

July 2014

# West Sacramento General Reevaluation Report



**US Army Corps  
of Engineers**®  
Sacramento District



**Draft Report  
Documentation  
Cost Engineering  
Report**



**Cover Photo**  
**Sacramento River, West Sacramento, and Yolo Bypass, March 2011**  
**Photo courtesy of Chris Austin.**

**WEST SACRAMENTO PROJECT, CALIFORNIA  
GENERAL REEVALUATION REPORT**

**Draft Report Documentation**

**Cost Engineering Report**

**Basis of Estimate**

**U.S. Army Corps of Engineers  
Sacramento District**

**July 2014**

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**WEST SACRAMENTO PROJECT, CALIFORNIA  
GENERAL REEVALUATION REPORT**

**Cost Engineering Report**

**TABLE OF CONTENTS**

<b>1 - SACRAMENTO RIVER SOUTH SETBACK LEVEL</b> .....	<b>1-5</b>
1.1 PROJECT LOCATION .....	1-5
1.2 BASIS OF ESTIMATE.....	1-5
<b>2 - TRAINING DIKE</b> .....	<b>2-1</b>
2.1 PROJECT LOCATION .....	2-1
2.2 BASIS OF ESTIMATE.....	2-1
2.3 CONSTRUCTION SCHEDULE .....	2-1
2.4 CONSTRUCTION WINDOWS.....	2-1
2.5 OVERTIME .....	2-1
2.6 ACQUISITION PLAN .....	2-1
2.7 CONTRACTING PLAN.....	2-1
2.8 PROJECT CONSTRUCTION SITE ACCESS.....	2-1
2.9 CONSTRUCTION METHODOLOGY .....	2-1
2.10 SPK - BORROW / DISPOSAL AREAS .....	2-2
2.11 UNUSUAL CONDITIONS.....	2-2
2.12 UNIQUE TECHNIQUES OF CONSTRUCTION.....	2-2
2.13 SPK - EQUIPMENT, LABOR RATES, MATERIAL AND OTHER COSTS .....	2-2
2.14 ENVIRONMENTAL CONCERNS.....	2-2
2.15 COST AND PRICING CONTINGENCIES - PROFIT – ESCALATION.....	2-2
<b>3 - YOLO BYPASS LEVEL</b> .....	<b>3-1</b>
3.1 PROJECT LOCATION .....	3-1
3.2 BASIS OF ESTIMATE.....	3-1
3.3 CONSTRUCTION SCHEDULE .....	3-1
3.4 CONSTRUCTION WINDOWS.....	3-1
3.5 OVERTIME .....	3-1
3.6 ACQUISITION PLAN .....	3-1
3.7 CONTRACTING PLAN.....	3-1
3.8 PROJECT CONSTRUCTION SITE ACCESS.....	3-2
3.9 CONSTRUCTION METHODOLOGY .....	3-2
3.10 SPK - BORROW / DISPOSAL AREAS .....	3-2
3.11 UNUSUAL CONDITIONS.....	3-2
3.12 UNIQUE TECHNIQUES OF CONSTRUCTION.....	3-2
3.13 EQUIPMENT, LABOR RATES, MATERIAL AND OTHER COSTS .....	3-2
3.14 ENVIRONMENTAL CONCERNS.....	3-2
3.15 COST AND PRICING CONTINGENCIES - PROFIT – ESCALATION.....	3-2
<b>4 - LOCK CLOSURE LEVEL</b> .....	<b>4-1</b>
4.1 PROJECT LOCATION .....	4-1
4.2 BASIS OF ESTIMATE.....	4-1
4.3 CONSTRUCTION SCHEDULE .....	4-1
4.4 CONSTRUCTION WINDOWS.....	4-1

4.5	OVERTIME .....	4-1
4.6	ACQUISITION PLAN .....	4-1
4.7	CONTRACTING PLAN .....	4-1
4.8	PROJECT CONSTRUCTION SITE ACCESS.....	4-1
4.9	CONSTRUCTION METHODOLOGY .....	4-2
4.10	BORROW / DISPOSAL AREAS .....	4-2
4.11	UNUSUAL CONDITIONS.....	4-2
4.12	UNIQUE TECHNIQUES OF CONSTRUCTION.....	4-2
4.13	EQUIPMENT, LABOR RATES, MATERIAL AND OTHER COSTS .....	4-2
4.14	ENVIRONMENTAL CONCERNS.....	4-2
4.15	COST AND PRICING CONTINGENCIES - PROFIT – ESCALATION.....	4-2
<b>5</b>	<b>- DEEP WATER SHIP CHANNEL WEST LEVEL 0+00 TO 123+00 .....</b>	<b>5-1</b>
5.1	PROJECT LOCATION .....	5-1
5.2	BASIS OF ESTIMATE.....	5-1
5.3	CONSTRUCTION SCHEDULE .....	5-1
5.4	CONSTRUCTION WINDOWS.....	5-1
5.5	OVERTIME .....	5-1
5.6	ACQUISITION PLAN .....	5-1
5.7	CONTRACTING PLAN.....	5-1
5.8	PROJECT CONSTRUCTION SITE ACCESS.....	5-1
5.9	CONSTRUCTION METHODOLOGY .....	5-2
5.10	BORROW / DISPOSAL AREAS .....	5-2
5.11	UNUSUAL CONDITIONS.....	5-2
5.12	UNIQUE TECHNIQUES OF CONSTRUCTION.....	5-2
5.13	EQUIPMENT, LABOR RATES, MATERIAL AND OTHER COSTS .....	5-2
5.14	ENVIRONMENTAL CONCERNS.....	5-2
5.15	COST AND PRICING CONTINGENCIES - PROFIT – ESCALATION.....	5-2
<b>6</b>	<b>- DEEP WATER SHIP CHANNEL WEST LEVEL 123+00 TO 1002+60 .....</b>	<b>6-1</b>
6.1	PROJECT LOCATION .....	6-1
6.2	BASIS OF ESTIMATE.....	6-1
6.3	CONSTRUCTION SCHEDULE .....	6-1
6.4	CONSTRUCTION WINDOWS.....	6-1
6.5	OVERTIME .....	6-1
6.6	ACQUISITION PLAN .....	6-1
6.7	CONTRACTING PLAN.....	6-2
6.8	PROJECT CONSTRUCTION SITE ACCESS.....	6-2
6.9	CONSTRUCTION METHODOLOGY .....	6-2
6.10	BORROW / DISPOSAL AREAS .....	6-2
6.11	UNUSUAL CONDITIONS.....	6-2
6.12	UNIQUE TECHNIQUES OF CONSTRUCTION.....	6-2
6.13	EQUIPMENT, LABOR RATES, MATERIAL AND OTHER COSTS .....	6-2
6.14	ENVIRONMENTAL CONCERNS.....	6-3
6.15	COST AND PRICING CONTINGENCIES - PROFIT – ESCALATION.....	6-3
<b>7</b>	<b>- SOUTH CROSS LEVEL .....</b>	<b>7-1</b>
7.1	PROJECT LOCATION .....	7-1
7.2	BASIS OF ESTIMATE.....	7-1
7.3	CONSTRUCTION SCHEDULE .....	7-1

7.4	CONSTRUCTION WINDOWS.....	7-1
7.5	OVERTIME .....	7-1
7.6	ACQUISITION PLAN .....	7-1
7.7	CONTRACTING PLAN.....	7-1
7.8	PROJECT CONSTRUCTION SITE ACCESS.....	7-2
7.9	CONSTRUCTION METHODOLOGY .....	7-2
7.10	BORROW / DISPOSAL AREAS .....	7-2
7.11	UNUSUAL CONDITIONS.....	7-2
<b>8</b>	<b>- PORT NORTH LEVEE.....</b>	<b>8-1</b>
8.1	PROJECT LOCATION .....	8-1
8.2	BASIS OF ESTIMATE.....	8-1
8.3	CONSTRUCTION SCHEDULE .....	8-1
8.4	CONSTRUCTION WINDOWS.....	8-1
8.5	OVERTIME .....	8-1
8.6	ACQUISITION PLAN .....	8-1
8.7	CONTRACTING PLAN.....	8-1
8.8	PROJECT CONSTRUCTION SITE ACCESS.....	8-1
8.9	CONSTRUCTION METHODOLOGY .....	8-1
8.10	BORROW / DISPOSAL AREAS .....	8-2
8.11	UNUSUAL CONDITIONS.....	8-2
<b>9</b>	<b>- PORT SOUTH LEVEE .....</b>	<b>9-1</b>
9.1	PROJECT LOCATION .....	9-1
9.2	BASIS OF ESTIMATE.....	9-1
9.3	CONSTRUCTION SCHEDULE .....	9-1
9.4	CONSTRUCTION WINDOWS.....	9-1
9.5	OVERTIME .....	9-1
9.6	ACQUISITION PLAN .....	9-1
9.7	CONTRACTING PLAN.....	9-1
9.8	PROJECT CONSTRUCTION SITE ACCESS.....	9-1
9.9	CONSTRUCTION METHODOLOGY .....	9-1
9.10	BORROW / DISPOSAL AREAS .....	9-1
9.11	UNUSUAL CONDITIONS.....	9-2
<b>10</b>	<b>- DEEP WATER SHIP CHANNEL EAST – 0+00 TO 171+71.....</b>	<b>10-1</b>
10.1	PROJECT LOCATION .....	10-1
10.2	BASIS OF ESTIMATE.....	10-1
10.3	CONSTRUCTION SCHEDULE .....	10-1
10.4	CONSTRUCTION WINDOWS.....	10-1
10.5	OVERTIME .....	10-1
10.6	ACQUISITION PLAN .....	10-1
10.7	CONTRACTING PLAN.....	10-1
10.8	PROJECT CONSTRUCTION SITE ACCESS.....	10-1
10.9	CONSTRUCTION METHODOLOGY .....	10-1
10.10	BORROW / DISPOSAL AREAS.....	10-2
10.11	UNUSUAL CONDITIONS .....	10-2
<b>11</b>	<b>- DEEP WATER SHIP CHANNEL EAST – 115+00 TO 171+71.....</b>	<b>11-1</b>
11.1	PROJECT LOCATION .....	11-1
11.2	BASIS OF ESTIMATE.....	11-1

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11.3	CONSTRUCTION SCHEDULE .....	11-1
11.4	CONSTRUCTION WINDOWS.....	11-1
11.5	OVERTIME .....	11-1
11.6	ACQUISITION PLAN .....	11-1
11.7	CONTRACTING PLAN.....	11-1
11.8	PROJECT CONSTRUCTION SITE ACCESS.....	11-1
11.9	CONSTRUCTION METHODOLOGY .....	11-2
11.10	BORROW / DISPOSAL AREAS.....	11-2
11.11	UNUSUAL CONDITIONS .....	11-2
<b>12</b>	<b>- SACRAMENTO RIVER – NORTH LEVEE.....</b>	<b>12-1</b>
12.1	PROJECT LOCATION .....	12-1
12.2	BASIS OF ESTIMATE.....	12-1
12.3	CONSTRUCTION SCHEDULE .....	12-1
12.4	CONSTRUCTION WINDOWS.....	12-1
12.5	OVERTIME .....	12-1
12.6	ACQUISITION PLAN .....	12-1
12.7	CONTRACTING PLAN.....	12-1
12.8	PROJECT CONSTRUCTION SITE ACCESS.....	12-1
12.9	CONSTRUCTION METHODOLOGY .....	12-1
12.10	BORROW / DISPOSAL AREAS.....	12-2
12.11	UNUSUAL CONDITIONS .....	12-2



## **1 - SACRAMENTO RIVER SOUTH SETBACK LEVEE**

### **1.1 PROJECT LOCATION**

The work shall be located along the Sacramento River West Bank south of the Barge Canal to the South Cross Levee. Total project length is about 3,300 lineal feet. The exact location is shown on the plans.

### **1.2 BASIS OF ESTIMATE**

This estimate is based on the cost estimate developed by the non-Federal Partners.

## **2 - TRAINING DIKE**

### **2.1 PROJECT LOCATION**

The work shall be located along the South Training dike which is on the West end of the Sacramento Weir. Total project length is about 2,800 lineal feet on both sides of the levee. The exact location is shown on the plans.

### **2.2 BASIS OF ESTIMATE**

This estimate is from 20-25% plans provided by the Sacramento District. Preliminary quantities were developed and supplied by project engineers. Project consists of removing existing vegetation, installation of geo-fabric and then the placement of 36" thickness of rip rap on both the North and South faces of the levee/dike. There are no utilities anticipated to be relocated.

### **2.3 CONSTRUCTION SCHEDULE**

The estimate construction time for this project is 545 Calendar days.

### **2.4 CONSTRUCTION WINDOWS**

Estimate time is based on year round construction type productions. Schedule has been addressed to include typical weather delays November thru May. Project footprint generally will not allow for multiple crews.

### **2.5 OVERTIME**

This estimate assumes no overtime. In reality, 10 hour days may be used.

### **2.6 ACQUISITION PLAN**

The project plan of action will be accomplished by the bidding process, IFB, and will be awarded as a Firm Fixed-Price Construction Contract.

### **2.7 CONTRACTING PLAN**

The Prime Contractor is a general engineering contractor. Subcontractors are used very little.

### **2.8 PROJECT CONSTRUCTION SITE ACCESS**

Access will consist on only one entrance for tasks. Project access is over improved roadways. The project is located in and around West Sacramento, CA. These towns have required equipment available and labor is available locally and within a 50-mile distance from the project. The prime contractor is likely to be from the immediate area.

### **2.9 CONSTRUCTION METHODOLOGY**

The construction methodologies are standard and do not include much in the way of new and emerging techniques.

**2.10 SPK - BORROW / DISPOSAL AREAS**

The scope of work for this reach requires very little in the way of export. Grass striping are assumed to be disposed of at the Yolo County Landfill and material appears to be acceptable to the landfill at this time. No borrow material is assumed to be needed. Project consists of importing rip rap from the Teichert Quarry located in Cool, CA.

**2.11 UNUSUAL CONDITIONS**

Due the scope of work, no unusual conditions are anticipated to be encountered.

**2.12 UNIQUE TECHNIQUES OF CONSTRUCTION**

None are anticipated.

**2.13 SPK - EQUIPMENT, LABOR RATES, MATERIAL AND OTHER COSTS**

Equipment and labor is available locally or within a 50-mile radius that includes the Cities of West Sacramento and Sacramento, CA.

This estimate uses Davis Bacon labor rates for Yolo County, California, General Decision Number NV130030 03/22/2013 NV30.

Equipment rates used are from EP11R07, Volume 7, Region 7, 2011. Fuel prices were adjusted to current rates. Material prices were obtained from quotes, supply catalogs, historical data, and the MCACES Unit Price Book.

**2.14 ENVIRONMENTAL CONCERNS**

No environmental concerns beyond the Environmental Protection Requirements.

**2.15 COST AND PRICING CONTINGENCIES - PROFIT – ESCALATION**

10% contingency is included based on Cost Risk Analysis. Profit is included in this estimate, determined by using the weighted guidelines method, at 6% for the Prime Contractor. Sales tax is 8.25%. For the Prime Contractor, Job Office Overhead is 7.5%, Home Office Overhead is 8.5%, and Bond is 2.5%.

## **3 - YOLO BYPASS LEVEE**

### **3.1 PROJECT LOCATION**

The work shall be located along the East side of the Yolo Bypass which is on the West end of the Sacramento Weir. Total project length is about 6,460 lineal feet on both sides of the levee. The exact location is shown on the plans from Station 0+00 to 64+60 which is south of Highway 80 approximately 1500 feet.

### **3.2 BASIS OF ESTIMATE**

This estimate is from 20-25% plans provided by the Sacramento District. Preliminary quantities were developed and supplied by project engineers This reach consists of degrading the existing levee to approx. elevation 28 which will allow for a 30' wide working bench be built. This material will be stockpiled and reused during the reconstruction of the levee. Additional impervious fill material (clay cap) will be installed as well. A 3' thick soil/Bentonite slurry wall varying from 78' to 38' deep from the working platform will be installed. Additional fill will also be placed on the landside of the levee at stations as shown on plans. The project will required the relocation of 2 power poles as well as 230' of 12" water line which runs parallel to the levee. At completion, a 20' wide aggregate base road 4" thick will be placed.

### **3.3 CONSTRUCTION SCHEDULE**

The estimate construction time for this project is 545 Calendar days.

### **3.4 CONSTRUCTION WINDOWS**

Estimate time is based on year round construction type productions. Schedule has been addressed to include typical weather delays November thru May. Project footprint generally will not allow for multiple crews.

### **3.5 OVERTIME**

This estimate assumes 10 hour days will be used.

### **3.6 ACQUISITION PLAN**

The project plan of action will be accomplished by the bidding process, IFB, and will be awarded as a Firm Fixed-Price Construction Contract.

### **3.7 CONTRACTING PLAN**

The Prime Contractor is a general engineering contractor. Subcontractors are used very little.

### **3.8 PROJECT CONSTRUCTION SITE ACCESS**

Access will consist of tow entrances that will be coordinated as work progresses. Project access is over improved roadways. The project is located in and around West Sacramento, CA. These towns have required equipment available and labor is available locally and within a 50-mile distance from the project. The prime contractor is likely to be from the immediate area.

### **3.9 CONSTRUCTION METHODOLOGY**

The construction methodologies are standard and do not include much in the way of new and emerging techniques.

### **3.10 SPK - BORROW / DISPOSAL AREAS**

The scope of work for this reach requires very little in the way of export. Grass striping is assumed to be disposed of at the Yolo County Landfill and material appears to be acceptable to the landfill at this time. No borrow material is assumed to be needed. Project consists of importing rip rap from the Teichert Quarry located in Cool, CA.

### **3.11 UNUSUAL CONDITIONS**

Due the scope of work, no unusual conditions are anticipated to be encountered.

### **3.12 UNIQUE TECHNIQUES OF CONSTRUCTION**

None are anticipated.

### **3.13 EQUIPMENT, LABOR RATES, MATERIAL AND OTHER COSTS**

Equipment and labor is available locally or within a 50-mile radius that includes the Cities of West Sacramento and Sacramento, CA.

This estimate uses Davis Bacon labor rates for Yolo County, California, General Decision Number NV130030 03/22/2013 NV30.

Equipment rates used are from EP11R07, Volume 7, Region 7, 2011. Fuel prices were adjusted to current rates. Material prices were obtained from quotes, supply catalogs, historical data, and the MCACES Unit Price Book.

### **3.14 ENVIRONMENTAL CONCERNS**

No environmental concerns beyond the Environmental Protection Requirements.

### **3.15 COST AND PRICING CONTINGENCIES - PROFIT – ESCALATION**

10% contingency is included based on Cost Risk Analysis. Profit is included in this estimate, determined by using the weighted guidelines method, at 6% for the Prime Contractor. Sales tax is 8.25%. For the Prime Contractor, Job Office Overhead is 7.5%, Home Office Overhead is 8.5%, and Bond is 2.5%.

## **4 - LOCK CLOSURE LEVEE**

### **4.1 PROJECT LOCATION**

The work shall be located at the East end of the Barge Canal located in West Sacramento and connects to the Sacramento River. The Lock is no longer active. Total project length is about 500 lineal feet on both sides of the canal. The footprint extends from the end of to the south side of the barge canal.

### **4.2 BASIS OF ESTIMATE**

This estimate is from 20-25% plans provided by the Sacramento District. Preliminary quantities were developed and supplied by project engineers. Project consists of placing sheet piling, removal of existing concrete and needed, removal of vegetation and trees in footprint area. Importation of 230,000 CY of embankment will be required to bring top of levee to grade. There will also be minor utility relocations as well.

### **4.3 CONSTRUCTION SCHEDULE**

The estimate construction time for this project is 545 Calendar days.

### **4.4 CONSTRUCTION WINDOWS**

Estimate time is based on year round construction type productions. Schedule has been addressed to include typical weather delays November thru May. Project footprint generally will not allow for multiple crews.

### **4.5 OVERTIME**

This estimate assumes 10 hour days will be used.

### **4.6 ACQUISITION PLAN**

The project plan of action will be accomplished by the bidding process, IFB, and will be awarded as a Firm Fixed-Price Construction Contract.

### **4.7 CONTRACTING PLAN**

The Prime Contractor is a general engineering contractor. Subcontractors are used very little.

### **4.8 PROJECT CONSTRUCTION SITE ACCESS**

Access will consist of two entrances that will be coordinated as work progresses. Project access is over improved roadways. This town has required equipment available and labor is available locally and within a 50-mile distance from the project. The prime contractor is likely to be from the immediate area.

#### **4.9 CONSTRUCTION METHODOLOGY**

The construction methodologies are standard and do not include much in the way of new and emerging techniques.

#### **4.10 BORROW / DISPOSAL AREAS**

The scope of work for this reach requires very little in the way of export. Grass striping is assumed to be disposed of at the Yolo County Landfill and material appears to be acceptable to the landfill at this time. Approximately 230,000 CY of borrow material is assumed to be needed. Estimate assumes that there will be a 40 mile haul (one direction) from the borrow site to the construction site.

#### **4.11 UNUSUAL CONDITIONS**

Due the scope of work, no unusual conditions are anticipated to be encountered. Dewatering will be the most unusual condition to have to contend with.

#### **4.12 UNIQUE TECHNIQUES OF CONSTRUCTION**

None are anticipated.

#### **4.13 EQUIPMENT, LABOR RATES, MATERIAL AND OTHER COSTS**

Equipment and labor is available locally or within a 50-mile radius that includes the Cities of West Sacramento and Sacramento, CA.

This estimate uses Davis Bacon labor rates for Yolo County, California, General Decision Number NV130030 03/22/2013 NV30.

Equipment rates used are from EP11R07, Volume 7, Region 7, 2011. Fuel prices were adjusted to current rates. Material prices were obtained from quotes, supply catalogs, historical data, and the MCACES Unit Price Book.

#### **4.14 ENVIRONMENTAL CONCERNS**

No environmental concerns beyond the Environmental Protection Requirements.

#### **4.15 COST AND PRICING CONTINGENCIES - PROFIT – ESCALATION**

10% contingency is included based on Cost Risk Analysis. Profit is included in this estimate, determined by using the weighted guidelines method, at 6% for the Prime Contractor. Sales tax is 8.25%. For the Prime Contractor, Job Office Overhead is 7.5%, Home Office Overhead is 8.5%, and Bond is 2.5%.

## **5 - DEEP WATER SHIP CHANNEL WEST LEVEE 0+00 TO 123+00**

### **5.1 PROJECT LOCATION**

The work shall be located starting approximately 2,800 ft South from the end of Channel Drive located in West Sacramento. This reach will then extend 12,300 ft south along the DWSC West Levee.

### **5.2 BASIS OF ESTIMATE**

This estimate is from 20-25% plans provided by the Sacramento District. Preliminary quantities were developed and supplied by project engineers. Project will consist of striping and stockpiling this soil for reuse on the levee at completion where rip rap is not to be placed. Existing levee is to be degraded per plans, and then a Soil/Bentonite Slurry Wall is to be constructed to depths using the Deep Soil Mixing technique. Soil will then be replaced consisting of impervious fill as well as degraded material as shown on project details. A portion of this reach will receive new rip rap and the existing rip rap removed for the degrade will be replaced. There are no known utility relocations with the exception of replacing the maintenance road at the crown of the levee at completion.

### **5.3 CONSTRUCTION SCHEDULE**

The estimate construction time for this project is 545 Calendar days.

### **5.4 CONSTRUCTION WINDOWS**

Estimate time is based on year round construction type productions. Schedule has been addressed to include typical weather delays November thru May. Project footprint generally will not allow for multiple crews.

### **5.5 OVERTIME**

This estimate assumes 10 hour days will be used.

### **5.6 ACQUISITION PLAN**

The project plan of action will be accomplished by the bidding process, IFB, and will be awarded as a Firm Fixed-Price Construction Contract.

### **5.7 CONTRACTING PLAN**

The Prime Contractor is a general engineering contractor. Subcontractors used will depend on whether the prime is the earthwork contractor or the slurry wall contractor. One or the other will be the prime and the major subcontractors will be the other major subcontractor.

### **5.8 PROJECT CONSTRUCTION SITE ACCESS**

Access will consist of two entrances that will be coordinated as work progresses. Project access is over improved roadways. The project is located in and around West Sacramento, CA. These towns have



required equipment available and labor is available locally and within a 50-mile distance from the project. The prime contractor is likely to be from the immediate area.

## **5.9 CONSTRUCTION METHODOLOGY**

The construction methodologies are standard and do not include much in the way of new and emerging techniques.

## **5.10 BORROW / DISPOSAL AREAS**

The scope of work for this reach requires very little in the way of export. Grass striping are assumed to be disposed of at the Yolo County Landfill and material appears to be acceptable to the landfill at this time. Approximately 230,000 CY of borrow material is assumed to be needed. Estimate assumes that there will be a 40 mile haul (one direction) from the borrow site to the construction site.

## **5.11 UNUSUAL CONDITIONS**

Due the scope of work, no unusual conditions are anticipated to be encountered. Dewatering will be the most unusual condition to have to contend with.

## **5.12 UNIQUE TECHNIQUES OF CONSTRUCTION**

None are anticipated.

## **5.13 EQUIPMENT, LABOR RATES, MATERIAL AND OTHER COSTS**

Equipment and labor is available locally or within a 50-mile radius that includes the Cities of West Sacramento and Sacramento, CA.

This estimate uses Davis Bacon labor rates for Yolo County, California, General Decision Number NV130030 03/22/2013 NV30.

Equipment rates used are from EP11R07, Volume 7, Region 7, 2011. Fuel prices were adjusted to current rates. Material prices were obtained from quotes, supply catalogs, historical data, and the MCACES Unit Price Book.

## **5.14 ENVIRONMENTAL CONCERNS**

No environmental concerns beyond the Environmental Protection Requirements.

## **5.15 COST AND PRICING CONTINGENCIES - PROFIT – ESCALATION**

10% contingency is included based on Cost Risk Analysis. Profit is included in this estimate, determined by using the weighted guidelines method, at 6% for the Prime Contractor. Sales tax is 8.25%. For the Prime Contractor, Job Office Overhead is 7.5%, Home Office Overhead is 8.5%, and Bond is 2.5%.

## **6 - DEEP WATER SHIP CHANNEL WEST LEVEE 123+00 TO 1002+60**

### **6.1 PROJECT LOCATION**

The work shall be located starting approximately 15,100 ft South from the end of Channel Drive located in West Sacramento. This reach will then extend 87,960 ft south along the DWSC West Levee.

### **6.2 BASIS OF ESTIMATE**

This estimate is from 20-25% plans provided by the Sacramento District. Preliminary quantities were developed and supplied by project engineers. Project will consist of striping and stockpiling this soil for reuse on the levee at completion where rip rap is not to be placed. There are approximately 15 trees known to be removed at this time. Existing levee is to be degraded per plans, and then a Soil/Bentonite Slurry Wall is to be constructed to depths using standard excavation technique. Soil will then be replaced consisting of impervious fill as well as degraded material as shown on project details. A major portion of this reach will receive new rip rap. There are no known utility relocations with the exception of replacing the maintenance road at the crown of the levee at completion. The current plans call for the installation of approximately 1,876,480 tons of rip rap. It is assumed that this rip rap will be barged in from a quarry located in San Rafael. Barging the material helps in regards to highway traffic, Air Resource Board issues. To be able to do this, offloading facility costs have been included as well as trucking of the rip rap to the final location. It should be noted that there is no navigable waters on the West side of the DWSC West Levee.

### **6.3 CONSTRUCTION SCHEDULE**

The estimate construction time for this project is 545 Calendar days.

### **6.4 CONSTRUCTION WINDOWS**

Estimate time is based on year round construction type productions. Schedule has been addressed to include typical weather delays November thru May. Project footprint generally will not allow for multiple crews.

### **6.5 OVERTIME**

This estimate assumes 10 hour days will be used.

### **6.6 ACQUISITION PLAN**

The project plan of action will be accomplished by the bidding process, IFB, and will be awarded as a Firm Fixed-Price Construction Contract.

## **6.7 CONTRACTING PLAN**

The Prime Contractor is a general engineering contractor. Minimal number of subcontractors will be used on this reach. It is assumed the rip rap supplier will include the haul cost consisting of water borne equipment.

## **6.8 PROJECT CONSTRUCTION SITE ACCESS**

Access will consist of one entrance, and up to 19 miles of levee will need to be traveled for workers. Project access for the slurry wall will be from West Sacramento, where as access for the rip rap material will be from the Deep Water Ship Channel. The project is located in and around West Sacramento, CA. These towns have required equipment available and labor is available locally and within a 50-mile distance from the project. The prime contractor is likely to be from the immediate area.

## **6.9 CONSTRUCTION METHODOLOGY**

The construction methodologies are standard and do not include much in the way of new and emerging techniques.

## **6.10 BORROW / DISPOSAL AREAS**

The scope of work for this reach requires very little in the way of export. Grass striping are assumed to be disposed of onsite. Approximately 52,000 CY of borrow material is assumed to be needed. Estimate assumes that there will be a 40 mile haul (one direction) from the borrow site to the construction site. It should be noted that the height deficiency does not extend to the south most end of the project.

## **6.11 UNUSUAL CONDITIONS**

Due the scope of work, no unusual conditions are anticipated to be encountered. Dewatering will be the most unusual condition to have to contend with.

## **6.12 UNIQUE TECHNIQUES OF CONSTRUCTION**

None are anticipated.

## **6.13 EQUIPMENT, LABOR RATES, MATERIAL AND OTHER COSTS**

Equipment and labor is available locally or within a 50-mile radius that includes the Cities of West Sacramento and Sacramento, CA.

This estimate uses Davis Bacon labor rates for Yolo County, California, General Decision Number NV130030 03/22/2013 NV30.

Equipment rates used are from EP11R07, Volume 7, Region 7, 2011. Fuel prices were adjusted to current rates. Material prices were obtained from quotes, supply catalogs, historical data, and the MCACES Unit Price Book.

**6.14 ENVIRONMENTAL CONCERNS**

No environmental concerns beyond the Environmental Protection Requirements.

**6.15 COST AND PRICING CONTINGENCIES - PROFIT – ESCALATION**

10% contingency is included based on Cost Risk Analysis. Profit is included in this estimate, determined by using the weighted guidelines method, at 6% for the Prime Contractor. Sales tax is 8.25%. For the Prime Contractor, Job Office Overhead is 7.5%, Home Office Overhead is 8.5%, and Bond is 2.5%.

## **7 - SOUTH CROSS LEVEE**

### **7.1 PROJECT LOCATION**

The project starts on the West end where Jefferson Blvd. meets the levee top of the Deep Water Ship Channel East Levee at approximate coordinates of Lat 38.504968 Lon -121.581885 and the East end meets the existing levee road at the Sacramento River at approximate coordinates of Lat 38.503016 Lon -121.560108 . This is an approximate length of 1.2 miles long project.

### **7.2 BASIS OF ESTIMATE**

This estimate is from 20-25% plans provided by the Sacramento District. Preliminary quantities were developed and supplied by project engineers. This reach design is an adjacent levee with an improved stability berm on the landside of the levee. Project will consist of striping and stockpiling this soil for reuse on the levee at completion where rip rap is not to be placed. There are approximately 100 trees known to be removed at this time. There are several homes, barns and other out buildings that will need to either be demolished or moved. There are known overhead utility relocations that will need to be removed and replaced. There is an existing 120" sewer main that will require jet grouting around it. Project design also includes the installation of approximately 101 relief wells. General construction will required degrading the existing levee and installing a slurry wall, followed by rebuilding the levee to the north side of the existing footprint and replacement the maintenance road at the crown of the levee at completion to extents shown on plans. Since this reach is identical in all alternatives, quantities have not been adjusted for swell or shrinkage. Installation of stability berms are also included.

### **7.3 CONSTRUCTION SCHEDULE**

The estimated construction time for this reach is 730 Calendar days.

### **7.4 CONSTRUCTION WINDOWS**

Estimate time is based on year round construction type productions. Schedule has been addressed to include typical weather delays November thru May. Project footprint generally will not allow for multiple crews.

### **7.5 OVERTIME**

This estimate assumes 10 hour days will be used.

### **7.6 ACQUISITION PLAN**

The project plan of action will be accomplished by the bidding process, IFB, and will be awarded as a Firm Fixed-Price Construction Contract.

### **7.7 CONTRACTING PLAN**

The Prime Contractor is assumed to be a general engineering contractor. Minimal number of subcontractors will be used on this reach.

### **7.8 PROJECT CONSTRUCTION SITE ACCESS**

Access will consist of two entrances, one being off of Jefferson Blvd on one West end and the existing South River Road on the East end. The project is located in and around West Sacramento, CA. These towns have required equipment available and labor is available locally and within a 50-mile distance from the project. The prime contractor is likely to be from the immediate area.

### **7.9 CONSTRUCTION METHODOLOGY**

The construction methodologies are standard and do not include much in the way of new and emerging techniques.

### **7.10 BORROW / DISPOSAL AREAS**

The scope of work for this reach requires very little in the way of export. Grass striping are assumed to be disposed of onsite. Approximately 556,000 CY of borrow material is assumed to be needed. Estimate assumes that there will be a 19 mile haul (one direction) from the borrow site to the construction site.

### **7.11 UNUSUAL CONDITIONS**

Due the scope of work, no unusual conditions are anticipated to be encountered. Dewatering will be the most unusual condition to have to contend with.

## **8 - PORT NORTH LEVEE**

### **8.1 PROJECT LOCATION**

The project starts on the North side of the near the Yolo Bypass Levee with approximate coordinates of Lat38.551570 Lon -121.581673 and extends parallel to the ship channel and then following the existing rail road tracks until it meets the bridge crossing over the port. The project then extends east across Jefferson Blvd and then ends in the Locke area.

### **8.2 BASIS OF ESTIMATE**

This estimate is from 20-25% plans provided by the Sacramento District. Preliminary quantities were developed and supplied by project engineers. This reach design varies from a relatively short earthen levee and then transforms into a concrete floodwall which includes closure gates at existing roads and rail crossings. Project will consist of striping and stockpiling this soil for reuse on the levee at completion. Rip rap is assumed not to be placed. There are approximately 80 trees known to be removed at this time. General construction will require striping of existing grass, removal of existing trees, soil preparation including digging for foundations for walls. There are no drawings showing installation of service road on top of new levee areas. Quantities have been adjusted for swell or shrinkage due to connection with alternative 3.

### **8.3 CONSTRUCTION SCHEDULE**

The estimated construction time for this reach is 365 Calendar days.

### **8.4 CONSTRUCTION WINDOWS**

Estimate time is based on year round construction type productions. Schedule has been addressed to include typical weather delays November thru May. Project footprint generally will not allow for multiple crews.

### **8.5 OVERTIME**

This estimate assumes 10 hour days will be used.

### **8.6 ACQUISITION PLAN**

The project plan of action will be accomplished by the bidding process, IFB, and will be awarded as a Firm Fixed-Price Construction Contract.

### **8.7 CONTRACTING PLAN**

The Prime Contractor is assumed to be a general engineering contractor. Minimal number of subcontractors will be used on this reach.

### **8.8 PROJECT CONSTRUCTION SITE ACCESS**

Access points for levee wall is somewhat limited, but there are at least 3 entrances for this work. Access for the flood walls is good in general, but there is a stretch that will require coordination with rail road. The project is located in and around West Sacramento, CA. These towns have required equipment available and labor is available locally and within a 50-mile distance from the project. The prime contractor is likely to be from the immediate area.

### **8.9 CONSTRUCTION METHODOLOGY**

The construction methodologies are standard and do not include much in the way of new and emerging techniques.

**8.10 BORROW / DISPOSAL AREAS**

The scope of work for this reach requires very little in the way of export. Grass striping are **assumed to** be disposed of onsite. Approximately 76,000 CY of borrow material is assumed to be needed. Estimate assumes that there will be a 19 mile haul (one direction) from the borrow site to the construction site.

**8.11 UNUSUAL CONDITIONS**

Due the scope of work, no unusual conditions are anticipated to be encountered. Dewatering will be the most unusual condition to have to contend with.



## 9 - PORT SOUTH LEVEE

### 9.1 PROJECT LOCATION

The project starts on the South side of the Port of Sacramento approximately 465 ft East of Jefferson Blvd. The project then runs West parallel to the Ports waterline surface for approximately 3 miles.

### 9.2 BASIS OF ESTIMATE

This estimate is from 20-25% plans provided by the Sacramento District. Preliminary quantities were developed and supplied by project engineers. This reach design varies from a relatively short earthen levee (2' – 4' height addition) and includes a slurry wall 1000' long and 72' deep. Rip rap is assumed not to be placed. There is very little in the way of shrubs/trees to be removed. Native grasses will need to be removed during construction. Drawings indicate replacing aggregate base road at completion of work. Quantities have been adjusted for swell or shrinkage due to connection with alternative 3.

### 9.3 CONSTRUCTION SCHEDULE

The estimated construction time for this reach is 365 Calendar days.

### 9.4 CONSTRUCTION WINDOWS

Estimate time is based on year round construction type productions. Schedule has been addressed to include typical weather delays November thru May. Project footprint generally will allow for multiple crews.

### 9.5 OVERTIME

This estimate assumes 8 hour days will be used. It is possible that the slurry wall will be built using 10 days, but this will be address at the PED phase. This slight change will not have a significant impact on alternative selection.

### 9.6 ACQUISITION PLAN

The project plan of action will be accomplished by the bidding process, IFB, and will be awarded as a Firm Fixed-Price Construction Contract.

### 9.7 CONTRACTING PLAN

The Prime Contractor is assumed to be a general engineering contractor. Minimal number of subcontractors will be used on this reach.

### 9.8 PROJECT CONSTRUCTION SITE ACCESS

Access points for levee wall is somewhat limited, but there are at least 3 entrances for this work. The project is located in and around West Sacramento, CA. These towns have required equipment available and labor is available locally and within a 50-mile distance from the project. The prime contractor is likely to be from the immediate area.

### 9.9 CONSTRUCTION METHODOLOGY

The construction methodologies are standard and do not include much in the way of new and emerging techniques.

### 9.10 BORROW / DISPOSAL AREAS

The scope of work for this reach requires very little in the way of export. Grass striping are assumed to be disposed of onsite. Approximately 61,000 CY of borrow material is assumed to be needed. Estimate assumes that there will be a 19 mile haul (one direction) from the barrow site to the construction site.

**9.11 UNUSUAL CONDITIONS**

Due the scope of work, no unusual conditions are anticipated to be encountered. Dewatering will be the most unusual condition to have to contend with.

## **10 - DEEP WATER SHIP CHANNEL EAST – 0+00 TO 171+71**

### **10.1 PROJECT LOCATION**

This reach ends at the point where Jefferson Blvd. first runs up on the DWSC East levee and runs North along the top of the existing levee approximately 3.25 miles. This reach as described is actually a portion of Alternative 1 and Alternative 3. For simplicity, this reach as described represents all the work from the Port South ending point to the Jefferson Blvd/Levee connection point, which are the limits for Alt 1.

### **10.2 BASIS OF ESTIMATE**

This estimate is from 20-25% plans provided by the Sacramento District. Preliminary quantities were developed and supplied by project engineers. This reach design varies from a levee height raising and includes approximately 2.75 miles of slurry wall construction. Rip rap is assumed not to be placed. There is very little in the way of shrubs/trees to be removed. Native grasses will need to be removed during construction. Drawings indicate moving of existing canals, placement of 48" Dia RCP, placement of app and the replacing aggregate base road at completion of work. Quantities have been adjusted for swell or shrinkage due to connection with alternative 3.

### **10.3 CONSTRUCTION SCHEDULE**

The estimated construction time for this reach is 365 Calendar days.

### **10.4 CONSTRUCTION WINDOWS**

Estimate time is based on year round construction type productions. Schedule has been addressed to include typical weather delays November thru May. Project footprint generally will allow for multiple crews.

### **10.5 OVERTIME**

This estimate assumes 8 hour days will be used. It is possible that the slurry wall will be built using 10 hr days, but this will be address at the PED phase. This slight change will not have a significant impact on alternative selection.

### **10.6 ACQUISITION PLAN**

The project plan of action will be accomplished by the bidding process, IFB, and will be awarded as a Firm Fixed-Price Construction Contract.

### **10.7 CONTRACTING PLAN**

The Prime Contractor is assumed to be a general engineering contractor. Minimal number of subcontractors will be used on this reach.

### **10.8 PROJECT CONSTRUCTION SITE ACCESS**

Access points for levee wall is somewhat limited, but there are at least 3 entrances for this work. The project is located in and around West Sacramento, CA. These towns have required equipment available and labor is available locally and within a 50-mile distance from the project. The prime contractor is likely to be from the immediate area.

### **10.9 CONSTRUCTION METHODOLOGY**

The construction methodologies are standard and do not include much in the way of new and emerging techniques.

**10.10 BORROW / DISPOSAL AREAS**

**The scope of work for this reach requires very little in the way of export. Grass striping are assumed to be disposed of onsite. Approximately 296,000 CY of borrow material is assumed to be needed. Estimate assumes that there will be a 19 mile haul (one direction) from the barrow site to the construction site.**

**10.11 UNUSUAL CONDITIONS**

Due the scope of work, no unusual conditions are anticipated to be encountered. Dewatering will be the most unusual condition to have to contend with.

## **11 - Deep Water Ship Channel East – 115+00 To 171+71**

### **11.1 PROJECT LOCATION**

This reach ends at the point where Jefferson Blvd. first runs up on the DWSC East levee and runs North along the top of the existing levee approximately 1.07 miles. This reach as described is actually a portion of Alternative 1 and Alternative 3. For simplicity, this reach is best described and represents all the work from the Deep Water Ship Channel Structure to the Jefferson Blvd/Levee connection point which is South of the structure, which are the limits for Alt 3.

### **11.2 BASIS OF ESTIMATE**

This estimate is from 20-25% plans provided by the Sacramento District. Preliminary quantities were developed and supplied by project engineers. This reach design varies from a levee height raising and includes approximately 2500 lineal feet of slurry wall construction. Rip rap is assumed not to be placed. There is very little in the way of shrubs/trees to be removed. Native grasses will need to be removed during construction. Drawings indicate moving of existing canals, placement of 48" Dia RCP, and the replacing aggregate base road at completion of work. Quantities have been adjusted for swell or shrinkage due to connection with alternative 3.

### **11.3 CONSTRUCTION SCHEDULE**

The estimated construction time for this reach is 365 Calendar days.

### **11.4 CONSTRUCTION WINDOWS**

Estimate time is based on year round construction type productions. Schedule has been addressed to include typical weather delays November thru May. Project footprint generally will allow for multiple crews. This reach will need to be coordinated with work associated with the DWSC Structure due to proximity and work associated the structure impeding on the completion of this reach.

### **11.5 OVERTIME**

This estimate assumes 8 hour days will be used. It is possible that the slurry wall will be built using 10 hr days, but this will be address at the PED phase. This slight change will not have a significant impact on alternative selection.

### **11.6 ACQUISITION PLAN**

The project plan of action will be accomplished by the bidding process, IFB, and will be awarded as a Firm Fixed-Price Construction Contract.

### **11.7 CONTRACTING PLAN**

The Prime Contractor is assumed to be a general engineering contractor. Minimal number of subcontractors will be used on this reach.

### **11.8 PROJECT CONSTRUCTION SITE ACCESS**

Access points for levee wall is somewhat limited, but there are at least 2 entrances for this work. The project is located in and around West Sacramento, CA. These towns have required equipment available and labor is available locally and within a 50-mile distance from the project. The prime contractor is likely to be from the immediate area.

**11.9 CONSTRUCTION METHODOLOGY**

The construction methodologies are standard and do not include much in the way of new and emerging techniques.

**11.10 BORROW / DISPOSAL AREAS**

The scope of work for this reach requires very little in the way of export. Grass striping are assumed to be disposed of onsite. Approximately 124,000 CY of borrow material is assumed to be needed. Estimate assumes that there will be a 19 mile haul (one direction) from the borrow site to the construction site.

**11.11 UNUSUAL CONDITIONS**

Due the scope of work, no unusual conditions are anticipated to be encountered. Dewatering will be the most unusual condition to have to contend with.

## **12 - SACRAMENTO RIVER – NORTH LEVEE**

### **12.1 PROJECT LOCATION**

This reach starts at the Southeast end of the Sacramento Weir and ends at the Stone Blvd. Locke. This reach is approximately 5.65 miles long. This reach is a part of all alternatives.

### **12.2 BASIS OF ESTIMATE**

This estimate is from 20-25% plans provided by the Sacramento District. Preliminary quantities were developed and supplied by project engineers. This reach's design includes approximately 16,890 lf lineal feet of slurry wall construction ranging from 40' to 120' in depth utilizing both conventional excavation and Deep Soil Mixing. Rip rap is to be placed, with a large amount containing soil mixing into the rip rap as well as topsoil placement on top of this soil/rip rap mixture. There is a substantial amount of shrubs/trees to be removed. Native grasses will need to be removed during construction. Work includes the removal and replacing of aggregate base roads as well as some roads that are currently paved. Quantities have been adjusted for swell or shrinkage due to connection with alternative 3.

### **12.3 CONSTRUCTION SCHEDULE**

The estimated construction time for this reach is 365 Calendar days.

### **12.4 CONSTRUCTION WINDOWS**

Estimate time is based on year round construction type productions. Schedule has been addressed to include typical weather delays November thru May. Project footprint generally will allow for multiple crews. This reach will need to be coordinated with work associated with the DWSC Structure due to proximity and work associated the structure impeding on the completion of this reach.

### **12.5 OVERTIME**

This estimate assumes 8 hour days will be used. It is possible that the slurry wall will be built using 10 hr days, but this will be address at the PED phase. This slight change will not have a significant impact on alternative selection.

### **12.6 ACQUISITION PLAN**

The project plan of action will be accomplished by the bidding process, IFB, and will be awarded as a Firm Fixed-Price Construction Contract.

### **12.7 CONTRACTING PLAN**

The Prime Contractor is assumed to be a general engineering contractor. Minimal number of subcontractors will be used on this reach.

### **12.8 PROJECT CONSTRUCTION SITE ACCESS**

Access points for levee wall is somewhat limited, but there are at least 2 entrances for this work. The project is located in and around West Sacramento, CA. These towns have required equipment available and labor is available locally and within a 50-mile distance from the project. The prime contractor is likely to be from the immediate area.

### **12.9 CONSTRUCTION METHODOLOGY**

The construction methodologies are standard and do not include much in the way of new and emerging techniques.

**12.10 BORROW / DISPOSAL AREAS**

The scope of work for this reach requires very little in the way of export. Grass striping are assumed to be disposed of onsite. Approximately 124,000 CY of borrow material is assumed to be needed. Estimate assumes that there will be a 19 mile haul (one direction) from the borrow site to the construction site.

**12.11 UNUSUAL CONDITIONS**

Due the scope of work, no unusual conditions are anticipated to be encountered. Dewatering will be the most unusual condition to have to contend with.



**Abbreviated Risk Analysis**

Project (less than \$40M): **West Sacramento GRR Alternatives Selection - Alternative 1**

Project Development Stage: **Feasibility (Alternatives)**

Risk Category: **Moderate Risk: Typical Project or Possible Life Safety**

Rock at 2' thickness at

Total Construction Contract Cost = \$ **960,417,893**

	<u>CWWBS</u>	<u>Feature of Work</u>	<u>Contract Cost</u>	<u>% Contingency</u>	<u>\$ Contingency</u>	<u>Total</u>
	01 LANDS AND DAMAGES	Real Estate	\$ 161,050,000	52.90%	\$ 85,199,144	\$ 246,249,144.49
1	11 01 LEVEES	Rip Rap - Landside Placement	\$ 16,430,994	32.72%	\$ 5,377,014	\$ 21,808,007.56
2	11 01 LEVEES	Rip Rap - Waterside Placement	\$ 222,793,989	40.44%	\$ 90,092,174	\$ 312,886,162.62
3	11 01 LEVEES	Slurry Wall - Excavation	\$ 87,646,600	47.37%	\$ 41,522,507	\$ 129,169,106.92
4	11 01 LEVEES	Slurry Wall - DSM	\$ 22,798,869	41.72%	\$ 9,510,603	\$ 32,309,471.53
5	11 01 LEVEES	Stockpile of degrade material	\$ 38,125,639	16.86%	\$ 6,428,424	\$ 44,554,063.07
6	11 01 LEVEES	Import Fill	\$ 184,366,190	25.91%	\$ 47,771,159	\$ 232,137,348.82
7	15 FLOODWAY CONTROL AND DIVERSION STRUCTURES	DWSC Structure	\$ -	0.00%	\$ -	\$ -
8	11 01 LEVEES	Road Repairs	\$ 20,743,612	18.34%	\$ 3,804,152	\$ 24,547,763.92
9	11 02 FLOODWALLS	North Port Flood Wall	\$ 7,631,140	25.55%	\$ 1,949,865	\$ 9,581,004.77
10	11 01 LEVEES	-	\$ -	0.00%	\$ -	\$ -
11	11 01 LEVEES	Rip Rap South of DWSC Struct	\$ 122,375,751	27.51%	\$ 33,667,401	\$ 156,043,151.76
12		Remaining Construction Items	\$ 237,505,109	24.7%	\$ 41,804,749	\$ 279,309,858.41
13	30 PLANNING, ENGINEERING, AND DESIGN	Planning, Engineering, & Design	\$ 144,062,684	20.34%	\$ 29,297,082	\$ 173,359,765.55
14	31 CONSTRUCTION MANAGEMENT	Construction Management	\$ 81,635,521	29.35%	\$ 23,963,884	\$ 105,599,404.91

Assume construction Management contingency is the same as the average construction contingency.

<b>Totals</b>								
	Real Estate	\$	161,050,000	52.90%	\$	85,199,144	\$	246,249,144.49
	Total Construction Estimate	\$	960,417,893	29.3547%	\$	281,928,046	\$	1,242,345,939
	Total Planning, Engineering & Design	\$	144,062,684	20.34%	\$	29,297,082	\$	173,359,766
	Total Construction Management	\$	81,635,521	29.35%	\$	23,963,884	\$	105,599,405
	18 Account - Cultural Resources	\$	8,756,580				\$	8,756,580
	<b>Total</b>	\$	<b>1,355,922,677</b>	<b>28.052279%</b>	\$	<b>420,388,156</b>	\$	<b>1,776,310,834</b>

West Sacramento GRR Alternatives Selection - Alternative 1  
 Feasibility (Alternatives)  
 Abbreviated Risk Analysis

Meeting Date: 6-Nov-13

		Risk Level				
		2	3	4	5	6
Very Likely						
Likely		1	2	3	4	5
Possible		0	1	2	3	4
Unlikely		0	0	1	2	3
		Negligible	Marginal	Significant	Critical	Crisis

Risk Element	Feature of Work	Concerns Pull Down Tab (ENABLE MACROS THRU TRUST CENTER) (Choose ALL that apply)	Concerns	PDT Discussions & Conclusions (Include logic & justification for choice of Likelihood & Impact)	Likelihood	Impact	Risk Level
<b>Project Scope Growth</b>							
						Max Potential Cost Growth	75%
PS-1	Rip Rap - Landside Placement	• Investigations sufficient to support design assumptions?	• Potential for scope growth, added features and quantities? • Investigations sufficient to support design assumptions?	• Design/Quantities are conservative at the moment. Growth not likely, in fact quantity is likely to be reduced in final design. Impact assumed to be possible but in a negative direction. Impact assumed marginal due to conservative at the moment.	Possible	Marginal	1
PS-2	Rip Rap - Waterside Placement	• Potential for scope growth, added features and quantities?	• Potential for scope growth, added features and quantities?	• Design/Quantities are conservative at the moment. Growth not likely, in fact quantity is likely to be reduced in final design. Impact assumed to be possible but in a negative direction. Impact assumed marginal due to conservative at the moment.	Possible	Marginal	1
PS-3	Slurry Wall - Excavation	• Potential for scope growth, added features and quantities?	Currently quantity is based on judgement of geotech group, not a lot of research completed.	• Since research not completed, there is a likelihood that the length and depth of wall can change. More DSM could be required.	Likely	Significant	3
PS-4	Slurry Wall - DSM	• Potential for scope growth, added features and quantities?	Currently quantity based on judgement of geotech group, not a lot of research completed.	• Since research not completed, there is a likelihood that the length and depth of wall can change. More excavator method could be required.	Likely	Marginal	2
PS-5	Stockpile of degrade material	• Potential for scope growth, added features and quantities?	• Currently quantity based on judgement, not a lot of research completed. Comfortable with quantities	• Platform elevations not likely to change. • Actual length of slurry wall not likely to change. This would indicate that the quantity of degrade would also not likely to change.	Unlikely	Marginal	0
PS-6	Import Fill	• Potential for scope growth, added features and quantities?	• Currently quantity based on judgement, not a lot of research completed. Comfortable with quantities	• Cross section and length not likely to change. All export of degrade material and all import of material to rebuild to design height.	Unlikely	Significant	1
PS-7	DWSC Structure	• Design confidence?	Not a part of this alternative	Not a part of this alternative	Unlikely	Negligible	0
PS-8	Road Repairs	• Potential for scope growth, added features and quantities?	• Access damage of existing roads not included in estimate.	• Road repairs on local roads used for access could be damaged and are not included in estimate.	Likely	Marginal	2
PS-9	North Port Flood Wall	• Potential for scope growth, added features and quantities?	• Potential for scope growth, added features and quantities?	• Number of closures are known and LF of wall is fairly well set. Design of closures may be an issue. For the entire project, marginal cost for the project, determined to be marginal.	Likely	Marginal	2
PS-10	-	• Investigations sufficient to support design assumptions?			Unlikely	Negligible	0
PS-11	Rip Rap South of DWSC Struct	• Potential for scope growth, added features and quantities?	• Potential for scope growth, added features and quantities?	• Quantities are conservative at the moment. Growth not likely, in fact quantity is likely to be reduced in final design. Impact assumed to be possible but in a negative direction. Impact assumed marginal due to conservative at the moment.	Possible	Negligible	0
PS-12	Remaining Construction Items	• Potential for scope growth, added features and quantities?	• Potential for scope growth, added features and quantities? • Investigations sufficient to support design assumptions?	• Clearing, grubbing, stripping, mobilization make up the bulk of this remaining work. • Since these items are the same for all alternatives, would not have a significant impact on the determination of an alternative.	Possible	Marginal	1
PS-13	Planning, Engineering, & Design	• Design confidence?	• Investigations sufficient to support design assumptions? • Design confidence? • Design confidence?	• Current design is thought to be conservative at the moment. Will better define design and most likely will be changes.	Likely	Significant	3
PS-14	Construction Management	• Potential for scope growth, added features and quantities?		• Will use same % construction contingency on work	Unlikely	Negligible	0

Acquisition Strategy						Max Potential Cost Growth	30%
AS-1	Rip Rap - Landside Placement	• Accelerated schedule or harsh weather schedule?	<ul style="list-style-type: none"> <li>• 8a or small business likely?</li> <li>• Contracting plan firmly established?</li> <li>• Accelerated schedule or harsh weather schedule?</li> </ul>	<ul style="list-style-type: none"> <li>• 8a possible, but Training Dike is the only one small enough that would meet size requirement unless reaches are broken into smaller contracts.</li> <li>• There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels</li> <li>• At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.</li> </ul>	Likely	Significant	3
AS-2	Rip Rap - Waterside Placement	• Contracting plan firmly established?	<ul style="list-style-type: none"> <li>• 8a or small business likely?</li> <li>• Contracting plan firmly established?</li> <li>• Accelerated schedule or harsh weather schedule?</li> </ul>	<ul style="list-style-type: none"> <li>• 8a possible, but Training Dike is the only one small enough that would meet size requirement unless reaches are broken into smaller contracts.</li> <li>• There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels</li> <li>• At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.</li> </ul>	Likely	Significant	3
AS-3	Slurry Wall - Excavation	• Accelerated schedule or harsh weather schedule?	<ul style="list-style-type: none"> <li>• Contracting plan firmly established?</li> <li>• Limited bid competition anticipated?</li> <li>• 8a or small business likely?</li> <li>• Accelerated schedule or harsh weather schedule?</li> </ul>	<ul style="list-style-type: none"> <li>• 8a possible, but Training Dike is the only one small enough that would meet size requirement unless reaches are broken into smaller contracts.</li> <li>• There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels</li> <li>• At the moment estimate assumes 10 hr days for these items only. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.</li> </ul>	Likely	Significant	3
AS-4	Slurry Wall - DSM	• Limited bid competition anticipated?	<ul style="list-style-type: none"> <li>• Contracting plan firmly established?</li> <li>• Limited bid competition anticipated?</li> <li>• 8a or small business likely?</li> <li>• Accelerated schedule or harsh weather schedule?</li> </ul>	<ul style="list-style-type: none"> <li>• 8a possible, but Training Dike is the only one small enough that would meet size requirement unless reaches are broken into smaller contracts.</li> <li>• There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels</li> <li>• At the moment estimate assumes 10 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.</li> </ul>	Likely	Significant	3
AS-5	Stockpile of degrade material	• Contracting plan firmly established?	Not a contracting issue.		Unlikely	Negligible	0
AS-6	Import Fill	• Contracting plan firmly established?	Not a contracting issue.		Unlikely	Negligible	0
AS-7	DWSC Structure	• Contracting plan firmly established?	Not a part of this alternative	Not a part of this alternative	Unlikely	Negligible	0
AS-8	Road Repairs	• Contracting plan firmly established?	Not a contracting issue.		Unlikely	Negligible	0
AS-9	North Port Flood Wall	• 8a or small business likely?	<ul style="list-style-type: none"> <li>• Contracting plan firmly established?</li> <li>• 8a or small business likely?</li> </ul>	<ul style="list-style-type: none"> <li>• There is currently no contracting plan. If Nort Port Flood walls are broken up, it is 8a possible contracting vehicle.</li> </ul>	Likely	Marginal	2
AS-10	-	• Contracting plan firmly established?			Unlikely	Negligible	0
AS-11	Rip Rap South of DWSC Struct	• Contracting plan firmly established?	<ul style="list-style-type: none"> <li>• 8a or small business likely?</li> <li>• Contracting plan firmly established?</li> <li>• Accelerated schedule or harsh weather schedule?</li> </ul>	<ul style="list-style-type: none"> <li>• 8a possible, but driving factor will be funding.</li> <li>• There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels</li> <li>• At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.</li> </ul>	Likely	Significant	3
AS-12	Remaining Construction Items	• Contracting plan firmly established?	Other features of work will be the controlling portion of work.	<ul style="list-style-type: none"> <li>• 8a possible, but driving factor will be funding.</li> <li>• There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels</li> <li>• At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.</li> </ul>	Unlikely	Negligible	0
AS-13	Planning, Engineering, & Design	• Contracting plan firmly established?	Other features of work will be the controlling portion of work.	<ul style="list-style-type: none"> <li>• 8a possible, but driving factor will be funding.</li> <li>• There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels</li> <li>• At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.</li> </ul>	Unlikely	Negligible	0
AS-14	Construction Management	• Contracting plan firmly established?	Other features of work will be the controlling portion of work.	<ul style="list-style-type: none"> <li>• 8a possible, but driving factor will be funding.</li> <li>• There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels</li> <li>• At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.</li> </ul>	Unlikely	Negligible	0

Construction Elements						Max Potential Cost Growth	25%
CE-1	Rip Rap - Landside Placement	• Potential for construction modification and claims?	Availability of materials • Special equipment or subcontractors needed? • Potential for construction modification and claims?	• Nothing in the way of specialty equipment needed for this work feature. • Due to quantity needed for feature, more than one source may be needed.	Likely	Marginal	2
CE-2	Rip Rap - Waterside Placement	• Unique construction methods?	Availability of materials • High risk or complex construction elements, site access, in-water? • Potential for construction modification and claims?	• Nothing in the way of specialty equipment needed for this work feature if performed by contractors familiar to this type of construction. • Due to quantity needed for feature, more than one source may be needed. Air quality issues may arise due to quantity of either barges or highway trucks.	Likely	Marginal	2
CE-3	Slurry Wall - Excavation	• High risk or complex construction elements, site access, in-water?	• Special mobilization? • Special equipment or subcontractors needed? • Potential for construction modification and claims? • High risk or complex construction elements, site access, in-water?	• Equipment needed may not be available "locally" and might require mobilization from outside of work region. • Only a few contractors own equipment "long stick & boom" and will limit number of contractors. • Due to depth of walls, and unknown site conditions, modifications likely. • Limited space for stockpiling of degraded materials, slurry plant & pond locations.	Likely	Significant	3
CE-4	Slurry Wall - DSM	• Accelerated schedule or harsh weather schedule?	• Special mobilization? • Special equipment or subcontractors needed? • Potential for construction modification and claims? • High risk or complex construction elements, site access, in-water?	Equipment needed may not be available "locally" and might require mobilization from outside of work region. Only a few contractors own DSM equipment and will limit number of contractors bidding work. Due to depth of walls, and unknown site conditions, modifications likely. Limited space for stockpiling of degraded materials, slurry plant & pond locations.	Likely	Significant	3
CE-5	Stockpile of degrade material	• High risk or complex construction elements, site access, in-water?	• High risk or complex construction elements, site access, in-water?	• Limited space for stockpiling of degraded materials, slurry plant & pond locations.	Likely	Marginal	2
CE-6	Import Fill	• Potential for construction modification and claims?	• Potential for construction modification and claims?	• Estimate currently assumes worst case, and could be better depending on current material being suitable for levee construction.	Possible	Marginal	1
CE-7	DWSC Structure	• Potential for construction modification and claims?	Not a part of this alternative	Not a part of this alternative	Unlikely	Negligible	0
CE-8	Road Repairs	• Potential for construction modification and claims?	• Potential for construction modification and claims?	• It is anticipated that repair of roads will be required. Quantity is the unknown.	Likely	Marginal	2
CE-9	North Port Flood Wall	• Potential for construction modification and claims?	• Unique construction methods? • Potential for construction modification and claims?	• Nothing really unique about the design and construction of floodwalls • Location of walls are in a relatively tight footprint located along existing rail spurs and utility corridors. Coordination/relocation will be required to get to final construction.	Likely	Marginal	2
CE-10	-	• Potential for construction modification and claims?			Unlikely	Negligible	0
CE-11	Rip Rap South of DWSC Struct	• Unique construction methods?	• Unique construction methods?	• Performance of this feature will require a coordination of many types of tasks to efficiently transport, handle & place rock on a 18 mile stretch which is very linear and isolated in nature. • Actual construction is "normal"	Unlikely	Negligible	0
CE-12	Remaining Construction Items	• Accelerated schedule or harsh weather schedule?	• Potential for construction modification and claims?	• Since a lot of the remaining construction is with the clear/grub/stripping, and the fact that this work is relatively uniform among all the alternates and would not effect the outcome selection, it was determined by the PDT to be of low risk.	Unlikely	Negligible	0
CE-13	Planning, Engineering, & Design	• Accelerated schedule or harsh weather schedule?	• High risk or complex construction elements, site access, in-water? • Unique construction methods?	• The closure structure will be a significant challenge during the design phase due to the width and depth and height of the closure gates. • Construction of the graving site will require significant de-watering, removal of the existing levee and reinstallation of the levee will also require significant water issues to be able to refill the graving site after completion of the concrete ship structure.	Unlikely	Negligible	0
CE-14	Construction Management	• Accelerated schedule or harsh weather schedule?	• Unique construction methods?	• Will require more critical inspection than normal district inspection.	Unlikely	Negligible	0

Quantities for Current Scope							Max Potential Cost Growth	20%
Q-1	Rip Rap - Landside Placement	• Level of confidence based on design and assumptions?	• Level of confidence based on design and assumptions?	• Erosion concerns are well defined. Not a lot of uncertainty in quantities.	Possible	Negligible	0	
Q-2	Rip Rap - Waterside Placement	• Level of confidence based on design and assumptions? • Sufficient investigations to develop quantities?	• Level of confidence based on design and assumptions? • Sufficient investigations to develop quantities?	• Quantities are based on conservative assumptions. • Confidence level of quantities based on these assumptions are relatively low. • Rock quantity is likely over estimated at this time and will most likely be reduced in the future. <i>The accuracy of this hypothesis is very likely to occur, but will not increase.</i>	Possible	Negligible	0	
Q-3	Slurry Wall - Excavation	• Sufficient investigations to develop quantities?	• Level of confidence based on design and assumptions? • Sufficient investigations to develop quantities?	• Current designs are based on existing data and will be refined in the design phase. • Since research not completed, there is a likely hood that the length and depth can change. More DSM could be required.	Likely	Significant	3	
Q-4	Slurry Wall - DSM	• Level of confidence based on design and assumptions?	• Level of confidence based on design and assumptions? • Sufficient investigations to develop quantities?	Since research not completed, there is a likely hood that the length and depth can change. More excavation could be required.	Likely	Marginal	2	
Q-5	Stockpile of degrade material	• Level of confidence based on design and assumptions?	Not a quantity issue based on current design	• Current design quantities used. If it is determined that more slurry wall is required(length), then potentially becomes an issue.	Unlikely	Negligible	0	
Q-6	Import Fill	• Level of confidence based on design and assumptions?	• Level of confidence based on design and assumptions?	• General cross sections used and will be refined during design phase. Quantities are likely to change but will be dependent on existing suitable material. Currently, the quantities and their development are consistent over the alternatives, so this would have low influence over the selection of alternative used.	Possible	Marginal	1	
Q-7	DWSC Structure	• Sufficient investigations to develop quantities?	Not a part of this alternative	Not a part of this alternative	Unlikely	Negligible	0	
Q-8	Road Repairs	• Level of confidence based on design and assumptions?	Steel and aggregate for concrete imports effect on local roads.	• Impact on roads not known at this time. Various quality of roads leading to project site.	Unlikely	Negligible	0	
Q-9	North Port Flood Wall	• Appropriate methods applied to calculate quantities?	• Appropriate methods applied to calculate quantities?	• Closure gates numbers known, details of how they would be construction where assumed in estimate to be the same as in the Napa Dry Bypass project. • Rebar density unknown at this time, however, walls are not very tall and assumed density is consistent with 5-10' walls.	Likely	Marginal	2	
Q-10	-	• Level of confidence based on design and assumptions?			Unlikely	Negligible	0	
Q-11	Rip Rap South of DWSC Struct	• Level of confidence based on design and assumptions?	• Level of confidence based on design and assumptions?	• Quantities are currently conservative and will be refined at a later phase. • Current impression is that the quantities will be reduced if entire length does not have to be improved, but that will not be determined until later.	Possible	Negligible	0	
Q-12	Remaining Construction Items	• Level of confidence based on design and assumptions?	• Quantities are relatively the same for all the alternatives and do not have a significant effect on the determination of alternative.	• A lot of the design has not been optimized/refined and will be addressed in future. At this time not known how significant change will be.	Possible	Marginal	1	
Q-13	Planning, Engineering, & Design	• Level of confidence based on design and assumptions?	• Quantities may change but do not have an effect on alternative selection.	• Will not have a significant effect on selection of alternative.	Unlikely	Negligible	0	
Q-14	Construction Management	• Level of confidence based on design and assumptions?	• Quantities may change but do not have an effect on alternative selection.	• Will not have a significant effect on selection of alternative.	Unlikely	Negligible	0	

Specialty Fabrication or Equipment						Max Potential Cost Growth	75%
FE-1	Rip Rap - Landside Placement	• Confidence in suppliers' ability?	• Confidence in suppliers' ability?	• Quantity from chosen quarry may not be available and may require purchase from multiple sources and potential farther transport distances.	Likely	Marginal	2
FE-2	Rip Rap - Waterside Placement	• Confidence in suppliers' ability?	• Confidence in suppliers' ability?	• Quantity from chosen quarry may not be available and may require purchase from multiple sources and potential farther transport distances. Larger quantities involved which will make this more risky.	Likely	Significant	3
FE-3	Slurry Wall - Excavation	• Confidence in suppliers' ability?	• Confidence in suppliers' ability?	• Bentonite supplier generally used is located in WY. Quantity needed will not be an issue with them.	Unlikely	Negligible	0
FE-4	Slurry Wall - DSM	• Unusual parts, material or equipment manufactured or installed?	• Same as above	• Same as above	Unlikely	Negligible	0
FE-5	Stockpile of degrade material	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0
FE-6	Import Fill	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0
FE-7	DWSC Structure	• Confidence in contractor's ability to install?	• Confidence in contractor's ability to install?	This type of construction has not been done in district.	Unlikely	Negligible	0
FE-8	Road Repairs	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0
FE-9	North Port Flood Wall	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0
FE-10	-	• Confidence in suppliers' ability?			Unlikely	Negligible	0
FE-11	Rip Rap South of DWSC Struct	• Unusual parts, material or equipment manufactured or installed?	• N/A	Quantity from chosen quarry may not be available and may require purchase from multiple sources and potential farther transport distances.	Unlikely	Negligible	0
FE-12	Remaining Construction Items	• Unusual parts, material or equipment manufactured or installed?	• N/A	• Remaining items area easily obtainable itmes.	Unlikely	Negligible	0
FE-13	Planning, Engineering, & Design	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0
FE-14	Construction Management	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0

Cost Estimate Assumptions							Max Potential Cost Growth	35%
CT-1	Rip Rap - Landside Placement	• Reliability and number of key quotes?	• Reliability and number of key quotes?	• There are 3-4 quarries that have been used/quotes obtained from previous projects. Confidence of unit price is high.	Possible	Marginal	1	
CT-2	Rip Rap - Waterside Placement	• Reliability and number of key quotes?	• Reliability and number of key quotes?	• There really is only one supplier which loads directly from the quarry to barges. That supplier has been contacted and verbal quotes obtained. Confidence of price is high. From start of project to end of project, unit price may change, but that would be covered during midpoint of construction calculations.	Possible	Marginal	1	
CT-3	Slurry Wall - Excavation	• Reliability and number of key quotes?	• Reliability and number of key quotes? • Assumptions regarding crew, productivity, overtime?	• Our district has used this type of slurry wall construction on several projects over the past 20 years. We have developed spreadsheets that have proven to be close to actual construction times for our region. • Very few costbook crews exist in estimate. Lump sum and allowances rarely, if ever, used.	Possible	Marginal	1	
CT-4	Slurry Wall - DSM	• Reliability and number of key quotes?	• Reliability and number of key quotes? • Assumptions regarding crew, productivity, overtime?	• This method has only been used on 1 or 2 projects so far. • Spreadsheets have been developed to capture the majority of aspects related to the installation of this type of wall.	Possible	Marginal	1	
CT-5	Stockpile of degrade material	• Reliability and number of key quotes?	• Assumptions regarding crew, productivity, overtime? • Reliability and number of key quotes?	• Typical crew make up resourced in estimate using reasonable production rates. This type of work assumed to be during normal hours for this comparison study. • After TSP is determined, these tasks will be looked at again. Newly acquired property will allow for reasonably easy used and distance.	Likely	Marginal	2	
CT-6	Import Fill	• Reliability and number of key quotes?	• Reliability and number of key quotes? • Assumptions regarding crew, productivity, overtime? • Overuse of Cost Book, lump sum, allowances? • Lack confidence on critical cost items?	• Typical crew make up resourced in estimate using reasonable production rates. • This type of work assumed to be during normal hours for this comparison study. • After TSP is determined, these tasks will be looked at again. Newly acquired property will allow for reasonably easy used and distance. • Very few to none lump sum items, allowances, cost book used in the creation of estimate. • Actual location and distance of haul not known at this point in time.	Likely	Significant	3	
CT-7	DWSC Structure	• Reliability and number of key quotes?	• Lack confidence on critical cost items?	• Even though this feature was created and estimated by New Orleans District based on a similar project they estimated and which has not been built yet, there is a significant concern to site adaptability of the structure as well as the graving site physical items not being developed enough to capture the costs well enough.	Unlikely	Negligible	0	
CT-8	Road Repairs	• Reliability and number of key quotes?	• Site accessibility, transport delays, congestion?	• The project will most likely not be effected by this item. More damage will be created by other reaches of the alternative associated with this item.	Possible	Negligible	0	
CT-9	North Port Flood Wall	• Reliability and number of key quotes?	• Reliability and number of key quotes?	• Aside from other tasks, the concrete walls are not of a size or height to be out of the ordinary. Walls are relatively low and do not require a lot of abnormal work. Material quotes used are standard for the area at the moment.	Unlikely	Negligible	0	
CT-10	-	• Reliability and number of key quotes?			Unlikely	Negligible	0	
CT-11	Rip Rap South of DWSC Struct	• Reliability and number of key quotes?	• Reliability and number of key quotes?	• There really is only one supplier which loads directly from the quarry to barges. That supplier has been contacted and verbal quotes obtained. Confidence of price is high. From start of project to end of project, unit price may change, but that would be covered during midpoint of construction calculations.	Likely	Significant	3	
CT-12	Remaining Construction Items	• Reliability and number of key quotes?	• Assumptions regarding crew, productivity, overtime?	• Typical crew make up resourced in estimate using reasonable production rates. • This type of work assumed to be during normal hours for this comparison study. • After TSP is determined, these tasks will be looked at again. • Very few to none lump sum items, allowances, cost book used in the creation of estimate. • Actual location and distance of haul not known at this point in time.	Possible	Marginal	1	
CT-13	Planning, Engineering, & Design	• Reliability and number of key quotes?	• N/A	• N/A	Unlikely	Negligible	0	
CT-14	Construction Management	• Reliability and number of key quotes?	• N/A	• N/A	Unlikely	Negligible	0	

External Project Risks							Max Potential Cost Growth	40%
EX-1	Rip Rap - Landside Placement	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Potential for market volatility impacting competition, pricing?</li> <li>• Potential for severe adverse weather?</li> <li>• Political influences, lack of support, obstacles?</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials? -Quantities involved with this option are not as such which will make obtaining material difficult. Fuel price risk is the same for all long term projects and have been addressed in above risks.</li> </ul>	Possible	Significant	2	
EX-2	Rip Rap - Waterside Placement	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Potential for market volatility impacting competition, pricing?</li> <li>• Potential for severe adverse weather?</li> <li>• Political influences, lack of support, obstacles?</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials? -Quantities involved with this option are not as such which will make obtaining material difficult. Fuel price risk is the same for all long term projects and have been addressed in above risks.</li> </ul>	Possible	Significant	2	
EX-3	Slurry Wall - Excavation	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Construction issues - Blow outs, fractures</li> <li>• Unanticipated inflations in fuel, key materials?</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials? Can occur - There are large quantities of bentonite available in Wyoming, but needs early coordination to verify amounts required each season.</li> <li>• Construction issues - Concern about pathways of the slurry material going into backyards and into the river (blowouts). Concerns about water side staging.</li> </ul>	Possible	Significant	2	
EX-4	Slurry Wall - DSM	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Construction issues - Blow outs, fractures</li> <li>• Unanticipated inflations in fuel, key materials?</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials? can occur - There are large quantities of bentonite available in Wyoming, but needs early coordination to verify amounts required each season.</li> <li>• DSM rig availability, competition - Limited availability, frequent breakdown</li> <li>• Construction issues - Concern about pathways of the slurry material going into backyards and into the river (blowouts). Concerns about water side staging.</li> </ul>	Likely	Significant	3	
EX-5	Stockpile of degrade material	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Hazardous excavation material, expensive removal</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflation in fuel and key materials? Concern with HTRW material or the possibility of a new Corps policy impacting it. Cultural remains have a very low probability of being discovered in work areas, but if they are it will greatly affect the overall levee project. Variability in weather could shorten the project work window.</li> </ul>	Possible	Marginal	1	
EX-6	Import Fill	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Potential for severe adverse weather?</li> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Possibility of land pieces going up</li> <li>• Cultural resources, remains</li> <li>• Late construction season, delays</li> </ul>	<ul style="list-style-type: none"> <li>• Potential for severe adverse weather? Severe weather or a flood event can also impact schedule.</li> <li>• Unanticipated inflations in fuel, key materials can occur, yes and would impact cost.</li> <li>Additional Identified Concerns:</li> <li>• RE costs are likely to go up</li> <li>• Cultural remains have relatively low probability of occurring</li> <li>• Construction windows preclude working past the construction season</li> <li>• Avoid parcels with HTRW and endangered species.</li> </ul>	Possible	Significant	2	
EX-7	DWSC Structure	• Potential for severe adverse weather?	Not a part of this alternative	Not a part of this alternative	Unlikely	Negligible	0	
EX-8	Road Repairs	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Potential for market volatility impacting competition, pricing?</li> </ul>	Not likely to be significant impact due to scope of work	Possible	Marginal	1	
EX-9	North Port Flood Wall	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Political influences, lack of support, obstacles?</li> </ul>	<ul style="list-style-type: none"> <li>• Political influences, lack of support, obstacles? Concerns regarding public acceptability in terms of access and aesthetics to the levee.</li> </ul>	Possible	Marginal	1	
EX-10	-	• Potential for severe adverse weather?			Unlikely	Negligible	0	
EX-11	Rip Rap South of DWSC Struct	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Potential for market volatility impacting competition, pricing?</li> <li>• Potential for severe adverse weather?</li> <li>• Political influences, lack of support, obstacles?</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials? -Quantities involved with this option are not as such which will make obtaining material difficult. Fuel price risk is the same for all long term projects and have been addressed in above risks.</li> </ul>	Possible	Significant	2	
EX-12	Remaining Construction Items	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>Other Construction Issues <ul style="list-style-type: none"> <li>- environmental, cultural</li> <li>- permitting</li> <li>- relocations</li> <li>- input from cultural agencies, tribes</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel and key materials: Could impact cost.</li> <li>Other Construction Issues: Construction areas could be moved depending on the cultural issues they encounter; this is a relative small issue in terms of cost, but is very likely to happen (previous experience in past jobs).</li> </ul>	Very LIKELY	Negligible	2	
EX-13	Planning, Engineering, & Design	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Political influences, lack of support, obstacles?</li> <li>- locals, and sponsor have different plans</li> <li>- refinements in design.</li> </ul>	<ul style="list-style-type: none"> <li>• Political influences, lack of support, obstacles? The resource agencies may not buy-in with USACE methods &amp; approaches. Congresswoman Matsui has mentioned combining the ARCF GRR and West Sacramento GRR projects. A very likely possibility during the PED phase, however, she doesn't know that it will increase the cost. It was noted that the sponsors will need to understand what costs they will incur for an LPP as a part of their decision. Much of this being resolved during the PED phase.</li> <li>- increased resolution will likely reduce costs</li> <li>- LPP may contain different features</li> <li>- SWIF implementation could be possible</li> </ul>	Possible	Negligible	0	
EX-14	Construction Management	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Political influences, lack of support, obstacles?</li> <li>- locals, and sponsor have different plans</li> <li>- refinements in design</li> </ul>	see above for PED discussions.	Possible	Negligible	0	



**West Sacramento GRR Alternatives Selection - Alternative 1**  
 Feasibility (Alternatives)  
 Abbreviated Risk Analysis

		<b>Potential Risk Areas</b>													
		<i>Rip Rap - Landside Placement</i>	<i>Rip Rap - Waterside Placement</i>	<i>Slurry Wall - Excavation</i>	<i>Slurry Wall - DSM</i>	<i>Stockpile of degrade material</i>	<i>Import Fill</i>	<i>DWSC Structure</i>	<i>Road Repairs</i>	<i>North Port Flood Wall</i>	<i>.</i>	<i>Rip Rap South of DWSC Struct</i>	<i>Remaining Construction Items</i>	<i>Planning, Engineering, &amp; Design</i>	<i>Construction Management</i>
<b>Typical Risk Elements</b>	Project Scope Growth	1	1	3	2	-	1	-	2	2	-	-	1	3	-
	Acquisition Strategy	3	3	3	3	-	-	-	-	2	-	3	-	-	-
	Construction Elements	2	2	3	3	2	1	-	2	2	-	-	-	-	-
	Quantities for Current Scope	-	-	3	2	-	1	-	-	2	-	-	1	-	-
	Specialty Fabrication or Equipment	2	3	-	-	-	-	-	-	-	-	-	-	-	-
	Cost Estimate Assumptions	1	1	1	1	2	3	-	-	-	-	3	1	-	-
	External Project Risks	2	2	2	3	1	2	-	1	1	-	2	2	-	-

**Abbreviated Risk Analysis**

Project (less than \$40M): **West Sacramento GRR Alternatives Selection - Alternative 3**  
 Project Development Stage: **Feasibility (Alternatives)**  
 Risk Category: **Moderate Risk: Typical Project or Possible Life Safety**

rock at nav levee

Total Construction Contract Cost = \$ **989,854,585**

	<u>CWWBS</u>	<u>Feature of Work</u>	<u>Contract Cost</u>		<u>% Contingency</u>	<u>\$ Contingency</u>	<u>Total</u>
	01 LANDS AND DAMAGES	Real Estate	\$ 151,564,900		52.76%	\$ 79,963,774	\$ 231,528,673.96
1	11 01 LEVEES	Rip Rap - Landside Placement	\$ 4,902,794		32.72%	\$ 1,604,431	\$ 6,507,224.62
2	11 01 LEVEES	Rip Rap - Waterside Placement	\$ 222,793,989		40.44%	\$ 90,092,174	\$ 312,886,162.62
3	11 01 LEVEES	Slurry Wall - Excavator	\$ 57,720,993		47.37%	\$ 27,345,274	\$ 85,066,267.45
4	11 01 LEVEES	Slurry Wall - DSM	\$ 22,798,869		36.94%	\$ 8,422,492	\$ 31,221,360.68
5	11 01 LEVEES	Stockpile of degrade material	\$ 32,465,252		18.68%	\$ 6,065,068	\$ 38,530,320.05
6	11 01 LEVEES	Import Fill	\$ 151,720,722		25.91%	\$ 39,312,385	\$ 191,033,107.35
7	15 FLOODWAY CONTROL AND DIVERSION STRUCTURES	DWSC Structure	\$ 271,083,003		94.94%	\$ 257,372,820	\$ 528,455,823.22
8	11 01 LEVEES	Road Repairs	\$ 11,944,908		18.34%	\$ 2,190,566	\$ 14,135,473.69
9	11 02 FLOODWALLS	North Port Flood Wall	\$ -		0.00%	\$ -	\$ -
10	11 01 LEVEES	Set Back Levee	\$ -		0.00%	\$ -	\$ -
11	11 01 LEVEES	Rip Rap South of DWSC Struct	\$ -		0.00%	\$ -	\$ -
12		Remaining Construction Items	\$ 214,424,055	27.7%	15.57%	\$ 33,376,076	\$ 247,800,130.73
13	30 PLANNING, ENGINEERING, AND DESIGN	Planning, Engineering, & Design	\$ 148,478,188		33.47%	\$ 49,694,138	\$ 198,172,325.78
14	31 CONSTRUCTION MANAGEMENT	Construction Management	\$ 84,137,640		47.06%	\$ 39,591,409	\$ 123,729,048.73

Assume construction Management contingency is the same as the average construction contingency.

<b>Totals</b>									
	Real Estate	\$	151,564,900		52.76%	\$	79,963,774	\$	231,528,673.96
	Total Construction Estimate	\$	989,854,585		47.06%	\$	465,781,285	\$	1,455,635,870
	Total Planning, Engineering & Design	\$	148,478,188		33.47%	\$	49,694,138	\$	198,172,326
	Total Construction Management	\$	84,137,640		47.06%	\$	39,591,409	\$	123,729,049
	18 Account - Cultural Resources	\$	8,931,230					\$	8,931,230
	<b>Total</b>	\$	<b>1,382,966,542</b>		<b>45.08%</b>	\$	<b>635,030,606</b>	\$	<b>2,017,997,148</b>

**West Sacramento GRR Alternatives Selection - Alternative 3**  
Feasibility (Alternatives)  
Abbreviated Risk Analysis

Meeting Date: 6-Nov-13

		Risk Level				
		2	3	4	5	6
Very Likely						
Likely		1	2	3	4	5
Possible		0	1	2	3	4
Unlikely		0	0	1	2	3
		Negligible	Marginal	Significant	Critical	Crisis

Risk Element	Feature of Work	Concerns Pull Down Tab (ENABLE MACROS THRU TRUST CENTER) (Choose ALL that apply)	Concerns	PDT Discussions & Conclusions (Include logic & justification for choice of Likelihood & Impact)	Likelihood	Impact	Risk Level
<b>Project Scope Growth</b>							
						Max Potential Cost Growth	75%
PS-1	Rip Rap - Landside Placement	• Investigations sufficient to support design assumptions?	• Potential for scope growth, added features and quantities? • Investigations sufficient to support design assumptions?	• Design/Quantities are conservative at the moment. Growth not likely, in fact quantity is likely to be reduced in final design. Impact assumed to be possible but in a negative direction. Impact assumed marginal due to conservative at the moment.	Possible	Marginal	1
PS-2	Rip Rap - Waterside Placement	• Potential for scope growth, added features and quantities?	• Potential for scope growth, added features and quantities?	• Design/Quantities are conservative at the moment. Growth not likely, in fact quantity is likely to be reduced in final design. Impact assumed to be possible but in a negative direction. Impact assumed marginal due to conservative at the moment.	Possible	Marginal	1
PS-3	Slurry Wall - Excavator	• Potential for scope growth, added features and quantities?	Currently quantity is based on judgement of geotech group, not a lot of research completed.	• Since research not completed, there is a likelihood that the length and depth of wall can change. More DSM could be required.	Likely	Significant	3
PS-4	Slurry Wall - DSM	• Potential for scope growth, added features and quantities?	Currently quantity based on judgement of geotech group, not a lot of research completed.	• Since research not completed, there is a likelihood that the length and depth of wall can change. More excavator method could be required.	Likely	Marginal	2
PS-5	Stockpile of degrade material	• Potential for scope growth, added features and quantities?	• Currently quantity based on judgement, not a lot of research completed. Comfortable with quantities	• Platform elevations not likely to change. • Actual length of slurry wall not likely to change. This would indicate that the quantity of degrade would also not likely to change.	Unlikely	Marginal	0
PS-6	Import Fill	• Potential for scope growth, added features and quantities?	• Currently quantity based on judgement, not a lot of research completed. Comfortable with quantities	• Cross section and length not likely to change. All export of degrade material and all import of material to rebuild to design height.	Unlikely	Significant	1
PS-7	DWSC Structure	• Design confidence?	• Design confidence?	• Structure was patterned off a New Orleans project and adapted to this project site. Project is currently not under construction, scope growth not known at this time.	Likely	Significant	3
PS-8	Road Repairs	• Potential for scope growth, added features and quantities?	• Access damage of existing roads not included in estimate.	• Road repairs on local roads used for access could be damaged and are not included in estimate.	Likely	Marginal	2
PS-9	North Port Flood Wall	• Potential for scope growth, added features and quantities?	Not a part of this alternative	Not a part of this alternative	Unlikely	Marginal	0
PS-10	Set Back Levee	• Investigations sufficient to support design assumptions?	• Hydraulic mitigation and design features not defined.	• Local sponsor is at 65% design which is what the current quantities are defined. Hydraulic impact likelihood is likely, but marginal impact to cost. Hydraulic study needed to determine if rip rap needed on water-side of new set back levee.	Likely	Significant	3
PS-11	Rip Rap South of DWSC Struct	• Potential for scope growth, added features and quantities?	• Potential for scope growth, added features and quantities?	• Quantities are conservative at the moment. Growth not likely, in fact quantity is likely to be reduced in final design. Impact assumed to be possible but in a negative direction. Impact assumed marginal due to conservative at the moment.	Possible	Negligible	0
PS-12	Remaining Construction Items	• Investigations sufficient to support design assumptions?	• Potential for scope growth, added features and quantities? • Investigations sufficient to support design assumptions?	• Clearing, grubbing, stripping, mobilization make up the bulk of this remaining work. • Since these items are the same for all alternatives, would not have a significant impact on the determination of an alternative.	Possible	Marginal	1
PS-13	Planning, Engineering, & Design	• Design confidence?	• Investigations sufficient to support design assumptions? • Design confidence? • Design confidence?	• Current design is thought to be conservative at the moment. Will better define design and most likely will be changes.	Likely	Significant	3
PS-14	Construction Management	• Potential for scope growth, added features and quantities?		• Will use same % construction contingency on work	Unlikely	Negligible	0

Acquisition Strategy							Max Potential Cost Growth	30%
AS-1	Rip Rap - Landside Placement	• Accelerated schedule or harsh weather schedule?	• 8a or small business likely? • Contracting plan firmly established? • Accelerated schedule or harsh weather schedule?	• 8a possible, but Training Dike is the only one small enough that would meet size requirement unless reaches are broken into smaller contracts. • There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels • At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.	Likely	Significant	3	
AS-2	Rip Rap - Waterside Placement	• Contracting plan firmly established?	• 8a or small business likely? • Contracting plan firmly established? • Accelerated schedule or harsh weather schedule?	• 8a possible, but Training Dike is the only one small enough that would meet size requirement unless reaches are broken into smaller contracts. • There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels • At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.	Likely	Significant	3	
AS-3	Slurry Wall - Excavator	• Accelerated schedule or harsh weather schedule?	• Contracting plan firmly established? • Limited bid competition anticipated? • 8a or small business likely? • Accelerated schedule or harsh weather schedule?	• 8a possible, but Training Dike is the only one small enough that would meet size requirement unless reaches are broken into smaller contracts. • There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels • At the moment estimate assumes 10 hr days for these items only. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.	Likely	Significant	3	
AS-4	Slurry Wall - DSM	• Limited bid competition anticipated?	• Contracting plan firmly established? • Limited bid competition anticipated? • 8a or small business likely? • Accelerated schedule or harsh weather schedule?	• 8a possible, but Training Dike is the only one small enough that would meet size requirement unless reaches are broken into smaller contracts. • There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels • At the moment estimate assumes 10 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.	Likely	Significant	3	
AS-5	Stockpile of degrade material	• Contracting plan firmly established?	Not a contracting issue. • Contracting plan firmly established?		Unlikely	Negligible	0	
AS-6	Import Fill	• Contracting plan firmly established?	Not a contracting issue.		Unlikely	Negligible	0	
AS-7	DWSC Structure	• Contracting plan firmly established?	• Contracting plan firmly established? • Accelerated schedule or harsh weather schedule?	• There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows, work is expected to not be performed using OT.	Likely	Significant	3	
AS-8	Road Repairs	• Contracting plan firmly established?	Not a contracting issue.		Unlikely	Negligible	0	
AS-9	North Port Flood Wall	• 8a or small business likely?	• Contracting plan firmly established? • 8a or small business likely?	• There is currently no contracting plan. If North Port Flood walls are broken up, it is 8a possible contracting vehicle.	Likely	Marginal	2	
AS-10	Set Back Levee	• Contracting plan firmly established?	• 8a or small business likely? • Contracting plan firmly established? • Accelerated schedule or harsh weather schedule?	• 8a possible, but driving factor will be funding. • There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels • At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.	Possible	Marginal	1	
AS-11	Rip Rap South of DWSC Struct	• Contracting plan firmly established?	• 8a or small business likely? • Contracting plan firmly established? • Accelerated schedule or harsh weather schedule?	• 8a possible, but driving factor will be funding. • There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels • At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.	Likely	Significant	3	
AS-12	Remaining Construction Items	• Contracting plan firmly established?	Other features of work will be the controlling portion of work.	• 8a possible, but driving factor will be funding. • There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels • At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.	Unlikely	Negligible	0	
AS-13	Planning, Engineering, & Design	• Contracting plan firmly established?	• 8a or small business likely? • Contracting plan firmly established?	• 8a possible, but driving factor will be funding. • There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels • At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.	Unlikely	Negligible	0	

AS-14	Construction Management	• Contracting plan firmly established?	Other features of work will be the controlling portion of work.	<ul style="list-style-type: none"> <li>• 8a possible, but driving factor will be funding.</li> <li>• There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels</li> <li>• At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.</li> </ul>	Unlikely	Negligible	0
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Construction Elements						Max Potential Cost Growth	25%
CE-1	Rip Rap - Landside Placement	• Potential for construction modification and claims?	Availability of materials • Special equipment or subcontractors needed? • Potential for construction modification and claims?	• Nothing in the way of specialty equipment needed for this work feature. • Due to quantity needed for feature, more than one source may be needed.	Likely	Marginal	2
CE-2	Rip Rap - Waterside Placement	• Unique construction methods?	Availability of materials • High risk or complex construction elements, site access, in-water? • Potential for construction modification and claims?	• Nothing in the way of specialty equipment needed for this work feature if performed by contractor familiar to this type of construction. • Due to quantity needed for feature, more than one source may be needed. Air quality issues may arise due to quantity of either barges or highway trucks.	Likely	Marginal	2
CE-3	Slurry Wall - Excavator	• High risk or complex construction elements, site access, in-water?	• Special mobilization? • Special equipment or subcontractors needed? • Potential for construction modification and claims? • High risk or complex construction elements, site access, in-water?	• Equipment needed may not be available "locally" and might require mobilization from outside of work region. • Only a few contractors own equipment "long stick & boom" and will limit number of contractors. • Due to depth of walls, and unknown site conditions, modifications likely. • Limited space for stockpiling of degraded materials, slurry plant & pond locations.	Likely	Significant	3
CE-4	Slurry Wall - DSM	• Accelerated schedule or harsh weather schedule?	• Special mobilization? • Special equipment or subcontractors needed? • Potential for construction modification and claims? • High risk or complex construction elements, site access, in-water?	Equipment needed may not be available "locally" and might require mobilization from outside of work region. Only a few contractors own DSM equipment and will limit number of contractors bidding work. Due to depth of walls, and unknown site conditions, modifications likely. Limited space for stockpiling of degraded materials, slurry plant & pond locations.	Likely	Significant	3
CE-5	Stockpile of degrade material	• High risk or complex construction elements, site access, in-water?	• High risk or complex construction elements, site access, in-water?	• Limited space for stockpiling of degraded materials, slurry plant & pond locations.	Likely	Marginal	2
CE-6	Import Fill	• Potential for construction modification and claims?	• Potential for construction modification and claims?	• Estimate currently assumes worst case, and could be better depending on current material being suitable for levee construction.	Possible	Marginal	1
CE-7	DWSC Structure	• Potential for construction modification and claims?	• High risk or complex construction elements, site access, in-water? • Water care and diversion plan? • Unique construction methods? • Special mobilization? • Special equipment or subcontractors needed? • Potential for construction modification and claims?	• Project in general is very specialized and out of the norm for typical district work. • Water and diversion (pumping) will be a major task on this project • All facets of this project are unique in nature. • Crane sizes will be unique and will require extra effort. • Unknown conditions will effect graving site as well as DWSC foundations. Actual soil conditions unknown.	Very LIKELY	Critical	5
CE-8	Road Repairs	• Potential for construction modification and claims?	• Potential for construction modification and claims?	• It is anticipated that repair of roads will be required. Quantity is the unknown.	Likely	Marginal	2
CE-9	North Port Flood Wall	• Potential for construction modification and claims?	• Unique construction methods? • Potential for construction modification and claims?	• Nothing really unique about the design and construction of floodwalls • Location of walls are in a relatively tight footprint located along existing rail spurs and utility corridors. Coordination/relocation will be required to get to final construction.	Likely	Marginal	2
CE-10	Set Back Levee	• Potential for construction modification and claims?	• High risk or complex construction elements, site access, in-water? • Potential for construction modification and claims?	• Both concerns really revolve around real estate.	Likely	Significant	3
CE-11	Rip Rap South of DWSC Struct	• Unique construction methods?	• Unique construction methods?	• Performance of this feature will require a coordination of many types of tasks to efficiently transport, handle & place rock on a 18 mile stretch which is very linear and isolated in nature. • Actual construction is "normal"	Unlikely	Negligible	0
CE-12	Remaining Construction Items	• Potential for construction modification and claims?	• Potential for construction modification and claims?	• Since a lot of the remaining construction is with the clear/grub/stripping, and the fact that this work is relatively uniform among all the alternates and would not effect the outcome selection, it was determined by the PDT to be of low risk.	Unlikely	Negligible	0
CE-13	Planning, Engineering, & Design	• Unique construction methods?	• High risk or complex construction elements, site access, in-water? • Unique construction methods?	• The closure structure will be a significant challenge during the design phase due to the width and depth and height of the closure gates. • Construction of the graving site will require significant de-watering, removal of the existing levee and reinstallation of the levee will also require significant water issues to be able to refill the graving site after completion of the concrete ship structure.	Very LIKELY	Significant	4
CE-14	Construction Management	• Unique construction methods?	• Unique construction methods?	• Will require more critical inspection than normal district inspection.	Very LIKELY	Marginal	3

Quantities for Current Scope							Max Potential Cost Growth	20%
Q-1	Rip Rap - Landside Placement	• Level of confidence based on design and assumptions?	• Level of confidence based on design and assumptions?	• Erosion concerns are well defined. Not a lot of uncertainty in quantities.	Possible	Negligible	0	
Q-2	Rip Rap - Waterside Placement	• Sufficient investigations to develop quantities?	• Level of confidence based on design and assumptions? • Sufficient investigations to develop quantities?	• Quantities are based on conservative assumptions. • Confidence level of quantities based on these assumptions are relatively low. • Rock quantity is likely over estimated at this time and will most likely be reduced in the future. • The accuracy of this happening is very likely to occur, but will not increase costs. Therefore cost growth is unlikely.	Possible	Negligible	0	
Q-3	Slurry Wall - Excavator	• Sufficient investigations to develop quantities?	• Level of confidence based on design and assumptions? • Sufficient investigations to develop quantities?	• Current designs are based on existing data and will be refined in the design phase. • Since research not completed, there is a likely hood that the length and depth can change. More DSM could be required.	Likely	Significant	3	
Q-4	Slurry Wall - DSM	• Level of confidence based on design and assumptions?	• Level of confidence based on design and assumptions? • Sufficient investigations to develop quantities?	Since research not completed, there is a likely hood that the length and depth can change. More excavation could be required.	Likely	Marginal	2	
Q-5	Stockpile of degrade material	• Level of confidence based on design and assumptions?	Not a quantity issue based on current design	• Current design quantities used. If it is determined that more slurry wall is required(length), then potentially becomes an issue.	Possible	Marginal	1	
Q-6	Import Fill	• Level of confidence based on design and assumptions?	• Level of confidence based on design and assumptions?	• General cross sections used and will be refined during design phase. Quantities are likely to change but will be dependent on existing suitable material. Currently, the quantities and their development are consistent over the alternatives, so this would have low influence over the selection of alternative used.	Possible	Marginal	1	
Q-7	DWSC Structure	• Sufficient investigations to develop quantities?	• Level of confidence based on design and assumptions? • Appropriate methods applied to calculate quantities? • Sufficient investigations to develop quantities?	• Quantities based on a similar structure in New Orleans and scaled to this project. • The New Orleans structure has not been constructed and it is likely that costs will be higher than currently projected. • Additional refinements and investigation will be needed at a later phase.	Very LIKELY	Significant	4	
Q-8	Road Repairs	• Level of confidence based on design and assumptions?	Steel and aggregate for concrete imports effect on local roads.	• Impact on roads not known at this time. Various quality of roads leading to project site.	Unlikely	Negligible	0	
Q-9	North Port Flood Wall	• Appropriate methods applied to calculate quantities?	• Appropriate methods applied to calculate quantities?	• Closure gates numbers known, details of how they would be construction where assumed in estimate to be the same as in the Napa Dry Bypass project. • Rebar density unknown at this time, however, walls are not very tall and assumed density is consistent with 5-10' walls.	Likely	Marginal	2	
Q-10	Set Back Levee	• Level of confidence based on design and assumptions?	• Level of confidence based on design and assumptions?	• Local sponsor is at 65% design which is what the current quantities are defined. Hydraulic impact likelihood is likely, but marginal impact to cost • At this point, there is reliance on quantities supplied by local sponsor.	Likely	Marginal	2	
Q-11	Rip Rap South of DWSC Struct	• Level of confidence based on design and assumptions?	• Level of confidence based on design and assumptions?	• Quantities are currently conservative and will be refined at a later phase. • Current impression is that the quantities will be reduced if entire length does not have to be improved, but that will not be determined until later.	Possible	Negligible	0	
Q-12	Remaining Construction Items	• Level of confidence based on design and assumptions?	• Quantities are relatively the same for all the alternatives and do not have a significant effect on the determination of alternative.	• A lot of the design has not been optimized/refined and will be addressed in future. At this time not known how significant change will be.	Possible	Marginal	1	
Q-13	Planning, Engineering, & Design	• Level of confidence based on design and assumptions?	• Quantities may change but do not have an effect on alternative selection.	• Will not have a significant effect on selection of alternative.	Unlikely	Negligible	0	
Q-14	Construction Management	• Level of confidence based on design and assumptions?	• Quantities may change but do not have an effect on alternative selection.	• Will not have a significant effect on selection of alternative.	Unlikely	Negligible	0	

Specialty Fabrication or Equipment						Max Potential Cost Growth	75%
FE-1	Rip Rap - Landside Placement	• Confidence in suppliers' ability?	• Confidence in suppliers' ability?	• Quantity from chosen quarry may not be available and may require purchase from multiple sources and potential farther transport distances.	Likely	Marginal	2
FE-2	Rip Rap - Waterside Placement	• Confidence in suppliers' ability?	• Confidence in suppliers' ability?	• Quantity from chosen quarry may not be available and may require purchase from multiple sources and potential farther transport distances. Larger quantities involved which will make this more risky.	Likely	Significant	3
FE-3	Slurry Wall - Excavator	• Confidence in suppliers' ability?	• Confidence in suppliers' ability?	• Bentonite supplier generally used is located in WY. Quantity needed will not be an issue with them.	Unlikely	Negligible	0
FE-4	Slurry Wall - DSM	• Unusual parts, material or equipment manufactured or installed?	• Same as above	• Same as above	Unlikely	Negligible	0
FE-5	Stockpile of degrade material	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0
FE-6	Import Fill	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0
FE-7	DWSC Structure	• Confidence in contractor's ability to install?	• Confidence in contractor's ability to install?	This type of construction has not been done in district.	Likely	Significant	3
FE-8	Road Repairs	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0
FE-9	North Port Flood Wall	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0
FE-10	Set Back Levee	• Confidence in suppliers' ability?	• Confidence in suppliers' ability?	•	Unlikely	Negligible	0
FE-11	Rip Rap South of DWSC Struct	• Unusual parts, material or equipment manufactured or installed?	• N/A	Quantity from chosen quarry may not be available and may require purchase from multiple sources and potential farther transport distances.	Unlikely	Negligible	0
FE-12	Remaining Construction Items	• Unusual parts, material or equipment manufactured or installed?	• N/A	• Remaining items area easily obtainable items.	Unlikely	Negligible	0
FE-13	Planning, Engineering, & Design	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0
FE-14	Construction Management	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0



Cost Estimate Assumptions						Max Potential Cost Growth	35%
CT-1	Rip Rap - Landside Placement	• Reliability and number of key quotes?	• Reliability and number of key quotes?	• There are 3-4 queries that have been used/quotes obtained from previous projects. Confidence of unit price is high.	Possible	Marginal	1
CT-2	Rip Rap - Waterside Placement	• Reliability and number of key quotes?	• Reliability and number of key quotes?	• There really is only one supplier which loads directly from the quarry to barges. That supplier has been contacted and verbal quotes obtained. Confidence of price is high. From start of project to end of project, unit price may change, but that would be covered during midpoint of construction calculations.	Possible	Marginal	1
CT-3	Slurry Wall - Excavator	• Assumptions regarding crew, productivity, overtime?	• Reliability and number of key quotes? • Assumptions regarding crew, productivity, overtime?	• Our district has used this type of slurry wall construction on several projects over the past 20 years. We have developed spreadsheets that have proven to be close to actual construction times for our region. • Very few costbook crews exist in estimate. Lump sum and allowances rarely, if ever, used.	Possible	Marginal	1
CT-4	Slurry Wall - DSM	• Assumptions regarding crew, productivity, overtime?	• Reliability and number of key quotes? • Assumptions regarding crew, productivity, overtime?	• This method has only been used on 1 or 2 projects so far. • Spreadsheets have been developed to capture the majority of aspects related to the installation of this type of wall.	Possible	Marginal	1
CT-5	Stockpile of degrade material	• Reliability and number of key quotes?	• Assumptions regarding crew, productivity, overtime? • Reliability and number of key quotes?	• Typical crew make up resourced in estimate using reasonable production rates. This type of work assumed to be during normal hours for this comparison study. • After TSP is determined, these tasks will be looked at again. Newly acquired property will allow for reasonably easy used and distance.	Likely	Marginal	2
CT-6	Import Fill	• Lack confidence on critical cost items?	• Reliability and number of key quotes? • Assumptions regarding crew, productivity, overtime? • Overuse of Cost Book, lump sum, allowances? • Lack confidence on critical cost items?	• Typical crew make up resourced in estimate using reasonable production rates. • This type of work assumed to be during normal hours for this comparison study. • After TSP is determined, these tasks will be looked at again. Newly acquired property will allow for reasonably easy used and distance. • Very few to none lump sum items, allowances, cost book used in the creation of estimate. • Actual location and distance of haul not known at this point in time.	Likely	Significant	3
CT-7	DWSC Structure	• Lack confidence on critical cost items?	• Lack confidence on critical cost items?	• Even though this feature was created and estimated by New Orleans District based on a similar project they estimated and which has not been built yet, there is a significant concern to site adaptability of the structure as well as the grading site physical items not being developed enough to capture the costs well enough.	Likely	Significant	3
CT-8	Road Repairs	• Site accessibility, transport delays, congestion?	• Site accessibility, transport delays, congestion?	• The project will most likely not be effected by this item. More damage will be created by other reaches of the alternative associated with this item.	Possible	Negligible	0
CT-9	North Port Flood Wall	• Reliability and number of key quotes?	• Reliability and number of key quotes?	• Aside from other tasks, the concrete walls are not of a size or height to be out of the ordinary. Walls are relatively low and do not require a lot of abnormal work. Material quotes used are standard for the area at the moment.	Unlikely	Negligible	0
CT-10	Set Back Levee	• Reliability and number of key quotes?	• N/A	• This feature does not exist in this alternate	Unlikely	Negligible	0
CT-11	Rip Rap South of DWSC Struct	• Reliability and number of key quotes?	• N/A	• This feature does not exist in this alternate	Unlikely	Negligible	0
CT-12	Remaining Construction Items	• Assumptions regarding crew, productivity, overtime?	• Assumptions regarding crew, productivity, overtime?	• Typical crew make up resourced in estimate using reasonable production rates. • This type of work assumed to be during normal hours for this comparison study. • After TSP is determined, these tasks will be looked at again. • Very few to none lump sum items, allowances, cost book used in the creation of estimate. • Actual location and distance of haul not known at this point in time.	Unlikely	Negligible	0
CT-13	Planning, Engineering, & Design	• Reliability and number of key quotes?	• N/A	• N/A	Unlikely	Negligible	0
CT-14	Construction Management	• Reliability and number of key quotes?	• N/A	• N/A	Unlikely	Negligible	0

External Project Risks							Max Potential Cost Growth	40%
EX-1	Rip Rap - Landside Placement	• Political influences, lack of support, obstacles?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Potential for market volatility impacting competition, pricing?</li> <li>• Potential for severe adverse weather?</li> <li>• Political influences, lack of support, obstacles?</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials? - Quantities involved with this option are not as such which will make obtaining material difficult. Fuel price risk is the same for all long term projects and have been addressed in above risks.</li> <li>• Potential for market volatility impacting competition, pricing? - Concern is what could happen if a flood event occurs during project construction. In the past where a lot of rock went for PL 84-99 repairs and the project received lower quality rock. In addition the price of rock increases significantly as a result of emergency repairs.</li> <li>• Potential for severe adverse weather? Work window mandated by DWR from April to October where they could degrade the levee. Flood season is from November through April. They can get exceptions to work in April and into November, but certain parameters exist. The schedule didn't assume anything for adverse weather.</li> <li>• Political Influences, lack of support, obstacles? - Concern for erosion protection from environmental viewpoint is possibility of a jeopardy opinion.</li> </ul>	Possible	Significant	2	
EX-2	Rip Rap - Waterside Placement	• Political influences, lack of support, obstacles?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Potential for market volatility impacting competition, pricing?</li> <li>• Potential for severe adverse weather?</li> <li>• Political influences, lack of support, obstacles?</li> </ul>	<ul style="list-style-type: none"> <li>Unanticipated inflations in fuel, key materials? - Quantities involved with this option are not as such which will make obtaining material difficult. Fuel price risk is the same for all long term projects and have been addressed in above risks.</li> <li>Barging is assumed for stone placement on the Sacramento River and the DEEP Water Ship Channel. Due to the width of the river and water traffic, it is assumed that 4 barges at a time can be pushed from the quarry in San Rafael to Rio Vista area and 1 barge from Rio Vista to the various sites.</li> <li>Potential for market volatility impacting competition, pricing? - Concern is what could happen if a flood event occurs during project construction. In the past where a lot of rock went for PL 84-99 repairs and the project received lower quality rock. In addition the price of rock increases significantly as a result of emergency repairs</li> <li>Potential for severe adverse weather? Work window mandated by DWR from April to October where they could degrade the levee. Flood season is from November through April. They can get exceptions to work in April and into November, but certain parameters exist. The schedule didn't assume anything for adverse weather.</li> <li>Political Influences, lack of support, obstacles? - Concern for erosion protection from environmental viewpoint is possibility of a jeopardy opinion.</li> </ul>	Possible	Significant	2	
EX-3	Slurry Wall - Excavator	• Unanticipated inflations in fuel, key materials?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Construction Issues - Blow outs, fractures</li> <li>• Unanticipated inflations in fuel, key materials?</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials? Can occur - There are large quantities of bentonite available in Wyoming, but needs early coordination to verify amounts required each season.</li> <li>• Construction Issues - Concern about pathways of the slurry material going into backyards and into the river (blowouts). Concerns about water side staging.</li> </ul>	Possible	Significant	2	
EX-4	Slurry Wall - DSM	• Unanticipated inflations in fuel, key materials?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• DSM rig availability, Competition</li> <li>• Construction issues - Blow outs, fractures</li> <li>• Unanticipated inflations in fuel, key materials?</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials? can occur - There are large quantities of bentonite available in Wyoming, but needs early coordination to verify amounts required each season.</li> <li>• DSM rig availability, competition - Limited availability, frequent breakdown</li> <li>• Construction Issues - Concern about pathways of the slurry material going into backyards and into the river (blowouts). Concerns about water side staging.</li> </ul>	Possible	Significant	2	
EX-5	Stockpile of degrade material	• Unanticipated inflations in fuel, key materials?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Hazardous excavation material, expensive removal</li> </ul>	<ul style="list-style-type: none"> <li>Unanticipated inflation in fuel and key materials? Concern with HTRW material or the possibility of a new Corps policy impacting it. Cultural remains have a very low probability of being discovered in work areas, but if they are it will greatly affect the overall levee project. Variability in weather could shorten the project work window.</li> </ul>	Possible	Marginal	1	
EX-6	Import Fill	• Unanticipated inflations in fuel, key materials?	<ul style="list-style-type: none"> <li>• Potential for severe adverse weather?</li> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Possibility of land prices going up</li> <li>• Cultural resources, remains</li> <li>• Late construction season, delays</li> </ul>	<ul style="list-style-type: none"> <li>• Potential for severe adverse weather? Severe weather or a flood event can also impact schedule.</li> <li>• Unanticipated inflations in fuel, key materials can occur, yes and would impact cost</li> <li>Additional Identified Concerns: <ul style="list-style-type: none"> <li>• RE costs are likely to go up</li> <li>• Cultural remains have relatively low probability of occurring</li> <li>• Construction windows preclude working past the construction season</li> <li>• Avoid parcels with HTRW and endangered species.</li> </ul> </li> </ul>	Possible	Significant	2	
EX-7	DWSC Structure	• Political influences, lack of support, obstacles?	<ul style="list-style-type: none"> <li>• Potential for severe adverse weather?</li> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Political influences, lack of support, obstacles?</li> <li>• Possibility of land prices going up.</li> <li>• Cultural resources, remains</li> <li>• Late construction season, Delays</li> </ul>	<ul style="list-style-type: none"> <li>• Potential for severe adverse weather? Severe weather or a flood event can also impact schedule.</li> <li>• Unanticipated inflations in fuel, key materials? , yes and would impact cost. Concern about large gate operation equipment</li> <li>• Political influences, lack of support, obstacles? - Could be community resistance to construction of large structure near residential and agricultural land</li> <li>Additional Identified Concerns: <ul style="list-style-type: none"> <li>• Land Price Increase would impact cost</li> <li>• Cultural remains have relatively low probability of occurring</li> <li>• Construction windows preclude working past the construction season</li> <li>• Avoid parcels with HTRW and endangered species.</li> </ul> </li> </ul>	Likely	Significant	3	
EX-8	Road Repairs	• Potential for market volatility impacting competition, pricing?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Potential for market volatility impacting competition, pricing?</li> </ul>	<ul style="list-style-type: none"> <li>Not likely to be significant impact due to scope of work</li> </ul>	Possible	Marginal	1	

EX-9	North Port Flood Wall	• Political influences, lack of support, obstacles?	• Political influences, lack of support, obstacles?	Political influences, lack of support, obstacles? Concerns regarding public acceptability in terms of access and aesthetics to the levee.	Possible	Marginal	1
EX-10	Set Back Levee	• Political influences, lack of support, obstacles?	• Unanticipated inflations in fuel, key materials? • Potential for market volatility impacting competition, pricing? • Potential for severe adverse weather? • Political influences, lack of support, obstacles?	Unanticipated inflations in fuel, key materials? -Quantities involved with this option are not as such which will make obtaining material difficult. Fuel price risk is the same for all long term projects and have been addressed in above risks.  Potential for market volatility impacting competition, pricing? – Concern over cost of materials (fill and rock) if several large levee projects are going simultaneously in area.  Potential for severe adverse weather? Work window mandated by DWR from April to October where they could degrade the levee. Flood season is from November through April. They can get exceptions to work in April and into November, but certain parameters exist. The schedule didn't assume anything for adverse weather.  Political Influences, lack of support, obstacles? - Affected Real Estate interests could become obstacles	Possible	Significant	2
EX-11	Rip Rap South of DWSC Struct	• Political influences, lack of support, obstacles?	• Unanticipated inflations in fuel, key materials? • Potential for market volatility impacting competition, pricing? • Potential for severe adverse weather? • Political influences, lack of support, obstacles?	Unanticipated inflations in fuel, key materials? -Quantities involved with this option are not as such which will make obtaining material difficult. Fuel price risk is the same for all long term projects and have been addressed in above risks.  Potential for market volatility impacting competition, pricing? – Concern is what could happen if a flood event occurs during project construction. In the past where a lot of rock went for PL 84-99 repairs and the project received lower quality rock. In addition the price of rock increases significantly as a result of emergency repairs.  Potential for severe adverse weather? Work window mandated by DWR from April to October where they could degrade the levee. Flood season is from November through April. They can get exceptions to work in April and into November, but certain parameters exist. The schedule didn't assume anything for adverse weather.	Possible	Significant	2
EX-12	Remaining Construction Items	• Unanticipated inflations in fuel, key materials?	• Unanticipated inflations in fuel, key materials? Other Construction Issues - environmental, cultural - permitting - relocations - input from cultural agencies, tribes	Unanticipated inflations in fuel and key materials: Could impact cost. Other Construction Issues: Construction areas could be moved depending on the cultural issues they encounter; this is a relative small issue in terms of cost, but is very likely to happen (previous experience in past jobs).	Very LIKELY	Negligible	2
EX-13	Planning, Engineering, & Design	• Political influences, lack of support, obstacles?	• Political influences, lack of support, obstacles? - locals, and sponsor have different plans - refinements in design	Political influences, lack of support, obstacles? The resource agencies may not buy-in with USACE methods & approaches. Congresswoman Matsui has mentioned combining the ARCF GRR and West Sacramento GRR projects. A very likely possibility during the PED phase, however, she doesn't know that it will increase the cost. It was noted that the sponsors will need to understand what costs they will incur for an LPP as a part of their decision. Much of this being resolved during the PED phase. - increased resolution will likely reduce costs - LPP may contain different features - SWIF implementation could be possible	Possible	Negligible	0
EX-14	Construction Management	• Political influences, lack of support, obstacles?	• Political influences, lack of support, obstacles? - locals, and sponsor have different plans - refinements in design	see above for PED discussions.	Possible	Negligible	0

**West Sacramento GRR Alternatives Selection - Alternative 3**  
 Feasibility (Alternatives)  
 Abbreviated Risk Analysis

		<b>Potential Risk Areas</b>													
		<i>Rip Rap - Landside Placement</i>	<i>Rip Rap - Waterside Placement</i>	<i>Slurry Wall - Excavator</i>	<i>Slurry Wall - DSM</i>	<i>Stockpile of degrade material</i>	<i>Import Fill</i>	<i>DWSC Structure</i>	<i>Road Repairs</i>	<i>North Port Flood Wall</i>	<i>Set Back Levee</i>	<i>Rip Rap South of DWSC Struct</i>	<i>Remaining Construction Items</i>	<i>Planning, Engineering, &amp; Design</i>	<i>Construction Management</i>
<b>Typical Risk Elements</b>	Project Scope Growth	1	1	3	2	-	1	3	2	-	3	-	1	3	-
	Acquisition Strategy	3	3	3	3	-	-	3	-	2	1	3	-	-	-
	Construction Elements	2	2	3	3	2	1	5	2	2	3	-	-	4	3
	Quantities for Current Scope	-	-	3	2	1	1	4	-	2	2	-	1	-	-
	Specialty Fabrication or Equipment	2	3	-	-	-	-	3	-	-	-	-	-	-	-
	Cost Estimate Assumptions	1	1	1	1	2	3	3	-	-	-	-	-	-	-
	External Project Risks	2	2	2	2	1	2	3	1	1	2	2	2	-	-

**Abbreviated Risk Analysis**

Project (less than \$40M): **West Sacramento GRR Alternatives Selection - Alternative 5**

Project Development Stage: **Feasibility (Alternatives)**

Risk Category: **Moderate Risk: Typical Project or Possible Life Safety**

Total Construction Contract Cost = \$ **845,710,856**

	<u>CWWBS</u>	<u>Feature of Work</u>	<u>Contract Cost</u>	<u>% Contingency</u>	<u>\$ Contingency</u>	<u>Total</u>
	01 LANDS AND DAMAGES	Real Estate	\$ 187,350,000.00	<b>52.90%</b>	\$ 99,112,448	\$ 286,462,447.81
1	11 01 LEVEES	Rip Rap - Landside Placement	\$ 16,430,994	32.72%	\$ 5,377,014	\$ 21,808,007.56
2	11 01 LEVEES	Rip Rap - Waterside Placement	\$ 108,285,543	40.44%	\$ 43,787,896	\$ 152,073,438.64
3	11 01 LEVEES	Slurry Wall - Excavation	\$ 74,110,774	47.37%	\$ 35,109,920	\$ 109,220,694.14
4	11 01 LEVEES	Slurry Wall - DSM	\$ 22,798,869	36.94%	\$ 8,422,492	\$ 31,221,360.68
5	11 01 LEVEES	Stockpile of degrade material	\$ 14,337,010	16.86%	\$ 2,417,386	\$ 16,754,395.85
6	11 01 LEVEES	Import Fill	\$ 160,427,838	25.91%	\$ 41,568,488	\$ 201,996,325.85
7	15 FLOODWAY CONTROL AND DIVERSION STRUCTURES	DWSC Structure	\$ -	0.00%	\$ -	\$ -
8	11 01 LEVEES	Road Repairs	\$ 15,029,731	18.34%	\$ 2,756,289	\$ 17,786,019.54
9	11 02 FLOODWALLS	North Port Flood Wall	\$ 7,631,140	25.55%	\$ 1,949,865	\$ 9,581,004.77
10	11 01 LEVEES	Set Back Levee	\$ -	0.00%	\$ -	\$ -
11	11 01 LEVEES	Rip Rap South of DWSC Struct	\$ 122,375,751	27.51%	\$ 33,667,401	\$ 156,043,151.76
12		Remaining Construction Items	\$ 304,283,206	56.2%	\$ 53,558,777	\$ 357,841,983.03
13	30 PLANNING, ENGINEERING, AND DESIGN	Planning, Engineering, & Design	\$ 126,856,628	20.34%	\$ 25,797,999	\$ 152,654,627.52
14	31 CONSTRUCTION MANAGEMENT	Construction Management	\$ 71,885,423	27.03%	\$ 19,432,320	\$ 91,317,742.76

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<b>Totals</b>								
	Real Estate	\$	187,350,000	52.90%	\$	99,112,448	\$	286,462,447.81
	Total Construction Estimate	\$	845,710,856	27.03%	\$	228,615,526	\$	1,074,326,382
	Total Planning, Engineering & Design	\$	126,856,628	20.34%	\$	25,797,999	\$	152,654,628
	Total Construction Management	\$	71,885,423	27.03%	\$	19,432,320	\$	91,317,743
	18 Account - Cultural Resources	\$	8,006,719		\$		\$	8,006,719
	<b>Total</b>	\$	<b>1,239,809,626</b>	<b>26.02%</b>	\$	<b>372,958,293</b>	\$	<b>1,612,767,919</b>

**West Sacramento GRR Alternatives Selection - Alternative 5**  
Feasibility (Alternatives)  
Abbreviated Risk Analysis

Meeting Date: 6-Nov-13

		Risk Level				
		2	3	4	5	6
Very Likely						
Likely		1	2	3	4	5
Possible		0	1	2	3	4
Unlikely		0	0	1	2	3
		Negligible	Marginal	Significant	Critical	Crisis

Risk Element	Feature of Work	Concerns Pull Down Tab (ENABLE MACROS THRU TRUST CENTER) (Choose ALL that apply)	Concerns	PDT Discussions & Conclusions (Include logic & justification for choice of Likelihood & Impact)	Likelihood	Impact	Risk Level
<b>Project Scope Growth</b>							
						<b>Max Potential Cost Growth</b>	<b>75%</b>
PS-1	Rip Rap - Landside Placement	• Investigations sufficient to support design assumptions?	• Potential for scope growth, added features and quantities? • Investigations sufficient to support design assumptions?	• Design/Quantities are conservative at the moment. Growth not likely, in fact quantity is likely to be reduced in final design. Impact assumed to be possible but in a negative direction. Impact assumed marginal due to conservative at the moment.	Possible	Marginal	1
PS-2	Rip Rap - Waterside Placement	• Potential for scope growth, added features and quantities?	• Potential for scope growth, added features and quantities?	• Design/Quantities are conservative at the moment. Growth not likely, in fact quantity is likely to be reduced in final design. Impact assumed to be possible but in a negative direction. Impact assumed marginal due to conservative at the moment.	Possible	Marginal	1
PS-3	Slurry Wall - Excavation	• Potential for scope growth, added features and quantities?	Currently quantity is based on judgement of geotech group, not a lot of research completed.	• Since research not completed, there is a likelihood that the length and depth of wall can change. More DSM could be required.	Likely	Significant	3
PS-4	Slurry Wall - DSM	• Potential for scope growth, added features and quantities?	Currently quantity based on judgement of geotech group, not a lot of research completed.	• Since research not completed, there is a likelihood that the length and depth of wall can change. More excavator method could be required.	Likely	Marginal	2
PS-5	Stockpile of degrade material	• Potential for scope growth, added features and quantities?	• Currently quantity based on judgement, not a lot of research completed. Comfortable with quantities	• Platform elevations not likely to change. • Actual length of slurry wall not likely to change. This would indicate that the quantity of degrade would also not likely to change.	Unlikely	Marginal	0
PS-6	Import Fill	• Potential for scope growth, added features and quantities?	• Currently quantity based on judgement, not a lot of research completed. Comfortable with quantities	• Cross section and length not likely to change. All export of degrade material and all import of material to rebuild to design height.	Unlikely	Significant	1
PS-7	DWSC Structure	• Design confidence?	Not a part of this alternative	Not a part of this alternative	Unlikely	Negligible	0
PS-8	Road Repairs	• Potential for scope growth, added features and quantities?	• Access damage of existing roads not included in estimate.	• Road repairs on local roads used for access could be damaged and are not included in estimate.	Likely	Marginal	2
PS-9	North Port Flood Wall	• Potential for scope growth, added features and quantities?	• Potential for scope growth, added features and quantities?	• Number of closures are known and LF of wall is fairly well set. Design of closures may be an issue. For the entire project, marginal cost for the project, determined to be marginal.	Likely	Marginal	2
PS-10	Set Back Levee	• Design confidence?	Not a part of this alternative • Potential for scope growth, added features and quantities? • Water care and diversion fully understood, planned? • Design confidence?	• Sponsor is at 65% drawings. However, hydraulics has not reviewed the Cities plan and it could possibly be not "neutral". • At this point in time, there is a question as to if no rap will be required on the new set back levee. The estimate at this time does NOT include this material.	Likely	Significant	3
PS-11	Rip Rap South of DWSC Struct	• Potential for scope growth, added features and quantities?	• Potential for scope growth, added features and quantities?	• Quantities are conservative at the moment. Growth not likely, in fact quantity is likely to be reduced in final design. Impact assumed to be possible but in a negative direction. Impact assumed marginal due to conservative at the moment.	Possible	Negligible	0
PS-12	Remaining Construction Items	• Potential for scope growth, added features and quantities?	• Potential for scope growth, added features and quantities? • Investigations sufficient to support design assumptions?	• Clearing, grubbing, stripping, mobilization make up the bulk of this remaining work. • Since these items are the same for all alternatives, would not have a significant impact on the determination of an alternative.	Possible	Marginal	1
PS-13	Planning, Engineering, & Design	• Design confidence?	• Investigations sufficient to support design assumptions? • Design confidence? • Design confidence?	• Current design is thought to be conservative at the moment. Will better define design and most likely will be changes.	Likely	Significant	3
PS-14	Construction Management	• Potential for scope growth, added features and quantities?		• Will use same % construction contingency on work	Unlikely	Negligible	0

Acquisition Strategy						Max Potential Cost Growth	30%
AS-1	Rip Rap - Landside Placement	• Accelerated schedule or harsh weather schedule?	• 8a or small business likely? • Contracting plan firmly established? • Accelerated schedule or harsh weather schedule?	• 8a possible, but Training Dike is the only one small enough that would meet size requirement unless reaches are broken into smaller contracts. • There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels • At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.	Likely	Significant	3
AS-2	Rip Rap - Waterside Placement	• Contracting plan firmly established?	• 8a or small business likely? • Contracting plan firmly established? • Accelerated schedule or harsh weather schedule?	• 8a possible, but Training Dike is the only one small enough that would meet size requirement unless reaches are broken into smaller contracts. • There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels • At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.	Likely	Significant	3
AS-3	Slurry Wall - Excavation	• Accelerated schedule or harsh weather schedule?	• Contracting plan firmly established? • Limited bid competition anticipated? • 8a or small business likely? • Accelerated schedule or harsh weather schedule?	• 8a possible, but Training Dike is the only one small enough that would meet size requirement unless reaches are broken into smaller contracts. • There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels • At the moment estimate assumes 10 hr days for these items only. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.	Likely	Significant	3
AS-4	Slurry Wall - DSM	• Limited bid competition anticipated?	• Contracting plan firmly established? • Limited bid competition anticipated? • 8a or small business likely? • Accelerated schedule or harsh weather schedule?	• 8a possible, but Training Dike is the only one small enough that would meet size requirement unless reaches are broken into smaller contracts. • There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels • At the moment estimate assumes 10 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.	Likely	Significant	3
AS-5	Stockpile of degrade material	• Contracting plan firmly established?	Not a contracting issue.		Unlikely	Negligible	0
AS-6	Import Fill	• Contracting plan firmly established?	Not a contracting issue.		Unlikely	Negligible	0
AS-7	DWSC Structure	• Contracting plan firmly established?	Not a part of this alternative	Not a part of this alternative	Unlikely	Negligible	0
AS-8	Road Repairs	• Contracting plan firmly established?	Not a contracting issue.		Unlikely	Negligible	0
AS-9	North Port Flood Wall	• 8a or small business likely?	• Contracting plan firmly established?	• There is currently no contracting plan. If Nort Port Flood walls are broken up, it is 8a possible contracting vehicle.	Likely	Marginal	2
AS-10	Set Back Levee	• Contracting plan firmly established?	• Contracting plan firmly established?	• The City of West Sacramento is pushing forward with this segment of the project and will most likely build it and ask for reimbursement costs. • The Cities plan may ultimately end up with a less expensive cost of construction.	Possible	Marginal	1
AS-11	Rip Rap South of DWSC Struct	• Contracting plan firmly established?	• 8a or small business likely? • Contracting plan firmly established? • Accelerated schedule or harsh weather schedule?	• 8a possible, but driving factor will be funding. • There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels • At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.	Likely	Significant	3
AS-12	Remaining Construction Items	• Contracting plan firmly established?	Other features of work will be the controlling portion of work.	• 8a possible, but driving factor will be funding. • There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels • At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.	Unlikely	Negligible	0
AS-13	Planning, Engineering, & Design	• Contracting plan firmly established?	Other features of work will be the controlling portion of work.	• 8a possible, but driving factor will be funding. • There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels • At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.	Unlikely	Negligible	0
AS-14	Construction Management	• Contracting plan firmly established?	Other features of work will be the controlling portion of work.	• 8a possible, but driving factor will be funding. • There is not a contracting plan at the moment due to the stage of project and may be effected by funding levels • At the moment estimate assumes 8 hr days. All contracts will have some acceleration risk associated with them. No accelerated schedule is anticipated, but due to the limited construction windows and staying ahead of cutoff wall placement, work is expected to be performed using OT.	Unlikely	Negligible	0

Construction Elements						Max Potential Cost Growth	25%
CE-1	Rip Rap - Landside Placement	• Potential for construction modification and claims?	Availability of materials • Special equipment or subcontractors needed? • Potential for construction modification and claims?	• Nothing in the way of specialty equipment needed for this work feature. • Due to quantity needed for feature, more than one source may be needed.	Likely	Marginal	2
CE-2	Rip Rap - Waterside Placement	• Unique construction methods?	Availability of materials • High risk or complex construction elements, site access, in-water? • Potential for construction modification and claims?	• Nothing in the way of specialty equipment needed for this work feature if performed by contractor familiar to this type of construction. • Due to quantity needed for feature, more than one source may be needed. Air quality issues may arise due to quantity of either barges or highway trucks.	Likely	Marginal	2
CE-3	Slurry Wall - Excavation	• High risk or complex construction elements, site access, in-water?	• Special mobilization? • Special equipment or subcontractors needed? • Potential for construction modification and claims? • High risk or complex construction elements, site access, in-water?	• Equipment needed may not be available "locally" and might require mobilization from outside of work region. • Only a few contractors own equipment "long stick & boom" and will limit number of contractors. • Due to depth of walls, and unknown site conditions, modifications likely. • Limited space for stockpiling of degraded materials, slurry plant & pond locations.	Likely	Significant	3
CE-4	Slurry Wall - DSM	• Accelerated schedule or harsh weather schedule?	• Special mobilization? • Special equipment or subcontractors needed? • Potential for construction modification and claims? • High risk or complex construction elements, site access, in-water?	Equipment needed may not be available "locally" and might require mobilization from outside of work region. Only a few contractors own DSM equipment and will limit number of contractors bidding work. Due to depth of walls, and unknown site conditions, modifications likely. Limited space for stockpiling of degraded materials, slurry plant & pond locations.	Likely	Significant	3
CE-5	Stockpile of degrade material	• High risk or complex construction elements, site access, in-water?	• High risk or complex construction elements, site access, in-water?	• Limited space for stockpiling of degraded materials, slurry plant & pond locations.	Likely	Marginal	2
CE-6	Import Fill	• Potential for construction modification and claims?	• Potential for construction modification and claims?	• Estimate currently assumes worst case, and could be better depending on current material being suitable for levee construction.	Possible	Marginal	1
CE-7	DWSC Structure	• Potential for construction modification and claims?	Not a part of this alternative	Not a part of this alternative	Unlikely	Negligible	0
CE-8	Road Repairs	• Potential for construction modification and claims?	• Potential for construction modification and claims?	• It is anticipated that repair of roads will be required. Quantity is the unknown.	Likely	Marginal	2
CE-9	North Port Flood Wall	• Potential for construction modification and claims?	• Unique construction methods? • Potential for construction modification and claims?	• Nothing really unique about the design and construction of floodwalls • Location of walls are in a relatively tight footprint located along existing rail spurs and utility corridors. Coordination/relocation will be required to get to final construction.	Likely	Marginal	2
CE-10	Set Back Levee	• Potential for construction modification and claims?	• High risk or complex construction elements, site access, in-water? • Potential for construction modification and claims?	• Both concerns really revolve around real estate.	Likely	Significant	3
CE-11	Rip Rap South of DWSC Struct	• Unique construction methods?	• Unique construction methods?	• Performance of this feature will require a coordination of many types of tasks to efficiently transport, handle & place rock on a 18 mile stretch which is very linear and isolated in nature. • Actual construction is "normal"	Unlikely	Negligible	0
CE-12	Remaining Construction Items	• Accelerated schedule or harsh weather schedule?	• Potential for construction modification and claims?	• Since a lot of the remaining construction is with the clear/grub/stripping, and the fact that this work is relatively uniform among all the alternatives and would not effect the outcome selection, it was determined by the PDT to be of low risk.	Unlikely	Negligible	0
CE-13	Planning, Engineering, & Design	• Accelerated schedule or harsh weather schedule?	• High risk or complex construction elements, site access, in-water? • Unique construction methods?	• The closure structure will be a significant challenge during the design phase due to the width and depth and height of the closure gates. • Construction of the graving site will require significant de-watering, removal of the existing levee and reinstallation of the levee will also require significant water issues to be able to refill the graving site after completion of the concrete ship structure.	Unlikely	Negligible	0
CE-14	Construction Management	• Accelerated schedule or harsh weather schedule?	• Unique construction methods?	• Will require more critical inspection than normal district inspection.	Unlikely	Negligible	0



Quantities for Current Scope							Max Potential Cost Growth	20%
Q-1	Rip Rap - Landside Placement	• Level of confidence based on design and assumptions?	• Level of confidence based on design and assumptions?	• Erosion concerns are well defined. Not a lot of uncertainty in quantities.	Possible	Negligible	0	
Q-2	Rip Rap - Waterside Placement	• Sufficient investigations to develop quantities?	• Level of confidence based on design and assumptions? • Sufficient investigations to develop quantities?	• Quantities are based on conservative assumptions. • Confidence level of quantities based on these assumptions are relatively low. • Rock quantity is likely over estimated at this time and will most likely be reduced in the future. <i>The accuracy of this hypothesis is very likely to occur, but will not increase.</i>	Possible	Negligible	0	
Q-3	Slurry Wall - Excavation	• Sufficient investigations to develop quantities?	• Level of confidence based on design and assumptions? • Sufficient investigations to develop quantities?	• Current designs are based on existing data and will be refined in the design phase. • Since research not completed, there is a likely hood that the length and depth can change. More DSM could be required.	Likely	Significant	3	
Q-4	Slurry Wall - DSM	• Level of confidence based on design and assumptions?	• Level of confidence based on design and assumptions? • Sufficient investigations to develop quantities?	Since research not completed, there is a likely hood that the length and depth can change. More excavation could be required.	Likely	Marginal	2	
Q-5	Stockpile of degrade material	• Level of confidence based on design and assumptions?	Not a quantity issue based on current design	• Current design quantities used. If it is determined that more slurry wall is required(length), then potentially becomes an issue.	Unlikely	Negligible	0	
Q-6	Import Fill	• Level of confidence based on design and assumptions?	• Level of confidence based on design and assumptions?	• General cross sections used and will be refined during design phase. Quantities are likely to change but will be dependent on existing suitable material. Currently, the quantities and their development are consistent over the alternatives, so this would have low influence over the selection of alternative used.	Possible	Marginal	1	
Q-7	DWSC Structure	• Sufficient investigations to develop quantities?	Not a part of this alternative	Not a part of this alternative	Very LIKELY	Significant	4	
Q-8	Road Repairs	• Level of confidence based on design and assumptions?	Steel and aggregate for concrete imports effect on local roads.	• Impact on roads not known at this time. Various quality of roads leading to project site.	Unlikely	Negligible	0	
Q-9	North Port Flood Wall	• Appropriate methods applied to calculate quantities?	• Appropriate methods applied to calculate quantities?	• Closure gates numbers known, details of how they would be construction where assumed in estimate to be the same as in the Napa Dry Bypass project. • Rebar density unknown at this time, however, walls are not very tall and assumed density is consistent with 5-10' walls.	Likely	Marginal	2	
Q-10	Set Back Levee	• Level of confidence based on design and assumptions?	Not a part of this alternative	Not a part of this alternative	Unlikely	Negligible	0	
Q-11	Rip Rap South of DWSC Struct	• Level of confidence based on design and assumptions?	• Level of confidence based on design and assumptions?	• Quantities are currently conservative and will be refined at a later phase. • Current impression is that the quantities will be reduced if entire length does not have to be improved, but that will not be determined until later.	Possible	Negligible	0	
Q-12	Remaining Construction Items	• Level of confidence based on design and assumptions?	• Quantities are relatively the same for all the alternatives and do not have a significant effect on the determination of alternative.	• A lot of the design has not been optimized/refined and will be addressed in future. At this time not known how significant change will be.	Possible	Marginal	1	
Q-13	Planning, Engineering, & Design	• Level of confidence based on design and assumptions?	• Quantities may change but do not have an effect on alternative selection.	• Will not have a significant effect on selection of alternative.	Unlikely	Negligible	0	
Q-14	Construction Management	• Level of confidence based on design and assumptions?	• Quantities may change but do not have an effect on alternative selection.	• Will not have a significant effect on selection of alternative.	Unlikely	Negligible	0	

Specialty Fabrication or Equipment						Max Potential Cost Growth	75%
FE-1	Rip Rap - Landside Placement	• Confidence in suppliers' ability?	• Confidence in suppliers' ability?	• Quantity from chosen quarry may not be available and may require purchase from multiple sources and potential farther transport distances.	Likely	Marginal	2
FE-2	Rip Rap - Waterside Placement	• Confidence in suppliers' ability?	• Confidence in suppliers' ability?	• Quantity from chosen quarry may not be available and may require purchase from multiple sources and potential farther transport distances. Larger quantities involved which will make this more risky.	Likely	Significant	3
FE-3	Slurry Wall - Excavation	• Confidence in suppliers' ability?	• Confidence in suppliers' ability?	• Bentonite supplier generally used is located in WY. Quantity needed will not be an issue with them.	Unlikely	Negligible	0
FE-4	Slurry Wall - DSM	• Unusual parts, material or equipment manufactured or installed?	• Same as above	• Same as above	Unlikely	Negligible	0
FE-5	Stockpile of degrade material	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0
FE-6	Import Fill	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0
FE-7	DWSC Structure	• Confidence in contractor's ability to install?	• Confidence in contractor's ability to install?	This type of construction has not been done in district.	Unlikely	Negligible	0
FE-8	Road Repairs	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0
FE-9	North Port Flood Wall	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0
FE-10	Set Back Levee	• Confidence in suppliers' ability?	Not a part of this alternative	Not a part of this alternative	Unlikely	Negligible	0
FE-11	Rip Rap South of DWSC Struct	• Unusual parts, material or equipment manufactured or installed?	• N/A	Quantity from chosen quarry may not be available and may require purchase from multiple sources and potential farther transport distances.	Unlikely	Negligible	0
FE-12	Remaining Construction Items	• Unusual parts, material or equipment manufactured or installed?	• N/A	• Remaining items area easily obtainable itmes.	Unlikely	Negligible	0
FE-13	Planning, Engineering, & Design	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0
FE-14	Construction Management	• Unusual parts, material or equipment manufactured or installed?	• N/A	• N/A	Unlikely	Negligible	0

Cost Estimate Assumptions							Max Potential Cost Growth	35%
CT-1	Rip Rap - Landside Placement	• Reliability and number of key quotes?	• Reliability and number of key quotes?	• There are 3-4 quarries that have been used/quotes obtained from previous projects. Confidence of unit price is high.	Possible	Marginal	1	
CT-2	Rip Rap - Waterside Placement	• Reliability and number of key quotes?	• Reliability and number of key quotes?	• There really is only one supplier which loads directly from the quarry to barges. That supplier has been contacted and verbal quotes obtained. Confidence of price is high. From start of project to end of project, unit price may change, but that would be covered during midpoint of construction calculations.	Possible	Marginal	1	
CT-3	Slurry Wall - Excavation	• Reliability and number of key quotes?	• Reliability and number of key quotes? • Assumptions regarding crew, productivity, overtime?	• Our district has used this type of slurry wall construction on several projects over the past 20 years. We have developed spreadsheets that have proven to be close to actual construction times for our region. • Very few costbook crews exist in estimate. Lump sum and allowances rarely, if ever, used.	Possible	Marginal	1	
CT-4	Slurry Wall - DSM	• Reliability and number of key quotes?	• Reliability and number of key quotes? • Assumptions regarding crew, productivity, overtime?	• This method has only been used on 1 or 2 projects so far. • Spreadsheets have been developed to capture the majority of aspects related to the installation of this type of wall.	Possible	Marginal	1	
CT-5	Stockpile of degrade material	• Reliability and number of key quotes?	• Assumptions regarding crew, productivity, overtime? • Reliability and number of key quotes?	• Typical crew make up resourced in estimate using reasonable production rates. This type of work assumed to be during normal hours for this comparison study. • After TSP is determined, these tasks will be looked at again. Newly acquired property will allow for reasonably easy used and distance.	Likely	Marginal	2	
CT-6	Import Fill	• Reliability and number of key quotes?	• Reliability and number of key quotes? • Assumptions regarding crew, productivity, overtime? • Overuse of Cost Book, lump sum, allowances? • Lack confidence on critical cost items?	• Typical crew make up resourced in estimate using reasonable production rates. • This type of work assumed to be during normal hours for this comparison study. • After TSP is determined, these tasks will be looked at again. Newly acquired property will allow for reasonably easy used and distance. • Very few to none lump sum items, allowances, cost book used in the creation of estimate. • Actual location and distance of haul not known at this point in time.	Likely	Significant	3	
CT-7	DWSC Structure	• Reliability and number of key quotes?	• Lack confidence on critical cost items?	• Even though this feature was created and estimated by New Orleans District based on a similar project they estimated and which has not been built yet, there is a significant concern to site adaptability of the structure as well as the graving site physical items not being developed enough to capture the costs well enough.	Likely	Significant	3	
CT-8	Road Repairs	• Reliability and number of key quotes?	• Site accessibility, transport delays, congestion?	• The project will most likely not be effected by this item. More damage will be created by other reaches of the alternative associated with this item.	Possible	Negligible	0	
CT-9	North Port Flood Wall	• Reliability and number of key quotes?	• Reliability and number of key quotes?	• Aside from other tasks, the concrete walls are not of a size or height to be out of the ordinary. Walls are relatively low and do not require a lot of abnormal work. Material quotes used are standard for the area at the moment.	Unlikely	Negligible	0	
CT-10	Set Back Levee	• Reliability and number of key quotes?	• N/A	• This feature does not exist in this alternate	Unlikely	Negligible	0	
CT-11	Rip Rap South of DWSC Struct	• Reliability and number of key quotes?	• Reliability and number of key quotes?	• There really is only one supplier which loads directly from the quarry to barges. That supplier has been contacted and verbal quotes obtained. Confidence of price is high. From start of project to end of project, unit price may change, but that would be covered during midpoint of construction calculations.	Likely	Significant	3	
CT-12	Remaining Construction Items	• Reliability and number of key quotes?	• Assumptions regarding crew, productivity, overtime?	• Typical crew make up resourced in estimate using reasonable production rates. • This type of work assumed to be during normal hours for this comparison study. • After TSP is determined, these tasks will be looked at again. • Very few to none lump sum items, allowances, cost book used in the creation of estimate. • Actual location and distance of haul not known at this point in time.	Possible	Marginal	1	
CT-13	Planning, Engineering, & Design	• Reliability and number of key quotes?	• N/A	• N/A	Unlikely	Negligible	0	
CT-14	Construction Management	• Reliability and number of key quotes?	• N/A	• N/A	Unlikely	Negligible	0	

External Project Risks							Max Potential Cost Growth	40%
EX-1	Rip Rap - Landside Placement	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Potential for market volatility impacting competition, pricing?</li> <li>• Potential for severe adverse weather?</li> <li>• Political influences, lack of support, obstacles?</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials? -Quantities involved with this option are not as such which will make obtaining material difficult. Fuel price risk is the same for all long term projects and have been addressed in above risks.</li> </ul>	Possible	Significant	2	
EX-2	Rip Rap - Waterside Placement	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Potential for market volatility impacting competition, pricing?</li> <li>• Potential for severe adverse weather?</li> <li>• Political influences, lack of support, obstacles?</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials? -Quantities involved with this option are not as such which will make obtaining material difficult. Fuel price risk is the same for all long term projects and have been addressed in above risks.</li> </ul>	Possible	Significant	2	
EX-3	Slurry Wall - Excavation	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Construction Issues - Blow outs, fractures</li> <li>• Unanticipated inflations in fuel, key materials?</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials? Can occur - There are large quantities of bentonite available in Wyoming, but needs early coordination to verify amounts required each season.</li> <li>• Construction Issues - Concern about pathways of the slurry material going into backyards and into the river (blowouts). Concerns about water side staging.</li> </ul>	Possible	Significant	2	
EX-4	Slurry Wall - DSM	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• DSM rig availability, Competition</li> <li>• Construction issues - Blow outs, fractures</li> <li>• Unanticipated inflations in fuel, key materials?</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials? can occur - There are large quantities of bentonite available in Wyoming, but needs early coordination to verify amounts required each season.</li> <li>• DSM rig availability, competition - Limited availability, frequent breakdown</li> <li>• Construction Issues - Concern about pathways of the slurry material going into backyards and into the river (blowouts). Concerns about water side staging.</li> </ul>	Possible	Significant	2	
EX-5	Stockpile of degrade material	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Hazardous excavation material, expensive removal</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflation in fuel and key materials? Concern with HTRW material or the possibility of a new Corps policy impacting it. Cultural remains have a very low probability of being discovered in work areas, but if they are it will greatly affect the overall levee project. Variability in weather could shorten the project work window.</li> </ul>	Possible	Marginal	1	
EX-6	Import Fill	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Potential for severe adverse weather?</li> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Possibility of land pieces going up</li> <li>• Cultural resources, remains</li> <li>• Late construction season, delays</li> </ul>	<ul style="list-style-type: none"> <li>• Potential for severe adverse weather? Severe weather or a flood event can also impact schedule.</li> <li>• Unanticipated inflations in fuel, key materials can occur, yes and would impact cost.</li> <li>Additional Identified Concerns:</li> <li>• RE costs are likely to go up</li> <li>• Cultural remains have relatively low probability of occurring</li> <li>• Construction windows preclude working past the construction season</li> <li>• Avoid parcels with HTRW and endangered species.</li> </ul>	Possible	Significant	2	
EX-7	DWSC Structure	• Potential for severe adverse weather?	Not a part of this alternative	Not a part of this alternative	Likely	Significant	3	
EX-8	Road Repairs	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Potential for market volatility impacting competition, pricing?</li> </ul>	Not likely to be significant impact due to scope of work	Possible	Marginal	1	
EX-9	North Port Flood Wall	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Political influences, lack of support, obstacles?</li> </ul>	<ul style="list-style-type: none"> <li>• Political influences, lack of support, obstacles?</li> <li>Concerns regarding public acceptability in terms of access and aesthetics to the levee.</li> </ul>	Possible	Marginal	1	
EX-10	Set Back Levee	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Potential for market volatility impacting competition, pricing?</li> <li>• Potential for severe adverse weather?</li> <li>• Political influences, lack of support, obstacles?</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials? -Quantities involved with this option are not as such which will make obtaining material difficult. Fuel price risk is the same for all long term projects and have been addressed in above risks.</li> <li>Potential for market volatility impacting competition, pricing? - Concern over cost of materials (fill and rock) if several large levee projects are going simultaneously in area.</li> <li>Potential for severe adverse weather? Work window mandated by DWR from April to October where they could degrade the levee. Flood season is from November through April. They can get exceptions to work in April and into November, but certain parameters exist. The schedule didn't assume anything for adverse weather.</li> <li>Political Influences, lack of support, obstacles? - Affected Real Estate interests could become obstacles</li> </ul>	Possible	Significant	2	
EX-11	Rip Rap South of DWSC Struct	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>• Potential for market volatility impacting competition, pricing?</li> <li>• Potential for severe adverse weather?</li> <li>• Political influences, lack of support, obstacles?</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials? -Quantities involved with this option are not as such which will make obtaining material difficult. Fuel price risk is the same for all long term projects and have been addressed in above risks.</li> </ul>	Possible	Significant	2	
EX-12	Remaining Construction Items	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel, key materials?</li> <li>Other Construction Issues</li> <li>- environmental, cultural</li> <li>- permitting</li> <li>- relocations</li> <li>- input from cultural agencies, tribes</li> </ul>	<ul style="list-style-type: none"> <li>• Unanticipated inflations in fuel and key materials: Could impact cost.</li> <li>Other Construction Issues: Construction areas could be moved depending on the cultural issues they encounter; this is a relative small issue in terms of cost, but is very likely to happen (previous experience in past jobs).</li> </ul>	Very LIKELY	Negligible	2	
EX-13	Planning, Engineering, & Design	• Potential for severe adverse weather?	<ul style="list-style-type: none"> <li>• Political influences, lack of support, obstacles?</li> <li>- locals, and sponsor have different plans</li> <li>- refinements in design</li> </ul>	<ul style="list-style-type: none"> <li>• Political influences, lack of support, obstacles? The resource agencies may not buy-in with USACE methods &amp; approaches. Congresswoman Matsui has mentioned combining the ARCF GRR and West Sacramento GRR projects. A very likely possibility during the PED phase, however, she doesn't know that it will increase the cost. It was noted that the sponsors will need to understand what costs they will incur for an LPP as a part of their decision. Much of this being resolved during the PED phase.</li> <li>- increased resolution will likely reduce costs</li> <li>- LPP may contain different features</li> <li>- SWIF implementation could be possible</li> </ul>	Possible	Negligible	0	

EX-14	Construction Management	• Potential for severe adverse weather?	<ul style="list-style-type: none"><li>• Political influences, lack of support, obstacles?</li><li>- locals, and sponsor have different plans</li><li>- refinements in design</li></ul>	see above for PED discussions.	Possible	Negligible	0
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**West Sacramento GRR Alternatives Selection - Alternative 5**  
 Feasibility (Alternatives)  
 Abbreviated Risk Analysis

		<b>Potential Risk Areas</b>													
		<i>Rip Rap - Landside Placement</i>	<i>Rip Rap - Waterside Placement</i>	<i>Slurry Wall - Excavation</i>	<i>Slurry Wall - DSM</i>	<i>Stockpile of degrade material</i>	<i>Import Fill</i>	<i>DWSC Structure</i>	<i>Road Repairs</i>	<i>North Port Flood Wall</i>	<i>Set Back Levee</i>	<i>Rip Rap South of DWSC Struct</i>	<i>Remaining Construction Items</i>	<i>Planning, Engineering, &amp; Design</i>	<i>Construction Management</i>
<b>Typical Risk Elements</b>	Project Scope Growth	1	1	3	2	-	1	-	2	2	3	-	1	3	-
	Acquisition Strategy	3	3	3	3	-	-	-	-	2	1	3	-	-	-
	Construction Elements	2	2	3	3	2	1	-	2	2	3	-	-	-	-
	Quantities for Current Scope	-	-	3	2	-	1	4	-	2	-	-	1	-	-
	Specialty Fabrication or Equipment	2	3	-	-	-	-	-	-	-	-	-	-	-	-
	Cost Estimate Assumptions	1	1	1	1	2	3	3	-	-	-	3	1	-	-
	External Project Risks	2	2	2	2	1	2	3	1	1	2	2	2	-	-

Sort	SysCode	Folder Description	Quantity	UOM	Unit Cost	Contract Cost
1		A Training Dike	1	EA	\$ 4,609,824.02	\$ 4,609,824.02
2	1.1	02 Real Estate	1	EA	\$ -	\$ -
4	1.2	06 Environmental	1	EA	\$ 180,000.00	\$ 180,000.00
6	1.3	Levees and Floodwalls	1	EA	\$ 4,429,824.02	\$ 4,429,824.02
7	1.3.1	MOBILIZATION	1	MO	\$ 348,906.56	\$ 348,906.56
9	1.3.2	GRADING A STAGING AREA	6	ACR	\$ 263.96	\$ 1,583.78
10	1.3.2.1	GRADING A STAGING AREA	6	ACR	\$ 263.96	\$ 1,583.78
13	1.3.3	REMOVAL OF TREES	90	EA	\$ 180.93	\$ 16,283.36
14	1.3.3.1	DEMOLITION OF TREES	90	EA	\$ 138.28	\$ 12,444.79
18	1.3.3.2	TRANSPORTATION OF TREES	90	EA	\$ 42.65	\$ 3,838.56
19	1.3.3.2.1	Dump Fees	90	EA	\$ 4.96	\$ 446.29
23	1.3.4	CLEARING AND STRIPPING 6"	10,500	CY	\$ 32.30	\$ 339,201.89
24	1.3.4.1	STRIPPING AND DEPOSITING ON HINGE	10,500	CY	\$ 8.66	\$ 90,962.15
25	1.3.4.1.1	STRIP GRASS	10,500	CY	\$ 8.66	\$ 90,962.15
31	1.3.4.2	TRANSPORTING STRIPPED MATERIAL OFF SITE (EXPORT)	10,500	CY	\$ 23.64	\$ 248,239.74
32	1.3.4.2.1	Dump Fees	10,500	CY	\$ -	\$ -
33	1.3.4.2.2	Load with excavator	10,500	CY	\$ 8.73	\$ 91,707.19
38	1.3.4.2.3	Haul - Assume 15BCY/ILD -	10,500	CY	\$ 14.91	\$ 156,532.54
40	1.3.5	GEOTEXTILE FABRIC PLACEMENT	39,000	SY	\$ 2.62	\$ 102,033.84
41	1.3.5.1	GEOTEXTILE FABRIC PLACEMENT	39,000	SY	\$ 2.62	\$ 102,033.84
44	1.3.6	EROSION PROTECTION RIPRAP	83,000	TON	\$ 43.64	\$ 3,621,814.60
45	1.3.6.1	TRANSPORTING RIPRAP TO SITE	83,000	TON	\$ 37.97	\$ 3,151,746.89
48	1.3.6.2	RIPRAP PLACEMENT WITH EXCAVATOR	83,000	TON	\$ 5.66	\$ 470,067.71
52		Yolo Bypass Levee	1	EA	\$ 10,938,785.00	\$ 10,938,785.00
53	2.1	Real Estate	1	EA	\$ 150,000.00	\$ -
55	2.2	Relocations	1	EA	\$ 188,300.95	\$ 188,300.95
56	2.2.1	Place 4" Aggregate Base	129,200	SF	\$ 1.24	\$ 160,400.95
80	2.2.2	Relocation Inventory & Costs from RE	1	EA	\$ 27,900.00	\$ 27,900.00
82	2.3	Environmental	1	EA	\$ 120,000.00	\$ 120,000.00
84	2.4	Levees and Floodwalls	1	EA	\$ 10,630,484.04	\$ 10,630,484.04
85	2.4.1	Mobilization / Demobilization	1	EA	\$ 1,175,189.01	\$ 1,175,189.01
86	2.4.1.1	SWPPP Implementation and Maintenance	1	LS	\$ 255,365.73	\$ 255,365.73
88	2.4.1.1.1	Temporary Erosion Control	1,000	LF	\$ 15.97	\$ 15,974.04
90	2.4.1.1.1.1	Silt fence install / maint / removal	1,000	LF	\$ 15.97	\$ 15,974.04
91	2.4.1.1.1.1.1	Install fencing	1,000	LF	\$ 8.55	\$ 8,549.70
93	2.4.1.1.1.1.2	Maintenance	8	HR	\$ 73.07	\$ 584.57
95	2.4.1.1.1.1.3	Remove Fencing	1,000	LF	\$ 6.84	\$ 6,839.76
97	2.4.1.2	Surveying	1	EA	\$ 17,099.41	\$ 17,099.41
98	2.4.1.2.1	Pre-survey	1	EA	\$ 3,419.88	\$ 3,419.88
100	2.4.1.2.2	Construction Staking	1	EA	\$ 6,839.76	\$ 6,839.76
102	2.4.1.2.3	Surveys for payment	1	EA	\$ 3,419.88	\$ 3,419.88
104	2.4.1.2.4	Re-establish survey monuments	1	EA	\$ 3,419.88	\$ 3,419.88
106	2.4.1.3	Accommodation of Utilities	1	LS	\$ 21,545.25	\$ 21,545.25
108	2.4.1.4	Temp Fencing	4,400	LF	\$ 3.42	\$ 15,047.48
110	2.4.1.5	Mob & Set up (Slurry wall equipment & Excavators)	1	EA	\$ 561,761.70	\$ 561,761.70
111	2.4.1.5.1	Mobilization	1	EA	\$ 134,187.59	\$ 134,187.59
117	2.4.1.5.2	Set up / Break down PC 1250	1	EA	\$ 138,736.75	\$ 138,736.75
123	2.4.1.5.3	Set Up / Break down Slurry Plant	1	EA	\$ 158,868.81	\$ 158,868.81
137	2.4.1.5.4	Set up / Break down PC 750	1	EA	\$ 129,968.55	\$ 129,968.55
143	2.4.1.6	Project Support	1	EA	\$ 270,170.63	\$ 270,170.63
145	2.4.1.7	Trench plates	1	EA	\$ -	\$ -
146	2.4.2	Clearing & stripping 6"	13,000	CY	\$ 28.42	\$ 369,520.96
147	2.4.2.1	Strip Grass	13,000	CY	\$ 8.50	\$ 110,445.01
152	2.4.2.2	Excavation & Export	13,000	CY	\$ 19.93	\$ 259,075.95
153	2.4.2.2.1	Dump Fees	867	EA	\$ -	\$ -
154	2.4.2.2.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	867	EA	\$ 102.52	\$ 88,886.24
156	2.4.2.2.3	Load with excavator	13,000	CY	\$ 6.74	\$ 87,610.78
160	2.4.2.2.4	Place at dumpsite	13,000	CY	\$ 3.85	\$ 50,038.14
163	2.4.2.2.5	Maintain streets or haul roads	14	DAY	\$ 2,324.34	\$ 32,540.80
165	2.4.3	Excavation (Degrade Levee) / export to temp storage]	80,100	BCY	\$ 15.16	\$ 1,214,236.46
166	2.4.3.1	Excavation & Export	80,100	CY	\$ 15.16	\$ 1,214,236.46
167	2.4.3.1.1	Dump Fees	5,340	EA	\$ -	\$ -
168	2.4.3.1.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	5,340	EA	\$ 102.40	\$ 546,834.69
170	2.4.3.1.3	Load with excavator	80,100	CY	\$ 4.30	\$ 344,051.30
174	2.4.3.1.4	Place at dumpsite	80,100	CY	\$ 2.47	\$ 197,835.97
177	2.4.3.1.5	Maintain streets or haul roads	54	DAY	\$ 2,324.34	\$ 125,514.50
179	2.4.4	Embankment Fill / Import from temp storage including additional purchased material	91,600	BCY	\$ 22.04	\$ 2,019,279.93
180	2.4.4.1	Load & haul stockpiled material	80,100	CY	\$ 19.07	\$ 1,527,656.35
181	2.4.4.1.1	Load with excavator	80,100	CY	\$ 4.30	\$ 344,212.44
185	2.4.4.1.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	5,340	EA	\$ 102.40	\$ 546,834.69
187	2.4.4.1.3	Place Fill Material	80,100	CY	\$ 6.37	\$ 510,164.98
194	2.4.4.1.4	Maintain streets or haul roads	54	DAY	\$ 2,324.34	\$ 126,444.24
196	2.4.4.2	Load & haul import	11,500	CY	\$ 39.34	\$ 452,380.44
197	2.4.4.2.1	Buy Material	11,500	CY	\$ 5.56	\$ 63,909.03
199	2.4.4.2.2	Hual	958	EA	\$ 307.21	\$ 294,307.66
201	2.4.4.2.3	Place Fill Material	11,500	CY	\$ 6.37	\$ 73,244.66
208	2.4.4.2.4	Maintain streets or haul roads	9	DAY	\$ 2,324.34	\$ 20,919.08
210	2.4.4.3	Compaction Testing	153	EA	\$ 256.49	\$ 39,243.14
212	2.4.5	Buy, Haul, Place Clay Cap for Cut off Wall	20,000	CY	\$ 39.60	\$ 792,051.14
213	2.4.5.1	Buy Material	20,000	CY	\$ 5.56	\$ 111,146.14
215	2.4.5.2	Hual	1,667	EA	\$ 307.21	\$ 512,119.91
217	2.4.5.3	Place Fill Material	20,000	CY	\$ 6.39	\$ 127,780.09
224	2.4.5.4	Maintain streets or haul roads	14	DAY	\$ 2,324.34	\$ 32,540.80
226	2.4.5.5	Compaction Testing	33	EA	\$ 256.49	\$ 8,464.21
228	2.4.6	Soil Bentonite Slurrywall (mixing plant operation)	294,800	SF	\$ 16.45	\$ 4,848,173.90
229	2.4.6.1	SW Materials	298,334	SF	\$ 6.50	\$ 1,938,483.46

232	2.4.6.2	Mob & Set up	1 EA	\$	134,187.59	\$	134,187.59
233	2.4.6.2.1	Mobilization	1 EA	\$	134,187.59	\$	134,187.59
239	2.4.6.3	Cutoff Slurry Wall, 3' wide	298,334 SF	\$	7.05	\$	2,104,448.54
257	2.4.6.4	Hauling, General, 12cy trucks	610 HR	\$	863.70	\$	526,854.95
262	2.4.6.5	Export excess slurry at completion of project	6 EA	\$	3,636.00	\$	21,816.01
263	2.4.6.5.1	Dump Fees	6 EA	\$	2,564.91	\$	15,389.47
266	2.4.6.6	Testing	294,800 SF	\$	0.33	\$	96,577.43
268	2.4.6.7	Secondary Containment Barrier	850 LF	\$	30.36	\$	25,805.91
269	2.4.6.7.1	K Rail Rental	850 LF	\$	20.36	\$	17,306.99
270	2.4.6.7.1.1	Rent K Rail	850 LF	\$	6.84	\$	5,813.80
272	2.4.6.7.1.2	Place K Rail	850 LF	\$	7.39	\$	6,283.94
277	2.4.6.7.1.3	Remove K Rail	850 LF	\$	6.13	\$	5,209.24
282	2.4.6.7.2	Other materials for containment	1 EA	\$	1,955.32	\$	1,955.32
286	2.4.6.7.3	Place visqueen, fill sand bags, & place	850 EA	\$	7.70	\$	6,543.61
289	2.4.7	Hydroseed	31 ACR	\$	6,839.76	\$	212,032.64
291	3	Lock Closure Levee	1 EA	\$	22,492,451.43	\$	22,492,451.43
292	3.1	Real Estate	1 EA	\$	2,222,922.88	\$	-
294	3.2	Relocations	1 EA	\$	-	\$	-
296	3.3	Levees and Floodwalls	1 EA	\$	22,492,451.43	\$	22,492,451.43
297	3.3.1	MOBILIZATION	1 MO	\$	1,071,069.22	\$	1,071,069.22
299	3.3.2	GRADING A STAGING AREA	6 ACR	\$	788.35	\$	4,730.08
300	3.3.2.1	GRADING A STAGING AREA	6 ACR	\$	788.35	\$	4,730.08
307	3.3.3	REMOVAL OF TREES	50 EA	\$	234.90	\$	11,745.24
308	3.3.3.1	DEMOLITION OF TREES	50 EA	\$	186.67	\$	9,333.60
312	3.3.3.2	TRANSPORTATION OF TREES	50 EA	\$	48.23	\$	2,411.65
313	3.3.3.2.1	Dump Fees	50 EA	\$	4.96	\$	247.94
317	3.3.4	REMOVE CONCRETE AND FENCE	1 EA	\$	292,835.25	\$	292,835.25
318	3.3.4.1	Break up and load concrete curb and gutter; remove fence	15,200 SF	\$	9.86	\$	149,827.12
324	3.3.4.2	Transp.Of Waste Material	12,000 CY	\$	11.92	\$	143,008.13
329	3.3.5	Relocate Storm Pipes	1 EA	\$	9,654.62	\$	9,654.62
330	3.3.5.1	18" RCP	200 LF	\$	24.14	\$	4,827.31
331	3.3.5.1.1	Relocate and Install	200 LF	\$	24.14	\$	4,827.31
337	3.3.5.2	15" RCP	200 LF	\$	24.14	\$	4,827.31
338	3.3.5.2.1	Relocate and Install	200 LF	\$	24.14	\$	4,827.31
344	3.3.6	Utility Pole Relocation	3 EA	\$	51,298.22	\$	153,894.66
346	3.3.7	CLEARING AND STRIPPING 6"	1 EA	\$	192,201.93	\$	192,201.93
347	3.3.7.1	STRIPPING AND DEPOSITING ON HINGE	4,000 CY	\$	8.96	\$	35,838.32
348	3.3.7.1.1	STRIP GRASS	4,000 CY	\$	8.96	\$	35,838.32
354	3.3.7.2	TRANSPORTING STRIPPED MATERIAL OFF SITE (EXPORT)	4,000 CY	\$	39.09	\$	156,363.61
355	3.3.7.2.1	Dump Fees	4,000 CY	\$	-	\$	-
356	3.3.7.2.2	Load with excavator	4,000 CY	\$	8.60	\$	34,390.20
361	3.3.7.2.3	Haul - Assume 15BCY/ILD -	4,000 CY	\$	30.49	\$	121,973.41
363	3.3.8	Piling	1 EA	\$	7,796,986.08	\$	7,796,986.08
364	3.3.8.1	Material	111,930 SF	\$	40.77	\$	4,563,303.34
366	3.3.8.2	Install Temporary Sheet Piles	55,965 SF	\$	12.42	\$	695,069.61
367	3.3.8.2.1	Water Crew	55,965 SF	\$	12.42	\$	695,069.61
379	3.3.8.3	Install Permanent Sheet Pile	55,965 SF	\$	12.42	\$	695,069.61
380	3.3.8.3.1	Water Crew	55,965 SF	\$	12.42	\$	695,069.61
392	3.3.8.4	Remove Temporary Sheet Piles	55,965 SF	\$	32.94	\$	1,843,543.52
393	3.3.8.4.1	Water Removal	55,965 SF	\$	32.94	\$	1,843,543.52
404	3.3.9	Dewatering	1 EA	\$	5,166.34	\$	5,166.34
406	3.3.10	Import Embankment Fill & Place	230,000 CY	\$	56.23	\$	12,932,143.29
407	3.3.10.1	Buy & Haul Fill Material	230,000 CY	\$	43.67	\$	10,045,172.03
408	3.3.10.1.1	Buy Material	230,000 CY	\$	5.56	\$	1,278,180.66
410	3.3.10.1.2	Hual	19,167 EA	\$	457.40	\$	8,766,991.38
412	3.3.10.2	Place Embankment Fill Material	230,000 CY	\$	11.93	\$	2,743,183.37
419	3.3.10.3	Compaction Testing	384 EA	\$	256.49	\$	98,492.58
421	3.3.10.4	Process bottom of fills	258,445 SF	\$	0.18	\$	45,295.30
429	3.3.11	Seeding	1 EA	\$	6,618.16	\$	6,618.16
430	3.3.11.1	Erosion Control Seed	5 ACR	\$	854.97	\$	4,274.85
432	3.3.11.2	Delivery & Placement	5 ACR	\$	468.66	\$	2,343.31
437	3.3.12	GUARD RAIL	1 EA	\$	15,406.57	\$	15,406.57
438	3.3.12.1	PERMANENT GUARD RAIL	530 LF	\$	29.07	\$	15,406.57
440	4	DWSC West Station 0+00 to123+00 Length = 12,300' = 2.33 mi	1 LS	\$	39,215,128.86	\$	39,215,128.86
441	4.1	01 Real Estate	1 EA	\$	2,409,930.54	\$	-
443	4.2	02 Relocation	1 LS	\$	-	\$	-
445	4.3	06 Fish & Wildlife Facilities	1 LS	\$	60,000.00	\$	60,000.00
447	4.4	11 Levee & Floodwalls	1 LS	\$	39,155,128.86	\$	39,155,128.86
448	4.4.1	Levee	1 LS	\$	39,155,128.86	\$	39,155,128.86
449	4.4.1.1	Mobilization / Demobilization	1 LS	\$	2,226,508.51	\$	2,226,508.51
450	4.4.1.1.1	Mix Design (Slurry)	1 LS	\$	8,549.70	\$	8,549.70
452	4.4.1.1.2	Mob/Demob Equipment	1 LS	\$	1,001,038.43	\$	1,001,038.43
453	4.4.1.1.2.1	Equipment	1 EA	\$	800,707.02	\$	800,707.02
454	4.4.1.1.2.1.1	Earth Work & SB Wall Conventional	1 LS	\$	241,121.87	\$	241,121.87
455	4.4.1.1.2.1.1.1	LABOR: Number of Days (4 Days)	4 DAY	\$	9,862.12	\$	39,448.48
456	4.4.1.1.2.1.1.1.1	Number of Crews (1ea)	4 DAY	\$	9,862.12	\$	39,448.48
460	4.4.1.1.2.1.1.2	Equipment	4 DAY	\$	50,418.35	\$	201,673.38
461	4.4.1.1.2.1.1.2.1	Number of Crews (1ea)	4 DAY	\$	50,418.35	\$	201,673.38
462	4.4.1.1.2.1.1.2.1.1	Stripping Equipment & Levee Degrade (1crew)	32 HR	\$	4,319.02	\$	138,208.72
476	4.4.1.1.2.1.1.2.1.2	Cutoff Wall Trench Equipment (1 Crews)	32 HR	\$	967.39	\$	30,956.45
484	4.4.1.1.2.1.1.2.1.3	Batch Plant Equipment (1 Crews)	32 HR	\$	481.53	\$	15,408.81
493	4.4.1.1.2.1.1.2.1.4	Build Tremie Assembly	1 LS	\$	17,099.41	\$	17,099.41
495	4.4.1.1.2.1.2	DSM Cutoff Wall (3 Crew)	1 LS	\$	559,585.15	\$	559,585.15
496	4.4.1.1.2.1.2.1	LABOR: Number of Days (6 Days)	6 DAY	\$	29,586.36	\$	177,518.17
497	4.4.1.1.2.1.2.1.1	Number of Crews (3ea)	18 DAY	\$	9,862.12	\$	177,518.17
501	4.4.1.1.2.1.2.2	Equipment	6 DAY	\$	63,677.83	\$	382,066.98
502	4.4.1.1.2.1.2.2.1	Number of Crews (3ea)	18 DAY	\$	21,225.94	\$	382,066.98
503	4.4.1.1.2.1.2.2.1.1	DSM Equipment (3 Crews)	144 HR	\$	2,653.24	\$	382,066.98
504	4.4.1.1.2.1.2.2.1.1.1	Drill Rig	144 HR	\$	1,659.75	\$	239,004.56
509	4.4.1.1.2.1.2.2.1.1.2	Batch Plant	144 HR	\$	271.81	\$	39,141.32



513	4.4.1.1.2.1.2.2.1.1.3	Generators, Skid Mount	144 HR	\$	206.60	\$	29,751.02
516	4.4.1.1.2.1.2.2.1.1.4	Loader, 4cy	144 HR	\$	134.88	\$	19,423.42
518	4.4.1.1.2.1.2.2.1.1.5	cat 320, 44,000 # MACHINE	144 HR	\$	88.35	\$	12,722.24
520	4.4.1.1.2.1.2.2.1.1.6	Pumps	144 HR	\$	94.50	\$	13,607.35
524	4.4.1.1.2.1.2.2.1.1.7	Misc Equip	144 HR	\$	197.34	\$	28,417.06
531	4.4.1.1.2.2	Equipment Trucking	1 LS	\$	200,331.41	\$	200,331.41
532	4.4.1.1.2.2.1	Equipment Trucking (8hrs per EQ)	76 EA	\$	1,858.54	\$	141,248.99
534	4.4.1.1.2.2.2	Crane	120 HR	\$	492.35	\$	59,082.42
537	4.4.1.1.3	Traffic Control	1 LS	\$	255,165.26	\$	255,165.26
538	4.4.1.1.3.1	Flagger	6 MO	\$	36,269.16	\$	217,614.96
543	4.4.1.1.3.2	Signs, Message boards, Delineators,	6 MO	\$	6,258.38	\$	37,550.30
547	4.4.1.1.4	Staging Areas	1 LS	\$	128,557.10	\$	128,557.10
548	4.4.1.1.4.1	Staging/Stockpiles Area	2 EA	\$	64,278.55	\$	128,557.10
549	4.4.1.1.4.1.1	Staging Area (1.5 acre/site)	3 ACR	\$	34,499.66	\$	103,498.97
550	4.4.1.1.4.1.1.1	Top Soil Stripping	3 ACR	\$	34,499.66	\$	103,498.97
551	4.4.1.1.4.1.1.1.1	Stripping 6"	2,420 CY	\$	42.77	\$	103,498.97
552	4.4.1.1.4.1.1.1.1.1	Strip Grass	2,420 CY	\$	8.48	\$	20,523.03
557	4.4.1.1.4.1.1.1.1.2	Stockpile Topsoil	2,420 CY	\$	13.01	\$	31,473.12
558	4.4.1.1.4.1.1.1.1.2.1	Load with excavator	2,420 CY	\$	2.98	\$	7,204.54
560	4.4.1.1.4.1.1.1.1.2.2	Haul - Assume 15BCY/LD - Off road Haul, on road return	161 EA	\$	101.64	\$	16,398.65
562	4.4.1.1.4.1.1.1.1.2.3	Place at dumpsite	2,420 CY	\$	3.25	\$	7,869.94
564	4.4.1.1.4.1.1.1.1.3	Replace Stripping	2,420 CY	\$	21.28	\$	51,502.82
565	4.4.1.1.4.1.1.1.1.3.1	Load with excavator	2,420 CY	\$	6.16	\$	14,918.98
569	4.4.1.1.4.1.1.1.1.3.2	Haul - Assume 15BCY/LD - Off road Haul, on road return	161 EA	\$	101.64	\$	16,398.65
571	4.4.1.1.4.1.1.1.1.3.3	Place Stripping on Slopes	2,420 CY	\$	8.34	\$	20,185.20
575	4.4.1.1.4.1.2	Erosion Control Seeding	3 ACR	\$	8,352.71	\$	25,058.13
576	4.4.1.1.4.1.2.1	Revegetation/Seeding	3 ACR	\$	8,352.71	\$	25,058.13
577	4.4.1.1.4.1.2.1.1	Erosion Control Seeding	3 ACR	\$	8,352.71	\$	25,058.13
578	4.4.1.1.4.1.2.1.1.1	Hydroseed	3 ACR	\$	7,267.25	\$	21,801.74
580	4.4.1.1.4.1.2.1.1.2	Maintenance	3 MO	\$	1,085.46	\$	3,256.38
583	4.4.1.1.5	Accommodation of Utilities	1 LS	\$	64,635.76	\$	64,635.76
585	4.4.1.1.6	Project Preconstruction Submittals	1 LS	\$	48,288.73	\$	48,288.73
589	4.4.1.1.7	Subcontractor Work	1 LS	\$	720,273.54	\$	720,273.54
590	4.4.1.1.7.1	SWPPP Implementation and Maintenance	1 LS	\$	610,153.36	\$	610,153.36
591	4.4.1.1.7.1.1	Temporary Erosion Control	32,000 LF	\$	4.26	\$	136,247.94
593	4.4.1.1.7.1.1.1	Silt fence install / maint / removal	32,000 LF	\$	4.26	\$	136,247.94
594	4.4.1.1.7.1.1.1.1	Material - Silt Fence	321 RLL	\$	46.17	\$	14,796.97
596	4.4.1.1.7.1.1.1.2	Installation	32,000 LF	\$	2.61	\$	83,382.45
601	4.4.1.1.7.1.1.1.3	Maintenance	40 HR	\$	73.07	\$	2,922.85
603	4.4.1.1.7.1.1.1.4	Remove Fencing	32,000 LF	\$	1.10	\$	35,145.67
607	4.4.1.1.7.1.2	Straw Wattle/ Fiber Rolls	140,800 LF	\$	2.76	\$	388,408.38
608	4.4.1.1.7.1.2.1	Straw Wattles - During Construction	12,800 LF	\$	2.77	\$	35,482.55
609	4.4.1.1.7.1.2.1.1	Material	13,440 LF	\$	1.37	\$	18,385.28
612	4.4.1.1.7.1.2.1.2	Installation	12,800 LF	\$	0.79	\$	10,131.72
617	4.4.1.1.7.1.2.1.3	Remove Straw Wattle	12,800 LF	\$	0.54	\$	6,965.55
622	4.4.1.1.7.1.2.2	Straw Wattles - After levee constructed	128,000 LF	\$	2.76	\$	352,925.83
623	4.4.1.1.7.1.2.2.1	Material	134,400 LF	\$	1.37	\$	183,852.82
626	4.4.1.1.7.1.2.2.2	Installation	128,000 LF	\$	0.79	\$	101,317.16
631	4.4.1.1.7.1.2.2.3	Remove Straw Wattle	128,000 LF	\$	0.53	\$	67,755.85
636	4.4.1.1.7.2	Surveying	1 LS	\$	41,038.58	\$	41,038.58
637	4.4.1.1.7.2.1	Pre-survey	1 EA	\$	6,839.76	\$	6,839.76
639	4.4.1.1.7.2.2	Construction Staking	1 EA	\$	10,259.64	\$	10,259.64
641	4.4.1.1.7.2.3	Surveys for payment	1 EA	\$	13,679.53	\$	13,679.53
643	4.4.1.1.7.2.4	Re-establish survey monuments	1 EA	\$	3,419.88	\$	3,419.88
645	4.4.1.1.7.2.5	Post-survey	1 EA	\$	6,839.76	\$	6,839.76
647	4.4.1.1.7.3	Temp Fencing	5,000 LF	\$	3.42	\$	17,099.41
649	4.4.1.1.7.4	Analytical Soil Testing	1 LS	\$	25,649.11	\$	25,649.11
651	4.4.1.1.7.5	Sound Vibration Monitoring	2 EA	\$	13,166.54	\$	26,333.09
654	4.4.1.2	Clearing & Grubbing	83 ACR	\$	1,018.43	\$	84,529.69
655	4.4.1.2.1	Clearing & Grubbing - Debris	1 LS	\$	84,529.69	\$	84,529.69
656	4.4.1.2.1.1	Excavation & Export	20 HR	\$	4,226.48	\$	84,529.69
657	4.4.1.2.1.1.1	Excavate & Load with Excavator	20 HR	\$	895.55	\$	17,911.10
661	4.4.1.2.1.1.2	Haul - Assume 15BCY/LD - Off road Haul, on road return	83 EA	\$	310.17	\$	25,744.17
663	4.4.1.2.1.1.3	Dump Fees	1,245 CY	\$	32.83	\$	40,874.42
665	4.4.1.3	Stripping	15,220 BCY	\$	44.71	\$	680,522.15
666	4.4.1.3.1	Stripping 6" Topsoil	15,220 BCY	\$	44.71	\$	680,522.15
667	4.4.1.3.1.1	Strip Grass windrow	15,220 BCY	\$	8.47	\$	128,904.97
672	4.4.1.3.1.2	Stockpile Topsoil	17,503 CY	\$	13.01	\$	227,702.74
673	4.4.1.3.1.2.1	Load with excavator	17,503 CY	\$	2.98	\$	52,107.86
675	4.4.1.3.1.2.2	Haul - Assume 15BCY/LD - Off road Haul, on road return	1,167 EA	\$	101.64	\$	118,619.14
677	4.4.1.3.1.2.3	Place at dumpsite	17,503 CY	\$	3.26	\$	56,975.73
679	4.4.1.3.1.3	Replace Stripping	15,220 CY	\$	21.28	\$	323,914.44
680	4.4.1.3.1.3.1	Load with excavator	15,220 CY	\$	6.16	\$	93,829.27
684	4.4.1.3.1.3.2	Haul - Assume 15BCY/LD - Off road Haul, on road return	1,015 EA	\$	101.64	\$	103,135.30
686	4.4.1.3.1.3.3	Place Stripping on Slopes	15,220 CY	\$	8.34	\$	126,949.88
690	4.4.1.4	Excavation (Levee Degrade)	34,671 CY	\$	6.43	\$	222,895.06
691	4.4.1.4.1	Excavation (Degrade Levee) / export to temp storage]	44,032 CY	\$	5.06	\$	222,895.06
701	4.4.1.5	Embankment Fill / Import from temp storage including additional purchased material	41,805 CY	\$	24.03	\$	1,004,494.35
702	4.4.1.5.1	Levee Degrade Material	44,032 LCY	\$	10.31	\$	453,932.74
703	4.4.1.5.1.1	Scarify & Moisture Condition Fills	1,730,000 SF	\$	0.09	\$	156,947.33
712	4.4.1.5.1.2	Place Fill Material from Stockpile	44,032 CY	\$	5.52	\$	243,075.67
723	4.4.1.5.1.3	Quality Control	40 HR	\$	1,347.74	\$	53,909.73
728	4.4.1.5.2	Imported Fill	7,134 BCY	\$	58.45	\$	416,990.77
729	4.4.1.5.2.1	Buy Material	8,204 CY	\$	11.66	\$	95,673.37
731	4.4.1.5.2.2	Haul Material	8,204 CY	\$	31.43	\$	257,811.13
732	4.4.1.5.2.2.1	Haul	746 EA	\$	345.59	\$	257,811.13
734	4.4.1.5.2.3	Place Fill Material	8,204 CY	\$	7.74	\$	63,506.27
741	4.4.1.5.3	Finish Slopes	2,846,760 SF	\$	0.04	\$	120,764.17
747	4.4.1.5.4	Quality Control	33 HR	\$	388.08	\$	12,806.67
752	4.4.1.6	Impervious Fill	5,914 CY	\$	60.13	\$	355,585.06

753	4.4.1.6.1	Buy Material	6,801	CY	\$	11.66	\$	79,311.87
755	4.4.1.6.2	Haul Material	6,801	CY	\$	31.42	\$	213,669.69
756	4.4.1.6.2.1	Haul	618	EA	\$	345.59	\$	213,669.69
758	4.4.1.6.3	Place Fill Material	6,801	CY	\$	7.64	\$	51,959.68
765	4.4.1.6.4	Quality Control	27	HR	\$	394.22	\$	10,643.82
770	4.4.1.7	Soil Bentonite Slurrywall (All DSM Work)	860,502	SF	\$	24.26	\$	20,879,342.65
771	4.4.1.7.1	SB Cutoff Wall - DSM Method, 3' wide, 95' deep, 9,000'L	860,502	SF	\$	24.18	\$	20,810,644.84
772	4.4.1.7.1.1	Cutoff Wall, DSM	860,502	SF	\$	24.18	\$	20,810,644.84
773	4.4.1.7.1.1.1	Duration, used	3,840	HR	\$	-	\$	-
775	4.4.1.7.1.1.2	SW Materials	860,502	SF	\$	3.09	\$	2,655,747.34
779	4.4.1.7.1.1.3	Foreman, General	3,840	HR	\$	148.06	\$	568,551.50
782	4.4.1.7.1.1.4	Laborers	3,840	HR	\$	260.92	\$	1,001,914.42
783	4.4.1.7.1.1.4.1	Laborers, 3 ea	11,520	HR	\$	86.97	\$	1,001,914.42
785	4.4.1.7.1.1.5	Drill Rig	3,840	HR	\$	1,919.52	\$	7,370,972.23
792	4.4.1.7.1.1.6	Batch Plant	3,840	HR	\$	394.38	\$	1,514,422.85
797	4.4.1.7.1.1.7	Generators, Skid Mount	3,840	HR	\$	206.60	\$	793,360.60
800	4.4.1.7.1.1.8	Loader, 4cy	3,840	HR	\$	257.45	\$	988,611.98
803	4.4.1.7.1.1.9	Pumps	3,840	HR	\$	94.50	\$	362,862.73
807	4.4.1.7.1.1.10	cat 320, 44,000 # MACHINE	3,840	HR	\$	210.92	\$	809,913.97
810	4.4.1.7.1.1.11	Misc Equip	3,840	HR	\$	197.34	\$	757,788.37
817	4.4.1.7.1.1.12	Water Truck, 5000 gal	3,840	HR	\$	233.11	\$	895,147.11
821	4.4.1.7.1.1.13	Trench Plates	6	MO	\$	64,943.55	\$	389,661.28
822	4.4.1.7.1.1.13.1	Rental Duration	18	MO	\$	21,647.85	\$	389,661.28
826	4.4.1.7.1.1.14	Settlement Plates	18	EA	\$	341.99	\$	6,155.79
828	4.4.1.7.1.1.15	Testing	3,840	HR	\$	203.91	\$	783,016.03
832	4.4.1.7.1.1.16	Project Surveyor	960	HR	\$	512.98	\$	492,462.91
834	4.4.1.7.1.1.17	Hauling, General, 12cy trucks, 2ea	7,680	HR	\$	184.90	\$	1,420,055.73
835	4.4.1.7.1.1.17.1	Dump Trucks, 12 cy	7,680	HR	\$	184.90	\$	1,420,055.73
839	4.4.1.7.2	Secondary Containment Barrier	1,000	LF	\$	68.70	\$	68,697.81
840	4.4.1.7.2.1	K-rail Barriers (Concrete)	1,000	LF	\$	60.14	\$	60,136.47
841	4.4.1.7.2.1.1	Rental Duration - Jenson Precast Quote	4	MO	\$	15,034.12	\$	60,136.47
842	4.4.1.7.2.1.1.1	1st Month Rent	50	EA	\$	213.74	\$	10,687.13
844	4.4.1.7.2.1.1.2	2nd Month Rent	50	EA	\$	170.99	\$	8,549.70
846	4.4.1.7.2.1.1.3	3rd Month Rent	50	EA	\$	170.99	\$	8,549.70
848	4.4.1.7.2.1.1.4	4th Month Rent	50	EA	\$	170.99	\$	8,549.70
850	4.4.1.7.2.1.1.5	Place K Rail	50	EA	\$	238.00	\$	11,900.12
851	4.4.1.7.2.1.1.5.1	Truckload	9	EA	\$	1,322.24	\$	11,900.12
853	4.4.1.7.2.1.1.6	Remove K-rail	50	EA	\$	238.00	\$	11,900.12
854	4.4.1.7.2.1.1.6.1	Truckload	9	EA	\$	1,322.24	\$	11,900.12
856	4.4.1.7.2.2	Other materials for containment	1	EA	\$	2,017.73	\$	2,017.73
860	4.4.1.7.2.3	Place visqueen, fill sand bags, & place	860	EA	\$	7.61	\$	6,543.61
863	4.4.1.8	Aggregate Base	9,774	TON	\$	50.86	\$	497,139.08
864	4.4.1.8.1	Import & Place	9,774	TON	\$	50.86	\$	497,139.08
865	4.4.1.8.1.1	Buy & Haul Aggregates	9,774	TON	\$	30.75	\$	300,508.36
866	4.4.1.8.1.1.1	Buy Material	9,774	TON	\$	17.53	\$	171,307.84
868	4.4.1.8.1.1.2	Haul Material	9,774	TON	\$	13.22	\$	129,200.52
869	4.4.1.8.1.1.2.1	Loads	408	EA	\$	316.47	\$	129,200.52
872	4.4.1.8.1.2	Place & Compact Aggregates	9,774	TON	\$	7.81	\$	76,350.75
882	4.4.1.8.1.3	Finish Grade	369,000	SF	\$	0.20	\$	72,593.70
891	4.4.1.8.1.4	Quality Control	41	HR	\$	1,160.36	\$	47,686.28
896	4.4.1.9	Hydroseed	53	ACR	\$	7,451.57	\$	394,933.29
897	4.4.1.9.1	Hydroseed	53	ACR	\$	7,267.25	\$	385,164.14
899	4.4.1.9.2	Maintenance	3	MO	\$	3,256.38	\$	9,769.15
902	4.4.1.10	RIPRAP	157,156	TON	\$	81.51	\$	12,809,179.03
903	4.4.1.10.1	Import & Place	157,156	TON	\$	81.51	\$	12,809,179.03
904	4.4.1.10.1.1	Buy & Haul Materials	157,156	TON	\$	72.48	\$	11,391,283.01
905	4.4.1.10.1.1.1	Material Purchase	157,156	TON	\$	41.47	\$	6,516,640.35
907	4.4.1.10.1.1.2	Haul Material	157,156	TON	\$	31.02	\$	4,874,642.66
908	4.4.1.10.1.1.2.1	Load - 22ton	7,858	EA	\$	620.34	\$	4,874,642.66
910	4.4.1.10.1.2	Quarry Stone - Placement	157,156	TON	\$	9.02	\$	1,417,896.01
916	5	DWSC West Levee (Navigation Levee) 123+00 - 1002+60	1	EA	\$	163,311,950.33	\$	163,311,950.33
917	5.1	Real Estate	1	EA	\$	3,509,375.00	\$	-
919	5.2	Relocation	1	EA	\$	-	\$	-
921	5.3	Environmental	1	EA	\$	420,000.00	\$	420,000.00
923	5.4	Levee & Floodwalls	1	EA	\$	162,891,950.33	\$	162,891,950.33
924	5.4.1	MOBILIZATION	1	MO	\$	7,001,574.87	\$	7,001,574.87
926	5.4.2	REMOVAL OF TREES	15	EA	\$	364.05	\$	5,460.68
927	5.4.2.1	DEMOLITION OF TREES	15	EA	\$	285.19	\$	4,277.90
931	5.4.2.2	TRANSPORTATION OF TREES	15	EA	\$	78.85	\$	1,182.79
932	5.4.2.2.1	Dump Fees	15	EA	\$	4.96	\$	74.38
936	5.4.3	CLEARING AND STRIPPING 6"	423	ACR	\$	8,572.27	\$	3,626,068.76
937	5.4.3.1	STRIPPING AND DEPOSITING ON HINGE	117,983	CY	\$	8.50	\$	1,002,481.43
938	5.4.3.1.1	STRIPPING	117,983	CY	\$	8.50	\$	1,002,481.43
944	5.4.3.2	TRANSPORTING STRIPPED MATERIAL OFF SITE (EXPORT)	117,983	CY	\$	22.24	\$	2,623,587.33
945	5.4.3.2.1	Dump Fees	117,983	CY	\$	-	\$	-
946	5.4.3.2.2	Load with excavator	117,983	CY	\$	8.68	\$	1,024,610.78
951	5.4.3.2.3	Haul - Assume 15BCY/ILD -	157,307	CY	\$	10.16	\$	1,598,976.55
953	5.4.4	Excavation (Levee Degrade)	393,304	CY	\$	5.38	\$	2,117,503.04
954	5.4.4.1	Excavation (Degrade Levee) / export to temp storage]	499,496	CY	\$	4.24	\$	2,117,503.04
964	5.4.5	Embankment Fill / Import from temp storage	334,711	CY	\$	5.93	\$	1,985,850.06
965	5.4.5.1	Levee Degrade Material	384,918	BCY	\$	5.03	\$	1,937,476.62
966	5.4.5.1.1	Scarify & Moisture Condition Fills	1,730,000	SF	\$	0.09	\$	156,947.33
975	5.4.5.1.2	Place Fill Material from Stockpile	384,918	CY	\$	4.63	\$	1,780,529.29
986	5.4.5.2	Quality Control	293	HR	\$	165.10	\$	48,373.44
991	5.4.6	Aggregate Base and Drainage Material	78,000	TON	\$	65.83	\$	5,134,723.71
992	5.4.6.1	Import & Place Aggregate Base	1	EA	\$	5,134,723.71	\$	5,134,723.71
993	5.4.6.1.1	Import & Place	78,000	TON	\$	65.83	\$	5,134,723.71
994	5.4.6.1.1.1	Buy & Haul Aggregates	78,000	TON	\$	45.62	\$	3,558,513.45
995	5.4.6.1.1.1.1	Haul from Teichert-Perkins Plant	78,000	TON	\$	23.39	\$	1,824,633.60
998	5.4.6.1.1.2	Place & Compact Aggregates	78,000	TON	\$	9.16	\$	714,100.83

1007	5.4.6.1.1.3	Finish Grade	2,638,800 SF	\$	0.33	\$	862,109.43
1016	5.4.7	Import Impervious and Random Fill & Place	51,614 CY	\$	71.01	\$	3,664,936.30
1017	5.4.7.1	Buy & Haul Fill Material	59,356 CY	\$	26.90	\$	1,596,748.56
1018	5.4.7.1.1	Buy Material	59,356 CY	\$	5.56	\$	329,859.53
1020	5.4.7.1.2	Haul	4,946 EA	\$	256.14	\$	1,266,889.03
1022	5.4.7.2	Place Fill Material	59,356 CY	\$	11.94	\$	708,456.92
1029	5.4.7.3	Compaction Testing	99 EA	\$	256.49	\$	25,392.62
1031	5.4.7.4	Process bottom of fills	7,564,560 SF	\$	0.18	\$	1,334,338.20
1039	5.4.8	Levee Slurry Walls	1,249,801 SF	\$	12.60	\$	15,743,809.03
1040	5.4.8.1	Soil/Bentonite Slurrywall (mixing plant operation)	1,249,801 SF	\$	12.54	\$	15,675,411.40
1041	5.4.8.1.1	SW Materials	1,249,801 SF	\$	2.83	\$	3,534,628.14
1044	5.4.8.1.2	Mob & Set up	1 EA	\$	477,940.22	\$	477,940.22
1045	5.4.8.1.2.1	Mobilization	1 EA	\$	134,187.59	\$	134,187.59
1051	5.4.8.1.2.2	Set up / Break down PC 1250	1 EA	\$	100,377.96	\$	100,377.96
1057	5.4.8.1.2.3	Set up / Break down PC 750	1 EA	\$	100,377.96	\$	100,377.96
1063	5.4.8.1.2.4	Set Up / Break down Slurry Plant	1 EA	\$	142,996.71	\$	142,996.71
1077	5.4.8.1.3	Cutoff Slurry Wall, 3' wide	1,249,801 SF	\$	7.92	\$	9,896,011.02
1098	5.4.8.1.4	Hauling, General, 12cy trucks	2,960 HR	\$	431.85	\$	1,278,271.02
1101	5.4.8.1.5	Export excess slurry at completion of project	6 EA	\$	3,320.49	\$	19,922.97
1102	5.4.8.1.5.1	Dump Fees	6 EA	\$	2,564.91	\$	15,389.47
1105	5.4.8.1.6	Testing	1,249,801 SF	\$	0.37	\$	468,638.03
1107	5.4.8.2	Settlement Plates	200 EA	\$	341.99	\$	68,397.63
1109	5.4.9	EROSION PROTECTION RIPRAP	1,408,142 TON	\$	86.91	\$	122,375,750.77
1110	5.4.9.1	Material Purchase	1,408,142 TON	\$	41.47	\$	58,390,102.64
1112	5.4.9.2	Material haul & offload	1,408,142 TON	\$	11.13	\$	15,669,158.60
1117	5.4.9.3	Load and Haul to dump location	1,408,142 TON	\$	31.06	\$	43,737,556.62
1118	5.4.9.3.1	Load	1,408,142 TON	\$	2.58	\$	3,638,983.04
1121	5.4.9.3.2	Haul	1,408,142 TON	\$	28.48	\$	40,098,573.58
1123	5.4.9.4	RIPRAP PLACEMENT WITH EXCAVATOR	1,408,142 TON	\$	3.25	\$	4,578,932.92
1127	5.4.10	Seeding	180 ACR	\$	6,868.18	\$	1,236,273.11
1128	5.4.10.1	Erosion Control Seed	934 ACR	\$	854.97	\$	798,542.30
1130	5.4.10.2	Delivery & Placement	934 ACR	\$	468.66	\$	437,730.82
1135	6	South Cross Levee Station 0+00 to 62+73 Length = 6,273' = 1.19mi	1 LS	\$	38,037,272.88	\$	38,037,272.88
1136	6.1	Real Estate	1 EA	\$	4,495,000.00	\$	-
1139	6.2	Relocation	1 LS	\$	1,136,524.13	\$	1,136,524.13
1140	6.2.1	Relocate Ditch	2,730 LF	\$	61.04	\$	166,629.93
1142	6.2.1.1	Excavate & Sidecast	6,026 CY	\$	7.73	\$	46,552.58
1146	6.2.1.2	Backfill Ditch	6,026 CY	\$	3.91	\$	23,589.20
1148	6.2.1.3	Compact Fill	6,026 CY	\$	6.43	\$	38,777.21
1151	6.2.1.4	Quality Control	116 HR	\$	98.10	\$	11,380.00
1156	6.2.1.5	Dewatering	1 LS	\$	46,330.94	\$	46,330.94
1157	6.2.1.5.1	Temporary Bypass System	1 LS	\$	46,330.94	\$	46,330.94
1158	6.2.1.5.1.1	Dewatering	1 LS	\$	46,330.94	\$	46,330.94
1159	6.2.1.5.1.1.1	Surface Dewatering - EQ Rental (4,500 gpm = 10cfs)	1 MO	\$	35,778.15	\$	35,778.15
1160	6.2.1.5.1.1.1.1	Mob/Demob	1 LS	\$	2,400.00	\$	2,400.00
1162	6.2.1.5.1.1.1.2	Installation	1 LS	\$	2,540.15	\$	2,540.15
1163	6.2.1.5.1.1.1.2.1	Labor & Equipment	20 HR	\$	127.01	\$	2,540.15
1165	6.2.1.5.1.1.1.3	Pump Rental	1 MO	\$	13,600.00	\$	13,600.00
1168	6.2.1.5.1.1.1.4	Fuel Consumption	1 MO	\$	17,238.00	\$	17,238.00
1170	6.2.1.5.1.1.2	Maintenance on Generator	1 MO	\$	873.60	\$	873.60
1171	6.2.1.5.1.1.2.1	Number of Generator	1 EA	\$	873.60	\$	873.60
1173	6.2.1.5.1.1.3	Holding Tanks - 2EA	1 MO	\$	9,679.20	\$	9,679.20
1176	6.2.2	Relocate Power Poles	10 EA	\$	30,000.00	\$	300,000.00
1178	6.2.3	Relocate Shed Structures	3 EA	\$	15,134.20	\$	45,402.61
1179	6.2.3.1	Relocate Shed Structures - 3 each	3 EA	\$	2,037.22	\$	6,111.65
1183	6.2.3.2	Relocate Shed Structures - 1 each	1 EA	\$	39,290.96	\$	39,290.96
1184	6.2.3.2.1	Mob/Demob for Crane	8 HR	\$	255.44	\$	2,043.54
1188	6.2.3.2.2	Disassemble Structure	40 HR	\$	332.95	\$	13,317.83
1193	6.2.3.2.3	Install Structure	40 HR	\$	438.42	\$	17,536.79
1201	6.2.3.2.4	Excavate Footings & Compact	16 HR	\$	399.55	\$	6,392.80
1207	6.2.4	Relocate Levee Fence Gate with Lock	1 EA	\$	1,759.39	\$	1,759.39
1208	6.2.4.1	Remove Gate	1 EA	\$	305.35	\$	305.35
1211	6.2.4.2	Install Gate	1 EA	\$	1,454.04	\$	1,454.04
1216	6.2.5	Remove Fence	1,700 LF	\$	3.39	\$	5,770.20
1217	6.2.5.1	Remove Fence	1,700 LF	\$	1.12	\$	1,908.08
1221	6.2.5.2	Install Fence	1,700 LF	\$	2.27	\$	3,862.12
1226	6.3	Fish & Wildlife Facilities	1 LS	\$	450,000.00	\$	450,000.00
1228	6.4	Levee & Floodwalls	1 LS	\$	36,450,748.75	\$	36,450,748.75
1229	6.4.1	Levee	1 LS	\$	36,450,748.75	\$	36,450,748.75
1230	6.4.1.1	Mobilization / Demobilization	1 LS	\$	1,374,322.04	\$	1,374,322.04
1231	6.4.1.1.1	Mix Design (Slurry)	1 LS	\$	8,549.70	\$	8,549.70
1233	6.4.1.1.2	Mob/Demob Equipment	1 LS	\$	667,159.23	\$	667,159.23
1234	6.4.1.1.2.1	Equipment	1 EA	\$	595,895.67	\$	595,895.67
1235	6.4.1.1.2.1.1	Earth Work & SB Wall Conventional	1 LS	\$	411,944.83	\$	411,944.83
1236	6.4.1.1.2.1.1.1	LABOR: Number of Days (6 Days)	7 DAY	\$	9,862.12	\$	69,034.84
1238	6.4.1.1.2.1.1.1.1	Number of Crews (1ea)	7 DAY	\$	9,862.12	\$	69,034.84
1242	6.4.1.1.2.1.1.2	Equipment	7 DAY	\$	46,544.37	\$	325,810.58
1243	6.4.1.1.2.1.1.2.1	Number of Crews (1ea)	7 DAY	\$	46,544.37	\$	325,810.58
1244	6.4.1.1.2.1.1.2.1.1	Cutoff Wall Trench Equipment (1 Crews)	56 HR	\$	967.39	\$	54,173.79
1252	6.4.1.1.2.1.1.2.1.2	Batch Plant Equipment (1 Crews)	56 HR	\$	481.53	\$	26,965.41
1261	6.4.1.1.2.1.1.2.1.3	Stripping Equipment & Levee Degrade (1crew)	56 HR	\$	4,369.13	\$	244,671.38
1275	6.4.1.1.2.1.2	DSM Cutoff Wall (0 Crew)	1 LS	\$	183,950.84	\$	183,950.84
1276	6.4.1.1.2.1.2.1	LABOR: Number of Days (6 Days)	6 DAY	\$	9,862.12	\$	59,172.72
1277	6.4.1.1.2.1.2.1.1	Number of Crews (1ea)	6 DAY	\$	9,862.12	\$	59,172.72
1281	6.4.1.1.2.1.2.2	Equipment	6 DAY	\$	20,796.35	\$	124,778.12
1282	6.4.1.1.2.1.2.2.1	Number of Crews (1ea)	6 DAY	\$	20,796.35	\$	124,778.12
1283	6.4.1.1.2.1.2.2.1.1	DSM Equipment (1 Crews)	48 HR	\$	2,599.54	\$	124,778.12
1284	6.4.1.1.2.1.2.2.1.1.1	Drill Rig	48 HR	\$	1,659.75	\$	79,668.19
1289	6.4.1.1.2.1.2.2.1.1.2	Batch Plant	48 HR	\$	271.81	\$	13,047.11
1293	6.4.1.1.2.1.2.2.1.1.3	Misc Equip	48 HR	\$	152.94	\$	7,341.04

1299	6.4.1.1.2.1.2.2.1.1.4	Loader, 4cy	48 HR	\$	134.88	\$	6,474.47
1301	6.4.1.1.2.1.2.2.1.1.5	cat 320, 44,000 # MACHINE	48 HR	\$	88.35	\$	4,240.75
1303	6.4.1.1.2.1.2.2.1.1.6	Pumps	48 HR	\$	94.50	\$	4,535.78
1307	6.4.1.1.2.1.2.2.1.1.7	Generators, Skid Mount	48 HR	\$	197.31	\$	9,470.78
1310	6.4.1.1.2.2	Equipment Trucking	1 LS	\$	71,263.56	\$	71,263.56
1311	6.4.1.1.2.2.1	Equipment Trucking (8hrs per EQ)	31 EA	\$	1,858.54	\$	57,614.72
1313	6.4.1.1.2.2.2	Crane	40 HR	\$	341.22	\$	13,648.83
1316	6.4.1.1.3	Traffic Control	1 LS	\$	127,582.63	\$	127,582.63
1317	6.4.1.1.3.1	Flagger	3 MO	\$	36,269.16	\$	108,807.48
1322	6.4.1.1.3.2	Signs, Message boards, Delineators,	3 MO	\$	6,258.38	\$	18,775.15
1326	6.4.1.1.4	Staging Areas	1 LS	\$	65,906.74	\$	65,906.74
1327	6.4.1.1.4.1	Staging/Stockpiles Area	1 EA	\$	65,906.74	\$	65,906.74
1328	6.4.1.1.4.1.1	Staging Area (1.5 acre/site)	2 ACR	\$	34,499.66	\$	51,749.49
1329	6.4.1.1.4.1.1.1	Top Soil Stripping	2 ACR	\$	34,499.66	\$	51,749.49
1330	6.4.1.1.4.1.1.1.1	Stripping 6"	1,210 CY	\$	42.77	\$	51,749.49
1331	6.4.1.1.4.1.1.1.1.1	Strip Grass	1,210 CY	\$	8.48	\$	10,261.51
1336	6.4.1.1.4.1.1.1.1.2	Stockpile Topsoil	1,210 CY	\$	13.01	\$	15,736.56
1337	6.4.1.1.4.1.1.1.1.2.1	Load with excavator	1,210 CY	\$	2.98	\$	3,602.27
1339	6.4.1.1.4.1.1.1.1.2.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	81 EA	\$	101.64	\$	8,199.32
1341	6.4.1.1.4.1.1.1.1.2.3	Place at dumpsite	1,210 CY	\$	3.25	\$	3,934.97
1343	6.4.1.1.4.1.1.1.1.3	Replace Stripping	1,210 CY	\$	21.28	\$	25,751.41
1344	6.4.1.1.4.1.1.1.1.3.1	Load with excavator	1,210 CY	\$	6.16	\$	7,459.49
1348	6.4.1.1.4.1.1.1.1.3.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	81 EA	\$	101.64	\$	8,199.32
1350	6.4.1.1.4.1.1.1.1.3.3	Place Stripping on Slopes	1,210 CY	\$	8.34	\$	10,092.60
1354	6.4.1.1.4.1.2	Erosion Control Seeding	2 ACR	\$	9,438.17	\$	14,157.25
1355	6.4.1.1.4.1.2.1	Revegetation/Seeding	2 ACR	\$	9,438.17	\$	14,157.25
1356	6.4.1.1.4.1.2.1.1	Erosion Control Seeding	2 ACR	\$	9,438.17	\$	14,157.25
1357	6.4.1.1.4.1.2.1.1.1	Hydroseed	2 ACR	\$	7,267.25	\$	10,900.87
1359	6.4.1.1.4.1.2.1.1.2	Maintenance	3 MO	\$	1,085.46	\$	3,256.38
1362	6.4.1.1.5	Accommodation of Utilities	1 LS	\$	21,545.25	\$	21,545.25
1364	6.4.1.1.6	Project Preconstruction Submittals	1 LS	\$	48,288.73	\$	48,288.73
1368	6.4.1.1.7	Subcontractor Work	1 LS	\$	435,289.76	\$	435,289.76
1369	6.4.1.1.7.1	SWPPP Implementation and Maintenance	1 LS	\$	342,268.99	\$	342,268.99
1370	6.4.1.1.7.1.1	Temporary Erosion Control	15,683 LF	\$	4.28	\$	67,107.28
1372	6.4.1.1.7.1.1.1	Silt fence install / maint / removal	15,683 LF	\$	4.28	\$	67,107.28
1373	6.4.1.1.7.1.1.1.1	Material - Silt Fence	157 RLL	\$	46.17	\$	7,263.67
1375	6.4.1.1.7.1.1.1.2	Installation	15,683 LF	\$	2.61	\$	40,865.22
1380	6.4.1.1.7.1.1.1.3	Maintenance	24 HR	\$	73.07	\$	1,753.71
1382	6.4.1.1.7.1.1.1.4	Remove Fencing	15,683 LF	\$	1.10	\$	17,224.67
1386	6.4.1.1.7.1.2	Straw Wattle/ Fiber Rolls	69,003 LF	\$	2.75	\$	189,664.68
1387	6.4.1.1.7.1.2.1	Straw Wattles - During Construction	6,273 LF	\$	2.75	\$	17,242.24
1388	6.4.1.1.7.1.2.1.1	Material	6,587 LF	\$	1.37	\$	9,010.22
1391	6.4.1.1.7.1.2.1.2	Installation	6,273 LF	\$	0.81	\$	5,065.86
1396	6.4.1.1.7.1.2.1.3	Remove Straw Wattle	6,273 LF	\$	0.50	\$	3,166.16
1401	6.4.1.1.7.1.2.2	Straw Wattles - After levee constructed	62,730 LF	\$	2.75	\$	172,422.44
1402	6.4.1.1.7.1.2.2.1	Material	65,867 LF	\$	1.37	\$	90,102.25
1405	6.4.1.1.7.1.2.2.2	Installation	62,730 LF	\$	0.79	\$	49,392.11
1410	6.4.1.1.7.1.2.2.3	Remove Straw Wattle	62,730 LF	\$	0.52	\$	32,928.08
1415	6.4.1.1.7.2	Surveying	1 LS	\$	27,359.05	\$	27,359.05
1416	6.4.1.1.7.2.1	Pre-survey	1 EA	\$	3,419.88	\$	3,419.88
1418	6.4.1.1.7.2.2	Construction Staking	1 EA	\$	6,839.76	\$	6,839.76
1420	6.4.1.1.7.2.3	Surveys for payment	1 EA	\$	10,259.64	\$	10,259.64
1422	6.4.1.1.7.2.4	Re-establish survey monuments	1 EA	\$	3,419.88	\$	3,419.88
1424	6.4.1.1.7.2.5	Post-survey	1 EA	\$	3,419.88	\$	3,419.88
1426	6.4.1.1.7.3	Temp Fencing	4,000 LF	\$	3.42	\$	13,679.53
1428	6.4.1.1.7.4	Analytical Soil Testing	1 LS	\$	25,649.11	\$	25,649.11
1430	6.4.1.1.7.5	Sound Vibration Monitoring	2 EA	\$	13,166.54	\$	26,333.09
1433	6.4.1.2	Clearing & Grubbing	63 ACR	\$	3,823.54	\$	240,882.79
1434	6.4.1.2.1	Remove Trees	100 EA	\$	1,039.89	\$	103,989.19
1435	6.4.1.2.1.1	Remove Tree	100 EA	\$	766.23	\$	76,622.53
1439	6.4.1.2.1.2	Haul To Disposal	75 EA	\$	310.17	\$	23,262.80
1441	6.4.1.2.1.3	Disposal Fee	200 TON	\$	20.52	\$	4,103.86
1443	6.4.1.2.2	Clearing & Grubbing - Along Ditch	2,022 CY	\$	59.73	\$	120,782.30
1444	6.4.1.2.2.1	Excavation & Export	2,022 CY	\$	59.73	\$	120,782.30
1445	6.4.1.2.2.1.1	Excavate & Load with Excavator	2,022 CY	\$	6.25	\$	12,632.75
1448	6.4.1.2.2.1.2	Haul - Assume 15BCY/LD - Off road Haul, on road return	135 EA	\$	309.40	\$	41,769.65
1450	6.4.1.2.2.1.3	Dump Fees	2,022 CY	\$	32.83	\$	66,379.90
1452	6.4.1.2.3	Clearing & Grubbing - Debris	1 LS	\$	16,111.30	\$	16,111.30
1453	6.4.1.2.3.1	Excavation & Export	16 HR	\$	1,006.96	\$	16,111.30
1454	6.4.1.2.3.1.1	Excavate & Load with Excavator	16 CY	\$	505.31	\$	8,084.96
1457	6.4.1.2.3.1.2	Haul - Assume 15BCY/LD - Off road Haul, on road return	10 EA	\$	310.17	\$	3,101.71
1459	6.4.1.2.3.1.3	Dump Fees	150 CY	\$	32.83	\$	4,924.63
1461	6.4.1.3	Stripping 6"	27,411 CY	\$	42.77	\$	1,172,318.31
1462	6.4.1.3.1	Strip Grass	27,411 CY	\$	8.48	\$	232,461.46
1467	6.4.1.3.2	Stockpile Topsoil	27,411 CY	\$	13.01	\$	356,491.62
1468	6.4.1.3.2.1	Load with excavator	27,411 CY	\$	2.98	\$	81,604.79
1470	6.4.1.3.2.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	1,827 EA	\$	101.64	\$	185,745.18
1472	6.4.1.3.2.3	Place at dumpsite	27,411 CY	\$	3.25	\$	89,141.65
1474	6.4.1.3.3	Replace Stripping	27,411 CY	\$	21.28	\$	583,365.23
1475	6.4.1.3.3.1	Load with excavator	27,411 CY	\$	6.16	\$	168,985.16
1479	6.4.1.3.3.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	1,827 EA	\$	101.64	\$	185,745.18
1481	6.4.1.3.3.3	Place Stripping on Slopes	27,411 CY	\$	8.34	\$	228,634.89
1485	6.4.1.4	Embankment Fill / Import from temp storage including additional purchased material	555,585 CY	\$	50.50	\$	28,059,220.31
1486	6.4.1.4.1	Levee Degrade Material	92,000 CY	\$	-	\$	-
1487	6.4.1.4.1.1	Scarify & Moisture Condition Fills for Levee Foundation	500,000 SF	\$	0.09	\$	45,624.23
1496	6.4.1.4.1.2	Place Fill Material from Stockpile	92,000 CY	\$	5.94	\$	546,920.26
1507	6.4.1.4.1.3	Quality Control	90 HR	\$	1,261.30	\$	113,517.26
1512	6.4.1.4.2	Imported Fill	555,585 CY	\$	50.50	\$	28,059,220.31
1513	6.4.1.4.2.1	Buy Material	555,585 CY	\$	13.99	\$	7,774,942.33
1515	6.4.1.4.2.2	Haul Material	555,585 CY	\$	29.57	\$	16,428,266.06

1516	6.4.1.4.2.2.1	Haul	50,508 EA	\$	325.26	\$	16,428,266.06
1518	6.4.1.4.2.3	Place Fill Material	555,585 CY	\$	5.26	\$	2,919,617.69
1525	6.4.1.4.2.4	Finish Slopes	500,000 SF	\$	0.04	\$	21,210.81
1531	6.4.1.4.2.5	Quality Control	2,222 HR	\$	411.81	\$	915,183.42
1536	6.4.1.5	Jet Grout Sewer Main (120" Dia)	1 LS	\$	4,103,857.62	\$	4,103,857.62
1537	6.4.1.5.1	Jet Grout	9,600 SF	\$	427.49	\$	4,103,857.62
1539	6.4.1.6	Aggregate Base Course (On Levee Top)	3,070 TON	\$	47.76	\$	146,615.74
1540	6.4.1.6.1	Import & Place	3,070 TON	\$	47.76	\$	146,615.74
1541	6.4.1.6.1.1	Buy & Haul Aggregates	3,070 TON	\$	29.51	\$	90,585.23
1542	6.4.1.6.1.1.1	Buy Material	3,070 TON	\$	17.53	\$	53,807.56
1544	6.4.1.6.1.1.2	Haul Material	3,070 TON	\$	11.98	\$	36,777.67
1545	6.4.1.6.1.1.2.1	Loads	129 EA	\$	285.28	\$	36,777.67
1548	6.4.1.6.1.2	Place & Compact Aggregates	3,070 TON	\$	6.35	\$	19,480.67
1558	6.4.1.6.1.3	Finish Grade	125,460 SF	\$	0.16	\$	20,544.79
1568	6.4.1.6.1.4	Quality Control	12 HR	\$	1,333.75	\$	16,005.04
1572	6.4.1.7	0.5' Thick Sand for Stability Berm	3,000 TON	\$	48.50	\$	145,512.06
1573	6.4.1.7.1	Import & Place	3,000 TON	\$	48.50	\$	145,512.06
1574	6.4.1.7.1.1	Buy & Haul Aggregates	3,000 TON	\$	37.63	\$	112,900.12
1575	6.4.1.7.1.1.1	Buy Material	3,000 TON	\$	25.65	\$	76,947.33
1577	6.4.1.7.1.1.2	Haul Material	3,000 TON	\$	11.98	\$	35,952.79
1578	6.4.1.7.1.1.2.1	Loads	126 EA	\$	285.34	\$	35,952.79
1581	6.4.1.7.1.2	Place & Compact Aggregates	3,000 TON	\$	3.83	\$	11,491.36
1588	6.4.1.7.1.3	Finish Grade	96,000 SF	\$	0.09	\$	8,706.41
1595	6.4.1.7.1.4	Quality Control	12 HR	\$	1,034.51	\$	12,414.17
1599	6.4.1.8	12" Drain Rock for Stability Berm	6,000 TON	\$	47.80	\$	286,814.88
1600	6.4.1.8.1	Import & Place	6,000 TON	\$	47.80	\$	286,814.88
1601	6.4.1.8.1.1	Buy & Haul Aggregates	6,000 TON	\$	37.59	\$	225,546.03
1602	6.4.1.8.1.1.1	Buy Material	6,000 TON	\$	25.65	\$	153,894.66
1604	6.4.1.8.1.1.2	Haul Material	6,000 TON	\$	11.94	\$	71,651.37
1605	6.4.1.8.1.1.2.1	Loads	251 EA	\$	285.46	\$	71,651.37
1608	6.4.1.8.1.2	Place & Compact Aggregates	6,000 TON	\$	5.63	\$	33,785.71
1617	6.4.1.8.1.3	Finish Grade	96,000 SF	\$	0.14	\$	13,427.42
1626	6.4.1.8.1.4	Quality Control	24 HR	\$	585.65	\$	14,055.71
1630	6.4.1.9	Erosion Control Seeding	40 ACR	\$	7,918.52	\$	316,740.98
1631	6.4.1.9.1	Hydroseed	40 ACR	\$	7,267.25	\$	290,689.92
1633	6.4.1.9.2	Maintenance	3 MO	\$	8,683.69	\$	26,051.06
1636	6.4.1.10	Relief Wells	101 EA	\$	5,984.79	\$	604,464.03
1638	7	Port North Levee	1 EA	\$	23,220,807.27	\$	23,220,807.27
1639	7.1	Relocation Inventory & Costs from RE	1 EA	\$	6,400,000.00	\$	6,400,000.00
1641	7.2	Relocation	1 EA	\$	6,353,760.00	\$	6,353,760.00
1643	7.3	Environmental	1 EA	\$	480,000.00	\$	480,000.00
1645	7.4	Levees and Floodwalls	1 EA	\$	16,387,047.27	\$	16,387,047.27
1646	7.4.1	Levees	1 EA	\$	6,474,646.48	\$	6,474,646.48
1647	7.4.1.1	Mobilization / Demobilization	1 LS	\$	1,066,861.19	\$	1,066,861.19
1648	7.4.1.1.1	Mob/Demob Equipment	1 LS	\$	71,841.20	\$	71,841.20
1649	7.4.1.1.1.1	Grading equipment	56 HR	\$	819.13	\$	45,871.08
1664	7.4.1.1.1.2	Equipment Trucking	1 LS	\$	25,970.12	\$	25,970.12
1666	7.4.1.1.2	Traffic Control	1 LS	\$	255,165.26	\$	255,165.26
1667	7.4.1.1.2.1	Flagger	6 MO	\$	36,269.16	\$	217,614.96
1672	7.4.1.1.2.2	Signs, Message boards, Delineators,	6 MO	\$	6,258.38	\$	37,550.30
1676	7.4.1.1.3	Staging Areas	1 LS	\$	126,234.25	\$	126,234.25
1677	7.4.1.1.3.1	Staging/Stockpiles Area	2 EA	\$	63,117.13	\$	126,234.25
1678	7.4.1.1.3.1.1	Staging Area (1.5 acre/site)	3 ACR	\$	33,846.78	\$	101,540.33
1679	7.4.1.1.3.1.1.1	Top Soil Stripping	3 ACR	\$	33,846.78	\$	101,540.33
1680	7.4.1.1.3.1.1.1.1	Stripping 6"	2,420 CY	\$	41.96	\$	101,540.33
1681	7.4.1.1.3.1.1.1.1.1	Strip Grass	2,420 CY	\$	8.18	\$	19,788.54
1686	7.4.1.1.3.1.1.1.1.2	Stockpile Topsoil	2,420 CY	\$	13.01	\$	31,473.12
1687	7.4.1.1.3.1.1.1.1.2.1	Load with excavator	2,420 CY	\$	2.98	\$	7,204.54
1689	7.4.1.1.3.1.1.1.1.2.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	161 EA	\$	101.64	\$	16,398.65
1691	7.4.1.1.3.1.1.1.1.2.3	Place at dumpsite	2,420 CY	\$	3.25	\$	7,869.94
1693	7.4.1.1.3.1.1.1.1.3	Replace Stripping	2,420 CY	\$	20.78	\$	50,278.67
1694	7.4.1.1.3.1.1.1.1.3.1	Load with excavator	2,420 CY	\$	5.91	\$	14,306.90
1698	7.4.1.1.3.1.1.1.1.3.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	161 EA	\$	101.64	\$	16,398.65
1700	7.4.1.1.3.1.1.1.1.3.3	Place Stripping on Slopes	2,420 CY	\$	8.09	\$	19,573.12
1704	7.4.1.1.3.1.2	Erosion Control Seeding	3 ACR	\$	8,231.31	\$	24,693.92
1705	7.4.1.1.3.1.2.1	Revegetation/Seeding	3 ACR	\$	8,231.31	\$	24,693.92
1706	7.4.1.1.3.1.2.1.1	Erosion Control Seeding	3 ACR	\$	8,231.31	\$	24,693.92
1707	7.4.1.1.3.1.2.1.1.1	Hydroseed	3 ACR	\$	7,267.25	\$	21,801.74
1709	7.4.1.1.3.1.2.1.1.2	Maintenance	3 MO	\$	964.06	\$	2,892.17
1712	7.4.1.1.4	Accommodation of Utilities	1 LS	\$	64,635.76	\$	64,635.76
1714	7.4.1.1.5	Project Preconstruction Submittals	1 LS	\$	48,288.73	\$	48,288.73
1718	7.4.1.1.6	Subcontractor Work	1 LS	\$	500,695.99	\$	500,695.99
1719	7.4.1.1.6.1	SWPPP Implementation and Maintenance	1 LS	\$	416,908.90	\$	416,908.90
1721	7.4.1.1.6.1.1	Temporary Erosion Control	47,000 LF	\$	4.23	\$	198,733.26
1722	7.4.1.1.6.1.1.1	Silt fence install / maint / removal	47,000 LF	\$	4.23	\$	198,733.26
1723	7.4.1.1.6.1.1.1.1	Material - Silt Fence	471 RLL	\$	46.17	\$	21,722.23
1725	7.4.1.1.6.1.1.1.2	Installation	47,000 LF	\$	2.61	\$	122,467.97
1730	7.4.1.1.6.1.1.1.3	Maintenance	40 HR	\$	73.07	\$	2,922.85
1732	7.4.1.1.6.1.1.1.4	Remove Fencing	47,000 LF	\$	1.10	\$	51,620.20
1736	7.4.1.1.6.1.2	Straw Wattle/ Fiber Rolls	47,000 LF	\$	2.82	\$	132,678.61
1737	7.4.1.1.6.1.2.1	Straw Wattles - During Construction	47,000 LF	\$	2.82	\$	132,678.61
1738	7.4.1.1.6.1.2.1.1	Material	49,350 LF	\$	1.37	\$	67,508.46
1741	7.4.1.1.6.1.2.1.2	Installation	47,000 LF	\$	0.83	\$	39,102.09
1746	7.4.1.1.6.1.2.1.3	Remove Straw Wattle	47,000 LF	\$	0.55	\$	26,068.06
1751	7.4.1.1.6.2	Surveying	1 LS	\$	41,038.58	\$	41,038.58
1752	7.4.1.1.6.2.1	Pre-survey	1 EA	\$	6,839.76	\$	6,839.76
1754	7.4.1.1.6.2.2	Construction Staking	1 EA	\$	10,259.64	\$	10,259.64
1756	7.4.1.1.6.2.3	Surveys for payment	1 EA	\$	13,679.53	\$	13,679.53
1758	7.4.1.1.6.2.4	Re-establish survey monuments	1 EA	\$	3,419.88	\$	3,419.88
1760	7.4.1.1.6.2.5	Post-survey	1 EA	\$	6,839.76	\$	6,839.76

1762	7.4.1.1.6.3	Temp Fencing	5,000 LF	\$	3.42	\$	17,099.41
1764	7.4.1.1.6.4	Analytical Soil Testing	1 LS	\$	25,649.11	\$	25,649.11
1766	7.4.1.2	Import and place fill material	76,123 ECU	\$	53.42	\$	4,066,429.30
1770	7.4.1.3	Place AB	8,307 TON	\$	54.40	\$	451,923.43
1775	7.4.1.4	Hydroseed	26 ACR	\$	6,839.76	\$	175,097.93
1777	7.4.1.5	Grading	1 SF	\$	453,070.95	\$	453,070.95
1785	7.4.1.6	Clearing & Grubbing & Demo	45 ACR	\$	1,166.15	\$	52,593.36
1786	7.4.1.6.1	Trees (Sta. 8+10 - 198+00)	20 EA	\$	311.73	\$	6,234.58
1791	7.4.1.6.2	Trees (Sta. 203+25 - 233+80)	40 EA	\$	311.73	\$	12,469.17
1796	7.4.1.6.3	Demo (E) AC & Concrete - 45+00 - 54+00	661 CY	\$	41.58	\$	27,481.21
1801	7.4.1.6.4	AC demo at Port Entrances	96 CY	\$	66.75	\$	6,408.40
1806	7.4.1.7	Strip grass & export	8,307 BCY	\$	25.12	\$	208,670.33
1811	7.4.2	Floodwalls	1 EA	\$	9,912,400.79	\$	9,912,400.79
1812	7.4.2.1	Footing excavation & backfill	1 EA	\$	2,281,261.37	\$	2,281,261.37
1813	7.4.2.1.1	Floodwall 25+80 - 36+00	1 EA	\$	73,471.09	\$	73,471.09
1816	7.4.2.1.2	Floodwall 160+00 - 189+00	1 EA	\$	390,359.79	\$	390,359.79
1820	7.4.2.1.3	Floodwall 203+25 - 233+80	1 EA	\$	280,604.46	\$	280,604.46
1824	7.4.2.1.4	Floodwall 233+80 - 235+00 (Road Crossing)	1 EA	\$	43,153.50	\$	43,153.50
1828	7.4.2.1.5	Floodwall 235+00 - 243+13	1 EA	\$	280,604.46	\$	280,604.46
1832	7.4.2.1.6	Additional excavation due to Geotech	1 EA	\$	1,213,068.06	\$	1,213,068.06
1836	7.4.2.2	Floodwall Concrete wall	6,283 CY	\$	887.99	\$	5,579,210.61
1837	7.4.2.2.1	FD Conc Wall Forms	106,340 SFC	\$	18.06	\$	1,920,318.39
1841	7.4.2.2.2	FD Conc Wall Rebar	471 TON	\$	3,468.47	\$	1,634,430.85
1843	7.4.2.2.3	FD Conc Wall Concrete	6,283 CY	\$	322.21	\$	2,024,461.37
1849	7.4.2.3	Closure Structures	5 EA	\$	410,385.76	\$	2,051,928.81
1851	8	Port South Levee	1 EA	\$	11,672,240.18	\$	11,672,240.18
1852	8.1	Relocation Inventory & Costs from RE	1 EA	\$	5,100,000.00	\$	5,100,000.00
1854	8.2	Utility Relocations	1 EA	\$	1,482,048.00	\$	1,482,048.00
1856	8.3	Environmental	1 EA	\$	1,050,000.00	\$	1,050,000.00
1858	8.4	Levees and Floodwalls	1 EA	\$	9,140,192.18	\$	9,140,192.18
1859	8.4.1	Levees	1 EA	\$	9,140,192.18	\$	9,140,192.18
1860	8.4.1.1	Mobilization / Demobilization	1 LS	\$	1,339,496.16	\$	1,339,496.16
1861	8.4.1.1.1	Mix Design (Slurry)	1 LS	\$	8,549.70	\$	8,549.70
1863	8.4.1.1.2	Mob/Demob Equipment	1 LS	\$	608,091.35	\$	608,091.35
1864	8.4.1.1.2.1	Equipment	1 EA	\$	529,960.59	\$	529,960.59
1865	8.4.1.1.2.1.1	Earth Work & SB Wall Conventional	1 LS	\$	346,009.75	\$	346,009.75
1867	8.4.1.1.2.1.1.1	LABOR: Number of Days (6 Days)	7 DAY	\$	9,862.12	\$	69,034.84
1868	8.4.1.1.2.1.1.1.1	Number of Crews (1ea)	7 DAY	\$	9,862.12	\$	69,034.84
1872	8.4.1.1.2.1.1.2	Equipment	7 DAY	\$	37,125.07	\$	259,875.50
1873	8.4.1.1.2.1.1.2.1	Number of Crews (1ea)	7 DAY	\$	37,125.07	\$	259,875.50
1874	8.4.1.1.2.1.1.2.1.1	Cutoff Wall Trench Equipment (1 Crews)	56 HR	\$	967.39	\$	54,173.79
1882	8.4.1.1.2.1.1.2.1.2	Batch Plant Equipment (1 Crews)	56 HR	\$	479.82	\$	26,869.65
1891	8.4.1.1.2.1.1.2.1.3	Stripping Equipment & Levee Degrade (1crew)	56 HR	\$	3,193.43	\$	178,832.06
1906	8.4.1.1.2.1.2	DSM Cutoff Wall (1 Crew)	1 LS	\$	183,950.84	\$	183,950.84
1907	8.4.1.1.2.1.2.1	LABOR: Number of Days (6 Days)	6 DAY	\$	9,862.12	\$	59,172.72
1908	8.4.1.1.2.1.2.1.1	Number of Crews (1ea)	6 DAY	\$	9,862.12	\$	59,172.72
1912	8.4.1.1.2.1.2.2	Equipment	6 DAY	\$	20,796.35	\$	124,778.12
1913	8.4.1.1.2.1.2.2.1	Number of Crews (1ea)	6 DAY	\$	20,796.35	\$	124,778.12
1914	8.4.1.1.2.1.2.2.1.1	DSM Equipment (1 Crews)	48 HR	\$	2,599.54	\$	124,778.12
1915	8.4.1.1.2.1.2.2.1.1.1	Drill Rig	48 HR	\$	1,659.75	\$	79,668.19
1920	8.4.1.1.2.1.2.2.1.1.2	Batch Plant	48 HR	\$	271.81	\$	13,047.11
1924	8.4.1.1.2.1.2.2.1.1.3	Misc Equip	48 HR	\$	152.94	\$	7,341.04
1930	8.4.1.1.2.1.2.2.1.1.4	Loader, 4cy	48 HR	\$	134.88	\$	6,474.47
1932	8.4.1.1.2.1.2.2.1.1.5	cat 320, 44,000 # MACHINE	48 HR	\$	88.35	\$	4,240.75
1934	8.4.1.1.2.1.2.2.1.1.6	Pumps	48 HR	\$	94.50	\$	4,535.78
1938	8.4.1.1.2.1.2.2.1.1.7	Generators, Skid Mount	48 HR	\$	197.31	\$	9,470.78
1941	8.4.1.1.2.2	Equipment Trucking	1 LS	\$	78,130.76	\$	78,130.76
1942	8.4.1.1.2.2.1	Equipment Trucking (8hrs per EQ)	30 EA	\$	2,149.40	\$	64,481.93
1944	8.4.1.1.2.2.2	Crane	40 HR	\$	341.22	\$	13,648.83
1947	8.4.1.1.3	Traffic Control	1 LS	\$	127,582.63	\$	127,582.63
1948	8.4.1.1.3.1	Flagger	3 MO	\$	36,269.16	\$	108,807.48
1953	8.4.1.1.3.2	Signs, Message boards, Delineators,	3 MO	\$	6,258.38	\$	18,775.15
1957	8.4.1.1.4	Staging Areas	1 LS	\$	67,316.57	\$	67,316.57
1958	8.4.1.1.4.1	Staging/Stockpiles Area	1 EA	\$	67,316.57	\$	67,316.57
1959	8.4.1.1.4.1.1	Staging Area (1.5 acre/site)	2 ACR	\$	35,439.54	\$	53,159.32
1960	8.4.1.1.4.1.1.1	Top Soil Stripping	2 ACR	\$	35,439.54	\$	53,159.32
1961	8.4.1.1.4.1.1.1.1	Stripping 6"	1,210 CY	\$	43.93	\$	53,159.32
1962	8.4.1.1.4.1.1.1.1.1	Strip Grass	1,210 CY	\$	8.48	\$	10,261.51
1967	8.4.1.1.4.1.1.1.1.2	Stockpile Topsoil	1,210 CY	\$	13.59	\$	16,441.48
1968	8.4.1.1.4.1.1.1.1.2.1	Load with excavator	1,210 CY	\$	3.56	\$	4,307.18
1970	8.4.1.1.4.1.1.1.1.2.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	81 EA	\$	101.64	\$	8,199.32
1972	8.4.1.1.4.1.1.1.1.2.3	Place at dumpsite	1,210 CY	\$	3.25	\$	3,934.97
1974	8.4.1.1.4.1.1.1.1.3	Replace Stripping	1,210 CY	\$	21.86	\$	26,456.33
1975	8.4.1.1.4.1.1.1.1.3.1	Load with excavator	1,210 CY	\$	6.75	\$	8,164.40
1979	8.4.1.1.4.1.1.1.1.3.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	81 EA	\$	101.64	\$	8,199.32
1981	8.4.1.1.4.1.1.1.1.3.3	Place Stripping on Slopes	1,210 CY	\$	8.34	\$	10,092.60
1985	8.4.1.1.4.1.2	Erosion Control Seeding	2 ACR	\$	9,438.17	\$	14,157.25
1986	8.4.1.1.4.1.2.1	Revegetation/Seeding	2 ACR	\$	9,438.17	\$	14,157.25
1987	8.4.1.1.4.1.2.1.1	Erosion Control Seeding	2 ACR	\$	9,438.17	\$	14,157.25
1988	8.4.1.1.4.1.2.1.1.1	Hydroseed	2 ACR	\$	7,267.25	\$	10,900.87
1990	8.4.1.1.4.1.2.1.1.2	Maintenance	3 MO	\$	1,085.46	\$	3,256.38
1993	8.4.1.1.5	Accommodation of Utilities	1 LS	\$	21,545.25	\$	21,545.25
1995	8.4.1.1.6	Project Preconstruction Submittals	1 LS	\$	48,288.73	\$	48,288.73
1999	8.4.1.1.7	Subcontractor Work	1 LS	\$	458,121.92	\$	458,121.92
2000	8.4.1.1.7.1	SWPPP Implementation and Maintenance	1 LS	\$	301,833.35	\$	301,833.35
2002	8.4.1.1.7.1.1	Temporary Erosion Control	31,460 LF	\$	4.22	\$	132,829.33
2003	8.4.1.1.7.1.1.1	Silt fence install / maint / removal	31,460 LF	\$	4.22	\$	132,829.33
2004	8.4.1.1.7.1.1.1.1	Material - Silt Fence	315 RLL	\$	46.17	\$	14,547.66
2006	8.4.1.1.7.1.1.1.2	Installation	31,460 LF	\$	2.61	\$	81,975.37
2011	8.4.1.1.7.1.1.1.3	Maintenance	24 HR	\$	73.07	\$	1,753.71

2013	8.4.1.1.7.1.1.1.4	Remove Fencing	31,460 LF	\$	1.10	\$	34,552.58
2017	8.4.1.1.7.1.2	Straw Wattle/ Fiber Rolls	31,460 LF	\$	2.65	\$	83,506.98
2018	8.4.1.1.7.1.2.1	Straw Wattles - During Construction	31,460 LF	\$	2.65	\$	83,506.96
2019	8.4.1.1.7.1.2.1.1	Material	33,033 LF	\$	1.37	\$	45,187.58
2022	8.4.1.1.7.1.2.1.2	Installation	31,460 LF	\$	0.73	\$	22,991.63
2027	8.4.1.1.7.1.2.1.3	Remove Straw Wattle	31,460 LF	\$	0.49	\$	15,327.75
2032	8.4.1.1.7.1.2.2	Straw Wattles - After levee constructed	0 LF	\$	2.65	\$	0.03
2033	8.4.1.1.7.1.2.2.1	Material	0 LF	\$	1.37	\$	0.01
2036	8.4.1.1.7.1.2.2.2	Installation	0 LF	\$	0.73	\$	0.01
2041	8.4.1.1.7.1.2.2.3	Remove Straw Wattle	0 LF	\$	0.49	\$	0.00
2046	8.4.1.1.7.2	Surveying	1 LS	\$	95,756.68	\$	95,756.68
2047	8.4.1.1.7.2.1	Pre-survey	1 EA	\$	3,419.88	\$	3,419.88
2049	8.4.1.1.7.2.2	Construction Staking	1 EA	\$	34,198.81	\$	34,198.81
2051	8.4.1.1.7.2.3	Surveys for payment	1 EA	\$	34,198.81	\$	34,198.81
2053	8.4.1.1.7.2.4	Re-establish survey monuments	1 EA	\$	10,259.64	\$	10,259.64
2055	8.4.1.1.7.2.5	Post-survey	1 EA	\$	13,679.53	\$	13,679.53
2057	8.4.1.1.7.3	Temp Fencing	2,500 LF	\$	3.42	\$	8,549.70
2059	8.4.1.1.7.4	Analytical Soil Testing	1 LS	\$	25,649.11	\$	25,649.11
2061	8.4.1.1.7.5	Sound Vibration Monitoring	2 EA	\$	13,166.54	\$	26,333.09
2064	8.4.1.2	Clearing & Grubbing	63 ACR	\$	6,084.92	\$	383,350.21
2065	8.4.1.2.1	Trees	7 EA	\$	311.73	\$	2,182.10
2070	8.4.1.2.2	Stip grass & export	15,174 BCY	\$	25.12	\$	381,168.10
2075	8.4.1.3	Grading	1 SF	\$	282,706.84	\$	282,706.84
2081	8.4.1.4	Import and place fill material	61,020 ECY	\$	48.39	\$	2,952,497.41
2086	8.4.1.5	Soil / Bentonite Slurry Wall	77,184 SF	\$	18.78	\$	1,449,731.59
2087	8.4.1.5.1	Mob & Set up	1 EA	\$	134,187.59	\$	134,187.59
2089	8.4.1.5.1.1	Mobilization equipment to site	1 EA	\$	134,187.59	\$	134,187.59
2095	8.4.1.5.2	SW Materials	77,184 SF	\$	2.74	\$	211,293.08
2099	8.4.1.5.3	Export excess slurry at completion of project	6 EA	\$	3,636.00	\$	21,816.01
2101	8.4.1.5.3.1	Dump Fees	6 EA	\$	2,564.91	\$	15,389.47
2104	8.4.1.5.4	Testing	294,800 SF	\$	0.10	\$	28,498.26
2107	8.4.1.5.5	Secondary Containment Barrier	850 LF	\$	30.36	\$	25,805.91
2109	8.4.1.5.5.1	K Rail Rental	850 LF	\$	20.36	\$	17,306.99
2110	8.4.1.5.5.1.1	Rent K Rail	850 LF	\$	6.84	\$	5,813.80
2112	8.4.1.5.5.1.2	Place K Rail	850 LF	\$	7.39	\$	6,283.94
2117	8.4.1.5.5.1.3	Remove K Rail	850 LF	\$	6.13	\$	5,209.24
2122	8.4.1.5.5.2	Other materials for containment	1 EA	\$	1,955.32	\$	1,955.32
2126	8.4.1.5.5.3	Place visqueen, fill sand bags, & place	850 EA	\$	7.70	\$	6,543.61
2130	8.4.1.6	Place AB	78,650 TON	\$	33.87	\$	2,664,012.34
2135	8.4.1.7	Hydroseed	10 ACR	\$	6,839.76	\$	68,397.63
2137	9	DWSC East Station 0+00 to171+71 Length = 17,171' = 3.25mi	1 LS	\$	60,154,376.96	\$	60,154,376.96
2138	9.1	Real Estate	1 EA	\$	16,999,411.00	\$	-
2140	9.2	Relocation	1 LS	\$	9,944,554.35	\$	9,944,554.35
2141	9.2.1	Relocate Power Pole	21 EA	\$	51,298.22	\$	1,077,262.63
2143	9.2.2	Relocate Ditch	29,000 CY	\$	17.99	\$	521,736.88
2144	9.2.2.1	Excavate & Sidecast	29,000 CY	\$	5.67	\$	164,347.69
2148	9.2.2.2	Backfill Ditch	29,000 CY	\$	2.80	\$	81,182.56
2150	9.2.2.3	Compact Fill	29,000 CY	\$	4.63	\$	134,348.31
2153	9.2.2.4	Quality Control	220 HR	\$	281.36	\$	61,899.85
2158	9.2.2.5	Dewatering	1 LS	\$	79,958.47	\$	79,958.47
2159	9.2.2.5.1	Temporary Bypass System	1 LS	\$	79,958.47	\$	79,958.47
2160	9.2.2.5.1.1	Dewatering	1 LS	\$	79,958.47	\$	79,958.47
2161	9.2.2.5.1.1.1	Surface Dewatering - EQ Rental (4,500 gpm = 10cfs)	1 MO	\$	61,913.82	\$	61,913.82
2162	9.2.2.5.1.1.1.1	Mob/Demob	1 LS	\$	4,103.86	\$	4,103.86
2164	9.2.2.5.1.1.1.2	Installation	1 LS	\$	5,078.81	\$	5,078.81
2165	9.2.2.5.1.1.1.2.1	Labor & Equipment	20 HR	\$	253.94	\$	5,078.81
2167	9.2.2.5.1.1.1.3	Pump Rental	1 MO	\$	23,255.19	\$	23,255.19
2170	9.2.2.5.1.1.1.4	Fuel Consumption	1 MO	\$	29,475.96	\$	29,475.96
2172	9.2.2.5.1.1.2	Maintenance on Generator	1 MO	\$	1,493.80	\$	1,493.80
2173	9.2.2.5.1.1.2.1	Number of Generator	1 EA	\$	1,493.80	\$	1,493.80
2175	9.2.2.5.1.1.3	Holding Tanks - 2EA	1 MO	\$	16,550.85	\$	16,550.85
2178	9.2.3	Relocation Inventory & Costs from RE	1 EA	\$	8,345,554.84	\$	8,345,554.84
2180	9.3	Fish & Wildlife Facilities	1 LS	\$	3,030,000.00	\$	3,030,000.00
2182	9.4	Levee & Floodwalls	1 LS	\$	47,179,822.61	\$	47,179,822.61
2183	9.4.1	Levee	1 LS	\$	47,179,822.61	\$	47,179,822.61
2184	9.4.1.1	Mobilization / Demobilization	1 LS	\$	2,548,092.89	\$	2,548,092.89
2185	9.4.1.1.1	Mix Design (Slurry)	1 LS	\$	8,549.70	\$	8,549.70
2187	9.4.1.1.2	Mob/Demob Equipment	1 LS	\$	1,151,875.27	\$	1,151,875.27
2188	9.4.1.1.2.1	Equipment	1 EA	\$	905,830.17	\$	905,830.17
2189	9.4.1.1.2.1.1	Earth Work & SB Wall Conventional	1 LS	\$	346,245.02	\$	346,245.02
2190	9.4.1.1.2.1.1.1	LABOR: Number of Days (7 Days)	7 DAY	\$	9,862.12	\$	69,034.84
2192	9.4.1.1.2.1.1.1.1	Number of Crews (1ea)	7 DAY	\$	9,862.12	\$	69,034.84
2196	9.4.1.1.2.1.1.2	Equipment	7 DAY	\$	37,158.68	\$	260,110.76
2197	9.4.1.1.2.1.1.2.1	Number of Crews (1ea)	7 DAY	\$	37,158.68	\$	260,110.76
2198	9.4.1.1.2.1.1.2.1.1	Cutoff Wall Trench Equipment (1 Crews)	56 HR	\$	967.39	\$	54,173.79
2206	9.4.1.1.2.1.1.2.1.2	Batch Plant Equipment (1 Crews)	56 HR	\$	481.53	\$	26,965.41
2215	9.4.1.1.2.1.1.2.1.3	Stripping Equipment & Levee Degrade (1crew)	56 HR	\$	3,195.92	\$	178,971.57
2230	9.4.1.1.2.1.2	DSM Cutoff Wall (3 Crew)	1 LS	\$	559,585.15	\$	559,585.15
2231	9.4.1.1.2.1.2.1	LABOR: Number of Days (6 Days)	6 DAY	\$	29,586.36	\$	177,518.17
2232	9.4.1.1.2.1.2.1.1	Number of Crews (3ea)	18 DAY	\$	9,862.12	\$	177,518.17
2236	9.4.1.1.2.1.2.2	Equipment	6 DAY	\$	63,677.83	\$	382,066.98
2237	9.4.1.1.2.1.2.2.1	Number of Crews (3ea)	18 DAY	\$	21,225.94	\$	382,066.98
2238	9.4.1.1.2.1.2.2.1.1	DSM Equipment (3 Crews)	144 HR	\$	2,653.24	\$	382,066.98
2239	9.4.1.1.2.1.2.2.1.1.1	Drill Rig	144 HR	\$	1,659.75	\$	239,004.56
2244	9.4.1.1.2.1.2.2.1.1.2	Batch Plant	144 HR	\$	271.81	\$	39,141.32
2248	9.4.1.1.2.1.2.2.1.1.3	Generators, Skid Mount	144 HR	\$	206.60	\$	29,751.02
2251	9.4.1.1.2.1.2.2.1.1.4	Loader, 4cy	144 HR	\$	134.88	\$	19,423.42
2253	9.4.1.1.2.1.2.2.1.1.5	cat 320, 44,000 # MACHINE	144 HR	\$	88.35	\$	12,722.24
2255	9.4.1.1.2.1.2.2.1.1.6	Pumps	144 HR	\$	94.50	\$	13,607.35
2259	9.4.1.1.2.1.2.2.1.1.7	Misc Equip	144 HR	\$	197.34	\$	28,417.06

2266	9.4.1.1.2.2	Equipment Trucking	1	LS	\$	246,045.11	\$	246,045.11
2267	9.4.1.1.2.2.1	Equipment Trucking (8hrs per EQ)	90	EA	\$	1,858.54	\$	167,268.55
2269	9.4.1.1.2.2.2	Crane	160	HR	\$	492.35	\$	78,776.56
2272	9.4.1.1.3	Traffic Control	1	LS	\$	255,165.26	\$	255,165.26
2273	9.4.1.1.3.1	Flagger	6	MO	\$	36,269.16	\$	217,614.96
2278	9.4.1.1.3.2	Signs, Message boards, Delineators,	6	MO	\$	6,258.38	\$	37,550.30
2282	9.4.1.1.4	Staging Areas	1	LS	\$	128,557.10	\$	128,557.10
2283	9.4.1.1.4.1	Staging/Stockpiles Area	2	EA	\$	64,278.55	\$	128,557.10
2284	9.4.1.1.4.1.1	Staging Area (1.5 acre/site)	3	ACR	\$	34,499.66	\$	103,498.97
2285	9.4.1.1.4.1.1.1	Top Soil Stripping	3	ACR	\$	34,499.66	\$	103,498.97
2286	9.4.1.1.4.1.1.1.1	Stripping 6"	2,420	CY	\$	42.77	\$	103,498.97
2287	9.4.1.1.4.1.1.1.1.1	Strip Grass	2,420	CY	\$	8.48	\$	20,523.03
2292	9.4.1.1.4.1.1.1.1.2	Stockpile Topsoil	2,420	CY	\$	13.01	\$	31,473.12
2293	9.4.1.1.4.1.1.1.1.2.1	Load with excavator	2,420	CY	\$	2.98	\$	7,204.54
2295	9.4.1.1.4.1.1.1.1.2.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	161	EA	\$	101.64	\$	16,398.65
2297	9.4.1.1.4.1.1.1.1.2.3	Place at dumpsite	2,420	CY	\$	3.25	\$	7,869.94
2299	9.4.1.1.4.1.1.1.1.3	Replace Stripping	2,420	CY	\$	21.28	\$	51,502.82
2300	9.4.1.1.4.1.1.1.1.3.1	Load with excavator	2,420	CY	\$	6.16	\$	14,918.98
2304	9.4.1.1.4.1.1.1.1.3.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	161	EA	\$	101.64	\$	16,398.65
2306	9.4.1.1.4.1.1.1.1.3.3	Place Stripping on Slopes	2,420	CY	\$	8.34	\$	20,185.20
2310	9.4.1.1.4.1.2	Erosion Control Seeding	3	ACR	\$	8,352.71	\$	25,058.13
2311	9.4.1.1.4.1.2.1	Revegetation/Seeding	3	ACR	\$	8,352.71	\$	25,058.13
2312	9.4.1.1.4.1.2.1.1	Erosion Control Seeding	3	ACR	\$	8,352.71	\$	25,058.13
2313	9.4.1.1.4.1.2.1.1.1	Hydroseed	3	ACR	\$	7,267.25	\$	21,801.74
2315	9.4.1.1.4.1.2.1.1.2	Maintenance	3	MO	\$	1,085.46	\$	3,256.38
2318	9.4.1.1.5	Accommodation of Utilities	1	LS	\$	64,635.76	\$	64,635.76
2320	9.4.1.1.6	Project Preconstruction Submittals	1	LS	\$	48,288.73	\$	48,288.73
2324	9.4.1.1.7	Subcontractor Work	1	LS	\$	891,021.07	\$	891,021.07
2325	9.4.1.1.7.1	SWPPP Implementation and Maintenance	1	LS	\$	780,900.89	\$	780,900.89
2326	9.4.1.1.7.1.1	Temporary Erosion Control	42,300	LF	\$	4.23	\$	179,131.10
2328	9.4.1.1.7.1.1.1	Silt fence install / maint / removal	42,300	LF	\$	4.23	\$	179,131.10
2329	9.4.1.1.7.1.1.1.1	Material - Silt Fence	424	RLL	\$	46.17	\$	19,575.40
2331	9.4.1.1.7.1.1.1.2	Installation	42,300	LF	\$	2.60	\$	110,064.83
2336	9.4.1.1.7.1.1.1.3	Maintenance	40	HR	\$	73.07	\$	2,922.85
2338	9.4.1.1.7.1.1.1.4	Remove Fencing	42,300	LF	\$	1.10	\$	46,568.01
2342	9.4.1.1.7.1.2	Straw Wattle/ Fiber Rolls	186,175	LF	\$	2.77	\$	516,272.76
2343	9.4.1.1.7.1.2.1	Straw Wattles - During Construction	16,925	LF	\$	2.93	\$	49,639.52
2344	9.4.1.1.7.1.2.1.1	Material	17,771	LF	\$	1.37	\$	24,310.23
2347	9.4.1.1.7.1.2.1.2	Installation	16,925	LF	\$	0.90	\$	15,197.57
2352	9.4.1.1.7.1.2.1.3	Remove Straw Wattle	16,925	LF	\$	0.60	\$	10,131.72
2357	9.4.1.1.7.1.2.2	Straw Wattles - After levee constructed	169,250	LF	\$	2.76	\$	466,633.25
2358	9.4.1.1.7.1.2.2.1	Material	177,713	LF	\$	1.37	\$	243,102.27
2361	9.4.1.1.7.1.2.2.2	Installation	169,250	LF	\$	0.79	\$	134,245.23
2366	9.4.1.1.7.1.2.2.3	Remove Straw Wattle	169,250	LF	\$	0.53	\$	89,285.75
2371	9.4.1.1.7.2	Surveying	1	LS	\$	41,038.58	\$	41,038.58
2372	9.4.1.1.7.2.1	Pre-survey	1	EA	\$	6,839.76	\$	6,839.76
2374	9.4.1.1.7.2.2	Construction Staking	1	EA	\$	10,259.64	\$	10,259.64
2376	9.4.1.1.7.2.3	Surveys for payment	1	EA	\$	13,679.53	\$	13,679.53
2378	9.4.1.1.7.2.4	Re-establish survey monuments	1	EA	\$	3,419.88	\$	3,419.88
2380	9.4.1.1.7.2.5	Post-survey	1	EA	\$	6,839.76	\$	6,839.76
2382	9.4.1.1.7.3	Temp Fencing	5,000	LF	\$	3.42	\$	17,099.41
2384	9.4.1.1.7.4	Analytical Soil Testing	1	LS	\$	25,649.11	\$	25,649.11
2386	9.4.1.1.7.5	Sound Vibration Monitoring	2	EA	\$	13,166.54	\$	26,333.09
2389	9.4.1.2	Clearing & Grubbing	65	ACR	\$	8,796.20	\$	571,753.27
2390	9.4.1.2.1	Trees	3	EA	\$	1,082.97	\$	3,248.91
2391	9.4.1.2.1.1	Remove Tree	3	EA	\$	766.23	\$	2,298.68
2395	9.4.1.2.1.2	Haul To Disposal	2	EA	\$	413.56	\$	827.12
2397	9.4.1.2.1.3	Disposal Fee	6	TON	\$	20.52	\$	123.12
2399	9.4.1.2.2	Clearing & Grubbing - Along Ditch	8,556	CY	\$	62.58	\$	535,454.64
2400	9.4.1.2.2.1	Excavation & Export	8,556	CY	\$	62.58	\$	535,454.64
2401	9.4.1.2.2.1.1	Excavate & Load with Excavator	8,556	CY	\$	6.32	\$	54,042.91
2404	9.4.1.2.2.1.2	Haul - Assume 15BCY/LD - Off road Haul, on road return	570	EA	\$	351.53	\$	200,510.88
2406	9.4.1.2.2.1.3	Dump Fees	8,556	CY	\$	32.83	\$	280,900.85
2408	9.4.1.2.3	Clearing & Grubbing - Debris	1	LS	\$	33,049.72	\$	33,049.72
2409	9.4.1.2.3.1	Excavation & Export	32	HR	\$	1,032.80	\$	33,049.72
2410	9.4.1.2.3.1.1	Excavate & Load with Excavator	32	CY	\$	505.31	\$	16,169.92
2413	9.4.1.2.3.1.2	Haul - Assume 15BCY/LD - Off road Haul, on road return	20	EA	\$	351.53	\$	7,030.54
2415	9.4.1.2.3.1.3	Dump Fees	300	CY	\$	32.83	\$	9,849.26
2417	9.4.1.3	Stripping	35,726	CY	\$	42.77	\$	1,527,935.64
2418	9.4.1.3.1	Stripping 6"	35,726	CY	\$	42.77	\$	1,527,935.64
2419	9.4.1.3.1.1	Strip Grass	35,726	CY	\$	8.48	\$	302,977.57
2424	9.4.1.3.1.2	Stockpile Topsoil	35,726	CY	\$	13.01	\$	464,631.70
2425	9.4.1.3.1.2.1	Load with excavator	35,726	CY	\$	2.98	\$	106,359.22
2427	9.4.1.3.1.2.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	2,382	EA	\$	101.64	\$	242,090.12
2429	9.4.1.3.1.2.3	Place at dumpsite	35,726	CY	\$	3.25	\$	116,182.36
2431	9.4.1.3.1.3	Replace Stripping	35,726	CY	\$	21.28	\$	760,326.37
2432	9.4.1.3.1.3.1	Load with excavator	35,726	CY	\$	6.16	\$	220,246.03
2436	9.4.1.3.1.3.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	2,382	EA	\$	101.64	\$	242,090.12
2438	9.4.1.3.1.3.3	Place Stripping on Slopes	35,726	CY	\$	8.34	\$	297,990.23
2442	9.4.1.4	Excavation (Levee Degrade)	320,580	CY	\$	2.86	\$	915,911.20
2443	9.4.1.4.1	Excavation (Degrade Levee) / export to temp storage]	320,580	CY	\$	2.86	\$	915,911.20
2444	9.4.1.4.1.1	Excavate & Stockpile	320,580	CY	\$	2.86	\$	915,911.20
2455	9.4.1.5	Embankment Fill / Import from temp storage including additional purchased material	242,375	CY	\$	77.84	\$	18,866,945.88
2456	9.4.1.5.1	Levee Degrade Material	242,375	CY	\$	6.71	\$	1,626,133.48
2457	9.4.1.5.1.1	Scarify & Moisture Condition Fills	2,822,688	SF	\$	0.09	\$	257,565.90
2466	9.4.1.5.1.2	Place Fill Material from Stockpile	242,375	CY	\$	4.32	\$	1,047,085.19
2478	9.4.1.5.1.3	Quality Control	401	HR	\$	801.70	\$	321,482.38
2483	9.4.1.5.2	Imported Fill	316,987	CY	\$	54.39	\$	17,240,812.40
2484	9.4.1.5.2.1	Buy Material	316,987	CY	\$	13.99	\$	4,435,965.05
2486	9.4.1.5.2.2	Haul Material	316,987	CY	\$	33.27	\$	10,544,723.35



2487	9.4.1.5.2.2.1	Haul	28,817 EA	\$	365.92	\$	10,544,723.35
2489	9.4.1.5.2.3	Place Fill Material	316,987 CY	\$	5.26	\$	1,665,845.56
2496	9.4.1.5.2.4	Finish Slopes	1,692,500 SF	\$	0.04	\$	72,116.75
2502	9.4.1.5.2.5	Quality Control	1,268 HR	\$	411.80	\$	522,161.68
2507	9.4.1.6	Impervious Fill	53,169 CY	\$	54.16	\$	2,879,734.40
2508	9.4.1.6.1	Buy Material	53,169 CY	\$	13.99	\$	744,055.20
2510	9.4.1.6.2	Haul Material	53,169 CY	\$	33.27	\$	1,768,692.08
2511	9.4.1.6.2.1	Haul	4,834 EA	\$	365.92	\$	1,768,692.08
2513	9.4.1.6.3	Place Fill Material	53,169 CY	\$	5.26	\$	279,404.87
2520	9.4.1.6.4	Quality Control	213 HR	\$	411.81	\$	87,582.26
2525	9.4.1.7	Soil Bentonite Slurrywall	1,454,673 SF	\$	10.64	\$	15,475,841.49
2526	9.4.1.7.1	SB Cutoff Wall - Excavator	1,454,673 SF	\$	10.60	\$	15,414,875.22
2527	9.4.1.7.1.1	Cutoff Wall - Soil-Bentonite Slurrywall	1,454,673 SF	\$	10.58	\$	15,394,894.17
2528	9.4.1.7.1.1.1	SW Materials	1,454,673 SF	\$	2.93	\$	4,255,140.38
2531	9.4.1.7.1.1.2	Trench Excavation	3,570 HR	\$	1,981.49	\$	7,073,916.72
2534	9.4.1.7.1.1.3	Batch Plant Area	3,570 HR	\$	800.81	\$	2,858,886.52
2537	9.4.1.7.1.1.4	Settlement Plates	15 EA	\$	341.99	\$	5,129.82
2539	9.4.1.7.1.1.5	Testing	3,570 HR	\$	198.08	\$	707,163.07
2543	9.4.1.7.1.1.6	Project Surveyor	893 HR	\$	427.49	\$	381,530.51
2545	9.4.1.7.1.1.7	Export excess slurry at completion of project	1,616 CY	\$	69.99	\$	113,127.15
2546	9.4.1.7.1.1.7.1	Dump Fees	2,586 TON	\$	20.52	\$	53,064.63
2548	9.4.1.7.1.1.7.2	Loads	108 EA	\$	557.41	\$	60,062.52
2550	9.4.1.7.1.2	Excavate to Expose Top of SB Wall	1,930 CY	\$	10.35	\$	19,981.06
2556	9.4.1.7.2	Secondary Containment Barrier	860 LF	\$	70.89	\$	60,966.27
2557	9.4.1.7.2.1	K-rail Barriers (Concrete)	860 LF	\$	60.94	\$	52,404.93
2558	9.4.1.7.2.1.1	Rental Duration - Jenson Precast Quote	4 MO	\$	13,101.23	\$	52,404.93
2559	9.4.1.7.2.1.1.1	1st Month Rent	43 EA	\$	213.74	\$	9,190.93
2561	9.4.1.7.2.1.1.2	2nd Month Rent	43 EA	\$	170.99	\$	7,352.74
2563	9.4.1.7.2.1.1.3	3rd Month Rent	43 EA	\$	170.99	\$	7,352.74
2565	9.4.1.7.2.1.1.4	4th Month Rent	43 EA	\$	170.99	\$	7,352.74
2567	9.4.1.7.2.1.1.5	Place K Rail	43 EA	\$	246.00	\$	10,577.88
2568	9.4.1.7.2.1.1.5.1	Truckload	8 EA	\$	1,322.24	\$	10,577.88
2570	9.4.1.7.2.1.1.6	Remove K-rail	43 EA	\$	246.00	\$	10,577.88
2571	9.4.1.7.2.1.1.6.1	Truckload	8 EA	\$	1,322.24	\$	10,577.88
2573	9.4.1.7.2.2	Other materials for containment	1 EA	\$	2,017.73	\$	2,017.73
2577	9.4.1.7.2.3	Place visqueen, fill sand bags, & place	860 EA	\$	7.61	\$	6,543.61
2580	9.4.1.8	Aggregate Base	13,745 TON	\$	49.32	\$	677,960.28
2581	9.4.1.8.1	Import & Place	13,745 TON	\$	49.32	\$	677,960.28
2582	9.4.1.8.1.1	Buy & Haul Aggregates	13,745 TON	\$	31.60	\$	434,378.96
2583	9.4.1.8.1.1.1	Buy Material	13,745 TON	\$	17.53	\$	240,907.13
2585	9.4.1.8.1.1.2	Haul Material	13,745 TON	\$	14.08	\$	193,471.83
2586	9.4.1.8.1.1.2.1	Loads	574 EA	\$	337.23	\$	193,471.83
2589	9.4.1.8.1.2	Place & Compact Aggregates	13,745 TON	\$	6.49	\$	89,253.94
2599	9.4.1.8.1.3	Finish Grade	514,008 SF	\$	0.16	\$	81,232.20
2609	9.4.1.8.1.4	Quality Control	106 HR	\$	689.58	\$	73,095.18
2613	9.4.1.9	48" DIA RCP	12,700 LF	\$	259.17	\$	3,291,406.83
2614	9.4.1.9.1	48" RCP CL3 Storm Drain System	12,700 LF	\$	244.12	\$	3,100,356.10
2615	9.4.1.9.1.1	Buy pipe & Fittings	1 LS	\$	2,432,219.62	\$	2,432,219.62
2617	9.4.1.9.1.2	Furnish & Install	12,700 LF	\$	21.86	\$	277,647.44
2627	9.4.1.9.1.3	Bedding Material & Haul	8,184 TON	\$	39.70	\$	324,907.85
2628	9.4.1.9.1.3.1	Material	8,184 TON	\$	25.65	\$	209,912.32
2630	9.4.1.9.1.3.2	Haul	8,184 TON	\$	14.05	\$	114,995.53
2631	9.4.1.9.1.3.2.1	Load	341 EA	\$	337.23	\$	114,995.53
2634	9.4.1.9.1.4	Backfill	4,092 CY	\$	16.03	\$	65,581.20
2638	9.4.1.9.2	Imported Fill	3,530 CY	\$	54.12	\$	191,050.73
2639	9.4.1.9.2.1	Buy Material	3,530 CY	\$	13.99	\$	49,399.37
2641	9.4.1.9.2.2	Haul Material	3,530 CY	\$	33.27	\$	117,460.39
2642	9.4.1.9.2.2.1	Haul	321 EA	\$	365.92	\$	117,460.39
2644	9.4.1.9.2.3	Place Fill Material	3,530 CY	\$	5.21	\$	18,392.62
2651	9.4.1.9.2.4	Quality Control	14 HR	\$	414.17	\$	5,798.35
2656	9.4.1.10	Hydroseed	53 ACR	\$	8,004.54	\$	424,240.73
2657	9.4.1.10.1	Hydroseed	53 ACR	\$	7,267.25	\$	385,164.14
2659	9.4.1.10.2	Maintenance	3 MO	\$	13,025.53	\$	39,076.59
2662	10	DWSC East Station 115+00 to171+71 Length = 4,825 = 0.91mi	1 LS	\$	16,713,062.87	\$	16,713,062.87
2663	10.1	01 Real Estate	1 EA	\$	4,952,000.00	\$	-
2665	10.2	02 Relocation	1 LS	\$	4,711,639.93	\$	4,711,639.93
2666	10.2.1	Relocate Power Pole	20 EA	\$	51,298.22	\$	1,025,964.41
2668	10.2.2	Relocate Ditch	20,033 CY	\$	17.18	\$	344,253.08
2669	10.2.2.1	Excavate & Sidecast	20,033 CY	\$	4.85	\$	97,114.54
2673	10.2.2.2	Backfill Ditch	20,033 CY	\$	2.39	\$	47,971.51
2675	10.2.2.3	Compact Fill	20,033 CY	\$	3.96	\$	79,387.64
2678	10.2.2.4	Quality Control	130 HR	\$	306.31	\$	39,820.92
2683	10.2.2.5	Dewatering	1 LS	\$	79,958.47	\$	79,958.47
2684	10.2.2.5.1	Temporary Bypass System	1 LS	\$	79,958.47	\$	79,958.47
2685	10.2.2.5.1.1	Dewatering	1 LS	\$	79,958.47	\$	79,958.47
2686	10.2.2.5.1.1.1	Surface Dewatering - EQ Rental (4,500 gpm = 10cfs)	1 MO	\$	61,913.82	\$	61,913.82
2687	10.2.2.5.1.1.1.1	Mob/Demob	1 LS	\$	4,103.86	\$	4,103.86
2689	10.2.2.5.1.1.1.2	Installation	1 LS	\$	5,078.81	\$	5,078.81
2690	10.2.2.5.1.1.1.2.1	Labor & Equipment	20 HR	\$	253.94	\$	5,078.81
2692	10.2.2.5.1.1.1.3	Pump Rental	1 MO	\$	23,255.19	\$	23,255.19
2695	10.2.2.5.1.1.1.4	Fuel Consumption	1 MO	\$	29,475.96	\$	29,475.96
2697	10.2.2.5.1.1.2	Maintenance on Generator	1 MO	\$	1,493.80	\$	1,493.80
2698	10.2.2.5.1.1.2.1	Number of Generator	1 EA	\$	1,493.80	\$	1,493.80
2700	10.2.2.5.1.1.3	Holding Tanks - 2EA	1 MO	\$	16,550.85	\$	16,550.85
2703	10.2.3	Relocation Inventory & Costs from RE	1 EA	\$	3,341,422.44	\$	3,341,422.44
2705	10.3	06 Fish & Wildlife Facilities	1 LS	\$	2,730,000.00	\$	2,730,000.00
2707	10.4	11 Levee & Floodwalls	1 LS	\$	9,271,422.95	\$	9,271,422.95
2708	10.4.1	Levee	1 LS	\$	9,271,422.95	\$	9,271,422.95
2709	10.4.1.1	Mobilization / Demobilization	1 LS	\$	1,326,635.48	\$	1,326,635.48
2710	10.4.1.1.1	Mix Design (Slurry)	1 LS	\$	8,549.70	\$	8,549.70

2712	10.4.1.1.2	Mob/Demob Equipment	1 LS	\$	489,253.69	\$	489,253.69
2713	10.4.1.1.2.1	Equipment	1 EA	\$	411,944.83	\$	411,944.83
2714	10.4.1.1.2.1.1	Earth Work & SB Wall Conventional	1 LS	\$	411,944.83	\$	411,944.83
2715	10.4.1.1.2.1.1.1	LABOR: Number of Days (7 Days)	7 DAY	\$	9,862.12	\$	69,034.84
2717	10.4.1.1.2.1.1.1.1	Number of Crews (1ea)	7 DAY	\$	9,862.12	\$	69,034.84
2721	10.4.1.1.2.1.1.2	Equipment	7 DAY	\$	46,544.37	\$	325,810.58
2722	10.4.1.1.2.1.1.2.1	Number of Crews (1ea)	7 DAY	\$	46,544.37	\$	325,810.58
2723	10.4.1.1.2.1.1.2.1.1	Cutoff Wall Trench Equipment (1 Crews)	56 HR	\$	967.39	\$	54,173.79
2731	10.4.1.1.2.1.1.2.1.2	Batch Plant Equipment (1 Crews)	56 HR	\$	481.53	\$	26,965.41
2740	10.4.1.1.2.1.1.2.1.3	Stripping Equipment & Levee Degrade (1crew)	56 HR	\$	4,369.13	\$	244,671.38
2754	10.4.1.1.2.2	Equipment Trucking	1 LS	\$	77,308.86	\$	77,308.86
2755	10.4.1.1.2.2.1	Equipment Trucking (8hrs per EQ)	31 EA	\$	1,858.54	\$	57,614.72
2757	10.4.1.1.2.2.2	Crane	40 HR	\$	492.35	\$	19,694.14
2760	10.4.1.1.3	Traffic Control	1 LS	\$	255,165.26	\$	255,165.26
2761	10.4.1.1.3.1	Flagger	6 MO	\$	36,269.16	\$	217,614.96
2766	10.4.1.1.3.2	Signs, Message boards, Delineators,	6 MO	\$	6,258.38	\$	37,550.30
2770	10.4.1.1.4	Staging Areas	1 LS	\$	65,906.74	\$	65,906.74
2771	10.4.1.1.4.1	Staging/Stockpiles Area	1 EA	\$	65,906.74	\$	65,906.74
2772	10.4.1.1.4.1.1	Staging Area (1.5 acre/site)	2 ACR	\$	34,499.66	\$	51,749.49
2773	10.4.1.1.4.1.1.1	Top Soil Stripping	2 ACR	\$	34,499.66	\$	51,749.49
2774	10.4.1.1.4.1.1.1.1	Stripping 6"	1,210 CY	\$	42.77	\$	51,749.49
2775	10.4.1.1.4.1.1.1.1.1	Strip Grass	1,210 CY	\$	8.48	\$	10,261.51
2780	10.4.1.1.4.1.1.1.1.2	Stockpile Topsoil	1,210 CY	\$	13.01	\$	15,736.56
2781	10.4.1.1.4.1.1.1.1.2.1	Load with excavator	1,210 CY	\$	2.98	\$	3,602.27
2783	10.4.1.1.4.1.1.1.1.2.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	81 EA	\$	101.64	\$	8,199.32
2785	10.4.1.1.4.1.1.1.1.2.3	Place at dumpsite	1,210 CY	\$	3.25	\$	3,934.97
2787	10.4.1.1.4.1.1.1.1.3	Replace Stripping	1,210 CY	\$	21.28	\$	25,751.41
2788	10.4.1.1.4.1.1.1.1.3.1	Load with excavator	1,210 CY	\$	6.16	\$	7,459.49
2792	10.4.1.1.4.1.1.1.1.3.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	81 EA	\$	101.64	\$	8,199.32
2794	10.4.1.1.4.1.1.1.1.3.3	Place Stripping on Slopes	1,210 CY	\$	8.34	\$	10,092.60
2798	10.4.1.1.4.1.2	Erosion Control Seeding	2 ACR	\$	9,438.17	\$	14,157.25
2799	10.4.1.1.4.1.2.1	Revegetation/Seeding	2 ACR	\$	9,438.17	\$	14,157.25
2800	10.4.1.1.4.1.2.1.1	Erosion Control Seeding	2 ACR	\$	9,438.17	\$	14,157.25
2801	10.4.1.1.4.1.2.1.1.1	Hydroseed	2 ACR	\$	7,267.25	\$	10,900.87
2803	10.4.1.1.4.1.2.1.1.2	Maintenance	3 MO	\$	1,085.46	\$	3,256.38
2806	10.4.1.1.5	Accommodation of Utilities	1 LS	\$	64,635.76	\$	64,635.76
2808	10.4.1.1.6	Project Preconstruction Submittals	1 LS	\$	48,288.73	\$	48,288.73
2812	10.4.1.1.7	Subcontractor Work	1 LS	\$	394,835.60	\$	394,835.60
2813	10.4.1.1.7.1	SWPPP Implementation and Maintenance	1 LS	\$	284,715.42	\$	284,715.42
2814	10.4.1.1.7.1.1	Temporary Erosion Control	12,063 LF	\$	4.41	\$	53,196.63
2816	10.4.1.1.7.1.1.1	Silt fence install / maint / removal	12,063 LF	\$	4.41	\$	53,196.63
2817	10.4.1.1.7.1.1.1.1	Material - Silt Fence	121 RLL	\$	46.17	\$	5,592.38
2819	10.4.1.1.7.1.1.1.2	Installation	12,063 LF	\$	2.61	\$	31,432.58
2824	10.4.1.1.7.1.1.1.3	Maintenance	40 HR	\$	73.07	\$	2,922.85
2826	10.4.1.1.7.1.1.1.4	Remove Fencing	12,063 LF	\$	1.10	\$	13,248.82
2830	10.4.1.1.7.1.2	Straw Wattle/ Fiber Rolls	53,075 LF	\$	2.75	\$	146,021.75
2831	10.4.1.1.7.1.2.1	Straw Wattles - During Construction	4,825 LF	\$	2.75	\$	13,262.71
2832	10.4.1.1.7.1.2.1.1	Material	5,066 LF	\$	1.37	\$	6,930.39
2835	10.4.1.1.7.1.2.1.2	Installation	4,825 LF	\$	0.79	\$	3,799.39
2840	10.4.1.1.7.1.2.1.3	Remove Straw Wattle	4,825 LF	\$	0.52	\$	2,532.93
2845	10.4.1.1.7.1.2.2	Straw Wattles - After levee constructed	48,250 LF	\$	2.75	\$	132,759.04
2846	10.4.1.1.7.1.2.2.1	Material	50,663 LF	\$	1.37	\$	69,303.90
2849	10.4.1.1.7.1.2.2.2	Installation	48,250 LF	\$	0.79	\$	37,993.93
2854	10.4.1.1.7.1.2.2.3	Remove Straw Wattle	48,250 LF	\$	0.53	\$	25,461.21
2859	10.4.1.1.7.2	Surveying	1 LS	\$	41,038.58	\$	41,038.58
2860	10.4.1.1.7.2.1	Pre-survey	1 EA	\$	6,839.76	\$	6,839.76
2862	10.4.1.1.7.2.2	Construction Staking	1 EA	\$	10,259.64	\$	10,259.64
2864	10.4.1.1.7.2.3	Surveys for payment	1 EA	\$	13,679.53	\$	13,679.53
2866	10.4.1.1.7.2.4	Re-establish survey monuments	1 EA	\$	3,419.88	\$	3,419.88
2868	10.4.1.1.7.2.5	Post-survey	1 EA	\$	6,839.76	\$	6,839.76
2870	10.4.1.1.7.3	Temp Fencing	5,000 LF	\$	3.42	\$	17,099.41
2872	10.4.1.1.7.4	Analytical Soil Testing	1 LS	\$	25,649.11	\$	25,649.11
2874	10.4.1.1.7.5	Sound Vibration Monitoring	2 EA	\$	13,166.54	\$	26,333.09
2877	10.4.1.2	Clearing & Grubbing	155 ACR	\$	8,249.05	\$	1,278,603.13
2878	10.4.1.2.1	Trees	0 EA	\$	1,034,973.23	\$	103.50
2879	10.4.1.2.1.1	Remove Tree	0 EA	\$	766.23	\$	0.08
2883	10.4.1.2.1.2	Haul To Disposal	0 EA	\$	1,378,887.96	\$	103.42
2885	10.4.1.2.1.3	Disposal Fee	0 TON	\$	20.52	\$	0.00
2887	10.4.1.2.2	Clearing & Grubbing - Along Ditch	20,033 CY	\$	62.58	\$	1,253,712.35
2888	10.4.1.2.2.1	Excavation & Export	20,033 CY	\$	62.58	\$	1,253,712.35
2889	10.4.1.2.2.1.1	Excavate & Load with Excavator	20,033 CY	\$	6.32	\$	126,535.96
2892	10.4.1.2.2.1.2	Haul - Assume 15BCY/LD - Off road Haul, on road return	1,336 EA	\$	351.53	\$	469,475.74
2894	10.4.1.2.2.1.3	Dump Fees	20,033 CY	\$	32.83	\$	657,700.64
2896	10.4.1.2.3	Clearing & Grubbing - Debris	1 LS	\$	24,787.29	\$	24,787.29
2897	10.4.1.2.3.1	Excavation & Export	24 HR	\$	1,032.80	\$	24,787.29
2898	10.4.1.2.3.1.1	Excavate & Load with Excavator	24 CY	\$	505.31	\$	12,127.44
2901	10.4.1.2.3.1.2	Haul - Assume 15BCY/LD - Off road Haul, on road return	15 EA	\$	351.53	\$	5,272.90
2903	10.4.1.2.3.1.3	Dump Fees	225 CY	\$	32.83	\$	7,386.94
2905	10.4.1.3	Stripping	12,261 CY	\$	42.77	\$	524,380.53
2906	10.4.1.3.1	Stripping 6"	12,261 CY	\$	42.77	\$	524,380.53
2907	10.4.1.3.1.1	Strip Grass	12,261 CY	\$	8.48	\$	103,980.52
2912	10.4.1.3.1.2	Stockpile Topsoil	12,261 CY	\$	13.01	\$	159,459.48
2913	10.4.1.3.1.2.1	Load with excavator	12,261 CY	\$	2.98	\$	36,502.00
2915	10.4.1.3.1.2.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	817 EA	\$	101.64	\$	83,084.22
2917	10.4.1.3.1.2.3	Place at dumpsite	12,261 CY	\$	3.25	\$	39,873.26
2919	10.4.1.3.1.3	Replace Stripping	12,261 CY	\$	21.28	\$	260,940.54
2920	10.4.1.3.1.3.1	Load with excavator	12,261 CY	\$	6.16	\$	75,587.43
2924	10.4.1.3.1.3.2	Haul - Assume 15BCY/ILD - Off road Haul, on road return	817 EA	\$	101.64	\$	83,084.22
2926	10.4.1.3.1.3.3	Place Stripping on Slopes	12,261 CY	\$	8.34	\$	102,268.88
2930	10.4.1.4	Excavation (Levee Degrade)	105,488 CY	\$	3.70	\$	390,066.35

2931	10.4.1.4.1	Excavation (Degrade Levee) / export to temp storage]	105,488	CY	\$	3.70	\$	390,066.35
2932	10.4.1.4.1.1	Excavate & Stockpile	105,488	CY	\$	3.70	\$	390,066.35
2942	10.4.1.5	Embankment Fill / Import from temp storage including additional purchased material	105,488	CY	\$	7.08	\$	746,505.67
2943	10.4.1.5.1	Levee Degrade Material	105,488	CY	\$	5.64	\$	594,800.67
2944	10.4.1.5.1.1	Scarify & Moisture Condition Fills	482,500	SF	\$	0.09	\$	43,799.26
2953	10.4.1.5.1.2	Place Fill Material from Stockpile	105,488	CY	\$	4.03	\$	425,382.42
2964	10.4.1.5.1.3	Quality Control	70	HR	\$	1,794.56	\$	125,618.99
2969	10.4.1.5.2	Imported Fill	2,425	CY	\$	62.56	\$	151,705.00
2970	10.4.1.5.2.1	Buy Material	2,425	CY	\$	13.99	\$	33,935.82
2972	10.4.1.5.2.2	Haul Material	2,425	CY	\$	33.27	\$	80,668.78
2973	10.4.1.5.2.2.1	Haul	220	EA	\$	365.92	\$	80,668.78
2975	10.4.1.5.2.3	Place Fill Material	2,425	CY	\$	5.26	\$	12,743.46
2982	10.4.1.5.2.4	Finish Slopes	482,500	SF	\$	0.04	\$	20,362.38
2988	10.4.1.5.2.5	Quality Control	10	HR	\$	411.81	\$	3,994.56
2993	10.4.1.6	Impervious Fill	18,914	CY	\$	54.16	\$	1,024,418.30
2994	10.4.1.6.1	Buy Material	18,914	CY	\$	13.99	\$	264,685.44
2996	10.4.1.6.2	Haul Material	18,914	CY	\$	33.27	\$	629,183.21
2997	10.4.1.6.2.1	Haul	1,719	EA	\$	365.92	\$	629,183.21
2999	10.4.1.6.3	Place Fill Material	18,914	CY	\$	5.26	\$	99,393.70
3006	10.4.1.6.4	Quality Control	76	HR	\$	411.81	\$	31,155.95
3011	10.4.1.7	Soil Bentonite Slurrywall	308,561	SF	\$	8.89	\$	2,743,775.12
3012	10.4.1.7.1	SB Cutoff Wall - Excavator	308,561	SF	\$	8.89	\$	2,743,775.12
3013	10.4.1.7.1.1	Cutoff Wall - Soil-Bentonite Slurrywall	308,561	SF	\$	8.86	\$	2,733,784.59
3014	10.4.1.7.1.1.1	SW Materials	308,561	SF	\$	3.08	\$	951,159.77
3017	10.4.1.7.1.1.2	Trench Excavation	560	HR	\$	1,981.49	\$	1,109,634.00
3020	10.4.1.7.1.1.3	Batch Plant Area	560	HR	\$	800.81	\$	448,452.79
3023	10.4.1.7.1.1.4	Settlement Plates	5	EA	\$	341.99	\$	1,709.94
3025	10.4.1.7.1.1.5	Testing	560	HR	\$	248.19	\$	138,983.98
3029	10.4.1.7.1.1.6	Project Surveyor	140	HR	\$	427.49	\$	59,847.92
3031	10.4.1.7.1.1.7	Export excess slurry at completion of project	343	CY	\$	69.99	\$	23,996.20
3032	10.4.1.7.1.1.7.1	Dump Fees	549	TON	\$	20.52	\$	11,255.91
3034	10.4.1.7.1.1.7.2	Loads	23	EA	\$	557.41	\$	12,740.29
3036	10.4.1.7.1.2	Excavate to Expose Top of SB Wall	622	CY	\$	16.06	\$	9,990.53
3042	10.4.1.8	Aggregate Base	2,283	TON	\$	56.91	\$	129,914.79
3043	10.4.1.8.1	Import & Place	2,283	TON	\$	56.91	\$	129,914.79
3044	10.4.1.8.1.1	Buy & Haul Aggregates	2,283	TON	\$	31.73	\$	72,430.16
3045	10.4.1.8.1.1.1	Buy Material	2,283	TON	\$	17.53	\$	40,013.89
3047	10.4.1.8.1.1.2	Haul Material	2,283	TON	\$	14.20	\$	32,416.26
3048	10.4.1.8.1.1.2.1	Loads	96	EA	\$	337.23	\$	32,416.26
3051	10.4.1.8.1.2	Place & Compact Aggregates	2,283	TON	\$	6.49	\$	14,824.79
3061	10.4.1.8.1.3	Finish Grade	144,750	SF	\$	0.16	\$	22,875.83
3071	10.4.1.8.1.4	Quality Control	24	HR	\$	824.33	\$	19,784.01
3075	10.4.1.9	Hydroseed	151	ACR	\$	7,331.94	\$	1,107,123.58
3076	10.4.1.9.1	Hydroseed	151	ACR	\$	7,267.25	\$	1,097,354.43
3078	10.4.1.9.2	Maintenance	3	MO	\$	3,256.38	\$	9,769.15
3081	11	Sac River - North Levee	1	LS	\$	281,209,733.62	\$	281,209,733.62
3082	11.1	01 Real Estate Relocation Assistance	1	EA	\$	99,142,500.00	\$	-
3085	11.2	Relocations	1	EA	\$	27,767,062.76	\$	27,767,062.76
3086	11.2.1	Roads, Construction Activities	1	EA	\$	8,333,322.75	\$	8,333,322.75
3088	11.2.1.1	Mobilization and Demobilization	1	LS	\$	396,825.93	\$	396,825.93
3090	11.2.1.2	Mob, Demob & Prep Work	1	EA	\$	939,020.86	\$	939,020.86
3095	11.2.1.3	SWPP	1	LS	\$	107,769.01	\$	107,769.01
3097	11.2.1.4	SWPP	1	LS	\$	2,925,727.70	\$	2,925,727.70
3098	11.2.1.4.1	Erosion and-or Sediment Control	1	LS	\$	2,324,182.40	\$	2,324,182.40
3105	11.2.1.4.2	Wind Erosion Control	1	LS	\$	576,432.93	\$	576,432.93
3107	11.2.1.4.3	Tracking Control (sediment potentially carried off-site)	1	LS	\$	25,112.37	\$	25,112.37
3111	11.2.1.5	Traffic Control	1	LS	\$	107,769.01	\$	107,769.01
3113	11.2.1.6	Traffic Control	1	LS	\$	468,869.39	\$	468,869.39
3115	11.2.1.7	Demo, Reclaim AC Pavement & ABC (along Levee, 26' w)	182,000	SF	\$	1.44	\$	262,858.82
3116	11.2.1.7.1	Reclaim AC pavement & ABC	182,000	SF	\$	1.44	\$	262,858.82
3117	11.2.1.7.1.1	Saw Cutting	60	LF	\$	6.95	\$	416.95
3119	11.2.1.7.1.2	Pulverize AC pavement & ABC	182,000	SF	\$	0.17	\$	31,142.24
3121	11.2.1.7.1.3	Stockpile, using Scrapers	6,741	CY	\$	34.31	\$	231,299.63
3122	11.2.1.7.1.3.1	Stockpile, with Scraper	13,482	TON	\$	17.16	\$	231,299.63
3124	11.2.1.8	Demo, Reclaim AC Pavement & ABC (along Levee, 8' w)	8,800	SF	\$	2.00	\$	17,606.77
3125	11.2.1.8.1	Reclaim AC pavement & ABC	8,800	SF	\$	2.00	\$	17,606.77
3126	11.2.1.8.1.1	Saw Cutting	20	LF	\$	6.95	\$	138.98
3128	11.2.1.8.1.2	Pulverize AC pavement & ABC	8,800	SF	\$	0.34	\$	3,011.56
3130	11.2.1.8.1.3	Stockpile, using Scrapers	326	CY	\$	44.34	\$	14,456.23
3131	11.2.1.8.1.3.1	Stockpile, with Scraper	652	TON	\$	22.17	\$	14,456.23
3133	11.2.1.9	Reclaimed AC/ABC, 12" t (subbase)	12,822	TON	\$	58.00	\$	743,613.55
3134	11.2.1.9.1	Haul from Stockpile, using Scrapers	6,411	ECY	\$	38.33	\$	245,755.86
3136	11.2.1.9.1.1	Stockpile, with Scraper	12,822	TON	\$	19.17	\$	245,755.86
3139	11.2.1.10	ABC - 6" t	17,720	TON	\$	60.40	\$	1,070,290.22
3143	11.2.1.11	Asphalt Concrete Paving, 4" t	8,000	TON	\$	116.99	\$	935,923.83
3144	11.2.1.11.1	Place 4" asphalt concrete	31,800	SF	\$	29.41	\$	935,377.67
3145	11.2.1.11.1.1	Import & Place Open grade material	8,000	TON	\$	116.92	\$	935,377.67
3146	11.2.1.11.1.1.1	Buy & Haul Aggregates	8,000	TON	\$	102.12	\$	816,966.23
3147	11.2.1.11.1.1.1.1	Buy Material	8,000	TON	\$	90.63	\$	725,014.85
3149	11.2.1.11.1.1.1.2	Haul Material	8,000	TON	\$	11.49	\$	91,951.38
3151	11.2.1.11.1.1.2	Place & Compact Aggregates	8,000	TON	\$	14.80	\$	118,411.44
3153	11.2.1.11.2	Final sweep	3,533	SY	\$	0.15	\$	546.15
3155	11.2.1.12	Striping, for pavement	22,100	LF	\$	0.73	\$	16,099.98
3158	11.2.1.13	Remove Concrete Tiles (24' w)	1,500	LF	\$	16.70	\$	25,047.50
3159	11.2.1.13.1	Demolition, Concrete Sidewalk	444	CY	\$	56.36	\$	25,047.50
3163	11.2.1.14	Place Concrete Tiles (24' w)	1,500	LF	\$	210.60	\$	315,900.17
3165	11.2.2	Cemetery, Utilities, & Structure	1	EA	\$	1,008,178.01	\$	1,008,178.01
3166	11.2.2.1	Mobilization and Demobilization	1	LS	\$	97,535.02	\$	97,535.02
3168	11.2.2.2	SWPP	1	LS	\$	28,410.66	\$	28,410.66
3170	11.2.2.3	DEMO EXST POLES & OH CONDUCTORS	37	EA	\$	2,124.58	\$	78,609.33

3174	11.2.2.4	INSTALL NEW POLES & OH CONDUCTORS	37 EA	\$	19,993.22	\$	739,748.99
3184	11.2.2.5	Remove & Salvage Existing Light Poles, Remove Conc Bases	24 EA	\$	653.25	\$	15,677.90
3187	11.2.2.6	Relocated/Reinstalled Light Poles	24 EA	\$	2,008.17	\$	48,196.10
3189	11.3	Environmental	1 EA	\$	5,175,000.00	\$	5,175,000.00
3191	11.4	Levees and Floodwalls	1 LS	\$	248,267,670.86	\$	248,267,670.86
3192	11.4.1	Levees	1 EA	\$	248,267,670.86	\$	248,267,670.86
3193	11.4.1.1	Mobilization and Demobilization	1 LS	\$	11,822,269.93	\$	11,822,269.93
3195	11.4.1.2	Mob, Demob & Prep Work	1 EA	\$	939,020.86	\$	939,020.86
3200	11.4.1.3	SWPP	1 LS	\$	5,073,222.99	\$	5,073,222.99
3202	11.4.1.4	SWPP	1 LS	\$	2,925,727.70	\$	2,925,727.70
3203	11.4.1.4.1	Erosion and-or Sediment Control	1 LS	\$	2,324,182.40	\$	2,324,182.40
3210	11.4.1.4.2	Wind Erosion Control	1 LS	\$	576,432.93	\$	576,432.93
3212	11.4.1.4.3	Tracking Control (sediment potentially carried off-site)	1 LS	\$	25,112.37	\$	25,112.37
3216	11.4.1.5	Traffic Control	1 LS	\$	5,073,222.99	\$	5,073,222.99
3218	11.4.1.6	Traffic Control	1 LS	\$	468,869.39	\$	468,869.39
3220	11.4.1.7	Levee Clearing & Grubbing	133 ACR	\$	31,425.39	\$	4,179,576.44
3224	11.4.1.8	Tree Removal (Remove Trees & Roots) (EP)	1,280 EA	\$	1,283.29	\$	1,642,613.30
3228	11.4.1.9	Stripping, to Stockpile	66,780 BCY	\$	21.32	\$	1,423,972.27
3231	11.4.1.10	Levee Stripping, to Spoil	7,420 BCY	\$	29.52	\$	219,012.86
3234	11.4.1.11	Levee Excavation, to Stockpile (Degradation of Levee)	185,400 BCY	\$	21.32	\$	3,953,346.20
3237	11.4.1.12	Levee Excavation, to Spoil (Degradation of Levee)	20,600 BCY	\$	27.97	\$	576,100.92
3240	11.4.1.13	Excavation, Inspection Trench	19,778 CY	\$	34.38	\$	679,993.79
3241	11.4.1.13.1	Excavation to Stockpile, Sta 0+00 to 10+00	4,000 CY	\$	14.46	\$	57,824.91
3243	11.4.1.13.2	Excavation, Sta 10+00 to 120+00 & Placement, Sta 0+00 to 110+00	44,000 CY	\$	5.05	\$	222,186.30
3245	11.4.1.13.3	Placement, Sta 110+00 to 120+00	4,000 CY	\$	6.53	\$	26,139.56
3247	11.4.1.13.4	Excavation to Stockpile, Sta 120+00 to 130+00	4,000 CY	\$	14.46	\$	57,824.91
3249	11.4.1.13.5	Excavation, Sta 130+00 to ~247+44 & Placement, Sta 120+00 to 237+44	50,976 CY	\$	5.00	\$	254,860.75
3251	11.4.1.13.6	Placement, Sta 237+44 to 247+44	4,000 CY	\$	8.17	\$	32,674.46
3253	11.4.1.13.7	Excavation, Potholing of Utilities	1 LS	\$	28,482.90	\$	28,482.90
3255	11.4.1.14	Cutoff Wall - SCB Slurry Wall, STA 11+00 to 71+70, to 80 ft deep	209,415 SF	\$	16.99	\$	3,558,825.70
3256	11.4.1.14.1	Cutoff Wall - Soil-Cement-Bentonite Slurrywall	209,415 SF	\$	13.00	\$	2,722,687.18
3257	11.4.1.14.1.1	SW Materials	209,415 SF	\$	8.34	\$	1,747,190.61
3266	11.4.1.14.1.2	Cutoff Slurry Wall, 3' wide	209,415 SF	\$	4.03	\$	844,846.04
3267	11.4.1.14.1.2.1	L&E, Slurry Wall Excavation & Placement	320 HR	\$	2,256.84	\$	722,188.68
3269	11.4.1.14.1.2.2	Hauling, General, 12cy trucks	320 HR	\$	372.53	\$	119,208.75
3271	11.4.1.14.1.2.3	Vacuum Truck (stand-by)	320 HR	\$	10.78	\$	3,448.60
3273	11.4.1.14.1.3	Testing	6,070 LF	\$	18.34	\$	111,332.69
3280	11.4.1.14.1.4	Export excess slurry at completion of project	6 EA	\$	3,219.64	\$	19,317.84
3283	11.4.1.14.2	Haul & Disposal of Unsuitable Debris	6,787 CY	\$	101.94	\$	691,843.32
3284	11.4.1.14.2.1	Haul to Waste	8,619 LCY	\$	12.56	\$	108,220.83
3285	11.4.1.14.2.1.1	Haul	479 EA	\$	225.93	\$	108,220.83
3287	11.4.1.14.2.2	Export unsuitable soils	10,343 TON	\$	56.43	\$	583,622.50
3289	11.4.1.14.3	Borrow (excavation & hauling)	3,258 CY	\$	44.30	\$	144,295.19
3290	11.4.1.14.3.1	Excavation & Hauling from Borrow Site	3,258 CY	\$	44.30	\$	144,295.19
3291	11.4.1.14.3.1.1	Haul	230 EA	\$	335.09	\$	77,071.21
3294	11.4.1.15	Cutoff Wall - SCB Slurry Wall, STA 101+50 to 140+25, to 80 ft deep	191,813 SF	\$	17.76	\$	3,406,406.84
3295	11.4.1.15.1	Cutoff Wall - Soil-Cement-Bentonite Slurrywall	191,813 SF	\$	13.71	\$	2,630,246.10
3296	11.4.1.15.1.1	SW Materials	191,813 SF	\$	8.42	\$	1,615,225.87
3305	11.4.1.15.1.2	Cutoff Slurry Wall, 3' wide	191,813 SF	\$	4.68	\$	897,648.91
3306	11.4.1.15.1.2.1	L&E, Slurry Wall Excavation & Placement	340 HR	\$	2,256.84	\$	767,325.47
3308	11.4.1.15.1.2.2	Hauling, General, 12cy trucks	340 HR	\$	372.53	\$	126,659.30
3310	11.4.1.15.1.2.3	Vacuum Truck (stand-by)	340 HR	\$	10.78	\$	3,664.14
3312	11.4.1.15.1.3	Testing	3,875 LF	\$	25.30	\$	98,053.48
3319	11.4.1.15.1.4	Export excess slurry at completion of project	6 EA	\$	3,219.64	\$	19,317.84
3322	11.4.1.15.2	Haul & Disposal of Unsuitable Debris	6,216 CY	\$	101.94	\$	633,676.26
3323	11.4.1.15.2.1	Haul to Waste	7,894 LCY	\$	12.56	\$	99,123.04
3324	11.4.1.15.2.1.1	Haul	439 EA	\$	225.79	\$	99,123.04
3326	11.4.1.15.2.2	Export unsuitable soils	9,473 TON	\$	56.43	\$	534,553.23
3328	11.4.1.15.3	Borrow (excavation & hauling)	2,984 CY	\$	47.75	\$	142,484.47
3329	11.4.1.15.3.1	Excavation & Hauling from Borrow Site	2,984 CY	\$	47.75	\$	142,484.47
3330	11.4.1.15.3.1.1	Haul	211 EA	\$	334.83	\$	70,648.61
3333	11.4.1.16	Cutoff Wall - DSM, 3 ft wide, STA 140+25 to 155+00, more than 80 ft deep	124,638 SF	\$	31.32	\$	3,904,132.92
3334	11.4.1.16.1	Cutoff Wall, DSM, 3' wide, more than 80 ft deep	124,638 SF	\$	30.01	\$	3,740,218.93
3335	11.4.1.16.1.1	DSM Wall Placement	650 HR	\$	4,464.33	\$	2,901,817.14
3337	11.4.1.16.1.2	SW Materials	124,638 SF	\$	4.95	\$	617,578.20
3341	11.4.1.16.1.3	Trench Plates	3 MO	\$	26,675.07	\$	80,025.22
3345	11.4.1.16.1.4	Testing	1,475 LF	\$	95.46	\$	140,798.37
3352	11.4.1.16.2	Haul & Disposal of Unsuitable Debris	692 CY	\$	236.72	\$	163,914.00
3353	11.4.1.16.2.1	Haul to Waste	879 LCY	\$	118.68	\$	104,367.27
3354	11.4.1.16.2.1.1	Haul	49 EA	\$	2,129.94	\$	104,367.27
3356	11.4.1.16.2.2	Export unsuitable soils	1,055 TON	\$	56.43	\$	59,546.73
3358	11.4.1.17	Cutoff Wall - DSM, 3 ft wide, STA 155+00 to 194+50, more than 80 ft deep	452,275 SF	\$	30.15	\$	13,635,385.43
3359	11.4.1.17.1	Cutoff Wall, DSM, 3' wide, more than 80 ft deep	452,275 SF	\$	28.87	\$	13,056,430.74
3360	11.4.1.17.1.1	DSM Wall Placement	2,260 HR	\$	4,464.33	\$	10,089,394.98
3362	11.4.1.17.1.2	SW Materials	452,275 SF	\$	4.97	\$	2,246,674.30
3366	11.4.1.17.1.3	Trench Plates	9 MO	\$	26,675.07	\$	240,075.67
3370	11.4.1.17.1.4	Testing	3,950 LF	\$	121.59	\$	480,285.79
3377	11.4.1.17.2	Haul & Disposal of Unsuitable Debris	2,513 CY	\$	230.42	\$	578,954.69
3378	11.4.1.17.2.1	Haul to Waste	3,191 LCY	\$	113.72	\$	362,876.96
3379	11.4.1.17.2.1.1	Haul	178 EA	\$	2,038.63	\$	362,876.96
3381	11.4.1.17.2.2	Export unsuitable soils	3,829 TON	\$	56.43	\$	216,077.74
3383	11.4.1.18	Cutoff Wall - DSM, 3 ft wide, STA 200+00 to 215+20, more than 80 ft deep	173,280 SF	\$	30.35	\$	5,259,351.49
3384	11.4.1.18.1	Cutoff Wall, DSM, 3' wide, more than 80 ft deep	173,280 SF	\$	29.07	\$	5,036,874.11
3385	11.4.1.18.1.1	DSM Wall Placement	870 HR	\$	4,464.33	\$	3,883,970.64
3387	11.4.1.18.1.2	SW Materials	173,280 SF	\$	4.97	\$	860,769.29
3391	11.4.1.18.1.3	Trench Plates	4 MO	\$	26,675.07	\$	106,700.30
3395	11.4.1.18.1.4	Testing	1,520 LF	\$	122.00	\$	185,433.88
3402	11.4.1.18.2	Haul & Disposal of Unsuitable Debris	963 CY	\$	231.11	\$	222,477.38
3403	11.4.1.18.2.1	Haul to Waste	1,223 LCY	\$	114.26	\$	139,691.57
3404	11.4.1.18.2.1.1	Haul	68 EA	\$	2,041.63	\$	139,691.57

3406	11.4.1.18.2.2	Export unsuitable soils	1,467 TON	\$	56.43	\$	82,785.81
3408	11.4.1.19	Cohesive Fill (borrow) (installation of Clay Cap)	65,800 ECY	\$	56.49	\$	3,717,303.40
3412	11.4.1.20	Random Fill, from Stockpile, for Levee Embankment	228,763 ECY	\$	29.04	\$	6,644,395.70
3416	11.4.1.21	Random Fill (borrow), for Levee Embankment	9,837 ECY	\$	56.49	\$	555,731.21
3420	11.4.1.22	ABC - 4" t	14,000 TON	\$	66.76	\$	934,674.35
3424	11.4.1.23	Rip Rap (Waterside Placement - 12" minus)	706,400 TON	\$	84.28	\$	59,534,905.75
3425	11.4.1.23.1	Import & Place	706,400 TON	\$	84.28	\$	59,534,905.75
3426	11.4.1.23.1.1	Buy Materials	706,400 TON	\$	34.20	\$	24,158,041.88
3428	11.4.1.23.1.2	Load to Barge 800 ton Capacity	706,400 TON	\$	3.89	\$	2,750,934.32
3429	11.4.1.23.1.2.1	Wait Time for Barges after loading before transport to stockpile dock	5,298 HR	\$	5.10	\$	27,005.21
3432	11.4.1.23.1.3	Loaded Barge Travel Up and Back (Quarry to Stockpile Dock)	706,400 TON	\$	28.74	\$	20,301,547.74
3433	11.4.1.23.1.3.1	Haul per 800 ton Load	221 EA	\$	90,884.64	\$	20,085,506.03
3435	11.4.1.23.1.3.2	Wait Time for Barges before transport to site	21,192 HR	\$	5.10	\$	108,020.85
3437	11.4.1.23.1.3.3	Wait Time for Barges before transport back to quarry	21,192 HR	\$	5.10	\$	108,020.85
3439	11.4.1.23.1.4	Loaded Barge Travel Up and Back (Stockpile Dock to Site)	706,400 TON	\$	10.86	\$	7,674,327.79
3440	11.4.1.23.1.4.1	Haul per 800 ton Load	883 EA	\$	8,691.20	\$	7,674,327.79
3442	11.4.1.23.1.5	Quarry Stone - Placement	706,400 TON	\$	6.58	\$	4,650,054.03
3444	11.4.1.24	Rip Rap (Waterside Placement - 18" minus)	564,911 TON	\$	84.34	\$	47,644,356.85
3445	11.4.1.24.1	Import & Place	564,911 TON	\$	84.34	\$	47,644,356.85
3446	11.4.1.24.1.1	Buy Materials	564,911 TON	\$	34.20	\$	19,319,285.95
3448	11.4.1.24.1.2	Load to Barge 800 ton Capacity	564,911 TON	\$	3.90	\$	2,200,774.30
3449	11.4.1.24.1.2.1	Wait Time for Barges after loading before transport to stockpile dock	4,242 HR	\$	5.10	\$	21,622.52
3452	11.4.1.24.1.3	Loaded Barge Travel Up and Back (Quarry to Stockpile Dock)	564,911 TON	\$	28.78	\$	16,259,561.92
3453	11.4.1.24.1.3.1	Haul per 800 ton Load	177 EA	\$	90,884.64	\$	16,086,581.76
3455	11.4.1.24.1.3.2	Wait Time for Barges before transport to site	16,968 HR	\$	5.10	\$	86,490.08
3457	11.4.1.24.1.3.3	Wait Time for Barges before transport back to quarry	16,968 HR	\$	5.10	\$	86,490.08
3459	11.4.1.24.1.4	Loaded Barge Travel Up and Back (Stockpile Dock to Site)	564,911 TON	\$	10.88	\$	6,144,676.95
3460	11.4.1.24.1.4.1	Haul per 800 ton Load	707 EA	\$	8,691.20	\$	6,144,676.95
3462	11.4.1.24.1.5	Quarry Stone - Placement	564,911 TON	\$	6.59	\$	3,720,057.72
3464	11.4.1.25	Riprap (Rock Slope Protection)	373,503 TON	\$	73.35	\$	27,396,232.88
3467	11.4.1.26	Reveg - Hydroseeding	92 ACR	\$	10,184.78	\$	937,000.08
3470	11.4.1.27	Random Fill (borrow), for soil filled riprap and soil atop riprap	569,300 ECY	\$	56.49	\$	32,162,018.63
3474	12	DWSC Closure Structure	1 EA	\$	271,083,003.00	\$	271,083,003.00
3475	12.1	01 Real Estate	1 EA	\$	900,000.00	\$	-
1	1	Floodway Control and Diversion Structures	1 LS	\$	271,083,002.79	\$	271,083,002.79
2	1.1	Mob & Demob	1 LS	\$	11,446,103.38	\$	11,446,103.38
4	1.2	Clearing and Grubbing	165 ACR	\$	5,589.72	\$	922,303.21
5	1.2.1	Clearing and Grubbing	165 ACR	\$	5,589.72	\$	922,303.21
7	1.3	Float-In Transport and Handling, Positioning and Set-Down	1 LS	\$	39,005,762.23	\$	39,005,762.23
8	1.3.1	Degrade Levee/ Flood Graving Site	607,912 ECY	\$	6.60	\$	4,014,909.02
9	1.3.1.1	Float Out Channel	551,201 CY	\$	6.82	\$	3,760,366.13
12	1.3.1.2	Degrade	56,711 CY	\$	4.49	\$	254,542.89
15	1.3.2	Transport and Handling	1 LS	\$	687,762.43	\$	687,762.43
17	1.3.3	Positioning and Set Down	1 EA	\$	439,405.65	\$	439,405.65
20	1.3.4	Rebuild Levee	1 LS	\$	33,863,685.13	\$	33,863,685.13
21	1.3.4.1	Cofferdam	1 LS	\$	7,954,906.63	\$	7,954,906.63
22	1.3.4.1.1	PS 31 Sheet Piling	254,419 SF	\$	7.74	\$	1,969,957.58
28	1.3.4.1.2	Crushed Stone	2,388 CY	\$	82.44	\$	196,874.14
31	1.3.4.1.3	Sand Fill	158,411 CY	\$	36.54	\$	5,788,074.91
34	1.3.4.2	Compacted Fill	607,912 CY	\$	42.62	\$	25,908,778.50
35	1.3.4.2.1	borrow pit management	759,890 BCY	\$	0.63	\$	481,148.77
37	1.3.4.2.2	excavate, stockpile and load from borrow pit	759,890 BCY	\$	3.68	\$	2,796,066.82
39	1.3.4.2.3	processing/moisture control	607,912 ECY	\$	3.32	\$	2,018,375.14
41	1.3.4.2.4	haul embankment	911,868 LCY	\$	17.04	\$	15,540,030.47
43	1.3.4.2.5	Spread and Compact Fill Material	607,912 ECY	\$	6.21	\$	3,777,536.49
45	1.3.4.2.6	testing compacted fill	607,912 ECY	\$	0.32	\$	192,459.51
47	1.3.4.2.7	truck wash rack - set up	4 EA	\$	25,327.29	\$	101,309.14
49	1.3.4.2.8	truck wash rack operation	4,676 HR	\$	214.24	\$	1,001,852.17
51	1.4	Excavation	1 LS	\$	2,268,096.28	\$	2,268,096.28
52	1.4.1	Structural Excavation (Channel)	100,612 CY	\$	22.54	\$	2,268,096.28
56	1.5	Temporary Bulkhead for Dock Facility	1 EA	\$	744,652.78	\$	744,652.78
57	1.5.1	PS 31 Sheet Piling	29,019 SF	\$	13.36	\$	387,673.20
63	1.5.2	Sand Fill	9,770 CY	\$	36.54	\$	356,979.58
66	1.6	Civil	1 LS	\$	4,537,359.75	\$	4,537,359.75
67	1.6.1	Separator Geotextile	31,172 SY	\$	6.06	\$	188,851.49
69	1.6.2	Bedding	10,391 CY	\$	46.68	\$	485,047.55
71	1.6.3	36" Riprap	46,757 TON	\$	82.63	\$	3,863,460.71
73	1.7	Foundation	1 LS	\$	46,583,269.82	\$	46,583,269.82
74	1.7.1	Sector Gate Structure	1 LS	\$	46,583,269.82	\$	46,583,269.82
75	1.7.1.1	Pile Tests	1 LS	\$	358,258.30	\$	358,258.30
78	1.7.1.2	36" Ø Pipe Pile w/ 1" wall thickness (Setting Piles)	2,256 LF	\$	579.61	\$	1,307,605.01
83	1.7.1.3	36" Ø Pipe Pile w/ 1" wall thickness (Compression Piles)	15,515 LF	\$	482.08	\$	7,479,456.52
89	1.7.1.4	36" Ø Pipe Pile w/ 1" wall thickness (Service Piles)	46,530 LF	\$	451.82	\$	21,022,969.22
94	1.7.1.5	Pipe Pile Concrete Infill	15,015 CY	\$	402.21	\$	6,039,164.54
96	1.7.1.6	Sheet Pile Cutoff - Combi wall with 24" dia. pipe piles (1/2" wall)	74,536 SF	\$	77.61	\$	5,784,903.45
101	1.7.1.7	Tremied Grout (through piping system)	4,548 CY	\$	210.08	\$	955,428.44
104	1.7.1.8	Diaphragm Seals & Grouting Systems	330 EA	\$	1,513.82	\$	499,559.58
106	1.7.1.9	44" Ø Pile Sleeves w/ 3/4" wall thickness	5,940 LF	\$	527.93	\$	3,135,924.77
111	1.8	Structural Concrete	1 LS	\$	53,532,704.12	\$	53,532,704.12
112	1.8.1	Sector Gate Gatebay	1 LS	\$	53,532,704.12	\$	53,532,704.12
113	1.8.1.1	Reinforced slabs (Lightweight)	18,041 CY	\$	659.64	\$	11,900,511.66
115	1.8.1.2	Reinforced walls (Lightweight)	22,941 CY	\$	962.17	\$	22,073,048.10
117	1.8.1.3	Ballast Concrete (Normal Weight) (Unreinforced)	56,654 CY	\$	337.44	\$	19,117,452.98
119	1.8.1.4	Prestressing Steel	87,584 LF	\$	5.04	\$	441,691.38
121	1.9	Structural Steel	1 LS	\$	33,911,288.80	\$	33,911,288.80
122	1.9.1	Steel Sector Gates	4,280,000 LB	\$	7.92	\$	33,911,288.80
124	1.10	Needle Girder and Bulkhead System	1 LS	\$	27,888,913.02	\$	27,888,913.02

125	1.10.1	Structural Steel (Needle Girder, Needles, and Supports)	720,000 LB	\$	7.92	\$ 5,704,702.79
127	1.10.2	Reinforced Concrete for Storage Rack	918 CY	\$	408.35	\$ 374,867.35
129	1.10.3	24" x 24" Concrete Piles for Storage Rack	7,800 LF	\$	122.50	\$ 955,484.91
131	1.10.4	Structural Steel (Bulkheads and Supports)	2,632,000 LB	\$	7.92	\$ 20,853,857.97
133	1.11	Mechanical	1 LS	\$	730,565.94	\$ 730,565.94
134	1.11.1	Sector Gate Machinery	1 LS	\$	730,565.94	\$ 730,565.94
136	1.12	Electrical	1 LS	\$	688,417.90	\$ 688,417.90
138	1.13	Sector Gate Control House	1 LS	\$	98,345.41	\$ 98,345.41
140	1.14	End Cell Dolphin	1 LS	\$	4,099,429.55	\$ 4,099,429.55
141	1.14.1	PS 31 Sheet Piling	91,448 SF	\$	8.35	\$ 763,321.74
145	1.14.2	18" Ø Pipe Pile w/ 1/2" wall thickness	16,335 LF	\$	132.89	\$ 2,170,681.43
150	1.14.3	Reinforced Concrete	2,323 CY	\$	409.86	\$ 952,098.37
152	1.14.4	Lightweight Fill	2,703 CY	\$	78.92	\$ 213,328.02
154	1.15	Graving Site	1 LS	\$	38,844,607.45	\$ 38,844,607.45
155	1.15.1	Excavation	841,982 CY	\$	4.49	\$ 3,779,170.41
158	1.15.2	Gravel Base	7,023 CY	\$	46.68	\$ 327,830.71
160	1.15.3	Backfill Graving Site	841,982 CY	\$	4.49	\$ 3,779,170.41
163	1.15.4	Class B Timber Piles, Untreated	48,750 LF	\$	55.78	\$ 2,719,318.36
165	1.15.5	Reinforced Concrete Platform	4,185 CY	\$	409.86	\$ 1,715,252.55
167	1.15.6	Compacted Fill	430,000 CY	\$	42.69	\$ 18,355,944.39
168	1.15.6.1	borrow pit management	537,500 BCY	\$	0.63	\$ 340,335.39
170	1.15.6.2	excavate, stockpile and load from borrow pit	537,500 BCY	\$	3.68	\$ 1,977,767.72
172	1.15.6.3	processing/moisture control	430,000 ECY	\$	3.32	\$ 1,427,675.90
174	1.15.6.4	haul embankment	645,000 LCY	\$	17.04	\$ 10,992,073.03
176	1.15.6.5	Spread and Compact Fill Material	430,000 ECY	\$	6.21	\$ 2,671,999.71
178	1.15.6.6	testing compacted fill	430,000 ECY	\$	0.32	\$ 136,134.16
180	1.15.6.7	truck wash rack - set up	4 EA	\$	25,327.29	\$ 101,309.14
182	1.15.6.8	truck wash rack operation	3,308 HR	\$	214.24	\$ 708,649.33
184	1.15.7	Dewatering	1 LS	\$	8,167,920.62	\$ 8,167,920.62
185	1.15.7.1	Excavation	48,000 CY	\$	4.49	\$ 215,444.25
188	1.15.7.2	Dewatering System	1 LS	\$	349,087.67	\$ 349,087.67
192	1.15.7.3	PZ 27 Sheet Piling	190,000 SF	\$	40.02	\$ 7,603,388.70
196	1.16	Tie In Levees	1 EA	\$	5,781,183.14	\$ 5,781,183.14
197	1.16.1	Fertilizing and Seeding	5 ACR	\$	1,899.55	\$ 9,497.73
199	1.16.2	Compacted Fill	38,300 CY	\$	45.10	\$ 1,727,245.26
200	1.16.2.1	borrow pit management	47,875 BCY	\$	0.63	\$ 30,313.59
202	1.16.2.2	excavate, stockpile and load from borrow pit	47,875 BCY	\$	3.68	\$ 176,159.31
204	1.16.2.3	processing/moisture control	38,300 ECY	\$	3.32	\$ 127,162.76
206	1.16.2.4	haul embankment	57,450 LCY	\$	17.04	\$ 979,061.39
208	1.16.2.5	Spread and Compact Fill Material	38,300 ECY	\$	6.21	\$ 237,994.39
210	1.16.2.6	testing compacted fill	38,300 ECY	\$	0.32	\$ 12,125.44
212	1.16.2.7	truck wash rack - set up	4 EA	\$	25,327.29	\$ 101,309.14
214	1.16.2.8	truck wash rack operation	295 HR	\$	214.24	\$ 63,119.23
216	1.16.3	Crushed Stone	32,802 CY	\$	46.68	\$ 1,531,183.69
218	1.16.4	Sheet Pile Cutoff - Combi wall with 24" dia. pipe piles (1/2" wall)	33,411 SF	\$	75.22	\$ 2,513,256.46
3479	13	Sac River - South Levee - FIP	1 LS	\$	305,555,322.97	\$ 305,555,322.97
3480	13.1	Real Estate	1 EA	\$	26,072,500.00	\$ 26,072,500.00
3483	13.2	Relocations	1 EA	\$	46,454,992.18	\$ 46,454,992.18
3484	13.2.1	Roads, Construction Activities	1 EA	\$	19,181,951.25	\$ 19,181,951.25
3486	13.2.1.1	Mobilization and Demobilization	1 LS	\$	1,174,190.61	\$ 1,174,190.61
3488	13.2.1.2	Mob, Demob & Prep Work	1 LS	\$	388,475.29	\$ 388,475.29
3491	13.2.1.3	SWPP	1 LS	\$	332,318.42	\$ 332,318.42
3493	13.2.1.4	SWPP	1 LS	\$	2,925,727.70	\$ 2,925,727.70
3494	13.2.1.4.1	Erosion and-or Sediment Control	1 LS	\$	2,324,182.40	\$ 2,324,182.40
3501	13.2.1.4.2	Wind Erosion Control	1 LS	\$	576,432.93	\$ 576,432.93
3503	13.2.1.4.3	Tracking Control (sediment potentially carried off-site)	1 LS	\$	25,112.37	\$ 25,112.37
3507	13.2.1.5	Traffic Control	1 LS	\$	332,318.42	\$ 332,318.42
3509	13.2.1.6	Traffic Control	1 LS	\$	468,869.39	\$ 468,869.39
3511	13.2.1.7	Clearing & Grubbing	14 ACR	\$	31,758.62	\$ 431,917.26
3515	13.2.1.8	Demo, Reclaim AC Pavement & ABC	110,333 SY	\$	9.41	\$ 1,037,703.48
3516	13.2.1.8.1	Reclaim AC pavement & ABC	992,997 SF	\$	1.05	\$ 1,037,703.48
3517	13.2.1.8.1.1	Saw Cutting	60 LF	\$	6.95	\$ 416.95
3519	13.2.1.8.1.2	Pulverize AC pavement & ABC	992,997 SF	\$	0.17	\$ 169,912.93
3521	13.2.1.8.1.3	Stockpile, using Scrapers	30,648 CY	\$	28.30	\$ 867,373.61
3522	13.2.1.8.1.3.1	Stockpile, with Scraper	61,296 TON	\$	14.15	\$ 867,373.61
3524	13.2.1.9	Roadway Excavation	8,391 BCY	\$	44.22	\$ 371,090.24
3527	13.2.1.10	Excavation, Ditch	6,098 CY	\$	3.09	\$ 18,831.45
3528	13.2.1.10.1	Excavation with Dozer & Grader/Blade	8,537 LCY	\$	2.21	\$ 18,831.45
3530	13.2.1.11	Import/Borrow	19,132 ECY	\$	60.98	\$ 1,166,706.94
3534	13.2.1.12	Finish Grade (Roadbed Subgrade)	992,997 SF	\$	0.45	\$ 448,779.05
3535	13.2.1.12.1	Finish Grade	110,333 SY	\$	4.07	\$ 448,779.05
3537	13.2.1.13	Aggregate Subbase - 9" t	44,133 TON	\$	69.22	\$ 3,055,096.73
3541	13.2.1.14	ABC - 6" t	29,422 TON	\$	61.16	\$ 1,799,468.68
3545	13.2.1.15	Asphalt Concrete Paving, 4" t	15,115 TON	\$	121.14	\$ 1,831,013.24
3546	13.2.1.15.1	Import & Place Open grade material	15,115 TON	\$	120.01	\$ 1,813,958.85
3547	13.2.1.15.1.1	Buy & Haul Aggregates	15,115 TON	\$	105.33	\$ 1,592,069.03
3548	13.2.1.15.1.1.1	Buy Material	15,115 TON	\$	90.63	\$ 1,369,824.93
3550	13.2.1.15.1.1.2	Haul Material	15,115 TON	\$	14.70	\$ 222,244.11
3552	13.2.1.15.1.2	Place & Compact Aggregates	15,115 TON	\$	14.68	\$ 221,889.82
3554	13.2.1.15.2	Final sweep	110,333 SY	\$	0.15	\$ 17,054.39
3556	13.2.1.16	Striping	99,300 LF	\$	0.73	\$ 72,340.63
3557	13.2.1.16.1	Striping	99,300 LF	\$	0.73	\$ 72,340.63

3560	13.2.1.17	Signs, for Intersections/Controlled Access	5 EA	\$	1,772.24	\$	8,861.22
3563	13.2.1.18	Residential Acces/Driveway (Ramp)	8 EA	\$	402,400.34	\$	3,219,202.72
3565	13.2.1.19	Residential Acces/Driveway	16 EA	\$	6,189.99	\$	99,039.76
3567	13.2.2	Cemetery, Utilities, & Structure	1 EA	\$	20,469,160.93	\$	20,469,160.93
3568	13.2.2.1	Mobilization and Demobilization	1 LS	\$	1,892,092.11	\$	1,892,092.11
3570	13.2.2.2	SWPP	1 LS	\$	551,096.78	\$	551,096.78
3572	13.2.2.3	RD 900 Irrigation Pump	1 EA	\$	619,160.97	\$	619,160.97
3574	13.2.2.4	Relocate Underground Telephone Cable	510 LF	\$	100.07	\$	51,037.67
3575	13.2.2.4.1	Trench Excavation	300 BCY	\$	14.89	\$	4,467.54
3577	13.2.2.4.2	Telephone Line Disconnection and Connection	2 EA	\$	4,274.85	\$	8,549.70
3579	13.2.2.4.3	Demolition and Removals	1 LS	\$	1,672.59	\$	1,672.59
3580	13.2.2.4.3.1	Remove Pipes	510 LF	\$	1.91	\$	973.08
3582	13.2.2.4.3.2	Load, Haul & Disposal	0 TON	\$	6,995.11	\$	699.51
3586	13.2.2.4.4	Bedding Procurement, Haul & Placement	50 TON	\$	54.65	\$	2,732.29
3590	13.2.2.4.5	Underground Conduits & Manholes	510 LF	\$	59.74	\$	30,466.81
3591	13.2.2.4.5.1	Install Manholes, Ducts & Cables	510 LF	\$	59.74	\$	30,466.81
3596	13.2.2.4.6	Random Fill, from Stockpile	267 ECY	\$	11.79	\$	3,148.75
3598	13.2.2.5	DEMO EXST POLES & OH CONDUCTORS	204 EA	\$	2,124.58	\$	433,413.62
3602	13.2.2.6	Relocate Overhead Service to Marinas	2 EA	\$	36,545.15	\$	73,090.31
3603	13.2.2.6.1	Power Pole Replacement	2 EA	\$	36,545.15	\$	73,090.31
3611	13.2.2.7	INSTALL NEW POLES & OH CONDUCTORS	206 EA	\$	19,993.22	\$	4,118,602.50
3621	13.2.2.8	ProvideTemporary Power to Marinas	24 MO	\$	4,958.83	\$	119,011.87
3623	13.2.2.9	Utility Fix 2B, Remove 12" steel dewatering pipe	500 LF	\$	49.61	\$	24,807.43
3624	13.2.2.9.1	Demolition and Removals	500 LF	\$	49.61	\$	24,807.43
3625	13.2.2.9.1.1	Remove Pipes	500 LF	\$	42.16	\$	21,080.55
3627	13.2.2.9.1.2	Load, Haul & Disposal	13 TON	\$	134.94	\$	1,686.70
3631	13.2.2.9.1.3	Cap & Abandon Pipe	2 EA	\$	1,020.09	\$	2,040.18
3633	13.2.2.10	Demolition, Relocation (includeing Cell Tower)	1 LS	\$	6,949,387.00	\$	6,949,387.00
3635	13.2.2.11	Other - Misc	1 LS	\$	5,637,460.67	\$	5,637,460.67
3637	13.3	Environmental	1 EA	\$	4,305,000.00	\$	4,305,000.00
3639	13.4	Levees and Floodwalls	1 LS	\$	254,795,330.79	\$	254,795,330.79
3640	13.4.1	Levees	1 EA	\$	254,795,330.79	\$	254,795,330.79
3641	13.4.1.1	Mobilization and Demobilization	1 LS	\$	5,826,639.95	\$	5,826,639.95
3643	13.4.1.2	Mob, Demob & Prep Work	1 LS	\$	939,020.86	\$	939,020.86
3648	13.4.1.3	SWPP	1 LS	\$	3,298,099.38	\$	3,298,099.38
3650	13.4.1.4	SWPP	1 LS	\$	2,925,727.70	\$	2,925,727.70
3651	13.4.1.4.1	Erosion and-or Sediment Control	1 LS	\$	2,324,182.40	\$	2,324,182.40
3658	13.4.1.4.2	Wind Erosion Control	1 LS	\$	576,432.93	\$	576,432.93
3660	13.4.1.4.3	Tracking Control (sediment potentially carried off-site)	1 LS	\$	25,112.37	\$	25,112.37
3664	13.4.1.5	Traffic Control	1 LS	\$	3,298,099.38	\$	3,298,099.38
3666	13.4.1.6	Traffic Control	1 LS	\$	468,869.39	\$	468,869.39
3668	13.4.1.7	Levee Clearing & Grubbing	242 ACR	\$	32,531.26	\$	7,885,576.22
3672	13.4.1.8	Tree Removal (Remove Trees & Roots) (EP)	765 EA	\$	1,400.35	\$	1,071,266.98
3676	13.4.1.9	Structure demolition	27 EA	\$	17,099.41	\$	461,683.98
3678	13.4.1.10	Levee Stripping, to Spoil	160,930 BCY	\$	30.38	\$	4,888,725.41
3681	13.4.1.11	Levee Excavation, to Stockpile (Degradation of Levee)	933,997 BCY	\$	22.24	\$	20,769,206.18
3684	13.4.1.12	Levee Excavation, to Spoil (Degradation of Levee)	103,777 BCY	\$	29.10	\$	3,019,423.34
3687	13.4.1.13	Cutoff Wall - SCB Slurry Wall, STA 163+00 to 216+50, to 33 ft deep	1,112,645 SF	\$	16.34	\$	18,180,610.26
3688	13.4.1.13.1	Cutoff Wall - Soil-Cement-Bentonite Slurrywall	1,112,645 SF	\$	12.75	\$	14,181,038.98
3689	13.4.1.13.1.1	SW Materials	1,112,645 SF	\$	8.35	\$	9,288,967.54
3698	13.4.1.13.1.2	Cutoff Slurry Wall, 3' wide	1,112,645 SF	\$	4.04	\$	4,492,418.23
3699	13.4.1.13.1.2.1	L&E, Slurry Wall Excavation & Placement	1,702 HR	\$	2,256.84	\$	3,840,195.07
3701	13.4.1.13.1.2.2	Hauling, General, 12cy trucks	1,702 HR	\$	372.53	\$	633,885.41
3703	13.4.1.13.1.2.3	Vacuum Truck (stand-by)	1,702 HR	\$	10.78	\$	18,337.75
3705	13.4.1.13.1.3	Testing	5,350 LF	\$	71.09	\$	380,335.36
3712	13.4.1.13.1.4	Export excess slurry at completion of project	6 EA	\$	3,219.64	\$	19,317.84
3715	13.4.1.13.2	Haul & Disposal of Unsuitable Debris	36,058 CY	\$	89.38	\$	3,222,811.89
3716	13.4.1.13.2.1	Haul to Waste	45,794 LCY	\$	2.66	\$	121,961.16
3717	13.4.1.13.2.1.1	Haul	2,545 EA	\$	47.93	\$	121,961.16
3719	13.4.1.13.2.2	Export unsuitable soils	54,952 TON	\$	56.43	\$	3,100,850.73
3721	13.4.1.13.3	Borrow (excavation & hauling)	17,308 CY	\$	44.88	\$	776,759.39
3722	13.4.1.13.3.1	Excavation & Hauling from Borrow Site	17,308 CY	\$	44.88	\$	776,759.39
3723	13.4.1.13.3.1.1	Haul	1,222 EA	\$	347.21	\$	424,170.04
3726	13.4.1.14	Cohesive Fill (borrow) (installation of Clay Cap)	94,323 ECY	\$	55.95	\$	5,277,627.90
3730	13.4.1.15	Random Fill, from Stockpile, for Levee Embankment	933,997 ECY	\$	29.88	\$	27,911,273.07
3734	13.4.1.16	Random Fill (borrow), for Levee Embankment	240,314 ECY	\$	60.61	\$	14,565,275.28
3738	13.4.1.17	Drainage Material for Berm - 24" t	57,593 TON	\$	49.62	\$	2,857,740.34
3741	13.4.1.18	Random Fill, from Stockpile, for Berm	234,404 ECY	\$	29.88	\$	7,004,855.53
3745	13.4.1.19	Random Fill (borrow), for Berm	26,045 ECY	\$	55.90	\$	1,455,823.97
3749	13.4.1.20	Random Fill (borrow), for TOPSOIL PLACEMENT	96,893 ECY	\$	55.90	\$	5,415,978.19
3753	13.4.1.21	Rip Rap (Waterside Placement)	1,360,613 TON	\$	84.97	\$	115,614,725.96
3754	13.4.1.21.1	Import & Place	1,360,613 TON	\$	84.97	\$	115,614,725.96
3755	13.4.1.21.1.1	Buy Materials	1,360,613 TON	\$	34.20	\$	46,531,350.28
3757	13.4.1.21.1.2	Load to Barge 800 ton Capacity	1,360,613 TON	\$	3.87	\$	5,265,006.99
3758	13.4.1.21.1.2.1	Wait Time for Barges after loading before transport to stockpile dock	2,802 HR	\$	5.10	\$	14,282.49
3761	13.4.1.21.1.3	Loaded Barge Travel Up and Back (Quarry to Stockpile Dock)	1,360,613 TON	\$	28.52	\$	38,803,085.43
3762	13.4.1.21.1.3.1	Haul per 800 ton Load	426 EA	\$	90,884.64	\$	38,688,825.55
3764	13.4.1.21.1.3.2	Wait Time for Barges before transport to site	11,208 HR	\$	5.10	\$	57,129.94
3766	13.4.1.21.1.3.3	Wait Time for Barges before transport back to quarry	11,208 HR	\$	5.10	\$	57,129.94
3768	13.4.1.21.1.4	Loaded Barge Travel Up and Back (Stockpile Dock to Site)	1,360,613 TON	\$	10.87	\$	14,786,041.74
3769	13.4.1.21.1.4.1	Haul per 800 ton Load	1,701 EA	\$	8,691.20	\$	14,786,041.74
3771	13.4.1.21.1.5	Quarry Stone - Placement	1,360,613 TON	\$	7.52	\$	10,229,241.52
3774	13.4.1.22	Reveg - Hydroseeding	162 ACR	\$	10,196.75	\$	1,651,874.11
3777	13.4.1.23	Demolition, Concrete Abutment	1 EA	\$	7,207.40	\$	7,207.40
3779	14	Sac River - South Levee - Set Back Levee	1 EA	\$	517,394,025.35	\$	517,394,025.35
3780	14.1	Real Estate	1 EA	\$	39,634,406.00	\$	-
3782	14.2	Relocations	1 EA	\$	36,368,384.26	\$	36,368,384.26
3783	14.2.1	Roads, Construction Activities	1 EA	\$	16,862,461.98	\$	16,862,461.98
3784	14.2.1.1	Mobilization and Demobilization	1 LS	\$	802,974.46	\$	802,974.46
3786	14.2.1.2	Mob, Demob & Prep Work	1 LS	\$	388,475.29	\$	388,475.29





4014	14.4.12.3.1.1	Haul	271 EA	\$	347.44	\$	94,220.68
4017	14.4.13	Cutoff Wall - SCB Slurry Wall, STA 68+00 to 16700 - 25 ft deep	248,333 SF	\$	17.47	\$	4,338,481.99
4018	14.4.13.1	Cutoff Wall - Soil-Cement-Bentonite Slurrywall	248,333 SF	\$	13.49	\$	3,350,873.68
4019	14.4.13.1.1	SW Materials	248,333 SF	\$	8.35	\$	2,073,219.38
4028	14.4.13.1.2	Cutoff Slurry Wall, 3' wide	248,333 SF	\$	4.42	\$	1,098,299.85
4029	14.4.13.1.2.1	L&E, Slurry Wall Excavation & Placement	416 HR	\$	2,256.84	\$	938,845.28
4031	14.4.13.1.2.2	Hauling, General, 12cy trucks	416 HR	\$	372.53	\$	154,971.38
4033	14.4.13.1.2.3	Vacuum Truck (stand-by)	416 HR	\$	10.78	\$	4,483.19
4035	14.4.13.1.3	Testing	9,900 LF	\$	16.17	\$	160,036.61
4042	14.4.13.1.4	Export excess slurry at completion of project	6 EA	\$	3,219.64	\$	19,317.84
4045	14.4.13.2	Haul & Disposal of Unsuitable Debris	8,048 CY	\$	101.15	\$	814,044.95
4046	14.4.13.2.1	Haul to Waste	10,221 LCY	\$	11.93	\$	121,961.16
4047	14.4.13.2.1.1	Haul	568 EA	\$	214.60	\$	121,961.16
4049	14.4.13.2.2	Export unsuitable soils	12,265 TON	\$	56.43	\$	692,083.79
4051	14.4.13.3	Borrow (excavation & hauling)	3,863 CY	\$	44.93	\$	173,563.35
4052	14.4.13.3.1	Excavation & Hauling from Borrow Site	3,863 CY	\$	44.93	\$	173,563.35
4053	14.4.13.3.1.1	Haul	273 EA	\$	347.44	\$	94,868.38
4056	14.4.14	Cutoff Wall - SCB Slurry Wall, STA 167+00 to 26200 - 20 ft deep	190,533 SF	\$	17.83	\$	3,398,015.92
4057	14.4.14.1	Cutoff Wall - Soil-Cement-Bentonite Slurrywall	190,533 SF	\$	13.71	\$	2,611,829.62
4058	14.4.14.1.1	SW Materials	190,533 SF	\$	8.33	\$	1,587,105.50
4067	14.4.14.1.2	Cutoff Slurry Wall, 3' wide	190,533 SF	\$	4.54	\$	865,967.19
4068	14.4.14.1.2.1	L&E, Slurry Wall Excavation & Placement	328 HR	\$	2,256.84	\$	740,243.39
4070	14.4.14.1.2.2	Hauling, General, 12cy trucks	328 HR	\$	372.53	\$	122,188.97
4072	14.4.14.1.2.3	Vacuum Truck (stand-by)	328 HR	\$	10.78	\$	3,534.82
4074	14.4.14.1.3	Testing	9,500 LF	\$	14.68	\$	139,439.09
4081	14.4.14.1.4	Export excess slurry at completion of project	6 EA	\$	3,219.64	\$	19,317.84
4084	14.4.14.2	Haul & Disposal of Unsuitable Debris	6,175 CY	\$	105.75	\$	652,961.07
4085	14.4.14.2.1	Haul to Waste	7,842 LCY	\$	15.55	\$	121,961.16
4086	14.4.14.2.1.1	Haul	436 EA	\$	279.63	\$	121,961.16
4088	14.4.14.2.2	Export unsuitable soils	9,410 TON	\$	56.43	\$	530,999.91
4090	14.4.14.3	Borrow (excavation & hauling)	2,964 CY	\$	44.95	\$	133,225.22
4091	14.4.14.3.1	Excavation & Hauling from Borrow Site	2,964 CY	\$	44.95	\$	133,225.22
4092	14.4.14.3.1.1	Haul	210 EA	\$	347.52	\$	72,846.66
4095	14.4.15	Cutoff Wall - SCB Slurry Wall, STA 262+00 to 271+60 - 30 ft deep	30,000 SF	\$	22.85	\$	685,606.10
4096	14.4.15.1	Cutoff Wall - Soil-Cement-Bentonite Slurrywall	30,000 SF	\$	15.29	\$	458,846.79
4097	14.4.15.1.1	SW Materials	30,000 SF	\$	8.33	\$	249,894.59
4106	14.4.15.1.2	Cutoff Slurry Wall, 3' wide	30,000 SF	\$	5.63	\$	168,969.21
4107	14.4.15.1.2.1	L&E, Slurry Wall Excavation & Placement	64 HR	\$	2,256.84	\$	144,437.74
4109	14.4.15.1.2.2	Hauling, General, 12cy trucks	64 HR	\$	372.53	\$	23,841.75
4111	14.4.15.1.2.3	Vacuum Truck (stand-by)	64 HR	\$	10.78	\$	689.72
4113	14.4.15.1.3	Testing	960 LF	\$	21.53	\$	20,665.15
4120	14.4.15.1.4	Export excess slurry at completion of project	6 EA	\$	3,219.64	\$	19,317.84
4123	14.4.15.2	Haul & Disposal of Unsuitable Debris	972 CY	\$	211.44	\$	205,568.71
4124	14.4.15.2.1	Haul to Waste	1,235 LCY	\$	98.78	\$	121,961.16
4125	14.4.15.2.1.1	Haul	69 EA	\$	1,765.11	\$	121,961.16
4127	14.4.15.2.2	Export unsuitable soils	1,482 TON	\$	56.43	\$	83,607.55
4129	14.4.15.3	Borrow (excavation & hauling)	467 CY	\$	45.41	\$	21,190.60
4130	14.4.15.3.1	Excavation & Hauling from Borrow Site	467 CY	\$	45.41	\$	21,190.60
4131	14.4.15.3.1.1	Haul	33 EA	\$	349.54	\$	11,683.81
4134	14.4.16	Cutoff Wall - SCB Slurry Wall, STA 271+60 to 289+00 - 87 ft deep	161,472 SF	\$	20.23	\$	3,266,965.36
4135	14.4.16.1	Cutoff Wall - Soil-Cement-Bentonite Slurrywall	161,472 SF	\$	15.99	\$	2,582,051.13
4136	14.4.16.1.1	SW Materials	161,472 SF	\$	8.33	\$	1,345,032.62
4145	14.4.16.1.2	Cutoff Slurry Wall, 3' wide	161,472 SF	\$	6.93	\$	1,119,421.00
4146	14.4.16.1.2.1	L&E, Slurry Wall Excavation & Placement	424 HR	\$	2,256.84	\$	956,900.00
4148	14.4.16.1.2.2	Hauling, General, 12cy trucks	424 HR	\$	372.53	\$	157,951.60
4150	14.4.16.1.2.3	Vacuum Truck (stand-by)	424 HR	\$	10.78	\$	4,569.40
4152	14.4.16.1.3	Testing	1,740 LF	\$	56.48	\$	98,279.67
4159	14.4.16.1.4	Export excess slurry at completion of project	6 EA	\$	3,219.64	\$	19,317.84
4162	14.4.16.2	Haul & Disposal of Unsuitable Debris	5,233 CY	\$	109.30	\$	571,970.44
4163	14.4.16.2.1	Haul to Waste	6,646 LCY	\$	18.35	\$	121,961.16
4164	14.4.16.2.1.1	Haul	370 EA	\$	329.88	\$	121,961.16
4166	14.4.16.2.2	Export unsuitable soils	7,975 TON	\$	56.43	\$	450,009.27
4168	14.4.16.3	Borrow (excavation & hauling)	2,512 CY	\$	44.97	\$	112,943.80
4169	14.4.16.3.1	Excavation & Hauling from Borrow Site	2,512 CY	\$	44.97	\$	112,943.80
4170	14.4.16.3.1.1	Haul	178 EA	\$	347.59	\$	61,774.46
4173	14.4.17	Cohesive Fill (borrow) (installation of Clay Cap)	94,323 ECY	\$	300.36	\$	28,330,589.94
4177	14.4.18	Drainage Material for Berm - 24" t	126,475 TON	\$	49.62	\$	6,275,636.10
4180	14.4.19	Rip Rap (Waterside Placement)	1,088,766 TON	\$	85.24	\$	92,803,705.35
4181	14.4.19.1	Import & Place	1,088,766 TON	\$	85.24	\$	92,803,705.35
4182	14.4.19.1.1	Buy Materials	1,088,766 TON	\$	34.20	\$	37,234,505.41
4184	14.4.19.1.2	Load to Barge 800 ton Capacity	1,088,766 TON	\$	3.87	\$	4,215,925.65
4185	14.4.19.1.2.1	Wait Time for Barges after loading before transport to stockpile dock	2,802 HR	\$	5.10	\$	14,282.49
4188	14.4.19.1.3	Loaded Barge Travel Up and Back (Quarry to Stockpile Dock)	1,088,766 TON	\$	28.55	\$	31,082,236.23
4189	14.4.19.1.3.1	Haul per 800 ton Load	341 EA	\$	90,884.64	\$	30,967,976.35
4191	14.4.19.1.3.2	Wait Time for Barges before transport to site	11,208 HR	\$	5.10	\$	57,129.94
4193	14.4.19.1.3.3	Wait Time for Barges before transport back to quarry	11,208 HR	\$	5.10	\$	57,129.94
4195	14.4.19.1.4	Loaded Barge Travel Up and Back (Stockpile Dock to Site)	1,088,766 TON	\$	10.87	\$	11,832,696.63
4196	14.4.19.1.4.1	Haul per 800 ton Load	1,361 EA	\$	8,691.20	\$	11,832,696.63
4198	14.4.19.1.5	Quarry Stone - Placement	1,088,766 TON	\$	7.75	\$	8,438,341.42
4201	14.4.20	Reveg - Hydroseeding	390 ACR	\$	10,196.75	\$	3,976,733.98
4204	14.4.21	Demolition, Concrete Abutment	1 EA	\$	7,207.40	\$	7,207.40