ADDENDUM TO
GEOTECHNICAL INVESTIGATION

PORTOLA CENTER SOUTH
TENTATIVE TRACT NO. 15353
LAKE FOREST, CALIFORNIA

GEOCON
INCORPORATED

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED FOR

SUNRANCH CAPITAL PARTNERS, LLC
SAN DIEGO, CALIFORNIA

APRIL 1, 2013
PROJECT NO. G1218-52-01A

Project No. G1218-52-01A
April 1, 2013

SunRanch Capital Partners, LLC
610 West Ash Street, Suite 1500
San Diego, California 92101

Attention: Mr. Scott Molloy

Subject: ADDENDUM TO GEOTECHNICAL INVESTIGATION
PORTOLA CENTER SOUTH
TENTATIVE TRACT NO. 15353
LAKE FOREST, CALIFORNIA

References:
1. *Geotechnical Investigation, Portola Center South, Tentative Tract No. 15353, Lake Forest, California,* prepared by Geocon Incorporated, dated July 6, 2012 (Project No. G1218-52-01A).
2. *Deformation Analysis, Portola Center (South and North), Tentative Tract Nos. 15353 and 17300, Lake Forest, California,* prepared by Geocon Incorporated, dated August 14, 2012 (Project No. G1218-52-01).
3. *Tentative Map for Portola Center South, Tract No. 15353, Lake Forest, California,* prepared by Hunsaker & Associates Irvine, dated December 27, 2012.

Dear Mr. Molloy:

In accordance with your request, we prepared this addendum letter to the referenced report dated July 6, 2012 to provide additional analyses. We prepared our addendum subsequent to tentative tract map (TTM) revisions for Portola Center South. The plan revisions were minor and do not affect the conclusions or slope stability analysis of our geotechnical report dated July 6, 2012. We have included at the end of this report revised geologic maps and cross-sections utilizing the revised TTM.

TEMPORARY EXCAVATIONS

The underground contractor should excavate for the planned utilities in accordance with OSHA requirements considering the recommended soil type. Table 1 presents the allowable slope inclination for different soil types based on the information presented by OSHA assuming seepage is not encountered.

TABLE 1
ALLOWABLE SLOPE INCLINATIONS FOR EXCAVATIONS
LESS THAN 20 FEET FOR UNDERGROUND CONTRACTORS

Soil or Rock Type	On-Site Geologic Unit	Maximum Inclination (Horizontal: Vertical)	Maximum Slope Angle From Horizontal (Degrees)
Type A	Formational Materials without BPS	¾:1	53
Type B	Properly Compacted Fill	1:1	45
Type C	Undocumented Fill Surficial Soil	1½:1	34

Buttress excavations are not planned adjacent to existing improvements or residences. If excavation failures were to occur, the failures would be limited to within the property limits and outside improvements/structures would not be affected. In addition, the grading contractor would be required to remove the volume of soil that failed at an inclination no steeper than recommended in our report and evaluate the additional excavation procedures.

We used increased shear strength for the temporary excavation conditions consisting of an approximate average of the peak strength obtained from the laboratory testing program. In addition, we used a shear strength of half the along bedding strength for the existing shear planes. Table 2 presents the summary of the soil properties used in the slope stability analyses for the temporary excavations.

TABLE 2
SUMMARY OF SOIL PROPERTIES USED FOR SLOPE STABILITY ANALYSES FOR TEMPORARY EXCAVATIONS

Geologic Unit/Material	Density (pcf)	Cohesion (psf)	Friction Angle (degrees)
Compacted Fill/Engineered Fill (Qcf/Afe)	120	500	28
Alluvium (Qal)	120	500	23
Terrace Deposits (Qt)	120	300	29
Puente Formation-Soquel Member (Tps)	125	800	34
Puente Formation-Soquel Member (Tps-slt)	115	900	30
Puente Formation-La Vida Member (Tplv)	115	900	30
Bedding Plane Shear (BPS)	115	125	12

We selected Cross Sections E-E', H-H', L-L', and N-N' to perform the slope stability analyses for temporary conditions that will occur during construction operations. Table 3 provides a summary of cases analyzed and calculated factors of safety. Based on the review comments, a minimum factor of safety of 1.2 is currently required by the City of Lake Forest for temporary slope stability conditions. Based on the requirements of the City of Lake Forest and the results of the slope stability analyses, a temporary backcut of 1¼:1 (horizontal:vertical) would be required in the area of Geologic Cross-Section L-L'. Appendix A presents the additional slope stability analyses to evaluate the temporary excavations for the planned buttresses and the shear strength results.

TABLE 3
SUMMARY OF SLOPE STABILITY ANALYSES FOR TEMPORARY EXCAVATIONS

Cross Section	File Name	Condition of Slope Stability Analyses	Calculated Factor of Safety
E-E'	EE-Case4-4	Temporary Excavation During Buttress Grading with a 1:1 (horizontal:vertical) Backcut	1.8
H-H'	HH-Case 3s-Temporary Cut	Temporary Excavation During Buttress Grading with a 1:1 (horizontal:vertical) Backcut	1.6
L-L'	LL-Case5-5c-Temporary Cut	Temporary Excavation During Buttress Grading with a 1¼:1 (horizontal:vertical) Backcut	1.2
N-N'	NN-Case10-Temporary Cut	Temporary Excavation During Buttress Grading with a 1:1 (horizontal:vertical) Backcut	3.0

Cut slope excavations including buttresses and shear keys should be observed full time during grading operations by a Certified Engineering Geologist to check that soil and geologic conditions do not differ significantly from those expected. During the construction of buttresses and during landslide removals, there is a risk that the temporary backcut slopes will become unstable. This risk can be reduced by grading the buttress fill in short segments and/or flattening the inclination of the temporary slopes. These excavations should be backfilled as soon as possible after establishing the shear key.

Some areas will possess a fill thickness differential due to the excavation of backcuts for the planned buttresses. We will evaluate the specific settlement potential for the fill differential in these areas in the planned geotechnical investigation report prepared for the 40-scale plan submittal.

SLOPE CREEP AND LATERAL FILL EXTENSION

The planned compacted fill slopes will possess a factor of safety of at least 1.5 for surficial conditions as presented in Figure C-49. The surficial condition assumes the soil would be saturated in the upper 3 feet from the slope face. To help mitigate slope creep from occurring, plants with variable root depth should be installed soon after the construction of the slopes as discussed in Section 9.15.13,

Page 26 of the referenced report dated July 6, 2012. In addition, rodent abatement is also important as part of the slope maintenance.

Section 9.10.15, Page 35 of the referenced report dated July 6, 2013 states *Although other improvements, which are relatively rigid or brittle, such as concrete flatwork or masonry walls, may experience some distress if located near the top of a slope, it is generally not economical to mitigate this potential*. The planned buildings and structures should be setback in accordance with CBC Section 18 and as recommended in the referenced report. Some mitigation measures could include not placing large exterior concrete slabs at the top of the slopes but installing bands of concrete that would allow some lateral movements. Also, pilasters from walls could be separated from the walls to allow some lateral movement without damaging the walls.

We performed the referenced deformation analysis report dated August 14, 2012, to address lateral movement. We expect the slope deformations from the analyses would be greater than the lateral expansion deformations. In addition, the MSE walls will be backfilled with sandy material that possesses a "very low" expansion potential and lateral fill extension from expansion is considered negligible for the MSE walls.

The soil creep zone is usually isolated to the outer 3 to 5 feet of the slope face. The planned residential structures and improvements are not planned within this zone. Section 9.10.15, Page 35 of the referenced report dated July 6, 2012 presents recommendations for foundations located adjacent to slopes. However, if planned retaining walls or similar improvements that are prone to creeping are proposed at the top of slopes, we would recommend that deepened footings be incorporated to reduce the effect of lateral fill extension.

If you have any questions regarding this addendum letter, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

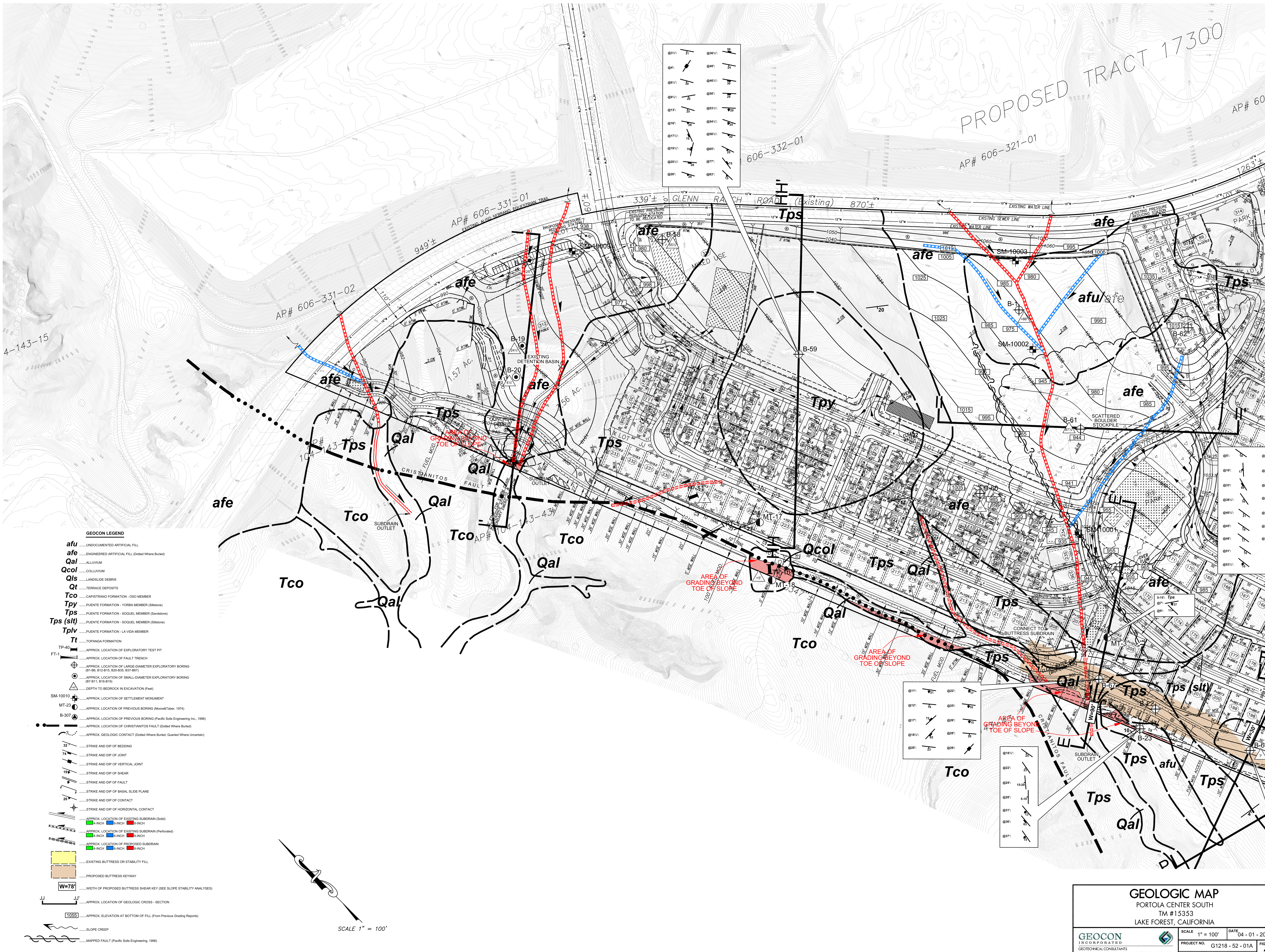
GEOCON INCORPORATED

John Hoobs
CEG 1524

Shawn Foy Weedon
GE 2714

JH:SFW:dmc

(email) Addressee



GEOLOGIC MAP

PORTOLA CENTER SOUTH
TM #15353
LAKE FOREST, CALIFORNIA

GEOCON INCORPORATED
GEOTECHNICAL CONSULTANTS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121 - 2974
PHONE 858 558-6900 - FAX 858 558-6159

SCALE 1" = 100'	DATE 04 - 01 - 2013	
PROJECT NO. G1218 - 52 - 01A		FIGURE 2
SHEET 1 OF 2		

SEE FIGURE 2

PROPOSED TRACT 17300

AP# 606-321-01

AP# 606-321-08

606-332-01

GLENN RANCH ROAD (Existing)

1263'±

870'±

430'±

476'±

132'±

GEOCON LEGEND

- afu .....UNDOCUMENTED ARTIFICIAL FILL
- afe .....ENGINEERED ARTIFICIAL FILL (Dotted Where Buried)
- Qal .....ALLUVIUM
- Qcol .....COLLUVIUM
- Qls .....LANDSLIDE DEBRIS
- Qt .....TERRACE DEPOSITS
- Tco .....CAPISTRANO FORMATION - OSO MEMBER
- Tpy .....PUENTE FORMATION - YORBA MEMBER (Siltstone)
- Tps .....PUENTE FORMATION - SOQUEL MEMBER (Sandstone)
- Tps (slt) .....PUENTE FORMATION - SOQUEL MEMBER (Siltstone)
- Tplv .....PUENTE FORMATION - LA VIDA MEMBER
- Tt .....TOPANGA FORMATION
- TP-40 .....APPROX. LOCATION OF EXPLORATORY TEST PIT
- FT-1 .....APPROX. LOCATION OF FAULT TRENCH
- .....APPROX. LOCATION OF LARGE-DIAMETER EXPLORATORY BORING (B1-B6, B12-B15, B20-B30, B37-B67)
- .....APPROX. LOCATION OF SMALL-DIAMETER EXPLORATORY BORING (B7-B11, B16-B19)
- .....DEPTH TO BEDROCK IN EXCAVATION (Feet)
- SM-10010 .....APPROX. LOCATION OF SETTLEMENT MONUMENT
- MT-23 .....APPROX. LOCATION OF PREVIOUS BORING (Moore&Taber, 1974)
- B-307 .....APPROX. LOCATION OF PREVIOUS BORING (Pacific Soils Engineering Inc., 1996)
- .....APPROX. LOCATION OF CHRISTIANITOS FAULT (Dotted Where Buried)
- .....APPROX. GEOLOGIC CONTACT (Dotted Where Buried, Queried Where Uncertain)
- 32 .....STRIKE AND DIP OF BEDDING
- 74 .....STRIKE AND DIP OF JOINT
- .....STRIKE AND DIP OF VERTICAL JOINT
- 19 .....STRIKE AND DIP OF SHEAR
- .....STRIKE AND DIP OF FAULT
- .....STRIKE AND DIP OF BASAL SLIDE PLANE
- 20 .....STRIKE AND DIP OF CONTACT
- .....STRIKE AND DIP OF HORIZONTAL CONTACT
- .....APPROX. LOCATION OF EXISTING SUBDRAIN (Solid) 4-INCH 6-INCH 8-INCH
- .....APPROX. LOCATION OF EXISTING SUBDRAIN (Perforated) 4-INCH 6-INCH 8-INCH
- .....APPROX. LOCATION OF PROPOSED SUBDRAIN 4-INCH 6-INCH 8-INCH
- .....EXISTING BUTTRESS OR STABILITY FILL
- .....PROPOSED BUTTRESS KEYWAY
- W=78' .....WIDTH OF PROPOSED BUTTRESS SHEAR KEY (SEE SLOPE STABILITY ANALYSES)
- JJ' .....APPROX. LOCATION OF GEOLOGIC CROSS - SECTION
- 1055 .....APPROX. ELEVATION AT BOTTOM OF FILL (From Previous Grading Reports)
- .....SLOPE CREEP
- .....MAPPED FAULT (Pacific Soils Engineering, 1996)

SCALE 1" = 100'

GEOLOGIC MAP

PORTOLA CENTER SOUTH
TM #15353
LAKE FOREST, CALIFORNIA

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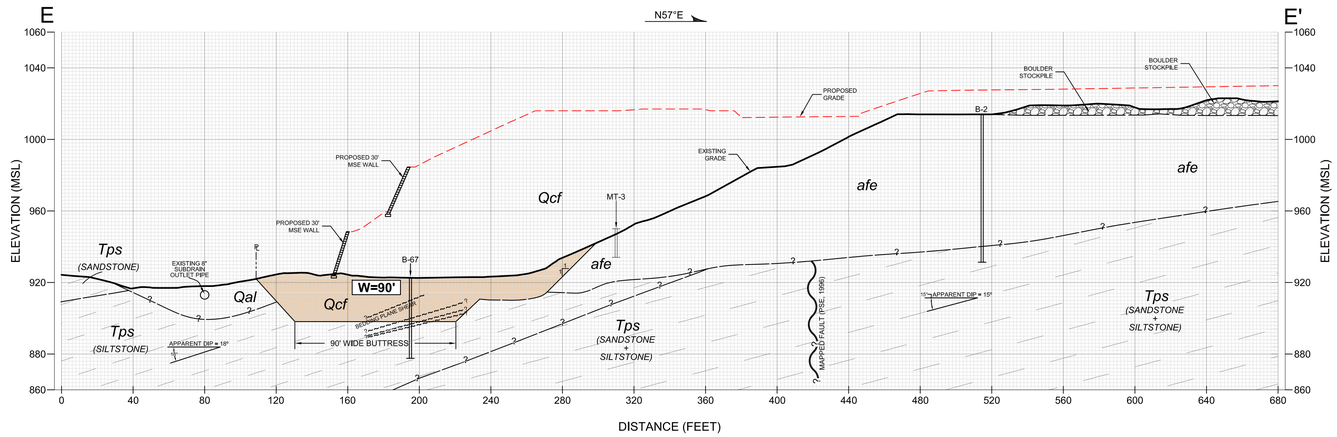
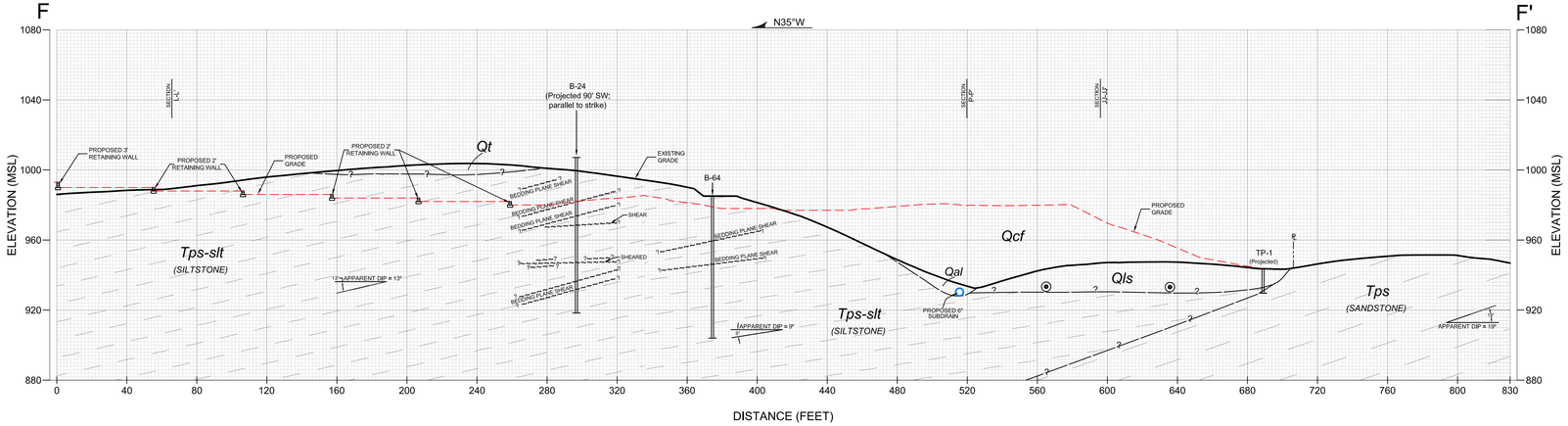
SCALE	1" = 100'
DATE	04 - 01 - 2013
PROJECT NO.	G1218 - 52 - 01A
FIGURE	3
SHEET	2 OF 2



GEOLOGIC CROSS-SECTION E-E'

SCALE: 1" = 40' (Vert. = Horiz.)



GEOLOGIC CROSS-SECTION F-F'

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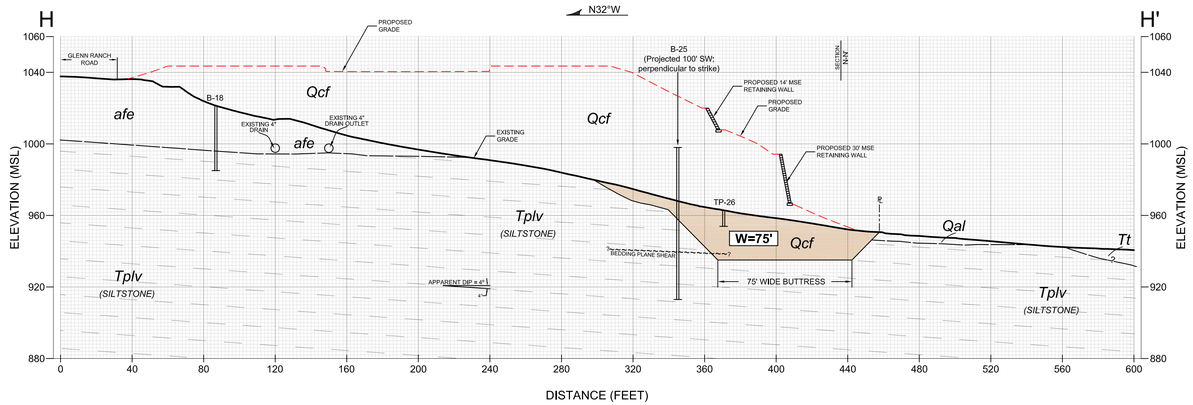

GEOLOGIC CROSS-SECTION H-H'

SCALE: 1" = 40' (Vert. = Horiz.)

LEGEND

- Qcf .....COMPACTED FILL (Proposed)
- afu .....UNDOCUMENTED ARTIFICIAL FILL
- afe .....ENGINEERED ARTIFICIAL FILL
- Qal .....ALLUVIUM
- Qls .....LANDSLIDE DEBRIS
- Qt .....TERRACE DEPOSITS
- Tco .....CAPISTRANO FORMATION
- Tpy .....PUENTE FORMATION - YORBA MEMBER (Siltstone)
- Tps .....PUENTE FORMATION - SOQUEL MEMBER (Sandstone)
- Tps (slt) .....PUENTE FORMATION - SOQUEL MEMBER (Siltstone)
- Tplv .....PUENTE FORMATION - LA VIDA MEMBER
- B-26 .....APPROX. LOCATION OF EXPLORATORY EXCAVATION
- TP-26 .....APPROX. LOCATION OF EXPLORATORY TEST PIT
- MT-23 .....APPROX. LOCATION OF PREVIOUS BORING (Moore&Taber, 1974)
- L 15° .....APPROX. APPARENT DIP OF BEDDING
- ? .....APPROX. LOCATION OF GEOLOGIC CONTACT (Queried Where Uncertain)
- .....SENSE OF MOVEMENT OUT OF SECTION
- ?~~~~~~~~ .....APPROX. LOCATION OF BEDDING PLANE SHEAR (Queried Where Uncertain)
- W=75' .....APPROX. WIDTH OF REQUIRED BUTTRESS IN FEET, SEE SLOPE STABILITY ANALYSES
- .....PROPOSED BUTTRESS

GEOLOGIC CROSS - SECTIONS

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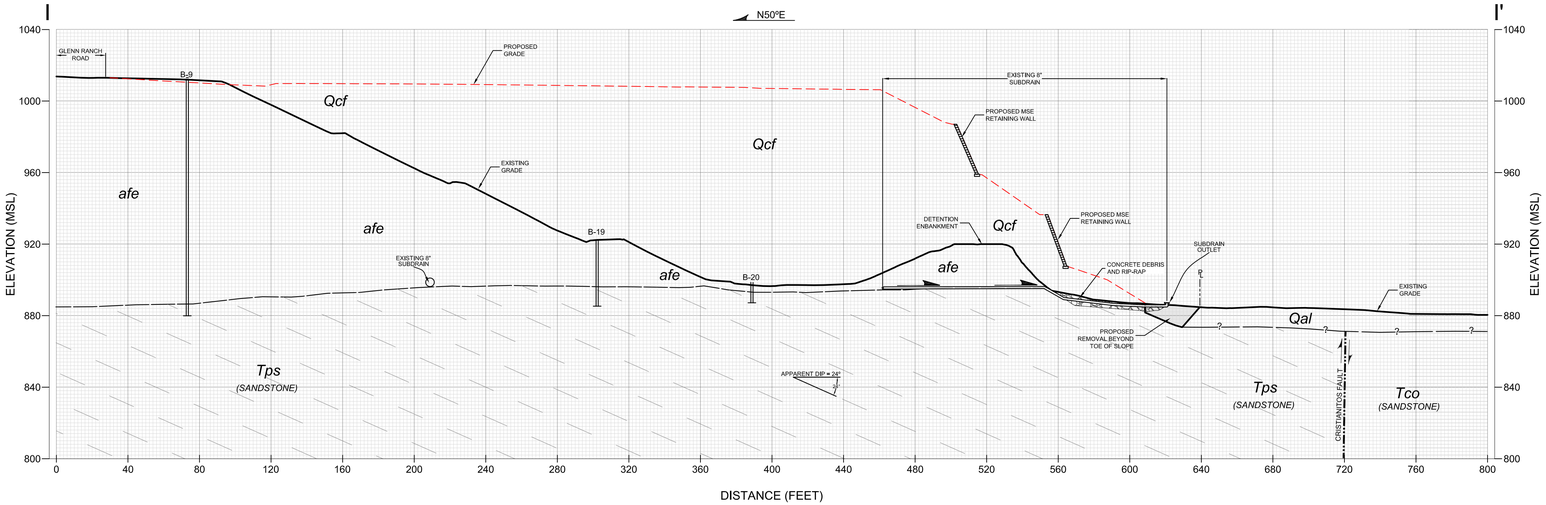
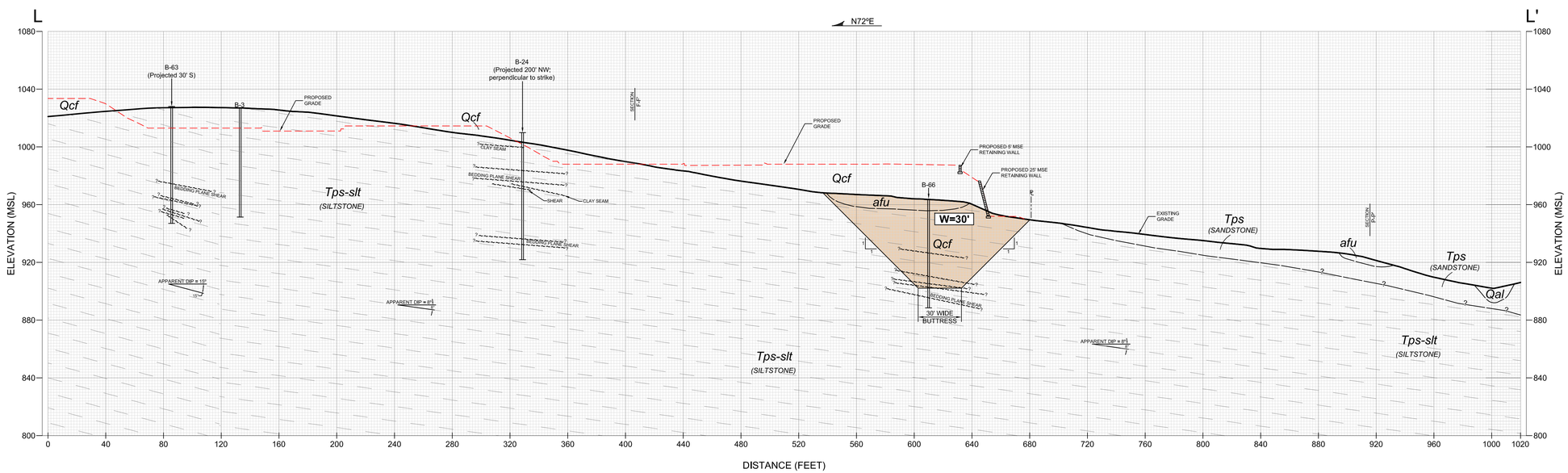
SCALE	1" = 40'	DATE	04 - 01 - 2013
PROJECT NO.	G1218 - 52 - 01A	FIGURE	4
SHEET	1 OF 5		

Y:_GEOTECH\G1200\G1218-52-01A\2013-01-04\SHEETS\G1218-52-01A Plans_Portola.dwg LAYOUT: A



GEOLOGIC CROSS-SECTION I-I'

SCALE: 1" = 40' (Vert. = Horiz.)



GEOLOGIC CROSS-SECTION L-L'

SCALE: 1" = 40' (Vert. = Horiz.)

LEGEND

- Qcf .....COMPACTED FILL (Proposed)
- afu .....UNDOCUMENTED ARTIFICIAL FILL
- afe .....ENGINEERED ARTIFICIAL FILL
- Qal .....ALLUVIUM
- Qls .....LANDSLIDE DEBRIS
- Qt .....TERRACE DEPOSITS
- Tco .....CAPISTRANO FORMATION
- Tpy .....PUENTE FORMATION - YORBA MEMBER (Siltstone)
- Tps .....PUENTE FORMATION - SOQUEL MEMBER (Sandstone)
- Tps (slt) .....PUENTE FORMATION - SOQUEL MEMBER (Siltstone)
- Tplv .....PUENTE FORMATION - LA VIDA MEMBER
- B-26 .....APPROX. LOCATION OF EXPLORATORY EXCAVATION
- TP-26 .....APPROX. LOCATION OF EXPLORATORY TEST PIT
- MT-23 .....APPROX. LOCATION OF PREVIOUS BORING (Moore&Taber, 1974)
- 15° .....APPROX. APPARENT DIP OF BEDDING
- ? .....APPROX. LOCATION OF GEOLOGIC CONTACT (Queried Where Uncertain)
- .....SENSE OF MOVEMENT OUT OF SECTION
- ?~~~~~~~~ .....APPROX. LOCATION OF BEDDING PLANE SHEAR (Queried Where Uncertain)
- W=75' .....APPROX. WIDTH OF REQUIRED BUTTRESS IN FEET, SEE SLOPE STABILITY ANALYSES
- .....PROPOSED BUTTRESS

GEOLOGIC CROSS - SECTIONS

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SCALE 1" = 40'	DATE 04 - 01 - 2013
PROJECT NO. G1218 - 52 - 01A	FIGURE 5
SHEET 2 OF 5	

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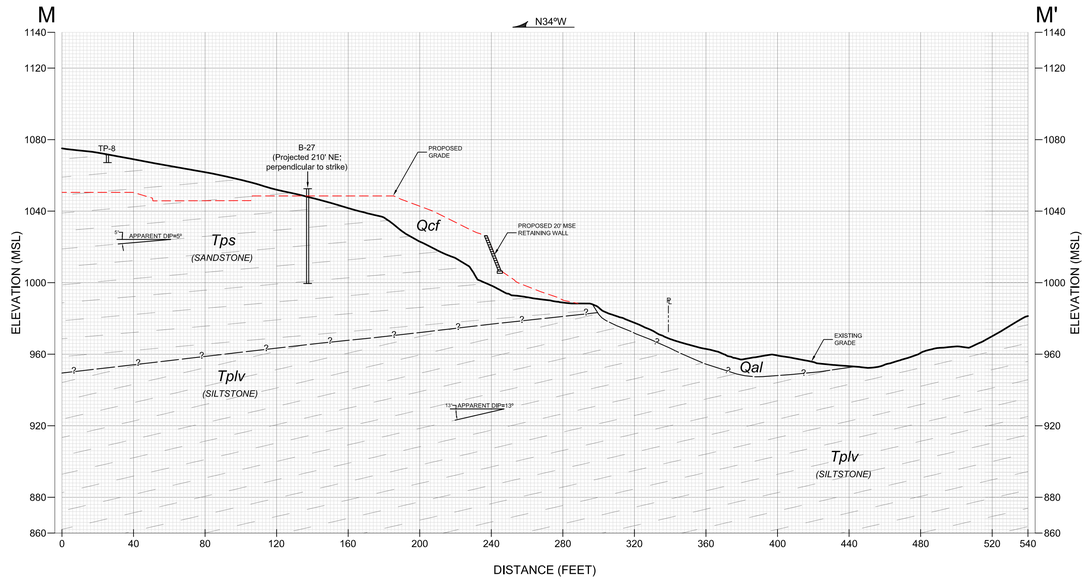

GEOLOGIC CROSS-SECTION M-M'

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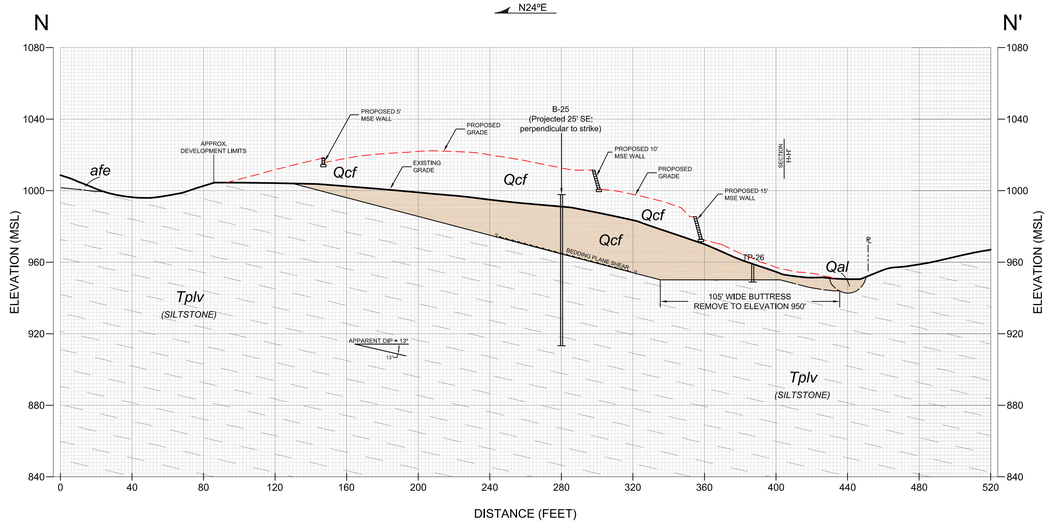

GEOLOGIC CROSS-SECTION N-N'

SCALE: 1" = 40' (Vert. = Horiz.)

LEGEND

- *Qcf* .....COMPACTED FILL (Proposed)
- *afu* .....UNDOCUMENTED ARTIFICIAL FILL
- *afe* .....ENGINEERED ARTIFICIAL FILL
- *Qal* .....ALLUVIUM
- *Qls* .....LANDSLIDE DEBRIS
- *Qt* .....TERRACE DEPOSITS
- *Tco* .....CAPISTRANO FORMATION
- *Tpy* .....PUENTE FORMATION - YORBA MEMBER (Siltstone)
- *Tps* .....PUENTE FORMATION - SOQUEL MEMBER (Sandstone)
- *Tps (slt)* .....PUENTE FORMATION - SOQUEL MEMBER (Siltstone)
- *Tplv* .....PUENTE FORMATION - LA VIDA MEMBER
- B-26 .....APPROX. LOCATION OF EXPLORATORY EXCAVATION
- TP-26 .....APPROX. LOCATION OF EXPLORATORY TEST PIT
- MT-23 .....APPROX. LOCATION OF PREVIOUS BORING (Moore&Taber, 1974)
- L 15° .....APPROX. APPARENT DIP OF BEDDING
- ? .....APPROX. LOCATION OF GEOLOGIC CONTACT (Queried Where Uncertain)
- .....SENSE OF MOVEMENT OUT OF SECTION
- ?~~~~~~~~ .....APPROX. LOCATION OF BEDDING PLANE SHEAR (Queried Where Uncertain)
- W=75' .....APPROX. WIDTH OF REQUIRED BUTTRESS IN FEET, SEE SLOPE STABILITY ANALYSES
- .....PROPOSED BUTTRESS

GEOLOGIC CROSS - SECTIONS

PORTOLA CENTER SOUTH
TM #15353
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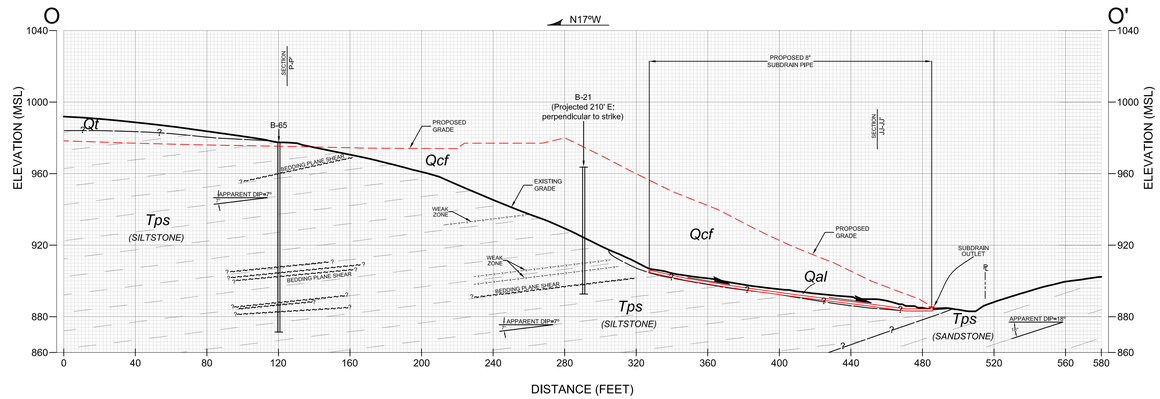
SCALE	1" = 40'	DATE	04 - 01 - 2013
PROJECT NO.	G1218 - 52 - 01A	FIGURE	6
SHEET	3 OF 5		



GEOLOGIC CROSS-SECTION O-O'

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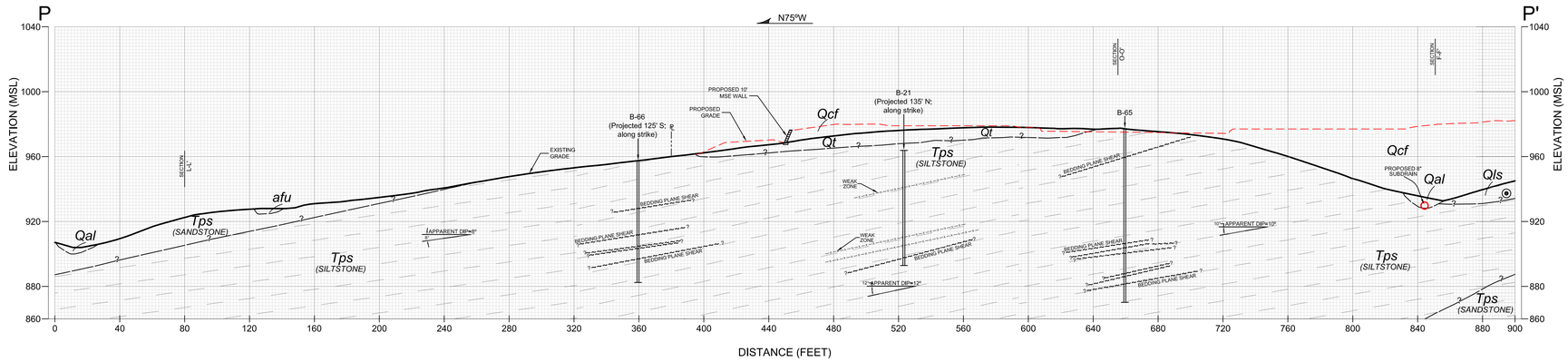
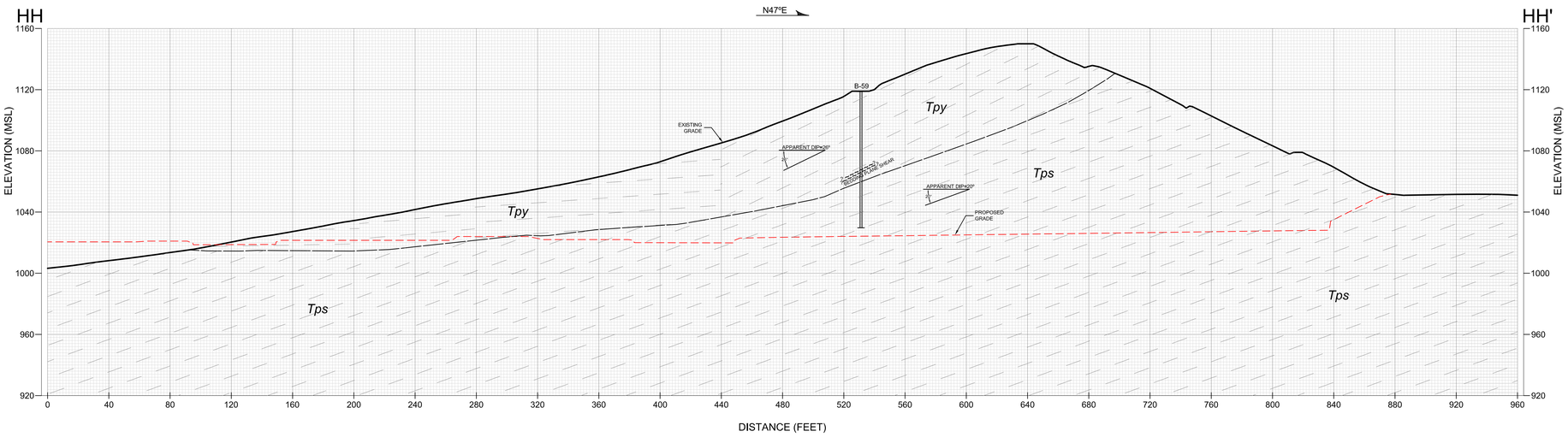


GEOLOGIC CROSS-SECTION P-P'

SCALE: 1" = 40' (Vert. = Horiz.)



GEOLOGIC CROSS-SECTION HH-HH'

SCALE: 1" = 40' (Vert. = Horiz.)

LEGEND

- *Qcf* .....COMPACTED FILL (Proposed)
- *afu* .....UNDOCUMENTED ARTIFICIAL FILL
- *afe* .....ENGINEERED ARTIFICIAL FILL
- *Qal* .....ALLUVIUM
- *Qls* .....LANDSLIDE DEBRIS
- *Qt* .....TERRACE DEPOSITS
- *Tco* .....CAPISTRANO FORMATION
- *Tpy* .....PUENTE FORMATION - YORBA MEMBER (Siltstone)
- *Tps* .....PUENTE FORMATION - SOQUEL MEMBER (Sandstone)
- *Tps (slt)* .....PUENTE FORMATION - SOQUEL MEMBER (Siltstone)
- *Tplv* .....PUENTE FORMATION - LA VIDA MEMBER
- B-26 .....APPROX. LOCATION OF EXPLORATORY EXCAVATION
- TP-26 .....APPROX. LOCATION OF EXPLORATORY TEST PIT
- MT-23 .....APPROX. LOCATION OF PREVIOUS BORING (Moore&Taber, 1974)
- 15° .....APPROX. APPARENT DIP OF BEDDING
- .....APPROX. LOCATION OF GEOLOGIC CONTACT (Queried Where Uncertain)
- .....SENSE OF MOVEMENT OUT OF SECTION
- ?~~~~~~~~ .....APPROX. LOCATION OF BEDDING PLANE SHEAR (Queried Where Uncertain)
- W=75' .....APPROX. WIDTH OF REQUIRED BUTTRESS IN FEET, SEE SLOPE STABILITY ANALYSES
- .....PROPOSED BUTTRESS

GEOLOGIC CROSS - SECTIONS

PORTOLA CENTER SOUTH
TM #15353
LAKE FOREST, CALIFORNIA

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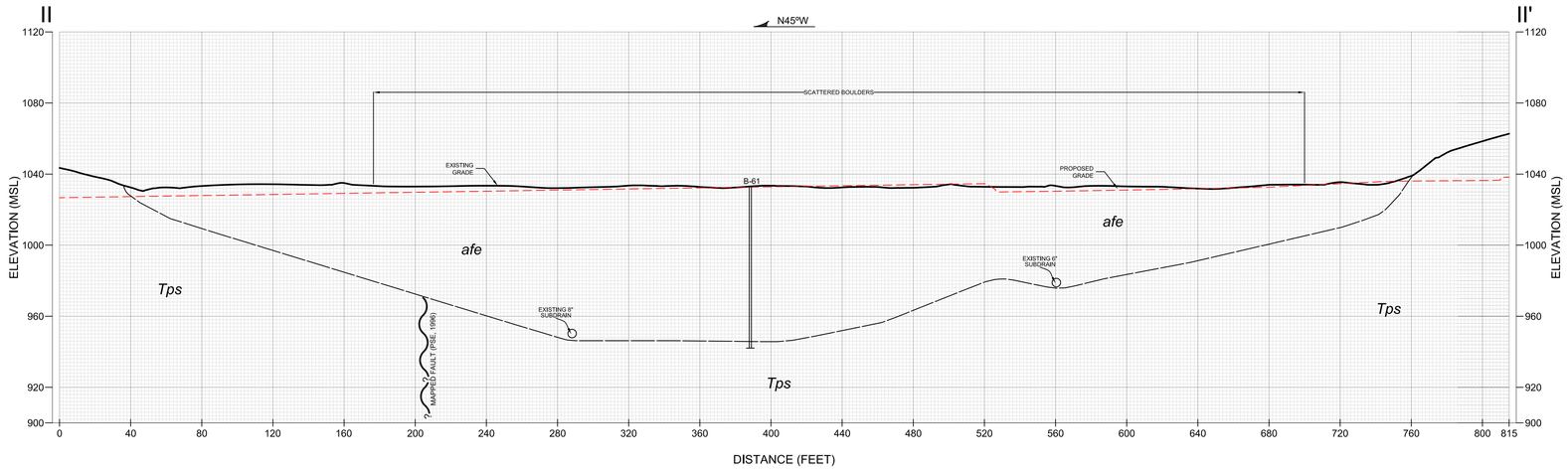
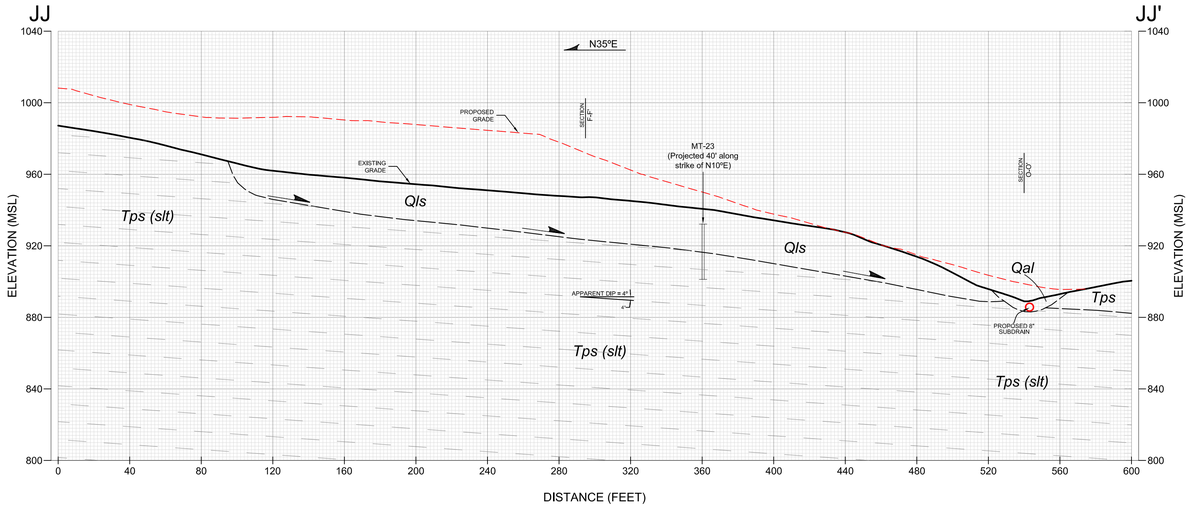
SCALE	1" = 40'	DATE	04 - 01 - 2013
PROJECT NO.	G1218 - 52 - 01A	FIGURE	7
SHEET	4 OF 5		



GEOLOGIC CROSS-SECTION II-II'

SCALE: 1" = 40' (Vert. = Horiz.)



GEOLOGIC CROSS-SECTION JJ-JJ'

SCALE: 1" = 40' (Vert. = Horiz.)

LEGEND

- *Qcf* .....COMPACTED FILL (Proposed)
- *afu* .....UNDOCUMENTED ARTIFICIAL FILL
- *afe* .....ENGINEERED ARTIFICIAL FILL
- *Qal* .....ALLUVIUM
- *Qls* .....LANDSLIDE DEBRIS
- *Qt* .....TERRACE DEPOSITS
- *Tco* .....CAPISTRANO FORMATION
- *Tpy* .....PUENTE FORMATION - YORBA MEMBER (Siltstone)
- *Tps* .....PUENTE FORMATION - SOQUEL MEMBER (Sandstone)
- *Tps (slt)* .....PUENTE FORMATION - SOQUEL MEMBER (Siltstone)
- *Tplv* .....PUENTE FORMATION - LA VIDA MEMBER
- B-26 .....APPROX. LOCATION OF EXPLORATORY EXCAVATION
- TP-26 .....APPROX. LOCATION OF EXPLORATORY TEST PIT
- MT-23 .....APPROX. LOCATION OF PREVIOUS BORING (Moore&Taber, 1974)
- 15° .....APPROX. APPARENT DIP OF BEDDING
- ? .....APPROX. LOCATION OF GEOLOGIC CONTACT (Queried Where Uncertain)
- .....SENSE OF MOVEMENT OUT OF SECTION
- ?~~~~~~~~ .....APPROX. LOCATION OF BEDDING PLANE SHEAR (Queried Where Uncertain)
- W=75' .....APPROX. WIDTH OF REQUIRED BUTTRESS IN FEET, SEE SLOPE STABILITY ANALYSES
- .....PROPOSED BUTTRESS

GEOLOGIC CROSS - SECTIONS

PORTOLA CENTER SOUTH
TM #15353
LAKE FOREST, CALIFORNIA

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SCALE	1" = 40'	DATE	04 - 01 - 2013
PROJECT NO.	G1218 - 52 - 01A	FIGURE	8
SHEET	5 OF 5		

APPENDIX A

APPENDIX A

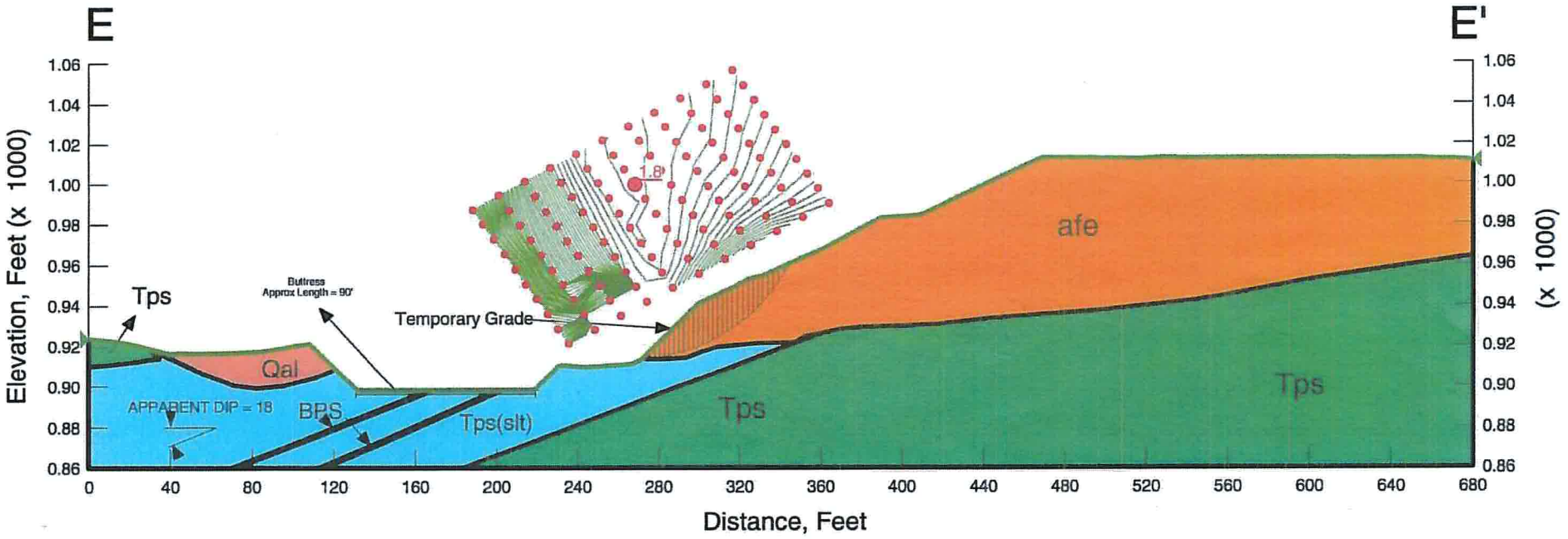
SLOPE STABILITY ANALYSES

FOR

PORTOLA CENTER SOUTH
TENTATIVE TRACT NO. 15353
LAKE FOREST, CALIFORNIA

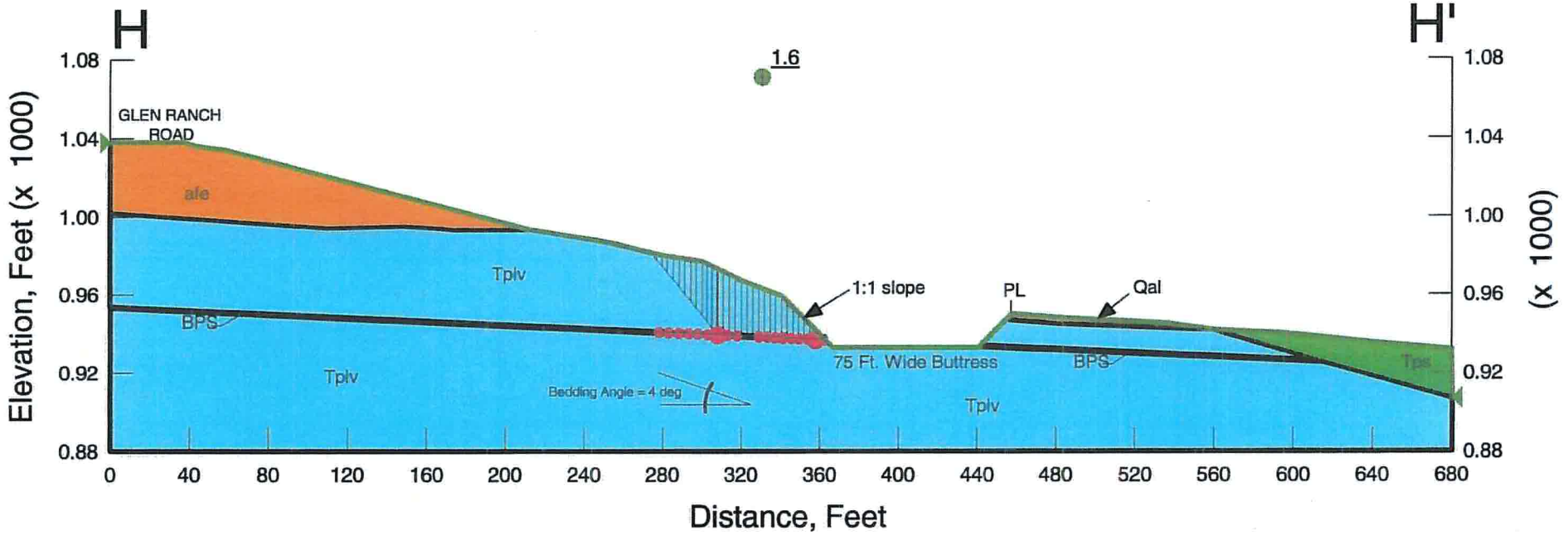
PROJECT NO. G1218-52-01A

Portola Center South
Project No. G1218-52-01A
Date: 1/14/2013
File Name: EE-Case 4-4.gsz
Time: 7:57:15 AM
Method: Spencer
Slip Surface Option: Grid and Radius
Horz Seismic Load: 0
Name: Qafe Unit Weight: 120 pcf Cohesion: 500 psf Phi: 28 °
Name: Tps-Sandstone Unit Weight: 125 pcf Cohesion: 800 psf Phi: 34 °
Name: Tps-Slt Unit Weight: 115 pcf Cohesion: 900 psf Phi: 30 °
Name: Bedding Plane Shear Unit Weight: 115 pcf Cohesion: 125 psf Phi: 12 °
Name: Qal Unit Weight: 120 pcf Cohesion: 500 psf Phi: 23 °



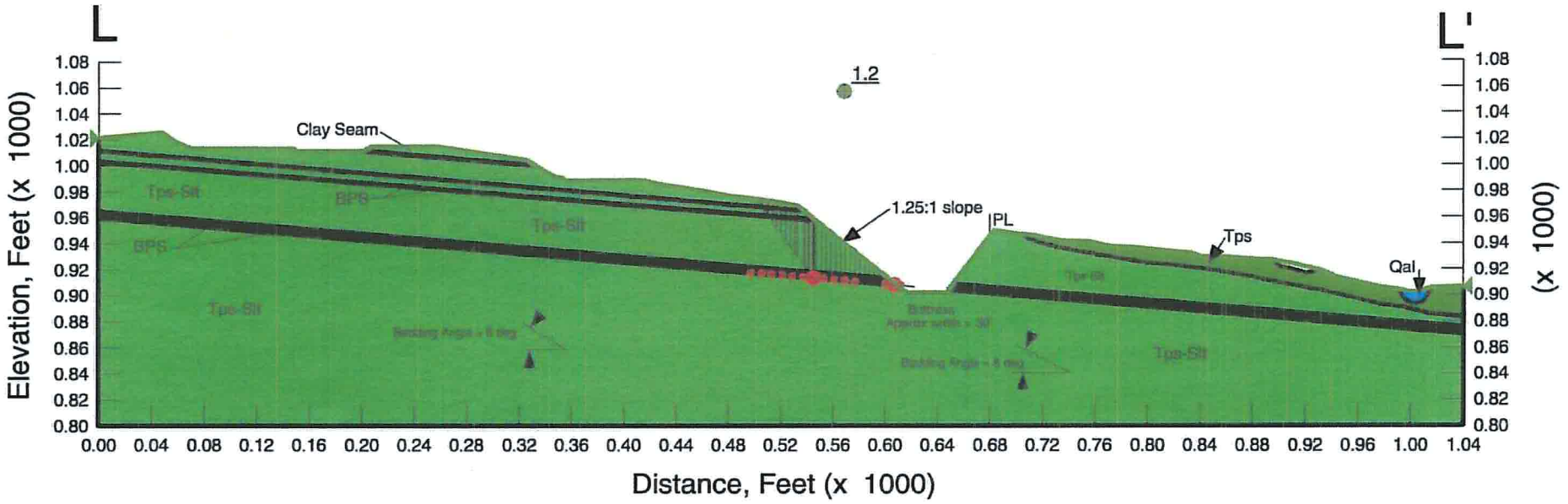
X:\Engineering and Geology\ENGINEER PROGRAMS, GUIDES, ETC\EngrgPrg\GEO-SLOPE2007\Projects\G1218-52-01A-PortolaSouth\EE-Case 4-4.gsz

Portola Center South
Project No. G1218-52-01A
Section H-H'
Name: HH-Case 3s-Temporary Cut.gsz
Date: 1/14/2013 Time: 9:54:17 AM
Name: Qal Unit Weight: 120 pcf Cohesion: 500 psf Phi: 23 °
Name: Tplv Unit Weight: 115 pcf Cohesion: 900 psf Phi: 30 °
Name: Bedding Plane Shear Unit Weight: 115 pcf Cohesion: 125 psf Phi: 12 °
Name: Tps Unit Weight: 125 pcf Cohesion: 800 psf Phi: 34 °
Name: afe Unit Weight: 120 pcf Cohesion: 500 psf Phi: 28 °



X:\Engineering and Geology\ENGINEER PROGRAMS, GUIDES, ETC\EngrgPrg\GEO-SLOPE2007\Projects\G1218-52-01A-PortolaSouth\HH-Case 3s-Temporary Cut.gsz

Portola Center South
Project No. G1218-52-01A
Section L-L'
Name: LL-Case 5-5c-Temporary Cut.gsz
Date: 1/11/2013 Time: 11:21:09 AM
Name: Qcf Unit Weight: 120 pcf Cohesion: 500 psf Phi: 28 °
Name: Tps-slt Unit Weight: 115 pcf Cohesion: 900 psf Phi: 30 °
Name: Bedding Plane Shear Unit Weight: 115 pcf Cohesion: 125 psf Phi: 12 °
Name: Qal Unit Weight: 120 pcf Cohesion: 500 psf Phi: 23 °
Name: Tps Unit Weight: 125 pcf Cohesion: 800 psf Phi: 34 °
Horz Seismic Load: 0



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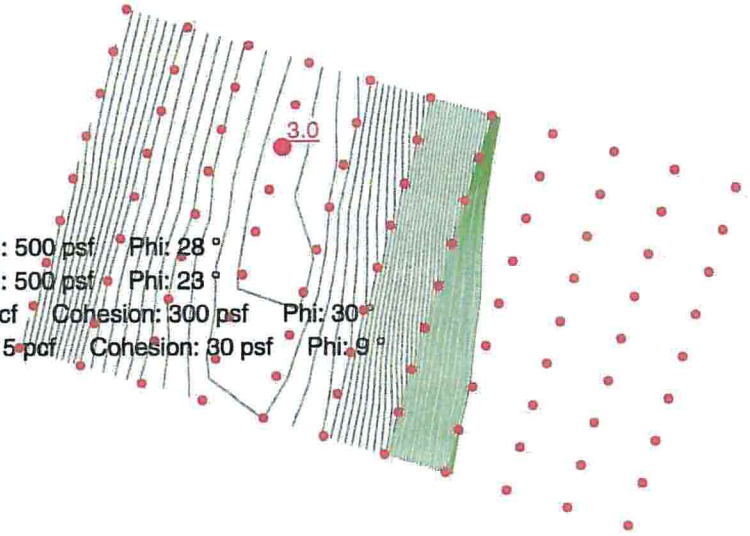
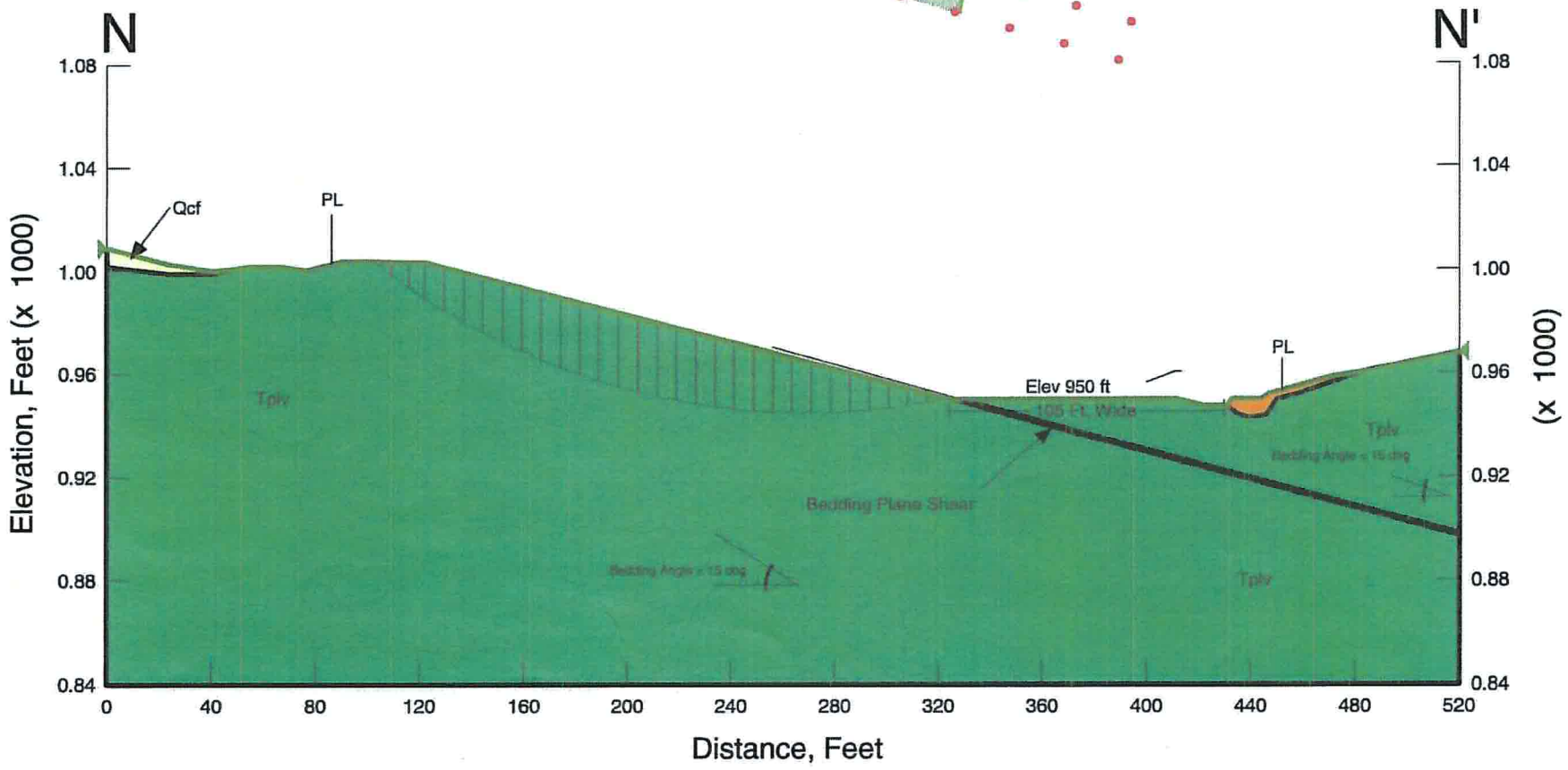
Portola Center South
Project No. G1218-52-01A
Section N-N'
Name: NN-Case10-Temporary Cut.gsz
Date: 1/14/2013 Time: 10:11:53 AM
Name: Qcf Unit Weight: 120 pcf Cohesion: 500 psf Phi: 28 °
Name: Qal Unit Weight: 120 pcf Cohesion: 500 psf Phi: 23 °
Name: Tplv (15 degrees) Unit Weight: 115 pcf Cohesion: 300 psf Phi: 30°
Name: Bedding Plane Shear Unit Weight: 115 pcf Cohesion: 30 psf Phi: 9 °





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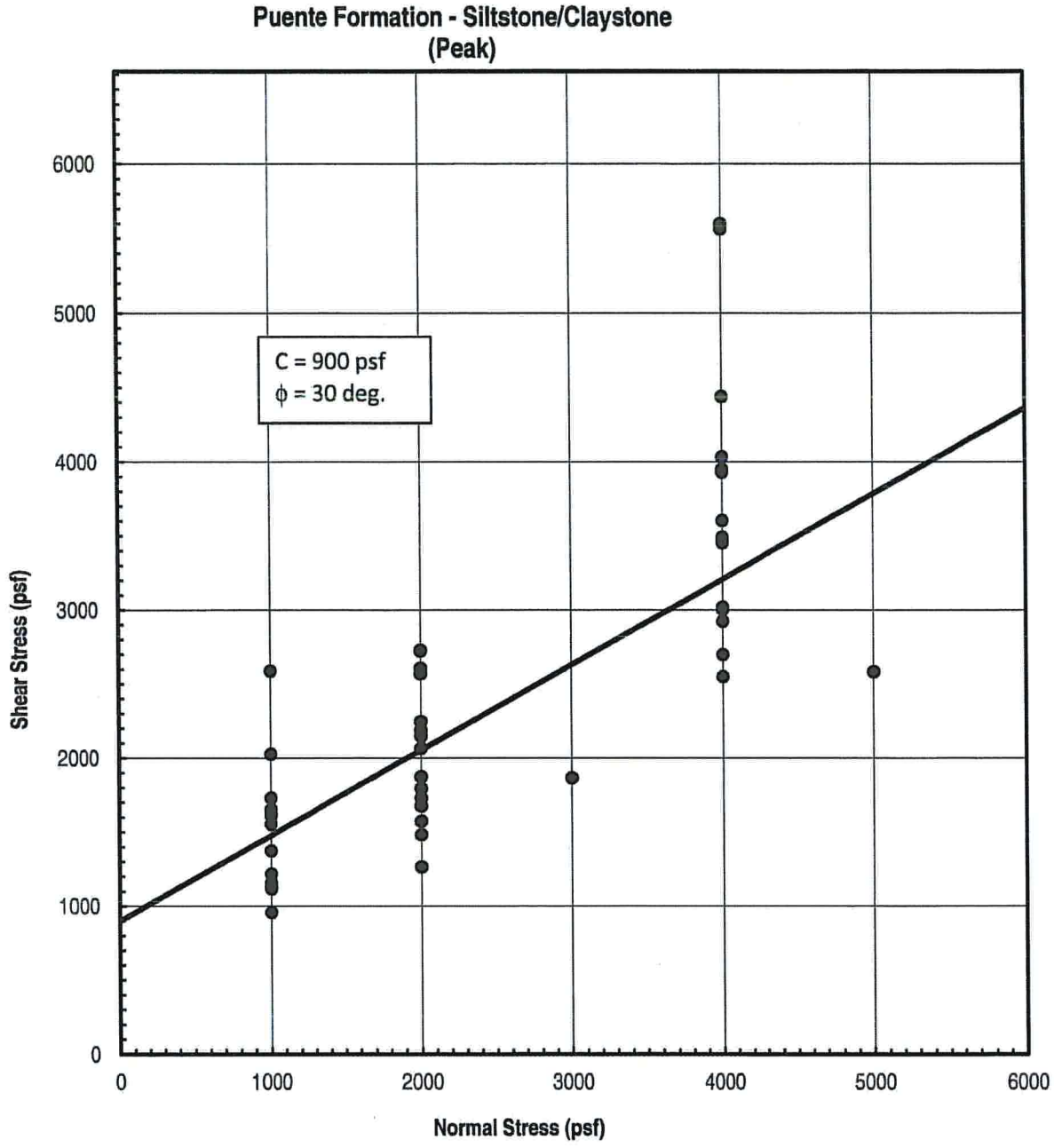

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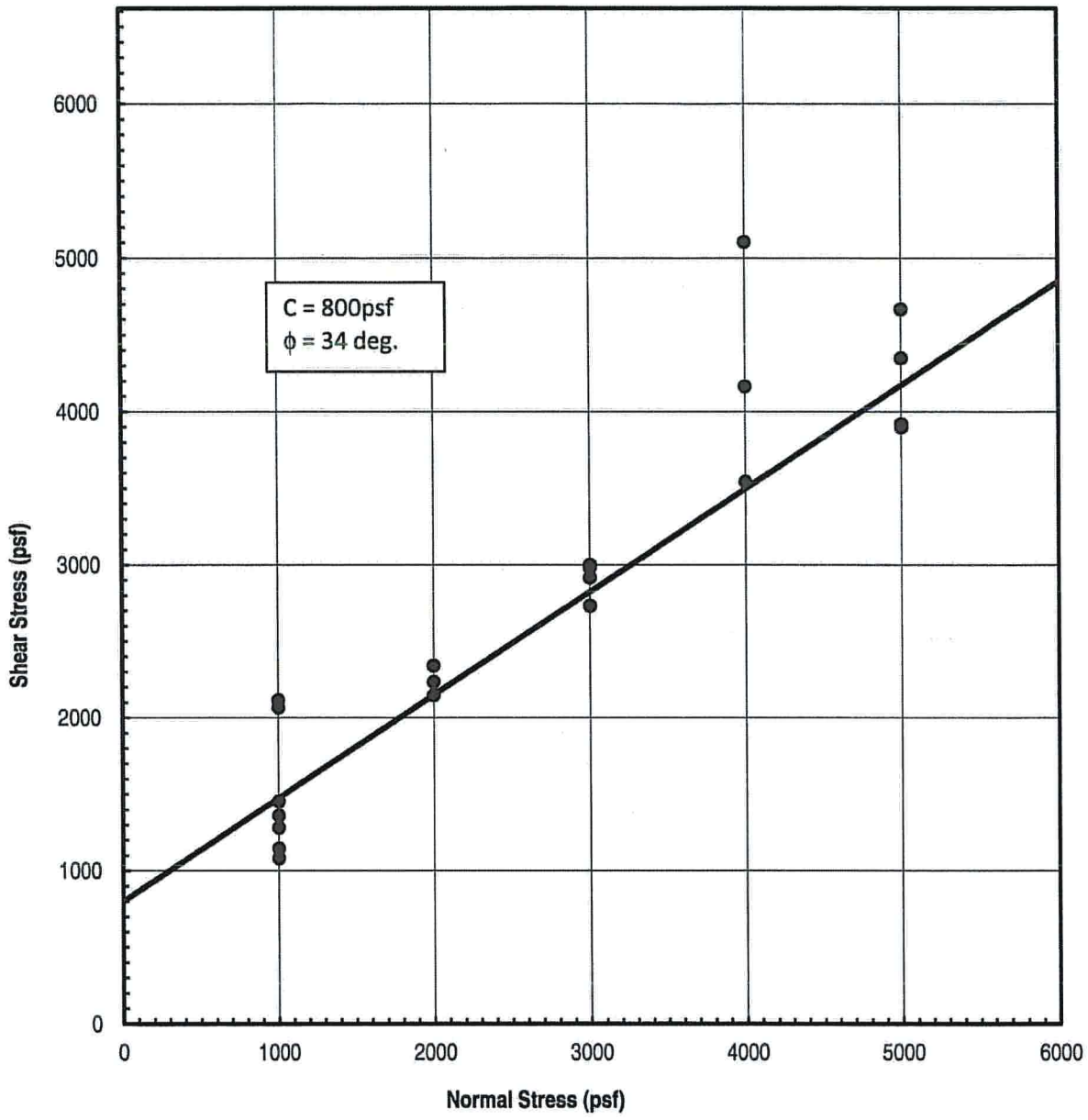
SW/SW

SHEAR STRENGTH TEST RESULTS

PORTOLA CENTER SOUTH
TM # 15353
LAKE FOREST, CALIFORNIA

PROJECT NO. G1218-52-01



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SW/SW

SHEAR STRENGTH TEST RESULTS

PORTOLA CENTER SOUTH
TM # 15353
LAKE FOREST, CALIFORNIA

PROJECT NO. G1218-52-01