KSA A·DYNAMIC·PERSPECTIVE

Addendum No. 1

To:	All Plan Holders	**Project:**	Runway 1-19 Paving Project
Airport:	Granbury Regional Airport	**KSA Project No.:**	GY.012
Date:	October 27, 2021	**Client Project No.:**	2002GRANB

The plans, specifications, and contract documents are modified as described below. All bidders shall acknowledge receipt of this and all other addenda on page 6 of the bid form. This addendum becomes a part of the contract documents. All provisions of the original plans, specifications, and contract documents shall remain in full force and effect, except as modified by this addendum.

I. **Pre-Bid Meeting Items**

A. The Pre-bid meeting agenda has been included within this Addendum. Refer to Attachment A below.

B. The Pre-bid meeting sign-in sheet has been included within this Addendum. Refer to Attachment B below.

II. **Project Boring Logs**

A. The boring logs from the Phase 1 Earthwork project have been included within this Addendum. Refer to Attachment C below.

III. **Contractor Questions from Pre-Bid Meeting**

A. Contractor questions asked during the pre-bid meeting have been recorded and answered below.

1. Question: When will project start?
    a. Answer: Project will likely start in first half of January.
2. Question: What testing is required by the contractor?
    a. Answer: Individual technical specifications identify tests to be performed by the contractor (QC) and testing to be performed by the owner (QA). Also see Item C100 for Quality Control Plan Requirements.
3. Question: Do DBE requirements apply to base bid only or base bid plus alternates?
    a. Answer: Contact Sheri Quinlan (TxDOT) at phone number identified in the agenda for questions related to DBE requirements.
4. Question: What is the pay item for clearing associated with?
    a. Answer: Clearing is associated with the fence to be constructed.
5. Question: Cement treated subgrade has a size limitation on the material to be treated. Some of the material in place appears to be larger than the requirement. Will this material need to be removed?
    a. Answer: Item P-156 indicates that the soil cement mixture shall not contain clods larger than 1 ½". This is interpreted to mean that there can be no clumps of earth or clay larger than 1 ½". Existing rock fragments larger than 1 ½" do not fall under this requirement.

6. Question: Can Phase I plans, associated with the earthwork previously performed for this project, be provided?
    a. Answer: The grading plan sheets and typical section sheets for the earthwork previously performed as part of Phase I of this project are attached to this addendum. See Attachment D below.
7. Question: Are the signs to be Mode 1? Most airports utilize Mode 2.
    a. Answer: Signs are to be Mode 2. A revised specification L-125 will be issued.
8. Question: Who is the OEM for the replacement panels?
    a. Answer: Existing sign manufacturer is Lumacurve.
9. Question: The sign ID numbers are listed as 1" stenciled in red. Will other forms of identification be allowed?
    a. Answer: Other forms of identifying sign numbers will be allowed. A revised specification L-125 will be issued.
10. Question: The L-125 specification lists signs as Size 2. The sign schedule in the plans lists as Size 1. Which is required.
    a. Answer: Size 1 signs are to be utilized. A revised specification L-125 will be issued.

IV. **Attachments**

A. Pre-bid Meeting Agenda
B. Pre-bid Meeting Sign-in Sheet
C. Bore Logs from Phase 1 Earthwork Project
D. Grading Plan and Typical Section Sheet from Phase 1 Earthwork Project

Addendum No. 1 Issued By:

KSA

Chad E. Pennel, P.E.
Sr. Project Manager

10/27/2021

TBPE Firm Registration No. F-1356

ATTACHMENTS

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KSA A·DYNAMIC·PERSPECTIVE

Pre-Bid Meeting

Airport: Granbury Regional Airport

Organizer: KSA Engineers, Inc.

Date: Tuesday October 19th, 2021

KSA Project No.: GY.012

Project: Runway 1-19 Paving Project

Client Project No.: 2002GRANB

I. **Sign In Sheet**

II. **Introductions and Roles**

A. Pat Stewart, Airport Manager, Granbury Regional Airport

B. Ryan Hindman, P.E., Project Manager, TxDOT Aviation

C. Chad Pennel, P.E., Project Manager, KSA

D. Trevor Self, P.E., Project Engineer, KSA

III. **Bidding Procedures**

A. See Notice to Bidders and Instructions to Bidders section in Contract Documents for bidding information.

B. All bidders are encouraged to review all contract documents including Mandatory Federal Contract Provisions, TxDOT General Provisions, Special Provisions, and Project Specifications.

C. Technical questions/comments should be submitted to Chad Pennel, (cpennel@ksaeng.com or 972.542.2995) or Trevor Self, (tself@ksaeng.com or 972.542.2995) by Friday October 29th, 2021 at 12:00 p.m. Questions must be in writing and received prior to date mentioned.

D. For bid document questions or other information visit the TxDOT Aviation website or call TxDOT, Sheri Quinlan at 512-416-4516.

E. Sealed bids for the construction of airport improvements at the Granbury Regional Airport are to be delivered to Eva Gregory, Finance Director, Granbury City Hall, 116 W. Bridge Street, Granbury, TX 76048 by Tuesday November 9th, 2021, at 2:00pm. At that time, bids will be publicly opened and read aloud. Any bid received after closing time will be returned unopened.

F. Bid Proposal

1. Bidders must utilize the bid proposal form provided on TxDOT's website.

2. Bidders must provide pricing for both the Base Bid and All Alternate Bids. The contract award will be based on the lowest qualified bid.

G. Each bid should be furnished with a Bidder Qualifications as stated in the Contract Documents.

H. Bidder shall reference the Aviation Division General Construction Contract Provisions.

1. http://txdot.gov/inside-txdot/division/aviation/general-provisions.html

I. Contract will be awarded within __60__ calendar days from bid opening.

J. Federally funded project

1. The DBE Goal is 7%. Questions regarding DBE Goal and Good Faith Efforts should be directed to TxDOT, Sheri Quinlan at 512-416-4516
2. The EEO Goal is:
    a. 18.2% for minority participation in each trade
    b. *6.9%* for female participation in each trade
3. Wage rate requirements will be required as shown in the Contract Documents.
4. Buy American – Steel and Manufactured Products for Construction Contracts.

IV. **Scope of Work**

A. Base Bid and Alternates

1. Base Bid: Runway/Taxiway Paving, Electrical, and Fencing
2. Add Alternate Bid Schedule 1: LED Fixtures
3. Add Alternate Bid Schedule 2: Proposed HMAC Terminal Apron

B. Contractor are welcome to perform their own site investigation. Coordinate with Pat Stewart.

C. Two different engineers of record. Original plans on file with KSA. Modifications to original specifications are shown in front of the specification section.

V. **Site Access / Staging Areas**

A. Access will be only from Loop 567 via. Archer Ct.

VI. **Construction Safety and Phasing Plan**

A. Contractor will be required to be in compliance with FAA Advisory Circular 150/5370-2F, Operational Safety on Airports During Construction.

1. Phase 1: Work outside of the existing runway OFZ and threshold siting surface
2. Phase 2: Work within the runway OFZ and threshold siting surface. Requires relocated threshold.

B. Safety Plan Compliance Document (SPCD) will be required by the Contractor

VII. **Other Information**

A. Contract Time

1. **270 Calendar** days for Base Bid
2. **0 Calendar** days for Additive Alternative Bid Schedule 1
3. **40 Calendar** days for Additive Alternative Bid Schedule 2
4. Liquidated Damages are $1,000 per calendar day

B. RPR/Engineer Office (as required per Specification C-105)

C. Materials Acceptance by Owner / Materials Quality Control by Contractor

D. Protection of any existing utilities in the project area is the responsibility of the Contractor. Engineer has endeavored to show all known utilities within the Contract documents, but this shall not relieve the Contractor from full responsibility in anticipating all underground obstruction, whether or not shown on the plans; Contractor should call for utility locates and verify locations of all utilities prior to starting construction.

E. SW3P – Contractor Responsibility

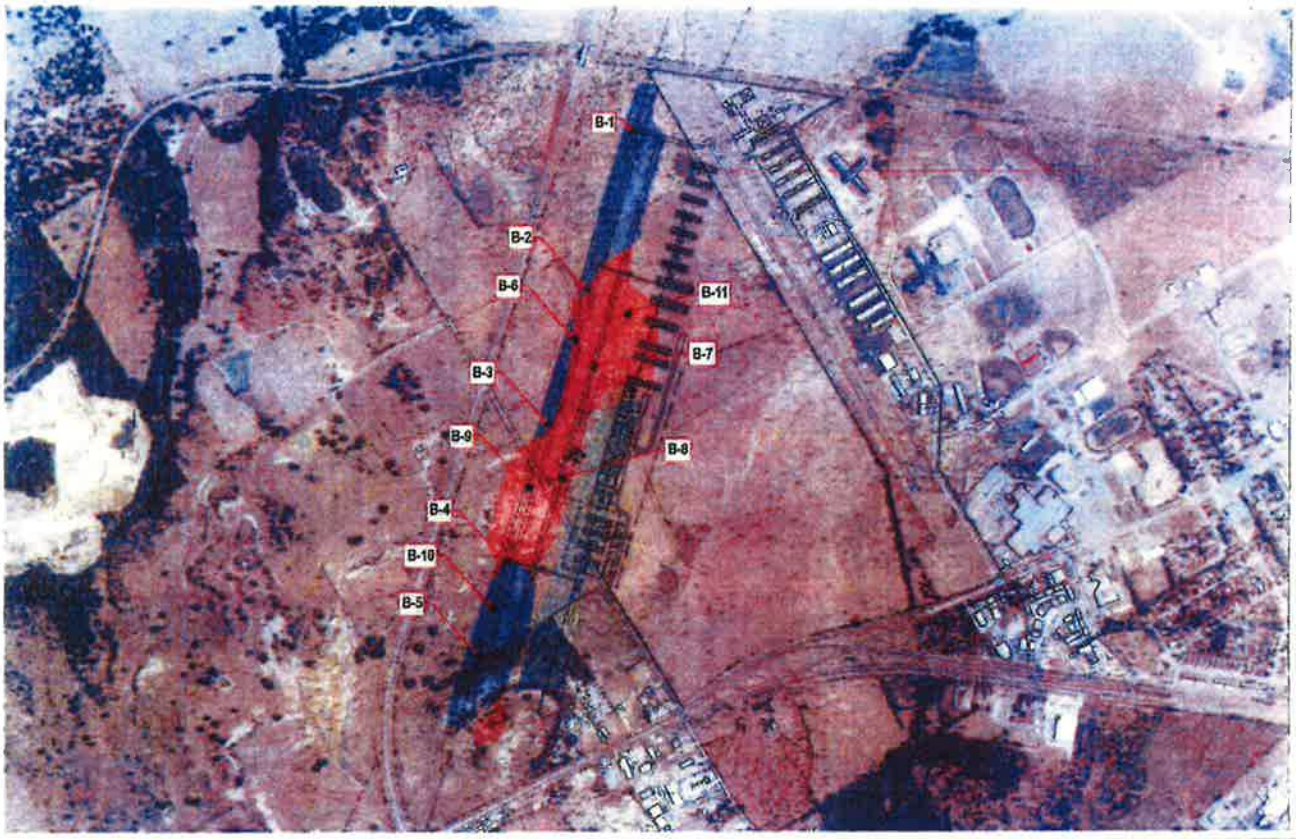
Notes:

CITY OF GRANBURY, TEXAS
GRANBURY REGIONAL AIPRORT
RUNWAY 1-19 PAVING PROJECT

TxDOT CSJ NO. 2002GRANB
Pre-Bid Conference
Granbury Regional Airport
Tuesday October 19th, 2021

KSA

	Name	Company	Email	Office Phone	Office Fax	Present	Call-In
1.	Pat Stewart	City of Granbury	pstewart@granbury.org	817-579-8533		✓	
2.	Michael Ross	City of Granbury	mross@granbury.org	817-573-1114			
3.	Chad Pennel	KSA Engineers Inc.	cpennel@ksaeng.com	972.542.2995	888.224.9418	✓	
4.	Ryan Hindman	TxDOT - Aviation Division	ryan.hindman@txdot.gov	512.416.4545	512.415.4510	✓	
5.	Jim Roach	AB&R	jroach@austin-ind.com		214-681-1497		
6.	Rich Campbell	RWC Contracting	Rich@RWC-TX.com	cell 704-201-5334			
7.	Ron Stinson	Texas Bit	Ronald.Stinson@TexasBit	819 741 3531			
8.	Aaron Barry	MSSEI	engineering@mariosinacola.com	214-387-3900			
9.	Jess Coonod	Austin Bridge & Road	abrworks@austin-ind.com	214-596-7311		✓	
10.	Ricky Dunahar	NAE	rdunen@naecontracting.com	817-220-2200		✓	
11.	Marcel Cicort	NAE	MCICORT@NAECONTRACTING.com	817220-2200		✓	
12.	Ray Pinero	NAE	rpinero@naecontracting.com	817-220-2200		✓	
13.							



TEXAS DEPARTMENT OF TRANSPORTATION

GRANBURY REGIONAL AIRPORT
GRANBURY, TEXAS

BORING LOCATION PLAN

ENPROTEC/HIBBS & TODD, INC.

RUNWAY 1-19 AND TAXIWAY SYSTEMS
GRANBURY REGIONAL AIRPORT
eHT No. 11-5168

LABORATORY RESULTS

Boring No.	Depth (ft)	Liquid Limit	Plasticity Index	Moisture (%)	Minus 200 Sieve	USCS
B-1	0-2'	45	27	10.8	83	CL
B-2	0-2'	39	22	5.0	86	CL
B-3	0-1'	38	21	7.6	67	CL
B-5	0-2'	55	34	12.0	75	CH
B-10	2-3½'	23	10	---	---	---
B-10	5-8½'	25	12	---	---	---

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street Abilene, Texas 79601
(325) 698-5560 Firm Registration No. 1151

LOG OF BORING

Project: GRANBURY REGIONAL AIRPORT Date: AUGUST 25, 2011

Location: GRANBURY, TEXAS Type: AIR ROTARY Boring No.: B-1

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)	DEPTH SCALE
		ST	DARK BROWN SANDY CLAY				4.5+	
		ST					4.5+	
5		ST	BROWN SANDY CLAY				4.5+	
		ST	TAN AND BROWN SANDY CLAY WITH CALCAREOUS NODULES				4.5+	
		ST					4.5+	
10			TOTAL DEPTH OF BORING 10 FEET					

NOTE

NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES.

11-5168

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street Abilene, Texas 79601
(325) 686-5560 Firm Registration No. 1151

LOG OF BORING

Project: GRANBURY REGIONAL AIRPORT Date: AUGUST 25, 2011

Location: GRANBURY, TEXAS Type: AIR ROTARY Boring No.: B-2

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)	DEPTH SCALE
		ST	DARK BROWN SANDY CLAY				4.5+	
		ST	TAN SANDY CLAY WITH CALCAREOUS NODULES				4.5+	
5		ST					4.5+	
		AU	TAN HIGHLY WEATHERED LIMESTONE WITH INTERBEDDED THIN CLAY SEAMS					
		SS		50 / 2"				
10		DB	TAN WEATHERED LIMESTONE WITH INTERBEDDED THIN CLAY SEAMS		93	50		

TOTAL DEPTH OF BORING 14 FEET

NOTE
NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES.

11-5168

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
(325) 696-8560
Abilene, Texas 79601
Firm Registration No 1151

LOG OF BORING

Project: GRANBURY REGIONAL AIRPORT Date: AUGUST 25, 2011

Location: GRANBURY, TEXAS Type: AIR ROTARY Boring No.: B-3

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)	DEPTH SCALE
		ST	BROWN SANDY CLAY				4.5+	
		ST	TAN AND BROWN SANDY CLAY WITH CALCAREOUS NODULES				4.5+	
5		ST					4.5+	
		ST					4.5+	
		DB	TAN WEATHERED LIMESTONE WITH INTERBEDDED THIN CLAY SEAMS		50	25		
10		AU	TAN SILTY CLAY WITH LIMESTONE FRAGMENTS					

TOTAL DEPTH OF BORING 12 FEET

NOTE
NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES.

11-5168

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street Abilene, Texas 79601
(325) 698.5560 Firm Registration No. 1151

LOG OF BORING

Project: GRANBURY REGIONAL AIRPORT Date: AUGUST 25, 2011

Location: GRANBURY, TEXAS Type: AIR ROTARY Boring No.: B-4

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)	DEPTH SCALE
		ST	BROWN SANDY CLAY WITH LIMESTONE FRAGMENTS				4.5+	
			TAN HIGHLY WEATHERED LIMESTONE					
		SS	TAN HIGHLY WEATHERED LIMESTONE WITH INTERBEDDED THIN CLAY SEAMS	13				
5								
		DB	TAN WEATHERED LIMESTONE WITH INTERBEDDED THIN CLAY SEAMS		87	25		
10								
		DB	GRAY WEATHERED LIMESTONE WITH INTERBEDDED WEATHERED SHALE		82	20		
15								
		DB			96	17		
20			TOTAL DEPTH OF BORING 20 FEET					

NOTE
NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES

11-5168

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street Abilene, Texas 79601
(325) 698-5560 Firm Registration No. 1151

LOG OF BORING

Project: GRANBURY REGIONAL AIRPORT Date: AUGUST 25, 2011

Location: GRANBURY, TEXAS Type: AIR ROTARY Boring No.: B-5

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)	DEPTH SCALE
		ST	DARK BROWN SANDY CLAY				4.5+	
		ST					4.5+	
5		ST					4.5+	

TOTAL DEPTH OF BORING 5 FEET

NOTE
NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES.

11-5168

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
(325) 698-5560
Abilene, Texas 79601
Firm Registration No 1151

LOG OF BORING

Project: **RUNWAY I-19 AND TAXIWAY SYSTEM**

Date: 01/11/2016

Location: **GRANBURY MUNICIPAL AIRPORT**

Type: AIR ROTARY

Boring No.: **B-6**

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)	DEPTH SCALE
		ST	DARK BROWN SANDY CLAY				4.5+	
		ST	- GRAVEL SEAM				2.5	
		SS	TAN SANDY CLAY WITH LIMESTONE FRAGMENTS	9				
5		ST					4.0	
		ST					4.5+	
		SS	TAN WEATHERED LIMESTONE	50/2"				
10								
			TAN LIMESTONE					
		SS		50/1"				
15			TOTAL DEPTH OF BORING 15 FEET					

NOTE

NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES.

11-5168

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
(325) 698-5560
Abilene, Texas 79601
Firm Registration No. 1151

LOG OF BORING

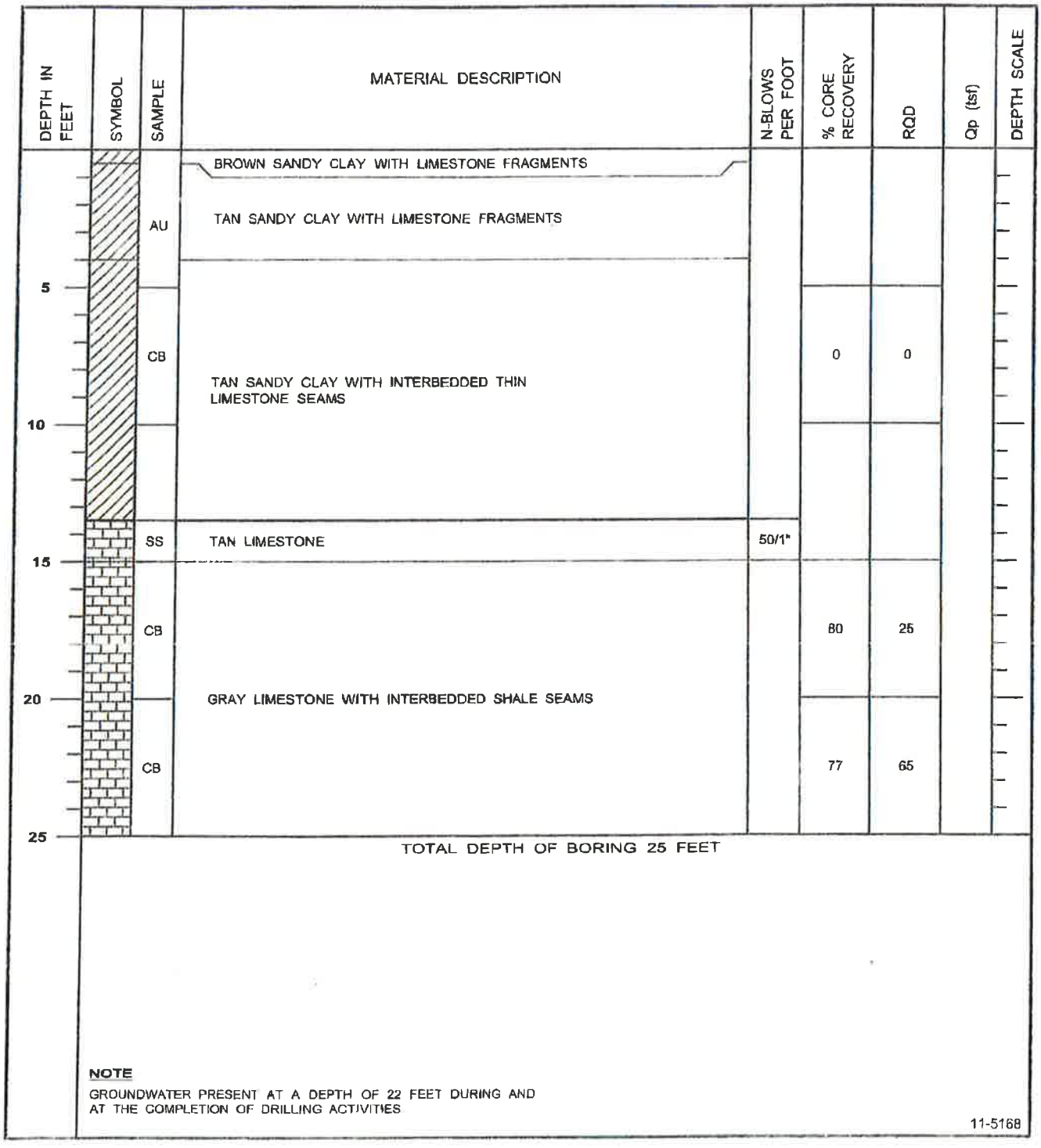
Project: **RUNWAY I-19 AND TAXIWAY SYSTEM**

Date: 01/11/2016

Location: **GRANBURY MUNICIPAL AIRPORT**

Type: AIR ROTARY

Boring No.: **B-7**



NOTE

GROUNDWATER PRESENT AT A DEPTH OF 22 FEET DURING AND AT THE COMPLETION OF DRILLING ACTIVITIES

11-5168

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
Abilene, Texas 79601
(325) 696-5560
Firm Registration No. 1151

LOG OF BORING

Project: **RUNWAY I-19 AND TAXIWAY SYSTEM**

Date: 01/11/2016

Location: **GRANBURY MUNICIPAL AIRPORT**

Type: AIR ROTARY

Boring No.: **B-8**

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	% CORE RECOVERY	RQD	Qp (tsf)	DEPTH SCALE
		AU	BROWN SANDY CLAY WITH LIMESTONE FRAGMENTS					
			TAN SANDY CLAY WITH LIMESTONE FRAGMENTS					
5		CB	TAN HIGHLY WEATHERED LIMESTONE WITH INTERBEDDED CLAY SEAMS		63	35		
10		CB	TAN LIMESTONE		90	80		
15		CB			98	93		
20		CB	GRAY LIMESTONE - TRACE SHALE SEAMS BELOW 21'		63	58		
25			TOTAL DEPTH OF BORING 25 FEET					

NOTE

NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES.

11-5168

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street Abilene, Texas 79601
(325) 698-5560 Firm Registration No. 1151

LOG OF BORING

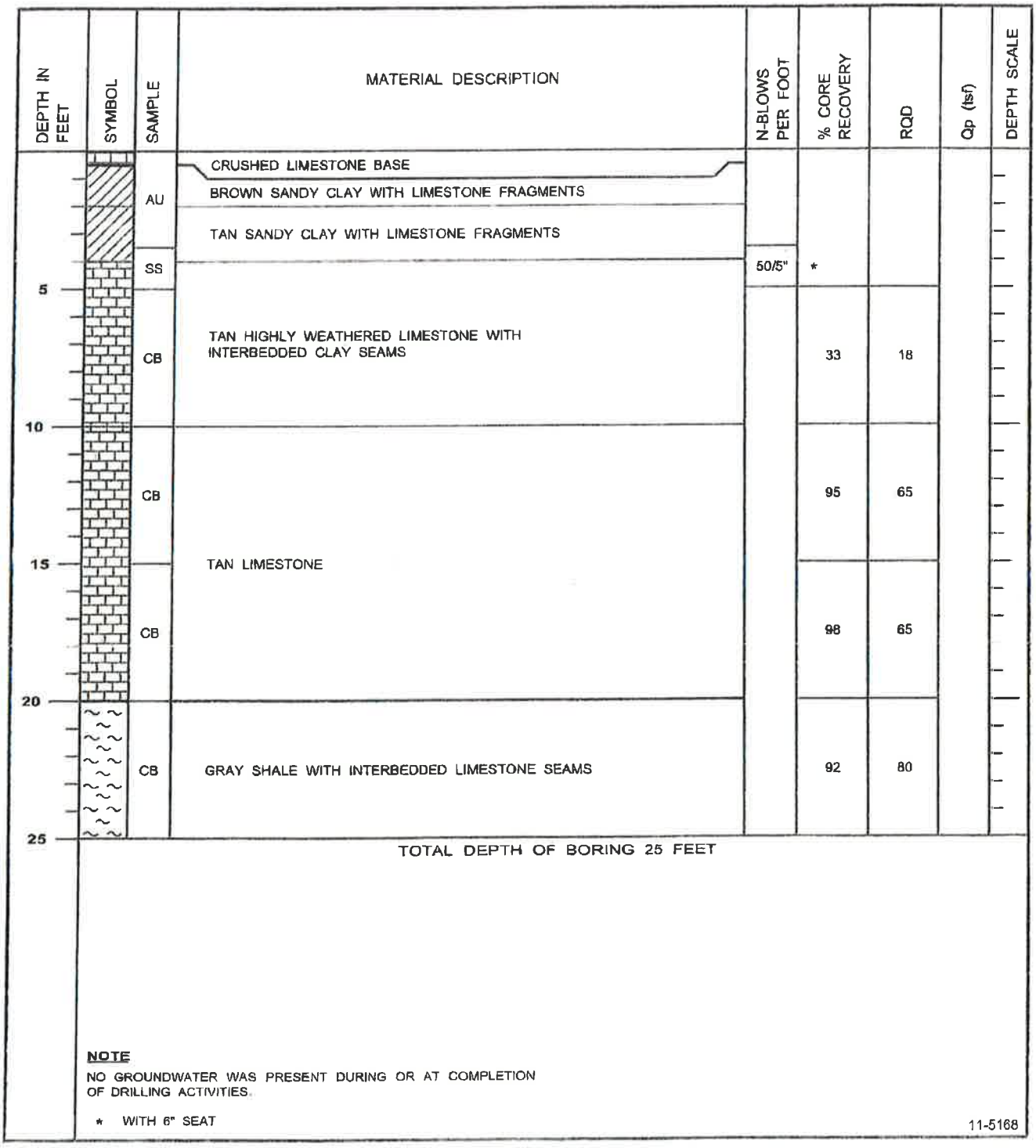
Project: **RUNWAY I-19 AND TAXIWAY SYSTEM**

Date: 01/11/2016

Location: **GRANBURY MUNICIPAL AIRPORT**

Type: AIR ROTARY

Boring No.: **B-9**



NOTE

NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES.

* WITH 6" SEAT

11-5168

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
Abilene, Texas 79601
(325) 698-5560
Firm Registration No 1151

LOG OF BORING

Project: **RUNWAY I-19 AND TAXIWAY SYSTEM**

Date: 01/11/2016

Location: **GRANBURY MUNICIPAL AIRPORT**

Type: AIR ROTARY

Boring No.: **B-10**

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)	DEPTH SCALE
		ST	DARK BROWN SANDY CLAY				1.5	
5		SS	TAN WEATHERED LIMESTONE	50/3"				
		AU						
		SS		50/1"				
10			TOTAL DEPTH OF BORING 10 FEET					

NOTE

NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES.

11-5168

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
Abilene, Texas 79601
(325) 696-5560
Firm Registration No. 1181

LOG OF BORING

Project: **RUNWAY I-19 AND TAXIWAY SYSTEM**

Date: 01/11/2016

Location: **GRANBURY MUNICIPAL AIRPORT**

Type: AIR ROTARY

Boring No.: **B-11**

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)	DEPTH SCALE
		ST	DARK BROWN SANDY CLAY				1.5	
		ST					2.5	
		SS	TAN AND GRAY SANDY CLAY WITH LIMESTONE FRAGMENTS AND CALCAREOUS NODULES	10				
5		ST					2.5	
		ST					4.5+	
		SS		35				
10			TAN HIGHLY WEATHERED LIMESTONE WITH INTERBEDDED CLAY SEAMS					
		SS		50/2"				
15			TOTAL DEPTH OF BORING 15 FEET					

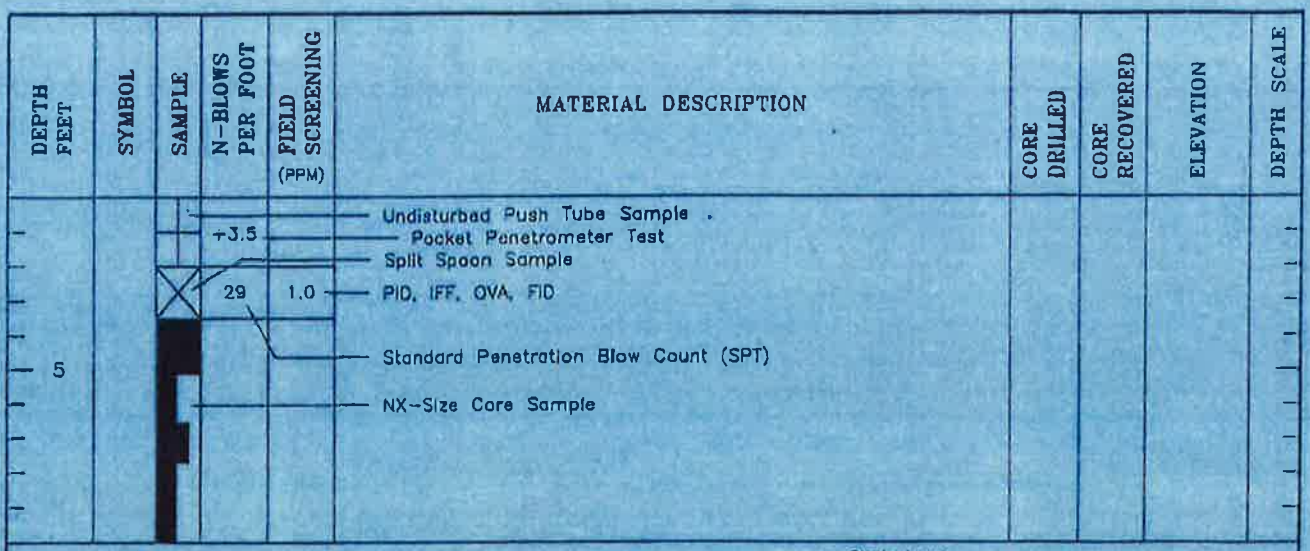
NOTE

NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES.

11-5168

ENPROTEC, INC.

EXPLANATION OF SYMBOLS AND TERMS USED ON BORING LOGS



Water Encountered — Water Level Encountered During Drilling

Static Level (date) — Stabilized Water Level

UNIFIED SOIL CLASSIFICATION DESCRIPTION OF SYMBOLS AND DIVISIONS

- Well-Graded Gravels, Gravel Sand Mixtures (GW)
- Poorly-Graded Gravels, Gravel Sand Mixtures (GP)
- Silty Gravel, Gravel Sand-Silt Mixtures (GM)
- Clayey Gravels, Gravel-Sand-Clay Mixtures (GC)
- Well-Graded Sands, Gravelly Sands (SW)
- Poorly-Graded Sands, Gravelly Sands (SP)
- Silty Sands, Poorly-Graded, Sand-Silt Mixtures (SM)
- Clayey Sands, Poorly-Graded, Sand-Clay Mixtures (SC)
- Inorganic Silts and Very Fine Sands, Silty or Clayey Fine Sands (ML)
- Inorganic Clays of Low to Medium Plasticity Gravelly, Sandy or Silty Clays, Lean Clays (CL)
- Organic Silts and Organic Silty Clays of Low Plasticity (OL)
- Inorganic Silts, Micaceous or Diatomaceous Fine Sandy or Silty Soils (MH)
- Inorganic Clays of High Plasticity, Fat Clays (CH)
- Organic Clays of Medium to High Plasticity, Organic Silts (OH)
- Caliche and Other Impervious Layer (HP)

BEDROCK SYMBOLS

- Conglomerate (CGL)
- Sandstone (SS)
- Limestone (LS)
- Shale (Sh)
- Weathered Shale (WS)
- Sandy Shale (SSh)
- Shaley Limestone (Sh LS)
- Dolomite (DOL)

MISCELLANEOUS SYMBOLS

- Asphaltic Concrete (HMAC)
- Cement Grout (CMT)
- Bentonite (BENT)

The LOG of BORING is a representation of the **subsurface** material at specific boring location and within the depth explored. The transition **between** strata may be gradual and variations in material types and depths between borings can be expected. Water level observations represent those conditions at the time of exploration and may vary with time and location of site.

SOIL COLOR CLASSIFICATION
Determined by
MUNSELL SOIL COLOR CHARTS
1990 EDITION REVISED

GENERAL NOTES

SAMPLE IDENTIFICATION

Soil Samples are visually classified in general accordance with the Unified Soil Classification System (ASTM D2487 or D 2488)

DRILLING AND SAMPLING SYMBOLS

ST:	Shelby Tube - 3" O.D., except where noted
SS:	Split-Spoon
THD:	THD Cone Penetrometer
AU:	Auger Sample
DB:	Diamond Bit
CB:	Carbide Bit
WS:	Wash Sample

SOIL PROPERTY SYMBOLS

N:	Standard "N" penetration: Blows per foot, or fraction thereof, of a 140 pound hammer 30 inches on a split-spoon
Qp:	Calibrated Penetrometer Resistence, TSF
Qu:	Unconfined Compression Strength, TSF
LL:	Liquid Limit, %
PI:	Plasticity Index

SOIL STRENGTH CHARACTERISTICS

NON-COHESIVE (GRANULAR) SOILS

RELATIVE DENSITY	BLOWS PER FOOT(N)
Very Loose	0-4
Loose	5-10
Firm	11-30
Dense	31-50
Very Dense	51 +

COHESIVE (CLAYEY) SOILS

COMPARATIVE CONSISTENCY	BLOWS PER FOOT(N)	UNCONFINED COMPRESSIVE STRENGTH (Qu)
Very Soft	0-2	0 - 0.25
Soft	3-4	0.25 - 0.50
Medium Stiff	5-8	0.50 - 1.00
Stiff	9-15	1.00 - 2.00
Very Stiff	16-30	2.00 - 4.00
Hard	31 +	4.00 +

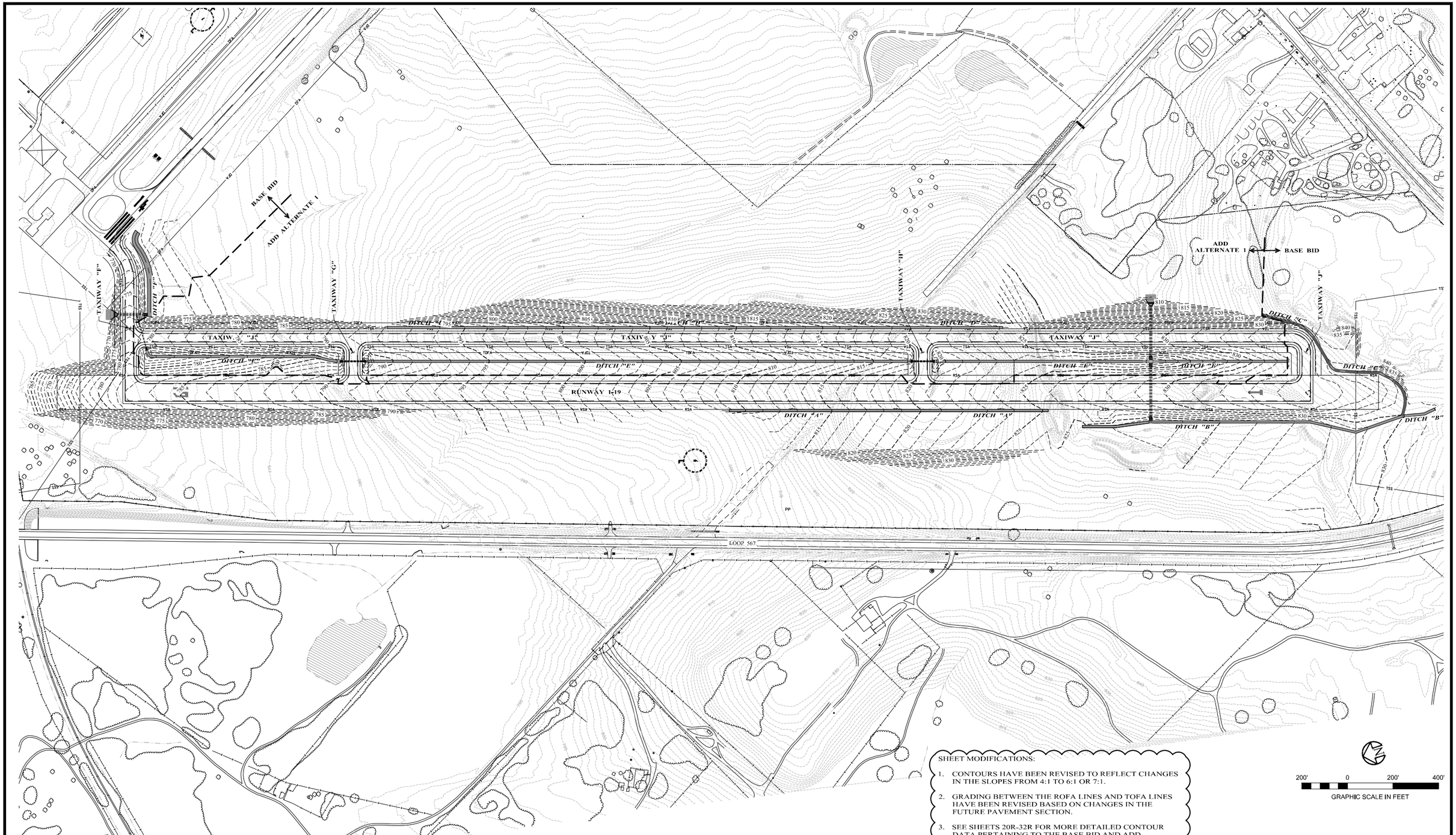
SOIL CHARACTERISTICS

PARTICLE SIZE

Boulders	8 in. +	Coarse Sand	5mm-0.6 mm	Silt	0.074mm-.005mm
Cobbles	8 in.-3 in.	Medium Sand	0.6mm-0.2mm	Clay	-0.005mm
Gravel	3 in.-5mm	Fine Sand	0.2mm-0.074 mm		

DEGREE OF EXPANSIVE POTENTIAL	PI
Low	0-15
Moderate	15-25
High	25 +

DEGREE OF PLASTICITY	PI
None to Slight	0-4
Slight	5-10
Moderate	11-30
High	31 +



SHEET MODIFICATIONS:

1. CONTOURS HAVE BEEN REVISED TO REFLECT CHANGES IN THE SLOPES FROM 4:1 TO 6:1 OR 7:1.
2. GRADING BETWEEN THE ROFA LINES AND TOFA LINES HAVE BEEN REVISED BASED ON CHANGES IN THE FUTURE PAVEMENT SECTION.
3. SEE SHEETS 20R-32R FOR MORE DETAILED CONTOUR DATA PERTAINING TO THE BASE BID AND ADD ALTERNATE CONSTRUCTION.
4. SEE SHEETS 33R-43R FOR REVISED CROSS SECTION DATA.

200' 0 200' 400'

GRAPHIC SCALE IN FEET

STATE OF TEXAS
CHAD E. PENNEL
91114
LICENSED
PROFESSIONAL ENGINEER
1/6/2020

MARK	REVISION	DATE

I:\KSA-MCK-SERVER1\PROJECTS\PROJECTS\GY012\008 CAD\30 SHEETS\ GY012-C-SHEET15.DWG | ADD ALTERNATE 1 - OVERALL SITE GRADING PLAN | 1/7/2020 - 8:03 AM

DRAWING PATH\NAME | LAYOUT | PLOT DATE - TIME

DRAWN BY:	JB
DESIGNED BY:	CP
LATEST REVISION:	10/15/2019
KSA JOB NO.:	GY.012

KSA
8866 Synergy Dr.,
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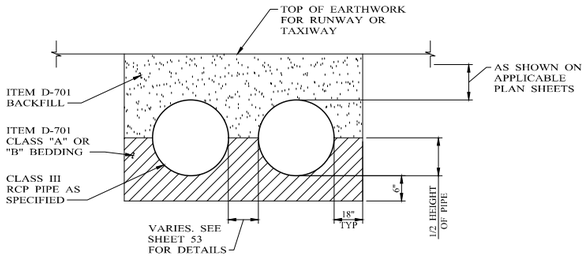
TBPE Firm Registration No. F-1356

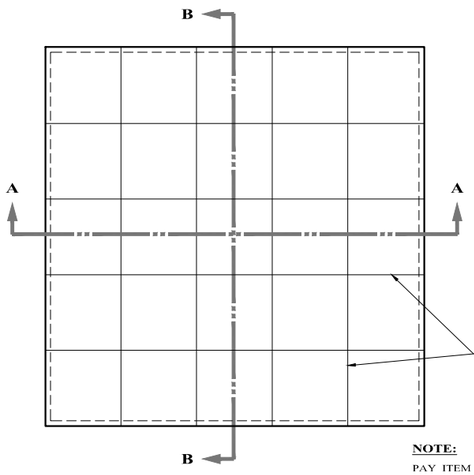
GRANBURY REGIONAL AIRPORT
RUNWAY 1-19 EARTHWORK PROJECT
GRANBURY, TEXAS

ADD ALTERNATE 1 - OVERALL SITE GRADING PLAN

SHEET NO. 15R



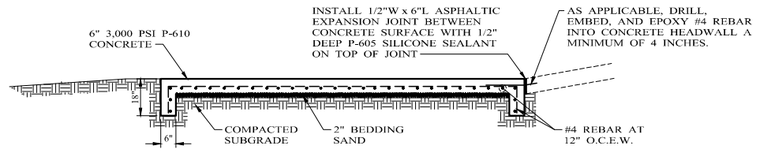
DETAIL "F"
MULTIPLE RCP PIPE CULVERT SECTION
SCALE: 1/4" = 1'-0"



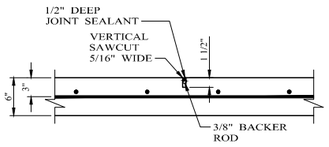
NOTE:

PAY ITEM D-752.5.9

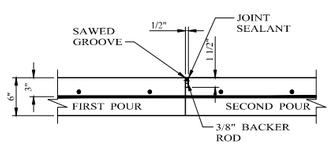
INSET "A"
SCALE: 1" = 10'



SECTION "A-A" & "B-B" PROFILES
NO SCALE

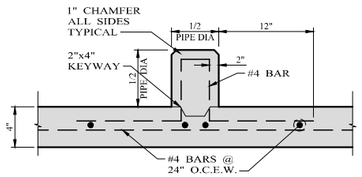


DETAIL "F"
SAWED CONTRACTION JOINT
NO SCALE

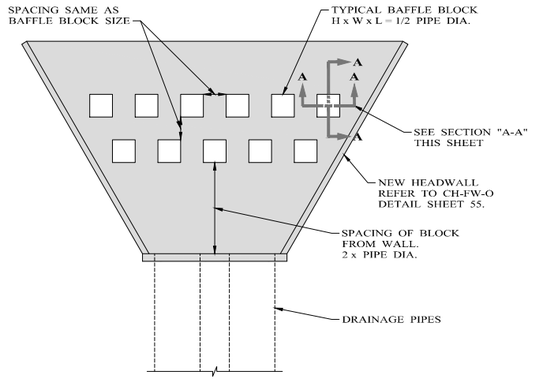


DETAIL "G"
CONSTRUCTION JOINT, IF NECESSARY
NO SCALE

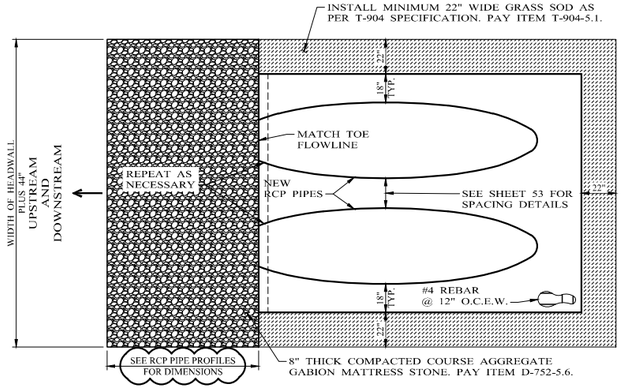
DETAIL "H"
CONCRETE RIPRAP
NO SCALE



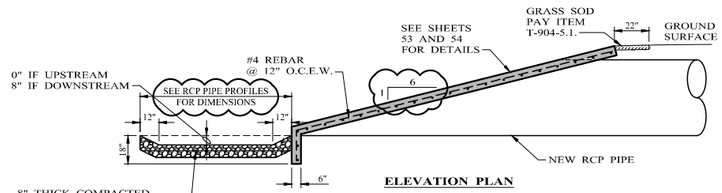
SECTION "A-A"
BAFFLE BLOCK DETAIL
NO SCALE



DETAIL "G"
TYPICAL BAFFLE BLOCK LAYOUT
NO SCALE

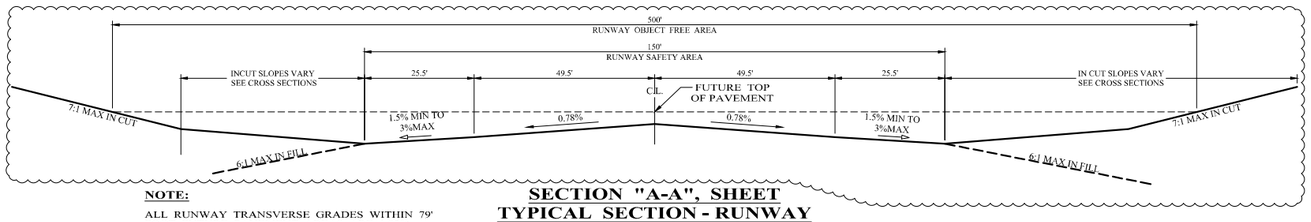


PLAN VIEW



ELEVATION PLAN

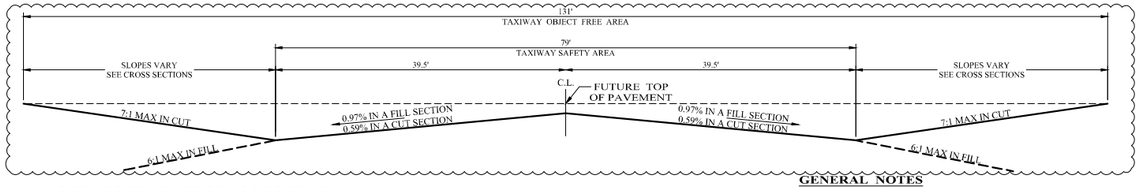
DETAIL "E"
ITEM D-752
RCP HEADWALL DETAIL
NO SCALE



NOTE:

ALL RUNWAY TRANSVERSE GRADES WITHIN 79' FOOT FUTURE PAVEMENT AREAS ARE 1.82% UNLESS OTHERWISE SHOWN ON PLANS.

SECTION "A-A", SHEET
TYPICAL SECTION - RUNWAY
NO SCALE



NOTE:

ALL TAXIWAY TRANSVERSE GRADES WITHIN 39' FOOT FUTURE PAVEMENT AREAS ARE GRADED AT A 0.97% IN FILL SECTIONS, AND ARE GRADED AT A 0.59% IN CUT SECTIONS, UNLESS OTHERWISE SHOWN ON PLANS.

SECTION "B-B", SHEET
TYPICAL SECTION - TAXIWAY
NO SCALE

GENERAL NOTES

1. EXISTING RUNWAY IS TO REMAIN OPEN DURING CONSTRUCTION OF NEW EARTHWORK DURING PHASE I. CONTRACTOR IS TO BE CAUTIOUS WHEN NEAR EXISTING AIRPORT RUNWAY DURING PHASE II.
2. PRIOR TO BEGINNING WORK ON THE NEW PHASE II EARTHWORK AREAS, BARRICADES SHALL BE INSTALLED AS DIRECTED BY RPR. REFER TO DETAIL SHOWN ON SHEET 3.

STATE OF TEXAS
CHAD E. PENNEL
91114
LICENSED
PROFESSIONAL ENGINEER
1/6/2020

MARK	REVISION	DATE

\\KSA-MCK-SERVER1\PROJECTS\PROJECTS\GY012\008 CAD\30 SHEETS\ GY012-C-SHEET49.DWG | EARTHWORK STRUCTURE DETAILS AND HEADWALL DETAILS | 1/9/2020 - 4:45 PM

DRAWING PATH\NAME | LAYOUT | PLOT DATE - TIME

DRAWN BY:	JB
DESIGNED BY:	CP
LATEST REVISION:	10/15/2019
KSA JOB NO.:	GY.012

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GRANBURY REGIONAL AIRPORT
RUNWAY 1-19 EARTHWORK PROJECT
GRANBURY, TEXAS

EARTHWORK STRUCTURE DETAILS AND HEADWALL DETAILS

SHEET NO. 49R