

Products and/or services listed below have been recommended, however Customer has declined to have these products installed and/or services performed.

RECOMMENDED PRODUCTS DECLINED

	QTY
5 Year Annual Service Plan	1.0
5 Year Annual Service Tax	1.0

Recommended Specifications

- Five years of service is included in this contract. Customer is aware this will be on the anniversary date of install completed. This is not refundable and will transfer to new home owners if house is sold.
- Tax on five years of service is included in this contract.

STRUCTURAL CALCULATIONS
PREPARED FOR
TARHEEL BASEMENT SYSTEMS
FOR
HYLAND RESIDENCE
FOUNDATION REPAIR
5105 LAURIE DR
RALEIGH, NORTH CAROLINA

PROJECT NUMBER: 26.0039.TBR

DATE: March 19, 2026

PROJECT MANAGER: Susan Tagg, P.E.

COA: C-4876



March 19, 2026

Project No.:26.0039.TBR

Tarheel Basement Systems
3333 Air Park Rd
Fuquay-Varina, North Carolina 27526

RE: Foundation Repair - 5105 Laurie Dr, Raleigh, North Carolina

PROJECT BACKGROUND

Stark Foundations was retained to review, analyze and provide recommendations for the proposed foundation and structural repairs provided by Tarheel Basement Systems for the above-mentioned address. Based on field data (photos, measurements, etc.) provided to Stark Foundations by the contractor, we understand the structure is a single-family residence and the owner wishes to provide additional framing support. It is our understanding (2) Intellijack systems have been recommended by the contractor. A recent field sketch (attached) indicates the proposed locations of repair.

This engineering report is based on the contractor's findings from the initial site inspection and provides professional recommendations for repairs. These recommendations are tailored to the observed conditions, limited to the data collected during the visit, and aligned with standard engineering practices and the intent of applicable building codes.

LOGIC SETTING

The existing structure is located in Raleigh, North Carolina. Based on the information provided by the USDA Web Soil Survey, the general site condition in the area is comprised of sandy loam and the site is relatively flat.

SUMMARY

Based on our scope of work, determining the design load, the design load requirement for the Intellijacks is 3000 lbs, and based on the technical manual for the Intellijack system, this is acceptable as the allowable load is 24100 lbs.

Stark Foundations was not engaged to perform a separate site visit and bears no liability for issues beyond the provided field data. Should site conditions differ from those documented, please notify Stark Foundations promptly to assess any impact on the provided recommendations or structure.

Regards,



Susan Tagg, P.E.
Stark Foundations

Image 1: Front Elevation

Image 2: CONTRACTOR-PROVIDED FIELD SKETCH



Image 1: Front Elevation

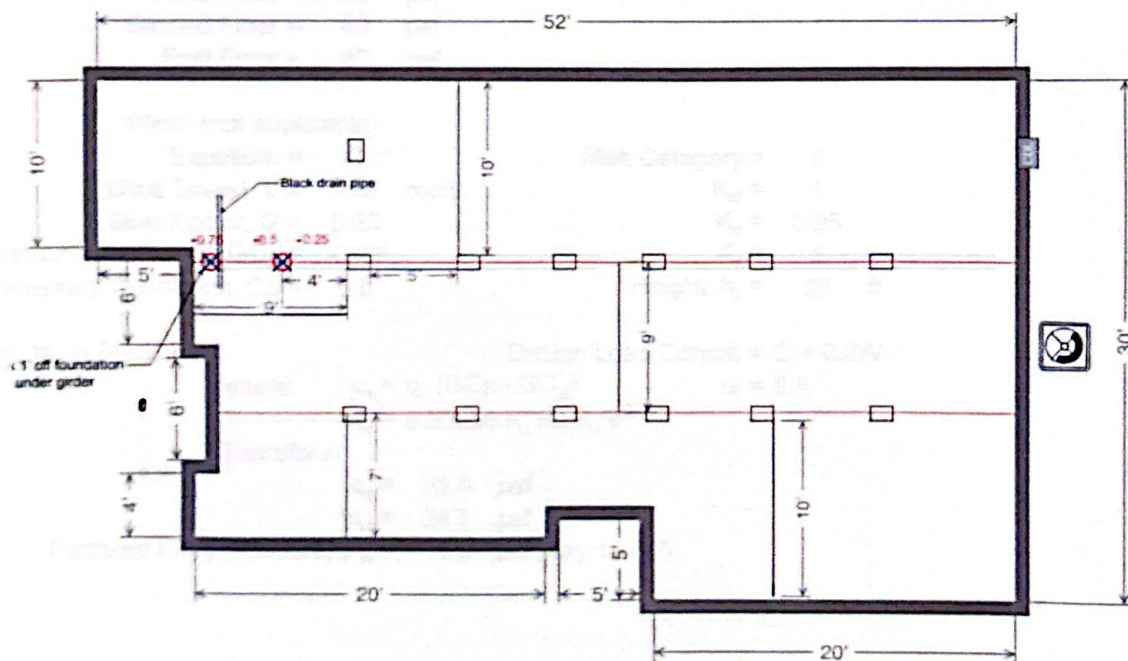


Image 2: CONTRACTOR-PROVIDED FIELD SKETCH



**STARK
FOUNDATIONS**

PROJECT

Foundation Repair
5105 Laurie Dr
Raleigh, North Carolina

Date: 19-Mar-26
Designed by: MSY

Project No.: 26.0039.TBR

Design Criteria

Code(s):

2018 North Carolina State Building Code
International Building Code (IBC) 2015
International Residential Code (IRC) 2015

ASCE 7-10

Design Loads:

Dead:

Roof = 15 psf
Chimney = 45 psf
Third Floor = 15 psf
Second Floor = 15 psf
First Floor = 15 psf
Walls = 30 psf
8" Foundation Wall = 100 psf
Soil = 110 psf

Soil:

Allow Lateral Bearing Pressure = 100 psf/ft
Active Pressure = 75 psf/ft

Live:

Roof (Snow) = 15 psf
Roof Live Load = 20 psf governs
Third Floor = 40 psf
Second Floor = 40 psf
First Floor = 40 psf

Wind: (not applicable)

Exposure = C Risk Category = II
Wind Speed, V = 115 mph $K_{zt} = 1$
Gust Factor, G = 0.85 $K_d = 0.85$
Int. Pressure Coefficient, $GC_{pi} = -0.18$ $K_z = 1$
Ext. Pressure Coefficient, $C_p = 0.8$ Height, $h_z = 30$ ft

Design Wind Pressure:

Design Load Combo = D + 0.6W

where: $p_w = q_z (GC_p - GC_{pi})$ $\omega = 0.6$

$q_z = 0.00256 K_z K_{zt} K_d V^2$

Therefore:

$q_z = 28.8$ psf

$p_w = 24.7$ psf

Factored Wind Pressure, $p'_w = 14.8$ psf (say 15 psf)



STARK
FOUNDATIONS

PROJECT

Foundation Repair
5105 Laurie Dr
Raleigh, North Carolina

Date: 19-Mar-26
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Intellijack Design - Worst Case

Vertical Design Loads:

Tributary Widths:

Dead:

Roof =	0	ft	----->	0	plf
Third Floor =	0	ft	----->	0	plf
Second Floor =	0	ft	----->	0	plf
First Floor =	10	ft	----->	150	plf
Walls =	0	ft	----->	0	plf
Foundation Wall (height) =	0	ft	----->	0	plf
Soil (height) =	0	ft	----->	0	plf
				$\Sigma DL =$	150 plf

Live:

Roof (live) =	0	ft	----->	0	plf
Third Floor =	0	ft	----->	0	plf
Second Floor =	0	ft	----->	0	plf
First Floor =	10	ft	----->	400	plf
				$\Sigma LL =$	400 plf

Max Pier Spacing or Trib = 4 ft

Pier Working Loads:

$P_{DL} = 600$ lbs

$P_{LL} = 1600$ lbs

Working Load, $P_{TL} = 3000$ lbs

(ASCE 7-16 Load Combo 4 Governs)

Pier Type: Intellijack

Intellijack Column: Allowable Compression for system heights up to 9ft = 24.1 kips

Footing Check:

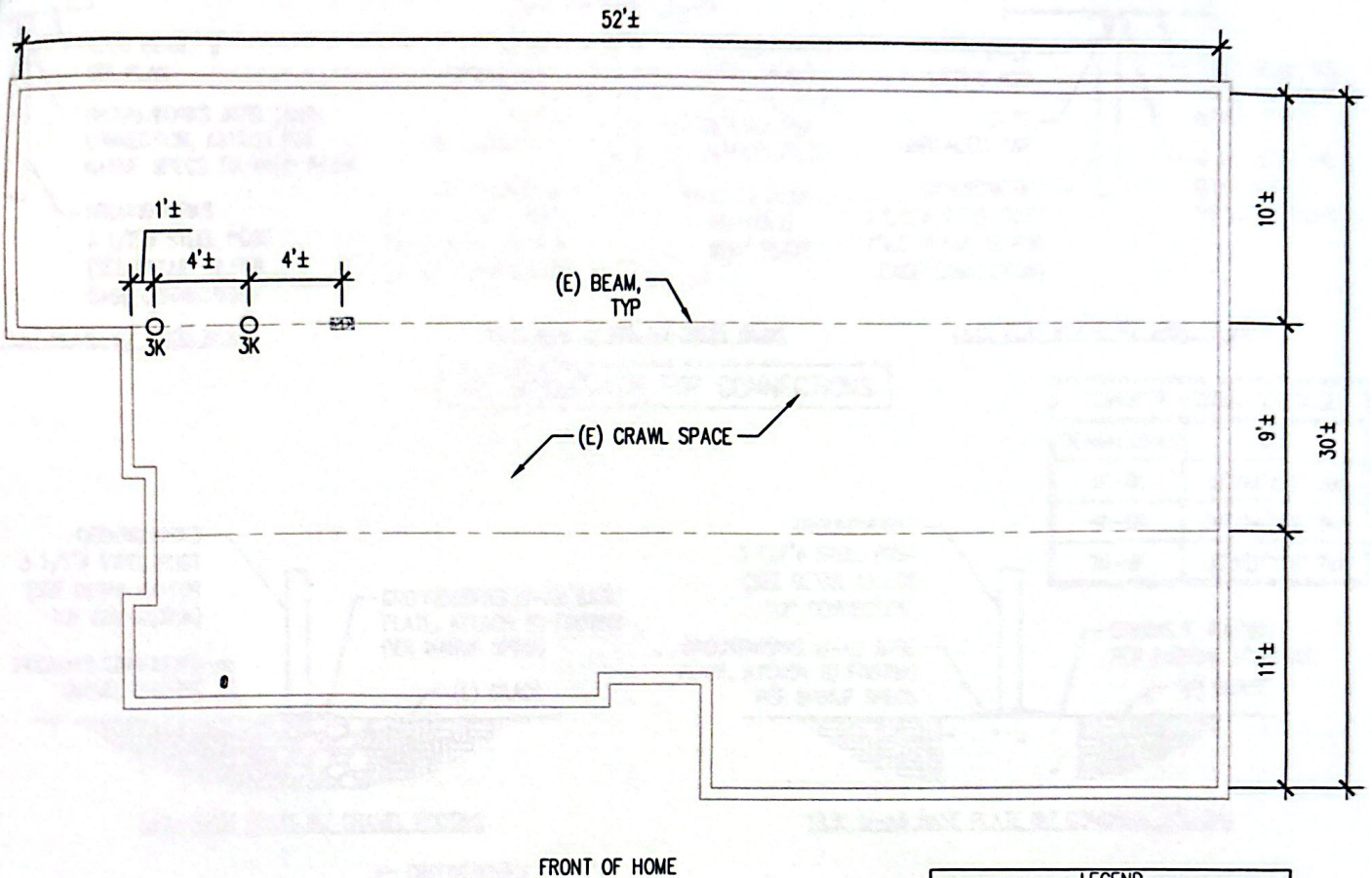
Allowable Bearing Pressure = 1500 psf

Footing Type	Length (in)	Width (in)	Depth (in)	A_{FTG} (ft ²)	Soil Pressure (psf)
CIP Concrete	18	18	10	2.25	1333
Gravel	24	24	12	4	750
Endurocrete IJ-IC	24	24	12	4	750
-	-	-	-	-	-

<1500 psf OK

<1500 psf OK

<1500 psf OK



FRONT OF HOME

LEGEND	
○ 10K	INDICATES INTELLIJACK & UNFACTORED DESIGN LOAD (KIPS) SEE DETAIL 1/S2.0
3K	INDICATES (E) CMU PIER

1 FOUNDATION REPAIR PLAN

SCALE: 1/8"=1'-0"

PLAN NOTES:

1. FIELD VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION. NOTIFY STARK FOUNDATIONS OF ANY DISCREPANCIES.
2. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE STRUCTURAL STABILITY OF ALL NEW AND EXISTING STRUCTURES DURING CONSTRUCTION. THIS INCLUDES, BUT NOT LIMITED TO, EXCAVATIONS, COLUMNS, EQUIPMENT LOADS, MATERIAL LOADS, AND OTHERS. BRACING AND SHORING IS TO BE INSTALLED PER THE LATEST OSHA STANDARDS. THE DESIGN AND OBSERVATIONS BY STARK FOUNDATIONS DO NOT INCLUDE INSPECTIONS OF TEMPORARY LOADING AND STABILITY DURING CONSTRUCTION.

STAMP



PROJECT

FOUNDATION REPAIR
 HYLAND RESIDENCE
 5105 LAURIE DR
 RALEIGH, NC

CLIENT

TAR HEEL
 BASEMENT SYSTEMS
 3333 AIR PARK RD
 FUQUAY-VARINA, NC



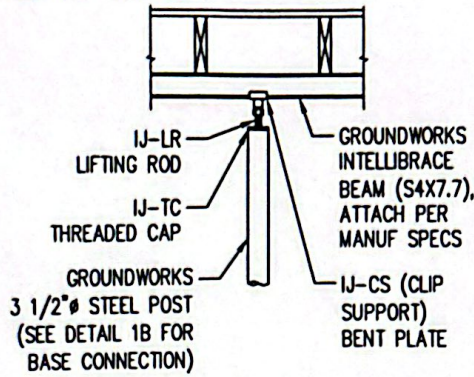
FRONT ELEVATION

NO	REVISIONS	BY	DATE
ISSUED:	03.19.26	PROJ NO.:	26.0039.TBR
DRAWN BY:	MSY	CHECKED BY:	DS
SHEET TITLE			
FDN REPAIR PLAN			
SHEET NUMBER			
S1.0			

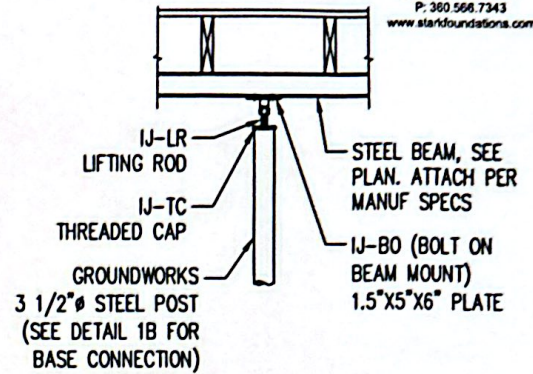
REMAIN UNOCCUPIED DURING THE REPLACEMENT OF EXISTING POSTS W/ NEW INTELLIJACK POSTS.
 MATERIAL/REPLACEMENT WOOD TO BE SOUTHERN PINE/DOUGLAS FIR, NO.2.
 ASSUMES AN ALLOWABLE SOIL BEARING PRESSURE OF 1500 PSF.
 CONCRETE COMPRESSIVE STRENGTH, $F_c' = 2,500$ PSI.
 BOTTOM OF FOOTING SHALL NOT BE LESS THAN THE FROST DEPTH.



1A.A: FLAT PLATE W/ WOOD BEAM



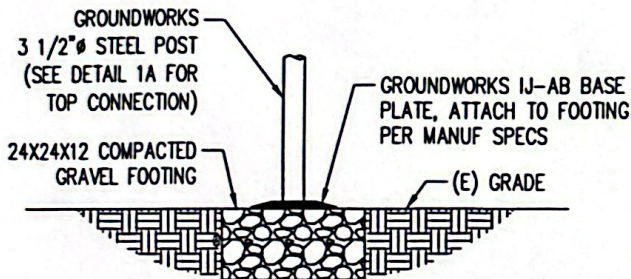
1A.B: BENT PLATE W/ STEEL BEAM



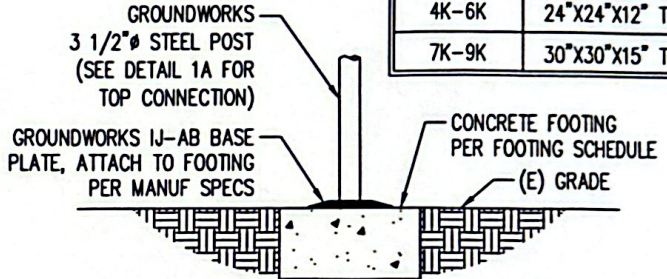
1A.C: FLAT PLATE W/ STEEL BEAM

1A: INTELLIJACK TOP CONNECTIONS

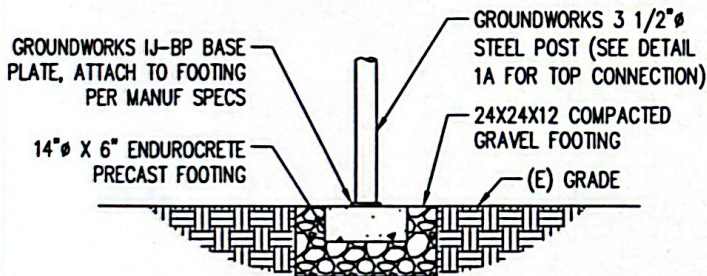
CONCRETE FOOTING SCHEDULE	
DESIGN LOAD	SIZE
1K-3K	18"x18"x10" THK
4K-6K	24"x24"x12" THK
7K-9K	30"x30"x15" THK



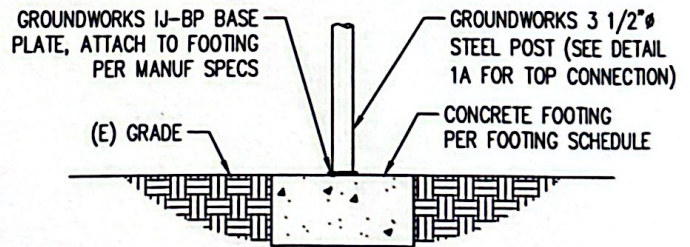
1B.A: BASE PLATE W/ GRAVEL FOOTING



1B.B: IJ-AB BASE PLATE W/ CONCRETE FOOTING



1B.C: ENDURO WHEEL W/ GRAVEL FOOTING



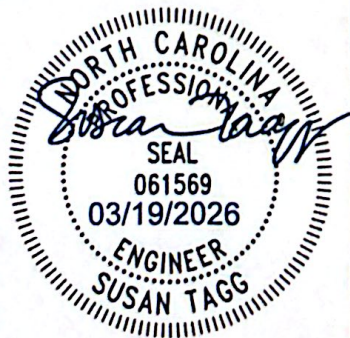
1B.D: IJ-BP BASE PLATE W/ CONCRETE FOOTING

1B: INTELLIJACK BASE CONNECTIONS

1 INTELLIJACK DETAIL

SCALE: 3/8"=1'-0"

STAMP



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FRONT ELEVATION

NO	REVISIONS	BY	DATE
ISSUED:	03.19.26	PROJ NO.:	26.0039.TBR
DRAWN BY:	MSY	CHECKED BY:	DS
SHEET TITLE			
DETAILS			
SHEET NUMBER			
S2.0			

Joshua Tiller
Groundworks
8005 Knightdale Blvd
Knightdale, NC 27545
Phone : 9192304226
Fax : 336-464-9775

Invoice Date: **5/19/2026**
Job Number: **86811**
Submitted To: **Ethan Hyland**
Address: **5105 Laurie Drive**
Raleigh, NC 27606
Job Location: **5105 Laurie Drive**
Raleigh, NC 27606
Phone: **2079999047**

Email: info@groundworks.com

PRODUCT	QTY	AMOUNT
Crawlspace Structural		\$4,524.76
Engineering B	1	
Permit Package A	1	
SettleStop IntelliJack (1-3')	2	
Site Work/Obstruction	1	
TOTAL		\$4,524.76

Deposit Paid	\$1,131.19
Total of Partial Payments	\$0.00
Final Payments	\$0.00
Adjustments	\$0.00
Balance Due	\$3,393.57

BUYER'S SIGNATURE

