

**VALUE ENGINEERING CHANGE PROPOSAL
MISSOURI DEPARTMENT OF TRANSPORTATION**

Conceptual Proposal **Final Proposal** **Date** June 15, 2011

Contract ID 110218-401 **Job No.** J4I1121B

County Jackson I-435 **Original Bid Cost** \$7,732,918.12

Contractor Clarkson Construction Company **By** W. K. Wilson

Designed By W. K. Wilson **Phone** 816-483-8800

VECP# 11-57 (to be completed by C.O.) **VECP** or **PDVECP**

1. **Description of existing requirements and proposed change(s). Advantages/Disadvantages**
See letter dated June 15, 2011 attached hereto.

2. **Estimate of reduction in construction costs.** \$78,540.91

3. **Prediction of any effects the proposed change(s) will have on other department costs, such as maintenance and operations.**
We do not see any impact on the other department costs over and above what currently exists.

4. **Anticipated date for submittal of detailed change(s) of items required by Section 104.6 of the Specifications.**

Not anticipated to be required
(date)

5. **Deadline for issuing a change order to obtain maximum cost reduction, noting the effect of contract completion time or delivery schedule.**

September 1, 2011 No effect
(date) (effect)

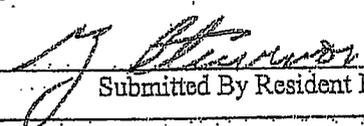
6. **Dates of any previous or concurrent submission of the same proposal.**

N/A
(date and/or dates)

Additional Comments:

**** Portion Below This Line To Be Filled Out by MoDOT ****

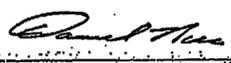
Comments: After consultation with MoDOT design and Geotechnical personnel, it is my opinion this is an equal or better solution for constructing the ramp widening. The system that is proposed captures water with a clay cap at the bottom of the cut. On top of the clay cap is a drainage system that prevents water from infiltrating the sand fill. The system also uses an engineered geogrid system to hold a 1:1 slope. Please find attachments showing the cross-sections of the design, geotextile slope recommendation, data sheet for the Tensar UX 1100 uniaxial geogrid, and the data sheet for Tensar BX Type 1 biaxial geogrid.


 Submitted By Resident Engineer

5.12.11
 Date

Comments: BASED ON EXTENSIVE REVIEW AND AFTER CONSIDERATION OF VARIOUS PROPOSAL CHANGES, WE HAVE SETTLED ON A GEOGRID SYSTEM TO INCLUDE A CLAY SEAL LAYER AND DRAINAGE SYSTEM. ADDITIONALLY, AN ARMORMAX SYSTEM WILL BE UTILIZED TO PROTECT THE 1:1 SLOPE. DUE TO THESE CHANGES OVERALL SAVINGS WAS REDUCED FROM THE ORIGINAL ESTIMATE.

Approval Recommended
 Rejection Recommended


 District Engineer

8/15/11
 Date

FINAL DETAILS/DOCUMENTS & COST TO BE QUANTIFIED AT CONSTRUCTION OF THE SYSTEM

Digitally signed by Jackie White
DN: cn=Jackie White, o=US, ou=Construction and Materials, ou=44CA,
email=jackie.white@modot.mo.gov
Date: 2011.08.17 13:32:43 -0500

Comments: SEE ATTACHED CORRESPONDENCE.

Approval Recommended
 Rejection Recommended

Federal Highway Administration
 Required for FHWA Full Oversight Projects

Date

Comments: APPROVED IN CONCEPT SUBJECT TO SATISFACTORY IMPLEMENTATION OF CONDITIONS DESCRIBED IN ATTACHED CORRESPONDENCE WITH FHWA.

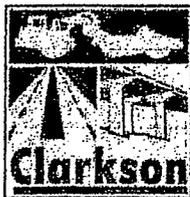
Approval
 Rejection


 State Construction and Materials Engineer

Date

Digitally signed by Dennis Bryant
DN: cn=Dennis Bryant, o=MoDOT, ou=3H35,
email=dennis.bryant@modot.mo.gov, c=US
Date: 2011.08.22 09:43:46 -0500

Distribution: Resident Engineer, Project Manager, District Construction & Materials Engineer, State Construction & Materials Engineer, FHWA Value Engineering Administrator - MoDOT, P. O. Box 270, Jefferson City, MO 65102



CLARKSON CONSTRUCTION COMPANY

W. E. CLARKSON, PRESIDENT

4133 GARDNER AVENUE
P.O. BOX 34315
KANSAS CITY, MISSOURI 64120-4315

TEL: 816-483-8800
FAX: 816-241-8823
www.clarksonconstruction.com

June 15, 2011

Mr. Gregory L. Stervinou
Resident Engineer
MoDOT
1900 NW Cookingham Drive
Kansas City, Mo 64155-1512

RE: Proj. #J411121B
Route Front Street & I-435
Jackson County, Mo

Dear Mr. Stervinou:

We have been directed to provide a price to grout the rock slope protection or provide another method to stabilize the slope on our VE proposal. We have found an alternate method of stabilizing the slope which will outperform and be more economical than grouted rock. This system will increase the cost of work included in our VE proposal from \$ 189,555.00 to \$ 207,103.00, an increase of \$ 17,548.00.

A detailed breakdown of the costs for the work included in our proposal is shown below:

	Description	Quantity	Unit	Unit Price	Total
Materials	Geogrid	16,800	SY	\$4.00	\$ 67,200.00
	Materials include tensor grid, filter fabric, 4" slope drain, extra length of guard rail posts				
Materials	Armormax system	2,333	SY	\$18.00	\$ 41,994.00
	Materials include Armormax fabric, all anchors and hardware				
Labor & Equipment					\$97,909.00
	Includes all labor & equipment to construct clay caps, reinforced Backfill, install geogrid, install armormax system, seed armormax system				
				TOTAL	\$207,103.00

Attached is information for the Armormax anchored reinforced vegetation system. Also attached is a revised typical section showing the roadway and shoulder widths, the deletion of type 1 rock blanket, and the addition of the Armormax slope protection. If this proposal is acceptable, we will provide new typical section incorporating all changes and will provide

"An Equal Opportunity Employer"





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TEL: 816-483-8800

FAX: 816-241-6823

www.clarksonconstruction.com

cross sections at 100' intervals before construction is started.

Very truly yours,

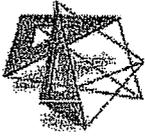
CLARKSON CONSTRUCTION COMPANY

W. K. Wilson



"An Equal Opportunity Employer"





Re: FW: VE CID 110218-401 J41121B Clarkson Construction Front Street / I 435

Dennis G Bryant to: Kevin.Irving

06/30/2011 11:01 AM

Cc: Ed.Cordero, Gregory.Stervinou, Ken.Foster, Perry.Allen, Jay Bestgen

Kevin,

I wanted to follow up on our conversation this morning while it is fresh in my mind. Perry will sending along his comments a little later along with a signed copy of the proposal.

This has been a challenging proposal to evaluate to say the very least. It has been through at least 3 major revisions and countless emails back and forth between everyone involved. To the best of my knowledge everyone's issues have been addressed. Some of the major points follow:

The system that we propose to go with is proprietary. On the face of it that may seem to be an issue, but in my opinion it actually is not. The contract was let with a generic design. The contractor's first proposal was a generic rock fill. The system selected was chosen in the end because it survived the vetting as the most cost effective alternative.

Mike Fritz expressed the concern that the fabric may be sensitive to UV and that he was concerned about getting adequate vegetative cover in the clay cap. I agree with his concern but I think that it can be adequately addressed in the change order authorizing the change. The cap will be built of soil from the area that has shown itself to be capable of supporting healthy vegetation. We believe that turf will be self-sustaining once it is established and we will not accept the slope for maintenance until we are satisfied that it is.

In the final proposal the savings will not be large. For MoDOT the tipping point for recommending acceptance is the potential for benefit on future projects in the area. If the Anchored Reinforced Vegetative System works out as well as our geotech folks think it will, it will be included in future projects as a bidding option to increase competition. We agree that there is risk in using an untried technology, but we think the risk is minimal. We will require Engineer sealed plans for all aspects of the design and will scrutinize the construction when it is going on.

I won't reference a cost savings at this time because the contractor is waiting on conceptual approval before proceeding with a detailed design. Other issues may arise during the design phase but I see no reason that they cannot be worked out.

Again, I regret that the review process came to be so chaotic. We struggle with a good way to track VE proposals when they are as complex as this one and there are so many interested parties to keep in the loop.

If there are other issues that I have failed to address just let me know.

Thanks!

Greg and Perry, I wanted follow up on our discu... 05/26/2011 11:19:05 AM

From: <Kevin.Irving@dot.gov>
To: <Gregory.Stervinou@modot.mo.gov>, <Perry.Allen@modot.mo.gov>
Cc: <Dennis.Bryant@modot.mo.gov>, <Ken.Foster@dot.gov>, <Ed.Cordero@dot.gov>
Date: 05/26/2011 11:19 AM
Subject: FW: VE CID 110218-401 J41121B Clarkson Construction Front Street / I 435

Greg and Perry,

I wanted follow-up on our discussion from Tuesday. It was apparent that MoDOT had conceptually agreed to the proposal without determining that the proposed cost breakdown (both quantities and unit prices) were reasonable. As I allude to below, the quantities and unit prices should be determined to be as accurate and reasonable (respectively) as possible in order to make a determination that the proposal adds value and will reduce cost. Furthermore, following our discussion with Bruce Harvel, it was apparent that neither the CO nor the district geotech division had completely signed off on the proposed design, as there were still concerns for the rock blanket being placed on a 1:1 slope. If further modification to the rock blanket design is necessary, this could add to the cost of the proposed work and reduce the overall cost savings. Additionally, I haven't seen any correspondence regarding CO Construction's position on this. According to the EPG guidance flowchart, Construction and Materials Division is to review prior to offering conceptual approval.

We discussed my concern for the unit cost for the embankment in place item in their VECP and I proposed that we use the historical bids for this item with similar quantities to determine an average unit cost per cubic yard (as a starting point). From there, in the interest of finding a mutually beneficial resolution to move forward, I proposed to split the difference between what the contractor was proposing and what the average unit bid cost was for the embankment in place item. In our discussion, we all agreed that this was a reasonable approach. I am hopeful that this proposal helps to resolve this specific concern.

I look forward to your written response to my previous email below.

Thanks,
Kevin

-----Original Message-----

From: Irving, Kevin (FHWA)
Sent: Friday, May 13, 2011 11:31 AM
To: 'Gregory.Stervinou@modot.mo.gov'
Cc: 'Perry.Allen@modot.mo.gov'; 'Dennis.Bryant@modot.mo.gov';
'Lucas.Kaspar@modot.mo.gov'; Foster, Ken (FHWA)
Subject: RE: VE CID 110218-401 J4I1121B Clarkson Construction Front
Street / I 435

Greg,

Good morning,

Thanks for forwarding me the latest version of the VECP proposal from Clarkson Construction Co. To assist in my review and documentation, could you send me the latest correspondence from district geotech and CO geotech, and design/construction, ie. emails with comments, recommendations and conclusions from their analysis?

Here are some initial comments/questions:

1. Has your office reviewed the proposed items to verify that they are reasonable in cost? Please forward this documentation to me when you get a chance. Have you concluded that the proposed quantities are also reasonable for each item (both proposed items and existing pay items?).
2. What is the rationale for the reduction in mobilization?
3. Could you confirm that the auxiliary lane width is not being reduced? I assume that it is but I didn't see a dimension on the

drawings.

4. In the original submittal you had requested stamped cross sections from Clarkson. Is this being provided for the redesign on this VECP?

5. In consideration of reasonable cost savings, it was noted in the initial VECP submittal comments from Design that the \$0.01/CY for the Embankment in Place pay item was not reasonable. I concurred with this and mentioned to Perry last week that the proposed cost savings (which included this unit price) was my main concern next to providing the full designed auxiliary lane and shoulder widths. It was noted that the Embankment in Place item received bids of \$7.57 and \$11.00 per cubic yard from the next two highest bidders. It should be expected that a reasonable unit cost be proposed for this and all items in order to arrive at a fair cost savings (\$0.01/CY for the embankment item is not reasonable). As proposed, the contractor appears to save a considerable amount more on cost that would not be shared with the owner. This is not the intent of the VECP provision. It is important that the owner assure an equitable share of the overall cost savings, which is implied with a 50%/50% shared savings. In turn, the contractor is expected to realize their fair share for their proposed innovation.

I want to emphasize my appreciation of MoDOT's efforts to maintain the full auxiliary lane and shoulder widths as originally designed. This will serve to improve safety and reduce future maintenance costs. I am hopeful that we can make this proposal work and look forward to hearing your response to my comments.

Please let me know if you have any questions,

Thanks,
Kevin

-----Original Message-----

From: Gregory.Stervinou@modot.mo.gov
[mailto:Gregory.Stervinou@modot.mo.gov]
Sent: Thursday, May 12, 2011 9:34 AM
To: Perry.Allen@modot.mo.gov
Cc: Dennis.Bryant@modot.mo.gov; Irving, Kevin (FHWA);
Lucas.Kaspar@modot.mo.gov
Subject: VE CID 110218-401 J4I1121B Clarkson Construction Front Street /
I 435

Please find attachments for VE proposal.

VE - southbound on ramp widening from Front Street to Southbound
I-435 station 97+71.50 to 115-68.90.



I-435 SHOULDER IMPROVEMENTS

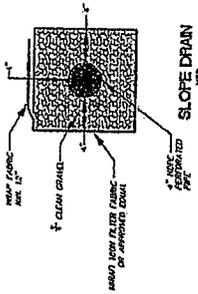
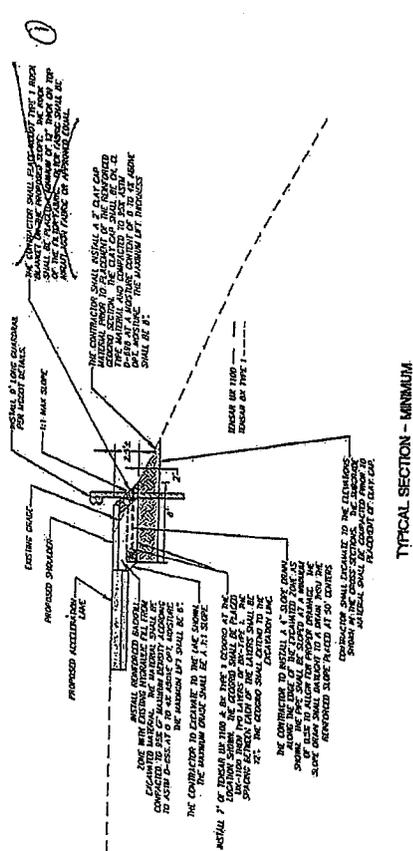
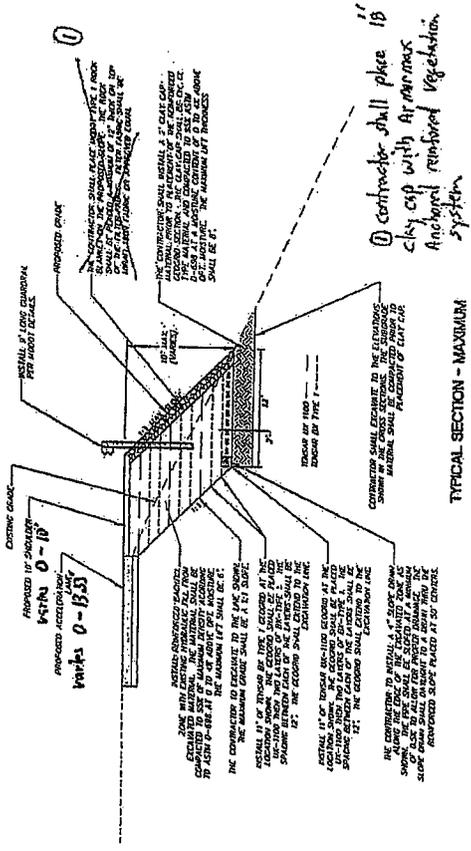
1-435 AND FRONT ST

KANSAS CITY, MISSOURI



PROJECT NO.	13-43
DATE	11-11-11
SCALE	AS SHOWN
DESIGNED BY	...
CHECKED BY	...
APPROVED BY	...
TITLE	I-435 SHOULDER IMPROVEMENTS
SHEET	1 OF 1

Some roadway widths as shown on sheet 21512 typical sections 3411121B



Checked/Revised: 11/11/11 11:11:11 AM

ARMORMAX™

Anchored Reinforced Vegetation System

ArmorMax™ Anchored Reinforced Vegetation System is the most advanced flexible armoring technology available for severe erosion challenges. The ArmorMax system can be used in **non-structural applications** where additional factors of safety are required, including protecting earthen levees from storm surge and wave overtopping and stream, river and canal banks from scour and erosion. In addition, this system is ideally suited to protect storm water channels in arid and semi-arid environments where vegetation densities of less than 30% coverage are anticipated. For **structural applications**, the system can be engineered to provide surficial slope stabilization to resist shallow plane failures. Consisting of our woven three-dimensional High Performance Turf Reinforcement Mat (HPTRM) with X3® fiber technology and earth percussion anchors, you can count on the ArmorMax system to hold its ground.



DURABLE FLEXIBLE ARMORING SYSTEM

Lightweight protection layer securely anchored to the subgrade for long-term design life

WITHSTANDS EXTREME HYDRAULIC STRESSES

The HPTRM component of ArmorMax has been tested at CSU comparable to traditional armoring methods

RESISTS NON-HYDRAULIC EVENT DAMAGE

High strength survivability woven monolithic surface resists non-hydraulic stresses like debris flows and maintenance operations

SECURES NON-STRUCTURAL APPLICATIONS

In non-structural applications, the earth percussion anchors act as a tie-down mechanism securing the HPTRM firmly to the ground for additional factors of safety

STABILIZES STRUCTURAL APPLICATIONS

Engineered to provide surficial slope stabilization to resist shallow plane failures

OTHER FEATURES & BENEFITS

- ▶ Supports the EPA's Green Infrastructure Initiative and is a recognized storm water Best Management Practice (BMP) and is proven to reduce erosion and reinforce vegetation for low-impact, sustainable design
- ▶ Easy to handle, lightweight components for rapid installation
- ▶ Use of lightweight equipment and unskilled labor facilitates installation with limited site access
- ▶ Aesthetically pleasing and more cost effective than conventional methods such as rock riprap and concrete paving

Outperforms and is more cost effective than conventional methods, including:

- ▶ Rock riprap
- ▶ Rock slope protection
- ▶ Gabions
- ▶ Concrete blocks or paving
- ▶ Fabric formed revetments

PROPEX
GEOSYNTHETICS

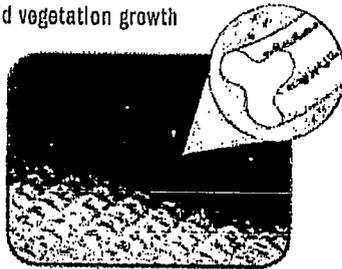
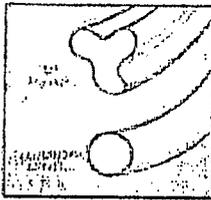
THE ADVANTAGE CREATORS™

ARMORMAX™

Anchored Reinforced Vegetation System

WOVEN THREE-DIMENSIONAL HPTRM PROTECTION LAYER FEATURING X3® FIBER TECHNOLOGY

► Unique X3 fiber shape provides over 40% more surface area than conventional fibers to capture the moisture, soil and water required for rapid vegetation growth



► Exhibits extremely high tensile strength as well as superior interlock and reinforcement capacity with both soil and root systems

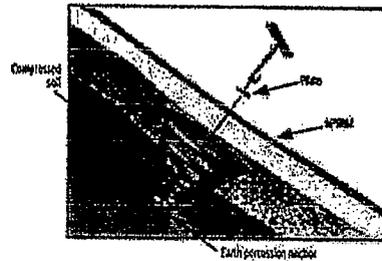
► Maximum ultraviolet protection for long-term design life

► Netless, rugged material construction stands up to the toughest erosion applications where high loading and/or high survivability conditions are required

EARTH PERCUSSION ANCHORS TO SECURE THE MAT TO THE GROUND

► Made of corrosion resistant aluminum alloy, gravity die cast and heat treated to give considerable increase in mechanical strength and curability both during installation and in service

► Connected to a threaded rod or stainless tendon to fully enhance corrosion resistance particularly at the soil/air interface

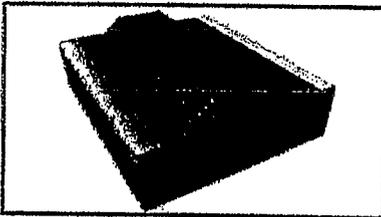


► As the load exerted on the soil by the ArmorMax system increases, a body of soil above the

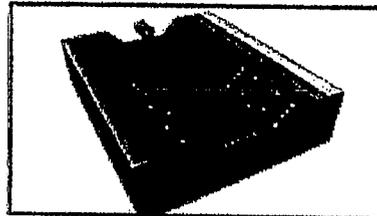
anchor is compressed and provides resistance to any further anchor movement – permanently securing the mat to the ground

ARMORMAX NON-STRUCTURAL APPLICATIONS

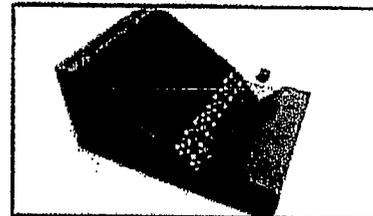
The figures below illustrate the ArmorMax system for non-structural applications. The system is comprised of the HPTRM and typically Type 2 earth percussion anchors.



LEVEE ARMORING



ARID/SEMI-ARID STORM WATER CHANNELS



CANAL, STREAM AND RIVER BANK PROTECTION

ARMORMAX STRUCTURAL APPLICATION

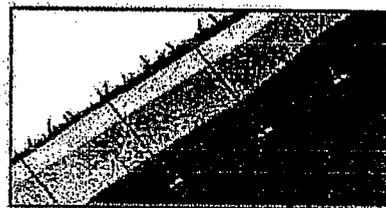
The figures below illustrate the use of ArmorMax in a structural application for surficial slope stabilization. The system is comprised of the HPTRM and Type 1A or 1B earth percussion anchors as specified by the project engineer.



SHALLOW PLANE FAILURE



APPLY ARMORMAX SYSTEM



VEGETATION GROWTH

KEY PHYSICAL PROPERTIES OF ARMORMAX™

- ▶ **Material Composition:** Patented ultraviolet protection package in HPTRM, stainless steel tendons and galvanized threaded rods provide long-term design assurance.
- ▶ **Tensile Strength:** HPTRM boasts 4000 x 3000 lb/ft (58.4 x 43.8 kN/m) of tensile strength, which exceeds the U.S. EPA's definition of a High Performance Turf Reinforcement Mat.
- ▶ **Seedling Emergence:** HPTRM features X3® fiber technology, which offers 40% more fiber surface area to capture the critical sediment and moisture needed to increase seed germination within the first 21 days.
- ▶ **Flexibility:** Allows the system to conform and maintain intimate contact with the prepared subgrade.
- ▶ **Holding Strength:** Based on anchor size, tendon rod length and on-site soil parameters the anchor foot provides up to an ultimate of 500 to 5000 lbs of pullout resistance per earth percussion anchor. Actual holding strengths depend upon soil characteristics, anchor type and installation techniques.

ARMORMAX PROPERTY TABLES¹ ENGLISH & METRIC VALUES

	PROPERTY	TEST METHOD	VALUE	HPTRM
	HIGH PERFORMANCE TURF REINFORCEMENT MAT			
PHYSICAL	MASS/UNIT AREA	ASTM D-6566	MARV	13.5 oz/yd ² 455 g/m ²
	THICKNESS	ASTM D-6525	MARV	0.4 in 10.2 mm
	LIGHT PENETRATION (% Passing)	ASTM D-6567	TYPICAL	10%
	COLOR	VISUAL		GREEN, TAN
MECHANICAL	TENSILE STRENGTH (Grab)	ASTM D-6818	MARV	4000 x 3000 lb/ft 58.4 x 43.8 kN/m
	TENSILE ELONGATION	ASTM D-6818	MARV	25%
	RESILIENCY	ASTM D-6524	MARV	80%
	FLEXIBILITY/STIFFNESS	ASTM D-6575	TYPICAL	0.534 in-lbs 615,000 mg-cm
DURABILITY	UV RESISTANCE @ 6000 HOURS	ASTM D-4355	MINIMUM	90%
	ROLL SIZES	MEASURED	TYPICAL	8.5 ft x 90 ft 2.6 m x 27.4 m
	PROPERTY	ANCHOR LENGTH (ft) (Minimum Installation Depth)	MAXIMUM PULL-OUT (Field Tested)	
	EARTH PERCUSSION ANCHORS			
NON-STRUCTURAL	TYPE 2	2.0 ft 0.6 m	500 lbs 226.8 kg	
	TYPE 1A ²	3.5 ft 1.1 m	2,000 lbs 907.2 kg	
STRUCTURAL	TYPE 1B ³	3.5 ft 1.1 m	5,000 lbs 2268 kg	

- NOTES: 1. The property values listed are effective 12/2006 and are subject to change without notice.
 2. MARV indicates minimum average roll value calculated as the typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any sample taken during quality assurance testing will exceed the value reported.
 3. Maximum tendon/wedge grip strength capacity is 2000 lbs. Threaded rods with bolted steel plates up to 5000 lbs.



Fw: I-435 VE J4I1121B

Gregory L Stervinou to: Dennis G Bryant, Mike A Fritz, Perry J Allen, Mark C Fisher, kevin.iring

07/22/2011 08:37 AM

Cc: Lucas A Kaspar, Michael A Scarpitta

History: This message has been forwarded.

Please find attached drawings for the reinforced slope for accel lane widening.

Please review with any comments. If they look OK I will have Clarkson submit their stamped planes and a final accounting of all costs for the final submittal.

Greg Stervinou
Resident Engineer
816-437-3625 Office
816-215-7273 Cell
816-437-3629 Fax

gregory.stervinou@modot.mo.gov

----- Forwarded by Gregory L Stervinou/D4/MODOT on 07/22/2011 08:30 AM -----

From: Kim Wilson <KWilson@ClarksonConstruction.com>
To: "Perry.Allen@modot.mo.gov" <Perry.Allen@modot.mo.gov>, "Gregory.Stervinou@modot.mo.gov" <Gregory.Stervinou@modot.mo.gov>
Cc: "Lucas.Kaspar@modot.mo.gov" <Lucas.Kaspar@modot.mo.gov>, "Jacob.Wilson@modot.mo.gov" <Jacob.Wilson@modot.mo.gov>, Tom Kellerman <tkellerman@clarksonconstruction.com>
Date: 07/20/2011 12:43 PM
Subject: FW: I-435 Shoulder Improvements

Greg,
Attached are final plans for the VE proposal.
Thanks,
Kim

From: Justin Milburn [mailto:jm@ccengineers.com]
Sent: Wednesday, July 20, 2011 10:42 AM
To: Kim Wilson
Cc: Tom Kellerman; Phil Gibbs
Subject: I-435 Shoulder Improvements

Kim,

Please find attached four pdf sheets showing the proposed shoulder improvements for I-435. Below is a summary of the information contained on each of the sheets.

Sheet 1 - The typical section, mat anchoring details, slope drain details and the specifications (i.e. seeding, fertilizer, hydromulching, Armormax)

Sheet 2 - Cross Sections (Sta 99+00 to 106+00)

Sheet 3 - Cross Sections (Sta. 107+00 to 115+00)

Sheet 4 - Propex Details

Please review at your earliest convenience and feel free to call or email if you have any questions.

Thanks.

Justin P. Milburn, P.E.
jm@ccengineers.com
Continental Consulting Engineers, Inc.
9000 State Line Road
Leawood, KS 66206

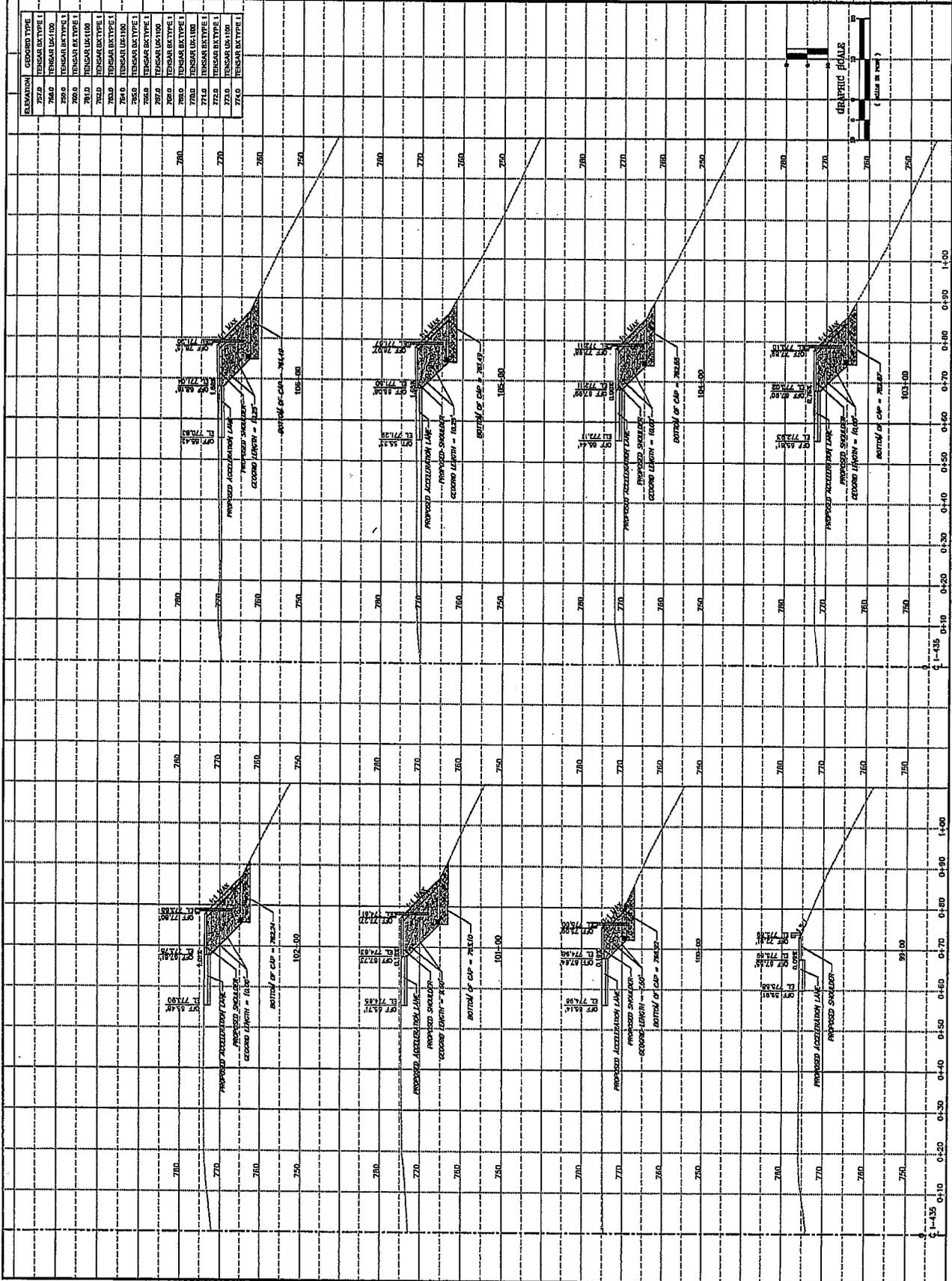
913-642-6642 ext 214  Sheet 1.pdf  Sheet 2.pdf  Sheet 3.pdf  Sheet 4.pdf



I-435 SHOULDER IMPROVEMENTS CROSS SECTIONS KANSAS CITY, MISSOURI

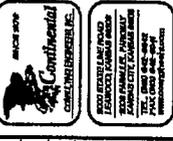


PROJECT NO. 105-41
 DATE: 10-1-11
 SCALE: 1"=20'-0"
 DRAWN BY: JH
 REVIEWED BY: JH
 APPROVED BY: JH
 SHEET 2 OF 4



ELEVATION	CROSS SECTION TYPE
777.0	PROPOSED ACCELERATION LANE
776.0	PROPOSED SHOULDER
775.0	PROPOSED SHOULDER
774.0	PROPOSED SHOULDER
773.0	PROPOSED SHOULDER
772.0	PROPOSED SHOULDER
771.0	PROPOSED SHOULDER
770.0	PROPOSED SHOULDER
769.0	PROPOSED SHOULDER
768.0	PROPOSED SHOULDER
767.0	PROPOSED SHOULDER
766.0	PROPOSED SHOULDER
765.0	PROPOSED SHOULDER
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750.0	PROPOSED SHOULDER

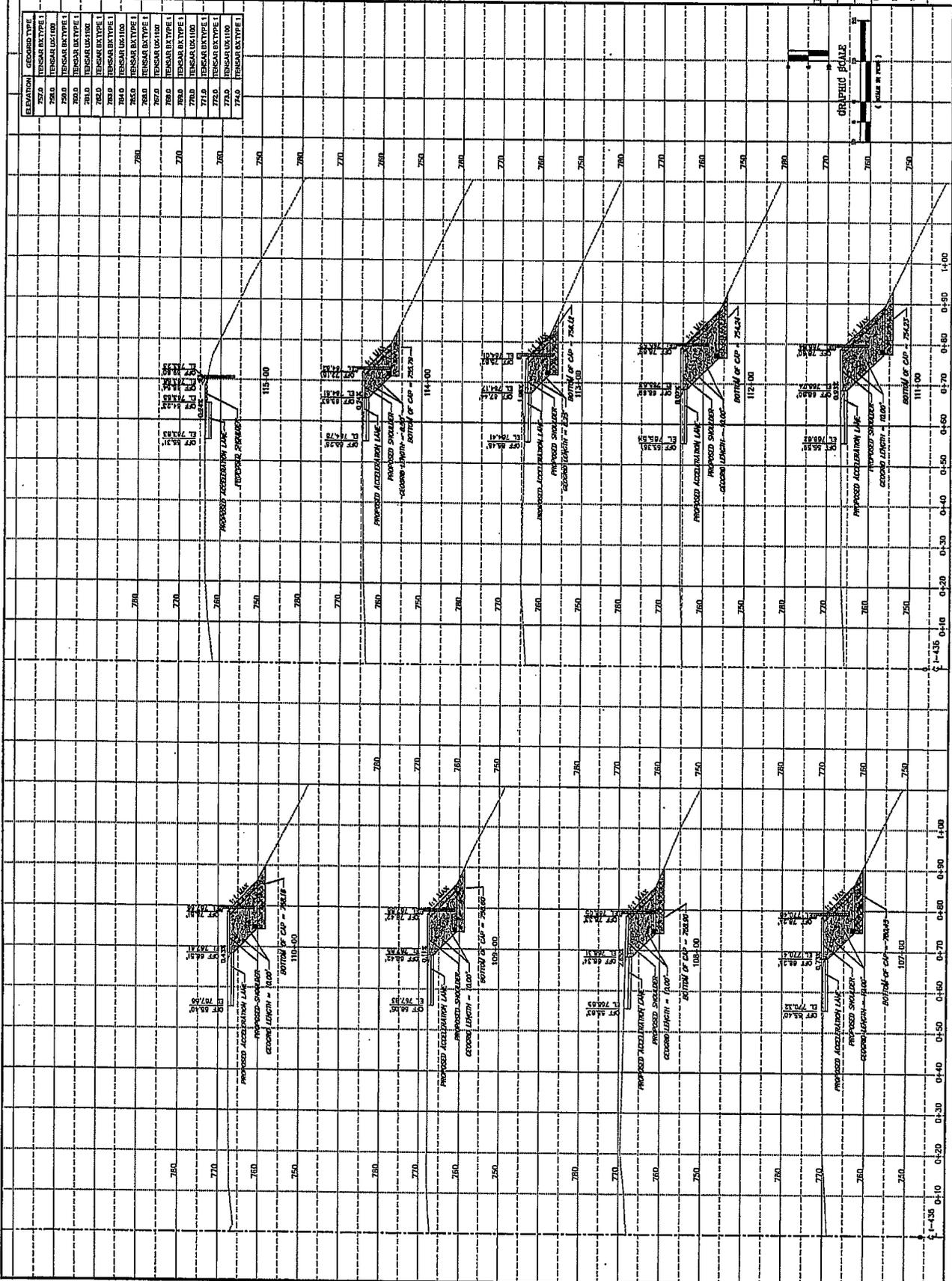
PLAN AND PROFILE PROVIDED AND TYPED BY DATE 12.12.10 BY JH



I-435 SHOULDER IMPROVEMENTS CROSS SECTIONS KANSAS CITY, MISSOURI



PROJECT NO.	110-435
DRAWN BY	JH
REVIEWED BY	JH
APPROVED BY	JH
SCALE	1" = 4'-0"
SHEET NO.	3 OF 4



DATE: 11/10/11 11:00 AM
 DRAWN BY: JH
 REVIEWED BY: JH
 APPROVED BY: JH

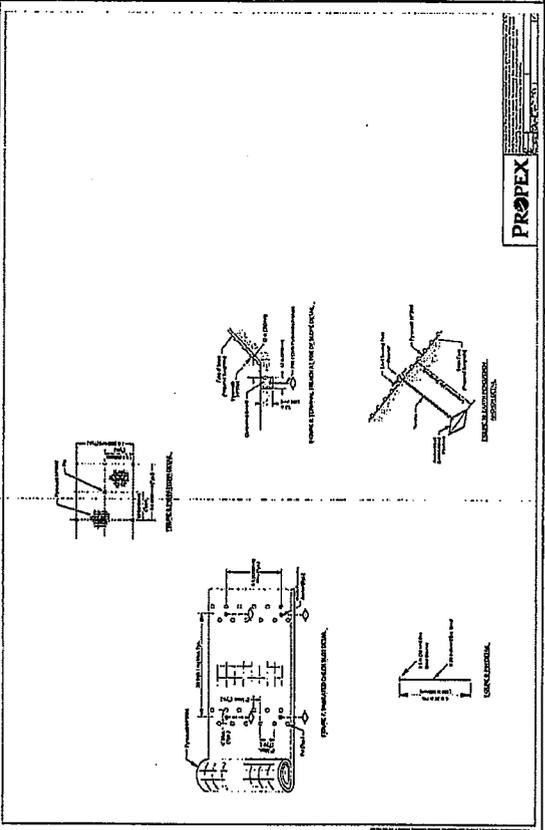


I-435 SHOULDER IMPROVEMENTS
 DETAILS
 KANSAS CITY, MISSOURI

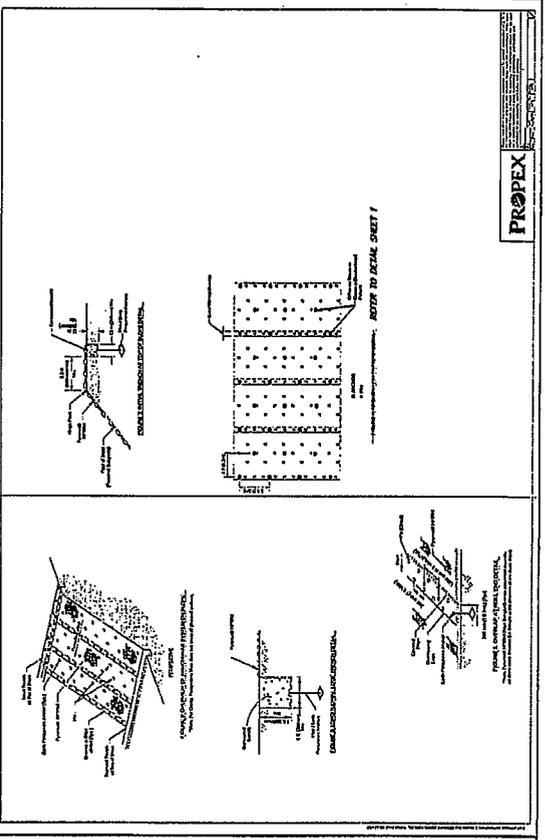


PROJECT NO.	DRAWN BY:
DATE:	REVIEWED BY:
SCALE:	APPROVED BY:

PROPEX



PROPEX



AS SHOWN - NOT TO SCALE - SEE SHEET 1 FOR PROJECT LOCATION AND PROJECT NO. I-435 SHOULDER IMPROVEMENTS



Fw: VE design costs J41121B

Gregory L Stervinou to: Dennis G Bryant, Perry J Allen

08/11/2011 07:21 AM

Please find attached design costs for Clarksons VE.

I still haven't received the VE with everyone's comments and signatures.

These costs will have to be added to the totals for a final savings.

Greg Stervinou
Resident Engineer
816-437-3625 Office
816-215-7273 Cell
816-437-3629 Fax

gregory.stervinou@modot.mo.gov

----- Forwarded by Gregory L Stervinou/D4/MODOT on 08/11/2011 07:17 AM -----

From: Kim Wilson <KWilson@ClarksonConstruction.com>
To: "Gregory.Stervinou@modot.mo.gov" <Gregory.Stervinou@modot.mo.gov>
Cc: Tom Kellerman <tkellerman@clarksonconstruction.com>
Date: 08/10/2011 03:56 PM
Subject: VE design costs

Greg,

The design cost for the Value Engineering proposal is \$ 24,400.35. Invoices from Continental Consulting Engineers, Inc. are attached.

Thanks,

Kim

From: Clarkson Construction [mailto:ir5180@itnkc.corp]

Sent: Wednesday, August 10, 2011 11:19 AM

To: Kim Wilson

Subject: Image From Clarkson Construction



0657_001.pdf



9000 STATE LINE ROAD
LEAWOOD, KANSAS 66206
11008 PARALLEL PARKWAY
KANSAS CITY, KANSAS 66109
TEL. (913) 642-6642
FAX (913) 642-6941
www.ccengineers.com

July 31, 2011

Tom Kellerman
Clarkson Construction Company
4133 Gardner Avenue
Kansas City, MO 64120

RE: I-435 & Front Street

PROJECT NO: 1103-13
INVOICE NO: 14106

DESCRIPTION OF PROFESSIONAL SERVICES DURING JULY 2011:

1. Discussions with ArmorMax Representatives on I-435 improvements.
2. Internal office discussions about ArmorMax improvements.
3. Preparation/submittal of construction plans and specifications.
4. Attendance of pre-construction meeting for construction of I-435 slope improvements.
5. Design calculations provided by Timberline for ArmorMax anchor spacing.

SUPPORTING DATA:

<u>Personnel</u>	<u>Hours</u>	<u>Rate/Hr</u>	<u>Misc. Items</u>	
PG	4.00	\$220.00	PRINTS	\$86.70
DL	0.00	\$187.00	PHOTOS	
PG2	0.00	\$182.00	LAB TESTG	
BH	0.00	\$164.00	MAPS	
BL	0.00	\$147.00	FED EXPS	
JM	53.00	\$137.00	DELIVERY	
PF	0.00	\$113.00	MILEAGE	
GS	0.00	\$119.00	PHONE	
FC	0.00	\$113.00	MISC.	
SD	0.00	\$113.00		
TS	0.00	\$108.00	Timberline Associates	
PJ	0.00	\$105.00		\$1,800.00
MR	0.00	\$105.00		
TJ	0.00	\$105.00		
JF	0.00	\$85.00		
GH	0.00	\$79.00		
SUB TOTAL =		\$8,141.00	SUB TOTAL = \$1,886.70	

TOTAL AMOUNT DUE THIS INVOICE \$10,027.70

CONTINENTAL CONSULTING ENGINEERS, INC.

Philip D. Gibbs, P.E.
President



TIMBERLINE ASSOCIATES

Timberline Associates

7220 Tanya Dr

Harrison, TN 37341

(423) 827-9233

(866) 878-0881 fax

Invoice

Date	Invoice #
7/13/2011	119

Bill To
Continental Consulting Engineers, Inc Justin P Milburn 9000 State Line Road Leawood, KS 66206

Terms	Job Ref No.
Due on receipt	I435

Description	Amount
I-435 ArmorMax Anchor Design Evaluation - Scope: The evaluation of ArmorMax B1 anchors for stabilization of a 12" clay cap on a 1:1 mechanically stabilized earth slope on I-435 in Kansas City, MO	1,800.00

Please remit payment to: Timberline Associates, 7220 Tanya Dr, Harrison, TN 37341	Total \$1,800.00
--	-------------------------

7-28



June 30, 2011

Tom Kellerman
Clarkson Construction Company
4133 Gardner Avenue
Kansas City, MO 64120

RE: I-435 & Front Street

PROJECT NO: 1103-13
INVOICE NO: 14077

DESCRIPTION OF PROFESSIONAL SERVICES DURING JUNE 2011:

1. Discussions with ArmorMax representatives on I-435 improvements.
2. Preparation of exhibits.
3. Internal office discussions about ArmorMax improvements.

SUPPORTING DATA:

Personnel	Hours	Rate/Hr	Misc. Items
PG	2.50	\$220.00	PRINTS
DL	0.00	\$187.00	PHOTOS
PG2	0.00	\$182.00	LAB TESTG
BH	0.00	\$164.00	MAPS
BL	0.00	\$147.00	FED EXPS
JM	8.00	\$137.00	DELIVERY
PF	0.00	\$113.00	MILEAGE
GS	0.00	\$119.00	PHONE
FC	0.00	\$113.00	MISC.
SD	0.00	\$113.00	
TS	0.00	\$108.00	
PJ	0.00	\$105.00	
MR	0.00	\$105.00	
TJ	0.00	\$106.00	
JF	0.00	\$85.00	
GH	0.00	\$79.00	
SUB TOTAL =		\$1,646.00	SUB TOTAL = \$0.00

TOTAL AMOUNT DUE THIS INVOICE \$1,646.00

CONTINENTAL CONSULTING ENGINEERS, INC.

Philip D. Gibbs
Philip D. Gibbs, P.E.
President

Invoice #	Seq #	Inv. Amount	Discount	Inv. Date	Due Date	GL Acct	Job #	Cost Type	Cost Code	Status	Coded By
14077	103544	\$1,646.00	0	6/30/2011	7/28/2011	5581	708	M	11099	Posted	Kim Willson
140771		\$1,646.00				\$0.00					



9000 STATE LINE ROAD
 LEAWOOD, KANSAS 66206
 TEL (913) 642-6642
 FAX (913) 642-6941
 www.ccengineers.com

May 31, 2011

Tom Kellerman
 Clarkson Construction Company
 4133 Gardner Avenue
 Kansas City, MO 64120

RE: I-435 & Front Street

PROJECT NO: 1103-13
 INVOICE NO: 14046

DESCRIPTION OF PROFESSIONAL SERVICES DURING MAY 2011:

1. Meeting with Clarkson and MoDOT to discuss VE proposal on May 6.
2. Preparation of exhibits for submittal to MoDOT on 5/10/11.
3. Internal office meeting to discuss VE proposal to MoDOT.

SUPPORTING DATA:

<u>Personnel</u>	<u>Hours</u>	<u>Rate/Hr</u>	<u>Misc. Items</u>	
PG	2.00	\$220.00	PRINTS	\$17.90
DL	0.00	\$187.00	PHOTOS	
PG2	0.00	\$182.00	LAB TESTG	
BH	0.00	\$164.00	MAPS	
BL	0.00	\$147.00	FED EXPS	
JM	13.50	\$137.00	DELIVERY	
PF	0.00	\$113.00	MILEAGE	
GS	0.00	\$119.00	PHONE	
FC	0.00	\$113.00	MISC.	\$25.50
SD	0.00	\$113.00		
TS	0.00	\$108.00		
PJ	0.00	\$105.00		
MR	0.00	\$105.00		
TJ	0.00	\$95.00		
JF	0.00	\$85.00		
GH	0.00	\$79.00		
SUB TOTAL =		\$2,289.50	SUB TOTAL = \$43.40	

TOTAL AMOUNT DUE THIS INVOICE ----- \$2,332.90

CONTINENTAL CONSULTING ENGINEERS, INC.

Philip D. Gibbs, P.E.
 President



April 30, 2011

Tom Kellerman
Clarkson Construction Company
4133 Gardner Avenue
Kansas City, MO 64120

RE: I-435 & Front Street

PROJECT NO: 1103-13
INVOICE NO: 14009

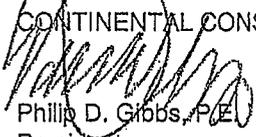
DESCRIPTION OF PROFESSIONAL SERVICES DURING APRIL 2011:

1. Prepare/modify preliminary drawings for shoulder modification.
2. Meeting with Clarkson Construction Personnel and Contech Representative to discuss geogrid proposal on 4/5/11.
3. Perform global stability analysis on proposed shoulder section.

SUPPORTING DATA:

<u>Personnel</u>	<u>Hours</u>	<u>Rate/Hr</u>	<u>Misc. Items</u>	
PG	4.50	\$220.00	PRINTS	\$20.90
DL	0.00	\$187.00	PHOTOS	
PG2	0.00	\$182.00	LAB TESTG	
BH	0.00	\$164.00	MAPS	
BL	0.00	\$147.00	FED EXPS	
JM	27.00	\$137.00	DELIVERY	
PF	0.00	\$113.00	MILEAGE	
GS	0.00	\$119.00	PHONE	
FC	0.00	\$113.00	MISC.	
SD	0.00	\$113.00		
TS	0.00	\$108.00		
PJ	0.00	\$105.00		
MR	0.00	\$105.00		
TJ	0.00	\$95.00		
JF	1.00	\$85.00		
GH	0.00	\$79.00		
SUB TOTAL =		\$4,774.00	SUB TOTAL = \$20.90	

TOTAL AMOUNT DUE THIS INVOICE ----- \$4,794.90

CONTINENTAL CONSULTING ENGINEERS, INC.

 Phillip D. Gibbs, P.E.
 President

4-28



Job 708

March 31, 2011

Tom Kellerman
Clarkson Construction Company
4133 Gardner Avenue
Kansas City, MO 64120

RE: I-435 & Front Street

PROJECT NO: 1103-13
INVOICE NO: 13966

DESCRIPTION OF PROFESSIONAL SERVICES DURING MARCH 2011:

1. Site visit.
2. Review MoDOT intersection ramp requirements.
3. Prepare preliminary drawings for West slope modification.

SUPPORTING DATA:

Personnel	Hours	Rate/hr	Misc. Items	
PG	6.00	\$220.00	PRINTS	\$31.85
DL	0.00	\$187.00	PHOTOS	
PG2	0.00	\$182.00	LAB TESTG	
BH	0.00	\$164.00	MAPS	
BL	0.00	\$147.00	FED EXPS	
JM	31.00	\$137.00	DELIVERY	
PF	0.00	\$113.00	MILEAGE	
GS	0.00	\$119.00	PHONE	
FC	0.00	\$113.00	MISC.	
SD	0.00	\$113.00		
TS	0.00	\$108.00		
PJ	0.00	\$105.00		
MR	0.00	\$105.00		
TJ	0.00	\$95.00		
JF	0.00	\$85.00		
GH	0.00	\$79.00		
SUB TOTAL =		\$5,567.00	SUB TOTAL =	\$31.85

TOTAL AMOUNT DUE THIS INVOICE ----- \$5,598.85

CONTINENTAL CONSULTING ENGINEERS, INC.

Phillip D. Gibbs, P.E.
President

Invoice #	Seq #	Inv. Amount	Discount	Inv. Date	Due Date	GL Acct	Job #	Cost Type	Cost Code	Status	Coded By
13966	91619	\$5,598.85	0	3/31/2011	4/28/2011	5581	708	M	11099	Posted	Kim Wilson
13966		\$5,598.85				\$0.00					

VALUE ENGINEERING CHECK SHEET

TYPE OF WORK

(Check one that applies)

- Bridge/Structure/Footings
- Drainage Structures (RCP, RCB, CMP's, ect.)
- TCP/MOT
Paving (PCCP, ect.)
- Grading/MSE Walls
- Signal/Lighting/ITS
- Misc. _____

SUMMARY OF PROPOSAL

(If needed, condense summary to a couple of lines)

_____ Use Armormax engineered slope reinforcement system in lieu of rock fill for ramp widening.

SCANNING OF DOCUMENT

If the proposal is large, please mark or make note, which pages need to be scanned into the database. If there are special instructions, make note of them here.

_____ ~~Scan entire document.~~

_____ SCAN ONLY PAPER CLIPPED DOCUMENTS