October 15, 2008

Terracon
Consulting Engineers & Scientists

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Red Point Development
8710 North Thornydale Road
Tucson, Arizona 85742

Attn: Mr. Larry Kreis
General Manager

RE: Supplemental Recommendations to Geotechnical Engineering Report
Phase I Residential Development at the Pines
At the Pines Golf Course
North of Cortaro Road and West of Interstate 10
Marana, Arizona
Terracon Project No. 63045225, Addendum 10, Revision 1

Terracon has completed the geotechnical engineering report for the Residential Development at the Pines (Terracon Project 63045525, dated December 8, 2004). Between June 2005 and July 2008, nine addendums to the geotechnical report were provided. Two of these addendums addressed pavement recommendations for Continental Links Drive. The remainder primarily addressed a portion of the property where fills between 7 and 27 feet deep exist. Alternative recommendations to mitigate problems arising from potential settlement of this fill were provided.

Theses recommendations applied to the lots in the area of deep existing fills. These lots included:

Lot 1	Lot 16	Lot 73
Lot 2	Lot 17	Lot 74
Lot 3	Lot 18	Lot 75
Lot 4	Lot 19	Lot 76
Lot 5	Lot 70	Lot 77
Lot 6	Lot 71	Lot 78
Lot 15	Lot 72	Lot 115

We have been requested by Red Point Development to evaluate the possibility of overexcavating and recompacting the loose fill soils in these areas, to depths we believe sufficient to reduce potential structural settlements to levels where an economical foundation design may be feasible.

The deepest fills estimated to be between 17 and 27 feet are expected at Lots 71 to 77. In the areas of Lots 1 to 4, 17 to 19, 70, 78, and 115, we anticipate the depth of fill to be between 10 and 17 feet. In the areas of Lots 5 and 6, 15 and 16 we expect depth of fill between 5 and 10 feet.

The following table shows the depth of overexcavation and recompaction of existing fills we recommend for these areas.

Area	Depth From Existing Grade (ft)
Lots 1 - 4	10
Lots 5 and 6	5
Lot 70	10
Lots 71 - 74	15
Lot 78	10
Lots 75 - 77	15
Lots 15 and 16	5
Lots 17 - 19	10

The attached Figures 1 through 6 show these areas and cross sections of our recommended overexcavation zones. Soils overexcavated and recompacted as engineered fill should be placed in loose lifts not exceeding 12-inches in height, and should be compacted to a minimum of 95 percent of Standard Proctor Density (ASTM D698) near optimum moisture content.

The cross sections indicate access ramps down into each of the excavations with inclinations of about 3.5:1 (horizontal:vertical). These slopes would not need to extend across the entire side of a given excavation, but rather be wide enough to accommodate the excavation equipment. The remainder of that side of the excavation may have slopes as steep as 1:1 (horizontal:vertical). Also, we understand some of the ramps as shown on our cross section may need to be relocated to other portions of the excavations due to existing site walls.

We understand that additional fill will be required due to compaction shrinkage factors and the desire to elevate the finished grades of the lots above their current elevations. All fill imported to the site should meet the requirements for imported fill provided in the original geotechnical report, and should be compacted according the recommendations in the original report.

If these earthwork preparations are completed as recommended, the following criteria for post-tensioned slab-on-ground foundations may be used for design.

Post-Tensioned Slab Foundation Systems (Compressible Soil Case): Post-tensioned slab construction can be considered as an alternate foundation system for the project. Post-tensioned slabs should be designed using criteria outlined by the Post-Tensioning Institute[1] for the compressible soil case based on the following:

- Maximum Allowable Bearing Pressure (at surface)..... 1250 psf
- Soil Modulus of Elasticity, Es ..... 3000 psi
- Soil Modulus of Subgrade Reaction, k ..... 200 pci
- Total Soil Movement, δ ..... 1 inches*
- Slab-Subgrade friction coefficient, μ
  - on polyethylene sheeting..... 0.75
  - on cohesionless soils 1.00
  - on cohesive soils..... 2.00

*Estimated settlement based upon total structure load expressed as a uniform 1250 psf pressure acting over the entire slab area. For structure loads resulting in a pressure less than 1250 psf, a reduced δ value could generally be estimated by linear interpolation.

Post-tensioned slabs, thickened or turn-down edges and/or interior beams should be designed and constructed in accordance with the requirements of the Post-Tensioning Institute and the American Concrete Institute. Perimeters of the post-tensioned slabs should bear a minimum of 12 inches below adjacent grades. Subgrades supporting a post-tensioned slab should be prepared as recommended in this report.

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[1]PTI Slab-on-Ground Committee, (2004), ***Design and Construction of Post-Tensioned Slabs-on-Ground,*** Post-Tensioning Institute, Third Edition.

If you have any questions regarding this letter please contact us.

Sincerely,

TERRACON

Expires 03/31/2009

Oleg B. Lysyj, P.E.
Principal

Copies: Addressee (2)

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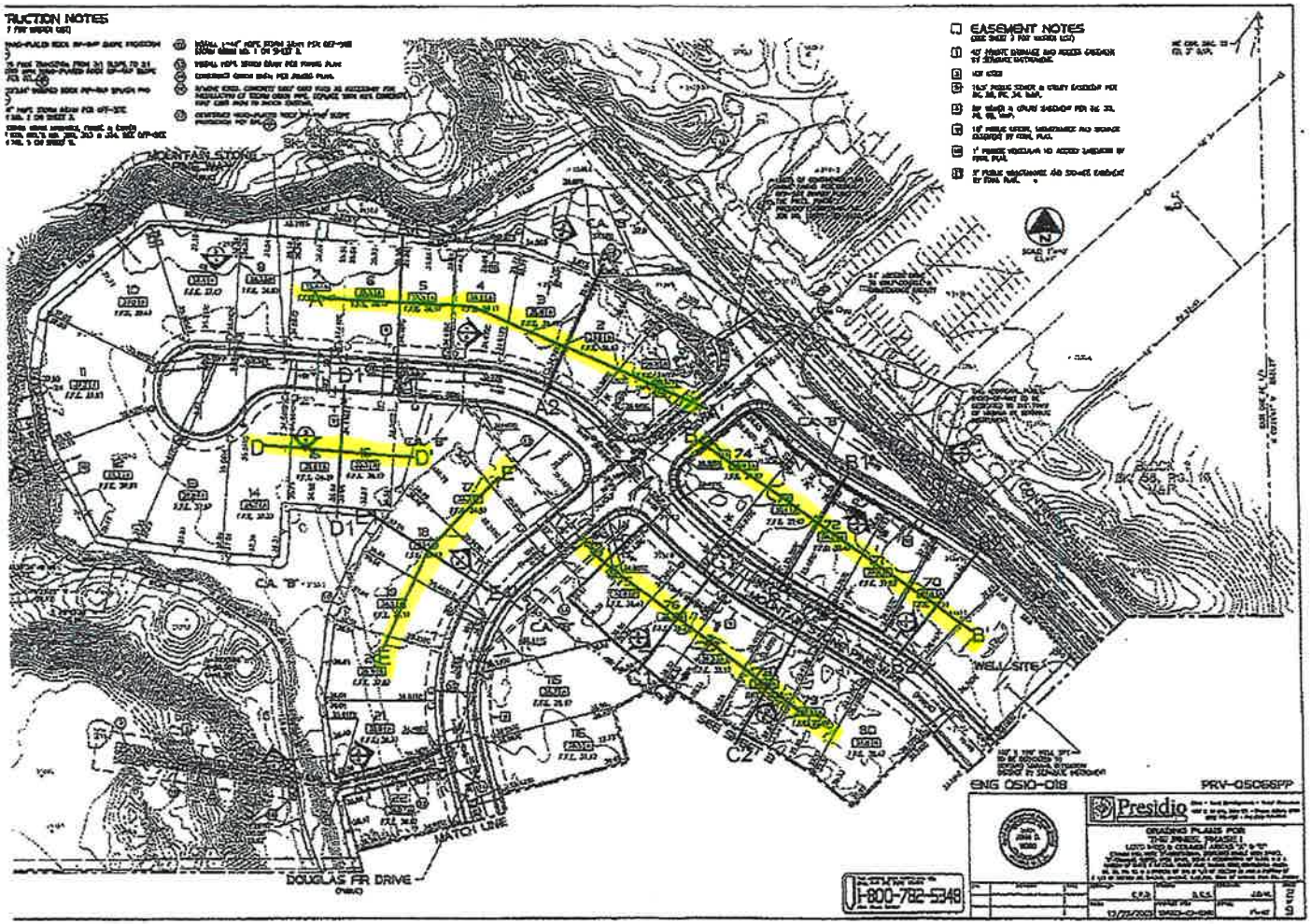
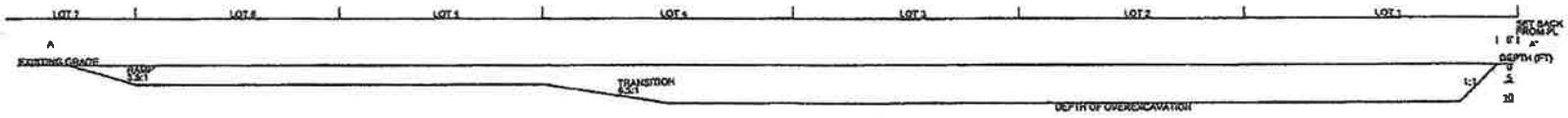
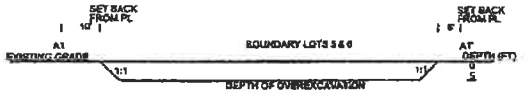
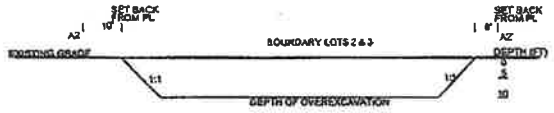


Project Mgr: CBL	Project No: 6304522S	Terracon Consulting Engineers and Scientists	SITE PLAN OVER EXCAVATION CROSS SECTION THE PINES, PHASE I LOT LAYOUT
Drawn By: JNH	Scale: NO TO SCALE		FIG. No. 1
Checked By: CBL	File No: 6304522S		
Approved By: CBL	Date: 10-06-06		

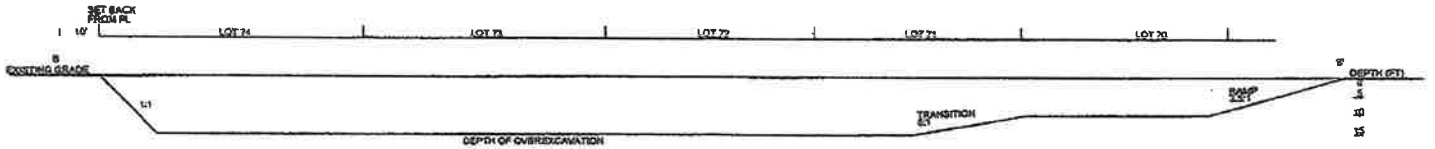
TUCSON ARIZONA

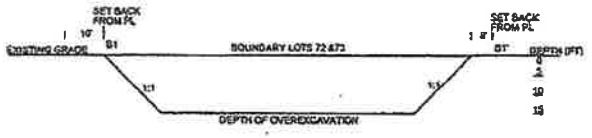






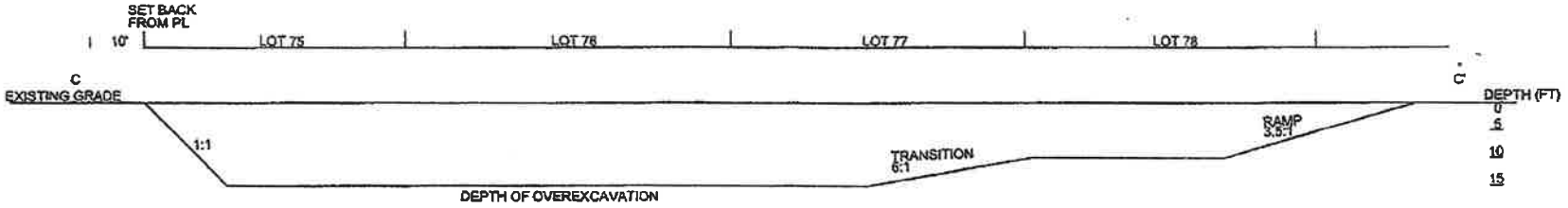
Project Mngr. OBL Drawn By: JMH Checked By: OBL Approved By: OBL	Project No. 53045225 Scale: 1"=30' File No. 53045229 Date: 10-05-05	Terracon Consulting Engineers and Scientists 2051 EUCLID, SUITE 107 TUCSON, AZ 85719 PH. (520) 792-0293 FAX: (520) 792-3410	SITE PLAN OVER EXCAVATION CROSS SECTION THE PINES, PHASE I A SECTIONS TUCSON ARIZONA	FIG. No. 2

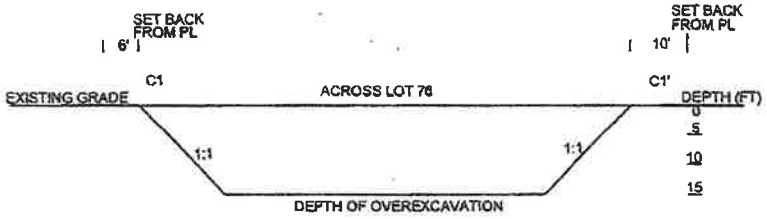


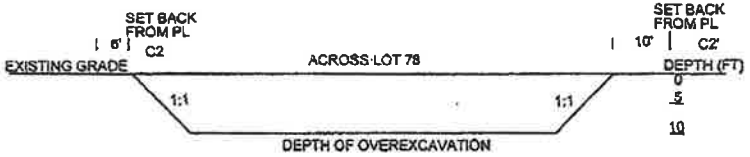


Project Engr: OBL	Project No. 63045225	Terracon Consulting Engineers and Scientists	SITE PLAN
Drawn By: JMH	Scale: 1"=30'		OVER EXCAVATION CROSS SECTIONS
Checked By: OBL	File No. 63045225		THE PINES, PHASE I
Approved By: OBL	Date: 10-05-06		8 SECTIONS
			TUCSON ARIZONA

FIG. No. 3







Project Mgr:	CBL
Drawn By:	JNH
Checked By:	CBL
Approved By:	CBL
Project No.	63045225
Scale:	1"=20'
File No.	63045225
Date:	10-05-08

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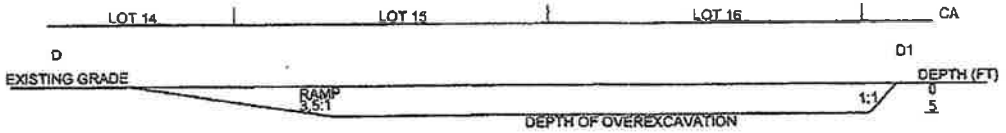
TUCSON ARIZONA

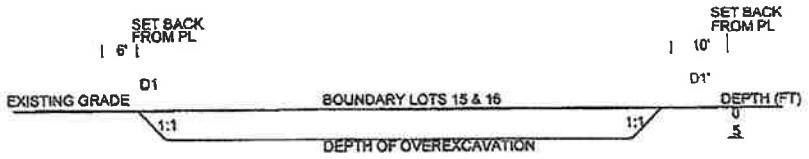
SITE PLAN

OVER EXCAVATION CROSS SECTIONS

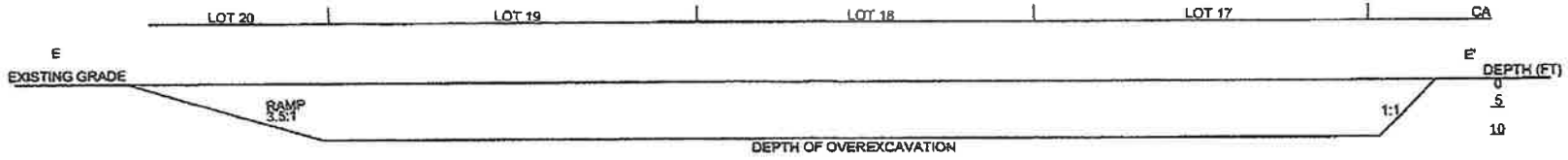
THE PINES, PHASE I
C SECTIONS

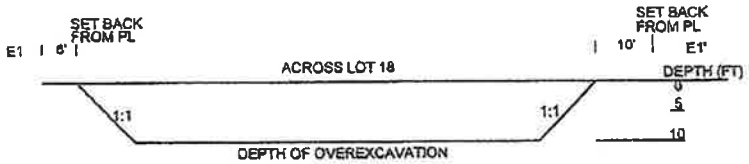
FIG. No. 4





Project Engr: OSL	Project No. 63045225	Terracon Consulting Engineers and Scientists	SITE PLAN
Drawn By: JHH	Scale: 1"=20'		OVER EXCAVATION CROSS SECTIONS
Checked By: OSL	File No. 63045225		THE PINES, PHASE I
Approved By: OSL	Date 10-08-08		D SECTIONS
		TUCSON ARIZONA	FIG. No. 5





OBL	63045225	Terracon Consulting Engineers and Scientists	SITE PLAN	FIG. No.
JMH	1"=20'		OVER EXCAVATION CROSS SECTIONS	6
OBL	63045225		THE PINES, PHASE I	
OBL	10-05-03	TUCSON ARIZONA	E SECTIONS	