

# **Rock Chalk Park - Infrastructure Report**

## **November 2013**

The following report is the fifth monthly report for the construction of infrastructure at Rock Chalk Park. The format follows the sections outlined in the development agreement with status updates and notable items complete. Attached is a copy of the spreadsheet city staff is using to track monthly quantities and totals which can be compared to the amounts approved in the development agreement. Highlighted items on the spreadsheet are estimated quantities complete for lump sum and grading items that will not be measurable until the project is complete; the estimate is from visual inspection.

The majority of work completed has been inspected and installed to City specifications. Quantities of work completed have been measured by the City and provided to Bliss Sports. There have been no major changes to the design, scope, functionality or amenities of the infrastructure plans. There have been some minor changes to work items and they are outlined in the change order section. Infrastructure improvements appear to be on or ahead of schedule.

Saturday November 30th there was no available city inspection staff to work and the city hired BG Consultants to perform inspection services. Work included the radius tie-in from the north end of George Williams Way to Rock Chalk Parkway and an access drive tie-in from Rock Chalk Parkway to the parking lot. Dowel bars at the tie-in contraction joint were bent down into the dirt, backed over by the concrete truck. Longitudinal tie-bars were used instead of dowel bars for half the width of the street. Tie-bars for the curb were not centered on the longitudinal joint; they were drilled 5" to 7" instead of 12". Curb joints do not match pavement joints and may cause additional cracking in future. BG inspection staff notified Bliss Sports of the issues before the concrete pour and Bliss Sports chose to proceed without correcting. This work did not meet City standards or specifications and a resolution will need to be agreed upon in the future. The inspection report is attached at the end of this month's infrastructure report.

### **General**

- No additional staking costs have been submitted by Bliss Sports.

### **Site Grading**

- No additional grading work in November
- 100% of site strip, site excavation, compaction and rock excavation work is complete; all quantities are assumed to be plan quantity
- Topsoil replacement/fine grade work will be done at end of project

### **Retention Ponds**

- Work to complete the detention ponds is 100% complete as of July 2013.
- Summary of Costs:
  - o Cost per development agreement: \$156,250
  - o Final construction cost: \$156,250

### **Natural Trails and Eight Lighted Tennis Courts**

- No work has begun

### **Waterline**

- Installed 764 feet of 12 inch water line
- Installed 5 -12 inch MJ gate valves
- Installed 2 Fire hydrants for a total of 18. One more fire hydrant was installed then was on the agreement (17).
- Installed 8 CY of flowable fill; 247 CY total flowable fill was used for Waterline work.
- Work to complete Waterline is 100% complete as of November 2013
- Summary of Costs:
  - o Cost per development agreement: \$468,061.65
  - o Final construction cost: \$462,522.49
- Two overruns on quantities:
  - o 12" C900 DR14 Waterline: 12 extra feet, cost = \$442.44
  - o 8" PVC C900 DR14 Waterline: 14 extra feet, cost = \$406
  - o Fire Hydrant Assembly: 1 extra, cost = \$3300
- One underrun on quantities:
  - o Flowable fill - an estimated 384.5 CY was assumed based on the unit price provided for the Sanitary Sewer flowable fill (\$70/CY). The 247 CY of flowable fill used for waterline the total cost would be \$17,290; an underrun cost of \$9620
- All other items were installed at 100% of plan quantities

### **Sanitary Sewer**

- Work to complete Sanitary Sewer is 100% complete as of October 2013
- Summary of Costs:
  - o Cost per development agreement: \$162,842.50
  - o Final construction cost: \$174,312.50
- Two overruns on quantities:
  - o Extra Depth manhole: 6.2 extra feet, cost = \$620
  - o Flowable Fill - 155 CY extra, cost = \$10,850
- All other items were installed at 100% of plan quantities

### **Storm Sewer**

- Installed 79' of 15" Reinforced Concrete Pipe
- Installed one 15" RCP end section
- Sizes, materials and quantities have matched plans and specifications for storm sewer work
- One additional 12" pipe and end section was installed to alleviate a drainage concern along Rock Chalk Drive; because there are no 12" pipe quantities in the plans, the item has been added to the Change Order section at the end.
- Work to complete Storm Sewer is 100% complete as of November 2013
- Summary of Costs:
  - o Cost per development agreement: \$82,688.75
  - o Final construction cost: \$82,688.75

### **Parking Lot Lights**

- No additional work on parking lot lights in November
- 80% of the Conduit for lights and 50% of the Conduit for Westar has been installed

### **Landscaping**

- No additional work on landscaping in November
- Approximately 50% of the irrigation pipe has been installed for the parking lot islands

### **Rock Chalk Drive & George Williams**

- Unclassified excavation was 100% complete for this section in October and the full quantity 15,934 CY is assumed to be correct.
- Compacted fill was 100% complete for this section in November and the full quantity 1790 CY is assumed to be correct.
- 9249 SY of 10" concrete pavement was installed; 95% complete. There are several cracked panels in Rock Chalk Drive. Repairs will need to be made before the work is accepted.
- 6096 LF of concrete curb and gutter was installed; 97% complete.
- Treatment of subgrade is measured to be 95% complete. The development agreement had 12" fly ash & 4" AB3 for this work item. A change was made to 9" fly ash as recommended by the city - already on the approved public improvement plans. No unit cost has been provided by Bliss for this work, the quantity has been added to the Change Order section.



*Rock Chalk Drive*



*George Williams Way*

### **Overflow Parking Lot**

- No work has begun

### **Parking Lot / Access Drives**

- Concrete paving in parking lot began in September. 1082 CY of concrete paving was complete in November. City staff has seen a few areas that will need to be removed and replaced due to edge chipping and spalling.
- Curb and gutter work in the parking lot began in November and 7314 LF was installed.
- Due to cold weather the parking lot north of the KU track facility was not treated with fly ash before paving. The City and Bliss Sports agreed to use 12" crushed concrete thickness instead of fly ash. This quantity will be split out and listed as Change Order 6.



*Parking lot*

### **Rock Chalk Lane and Rock Chalk Parkway**

- 1728 SY of 8" NRDJ Pavement was constructed in November.
- 405 LF of CG-1 curb and gutter was installed.
- 1075 SY of Subgrade Treatment - 12" Flyash and 4" AB-3 was constructed.

### **Chip and Seal County Road**

- No work has begun

### **Rec Center Pad**

- Work to complete the rec center pad is 100% complete as of July 2013.
- Summary of Costs:
  - o Cost per development agreement: \$432,500
  - o Final construction cost: \$432,500

### **Change Orders**

- Change Order 1: Installed additional 1352 LF of 4" conduit for fiber
- Change Order 2: 600 LF of 3" conduit for security cameras (complete in August)
- Change Order 3: Treatment of subgrade 9" flyash on Rock Chalk Drive and George Williams Way
- Change Order 4: 12" HDPE storm sewer pipe
- Change Order 5: 12" CMP End Section.
- Change Order 6: 5998 SY 12" Subgrade Crushed Concrete in Parking Lot
  
- Unit costs for change orders 1 through 6 have not yet been provided by Bliss Sports.

**ESTIMATE OF WORK COMPLETE  
FOR PERIOD: November 2013**

**DATE: November 30, 2013**

**ESTIMATE No.: 5**

**PROJECT LOCATION: Rock Chalk Site Work**

**ESTIMATE ON LUMP SUM & GRADING ITEMS**

| ITEM | DESCRIPTION                                 | UNIT | QUANTITY | CONTRACTED    |                        | COMPLETED TO DATE |                      | Percent Complete | COMPLETED THIS PAY PERIOD |             |
|------|---------------------------------------------|------|----------|---------------|------------------------|-------------------|----------------------|------------------|---------------------------|-------------|
|      |                                             |      |          | UNIT PRICE    | AMOUNT                 | UNIT              | AMOUNT               |                  | UNIT                      | AMOUNT      |
|      | General                                     | Unit | Quantity | Unit cost     | Total                  |                   |                      |                  |                           |             |
| 1    | Mobilization                                | LS   | 1        | \$ 400,000.00 | \$ 400,000.00          | 0.75              | \$ 300,000.00        | 75%              |                           | \$ -        |
| 2    | Construction Staking                        | LS   | 1        | \$ 225,000.00 | \$ 225,000.00          | 0.25              | \$ 58,200.00         | 25%              |                           | \$ -        |
| 3    | Seeding, Mulching & Fertilizing             | AC   | 20       | \$ 1,500.00   | \$ 30,000.00           | 13.34             | \$ 20,010.00         | 67%              |                           | \$ -        |
| 4    | Utilities Connection fees and expenses      | LS   | 1        | \$ 55,000.00  | \$ 55,000.00           |                   | \$ -                 | 0%               |                           | \$ -        |
| 5    | Traffic Control                             | LS   | 1        | \$ 5,000.00   | \$ 5,000.00            |                   | \$ -                 | 0%               |                           | \$ -        |
| 6    | Erosion & Sediment Control                  | LS   | 1        | \$ 40,000.00  | \$ 40,000.00           | 1.00              | \$ 40,000.00         | 100%             |                           | \$ -        |
| 7    | Legal Fees per Development Agreement        | LS   | 1        | \$ 167,836.00 | \$ 167,836.00          |                   | \$ -                 | 0%               |                           | \$ -        |
| 8    | Loan origination fees for project financing | LS   | 1        | \$ 150,000.00 | \$ 150,000.00          |                   | \$ -                 | 0%               |                           | \$ -        |
| 9    | Loan interest for project financing         | LS   | 1        | \$ 309,515.00 | \$ 309,515.00          |                   | \$ -                 | 0%               |                           | \$ -        |
| 10   | Construction Management fee 2.5% on \$11.5M | LS   | 1        | \$ 287,500.00 | \$ 287,500.00          |                   | \$ -                 | 0%               |                           | \$ -        |
| 11   | Professional Fees                           | LS   | 1        | \$ 525,000.00 | \$ 525,000.00          |                   | \$ -                 | 0%               |                           | \$ -        |
|      | <b>General Sub Total</b>                    |      |          |               | <b>\$ 2,194,851.00</b> |                   | <b>\$ 418,210.00</b> | <b>19%</b>       |                           | <b>\$ -</b> |

|    | Site Grading                   | Unit | Quantity | Unit cost | Total                |            |                      |            |  |             |
|----|--------------------------------|------|----------|-----------|----------------------|------------|----------------------|------------|--|-------------|
| 12 | Site strip                     | CY   | 32,000   | \$ 2.25   | \$ 72,000.00         | 32,000.00  | \$ 72,000.00         | 100%       |  | \$ -        |
| 13 | Site Excavation                | CY   | 180,000  | \$ 2.25   | \$ 405,000.00        | 180,000.00 | \$ 405,000.00        | 100%       |  | \$ -        |
| 14 | Compaction                     | CY   | 160,000  | \$ 1.10   | \$ 176,000.00        | 160,000.00 | \$ 176,000.00        | 100%       |  | \$ -        |
| 15 | Topsoil Replacement/fine grade | CY   | 10,000   | \$ 10.00  | \$ 100,000.00        |            | \$ -                 | 0%         |  | \$ -        |
| 16 | Rock Excavation                | CY   | 9,750    | \$ 10.00  | \$ 97,500.00         | 9,750.00   | \$ 97,500.00         | 100%       |  | \$ -        |
|    | <b>Site Grading Sub Total</b>  |      |          |           | <b>\$ 850,500.00</b> |            | <b>\$ 750,500.00</b> | <b>88%</b> |  | <b>\$ -</b> |

|    | Retention Ponds                  | Unit | Quantity | Unit cost    | Total                |           |                      |             |  |             |
|----|----------------------------------|------|----------|--------------|----------------------|-----------|----------------------|-------------|--|-------------|
| 17 | Rock Excavation                  | CY   | 10,000   | \$ 10.00     | \$ 100,000.00        | 10,000.00 | \$ 100,000.00        | 100%        |  | \$ -        |
| 18 | Dirt Excavation                  | CY   | 5,000    | \$ 2.25      | \$ 11,250.00         | 5,000.00  | \$ 11,250.00         | 100%        |  | \$ -        |
| 19 | Faircloth skimmers               | LS   | 3        | \$ 10,000.00 | \$ 30,000.00         | 3.00      | \$ 30,000.00         | 100%        |  | \$ -        |
| 20 | Storm structure                  | LS   | 3        | \$ 5,000.00  | \$ 15,000.00         | 3.00      | \$ 15,000.00         | 100%        |  | \$ -        |
|    | <b>Retention Ponds Sub Total</b> |      |          |              | <b>\$ 156,250.00</b> |           | <b>\$ 156,250.00</b> | <b>100%</b> |  | <b>\$ -</b> |

|    | Natural Trails and Eight Lighted Tennis Courts | Unit | Quantity | Unit cost     | Total                  |  |             |           |  |             |
|----|------------------------------------------------|------|----------|---------------|------------------------|--|-------------|-----------|--|-------------|
| 21 | Tennis Courts                                  | LS   | 1        | \$ 640,000.00 | \$ 640,000.00          |  | \$ -        | 0%        |  | \$ -        |
| 22 | Retaining Walls at Tennis Courts               | LS   | 1        | \$ 170,000.00 | \$ 170,000.00          |  | \$ -        | 0%        |  | \$ -        |
| 23 | Natural trail 10' Approx. 5 = miles            | SY   | 33,710   | \$ 12.00      | \$ 404,520.00          |  | \$ -        | 0%        |  | \$ -        |
|    | <b>Trails and Tennis Courts Sub Total</b>      |      |          |               | <b>\$ 1,214,520.00</b> |  | <b>\$ -</b> | <b>0%</b> |  | <b>\$ -</b> |

|                                        |  |  |  |                                      |  |  |  |  |  |  |
|----------------------------------------|--|--|--|--------------------------------------|--|--|--|--|--|--|
| ESTIMATE OF WORK COMPLETE              |  |  |  |                                      |  |  |  |  |  |  |
| DATE: November 30, 2013                |  |  |  |                                      |  |  |  |  |  |  |
| ESTIMATE No.: 5                        |  |  |  |                                      |  |  |  |  |  |  |
| PROJECT LOCATION: Rock Chalk Site Work |  |  |  | ESTIMATE ON LUMP SUM & GRADING ITEMS |  |  |  |  |  |  |

| ITEM | DESCRIPTION                                 | UNIT        | QUANTITY        | CONTRACTED       |                      | COMPLETED TO DATE |                      | Percent Complete | COMPLETED THIS PAY PERIOD |                     |
|------|---------------------------------------------|-------------|-----------------|------------------|----------------------|-------------------|----------------------|------------------|---------------------------|---------------------|
|      |                                             |             |                 | UNIT PRICE       | AMOUNT               | UNIT              | AMOUNT               |                  | UNIT                      | AMOUNT              |
|      | <b>Waterline</b>                            | <b>Unit</b> | <b>Quantity</b> | <b>Unit cost</b> | <b>Total</b>         |                   |                      |                  |                           |                     |
| 22   | Connect to Existing water line              | 1           | 1               | \$ 750.00        | \$ 750.00            | 1.00              | \$ 750.00            | 100%             |                           | \$ -                |
| 23   | 12" C900 DR14 Water line                    | LF          | 7,642           | \$ 36.87         | \$ 281,760.54        | 7,654.00          | \$ 282,202.98        | 100%             | 764.00                    | \$ 28,168.68        |
| 24   | 8" PVC C900 DR14 Water line                 | LF          | 472             | \$ 29.00         | \$ 13,688.00         | 486.00            | \$ 14,094.00         | 103%             |                           | \$ -                |
| 25   | 3" M.J. Gate Valve                          | EACH        | 2               | \$ 500.00        | \$ 1,000.00          | 2.00              | \$ 1,000.00          | 100%             |                           | \$ -                |
| 26   | 6" M.J. Gate Valve                          | EACH        | 2               | \$ 825.00        | \$ 1,650.00          | 2.00              | \$ 1,650.00          | 100%             |                           | \$ -                |
| 27   | 8" M.J. Gate Valve                          | EACH        | 2               | \$ 1,300.00      | \$ 2,600.00          | 2.00              | \$ 2,600.00          | 100%             |                           | \$ -                |
| 28   | 12" MJ Gate Valve                           | EACH        | 33              | \$ 1,500.00      | \$ 49,500.00         | 33.00             | \$ 49,500.00         | 100%             | 5.00                      | \$ 7,500.00         |
| 29   | Fire Hydrant Assembly                       | EACH        | 17              | \$ 3,300.00      | \$ 56,100.00         | 18.00             | \$ 59,400.00         | 106%             | 2.00                      | \$ 6,600.00         |
| 30   | Private Fire Hydrant Assembly (Painted Red) | EACH        | 2               | \$ 3,300.00      | \$ 6,600.00          | 2.00              | \$ 6,600.00          | 100%             |                           | \$ -                |
| 31   | Flowable Fill                               | LS          | 1               | \$ 26,910.00     | \$ 26,910.00         | 0.64              | \$ 17,222.40         | 64%              | 0.02                      | \$ 538.20           |
| 32   | 2" Curb Stop with Auto Flusher and RIPRAP   | LS          | 1               | \$ 6,000.00      | \$ 6,000.00          | 1.00              | \$ 6,000.00          | 100%             | 1.00                      | \$ 6,000.00         |
| 33   | Water Meter Pits                            | LS          | 1               | \$ 20,303.11     | \$ 20,303.11         | 1.00              | \$ 20,303.11         | 100%             |                           | \$ -                |
| 34   | Concrete Encasement                         | LF          | 20              | \$ 60.00         | \$ 1,200.00          | 20.00             | \$ 1,200.00          | 100%             | 20.00                     | \$ 1,200.00         |
|      | <b>Waterline Sub Total</b>                  |             |                 |                  | <b>\$ 468,061.65</b> |                   | <b>\$ 462,522.49</b> | <b>99%</b>       |                           | <b>\$ 50,006.88</b> |

|    |                                            |             |                 |                  |                      |          |                      |             |  |             |
|----|--------------------------------------------|-------------|-----------------|------------------|----------------------|----------|----------------------|-------------|--|-------------|
|    | <b>Sanitary Sewer</b>                      | <b>Unit</b> | <b>Quantity</b> | <b>Unit cost</b> | <b>Total</b>         |          |                      |             |  |             |
| 35 | 8" SDR26 PVC granular embedment            | LF          | 2,019           | \$ 44.00         | \$ 88,836.00         | 2,019.00 | \$ 88,836.00         | 100%        |  | \$ -        |
| 36 | <i>STD Manhole 4" DIA, 6' Depth</i>        | EACH        | 8               | \$ 2,000.00      | \$ 16,000.00         | 8.00     | \$ 16,000.00         | 100%        |  | \$ -        |
| 37 | Extra Depth 4' DIA Manhole                 | VF          | 12.46           | \$ 100.00        | \$ 1,246.00          | 16.05    | \$ 1,605.00          | 129%        |  | \$ -        |
| 38 | Drop Manhole 5' DIA 6' Depth               | EACH        | 1               | \$ 2,970.00      | \$ 2,970.00          | 1.00     | \$ 2,970.00          | 100%        |  | \$ -        |
| 39 | Extra Depth 5' DIA Manhole                 | VF          | 6.3             | \$ 110.00        | \$ 693.00            | 6.30     | \$ 693.00            | 100%        |  | \$ -        |
| 40 | 6" Service Line                            | EACH        | 4               | \$ 500.00        | \$ 2,000.00          | 4.00     | \$ 2,000.00          | 100%        |  | \$ -        |
| 41 | Connect to Existing Manhole                | EACH        | 1               | \$ 500.00        | \$ 500.00            | 1.00     | \$ 500.00            | 100%        |  | \$ -        |
| 42 | Concrete Collars                           | EACH        | 7               | \$ 570.00        | \$ 3,990.00          | 7.00     | \$ 3,990.00          | 100%        |  | \$ -        |
| 43 | Flowable Mortar Backfill                   | CY          | 403             | \$ 70.00         | \$ 28,210.00         | 560.00   | \$ 39,200.00         | 139%        |  | \$ -        |
| 44 | Seed, Fertilize, Mulch and Erosion Netting | LS          | 1               | \$ 5,500.00      | \$ 5,500.00          | 1.00     | \$ 5,500.00          | 100%        |  | \$ -        |
| 45 | Construction Staking                       | No Bid      | No Bid          | No Bid           | No Bid               |          |                      |             |  |             |
| 46 | Rip Rap Erosion Protection                 | LS          | 1               | \$ 2,500.00      | \$ 2,500.00          | 1.00     | \$ 2,500.00          | 100%        |  | \$ -        |
| 47 | Concrete Encasement                        | LF          | 45              | \$ 50.00         | \$ 2,250.00          | 45.00    | \$ 2,250.00          | 100%        |  | \$ -        |
| 48 | Impervious Ditch Check                     | LS          | 1               | \$ 750.00        | \$ 750.00            | 1.00     | \$ 750.00            | 100%        |  | \$ -        |
| 49 | Polyurethane Manhole Lining                | LS          | 1               | \$ 7,397.50      | \$ 7,397.50          | 1.00     | \$ 7,397.50          | 100%        |  | \$ -        |
|    | <b>Sanitary Sewer Sub Total</b>            |             |                 |                  | <b>\$ 162,842.50</b> |          | <b>\$ 174,191.50</b> | <b>107%</b> |  | <b>\$ -</b> |



|                                                                                                                                                                                                                                                                                      |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|
| <div> <div>ESTIMATE OF WORK COMPLETE</div> <div> <div>DATE: November 30, 2013</div> <div>ESTIMATE No.: 5</div> <div>PROJECT LOCATION: Rock Chalk Site Work</div> </div> <div> <div>FOR PERIOD: November 2013</div> <div>ESTIMATE ON LUMP SUM &amp; GRADING ITEMS</div> </div> </div> |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|

| ITEM | DESCRIPTION                  | UNIT | QUANTITY | CONTRACTED   |              | COMPLETED TO DATE |              | Percent Complete | COMPLETED THIS PAY PERIOD |             |
|------|------------------------------|------|----------|--------------|--------------|-------------------|--------------|------------------|---------------------------|-------------|
|      |                              |      |          | UNIT PRICE   | AMOUNT       | UNIT              | AMOUNT       |                  | UNIT                      | AMOUNT      |
|      | Storm Sewer                  | Unit | Quantity | Unit cost    | Total        |                   |              |                  |                           |             |
| 50   | 15" HDPE                     | LF   | 38       | \$ 23.75     | \$ 902.50    | 38.00             | \$ 902.50    | 100%             |                           | \$ -        |
| 51   | 15" Reinforced Concrete Pipe | LF   | 79       | \$ 24.75     | \$ 1,955.25  | 79.00             | \$ 1,955.25  | 100%             | 79.00                     | \$ 1,955.25 |
| 52   | 18" HDPE                     | LF   | 87       | \$ 24.00     | \$ 2,088.00  | 87.00             | \$ 2,088.00  | 100%             |                           | \$ -        |
| 53   | 18" Reinforced Concrete Pipe | LF   | 76       | \$ 25.00     | \$ 1,900.00  | 76.00             | \$ 1,900.00  | 100%             |                           | \$ -        |
| 54   | 24" HDPE                     | LF   | 706      | \$ 30.00     | \$ 21,180.00 | 706.00            | \$ 21,180.00 | 100%             |                           | \$ -        |
| 55   | 24" Reinforced Concrete Pipe | LF   | 38       | \$ 32.00     | \$ 1,216.00  | 38.00             | \$ 1,216.00  | 100%             |                           | \$ -        |
| 56   | 30" HDPE                     | LF   | 19       | \$ 39.00     | \$ 741.00    | 19.00             | \$ 741.00    | 100%             |                           | \$ -        |
| 57   | 48" Reinforced Concrete Pipe | LF   | 103      | \$ 105.00    | \$ 10,815.00 | 103.00            | \$ 10,815.00 | 100%             |                           | \$ -        |
| 58   | 15" RCP End Section          | EACH | 1        | \$ 450.00    | \$ 450.00    | 1.00              | \$ 450.00    | 100%             | 1.00                      | \$ 450.00   |
| 59   | 30" RCP End Section          | EACH | 1        | \$ 450.00    | \$ 450.00    | 1.00              | \$ 450.00    | 100%             |                           | \$ -        |
| 60   | 48" RCP End Section          | EACH | 2        | \$ 1,900.00  | \$ 3,800.00  | 2.00              | \$ 3,800.00  | 100%             |                           | \$ -        |
| 61   | 5'x4' Curb Inlet             | EACH | 6        | \$ 2,025.00  | \$ 12,150.00 | 6.00              | \$ 12,150.00 | 100%             | 2.00                      | \$ 4,050.00 |
| 62   | 10'x4' Curb Inlet            | EACH | 3        | \$ 3,252.00  | \$ 9,756.00  | 3.00              | \$ 9,756.00  | 100%             |                           | \$ -        |
| 63   | 4'x4' Junction Box           | EACH | 1        | \$ 2,185.00  | \$ 2,185.00  | 1.00              | \$ 2,185.00  | 100%             |                           | \$ -        |
| 64   | 18"NOM DIA Rip Rap           | SY   | 84       | \$ 25.00     | \$ 2,100.00  | 84.00             | \$ 2,100.00  | 100%             |                           | \$ -        |
| 65   | Flowable fill                | LS   | 1        | \$ 11,000.00 | \$ 11,000.00 | 1.00              | \$ 11,000.00 | 100%             | 0.25                      | \$ 2,750.00 |
|      | Storm Sewer Sub Total        |      |          |              | \$ 82,688.75 |                   | \$ 82,688.75 | 100%             |                           | \$ 9,205.25 |

|    |                              |      |          |               |               |      |              |     |  |      |
|----|------------------------------|------|----------|---------------|---------------|------|--------------|-----|--|------|
|    | Parking Lot Lights           | Unit | Quantity | Unit cost     | Total         |      |              |     |  |      |
| 66 | LED - Dual Fixtures          | LS   | 1        | \$ 120,000.00 | \$ 120,000.00 |      | \$ -         | 0%  |  | \$ - |
| 67 | Pole Bases                   | LS   | 1        | \$ 25,000.00  | \$ 25,000.00  |      | \$ -         | 0%  |  | \$ - |
| 68 | Conduit                      | LS   | 1        | \$ 40,000.00  | \$ 40,000.00  | 0.80 | \$ 32,000.00 | 80% |  | \$ - |
| 69 | Conduit Westar               | LS   | 1        | \$ 25,000.00  | \$ 25,000.00  | 0.50 | \$ 12,500.00 | 50% |  | \$ - |
| 70 | Conduit for Fiber            | LF   | 1        | \$ -          | \$ -          |      | \$ -         | 0%  |  | \$ - |
| 71 | Electric Service - labor     | LS   | 1        | \$ 30,000.00  | \$ 30,000.00  |      | \$ -         | 0%  |  | \$ - |
|    | Parking Lot Lights Sub Total |      |          |               | \$ 240,000.00 |      | \$ 44,500.00 | 19% |  | \$ - |

|    |                  |      |          |               |               |      |              |     |  |      |
|----|------------------|------|----------|---------------|---------------|------|--------------|-----|--|------|
|    | Landscaping      | Unit | Quantity | Unit cost     | Total         |      |              |     |  |      |
| 72 | Trees            | EACH | 450      | \$ 425.00     | \$ 191,250.00 |      | \$ -         | 0%  |  | \$ - |
| 73 | Shrubs           | EACH | 710      | \$ 60.00      | \$ 42,600.00  |      | \$ -         | 0%  |  | \$ - |
| 74 | Site Entry signs | LS   | 1        | \$ 150,000.00 | \$ 150,000.00 |      | \$ -         | 0%  |  | \$ - |
| 75 | Irrigation       | LS   | 1        | \$ 100,000.00 | \$ 100,000.00 | 0.50 | \$ 50,000.00 | 50% |  | \$ - |

DATE: November 30, 2013

ESTIMATE No.: 5

PROJECT LOCATION: Rock Chalk Site Work

ESTIMATE OF WORK COMPLETE  
FOR PERIOD: November 2013

ESTIMATE ON LUMP SUM & GRADING ITEMS

| ITEM | DESCRIPTION                  | UNIT | QUANTITY | CONTRACTED    |                      | COMPLETED TO DATE |                     | Percent Complete | COMPLETED THIS PAY PERIOD |             |
|------|------------------------------|------|----------|---------------|----------------------|-------------------|---------------------|------------------|---------------------------|-------------|
|      |                              |      |          | UNIT PRICE    | AMOUNT               | UNIT              | AMOUNT              |                  | UNIT                      | AMOUNT      |
| 76   | Misc                         | LS   | 1        | \$ 100,000.00 | \$ 100,000.00        |                   | \$ -                | 0%               |                           | \$ -        |
|      | <b>Landscaping Sub Total</b> |      |          |               | <b>\$ 583,850.00</b> |                   | <b>\$ 50,000.00</b> | <b>9%</b>        |                           | <b>\$ -</b> |

|    | Rock Chalk Drive & George Williams        | Unit   | Quantity | Unit cost   | Total                  |           |                      |            |          |                      |
|----|-------------------------------------------|--------|----------|-------------|------------------------|-----------|----------------------|------------|----------|----------------------|
| 77 | Unclassified excavation                   | CY     | 15,934   | \$ 5.00     | \$ 79,670.00           | 15,934.00 | \$ 79,670.00         | 100%       |          | \$ -                 |
| 78 | Compacted fill                            | CY     | 1,790    | \$ 1.00     | \$ 1,790.00            | 1,790.00  | \$ 1,790.00          | 100%       | 447.50   | \$ 447.50            |
| 79 | Site restoration                          | LS     | 1        | \$ 5,000.00 | \$ 5,000.00            |           | \$ -                 | 0%         |          | \$ -                 |
| 80 | 10" NRDJ Portland cement conc pave        | SY     | 9,758    | \$ 55.00    | \$ 536,690.00          | 9,249.00  | \$ 508,695.00        | 95%        | 9,249.00 | \$ 508,695.00        |
| 81 | Type CG-1 Concrete curb & gutter          | LF     | 6,257    | \$ 16.00    | \$ 100,112.00          | 6,096.00  | \$ 97,536.00         | 97%        | 6,096.00 | \$ 97,536.00         |
| 82 | 4" x 5' Concrete sidewalk                 | SY     | 40       | \$ 30.00    | \$ 1,200.00            |           | \$ -                 | 0%         |          | \$ -                 |
| 83 | 6" x 10' Fiber reinforced conc sdwk       | SY     | 4,078    | \$ 40.00    | \$ 163,120.00          |           | \$ -                 | 0%         |          | \$ -                 |
| 84 | Access ramps                              | EACH   | 13       | \$ 1,000.00 | \$ 13,000.00           |           | \$ -                 | 0%         |          | \$ -                 |
| 85 | Compaction tests street                   | LS     | 5        | \$ 100.00   | \$ 500.00              |           | \$ -                 | 0%         |          | \$ -                 |
| 86 | Construction Staking                      | No Bid | No Bid   | No Bid      | No Bid                 |           |                      |            |          |                      |
| 87 | Seed, Fertilize & Mulch                   | LS     | 1        | \$ 4,000.00 | \$ 4,000.00            |           | \$ -                 | 0%         |          | \$ -                 |
| 88 | Clearing, Grubbing & Tree Removal         | LS     | 1        | \$ 1,250.00 | \$ 1,250.00            | 1.00      | \$ 1,250.00          | 100%       |          | \$ -                 |
| 89 | Treatment of subgrade 12" fly ash & 4"AB3 | SY     | 11,825   | \$ 9.33     | \$ 110,327.25          |           | \$ -                 | 0%         |          | \$ -                 |
| 90 | Erosion Control                           | LS     | 1        | \$ 2,670.00 | \$ 2,670.00            |           | \$ -                 | 0%         |          | \$ -                 |
| 91 | Section Corner Monument Box               | LS     | 1        | \$ 1,000.00 | \$ 1,000.00            |           | \$ -                 | 0%         |          | \$ -                 |
| 92 | 2" Conduit                                | LF     | 1,701    | \$ 2.00     | \$ 3,402.00            |           | \$ -                 | 0%         |          | \$ -                 |
| 93 | 4" Conduit                                | LF     | 997      | \$ 2.00     | \$ 1,994.00            |           | \$ -                 | 0%         |          | \$ -                 |
| 94 | Traffic Control Signage                   | LS     | 1        | \$ 500.00   | \$ 500.00              |           | \$ -                 | 0%         |          | \$ -                 |
|    |                                           |        |          |             | <b>\$ 1,026,225.25</b> |           | <b>\$ 688,941.00</b> | <b>67%</b> |          | <b>\$ 606,678.50</b> |

|    | Overflow Parking Lot                  | Unit | Quantity | Unit cost    | Total               |  |             |           |  |             |
|----|---------------------------------------|------|----------|--------------|---------------------|--|-------------|-----------|--|-------------|
| 95 | Concrete access ramps                 | SY   | 464      | \$ 50.00     | \$ 23,200.00        |  | \$ -        | 0%        |  | \$ -        |
| 96 | Lot Grading                           | LS   | 1        | \$ 25,000.00 | \$ 25,000.00        |  | \$ -        | 0%        |  | \$ -        |
| 97 | Temporary Gravel Laydown              | LS   | 1        | \$ 20,000.00 | \$ 20,000.00        |  | \$ -        | 0%        |  | \$ -        |
|    | <b>Overflow Parking Lot Sub Total</b> |      |          |              | <b>\$ 68,200.00</b> |  | <b>\$ -</b> | <b>0%</b> |  | <b>\$ -</b> |

|     | Parking Lot/ Access Drives    | Unit | Quantity | Unit cost | Total           |           |                 |     |          |               |
|-----|-------------------------------|------|----------|-----------|-----------------|-----------|-----------------|-----|----------|---------------|
| 98  | Concrete parking lot          | SY   | 44,356   | \$ 44.00  | \$ 1,951,664.00 | 40,725.00 | \$ 1,791,900.00 | 92% | 1,082    | \$ 47,608.00  |
| 99  | CG-1 curb and gutter          | LF   | 15,338   | \$ 18.00  | \$ 276,084.00   | 7,314.00  | \$ 131,652.00   | 48% | 7,314.00 | \$ 131,652.00 |
| 100 | Concrete parking and Bus lane | SY   | 7,337    | \$ 50.00  | \$ 366,850.00   |           | \$ -            | 0%  |          | \$ -          |

**ESTIMATE OF WORK COMPLETE  
FOR PERIOD: November 2013**

**DATE: November 30, 2013**

**ESTIMATE No.: 5**

**PROJECT LOCATION: Rock Chalk Site Work**

**ESTIMATE ON LUMP SUM & GRADING ITEMS**

| ITEM | DESCRIPTION                                 | UNIT | QUANTITY | CONTRACTED    |                        | COMPLETED TO DATE |                        | Percent Complete | COMPLETED THIS PAY PERIOD |                      |
|------|---------------------------------------------|------|----------|---------------|------------------------|-------------------|------------------------|------------------|---------------------------|----------------------|
|      |                                             |      |          | UNIT PRICE    | AMOUNT                 | UNIT              | AMOUNT                 |                  | UNIT                      | AMOUNT               |
| 101  | Fire lane / Access roads                    | SY   | 8,593    | \$ 44.00      | \$ 378,092.00          |                   | \$ -                   | 0%               |                           | \$ -                 |
| 102  | Storm Sewer                                 | LS   | 1        | \$ 157,000.00 | \$ 157,000.00          | 0.62              | \$ 97,340.00           | 62%              |                           | \$ -                 |
| 103  | Trim Subgrade                               | SY   | 65,393   | \$ 1.25       | \$ 81,741.25           | 61,002.00         | \$ 76,252.50           | 93%              | 5,998                     | \$ 7,497.50          |
| 104  | Treatment of subgrade - 12"Fly ash & 4" AB3 | SY   | 65,425   | \$ 9.33       | \$ 610,415.25          | 46,887.00         | \$ 437,455.71          | 72%              |                           | \$ -                 |
|      | <b>Parking Lot/ Access Drives Sub Total</b> |      |          |               | <b>\$ 3,821,846.50</b> |                   | <b>\$ 2,534,600.21</b> | <b>66%</b>       |                           | <b>\$ 186,757.50</b> |

|     | <b>Rock Chalk Lane and Rock Chalk Parkway</b> | <b>Unit</b> | <b>Quantity</b> | <b>Unit cost</b> | <b>Total</b>         |          |                      |            |          |                      |
|-----|-----------------------------------------------|-------------|-----------------|------------------|----------------------|----------|----------------------|------------|----------|----------------------|
| 105 | Unclassified excavation                       | CY          | 3,017           | \$ 5.00          | \$ 15,085.00         | 3,017.00 | \$ 15,085.00         | 100%       |          | \$ -                 |
| 106 | Compacted fill                                | CY          | 2,920           | \$ 1.00          | \$ 2,920.00          | 2,920.00 | \$ 2,920.00          | 100%       |          | \$ -                 |
| 107 | Site restoration                              | LS          | 1               | \$ 5,000.00      | \$ 5,000.00          |          | \$ -                 | 0%         |          | \$ -                 |
| 108 | 8" NRDJ Portland cement                       | SY          | 9,524           | \$ 50.00         | \$ 476,200.00        | 7,963.00 | \$ 398,150.00        | 84%        | 1,728.00 | \$ 86,400.00         |
| 109 | CG-1 curb and gutter                          | LF          | 5,109           | \$ 16.00         | \$ 81,744.00         | 4,561.00 | \$ 72,976.00         | 89%        | 405.00   | \$ 6,480.00          |
| 110 | 6" x 10' Fiber rec path                       | SY          | 5,163           | \$ 40.00         | \$ 206,520.00        |          | \$ -                 | 0%         |          | \$ -                 |
| 111 | 4" x 5' Sidewalk                              | SY          | 195             | \$ 30.00         | \$ 5,850.00          |          | \$ -                 | 0%         |          | \$ -                 |
| 112 | Access ramps                                  | EACH        | 51              | \$ 1,000.00      | \$ 51,000.00         |          | \$ -                 | 0%         |          | \$ -                 |
| 113 | Treatment of subgrade - 12" fly ash & 4"AB3   | SY          | 10,800          | \$ 9.33          | \$ 100,764.00        | 9,192.00 | \$ 85,761.36         | 85%        | 1,075.00 | \$ 10,029.75         |
|     |                                               |             |                 |                  | <b>\$ 945,083.00</b> |          | <b>\$ 574,892.36</b> | <b>61%</b> |          | <b>\$ 102,909.75</b> |

|     | <b>Chip and Seal County Road</b>           | <b>Unit</b> | <b>Quantity</b> | <b>Unit cost</b> | <b>Total</b>        |  |             |           |  |             |
|-----|--------------------------------------------|-------------|-----------------|------------------|---------------------|--|-------------|-----------|--|-------------|
| 114 | Chip and Seal                              | SY          | 10,000          | \$ 1.80          | \$ 18,000.00        |  | \$ -        | 0%        |  | \$ -        |
|     | <b>Chip and Seal County Road Sub Total</b> |             |                 |                  | <b>\$ 18,000.00</b> |  | <b>\$ -</b> | <b>0%</b> |  | <b>\$ -</b> |

|     | <b>Rec Center Pad</b>          | <b>Unit</b> | <b>Quantity</b> | <b>Unit cost</b> | <b>Total</b>         |           |                      |             |  |             |
|-----|--------------------------------|-------------|-----------------|------------------|----------------------|-----------|----------------------|-------------|--|-------------|
| 115 | Rock Excavation                | CY          | 18,000          | \$ 10.00         | \$ 180,000.00        | 18,000.00 | \$ 180,000.00        | 100%        |  | \$ -        |
| 116 | Dirt Excavation                | CY          | 10,000          | \$ 2.25          | \$ 22,500.00         | 10,000.00 | \$ 22,500.00         | 100%        |  | \$ -        |
| 117 | Compaction                     | CY          | 8,500           | \$ 1.10          | \$ 9,350.00          | 8,500.00  | \$ 9,350.00          | 100%        |  | \$ -        |
| 118 | Fly Ash 18"                    | SY          | 12,000          | \$ 8.00          | \$ 96,000.00         | 12,000.00 | \$ 96,000.00         | 100%        |  | \$ -        |
| 119 | AB3 Entire building Pad        | SY          | 20,100          | \$ 4.00          | \$ 80,400.00         | 20,100.00 | \$ 80,400.00         | 100%        |  | \$ -        |
| 120 | AB3 Additional depth rock area | SY          | 8,000           | \$ 5.50          | \$ 44,000.00         | 8,000.00  | \$ 44,000.00         | 100%        |  | \$ -        |
|     |                                |             |                 |                  | <b>\$ 432,250.00</b> |           | <b>\$ 432,250.00</b> | <b>100%</b> |  | <b>\$ -</b> |

|                    |                         |  |                        |            |  |                      |
|--------------------|-------------------------|--|------------------------|------------|--|----------------------|
| <b>GRAND TOTAL</b> | <b>\$ 12,265,168.65</b> |  | <b>\$ 6,369,546.31</b> | <b>52%</b> |  | <b>\$ 955,557.88</b> |
|--------------------|-------------------------|--|------------------------|------------|--|----------------------|

## ESTIMATE OF WORK COMPLETE

DATE: November 30, 2013

FOR PERIOD: November 2013

ESTIMATE No.: 5

PROJECT LOCATION: Rock Chalk Site Work

ESTIMATE ON LUMP SUM &amp; GRADING ITEMS

| ITEM | DESCRIPTION                                    | UNIT | QUANTITY     | CONTRACTED |                  | COMPLETED TO DATE |        | Percent Complete | COMPLETED THIS PAY PERIOD |        |
|------|------------------------------------------------|------|--------------|------------|------------------|-------------------|--------|------------------|---------------------------|--------|
|      |                                                |      |              | UNIT PRICE | AMOUNT           | UNIT              | AMOUNT |                  | UNIT                      | AMOUNT |
|      | General Total                                  | \$   | 418,210.00   | 19%        | \$ 2,194,851.00  |                   |        |                  |                           |        |
|      | Site Grading Total                             | \$   | 750,500.00   | 88%        | \$ 850,500.00    |                   |        |                  |                           |        |
|      | Retention Ponds Total                          | \$   | 156,250.00   | 100%       | \$ 156,250.00    |                   |        |                  |                           |        |
|      | Eight Lighted Tennis Courts Total              | \$   | -            | 0%         | \$ 1,214,520.00  |                   |        |                  |                           |        |
|      | Waterline Total                                | \$   | 462,522.49   | 99%        | \$ 468,061.65    |                   |        |                  |                           |        |
|      | Sanitary Sewer Total                           | \$   | 174,191.50   | 107%       | \$ 162,842.50    |                   |        |                  |                           |        |
|      | Storm Sewer Total                              | \$   | 82,688.75    | 100%       | \$ 82,688.75     |                   |        |                  |                           |        |
|      | Parking Lot Lights Total                       | \$   | 44,500.00    | 19%        | \$ 240,000.00    |                   |        |                  |                           |        |
|      | Landscaping Total                              | \$   | 50,000.00    | 9%         | \$ 583,850.00    |                   |        |                  |                           |        |
|      | Rock Chalk Drive and George Williams Way Total | \$   | 688,941.00   | 67%        | \$ 1,026,225.25  |                   |        |                  |                           |        |
|      | Overflow Parking Lot Total                     | \$   | -            | 0%         | \$ 68,200.00     |                   |        |                  |                           |        |
|      | Parking Lot/ Access Drives Total               | \$   | 2,534,600.21 | 66%        | \$ 3,821,846.50  |                   |        |                  |                           |        |
|      | Rock Chalk Lane and Rock Chalk Parkway Total   | \$   | 574,892.36   | 61%        | \$ 945,083.00    |                   |        |                  |                           |        |
|      | Chip and Seal County Road Total                | \$   | -            | 0%         | \$ 18,000.00     |                   |        |                  |                           |        |
|      | Rec Center Pad Total                           | \$   | 432,250.00   | 100%       | \$ 432,250.00    |                   |        |                  |                           |        |
|      | Grand Total                                    | \$   | 6,369,546.31 | 52%        | \$ 12,265,168.65 |                   |        |                  |                           |        |

| CHANGE ORDERS: |                                           |      |          | CONTRACTED |        | COMPLETED TO DATE |        | Percent Complete | COMPLETED THIS PAY PERIOD |        |
|----------------|-------------------------------------------|------|----------|------------|--------|-------------------|--------|------------------|---------------------------|--------|
| ITEM           | DESCRIPTION                               | UNIT | QUANTITY | UNIT PRICE | AMOUNT | UNIT              | AMOUNT |                  | UNIT                      | AMOUNT |
| 1              | 4" Conduit                                | LF   | 10000    |            | \$ -   | 7737              | \$ -   |                  |                           | \$ -   |
| 2              | 3" Conduit for Security Cameras           | LF   | 600      |            | \$ -   | 600               | \$ -   |                  |                           | \$ -   |
| 3              | Treatment of subgrade 9" flyash RCD & GWW | SY   | 11825    |            | \$ -   | 11211             | \$ -   | 95%              | 2342.25                   | \$ -   |
| 4              | 12" HDPE Storm Pipe                       | LF   | 42       |            | \$ -   | 42                | \$ -   | 100%             | 42                        | \$ -   |
| 5              | 12" CMP End Section                       | EA   | 1        |            | \$ -   |                   | \$ -   |                  |                           | \$ -   |
| 6              | Subgrade 12" Crushed Conc. Parking Lot    | SY   |          |            | \$ -   | 5998              | \$ -   |                  | 5998                      | \$ -   |
|                | CHANGE ORDER TOTAL:                       |      |          |            | \$ -   |                   | \$ -   |                  |                           | \$ -   |

|             |  |  |  |  |                  |  |                 |  |               |
|-------------|--|--|--|--|------------------|--|-----------------|--|---------------|
| GRAND TOTAL |  |  |  |  | \$ 12,265,168.65 |  | \$ 6,369,546.31 |  | \$ 955,557.88 |
|-------------|--|--|--|--|------------------|--|-----------------|--|---------------|

DATE: November 30, 2013

ESTIMATE No.: 5

PROJECT LOCATION: Rock Chalk Site Work

ESTIMATE OF WORK COMPLETE  
FOR PERIOD: November 2013

ESTIMATE ON LUMP SUM & GRADING ITEMS

| ITEM | DESCRIPTION | UNIT | QUANTITY | CONTRACTED |        | COMPLETED TO DATE |        | Percent Complete | COMPLETED THIS PAY PERIOD |        |
|------|-------------|------|----------|------------|--------|-------------------|--------|------------------|---------------------------|--------|
|      |             |      |          | UNIT PRICE | AMOUNT | UNIT              | AMOUNT |                  | UNIT                      | AMOUNT |

AMOUNT OF CURRENT CONTRACT: \$ 12,265,168.65

AMOUNT OF ORIGINAL CONTRACT: \$ 12,265,168.65

TOTAL WORK COMPLETED TO DATE: \$ 6,369,546.31

TOTAL PREVIOUS PAYMENTS: \$ -

AMOUNT COMPLETED THIS PAY PERIOD: \$ 955,557.88



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## FIELD REPORT

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**Project:** Rock Chalk Park  
**City & State:** City of Lawrence  
**Job No.:** 13-1557L  
**Contractor:** Bliss Sports

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CONSTRUCTION LOG: November 30, 2013

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8:00 AM Arrived at project site. The Contractor is completing prep work to place the concrete pavement at the north end of George Williams Way and the tie-in to a private drive.

Work to be corrected includes:

- 1) Install tie bars for curb/gutter and pavement.
- 2) Install dowel baskets for contraction joints. The contractor does not have a joint layout for this work. This location was revised from a three leg intersection to a radius sweep.
- 3) The curb and gutter has already been placed but the curb joints do not match the pavement joints.
- 4) Clean headers at both ends of placement to a vertical face.
- 5) The construction joint at the Private Drive has dowels in the right lane and deformed tie bars in the left lane. Casey Stewart informed me that is how all the joints are and he would not change it (see photo). Some dowels are bent into the subgrade (see photos).

9:00 AM Concrete arrived at the project but the prep work has yet to be completed.

Continued to drill and drive 30" epoxy tie bars at 24" OC. Originally only 3" to 4" embedment. Contractor not using epoxy to install bars. Requested Buddy increase embedment. They drove bars another 2" to 3".

Set dowel baskets to the Contractor's layout (see photos). Asked the Contractor to mark location of baskets with paint for initial sawcut of the pavement. They did not have paint so they used metal pins. It appeared that several pins were moved during the concrete placement.

The Contractor began placing concrete for pavement. Hand vibrating concrete. Grade pins at CL for a normal crown.

Depth checks for 10" pavement satisfactory.

The private drive was 8" at the header.

The Contractor is not cutting the tie wire on the dowel baskets after staking the basket. Stated they have not cut the ties on any baskets for this project.



1:00 PM The Contractor also placed 8" concrete pavement entrance to the parking lot just west of the end of George Williams Way. No tie bars for the curb/gutter and pavement.

Inspector: Carlson

Hrs: 1 ½ RT  
5 OT





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PHOTO LOG:

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Construction joint on George Williams Way.



Private Drive to Parking Lot Entrance  
No tie bars to Curb and gutter.





No tie bars. Requested Contractor install epoxy coated bar to be drilled and grouted.



Placing concrete.



Bent dowel bars.



Began placing 10" concrete pavement.





Backing ready-mix truck over smooth dowels.



Dowel basket in the west bound lane.

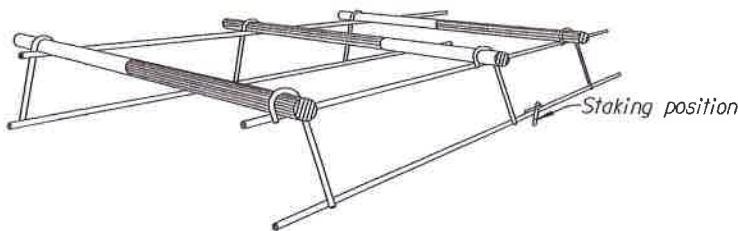


Vibrating concrete.



Backed ready-mix truck over dowel bars.  
Note deformed tie bars in Left Lane.





PERSPECTIVE VIEW

| STATE  | PROJECT NO.     | YEAR | SHEET NO |
|--------|-----------------|------|----------|
| KANSAS | 24-BIKA 0459-01 | 2007 | 34       |

#### GENERAL NOTE

Dowel bar insertion may be by mechanical dowel placers regardless of the joint spacing.

Each dowel bar shall be coated with an epoxy coating that meets the standard specifications. The coating material shall be a powdered epoxy resin approved by the Chief, Bureau of Materials and Research and shall be uniformly applied according to accepted practices and the resin manufacturer recommendations. For Alt. 1 the coating need not be applied to the end face of the bars and will not be required within 2' of the end which will be fixed in the supporting basket by welding.

The cutting to length of the dowel bars shall be done in such a manner to result in no appreciable deformation of the ends.

#### Alt. 1 (Baskets)

Wire sizes shown are minimum required.

Basket to be staked to sub-grade, as shown. Ramset or similar type fastener with clip to be used when subgrade condition requires it.

A string line shall be stretched between the pavement forms along the center line of the joint. The position of the joint shall be carefully marked so that the saw cut will coincide with the center line of the joint.

In order to identify the location of the bond breaker application, the working end of dowel and the supporting leg shall receive a light application of red paint at the place of fabrication. The bond breaker to be applied in the field prior to concrete placement shall consist of coating approximately three-fifths of the length of each dowel bar with hard grease at the work end identified by the red paint.

The entire joint assembly shall be carefully leveled so that the dowels are parallel to the slab surface and free to slide in the dowel holders. Any coating scraped off the dowels in assembling the joint shall be replaced.

After the complete contraction joint is assembled, it shall be checked to be certain that the vertical plane of the joint will be perpendicular to the finished surface of the slab and at a right angle with the center line of the slab unless shown otherwise on the plans. The dowels shall be checked to be certain that they are level and will remain in a position parallel with the finished surface of the slab.

Concrete shall be placed over and adjacent to the joint in accordance with the requirements of the Specifications.

Other approved designs may be used in lieu of the type shown.

#### Alt. 2 (Mechanical placement)

Joint spacing shall be normal to centerline.

The pavement shall be placed and consolidated to full depth prior to insertion of the dowel bars.

The dowel bars shall be coated with a bond breaking agent prior to insertion into the plastic concrete.

The dowel bars shall be inserted into the plastic concrete ahead of the finishing beam or screed.

The installing device shall consolidate the concrete around the dowel bars such that no voids exist, without the supplemental use of hand held vibrators.

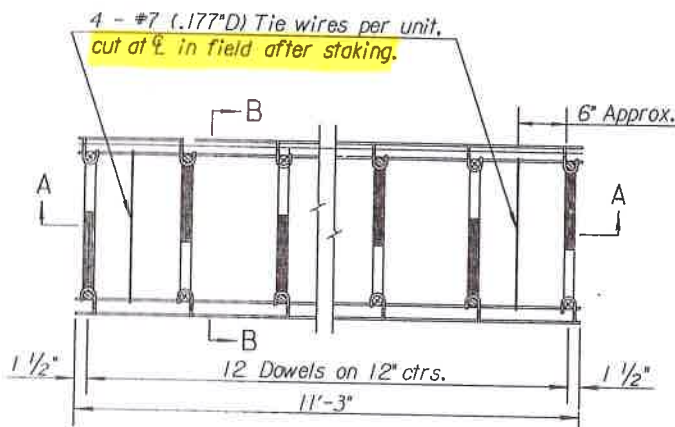
The dowel bars shall be located within one inch of the planned transverse location and within the range of depth of  $D/2 \pm 0.1 D$  measured from mid depth and mid length of the bar where 'D' represents the pavement thickness.

The dowel bars shall be located within two inches of the planned longitudinal location.

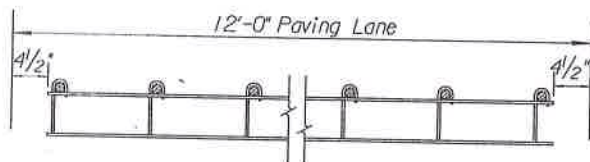
The dowel bars shall be parallel to the pavement surface and centerline within a tolerance of one half inch in 18 inches in both the vertical and horizontal direction.

The forward movement of the finishing beam or screed shall not be interrupted by the inserting of the dowel bars.

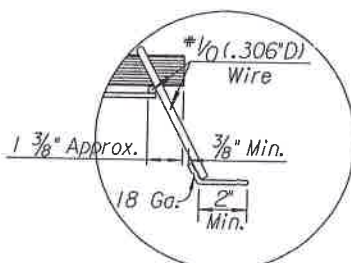
A positive method of marking the locations of the transverse joints shall be provided.



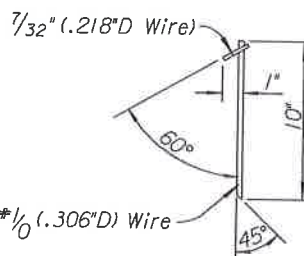
PLAN VIEW



SEC. A-A



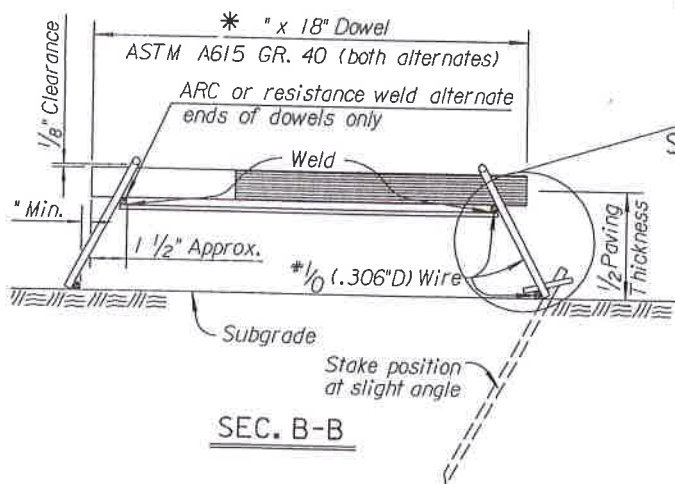
SAND PLATE (Alt. 1)



STAKE DETAIL

(6 Pieces minimum required)

\* See pavement details for size of dowels.



SEC. B-B

CONTRACTION JOINT

| NO. | DATE    | REVISIONS                               | BY     | A  |
|-----|---------|-----------------------------------------|--------|----|
| 8   | 2-15-06 | Chg. Grade 60 to Grade 40 Steel         | S.W.K. | J. |
| 7   | 5-5-04  | Revision on Epoxy coating               | S.W.K. | J. |
| 6   | 4-9-03  | Rev. General Note on Epoxy coating      | S.W.K. | J. |
| 5   | 4-24-90 | Revised notes, added Alt. 1&2 Cont. Jt. | R.J.S. | J. |

KANSAS DEPARTMENT OF TRANSPORTATION

CONTRACTION & EXPANSION JT.  
DOWEL ASSEMBLIES

RD735

FHWA APPROVAL 4-20-06 APP'D. James D. Brewer