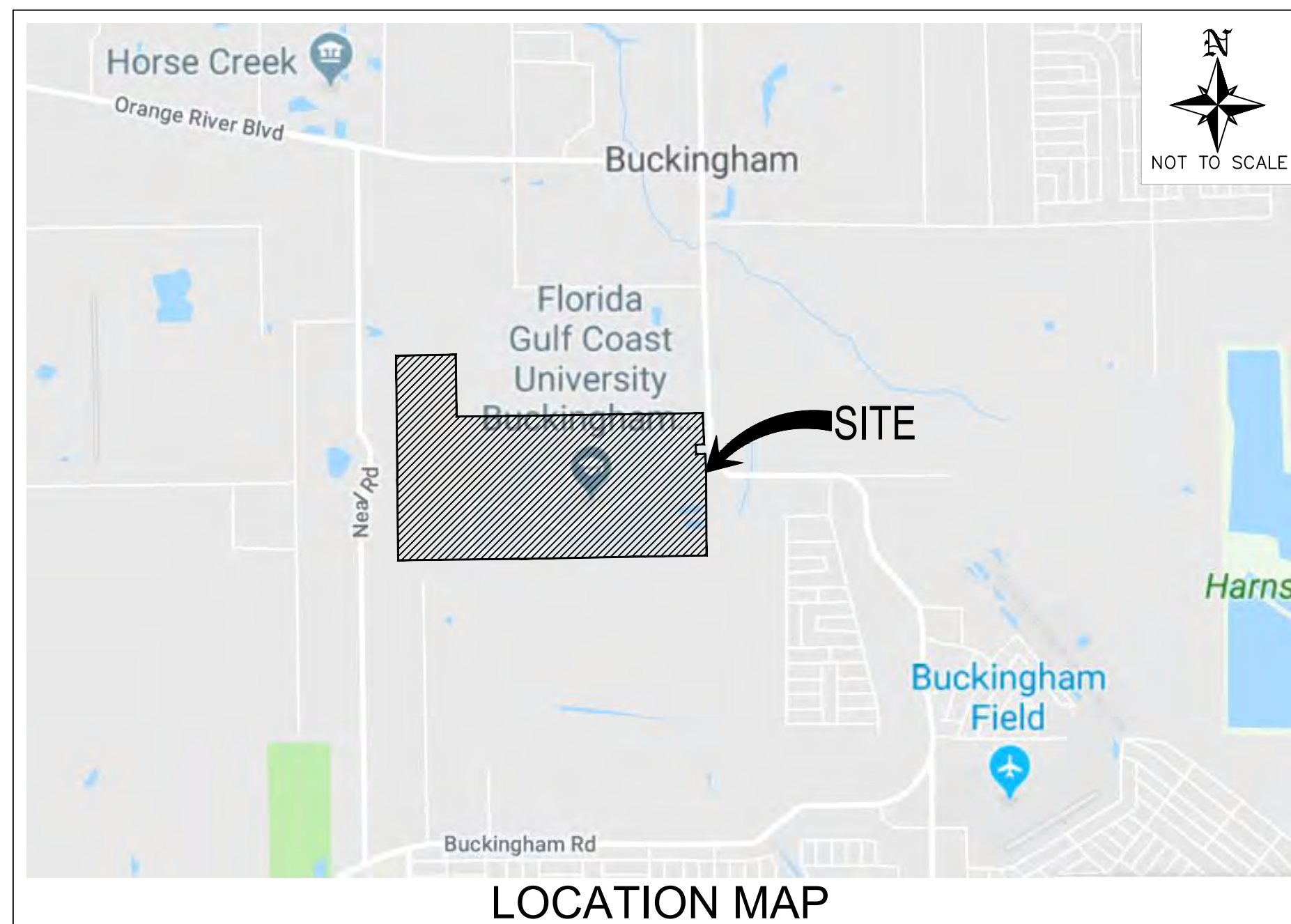


# SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT



SECTIONS 7 & 17 & 18, TOWNSHIP 44 SOUTH, RANGE 26 EAST  
LEE COUNTY, FLORIDA

### SITE INFORMATION

**PROJECT AREA:** ±498.10 ACRES  
**PARCEL STRAP NO.:** 07-44-26-00-00005.0000  
 17-44-26-00-00002.0000  
 18-44-26-00-00003.0000  
**PARCEL ADDRESS:** BUCKINGHAM RD  
 FORT MYERS, FL 33905  
**CURRENT ZONING:** AG-2

PREPARED FOR:  
**LEE BOARD OF COUNTY COMMISSIONERS**  
 1500 MONROE ST.  
 FORT MYERS, FL 33901  
 PHONE: (239) 533-8109

### PROJECT CONTACTS

**CIVIL ENGINEER:**  
 BANKS ENGINEERING  
 KEN KELLUM, P.E. PROJECT MANAGER  
 10511 SIX MILE CYPRESS PKWY.  
 FORT MYERS FLORIDA 33966  
 PHONE: (239) 939-5490

**SURVEYOR:**  
 BANKS ENGINEERING  
 10511 SIX MILE CYPRESS PKWY.  
 FORT MYERS FLORIDA 33966  
 PHONE: (239) 939-5490

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03	AERIAL - EXISTING CONDITIONS
03A	EXISTING TOPOGRAPHIC MAP
04	GOPHER TORTOISE HOLE LOCATIONS
05	MASTER ENGINEERING PLAN
06	TYPICAL CROSS SECTIONS
07	CROSS SECTIONS - STA. 11+00 TO 24+00
08	CROSS SECTIONS - STA. 25+00 TO 38+00
09	CROSS SECTIONS - STA. 39+00 TO 52+00
10	CROSS SECTIONS - STA. 53+00 TO 66+00
11	CROSS SECTIONS - STA. 67+00 TO 80+00
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## BANKS ENGINEERING

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 FORT MYERS, FLORIDA 33966  
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 ENGINEERING LICENSE # EB 6469  
 SURVEY LICENSE # LB 6690  
 WWW.BANKSENG.COM

SAMUEL W. MARSHALL P.E.  
 FL REG # 26661



### LEE BOARD OF COUNTY COMMISSIONERS

<b>KEVIN RUANE</b>	<b>DISTRICT 1</b>
<b>CECIL L PENDERGRASS</b>	<b>DISTRICT 2</b>
<b>RAY SANDELLI</b>	<b>DISTRICT 3</b>
<b>BRIAN HAMMAN</b>	<b>DISTRICT 4</b>
<b>FRANK MANN</b>	<b>DISTRICT 5</b>

### COUNTY MANAGER

ROGER DESJARLAIS

### ASSISTANT COUNTY MANAGER

DAVE HARNER

### DIVISION OF NATURAL RESOURCES

ROLAND OTTOLINI, P.E.

THIS IS TO CERTIFY THAT THESE PLANS AND THE ASSOCIATED CONSTRUCTION PROJECT ARE IN SUBSTANTIAL COMPLIANCE WITH THE LEE COUNTY LAND DEVELOPMENT CODE WITH EXCEPTION OF THE FOLLOWING DEVIATIONS WHICH HAVE BEEN APPROVED BY THE ASSISTANT COUNTY MANAGER

DEVIATIONS:  
 NONE REQUESTED

DEVELOPMENT ORDER APPROVED:  
 PUBLIC WORKS ADMINISTRATION

ASSISTANT COUNTY MANAGER  
 DAVE HARNER

DATE:

ALL EXISTING AND PROPOSED GRADE ELEVATIONS ARE N.A.V.D. 1988

NO.	DATE	REVISION DESCRIPTION	BY
2	4/09/2021	REVISED PER SFWMD COMMENTS	SDJ
1	12/14/2020	REVISED PER SFWMD COMMENTS	SDJ

PRE-BID SUBMITTAL:

THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO BIDDING TO FAMILIARIZE HIMSELF WITH THE CONDITIONS FOR CONSTRUCTION ACTIVITIES...

CONSTRUCTION SAFETY AND LIABILITY:

THE CONTRACTOR MUST TAKE PROPER SAFETY AND HEALTH PRECAUTIONS TO PROTECT THE WORKERS, THE PUBLIC, AND THE PROPERTY OF OTHERS...

PRE-CONSTRUCTION:

THE CONTRACTOR SHALL SECURE PRIOR TO CONSTRUCTION A PROFESSIONAL LAND SURVEYOR TO PERFORM AN "AS-BUILT" SURVEY OF ALL COMPLETED IMPROVEMENTS...

- DOCUMENTS REQUIRED FOR CONTRIBUTED FACILITIES FROM DEVELOPER TO UTILITY COMPANY: 1. UTILITY EASEMENT(S) MUST BE RECORDED AT COUNTY CLERK OF COURT OFFICE BEFORE SUBMITTING TO UTILITY...

UNLESS OTHERWISE SPECIFIED BY THE UTILITY, THE CONTRACTOR SHALL NOTIFY THE SUPERINTENDENTS OF THE WATER, GAS, SEWER, TELEPHONE, AND POWER COMPANIES, 10 DAYS IN ADVANCE...

PROJECT SIGN:

THE CONTRACTOR SHALL PROVIDE AND MAINTAIN A CONSTRUCTION PROJECT SIGN AT A LOCATION DIRECTED BY THE OWNER, BANKS ENGINEERING, INC. SHALL PROVIDE A SEPARATE SIGN FOR INSTALLATION BY THE CONTRACTOR AT THIS LOCATION...

ENVIRONMENTAL PROTECTION DURING CONSTRUCTION:

PROTECTION OF LAND RESOURCES - EXCEPT IN AREAS IDENTIFIED ON THE PLANS TO BE CLEARED, THE CONTRACTOR MUST NOT DEFACE, INJURE, OR DESTROY TREES OR SHRUBS OR REMOVE OR CUT THEM WITHOUT WRITTEN AUTHORIZATION FROM THE OWNER...

PROTECTION OF WATER RESOURCES - IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INVESTIGATE AND COMPLY WITH ALL APPLICABLE FEDERAL, STATE, REGIONAL COUNTY AND MUNICIPAL LAWS CONCERNING POLLUTION OF WATER RESOURCES...

- 1. EROSION AND SEDIMENT CONTROL - ALL PRACTICAL AND NECESSARY EFFORT SHOULD BE TAKEN DURING CONSTRUCTION TO CONTROL AND PREVENT EROSION AND THE TRANSPORT OF SEDIMENT TO SURFACE DRAINS, SURFACE WATER, OR ONTO OTHER PROPERTY BY ANY OR ALL OF THE FOLLOWING METHODS:

- 2. ALL DISTURBED AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE, EXCEPT RETENTION AREAS, AND SHALL BE STABILIZED BY SOODING, EXCEPT WHERE SEEDING AND MULCHING ARE CALLED FOR ON THE PLANS...

CONTRACTOR RESPONSIBLE FOR STABILIZING AND MAINTAINING SLOPES AND SOO THROUGHOUT CONSTRUCTION UNTIL SUCH TIME AS APPROVED BY THE ENGINEER.

PROTECTION OF FISH AND WILDLIFE:

THE CONTRACTOR MUST AT ALL TIMES PERFORM ALL WORK IN A WAY AND TAKE SUCH STEPS AS REQUIRED TO PREVENT ANY INTERFERENCE WITH OR DISTURBANCE TO FISH AND WILDLIFE...

RECORDING AND PRESERVING HISTORICAL AND ARCHEOLOGICAL FINDS:

ALL ITEMS HAVING ANY APPARENT HISTORICAL OR ARCHEOLOGICAL INTEREST THAT ARE DISCOVERED IN THE COURSE OF ANY CONSTRUCTION ACTIVITIES MUST BE CAREFULLY PRESERVED...

EARTHWORK:

- 1. GENERAL 1.01 SUBMITTALS A. EROSION AND CONTROL MEASURES B. COMPACTION TESTS C. SOIL CLASSIFICATION TESTS D. PRESERVATION PLANS 1.02 SITE EXAMINATION A. CONTRACTORS, BEFORE SUBMITTING BIDS, SHALL INFORM THEMSELVES AS TO LOCATION AND NATURE OF THE WORK...

1.03 SUBSURFACE INVESTIGATIONS

- A. SUBSURFACE DATA, INCLUDING GROUND WATER ELEVATIONS OR CONDITIONS, IF SHOWN ON THE DRAWINGS OR ATTACHED TO THESE SPECIFICATIONS, ARE PRESENTED ONLY AS INFORMATION THAT IS AVAILABLE WHICH INDICATED CERTAIN CONDITIONS FOUND AND LIMITED TO THE EXACT LOCATIONS...

2. EXECUTION

- 2.01 GENERAL A. ACCOMPLISH IN A MANNER THAT PROVIDES FOR THE SAFETY OF THE PUBLIC AND WORKMEN AND PROVIDE FOR THE PROTECTION OF ALL PROPERTY. B. CONSTRUCTION: DO NOT CLOSE, OBSTRUCT OR STORE MATERIAL OR EQUIPMENT IN STREETS, SIDEWALKS, ALLEYS OR PASSAGEWAYS WITHOUT A PERMIT...

2.06 FILLING, BACKFILLING AND COMPACTION

- A. THE WORK CONSISTS OF COMPACTION OF EXISTING EARTH (EXCLUDE ROCK), SURFACES AFTER EXCAVATION, FILLING AND COMPACTION OF SAID AREA TO LEVELS REQUIRED WITH SUITABLE BACKFILL MATERIAL.

EARTHWORK (CONT):

- D. COMPACTION: COMPACTION SHALL BE WITH EQUIPMENT SUITED TO SOIL BEING COMPACTED. MOISTEN OR AERATE MATERIAL AS NECESSARY TO PROVIDE MOISTURE CONTENT THAT WILL READILY FACILITATE OBTAINING SPECIFIED COMPACTION WITH EQUIPMENT USED. COMPACT EACH LAYER TO NOT LESS THAN PERCENTAGE OF MAXIMUM DENSITY SPECIFIED BELOW DETERMINED IN ACCORDANCE WITH AASHTO T-99...

SUPPLEMENTAL SPECIFICATIONS:

- 1. GENERAL THE CONTRACTOR SHALL BECOME FAMILIAR WITH AND ADHERE TO THE SPECIFICATIONS AND STANDARDS OF THE UTILITY COMPANIES WHICH ARE SERVING THE PROJECT SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND APPLYING ALL APPLICABLE STANDARDS AND CODES OF THE REGULATORY AGENCIES ASSOCIATED WITH THIS PROJECT...

DEWATERING:

- 1.01 GENERAL A. DEWATERING CONSISTS OF PERFORMING ALL WORK NECESSARY TO REMOVE SURFACE WATER AND / OR CONTROL THE GROUND WATER LEVELS AND HYDROSTATIC PRESSURES IN ORDER TO PERFORM ALL EXCAVATION AND CONSTRUCTION UNDER THIS CONTRACT...

1.02 METHOD

- A. THE CONTROL OF ALL SURFACE AND SUBSURFACE WATER IS PART OF THE DEWATERING REQUIREMENTS. MAINTAIN ADEQUATE CONTROL SO THAT THE STABILITY OF EXCAVATED AND CONSTRUCTION SLOPES IS NOT ADVERSELY AFFECTED BY WATER...

VERTICAL DATUM ALL EXISTING AND PROPOSED GRADE ELEVATIONS ARE NAVD 88 HORIZONTAL DATUM NAD 83 FLORIDA STATE PLANES, WEST ZONE, US FOOT

NOTES: PROPERTY AREA = ±498 AC PROJECT AREA = ±27.5 AC ESTIMATED TOTAL NET MATERIAL EXCAVATED AS PART OF THIS PROJECT = ±8,800 CY

CONSTRUCTION TOLERANCES:

THE FOLLOWING ARE THE ALLOWABLE DEVIATIONS FROM PROJECT DESIGN GRADES AND GRADIENTS. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONFIRM AND DOCUMENT COMPLIANCE WITH THESE TOLERANCES PRIOR TO PROCEEDING FROM ONE PHASE OF CONSTRUCTION TO THE NEXT:

- 1. STORMWATER MANAGEMENT/ DRAINAGE FACILITIES A. PERIMETER CONTAINMENT BERM: MINIMUM ELEVATION = DESIGN GRADE MAXIMUM ELEVATION = DESIGN GRADE + 0.10 FEET B. WATER CONTROL STRUCTURE: MINIMUM GRATE ELEVATION = DESIGN GRADE MAXIMUM GRATE ELEVATION = DESIGN GRADE + 0.10 FEET...

TESTING:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING, COORDINATING, DOCUMENTING, AND PROVIDING THE FOLLOWING MINIMUM TESTING:

- WATER DISTRIBUTION UNLESS OTHERWISE SPECIFIED BY THE UTILITY COMPANY, THE LINES SHALL BE PRESSURE TESTED TO THE RATING OF THE PIPE. THE LINES SHALL BE TESTED IN SEGMENTS BETWEEN MAINLINE VALVES. BACTERIOLOGICAL TEST SAMPLES SHALL BE TAKEN AT ALL BRANCH LINE TERMINATION POINTS OR CONNECTION POINTS AND ALONG THE MAIN LINES AT DISTANCES NOT TO EXCEED 2,640 FEET. ALL HYDRANTS AND VALVES SHALL BE OPERATED TO TEST PERFORMANCE.

IN ADDITION TO THE ENVIRONMENTAL PROTECTION DURING CONSTRUCTION SPECIFICATIONS, THE CONTRACTOR SHALL PERFORM THE FOLLOWING IN THE ORDER LISTED:

- 1. PRIOR TO COMMENCEMENT, PROVIDE NOTIFICATIONS TO THE LOCAL WATER MANAGEMENT DISTRICT AND LOCAL GOVERNMENT. 2. ERECT A TURBIDITY SCREEN ON ANY DOWNSTREAM SYSTEM WHICH RECEIVES RUNOFF FROM THE PROJECT. INSTALL OUTFALL CONTROL STRUCTURE AND FILTRATION SYSTEM IF INCLUDED.

NOTE: GENERAL NOTES AND SPECIFICATIONS SHOWN ON THIS SHEET ARE APPLICABLE TO THIS PROJECT UNLESS OTHERWISE NOTED. THE PROJECT NOTES AND PLANS SHALL TAKE PRECEDENCE OVER THE GENERAL NOTES AND SPECIFICATIONS SHOWN ON THIS SHEET.

PRIOR TO EXCAVATION CONTACT SUNSHINE STATE ONE - CALL OF FLORIDA 1 (800) 432-4770

CONTRACTOR SHALL SUBMIT FOR N.P.D.E.S. PERMIT A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION. PERMIT APPLICATION SHALL BE SUBMITTED TO: N.P.D.E.S. STORMWATER NOTICES CENTER, MS # 2510, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, 2600 BLAIR STONE ROAD, TALLAHASSEE, FLORIDA, 32399-2400



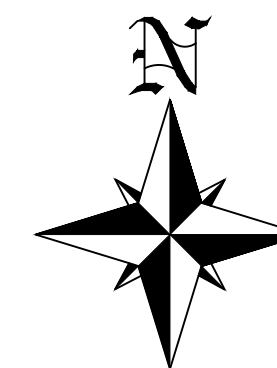
PREPARED FOR: LEE COUNTY NATURAL RESOURCES LEE BOARD OF COUNTY COMMISSIONERS 1500 MONROE ST. FORT MYERS, FL 33901 PHONE: (239) 533-8109

Table with columns: NO., DATE, REVISION DESCRIPTION, BY

BANKS ENGINEERING logo and contact information: 10511 SIX MILE CYPRESS PARKWAY FORT MYERS, FLORIDA 33966 PHONE: (239) 939-5490 FAX: (239) 939-2523

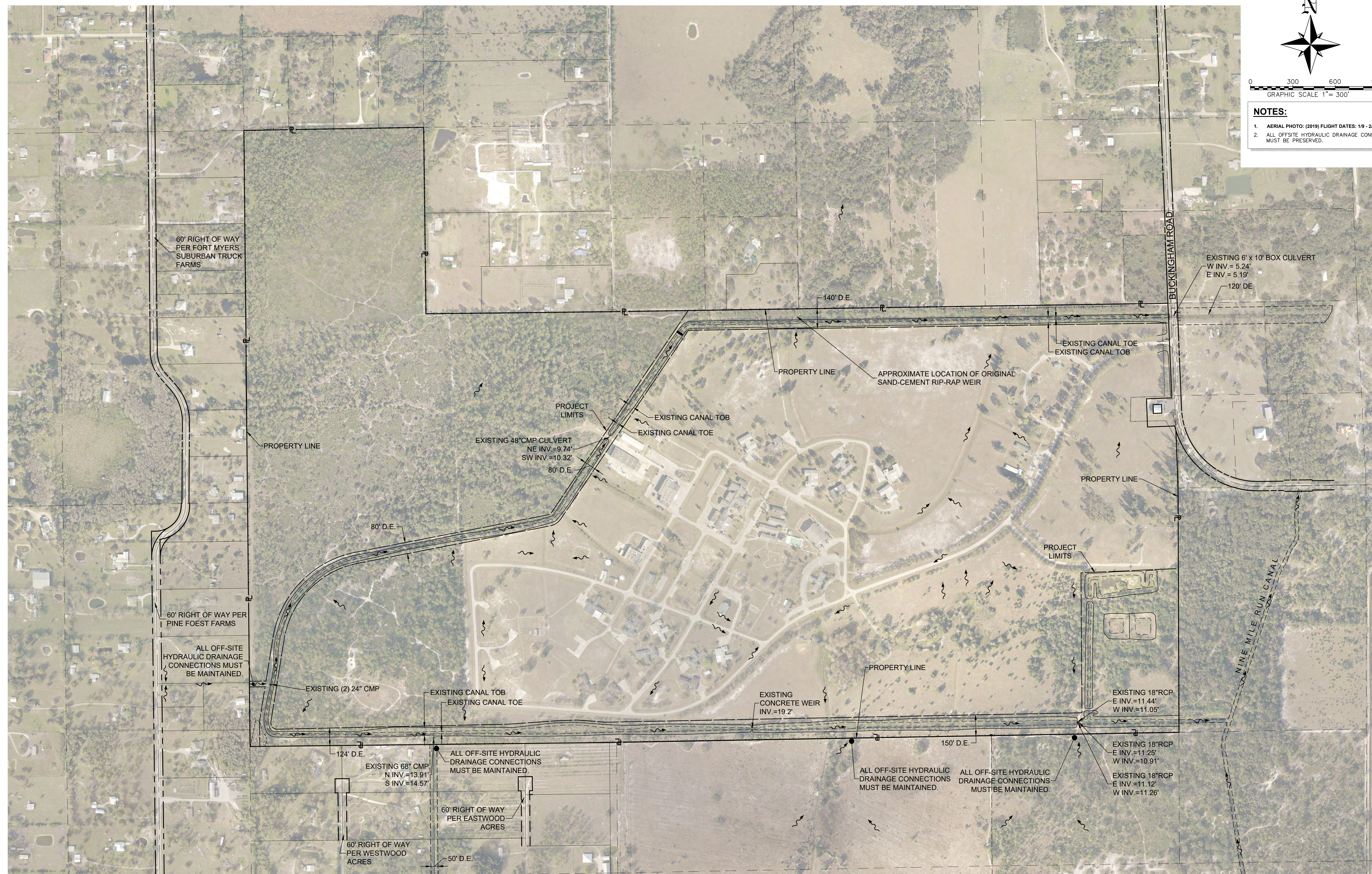
SAMUEL W. MARSHALL P.E. FL REG # 26661

GENERAL NOTES AND SPECIFICATIONS SUNNHLAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT LEE COUNTY, FLORIDA Table with columns: DATE, PROJECT, DRAWING, DESIGN, DRAWN, CHECKED, SCALE, SHEET



0 300 600 900  
GRAPHIC SCALE 1" = 300'

- NOTES:**
1. AERIAL PHOTO: (2019) FLIGHT DATES: 1/9 - 2/25
  2. ALL OFFSITE HYDRAULIC DRAINAGE CONNECTIONS MUST BE PRESERVED.



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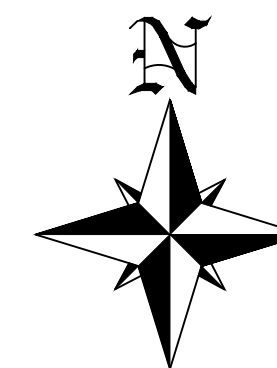
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AERIAL - EXISTING CONDITIONS  
 SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT  
 LEE COUNTY, FLORIDA

DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED	SCALE	SHEET
5/14/2019	8234	_AER	KWK	SDJ	KWK	1"=300'	03

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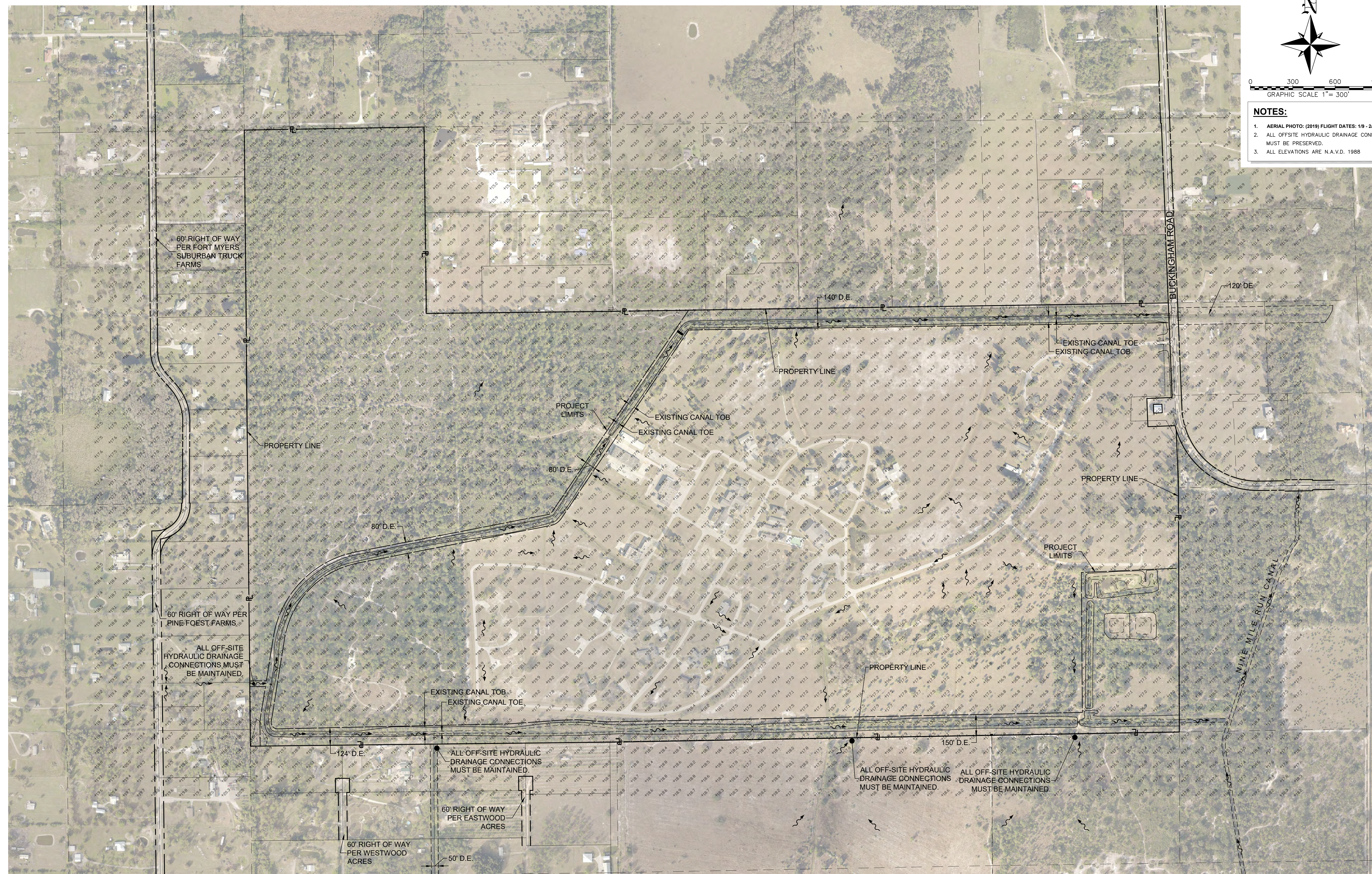
SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT



0 300 600 900  
GRAPHIC SCALE 1" = 300'

**NOTES:**

1. AERIAL PHOTO: (2019) FLIGHT DATES: 1/9 - 2/25
2. ALL OFFSITE HYDRAULIC DRAINAGE CONNECTIONS MUST BE PRESERVED.
3. ALL ELEVATIONS ARE N.A.V.D. 1988



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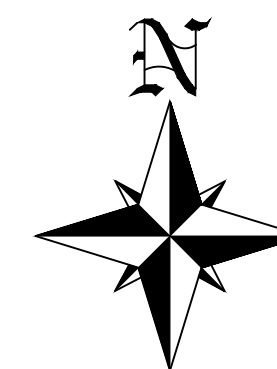
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EXISTING TOPOGRAPHIC MAP						SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT		LEE COUNTY, FLORIDA			
DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED	SCALE	SHEET				
5/14/2019	8234	_AER	KWK	SDJ	KWK	1"=300'	03A				

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GRAPHIC SCALE 1" = 300'

**NOTES:**

1. AERIAL PHOTO: (2019) FLIGHT DATES: 1/9 - 2/25
2. DATE OF PROTECTED SPECIES SURVEY: 8/2018
3. TORTOISE BURROWS ARE TO BE AVOIDED

**LEGEND:**

- ◆ GOPHER TORTOISE BURROWS (PREVIOUS)
- ◆ GOPHER TORTOISE BURROWS (DATE: 09/27/2021)



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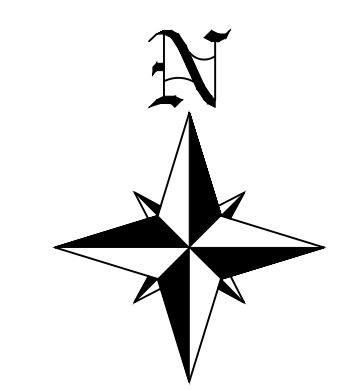
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 FL REG # 26661

GOPHER TORTOISE HOLE LOCATIONS						
SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT						
LEE COUNTY, FLORIDA						
DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED	SCALE
5/14/2019	8234	_AER	KWK	SDJ	KWK	1"=300'
						SHEET 04

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SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT

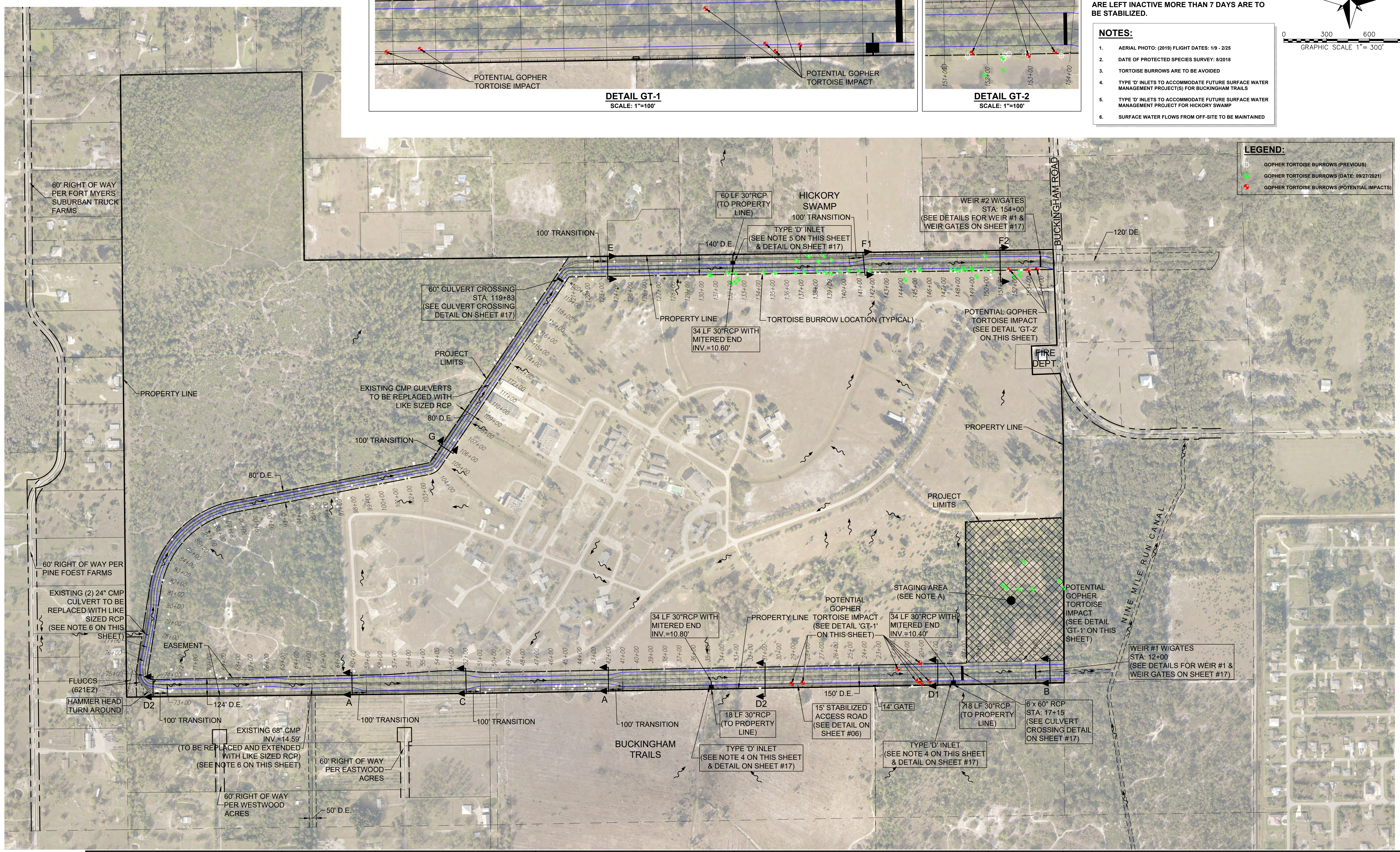
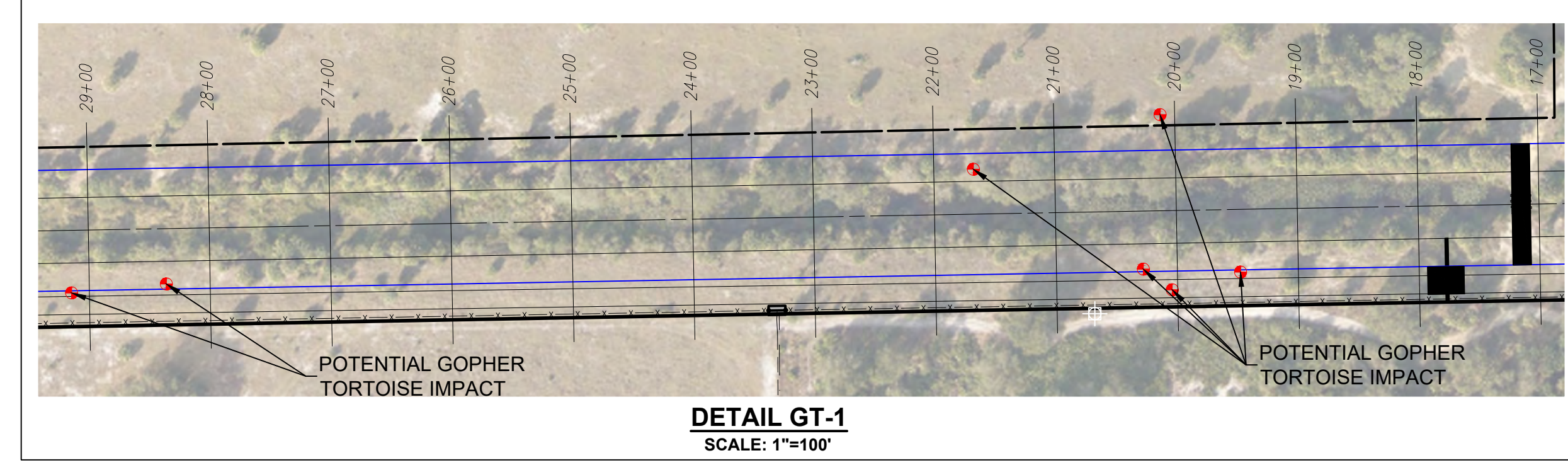
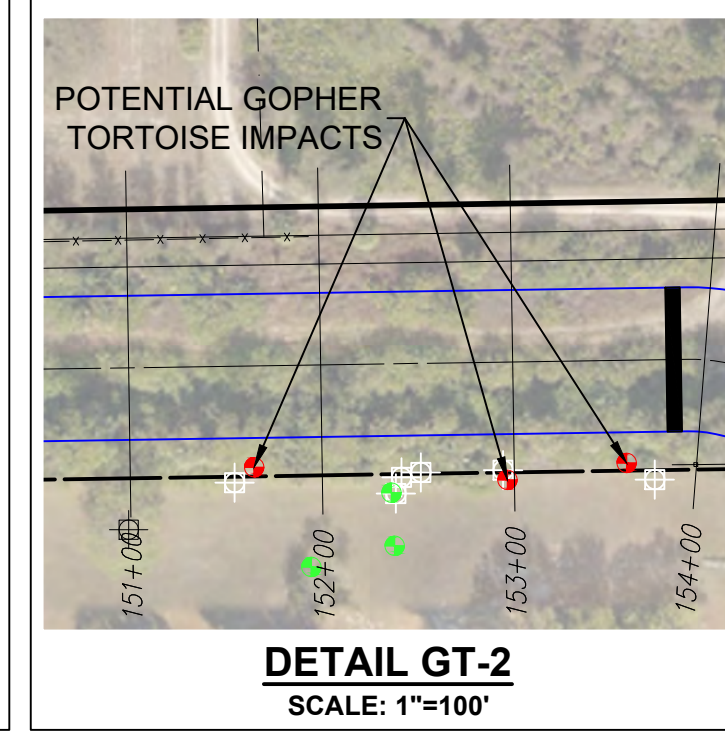


**FLUCCS DESCRIPTION:**  
621E2 CYPRESS INVADDED BY EXOTICS (26% TO 50%)

**NOTE A:**  
STOCKPILES OF EXCESS FILL MATERIAL THAT ARE LEFT INACTIVE MORE THAN 7 DAYS ARE TO BE STABILIZED.

**NOTES:**

1. AERIAL PHOTO: (2019) FLIGHT DATES: 1/9 - 2/25
2. DATE OF PROTECTED SPECIES SURVEY: 8/2018
3. TORTOISE BURROWS ARE TO BE AVOIDED
4. TYPE 'D' INLETS TO ACCOMMODATE FUTURE SURFACE WATER MANAGEMENT PROJECT(S) FOR BUCKINGHAM TRAILS
5. TYPE 'D' INLETS TO ACCOMMODATE FUTURE SURFACE WATER MANAGEMENT PROJECT FOR HICKORY SWAMP
6. SURFACE WATER FLOWS FROM OFF-SITE TO BE MAINTAINED



**LEGEND:**

- GOPHER TORTOISE BURROWS (PREVIOUS)
- GOPHER TORTOISE BURROWS (DATE: 09/27/2021)
- GOPHER TORTOISE BURROWS (POTENTIAL IMPACTS)



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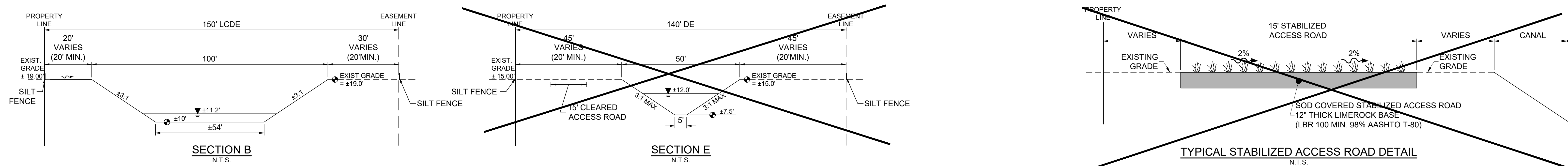
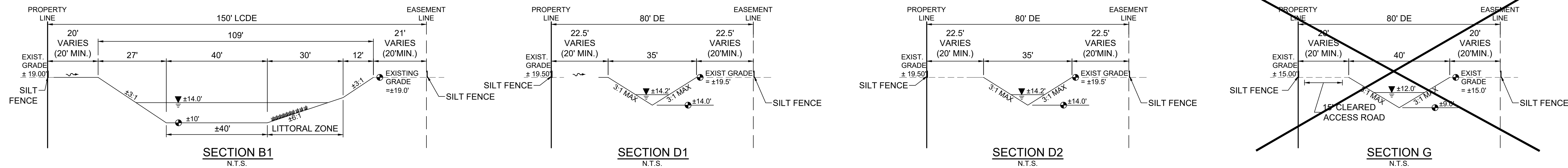
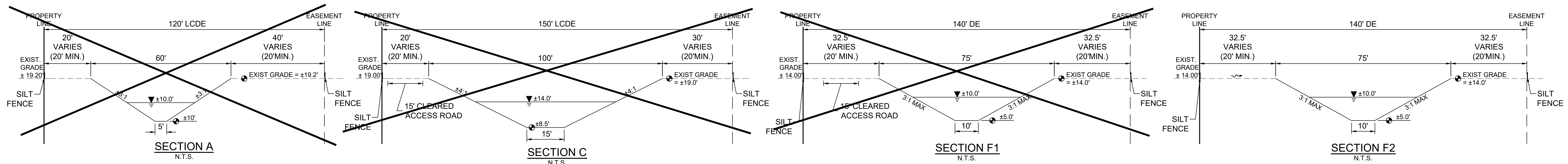
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MASTER ENGINEERING PLAN									
SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT									
LEE COUNTY, FLORIDA									
DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED	SCALE	SHEET		
5/14/2019	8234	_AER	KWK	SDJ	KWK	AS NOTED	05		



**NOTES:**  
**EMBANKMENTS ARE TO BE COMPACTED TO THE FOLLOWING SPECIFICATIONS:**

- IF THE EMBANKMENT IS TO SUPPORT A STRUCTURE:
  - A MINIMUM OF 95% OF THE MAX. DRY DENSITY (MODIFIED PROCTOR) (ASTM D1557)
- ALL OTHER EMBANKMENTS AS FOLLOWS:
  - A MINIMUM OF 90% OF THE MAX. DRY DENSITY (MODIFIED PROCTOR) (ASTM D1557)



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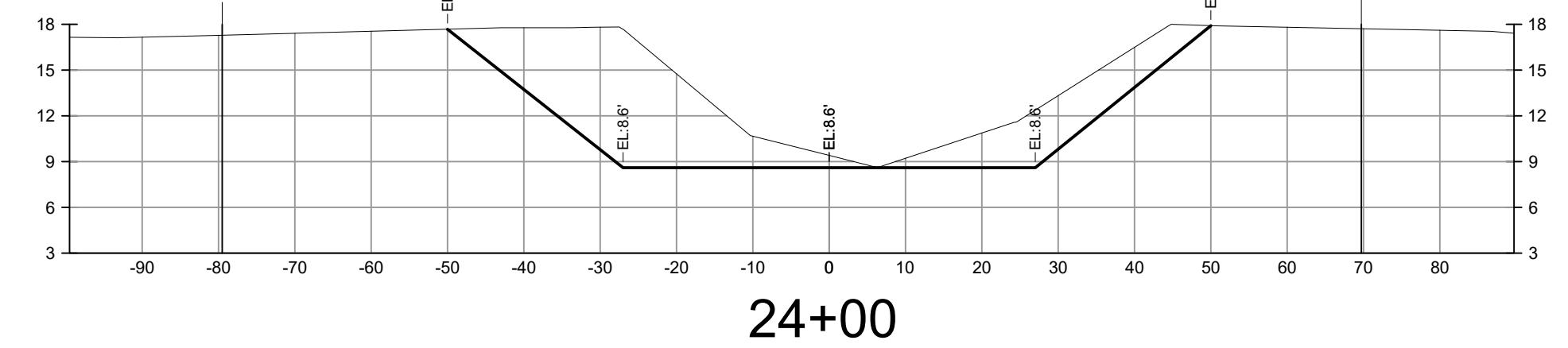
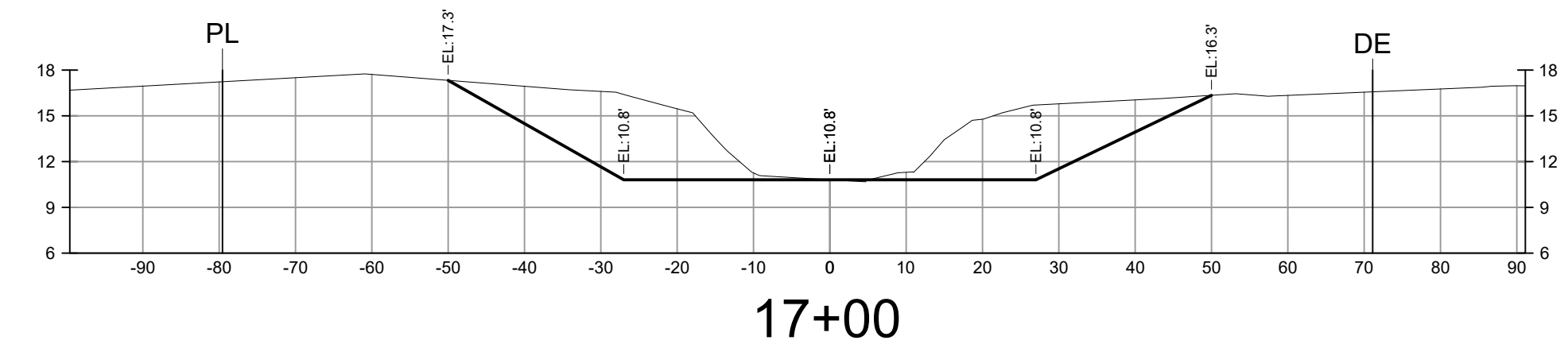
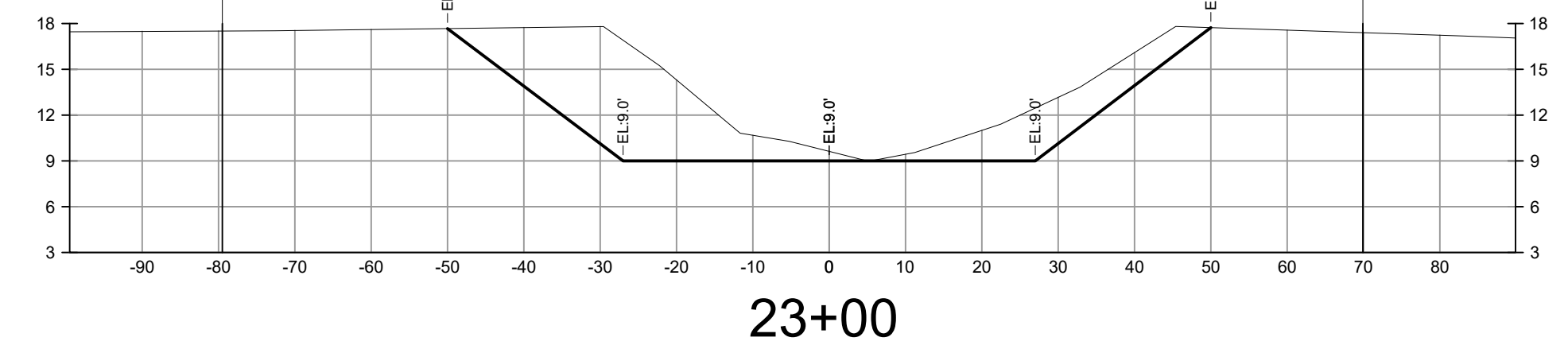
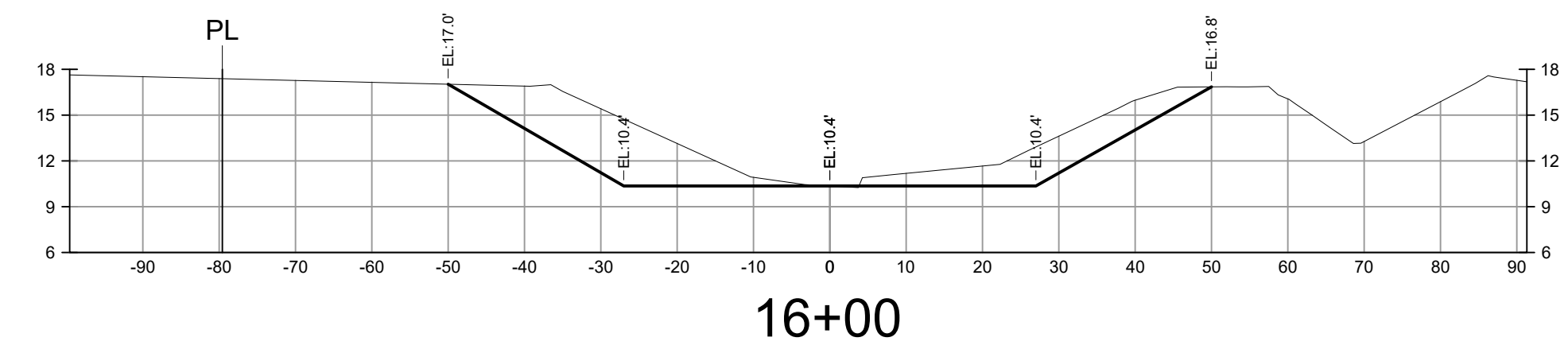
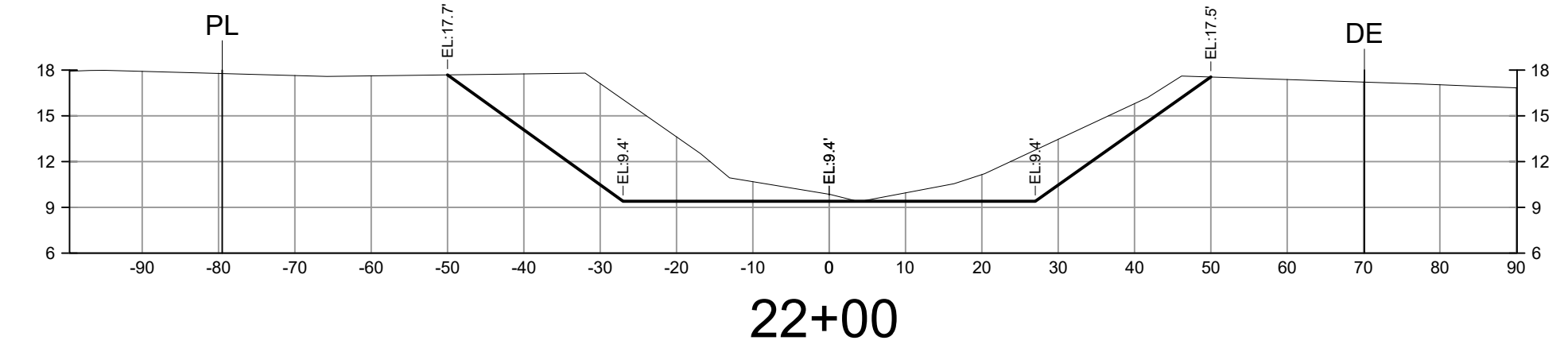
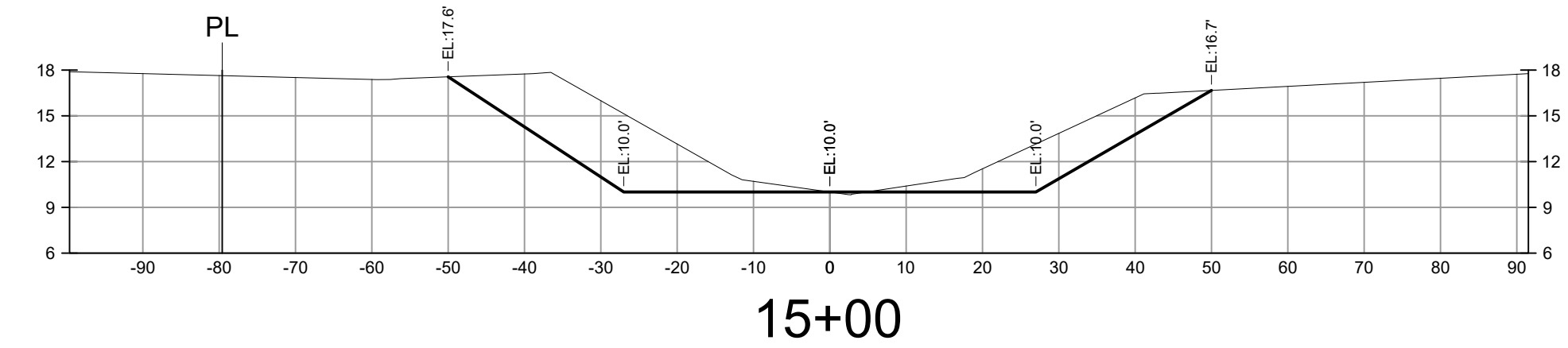
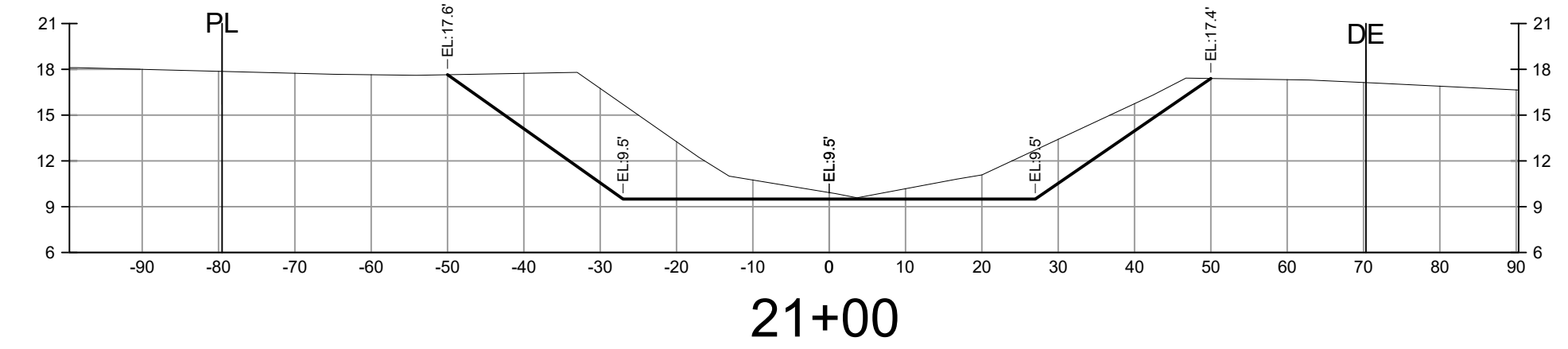
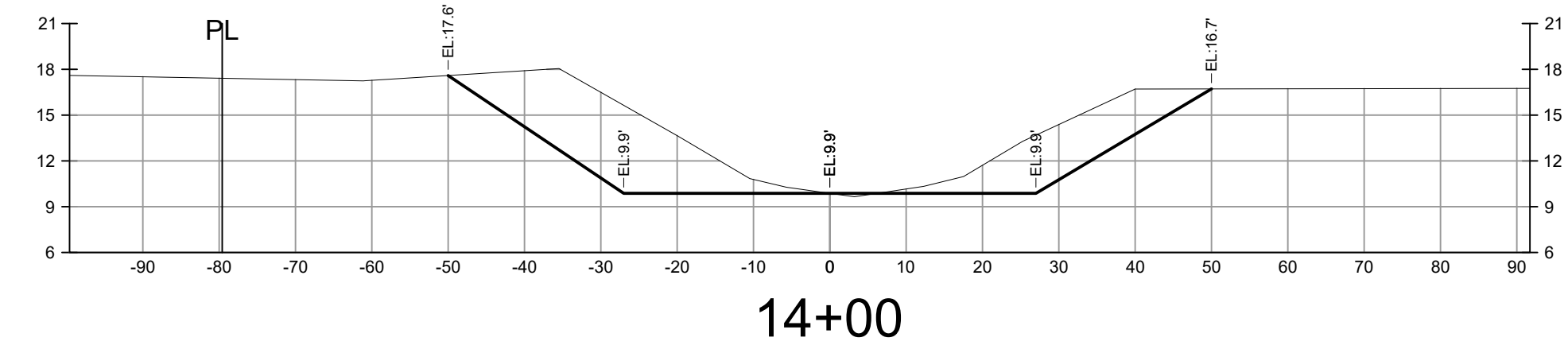
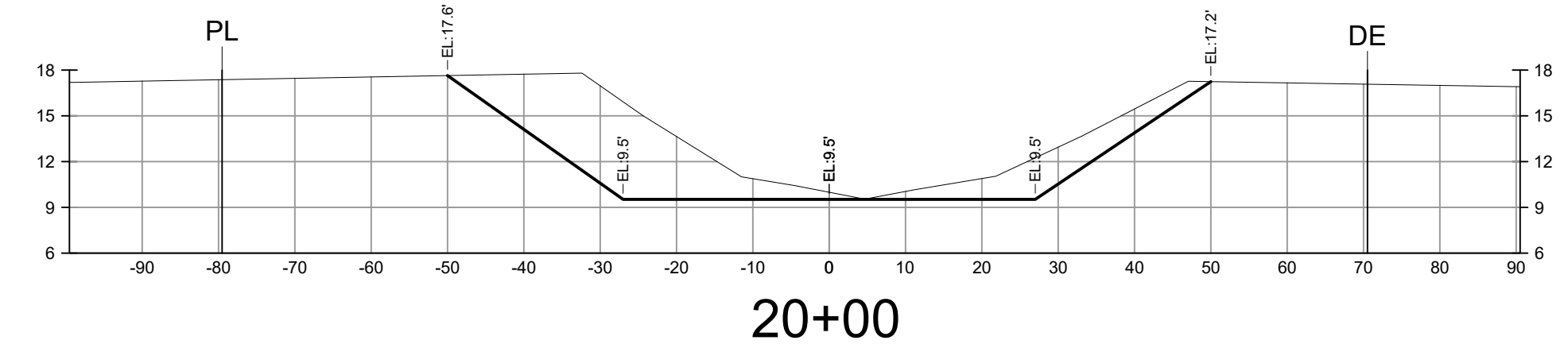
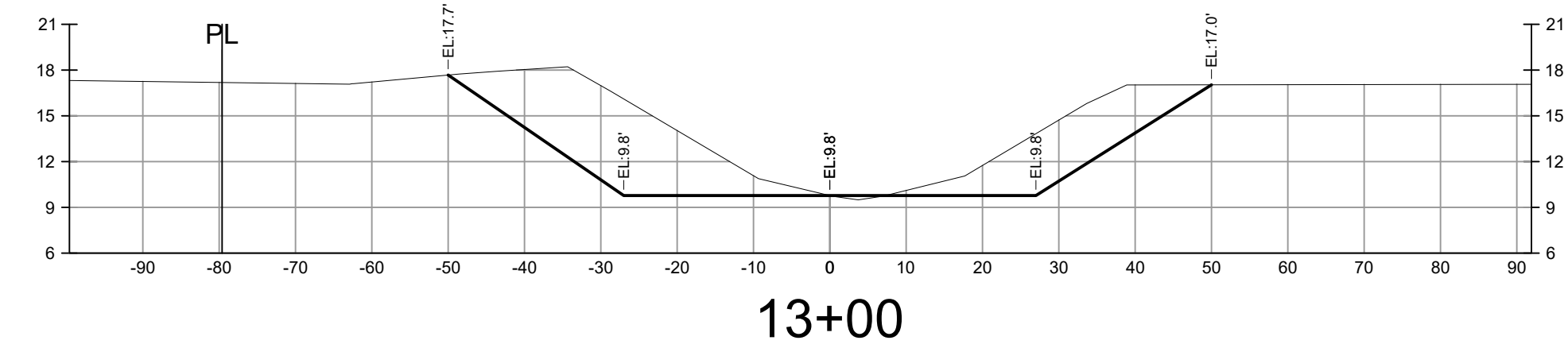
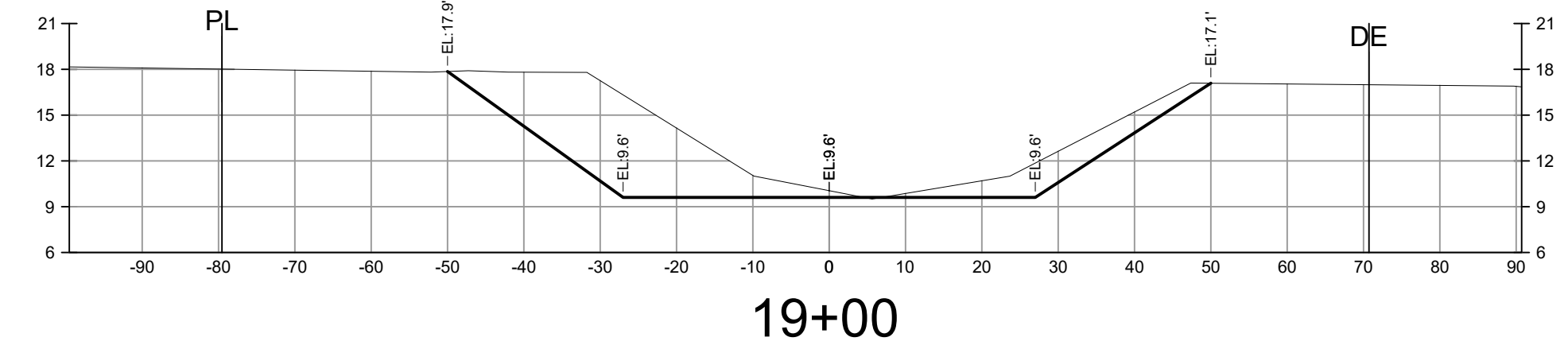
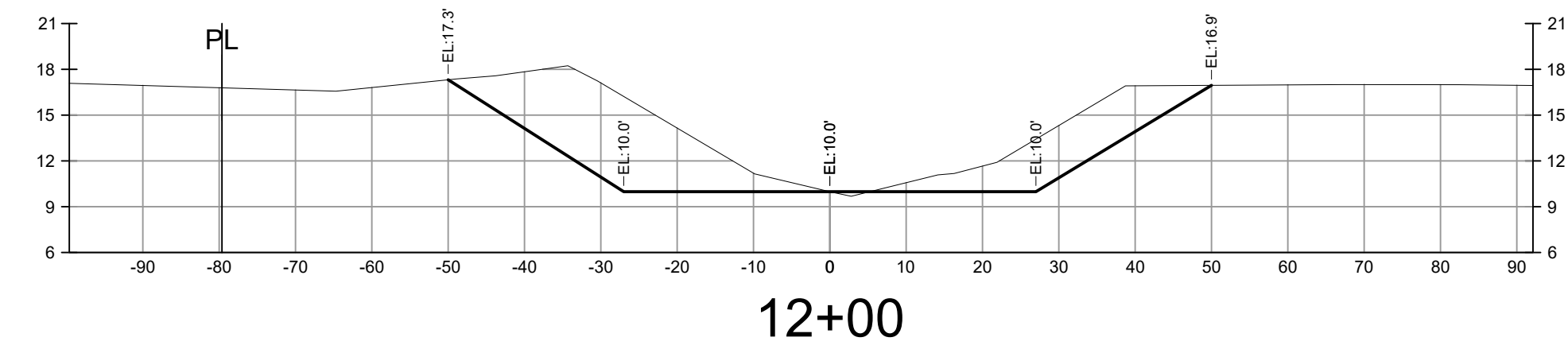
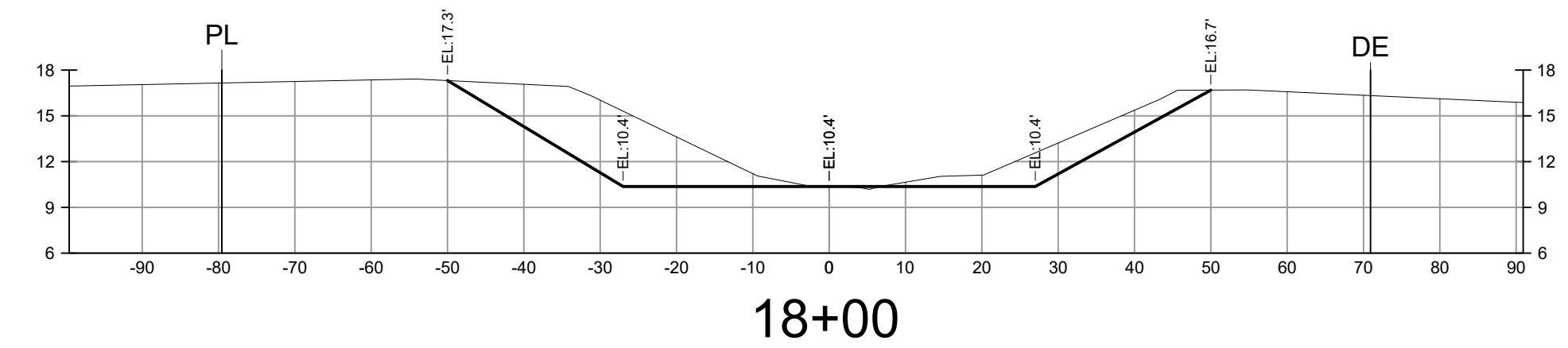
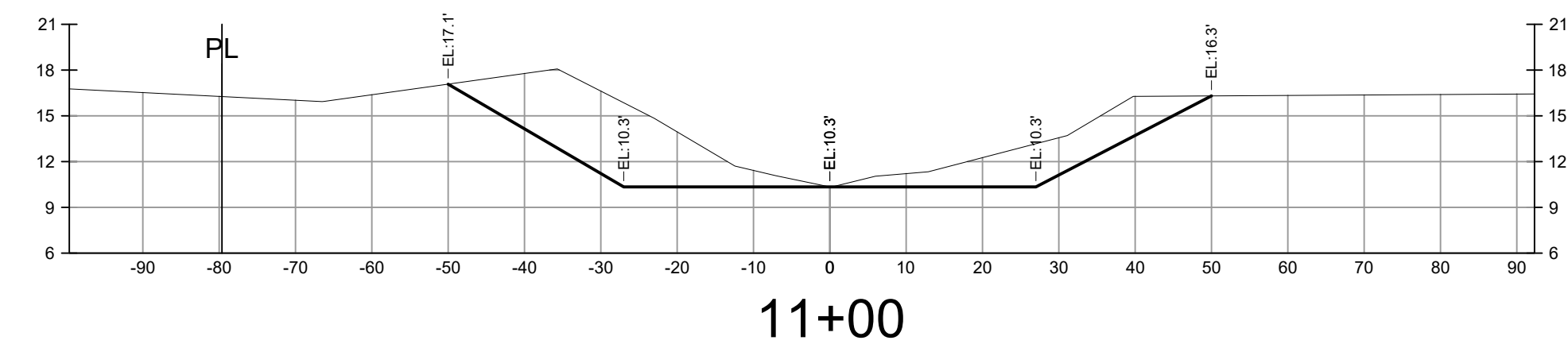
NO.	DATE	REVISED PER	DESCRIPTION	BY
1	12/14/2020	REVISED PER SFWM COMMENTS		SDJ

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SAMUEL W. MARSHALL P.E.  
 FL REG # 26661

TYPICAL CROSS SECTIONS						SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT					
LEE COUNTY, FLORIDA											
DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED	SCALE	SHEET				
5/14/2019	8234		KWK	SDJ	KWK		06				



**NOTE:**  
EXISTING GOPHER TORTOISE BURROS TO BE AVOIDED AS MUCH AS PRACTICAL.



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FORT MYERS, FL 33901  
PHONE: (239) 533-8109

NO.	DATE	REVISION DESCRIPTION	BY

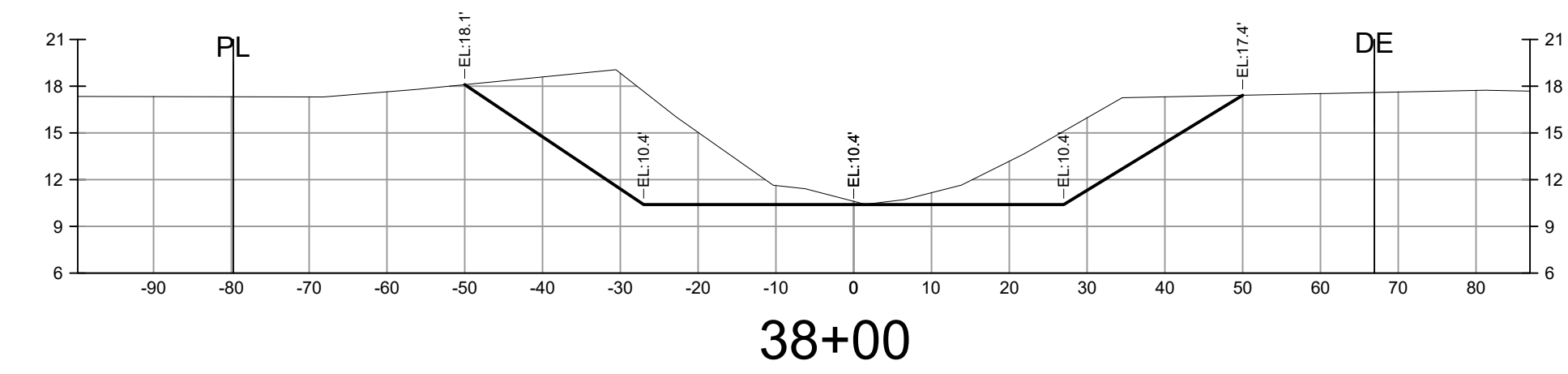
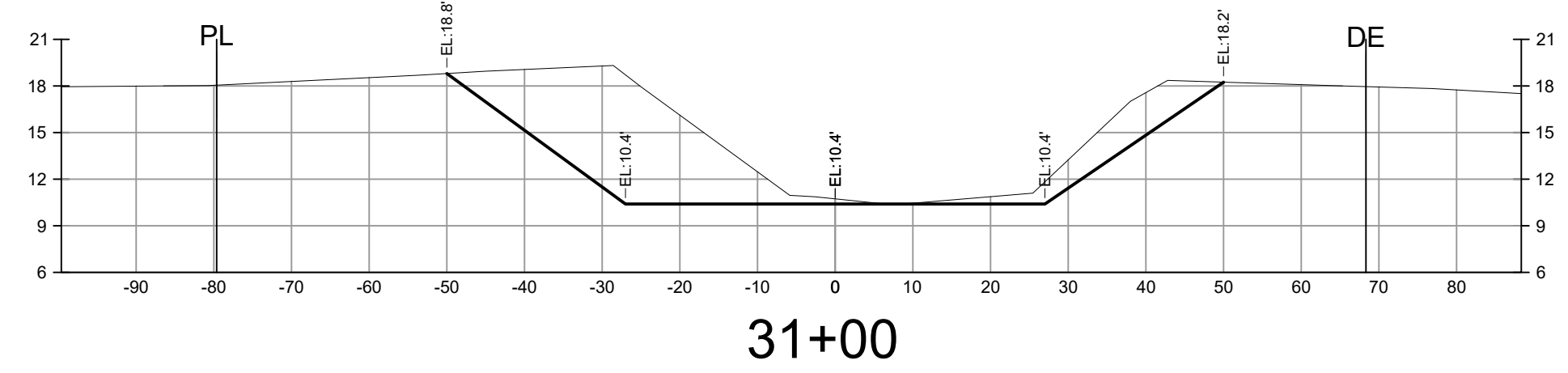
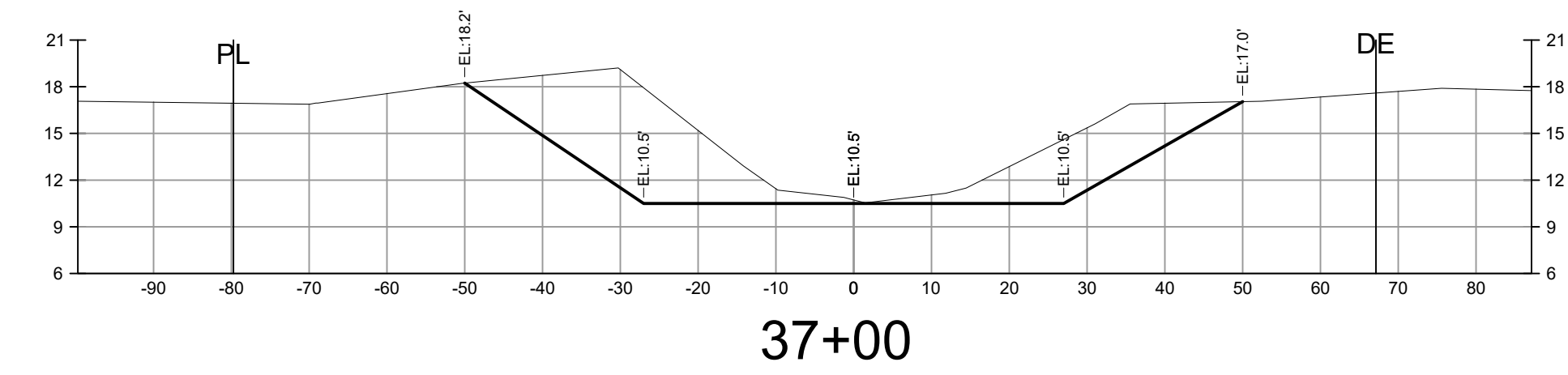
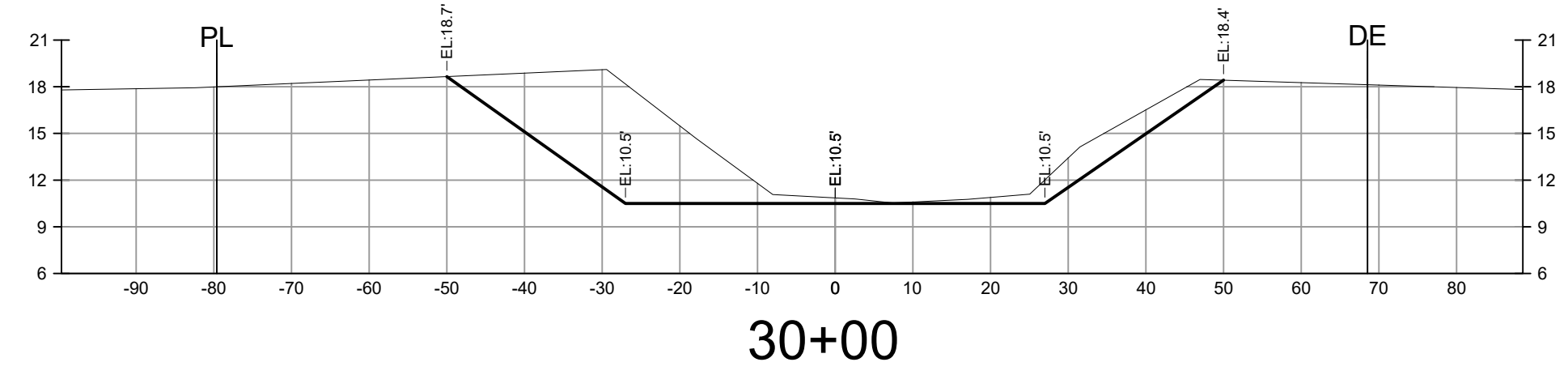
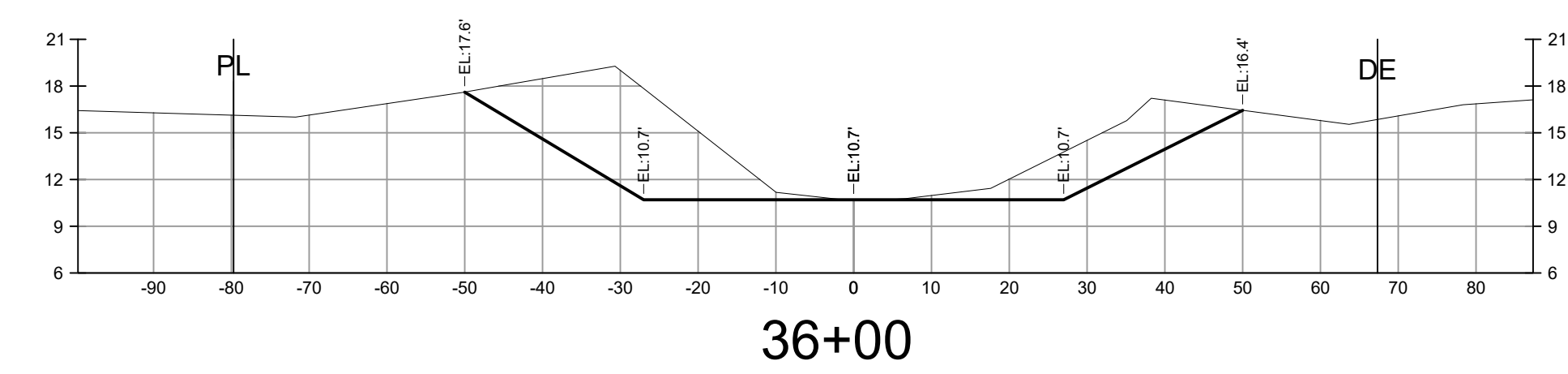
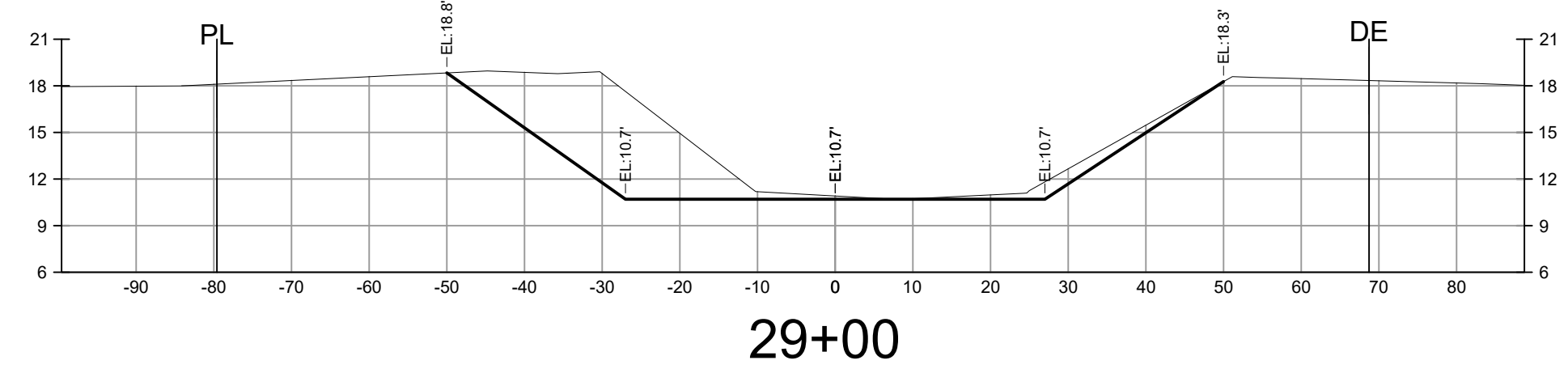
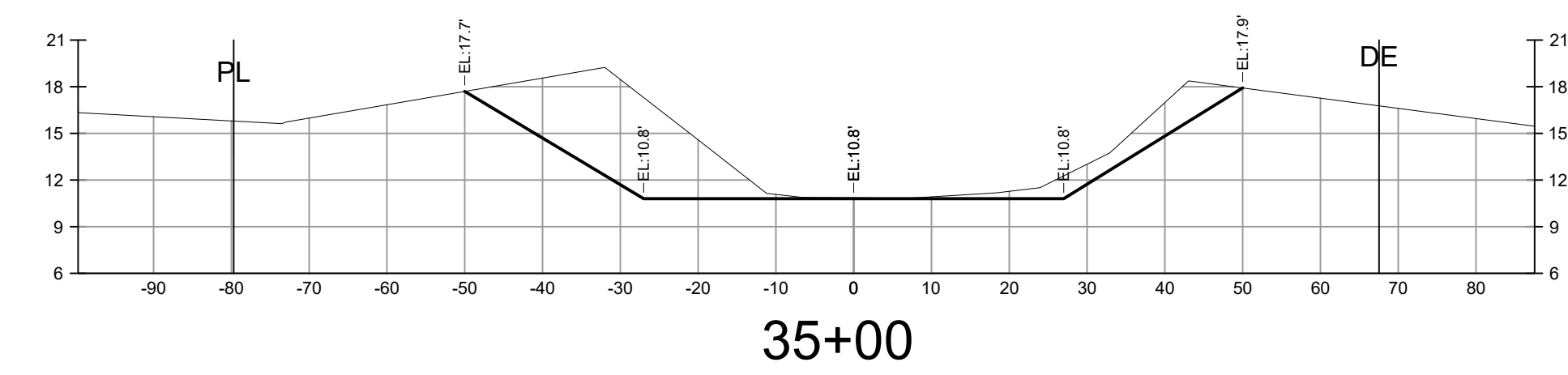
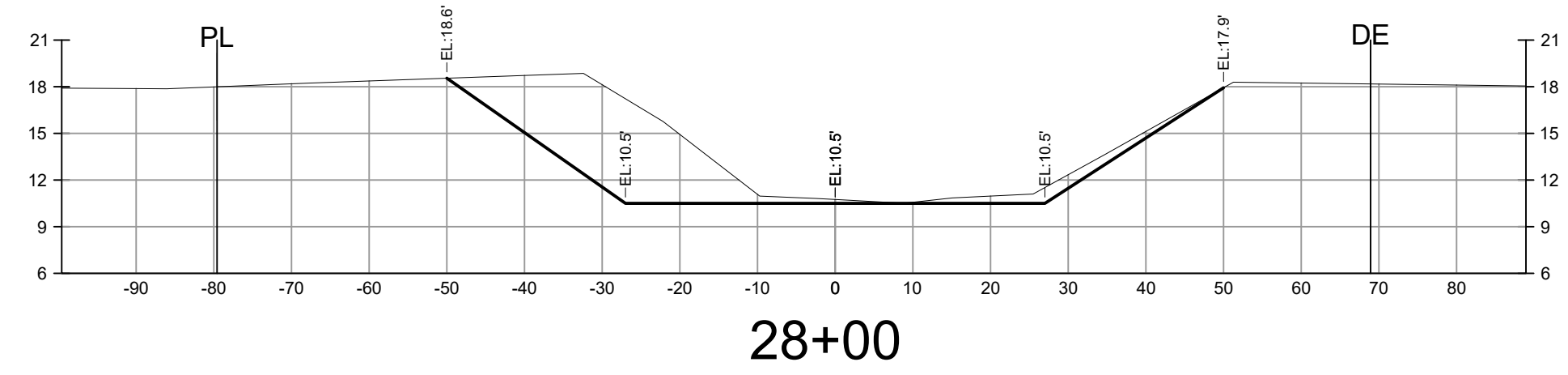
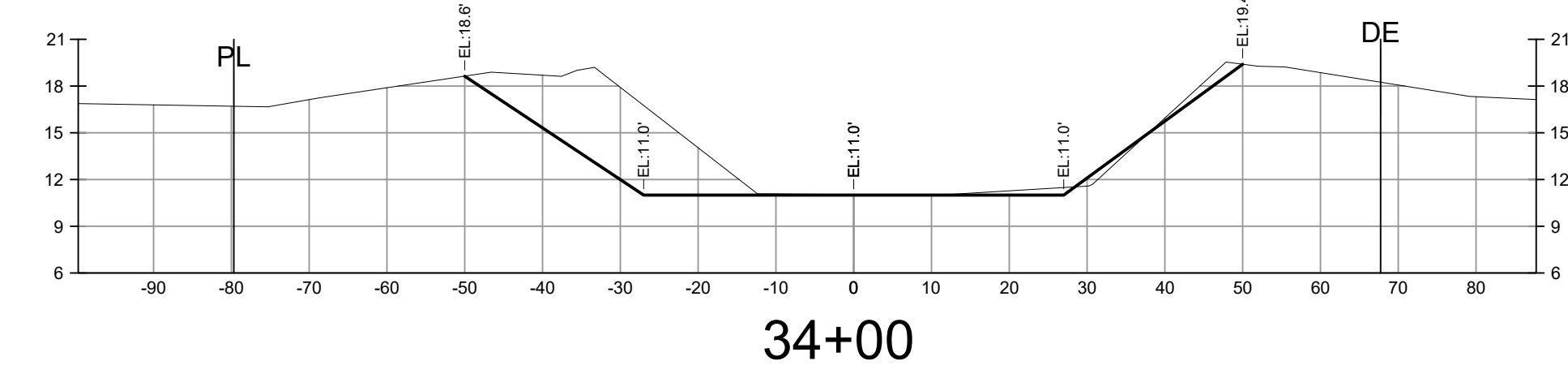
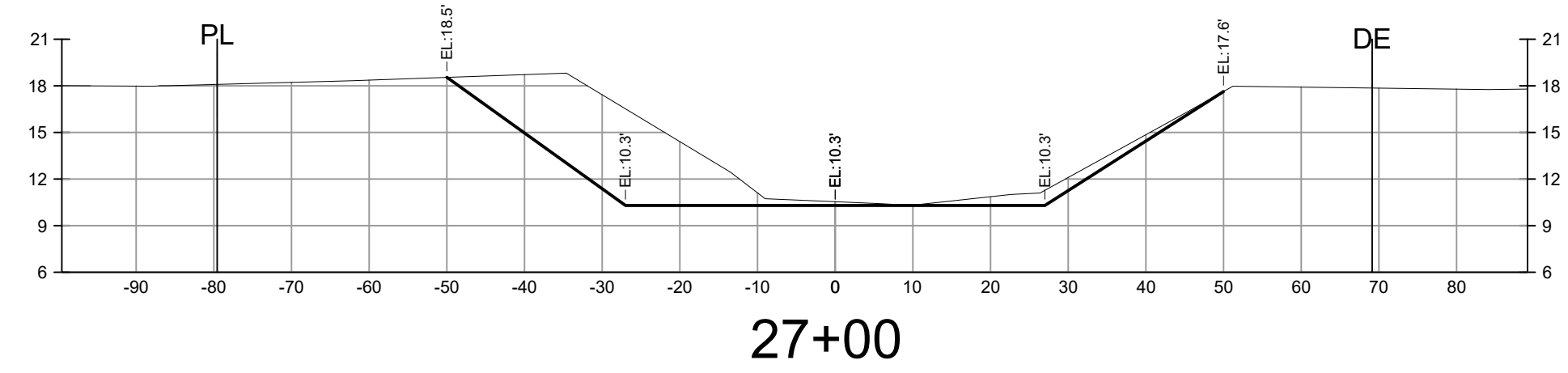
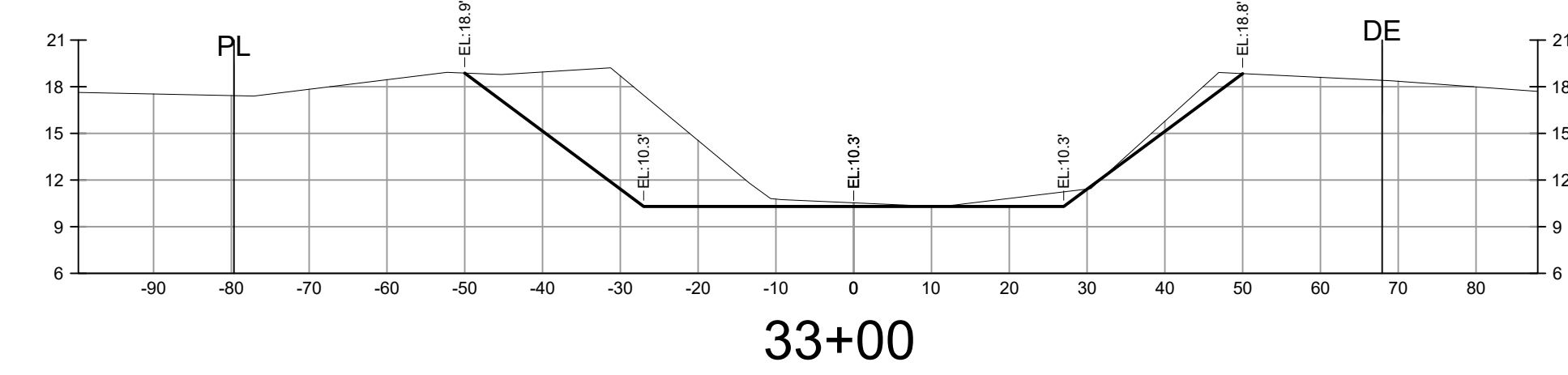
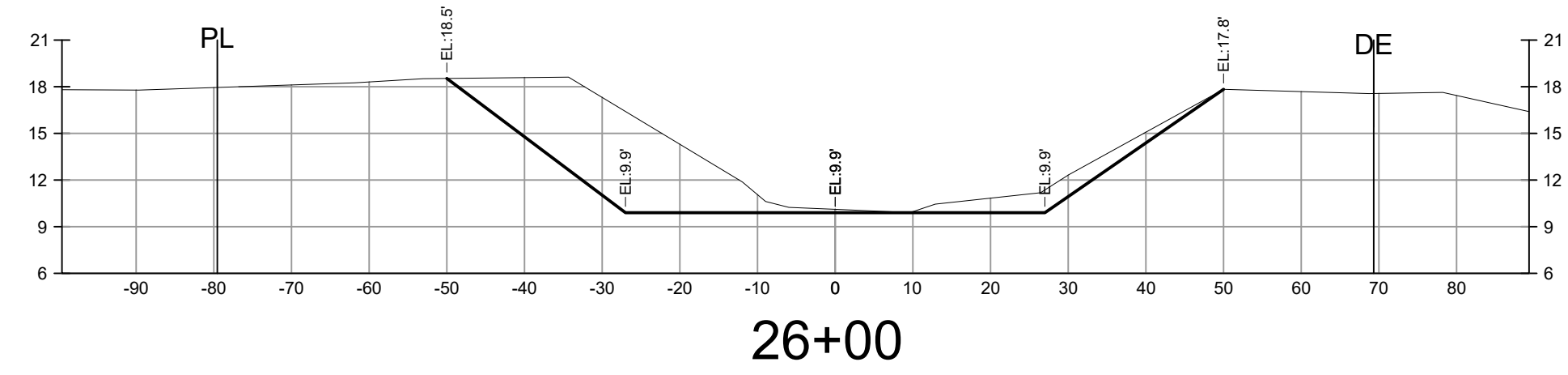
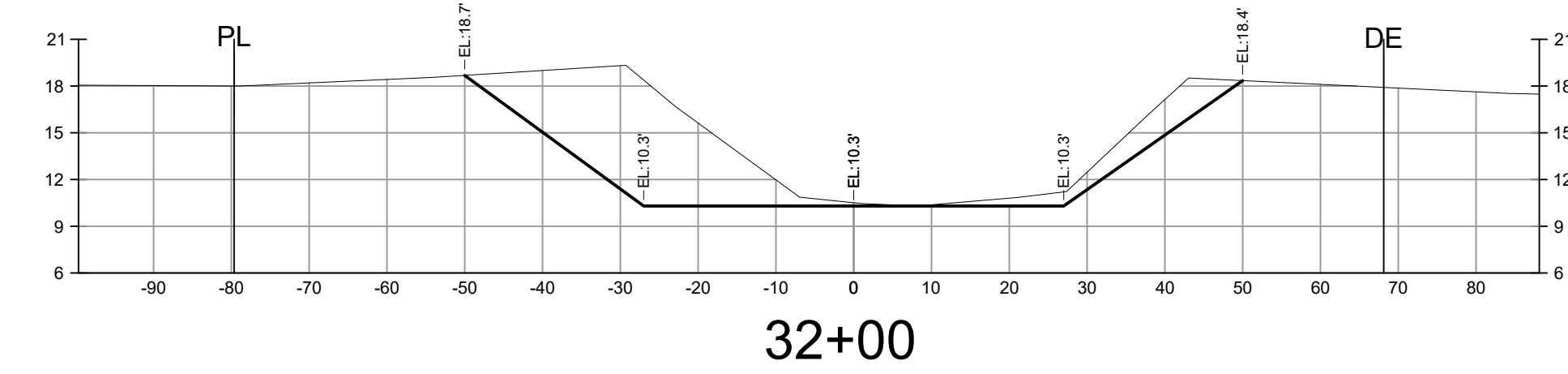
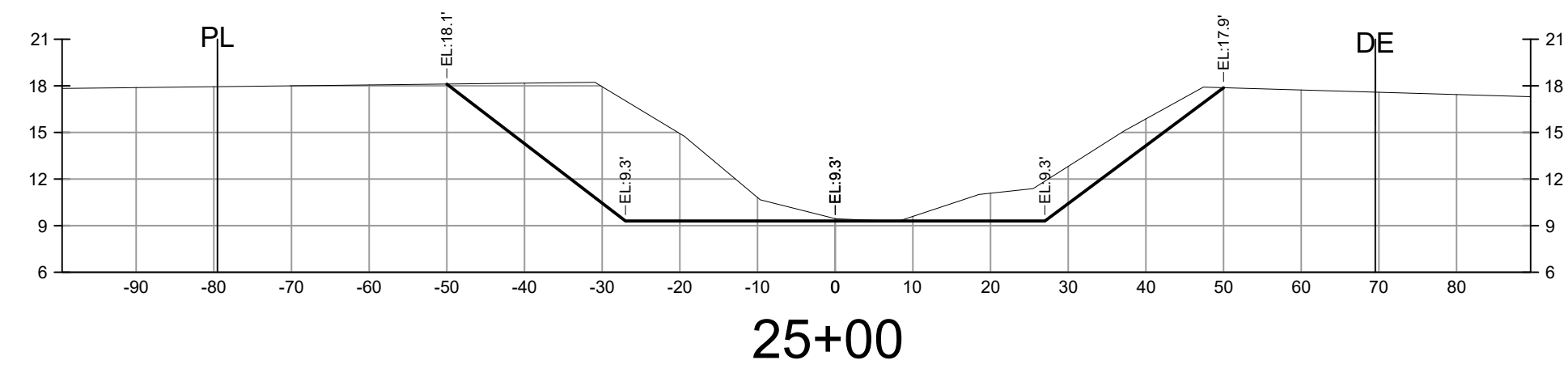
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FL REG # 26661

CROSS SECTIONS - STA. 11+00 TO 24+00		SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT		LEE COUNTY, FLORIDA	
DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED
5/14/2019	8234	_AER	KWK	SDJ	KWK
SCALE	SHEET				
V: 1"=10' H: 1"=20'	07				





**NOTE:**  
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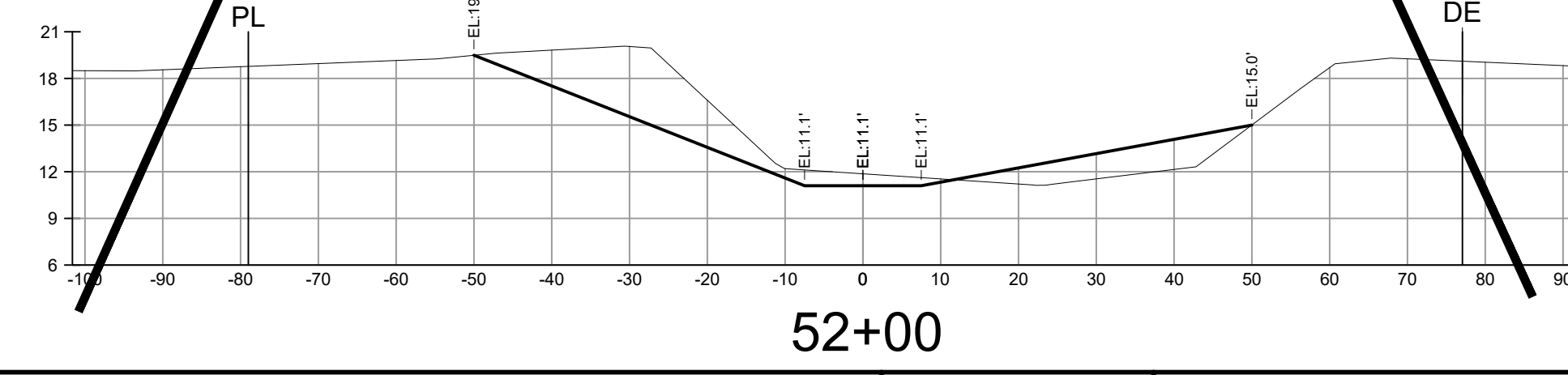
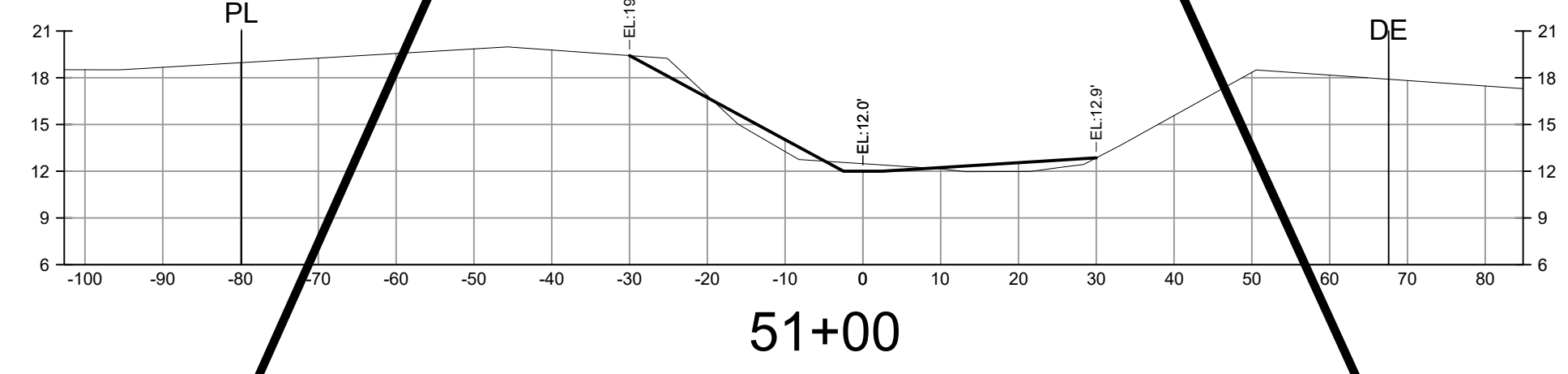
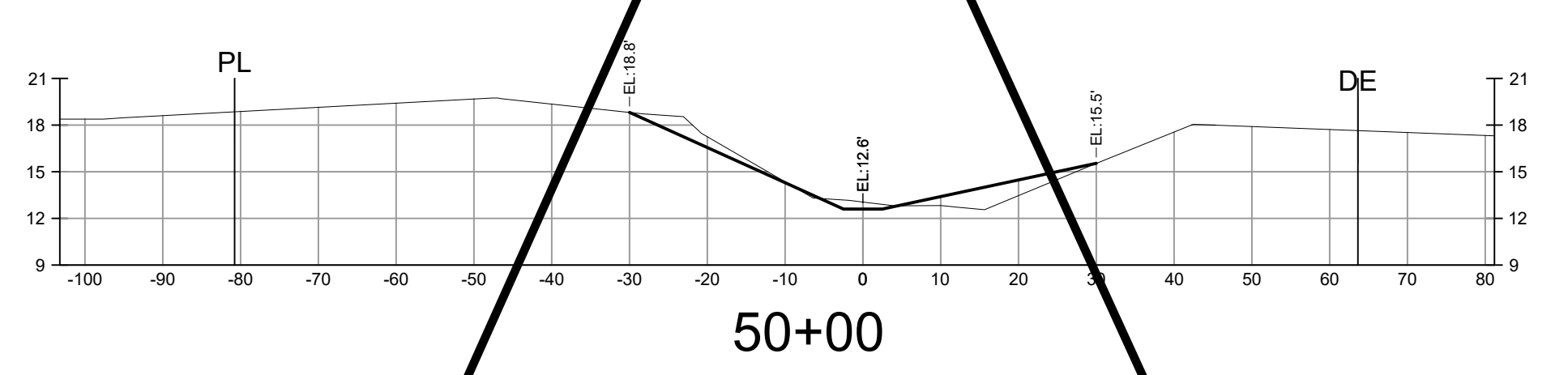
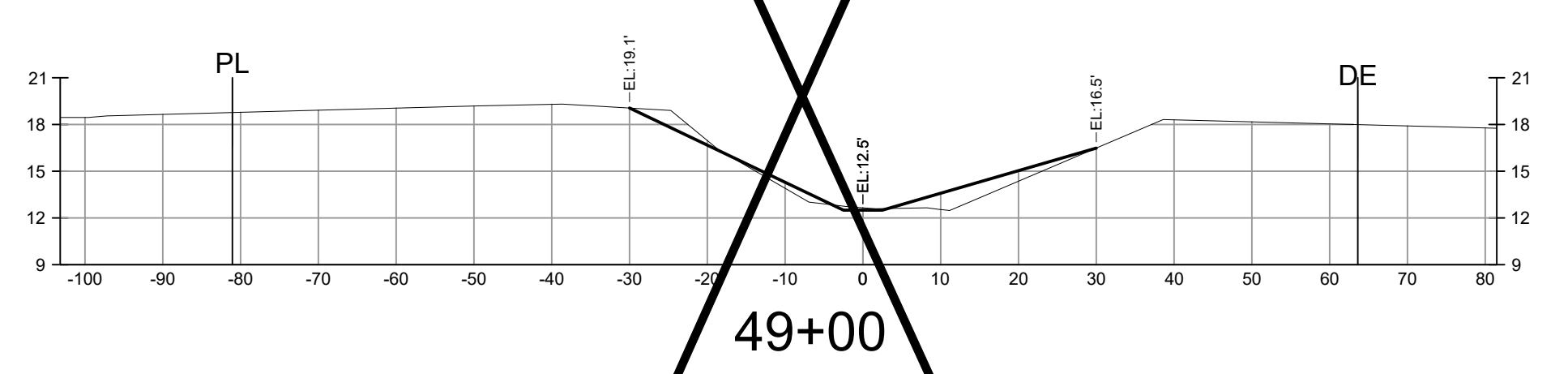
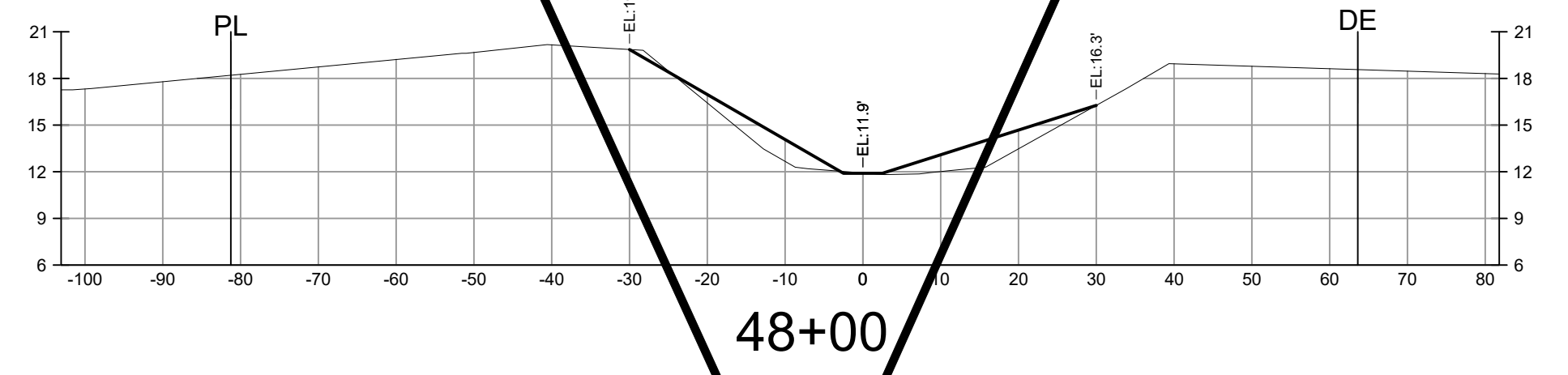
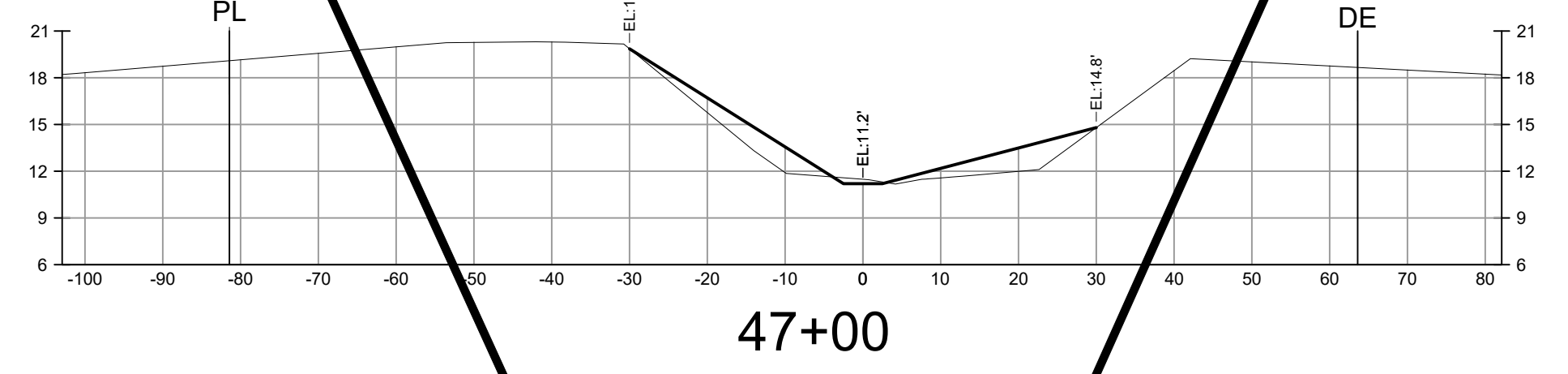
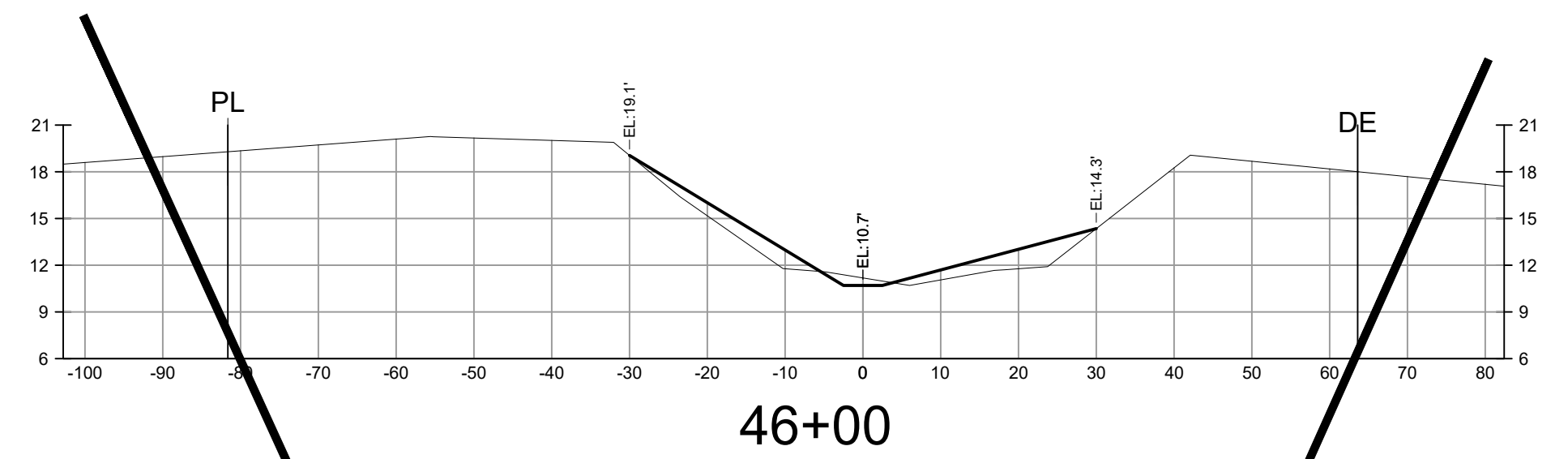
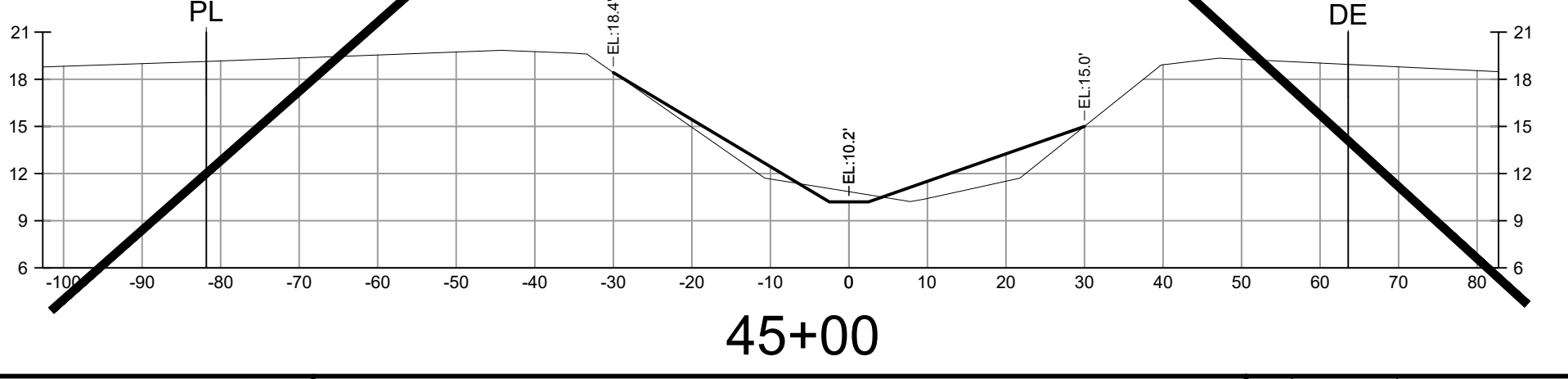
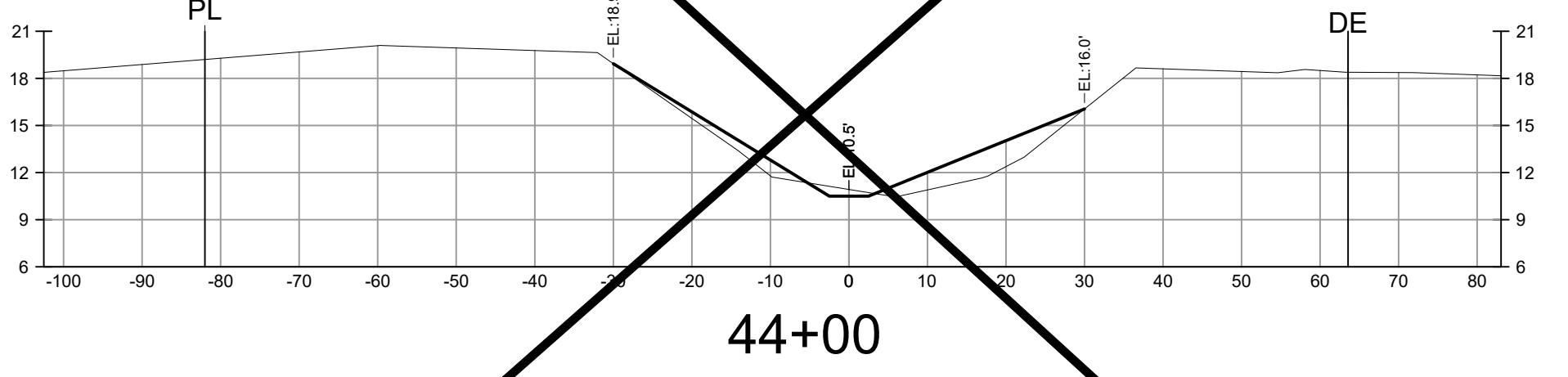
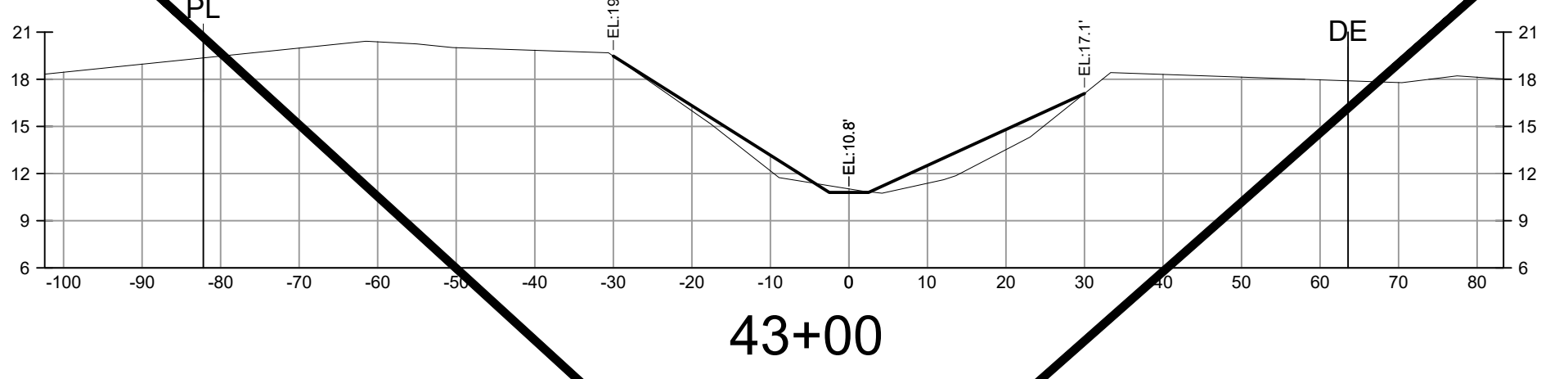
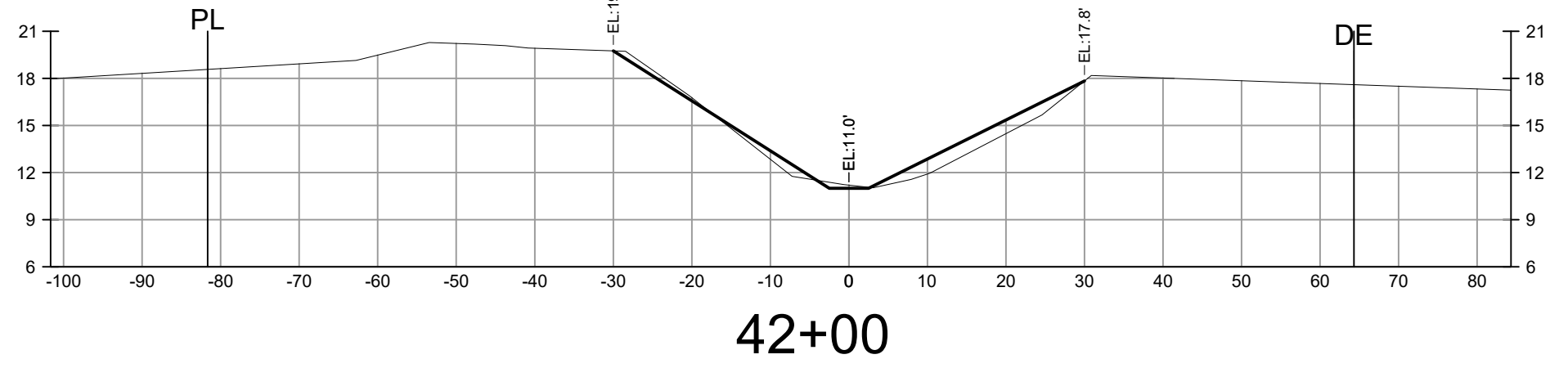
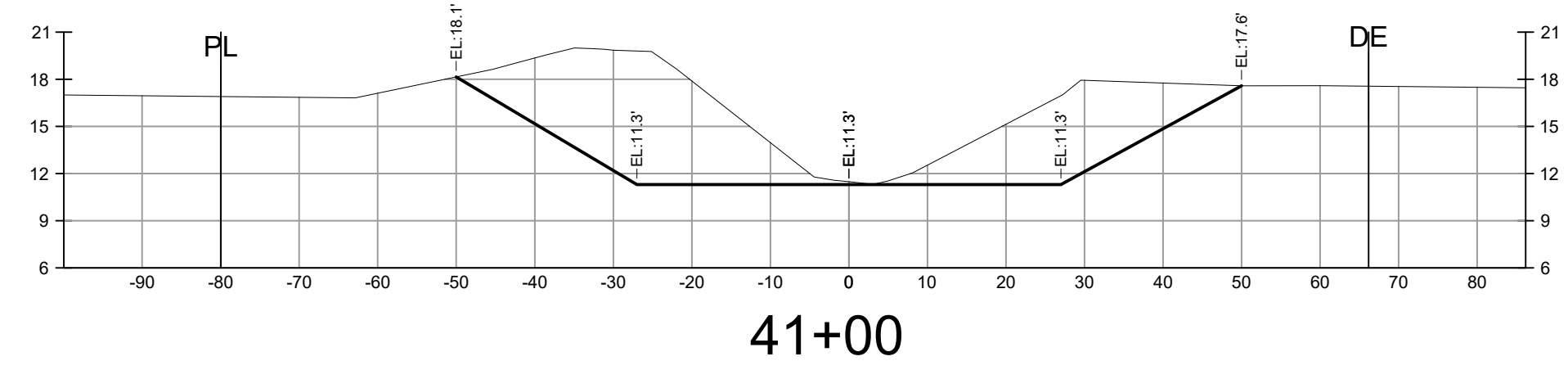
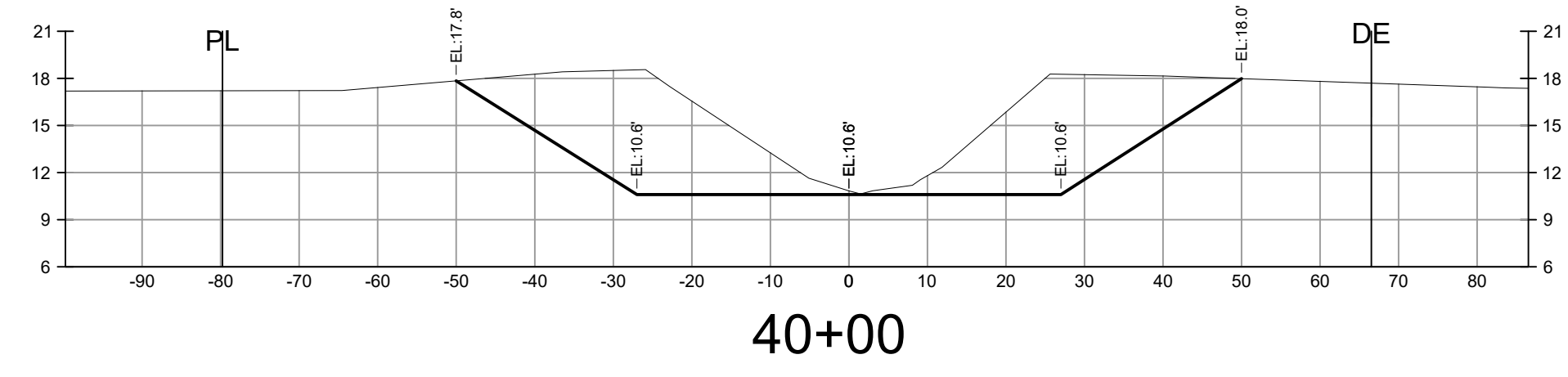
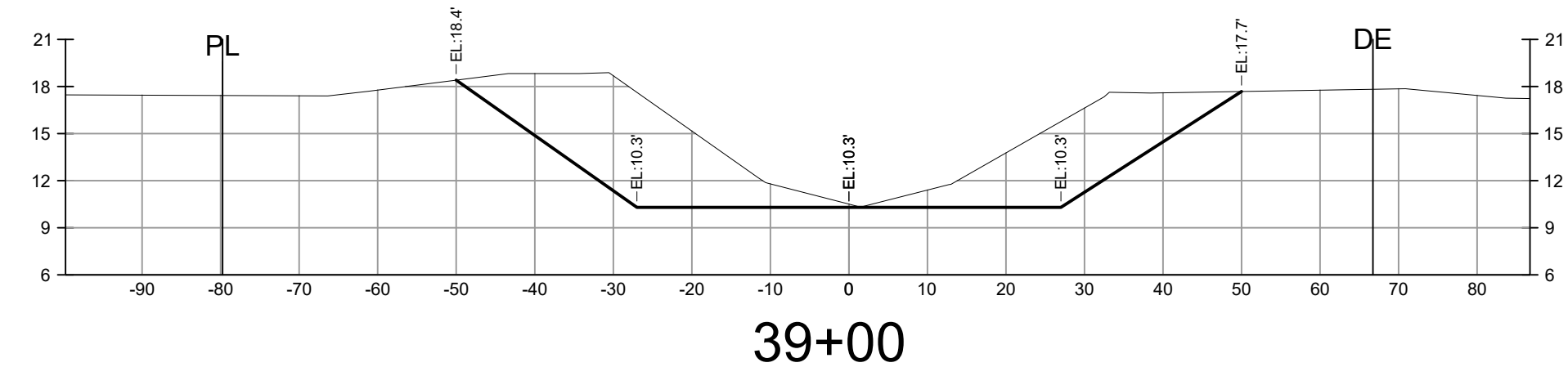
NO.	DATE	REVISION DESCRIPTION	BY

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FL REG # 26661

CROSS SECTIONS - STA. 25+00 TO 38+00		SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT		LEE COUNTY, FLORIDA	
DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED
5/14/2019	8234	_AER	KWK	SDJ	KWK
SCALE	V: 1"=10'		H: 1"=20'		SHEET
					08



**NOTE:**  
EXISTING GOPHER TORTOISE BURROS TO BE AVOIDED AS MUCH AS PRACTICAL.



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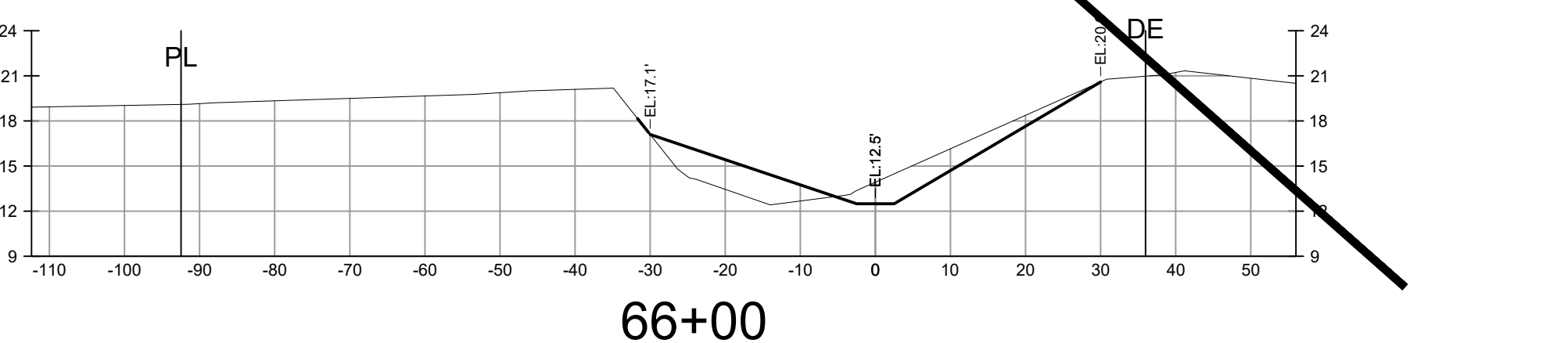
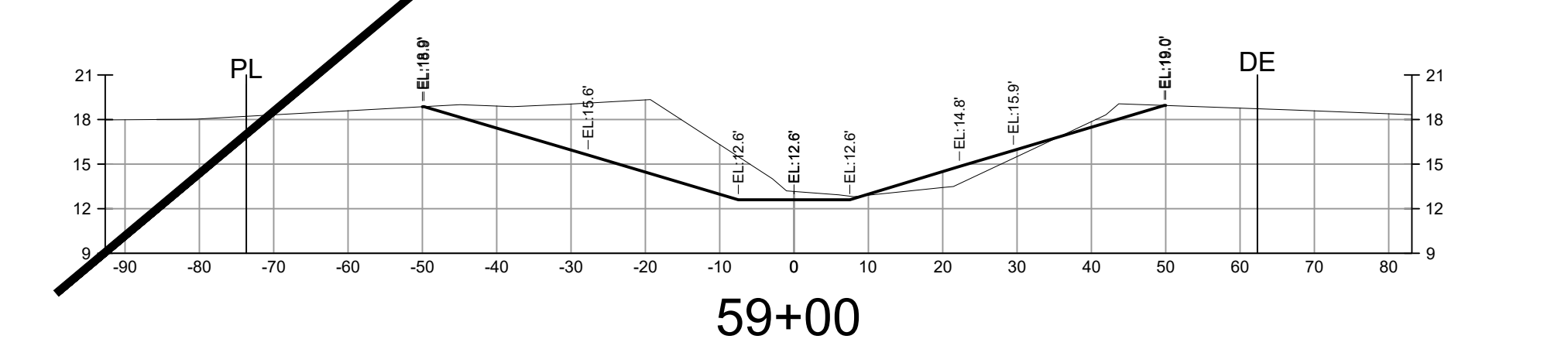
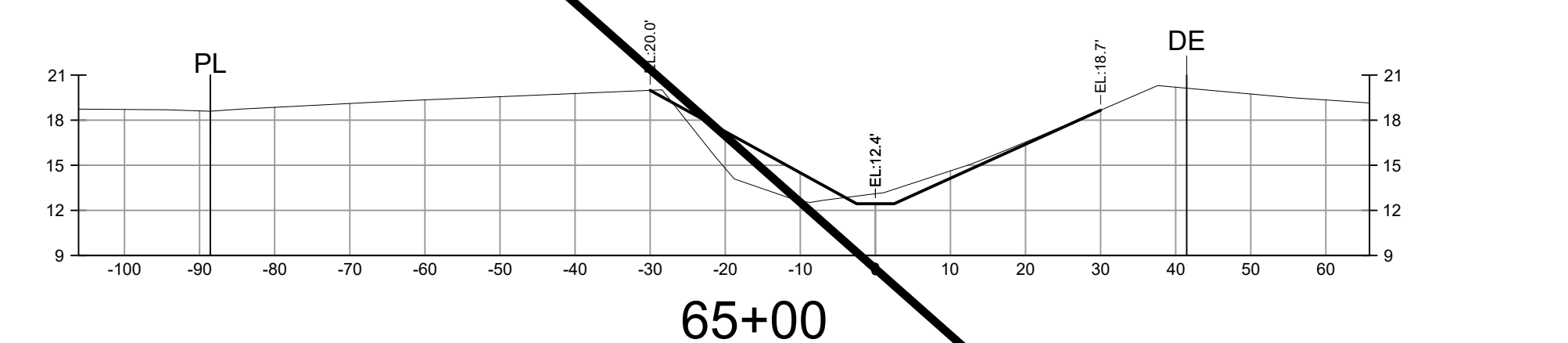
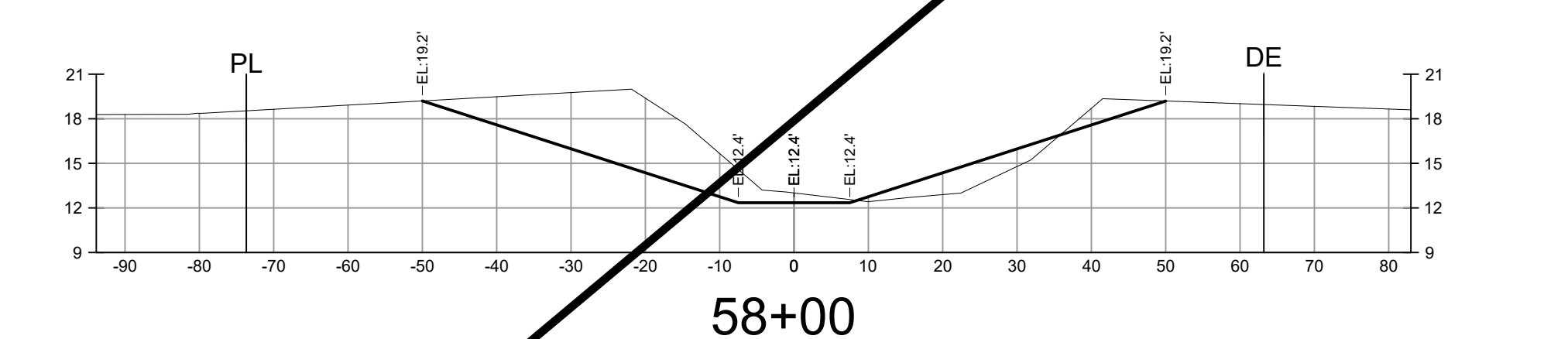
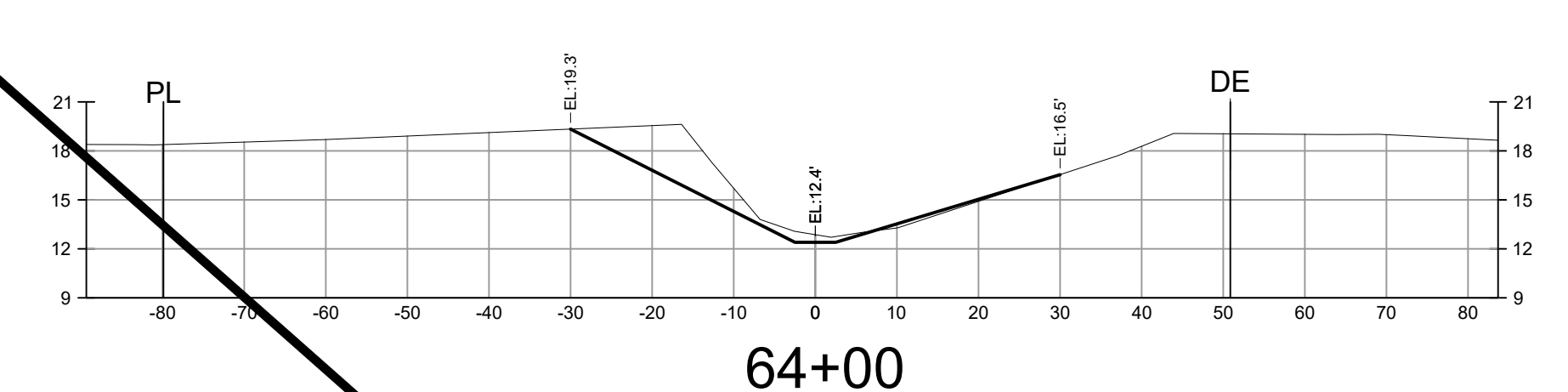
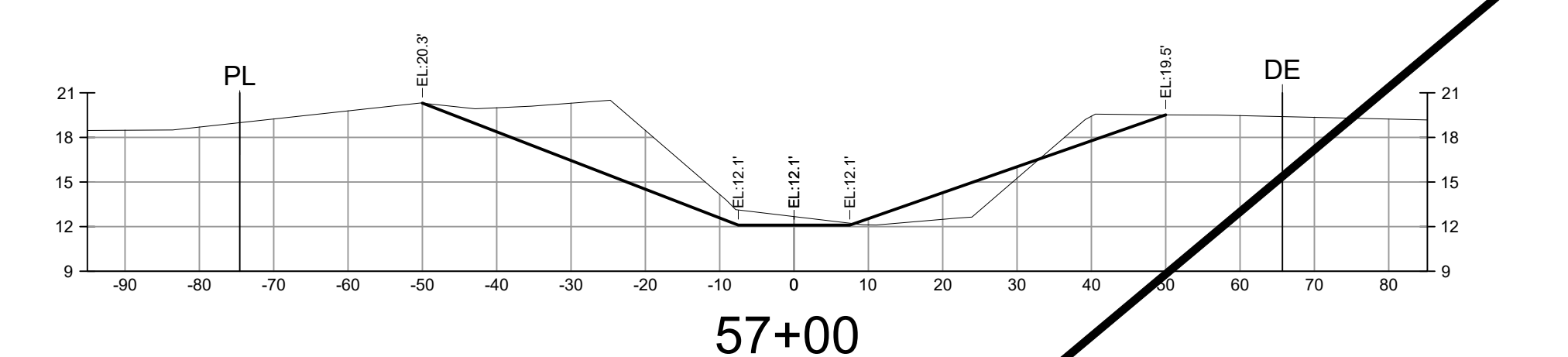
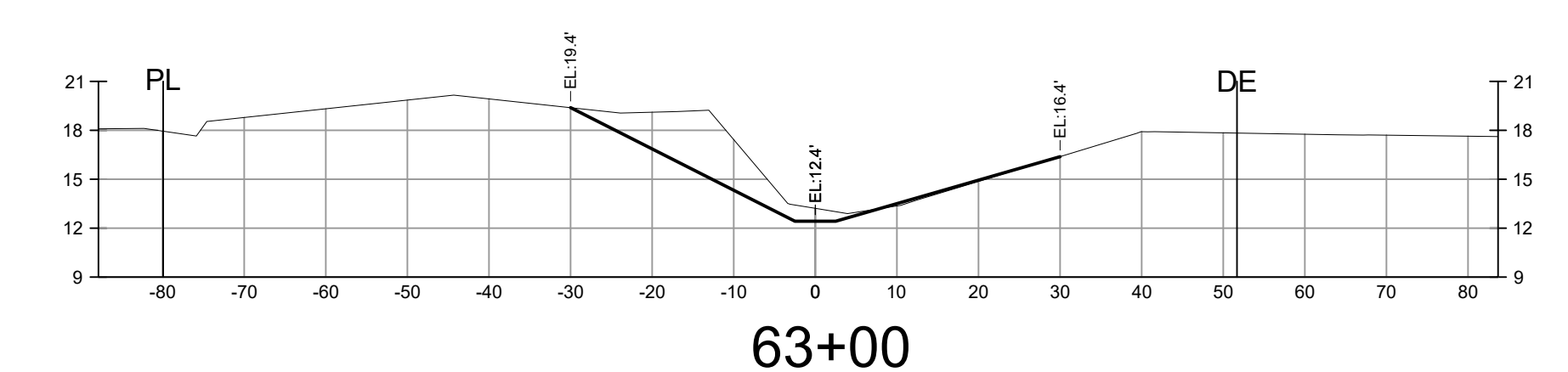
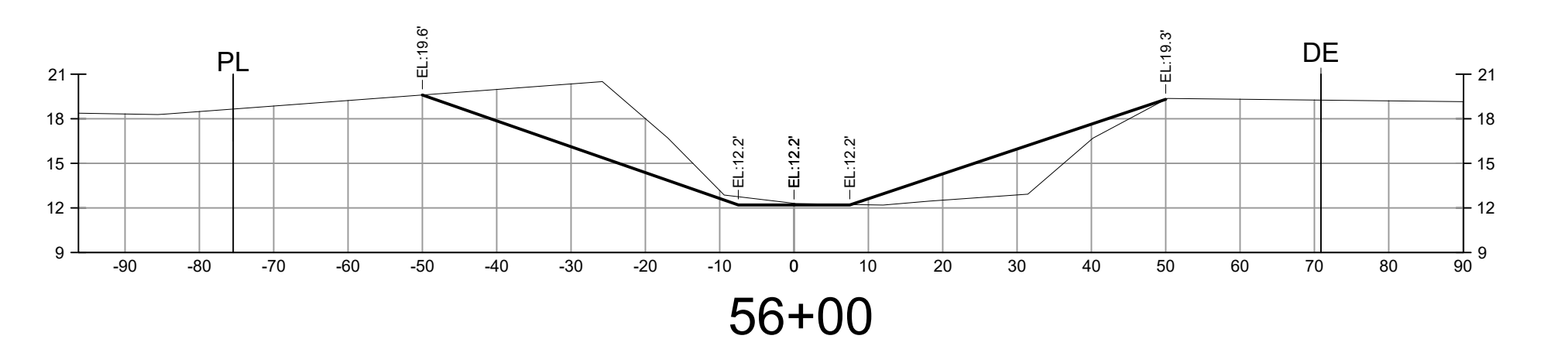
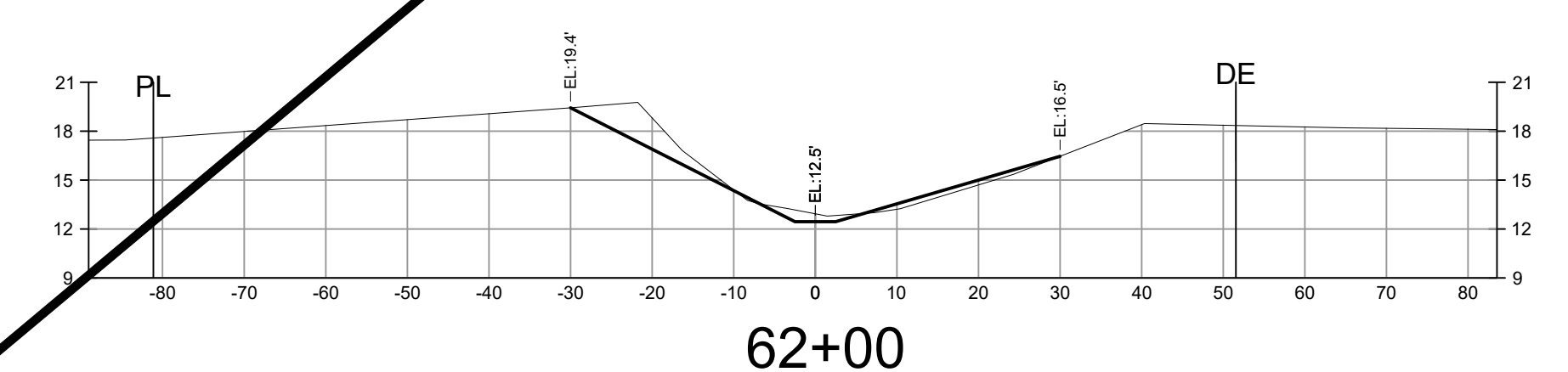
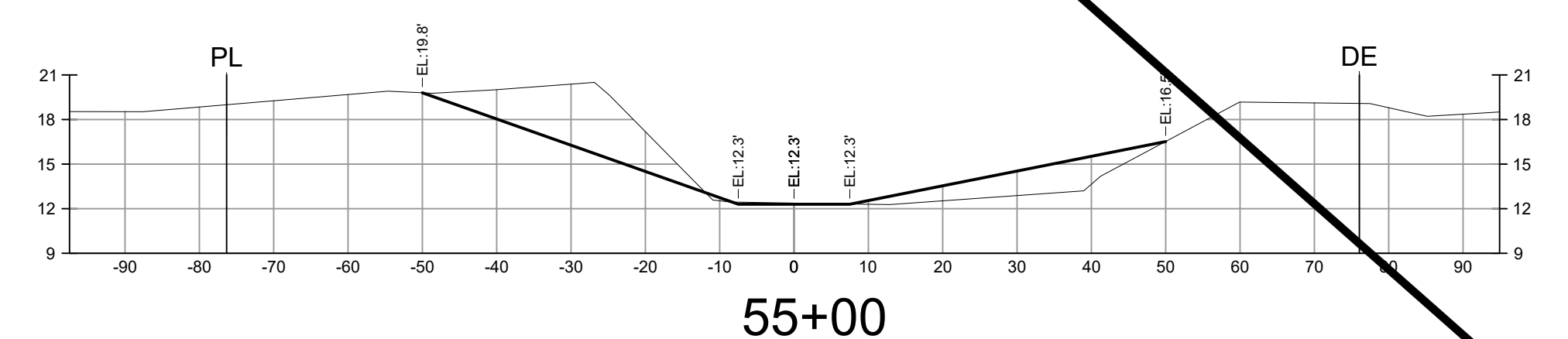
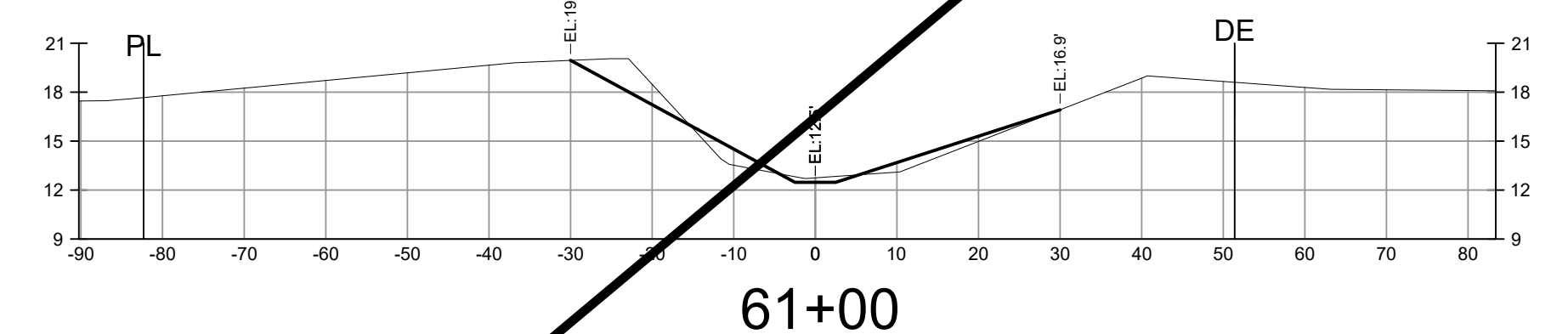
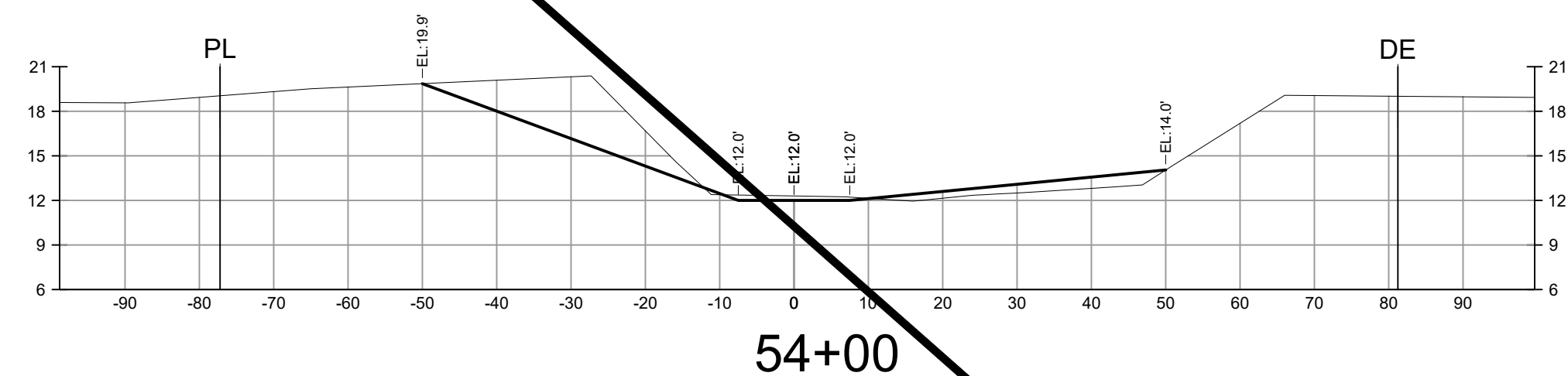
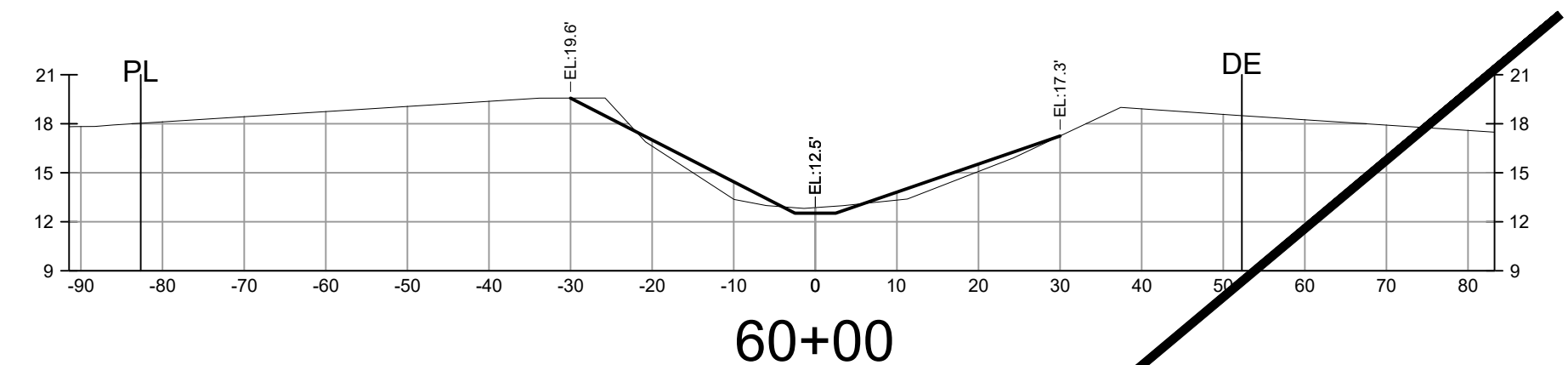
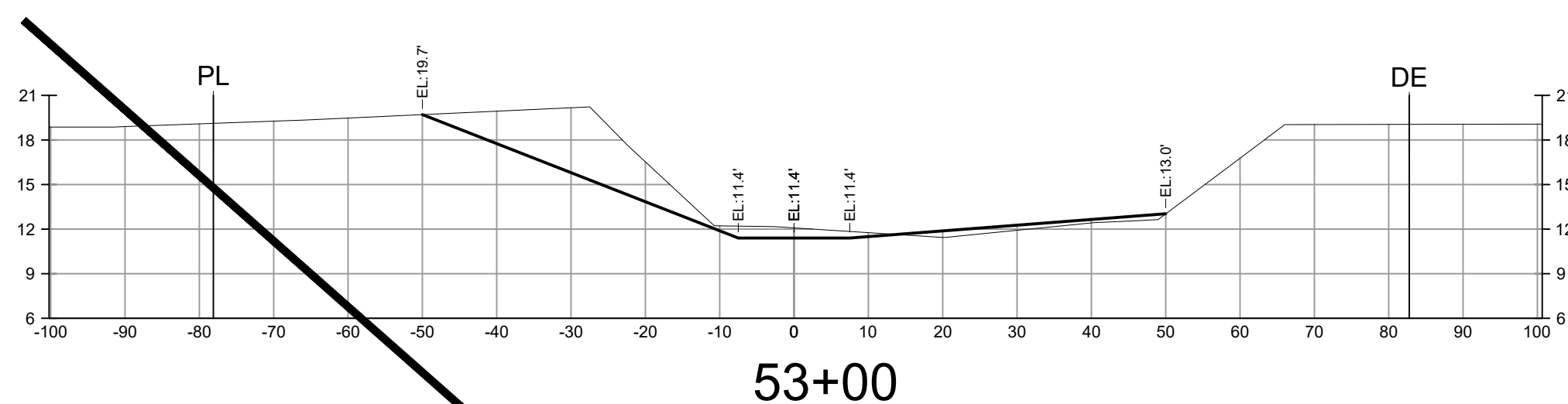
NO.	DATE	REVISION DESCRIPTION	BY

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CROSS SECTIONS - STA. 39+00 TO 52+00									
SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT									
LEE COUNTY, FLORIDA									
DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED	SCALE	SHEET		
5/14/2019	8234	_AER	KWK	SDJ	KWK	V: 1"=10' H: 1"=20'	09		



**NOTE:**  
EXISTING GOPHER TORTOISE BURROS TO BE BE AVOIDED AS MUCH AS PRACTICAL.



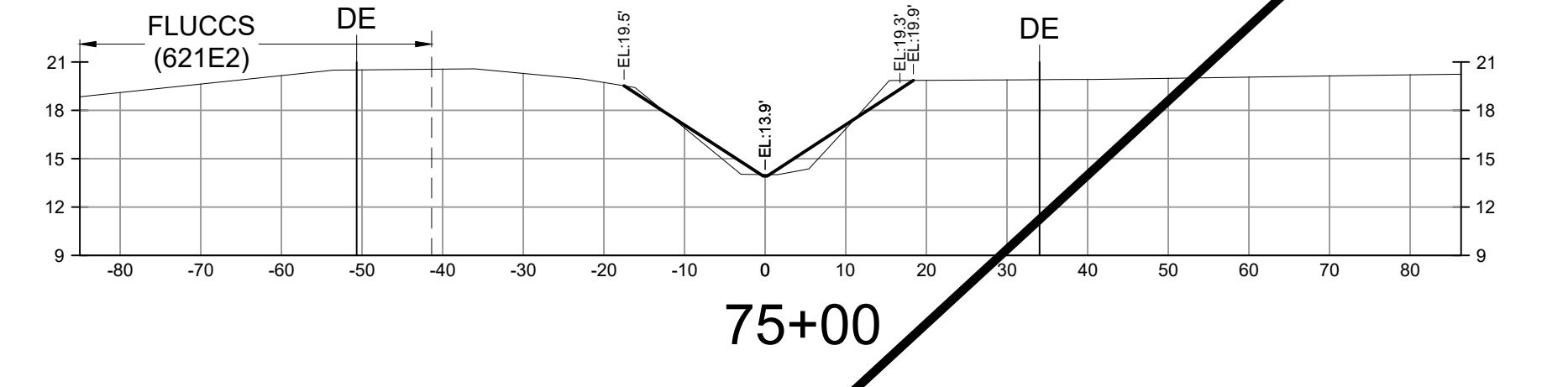
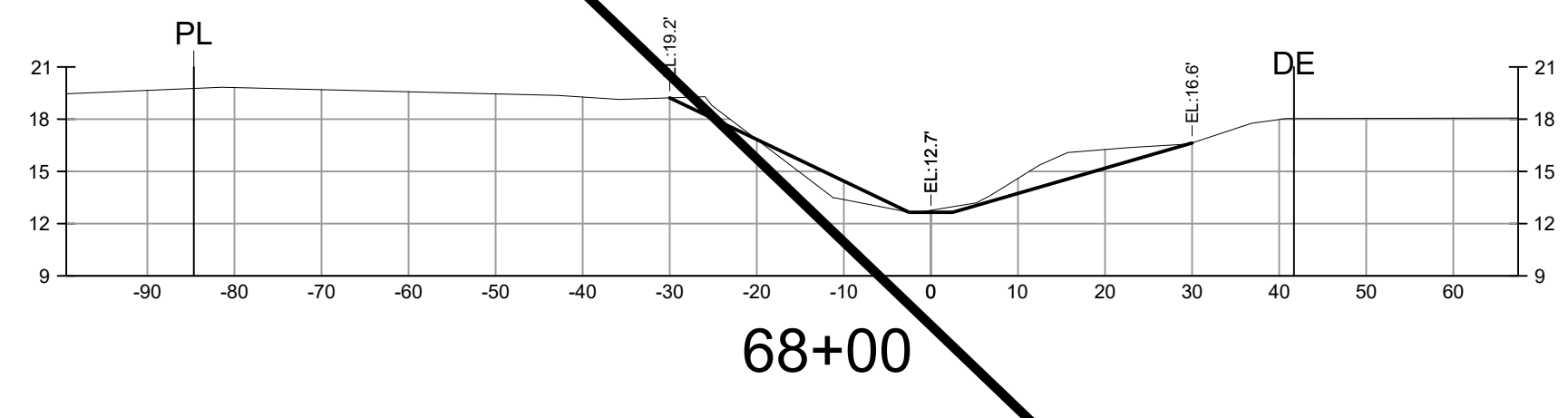
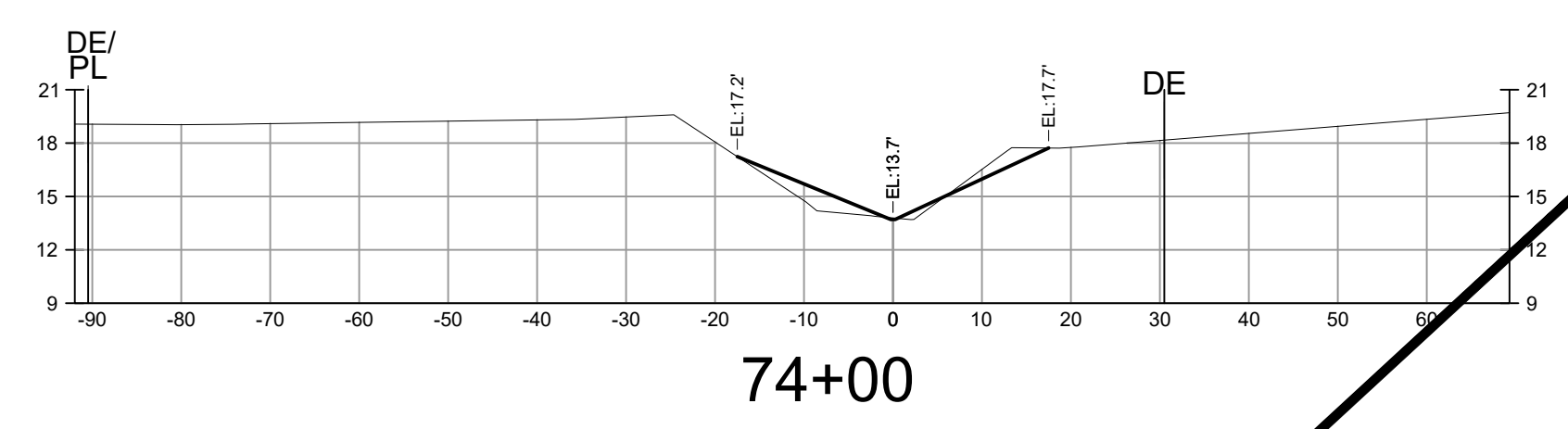
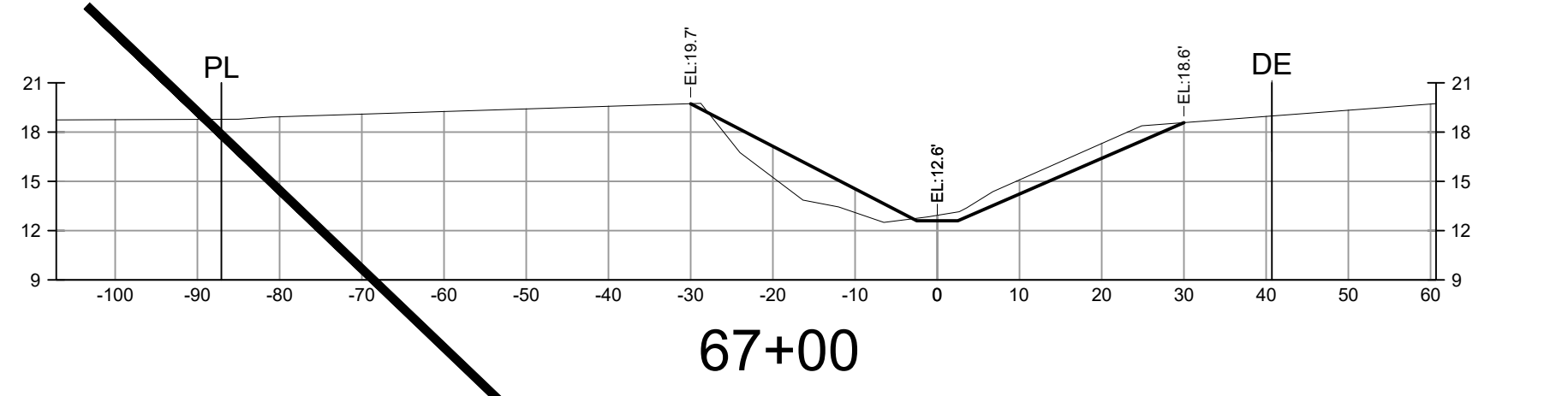
PREPARED FOR:  
**LEE COUNTY NATURAL RESOURCES**  
**LEE BOARD OF COUNTY COMMISSIONERS**  
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FORT MYERS, FL 33901  
PHONE: (239) 533-8109

NO.	DATE	REVISION DESCRIPTION	BY

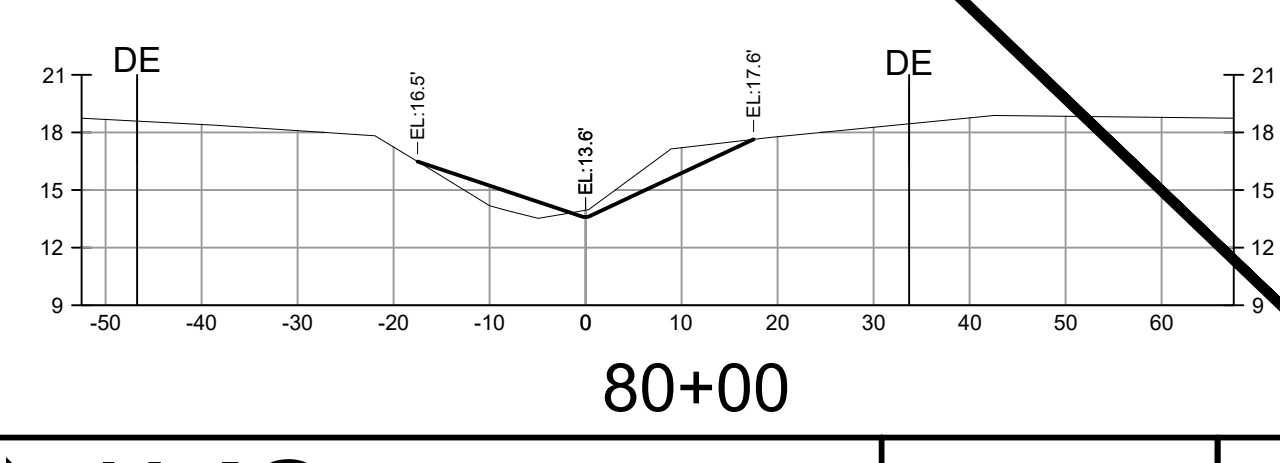
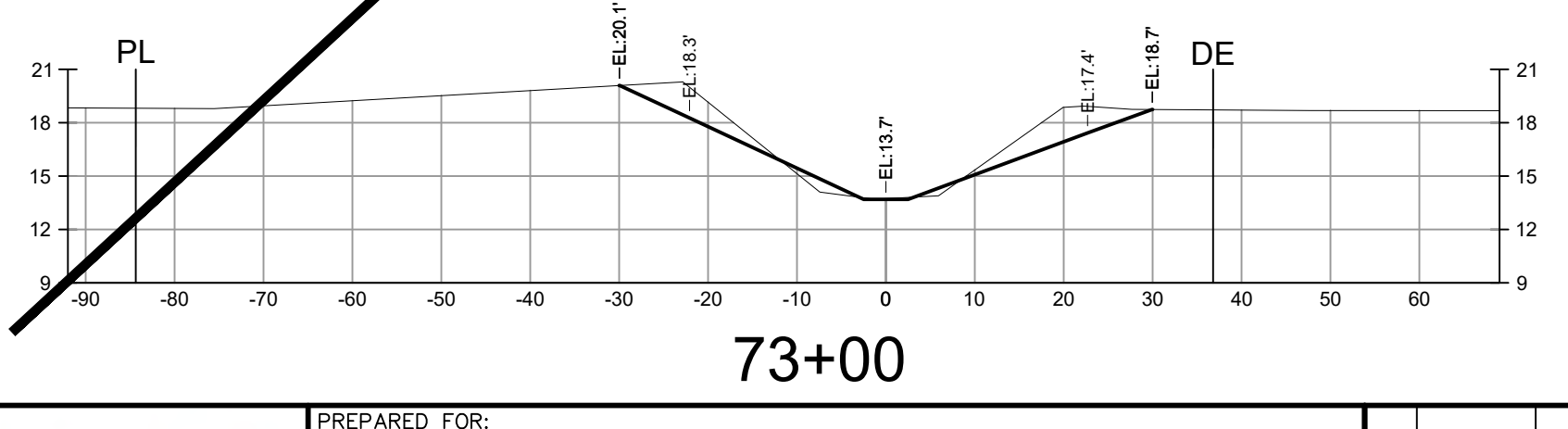
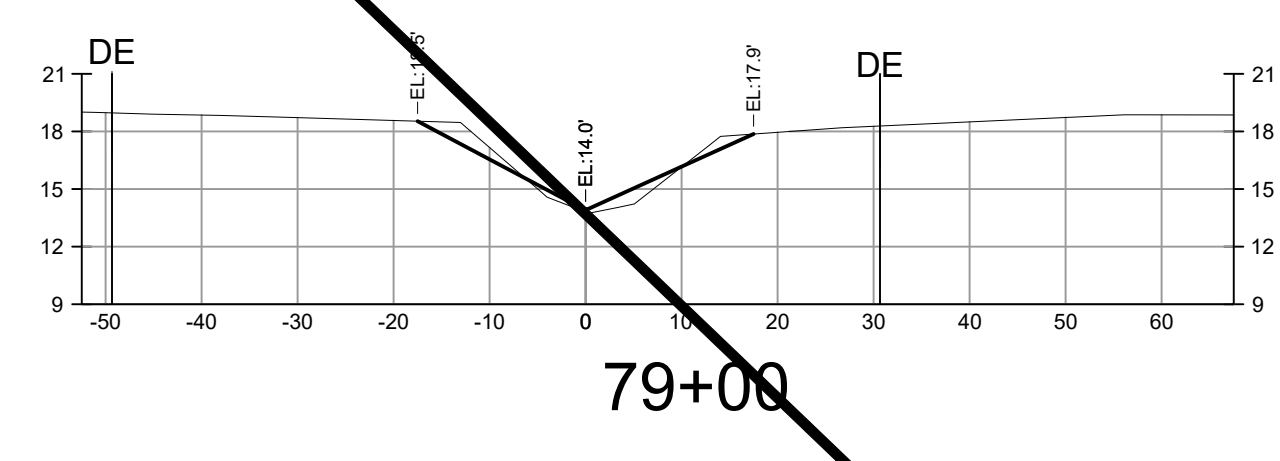
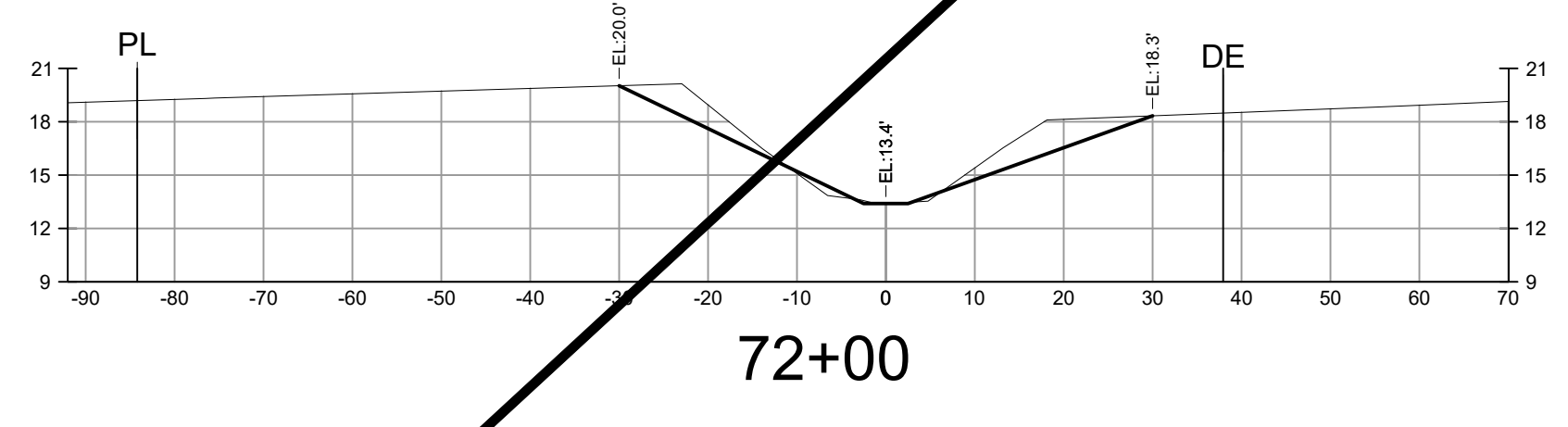
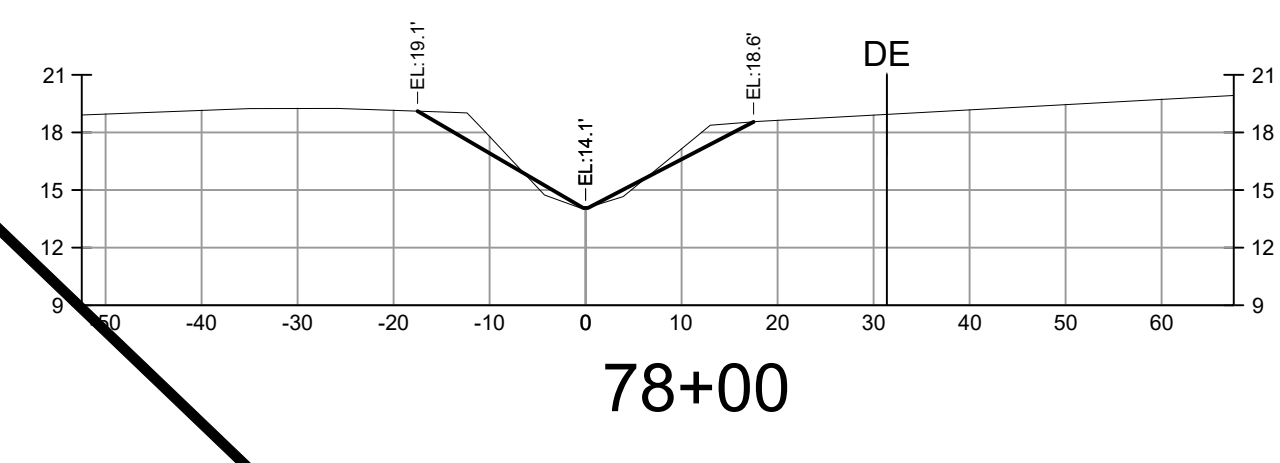
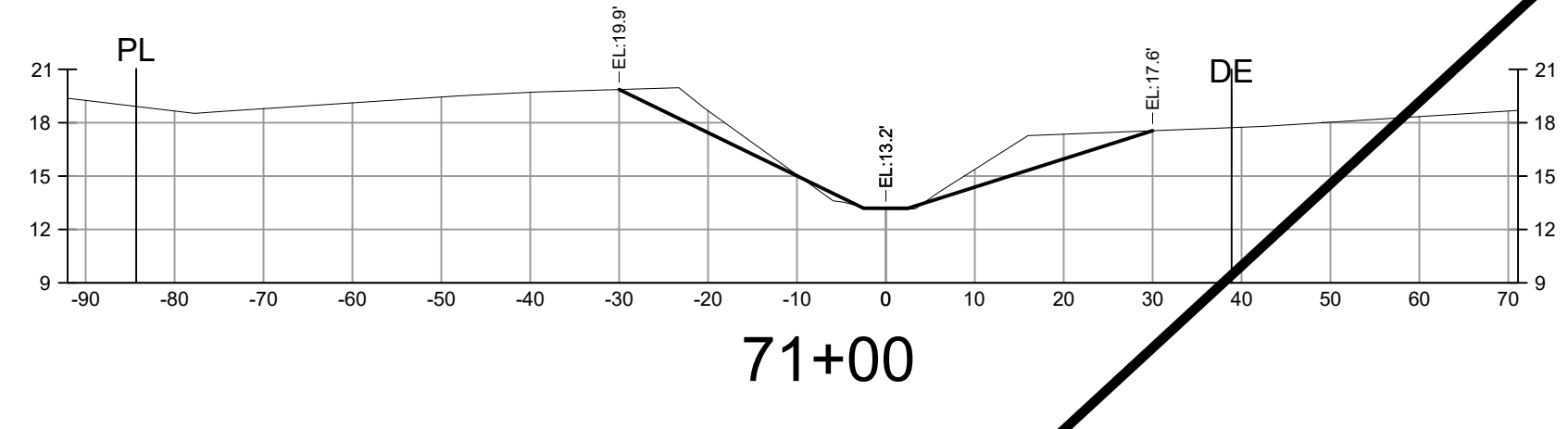
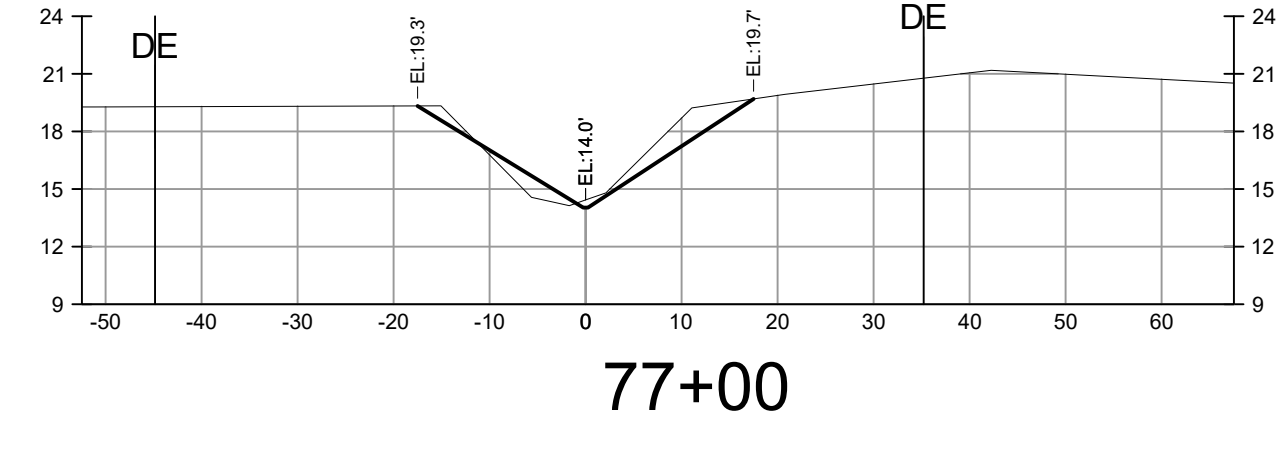
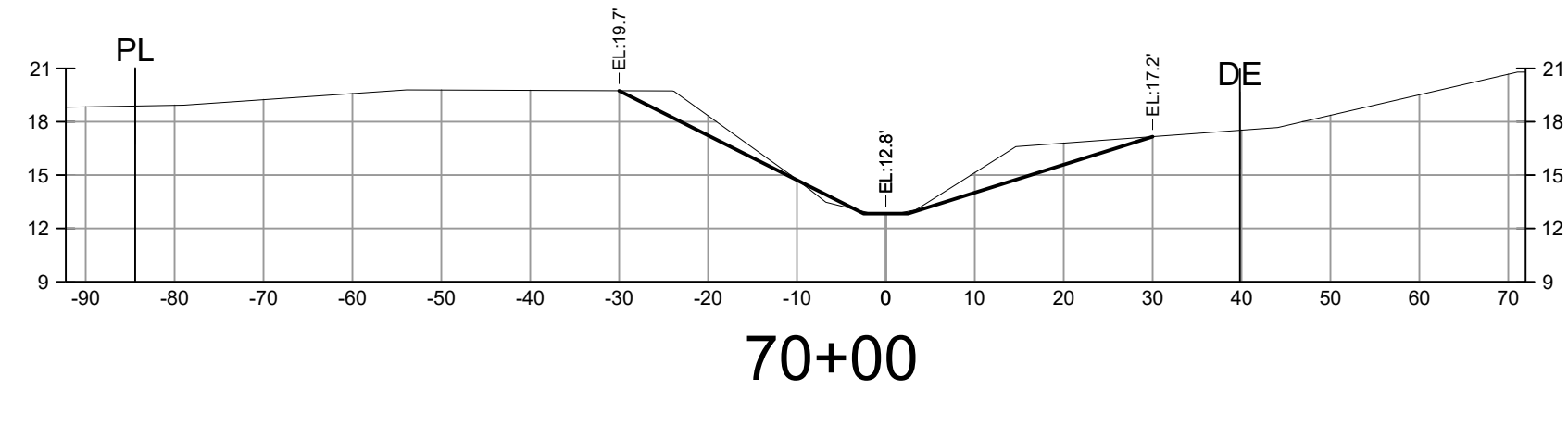
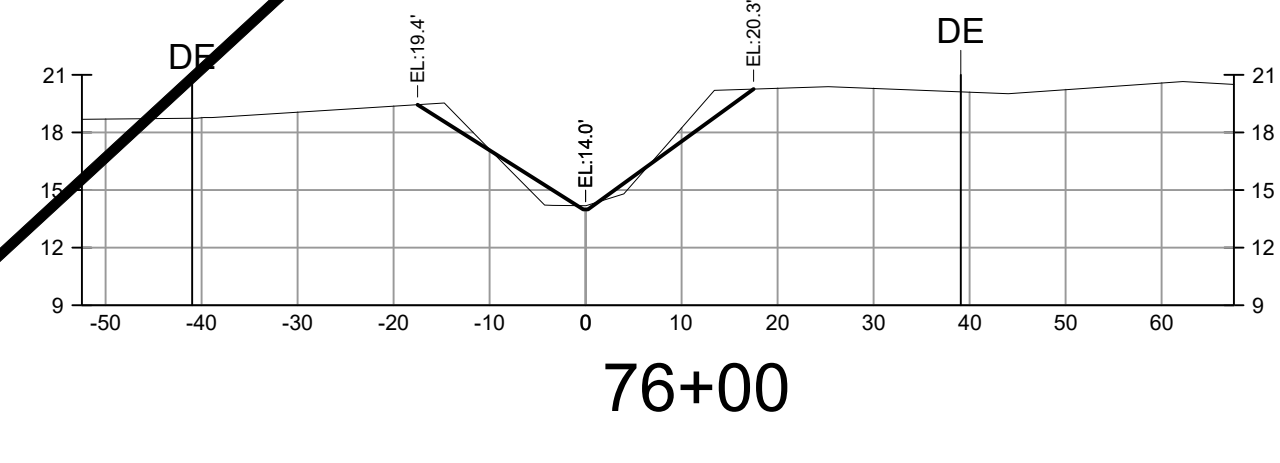
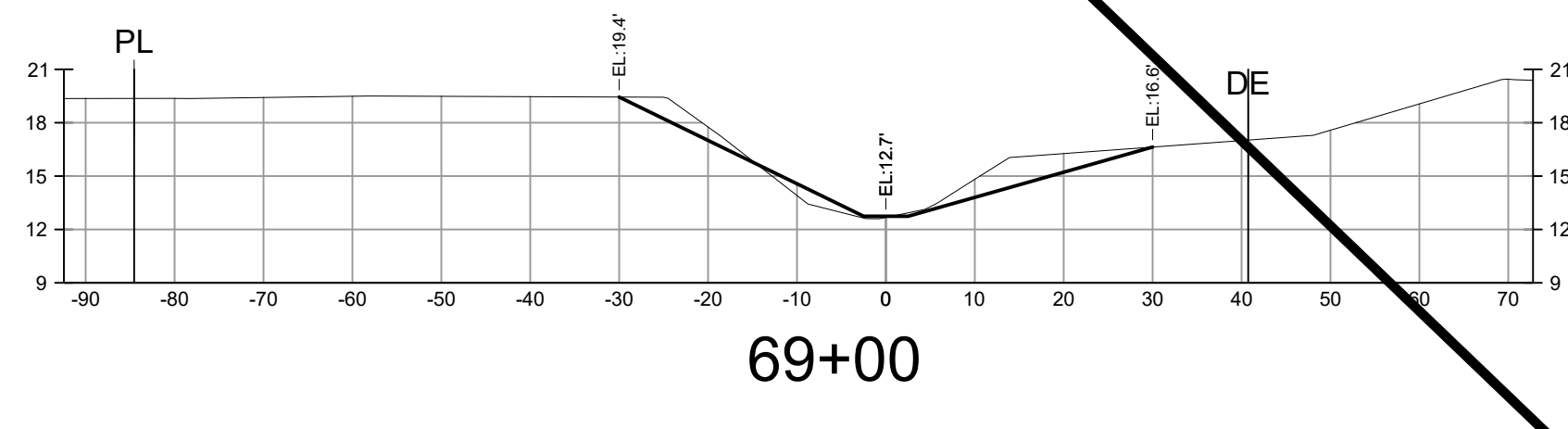
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CROSS SECTIONS - STA. 53+00 TO 66+00						SCALE V: 1"=10' H: 1"=20'		SHEET 10	
SUNNILD / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT									
LEE COUNTY, FLORIDA									
DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED	SCALE	SHEET		
5/14/2019	8234	_AER	KWK	SDJ	KWK	1"=10' 1"=20'	10		



**FLUCCS DESCRIPTION:**  
621E2 CYPRESS INVADDED BY EXOTICS (26% TO 50%)



**NOTE:**  
EXISTING GOPHER TORTOISE BURROS TO BE BE AVOIDED AS MUCH AS PRACTICAL.



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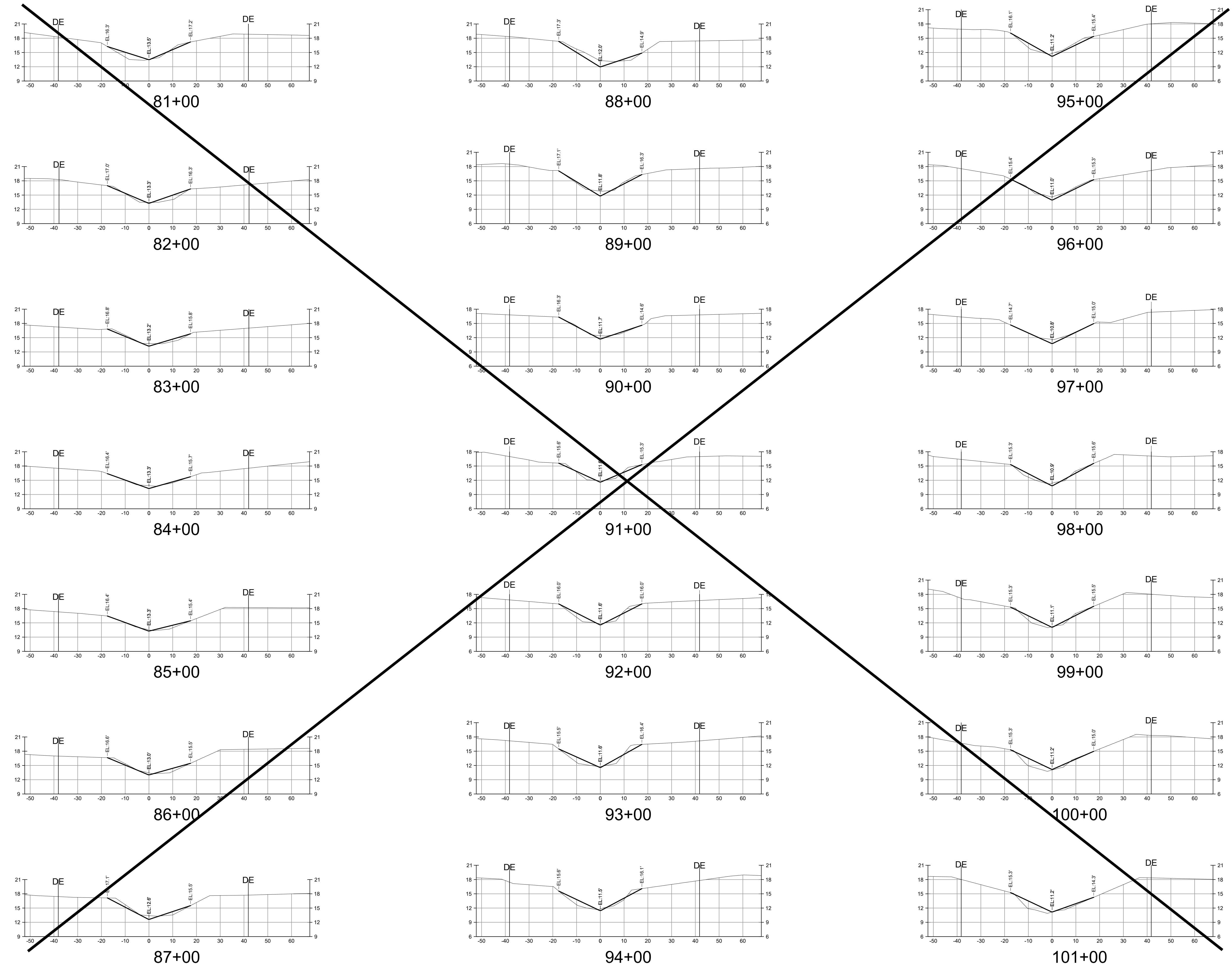
NO.	DATE	REVISED PER	REVISION DESCRIPTION	SDJ BY
1	4/09/2021	REVISED PER SFWM COMMENTS		

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CROSS SECTIONS - STA. 67+00 TO 80+00		SUNNILDAN / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT						
		LEE COUNTY, FLORIDA						
DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED	SCALE	SHEET	
5/14/2019	8234	_AER	KWK	SDJ	KWK	V: 1"=10' H: 1"=20'	11	



**NOTE:**  
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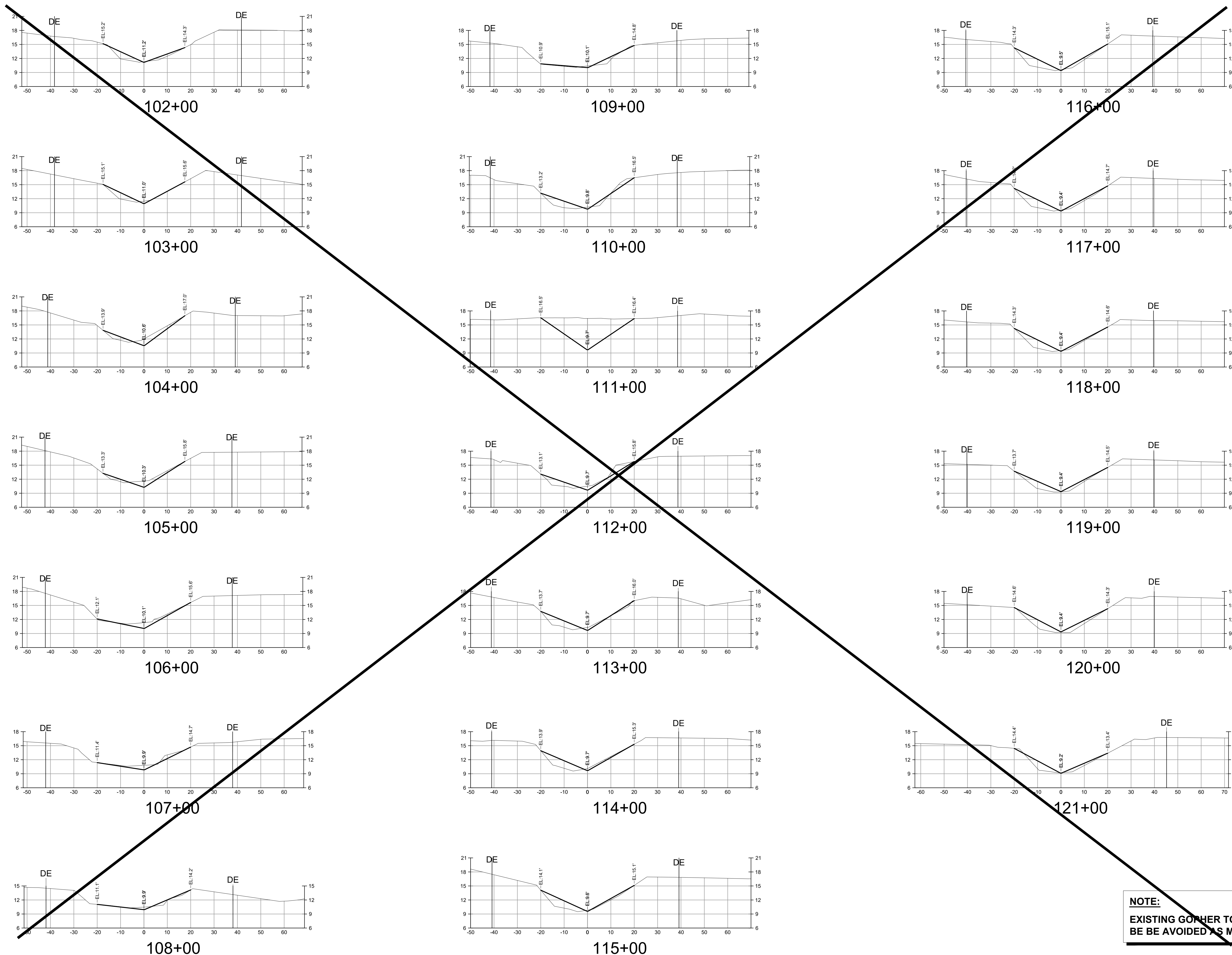
NO.	DATE	REVISION DESCRIPTION	BY

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CROSS SECTIONS - STA. 81+00 TO 101+00									
SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT									
LEE COUNTY, FLORIDA									
DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED	SCALE	SHEET		
5/14/2019	8234	_AER	KWK	SDJ	KWK	V: 1"=10' H: 1"=20'	12		



**NOTE:**  
EXISTING Gopher TORTOISE BURROS TO BE AVOIDED AS MUCH AS PRACTICAL.



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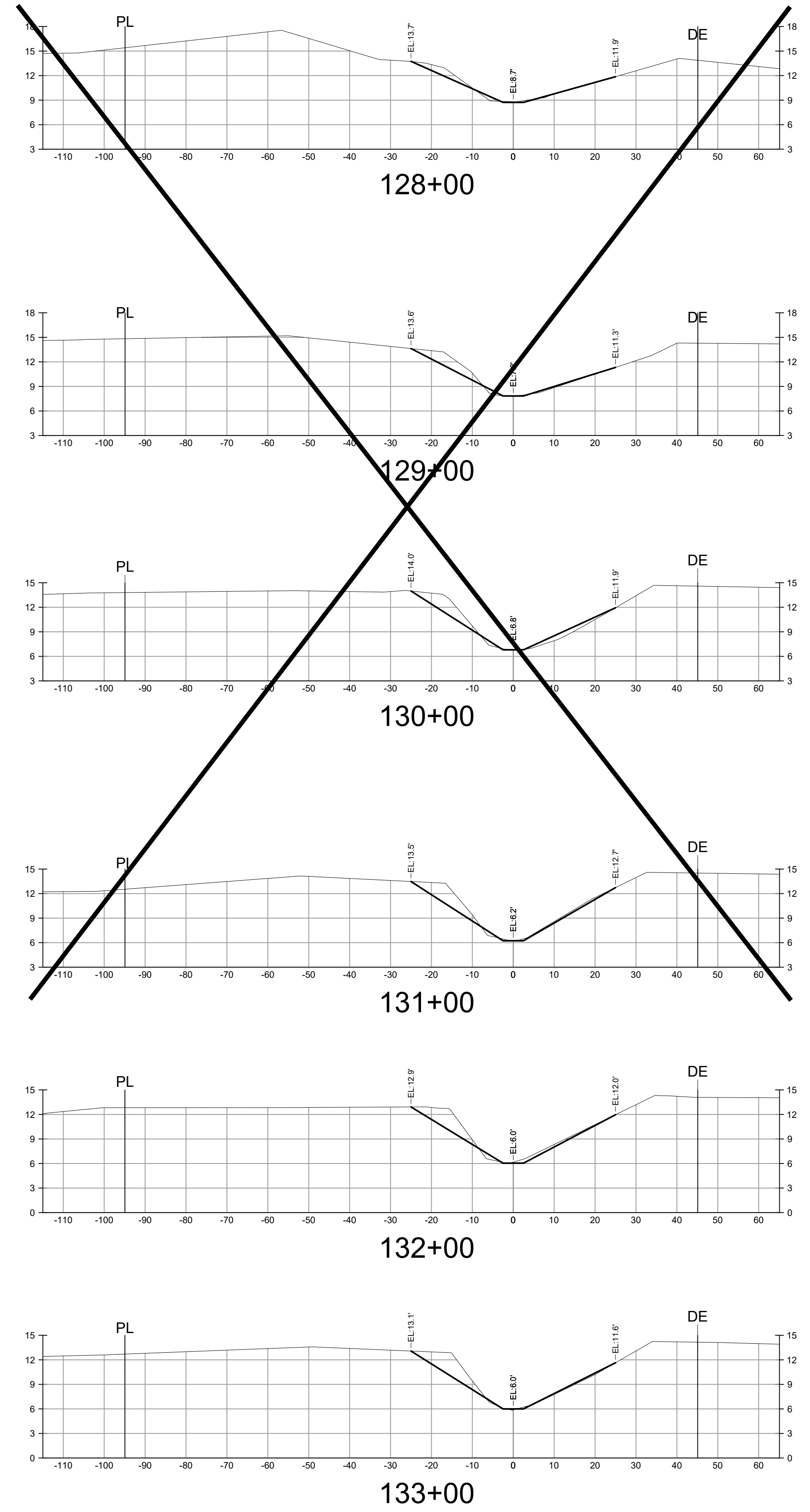
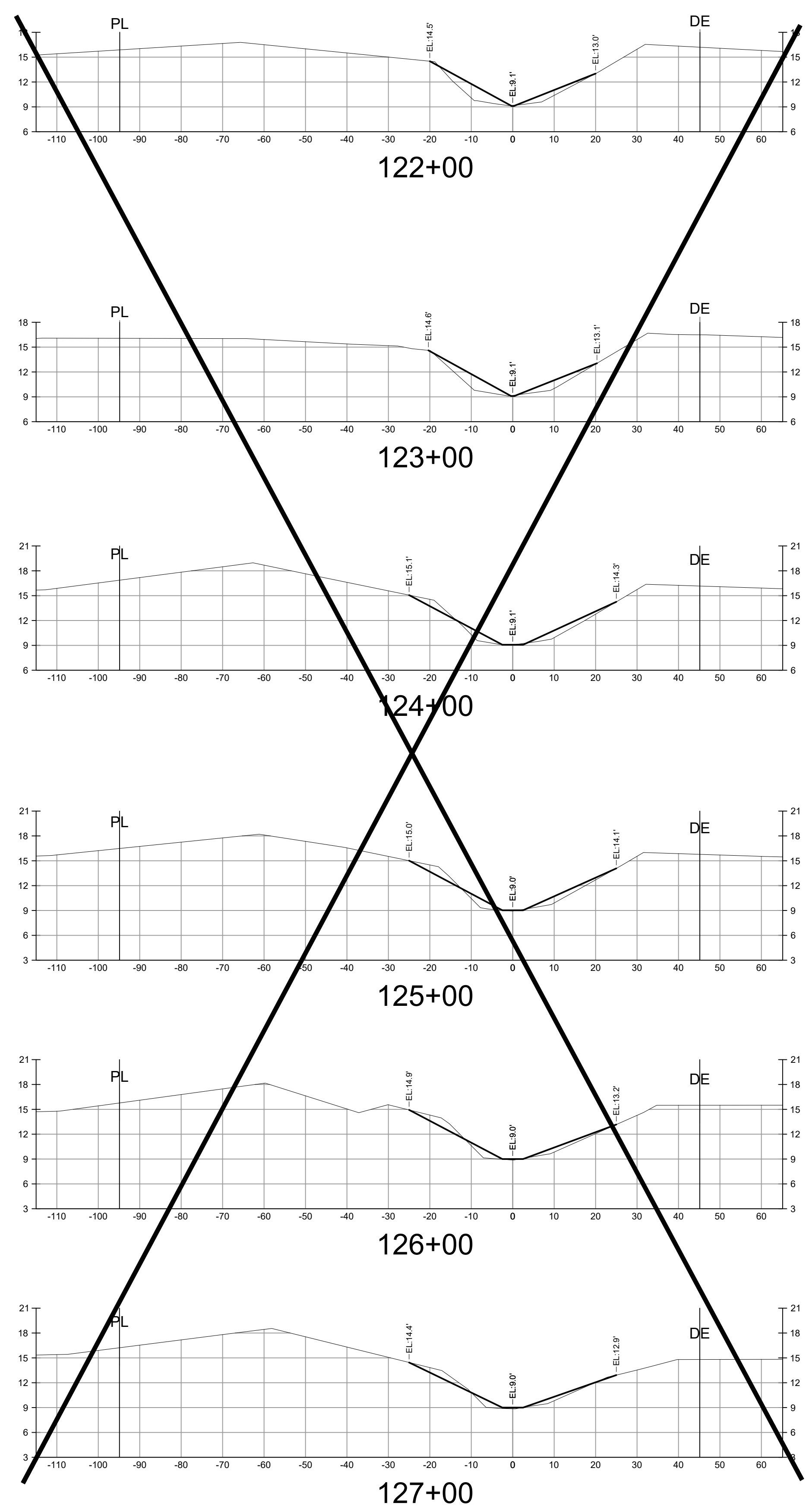
NO.	DATE	REVISION DESCRIPTION	BY

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FL REG # 26661

CROSS SECTIONS - STA. 102+00 TO 121+00									
SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT									
LEE COUNTY, FLORIDA									
DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED	SCALE	SHEET		
5/14/2019	8234	_AER	KWK	SDJ	KWK	V: 1"=10' H: 1"=20'	13		



**NOTE:**  
EXISTING GOPHER TORTOISE BURROS TO  
BE BE AVOIDED AS MUCH AS PRACTICAL.



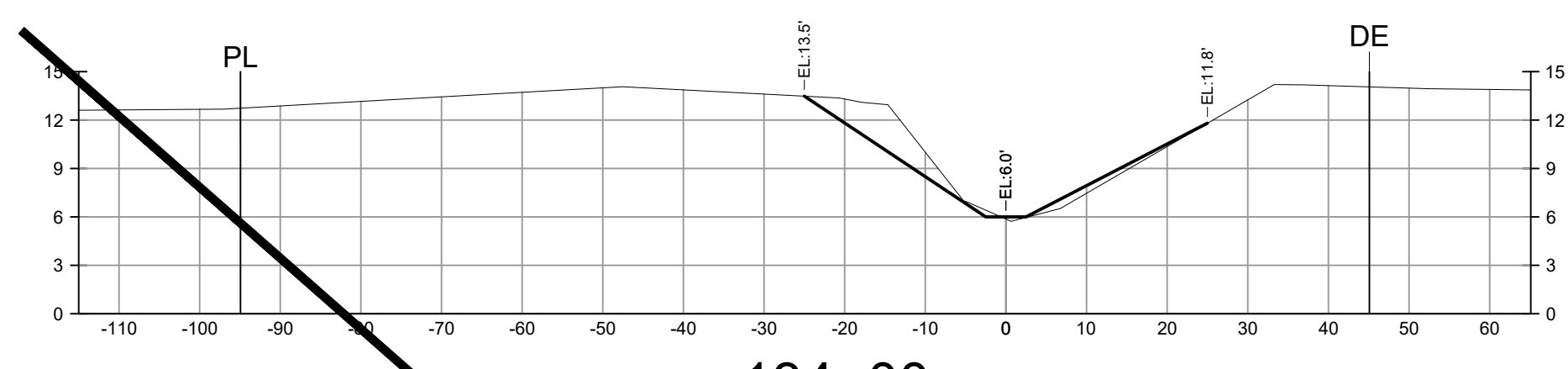
PREPARED FOR:  
**LEE COUNTY NATURAL RESOURCES**  
**LEE BOARD OF COUNTY COMMISSIONERS**  
1500 MONROE ST.  
FORT MYERS, FL 33901  
PHONE: (239) 533-8109

NO.	DATE	REVISION DESCRIPTION	BY

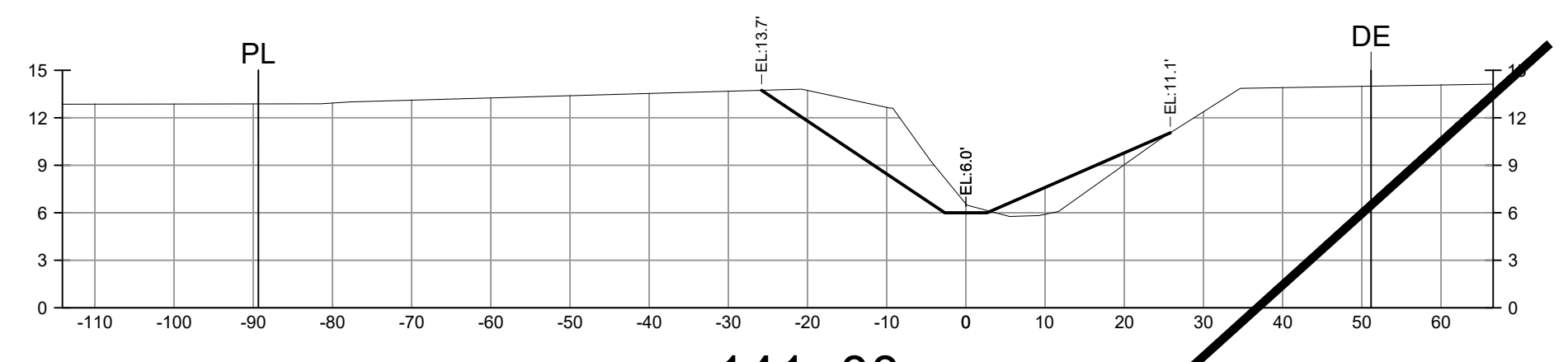
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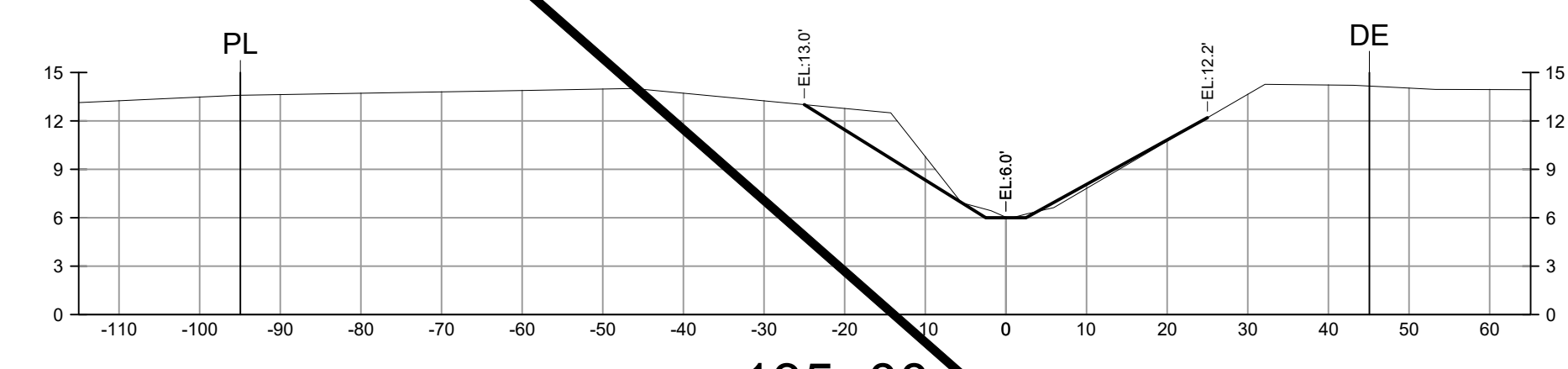
CROSS SECTIONS - STA. 122+00 TO 133+00		SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT		LEE COUNTY, FLORIDA			
DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED	SCALE	SHEET
5/14/2019	8234	_AER	KWK	SDJ	KWK	V: 1"=10' H: 1"=20'	14



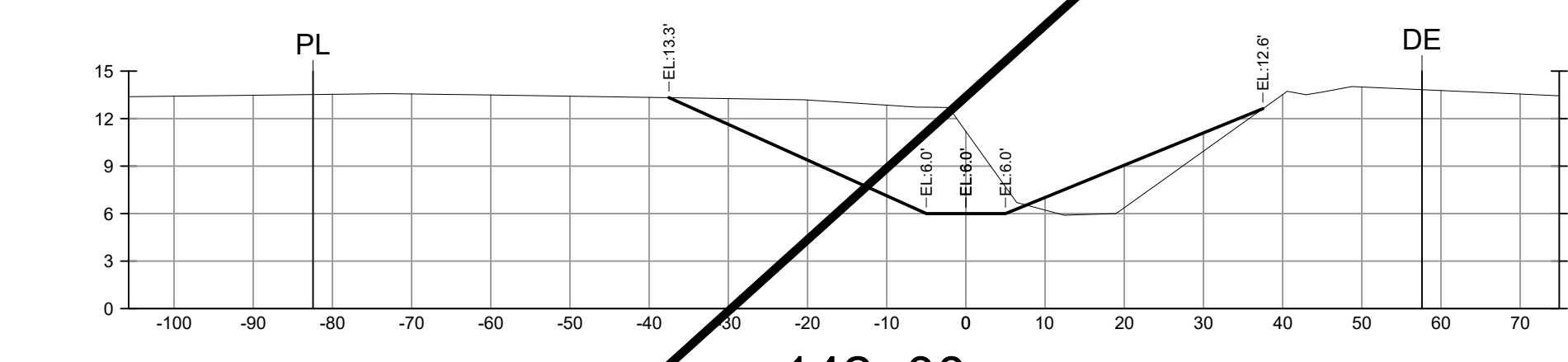
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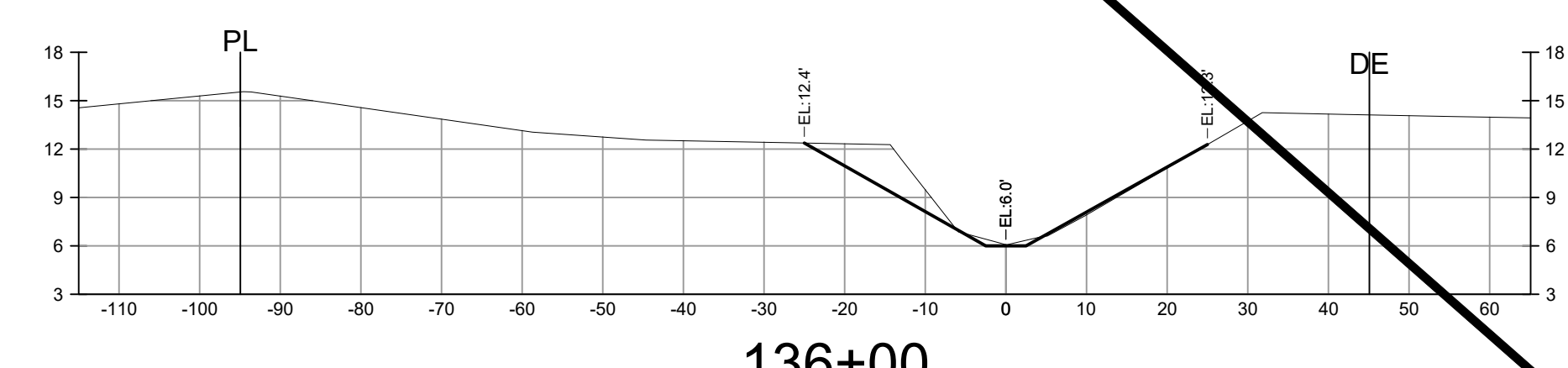
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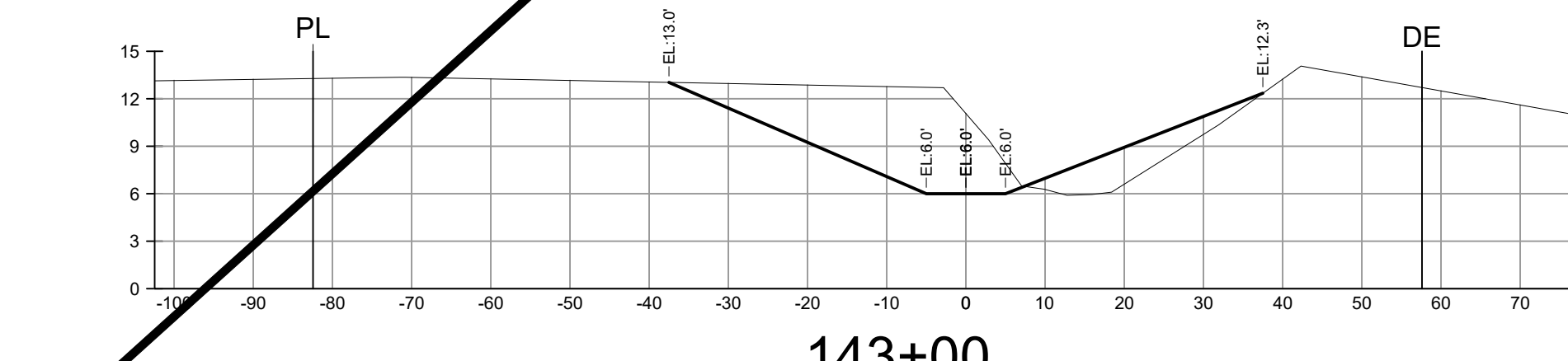
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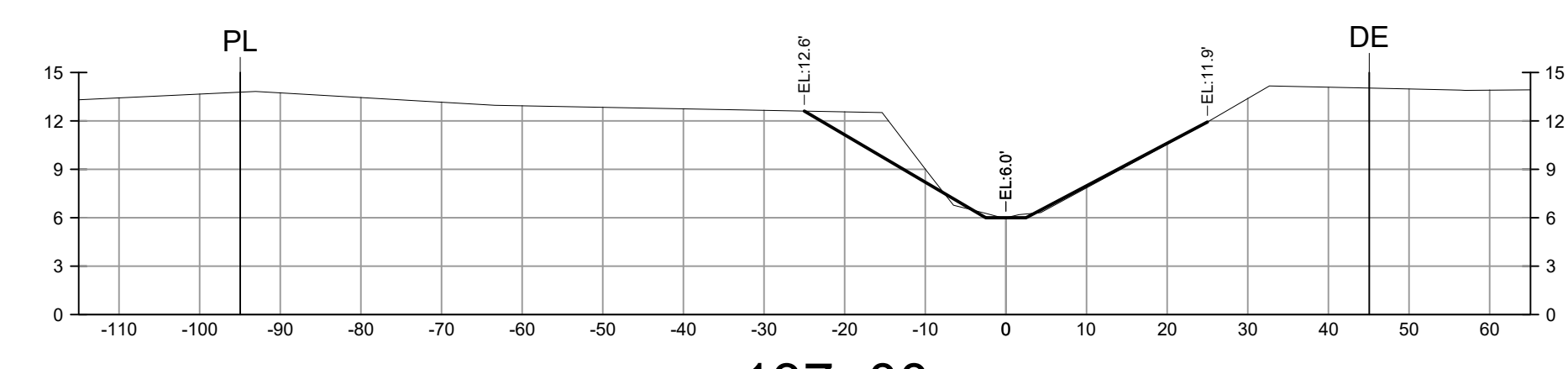
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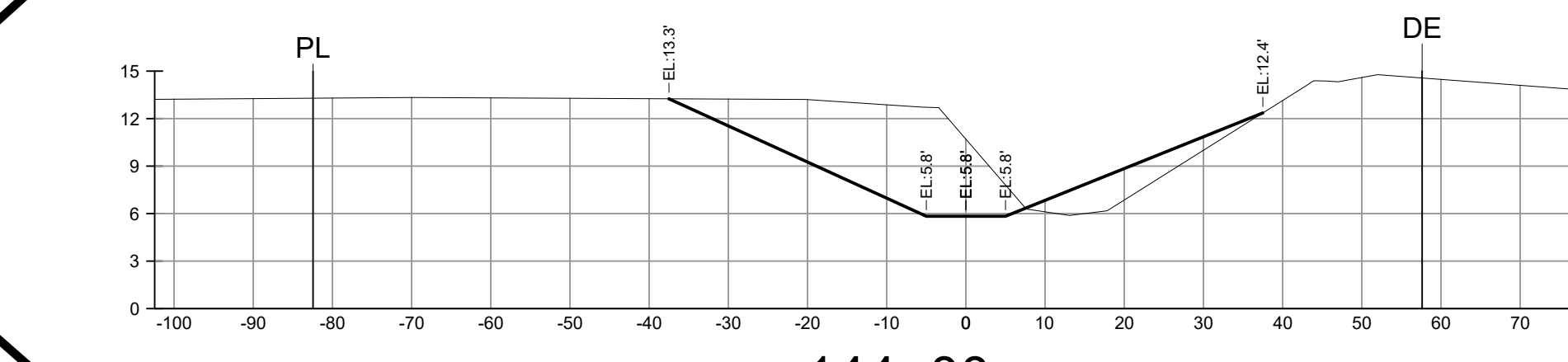
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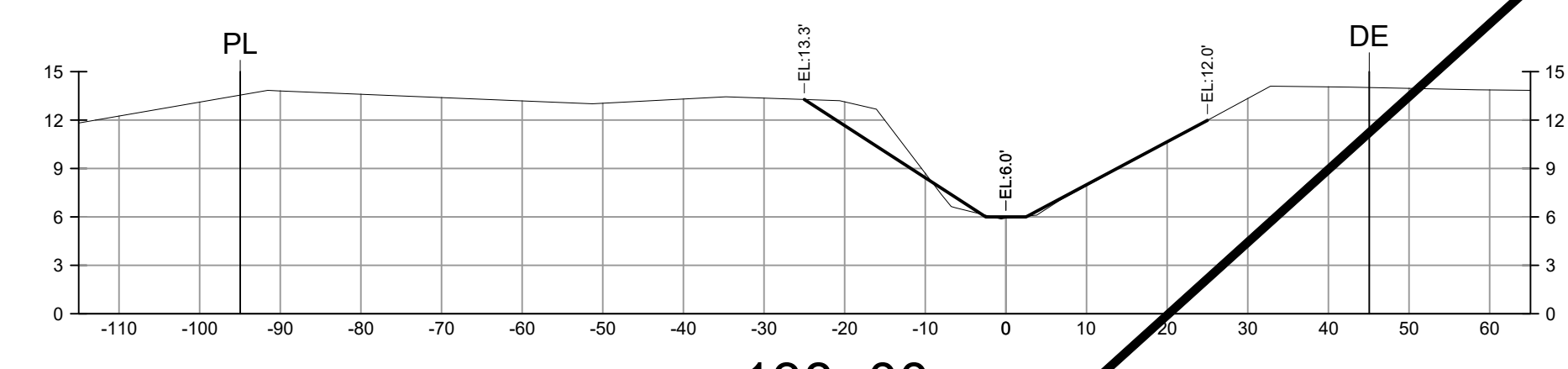
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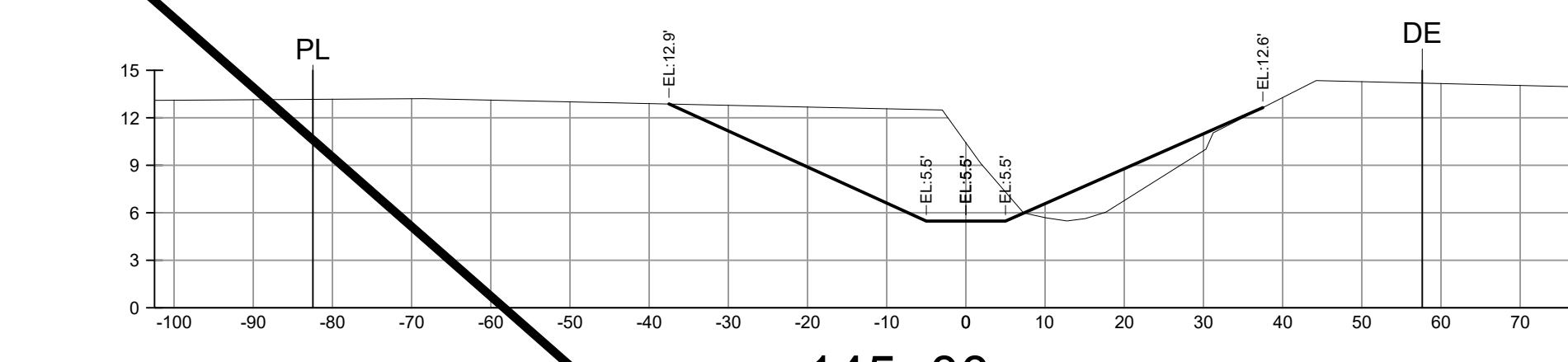
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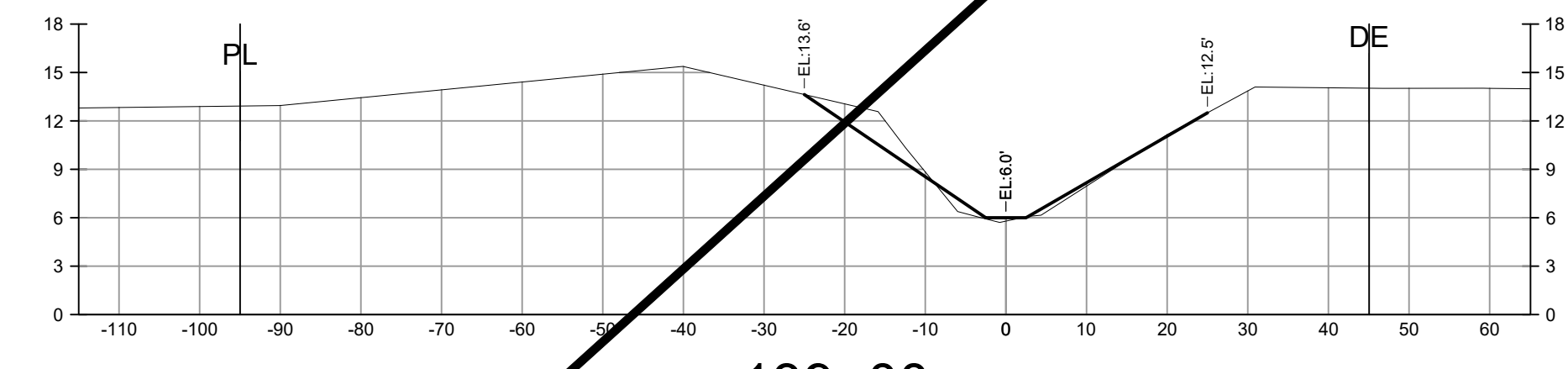
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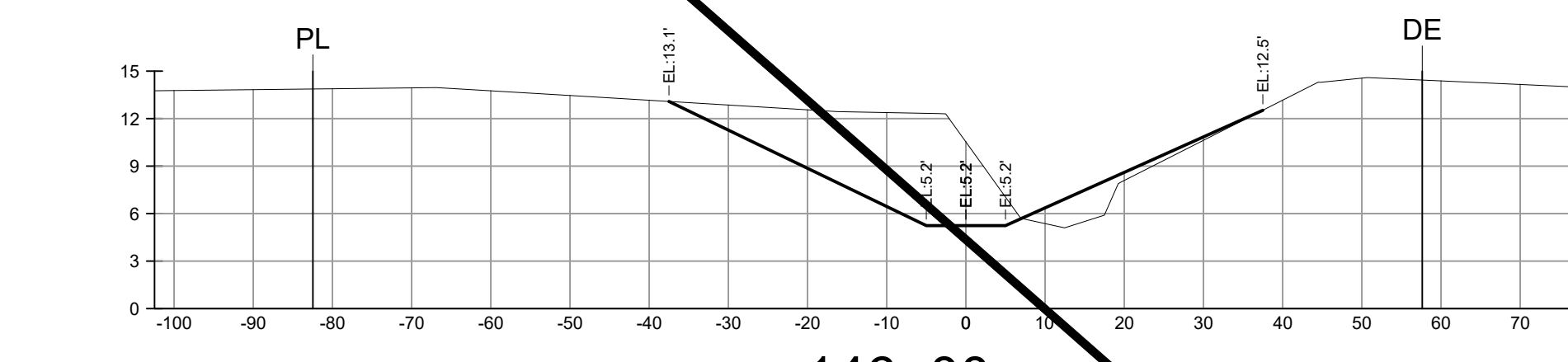
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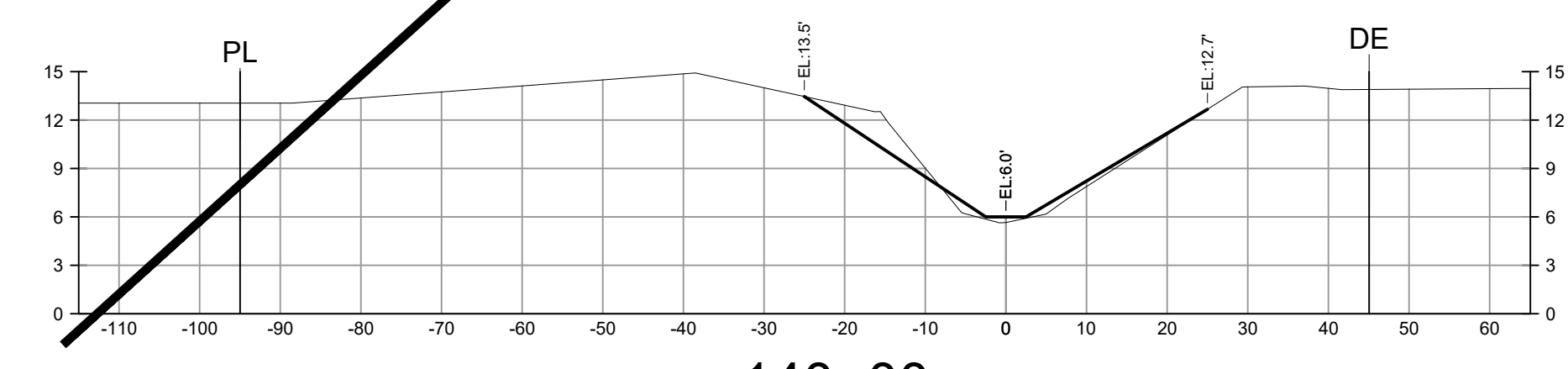
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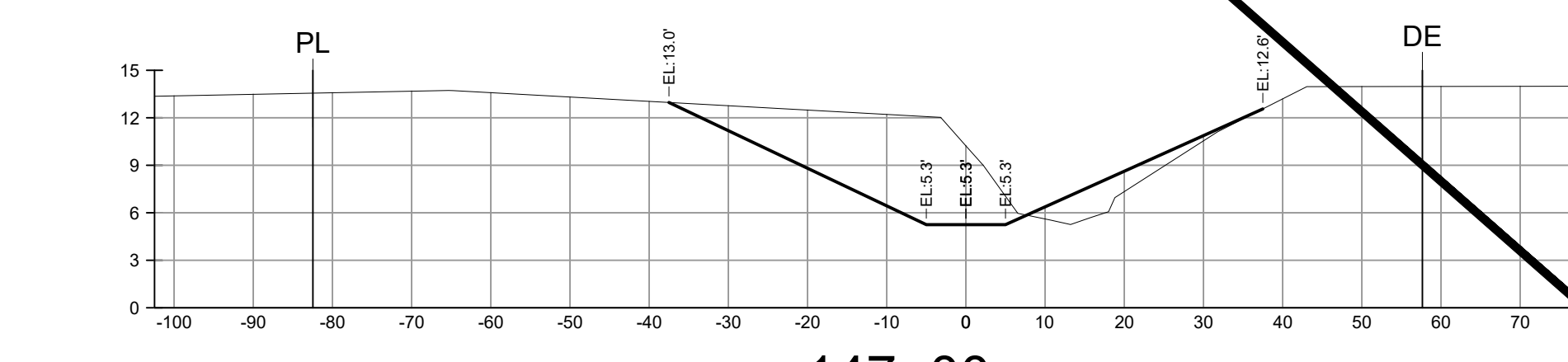
139+00



146+00



140+00



147+00

NOTE:  
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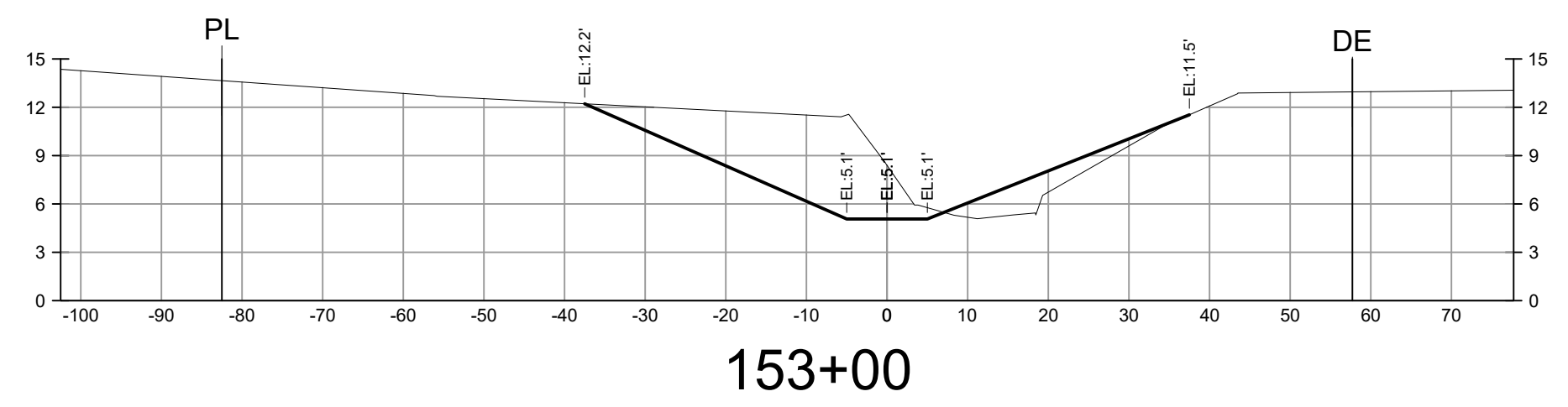
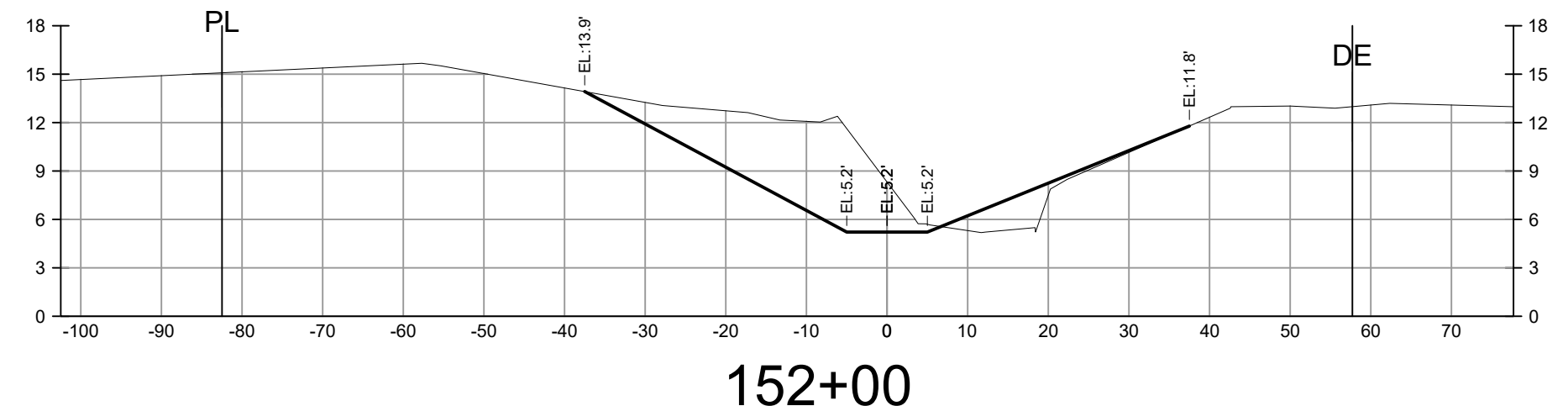
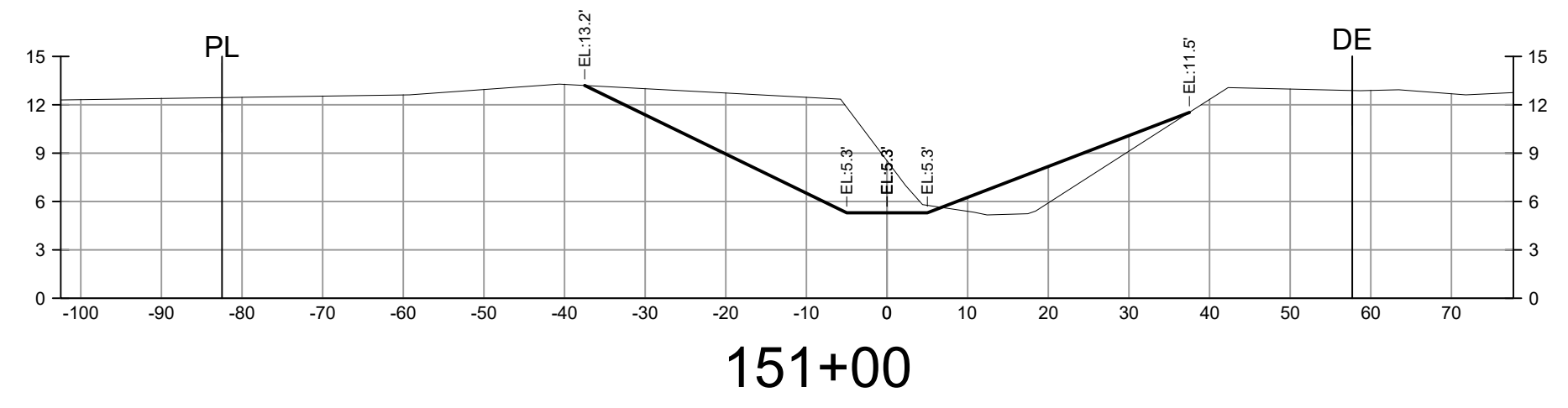
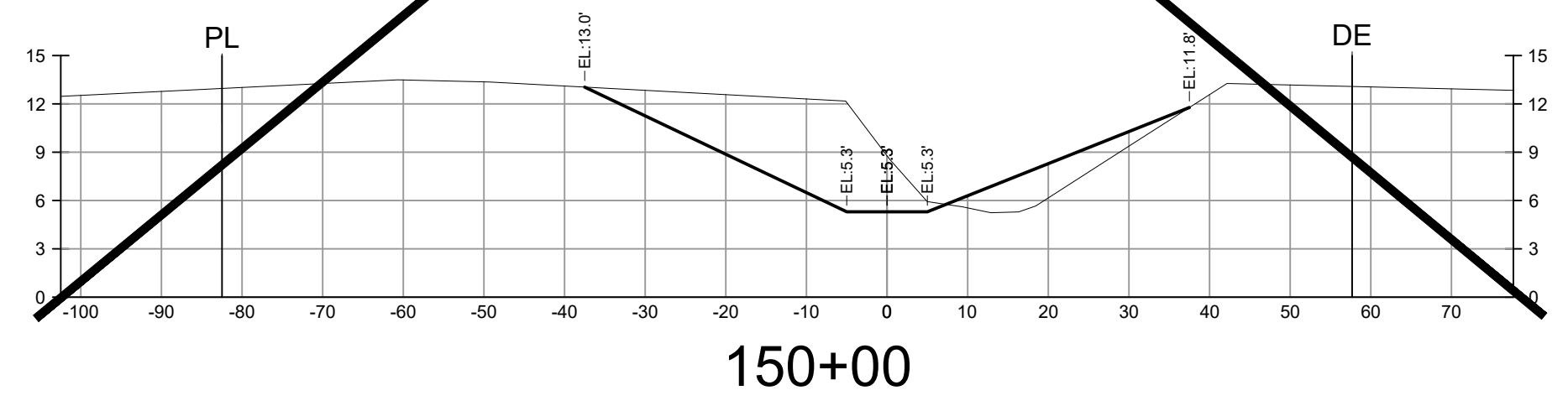
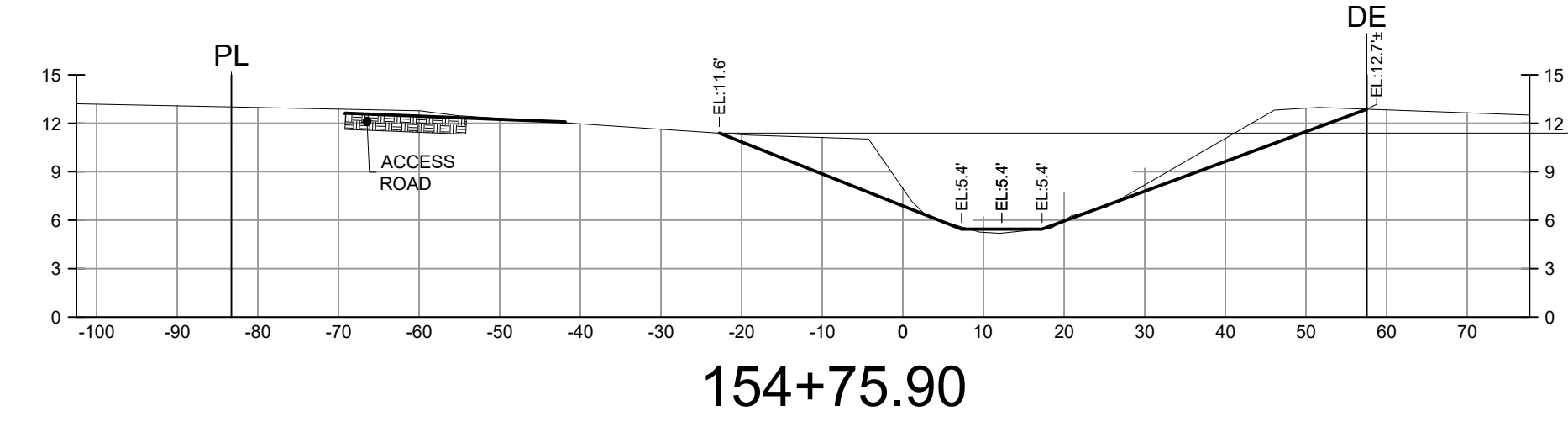
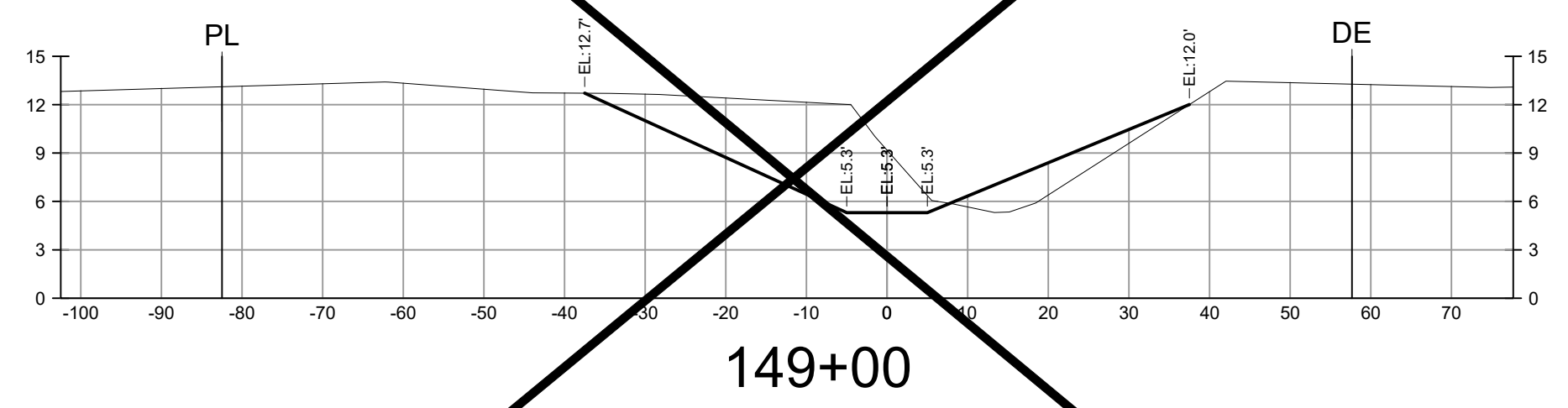
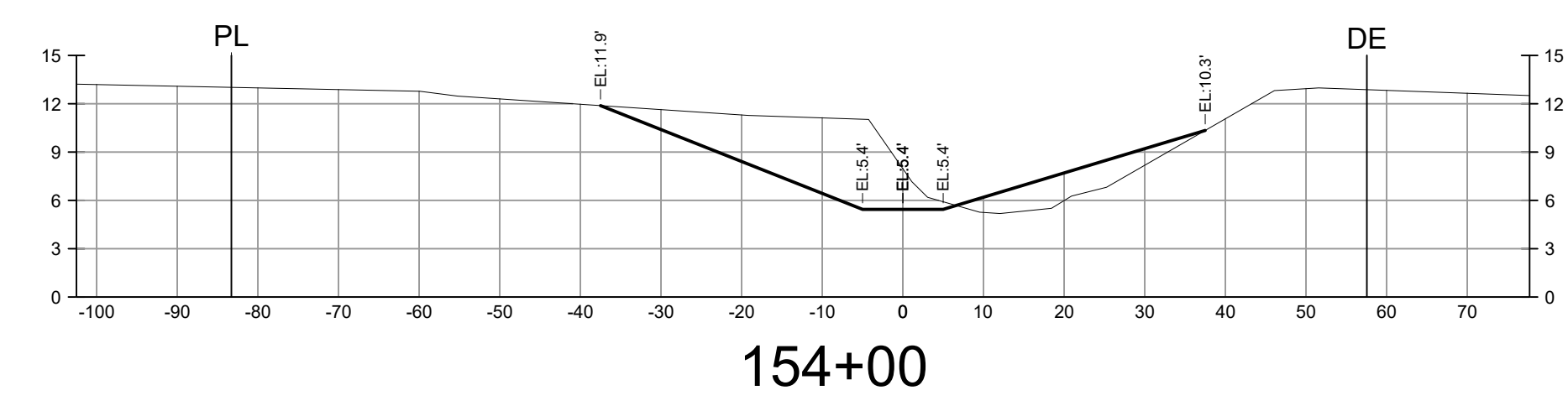
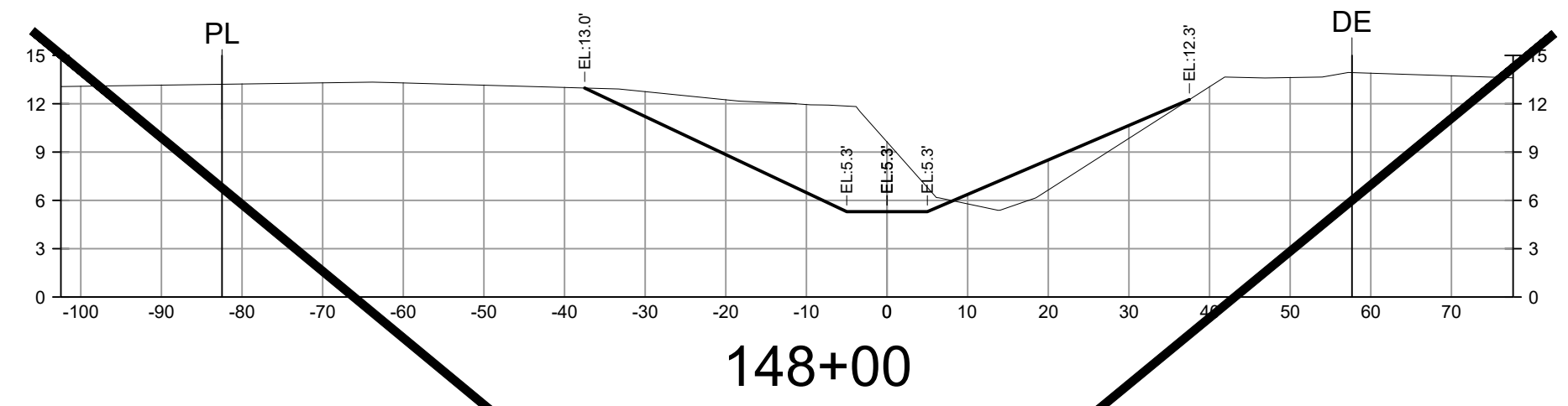
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FL REG # 26661

CROSS SECTIONS - STA. 134+00 TO 147+00						SCALE V: 1"=10' H: 1"=20'		SHEET 15
SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT LEE COUNTY, FLORIDA								
DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED	SCALE		SHEET
5/14/2019	8234	_AER	KWK	SDJ	KWK	V: 1"=10' H: 1"=20'		15





**NOTE:**  
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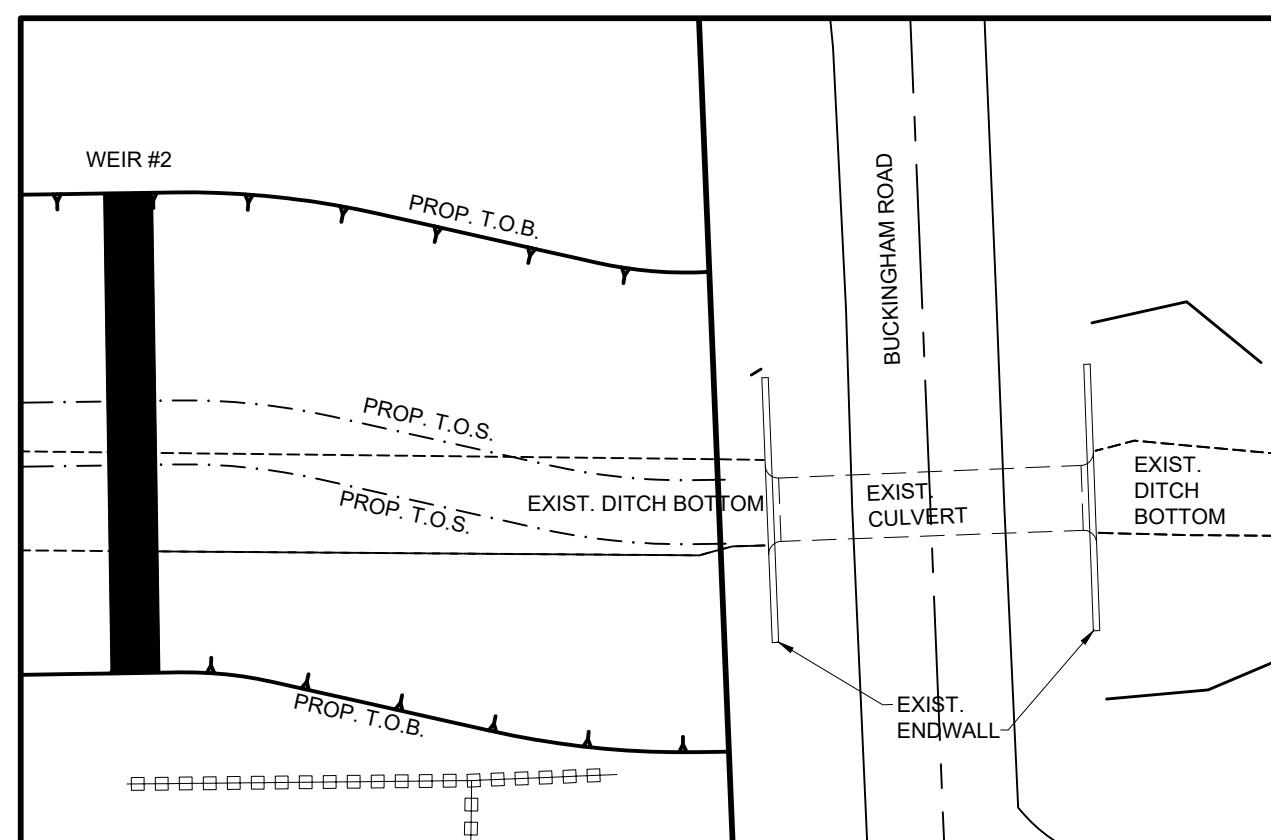
NO.	DATE	REVISION DESCRIPTION	BY

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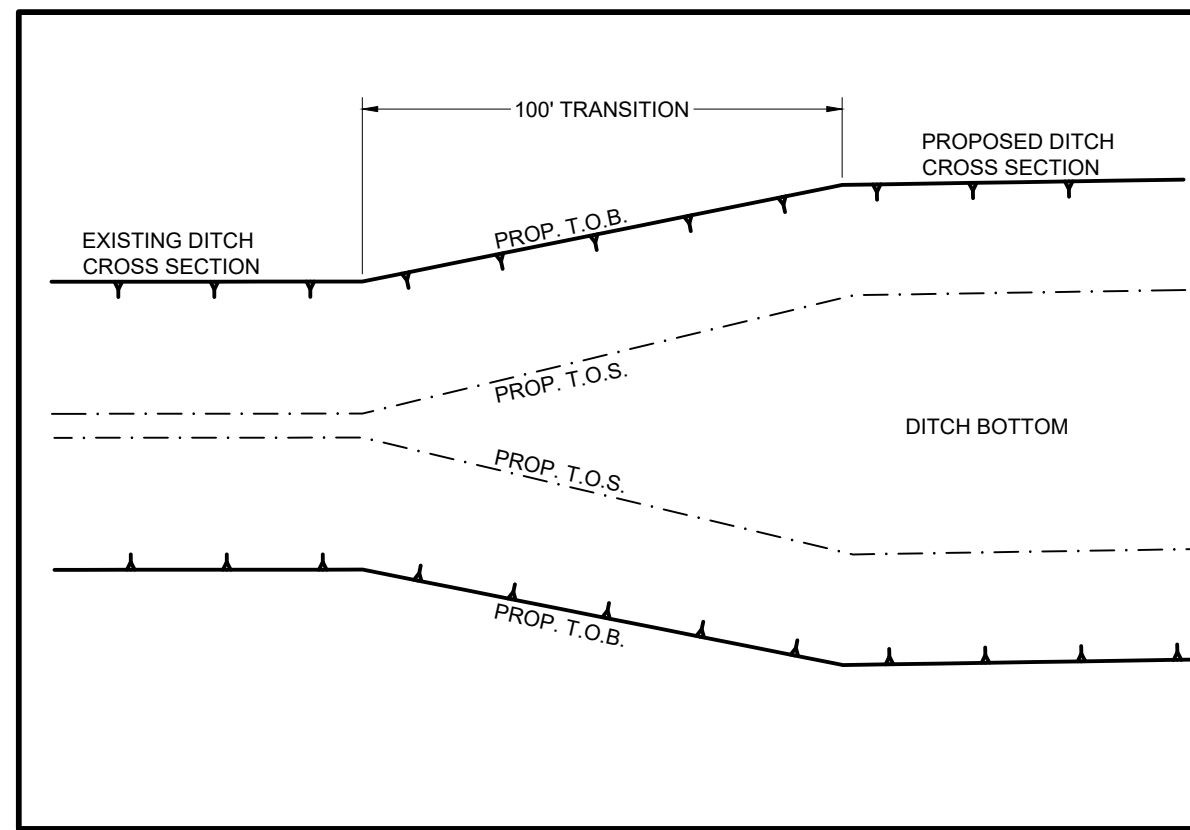
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FL REG # 26661

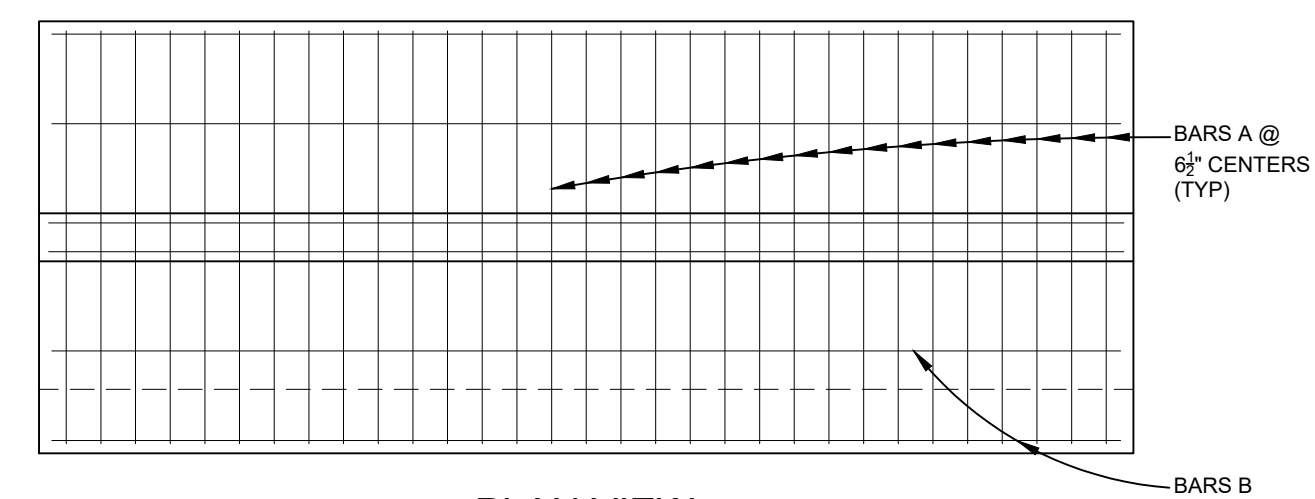
CROSS SECTIONS - STA. 148+00 TO 154+00									
SUNNILD / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT									
LEE COUNTY, FLORIDA									
DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED	SCALE	SHEET		
5/14/2019	8234	_AER	KWK	SDJ	KWK	V: 1"=10' H: 1"=20'	16		



**DITCH TRANSITION TO EXIST. CULVERT**  
N.T.S.

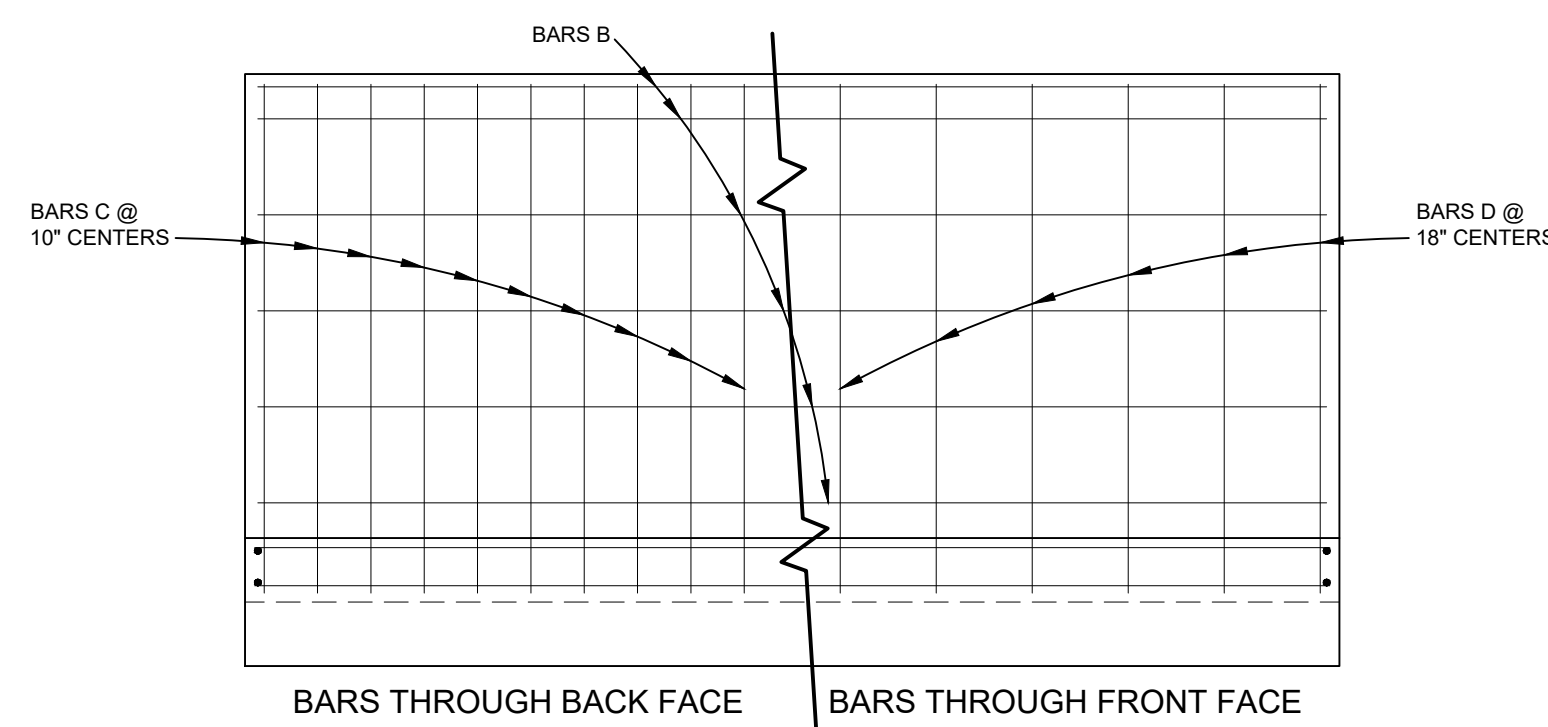


**DITCH WIDTH TRANSITION**  
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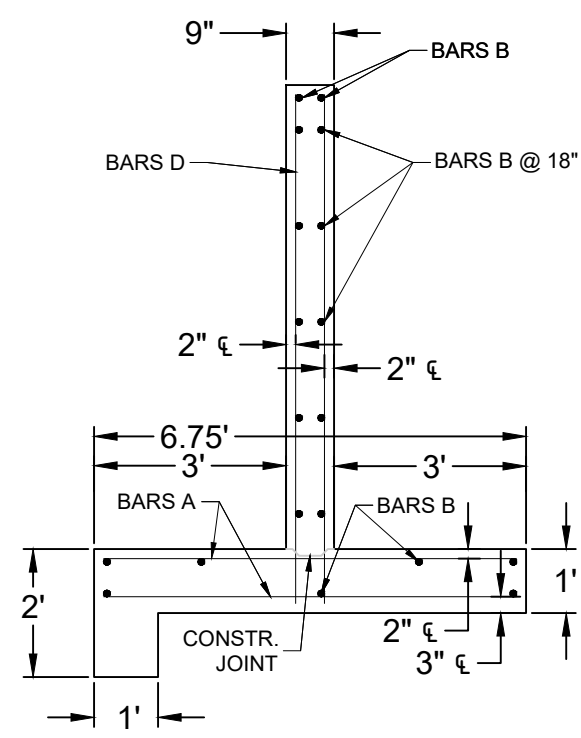


**PLAN VIEW THROUGH WIER**

MARK	SIZE
A	5
B	4
C	5
D	4

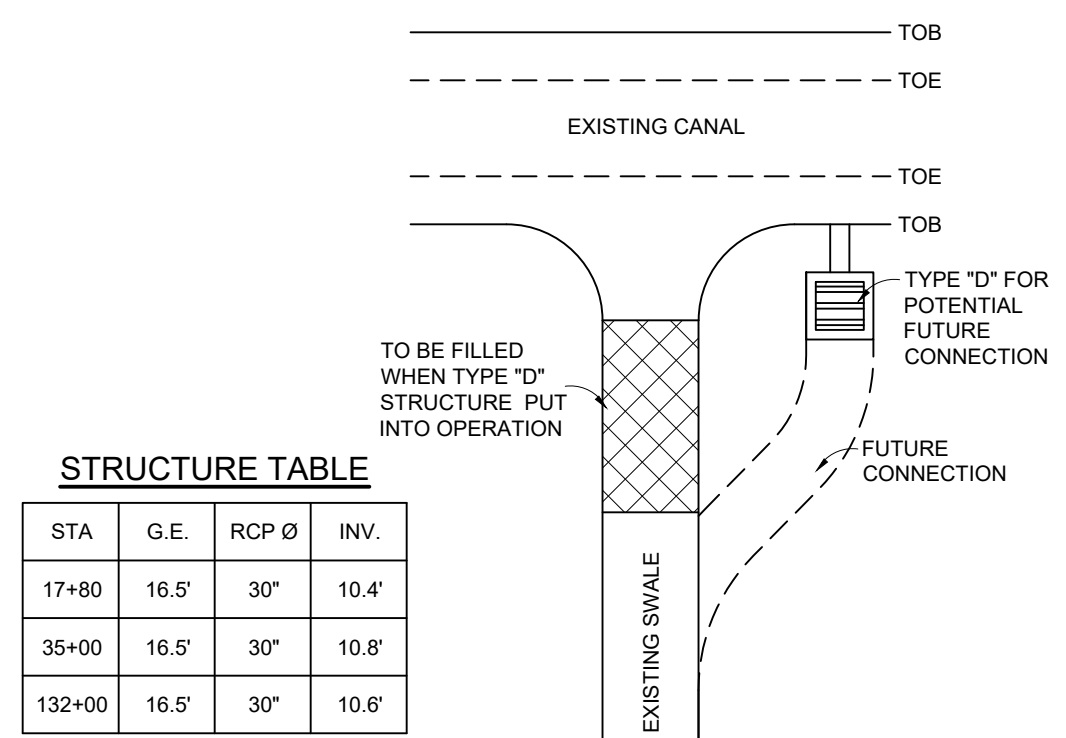


**TYPICAL ELEVATION THROUGH WIER**



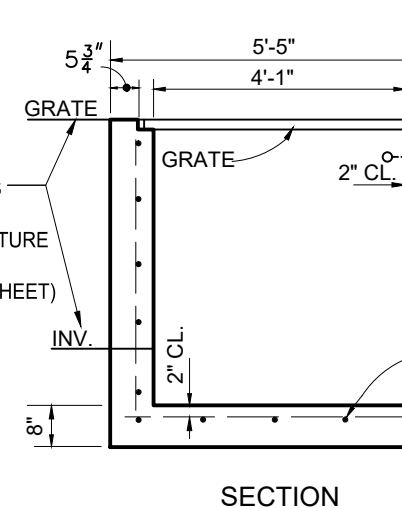
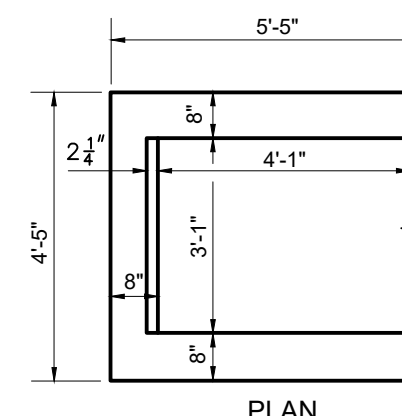
**TYPICAL SECTION THROUGH WIER**

**FDOT INDEX NO. 252**  
N.T.S.



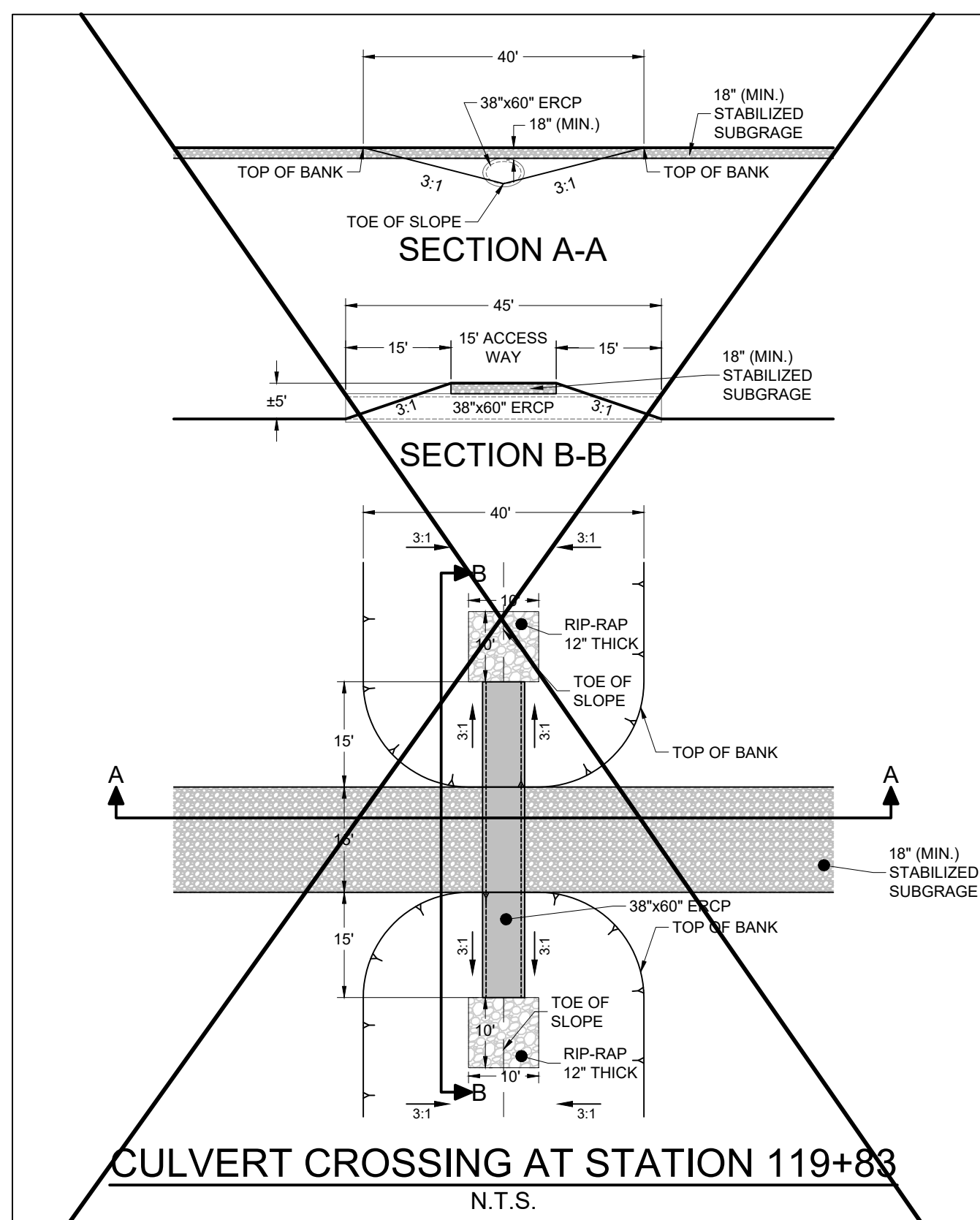
**STRUCTURE TABLE**

STA	G.E.	RCP Ø	INV.
17+80	16.5'	30"	10.4'
35+00	16.5'	30"	10.8'
132+00	16.5'	30"	10.6'

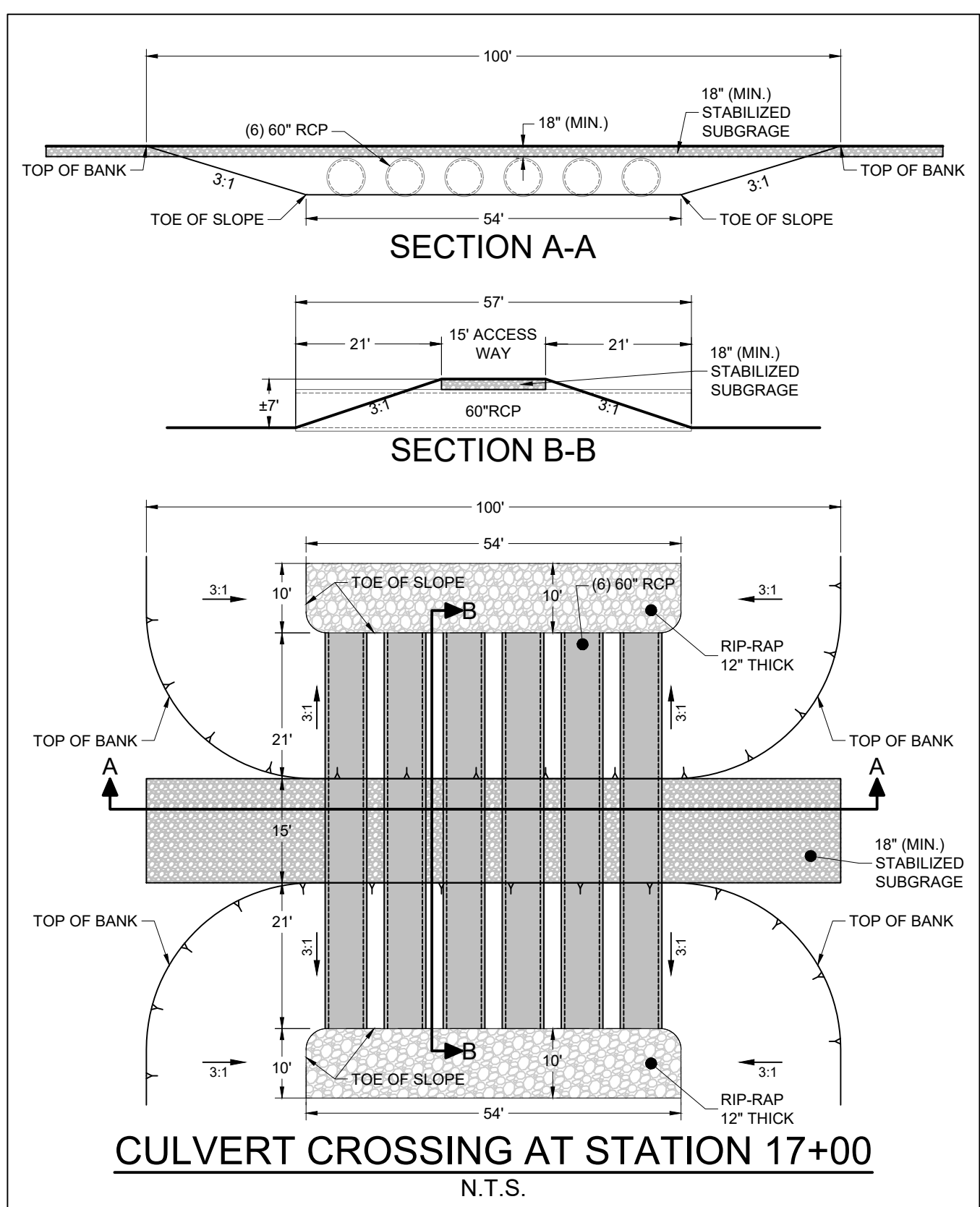


- NOTES:**
- 6" WALL THICKNESS MUST BE USED FOR PRECAST INLETS IN ACCORDANCE WITH F.D.O.T. INDEX 425-001.
  - CONCRETE TO BE F.D.O.T. CLASS I OR EQUAL. (2,500 PSI MINIMUM STRENGTH)
  - CONSTRUCTION TO BE IN ACCORDANCE WITH F.D.O.T. SPECIFICATION SECTION 425.
- RECOMMENDED MAXIMUM PIPE SIZE:**  
3'-1" WALL-34" PIPE  
4'-1" WALL-36" PIPE

**TYPE "D" INLET DETAIL**  
Not To Scale



**CULVERT CROSSING AT STATION 119+83**  
N.T.S.



**CULVERT CROSSING AT STATION 17+00**  
N.T.S.



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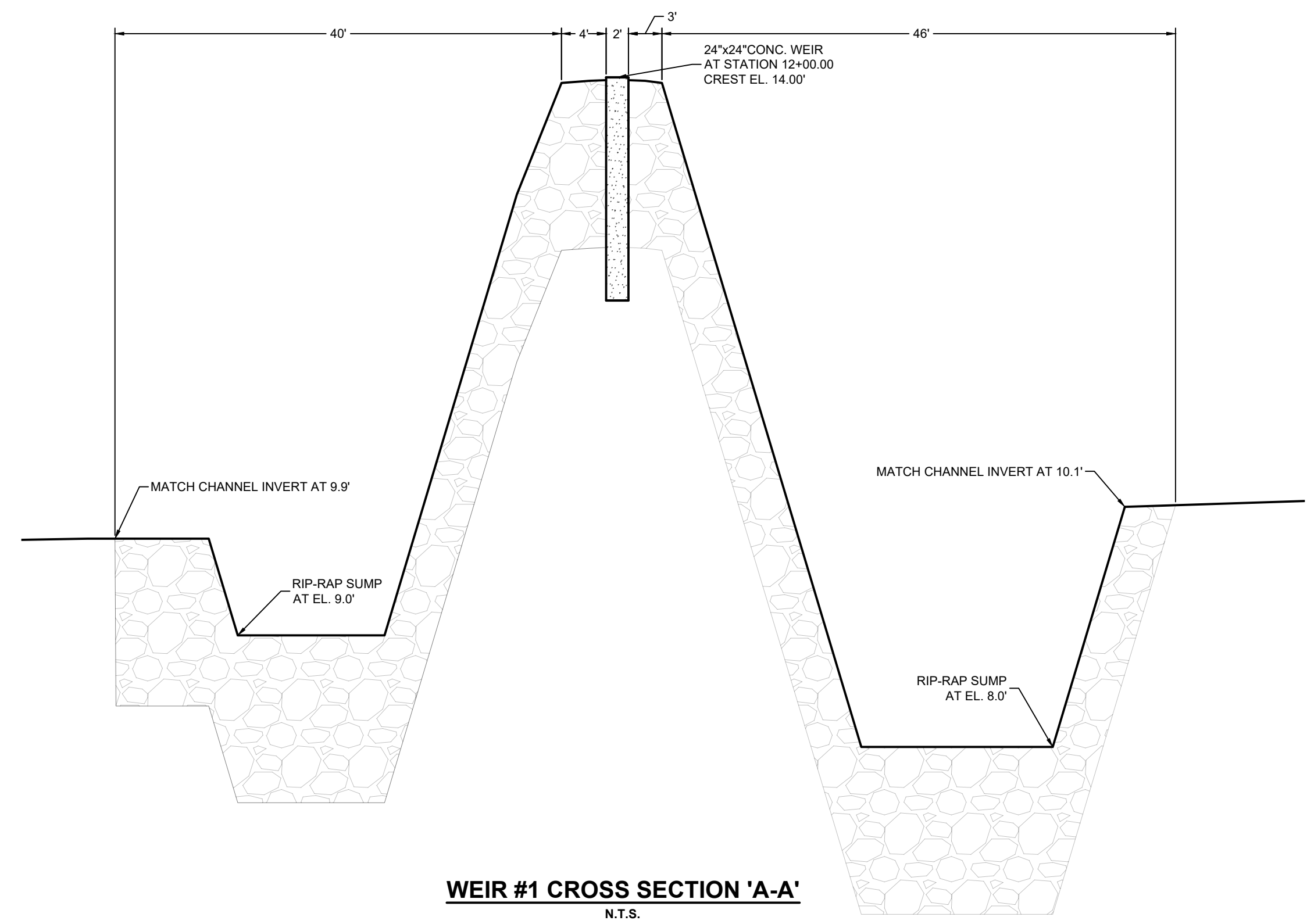
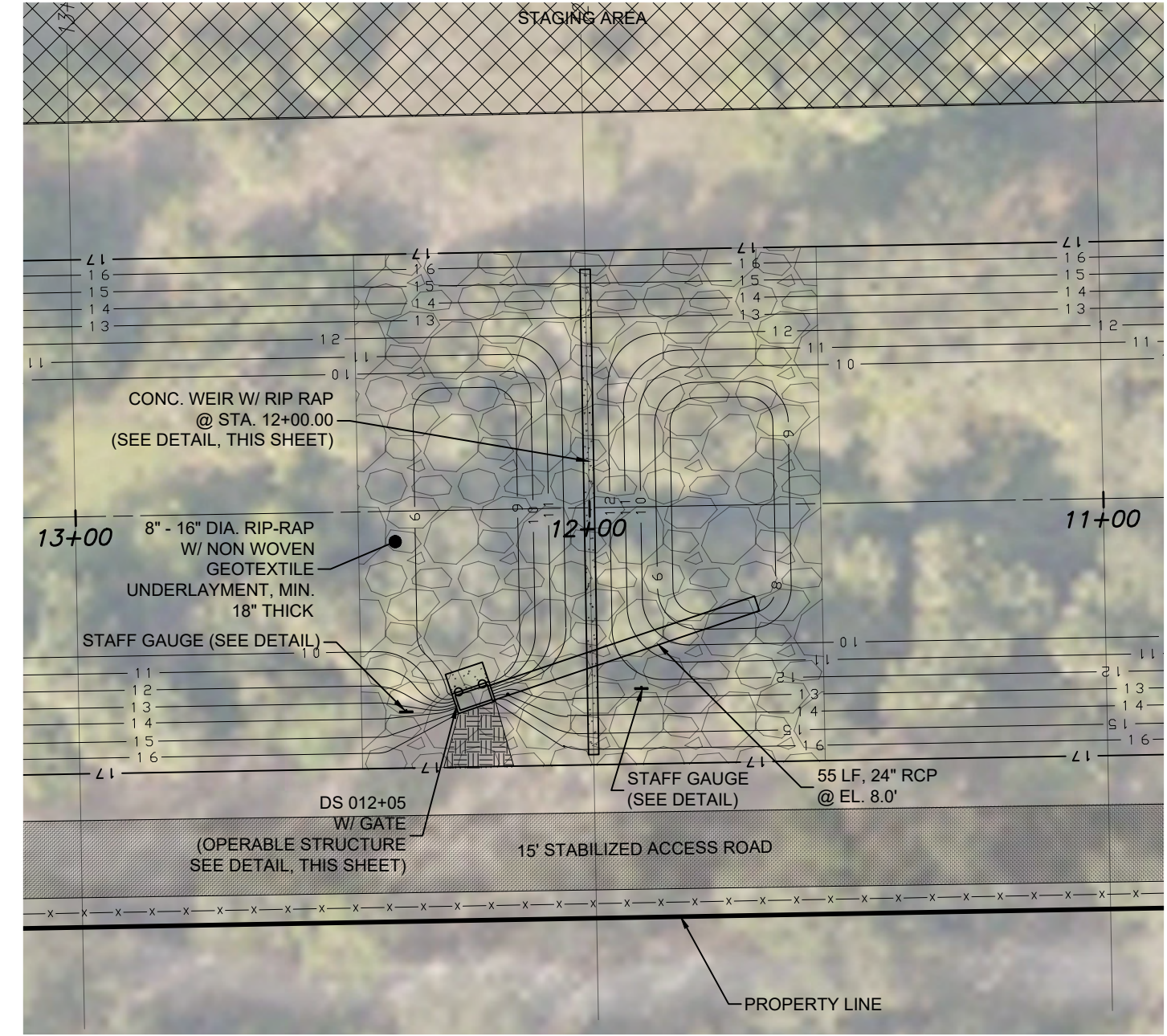
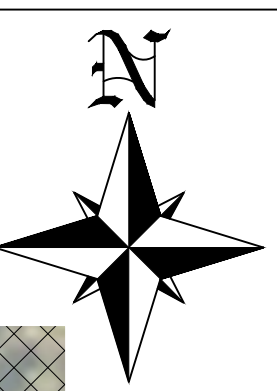
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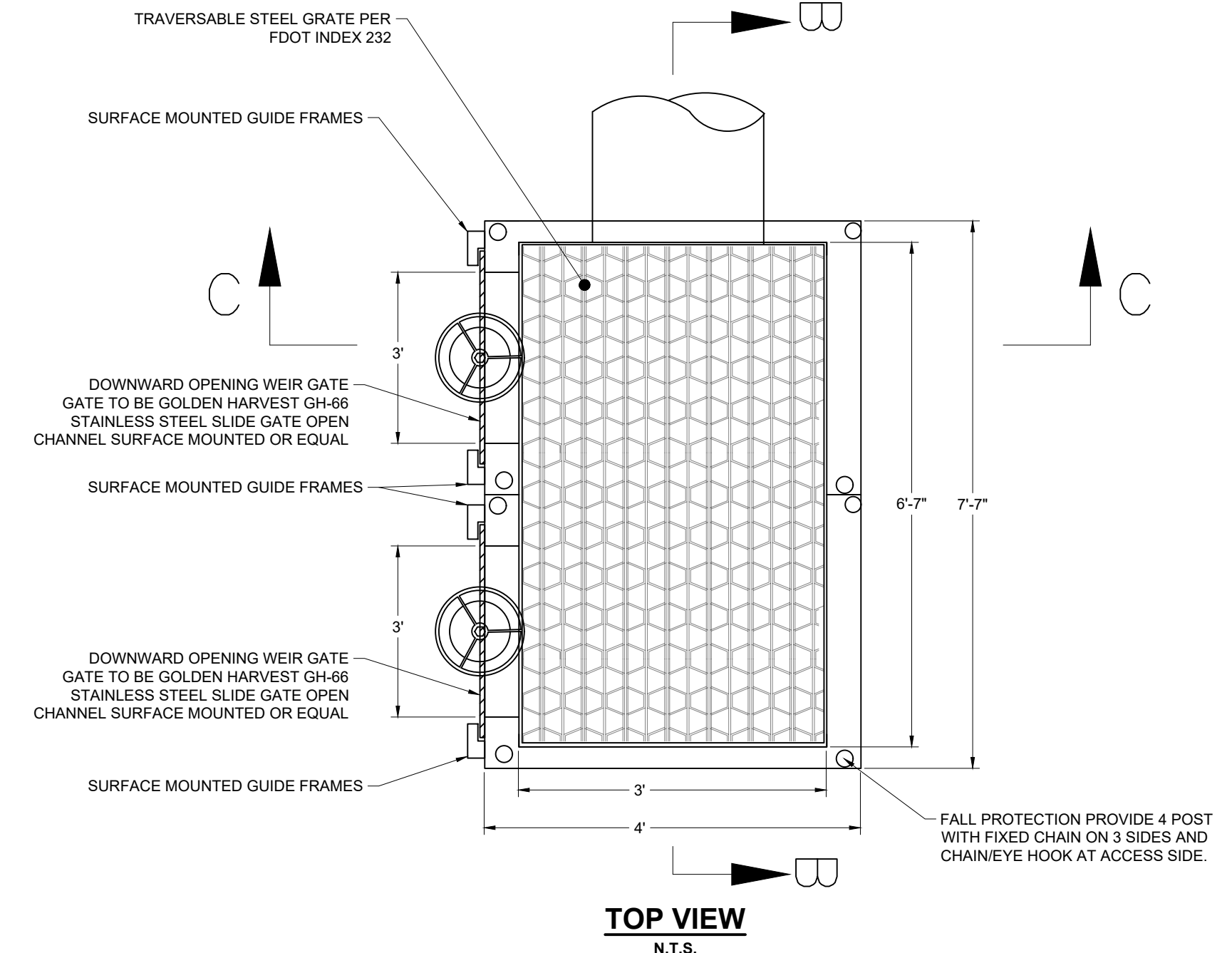
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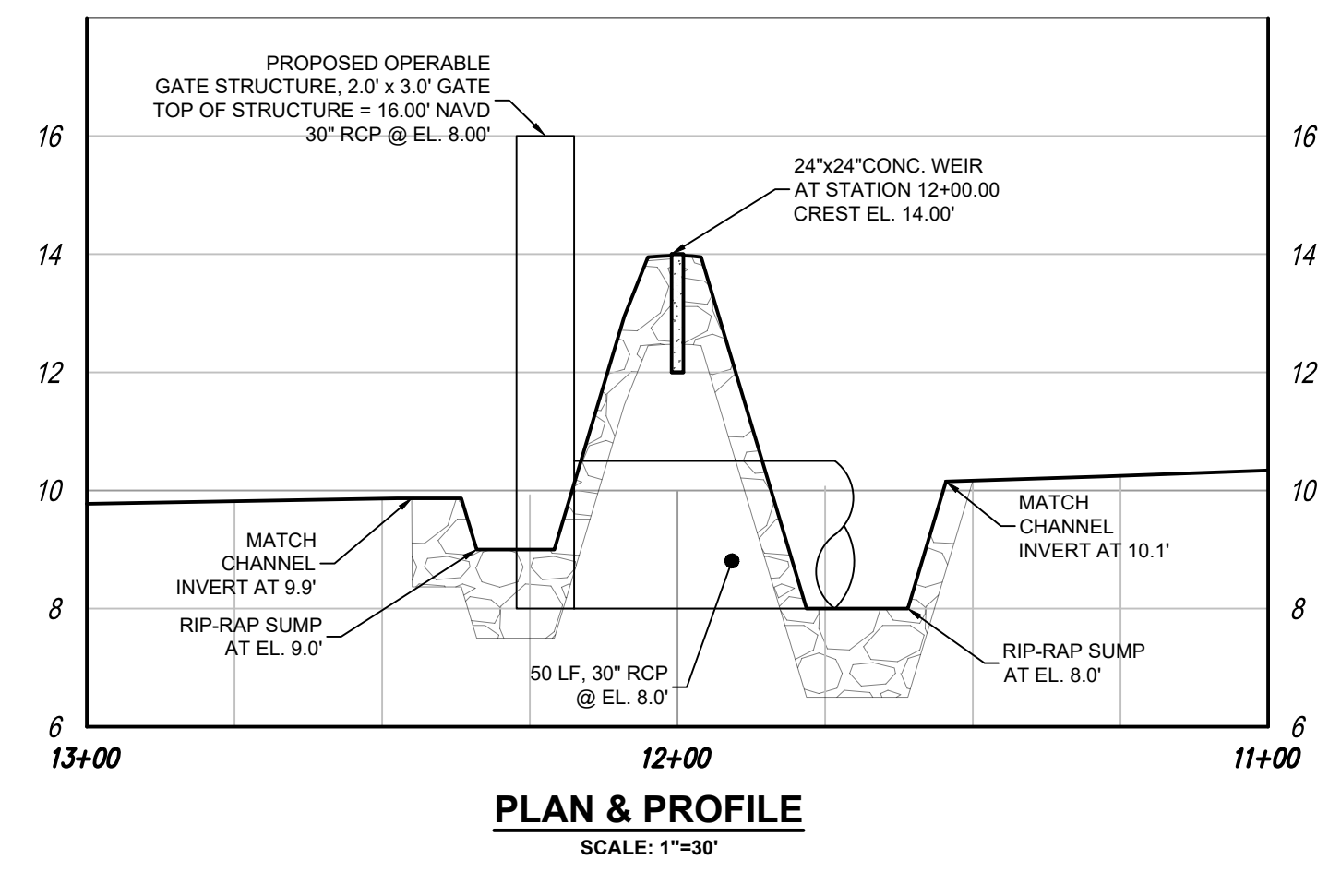
CONTROL STRUCTURE DETAILS						
SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT						
LEE COUNTY, FLORIDA						
DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED	SCALE
5/14/2019	8234		KWK	SDJ	KWK	
						SHEET 17



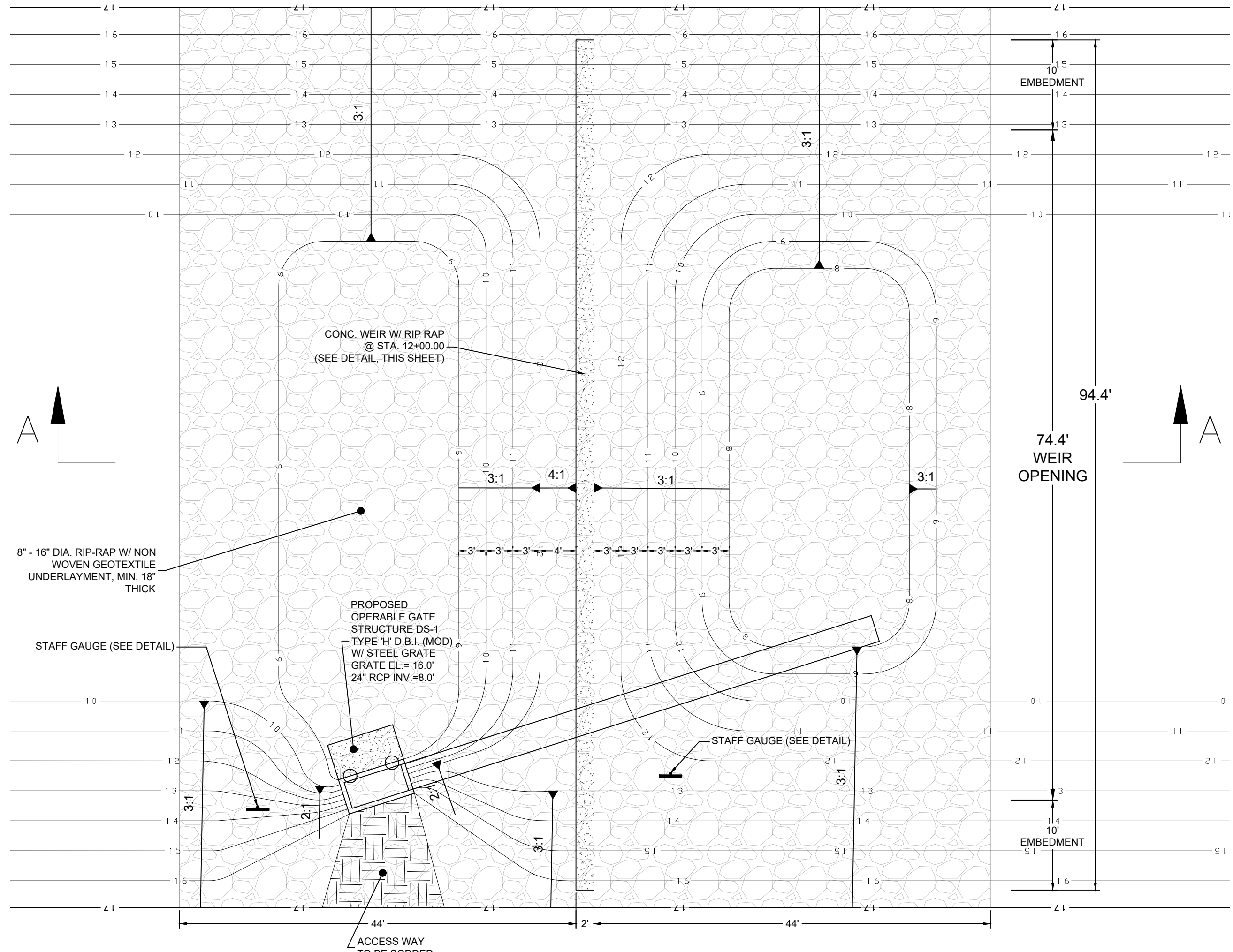
**WEIR #1 CROSS SECTION 'A-A'**  
N.T.S.



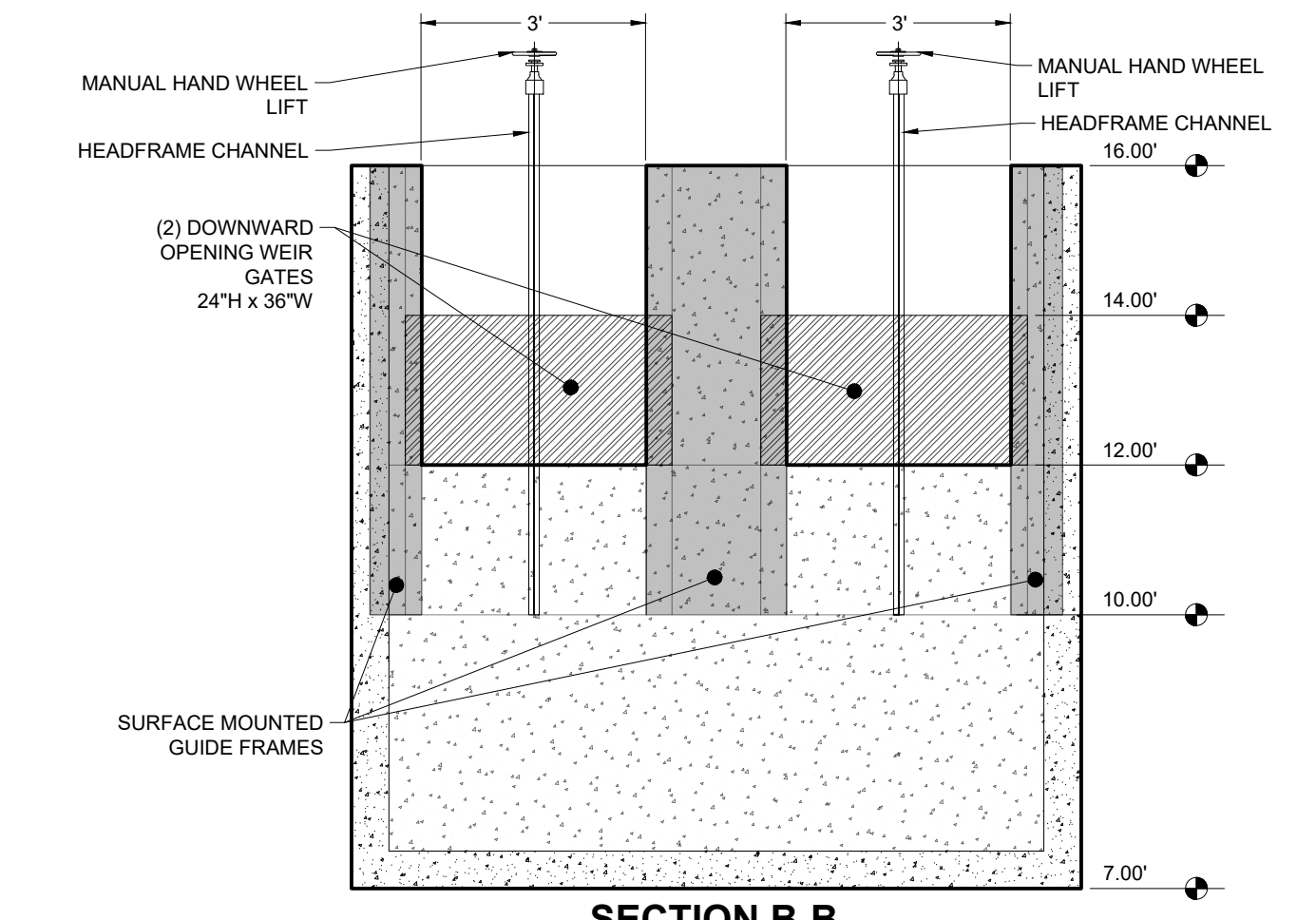
**TOP VIEW**  
N.T.S.



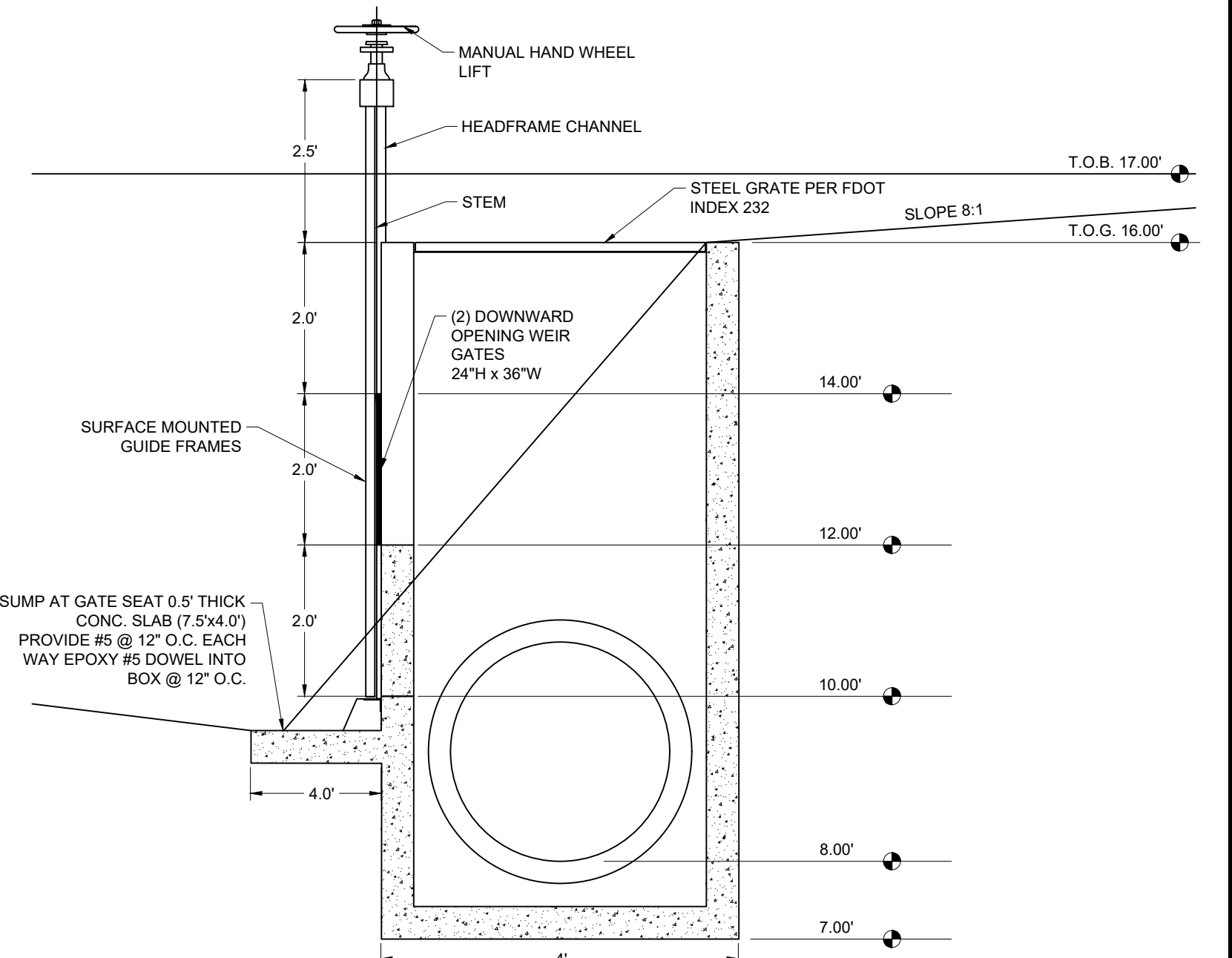
**PLAN & PROFILE**  
SCALE: 1"=30'



**PLAN VIEW**  
N.T.S.



**SECTION B-B  
DETAIL - STRUCTURE DS-1**  
N.T.S.



**SECTION C-C  
DETAIL - STRUCTURE DS-1  
(MODIFIED FDOT TYPE 'H' DITCH BOTTOM INLET)**  
N.T.S.

**WEIR DETAIL**  
N.T.S.

24"x24" CONC. WEIR STRUCTURE PROVIDE #4S BARS TOP, #4S BARS MIDDLE & #5S BARS BOTTOM W/ #3 BARS STIRRUP START 6" FROM EACH END THEN 12" O.C. FULL LENGTH, 3000 PSI CONCRETE @ 28 DAYS MIN PER FDOT.

**FREE STANDING STAFF GAUGE**  
SCALE: N.T.S.

3"x8" 12-GAUGE GALVANIZED STEEL PLATE (PAINTED BLACK)  
USGS STYLE A STAFF GAUGE, 10.16-13.52 FT  
USGS STYLE A STAFF GAUGE, 6.76-10.12 FT  
CUT GAUGE, BACKER BOARD ABOVE CHANNEL BOTTOM AFTER CALIBRATION TO THE PERMANENT BENCHMARK HAS BEEN COMPLETED  
CHANNEL BOTTOM

**FOOT TYPE 1 BRACKETS FOR 3" PIPE**

**NOTES:**

- ALL ELEVATIONS REFERENCE NAVD88 UNLESS OTHERWISE NOTED.
- A PERMANENT BENCHMARK SHALL BE ESTABLISHED ON THE CONCRETE STRUCTURE BY A FLORIDA LICENSED PROFESSIONAL SURVEYOR AND MAPPER IN ACCORDANCE WITH APPLICABLE MINIMUM TECHNICAL STANDARDS DEFINED IN 61G17, F.A.C.
- THE BENCHMARK SHALL COMPLY WITH SOUTH FLORIDA WATER MANAGEMENT DISTRICT BENCHMARK STANDARDS

**STAFF GAUGE NOTES:**

- STAFF GAUGE MUST CONFORM TO EITHER USGS STYLE A (PREFERRED) OR STYLE C STANDARDS, AND BE CONSTRUCTED OF 16-GAUGE PORCELAIN ENAMELED IRON OR STEEL.
- THE STAFF GAUGE MUST BE MOUNTED VERTICAL AND PLUMB TO THE WATER SURFACE.
- THE STAFF GAUGE SHALL BE SECURED SUFFICIENTLY TO ELIMINATE VERTICAL AND HORIZONTAL MOVEMENT.
- THE STAFF GAUGE SHALL BE CALIBRATED TO THE PERMANENT BENCHMARK ESTABLISHED AS PART OF THIS PROJECT.



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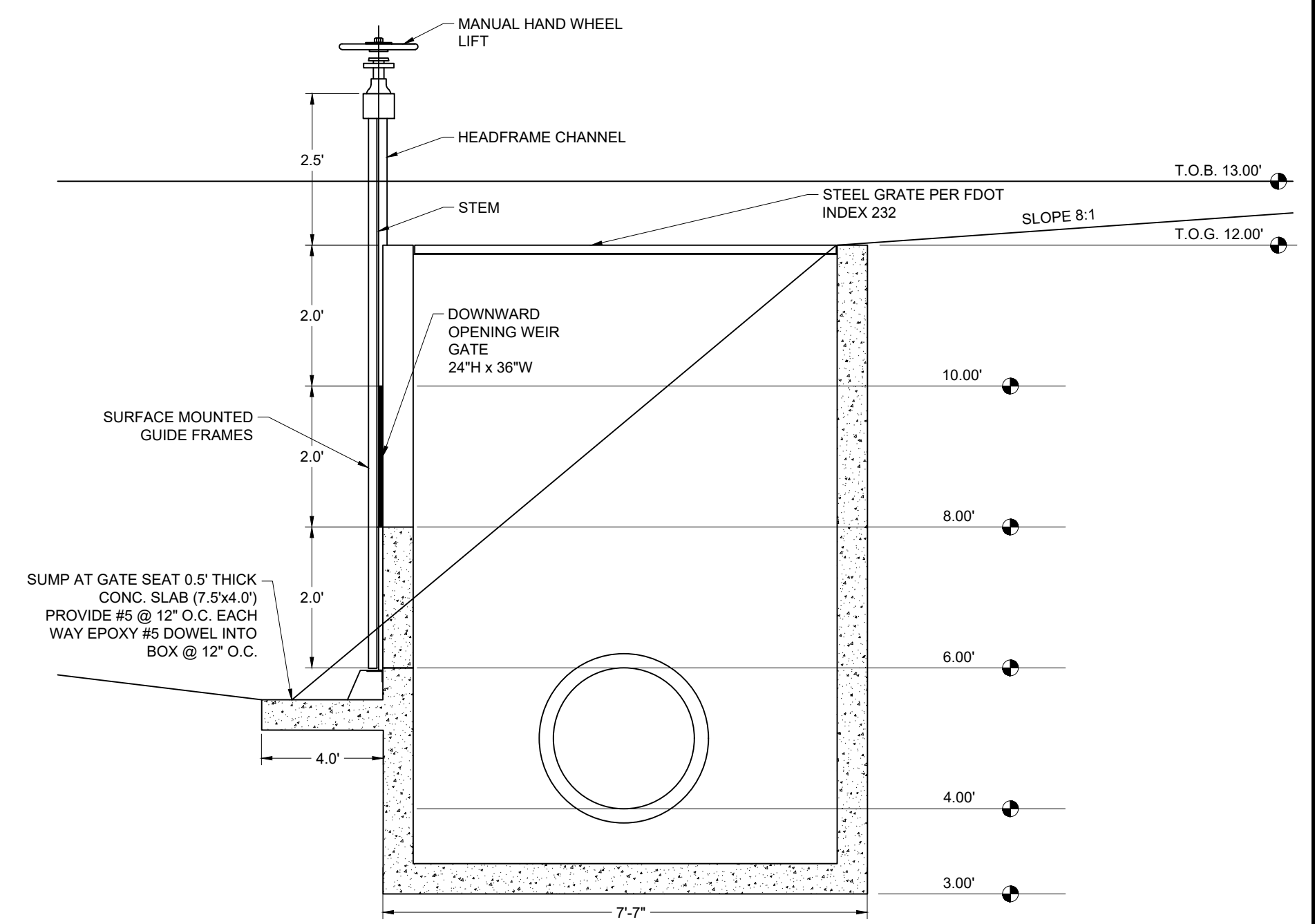
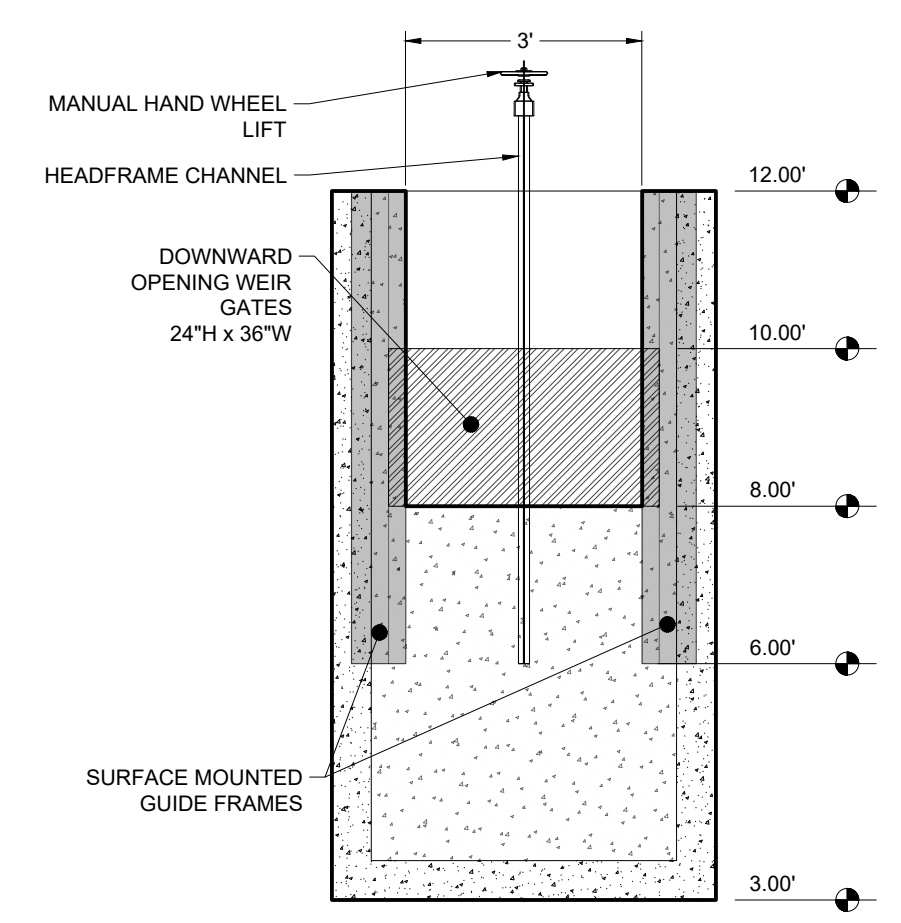
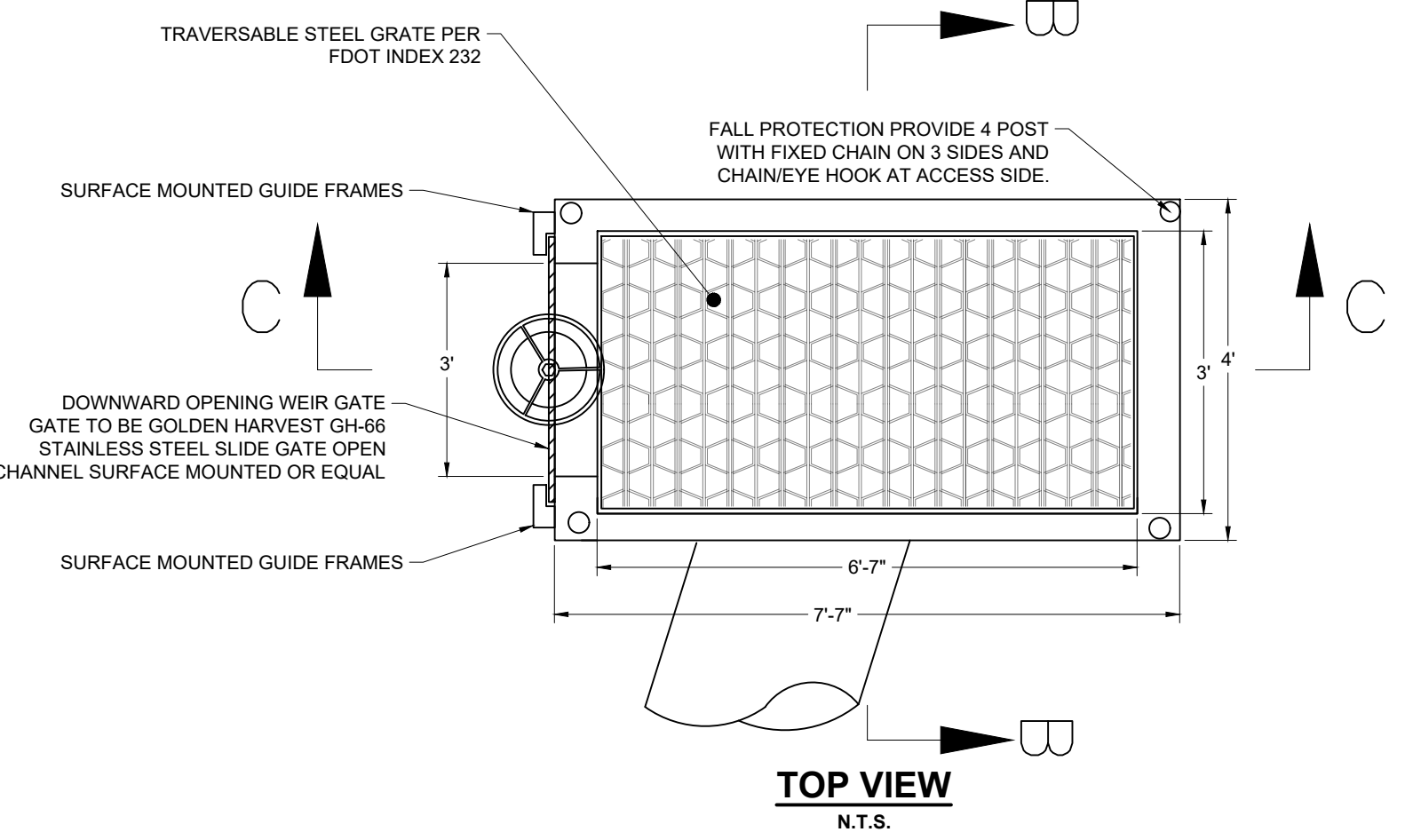
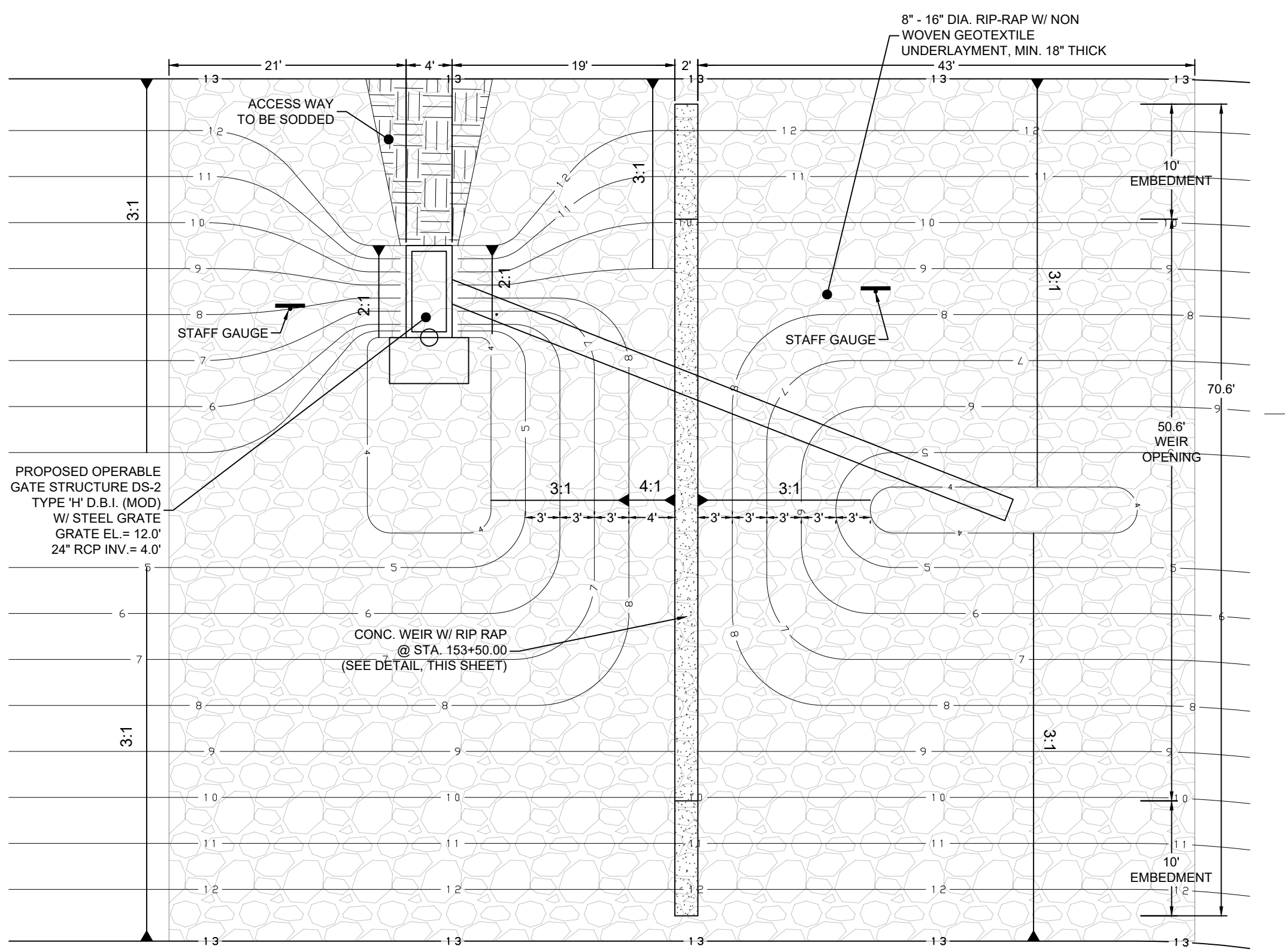
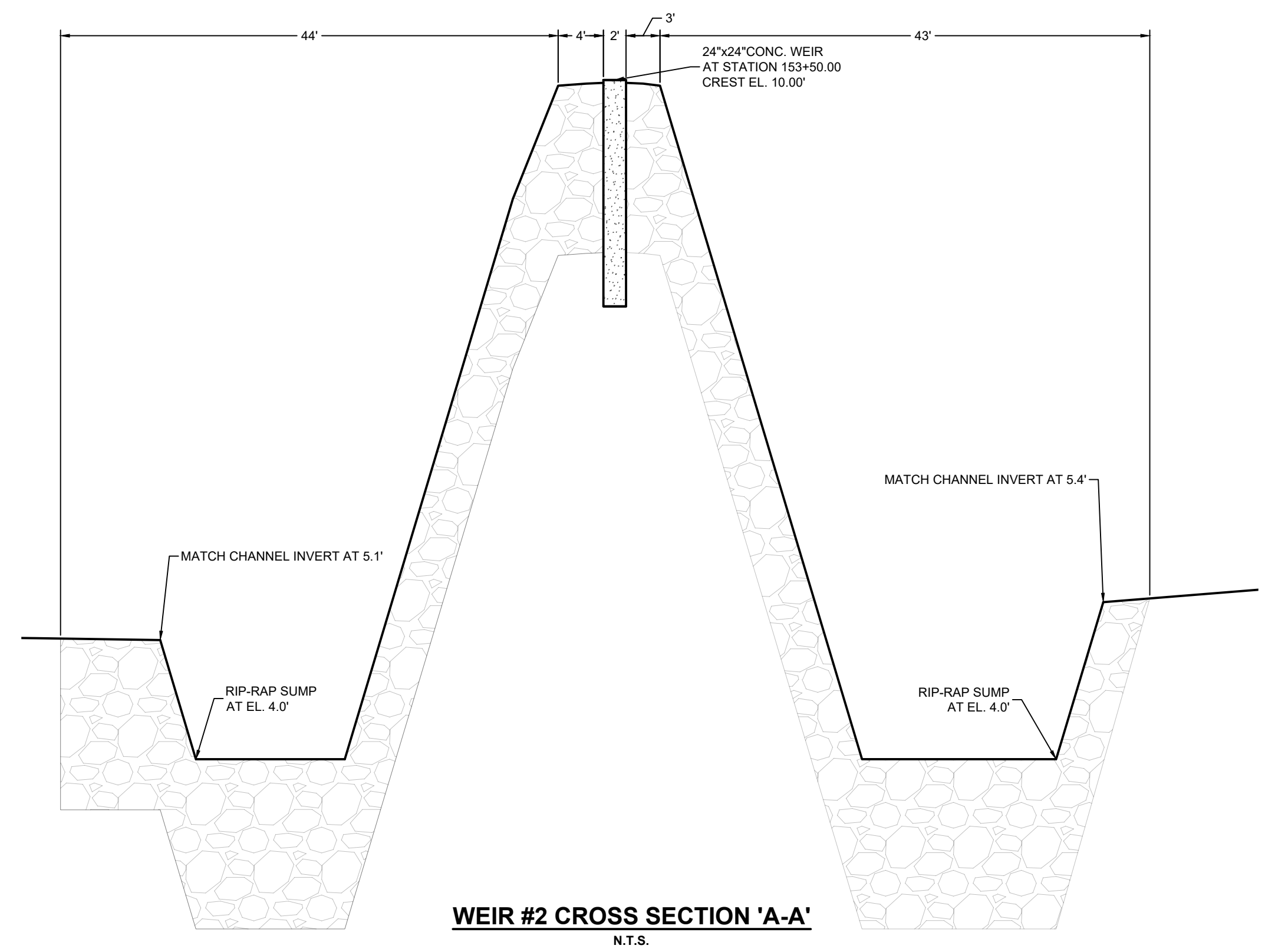
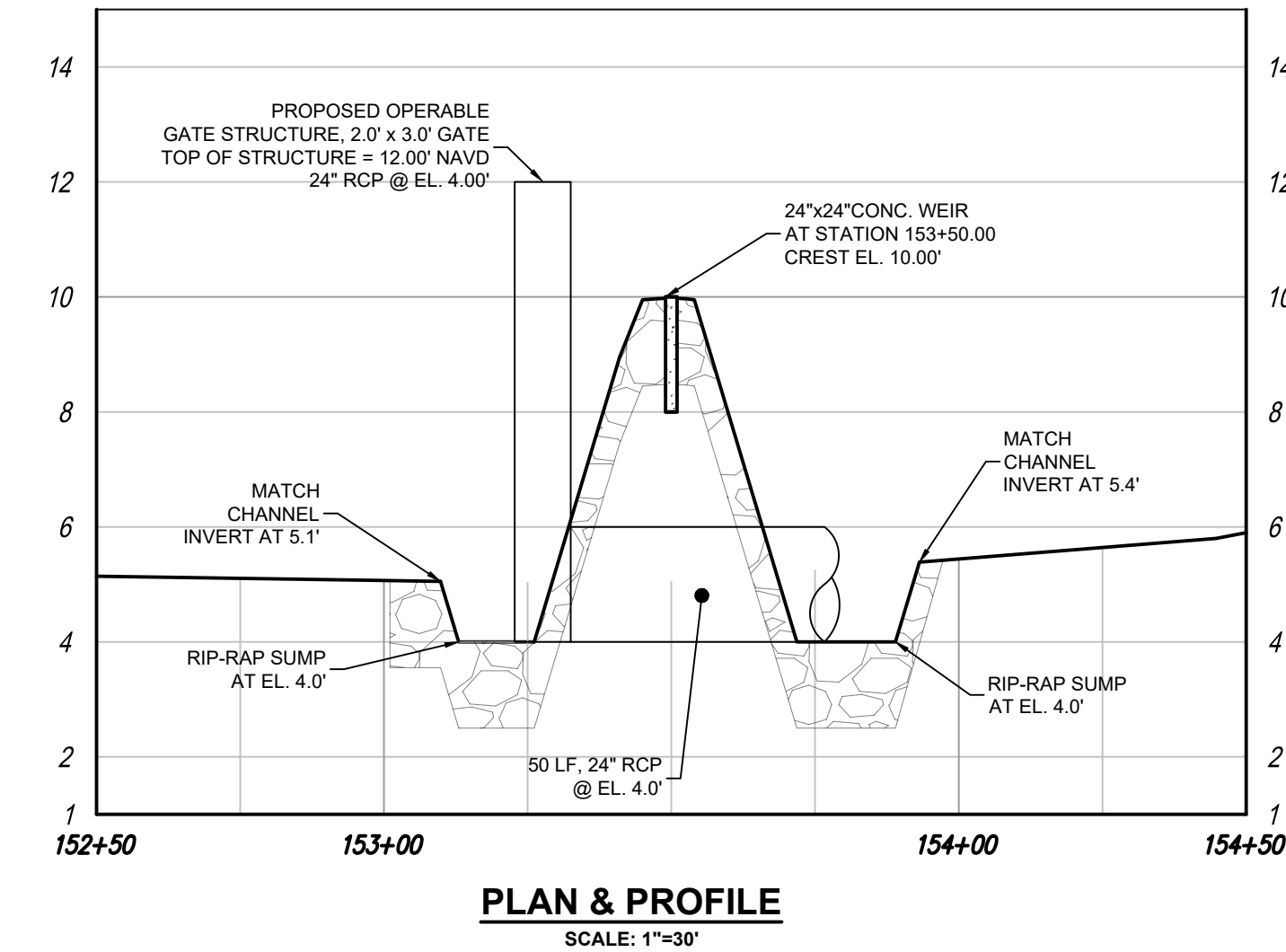
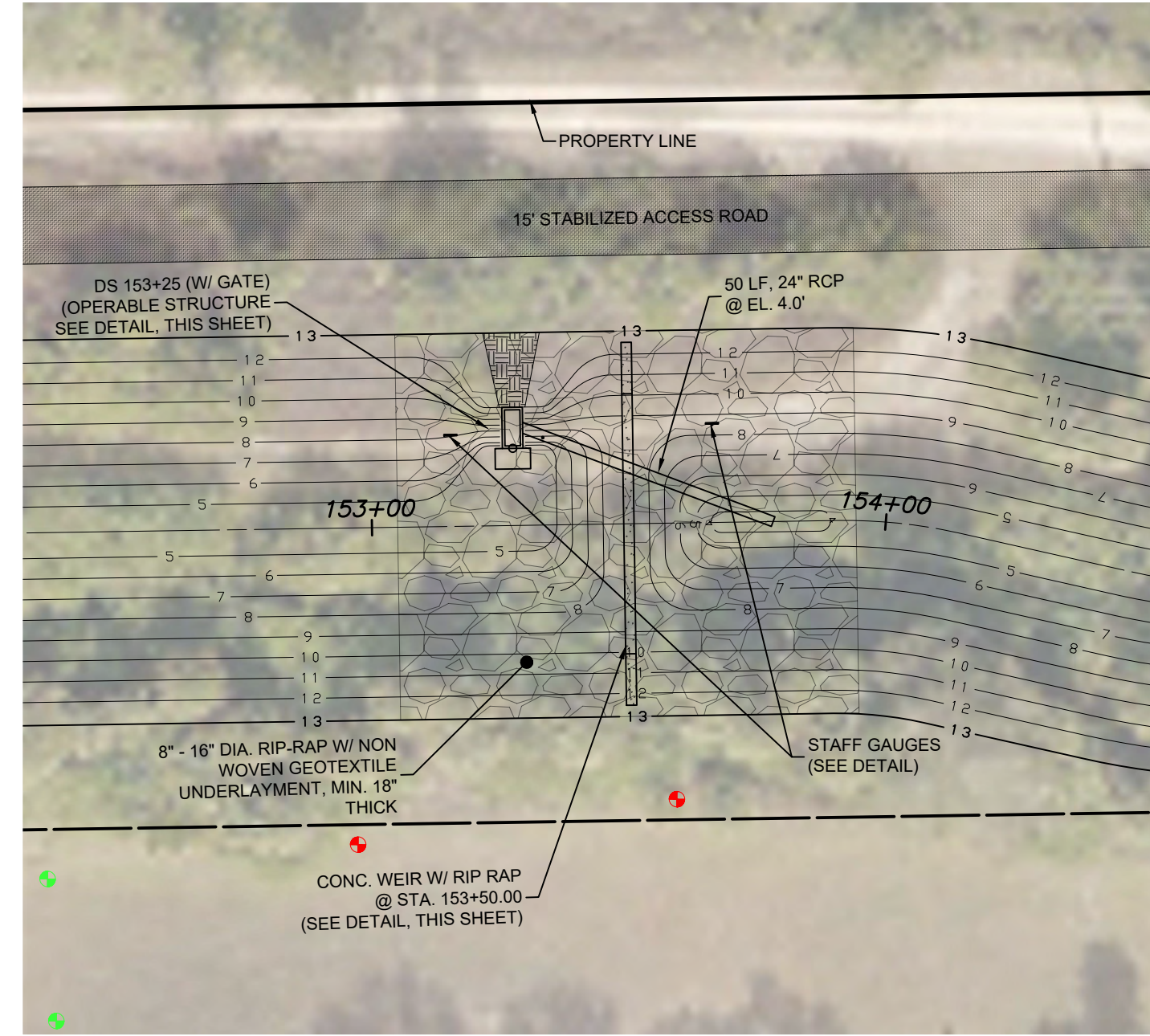
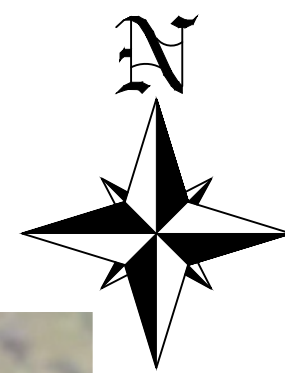
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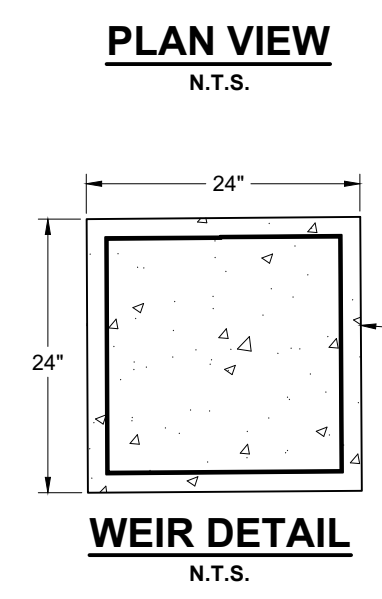
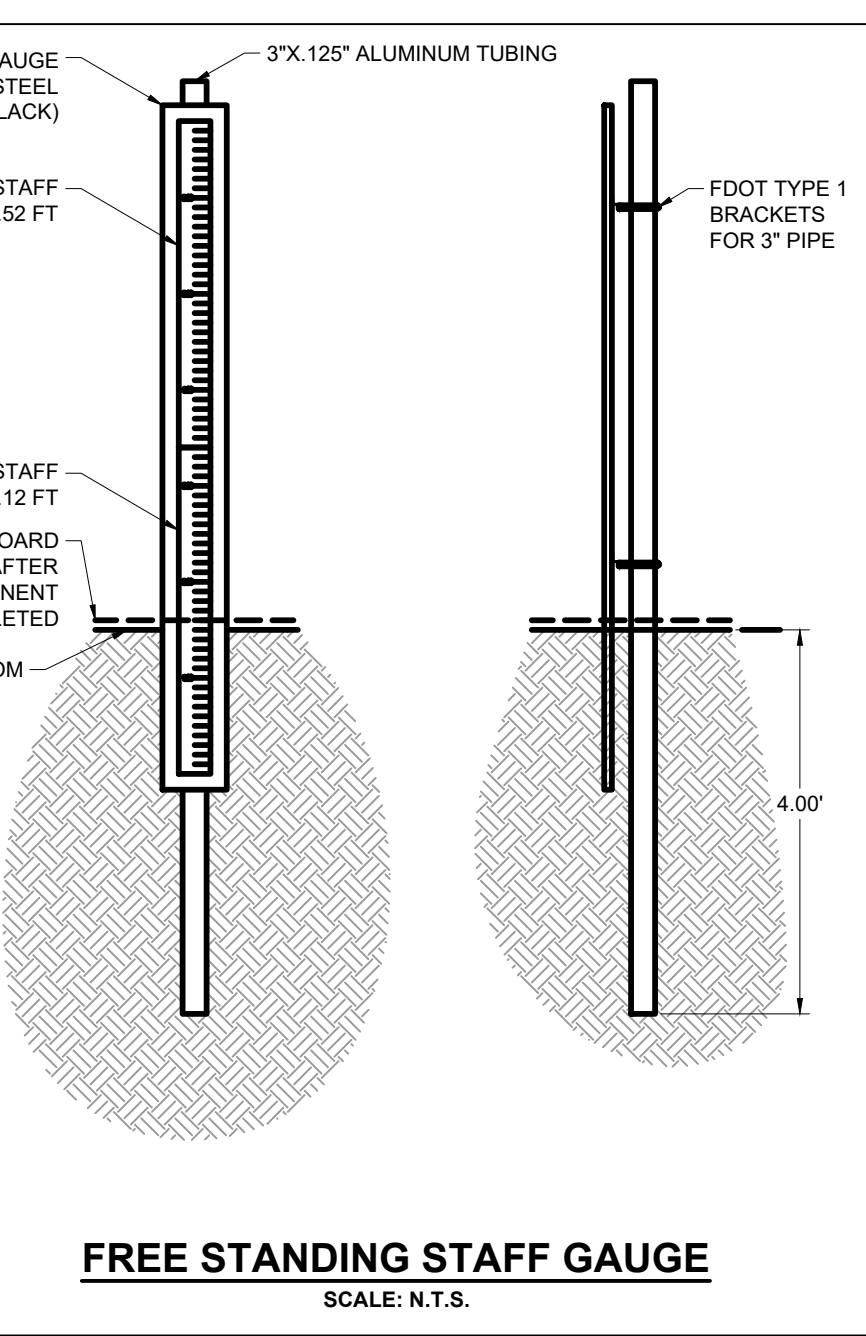
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<b>WEIR DESIGN - WEIR-1</b>									
<b>SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT</b>									
<b>LEE COUNTY, FLORIDA</b>									
DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED	SCALE	SHEET		
5/14/2019	8234	_WEIR-1	KWK	SDJ	KWK	AS NOTED	17A		



- NOTES:**
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  - THE BENCHMARK SHALL COMPLY WITH SOUTH FLORIDA WATER MANAGEMENT DISTRICT BENCHMARK STANDARDS
- STAFF GAUGE NOTES:**
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  - THE STAFF GAUGE SHALL BE SECURED SUFFICIENTLY TO ELIMINATE VERTICAL AND HORIZONTAL MOVEMENT.
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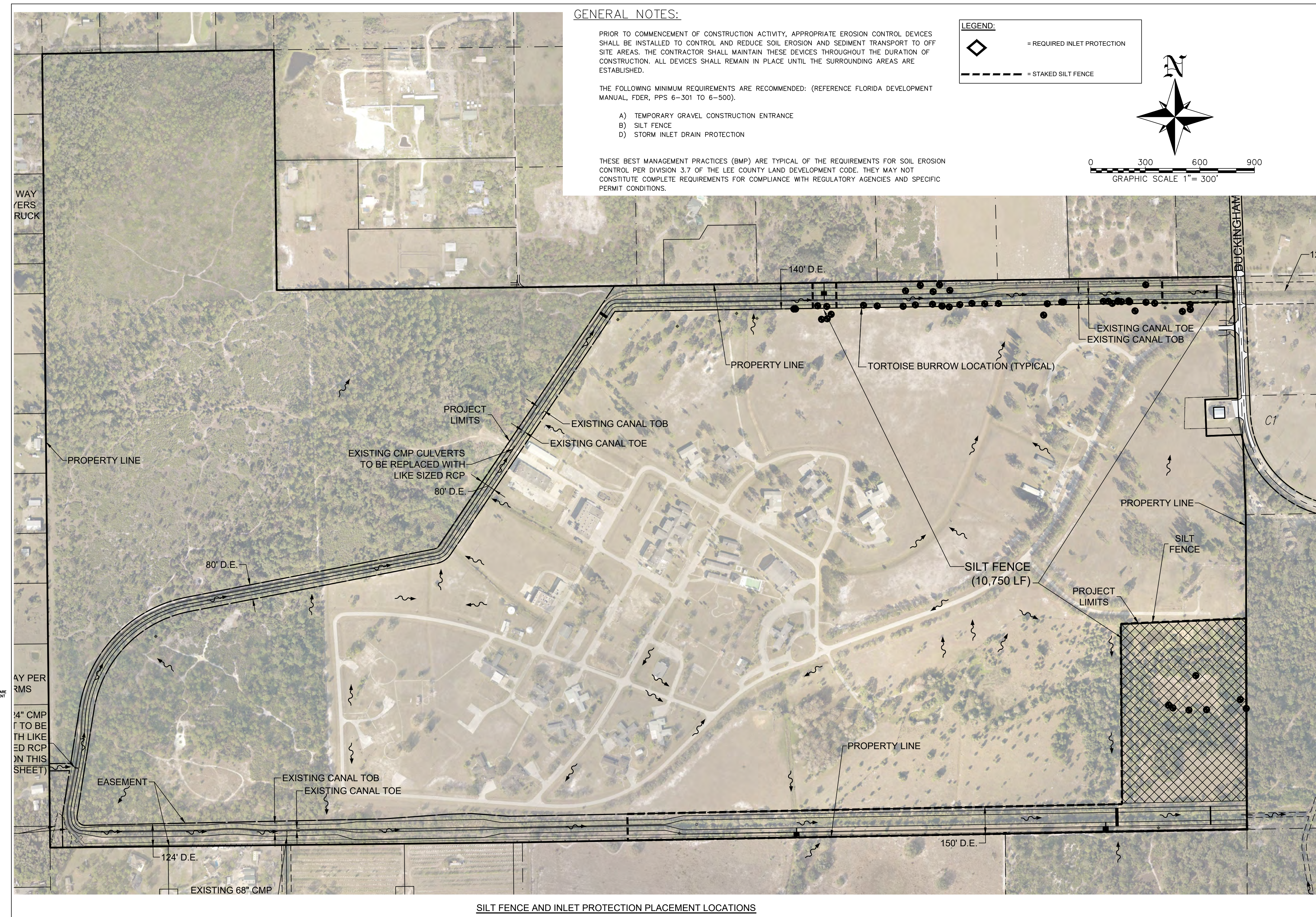
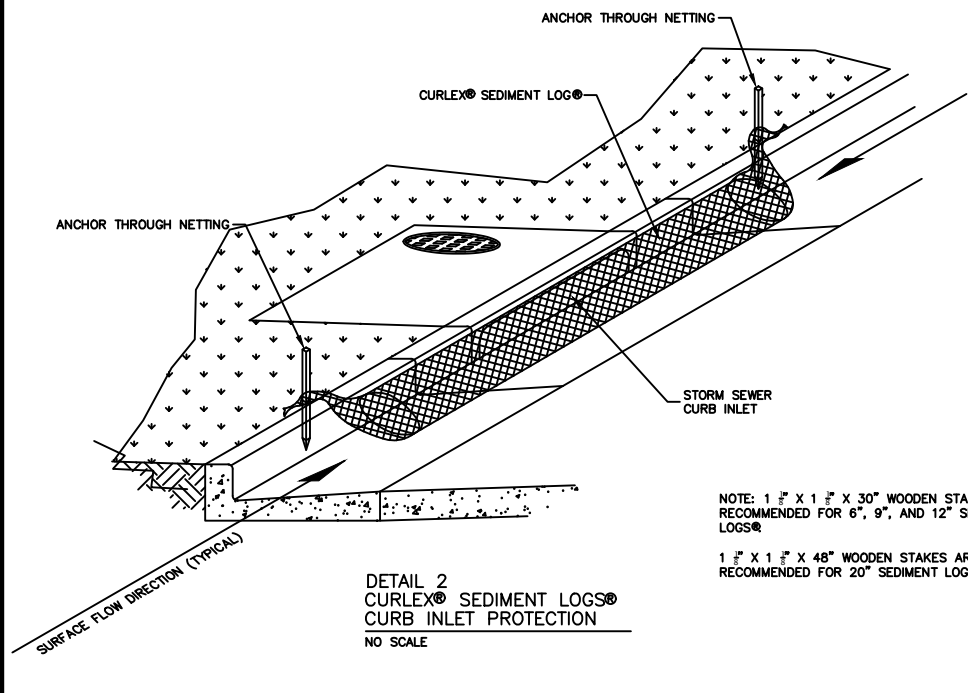
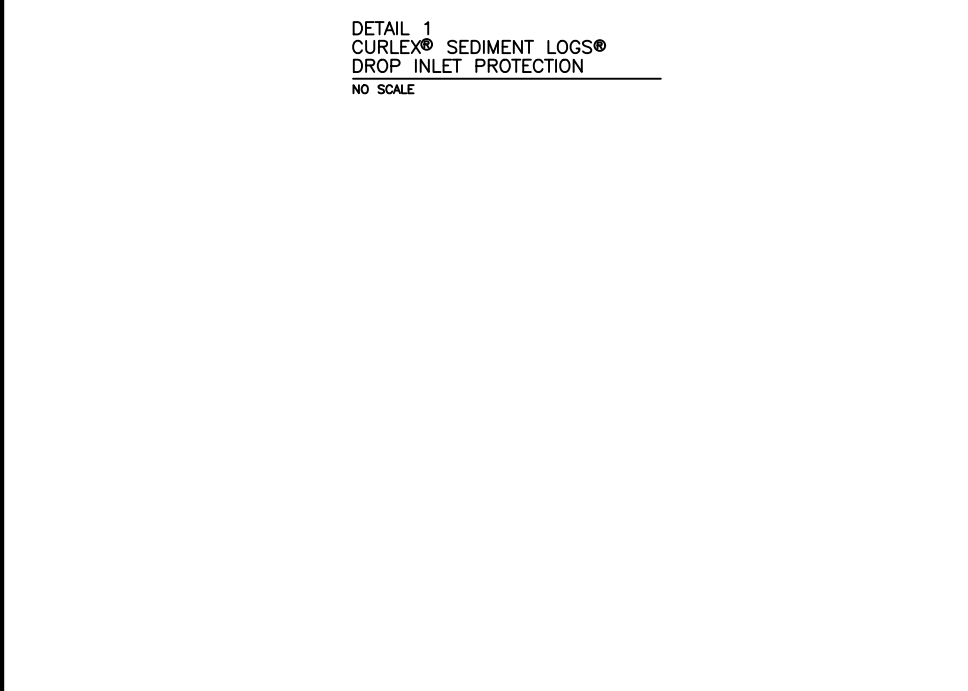
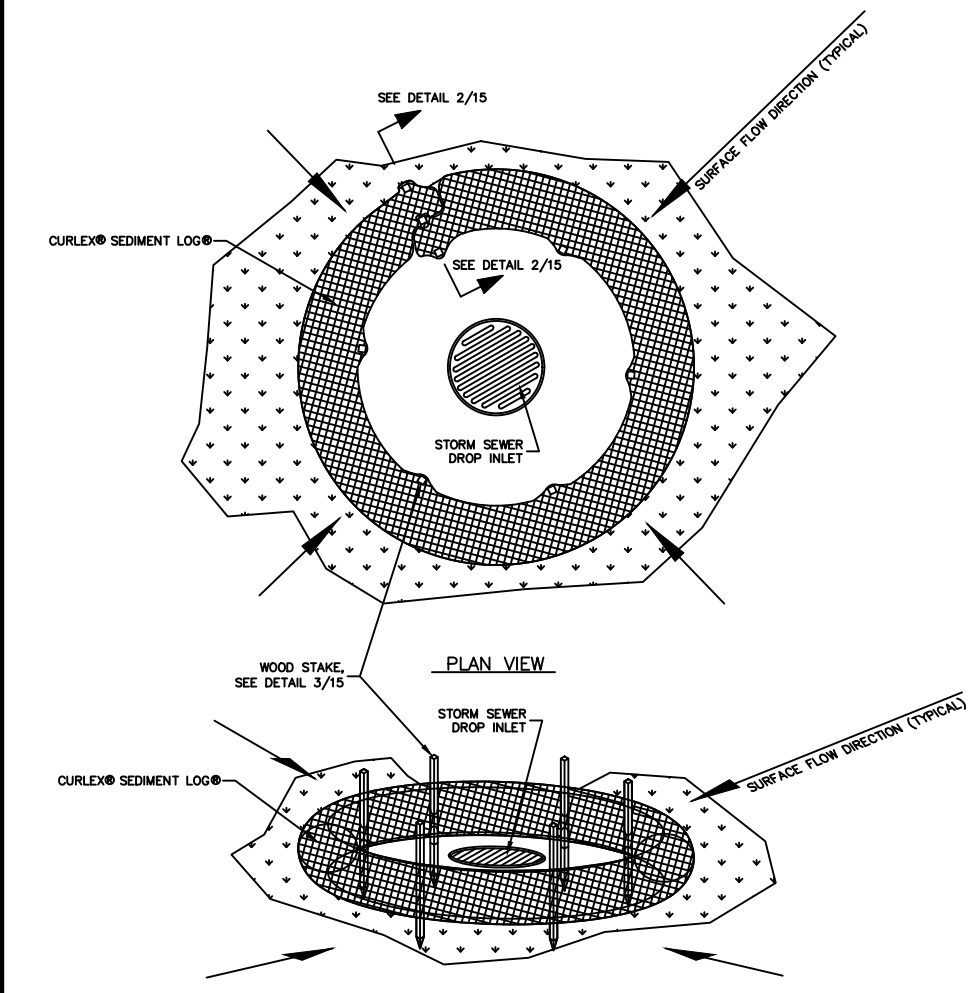
NO.	DATE	REVISION DESCRIPTION	BY
1			

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 Professional Engineers, Planners, & Land Surveyors  
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 ENGINEERING LICENSE # EB 6469  
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SAMUEL W. MARSHALL P.E.  
 FL REG # 26661

WEIR DESIGN - WEIR-2						SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT		LEE COUNTY, FLORIDA	
DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED	SCALE	SHEET		
5/14/2019	8234	_WEIR-1	KWK	SDJ	KWK	AS NOTED	17B		



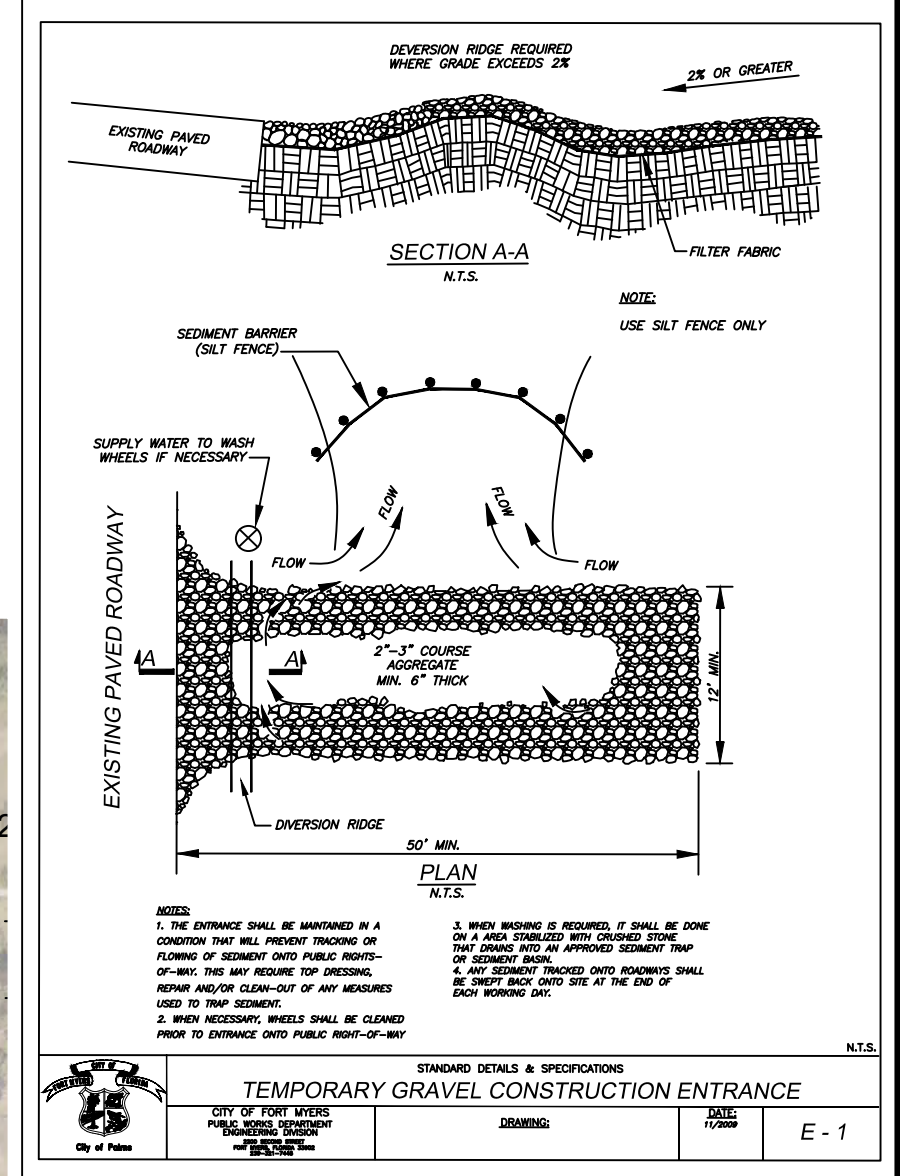
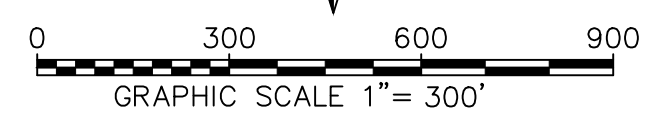
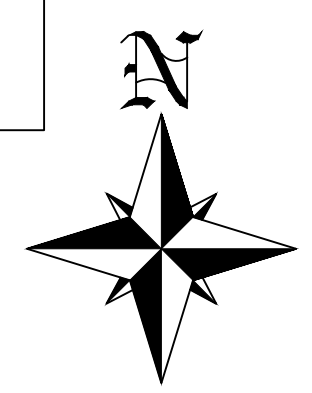
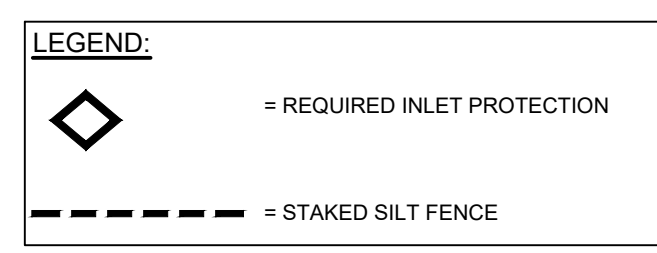
**GENERAL NOTES:**

PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITY, APPROPRIATE EROSION CONTROL DEVICES SHALL BE INSTALLED TO CONTROL AND REDUCE SOIL EROSION AND SEDIMENT TRANSPORT TO OFF SITE AREAS. THE CONTRACTOR SHALL MAINTAIN THESE DEVICES THROUGHOUT THE DURATION OF CONSTRUCTION. ALL DEVICES SHALL REMAIN IN PLACE UNTIL THE SURROUNDING AREAS ARE ESTABLISHED.

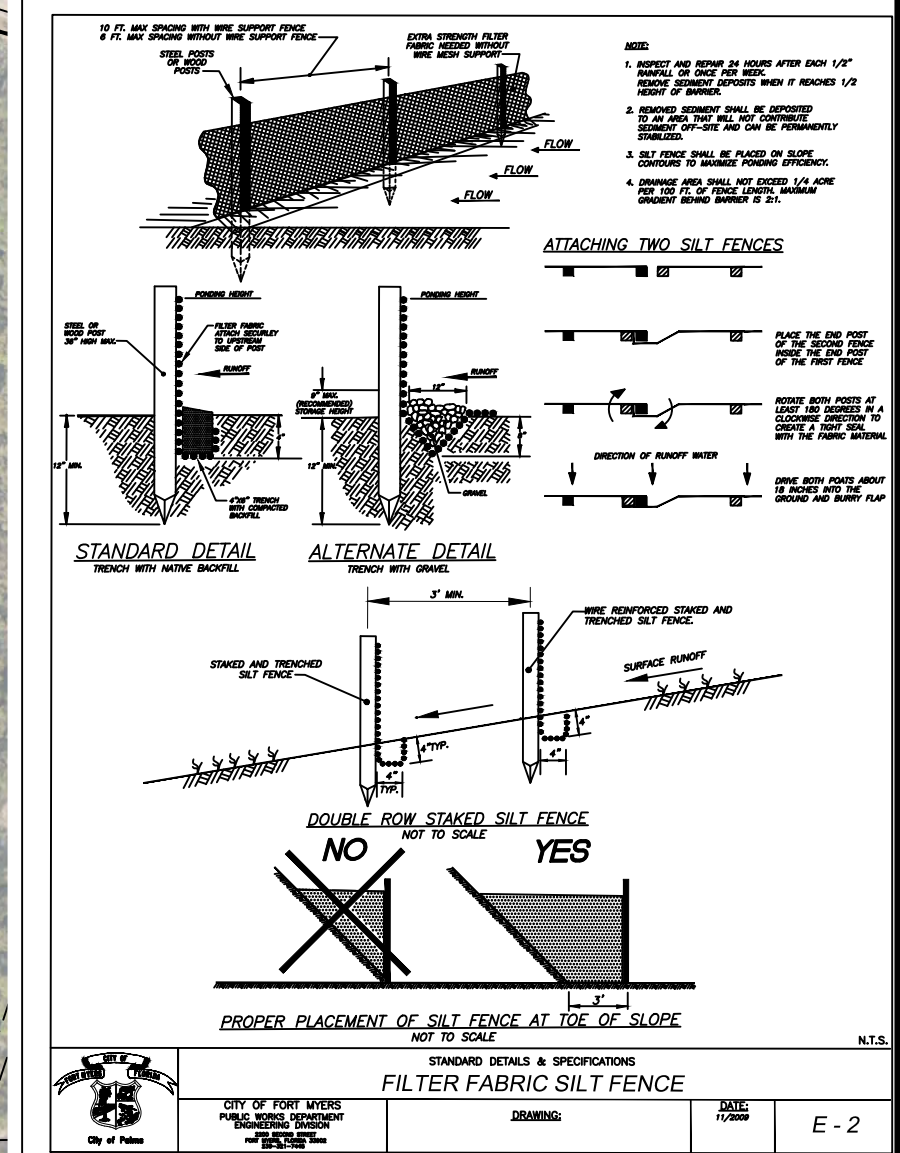
THE FOLLOWING MINIMUM REQUIREMENTS ARE RECOMMENDED: (REFERENCE FLORIDA DEVELOPMENT MANUAL, FDER, PPS 6-301 TO 6-500).

A) TEMPORARY GRAVEL CONSTRUCTION ENTRANCE  
 B) SILT FENCE  
 D) STORM INLET DRAIN PROTECTION

THESE BEST MANAGEMENT PRACTICES (BMP) ARE TYPICAL OF THE REQUIREMENTS FOR SOIL EROSION CONTROL PER DIVISION 3.7 OF THE LEE COUNTY LAND DEVELOPMENT CODE. THEY MAY NOT CONSTITUTE COMPLETE REQUIREMENTS FOR COMPLIANCE WITH REGULATORY AGENCIES AND SPECIFIC PERMIT CONDITIONS.



STANDARD DETAILS & SPECIFICATIONS  
 TEMPORARY GRAVEL CONSTRUCTION ENTRANCE  
 SHEET NO. E-1



STANDARD DETAILS & SPECIFICATIONS  
 FILTER FABRIC SILT FENCE  
 SHEET NO. E-2



PREPARED FOR:  
**LEE COUNTY NATURAL RESOURCES**  
**LEE BOARD OF COUNTY COMMISSIONERS**

1500 MONROE ST.  
 FORT MYERS, FL 33901  
 PHONE: (239) 533-8109

NO.	DATE	REVISION DESCRIPTION	BY

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 FL REG # 26661

STORMWATER POLLUTION PREVENTION PLAN  
 SUNNILAND / NINE MILE RUN DRAINAGE IMPROVEMENT PROJECT  
 LEE COUNTY, FLORIDA

DATE	PROJECT	DRAWING	DESIGN	DRAWN	CHECKED	SCALE	SHEET
5/14/2019	8234	_AER	KWK	SDJ	KWK	1"=300'	18