January 16, 2003

Mr. Charles J. Sukanek, P.E.
URS Corporation
2698 Orlando Drive
Sanford, FL 32773

Mr. Kenneth Hudson
Modern Continental South, Inc.
278 Garrison Road
Pelzer, SC 29669

RE: Seminole Expressway, Project 2 - Section 1
FIN No. 240258-2-52-01
Dispute Review Board Recommendation
Embankment Final Quantity Adjustment

Dear Sirs:

The Florida Department of Transportation (Department) and Modern Continental South (MCS) requested a hearing concerning the adjustment of final quantities for Embankment Pay Item 1-120-6. Summaries of the Department's and MCS's positions were forwarded to the Dispute Review Board (DRB), and a hearing was held on December 20, 2002.

ISSUE: Is the Contractor entitled to an adjustment in final embankment pay quantity based on an "adjusted" original grade and an under-run of available A-2 and A-3 materials?

Contractor's Position

Modern Continental South, Inc. (MCS) has long believed that there was a problem with the embankment plan quantity (1-120-6) for SR417, Project 2, Section 1 Greeneway Project. This issue has been discussed and correspondence has been exchanged on several occasions with the Turnpike Authority (Department) in a forum that was informal by design. MCS has now formalized the issue and requests that the Department and Disputes Review Board (DRB) review the enclosed data that documents MCS' position concerning payment for additional embankment under pay item 1-120-6 of the contract. MCS' position encompasses two areas: 1- errors in calculations of excavatable material (A-2, A-3) that clearly lead to additional costs to MCS; and, 2- the area that exist below "original grade" herein referred to as "starting grade".

*The project had in excess of 54 acres of heavy clearing to do prior to the start of embankment (see **Appendix 1,** "Photographs"). The heavy clearing required MCS to remove large volumes of topsoil, muck, stumps and root mat that altered the grade from that know as "original grade" to a "starting grade". This revised grade accounts for a significant difference in the plan quantity provided in the bid documents supplied to the bidders and the actual embankment quantity placed.*

Shortly after the Project began (approximately November 1999), the plan documents were revised reducing the amount of site available A-2 and A-3 materials. This will be discussed later as to the cost impact to MCS.

In October 2002, MCS and the Department agreed on plan quantity errors resulting in an additional 18,757 cubic yards of material in the embankment.

The Florida Department of Transportation Standard (FDOT) Specifications for Road and Bridge Construction dated 1991 defines "Error in Plan Quantity" in section 9-3.2.1. The specification states that the quantity can only be revised due to a substantial error. A substantial error occurs when the plan quantity increases or decreases by at least 5% or is greater than $500.00. MCS records, as summarized in ***Table*** *2, "Borrow Source Analysis ", indicate that MCS has in-place* ***1,757,189*** *cubic yards of embankment materials versus a plan quantity of* ***1,404,488*** *in-place cubic yards. This results in a delta of 352,701 cubic yards. In an effort to identify the placement location of this additional material, as was discussed in MCS Letter No. 201-2716-02, MCS subcontracted Universal Engineering Sciences to perform several split spoon core samples along the centerline of the roadway to determine if there exist a substantial difference from the "original grade" shown on the plan drawings and that "starting grade" which was established after clearing, grubbing, topsoil removal and proof rolling (prior to placement of embankment materials). Our testing, (see* ***Table 5,*** *"Core Sample Data"), indicated that there exit a substantial difference between "original grade" and "starting grade", which met the definition in the reference document (greater than 0.3 feet over 500 feet in length). In accordance with the same reference, MCS requested that the CEI work with MCS to develop a testing plan that would provide "appropriate level notes, acceptable to both the Contractor and the Department" that would provide acceptable and verifiable measurement and calculations. The work was to be conducted as required at MCS' expense. It was imperative that the plan be developed and expedited prior to opening the mainline roadway to traffic on April 27, 2002. The CEI and Department rejected this request. As such MCS has had to make several assumptions based on our test data in determining the "starting grades" through out the project as discussed below. Through this effort MCS was able to validate a total of* ***1,567,298*** *compacted cubic yards of material or* ***162,810*** *cubic yards more than the plan quantity. This total quantity is still* ***189,891*** *cubic yards less than what MCS believes actually exists in the embankment of SR417. In accordance with the same reference, the Department is obligated to pay the Contractor and the Contractor will accept the original contract unit price for the actual quantities of work performed*

The following are factual statements that support MCS' position:

- *Original grade was accepted as accurate by both parties prior to start of clearing and grubbing.*
- *Clearing and grubbing started and was completed before mass filling was started. The large portion of the project, which was cleared and grubbed, created voids that had to be filled.*
- *Neither firm can produce cross sections of the ground once clearing was completed.*
- *Proof rolling was performed to the satisfaction of the Department.*
- *Areas that had little clearing had to be stripped of topsoil and root mat prior to placing fill.*
- *We pass the specification requirements that define "errors in plan quantities" as being when the cost exceeds $500 or the quantity is greater than 5% of the original plan quantity.*

SUMMARY OF INFORMATION CONTAINED IN TABLES

Table 1, *"Summary of Requested Quantities", describes the quantity adjustment that MCS requests entitlement and compensation for. We have used the core testing data and applied average depths to sampled areas and estimated the depths of areas we were not allowed to test. This was based on reviewing aerial photographs (see* ***Appendix 1),*** *which clearly indicate that the Site areas were dense with indigenous trees and vegetation, to establish the amount of clearing and grubbing required to determine the delta between "original" and "starting grade". Average widths and bridge stations were taken from the plan drawings for the purpose of calculating the areas.*

Table 2*, "Borrow Source Analysis", further validates the quantity over run. MCS has provided quantities as determined by cross-sections or truck tickets, to evaluate the volume of bank cubic yards actually placed. The volume of known dirt sold to others that MCS did not place on the SR417 project was first deducted then extremely conservative assumptions on the shrinkage (utilizing maximum shrinkage) of these volumes were applied to determine the compacted cubic yards in the embankment.*

Table 3, *"Comparison Analysis", summarizes the quantities from* ***Table 1*** *and* ***Table 2****. As is readily ascertained, the two methods of calculation yield significantly differing results. MCS believes that this is attributable to the fact that the core sampling was random and thus did not capture the total quantity of material existing below "original grade". MCS' position is that given additional opportunity to complete the sampling, the results would have yielded a significantly higher quantity of material. In the spirit of partnering and in the desire to resolve this issue quickly and equitably, MCS is requesting the lesser of the two quantities.*

Table 4*, "Detail of Under Run Plan Quantity Errors", details the locations and quantities of under run of A-2 and A-3 materials.*

Table 5, *"Core Sample Data", details the testing performed by MCS in an effort to quantify the embankment placed below "original grade".*

EMBANKMENT BELOW ORIGINAL GRADE

The embankment quantity difference comes from several areas and was reviewed for accuracy from the information contained in the bid documents. Existing site conditions (including but not limited to heavy clearing and grubbing and utility removals) in the embankment footprint appear to have not been reflected when the engineer established the plan quantities. Below is a listing of some of the issues that MCS believes makes up the difference between the Departments plan quantity of pay item 1-120-6 and the actual embankment quantity.

- *Pavement Demolition areas*
- *Topsoil Removal*
- *Utility Removal*
- *Clearing and Grubbing Site and Pond areas*
- *Contaminated Soil Removal from ponds*
- *Existing Structure removal*

Table 1
Summary of Requested Quantities

Area		Beginning Station	Ending Station	Length	Average Width	Square Area	Average Depth	Cubic Footage	Cubic Yards	Cost Impact
Area Below Original Grade	Southbound Ramp	338.61	347.20	859.00	95.00	81605.00	1.50	122407.50	4533.61	$16,865.03
	Northbound Ramp	127.88	138.35	1047.00	90.00	94230.00	1.50	141345.00	5235.00	$19,474.20
	Mainline- Begin Job to Airport East	1913.00	1917.80	480.12	180.00	86422.50	1.00	86422.50	3200.83	$11,907.10
	Mainline- Airport East to 17/92	1919.53	1933.93	1440.88	180.00	259357.50	2.00	518715.00	19211.67	$71,467.40
	Mainline- 17/92 to Airport West	1935.47	1946.58	1110.63	260.00	288763.80	2.50	721909.50	26737.39	$99,463.09
	Mainline- Airport West to Live Oak	1948.52	1980.31	3179.15	260.00	826579.00	2.50	2066447.50	76535.09	$284,710.54
	Mainline- Live Oak to Muck Bridge	1981.09	1988.67	757.16	260.00	196860.30	3.00	590580.90	21873.37	$81,368.92
	Mainline- Muck Bridge to End of Job	2002.52	2004.80	227.74	260.00	59212.40	2.50	148031.00	5482.63	$20,395.38
	[redacted]							Subtotal	**162809.59**	$605,651.67
	Under Run of A-2, A-3 Excavation	Data Taken From Table 4							30920.00	$115,022.40
	[redacted]							Subtotal	**30920.00**	$115,022.40
								Total Yards	193729.59	$720,674.07
								$/CY	$3.72	
								Total Cost	$720,674.07	

EOR Plan Quantity	1,404,488
Total Compacted Embankment	1,567,298

Notes:

Below OG indicates Below Original Grade.

Beginning and Ending Stations are averages from the plan drawings.

Table 2
Borrow Source Analysis

Borrow Sources	Truck Cubic Yards	In Place Volume	Compacted Cubic Yards	Shrinkage Factor Applied	Proof
B&B Pit 103		1,941,600	1.456,200	25.0%	X-Sections
Seminole Shores P.O. 2386	246,412		165,096	33.0%	Load Tickets
B&B P.O. 4400	35.764		23,962	33.0%	Load Tickets
B&B P.O. 4807	13,518		9,057	33.0%	Load Tickets
Jones Bros.	11,412		7,646	33.0%	Load Tickets
B&B P.O. 7762	8,046		5,391	33.0%	Load Tickets
B&B P.O. 4409	810		543	33.0%	Load Tickets
B&B P.O. 7681	18		12	33.0%	Load Tickets
Project Borrow		119,043	89,282	25.0%	X-Sections
Subtotal	315.980	2,060,643	1,757,189		
			Average Shrinkage		31.2%

Notes:
25% shrinkage factor used for B&B Pit 103 due to the depth of material and the over burdern.
25% shrinkage factor used for Project Borrow.
The above accounts for greater compaction achieved over the insitu state of the material.
B&B Pit Volume is total volume less sold dirt & dirt used for non-pay items.

Table 3
Comparison Analysis

Comparison	EOR Plan Quantity (cy)	Total Quantity from Table 1 (cy)	Total Quantity from Table 2 (cy)	Delta (cy)	Cost Impact
Analysis #1	**1,404,488**	**1,567,298**	**0**	**162,810**	**$ 605,652**
Analysis #2	**1,404,488**	**0**	**1,757,189**	**352,701**	**$ 1,128,643**

Notes:
EOR- Engineer of Record

Table 4
Detail of Under Run Plan Quantity Errors

A-2 A-3 Excavation Under Run

Location Description	A-2,A-3 Excavation Under-run		
	Plan	Take Off	Under Run (-) or Over Run (+)
SR417	68,271	63,652	-4,619
Lake Mary NB Ramp	1,043	715	-328
Lake Mary SB Ramp	538	307	-231
Ramp A	0	0	0
Ramp B	69,505	42,320	-27,185
Ramp C	14,512	14,851	339
US 17/92	9,809	10,461	652
Airport Boulevard	17,205	17,657	452
Totals	180,883	149,963	-30,920
		Cost Impact	$115,022

Table 5
Core Sample Data

Station Number	Elevation of Original Ground	Elevation From Core Samples	Delta
1961+00	43.2	41.7	1.5
1963+00	43.6	42.8	0.8
1965+00	44.4	43.5	0.9
1967+00	44.6	42.9	1.7
1977+00	48.4	43.3	5.1
1979+00	47.4	45.0	2.4

Note: Sheet 126 and Sheets 166 through and inclusive of Sheet 175 identify the soil materials as being Stratum Number 1. The material description is "Light gray to brown fine sand, trace silt or clay and occasional roots".

Table 1, *"Summary of Requested Quantities ", summarizes the variances and quantities that MCS believes exist below "original grade". MCS has provided the results of our core sample data in* ***Table 5.*** *The data was acquired utilizing the services of Universal Engineering Sciences. The subcontractor utilized a truck-mounted auger and split spoon-sampling technique. Direct augering was performed to a depth above the `original grade' elevation to facilitate the operations. From that point split spoon samples were acquired during the remainder of the augering operation. The soil was visually classified to compare to the original borings as described in* ***Table 5.*** *The elevation of "starting grade" was determined from this comparison. Based on this data and our conservative evaluations, MCS developed assumptions as to the depth below "original grade" that would be "starting grade" at the locations not tested. As such, MCS is confident that the quantity over run stated herein is as accurate as possible and most probably in the favor of the Department.*

Specification Section 9-3.2 points out in part that both the contractor and the Department prior to disturbance of the original ground must note any significant difference in the "original ground" surface.
It further goes on to state that any claim based upon significance differences in the original ground must be supported by documentation. This request for an adjustment to the plan quantity is not based on the original ground elevations, which MCS accepted on October 12, 2000, however it is based on a lack of supporting documents substantiating the elevation and limits of the disturbed ground or "starting grade" once the clearing was completed and the under run of excavatable A-2, A-3 material.

MCS has considered the effects of subsidence or settlement in determining the "starting grade". The Engineer anticipated subsidence in the area of Ramp "C" only and required the subcontractor to surcharge this area prior to placement of embankment. To reiterate this point, no other area of the Project required surcharging. Based on the Engineer not anticipating subsidence other than at Ramp "C", MCS assumes that insignificant subsidence has occurred elsewhere. No quantity adjustment has been included for Ramp "C" in our calculations. Since proof rolling was performed and accepted and the material type at "starting grade" is known, MCS is confident that our core samples define the "starting grade" and validate our records for actual material placed.

UNDER RUN OF A-2, A-3 MATERIALS

The original bid documents stated the quantity and location of available site material suitable for embankment (A-2, A-3). In developing our bid, MCS evaluated the quantity and location of the materials in respect to where they would be placed in the most cost effective manner. ***Table 4,*** *"Detail of Under Run Plan Quantity Errors ", depicts the location of these available materials, the plan quantities and the takeoff quantities performed by MCS. As one can ascertain, the under run of these materials from the locations specified would cause additional cost to any contractor. In evaluating the material quantity and location, MCS considered that the available materials at those locations would be excavated and placed in close proximity thus greatly reducing costs such as purchase of the material, trucking and downtimes of equipment and personnel. As such MCS is requesting the bid unit price for the quantity of under run of these materials.*

MCS is confident that the evidence and data submitted herein provide acceptable and verifiable measurement and calculations in proving the plan quantities on the project were in error and that MCS is entitled to an upward adjustment in quantity and dollars per Specification Section 9-3 and sub-section 93.1 of the 1991 Standard Specifications for Road and Bridge Construction for the Florida Department of Transportation. As stated previously, the specification section appropriately spells out that the Department will pay the Contractor and the Contractor will accept the original contract unit price for the actual quantities of work performed. In evaluating MCS' bid unit price of $3.72 per cubic yard of

compacted embankment, it is evident that the bid price was not escalated to cover costs for what at bid time was an unknown quantity of material below "original grade". MCS asserts that it has in-place 1,757,189 cubic yards of embankment materials on the Project that is an over run of 352,701 cubic yards. However, MCS has only been provided the opportunity to identify a total of 1,567,298 in-place cubic yards versus the plan quantity of 1,404,488. MCS request that the DRB award entitlement for a plan quantity increase of 162,809 cubic yards that as stated previously is the lesser of the over run quantities.

The cost impacts of the under run of Site available A-2 and A-3 materials is evident. Quantity under runs such as these impact the contractors schedule and planning as well as adding the burden of acquiring additional materials, added haul time, increased downtime, etc. As such MCS request that the DRB award entitlement of 30,920 cubic yard of embankment at the bid unit price of $3.72.

MCS request the Department and DRB review the data and the documents provided herein, award entitlement to MCS and adjust the plan quantity in accordance with Specification Section 9-3 and pay the contract unit price of $3.72 per cubic yard for an additional quantity of ***193,729.59*** *cubic yards at a total value of* ***$720,674.07*** *underpay item 1-120-6.*

MCS is convinced that once the Department and DRB have had a chance to review the data and information provided, they will agree with our request and issue a supplemental agreement to compensate MCS for our additional work under the contract pay item as required under section 9-3.1 of the contract specifications.

Department's Position

The Department issued a NTP to Modem Continental South (MCS) on October 8, 1999. The pre-construction conference was held on September 22, 1999. Valerie Tudor conducted a partnering session on October 7, 1999 with representatives of all interested parties attending. A copy of the partnering minutes prepared by Valerie is included in the exhibits.

Prior to the start of construction, the Department's survey consultant, Consul-Tech Engineering, Inc. performed a verification survey to confirm the existing ground line as shown on the plans which was used to calculate the embankment plan quantity. A review of the verification survey indicated the existing ground line as shown on the plans was in compliance; MCS did not perform any survey of the existing ground line prior to the start of construction. By executing the October 12, 2000 document, MCS accepted the original ground line as shown in the plans. MCS started construction on October 11, 1999 and the clearing and grubbing operation commenced on October 12, 1999.

Modem Continental South (MCS) submitted a letter dated July 31, 2001 alleging significant discrepancies with the plan quantity of embankment (Item 120-6). MCS's letter summarized the various discrepancies and requested the embankment quantity be increased an additional 254,132 CY above the plan quantity of 1,385,731 CY. MCS did not identify the locations of the discrepancies and did not provide any back-up information to substantiate the alleged shortages, but indicated the quantity difference comes from several areas. MCS listed the following issues and areas where quantity issues contribute to the difference between the Department's plan pay quantity for embankment and the actual embankment placed as alleged:

Embankments
Pavement demolition areas
Subsoil excavation short falls
Topsoil removal
Utility removal
Clear & Grubbing site and pond areas
Oil tank removal from ponds
Contaminated soil removed from ponds
Swell and shrinkage factors
Existing structure removal
Curb pad construction

In response, URS's letter dated August 10, 2001 rejected MCS 's request based on the contract documents and no back-up documentation to substantiate the alleged discrepancies.

MCS's letter dated August 1, 2002 presented their revised position concerning the final embankment quantities for the SR 417 Project 2, Section 1. MCS's position was that the contract documents contained errors in the plan quantity and therefore payment was justified for additional embankment under pay item 1-120-6, Embankment. MCS's position on the "Error in Plan Quantity encompassed two areas; (1) errors in calculations that clearly lead to an error in plan quantity and, (2) the area that exists below original grade and "starting grade". (Starting grade is a new term introduced by MCS.)

MCS contended that the heavy clearing of about 54 acres required them to remove large volumes of topsoil, muck, stumps and root mat that altered the grade from that known as "original ground" to a "starting grade". MCS stated this revised grade (starting grade) accounts for a significant difference in the plan quantity provided in the bid documents supplied to the bidders and the actual embankment quantity placed.

MCS also contended the contract cross sections were somewhat ambiguous and fell short in areas that were more difficult to calculate. MCS stated without the Engineer of Record's computation book they could not know what the engineer considered in his or her calculations for embankment. MCS performed their own calculations and presented their version of the plan errors.

URS's letter dated August 30, 2002 responded to MCS 's August 1, 2002 letter by addressing and stating the Department's position on the following three (3) items:

- ***Cross Section Embankment Errors, Bridge Areas and Additional Embankment –*** *The Department increased the quantity of Item No. 1-120-6, Embankment by 18,757 C.Y.; thus revising the contract quantity to 1,420,350 C.Y. for projects 01 & 02.*
- ***Under run A-2, A-3 excavation -*** *No adjustments in embankment quantity.*
- ***Embankment quantity below original ground -*** *No increase in contract quantity.*

With regard to the above three- (3) items, URS's letter addressed each as follows:

Embankment Quantities - Plan Quantity Errors

The original plan quantity was 1,423,266 C.Y. (project 01, 1,407,483 C.Y. and project 02, 15,783 C.Y.) for Item No. 1-120-6, Embankment. As the project progressed, the embankment quantity has been revised as the result of plan errors, plan revisions, changes in work and adjustments to reflect the "asbuilt" quantity of unsuitable material. The following revisions to projects 01 and 02 prior to URS's August 30, 2002 letter are summarized as follows:

	Project 01	***Project 02***	***TOTALS***
Original Plan Quantity	*1,407,483*	*15,783*	*1,423,266*
Plan Rev. No. 1	*(17,585)*	*0*	*(17,585)*
S.A. No. 5	*361*	*0*	*361*
Plan Rev. No. 8	*482*	*0*	*482*
Subsoil Adjustment	*(5,010)*	*79*	*(4,931)*
Totals	*1,385,731*	***15,862***	*1,401,593*

MCS's August 1, 2002 submittal presented an alternate method of computing the embankment quantity at each bridge site. MCS utilized additional sections that were cut at selected locations of end area change. This method is more accurate than the averaging method used by the Engineer of Record. MCS identified an embankment quantity increase of 17,869 C.Y. at bridge areas.

In response to MCS's allegation of a plan error in the embankment quantity, the Engineer of Record reviewed the embankment quantities for projects 01 and 02 utilizing the original ground survey data as accepted by MCS and the roadway template grade as shown on the plans. Using the Department's earthwork program (Multi-Line), the Engineer of Record used the cross-section stations as shown on the plans and the cross-sections identified by MCS at the bridge sites. The Engineer of Record's review found that a significant error at station 1936+00 of SR 417 was also included in the bridge area error identified by MCS. The error appeared to be duplicated in MCS's submittal.

The Engineer of Records' review established the current quantity to be 1,424,458 C.Y., which is an increase of 18,295 C.Y. over the contract quantity of 1,406,593 C.Y. The Department increased the embankment quantity by 18,295 C.Y. to compensate for the embankment quantity discrepancy identified by MCS and confirmed by the Engineer of Record.

The Engineer of Record revised the Ramp B cross-sections between stations 205+00 and 209+00 incorporating the detail on plan sheet no. 10. Using the Department's earthwork program (Multi-Line), the Engineer of Record computed the additional quantity at ramp B to be 288 C.Y., which is included in the total increase of 18,295 C.Y. as previously mentioned.

After review of the project records and the Tank Closure Assessment Report prepared for the Department by WRS Infrastructure & Environmental, Inc., the following volumes of material were added to the contract:

2 Tanks (5' dia. X 24' long)	*35 C.Y.*
1 Tank (4' dia. X 12' long)	*6 C.Y.*
603 Tns of contaminated material removed from site	*421 C.Y.*
TOTAL	***462** C.Y.*

In summary, the Embankment quantity was increased as follows:

Cross Sections / Bridge Areas		*18,007C.Y.*
Additional Embankment		*288 C.Y.*
Oil Tanks / Contaminated Soil		*462 C.Y.*
	TOTAL	***18,757 C.Y.***

Under Run of** A-2, **A-3 Excavation

The contract does not include a pay item for excavation; therefore, the cost associated with excavating on site material and utilizing the material in embankment is included in the unit cost for embankment. The quantity of excavation in the bid documents was 181,085 C.Y. and plan revision no. 1 dated September 1999 revised the quantity to 130,599 C.Y. The Engineer of Record recognized an error in the excavation quantity. To date no significant revisions have been made to the excavation on the project. Following is a summary of the excavation quantities computed by the Department and MCS:

Excavation Quantity on Bid Plans	*181,085CY*
Excavation Quantity after Plan Rev. No. 1	*130,599 CY*
MCS Excavation Take-off	*149,963 CY*

The Engineer of Record reviewed the excavation quantity utilizing the original ground survey data as accepted by MCS and -the template grade shown on the plans. This review computed the current quantity to be 128,401 C.Y.

Embankment Quantities - Below Existing Ground

The Department reviewed MCS's letter dated April 16, 2002 regarding MCS's desire to try to re-establish original ground line grades throughout the subject project. The Department has in place a procedure to be followed to establish agreement between Contractors and the Department as to the original ground line shown in the contract plans. This procedure involves taking check cross-sections prior to commencing the clearing and grubbing operations. This procedure was followed for this project and in correspondence dated October 12, 2000, MCS agreed with and accepted the original ground line as shown in the contract drawings. The Department knows of no feasible way to re-establish the original ground line after the entire embankment has been placed.

By executing the document dated October 12, 2000, MCS accepted the original ground line, which was established and verified prior to clearing, grubbing and proof rolling operations.

Embankment is a plan quantity and payment is determined and calculated in accordance with Article 12012.3. The method of calculating the plan embankment quantity used by the Engineer of Record is the standard method of the industry utilized by all roadway designers in Florida. Item no. 120-6, Embankment, is a plan quantity item and subject to the provisions of sections 9-3.2 and 9-3.4 of the Contract Special Provisions. Article 9-3.2, Error in Plan Quantity covers the definitions and requirements necessary to revise a plan quantity as the result of an error.

The contract documents clearly state that the embankment quantity shall be computed as the material placed above the original ground line and within the lines and grades indicated on the plans. Further, the documents state that no allowance will be made for subsidence below the surface of the original ground. The contractor is to estimate the volume of material required to obtain the pay section.

The quantity for Item No.1-120-6, Embankment, has been calculated in accordance with contract documents, particularly using the original ground line which is shown on the plans, verified prior to start of construction, and accepted by MCS. Therefore, the embankment quantity cannot be adjusted further for any areas below existing ground.

DETERMINATION OF ORIGINAL GRADE

MCS's letter dated April 16, 2002 stated their desire to try to re-establish original ground line grades throughout the subject project. The Department responded by stating they have in place a procedure to be followed to establish agreement between Contractors and the Department as to the original ground line shown in the contract plans. This procedure involves taking check cross sections at the beginning of construction prior to commencing the clearing and grubbing operations. This procedure was followed for this project. The Department informed MCS that they know of no feasible way to re-establish the original ground line after the entire embankment has been placed.

The Standard Specifications, Section 9-3.2, has been deleted and replaced by the Special Provisions (No. 36). MCS's reference to "there exist a substantial plan error was defined in the referenced document (greater than 0.3 feet over 500 feet in length)" was eliminated when section 9-3.2 was deleted.

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Section 9-3.2.1 in the Special Provisions (no. 36) states in part:

> *For earthwork items, any differences in the original ground surfaces from that shown in the original plan cross sections which would result in a substantial error to the plan quantity, must be noted by the claimant and properly documented by appropriate level notes, acceptable to both the Contractor and the Department, prior to disturbance of the original ground surface by construction operations to the extent that the original ground surface. elevations in question cannot be documented Any claim based upon a substantial error for differences in the original ground surface must be supported by documentation as provided above.*

By executing the attached document dated October 12, 2000, MCS has accepted the original ground line, which was established and verified prior to clearing, grubbing and proof rolling.

The Department knows of no reasonable method to re-establish the original ground line that existed prior to the start of any construction activities.

PLAN QUANTITY - EMBANKMENT

The quantity of embankment is a plan quantity and determined and calculated in accordance with Article 120-12.2 Embankment, which states:

> *"The pay quantity for embankment shall be at the plan quantity subject to the provisions of 9-3.2 and 9-3.4... The measurement shall include only material actually placed above the original ground line, within the lines and grades indicated in the plans or directed by the Engineer ...Anal no allowance will be made for subsidence below the surface of the original ground ... The Contractor shall make his own estimate on the volume of material required to obtain the pay section. "*

The above clearly defines the method of measuring the cross-section area of the embankment. The embankment section is defined by the original ground line and template grade. The volume is computed by the average end area method using the cross-section area.

The document also states there will be no allowance for subsidence below the surface of the original ground. The document further states ***the contractor shall make his own estimate on the volume of material required to obtain the pay section.***

The method of calculating the plan embankment quantity used by the Engineer of Record is the standard method of the industry utilized by all roadway designers in Florida. Item No. 120-6, Embankment, is a plan quantity item and subject to the provisions of 9-3.2 and 9-3.4 of the Contract Special Provisions. Article 9-3.2, Error in Plan Quantity covers the definitions and requirements necessary to revise a plan quantity as the result of an error. The Article states:

> *9-3.2.1 Error in Plan Quantity: As used in this Article, the terms "substantial error " and "substantial change" are defined as the smaller of the following: a net difference between original and final quantities of a Contract pay item of more that 5%, or a net difference between the original and final quantities of a contract pay item resulting in a change in the amount due of more than $5,000. Where the pay item for any item is designated to the original plan quantity, such quantity will be revised only in the event it is determined to be in substantial error. In general, such revisions will be determined by final measurements or plan calculations or both as additions to or deductions from plan quantities.*
>
> *In the event either the Department or the Contractor contends that the plan quantity for any item is in error and additional or less compensation is thereby due, the claimant shall submit, at his own expense, evidence of such, in the form of acceptable and verifiable measurements or calculations.*

Based on information furnished by MCS, the Department and the Engineer of Record have revised the embankment quantity. URS's letter dated August 30, 2002 adjusted the embankment quantity to 1,420,350 C.Y. MCS's letter dated October 25, 2002 accepted the 1.420,350 C.Y. as the contract "asbuilt" embankment quantity. ***The agreed "as-built" embankment quantity is 1,420,350 C.Y.***

MCS's letter has introduced a term that is not in the contract documents - "starting grade". Further, MCS defines an area that is bounded by the "original" grade and "starting" grade. MCS states this area was created by the removal of large volumes of topsoil, muck, stumps and root mat.

MCS had the opportunity to use any removed topsoil on the embankment slopes, which in fact is required by the contract. The 6-inches of topsoil treatment in areas of sod placement is within

the earthwork template; therefore, there was no loss of material when the stripped topsoil is used on the project.

Muck removal areas were documented by survey and payment for all backfill material placed in these areas was included in the embankment quantity in accordance with the contract documents.

The removal of root matter is included in the clearing and grubbing item and backfill material included in the embankment pay item as being used as topsoil on embankment slopes.

ADDITIONAL EMBANKMENT MATERIAL

At the Partnering Conference on October 7, 1999, MCS initiated discussions regarding the over excavation of ponds for two reasons; 1) Obtain embankment material and 2) Create an onsite disposal site for unsuitable material, A-8 excavation. No decisions were made at the partnering meeting and all parties agreed to consider the proposal at a later date.

In a letter dated December 16, 1999, MCS proposed excavating additional fill material from ponds 2A and 2B and place unsuitable material in the over excavated area of the ponds. MCS stated this proposal has the potential benefit of providing additional fill material for the project and also provide space for the placement of a portion of the unsuitable material (A-8). The contract documents specifically state that all unsuitable material be removed from the project site. MCS provided a sketch indicating the over excavation limits.

On December 17, 1999, the Department accepted MCS's proposal to over excavate ponds 2A and 2B and to back fill the over excavated area with unsuitable material. The Department's acceptance of MCS's proposal was in the spirit of project partnering and with the provision that there would be no additional costs incurred on the project as a result of this change.

MCS in a letter dated January 17, 2000, proposed the over excavation of pond I and the back filling with unsuitable material. Since the proposal was the same as previously submitted and approved for ponds 2A and 2B, the Department approved the proposal in the spirit of project partnering with the understanding that no additional costs would be incurred on the project as a result of this change.

By RFI no. 91, MCS requested a slight variation to the grading in Pond 3B, which would increase the capacity of the pond. The Department answered the RFI accepting the re-grading of the pond as shown on the MCS prepared sketch attached to the RFI. The re-grading provided additional embankment material for use on the project.

The Department's general survey consultant has performed an "As-Built" survey of pond 3B. The survey has indicated that the pond bottom constructed by MCS is 2 feet below the grade shown on the plans. This unauthorized over excavation of the pond has provided MCS with additional embankment material, which was incorporated into the project.

Throughout the course of the project, MCS over excavated several ponds and, as a result, has obtained a significant volume of material that was placed and paid for as embankment material. The volumes of material obtained from each pond are:

Pond No. 1	*12,638 C.Y.*
Pond No.2A	*23,444 C.Y.*
Pond No. 2B	*17,368 C.Y.*
Pond No. 3A	*907 C.Y.*
TOTAL	***54,357 C.Y.***

As mentioned above, the Department concurred with the over excavation of the ponds except pond 3A and, to date, has not requested any compensation from MCS for the use of the Department's material as embankment.

In addition, MCS was able to dispose of the following volumes of muck material (which MCS was contractually obligated to remove from the project) at the approved over excavated pond sites:

Pond No. 1	*12,638 C.Y.*
Pond No. 2A	*28,444 C.Y*
Pond No. 2B	*17 368 C.Y*
TOTAL	***53,450 C.Y.***

The contract documents in note 5 on plan sheet no. 14 states: "All excavated A-8 material shall be disposed of outside the project limits at no additional cost to the Department. "

The Department has determined that MCS has recognized a significant savings from (1) the 54,357 C.Y. of embankment obtained from the over excavation of several ponds, and (2) the 53,450 C.Y. of muck material disposed of in the over excavated pond sites. The Department has not yet requested compensation from MCS for these savings.

In several letters, MCS has cited several items they feel contributed to the alleged volume of material required in the area between "original grade" and "starting grade". The Department has addressed each item of the following items in the past:

Pavement Demolition Areas: *The payment for the removal of flexible pavement is covered under CLEARING AND GRUBBING, Article 110-7.1 and Sub-article 110-11.4 of the Supplemental Specifications.*

The contract documents do not prohibit the use of asphalt materials in embankment construction as long as the requirements of sub-article 120-7.2 are met. Also, sub-article 120-5.4 of the supplemental specifications states, "Existing limerock base that is removed may be incorporated in the stabilized portion of the subgrade. If the construction sequence will allow, all existing limerock base removed shall be incorporated in the project as allowed by the specifications". To this end, MCS did stockpile a considerable quantity of limerock from the old Zayre's parking lot. Also, the limerock from existing Airport Blvd. was used as stabilization material. Stabilized sub-base is included in the embankment quantity; therefore, there is no deficiency in embankment by utilizing the existing limerock base.

The existing asphalt pavement along Airport Blvd. was milled and removed from the project, which is not a contract requirement. This material is the property of the Department and there are areas on the project where the asphalt pavement can be used in the embankment

construction subject to the requirements of sub-article 120-7.2. There is also a difference in monetary values of RAP material and embankment material.

Topsoil Removal:. *The contract documents do not require that topsoil be removed from the areas of embankment construction. If MCS removed the so-called topsoil, it was at their option to utilize the material on the finished embankment slopes. This was a means and methods operation initiated by MCS.*

Furthermore, if topsoil material was removed and was used to meet topsoil requirements in areas to receive sod, there is no loss of availability of embankment material. The 6 inches of top soil treatment in areas of sod placement is within the earthwork template in accordance with Article 162-4.1 of the contract special provisions as follows:

> *Preparation of Areas: Prior to beginning of the work, the surface of the earthwork shall have been constructed to such lines and elevations as will provide a surface conforming to the plan lines and elevations upon completion of the topsoil operations.*

***Clearing** & **Grubbing (Stumps):** The removal of the stumps, roots, etc. is included under Item no. 1101-1, Clearing and Grubbing, in accordance with Article 110-1 of the supplemental specifications:*

> *"Included in the work under this Section is the removal and disposal of all trees, stumps, roots and other protruding objects... necessary to prepare the area for the proposed construction... "*

Further, the quantity of embankment is a plan quantity and determined and calculated in accordance with Article 120-12.2 Embankment:

> *"The pay quantity for embankment shall be at the plan quantity subject to the provisions of 9-3.2 and 9-3.4... The measurement shall include only material actually placed above the original ground line, within the lines and grades indicated in the plans or directed by the Engineer ... And no allowance will be made for subsidence below the surface of the original ground... The Contractor shall make his own estimate on the volume of material required to obtain the pay section. "*

MCS has accepted the original ground line and should have accounted for whatever embankment volume would be needed to replace volumes occupied by tree stumps, etc.

CONCLUSION

The Department contends that the contract documents provide a method of determining original ground line and clearly define the method of computing the embankment quantity. Therefore, MCS is not due any additional compensation:

- *Area between original ground and "starting grade" - The cost of this material should have been estimated by MCS and accounted for in the unit price bid for embankment in the same manner that embankment loss due to subsidence is accounted for.*
- *Embankment Quantity - The Department and MCS have agreed to the final "as-built" embankment quantity above original grade.*

- *Under Run of A-2, A-3 Excavation - The excavation does not affect the embankment quantity. Any shortage of anticipated materials from excavation is offset by the material obtained from the over excavation of the ponds.*
- *Muck Disposal - MCS incurred significant savings by disposing of muck material on site.*

Throughout the _life of this project, the Department has treated MCS in a very fair manner. The Department cannot be held responsible for the management or means and methods employed by MCS and the resulting consequences.

DRB Findings

The question of embankment pay quantities has been a topic of discussion between the parties for some time. After re-evaluation of the quantities with the Engineer, the parties do agree to the "as-built" embankment quantity of 1,420,350 c.y. as a result of revisions to the original plan quantity due to plan errors, plan revisions, changes in work and adjustments for unsuitable material. This quantity is based on the original ground line as established and accepted by the Contractor prior to clearing and grubbing. The quantity of material in question is material below the original ground line and an under-run in A-2, A-3 excavation.

The Contract is clear as to how the embankment pay quantity is determined and calculated:

> *"The pay quantity for embankment shall be at the plan quantity subject to the provisions of 9-3.2 and 9-3.4…The measurement shall include only material actually placed above the original ground line, within the lines and grades indicated in the plans or directed by the Engineer…And no allowance will be made for subsidence below the surface of the original ground…The Contractor shall make his own estimate on the volume of material required to obtain the pay section."*

The material required would include allowance for subsidence and material "lost" to clearing and grubbing operations.

The Contractor attempted to validate the alleged over-run with borrow pit cross-section quantities and the establishment of a "starting grade" by core drilling and sampling. There are too many variables in determining borrow pit quantities to substantiate embankment quantities or to establish a "starting grade" by drilling. Either method is not allowed by the Contract.

The DRB agrees with the Department's position that the under-run of A-2, A-3 excavation is offset by the material obtained from the over excavation of the ponds.

DRB Recommendation

The DRB finds no justification for the Contractor's position and therefore finds no entitlement for the issue.

The Board appreciates the cooperation by all parties involved and the information provided to make this Recommendation. Please remember that failure to respond to the DRB and the other party concerning your acceptance or rejection of the DRB Recommendation within 15 days will be considered acceptance of the Recommendation.

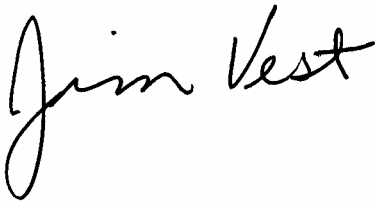
I certify that I participated in all of the meetings of the DRB regarding the Dispute indicated above and concur with the findings and recommendations.

Respectfully submitted,

Dispute Review Board

Jim Vest, DRB Chairman
John Duke, DRB Member
John Coxwell, DRB Member

SIGNED FOR AND WITH THE CONCURRENCE OF ALL MEMBERS:



DRB Chairman