



# CONSTRUCTION PLANS FOR BONNIE BROOK PUMP STATION OUTFALL EROSION CONTROL PROJECT ORANGE COUNTY, FLORIDA FINAL PLANS JUNE 17, 2015

TERESA JACOBS, COUNTY MAYOR

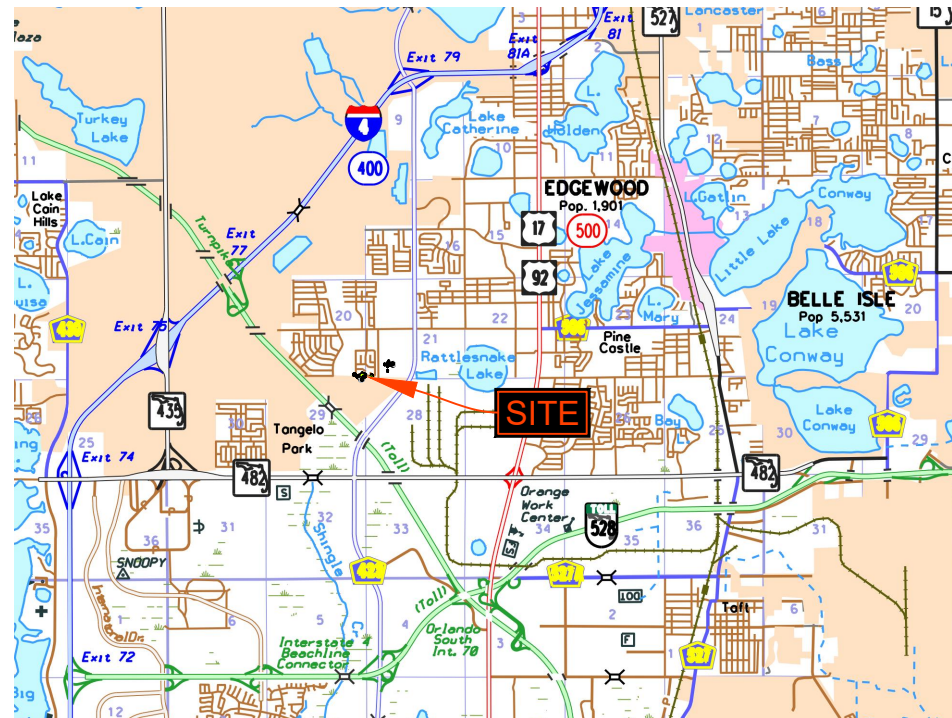
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**BOARD OF COUNTY  
 COMMISSIONERS**

SCOTT BOYD	DISTRICT 1
BRYAN NELSON	DISTRICT 2
PETE CLARKE	DISTRICT 3
JENNIFER THOMPSON	DISTRICT 4
TED EDWARDS	DISTRICT 5
VICTORIA SIPLIN	DISTRICT 6

MARK MASSARO, P.E., PUBLIC WORKS DIRECTOR

GOVERNING STANDARDS AND SPECIFICATIONS:  
 FLORIDA DEPARTMENT OF TRANSPORTATION,  
 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE  
 CONSTRUCTION DATED 2016, AS AMENDED BY  
 CONTRACT DOCUMENTS.



**VICINITY MAP**  
 1" = 10,000'

COUNTY BENCHMARK DATA:

A1438001  
 FOUND 3" ORANGE COUNTY ALUMINUM DISK ON A  
 CONCRETE CURB INLET  
 ON THE NORTH SIDE OF "T" INTERSECTION OF  
 MACDONOUGH AVENUE AND  
 WEST OF THE CENTERLINE OF GLEN BARR AVENUE  
 PUBLISHED  
 ELEVATION = 86.215 FEET (NAVD88)

A1438003  
 FOUND 3" ORANGE COUNTY ALUMINUM DISK ON A  
 CONCRETE CURB INLET  
 ON THE SOUTH SIDE OF WEST OF THE CENTERLINE  
 OF MOVERN COURT,  
 BETWEEN ADDRESS #3998 & #4002 MACDONOUGH  
 AVENUE.  
 PUBLISHED ELEVATION = 86.093 FEET (NAVD88)

NOTE: THE SCALE OF THESE PLANS MAY  
 HAVE CHANGED DUE TO REPRODUCTION.

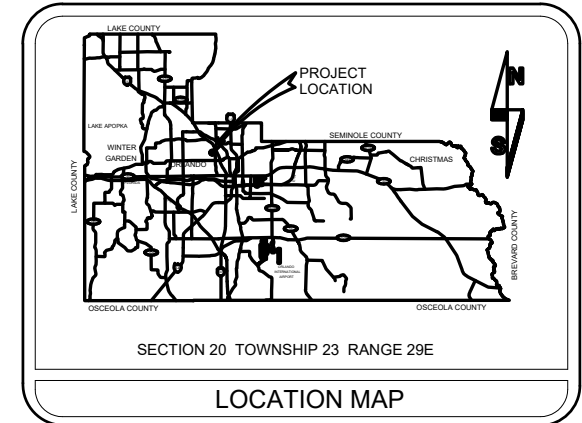
LENGTH OF PROJECT		
	LINEAR FT.	MILES
DRAINAGE PIPE	0	0
BRIDGES	0	0
NET LENGTH OF PROJ.	285.65	0.05
EXCEPTIONS	0	0
GROSS LENGTH OF PROJ.	285.65	0.05

**NOTE**  
 PLANS WERE PREPARED ACCORDING TO AVAILABLE INFORMATION TO ADEQUATELY  
 ADDRESS CONDITIONS AS THEY EXISTED AT THE TIME OF PLANS PREPARATION.  
 NEEDS, CONDITIONS AND OWNERSHIP OF PROPERTIES MAY HAVE CHANGED SINCE  
 PROJECT DESIGN. THE COUNTY'S REPRESENTATIVE WILL ADDRESS CHANGES AND  
 NEEDS WITH THE PROPERTY OWNER OR THEIR REPRESENTATIVES. CONTRACTOR  
 SHALL WORK WITH THE COUNTY'S REPRESENTATIVE IN ADDRESSING AND MEETING  
 NEEDS AND CONDITIONS THAT MAY HAVE CHANGED SINCE PLANS PREPARATION.

## CERTIFICATION TO PLANS

THIS IS TO CERTIFY THAT THE CONSTRUCTION PLANS AND  
 SPECIFICATIONS AS CONTAINED HEREIN WERE DESIGNED TO APPLICABLE  
 STANDARDS AS SET FORTH IN THE "MANUAL OF UNIFORM MINIMUM STANDARDS  
 FOR DESIGN, CONSTRUCTION AND MAINTENANCE FOR STREETS AND HIGHWAYS",  
 STATE OF FLORIDA, AS PREPARED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION  
 TALLAHASSEE, FLORIDA. DATED LATEST EDITION.

DATE: \_\_\_\_\_ ENGINEER: \_\_\_\_\_ REG. NO. 72414  
 ENGINEER



**INDEX OF SHEETS**

SHEET	DESCRIPTION
1	KEY SHEET
2	SUMMARY OF PAY ITEMS AND QUANTITIES
3	GENERAL NOTES
4	PROJECT LAYOUT
5-8	PLAN AND PROFILE
9-13	CROSS SECTIONS
14	DRAINAGE AND MISCELLANEOUS DETAILS
15-17	SWPPP
18-19	CANAL DIVERSION PLANS

**UTILITIES ENCOUNTERED**

POWER: OUC	PHONE: 800-778-9140
PHONE: AT&T	PHONE: 561-315-5528
SEWER: OCU	PHONE: 407-836-6843
CATV: BRIGHT HOUSE	PHONE: 407-532-8549
WATER: OUC	PHONE: 800-778-9140

**Geosyntec**  
 consultants

LEE GRAY MULLON ENGINEER, PE  
 FL PE #72414

CERTIFICATE 4321  
 1511 EAST STATE ROAD 434 SUITE 10005  
 WINTER SPRINGS, FL 32708

REVISIONS	DATE	BY

DESIGNED BY: LGM	DATE: 06-17-2016
DRAWN BY: MMF	DATE: 06-17-2016
CHECKED BY: LGM	DATE: 06-17-2016
APPROVED BY:	DATE: 06-17-2016
PROJECT NO:	FW2527

SHEET 1  
 OF 19

P:\PROJECTS\ORANGE\_SW\_1239\FW2527\_BONNIE\_BROOK\_EROSION\CURRENT\_CONSTRUCTION\_PLANS\FW2527P020.DWG (21 June 2016 - 9:02 AM) LMullen

### SUMMARY OF PAY ITEMS

REFERENCE NUMBER	PAY ITEM NUMBER	DESCRIPTION	UNIT	QUANTITY TOTAL	
				PLANS	FINAL
1	101-1	MOBILIZATION	LS	1	
2	102-1	MAINTENANCE OF TRAFFIC	LS	1	
3	104-14	PREVENTION, CONTROL AND ABATEMENT OF EROSION AND WATER POLLUTION	LS	1	
4	110-1-1	CLEARING AND GRUBBING	LS	1	
5	120-4	SUBSOIL EXCAVATION (ORGANICS AND MUCK)	CY	100	
6	120-6	EXCAVATION, EMBANKMENT, AND GRADING	LS	1	
7	120-70	CHEMICAL GROUT/FLOWABLE FILL	CY	3	
8	430-175-180	PIPE CULVERT, STEEL REINFORCED CONCRETE PIPE, ROUND 18"	LF	8	
9	524-1-49	CONTINUOUSLY REINFORCED CONCRETE CHANNEL LINING, 6"	SY	953	
10	530-3-4	RIP RAP (RUBBLE), F&I, DITCH LIING 24", (D <sub>50</sub> = 16")	TN	522	
11	570-1-2	PERFORMANCE TURF (BAHIA) (ALL DISTURBED AREAS)	SY	1840	
12	900-1	AS-BUILT PLANS	LS	1	
13	900-2	INDEMNIFICATION	LS	1	
14	900-3	GROUNDWATER TREATMENT AND DISPOSAL	DAY	60	
15	900-4	CANAL BYPASS PUMPING	LS	1	
16	900-5	SITE FLOODING AND RECOVERY	LS	1	

**PAY ITEM FOOTNOTES:**

- 101-1 INCLUDES SURVEYING AND INCLUDES ALL EFFORTS NECESSARY FOR PREPARATION OF AS-BUILT (RED-LINE) DRAWINGS SHOWING APPROVED DEVIATIONS FROM PLANS AND CONFIRMED QUANTITIES TO BE USED BY ENGINEER IN THE CERTIFICATION OF AS-BUILT PLANS.
- 104-14 INCLUDES THE COST TO REMOVE ANY INTERNAL DEBRIS AND SAND/SILT THEREFROM. ALSO INCLUDES THE COST OF SILT FENCE, SYNTHETIC HAY BALES, AND SOIL TRACKING PREVENTION DEVICE AS SHOWN IN THE PLANS OR AS DIRECTED BY THE COUNTY.
- 110-1-1 INCLUDES THE REMOVAL OF TREES AND SHRUBS, NON-PERMANENT STRUCTURES AND TEMPORARY RESIDENTIAL EQUIPMENT/MATERIAL WITHIN THE COUNTY RIGHT OF WAY, INCLUDING FENCING WITHIN THE COUNTY RIGHT OF WAY. INCLUDES THE FULL REPLACEMENT OF ANY REMOVED FENCING. INCLUDES REMOVAL OF EXISTING CONCRETE PAVEMENT, REMOVAL OF EXISTING DRAINAGE STRUCTURES AND REMOVAL AND RELOCATION OF TRANSDUCERS AND OTHER MISCELLANEOUS REMOVALS.
- 120-4 INCLUDES THE FULL EXCAVATION AND OFF-SITE DISPOSAL OF ALL SUBSOIL ORGANICS AND MUCK DISCOVERED BY THE CONTRACTOR DURING CONSTRUCTION OF THE PROPOSED IMPROVEMENTS. COSTS INCLUDE ANY TEMPORARY SHORING OR SHEETING THAT MAY BE NECESSARY TO EXCAVATE SUBSOILS. REMOVAL AND REPLACEMENT OF UNSUITABLE SOIL - THE CONTRACTOR SHALL PROVIDE ORANGE COUNTY HIGHWAY CONSTRUCTION WITH A SIGNED AND SEALED SURVEY, PREPARED BY A REGISTERED FLORIDA SURVEYOR, INCLUDING ELEVATIONS AND CROSS SECTIONS OF THE AREA WHERE UNSUITABLE SOILS ARE FOUND. THE ELEVATIONS SHALL BE PROVIDED EVERY 25 FEET AND SHALL BE REPRESENTATIVE OF THE CONDITIONS. THE PURPOSE OF THE SURVEY, WITH CROSS SECTIONS, IS TO VERIFY THE QUANTITY OF UNSUITABLE SOILS REMOVED.
- 121-70 AT PS-029 STABILIZE THE EXISTING SLAB FOR THE ELECTRICAL CONTROL PANEL USING CHEMICAL GROUT OR EQUIVALENT INJECTED INTO PRE-DRILLED HOLES BENEATH AND ADJACENT TO THE CONCRETE SLAB. INCLUDES LEVELING CONTROL PANEL WITH STAINLESS STEEL SHIMS.
- 430-175-180 INCLUDES THE REMOVAL OF EXISTING AND REPLACEMENT OF NEW CULVERT AT CHANNEL LINING AS INDICATED IN PLANS. INCLUDES CONNECTING CULVERT TO CONCRETE CHANNEL LINING.
- 524-1-49 INCLUDES INSTALLATION OF GEOTEXTILE (MIRAFI FW 404 OR EQUIVALENT). INCLUDES CONNECTION AND REPLACEMENT OF NEW STORM PIPE SEGMENTS AS SHOWN ON PLAN AND PROFILE SHEETS, INCLUDING FIELD-MITERING OF STORM PIPES TO BE FLUSH WITH CHANNEL LINER.
- 530-3-4 RIP RAP SHALL BE NATURAL STONE WITH D<sub>50</sub> = 16" PER FDOT 901-2. NO BROKEN CONCRETE SHALL BE USED ON THIS PROJECT. BEDDING STONE SHALL MEET FDOT SPECIFICATIONS SECTION 530.
- 570-1-2 INCLUDES GROUND PREPARATION, FERTILIZING, SODDING, WATERING, MOWING AND COMPLETE MAINTENANCE OF THE GRASSED AREA UNTIL FINAL COMPLETION AND ACCEPTANCE BY THE ENGINEER.

SUMMARY OF EARTHWORK		
STATION TO STATION	CY	
	P	F
EXCAVATION	733	
EMBANKMENT	2	

SUMMARY OF SOD		
STATION TO STATION	SY	
	P	F
20+00 TO 23+00	1320	
30+00 TO 31+50	520	
<b>TOTAL:</b>	<b>1840</b>	

SUMMARY OF SILT FENCE		
STATION TO STATION	LF	
	P	F
20+00 TO 23+00 (2)	600	
30+00 TO 31+50 (2)	460	
<b>TOTAL:</b>	<b>1060</b>	

REVISIONS		
DATE	BY	DESCRIPTION

**BONNIE BROOK  
PUMP STATION OUTFALL  
EROSION CONTROL PROJECT**



**Geosyntec**  
consultants  
1511 East State Road 434  
Suite 1005  
Winter Springs, FL 32708  
LEE G. MULLON, PE  
FL PE# 72414  
AUTHORIZATION NUMBER 4321

**SUMMARY OF PAY ITEMS  
AND QUANTITIES**

SHEET NO.  
**2**

# GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH AND CONFORM TO THE MOST STRINGENT REQUIREMENT OF THE PROJECT SPECIFICATION, THE YEAR 2016 EDITION OF THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (FDOT), AND SUPPLEMENTS THERETO.
2. SUBSURFACE INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FOR USE IN ESTABLISHING DESIGN CRITERIA FOR THE PROJECT. THE ACCURACY OF THIS INFORMATION IS NOT GUARANTEED AND IS NOT TO BE CONSTRUED AS PART OF THE PLANS GOVERNING CONSTRUCTION OF THE PROJECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INQUIRE OF THE ENGINEER IF ADDITIONAL INFORMATION IS AVAILABLE, TO MAKE ARRANGEMENTS TO REVIEW SAME PRIOR TO BIDDING, AND TO MAKE HIS OWN DETERMINATION AS TO ALL SUBSURFACE CONDITIONS.
3. ALL PERSONAL PROPERTY WITHIN THE RIGHT-OF-WAY NOT RELOCATED BY THE PROPERTY OWNER SHALL BE REMOVED BY THE CONTRACTOR AS NECESSARY TO CONSTRUCT THE PROJECT IN ACCORDANCE WITH THE PLANS WITH NO ADDITIONAL COSTS TO THE COUNTY.
4. THE DISPOSAL OF EXCESS EARTHWORK MATERIALS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. APPROVALS OF DISPOSAL SITES SHALL BE OBTAINED FROM ORANGE COUNTY PRIOR TO DISPOSAL. ALL EXCESS MATERIAL IS THE PROPERTY OF THE CONTRACTOR.
5. THE CONTRACTOR SHALL SOD ALL DISTURBED AREAS. SOD IN DISTURBED AREAS SHALL MATCH EXISTING TYPE SOD, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
6. INSTALL A 4" MUCK BLANKET OR TOPSOIL ON ALL PERMANENT GRASS AREAS. COST TO BE INCLUDED IN CONTRACT UNIT PRICE FOR SOD.
7. ALL OFFSETS SHOWN ARE TO SURVEY BASELINE.
8. THE CONTRACTOR SHALL PERFORM HIS WORK IN ACCORDANCE WITH REQUIREMENTS OF THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT PERMIT INCLUDED IN THE BID SPECIFICATIONS. PAYMENT IS INCLUDED IN THE UNIT PRICES STATED ON THE SUMMARY OF PAY ITEMS; EXCLUDING ITEMS SPECIFIED ELSEWHERE. ENVIRONMENTAL CONTROLS SHALL BE USED AT LOCATIONS DESIGNATED IN THE PLANS AND/OR DESIGNATED BY THE ENGINEER.
9. THE INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND AND OTHER UTILITIES IS BASED ON AVAILABLE RECORDS AND SURVEYS BUT IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR SHALL MAKE HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO AND IS RESPONSIBLE FOR COORDINATING UTILITY RELOCATION WITH PROJECT CONSTRUCTION. PRIOR TO ORDERING DRAINAGE STRUCTURES, THE CONTRACTOR SHALL DETERMINE IF DRAINAGE/UTILITY CONFLICTS EXIST. INFORMATION ON CONFLICTS IS TO BE SUBMITTED TO THE ENGINEER AS SOON AS POSSIBLE AFTER DISCOVERY FOR RESOLUTION.
10. PRIOR TO COMMENCEMENT OF WORK, CONTRACTOR SHALL CALL SUNSHINE ONE 48 HOURS IN ADVANCE OF PERFORMING ANY UTILITY ADJUSTMENTS OR RELOCATIONS. SUNSHINE ONE PHONE NUMBER IS 1-800-432-4770.
11. UTILITIES ARE TO BE ADJUSTED BY OTHERS OR AS DIRECTED BY THE ENGINEER.
12. THE CONTRACTOR SHALL NOTIFY ALL GAS UTILITY COMPANIES A MINIMUM OF TWO WORKING DAYS PRIOR TO EXCAVATION AS REQUIRED BY CHAPTER 77-153 OF THE FLORIDA STATUTES.
13. INSTALLATION OR RELOCATION OF ANY UTILITY, INCLUDING STORM SEWER, SHALL MAINTAIN PROPER UTILITY SEPARATIONS PER FDEP 62-555.314, LOCATION OF PUBLIC WATER SYSTEM MAINS.
14. ALL DRAINAGE PIPES SHALL BE STEEL REINFORCED CONCRETE PIPE (RCP), UNLESS OTHERWISE NOTED.
15. ALL STORM SEWER STRUCTURES SHALL HAVE A WALL THICKNESS OF 8 INCHES MINIMUM.
16. MEASUREMENT OF DRAINAGE PIPE FOR PAYMENT SHALL BE DETERMINED FROM ACTUAL LENGTHS INSTALLED.
17. ALL MANHOLE COVERS SHALL INCLUDE THE ORANGE COUNTY LOGO AND BE IDENTIFIED AS "ORANGE COUNTY STORM" .
18. ALL INLET/MANHOLE - PIPE JOINTS SHALL BE FILLED WITH NON-SHRINK GROUT, COVERED WITH AN ASPHALT MASTIC COATING, AND WRAPPED WITH A PLASTIC FILTER FABRIC MATERIAL PER SECTION 13.03.03 OF THE ORANGE COUNTY ROAD CONSTRUCTION SPECIFICATIONS. ALL PIPE JOINTS IN THIS PROJECT SHALL BE WRAPPED PER FDOT STANDARD INDEX No. 280 OR AS DIRECTED BY THE ENGINEER. COST TO BE INCLUDED IN THE COST OF THE PIPE CULVERT.
19. ALL CURB INLETS, DITCH BOTTOM INLETS, AND MANHOLES SHALL HAVE TRAFFIC BEARING FRAMES AND COVERS OR GRATES MEETING HS-20 LOADING REQUIREMENTS.
20. ALL EXISTING DRAINAGE STRUCTURES AND PIPES WITHIN THE LIMITS OF CONSTRUCTION SHALL BE LEFT IN PLACE AND PROTECTED, UNLESS OTHERWISE SHOWN IN THE PLANS OR DIRECTED BY THE ENGINEER.
21. DESIGN CHANGES OF PIPE INVERTS NOT EXCEEDING PLUS OR MINUS ONE FOOT WILL NOT BE CONSIDERED AS A BASIS FOR ADDITIONAL COMPENSATION FOR THE PERTINENT PIPE BID ITEM OR FOR MODIFICATION OF PRECAST STRUCTURES.
22. ALL (P.R.M.'s) IRONS AND MONUMENTS SHOWN ON PLANS, OR FOUND, SHALL BE PRESERVED. THOSE SHOWN IN PROPOSED PAVEMENT SHALL BE PROTECTED WITH A CAST IRON VALVE BOX.
23. ANY U.S.C. AND G.S. MONUMENTS WITHIN THE LIMITS OF CONSTRUCTION SHALL BE PROTECTED. IF IN DANGER OF DAMAGE, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, ORANGE COUNTY SURVEY SECTION 407-836-7940 AND BOTH SHALL NOTIFY:  
  
STATE GEODETIC ADVISOR  
3900 COMMONWEALTH BOULEVARD, SUITE 309,  
TALLAHASSEE, FL  
850-245-2606
24. PUBLIC LAND CORNERS WITHIN THE LIMITS OF CONSTRUCTION SHALL BE PROTECTED. IF A CORNER MONUMENT IS IN DANGER OF BEING DESTROYED OR DISTURBED, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND THE COUNTY SURVEYOR, WITHOUT DELAY, BY TELEPHONE 407-836-7940). THE CONTRACTOR SHALL PROVIDE WRITTEN FOLLOW UP CONFIRMATION WITHIN 48 HOURS OF TELEPHONE NOTIFICATION.

25. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO ORANGE COUNTY HIGHWAY CONSTRUCTION DEPARTMENT A SET OF FIELD NOTES VERIFYING THE BENCHMARK ELEVATIONS AND THE REFERENCE POINT TIES SHOWN ON THE TITLE SHEET AND PROJECT LAYOUT SHEET, AND/OR A SET OF FIELD NOTES FOR ALL ADDITIONAL BENCHMARK AND REFERENCE POINT TIES PROPOSED TO BE USED IN CONSTRUCTING THE PROJECT WITH THEIR LOCATION, DESCRIPTION AND ELEVATION, BASED ON ORANGE COUNTY DATUM. ALL SUBMITTALS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF FLORIDA.
26. THE CONTRACTOR SHALL RELOCATE EXISTING TRAFFIC SIGNS AS REQUIRED DURING CONSTRUCTION. SIGNS, WHICH ARE DAMAGED DURING CONSTRUCTION, SHALL BE REPLACED BY THE CONTRACTOR AT NO COST TO THE COUNTY. THE CONTRACTOR SHALL REMOVE AND STORE EXISTING TRAFFIC SIGNS THAT ARE NOT USED DURING CONSTRUCTION. THE CONTRACTOR SHALL RE-INSTALL THE STORED SIGNS AS DIRECTED BY THE ENGINEER. SIGNS NOT TO BE RE-INSTALLED SHALL BE DELIVERED TO ORANGE COUNTY'S TRAFFIC SIGN SHOP. DAMAGE SIGNS SHALL BE REPLACED BY THE CONTRACTOR AT NO COST TO ORANGE COUNTY. COST OF RELOCATION, MAINTENANCE, REMOVAL AND LEFTOVER SHALL BE INCLUDED IN THE UNIT PRICES STATED ON THE SUMMARY OF PAY ITEMS.
27. ALL EXCAVATIONS SHALL BE REQUIRED TO CONFORM TO THE PROVISION OS PART IV OF CHAPTER 553.60, F.S., ALSO KNOWN AS THE "TRENCH SAFETY ACT". TO PROTECT EXISTING PAVEMENT, STRUCTURES, FOUNDATIONS, AND CONSTRUCTION PERSONNEL DURING CONSTRUCTION OF THE PROJECT.
28. CONTRACTOR IS TO MAINTAIN UNINTERRUPTED ACCESS TO ALL DRIVEWAYS AND SIDE STREETS AT ALL TIMES AND IS TO NOTIFY PROPERTY OWNERS FIVE DAYS PRIOR TO STARTED CONSTRUCTION.
29. ALL PRIVATE AND PUBLIC PROPERTY AFFECTED BY THIS WORK SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THE EXISTING CONDITION. COST TO BE INCIDENTAL TO OTHER CONSTRUCTION AND NO EXTRA COMPENSATION WILL BE ALLOWED.
30. ALL EXISTING TREES WITHIN THE RIGHT-OF-WAY THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS SHALL BE REMOVED. ALL OTHER TREES SHALL REMAIN AND BE PROTECTED DURING CONSTRUCTION UNLESS OTHERWISE NOTED ON THE PLANS OR DIRECTED BY THE ENGINEER.
31. PEGGED SOD TO BE PLACED ON ALL SLOPES 3:1 OR STEEPER.
32. A WRITTEN DEWATERING PLAN WITH SCHEMATIC DRAWINGS SHALL BE PROVIDED TO THE COUNTY AT THE PRE-CONSTRUCTION MEETING FOR INFORMATIONAL PURPOSES ONLY. ANY COUNTY COMMENTS SHALL BE INCORPORATED INTO THE PLAN. COST TO THIS PLAN SHALL BE INCLUDED IN THE PRICE BID FOR PAY ITEM NO. 101- 1 MOBILIZATION.
33. THE CONTRACTOR IS REQUIRED TO PROVIDE A DEWATERING SYSTEM WHICH MAINTAINS GROUNDWATER LEVELS AT LEAST 2 FEET BELOW COMPACTION SURFACES, INCLUDING THE BOTTOM OF EXCAVATIONS. A SYSTEM OF DITCHES AND SUMPS MAY BE SUFFICIENT TO ACHIEVE ADEQUATE DEWATERING, BUT THE CONTRACTOR SHOULD BE PREPARED TO INSTALL WELL POINT DEWATERING SYSTEMS AS NECESSARY TO MAINTAIN GROUNDWATER LEVELS 2 FEET BENEATH THE BOTTOM OF EXCAVATIONS. ADDITIONALLY, THE CONTRACTOR MUST PROVIDE POSITIVE SITE DRAINAGE DURING THE SITE PREPARATION AND FILL PLACEMENT. SURFACE RUNOFF IS NOT ALLOWED TO ACCUMULATE. TEMPORARY RIM DITCHES MAY BE REQUIRED TO FACILITATE SITE PREPARATION.
34. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING TEMPORARY DRAINAGE AND MAINTENANCE OF ALL EXISTING RUNOFF DISCHARGES DURING CONSTRUCTION TO AVOID THE TRANSPORT OF SEDIMENT AND ERODIBLE SOILS UNTIL THE WORK HAS BEEN ACCEPTED BY THE COUNTY.
35. ALL CONSTRUCTION ACTIVITIES ARE TO OCCUR WITHIN COUNTY RIGHT-OF-WAY OR WITHIN EXISTING COUNTY EASEMENTS..
36. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE DURING CONSTRUCTION AND RESTORE ANY GRADES INSIDE OR OUTSIDE THE LIMITS OF CONSTRUCTION DISTURBED DURING CONSTRUCTION.
37. PROJECT REFERENCE DOCUMENTS:

1. GEOTECHNICAL ENGINEERING REPORT DATED MAY 22, 2015 PREPARED BY GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS, INC. (GEC) BELOW ARE SITE PREPARATION REQUIREMENTS SUMMARIZED FROM THE GEOTECHNICAL REPORT:

REMOVE ALL EXISTING FABRIFORM CANAL LINING, VEGETATION, ORGANIC SOIL, MAJOR ROOT SYSTEMS, BURIED UTILITIES AND OTHER DELETERIOUS MATERIALS FROM BENEATH AND TO A MINIMUM OF 5 FEET BEYOND THE PROPOSED STRUCTURE LIMITS.  
ALLOW A GEOTECHNICAL ENGINEER TO INSPECT THE SITE AFTER IT HAS BEEN STRIPPED TO VERIFY ADEQUATE ORGANIC SOIL, VEGETATION AND UNSUITABLE MATERIAL REMOVAL AND ALSO TO OBSERVE SUBSEQUENT COMPACTION.  
EXERCISE EXTREME CAUTION WHEN OPERATING VIBRATORY EQUIPMENT NEAR EXISTING STRUCTURES. NEARBY STRUCTURES MAY BE ADVERSELY AFFECTED BY VIBRATORY ROLLING OPERATIONS. PROVISIONS SHOULD BE MADE TO MONITOR THE ADJACENT BUILDINGS, IF ANY, FOR EXCESSIVE VIBRATIONS. OPERATE ROLLER IN THE STATIC MODE IF EXCESSIVE VIBRATIONS ARE EXPERIENCED BY ANY NEARBY STRUCTURES.  
COMPACT THE SUBGRADE SOIL UNTIL THE SOIL AT A DEPTH OF 12 INCHES BELOW THE COMPACTION SURFACE HAS ATTAINED A MINIMUM OF 95% OF THE SOIL'S MODIFIED PROCTOR MAXIMUM DRY DENSITY AS DETERMINED BY ASTM TEST METHOD D-1557.  
REMOVE ANY MATERIAL THAT YIELDS EXCESSIVELY DURING COMPACTION AND REPLACE WITH FILL MATERIAL COMPRISED OF NON-PLASTIC SANDS WITH LESS THAN ABOUT 12% FINES CONTENT. THE FILL SHOULD NOT CONTAIN ANY SIGNIFICANT AMOUNT OF ORGANIC SUBSTANCES (LESS THAN 3% BY WEIGHT) AND SHOULD BE SUBSTANTIALLY FREE FROM ROOTS OR OTHER ORGANIC OR DELETERIOUS MATERIALS.  
USE FILL MATERIAL COMPRISED OF NON-PLASTIC SANDS WITH LESS THAN ABOUT 12% FINES CONTENT. THE FILL SHOULD NOT CONTAIN ANY SIGNIFICANT AMOUNT OF ORGANIC SUBSTANCES (LESS THAN 3% BY WEIGHT) AND SHOULD BE SUBSTANTIALLY FREE FROM ROOTS OR OTHER ORGANIC OR DELETERIOUS MATERIALS. SANDS EXCAVATED NEAR OR BELOW THE WATER TABLE MAY HAVE TO BE DRIED TO ATTAIN THE MOISTURE CONTENT NEEDED TO ACHIEVE THE REQUIRED DEGREE OF COMPACTION. SANDS OBTAINED FROM ABOVE THE WATER TABLE MAY NEED TO BE WETTED TO ACHIEVE THE REQUIRED COMPACTION.  
PLACE FILL IN LEVEL LIFTS NO THICKER THAN 12 INCHES. THINNER LIFTS MAY BE NEEDED TO ACHIEVE COMPACTION IN THE SILTY SANDS. COMPACT FILL TO A MINIMUM OF 95% OF THE SOIL'S MODIFIED PROCTOR MAXIMUM DRY DENSITY AS DETERMINED BY ASTM TEST METHOD D-1557 FOR EACH LIFT OF FILL PLACED. EXTEND COMPACTED FILL A MINIMUM OF 5 FEET BEYOND STRUCTURE LIMITS TO PREVENT POSSIBLE EROSION OR UNDERMINING OF FOOTING BEARING SOILS. PROVIDE FILL SLOPES NO STEEPER THAN 2 HORIZONTAL TO 1 VERTICAL. PERFORM IN-PLACE DENSITY TESTS TO VERIFY SUBGRADE COMPACTION.  
REFER TO GEOTECHNICAL REPORT FOR FULL DETAILS ON SOIL AND GROUNDWATER CHARACTERISTICS AND RECOMMENDATIONS PERTAINING TO CONSTRUCTION.

2. TOPOGRAPHIC SURVEY DATED APRIL 22, 2015 BY GEODATA CONSULTANTS, INC.

P:\PROJECTS\ORANGE\_SW\_1239\FW2527\_BONNIE\_BROOK\_EROSION\CURRENT\_CONSTRUCTION\_PLANS\FW2527P030.DWG (21 June 2016 - 9:02 AM) L\mluk

REVISIONS		
DATE	BY	DESCRIPTION

**BONNIE BROOK PUMP STATION  
OUTFALL EROSION  
CONTROL PROJECT**



**Geosyntec**  
consultants  
1511 East State Road 434  
Suite 1005  
Winter Springs, FL 32708

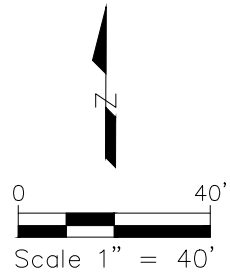
Lee Mullon, PE  
FL PE# 72414

AUTHORIZATION NUMBER 4321

**GENERAL NOTES**

SHEET NO.  
**3**

P:\PROJECTS\ORANGE\_SW\_1239\FW\2527\_BONNIE\_BROOK\_EROSION\CURRENT\_CONSTRUCTION\_PLANS\FW\2527\F040.DWG (21 June 2016 - 9:02 AM) LMullon

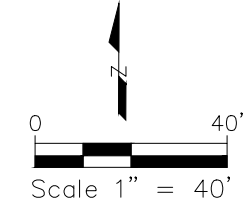


INSET A

SITE BENCHMARK 3  
SET 4"x4" CM "REFERENCE LB 6556" ON THE NORTH SIDE OF THE CANAL, 7'± NORTH OF THE NORTH TOP OF BANK, 77'± WEST OF THE CHAIN LINK FENCE ON THE WEST SIDE OF PUMP STATION PS-065  
EL = 85.84' (NAVD88)  
N: 1502034  
E: 518471

SITE BENCHMARK 4  
SET NAIL & DISK  
"REFERENCE LB 6556"  
EL = 86.06' (NAVD88)  
N: 1502188  
E: 518668

ORANGE COUNTY BENCHMARK A1438001  
FND 3" ORANGE COUNTY ALUMINUM DISK  
PUBLISHED EL = 86.215'  
N: 1502162  
E: 518853



INSET B

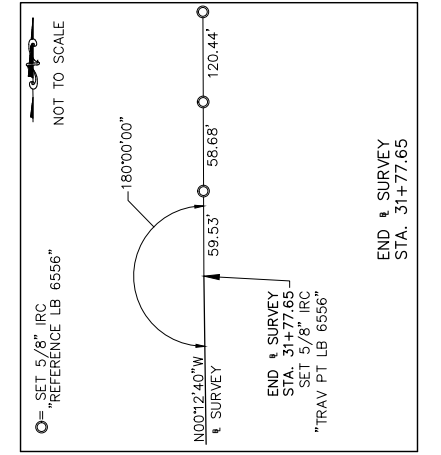
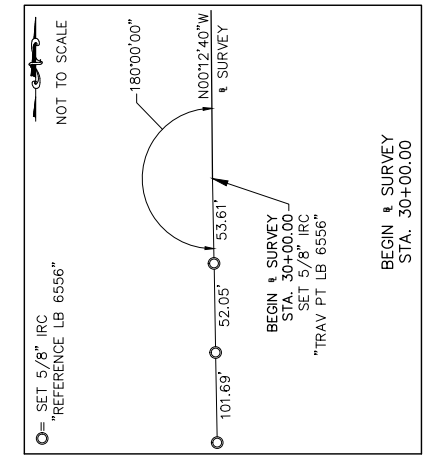
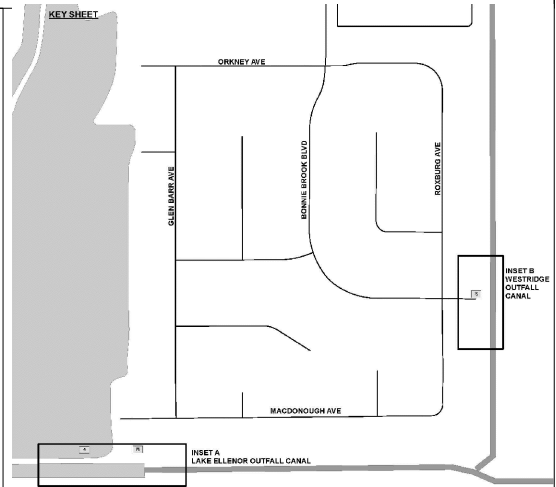
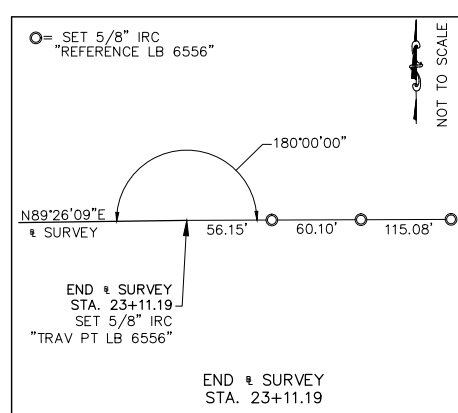
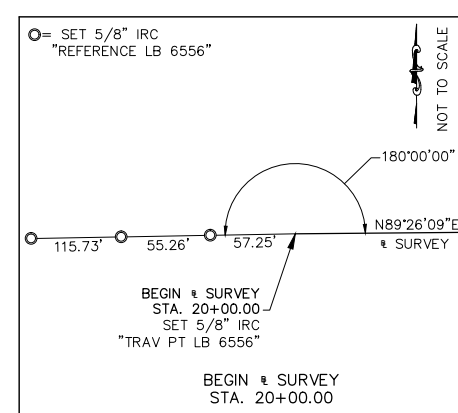
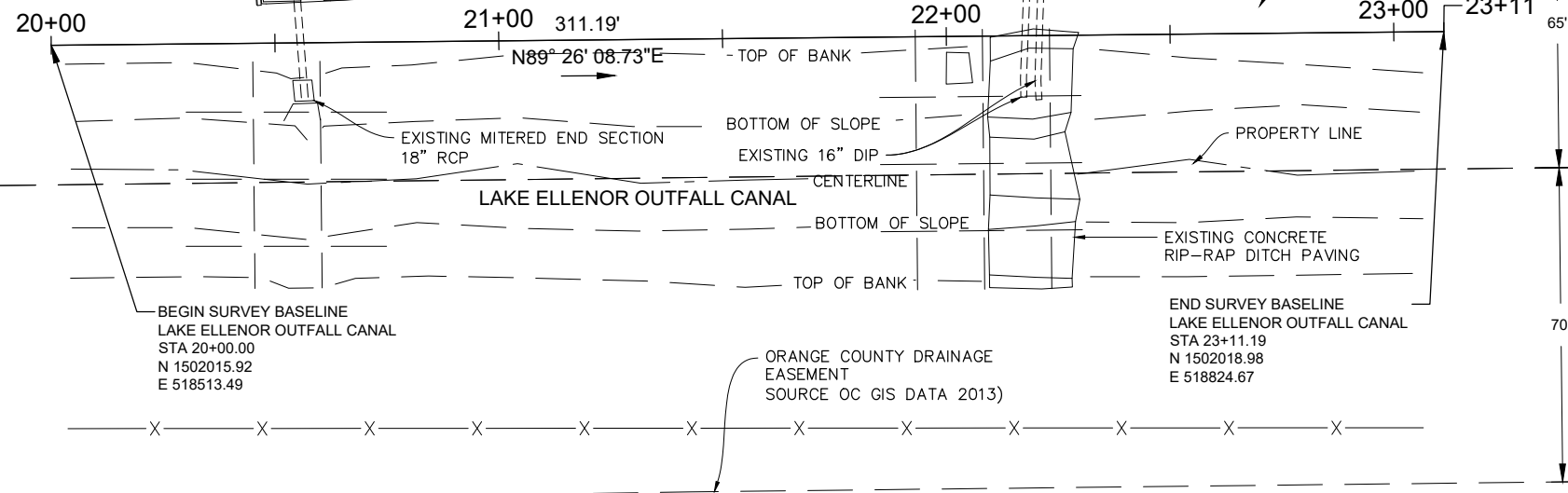
SITE BENCHMARK 1  
SET X-CUT ON NORTH FLANGE BOLT OF A FIRE HYDRANT AT THE NORTHEAST CORNER OF BONNIE BROOK BOULEVARD & ROXBURG AVENUE  
EL = 90.55' (NAVD88)  
N: 1502668  
E: 519915

END SURVEY BASELINE WESTRIDGE OUTFALL CANAL  
STA 31+77.65  
N 1502767.63  
E 520059.07

ROXBURG AVENUE PUMP STATION PS-072

ORANGE COUNTY DRAINAGE EASEMENT SOURCE: ORANGE COUNTY GIS DATA 2013

BEGIN SURVEY BASELINE WESTRIDGE OUTFALL CANAL  
STA 30+00.00  
N 1502589.97  
E 520059.72



REVISIONS		
DATE	BY	DESCRIPTION

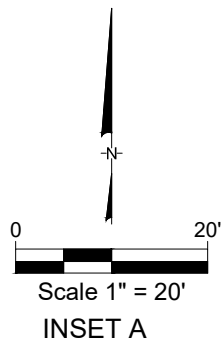
## BONNIE BROOK PUMP STATION OUTFALL EROSION CONTROL PROJECT



**Geosyntec consultants**  
1511 East State Road 434  
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Winter Springs, FL 32708  
Lee G. Mullon, PE  
FL PE# 72414  
AUTHORIZATION NUMBER 4321

## PROJECT LAYOUT

SHEET NO.  
**4**

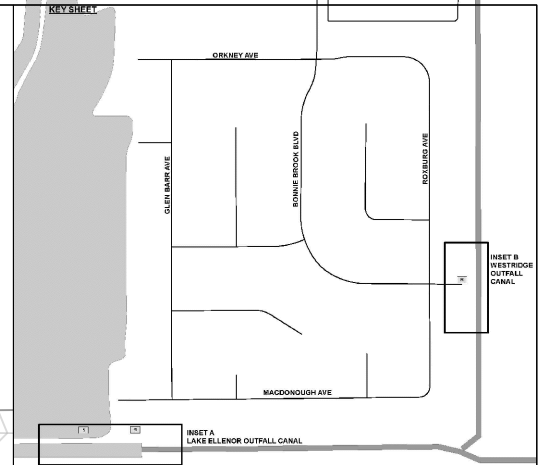


PS-029 ELECTRICAL CONTROL PANEL  
 STABILIZE EXISTING SLAB FOR ELECTRICAL CONTROL PANEL USING CHEMICAL GROUT OR EQUIVALENT INJECTED INTO PRE-DRILLED HOLES BENEATH AND ADJACENT TO THE CONCRETE SLAB PER MAY 2015 GEC GEOTECHNICAL REPORT. CONTRACTOR TO LEVEL CONCRETE PAD AFTER UNDERLYING SOILS HAVE STABILIZED WITH INJECTED GROUT. IF CONCRETE PAD CANNOT BE LEVELED WITHOUT DAMAGE, THEN CONTRACTOR TO RAISE CONTROL PANEL WITH PERMANENT STAINLESS STEEL SHIMS ANCHORED INTO PAD.

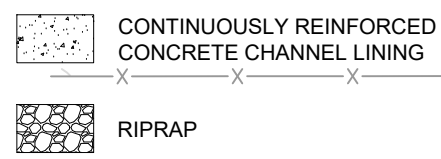
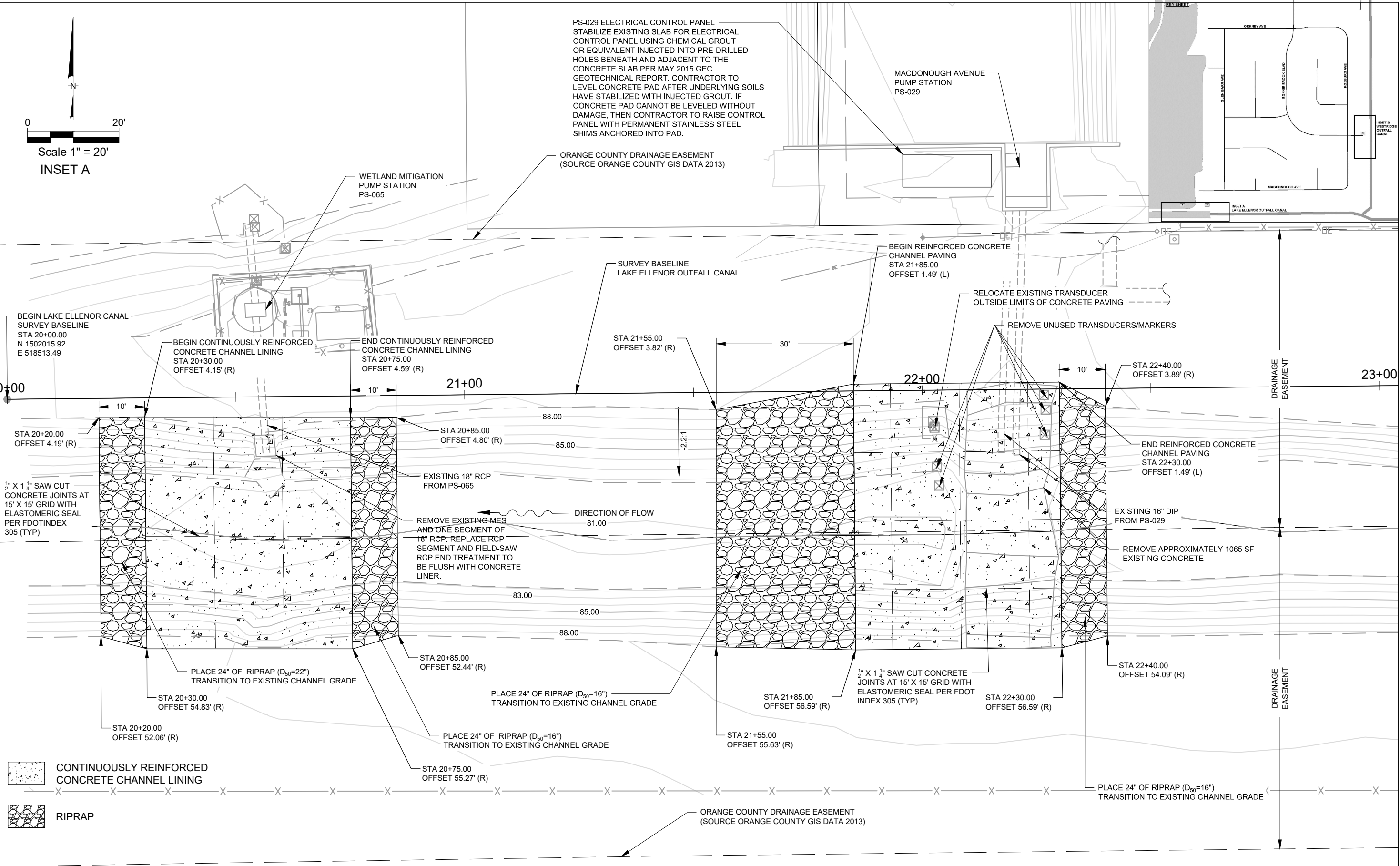
MACDONOUGH AVENUE PUMP STATION PS-029

ORANGE COUNTY DRAINAGE EASEMENT (SOURCE ORANGE COUNTY GIS DATA 2013)

WETLAND MITIGATION PUMP STATION PS-065



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REVISIONS		
DATE	BY	DESCRIPTION

**BONNIE BROOK PUMP STATION  
 OUTFALL EROSION  
 CONTROL PROJECT**

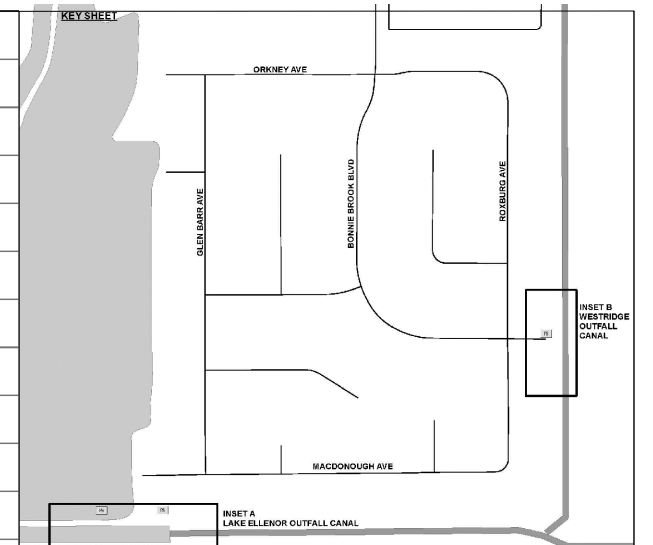
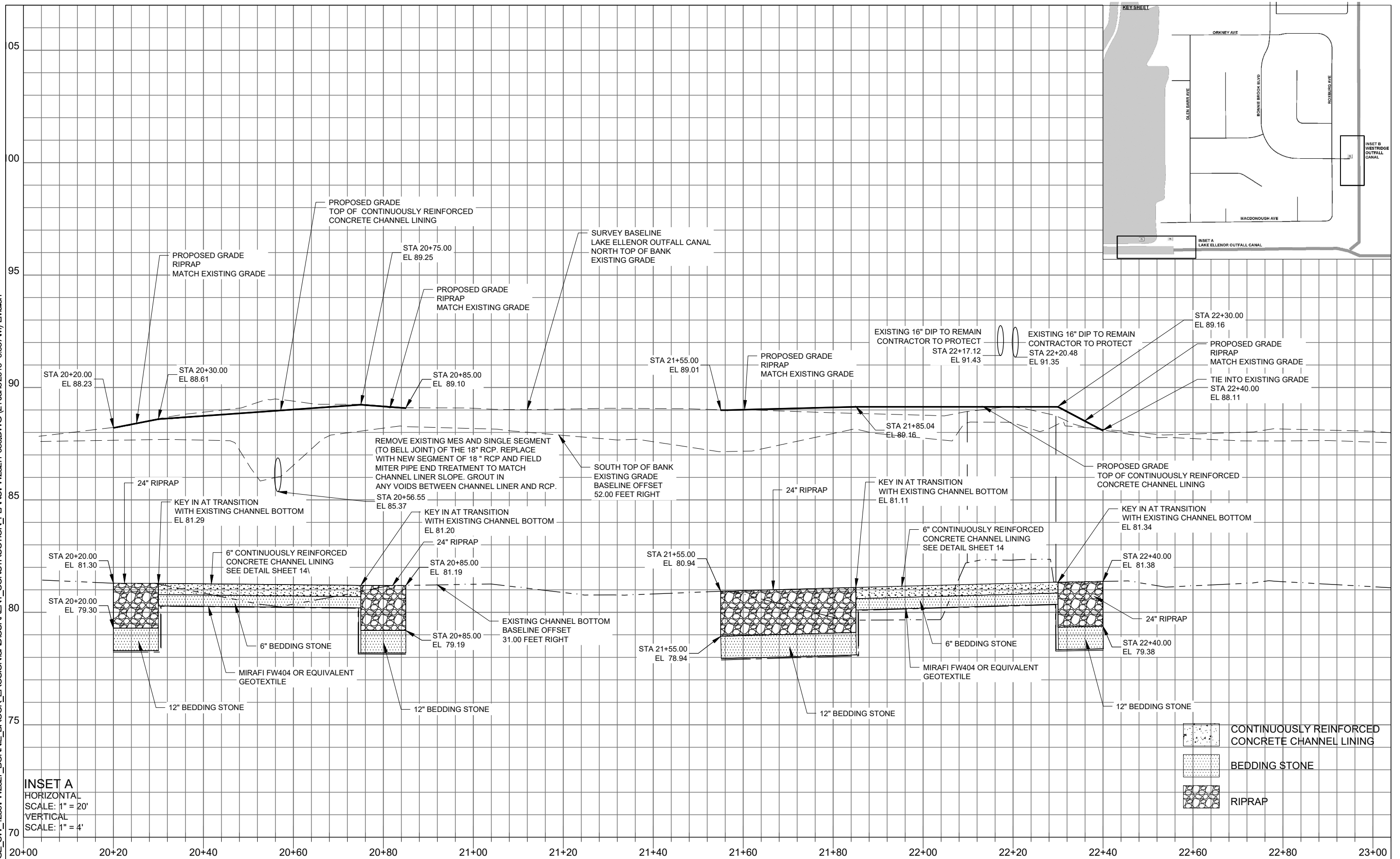


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

**LAKE ELLENOR OUTFALL CANAL  
 PLAN VIEW**

SHEET NO.  
**5**

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**INSET A**  
HORIZONTAL  
SCALE: 1" = 20'  
VERTICAL  
SCALE: 1" = 4'

-  CONTINUOUSLY REINFORCED CONCRETE CHANNEL LINING
-  BEDDING STONE
-  RIPRAP

REVISIONS		
DATE	BY	DESCRIPTION

**BONNIE BROOK PUMP STATION  
OUTFALL EROSION  
CONTROL PROJECT**

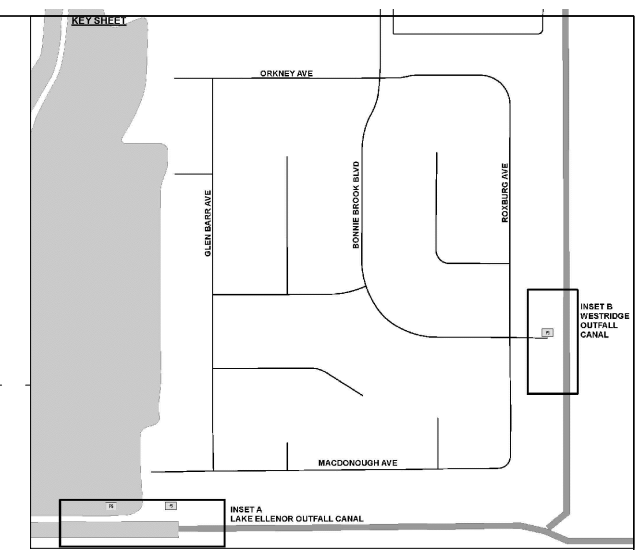
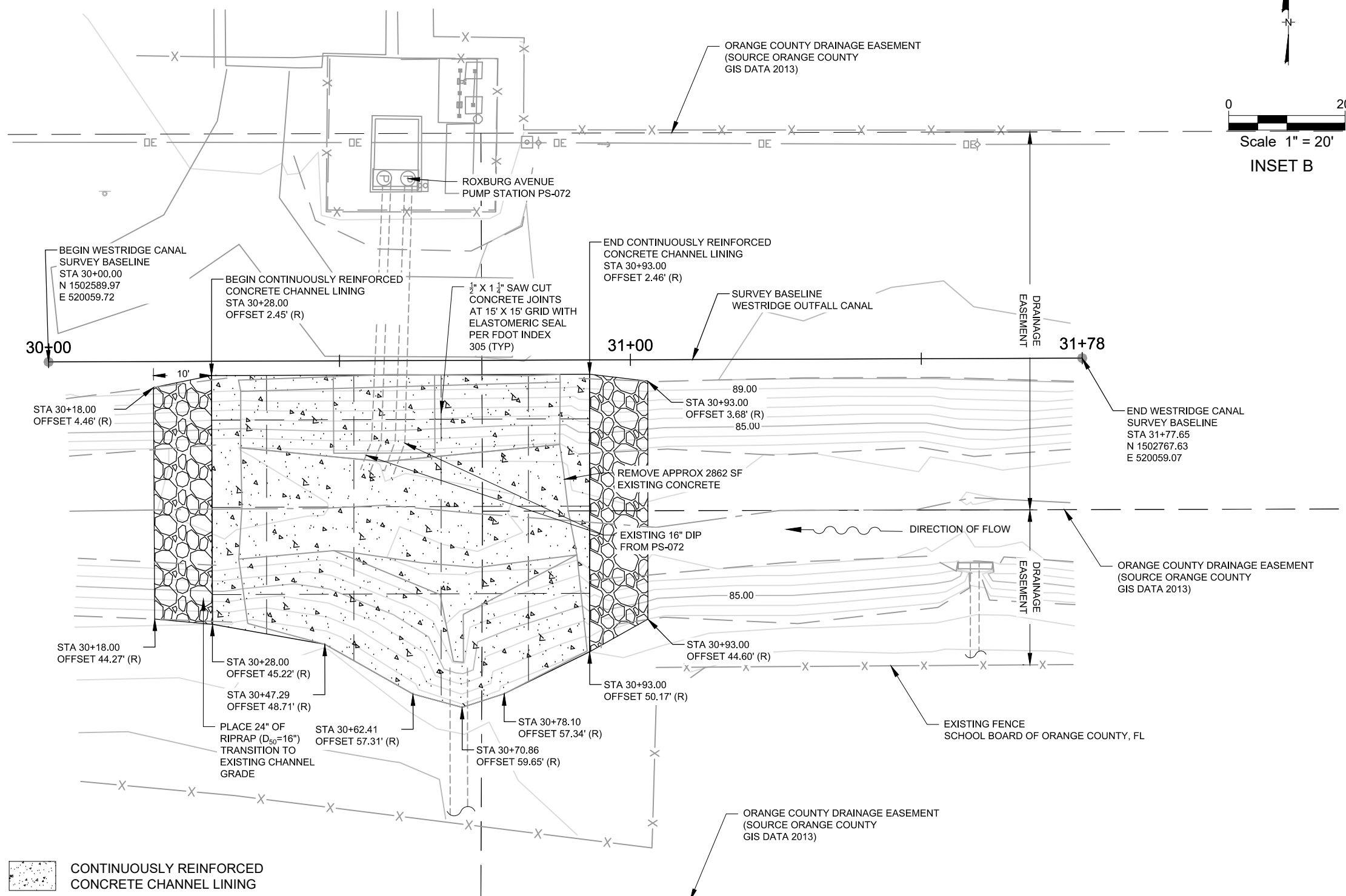


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AUTHORIZATION NUMBER 4321



**LAKE ELLENOR OUTFALL CANAL  
PROFILE VIEW**




SHEET NO.  
**6**

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Scale 1" = 20'  
INSET B

-  CONTINUOUSLY REINFORCED CONCRETE CHANNEL LINING
-  RIPRAP

-  REINFORCED CONCRETE CHANNEL LINING
-  BEDDING STONE
-  RIPRAP

REVISIONS		
DATE	BY	DESCRIPTION

## BONNIE BROOK PUMP STATION OUTFALL EROSION CONTROL PROJECT



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consultants

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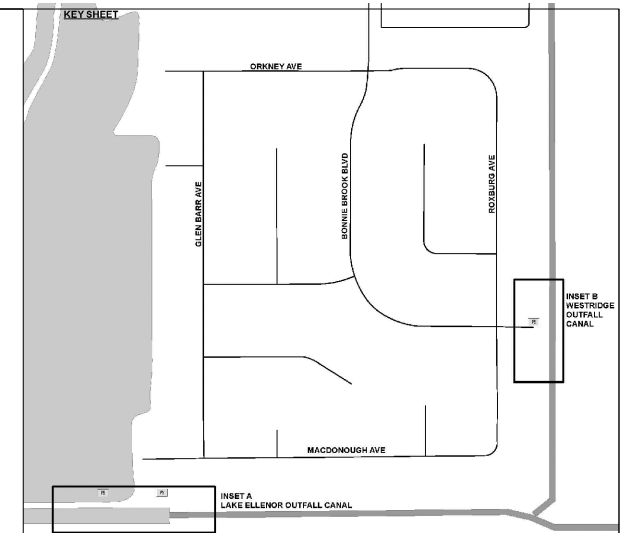
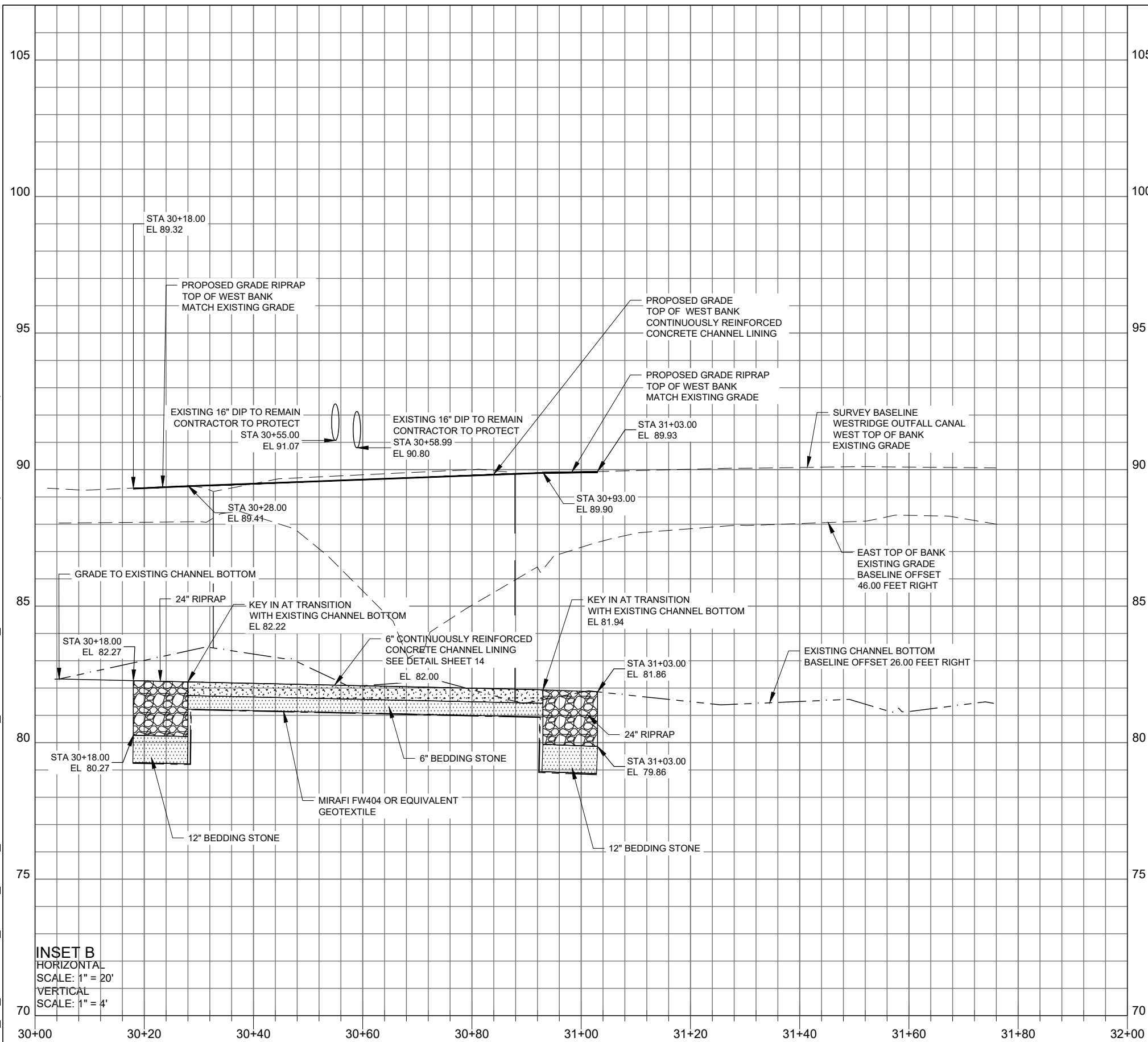
Lee G. Mullon, PE  
FL PE# 72414

AUTHORIZATION NUMBER 4321




## WESTRIDGE CANAL PLAN VIEW

SHEET NO.  
**7**

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**INSET B**  
 HORIZONTAL  
 SCALE: 1" = 20'  
 VERTICAL  
 SCALE: 1" = 4'

-  REINFORCED CONCRETE CHANNEL LINING
-  BEDDING STONE
-  RIPRAP

REVISIONS		
DATE	BY	DESCRIPTION

**BONNIE BROOK PUMP STATION  
 OUTFALL EROSION  
 CONTROL PROJECT**



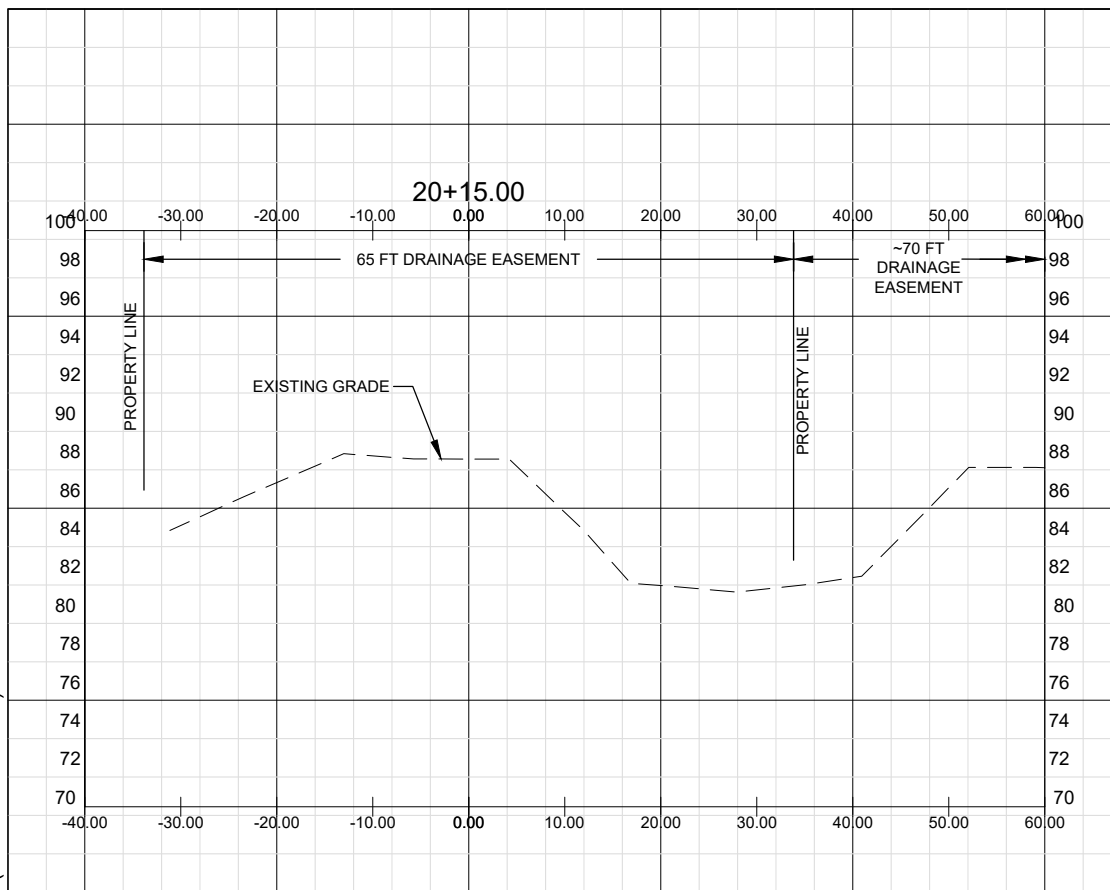
**Geosyntec**  
 consultants  
 1511 East State Road 434  
 Suite 1005  
 Winter Springs, FL 32708  
 Lee G. Mullon, PE  
 FL PE# 72414  
 AUTHORIZATION NUMBER 4321

**WESTRIDGE CANAL  
 PROFILE VIEW**

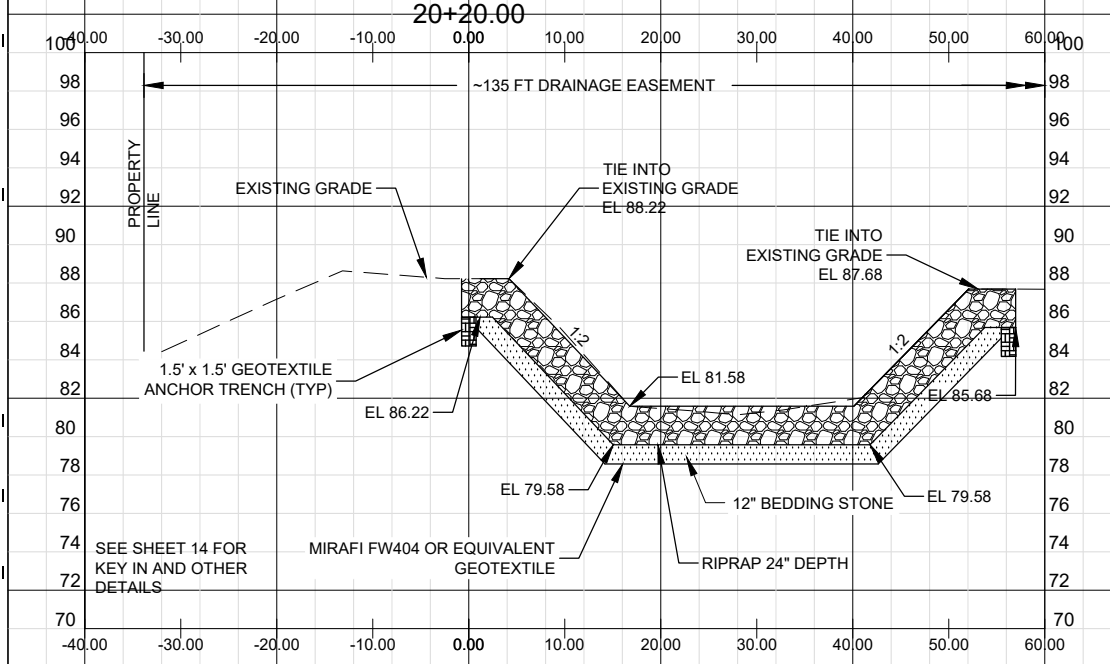
SHEET NO.  
**8**



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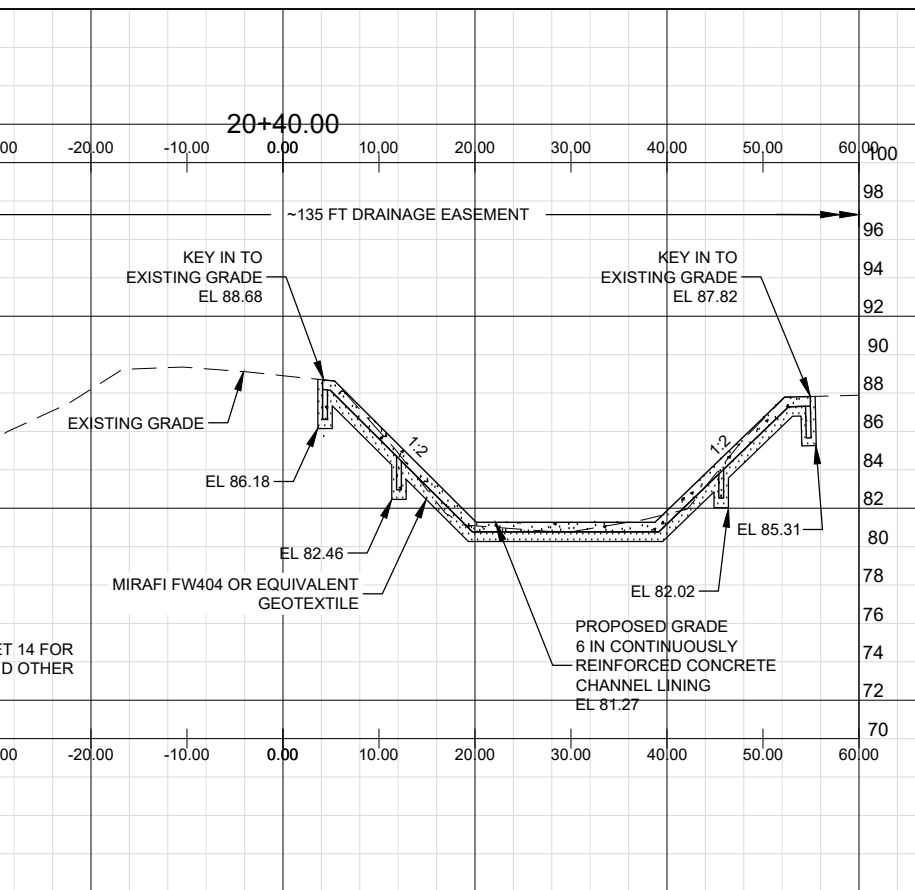
REGULAR EXC.		EMBANKMENT	
A	V	A	V
	0		0
0		0	



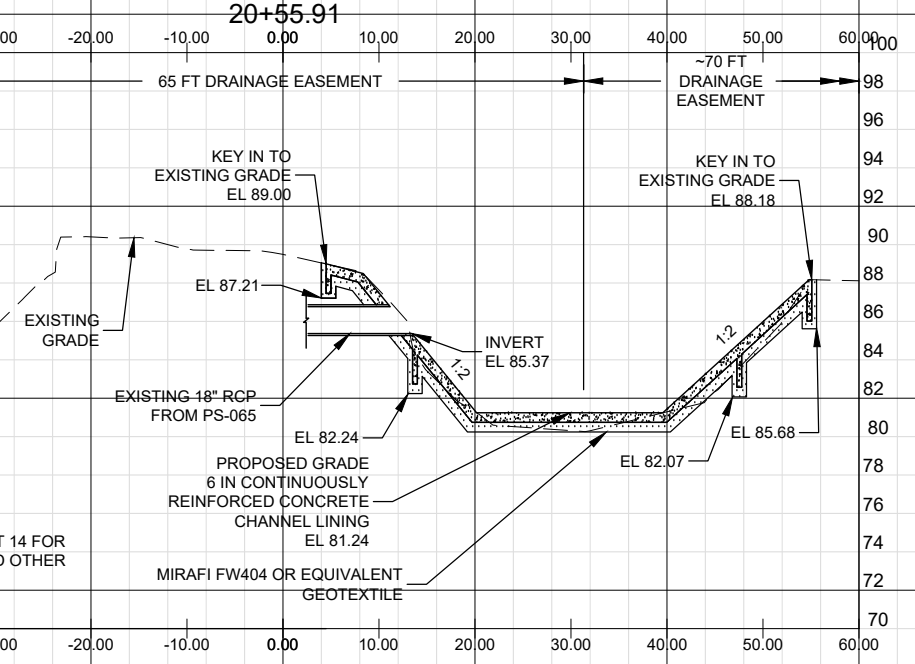
REGULAR EXC.		EMBANKMENT	
A	V	A	V
	0		0
12.64		0	
136.5		0	

REVISIONS		
DATE	BY	DESCRIPTION

**BONNIE BROOK PUMP STATION  
OUTFALL EROSION  
CONTROL PROJECT**



REGULAR EXC.		EMBANKMENT	
A	V	A	V
	70.0		0
52.5		0	



REGULAR EXC.		EMBANKMENT	
A	V	A	V
	29.02		0
46.0		0	

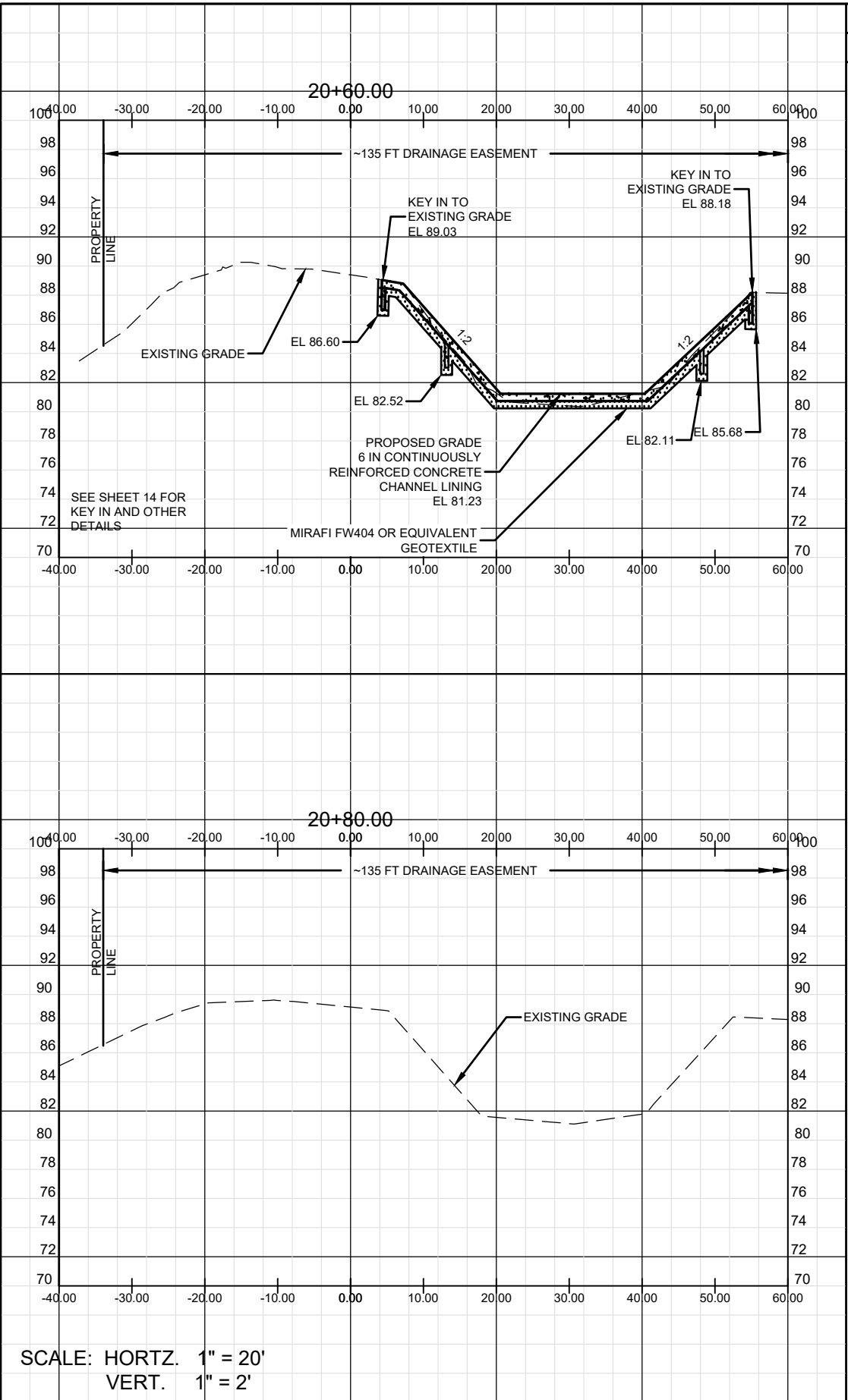
REVISIONS		
DATE	BY	DESCRIPTION

**BONNIE BROOK PUMP STATION  
OUTFALL EROSION  
CONTROL PROJECT**



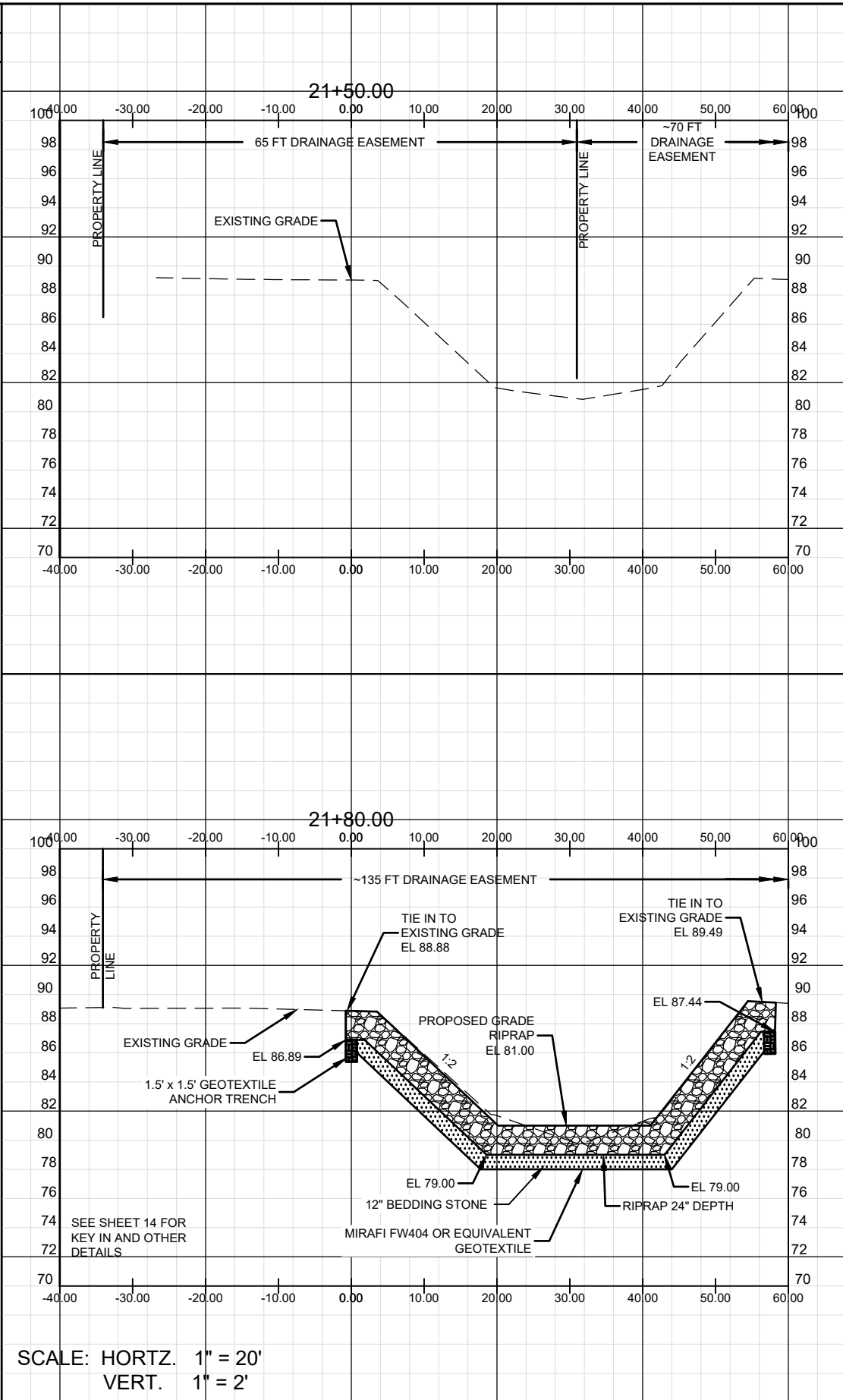
**LAKE ELLENOR OUTFALL CANAL  
CROSS SECTIONS**

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SCALE: HORTZ. 1" = 20'  
VERT. 1" = 2'

REGULAR EXC.		EMBANKMENT	
A	V	A	V
	7.31		0
50.5		0	
	18.70		0
0		0	



SCALE: HORTZ. 1" = 20'  
VERT. 1" = 2'

REGULAR EXC.		EMBANKMENT	
A	V	A	V
	0		0
0		0	
	87.89		0
158.2		0	

REVISIONS		
DATE	BY	DESCRIPTION

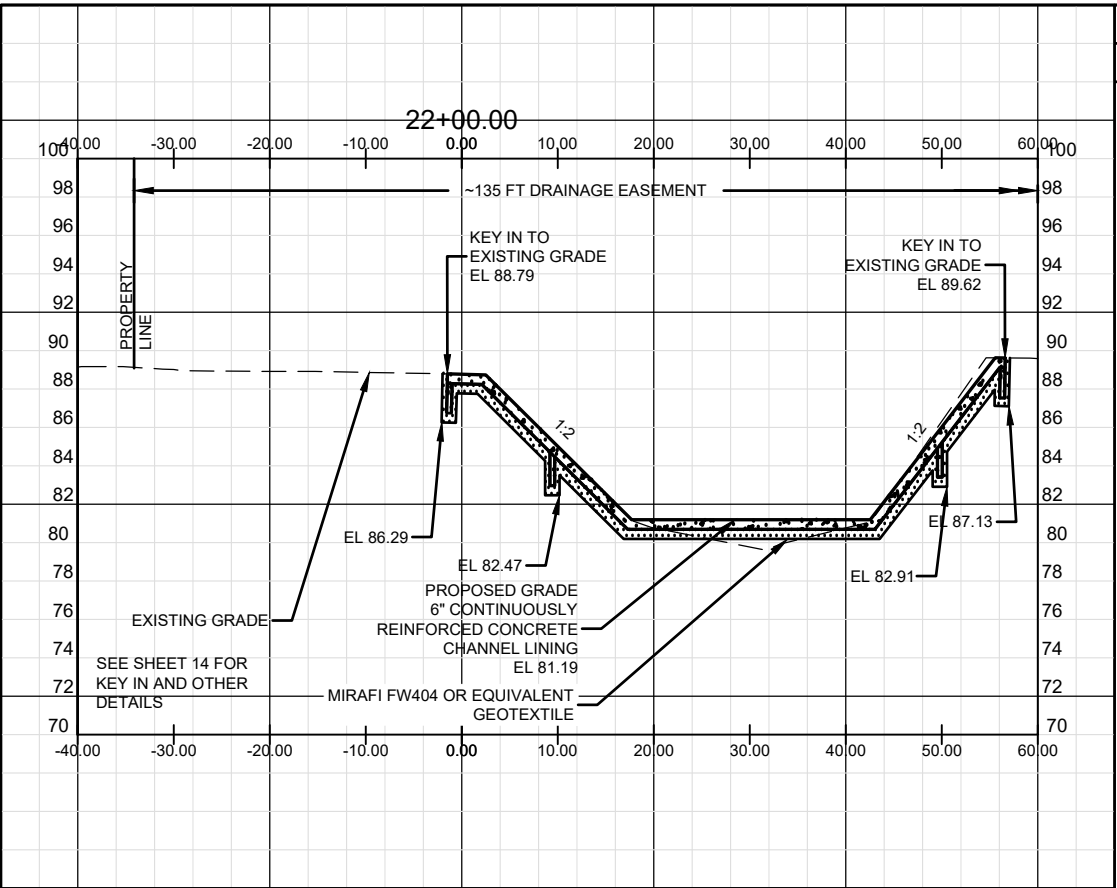
**BONNIE BROOK PUMP STATION  
OUTFALL EROSION  
CONTROL PROJECT**



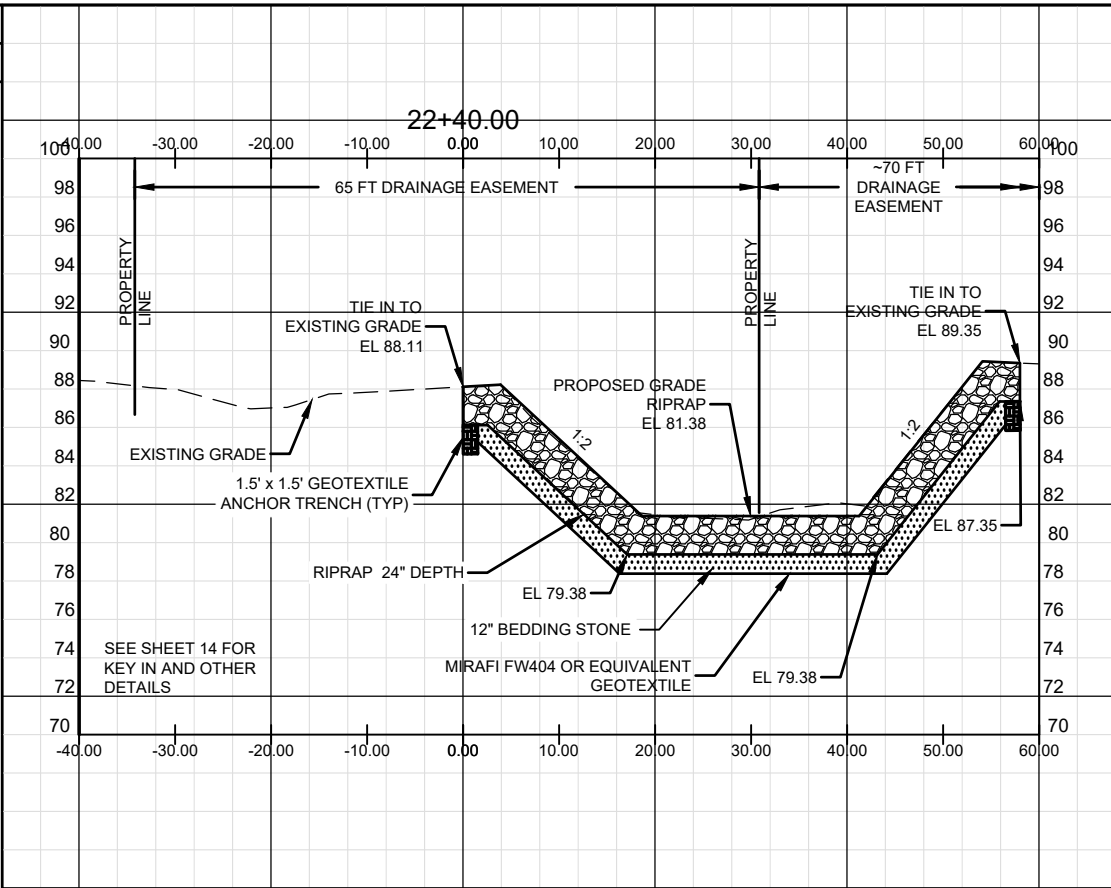
**Geosyntec**  
consultants  
1511 East State Road 434  
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Lee G. Mullon, PE  
FL PE# 72414  
AUTHORIZATION NUMBER 4321

**LAKE ELLENOR OUTFALL CANAL  
CROSS SECTIONS**

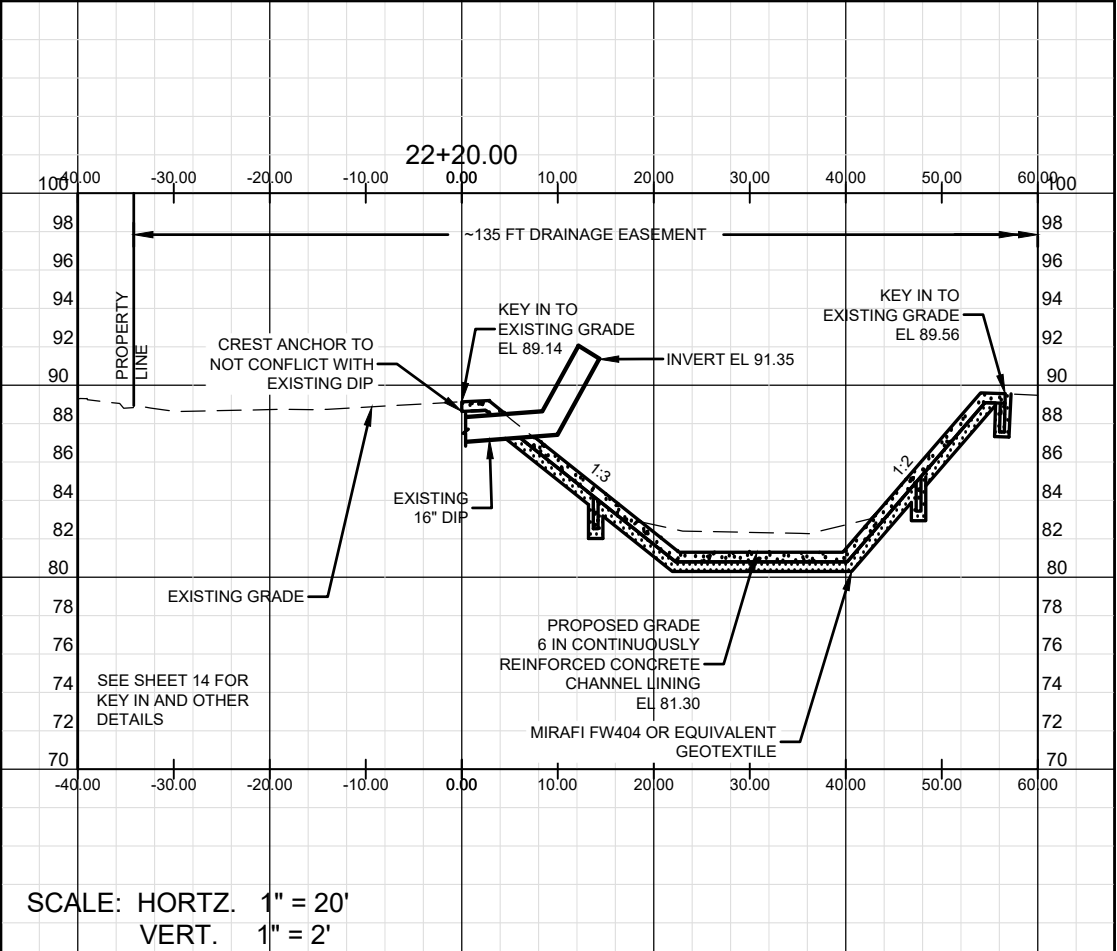
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REGULAR EXC.		EMBANKMENT	
A	V	A	V
	83.59		1.04
67.5		2.81	



REGULAR EXC.		EMBANKMENT	
A	V	A	V
	77.5		0
119.25		0	



REGULAR EXC.		EMBANKMENT	
A	V	A	V
	58.33		1.04
90.00		0	

REVISIONS		
DATE	BY	DESCRIPTION

**BONNIE BROOK PUMP STATION  
OUTFALL EROSION  
CONTROL PROJECT**



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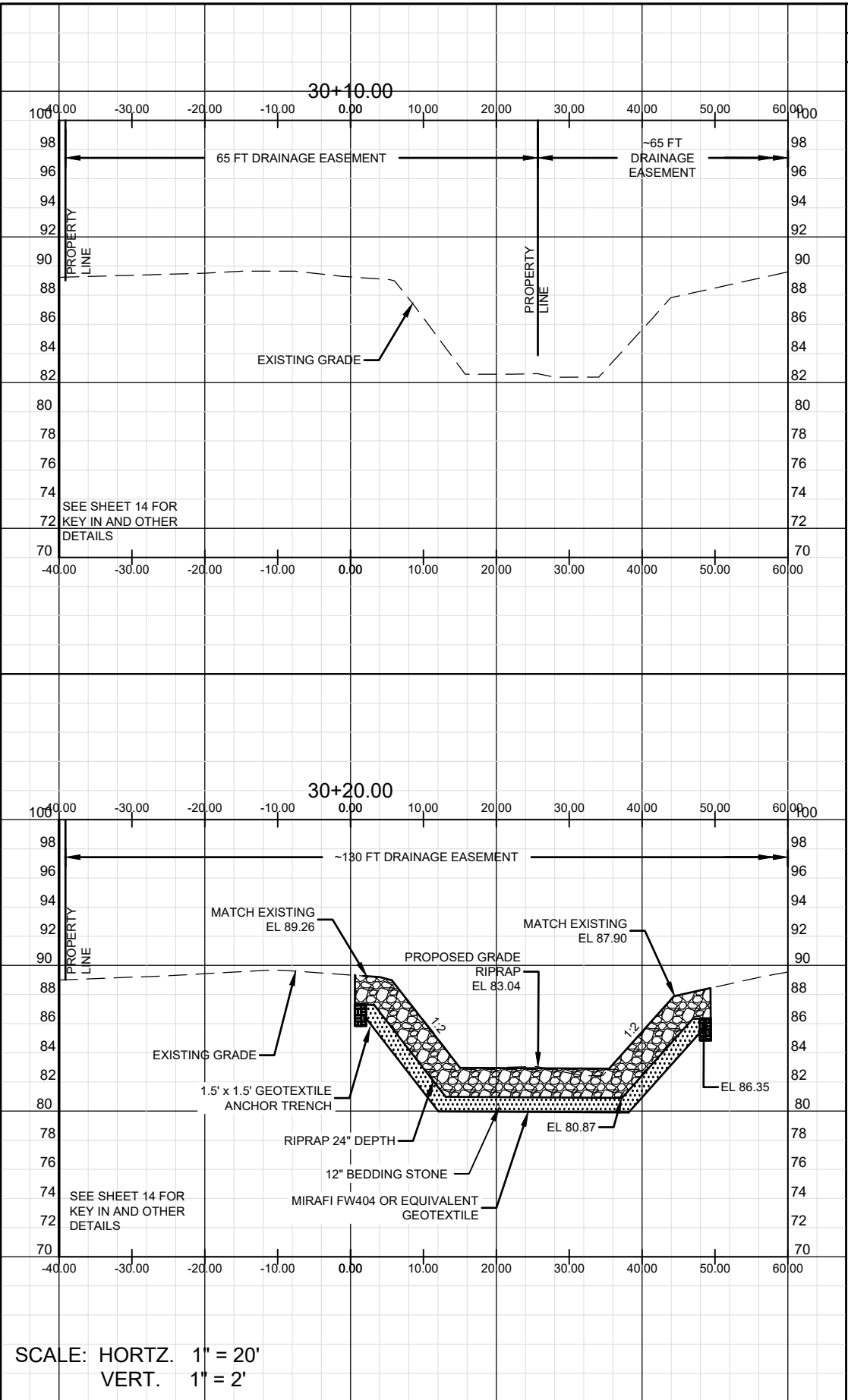
1511 East State Road 434  
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FL PE# 72414

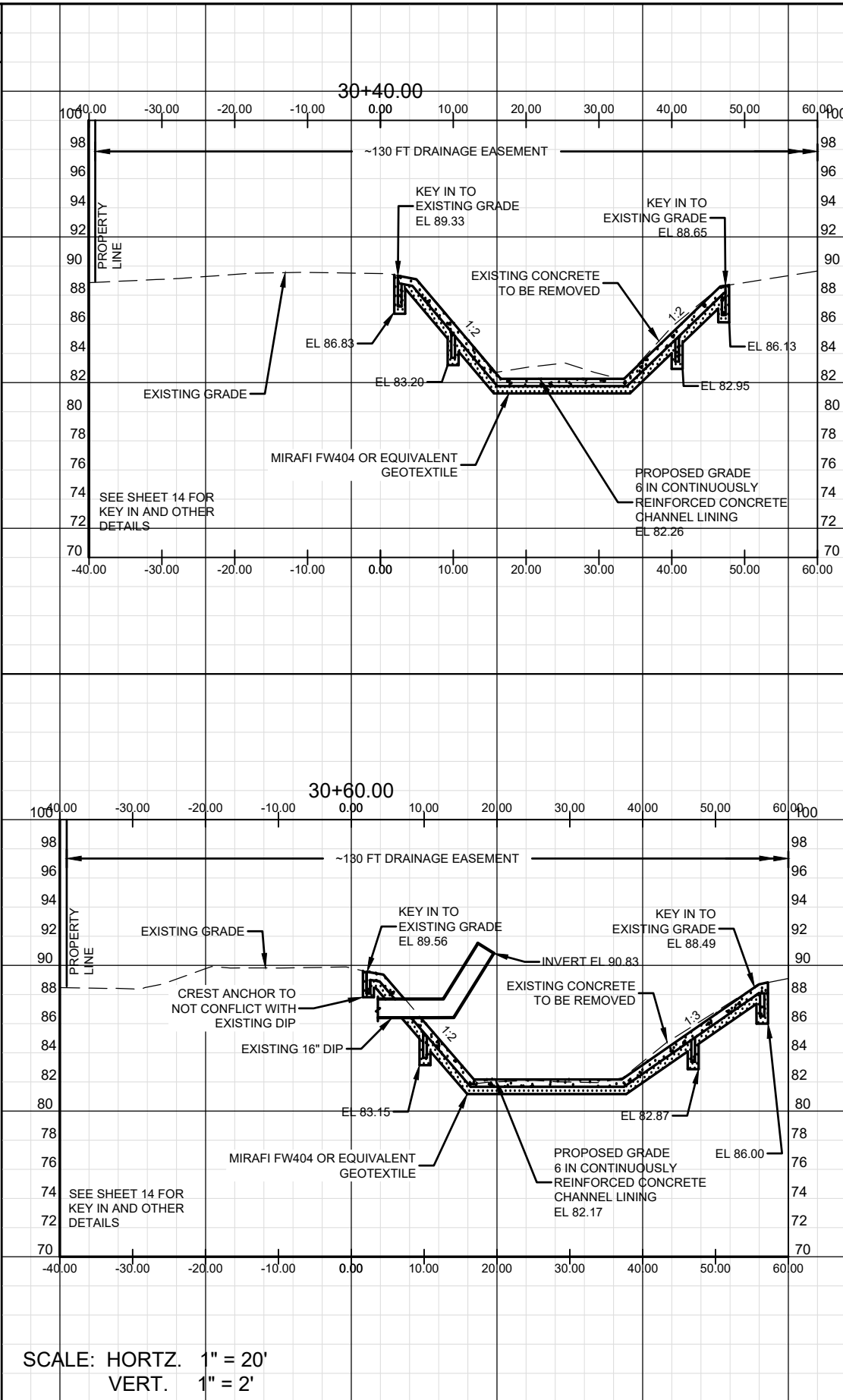
AUTHORIZATION NUMBER 4321

**LAKE ELLENOR OUTFALL CANAL  
CROSS SECTIONS**

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REGULAR EXC.		EMBANKMENT	
A	V	A	V
0	0	0	0
0	0	0	0
34.81	0	0	0
188	0	0	0



REGULAR EXC.		EMBANKMENT	
A	V	A	V
98.89	0	0	0
79.0	0	0	0
57.59	0	0	0
76.5	0	0	0

SCALE: HORTZ. 1" = 20'  
 VERT. 1" = 2'

SCALE: HORTZ. 1" = 20'  
 VERT. 1" = 2'

REVISIONS		
DATE	BY	DESCRIPTION

**BONNIE BROOK PUMP STATION  
 OUTFALL EROSION  
 CONTROL PROJECT**

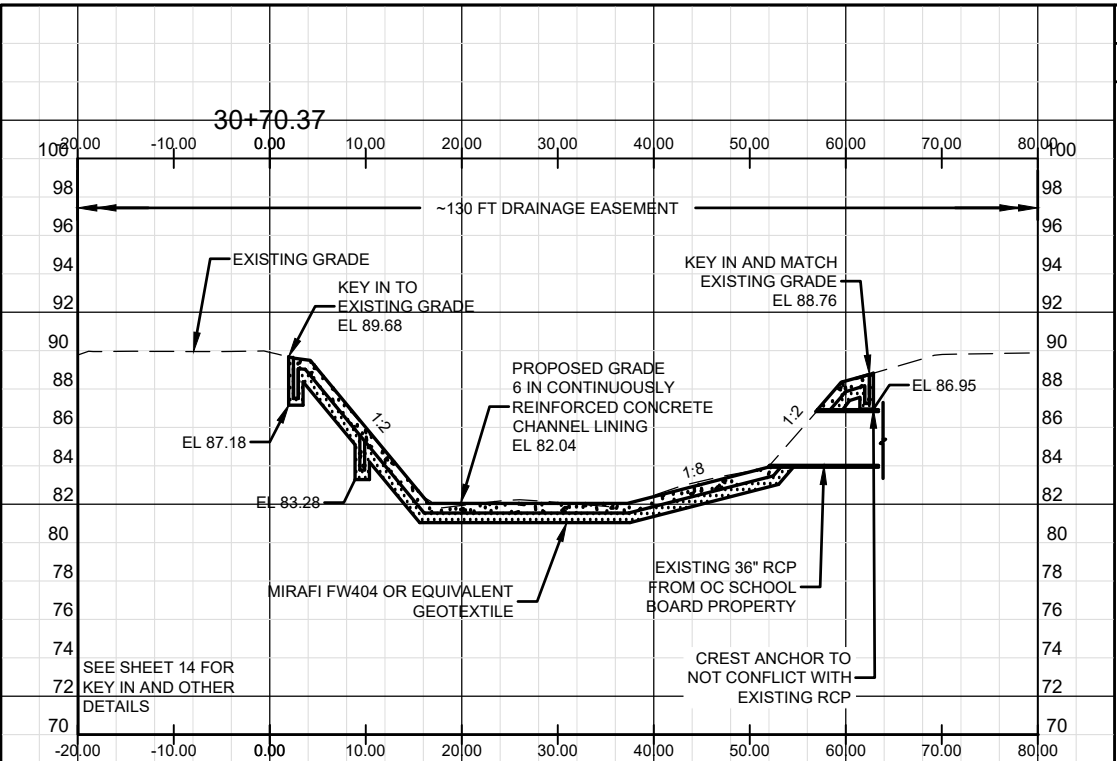


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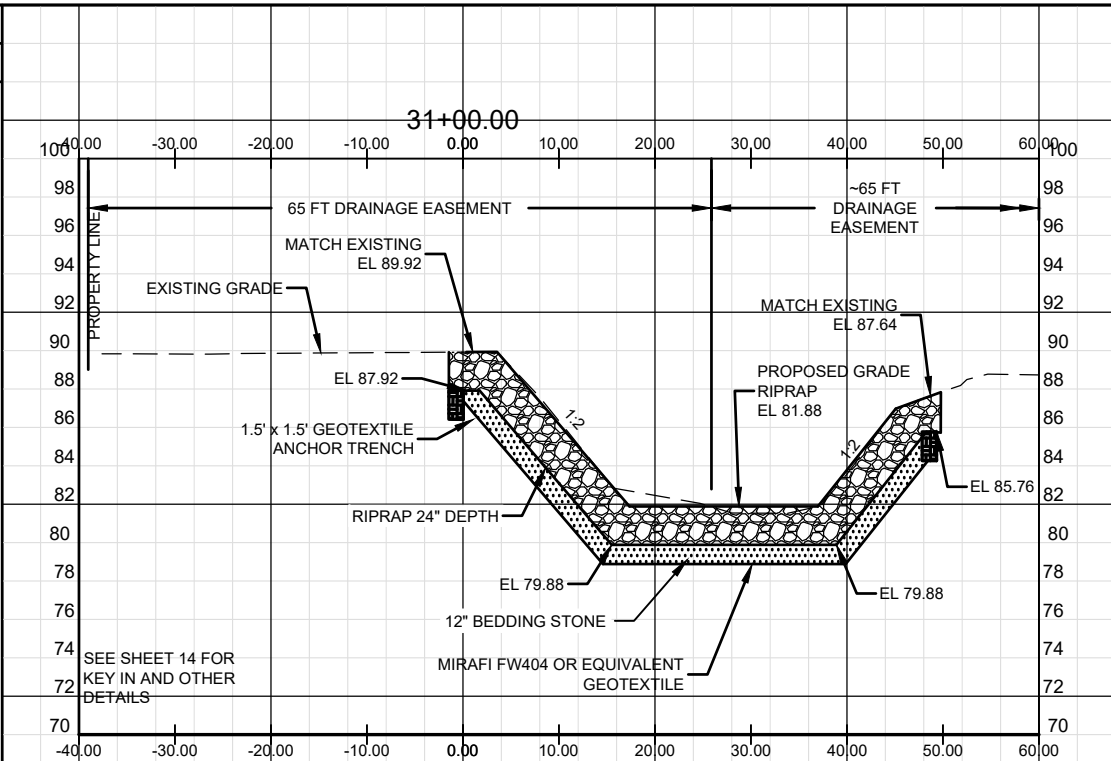
**WESTRIDGE CANAL  
 CROSS SECTIONS**

SHEET NO.  
**12**

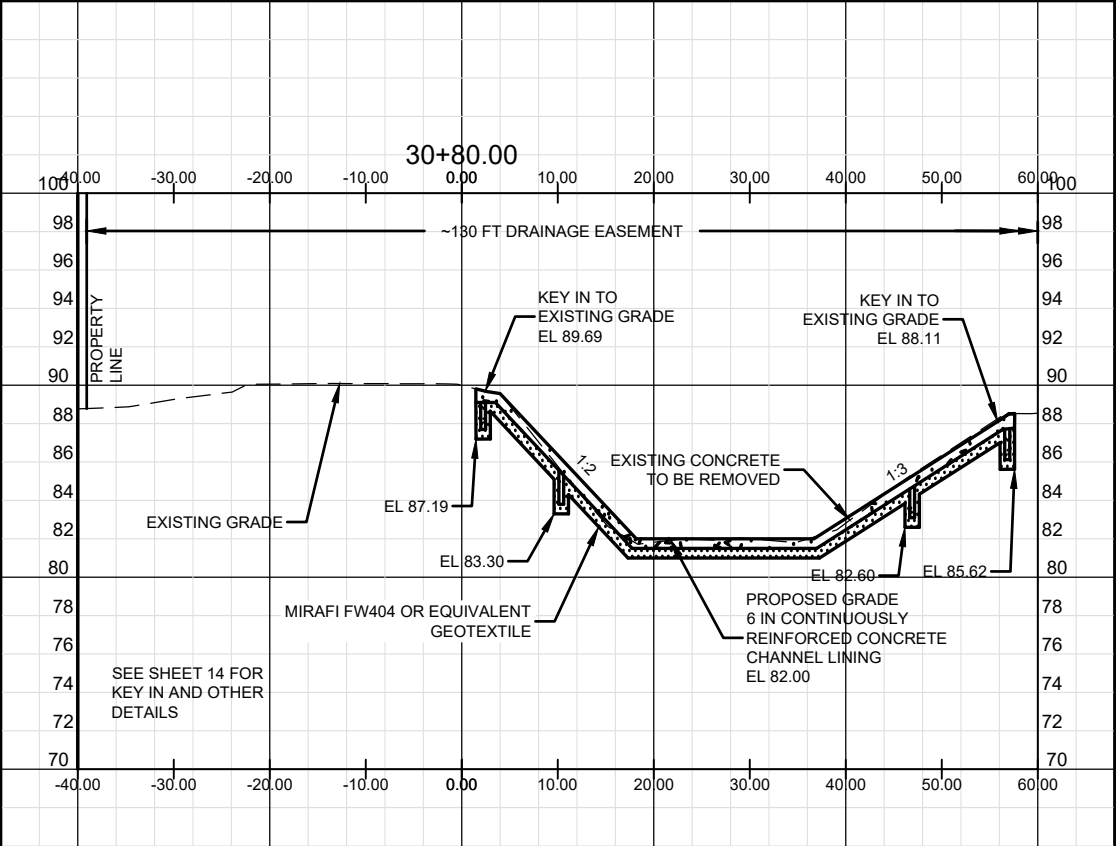
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REGULAR EXC.		EMBANKMENT	
A	V	A	V
	29.77		0
78.5		0	



REGULAR EXC.		EMBANKMENT	
A	V	A	V
	74.0		0
132.8		0	



	25.95		0
67.0		0	

SCALE: HORTZ. 1" = 20'  
VERT. 1" = 2'

SCALE: HORTZ. 1" = 20'  
VERT. 1" = 2'

REVISIONS		
DATE	BY	DESCRIPTION

**BONNIE BROOK PUMP STATION  
OUTFALL EROSION  
CONTROL PROJECT**



**Geosyntec**  
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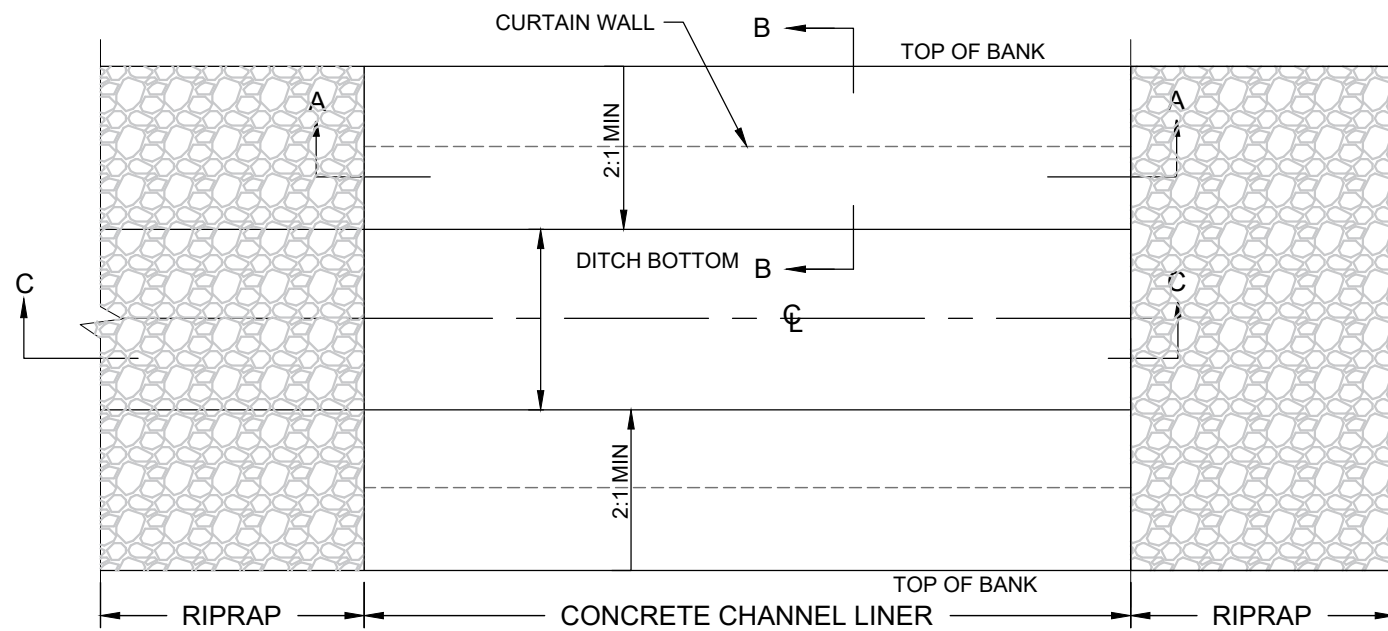
1511 East State Road 434  
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FL PE# 72414

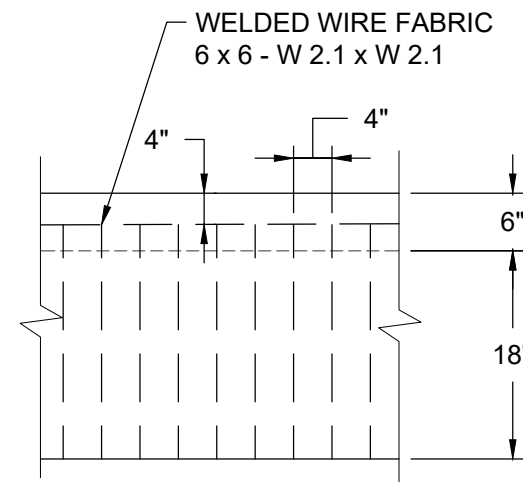
AUTHORIZATION NUMBER 4321

**WESTRIDGE CANAL  
CROSS SECTIONS**

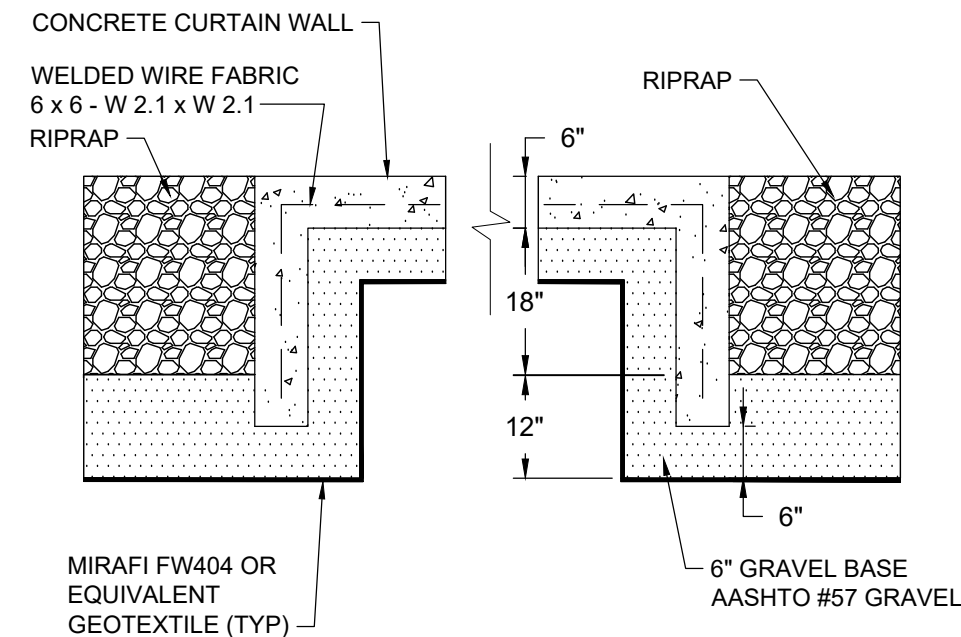
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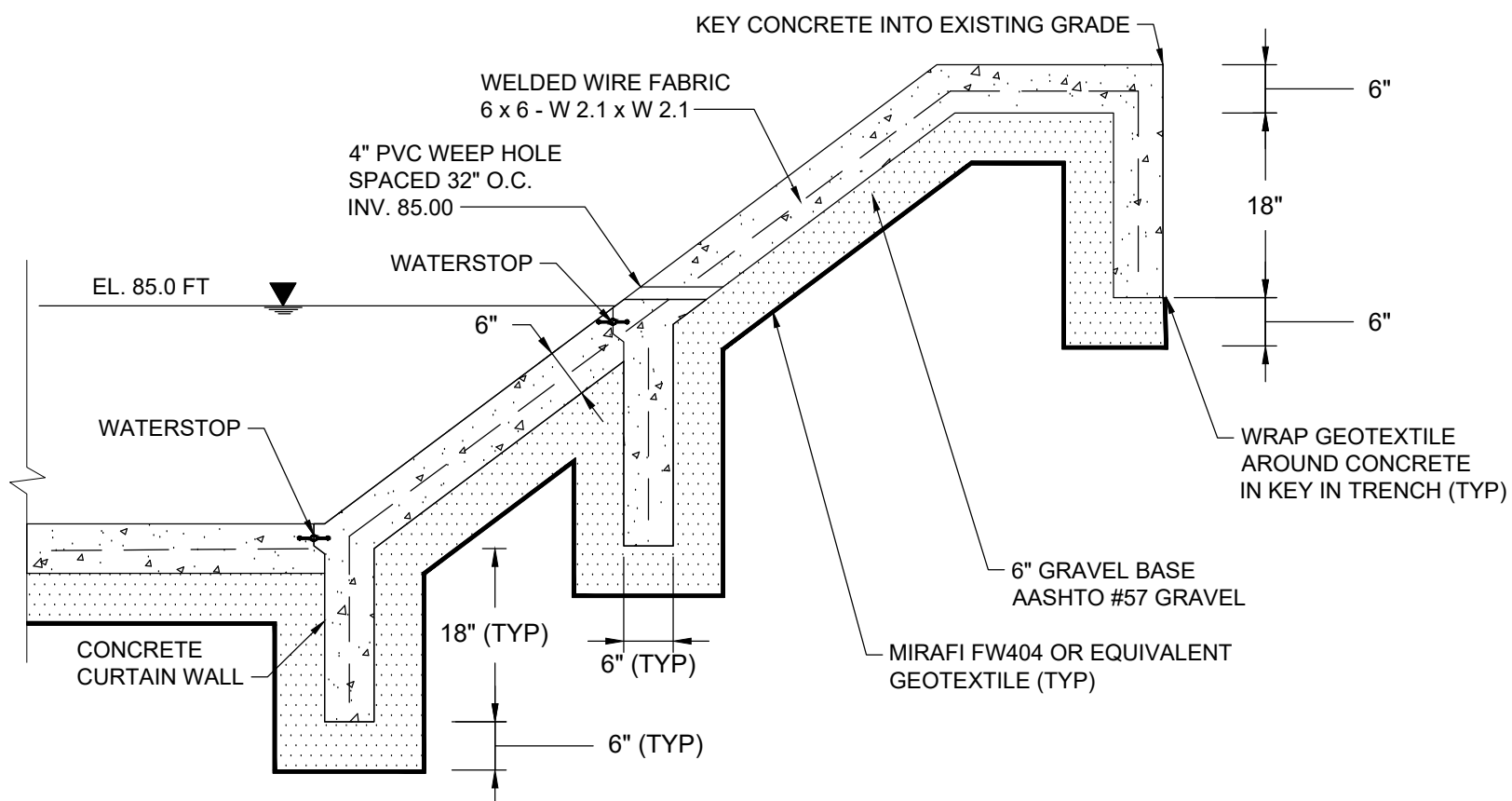
**CONTINUOUSLY REINFORCED CONCRETE CHANNEL LINER  
PLAN VIEW**



**SECTION A-A  
CURTAIN WALL PROFILE VIEW**

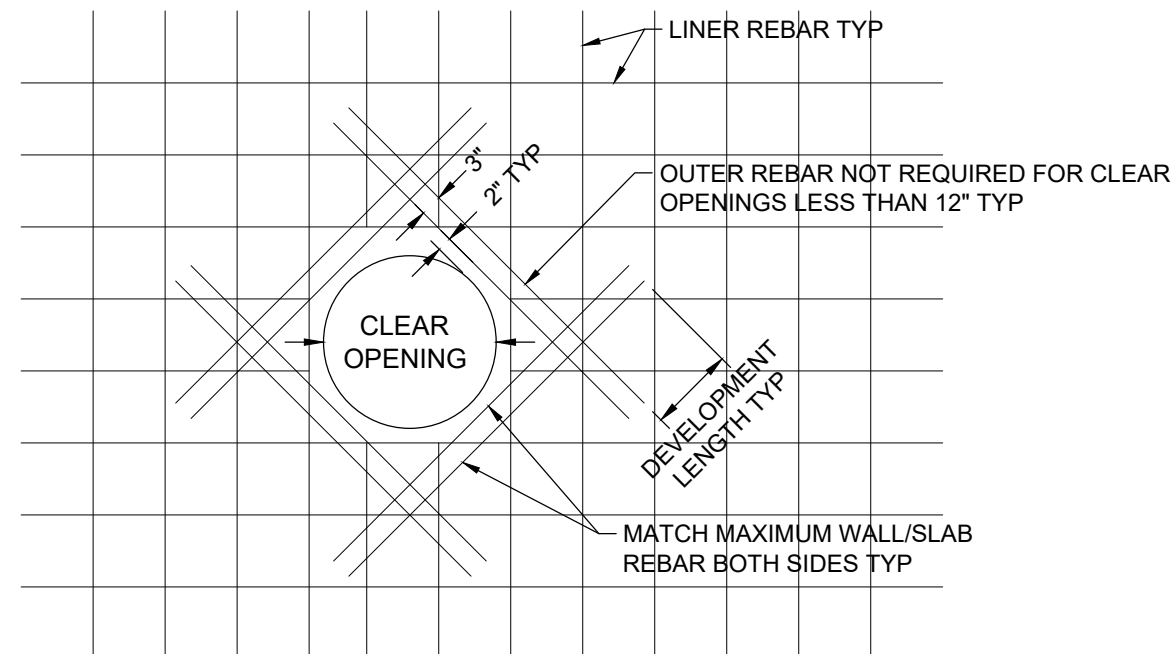


**SECTION C-C  
UPSTREAM AND DOWNSTREAM END DETAIL**



**SECTION B-B  
CONTINUOUSLY REINFORCED CONCRETE CHANNEL LINER**

**NOTE:**  
GEOTEXTILE INSTALLATION TO START AT BOTTOM  
OF CHANNEL AND BE PAVED UPSLOPE



**CONCRETE CHANNEL LINER PIPE OPENING**

REVISIONS		
DATE	BY	DESCRIPTION

**BONNIE BROOK PUMP STATION  
OUTFALL EROSION  
CONTROL PROJECT**



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AUTHORIZATION NUMBER 4321

**DRAINAGE AND  
MISCELLANEOUS DETAILS**

SHEET  
NO.  
**14**

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The following narrative is the Stormwater Prevention Plan and contains references to the FDOT Standards Specifications for Road and Bridge Construction, the FDOT Design Standards (latest edition), and other sheets of these construction plans. The complete Stormwater Pollution Prevention plan includes several items:

- this narrative description,
- the documents referenced in this narrative,
- the Contractor's approved Erosion Control Plan required by Section 104 of the FDOT Standard Specifications for Road and Bridge Construction (latest edition) herein after referred to as the Section 104 Erosion Control Plan, and
- reports of inspection made during construction.

**1.0 SITE DESCRIPTION**

**1.a Nature of Construction Activity:**

The Bonnie Brook Pump Stations PS072 and PS029 are located within the Bonnie Brook subdivision, along with the Mitigation Pond Pump Station PS065 located just southwest of the subdivision. All three pump stations discharge to canals associated with the Lake Ellenor outfall canal, which in turn discharges to Shingle Creek.

**1.b Sequence of Major Soil Disturbing Activities:**

In the Section 104 Erosion Control Plan, the Contractor shall provide a detailed sequence of construction activities. The Contractor shall follow the sequence provided below, unless an alternative sequence proposed by the Contractor is approved by the County.

1. Install all temporary erosion control devices consistent with the Phase I and Phase II Site Maps depicted on Sheet 16-17.
2. Excavate the unwanted, existing soils and muck to be hauled overland for proper disposal. Remove existing soils, pipe and pavement, etc. and prepare the area for proposed improvements.
3. Construct the proposed pipes, inlets, and curbs
4. Stabilize the site with sod.

**1.c Area Estimates:**

Total project contributing drainage area: 49 acres.

Total area to be disturbed: 0.83 acres.

**1.d Runoff Data:** Refer to Diversion Plans Sheets 18-19.

**1.e Soils Data:**

Soil variability exists on-site with loose to medium dense fine sand to fine sand with silt as well as very loose silty fine sand. No muck was encountered in the project area. For additional information, see the geotechnical report prepared by GEC dated May, 2015.

**1.f Outfall Information Description:**

The 2 pump stations within the Bonnie Brook subdivision (PS072 and PS029), function as the primary outfalls of the subdivision, and were installed to provide flood protection to the Bonnie Brook residences. The Mitigation pump station (PS065) was installed to control the water elevation of the conservation area located west of the subdivision. Each pump station outfalls to a section of canal that is experiencing various degrees of erosion.

**1.g Site Map:**

The site maps consist of the construction plans. The location of the required information is described below. The sheet numbers for the plan sheets referenced are identified on the Key Sheet.

- Drainage Patterns - The proposed flow directions are shown on the plan and profile sheets.
- Approximate Slopes - The slopes of the site can be seen in the Cross Section Sheets and Plan and Profile Sheets.
- Areas of Soil Disturbance - The areas to be disturbed are indicated on the Plan Sheets and the Cross Section Sheets.
- Locations of Temporary Controls - The temporary erosion control measures are depicted in the Phase I and Phase II Stormwater Pollution Prevention Plan (SWPPP) Maps on Sheets 16-17. Phase I SWPPP map depicts the erosion control protection devices required when the contractor first mobilizes, including silt fencing, synthetic hay bales, and soil tracking prevention devices. Phase II SWPPP map depicts the erosion control protection devices required during and after the stormwater infrastructure has been improved, and includes silt fencing, synthetic hay bales, soil tracking prevention devices. The Summary of Quantities provides quantities for silt fencing. Additional temporary controls shall be implemented as necessary during interim construction periods, or where the proposed controls do not adequately protect off-site regions from experiencing sediment releases from on-site areas.
- Locations of Permanent Controls - The permanent erosion control measures include sodding of pervious areas. The Summary of Pay Items provides quantities for sodding.
- Areas To Be Stabilized - Temporary stabilization practices are shown in the Contractor's Erosion Control Plan. Permanent stabilization consists of sodding disturbed areas. The limits of sod are shown on the cross-sections.

Surface Waters - The project drainage system design conveys stormwater directly to Shingle Creek.

**2.0 CONTROLS:**

**2.a Erosion And Sediment Controls:**

In the Section 104 Erosion Control Plan, the Contractor shall describe the proposed stabilization and structural practices based on the Contractor's proposed Traffic Control Plan. The Contractor may elect to accept the following guidelines or modify them in the Section 104 Erosion Control Plan, subject to approval of the County

Engineer. As work progresses, the Contractor may need to modify the plan to adapt to seasonal variation, and changes in construction activities.

**2.a.1 Stabilization Practices:**

In the Section 104 Erosion Control Plan, the Contractor shall describe the stabilization practices proposed to control erosion. The Contractor shall initiate all stabilization measures as soon as practical, but in no case more than 7 days, in portions of the site where construction activities have temporarily or permanently ceased. The stabilization practices shall include at least the following, unless otherwise approved by the County Engineer.

**Temporary:**

- Artificial coverings in accordance with Specification Section 104.
- Seeding / Sod in accordance with Specification Section 104.

**Permanent:**

- Sod in accordance with Specification Section 575.

**2.a.2 Structural Practices:**

In Section 104 Erosion Control Plan, the Contractor shall describe the proposed structural practices to prevent the discharge of sediments from exposed areas of the site. Sediment controls shall be in place before disturbing soil upstream of the control. The structural practices shall include at least the following unless otherwise approved by the County Engineer.

**Temporary:**

- Silt fence in accordance with Index 102 and Specification Section 104.
- Permanent:
- Sod in accordance with Specification Section 575.

**2.b Stormwater Management:**

A storm drain system will be constructed to convey runoff downstream. This system complies with South Florida Water Management District (SFWMD) Permit Number: [To be Determined upon Permit Issuance].

**2.c Other Controls:**

**2.c.1 Waste Disposal:**

In the Section 104 Erosion Control Plan, the Contractor shall describe the proposed methods to prevent the discharge of solid materials, including building materials, to waters of the United States. The proposed methods shall include at least the following.

- Providing litter control and collection within the project during construction activities. Disposing of all fertilizer or other chemical containers according to EPA's standard practices as detailed by the manufacturer.
- Disposing of solid materials including building and construction materials off the project site.

**2.c.2 Off-Site Vehicle Tracking & Dust Control:**

In the Section 104 Erosion Control Plan, the Contractor shall describe the proposed methods for minimizing offsite tracking of sediments and dust. The methods shall include at least the following.

- Covering loaded haul trucks with tarpaulins.
- Removing excess dirt from roads daily.
- Using roadway sweepers during dust generating activities such as excavation and hauling operations.

**2.c.3 State and Local Regulations For Waste Disposal, Sanitary**

**Sewer, Or Septic Tank Regulations -** In the Section 104 Erosion Control Plan, the Contractor shall describe the proposed procedures to comply with applicable state and local regulations for waste disposal, and sanitary sewer or septic systems.

**2.c.4 Fertilizers and Pesticides -** In the Section 104 Erosion Control Plan, the Contractor shall describe the procedures for applying fertilizers and pesticides. The proposed procedures shall comply with applicable subsections of either Section 570 or 577 of the Specifications.

**2.c.5 Toxic Substances -** In the Section 104 Erosion Control Plan, the Contractor shall provide a list of toxic substances that are likely to be used on the job and provide a plan addressing the generation, application, migration, storage, and disposal of these substances.

**2.d Approved State and Local Plans and Permits- SFWMD ERP#: [To Be Determined].**

**3.0 MAINTENANCE:**

In the Section 104 Erosion Control Plan, the Contractor shall provide a plan for maintaining all erosion and sediment controls throughout construction. The maintenance plan shall at a minimum, comply with the maintenance of silt fence and inlet protection per Section 104.

**4.0 INSPECTIONS:**

Qualified personnel shall inspect the following items at least once every seven calendar days and within 24 hours of the end of a storm that is 0.25 inches or greater. The Contractor shall install and maintain rain gages and record daily rainfall.

- Disturbed areas of the site that have not been finally stabilized.
- Areas used for storage of materials that are exposed to precipitation.
- Structural controls.
- Stormwater management systems.
- Locations where vehicles enter or exit the site.

The Contractor shall initiate repairs within 24 hours of inspections that indicate items require repairs. If inspections indicate that the installed stabilization and structural practices are not sufficient to minimize erosion, retain sediment, and prevent discharging pollutants, the Contractor shall provide additional measures, as approved by the County.

**5.0 NON-STORMWATER DISCHARGES:**

In the Section 104 Erosion Control Plan, the Contractor shall identify all anticipated non-stormwater discharges (except flows from firefighting activities). The Contractor shall describe the proposed measures to prevent pollution of these non-stormwater discharges such as:

- Dewatering - The Contractor shall develop, as needed, any dewatering system that provides pretreatment of effluent prior to discharge along with meeting any Federal, State, and local dewatering permit laws, rules, and regulations.
- Dust Control - The Contractor shall develop in Section 104 Erosion Control Plan dust control plan and remedial action to correct any malfunctioning measures.
- Equipment Washout - The Contractor shall develop in Section 104 Erosion Control Plan an effective plan to control equipment washout and other erosive conditions from equipment cleaning processes, and remedial action to correct any malfunctioning measures.
- Hazardous Material Spill - The Contractor shall develop in Section 104 Erosion Control Plan an effective plan to control in the event any hazardous materials should spill and remedial action to correct any malfunctioning measures. If the Contractor encounters contaminated soil or groundwater, the Contractor shall contact the Orange County Health Department, and the County immediately.

**EROSION CONTROL GENERAL NOTES**

1. The contractor shall execute all measures necessary to limit the transport of sediments outside the limits of the project to the volume and amount that are existing prior to the commencement of construction. This condition will be satisfied for the total anticipated construction period. Provisions must be made to preserve the integrity and capacity of grading patterns and BMPs required to meet this provision throughout the life of the construction. The contractor shall provide silt barriers, inlet protection, temporary grassing, etc. as required to fully comply with the intent of this specification.
2. No excavated material shall be stockpiled in such a manner as to direct runoff directly off the project site or into any adjacent water body or stormwater collection facility.
3. The surface area of open, raw erodible soil exposed by clearing and grubbing operations or excavation and filling operations shall be controlled, so that this operation will not significantly affect off-site deposit of sediments.
4. Water quality units and ditch bottom inlets shall be protected from sediment laden stormwater runoff until the completion of all construction operations that may contribute sediment to the inlet.
5. Areas opened by construction operations that are not anticipated to be dressed or receive final grassing treatment within thirty days shall be seeded with a quick growing grass species which will provide an early cover during the season in which it is planted. Temporary seeding shall be controlled so as to not alter or compete with permanent grassing. The rate of seeding shall be 30 pounds per acre.
6. The seeded or seeded and mulched area(s) shall be rolled and watered as required to assure optimum growing conditions for the establishment of a good grass cover.
7. If after 14 days, the temporary grassed areas have not attained a minimum of 75% good grass cover, the area will be reworked and additional seed applied to establish the desired vegetation cover.
8. All features of the project shall be constructed to prevent erosion and sediment and shall be maintained during the life of the construction so as to function properly without the transport of sediments outside the limits of the project.
9. All disturbed areas outside the excavation and fill limits will be restored to a condition equal to or better than their condition prior to construction.
10. The contractor will be responsible for maintenance of all newly planted grasses or vegetation and retention/detention facilities until the work has been accepted by the County.
11. The contractor shall be responsible for the stability of embankments and shall replace any portion, which in the opinion of the engineer, has become displaced due to erosion or due to carelessness or negligence on the part of the contractor.
12. The contractor shall comply with all federal, state and local laws and regulations controlling pollution of the environment. Measures shall be taken by the contractor to control erosion and sediment runoff from the site during construction. Such methods shall be in accordance with the current FDOT standards.
13. 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.
14. All fill embankment and graded areas shall be protected against erosion by methods stated in section 104, "F.D.O.T. Standard Specifications for Bridge and Road Construction." Side slopes may be seeded and mulched, provided that the mulch material is disk harrowed and the side slopes are neither greater than 3:1 nor part of a drainage conveyance.

REVISIONS		
DATE	BY	DESCRIPTION

**BONNIE BROOK PUMP STATION  
OUTFALL EROSION  
CONTROL PROJECT**

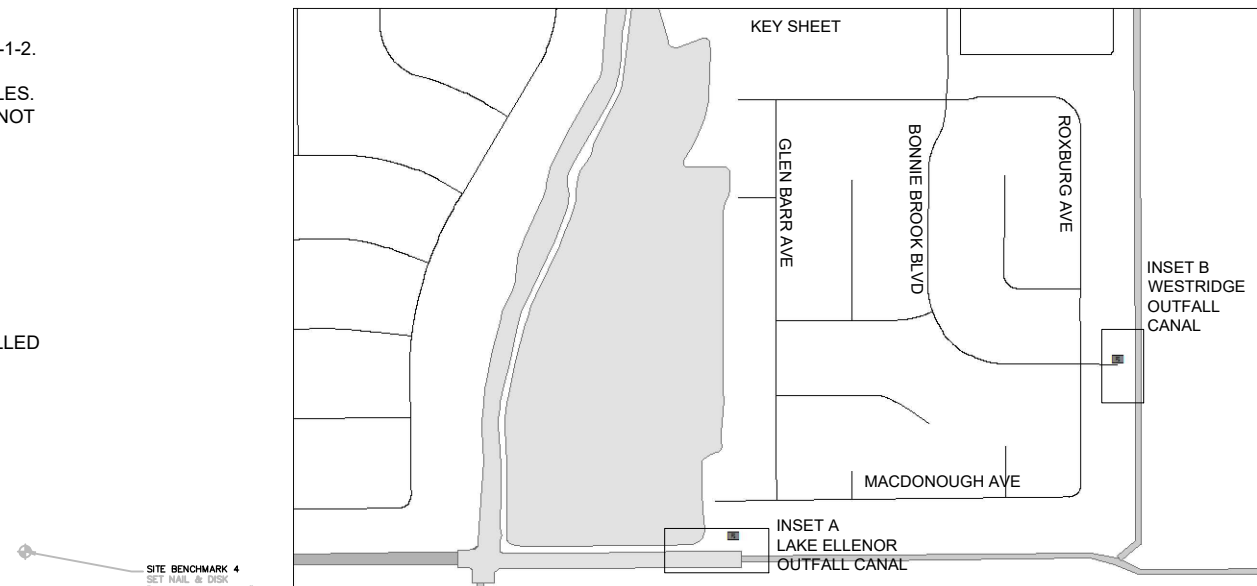


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**SWPPP NOTES**

**NOTES:**

1. STABILIZE ALL DISTURBED AREAS WITH SOD PER PAY ITEM 570-1-2.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTION OF TRANSPORT OF SEDIMENT OFFSITE BY CONSTRUCTION VEHICLES. VEHICLES SHALL BE INSPECTED TO INSURE SEDIMENTS HAVE NOT ACCUMULATED ON TIRES PRIOR TO LEAVING SITE.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ADDITIONAL CONVEYANCE IN THE EVENT OF A STORM EVENT DURING CONSTRUCTION. CONTRACTOR TO PROVIDE THE NECESSARY CONVEYANCE INFRASTRUCTURE (PUMPS, DIVERSIONS, ETC...) BASED ON THE RAINFALL RUNOFF TABLE PROVIDED ON THIS SHEET.
4. ALL DISTURBED AREAS TO RECEIVE PERMANENT SODDING IN PHASE II.
5. TEMPORARY EROSION PROTECTION DEVICES SHALL BE INSTALLED PER FDOT INDEX 102, 106.



SOIL TRACKING PREVENTION DEVICE WITH SEDIMENT PIT (CONSTRUCTION ENTRANCE AND EXIT LOCATION) PER FDOT INDEX 106

SCALE 1"=50' INSET A

SCALE 1"=50' INSET B

SILT FENCE PER FDOT INDEX 102 (TYP)

SOIL TRACKING PREVENTION DEVICE WITH SEDIMENT PIT (CONSTRUCTION ENTRANCE AND EXIT LOCATION) PER FDOT INDEX 106

# SWPPP SITE MAP PHASE I

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**BONNIE BROOK PUMP STATION  
OUTFALL EROSION  
CONTROL PROJECT**



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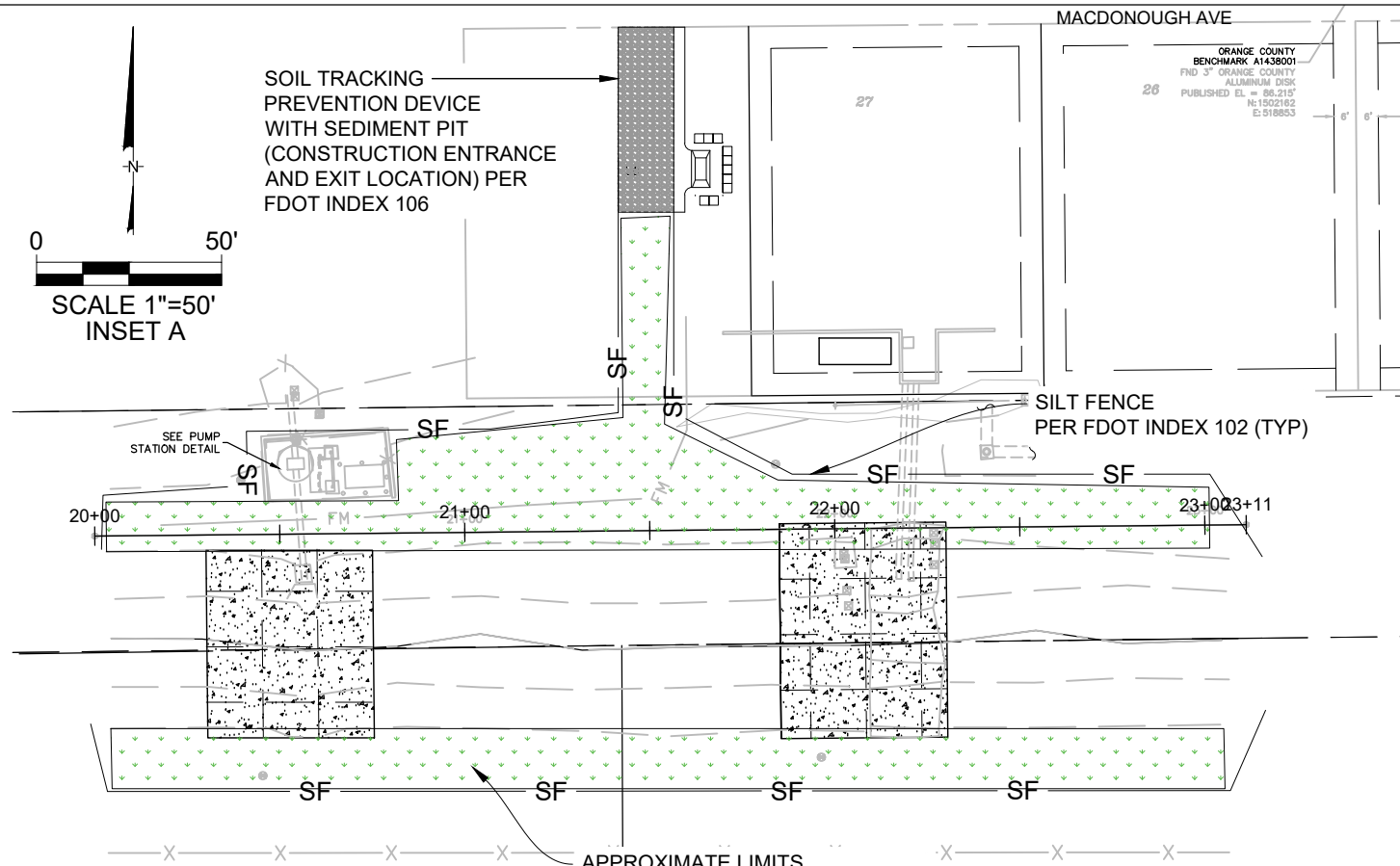
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**SWPPP MAPS**

SHEET NO.  
**16**

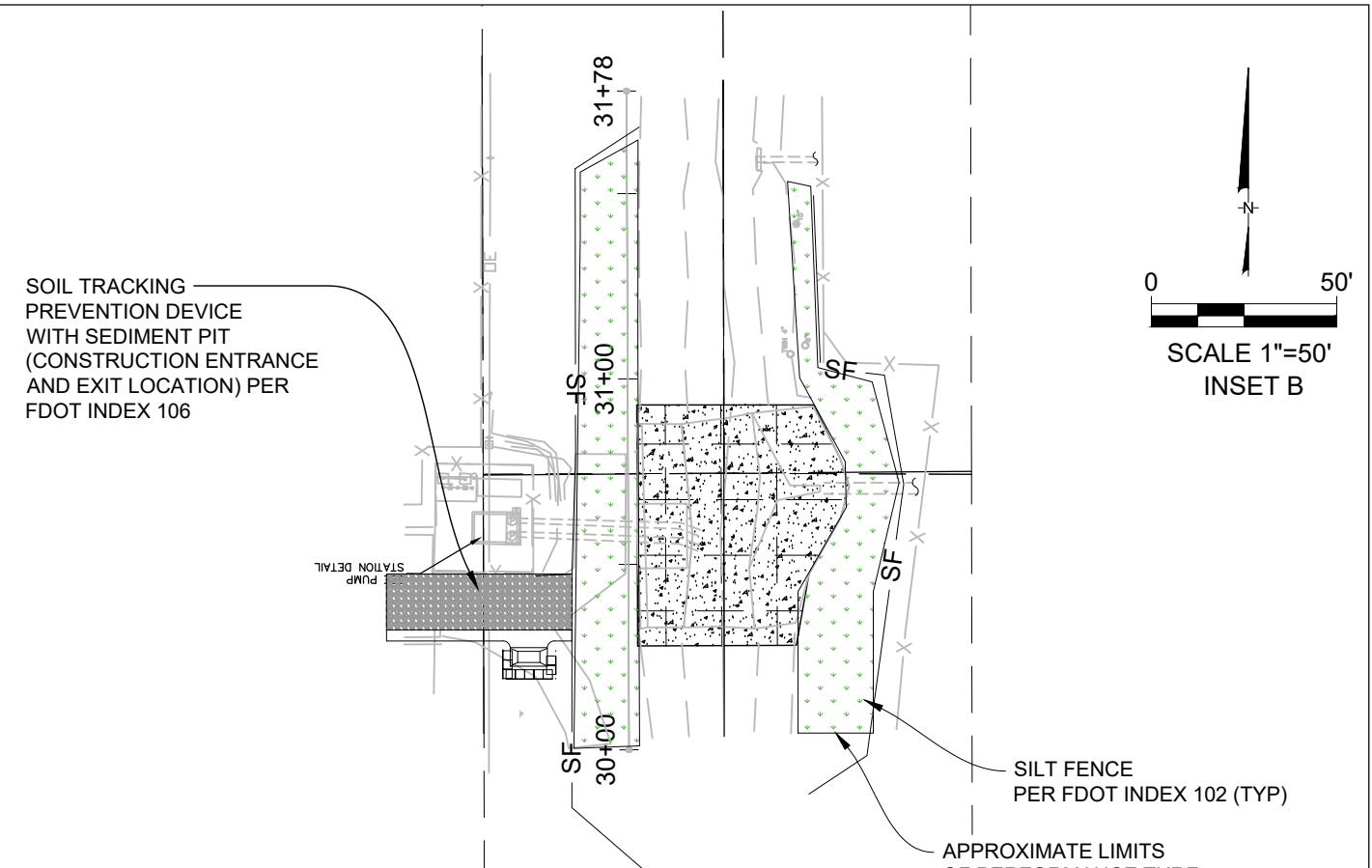


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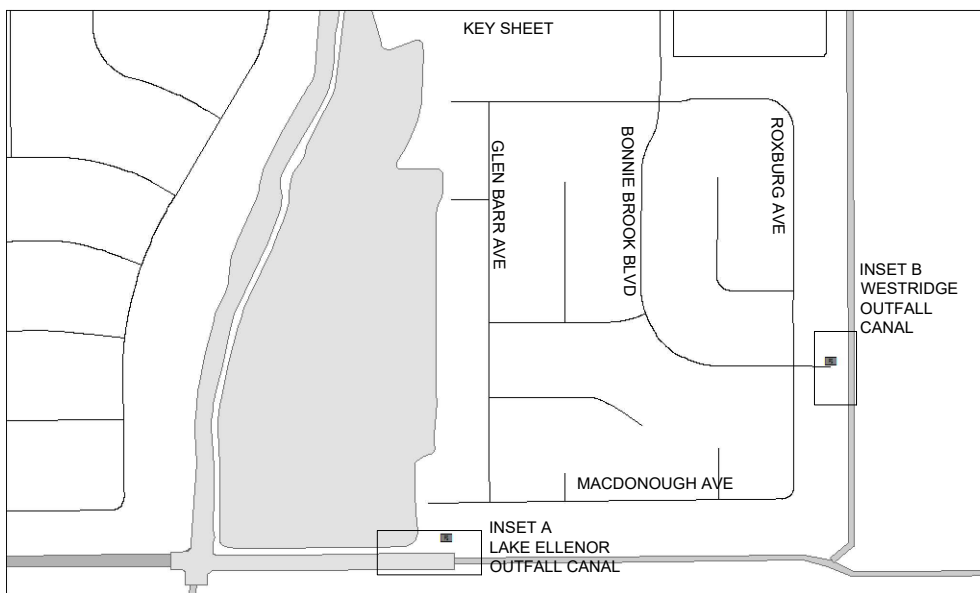


APPROXIMATE LIMITS OF PERFORMANCE TURF. CONTRACTOR SHALL PERMANENTLY STABILIZE ALL DISTURBED AREAS, NOT ASSOCIATED WITH PROPOSED CHANNEL LINING, WITH SOD (TYP)

# SWPPP SITE MAP PHASE II



PERFORMANCE TURF



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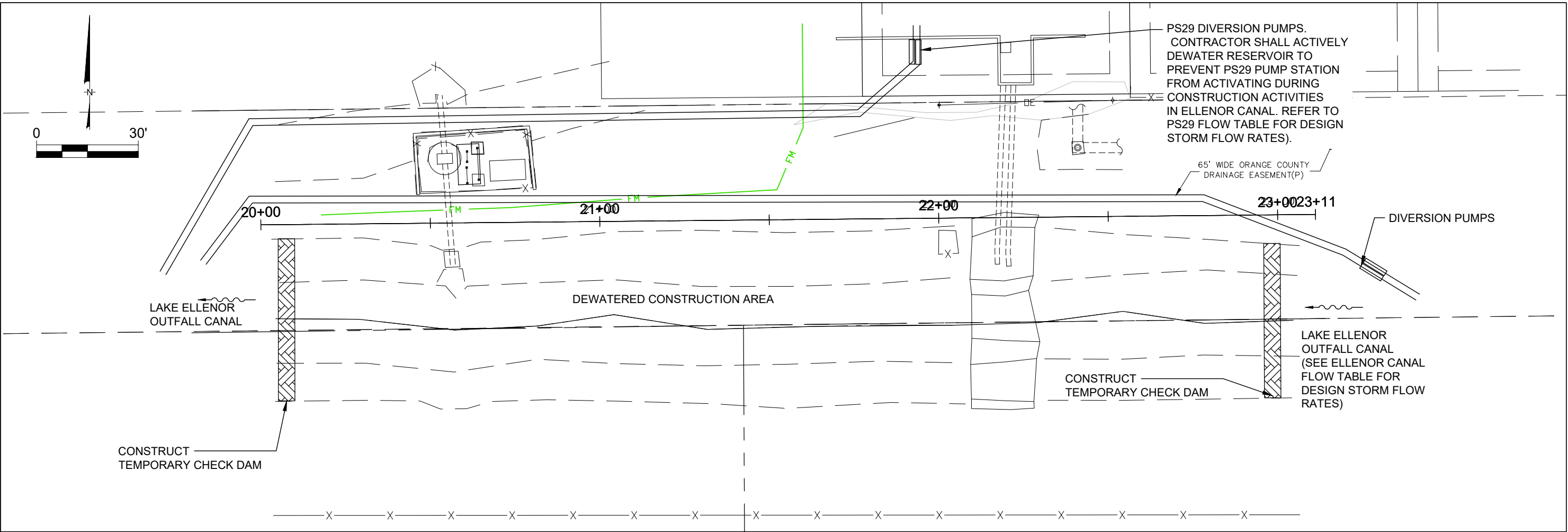
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SWPPP MAPS

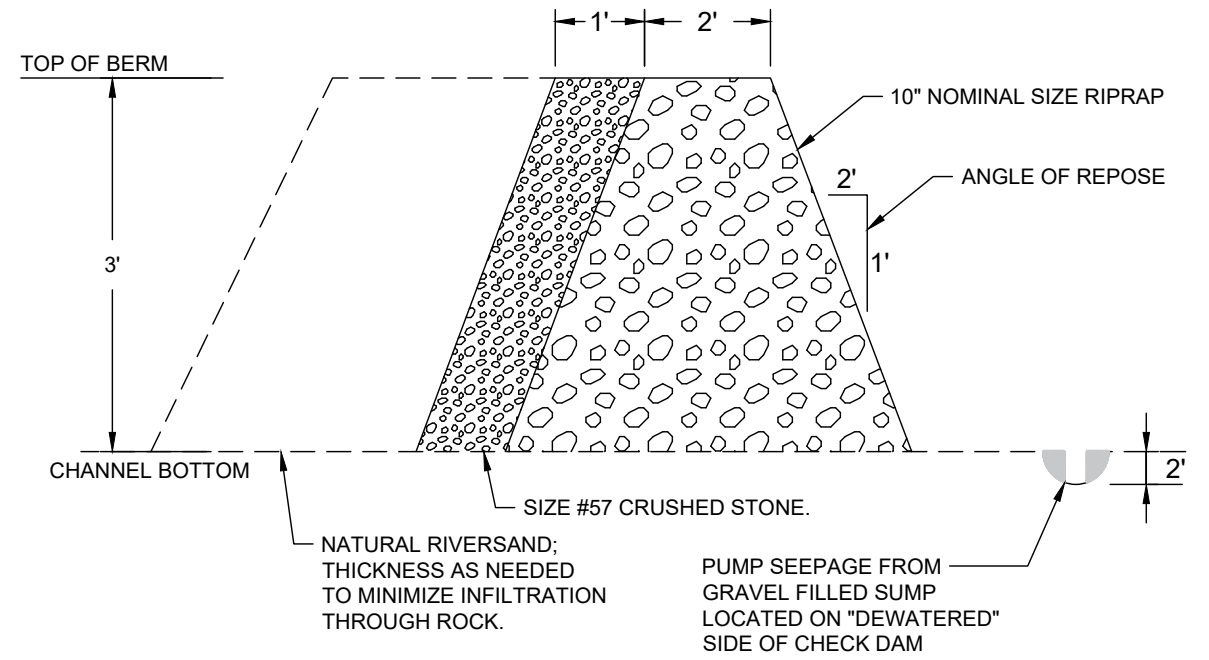
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GENERAL DIVERSION PLAN NOTES:

1. CONTRACTOR IS TO ACCOMPLISH THE EROSION CONTROL SYSTEM CONSTRUCTION WORK ESSENTIALLY "IN THE DRY" BY CONSTRUCTION OF THE TEMPORARY CHECK DAMS AND PUMPING CANAL FLOWS AROUND THE CONSTRUCTION AREA.
2. BYPASS PUMPING OPERATION ARE TO OCCUR ONLY DURING THE FLORIDA DRY PERIOD FROM DECEMBER THRU MAY. CONSTRUCTION ACTIVITIES REQUIRING BYPASS PUMPING SHALL NOT BE COMMENCED IF HEAVY STORMS ARE FORECASTED TO OCCUR.
3. THE CONTRACTOR SHALL PREPARE A PLAN FOR DIVERSION OF THE LAKE ELLENOR OUTFALL CANAL FLOWS WHICH SHALL BE DESCRIBED AS "CANAL CONTROL PLAN" WHICH IS TO BE REVIEWED AND APPROVED BY THE COUNTY AT LEAST 7 DAYS PRIOR TO MOBILIZATION. THE CONTENTS OF THE CANAL CONTROL PLAN WILL BE DESCRIBED BY THE COUNTY AT THE PRE CONSTRUCTION MEETING.
4. CONTRACTOR SHALL DETERMINE THROUGH FIELD MONITORING THE APPROXIMATE BASE FLOW OF THE ELLENOR OUTFALL CANAL TO PROPERLY SIZE THE DEWATERING PUMPS. THE PUMPS SHALL BE SIZED TO ADEQUATELY BYPASS WATER FROM A 2 INCH STORM OVER A PERIOD OF 1 HOUR.
5. CONTRACTOR SHALL PROVIDE TEMPORARY DIVERSION PUMPING SYSTEMS FOR THE PUMP STATIONS THAT DISCHARGE INTO THE CANAL WITHIN THE CONSTRUCTION AREA WITH GUIDANCE FROM THE COUNTY. THE PUMP STATION FLOW SHALL BE DIVERTED PAST THE DOWNSTREAM TEMPORARY CHECK DAM FOR THE CONSTRUCTION AREA.
6. PRIMARY AND BACKUP PUMPING SYSTEMS IN THE APPROVED CANAL CONTROL PLAN SHALL BE ADEQUATE FOR THE NORMAL FLOWS ANTICIPATED AND AGREED WITH THE COUNTY FOR THE PERIOD OF CONSTRUCTION. IN THE EVENT OF AN UNPLANNED STORM EVENT WHICH EXCEEDS THE CAPACITY OF THE PUMPING SYSTEMS, THE CONTRACTOR SHALL PREPARE FOR FLOODING OF THE CONSTRUCTION SITE BY TIMELY REMOVAL OF PEOPLE, MATERIALS AND EQUIPMENT. THE CONTRACTOR SHALL TRY TO STABILIZE EXISTING WORK TO PREVENT DAMAGE DURING THE PERIOD OF FLOODING.
7. SITE FLOODING WILL TRIGGER PAYMENT OF A LUMP SUM ITEM OF WORK SUBJECT TO THE APPROVAL OF THE COUNTY, "SITE FLOODING AND RECOVERY". THIS ITEM IS RESERVED FOR FLOODING CAUSED BY NATURAL STORM EVENTS AND IS NOT APPLICABLE TO CAUSES WITHIN THE CONTRACTOR'S CONTROL. (eg., PUMP FAILURE, INADEQUATE MAINTENANCE OF THE CHECK DAM, PUMP DISCHARGE PIPE FAILURE, ETC.). IN THE EVENT THAT THE CANAL STAGES DO NOT RECEDE WITHIN 3 DAYS TO AN ACCEPTABLE LEVEL, CONTRACTOR IS TO RETURN TO DEMOBILIZE ON A TEMPORARY BASIS, CONTRACTOR IS TO RETURN FROM TEMPORARY DEMOBILIZATION WITHIN 2 DAYS FOLLOWING THE CANAL RECEDED TO A MANAGEABLE STATE AS AGREED WITH THE COUNTY.
8. RECOVERY OPERATIONS FOLLOWING A FLOODING EVENT ARE TO INCLUDE RESTORATION OF THE SITE TO "IN THE DRY" CONDITIONS SUBJECT TO THE APPROVAL OF THE COUNTY. RECOVERY IS TO INCLUDE REPLACEMENT OF EQUIPMENT AND MATERIALS AND REMOVAL OF SEDIMENTATION, DEBRIS, ETC. RESULTING FROM THE FLOODING EVENT TO ALLOW CONSTRUCTION TO PROCEED. PAYMENT FOR ALL RECOVERY OPERATIONS IS INCLUDED IN THE LUMP SUM ITEM, SITE FLOODING AND RECOVERY.
9. CONTRACTOR IS RESPONSIBLE FOR EXACT LOCATION OF CHECK DAMS, DIVERSION PUMPS, AND DIVERSION LINES. THIS PLAN SHOWS LOCATIONS FOR CONCEPTUAL PURPOSES ONLY.
10. CONTRACTOR SHALL REMOVE THE TEMPORARY CHECK DAMS AT THE COMPLETION OF CONSTRUCTION.



CHECK DAM DETAIL  
N.T.S.

REVISIONS		
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**BONNIE BROOK PUMP STATION  
OUTFALL EROSION  
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**Geosyntec**  
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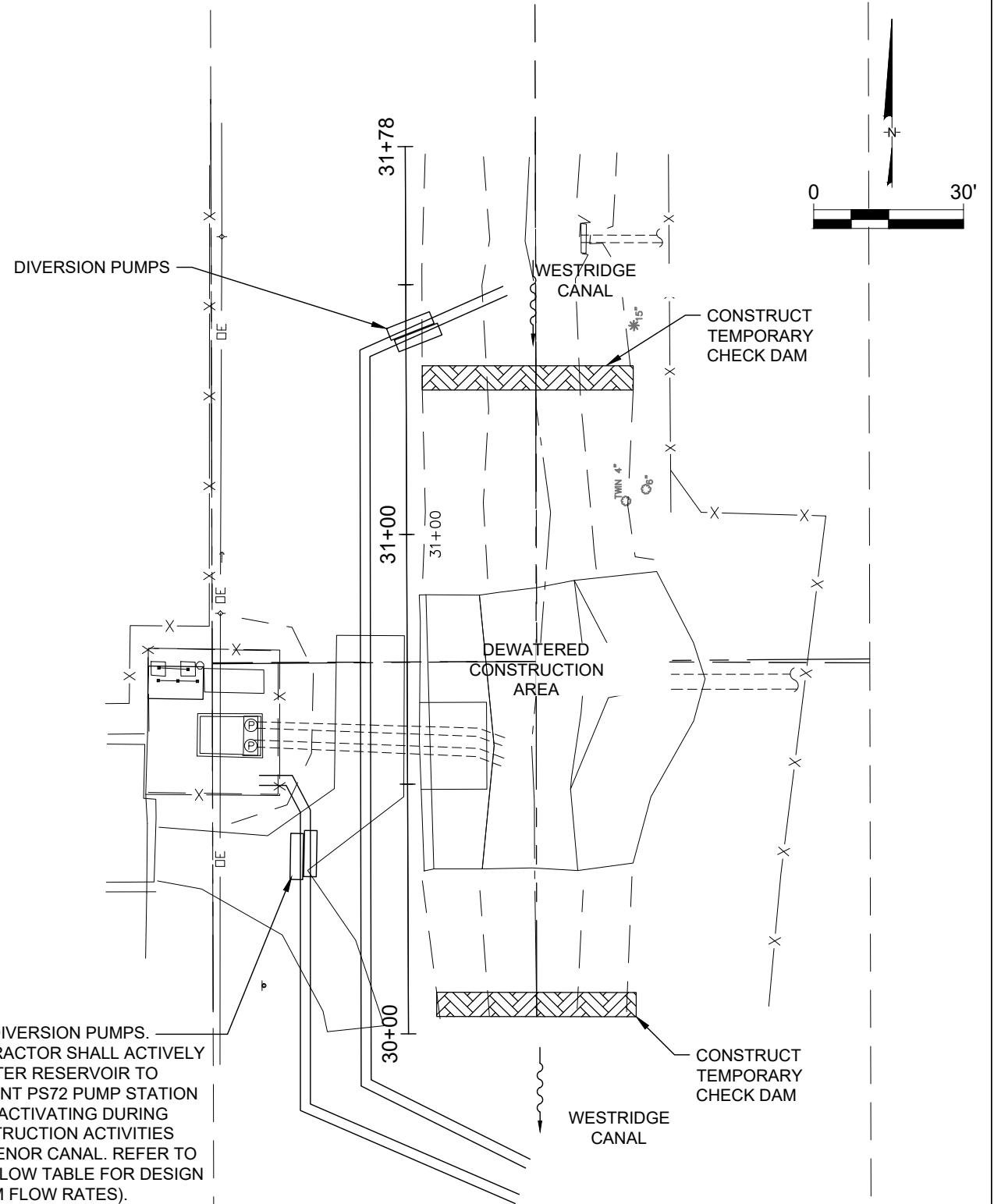
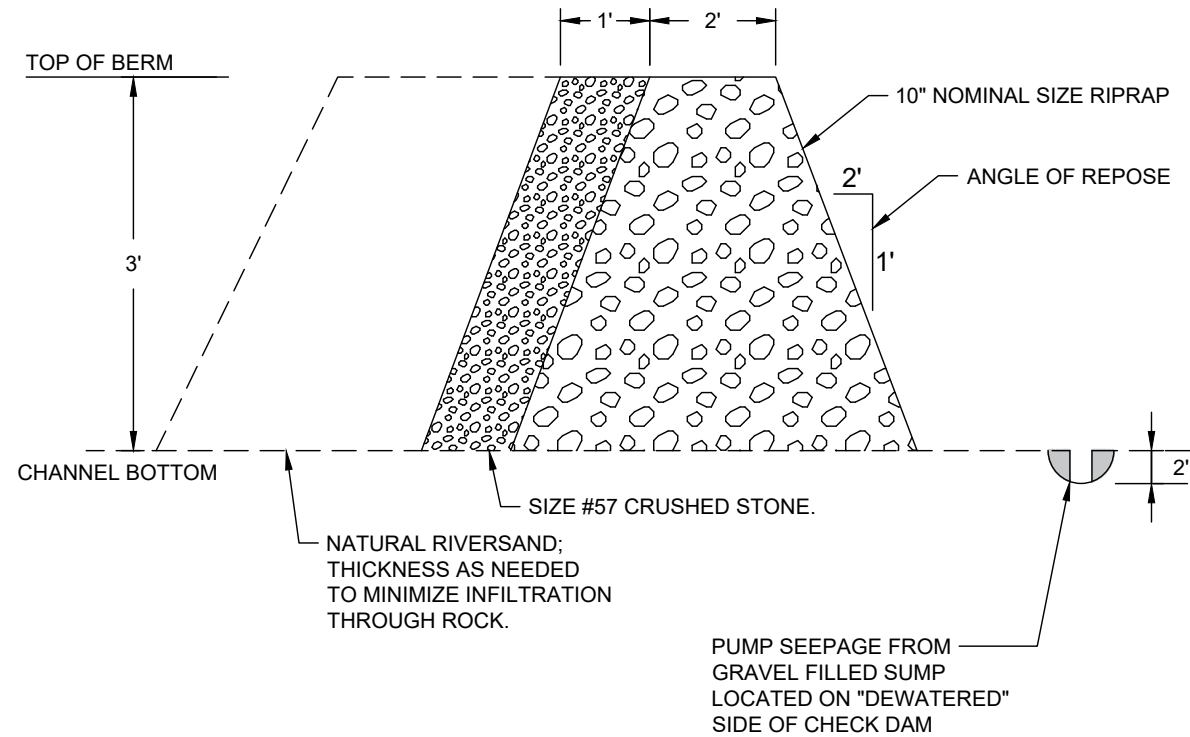
Lee G. Mullon, PE  
FL PE# 72414

AUTHORIZATION NUMBER 4321

**LAKE ELLENOR OUTFALL CANAL  
DIVERSION PLAN**

GENERAL DIVERSION PLAN NOTES:

1. CONTRACTOR IS TO ACCOMPLISH THE EROSION CONTROL SYSTEM CONSTRUCTION WORK ESSENTIALLY "IN THE DRY" BY CONSTRUCTION OF THE TEMPORARY CHECK DAMS AND PUMPING CANAL FLOWS AROUND THE CONSTRUCTION AREA.
2. BYPASS PUMPING OPERATION ARE TO OCCUR ONLY DURING THE FLORIDA DRY PERIOD FROM DECEMBER THRU MAY. CONSTRUCTION ACTIVITIES REQUIRING BYPASS PUMPING SHALL NOT BE COMMENCED IF HEAVY STORMS ARE FORECASTED TO OCCUR.
3. THE CONTRACTOR SHALL PREPARE A PLAN FOR DIVERSION OF THE WESTRIDGE OUTFALL CANAL FLOWS WHICH SHALL BE DESCRIBED AS "CANAL CONTROL PLAN" WHICH IS TO BE REVIEWED AND APPROVED BY THE COUNTY AT LEAST 7 DAYS PRIOR TO MOBILIZATION. THE CONTENTS OF THE CANAL CONTROL PLAN WILL BE DESCRIBED BY THE COUNTY AT THE PRE CONSTRUCTION MEETING.
4. CONTRACTOR SHALL DETERMINE THROUGH FIELD MONITORING THE APPROXIMATE BASE FLOW OF THE WESTRIDGE CANAL TO PROPERLY SIZE THE DEWATERING PUMPS. THE PUMPS SHALL BE SIZED TO ADEQUATELY BYPASS WATER FROM A 2 INCH STORM OVER A PERIOD OF 1 HOUR.
5. CONTRACTOR SHALL PROVIDE TEMPORARY DIVERSION PUMPING SYSTEMS FOR THE PUMP STATIONS THAT DISCHARGE INTO THE CANAL WITHIN THE CONSTRUCTION AREA WITH GUIDANCE FROM THE COUNTY. THE PUMP STATION FLOW SHALL BE DIVERTED PAST THE DOWNSTREAM TEMPORARY CHECK DAM FOR THE CONSTRUCTION AREA.
6. PRIMARY AND BACKUP PUMPING SYSTEMS IN THE APPROVED CANAL CONTROL PLAN SHALL BE ADEQUATE FOR THE NORMAL FLOWS ANTICIPATED AND AGREED WITH THE COUNTY FOR THE PERIOD OF CONSTRUCTION. IN THE EVENT OF AN UNPLANNED STORM EVENT WHICH EXCEEDS THE CAPACITY OF THE PUMPING SYSTEMS, THE CONTRACTOR SHALL PREPARE FOR FLOODING OF THE CONSTRUCTION SITE BY TIMELY REMOVAL OF PEOPLE, MATERIALS AND EQUIPMENT. THE CONTRACTOR SHALL TRY TO STABILIZE EXISTING WORK TO PREVENT DAMAGE DURING THE PERIOD OF FLOODING.
7. SITE FLOODING WILL TRIGGER PAYMENT OF A LUMP SUM ITEM OF WORK SUBJECT TO THE APPROVAL OF THE COUNTY, "SITE FLOODING AND RECOVERY". THIS ITEM IS RESERVED FOR FLOODING CAUSED BY NATURAL STORM EVENTS AND IS NOT APPLICABLE TO CAUSES WITHIN THE CONTRACTOR'S CONTROL. (eg., PUMP FAILURE, INADEQUATE MAINTENANCE OF THE CHECK DAM, PUMP DISCHARGE PIPE FAILURE, ETC.). IN THE EVENT THAT THE CANAL STAGES DO NOT RECEDE WITHIN 3 DAYS TO AN ACCEPTABLE LEVEL, CONTRACTOR IS TO RETURN TO DEMOBILIZE ON A TEMPORARY BASIS, CONTRACTOR IS TO RETURN FROM TEMPORARY DEMOBILIZATION WITHIN 2 DAYS FOLLOWING THE CANAL RECEDING TO A MANAGEABLE STATE AS AGREED WITH THE COUNTY.
8. RECOVERY OPERATIONS FOLLOWING A FLOODING EVENT ARE TO INCLUDE RESTORATION OF THE SITE TO "IN THE DRY" CONDITIONS SUBJECT TO THE APPROVAL OF THE COUNTY. RECOVERY IS TO INCLUDE REPLACEMENT OF EQUIPMENT AND MATERIALS AND REMOVAL OF SEDIMENTATION, DEBRIS, ETC. RESULTING FROM THE FLOODING EVENT TO ALLOW CONSTRUCTION TO PROCEED. PAYMENT FOR ALL RECOVERY OPERATIONS IS INCLUDED IN THE LUMP SUM ITEM, SITE FLOODING AND RECOVERY.
9. CONTRACTOR IS RESPONSIBLE FOR EXACT LOCATION OF CHECK DAMS, DIVERSION PUMPS, AND DIVERSION LINES. THIS PLAN SHOWS LOCATIONS FOR CONCEPTUAL PURPOSES ONLY.
10. CONTRACTOR SHALL REMOVE THE TEMPORARY CHECK DAMS AT THE COMPLETION OF CONSTRUCTION.



PS29 DIVERSION PUMPS. CONTRACTOR SHALL ACTIVELY DEWATER RESERVOIR TO PREVENT PS72 PUMP STATION FROM ACTIVATING DURING CONSTRUCTION ACTIVITIES IN ELLENOR CANAL. REFER TO PS29 FLOW TABLE FOR DESIGN STORM FLOW RATES).

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**BONNIE BROOK PUMP STATION  
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**WESTRIDGE CANAL  
DIVERSION PLAN**