

Appendix I

Capital Improvement Plan Detailed Cost Estimates

City of Sebastian
Stormwater Master Plan
Capital Improvement Projects

| Project No. | Title | Description | Estimated Cost | FISCAL YEAR 2023 | | | | |
|-------------|---|---|-----------------------------|-----------------------|-------------|-------------------|-------------|--|
| | | | | SW Fee | DST | Bond | Grant | Notes |
| 1 | Stormwater Equipment | New and scheduled replacements of equipment and trucks used in the operation and maintenance of the Stormwater System based on their expected useful service lives. | \$ 878,500 | | \$ 115,000 | | | Replacement - John Deere 410K Backhoe |
| 2 | Stormwater Heavy Equipment | Heavy Equipment replacements for the Stormwater Maintenance Program. Replacements include: | \$ 119,000 | | \$ 39,667 | | | 8-yard Brush Truck and Transport Truck 35 Ton Low Bed Trailer |
| 3 | Roadway Swale Work | Reconstruction of stormwater swales in ROW areas in conjunction with road resurfacing and reconstruction projects. | \$ 150,000 | | \$ 15,000 | | | |
| 4 | Harbor Point Waterway and Collier Waterway North Improvements | Dredging and disposal of 3 ft (46,900 CY) of sediment from approximately 10,550 LF of trapezoidal open channel (12' bottom width, 4:1 side slopes), clear & grub, regrade, and sod approximately 211,000 SF of side slope area. | \$ 10,987,265 | | | | | |
| 5 | Central Collier Waterway Improvements - North Section | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 8,550 LF of canal banks, demolition and reconstruction of existing dock structures and fences, abandon existing bulkheads in place, installation of approximately 8,550 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap on water side of existing bulkhead, dredging 3' of sediment from approximately 4,270 LF of canal, regrading and resodding of approximately 171,000 SF of canal easement area (20 ft behind bulkhead). | \$ 27,130,362 | | | | | |
| 6 | Central Collier Waterway Improvements - South Section | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 11,350 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 5,700 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 5,770 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 5,770 LF of canal, regrading and resodding of approximately 230,800 SF of canal easement area (20 ft behind bulkhead and slope on Stormwater Park property). | \$ 21,585,297 | | | | | |
| 7 | Schumann Waterway Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 12,200 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 12,200 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 12,200 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 6,100 LF of canal, regrading and resodding of approximately 244,000 SF of canal easement area (20 ft behind bulkhead). | \$ 39,156,096 | | | | | |
| | | Not included in this project is a new culvert at Empress Avenue at the canal to allow continuous flow between North and South portions, which is going to be completed by a developer as they develop the property on the East. | | | | | | |
| 8 | Schumann Lake Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 5,300 LF of lake banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 3,500 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 5,300 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, no dredging of lake, regrading and resodding of approximately 106,000 SF of lake easement area (20 ft behind bulkhead). | \$ 13,195,257 | | | | | |
| 9 | Joy Haven Waterway Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 7,400 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 2,500 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 7,400 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 3,700 LF of canal, regrading and resodding of approximately 148,000 SF of canal easement area (20 ft behind bulkhead). | \$ 23,774,172 | | | | | |
| 10 | Collier Waterway South Improvements | Removal of approximately 14,800 LF of existing bulkheads, installation of approximately 14,800 LF of vinyl sheet pile bulkhead (20 ft panel length), dredging and vegetation removal of approximately 7,400 LF of canal. | \$ 51,091,662 | | | | | |
| 11 | Ocean Cove Drainage Repair | Reconstruction of approximately 2,000 LF of trapezoidal ditch between Crystal Mist and Carnival Terrace from Clearbrook St to Periwinkle to stabilize side slopes and maintain conveyance capacity. | \$ 571,182 | | | | | |
| 12 | Day Drive Retention Area Restoration | Desilt culvert, clear vegetation over 0.25 ac, excavate 3 feet (approximately 3,200 CY) and regrade approximately 0.80 ac (175'x425') retention pond and drainage swale to design grades to restore proper retention volume. | \$ 1,570,614 | | | | | |
| 13 | Concha Dam Repair | Removal and disposal of approximately 100 LF of existing metal bulkhead and concrete cap, installation of approximately 100 LF of metal sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap w/ weir, regrading and resodding of approximately 800 SF of canal easement area (20 ft behind bulkhead). Currently in design. | \$ 365,199 | | \$ 365,199 | | | potentially include adjustable gates to drain canal prior to large wet weather event |
| 14 | SWMS Pipe Lining | Sliplining of existing culvert pipes rather than open cut replacement to reduce cost and disturbance. | \$ 200,000 | | \$ 50,000 | | | |
| 15 | Stonecrop Ditch - Tulip Culvert Replacement | Existing twin 36" culverts in Stonecrop Ditch at Tulip Dr. (just E of 798 Tulip Dr.) to be changed to a 4' x 7' concrete box culvert to improve capacity (14.1 SF flow area to 28 SF). This will match the culvert capacity at Albatross assuming Project Number 18 and 19 are completed (culverts downstream of Tulip culvert) | \$ 239,230 | | | | | |
| 16 | Stonecrop Ditch - Albatross Culvert Replacement | Existing 54" culvert in Stonecrop Ditch at Albatross Terrace (just W of 787 Albatross Terrace) to be changed to a 4' x 7' concrete box culvert to improve capacity (15.9 SF flow area to 21 SF). This will match the culvert capacity at Bayfront Terrace assuming Project Number 19 is completed (culvert downstream of Albatross culvert) | \$ 174,375 | | | | | |
| 17 | Stonecrop Ditch - Bayfront Culvert Replacement | Existing twin 40" culverts in Stonecrop Ditch at Bayfront Terrace (just W of 789 Bayfront Terrace) to be changed to a 4' x 7' concrete box culvert to improve capacity (17.4 SF flow area to 28 SF) which is similar to the proposed Laconia St Con-Span 12ft x 3ft bridge (30sf). This project would also include regrading and armoring of 657ft open channel from Bayfront Terrace to Laconia St. | \$ 824,663 | | | | | |
| 18 | Benedictine Area Culvert Improvements | Increase the conveyance capacity of the Benedictine Area Stormwater Network: Replace existing twin 36" culverts at Barber St. crossing S of intersection with Rolling Hill Dr, Dredging and expanding the existing open channel from Barber St crossing and the Rolling Hill Drive crossing, replace existing 36" culvert at Rolling Hill Drive (just N of 414 Rolling Hill Dr.), replace existing 24" culvert at Benedictine Terrace, replace existing twin 24" culverts at Coverbrook Lane. | \$ 636,163 | | | | | |
| 19 | Bryant/Friar Court Retention Pond | Construct new approximately 1.0 ac retention pond in the property just N of 105 Friar Ct., appears to be a Park property. Regrade perimeter swales if needed to drain to retention pond. There is some modeled flooding in the area - minor regrading may help to focus the stormwater in the park area, peak flows of ~25cfs for the 25yr storm and the pipes are 15" | \$ 282,512 | | | | | |
| 20 | Hardee Dam Retrofit Gates | Currently has wood panels acting as the gates. These have been leaking beneath the dam and the dam will eventually have to be replaced. The concrete is still in ok condition, stoplogs need replacement. Replacement gate would increase project cost. | \$ 25,000 | | \$ 25,000 | | | |
| 21 | Surrey Terrace Retention Basin | Approximately 2.3 ac vacant City-owned property S of 737 Surrey Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need. | \$ 779,055 | | | | | |
| 22 | Rosebush Retention Basin | Approximately 2.5 ac vacant City-owned property E of 768 Newhall Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need. | \$ 837,040 | | | | | |
| 23 | Coolidge Outfall Improvements | Remove existing outfall pipe sections in manhole area, install new precast concrete 4' diameter manhole, install approximately 80 LF of X diameter A2000 pipe, install inline tide valve and manatee guard on new outfall pipe. Grout fill and abandon in place remaining existing outfall pipe sections under Mulligan's building. | \$ 73,309 | | \$ 73,309 | | | |
| 24 | Blossom Ditch Drainage Improvements | Dredge Blossom Ditch and create positive drainage in the ditch and in the connecting pipes from the N alleviating flooding along Lanco Ave and Blossom Dr. 2006 Construction Plans developed but not constructed. Add NSBB to outfall for quality. | \$ 1,684,839 | | | \$ 1,684,839 | | City may be eligible for CDBG-MIT funding due to Hurricane Nichole |
| 25 | Drainage Improvements at Hazel and Lloyd St | Add a culvert crossing at Fordham St to allow flow to travel north to twin ditches, includes regrading open channels and upsizing the downstream culverts from Fordhams St to Twin Ditches | \$ 755,939 | | | | | |
| 26 | Stormwater Park Operation | The stormwater pumps are not currently operated using the Float system and therefore do not operate during wet weather events. Repair controls. | \$ 50,000 | | \$ 50,000 | | | |
| 27 | Stonecrop Retention Area | Modify the control structure. Currently the Stonecrop ditch enters the system, 2 60" Pipes, at elevation 7.38 and 7.62. The compound weir dimensions: 2.16ft wide at elevation 6.557ft and 18ft wide at elevation 9.067ft. Add inline tide valves on the two 60" pipes under Stonecrop Dr. | \$ 100,000 | | \$ 100,000 | | | |
| 28 | Canal Dredging | Annual dredging and disposal of canal sediment | \$ 1,000,000 | | \$ 100,000 | | | |
| | | | Estimated Cost | FY23 | | | | |
| | | | TOTAL ESTIMATED COST | \$ 198,236,732 | \$ - | \$ 933,175 | \$ - | \$ 1,684,839 |

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| | | | Estimated Cost | FY24 | | | | |
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| TOTAL ESTIMATED COST | | | \$ 198,236,732 | \$ - | \$ 1,029,329 | \$ - | \$ - | \$ - |

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| 24 | Blossom Ditch Drainage Improvements | Dredge Blossom Ditch and create positive drainage in the ditch and in the connecting pipes from the N alleviating flooding along Lanco Ave and Blossom Dr. 2006 Construction Plans developed but not constructed. Add NSBB to outfall for quality. | \$ 1,684,839 | | | | | |
| 25 | Drainage Improvements at Hazel and Lloyd St | Add a culvert crossing at Fordham St to allow flow to travel north to twin ditches, includes regrading open channels and upsizing the downstream culverts from Fordhams St to Twin Ditches | \$ 755,939 | | | | | |
| 26 | Stormwater Park Operation | The stormwater pumps are not currently operated using the Float system and therefore do not operate during wet weather events. Repair controls. | \$ 50,000 | | | | | |
| 27 | Stonecrop Retention Area | Modify the control structure. Currently the Stonecrop ditch enters the system, 2 60" Pipes, at elevation 7.38 and 7.62. The compound weir dimensions: 2.16ft wide at elevation 6.557ft and 18ft wide at elevation 9.067ft. Add inline tide valves on the two 60" pipes under Stonecrop Dr. | \$ 100,000 | | | | | |
| 28 | Canal Dredging | Annual dredging and disposal of canal sediment | \$ 1,000,000 | | \$ 100,000 | | | |
| | | | Estimated Cost | FY25 | | | | |
| | | | | SW Fee | DST | Bond | Grant | |
| TOTAL ESTIMATED COST | | | \$ 198,236,732 | \$ - | \$ 832,926 | \$ - | \$ 70,628 | |

City of Sebastian
Stormwater Master Plan
Capital Improvement Projects

| Project No. | Title | Description | Estimated Cost | FISCAL YEAR 2026 | | | | |
|-------------|---|---|-----------------------------|------------------|------------|--------------|-------------|--|
| | | | | SW Fee | DST | Bond | Grant | Notes |
| 1 | Stormwater Equipment | New and scheduled replacements of equipment and trucks used in the operation and maintenance of the Stormwater System based on their expected useful service lives. | \$ 878,500 | | \$ 218,000 | | | Replacements Bobcat Excavator E42 John Deere Tractor 6130 |
| 2 | Stormwater Heavy Equipment | Heavy Equipment replacements for the Stormwater Maintenance Program. Replacements include: | \$ 119,000 | | | | | |
| 3 | Roadway Swale Work | Reconstruction of stormwater swales in ROW areas in conjunction with road resurfacing and reconstruction projects. | \$ 150,000 | | \$ 15,000 | | | |
| 4 | Harbor Point Waterway and Collier Waterway North Improvements | Dredging and disposal of 3 ft (46,900 CY) of sediment from approximately 10,550 LF of trapezoidal open channel (12' bottom width, 4:1 side slopes), clear & grub, regrade, and sod approximately 211,000 SF of side slope area. | \$ 10,987,265 | | | | | |
| 5 | Central Collier Waterway Improvements - North Section | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 8,550 LF of canal banks, demolition and reconstruction of existing dock structures and fences, abandon existing bulkheads in place, installation of approximately 8,550 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap on water side of existing bulkhead, dredging 3' of sediment from approximately 4,270 LF of canal, regrading and resodding of approximately 171,000 SF of canal easement area (20 ft behind bulkhead). | \$ 27,130,362 | | | | | |
| 6 | Central Collier Waterway Improvements - South Section | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 11,350 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 5,700 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 5,770 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 5,770 LF of canal, regrading and resodding of approximately 230,800 SF of canal easement area (20 ft behind bulkhead and slope on Stormwater Park property). | \$ 21,585,297 | | | | | |
| 7 | Schumann Waterway Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 12,200 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 12,200 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 12,200 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 6,100 LF of canal, regrading and resodding of approximately 244,000 SF of canal easement area (20 ft behind bulkhead). | \$ 39,156,096 | | | | | |
| | | Not included in this project is a new culvert at Empress Avenue at the canal to allow continuous flow between North and South portions, which is going to be completed by a developer as they develop the property on the East. | | | | | | |
| 8 | Schumann Lake Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 5,300 LF of lake banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 3,500 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 5,300 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, no dredging of lake, regrading and resodding of approximately 106,000 SF of lake easement area (20 ft behind bulkhead). | \$ 13,195,257 | | | | | |
| 9 | Joy Haven Waterway Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 7,400 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 2,500 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 7,400 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 3,700 LF of canal, regrading and resodding of approximately 148,000 SF of canal easement area (20 ft behind bulkhead). | \$ 23,774,172 | | | | | |
| 10 | Collier Waterway South Improvements | Removal of approximately 14,800 LF of existing bulkheads, installation of approximately 14,800 LF of vinyl sheet pile bulkhead (20 ft panel length), dredging and vegetation removal of approximately 7,400 LF of canal. | \$ 51,091,662 | | | | | |
| 11 | Ocean Cove Drainage Repair | Reconstruction of approximately 2,000 LF of trapezoidal ditch between Crystal Mist and Carnival Terrace from Clearbrook St to Periwinkle to stabilize side slopes and maintain conveyance capacity. | \$ 571,182 | | \$ 428,386 | | \$ 142,795 | |
| 12 | Day Drive Retention Area Restoration | Desilt culvert, clear vegetation over 0.25 ac, excavate 3 feet (approximately 3,200 CY) and regrade approximately 0.80 ac (175'x425') retention pond and drainage swale to design grades to restore proper retention volume. | \$ 1,570,614 | | | | | |
| 13 | Concha Dam Repair | Removal and disposal of approximately 100 LF of existing metal bulkhead and concrete cap, installation of approximately 100 LF of metal sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap w/ weir, regrading and resodding of approximately 800 SF of canal easement area (20 ft behind bulkhead). Currently in design. | \$ 365,199 | | | | | potentially include adjustable gates to drain canal prior to large wet weather event |
| 14 | SWMS Pipe Lining | Sliplining of existing culvert pipes rather than open cut replacement to reduce cost and disturbance. | \$ 200,000 | | \$ 50,000 | | | |
| 15 | Stonecrop Ditch - Tulip Culvert Replacement | Existing twin 36" culverts in Stonecrop Ditch at Tulip Dr. (just E of 798 Tulip Dr.) to be changed to a 4' x 7' concrete box culvert to improve capacity (14.1 SF flow area to 28 SF). This will match the culvert capacity at Albatross assuming Project Number 18 and 19 are completed (culverts downstream of Tulip culvert) | \$ 239,230 | | \$ 239,230 | | | |
| 16 | Stonecrop Ditch - Albatross Culvert Replacement | Existing 54" culvert in Stonecrop Ditch at Albatross Terrace (just W of 787 Albatross Terrace) to be changed to a 4' x 7' concrete box culvert to improve capacity (15.9 SF flow area to 21 SF). This will match the culvert capacity at Bayfront Terrace assuming Project Number 19 is completed (culvert downstream of Albatross culvert) | \$ 174,375 | | | | | |
| 17 | Stonecrop Ditch - Bayfront Culvert Replacement | Existing twin 40" culverts in Stonecrop Ditch at Bayfront Terrace (just W of 789 Bayfront Terrace) to be changed to a 4' x 7' concrete box culvert to improve capacity (17.4 SF flow area to 28 SF) which is similar to the proposed Laconia St Con-Span 12ft x 3ft bridge (30sf). This project would also include regrading and armoring of 657ft open channel from Bayfront Terrace to Laconia St. | \$ 824,663 | | | | | |
| 18 | Benedictine Area Culvert Improvements | Increase the conveyance capacity of the Benedictine Area Stormwater Network: Replace existing twin 36" culverts at Barber St. crossing S of intersection with Rolling Hill Dr, Dredging and expanding the existing open channel from Barber St crossing and the Rolling Hill Drive crossing, replace existing 36" culvert at Rolling Hill Drive (just N of 414 Rolling Hill Dr.), replace existing 24" culvert at Benedictine Terrace, replace existing twin 24" culverts at Coverbrook Lane. | \$ 636,163 | | | | | |
| 19 | Bryant/Friar Court Retention Pond | Construct new approximately 1.0 ac retention pond in the property just N of 105 Friar Ct., appears to be a Park property. Regrade perimeter swales if needed to drain to retention pond. There is some modeled flooding in the area - minor regrading may help to focus the stormwater in the park area, peak flows of ~25cfs for the 25yr storm and the pipes are 15" | \$ 282,512 | | | | | |
| 20 | Hardee Dam Retrofit Gates | Currently has wood panels acting as the gates. These have been leaking beneath the dam and the dam will eventually have to be replaced. The concrete is still in ok condition, stoplogs need replacement. Replacement gate would increase project cost. | \$ 25,000 | | | | | |
| 21 | Surrey Terrace Retention Basin | Approximately 2.3 ac vacant City-owned property S of 737 Surrey Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need. | \$ 779,055 | | | | | |
| 22 | Rosebush Retention Basin | Approximately 2.5 ac vacant City-owned property E of 768 Newhall Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need. | \$ 837,040 | | | | | |
| 23 | Coolidge Outfall Improvements | Remove existing outfall pipe sections in manhole area, install new precast concrete 4' diameter manhole, install approximately 80 LF of X diameter A2000 pipe, install inline tide valve and manatee guard on new outfall pipe. Grout fill and abandon in place remaining existing outfall pipe sections under Mulligan's building. | \$ 73,309 | | | | | |
| 24 | Blossom Ditch Drainage Improvements | Dredge Blossom Ditch and create positive drainage in the ditch and in the connecting pipes from the N alleviating flooding along Lanco Ave and Blossom Dr. 2006 Construction Plans developed but not constructed. Add NSBB to outfall for quality. | \$ 1,684,839 | | | | | |
| 25 | Drainage Improvements at Hazel and Lloyd St | Add a culvert crossing at Fordham St to allow flow to travel north to twin ditches, includes regrading open channels and upsizing the downstream culverts from Fordhams St to Twin Ditches | \$ 755,939 | | | | | |
| 26 | Stormwater Park Operation | The stormwater pumps are not currently operated using the Float system and therefore do not operate during wet weather events. Repair controls. | \$ 50,000 | | | | | |
| 27 | Stonecrop Retention Area | Modify the control structure. Currently the Stonecrop ditch enters the system, 2 60" Pipes, at elevation 7.38 and 7.62. The compound weir dimensions: 2.16ft wide at elevation 6.557ft and 18ft wide at elevation 9.067ft. Add inline tide valves on the two 60" pipes under Stonecrop Dr. | \$ 100,000 | | | | | |
| 28 | Canal Dredging | Annual dredging and disposal of canal sediment | \$ 1,000,000 | | \$ 100,000 | | | |
| | | | Estimated Cost | | | | FY26 | |
| | | | TOTAL ESTIMATED COST | \$ 198,236,732 | \$ - | \$ 1,050,616 | \$ - | \$ 142,795 |

City of Sebastian
Stormwater Master Plan
Capital Improvement Projects

| Project No. | Title | Description | Estimated Cost | FISCAL YEAR 2027 | | | | |
|-----------------------------|---|--|-----------------------|------------------|-------------------|-------------|--------------|--------------|
| | | | | SW Fee | DST | Bond | Grant | Notes |
| 1 | Stormwater Equipment | New and scheduled replacements of equipment and trucks used in the operation and maintenance of the Stormwater System based on their expected useful service lives. | \$ 878,500 | \$ - | | | | |
| 2 | Stormwater Heavy Equipment | Heavy Equipment replacements for the Stormwater Maintenance Program. Replacements include: | \$ 119,000 | | | | | |
| 3 | Roadway Swale Work | Reconstruction of stormwater swales in ROW areas in conjunction with road resurfacing and reconstruction projects. | \$ 150,000 | | \$ 15,000 | | | |
| 4 | Harbor Point Waterway and Collier Waterway North Improvements | Dredging and disposal of 3 ft (46,900 CY) of sediment from approximately 10,550 LF of trapezoidal open channel (12' bottom width, 4:1 side slopes), clear & grub, regrade, and sod approximately 211,000 SF of side slope area. | \$ 10,987,265 | | | | | |
| 5 | Central Collier Waterway Improvements - North Section | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 8,550 LF of canal banks, demolition and reconstruction of existing dock structures and fences, abandon existing bulkheads in place, installation of approximately 8,550 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap on water side of existing bulkhead, dredging 3' of sediment from approximately 4,270 LF of canal, regrading and resodding of approximately 171,000 SF of canal easement area (20 ft behind bulkhead). | \$ 27,130,362 | | | | | |
| 6 | Central Collier Waterway Improvements - South Section | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 11,350 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 5,700 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 5,770 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 5,770 LF of canal, regrading and resodding of approximately 230,800 SF of canal easement area (20 ft behind bulkhead and slope on Stormwater Park property). | \$ 21,585,297 | | | | | |
| 7 | Schumann Waterway Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 12,200 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 12,200 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 12,200 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 6,100 LF of canal, regrading and resodding of approximately 244,000 SF of canal easement area (20 ft behind bulkhead). Not included in this project is a new culvert at Empress Avenue at the canal to allow continuous flow between North and South portions, which is going to be completed by a developer as they develop the property on the East. | \$ 39,156,096 | | | | | |
| 8 | Schumann Lake Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 5,300 LF of lake banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 3,500 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 5,300 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, no dredging of lake, regrading and resodding of approximately 106,000 SF of lake easement area (20 ft behind bulkhead). | \$ 13,195,257 | | | | | |
| 9 | Joy Haven Waterway Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 7,400 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 2,500 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 7,400 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 3,700 LF of canal, regrading and resodding of approximately 148,000 SF of canal easement area (20 ft behind bulkhead). | \$ 23,774,172 | | | | | |
| 10 | Collier Waterway South Improvements | Removal of approximately 14,800 LF of existing bulkheads, installation of approximately 14,800 LF of vinyl sheet pile bulkhead (20 ft panel length), dredging and vegetation removal of approximately 7,400 LF of canal. | \$ 51,091,662 | | | | | |
| 11 | Ocean Cove Drainage Repair | Reconstruction of approximately 2,000 LF of trapezoidal ditch between Crystal Mist and Carnival Terrace from Clearbrook St to Periwinkle to stabilize side slopes and maintain conveyance capacity. | \$ 571,182 | | | | | |
| 12 | Day Drive Retention Area Restoration | Desilt culvert, clear vegetation over 0.25 ac, excavate 3 feet (approximately 3,200 CY) and regrade approximately 0.80 ac (175'x425') retention pond and drainage swale to design grades to restore proper retention volume. | \$ 1,570,614 | | | | | |
| 13 | Concha Dam Repair | Removal and disposal of approximately 100 LF of existing metal bulkhead and concrete cap, installation of approximately 100 LF of metal sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap w/ weir, regrading and resodding of approximately 800 SF of canal easement area (20 ft behind bulkhead). Currently in design. | \$ 365,199 | | | | | |
| 14 | SWMS Pipe Lining | Sliplining of existing culvert pipes rather than open cut replacement to reduce cost and disturbance. | \$ 200,000 | | | | | |
| 15 | Stonecrop Ditch - Tulip Culvert Replacement | Existing twin 36" culverts in Stonecrop Ditch at Tulip Dr. (just E of 798 Tulip Dr.) to be changed to a 4' x 7' concrete box culvert to improve capacity (14.1 SF flow area to 28 SF). This will match the culvert capacity at Albatross assuming Project Number 18 and 19 are completed (culverts downstream of Tulip culvert) | \$ 239,230 | | | | | |
| 16 | Stonecrop Ditch - Albatross Culvert Replacement | Existing 54" culvert in Stonecrop Ditch at Albatross Terrace (just W of 787 Albatross Terrace) to be changed to a 4' x 7' concrete box culvert to improve capacity (15.9 SF flow area to 21 SF). This will match the culvert capacity at Bayfront Terrace assuming Project Number 19 is completed (culvert downstream of Albatross culvert) | \$ 174,375 | | | | | |
| 17 | Stonecrop Ditch - Bayfront Culvert Replacement | Existing twin 40" culverts in Stonecrop Ditch at Bayfront Terrace (just W of 789 Bayfront Terrace) to be changed to a 4' x 7' concrete box culvert to improve capacity (17.4 SF flow area to 28 SF) which is similar to the proposed Laconia St Con-Span 12ft x 3ft bridge (30sf). This project would also include regrading and armoring of 657ft open channel from Bayfront Terrace to Laconia St. | \$ 824,663 | | | | | |
| 18 | Benedictine Area Culvert Improvements | Increase the conveyance capacity of the Benedictine Area Stormwater Network: Replace existing twin 36" culverts at Barber St. crossing S of intersection with Rolling Hill Dr, Dredging and expanding the existing open channel from Barber St crossing and the Rolling Hill Drive crossing, replace existing 36" culvert at Rolling Hill Drive (just N of 414 Rolling Hill Dr.), replace existing 24" culvert at Benedictine Terrace, replace existing twin 24" culverts at Coverbrook Lane. | \$ 636,163 | | | | | |
| 19 | Bryant/Friar Court Retention Pond | Construct new approximately 1.0 ac retention pond in the property just N of 105 Friar Ct., appears to be a Park property. Regrade perimeter swales if needed to drain to retention pond. There is some modeled flooding in the area - minor regrading may help to focus the stormwater in the park area, peak flows of ~25cfs for the 25yr storm and the pipes are 15" | \$ 282,512 | | | | | |
| 20 | Hardee Dam Retrofit Gates | Currently has wood panels acting as the gates. These have been leaking beneath the dam and the dam will eventually have to be replaced. The concrete is still in ok condition, stoplogs need replacement. Replacement gate would increase project cost. | \$ 25,000 | | | | | |
| 21 | Surrey Terrace Retention Basin | Approximately 2.3 ac vacant City-owned property S of 737 Surrey Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need. | \$ 779,055 | | \$ 779,055 | | | |
| 22 | Rosebush Retention Basin | Approximately 2.5 ac vacant City-owned property E of 768 Newhall Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need. | \$ 837,040 | | | | | |
| 23 | Coolidge Outfall Improvements | Remove existing outfall pipe sections in manhole area, install new precast concrete 4' diameter manhole, install approximately 80 LF of X diameter A2000 pipe, install inline tide valve and manatee guard on new outfall pipe. Grout fill and abandon in place remaining existing outfall pipe sections under Mulligan's building. | \$ 73,309 | | | | | |
| 24 | Blossom Ditch Drainage Improvements | Dredge Blossom Ditch and create positive drainage in the ditch and in the connecting pipes from the N alleviating flooding along Lanco Ave and Blossom Dr. 2006 Construction Plans developed but not constructed. Add NSBB to outfall for quality. | \$ 1,684,839 | | | | | |
| 25 | Drainage Improvements at Hazel and Lloyd St | Add a culvert crossing at Fordham St to allow flow to travel north to twin ditches, includes regrading open channels and upsizing the downstream culverts from Fordhams St to Twin Ditches | \$ 755,939 | | | | | |
| 26 | Stormwater Park Operation | The stormwater pumps are not currently operated using the Float system and therefore do not operate during wet weather events. Repair controls. | \$ 50,000 | | | | | |
| 27 | Stonecrop Retention Area | Modify the control structure. Currently the Stonecrop ditch enters the system, 2 60" Pipes, at elevation 7.38 and 7.62. The compound weir dimensions: 2.16ft wide at elevation 6.557ft and 18ft wide at elevation 9.067ft. Add inline tide valves on the two 60" pipes under Stonecrop Dr. | \$ 100,000 | | | | | |
| 28 | Canal Dredging | Annual dredging and disposal of canal sediment | \$ 1,000,000 | | \$ 100,000 | | | |
| | | | Estimated Cost | FY27 | | | | |
| | | | | SW Fee | DST | Bond | Grant | Notes |
| TOTAL ESTIMATED COST | | | \$ 198,236,732 | \$ - | \$ 894,055 | \$ - | \$ - | - |

City of Sebastian
Stormwater Master Plan
Capital Improvement Projects

| Project No. | Title | Description | Estimated Cost | FISCAL YEAR 2028 | | | | |
|-----------------------------|---|--|-----------------------|------------------|-------------------|-------------|--------------|--------------|
| | | | | SW Fee | DST | Bond | Grant | Notes |
| 1 | Stormwater Equipment | New and scheduled replacements of equipment and trucks used in the operation and maintenance of the Stormwater System based on their expected useful service lives. | \$ 878,500 | \$ - | | | | |
| 2 | Stormwater Heavy Equipment | Heavy Equipment replacements for the Stormwater Maintenance Program. Replacements include: | \$ 119,000 | | | | | |
| 3 | Roadway Swale Work | Reconstruction of stormwater swales in ROW areas in conjunction with road resurfacing and reconstruction projects. | \$ 150,000 | \$ 15,000 | | | | |
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| 5 | Central Collier Waterway Improvements - North Section | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 8,550 LF of canal banks, demolition and reconstruction of existing dock structures and fences, abandon existing bulkheads in place, installation of approximately 8,550 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap on water side of existing bulkhead, dredging 3' of sediment from approximately 4,270 LF of canal, regrading and resodding of approximately 171,000 SF of canal easement area (20 ft behind bulkhead). | \$ 27,130,362 | | | | | |
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| 7 | Schumann Waterway Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 12,200 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 12,200 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 12,200 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 6,100 LF of canal, regrading and resodding of approximately 244,000 SF of canal easement area (20 ft behind bulkhead). Not included in this project is a new culvert at Empress Avenue at the canal to allow continuous flow between North and South portions, which is going to be completed by a developer as they develop the property on the East. | \$ 39,156,096 | | | | | |
| 8 | Schumann Lake Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 5,300 LF of lake banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 3,500 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 5,300 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, no dredging of lake, regrading and resodding of approximately 106,000 SF of lake easement area (20 ft behind bulkhead). | \$ 13,195,257 | | | | | |
| 9 | Joy Haven Waterway Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 7,400 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 2,500 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 7,400 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 3,700 LF of canal, regrading and resodding of approximately 148,000 SF of canal easement area (20 ft behind bulkhead). | \$ 23,774,172 | | | | | |
| 10 | Collier Waterway South Improvements | Removal of approximately 14,800 LF of existing bulkheads, installation of approximately 14,800 LF of vinyl sheet pile bulkhead (20 ft panel length), dredging and vegetation removal of approximately 7,400 LF of canal. | \$ 51,091,662 | | | | | |
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| 12 | Day Drive Retention Area Restoration | Desilt culvert, clear vegetation over 0.25 ac, excavate 3 feet (approximately 3,200 CY) and regrade approximately 0.80 ac (175'x425') retention pond and drainage swale to design grades to restore proper retention volume. | \$ 1,570,614 | | | | | |
| 13 | Concha Dam Repair | Removal and disposal of approximately 100 LF of existing metal bulkhead and concrete cap, installation of approximately 100 LF of metal sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap w/ weir, regrading and resodding of approximately 800 SF of canal easement area (20 ft behind bulkhead). Currently in design. | \$ 365,199 | | | | | |
| 14 | SWMS Pipe Lining | Sliplining of existing culvert pipes rather than open cut replacement to reduce cost and disturbance. | \$ 200,000 | | | | | |
| 15 | Stonecrop Ditch - Tulip Culvert Replacement | Existing twin 36" culverts in Stonecrop Ditch at Tulip Dr. (just E of 798 Tulip Dr.) to be changed to a 4' x 7' concrete box culvert to improve capacity (14.1 SF flow area to 28 SF). This will match the culvert capacity at Albatross assuming Project Number 18 and 19 are completed (culverts downstream of Tulip culvert) | \$ 239,230 | | | | | |
| 16 | Stonecrop Ditch - Albatross Culvert Replacement | Existing 54" culvert in Stonecrop Ditch at Albatross Terrace (just W of 787 Albatross Terrace) to be changed to a 4' x 7' concrete box culvert to improve capacity (15.9 SF flow area to 21 SF). This will match the culvert capacity at Bayfront Terrace assuming Project Number 19 is completed (culvert downstream of Albatross culvert) | \$ 174,375 | | | | | |
| 17 | Stonecrop Ditch - Bayfront Culvert Replacement | Existing twin 40" culverts in Stonecrop Ditch at Bayfront Terrace (just W of 789 Bayfront Terrace) to be changed to a 4' x 7' concrete box culvert to improve capacity (17.4 SF flow area to 28 SF) which is similar to the proposed Laconia St Con-Span 12ft x 3ft bridge (30sf). This project would also include regrading and armoring of 657ft open channel from Bayfront Terrace to Laconia St. | \$ 824,663 | | | | | |
| 18 | Benedictine Area Culvert Improvements | Increase the conveyance capacity of the Benedictine Area Stormwater Network: Replace existing twin 36" culverts at Barber St. crossing S of intersection with Rolling Hill Dr, Dredging and expanding the existing open channel from Barber St crossing and the Rolling Hill Drive crossing, replace existing 36" culvert at Rolling Hill Drive (just N of 414 Rolling Hill Dr.), replace existing 24" culvert at Benedictine Terrace, replace existing twin 24" culverts at Coverbrook Lane. | \$ 636,163 | | | | | |
| 19 | Bryant/Friar Court Retention Pond | Construct new approximately 1.0 ac retention pond in the property just N of 105 Friar Ct., appears to be a Park property. Regrade perimeter swales if needed to drain to retention pond. There is some modeled flooding in the area - minor regrading may help to focus the stormwater in the park area, peak flows of ~25cfs for the 25yr storm and the pipes are 15" | \$ 282,512 | | | | | |
| 20 | Hardee Dam Retrofit Gates | Currently has wood panels acting as the gates. These have been leaking beneath the dam and the dam will eventually have to be replaced. The concrete is still in ok condition, stoplogs need replacement. Replacement gate would increase project cost. | \$ 25,000 | | | | | |
| 21 | Surrey Terrace Retention Basin | Approximately 2.3 ac vacant City-owned property S of 737 Surrey Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need. | \$ 779,055 | | | | | |
| 22 | Rosebush Retention Basin | Approximately 2.5 ac vacant City-owned property E of 768 Newhall Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need. | \$ 837,040 | | | | | |
| 23 | Coolidge Outfall Improvements | Remove existing outfall pipe sections in manhole area, install new precast concrete 4' diameter manhole, install approximately 80 LF of X diameter A2000 pipe, install inline tide valve and manatee guard on new outfall pipe. Grout fill and abandon in place remaining existing outfall pipe sections under Mulligan's building. | \$ 73,309 | | | | | |
| 24 | Blossom Ditch Drainage Improvements | Dredge Blossom Ditch and create positive drainage in the ditch and in the connecting pipes from the N alleviating flooding along Lanco Ave and Blossom Dr. 2006 Construction Plans developed but not constructed. Add NSBB to outfall for quality. | \$ 1,684,839 | | | | | |
| 25 | Drainage Improvements at Hazel and Lloyd St | Add a culvert crossing at Fordham St to allow flow to travel north to twin ditches, includes regrading open channels and upsizing the downstream culverts from Fordhams St to Twin Ditches | \$ 755,939 | | \$ 755,939 | | | |
| 26 | Stormwater Park Operation | The stormwater pumps are not currently operated using the Float system and therefore do not operate during wet weather events. Repair controls. | \$ 50,000 | | | | | |
| 27 | Stonecrop Retention Area | Modify the control structure. Currently the Stonecrop ditch enters the system, 2 60" Pipes, at elevation 7.38 and 7.62. The compound weir dimensions: 2.16ft wide at elevation 6.557ft and 18ft wide at elevation 9.067ft. Add inline tide valves on the two 60" pipes under Stonecrop Dr. | \$ 100,000 | | | | | |
| 28 | Canal Dredging | Annual dredging and disposal of canal sediment | \$ 1,000,000 | | \$ 100,000 | | | |
| | | | Estimated Cost | FY28 | | | | |
| | | | | SW Fee | DST | Bond | Grant | Notes |
| TOTAL ESTIMATED COST | | | \$ 198,236,732 | \$ 15,000 | \$ 855,939 | \$ - | \$ - | - |

City of Sebastian
Stormwater Master Plan
Capital Improvement Projects

| Project No. | Title | Description | Estimated Cost | FISCAL YEAR 2029 | | | | |
|-----------------------------|---|--|-----------------------|------------------|-------------------|-------------|--------------|--------------|
| | | | | SW Fee | DST | Bond | Grant | Notes |
| 1 | Stormwater Equipment | New and scheduled replacements of equipment and trucks used in the operation and maintenance of the Stormwater System based on their expected useful service lives. | \$ 878,500 | | | | | |
| 2 | Stormwater Heavy Equipment | Heavy Equipment replacements for the Stormwater Maintenance Program. Replacements include: | \$ 119,000 | | | | | |
| 3 | Roadway Swale Work | Reconstruction of stormwater swales in ROW areas in conjunction with road resurfacing and reconstruction projects. | \$ 150,000 | | \$ 15,000 | | | |
| 4 | Harbor Point Waterway and Collier Waterway North Improvements | Dredging and disposal of 3 ft (46,900 CY) of sediment from approximately 10,550 LF of trapezoidal open channel (12' bottom width, 4:1 side slopes), clear & grub, regrade, and sod approximately 211,000 SF of side slope area. | \$ 10,987,265 | | | | | |
| 5 | Central Collier Waterway Improvements - North Section | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 8,550 LF of canal banks, demolition and reconstruction of existing dock structures and fences, abandon existing bulkheads in place, installation of approximately 8,550 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap on water side of existing bulkhead, dredging 3' of sediment from approximately 4,270 LF of canal, regrading and resodding of approximately 171,000 SF of canal easement area (20 ft behind bulkhead). | \$ 27,130,362 | | | | | |
| 6 | Central Collier Waterway Improvements - South Section | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 11,350 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 5,700 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 5,770 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 5,770 LF of canal, regrading and resodding of approximately 230,800 SF of canal easement area (20 ft behind bulkhead and slope on Stormwater Park property). | \$ 21,585,297 | | | | | |
| 7 | Schumann Waterway Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 12,200 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 12,200 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 12,200 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 6,100 LF of canal, regrading and resodding of approximately 244,000 SF of canal easement area (20 ft behind bulkhead). Not included in this project is a new culvert at Empress Avenue at the canal to allow continuous flow between North and South portions, which is going to be completed by a developer as they develop the property on the East. | \$ 39,156,096 | | | | | |
| 8 | Schumann Lake Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 5,300 LF of lake banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 3,500 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 5,300 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, no dredging of lake, regrading and resodding of approximately 106,000 SF of lake easement area (20 ft behind bulkhead). | \$ 13,195,257 | | | | | |
| 9 | Joy Haven Waterway Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 7,400 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 2,500 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 7,400 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 3,700 LF of canal, regrading and resodding of approximately 148,000 SF of canal easement area (20 ft behind bulkhead). | \$ 23,774,172 | | | | | |
| 10 | Collier Waterway South Improvements | Removal of approximately 14,800 LF of existing bulkheads, installation of approximately 14,800 LF of vinyl sheet pile bulkhead (20 ft panel length), dredging and vegetation removal of approximately 7,400 LF of canal. | \$ 51,091,662 | | | | | |
| 11 | Ocean Cove Drainage Repair | Reconstruction of approximately 2,000 LF of trapezoidal ditch between Crystal Mist and Carnival Terrace from Clearbrook St to Periwinkle to stabilize side slopes and maintain conveyance capacity. | \$ 571,182 | | | | | |
| 12 | Day Drive Retention Area Restoration | Desilt culvert, clear vegetation over 0.25 ac, excavate 3 feet (approximately 3,200 CY) and regrade approximately 0.80 ac (175'x425') retention pond and drainage swale to design grades to restore proper retention volume. | \$ 1,570,614 | | | | | |
| 13 | Concha Dam Repair | Removal and disposal of approximately 100 LF of existing metal bulkhead and concrete cap, installation of approximately 100 LF of metal sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap w/ weir, regrading and resodding of approximately 800 SF of canal easement area (20 ft behind bulkhead). Currently in design. | \$ 365,199 | | | | | |
| 14 | SWMS Pipe Lining | Sliplining of existing culvert pipes rather than open cut replacement to reduce cost and disturbance. | \$ 200,000 | | | | | |
| 15 | Stonecrop Ditch - Tulip Culvert Replacement | Existing twin 36" culverts in Stonecrop Ditch at Tulip Dr. (just E of 798 Tulip Dr.) to be changed to a 4' x 7' concrete box culvert to improve capacity (14.1 SF flow area to 28 SF). This will match the culvert capacity at Albatross assuming Project Number 18 and 19 are completed (culverts downstream of Tulip culvert) | \$ 239,230 | | | | | |
| 16 | Stonecrop Ditch - Albatross Culvert Replacement | Existing 54" culvert in Stonecrop Ditch at Albatross Terrace (just W of 787 Albatross Terrace) to be changed to a 4' x 7' concrete box culvert to improve capacity (15.9 SF flow area to 21 SF). This will match the culvert capacity at Bayfront Terrace assuming Project Number 19 is completed (culvert downstream of Albatross culvert) | \$ 174,375 | | | | | |
| 17 | Stonecrop Ditch - Bayfront Culvert Replacement | Existing twin 40" culverts in Stonecrop Ditch at Bayfront Terrace (just W of 789 Bayfront Terrace) to be changed to a 4' x 7' concrete box culvert to improve capacity (17.4 SF flow area to 28 SF) which is similar to the proposed Laconia St Con-Span 12ft x 3ft bridge (30sf). This project would also include regrading and armoring of 657ft open channel from Bayfront Terrace to Laconia St. | \$ 824,663 | | | | | |
| 18 | Benedictine Area Culvert Improvements | Increase the conveyance capacity of the Benedictine Area Stormwater Network: Replace existing twin 36" culverts at Barber St. crossing S of intersection with Rolling Hill Dr, Dredging and expanding the existing open channel from Barber St crossing and the Rolling Hill Drive crossing, replace existing 36" culvert at Rolling Hill Drive (just N of 414 Rolling Hill Dr.), replace existing 24" culvert at Benedictine Terrace, replace existing twin 24" culverts at Coverbrook Lane. | \$ 636,163 | | | | | |
| 19 | Bryant/Friar Court Retention Pond | Construct new approximately 1.0 ac retention pond in the property just N of 105 Friar Ct., appears to be a Park property. Regrade perimeter swales if needed to drain to retention pond. There is some modeled flooding in the area - minor regrading may help to focus the stormwater in the park area, peak flows of ~25cfs for the 25yr storm and the pipes are 15" | \$ 282,512 | | | | | |
| 20 | Hardee Dam Retrofit Gates | Currently has wood panels acting as the gates. These have been leaking beneath the dam and the dam will eventually have to be replaced. The concrete is still in ok condition, stoplogs need replacement. Replacement gate would increase project cost. | \$ 25,000 | | | | | |
| 21 | Surrey Terrace Retention Basin | Approximately 2.3 ac vacant City-owned property S of 737 Surrey Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need. | \$ 779,055 | | | | | |
| 22 | Rosebush Retention Basin | Approximately 2.5 ac vacant City-owned property E of 768 Newhall Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need. | \$ 837,040 | | \$ 837,040 | | | |
| 23 | Coolidge Outfall Improvements | Remove existing outfall pipe sections in manhole area, install new precast concrete 4' diameter manhole, install approximately 80 LF of X diameter A2000 pipe, install inline tide valve and manatee guard on new outfall pipe. Grout fill and abandon in place remaining existing outfall pipe sections under Mulligan's building. | \$ 73,309 | | | | | |
| 24 | Blossom Ditch Drainage Improvements | Dredge Blossom Ditch and create positive drainage in the ditch and in the connecting pipes from the N alleviating flooding along Lanco Ave and Blossom Dr. 2006 Construction Plans developed but not constructed. Add NSBB to outfall for quality. | \$ 1,684,839 | | | | | |
| 25 | Drainage Improvements at Hazel and Lloyd St | Add a culvert crossing at Fordham St to allow flow to travel north to twin ditches, includes regrading open channels and upsizing the downstream culverts from Fordhams St to Twin Ditches | \$ 755,939 | | | | | |
| 26 | Stormwater Park Operation | The stormwater pumps are not currently operated using the Float system and therefore do not operate during wet weather events. Repair controls. | \$ 50,000 | | | | | |
| 27 | Stonecrop Retention Area | Modify the control structure. Currently the Stonecrop ditch enters the system, 2 60" Pipes, at elevation 7.38 and 7.62. The compound weir dimensions: 2.16ft wide at elevation 6.557ft and 18ft wide at elevation 9.067ft. | \$ 100,000 | | | | | |
| 28 | Canal Dredging | Add inline tide valves on the two 60" pipes under Stonecrop Dr. Annual dredging and disposal of canal sediment | \$ 1,000,000 | | \$ 100,000 | | | |
| | | | Estimated Cost | FY29 | | | | |
| | | | | SW Fee | DST | Bond | Grant | Notes |
| TOTAL ESTIMATED COST | | | \$ 198,236,732 | \$ - | \$ 952,040 | \$ - | \$ - | - |

City of Sebastian
Stormwater Master Plan
Capital Improvement Projects

| Project No. | Title | Description | Estimated Cost | FISCAL YEAR 2030 | | | | |
|-----------------------------|---|---|-----------------------|------------------|-------------------|-------------|--------------|--|
| | | | | SW Fee | DST | Bond | Grant | Notes |
| 1 | Stormwater Equipment | New and scheduled replacements of equipment and trucks used in the operation and maintenance of the Stormwater System based on their expected useful service lives. | \$ 878,500 | | \$ 303,500 | | | Replacement - John Deere 825i Gator, CAT 311 Excavator |
| 2 | Stormwater Heavy Equipment | Heavy Equipment replacements for the Stormwater Maintenance Program. Replacements include: | \$ 119,000 | | | | | |
| 3 | Roadway Swale Work | Reconstruction of stormwater swales in ROW areas in conjunction with road resurfacing and reconstruction projects. | \$ 150,000 | | \$ 15,000 | | | |
| 4 | Harbor Point Waterway and Collier Waterway North Improvements | Dredging and disposal of 3 ft (46,900 CY) of sediment from approximately 10,550 LF of trapezoidal open channel (12' bottom width, 4:1 side slopes), clear & grub, regrade, and sod approximately 211,000 SF of side slope area. | \$ 10,987,265 | | | | | |
| 5 | Central Collier Waterway Improvements - North Section | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 8,550 LF of canal banks, demolition and reconstruction of existing dock structures and fences, abandon existing bulkheads in place, installation of approximately 8,550 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap on water side of existing bulkhead, dredging 3' of sediment from approximately 4,270 LF of canal, regrading and resodding of approximately 171,000 SF of canal easement area (20 ft behind bulkhead). | \$ 27,130,362 | | | | | |
| 6 | Central Collier Waterway Improvements - South Section | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 11,350 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 5,700 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 5,770 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 5,770 LF of canal, regrading and resodding of approximately 230,800 SF of canal easement area (20 ft behind bulkhead and slope on Stormwater Park property). | \$ 21,585,297 | | | | | |
| 7 | Schumann Waterway Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 12,200 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 12,200 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 12,200 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 6,100 LF of canal, regrading and resodding of approximately 244,000 SF of canal easement area (20 ft behind bulkhead). | \$ 39,156,096 | | | | | |
| | | Not included in this project is a new culvert at Empress Avenue at the canal to allow continuous flow between North and South portions, which is going to be completed by a developer as they develop the property on the East. | | | | | | |
| 8 | Schumann Lake Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 5,300 LF of lake banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 3,500 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 5,300 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, no dredging of lake, regrading and resodding of approximately 106,000 SF of lake easement area (20 ft behind bulkhead). | \$ 13,195,257 | | | | | |
| 9 | Joy Haven Waterway Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 7,400 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 2,500 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 7,400 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 3,700 LF of canal, regrading and resodding of approximately 148,000 SF of canal easement area (20 ft behind bulkhead). | \$ 23,774,172 | | | | | |
| 10 | Collier Waterway South Improvements | Removal of approximately 14,800 LF of existing bulkheads, installation of approximately 14,800 LF of vinyl sheet pile bulkhead (20 ft panel length), dredging and vegetation removal of approximately 7,400 LF of canal. | \$ 51,091,662 | | | | | |
| 11 | Ocean Cove Drainage Repair | Reconstruction of approximately 2,000 LF of trapezoidal ditch between Crystal Mist and Carnival Terrace from Clearbrook St to Periwinkle to stabilize side slopes and maintain conveyance capacity. | \$ 571,182 | | | | | |
| 12 | Day Drive Retention Area Restoration | Desilt culvert, clear vegetation over 0.25 ac, excavate 3 feet (approximately 3,200 CY) and regrade approximately 0.80 ac (175'x425') retention pond and drainage swale to design grades to restore proper retention volume. | \$ 1,570,614 | | | | | |
| 13 | Concha Dam Repair | Removal and disposal of approximately 100 LF of existing metal bulkhead and concrete cap, installation of approximately 100 LF of metal sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap w/ weir, regrading and resodding of approximately 800 SF of canal easement area (20 ft behind bulkhead). Currently in design. | \$ 365,199 | | | | | |
| 14 | SWMS Pipe Lining | Sliplining of existing culvert pipes rather than open cut replacement to reduce cost and disturbance. | \$ 200,000 | | | | | |
| 15 | Stonecrop Ditch - Tulip Culvert Replacement | Existing twin 36" culverts in Stonecrop Ditch at Tulip Dr. (just E of 798 Tulip Dr.) to be changed to a 4' x 7' concrete box culvert to improve capacity (14.1 SF flow area to 28 SF). This will match the culvert capacity at Albatross assuming Project Number 18 and 19 are completed (culverts downstream of Tulip culvert) | \$ 239,230 | | | | | |
| 16 | Stonecrop Ditch - Albatross Culvert Replacement | Existing 54" culvert in Stonecrop Ditch at Albatross Terrace (just W of 787 Albatross Terrace) to be changed to a 4' x 7' concrete box culvert to improve capacity (15.9 SF flow area to 21 SF). This will match the culvert capacity at Bayfront Terrace assuming Project Number 19 is completed (culvert downstream of Albatross culvert) | \$ 174,375 | | | | | |
| 17 | Stonecrop Ditch - Bayfront Culvert Replacement | Existing twin 40" culverts in Stonecrop Ditch at Bayfront Terrace (just W of 789 Bayfront Terrace) to be changed to a 4' x 7' concrete box culvert to improve capacity (17.4 SF flow area to 28 SF) which is similar to the proposed Laconia St Con-Span 12ft x 3ft bridge (30sf). This project would also include regrading and armoring of 657ft open channel from Bayfront Terrace to Laconia St. | \$ 824,663 | | | | | |
| 18 | Benedictine Area Culvert Improvements | Increase the conveyance capacity of the Benedictine Area Stormwater Network: Replace existing twin 36" culverts at Barber St. crossing S of intersection with Rolling Hill Dr, Dredging and expanding the existing open channel from Barber St crossing and the Rolling Hill Drive crossing, replace existing 36" culvert at Rolling Hill Drive (just N of 414 Rolling Hill Dr.), replace existing 24" culvert at Benedictine Terrace, replace existing twin 24" culverts at Coverbrook Lane. | \$ 636,163 | | | | | |
| 19 | Bryant/Friar Court Retention Pond | Construct new approximately 1.0 ac retention pond in the property just N of 105 Friar Ct., appears to be a Park property. Regrade perimeter swales if needed to drain to retention pond. There is some modeled flooding in the area - minor regrading may help to focus the stormwater in the park area, peak flows of ~25cfs for the 25yr storm and the pipes are 15" | \$ 282,512 | | | | | |
| 20 | Hardee Dam Retrofit Gates | Currently has wood panels acting as the gates. These have been leaking beneath the dam and the dam will eventually have to be replaced. The concrete is still in ok condition, stoplogs need replacement. Replacement gate would increase project cost. | \$ 25,000 | | | | | |
| 21 | Surrey Terrace Retention Basin | Approximately 2.3 ac vacant City-owned property S of 737 Surrey Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need. | \$ 779,055 | | | | | |
| 22 | Rosebush Retention Basin | Approximately 2.5 ac vacant City-owned property E of 768 Newhall Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need. | \$ 837,040 | | | | | |
| 23 | Coolidge Outfall Improvements | Remove existing outfall pipe sections in manhole area, install new precast concrete 4' diameter manhole, install approximately 80 LF of X diameter A2000 pipe, install inline tide valve and manatee guard on new outfall pipe. Grout fill and abandon in place remaining existing outfall pipe sections under Mulligan's building. | \$ 73,309 | | | | | |
| 24 | Blossom Ditch Drainage Improvements | Dredge Blossom Ditch and create positive drainage in the ditch and in the connecting pipes from the N alleviating flooding along Lanco Ave and Blossom Dr. 2006 Construction Plans developed but not constructed. Add NSBB to outfall for quality. | \$ 1,684,839 | | | | | |
| 25 | Drainage Improvements at Hazel and Lloyd St | Add a culvert crossing at Fordham St to allow flow to travel north to twin ditches, includes regrading open channels and upsizing the downstream culverts from Fordhams St to Twin Ditches | \$ 755,939 | | | | | |
| 26 | Stormwater Park Operation | The stormwater pumps are not currently operated using the Float system and therefore do not operate during wet weather events. Repair controls. | \$ 50,000 | | | | | |
| 27 | Stonecrop Retention Area | Modify the control structure. Currently the Stonecrop ditch enters the system, 2 60" Pipes, at elevation 7.38 and 7.62. The compound weir dimensions: 2.16ft wide at elevation 6.557ft and 18ft wide at elevation 9.067ft. Add inline tide valves on the two 60" pipes under Stonecrop Dr. | \$ 100,000 | | | | | |
| 28 | Canal Dredging | Annual dredging and disposal of canal sediment | \$ 1,000,000 | | \$ 100,000 | | | |
| | | | Estimated Cost | FY30 | | | | |
| | | | | SW Fee | DST | Bond | Grant | Notes |
| TOTAL ESTIMATED COST | | | \$ 198,236,732 | \$ - | \$ 418,500 | \$ - | \$ - | |

City of Sebastian
Stormwater Master Plan
Capital Improvement Projects

| Project No. | Title | Description | Estimated Cost | FISCAL YEAR 2031 | | | | |
|-----------------------------|---|--|-----------------------|------------------|-------------------|-------------|--------------|--------------|
| | | | | SW Fee | DST | Bond | Grant | Notes |
| 1 | Stormwater Equipment | New and scheduled replacements of equipment and trucks used in the operation and maintenance of the Stormwater System based on their expected useful service lives. | \$ 878,500 | | | | | |
| 2 | Stormwater Heavy Equipment | Heavy Equipment replacements for the Stormwater Maintenance Program. Replacements include: | \$ 119,000 | | | | | |
| 3 | Roadway Swale Work | Reconstruction of stormwater swales in ROW areas in conjunction with road resurfacing and reconstruction projects. | \$ 150,000 | | \$ 15,000 | | | |
| 4 | Harbor Point Waterway and Collier Waterway North Improvements | Dredging and disposal of 3 ft (46,900 CY) of sediment from approximately 10,550 LF of trapezoidal open channel (12' bottom width, 4:1 side slopes), clear & grub, regrade, and sod approximately 211,000 SF of side slope area. | \$ 10,987,265 | | | | | |
| 5 | Central Collier Waterway Improvements - North Section | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 8,550 LF of canal banks, demolition and reconstruction of existing dock structures and fences, abandon existing bulkheads in place, installation of approximately 8,550 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap on water side of existing bulkhead, dredging 3' of sediment from approximately 4,270 LF of canal, regrading and resodding of approximately 171,000 SF of canal easement area (20 ft behind bulkhead). | \$ 27,130,362 | | | | | |
| 6 | Central Collier Waterway Improvements - South Section | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 11,350 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 5,700 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 5,770 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 5,770 LF of canal, regrading and resodding of approximately 230,800 SF of canal easement area (20 ft behind bulkhead and slope on Stormwater Park property). | \$ 21,585,297 | | | | | |
| 7 | Schumann Waterway Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 12,200 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 12,200 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 12,200 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 6,100 LF of canal, regrading and resodding of approximately 244,000 SF of canal easement area (20 ft behind bulkhead). Not included in this project is a new culvert at Empress Avenue at the canal to allow continuous flow between North and South portions, which is going to be completed by a developer as they develop the property on the East. | \$ 39,156,096 | | | | | |
| 8 | Schumann Lake Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 5,300 LF of lake banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 3,500 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 5,300 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, no dredging of lake, regrading and resodding of approximately 106,000 SF of lake easement area (20 ft behind bulkhead). | \$ 13,195,257 | | | | | |
| 9 | Joy Haven Waterway Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 7,400 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 2,500 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 7,400 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 3,700 LF of canal, regrading and resodding of approximately 148,000 SF of canal easement area (20 ft behind bulkhead). | \$ 23,774,172 | | | | | |
| 10 | Collier Waterway South Improvements | Removal of approximately 14,800 LF of existing bulkheads, installation of approximately 14,800 LF of vinyl sheet pile bulkhead (20 ft panel length), dredging and vegetation removal of approximately 7,400 LF of canal. | \$ 51,091,662 | | | | | |
| 11 | Ocean Cove Drainage Repair | Reconstruction of approximately 2,000 LF of trapezoidal ditch between Crystal Mist and Carnival Terrace from Clearbrook St to Periwinkle to stabilize side slopes and maintain conveyance capacity. | \$ 571,182 | | | | | |
| 12 | Day Drive Retention Area Restoration | Desilt culvert, clear vegetation over 0.25 ac, excavate 3 feet (approximately 3,200 CY) and regrade approximately 0.80 ac (175'x425') retention pond and drainage swale to design grades to restore proper retention volume. | \$ 1,570,614 | | | | | |
| 13 | Concha Dam Repair | Removal and disposal of approximately 100 LF of existing metal bulkhead and concrete cap, installation of approximately 100 LF of metal sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap w/ weir, regrading and resodding of approximately 800 SF of canal easement area (20 ft behind bulkhead). Currently in design. | \$ 365,199 | | | | | |
| 14 | SWMS Pipe Lining | Sliplining of existing culvert pipes rather than open cut replacement to reduce cost and disturbance. | \$ 200,000 | | | | | |
| 15 | Stonecrop Ditch - Tulip Culvert Replacement | Existing twin 36" culverts in Stonecrop Ditch at Tulip Dr. (just E of 798 Tulip Dr.) to be changed to a 4' x 7' concrete box culvert to improve capacity (14.1 SF flow area to 28 SF). This will match the culvert capacity at Albatross assuming Project Number 18 and 19 are completed (culverts downstream of Tulip culvert) | \$ 239,230 | | | | | |
| 16 | Stonecrop Ditch - Albatross Culvert Replacement | Existing 54" culvert in Stonecrop Ditch at Albatross Terrace (just W of 787 Albatross Terrace) to be changed to a 4' x 7' concrete box culvert to improve capacity (15.9 SF flow area to 21 SF). This will match the culvert capacity at Bayfront Terrace assuming Project Number 19 is completed (culvert downstream of Albatross culvert) | \$ 174,375 | | | | | |
| 17 | Stonecrop Ditch - Bayfront Culvert Replacement | Existing twin 40" culverts in Stonecrop Ditch at Bayfront Terrace (just W of 789 Bayfront Terrace) to be changed to a 4' x 7' concrete box culvert to improve capacity (17.4 SF flow area to 28 SF) which is similar to the proposed Laconia St Con-Span 12ft x 3ft bridge (30sf). This project would also include regrading and armoring of 657ft open channel from Bayfront Terrace to Laconia St. | \$ 824,663 | | | | | |
| 18 | Benedictine Area Culvert Improvements | Increase the conveyance capacity of the Benedictine Area Stormwater Network: Replace existing twin 36" culverts at Barber St. crossing S of intersection with Rolling Hill Dr, Dredging and expanding the existing open channel from Barber St crossing and the Rolling Hill Drive crossing, replace existing 36" culvert at Rolling Hill Drive (just N of 414 Rolling Hill Dr.), replace existing 24" culvert at Benedictine Terrace, replace existing twin 24" culverts at Coverbrook Lane. | \$ 636,163 | | \$ 636,163 | | | |
| 19 | Bryant/Friar Court Retention Pond | Construct new approximately 1.0 ac retention pond in the property just N of 105 Friar Ct., appears to be a Park property. Regrade perimeter swales if needed to drain to retention pond. There is some modeled flooding in the area - minor regrading may help to focus the stormwater in the park area, peak flows of ~25cfs for the 25yr storm and the pipes are 15" | \$ 282,512 | | | | | |
| 20 | Hardee Dam Retrofit Gates | Currently has wood panels acting as the gates. These have been leaking beneath the dam and the dam will eventually have to be replaced. The concrete is still in ok condition, stoplogs need replacement. Replacement gate would increase project cost. | \$ 25,000 | | | | | |
| 21 | Surrey Terrace Retention Basin | Approximately 2.3 ac vacant City-owned property S of 737 Surrey Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need. | \$ 779,055 | | | | | |
| 22 | Rosebush Retention Basin | Approximately 2.5 ac vacant City-owned property E of 768 Newhall Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need. | \$ 837,040 | | | | | |
| 23 | Coolidge Outfall Improvements | Remove existing outfall pipe sections in manhole area, install new precast concrete 4' diameter manhole, install approximately 80 LF of X diameter A2000 pipe, install inline tide valve and manatee guard on new outfall pipe. Grout fill and abandon in place remaining existing outfall pipe sections under Mulligan's building. | \$ 73,309 | | | | | |
| 24 | Blossom Ditch Drainage Improvements | Dredge Blossom Ditch and create positive drainage in the ditch and in the connecting pipes from the N alleviating flooding along Lanco Ave and Blossom Dr. 2006 Construction Plans developed but not constructed. Add NSBB to outfall for quality. | \$ 1,684,839 | | | | | |
| 25 | Drainage Improvements at Hazel and Lloyd St | Add a culvert crossing at Fordham St to allow flow to travel north to twin ditches, includes regrading open channels and upsizing the downstream culverts from Fordhams St to Twin Ditches | \$ 755,939 | | | | | |
| 26 | Stormwater Park Operation | The stormwater pumps are not currently operated using the Float system and therefore do not operate during wet weather events. Repair controls. | \$ 50,000 | | | | | |
| 27 | Stonecrop Retention Area | Modify the control structure. Currently the Stonecrop ditch enters the system, 2 60" Pipes, at elevation 7.38 and 7.62. The compound weir dimensions: 2.16ft wide at elevation 6.557ft and 18ft wide at elevation 9.067ft. Add inline tide valves on the two 60" pipes under Stonecrop Dr. | \$ 100,000 | | | | | |
| 28 | Canal Dredging | Annual dredging and disposal of canal sediment | \$ 1,000,000 | | \$ 100,000 | | | |
| | | | Estimated Cost | FY31 | | | | |
| | | | | SW Fee | DST | Bond | Grant | Notes |
| TOTAL ESTIMATED COST | | | \$ 198,236,732 | \$ - | \$ 751,163 | \$ - | \$ - | - |

City of Sebastian
Stormwater Master Plan
Capital Improvement Projects

| Project No. | Title | Description | Estimated Cost | FISCAL YEAR 2032 | | | | |
|-----------------------------|---|--|-----------------------|------------------|--------------|--------------|--------------|-------|
| | | | | SW Fee | DST | Bond | Grant | Notes |
| 1 | Stormwater Equipment | New and scheduled replacements of equipment and trucks used in the operation and maintenance of the Stormwater System based on their expected useful service lives. | \$ 878,500 | | | | | |
| 2 | Stormwater Heavy Equipment | Heavy Equipment replacements for the Stormwater Maintenance Program. Replacements include: | \$ 119,000 | | | | | |
| 3 | Roadway Swale Work | Reconstruction of stormwater swales in ROW areas in conjunction with road resurfacing and reconstruction projects. | \$ 150,000 | | \$ 15,000 | | | |
| 4 | Harbor Point Waterway and Collier Waterway North Improvements | Dredging and disposal of 3 ft (46,900 CY) of sediment from approximately 10,550 LF of trapezoidal open channel (12' bottom width, 4:1 side slopes), clear & grub, regrade, and sod approximately 211,000 SF of side slope area. | \$ 10,987,265 | | | | | |
| 5 | Central Collier Waterway Improvements - North Section | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 8,550 LF of canal banks, demolition and reconstruction of existing dock structures and fences, abandon existing bulkheads in place, installation of approximately 8,550 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap on water side of existing bulkhead, dredging 3' of sediment from approximately 4,270 LF of canal, regrading and resodding of approximately 171,000 SF of canal easement area (20 ft behind bulkhead). | \$ 27,130,362 | | | | | |
| 6 | Central Collier Waterway Improvements - South Section | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 11,350 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 5,700 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 5,770 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 5,770 LF of canal, regrading and resodding of approximately 230,800 SF of canal easement area (20 ft behind bulkhead and slope on Stormwater Park property). | \$ 21,585,297 | | | | | |
| 7 | Schumann Waterway Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 12,200 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 12,200 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 12,200 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 6,100 LF of canal, regrading and resodding of approximately 244,000 SF of canal easement area (20 ft behind bulkhead). Not included in this project is a new culvert at Empress Avenue at the canal to allow continuous flow between North and South portions, which is going to be completed by a developer as they develop the property on the East. | \$ 39,156,096 | | | | | |
| 8 | Schumann Lake Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 5,300 LF of lake banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 3,500 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 5,300 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, no dredging of lake, regrading and resodding of approximately 106,000 SF of lake easement area (20 ft behind bulkhead). | \$ 13,195,257 | | | | | |
| 9 | Joy Haven Waterway Improvements | Clearing and grubbing 20' either side of City drainage ROW lines over approximately 7,400 LF of canal banks, demolition of existing dock structures and fences, installation of temporary sheeting where needed for stability, removal of approximately 2,500 LF of existing seawalls and disposal of transit bulkhead panels, installation of approximately 7,400 LF of vinyl sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap, dredging of approximately 3,700 LF of canal, regrading and resodding of approximately 148,000 SF of canal easement area (20 ft behind bulkhead). | \$ 23,774,172 | | | | | |
| 10 | Collier Waterway South Improvements | Removal of approximately 14,800 LF of existing bulkheads, installation of approximately 14,800 LF of vinyl sheet pile bulkhead (20 ft panel length), dredging and vegetation removal of approximately 7,400 LF of canal. | \$ 51,091,662 | | | | | |
| 11 | Ocean Cove Drainage Repair | Reconstruction of approximately 2,000 LF of trapezoidal ditch between Crystal Mist and Carnival Terrace from Clearbrook St to Periwinkle to stabilize side slopes and maintain conveyance capacity. | \$ 571,182 | | | | | |
| 12 | Day Drive Retention Area Restoration | Desilt culvert, clear vegetation over 0.25 ac, excavate 3 feet (approximately 3,200 CY) and regrade approximately 0.80 ac (175'x425') retention pond and drainage swale to design grades to restore proper retention volume. | \$ 1,570,614 | | \$ 1,177,961 | | \$ 392,654 | |
| 13 | Concha Dam Repair | Removal and disposal of approximately 100 LF of existing metal bulkhead and concrete cap, installation of approximately 100 LF of metal sheet pile bulkhead (20 ft panel length) w/ 24x24" concrete cap w/ weir, regrading and resodding of approximately 800 SF of canal easement area (20 ft behind bulkhead). Currently in design. | \$ 365,199 | | | | | |
| 14 | SWMS Pipe Lining | Sliplining of existing culvert pipes rather than open cut replacement to reduce cost and disturbance. | \$ 200,000 | | | | | |
| 15 | Stonecrop Ditch - Tulip Culvert Replacement | Existing twin 36" culverts in Stonecrop Ditch at Tulip Dr. (just E of 798 Tulip Dr.) to be changed to a 4' x 7' concrete box culvert to improve capacity (14.1 SF flow area to 28 SF). This will match the culvert capacity at Albatross assuming Project Number 18 and 19 are completed (culverts downstream of Tulip culvert) | \$ 239,230 | | | | | |
| 16 | Stonecrop Ditch - Albatross Culvert Replacement | Existing 54" culvert in Stonecrop Ditch at Albatross Terrace (just W of 787 Albatross Terrace) to be changed to a 4' x 7' concrete box culvert to improve capacity (15.9 SF flow area to 21 SF). This will match the culvert capacity at Bayfront Terrace assuming Project Number 19 is completed (culvert downstream of Albatross culvert) | \$ 174,375 | | | | | |
| 17 | Stonecrop Ditch - Bayfront Culvert Replacement | Existing twin 40" culverts in Stonecrop Ditch at Bayfront Terrace (just W of 789 Bayfront Terrace) to be changed to a 4' x 7' concrete box culvert to improve capacity (17.4 SF flow area to 28 SF) which is similar to the proposed Laconia St Con-Span 12ft x 3ft bridge (30sf). This project would also include regrading and armoring of 657ft open channel from Bayfront Terrace to Laconia St. | \$ 824,663 | | | | | |
| 18 | Benedictine Area Culvert Improvements | Increase the conveyance capacity of the Benedictine Area Stormwater Network: Replace existing twin 36" culverts at Barber St. crossing S of intersection with Rolling Hill Dr, Dredging and expanding the existing open channel from Barber St crossing and the Rolling Hill Drive crossing, replace existing 36" culvert at Rolling Hill Drive (just N of 414 Rolling Hill Dr.), replace existing 24" culvert at Benedictine Terrace, replace existing twin 24" culverts at Coverbrook Lane. | \$ 636,163 | | | | | |
| 19 | Bryant/Friar Court Retention Pond | Construct new approximately 1.0 ac retention pond in the property just N of 105 Friar Ct., appears to be a Park property. Regrade perimeter swales if needed to drain to retention pond. There is some modeled flooding in the area - minor regrading may help to focus the stormwater in the park area, peak flows of ~25cfs for the 25yr storm and the pipes are 15" | \$ 282,512 | | | | | |
| 20 | Hardee Dam Retrofit Gates | Currently has wood panels acting as the gates. These have been leaking beneath the dam and the dam will eventually have to be replaced. The concrete is still in ok condition, stoplogs need replacement. Replacement gate would increase project cost. | \$ 25,000 | | | | | |
| 21 | Surrey Terrace Retention Basin | Approximately 2.3 ac vacant City-owned property S of 737 Surrey Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need. | \$ 779,055 | | | | | |
| 22 | Rosebush Retention Basin | Approximately 2.5 ac vacant City-owned property E of 768 Newhall Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need. | \$ 837,040 | | | | | |
| 23 | Coolidge Outfall Improvements | Remove existing outfall pipe sections in manhole area, install new precast concrete 4' diameter manhole, install approximately 80 LF of X diameter A2000 pipe, install inline tide valve and manatee guard on new outfall pipe. Grout fill and abandon in place remaining existing outfall pipe sections under Mulligan's building. | \$ 73,309 | | | | | |
| 24 | Blossom Ditch Drainage Improvements | Dredge Blossom Ditch and create positive drainage in the ditch and in the connecting pipes from the N alleviating flooding along Lanco Ave and Blossom Dr. 2006 Construction Plans developed but not constructed. Add NSBB to outfall for quality. | \$ 1,684,839 | | | | | |
| 25 | Drainage Improvements at Hazel and Lloyd St | Add a culvert crossing at Fordham St to allow flow to travel north to twin ditches, includes regrading open channels and upsizing the downstream culverts from Fordhams St to Twin Ditches | \$ 755,939 | | | | | |
| 26 | Stormwater Park Operation | The stormwater pumps are not currently operated using the Float system and therefore do not operate during wet weather events. Repair controls. | \$ 50,000 | | | | | |
| 27 | Stonecrop Retention Area | Modify the control structure. Currently the Stonecrop ditch enters the system, 2 60" Pipes, at elevation 7.38 and 7.62. The compound weir dimensions: 2.16ft wide at elevation 6.557ft and 18ft wide at elevation 9.067ft. | \$ 100,000 | | | | | |
| 28 | Canal Dredging | Add inline tide valves on the two 60" pipes under Stonecrop Dr. Annual dredging and disposal of canal sediment | \$ 1,000,000 | | \$ 100,000 | | | |
| | | | Estimated Cost | FY32 | | | | |
| | | | SW Fee | DST | Bond | Grant | Notes | |
| TOTAL ESTIMATED COST | | | \$ 198,236,732 | \$ - | \$ 1,292,961 | \$ - | \$ 392,654 | |

City of Sebastian SWMS Capital Project No. 1

Stormwater Equipment

| Item No. | Veh. ID | Model Year | Year/Make/Model | Purchase Price | Replacement Age (Years) | Current Age (Years) | Replacement Hours | Current Hours | Avg. Annual Usage (Hrs) | Replacement Year | Estimated Replacement Cost |
|----------|---------|---------------------------|---------------------------------|----------------|-------------------------|---------------------|-------------------|---------------|-------------------------|------------------|----------------------------|
| 1 | SW 621 | 2014 | 2014 BOBCAT EXCAVATOR E42 | \$48,200.00 | 15 | 9 | 4,000 | 2,570 | 321 | 2027 | \$88,000.00 |
| 2 | SW 622 | 2020 | 2020 311 CAT EXCAVATOR | \$182,793.00 | 15 | 3 | 4,000 | 850 | 425 | 2030 | \$283,000.00 |
| 3 | SW 642 | 2020 | 2020 KUBOTA TRACTOR | \$23,693.00 | 15 | 3 | 4,000 | 203 | 101 | 2035 | \$43,000.00 |
| 4 | SW 643 | | FRT LOADER MOUNTED TO SW 642 | \$4,645.00 | NA | | NA | NA | | | |
| 5 | SW 678 | 2014 | 2014 JOHN DEERE 410K BACKHOE | \$90,200.00 | 15 | 9 | 4,000 | 3,831 | 478 | 2023 | \$115,000.00 |
| 6 | SW 686 | 2013 | 2013 CAT M313D EXCAVATOR | \$202,173.00 | 15 | 10 | 4,000 | 3,255 | 361 | 2025 | \$242,000.00 |
| 7 | SW 690 | 2015 | 2015 JOHN DEERE 825I GATOR | \$13,725.00 | 15 | 8 | 4,000 | 900 | 128 | 2030 | \$20,500.00 |
| 8 | SW 691 | 2016 | 2016 JOHN DEERE TRACTOR 6130 | \$90,026.00 | 15 | 7 | 4,000 | 2,197 | 439 | 2027 | \$130,000.00 |
| 9 | SW 692 | | 2016 DIAMOND BOOM MOWER/DITCHER | \$72,860.00 | 15 | | 4,000 | | | | \$105,000.00 |
| 10 | | Subtotal (1-9) | | | | | | | | | \$1,026,500 |
| 11 | | Contingency (30%) | | | | | | | | | \$307,950 |
| 12 | | Total Cost (10+11) | | | | | | | | | \$1,334,450 |

City of Sebastian SWMS Capital Project No. 2

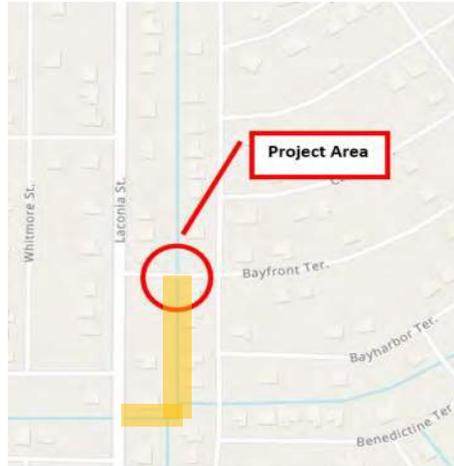
Stormwater Heavy Equipment

| Item No. | Veh. ID | Model Year | Year/Make/Model | Purchase Price | Replacement Age (Years) | Current Age (Years) | Replacement Miles | Current Mileage | Avg. Annual Usage (Miles) | Replacement Year | Estimated Replacement Cost |
|----------|---------|---------------------------|------------------------------------|----------------|-------------------------|---------------------|-------------------|-----------------|---------------------------|------------------|----------------------------|
| 1 | SW 601 | 2016 | 2016 CHEVROLET 2500 4WD | \$30,909.00 | 15 | 7 | 100,000 | 28,500 | 4,750 | 2031 | \$40,000.00 |
| 2 | SW 603 | 2015 | 2015 FORD F250 4WD | \$27,641.00 | 15 | 8 | 100,000 | 63,000 | 9,000 | 2027 | \$35,000.00 |
| 3 | SW 604 | 2018 | 2018 FREIGHTLINER DUMPTRUCK | \$116,754.00 | 15 | 5 | 100,000 | 16,500 | 4,125 | 2033 | \$180,000.00 |
| 4 | SW605 | 2018 | 2018 FREIGHTLINER DUMPTRUCK | \$116,754.00 | 15 | 5 | 100,000 | 20,400 | 5,100 | 2033 | \$180,000.00 |
| 5 | SW 606 | 2005 | 2005 CHEVROLET 3500 UTILITY TRUCK | \$27,780.00 | 15 | 18 | 100,000 | 99,000 | 5,823 | 2020 | \$50,000.00 |
| 6 | SW 607 | 2007 | 2007 STERLING BRUSH TRUCK | \$56,971.00 | 15 | 16 | 100,000 | 90,000 | 6,000 | 2022 | \$75,000.00 |
| 7 | SW 608 | 2015 | 2015 FORD F550 DUMP TRUCK | \$47,851.00 | 15 | 8 | 100,000 | 27,000 | 3,857 | 2030 | \$71,000.00 |
| 8 | SW 614 | 2006 | 2006 CHEVROLET SIVERADO 4WD | \$22,013.00 | 15 | 17 | 100,000 | 91,000 | 5,687 | 2021 | \$35,000.00 |
| 9 | SW 616 | 2001 | 2001 CHEVROLET 1500 | \$15,514.00 | 15 | 22 | 100,000 | 126,500 | 6,023 | 2016 | \$30,000.00 |
| 10 | SW 620 | 2016 | 2016 INT. VAC-TRUCK | \$361,586.00 | 15 | 7 | 100,000 | 21,000 | 3,500 | 2031 | \$550,000.00 |
| 11 | SW 632 | 2013 | 2013 CHEVROLET 3500 | \$22,399.00 | 15 | 10 | 100,000 | 63,500 | 7,055 | 2028 | \$50,000.00 |
| 12 | SW 633 | 2019 | 2019 FORD F 150 TRUCK 4WD | \$34,394.00 | 15 | 4 | 100,000 | 4,215 | 6,600 | 2034 | \$71,000.00 |
| 13 | SW 636 | 2021 | 2021 FELLING 70 TON GOOSENECK TRLR | \$53,788.00 | 15 | 2 | 100,000 | N/A | | 2036 | \$97,000.00 |
| 14 | SW 649 | 2022 | 2022 FREIGHTLINER SEMI TRACTOR | \$104,674.00 | 15 | 1 | 100,000 | 1,000 | 4,000 | 2037 | \$217,000.00 |
| 15 | SW 677 | 2014 | 2014 FORD F350 | \$33,757.00 | 15 | 9 | 100,000 | 46,000 | 5,750 | 2029 | \$50,000.00 |
| 16 | | Subtotal (1-15) | | | | | | | | | \$696,000 |
| 17 | | Contingency (30%) | | | | | | | | | \$208,800 |
| 18 | | Total Cost (16+17) | | | | | | | | | \$904,800 |

City of Sebastian SWMS Capital Project No. 17

Stonecrop Ditch - Bayfront Culvert Replacement

Project Location Map



| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|--|------|-----------|-------------|-------|----------|------------------|---|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$67,967 | | | 1 | \$67,967 | Assumed to be 12% of project cost |
| 2 | Permitting | LS | \$50,000 | | | 1 | \$50,000 | ERP permit assumed |
| 3 | Bid Documents Prep | LS | \$25,000 | | | 1 | \$25,000 | Construction drawings, specs |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$23,399 | | | 1 | \$23,399 | Assumed to be 5% of other costs. |
| 5 | Construction Survey | ES | \$1,500 | | | 1 | \$1,500 | Estimated fee staking each property line and alignment checks, as-built survey included. |
| 6 | Pollution Control | LF | \$17 | | | 120 | \$1,982 | FDOT 6-month avg cost for sediment barrier and 120 LF floating turbidity barrier |
| 7 | Maintenance of Traffic | LS | \$608 | | | 1 | \$608 | |
| 8 | Saw cut and mill existing asphalt pavement | SY | \$20 | 53 | 0.0% | 53 | \$1,060 | Saw cut and mill approximately 24' x 20' of existing roadway pavement, avg 2" depth |
| 9 | Remove Existing Pipe Sections | LF | \$45 | 116 | 0.0% | 116 | \$5,220 | Excavation and removal of existing twin 40" culverts, approximately 58 LF each |
| 10 | Install 4ft x 7ft Concrete Box Culvert | LF | \$775 | 58 | 0.0% | 58 | \$44,950 | Installation cost includes materials, excavation, bedding, structure installation, backfill, and compaction. |
| 11 | Roadway Restoration | SY | \$60 | 53 | 0.0% | 53 | \$3,180 | Installation cost includes materials, base installation, compaction, pavement installation, and roadway markings. |
| 12 | Channel Excavation | LF | \$12 | 657 | 0.0% | 657 | \$7,873 | Assumed 3:1 slope change to 1.5:1, 36' channel width, 37.5 CF/LF excavated, 1.4 CY/LF. |
| 13 | Install Channel Armoring | SF | \$15 | 25,623 | 0.0% | 25,623 | \$384,345 | Assumed 39 SF/LF channel area |
| 14 | Fine Grading - Restoration | SY | \$3 | 111 | 5.0% | 117 | \$350 | 20' x 50' easement area, 1,000 SF total. |
| 15 | Sodding - Easement Restoration | SF | \$4 | 1,000 | 5.0% | 1,050 | \$4,200 | 20' x 50' easement area, 1,000 SF total. |
| 16 | Waste Disposal - Construction Debris | TON | \$34 | | | 106 | \$3,616 | Transport and disposal of waste concrete and other demolition/construction materials at the Indian River County LF. |
| 17 | Construction Inspections | LS | \$9,105 | | | 1 | \$9,105 | Assumed to be 2% of other costs. |
| 18 | Subtotal (1-17) | | | | | | \$634,356 | |
| 19 | Contingency (30%) | | | | | | \$190,307 | |
| 20 | Total Cost (18+19) | | | | | | \$824,663 | |

City of Sebastian SWMS Capital Project No. 23

Coolidge Outfall Improvements

Project Location Map



Project Description

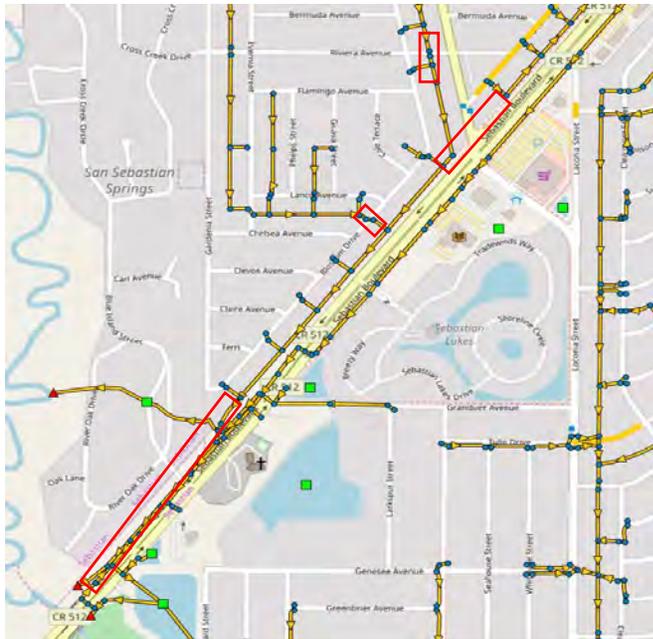
Remove existing outfall pipe sections in manhole area, install new precast concrete 4' diameter manhole, install approximately 80 LF of 24-in diameter A2000 pipe, install inline tide valve and manatee guard on new outfall pipe. Grout fill and abandon in place remaining existing outfall pipe sections under Mulligan's building.

| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|--|------|-----------|-------------|-------|----------|-----------------|---|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$5,613 | | | 1 | \$5,613 | Assumed to be 12% of construction costs |
| 2 | Permitting | LS | \$2,500 | | | 1 | \$2,500 | |
| 3 | Bid Documents Prep | LS | \$1,500 | | | 1 | \$1,500 | |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$2,125 | | | 1 | \$2,125 | Assumed to be 5% of other costs. |
| 5 | Construction Survey | ES | \$5,500 | | | 1 | \$5,500 | Estimated fee staking each property line and alignment checks, as-built survey included. |
| 6 | Pollution Control | LF | \$2 | | | 120 | \$240 | FDOT 6-month avg cost for sediment barrier |
| 7 | Clearing and Grubbing | AC | \$31,755 | 0.00 | 0.0% | 0.00 | \$0 | |
| 8 | Remove Existing Pipe Sections | LF | \$40 | 16 | 0.0% | 16 | \$640 | Removal of approximately 16 LF of existing outfall pipe |
| 9 | Install 4' diameter precast concrete manhole | LS | \$8,500 | | | 1 | \$8,500 | Installation cost includes materials, excavation, bedding, structure installation, backfill, and compaction. |
| 9 | Installation of new A2000 outfall pipe | LF | \$75 | 80 | 0.0% | 80 | \$6,000 | Installation cost includes materials, trench excavation, pipe bedding, outfall pipe installation, backfill, and compaction. |
| 10 | Installation of inline valve and manatee grate | LS | \$12,000 | | | 1 | \$12,000 | 24 in diameter inline valve and stainless steel manatee grate |
| 11 | Plug and grout fill existing outfall pipe | CY | \$285 | | | 19 | \$5,415 | Assume 160 LF of 24" outfall pipe |
| 13 | Sodding - Restoration | SF | \$4 | 1,000 | 5.0% | 1,050 | \$4,200 | Assumed 100' x 10' disturbed area |
| 14 | Waste Disposal - Construction Debris | TON | \$34 | | | 1 | \$34 | Transport and disposal of waste concrete pipe and other demolition/construction materials at the Indian River County LF. |
| 16 | Construction Inspections | LS | \$2,125 | | | 1 | \$2,125 | Assumed to be 5% of other costs. |
| 17 | Subtotal (1-16) | | | | | | \$56,392 | |
| 18 | Contingency (30%) | | | | | | \$16,918 | |
| 19 | Total Cost (17+18) | | | | | | \$73,309 | |

City of Sebastian SWMS Capital Project No. 24

Blossom Ditch Improvements

Project Location Map



| Project Description | | Culvert Length, ft | Open Channel Length | |
|---------------------|----------------------------|--|---------------------|------|
| 24 | Blossom Ditch Improvements | Existing 4.5ft diameter pipeline N of Sebastian Blvd to be changed to an open channel | - | 1543 |
| | | Existing 4.5ft diameter pipe at conflict structure intersecting with 4.5ft diameter pipe S of Gardenia St to be replaced with twin barreled 5.5ft diameter pipes | 100 | - |
| | | Existing 28" x 36" elliptical pipe at Riviera Avenue to be updated with 2 , create twin 28" x 36" elliptical pipes | 82 | - |
| | | Add a connecting pipe across Roseland Rd 3' x 7' concrete box culvert | 200 | - |
| | | Add open channel E and W of the new Roseland culvert, connecting the existing Blossom Ditch and Wentworth Ditch | - | 413 |
| | | 12ft x 24ft Baffle Box to be installed at the downstream end of Blossom Ditch | - | - |
| | | Existing 30" diameter culvert at Blossom Drive North of Chelsea Ave to be replaced with twin 36" pipes | 181.6 | - |

Historical Flooding documented at Fulton Way East of Roseland Rd

The Proposed solution improves the system connectivity to the South Prong of the San Sebastian River

Proposed solution reduces the flooding in the area - flooding duration for the 25yr storm <1hour and flooded volume for the 25yr storm is reduced significantly

| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|---|------|-----------|-------------|-------|----------|------------|--|
| Administrative and Engineering Costs | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$138,432 | | | 1 | \$138,432 | Assumed to be 12% of construction costs |
| 2 | Permitting | LS | \$2,500 | | | 1 | \$2,500 | |
| 3 | Bid Documents Prep | LS | \$1,500 | | | 1 | \$1,500 | |
| Construction Costs | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$52,435 | | | 1 | \$52,435 | Assumed to be 5% of other costs. |
| 5 | Construction Survey | ES | \$10,000 | | | 1 | \$10,000 | Estimated fee staking each property line and alignment checks, as-built survey included. |
| 6 | Pollution Control | LF | \$2 | | | 120 | \$240 | FDOT 6-month avg cost for sediment barrier |
| 7 | Clearing and Grubbing | AC | \$31,755 | 0.00 | 0.0% | 0.00 | \$0 | |
| 8 | Remove Existing 30" RCP Pipe | LF | \$40 | 182 | 0.0% | 182 | \$7,280 | Removal of approximately 182 LF of existing pipe |
| 9 | Remove Existing 28"x36" ERCP Pipe | LF | \$45 | 82 | 0.0% | 82 | \$3,690 | Removal of approximately 82 LF of existing pipe |
| 10 | Remove Existing 54" RCP Pipe | LF | \$80 | 1,643 | 0.0% | 1,643 | \$131,440 | Removal of approximately 1643 LF of existing pipe |
| 11 | Channel Excavation | LF | \$24 | 1,956 | 0.0% | 1,956 | \$46,547 | Assumed 3:1 side slopes, 5' depth, 36' channel width, 75 CF/LF excavated, 2.78 CY/LF. |
| 12 | Install 3ft x 7ft Concrete Box Culvert | LF | \$360 | 200 | 0.0% | 200 | \$72,000 | Installation cost includes materials, excavation, bedding, structure installation, backfill, and compaction. |
| 13 | Install 66" RCP Culvert Pipe | LF | \$867 | 200 | 0.0% | 200 | \$173,400 | Installation cost includes materials, excavation, bedding, structure installation, backfill, and compaction. |
| 14 | Install 36" RCP Culvert Pipe | LF | \$244 | 364 | 0.0% | 364 | \$88,816 | Installation cost includes materials, excavation, bedding, structure installation, backfill, and compaction. |
| 15 | Install 28"x36" ERCP Culvert Pipe | LF | \$331 | 164 | 0.0% | 164 | \$54,284 | Installation cost includes materials, excavation, bedding, structure installation, backfill, and compaction. |
| 16 | Install 6'x15' Concrete Wingwall | EA | \$12,000 | | | 2 | \$24,000 | Installation cost includes materials, excavation, bedding, structure installation, backfill, and compaction. |
| 17 | Install 6'x6' Box Culvert | LF | \$506 | 8 | 0.0% | 8 | \$4,048 | Installation cost includes materials, excavation, bedding, structure installation, backfill, and compaction. |
| 18 | Install 12'x24' Baffle Box | LS | \$350,000 | | | 1 | \$350,000 | Installation cost includes materials, excavation, bedding, structure installation, backfill, and compaction. |
| 19 | Install 6'x6' Self Regulating Tide Gate | LS | \$75,000 | | | 1 | \$75,000 | |
| 20 | Install Energy Dissipator | LF | \$75 | 50 | 0.0% | 50 | \$3,750 | channel liner, riprap spillway downstream of tide gate |
| 21 | Sodding - Restoration | SF | \$4 | 1,000 | 5.0% | 1,050 | \$4,200 | Assumed 100' x 10' disturbed area |
| 22 | Waste Disposal - Construction Debris | TON | \$34 | | | 1 | \$34 | Transport and disposal of waste concrete pipe and other demolition/construction materials at the Indian River County LF. |

| | | | | | | |
|----|---------------------------|----|----------|---|--------------------|----------------------------------|
| 23 | Construction Inspections | LS | \$52,435 | 1 | \$52,435 | Assumed to be 5% of other costs. |
| 24 | Subtotal (1-23) | | | | \$1,296,030 | |
| 25 | Contingency (30%) | | | | \$388,809 | |
| 26 | Total Cost (24+25) | | | | \$1,684,839 | |

City of Sebastian SWMS Capital Project No. 4

Harbor Point Waterway and Collier Waterway North Improvements

Project Location Map



Project Description

Clearing and grubbing 20' either side of City drainage ROW lines over approximately 21,100 LF of canal banks, dredging and disposal of 3 ft (46,900 CY) of sediment from approximately 10,550 LF of trapezoidal open channel (36' bottom width, 4:1 side slopes), regrade and sod approximately 232,100 SF of side slope area.

Total Canal Length = 10,550 ft

| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|---------------------------------|------|-----------|-------------|-------|----------|---------------------|---|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$387,695 | | | 1 | \$387,695 | Assumed to be 12% of construction costs |
| 2 | Permitting | LS | \$232,617 | | | 1 | \$232,617 | Assumed to be 3% of construction costs |
| 3 | Bid Documents Prep | LS | \$77,539 | | | 1 | \$77,539 | Assumed to be 1% of construction costs |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$358,976 | | | 1 | \$358,976 | Assumed to be 5% of other costs. |
| 5 | Construction Survey | ES | \$40,000 | | | 1 | \$40,000 | Estimated fee staking each contour twice @ 100' intervals, as-built contour survey included. |
| 6 | Pollution Control | LF | \$2 | | | 21,600 | \$43,200 | FDOT 6-month avg cost for sediment barrier |
| 7 | Clearing and Grubbing | AC | \$31,755 | 5.33 | 0.0% | 5.33 | \$169,200 | FDOT 6-month avg cost, assumed side slope area is from elevation 12 to 20, plus 3 feet past TOB, both sides, 22 SF/LF. |
| 8 | Dredging | CY | \$100 | 55,915 | 5.0% | 58,711 | \$5,871,075 | Average 3.0' depth across 48 ft @ el 12, 60' top width, minimum top elevation 20', 4:1 side slopes, 36' bottom width, 5.3 CY/LF sediment removed. |
| 9 | Fine Grading - Side Slopes | SY | \$3 | 25,789 | 5.0% | 27,078 | \$81,235 | Assumed side slope area is from elevation 12 to 20, plus 3 feet past TOB, both sides, 22 SF/LF. |
| 10 | Sodding - Side Slopes | SF | \$4.00 | 232,100 | 5.0% | 243,705 | \$974,820 | Assumed side slope area is from elevation 12 to 20, plus 3 feet past TOB, both sides, 22 SF/LF. |
| 11 | Construction Inspections | LS | \$215,386 | | | 1 | \$215,386 | Assumed to be 3% of other costs. |
| 12 | Subtotal (1-11) | | | | | | \$8,451,742 | |
| 13 | Contingency (30%) | | | | | | \$2,535,523 | |
| 14 | Total Cost (12+13) | | | | | | \$10,987,265 | |

City of Sebastian SWMS Capital Project No. 5

Central Collier Waterway Improvements - North Section

Project Location Map



Project Description

Clearing and grubbing 20' either side of City drainage ROW lines over approximately 8,550 LF of canal banks, demolition and reconstruction of existing dock structures and fences, abandon existing bulkheads in place, installation of approximately 8,550 LF of vinyl sheetpile bulkhead (20 ft panel length) w/ 24x24" concrete cap on water side of existing bulkhead, dredging 3' of sediment from approximately 4,270 LF of canal, regrading and resodding of approximately 171,000 SF of canal easement area (20 ft behind bulkhead).

Notes

Total Canal Length = 4,270 ft

Existing dock structures will be replaced only if previously permitted, costs included in contingency funding.

| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|---|------|-------------|-------------|-------|----------|--------------|---|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$1,063,936 | | | 1 | \$1,063,936 | Assumed to be 12% of construction costs |
| 2 | Permitting | LS | \$212,787 | | | 1 | \$212,787 | Assumed to be 1% of construction costs |
| 3 | Bid Documents Prep | LS | \$53,197 | | | 1 | \$53,197 | Assumed to be 0.25% of construction costs |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$949,719 | | | 1 | \$949,719 | Assumed to be 5% of other costs. |
| 5 | Construction Survey | ES | \$100,000 | | | 1 | \$100,000 | Estimated fee staking each property line and alignment checks, as-built survey included. |
| 6 | Pollution Control | LF | \$2 | | | 21,600 | \$43,200 | FDOT 6-month avg cost for sediment barrier |
| 7 | Clearing and Grubbing | AC | \$31,755 | 7.85 | 0.0% | 7.85 | \$249,316 | FDOT 6-month avg cost, assumed work area is 20 feet on either side of canal ROW line, both sides, 80 SF/LF. |
| 10 | Installation of Vinyl Sheetpile Bulkhead (20' panel length) | SF | \$75 | 171,000 | 0.0% | 171,000 | \$12,825,000 | Installation of approximately 8,550 LF of vinyl sheetpile bulkhead (20 ft panel length) and vibration monitoring of structures. |
| 11 | Installation of 24x 24" concrete cap for Vinyl Sheetpile Bulkhead | LF | \$200 | 8,550 | 0.0% | 8,550 | \$1,710,000 | |
| 12 | Dredging | CY | \$100 | 23,912 | 5.0% | 25,108 | \$2,510,760 | Average 3.0' depth across 50 ft @ el 12, 80' top width, minimum top elevation 20', 4:1 side slopes, 43' bottom width, 5.6 CY/LF sediment removed. |
| 13 | Fine Grading - Easement Restoration | SY | \$3 | 38,000 | 5.0% | 39,900 | \$119,700 | 20' easement area on land side of City's drainage ROW line, both sides of canal, 8,550 LF total. |
| 14 | Sodding - Easement Restoration | SF | \$4 | 342,000 | 5.0% | 359,100 | \$1,436,400 | 20' easement area on land side of City's drainage ROW line, both sides of canal, 8,550 LF total. |
| 15 | Waste Disposal - Construction Debris | TON | \$34 | | | 36,460 | \$1,239,649 | Transport and disposal of waste dredge materials, concrete, and other demolition/construction materials at the Indian River County LF. |
| 17 | Construction Inspections | LS | \$94,972 | | | 1 | \$94,972 | Assumed to be 0.5% of other costs. |

| | | |
|----|---------------------------|---------------------|
| 18 | Subtotal (1-16) | \$22,608,635 |
| 19 | Contingency (20%) | \$4,521,727 |
| 20 | Total Cost (17+18) | \$27,130,362 |

City of Sebastian SWMS Capital Project No. 6

Central Collier Waterway Improvements - South Section

Project Location Map



Project Description

Clearing and grubbing 20' either side of City drainage ROW lines over approximately 11,350 LF of canal banks, demolition and reconstruction of existing dock structures and fences, installation of approximately 5,770 LF of vinyl sheetpile bulkhead (20 ft panel length) w/ 24x24" concrete cap on water side of existing bulkhead, dredging 3 feet of sediment from approximately 5,770 LF of canal, regrading and resodding of approximately 230,800 SF of canal easement area (20 ft behind bulkhead and slope on Stormwater Park property).

Notes

Total Canal Length = 5,670 ft

Existing dock structures will be replaced only if previously permitted, costs to replace these included in contingency funding.

| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|---|------|-----------|-------------|-------|----------|---------------------|---|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$846,482 | | | 1 | \$846,482 | Assumed to be 12% of construction costs |
| 2 | Permitting | LS | \$169,296 | | | 1 | \$169,296 | Assumed to be 1% of construction costs |
| 3 | Bid Documents Prep | LS | \$42,324 | | | 1 | \$42,324 | Assumed to be 0.25% of construction costs |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$726,688 | | | 1 | \$726,688 | Assumed to be 5% of other costs. |
| 5 | Construction Survey | ES | \$100,000 | | | 1 | \$100,000 | Estimated fee staking each property line and alignment checks, as-built survey included. |
| 6 | Pollution Control | LF | \$2 | | | 11,900 | \$23,800 | FDOT 6-month avg cost for sediment barrier |
| 7 | Clearing and Grubbing | AC | \$31,755 | 10.42 | 0.0% | 10.42 | \$330,963 | FDOT 6-month avg cost, assumed work area is 20 feet on either side of canal ROW line, both sides, 80 SF/LF. |
| 8 | Installation of Vinyl Sheetpile Bulkhead (20' panel length) | SF | \$75 | 114,000 | 0.0% | 114,000 | \$8,550,000 | Installation of approximately 5,700 LF of vinyl sheetpile bulkhead (20 ft panel length) and vibration monitoring of structures. |
| 9 | Installation of 24x 24" concrete cap for Vinyl Sheetpile Bulkhead | LF | \$200 | 5,700 | 0.0% | 5,700 | \$1,140,000 | |
| 10 | Dredging | CY | \$100 | 31,920 | 5.0% | 33,516 | \$3,351,600 | Average 3.0' depth across 50 ft @ el 12, 80' top width, minimum top elevation 20', 4:1 side slopes, 43' bottom width, 5.6 CY/LF sediment removed. |
| 11 | Fine Grading - Easement Restoration | SY | \$3 | 25,333 | 5.0% | 26,600 | \$79,800 | 20' easement area on land side of City's drainage ROW line, both sides of canal, 5,700 LF total. |
| 12 | Sodding - Easement Restoration | SF | \$4 | 228,000 | 5.0% | 239,400 | \$957,600 | 20' easement area on land side of City's drainage ROW line, both sides of canal, 5,700 LF total. |
| 13 | Waste Disposal - Construction Debris | TON | \$34 | | | 46,957 | \$1,596,524 | Transport and disposal of waste dredge materials, concrete, and other demolition/construction materials at the Indian River County LF. |
| 14 | Construction Inspections | LS | \$72,669 | | | 1 | \$72,669 | Assumed to be 0.5% of other costs. |
| 15 | Subtotal (1-14) | | | | | | \$17,987,748 | |
| 16 | Contingency (20%) | | | | | | \$3,597,550 | |
| 17 | Total Cost (15+16) | | | | | | \$21,585,297 | |

City of Sebastian SWMS Capital Project No. 7

Schumann Waterway Improvements

Project Location Map



Project Description

Clearing and grubbing 20' either side of City drainage ROW lines over approximately 12,200 LF of canal banks, demolition and reconstruction of existing dock structures and fences, installation of approximately 12,200 LF of vinyl sheetpile bulkhead (20 ft panel length) w/ 24x24" concrete cap on water side of existing bulkhead, dredging 3 feet of sediment from approximately 6,100 LF of canal, regrading and resodding of approximately 244,000 SF of canal easement area (20 ft behind bulkhead).

Not included in this project is a new culvert at Empress Avenue at the canal to allow continuous flow between North and South portions, which is going to be completed by a developer as they develop the property on the East.

Notes

Total Canal Length = 6,100 ft

Existing dock structures will be replaced only if previously permitted, costs to replace these included in contingency funding.

| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|---|------|-------------|-------------|-------|----------|---------------------|--|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$1,535,533 | | | 1 | \$1,535,533 | Assumed to be 12% of construction costs |
| 2 | Permitting | LS | \$307,107 | | | 1 | \$307,107 | Assumed to be 1% of construction costs |
| 3 | Bid Documents Prep | LS | \$76,777 | | | 1 | \$76,777 | Assumed to be 0.25% of construction costs |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$1,346,479 | | | 1 | \$1,346,479 | Assumed to be 5% of other costs. |
| 5 | Construction Survey | ES | \$100,000 | | | 1 | \$100,000 | Estimated fee staking each property line and alignment checks, as-built survey included. |
| 6 | Pollution Control | LF | \$2 | | | 12,700 | \$25,400 | FDOT 6-month avg cost for sediment barrier |
| 7 | Clearing and Grubbing | AC | \$31,755 | 5.60 | 0.0% | 5.60 | \$177,875 | FDOT 6-month avg cost, assumed work area is 20 feet on either side of canal ROW line, both sides, 80 SF/LF. |
| 8 | Installation of Vinyl Sheetpile Bulkhead (20' panel length) | SF | \$75 | 244,000 | 0.0% | 244,000 | \$18,300,000 | Installation of approximately 12,200 LF of vinyl sheetpile bulkhead (20 ft panel length) and vibration monitoring of structures. |
| 9 | Installation of 24x 24" concrete cap for Vinyl Sheetpile Bulkhead | LF | \$200 | 12,200 | 0.0% | 12,200 | \$2,440,000 | |
| 10 | Dredging | CY | \$100 | 45,140 | 5.0% | 47,397 | \$4,739,700 | Average 3.0' depth across 67 ft @ el 12, 100' top width, minimum top elevation 20', 7:1 side slopes, 56' bottom width, 7.4 CY/LF sediment removed. |
| 11 | Fine Grading - Easement Restoration | SY | \$3 | 38,667 | 5.0% | 40,600 | \$121,800 | 20' easement area on land side of City's drainage ROW line, both sides of canal, 12,200 LF total. |
| 12 | Sodding - Easement Restoration | SF | \$4 | 244,000 | 5.0% | 256,200 | \$1,024,800 | 20' easement area on land side of City's drainage ROW line, both sides of canal, 12,200 LF total. |
| 13 | Waste Disposal - Construction Debris | TON | \$34 | | | 67,646 | \$2,299,962 | Transport and disposal of waste dredge materials, concrete, and other demolition/construction materials at the Indian River County LF. |
| 14 | Construction Inspections | LS | \$134,648 | | | 1 | \$134,648 | Assumed to be 0.5% of other costs. |
| 15 | Subtotal (1-14) | | | | | | \$32,630,080 | |
| 16 | Contingency (20%) | | | | | | \$6,526,016 | |
| 17 | Total Cost (15+16) | | | | | | \$39,156,096 | |

City of Sebastian SWMS Capital Project No. 8

Schumann Lake Improvements

Project Location Map



Project Description

Clearing and grubbing 20' either side of City drainage ROW lines over approximately 5,300 LF of canal banks, demolition and reconstruction of existing dock structures and fences, installation of approximately 5,300 LF of vinyl sheetpile bulkhead (20 ft panel length) w/ 24x24" concrete cap on water side of existing bulkhead, no dredging of lake, regrading and resodding of approximately 106,000 SF of lake easement area (20 ft behind bulkhead).

Notes

Total Bulkhead Length = 5,250 ft
Existing dock structures will be replaced only if previously permitted, costs to replace these included in contingency funding.

| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|---|------|-----------|-------------|-------|----------|---------------------|--|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$517,461 | | | 1 | \$517,461 | Assumed to be 12% of construction costs |
| 2 | Permitting | LS | \$103,492 | | | 1 | \$103,492 | Assumed to be 1% of construction costs |
| 3 | Bid Documents Prep | LS | \$25,873 | | | 1 | \$25,873 | Assumed to be 0.25% of construction costs |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$487,922 | | | 1 | \$487,922 | Assumed to be 5% of other costs. |
| 5 | Construction Survey | ES | \$100,000 | | | 1 | \$100,000 | Estimated fee staking each property line and alignment checks, as-built survey included. |
| 6 | Pollution Control | LF | \$2 | | | 5,800 | \$11,600 | FDOT 6-month avg cost for sediment barrier |
| 7 | Clearing and Grubbing | AC | \$31,755 | 4.87 | 0.0% | 4.87 | \$154,547 | FDOT 6-month avg cost, assumed work area is 20 feet on either side of canal ROW line, both sides, 80 SF/LF. |
| 8 | Installation of Vinyl Sheetpile Bulkhead (20' panel length) | SF | \$75 | 106,000 | 0.0% | 106,000 | \$7,950,000 | Installation of approximately 5,300 LF of vinyl sheetpile bulkhead (20 ft panel length) and vibration monitoring of structures. |
| 9 | Installation of 24x 24" concrete cap for Vinyl Sheetpile Bulkhead | LF | \$200 | 5,300 | 0.0% | 5,300 | \$1,060,000 | |
| 10 | Dredging | CY | \$100 | 0 | 5.0% | 0 | \$0 | Assume no dredging of lake |
| 11 | Fine Grading - Easement Restoration | SY | \$3 | 11,778 | 5.0% | 12,367 | \$37,100 | 20' easement area on land side of City's drainage ROW line, 5,300 LF total. |
| 12 | Sodding - Easement Restoration | SF | \$4 | 106,000 | 5.0% | 111,300 | \$445,200 | 20' easement area on land side of City's drainage ROW line, 5,300 LF total. |
| 13 | Waste Disposal - Construction Debris | TON | \$34 | | | 1,590 | \$54,060 | Transport and disposal of waste dredge materials, concrete, and other demolition/construction materials at the Indian River County LF. |
| 14 | Construction Inspections | LS | \$48,792 | | | 1 | \$48,792 | Assumed to be 0.5% of other costs. |
| 15 | Subtotal (1-14) | | | | | | \$10,996,048 | |
| 16 | Contingency (20%) | | | | | | \$2,199,210 | |
| 17 | Total Cost (15+16) | | | | | | \$13,195,257 | |

City of Sebastian SWMS Capital Project No. 9

Joy Haven Waterway Improvements

Project Location Map



Project Description

Clearing and grubbing 20' either side of City drainage ROW lines over approximately 7,400 LF of canal banks, demolition and reconstruction of existing dock structures and fences, installation of approximately 7,400 LF of vinyl sheetpile bulkhead (20 ft panel length) w/ 24x24" concrete cap on water side of existing bulkhead, dredging 3 feet of sediment from approximately 3,700 LF of canal, regrading and sodding of approximately 148,000 SF of canal easement area (20 ft behind bulkhead).

Notes

Total Canal Length = 3,700 ft

Existing dock structures will be replaced only if previously permitted, costs to replace these included in contingency funding

| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|---|------|-----------|-------------|-------|----------|---------------------|--|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$932,320 | | | 1 | \$932,320 | Assumed to be 12% of construction costs |
| 2 | Permitting | LS | \$186,464 | | | 1 | \$186,464 | Assumed to be 1% of construction costs |
| 3 | Bid Documents Prep | LS | \$46,616 | | | 1 | \$46,616 | Assumed to be 0.25% of construction costs |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$817,600 | | | 1 | \$817,600 | Assumed to be 5% of other costs. |
| 5 | Construction Survey | ES | \$100,000 | | | 1 | \$100,000 | Estimated fee staking each property line and alignment checks, as-built survey included. |
| 6 | Pollution Control | LF | \$2 | | | 7,900 | \$15,800 | FDOT 6-month avg cost for sediment barrier |
| 7 | Clearing and Grubbing | AC | \$31,755 | 3.40 | 0.0% | 3.40 | \$107,891 | FDOT 6-month avg cost, assumed work area is 20 feet on either side of canal ROW line, both sides, 80 SF/LF. |
| 8 | Installation of Vinyl Sheetpile Bulkhead (20' panel length) | SF | \$75 | 148,000 | 0.0% | 148,000 | \$11,100,000 | Installation of approximately 7,400 LF of vinyl sheetpile bulkhead (20 ft panel length) and vibration monitoring of structures. |
| 9 | Installation of 24x 24" concrete cap for Vinyl Sheetpile Bulkhead | LF | \$200 | 7,400 | 0.0% | 7,400 | \$1,480,000 | |
| 10 | Dredging | CY | \$100 | 27,380 | 5.0% | 28,749 | \$2,874,900 | Average 3.0' depth across 67 ft @ el 12, 100' top width, minimum top elevation 20', 7:1 side slopes, 56' bottom width, 7.4 CY/LF sediment removed. |
| 11 | Fine Grading - Easement Restoration | SY | \$3 | 16,444 | 5.0% | 17,267 | \$51,800 | 20' easement area on land side of City's drainage ROW line, both sides of canal, 7,400 LF total. |
| 12 | Sodding - Easement Restoration | SF | \$4 | 148,000 | 5.0% | 155,400 | \$621,600 | 20' easement area on land side of City's drainage ROW line, both sides of canal, 7,400 LF total. |
| 13 | Waste Disposal - Construction Debris | TON | \$34 | | | 41,031 | \$1,395,059 | Transport and disposal of waste dredge materials, concrete, and other demolition/construction materials at the Indian River County LF. |
| 14 | Construction Inspections | LS | \$81,760 | | | 1 | \$81,760 | Assumed to be 0.5% of other costs. |
| 15 | Subtotal (1-14) | | | | | | \$19,811,810 | |
| 16 | Contingency (20%) | | | | | | \$3,962,362 | |
| 17 | Total Cost (15+16) | | | | | | \$23,774,172 | |

City of Sebastian SWMS Capital Project No. 10

Collier Waterway South Improvements

Project Location Map



Project Description

Clearing and grubbing 20' either side of City drainage ROW lines over approximately 14,800 LF of canal banks, demolition and reconstruction of existing dock structures and fences, installation of approximately 14,800 LF of vinyl sheetpile bulkhead (20 ft panel length) w/ 24x24" concrete cap on water side of existing bulkhead, dredging 3 feet of sediment from approximately 7,400 LF of canal, regrading and resodding of approximately 296,000 SF of canal easement area (20 ft behind bulkhead).

Notes

Total Canal Length = 7,500 ft

Existing dock structures will be replaced only if previously permitted, costs to replace these included in contingency funding.

| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|---|------|-------------|-------------|-------|----------|---------------------|---|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$2,003,595 | | | 1 | \$2,003,595 | Assumed to be 12% of construction costs |
| 2 | Permitting | LS | \$400,719 | | | 1 | \$400,719 | Assumed to be 1% of construction costs |
| 3 | Bid Documents Prep | LS | \$100,180 | | | 1 | \$100,180 | Assumed to be 0.25% of construction costs |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$1,730,860 | | | 1 | \$1,730,860 | Assumed to be 5% of other costs. |
| 5 | Construction Survey | ES | \$100,000 | | | 1 | \$100,000 | Estimated fee staking each property line and alignment checks, as-built survey included. |
| 6 | Pollution Control | LF | \$2 | | | 15,500 | \$31,000 | FDOT 6-month avg cost for sediment barrier |
| 7 | Clearing and Grubbing | AC | \$31,755 | 6.89 | 0.0% | 6.89 | \$218,698 | FDOT 6-month avg cost, assumed work area is 20 feet on either side of canal ROW line, both sides, 80 SF/LF. |
| 8 | Installation of Vinyl Sheetpile Bulkhead (20' panel length) | SF | \$75 | 300,000 | 0.0% | 300,000 | \$22,500,000 | Installation of approximately 14,800 LF of vinyl sheetpile bulkhead (20 ft panel length) and vibration monitoring of structures. |
| 9 | Installation of 24x 24" concrete cap for Vinyl Sheetpile Bulkhead | LF | \$200 | 15,000 | 0.0% | 15,000 | \$3,000,000 | |
| 10 | Dredging | CY | \$100 | 70,500 | 5.0% | 74,025 | \$7,402,500 | Average 3.0' dredging depth across 85 ft @ el 12, 100' top width, minimum top elevation 20', 5:1 side slopes, 70' bottom width, 9.4 CY/LF sediment removed. |
| 11 | Fine Grading - Easement Restoration | SY | \$3 | 33,333 | 5.0% | 35,000 | \$105,000 | 20' easement area on land side of City's drainage ROW line, both sides of canal, 15,000 LF total. |
| 12 | Sodding - Easement Restoration | SF | \$4 | 300,000 | 5.0% | 315,000 | \$1,260,000 | 20' easement area on land side of City's drainage ROW line, both sides of canal, 15,000 LF total. |
| 13 | Waste Disposal - Construction Debris | TON | \$34 | | | 104,434 | \$3,550,748 | Transport and disposal of waste dredge materials, concrete, and other demolition/construction materials at the Indian River County LF. |
| 14 | Construction Inspections | LS | \$173,086 | | | 1 | \$173,086 | Assumed to be 0.5% of other costs. |
| 15 | Subtotal (1-14) | | | | | | \$42,576,385 | |
| 16 | Contingency (20%) | | | | | | \$8,515,277 | |
| 17 | Total Cost (15+16) | | | | | | \$51,091,662 | |

City of Sebastian SWMS Capital Project No. 11

Ocean Cove Drainage Repair

Project Location Map



Project Description

Clearing and grubbing 40' City drainage ROW over approximately 2,000 LF of ditch, excavation of approximately 0.5 feet of sediment, regrading and resodding approximately 80,000 SF of trapezoidal ditch between Crystal Mist and Carnival Terrace from Clearbrook St to Periwinkle to stabilize side slopes and maintain conveyance capacity.

Total Ditch Length = 2,000 ft

| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|--------------------------------------|------|-----------|-------------|-------|----------|------------------|--|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$18,504 | | | 1 | \$18,504 | Assumed to be 12% of construction costs |
| 2 | Permitting | LS | \$0 | | | 1 | \$0 | Assumed to be exempt - maintenance |
| 3 | Bid Documents Prep | LS | \$7,402 | | | 1 | \$7,402 | Assumed to be 2% of construction costs |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$16,822 | | | 1 | \$16,822 | Assumed to be 5% of other costs. |
| 5 | Construction Survey | ES | \$7,500 | | | 1 | \$7,500 | Estimated fee staking each contour twice @ 100' intervals, as-built contour survey included. |
| 6 | Pollution Control | LF | \$2 | | | 4,500 | \$9,000 | FDOT 6-month avg cost for sediment barrier |
| 7 | Clearing and Grubbing | AC | \$31,755 | 1.84 | 0.0% | 1.84 | \$58,320 | Assumed clearing a grubbing area is 40 foot wide City drainage ROW over 2,000 LF ditch, 40 SF/LF. |
| 8 | Excavation | CY | \$65 | 900 | 5.0% | 945 | \$61,425 | Average 0.5' depth across 24 ft @ el 18, 40' top width, minimum top elevation 20', 4:1 side slopes, 24' bottom width, 0.45 CY/LF sediment removed. |
| 9 | Fine Grading - Side Slopes | SY | \$3 | 4,889 | 5.0% | 5,133 | \$15,400 | Assumed side slope area is from elevation 18 to 20, plus 3 feet past TOB, both sides, 22 SF/LF. |
| 10 | Sodding - Side Slopes | SF | \$4.00 | 44,000 | 5.0% | 46,200 | \$184,800 | Assumed side slope area is from elevation 18 to 20, plus 3 feet past TOB, both sides, 22 SF/LF. |
| 11 | Construction Inspections | LS | \$16,822 | | | 1 | \$16,822 | Assumed to be 5% of other costs. |
| 12 | Waste Disposal - Construction Debris | TON | \$34 | | | 1,276 | \$43,376 | Transport and disposal of waste dredge materials and other demolition/construction materials at the Indian River County LF. |
| 13 | Subtotal (1-12) | | | | | | \$439,371 | |
| 14 | Contingency (30%) | | | | | | \$131,811 | |
| 15 | Total Cost (13+14) | | | | | | \$571,182 | |

City of Sebastian SWMS Capital Project No. 12

Day Drive Retention Area Restoration

Project Location Map



Project Description

Clearing and grubbing 20' City drainage ROW over approximately 250 LF of ditch, excavation of approximately 0.5 feet of sediment, regrading and resodding approximately 5,000 SF of trapezoidal ditch between Justine Drive and Day Drive to stabilize side slopes and maintain conveyance capacity. Desilt culvert under Day Drive, clearing and grubbing over 0.8 ac retention area, excavate 3 feet (approximately 3,200 CY) and regrade and resod approximately 0.80 ac (175'x425') retention pond and drainage swale to design grades to restore proper retention volume.

| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|---------------------------------|------|-----------|-------------|-------|----------|--------------------|---|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$38,327 | | | 1 | \$38,327 | Assumed to be 12% of construction costs |
| 2 | Permitting | LS | \$0 | | | 1 | \$0 | Assumed to be exempt - maintenance |
| 3 | Bid Documents Prep | LS | \$15,331 | | | 1 | \$15,331 | Assumed to be 2% of construction costs |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$34,843 | | | 1 | \$34,843 | Assumed to be 5% of other costs. |
| 5 | Construction Survey | ES | \$7,500 | | | 1 | \$7,500 | Estimated fee staking each contour twice @ 100' intervals, as-built contour survey included. |
| 6 | Pollution Control | LF | \$2 | | | 1,900 | \$3,800 | FDOT 6-month avg cost for sediment barrier |
| 7 | Clearing and Grubbing | AC | \$31,755 | 0.92 | 0.0% | 0.92 | \$29,215 | Assumed clearing and grubbing area is 0.8 retention area and 20 foot wide City drainage ROW over 250 LF ditch, 20 SF/LF. |
| 8 | Excavation | CY | \$65 | 8,050 | 5.0% | 8,453 | \$549,413 | Pond: Assumed filled in, 3.0' sediment depth @ bottom el 17 , 175' top width, minimum top elevation 20', 4:1 side slopes, 151' bottom width, 425' length, 18.1 CY/LF sediment removed. |
| 9 | Fine Grading - Side Slopes | SY | \$3 | 2,611 | 5.0% | 2,742 | \$8,225 | Ditch: Average 0.5' sediment depth across 4 ft bottom width @ el 18, 20' top width, minimum top elevation 20', 4:1 side slopes, 1.4 CY/LF sediment removed. |
| 10 | Sodding - Side Slopes | SF | \$4.00 | 23,500 | 5.0% | 24,675 | \$98,700 | Pond: Assumed side slope area is from elevation 17 to 20, plus 3 feet past TOB, all sides, 15 SF/LF, 1,200 LF perimeter. Ditch: Assumed side slope area is from elevation 18 to 20, plus 3 feet past TOB, both sides, 22 SF/LF over 250 LF. |
| 11 | Construction Inspections | LS | \$34,843 | | | 1 | \$34,843 | Assumed to be 5% of other costs. |
| 12 | Waste Disposal - Soil | TON | \$34 | | | 11,411 | \$387,970 | Transport and disposal of waste dredge materials, vegetation, and other demolition/construction materials at the Indian River County LF. |
| 13 | Subtotal (1-11) | | | | | | \$1,208,165 | |
| 14 | Contingency (30%) | | | | | | \$362,449 | |
| 15 | Total Cost (12+13) | | | | | | \$1,570,614 | |

City of Sebastian SWMS Capital Project No. 13

Concha Dam Repair

Project Location Map



Project Description

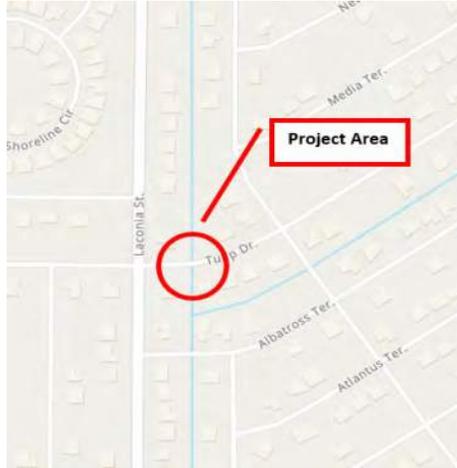
Removal and disposal of approximately 100 LF of existing metal bulkhead and concrete cap, installation of approximately 100 LF of metal sheetpile bulkhead (20 ft panel length) w/ 24x24" concrete cap w/ wier, regrading and resodding of approximately 800 SF of canal easement area (20 ft behind bulkhead). Currently in design.

| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|---|------|-----------|-------------|-------|----------|------------------|--|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$28,328 | | | 1 | \$28,328 | Assumed to be 12% of construction costs |
| 2 | Permitting | LS | \$11,803 | | | 1 | \$11,803 | Assumed to be 5% of construction costs |
| 3 | Bid Documents Prep | LS | \$4,721 | | | 1 | \$4,721 | Assumed to be 2% of construction costs |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$11,140 | | | 1 | \$11,140 | Assumed to be 5% of other costs. |
| 5 | Construction Survey | ES | \$7,500 | | | 1 | \$7,500 | Estimated fee staking each property line and alignment checks, as-built survey included. |
| 6 | Pollution Control | LF | \$13.79 | | | 120 | \$1,655 | FDOT 6-month avg cost for floating turbidity barrier |
| 7 | Clearing and Grubbing | AC | \$31,755 | 0.00 | 0.0% | 0.00 | \$0 | FDOT 6-month avg cost. |
| 8 | Demolition of Existing Structures | SF | \$20 | 2,000 | 0.0% | 2,000 | \$40,000 | Removal of approximately 100 LF of existing bulkhead, 20 ft panel length. |
| 9 | Installation of Vinyl Sheetpile Bulkhead (20' panel length) | SF | \$75 | 2,000 | 0.0% | 2,000 | \$150,000 | Installation of approximately 14,800 LF of vinyl sheetpile bulkhead (20 ft panel length) and vibration monitoring of structures. |
| 10 | Installation of 24x 24" concrete cap for Vinyl Sheetpile Bulkhead | LF | \$200 | 100 | 0.0% | 100 | \$20,000 | |
| 11 | Dredging | CY | \$100 | 0 | 5.0% | 0 | \$0 | Average 3.0' depth across 36 ft @ el 12, 100' top width, minimum top elevation 20', 4:1 side slopes, 12' bottom width, 4.0 CY/LF sediment removed. |
| 12 | Fine Grading - Easement Restoration | SY | \$3 | 89 | 5.0% | 93 | \$280 | 20' x 20' easement area on land side of City's drainage ROW line, both sides of canal, 800 SF total. |
| 13 | Sodding - Easement Restoration | SF | \$4 | 800 | 5.0% | 840 | \$3,360 | 20' x 20' easement area on land side of City's drainage ROW line, both sides of canal, 800 SF total. |
| 14 | Waste Disposal - Construction Debris | TON | \$34 | | | 30 | \$1,020 | Transport and disposal of waste dredge materials, concrete, and other demolition/construction materials at the Indian River County LF. |
| 16 | Construction Inspections | LS | \$1,114 | | | 1 | \$1,114 | Assumed to be 0.5% of other costs. |
| 17 | Subtotal (1-16) | | | | | | \$280,922 | |
| 18 | Contingency (30%) | | | | | | \$84,277 | |
| 19 | Total Cost (17+18) | | | | | | \$365,199 | |

City of Sebastian SWMS Capital Project No. 15

Stonecrop Ditch - Tulip Culvert Replacement

Project Location Map

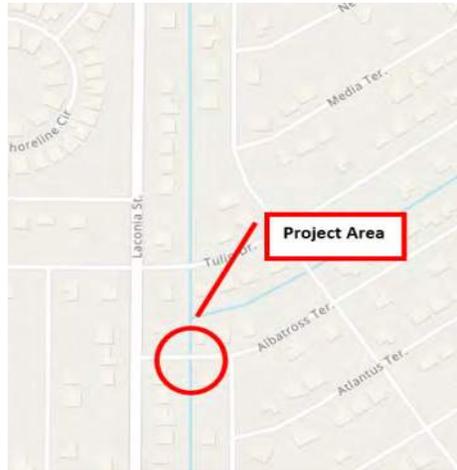


| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|--|------|-----------|-------------|-------|----------|------------------|---|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$19,717 | | | 1 | \$19,717 | Assumed to be 12% of project cost |
| 2 | Permitting | LS | \$50,000 | | | 1 | \$50,000 | ERP permit assumed |
| 3 | Bid Documents Prep | LS | \$25,000 | | | 1 | \$25,000 | Construction drawings, specs |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$4,253 | | | 1 | \$4,253 | Assumed to be 5% of other costs. |
| 5 | Construction Survey | ES | \$1,500 | | | 1 | \$1,500 | Estimated fee staking each property line and alignment checks, as-built survey included. |
| 6 | Pollution Control | LF | \$2 | | | 120 | \$240 | FDOT 6-month avg cost for sediment barrier |
| 7 | Maintenance of Traffic | LS | \$950 | | | 1 | \$950 | |
| 8 | Saw cut and mill existing asphalt pavement | SY | \$20 | 53 | 0.0% | 53 | \$1,060 | Saw cut and mill approximately 24' x 20' of existing roadway pavement, avg 2" depth |
| 9 | Remove Existing Pipe Sections | LF | \$45 | 81 | 0.0% | 81 | \$3,645 | Excavation and removal of existing twin 36" RCP culverts, approximately 30 LF each |
| 10 | Install 4ft x 7ft Concrete Box Culvert | LF | \$775 | 81 | 0.0% | 81 | \$62,775 | Installation cost includes materials, excavation, bedding, structure installation, backfill, and compaction. |
| 11 | Roadway Restoration | SY | \$60 | 53 | 0.0% | 53 | \$3,180 | Installation cost includes materials, base installation, compaction, pavement installation, and roadway markings. |
| 12 | Fine Grading - Restoration | SY | \$3 | 111 | 5.0% | 117 | \$350 | 20' x 50' easement area, 1,000 SF total. |
| 13 | Sodding - Easement Restoration | SF | \$4 | 1,000 | 5.0% | 1,050 | \$4,200 | 20' x 50' easement area, 1,000 SF total. |
| 14 | Waste Disposal - Construction Debris | TON | \$34 | | | 96 | \$3,259 | Transport and disposal of waste concrete and other demolition/construction materials at the Indian River County LF. |
| 15 | Construction Inspections | LS | \$3,895 | | | 1 | \$3,895 | Assumed to be 5% of other costs. |
| 16 | Subtotal (1-15) | | | | | | \$184,023 | |
| 17 | Contingency (30%) | | | | | | \$55,207 | |
| 18 | Total Cost (16+17) | | | | | | \$239,230 | |

City of Sebastian SWMS Capital Project No. 16

Stonecrop Ditch - Albatross Culvert Replacement

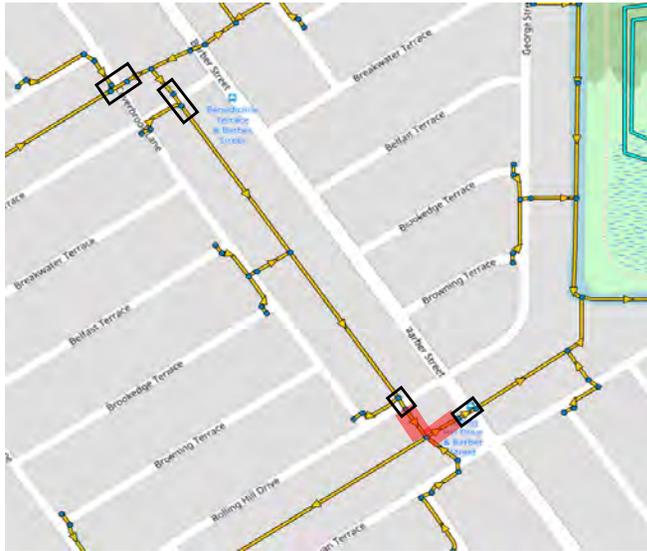
Project Location Map



| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|--|------|-----------|-------------|-------|----------|------------------|---|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$14,372 | | | 1 | \$14,372 | Assumed to be 12% of project cost |
| 2 | Permitting | LS | \$50,000 | | | 1 | \$50,000 | ERP permit assumed |
| 3 | Bid Documents Prep | LS | \$25,000 | | | 1 | \$25,000 | Construction drawings, specs |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$2,132 | | | 1 | \$2,132 | Assumed to be 5% of other costs. |
| 5 | Construction Survey | ES | \$1,500 | | | 1 | \$1,500 | Estimated fee staking each property line and elevation/alignment checks, as-built survey included. |
| 6 | Pollution Control | LF | \$3 | | | 120 | \$307 | FDOT 12-month average - Market Area 11 sediment barrier |
| 7 | Maintenance of Traffic | LS | \$608 | | | 1 | \$608 | FDOT 12-month average - Market Area 11 |
| 8 | Saw cut and mill existing asphalt pavement | SY | \$20 | 53 | 0.0% | 53 | \$1,060 | Saw cut and mill approximately 24' x 20' of existing roadway pavement, avg 2" depth |
| 9 | Remove Existing 54" Pipe Sections | LF | \$45 | 70 | 0.0% | 70 | \$3,150 | Excavation and removal of existing 54" RCP culvert, approximately 70 LF |
| 10 | Install 4ft x 7ft Concrete Box Culvert | LF | \$775 | 30 | 0.0% | 30 | \$23,250 | Installation cost includes materials, excavation, bedding, structure installation, backfill, and compaction. |
| 11 | Roadway Restoration | SY | \$60 | 53 | 0.0% | 53 | \$3,180 | Installation cost includes materials, base installation, compaction, pavement installation, and roadway markings. |
| 12 | Fine Grading - Restoration | SY | \$3 | 111 | 5.0% | 117 | \$350 | 20' x 50' easement area, 1,000 SF total. |
| 13 | Sodding - Easement Restoration | SF | \$4 | 1,000 | 5.0% | 1,050 | \$4,200 | 20' x 50' easement area, 1,000 SF total. |
| 14 | Waste Disposal - Construction Debris | TON | \$34 | | | 93 | \$3,147 | Transport and disposal of waste concrete and other demolition/construction materials at the Indian River County LF. |
| 15 | Construction Inspections | LS | \$1,880 | | | 1 | \$1,880 | Assumed to be 5% of other costs. |
| 16 | Subtotal (1-15) | | | | | | \$134,135 | |
| 17 | Contingency (30%) | | | | | | \$40,240 | |
| 18 | Total Cost (16+17) | | | | | | \$174,375 | |

City of Sebastian SWMS Capital Project No. 18
Benedictine Area Culvert Improvements

Project Location Map



| Project Description | | Culvert Length, ft | Open Channel Length |
|---------------------|---------------------------------------|--|---------------------|
| 20 | Benedictine Area Culvert Improvements | Existing twin 36" culverts in Ditch at Barber St. (just S of intersection with Rolling Hill Dr.) to be changed to a 3' x 10' concrete box culvert to improve capacity (14.1 SF flow area to 30 SF). | - |
| | | Dredging and expanding the existing open channel from Barber St crossing and the Rolling Hill Drive crossing, increase the side slopes to 1.5:1 | 278 |
| | | Existing 36" culvert at Rolling Hill Drive (just N of 414 Rolling Hill Dr.) to be changed to a 3' x 7' concrete box culvert to improve capacity (7 SF flow area to 21 SF). | 55 |
| | | Existing 24" culvert at Benedictine Terrace to be changed to a 3' x 7' concrete box culvert to improve capacity (7 SF flow area to 21 SF). Note the existing condition 1-24" culvert is suspect - upstream culvert at Coverbrook Lane is 2- 24" culverts, location had high vegetation and logically i would have assumed there would be 2-24" culverts. | 57 |
| | | Existing 2-24" culvert at Coverbrook Lane (just E of 1197 Coverbrook Ln.) to be changed to a 3' x 7' concrete box culvert to improve capacity (14 SF flow area to 21 SF). This will match the culvert capacity at Benedictine Terrace (culvert downstream) | 70 |

Historical Flooding documented at Damask Lane (culvert upstream of Coverbrook Lane) and along Rolling Hill Drive. This is a very interconnected location. The Proposed solution improves the system connectivity to the Canals
Proposed solution reduces the flooding in the area - flooding duration for the 25yr storm <1hour and flooded volume for the 25yr storm is reduced by >50%

| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|--|------|-----------|-------------|-------|----------|------------------|---|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$52,431 | | | 1 | \$52,431 | Assumed to be 12% of project cost |
| 2 | Permitting | LS | \$50,000 | | | 1 | \$50,000 | ERP permit assumed |
| 3 | Bid Documents Prep | LS | \$25,000 | | | 1 | \$25,000 | Construction drawings, specs |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$17,235 | | | 1 | \$17,235 | Assumed to be 5% of other costs. |
| 5 | Construction Survey | ES | \$1,500 | | | 1 | \$1,500 | Estimated fee staking each property line and alignment checks, as-built survey included. |
| 6 | Pollution Control | LF | \$2 | | | 120 | \$240 | FDOT 6-month avg cost for sediment barrier |
| 7 | Maintenance of Traffic | LS | \$1,824 | | | 1 | \$1,824 | |
| 8 | Saw cut and mill existing asphalt pavement | SY | \$20 | 150 | 0.0% | 150 | \$3,000 | Saw cut and mill approximately 24' x 20' of existing roadway pavement, avg 2" depth |
| 9 | Remove Existing 24" Pipe Sections | LF | \$40 | 197 | 0.0% | 197 | \$7,880 | Excavation and removal of three existing 24" culverts, approximately 197 LF total |
| 10 | Remove Existing 36" Pipe Sections | LF | \$45 | 211 | 0.0% | 211 | \$9,495 | Excavation and removal of three existing 36" culverts, approximately 211 LF total |
| 11 | Install 3ft x 7ft Concrete Box Culvert | LF | \$360 | 182 | 0.0% | 182 | \$65,520 | Installation cost includes materials, excavation, bedding, structure installation, backfill, and compaction. |
| 12 | Install 3ft x 10ft Concrete Box Culvert | LF | \$650 | 78 | 0.0% | 78 | \$50,700 | Installation cost includes materials, excavation, bedding, structure installation, backfill, and compaction. |
| 13 | Channel Excavation | LF | \$12 | 278 | 0.0% | 278 | \$3,332 | Assumed 3:1 slope change to 1.5:1, 36' channel width, 37.5 CF/LF excavated, 1.4 CY/LF. |
| 14 | Install Channel Armoring | SF | \$15 | 10,842 | 0.0% | 10,842 | \$162,630 | Assumed 39 SF/LF channel area |
| 15 | Roadway Restoration | SY | \$60 | 150 | 0.0% | 150 | \$9,000 | Installation cost includes materials, base installation, compaction, pavement installation, and roadway markings. |
| 16 | Fine Grading - Restoration | SY | \$3 | 111 | 5.0% | 117 | \$350 | 20' x 50' easement area, 1,000 SF total. |
| 17 | Sodding - Easement Restoration | SF | \$4 | 1,000 | 5.0% | 1,050 | \$4,200 | 20' x 50' easement area, 1,000 SF total. |
| 18 | Waste Disposal - Construction Debris | TON | \$34 | | | 266 | \$9,037 | Transport and disposal of waste concrete and other demolition/construction materials at the Indian River County LF. |
| 19 | Construction Inspections | LS | \$15,984 | | | 1 | \$15,984 | Assumed to be 5% of other costs. |
| 20 | Subtotal (1-19) | | | | | | \$489,357 | |
| 21 | Contingency (30%) | | | | | | \$146,807 | |
| 22 | Total Cost (20+21) | | | | | | \$636,163 | |

City of Sebastian SWMS Capital Project No. 19

Bryant/Friar Court Retention Pond

Project Location Map



Project Description

Construct new approximately 1.0 ac retention pond in the property just N of 105 Friar Ct., appears to be a Park property. Regrade perimeter swales if needed to drain to retention pond. There is some modeled flooding in the area - minor regrading may help to focus the stormwater in the park area, peak flows of ~25cfs for the 25yr storm and the pipes are 15"

| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|---|------|-----------|-------------|-------|----------|------------------|--|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$17,459 | | | 1 | \$17,459 | Assumed to be 12% of construction costs |
| 2 | Permitting | LS | \$50,000 | | | 1 | \$50,000 | Assumed ERP required |
| 3 | Bid Documents Prep | LS | \$4,365 | | | 1 | \$4,365 | Assumed to be 3% of construction costs |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$6,833 | | | 1 | \$6,833 | Assumed to be 5% of other construction costs. |
| 5 | Construction Survey | ES | \$5,500 | | | 1 | \$5,500 | Estimated fee staking contours, as-built survey included. |
| 6 | Pollution Control | LF | \$2 | | | 1,200 | \$2,400 | FDOT 12-month avg cost for Zone 11 |
| 7 | Clearing and Grubbing | AC | \$28,466 | 1.10 | 0.0% | 1.10 | \$31,313 | FDOT 12-month avg cost for Zone 11 |
| 6 | Tree Removal | EA | \$580 | | | 50 | \$29,000 | FDOT 12-month avg cost for Zone 11 |
| 8 | Excavate retention area | CY | \$10 | 3,010 | 0.0% | 3,010 | \$30,100 | Excavate 200ft x 220 ft area, two feet deep, 4:1 side slopes. FDOT 12-month avg cost for Zone 11 |
| 9 | Fine grading | SY | \$3 | | | 7,260 | \$21,780 | Regrade approximately 1.5 ac |
| 9 | Installation of new 6' metal chain link fence | LF | \$10 | | | 1,000 | \$10,000 | FENCING, TYPE A, 5.1-6.0, STANDARD FDOT 12-month avg cost for Zone 11 |
| 10 | Installation of new 6' metal chain link gate | EA | \$2,375 | | | 1 | \$2,375 | FENCE GATE, TYPE A, SINGLE, 0-6.0' OPENING FDOT 12-month avg cost for Zone 11 |
| 13 | Sodding - Restoration | SF | \$4 | 1,000 | 5.0% | 1,050 | \$4,200 | Assumed 220' x 200' disturbed area |
| 14 | Waste Disposal - Construction Debris | TON | \$34 | | | 20 | \$680 | Transport and disposal of trees and other demolition/construction materials at the Indian River County LF. |
| 16 | Construction Inspections | LS | \$1,312 | | | 1 | \$1,312 | Assumed to be 1% of other construction costs. |
| 17 | Subtotal (1-16) | | | | | | \$217,317 | |
| 18 | Contingency (30%) | | | | | | \$65,195 | |
| 19 | Total Cost (17+18) | | | | | | \$282,512 | |

City of Sebastian SWMS Capital Project No. 21

Surrey Terrace Retention Basin

Project Location Map



Project Description

Approximately 2.3 ac vacant City-owned property S of 737 Surrey Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need.

| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|---|------|-----------|-------------|-------|----------|------------------|--|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$57,315 | | | 1 | \$57,315 | Assumed to be 12% of construction costs |
| 2 | Permitting | LS | \$50,000 | | | 1 | \$50,000 | Assumed ERP required |
| 3 | Bid Documents Prep | LS | \$14,329 | | | 1 | \$14,329 | Assumed to be 3% of construction costs |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$22,449 | | | 1 | \$22,449 | Assumed to be 5% of other construction costs. |
| 5 | Construction Survey | ES | \$5,500 | | | 1 | \$5,500 | Estimated fee staking contours, as-built survey included. |
| 6 | Pollution Control | LF | \$2 | | | 1,200 | \$2,400 | FDOT 12-month avg cost for Zone 11 |
| 7 | Clearing and Grubbing | AC | \$41,119 | 2.30 | 0.0% | 2.30 | \$94,574 | FDOT 12-month avg cost for Zone 11 |
| 8 | Excavate retention area | CY | \$10 | 14,900 | 0.0% | 14,900 | \$149,000 | Excavate 250ft x 350 ft area, 5 feet deep, 4:1 side slopes. FDOT 12-month avg cost for Zone 11 |
| 9 | Fine grading | SY | \$3 | | | 11,132 | \$33,396 | Regrade approximately 2.3 ac |
| 10 | Installation of new 6' metal chain link fence | LF | \$10 | | | 1,200 | \$12,000 | FENCING, TYPE A, 5.1-6.0, STANDARD FDOT 12-month avg cost for Zone 11 |
| 11 | Installation of new 6' metal chain link gate | EA | \$2,375 | | | 2 | \$4,750 | FENCE GATE, TYPE A, SINGLE, 0-6.0' OPENING FDOT 12-month avg cost for Zone 11 |
| 12 | Sodding - Restoration | SF | \$4 | 35,088 | 5.0% | 36,842 | \$147,370 | Assume 2.3 ac less 210 ft x 310 ft retention bottom area |
| 13 | Waste Disposal - Construction Debris | TON | \$34 | | | 50 | \$1,700 | Transport and disposal of trees and other demolition/construction materials at the Indian River County LF. |
| 14 | Construction Inspections | LS | \$4,490 | | | 1 | \$4,490 | Assumed to be 1% of other construction costs. |
| 15 | Subtotal (1-14) | | | | | | \$599,273 | |
| 16 | Contingency (30%) | | | | | | \$179,782 | |
| 17 | Total Cost (15+16) | | | | | | \$779,055 | |

City of Sebastian SWMS Capital Project No. 22

Newhall Terrace Retention Basin

Project Location Map



Project Description

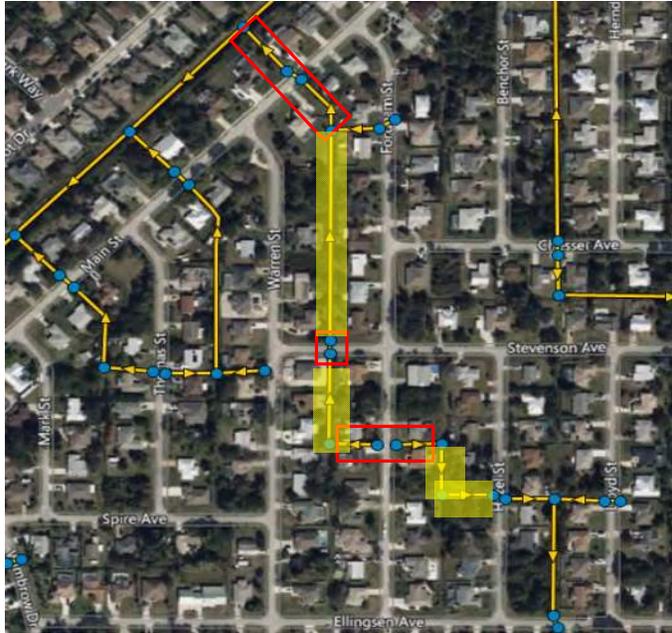
Approximately 2.5 ac vacant City-owned property E of 768 Newhall Terrace available to create an additional retention basin to help with flooding in this area. Please let us know if you find something similar is required in the model. Model to determine need.

| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|---|------|-----------|-------------|-------|----------|------------------|--|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$61,970 | | | 1 | \$61,970 | Assumed to be 12% of construction costs |
| 2 | Permitting | LS | \$50,000 | | | 1 | \$50,000 | Assumed ERP required |
| 3 | Bid Documents Prep | LS | \$15,492 | | | 1 | \$15,492 | Assumed to be 3% of construction costs |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$24,279 | | | 1 | \$24,279 | Assumed to be 5% of other construction costs. |
| 5 | Construction Survey | ES | \$5,500 | | | 1 | \$5,500 | Estimated fee staking contours, as-built survey included. |
| 6 | Pollution Control | LF | \$2 | | | 1,200 | \$2,400 | FDOT 12-month avg cost for Zone 11 |
| 7 | Clearing and Grubbing | AC | \$41,119 | 2.30 | 0.0% | 2.30 | \$94,574 | FDOT 12-month avg cost for Zone 11 |
| 8 | Excavate retention area | CY | \$10 | 14,900 | 0.0% | 14,900 | \$149,000 | Excavate 250ft x 350 ft area, 5 feet deep, 4:1 side slopes. FDOT 12-month avg cost for Zone 11 |
| 9 | Fine grading | SY | \$3 | | | 11,132 | \$33,396 | Regrade approximately 2.3 ac |
| 10 | Installation of new 6' metal chain link fence | LF | \$10 | | | 1,200 | \$12,000 | FENCING, TYPE A, 5.1-6.0, STANDARD FDOT 12-month avg cost for Zone 11 |
| 11 | Installation of new 6' metal chain link gate | EA | \$2,375 | | | 2 | \$4,750 | FENCE GATE, TYPE A, SINGLE, 0-6.0' OPENING FDOT 12-month avg cost for Zone 11 |
| 12 | Sodding - Restoration | SF | \$4 | 43,800 | 5.0% | 45,990 | \$183,960 | Assume 2.5 ac less 210 ft x 310 ft retention bottom area |
| 13 | Waste Disposal - Construction Debris | TON | \$34 | | | 50 | \$1,700 | Transport and disposal of trees and other demolition/construction materials at the Indian River County LF. |
| 14 | Construction Inspections | LS | \$4,856 | | | 1 | \$4,856 | Assumed to be 1% of other construction costs. |
| 15 | Subtotal (1-14) | | | | | | \$643,877 | |
| 16 | Contingency (30%) | | | | | | \$193,163 | |
| 17 | Total Cost (15+16) | | | | | | \$837,040 | |

City of Sebastian SWMS Capital Project No. 25

Drainage Improvements at Hazel and Lloyd St

Project Location Map



| Project Description | Culvert Length, ft | Open Channel Length |
|---|--------------------|---------------------|
| Dredge and regrade existing open channel from flowing East Hazel and Fordham St, change direction flowir | - | 287 |
| Existing 1.5ft diameter pipe East of Fordham St to be replaced with 32" x 49" Horizontal Elliptical flowing West. | 120 | - |
| Add new 32" x 49" Horizontal Elliptical culvert crossing at Fordham St flowing West. | 51 | - |
| Existing 1.5ft diameter pipe West of Fordham St to be replaced with 32" x 49" Horizontal Elliptical flowing West. | 127 | - |
| Dredge and regrade existing open channel from Fordham St to Stevenson St (widen with 1:1 side slopes) | - | 265 |
| Existing 1.5ft diameter culvert at Stevenson Ave to be replaced with 32" x 49" Horizontal Elliptical flowing North. | 40 | - |
| Dredge and regrade existing open channel from Stevenson St to Main St (widen with 1:1 side slopes) | - | 614 |
| Existing 2ft diameter pipe SE of Main St to be replaced with 38" x 60" Horizontal Elliptical pipe | 183 | - |
| Existing 1.5ft diameter culvert on Main St to be replaced with 38" x 60" Horizontal Elliptical pipe | 45 | - |
| Existing twin barreled 2ft diameter culvert at Stevenson Ave to be replaced with 38" x 60" Horizontal Elliptical pipe | 172 | - |

Add a culvert crossing at Fordham St to allow flow to travel north to twin ditches, includes regrading open channels and upsizing the downstream culverts from Fordhams St to Twin Ditches
Proposed Solution reduces the duration and extent of flooding East and West of Fordham St.

| Item No. | Item Description | Unit | Unit Cost | Takeoff Qty | Waste | Quantity | Total Cost | Notes |
|---|--|------|-----------|-------------|-------|----------|------------------|--|
| <i>Administrative and Engineering Costs</i> | | | | | | | | |
| 1 | Engineering Survey and Design | LS | \$61,874 | | | 1 | \$61,874 | Assumed to be 12% of construction costs |
| 2 | Permitting | LS | \$2,500 | | | 1 | \$2,500 | |
| 3 | Bid Documents Prep | LS | \$1,500 | | | 1 | \$1,500 | |
| <i>Construction Costs</i> | | | | | | | | |
| 4 | Mobilization and Demobilization | LS | \$23,436 | | | 1 | \$23,436 | Assumed to be 5% of other costs. |
| 5 | Construction Survey | ES | \$5,500 | | | 1 | \$5,500 | Estimated fee staking each property line and alignment checks, as-built survey included. |
| 6 | Pollution Control | LF | \$2 | | | 120 | \$240 | FDOT 6-month avg cost for sediment barrier |
| 7 | Clearing and Grubbing | AC | \$31,755 | 0.48 | 0.0% | 0.48 | \$15,242 | |
| 8 | Maintenance of Traffic | LS | \$1,824 | | | 1 | \$1,824 | |
| 9 | Saw cut and mill existing asphalt pavement | SY | \$20 | 150 | 0.0% | 150 | \$3,000 | Saw cut and mill axexisting roadway pavement, avg 2" depth |
| 10 | Remove Existing Pipe Sections | LF | \$40 | 607 | 0.0% | 607 | \$24,280 | Removal of approximately 607 LF of existing 18" and 24" RCP pipe |
| 11 | Install 3ft x 4ft Concrete Box Culvert | LF | \$360 | 338 | 0.0% | 338 | \$121,680 | Installation cost includes materials, excavation, bedding, structure installation, backfill, and compaction. |
| 12 | Install 3ft x 5ft Concrete Box Culvert | LF | \$482 | 400 | 0.0% | 400 | \$192,800 | Installation cost includes materials, excavation, bedding, structure installation, backfill, and compaction. |
| 13 | Fine grading | SY | \$3 | | | 2,332 | \$6,996 | Regrade 1,166 LF of trapezoidal swale, 15' top width, 1:1 side slopes, 4ft depth, 18 SF/LF, 2 SY/LF. |
| 14 | Roadway Restoration | SY | \$60 | 150 | 0.0% | 150 | \$9,000 | Installation cost includes materials, base installation, compaction, pavement installation, and roadway markings. |
| 15 | Sodding - Restoration | SF | \$4 | 20,988 | 5.0% | 22,037 | \$88,150 | Resod 1,166 LF of trapezoidal swale, 15' top width, 1:1 side slopes, 4ft depth, 18 SF/LF, 2 SY/LF. |
| 16 | Waste Disposal - Construction Debris | TON | \$34 | | | 1 | \$34 | Transport and disposal of waste concrete pipe and other demolition/construction materials at the Indian River County LF. |
| 17 | Construction Inspections | LS | \$23,436 | | | 1 | \$23,436 | Assumed to be 5% of other costs. |
| 18 | Subtotal (1-17) | | | | | | \$581,491 | |
| 19 | Contingency (30%) | | | | | | \$174,447 | |
| 20 | Total Cost (18+19) | | | | | | \$755,939 | |

GENERAL NOTES

- ALL ELEVATIONS ARE REFERRED TO NATIONAL GEODETIC VERTICAL DATUM OF 1988.
- LOCATIONS, ELEVATIONS, AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS, BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY AND AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY BE OCCURRED BY HIS FAILURE TO EXACTLY LOCATE, IDENTIFY, PRESERVE, AND ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING HIS WORK.
- CONTRACTOR SHALL VERIFY ALL UTILITIES AND NOTIFY THE CITY OF SEBASTIAN, 72 HOURS PRIOR TO DIGGING IN ANY PORTION OF THE SITE.
- THE CONTRACTOR SHALL REPLACE ANY MONUMENTS, FENCES, ETC. WITH THE SAME TYPE OF MATERIAL, THAT WAS REMOVED DURING CONSTRUCTION.
- TOPOGRAPHIC SURVEY WAS PERFORMED BY: MASTELLER, BOGGS & REES INC. 2205 WTA AVENUE ROCKLEDGE, FL 32950 PHONE: (772) 544-8050
- THE CONTRACTOR SHALL CONTACT THE ENGINEER'S OFFICE IMMEDIATELY UPON FINDING ANY CONFLICTS DURING CONSTRUCTION ON ANY IMPROVEMENTS SHOWN ON THE DRAWINGS.
- EROSION CONTROL AND SEDIMENTATION CONTROL DEVICES SHALL BE IN PLACE PRIOR TO BEGINNING ANY DEMOLITION OR CONSTRUCTION. THEY SHALL BE DETALLED TO THE LIMITS SHOWN IN THE DRAWINGS, AS REQUIRED BY ITEM SPECIFICATIONS AND IN ACCORDANCE WITH ALL REGULATORY AGENCY REQUIREMENTS FOR EROSION CONTROL NOTES.
- EXISTING DRAINAGE STRUCTURES WITHIN CONSTRUCTION LIMITS SHALL BE REMOVED UNLESS OTHERWISE NOTED.
- ALL STATIONING AND OFFSET REFERS TO CONSTRUCTION BASELINE UNLESS OTHERWISE NOTED ON PLANS.
- EXISTING UTILITIES AND FACILITIES SHOWN ON THE DRAWINGS WERE LOCATED FROM THE UTILITY OWNER'S RECORDS OR UNDERGROUND FACILITIES. GUARANTEE IS NOT MADE THAT ALL EXISTING FACILITIES ARE SHOWN NOR THAT THOSE FACILITIES SHOWN ARE ENTIRELY ACCURATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION WITH EXISTING UTILITIES.
- THE CONTRACTOR SHALL, BY REPAIR OR REPLACEMENT, RETURN TO EQUAL OR BETTER CONDITION ALL PAVEMENT, SIDEWALK, LANEWAY, UTILITIES AND OTHER ITEMS DAMAGED BY THIS CONSTRUCTION ACTIVITY.
- DURING CONSTRUCTION OF THE STORMWATER IMPROVEMENTS, THE CONTRACTOR IS RESPONSIBLE FOR REPAIR, PROTECTION, AND REPLACEMENT OF ITEMS ON PRIVATE PROPERTY AND PUBLIC RIGHTS OF WAY SUCH AS SPRINKLERS, FENCES, SOIL, SHRUBS, TREES, AND OTHERS IN VARIOUS MANNERS, ETC.
- PRIOR TO EXCAVATING IN THE VICINITY OF A GAS LINE, THE CONTRACTOR SHALL NOTIFY THE GAS UTILITY OWNER IN ACCORDANCE WITH THE REQUIREMENTS OF FLORIDA STATUTES, PROTECTION OF UNDERGROUND PIPELINES, F.S. 303.881 OR 37-163.
- ALL CONSTRUCTION SHALL CONFORM TO CITY OF SEBASTIAN STANDARDS AND SPECIFICATIONS AND TO THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, MOST RECENT EDITIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL UTILITIES THAT MAY EXIST, ABOVE OR BELOW GROUND.
- ALL BRUSH, STRIPPINGS OR UNSUITABLE MATERIAL SHALL BE DISPOSED OF OFF-SITE AT THE CONTRACTOR'S EXPENSE.
- A DE-WATERING PERMIT IS REQUIRED BY THE ST. JOHNS RIVER WATER MANAGEMENT DISTRICT PRIOR TO ANY PUMPING, ETC. AND SHALL BE OBTAINED BY THE CONTRACTOR.
- MEASURES SHALL BE TAKEN BY THE CONTRACTOR TO ENSURE THAT ADEQUATE EROSION AND SEDIMENT CONTROL ARE MAINTAINED AT ALL TIMES DURING THE PROJECT (SEE EROSION CONTROL NOTES).
- ALL PRIVATE AND PUBLIC PROPERTY AFFECTED BY THIS WORK SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THE CONDITION EXISTING PRIOR TO COMMENCING CONSTRUCTION UNLESS SPECIFICALLY EXEMPTED BY THE PLANS. COSTS TO BE INCIDENTAL TO OTHER CONSTRUCTION AND NO EXTRA COMPENSATION TO BE ALLOWED.
- INSTALLATION OF ALL STORM SEWERS, INLETS, MANHOLES, AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE SECTIONS OF THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, OR AS INDICATED ON THE DRAWINGS.
- THE LIMITS OF CONSTRUCTION SHOWN ON THE PLANS SHALL BE STRICTLY OBSERVED BY THE CONTRACTOR. ALL INGRESS, EGRESS AND TRAFFIC PATTERNS ON THE SITE SHALL BE WITHIN THE LIMITS OF CONSTRUCTION.
- NO REPRESENTATION IS MADE REGARDING BALANCED EARTHWORK. ANY EXCESS MATERIAL, OR MATERIAL NOT SUITABLE FOR USE AS BACKFILL, SHALL BE HAULED AWAY WITH NO ADDITIONAL COMPENSATION.
- IN AREAS REQUIRING FILL MATERIAL, THE CONTRACTOR WILL STRIP OR OTHERWISE REMOVE ALL VEGETATION SUCH AS BRUSH, HEAVY SOILS, HEAVY GROWTH OF GRASS, DECIDED VEGETABLE MATTER, RUBBISH AND ANY OTHER DELETERIOUS MATERIAL, BEFORE EMBANKMENT IS STARTED. IMMEDIATELY PRIOR TO THE PLACING OF FILL MATERIALS, THE ENTIRE AREA UPON WHICH FILL IS TO BE PLACED SHALL BE REGRADED.
- STATION OFFSETS SHOWN ON PLANS ARE FROM CENTERLINE TO CENTERLINE OF STRUCTURE.
- ALL REINFORCED CONCRETE PIPE (RCP) SHALL BE MINIMUM CLASS II.
- WATER AND SEWER CROSSINGS:
 - WHERE WATER MAINS MUST PASS OVER STORM, SANITARY AND/OR EFFLUENT WELLS, LINES AND A MINIMUM CLEARANCE OF 10' SHALL BE MAINTAINED. THE WATER MAIN SHALL BE CONSTRUCTED OF MECHANICAL JOINT DUCTILE IRON PIPE OF EQUIVALENT EACH SIDE OF THE CROSSING AND PROVIDE A 5' MINIMUM CLEARANCE BETWEEN THE WATER MAIN AND THE OTHER UTILITY.
 - A HORIZONTAL SEPARATION OF 10' MUST BE MAINTAINED BETWEEN POTABLE WATER LINES AND NON-POTABLE LINES. WHEN THIS IS NOT POSSIBLE, REPLACE PVC WITH MECHANICAL JOINT DUCTILE IRON PIPE, AND LAY IN 2" SAND. THE THICKNESS OF SAND SHALL BE ACCESS WELLS WATER, A 5' MINIMUM HORIZONTAL SEPARATION IS ACCEPTABLE.

27. SITE PREPARATION:
 - REMEDIAL DEWATERING MAY BE NEEDED PRIOR TO ANY EARTHWORK OPERATIONS.
 - STRIP THE PROPOSED CONSTRUCTION LIMITS OF ALL GRASS, ROOTS, TOPSOIL, CONSTRUCTION DEBRIS, AND OTHER MATERIALS. ALL MATERIALS WITHIN THE PERIMETER OF ALL PAVED AREAS, EXCEPT CLEARING AND GRUBBING, TO BE REMOVED TO A DEPTH OF 12 INCHES EXCEPT IN THE VICINITY OF THE DETAIL DEEPER CLEARING AND GRUBBING DEPTHS SHALL BE REDUCED OR SOILED.
28. ABSOLUTELY NO WORK WILL BE ALLOWED WITHIN ANY CONSERVATION AREA, BUFFER AREA, MITIGATION AREA, OR DESIGNATED WETLAND AREA UNLESS SO SPECIFICALLY DESCRIBED BY THE PLANS AND GRANTED BY REASON OF PERMIT FROM THE GOVERNMENTAL ENTITY HAVING JURISDICTION OVER SAID AREA.

EROSION CONTROL

IT IS THE CONTRACTOR'S RESPONSIBILITY TO IMPLEMENT THE EROSION AND TURBIDITY CONTROLS AS SHOWN ON THE EROSION AND TURBIDITY CONTROL PLAN. IT IS ALSO THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THESE CONTROLS ARE PROPERLY INSTALLED, MAINTAINED AND FUNCTIONING PROPERLY TO PREVENT TURBID OR POLLUTED WATER FROM LEAVING THE PROJECT SITE. THE CONTRACTOR WILL ADJUST THE EROSION AND TURBIDITY CONTROLS SHOWN ON THE EROSION AND TURBIDITY CONTROL PLAN AND ADD ADDITIONAL CONTROL MEASURES, AS REQUIRED, TO ENSURE THE SITE MEETS ALL FEDERAL, STATE AND LOCAL EROSION AND TURBIDITY CONTROL REQUIREMENTS. THE FOLLOWING BEST MANAGEMENT PRACTICES WILL BE IMPLEMENTED BY THE CONTRACTOR AS REQUIRED BY THE EROSION AND TURBIDITY CONTROL PLAN AND AS REQUIRED BY THE REGULATORY AGENCIES.

1. SEDIMENT BASINS AND TRAPS, PERMANENT DITCHES, SEDIMENT BARRIERS AND OTHER MEASURES INSTALLED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP BEFORE ANY LAND-DEVELOPING TAKES PLACE.
2. ALL SEDIMENT CONTROL MEASURES ARE TO BE ADJUSTED TO MEET FIELD CONDITIONS AT THE TIME OF CONSTRUCTION AND BE CONSTRUCTED PRIOR TO ANY GRUBBING OR DISTURBANCE OF EXISTING SURFACE MATERIAL ON BALANCE OF SITE. PERMANENT SEDIMENT BARRIERS SHALL BE CONSTRUCTED TO PREVENT SEDIMENT OR TRASH FROM FLOWING OR FLOATING ON TO ADJACENT PROPERTIES.
3. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCK PILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT CONTROL MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY PROTECTIONS AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
4. AFTER ANY SIGNIFICANT RAINFALL, SEDIMENT CONTROL STRUCTURES WILL BE INSPECTED FOR INTEGRITY, ANY DAMAGED DEVICES SHALL BE REPAIRED IMMEDIATELY.
5. CONCENTRATED RAINOFF SHALL NOT FLOW DOWN ON OR FALL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL - FLOOD OR SLOPE FAILURE PREVENTION MEASURES SHALL BE USED TO PREVENT ACCIDENTS IN ALL PLACES WHERE THE WORK CAUSES OBSTRUCTION TO THE NORMAL TRAFFIC OR CONSTITUTES IN ANY WAY A HAZARD TO THE PUBLIC.
6. WHENEVER WATER BEERS FROM A SLOPE FACE ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
7. SEDIMENT WILL BE PREVENTED FROM ENTERING ANY STORM DRAIN SYSTEM DITCH OR CHANNEL. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
8. BEFORE TEMPORARY OR PERMANENT CONSTRUCTION STORMWATER CONVEYANCE CHANNELS ARE INSTALLED, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.
9. WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE EMBANKMENT. CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONEROSIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CALENDARING AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF APPROVED BY NONEROSIBLE COVER MATERIALS.
10. STOCKPILES MATERIAL: NO EXCAVATED MATERIAL SHALL BE STOCKPILED IN SUCH A MANNER AS TO DIRECT RUNOFF DIRECTLY OFF THE PROJECT SITE INTO ANY ADJACENT WATER BODY OR STORM WATER COLLECTION FACILITY.
11. EXPOSED AREA LIMITATION: THE SURFACE AREA OF OPEN, RAW ERODIBLE SOIL, EXPOSED BY CLEARING AND GRUBBING OPERATIONS OR DEMOLITION AND FILLING OPERATIONS SHALL NOT EXCEED 1 ACRE. IF THE TOTAL AREA TO BE CLEARED IS EQUAL TO, OR EXCEEDS ONE (1) ACRE, THEN THE CONTRACTOR WILL BE RESPONSIBLE FOR PREPARING A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH EPA'S NPDES REGULATIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR SUBMITTING A NOTICE ON PERMIT DIBO TO EPA FORTY-EIGHT (48) HOURS PRIOR TO COMMENCING CONSTRUCTION.
12. TEMPORARY SEEDING: AREAS OPENED BY CONSTRUCTION OPERATIONS AND THAT ARE NOT ANTICIPATED TO BE RE-DEVELOPED OR DRESSED AND RECEIVING FINAL GRASSING TREATMENT WITHIN 30 DAYS SHALL BE SEEDED WITH A GRASS GROWING GRASS SPECIES WHICH WILL PROVIDE AN EARLY COVER DURING THE SEASON IN WHICH IT IS PLANTED AND WILL NOT LATER COMPETE WITH THE PERMANENT GRASSING.
13. TEMPORARY SEEDING AND MULCHING: SLOPES STEEPER THAN 6:1 THAT FALL WITHIN THE CATEGORY ESTABLISHED IN PARAGRAPH 12 ABOVE LOOSE MEASURE OF HEALTH MATERIALS, OUT INTO THE SOIL OF THE SEEDED AREA ADEQUATE TO PREVENT MOVEMENT OF SEED AND MULCH.
14. TEMPORARY GRASSING: THE SEEDS OR SEEDS AND MULCHED AREA(S) SHALL BE ROLLED AND WATERED OR HYDRATED ON OTHER SUITABLE METHODS IF REQUIRED TO ASSURE OPTIMUM GROWING CONDITIONS FOR THE ESTABLISHMENT OF A GOOD GRASS COVER. TEMPORARY GRASSING SHALL BE THE SAME GRADE WITH A MULCH REQUIRED FOR PERMANENT GRASSING IN THE CONTRACT SPECIFICATIONS.
15. TEMPORARY REDRESSING: IF, AFTER 14 DAYS FROM SEEDING, THE TEMPORARY GRASSING AREAS HAVE NOT ATTAINED A MINIMUM OF 75 PERCENT GOOD GRASS COVER, THE AREA WILL BE RESEED AND ADDITIONAL SEED APPLIED SUFFICIENT TO ESTABLISH THE DESIRED VEGETATIVE COVER.
16. MAINTENANCE: ALL FEATURES OF THE PROJECT DESIGNED AND CONSTRUCTED TO PREVENT EROSION AND SEDIMENT SHALL BE MAINTAINED DURING THE LIFE OF THE CONSTRUCTION SO AS TO FUNCTION AS THEY WERE ORIGINALLY DESIGNED AND CONSTRUCTED.

17. PERMANENT EROSION CONTROL: THE EROSION CONTROL FACILITIES OF THE PROJECT SHOULD BE DESIGNED TO MINIMIZE THE IMPACT ON THE OFFSITE FACILITIES.
18. PERMANENT SEEDING: ALL AREAS WHICH HAVE BEEN DISTURBED BY CONSTRUCTION WILL, AS A MINIMUM, BE SEEDDED. THE SEEDING MIX MUST PROVIDE BOTH LONG-TERM VEGETATION AND RAPID GROWTH SEASONAL VEGETATION. SLOPES STEEPER THAN 4:1 SHALL BE SEEDDED AND MULCHED ON SLOPES.
19. ALL SLOPES STEEPER THAN 3:1 SHALL BE SOODED.

UTILITY OWNERS & CONTACTS

1. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE UTILITY COMPANY FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY EXCAVATION INVOLVING ITS UTILITIES SO THAT A COMPANY REPRESENTATIVE CAN BE PRESENT. THE LOCATION OF THE UTILITIES SHOWN IN THE PLANS ARE APPROXIMATE ONLY. THE EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR DURING CONSTRUCTION.

UTILITY OWNERS:

-
- BELLSOUTH
-
- FLORIDA POWER & LIGHT
-
- THE WARNER CABLE
-

2. THE CONTRACTOR SHALL USE THE SERVICES OF SURVIVE-ONE CALL UTILITY LOCATOR A MINIMUM OF 48 HOURS PRIOR TO THE COMMENCEMENT OF WORK. SURVIVE-ONE CALL: 1(800) 423-4770

MAINTENANCE OF TRAFFIC

1. MAINTENANCE OF TRAFFIC PLANS (MOTL) IS REQUIRED TO BE SUBMITTED BY THE CONTRACTOR. THIS PLAN SHOULD BE SUBMITTED AND APPROVED BY THE CITY OF SEBASTIAN PUBLIC WORKS OFFICE AT LEAST 14 DAYS PRIOR TO MOBILIZATION.
2. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL FURNISH ERECT AND MAINTAIN ALL BARRICADES, WARNING SIGNS, AND MARKERS FOR HAZARDS AND THE CONTROL OF TRAFFIC IN REASONABLE CONFORMITY WITH THE U.S. DEPARTMENT OF TRANSPORTATION MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, OR AS DIRECTED BY THE OWNER CITY OF SEBASTIAN, SUCH AS TO EFFECTIVELY PREVENT ACCIDENTS IN ALL PLACES WHERE THE WORK CAUSES OBSTRUCTION TO THE NORMAL TRAFFIC OR CONSTITUTES IN ANY WAY A HAZARD TO THE PUBLIC.
3. ACCESS FOR LOCAL TRAFFIC WITH DESTINATIONS WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED. IF DURING CONSTRUCTION ACCESS FOR LOCAL TRAFFIC IS CHANGED, THEN THE CONTRACTOR SHALL NOTIFY THE OWNER A MINIMUM OF THREE (3) WORKING DAYS IN ADVANCE. IF DURING CONSTRUCTION ROAD CLOSURES ARE REQUIRED, THEN THE CONTRACTOR SHALL NOTIFY THE OWNER A MINIMUM OF FIVE (5) WORKING DAYS IN ADVANCE.

PLANS APPROVED BY Ana DeMelo, P.E. # 57420 DATE _____

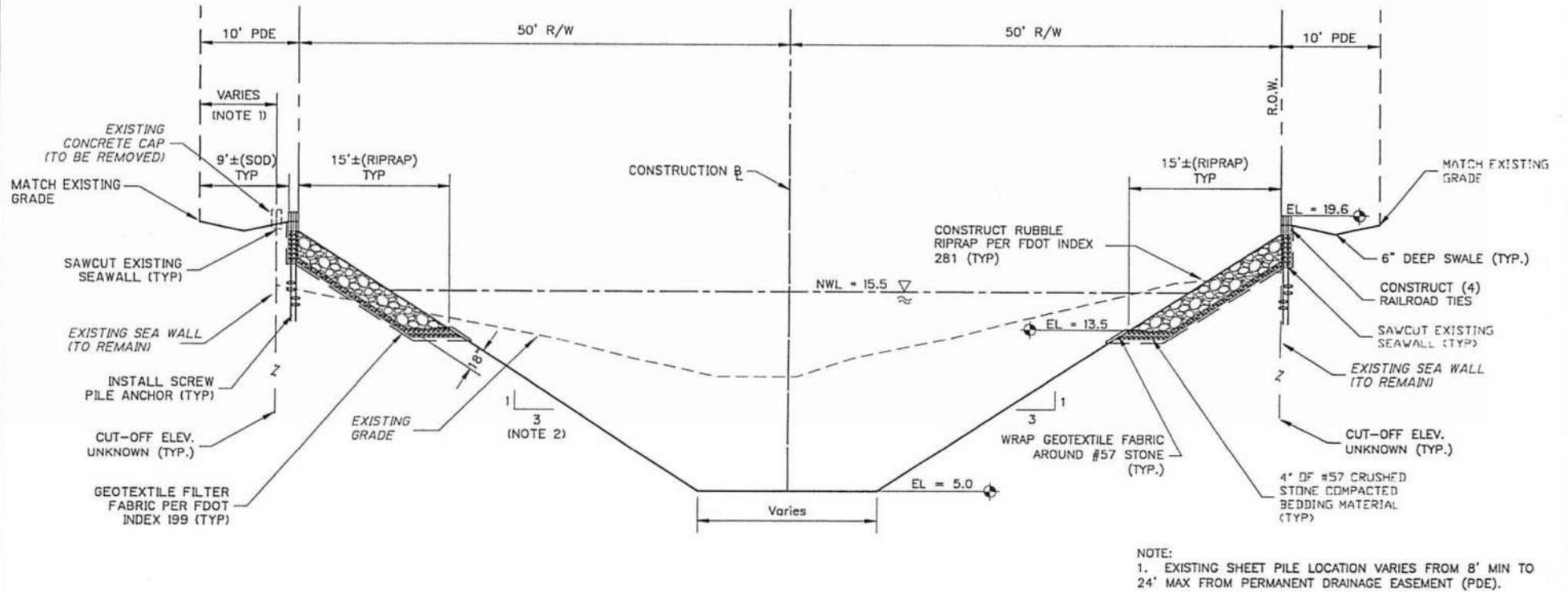
CITY OF SEBASTIAN, FLORIDA
COLLIER CANAL

INDEX, LEGEND, ABBREVIATIONS,
AND GENERAL NOTES

PERMIT SUBMITTAL

DESIGNED BY: B. STROTZ
 DRAWN BY: A. DEMELO
 SHEET NO. OF: 1 LAYOUT
 CHECKED BY: A. DEMELO
 APPROVED BY: A. DEMELO
 DATE: MARCH 2008

CDM Casey Danner & McKee Inc.
 1721 HIGHWAY A-1, SUITE 301
 WERO BEACH, FL 32963
 PHONE: 772-231-4201
 FAX: 772-231-4232
 FL CDA NO. EB-000020



TYPICAL SECTION

HORIZ 1" = 10'
VERT 1" = 5'

- NOTE:
- EXISTING SHEET PILE LOCATION VARIES FROM 8' MIN TO 24' MAX FROM PERMANENT DRAINAGE EASEMENT (PDE).
 - THE 3:1 SIDE SLOPES MAY BE REVISED TO A FLATTER SLOPE AFTER STABILITY ANALYSIS IS COMPLETED.

PLANS APPROVED BY Ana DeMelo, P.E. # 57420 DATE _____

1. THE SHEET PILE LOCATION VARIES FROM 8' MIN TO 24' MAX FROM PERMANENT DRAINAGE EASEMENT (PDE).
 2. THE 3:1 SIDE SLOPES MAY BE REVISED TO A FLATTER SLOPE AFTER STABILITY ANALYSIS IS COMPLETED.

| REV. | DATE | DRWN | CHKD | REMARKS |
|------|------|------|------|---------|
| | | | | |
| | | | | |
| | | | | |

DESIGNED BY: B. STONER
 DRAWN BY: A. DEMELO
 CHECKED BY: A. DEMELO
 APPROVED BY: A. DEMELO
 DATE: MARCH 2008

CDM Camp Dresser & McKee Inc.
 1701 HIGHLAND AVENUE, SUITE 201
 VERO BEACH, FL 32940
 PHONE: 772-221-4301
 FAX: 772-221-4302
 FL CDM NO. 09-000000

CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

TYPICAL SECTIONS

PERMIT SUBMITTAL

| SUMMARY OF TYPE A FENCING | | | |
|---------------------------|------|---------------------|-------|
| LOCATION | | TYPE A FENCING (LF) | |
| STATION | SIDE | PLAN | FINAL |
| FROM STA. - | - LT | - LF | |
| TO STA. - | -LT | | |
| FROM STA. - | - LT | - LF | |
| TO STA. - | -LT | | |
| FROM STA. - | - LT | - LF | |
| TO STA. - | -LT | | |
| FROM STA. - | - LT | - LF | |
| TO STA. - | -LT | | |
| FROM STA. - | - LT | - LF | |
| TO STA. - | -LT | | |
| FROM STA. - | - LT | - LF | |
| TO STA. - | -LT | | |
| - | - | - | - |
| - | - | - | - |
| FROM STA. - | - RT | - LF | |
| TO STA. - | -RT | | |
| FROM STA. - | - RT | - LF | |
| TO STA. - | -RT | | |
| FROM STA. - | -RT | - LF | |
| TO STA. - | -RT | | |
| FROM STA. - | - RT | - LF | |
| TO STA. - | -RT | | |
| FROM STA. - | - RT | - LF | |
| TO STA. - | -RT | | |
| FROM STA. - | - RT | - LF | |
| TO STA. - | -RT | | |
| FROM STA. - | - RT | - LF | |
| TO STA. - | -RT | | |
| FROM STA. - | - RT | - LF | |
| TO STA. - | -RT | | |

1. COST OF TEMPORARY CHECK DAM(S) REQUIRED FOR CONSTRUCTION SHALL BE INCLUDED IN MOBILIZATION FDOT INDEX NO. 101-1. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.
2. REINFORCING STEEL FOR ALL ENDWALLS SHALL BE INCLUDED IN THE COST OF CONCRETE CLASS I PAY ITEM 400-1-2. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.

| SUMMARY OF EARTHWORK | | |
|---------------------------------------|------|------|
| DESCRIPTION | C | F |
| | CY | CY |
| FILL, MAINLINE: | | - CY |
| SUB-TOTAL FILL: | | - CY |
| FILL ADJUSTMENT (35%) (3,847 x 0.35): | | - CY |
| SUB-TOTAL WITH FILL ADJUSTMENT | | - CY |
| CUT GENERATED ONSITE: | - CY | |
| SURPLUS CUT (TO BE HAULED OFFSITE): | - CY | |

PLANS APPROVED BY Ana DeMelo, P.E. # 57420 DATE _____

15/10/2018 10:00:00 AM C:\Users\james\Documents\151018\151018.dwg

| REV. | DATE | BY | CHKD | REMARKS |
|------|------|----|------|---------|
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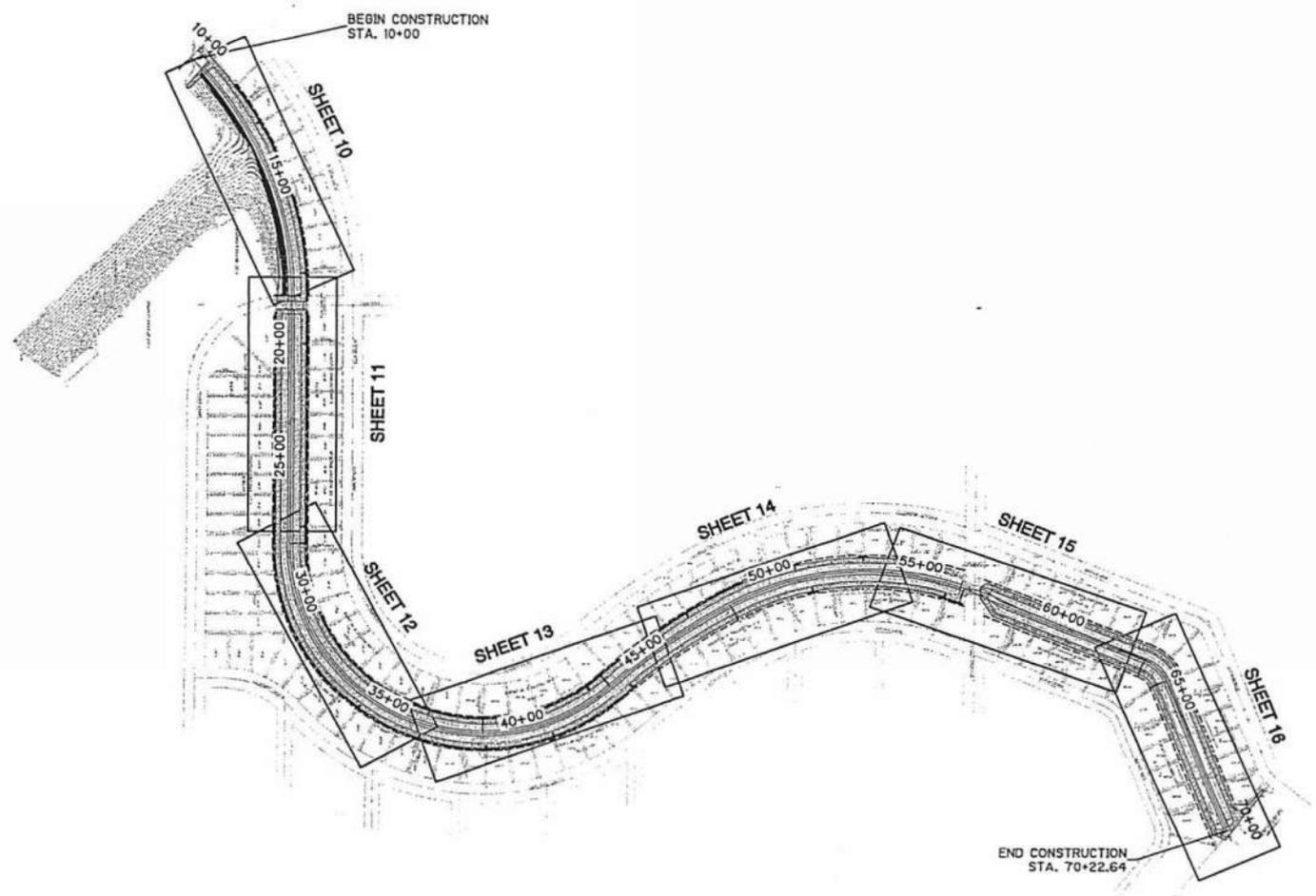
DESIGNED BY: B. STOLTZ
 DRAWN BY: A. BUSELLA
 CHECKED BY: A. LAMOREL
 APPROVED BY: A. DEMELO
 DATE: MARCH 2018

CDM
 Camp Dresser & McKee Inc.
 1701 HIGHWAY A-1-A, SUITE 201
 WYCO BEACH, FL 32943
 PHONE: 772-231-4300
 FAX: 772-231-4302
 FL CDM NO. 18-000020

CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

SUMMARY OF QUANTITIES

PERMIT SUBMITTAL



PLANS APPROVED BY Ana DeMelo, P.E. # 57420 DATE _____

ALL DIMENSIONS SHOWN UNLESS OTHERWISE NOTED TO THE CENTERLINE
 DATE PLOTTED: 03/28/2008 10:58:11 AM

| REV. | DATE | DRWN | CHKD | REMARKS |
|------|------|------|------|---------|
| | | | | |
| | | | | |
| | | | | |

DESIGNED BY: B. STOLTZ
 DRAWN BY: A. RUSSELL
 SHEET CHECK BY: A. LASHLEY
 CROSS CHECK BY: A. DEMELO
 APPROVED BY: A. DEMELO
 DATE: MARCH 2008

CDM
 Camp Dresser & McKee Inc.
 1701 HIGHWAY 1-A, SUITE 201
 VERO BEACH, FL 32902
 PHONE: 772-231-4300
 FAX: 772-231-4332
 FL CDMA NO.: 28-0000020

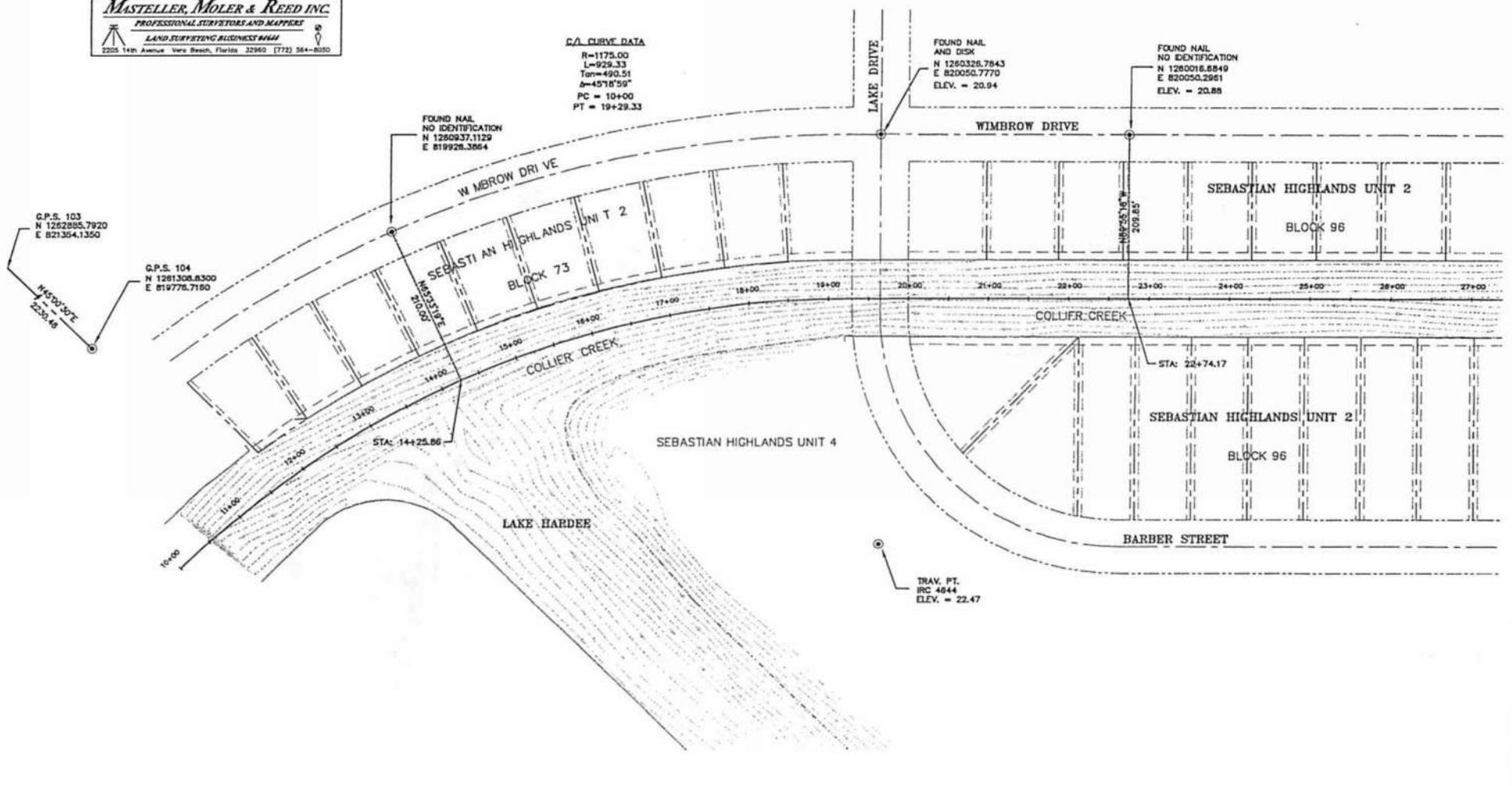
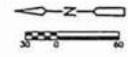
CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

KEY PLAN

PERMIT SUBMITTAL

Masteller, Moler & Reed Inc.
 PROFESSIONAL SURVEYORS AND MAPPERS
 LAND SURVEYING BUSINESS BNA#
 2205 14th Avenue Vero Beach, Florida 32960 (772) 354-8050

C/A CURVE DATA
 R=1175.00
 L=929.33
 Tan=490.51
 $\beta=45^{\circ}18'59"$
 PC = 10+00
 PT = 19+29.33



| REV. NO. | DATE | BY | CHKD | REMARKS |
|----------|------|----|------|---------|
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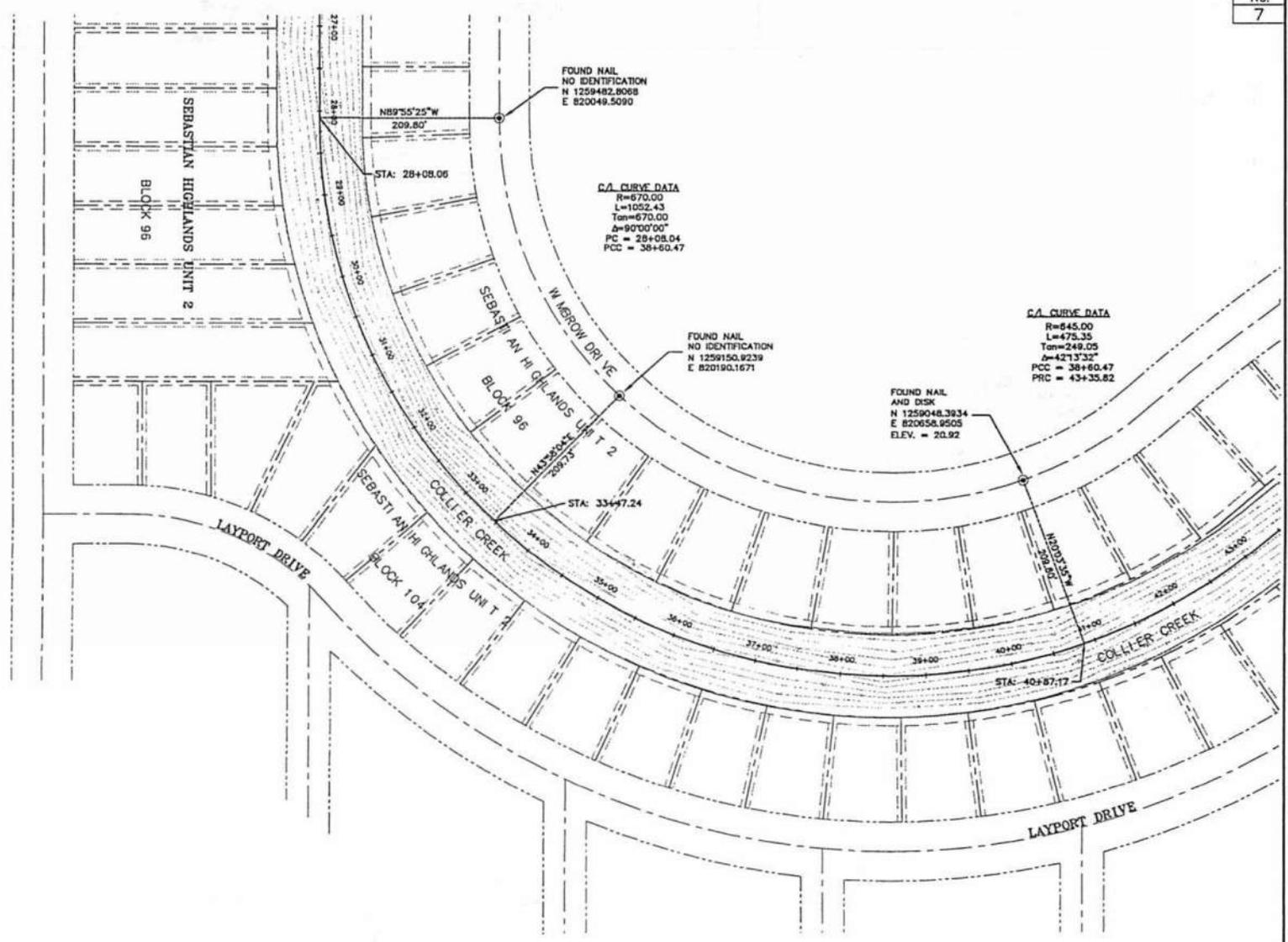
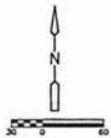
DESIGNED BY: B. STOLTZ
 DRAWN BY: A. BURGESS
 CHECKED BY: A. LAMORE
 APPROVED BY: A. DEMELLO
 DATE: MARCH 2006

CDM Camp Dresser & McKee Inc.
 1701 HIGHWAY A-1-S, SUITE 201
 VERO BEACH, FL 32903
 PHONE: 772-231-4301
 FAX: 772-231-4302
 FL CDA NO. 19-0000030

CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

HORIZONTAL CONTROL PLAN

PRELIMINARY
 NOT FOR CONSTRUCTION



Masteller, Moler & Reed Inc.
 PROFESSIONAL SURVEYORS AND MAPPERS
 LAND SURVEYING BUSINESS BAA#
 2205 14th Avenue Vero Beach, Florida 32960 (772) 564-8050

| REV. | DATE | DRWN | CHKD | REMARKS |
|------|------|------|------|---------|
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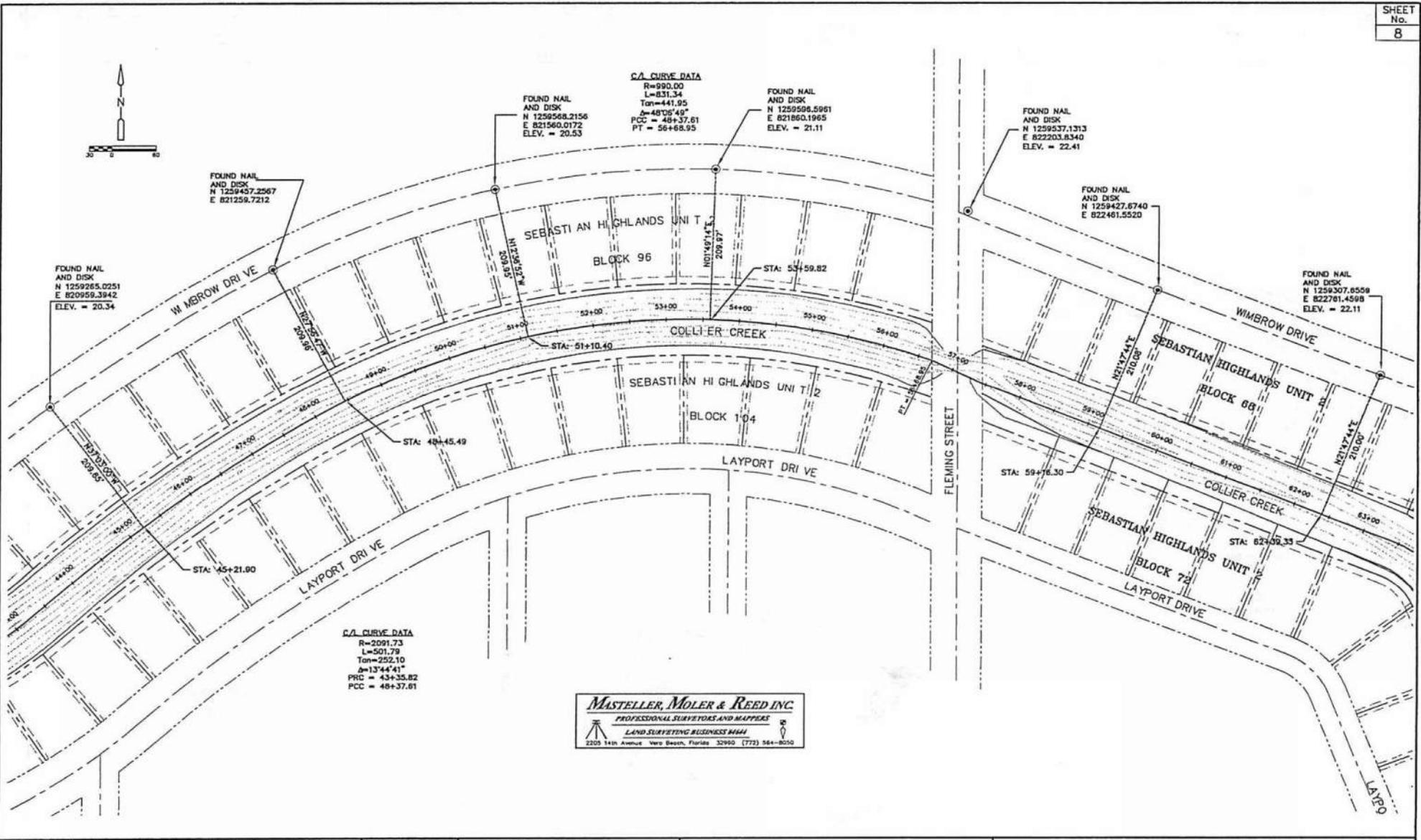
DESIGNED BY: R. STU. TZ.
 DRAWN BY: J. BRUSSELL
 CHECKED BY: A. JACOBSON
 APPROVED BY: A. DEMELLO
 DATE: MARCH 2008

CDM Camp Dresser & McKee Inc.
 1751 WASHINGTON AVE. SUITE 301
 VERO BEACH, FL 32960
 PHONE: 772-231-4300
 FAX: 772-231-4399
 FL CDA NO. F9-00000200

CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

HORIZONTAL CONTROL PLAN

PRELIMINARY
 NOT FOR CONSTRUCTION



MASTELLER, MOLER & REED INC
 PROFESSIONAL SURVEYORS AND MAPPERS
 LAND SURVEYING BUSINESS #4444
 2205 14th Avenue Vero Beach, Florida 32905 (772) 564-8050

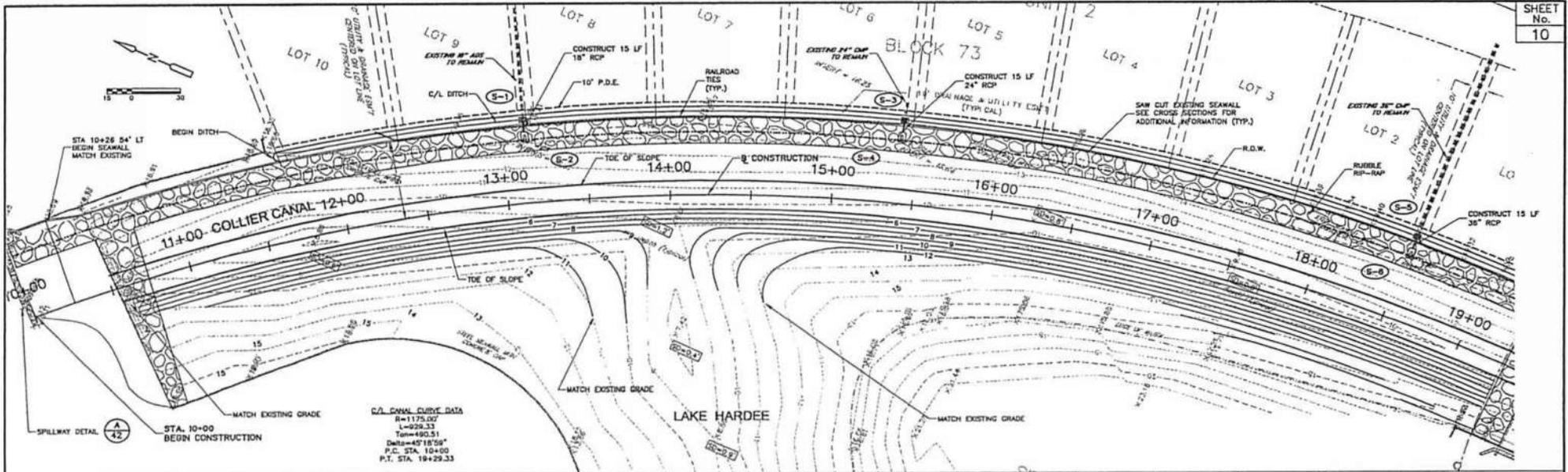
| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|----------|------|------|------|---------|
| | | | | |
| | | | | |
| | | | | |

DESIGNED BY: B. STOLTZ
 DRAWN BY: J. BUSHNELL
 CHECKED BY: A. LAMORE
 ORDERED BY: A. DEMELLO
 APPROVED BY: A. DEMELLO
 DATE: MARCH 2008

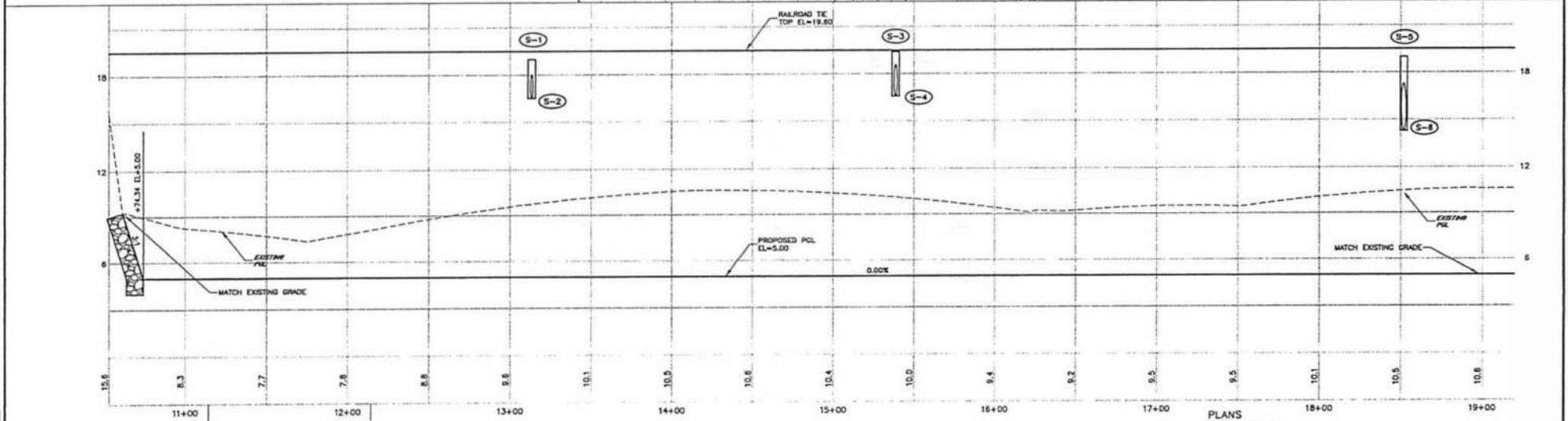
CDM Camp Dresser & McKee Inc.
 1701 HIGHWAY 1-A, SUITE 301
 VERO BEACH, FL 32903
 PHONE: 772-231-4300
 FAX: 772-231-4302
 FL CEDA NO. 19-0000020

CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

HORIZONTAL CONTROL PLAN
 PRELIMINARY
 NOT FOR CONSTRUCTION



C/L CANAL CURVE DATA
 S=1175.00
 L=928.33
 T=480.51
 Delta=45°18'59"
 P.C. STA. 10+00
 P.T. STA. 19+29.33



SCALE: HORIZ. 1" = 30'
 VERT. 1" = 3'

PLANS APPROVED BY Ana DeMelo, P.E. # 57420 DATE

| REV. | DATE | BY | CHKD | REMARKS |
|------|------|----|------|---------|
| | | | | |
| | | | | |
| | | | | |

DESIGNED BY: B. STOLTZ
 DRAWN BY: A. RUSSELL
 CHECKED BY: A. LAMBER
 APPROVED BY: A. DEMELO
 DATE: MARCH 2008

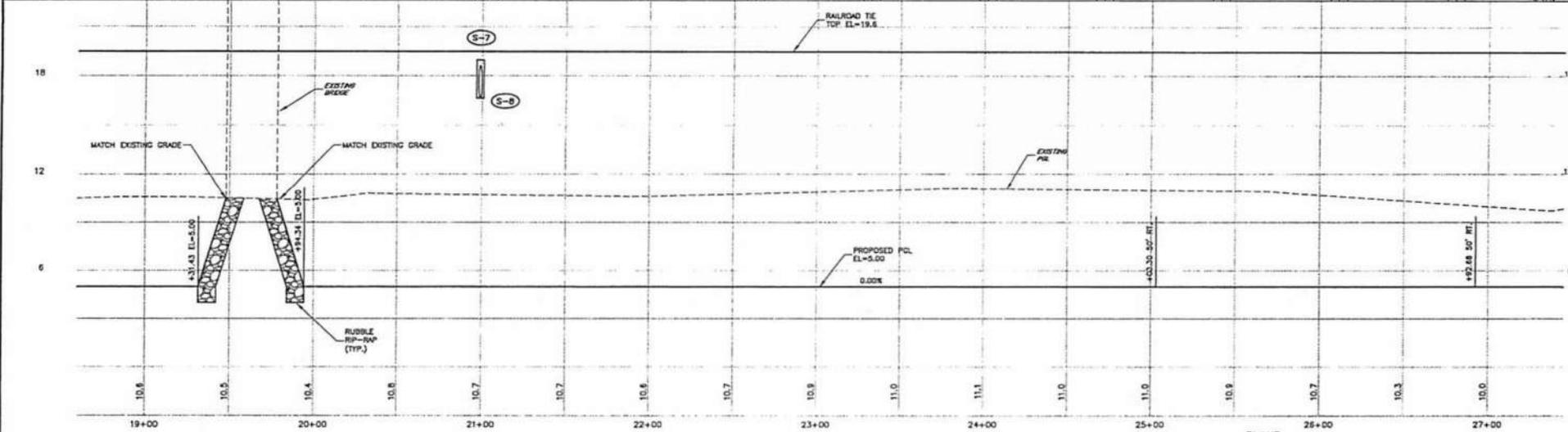
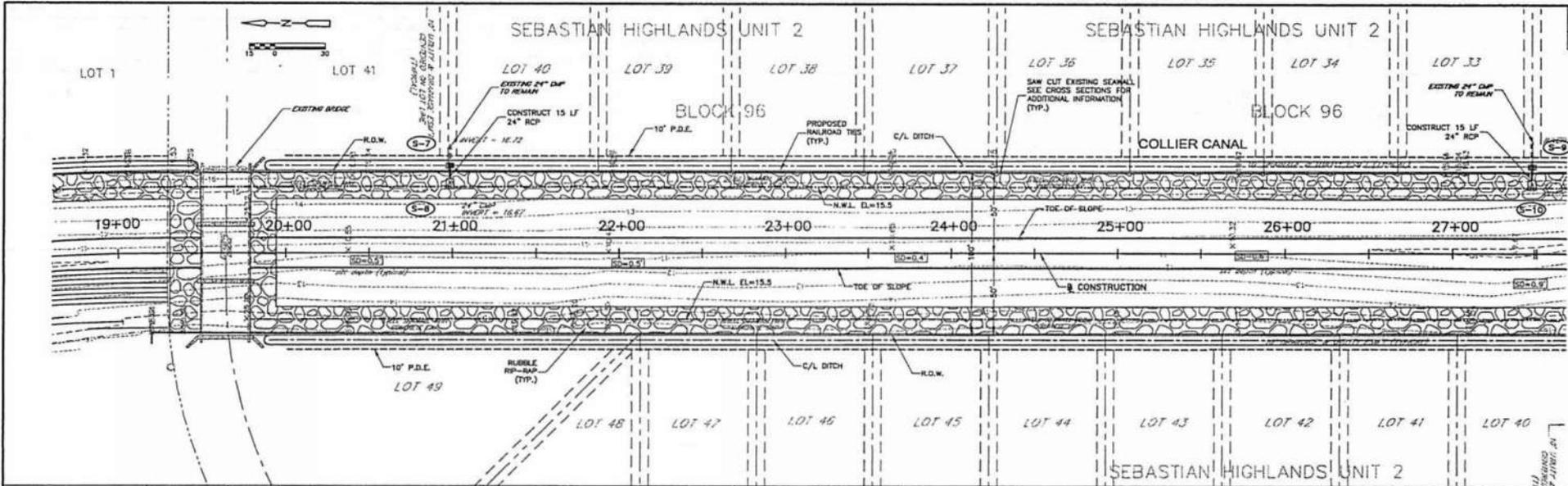
CDM Camp Dresser & McKee Inc.
 1701 HIGHWAY A-1A, SUITE 301
 VERO BEACH, FL 32963
 PHONE: 772-331-4301
 FAX: 772-331-4322
 FL CDM NO. 08-000020

CITY OF SEBASTIAN, FLORIDA
COLLIER CANAL

PLAN & PROFILE
 STA. 10+00 - STA. 19+00

PERMIT SUBMITTAL

C:\p000000\00000000\00000000.dwg, 14:48:00 08/07/08
 User: jason, Plot: 11/14/08, Plot Style: none, Paper: 11x17



SCALE: HORIZ. 1" = 30' VERT. 1" = 3'

PLANS APPROVED BY Ana DeMelo, P.E. # 57420 DATE _____

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|----------|------|------|------|---------|
| | | | | |
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| | | | | |

DESIGNED BY: B. STONE
 DRAWN BY: J. BURSELL
 SHEET CHECKED BY: A. LADNER
 CHECKED BY: A. DEMELO
 APPROVED BY: A. DEMELO
 DATE: MARCH 2008

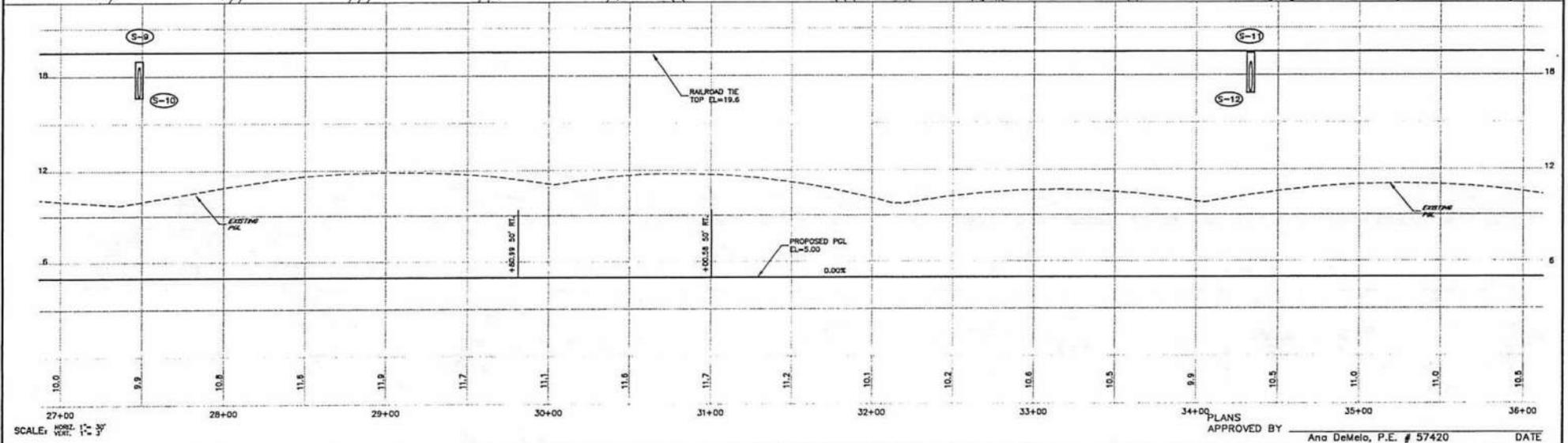
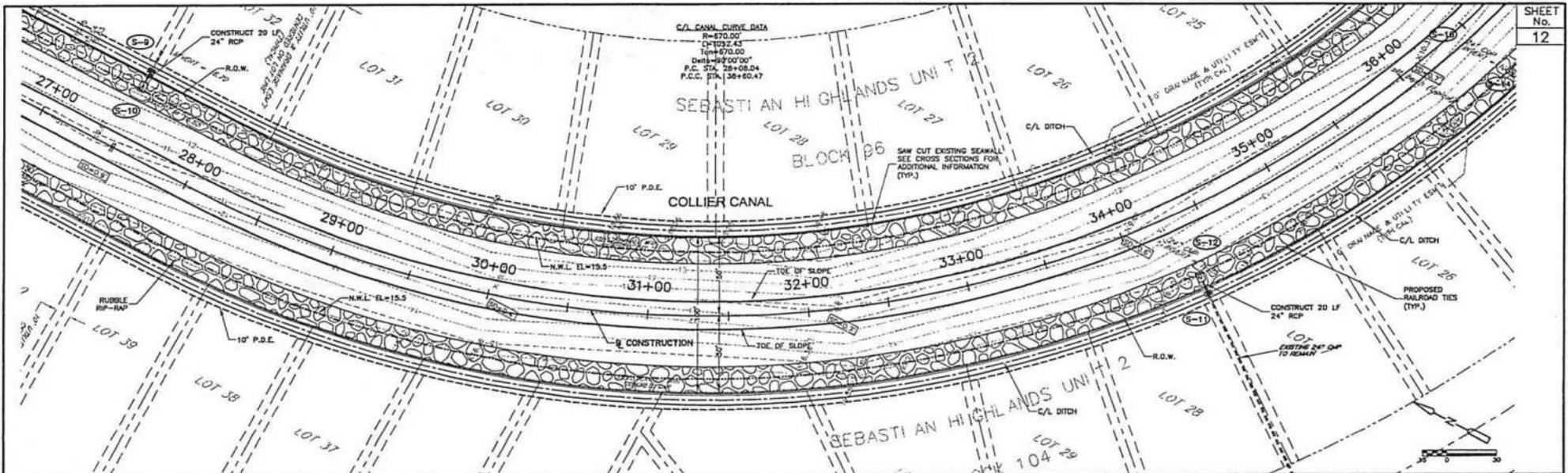
CDM Camp Dresser & McKee Inc.
 1721 HIGHWAY A-1A, SUITE 301
 FRENCH CREEK, FL 32835
 PHONE: 772-231-4300
 FAX: 772-231-4302
 FL CDM NO. PR 000000

CITY OF SEBASTIAN, FLORIDA
COLLIER CANAL

PLAN & PROFILE
 STA. 19+00 - STA. 27+00

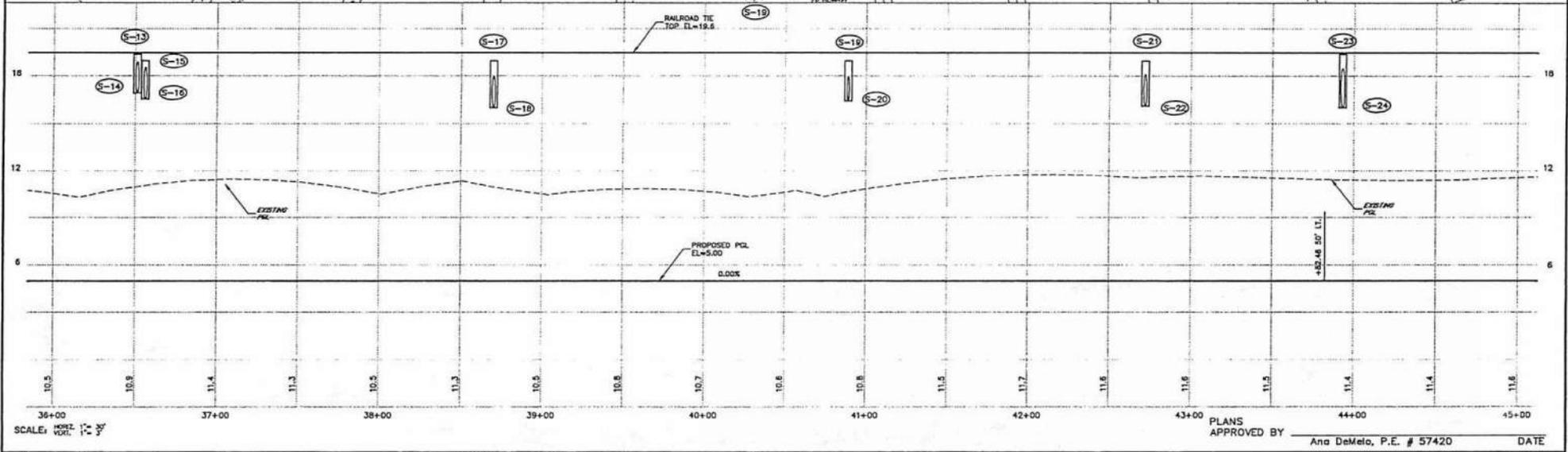
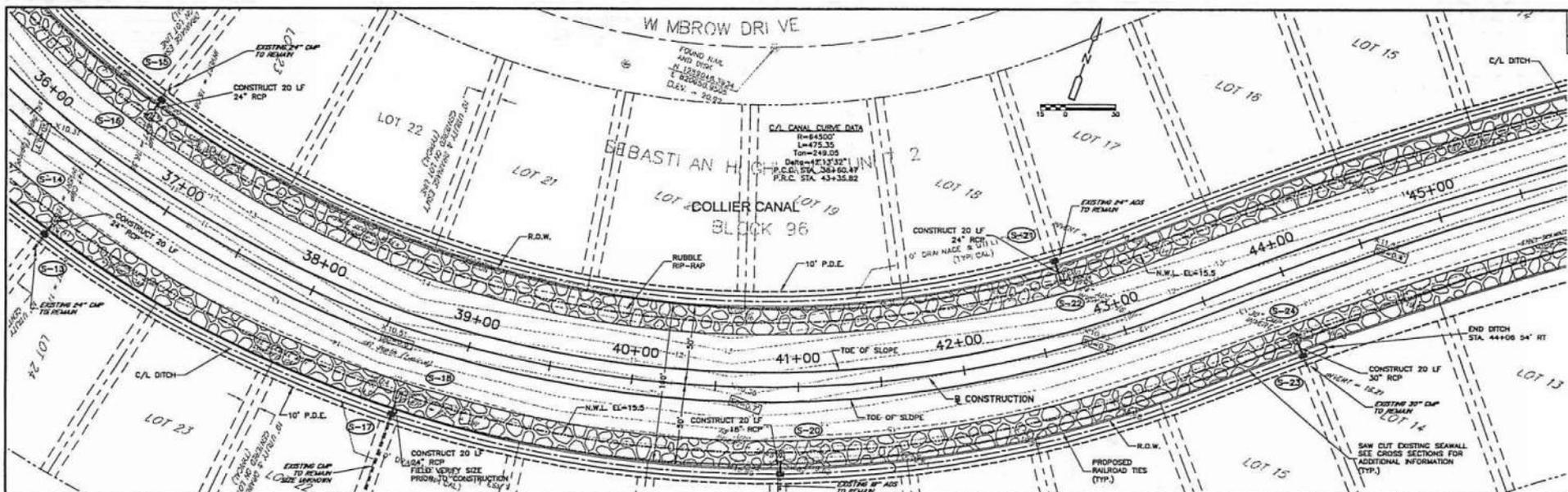
PERMIT SUBMITTAL

NOT TO SCALE
 ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED
 DATE: 03/10/08



| | | | | | | |
|---|---|--|---|---|--|------------------|
| SCALE: HORIZ. 1" = 30' VERT. 1" = 5' | DESIGNED BY: N. STOLTZ DRAWN BY: A. RUSSELL CHECKED BY: A. DEMELO APPROVED BY: A. DEMELO DATE: MARCH 2008 | CDM Camp Dresser & McKee Inc. 1701 HIGHWAY A-1A, SUITE 301 VERO BEACH, FL 32963 PHONE: 772-231-4301 FAX: 772-231-4325 FL CDA NO. EB-0000020 | CITY OF SEBASTIAN, FLORIDA COLLIER CANAL | PLAN & PROFILE STA. 27+00 - STA. 36+00 | APPROVED BY: Ana DeMelo, P.E. # 57420 DATE: | PERMIT SUBMITTAL |
|---|---|--|---|---|--|------------------|

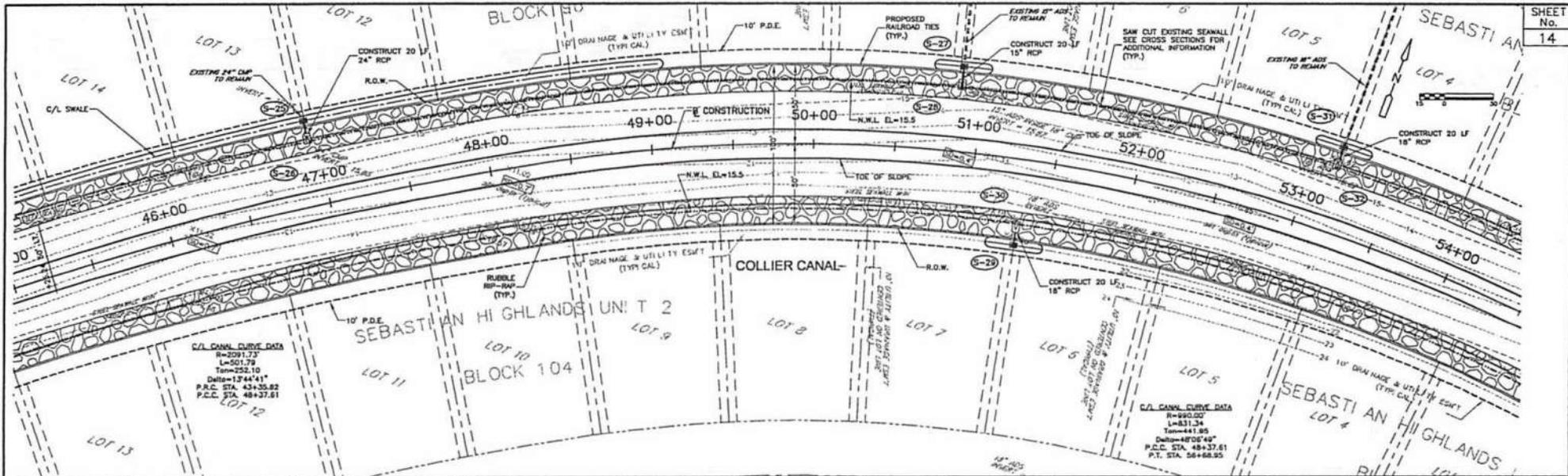
11/15/2007 10:00 AM C:\PROJECTS\COLLIER CANAL\DWG\PLAN AND PROFILE.DWG PLOT BY: JAMES W. BROWN



SCALE: HORIZ. 1" = 40' VERT. 1" = 4'

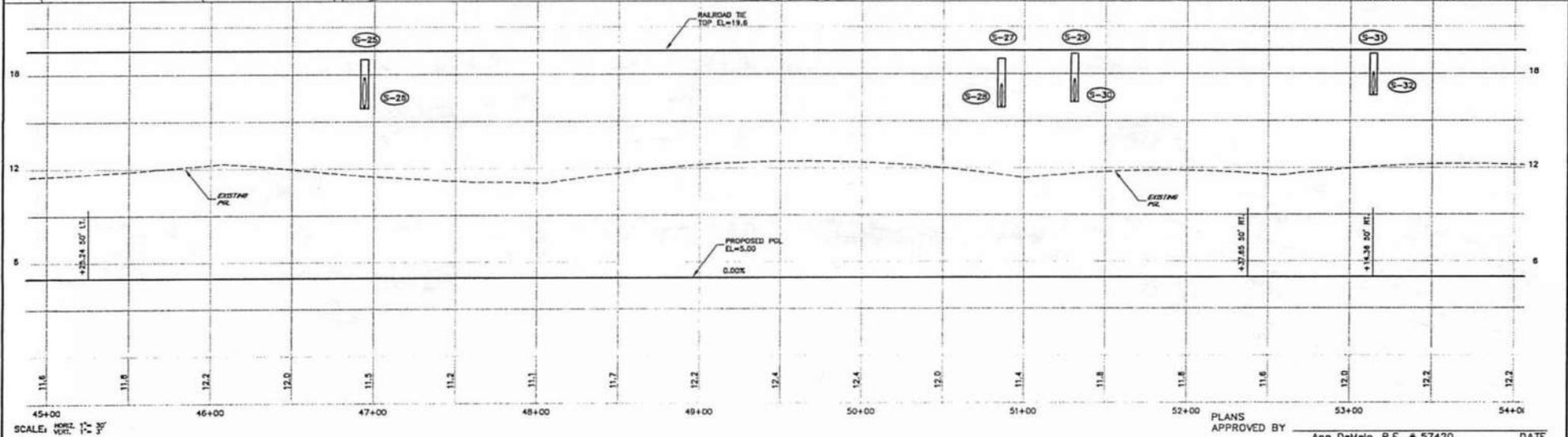
PLANS APPROVED BY: Ana DeMelo, P.E. # 57420 DATE: _____

| | | | | | | | | | | |
|---|------|------|------|---|--|---|--|---|--|------------------|
| DESIGNED BY: R. STOLTZ DRAWN BY: J. BUSSELL CHECKED BY: J. LASHLEY CROSS CHECKED BY: A. DEMELO APPROVED BY: A. DEMELO DATE: MARCH 2008 | | | | CDM Camp Dresser & McKee Inc. 1701 HIGDONWAY, L.A., SUITE 301 WINDY BEACH, FL 32943 PHONE: 772-331-4301 FAX: 772-331-4302 FL CDA NO. FB-0000000 | | CITY OF SEBASTIAN, FLORIDA COLLIER CANAL | | PLAN & PROFILE STA. 36+00 - STA. 45+00 | | PERMIT SUBMITTAL |
| REV. | DATE | DRWN | CHKD | REMARKS | | | | | | |



C/A CANAL CURVE DATA
 R=2091.73
 L=501.79
 Tan=252.10
 Delta=17444.1"
 P.C.C. STA. 43+35.82
 P.T.C. STA. 48+37.61

C/A CANAL CURVE DATA
 R=993.00
 L=831.34
 Tan=441.85
 Delta=88205.49"
 P.C.C. STA. 48+37.61
 P.T.C. STA. 56+68.95



SCALE: HORIZ. 1" = 40' VERT. 1" = 4'

PLANS APPROVED BY: Ana DeMelo, P.E. # 57420 DATE: _____

PROJECT: C:\WORK\2008\20080301\20080301-14-0000-PP.dwg
 DATE: 03/10/08 11:00am BY: JIM RAY

DESIGNED BY: B. BLOTT
 DRAWN BY: A. RUSSELL
 CHECKED BY: A. LADWELL
 CHECKED BY: A. DEMELO
 APPROVED BY: A. DEMELO
 DATE: MARCH 2008

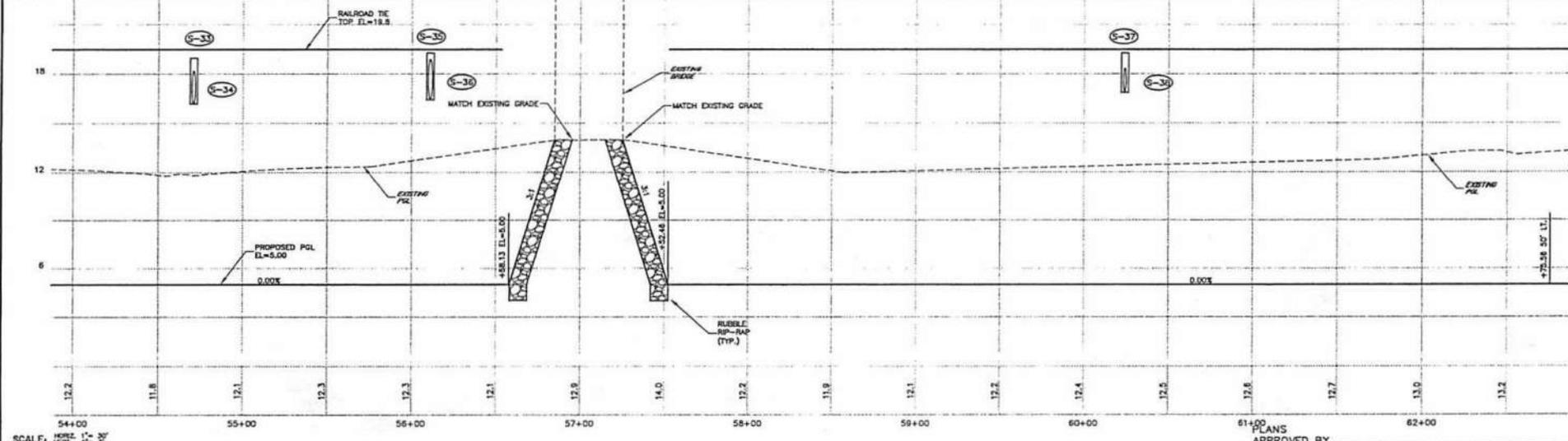
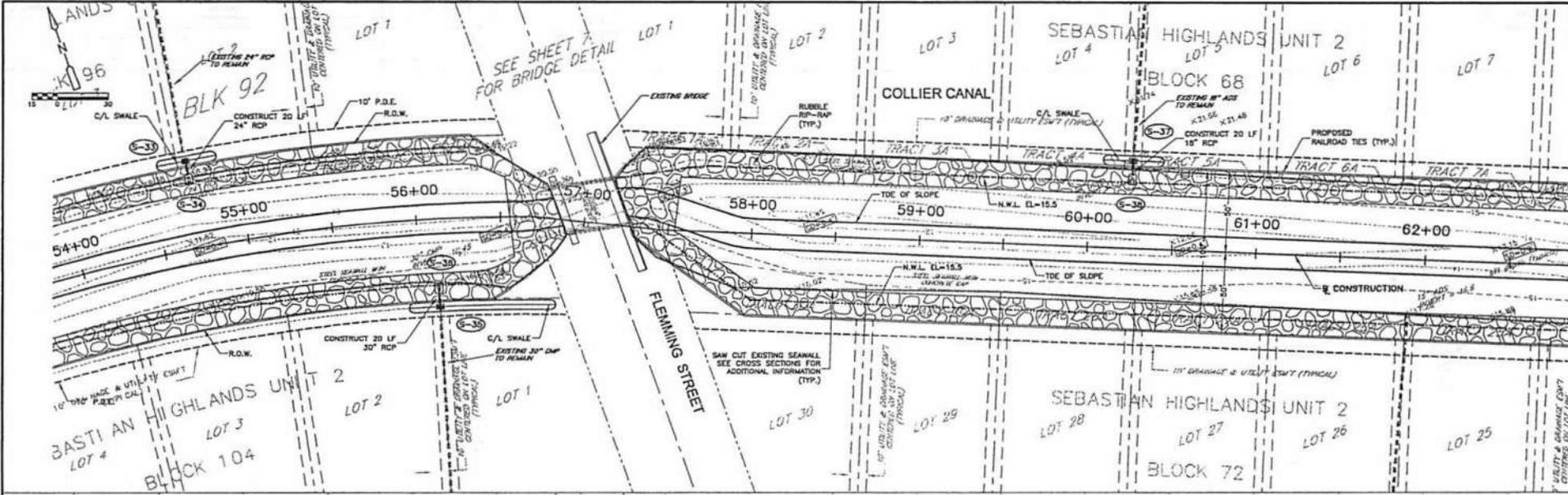
CDM Camp Dresser & McKee Inc.
 1721 HIGHWAY 1-A, SUITE 301
 VERO BEACH, FL 32903
 PHONE: 772-221-4201
 FAX: 772-221-4202
 FL CDA NO. 98-0000020

CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

PLAN & PROFILE
 STA. 45+00 - STA. 54+00

PERMIT SUBMITTAL

| REV. | DATE | DRWN | CHKD | REMARKS |
|------|------|------|------|---------|
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SCALE: HORIZ. 1" = 20' VERT. 1" = 5'
 PLANS APPROVED BY Ana DeMelo, P.E. # 57420 DATE

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|----------|------|------|------|---------|
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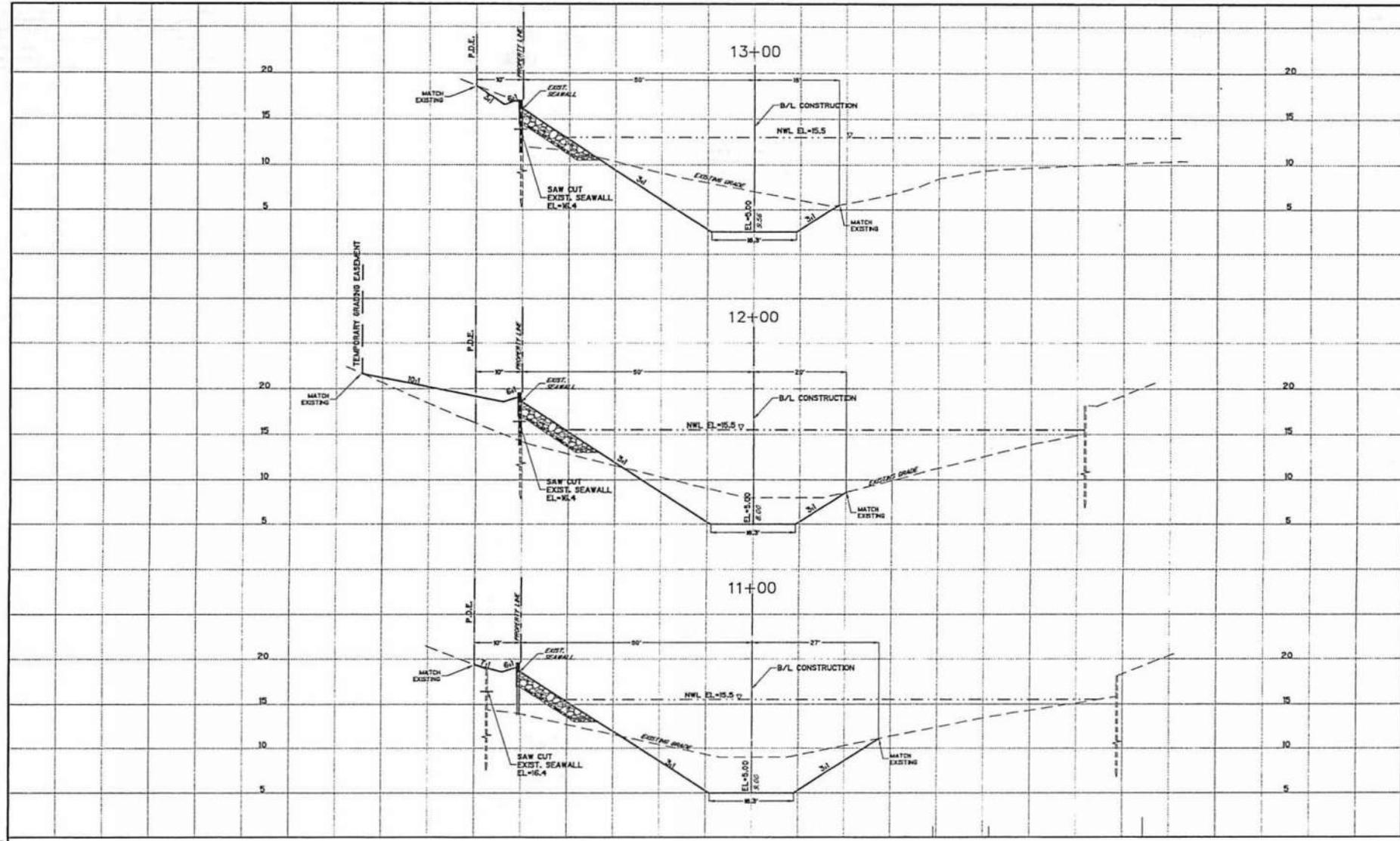
DESIGNED BY: B. STOKTZ
 DRAWN BY: J. ROSENBL
 CHECKED BY: A. LACROIX
 INCHARGE: A. DEMELO
 APPROVED BY: A. DEMELO
 DATE: MARCH 2008

CDM Camp Dresser & McKee Inc.
 11201 HIGHWAY A-1A, SUITE 201
 VERO BEACH, FL 32943
 PHONE: 772-231-4300
 FAX: 772-231-4320
 FL CDA NO. EB-0000020

CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

PLAN & PROFILE
 STA. 54+00 - STA. 62+00
 PERMIT SUBMITTAL

| MATERIAL | |
|------------|------|
| Excavation | Fill |
| A | Y |



SCALE: HORIZ. 1" = 10'
VERT. 1" = 5'

PLANS APPROVED BY Ana DeMelo, P.E. # 57420 DATE _____

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|----------|------|------|------|---------|
| | | | | |
| | | | | |
| | | | | |

DESIGNED BY: B. STS. LT.
 DRAWN BY: A. BURSILL
 CHECKED BY: A. LADNER
 IN CHARGE: A. DEMELO
 APPROVED BY: A. DEMELO
 DATE: MARCH 2006

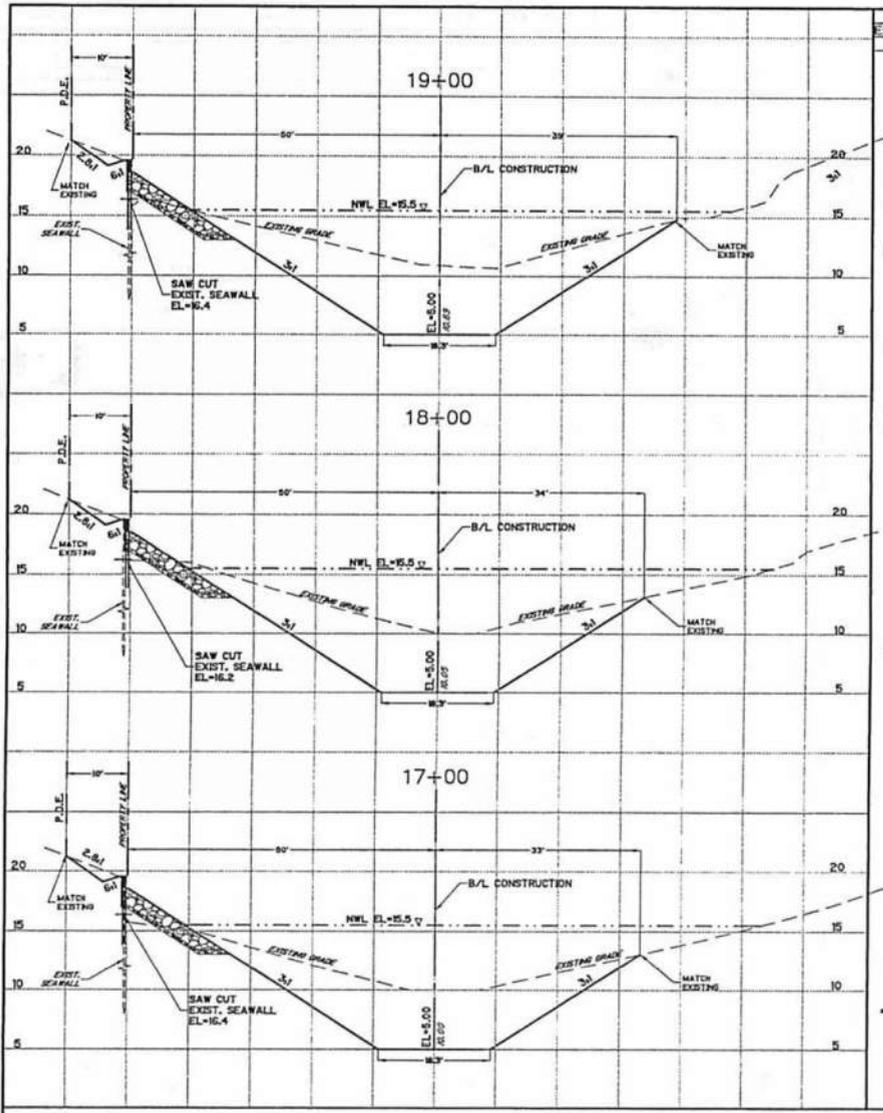
CDM Camp Dresser & McKee Inc.
 1701 HIGHWAY 1-A, SUITE 201
 VERO BEACH, FL 32903
 PHONE: 772-231-4301
 FAX: 772-231-4320
 FL CDA NO: FR-0000020

CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

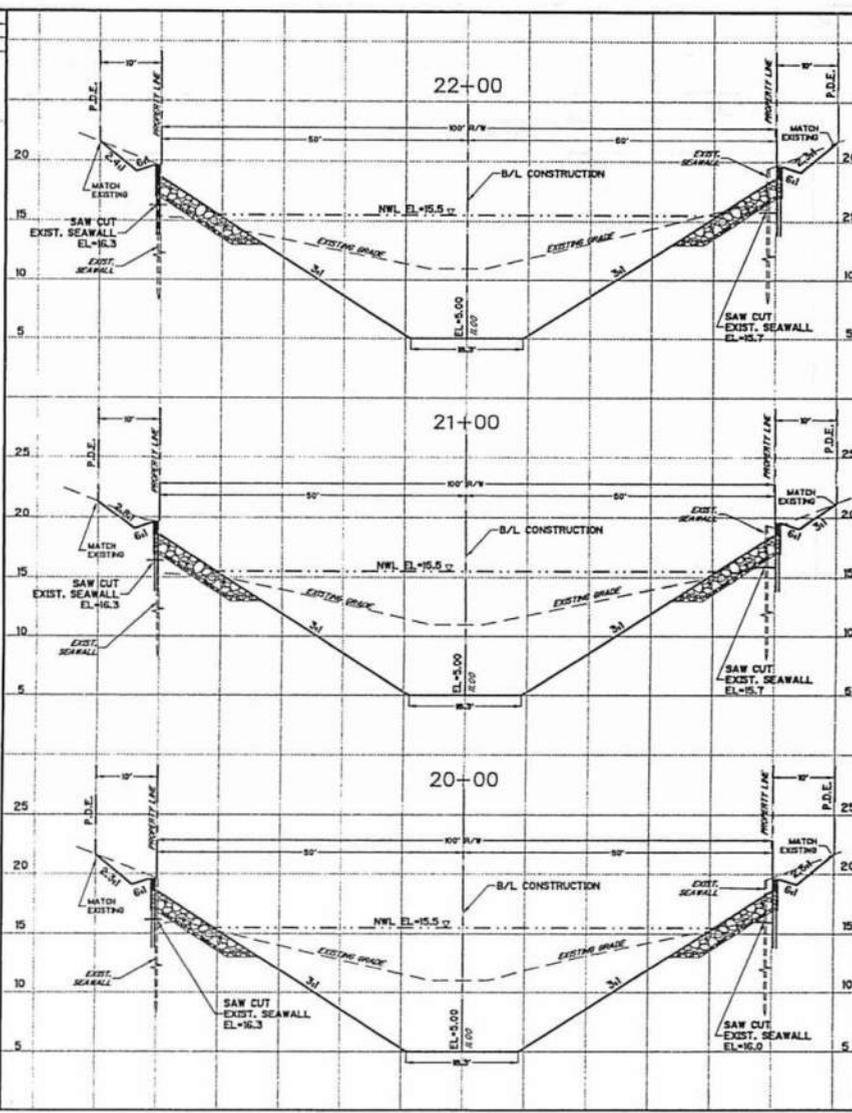
CROSS SECTIONS

PERMIT SUBMITTAL

| MATERIAL | |
|------------|------|
| Excavation | Fill |
| A V | A V |



| MATERIAL | |
|------------|------|
| Excavation | Fill |
| A V | A V |



SCALE: HORIZ. 1" = 80'
VERT. 1" = 50'

PLANS APPROVED BY Ana DeMelo, P.E. # 57420 DATE _____

| REV. | NO. | DATE | DRWN | CHKD | REMARKS |
|------|-----|------|------|------|---------|
| | | | | | |

DESIGNED BY: A. JIGLI
 DRAWN BY: A. BROSSEL
 CHECKED BY: A. LACHER
 APPROVED BY: A. DEMELO
 DATE: MARCH 2008

CDM Camp Dresser & McKee Inc.
 11701 HIGHWAY A-1A, SUITE 201
 VERO BEACH, FL 32963
 PHONE: 772-221-4300
 FAX: 772-221-4300
 FL CDA NO. EB-0000030

CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

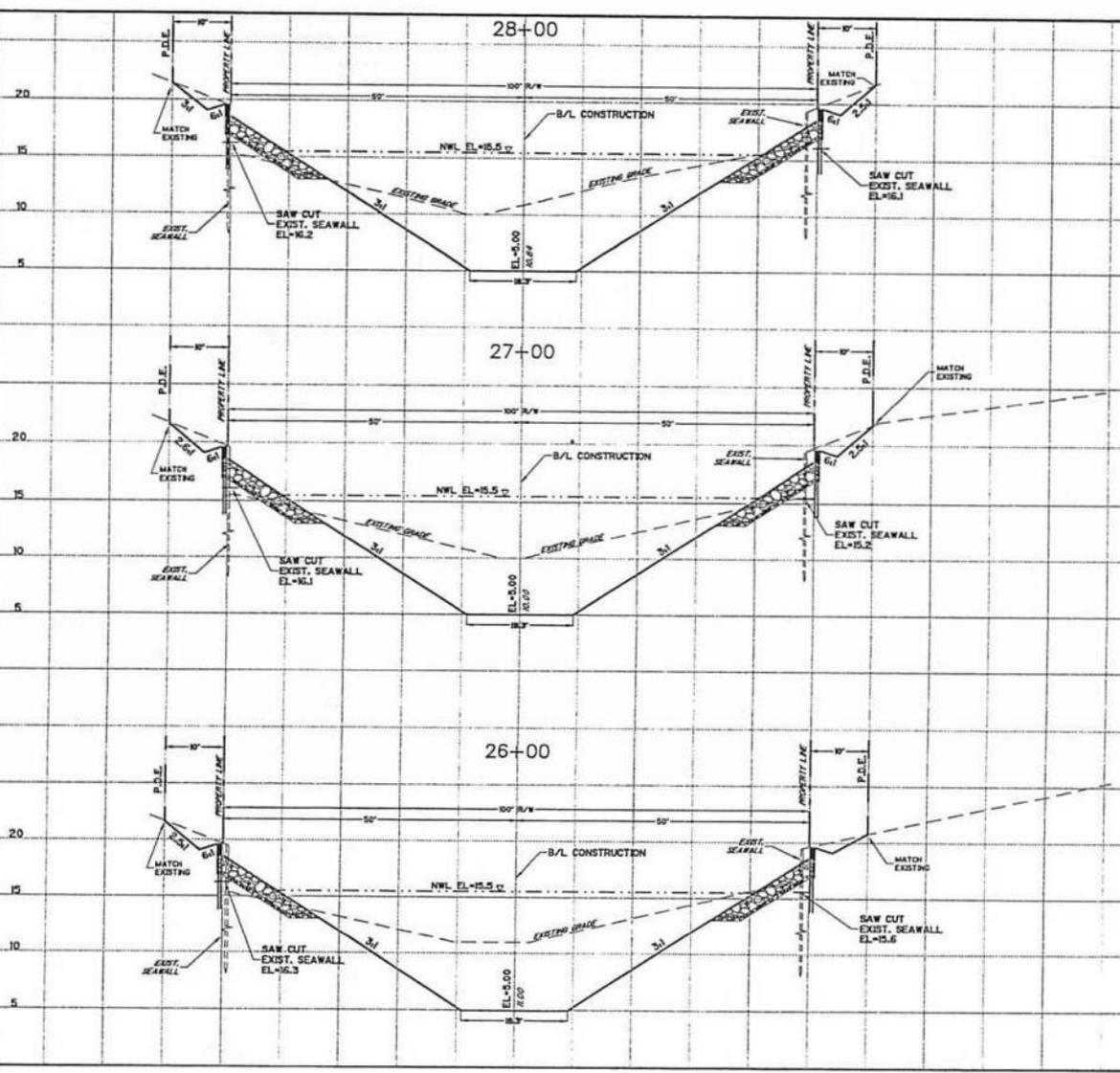
CROSS SECTIONS

PERMIT SUBMITTAL

SHEET No. 21

MATERIAL Excavation Fill

V A V



SCALE: HORIZ. 1" = 40'
VERT. 1" = 5'

PLANS APPROVED BY Ano DeMelo, P.E. # 57420 DATE _____

| REV. | DATE | DRWN | CHKD | REMARKS |
|------|------|------|------|---------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

DESIGNED BY: B. STOLTZ
 DRAWN BY: J. RUSSELL
 CHECKED BY: A. LARNER
 IN CHARGE: A. DEMELO
 APPROVED BY: A. DEMELO
 DATE: MARCH 2008

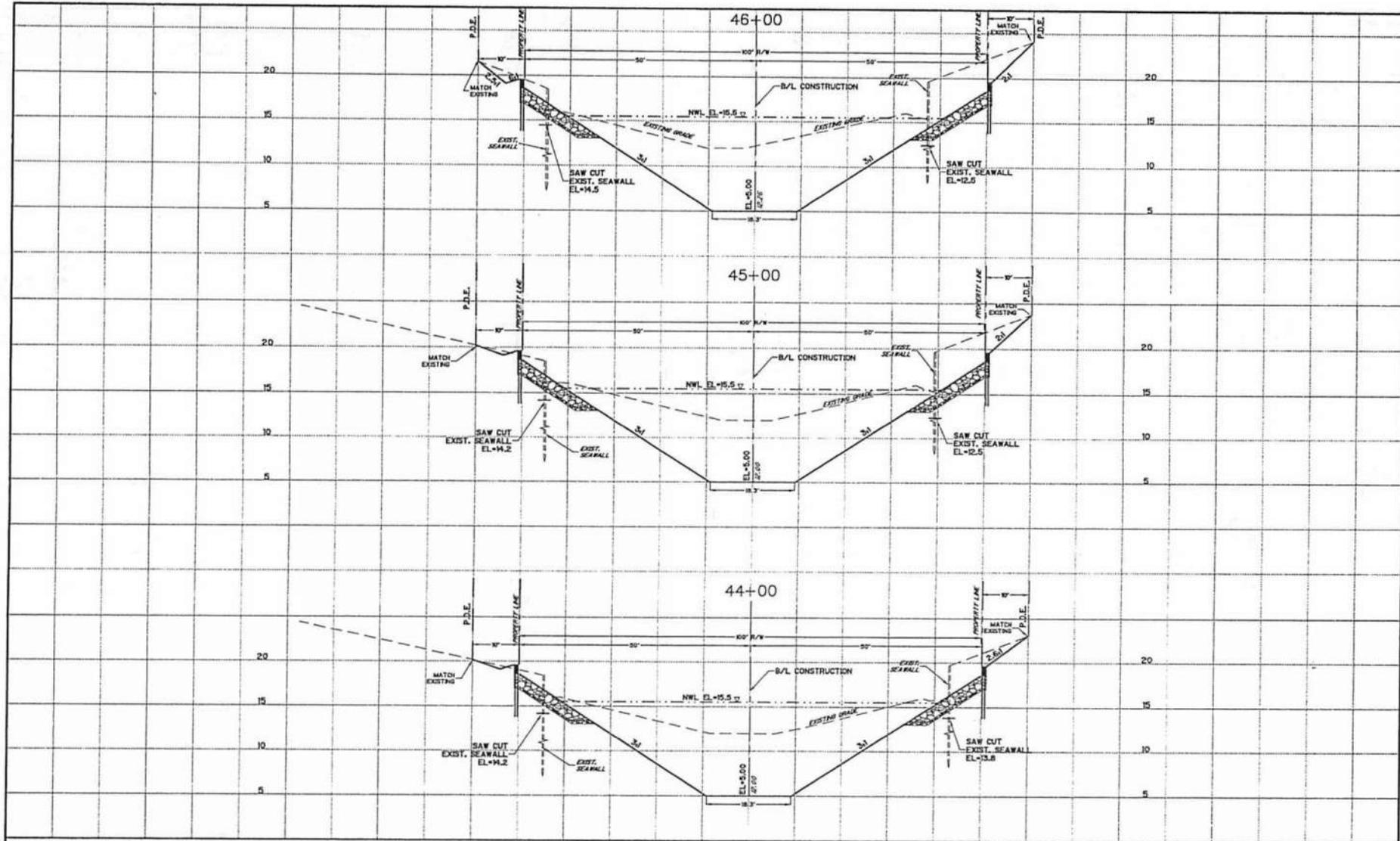
CDM Camp Dresser & McKee Inc.
 (1701 HIGHWAY 1-A, SUITE 301
 MIAMI BEACH, FL 33154
 PHONE: 772-331-4801
 FAX: 772-331-4322
 FL CCA NO. F9-0000020

CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

CROSS SECTIONS

PERMIT SUBMITTAL

| MATERIAL | |
|------------|------|
| Excavation | Fill |
| V | A |
| V | V |



SCALE: HORIZ. 1" = 40'
VERT. 1" = 5'

PLANS APPROVED BY Ana DeMelo, P.E. # 57420 DATE _____

| REV. | DATE | DRWN | CHKD | REMARKS |
|------|------|------|------|---------|
| | | | | |
| | | | | |
| | | | | |

DESIGNED BY: B. STS. JR.
 DRAWN BY: A. RUSSELL
 SHEET CHECKED BY: A. LANNES
 ENGINEER CHECKED BY: A. DEMELO
 APPROVED BY: A. DEMELO
 DATE: MARCH 2008

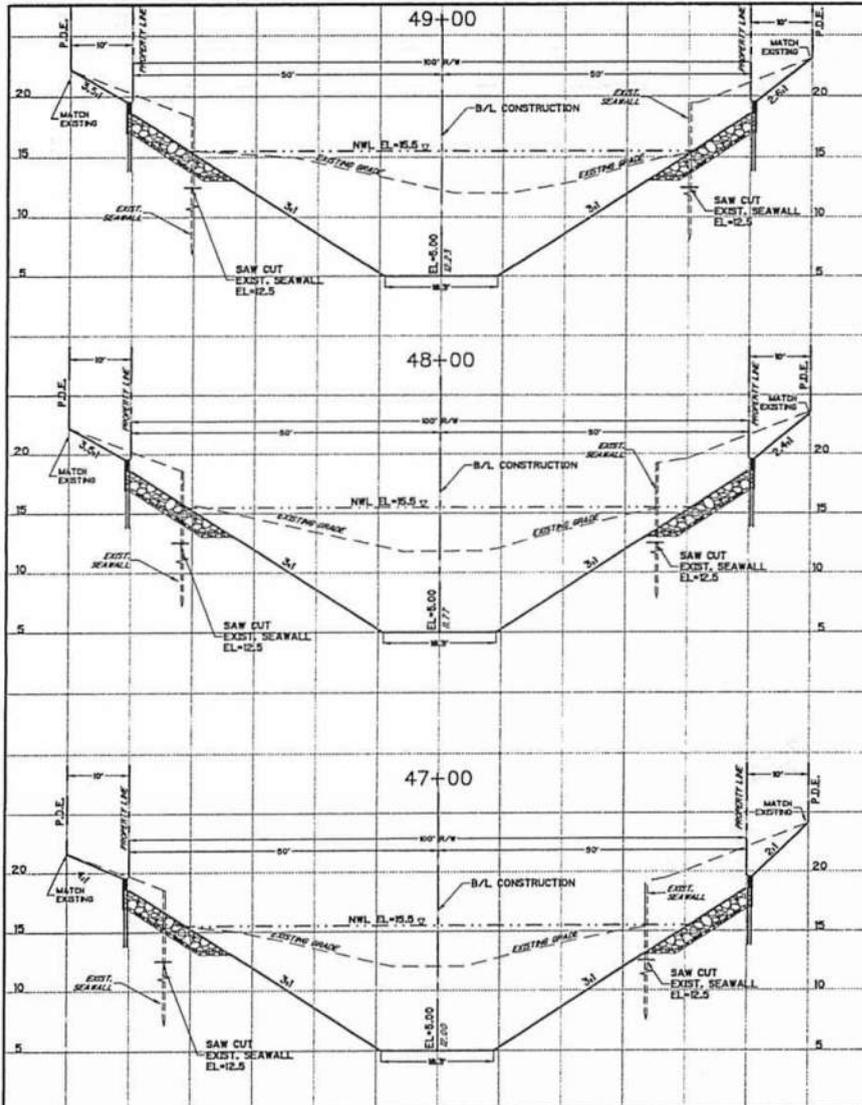
CDM Camp Dresser & McKee Inc.
 1701 HIGHWAY A-1A, SUITE 301
 MIAMI BEACH, FL 33141
 PHONE: 772.251.4301
 FAX: 772.251.4332
 FL CDA NO. 08-0000200

CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

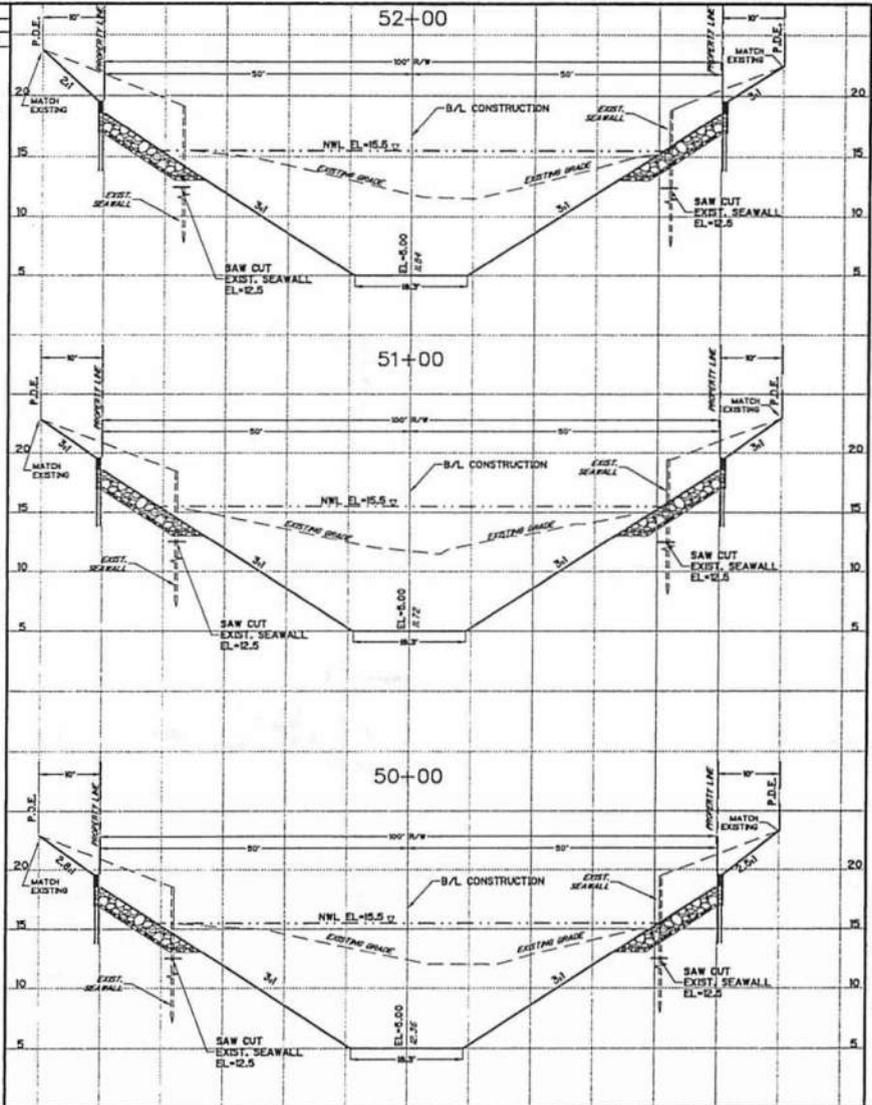
CROSS SECTIONS

PERMIT SUBMITTAL

SHEET No. 26



| MATERIAL | | Excavation | | Fill | |
|----------|---|------------|---|------|---|
| A | V | A | V | A | V |
| | | | | | |
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| MATERIAL | | Excavation | | Fill | |
|----------|---|------------|---|------|---|
| A | V | A | V | A | V |
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SCALE: HORIZ. 1" = 10'
VERT. 1" = 5'

PLANS APPROVED BY Ana DeMelo, P.E. # 57420 DATE

| REV. NO. | DATE | BY | CHKD. | REMARKS |
|----------|------|----|-------|---------|
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DESIGNED BY: B. STOLTZ
 DRAWN BY: A. RUSSELL
 CHECKED BY: A. LAMORE
 CROSS CHECKED BY: A. DEMELO
 APPROVED BY: A. DEMELO
 DATE: MARCH 2005

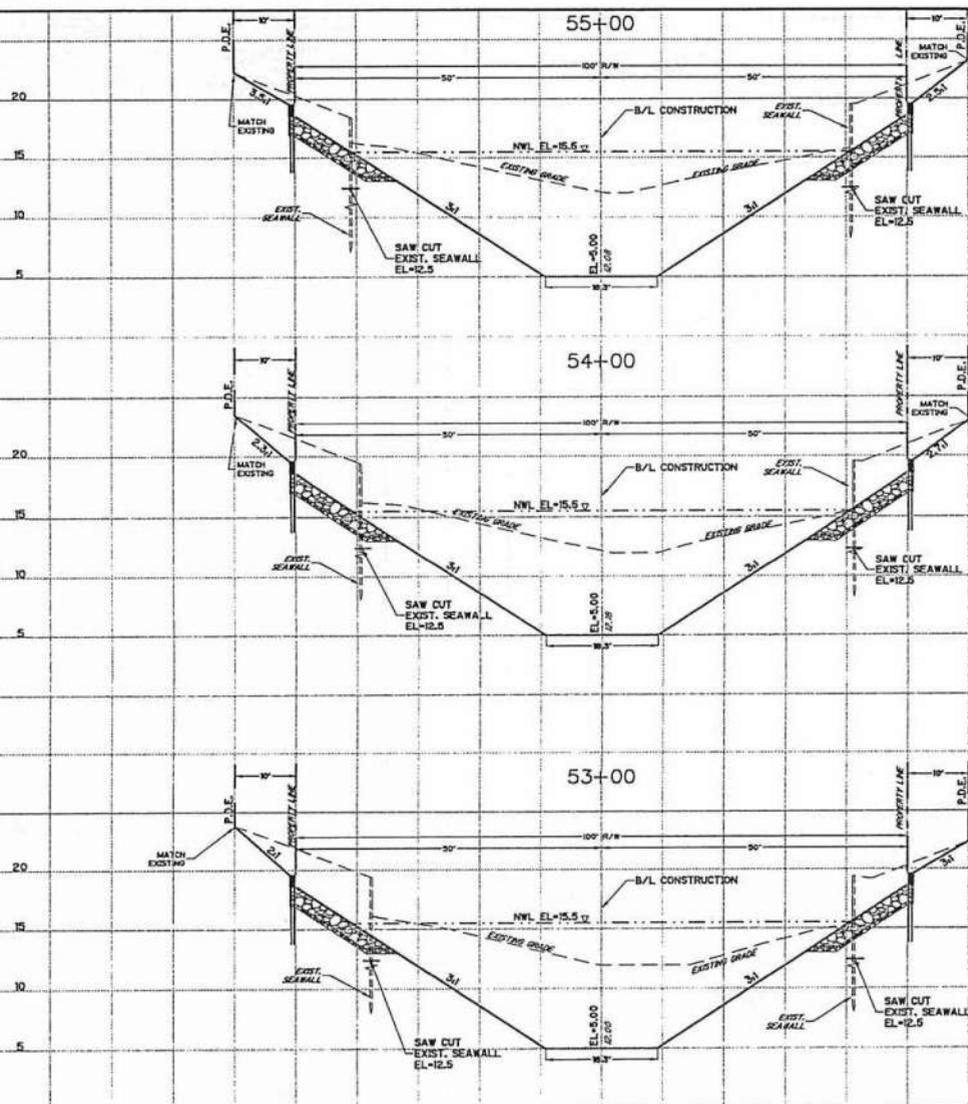
CDM Camp Dresser & McKee Inc.
 1751 HIGHWAY A-1A, SUITE 201
 VERO BEACH, FL 32963
 PHONE: 772-231-4301
 FAX: 772-231-4332
 FL CDA NO. EB-2800000

CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

CROSS SECTIONS

PERMIT SUBMITTAL

| MATERIAL | |
|------------|------|
| Excavation | Fill |
| V | A V |



SCALE: HORIZ. 1" = 30'
VERT. 1" = 5'

PLANS APPROVED BY Ana DeMelo, P.E. # 57420 DATE _____

15/03/2008 10:45:00 AM C:\PROJECTS\2008\27-28\27-28\27-28.dwg - 27-28.dwg - 27-28.dwg
 15/03/2008 10:45:00 AM C:\PROJECTS\2008\27-28\27-28.dwg - 27-28.dwg - 27-28.dwg

| |
|-------------------------------------|
| DESIGNED BY: <u>B. STOLTZ</u> |
| DRAWN BY: <u>A. BURSSELL</u> |
| CHECKED BY: <u>A. LASHNER</u> |
| CROSS CHECKED BY: <u>A. DE MELO</u> |
| APPROVED BY: <u>A. DE MELO</u> |
| DATE: <u>MARCH 2008</u> |

CDM Camp Dresser & McKee Inc.
 1791 HIGHWAY 11, SUITE 301
 VERO BEACH, FL 32963
 PHONE: 772-231-4301
 FAX: 772-231-4332
 FL CDA #01 19-0000020

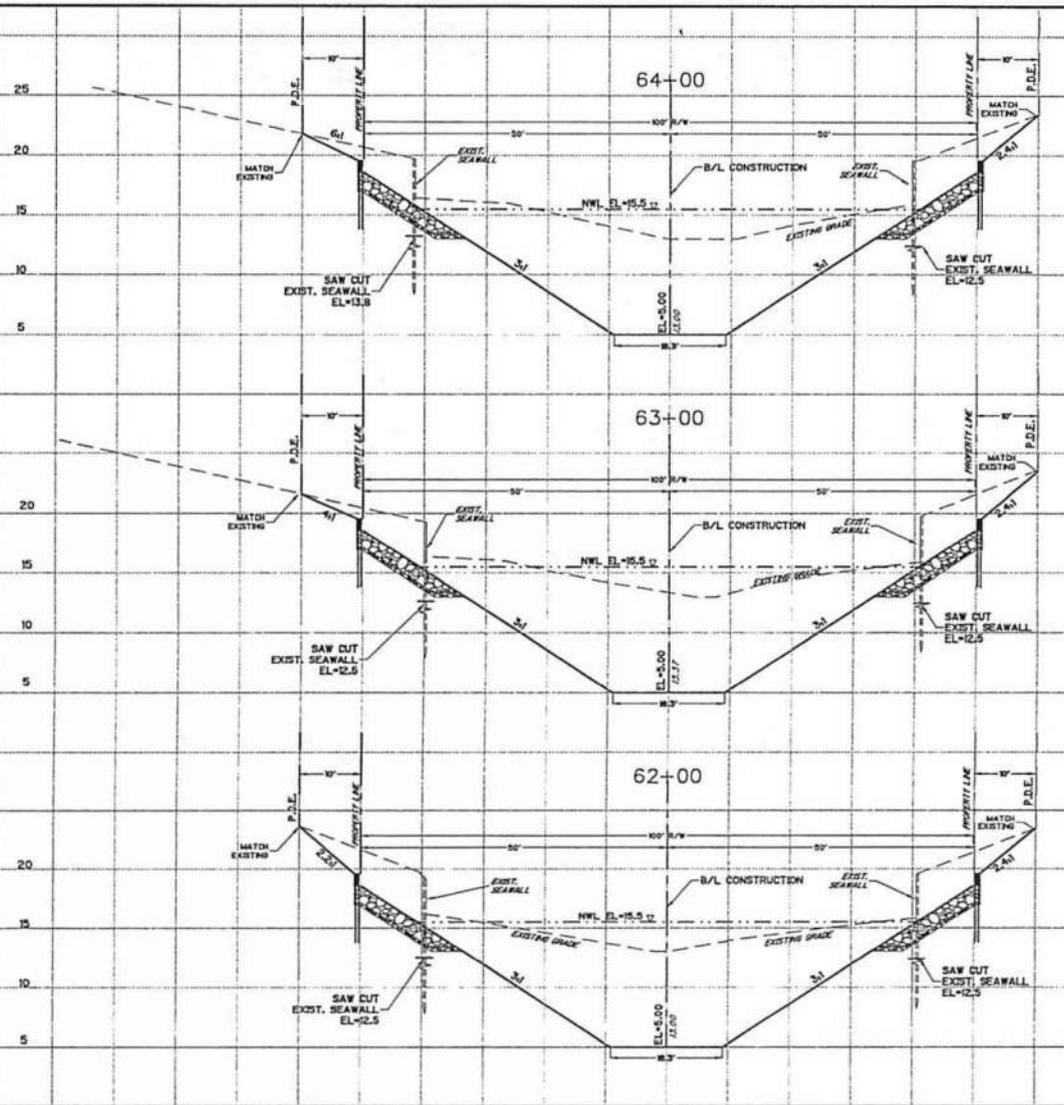
CITY OF SEBASTIAN, FLORIDA
COLLIER CANAL

CROSS SECTIONS

PERMIT SUBMITTAL

| REV. | DATE | DRWN | CHKD | REMARKS |
|------|------|------|------|---------|
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| MATERIAL | |
|------------|------|
| Excavation | Fill |
| V | A |
| V | V |



SCALE: HORIZ. 1" = 10'
VERT. 1" = 5'

PLANS APPROVED BY Ana DeMelo, P.E. # 57420 DATE _____

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|----------|------|------|------|---------|
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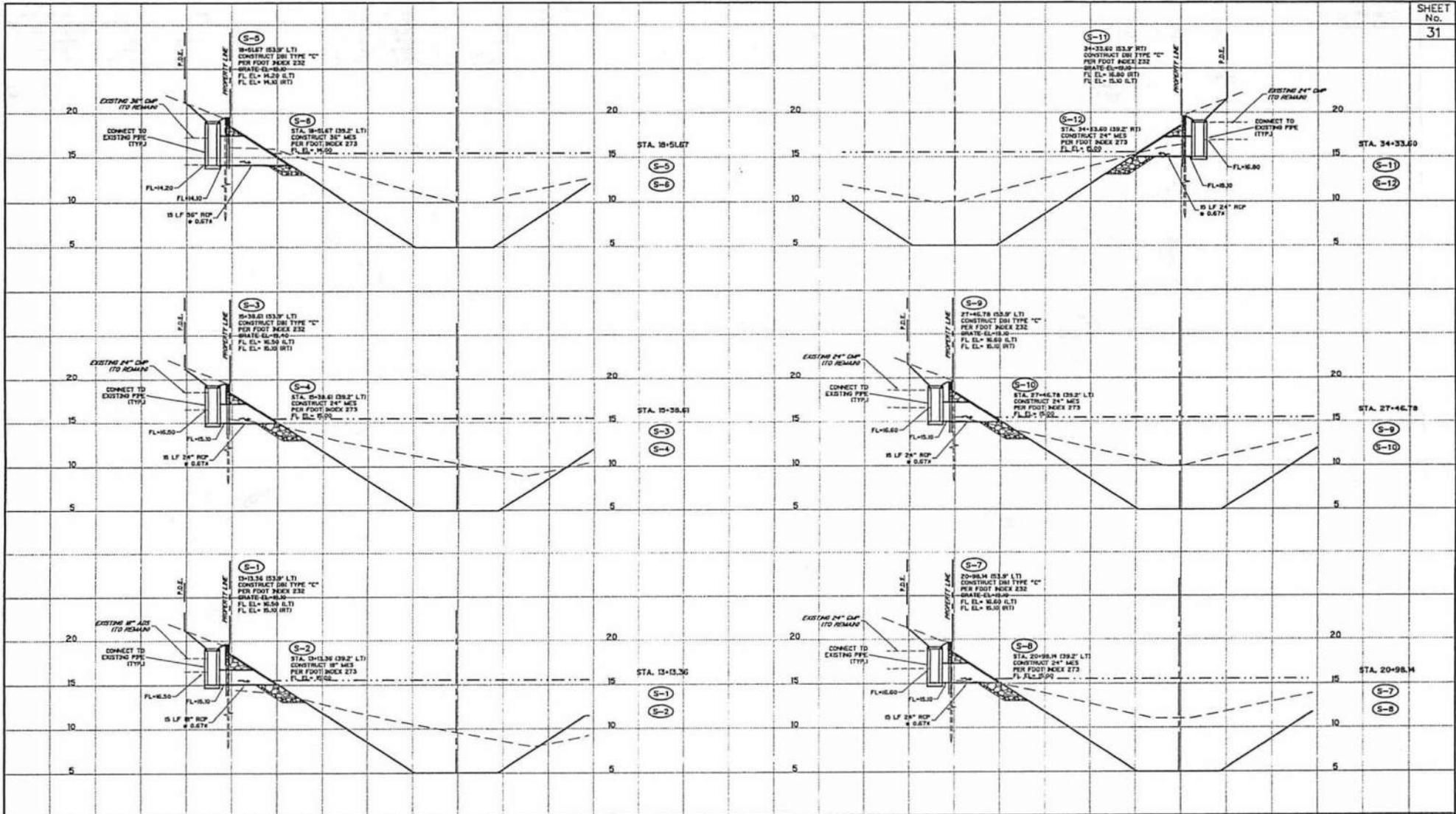
DESIGNED BY: B. STOKITZ
 DRAWN BY: A. RUSSELL
 CHECKED BY: A. LASHLEY
 APPROVED BY: A. DEMELO
 DATE: MARCH 2006

CDM Camp Dresser & McKee Inc.
 1701 HIGHWAY 61-A, SUITE 201
 WINDY BACH, FL 32943
 PHONE: 772-231-4301
 FAX: 772-231-4322
 FL CDM NO. 09-000000

CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

CROSS SECTIONS

PERMIT SUBMITTAL



SCALE: HORIZ. 1" = 10'
VERT. 1" = 5'

PLANS APPROVED BY Ana DeMelo, P.E. # 57420 DATE

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
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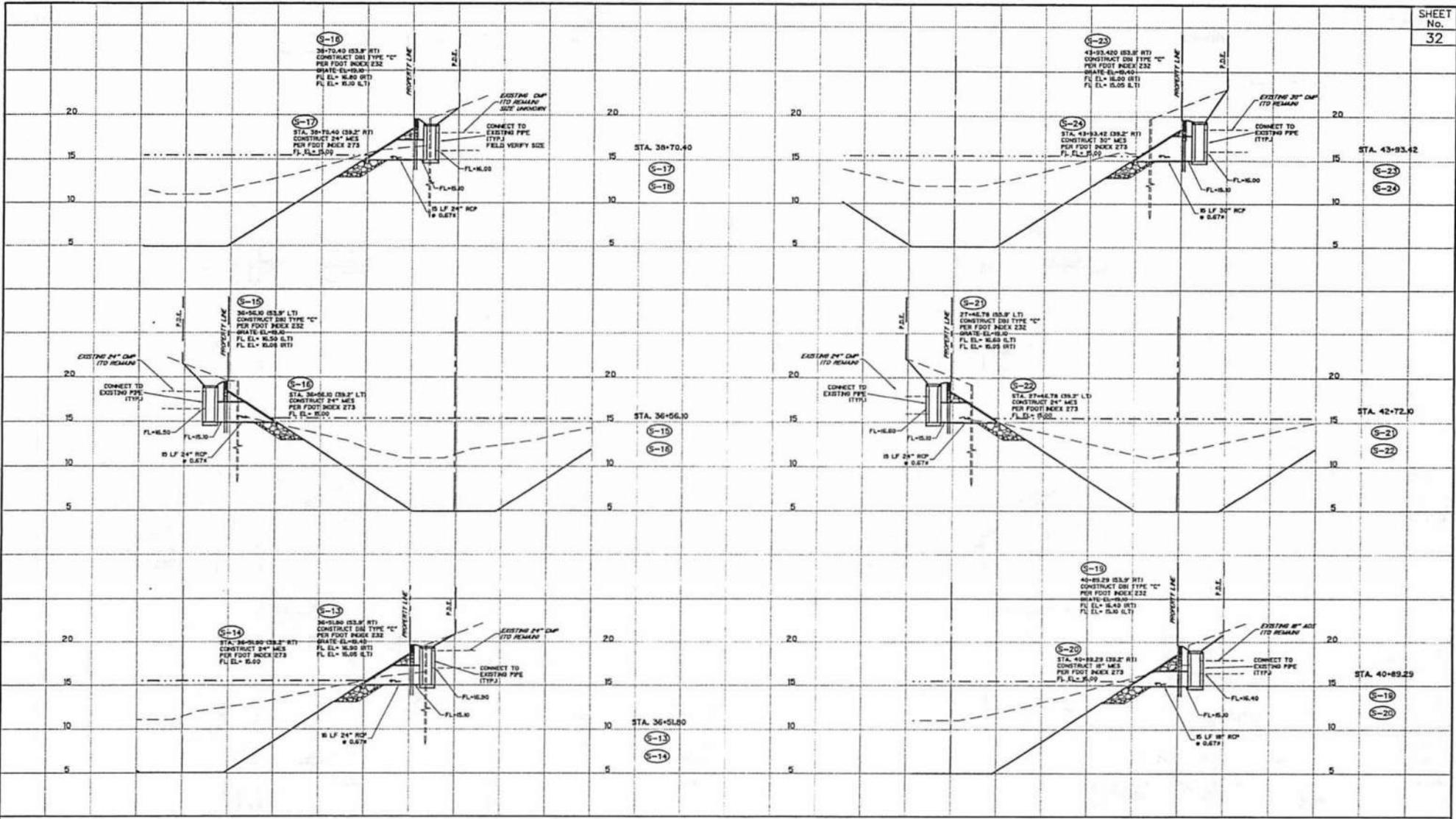
DESIGNED BY: B. STOLTZ
 DRAWN BY: J. BISSSELL
 CHECKED BY: A. LADNER
 CHECKED BY: A. DEMELO
 APPROVED BY: A. DEMELO
 DATE: MARCH 2008

CDM Camp Dresser & McKee Inc.
 1701 KENNEDY AVE., SUITE 201
 WOOD BRANCH, FL 33063
 PHONE: 772-331-4300
 FAX: 772-331-4330
 FL CDM NO: BR-0000000

CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

DRAINAGE STRUCTURES

PERMIT SUBMITTAL



SCALE: HORIZ. 1" = 10'
 VERT. 1" = 5'

PLANS APPROVED BY: Ana DeMelo, P.E. # 57420 DATE: _____

| REV. NO. | DATE | DRWN | CHKD | REMARKS |
|----------|------|------|------|---------|
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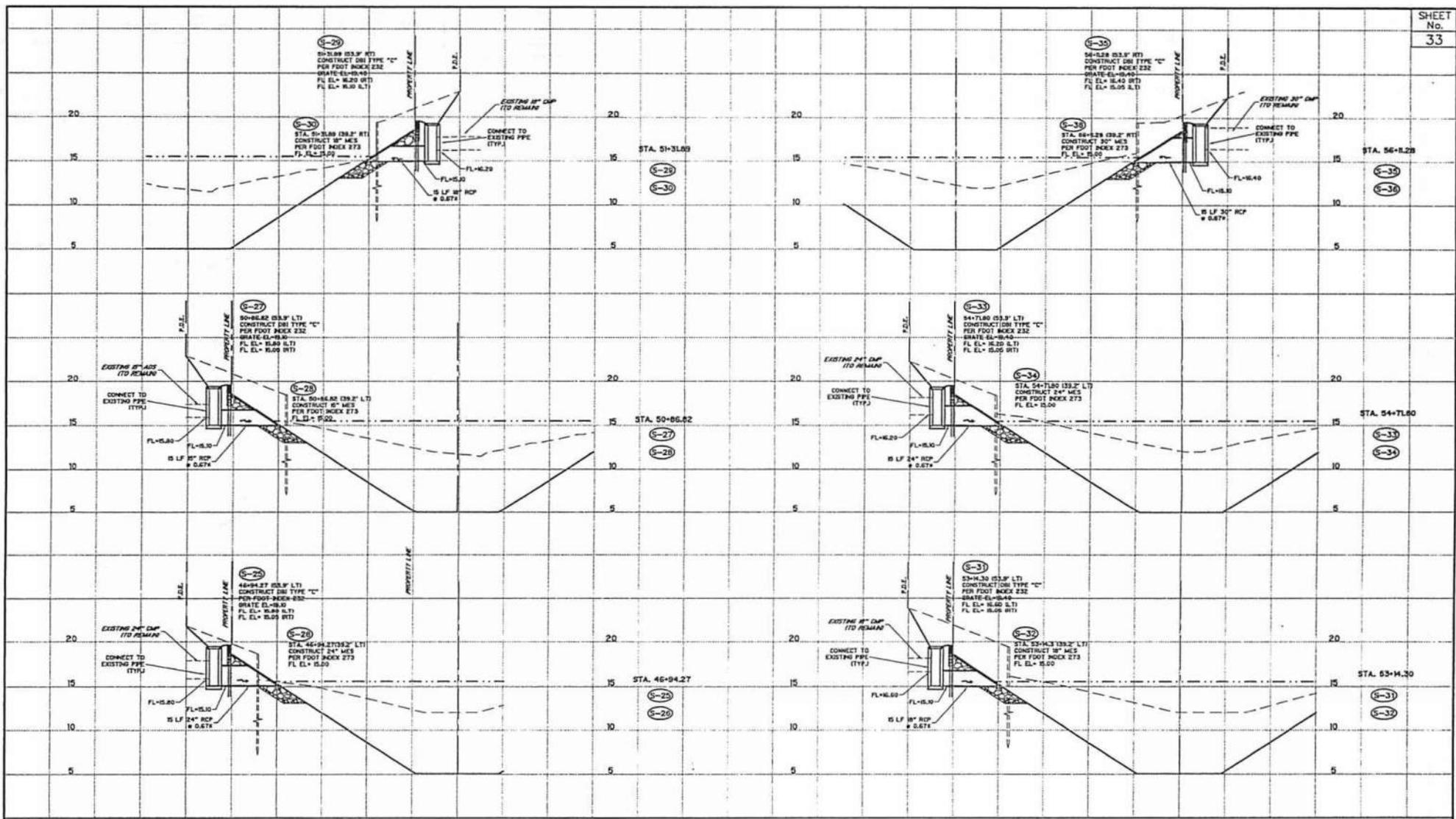
DESIGNED BY: B. STOLTZ
 DRAWN BY: J. RUSSELL
 CHECKED BY: A. LADNER
 APPROVED BY: A. DEMELO
 DATE: MARCH 2006

CDM Camp Dresser & McKee Inc.
 1701 WINDHURST AVE. SUITE 201
 WINDY HATCH, FL 32062
 PHONE: 772-231-4301
 FAX: 772-231-4302
 FL CDM NO: 09-0000020

CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

DRAINAGE STRUCTURES

PERMIT SUBMITTAL



SCALE: HORIZ. 1" = 10'
VERT. 1" = 5'

PLANS APPROVED BY Ana DeMelo, P.E. # 57420 DATE

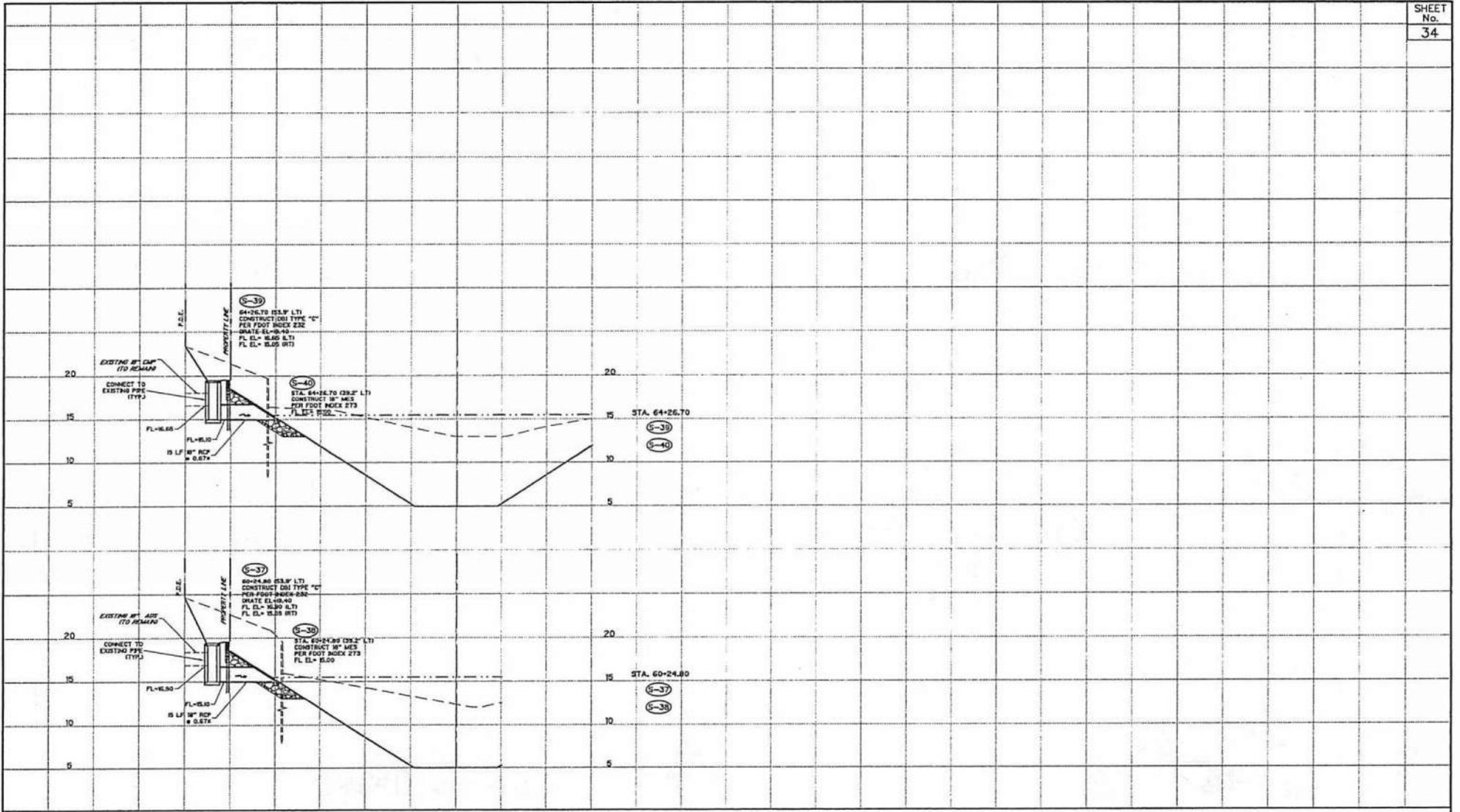
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|------------------------|------------------|
| DESIGNED BY: R. STOLTZ | DATE: MARCH 2008 |
| DRAWN BY: J. BASSER | |
| CHECKED BY: J. BASSER | |
| APPROVED BY: A. DEMELO | |
| DATE: MARCH 2008 | |

CDM Cong Dresser & McFar Inc.
1721 MIDWAY AVE. SUITE 201
MIAMI BEACH, FL 33143
PHONE: 772-231-4201
FAX: 772-231-4202
FL CDA NO. 09-0000200

CITY OF SEBASTIAN, FLORIDA
COLLIER CANAL

DRAINAGE STRUCTURES

PERMIT SUBMITTAL



SCALE: HORIZ. 1" = 10'
 VERT. 1" = 5'

PLANS APPROVED BY Ana DeMelo, P.E. # 57420 DATE _____

| REV. | DATE | DRWN | CHKD | REMARKS |
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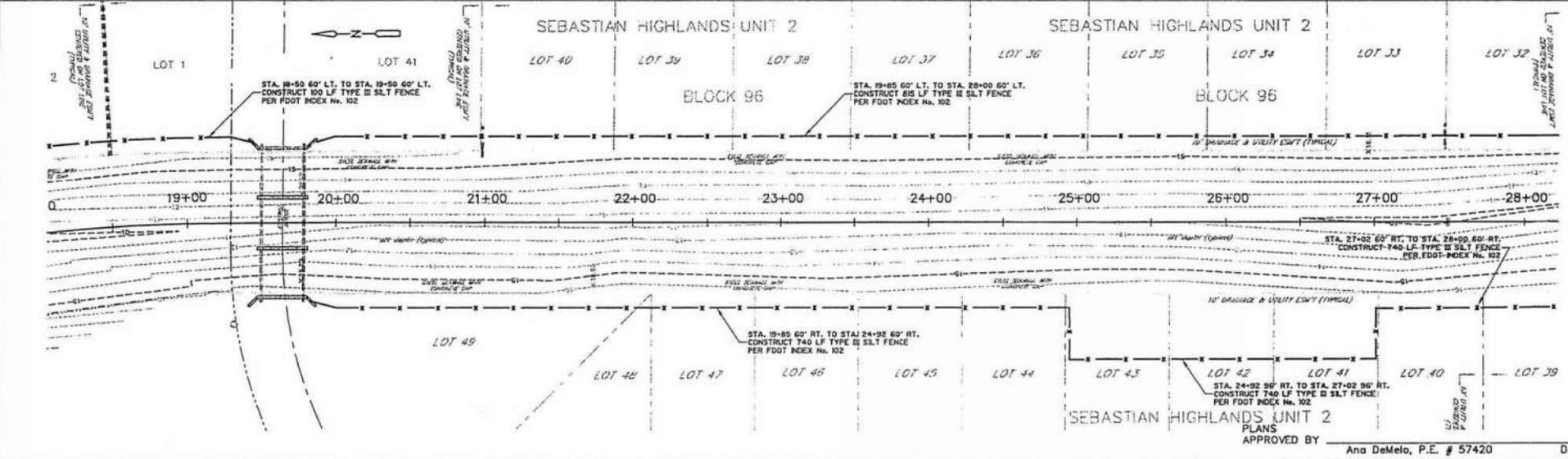
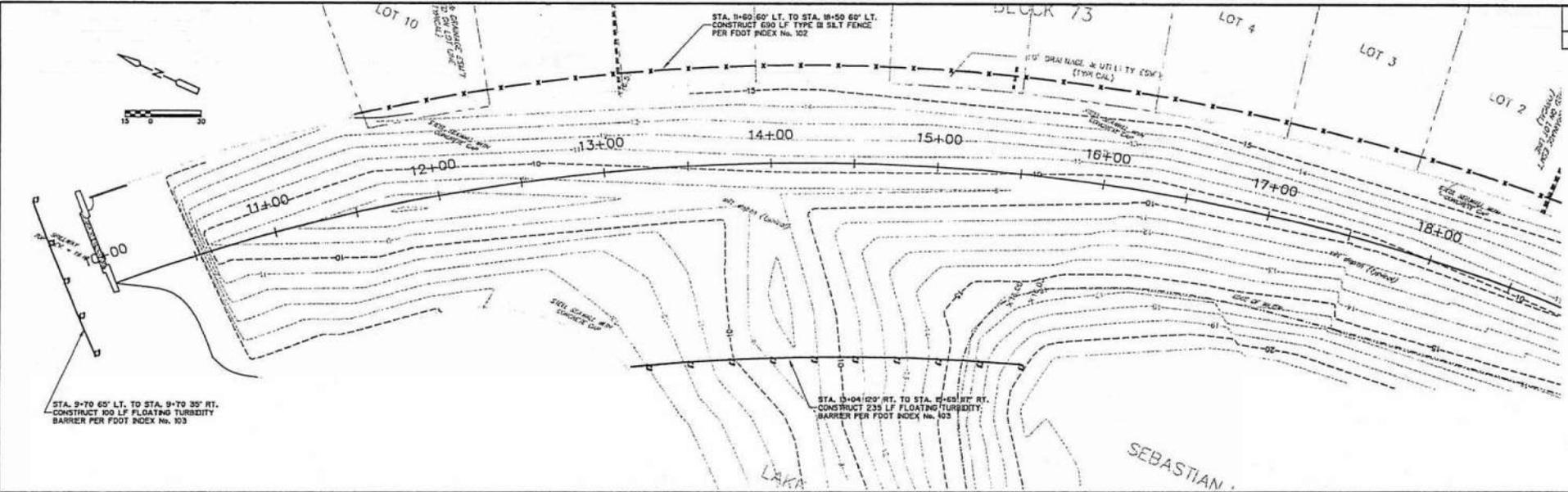
DESIGNED BY: B. STOLTZ
 DRAWN BY: A. BURGESS
 CHECKED BY: A. LARSEN
 APPROVED BY: A. DEMELO
 DATE: MARCH 2008

CDM Camp Dresser & McKee Inc.
 1701 HIGHWAY A-1A, SUITE 301
 VERO BEACH, FL 32963
 PHONE: 772-221-4301
 FAX: 772-221-4302
 FL CDA NO: F8-0000020

CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

DRAINAGE STRUCTURES

PERMIT SUBMITTAL



| REV. | NO. | DATE | BY | CHKD | REMARKS |
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DESIGNED BY: B. STOKER
 DRAWN BY: J. RUSSELL
 CHECKED BY: A. LADNER
 APPROVED BY: A. DEMELO
 DATE: MARCH 2008

CDM Camp Dresser & McKee Inc.
 1701 WINDHURST AVE, SUITE 201
 MIAMI BEACH, FL 33156
 PHONE: 305-331-4301
 FAX: 305-331-4322
 FL CDA NO. 18-000000

CITY OF SEBASTIAN, FLORIDA
 COLLIER CANAL

SEBASTIAN HIGHLANDS UNIT 2
 PLANS
 APPROVED BY: Ana DeMelo, P.E. # 57420
 DATE: _____
 EROSION CONTROL PLAN
 PERMIT SUBMITTAL

