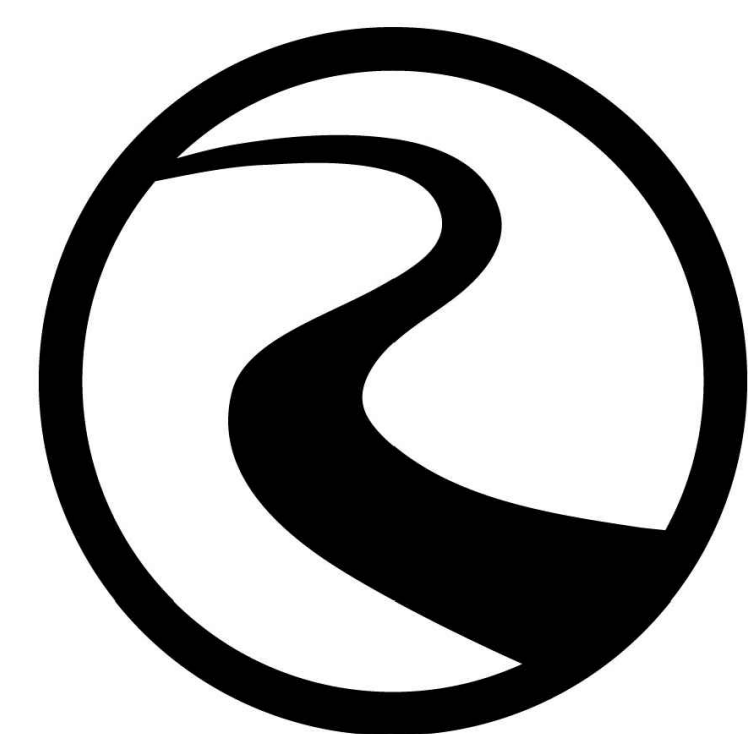


SITE CONSTRUCTION PLANS OAK GROVE FORCEMAIN

PREPARED FOR:
CAROLINA HOLDINGS GROUP
1331 44TH AVENUE NORTH, SUITE 102
MYRTLE BEACH, SC 29577



ROBERTS
CIVIL ENGINEERING

WWW.ROBERTSCIVILENGINEERING.COM

301 SEA ISLAND ROAD, SUITE 10
ST. SIMONS ISLAND, GA 31522
912-638-9681

6001 CHATHAM CENTER DRIVE, SUITE 255
SAVANNAH, GA 31405
912-298-7006

14600 WHIRLWIND AVENUE, SUITE 119A
JACKSONVILLE, FL 32218
904-741-0099 (Office)



08/25/21

NOT RELEASED
FOR
CONSTRUCTION



VICINITY MAP NTS

Brunswick, Ga.

OAK GROVE FORCEMAIN

OWNER Carolina Holdings Group CONTACT Gary Wadsten EMAIL gwadsten@carolinaholdingsgroup.com	ENGINEER ROBERTS CIVIL ENGINEERING CONTACT Jonathan McDill, P.E. EMAIL jmcDill@robertscivilengineering.com
--	---

#	REVISIONS	
1	08/17/21	PER JWSC COMMENTS
2	08/25/21	PER JWSC COMMENTS
3		
4		
5		
6/29/21: ORIGINAL ISSUE DATE		RCE PROJECT NUMBER: 20129

CONTENTS

SHEET		DATE
1	COVER	08/25/21
2	GENERAL NOTES	08/25/21
3	OVERALL PLAN	08/25/21
4-16	PLAN AND PROFILE	08/25/21
17-18	CONSTRUCTION DETAILS	08/25/21

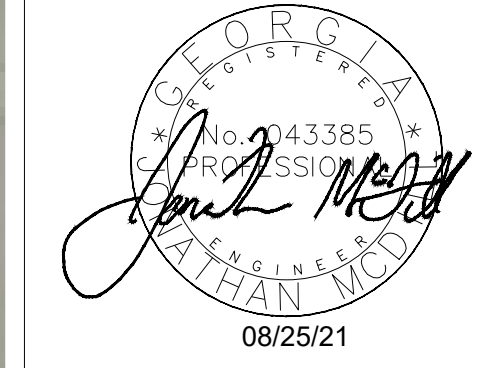
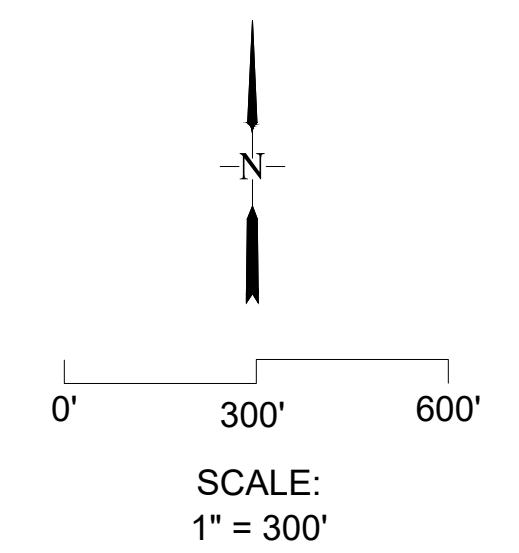


COVER



ALTERNATIVE BID ITEM #1
 Carrier pipe to be 4" and match the material type as shown.
 Casing pipe to be 10" Steel Casing.

ALTERNATIVE BID ITEM #2
 Carrier pipe to be 6" and match the material type as shown.
 Casing pipe to be 12" Steel Casing.



REVISIONS	
1.	08/17/21 PER IWSC COMMENTS
2.	08/25/21 PER IWSC COMMENTS

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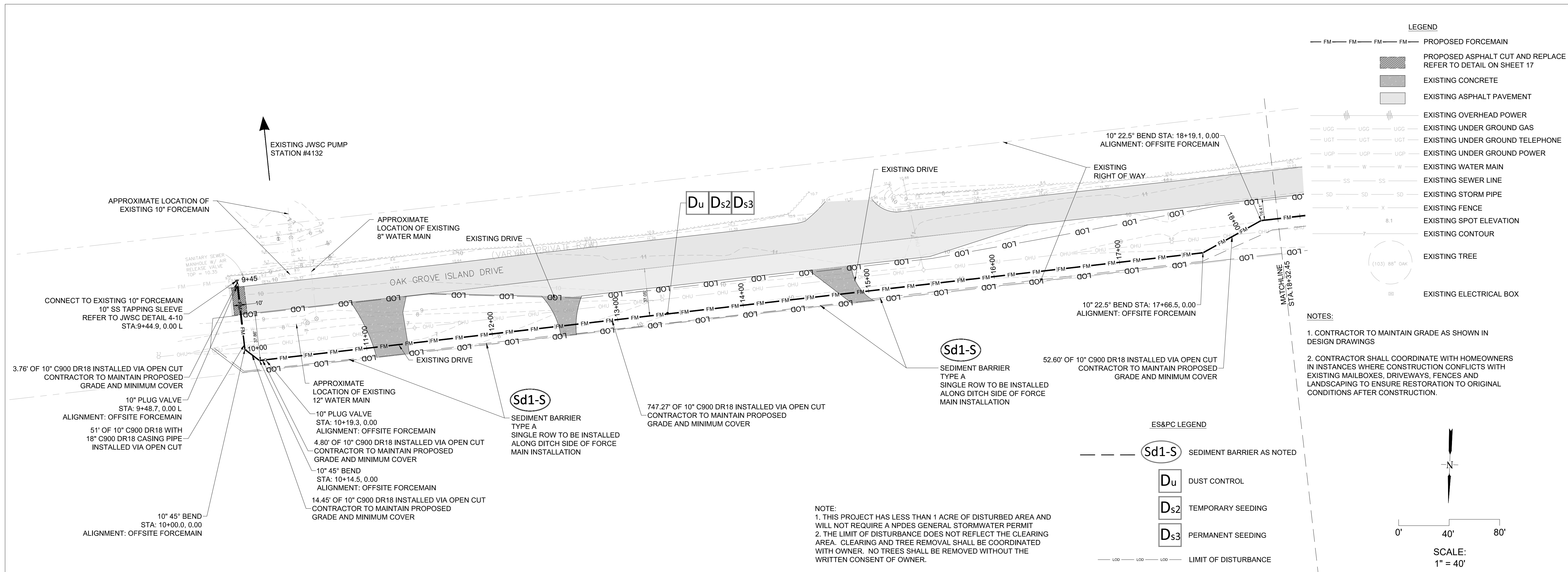


OVERALL PLAN
**OAK GROVE FORCE MAIN
 FINAL ENGINEERING PLANS**
 PREPARED FOR:
 Carolina Holdings Group

DATE: 6/29/21
 PROJECT NUMBER: 20129
 DRAWN BY: TL
 CHECKED BY: JM
 SCALE: 1"=40' (FOR 24"x36" PLOT)

3

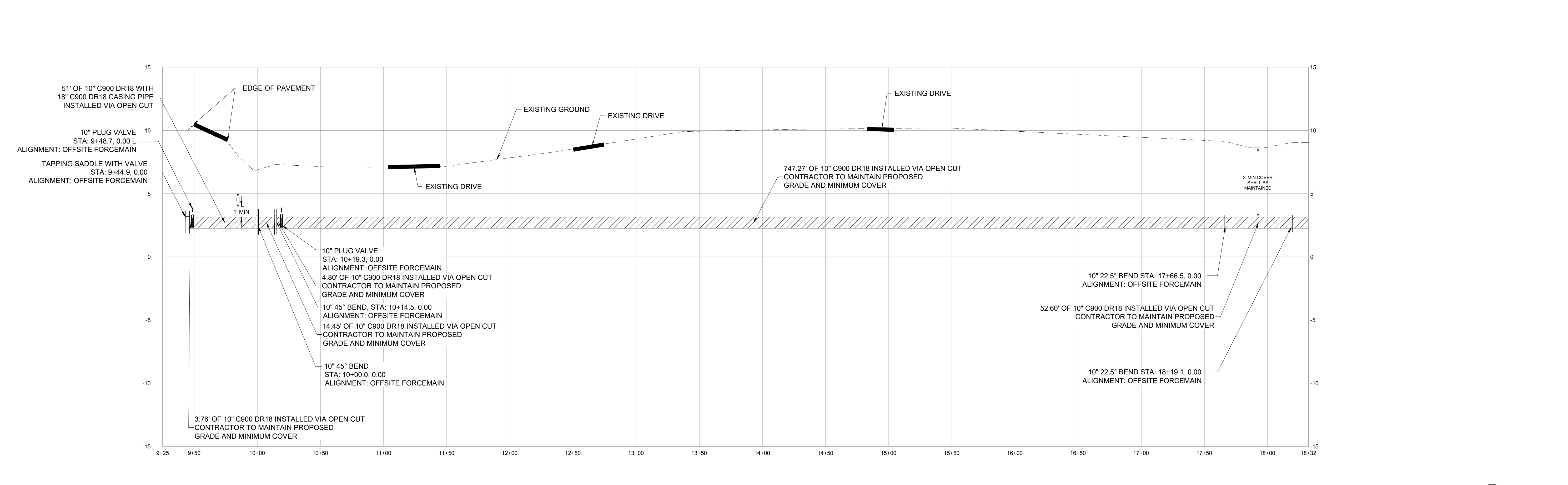
SHEET:



08/25/21

REVISIONS	PER IWSC COMMENTS
1.	08/17/21 PER IWSC COMMENTS
2.	08/25/21 PER IWSC COMMENTS

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PLAN AND PROFILE

OAK GROVE FORCEMAIN

FINAL ENGINEERING PLANS

PREPARED FOR:
Carolina Holdings Group

DATE: 6/29/21
PROJECT NUMBER: 20129
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08/25/21

REVISIONS

1.	08/17/21 PER IWSC COMMENTS
2.	08/25/21 PER IWSC COMMENTS

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ST. SIMONS ISLAND, GA 31522
912-638-9681 OFFICE
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PLAN AND PROFILE
**OAK GROVE FORCEMAIN
FINAL ENGINEERING PLANS**
PREPARED FOR:
Carolina Holdings Group

DATE: 6/29/21
PROJECT NUMBER: 20129
DRAWN BY: TL
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SCALE: 1"=40' (FOR 24"x36" PLOT)

5
SHEET:



LEGEND

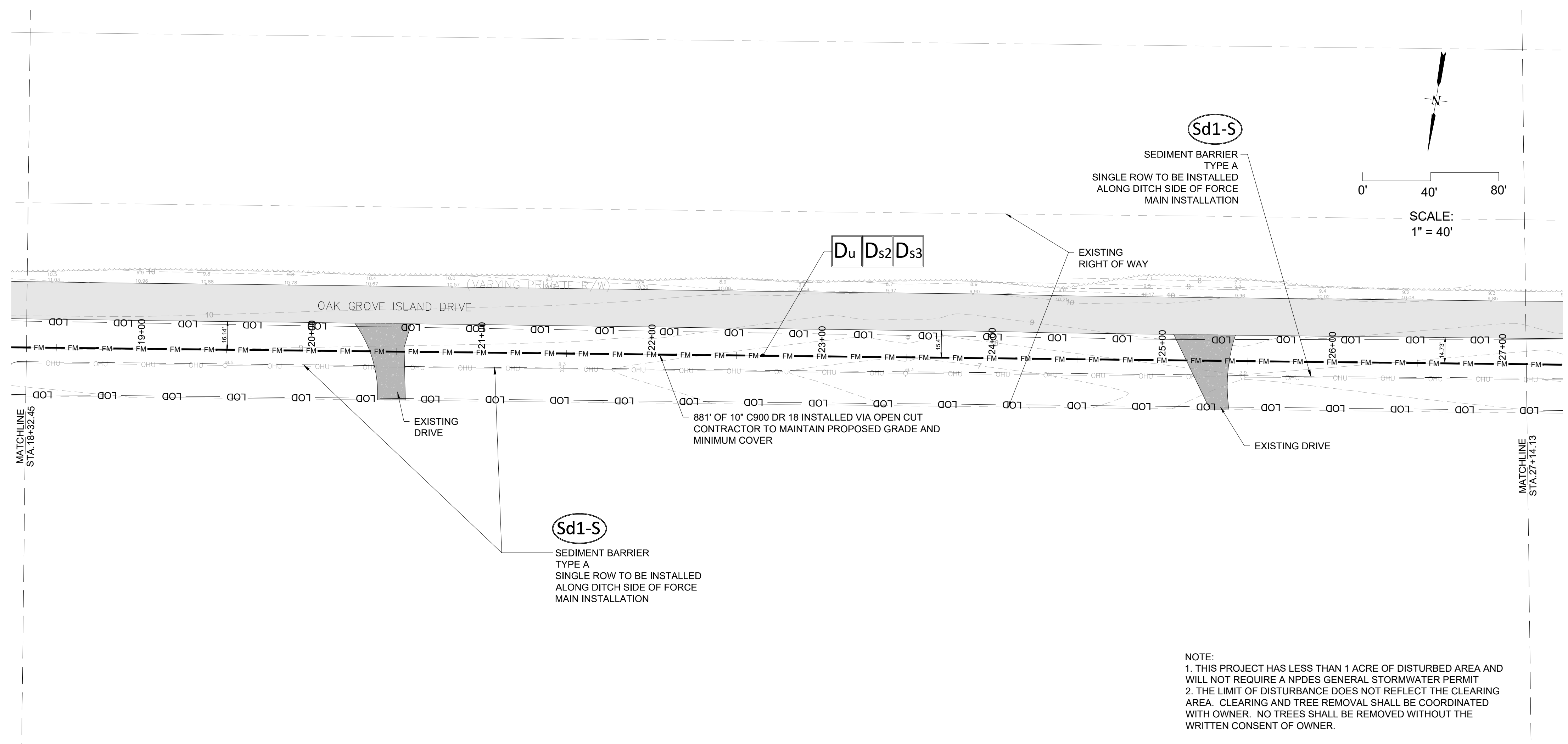
- FM FM FM FM PROPOSED FORCEMAIN
- EXISTING CONCRETE
- EXISTING ASPHALT PAVEMENT
- EXISTING OVERHEAD POWER
- UGG UGG UGG UGG EXISTING UNDER GROUND GAS
- UGT UGT UGT UGT EXISTING UNDER GROUND TELEPHONE
- UGP UGP UGP UGP EXISTING UNDER GROUND POWER
- W W W W EXISTING WATER MAIN
- SS SS SS EXISTING SEWER LINE
- SD SD SD EXISTING STORM PIPE
- X X EXISTING FENCE
- 8.1 EXISTING SPOT ELEVATION
- EXISTING CONTOUR
- (103) 88" OAK EXISTING TREE
- EXISTING ELECTRICAL BOX

NOTES:

- CONTRACTOR TO MAINTAIN GRADE AS SHOWN IN DESIGN DRAWINGS
- CONTRACTOR SHALL COORDINATE WITH HOMEOWNERS IN INSTANCES WHERE CONSTRUCTION CONFLICTS WITH EXISTING MAILBOXES, DRIVEWAYS, FENCES AND LANDSCAPING TO ENSURE RESTORATION TO ORIGINAL CONDITIONS AFTER CONSTRUCTION.

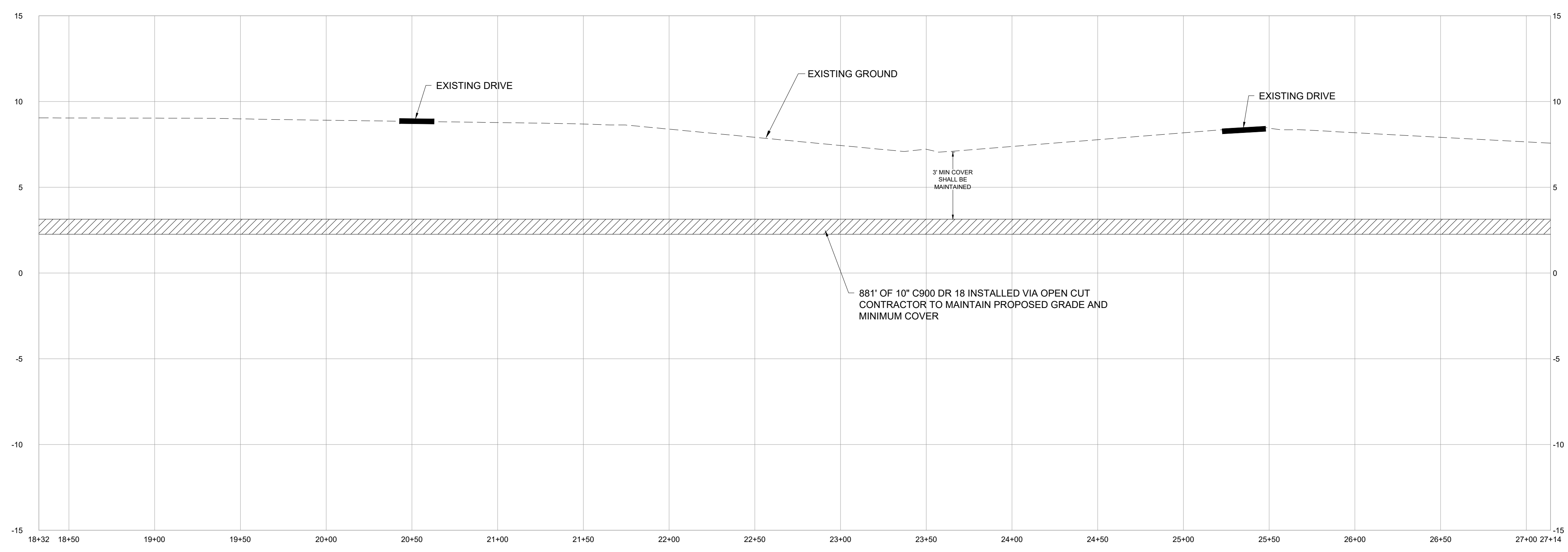
ES&PC LEGEND

- Sd1-S SEDIMENT BARRIER AS NOTED
- Du DUST CONTROL
- Ds2 TEMPORARY SEEDING
- Ds3 PERMANENT SEEDING
- LIMIT OF DISTURBANCE



NOTE:

- THIS PROJECT HAS LESS THAN 1 ACRE OF DISTURBED AREA AND WILL NOT REQUIRE A NPDES GENERAL STORMWATER PERMIT
- THE LIMIT OF DISTURBANCE DOES NOT REFLECT THE CLEARING AREA. CLEARING AND TREE REMOVAL SHALL BE COORDINATED WITH OWNER. NO TREES SHALL BE REMOVED WITHOUT THE WRITTEN CONSENT OF OWNER.

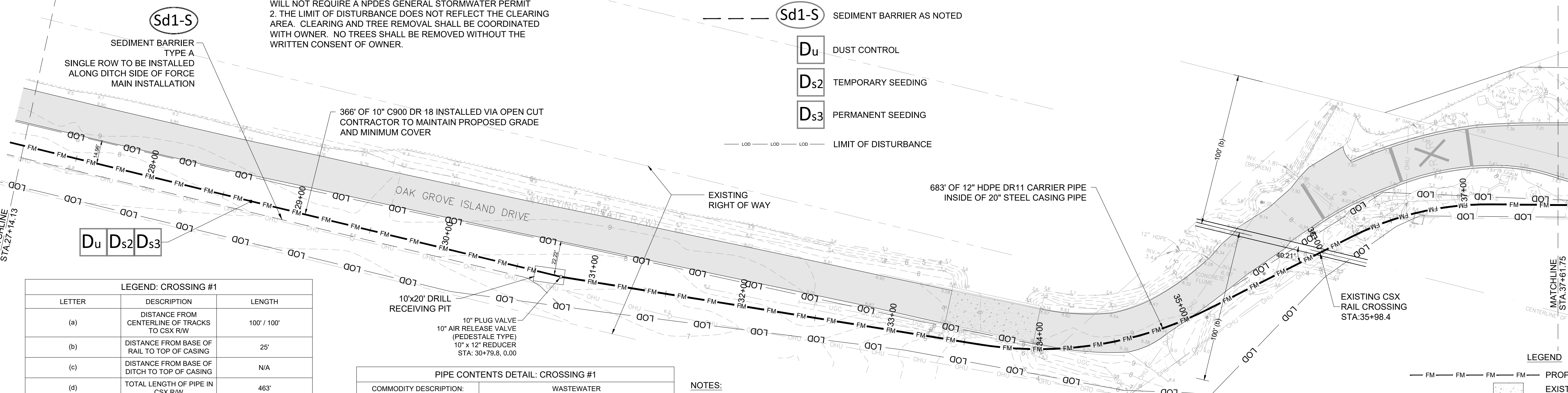


FORCEMAIN PROFILE 2
18+32.45 - 27+14.13
Vertical Scale: 1" = 4 FT
Horizontal Scale: 1" = 40 FT

NOTE:
 1. THIS PROJECT HAS LESS THAN 1 ACRE OF DISTURBED AREA AND WILL NOT REQUIRE A NPDES GENERAL STORMWATER PERMIT
 2. THE LIMIT OF DISTURBANCE DOES NOT REFLECT THE CLEARING AREA. CLEARING AND TREE REMOVAL SHALL BE COORDINATED WITH OWNER. NO TREES SHALL BE REMOVED WITHOUT THE WRITTEN CONSENT OF OWNER.

ES&PC LEGEND

- Sd1-S** SEDIMENT BARRIER AS NOTED
- Du** DUST CONTROL
- Ds2** TEMPORARY SEEDING
- Ds3** PERMANENT SEEDING
- LOD --- LIMIT OF DISTURBANCE



LEGEND: CROSSING #1

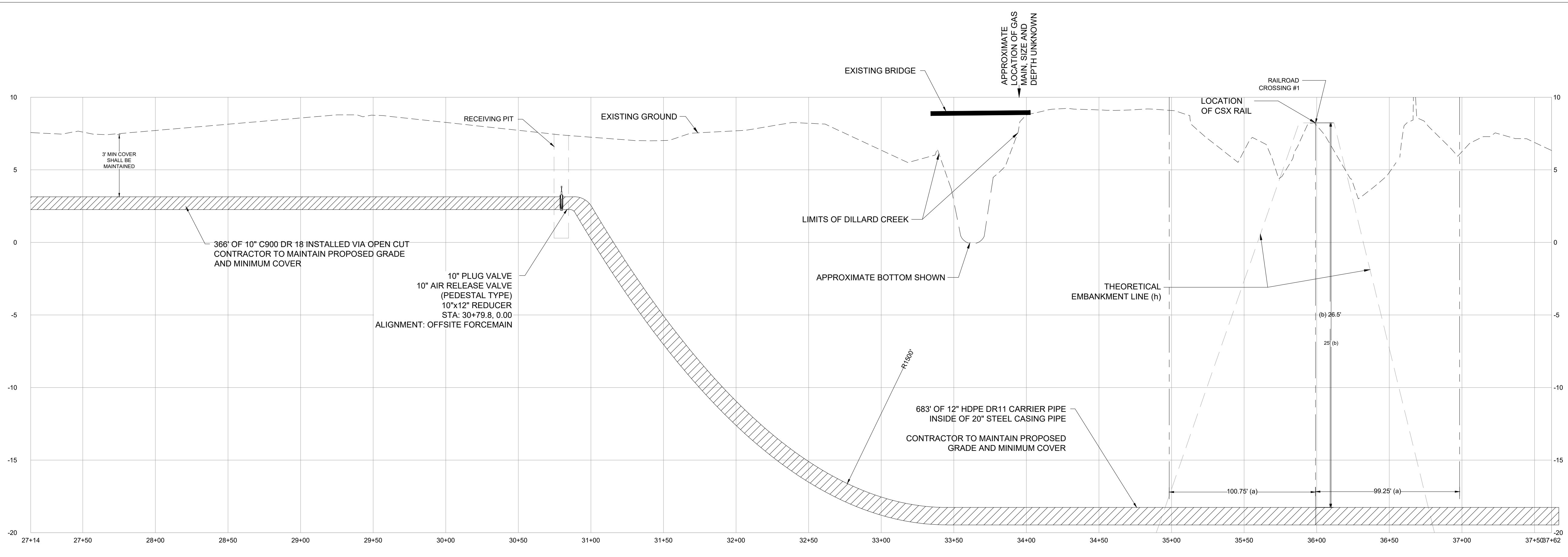
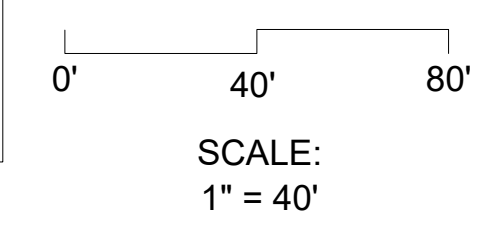
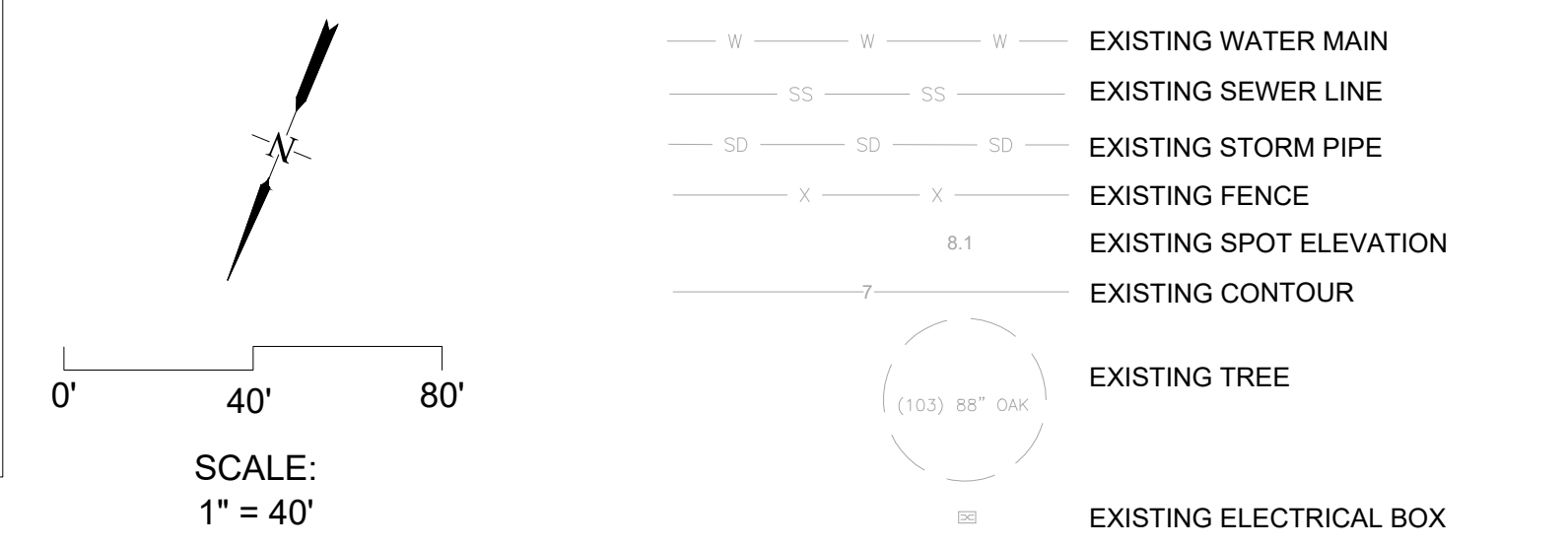
LETTER	DESCRIPTION	LENGTH
(a)	DISTANCE FROM CENTERLINE OF TRACKS TO CSX RW	100' / 100'
(b)	DISTANCE FROM BASE OF RAIL TO TOP OF CASING	25'
(c)	DISTANCE FROM BASE OF DITCH TO TOP OF CASING	N/A
(d)	TOTAL LENGTH OF PIPE IN CSX RW	463'
(e)	DISTANCE FROM CENTERLINE OF NEAREST TRACK TO FACE OF PITS AT A 90 DEGREE ANGLE TO TRACK(S)	77' / -
(f)	DISTANCE FROM TOP OF VENT PIPE TO GROUND SURFACE (4' MINIMUM REQUIRED)	N/A
(g)	DISTANCE FROM CENTERLINE OF TRACK TO VENT PIPE AT 90 DEGREE ANGLE TO TRACK	N/A
(h)	THEORETICAL EMBANKMENT LINE: STARTS 12' FROM CENTERLINE OF TRACK AND EXTENDS AWAY FROM TRACK AT A SLOPE OF 1.5' OVER AND 1' DOWN	AS SHOWN
(i)	CARRIER PIPE DIAMETER	12"
(j)	CASING PIPE DIAMETER	20"
(k)	DEPTH OF LAUNCHING / RECEIVING PIT	10' / 10'

PIPE CONTENTS DETAIL: CROSSING #1

COMMODITY DESCRIPTION:	WASTEWATER	
MAXIMUM OPERATION PRESSURE:	50 PSI	
IS COMMODITY FLAMABLE:	___ YES ___ X_NO	
CARRIER / CASING PIPE DETAILS		
	CARRIER PIPE	CASING PIPE
PIPE MATERIAL:	HDPE DR11	STEEL
MATERIAL SPECIFICATION AND GRADE:	ASTM D3035/AWWA C901	A53
SPECIFIED MINIMUM YIELD STRENGTH:	-	35,000 PSI
NOMINAL SIZE OUTSIDE DIAMETER (INCHES):	12"	20"
WALL THICKNESS (INCHES):	1.159"	.18"
TYPE OF SEAM:	NONE	NONE
TYPE OF JOINTS:	FUSIBLE	WELD
TUNNEL LINER PLATES REQUIRED:	___ YES ___ X_NO TYPE: _____	
CATHODIC PROTECTION:	___ YES ___ X_NO TYPE: _____	
PROTECTIVE COATING:	___ YES ___ X_NO TYPE: _____	
TEMP. TRACK SUPPORT OR RIP-RAP REQ.:	___ YES ___ X_NO MUST DESCRIBE & SHOW ON DRAWING	

- NOTES:
- CONTRACTOR TO MAINTAIN GRADE AS SHOWN IN DESIGN DRAWINGS
 - CONTRACTOR SHALL COORDINATE WITH HOMEOWNERS IN INSTANCES WHERE CONSTRUCTION CONFLICTS WITH EXISTING MAILBOXES, DRIVEWAYS, FENCES AND LANDSCAPING TO ENSURE RESTORATION TO ORIGINAL CONDITIONS AFTER CONSTRUCTION.

- RAIL CROSSING GENERAL NOTES
- CASING / CARRIER PIPES PLACED UNDER CSXT TRACKS(S) SHALL BE NOT LESS THAN 5.5 FEET FROM THE BASE OF RAIL TO TOP OF PIPE AT ITS SHALLOWEST POINT FOR JACK AND BORE INSTALLATIONS. VERTICAL SEPARATION FOR HDD SHALL BE AS SHOWN.
 - CONTRACTOR RESPONSIBLE FOR PROVIDING DESIGN PLAN AND COMPUTATIONS FOR THE JACKING AND RECEIVING PITS STABILIZATION. PLANS AND COMPUTATIONS SHALL BE SEALED BY A LICENSED PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF GEORGIA. SEALED PLANS AND COMPUTATIONS MUST BE SUBMITTED TO CSXT PRIOR TO THE START OF CONSTRUCTION AND MUST OBTAIN APPROVAL FROM CSXT'S CHIEF ENGINEER, DESIGN AND CONSTRUCTION PRIOR TO BEGINNING ANY WORK ON OR WHICH MAY AFFECT CSXT PROPERTY. SHEETING SHALL BE DESIGNED TO SUPPORT ALL LATERAL FORCES CAUSED BY THE EARTH, RAILROAD AND OTHER SURCHARGE LOADS.
 - CONTRACTOR RESPONSIBLE FOR PROVIDING ALL NECESSARY DEWATERING OPERATIONS FOR JACK AND BORE OPERATIONS. DEWATERING PLAN SHALL BE SEALED BY A LICENSED PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF GEORGIA.
 - CONTRACTOR SHALL HAVE A LICENSED LAND SURVEYOR, REGISTERED IN THE STATE OF GEORGIA STAKE THE CSXT ROW LINE PRIOR TO CONSTRUCTION.



FORCEMAIN PROFILE 3
 27+14.13 - 37+61.75
 Vertical Scale: 1" = 4 FT
 Horizontal Scale: 1" = 40 FT



REVISIONS
 1. 08/17/21 PER IWSC COMMENTS
 2. 08/25/21 PER IWSC COMMENTS

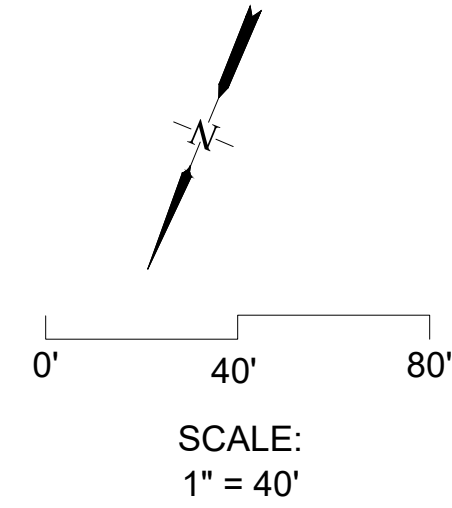
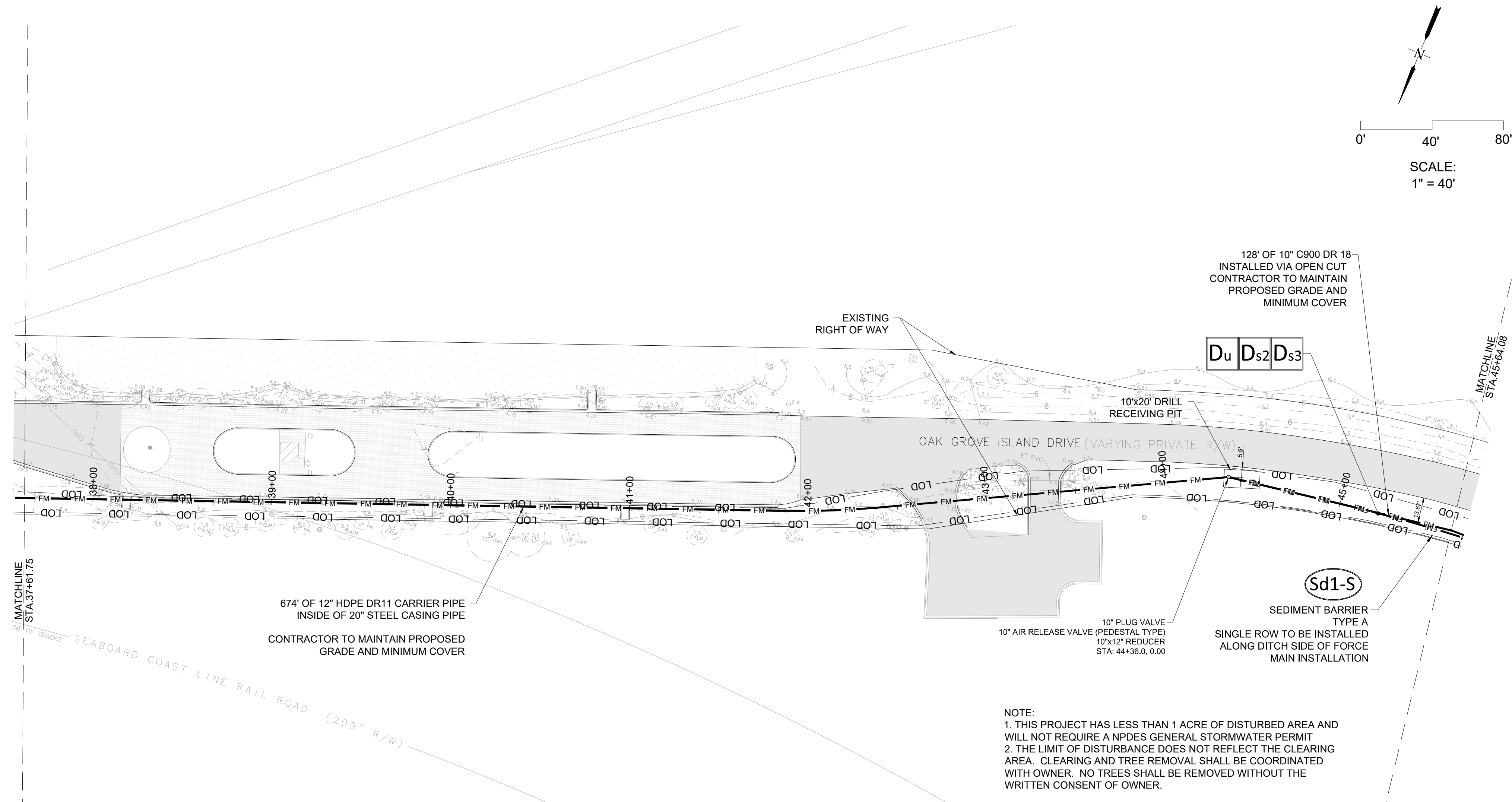
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 301 SEA ISLAND ROAD, SUITE 10
 ST. SIMONS ISLAND, SAVANNAH
 912-638-9681 OFFICE
 912-289-0339 FAX



PLAN AND PROFILE
OAK GROVE FORCEMAIN
FINAL ENGINEERING PLANS
 PREPARED FOR:
 Carolina Holdings Group

DATE: 6/29/21
 PROJECT NUMBER: 20129
 DRAWN BY: TL
 CHECKED BY: JM
 SCALE: 1"=40' (FOR 24"x36" PLOT)





- LEGEND**
- FM — FM — FM — FM PROPOSED FORCEMAIN
 - EXISTING CONCRETE
 - EXISTING ASPHALT PAVEMENT
 - EXISTING OVERHEAD POWER
 - UGG UGG UGG UGG EXISTING UNDER GROUND GAS
 - UGT UGT UGT UGT EXISTING UNDER GROUND TELEPHONE
 - UGP UGP UGP UGP EXISTING UNDER GROUND POWER
 - W W W W EXISTING WATER MAIN
 - SS SS SS SS EXISTING SEWER LINE
 - SD SD SD SD EXISTING STORM PIPE
 - X X X X EXISTING FENCE
 - 8.1 EXISTING SPOT ELEVATION
 - EXISTING CONTOUR
 - (103) 88" OAK EXISTING TREE
 - EXISTING ELECTRICAL BOX

- NOTES:**
- CONTRACTOR TO MAINTAIN GRADE AS SHOWN IN DESIGN DRAWINGS
 - CONTRACTOR SHALL COORDINATE WITH HOMEOWNERS IN INSTANCES WHERE CONSTRUCTION CONFLICTS WITH EXISTING MAILBOXES, DRIVEWAYS, FENCES AND LANDSCAPING TO ENSURE RESTORATION TO ORIGINAL CONDITIONS AFTER CONSTRUCTION.

- ES&PC LEGEND**
- Sd1-S SEDIMENT BARRIER AS NOTED
 - Du DUST CONTROL
 - Ds2 TEMPORARY SEEDING
 - Ds3 PERMANENT SEEDING
 - LIMIT OF DISTURBANCE



08/25/21

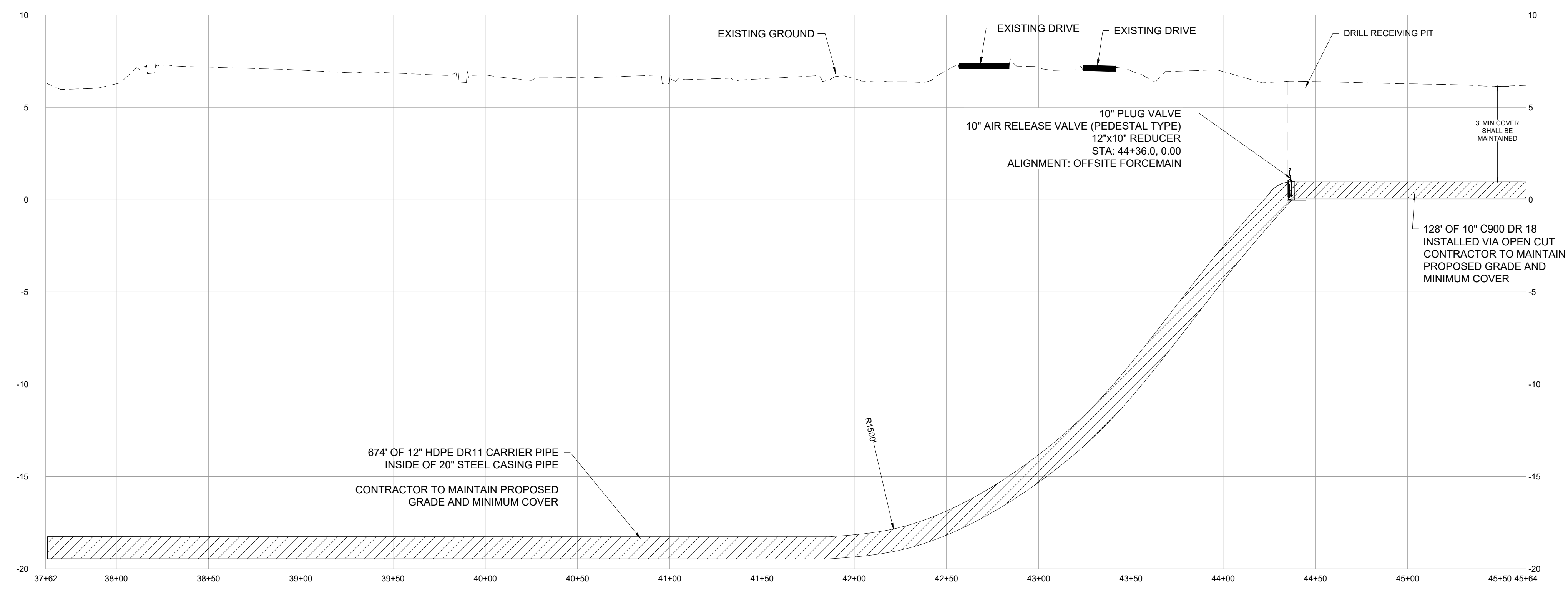
REVISIONS	COMMENTS
1.	08/17/21 PER IWSC COMMENTS
2.	08/25/21 PER IWSC COMMENTS

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ST. SIMONS, GA 31522
912-638-9681 OFFICE
912-289-0339 FAX



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PLAN AND PROFILE
OAK GROVE FORCEMAIN
FINAL ENGINEERING PLANS
PREPARED FOR:
Carolina Holdings Group



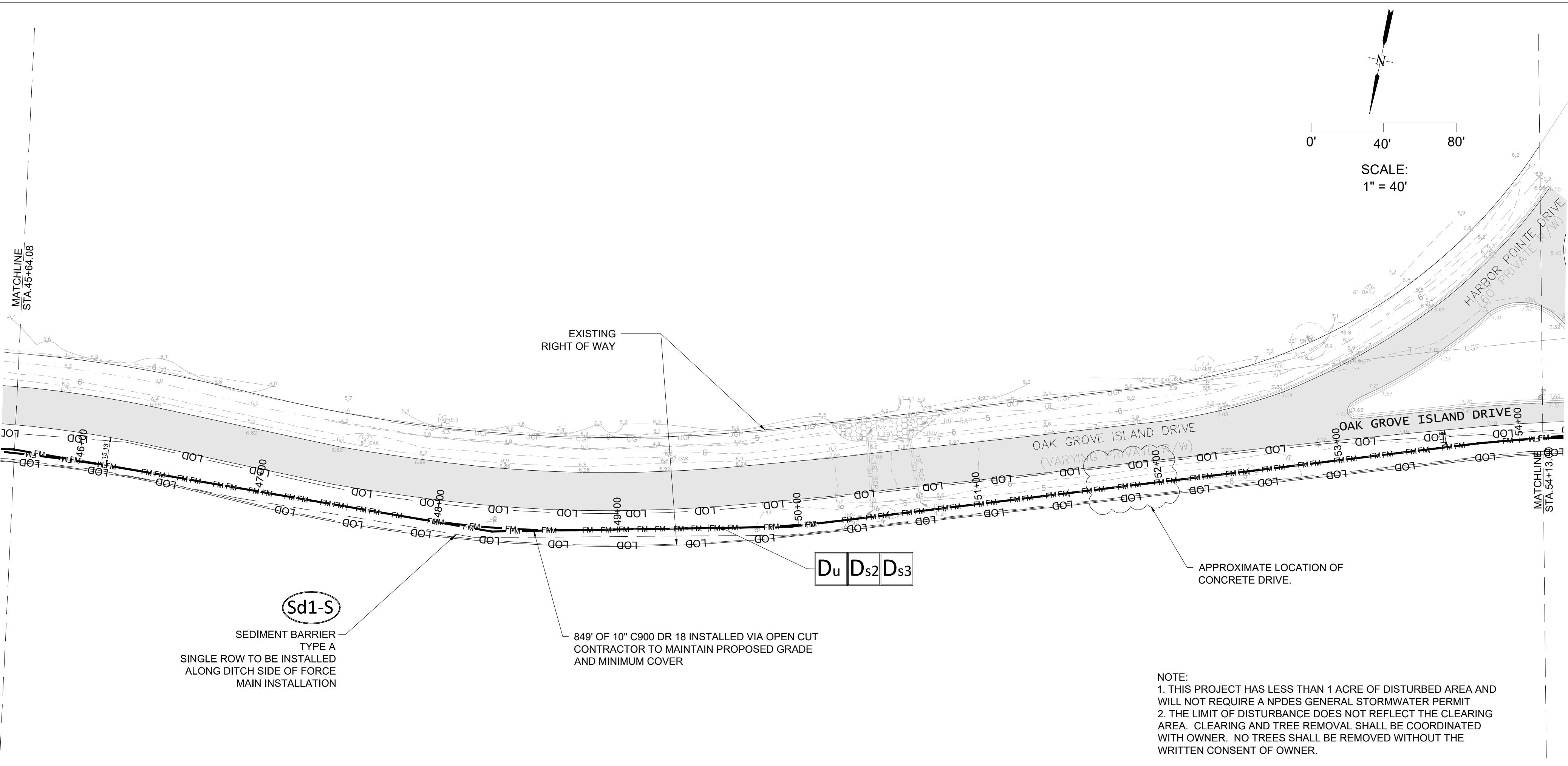
FORCEMAIN PROFILE 4
37+61.75 - 45+64.08
Vertical Scale: 1" = 4 FT
Horizontal Scale: 1" = 40 FT



DATE: 6/29/21
PROJECT NUMBER: 20129
DRAWN BY: TL
CHECKED BY: JM
SCALE: 1"=40' (FOR 24"x36" PLOT)

7

SHEET:



- LEGEND**
- FM FM FM FM FM FM PROPOSED FORCEMAIN
 - EXISTING CONCRETE
 - EXISTING ASPHALT PAVEMENT
 - EXISTING OVERHEAD POWER
 - UGG UGG UGG UGG UGG UGG EXISTING UNDER GROUND GAS
 - UGT UGT UGT UGT UGT UGT EXISTING UNDER GROUND TELEPHONE
 - UGP UGP UGP UGP UGP UGP EXISTING UNDER GROUND POWER
 - W W W W W W EXISTING WATER MAIN
 - SS SS SS SS SS SS EXISTING SEWER LINE
 - SD SD SD SD SD SD EXISTING STORM PIPE
 - X X X X X X EXISTING FENCE
 - 8.1 EXISTING SPOT ELEVATION
 - EXISTING CONTOUR
 - (103) 88" OAK EXISTING TREE
 - EXISTING ELECTRICAL BOX

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- ES&PC LEGEND**
- Sd1-S SEDIMENT BARRIER AS NOTED
 - Du DUST CONTROL
 - Ds2 TEMPORARY SEEDING
 - Ds3 PERMANENT SEEDING
 - LOD LOD LOD LOD LIMIT OF DISTURBANCE

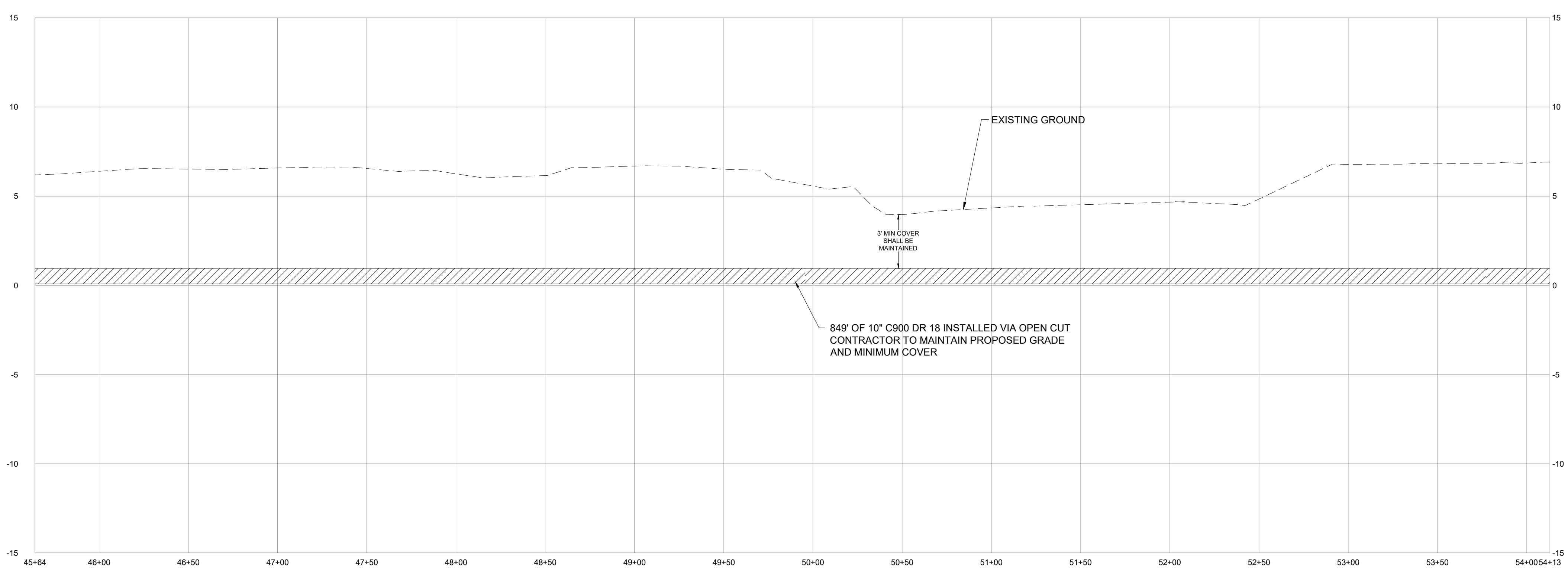


08/25/21

REVISIONS

1.	08/17/21 PER IWSC COMMENTS
2.	08/25/21 PER IWSC COMMENTS

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FORCEMAIN PROFILE 5
 45+64.08 - 54+13.00
 Vertical Scale: 1" = 4 FT
 Horizontal Scale: 1" = 40 FT

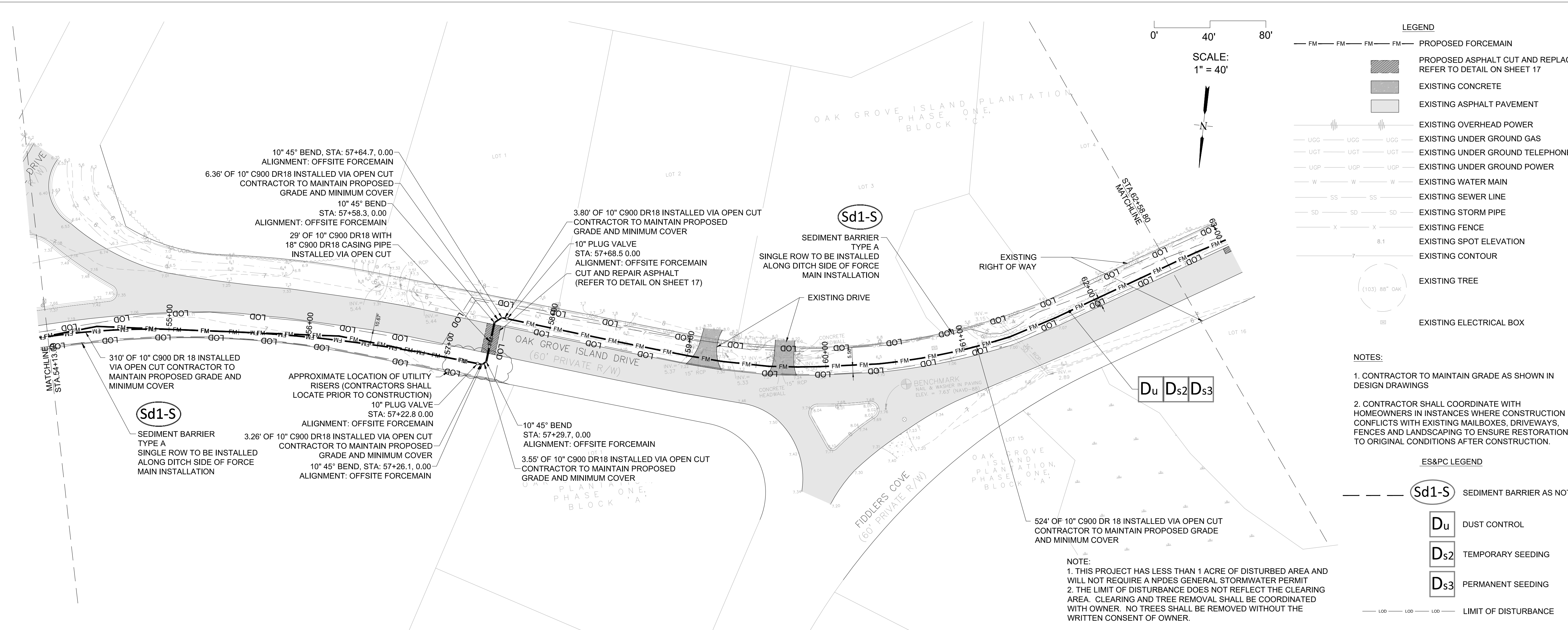
PLAN AND PROFILE
OAK GROVE FORCEMAIN
FINAL ENGINEERING PLANS
 PREPARED FOR:
 Carolina Holdings Group

DATE: 6/29/21
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 CHECKED BY: JM
 SCALE: 1"=40' (FOR 24"x36" PLOT)



8

SHEET:



LEGEND

- FM — FM — FM — FM — PROPOSED FORCEMAIN
- PROPOSED ASPHALT CUT AND REPLACE REFER TO DETAIL ON SHEET 17
- EXISTING CONCRETE
- EXISTING ASPHALT PAVEMENT
- EXISTING OVERHEAD POWER
- EXISTING UNDER GROUND GAS
- EXISTING UNDER GROUND TELEPHONE
- EXISTING UNDER GROUND POWER
- EXISTING WATER MAIN
- EXISTING SEWER LINE
- EXISTING STORM PIPE
- EXISTING FENCE
- EXISTING SPOT ELEVATION
- EXISTING CONTOUR
- EXISTING TREE
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ES&PC LEGEND

- Sd1-S SEDIMENT BARRIER AS NOTED
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- Ds3 PERMANENT SEEDING
- LIMIT OF DISTURBANCE



08/25/21

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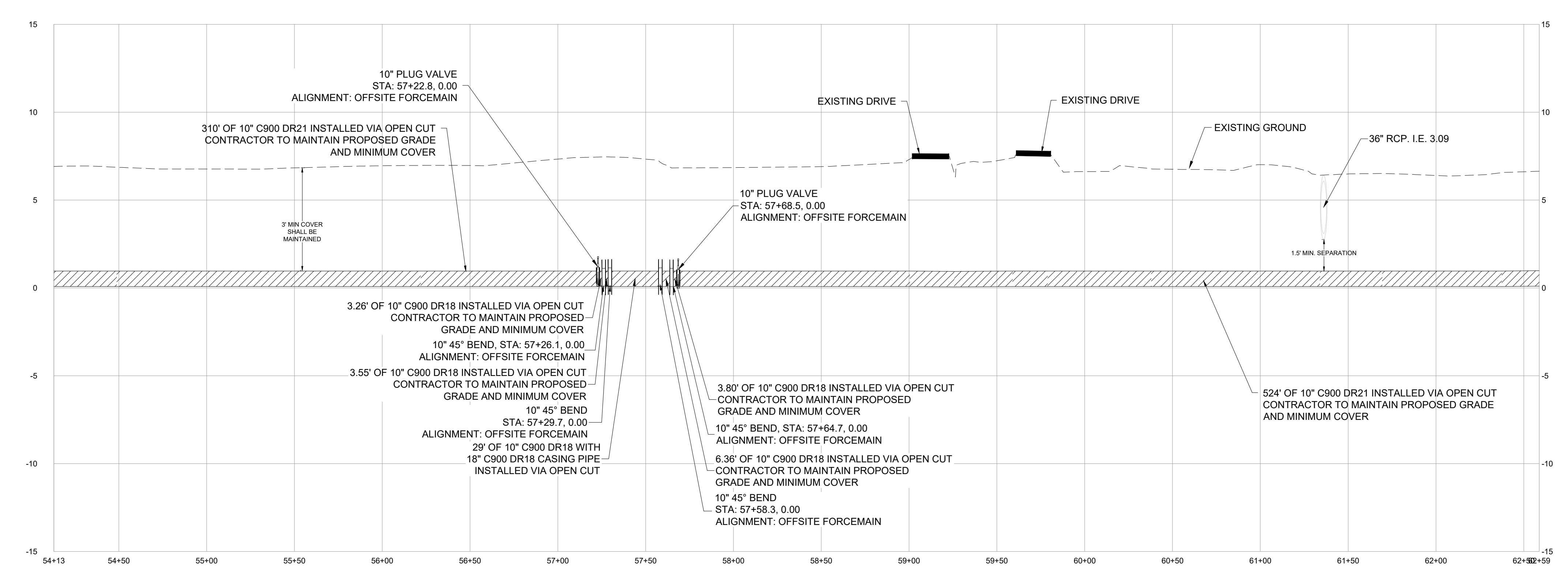


PLAN AND PROFILE

OAK GROVE FORCEMAIN

FINAL ENGINEERING PLANS

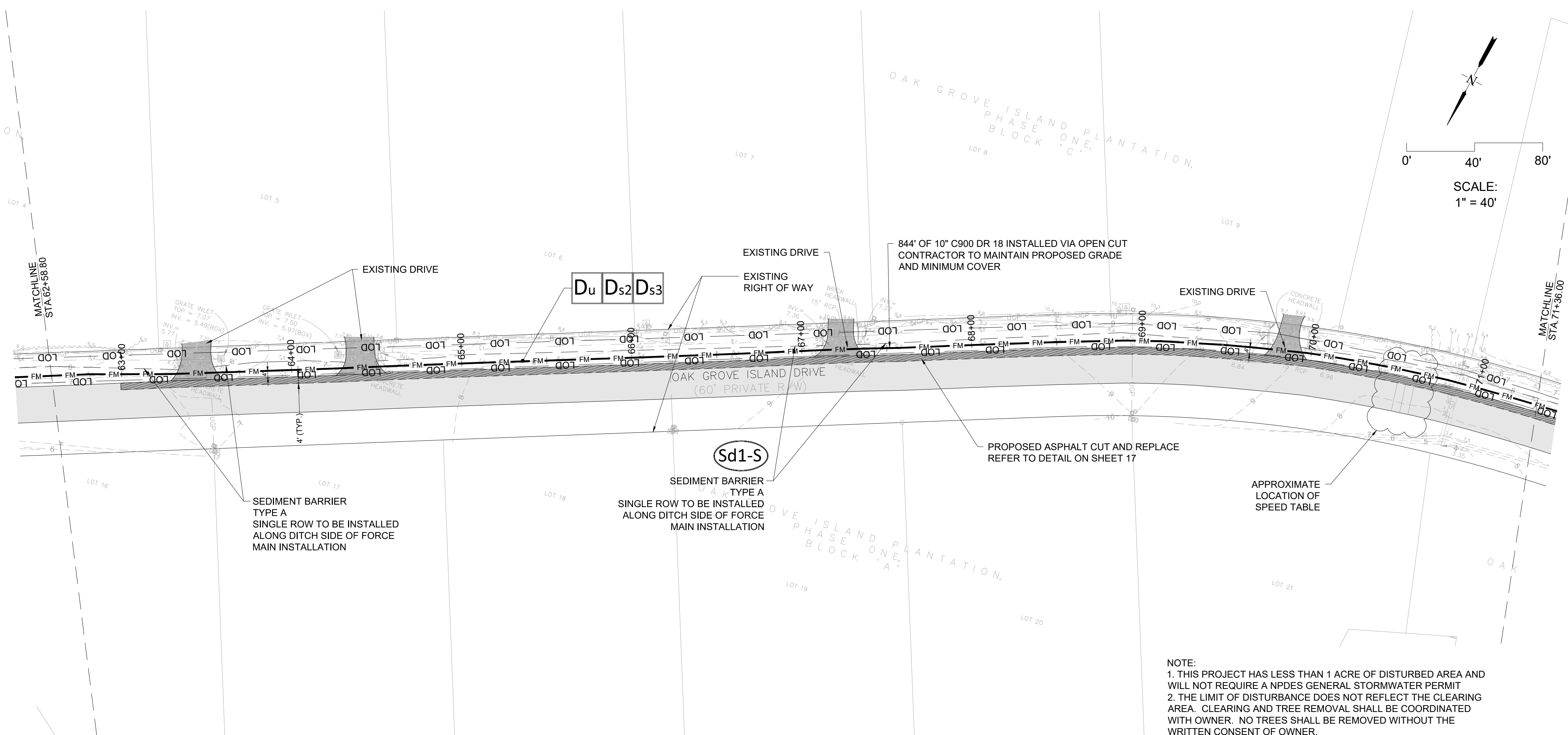
PREPARED FOR:
Carolina Holdings Group



FORCEMAIN PROFILE 6
54+13.00 - 62+58.80
Vertical Scale: 1" = 4 FT
Horizontal Scale: 1" = 40 FT

DATE: 6/29/21
PROJECT NUMBER: 20129
DRAWN BY: TL
CHECKED BY: JM
SCALE: 1"=40' (FOR 24"x36" PLOT)





LEGEND

- FM — FM — FM — FM — PROPOSED FORCEMAIN
- PROPOSED ASPHALT CUT AND REPLACE REFER TO DETAIL ON SHEET 17
- EXISTING CONCRETE
- EXISTING ASPHALT PAVEMENT
- EXISTING OVERHEAD POWER
- UGG — UGG — UGG — UGG — EXISTING UNDER GROUND GAS
- UGT — UGT — UGT — UGT — EXISTING UNDER GROUND TELEPHONE
- UGP — UGP — UGP — USP — EXISTING UNDER GROUND POWER
- W — W — W — W — EXISTING WATER MAIN
- SS — SS — SS — SS — EXISTING SEWER LINE
- SD — SD — SD — SD — EXISTING STORM PIPE
- X — X — X — X — EXISTING FENCE
- 8.1 — EXISTING SPOT ELEVATION
- — — — EXISTING CONTOUR
- (103) 85' OAK — EXISTING TREE
- EB — EXISTING ELECTRICAL BOX

NOTES:

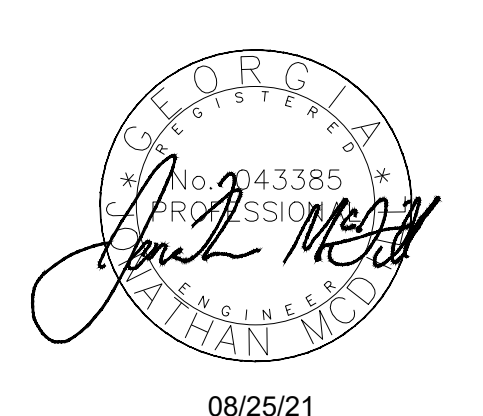
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ES&PC LEGEND

- Sd1-S SEDIMENT BARRIER AS NOTED
- Du DUST CONTROL
- Ds2 TEMPORARY SEEDING
- Ds3 PERMANENT SEEDING
- — — — LIMIT OF DISTURBANCE

NOTE:

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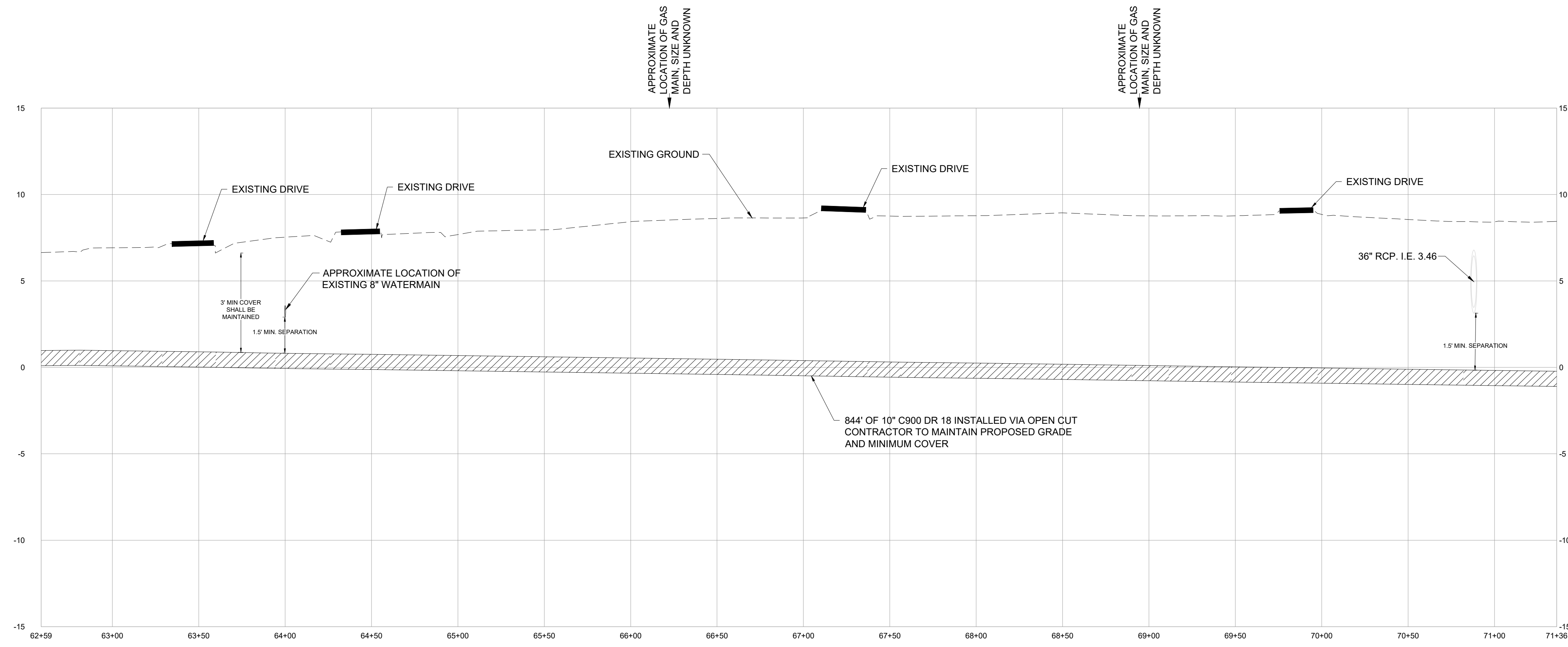


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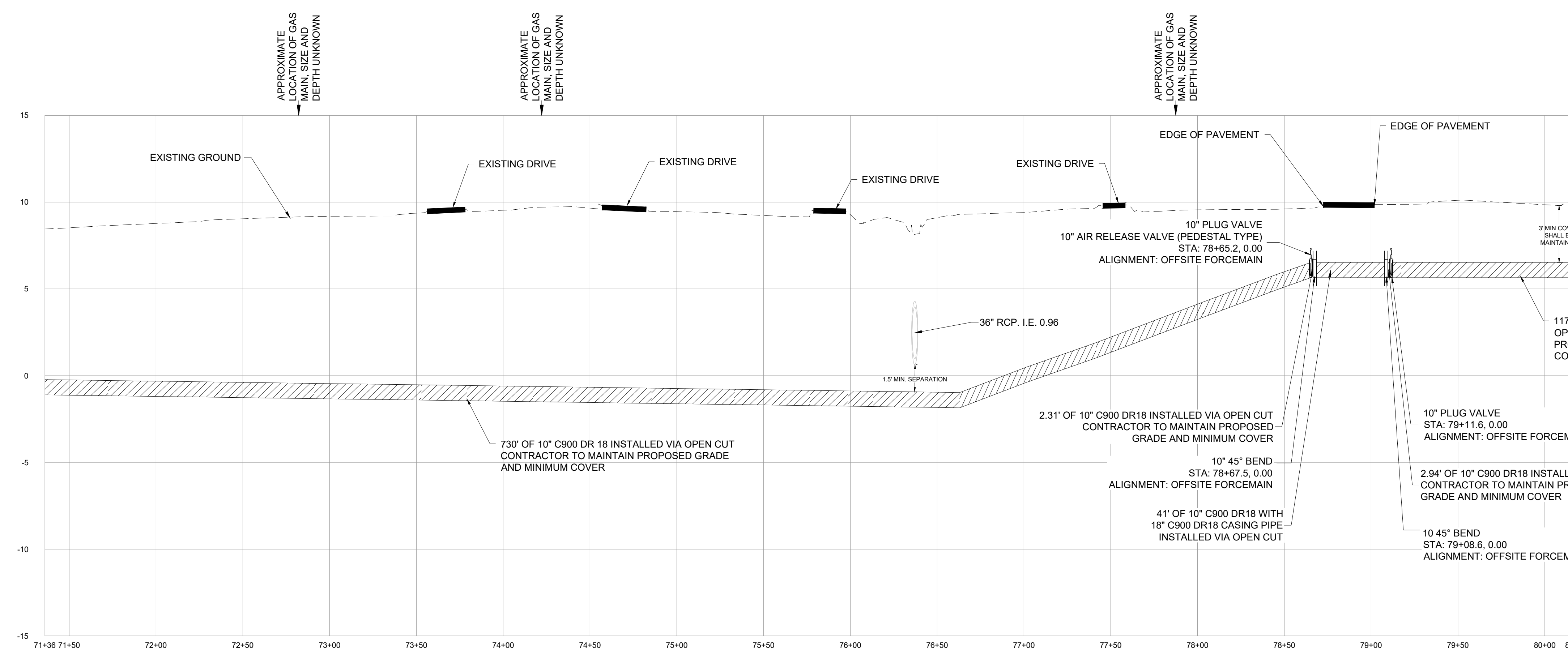
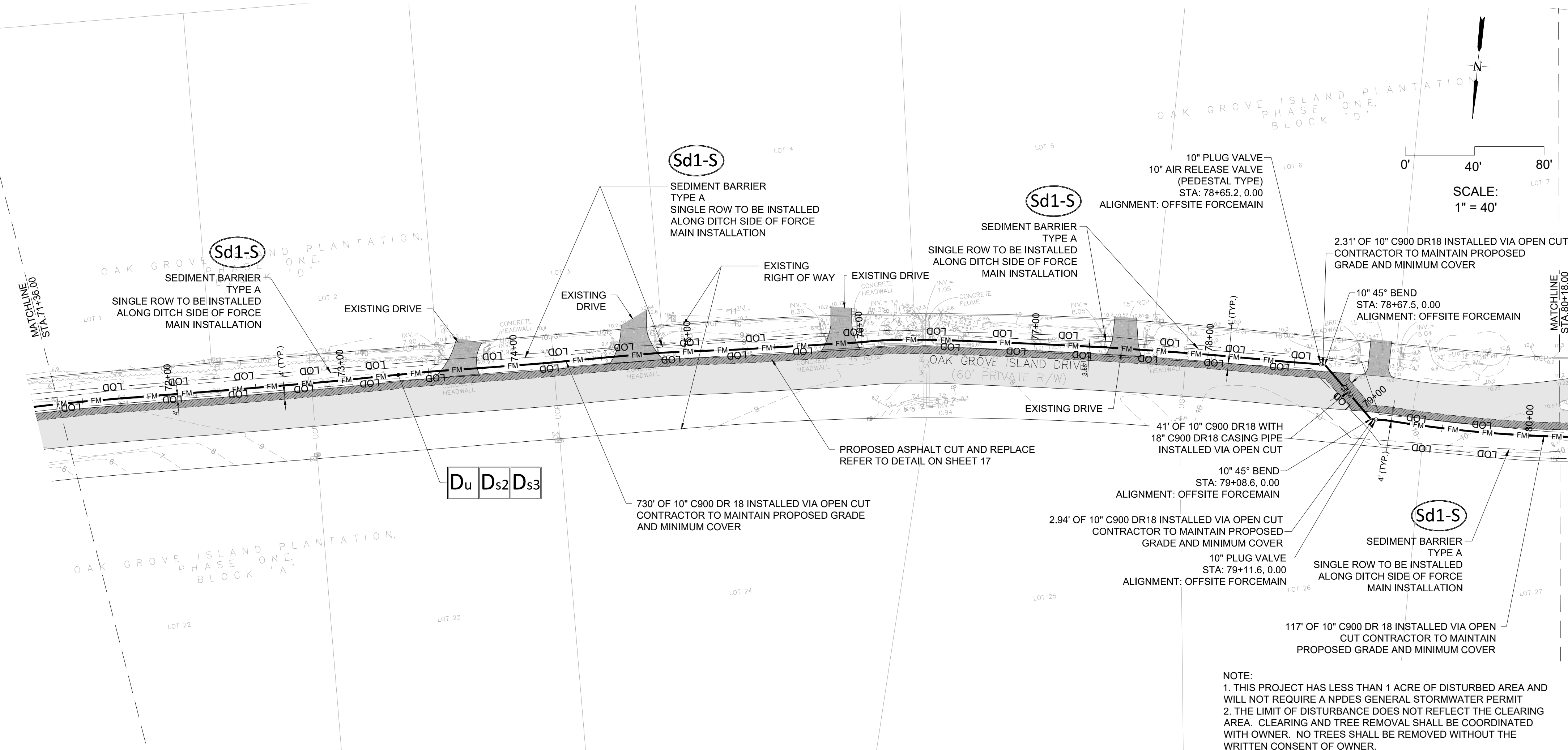


FORCEMAIN PROFILE 7
62+58.80 - 71+36.00
Vertical Scale: 1" = 4 FT
Horizontal Scale: 1" = 40 FT

PLAN AND PROFILE
OAK GROVE FORCEMAIN
FINAL ENGINEERING PLANS
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Carolina Holdings Group

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PLAN AND PROFILE

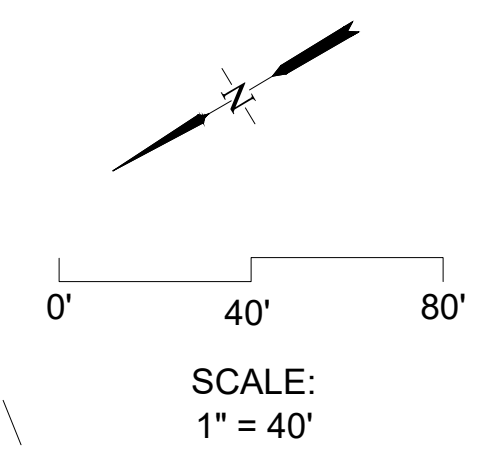
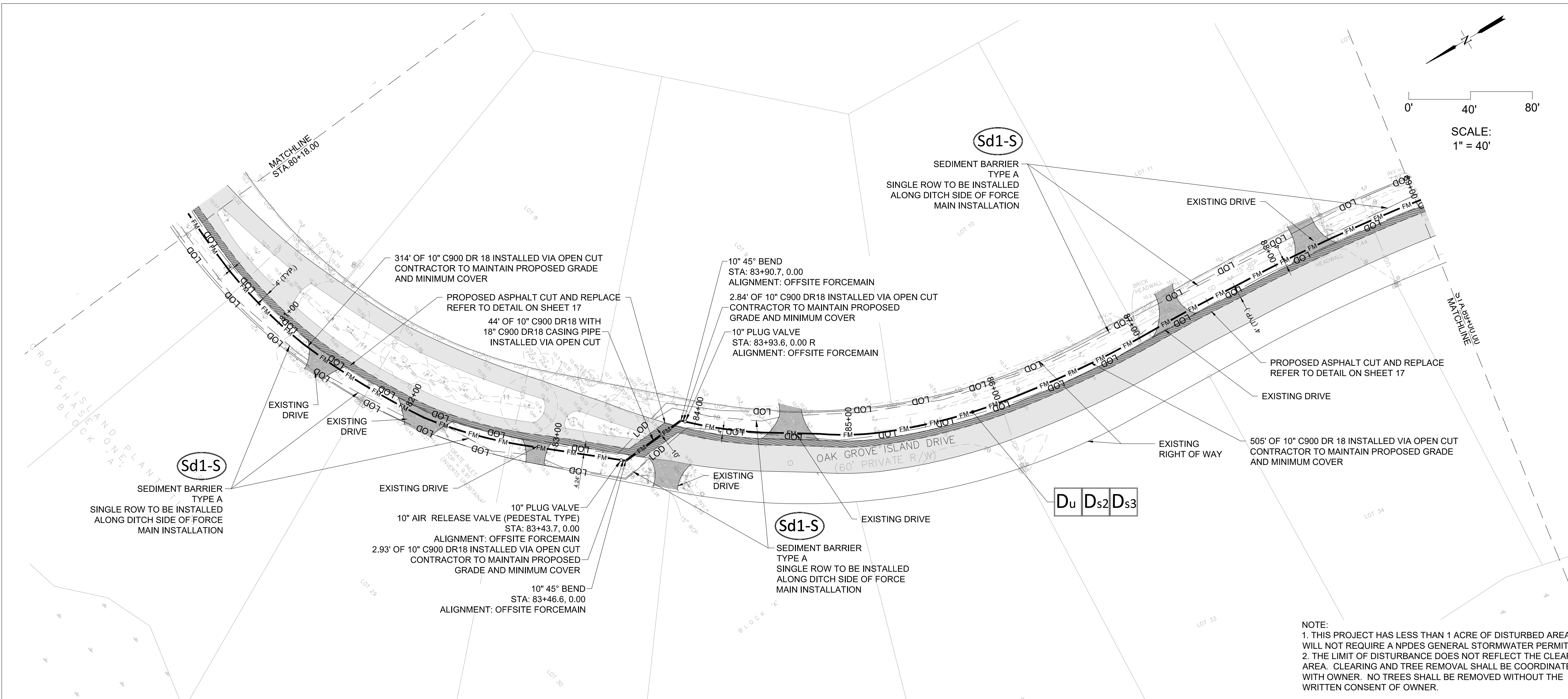
OAK GROVE FORCEMAIN

FINAL ENGINEERING PLANS

PREPARED FOR:
Carolina Holdings Group

DATE:	6/29/21
PROJECT NUMBER:	20129
DRAWN BY:	TL
CHECKED BY:	JM
SCALE:	1"=40' (FOR 24"x36" PLOT)





- LEGEND**
- FM FM FM FM FM PROPOSED FORCEMAIN
 - PROPOSED ASPHALT CUT AND REPLACE REFER TO DETAIL ON SHEET 17
 - EXISTING CONCRETE
 - EXISTING ASPHALT PAVEMENT
 - EXISTING OVERHEAD POWER
 - UGG UGG UGG UGG UGG EXISTING UNDER GROUND GAS
 - UGT UGT UGT UGT UGT EXISTING UNDER GROUND TELEPHONE
 - UGP UGP UGP UGP UGP EXISTING UNDER GROUND POWER
 - W W W W W EXISTING WATER MAIN
 - SS SS SS SS SS EXISTING SEWER LINE
 - SD SD SD SD SD EXISTING STORM PIPE
 - X X X X X EXISTING FENCE
 - 8.1 EXISTING SPOT ELEVATION
 - EXISTING CONTOUR
 - (103) 85' OAK EXISTING TREE
 - 85 EXISTING ELECTRICAL BOX

- NOTES:**
- CONTRACTOR TO MAINTAIN GRADE AS SHOWN IN DESIGN DRAWINGS
 - CONTRACTOR SHALL COORDINATE WITH HOMEOWNERS IN INSTANCES WHERE CONSTRUCTION CONFLICTS WITH EXISTING MAILBOXES, DRIVEWAYS, FENCES AND LANDSCAPING TO ENSURE RESTORATION TO ORIGINAL CONDITIONS AFTER CONSTRUCTION.

- ES&PC LEGEND**
- Sd1-S SEDIMENT BARRIER AS NOTED
 - Du DUST CONTROL
 - Ds2 TEMPORARY SEEDING
 - Ds3 PERMANENT SEEDING
 - LIMIT OF DISTURBANCE

NOTE:
 1. THIS PROJECT HAS LESS THAN 1 ACRE OF DISTURBED AREA AND WILL NOT REQUIRE A NPDES GENERAL STORMWATER PERMIT
 2. THE LIMIT OF DISTURBANCE DOES NOT REFLECT THE CLEARING AREA. CLEARING AND TREE REMOVAL SHALL BE COORDINATED WITH OWNER. NO TREES SHALL BE REMOVED WITHOUT THE WRITTEN CONSENT OF OWNER.



REVISIONS

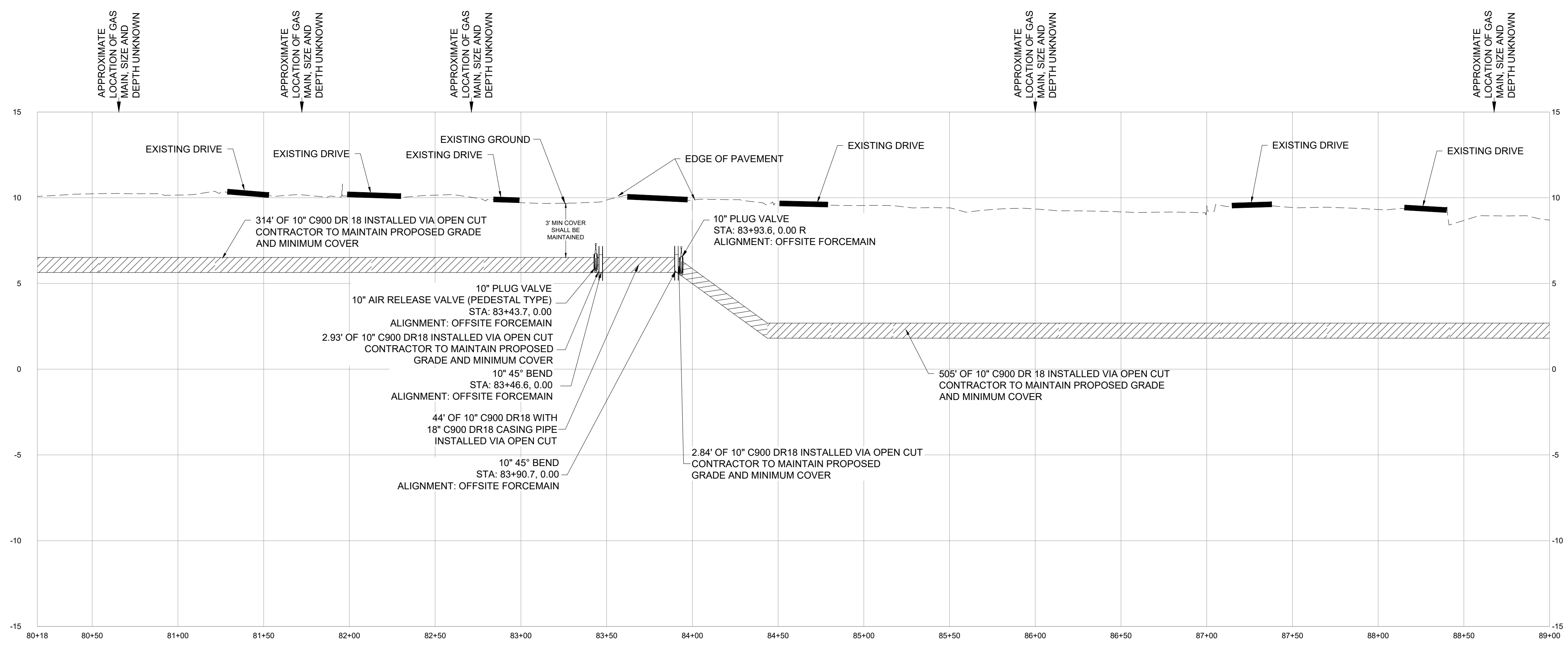
1.	08/17/21 PER IWSC COMMENTS
2.	08/25/21 PER IWSC COMMENTS

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 ST. SIMONS ISLAND, GA 31522
 912-638-9681 OFFICE
 912-289-0339 FAX



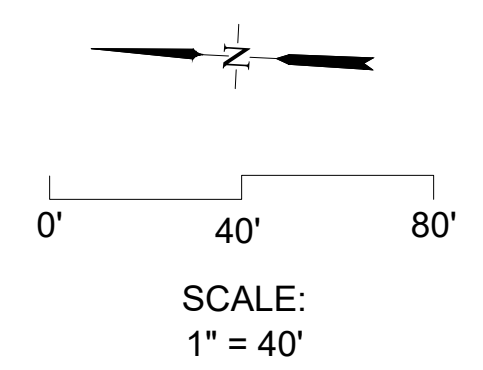
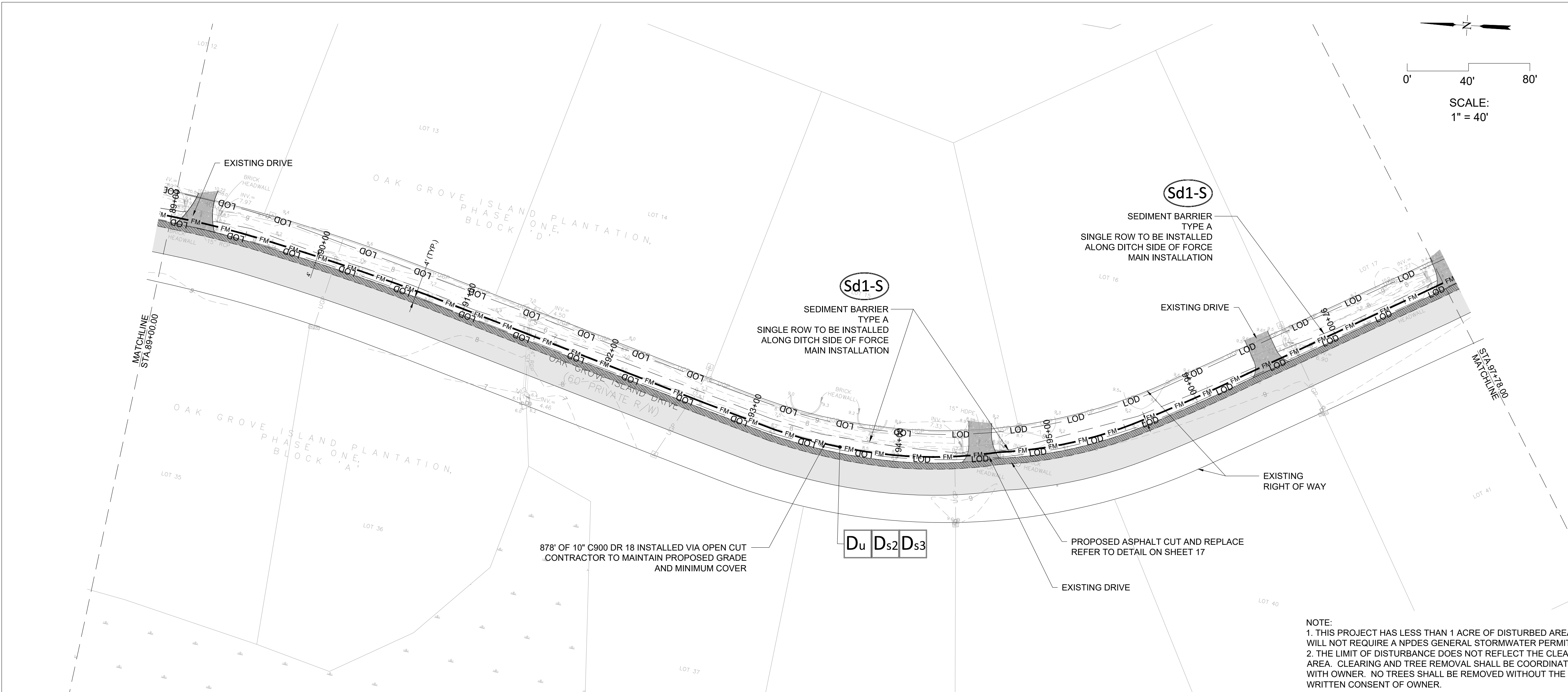
PLAN AND PROFILE
OAK GROVE FORCEMAIN
FINAL ENGINEERING PLANS
 PREPARED FOR:
 Carolina Holdings Group

DATE: 6/29/21
 PROJECT NUMBER: 20129
 DRAWN BY: TL
 CHECKED BY: JM
 SCALE: 1"=40' (FOR 24"x36" PLOT)



FORCEMAIN PROFILE 9
 80+18.00 - 89+00.00
 Vertical Scale: 1" = 4 FT
 Horizontal Scale: 1" = 40 FT





- LEGEND**
- FM FM FM FM PROPOSED FORCEMAIN
 - [Hatched Box] PROPOSED ASPHALT CUT AND REPLACE REFER TO DETAIL ON SHEET 17
 - [Solid Grey Box] EXISTING CONCRETE
 - [Light Grey Box] EXISTING ASPHALT PAVEMENT
 - [Symbol] EXISTING OVERHEAD POWER
 - [Symbol] EXISTING UNDER GROUND GAS
 - [Symbol] EXISTING UNDER GROUND TELEPHONE
 - [Symbol] EXISTING UNDER GROUND POWER
 - [Symbol] EXISTING WATER MAIN
 - [Symbol] EXISTING SEWER LINE
 - [Symbol] EXISTING STORM PIPE
 - [Symbol] EXISTING FENCE
 - [Symbol] EXISTING SPOT ELEVATION
 - [Symbol] EXISTING CONTOUR
 - [Symbol] EXISTING TREE
 - [Symbol] EXISTING ELECTRICAL BOX

- NOTES:**
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- ES&PC LEGEND**
- [Dashed Line] Sd1-S SEDIMENT BARRIER AS NOTED
 - [Box Du] DUST CONTROL
 - [Box Ds2] TEMPORARY SEEDING
 - [Box Ds3] PERMANENT SEEDING
 - [Dotted Line] LIMIT OF DISTURBANCE

NOTE:
 1. THIS PROJECT HAS LESS THAN 1 ACRE OF DISTURBED AREA AND WILL NOT REQUIRE A NPDES GENERAL STORMWATER PERMIT
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08/25/21

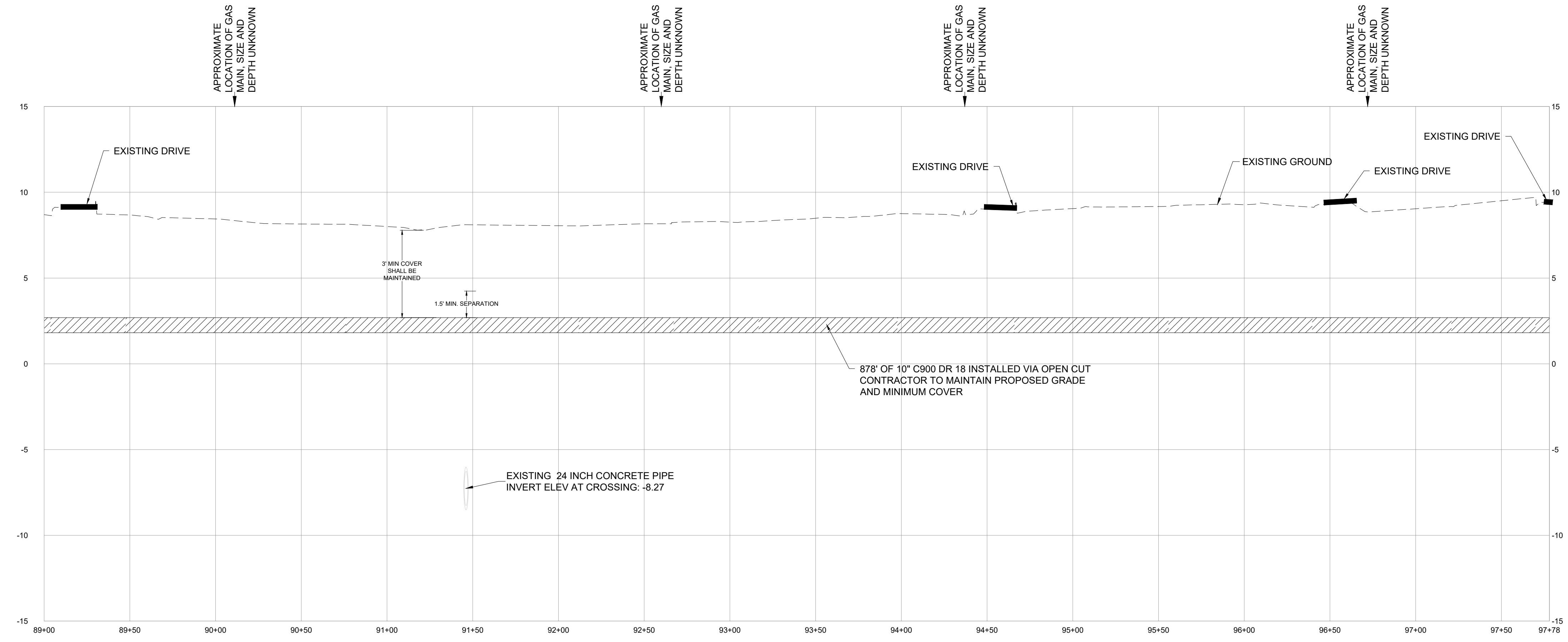
REVISIONS	COMMENTS
1.	08/17/21 PER IWSC COMMENTS
2.	08/25/21 PER IWSC COMMENTS

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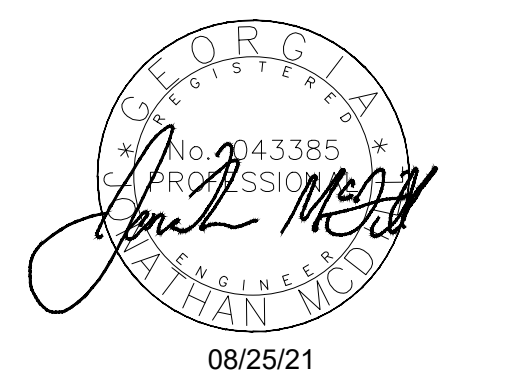
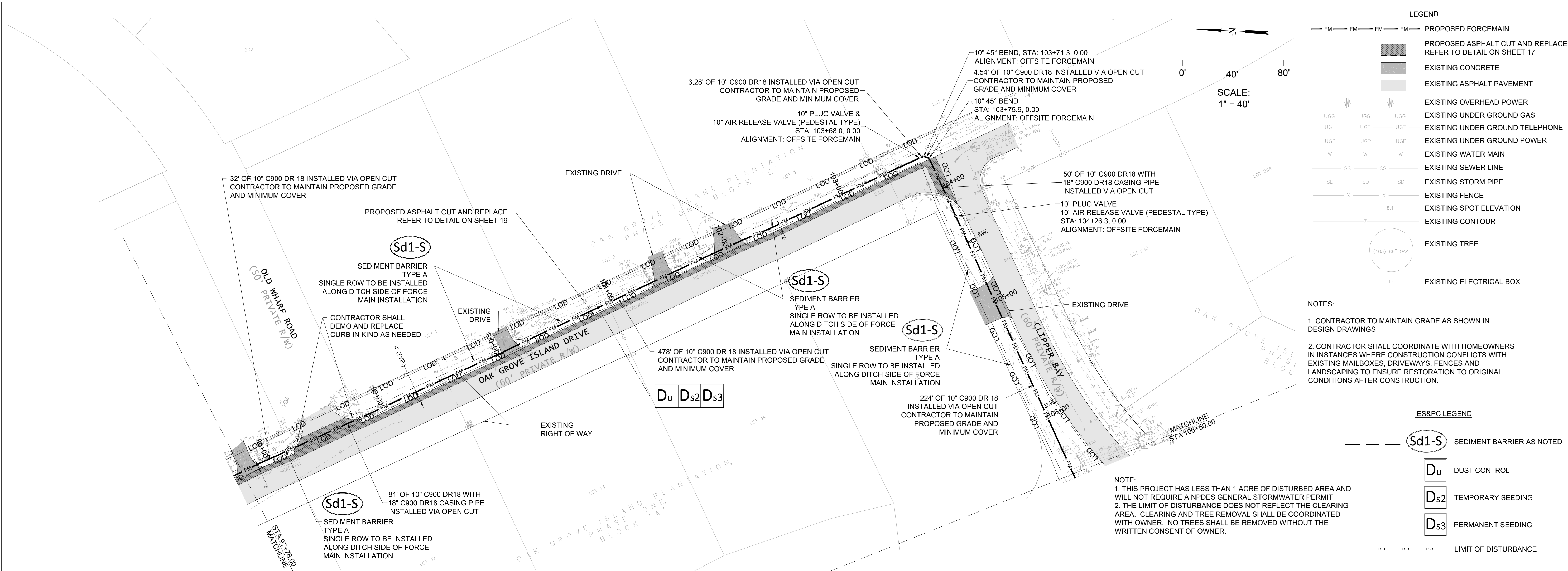
PLAN AND PROFILE
OAK GROVE FORCEMAIN
FINAL ENGINEERING PLANS
 PREPARED FOR:
 Carolina Holdings Group

DATE: 6/29/21
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 DRAWN BY: TL
 CHECKED BY: JM
 SCALE: 1"=40' (FOR 24"x36" PLOT)



FORCEMAIN PROFILE 10
 89+00.00 - 97+78.00
 Vertical Scale: 1" = 4 FT
 Horizontal Scale: 1" = 40 FT





REVISIONS

1.	08/17/21 PER IWSC COMMENTS
2.	08/25/21 PER IWSC COMMENTS



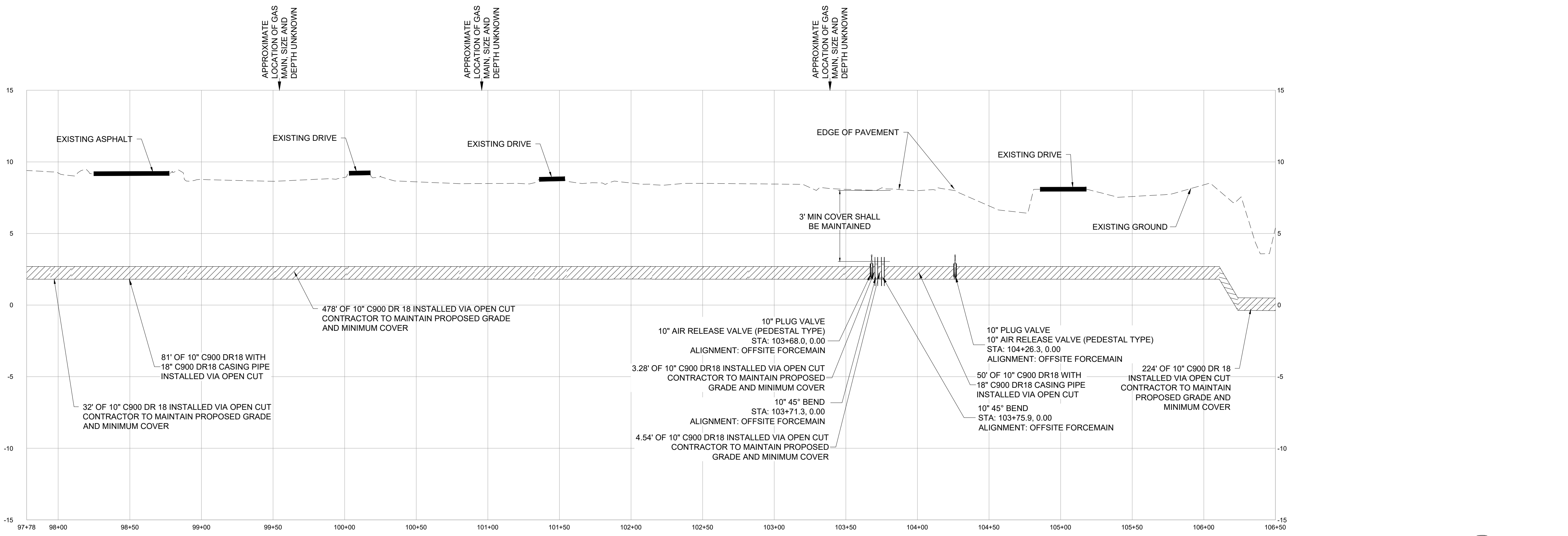
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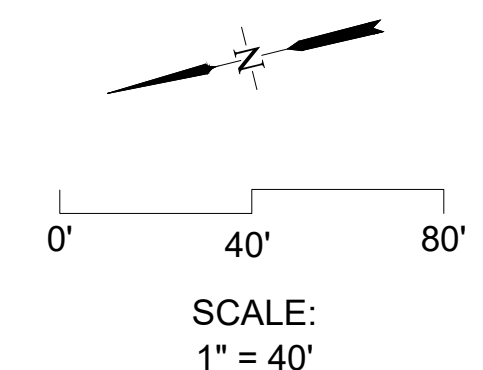
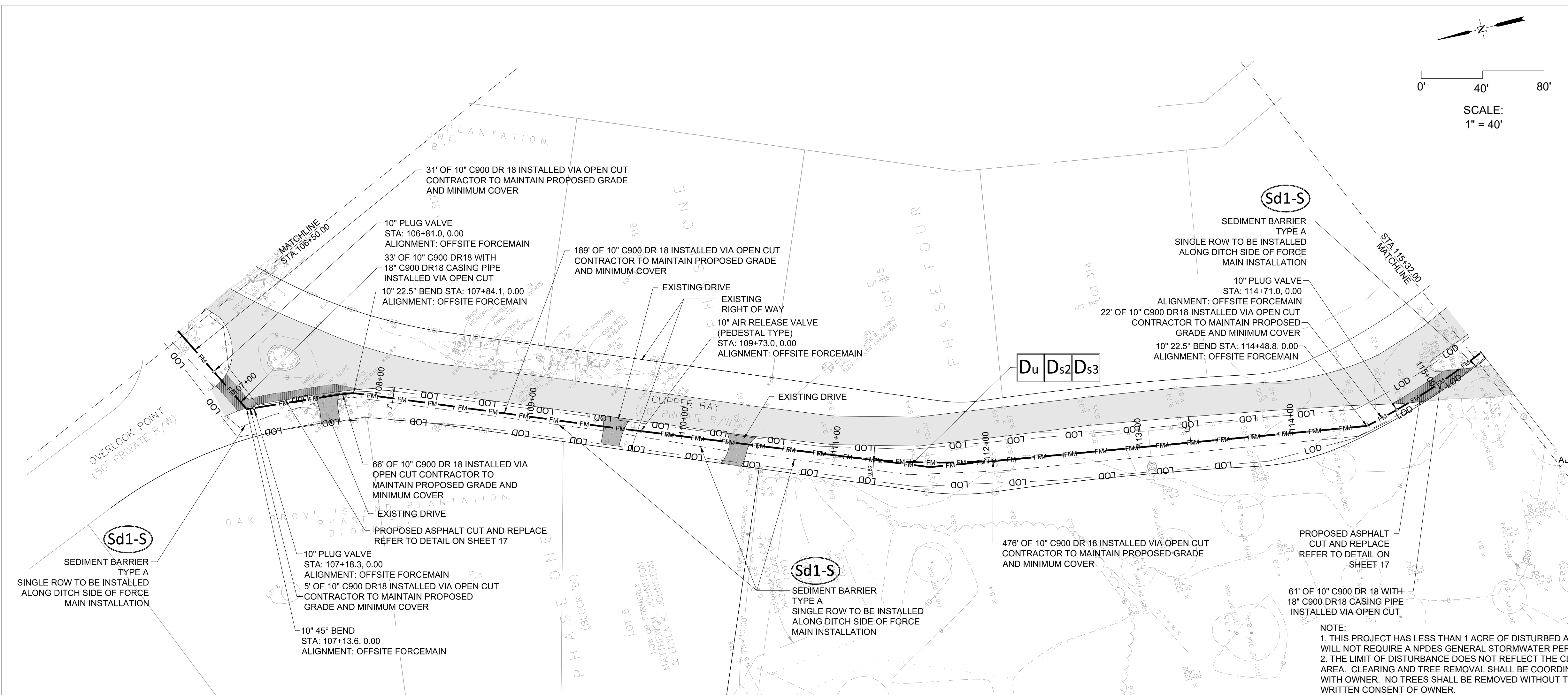
OAK GROVE FORCEMAIN

FINAL ENGINEERING PLANS

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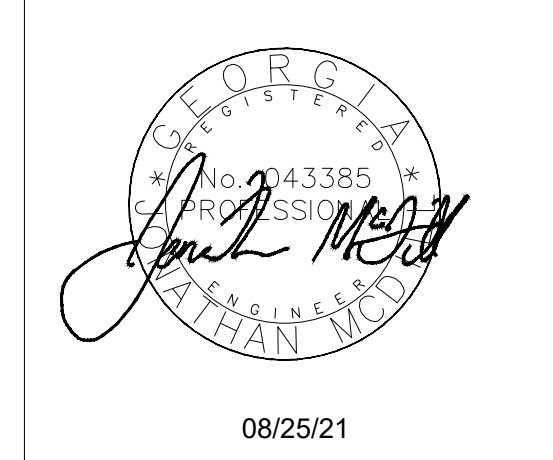
LEGEND

FM	FM	FM	FM	PROPOSED FORCEMAIN
[Hatched Box]				PROPOSED ASPHALT CUT AND REPLACE REFER TO DETAIL ON SHEET 17
[Solid Grey Box]				EXISTING CONCRETE
[Light Grey Box]				EXISTING ASPHALT PAVEMENT
[Dashed Line]				EXISTING OVERHEAD POWER
[Dashed Line]				EXISTING UNDER GROUND GAS
[Dashed Line]				EXISTING UNDER GROUND TELEPHONE
[Dashed Line]				EXISTING UNDER GROUND POWER
[Dashed Line]				EXISTING WATER MAIN
[Dashed Line]				EXISTING SEWER LINE
[Dashed Line]				EXISTING STORM PIPE
[Dashed Line]				EXISTING FENCE
[Dashed Line]				EXISTING SPOT ELEVATION
[Dashed Line]				EXISTING CONTOUR
[Circle]				EXISTING TREE
[Square]				EXISTING ELECTRICAL BOX

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ES&PC LEGEND

[Dashed Line]	Sd1-S	SEDIMENT BARRIER AS NOTED
[Box]	Du	DUST CONTROL
[Box]	Ds2	TEMPORARY SEEDING
[Box]	Ds3	PERMANENT SEEDING
[Dashed Line]	LOD	LIMIT OF DISTURBANCE



REVISIONS

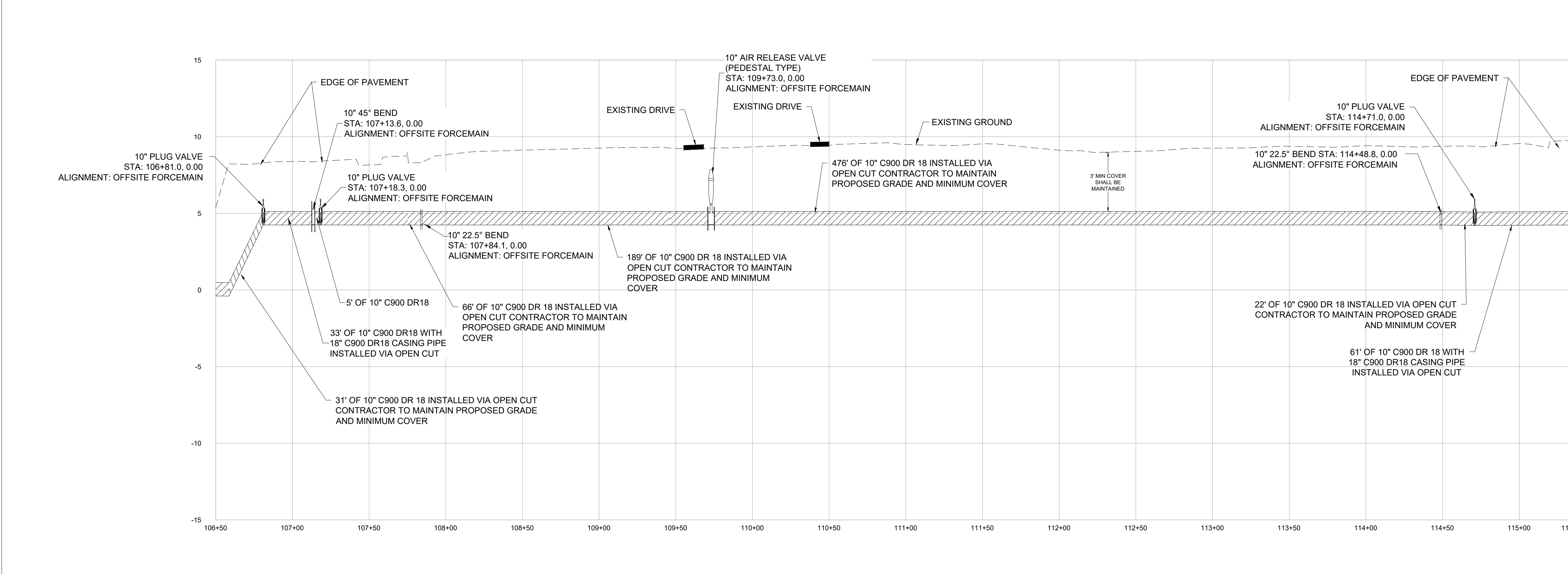
1.	08/17/21	PER IWSC COMMENTS
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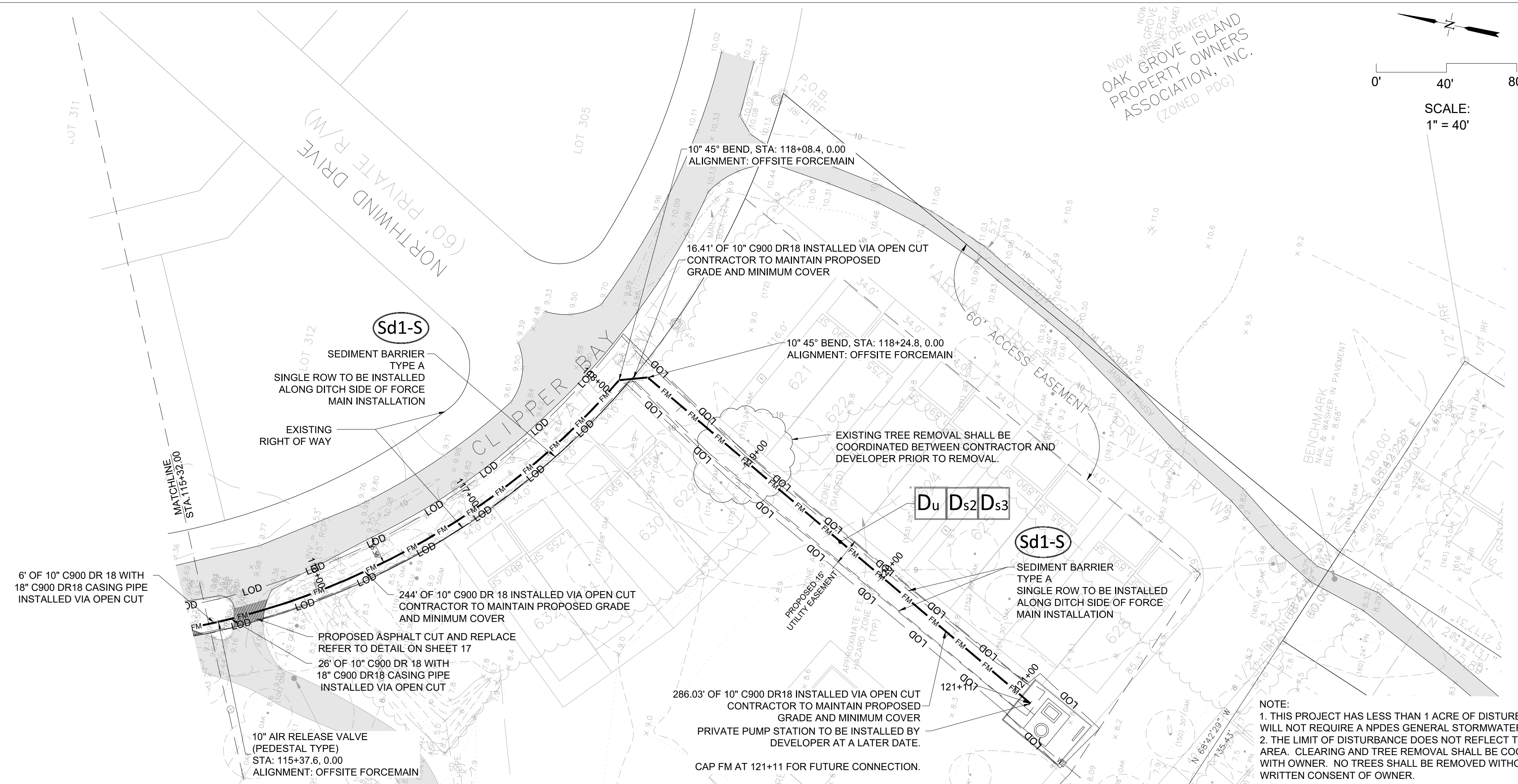
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FORCEMAIN PROFILE 12
 106+50.00 - 115+35.00
 Vertical Scale: 1" = 4 FT
 Horizontal Scale: 1" = 40 FT





LEGEND

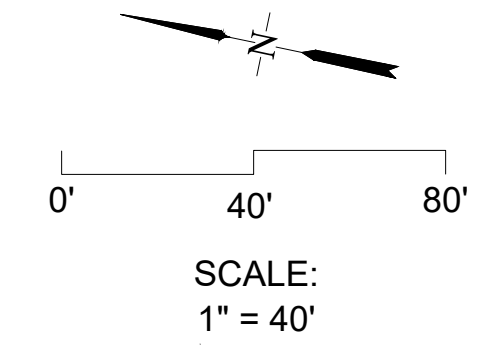
- FM — FM — FM — FM — PROPOSED FORCEMAIN
- ▨ PROPOSED ASPHALT CUT AND REPLACE REFER TO DETAIL ON SHEET 17
- EXISTING CONCRETE
- ▩ EXISTING ASPHALT PAVEMENT
- EXISTING OVERHEAD POWER
- UGG— UGG— UGG— EXISTING UNDER GROUND GAS
- UGT— UGT— UGT— EXISTING UNDER GROUND TELEPHONE
- UGP— UGP— UGP— EXISTING UNDER GROUND POWER
- W— W— W— EXISTING WATER MAIN
- SS— SS— SS— EXISTING SEWER LINE
- SD— SD— SD— EXISTING STORM PIPE
- X— X— X— EXISTING FENCE
- 8.1 EXISTING SPOT ELEVATION
- EXISTING CONTOUR
- (103) 88" OAK EXISTING TREE
- EXISTING ELECTRICAL BOX

NOTES:

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ES&PC LEGEND

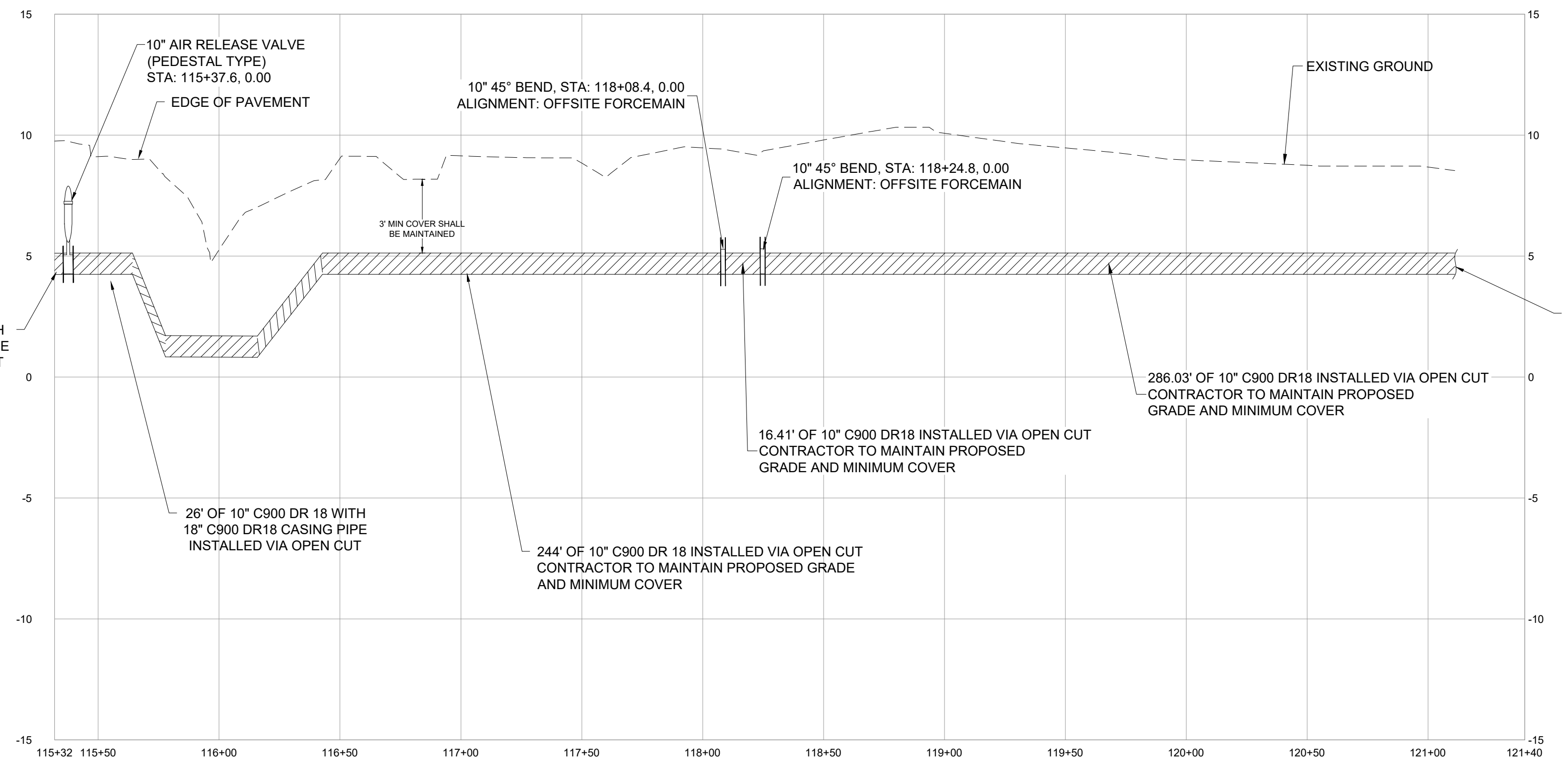
- Sd1-S SEDIMENT BARRIER AS NOTED
- Du DUST CONTROL
- Ds2 TEMPORARY SEEDING
- Ds3 PERMANENT SEEDING
- LOD — LOD — LOD — LIMIT OF DISTURBANCE



REVISIONS

1.	08/17/21 PER IWSC COMMENTS
2.	08/25/21 PER IWSC COMMENTS

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 301 SEA ISLAND ROAD, SUITE 10
 ST. SIMONS, GA 31522
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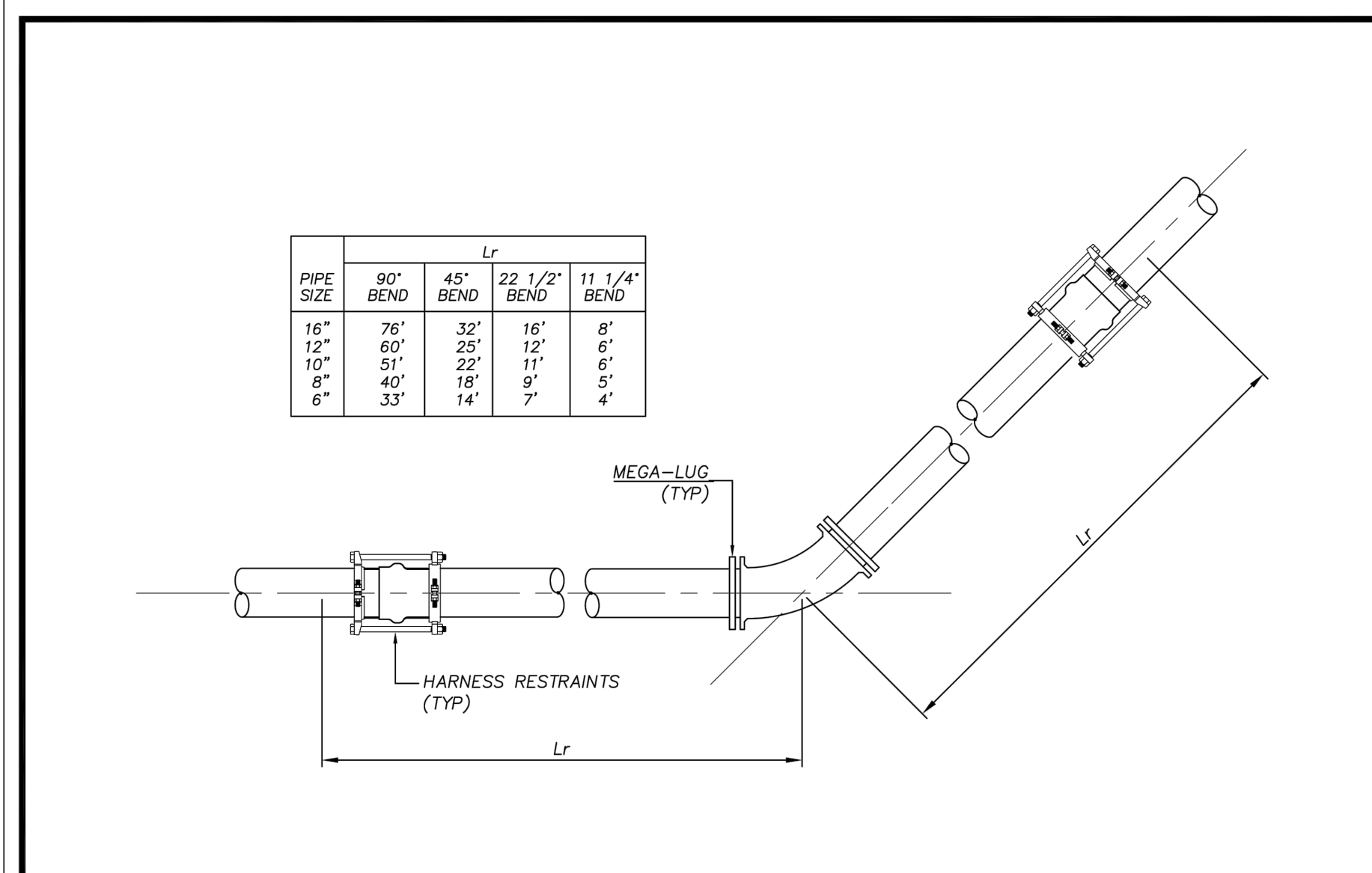


FORCEMAIN PROFILE 13
 115+32.00 - 121+40.00
 Vertical Scale: 1" = 4 FT
 Horizontal Scale: 1" = 40 FT

PLAN AND PROFILE
OAK GROVE FORCEMAIN
FINAL ENGINEERING PLANS
 PREPARED FOR:
 Carolina Holdings Group

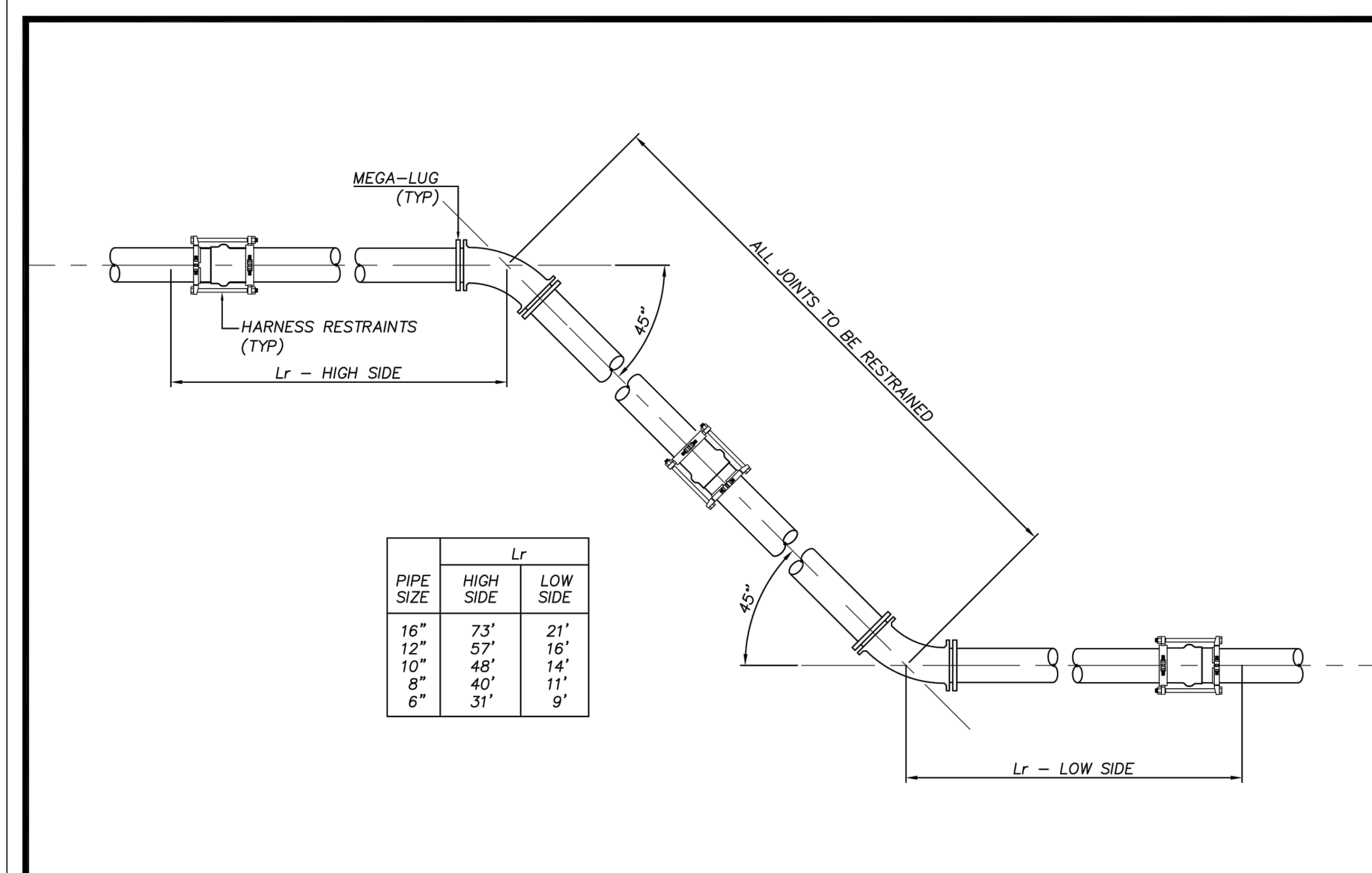
DATE: 6/29/21
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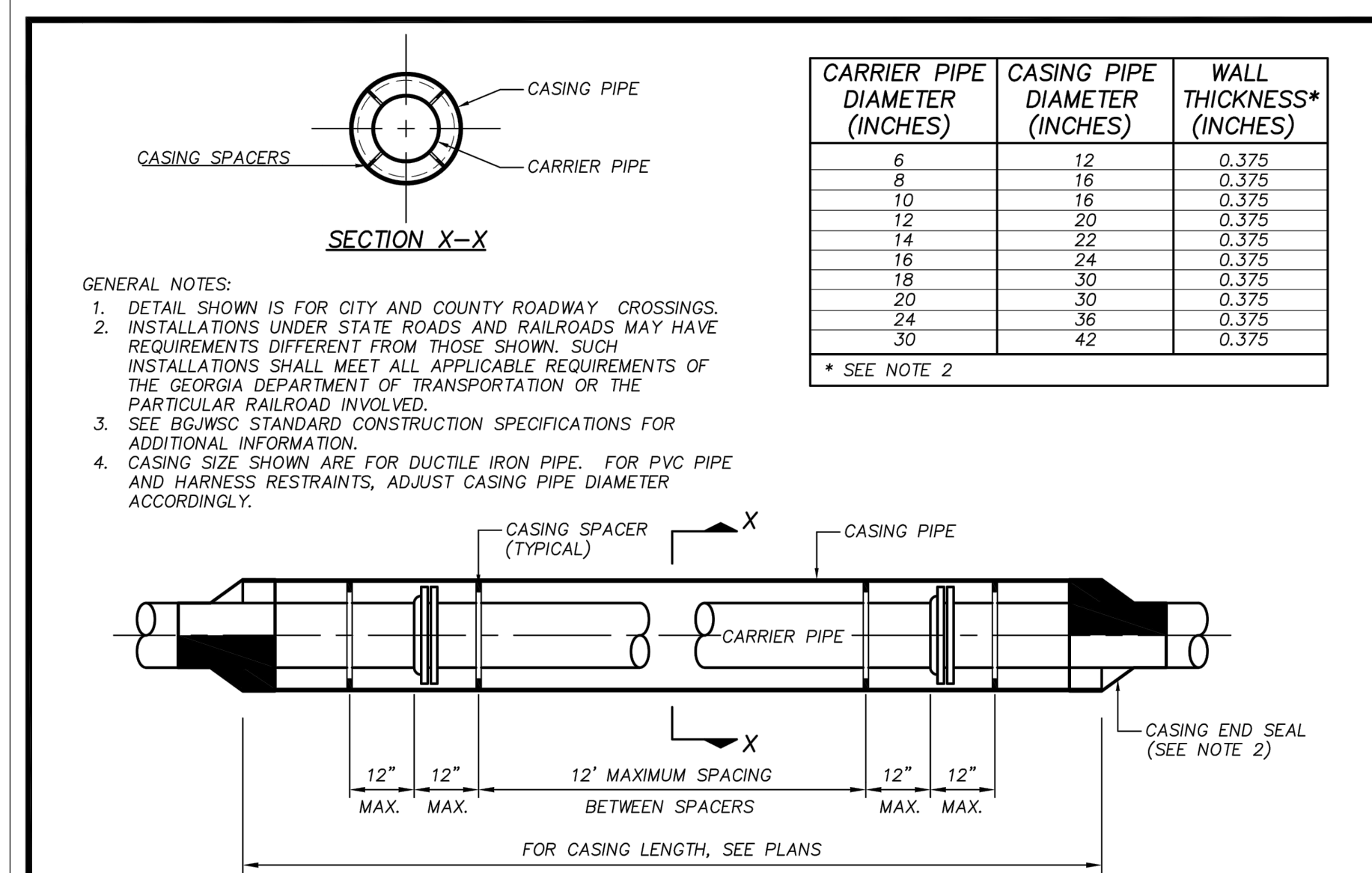
BRUNSWICK-GLYNN COUNTY JOINT WATER & SEWER COMMISSION
700 Gloucester Street, Suite 300 Brunswick, Georgia 31520
Phone: (912) 261-7110 Fax: (912) 261-7178 Website: www.bgjwsc.org

PVC JOINTS RESTRAINTS - HORIZONTAL BEND
JWSC STANDARD DETAIL 2-4
Date: AUGUST 2011



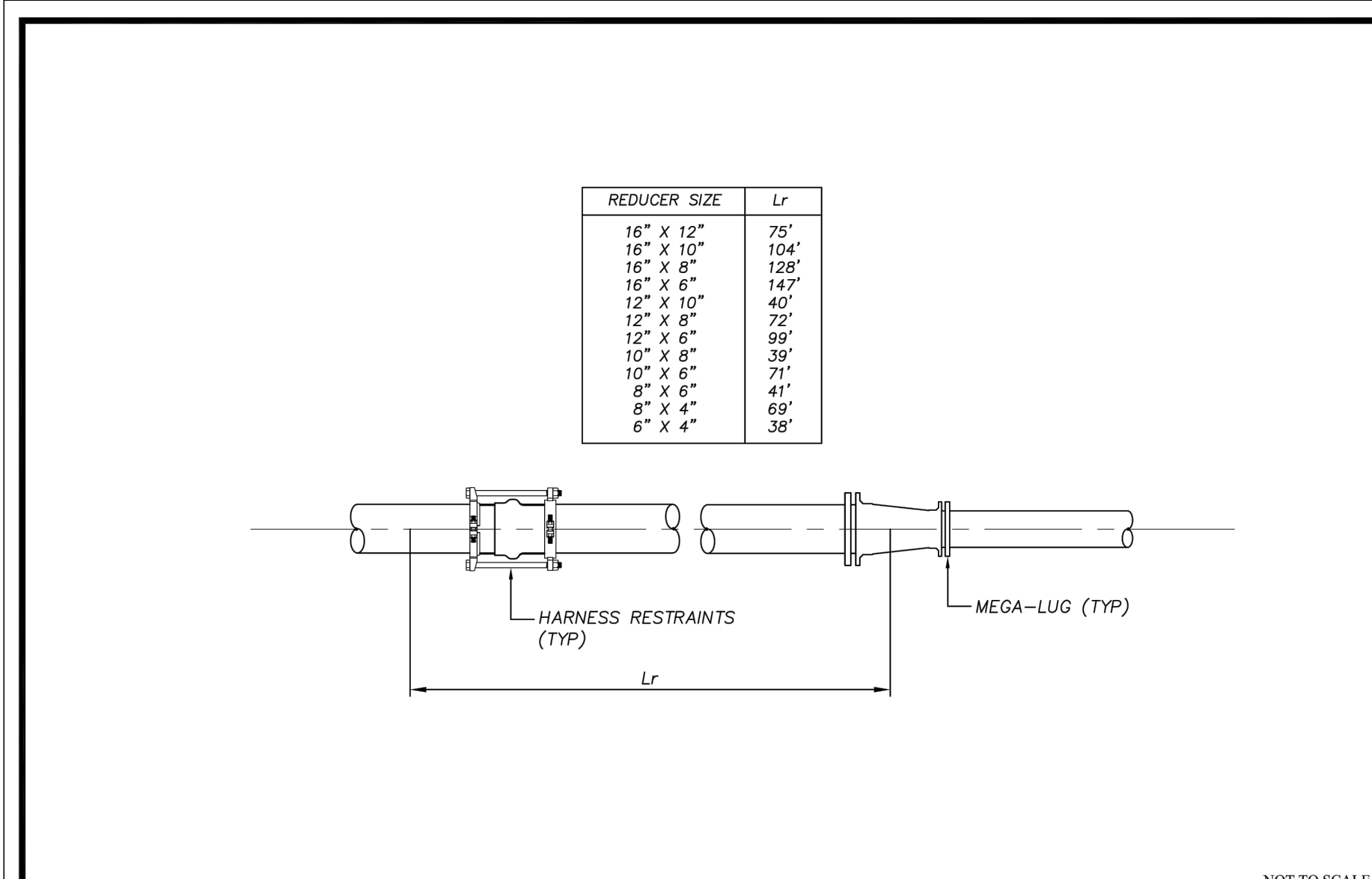
BRUNSWICK-GLYNN COUNTY JOINT WATER & SEWER COMMISSION
700 Gloucester Street, Suite 300 Brunswick, Georgia 31520
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PVC JOINTS RESTRAINTS - VERTICAL OFFSET
JWSC STANDARD DETAIL 2-7
Date: AUGUST 2011



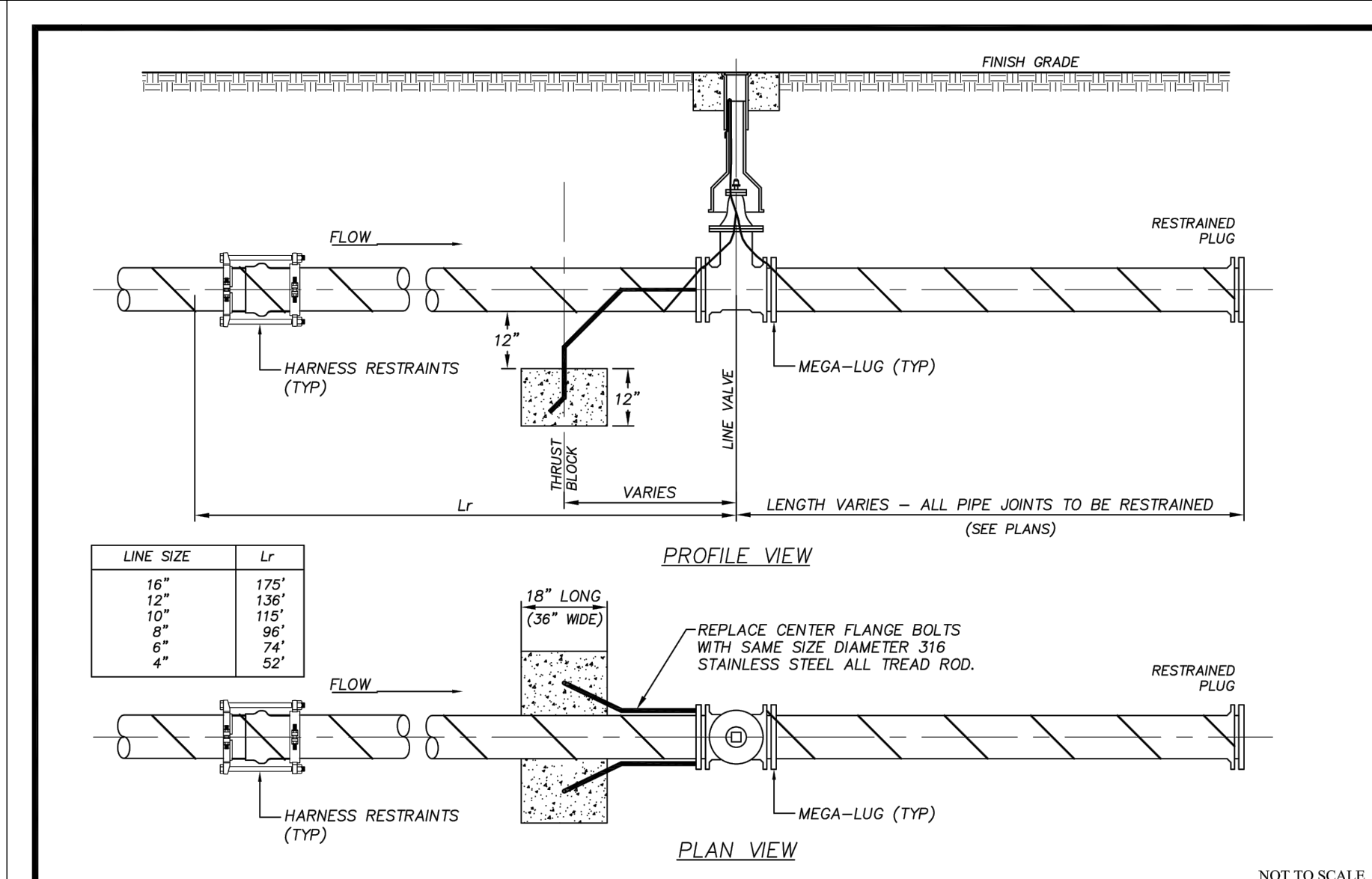
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700 Gloucester Street, Suite 300 Brunswick, Georgia 31520
Phone: (912) 261-7110 Fax: (912) 261-7178 Website: www.bgjwsc.org

STEEL CASING AND CARRIER PIPE INSTALLATION
JWSC STANDARD DETAIL 2-10
Date: AUGUST 2011



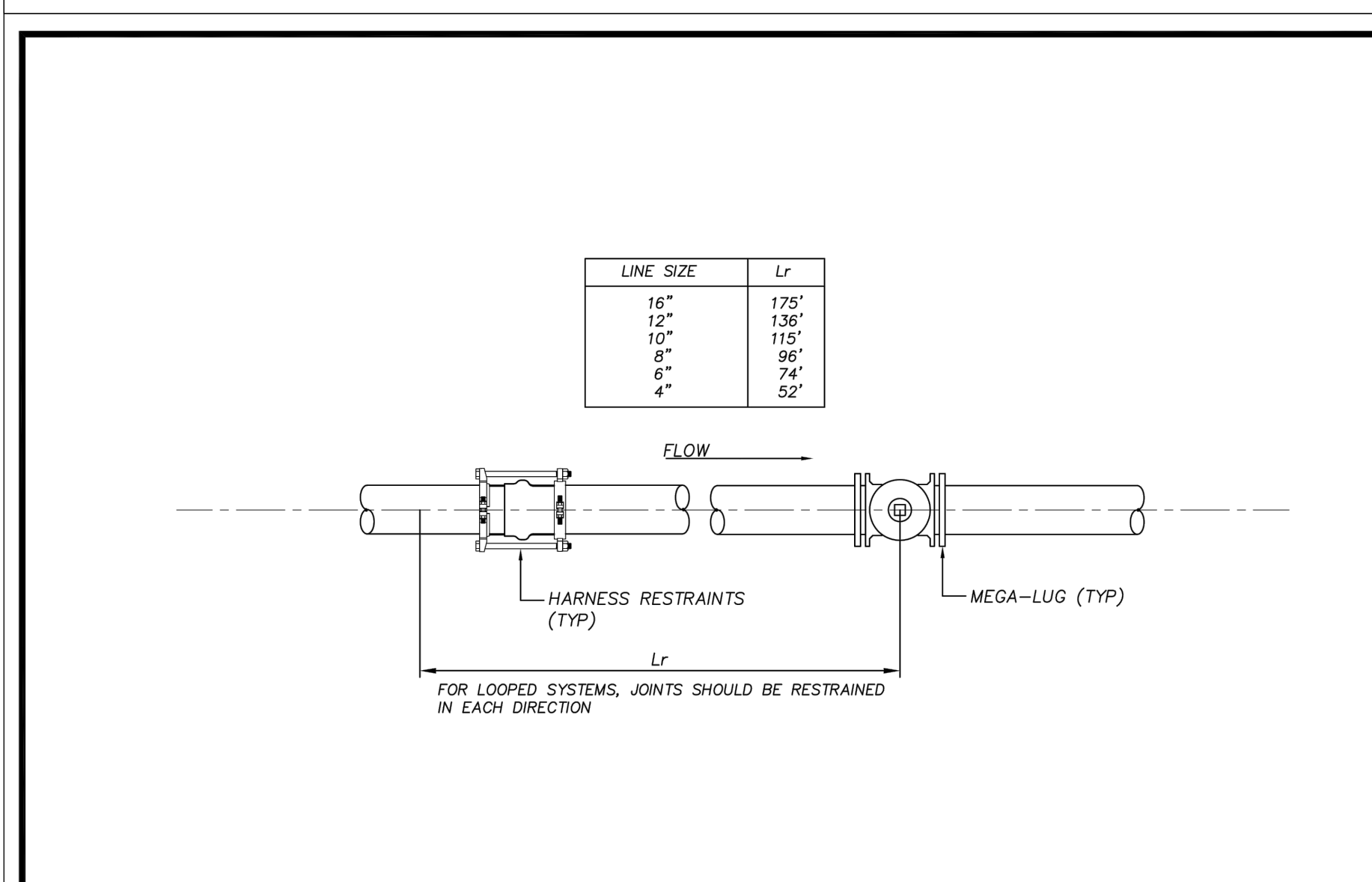
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PVC JOINTS RESTRAINTS - REDUCER
JWSC STANDARD DETAIL 2-5
Date: AUGUST 2011



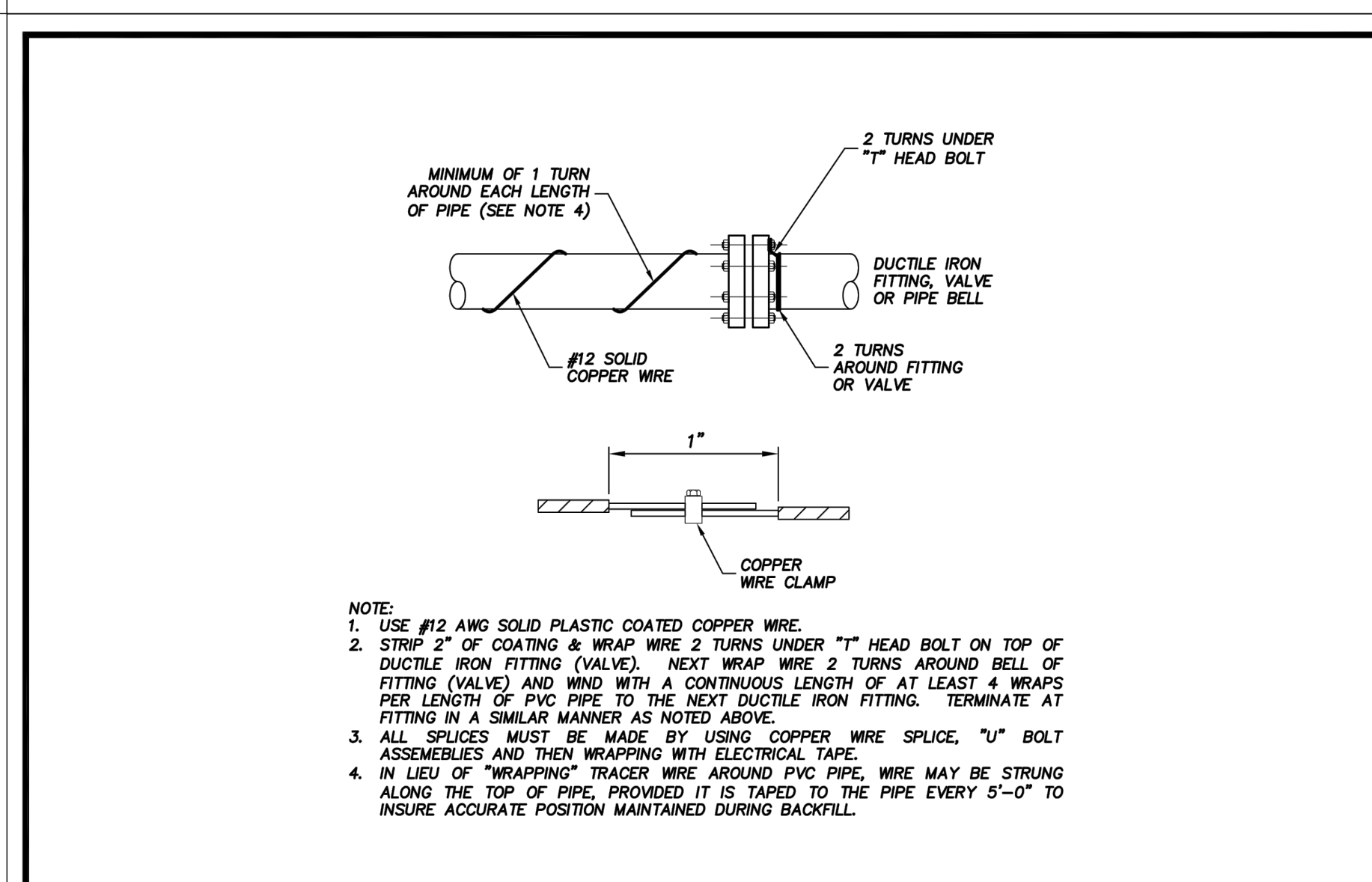
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PVC JOINTS RESTRAINTS - TEMPORARY DEAD END
JWSC STANDARD DETAIL 2-8
Date: DECEMBER 2017



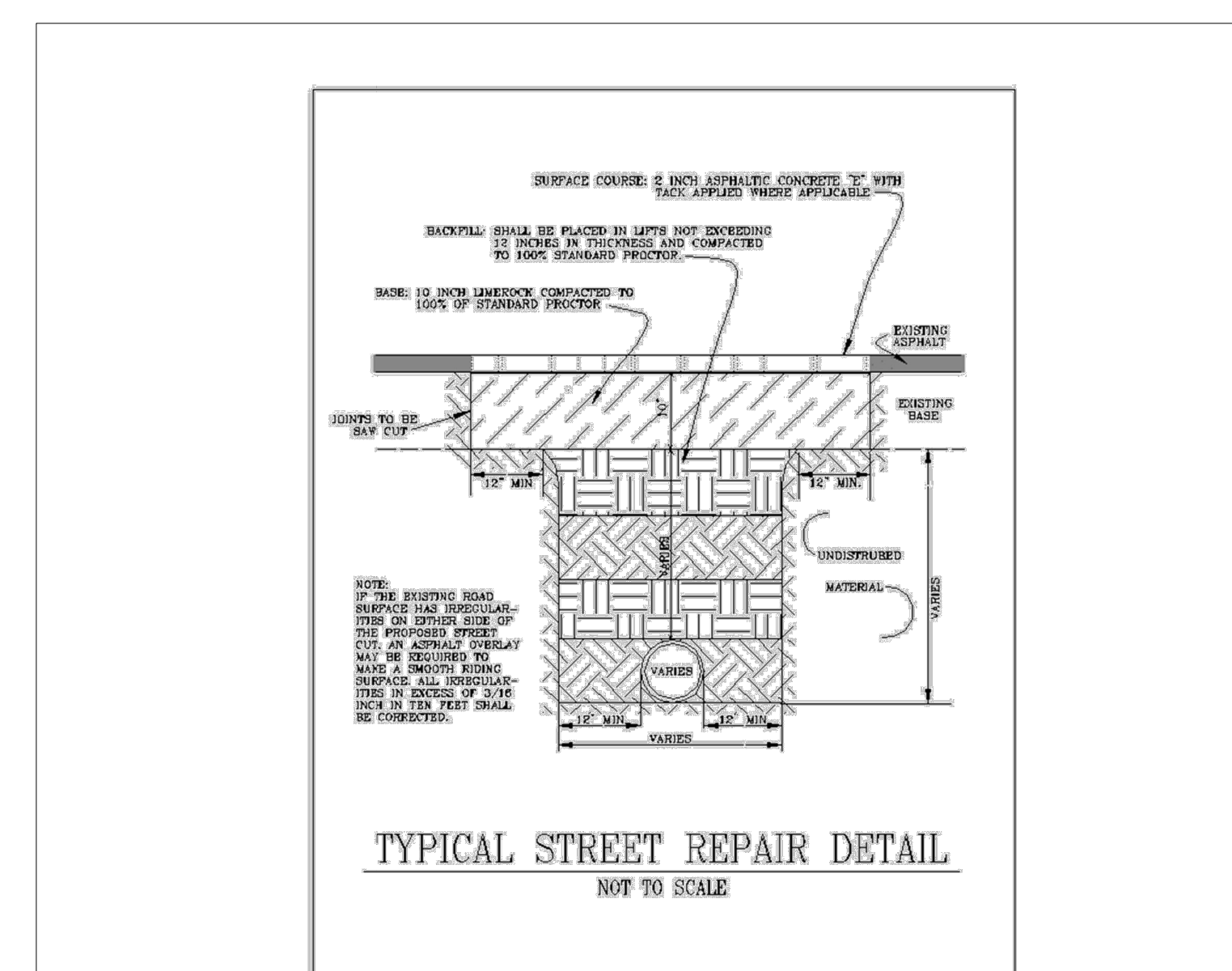
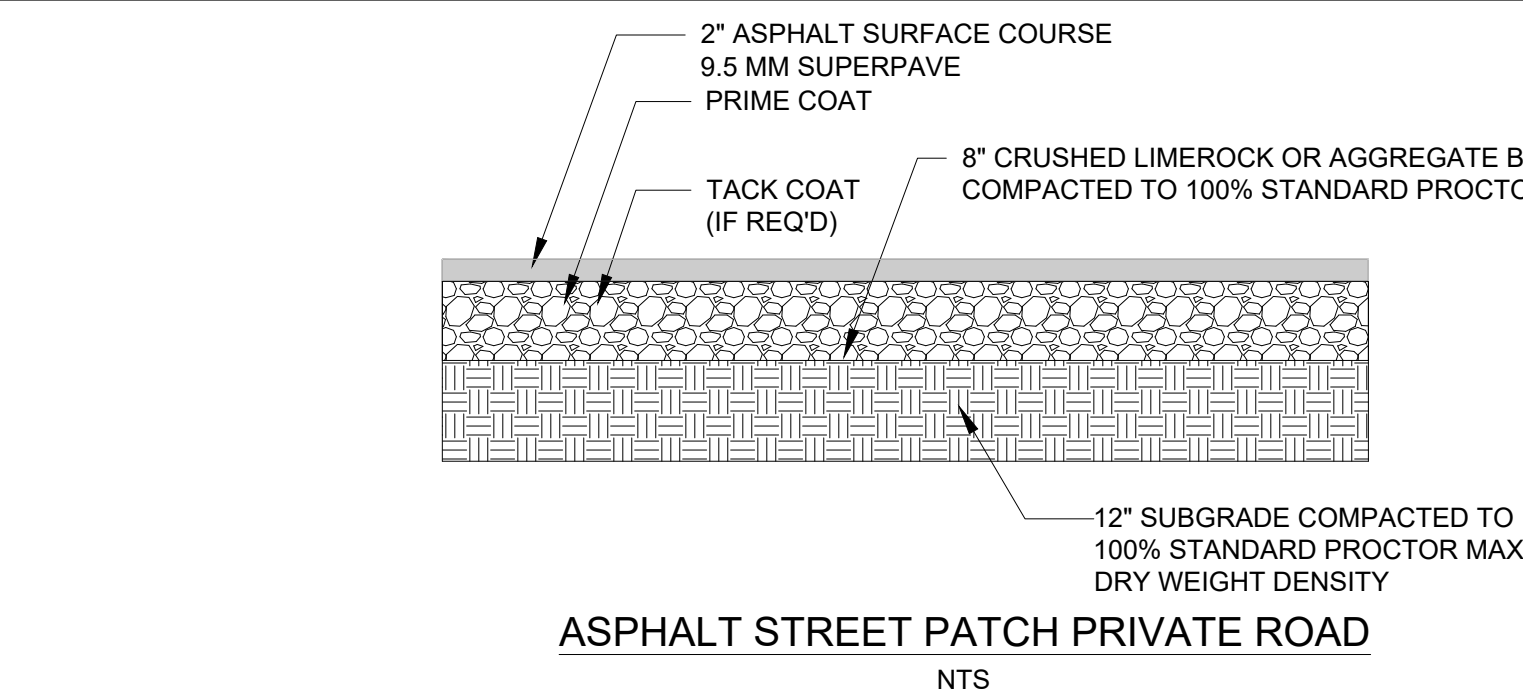
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Phone: (912) 261-7110 Fax: (912) 261-7178 Website: www.bgjwsc.org

PVC JOINTS RESTRAINTS - IN-LINE VALVE
JWSC STANDARD DETAIL 2-6
Date: AUGUST 2011



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Phone: (912) 261-7110 Fax: (912) 261-7178 Website: www.bgjwsc.org

TRACER WIRE INSTALLATION
JWSC STANDARD DETAIL 2-9
Date: AUGUST 2011



ASPHALT STREET PATCH PUBLIC ROAD & CROSSINGS

Road repair requirements: Glynn County Right-Of-Way Coordinator must review road cut and approve final dimensions of area to be paved prior to final paving. All road cuts must be neatly square cut and perpendicular to the lines and general direction of the road way and a minimum of 12' beyond final disturbed area. Entire width of lane is to be repaved for road cuts that are up to or exceeds half the distance of the lane. Entire width of road is to be repaved for road cuts that are up to or exceeds half the distance of the road. Road must be repaired as outline below per the standard Glynn County road repair detail within 30 days after road is cut including any applicable road striping. Compaction test are required to ensure 100% compaction of backfill and base material. Compaction test results must be forwarded to Glynn County Right-Of-Way Coordinator reflecting two results of the backfill and base material.

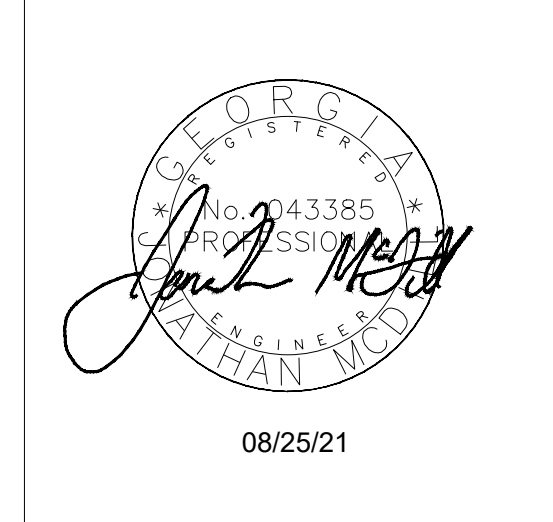
Cuts exceeding 150 feet in length, the base material shall be brought flush to the bottom of the existing pavement, existing pavement shall be saw cut to a straight edge and the entire width of the roadway resurfaced with a minimum of 1" of type "E" asphalt topping.

Depending on existing road condition, tie in points may require additional milling and blending as determined by Glynn County staff.

Depending on the existing conditions and location of the road cut, flowable fill may be required as backfill material. To be determined by Glynn County Staff.

Typical Street Repair Detail requirements

- (1) Existing road bed will be cut twelve (12) inches beyond the disturbed area on each side. Disturbed areas will be compacted as noted below.
- (2) Subgrade shall be placed in lifts not to exceed twelve (12) inches in thickness and compacted to one hundred percent (100%) standard proctor.
- (3) A base of ten (10) inches of lime rock compacted to one hundred percent (100%) standard proctor.
- (4) An asphaltic concrete "E" with tack applied is required. A surface course thickness shall be determined during the permit process.
- (5) Concrete materials shall not be used on asphalt roads.



08/25/21

REVISIONS

1. 08/17/21 PER IWSC COMMENTS
2. 08/25/21 PER IWSC COMMENTS

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CONSTRUCTION DETAILS

OAK GROVE FORCEMAIN

FINAL ENGINEERING PLANS

PREPARED FOR:
Carolina Holdings Group

DATE: 6/29/21

PROJECT NUMBER: 20129

DRAWN BY: TL

CHECKED BY: JM

SCALE: 1"=40' (FOR 24"x36" PLOT)

17

SHEET:

CARRIER PIPE DIAMETER (INCHES)	CARRIER PIPE OD DIAMETER (INCHES)	CASING PIPE DIAMETER (INCHES)	CASING PIPE ID DIAMETER (INCHES)	WALL THICKNESS* (INCHES)
4	4.95	10	7.75	0.925
6	6.95	12	11.65	0.925
8	8.95	14	13.55	0.925
10	10.95	16	15.35	0.925
12	12.90	18	17.25	1.000
14	14.90	20	19.15	1.000
16	16.85	24	22.75	1.430
18	18.85	28	26.35	1.430
20	20.80	30	28.75	1.500
24	24.80	36	34.43	1.500
30*	32.00	36*	34.43	1.820

GENERAL NOTES:
 1. DETAIL SHOWN IS FOR STATE ROADWAY CROSSINGS.
 2. INSTALLATIONS UNDER CITY OF BRUNSWICK AND GLYNN COUNTY ROADS MAY HAVE REQUIREMENTS DIFFERENT FROM THOSE SHOWN. INSTALLATIONS SHALL MEET ALL APPLICABLE REQUIREMENTS OF THE GEORGIA DEPARTMENT OF TRANSPORTATION.
 3. SEE BGJWSC STANDARD CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 4. CASING SIZES SHOWN ARE FOR C-905 FPVC. CARRIER PIPE SIZES ARE FOR C-905 FPVC DR18 UNLESS OTHERWISE NOTED. CASINGS AND CARRIER PIPE SHALL BE BLUE OR GREEN IN COLOR.

FOR CASING LENGTH, SEE PLANS

NOT TO SCALE

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 1703 Gloucester Street Brunswick, Georgia 31520 Phone: (912) 261-7110 Fax: (912) 261-7178 Website: www.bgjwsc.org

FPVC CASING AND C905 CARRIER PIPE INSTALLATION
 JWSC STANDARD DETAIL 2-10A
 JANUARY 2017

EXISTING JWSC FORCE MAIN (3-INCHES OR LARGER)

SS FLANGED TAPPING SLEEVE

DIP/PVC

RESILIENT WEDGE GATE VALVE

MJ REDUCER

RIGHT-OF-WAY/EASEMENT PRIVATE

NEW FORCE MAIN SIZE TO BE DETERMINED BY ENGINEER OF RECORD

FLOW

HOMEOWNER/DEVELOPER OWNERSHIP

NOT TO SCALE

BRUNSWICK-GLYNN COUNTY JOINT WATER & SEWER COMMISSION
 1703 Gloucester Street Brunswick, Georgia 31520 Phone: (912) 261-7110 Fax: (912) 261-7178 Website: www.bgjwsc.org

FORCE MAIN CONNECTION TO EXISTING FORCEMAIN - 3" OR LARGER
 JWSC STANDARD DETAIL 4-10
 SEPTEMBER 2019

NOTES:
 1. BRANCH VALVE AND NEW FORCE MAIN TO BE THE SAME SIZE AS EXISTING FORCE MAIN UP TO REDUCER.
 2. DIRECTION OF BRANCH TO BE DETERMINED BY JWSC.
 3. ALL VALVE BOX LIDS TO BE STAMPED SEWER.
 4. RESILIENT WEDGE GATE VALVE MUST BE INSTALLED NO GREATER THAN +/- 12-INCHES FROM R/W OR EASEMENT LINE.

GROUND

FINAL BACKFILL

UNDISTURBED EARTH

INITIAL BACKFILL

HAUNCHING

WATER MAIN

9" PIPE O.D.

3.0' MINIMUM COVER

3.5' UNDER PAVEMENT

NOTE:
 PIPE TO BE INSTALLED ON UNDISTURBED SOIL OR SUITABLE SOIL COMPACTED TO 98% MAXIMUM DENSITY. BELL HOLE SHALL BE DUG TO PERMIT THE ENTIRE STRAIGHT BARREL OF PIPE TO REST ON UNDISTURBED TRENCH BOTTOM.
 STONES FOUND IN THE TRENCH SHALL BE REMOVED FOR A DEPTH OF AT LEAST (SINCE) INCHES BELOW THE BOTTOM OF THE PIPE.

NOT TO SCALE

BRUNSWICK-GLYNN COUNTY JOINT WATER & SEWER COMMISSION
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PRESSURE PIPE TRENCH DETAIL
 JWSC STANDARD DETAIL 2-1
 JUNE 2017

08/25/21

REVISIONS
 1. 08/17/21 PER JWSC COMMENTS
 2. 08/25/21 PER JWSC COMMENTS

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Figure 6H-6. Shoulder Work with Minor Encroachment (TA-6)

ROAD WORK AHEAD

END ROAD WORK

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Work vehicle

Truck-mounted attenuator (optional)

10 ft MIN.

Buffer space (optional)

1/3 L

A

Typical Application 6

Notes for Figure 6H-7—Typical Application 7
 Road Closure with a Diversion

Support:
 1. Signs and object markers are shown for one direction of travel only.

Standard:
 2. Devices similar to those depicted shall be placed for the opposite direction of travel.
 3. Pavement markings no longer applicable to the traffic pattern of the roadway shall be removed or obliterated before any new traffic patterns are open to traffic.
 4. Temporary barriers and end treatments shall be crashworthy.

Guidance:
 5. If the tangent distance along the temporary diversion is more than 600 feet, a Reverse Curve sign, left first, should be used instead of the Double Reverse Curve sign, and a second Reverse Curve sign, right first, should be placed in advance of the second reverse curve back to the original alignment.
 6. When the tangent section of the diversion is more than 600 feet, and the diversion has sharp curves with recommended speeds of 30 mph or less, Reverse Turn signs should be used.
 7. Where the temporary pavement and old pavement are different colors, the temporary pavement should start on the tangent of the existing pavement and end on the tangent of the existing pavement.

Option:
 8. Flashing warning lights and/or flags may be used to call attention to the warning signs.
 9. On sharp curves, large arrow signs may be used in addition to other advance warning signs.
 10. Delineators or channelizing devices may be used along the diversion.

NOTES:
 1. PIPING, NIPPLES, PLUGS & BALL VALVES AND TAPPING SADDLES TO BE 316 SERIES STAINLESS STEEL OR AS NOTED.
 2. 36" MINIMUM COVER ON HDPE TUBING TO WITHIN 12" OF PEDESTAL.
 3. VALVE SHALL BE INSTALLED WITH A TWO-PIECE CAST IRON VALVE BOX, COVER WITH "SEWER" STAMPED ON IT, AND PRECAST CONCRETE MARKER, UNLESS VALVE IS LOCATED IN DITCH, IN WHICH CASE A MARKER LOCATING VALVE IS STILL REQUIRED.
 4. LOCATION OF ANY PEDESTAL SHALL BE APPROVED BY JWSC AND GLYNN COUNTY PRIOR TO INSTALLATION.

CHANNEL MODEL SIGNATURE SERIES PEDESTAL HOUSING P/N SPH 1420 COLOR - GREEN WITH ANTI-INSECT VENTS

SS POST WITH S.S. HARDWARE AND S.S. LOCKING HASP WITH BRASS LOCK

2" ARI SINGLE FUNCTION AIR RELEASE VALVE FOR SEWAGE - "SAAR" SHORT VERSION NYLON BODY OR JWSC APPROVED EQUAL

2" S.S. PIPING

1PT X COMP PACK JOINT

2" S.S. LEVERED BALL VALVE

CLEAN NO. 57 STONE

2" X 1" S.S. TEE, 1 S.S. LEVERED BALL VALVE

3" WIDE TRACER WIRE

TRACER WIRE 12 GAUGE

HDPE ADAPTER

30" MAX HEIGHT

24" MIN.

2" HDPE TUBING 1/2" MINIMUM SLOPE UP

2" GATE VALVE N.P.T. X HDPE ADAPTER WITH VALVE BOX ASSEMBLY

SS TAPPING SADDLE

SS NIPPLE

SS STREET ELBOW

HDPE ADAPTER

#57 STONE

PRESSURE MAIN

NOT TO SCALE

BRUNSWICK-GLYNN COUNTY JOINT WATER & SEWER COMMISSION
 1703 Gloucester Street Brunswick, Georgia 31520 Phone: (912) 261-7110 Fax: (912) 261-7178 Website: www.bgjwsc.org

SEWER AIR RELEASE VALVE PEDESTAL ASSEMBLY DETAIL
 JWSC STANDARD DETAIL 4-4A
 JANUARY 2017

FINISHED GRADE

PROPOSED WATER MAIN

18" MN STORM SEWER X-WG

18" MN SANITARY SEWER X-WG

EXISTING CONFLICT PIPE

OVER

UNDER

BELL RING (TYP.)

PROPOSED WATER MAIN SIZE & TYPE VARIES

MEGA-LUG JOINT RESTRAINT (TYP.)

EXISTING CONFLICT PIPE

DRIFTY VENTS

18" MN STORM SEWER

18" MN SANITARY SEWER

STAINLESS STEEL 316 OR 304 ROD W/ NUTS & LOCK WASHER, LENGTH AS REQUIRED (TYP.)

45° BEND

1/2 OD +/- 3" MIN

1/2 OD +/- 3" MIN

MAIN DIAMETER	NUMBER OF THE SIZE OF RODS REQUIRED	SIZE OF RODS
3" to 8"	2	3/4"
10" to 12"	4	3/4"
14" to 16"	6	3/4"

NOT TO SCALE

BRUNSWICK-GLYNN COUNTY JOINT WATER & SEWER COMMISSION
 700 Gloucester Street, Suite 300 Brunswick, Georgia 31520 Phone: (912) 261-7110 Fax: (912) 261-7178 Website: www.bgjwsc.org

UTILITY CONFLICT DETAIL
 JWSC STANDARD DETAIL 2-2
 NOVEMBER 2015

18" SQUARE

CAST IRON COVER (MARKED WATER)

FINISH GRADE

2-PIECE SCREW TYPE CAST IRON VALVE BOX

TRACER WIRE RUN WIRE OUTSIDE BOX

BRICK COLLAR

PRECAST COLLAR

GATE VALVE

POURED-IN-PLACE COLLAR

NOT TO SCALE

BRUNSWICK-GLYNN COUNTY JOINT WATER & SEWER COMMISSION
 700 Gloucester Street, Suite 300 Brunswick, Georgia 31520 Phone: (912) 261-7110 Fax: (912) 261-7178 Website: www.bgjwsc.org

WATER VALVE DETAIL
 JWSC STANDARD DETAIL 2-13
 AUGUST 2011

1. SET TOP OF CONCRETE COLLAR FLUSH WITH FINISH GRADE (OR LANDSCAPING). NO CONCRETE COLLAR IS REQUIRED IN PAVED AREAS.
 2. THE VALVE BOX SHALL NOT REST ON TOP OF VALVE.
 3. PRECAST CONCRETE COLLARS MAY BE USED UPON APPROVAL OF THE BGJWSC REPRESENTATIVE. SEE ALTERNATE DETAIL ABOVE.

TEE SIZE (RUN X BRANCH)

TEE SIZE (RUN X BRANCH)	Lr RUN	Lr BRANCH
16" X 16"	5'	142'
16" X 12"	5'	90'
16" X 10"	5'	62'
16" X 8"	5'	35'
12" X 12"	5'	106'
12" X 10"	5'	79'
12" X 8"	5'	51'
12" X 6"	5'	19'
10" X 10"	5'	87'
10" X 8"	5'	60'
10" X 6"	5'	28'
8" X 8"	5'	69'
8" X 6"	5'	38'

HARNESS RESTRAINTS (TYP.)

MEGA-LUG (TYP.)

Lr - RUN

Lr - BRANCH

NOT TO SCALE

BRUNSWICK-GLYNN COUNTY JOINT WATER & SEWER COMMISSION
 700 Gloucester Street, Suite 300 Brunswick, Georgia 31520 Phone: (912) 261-7110 Fax: (912) 261-7178 Website: www.bgjwsc.org

PVC JOINTS RESTRAINTS - TEE
 JWSC STANDARD DETAIL 2-3
 AUGUST 2011

CONSTRUCTION DETAILS

OAK GROVE FORCEMAIN
 FINAL ENGINEERING PLANS

PREPARED FOR:
 Carolina Holdings Group

DATE: 6/29/21
 PROJECT NUMBER: 20129
 DRAWN BY: TL
 CHECKED BY: JM
 SCALE: 1"=40' (FOR 24"x36" PLOT)

18
 SHEET: