DENIS HANYS ENGINEERING SERVICE, LL C
10107 Inwood Drive
Houston, Texas 77042-2439
(713) 783-6110

May 24, 2021

Mr. James Elliott
12139 Glen Way Drive
Houston, Texas 77070

Dear Mr. Elliott,

Enclosed is the report of the visual inspection that was conducted on the structural foundation of the residence located at 4815 Chantilly Lane, Houston, Texas, by Mr. Denis G. Hanys, PE. This inspection was conducted for you on the date of May 24, 2021.

The information you need should be contained in the attached report. Should you have any questions, however, please give us a call. It was a pleasure to have done business with you, and we hope we may be of additional service to you some time in the future.

Denis Hanys, PE
President

FOUNDATION INSPECTION REPORT
REPORT NO. 21-25

1.0 INTRODUCTION

The purpose of this report is to describe the results of a level B inspection that was conducted on the foundation of the residential building described below. This inspection was conducted at the request of the Client to provide an opinion regarding the performance of this foundation as a primary load-bearing structural member of this building.

In the conduct of this work, Denis Hanys Engineering Service, LLC. has acted as an engineering consultant to provide information to the Client for use as the Client may see fit. As such, Denis Hanys Engineering Service, LLC. involvement in any activities related to this residence shall terminate when the final report is submitted unless otherwise requested in writing by the Client. As a consultant to the Client, it is the sole function of Denis Hanys Engineering Service, LLC. to provide information to the Client regarding the condition of the foundation and not to make any binding judgments on any condition reported nor to determine the need for repair. Such judgments are, of course, left to the Client.

This inspection consisted of a visual examination of the accessible portions of the foundation and the remainder of the structure. In such an examination, it is recognized that a diagnosis of foundation performance can possibly be compromised by the inability to gain access to large portions of the foundation for visual examination, the lack of definition of design and construction parameters that often govern the foundation performance, and inherent limitations to the state of the art of engineering analysis of foundation performance. Denis Hanys Engineering Service, LLC. has conscientiously utilized all visual data available to every extent reasonable and has attempted to acquire available information such that a reasonably accurate diagnosis could be made. Where specifically requested by the Client, Denis Hanys Engineering Service, LLC. has provided recommendations for remedial action, should such be warranted. Such recommendations are provided for information, and Denis Hanys Engineering Service, LLC. assumes no responsibility in the event such repair work should be done. Finally, this report was written to satisfy the specific objectives of the Client. Neither the author of this report nor Denis Hanys Engineering Service, LLC. assume any responsibility whatsoever for the use of this report by any third party person. Client(s) agree in using this report that DHES is not required to give testimony or attendance in Court or at any other hearing with reference to matters discussed herein, unless prior arrangements are made.

2.0 PROJECT DESCRIPTION

The residence inspected was located at 4815 Chantilly Lane, Houston, Texas. The Client for this inspection was Mr. James Elliott. The residence was not occupied and the client was present during the inspection.

The residence inspected was a one-story, single family wood frame dwelling with brick veneer and wood siding. The structure had a combination gable, hip and shed roof with a composition shingle covering. A patio was located in the back yard. The garage was detached and was covered with wood siding. The structure had what appeared to be a reinforced concrete grade-beam-stiffened slab-on-ground foundation. The residence outline is depicted on the resident outline sketch.

3.0 INSPECTION RESULTS

3.1 OBSERVATIONS

Inspection of the foundation of this residence failed to reveal the existence of a severely deflected condition or evidence indicating that major foundation instabilities were present. A slight out-of-level condition was observed in the master bedroom window stool, although, the counters, sills, etc. were observed to be in a reasonably level condition. Deviations from level were observed at isolated locations in the floor. These deviations were measured using an electronic level manometer and the results have been superimposed upon the resident outline sketch. Compensation was made in the floor coverings so that the measurements shown should reflect the true height of the floors. From this sketch, it can be seen that the interior floors tend to be higher in relative elevation in the center portion of the structure. Although, slope was measured on the interior floors, the doors and windows generally fit properly in their frames and doors opened and closed freely. Minor cracks were on the exterior walls, and minor compression ridges were observed on the interior walls; however, it is our opinion that the magnitude of these distortions was not sufficient to be indicative that a severe foundation problem was present.

The concrete in the visible portion of the foundation was observed to be free of significant honeycomb pockets or exposed reinforcement steel, although, minor cracks were observed on the surface of the perimeter grade beams and on the surface of the garage slab. It is important to understand, however, that cracks can be extremely difficult to see and other cracks could feasibly be detected by the Client at some time after the inspection has been completed. Since cracking is a normal property of concrete, and is not necessarily indicative of a foundation functional failure, neither the author nor Denis Hanys Engineering Service, LLC. assume any responsibility whatsoever should additional cracks be found.

3.2 ANALYSIS

In its report titled "Soil Survey of Harris County", the U. S. Soil Conservation Service has classified the soil in this general area to be a member of the Clodine sandy loam family of soils. The report shows soils in this classification to have moderate shrink/swell potentials on the surface with higher shrink/swell potentials just below the surface because of the percentage of expansive clays present.

A profile analysis was performed across sections of the foundation slab, where it appears as though the most slope is present. This is included in the **PROFILE ANALYSIS** Section of this report. Based upon this analysis the amount of bending in the east portion of the structure exceeds the L/360 bending ratio a slight amount.

The presence of sloping floors combined with the absence of a significant amount of foundation-induced damage leads one to believe that the conditions which were the cause of the sloping floors did not occur in the recent past. This condition also tends to lead one to believe that the foundation has possibly reached some reasonable point of stability. According to the client, several trees were removed from the yard adjacent to the structure at some time in the distant past. This was possibly the cause of the slope. With the trees removed, one would expect that the moisture in the support soil has possibly reached some reasonable point of stability. On this basis, no remedial measures are recommended at this time except for the Owner to maintain the moisture content of the soil in as uniform a condition throughout the year as reasonably possible. During periods of drought soil maintenance procedure (balance moisture content around the perimeter) be continued or implemented immediately, because the slab could undergo a drastic change in a short period of time when the soil is allowed to become too dry. It must be understood that any conclusions regarding foundation performance are based upon a very limited amount of evidence. The acceptability of the limitations used in deriving these conclusions and the acceptability of the sloping condition in the floors is totally left to the Client.

4.0 CONCLUSIONS

Based upon the observations made during this inspection, and the analysis that was performed, it is our opinion, the conditions that produced the slope did not occur in the recent past. It is also our opinion, the foundation has reached some reasonable point of stability. No recommendations for remedial measures are provided, except for normal foundation maintenance. This is described in the previous section of this report.

The foregoing discussion is based upon an analysis of information which was obtained through a visual inspection of the foundation and its associated structure combined with such engineering information that was otherwise available. Although this process yields reliable results the majority of the time, it must be recognized that occasionally latent conditions may exist which are not always amenable to detection during a visual inspection of this type. Thus, any inspection of this type is essentially an opinion upon which the Client may place a reasonable degree of reliance; but, under no conditions can such an opinion be considered absolute nor can such opinion be used without any assumption of risk. Also, this inspection was conducted to provide specific information to the Client. The author of this report, therefore, assumes no responsibility whatsoever for the use of this information by another.

5.0 CERTIFICATION

I hereby certify that I did conduct the assessment of the foundation performance of the residence located at 4815 Chantilly Lane, Houston, Texas, on the date of May 24, 2021. I further certify that I am a Licensed Professional Engineer in the State of Texas, whose registration number is 49157. I further certify that the findings and conclusions contained in this report have been, to the best of my knowledge, correctly and completely stated without bias and are based upon my observations and my experience. No responsibility is assumed for events that occur subsequent to the submission of this report and no warranty, either expressed or implied, is hereby made.

Denis G. Hanys
Licensed Professional Engineer
FIRM # 3665

5/24/2021

DENIS HANYS ENGINEERING SERVICE, LLC
10107 INWOOD DR.
HOUSTON, TEXAS 77042-2439

(713) 783-6110

FOUNDATION INSPECTION CHECKLIST

CLIENT: Jim Elliott
12139 Gen Way Dr.
Houston, Texas 77070

ADDRESS: 4815 Chantilly Ln
451 M, Ce, 21-25

STRUCTURAL CONFIGURATION

RESIDENCE OCCUPIED: Y N WITNESSED BY: CLIENT: (Y) N CLIENT"S AGENT Y N OWNER'S AGENT: Y N
NO. OF STORIES: One Brick FIREPLACE LOCATION: N/A PATIO LOCATION: Back Yard
TYPE ROOF: Gable, Hip, Shed TYPE ROOF COVERING: Composition POOL LOCATION: N/A
GARAGE: ATTACHED (DETACHED) CARPORT NONE SIDING IF DETACHED:
FOUNDATION: Reinforced Slab-on-Ground

OBSERVATIONS:

EXTERIOR CRACKS: (Y) N Diag HL → 1/8" on West wall 12-14' So. of NW cor., Diag HL (+) on No. wall 10' West of NE corner → into GB, Diag HL on No. wall near Center into GB

CASING SEPARATION: Y (N)

FASCIA SEPARATION (Y) N D.O East FB Sup @ NE cor of SG offset
AVERAGE HEIGHT OF VISIBLE SLAB SHOWING: 6"
REINFORCING STEEL VISIBLE: Y (N)
FOUNDATION SOIL ADEQUATELY COVERED: (Y) N
CRACKS IN SIDEWALK/PATIO/DRIVEWAY (Y) N
INTERIOR WALL CRACKS (Y) N Vclet Cr on Foyer So. wall @ upper East cor of LR Openings,

HONEYCOMB POCKETS: Y (N)
FOUNDATION CRACKS (Y) N No.
CRACKS IN GARAGE FLOOR: (Y) N
TREE ROOTS NEXT TO STRUCTURE: Y (N)

FLOORS LEVEL: Y N
DOORS FIT: (Y) N
COUNTER TOPS LEVEL: (Y) N Master Bed WST W 1/10"/12'

PIER & BEAM ONLY

PADS AND BLOCKS TILTED: Y N
EXCESSIVE MOISTURE IN CRAWL SPACE: Y N
EXCESSIVE SHIM STOCK: Y N
SOIL CONTACTING WOOD: Y N

DETERIORATED WOOD VISIBLE: Y N
UNSUPPORTED SILLS: Y N
ADEQUATE VENTILATION: Y N

RECOMMENDATIONS:

The condition that produced slope does not appear to have occurred in recent past

FEE

A FEE OF $ 375.00 FOR PROFESSIONAL ENGINEERING SERVICE
☑ WAS PAID AT THE INSPECTION CHECK # 1955
☐ WAS NOT PAID

CERTIFICATION

I HEREBY CERTIFY THAT I DID PERFORM THE INSPECTION DESCRIBED ABOVE ON THE DATE OF 5/24/2021 AND HAVE REPORTED MY FINDINGS BASED UPON MY OBSERVATIONS AND EXPERIENCE; SUCH INSPECTIONS BEING LIMITED TO VISUAL OBSERVATIONS AND AN EVALUATION OF SYMPTONS. NO WARRANTY OR RESPONSIBILITY FOR CONDITIONS NOT DETECTABLE BY VISUAL INSPECTION OR FOR EVENTS OCCURING SUBSEQUENT TO THIS INSPECTION IS HEREBY EXPRESSED OR IMPLIED.

Denis G. Hanys — NAME
Denis G. Hanys — SIGNATURE
49157 — P. E. #
TEXAS

JEAPPRAISAL@SBCGLOBAL.NET

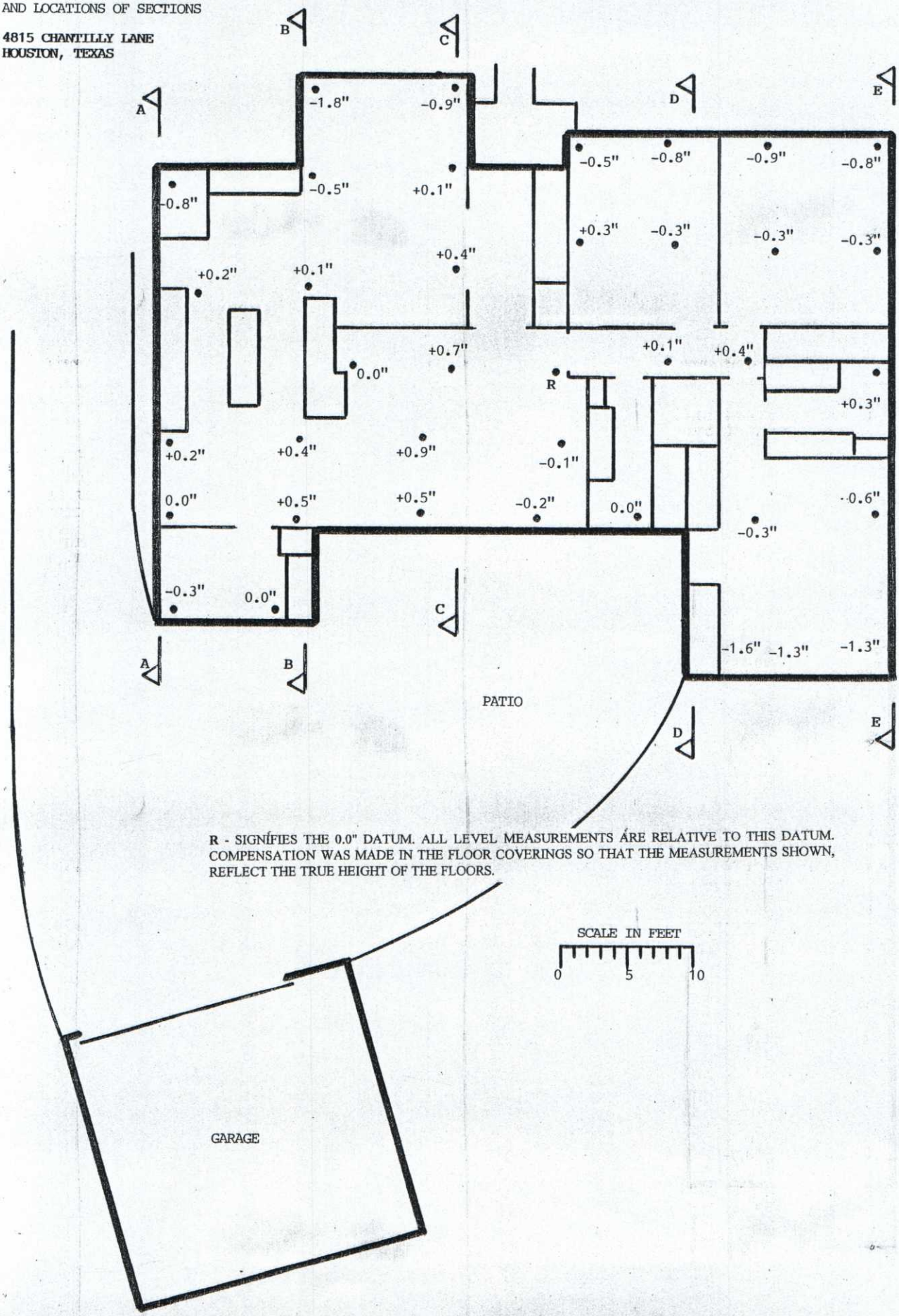
SKETCHES

THIS SKETCH WAS PREPARED FOR THE PURPOSE OF DISPLAYING MEASURED FLOOR HEIGHTS AND IS NOT REPRESENTED TO BE A TRUE COPY

N

RESIDENCE OUTLINE SHOWING MEASURED RELATIVE HEIGHTS AND LOCATIONS OF SECTIONS

4815 CHANTILLY LANE
HOUSTON, TEXAS



R - SIGNIFIES THE 0.0" DATUM. ALL LEVEL MEASUREMENTS ARE RELATIVE TO THIS DATUM. COMPENSATION WAS MADE IN THE FLOOR COVERINGS SO THAT THE MEASUREMENTS SHOWN, REFLECT THE TRUE HEIGHT OF THE FLOORS.

SCALE IN FEET

0 5 10

PROFILE ANALYSIS

FPA-SC-13-1-Calcs www.foundationperformance.org **DRAFT** Rev. 2 Jul 2014

Proprietary Calculation Spreadsheet for Document # FPA-SC-13-1
Foundation Performance Guidelines for Residential and Other Low-Rise Buildings

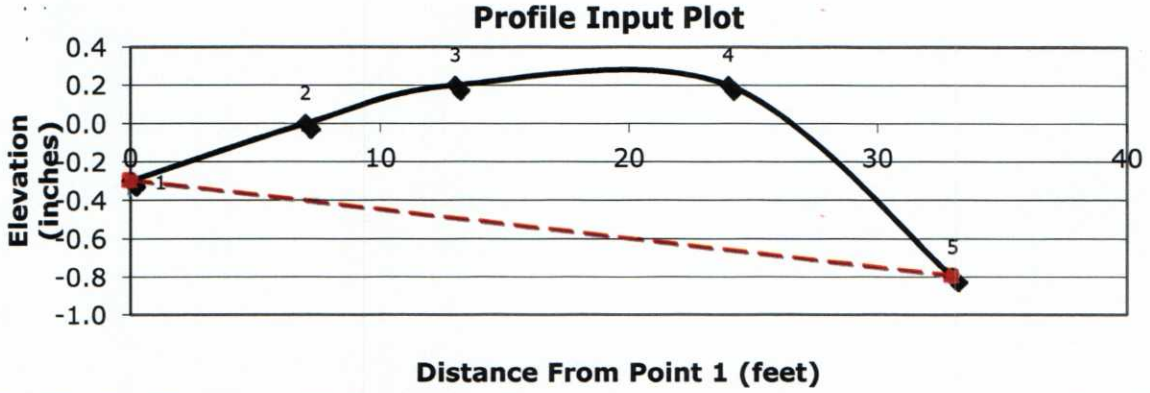
	4815 Chantilly Ln.	
	Section A-A	

Instructions to Compute Deflection and Tilt

a) Input distances along profile into blue "L" cells from one edge of slab to the other.
(Spacing may be unequal, first L must be zero, each successive L greater than the previous)

b) Input elevations measured at each "L" into blue "Y" cells
(Start with Point 1; For less than 13 data sets, leave extra cells "empty", not zero)

PROFILE INPUT										Effective Length (ft.	20		
POINT	1	2	3	4	5	6	7	8	9	10	11	12	13
L (ft)	0	7	13	24	33								
Y (in)	-0.3	0.0	0.2	0.2	-0.8								



PERFORMANCE OUTPUT RESULTS					
CRITERIA	ACTUAL	RESULT	PT. 1	PT. 2	PT. 3
Deflection 1 =	L / 431	83% OF L/360	2	4	5
Deflection 2 =	L / 436	83% OF L/360	3	4	5
Deflection 3 =	L / 459	79% OF L/360	1	4	5
Tilt =	0.13 %	13% OF 1%			

"Deflection 1" is the critical deflection found. "Deflection 2 and 3" are the next two most critical.

User input is in the blue cells only and echoed in the Input Plot. Output is in the yellow cells.

Deflection between points 1 and 3: Deflection = $Y_2 - [Y_1 + (L_{12}/L)(Y_3-Y_1)]$

Points 1 & 3 are end points of any intermediate span chosen by spreadsheet;
Point 2 is any point chosen by spreadsheet that falls in between 1 & 3,
Deflection is calculated when the distance between Points 1 and 3 is >= to 20 feet.

Edge-to-edge Tilt: Tilt = (100%) $|Y_B - Y_A| / L_{AB}$

FPA-SC-13-1-Calcs www.foundationperformance.org **DRAFT** Rev. 2 Jul 2014

Proprietary Calculation Spreadsheet for Document # FPA-SC-13-1
Foundation Performance Guidelines for Residential and Other Low-Rise Buildings

	4815 Chantilly Ln.	
	Section B-B	

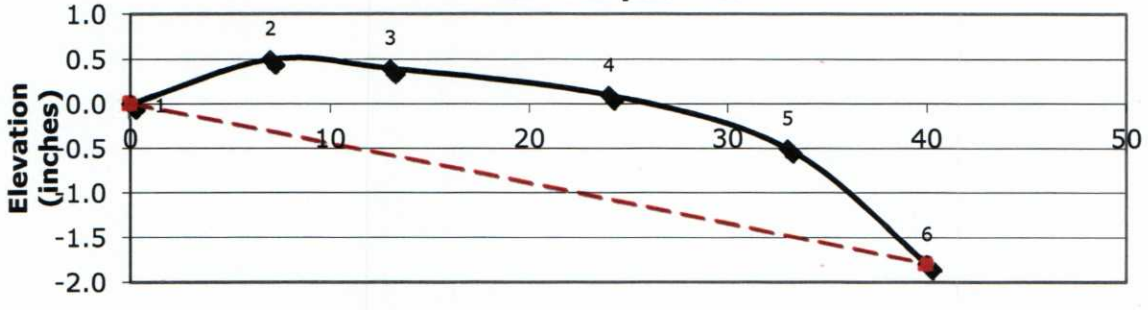
Instructions to Compute Deflection and Tilt

a) Input distances along profile into blue "L" cells from one edge of slab to the other.
(Spacing may be unequal, first L must be zero, each successive L greater than the previous)

b) Input elevations measured at each "L" into blue "Y" cells
(Start with Point 1; For less than 13 data sets, leave extra cells "empty", not zero)

PROFILE INPUT										Effective Length (ft.			20
POINT	1	2	3	4	5	6	7	8	9	10	11	12	13
L (ft)	0	7	13	24	33	40							
Y (in)	0.0	0.5	0.4	0.1	-0.5	-1.8							

Profile Input Plot



Distance From Point 1 (feet)

PERFORMANCE OUTPUT RESULTS					
CRITERIA	**ACTUAL**	**RESULT**	**PT. 1**	**PT. 2**	**PT. 3**
Deflection 1 =	L / 407	89% OF L/360	1	4	6
Deflection 2 =	L / 444	81% OF L/360	3	5	6
Deflection 3 =	L / 487	74% OF L/360	1	3	6
Tilt =	0.38 %	38% OF 1%			

"Deflection 1" is the critical deflection found. "Deflection 2 and 3" are the next two most critical.

User input is in the blue cells only and echoed in the Input Plot. Output is in the yellow cells.

Deflection between points 1 and 3: Deflection = $Y_2 - [Y_1 + (L_{12}/L)(Y_3-Y_1)]$

Points 1 & 3 are end points of any intermediate span chosen by spreadsheet;
Point 2 is any point chosen by spreadsheet that falls in between 1 & 3,
Deflection is calculated when the distance between Points 1 and 3 is >= to 20 feet.

Edge-to-edge Tilt: Tilt = (100%) $|Y_B - Y_A| / L_{AB}$

FPA-SC-13-1-Calcs www.foundationperformance.org **DRAFT** Rev. 2 Jul 2014

Proprietary Calculation Spreadsheet for Document # FPA-SC-13-1
Foundation Performance Guidelines for Residential and Other Low-Rise Buildings

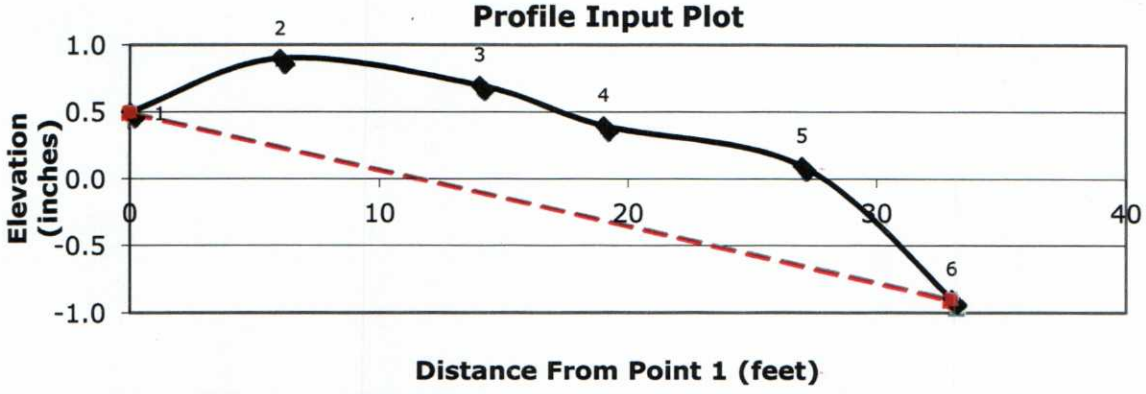
	4815 Chantilly Ln.	
	Section C-C	

Instructions to Compute Deflection and Tilt

a) Input distances along profile into blue "L" cells from one edge of slab to the other.
(Spacing may be unequal, first L must be zero, each successive L greater than the previous)

b) Input elevations measured at each "L" into blue "Y" cells
(Start with Point 1; For less than 13 data sets, leave extra cells "empty", not zero)

PROFILE INPUT										Effective Length (ft.			20
POINT	1	2	3	4	5	6	7	8	9	10	11	12	13
L (ft)	0	6	14	19	27	33							
Y (in)	0.5	0.9	0.7	0.4	0.1	-0.9							



PERFORMANCE OUTPUT RESULTS					
CRITERIA	ACTUAL	RESULT	PT. 1	PT. 2	PT. 3
Deflection 1 =	L / 499	72% OF L/360	1	3	6
Deflection 2 =	L / 531	68% OF L/360	1	5	6
Deflection 3 =	L / 540	67% OF L/360	2	5	6
Tilt =	0.35 %	35% OF 1%			

"Deflection 1" is the critical deflection found. "Deflection 2 and 3" are the next two most critical.

User input is in the blue cells only and echoed in the Input Plot. Output is in the yellow cells.

Deflection between points 1 and 3: Deflection = $Y_2 - [Y_1 + (L_{12}/L)(Y_3-Y_1)]$

Points 1 & 3 are end points of any intermediate span chosen by spreadsheet;
Point 2 is any point chosen by spreadsheet that falls in between 1 & 3,
Deflection is calculated when the distance between Points 1 and 3 is >= to 20 feet.

Edge-to-edge Tilt: Tilt = (100%) $|Y_B - Y_A| / L_{AB}$

FPA-SC-13-1-Calcs www.foundationperformance.org ***DRAFT*** Rev. 2 Jul 2014

Proprietary Calculation Spreadsheet for Document # FPA-SC-13-1
Foundation Performance Guidelines for Residential and Other Low-Rise Buildings

	4815 Chantilly Ln.	
	Section D-D	

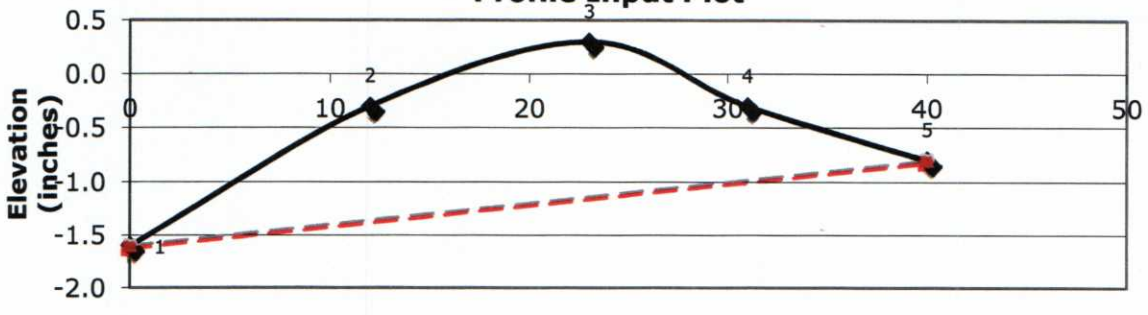
Instructions to Compute Deflection and Tilt

a) Input distances along profile into blue "L" cells from one edge of slab to the other.
(Spacing may be unequal, first L must be zero, each successive L greater than the previous)

b) Input elevations measured at each "L" into blue "Y" cells
(Start with Point 1; For less than 13 data sets, leave extra cells "empty", not zero)

PROFILE INPUT										Effective Length (ft.			20
POINT	1	2	3	4	5	6	7	8	9	10	11	12	13
L (ft)	0	12	23	31	40								
Y (in)	-1.6	-0.3	0.3	-0.3	-0.8								

Profile Input Plot



Distance From Point 1 (feet)

PERFORMANCE OUTPUT RESULTS					
CRITERIA	**ACTUAL**	**RESULT**	**PT. 1**	**PT. 2**	**PT. 3**
Deflection 1 =	L / 333	****EXCEEDS L/360 BY 8%****	1	3	5
Deflection 2 =	L / 398	91% OF L/360	1	3	4
Deflection 3 =	L / 422	85% OF L/360	2	3	5
Tilt =	0.17 %	17% OF 1%			

"Deflection 1" is the critical deflection found. "Deflection 2 and 3" are the next two most critical.

User input is in the blue cells only and echoed in the Input Plot. Output is in the yellow cells.

Deflection between points 1 and 3: Deflection = $Y_2 - [Y_1 + (L_{12}/L)(Y_3-Y_1)]$

Points 1 & 3 are end points of any intermediate span chosen by spreadsheet;
Point 2 is any point chosen by spreadsheet that falls in between 1 & 3,
Deflection is calculated when the distance between Points 1 and 3 is >= to 20 feet.

Edge-to-edge Tilt: Tilt = (100%) $|Y_B - Y_A| / L_{AB}$

FPA-SC-13-1-Calcs www.foundationperformance.org **DRAFT** Rev. 2 Jul 2014

Proprietary Calculation Spreadsheet for Document # FPA-SC-13-1
Foundation Performance Guidelines for Residential and Other Low-Rise Buildings

	4815 Chantilly Ln.	
	Section E-E	

Instructions to Compute Deflection and Tilt

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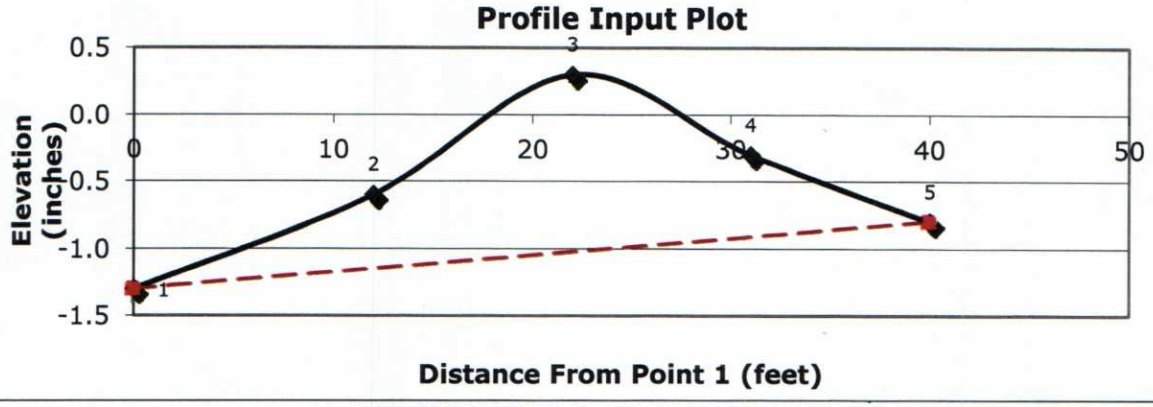
(Spacing may be unequal, first L must be zero, each successive L greater than the previous)

b) Input elevations measured at each "L" into blue "Y" cells
(Start with Point 1; For less than 13 data sets, leave extra cells "empty", not zero)

PROFILE INPUT										Effective Length (ft.	20		
POINT	1	2	3	4	5	6	7	8	9	10	11	12	13
L (ft)	0	12	22	31	40								
Y (in)	-1.3	-0.6	0.3	-0.3	-0.8								



PERFORMANCE OUTPUT RESULTS					
CRITERIA	ACTUAL	RESULT	PT. 1	PT. 2	PT. 3
Deflection 1 =	L / 346	****EXCEEDS L/360 BY 4%****	2	3	5
Deflection 2 =	L / 362	99% OF L/360	1	3	5
Deflection 3 =	L / 418	86% OF L/360	1	3	4
Tilt =	0.10 %	10% OF 1%			

"Deflection 1" is the critical deflection found. "Deflection 2 and 3" are the next two most critical.

User input is in the blue cells only and echoed in the Input Plot. Output is in the yellow cells.

Deflection between points 1 and 3: Deflection = $Y_2 - [Y_1 + (L_{12}/L)(Y_3-Y_1)]$

Points 1 & 3 are end points of any intermediate span chosen by spreadsheet;
Point 2 is any point chosen by spreadsheet that falls in between 1 & 3,
Deflection is calculated when the distance between Points 1 and 3 is >= to 20 feet.

Edge-to-edge Tilt: Tilt = (100%) $|Y_B - Y_A| / L_{AB}$