input type="checkbox"/> ... DRIVE SAMPLE (UNDISTURBED)
	<input checked="" type="checkbox"/> ... DISTURBED OR BAG SAMPLE	<input checked="" type="checkbox"/> ... CHUNK SAMPLE	<input checked="" type="checkbox"/> ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.


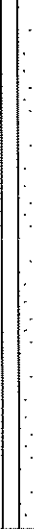






DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T5			PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					ELEV. (MSL.) _____	DATE COMPLETED	10-10-07			
					EQUIPMENT					
					John Deere 310 E Backhoe					
MATERIAL DESCRIPTION										
0	T5-0'-1'			ML	RESIDUAL SOIL Medium dense, dry, strong brown, SILT with sand					
2										
TRENCH TERMINATED AT 3 FEET NO FREE GROUNDWATER ENCOUNTERED										

Figure A5, Log of Trench T5, page 1 of 1

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.









DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T6 ELEV. (MSL.) _____ DATE COMPLETED <u>10-10-07</u> EQUIPMENT <u>John Deere 310 E Backhoe</u>	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	T6-0'-1'			GM	FILL Medium dense, dry, yellowish brown, Silty GRAVEL with sand			
2					BEDROCK Very dense, dry, light yellowish brown and white, moderately weathered RHYOLITE TUFF			
					REFUSAL ENCOUNTERED AT 2.5 FEET NO FREE GROUNDWATER ENCOUNTERED			

Figure A6, Log of Trench T6, page 1 of 1

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

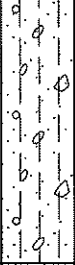
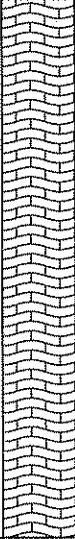
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T7			PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					ELEV. (MSL.) _____	DATE COMPLETED	10-10-07			
					EQUIPMENT			John Deere 310 E Backhoe		
MATERIAL DESCRIPTION										
0				SM	FILL Medium dense, slightly moist, yellowish brown, Silty SAND with gravel					
2					BEDROCK Very dense, dry, white to light brown, moderately weathered METAVOLCANICS					
TRENCH TERMINATED AT 3 FEET NO FREE GROUNDWATER ENCOUNTERED										

Figure A7, Log of Trench T7, page 1 of 1

SAMPLE SYMBOLS	<input type="checkbox"/> ... SAMPLING UNSUCCESSFUL	<input type="checkbox"/> ... STANDARD PENETRATION TEST	<input type="checkbox"/> ... DRIVE SAMPLE (UNDISTURBED)
	<input checked="" type="checkbox"/> ... DISTURBED OR BAG SAMPLE	<input checked="" type="checkbox"/> ... CHUNK SAMPLE	<input checked="" type="checkbox"/> ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T8			PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					ELEV. (MSL.) _____	DATE COMPLETED	10-10-07			
					EQUIPMENT					
					John Deere 310 E Backhoe					
MATERIAL DESCRIPTION										
0				SM	FILL Loose, moist, dark grayish brown, Silty SAND with gravel, contains some asphalt					
				SM	Medium dense, slightly moist, yellowish brown, Silty SAND					
2										
TRENCH TERMINATED AT 3 FEET NO FREE GROUNDWATER ENCOUNTERED										

Figure A8, Log of Trench T8, page 1 of 1

SAMPLE SYMBOLS	<input type="checkbox"/> ... SAMPLING UNSUCCESSFUL	<input type="checkbox"/> ... STANDARD PENETRATION TEST	<input type="checkbox"/> ... DRIVE SAMPLE (UNDISTURBED)
	<input checked="" type="checkbox"/> ... DISTURBED OR BAG SAMPLE	<input checked="" type="checkbox"/> ... CHUNK SAMPLE	<input checked="" type="checkbox"/> ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T9			PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					ELEV. (MSL.) _____	DATE COMPLETED	10-11-07			
					EQUIPMENT			John Deere 310 E Backhoe		
MATERIAL DESCRIPTION										
0	T9-0'-1'			SM	FILL Loose, slightly moist, dark grayish brown, silty SAND with some gravel and organics					
				ML	Medium dense, dry, very pale brown, SILT with sand					
2	T9-2'3'									
					TRENCH TERMINATED AT 3 FEET NO FREE GROUNDWATER ENCOUNTERED					

Figure A9, Log of Trench T9, page 1 of 1

SAMPLE SYMBOLS		... SAMPLING UNSUCCESSFUL		... STANDARD PENETRATION TEST		... DRIVE SAMPLE (UNDISTURBED)
		... DISTURBED OR BAG SAMPLE		... CHUNK SAMPLE		... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.



DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T10 ELEV. (MSL.) _____ DATE COMPLETED 10-11-07 EQUIPMENT John Deere 310 E Backhoe	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	FILL Loose, slightly moist, dark grayish brown, Silty SAND with gravel and organics			
2				SM	RESIDUAL SOIL Medium dense, dry, strong brown, Silty SAND, contains clasts of cemented sandstone			
TRENCH TERMINATED AT 3 FEET NO FREE GROUNDWATER ENCOUNTERED								

Figure A10, Log of Trench T10, page 1 of 1

SAMPLE SYMBOLS	<input type="checkbox"/> ... SAMPLING UNSUCCESSFUL	<input type="checkbox"/> ... STANDARD PENETRATION TEST	<input type="checkbox"/> ... DRIVE SAMPLE (UNDISTURBED)
	<input checked="" type="checkbox"/> ... DISTURBED OR BAG SAMPLE	<input checked="" type="checkbox"/> ... CHUNK SAMPLE	<input checked="" type="checkbox"/> ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

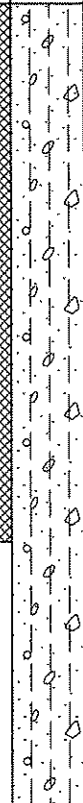
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T11		PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					ELEV. (MSL.) _____	DATE COMPLETED <u>10-11-07</u>			
					EQUIPMENT <u>John Deere 310 E Backhoe</u>				
MATERIAL DESCRIPTION									
0	T11-0'-2'			SM	FILL Medium dense, slightly moist, light brownish gray, Silty SAND with gravel				
2									
					TRENCH TERMINATED AT 3 FEET NO FREE GROUNDWATER ENCOUNTERED				

Figure A11, Log of Trench T11, page 1 of 1

SAMPLE SYMBOLS	<input type="checkbox"/> ... SAMPLING UNSUCCESSFUL	<input type="checkbox"/> ... STANDARD PENETRATION TEST	<input type="checkbox"/> ... DRIVE SAMPLE (UNDISTURBED)
	<input checked="" type="checkbox"/> ... DISTURBED OR BAG SAMPLE	<input type="checkbox"/> ... CHUNK SAMPLE	<input type="checkbox"/> ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T12 ELEV. (MSL.) _____ DATE COMPLETED <u>10-11-07</u> EQUIPMENT <u>John Deere 310 E Backhoe</u>	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	FILL Medium dense, dry, dark grayish brown, Silty SAND with gravel and organics			
				SM	Medium dense, slightly moist, very pale brown, Silty SAND			
2	T12-2'-3'							
TRENCH TERMINATED AT 3 FEET NO FREE GROUNDWATER ENCOUNTERED								

Figure A12, Log of Trench T12, page 1 of 1

SAMPLE SYMBOLS	<input type="checkbox"/> ... SAMPLING UNSUCCESSFUL	<input type="checkbox"/> ... STANDARD PENETRATION TEST	<input type="checkbox"/> ... DRIVE SAMPLE (UNDISTURBED)
	<input checked="" type="checkbox"/> ... DISTURBED OR BAG SAMPLE	<input checked="" type="checkbox"/> ... CHUNK SAMPLE	<input checked="" type="checkbox"/> ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T13			PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	
					ELEV. (MSL.) _____	DATE COMPLETED	10-11-07				
					EQUIPMENT			John Deere 310 E Backhoe			
MATERIAL DESCRIPTION											
0				GP-GM	FILL Loose, moist, dark grayish brown, GRAVEL with silt and sand						
				SM	Loose, dry, strong brown, Silty SAND						
2											
4					TRENCH TERMINATED AT 4 FEET NO FREE GROUNDWATER ENCOUNTERED						

Figure A13, Log of Trench T13, page 1 of 1

SAMPLE SYMBOLS	<input type="checkbox"/> ... SAMPLING UNSUCCESSFUL	<input type="checkbox"/> ... STANDARD PENETRATION TEST	<input type="checkbox"/> ... DRIVE SAMPLE (UNDISTURBED)
	<input checked="" type="checkbox"/> ... DISTURBED OR BAG SAMPLE	<input checked="" type="checkbox"/> ... CHUNK SAMPLE	<input checked="" type="checkbox"/> ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.


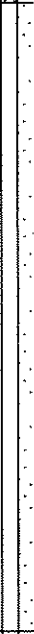






DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T14			PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					ELEV. (MSL.) _____	DATE COMPLETED	10-11-07			
					EQUIPMENT			John Deere 310 E Backhoe		
MATERIAL DESCRIPTION										
0	T14-0"-8"			SM	FILL Loose, slightly moist, dark grayish brown, Silty SAND with gravel					
				SM	Medium dense, dry, strong brown, Silty SAND, contains cemented sandstone nodules					
2										
TRENCH TERMINATED AT 3 FEET NO FREE GROUDWATER ENCOUNTERED										

Figure A14, Log of Trench T14, page 1 of 1

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

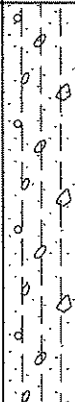
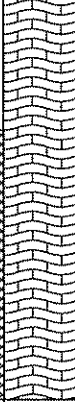






DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T15 ELEV. (MSL.) _____ DATE COMPLETED 10-11-07 EQUIPMENT John Deere 310 E Backhoe	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	FILL Medium dense, dry, brown to strong brown, Silty SAND with some gravel			
2	T15-2'-3'				BEDROCK Very dense, dry, light greenish gray, moderately fractured METAVOLCANICS			
TRENCH TERMINATED AT 3 FEET NO FREE GROUNDWATER ENCOUNTERED								

Figure A15, Log of Trench T15, page 1 of 1

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T16		PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					ELEV. (MSL.) _____	DATE COMPLETED <u>10-11-07</u>			
					EQUIPMENT <u>John Deere 310 E Backhoe</u>				
MATERIAL DESCRIPTION									
0				SM	FILL Loose, dry, grayish brown, Silty SAND with gravel, contains metal slag and organics				
				ML	RESIDUAL SOIL Medium dense, dry, reddish yellow, Sandy SILT				
2									
	T16-3'-3.5'								
					TRENCH TERMINATED AT 3.5 FEET NO FREE GROUNDWATER ENCOUNTERED				

Figure A16, Log of Trench T16, page 1 of 1

SAMPLE SYMBOLS		... SAMPLING UNSUCCESSFUL		... STANDARD PENETRATION TEST		... DRIVE SAMPLE (UNDISTURBED)
		... DISTURBED OR BAG SAMPLE		... CHUNK SAMPLE		... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T17			PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	
					ELEV. (MSL.) _____	DATE COMPLETED	10-11-07				
					EQUIPMENT			John Deere 310 E Backhoe			
MATERIAL DESCRIPTION											
0				SM	FILL Loose, dry, grayish brown, Silty SAND with gravel, contains metal slag and organics						
				SM	RESIDUAL SOIL Medium dense, dry, strong brown, Silty SAND						
2					BEDROCK Very dense, dry, white and green, moderately weathered METASEDIMENTARY						
					REFUSAL ENCOUNTERED AT 2.5 FEET NO FREE GROUNDWATER ENCOUNTERED						

Figure A17, Log of Trench T17, page 1 of 1

SAMPLE SYMBOLS	<input type="checkbox"/> ... SAMPLING UNSUCCESSFUL	<input type="checkbox"/> ... STANDARD PENETRATION TEST	<input type="checkbox"/> ... DRIVE SAMPLE (UNDISTURBED)
	<input checked="" type="checkbox"/> ... DISTURBED OR BAG SAMPLE	<input checked="" type="checkbox"/> ... CHUNK SAMPLE	<input checked="" type="checkbox"/> ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T18 ELEV. (MSL.) _____ DATE COMPLETED 10-11-07 EQUIPMENT John Deere 310 E Backhoe	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	FILL Loose, slightly moist, brown and dark brown, Silty SAND with gravel, contains metal slag and organics			
				SM	Medium dense, slightly moist, light yellow brown, Silty SAND			
2	T18-2'-3'			SM	RESIDUAL SOIL Dense, slightly moist, strong brown, Silty SAND			
					TRENCH TERMINATED AT 3 FEET NO FREE GROUNDWATER ENCOUNTERED			

Figure A18, Log of Trench T18, page 1 of 1

SAMPLE SYMBOLS	<input type="checkbox"/> ... SAMPLING UNSUCCESSFUL	<input type="checkbox"/> ... STANDARD PENETRATION TEST	<input type="checkbox"/> ... DRIVE SAMPLE (UNDISTURBED)
	<input checked="" type="checkbox"/> ... DISTURBED OR BAG SAMPLE	<input type="checkbox"/> ... CHUNK SAMPLE	<input type="checkbox"/> ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T19 ELEV. (MSL.) _____ DATE COMPLETED <u>10-11-07</u> EQUIPMENT <u>John Deere 310 E Backhoe</u>	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	T19-0'-1'			GW	FILL Loose, moist, dark grayish brown, well graded GRAVEL with sand, contains metal slag and organics			
				SM	Medium dense, moist, light yellow brown, Silty SAND			
2				SM	RESIDUAL SOIL Dense, moist, strong brown, Silty SAND			
					TRENCH TERMINATED AT 3 FEET NO FREE GROUNDWATER ENCOUNTERED			

Figure A19, Log of Trench T19, page 1 of 1

SAMPLE SYMBOLS	... SAMPLING UNSUCCESSFUL	... STANDARD PENETRATION TEST	... DRIVE SAMPLE (UNDISTURBED)
	... DISTURBED OR BAG SAMPLE	... CHUNK SAMPLE	... WATER TABLE OR SEEPAGE

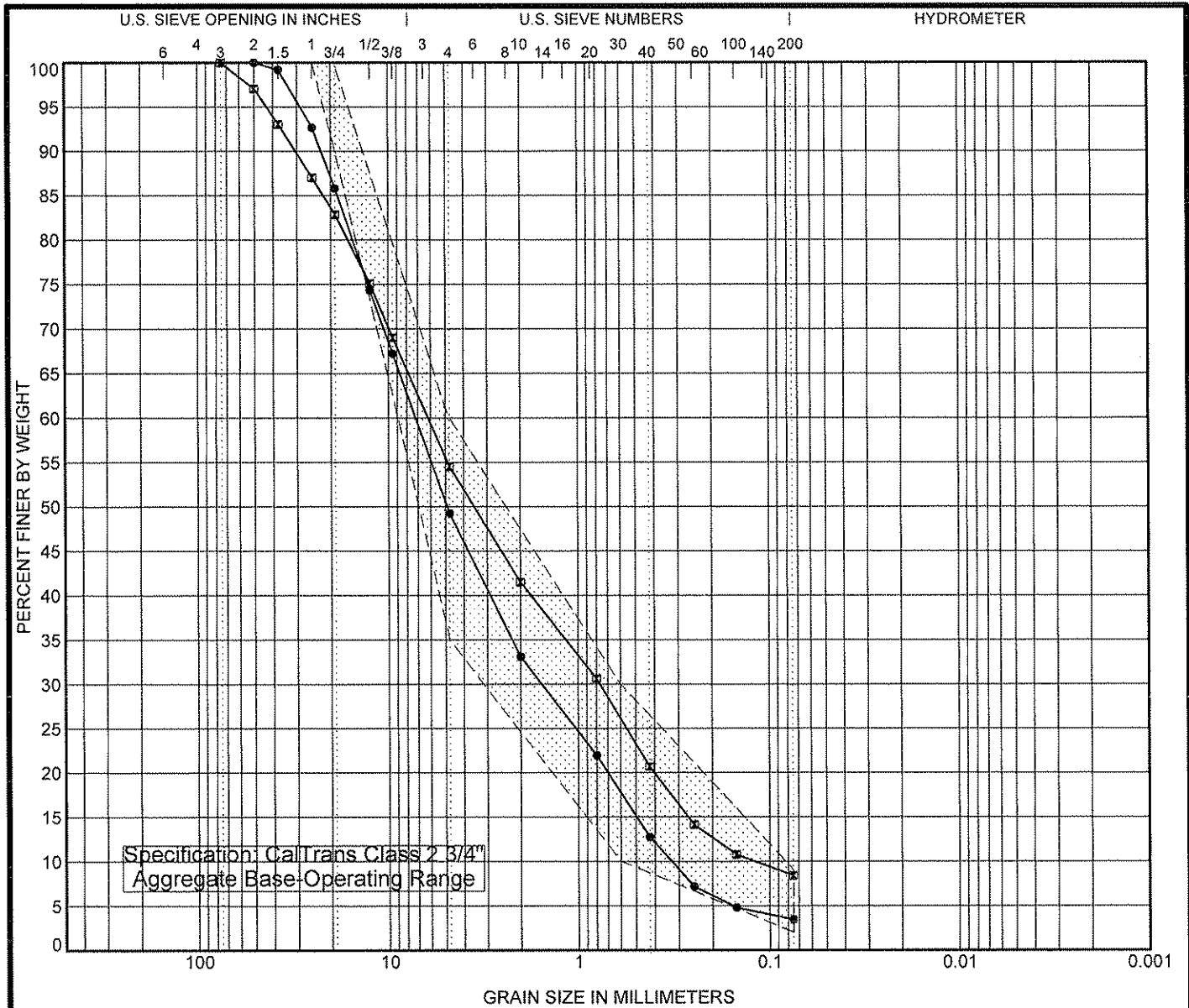
NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T20 ELEV. (MSL.) _____ DATE COMPLETED <u>10-11-07</u> EQUIPMENT <u>John Deere 310 E Backhoe</u>	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					MATERIAL DESCRIPTION			
			GW	FILL Loose, dry, brown and grayish brown, well graded GRAVEL with sand and silt, contains metal slag and organics				
			SM	Medium dense, dry, light yellowish brown, Silty SAND				
2				SM	RESIDUAL SOIL Dense, dry, strong brown, Silty SAND			
					TRENCH TERMINATED AT 3 FEET NO FREE GROUNDWATER ENCOUNTERED			

Figure A20, Log of Trench T20, page 1 of 1

SAMPLE SYMBOLS	<input type="checkbox"/> ... SAMPLING UNSUCCESSFUL	<input type="checkbox"/> ... STANDARD PENETRATION TEST	<input type="checkbox"/> ... DRIVE SAMPLE (UNDISTURBED)
	<input checked="" type="checkbox"/> ... DISTURBED OR BAG SAMPLE	<input checked="" type="checkbox"/> ... CHUNK SAMPLE	<input checked="" type="checkbox"/> ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Sample ID	Classification	LL	PL	PI	Cc	Cu
● T19-0.0	WELL-GRADED GRAVEL with SAND(GW)				1.02	21.95
☒ T3-0.0	POORLY GRADED SAND with SILT and GRAVEL(SP-SM)				0.80	51.49

Sample ID	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● T19-0.0	50	7.195	1.553	0.328	50.8	45.8	3.4	
☒ T3-0.0	75	6.176	0.77	0.12	45.5	46.1	8.4	



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GRAIN SIZE DISTRIBUTION

Project: El Dorado Trail
Location: El Dorado County, California
Number: S9275-06-01
Figure: B1