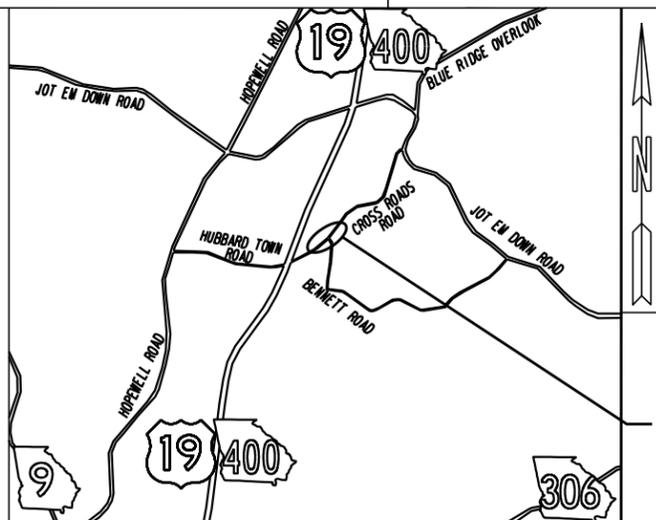


FORSYTH COUNTY TRANSPORTATION & ENGINEERING DEPARTMENT

PLAN AND PROFILE OF PROPOSED CROSS ROADS ROAD AT BENNETT ROAD INTERSECTION IMPROVEMENT



LOCATION SKETCH

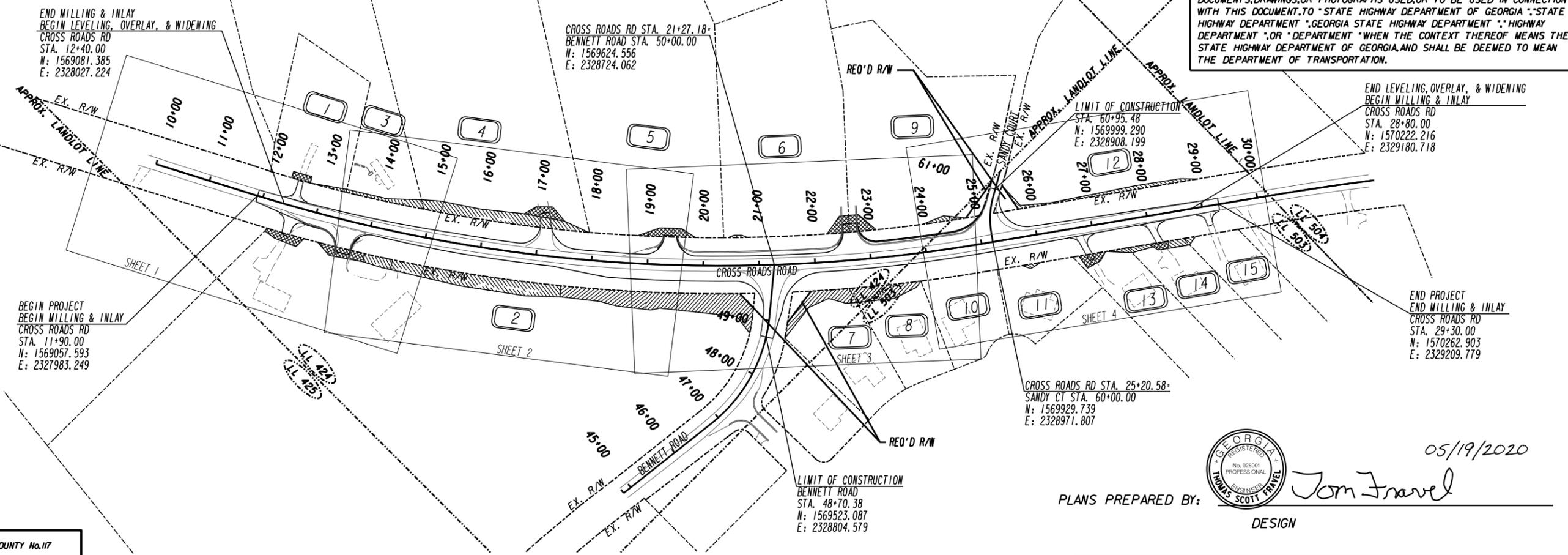
FUNCTIONAL CLASS:
COLLECTOR

THIS PROJECT IS 100% IN FORSYTH COUNTY AND IS 100% IN CONG.DIST.NO.9.

PROJECT DESIGNATION:
DESIGNED IN ENGLISH UNITS.

THIS PROJECT HAS BEEN PREPARED USING THE HORIZONTAL GEORGIA COORDINATE SYSTEM OF 1984 (NAD 1983/94 WEST ZONE, AND THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

DESIGN SPEED
CROSS ROADS RD: 50 MPH
BENNETT RD: 35 MPH



NOTE :
ALL REFERENCES IN THIS DOCUMENT, WHICH INCLUDES ALL PAPERS, WRITINGS, DOCUMENTS, DRAWINGS, OR PHOTOGRAPHS USED, OR TO BE USED IN CONNECTION WITH THIS DOCUMENT, TO "STATE HIGHWAY DEPARTMENT OF GEORGIA," "STATE HIGHWAY DEPARTMENT," "GEORGIA STATE HIGHWAY DEPARTMENT," "HIGHWAY DEPARTMENT," OR "DEPARTMENT" WHEN THE CONTEXT THEREOF MEANS THE STATE HIGHWAY DEPARTMENT OF GEORGIA, AND SHALL BE DEEMED TO MEAN THE DEPARTMENT OF TRANSPORTATION.

END LEVELING, OVERLAY, & WIDENING BEGIN MILLING & INLAY
CROSS ROADS RD
STA. 28+80.00
N: 1570222.216
E: 2329180.718

END PROJECT END MILLING & INLAY
CROSS ROADS RD
STA. 29+30.00
N: 1570262.903
E: 2329209.779



PLANS PREPARED BY: Tom Fravel
DESIGN

05/19/2020

LENGTH OF PROJECT	COUNTY No.17
	Project No.
	MILES
NET LENGTH OF ROADWAY	0.330

PLANS PREPARED AND SUBMITTED BY:

AEI
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www.aei.cc

65 Aberdeen Drive
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Kennesaw, GA 30144
(770) 421-8422

DESIGN CONSULTANT
PROFESSIONAL ENGINEER



PLANS COMPLETED 05-19-2020	
REVISIONS	

THE DATA, TOGETHER WITH ALL OTHER INFORMATION SHOWN ON THESE PLANS OR IN ANYWAY INDICATED THEREBY, WHETHER BY DRAWINGS OR NOTES, OR IN ANY OTHER MANNER, ARE BASED UPON FIELD INVESTIGATIONS AND ARE BELIEVED TO BE INDICATIVE OF ACTUAL CONDITIONS. HOWEVER, THE SAME ARE SHOWN AS INFORMATION ONLY, ARE NOT GUARANTEED, AND DO NOT BIND THE DEPARTMENT OF TRANSPORTATION IN ANY WAY. THE ATTENTION OF BIDDER IS SPECIFICALLY DIRECTED TO SUBSECTIONS 102.04, 102.05, AND 104.03 OF THE SPECIFICATIONS.

GENERAL NOTES

All work shall be done in accordance with the Georgia Department of Transportation Standard and Supplemental Specifications, Current Edition.

All known utility facilities are shown schematically on highway plans, and are not necessarily accurate in location as to plan or elevation. Utility facilities such as service lines or unknown facilities not shown on highway plans will not relieve the contractor of his responsibility under this requirement. "Existing utility facilities" means any utility that exists on the highway project in its original, relocated, or newly installed position. All utility facilities which are in conflict with construction and are not covered as specific items in the detailed estimate are to be removed or relocated to clear construction in advance of his work.

Utility work coordination will be required as a part of this contract. The contractor shall be required to use the one-call center telephone number, 1-800-282-7411, for the purpose of coordinating the marking of underground utilities. The contractor's attention is called to Sub-Section 105.06, "Cooperation with Utilities".
The following utilities have facilities in the project area:

Sawnee EMC 404-277-7192 Cumming, GA 30040	AT&T 770-363-7674 Cumming, GA 30040	Atlanta Gas Light Resources 404-569-2505 Atlanta, GA 30309
Comcast 770-527-9867 Cumming, GA 30040	Georgia Power 404-291-0622 Alpharetta, GA 30004	Forsyth County Water & Sewer Dept 770-781-2160 Cumming, GA 30040

The total acreage shown on the plans for Grading Complete are for information only. Forsyth County Transportation & Engineering assumes no responsibility for its accuracy. The contractor shall bid on Grading Complete lump sum, and it shall be his responsibility to determine the actual acres to be cleared and grubbed. No claims will be considered for extra compensation if the contractor relies on the acres shown on the plans. Costs for items to be removed which do not have a separate pay item shall be included in price bid for Grading Complete - lump sum.

The contractor shall strictly adhere to dust control regulations. All areas subjected to dust formation must be periodically watered, sufficient to retard dust. All costs for dust control shall be included in price bid for clearing and grubbing - lump sum.

The total area shown on the plans for grassing is for information only. Forsyth County Transportation & Engineering assumes no responsibility for its accuracy. The contractor shall bid on grassing complete, lump sum, and it shall be his responsibility to determine the actual area to be grassed. No claims will be considered for extra compensation if the contractor relies on the area shown on the plans.

Ingress and egress shall be maintained at all times to adjacent properties. Refer to Sub-Section 107.07 of the Standard Specifications.

It shall be the contractor's responsibility to furnish suitable borrow material for the project and dispose of any unsuitable or waste material.

Horizontal control is based upon Georgia State Plane Coordinate System. See plans for locations and descriptions of monuments used.

Forsyth County expects to have other contracts under construction during the life of this contract. The contractor's attention is called to Sub-Section 105.07 of the Standard Specifications "Cooperation Between Contractors". The engineer shall be expected to coordinate the interface and cooperation between contractors.

All driveways, where access is allowed, shall be placed as directed by the engineer in accordance with rules and regulations for control and protection of Forsyth County rights-of-way. All driveways that are to be reconstructed shall be replaced, in kind, i.e., asphalt for asphalt, and concrete for concrete, or in the case of earth driveways, asphalt for earth. The driveway locations indicated on the plans are from the best available data. The contractor shall construct new driveways to match the actual field location of existing driveways where they are not in conflict with the rules and regulations. The contractor shall obtain the approval of the engineer prior to making any revisions such as to location, width and/or number of drives to be constructed. Asphaltic and unpaved driveways shall be paved to their construction limits. Where required, the drives shall be paved as follows:

Asphaltic Drives -
Residential -
1-1/2" recycled asphaltic concrete, Super pave GP2
only incl. bituminous material and H. lime
6" graded aggregate base

Commercial -
1-1/2" recycled asphaltic concrete, Super pave GP2
only incl. bituminous material and H. lime
2" asphaltic concrete "B"
8" graded aggregate base

Concrete Drives
Residential -
6" concrete valley gutter
6" concrete driveway

Commercial -
8" concrete valley gutter
8" concrete driveway

This project lies within the limits of an insect infested area. The contractor's attention is called to the following Sub-Sections or Special Provisions to the standard specifications: A) Sub-Section 107.13D Insect Control Regulations; B) Sub-Section 155 - Insect Control; and C) Sub-Section 893 - Miscellaneous Planting.

The contractor shall observe all applicable local, state, and federal safety regulations regarding pipe installation in trenches. No separate payment will be made for any cost incurred to comply with this requirement.

All existing pipe shall be removed unless otherwise noted on plans, or as directed by the engineer. Costs for removal shall be included in the price bid for Grading Complete.

In areas where Type 2 curb is used, drainage structures 1033D and 1034D will be required. In areas where Type 7 curb is used, drainage structures 1033G and 1034G will be required.

At locations where new pavement is to be placed adjacent to existing pavement without an overlay or where curbing is to be placed across a paved area, a joint shall be sawn on a line established by the engineer to ensure pavement removal to a neat line. Costs for sawn joints, when required, shall be included in price bid for other contract items, except when sawing PCC concrete pavement.

Where existing pavement markings and lines are in conflict with the traffic pattern being used on construction, the contractor shall remove or overlay lines to the satisfaction of the engineer such that the lines do not confuse the traveling public. All remaining lines or markings shall be in accordance with the "Manual on Uniform Traffic Control Devices" or as directed by the engineer. Traffic shall not be allowed on any pavement not properly striped.

The contractor's attention is directed to Articles 104.05 and 107.07 of the standard specifications and the special provisions for traffic control and sequence of operations in regards to maintenance of traffic during construction.

Price bid for traffic control - lump sum shall include, but is not limited to, construction, maintenance, and removal of temporary signing and pavement markings, barricades, channelizing devices, etc. required for maintenance of traffic during construction. All temporary signing and pavement marking shall be in accordance with the "Manual on Uniform Traffic Control Devices", current edition and/or as directed by the engineer.

Staged construction may be required in order to maintain traffic throughout the project. Construction staging plans may be included in this set of drawings and are for guidance. The contractor may elect to design his own staging plan. If so, the contractor's staging plan must be approved by the engineer prior to construction. Any deviation to the stage construction plans, if included, shall be approved by the engineer prior to implementation.

No separate payment will be made for earthwork operations required for detour construction. The cost of detour grading and earthwork operations required solely for detours shall be included in the price bid for other items.

Handicap ramps shall be constructed at all points where sidewalk terminates at curb or is bisected by driveways, if necessary. The exact type of ramp, (terminal or on curb radius) may be modified as directed by the engineer.

Sod all disturbed areas - Pricing to be included in grassing complete. All cut and fill slopes shall be grassed as directed by the engineer immediately after the slopes are established, in order to reduce erosion. If the season does not permit grassing, temporary mulch shall be used as directed by the engineer. Refer to Section 161 of the Standard Specifications.

The contractor shall ensure that positive and adequate drainage is maintained at all times within the project limits. This may include, but not be limited to, replacement or reconstruction of existing drainage structures that have been damaged or removed or re grading as required by the engineer, except for those drainage items shown at specific locations in the plans and having specific pay items in the detailed estimate. No separate payment will be made for any costs incurred to comply with this requirement.

Erosion control measures shall be installed prior to or concurrent with land disturbance activities and shall be maintained at all times. Additional erosion and sediment control devices shall be installed if deemed necessary by on site inspection or as directed by the engineer. All silt fences must be placed as access is obtained during clearing. No grading shall be done until silt fence installation is complete. It is the contractor's responsibility to maintain all silt fences and to repair or replace any silt fence that is not satisfactory. All erosion control devices shall be placed according to the plans, and as directed by the engineer. See Georgia Standard Specifications, current edition regarding erosion control. The contractor shall be responsible to keep wetland areas free from siltation. The contractor shall obtain and abide by all Corps of Engineers rules and regulations concerning construction adjacent to waterways and maintain water quality.

This project has a total area of 5.26 acres, and the expected disturbed area is 4.33 acres.

The contractor will be responsible for pre-marking all signing, striping, guardrail and handicap ramps. After pre-marking is complete and 72 hrs. in advance of installation, the contractor shall notify the Forsyth Department of Transportation's Operations and Maintenance Division for approval. This shall be coordinated with the project engineer.

Any fence and/or gate within the construction limits shall be replaced in like kind and reset to its original location. All other related costs for its construction, are to be included in the total cost for grading complete.

Soil test shall be conducted to identify and to implement site-specific fertilizer needs.



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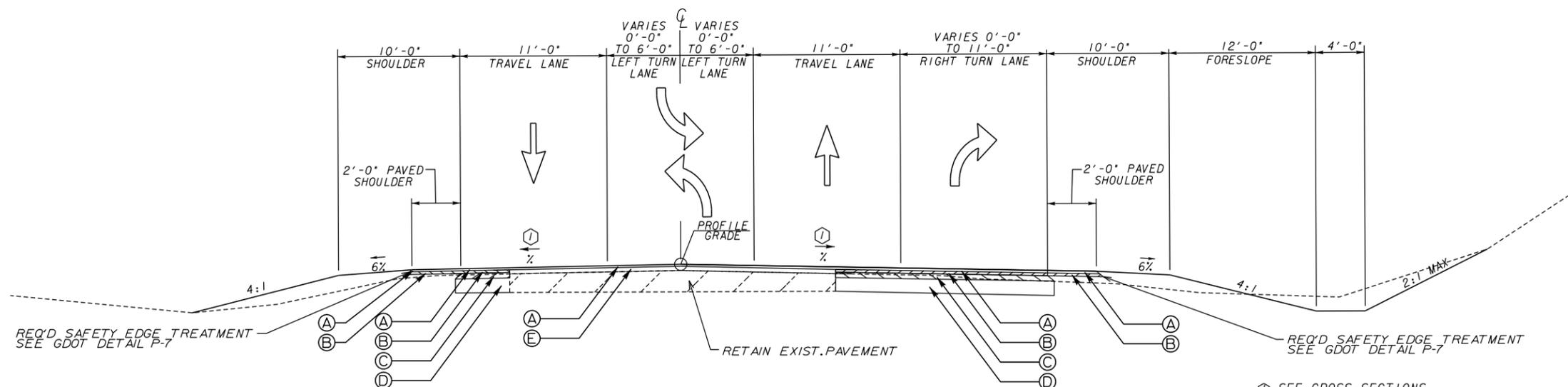
REVISION DATES

NO.	DATE	DESCRIPTION

GENERAL NOTES

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	04-001
CORRECTED:	DATE:	
VERIFIED:	DATE:	

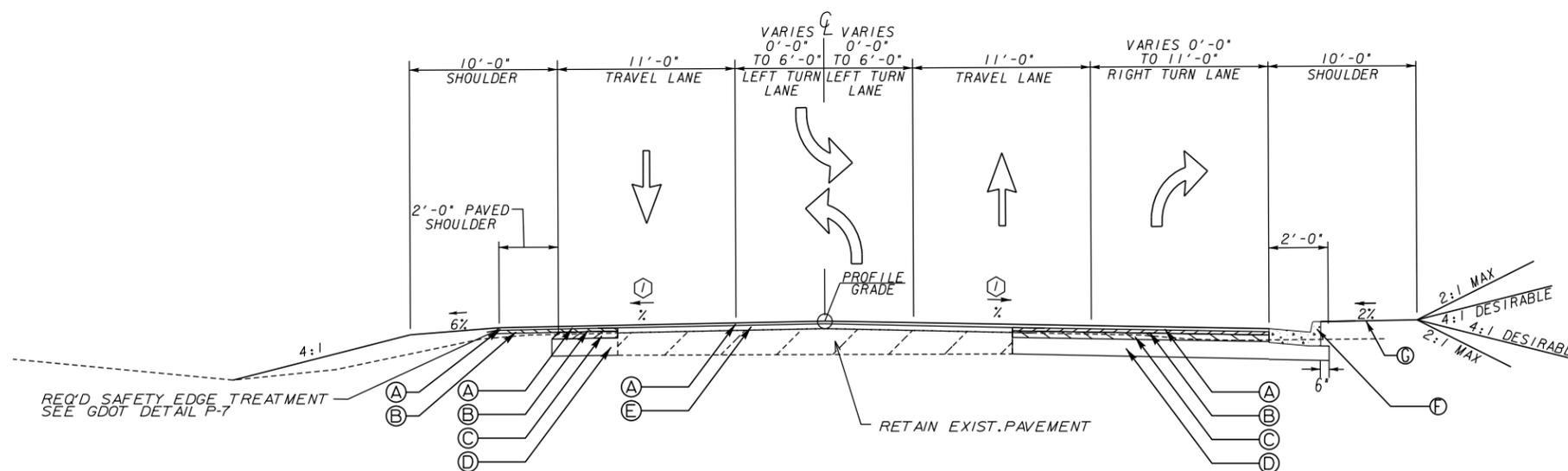


TS-01 MAINLINE SECTION

CROSS ROADS ROAD
 STA. 11+90.00 TO STA. 12+90.00
 STA. 13+83.68 TO STA. 19+18.13
 STA. 19+61.31 TO STA. 22+44.01
 STA. 25+20.72 TO STA. 29+30.00

SEE CROSS-SECTIONS FOR SUPERELEVATIONS

- (A) RECYCLED ASPH. CONC. 12.5 MM SUPERPAVE - (165 LB/SY)
- (B) RECYCLED ASPH. CONC. 19 MM SUPERPAVE - (220 LB/SY)
- (C) RECYCLED ASPH. CONC. 25 MM SUPERPAVE - (440 LB/SY)
- (D) GRADED AGGREGATE BASE COURSE, 10 INCH, INCL MATL
- (E) RECYCLED ASPH. CONC. LEVELING, INCL. BITUM MATL, AS REQUIRED
- (F) CONC CURB & GUTTER, 6 IN X 24 IN, TP 2
- (G) SODDING



TS-02 MAINLINE SECTION

CROSS ROADS ROAD
 STA. 12+90.00 TO STA. 13+83.68
 STA. 19+18.13 TO STA. 19+61.31
 STA. 22+44.01 TO STA. 25+20.72

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NOT TO SCALE

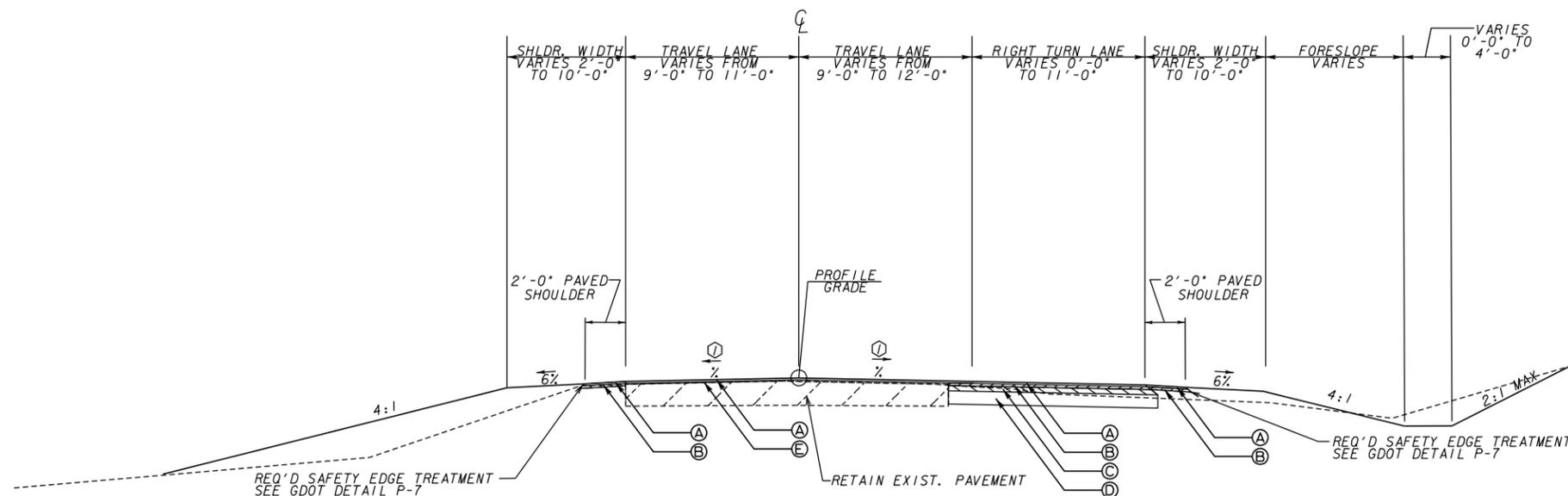
REVISION DATES

NO.	DATE	DESCRIPTION

TYPICAL SECTIONS

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	05-001
CORRECTED:	DATE:	
VERIFIED:	DATE:	



TS-03 SIDEROAD SECTION
 BENNETT ROAD
 STA. 48+70.00 TO STA. 49+73.00
 SANDY COURT
 STA. 60+17.00 TO STA. 60+95.48

Ⓛ SEE CROSS-SECTIONS FOR SUPERELEVATIONS

- Ⓛ RECYCLED ASPH. CONC. 12.5 MM SUPERPAVE - (165 LB/SY)
- Ⓜ RECYCLED ASPH. CONC. 19 MM SUPERPAVE - (220 LB/SY)
- Ⓨ RECYCLED ASPH. CONC. 25 MM SUPERPAVE - (440 LB/SY)
- Ⓩ GRADED AGGREGATE BASE COURSE, 10 INCH, INCL MATL
- ⓐ RECYCLED ASPH. CONC. LEVELING, INCL. BITUM MATL, AS REQUIRED
- ⓑ CONC CURB & GUTTER, 6 IN X 24 IN, TP 2
- ⓒ SODDING

ALLOWABLE RANGES TABLE

FOR THIS PROJECT, CROSS SLOPES THAT ARE ADJUSTED TO 'BEST FIT' EXISTING PAVEMENT SLOPES ARE SUBJECT TO THE FOLLOWING LIMITS:

A. NORMAL CROWN

SECTION WITH GRADES 0.5% OR GREATER	SECTION WITH GRADES LESS THAN 0.5%
0.0150 FT/FT - MINIMUM	0.0156 FT/FT - MINIMUM
0.0208 FT/FT - DESIRABLE	0.0208 FT/FT - DESIRABLE
0.0250 FT/FT - MAXIMUM	0.0300 FT/FT - MAXIMUM

B. SUPERELEVATION RATE

S.E. RATE SHOWN ON PLANS OR SE RATE EXISTING IN FIELD, WHICHEVER IS GREATER.

C. SUPERELEVATION TRANSITION LENGTH (LENGTH FROM FLAT POINT TO FULL SE)

RATE OF CHANGE	CORRESPONDING DIFFERENCE IN GRADE BETWEEN PIVOT POINT AND EDGE OF PAVEMENT
MINIMUM 1:150	0.67%
DESIRABLE 1:200	0.50%
MAXIMUM 1:300	0.33%

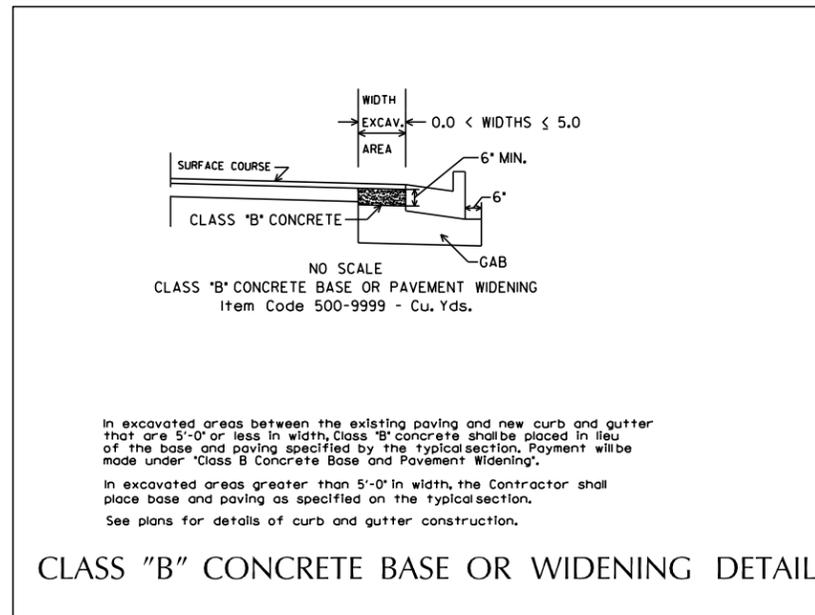
LENGTH SHALL BE SET TO AVOID CREATING A FLAT GUTTER GRADE ON LOW SIDE AND TO AVOID FLAT CROSS SLOPES AT OR NEAR THE LOW POINT OF VERTICAL CURVES.

D. POSITIONING OF SUPERELEVATION TRANSITION LENGTH ON SIMPLE CURVES

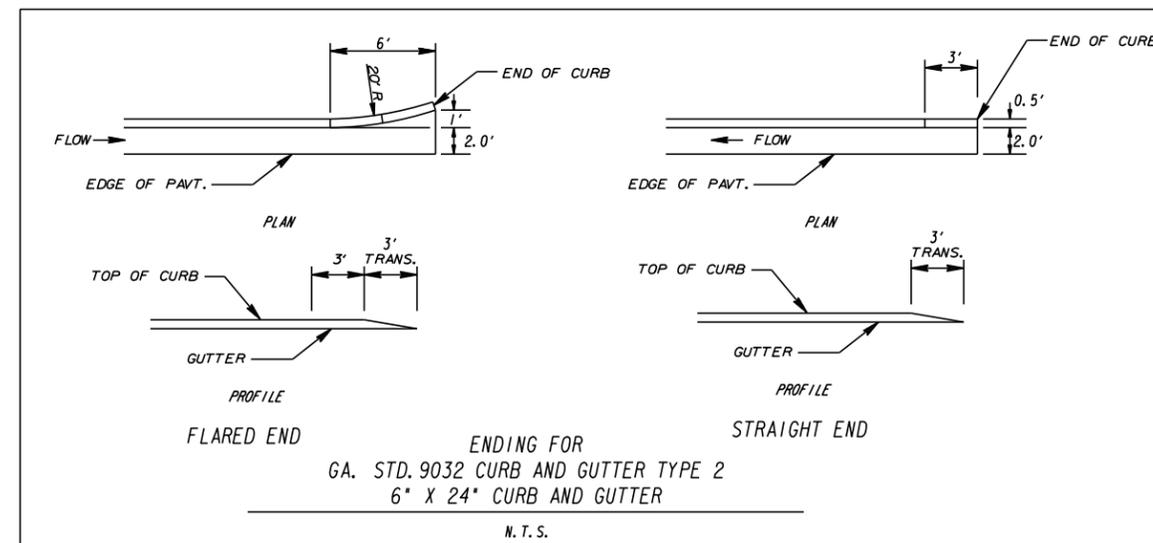
- 50% OF TRANSITION INSIDE CURVE - MAXIMUM
- 33% OF TRANSITION INSIDE CURVE - DESIRABLE
- 20% OF TRANSITION INSIDE CURVE - MINIMUM

NOTE: CROWN WIPE-OUT SHALL BE AT THE SAME RATE AS THE SE TRANSITION.

E. SMOOTHING OF BREAKS IN EDGE PROFILE AT BEGIN AND END OF TRANSITION SHALL BE ACCOMPLISHED BY VERTICAL CURVE WITH A MINIMUM LENGTH (IN FEET) EQUAL TO THE SPEED DESIGN (IN MPH).



CLASS "B" CONCRETE BASE OR WIDENING DETAIL



ENDING FOR
 GA. STD. 9032 CURB AND GUTTER TYPE 2
 6" X 24" CURB AND GUTTER

N. T. S.

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PROFESSIONAL ENGINEERING

NOT TO SCALE

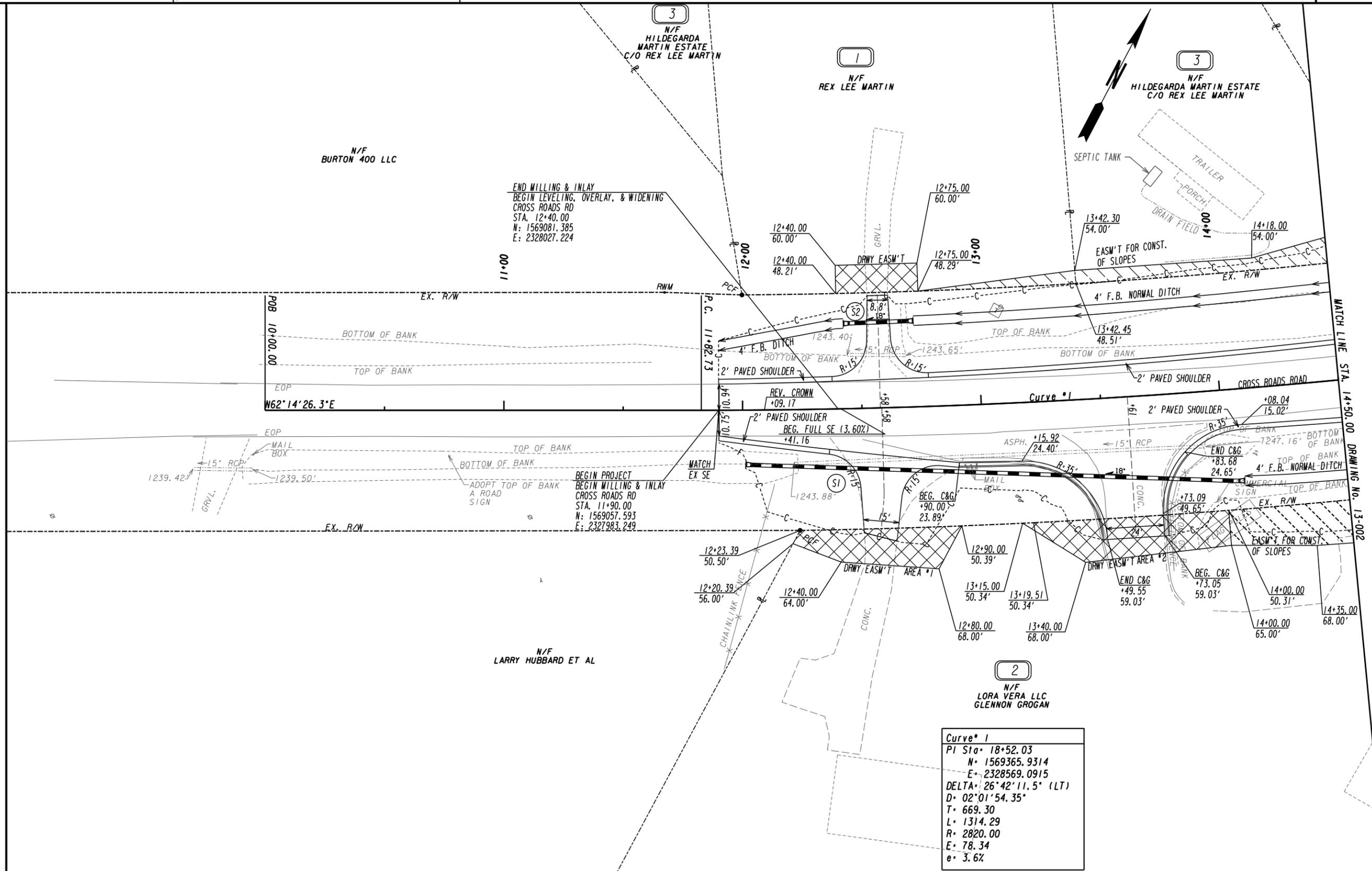
REVISION DATES

NO.	DATE	DESCRIPTION

TYPICAL SECTIONS

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	05-002
CORRECTED:	DATE:	
VERIFIED:	DATE:	



Curve # 1

PI Sta	18+52.03
N	1569365.9314
E	2328569.0915
DELTA	26°42'11.5" (LT)
D	02°01'54.35"
T	669.30
L	1314.29
R	2820.00
E	78.34
e	3.6%

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

-----e-----
 ---C---F---
 [Hatched Box]
 [Hatched Box]
 [Hatched Box]

BEGIN LIMIT OF ACCESS.....BLA
 END LIMIT OF ACCESS.....ELA
 LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS
 ORANGE BARRIER FENCE
 ESA - ENV. SENSITIVE AREA
 (SEE ERIT TABLE)

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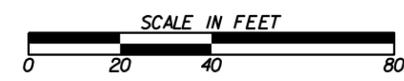
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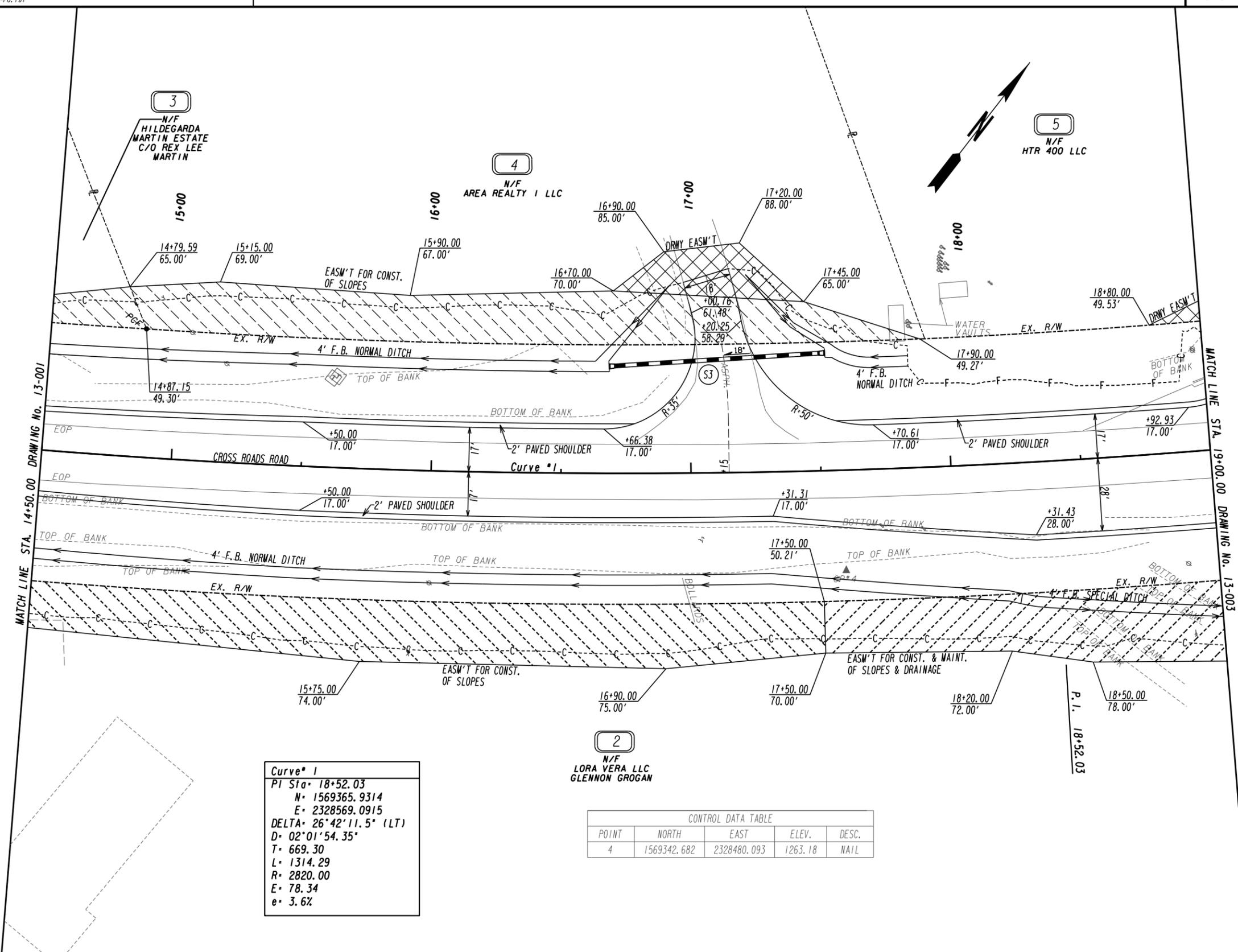
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CONSTRUCTION PLAN		
CROSS ROADS ROAD AT BENNETT ROAD		
CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	13-001
CORRECTED:	DATE:	
VERIFIED:	DATE:	



Curve # 1

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N	1569365.9314
E	2328569.0915
DELTA	26°42'11.5" (LT)
D	02°01'54.35"
T	669.30
L	1314.29
R	2820.00
E	78.34
e	3.6%

2
N/F
LORA VERA LLC
GLENNON GROGAN

CONTROL DATA TABLE

POINT	NORTH	EAST	ELEV.	DESC.
4	1569342.682	2328480.093	1263.18	NAIL

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR
& MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

---e--- BEGIN LIMIT OF ACCESS.....BLA
---f--- END LIMIT OF ACCESS.....ELA
---C---F--- LIMIT OF ACCESS
ORANGE BARRIER FENCE
ESA - ENV. SENSITIVE AREA
(SEE ERIT TABLE)

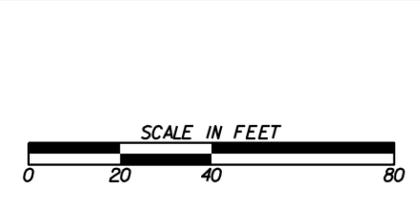
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REVISION DATES

NO.	DATE	DESCRIPTION

CONSTRUCTION PLAN

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No. 13-002
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	

CONTROL DATA TABLE				
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HTR 400 LLC

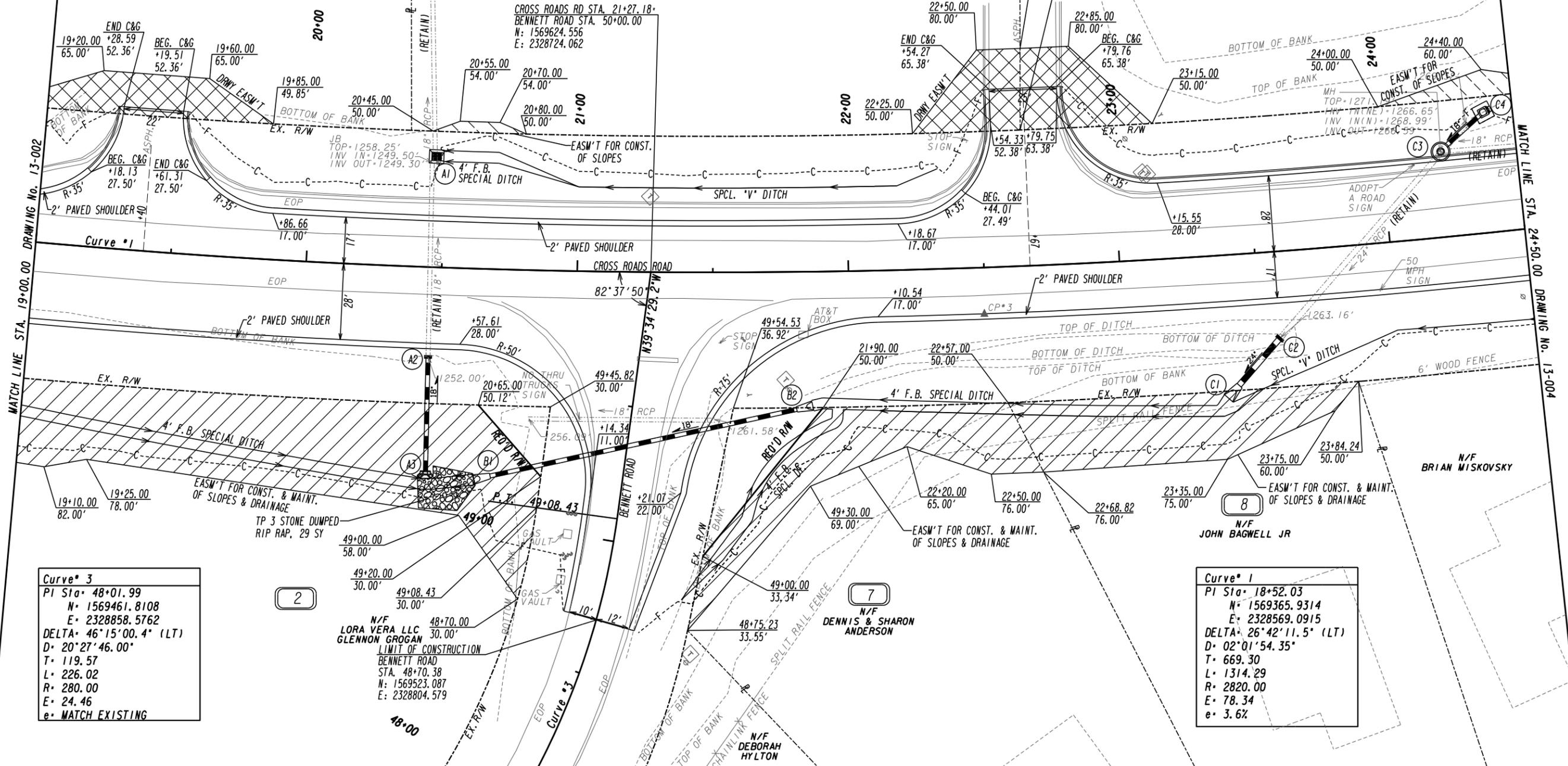
6
N/F
HTR 400 LLC

5
N/F
HTR 400 LLC

8
N/F
JOHN BAGWELL JR

7
N/F
DENNIS & SHARON
ANDERSON

N/F
LORA VERA LLC
GLENNON GROGAN
LIMIT OF CONSTRUCTION
BENNETT ROAD
STA. 48+70.38
N: 1569523.087
E: 2328804.579



MATCH LINE STA. 19+00.00 DRAWING No. 13-002

MATCH LINE STA. 24+50.00 DRAWING No. 13-004

Curve # 3
 PI Sta= 48+01.99
 N= 1569461.8108
 E= 2328858.5762
 DELTA= 46°15'00.4" (LT)
 D= 20°27'46.00"
 T= 119.57
 L= 226.02
 R= 280.00
 E= 24.46
 e= MATCH EXISTING

Curve # 1
 PI Sta= 18+52.03
 N= 1569365.9314
 E= 2328569.0915
 DELTA= 26°42'11.5" (LT)
 D= 02°01'54.35"
 T= 669.30
 L= 1314.29
 R= 2820.00
 E= 78.34
 e= 3.6%

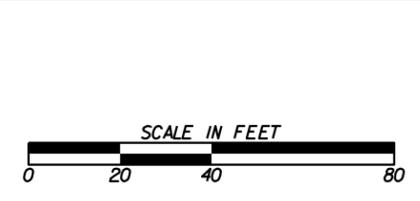
PROPERTY AND EXISTING R/W LINE	---
REQUIRED R/W LINE	---
CONSTRUCTION LIMITS	---
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	---/---
EASEMENT FOR CONSTR OF SLOPES	---/---
EASEMENT FOR CONSTR OF DRIVES	---/---

BEGIN LIMIT OF ACCESS.....BLA	---o---o---
END LIMIT OF ACCESS.....ELA	---o---o---
LIMIT OF ACCESS	---o---o---
REQ'D R/W & LIMIT OF ACCESS	---o---o---
ORANGE BARRIER FENCE	---o---o---
ESA - ENV. SENSITIVE AREA (SEE ERIT TABLE)	---o---o---

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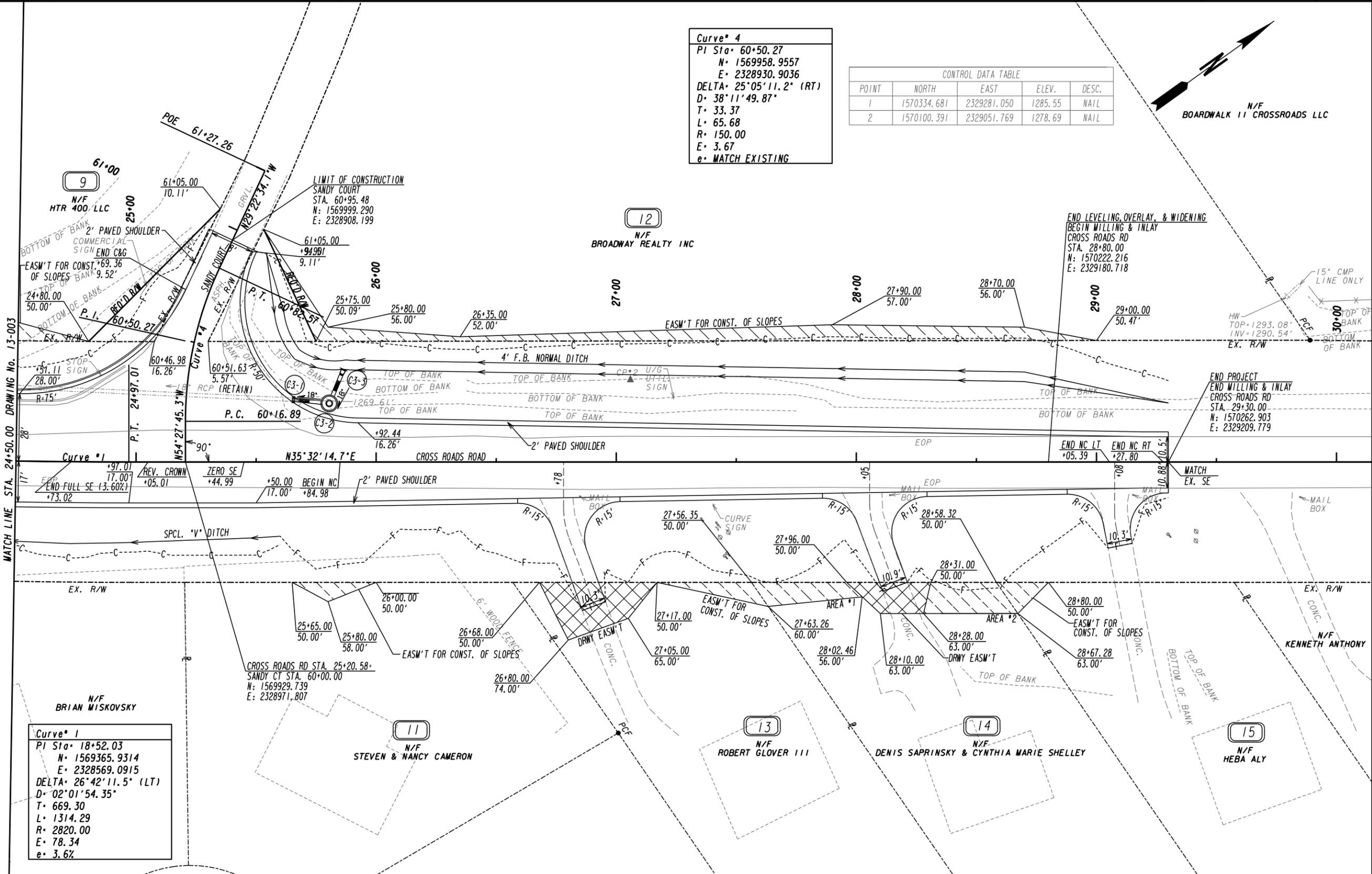
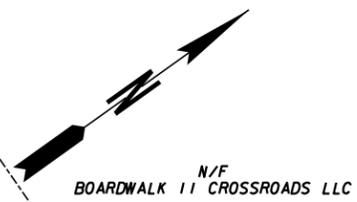
REVISION DATES	

CONSTRUCTION PLAN			
CROSS ROADS ROAD AT BENNETT ROAD			
CHECKED:	DATE:	DRAWING No.	
BACKCHECKED:	DATE:	13-003	
CORRECTED:	DATE:		
VERIFIED:	DATE:		

Curve # 4
 PI Sta: 60+50.27
 N: 1569958.9557
 E: 2328930.9036
 DELTA: 25°05'11.2" (RT)
 D: 38°11'49.87"
 T: 33.37
 L: 65.68
 R: 150.00
 E: 3.67
 e: MATCH EXISTING

CONTROL DATA TABLE

POINT	NORTH	EAST	ELEV.	DESC.
1	1570334.681	2329281.050	1285.55	MAIL
2	1570100.391	2329051.769	1278.69	MAIL



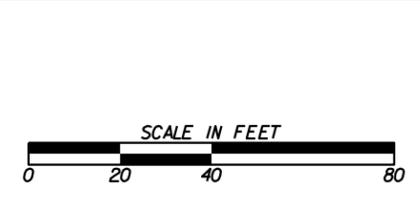
Curve # 1
 PI Sta: 18+52.03
 N: 1569365.9314
 E: 2328569.0915
 DELTA: 26°42'11.5" (LT)
 D: 02°01'54.35"
 T: 669.30
 L: 1314.29
 R: 2820.00
 E: 78.34
 e: 3.6%

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
 END LIMIT OF ACCESS.....ELA
 LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS
 ORANGE BARRIER FENCE
 ESA - ENV. SENSITIVE AREA
 (SEE ERIT TABLE)

PLANS PREPARED AND SUBMITTED BY:

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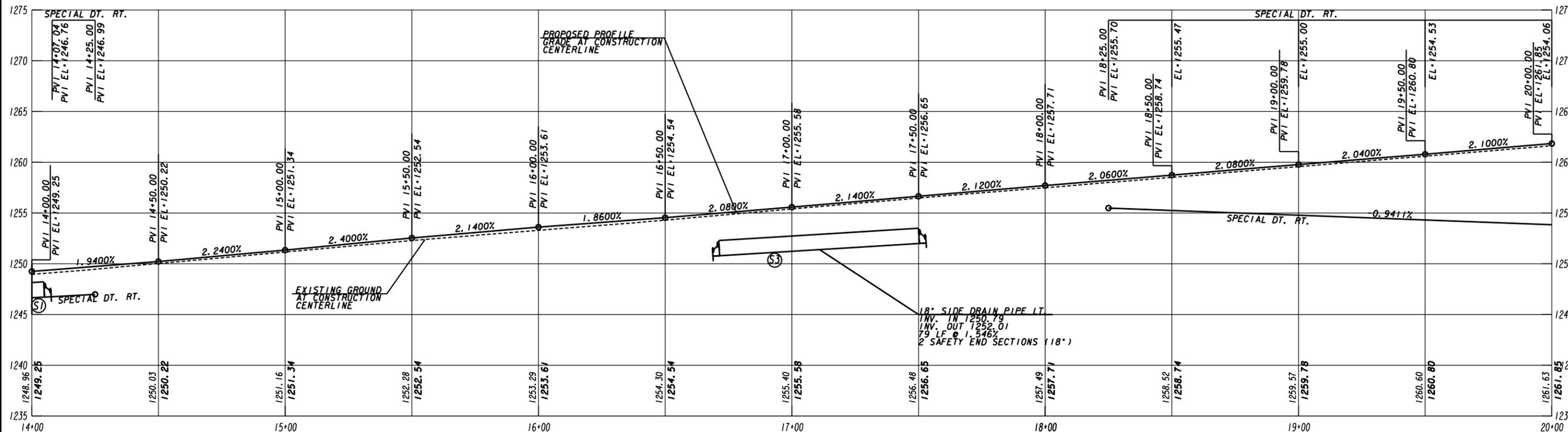
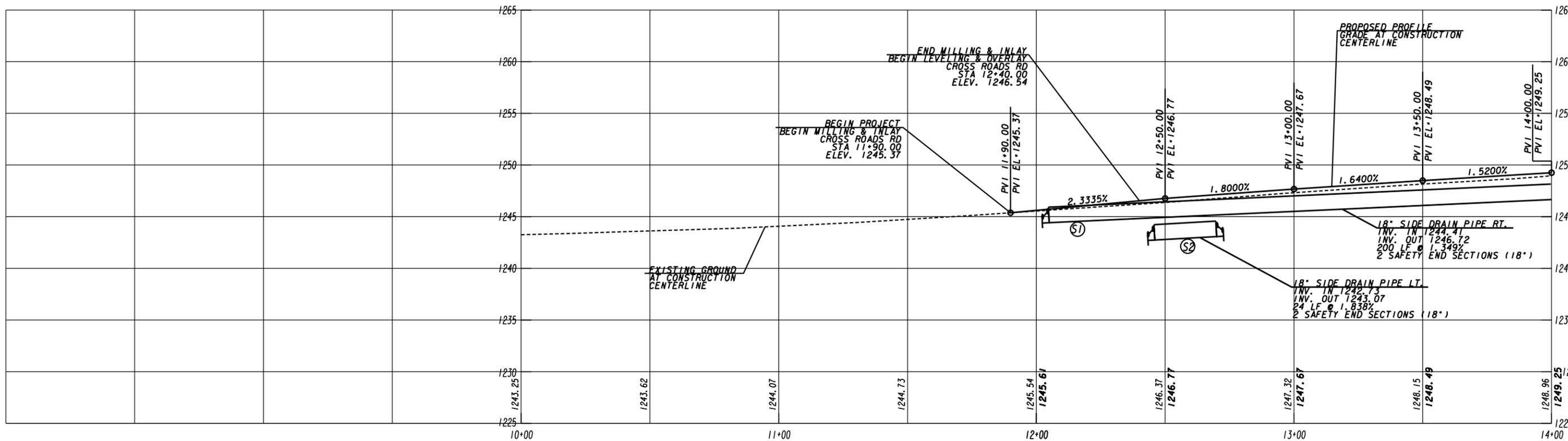


REVISION DATES

NO.	DATE	DESCRIPTION

CONSTRUCTION PLAN
 CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	13-004
CORRECTED:	DATE:	
VERIFIED:	DATE:	



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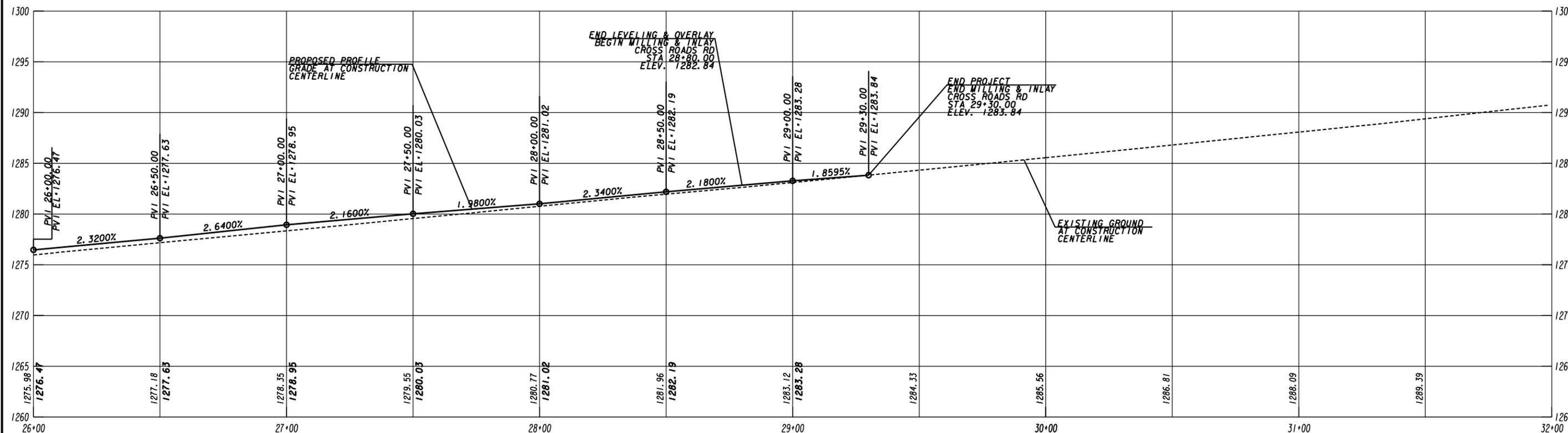
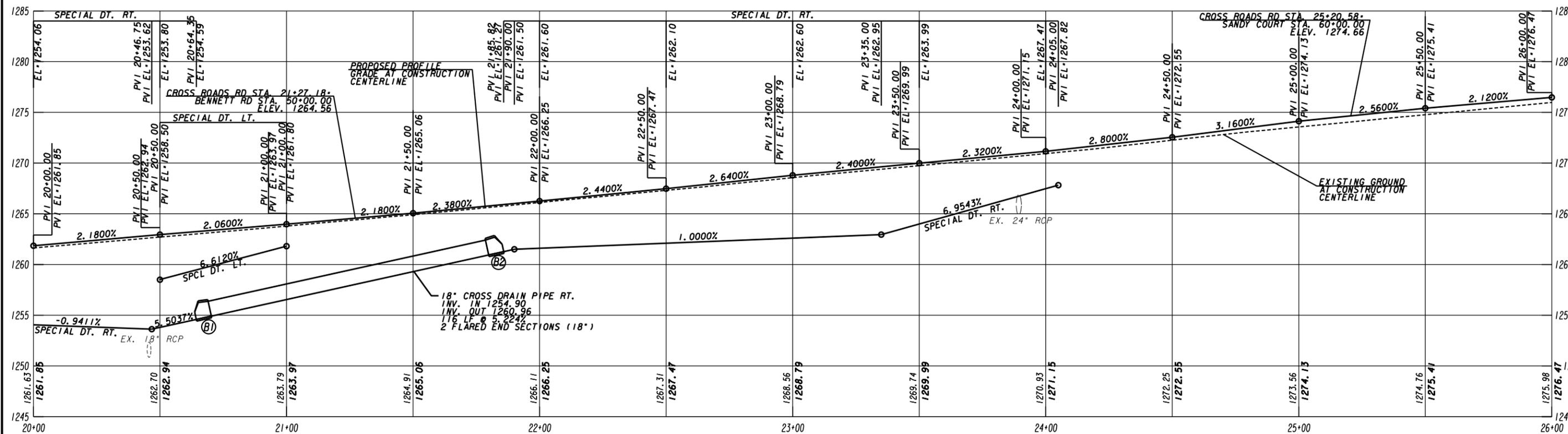
1" = 20' HORIZONTAL
1" = 5' VERTICAL

REVISION DATES

MAINLINE PROFILE

CROSS ROADS ROAD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	15-001
CORRECTED:	DATE:	
VERIFIED:	DATE:	



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1" = 20' HORIZONTAL
 1" = 5' VERTICAL

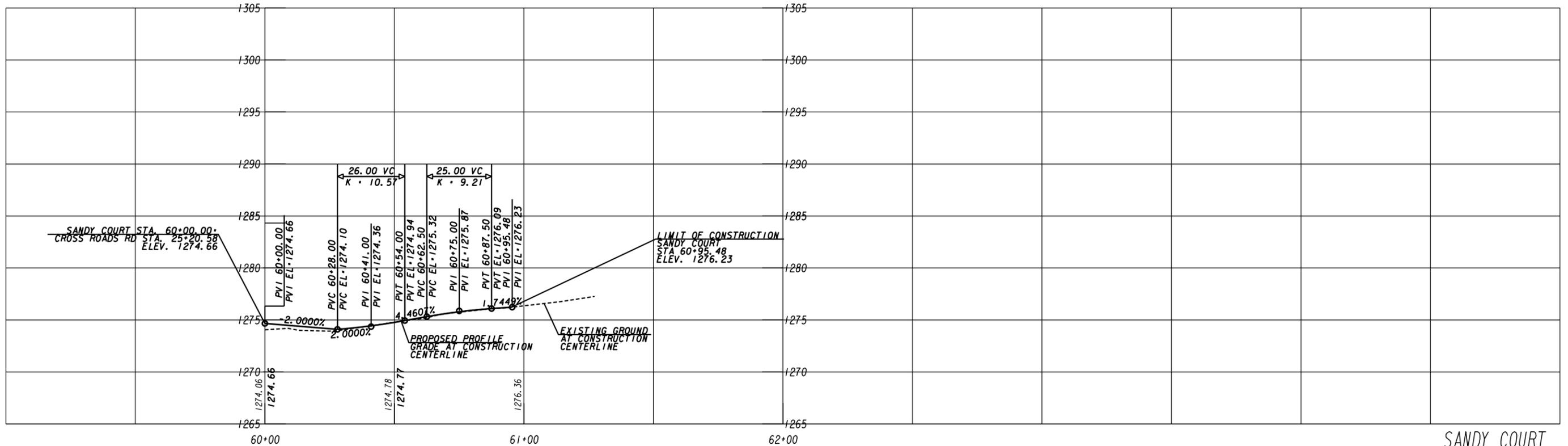
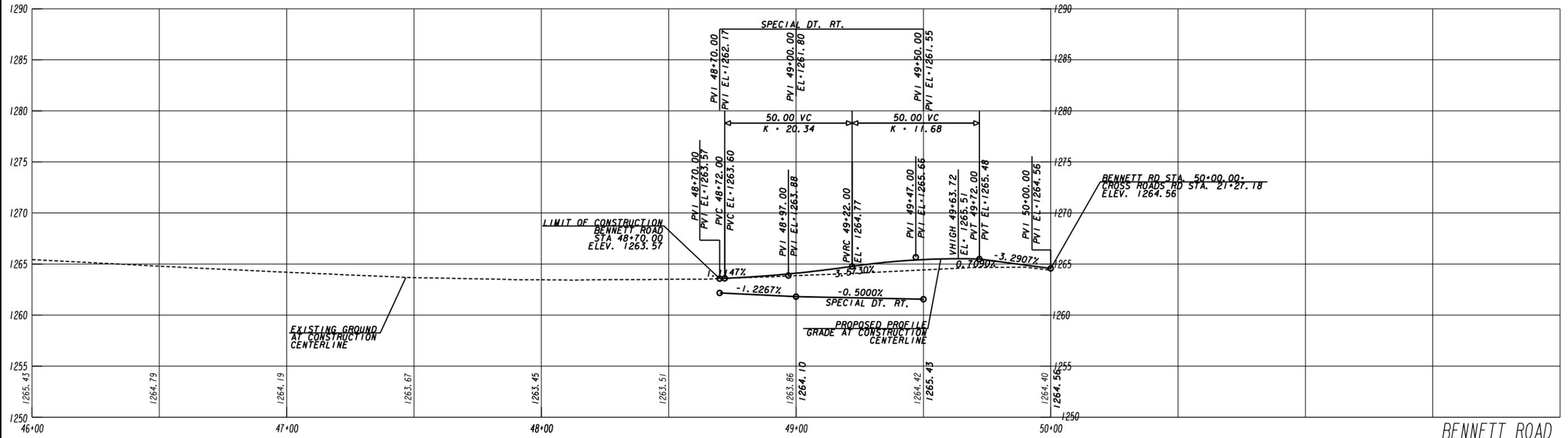
REVISION DATES

NO.	DATE	DESCRIPTION

MAINLINE PROFILE

CROSS ROADS ROAD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	15-002
CORRECTED:	DATE:	
VERIFIED:	DATE:	



PLANS PREPARED AND SUBMITTED BY:

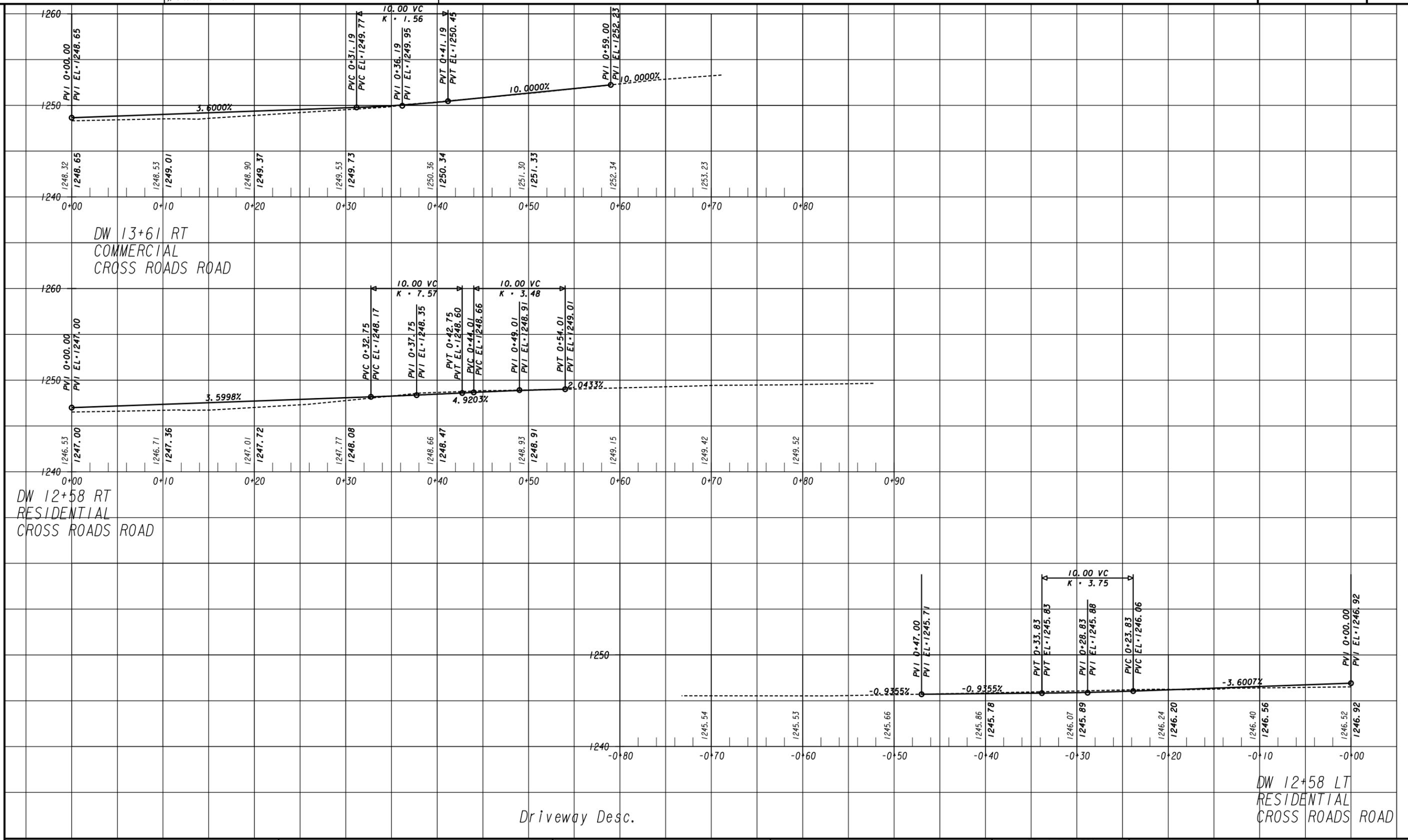
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1" = 20' HORIZONTAL
1" = 5' VERTICAL

REVISION DATES		CROSSROAD PROFILE	
		BENNETT ROAD	
		SANDY COURT	
CHECKED:		DATE:	DRAWING No.
BACKCHECKED:		DATE:	16-001
CORRECTED:		DATE:	
VERIFIED:		DATE:	



Driveway Desc.

DW 12+58 LT
RESIDENTIAL
CROSS ROADS ROAD

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 (502) 245-3883



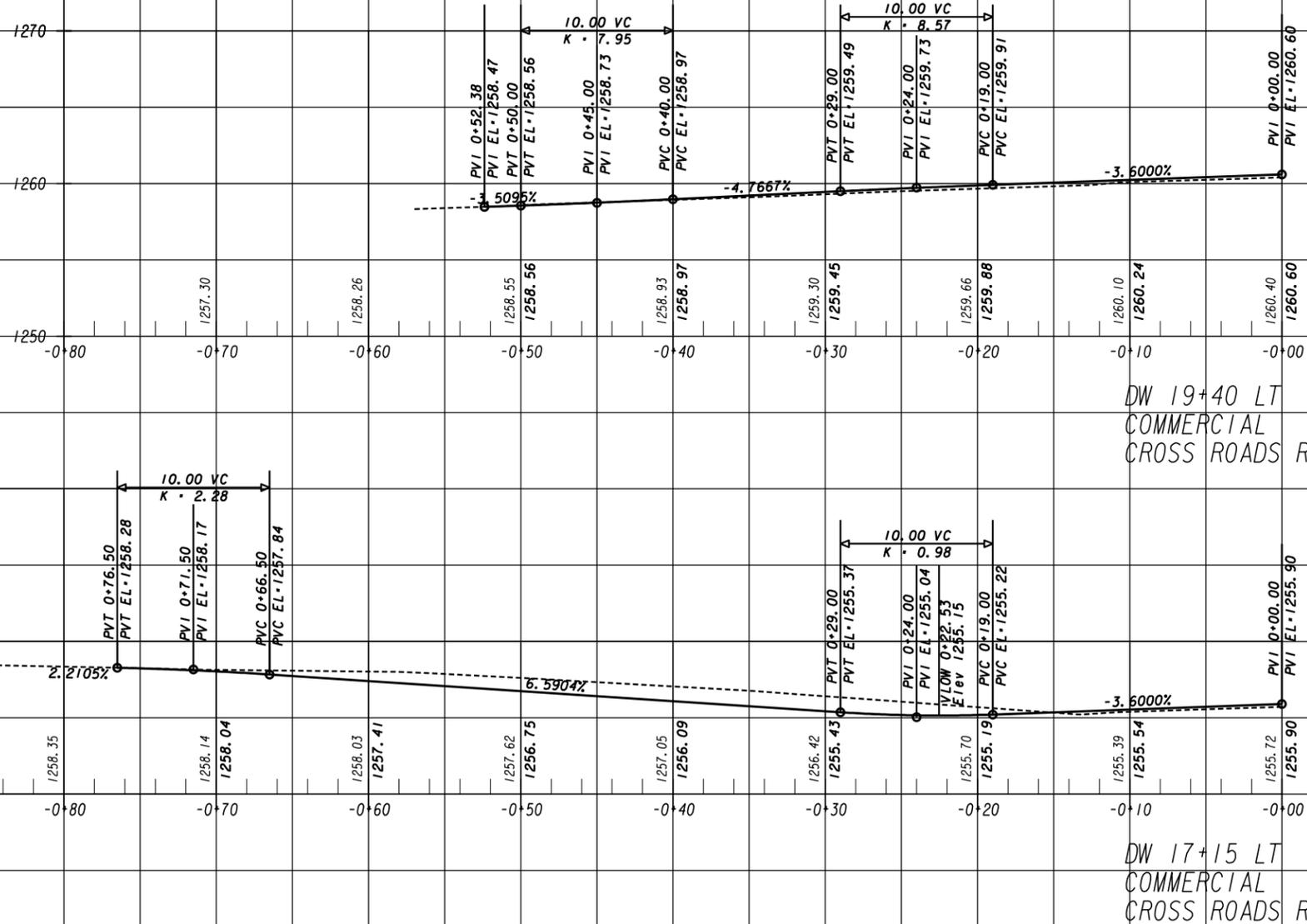
REVISION DATES

NO.	DATE	DESCRIPTION

DRIVEWAY PROFILES

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	17-001
CORRECTED:	DATE:	
VERIFIED:	DATE:	



DW 19+40 LT
COMMERCIAL
CROSS ROADS ROAD

DW 17+15 LT
COMMERCIAL
CROSS ROADS ROAD

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 (502) 245-3883

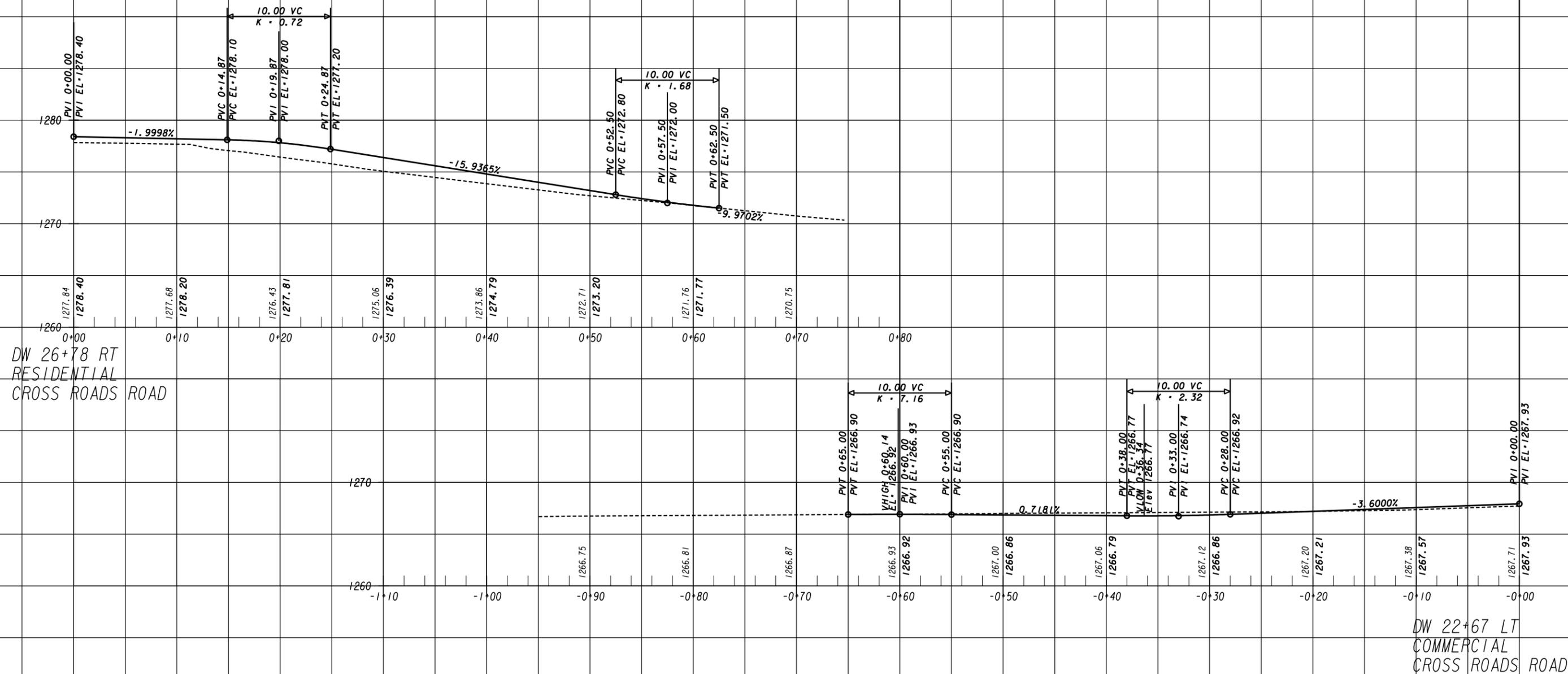


REVISION DATES

DRIVEWAY PROFILES

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:		DATE:		DRAWING No.
BACKCHECKED:		DATE:		17-002
CORRECTED:		DATE:		
VERIFIED:		DATE:		



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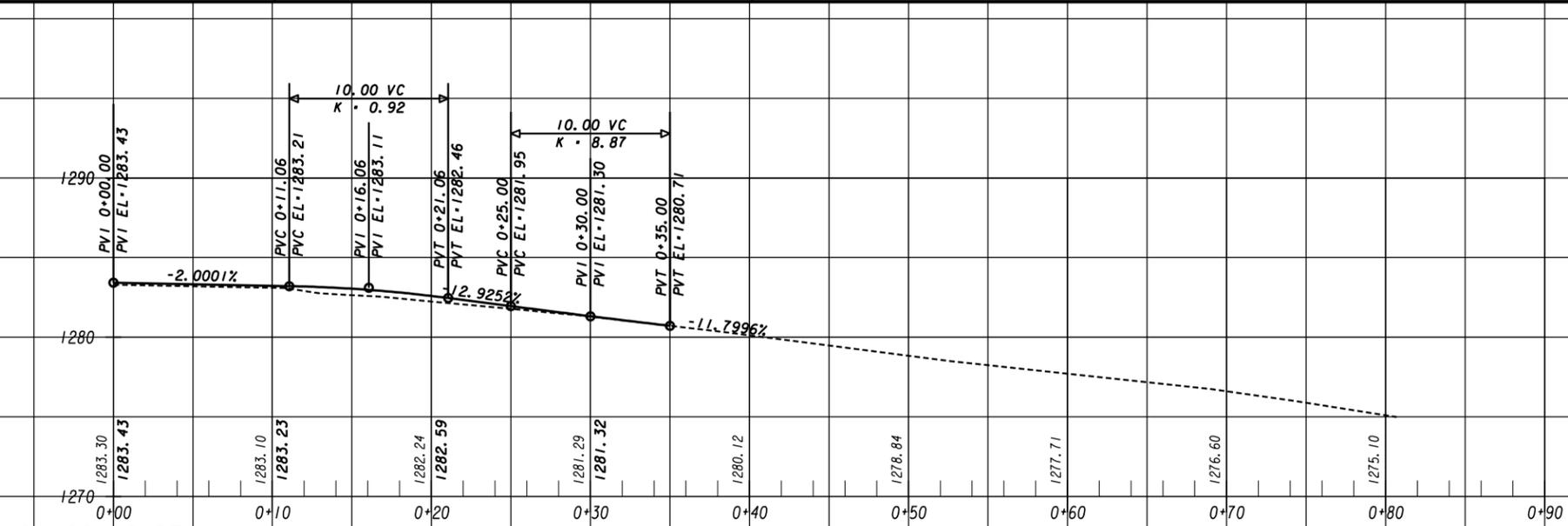
1690 Roberts Boulevard, Suite 109
Kennesaw, GA 30144
(770) 421-8422

2500 Nelson Miller Parkway
Louisville, KY 40223
(502) 245-3883

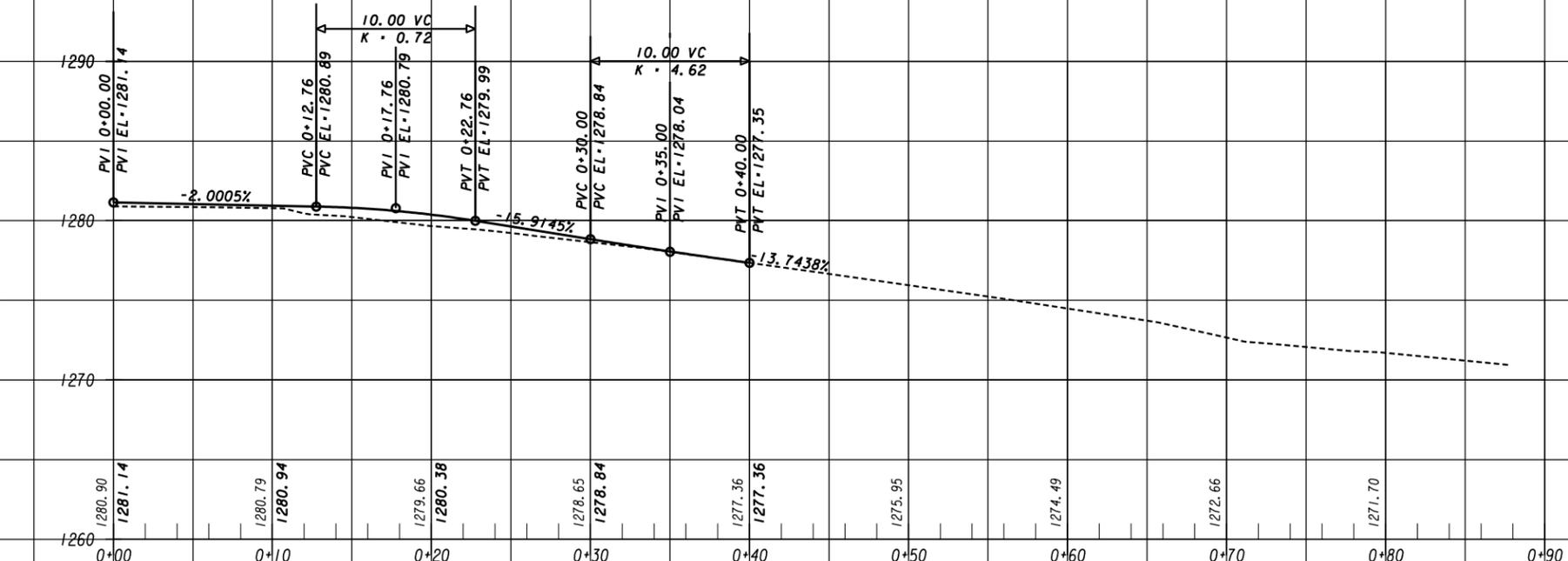


REVISION DATES

DRIVEWAY PROFILES	
CROSS ROADS ROAD AT BENNETT ROAD	
CHECKED:	DATE:
BACKCHECKED:	DATE:
CORRECTED:	DATE:
VERIFIED:	DATE:
DRAWING No.	
17-003	



DW 29+08 RT
RESIDENTIAL
CROSS ROADS ROAD



DW 28+05 RT
RESIDENTIAL
CROSS ROADS ROAD

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 2500 Nelson Miller Parkway
 Louisville, KY 40223
 (502) 245-3883



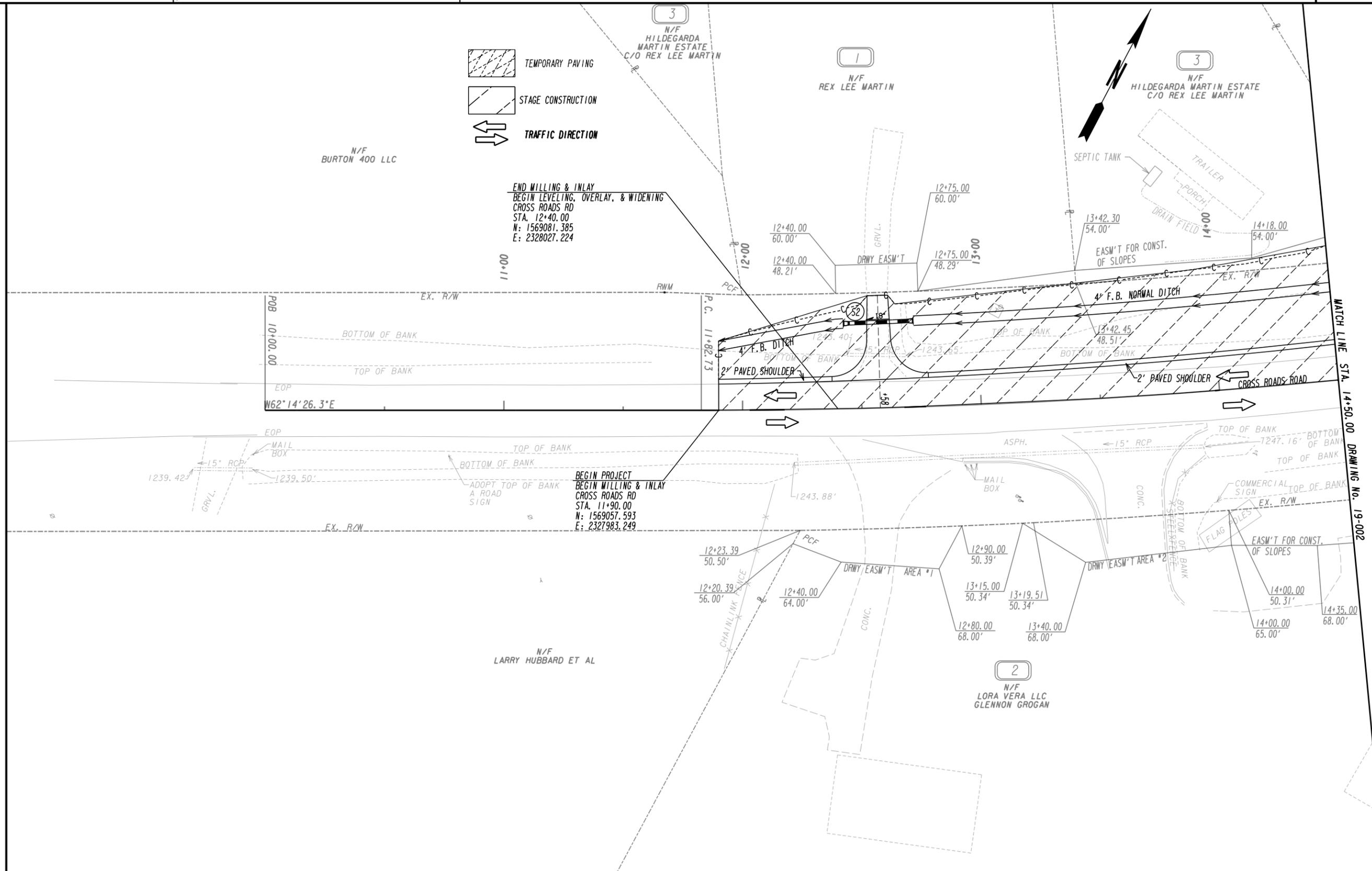
REVISION DATES

NO.	DATE	DESCRIPTION

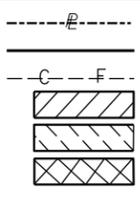
DRIVEWAY PROFILES

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	17-004
CORRECTED:	DATE:	
VERIFIED:	DATE:	

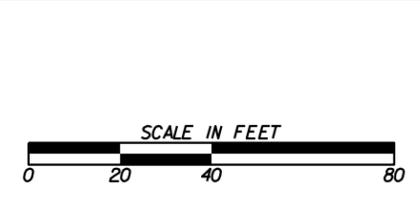


PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES



BEGIN LIMIT OF ACCESS.....BLA
 END LIMIT OF ACCESS.....ELA
 LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS
 ORANGE BARRIER FENCE
 ESA - ENV. SENSITIVE AREA
 (SEE ERIT TABLE)

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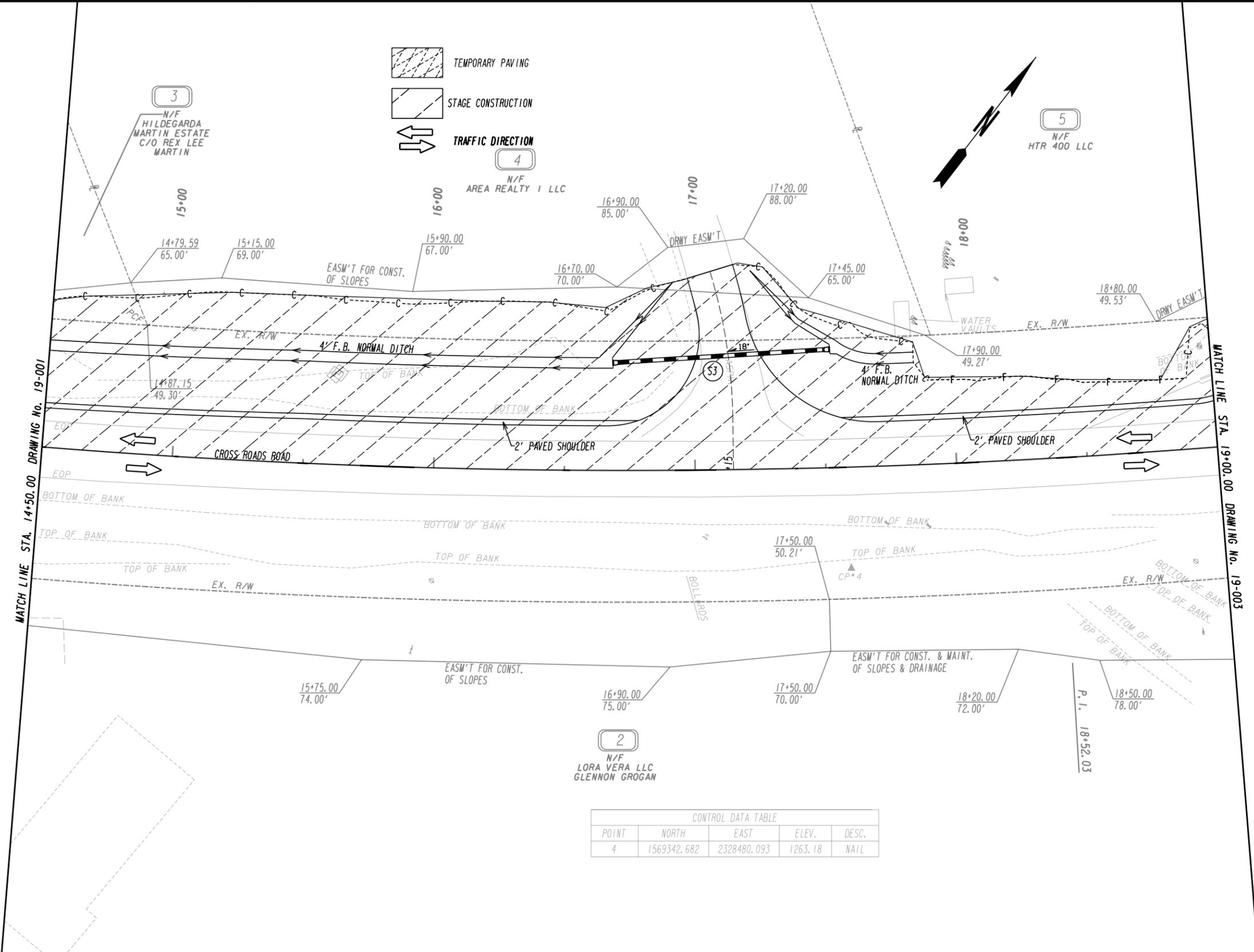


REVISION DATES	

**CONSTRUCTION PLAN
 STAGE I**

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No. 19-001
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	



CONTROL DATA TABLE

POINT	NORTH	EAST	ELEV.	DESC.
4	1569342.682	2328480.093	1263.18	NAIL

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

-----e-----
 ---C---F---
 [Hatched Box]
 [Hatched Box]
 [Hatched Box]

BEGIN LIMIT OF ACCESS.....BLA
 END LIMIT OF ACCESS.....ELA
 LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS
 ORANGE BARRIER FENCE
 ESA - ENV. SENSITIVE AREA
 (SEE ERIT TABLE)

PLANS PREPARED AND SUBMITTED BY:

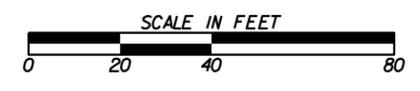
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REVISION DATES

NO.	DATE	DESCRIPTION

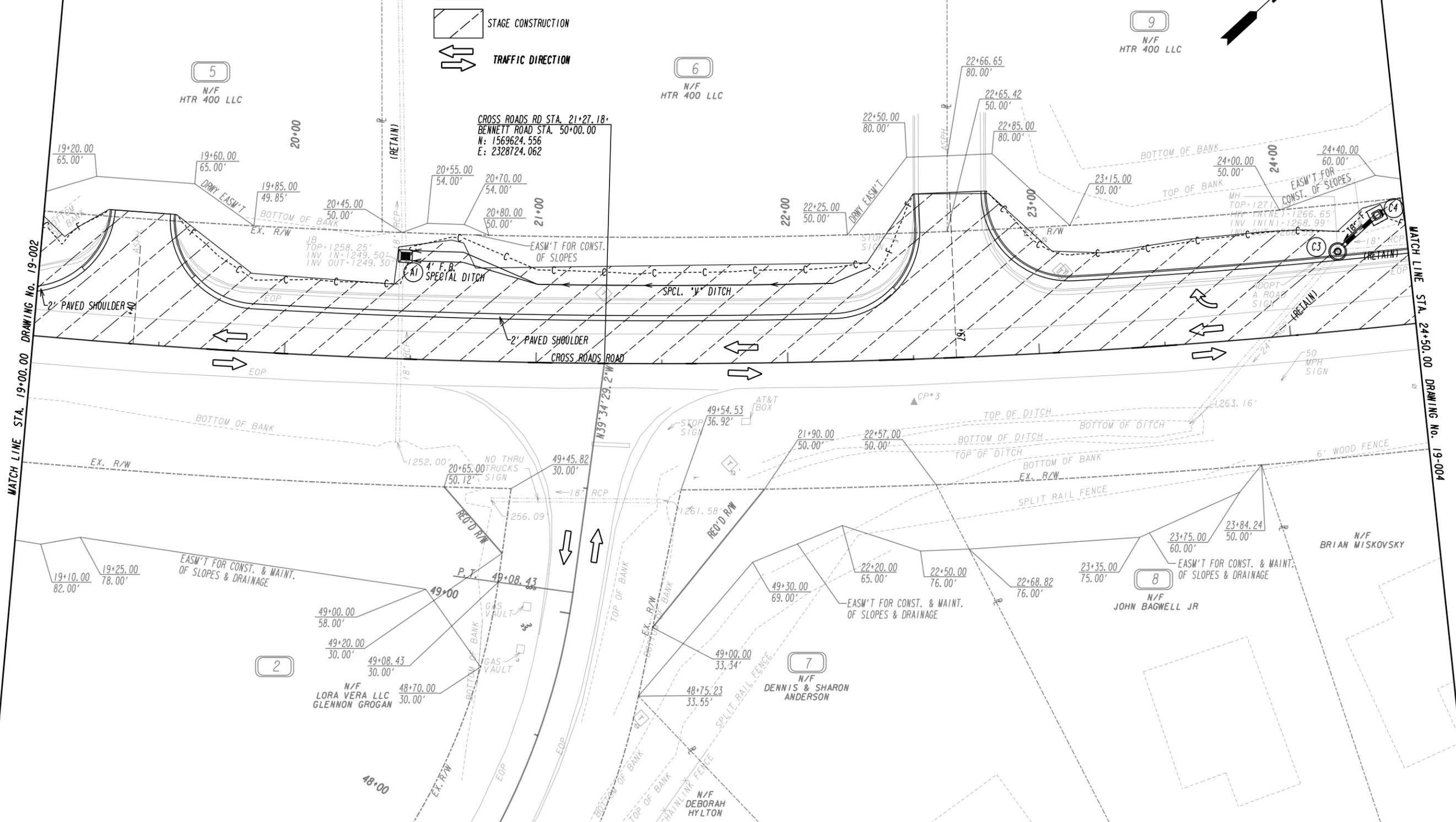
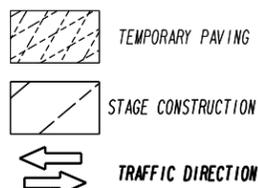
**CONSTRUCTION PLAN
 STAGE I**

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED: _____ DATE: _____
 BACKCHECKED: _____ DATE: _____
 CORRECTED: _____ DATE: _____
 VERIFIED: _____ DATE: _____

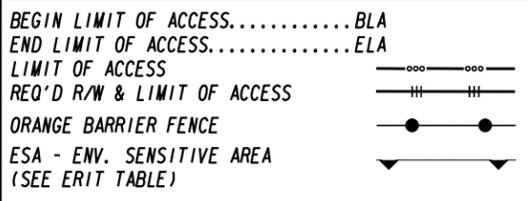
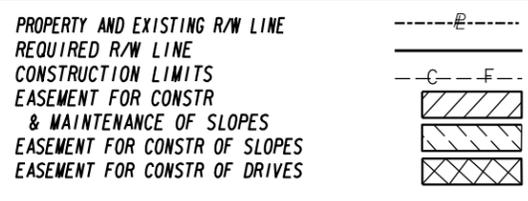
DRAWING No.
19-002

CONTROL DATA TABLE				
POINT	NORTH	EAST	ELEV.	DESC.
3	1569704.617	2328818.660	1266.94	NAIL



MATCH LINE STA. 19+00.00 DRAWING No. 19-002

MATCH LINE STA. 24+50.00 DRAWING No. 19-004



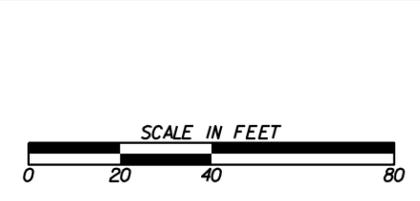
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2500 Nelson Miller Parkway, Louisville, KY 40223 (502) 245-3813



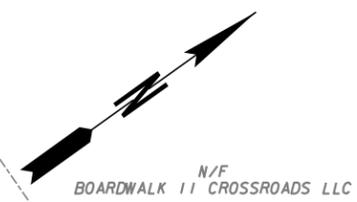
REVISION DATES	

**CONSTRUCTION PLAN
STAGE I**

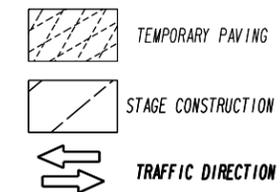
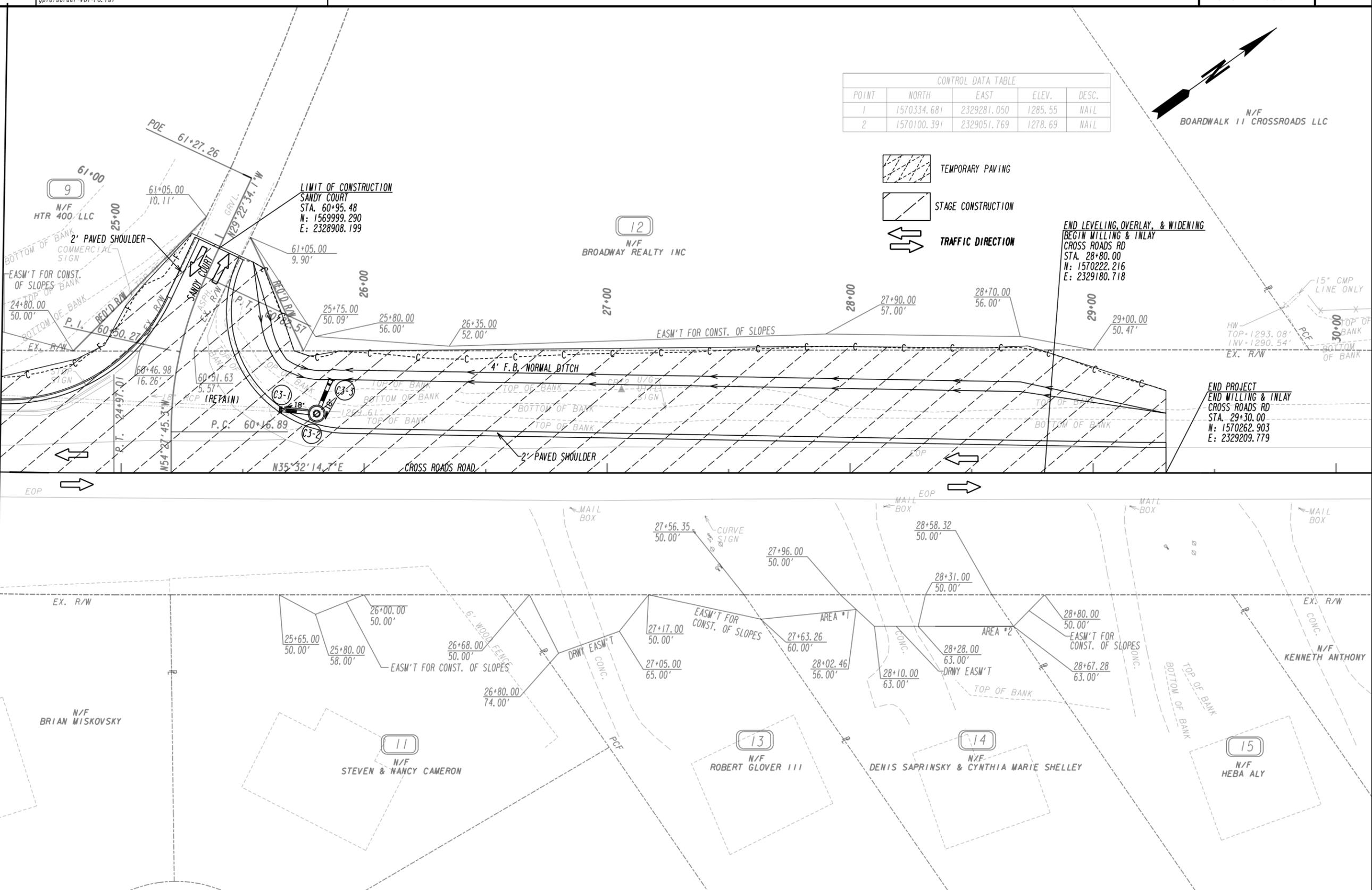
CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No. 19-003
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	

CONTROL DATA TABLE				
POINT	NORTH	EAST	ELEV.	DESC.
1	1570334.681	2329281.050	1285.55	NAIL
2	1570100.391	2329051.769	1278.69	NAIL



MATCH LINE STA. 24+50.00 DRAWING NO. 19-003



END LEVELING, OVERLAY, & WIDENING
 BEGIN MILLING & INLAY
 CROSS ROADS RD
 STA. 28+80.00
 N: 1570222.216
 E: 2329180.718

END PROJECT
 END MILLING & INLAY
 CROSS ROADS RD
 STA. 29+30.00
 N: 1570262.903
 E: 2329209.779

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

---e---
 ---C---F---
 [Hatched Box]
 [Diagonal Lines Box]
 [Cross-hatched Box]

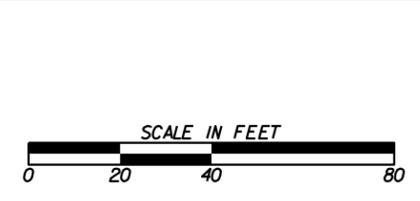
BEGIN LIMIT OF ACCESS.....BLA
 END LIMIT OF ACCESS.....ELA
 LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS
 ORANGE BARRIER FENCE
 ESA - ENV. SENSITIVE AREA
 (SEE ERIT TABLE)

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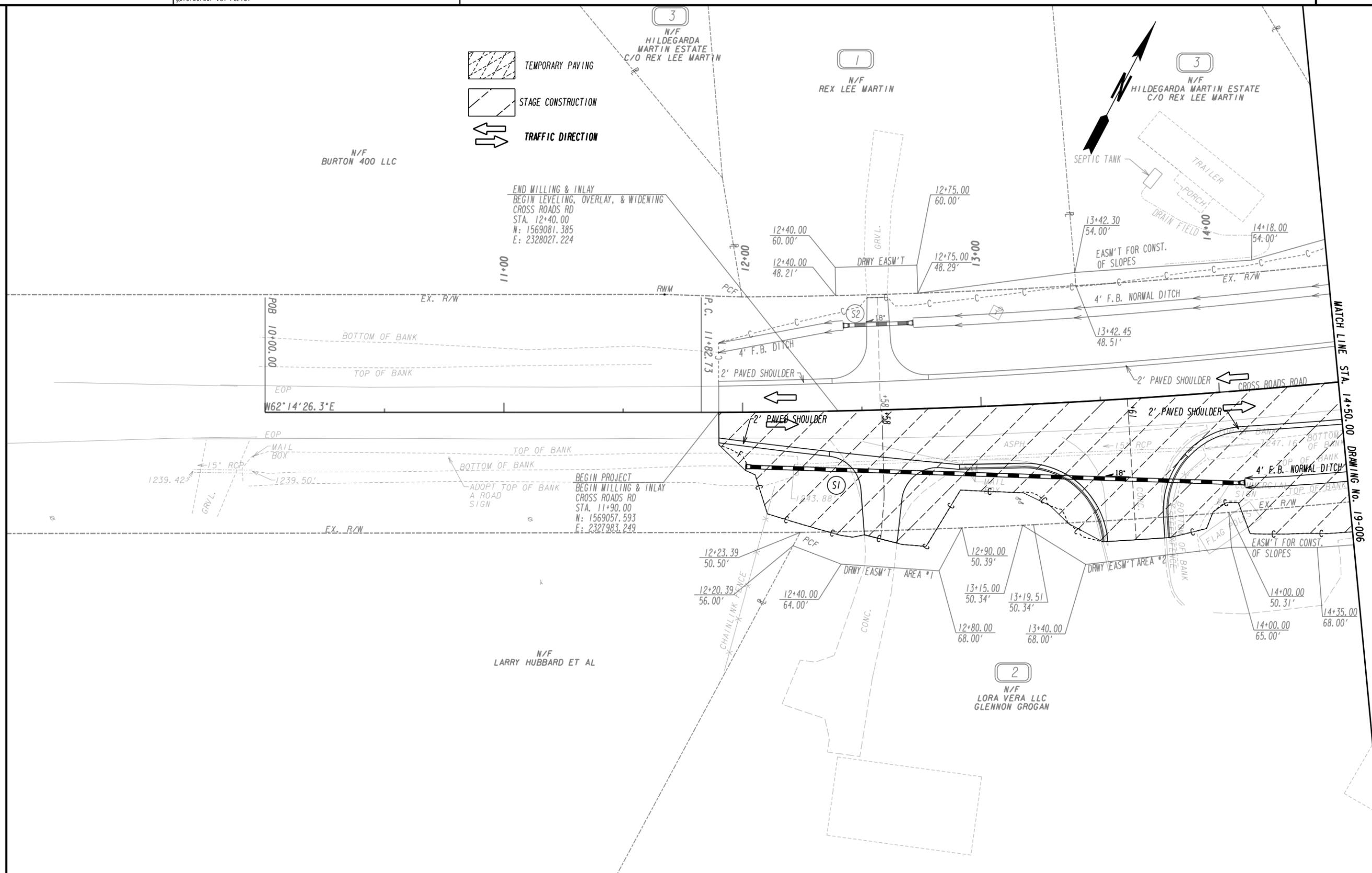


REVISION DATES	

**CONSTRUCTION PLAN
 STAGE I**

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No. 19-004
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	



PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

-----e-----
 ---C---F---
 [Hatched Box]
 [Hatched Box]
 [Hatched Box]

BEGIN LIMIT OF ACCESS.....BLA
 END LIMIT OF ACCESS.....ELA
 LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS
 ORANGE BARRIER FENCE
 ESA - ENV. SENSITIVE AREA
 (SEE ERIT TABLE)

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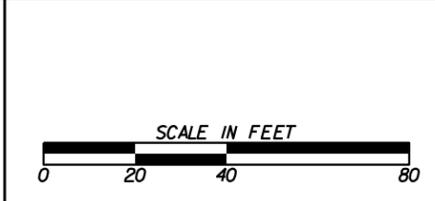
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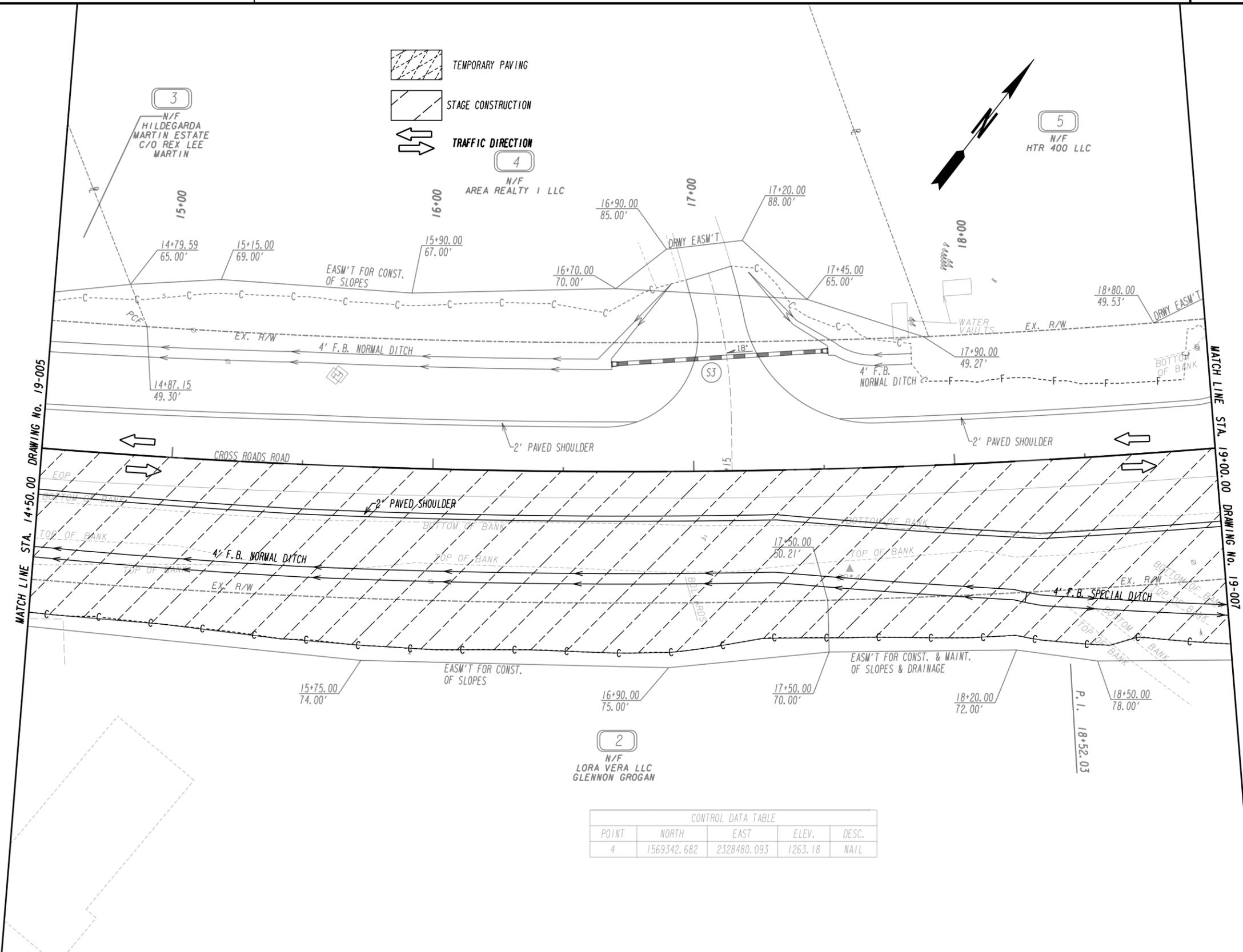


REVISION DATES	

**CONSTRUCTION PLAN
 STAGE 2**

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No. 19-005
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	



CONTROL DATA TABLE

POINT	NORTH	EAST	ELEV.	DESC.
4	1569342.682	2328480.093	1263.18	NAIL

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

-----e-----
 ---C---F---
 [Hatched Box] ORANGE BARRIER FENCE
 [Dashed Box] ESA - ENV. SENSITIVE AREA (SEE ERIT TABLE)

BEGIN LIMIT OF ACCESS.....BLA
 END LIMIT OF ACCESS.....ELA
 LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS
 ORANGE BARRIER FENCE
 ESA - ENV. SENSITIVE AREA
 (SEE ERIT TABLE)

PLANS PREPARED AND SUBMITTED BY:

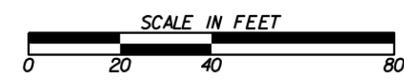
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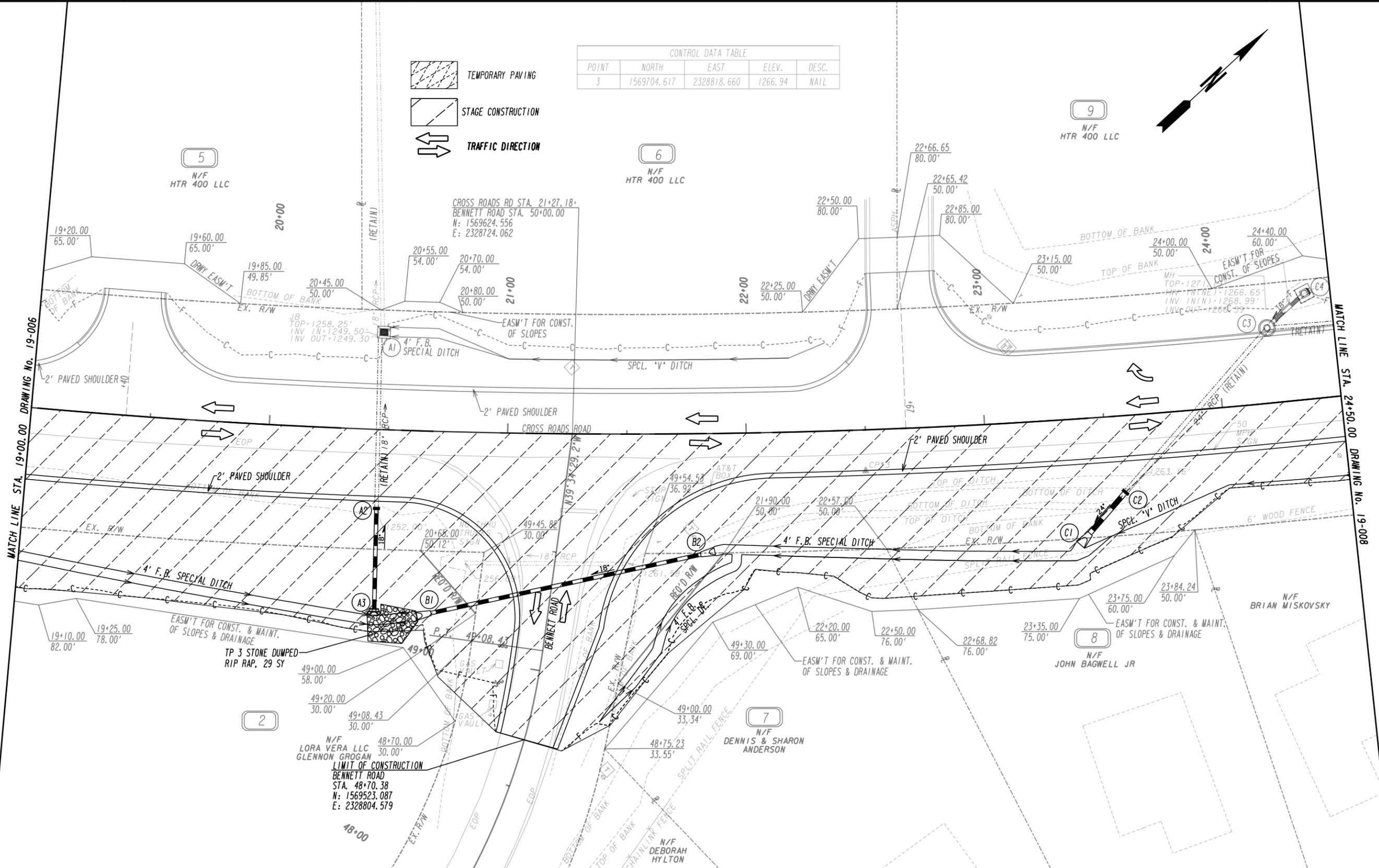
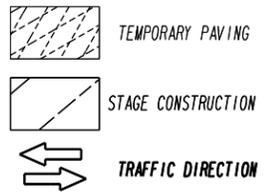
NO.	DATE	DESCRIPTION

**CONSTRUCTION PLAN
 STAGE 2**
 CROSS ROADS ROAD AT BENNETT ROAD

CHECKED: _____ DATE: _____
 BACKCHECKED: _____ DATE: _____
 CORRECTED: _____ DATE: _____
 VERIFIED: _____ DATE: _____

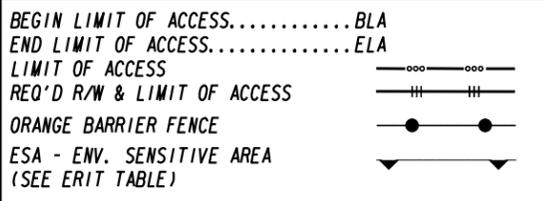
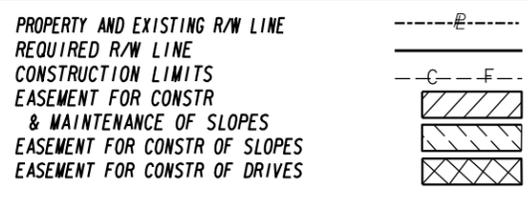
DRAWING No. **19-006**

CONTROL DATA TABLE				
POINT	NORTH	EAST	ELEV.	DESC.
3	1569704.617	2328818.660	1266.94	NAIL



MATCH LINE STA. 19+00.00 DRAWING No. 19-006

MATCH LINE STA. 24+50.00 DRAWING No. 19-008



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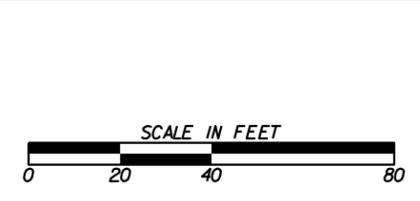
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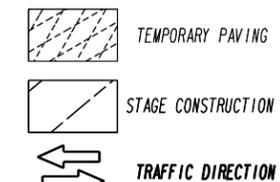
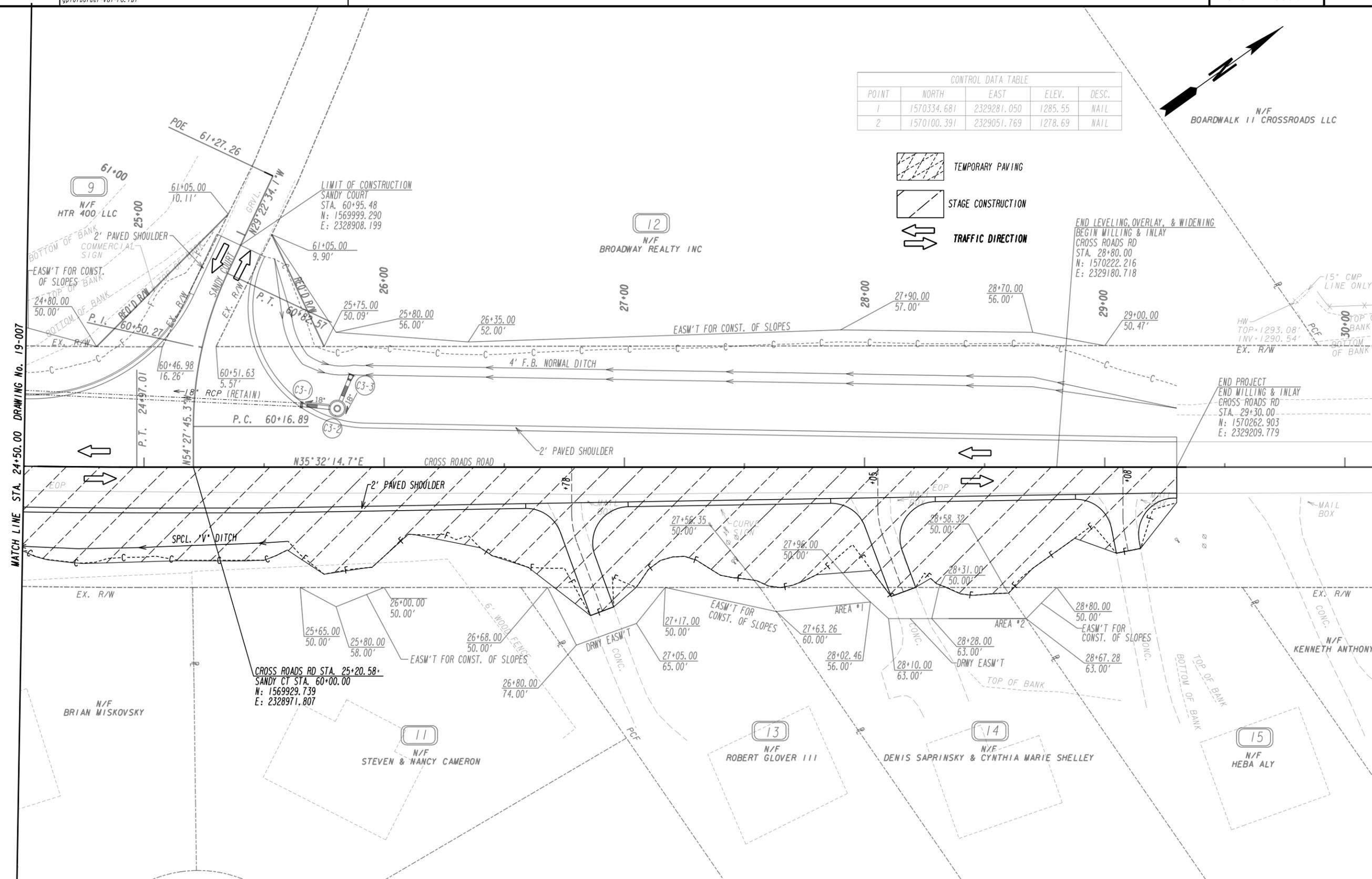
REVISION DATES	

**CONSTRUCTION PLAN
STAGE 2**

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No. 19-007
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	

CONTROL DATA TABLE				
POINT	NORTH	EAST	ELEV.	DESC.
1	1570334.681	2329281.050	1285.55	NAIL
2	1570100.391	2329051.769	1278.69	NAIL



END LEVELING, OVERLAY, & WIDENING
 BEGIN MILLING & INLAY
 CROSS ROADS RD
 STA. 28+80.00
 N: 1570222.216
 E: 2329180.718

END PROJECT
 END MILLING & INLAY
 CROSS ROADS RD
 STA. 29+30.00
 N: 1570262.903
 E: 2329209.779

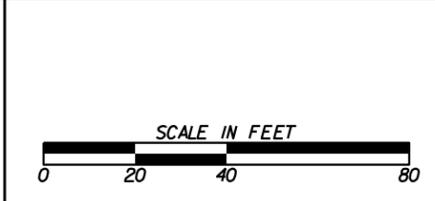
MATCH LINE STA. 24+50.00 DRAWING NO. 19-007

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

---e--- BEGIN LIMIT OF ACCESS.....BLA
 ---c--- END LIMIT OF ACCESS.....ELA
 ---f--- LIMIT OF ACCESS
 ---o--- REQ'D R/W & LIMIT OF ACCESS
 ---h--- ORANGE BARRIER FENCE
 ---.--- ESA - ENV. SENSITIVE AREA
 (SEE ERIT TABLE)

PLANS PREPARED AND SUBMITTED BY:

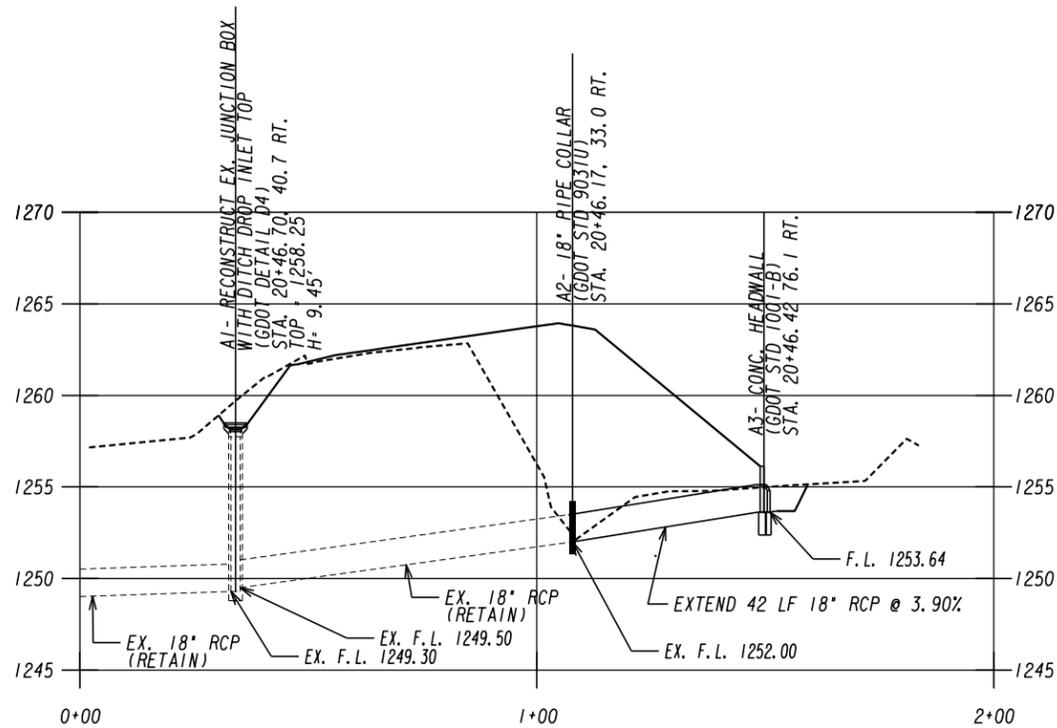
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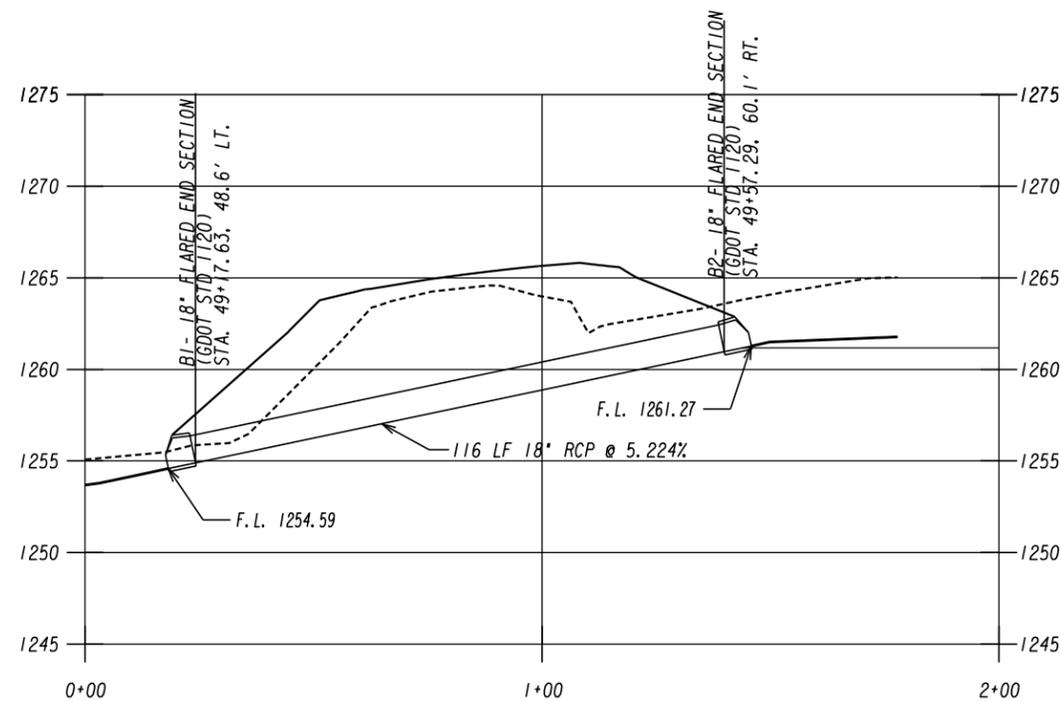
REVISION DATES	

**CONSTRUCTION PLAN
 STAGE 2**
 CROSS ROADS ROAD AT BENNETT ROAD

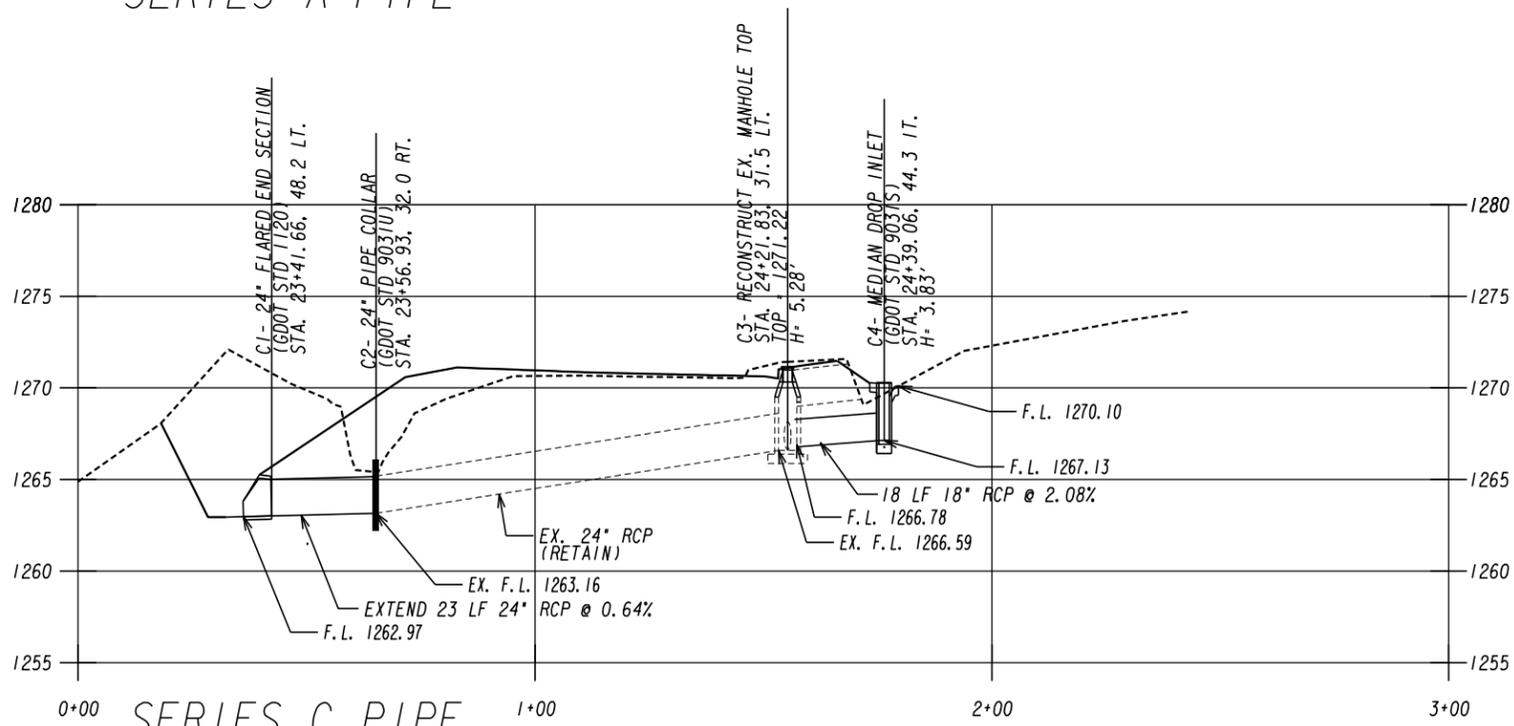
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BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	



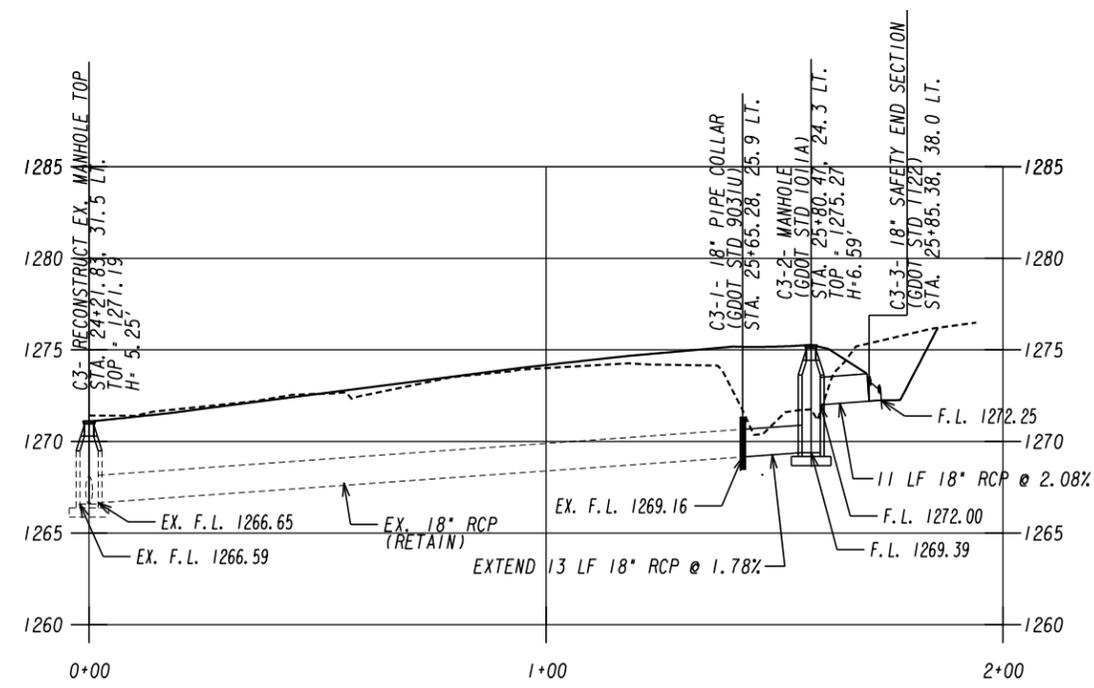
SERIES A PIPE



SERIES B PIPE



SERIES C PIPE



SERIES C-3 PIPE

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 O 2500 Nelson Miller Parkway
 Louisville, KY 40223
 (502) 245-3813

O 1690 Roberts Boulevard, Suite 109
 Kennerly, LA 70044
 (770) 42-8422

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1" = 20' HORIZONTAL
1" = 5' VERTICAL

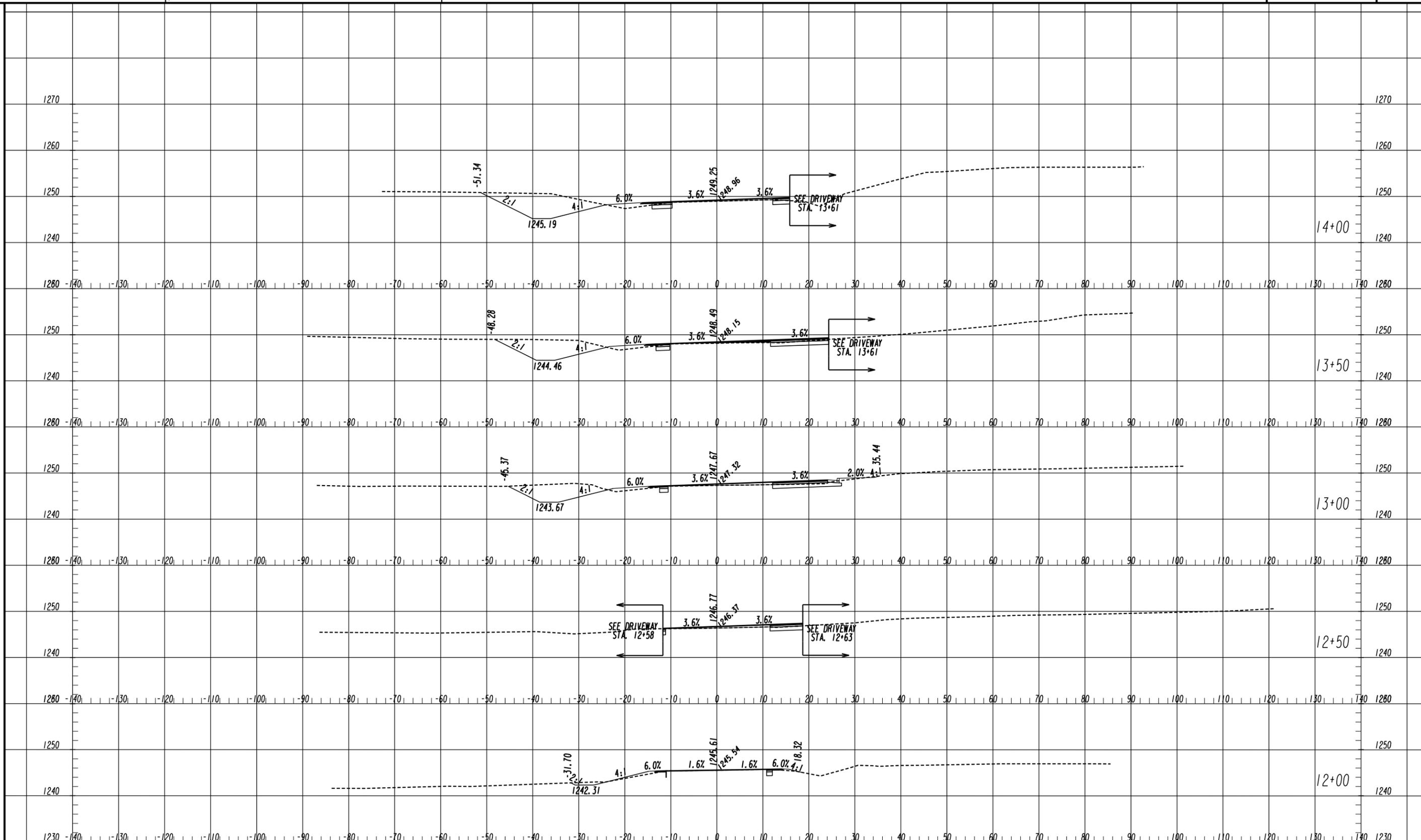
REVISION DATES

No.	Date	Description

DRAINAGE PROFILES

CROSS ROADS ROAD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	22-001
CORRECTED:	DATE:	
VERIFIED:	DATE:	



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Kennesaw, GA 30144
(770) 421-8422

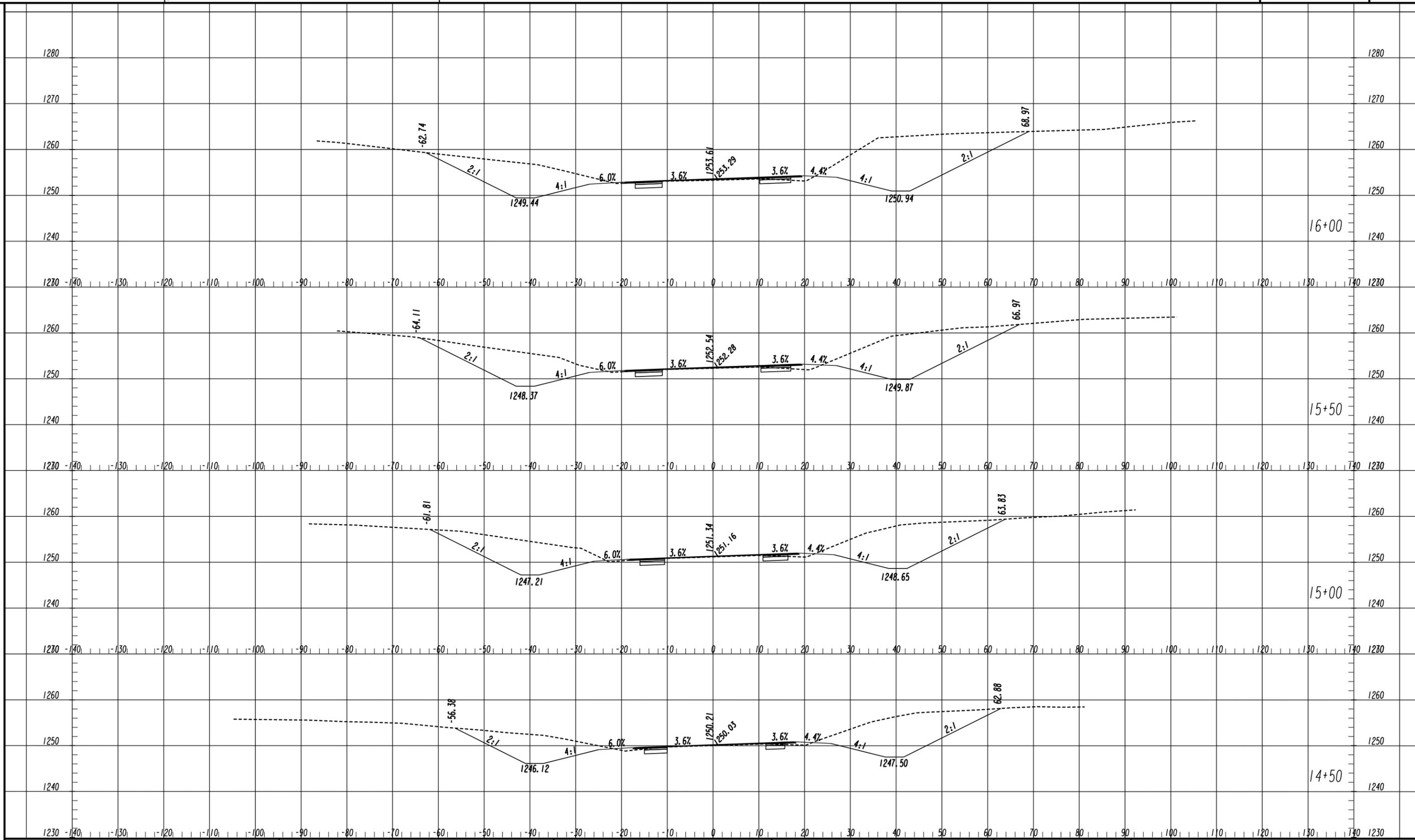
1" = 10' HORIZONTAL
1" = 10' VERTICAL

REVISION DATES

NO.	DATE	DESCRIPTION

CROSS SECTIONS
CROSS ROADS RD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	23-001
CORRECTED:	DATE:	
VERIFIED:	DATE:	



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PROFESSIONAL ENGINEERING

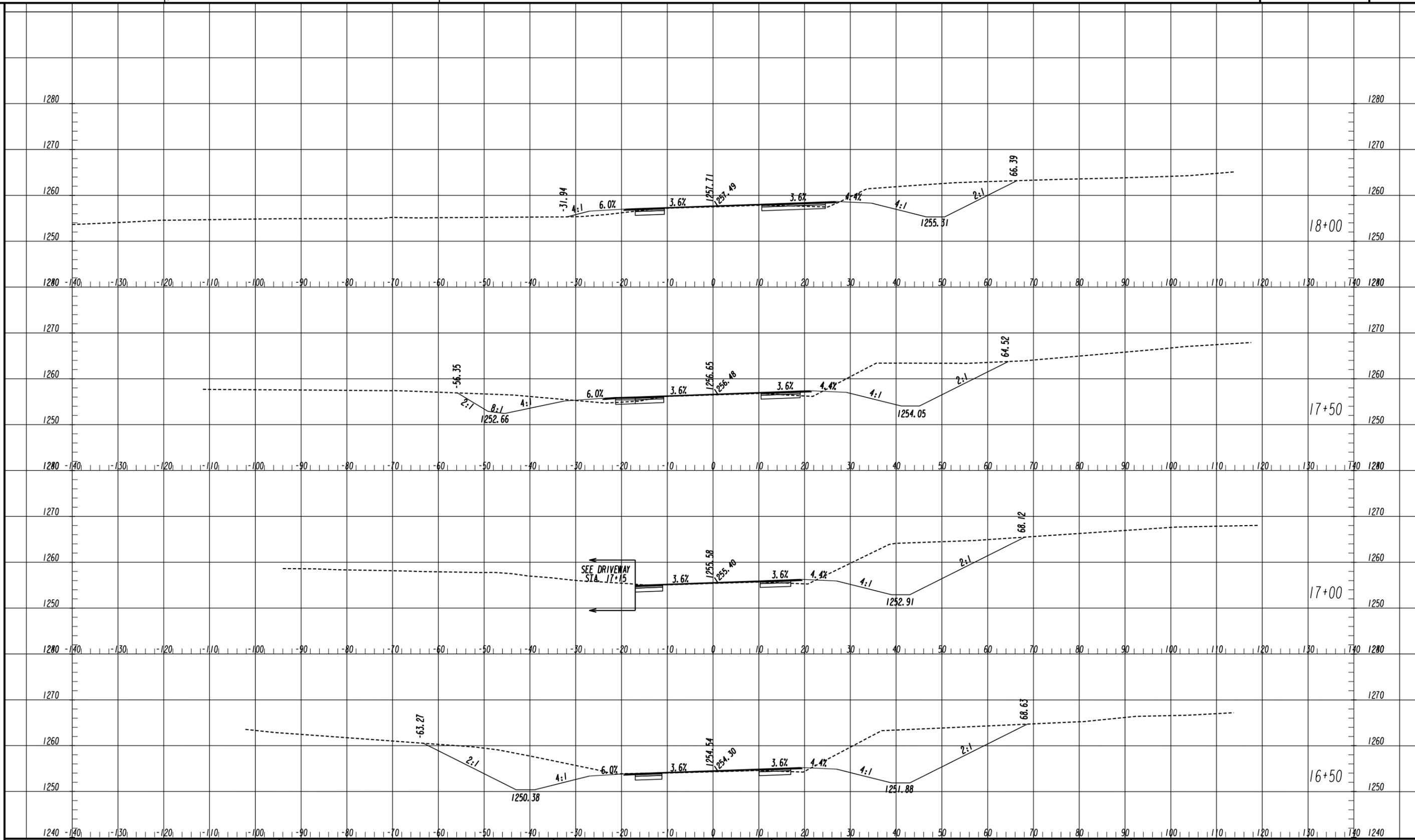
1" = 10' HORIZONTAL
1" = 10' VERTICAL

REVISION DATES

NO.	DATE	DESCRIPTION

CROSS SECTIONS
CROSS ROADS RD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	23-002
CORRECTED:	DATE:	
VERIFIED:	DATE:	



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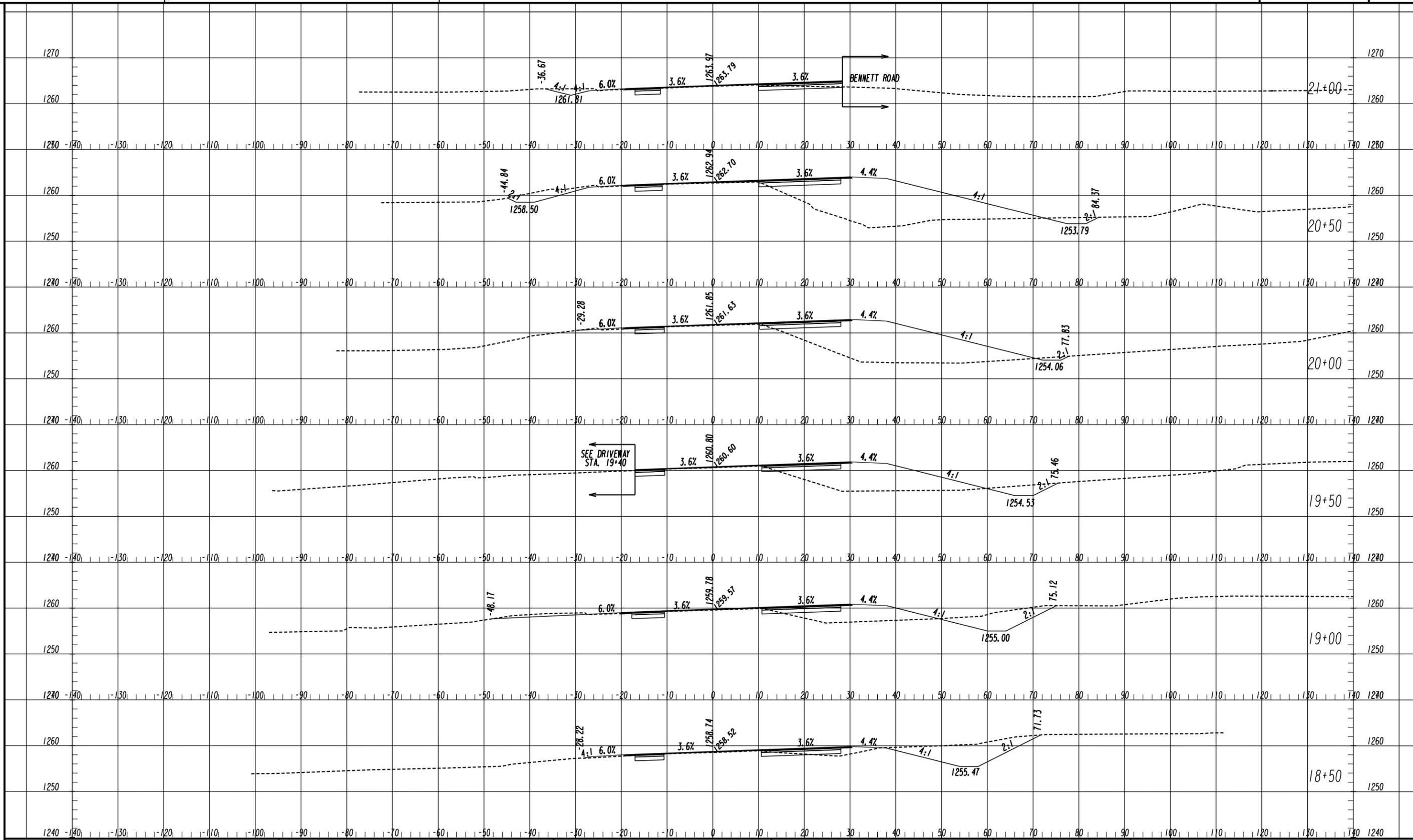
DESIGN CONSULTANT

PROFESSIONAL ENGINEERING

1" = 10' HORIZONTAL
1" = 10' VERTICAL

REVISION DATES

CROSS SECTIONS		CROSS ROADS RD	
CHECKED:	DATE:	DRAWING No.	
BACKCHECKED:	DATE:	23-003	
CORRECTED:	DATE:		
VERIFIED:	DATE:		



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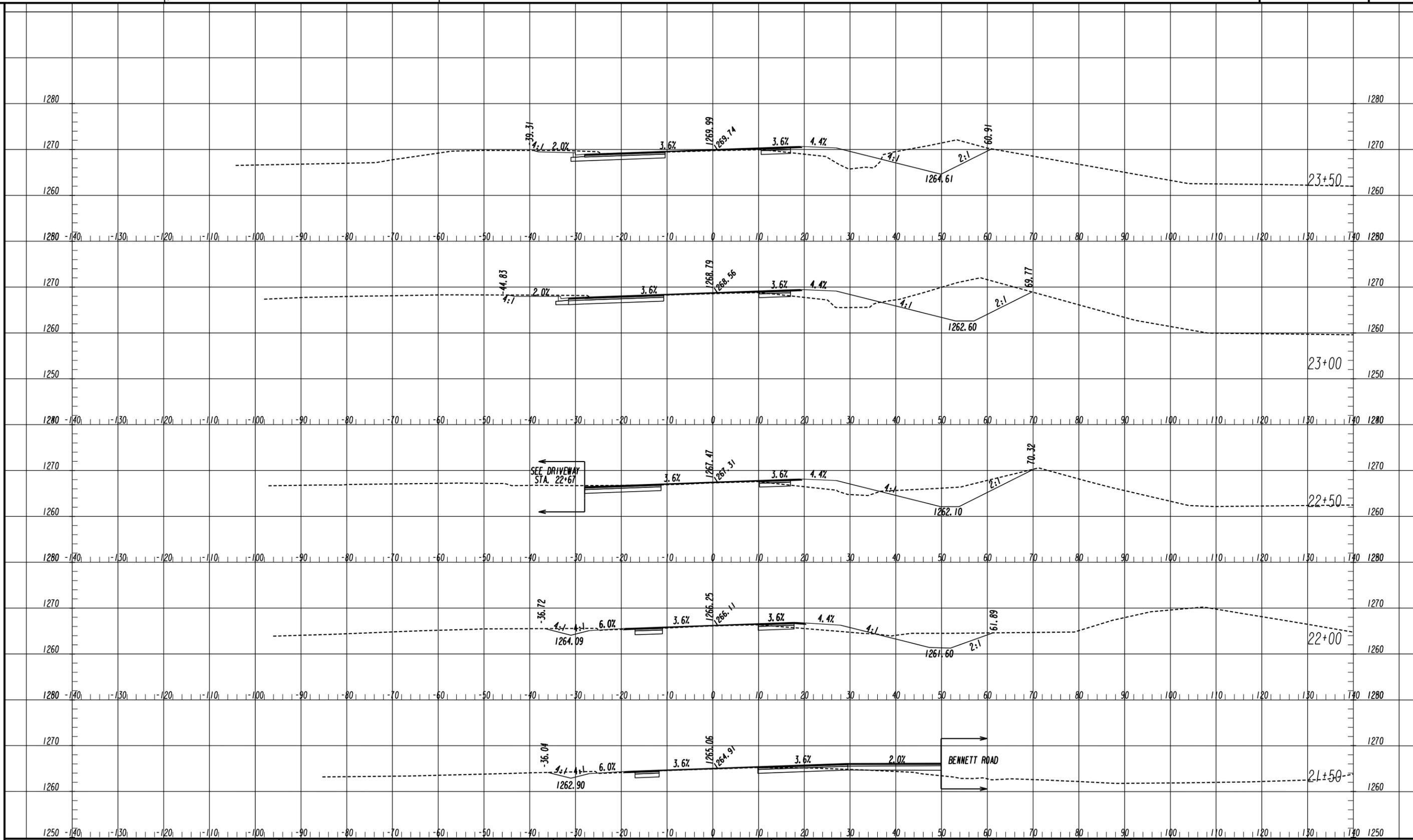
1" = 10' HORIZONTAL
1" = 10' VERTICAL

REVISION DATES

NO.	DATE	DESCRIPTION

CROSS SECTIONS
CROSS ROADS RD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	23-004
CORRECTED:	DATE:	
VERIFIED:	DATE:	



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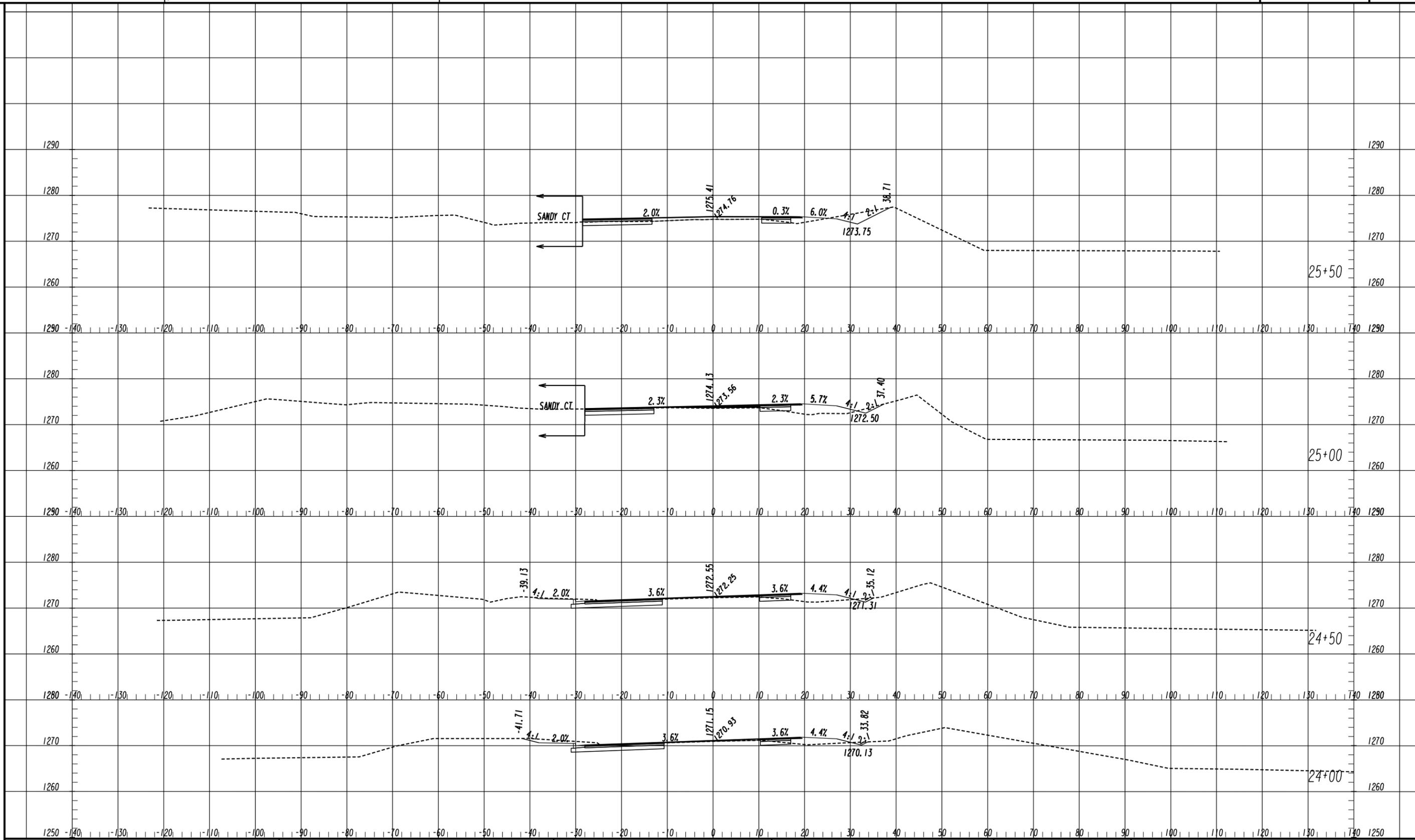
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1" = 10' HORIZONTAL
1" = 10' VERTICAL

REVISION DATES

CROSS SECTIONS CROSS ROADS RD		DRAWING No.	
CHECKED:	DATE:	23-005	
BACKCHECKED:	DATE:		
CORRECTED:	DATE:		
VERIFIED:	DATE:		



25+50

25+00

24+50

24+00

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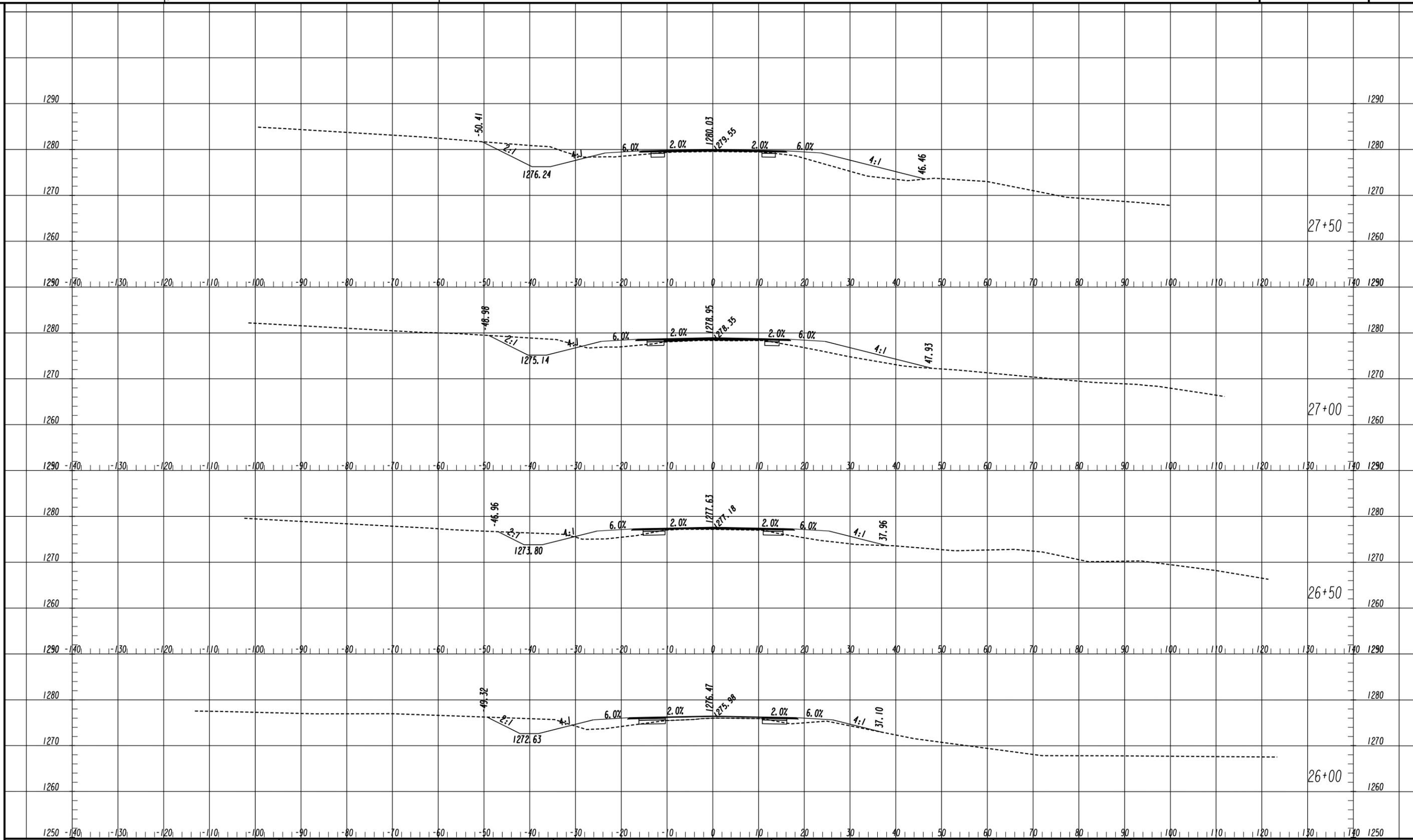
PROFESSIONAL ENGINEERING

1" = 10' HORIZONTAL
1" = 10' VERTICAL

REVISION DATES

CROSS SECTIONS
CROSS ROADS RD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	23-006
CORRECTED:	DATE:	
VERIFIED:	DATE:	



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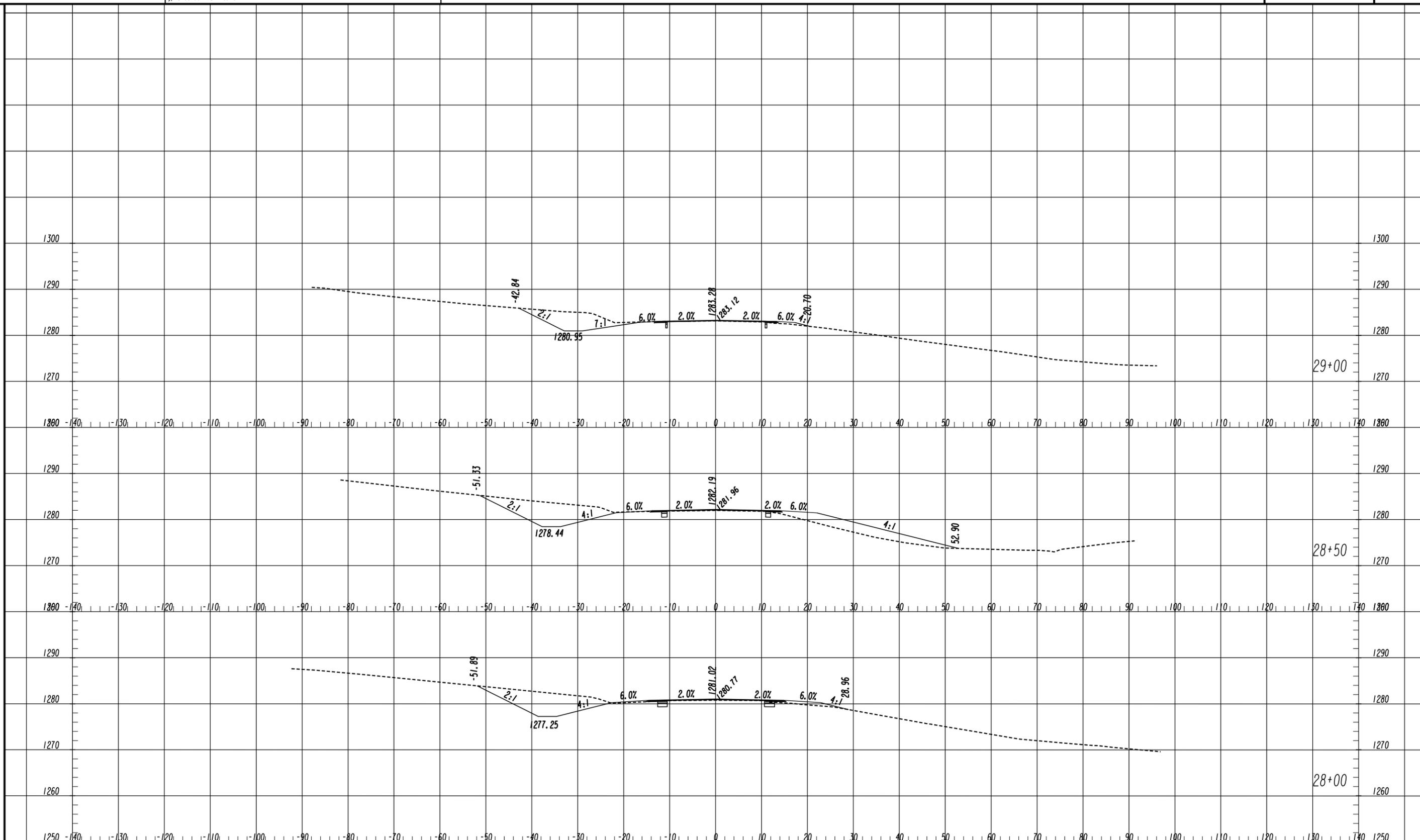
1" = 10' HORIZONTAL
1" = 10' VERTICAL

REVISION DATES

NO.	DATE	DESCRIPTION

CROSS SECTIONS
CROSS ROADS RD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	23-007
CORRECTED:	DATE:	
VERIFIED:	DATE:	



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PROFESSIONAL ENGINEERING

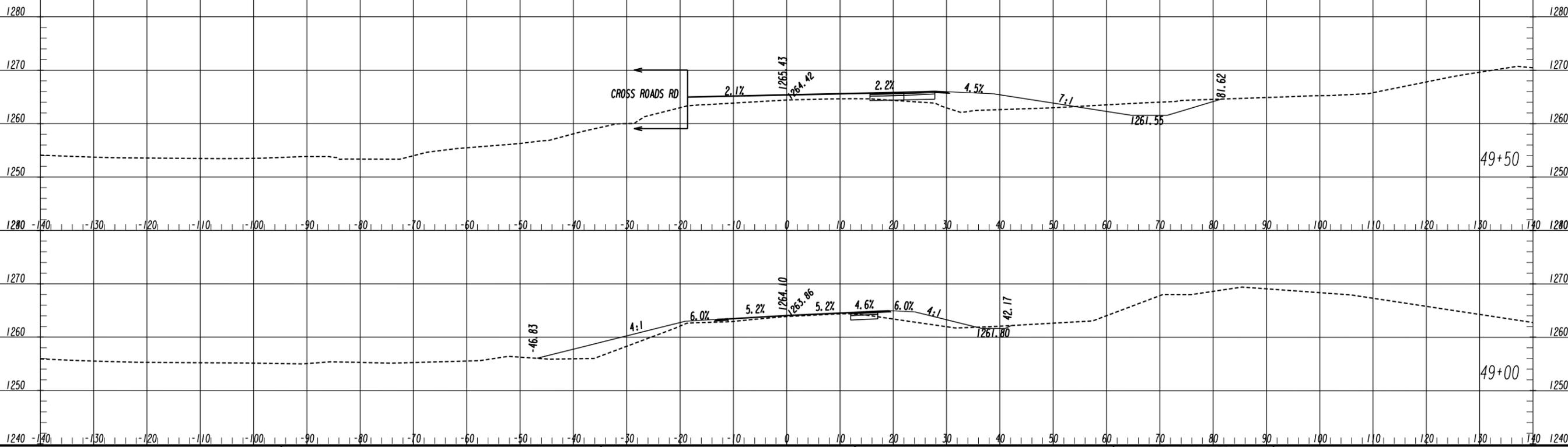
1" = 10' HORIZONTAL
1" = 10' VERTICAL

REVISION DATES

NO.	DATE	DESCRIPTION

CROSS SECTIONS
CROSS ROADS RD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	23-008
CORRECTED:	DATE:	
VERIFIED:	DATE:	



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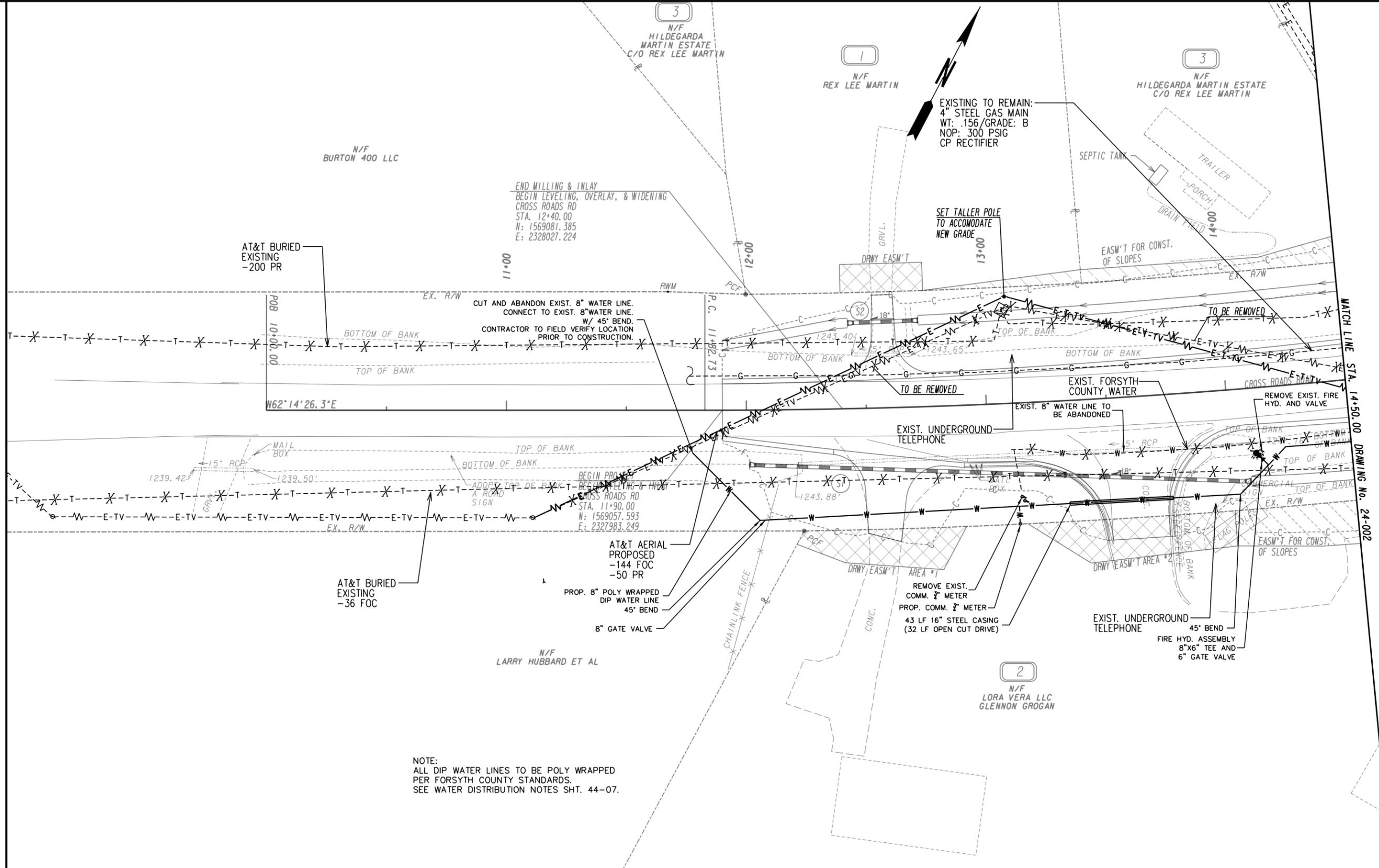
1" = 10' HORIZONTAL
1" = 10' VERTICAL

REVISION DATES

NO.	DATE	DESCRIPTION

CROSS SECTIONS
BENNETT RD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	23-009
CORRECTED:	DATE:	
VERIFIED:	DATE:	



NOTE:
ALL DIP WATER LINES TO BE POLY WRAPPED
PER FORSYTH COUNTY STANDARDS.
SEE WATER DISTRIBUTION NOTES SH. 44-07.

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR
& MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

-----e-----
-----C-----F-----
[Hatched Box]
[Hatched Box]
[Hatched Box]

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS
ORANGE BARRIER FENCE
ESA - ENV. SENSITIVE AREA
(SEE ERIT TABLE)

PLANS PREPARED AND SUBMITTED BY:

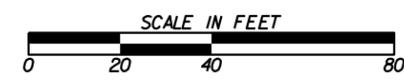
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(770) 421-8422

65 Aberdeen Drive
Glasgow, KY 42041
(270) 651-7200

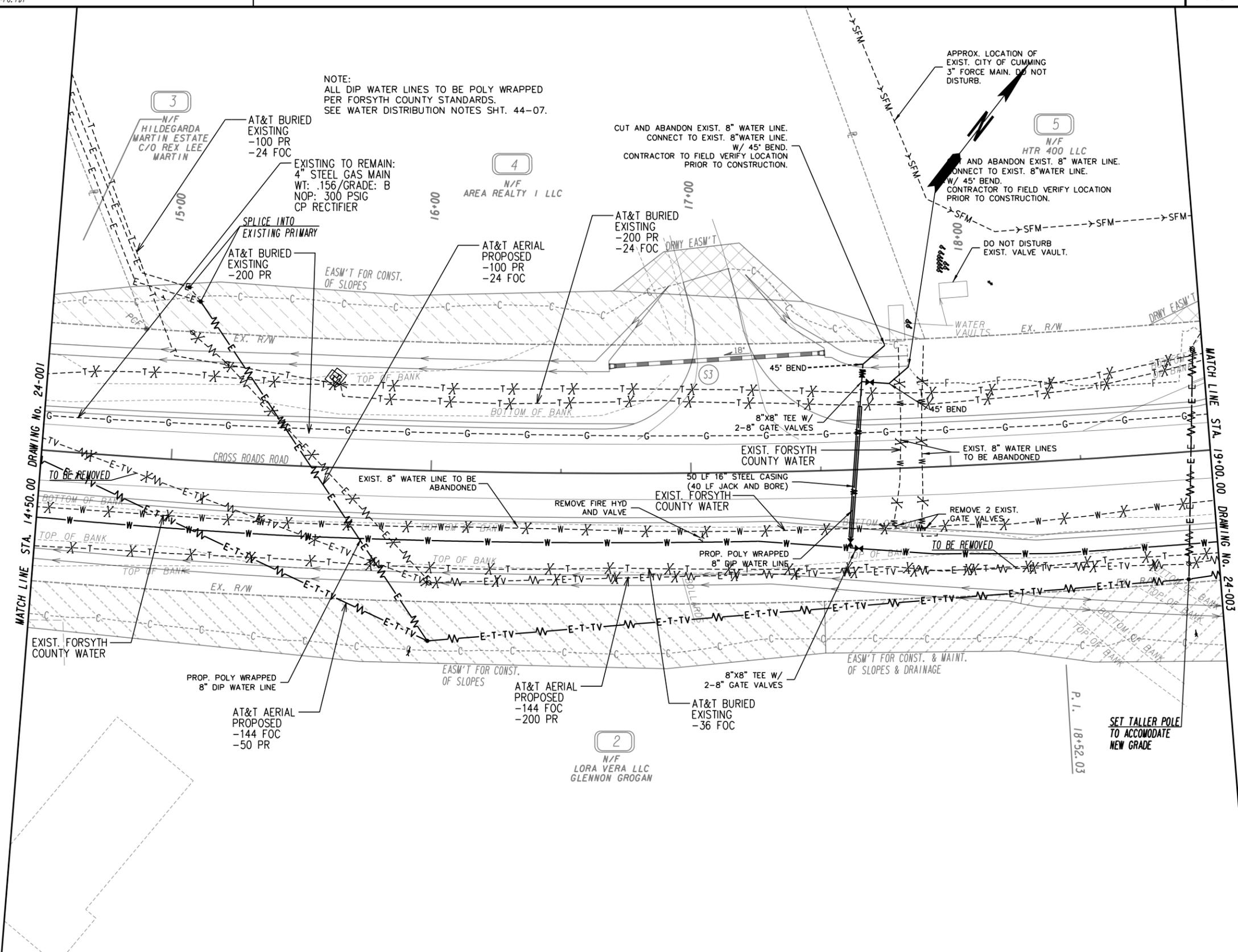
2500 Nelson Miller Parkway
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REVISION DATES	

UTILITY PLANS			
CROSS ROADS ROAD AT BENNETT ROAD			
CHECKED:	DATE:	DRAWING No.	
BACKCHECKED:	DATE:	24-001	
CORRECTED:	DATE:		
VERIFIED:	DATE:		



NOTE:
ALL DIP WATER LINES TO BE POLY WRAPPED
PER FORSYTH COUNTY STANDARDS.
SEE WATER DISTRIBUTION NOTES SHT. 44-07.

APPROX. LOCATION OF
EXIST. CITY OF CUMMING
3" FORCE MAIN. DO NOT
DISTURB.

CUT AND ABANDON EXIST. 8" WATER LINE.
CONNECT TO EXIST. 8" WATER LINE.
W/ 45° BEND.
CONTRACTOR TO FIELD VERIFY LOCATION
PRIOR TO CONSTRUCTION.

CUT AND ABANDON EXIST. 8" WATER LINE.
CONNECT TO EXIST. 8" WATER LINE.
W/ 45° BEND.
CONTRACTOR TO FIELD VERIFY LOCATION
PRIOR TO CONSTRUCTION.

DO NOT DISTURB
EXIST. VALVE VAULT.

WATER VAULTS

SET TALLER POLE
TO ACCOMMODATE
NEW GRADE

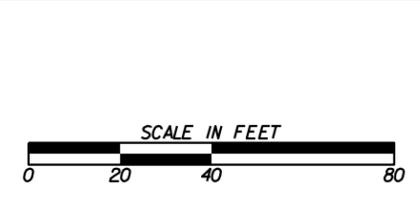
MATCH LINE STA. 14+50.00 DRAWING No. 24-001

MATCH LINE STA. 19+00.00 DRAWING No. 24-003

-----e----- PROPERTY AND EXISTING R/W LINE	-----B----- BEGIN LIMIT OF ACCESS.....BLA
-----F----- REQUIRED R/W LINE	-----E----- END LIMIT OF ACCESS.....ELA
-----C----- CONSTRUCTION LIMITS	-----L----- LIMIT OF ACCESS
-----S----- EASEMENT FOR CONSTR	-----R----- REQ'D R/W & LIMIT OF ACCESS
-----M----- & MAINTENANCE OF SLOPES	-----O----- ORANGE BARRIER FENCE
-----D----- EASEMENT FOR CONSTR OF SLOPES	-----S----- ESA - ENV. SENSITIVE AREA
-----X----- EASEMENT FOR CONSTR OF DRIVES	-----T----- (SEE ERIT TABLE)

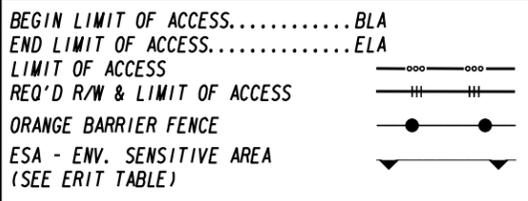
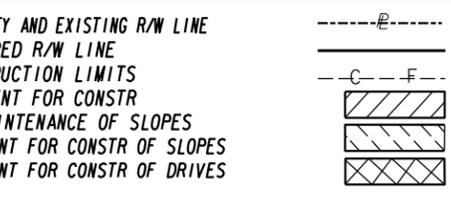
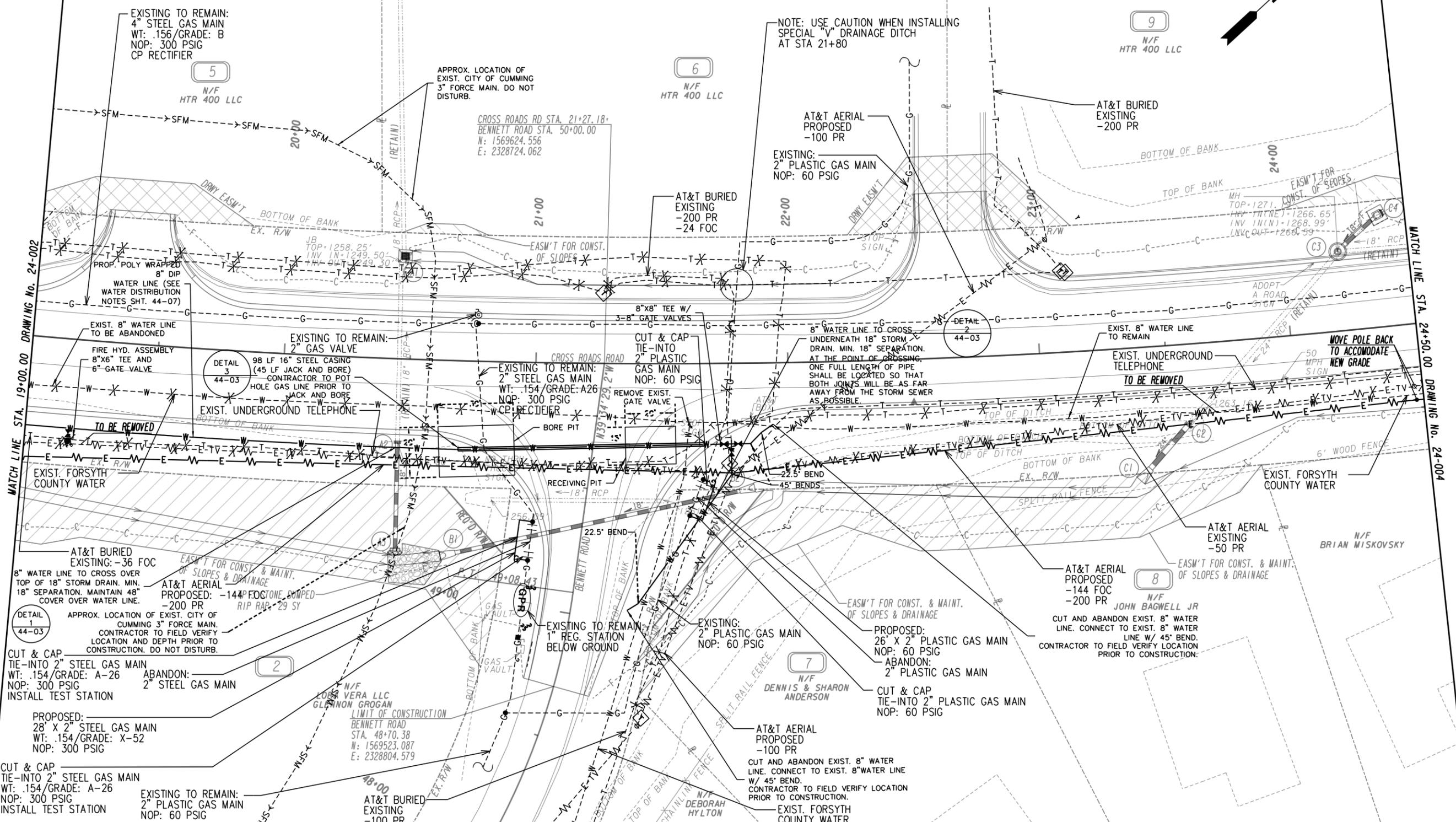
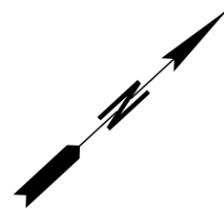
PLANS PREPARED AND SUBMITTED BY:	<p>AEI AMERICAN ENGINEERS, INC. www.aei.com</p>
<p>65 Aberdeen Drive Glasgow, KY 42041 (270) 651-7220</p>	<p>1690 Roberts Boulevard, Suite 109 Kennesaw, GA 30144 (770) 421-8422</p>
<p>2500 Nelson Miller Parkway Louisville, KY 40223 (502) 245-3813</p>	<p>PROFESSIONAL ENGINEERING DESIGN CONSULTANT</p>

REVISION DATES	

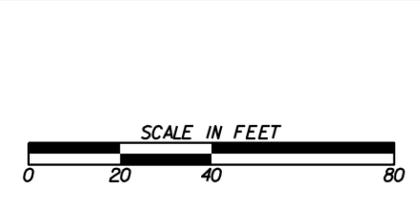


UTILITY PLANS			
CROSS ROADS ROAD AT BENNETT ROAD			
CHECKED:	DATE:	DRAWING No.	
BACKCHECKED:	DATE:	24-002	
CORRECTED:	DATE:		
VERIFIED:	DATE:		

NOTE:
ALL DIP WATER LINES TO BE POLY WRAPPED PER
FORSYTH COUNTY STANDARDS.
SEE WATER DISTRIBUTION NOTES SHT. 44-07.



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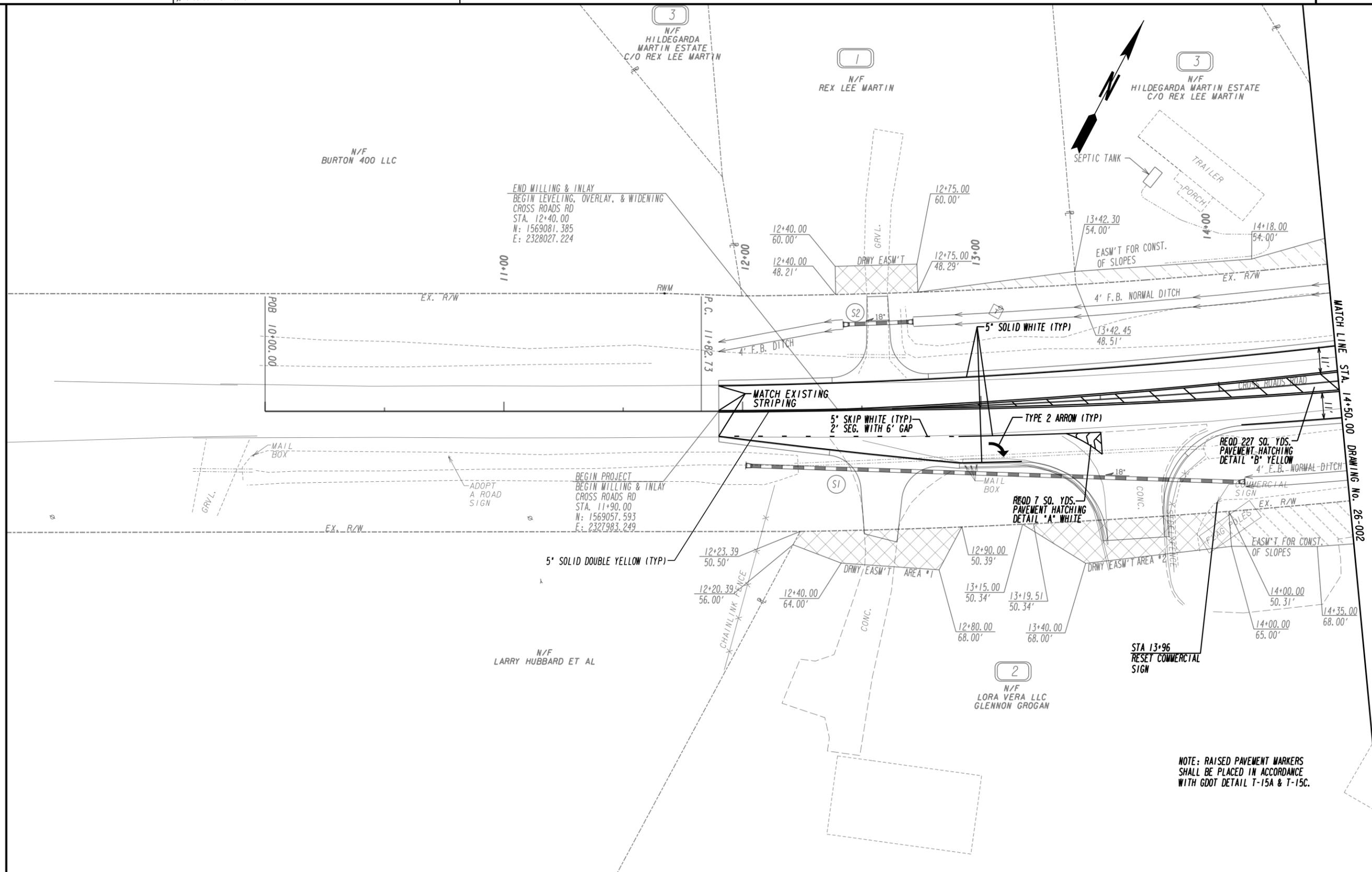


REVISION DATES

NO.	DATE	DESCRIPTION

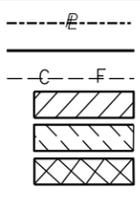
UTILITY PLANS
CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No.
		24-003
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	



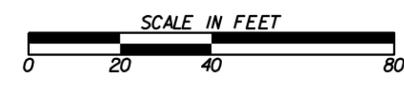
NOTE: RAISED PAVEMENT MARKERS SHALL BE PLACED IN ACCORDANCE WITH GDOT DETAIL T-15A & T-15C.

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES



BEGIN LIMIT OF ACCESS.....BLA
 END LIMIT OF ACCESS.....ELA
 LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS
 ORANGE BARRIER FENCE
 ESA - ENV. SENSITIVE AREA (SEE ERIT TABLE)

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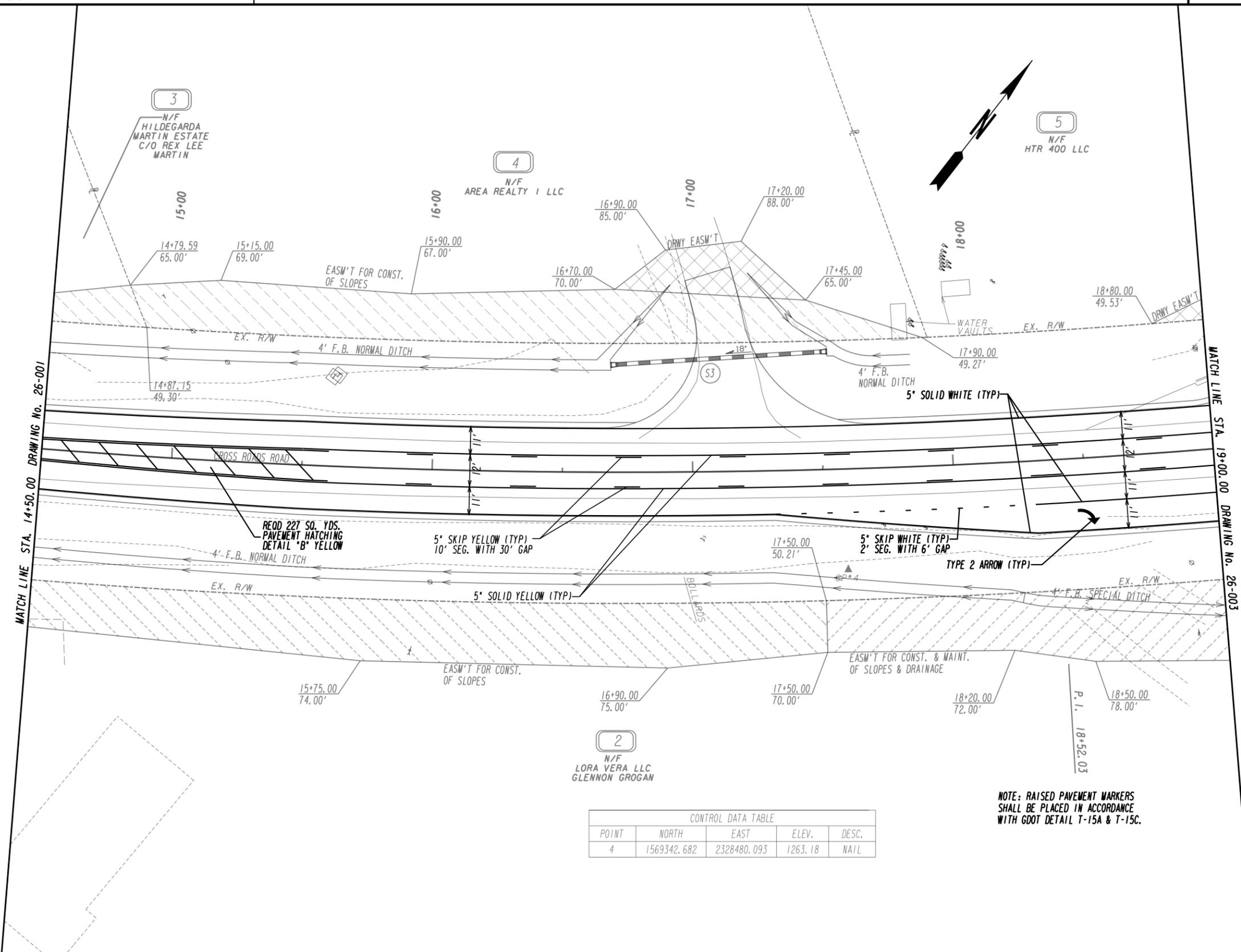


REVISION DATES	

SIGNING AND MARKING PLANS

CROSS ROADS ROAD AT BENNETT ROAD

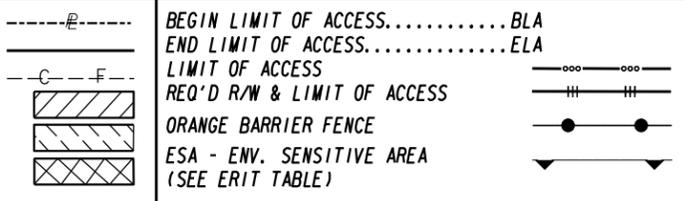
CHECKED:	DATE:	DRAWING No. 26-001
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	



NOTE: RAISED PAVEMENT MARKERS SHALL BE PLACED IN ACCORDANCE WITH GDOT DETAIL T-15A & T-15C.

CONTROL DATA TABLE				
POINT	NORTH	EAST	ELEV.	DESC.
4	1569342.682	2328480.093	1263.18	NAIL

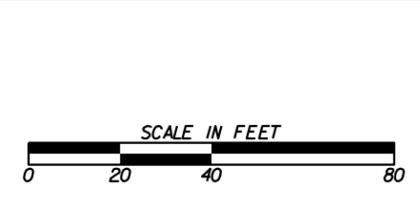
PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES



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REVISION DATES	
NO.	DATE

SIGNING AND MARKING PLANS

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No. 26-002
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	

CONTROL DATA TABLE				
POINT	NORTH	EAST	ELEV.	DESC.
3	1569704.617	2328818.660	1266.94	NAIL

9
N/F
HTR 400 LLC

5
N/F
HTR 400 LLC

6
N/F
HTR 400 LLC

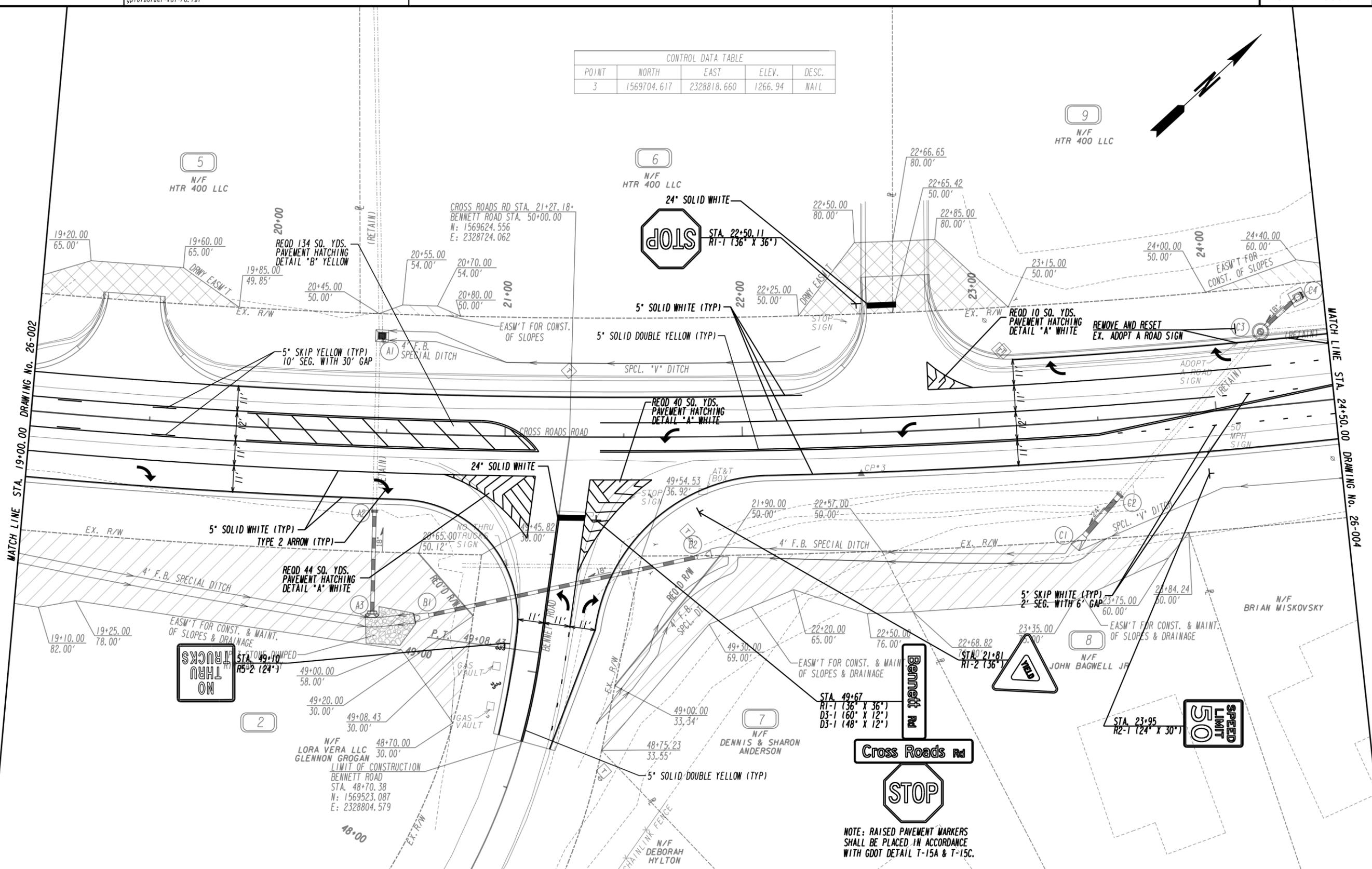
8
N/F
JOHN BAGWELL JR

7
N/F
DENNIS & SHARON
ANDERSON

2
N/F
LORA VERA LLC
GLENNON GROGAN
LIMIT OF CONSTRUCTION
BENNETT ROAD
STA. 48+70.38
N: 1569523.087
E: 2328804.579

MATCH LINE STA. 19+00.00 DRAWING No. 26-002

MATCH LINE STA. 24+50.00 DRAWING No. 26-004



NOTE: RAISED PAVEMENT MARKERS SHALL BE PLACED IN ACCORDANCE WITH GDOT DETAIL T-15A & T-15C.

-----e-----	BEGIN LIMIT OF ACCESS.....BLA
-----c-----	END LIMIT OF ACCESS.....ELA
-----f-----	LIMIT OF ACCESS
[Hatched Box]	REQ'D R/W & LIMIT OF ACCESS
[Diagonal Lines]	ORANGE BARRIER FENCE
[Cross-hatched Box]	ESA - ENV. SENSITIVE AREA (SEE ERIT TABLE)

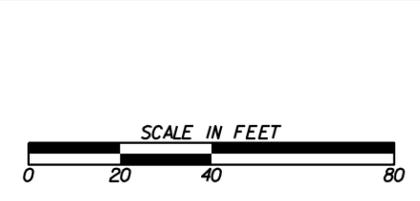
[Symbol]	[Symbol]

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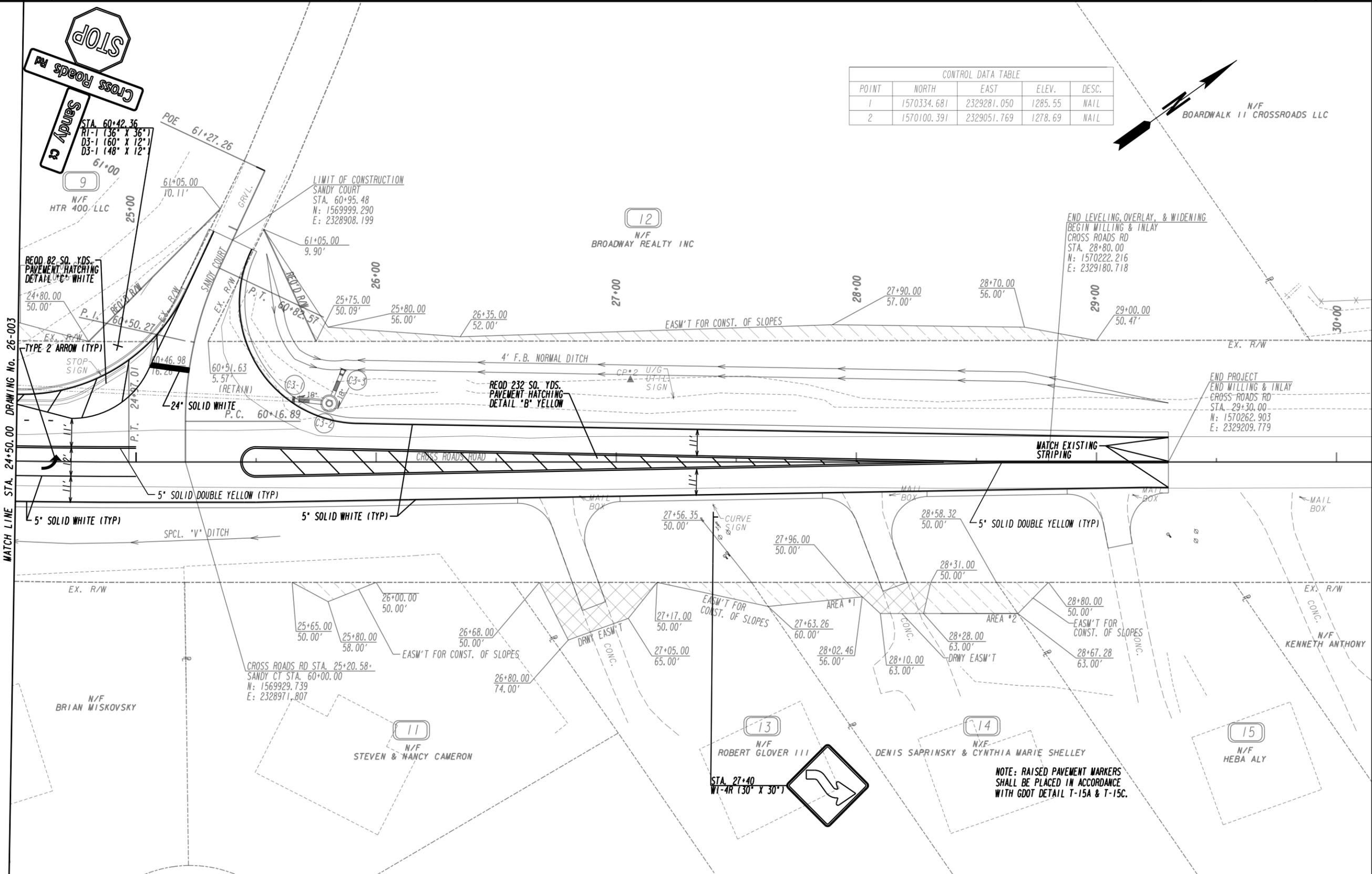
PROFESSIONAL ENGINEERING



REVISION DATES	

SIGNING AND MARKING PLANS		
CROSS ROADS ROAD AT BENNETT ROAD		
CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	26-003
CORRECTED:	DATE:	
VERIFIED:	DATE:	

CONTROL DATA TABLE			
POINT	NORTH	EAST	DESC.
1	1570334.681	2329281.050	1285.55 NAIL
2	1570100.391	2329051.769	1278.69 NAIL



MATCH LINE STA. 24+50.00 DRAWING NO. 26-003

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

-----e-----
 ---C---F---
 [Hatched Box]
 [Hatched Box]
 [Hatched Box]

BEGIN LIMIT OF ACCESS.....BLA
 END LIMIT OF ACCESS.....ELA
 LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS
 ORANGE BARRIER FENCE
 ESA - ENV. SENSITIVE AREA
 (SEE ERIT TABLE)

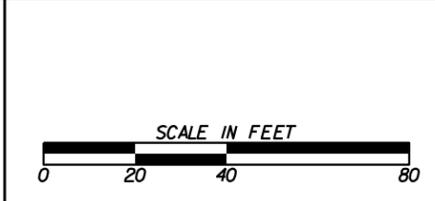
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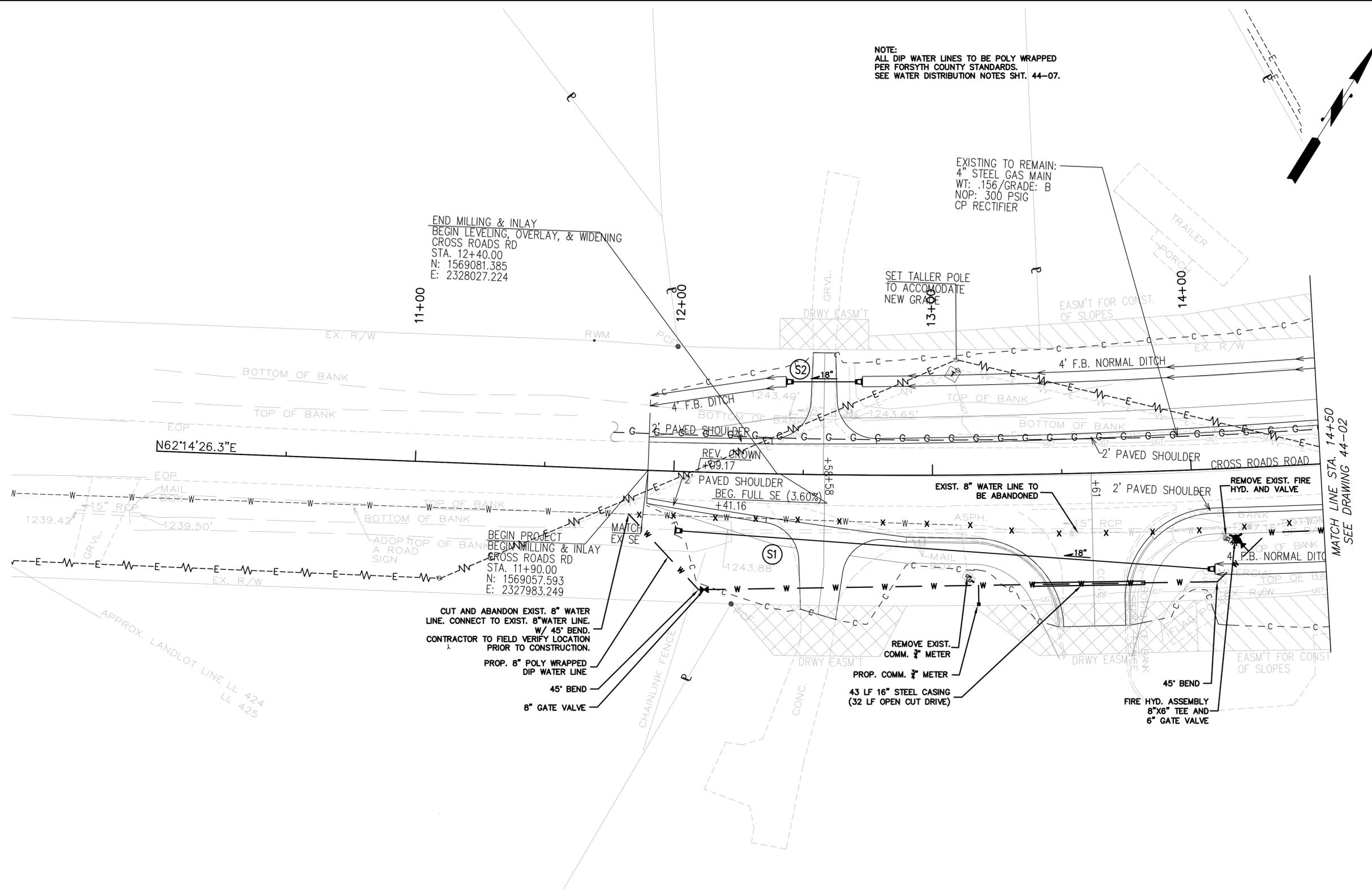


REVISION DATES	

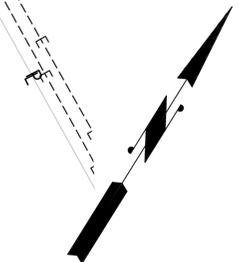
SIGNING AND MARKING PLANS

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No. 26-004
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	



NOTE:
ALL DIP WATER LINES TO BE POLY WRAPPED
PER FORSYTH COUNTY STANDARDS.
SEE WATER DISTRIBUTION NOTES SH. 44-07.



PROPERTY AND EXISTING R/W LINE	-----
REQUIRED R/W LINE	—————
CONSTRUCTION LIMITS	---C---C---F---F---
EASEMENT FOR CONSTR OF SLOPES	
EASEMENT FOR CONSTR OF DRIVES	

BEGIN LIMIT OF ACCESSBLA
END LIMIT OF ACCESSELA
LIMIT OF ACCESS	
PROPOSED WATER	—W—W—
PROPOSED SANITARY SEWER	—SS—SS—

Moreland Altobelli Associates, LLC
327 Dahlonga Street, Suite 1401
Cumming, Georgia 30040
Telephone (770) 781-5531

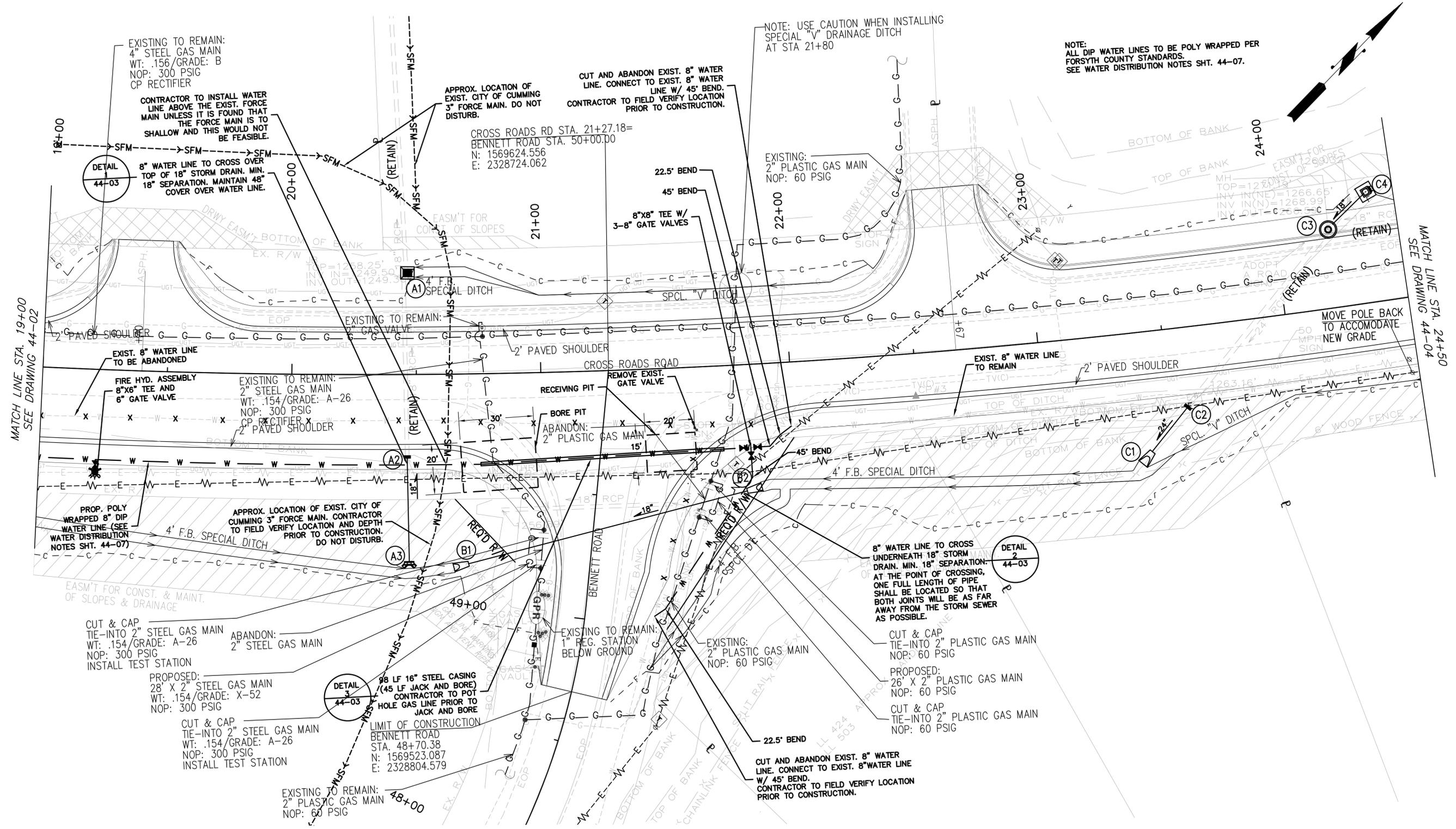
SCALE IN FEET

REVISION DATES	

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER

OFFICE:
CROSS ROADS ROAD AT BENNETT ROAD
WATERLINE RELOCATION PLANS

44-01



PROPERTY AND EXISTING R/W LINE - - - - -
 REQUIRED R/W LINE - - - - -
 CONSTRUCTION LIMITS - - - - -
 EASEMENT FOR CONSTR OF SLOPES [Hatched Box]
 EASEMENT FOR CONSTR OF DRIVES [Cross-hatched Box]

BEGIN LIMIT OF ACCESSBLA
 END LIMIT OF ACCESSELA
 LIMIT OF ACCESS [Vertical Line]
 PROPOSED WATER [W-W]
 PROPOSED SANITARY SEWER [SS-SS]



MA Moreland Altobelli Associates, LLC
 327 Dahlonega Street, Suite 1401
 Cumming, Georgia 30040
 Telephone (770) 781-5531

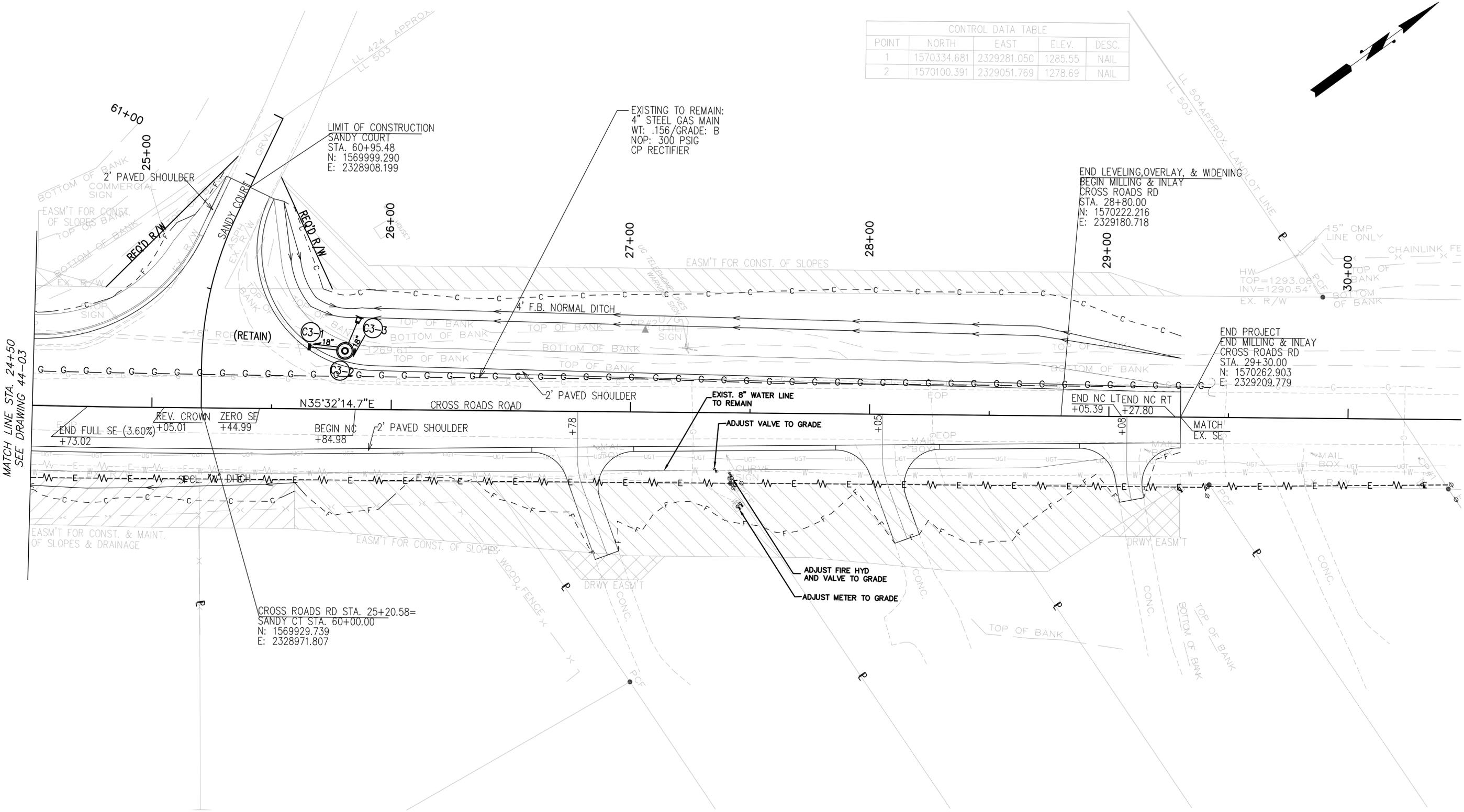


REVISION DATES

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER
 OFFICE:
 CROSS ROADS ROAD AT BENNETT ROAD
 WATERLINE RELOCATION PLANS

G:\Data\CIVIL\FORSYTH COUNTY WATER PROJECTS\Crossroads_Bennett\44 SERIES\44.dwg, 6/21/2019 9:05:12 AM, Adobe PDF

CONTROL DATA TABLE				
POINT	NORTH	EAST	ELEV.	DESC.
1	1570334.681	2329281.050	1285.55	NAIL
2	1570100.391	2329051.769	1278.69	NAIL



MATCH LINE STA. 24+50 SEE DRAWING 44-03

PROPERTY AND EXISTING R/W LINE	-----
REQUIRED R/W LINE	—————
CONSTRUCTION LIMITS	- - - - -
EASEMENT FOR CONSTR OF SLOPES	
EASEMENT FOR CONSTR OF DRIVES	

BEGIN LIMIT OF ACCESSBLA
END LIMIT OF ACCESSELA
LIMIT OF ACCESS	
PROPOSED WATER	—W—W—
PROPOSED SANITARY SEWER	—SS—SS—

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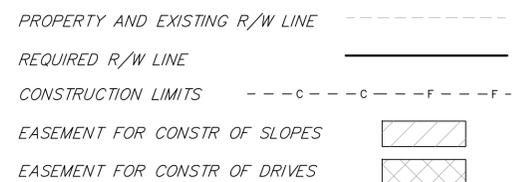
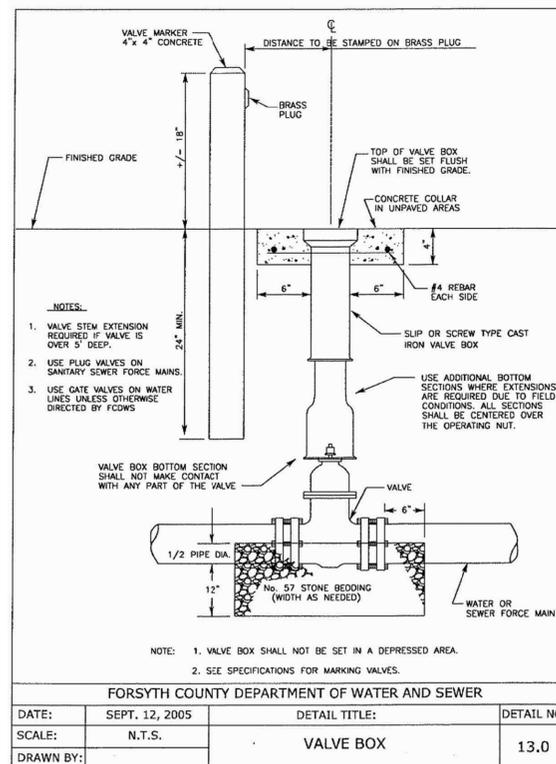
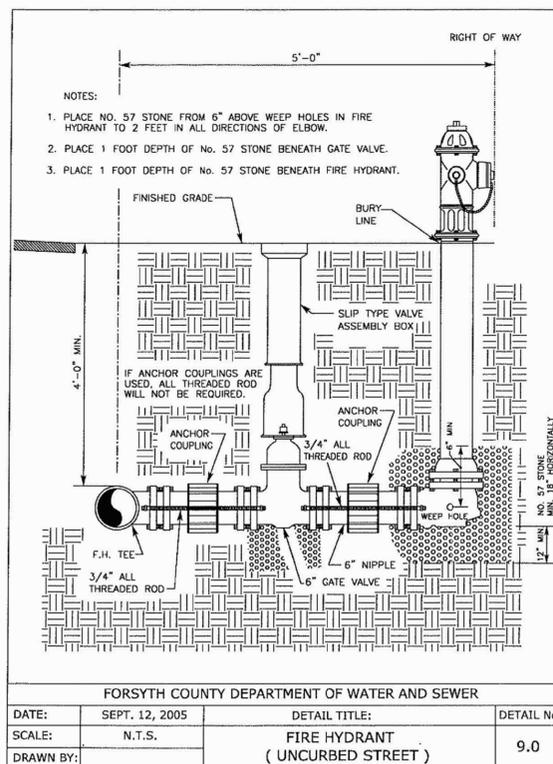
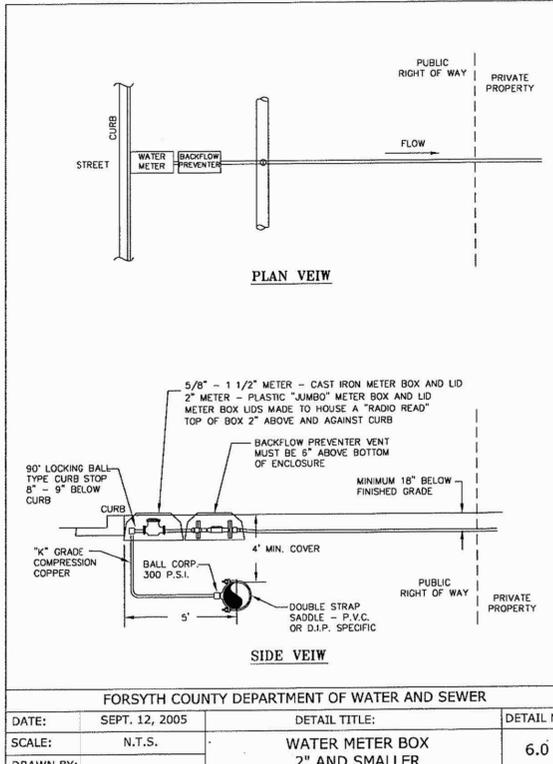
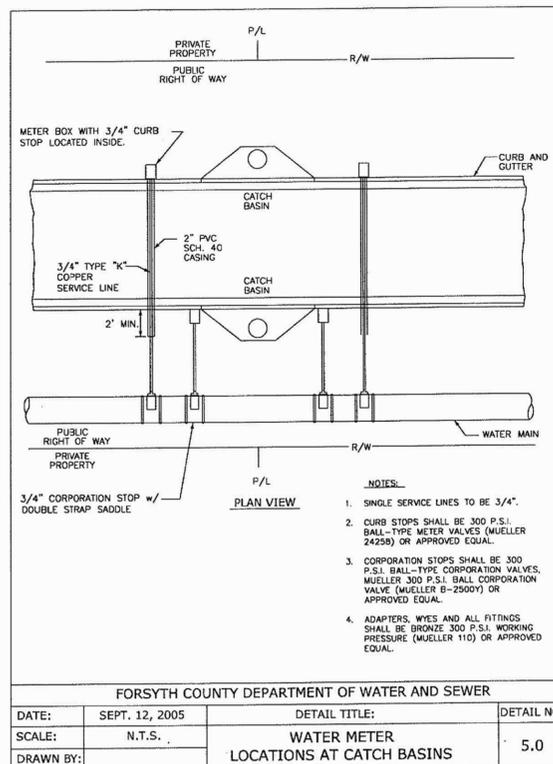
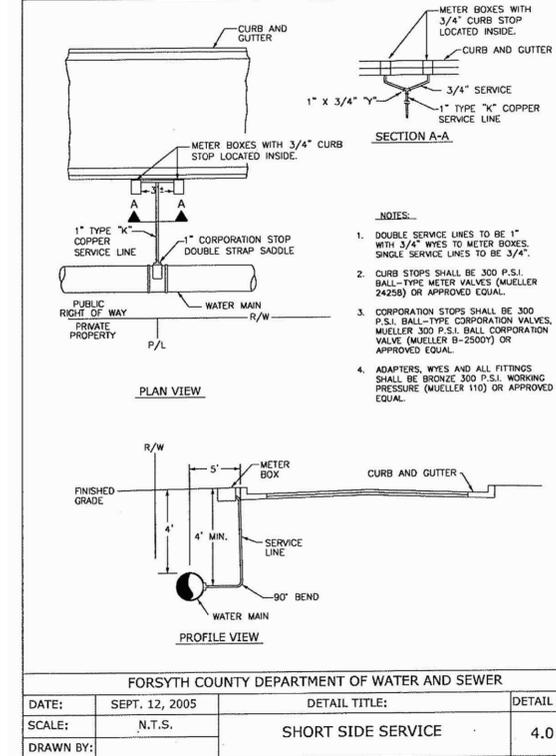
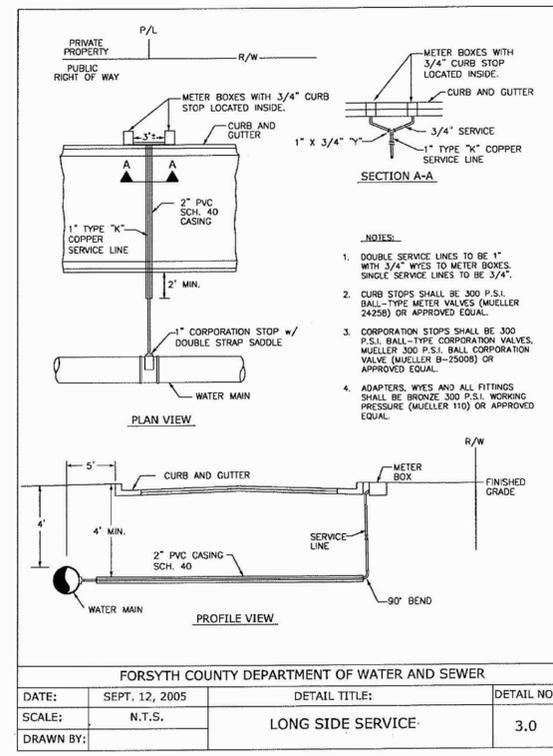
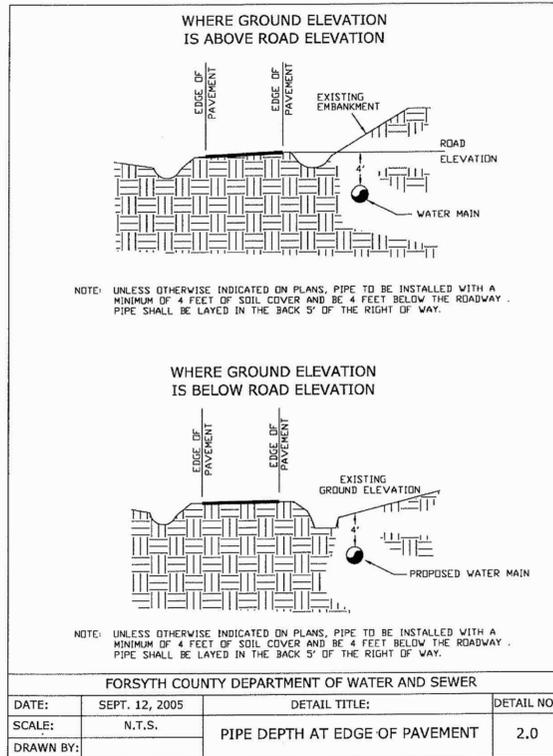
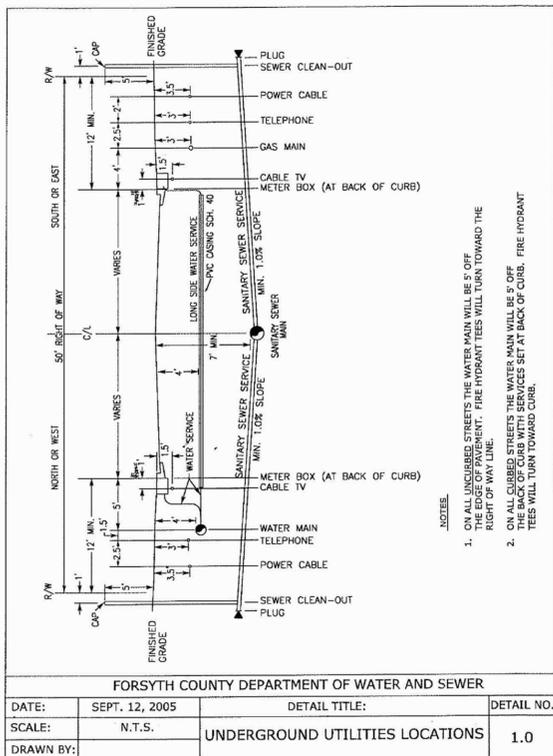
SCALE IN FEET

REVISION DATES	

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER

OFFICE:
 CROSS ROADS ROAD AT BENNETT ROAD
 WATERLINE RELOCATION PLANS

44-04



Moreland Altobelli Associates, LLC
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REVISION DATES

OFFICE:

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER
 CROSS ROADS ROAD AT BENNETT ROAD
 WATERLINE RELOCATION PLANS

MINIMUM DIMENSIONS FOR CONCRETE BLOCKING					
PIPE BEND SIZE	A	B	C	D	
11 1/4"	8"	1.0"	1.0"	7"	1.0"
	8"	1.0"	1.25"	7"	1.0"
	12"	1.0"	3.0"	11"	2.0"
	16"	2.0"	3.0"	15"	2.0"
	20"	3.0"	3.0"	19"	3.0"
22 1/2"	8"	1.0"	1.5"	7"	1.0"
	8"	1.0"	2.0"	7"	2.0"
	12"	2.0"	3.0"	11"	2.0"
	16"	2.0"	4.0"	15"	3.0"
	20"	3.0"	5.0"	19"	3.0"
45°	8"	1.5"	2.0"	7"	1.5"
	8"	2.0"	3.0"	7"	3.0"
	12"	2.0"	4.0"	11"	4.0"
	16"	3.0"	5.0"	15"	4.0"
	20"	4.0"	6.0"	19"	5.0"
90°	8"	1.5"	2.5"	7"	2.0"
	8"	2.0"	3.0"	7"	3.0"
	12"	4.0"	6.0"	11"	4.0"
	16"	8.0"	8.0"	19"	7.0"
	24"	8.0"	10.0"	22"	8.0"
TEES AND PLUGS	8"	1.5"	2.0"	7"	2.0"
	8"	2.0"	3.0"	7"	2.0"
	12"	2.0"	4.0"	11"	4.0"
	16"	3.0"	5.0"	15"	3.0"
	20"	4.0"	7.0"	19"	5.0"

NOTES:

- CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.
- THRUST BLOCK SHALL BE POURED AGAINST UNDISTURBED SOIL.
- BOLTS/NUTS SHALL BE PROTECTED FROM CONCRETE COVERAGE.
- DIMENSIONS ARE BASED ON 150 P.S.I. LINE PRESSURE, 3,000 P.S.I. CONCRETE AND 2000 P.S.F. SOIL BEARING PRESSURE.

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER
DATE: SEPT. 12, 2005
SCALE: N.T.S.
DRAWN BY: [Signature]
DETAIL TITLE: THRUST BLOCK DIMENSIONS
DETAIL NO.: 17.0

NOTES:

- BLOCKING SHALL BE CLASS "C" CONCRETE; "SACKCRETE" WILL NOT BE ALLOWED.
- CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.
- THRUST BLOCK SHALL BE POURED AGAINST UNDISTURBED SOIL.
- BOLTS/NUTS SHALL BE PROTECTED FROM CONCRETE COVERAGE.

Line Pressure = 150 PSI Soil Pressure = 2000 PSF				
Pipe Size X	A	B	C	D
24"	2'-6"	6'-0"	6'-0"	3'-6"
20"	2'-4"	5'-0"	5'-0"	3'-0"
18"	1'-2"	4'-6"	4'-6"	2'-9"
16"	1'-6"	4'-0"	4'-0"	2'-6"
14"	1'-6"	3'-6"	3'-6"	2'-3"
12"	1'-3"	3'-0"	3'-0"	2'-0"
10"	1'-3"	2'-6"	2'-6"	1'-6"
8"	1'-0"	2'-0"	2'-0"	1'-6"
6"	0'-11"	1'-6"	1'-6"	1'-3"
4"	0'-10"	1'-0"	1'-0"	1'-0"

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER
DATE: SEPT. 12, 2005
SCALE: N.T.S.
DRAWN BY: [Signature]
DETAIL TITLE: THRUST BLOCK - TEE
DETAIL NO.: 18.0

NOTES:

- CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.
- THRUST BLOCK SHALL BE POURED AGAINST UNDISTURBED SOIL.
- BOLTS/NUTS SHALL BE PROTECTED FROM CONCRETE COVERAGE.
- VALVES TO BE LOCATED OUTSIDE OF PAVEMENT UNLESS APPROVED BY F.C.W.S.

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER
DATE: SEPT. 12, 2005
SCALE: N.T.S.
DRAWN BY: [Signature]
DETAIL TITLE: THRUST RESTRAINT AT FITTING
DETAIL NO.: 19.0

Pipe Size X	A	B
6"	2'-0"	2'-0"
8"	2'-6"	2'-6"
10"	3'-6"	3'-6"
12"	4'-0"	4'-0"
14"	4'-6"	4'-6"
16"	5'-0"	5'-0"
18"	6'-0"	6'-0"
20"	6'-6"	6'-6"
24"	7'-6"	7'-6"

NOTES:

- DEADMAN SHALL BE CLASS "C" CONCRETE; "SACKCRETE" WILL NOT BE ALLOWED.
- THE UTILITY LINE MUST BE LOWERED IN ORDER TO HAVE FIVE FEET (5') OF COVER AT THE BEND, TEE, REDUCER OR PLUG AT ALL LOCATIONS WHERE THESE FITTINGS MAY BE UTILIZED.
- FOR SOIL CONDITIONS LESS THAN 2000 P.S.F. BEARING PRESSURE OR PIPE PRESSURE OVER 150 P.S.I. SPECIAL THRUST BLOCKS / RESTRAINT MUST BE COMPUTED AND APPROVED.
- CONCRETE SHALL BE POURED AGAINST UNDISTURBED SOIL. DISTURBED SOIL TO BE COMPACTED TO 95% OPTIMUM MOISTURE CONTENT.
- MAINTAIN 2" CLEARANCE BETWEEN PIPE WALL AND REBAR.

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER
DATE: SEPT. 12, 2005
SCALE: N.T.S.
DRAWN BY: [Signature]
DETAIL TITLE: CONCRETE DEADMAN
DETAIL NO.: 22.0

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER
DATE: SEPT. 12, 2005
SCALE: N.T.S.
DRAWN BY: [Signature]
DETAIL TITLE: DEFLECTION OF PRESSURE MAINS AROUND HEADWALLS AND CROSS-DRAINS
DETAIL NO.: 24.0

NOTES:

- THE NEAR EDGE OF THE PIT CAN BE NO CLOSER TO THE EDGE OF THE TRAVEL WAY THAN THE DEPTH BELOW THE SURFACE OF THE TRAVEL WAY UNLESS BULKHEADED.
- CASING PIPE UP TO 20" SHALL HAVE A THICKNESS OF .375"
- CASING PIPE OVER 20" SHALL HAVE A THICKNESS OF .5"
- CASING PIPE UNDER RAILROAD MUST MEET RAILROAD REQUIREMENTS
- ALL PIPE WITHIN CASING TO BE RESTRAINED JOINT.

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER
DATE: SEPT. 12, 2005
SCALE: N.T.S.
DRAWN BY: [Signature]
DETAIL TITLE: CASING PIPE JACK AND BORE
DETAIL NO.: 26.0

NOTES:

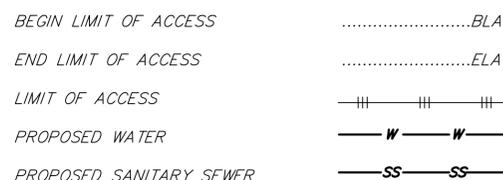
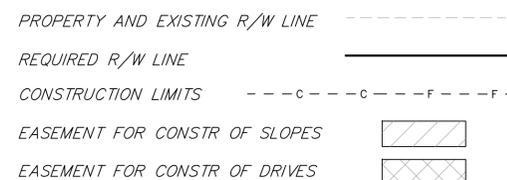
- SPACER SHELL MUST BE A MINIMUM 14 GA. T 304 STAINLESS STEEL. ALL SURFACES ARE FULLY CHEMICALLY PASSIVATED.
- CASING PIPE UP TO 20" SHALL HAVE A THICKNESS OF .375 INCH
- CASING PIPE OVER 20" SHALL HAVE A THICKNESS OF .5 INCH
- SPACER LINER MUST BE PVC - .90 THICK, 85-90 DUROMETER (ASTM D1706-61) (ASTM - B117) (ASTM - D149-61)
- RUNNERS MUST BE ULTRA HIGH MOLECULAR WEIGHT POLYMER, WITH HIGH RESISTANCE TO ABRASION AND SLIDE WEAR, LOW DEFLECTION UNDER COMPRESSION AND DIELECTRIC INSULATION.
- SPACER FASTENERS MUST BE 5/16" T304 STAINLESS STEEL
- SPACER RISERS MINIMUM 10 GA. T 304 STAINLESS STEEL, MUST BE REINFORCED IF OVER 6".

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER
DATE: SEPT. 12, 2005
SCALE: N.T.S.
DRAWN BY: [Signature]
DETAIL TITLE: AUGERED JACKED CASING
DETAIL NO.: 27.0

NOTES:

- COMPACTION % BASED UPON THE MAXIMUM DRY DENSITY AS DETERMINED BY A STANDARD PROCTOR ANALYSIS +/- 3% OF THE OPTIMUM MOISTURE CONTENT
- TRENCH SHALL PROVIDE UNIFORM AND CONTINUOUS SUPPORT BETWEEN BELL HOLES.
- COMPACTION BACKFILLS SHALL BE BUILT UP IN LAYERS AND EACH LAYER SHALL BE THOROUGHLY COMPACTED BEFORE BEGINNING ANOTHER LAYER. FLOODING IS NOT ALLOWED. NO FROZEN OR WET MATERIALS MAY BE PLACED IN TRENCHES.
- COMPACTION TESTS MAY BE REQUIRED IN EXISTING OR PROPOSED STREETS, SIDEWALKS, DRIVES AND OTHER EXISTING OR PROPOSED PAVED AREAS AT VARYING DEPTHS AND AT INTERVALS AS DETERMINED BY FORSYTH COUNTY WITH A MINIMUM OF ONE TEST ON EACH JOB, OF ONE REQUIRED TEST FOR EACH 400' OR LESS OF WATER MAIN CONSTRUCTION OR WHEN CONDITIONS IN THE OPINION OF FORSYTH COUNTY WARRANT THE NEED FOR ADDITIONAL TEST.
- NO LARGE ROCKS PERMITTED IN THE BACKFILL FROM BOTTOM OF TRENCH TO 2' (FEET) ABOVE PIPE.
- FOR EXCAVATION IN POOR SOIL OR ROCK, REMOVE UNSUITABLE MATERIAL TO WIDTH AND DEPTH AS DIRECTED BEFORE PIPE IS LAID. THE SUBGRADE SHALL BE BACKFILLED WITH AN APPROVED MATERIAL TAMPED TO 95%.
- IN EXCAVATING ROCK, MINIMUM OF 6" SELECT MATERIAL UNDER BOTTOM OF PIPE.
- 95% COMPACTION REQUIRED WITHIN THE COUNTY RIGHT OF WAY.

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER
DATE: SEPT. 12, 2005
SCALE: N.T.S.
DRAWN BY: [Signature]
DETAIL TITLE: BEDDING FOR DUCTILE IRON PIPE
DETAIL NO.: 33.0



MA
MORELAND ALTABELLI
-AN ATLAS COMPANY-

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REVISION DATES

FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER

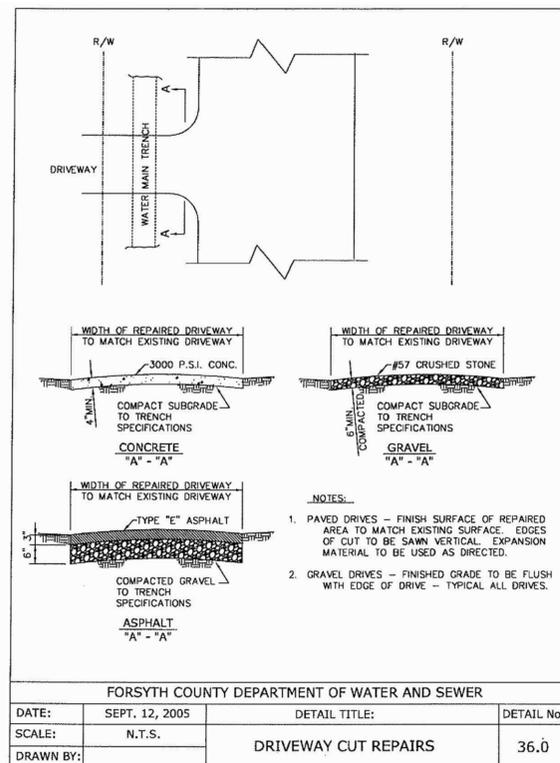
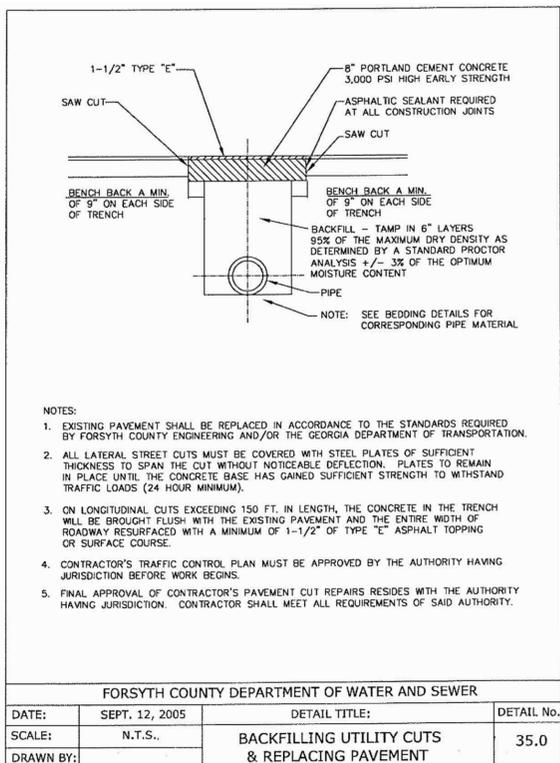
OFFICE:
CROSS ROADS ROAD AT BENNETT ROAD
WATERLINE RELOCATION PLANS

DUCTILE IRON PIPE DEPTH

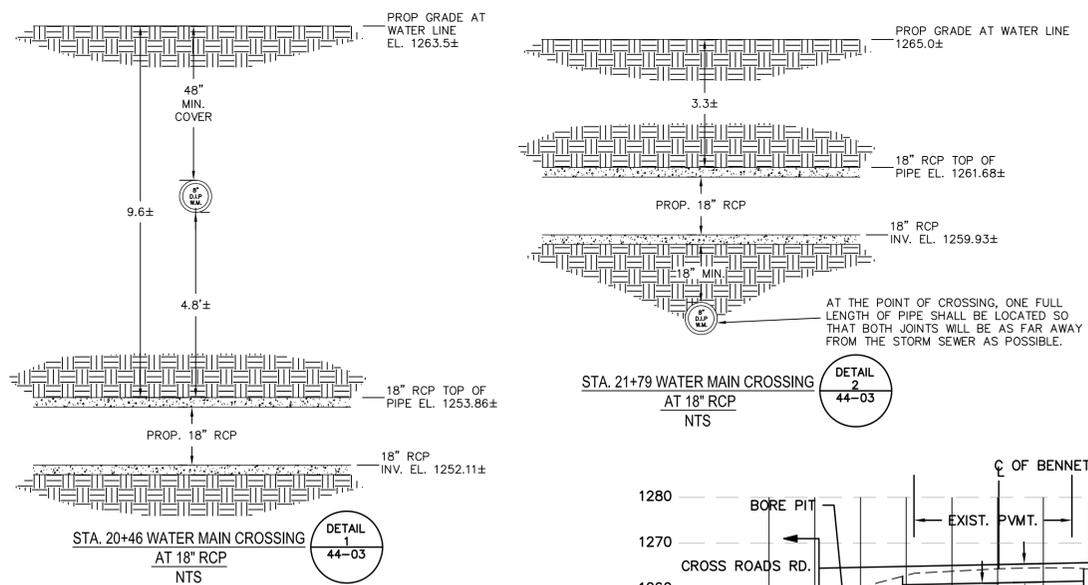
SIZE INCHES	PRESSURE CLASS P.S.I.	LAYING CONDITIONS MAXIMUM DEPTH OF COVER IN FEET		
		TYPE III	TYPE IV	TYPE V
6	350	37	47	65
8	350	25	34	50
10	350	19	28	45
12	350	19	28	44
14	250 300 350	15 17 19	23 26 27	36 42 44
16	250 300 350	15 17 20	24 26 28	34 39 44
18	250 300 350	14 17 19	22 26 28	31 36 41
20	250 300 350	14 17 19	22 26 28	30 35 38
24	200 250 300 350	12 15 17 19	17 20 24 28	25 29 32 37

AWWA M41 TABLE 4 - 6
 FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER

DATE: SEPT. 12, 2005	DETAIL TITLE:	DETAIL NO.
SCALE: N.T.S.	MAXIMUM TRENCH DEPTHS, D.I.P.	34.0
DRAWN BY:		

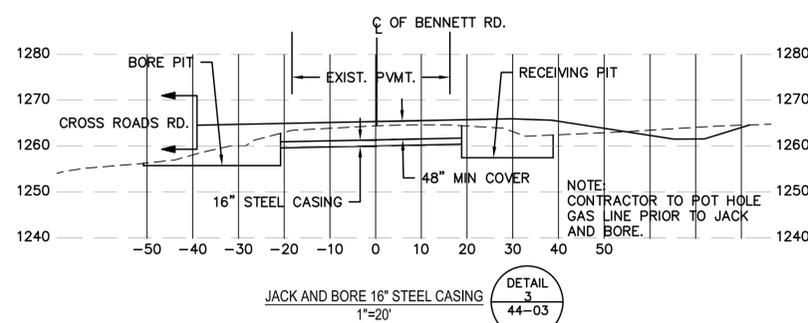


- WATER DISTRIBUTION NOTES**
- ALL WORK AND MATERIALS ARE TO CONFORM TO CURRENT FORSYTH COUNTY STANDARDS.
 - NOTIFY FORSYTH COUNTY WATER AND SEWER DEPARTMENT 24 HOURS PRIOR TO ANY WATER LINE CONSTRUCTION AT (770) 886-2790.
 - THE CONTRACTOR SHALL CALL THE UTILITIES PROTECTION CENTER "CALL BEFORE YOU DIG", TELEPHONE NUMBER 1-800-282-7411, BEFORE INITIATING EXCAVATION ACTIVITIES.
 - ALL WATER LINES SHALL BE DUCTILE IRON PIPE CLASS 50 OR 350.
 - WATER LINES SHALL BE INSTALLED 5' BACK OF CURB.
 - WATER LINES SHALL HAVE AT LEAST 4 FEET OF COVER OR BE 4 FEET BELOW ROAD GRADE WHICHEVER IS GREATER.
 - SHORT SIDE SERVICES SHALL BE 3/4" COPPER.
 - LONG SIDE SERVICES SHALL BE 1" COPPER INCASED IN 2" PVC CONDUITS WITH 3/4" WYES AT LOT CORNERS.
 - WATER METERS ARE TO BE LOCATED BOC ON SHORT SIDE, IMMEDIATELY BOC ON LONG SIDE.
 - FIRE HYDRANTS ARE TO BE 3-WAY 5-1/4" TYPE, AVK SERIES 27.
 - FIRE HYDRANTS MUST BE FLOW TESTED PRIOR TO FINAL PLAT TO ENSURE ADEQUATE FIRE FLOWS.
 - CONCRETE VALVE MARKERS ARE TO BE INSTALLED AT ALL VALVES EXCEPT AT FIRE HYDRANTS.
 - CONCRETE BLOCKING SHALL BE PLACED AT ALL BENDS, TEES, FITTINGS AND PLUGS. COST OF CONCRETE FOR THRUST BLOCKS AND ANCHORS SHALL BE INCLUDED IN THE PRICE BID FOR WATER MAIN.
 - 300 PSI CURB STOPS, CORPS, AND WYES, REQUIRED PER FORSYTH COUNTY STANDARDS.
 - NO DEVIATIONS FROM APPROVED DRAWINGS ARE ALLOWED WITHOUT APPROVAL FROM FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER.
 - PIPES ARE TO BE PRESSURE TESTED AND DISINFECTED PER FORSYTH COUNTY SPECIFICATIONS.
 - THE DEVELOPER/CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF ALL INFRASTRUCTURE FOR AN 18 MONTH PERIOD FOLLOWING FINAL PLAT.
 - SOME EXISTING WATER LINE LOCATIONS ARE NOTED AS PER FORSYTH COUNTY C.I.S. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING WATER LINES PRIOR TO CONSTRUCTION.
 - CONTRACTOR TO NOTIFY FORSYTH COUNTY OF ANY DESCRIPENCIES PRIOR TO CONSTRUCTION.
 - COST OF WATER LINE LOCATION AND COORDINATION SHALL BE INCLUDED IN PRICE BID FOR WATER LINE.
 - NOTIFY FORSYTH CO. WATER & SEWER DEPARTMENT 24 HOURS PRIOR TO INITIATING WATER CONSTRUCTION AT (770) 781-2160.
 - RESTRAIN CONNECTIONS AT ALL PIPE BENDS.
 - RESTRAIN ALL PIPE CONNECTIONS THAT ARE PLACED IN STEEL CASINGS.
 - ALL VALVES SHALL BE GATE VALVES.
 - ALL DOUBLE STRAP SADDLES SHALL BE INCLUDED IN THE PRICE BID FOR WATER MAIN.
 - RELOCATE EXISTING BACKFLOW PREVENTER, VAULT, METER, VALVES, AND ALL INTERNAL EQUIPMENT AND COMPONENTS UNDER ITEM 670-9731, PER EACH. REFERENCE TO SPECIAL PROVISION SECTION 670-WATER DISTRIBUTION SYSTEM.
 - CONTRACTOR WILL COORDINATE WATERLINE CONSTRUCTION AND STORM DRAINAGE CONSTRUCTION TO AVOID CONFLICTS.
 - ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED ENTIRELY IN PREFABRICATED, 8-MIL POLYETHYLENE SLEEVES, WHICH SHALL BE SLIPPED OVER THE PIPE DURING INSTALLATION, OVERLAPPED WHERE NECESSARY, AND SECURED WITH POLYETHYLENE TAPE TO COMPLETELY PREVENT THE ENTRANCE OF FOREIGN MATTER. SUCH ENCASUREMENT SHALL BE CARRIED OUT IN ACCORDANCE WITH AN/AWWA SPECIFICATION C 105/A 21.5-82, "AMERICAN NATIONAL STANDARD FOR POLYETHYLENE ENCASEMENT FOR DUCTILE IRON PIPING AND WATER AND OTHER LIQUIDS". THE COLOR OF POLYETHYLENE SLEEVE SHALL BE IDENTICAL TO THE PIPE COLOR REQUIRED BY SECTION 1.03.



Crossroads Rd at Bennett Rd Water and Sanitary Sewer Relocation			
Item No.	Description	Unit	Quant.
611-8010	Adjust Hydrant to Grade	EA	1
611-8120	Adjust Meter to Grade	EA	1
611-8140	Adjust Water Valve Box to Grade	EA	2
611-9995	Adjust Water Valve Vault To Grade, Sta -17+81	EA	1
615-1000	Jack and Bore Pipe, 16" Steel casing, 0.375" thick	LF	45
670-0800	Water Meter, 3/4"	EA	1
670-1060	Water Main, 6" DIP	LF	12
670-1080	Water Main, 8" DIP	LF	1220
670-2002	Valve Marker	EA	1
670-2060	Gate Valve, 6"	EA	2
670-2080	Gate Valve, 8"	EA	8
670-4000	Fire Hydrant	EA	2
670-5620	Water Service Line 3/4"	LF	10
670-5020	Water Service Line, 2"	LF	50
670-9255	Steel Casing 16", 0.375" thick	LF	98
670-9900	Remove Exist. Water Meter, Incl box	EA	1
670-9910	Remove Exist Water Valve, Incl box	EA	5
670-9920	Remove Exist Fire Hydrant	EA	2

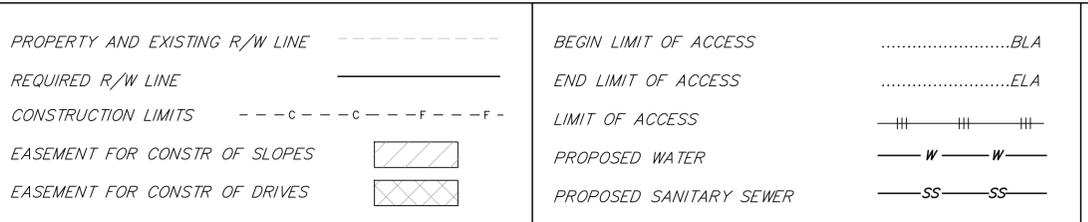
- FORSYTH COUNTY GENERAL NOTES**
- FORSYTH COUNTY WILL FURNISH NEW WATER METER AND BACK FLOW PREVENTER. CONTRACTOR TO PROVIDE AND INSTALL METER BOX. CONTRACTOR TO INSTALL METER PROVIDED BY COUNTY. CONTRACTOR TO COORDINATE ALL WORK WITH FORSYTH COUNTY WATER AND SEWER DEPARTMENT. CONTRACTOR TO SALVAGE OLD METER AND BACK FLOW PREVENTERS AND DELIVER TO THE COUNTY. ANY PRESSURE REDUCER SHALL BE RELOCATED ON THE RELOCATED SERVICE. CONTACT, 770-886-2791.
 - NEW WATER METER LOCATIONS ARE APPROXIMATE TO BE FIELD VERIFIED AND LOCATED DURING CONSTRUCTION BY THE CONTRACTOR TO CONNECT TO EXISTING SERVICE LINE.
 - ALL EXISTING FIRE HYDRANTS AND VALVES REMOVED DUE TO ROAD CONSTRUCTION SHALL BE DELIVERED TO THE FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER MAINTENANCE DIVISION. CONTACT: 770-886-2791
 - THE PAYMENT FOR CUT & PLUG EXISTING PIPES TO BE INCLUDED IN LINEAR FEET PRICE FOR NEW PIPES. LOCATIONS SHALL BE COORDINATED WITH FORSYTH COUNTY.
 - SERVICE TIE-INS FOR COMMERCIAL SITES & SUBDIVISION MAINS MUST BE PERFORMED AT NIGHT OR SUNDAY AS APPROPRIATE.
 - NO SECTIONS OF WATER MAIN MAY BE VALVED OFF OR ISOLATED.
 - CONTRACTOR TO RAISE EXISTING FIRE HYDRANTS AS REQUIRED FOR STAGED CONSTRUCTION.
 - CONTRACTOR TO RAISE EXISTING VALVE BOXES AS REQUIRED. IF VALVE BOX BECOMES DEEPER THAN 6', CONTRACTOR SHALL INSTALL STEM EXTENSION.
 - CONTRACTOR TO PROTECT EXISTING MAINS, METERS, VAULTS AND APPURTENANCES DURING STAGED CONSTRUCTION OF THE ROADWAY & WATER SYSTEM.
 - COST OF RAISING FIRE HYDRANTS, VALVE BOXES, STEM EXTENSIONS, AND PROTECTION OF EXISTING MAINS, METERS, VAULTS AND APPURTENANCES SHALL BE INCLUDED IN PRICE BID FOR WATER MAIN.



DESIGN ENGINEER CERTIFICATION

"I certify that the proposed sanitary sewer system has been designed in accordance with the FCDWS Specification document titled "Standard Specifications for Water Distribution Systems and Sanitary Sewer Systems", including all amendments.

Kenneth E. Quintana, P.E., R.L.S.



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 Telephone (770) 781-5531

REVISION DATES	

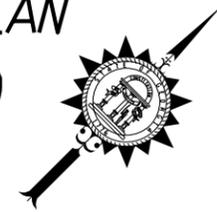
FORSYTH COUNTY DEPARTMENT OF WATER AND SEWER

OFFICE:
CROSS ROADS ROAD AT BENNETT ROAD WATERLINE RELOCATION PLANS

44-07

FORSYTH COUNTY TRANSPORTATION & ENGINEERING DEPARTMENT

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CROSS ROADS ROAD AT BENNETT ROAD INTERSECTION IMPROVEMENT



BEGIN-POINT COORDINATES

Longitude: 84.0627°

Latitude: 34.3132°

MID-POINT COORDINATES

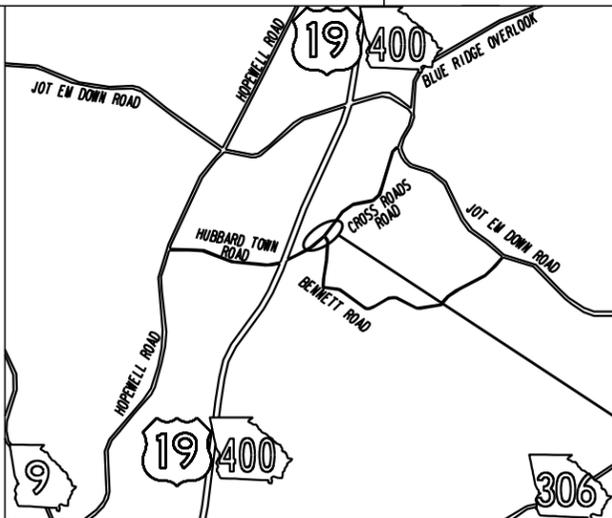
Longitude: 84.0604°

Latitude: 34.3146°

END-POINT COORDINATES

Longitude: 84.0586°

Latitude: 34.3165°



LOCATION SKETCH

FUNCTIONAL CLASS:
COLLECTOR

THIS PROJECT IS 100% IN
FORSYTH COUNTY AND IS
100% IN CONG. DIST. NO. 9.

PROJECT DESIGNATION:
DESIGNED IN ENGLISH UNITS.

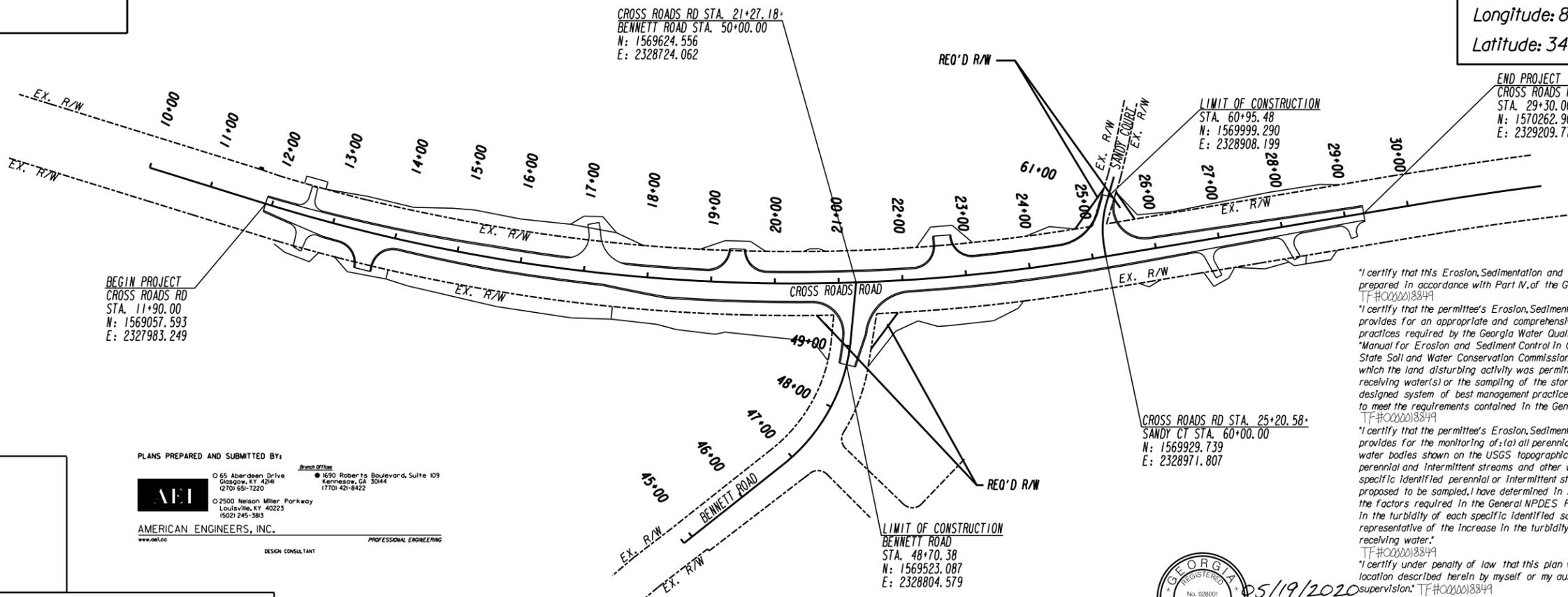
THIS PROJECT HAS BEEN PREPARED
USING THE HORIZONTAL GEORGIA
COORDINATE SYSTEM OF 1984 (NAD
1983/94 WEST ZONE, AND THE NORTH
AMERICAN VERTICAL DATUM (NAVD)
OF 1988.

PRIMARY PERMITTEE

FORSYTH COUNTY
DEPARTMENT OF TRANSPORTATION
110 East Main Street
Suite 120
Cumming, Georgia 30040
Phone: (770) 781-2165

PLANS PREPARED AND SUBMITTED BY:
AEI
AMERICAN ENGINEERS, INC.
www.aei.com
DESIGN CONSULTANT
PROFESSIONAL ENGINEERING

65 Aberdeen Drive
Glasgow, KY 4244
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Kennesaw, GA 30144
(770) 421-9422
2500 Nelson Miller Parkway
Louisville, KY 40223
(502) 245-3813



"I certify that this Erosion, Sedimentation and Pollution Control Plan has been prepared in accordance with Part IV, of the General NPDES Permit No. GARI00002: TF#000008849
"I certify that the permittee's Erosion, Sedimentation and Pollution Control Plan provides for an appropriate and comprehensive system of best management practices required by the Georgia Water Quality Control Act and the document "Manual for Erosion and Sediment Control in Georgia" (Manual) published by the State Soil and Water Conservation Commission as of January 1 of the year in which the land disturbing activity was permitted, provides for sampling of the receiving water(s) or the sampling of the storm water outfalls and that the designed system of best management practices and sampling methods is expected to meet the requirements contained in the General NPDES Permit No. GARI00002: TF#000008849
"I certify that the permittee's Erosion, Sedimentation and Pollution Control Plan provides for the monitoring of: (a) all perennial and intermittent streams and other water bodies shown on the USGS topographic map and all other field verified perennial and intermittent streams and other water bodies, or (b) where any such specific identified perennial or intermittent stream and other water body is not proposed to be sampled, I have determined in my professional judgment, utilizing the factors required in the General NPDES Permit No. GARI00002, that the increase in the turbidity of each specific identified sampled receiving water will be representative of the increase in the turbidity of a specific identified un-sampled receiving water."
TF#000008849
"I certify under penalty of law that this plan was prepared after a site visit to the location described herein by myself or my authorized agent, under my direct supervision." TF#000008849



SUBMITTED BY: **Tom Fravel** 05/19/2020
Thomas S. Fravel, P.E. 000008849 TF#000008849
GSWCC LEVEL II Certification Number



24 HOUR CONTACT:

Name _____

Street Address _____

City, State Zip _____

Phone Number _____

Email Address _____

Contractor shall complete the information in this box.

LENGTH OF PROJECT	COUNTY No. 117
	MILES
NET LENGTH OF ROADWAY	0.330
NET LENGTH OF BRIDGES	0.000
NET LENGTH OF PROJECT	0.330
NET LENGTH OF EXCEPTIONS	0.000
GROSS LENGTH OF PROJECT	0.330

PLANS COMPLETED 05-19-2020				
REVISIONS				
DATE	ENTITY REQUESTING REVISION(S)	DRAWING NUMBER(S)	SIGNATURE	GSWCC LEVEL II CERT.*
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

Georgia Soil and Water Conservation Commission EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST INFRASTRUCTURE CONSTRUCTION PROJECTS

SWCD: Upper Chattahoochee River SWCD

Project Name: Cross Roads Road at Bennett Road Address: _____

City/County: Forsyth Date on Plans: _____

Name & Email of Person Filling Out Checklist: _____

Plan Page #	Included Y/N	TO BE SHOWN ON ES&PC PLAN
51-001	Y	1 The applicable Erosion, Sedimentation and Pollution Control Plan Checklist established by the Commission as of January 1 of the year in which the land-disturbing activity was permitted. (The completed Checklist must be submitted with the ES&PC Plan or the Plan will not be reviewed)
50-001	Y	2 Level II certification number issued by the Commission, signature and seal of the certified design professional. (Signature, seal and Level II number must be on each sheet pertaining to ES&PC Plan or the Plan will not be reviewed)
50-001	Y	3 The name and phone number of the 24-hour local contact responsible for erosion, sedimentation and pollution controls.
50-001	Y	4 Provide the name, address, email address, and phone number of primary permittee.
53-001	Y	5 Note total and disturbed acreage of the project or phase under construction.
50-001	Y	6 Provide the GPS locations of the beginning and end of the Infrastructure project. Give the Latitude and Longitude in decimal degrees.
50-001	Y	7 Initial date of the Plan and the dates of any revisions made to the Plan including the entity who requested the revisions.
51-002	Y	8 Description of the nature of construction activity.
50-001	Y	9 Provide vicinity map showing site's relation to surrounding areas. Include designation of specific phase, if necessary.
55-001	Y	10 Identify the project receiving waters and describe all sensitive adjacent areas including streams, lakes, residential areas, wetlands, marshlands, etc. which may be affected.
50-001	Y	11 Design professional's certification statement and signature that the site was visited prior to development of the ES&PC Plan as stated on Part IV page 21 of the permit.
50-001	Y	12 Design professional's certification statement and signature that the permittee's ES&PC Plan provides for an appropriate and comprehensive system of BMPs and sampling to meet permit requirements as stated on Part IV page 20 of the permit.*
50-001	Y	13 Design professional certification statement and signature that the permittee's ES&PC Plan provides for representative sampling as stated on Part IV D.6.c.(3) page 37 of permit as applicable.*
51-002	Y	14 Clearly note the statement that "The design professional who prepared the ES&PC Plan is to inspect the installation of the initial sediment storage requirements, perimeter control BMPs, and sediment basins within 7 days after installation." in accordance with Part IV.A.5, page 26 of the permit.*
51-003	Y	15 Clearly note the statement that "Non-exempt activities shall not be conducted within the 25 or 50-foot undisturbed stream buffers as measured from the point of westered vegetation or within 25-feet of the coastal marshland buffer as measured from the Jurisdictional Determination Line without first acquiring the necessary variances and permits.*"
51-003	Y	16 Provide a description of any buffer encroachments and indicate whether a buffer variance is required.
51-002	Y	17 Clearly note the statement that "Amendments/revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional.*"
51-002	Y	18 Clearly note the statement that "Waste materials shall not be discharged to waters of the State, except as authorized by a section 404 permit.*"
51-002	Y	19 Clearly note statement that "The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to land disturbing activities.*"
51-002	Y	20 Clearly note statement that "Erosion control measures will be maintained at all times. If full implementation of the approved Plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source.*"
51-002	Y	21 Clearly note the statement "Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding.*"
51-003	Y	22 Any construction activity which discharges storm water into an Impaired Stream Segment, or within 1 linear mile upstream of and within the same watershed as, any portion of an Biota Impaired Stream Segment must comply with Part III, C. of the Permit. Include the completed Appendix 1 listing all the BMPs that will be used for those areas of the site which discharge to the Impaired Stream Segment.*
51-0004	N	23 If a TMDL Implementation Plan for sediment has been finalized for the Impaired Stream Segment (identified in item 22 above) at least six months prior to submittal of NOI, the ES&PC Plan must address any site-specific conditions or requirements included in the TMDL Implementation Plan.*
51-002	Y	24 BMPs for concrete washdown of tools, concrete mixer chutes, hoppers and the rear of the vehicles. Washout of the drum at the construction site is prohibited.*
51-002	Y	25 Provide BMPs for the remediation of all petroleum spills and leaks.
51-002	Y	26 Description of the measures that will be installed during the construction process to control pollutants in storm water that will occur after construction operations have been completed.*
51-002	Y	27 Description of practices to provide cover for building materials and building products on site.*
51-002	Y	28 Description of the practices that will be used to reduce the pollutants in storm water discharges.*

Plan Page #	Included Y/N	TO BE SHOWN ON ES&PC PLAN
51-002	Y	29 Description and chart or timeline of the intended sequence of major activities which disturb soils for the major portions of the site (i.e., initial perimeter and sediment storage BMPs, clearing and grubbing activities, excavation activities, utility activities, temporary and final stabilization).
51-003	Y	30 Provide complete requirements of inspections and record keeping by the primary permittee.*
51-003	Y	31 Provide complete requirements of sampling frequency and reporting of sampling results.*
51-003	Y	32 Provide complete details for retention of records as per Part IV.F. of the permit.*
51-003	Y	33 Description of analytical methods to be used to collect and analyze the samples from each location.*
51-003	Y	34 Appendix B rationale for NTU values at all outfall sampling points where applicable.*
55-001	Y	35 Delineate all sampling locations, perennial and intermittent streams and other water bodies into which storm water is discharged also provide a summary chart of the justification and analysis for the representative sampling as applicable.*
54-001 - 54 012	Y	36 A description of appropriate controls and measures that will be implemented at the construction site including: (1) initial sediment storage requirements and perimeter control BMPs, (2) intermediate grading and drainage BMPs, and (3) final BMPs. For construction sites where there will be no mass grading and the initial perimeter control BMPs, intermediate grading and drainage BMPs, and final BMPs are the same, the plan may combine all of the BMPs into a single phase.*
50-001	Y	37 Graphic scale and North arrow.
55-001	Y	38 Existing and proposed contour lines with contour lines drawn at an interval in accordance with the following: Existing Contours USGS 1": 2000' Topographical Sheets Proposed Contours 1": 400' Centerline Profile
51-003	N	39 Use of alternative BMPs whose performance has been documented to be equivalent to or superior to conventional BMPs as certified by a Design Professional (unless disapproved by EPD or the Georgia Soil and Water Conservation Commission). Please refer to the Alternative BMP Guidance Document found at www.gaswcc.org.
51-003	N	40 Use of alternative BMP for application to the Equivalent BMP List. Please refer to Appendix A-2 of the Manual for Erosion & Sediment Control in Georgia 2016 Edition.*
N/A	N	41 Delineation of the applicable 25-foot or 50-foot undisturbed buffers adjacent to State waters and any additional buffers required by the Local Issuing Authority. Clearly note and delineate all areas of impact.
N/A	N	42 Delineation of on-site wetlands and all State waters located on and within 200 feet of the project site.
53-001	Y	43 Delineation and acreage of contributing drainage basins on the project site.
53-001	Y	44 Delineate on-site drainage and off-site watersheds using USGS 1": 2000' topographical sheets.
53-001	Y	45 An estimate of the runoff coefficient or peak discharge flow of the site prior to and after construction activities are completed.
53-001	Y	46 Storm-drain pipe and weir velocities with appropriate outlet protection to accommodate discharges without erosion. Identify/Delineate all storm water discharge points.
51-002	Y	47 Soil series for the project site and their delineation.
54-001 - 54 012	Y	48 The limits of disturbance for each phase of construction.
51-003	Y	49 Provide a minimum of 67 cubic yards of sediment storage per acre drained using a temporary sediment basin, retrofitted detention pond, and/or excavated inlet sediment traps for each common drainage location. Sediment storage volume must be in place prior to and during all land disturbance activities until final stabilization of the site has been achieved. A written justification explaining the decision to use equivalent controls when a sediment basin is not attainable must be included in the plan for each common drainage location in which a sediment basin is not provided. A written justification as to why 67 cubic yards of storage is not attainable must also be given. Worksheets from the Manual must be included for structural BMPs and all calculations used by the design professional to obtain the required sediment storage when using equivalent controls. When discharging from sediment basins and impoundments, permittees are required to utilize outlet structures that withdraw water from the surface, unless infeasible. If outlet structures that withdraw water from the surface are not feasible, a written justification explaining this decision must be included in the plan.
54-001 - 54 012	Y	50 Location of Best Management Practices that are consistent with and no less stringent than the Manual for Erosion and Sediment Control in Georgia. Use uniform coding symbols from the Manual, Chapter 6, with legend.
56-001 - 56 012	Y	51 Provide detailed drawings for all structural practices. Specifications must, at a minimum, meet the guidelines set forth in the Manual for Erosion and Sediment Control in Georgia.
51-002	Y	52 Provide vegetative plan, noting all temporary and permanent vegetative practices. Include species, planting dates and seeding, fertilizer, lime and mulching rates. Vegetative plan shall be site specific for appropriate time of year that seeding will take place and for the appropriate geographic region of Georgia.

*If using this checklist for a project that is less than 1 acre and not part of a common development but within 200 feet of a perennial stream the * checklist items would be N/A. Effective January 1, 2020



SUBMITTED BY: Thomas S. Fravel, P.E. 05/19/2020
TF#(00000)8849 0000018849
GSWCC LEVEL II Certification Number

PLANS PREPARED AND SUBMITTED BY:

AEI
AMERICAN ENGINEERS, INC.
DESIGN CONSULTANT

Professional Engineer

NTS

REVISION DATES	

ESPCP GENERAL NOTES

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	51-001
CORRECTED:	DATE:	
VERIFIED:	DATE:	

ESPCP GENERAL NOTES

The escape of sediment from the project site shall be prevented by the installation of erosion and sediment control measures and practices prior to land-disturbing activities.

Erosion and sedimentation control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective control, additional erosion and sedimentation control measures shall be implemented to control or treat the sediment source.

ESPCP ALTERATIONS

This Erosion, Sedimentation, and Pollution Control Plan (ESPCP) is provided by the Department. It addresses the staged construction of the project on the basis of common construction methods and techniques. If the Contractor elects to alter the staged construction from that shown in the plans or utilize construction techniques that render this plan ineffective, the Contractor shall revise the plans in accordance to Special Provision 161-Control of Soil Erosion and Sedimentation of the contract.

The Contractor, the Certified Design Professional, and the WECS shall carefully evaluate this plan prior to commencing land-disturbing activities. Amendments/revisions to the ESPCP which have a significant effect on BMPs with a hydraulic component requires a formal revision of the ESPCP and the signature of a GSWCC Level-II Certified Design Professional. Additional BMPs may be added per Special Provision 161-Control of Soil Erosion and Sedimentation.

CONSTRUCTION SCHEDULE AND SEQUENCE OF MAJOR ACTIVITIES

The Contractor is responsible for developing the construction schedule for the project. The construction schedule for this project shall be submitted after the project is awarded along with the NOI. A copy of the construction schedule shall be maintained at the project site.

The project budget includes sufficient funds for the payment of construction exits. The Contractor is responsible for establishing at least one (1) construction exit per the specifications of the construction exit detail included in this ESPCP to minimize or eliminate the vehicle tracking of dirt, soils, and sediments off site. To facilitate project logistics, the Contractor is also responsible for selecting the location(s) of the construction exits(s).

Initial BMP Construction (Stage 1A):

Stage 1A is to take place before any existing ground is disturbed and is to consist of the placement of perimeter silt fencing, rock check dams at outfalls, silt control gates at pipe inlets, inlet sediment traps at existing drainage structures, & rip rap check dams in existing ditches as shown on the BMP Location Plans.

Stages 1 and 2 are to consist of the placement of construction exits, silt fence, slope stabilization mats, and turf reinforcing matting as soon as grading is completed while sediment traps and rip rap are to be in place as soon as drainage structures are installed. Mulch and plant temporary grassing as required by the Standard and Special Provisions. Install inlet sediment traps around structures as shown. Maintain a sump around filter rings shown for Sd2-F until final grade has been established. As soon as final grade has been established, install permanent grassing or sod as shown. All temporary BMPs are to be removed upon completion of construction and final stabilization.

SITE STABILIZATION AND VEGETATION PLANTING SCHEDULE

The EPD General NPDES GARI00002 permit states that any disturbed area where construction activities have temporarily or permanently ceased shall be stabilized within 14 days of such cessation or as soon as practicable if precluded by adverse weather conditions. However in special cases, the Project Engineer may require the contractor to perform stabilization more often than 14 days.

Disturbed areas shall be stabilized with suitable material listed in the current edition of the Department's Standard Specifications (or Special Provisions) Sections 161, 163, 700, or 711 on the basis of when construction activities are expected to resume.

All temporary and permanent vegetative practices including plant species, planting dates, seeding, fertilizing, liming, and mulching rates for this project can be found in Section 700 of the current edition of the Department's Standard Specifications (or Special Provisions) and other applicable contract documents or landscaping plans.

BMP INSTALLATION AND MAINTENANCE MEASURES

See the Department's Standard Specifications (or Special Provisions) 161, 163, 165, 700, 711, and other contract documents for installation and maintenance measures.

PETROLEUM STORAGE, SPILLS AND LEAKS

These plans expressly delegate the responsibility of proper on-site hazardous material management to the Contractor. The Contractor shall at a minimum provide an action plan and keep the necessary materials on site for the capture, clean up, and disposal of any petroleum product, or other hazardous material, leaks or spills associated with the servicing, refueling or operation of any equipment utilized at the site. A copy of the action plan shall be submitted to the Project Engineer and maintained on the project site. All personnel operating or servicing equipment shall be familiar with the action plan. The Contractor shall not park, refuel, or maintain equipment within stream buffers.

If the Contractor elects to store petroleum products on site, the Contractor shall prepare an ESPCP addendum that addresses the additional BMPs needed for onsite storage and spill prevention for petroleum products. This plan shall be prepared by a Certified Design Professional as required by GARI00002 for inclusion with these plans. The Contractor's attention is specifically directed to Standard Specification 107-Legal Regulations and Responsibility to the public for additional requirements.

WASTE DISPOSAL

Where attainable, locate waste collection areas, dumpsters, trash cans and portable toilets at least 50 feet away from streets, gutters, watercourses and storm drains. Secondary containment shall be provided around liquid waste collection areas to minimize the likelihood of contaminated discharges. The Contractor shall comply with applicable state and local waste storage and disposal regulations and obtain all necessary permits. Solid materials, including building materials, shall not be discharged to Waters of the State, unless authorized by a Section 404 Permit.

DEWATERING AND PUMPING ACTIVITIES

Any pumped discharge from an excavation or disturbed area shall be routed through an appropriately sized sediment basin, silt filter bag, or shall be treated equivalently with suitable BMP's. The contractor shall ensure the post BMP treated discharge is sheet flowing. Failure to create sheet flow will obligate the contractor to perform water quality sampling of pumped discharges. The contractor shall prepare sampling plans in accordance with the current GARI00002 NPDES permit by utilizing a Certified Design Professional. No separate payment will be made for water quality sampling of pump discharges.

NONSTORMWATER DISCHARGES

Nonstormwater discharges defined in Part III.A.2 of the NPDES Permit will be identified after construction has commenced. These discharges shall be subject to the same requirements as storm water discharges required by the Georgia Erosion and Sedimentation Control Act, the NPDES Permit, the Clean Water Act, the Manual for Erosion and Sediment Control in Georgia, Department Standards, and other contract documents. The NPDES does not authorize the discharge of soaps or solvents used in vehicle and equipment washing or the discharge of wastewater containing sludge, paint, oils, curing compounds, and other construction materials.

READY MIX CHUTE WASH DOWN

The washing of ready-mix concrete drums and dump truck bodies used in the delivery of Portland cement concrete is prohibited on this site.

In accordance with Standard Specification 107: Legal Regulations and Responsibility to the Public, only the discharge chute utilized in the delivery of Portland cement concrete may be rinsed free of fresh concrete remains. The Contractor shall excavate a pit outside of State water buffers, at least 25 feet from any storm drain and outside of the travelled way, including shoulders, for a wash-down pit. The pit shall be large enough to store all wash-down water without overflowing. Immediately after the wash-down operations are completed and after the wash-down water has soaked into the ground, the pit shall be filled in, and the ground above it shall be graded to match the elevation of the surrounding areas. Alternate wash-down plans must be approved by the Project Engineer.

Wash-down plans describe procedures that prevent wash-down water from entering streams and rivers. Never dispose of wash-down water down a storm drain. Establish a wash-down pit that includes the following: (1) a location away from any storm drain, stream, or river, (2) access to the vehicle being used for wash down, (3) sufficient volume for wash-down water, and (4) permission to use the area for wash down.

On sites where permission or access to excavate a wash-down pit is unavailable, the Contractor may have to wash-down into a sealable 55-gallon drum or other suitable container and then transport the container to a proper disposal site. For additional information, refer to the Georgia Small Business Environmental Assistance Program's "A Guide for Ready Mix Chute/Hopper Wash-down".

OTHER CONTROLS

If the Contractor elects to store building material, building products, construction waste, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials on the site, the Contractor shall provide an appropriate covering to minimize the exposure of those materials or products to precipitation and stormwater to minimize the discharge of pollutants. Minimization of exposure is not required in cases where exposure to precipitation and to stormwater will not result in a discharge of pollutants, or where exposure of the specific material or product poses little risk to stormwater contamination or is intended for outdoor use.

The Contractor shall follow this ESPCP and ensure and demonstrate compliance with all applicable State and/or local regulations for waste disposal, sanitary sewer and septic systems, and petroleum storage.

The Contractor shall control dust from the site in accordance with Section 161 of the current edition of the Department's Standard Specifications.

POSTCONSTRUCTION BMPs FOR STORMWATER MANAGEMENT

All permanent postconstruction BMPs are shown in the construction plans and in the ESPCP plan. The postconstruction BMPs for this project consist of vegetation, channel/ditch stabilization with turf reinforcing mats, riprap at pipe outlets for velocity dissipation and outlet stabilization and slope stabilization matting where necessary. The postconstruction BMPs will provide permanent stabilization of the site and prevent abnormal transportation of sediment and pollutants into receiving waters.

SOIL SERIES INFORMATION

The following is a summary of the soils that are expected to be found on the project site:

Symbol	Name
CaD3	Cecil clay loam, severely eroded sloping phase
CcB2	Cecil sandy loam, 2 to 6 percent slopes, moderately eroded
CcD	Cecil sandy loam, 10 to 15 percent slopes
CcD2	Cecil sandy loam, eroded sloping phase
Ga	Gullied land, acid materials

Due to the size and scope of this project and the nature of soil series maps, it is not reasonably practical to delineate the precise locations of the above listed soils on the construction plans. The NRCS soil survey and soil series maps for the project site are also available online at <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.

SILT FENCE INSTALLATION WITH J HOOKS AND SPURS

Silt fence should never be run continuously. The silt fence should turn back into the fill or slope to create small pockets that trap silt and force stormwater to flow through the silt fence. This technique is called using J hooks (or spurs). The J hooks shall be utilized on all silt fences that are located around the perimeter of the project and along the toe of embankments or slopes. The J hooks shall be spaced in accordance with GDOT Construction Detail D-24C. The maximum J-hook spacing is reached when the top of the J hook is at the same elevation as the bottom of the immediately upgradient J hook. J Hooks shall be paid for as silt fence items per linear foot. All costs and other incidental items are included in cost of installing and maintaining the silt fence.



05/19/2020
SUBMITTED BY: Tom Fravel TF#000018849
Thomas S. Fravel, P.E. GSWCC LEVEL II Certification Number 0000018849

NTS

PLANS PREPARED AND SUBMITTED BY:

AEI
AMERICAN ENGINEERS, INC.
www.aei.cc

DESIGN CONSULTANT

PROFESSIONAL ENGINEERING

Offices:
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 1630 Roberts Boulevard, Suite 109 Kernersville, GA 30444 (770) 431-9422

REVISION DATES	

ESPCP GENERAL NOTES

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	51-002
CORRECTED:	DATE:	
VERIFIED:	DATE:	

SEDIMENT STORAGE

The site has a total disturbed area of 4.33 acres. The following table summarizes the required and available sediment storage for every outfall on this project. The Contractor shall provide and maintain the storage volumes for the BMP's specified in this table.

Table with 14 columns: Outfall, Location, Total Drainage Area, Disturbed Area, Required Sediment Storage Volume, Total Storage Volume Provided, Temporary Sediment Basins (Basin #, Total Volume), Check Dams (# of Devices, Total Volume), Inlet Sediment Traps (# of Devices, Total Volume), Silt Gates (# of Devices, Total Volume), Silt Fence (Length, Total Volume).

To prevent runoff from bypassing inlet sediment traps, a temporary sump shall be installed around all inlet sediment traps that are not located in a low point or an excavated sump. Construct temporary sumps in accordance with Construction Detail D-24C. Temporary sumps shall be installed in a manner that ensures stormwater does not bypass the inlet. The Contractor may submit alternate temporary containment berm designs to the Project Engineer for approval.

STATE-WATER BUFFER IMPACTS

State-water buffers, as defined by O.C.G.A. 12-7-1, are not impacted by this project.

Non-exempt activities shall not be conducted within the 25- or 50-foot undisturbed stream buffers as measured from the point wrested vegetation or within 25-feet of the coastal marshland buffer as measured from the Jurisdictional Determination Line without first acquiring the necessary variances and permits.

INSPECTIONS AND REPORTING

As the primary permittee, the Department must retain the design professional who prepared the ESPCP, or an alternative design professional approved by EPD in writing, to inspect the installation of the initial sediment storage requirements and perimeter control BMPs within 7 days of installation over the entire infrastructure project. Alternatively, for linear infrastructure projects, the permittee must retain either of these personnel to inspect the initial sediment storage requirements and perimeter control BMPs for the initial segment, as defined by Part IV.A.5. of the current GARI00002 Permit, within 7 days of installation and all sediment basins within the entire linear infrastructure project within 7 days of installation. The inspecting design professional shall report the results to the primary permittee within 7 days, and the permittee must correct all deficiencies within 2 business days of receipt of the inspection report, unless on-site weather conditions are such that more time is required. Additionally, the Department's Construction Project Engineer will be responsible for all subsequent 7 day inspections for all new BMP installations.

All other inspections shall be documented on the appropriate Department inspection forms. See Standard Specification (or Special Provision) 167 and other contract documents for inspection and reporting requirements. These inspections shall continue until the Notice of Termination (NOT) is submitted.

Whenever the Department finds that a BMP has failed or is deficient beyond routine maintenance and has resulted in sediment deposition into waters of the State, the Contractor shall take reasonable steps to address the condition, including cleaning up any contaminated surfaces so the material will not discharge in subsequent storm events. When the repair does not require a new or replacement BMP or significant repair, the BMP failure or deficiency must be corrected by the close of the next business day from the time of discovery. A repair requiring a new or replacement BMP or significant repair must be operational by no later than 7 days from the time of discovery. If the repair time within 7 days is infeasible, the Contractor and the Department shall schedule the BMP repair to be operational as soon as practical after the 7 day time frame.

Failure to perform inspections as required by the contract documents and the NPDES permit shall result in the cessation of all construction activities with the exception of Traffic Control and Erosion Control. Continued failure to perform inspections shall result in non-refundable deductions as specified in the contract documents.

WATER QUALITY INSPECTING AND SAMPLING PROCEDURES

See Special Provision 167 and other contract documents for the inspecting and sampling procedures. Sampling locations are provided in the Sampling Location table herein.

RETENTION OF RECORDS

The Department will retain all records related to the implementation of this ESPCP in accordance with Part IV.F of the General Permit GARI00002.

DISCHARGES INTO OR WITHIN ONE LINEAR MILE UPSTREAM OF AND WITHIN THE SAME WATERSHED AS ANY PORTION OF A BIOTA IMPAIRED STREAM SEGMENT

All outfalls are either located further than 1 linear mile upstream or outside of the watershed of an impaired stream segment that has been listed for criteria violated, "Bio F" (impaired fish community) and/or "Bio M" (impaired macro invertebrate community), within Category 4a, 4b or 5, and the potential cause is either "NP" (nonpoint source) or "UR" (urban runoff).

CHANNEL PROTECTION

All channels may be stabilized exclusively with permanent grassing except as noted otherwise in the table below.

Table with 8 columns: Begin Station and Offset, End Station and Offset, Q25, V25, Type of Channel Lining, Channel Bottom Width (ft), Depth of Protection Dp (ft), Quantity (yd³).

SAMPLING LOCATIONS AND GENERAL NOTES

Representative sampling may be utilized on this project as explained here. The individual outfall drainage basins along the project corridor have been carefully evaluated and compared on the basis of four characteristics: the type of construction activity, the disturbed acreage, the average slope about the outfall, and the soil erosion index 0-10, 10 being the most erodible soil. The construction activity types are new road on fill, new road in cut, road widening, and maintenance/safety. The disturbed area classes are less than or equal to 1 acre, greater than 1 acre to less than 2 acres, and equal to or greater than 2 acres. The average outfall slope is mild if it is equal to or less than 0.03, and steep if it is greater than 0.03. The soil erosion index is low if it is less than or equal to 5 and high if it is greater than 5. After evaluation of these characteristics as presented in the project's drainage area map, hydrology and hydraulic studies, construction plans, geotechnical soil survey, and erosion sedimentation and pollution control plans, the Department has determined that the representative sampling scheme shown below is valid for the duration of the project. The table shows the groups of similar outfall drainage basins.

The increase in turbidity at the specified locations in the table below will be representative of the alternate outfall drainage basins when similar outfall drainage basins exist. Approved primary and alternate representative sampled features are identified in the table below.

Table with 15 columns: Primary Sampled Feature, Location (Station and Offset), Name of Receiving Water, Applicable Construction Stage for Sampling, Sampling Type (Outfall or Receiving water), Drainage Area for Receiving Water (mi²), Upstream Disturbed Area (acres), Warm or Cold Water Stream, Appendix B NTU Value (Outfall Sampling only), Allowable NTU Increase (Receiving water sampling only), Location Description, Construction Activity, Disturbed Area (acres), Average Outfall Slope (Rise/Run), Soil Erosion Index, Represented Outfall Drainage Basins.

The primary sampled features specified should be used as the initial sampling locations. An alternate sampled feature may be used if additional sampling is required or to replace a primary sampled feature that is no longer located within the active phase of construction.

TEMPORARY SEDIMENT BASIN DETAILS:

Sediment basins will not be utilized at any outfall locations for reasons noted below:

Station 11+90 LT: A Sediment Basin is not used at this location. The disturbed acreage within the drainage area is 1.111 acres. The construction of a sediment basin will have adverse impacts from the additional disturbance.

Station 11+90 RT: A Sediment Basin is not used at this location. The disturbed acreage within the drainage area is 0.517 acres. The construction of a sediment basin will have adverse impacts from the additional disturbance.

Station 20+47 LT: A Sediment Basin is not used at this location. The disturbed acreage within the drainage area is 1.980 acres. The construction of a sediment basin will have adverse impacts from the additional disturbance.

USE OF ALTERNATIVE AND/OR ADDITIONAL BMPs:

No alternative or additional BMPs will be used on this project.

RIPRAP OUTLET PROTECTION

Table with 12 columns: Structure #, Outfall ID#, or Station and Offset, Pipe Diameter Do (ft), Q25 (ft³/s), V25 (ft/s), Tailwater Condition (TW<0.5 Do TW>0.5 Do), Width at Drainage Structure W1=3Do (ft), Apron Length La (ft), Downstream Width W2=Do+La (ft), Average Stone Diameter d50 (ft), Apron Thickness D (ft), Riprap Type (Type 3 or Type 1), Quantity (yd³).



SUBMITTED BY: Thomas S. Favel, P.E. Date: 05/19/2020. TF#0000018849, 0000018849. GSWCC LEVEL II Certification Number.

PLANS PREPARED AND SUBMITTED BY: American Engineers, Inc. Design Consultant. Address: 65 Aberdeen Drive, Glasgow, KY 42411. Phone: 270-651-1220. Website: www.aei.cc

NTS

REVISION DATES

ESPCP GENERAL NOTES

CROSS ROADS ROAD AT BENNETT ROAD

Table with 4 columns: CHECKED, BACKCHECKED, CORRECTED, VERIFIED, and 4 columns for DATE.

51-003

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
	ORANGE BARRIER FENCE		ORANGE BARRIER FENCE DELINEATES ENVIRONMENTALLY SENSITIVE AREAS WHERE THE CONTRACTOR SHALL NOT CLEAR, GRUB, OR PLACE CONSTRUCTION MATERIALS OR EQUIPMENT WITHIN THIS AREA.
		LINE CODE 	
		ORANGE BARRIER FENCE	
ESA	ENVIRONMENTALLY SENSITIVE AREA		AN ENVIRONMENTALLY SENSITIVE AREA (ESA) CONTAINS RESOURCES THAT ARE ENVIRONMENTALLY, CULTURALLY, OR HISTORICALLY SENSITIVE. ESAs INCLUDE, BUT ARE NOT LIMITED TO: STATE WATER BUFFERS, HISTORIC SITES, ARCHAEOLOGICAL SITES, AND PROTECTED ANIMAL AND PLANT SPECIES HABITATS. IF WORK IS AUTHORIZED IN THIS AREA, THE WORK MUST BE PERFORMED IN ACCORDANCE WITH SECTION 107 AND ANY OTHER APPLICABLE SPECIAL PROVISIONS AND APPLICABLE PLAN NOTES.
		LINE CODE 	
		ESA-25' (OR 50') STREAM BUFFER, ETC.	
Bf	BUFFER ZONE		A STRIP OF UNDISTURBED ORIGINAL VEGETATION, ENHANCED OR RESTORED EXISTING VEGETATION, OR THE RE-ESTABLISHMENT OF VEGETATION SURROUNDING AN AREA OF DISTURBANCE OR BORDERING STREAMS, PONDS, WETLANDS, LAKES, AND COASTAL WATERS. WHEN NECESSARY, BUFFER ZONES ARE TO BE PROTECTED BY ORANGE BARRIER FENCE.
		SYMBOL 	
Ds1	MULCH SECTION 163		THIS IS AN APPLICATION OF STRAW MULCH USED TO REDUCE SOIL EROSION AND STABILIZE THE SOIL. IT IS USED TO CONTROL EROSION IN AREAS WHERE PERMANENT VEGETATION IS OUT OF SEASON OR TO TEMPORARILY STABILIZE AREAS PRIOR TO FINAL GRADING. MULCHING REQUIREMENTS ARE ADDRESSED BY STANDARD SPECIFICATIONS AND/OR THE PROJECT ENGINEER. THE BMP SYMBOL FOR APPLICABLE AREAS AND/OR A NOTE SHALL BE INCLUDED ON APPLICABLE SHEETS IN SECTION 54.
		SYMBOL 	
Ds2	TEMPORARY GRASSING SECTION 163, 700		THE SOWING OF A QUICK GROWING SPECIES OF GRASS SUITABLE TO THE AREA AND SEASON. IT IS TYPICALLY USED TO CONTROL EROSION IN AREAS LONGER THAN MULCHING IS EXPECTED TO LAST. TEMPORARY GRASSING SHOULD BE USED ON ALL PROJECTS ACCORDING TO THE STANDARD SPECIFICATIONS. THE BMP SYMBOL FOR APPLICABLE AREAS AND/OR A NOTE SHALL BE INCLUDED ON APPLICABLE SHEETS IN SECTION 54.
		SYMBOL 	

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Ds3	PERMANENT GRASSING SECTION 700		THE SOWING OF PERMANENT VEGETATION, SUCH AS GRASS, SUITABLE TO THE AREA AND SEASON. PERMANENT VEGETATION SHALL BE USED ON ALL PROJECTS ACCORDING TO THE STANDARD SPECIFICATION. THE BMP SYMBOL FOR APPLICABLE AREAS AND/OR A NOTE SHALL BE INCLUDED ON APPLICABLE SHEETS IN SECTION 54.
		SYMBOL 	
Ds4	SODDING CONSTRUCTION DETAIL D-54 SECTION 700, 890		THE INSTALLATION OF A SPECIES OF GRASS SODDING SUITABLE TO THE AREA AND SEASON TO PROVIDE IMMEDIATE PERMANENT VEGETATION. SODDING MAY BE SHOWN FOR HIGHLY SENSITIVE AREAS, TO IMPROVE AESTHETICS, OR FOR SPECIAL PLANTING REQUIREMENTS ON THE BASIS OF ENVIRONMENTAL COMMITMENTS OR LANDSCAPING REQUIREMENTS. THE BMP PATTERN FOR APPLICABLE AREAS AND/OR A NOTE SHALL BE INCLUDED ON APPLICABLE SHEETS IN SECTION 54.
		PATTERN 	
F1-Co	FLOCCULANTS COAGULANTS SECTION 163, 700, 895		FLOCCULANTS AND COAGULANTS ARE USED TO SETTLE SUSPENDED SEDIMENT, HEAVY METALS, AND HYDROCARBONS (TSS) IN SLOW MOVING RUNOFF FROM CONSTRUCTION SITES FOR WATER CLARIFICATION. ANIONIC POLYACRYLAMIDES (PAM) MAY BE USED IN CONJUNCTION WITH BMPs WITHIN CHANNELS UPSTREAM OF A POST-CONSTRUCTION POND, TEMPORARY SEDIMENT BASIN, OR TEMPORARY SEDIMENT TRAP. FLOCCULANTS SHALL NOT BE USED DOWNSTREAM OF AFOREMENTIONED BMPs! FLOCCULANTS/COAGULANTS ARE TO BE SHOWN ON PLANS WITH APPLICABLE BMP IF NEEDED. PAYMENT FOR PAM AS A FLOCCULANT WILL BE INCLUDED IN THE PRICE FOR THE INSTALLATION AND/OR MAINTENANCE OF THE BMP IT IS USED IN CONJUNCTION WITH. NO SEPARATE PAYMENT WILL BE MADE.
		SYMBOL 	
		POLYACRYLAMIDE	
Sb	STREAMBANK STABILIZATION SECTION 702		STREAMBANK STABILIZATION IS THE USE OF READILY AVAILABLE NATIVE PLANT MATERIALS TO MAINTAIN AND ENHANCE STREAMBANKS, OR TO PREVENT, OR RESTORE AND REPAIR SMALL STREAMBANK EROSION PROBLEMS. STREAMBANK STABILIZATION AREAS SHOULD BE SHOWN ON THE PLANS WHEN APPLICABLE TO THE PROJECT. REFER TO THE PROJECT'S STREAM AND STREAM BUFFER MITIGATION PLANS FOR PLANT SPECIES, LOCATIONS, AND OTHER PLANTING DETAILS.
		PATTERN 	

NOTE:

- DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
- FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs), REFER TO THE LATEST EDITION OF THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION'S, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".



SUBMITTED BY:

05/19/2020
Thomas S. Favel, P.E.

TF#0000018849
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Thomas S. Favel, P.E.

GSWCC LEVEL II Certification Number

PLANS PREPARED AND SUBMITTED BY:
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AMERICAN ENGINEERS, INC.
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PROFESSIONAL ENGINEERING

NTS

REVISION DATES

NO.	DATE	DESCRIPTION

EROSION CONTROL LEGEND

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No.
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52-001

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Ss	SLOPE STABILIZATION CONSTRUCTION DETAIL D-35 SECTION 716		SLOPE STABILIZATION (EROSION CONTROL MATTING) IS A PROTECTIVE COVERING USED TO PREVENT EROSION AND ESTABLISH TEMPORARY OR PERMANENT VEGETATION ON STEEP SLOPES, SHORE LINES, OR CHANNELS. SLOPE STABILIZATION MAY BE A ROLLED EROSION CONTROL PRODUCT (RECP) OR A HYDRAULIC EROSION CONTROL PRODUCT (HECP). SLOPE STABILIZATION SHALL BE USED ON ALL CUT OR FILL SLOPES OF 2.5:1 OR STEEPER AND WITHIN 50 FEET OF ALL CROSS DRAINS AND CULVERTS. NOTE: ONLY COCONUT FIBER BLANKET OR WOOD FIBER BLANKET SHALL BE USED AS SLOPE STABILIZATION WITHIN BUFFERED AREAS.
		PATTERN 	
Tac	TACKIFIERS SECTION 163, 700, 895		TACKIFIERS HYDRATE IN WATER AND READILY BLEND WITH OTHER SLURRY MATERIALS AND ARE USED TO TIE-DOWN FOR SOIL, COMPOST, SEED, STRAW, HAY OR MULCH. TACKIFIERS REQUIREMENTS, SUCH AS ANIONIC POLYACRYLAMIDES (PAM) ARE ADDRESSED BY STANDARD SPECIFICATIONS AND ARE NOT TYPICALLY SHOWN ON THE PLANS. PAM IS TYPICALLY USED BY THE CONTRACTOR FOR TEMPORARY OR PERMANENT GRASSING. REFER TO THE LATEST EDITION OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" FOR CRITERIA.
		SYMBOL 	
Cd-F	FABRIC CHECK DAM CONSTRUCTION DETAIL D-24D SECTION 171		A CHECK DAM COMPOSED OF SYNTHETIC FIBER FABRIC, WIRE REINFORCED, POST, OVERFLOW WEIR, AND TURF REINFORCEMENT MATTING (TRM) SPLASHPAD PLACED IN DITCHES IN A SPECIAL CONFIGURATION WHICH CONTROLS ENERGY DISSIPATION AND FILTRATION OF STORM WATER. SEE CONSTRUCTION DETAIL D-24D FOR ADDITIONAL INFORMATION AND SPACING REQUIREMENTS. THIS ITEM IS SUITABLE FOR USE IN ROADSIDE DITCHES THAT ARE PART OF INFRASTRUCTURE CONSTRUCTION PROJECTS AND WITHIN THE CLEAR ZONE. IF THIS ITEM IS USED IN AN AREA WITH FLOWS GREATER THAN 2.0-CFS OR WITHOUT A SEDIMENT BASIN, A MINIMUM OF ONE ROCK FILTER DAM SHALL BE USED AT THE DOWNSTREAM DISCHARGE POINT.
		SYMBOL 	
Cd-Fs	COMPOST FILTER SOCK CHECK DAM CONSTRUCTION DETAIL D-52 SECTION 163		A COMPOST FILTER SOCK CHECK DAM IS COMPOSED OF A PHOTODEGRADABLE OR BIODEGRADABLE KNITTED MESH MATERIAL CONTAINING A WEED FREE FILLER MATERIAL DERIVED FROM A WELL-DECOMPOSED SOURCE OF ORGANIC MATTER. THEY SHALL BE PROPERLY STAKED FOR DITCH APPLICATIONS. REFER TO THE LATEST EDITION OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" FOR MATERIAL SPECIFICATIONS. IF THIS ITEM IS USED IN AN AREA WITH FLOWS GREATER THAN 2.0-CFS OR WITHOUT A SEDIMENT BASIN, A MINIMUM OF ONE ROCK FILTER DAM SHALL BE USED AT THE DOWNSTREAM DISCHARGE POINT.
		SYMBOL 	
Cd-Hb	BALED STRAW CHECK DAM CONSTRUCTION DETAIL D-52 SECTION 163		A BALE STRAW CHECK DAM IS COMPOSED OF BALES PREFERABLY BOUND WITH WIRE OR NYLON INSTEAD OF TWINE. BALES SHOULD BE PLACED IN ROWS WITH BALE ENDS TIGHTLY ABUTTING ADJACENT BALES. THE DOWNSTREAM ROW OF BALES SHALL BE PLACED IN A TRENCH TO ALLOW THE TOP OF THE BALE'S LONG, WIDE SIDE TO BE LEVEL WITH THE GROUND AS A NON-ERODIBLE SPLASHPAD. PROPER STAKING IS ALSO REQUIRED FOR DITCH APPLICATIONS. IF THIS ITEM IS USED IN AN AREA WITH FLOWS GREATER THAN 2.0-CFS OR WITHOUT A SEDIMENT BASIN, A MINIMUM OF ONE ROCK FILTER DAM SHALL BE USED AT THE DOWNSTREAM DISCHARGE POINT.
		SYMBOL 	

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Cd-S	STONE CHECK DAM OR SANDBAG CHECK DAM CONSTRUCTION DETAIL D-56 SECTION 163, 603		STONE CHECK DAMS ARE CONSTRUCTED OF TYPE-3 RIP-RAP WITH GEOTEXTILE UNDERLINER. STONE CHECK DAMS ARE PREFERRED IN ROADWAY DITCHES OUTSIDE THE CLEAR ZONE. CONSIDERATION SHOULD BE GIVEN TO USING OTHER APPROPRIATE CHECK DAMS AND/OR BMPs WITHIN THE CLEAR ZONE. SANDBAG CHECK DAMS ARE RECOMMENDED IN CONCRETE LINED CHANNELS FOR TEMPORARY VELOCITY CONTROL ONLY. ENSURE DISCHARGE POINT IS PROPERLY STABILIZED AND INCLUDE APPROPRIATE BMPs FOR SEDIMENT STORAGE UPSTREAM AND/OR DOWNSTREAM OF CONCRETE LINED CHANNELS. IF THIS ITEM IS USED IN AN AREA WITH FLOWS GREATER THAN 2.0-CFS OR WITHOUT A SEDIMENT BASIN, A MINIMUM OF ONE ROCK FILTER DAM SHALL BE USED AT THE DOWNSTREAM DISCHARGE POINT.
		SYMBOL 	
Ch-1	VEGETATED CHANNEL STABILIZATION SECTION 700		A NEW OR EXISTING CHANNEL MAY BE LINED WITH PERMANENT VEGETATION ONLY FOR VELOCITIES UP TO 5.0 fps. THIS MEASURE SHALL BE DESIGNED IN ACCORDANCE WITH THE GDOT CHANNEL LINING DESIGN PROGRAM. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED. TYPICALLY NOT SHOWN IN PLANS.
		LINE CODE 	
Ch-2R1	CHANNEL STABILIZATION RIP-RAP, TYPE 1 CONSTRUCTION DETAIL D-49 SECTION 603		THIS ITEM CONSISTS OF LINING A CHANNEL WITH TYPE 1 RIP-RAP 24" THICK (UNLESS SPECIFIED OTHERWISE) PLACED ON TOP OF A GEOTEXTILE UNDERLINER. THE RIP-RAP SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED. "Dp" SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
		LINE CODE 	
Ch-2R3	CHANNEL STABILIZATION RIP-RAP, TYPE 3 CONSTRUCTION DETAIL D-49 SECTION 603		THIS ITEM CONSISTS OF LINING A CHANNEL WITH TYPE 3 RIP-RAP 24" THICK (UNLESS SPECIFIED OTHERWISE) PLACED ON TOP OF A GEOTEXTILE UNDERLINER. THE RIP-RAP SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED. "Dp" SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
		LINE CODE 	

NOTE:

- DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
- FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs), REFER TO THE LATEST EDITION OF THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION'S, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".



05/19/2020
SUBMITTED BY: **Thomas S. Fravel, P.E.** TF#0000018849
0000018849
GSWCC LEVEL II Certification Number

PLANS PREPARED AND SUBMITTED BY:
AEI
AMERICAN ENGINEERS, INC.
DESIGN CONSULTANT
PROFESSIONAL ENGINEERING

NTS

REVISION DATES

NO.	DATE	DESCRIPTION

EROSION CONTROL LEGEND

CROSS ROADS ROAD AT BENNETT ROAD

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CORRECTED:	DATE:	
VERIFIED:	DATE:	

52-002

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Ch-2T1	TURF REINFORCEMENT MAT (TRM) CONSTRUCTION DETAIL D-35 SECTION 711		THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN CONJUNCTION WITH PERMANENT VEGETATION IN CHANNELS TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES 0-2 psf. THE TRM SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM. *Dp* SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
	LINE CODE		
Ch-2T2	TURF REINFORCEMENT MAT (TRM) CONSTRUCTION DETAIL D-35 SECTION 711		THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN CONJUNCTION WITH PERMANENT VEGETATION IN CHANNELS TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES 0-4 psf. THE TRM SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM. *Dp* SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
	LINE CODE		
Ch-2T3	TURF REINFORCEMENT MAT (TRM) CONSTRUCTION DETAIL D-35 SECTION 711		THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN CONJUNCTION WITH PERMANENT VEGETATION IN CHANNELS TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES 0-6 psf. THE TRM SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM. *Dp* SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
	LINE CODE		
Ch-2T4	TURF REINFORCEMENT MAT (TRM) CONSTRUCTION DETAIL D-35 SECTION 711		THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN CONJUNCTION WITH PERMANENT VEGETATION IN CHANNELS TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES 0-8 psf. THE TRM SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM. *Dp* SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
	LINE CODE		
Ch-2T5	TURF REINFORCEMENT MAT (TRM) CONSTRUCTION DETAIL D-35 SECTION 711		THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN CONJUNCTION WITH PERMANENT VEGETATION IN CHANNELS TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES 0-10 psf. THE TRM SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM. *Dp* SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
	LINE CODE		

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Ch-2T6	TURF REINFORCEMENT MAT (TRM) CONSTRUCTION DETAIL D-35 SECTION 711		THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN CONJUNCTION WITH PERMANENT VEGETATION IN CHANNELS TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES 0-12 psf. THE TRM SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM. *Dp* SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
	LINE CODE		
Ch-3	CONCRETE CHANNEL STABILIZATION CONSTRUCTION DETAIL D-10, D-49 SECTION 441		CHANNELS ARE LINED WITH CONCRETE FOR VELOCITIES >/- 10 fps. THIS ITEM CONSISTS OF CONSTRUCTING A 4" THICK CONCRETE CHANNEL. THE CONCRETE SHALL PROTECT THE CHANNEL FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT CHANNEL LINING PROGRAM. *Dp* SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS AND IN THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN. RIP-RAP SHOULD BE USED TO DISSIPATE ENERGY DOWNSTREAM OF CONCRETE LINED CHANNELS.
	LINE CODE		
Co	CONSTRUCTION EXIT CONSTRUCTION DETAIL D-41 SECTION 163,800		A CONSTRUCTION EXIT IS A STONE STABILIZED PAD THAT REDUCES OR ELIMINATES THE TRANSPORT OF MUD FROM CONSTRUCTION AREAS ONTO PUBLIC ROADS BY EQUIPMENT OR RUNOFF. BEST USED AT ACCESS POINTS, I. e. NEW LOCATION PROJECTS, BORROW PITS, WASTE PITS, ACCESS ROADS, ETC. SHOULD BE MINIMUM 20' WIDE, 50' LONG, 6" THICK, AND REQUIRES A GEOTEXTILE UNDERLINER. ON SITES WHERE THE GRADE TOWARD A PAVED AREA IS GREATER THAN 2%, A FULL WIDTH DIVERSION RIDGE 6" TO 8" HIGH WITH 3:1 SLOPES SHALL BE CONSTRUCTED APPROXIMATELY 15' UPSTREAM OF PAVED AREA. A TIRE WASHING AREA TO REMOVE MUD MAY ALSO BE REQUIRED PRIOR TO ENTRANCE ONTO PUBLIC ROADWAYS. ALL CONSTRUCTION EXIT REQUIREMENTS ARE INCLUDED IN THE PRICE OF THE CONSTRUCTION EXIT.
	SYMBOL		
Dc-A	STREAM DIVERSION CHANNEL GEOTEXTILE, POLYETHYLENE FILM SECTION 163		A TEMPORARY CHANNEL CONSTRUCTED TO CONVEY FLOW AROUND A CONSTRUCTION SITE WHILE A PERMANENT DRAINAGE STRUCTURE IS BEING CONSTRUCTED IN A NATURAL STREAM. THIS IS A MEASURE USED TO PROTECT STREAM BEDS FROM EROSION. LINE THE CHANNEL WITH GEOTEXTILE OR POLYETHYLENE FILM. INSTALL TWO ROWS OF Sd1-S PARALLEL TO THE CHANNEL TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE STREAM. THE SIZE OF THE CHANNEL WILL DEPEND ON THE DISCHARGE, CHANNEL GEOMETRY, CHANNEL SLOPE AND ROUGHNESS. IT IS ACCEPTABLE FOR VELOCITIES BETWEEN 0 - 2.5 fps. THE DRAINAGE AREA SHALL BE NOT GREATER THAN 1 SQUARE MILE. CONSTRUCTION OF THE DIVERSION CHANNEL IS INCLUDED IN THE COST OF THE STRUCTURE.
	LINE CODE		

NOTE:

- DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
- FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs), REFER TO THE LATEST EDITION OF THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION'S, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".



05/19/2020
SUBMITTED BY: **Thomas S. Fravel, P.E.** TF#000018849
Thomas S. Fravel, P.E. GSACC LEVEL II Certification Number

PLANS PREPARED AND SUBMITTED BY:
AEI
AMERICAN ENGINEERS, INC.
DESIGN CONSULTANT

NTS

REVISION DATES

EROSION CONTROL LEGEND

CROSS ROADS ROAD AT BENNETT ROAD

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52-003

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Dc-B	STREAM DIVERSION CHANNEL GEOTEXTILE ONLY SECTION 163		A TEMPORARY CHANNEL CONSTRUCTED TO CONVEY FLOW AROUND A CONSTRUCTION SITE WHILE A PERMANENT DRAINAGE STRUCTURE IS BEING CONSTRUCTED IN A NATURAL STREAM. THIS IS A MEASURE USED TO PROTECT STREAM BEDS FROM EROSION. LINE THE CHANNEL WITH GEOTEXTILE ONLY. INSTALL TWO ROWS OF Sd1-S PARALLEL TO THE CHANNEL TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE STREAM. THE SIZE OF THE CHANNEL WILL DEPEND ON THE DISCHARGE, CHANNEL GEOMETRY, CHANNEL SLOPE AND ROUGHNESS. IT IS ACCEPTABLE FOR VELOCITIES BETWEEN 2.5 - 9.0 fps.
	LINE CODE 		THE DRAINAGE AREA SHALL BE NOT GREATER THAN 1 SQUARE MILE. CONSTRUCTION OF THE DIVERSION CHANNEL IS INCLUDED IN THE COST OF THE STRUCTURE.
Dc-C	STREAM DIVERSION CHANNEL RIP-RAP & GEOTEXTILE SECTION 163		A TEMPORARY CHANNEL CONSTRUCTED TO CONVEY FLOW AROUND A CONSTRUCTION SITE WHILE A PERMANENT DRAINAGE STRUCTURE IS BEING CONSTRUCTED IN A NATURAL STREAM. THIS IS A MEASURE USED TO PROTECT STREAM BEDS FROM EROSION. LINE THE CHANNEL WITH RIP-RAP AND GEOTEXTILE. INSTALL TWO ROWS OF Sd1-S PARALLEL TO THE CHANNEL TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE STREAM. THE SIZE OF THE CHANNEL WILL DEPEND ON THE DISCHARGE, CHANNEL GEOMETRY, CHANNEL SLOPE AND ROUGHNESS. IT IS ACCEPTABLE FOR VELOCITIES BETWEEN 9.0 - 13.0 fps.
	LINE CODE 		THE DRAINAGE AREA SHALL BE NOT GREATER THAN 1 SQUARE MILE. CONSTRUCTION OF THE DIVERSION CHANNEL IS INCLUDED IN THE COST OF THE STRUCTURE.
D1-1	DIVERSION BERM CONSTRUCTION DETAIL D-47 SECTION 205		A NON-DESIGNED TEMPORARY EARTHEN BERM WITH A COMPACTED SUPPORTING RIDGE ON THE LOWER SIDE TO BE USED AT THE EDGE OF EMBANKMENT DURING THE GRADING OPERATION. THE BERMS ARE ALSO CONSTRUCTED ABOVE, ACROSS OR BELOW A SLOPE TO REDUCE THE LENGTH OF A SLOPE. THEY ARE USED TO INTERCEPT RUNOFF, PREVENTING SLOPE EROSION AND TO DIRECT THE RUNOFF TO A STABLE OUTLET, DOWN DRAINS 'Dn1' OR CATCHMENT AREAS AND ON ALL GRADING PROJECTS.
	LINE CODE 		
D1-2	DIVERSION CHANNEL SECTION 205		A DESIGNED TEMPORARY OR PERMANENT CHANNEL WITH A COMPACTED SUPPORTING RIDGE ON THE LOWER SIDE TO DIVERT OFFSITE RUNOFF AWAY FROM DISTURBED AREAS WITHIN THE PROJECT AREA. CHANNEL FOR OFFSITE RUNOFF SHALL BE STABILIZED WITH APPROPRIATE CHANNEL STABILIZATION. REFER TO THE LATEST EDITION OF THE 'MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA' FOR DESIGN CRITERIA. A DIVERSION CHANNEL DETAIL MUST ALSO BE PROVIDED IN THE ESPCP.
	LINE CODE 		RUNOFF FROM DISTURBED AREAS WITHIN THE PROJECT AREA SHALL NOT BE ALLOWED TO CONVERGE WITH OFFSITE RUNOFF WITHIN THIS DIVERSION.
Dn1	TEMPORARY DOWNDRAIN STRUCTURE FLEXIBLE CONSTRUCTION DETAIL D-19 SECTION 163		A TEMPORARY PIPE SLOPE DRAIN IS A PLASTIC FLEXIBLE PIPE TO CARRY WATER FROM THE WORK AREA TO A LOWER ELEVATION. TEMPORARY SLOPE DRAINS SHOULD BE PLACED AT INTERVALS OF 350 FEET ON 0% - 2% GRADES, 200 FEET ON STEEPER GRADES AND MORE FREQUENTLY AS DICTATED BY FIELD CONDITIONS. THE TYPICAL PIPE SIZE IS A CORRUGATED 10". THE PIPE WILL BE ANCHORED WITH STAKES AT INTERVALS NOT TO EXCEED 10".
	LINE CODE 		THE OUTLET AREA SHALL BE STABILIZED FOR VELOCITY DISSIPATION AND EROSION CONTROL.

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Dn2-A	PERMANENT DOWNDRAIN STRUCTURE CONCRETE CONSTRUCTION DETAIL D-9 SECTION 441		A CONCRETE FLUME TYPE 'A' IS USED TO DIRECT SURFACE RUNOFF DOWN A ROADWAY SLOPE INTO ANOTHER FORM OF CONTROL. IT IS USED IN ALL DEPRESSED AREAS WHERE WATER WILL FLOW DOWN THE SLOPE. IT IS DESIGNED FOR A 25-YEAR STORM AND MUST HAVE SOME FORM OF OUTLET PROTECTION. ADDITIONAL LABELING IS NOT REQUIRED IF SHOWN AS A PERMANENT DRAINAGE STRUCTURE ON THE CONSTRUCTION PLANS. INLETS SHALL BE SPACED ACCORDING TO GDOT GUIDELINES (REGARDING GUTTER SPREAD AND OTHER CRITERIA).
	LINE CODE 		
Dn2-B	PERMANENT DOWNDRAIN STRUCTURE CONCRETE CONSTRUCTION DETAIL D-9 SECTION 441		A CONCRETE FLUME TYPE 'B' IS USED TO DIRECT SURFACE DITCH RUNOFF DOWN A BACK SLOPE INTO ANOTHER FORM OF CONTROL. IT IS USED IN DEPRESSED AREAS WHERE CONCENTRATED OFFSITE WATER REACHES THE CUT SLOPE. IT IS DESIGNED TO SAFELY CONVEY WATER DOWN THE CUT SLOPE. IT IS DESIGNED FOR A 25-YEAR STORM AND MUST HAVE SOME FORM OF OUTLET PROTECTION. ADDITIONAL LABELING IS NOT REQUIRED IF SHOWN AS A PERMANENT DRAINAGE STRUCTURE ON THE CONSTRUCTION PLANS. INLETS SHALL BE SPACED ACCORDING TO GDOT GUIDELINES (REGARDING GUTTER SPREAD AND OR OTHER CRITERIA).
	LINE CODE 		
Dn2-1	PERMANENT DOWNDRAIN STRUCTURE GA. STD 9013 TP1, 9017J TP1, DETAIL D-26 TP1 SECTION 576, 577		CONCRETE DRAIN INLET WITH METAL PIPE IS USED TO DRAIN CURBS, ON A GRADE, DOWN TO A LOWER ELEVATION. THIS IS A PERMANENT STRUCTURE, REQUIRING OUTLET PROTECTION, TEMPORARY AND PERMANENT. INLETS SHALL BE SPACED ACCORDING TO GDOT GUIDELINES (REGARDING GUTTER SPREAD AND OR OTHER CRITERIA).
	LINE CODE 		
Dn2-2	PERMANENT DOWNDRAIN STRUCTURE GA. STD 9013 TP2, 9017J TP2, DETAIL D-26 TP2 SECTION 576, 577		CONCRETE DRAIN INLET AND METAL PIPE IS USED TO DRAIN CURB, IN A SAG, DOWN TO A LOWER ELEVATION. THIS IS A PERMANENT STRUCTURE, REQUIRING OUTLET PROTECTION, TEMPORARY AND PERMANENT. INLETS SHALL BE SPACED ACCORDING TO GDOT GUIDELINES (REGARDING GUTTER SPREAD AND OR OTHER CRITERIA).
	LINE CODE 		

NOTE:

- DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
- FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs), REFER TO THE LATEST EDITION OF THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION'S, 'MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA'.



05/19/2020
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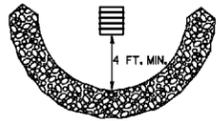
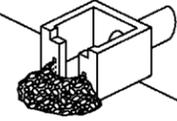
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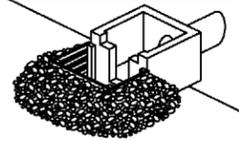
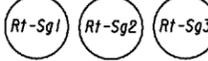
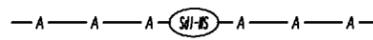
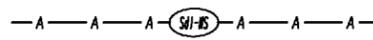
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REVISION DATES		EROSION CONTROL LEGEND	
		CROSS ROADS ROAD AT BENNETT ROAD	
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DRAWING No. 52-004

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Fr	FILTER RING CONSTRUCTION DETAIL D-46 SECTION 163		A TEMPORARY STONE BARRIER CONSTRUCTED AT DRAINAGE STRUCTURE INLETS AND POST-CONSTRUCTION POND OUTLETS. IT REDUCES RUNOFF VELOCITY AND HELPS PREVENT SEDIMENT FROM LEAVING SITE PRIOR TO PERMANENT STABILIZATION OF THE DISTURBED AREA. REFER TO THE LATEST EDITION OF THE 'MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA' FOR ADDITIONAL INFORMATION ON USAGE.
	SYMBOL 		
Rd	ROCK FILTER DAM CONSTRUCTION DETAIL D-43 SECTION 163, 603		ROCK FILTER DAMS ARE CONSTRUCTED OF TYPE 3 STONE RIP-RAP FACED WITH *57 STONE ON THE UPSTREAM SIDE. THEY ARE PLACED ACROSS DRAINAGEWAYS WHICH DRAIN 50 ACRES OR LESS. GEOTEXTILE UNDERLINER SHALL BE USED WHEN PLACING ROCK FILTER DAMS. THE DAM SHOULD NOT BE HIGHER THAN THE CHANNEL BANKS. ROCK FILTER DAMS SHOULD BE USED IN DITCHES PRIOR TO DISCHARGING INTO STREAMS, WETLANDS, OPEN-WATERS, OR OTHER ESAs.
	SYMBOL 		
Rd-B	STONE FILTER BERM CONSTRUCTION DETAIL D-50 SECTION 163, 603		STONE FILTER BERMS ARE CONSTRUCTED SIMILAR TO ROCK FILTER DAMS FOR A LINEAR APPLICATION. THEY ARE CONSTRUCTED OF TYPE-3 STONE RIP-RAP FACED WITH *57 STONE ON THE UPSTREAM SIDE. GEOTEXTILE UNDERLINER SHALL BE USED WHEN PLACING STONE FILTER BERMS. STONE FILTER BERMS ARE IDEAL ALONG THE PERIMETER FOR SHEET FLOW AND/OR SHALLOW CONCENTRATED FLOW TO A COMMON LOW AREA WHERE PERIMETER SILT FENCE ALONE MAY BE INSUFFICIENT, THERE IS NO WELL-DEFINED CHANNEL FOR A STANDARD ROCK FILTER DAM, AND/OR CONSTRUCTING A ROCK OUTLET TEMPORARY SEDIMENT TRAP IS NOT APPLICABLE.
	LINE CODE 		
Rp	RIP-RAP SECTION 603		RIP-RAP IS A FLEXIBLE PERMANENT BLANKET FOR PROTECTION OF FILL SLOPES AND BRIDGE END ROLLS. RIP-RAP TYPE-1 SHOULD BE PLACED ON TOP OF A GEOTEXTILE UNDERLINER AT A MINIMUM 24" THICKNESS OR AS INDICATED ON THE PLANS. RIP-RAP MAY ALSO BE USED AT DRAINAGE STRUCTURE OUTLETS WITHIN THE RIGHT-OF-WAY. HOWEVER, APPROPRIATE OUTLET PROTECTION SHOULD BE PROVIDED AT OUTFALLS. REFER TO STORM DRAIN OUTLET PROTECTION FOR ADDITIONAL INFORMATION ON USING RIP-RAP AT OUTFALLS.
	PATTERN 		
Rt-P	RETROFITTING PERFORATED HALF-ROUND PIPE CONSTRUCTION DETAIL D-44 SECTION 163		A PERFORATED HALF-ROUND PIPE WITH STONE FILTER PLACED IN FRONT OF A PERMANENT STORMWATER DETENTION POND OUTLET STRUCTURE TO SERVE AS A TEMPORARY SEDIMENT FILTER. SHOULD BE USED ONLY IN DETENTION PONDS WITH LESS THAN 30 ACRES TOTAL DRAINAGE AREA. SHALL ONLY BE USED IN DETENTION BASINS LARGE ENOUGH TO STORE 67 CUBIC YARDS OF SEDIMENT PER ACRE OF DISTURBED AREA. REFER TO THE LATEST EDITION OF THE 'MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA' FOR DESIGN CRITERIA.
	SYMBOL 		

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION		
Rt-B	RETROFITTING SLOTTED BOARD DAM CONSTRUCTION DETAIL D-45 SECTION 163		A SLOTTED BOARD DAM CONSISTS OF STONE AND/OR FILTER FABRIC AND BOARDS WITH 0.5' - 1.0' SPACING TO SERVE AS A TEMPORARY SEDIMENT FILTER. PERMANENT STORMWATER DETENTION POND OUTLET: -DRAINAGE AREA UP TO 100 ACRES -DETENTION BASINS LARGE ENOUGH TO STORE 67 CUBIC YARDS OF SEDIMENT PER ACRE OF DISTURBED AREA ROADWAY DRAINAGE STRUCTURE: -OPEN END PIPES, WINGED HEADWALLS, OR CONCRETE WEIR OUTLETS WITH DRAINAGE AREA LESS THAN 30 ACRES REFER TO THE LATEST EDITION OF THE 'MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA' FOR DESIGN CRITERIA.		
	SYMBOL 				
Rt-Sg1	RETROFITTING SILT CONTROL GATES CONSTRUCTION DETAIL D-20 SECTION 163		A SILT CONTROL GATE CONSISTS OF BOARDS WITHOUT SPACING AND FILTER FABRIC TO BE USED FOR TEMPORARY SEDIMENT STORAGE ON ROADWAY PROJECTS AT THE INLET OF STRUCTURES WITH A DRAINAGE AREA UP TO 50 ACRES. THE DISTURBED AREA WITHIN THE DRAINAGE AREA SHALL NOT EXCEED 5 ACRES. SILT CONTROL GATES SHOULD NOT BE USED ALONE, BUT WITH ANOTHER BMP DOWNSTREAM PRIOR TO DISCHARGE LEAVING PROJECT AREA. DO NOT USE SILT GATES IN STATE WATERS. Rt-Sg1-TYPE 1: USED ON BOX CULVERTS Rt-Sg2-TYPE 2: USED ON STRAIGHT HEADWALLS Rt-Sg3-TYPE 3: USED ON FLARED END SECTIONS AND TAPERED HEADWALLS		
				SYMBOL 	
				LINE CODE 	
Sd1-NS	SEDIMENT BARRIER (NON-SENSITIVE) SILT FENCE TYPE A CONSTRUCTION DETAIL D-24 SECTION 171		SEDIMENT BARRIERS MINIMIZE AND PREVENT SEDIMENT CARRIED BY SHEET FLOW FROM LEAVING THE PROJECT AREA BY CAUSING DEPOSITION AND/OR FILTRATION OF SEDIMENT. SILT FENCE USED AS PERIMETER CONTROL SHALL NOT BE INSTALLED ACROSS CONCENTRATED FLOW. TYPE-A SILT FENCE IS TYPICALLY USED IN NON-ENVIRONMENTALLY SENSITIVE AREAS (ESAs) OR IN AREAS WITH FILLS LESS THAN 10'. IT SHOULD BE PLACED A MINIMUM OF 10' FROM CONSTRUCTION LIMITS OR ALONG THE RIGHT-OF-WAY LINE.		
	LINE CODE 				
Sd1-S	SEDIMENT BARRIER (SENSITIVE) SILT FENCE TYPE C CONSTRUCTION DETAIL D-24 SECTION 171		SEDIMENT BARRIERS MINIMIZE AND PREVENT SEDIMENT CARRIED BY SHEET FLOW FROM LEAVING THE PROJECT AREA BY CAUSING DEPOSITION AND/OR FILTRATION OF SEDIMENT. SILT FENCE USED AS PERIMETER CONTROL SHALL NOT BE INSTALLED ACROSS CONCENTRATED FLOW. TYPE-C SILT FENCE IS TYPICALLY USED IN ENVIRONMENTALLY SENSITIVE AREAS (ESAs) OR IN AREAS WITH FILLS 10' AND GREATER. ALL ENVIRONMENTALLY SENSITIVE AREAS (ESAs) SHALL BE PROTECTED WITH A DOUBLE-ROW OF TYPE-C SILT FENCE REGARDLESS OF FILL HEIGHT. A SINGLE-ROW MAY BE USED FOR OTHER APPLICATIONS. IT SHOULD BE PLACED A MINIMUM OF 10' FROM CONSTRUCTION LIMITS OR ALONG THE RIGHT-OF-WAY LINE.		
	LINE CODE 				

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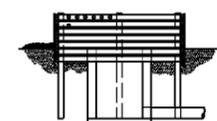
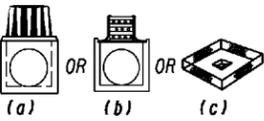
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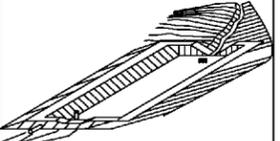
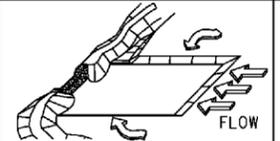
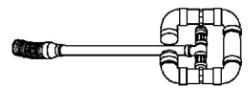
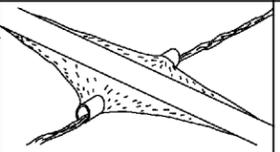
EROSION CONTROL LEGEND

CROSS ROADS ROAD AT BENNETT ROAD

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CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Sd1-BB	SEDIMENT BARRIER BRUSH BARRIER CONSTRUCTION DETAIL D-24B SECTION 201		THIS ITEM CONSISTS OF INTERMINGLED BRUSH, LOGS, ETC. SO AS NOT TO FORM A SOLID DAM. CONSTRUCTED AT THE TOE OF FILL SLOPES ONLY DURING THE CLEARING AND GRUBBING OPERATION. THE BARRIER SHOULD BE USED AT THE TOE OF FILL SLOPES ON GRADING PROJECTS IN RURAL AREAS WHERE SUFFICIENT RIGHT OF WAY OR EASEMENT IS AVAILABLE (10 FEET OR MORE). THE BARRIER SHOULD RUN ROUGHLY PERPENDICULAR TO THE FLOW OF WATER WHERE THIS DOES NOT CONFLICT WITH RIGHT-OF-WAY OR EASEMENT LIMITS. THEY WILL NOT BE PLACED IN WETLANDS. TYPICALLY NOT SHOWN ON PLANS. PAYMENT FOR THIS ITEM IS INCLUDED IN THE CLEARING AND GRUBBING COST. NO SEPARATE PAYMENT SHALL BE MADE.
	LINE CODE * * * Sd1-BB * * *		
Sd2-B	INLET SEDIMENT TRAP (BAFFLE BOX) CONSTRUCTION DETAIL D-42 SECTION 163		BAFFLE BOX INLET SEDIMENT TRAP USED FOR INLETS RECEIVING HIGH FLOW RATE AND/OR VELOCITY. A GUIDE FOR USE WILL BE FOR AN INLET RECEIVING FLOW RATES 7 cfs AND GREATER.
	SYMBOL Sd2-B		
Sd2-Bg	INLET SEDIMENT TRAP (BLOCK & GRAVEL) CONSTRUCTION DETAIL D-42 SECTION 163		BLOCK AND GRAVEL DROP INLET PROTECTION USED FOR WHERE HEAVY FLOWS ARE EXPECTED AND WHERE OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING AROUND THE STRUCTURE. CAN BE USED AT CULVERT INLETS. A GUIDE FOR USE WILL BE FOR AN INLET RECEIVING FLOW RATES THAT RANGE FROM 5 - 7 cfs.
	SYMBOL Sd2-Bg		
Sd2-F	INLET SEDIMENT TRAP (FILTER FABRIC) CONSTRUCTION DETAIL D-24C SECTION 163		(a) A SEDIMENT BARRIER CONSISTING OF A PREFABRICATED FRAME WITH FILTER FABRIC USED AROUND A DROP INLET OR CATCH BASIN. (b) A SEDIMENT BARRIER CONSISTING OF A PERFORATED METAL STAND PIPE WITH FILTER FABRIC USED AROUND A DROP INLET OR CATCH BASIN. (c) TYPE C SILT FENCE WITH SUPPORTING FRAME CAN BE USED AS AN ALTERNATE TO INLET SEDIMENT TRAP FOR AREAS WITH SLOPES < 5%. THIS ITEM IS USED TO PREVENT SILT FROM ENTERING THE PIPE SYSTEM. SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS. RECOMMENDED FOR INLET RECEIVING FLOW RATES THAT RANGE FROM 0 - 4 cfs.
	SYMBOL Sd2-F		
Sd2-G	INLET SEDIMENT TRAP (GRAVEL) CONSTRUCTION DETAIL D42 SECTION 163		GRAVEL DROP INLET PROTECTION USED WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED. STONE AND GRAVEL ARE USED TO TRAP SEDIMENT. THE SLOPE TOWARD THE INLET SHALL BE NO MORE THAN 3:1. A GUIDE FOR USE WILL BE FOR AN INLET RECEIVING FLOW RATES THAT RANGE FROM 3 - 5 cfs.
	SYMBOL Sd2-G		

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
Sd3	TEMPORARY SEDIMENT BASIN CONSTRUCTION DETAIL D-22A, D-22B SECTION 163		A BASIN CREATED BY EXCAVATING AN AREA, DAMMING CONCENTRATED FLOW, OR A COMBINATION OF BOTH. THE BASIN IS DESIGNED TO STORE 67 CUBIC YARDS OF SEDIMENT PER ACRE OF DRAINAGE AREA. THE DRAINAGE AREA SHOULD NOT EXCEED 150 ACRES. BASINS TYPICALLY CONSISTS OF A DAM, PRINCIPAL SPILLWAY, AND AN EMERGENCY SPILLWAY. A FLOATING SURFACE SKIMMER SHALL BE REQUIRED AS PART OF THE PRINCIPAL SPILLWAY UNLESS INFEASIBLE. SUFFICIENT RIGHT-OF-WAY OR EASEMENT IS NEEDED FOR BASIN CONSTRUCTION AND MAINTENANCE ACCESS. SEDIMENT BASINS SHALL BE CONSIDERED ON ALL PROJECTS, BUT MAY NOT BE PRACTICAL. BASINS SHOULD BE LOCATED TO MINIMIZE INTERFERENCE WITH CONSTRUCTION ACTIVITIES AND UTILITIES. REFER TO THE LATEST EDITION OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" FOR DESIGN CRITERIA.
	SYMBOL Sd3		
Sd4-C	ROCK OUTLET TEMPORARY SEDIMENT TRAP CONSTRUCTION DETAIL D-53 SECTION 163		TEMPORARY POND WITH ROCK OUTLET DESIGNED TO STORE 67 CUBIC YARDS OF SEDIMENT PER DRAINAGE AREA. DRAINAGE AREA SHALL NOT EXCEED 5 ACRES. DISTINGUISHED FROM TEMPORARY SEDIMENT BASIN BY LACK OF PRINCIPAL SPILLWAY. MAXIMUM POND DEPTH FROM BOTTOM OF POND TO EMERGENCY SPILLWAY IS 4 FEET. A TEMPORARY SEDIMENT BASIN SHALL BE EVALUATED PRIOR TO CONSIDERING A TEMPORARY SEDIMENT TRAP. A TEMPORARY SEDIMENT TRAP IS IDEAL FOR SMALL AREAS WITH NO UNUSUAL DRAINAGE FEATURES AND EFFECTIVE AGAINST COARSE SEDIMENT, BUT NOT AGAINST SILT OR CLAY PARTICLES THAT REMAIN SUSPENDED. REFER TO THE LATEST EDITION OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" FOR DESIGN CRITERIA.
	SYMBOL Sd4-C		
Sk	FLOATING SURFACE SKIMMER CONSTRUCTION DETAIL D-22A, D-22B SECTION 163		A BUOYANT DEVICE THAT DRAINS WATER FROM THE SURFACE OF A TEMPORARY SEDIMENT BASIN AT A CONTROLLED FLOW RATE. THE INLET/ORIFICE SIZE IS DESIGNED TO DRAIN THE BASIN WITHIN 24 - 48 HOURS. THE SKIMMER INFORMATION SHALL BE PROVIDED IN CONJUNCTION WITH THE SEDIMENT BASIN INFORMATION IN PLANS. IF A SKIMMER IS INFEASIBLE, THE DESIGNER SHALL PROVIDE A WRITTEN JUSTIFICATION IN THE PLANS. SKIMMERS ARE ATTACHED TO A RISER WITHOUT PERFORATIONS AND ACTS AS THE PRIMARY SPILLWAY. THE SKIMMER BMP SYMBOL SHALL BE SHOWN IN CONJUNCTION WITH THE TEMPORARY SEDIMENT BASIN BMP SYMBOL WHEN APPLICABLE. REFER TO THE LATEST EDITION OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" FOR ADDITIONAL INFORMATION.
	SYMBOL Sk		
Sr	TEMPORARY STREAM CROSSING SECTION 107		A TEMPORARY STRUCTURE INSTALLED ACROSS A FLOWING STREAM OR WATERCOURSE FOR USE BY CONSTRUCTION EQUIPMENT. THIS BMP PROVIDES A MEANS TO CROSS STREAMS OR WATERCOURSES WITHOUT MOVING SEDIMENT INTO STREAMS, DAMAGING THE STREAM BED OR CHANNEL, OR CAUSING FLOODING. THIS BMP SHOULD NOT BE USED ON STREAMS WITH DRAINAGE AREAS GREATER THAN ONE SQUARE MILE, UNLESS SPECIFICALLY DESIGNED TO ACCOMMODATE THE ADDITIONAL DRAINAGE AREA BY THE DESIGN PROFESSIONAL. A CERTIFICATION STATEMENT AND SIGNATURE SHALL ACCOMPANY THE DESIGN. THIS BMP SHALL BE DESIGNED ACCORDING TO THE LATEST EDITION OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA". FOR CONTRACTOR'S USE ONLY!
	SYMBOL Sr		

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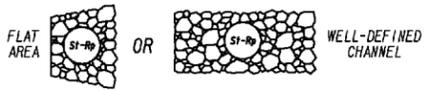
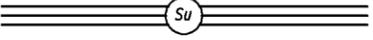
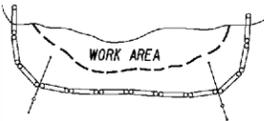
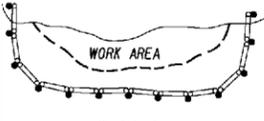


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Thomas S. Favel, P.E. GSICC LEVEL II Certification Number

PLANS PREPARED AND SUBMITTED BY:
AEI
AMERICAN ENGINEERS, INC.
DESIGN CONSULTANT
PROFESSIONAL ENGINEERING

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REVISION DATES		EROSION CONTROL LEGEND	
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CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION
St	STORM DRAIN OUTLET PROTECTION GA. STD. 1125 & 2332		A PIPE OR BOX CULVERT OUTLET HEADWALL WITH AN APRON AND DISSIPATOR BLOCKS IS USED TO REDUCE VELOCITY AT THE OUTLET OF A PIPE PRIOR TO ENTERING AN EXISTING STREAM OR PUBLICLY MAINTAINED DRAINAGE SYSTEM. IT IS USED ON THE OUTLET OF ALL BOX CULVERTS AND ON 48" AND LARGER PIPES. MAY BE USED ON INLET FOR FLOWING STREAMS. USE ON SMALL PIPES WHEN OUTLET VELOCITY OF THE 25-YEAR STORM IS 12 fps AND GREATER.
		SYMBOL 	
St-Rp	STORM DRAIN OUTLET PROTECTION (RIP-RAP) CONSTRUCTION DETAIL D-55 SECTION 603		RIP-RAP OUTLET PROTECTION IS USED TO REDUCE VELOCITY AT THE OUTLET OF A PIPE, CHANNEL, OR STRUCTURE PRIOR TO ENTERING AN EXISTING STREAM OR PUBLICLY MAINTAINED DRAINAGE SYSTEM. THE MINIMUM DESIGN OF RIP-RAP OUTLET PROTECTION SHALL BE THE 25-YEAR STORM PEAK FLOW, BUT LARGER STORMS ARE RECOMMENDED. TYPE-1 RIP-RAP AT A DEPTH OF 36" AND PLACED ON FILTER FABRIC IS PREFERRED FOR ALL d50 < /- 1.2 FEET. TYPE-3 RIP-RAP AT A DEPTH OF 18" AND PLACED ON FILTER FABRIC MAY BE USED FOR d50 < /- 0.7 FEET.
		PATTERN 	REFER TO THE LATEST EDITION OF THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" FOR REQUIRED DESIGN DIMENSIONS AND OTHER INFORMATION TO BE INCLUDED IN THE PLANS.
Su	SURFACE ROUGHENING SERRATED SLOPES CONSTRUCTION DETAIL S-7 SECTION 205		PROVIDING A ROUGH SOIL SURFACE WITH HORIZONTAL DEPRESSIONS, BY OPERATING A CLEATED DOZER ON THE SLOPE IN A VERTICAL DIRECTION. CREATING SERRATED SLOPES IN THE GRADING PROCESS TO CONSTRUCT BENCHES WILL REDUCE RUNOFF VELOCITY AND INCREASE INFILTRATION OF WATER. IN MOST CASES THIS BMP IS NOT REQUIRED TO BE SHOWN ON THE PLANS, BUT REQUIRED TO BE COMPLETED BY THE CONTRACTOR UNDER ALL PROJECTS. IF SERRATED SLOPES ARE SPECIFIED BY THE SOIL SURVEY, THEN THIS BMP SHALL BE SHOWN ON THE PLANS WHERE SERRATED SLOPES ARE TO BE USED.
		LINE CODE 	
Tc-F	TURBIDITY CURTAIN FLOATING CONSTRUCTION DETAIL D-51 SECTION 170		A FLOATING TURBIDITY CURTAIN IS USED TO PREVENT SEDIMENT FROM MOVING IN WATER BY ALLOWING IT TO DROP OUT OF SUSPENSION AND REMAIN WITHIN THE CONSTRUCTION AREA. IT IS TYPICALLY USED WHERE CONSTRUCTION IS REQUIRED IN A LARGE BODY OF WATER SUCH AS LAKES AND RIVERS. IT SHOULD BE USED AS DIRECTED BY THE ENGINEER. THIS BMP IS ONLY TO BE USED WHEN PERMITTED FILL IS BEING PLACED INTO A STATE WATER, OR AS A SUPPLEMENT TO ADEQUATELY PLACED PERIMETER BMPs. IT MAY ALSO BE REFERRED TO AS A FLOATING BOOM, SILT BARRIER, OR SILT CURTAIN.
		LINE CODE 	
Tc-S	TURBIDITY CURTAIN STAKED CONSTRUCTION DETAIL D-51 SECTION 170		A STAKED TURBIDITY CURTAIN IS USED TO PREVENT SEDIMENT FROM MOVING IN WATER BY ALLOWING IT TO DROP OUT OF SUSPENSION AND REMAIN WITHIN THE CONSTRUCTION AREA. IT IS TYPICALLY USED IN SHALLOW INUNDATED AREAS. IT MAY BE USED TO PROTECT A SMALL STREAM BEING REALIGNED OR RESTORED. IN THIS CASE, CURTAIN SHOULD EXTEND TO BOTTOM OF STREAMBED. THE HEIGHT SHOULD BE LIMITED TO 5 FEET UNLESS DIRECTED AND EXTEND 2 FEET ABOVE NORMAL WATER ELEVATION. IT SHOULD BE USED AS DIRECTED BY THE ENGINEER. THIS BMP IS ONLY TO BE USED WHEN PERMITTED FILL IS BEING PLACED INTO A STATE WATER, OR AS A SUPPLEMENT TO ADEQUATELY PLACED PERIMETER BMPs. IT MAY BE REFERRED TO AS A SILT BARRIER OR SILT CURTAIN.
		LINE CODE 	

CODE	PRACTICE STD OR DETAIL SPEC. SECT.	DETAIL	DESCRIPTION

NOTE:

- DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
- FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs), REFER TO THE LATEST EDITION OF THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION'S, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".



SUBMITTED BY:

05/19/2020
Thomas S. Fravel, P.E.
TF#0000018849
0000018849
GSWCC LEVEL II Certification Number

PLANS PREPARED AND SUBMITTED BY:
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NTS

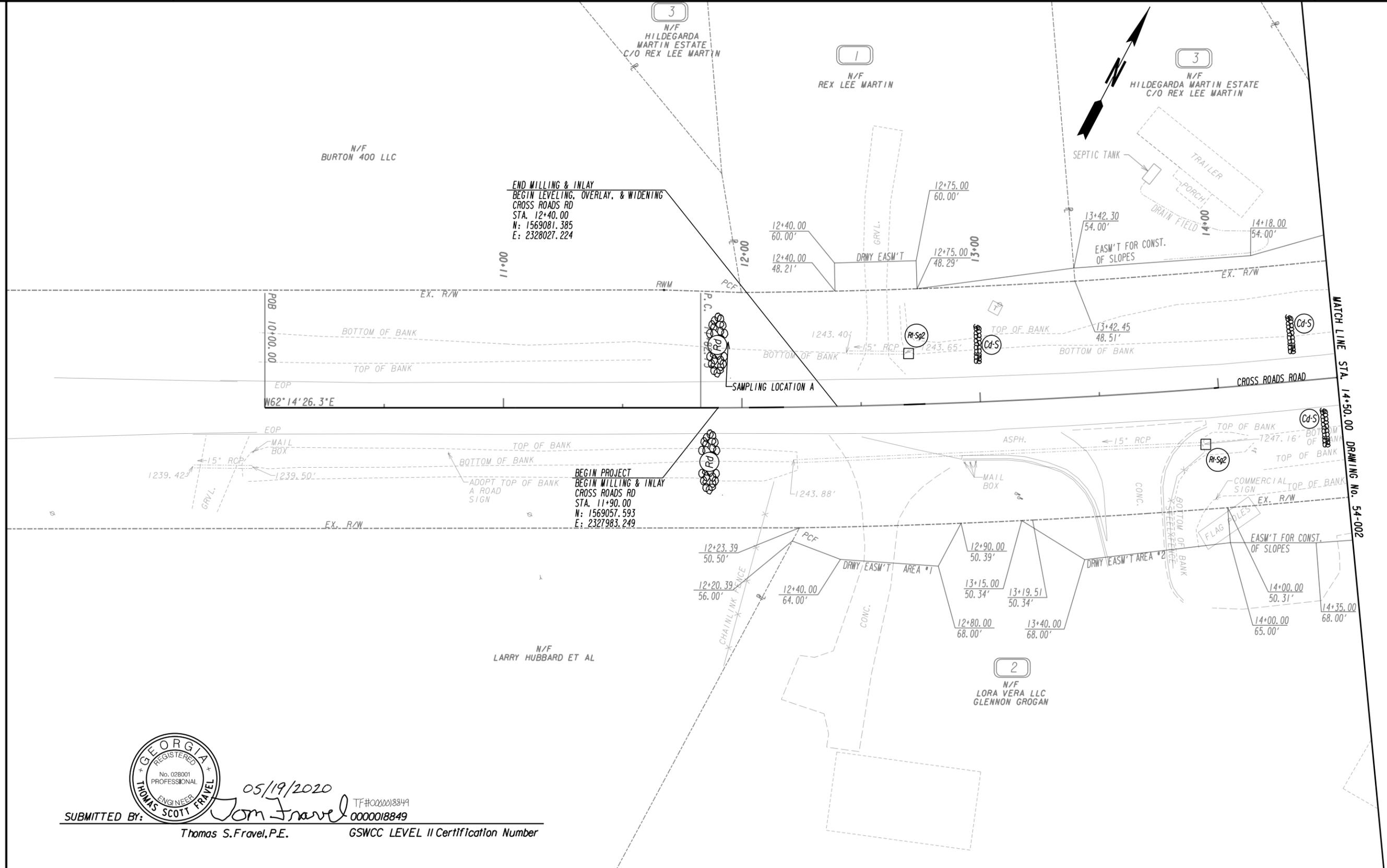
REVISION DATES

NO.	DATE	DESCRIPTION

EROSION CONTROL LEGEND

CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	52-007
CORRECTED:	DATE:	
VERIFIED:	DATE:	

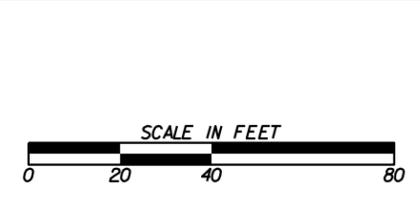


SUBMITTED BY: Thomas S. Fravel, P.E. 05/19/2020
 TF#00260018849 0000018849
 GSWCC LEVEL II Certification Number

PROPERTY AND EXISTING R/W LINE	-----E-----
REQUIRED R/W LINE	-----
CONSTRUCTION LIMITS	-----C-----
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	-----F-----
EASEMENT FOR CONSTR OF SLOPES	[Hatched Box]
EASEMENT FOR CONSTR OF DRIVES	[Cross-hatched Box]

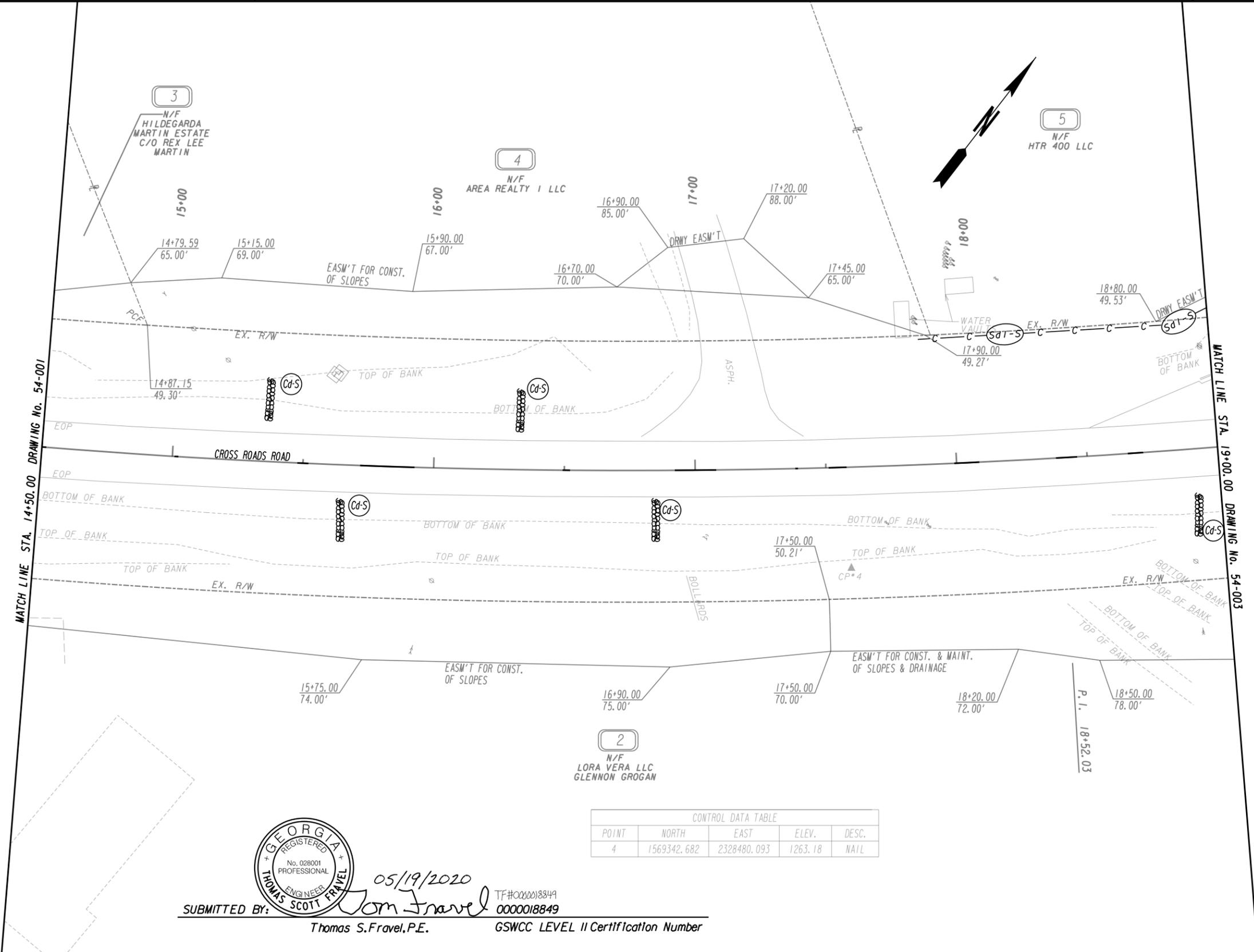
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END LIMIT OF ACCESS.....ELA	-----
LIMIT OF ACCESS	-----
REQ'D R/W & LIMIT OF ACCESS	-----
ORANGE BARRIER FENCE	-----
ESA - ENV. SENSITIVE AREA (SEE ERIT TABLE)	-----

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REVISION DATES	

BMP LOCATION DETAILS		
STAGE IA		
CROSS ROADS ROAD AT BENNETT ROAD		
CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	54-001
CORRECTED:	DATE:	
VERIFIED:	DATE:	



MATCH LINE STA. 14+50.00 DRAWING No. 54-001

MATCH LINE STA. 19+00.00 DRAWING No. 54-003

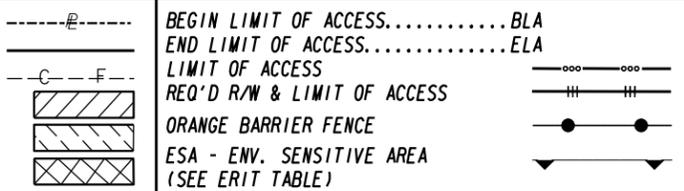
CONTROL DATA TABLE

POINT	NORTH	EAST	ELEV.	DESC.
4	1569342.682	2328480.093	1263.18	NAIL



05/19/2020
 SUBMITTED BY: *Tom Fravel* TF#(00000)8849 0000018849
 Thomas S. Fravel, P.E. GSWCC LEVEL II Certification Number

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES



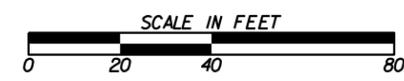
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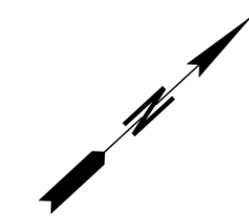
REVISION DATES

NO.	DATE	DESCRIPTION

BMP LOCATION DETAILS
 STAGE 1A
 CROSS ROADS ROAD AT BENNETT ROAD

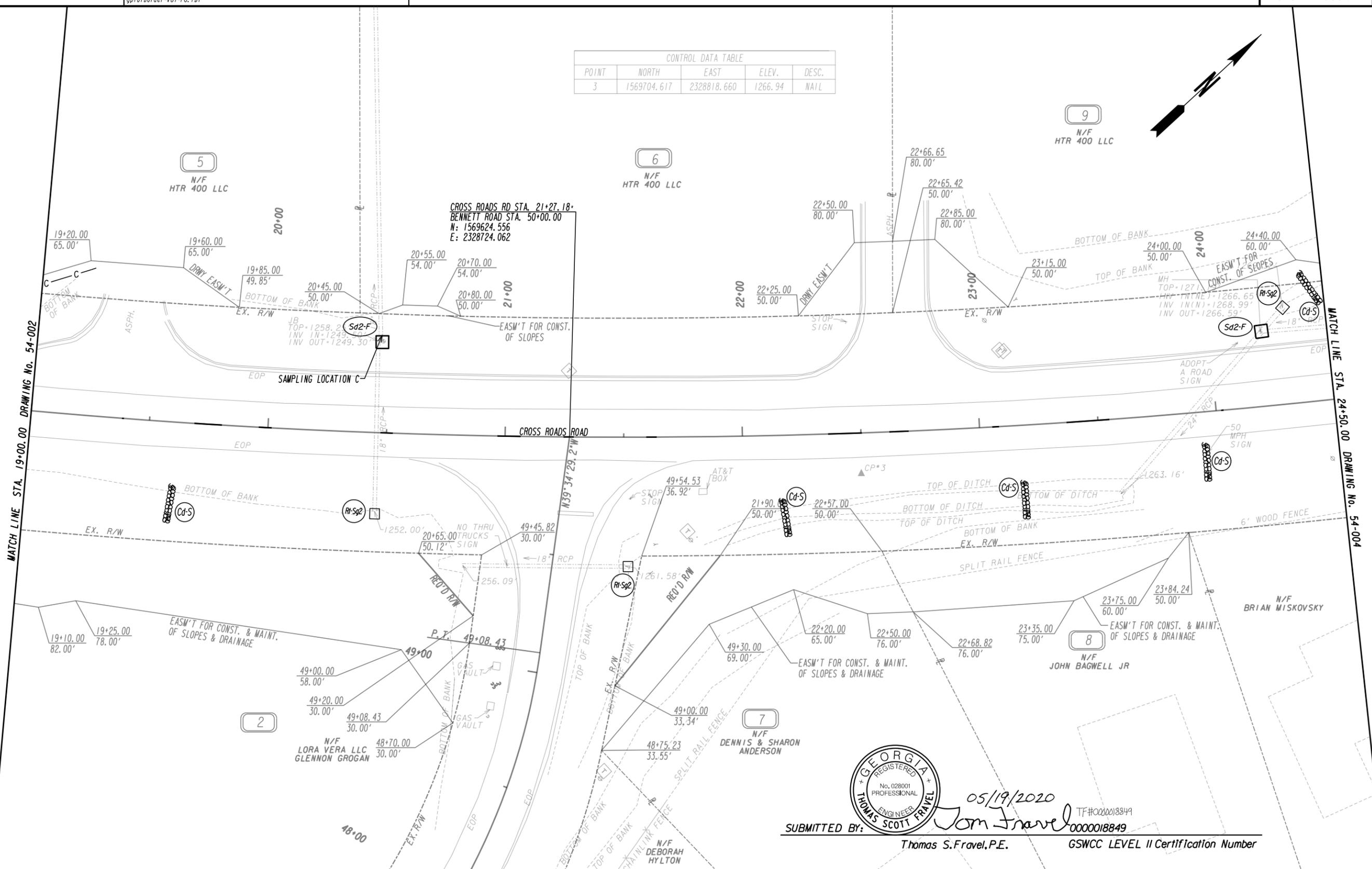
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BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	

CONTROL DATA TABLE				
POINT	NORTH	EAST	ELEV.	DESC.
3	1569704.617	2328818.660	1266.94	NAIL



MATCH LINE STA. 19+00.00 DRAWING No. 54-002

MATCH LINE STA. 24+50.00 DRAWING No. 54-004



SUBMITTED BY: *Tom Fravel* 05/19/2020
Thomas S. Fravel, P.E. TF#0000018849
GSWCC LEVEL II Certification Number

PROPERTY AND EXISTING R/W LINE	-----e-----
REQUIRED R/W LINE	-----f-----
CONSTRUCTION LIMITS	-----c-----
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	-----f-----
EASEMENT FOR CONSTR OF SLOPES	-----f-----
EASEMENT FOR CONSTR OF DRIVES	-----f-----

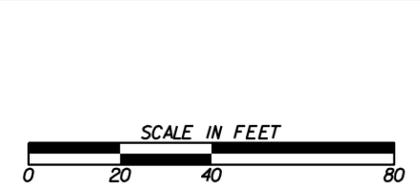
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END LIMIT OF ACCESS.....ELA	-----o-----
LIMIT OF ACCESS	-----o-----
REQ'D R/W & LIMIT OF ACCESS	-----o-----
ORANGE BARRIER FENCE	-----o-----
ESA - ENV. SENSITIVE AREA (SEE ERIT TABLE)	-----o-----

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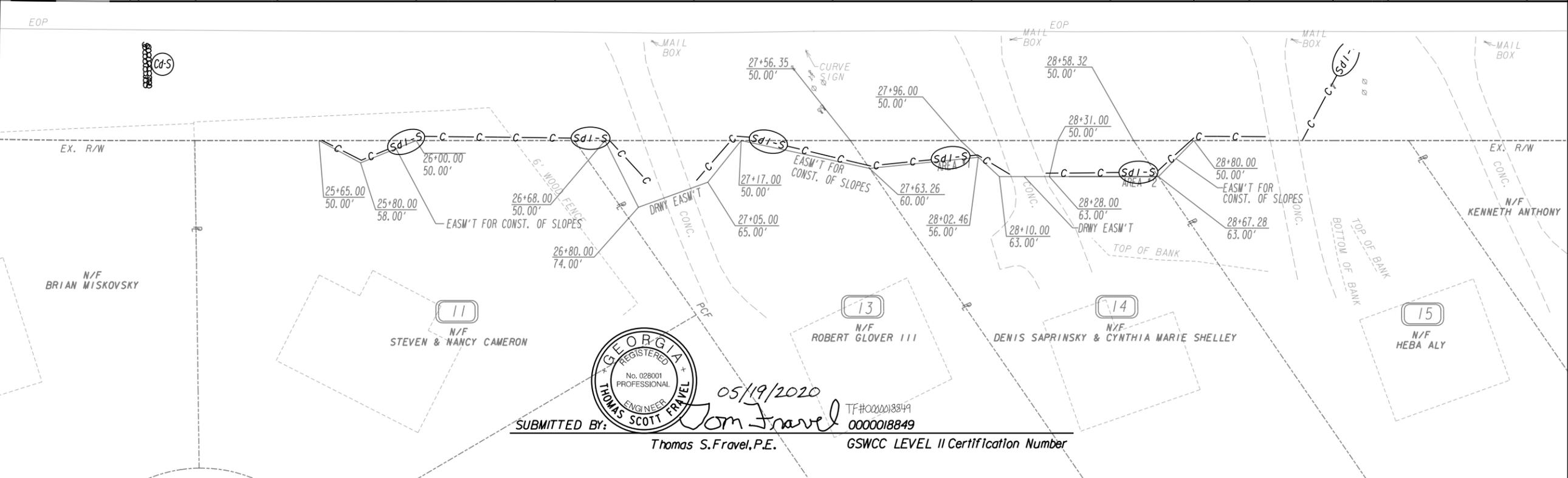
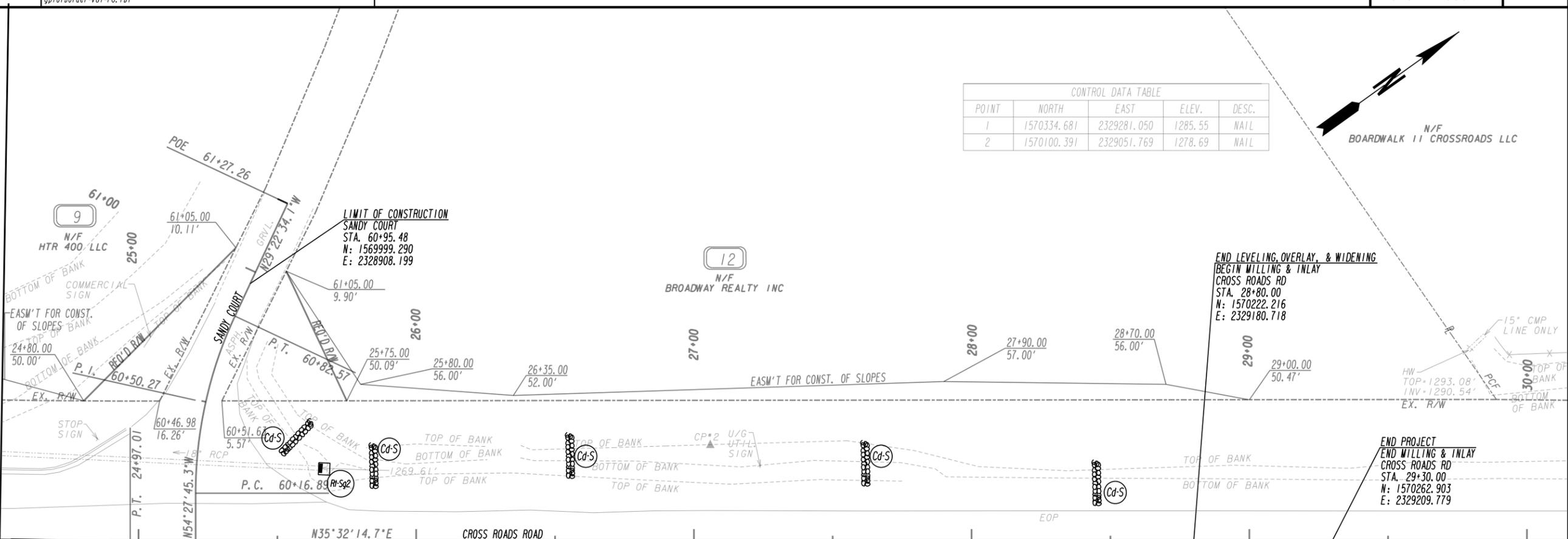
REVISION DATES	

BMP LOCATION DETAILS		
STAGE 1A		
CROSS ROADS ROAD AT BENNETT ROAD		
CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	54-003
CORRECTED:	DATE:	
VERIFIED:	DATE:	

CONTROL DATA TABLE				
POINT	NORTH	EAST	ELEV.	DESC.
1	1570334.681	2329281.050	1285.55	MAIL
2	1570100.391	2329051.769	1278.69	MAIL



MATCH LINE STA. 24+50.00 DRAWING NO. 54-003

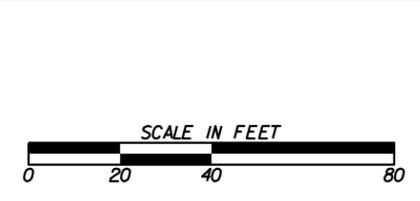


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 GSWCC LEVEL II Certification Number

PROPERTY AND EXISTING R/W LINE	---
REQUIRED R/W LINE	---
CONSTRUCTION LIMITS	---
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	---/---
EASEMENT FOR CONSTR OF SLOPES	---/---
EASEMENT FOR CONSTR OF DRIVES	---/---

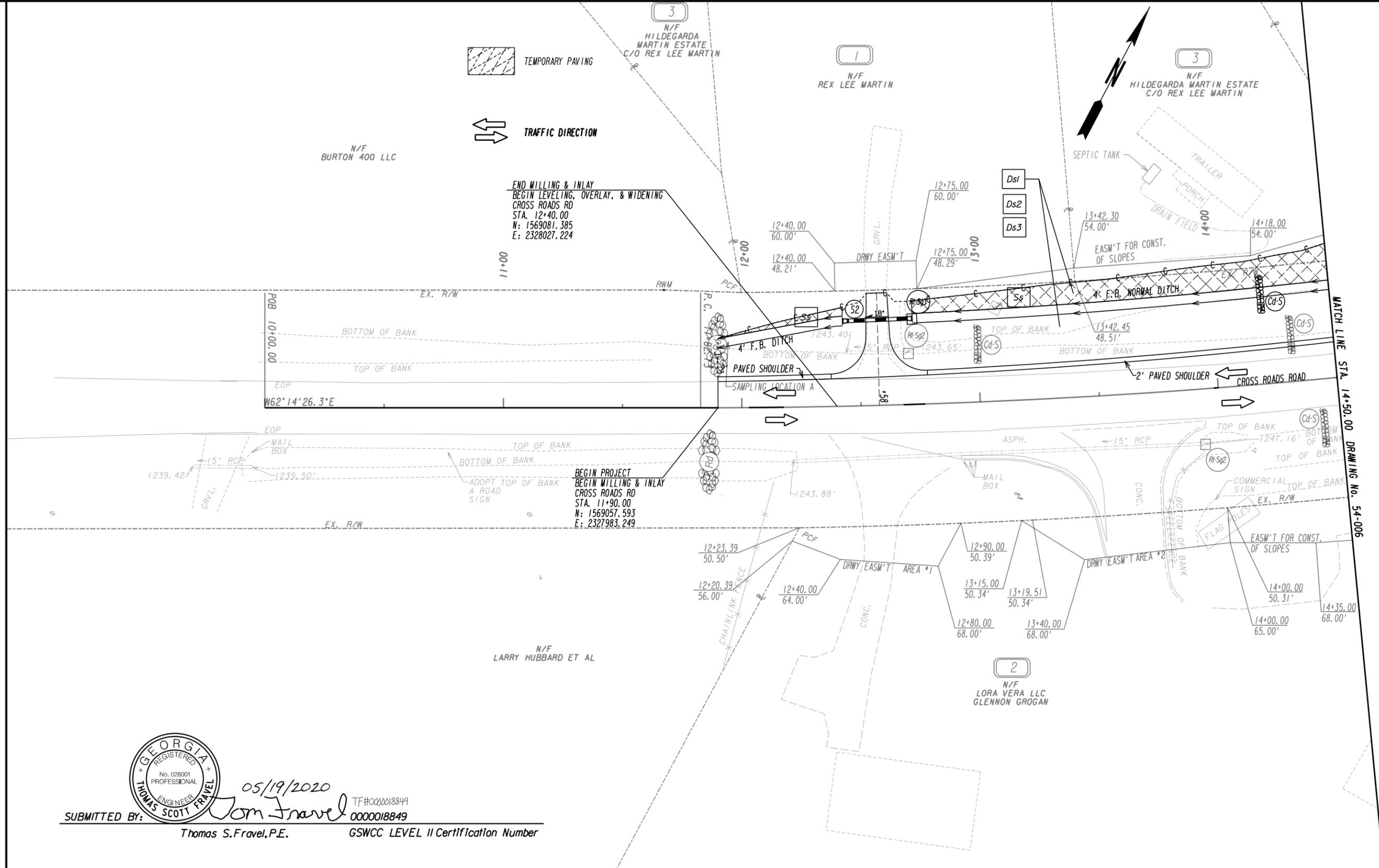
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END LIMIT OF ACCESS.....ELA	---
LIMIT OF ACCESS	---
REQ'D R/W & LIMIT OF ACCESS	---
ORANGE BARRIER FENCE	---
ESA - ENV. SENSITIVE AREA (SEE ERIT TABLE)	---

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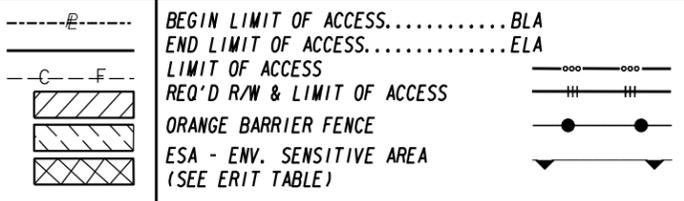
REVISION DATES	

BMP LOCATION DETAILS		
STAGE 1A		
CROSS ROADS ROAD AT BENNETT ROAD		
CHECKED:	DATE:	DRAWING No. 54-004
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	

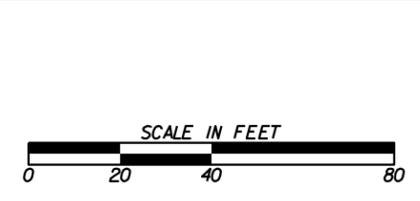


SUBMITTED BY: *Tom Fravel* 05/19/2020 TF#000018849
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PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

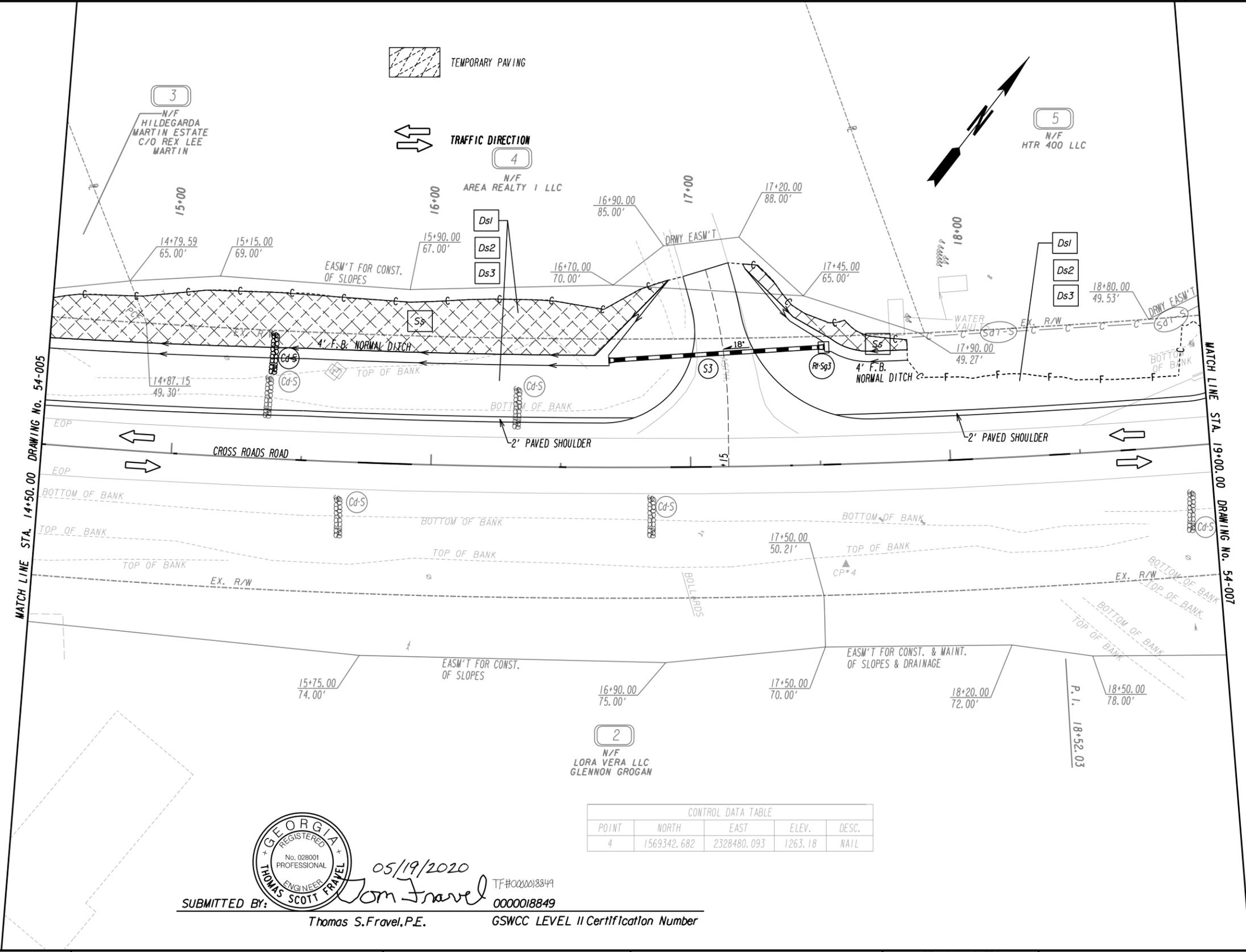


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REVISION DATES	

BMP LOCATION DETAILS		
STAGE I		
CROSS ROADS ROAD AT BENNETT ROAD		
CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	54-005
CORRECTED:	DATE:	
VERIFIED:	DATE:	



MATCH LINE STA. 14+50.00 DRAWING No. 54-005

MATCH LINE STA. 19+00.00 DRAWING No. 54-007

CONTROL DATA TABLE

POINT	NORTH	EAST	ELEV.	DESC.
4	1569342.682	2328480.093	1263.18	NAIL



05/19/2020
 SUBMITTED BY: **Thomas S. Fravel, P.E.**
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 0000018849 GSWCC LEVEL II Certification Number

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

-----e-----
 ---C---F---
 [Hatched Box]
 [Hatched Box]
 [Hatched Box]
 [Hatched Box]

BEGIN LIMIT OF ACCESS.....BLA
 END LIMIT OF ACCESS.....ELA
 LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS
 ORANGE BARRIER FENCE
 ESA - ENV. SENSITIVE AREA
 (SEE ERIT TABLE)

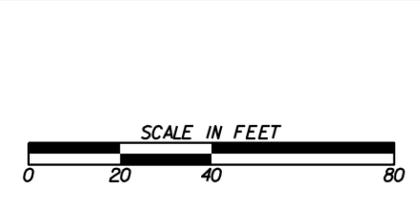
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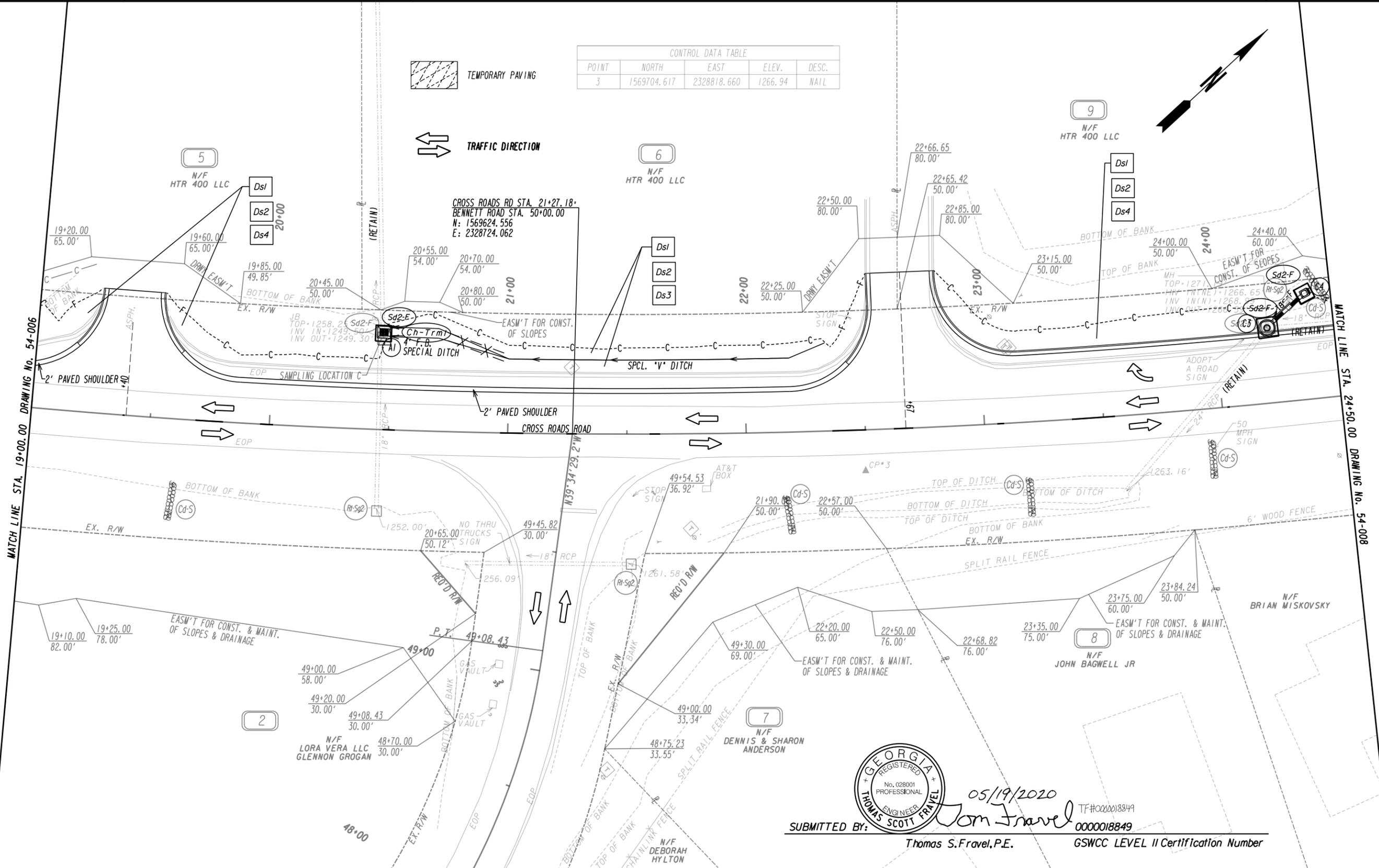
REVISION DATES

NO.	DATE	DESCRIPTION

BMP LOCATION DETAILS
 STAGE I
 CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No. 54-006
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	

CONTROL DATA TABLE				
POINT	NORTH	EAST	ELEV.	DESC.
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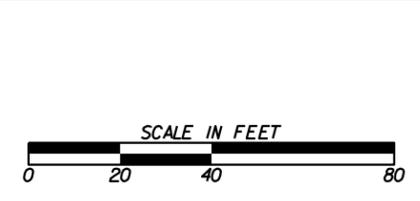


05/19/2020
 SUBMITTED BY: *Tom Fravel* TF#0000018849
 Thomas S. Fravel, P.E. GSWCC LEVEL II Certification Number

PROPERTY AND EXISTING R/W LINE	-----e-----
REQUIRED R/W LINE	-----f-----
CONSTRUCTION LIMITS	-----c-----
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	-----f-----
EASEMENT FOR CONSTR OF SLOPES	-----f-----
EASEMENT FOR CONSTR OF DRIVES	-----f-----

BEGIN LIMIT OF ACCESS.....BLA	-----o-----
END LIMIT OF ACCESS.....ELA	-----o-----
LIMIT OF ACCESS	-----o-----
REQ'D R/W & LIMIT OF ACCESS	-----o-----
ORANGE BARRIER FENCE	-----o-----
ESA - ENV. SENSITIVE AREA (SEE ERIT TABLE)	-----o-----

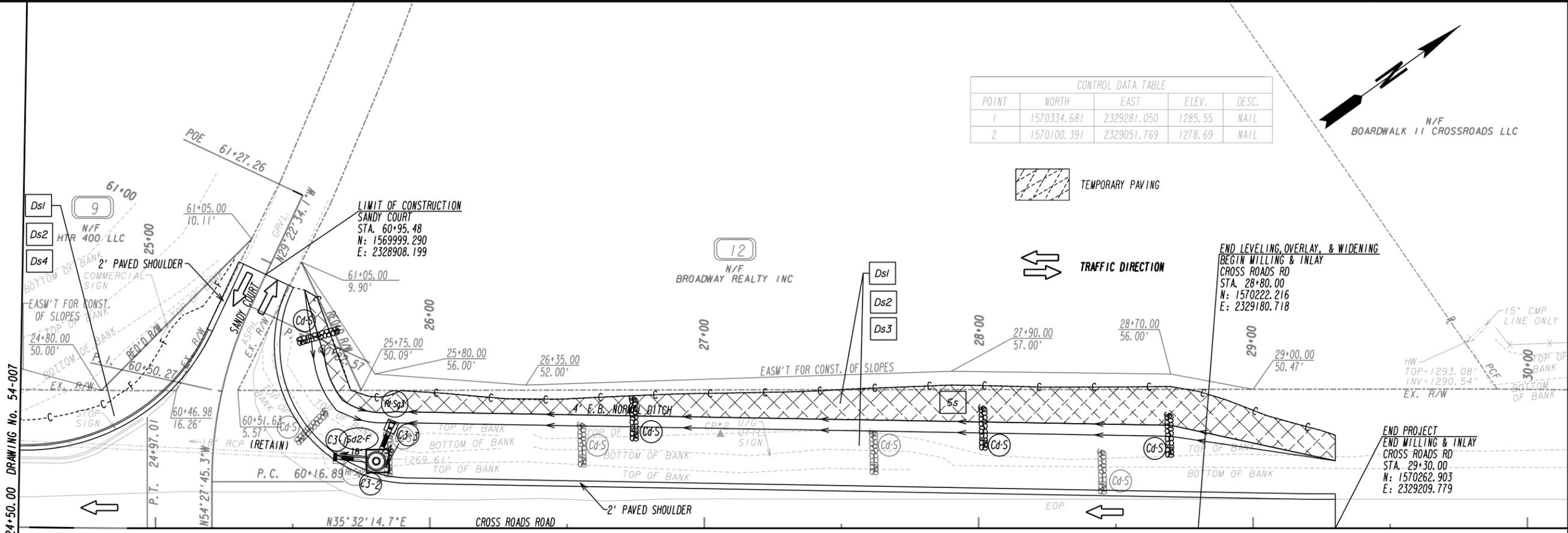
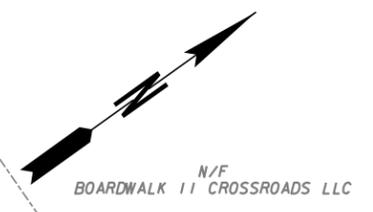
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REVISION DATES	

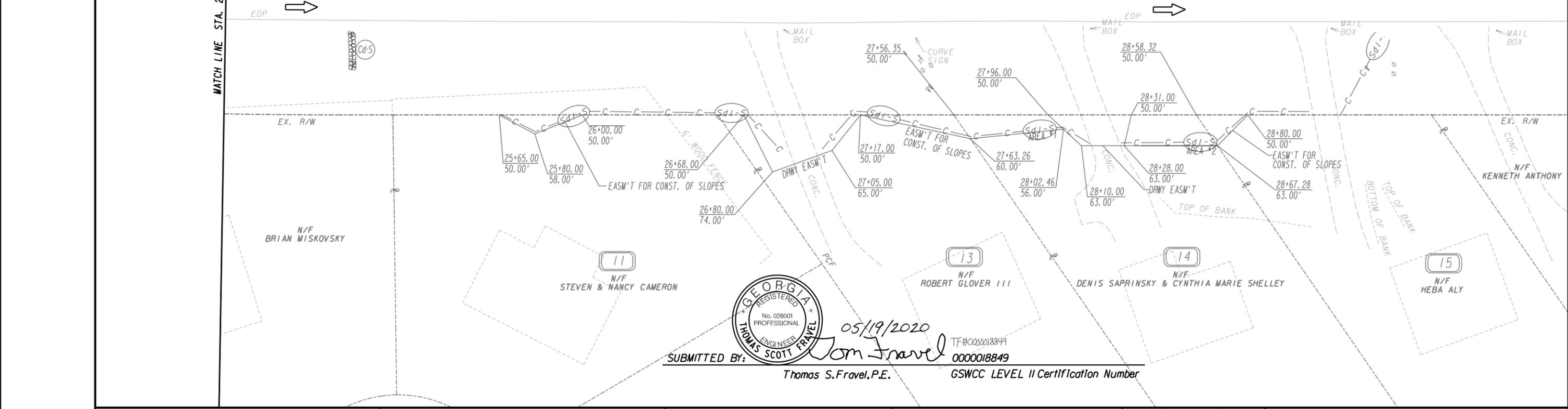
BMP LOCATION DETAILS		
STAGE I		
CROSS ROADS ROAD AT BENNETT ROAD		
CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	54-007
CORRECTED:	DATE:	
VERIFIED:	DATE:	

CONTROL DATA TABLE			
POINT	NORTH	EAST	ELEV. DESC.
1	1570334.681	2329281.050	1285.55 NAIL
2	1570100.391	2329051.769	1278.69 NAIL



MATCH LINE STA. 24+50.00 DRAWING NO. 54-007

STA. 29+30.00 DRAWING NO. 54-008

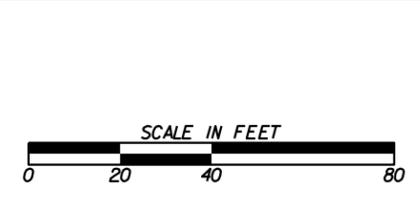


SUBMITTED BY: *Tom Fravel* 05/19/2020 TF#0000038849 0000018849
 Thomas S. Fravel, P.E. GSWCC LEVEL II Certification Number

PROPERTY AND EXISTING R/W LINE	---
REQUIRED R/W LINE	---
CONSTRUCTION LIMITS	---
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	---/---/---
EASEMENT FOR CONSTR OF SLOPES	---/---/---
EASEMENT FOR CONSTR OF DRIVES	---/---/---

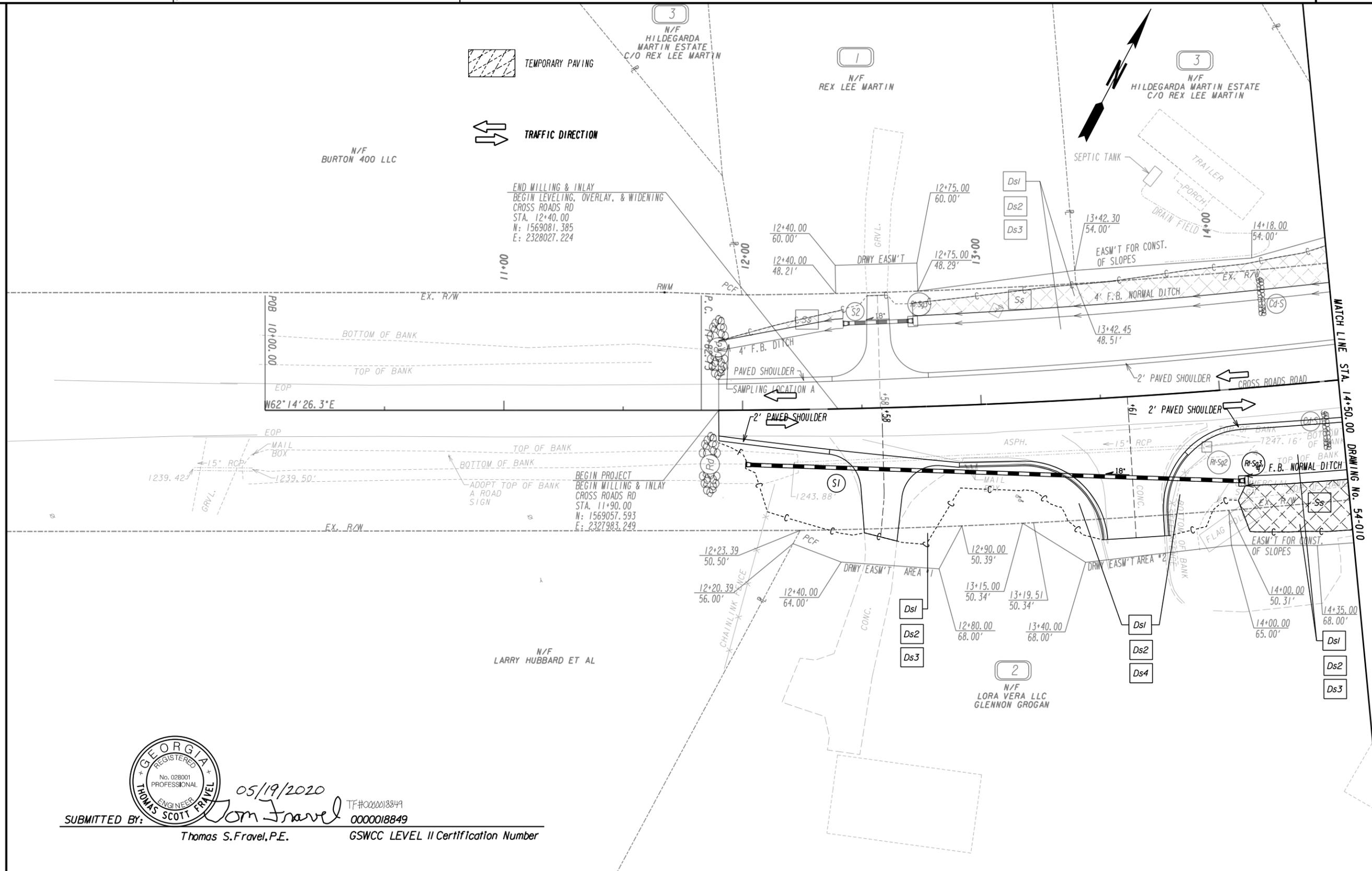
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END LIMIT OF ACCESS.....ELA	---
LIMIT OF ACCESS	---
REQ'D R/W & LIMIT OF ACCESS	---
ORANGE BARRIER FENCE	---
ESA - ENV. SENSITIVE AREA (SEE ERIT TABLE)	---

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REVISION DATES	

BMP LOCATION DETAILS		
STAGE I		
CROSS ROADS ROAD AT BENNETT ROAD		
CHECKED:	DATE:	DRAWING No. 54-008
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	



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 0000018849 GSWCC LEVEL II Certification Number

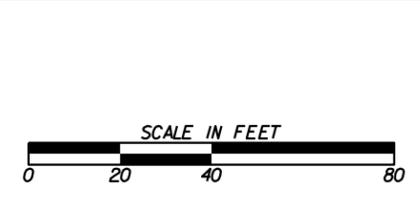
PROPERTY AND EXISTING R/W LINE	-----e-----
REQUIRED R/W LINE	-----f-----
CONSTRUCTION LIMITS	-----g-----
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	-----h-----
EASEMENT FOR CONSTR OF SLOPES	-----i-----
EASEMENT FOR CONSTR OF DRIVES	-----j-----

BEGIN LIMIT OF ACCESS.....BLA	-----k-----
END LIMIT OF ACCESS.....ELA	-----l-----
LIMIT OF ACCESS	-----m-----
REQ'D R/W & LIMIT OF ACCESS	-----n-----
ORANGE BARRIER FENCE	-----o-----
ESA - ENV. SENSITIVE AREA (SEE ERIT TABLE)	-----p-----

PLANS PREPARED AND SUBMITTED BY:

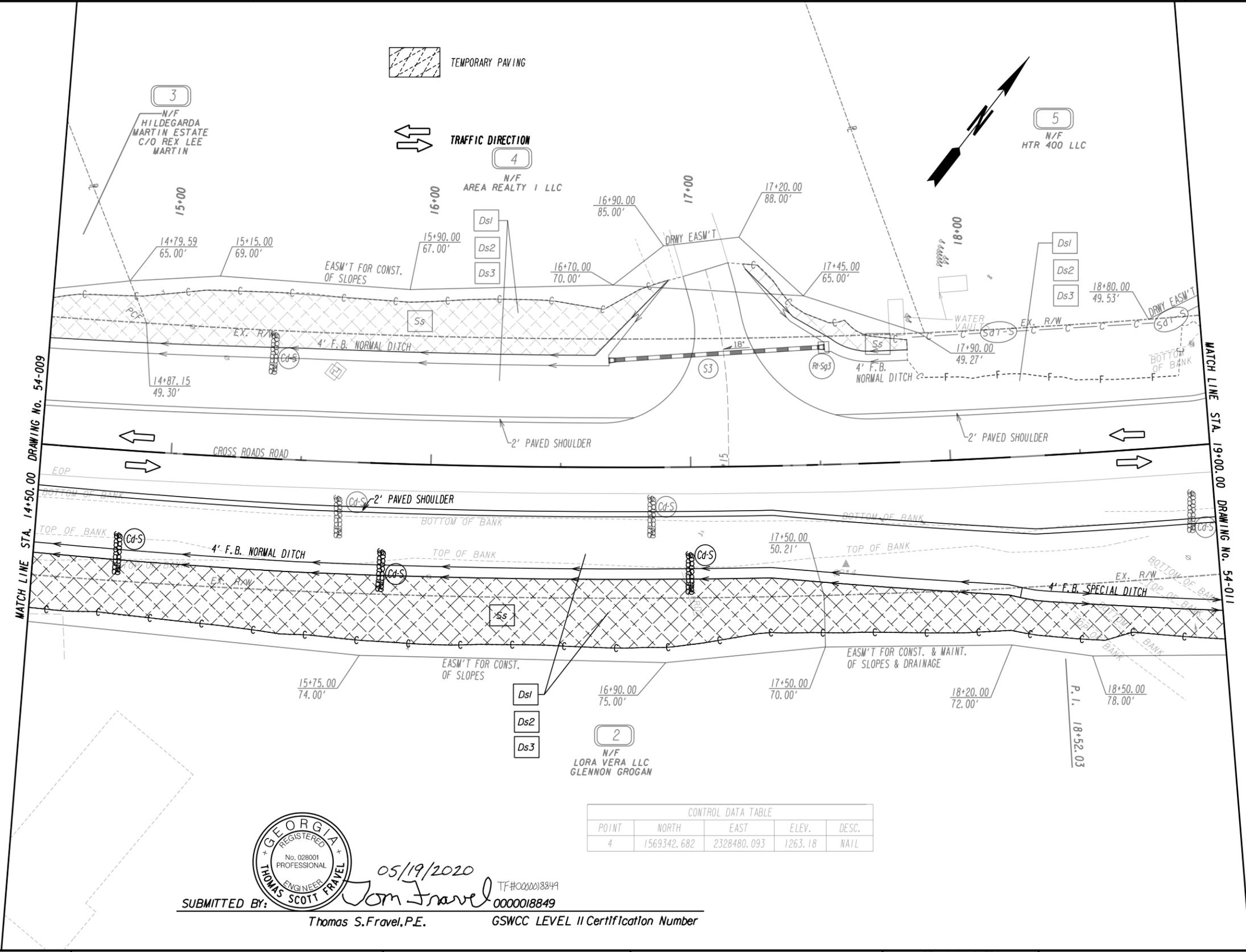
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REVISION DATES	

BMP LOCATION DETAILS		
STAGE 2		
CROSS ROADS ROAD AT BENNETT ROAD		
CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	54-009
CORRECTED:	DATE:	
VERIFIED:	DATE:	



MATCH LINE STA. 14+50.00 DRAWING No. 54-009

MATCH LINE STA. 19+00.00 DRAWING No. 54-011

CONTROL DATA TABLE

POINT	NORTH	EAST	ELEV.	DESC.
4	1569342.682	2328480.093	1263.18	NAIL



05/19/2020
 SUBMITTED BY: *Tom Fravel* TF#0000018849
 Thomas S. Fravel, P.E. GSWCC LEVEL II Certification Number 0000018849

PROPERTY AND EXISTING R/W LINE
 REQUIRED R/W LINE
 CONSTRUCTION LIMITS
 EASEMENT FOR CONSTR
 & MAINTENANCE OF SLOPES
 EASEMENT FOR CONSTR OF SLOPES
 EASEMENT FOR CONSTR OF DRIVES

-----e-----
 ---C---F---
 [Hatched Box]
 [Hatched Box]
 [Hatched Box]

BEGIN LIMIT OF ACCESS.....BLA
 END LIMIT OF ACCESS.....ELA
 LIMIT OF ACCESS
 REQ'D R/W & LIMIT OF ACCESS
 ORANGE BARRIER FENCE
 ESA - ENV. SENSITIVE AREA
 (SEE ERIT TABLE)

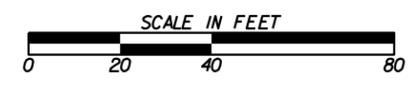
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 (502) 245-3813



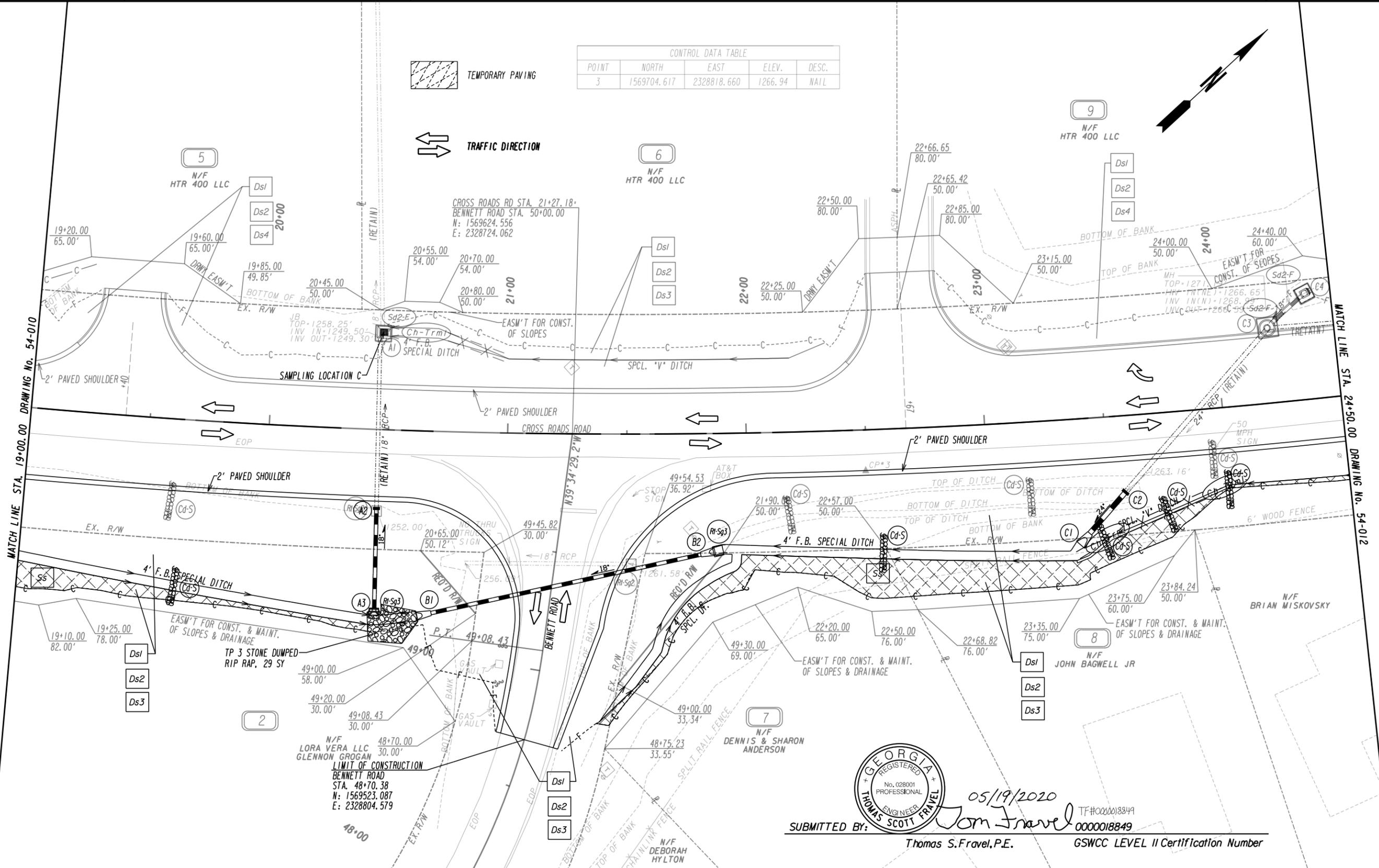
REVISION DATES

NO.	DATE	DESCRIPTION

BMP LOCATION DETAILS
 STAGE 2
 CROSS ROADS ROAD AT BENNETT ROAD

CHECKED:	DATE:	DRAWING No. 54-010
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	

CONTROL DATA TABLE				
POINT	NORTH	EAST	ELEV.	DESC.
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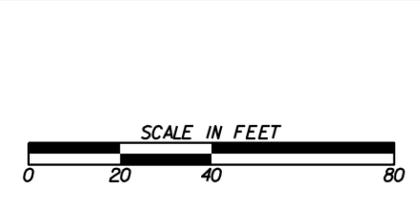


05/19/2020
 SUBMITTED BY: **Tom Fravel** TF#000008849
Thomas S. Fravel, P.E. GSWCC LEVEL II Certification Number

-----e-----	BEGIN LIMIT OF ACCESS.....BLA
-----f-----	END LIMIT OF ACCESS.....ELA
-----C-----	LIMIT OF ACCESS
-----F-----	REQ'D R/W & LIMIT OF ACCESS
[Hatched Box]	ORANGE BARRIER FENCE
[Dotted Box]	ESA - ENV. SENSITIVE AREA (SEE ERIT TABLE)
[Cross-hatched Box]	

[Symbol]	PROPERTY AND EXISTING R/W LINE
[Symbol]	REQUIRED R/W LINE
[Symbol]	CONSTRUCTION LIMITS
[Symbol]	EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
[Symbol]	EASEMENT FOR CONSTR OF SLOPES
[Symbol]	EASEMENT FOR CONSTR OF DRIVES

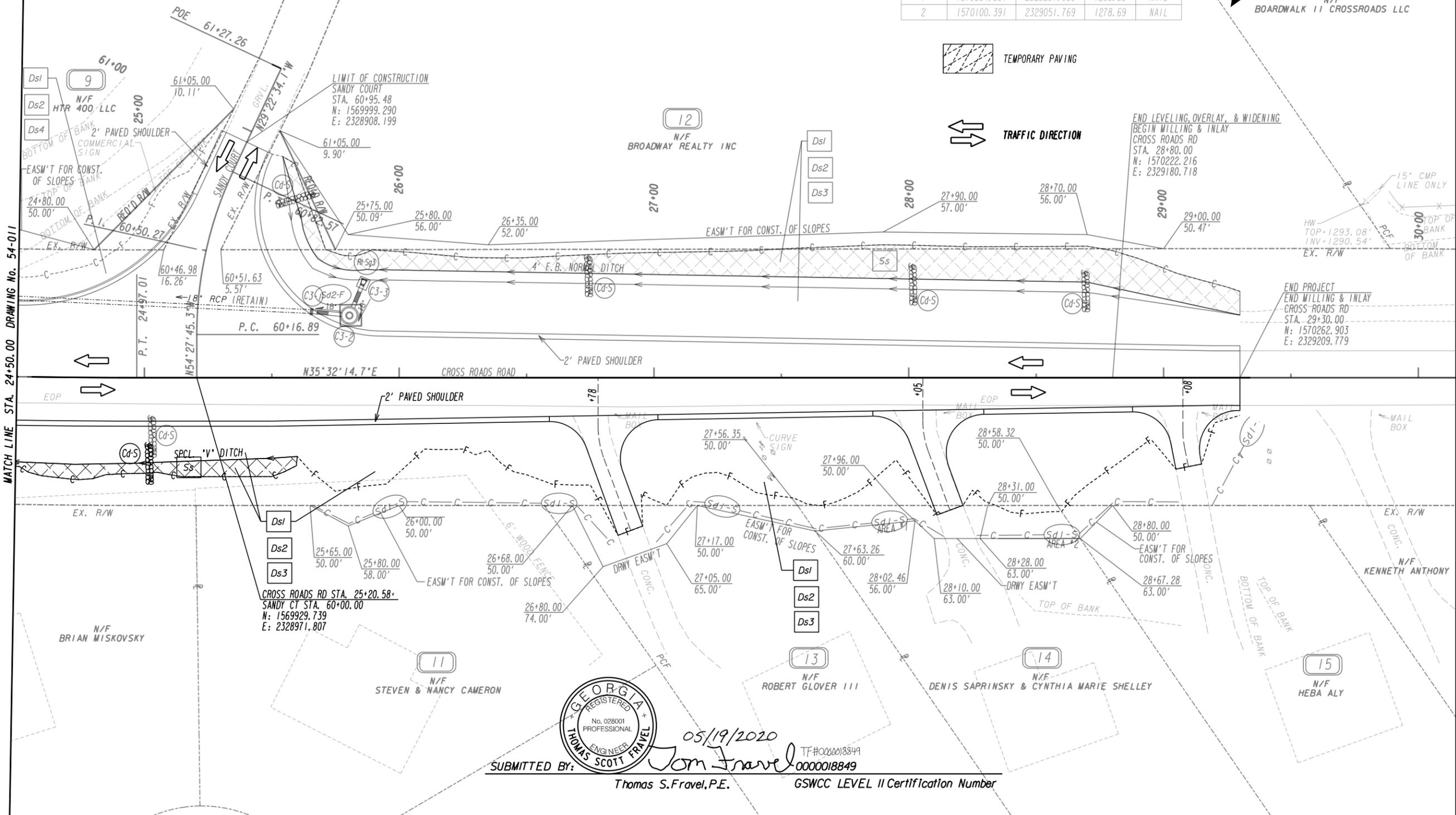
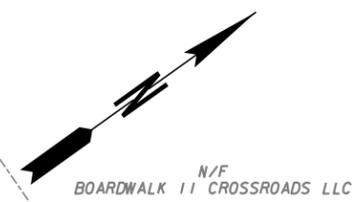
PLANS PREPARED AND SUBMITTED BY:
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 AMERICAN ENGINEERS, INC.
 DESIGN CONSULTANT



REVISION DATES	

BMP LOCATION DETAILS		
STAGE 2		
CROSS ROADS ROAD AT BENNETT ROAD		
CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	54-011
CORRECTED:	DATE:	
VERIFIED:	DATE:	

CONTROL DATA TABLE				
POINT	NORTH	EAST	ELEV.	DESC.
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2	1570100.391	2329051.769	1278.69	NAIL

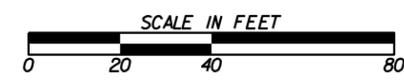


SUBMITTED BY: **Thomas S. Fravel, P.E.**
 05/19/2020
 TF#000018849
 0000018849
 GSWCC LEVEL II Certification Number

PROPERTY AND EXISTING R/W LINE	---
REQUIRED R/W LINE	---
CONSTRUCTION LIMITS	---
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	---/---
EASEMENT FOR CONSTR OF SLOPES	---/---
EASEMENT FOR CONSTR OF DRIVES	---/---

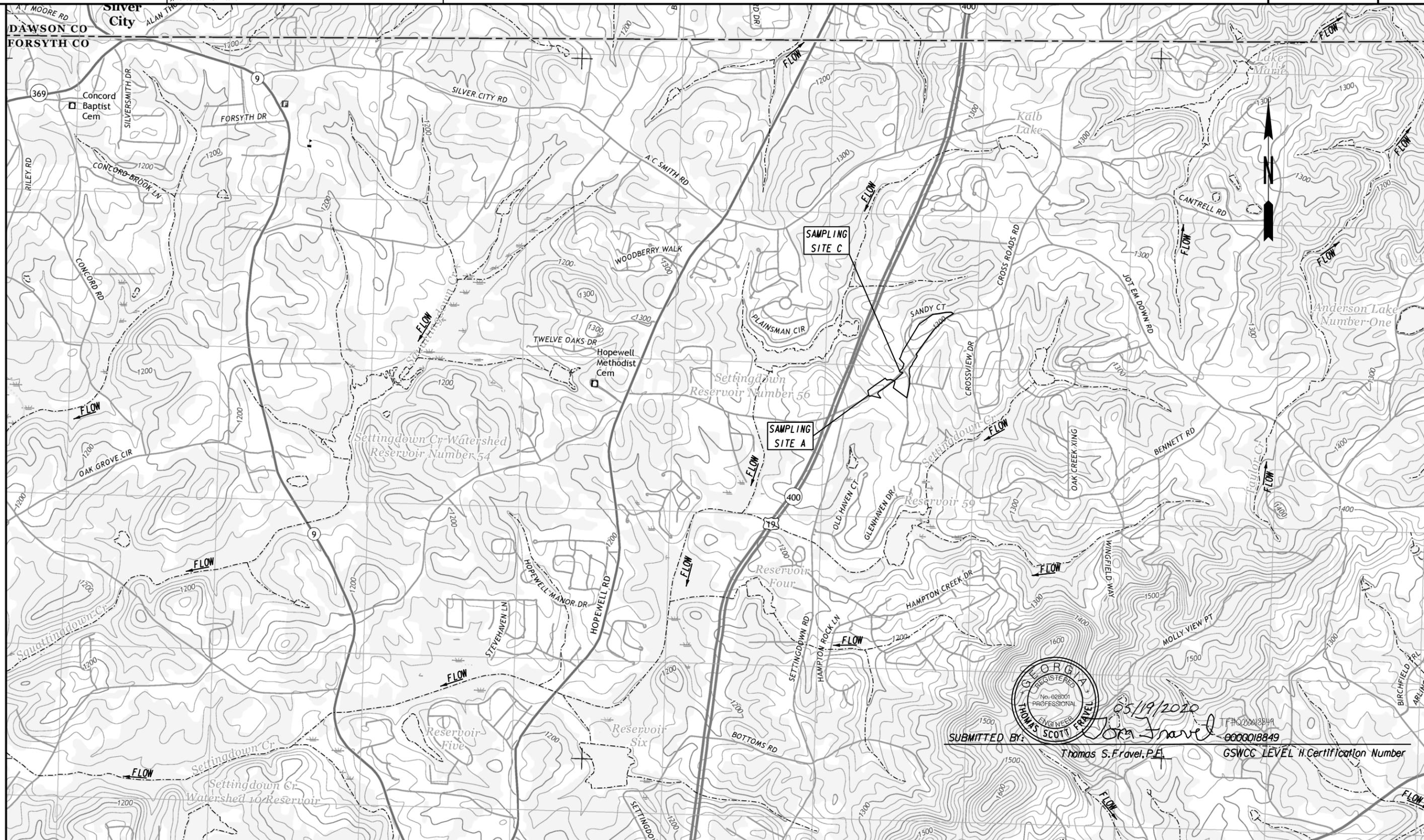
BEGIN LIMIT OF ACCESS.....BLA	---
END LIMIT OF ACCESS.....ELA	---
LIMIT OF ACCESS	---
REQ'D R/W & LIMIT OF ACCESS	---
ORANGE BARRIER FENCE	---
ESA - ENV. SENSITIVE AREA (SEE ERIT TABLE)	---

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AMERICAN ENGINEERS, INC.
 1630 Roberts Boulevard, Suite 109
 Marietta, GA 30064
 (770) 421-8422
 DESIGN CONSULTANT



REVISION DATES	

BMP LOCATION DETAILS		
STAGE 2		
CROSS ROADS ROAD AT BENNETT ROAD		
CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	54-012
CORRECTED:	DATE:	
VERIFIED:	DATE:	



05/19/2020
 SUBMITTED BY: Thomas S. Fravel, P.E.
 T# 000018849
 0000018849
 GSWCC LEVEL II Certification Number

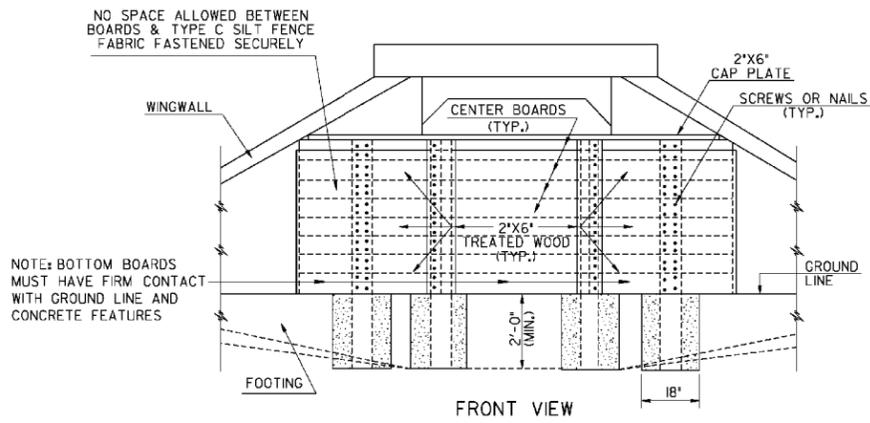
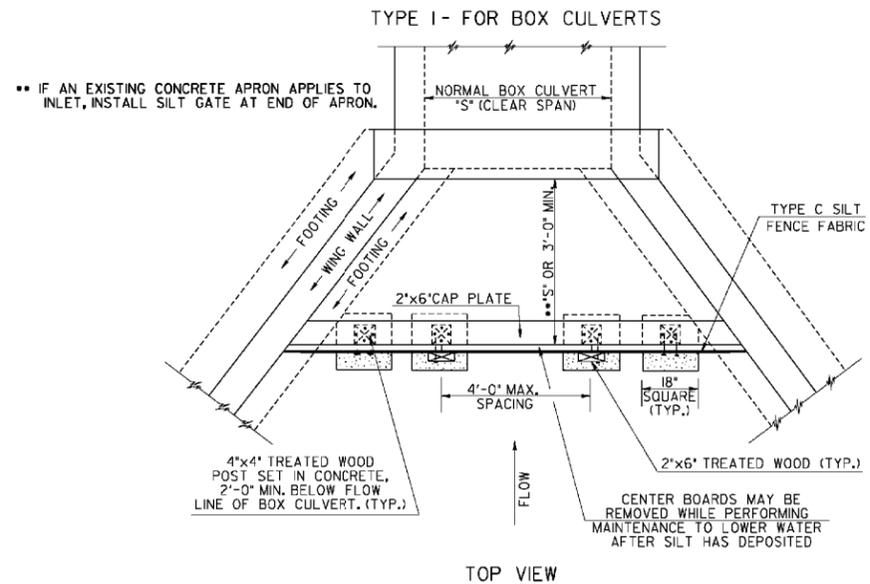
PLANS PREPARED AND SUBMITTED BY:
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 PROFESSIONAL ENGINEERING



REVISION DATES	

WATERSHED MAP SITE MONITORING PLAN		
CROSS ROADS ROAD AT BENNETT ROAD		
CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	55-001
CORRECTED:	DATE:	
VERIFIED:	DATE:	

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

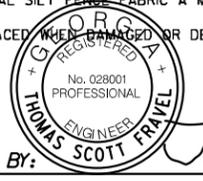
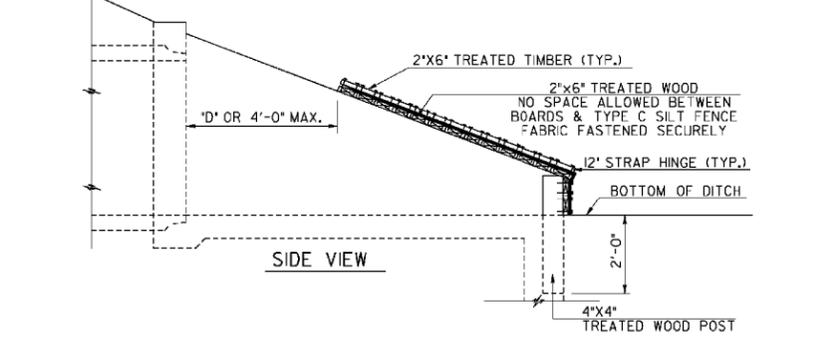
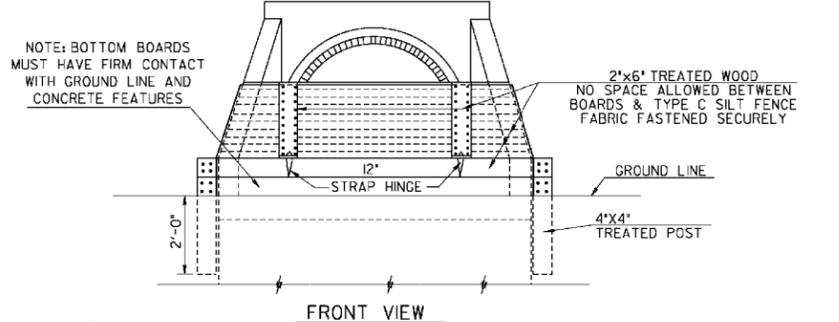
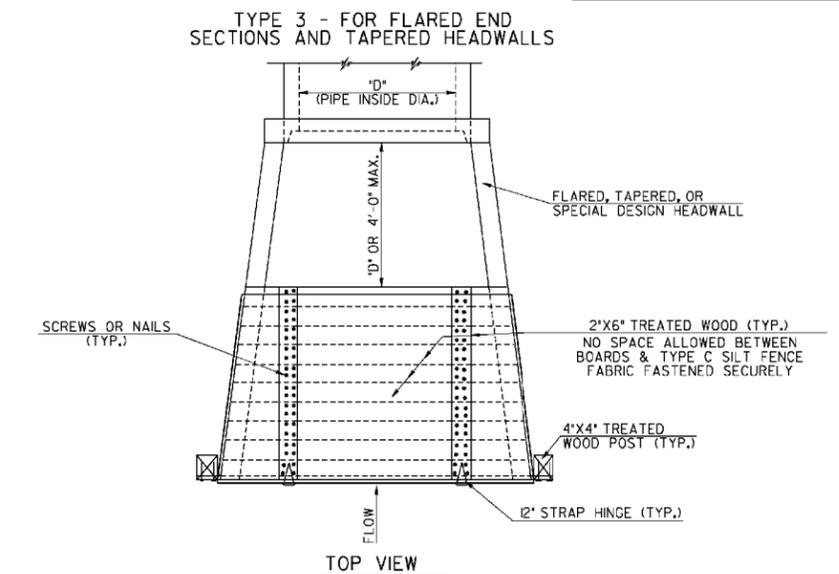
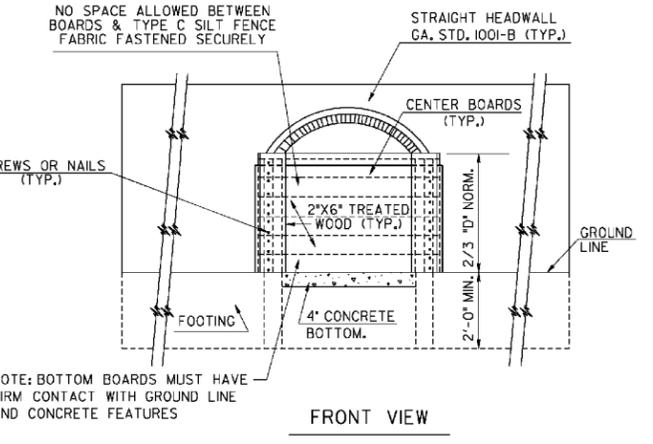
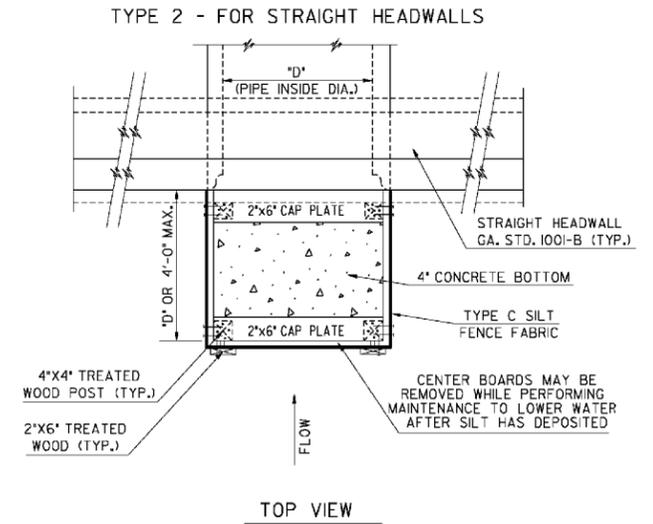


- SILT CONTROL GATE TYPE I NOTES:**
- REFER TO GA. STD 2332 FOR CONCRETE APRONS.
 - SEE SECTION 163 FOR THE REMOVAL OF TYPE I SILT CONTROL GATES.

- GENERAL NOTES:**
- A SILT CONTROL GATE IS A TEMPORARY STRUCTURE PLACED AT INLETS TO FORM A BASIN FOR TRAPPING SEDIMENT.
 - SILT GATES SHALL NOT BE USED ON STRUCTURES THAT CONVEY STATE WATERS.
 - SILT GATES SHALL ONLY BE USED ON DRAINAGE AREAS UP TO 50-ACRES WITH NO MORE THAN 5-ACRES DISTURBED WITHIN THE DRAINAGE AREA.
 - USE WOOD SCREWS OR NAILS TO CONNECT WOOD COMPONENTS WITH NO SPACE ALLOWED BETWEEN BOARDS. TYPE C SILT FENCE FABRIC MUST BE FASTENED SECURELY WITH STAPLES OR NAILS TO OUTSIDE FACE OF BOARDS AND COVERING ALL BUTT-JOINTS BETWEEN BOARDS. OVERLAP ADDITIONAL SILT FENCE FABRIC A MINIMUM OF 12-INCHES.
 - REMOVE SEDIMENT WHEN IT REACHES ONE-THIRD THE HEIGHT OF SILT CONTROL GATE AND SILT FENCE FABRIC SHALL BE REPLACED WHEN DAMAGED OR DETERIORATED.

PAY ITEMS:

163-0501	CONSTRUCT AND REMOVE SILT CONTROL GATE, TP 1	(EA)
163-0502	CONSTRUCT AND REMOVE SILT CONTROL GATE, TP 2	(EA)
163-0503	CONSTRUCT AND REMOVE SILT CONTROL GATE, TP 3	(EA)
165-0085	MAINTENANCE OF SILT CONTROL GATE, TP 1	(EA)
165-0086	MAINTENANCE OF SILT CONTROL GATE, TP 2	(EA)
165-0087	MAINTENANCE OF SILT CONTROL GATE, TP 3	(EA)



05/19/2020
 SUBMITTED BY: *Thomas S. Fravel* TF#000018849
 Thomas S. Fravel, P.E. GSWCC LEVEL II Certification Number

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA			
CONSTRUCTION DETAILS			
SILT CONTROL GATES FOR STRUCTURES TYPE - 1, 2, AND 3			
NO SCALE	REV. & REDR. DEC., 2000		
NUMBER D-20			

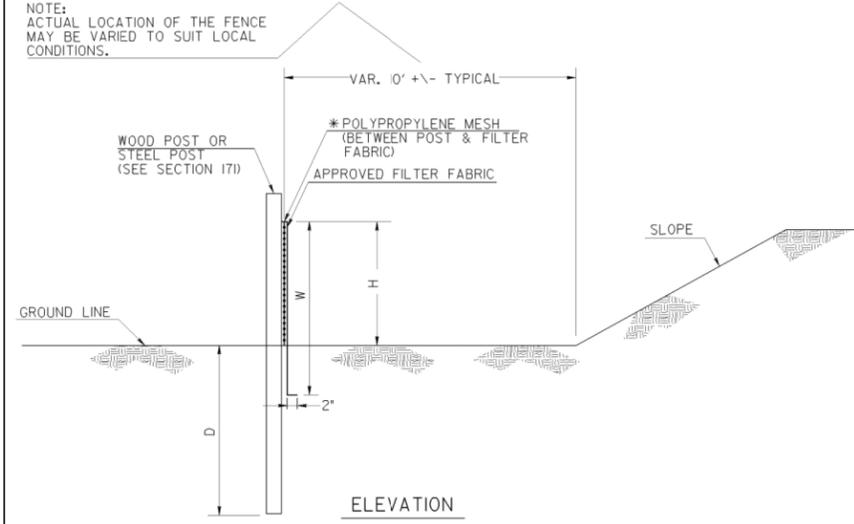
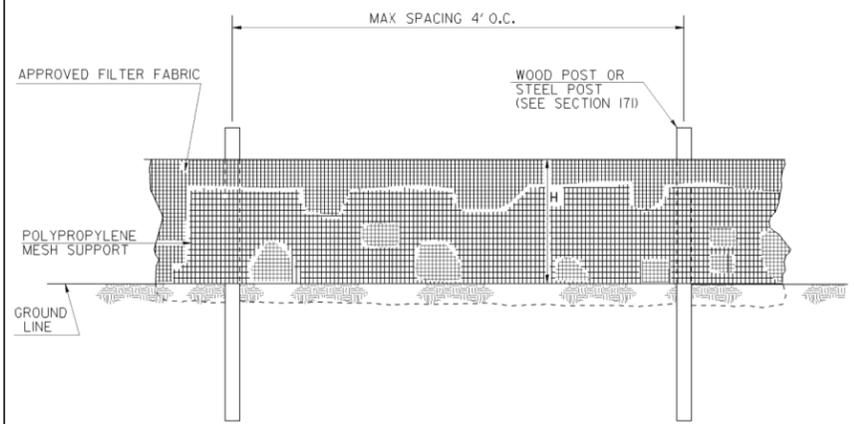
PLANS PREPARED AND SUBMITTED BY:

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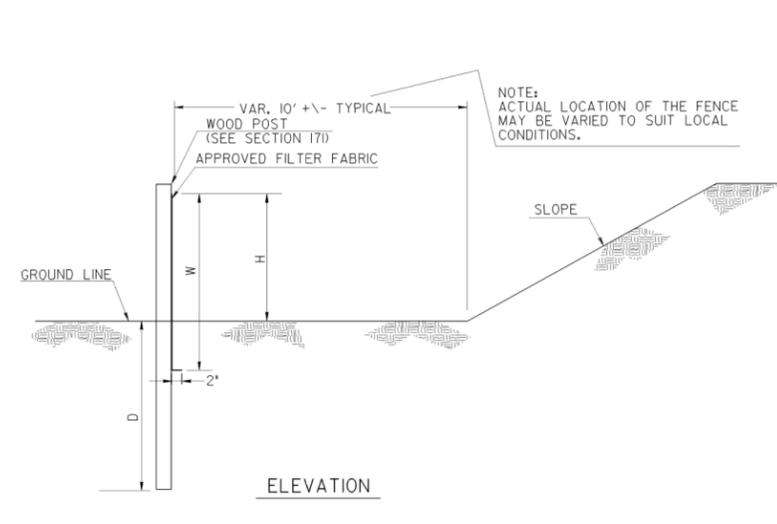
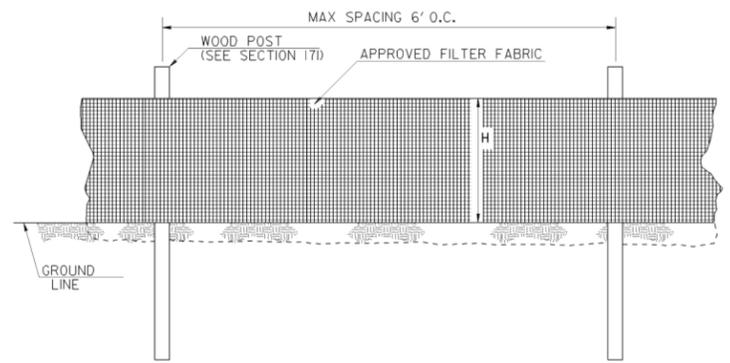
PROFESSIONAL ENGINEERING

NTS

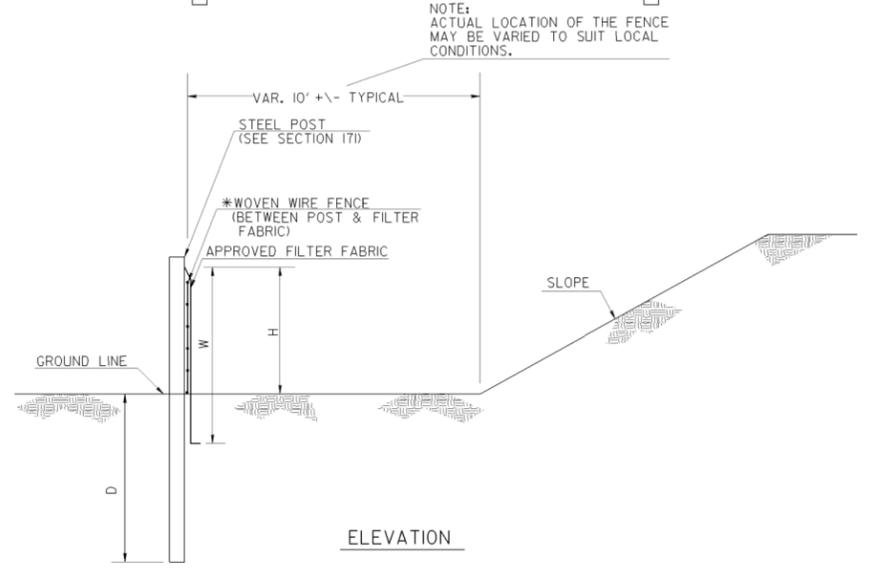
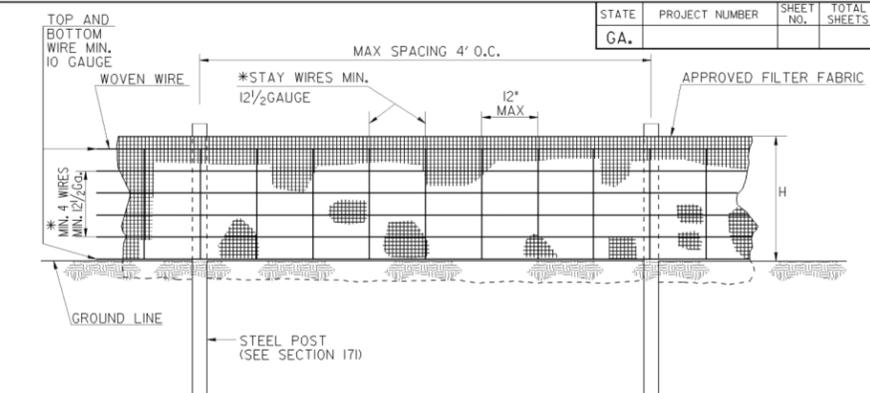
REVISION DATES		EROSION CONTROL CONSTRUCTION DETAILS	
		CROSS ROADS ROAD AT BENNETT ROAD	
CHECKED:	DATE:	DRAWING No.	
BACKCHECKED:	DATE:	56-001	
CORRECTED:	DATE:		
VERIFIED:	DATE:		



SINGLE ROW TYPE C SILT FENCE WITH POLYPROPYLENE MESH SUPPORT



SINGLE ROW TYPE A SILT FENCE



SINGLE ROW TYPE C SILT FENCE WITH WOVEN WIRE SUPPORT

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

FENCE TYPE	POST LENGTH	H	D	W	TYPICAL USES
TYPE 'A'	4 FT.	2'-4"	1'-6"	3'-0"	
TYPE 'C'	4 FT.	2'-4"	1'-6"	3'-0"	AT BRIDGE END ROLLS, DOUBLE ROW ALONG STREAMS, WETLANDS AND ENVIRONMENTALLY SENSITIVE AREAS FOR USE OF THIS MATERIAL IN FABRIC CHECKDAMS SEE D-24D.

NOTES:

1. WIRE STAPLES SHALL BE AT LEAST 17 GAUGE, WITH LEGS AT LEAST 1/2 INCHES LONG AND A CROWN AT LEAST 3/4 INCHES WIDE. NAILS SHALL BE AT LEAST 14 GAUGE, 1 INCH LONG, WITH BUTTON HEADS AT LEAST 3/4 INCHES WIDE.
2. NAILS OR STAPLES SHALL BE EVENLY PLACED WITH AT LEAST 5 PER POST FOR TYPE A FENCE AND 4 PER POST FOR TYPE C FENCE.
3. THE VERTICAL WIRES FOR THE WOVEN WIRE SUPPORT FENCE SHALL HAVE A MAXIMUM SPACING OF 12 INCHES. THE TOP AND BOTTOM WIRES SHALL BE AT LEAST 10 GAUGE AND ALL OTHER WIRES SHALL BE AT LEAST 12 1/2 GAUGE.
4. TEMPORARY SILT FENCE INSTALLATION IS DIFFERENT THAN THE SILT RETENTION BARRIER INSTALLATION.
5. SEE SECTION 171 FOR SILT FENCE SPECIFICATIONS.
6. SEE SECTION 894 FOR FENCING SPECIFICATIONS.
7. SEE OPL-36 FOR A LIST APPROVED SILT FENCE FABRIC.
8. TEMPORARY SILT FENCE SHALL NOT BE PLACED WITHIN STATE WATERS UNLESS PERMITTED.



SUBMITTED BY: *Thomas S. Fravel* 05/19/2020
 Thomas S. Fravel, P.E. GSWCC LEVEL II Certification Number
 TF#0000018849

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

CONSTRUCTION DETAILS
TEMPORARY SILT FENCE

NO SCALE REV. AND REDRAWN JAN. 2011

NUMBER D-24A (SHEET 1 OF 4)

PLANS PREPARED AND SUBMITTED BY:

AEI
AMERICAN ENGINEERS, INC.
DESIGN CONSULTANT

2500 Nelson Miller Parkway
Louisville, KY 40223
(502) 245-3813

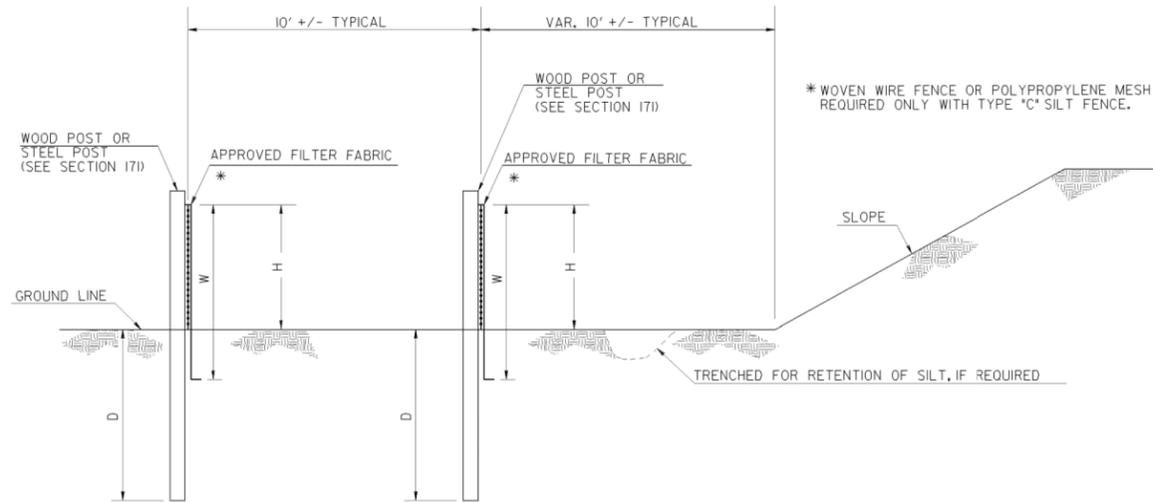
Branch Office:
65 Aberdeen Drive
Crosstons, KY 40304
(270) 651-7220

1634 White Circle, Suite 101
Marietta, GA 30066
(770) 421-8422

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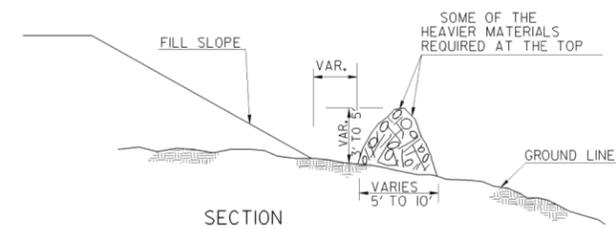
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DATE	REVISION	CROSS ROADS ROAD AT BENNETT ROAD	
		CHECKED:	DATE:
		BACKCHECKED:	DATE:
		CORRECTED:	DATE:
		VERIFIED:	DATE:
		DRAWING No. 56-002	

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS



ELEVATION
DOUBLE ROW SILT FENCE

FENCE TYPE	POST LENGTH	H	D	W	TYPICAL USES
TYPE *A*	4 FT.	2'-4"	1'-6"	3'-0"	
TYPE *C*	4 FT.	2'-4"	1'-6"	3'-0"	AT BRIDGE END ROLLS, DOUBLE ROW ALONG STREAMS, WETLANDS AND ENVIRONMENTALLY SENSITIVE AREAS FOR USE OF THIS MATERIAL IN FABRIC CHECKDAMS SEE D-24D.



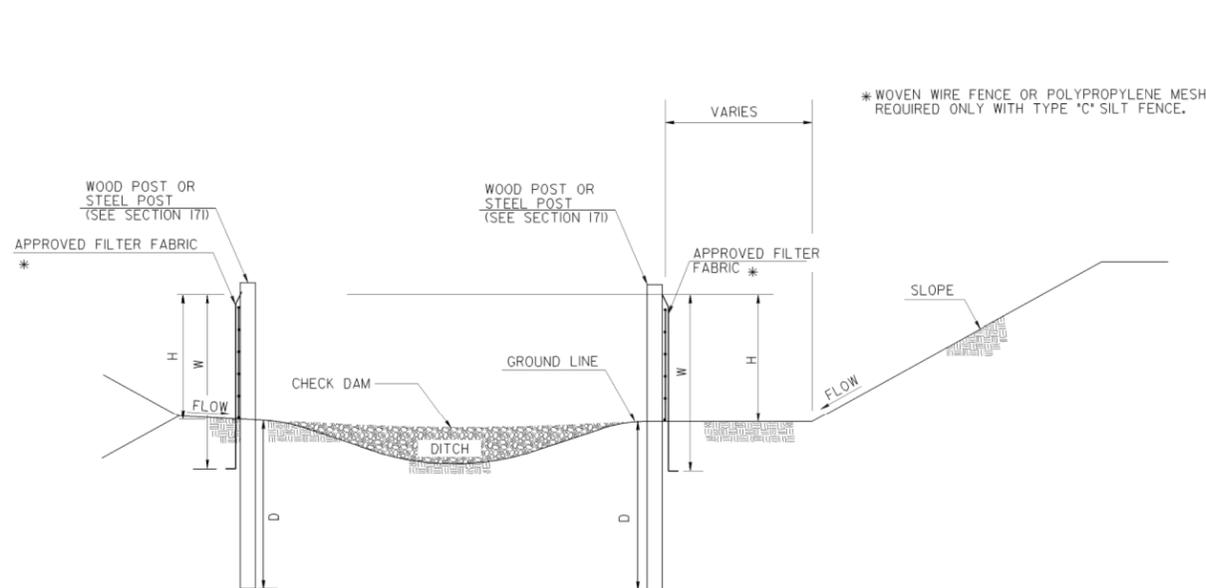
NOTE: INTERMINGLE BRUSH, LOGS, ETC. SO AS NOT TO FORM A SOLID DAM.



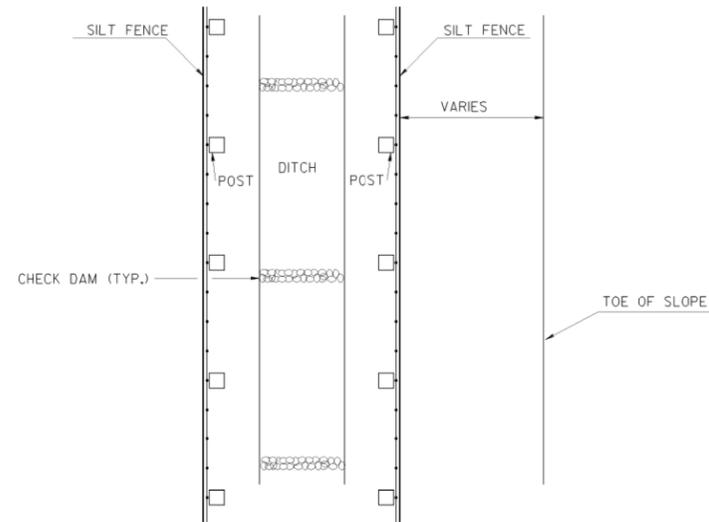
FRONT VIEW

NOTE: BRUSH BARRIER(S) WILL BE INCLUDED IN PAYMENT FOR CLEARING & GRUBBING.

BRUSH BARRIER DETAILS
(FOR USE IN RURAL AREAS)



ELEVATION



PLAN

NOTE: TEMPORARY SILT FENCE SHALL NOT BE PLACED WITHIN STATE WATERS.

FENCE TYPE	POST LENGTH	H	D	W	TYPICAL USES
TYPE *A*	4 FT.	2'-4"	1'-6"	3'-0"	
TYPE *C*	4 FT.	2'-4"	1'-6"	3'-0"	AT BRIDGE END ROLLS, DOUBLE ROW ALONG STREAMS, WETLANDS AND ENVIRONMENTALLY SENSITIVE AREAS FOR USE OF THIS MATERIAL IN FABRIC CHECKDAMS SEE D-24D.

SILT FENCE PERIMETER INSTALLATION
 SUBMITTED BY: **Thomas S. Fravel, P.E.**
 GSWCC LEVEL II Certification Number
 05/19/2020
 TF#000018849
 0000018849



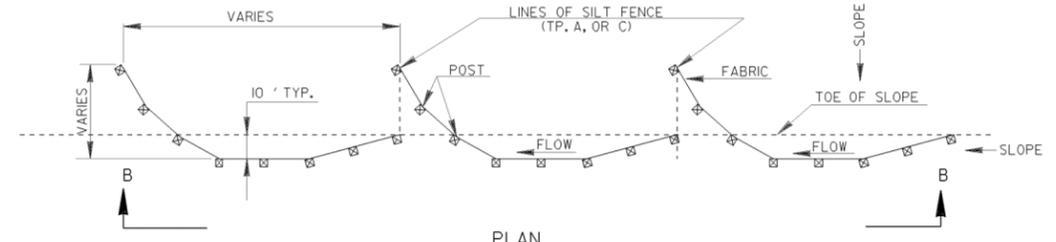
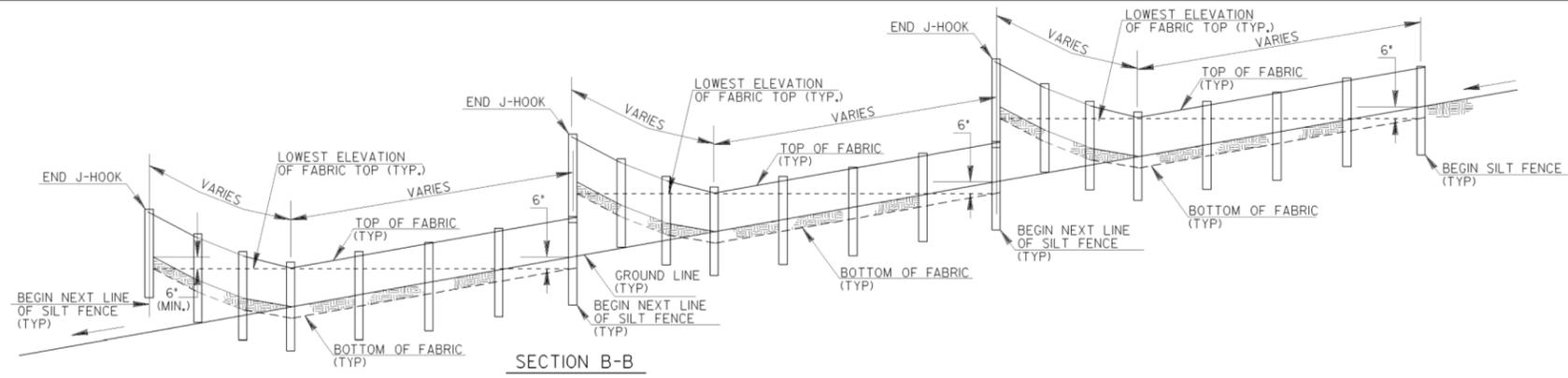
DATE		DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA	
REVISION		CONSTRUCTION DETAILS TEMPORARY SILT FENCE BERM DITCH, INSTALLATION, BRUSH BARRIER	
BY		NO SCALE	REV. AND REDRAWN JAN. 2011
		NUMBER D-24B (SHEET 2 OF 4)	

PLANS PREPARED AND SUBMITTED BY:
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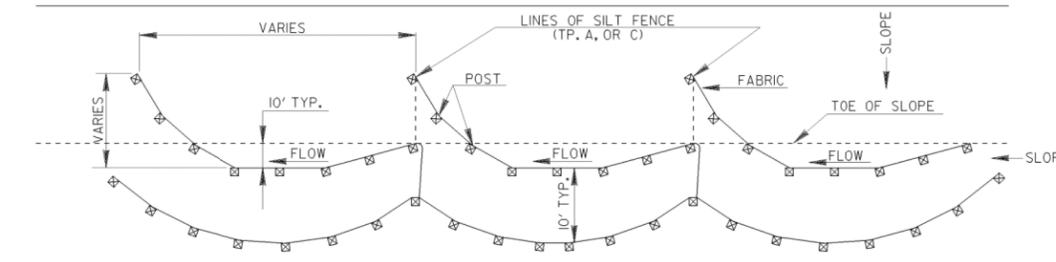
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REVISION DATES		EROSION CONTROL CONSTRUCTION DETAILS	
		CROSS ROADS ROAD AT BENNETT ROAD	
CHECKED:	DATE:	DRAWING No.	
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CORRECTED:	DATE:		
VERIFIED:	DATE:		

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

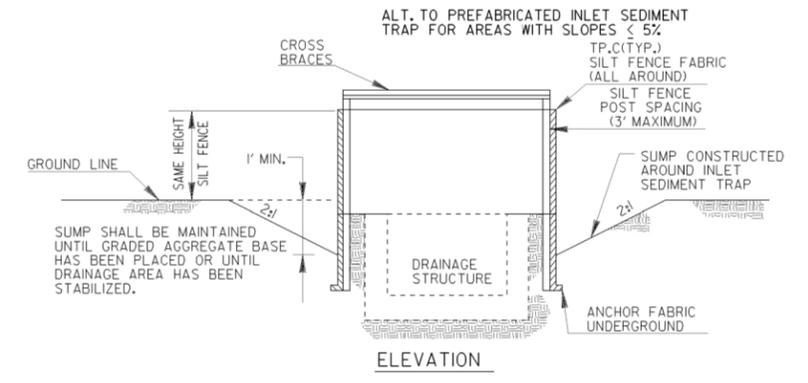


SLOPE PERCENT	TYPE OF SILT FENCE	MINIMUM SPACING (FEET)
1% TO 2%	TYPE A	100' ±
2% TO 3%	TYPE A	50' ±
3% TO 4%	TYPE C	50' ±
4% TO 5%	TYPE C	25' ±

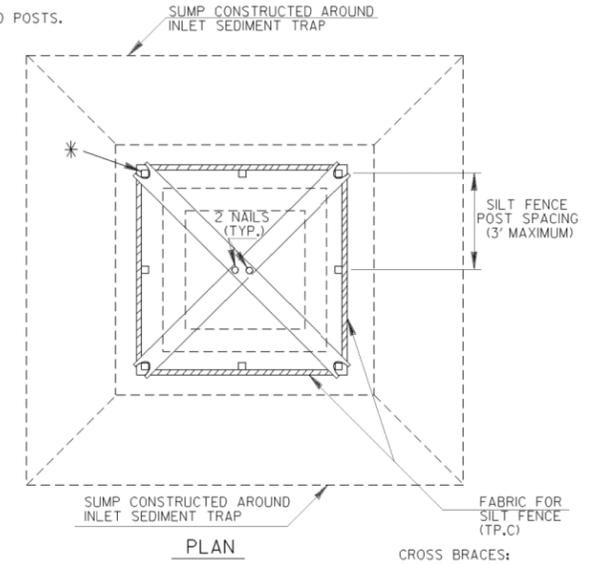


NOTE:
 1. IF THE GRADE IS BETWEEN 0 TO 1 PERCENT, THE SILT FENCE SHALL BE PLACED ACROSS THE DITCH.
 2. TEMPORARY SILT FENCE SHALL NOT BE PLACED WITHIN STATE WATERS.

TYPICAL LOCATION AROUND DROP INLETS



* CROSS BRACING REQUIRED WHEN USING "ALTERNATE" TYPE C PRODUCTS WHICH USE WOOD POSTS.



CROSS BRACES:
 TWO - 2 X 4'S WITH ENDS TO FIT POST, PROVIDING STURDY SUPPORT, OR AN APPROVED ALTERNATE

NOTE:
 PAYMENT AS INLET SEDIMENT TRAP PER EACH.
 NOTE:
 SEE SEPARATE SHEET ENTITLED "TEMPORARY SILT FENCE DETAILS" FOR SILT FENCE ERECTION DETAILS.

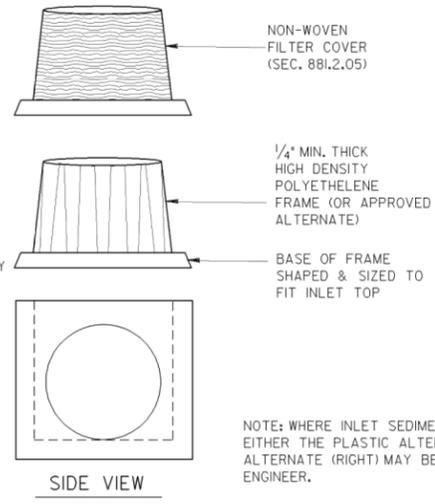
DEPARTMENT OF TRANSPORTATION
 STATE OF GEORGIA

CONSTRUCTION DETAILS
 TEMPORARY SILT FENCE
 J-HOOK, INLET SEDIMENT TRAPS

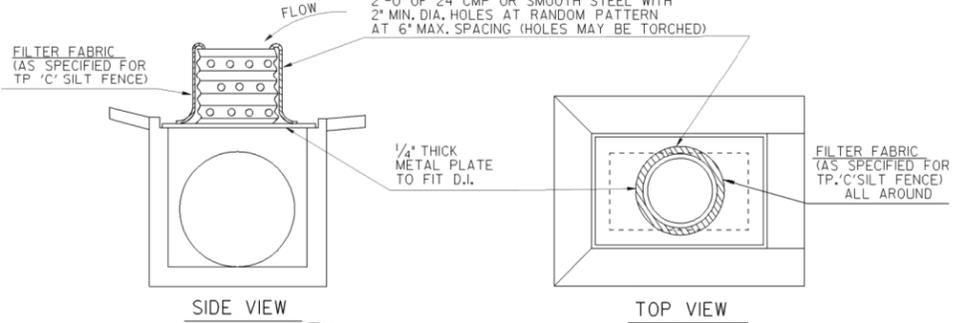
NO SCALE JANUARY 2011

NUMBER
 D-24C
 (SHEET 3 OF 4)

(PLASTIC ALTERNATE)



(METAL ALTERNATE)



NOTE:
 THE DRAINAGE AREA ENTERING THE INLET SEDIMENT TRAP SHALL BE NO GREATER THAN ONE ACRE.

TYPICAL CONSTRUCTION SEQUENCE FOR INLET SEDIMENT TRAP ALTERNATE

- EXCAVATE APPROXIMATELY 4" TO 6" BELOW THE TOP OF THE INLET STRUCTURE.
- PLACE THE FRAME ONTO THE INLET STRUCTURE, ENSURING PROPER SEATING OF FRAME TO STRUCTURE.
- SLIDE THE FILTER OVER THE FRAME.
- FILL THE FILTER POCKETS WITH SOIL, #57 GRAVEL OR EQUIVALENT. THE FILTER POCKETS SHOULD BE COMPLETELY FILLED TO ENSURE A GOOD SEAL BETWEEN THE GROUND AND INLET STRUCTURE.
- BACK FILL AROUND THE FRAME AND FILTER ASSEMBLY IS NOT REQUIRED TO COMPLETE INSTALLATION; HOWEVER, BACK FILLING MAY BE NECESSARY TO COMPLETE EXCAVATION REQUIREMENTS FOR THE SITE.

NOTE:
 INLET SEDIMENT TRAP ALTERNATE SHALL BE AS APPROVED BY THE GA. D.O.T. OFFICE OF MATERIALS & RESEARCH. DETAILS & SPECIFICATIONS NOT SHOWN ARE PER THE MANUFACTURER'S REQUIREMENTS.

INLET SEDIMENT TRAP - FOR DROP INLETS

PROFESSIONAL ENGINEER
 THOMAS S. FRAVEL
 05/19/2020
 SUBMITTED BY: *Tom Fravel*

NOTE: SEE SEPARATE DETAILS FOR SILT FENCE AROUND DROP INLETS.
 TF#000008849
 0000018849
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REVISION DATES

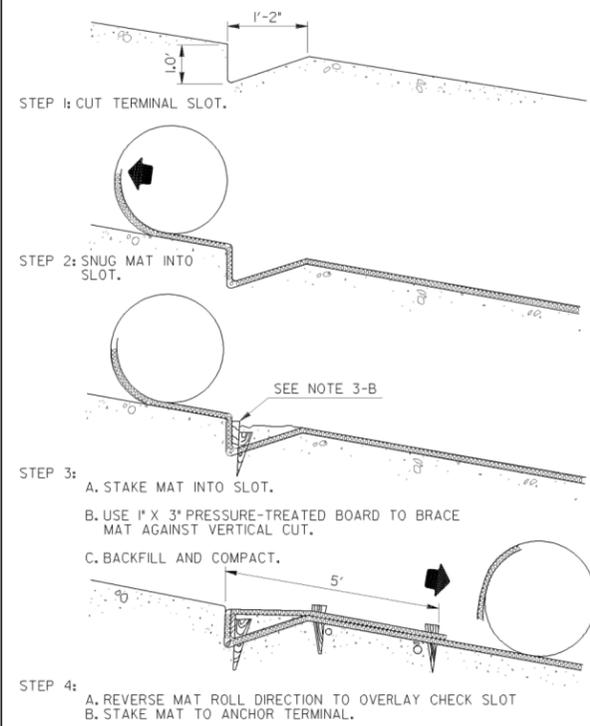
EROSION CONTROL CONSTRUCTION DETAILS

CROSS ROADS ROAD AT BENNETT ROAD

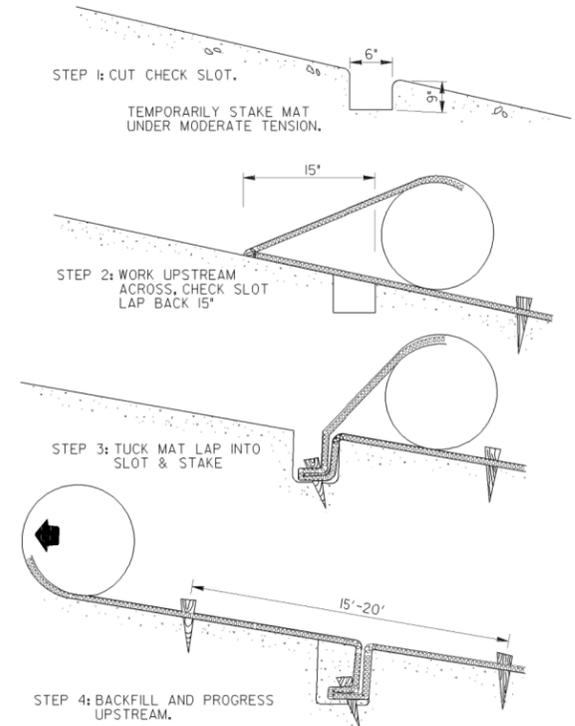
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56-004

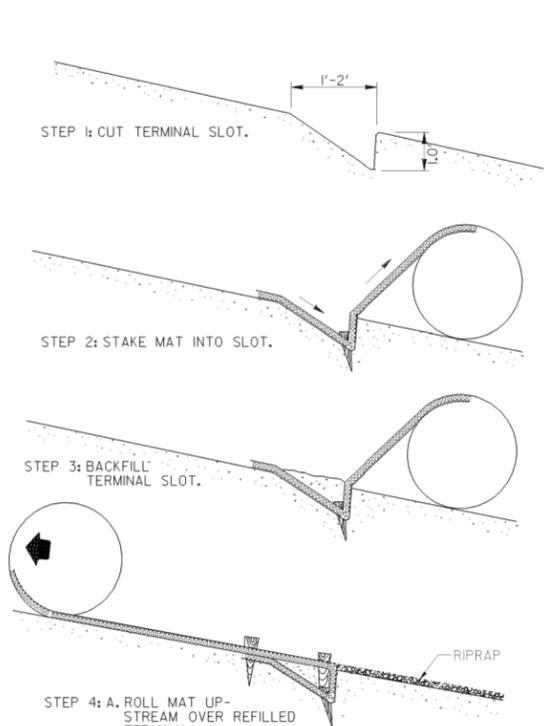
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			



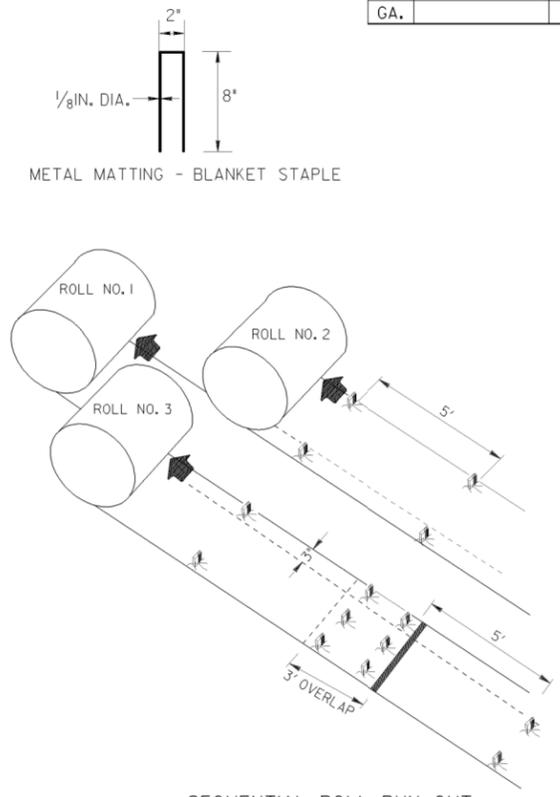
UPSTREAM TERMINAL



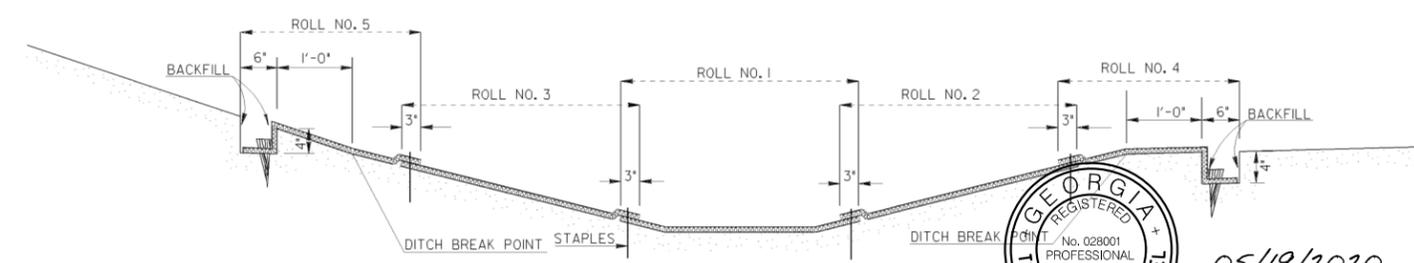
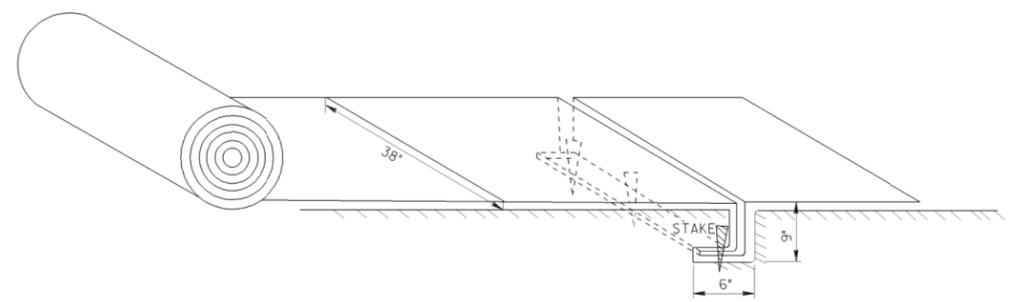
TRANSVERSE CHECK SLOT



DOWNSTREAM TERMINAL



- GENERAL NOTES
- INSTALLATION TO BE DONE AS PER MANUFACTURER'S RECOMMENDATIONS.
 - START AT DOWNSTREAM TERMINAL AND PROGRESS UPSTREAM.
 - FIRST ROLL IS CENTERED LONGITUDINALLY IN MID CHANNEL AND PINNED WITH TEMPORARY STAKES TO MAINTAIN ALIGNMENT.
 - SUBSEQUENT ROLLS FOLLOW IN STAGGERED SEQUENCE BEHIND FIRST ROLL. USE CENTER ROLL FOR ALIGNMENT TO CHANNEL CENTER.
 - WORK OUTWARDS FROM CHANNEL CENTER TO EDGE.
 - USE 3' OVERLAP AND STAKE AT 5' INTERVAL ALONG SEAMS.
 - USE 3' OVERLAPS AND SHINGLE DOWNSTREAM TO CONNECT LINING AT ROLL ENDS.
 - METAL STAPLES MAY BE USED IN LIEU OF WOODEN STAKES.



REGISTERED PROFESSIONAL ENGINEER
 No. 028001
 THOMAS S. FRAVEL
 SUBMITTED BY: *Tom Fravel* 05/19/2020
 TF#000018849
 Thomas S. Fravel, P.E. GSWCC LEVEL II Certification Number

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA			
CONSTRUCTION DETAILS PERMANENT SOIL REINFORCING MAT (TURF REINFORCING MATS) INSTALLATION ON DITCHES			
REVISED SHEET LAYOUT & H9-11	DATE	NO SCALE	
ADDED DITCH SECTION, ADDED METAL STAPLE, REVISION		AUGUST 1988	
T.P.C.	BY	DESIGNED DRAWN TRACED CHECKED	NUMBER D-35

PLANS PREPARED AND SUBMITTED BY:

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 AMERICAN ENGINEERS, INC.
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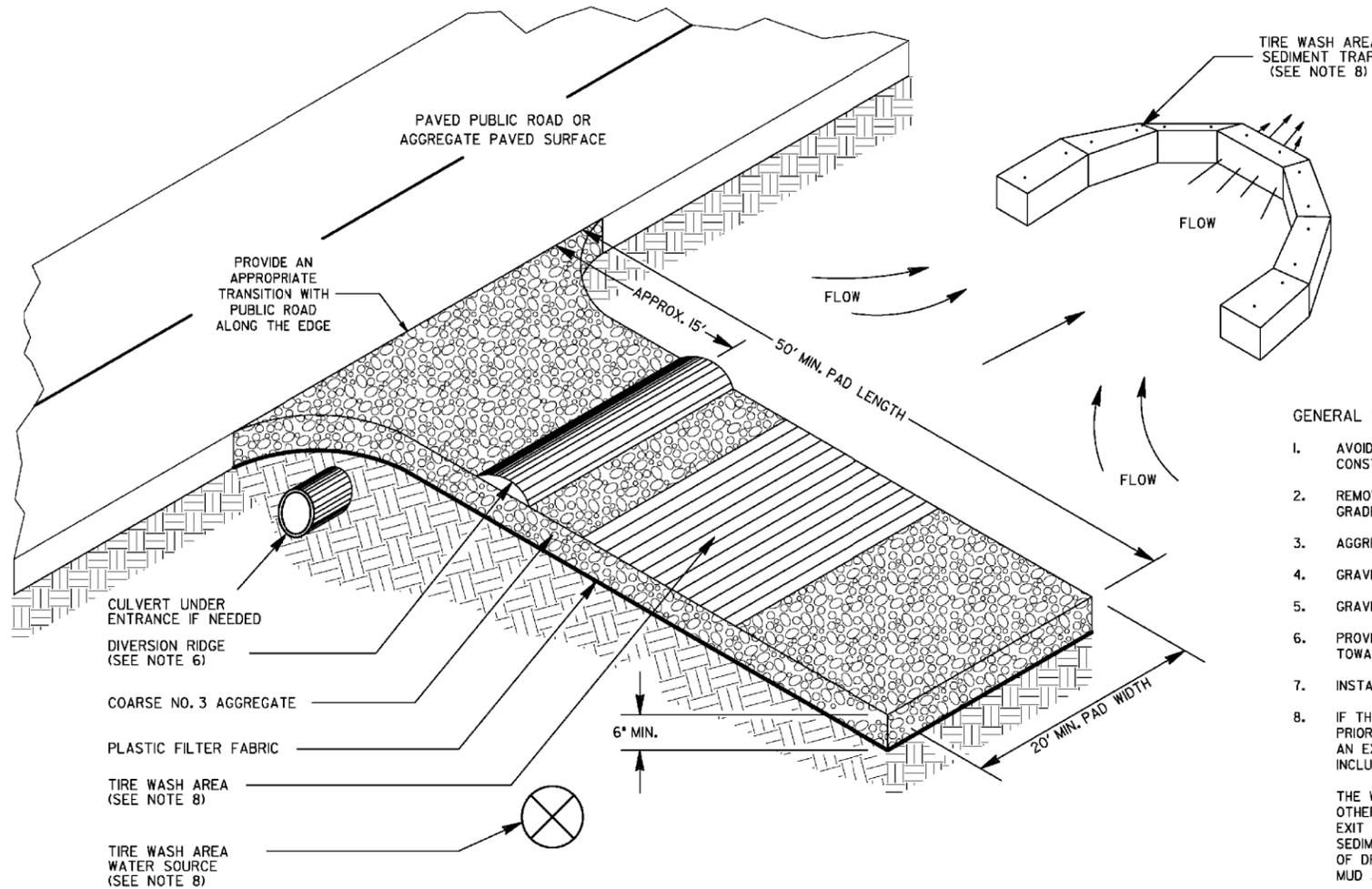
2500 Nelson Miller Parkway
 Louisville, KY 40223
 (502) 245-3813

1634 White Circle, Suite 101
 Marietta, GA 30066
 (770) 421-8422

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REVISION DATES		EROSION CONTROL CONSTRUCTION DETAILS	
		CROSS ROADS ROAD AT BENNETT ROAD	
CHECKED:	DATE:	DRAWING No.	
BACKCHECKED:	DATE:	56-005	
CORRECTED:	DATE:		
VERIFIED:	DATE:		

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

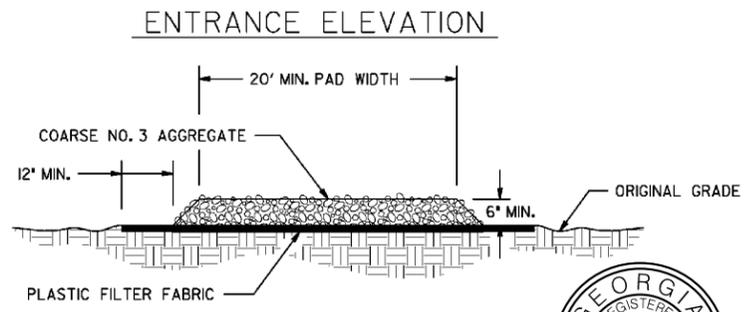


GENERAL NOTES:

1. AVOID LOCATING CONSTRUCTION EXITS ON STEEP SLOPES OR AT SHARP CURVES ON PUBLIC ROADS. CONSTRUCTION EXITS ARE NOT REQUIRED FOR DIRT PUBLIC ROADS.
 2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA AND GRADE FOR POSITIVE DRAINAGE.
 3. AGGREGATE SIZE SHALL BE COARSE NO. 3 AGGREGATE WITH 0.0% PASSING THE 1.06 INCH U.S. STANDARD SIEVE.
 4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6 INCHES AND PLACED ON APPROVED PLASTIC FILTER FABRIC.
 5. GRAVEL PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
 6. PROVIDE A TRAVERSABLE DIVERSION RIDGE CONSTRUCTED OF AGGREGATE 6 INCHES TO 8 INCHES HIGH WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
 7. INSTALL CULVERT UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
 8. IF THE ACTION OF THE VEHICLE TRAVELING OVER THE GRAVEL PAD DOES NOT SUFFICIENTLY REMOVE THE MUD PRIOR TO ENTERING PUBLIC ROADS, THE CONTRACTOR SHALL ADD A CONSTRUCTION EXIT TIRE WASH ASSEMBLY TO AN EXISTING CONSTRUCTION EXIT WHEN DIRECTED BY THE ENGINEER. THE CONSTRUCTION EXIT TIRE WASH ASSEMBLY INCLUDES: TIRE WASH AREA, WATER SOURCE, AND SEDIMENT TRAP OR OTHER ACCEPTABLE SEDIMENT STORAGE DEVICE.

THE WASHING SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE THAT DRAINS INTO A SEDIMENT TRAP OR OTHER ACCEPTABLE SEDIMENT STORAGE DEVICE. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE CONSTRUCTION EXIT TO THE SEDIMENT CONTROL DEVICE. ACCEPTABLE SEDIMENT STORAGE DEVICE EXAMPLES INCLUDE TEMPORARY SEDIMENT TRAPS, HAY BALES OR STONE FILTER RING WITH THE SEDIMENT STORAGE SIZED FOR 67 CUBIC YARDS PER ACRE OF DRAINAGE. TIRE WASHING SHALL BE DONE MANUALLY OR BY EQUIPMENT SUITABLE FOR TRUCK TRAFFIC THAT REMOVES MUD AND DIRT.
 9. AGGREGATE SHALL BE KEPT LOOSE OR SCARIFIED WHEN AGGREGATE BECOMES CONSOLIDATED.
 10. CONSTRUCTION EXIT SHALL BE MAINTAINED IN A CONDITION THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR, AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. MAINTENANCE OF CONSTRUCTION EXIT WILL BE PAID ON THE BASIS OF HAVING OR NOT HAVING A CONSTRUCTION EXIT TIRE WASH ASSEMBLY WHEN DIRECTED BY THE ENGINEER. ALL MUD AND DEBRIS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES OR SITE ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
- SEE STANDARD SPECIFICATION 163, AND SUPPLEMENTS THERETO FOR THE CONSTRUCTION AND REMOVAL OF CONSTRUCTION EXITS. SEE STANDARD SPECIFICATION 165, AND SUPPLEMENTS THERETO FOR THE MAINTENANCE OF CONSTRUCTION EXITS.

PAY ITEM:		
163-0300	CONSTRUCTION EXIT	(EA)
163-0310	CONSTRUCTION EXIT TIRE WASH ASSEMBLY	(EA)
165-0101	MAINTENANCE OF CONSTRUCTION EXIT	(EA)
165-0310	MAINTENANCE OF CONSTRUCTION EXIT TIRE WASH ASSEMBLY	(EA)



SUBMITTED BY: Thomas S. Fravel, P.E. 05/19/2020
 TF#000008349
 0000018849
 GSWCC LEVEL II Certification Number

04-18-18	04-22-16	01-19-11	DATE	DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA
REV. TIRE WASH & NOTES	REV. GSWCC 2016 MANUAL	REV. CONSTR. EXIT LABELS	REVISION	CONSTRUCTION DETAILS
				CONSTRUCTION EXIT
				NO SCALE
				FEBRUARY 2001
DLE	TPC	BY	DESIGNED DRAWN TRACED CHECKED	NUMBER D-41

PLANS PREPARED AND SUBMITTED BY:

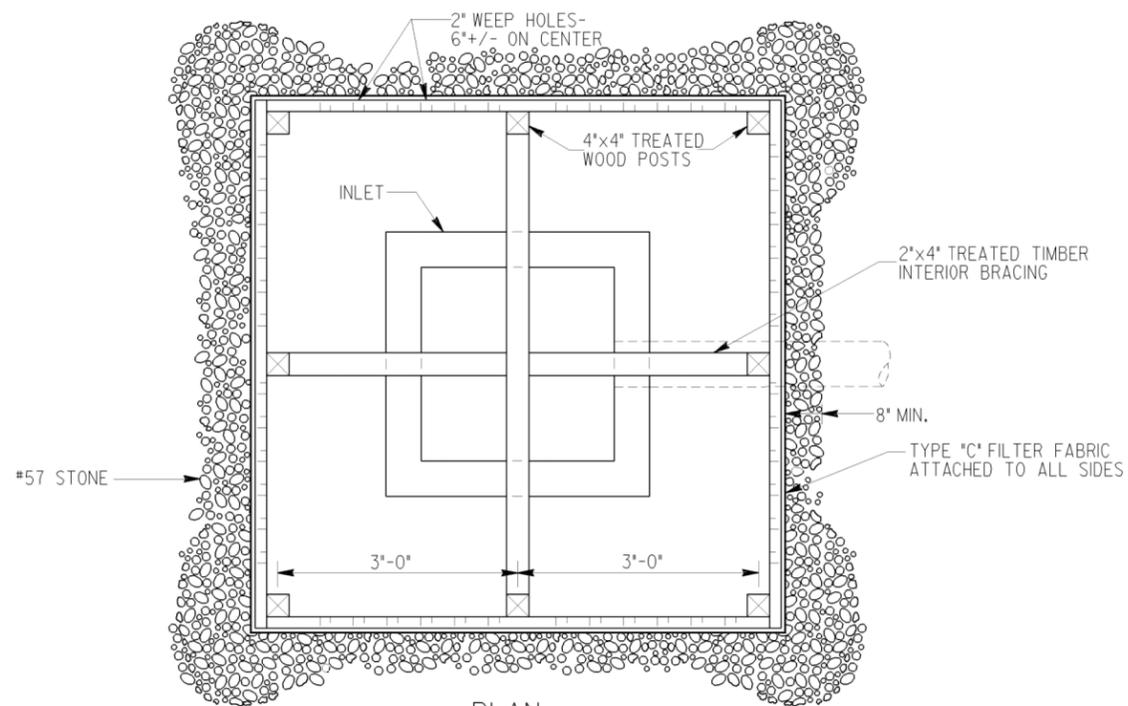
AEI
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PROFESSIONAL ENGINEERING

NTS

REVISION DATES		EROSION CONTROL CONSTRUCTION DETAILS	
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CHECKED:	DATE:	DRAWING No.	
BACKCHECKED:	DATE:	56-006	
CORRECTED:	DATE:		
VERIFIED:	DATE:		

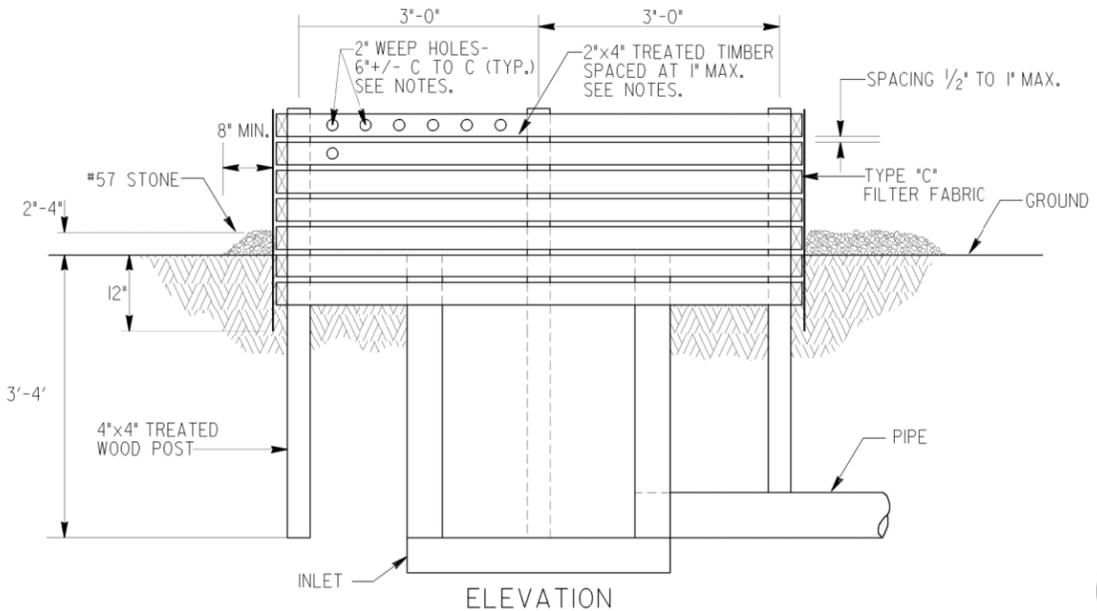
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			



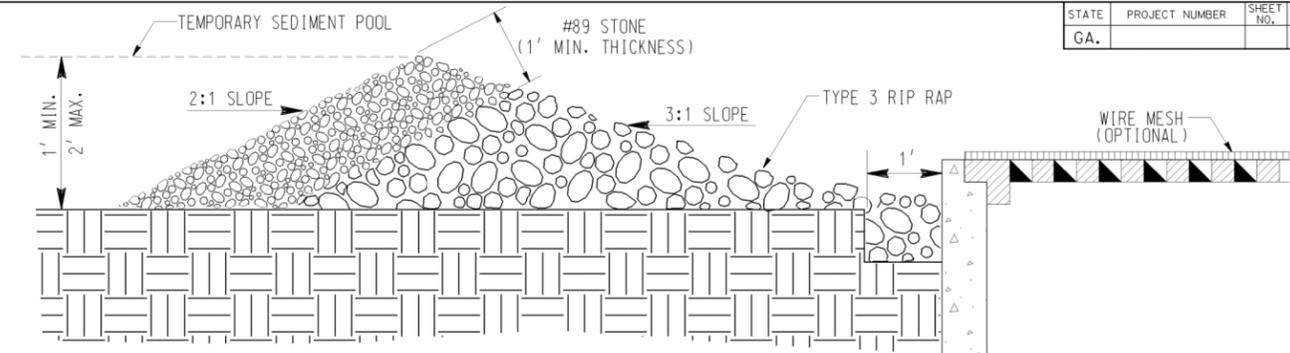
NOTES:

BAFFLE BOX SHALL BE CONSTRUCTED OF 2"x4" TREATED TIMBER SPACED A MAXIMUM OF 1' APART OR OF PLYWOOD WITH WEEP HOLES 2" IN DIAMETER PLACED APPROXIMATELY 6" ON CENTER VERTICALLY AND HORIZONTALLY.

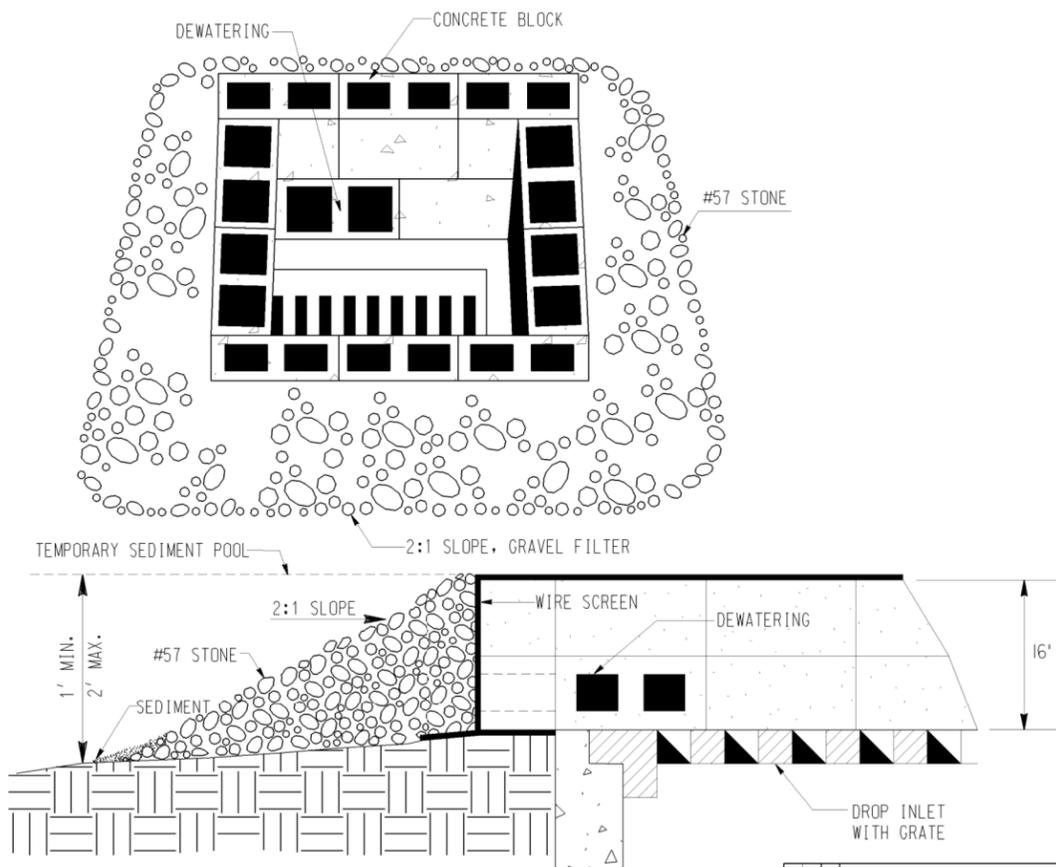
GRAVEL SHALL BE PLACED OUTSIDE THE BOX, ALL AROUND THE INLET, TO A DEPTH OF 2 TO 4 INCHES. THE ENTIRE BOX SHALL BE WRAPPED IN TYPE 'C' FILTER FABRIC THAT SHALL BE ENTRENCHED 12 INCHES AND BACKFILLED.



BAFFLE BOX (Sd2-B)



GRAVEL DROP INLET PROTECTION (GRAVEL DONUT) Sd2-G



BLOCK & GRAVEL DROP INLET PROTECTION (Sd2-Bg)



SUBMITTED BY: Thomas S. Fravel, P.E. GSWCC LEVEL II Certification Number
 DATE: 05/19/2020
 PROJECT: CONSTRUCT AND REMOVE INLET SET MEIN # 10003349 EACH

DATE	DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA
REVISION	CONSTRUCTION DETAIL INLET SEDIMENT TRAPS BAFFLE BOX Sd2-B BLOCK AND GRAVEL DROP INLET PROTECTION Sd2-Bg GRAVEL DROP INLET PROTECTION Sd2-G NO SCALE MAY 2008
BY	NUMBER D-42

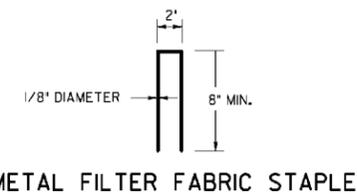
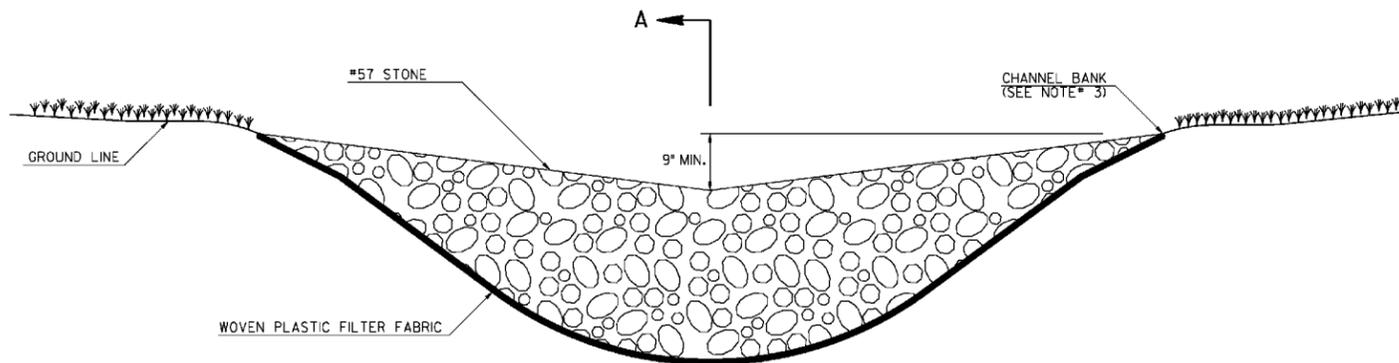
PLANS PREPARED AND SUBMITTED BY:
 AMERICAN ENGINEERS, INC.
 PROFESSIONAL ENGINEERING
 DESIGN CONSULTANT

NTS

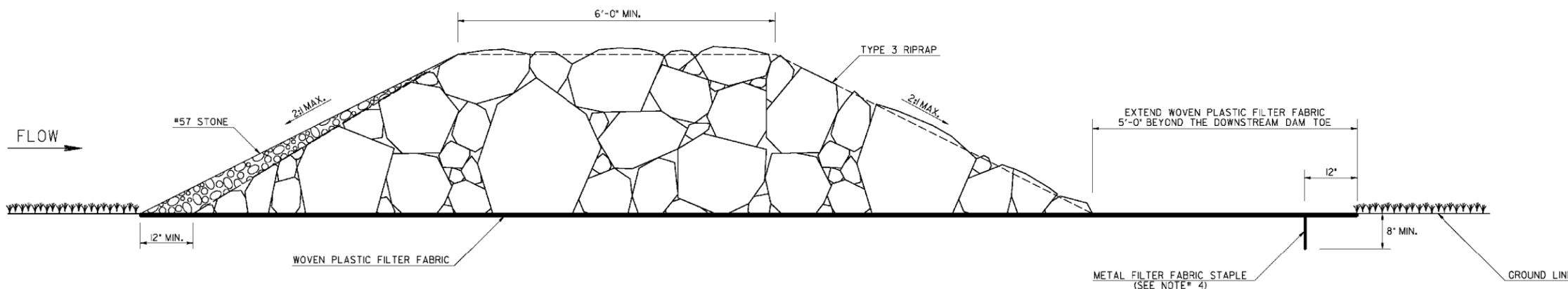
REVISION	DATE

EROSION CONTROL CONSTRUCTION DETAILS			
CROSS ROADS ROAD AT BENNETT ROAD			
CHECKED:	DATE:	DRAWING No.	
BACKCHECKED:	DATE:	56-007	
CORRECTED:	DATE:		
VERIFIED:	DATE:		

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			



SECTION A-A



GENERAL NOTES:

1. THE MAXIMUM DRAINAGE AREA TO A ROCK FILTER DAM SHALL BE 50-ACRES.
2. ROCK FILTER DAMS SHALL NOT BE INSTALLED IN STATE WATERS.
3. THE ROCK FILTER DAM SHOULD NOT BE HIGHER THAN THE CHANNEL BANKS OR ADVERSELY IMPACT UPSTREAM PROPERTY OR STATE WATERS WITH BACKWATER. THE CENTER OF THE ROCK FILTER DAM SHOULD BE AT LEAST 9-INCHES LOWER THAN THE OUTER EDGES OF THE ROCK FILTER DAM AT THE CHANNEL BANKS.
4. ANCHOR THE WOVEN PLASTIC FILTER FABRIC TO THE GROUND SURFACE WITH METAL FILTER FABRIC STAPLES 12-INCHES FROM THE EDGE AND NO GREATER THAN 12-INCHES APART.
5. REMOVE SEDIMENT WHEN IT REACHES ONE-HALF THE HEIGHT OF THE ROCK FILTER DAM. WOVEN PLASTIC FILTER FABRIC SHALL BE REPLACED WHEN DAMAGED OR DETERIORATED.

PAY ITEMS:
 163-0541 CONSTRUCT AND REMOVE ROCK FILTER DAM (EA)
 165-0110 MAINTENANCE OF ROCK FILTER DAM (EA)



SUBMITTED BY: *Tom Fravel* 05/19/2020
 Thomas S. Fravel, P.E. GSWCC LEVEL II Certification Number

DATE		DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA	
REVISION		CONSTRUCTION DETAILS ROCK FILTER DAM	
BY		NO SCALE	4-22-2016
			NUMBER D-43

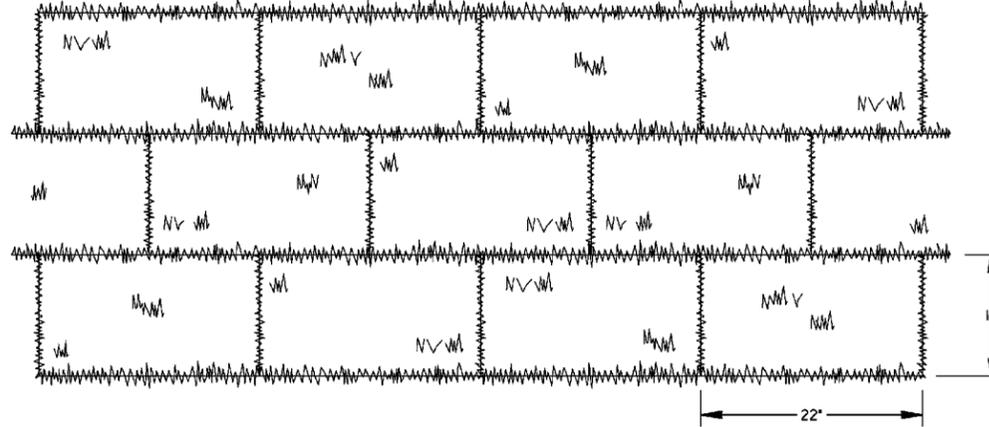
PLANS PREPARED AND SUBMITTED BY:
 AMERICAN ENGINEERS, INC.
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REVISION DATES		EROSION CONTROL CONSTRUCTION DETAILS	
		CROSS ROADS ROAD AT BENNETT ROAD	
CHECKED:	DATE:	DRAWING No.	
BACKCHECKED:	DATE:	56-008	
CORRECTED:	DATE:		
VERIFIED:	DATE:		

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

SOD LAYOUT

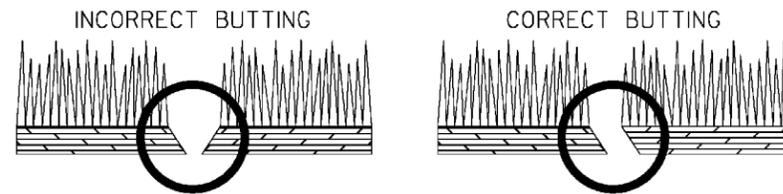


NOTE: SOD MAY BE EITHER 12" WIDE BY 22" LONG BLOCKS OR 2" WIDE BY 52" LONG ROLLS.

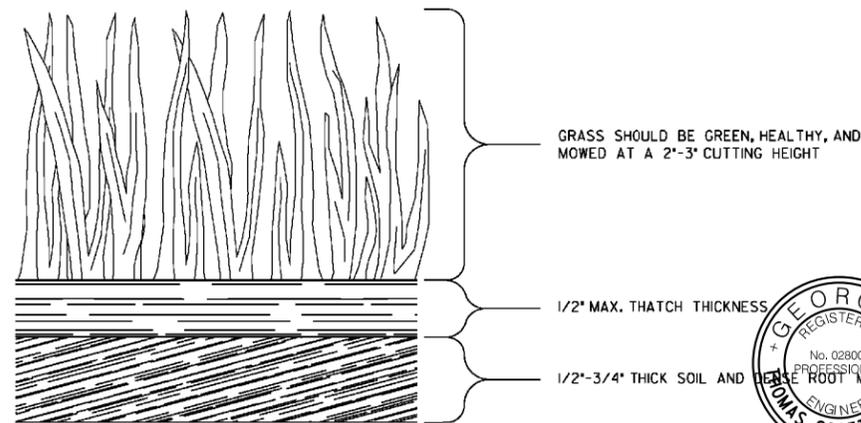
GENERAL NOTES:

- SOD SHALL MEET SECTIONS 700 AND 890 OF THE STANDARD SPECIFICATIONS AND SUPPLEMENTS THERETO. SOD SHALL BE CUT INTO 12"Wx22"L BLOCKS OR 2"Wx52"L ROLLS.
- PLACE SOD IN A STAGGERED PATTERN ENSURING FIRM CONTACT WITH THE SOIL. BUTT THE STRIPS TIGHTLY AGAINST EACH OTHER WITH THE AUTOMATIC SOD CUTTER ANGLES CORRECTLY MATCHED WITHOUT SPACES OR OVERLAP.
- PLACE THE LONG SIDE OF SOD PERPENDICULAR TO DRAINAGE FLOW IF INSTALLED IN DITCHES.
- STAKE SOD PLACED IN DITCHES OR SLOPES STEEPER THAN 2:1 OR ANY OTHER AREAS WHERE SOD SLIPPING MAY OCCUR. USE WOOD STAKES THAT ARE A MINIMUM OF 8" LONG AND A MAXIMUM OF 1" WIDE. DRIVE STAKES FLUSH WITH THE TOP OF SOD AND USE A MINIMUM OF 8 STAKES PER SQUARE YARD TO HOLD SOD IN PLACE.
- ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL.
- WATER THE SOD IMMEDIATELY AFTER INSTALLATION AND WATER TO A DEPTH OF 4" AS NEEDED.
- MOW ESTABLISHED SOD TO A HEIGHT NOT LESS THAN 2"-3" AS NECESSARY.

ABUTTING SOD



SOD APPEARANCE



SUBMITTED BY:

Thomas S. Fravel, P.E.

05/19/2020

Tom Fravel

TF#0000018849

0000018849

GSWCC LEVEL II Certification Number

PAY ITEM: 700-9300 SOD (SY)

DATE	DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA
REVISION	CONSTRUCTION DETAILS SOD INSTALLATION
BY	DESIGNED _____ DRAWN _____ TRACED _____ CHECKED _____
	NO SCALE 4-22-2016 NUMBER D-54

PLANS PREPARED AND SUBMITTED BY:

AEI
AMERICAN ENGINEERS, INC.
DESIGN CONSULTANT

2500 Nelson Miller Parkway
Louisville, KY 40223
502-245-3813

Branch Office:
65 Aberdeen Drive
Cincinnati, KY 45204
(270) 651-7220

1634 White Circle, Suite 101
Marietta, GA 30066
(770) 421-8422

PROFESSIONAL ENGINEERING

NTS

REVISION DATES

NO.	DATE	DESCRIPTION

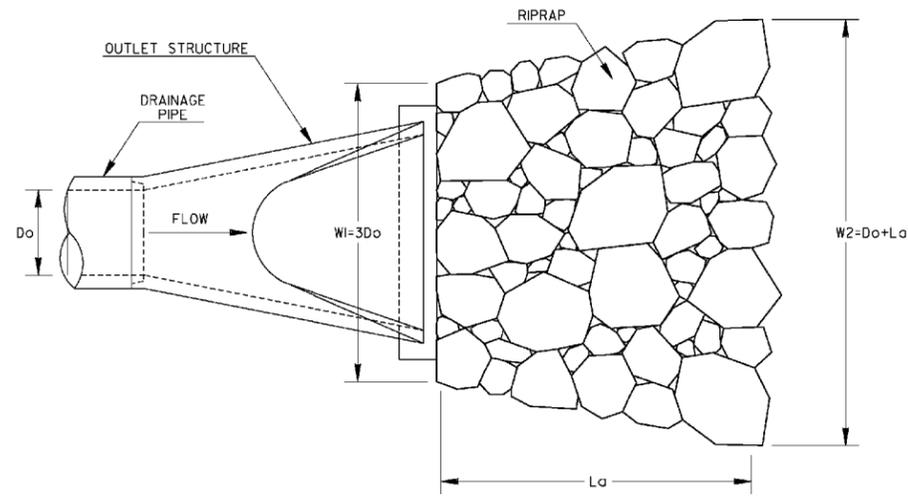
EROSION CONTROL CONSTRUCTION DETAILS

CROSS ROADS ROAD AT BENNETT ROAD

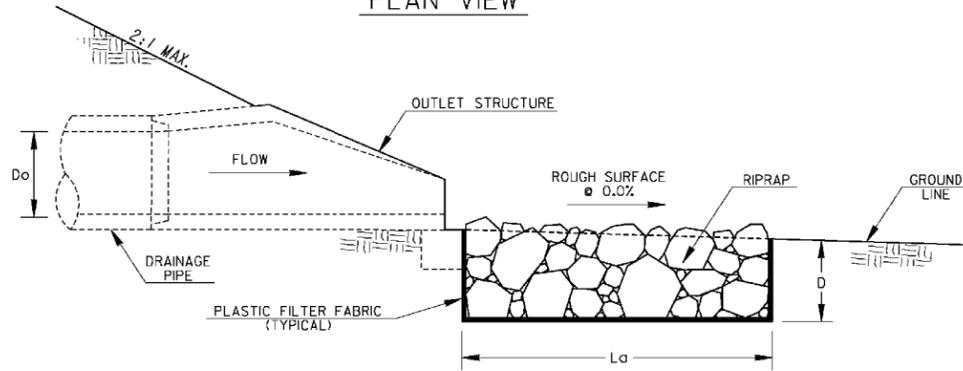
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BACKCHECKED:	DATE:	56-009
CORRECTED:	DATE:	
VERIFIED:	DATE:	

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

OUTLET TO FLAT AREA

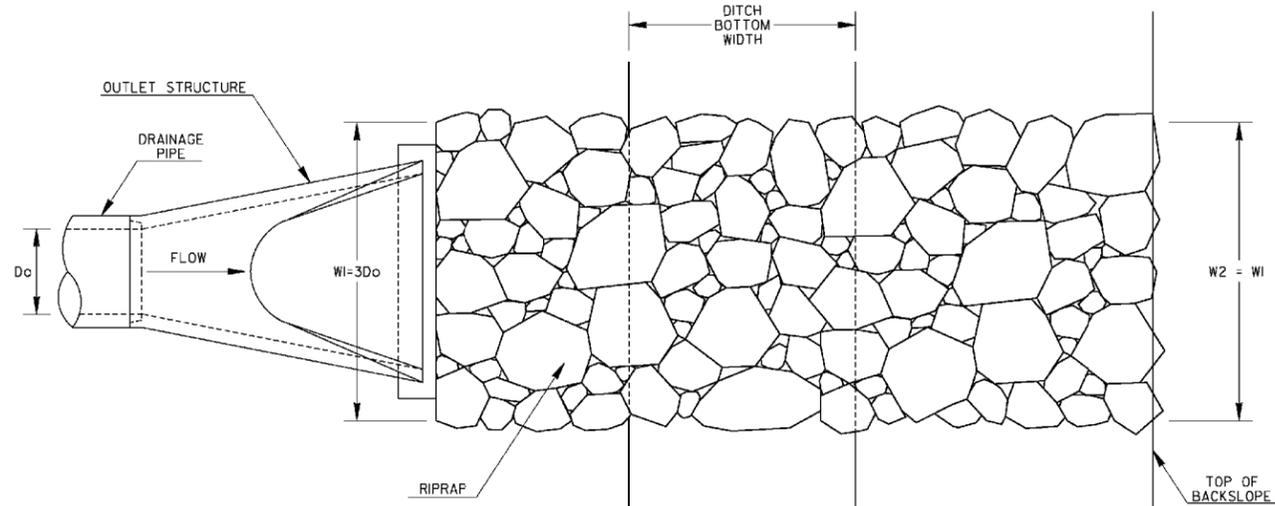


PLAN VIEW

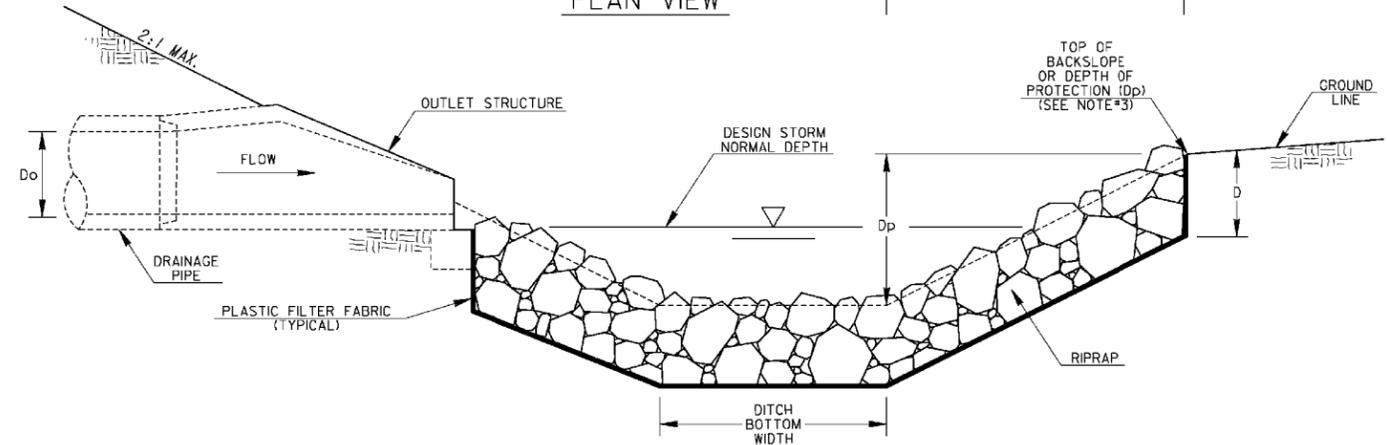


PROFILE VIEW

OUTLET PERPENDICULAR TO WELL-DEFINED CHANNEL



PLAN VIEW



PROFILE VIEW

GENERAL NOTES:

- RIPRAP OUTLET PROTECTION SHOULD BE USED TO REDUCE A DRAINAGE STRUCTURE'S DISCHARGE VELOCITY. RIPRAP OUTLET PROTECTION IS SHOWN FOR GEORGIA STANDARD 1120, BUT IS INSTALLED SIMILARLY FOR OTHER DRAINAGE OUTLET STRUCTURES.
- RIPRAP OUTLET PROTECTION SHALL BE DESIGNED IN ACCORDANCE WITH THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA". THE DESIGNER SHALL PROVIDE THE FOLLOWING IN THE PLANS: PIPE DIAMETER (Do), FLOW RATE OF DESIGN STORM (Q), VELOCITY (V), TAILWATER CONDITION (Tw), APRON LENGTH (La), APRON WIDTH AT DRAINAGE STRUCTURE (Wi), APRON WIDTH DOWNSTREAM (W2), AVERAGE STONE DIAMETER (d50), INSTALLATION DEPTH (D), AND TYPE OF RIPRAP WITH QUANTITY.

THE MINIMUM DESIGN FOR RIPRAP OUTLET PROTECTION SHALL BE THE 25-YEAR STORM EVENT, BUT LARGER STORMS ARE RECOMMENDED.
- THE APRON WIDTHS SHALL BE THE SAME WHEN THE DRAINAGE STRUCTURE DISCHARGES PERPENDICULAR INTO A WELL-DEFINED CHANNEL. THE LENGTH SHALL EXTEND ACROSS THE CHANNEL AND UP TO THE TOP OF THE CHANNEL BACKSLOPE OR 1-FOOT ABOVE THE NORMAL DEPTH OF THE CHANNEL'S DESIGN STORM (WHICHEVER IS LESS). THE DESIGNER SHALL PROVIDE THE DEPTH OF PROTECTION (Dp) IF THE APRON DOES NOT EXTEND TO THE TOP OF THE BACKSLOPE.
- IF THE OUTLET HYDRAULICS REQUIRE A d50<=0.70 FEET, TYPE-3 RIPRAP MAY BE USED. IF THE OUTLET HYDRAULICS REQUIRE A d50<=1.20 FEET, TYPE-1 RIPRAP SHOULD BE USED. IF THE OUTLET HYDRAULICS REQUIRE A d50>1.20 FEET, THE DESIGNER SHALL DESIGN AND PROVIDE A SPECIAL DETAIL FOR APPROPRIATE RIPRAP.
- PLASTIC FILTER FABRIC IS REQUIRED UNDERNEATH RIPRAP APRON.
- PAYMENT FOR RIPRAP SHALL BE MEASURED IN SQUARE YARDS FOR SPECIFIED INSTALLATION DEPTH. PAYMENT FOR PLASTIC FILTER FABRIC SHALL BE MEASURED IN SQUARE YARDS CONSISTENT WITH RIPRAP QUANTITY AND PAID FOR SEPARATELY.

- Do = PIPE DIAMETER
- Q = DESIGN STORM FLOW RATE
- V = DESIGN STORM VELOCITY
- Tw = TAILWATER CONDITION/DESIGN STORM NORMAL DEPTH
- La = APRON LENGTH
- Wi = APRON WIDTH UPSTREAM
- W2 = APRON WIDTH DOWNSTREAM
- d50 = AVERAGE STONE DIAMETER
- D = INSTALLATION DEPTH
- Dp = DEPTH OF PROTECTION

RIPRAP TYPE	REQUIRED d50 (FT)	MIN. DEPTH "D" (IN)
1	≤1.20	36
3	≤0.67	18



SUBMITTED BY: *Tom Fravel* 05/19/2020
Thomas S. Fravel, P.E. GSWCC LEVEL II Certification Number 0000018849

DATE	DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA
REVISION	CONSTRUCTION DETAILS RIPRAP OUTLET PROTECTION (SHEET 1 OF 2)
BY	NO SCALE 4-22-2016 NUMBER D-55A

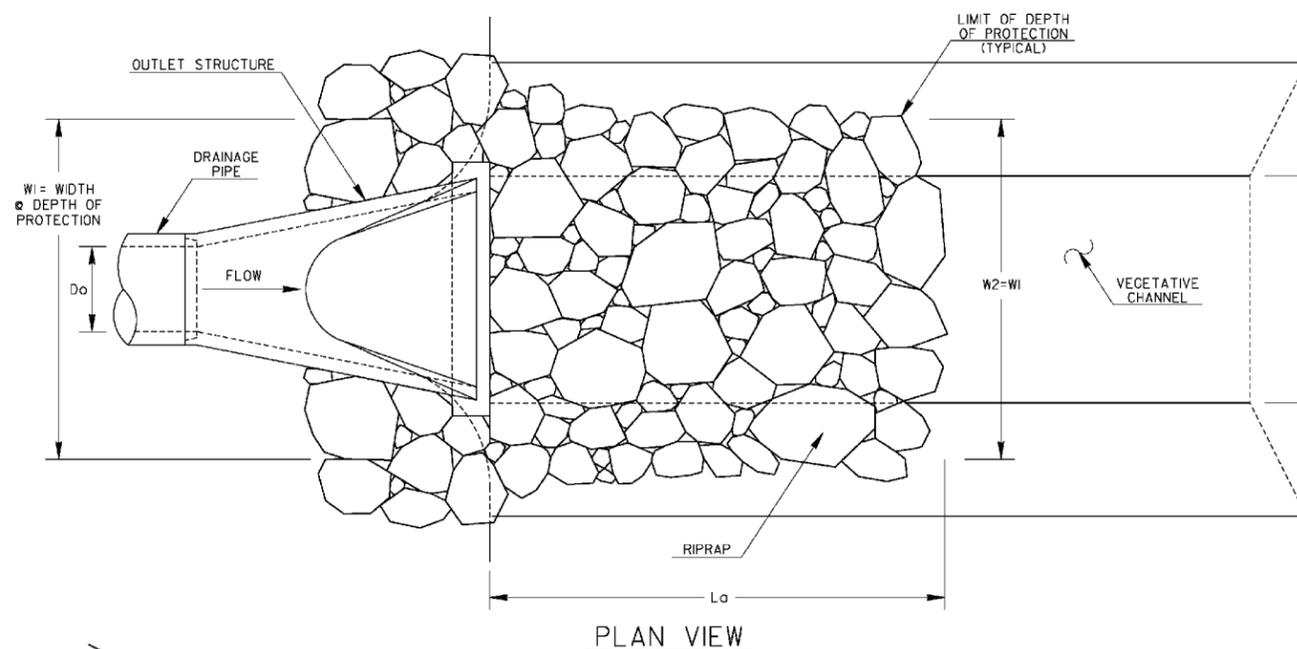
PLANS PREPARED AND SUBMITTED BY:
AEI
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REVISION DATES		EROSION CONTROL CONSTRUCTION DETAILS	
		CROSS ROADS ROAD AT BENNETT ROAD	
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BACKCHECKED:	DATE:	56-010	
CORRECTED:	DATE:		
VERIFIED:	DATE:		

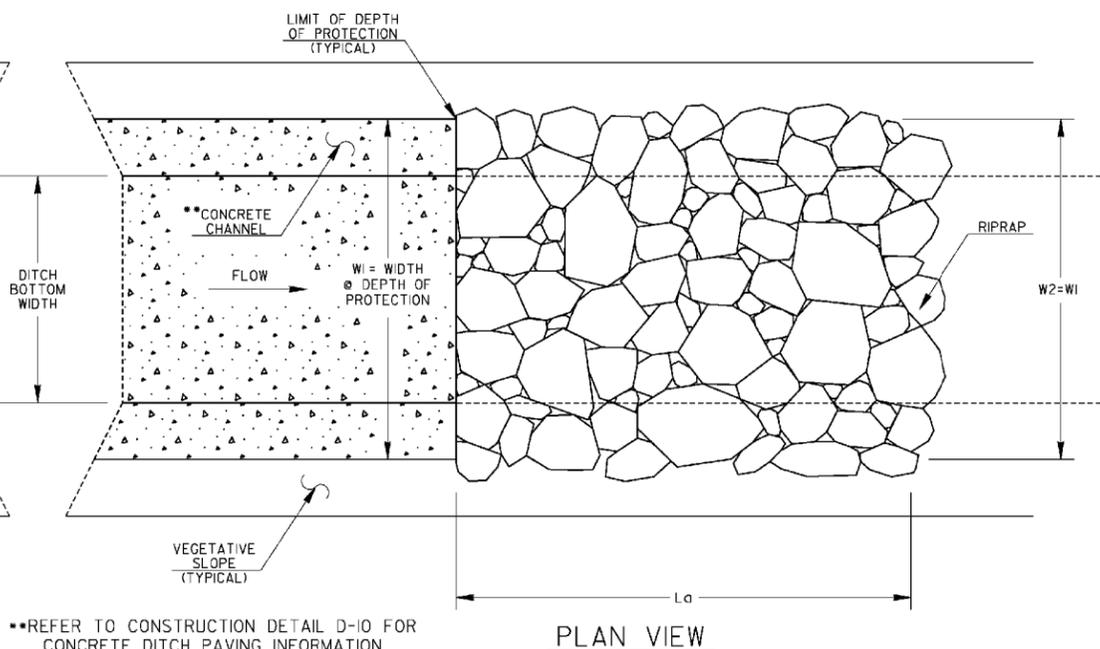
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

OUTLET PARALLEL TO WELL-DEFINED CHANNEL



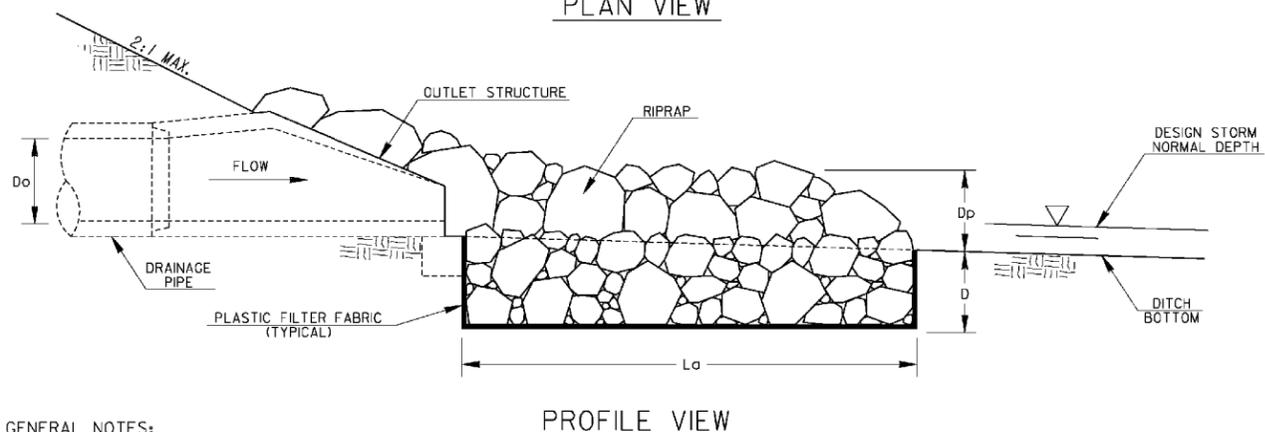
PLAN VIEW

CONCRETE CHANNEL TO RIPRAP TRANSITION

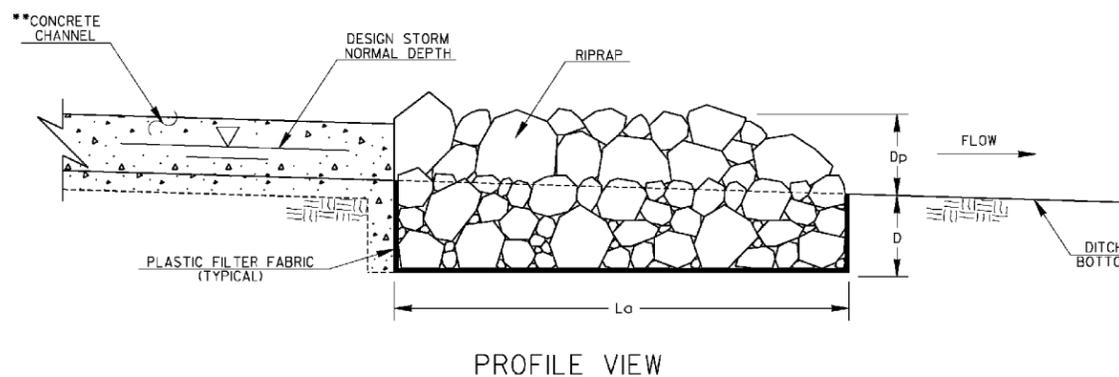


PLAN VIEW

••REFER TO CONSTRUCTION DETAIL D-10 FOR CONCRETE DITCH PAVING INFORMATION



PROFILE VIEW



PROFILE VIEW

GENERAL NOTES:

- RIPRAP OUTLET PROTECTION SHOULD BE USED TO REDUCE A DRAINAGE STRUCTURE'S DISCHARGE VELOCITY. RIPRAP OUTLET PROTECTION IS SHOWN FOR GEORGIA STANDARD #20, BUT IS INSTALLED SIMILARLY FOR OTHER DRAINAGE OUTLET STRUCTURES. RIPRAP OUTLET PROTECTION IS SHOWN FOR A CONCRETE DITCH, BUT IS INSTALLED SIMILARLY TO TRANSITION FROM OTHER CHANNEL LININGS.
- RIPRAP OUTLET PROTECTION SHALL BE DESIGNED IN ACCORDANCE WITH THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA". THE DESIGNER SHALL PROVIDE THE FOLLOWING IN THE PLANS: PIPE DIAMETER (Do), FLOW RATE OF DESIGN STORM (Q), VELOCITY (V), TAILWATER CONDITION (Tw), APRON LENGTH (Lo), APRON WIDTH AT DRAINAGE STRUCTURE (W1), APRON WIDTH DOWNSTREAM (W2), AVERAGE STONE DIAMETER (d50), INSTALLATION DEPTH (D), AND TYPE OF RIPRAP WITH QUANTITY.

THE MINIMUM DESIGN FOR RIPRAP OUTLET PROTECTION SHALL BE THE 25-YEAR STORM EVENT, BUT LARGER STORMS ARE RECOMMENDED.
- THE APRON WIDTHS SHALL BE THE SAME WHEN THE DRAINAGE STRUCTURE DISCHARGES PARALLEL INTO A WELL-DEFINED CHANNEL. THE APRON WIDTHS IN THIS CASE SHALL REPRESENT THE WIDTH AT THE DEPTH OF PROTECTION. THE RIPRAP SHALL BE INSTALLED TO THE TOP OF CHANNEL OR 1-FOOT ABOVE THE NORMAL DEPTH OF THE CHANNEL'S DESIGN STORM (WHICHEVER IS LESS). THE DESIGNER SHALL PROVIDE THE DEPTH OF PROTECTION (Dp) IF THE RIPRAP SHOULD NOT BE INSTALLED TO THE TOP OF THE CHANNEL. RIPRAP SHOULD ALSO BE INSTALLED TO ARMOR CHANNEL CORNER AT THE OUTLET STRUCTURE.
- IF THE OUTLET HYDRAULICS REQUIRE A d50 < 0.70 FEET, TYPE-3 RIPRAP MAY BE USED.
IF THE OUTLET HYDRAULICS REQUIRE A d50 < 1.20 FEET, TYPE-1 RIPRAP SHOULD BE USED.
IF THE OUTLET HYDRAULICS REQUIRE A d50 > 1.20 FEET, THE DESIGNER SHALL DESIGN AND PROVIDE A SPECIAL DETAIL FOR APPROPRIATE RIPRAP.
- PLASTIC FILTER FABRIC IS REQUIRED UNDERNEATH RIPRAP APRON.
- PAYMENT FOR RIPRAP SHALL BE MEASURED IN SQUARE YARDS FOR SPECIFIED INSTALLATION DEPTH. PAYMENT FOR PLASTIC FILTER FABRIC SHALL BE MEASURED IN SQUARE YARDS CONSISTENT WITH RIPRAP QUANTITY AND PAID FOR SEPARATELY.

- Do = PIPE DIAMETER
- Q = DESIGN STORM FLOW RATE
- V = DESIGN STORM VELOCITY
- Tw = TAILWATER CONDITION/DESIGN STORM NORMAL DEPTH
- Lo = APRON LENGTH
- W1 = APRON WIDTH UPSTREAM AT DEPTH OF PROTECTION
- W2 = APRON WIDTH DOWNSTREAM AT DEPTH OF PROTECTION
- d50 = AVERAGE STONE DIAMETER
- D = INSTALLATION DEPTH
- Dp = DEPTH OF PROTECTION

RIPRAP TYPE	REQUIRED d50 (FT)	MIN. DEPTH "D" (IN)
1	≤ 1.20	36
3	0.75	18



Thomas S. Fravel, P.E.

GSWCC LEVEL II Certification Number

SUBMITTED BY:

DATE		DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA	
REVISION		CONSTRUCTION DETAILS	
		RIPRAP OUTLET PROTECTION (SHEET 2 OF 2)	
NO SCALE		4-22-2016	
BY		DESIGNED DLE	NUMBER
		DRAWN DLE	D-55B
		TRACED	
		CHECKED	

PLANS PREPARED AND SUBMITTED BY:

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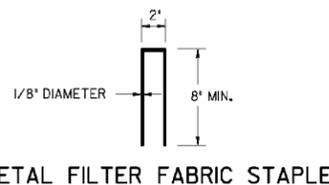
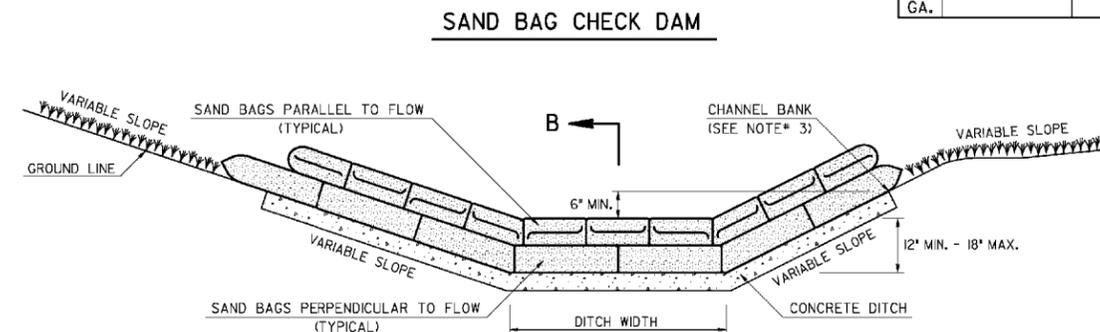
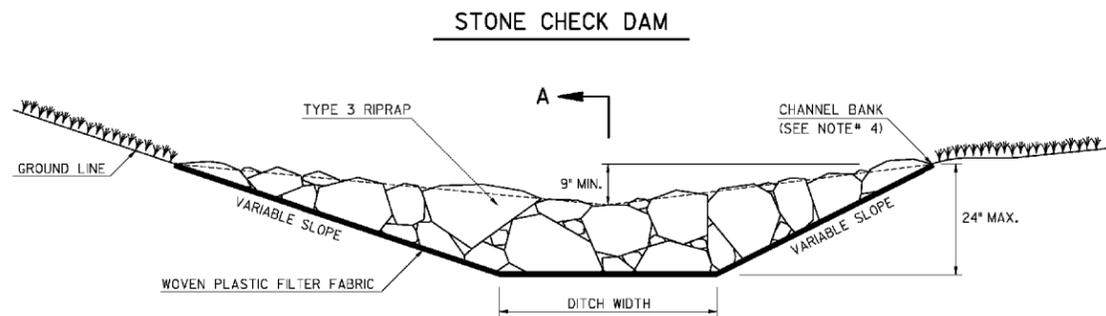
2500 Nelson Miller Parkway
Louisville, KY 40223
(502) 245-3883

1634 White Circle, Suite 101
Marietta, GA 30066
(770) 421-8422

NTS

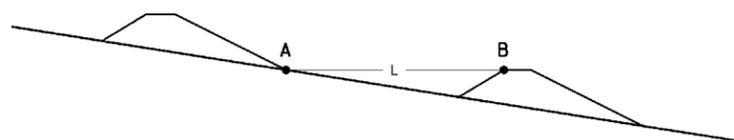
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STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

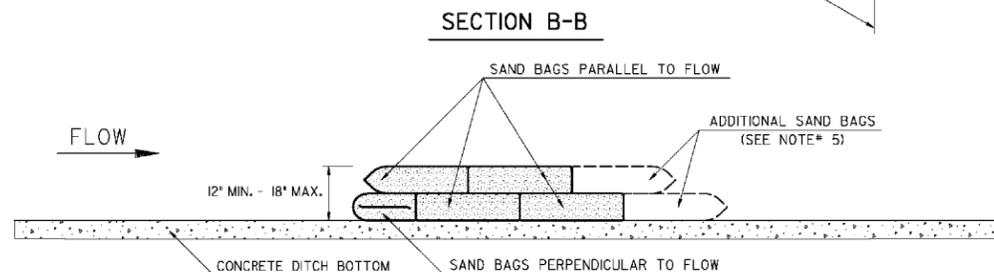
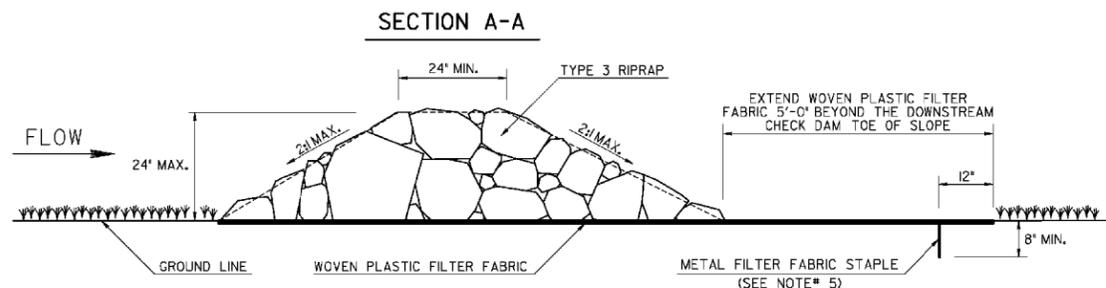
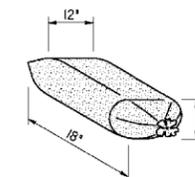


TYPICAL CHECK DAM SPACING

L = THE DISTANCE BETWEEN CHECK DAMS SUCH THAT POINTS 'A' AND 'B' ARE OF EQUAL ELEVATION



SAND BAG DIMENSIONS
(SEE NOTE# 6)



STONE CHECK DAM GENERAL NOTES:

1. STONE CHECK DAMS SHALL NOT BE INSTALLED IN THE CLEAR ZONE OF UNPROTECTED ACTIVE TRAFFIC.
2. APPROPRIATE CONVENTIONAL OR APPROVED ALTERNATIVE BMPs SHALL BE PROVIDED DOWNSTREAM OF STONE CHECK DAMS AT THE DISCHARGE POINT FOR FLOWS GREATER THAN 2.0-CUBIC FEET PER SECOND.
3. STONE CHECK DAMS SHALL NOT BE PLACED WITHIN FLOWING STATE WATERS.
4. THE CENTER OF THE STONE CHECK DAM SHALL BE AT LEAST 9-INCHES LOWER THAN THE OUTER EDGES OF THE STONE CHECK DAM. THE HEIGHT AT THE CENTER OF THE STONE CHECK DAM MAY BE INCREASED TO A MAXIMUM OF 24-INCHES IF A MINIMUM OF 9-INCHES OF FREEBOARD IS STILL PROVIDED AT THE CHANNEL BANK.
5. ANCHOR THE WOVEN PLASTIC FILTER FABRIC TO THE GROUND SURFACE WITH METAL FILTER FABRIC STAPLES 12-INCHES FROM THE EDGE AND NO GREATER THAN 12-INCHES APART.
6. REMOVE SEDIMENT WHEN IT REACHES ONE-HALF THE HEIGHT OF THE STONE CHECK DAM. WOVEN PLASTIC FILTER FABRIC SHALL BE REPLACED WHEN DAMAGED OR DETERIORATED.
7. PROVIDE PERMANENT CHANNEL PROTECTION AS SHOWN AND/OR NOTED IN THE PLANS AFTER STONE CHECK DAM IS REMOVED.

SAND BAG CHECK DAM GENERAL NOTES:

1. SAND BAG CHECK DAMS ARE ONLY USED FOR TEMPORARY VELOCITY CONTROL IN CONCRETE LINED DITCHES AND SHALL NOT BE INSTALLED IN THE CLEAR ZONE OF UNPROTECTED ACTIVE TRAFFIC.
2. APPROPRIATE CONVENTIONAL OR APPROVED ALTERNATIVE BMPs SHALL BE PROVIDED UPSTREAM AND/OR DOWNSTREAM OF CONCRETE DITCHES.
3. THE CENTER OF THE SAND BAG CHECK DAM SHALL BE AT LEAST 6-INCHES LOWER THAN THE OUTER EDGES OF THE SAND BAG CHECK DAM AT THE GROUND LINE. THE HEIGHT AT THE CENTER OF THE SAND BAG CHECK DAM SHALL BE A MINIMUM OF 12-INCHES AND A MAXIMUM OF 18-INCHES.
4. INSTALL SAND BAGS TIGHTLY ABUTTING EACH OTHER AND STACK IN A RUNNING BOND PATTERN. FOLD ANY FLAPS AWAY FROM WATER FLOW.
5. IF ADDITIONAL SAND BAGS ARE WARRANTED FOR STABILITY, INSTALL AS SHOWN AND DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST.
6. SAND BAG SIZES MAY VARY. ASSUME A FILLED SAND BAG HAS APPROXIMATE DIMENSIONS OF 12\"/>

NOTE:
SEE STANDARD SPECIFICATION 163, AND SUPPLEMENTS THERETO FOR THE CONSTRUCTION AND REMOVAL OF STONE CHECK DAMS AND SAND BAG CHECK DAMS. SEE STANDARD SPECIFICATIONS, AND SUPPLEMENTS THERETO FOR THE MAINTENANCE OF STONE CHECK DAMS AND SAND BAG CHECK DAMS.

PAY ITEMS:
163-0527 CONSTRUCT AND REMOVE RIPRAP CHECK DAMS, STONE PLAIN RIPRAP/SAND BAGS (EA)
165-0041 MAINTENANCE OF CHECK DAMS - ALL TYPES (LF)



SUBMITTED BY: *Tom Fravel* 05/19/2020 TF#000018849
 Thomas S. Fravel, P.E. GSWCC LEVEL II Certification Number

DATE		DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA	
REVISION		CONSTRUCTION DETAILS STONE RIPRAP & SAND BAG TEMPORARY CHECK DAMS	
NO SCALE		II-28-2018	
DESIGNED	DLE	NUMBER	
DRAWN	DLE	D-56	
TRACED			
CHECKED			

PLANS PREPARED AND SUBMITTED BY:
AEI
 AMERICAN ENGINEERS, INC.
 DESIGN CONSULTANT PROFESSIONAL ENGINEERING

NTS

REVISION DATES	

EROSION CONTROL CONSTRUCTION DETAILS			
CROSS ROADS ROAD AT BENNETT ROAD			
CHECKED:	DATE:	DRAWING No.	
BACKCHECKED:	DATE:	56-012	
CORRECTED:	DATE:		
VERIFIED:	DATE:		