CITY OF BROKEN ARROW
Where opportunity lives

Public Contract Application for Contractual Changes

Engineering and Construction Department
485 N. Poplar, Broken Arrow, OK. 74012
Fax: 918-259-8453 - Office: 918-259-7000

Contract Change Order # 1

Project Name:	Leisure Park I Mill&Overlay	Project Number:	ST1509A
Project Location:	Leisure Park I Subdivision on Elm Pl.	Date of Application:	Wednesday, January 25, 2017
Contractor:	H&G Paving Contractors, Inc.	Submitted By:	Brian Wimmer

Summary of Change in Scope of Work

The following scope of work consisting of work location, work description, established quantities, and timeline for completion has been reviewed and agreed upon by the contractor, the origin funding department, and the Engineering and Construction Department.

Change of Work Items Included in this Change Order:

1) Due to soft and saturated subgrades consisting of fat clays, the contractor is directed to overexcavate (beyond original patch area) and additional 4 inches of subgrade, install Tencate Mirafi BXG 110 geogrid, and place an additional 4inches of aggregate base in combination with the 8 inches of aggregate base from the patch line item. This price consists quantity for 1605 sy as shown in the attached plan limits. Contract Administrator to set out final extents of 1605 SY in the field. Price is inclusive of all costs for above work.

2) Due to excessive water infiltration observed along Hickory Street at Waco Place, the contractor is directed to install 350 linear feet of 4" underdrain with integral filter fabric and clean crushed 3/4" aggregate for drainage facilitation. Underdrain to be installed into storm box at Austin St. and Hickory St. Price is inclusive of all costs for above work. Contract Administrator to set out final extents of 350 linear feet of underdrain

Change in Contractual Project Time:

1) Due to additional excavations, the contract time will amended to add 12 calendar days.
2) No additional time require for install of underdrain.

Plan Sheets or Additional Documents Attached: ☑ Yes ☐ No ☐ Other: _____

Work Order Quantities

Item#	(Spec)	Item Description	Units	Price	Quantity	Total Amount
CO1-1	NA	Hickory Street Subgrade Stabilization	LS	$ 20,050.00	1	$ 20,050.00
CO1-2	NA	4" Perforated Underdrain CIP	LF	$ 14.00	350	$ 4,900.00
					Total Change Cost:	$ 24,950.00

Summary of Project Costs

Total Previous Change Orders:	$ -	Original Contract Amount:	$ 718,622.24
Current Change Order:	$ 24,950.00	Amended Contract Amount:	$ 743,572.24
Total Cost of Change Orders:	$ 24,950.00	Percent Change in Contract:	3.47%
Total Cost Applicable to CBA:	$ 24,950.00	Percent Change Applicable to CBA:	3.47%

Change Order Authorization

Change Order # 1 in the sum of: $ 24,950.00 has been reviewed by all parties and is recommended for approval by:

	Name	Signature	Date
Contractor Submitting Change Order:	Greg Hornbuckle		1-25-17
Construction Division Manager:	Timothy S Robins, PE		1/25/17
Director of Engineering & Construction:	Alex Mills, PE		1/25/17
Assistant City Manager - Operations:	Kenneth D Schwab, PE	Kenneth D. Schwab	1/25/17
City Manager:	Michael Spurgeon	Bessie for M. Spurgeon	1-26-17

This Change is Executed Through:

☑ This change to the contract documents is authorized by the City Manager's authority in accordance with the applicable state statutes and COBA Code of Ordinances.

or

☐ This change to the contract documents was approved at the City Council/BAMA meeting held on : _____

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	Name	Signature	Date
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Construction Division Manager:	Timothy S Robins, PE		
Director of Engineering & Construction:	Jeff Bigby, PE		
Assistant City Manager - Operations:	Kenneth D Schwab, PE		
City Manager:	Michael Spurgeon		

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or

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H&G PAVING CONTRACTORS, INC.

P.O. Box 624 • Muskogee, OK 74402 • 918-351-3537

January 24, 2017

City of Broken Arrow
485 N. Poplar
Broken Arrow, OK. 74012

Leisure Park I Mill & Overlay

RE: Request for Change – Hickory Ave.

Tim,

H&G Paving Contractors is providing a change request for the following option – LUMP SUM on Hickory Ave. (Includes: removal of 4" of additional over excavation, installation of BXG Geogrid and additional 4" of aggregate base and traffic control needed.)

ADD

RFC ..... $ 20,050.00/LS

In addition, we request 12 days be added to our contract time due to the scope of work and additional depth patching requested per city of Broken Arrow. Thank you.

RFC 4" Underdrain installed..... $14.00/LF

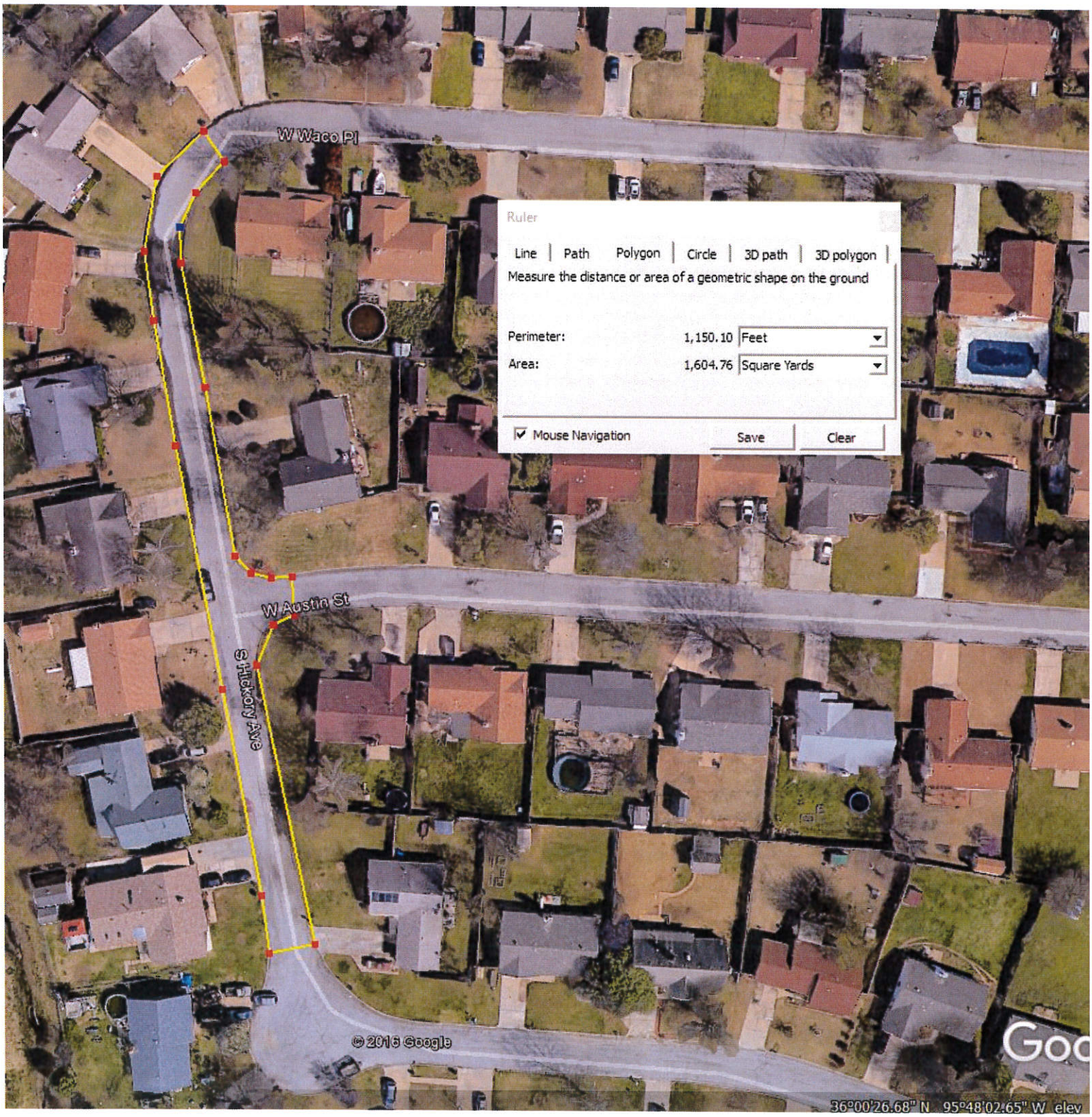
RFC BXG 110 Geogrid installed..... $ 3.65/SY

Should you have any questions or concerns regarding this request please don't hesitate to contact me at my office or by email.

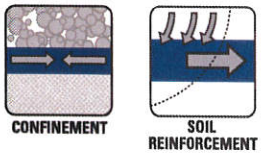
Respectfully,

Bryan Wimmer
General Manager
H & G Paving Contractors, Inc.

YOUR PAVING SPECIALISTS!


W Waco Pl
W Austin St
S Hickory Ave
© 2016 Google
Ruler
Line
Path
Polygon
Circle
3D path
3D polygon
Measure the distance or area of a geometric shape on the ground
Perimeter: 1,150.10 Feet
Area: 1,604.76 Square Yards
Mouse Navigation
Save
Clear
36°00'26.68" N 95°48'02.65" W elev

TENCATE
Mirafi®



Mirafi® BXG Geogrids

for Base Course Reinforcement and Soil Stabilization Applications

Mirafi® BXG Geogrid

TenCate develops and produces materials that deliver increased performance, reduce costs and measurable results when working with our customers to provide advanced solutions utilizing Mirafi® BXG geogrids that make a difference.

The Difference Mirafi® BXG Geogrids Make:

- Reinforcement Strength. High tensile modulus properties per ASTM D6637 for base reinforcement applications. For structures with dynamic short-term loadings, Mirafi® BXG geogrids offer high strength at low strain and are designed for maximum bearing capacity and shear resistance.
- True biaxial strengths. Mirafi® BXG geogrids are biaxial grids that exhibit high tensile strength in both longitudinal and transverse directions, making them suitable for base course reinforcement and soil stabilization applications.
- Durability. Superior damage resistance from moderate to severe stress installations.
- Soil Interaction. Superior soil confinement resulting in greater load distribution. A new combination of grid structure and polymers to create optimum soil-grid interaction.
- Roll Sizes. Available in multiple roll sizes to fit the project requirements.

APPLICATIONS

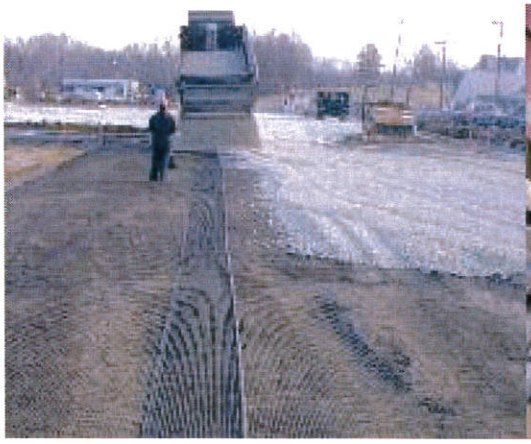
Mirafi® BXG geogrids deliver strength, long-term performance, reliability and quick installation for base reinforcement for paved roads, construction haul roads, foundation reinforcement, working platforms on weak subgrades, and secondary reinforcement for soil retaining structures.

INSTALLATION GUIDELINES*

Prepare the ground by removing stumps, boulders, etc. and fill in low spots. Unroll the Mirafi® BXG geogrids directly over the ground to be stabilized. If more than one roll width is required, overlap rolls. Place the aggregate onto previously installed geogrid.

Maintain 6in (150mm) to 12in (300mm) cover between truck tires and geosynthetic. Compact the aggregate over the Mirafi® BXG geogrid to the design thickness and fill any ruts with new aggregate as specified in the project guidelines.

* These guidelines serve as a general basis for installation. Detailed instructions are available from your TenCate representative.



TENCATE
Mirafi®

Mirafi® BXG Geogrids

for Base Course Reinforcement and Soil Stabilization Applications

Mechanical Properties	Test Method	Units	BXG110 MD	BXG110 CD	BXG120 MD	BXG120 CD
Tensile Strength (at ultimate)[1]	ASTM D6637	lbs/ft (kN/m)	850 (12.4)	1300 (19.0)	1310 (19.2)	1970 (28.8)
Tensile Strength (at 2% strain)[1]	ASTM D6637	lbs/ft (kN/m)	280 (4.1)	450 (6.6)	410 (6.0)	620 (9.0)
Tensile Strength (at 5% strain)[1]	ASTM D6637	lbs/ft (kN/m)	580 (8.5)	920 (13.4)	810 (11.8)	1340 (19.6)
Junction Efficiency[2]		%	93		93	
Flexural Stiffness[3]		mg-cm	250,000		750,000	
Aperture Stability[4]		m-N/deg	0.32		0.65	
Resistance to Installation Damage[5]		% SC/%SW/GP	95/93/90		95/93/90	
Resistance to Long Term Degradation[6]		%	100		100	
Resistance to UV Degradation[7]		%	100		100	
Physical Properties		**Unit**				
Grid Aperture Size (MD)		in (mm)	1.0 (25.4)		1.0 (25.4)	
Grid Aperture Size (CD)		in (mm)	1.3 (33.0)		1.3 (33.0)	
Roll Dimensions (width x length)		ft (m)	13 x 246 (4 x 75)		13 x 164 (4 x 50)	
Roll Area		yd^2 (m^2)	355 (300)		237 (200)	

[1]True resistance to elongation when initially subjected to a load determined in accordance with ASTM D6637 without deforming test materials under load before measuring such resistance or employing "secant" or "offset" tangent methods of measurement so as to overstate tensile properties.

[2]Load transfer capability expressed as a percentage of ultimate tensile strength.

[3]Resistance to bending force determined in accordance with ASTM D7748, using specimens of width two ribs wide, with transverse ribs cut flush with exterior edges of longitudinal ribs (as a "ladder"), and of length sufficiently long to enable measurement of the overhang dimension. The overall Flexural Stiffness is calculated as the square root of the product of MD and CD Flexural Stiffness values.

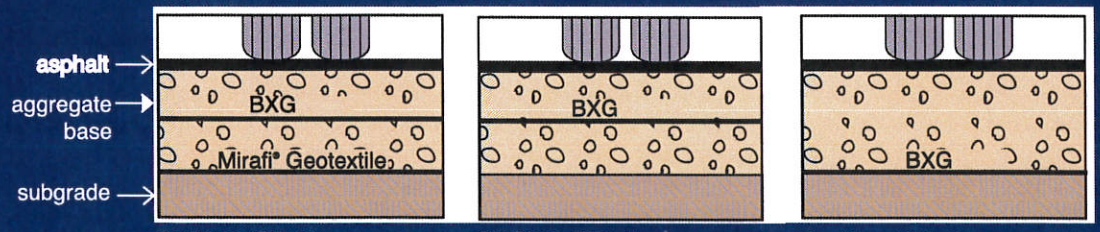
[4]Resistance to in-plane rotational movement measured by applying a 20 kg-cm (2 m-N) moment to the central junction of a 9 inch x 9 inch specimen restrained at its perimeter in accordance with GRI GG9.

[5]Resistance to loss of load capacity or structural integrity when subjected to mechanical installation stress in clayey sand (SC), well graded sand (SW), and crushed stone classified as poorly graded gravel (GP). The geogrid shall be sampled in accordance with ASTM D5818 and load capacity shall be determined in accordance with ASTM D6637.

[6]Resistance to loss of load capacity or structural integrity when subjected to chemically aggressive environments in accordance with EPA 9090 immersion testing.

[7]Resistance to loss of load capacity or structural integrity when subjected to 500 hours of ultraviolet light and aggressive weathering in accordance with ASTM D4355.

Typical Base Reinforcement Cross Sections



Conditions: CBR < 3
Base Course Thickness > 250mm(10")

Conditions: CBR > 3
Base Course Thickness > 250mm(10")

Conditions: CBR > 3
Base Course Thickness <250mm(10")

PDS.BXG0915

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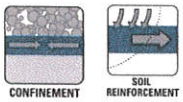
www.mirafi.com

ISO 9001 FM 61026

TENCATE
materials that make a difference

TENCATE GEOSYNTHETICS
Americas

Mirafi® BXG110



Mirafi® BXG110 geogrid is composed of polypropylene resin which is extruded into a grid structure. Mirafi® BXG110 is inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.

TenCate Geosynthetics Americas Laboratories are accredited by Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP).

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value	
			MD	CD
Tensile Strength (at ultimate)[1]	ASTM D6637	lbs/ft (kN/m)	850 (12.4)	1300 (19.0)
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Junction Efficiency[2]		%	93	
Flexural Stiffness[3]		mg-cm	250,000	
Aperture Stability[4]		m-N/deg	0.32	
Resistance to Installation Damage[5]		% SC/%SW/%GP	95 / 93/ 90	
Resistance to Long Term Degradation[6]		%	100	
Resistance to UV Degradation[7]		%	100	

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Physical Properties	Unit	Typical Value
Grid Aperture Size (MD)	in (mm)	1.0 (25.4)
Grid Aperture Size (CMD)	in (mm)	1.3 (33.0)
Roll Dimensions (width x length)	ft (m)	13 x 246 (3.95 x 75)
Roll Area	yd^2 (m^2)	355 (296)

365 South Holland Drive
Pendergrass, GA 30567
FGS000743
ETQR8

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Tel 888 795 0808

Fax 706 693 4400
www.tencate.com