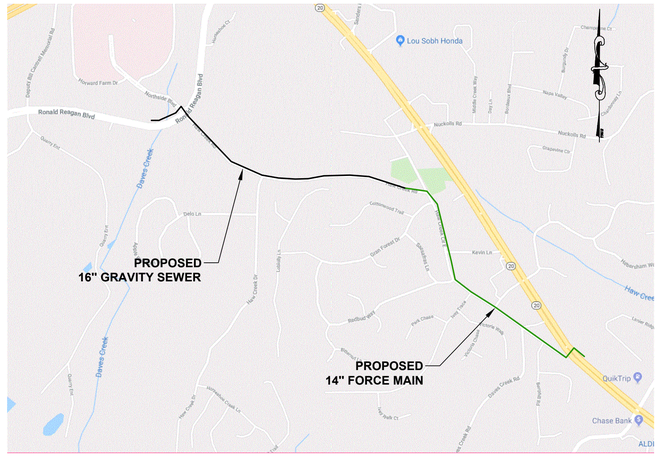
HAW CREEK ROAD OUTFALL SEWER AND FORCE MAIN
SITE DEVELOPMENT PLANS
CITY OF CUMMING, FORSYTH COUNTY, GA



LOCATION MAP
SCALE: N.T.S.

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CONSTRUCTION SCHEDULE												
CONSTRUCTION ACTIVITY	2020											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT		
INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES												
INSTALLATION OF SITE IMPROVEMENTS												
MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES FOR ENTIRE PROJECT												
FINAL GRASSING												

UTILITIES PROTECTION CENTER, INC.
Call FREE THROUGHOUT GEORGIA 1-800-282-7411
IN ATLANTA: 325-5000
THREE WORKING DAYS BEFORE YOU DIG IT'S THE LAW

Liang Wang
LIANG WANG, P.E.
GSWCC NO. 0000083427

* 24-HOUR CONTACT: JON HEARD (770) 781-2020

CUMMINGUTILITIES
Sewer - Storm - Water

BID READY: 10/16/19

1. OWNER / PRIMARY PERMITTEE: CITY OF CUMMING
100 MAIN STREET
CUMMING, GEORGIA
30040
(770) 781-2020

2. ENGINEER: CIVIL ENGINEERING CONSULTANTS, INC.
110 SAMARITAN DRIVE, SUITE 201
CUMMING, GEORGIA 30040
PHONE: (770) 977-5747

3. SURVEYOR: TERRAMARK LAND SURVEYING, INC.
1396 BELLS FERRY ROAD
MARIETTA, GA 30066
PHONE: 770-421-1927
ORIGIN OF SURVEY: FIELD RUN TOPOGRAPHY - 02/01/2018

4. DISTURBED AREA:
LINEAR DISTURBED AREA
FORCE MAIN/GRAVITY SEWER: 3.60 AC.
PUMP STATION DISTURBED AREA: 0.0 AC.
TOTAL DISTURBED AREA: 3.60 AC.

5. APPROXIMATELY 250 FEET OF GRAVITY SEWER WILL BE IN FLOOD ZONE AE PER FEMA FLOOD INSURANCE RATE MAP PANEL 13117C0142F, 13117C0161G, DATED MARCH 4, 2013,

6. ZONING DISTRICTS: CBD, R2R, R1, CUMMING, A1

7. LAND LOTS: 365, 366, 355, 354, 295, 296, 297, 298

8. PROJECT DESCRIPTION:
THE PROJECT WILL INVOLVE CONSTRUCTION OF APPROXIMATELY 3,151 LF OF 16-INCH DIP GRAVITY SEWER AND 4,735 LF (321 LF +/- TO BE WITHIN R/W OF SR 20) OF DIP 14-INCH FORCE MAIN. THE PROJECT WILL BEGIN AT 34°09'53.5"N 84°07'13.5"W, AND END AT 34°10'25.9"N 84°08'21.2"W.

GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVEJOY

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GENERAL NOTES:

1. EXISTING SITE CONDITIONS: THE PROPOSED SITE IS LOCATED IN CITY OF CUMMING. THE EXISTING SITE IS ADJACENT TO THE PUBLIC RIGHT-OF-WAY AND OTHER AREAS CONSIST OF WOODED LAND, PRIMARILY UNDEVELOPED WITH SOME AREAS RESIDENTIAL AREAS. THE EXISTING PROJECT SITE CONSISTS OF GRADES FROM 0.00% TO 10%. SURROUNDING AREAS ARE UNDISTURBED WITH FEW EXCEPTIONS AND SURFACE RUNOFF IS MINIMAL.
2. PROPOSED CONDITIONS: PROJECT AREA IS MORE THAN ONE (1) ACRE OF DISTURBANCE. ALL DISTURBED AREAS WILL BE RESTORED TO EXISTING GRADE AND STABILIZED WITHIN 3 DAYS AS SOON AS CONSTRUCTION PERMITS. THE PROJECT WILL ADD 0000 SF AREA OF IMPERVIOUS SURFACE WITH THE ADDITION OF THE WATER TANK ACCESS DRIVE AND THE WATER TANK ITSELF. RUNOFF FROM THE IMPERVIOUS AREA IS SHEET FLOW ACROSS WELL DEVELOPED GRASSED AREAS.
3. ALL IMPROVEMENTS WILL CONFORM WITH THE CITY OF CUMMING CONSTRUCTION STANDARDS AND SPECIFICATIONS, LATEST EDITION.
4. ALL UNDISTURBED BUFFERS SHALL BE IDENTIFIED WITH ORANGE, FOUR-FOOT TREE-SAVE FENCING PRIOR TO ANY LAND DISTURBANCE (UDC SEC. 18-10.1)
5. OUTSIDE CONSTRUCTION ACTIVITY SHALL BE LIMITED TO THE HOURS OF 7:00 A.M. TO 7:00 P.M. MONDAY TROUGH FRIDAY, 8:00 A.M. TO 6:00 P.M. SATURDAY, AND NO OUTSIDE CONSTRUCTION ON SUNDAY (UDC 10-1.13).
6. THIS PROJECT SITE IS WITHIN 200 FEET OF STATE WATERS.
7. CONSTRUCTION WASTE MAY NOT BE BURNED OR BURIED AND MUST BE HAULED TO A STATE APPROVED LANDFILL.
8. ALL UTILITY LINES SHALL BE INSTALLED UNDERGROUND.
9. ALL DISTURBED AREAS SHALL BE RETURNED TO EXISTING GRADE AS SOON AS CONSTRUCTION PERMITS.
10. MAXIMUM CUT SLOPES SHALL BE 2 HORIZONTAL TO 1 VERTICAL. CONTINUOUS FILL SLOPES TEN (10) FEET IN HEIGHT OR LESS MAY BE 2 HORIZONTAL TO 1 VERTICAL. ALL CONTINUOUS FILL SLOPES THAT EXCEED TEN (10) FEET IN HEIGHT MUST BE 3 HORIZONTAL TO 1 VERTICAL UNLESS: a) A MECHANICALLY ENGINEERED STABILIZED SLOPE IS APPROVED BY THE FORSYTH COUNTY DIRECTOR OF ENGINEERING; OR b) THE DESIGNED AND CONSTRUCTED SLOPES ARE CERTIFIED BY A REGISTERED ENGINEER EXPERIENCED IN GEOTECHNICAL ENGINEERING AND LICENSED IN THE STATE OF GEORGIA.

EROSION CONTROL NOTES:

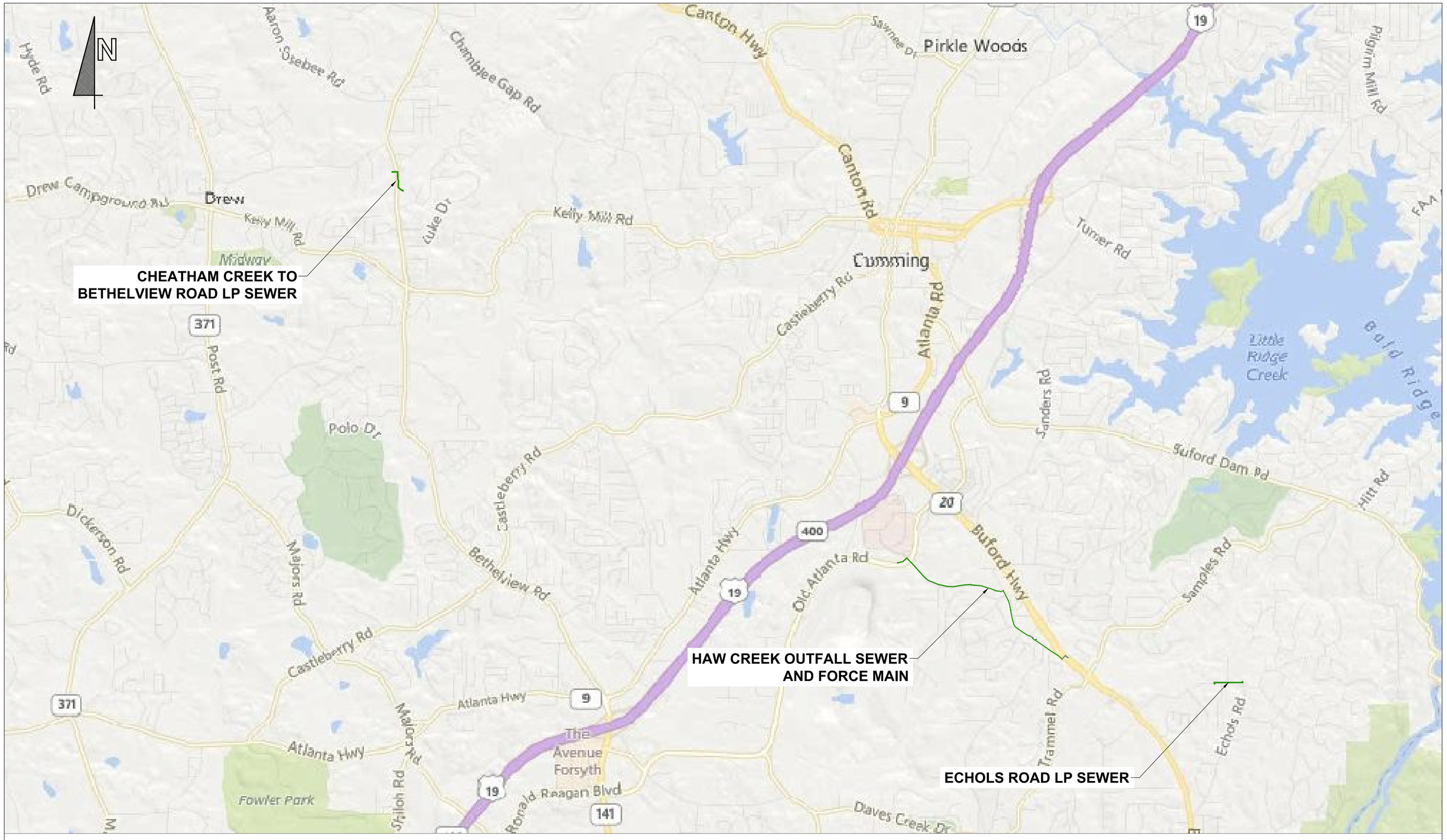
1. THE PROJECT RECEIVING WATERS ARE ADJACENT AREAS CONSIST OF RESIDENTIAL AND WOODED AREAS.
2. NO LAKE IS WITHIN 500' OF THIS PROJECT.
3. THIS SITE DOES NOT CONTAIN WETLANDS.
4. **WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.**
5. EROSION CONTROL, ANY BUFFER DELINEATIONS AND TREE PROTECTION MEASURES SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY AND MAINTAINED UNTIL PERMANENT GROUND COVER IS ESTABLISHED.
6. **THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, AND/OR CONCURRENT WITH ALL LAND DISTURBING ACTIVITIES.**
7. **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 AND/OR TREAT THE SEDIMENT SOURCE.**
8. **ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 7 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.**
9. **NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.**

CERTIFICATION:

1. I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY DIRECT SUPERVISION.
2. I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL (ES&PC) 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 THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORM WATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES MEETS THE DESIGN REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR 100002.

COUNTY NOTES:

1. FORSYTH COUNTY UTILITY PERMIT REQUIRED. CONTACT ROBIN McCOOK AT 770-781-2165 FOR UTILITY PERMIT INFORMATION.
2. CONTACT SCOTT GUNTER AT (770) 781-2165
24 HOURS PRIOR TO WORKING WITHIN 400' OF ANY TRAFFIC SIGNAL.
3. NOTIFY FORSYTH COUNTY INSPECTOR 24 HOURS BEFORE THE BEGINNING PHASE OF CONSTRUCTION. (770) 781-2165
4. IRRIGATION SYSTEMS ARE PROHIBITED ON ALL EXISTING AND PROPOSED COUNTY RIGHT-OF-WAY AND CONSIDERED TO BE A VIOLATION OF THE COUNTY'S ORDINANCE PROHIBITING UN-PERMITTED RIGHT-OF-WAY ENCROACHMENTS.
5. FULL SERVICE DRIVES WILL REVERT TO RIGHT IN / RIGHT OUT DRIVES IF FORSYTH COUNTY DETERMINES THEY ARE CREATING TRAFFIC PROBLEMS AND/OR ACCIDENTS OR IF ROAD IS WIDENED TO A MULTI-LANE HIGHWAY WITH MEDIAN.
6. NO STRUCTURES, FENCES OR OTHER OBSTRUCTIONS MAY BE LOCATED WITHIN A DRAINAGE OR ACCESS EASEMENT WITHOUT PRIOR APPROVAL BY THE FORSYTH COUNTY DEPARTMENT OF ENGINEERING.
7. APPROVAL OF THESE PLANS DOES NOT CONSTITUTE APPROVAL BY FORSYTH COUNTY OF ANY LAND DISTURBING ACTIVITIES WITHIN WETLAND AREAS. IT IS THE RESPONSIBILITY OF THE PROPERTY OWNER TO CONTACT THE APPROPRIATE REGULATORY AGENCY FOR APPROVAL OF ANY WETLAND AREA DISTURBANCE.
8. MAXIMUM CUT SLOPES SHALL BE 2 HORIZONTAL TO 1 VERTICAL. CONTINUOUS FILL SLOPES TEN (10) FEET IN HEIGHT OR LESS MAY BE 2 HORIZONTAL TO 1 VERTICAL. ALL CONTINUOUS FILL SLOPES THAT EXCEED TEN (10) FEET IN HEIGHT MUST BE 3 HORIZONTAL TO 1 VERTICAL UNLESS: a) A MECHANICALLY ENGINEERED STABILIZED SLOPE IS APPROVED BY THE FORSYTH COUNTY DIRECTOR OF ENGINEERING; OR b) THE DESIGNED AND CONSTRUCTED SLOPES ARE CERTIFIED BY A REGISTERED ENGINEER EXPERIENCED IN GEOTECHNICAL ENGINEERING AND LICENSED IN THE STATE OF GEORGIA.
9. APPROVAL OF THESE PLANS BY FORSYTH COUNTY IS SUBJECT TO AND CONTINGENT UPON THE APPLICANT OBTAINING ANY AND ALL NECESSARY APPROVALS FROM ANY AND ALL APPLICABLE AGENCIES INCLUDING, BUT NOT LIMITED TO THE UNITED STATES ARMY CORPS OF ENGINEERS, THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, THE USDA-NRCS, GEORGIA DEPARTMENT OF NATURAL RESOURCES, GEORGIA ENVIRONMENTAL PROTECTION DIVISION, AND THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION.
10. THIS DEVELOPMENT IS EXCEPTED FROM THE GEORGIA STORMWATER MANAGEMENT MANUAL AND FORSYTH COUNTY ADDENDUM TO THE GEORGIA STORMWATER MANAGEMENT MANUAL AS LESS THAN 5000 SF WILL BE DISTURBED.



NOTIFY FORSYTH COUNTY INSPECTOR 24 HOURS BEFORE BEGINNING PHASE OF CONSTRUCTION. (770) 781-2165

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www.cecincga.com

GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVELACE

DESIGNED BY: MY	DRAWN BY: JV	CHECKED BY: GP
10/16/19	BID READY	
DATE	DESCRIPTION	

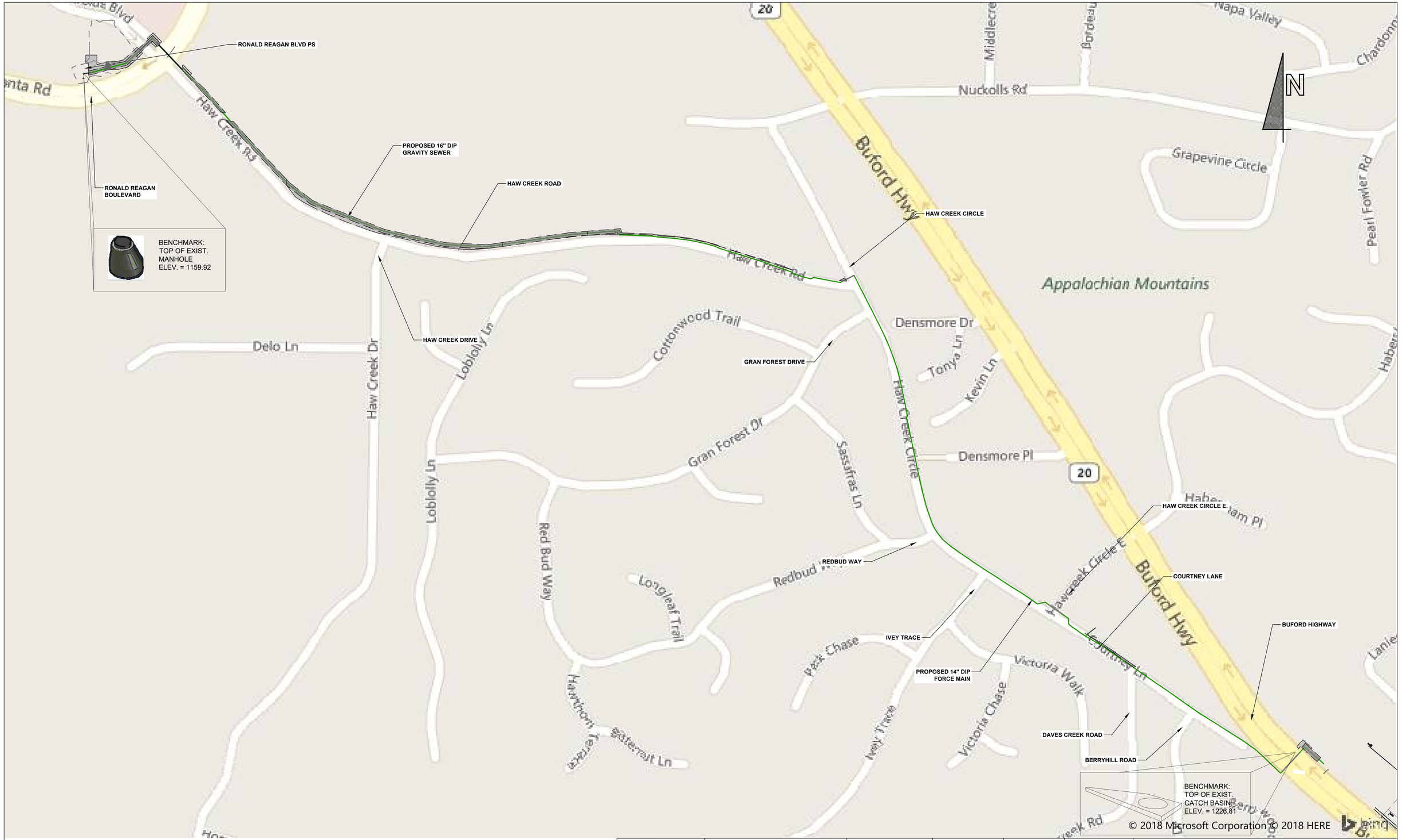
CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

SITE LOCATIONS

DATE: 10/09/2019

SHEET 2 OF 36



SCALE IN FEET
100 0 100 200 300 400
SCALE: 1" = 200'

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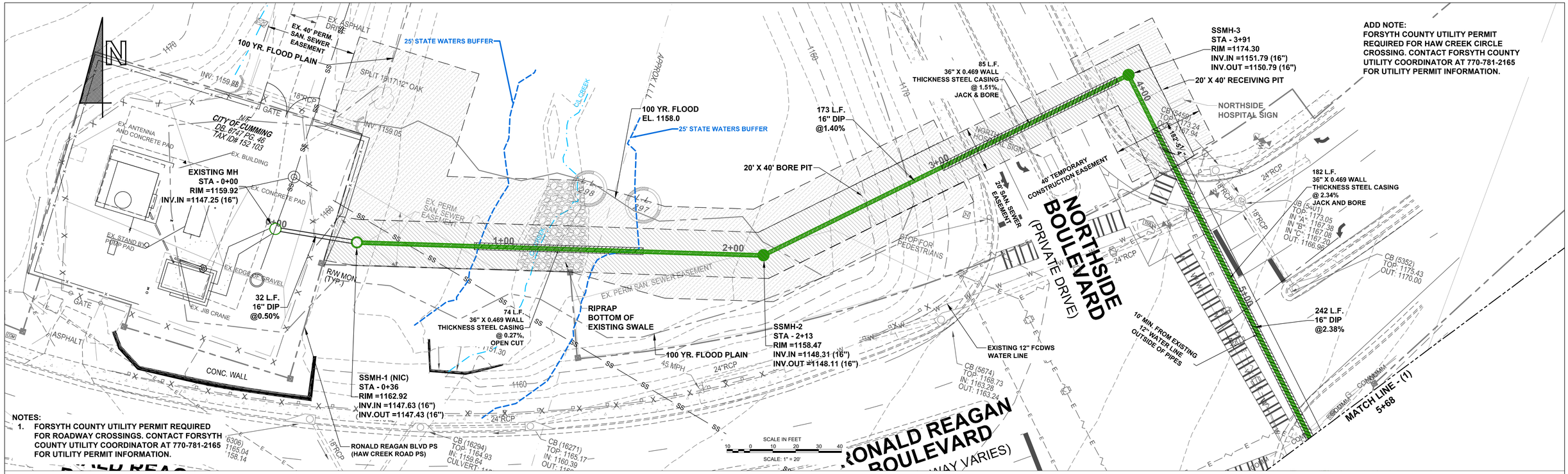
CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

OVERALL SITE PLAN

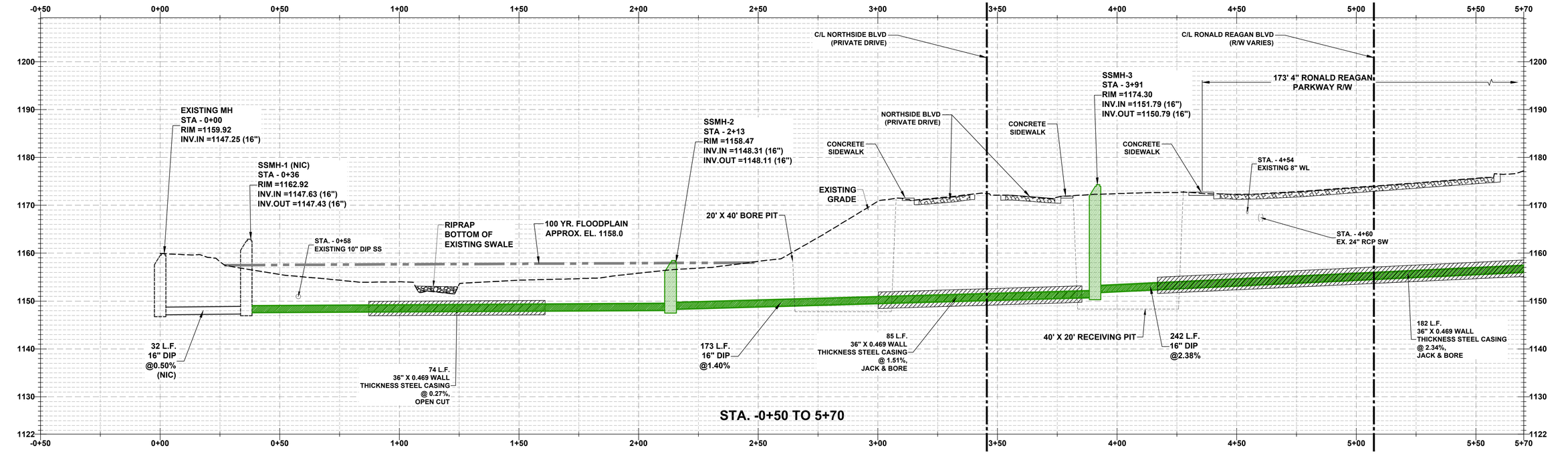
DATE: 10/09/2019

SHEET 3 OF 36



NOTES:

1. FORSYTH COUNTY UTILITY PERMIT REQUIRED FOR ROADWAY CROSSINGS. CONTACT FORSYTH COUNTY UTILITY COORDINATOR AT 770-781-2165 FOR UTILITY PERMIT INFORMATION.



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GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVEJOY

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DATE	DESCRIPTION
10/16/19	BID READY

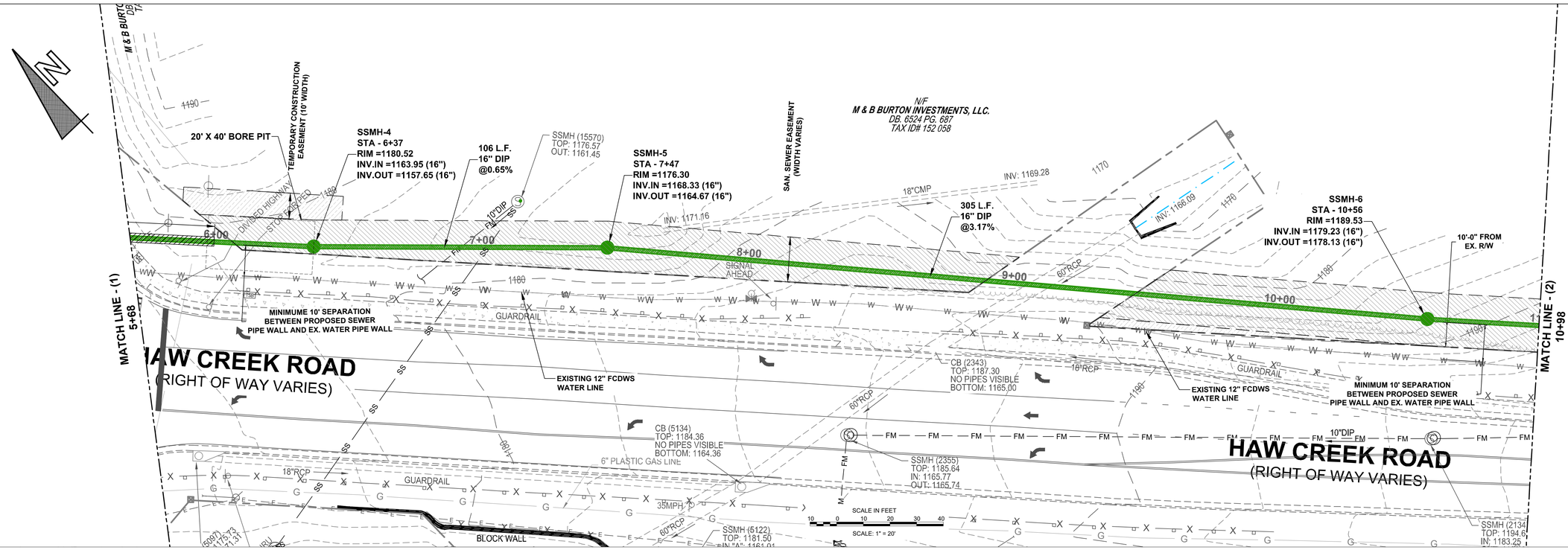
CITY OF CUMMING

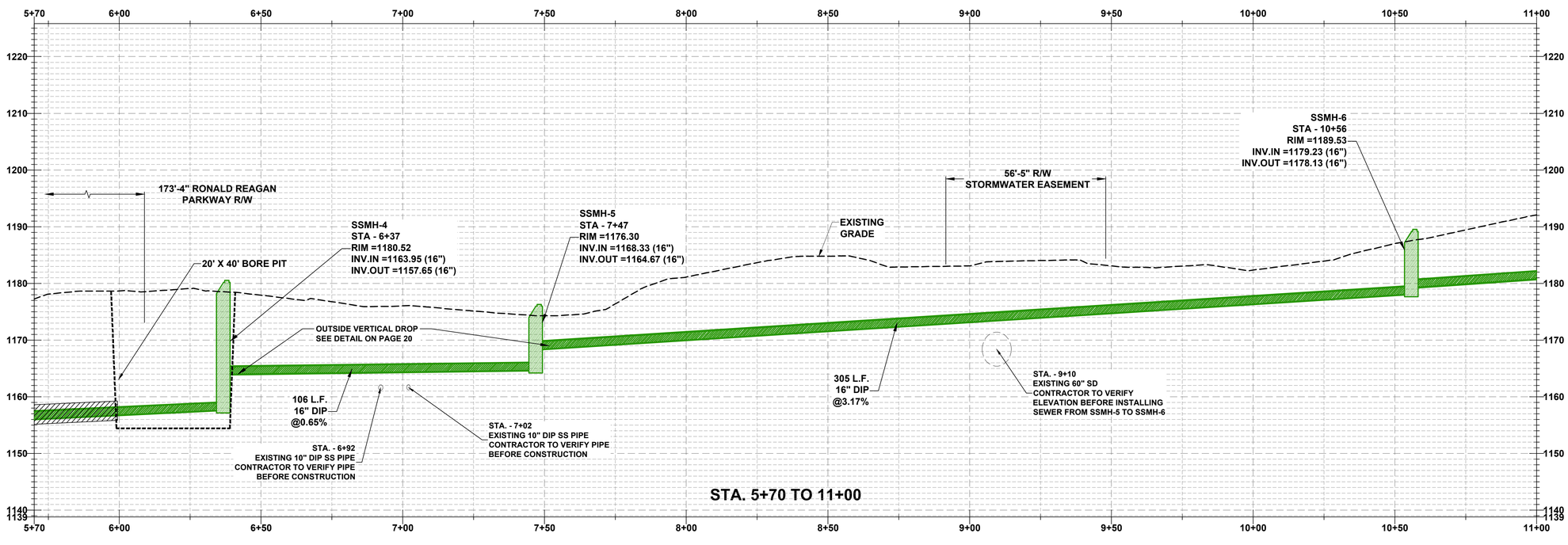
HAW CREEK ROAD OUTFALL AND FORCE MAIN

PLAN & PROFILE - (1)

DATE: 10/09/2019

SHEET 4 OF 36





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GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVETT

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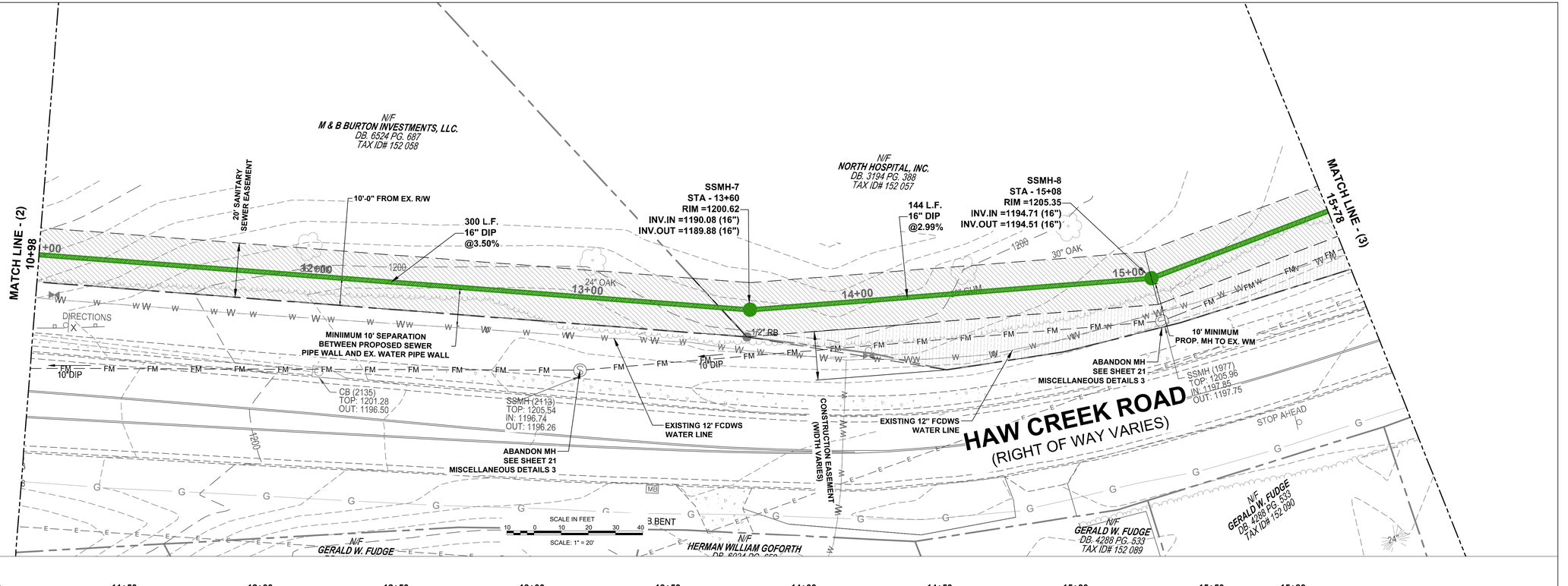
CITY OF CUMMING

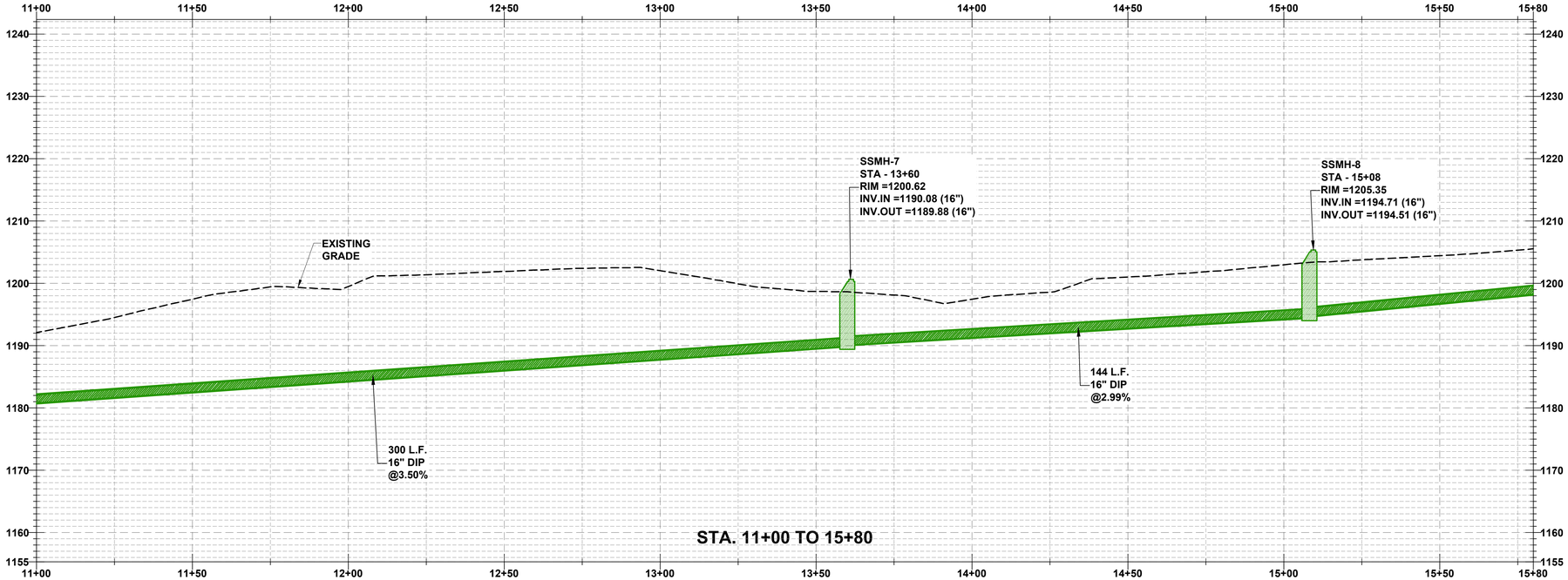
HAW CREEK ROAD OUTFALL AND FORCE MAIN

PLAN & PROFILE - (2)

DATE: 10/09/2019

SHEET 5 OF 36





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NOTIFY FORSYTH COUNTY INSPECTOR 24 HOURS BEFORE BEGINNING PHASE OF CONSTRUCTION. (770) 781-2165

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DATE	DESCRIPTION	

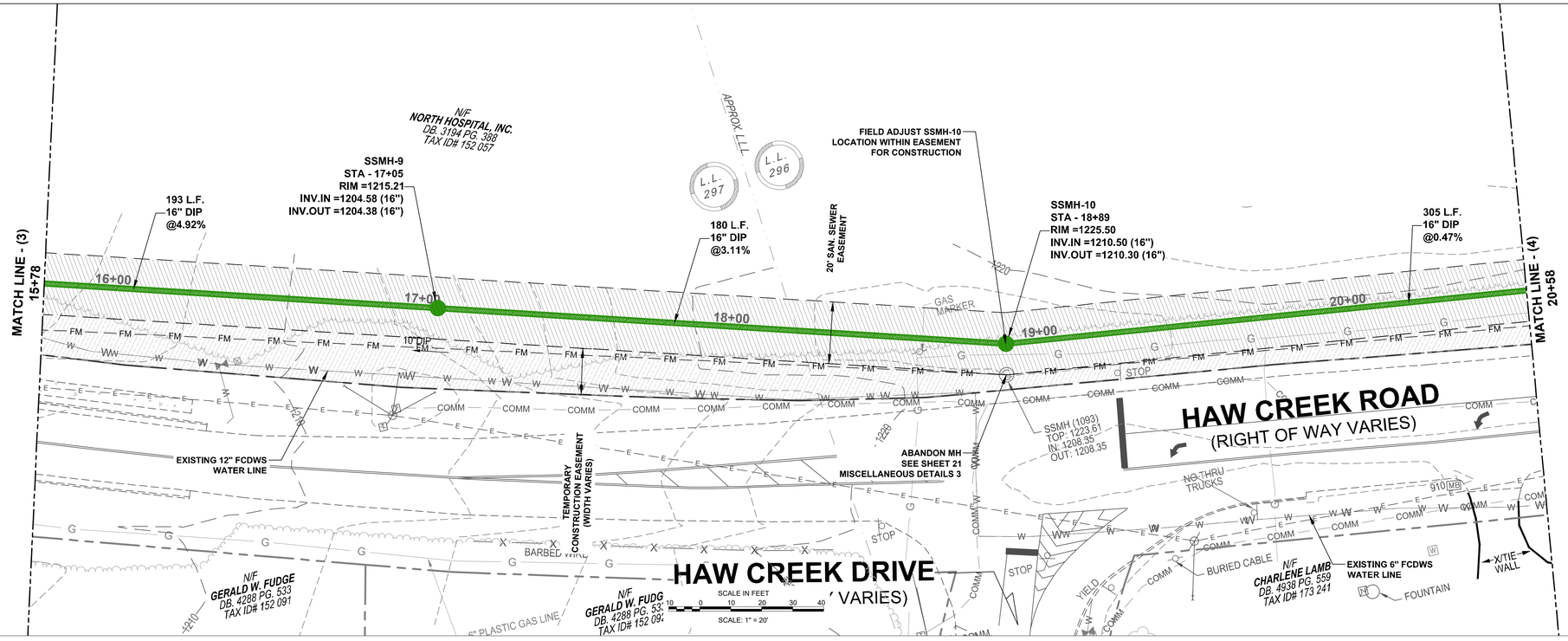
CITY OF CUMMING

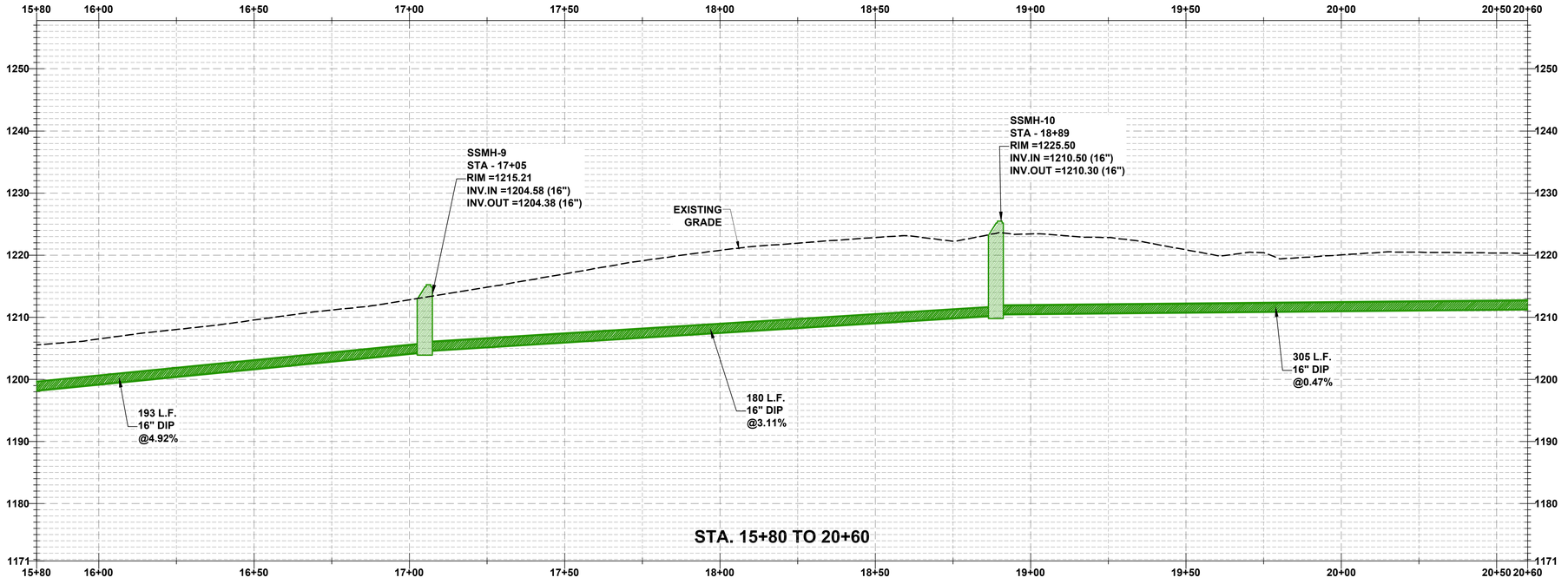
HAW CREEK ROAD OUTFALL AND FORCE MAIN

PLAN & PROFILE - (3)

DATE: 10/09/2019

SHEET 6 OF 36





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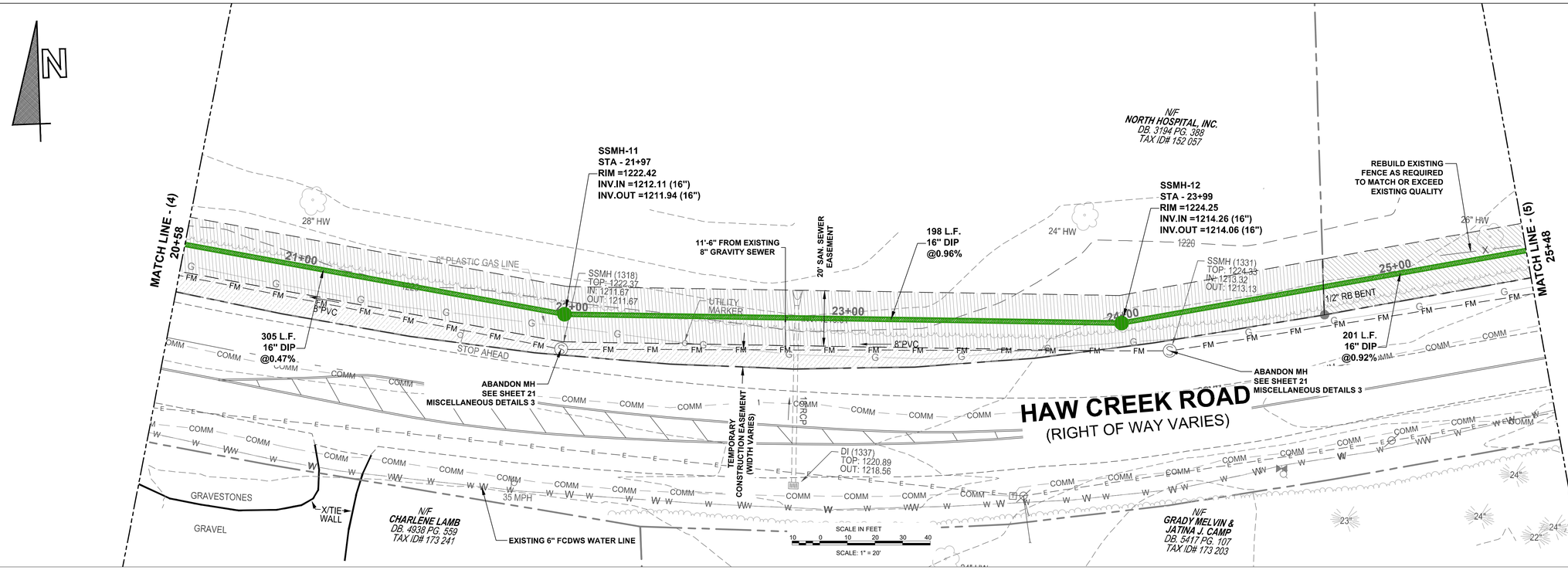
CITY OF CUMMING

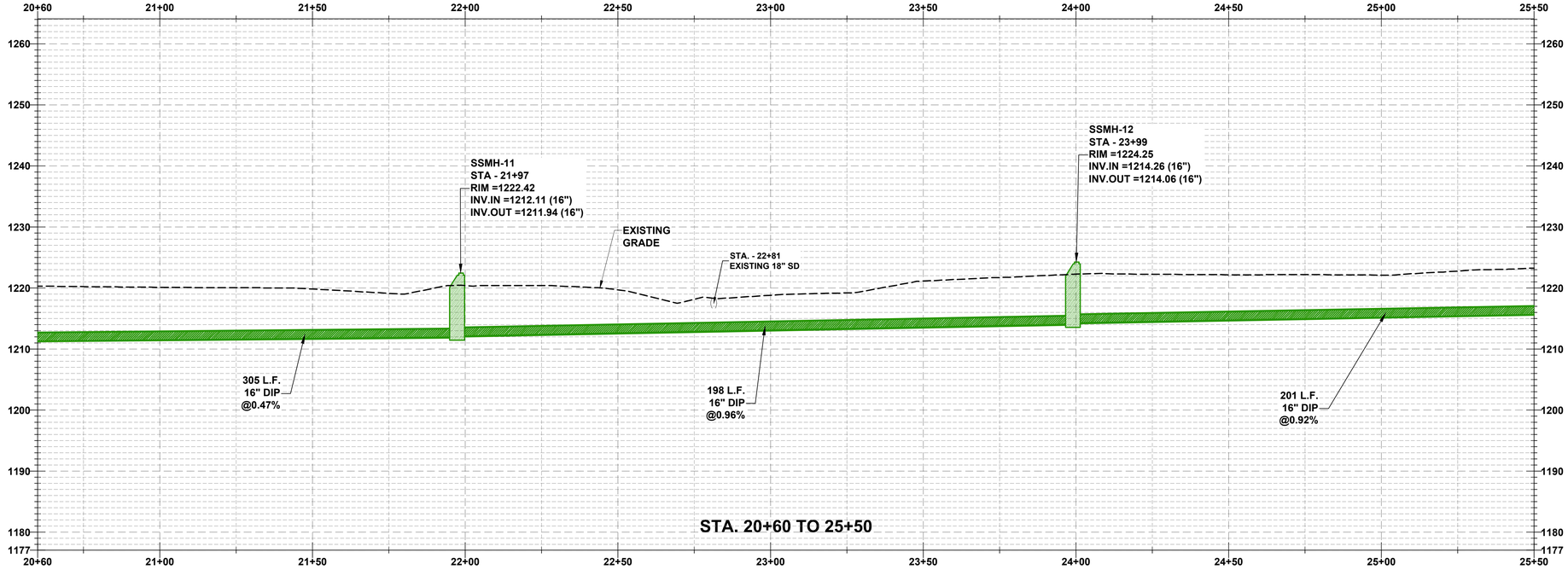
HAW CREEK ROAD OUTFALL AND FORCE MAIN

PLAN & PROFILE - (4)

DATE: 10/09/2019

SHEET 7 OF 36





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10/16/19	BID READY	
DATE	DESCRIPTION	

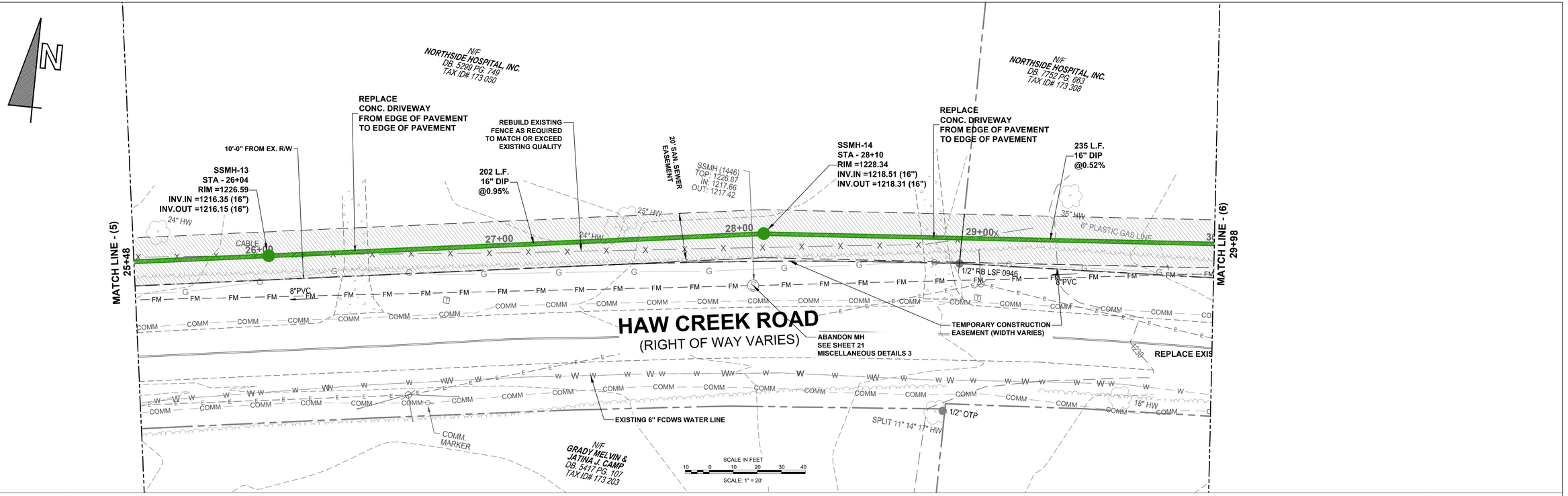
CITY OF CUMMING

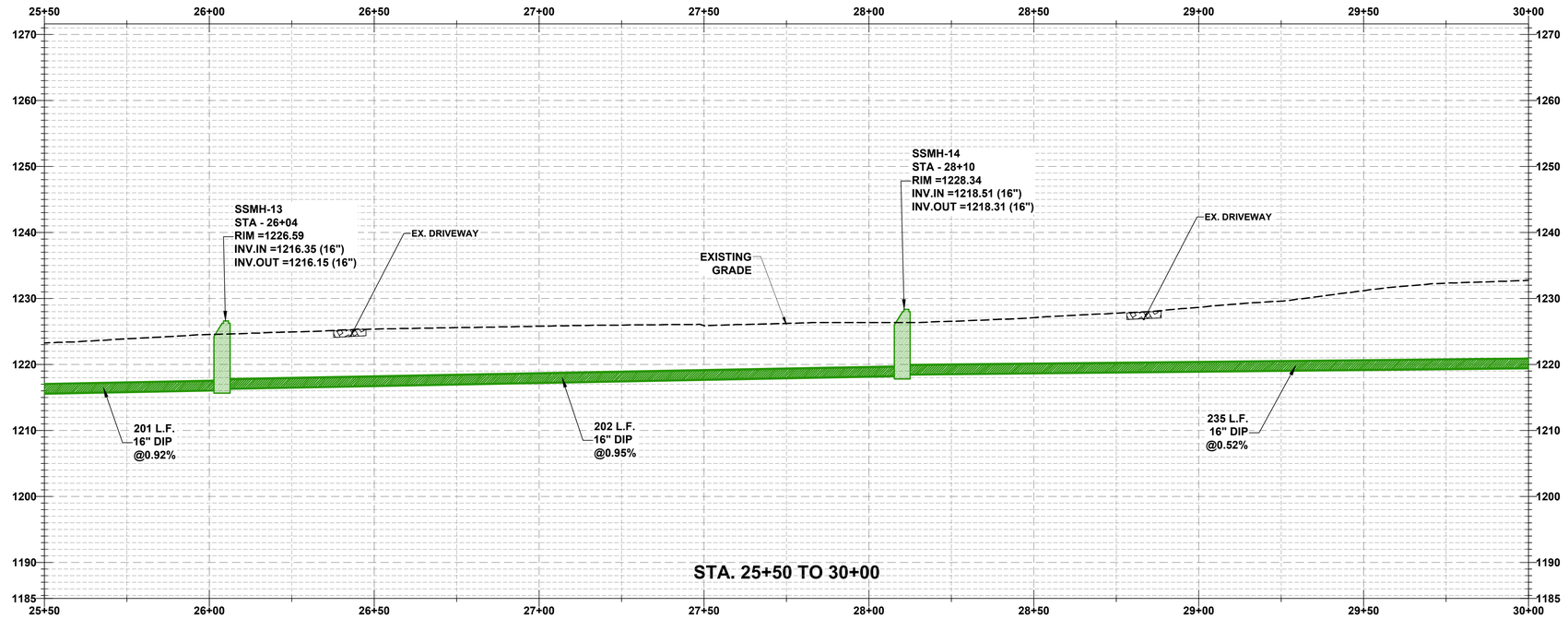
HAW CREEK ROAD OUTFALL AND FORCE MAIN

PLAN & PROFILE - (5)

DATE: 10/09/2019

SHEET 8 OF 36





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DATE	DESCRIPTION	

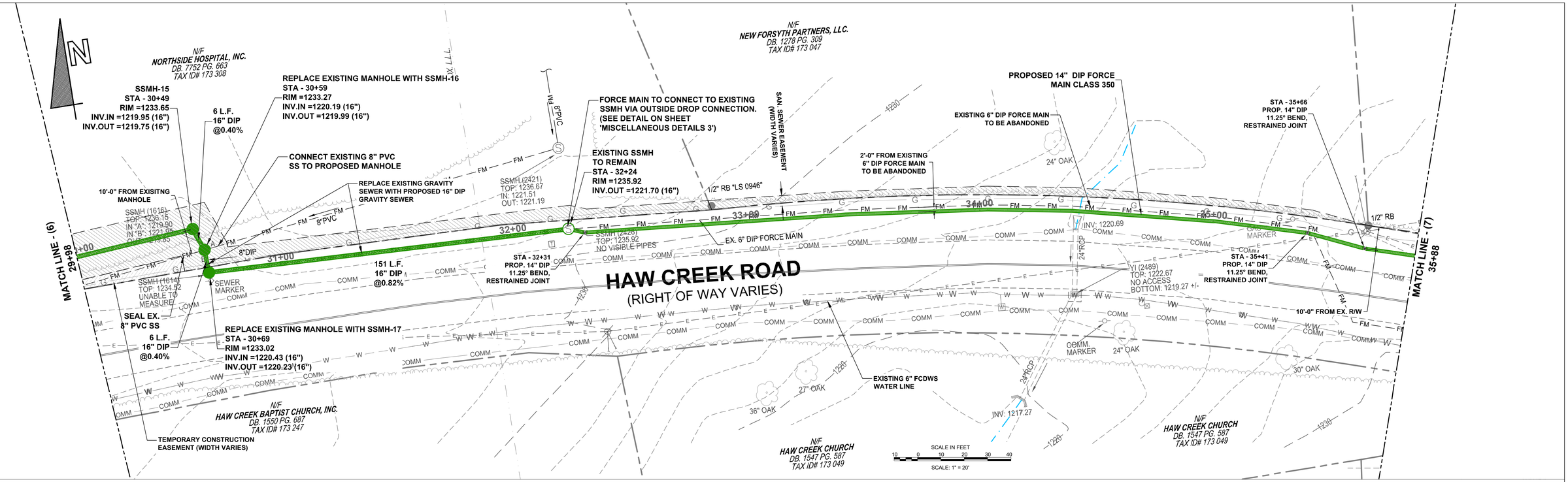
CITY OF CUMMING

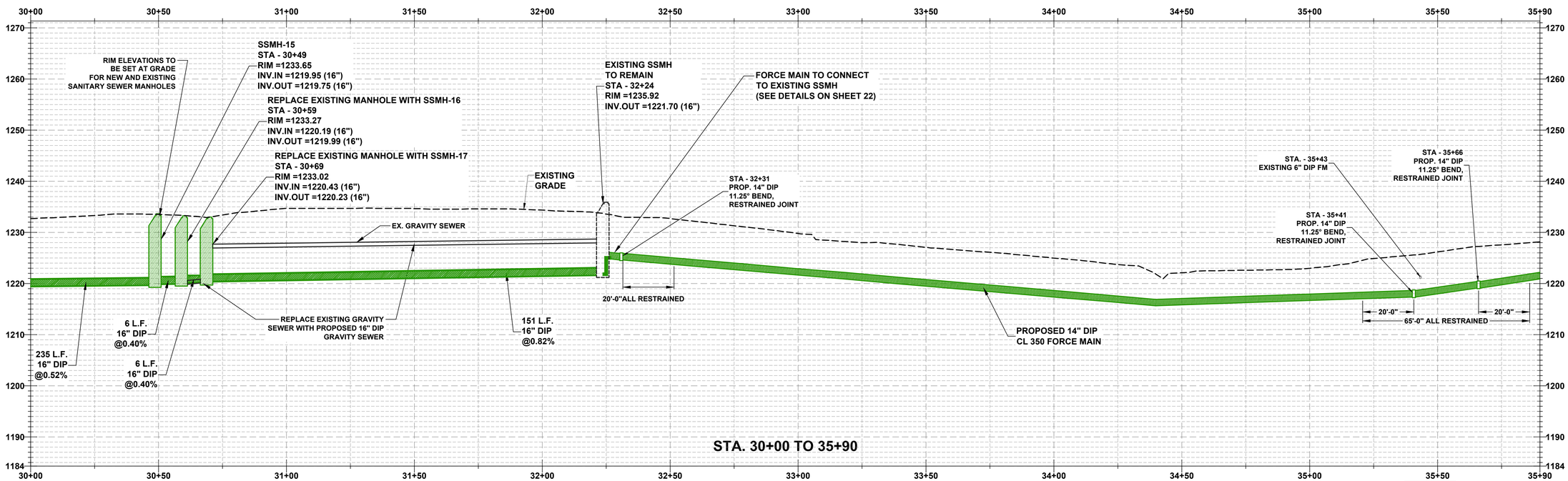
HAW CREEK ROAD OUTFALL AND FORCE MAIN

PLAN & PROFILE - (6)

DATE: 10/09/2019

SHEET 9 OF 36





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www.cecincga.com

GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVEDAY

DESIGNED BY: MY	DRAWN BY: JV	CHECKED BY: GP
10/16/19	BID READY	
DATE	DESCRIPTION	

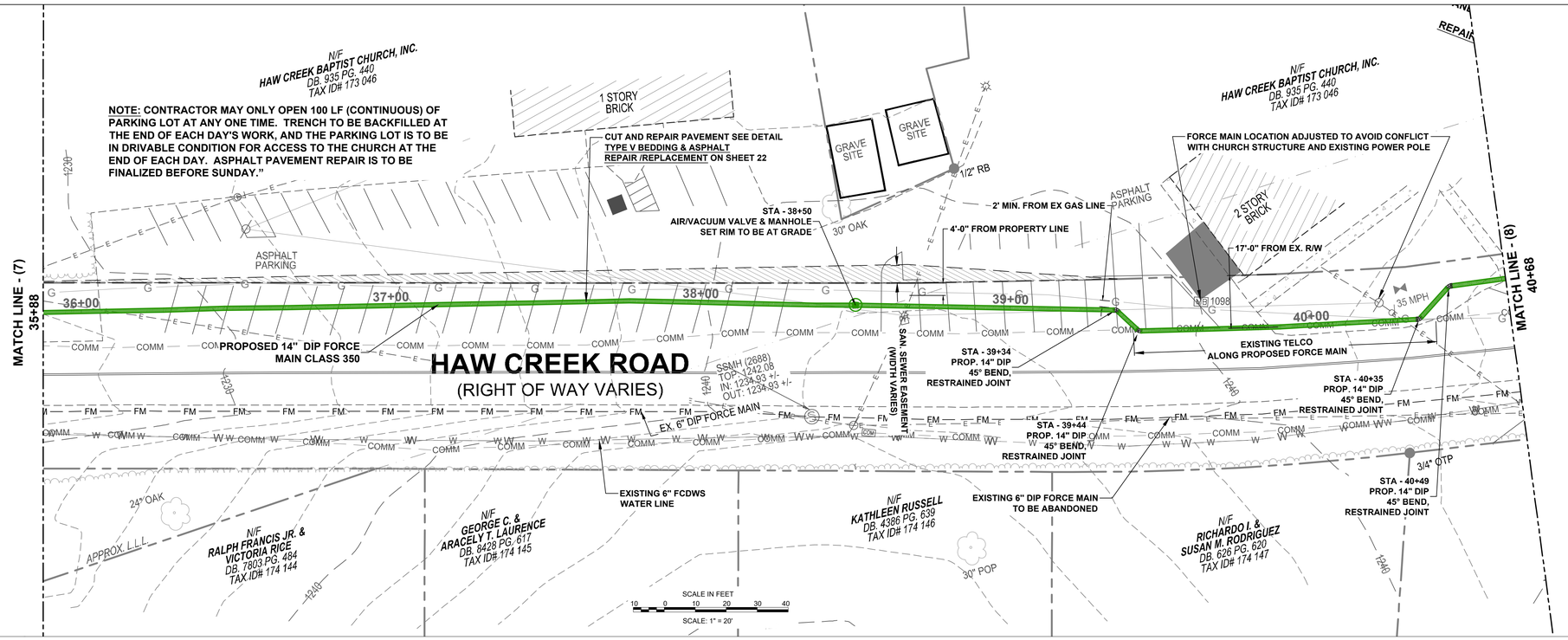
CITY OF CUMMING

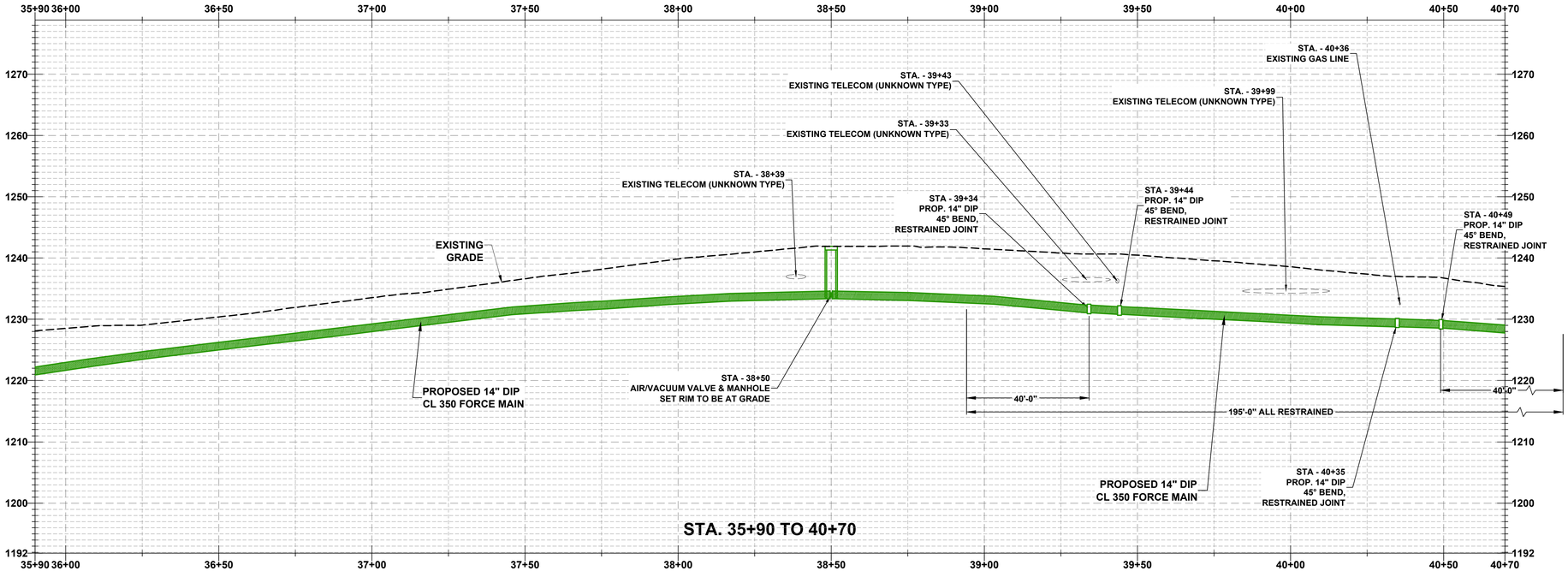
HAW CREEK ROAD OUTFALL AND FORCE MAIN

PLAN & PROFILE - (7)

DATE: 10/09/2019

SHEET
10 OF 36





SCALE:
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1" = 10'-0" vert.

NOTIFY FORSYTH COUNTY INSPECTOR 24 HOURS BEFORE BEGINNING PHASE OF CONSTRUCTION. (770) 781-2165

CUMMING UTILITIES

CEC
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Civil & Environmental Engineering
110 Samaritan Drive, Suite 201
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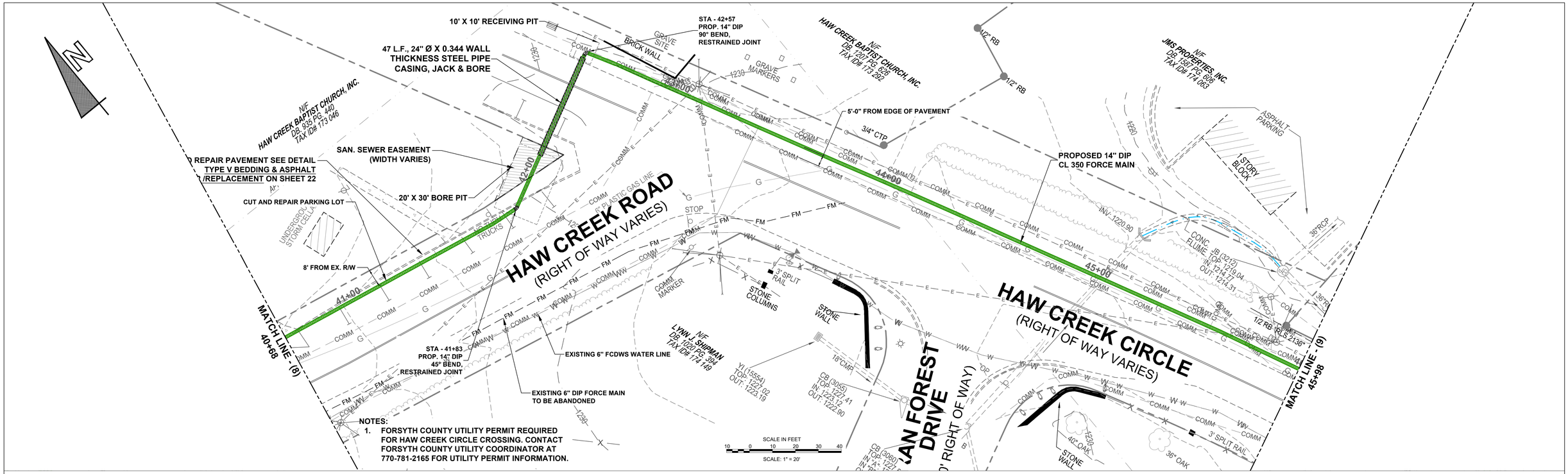
CITY OF CUMMING

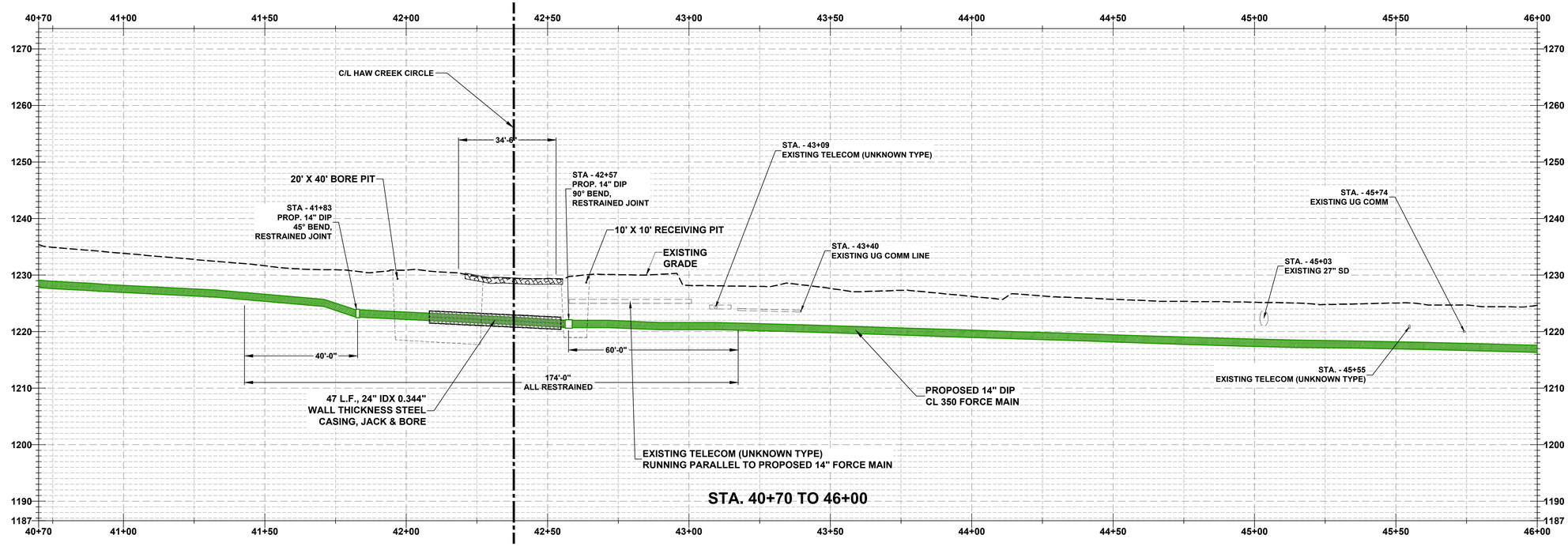
HAW CREEK ROAD OUTFALL AND FORCE MAIN

PLAN & PROFILE - (8)

DATE: 10/09/2019

SHEET 11 OF 36





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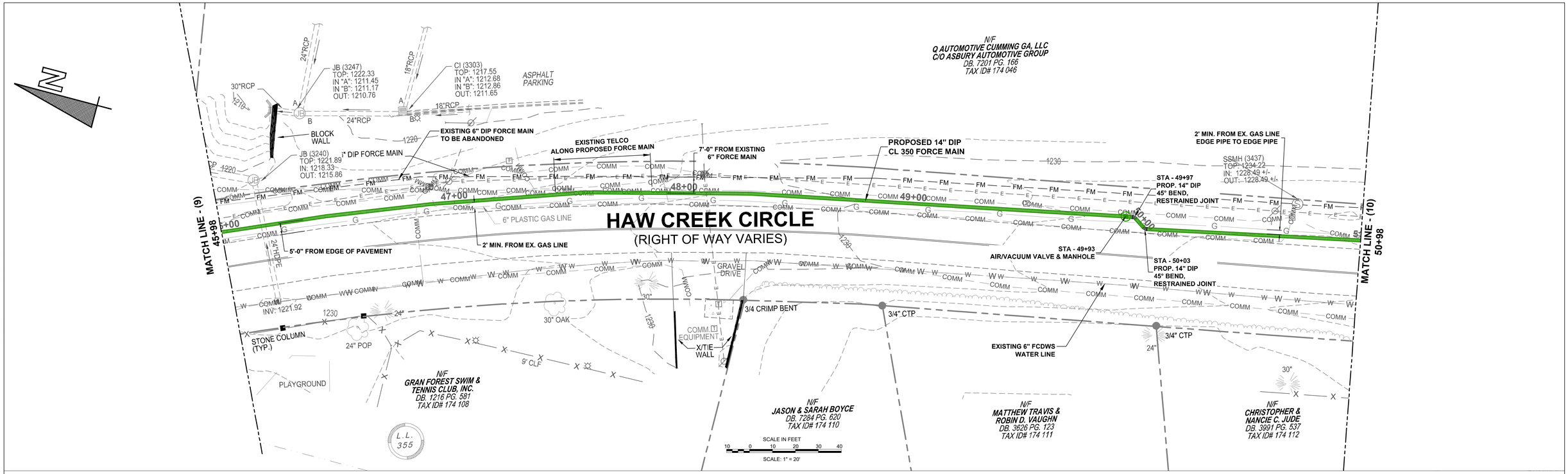
CITY OF CUMMING

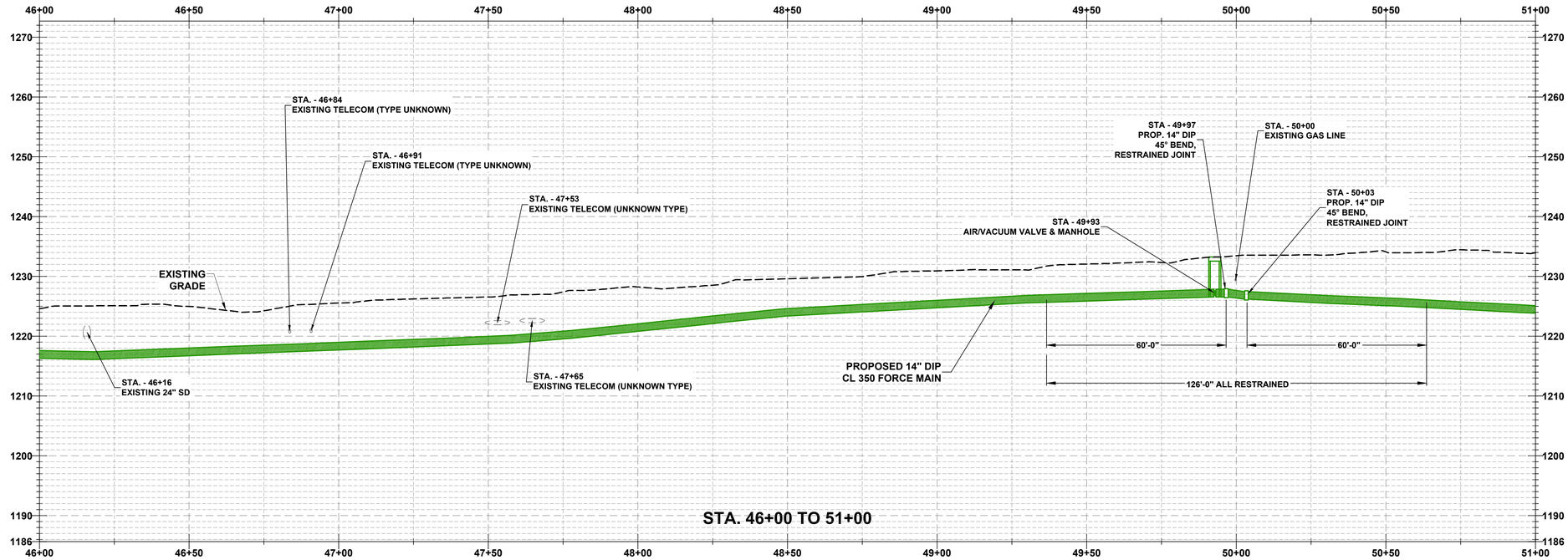
HAW CREEK ROAD OUTFALL AND FORCE MAIN

PLAN & PROFILE - (9)

DATE: 10/09/2019

SHEET 12 OF 36





STA. 46+00 TO 51+00

SCALE:
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1" = 10'-0" vert.

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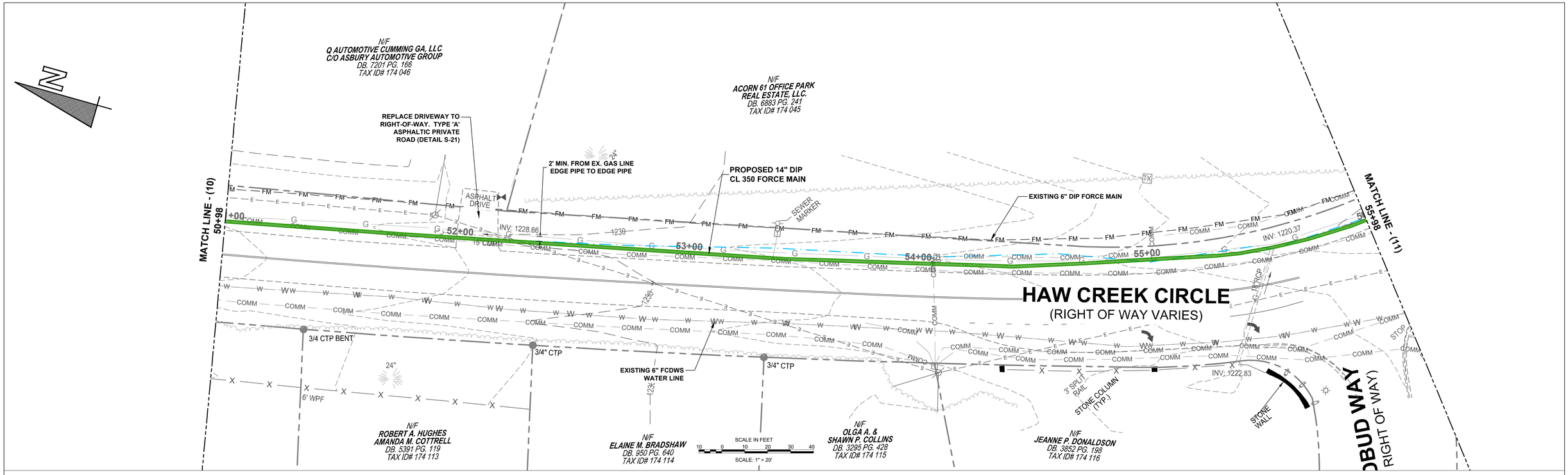
CITY OF CUMMING

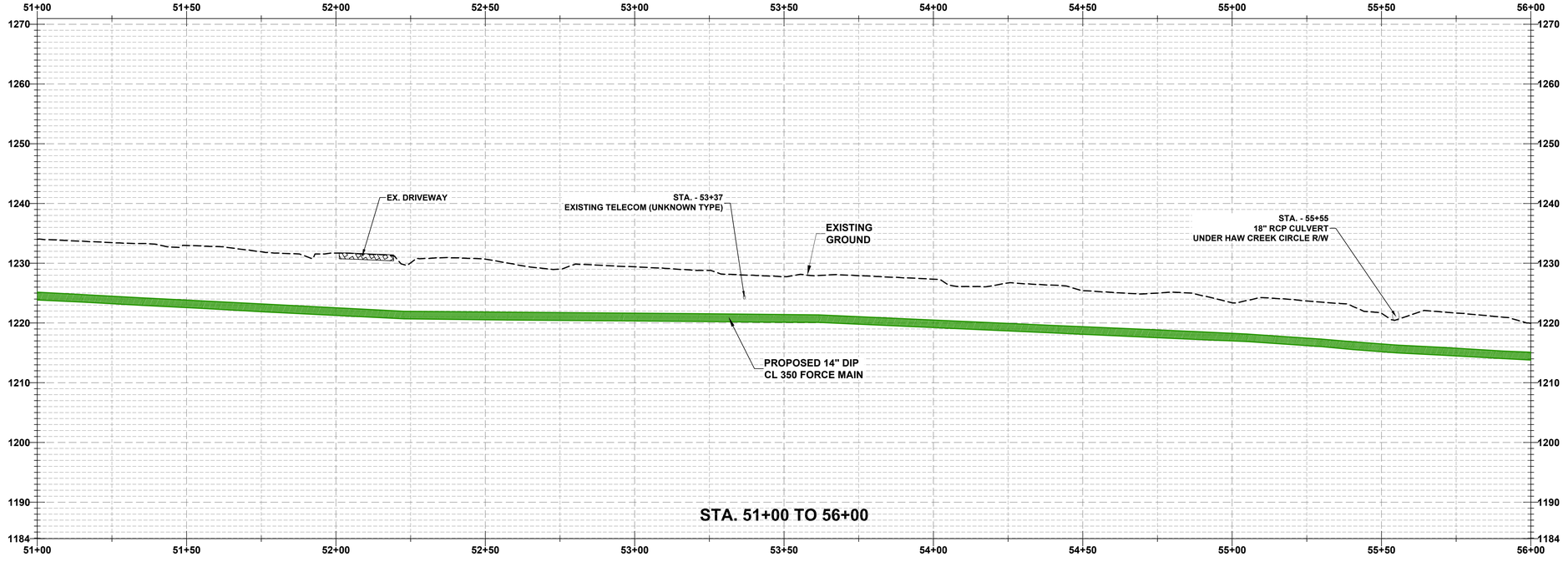
HAW CREEK ROAD OUTFALL AND FORCE MAIN

PLAN & PROFILE - (10)

DATE: 10/09/2019

SHEET 13 OF 36





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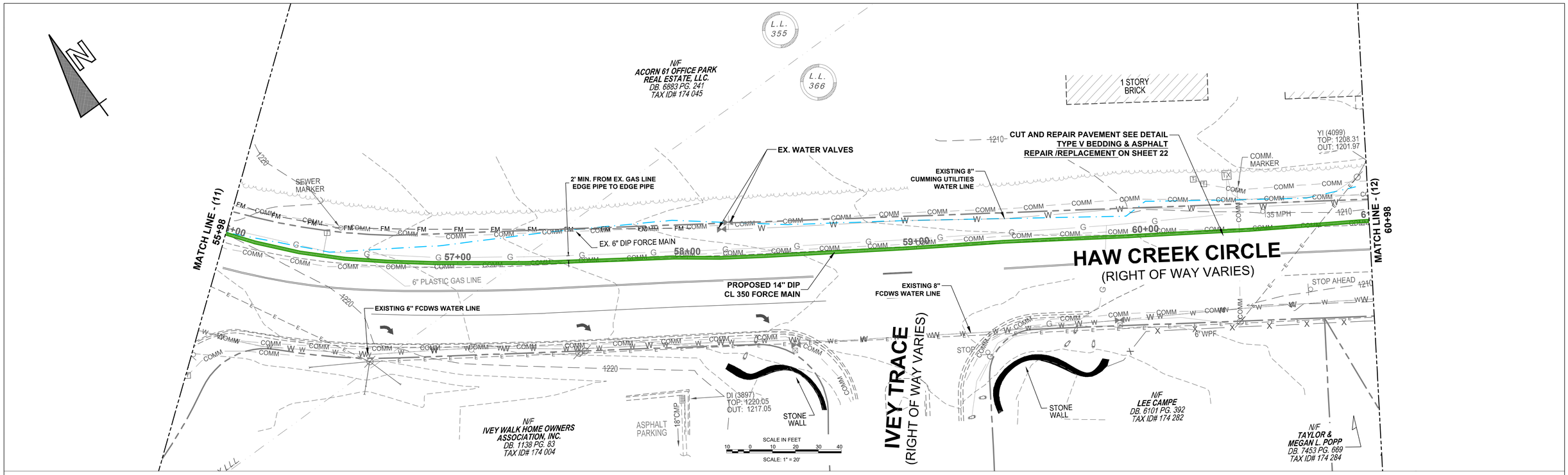
CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

PLAN & PROFILE - (11)

DATE: 10/09/2019

SHEET
14 OF 36



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CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

PLAN & PROFILE - (12)

DATE: 10/09/2019

SHEET
15 OF 36

HAW CREEK CIRCLE E.
(RIGHT OF WAY VARIES)

HAW CREEK CIRCLE
(RIGHT OF WAY VARIES)

MATCH LINE - (12) 60+98

MATCH LINE - (13) 66+48

N/F
ACORN 61 OFFICE PARK REAL ESTATE, LLC.
DB. 6883 PG. 241
TAX ID# 174 045

1 STORY BRICK

YI (4129)
TOP: 1205.33
IN: 1197.83
OUT: 1197.63

JB (4100)
TOP: 1210.32
IN "A": 1201.18
IN "B": 1206.84
OUT: 1201.07

48"RCP

36" RCP

15"RCP

STA - 62+30
PROP. 14" DIP
45° BEND,
RESTRAINED JOINT

10' X 10' RECEIVING PIT

20' X 40' BORE PIT

78 L.F., 24" IDX 0.344"
WALL THICKNESS STEEL
CASING, JACK & BORE

10'-0" FROM EDGE OF FORCE MAIN TO WATER LINE

EXISTING 8"
CUMMING UTILITIES
WATER LINE

STA - 63+67
PROP. 14" DIP
45° BEND,
RESTRAINED JOINT

N/F
TRIPLE M PROPERTIES, LLC
DB. 3755 PG. 638
TAX ID# 174 006

EXISTING 6" DIP
FORCE MAIN
TO BE ABANDONED

PROPOSED 14" DIP
CL 350 FORCE MAIN

STA - 63+98
PROP. 14" DIP
45° BEND,
RESTRAINED JOINT

STA - 61+91
PROP. 14" DIP
45° BEND,
RESTRAINED JOINT

INV: 1208.56

INV: 1212.92

INV: 1212.90

6" PVC

3/4" CT BENT

6' WPF

CONTRACTOR TO REPAVE SINGLE TRAVEL LANE AS REQUIRED

CUT AND REPAIR PAVEMENT SEE DETAIL
TYPE V BEDDING & ASPHALT
REPAIR /REPLACEMENT ON SHEET 22

TRAFFIC CONTROL AS NEEDED

REMOVE EX. VALVE & SS LINE

PLUG EX. FM LINE

EXISTING 8"
CUMMING UTILITIES
WATER LINE

PROP CONNECTION TO EX. 3" PVC SERVICE
1. 14" x 14" x 6" TEE, MJ x MJ, W/ MEGALUGS
2. 6" x 3" REDUCER, MJ x MJ, W/ MEGALUGS
3. DIP TO PVC TRANSITION ADAPTER EBAA OR EQUAL AS REQUIRED
4. EX. 3" VALVE TO REMAIN
5. ALL FITTINGS TO BE RESTRAINED

N/F
TRIPLE M PROPERTIES, LLC
DB. 1538 PG. 662
TAX ID# 174 049

EXISTING 6" DIP FORCE MAIN TO BE ABANDONED

N/F
KATIE LEE STANCIL
DB. 649 PG. 733
TAX ID# 174 043

PLUG EX. FM LINE

REPLACE BRICK DRIVEWAY FROM R/W TO EDGE OF PAVEMENT

4' WROUGHT IRON

GATE

SAN. SEWER EASEMENT (WIDTH VARIES)

2'-4" FROM EX. R/W

STOP AHEAD

EXISTING 6" FCDWS WATER LINE

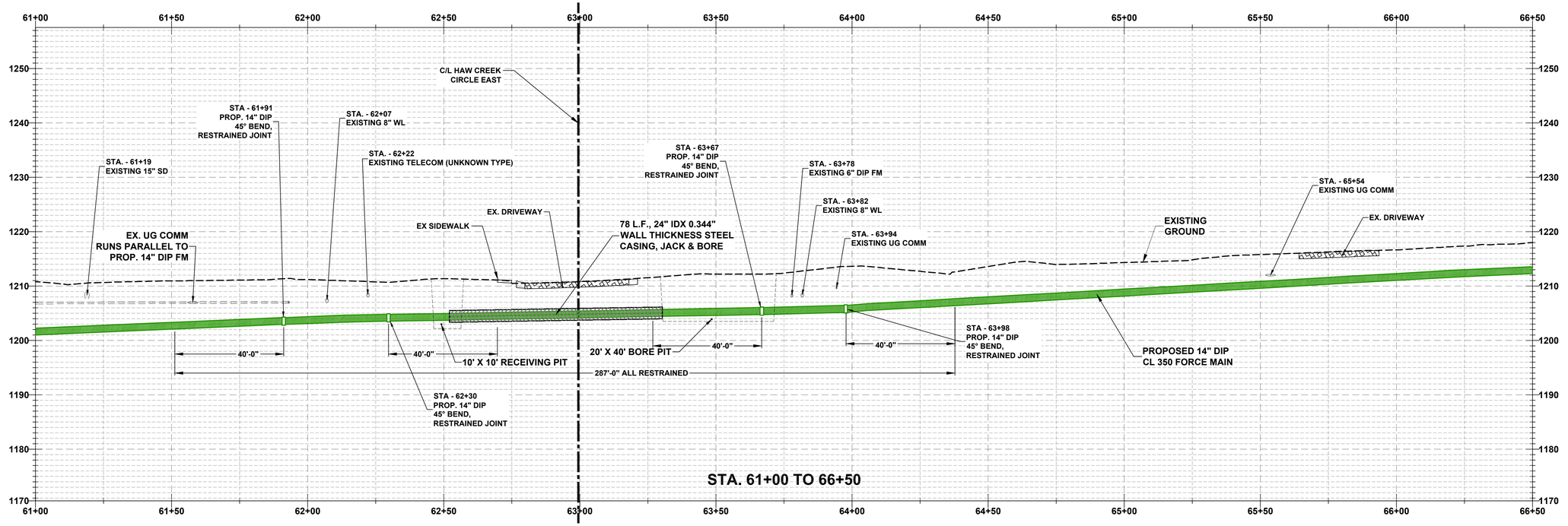
N/F
SUSIE D. BIGGERS
DB. 6032 PG. 662
TAX ID# 174 285

N/F
JOHN & SERINA KIM
DB. 8032 P
TAX ID# 17

N/F
FERMIN SANCHEZ
DB. 6533 PG. 732
TAX ID# 174 288

SCALE IN FEET
10 0 10 20 30 40
SCALE: 1" = 20'

NOTES:
1. FORSYTH COUNTY UTILITY PERMIT REQUIRED FOR HAW CREEK CIRCLE EAST CROSSING. CONTACT FORSYTH COUNTY UTILITY COORDINATOR AT 770-781-2165 FOR UTILITY PERMIT INFORMATION.



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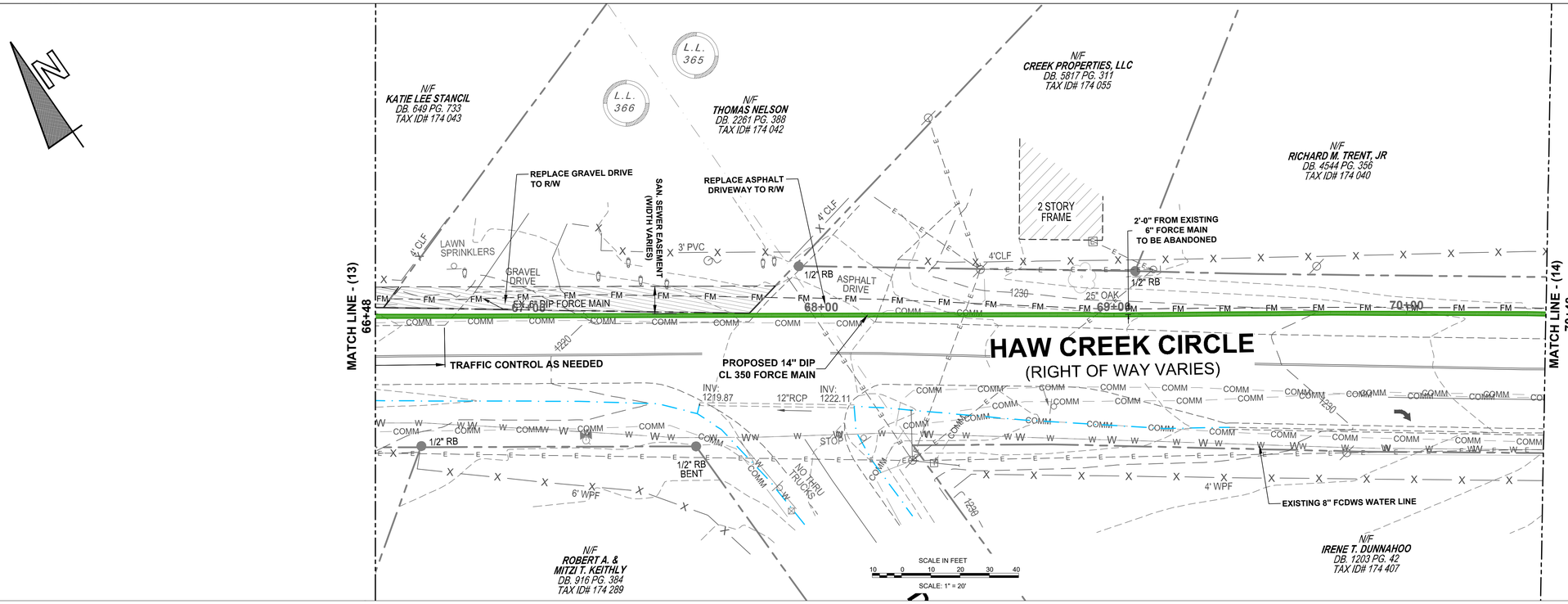
CITY OF CUMMING

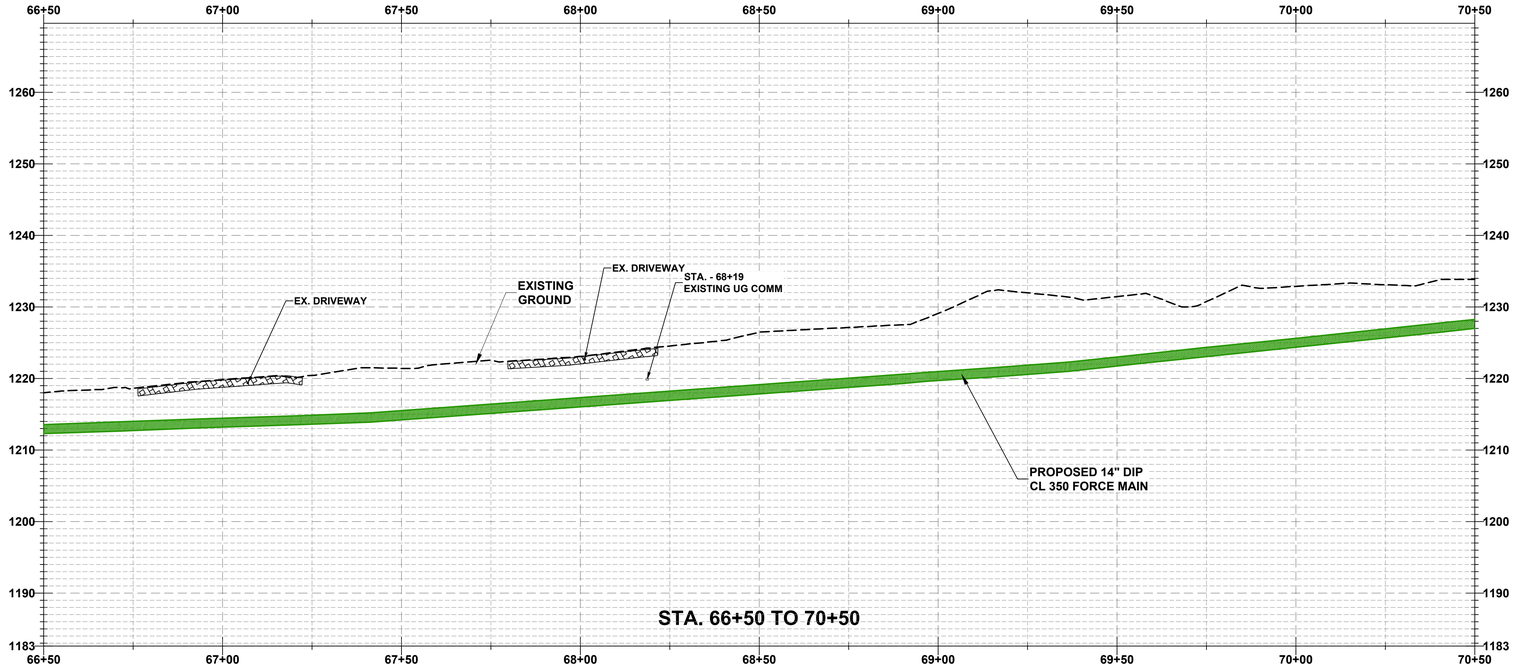
HAW CREEK ROAD OUTFALL AND FORCE MAIN

PLAN & PROFILE - (13)

DATE: 10/09/2019

SHEET 16 OF 36





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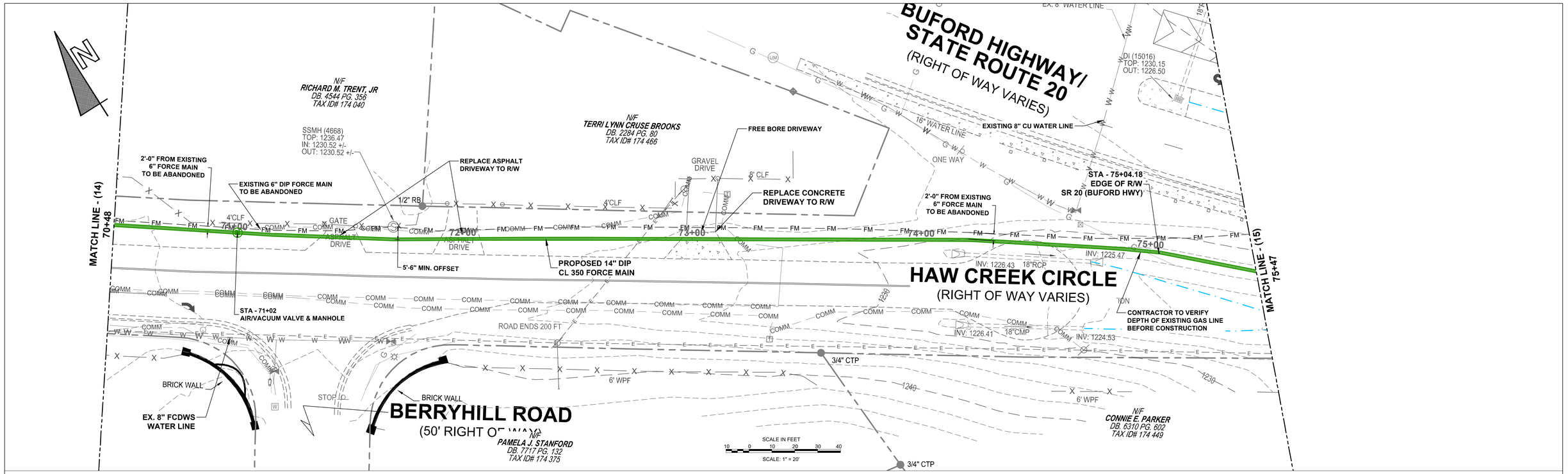
CITY OF CUMMING

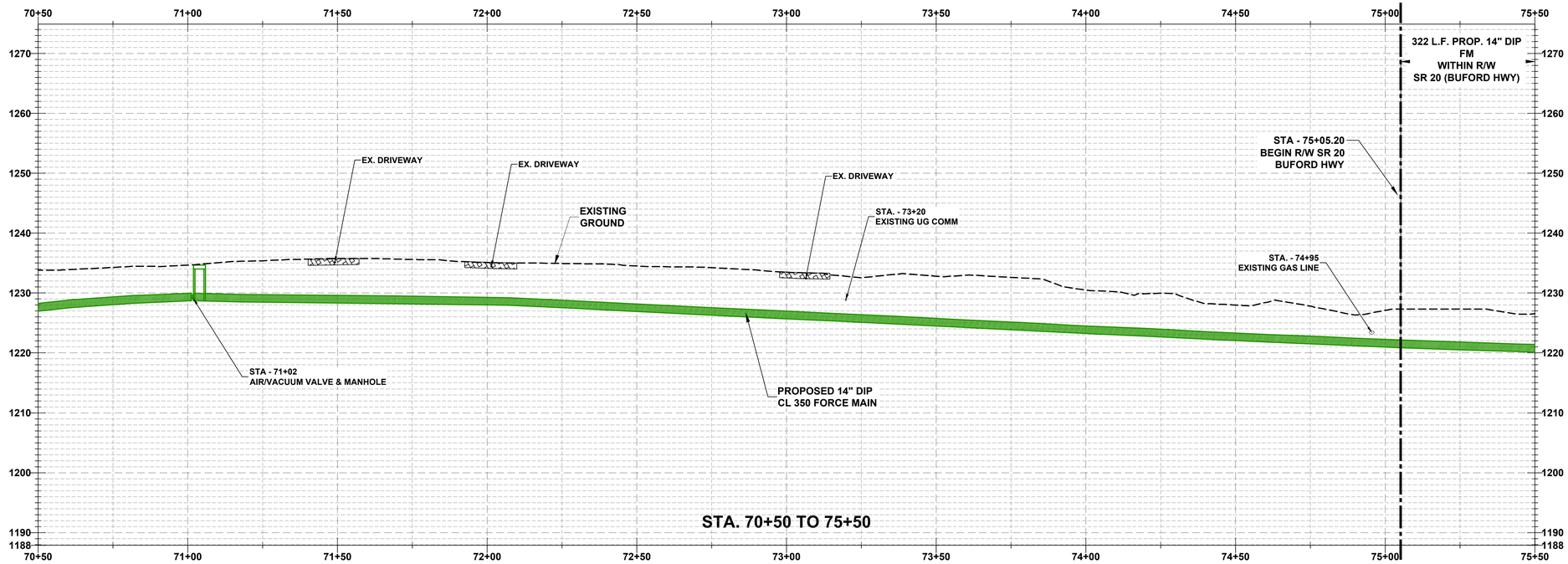
HAW CREEK ROAD OUTFALL AND FORCE MAIN

PLAN & PROFILE - (14)

DATE: 10/09/2019

SHEET 17 OF 36





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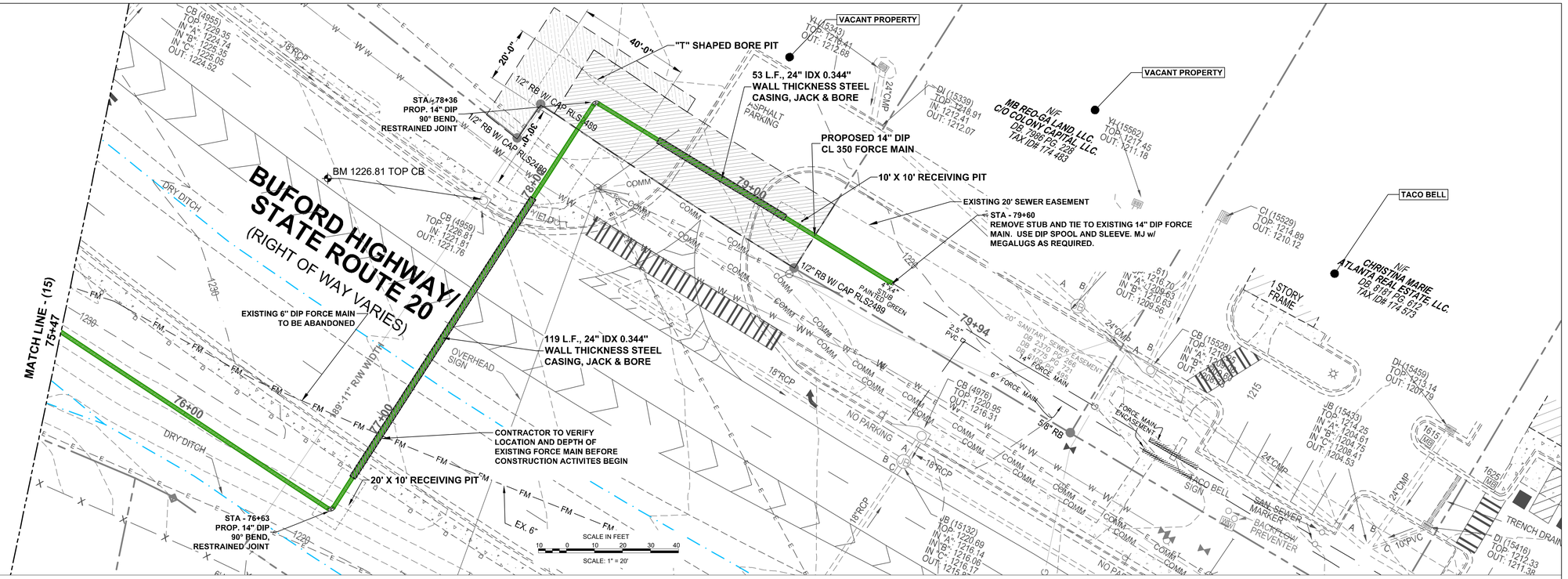
CITY OF CUMMING

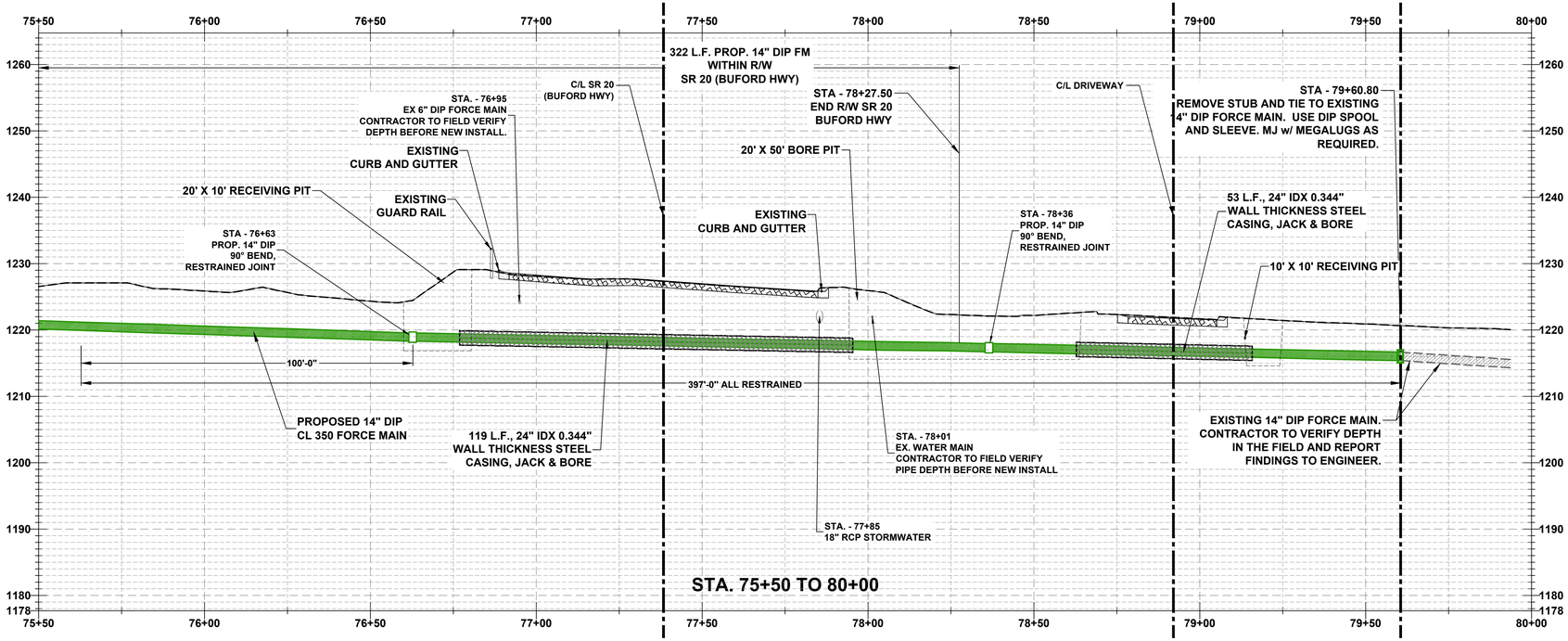
HAW CREEK ROAD OUTFALL AND FORCE MAIN

PLAN & PROFILE - (15)

DATE: 10/09/2019

SHEET
18 OF 36





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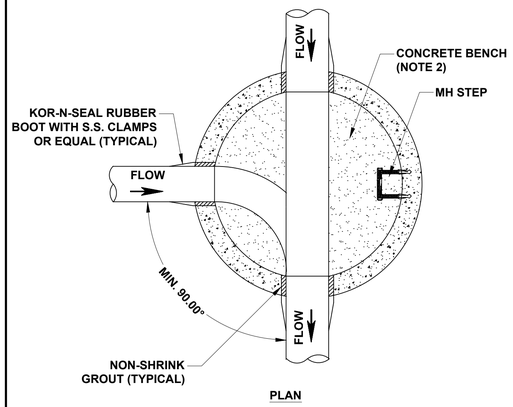
CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

PLAN & PROFILE - (16)

DATE: 10/09/2019

SHEET 19 OF 36



PLAN

NOTE:
1. MANHOLE DESIGN SPECIFICATION CONFORMS TO: PRECAST REINFORCED CONCRETE MANHOLE SECTIONS A.S.T.M. DESIGNATION C-478 LATEST REVISION. CONCRETE COMPRESSIVE STRENGTH 4000 psi @ 28 DAYS.
2. CONCRETE BENCH & INVERT SHALL BE TROWLED SMOOTH

CUMMING UTILITIES

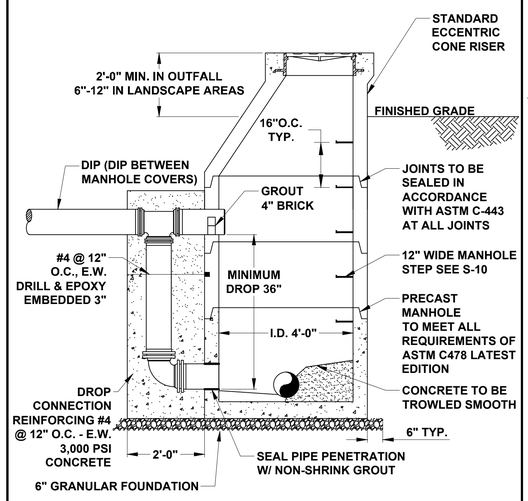
LATEST REVISION 07/14/2017

CITY OF CUMMING
DEPARTMENT OF UTILITIES

MANHOLE PLAN

DETAIL NUMBER: **S-5**

SCALE: NOT TO SCALE



TYPICAL SECTION

NOTE:
ALL DROP PIPE AND FITTINGS SHALL BE DUCTILE IRON

CUMMING UTILITIES

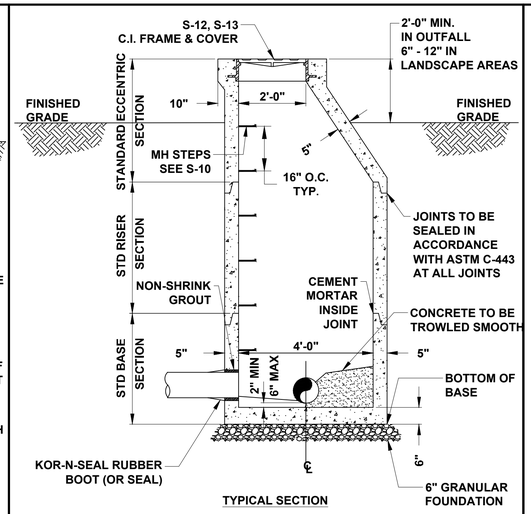
LATEST REVISION 07/14/2017

CITY OF CUMMING
DEPARTMENT OF UTILITIES

OUTSIDE VERTICAL DROP

DETAIL NUMBER: **S-6**

SCALE: NOT TO SCALE



TYPICAL SECTION

NOTE:
MANHOLE DESIGN SPECIFICATION CONFORMS TO: PRECAST REINFORCED CONCRETE MANHOLE SECTIONS A.S.T.M. DESIGNATION C-478 LATEST REVISION. CONCRETE COMPRESSIVE STRENGTH 4000 psi @ 28 DAYS.

CUMMING UTILITIES

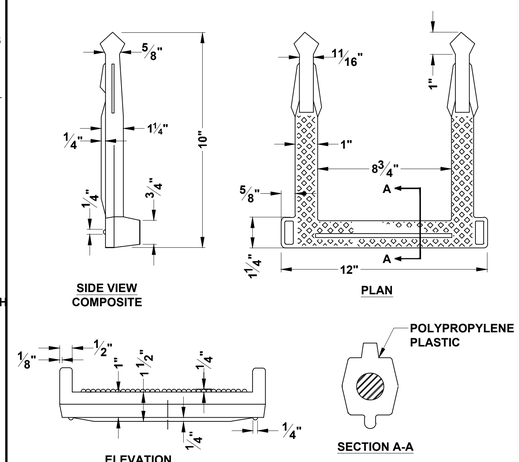
LATEST REVISION 07/14/2017

CITY OF CUMMING
DEPARTMENT OF UTILITIES

MANHOLE OUTFALL

DETAIL NUMBER: **S-8**

SCALE: NOT TO SCALE



NOTES:
1. STEPS DIFFERING IN DIMENSIONS, CONFIGURATION, OR MATERIALS FROM THOSE SHOWN MAY ALSO BE USED PROVIDED THE CONTRACTOR HAS FURNISHED DETAILS OF THE PROPOSED STEPS AND HAS RECEIVED WRITTEN APPROVAL FROM THE CITY
2. ALL STEPS SHALL PROTRUDE 4" FROM INSIDE FACE OF STRUCTURE WALL.

CUMMING UTILITIES

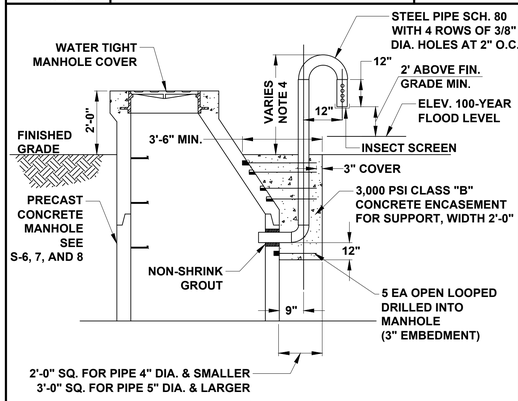
LATEST REVISION 07/14/2017

CITY OF CUMMING
DEPARTMENT OF UTILITIES

MANHOLE STEPS

DETAIL NUMBER: **S-10**

SCALE: NOT TO SCALE



TYPICAL SECTION

NOTES:
1. VENTED CONNECTION TO MANHOLE TO CONSIST OF STEEL PIPE AND 3000 PSI CLASS "B" CONCRETE COMPLETE
2. PIPE TO BE PAINTED WITH 2 COATS OF BITUMINOUS ENAMEL
3. STEEL PIPE SCHEDULE 80:
   - 3" DIA. FOR MANHOLES LESS THAN 6' DIA
   - 4" DIA. FOR MANHOLES 6' - 10' DIA
   - 5" DIA FOR MANHOLES 10' - 15' DIA
   - 6" DIA. FOR MANHOLES LARGER THAN 15' DIA
4. HEIGHT OF STACK SHALL BE SET ABOVE THE 100 YR FLOOD ELEVATION PLUS 2 FEET.

CUMMING UTILITIES

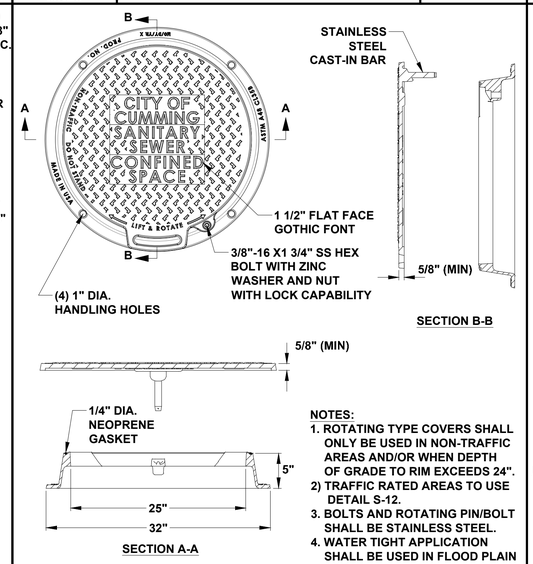
LATEST REVISION 07/14/2017

CITY OF CUMMING
DEPARTMENT OF UTILITIES

VENTED MANHOLE

DETAIL NUMBER: **S-11**

SCALE: NOT TO SCALE



NOTES:
1. ROTATING TYPE COVERS SHALL ONLY BE USED IN NON-TRAFFIC AREAS AND/OR WHEN DEPTH OF GRADE TO RIM EXCEEDS 24".
2) TRAFFIC RATED AREAS TO USE DETAIL S-12.
3. BOLTS AND ROTATING PIN/BOLT SHALL BE STAINLESS STEEL.
4. WATER TIGHT APPLICATION SHALL BE USED IN FLOOD PLAIN AREAS.

CUMMING UTILITIES

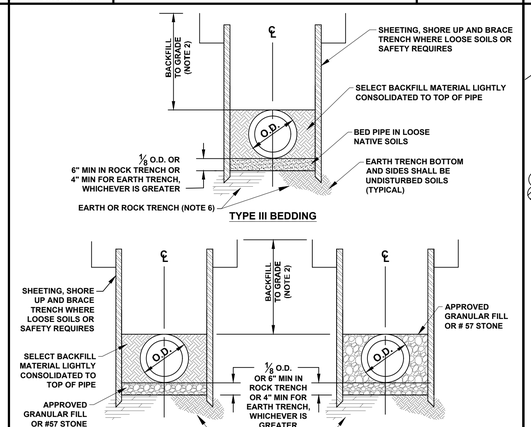
LATEST REVISION 07/14/2017

CITY OF CUMMING
DEPARTMENT OF UTILITIES

MANHOLE FRAME AND ROTATING COVER NON-TRAFFIC RATED

DETAIL NUMBER: **S-13**

SCALE: NOT TO SCALE



NOTES:
1. TRENCH WIDTH MINIMUMS PER DETAIL S-16B.
2. BACKFILL SHALL BE PLACED IN MAXIMUM 4-6 INCH LIFTS, TAMPED OR COMPACTED IN ACCORDANCE WITH AWWA C600 (CURRENT EDITION).
3. NATIVE OR LOOSE SOILS ARE THOSE EXCAVATED FROM THE TRENCH, FREE OF LARGE ROCKS (GREATER THAN 2-INCHES), FOREIGN MATERIALS, AND FROZEN EARTH.
4. GRANULAR OR SELECT FILL MATERIAL SHALL BE COMPACTED TO 90% STANDARD PROCTOR PER AASHTO T-99.
5. TYPE "V" BEDDING REQUIRED AT ROADWAY CROSSINGS AND RESTRAINED JOINT LOCATIONS.
6. WHERE TRENCH IS EXPOSED ROCK, 6-9 INCHES MIN. CUSHION REQUIRED BETWEEN PIPE & ROCK.
7. TYPE I AND TYPE II LAYING CONDITIONS SHALL NOT BE ALLOWED FOR WATER MAINS.

CUMMING UTILITIES

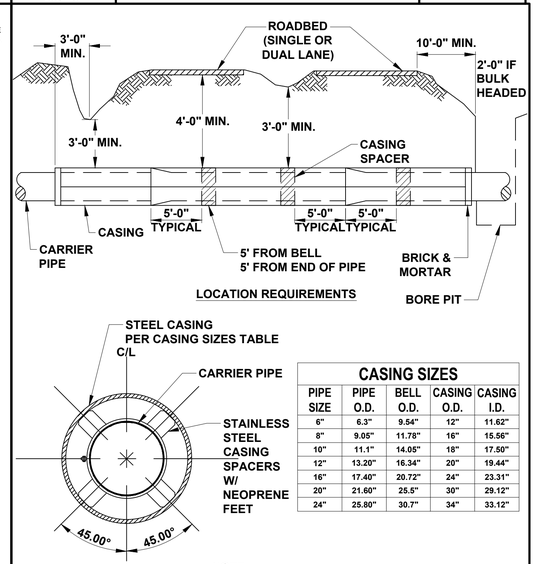
LATEST REVISION 07/14/2017

CITY OF CUMMING
DEPARTMENT OF UTILITIES

BEDDING DETAIL

DETAIL NUMBER: **S-14**

SCALE: NOT TO SCALE



CASING SIZES				
PIPE SIZE	PIPE O.D.	BELL O.D.	CASING O.D.	CASING I.D.
6"	6.3"	9.54"	12"	11.62"
8"	9.05"	11.78"	16"	15.56"
10"	11.1"	14.05"	18"	17.50"
12"	13.20"	16.34"	20"	19.44"
16"	17.40"	20.72"	24"	23.31"
20"	21.60"	25.5"	30"	29.12"
24"	25.80"	30.7"	34"	33.12"

NOTE:
1. ALL SEWER LINES CROSSING INTERSTATE OR LIMITED ACCESS ROADS SHALL BE CASED.

CUMMING UTILITIES

LATEST REVISION 07/14/2017

CITY OF CUMMING
DEPARTMENT OF UTILITIES

CASING DETAIL

DETAIL NUMBER: **S-15**

SCALE: NOT TO SCALE

NOTIFY FORSYTH COUNTY INSPECTOR 24 HOURS BEFORE BEGINNING PHASE OF CONSTRUCTION. (770) 781-2165

CUMMING UTILITIES

CEC
CIVIL ENGINEERING CONSULTANTS, INC.
Civil & Environmental Engineering
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Cumming, GA 30040
(770) 977-5747
www.cecincga.com

GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVE

DESIGNED BY:	DRAWN BY:	CHECKED BY:

DATE	DESCRIPTION
10/16/19	BID READY

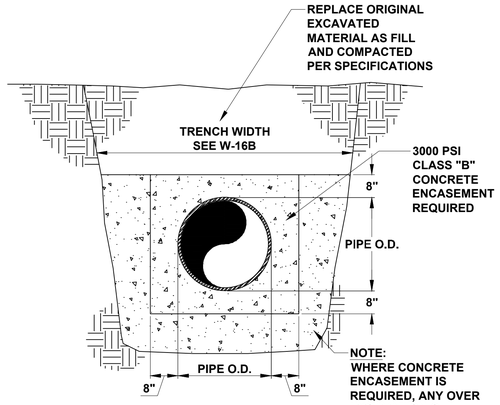
CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

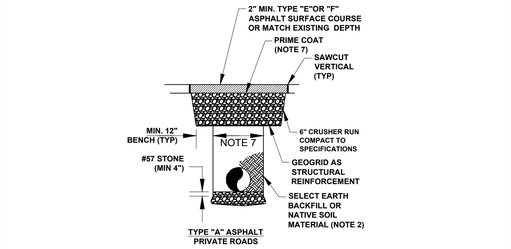
MISCELLANEOUS DETAILS 1

DATE: 10/09/2019

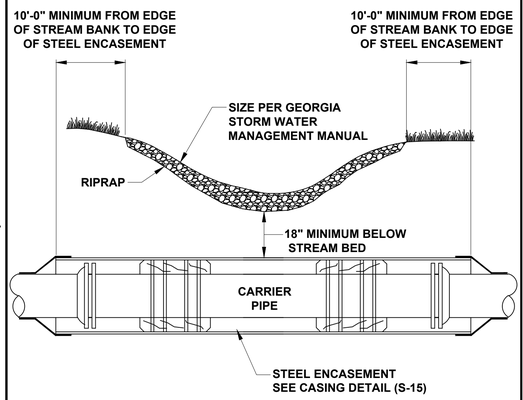
SHEET 20 OF 36



PIPE SIZE (NOMINAL)	A SIDE CLEARANCE - INCH SOIL	A ROCK	B DITCH WIDTH - INCH SOIL MJ	B SOIL SJ	B ROCK MJ	B ROCK SJ	C SHORING WIDTH (ADDITIONAL - INCH)	D CUT REPAIR WIDTH - FEET SOIL MJ	D SOIL SJ	D ROCK MJ	D ROCK SJ
3/4"-2"	2	6	NA	8	NA	14	AS APPROVED	NA	3.00	NA	3.17
4"	9	12	25	23	27	25	AS APPROVED	4.08	3.92	4.25	4.08
6"	9	12	28	28	30	30	AS APPROVED	4.33	4.33	4.50	4.50
8"	9	12	32	30	34	32	AS APPROVED	4.67	4.50	4.83	4.67
10"	9	12	34	32	36	34	AS APPROVED	4.83	4.67	5.00	4.83
12"	9	12	36	34	38	36	AS APPROVED	5.00	4.83	5.17	5.00
14"	9	14	39	36	41	38	AS APPROVED	5.25	5.00	5.42	5.17
16"	9	14	42	38	44	40	AS APPROVED	5.50	5.17	5.67	5.33
20"	9	14	45	44	47	46	AS APPROVED	5.75	5.67	5.92	5.83
24"	9	14	50	48	52	50	AS APPROVED	6.17	6.00	6.33	6.17
30"	9	18	58	54	60	56	AS APPROVED	6.83	6.50	7.00	6.67
36"	9	18	64	61	66	63	AS APPROVED	7.33	7.08	7.50	7.25
42"	9	18	72	64	74	66	AS APPROVED	8.00	7.33	8.17	7.50
48"	9	18	78	73	80	75	AS APPROVED	8.50	8.08	9.34	8.25



NOTES:
1. FINAL APPROVAL OF PAVEMENT CUT REPAIRS RESIDES WITH THE AUTHORITY HAVING JURISDICTION. FOR GEORGIA D.O.T. ROADS ALL MATERIALS AND METHODS OF INSTALLATION SHALL COMPLY WITH THE GEORGIA D.O.T. "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", LATEST REVISION.
2. BACKFILL SHALL BE PLACED AND COMPACTED IN 4-6" LIFTS, IN ACCORDANCE WITH AWWA C600, LATEST REVISION.
3. TRAFFIC CONTROL PLAN MUST BE APPROVED BY THE AUTHORITY HAVING JURISDICTION BEFORE WORK BEGINS.
4. FOR TYPE "C" PAVEMENT REPAIR THE POURED CONCRETE SHALL BE COVERED WITH TRAFFIC RATED STEEL PLATES A MINIMUM OF 24-HOURS TO ALLOW ADEQUATE CONCRETE SET.
5. STABILIZATION STONE SHALL BE REQUIRED IN AREAS WHERE TRENCH BOTTOM IS UNSTABLE. PIPE BEDDING SHALL HAVE A MINIMUM OF 4" OF #57 STONE OR AS SHOWN IN THE BEDDING STANDARD DETAILS.
6. PRIME COAT 0.15 - 0.30 GAL. PER SQ. YARD.
7. MINIMUM TRENCH WIDTHS ACCORDING TO TRENCH WIDTH CHART STANDARD DETAIL.



CUMMING UTILITIES — LATEST REVISION 07/14/2017

CITY OF CUMMING
DEPARTMENT OF UTILITIES

CONCRETE ENCASEMENT DETAIL

DETAIL NUMBER: **S-16A**

SCALE: NOT TO SCALE

CUMMING UTILITIES — LATEST REVISION 07/14/2017

CITY OF CUMMING
DEPARTMENT OF UTILITIES

ALLOWABLE TRENCH WIDTH CHART

DETAIL NUMBER: **S-16B**

SCALE: NOT TO SCALE

CITY OF CUMMING
DEPARTMENT OF UTILITIES

PAVEMENT CUT REPAIRS TYPE "A", "B", & "C"

DETAIL NUMBER: **NON-STANDARD DETAIL**

SCALE: NOT TO SCALE

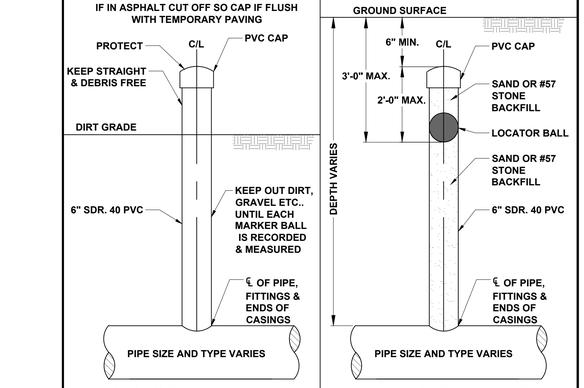
CUMMING UTILITIES — LATEST REVISION 07/14/2017

CITY OF CUMMING
DEPARTMENT OF UTILITIES

STREAM CROSSING

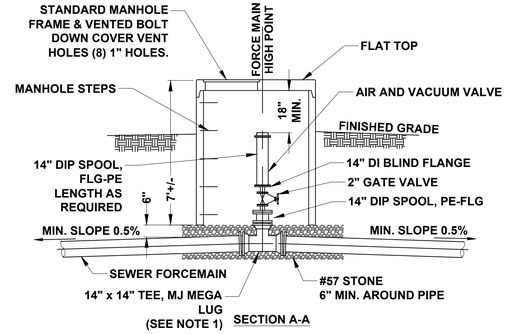
DETAIL NUMBER: **S-22**

SCALE: NOT TO SCALE



MARKER BALL REFERENCE		
TAG NO.	DESCRIPTION	DEPTH
XXX-XXX-XXX	SIZE, MATERIAL, FITTING	DEPTH OF MARKER BALL TO TOP OF PIPE

NOTES:
1. LOCATOR BALL TO BE CONSTRUCTED AT BENDS, AND AT 200-FOOT INTERVAL ON STRAIGHT PIPE.
2. MARKER BALLS SHALL BE 3M DYNATEL SERIES EMS ID BALL MARKERS MODEL NUMBER 1424-XR/ID FOR SEWER.
LOCATOR SHALL BE 3M DYNATEL 2250M-ID-UU-3W-RT.



NOTES:
1. FUSION WELD FOR TEE WHEN FORCE MAIN IS HDPE.
2. AIR VACUUM FITTINGS SHALL MATCH FORCE MAIN LINE MATERIAL.

MAXIMUM SLOPE FOR GRAVITY SEWER LINES (FLOW AT HALF-PIPE CAPACITY WITH A MAXIMUM VELOCITY OF 15ft/s)		
PIPE MATERIAL	PIPE SIZE DIAMETER (in)	MAXIMUM PIPE SLOPE (%)
Ductile Iron (n=0.012)	4	40.1
	6	23.4
	8	15.9
	10	11.8
	12	9.3
	14	7.5
	16	6.3
Polyvinyl Chloride (PVC) (n=0.010)	4	27.8
	6	16.2
	8	11
	10	8.2
	12	6.4
	14	5.2
	16	4.4
Concrete (n=0.012)	12	9.3
	14	7.5
	16	6.3
	18	5.4
	20	4.7
	24	3.7
	36	2.1

CALCULATION FORMULAS

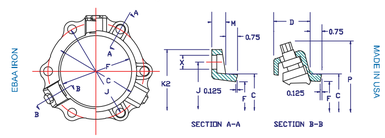
Cross Section Area of Half Circle Flow
$A = 0.5\,\pi r^2$

Wetted Perimeter of Half Circle Flow
$P = (0.5)2\pi r$

Hydraulic Radius
$R = A/P$

Pipe Slope (V=15 ft/s)
$S = \left[\frac{Vn}{1.49R^{2/3}}\right]^2$

Series 1100 Submittal Reference Drawing



SIZE	A	B	C	D	E	F	G	H	J	K	K2	L	M	N	P	WEIGHT	QTY/CASE
3	1103	4.48	2.27	4.06	0.62	9.06	0.750	6.19	7.69	2	4	6.1	350
4	1104	5.92	2.27	4.90	0.75	9.90	0.875	7.50	9.12	2	4	7.7	350
6	1106	8.02	2.27	7.00	0.88	12.00	0.875	9.50	11.12	3	6	11.9	350
8	1108	10.17	2.31	9.15	1.00	14.15	0.875	11.75	13.37	4	6	14.8	350
10	1110	12.22	2.37	11.20	1.00	16.20	0.875	14.00	15.62	6	8	23.9	350
12	1112	14.32	2.37	13.30	1.25	18.30	0.875	16.25	17.88	8	8	31.2	350
14	1114	16.40	2.69	15.44	1.50	20.94	0.875	18.75	20.25	10	10	48.5	350
16	1116	18.50	2.69	17.54	1.56	22.90	0.875	21.00	22.50	12	12	56.4	350
18	1118	20.60	2.69	19.64	1.63	25.00	0.875	23.25	24.75	12	12	63.1	250
20	1120	22.70	2.69	21.74	1.69	27.10	0.875	25.50	27.00	14	14	72.3	250
24	1124	26.90	3.20	25.94	1.81	32.64	0.875	30.00	31.50	16	16	133.1	250
30	1130	33.29	3.20	32.17	2.25	38.87	1.125	36.88	39.12	20	20	194.6	250
36	1136	39.59	3.20	38.47	2.25	45.17	1.125	43.75	46.00	24	24	234.0	250
42	1142	45.79	4.56	44.67		3.88	55.57	1.375	50.62	53.48	28	28	536.0	250
48	1148	52.09	4.56	50.97	3.88	61.87	1.375	57.50	60.36	32	32	653.0	250
54	1154	58.82	4.56	57.73		3.88	66.40	1.375	63.20	66.33	36	36	700.3	200

Important Notes

- The Series 1100 MEGALUG should not be used on plain end fittings.
- If encased in concrete, polyethylene wrap must be used to prevent concrete intrusion into the wedge pocket.
- For test pressures above the rated pressures shown, contact EBAA for recommendations, such as tandem restraint for high pressure applications.
- If you experience the need to install the Series 1100 MEGALUG in an unconventional manner please consult our engineering department.
- The Series 1100 MEGALUG is intended for use on ductile iron pipe. The restraint can be used on grey iron pipe if the pipe is not severely corroded and is in sound condition and has an outside diameter that can be accommodated. For more information on the use of the MEGALUG restraint on grey iron pipe ask for Connections Bulletin DI-1.
- EBAA-Seal™ Mechanical Joint Gaskets are provided with 30 inch through 54 inch MEGALUG restraints. These are required on the above referenced sizes to accommodate the pressure ratings and safety factors shown.
- Extra length T-bolts are provided with the 42 inch, 48 inch and 54 inch sizes to facilitate easier assembly of the mechanical joint.
- All Series 1100 MEGALUG components are made of ductile iron conforming to ASTM A536. The wedges are heat treated to a hardness range of 370 to 470 BHN.
- LISTINGS AND APPROVALS: Sizes 3 inch through 24 inch are listed by Underwriters Laboratories, Inc. Category HUKF "Fittings, Retainer Type" with a deflection angle of 5 degrees (3 inch through 12 inch) and 2½ degrees (14 inch through 24 inch). The listing file number is EX2836. Sizes 3 inch through 12 inch are Factory Mutual approved.

CUMMING UTILITIES — LATEST REVISION 07/14/2017

CITY OF CUMMING
DEPARTMENT OF UTILITIES

MARKER BALL DETAIL

DETAIL NUMBER: **S-27**

SCALE: NOT TO SCALE

CUMMING UTILITIES — LATEST REVISION 07/14/2017

CITY OF CUMMING
DEPARTMENT OF UTILITIES

AIR/VACUUM VALVE DETAIL

DETAIL NUMBER: **S-29**

SCALE: NOT TO SCALE

CUMMING UTILITIES — LATEST REVISION 07/14/2017

CITY OF CUMMING
DEPARTMENT OF UTILITIES

MAXIMUM SLOPE FOR GRAVITY SEWER LINES

DETAIL NUMBER: **S-31**

SCALE: NOT TO SCALE

MEGALUG SPECIFICATIONS

NOTIFY FORSYTH COUNTY INSPECTOR 24 HOURS BEFORE BEGINNING PHASE OF CONSTRUCTION. (770) 781-2165

CUMMING UTILITIES

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GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVERN

DESIGNED BY:	DRAWN BY:	CHECKED BY:
10/16/19	BID READY	
DATE	DESCRIPTION	

CITY OF CUMMING

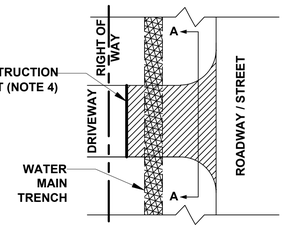
HAW CREEK ROAD OUTFALL AND FORCE MAIN

MISCELLANEOUS DETAILS 2

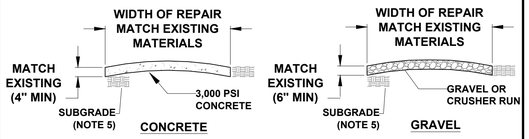
DATE: 10/09/2019

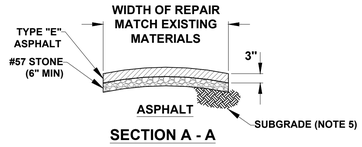
SHEET 21 OF 36

NOTES:
1. FREE-BORE CROSSINGS ARE STANDARD UNLESS SHOWN OTHERWISE IN CONTRACT DRAWINGS OR APPROVAL IS GIVEN BY THE CITY.
2. FINISHED GRADE TO BE FLUSH WITH EDGE OF DRIVE.
3. FINISHED SURFACE OF REPAIRED AREA TO MATCH EXISTING SURFACE. SAW CUTS SHALL BE VERTICAL. EXPANSION MATERIAL TO BE USED AS DIRECTED.
4. FOR CONCRETE DRIVEWAYS REMOVE & REPLACE BACK TO FIRST CONSTRUCTION JOINT.
5. SUBGRADE COMPACTION AND MATERIALS SHALL MEET SPECIFICATIONS AND TRENCHING STANDARD DETAILS.

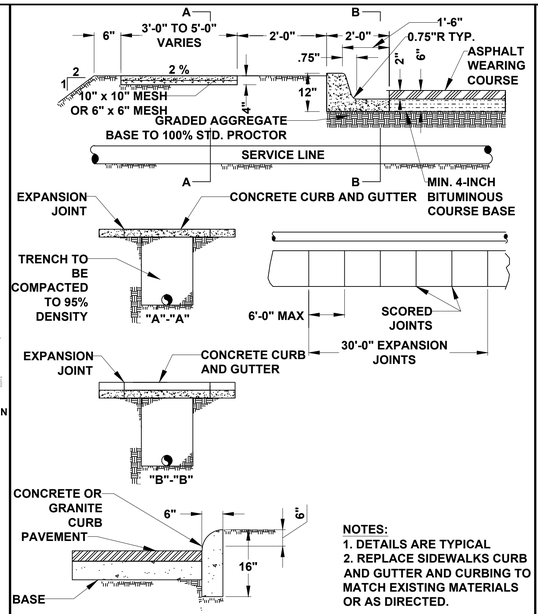


PLAN VIEW

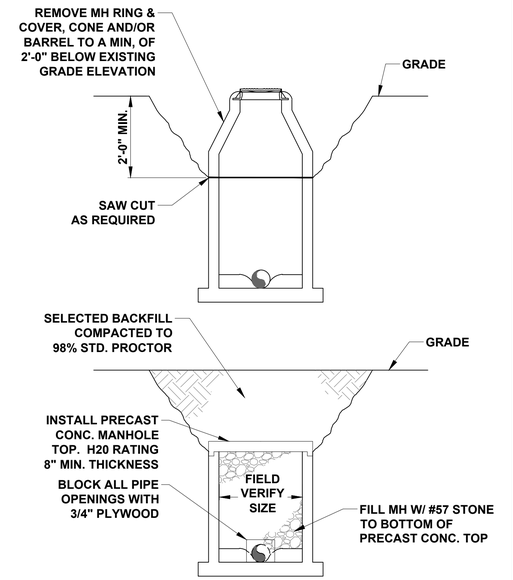


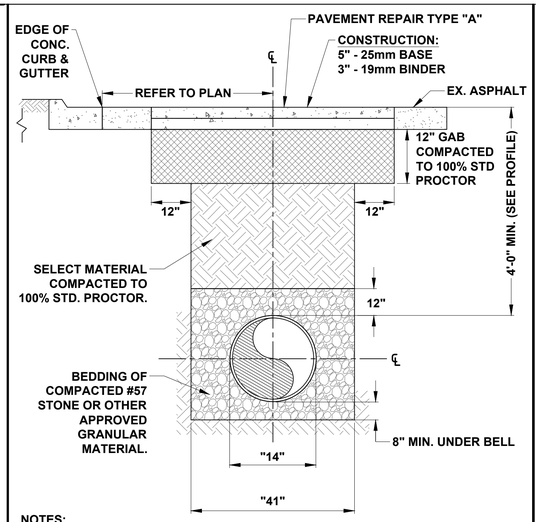


SECTION A - A



NOTES:
1. DETAILS ARE TYPICAL
2. REPLACE SIDEWALKS CURB AND GUTTER AND CURBING TO MATCH EXISTING MATERIALS OR AS DIRECTED.





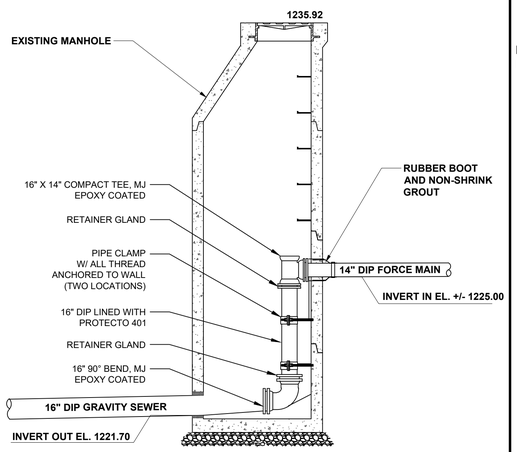
NOTES:
1. ALL PAVEMENT TO BE SAW CUT
2. D = NOMINAL PIPE DIAMETER
3. SURFACES TO BE CLEANED AND BITUMINOUS TACK COAT PRIME APPLIED BEFORE PLACEMENT OF ASPHALTIC TOP.
4. SHEETING, SHOREUP, AND BRACE TRENCH WHEN LOOSE SOIL & SAFETY REQUIRES.

CUMMING UTILITIES	CITY OF CUMMING DEPARTMENT OF UTILITIES DRIVEWAY CUT REPAIRS	DETAIL NUMBER: W-27
LATEST REVISION 07/14/2017		SCALE: NOT TO SCALE

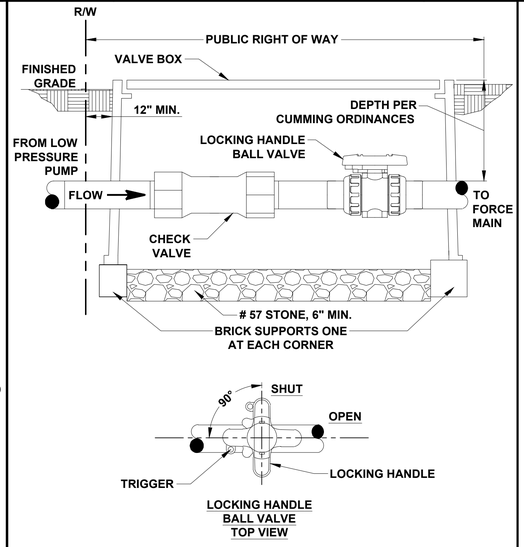
CUMMING UTILITIES	CITY OF CUMMING DEPARTMENT OF UTILITIES SIDEWALK, CURB AND GUTTER REPAIRS	DETAIL NUMBER: W-28
LATEST REVISION 07/14/2017		SCALE: NOT TO SCALE

CITY OF CUMMING DEPARTMENT OF UTILITIES MANHOLE ABANDONMENT	DETAIL NUMBER: NON-STANDARD DETAIL
	SCALE: NOT TO SCALE

CITY OF CUMMING DEPARTMENT OF UTILITIES TYPE V BEDDING & ASPHALT REPAIR /REPLACEMENT FOR HAW CREEK ROAD, HAW CREEK CIRCLE,	DETAIL NUMBER: NON-STANDARD DETAIL
	SCALE: NOT TO SCALE



CITY OF CUMMING DEPARTMENT OF UTILITIES FORCE MAIN CONNECTION DETAIL	DETAIL NUMBER: NON-STANDARD DETAIL
	SCALE: NOT TO SCALE



NOTE:
VALVE SIZE TO MATCH PUMP, 1.25" - 2".

PADLOCK SHAFT DIAMETER	
1-1/4" - 2"	.24"

CUMMING UTILITIES	CITY OF CUMMING DEPARTMENT OF UTILITIES LOW PRESSURE CONNECTION	DETAIL NUMBER: S-24
LATEST REVISION 05/24/2018		SCALE: NOT TO SCALE

NOTIFY FORSYTH COUNTY INSPECTOR 24 HOURS BEFORE BEGINNING PHASE OF CONSTRUCTION. (770) 781-2165

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GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVELL

DESIGNED BY:	DRAWN BY:	CHECKED BY:

DATE	DESCRIPTION
10/16/19	BID READY

CITY OF CUMMING
HAW CREEK ROAD OUTFALL AND FORCE MAIN
MISCELLANEOUS DETAILS 3

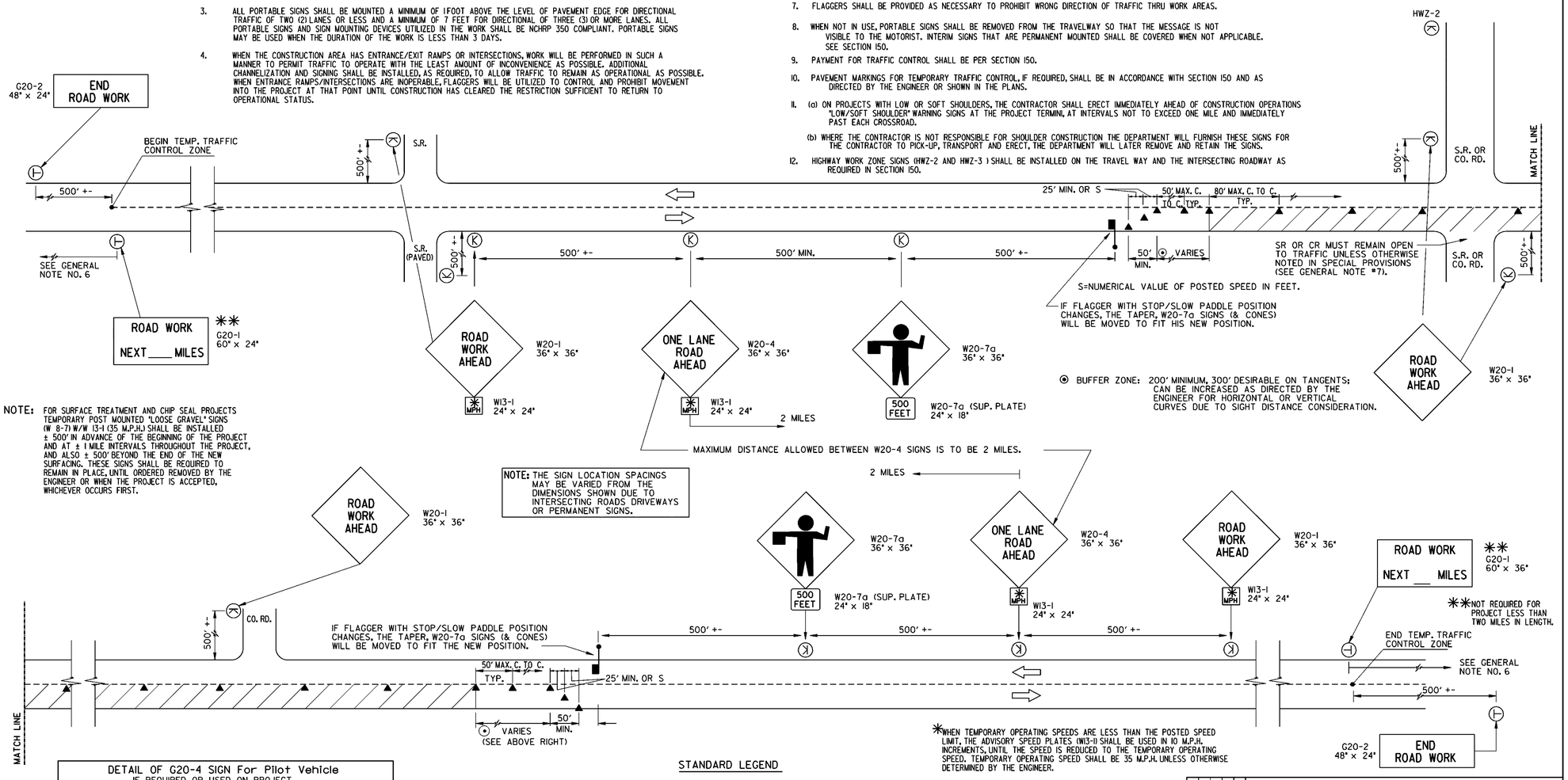
DATE: 10/09/2019

SHEET 22 OF 36

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

GENERAL NOTES:

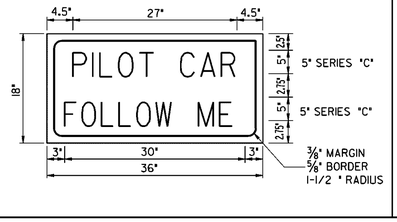
1. ALL TRAFFIC CONTROL DEVICES SHALL BE MADE AND ERECTED IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS; THE MUTCD; THE GEORGIA STANDARD SPECIFICATIONS, AND/OR SPECIAL PROVISIONS. (SEE SECTION 150)
2. ALL TRAFFIC CONTROL DEVICES SHALL BE AS SHOWN, OR AS DIRECTED BY THE ENGINEER. ADDITIONAL DEVICES MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.
3. ALL PORTABLE SIGNS SHALL BE MOUNTED A MINIMUM OF 1FOOT ABOVE THE LEVEL OF PAVEMENT EDGE FOR DIRECTIONAL TRAFFIC OF TWO (2) LANES OR LESS AND A MINIMUM OF 7 FEET FOR DIRECTIONAL OF THREE (3) OR MORE LANES. ALL PORTABLE SIGNS AND SIGN MOUNTING DEVICES UTILIZED IN THE WORK SHALL BE NCHRP 350 COMPLIANT. PORTABLE SIGNS MAY BE USED WHEN THE DURATION OF THE WORK IS LESS THAN 3 DAYS.
4. WHEN THE CONSTRUCTION AREA HAS ENTRANCE/EXIT RAMPS OR INTERSECTIONS, WORK WILL BE PERFORMED IN SUCH A MANNER TO PERMIT TRAFFIC TO OPERATE WITH THE LEAST AMOUNT OF INCONVENIENCE AS POSSIBLE. ADDITIONAL CHANNELIZATION AND SIGNING SHALL BE INSTALLED, AS REQUIRED, TO ALLOW TRAFFIC TO REMAIN AS OPERATIONAL AS POSSIBLE. WHEN ENTRANCE RAMPS/INTERSECTIONS ARE INOPERABLE, FLAGGERS WILL BE UTILIZED TO CONTROL AND PROHIBIT MOVEMENT INTO THE PROJECT AT THAT POINT UNTIL CONSTRUCTION HAS CLEARED THE RESTRICTION SUFFICIENT TO RETURN TO OPERATIONAL STATUS.
5. FOR NIGHT TIME OPERATIONS, DRUMS SHALL HAVE, FOR THE LENGTH OF THE TAPER ONLY, A SIX (6") INCH ORANGE REFLECTIZED TOP STRIPE ON EACH DRUM IN THE TAPER AS REQUIRED IN SECTION 150. SPACING OF DEVICES SHALL BE AS SHOWN. DURING DAYLIGHT HOURS, CONES (28" MIN.) MAY BE USED IN ADVANCE OF AND THROUGHOUT WORK AREA.
6. SIGNS SHOWN HERE ARE IN ADDITION TO ALL ADVANCE WARNING SIGNS REQUIRED IN SECTION 150.
7. FLAGGERS SHALL BE PROVIDED AS NECESSARY TO PROHIBIT WRONG DIRECTION OF TRAFFIC THRU WORK AREAS.
8. WHEN NOT IN USE, PORTABLE SIGNS SHALL BE REMOVED FROM THE TRAVELWAY SO THAT THE MESSAGE IS NOT VISIBLE TO THE MOTORIST. INTERIM SIGNS THAT ARE PERMANENT MOUNTED SHALL BE COVERED WHEN NOT APPLICABLE. SEE SECTION 150.
9. PAYMENT FOR TRAFFIC CONTROL SHALL BE PER SECTION 150.
10. PAVEMENT MARKINGS FOR TEMPORARY TRAFFIC CONTROL, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SECTION 150 AND AS DIRECTED BY THE ENGINEER OR SHOWN IN THE PLANS.
11. (a) ON PROJECTS WITH LOW OR SOFT SHOULDERS, THE CONTRACTOR SHALL ERECT IMMEDIATELY AHEAD OF CONSTRUCTION OPERATIONS "LOW/SOFT SHOULDER" WARNING SIGNS AT THE PROJECT TERMINI, AT INTERVALS NOT TO EXCEED ONE MILE AND IMMEDIATELY PAST EACH CROSSROAD.
    (b) WHERE THE CONTRACTOR IS NOT RESPONSIBLE FOR SHOULDER CONSTRUCTION THE DEPARTMENT WILL FURNISH THESE SIGNS FOR THE CONTRACTOR TO PICK-UP, TRANSPORT AND ERECT, THE DEPARTMENT WILL LATER REMOVE AND RETAIN THE SIGNS.
12. HIGHWAY WORK ZONE SIGNS (HWZ-2 AND HWZ-3) SHALL BE INSTALLED ON THE TRAVEL WAY AND THE INTERSECTING ROADWAY AS REQUIRED IN SECTION 150.



NOTE: FOR SURFACE TREATMENT AND CHIP SEAL PROJECTS TEMPORARY POST MOUNTED "LOOSE GRAVEL" SIGNS (W 8-7) W/W 13-1 (35 M.P.H.) SHALL BE INSTALLED ± 500' IN ADVANCE OF THE BEGINNING OF THE PROJECT AND AT ± 1 MILE INTERVALS THROUGHOUT THE PROJECT, AND ALSO ± 500' BEYOND THE END OF THE NEW SURFACING. THESE SIGNS SHALL BE REQUIRED TO REMAIN IN PLACE, UNTIL ORDERED REMOVED BY THE ENGINEER OR WHEN THE PROJECT IS ACCEPTED, WHICHEVER OCCURS FIRST.

* WHEN TEMPORARY OPERATING SPEEDS ARE LESS THAN THE POSTED SPEED LIMIT, THE ADVISORY SPEED PLATES (W13-1) SHALL BE USED IN 10 M.P.H. INCREMENTS, UNTIL THE SPEED IS REDUCED TO THE TEMPORARY OPERATING SPEED. TEMPORARY OPERATING SPEED SHALL BE 35 M.P.H. UNLESS OTHERWISE DETERMINED BY THE ENGINEER.

DETAIL OF G20-4 SIGN For Pilot Vehicle
IF REQUIRED OR USED ON PROJECT



STANDARD LEGEND

- STRIPED DRUM
- PERMANENT TYPE POST MOUNTED SIGN (7' MOUNT HEIGHT)
- TEMPORARY POST MOUNTED SIGN - (7' MOUNT HEIGHT)
- PORTABLE MOUNTED SIGN - MINIMUM HEIGHT OF 1FT. ABOVE THE EDGE OF PAVEMENT; INSTALLED AS PER NCHRP 350 TESTING REQUIREMENTS.
- WORK AREA
- TRAFFIC CONE - 28" MIN. - DAYTIME USE ONLY
- FLAGGER WITH STOP-SLOW PADDLE

DATE	REVISION	BY
3-30-06	REMOVED FLAGS AND REV. G20-24 TO G20-2.	GLO

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

STANDARD TRAFFIC CONTROL DETAIL FOR LANE CLOSURE ON TWO-LANE HIGHWAY

NO SCALE — REV. & REDR. JULY, 1999

DES. ___ DRW. ___ TRA. ___ CHK. ___

(SUBMITTED) STATE ROAD & AIRPORT DESIGN ENGINEER

(APPROVED) CHIEF ENGINEER

NUMBER 9102

8/3/2006 11:38:53 AM \\GDOT-DSN1\GDPLOT\QCF\go_1ff_output.qcf gowens M:\GART\Revised 9102\9102.prf

NOTIFY FORSYTH COUNTY INSPECTOR 24 HOURS BEFORE BEGINNING PHASE OF CONSTRUCTION. (770) 781-2165

CUMMING UTILITIES

cEc
CIVIL ENGINEERING CONSULTANTS, INC.
Civil & Environmental Engineering
110 Samaritan Drive, Suite 201
Cumming, GA 30040
(770) 977-5747
www.cecincga.com

GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVEDAY

DESIGNED BY: MY	DRAWN BY: JV	CHECKED BY: GP

DATE	DESCRIPTION
10/16/19	BID READY

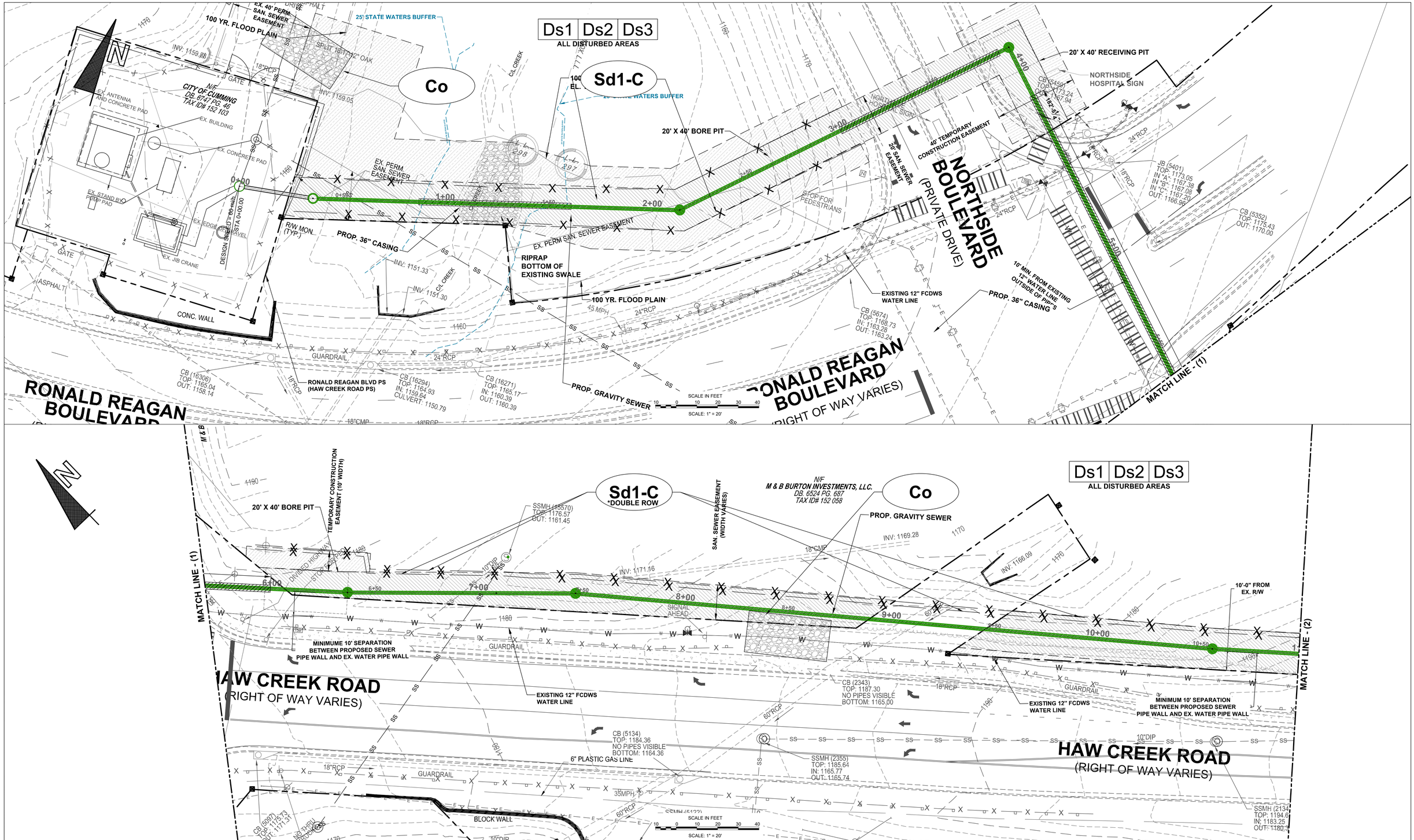
CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

MISCELLANEOUS DETAILS 4

DATE: 10/09/2019

SHEET 23 OF 36



SCALE:
1" = 20'-0" horiz.
1" = 10'-0" vert.

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GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVEJOY

DESIGNED BY:	DRAWN BY:	CHECKED BY:
10/16/19	BID READY	
DATE	DESCRIPTION	

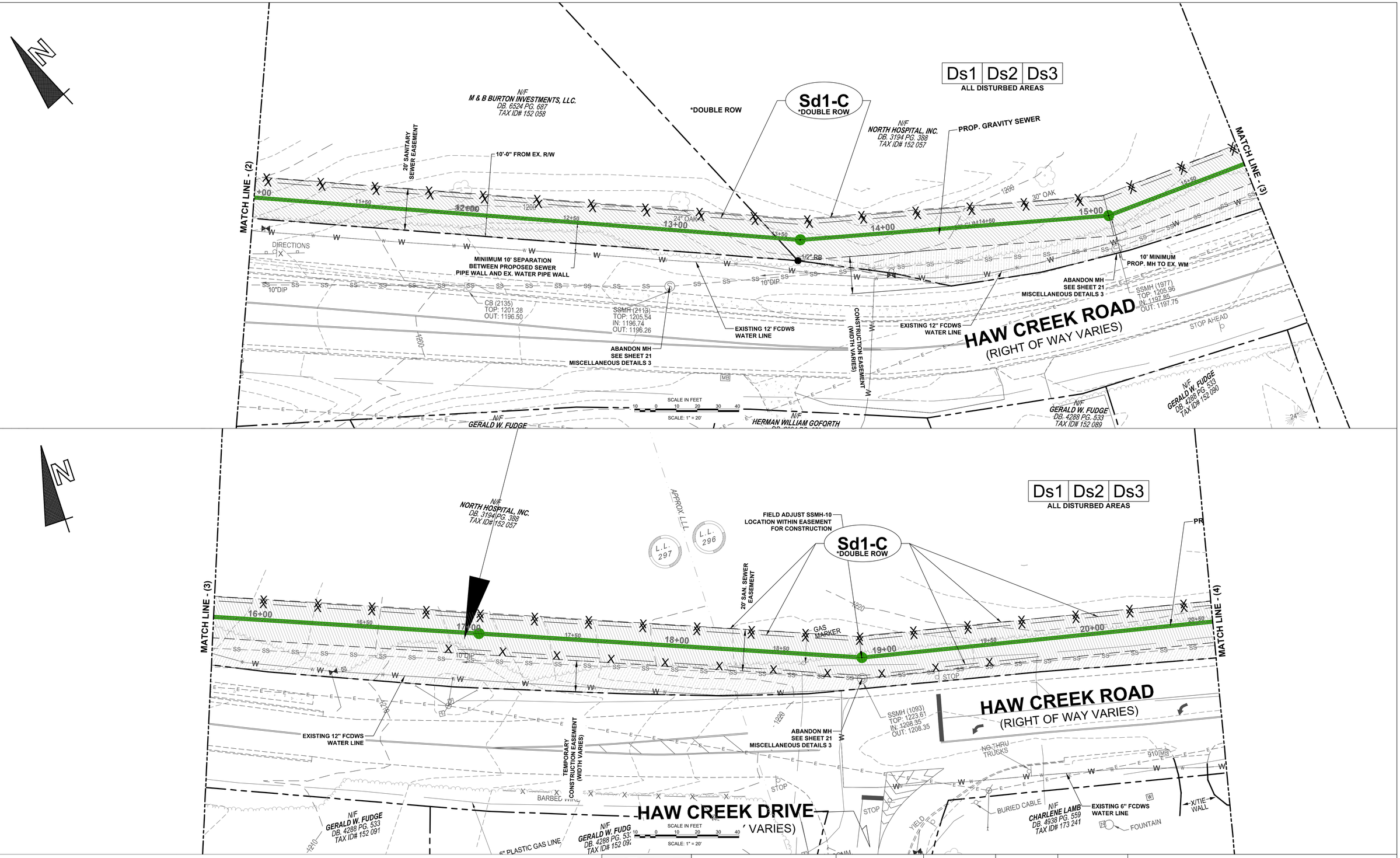
CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

E&SCP PLANS - STA 0+00 - 11+00

DATE: 10/09/2019

SHEET
24 OF 36



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DESIGNED BY:	DRAWN BY:	CHECKED BY:

DATE	DESCRIPTION
10/16/19	BID READY

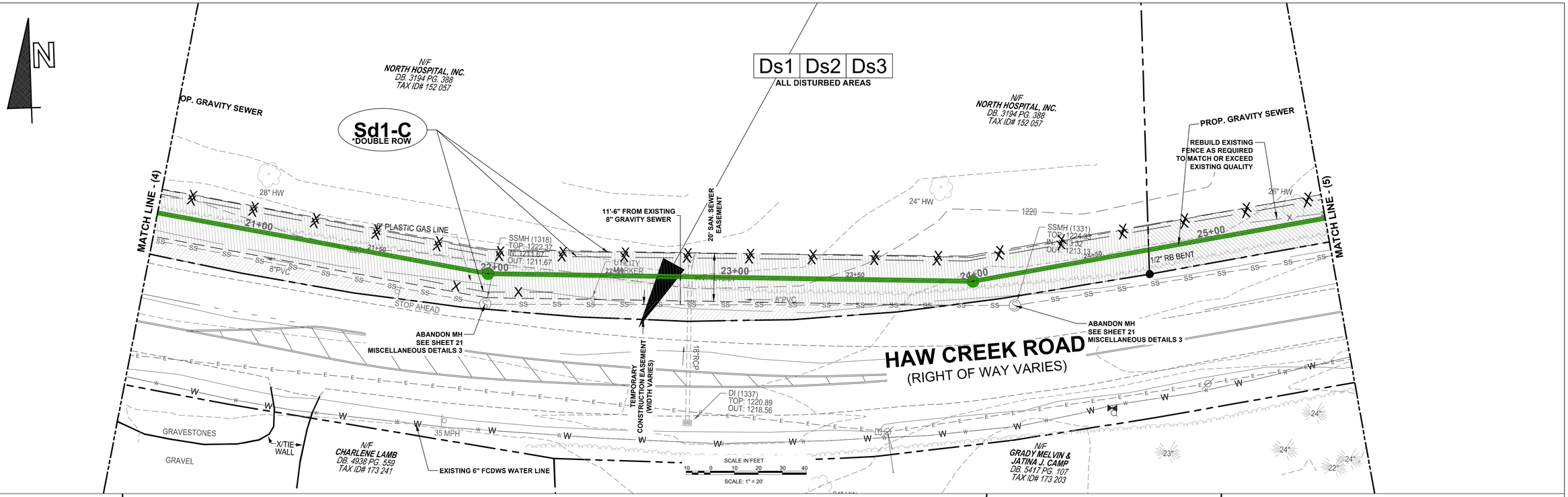
CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

E&SCP PLANS - STA 11+00 - 20+60

DATE: 10/09/2019

SHEET
25 OF 36



SCALE:
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DESIGNED BY:	DRAWN BY:	CHECKED BY:

DATE	DESCRIPTION
10/16/19	BID READY

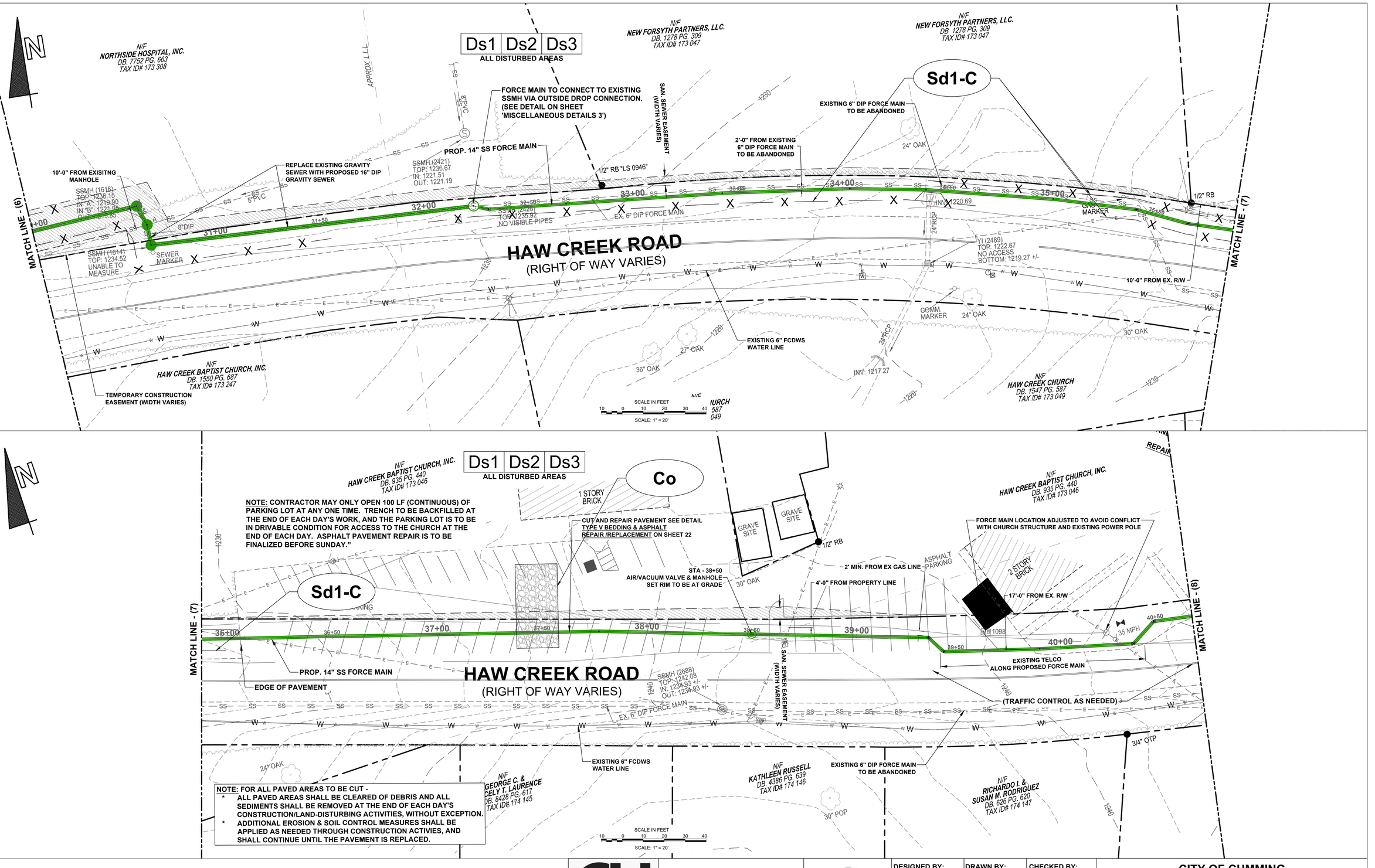
CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

E&SCP PLANS - STA 20+60 - 30+00

DATE: 10/09/2019

SHEET
26 OF 36



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GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVEGROVE

DESIGNED BY:	DRAWN BY:	CHECKED BY:
10/16/19	BID READY	
DATE	DESCRIPTION	

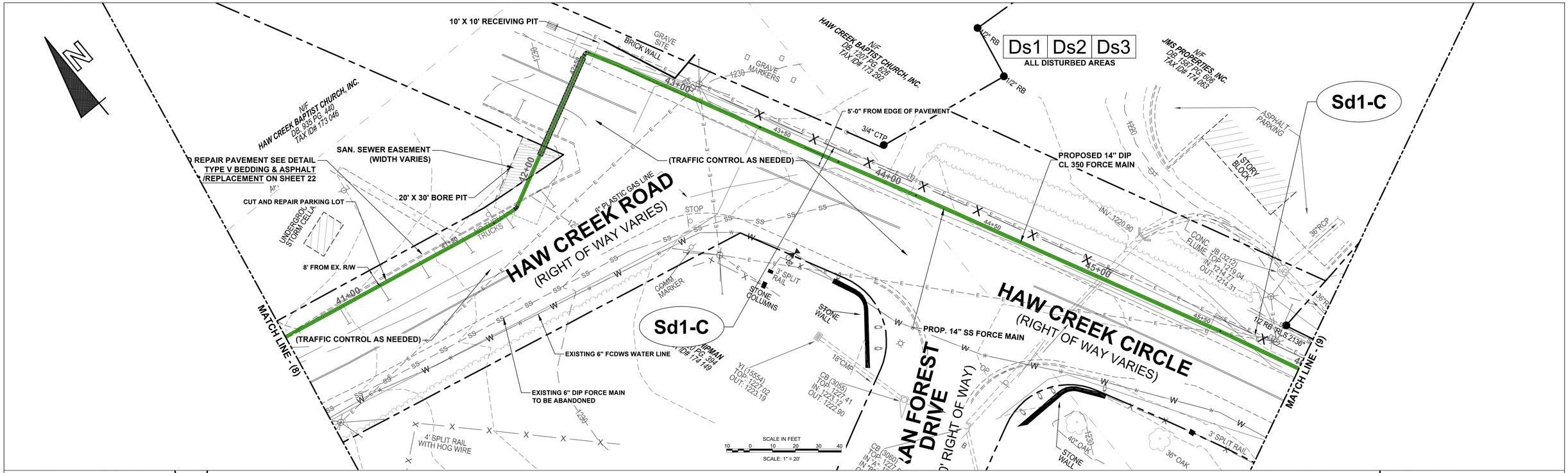
CITY OF CUMMING

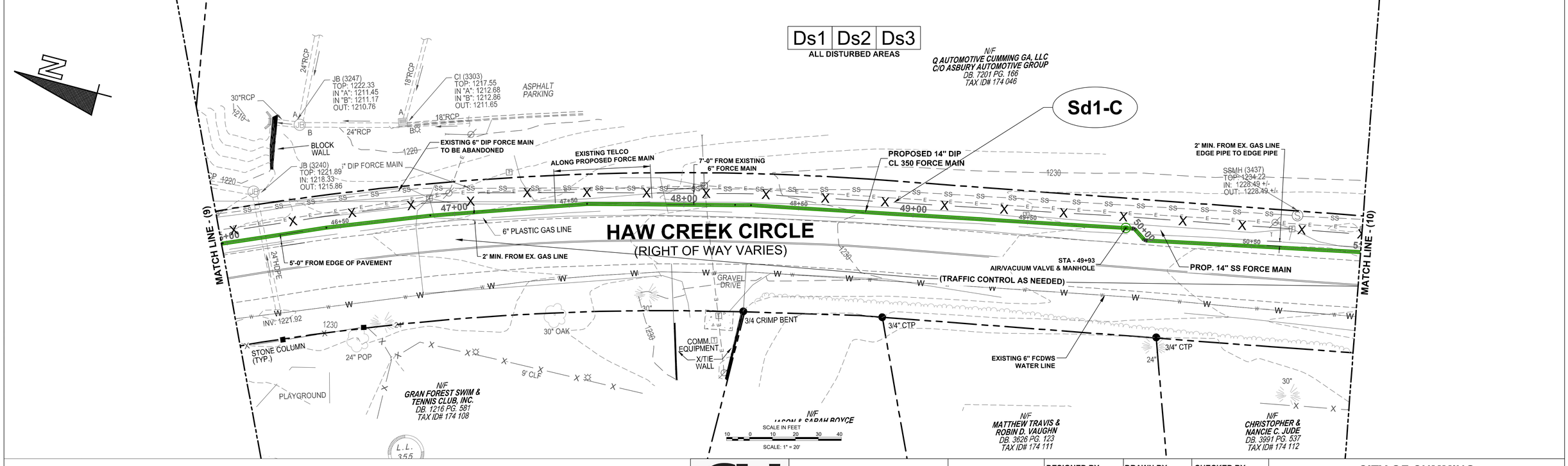
HAW CREEK ROAD OUTFALL AND FORCE MAIN

E&SCP PLANS - STA 30+00 - 40+70

DATE: 10/09/2019

SHEET 27 OF 36





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GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVEJOY

DESIGNED BY:	DRAWN BY:	CHECKED BY:

DATE	DESCRIPTION
10/16/19	BID READY

CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

E&SCP PLANS - STA 40+70 - 51+00

DATE: 10/09/2019

SHEET 28 OF 36

Ds1 | Ds2 | Ds3
ALL DISTURBED AREAS

N

N/F
Q AUTOMOTIVE CUMMING GA, LLC
C/O ASBURY AUTOMOTIVE GROUP
DB. 7201 PG. 166
TAX ID# 174 046

Sd1-C

REPLACE DRIVEWAY TO RIGHT-OF-WAY. TYPE 'A' ASPHALTIC PRIVATE ROAD (DETAIL S-21)

N/F
ACORN 61 OFFICE PARK REAL ESTATE, LLC.
DB. 6883 PG. 241
TAX ID# 174 045

2' MIN. FROM EX. GAS LINE EDGE PIPE TO EDGE PIPE

PROPOSED 14" DIP CL 350 FORCE MAIN

Sd1-C

EXISTING 6" DIP FORCE MAIN

MATCH LINE - (10)

MATCH LINE - (11)

ASPHALT DRIVE

SEWER MARKER

INV: 1228.66

INV: 1220.37

50+00
51+50
52+00
52+50
53+00
53+50
54+00
54+50
55+00
55+50

HAW CREEK CIRCLE
(RIGHT OF WAY VARIES)

(TRAFFIC CONTROL AS NEEDED)

3/4 CTP BENT

3/4" CTP

3/4" CTP

EXISTING 6" FCDWS WATER LINE

24"

6" WPF

3 SPLIT RAIL

STONE COLUMN (TYP.)

INV: 1222.83

STONE WALL

STOP

CROP

N/F
ROBERT A. HUGHES
AMANDA M. COTTRELL
DB. 5391 PG. 119
TAX ID# 174 113

N/F
ELAINE M. BRADSHAW
DB. 950 PG. 640
TAX ID# 174 114

N/F
OLGA A. &
N P. COLLINS
3295 PG. 428
ID# 174 115

N/F
JEANNE P. DONALDSON
DB. 3852 PG. 198
TAX ID# 174 116

SCALE IN FEET
10 0 10 20 30 40
SCALE: 1" = 20'

BUD WAY
RIGHT OF WAY)

Ds1 | Ds2 | Ds3
ALL DISTURBED AREAS

N

L.L. 355

L.L. 366

N/F
ACORN 61 OFFICE PARK
STATE, LLC.
G. 241
045

Sd1-C

1 STORY BRICK

CUT AND REPAIR PAVEMENT SEE DETAIL
TYPE V BEDDING & ASPHALT
REPAIR /REPLACEMENT ON SHEET 22

EX. WATER VALVES

EXISTING 8" CUMMING UTILITIES WATER LINE

YI (4099)
TOP: 1208.31
OUT: 1201.97

COMM. MARKER

SEWER MARKER

2' MIN. FROM EX. GAS LINE EDGE PIPE TO EDGE PIPE

MATCH LINE - (11)

MATCH LINE - (12)

PROP. 14" SS FORCE MAIN

6" DIP FORCE MAIN

6" PLASTIC GAS LINE

PROPOSED 14" DIP CL 350 FORCE MAIN

(TRAFFIC CONTROL AS NEEDED)

EXISTING 6" FCDWS WATER

56+00
57+00
57+50
58+00
58+50
59+00
59+50
60+00
60+50
61

35 MPH

HAW CREEK CIRCLE
(RIGHT OF WAY VARIES)

STOP AHEAD

STOP

6" WPF

IVEY TRACE
(RIGHT OF WAY VARIES)

DI (3897)
TOP: 1220.05
OUT: 1217.05

18" CMP

ASPHALT PARKING

STONE WALL

STONE WALL

N/F
IVEY WALK HOME OWNERS ASSOCIATION, INC.
DB. 1138 PG. 83
TAX ID# 174 004

N/F
LEE CAMPE
DB. 6101 PG. 392
TAX ID# 174 282

N/F
TAYLOR &
MEGAN L. POPP
DB. 7453 PG. 669
TAX ID# 174 284

SCALE IN FEET
10 0 10 20 30 40
SCALE: 1" = 20'

SCALE:
1" = 20'-0" horiz.
1" = 10'-0" vert.

NOTIFY FORSYTH COUNTY INSPECTOR 24 HOURS BEFORE BEGINNING PHASE OF CONSTRUCTION. (770) 781-2165

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GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVEJOY

DESIGNED BY:	DRAWN BY:	CHECKED BY:

DATE	DESCRIPTION
10/16/19	BID READY

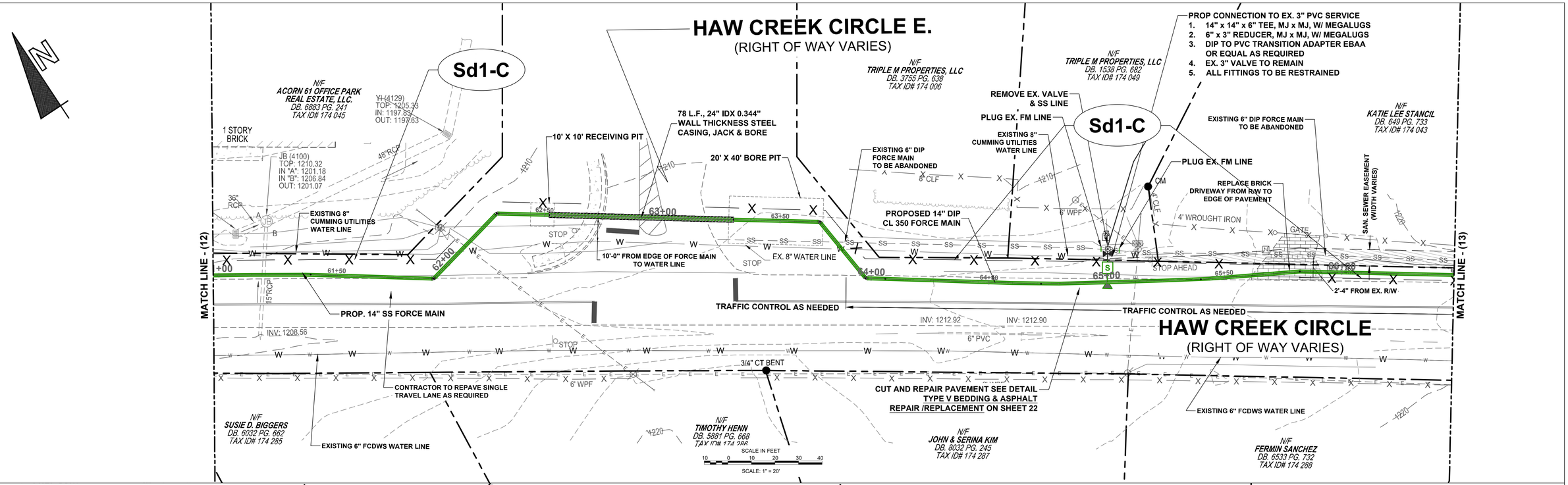
CITY OF CUMMING

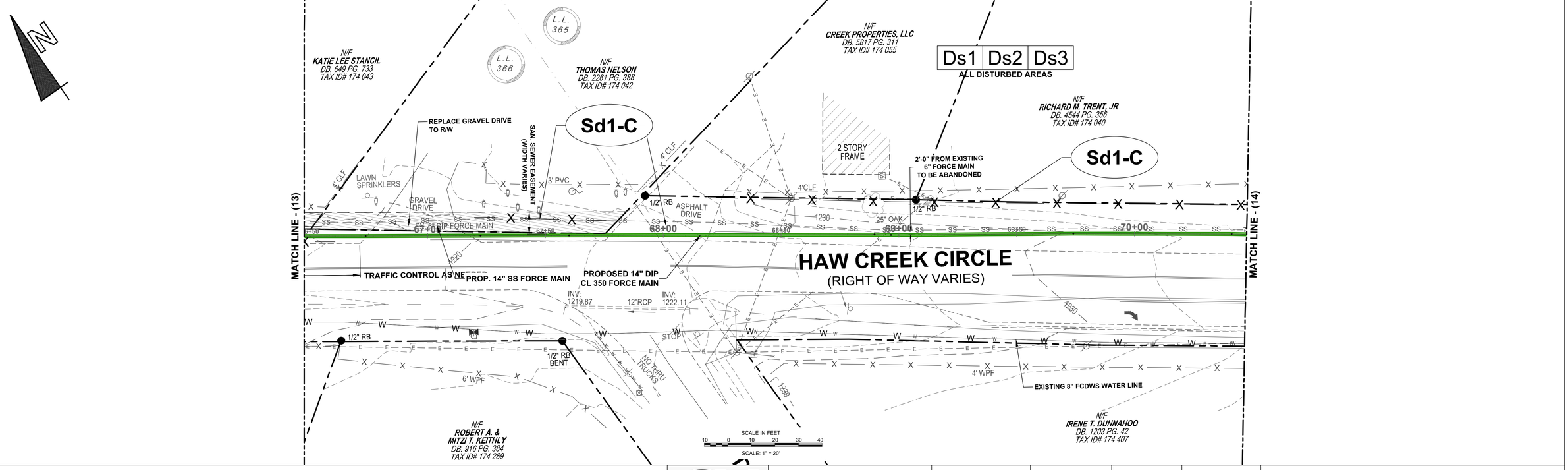
HAW CREEK ROAD OUTFALL AND FORCE MAIN

E&SCP PLANS - STA 51+00 - 61+00

DATE: 10/09/2019

SHEET
29 OF 36





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GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVELOY

DESIGNED BY:	DRAWN BY:	CHECKED BY:

DATE	DESCRIPTION
10/16/19	BID READY

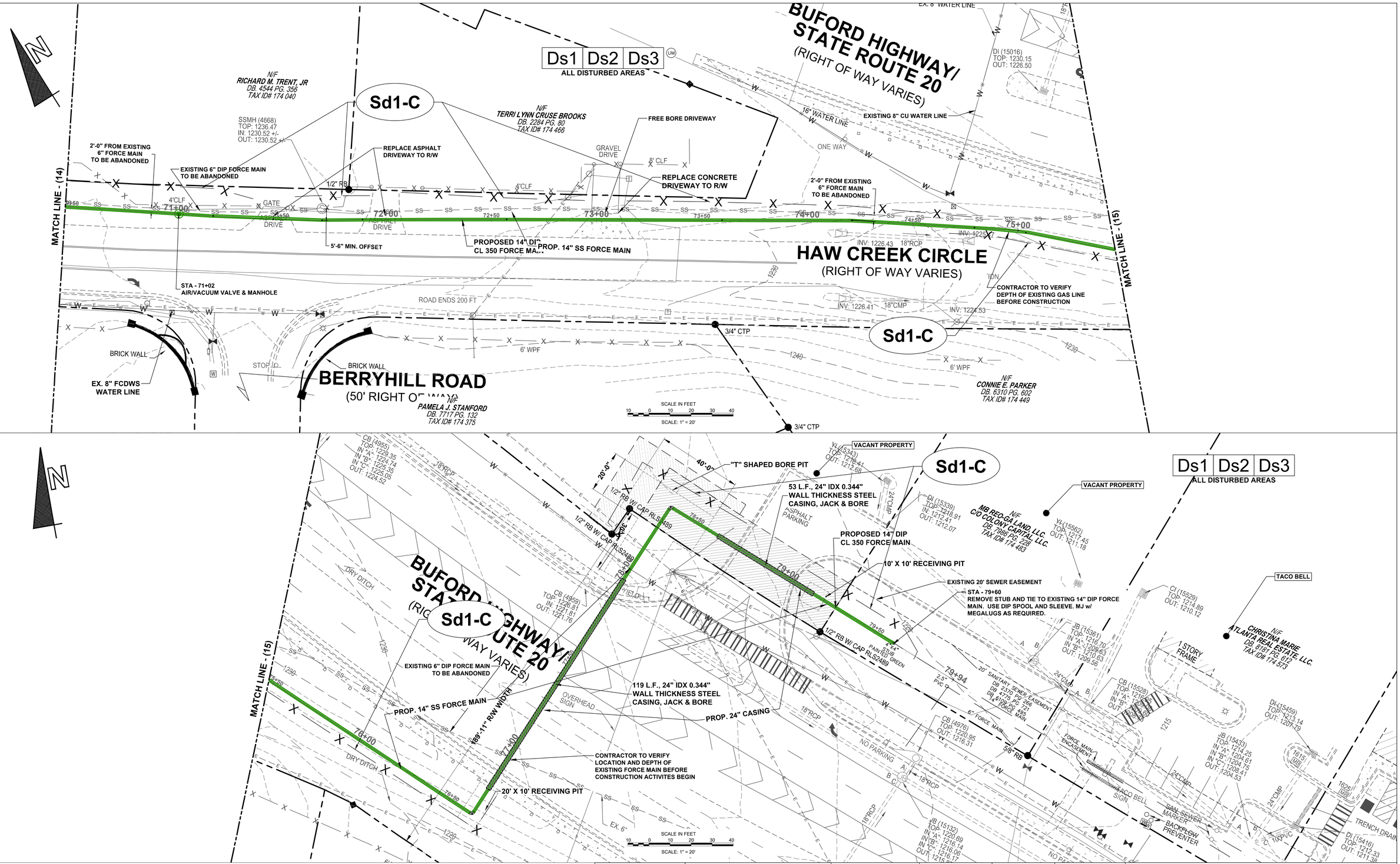
CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

E&SCP PLANS - STA 61+00 - 70+50

DATE: 10/09/2019

SHEET 30 OF 36



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DESIGNED BY:	DRAWN BY:	CHECKED BY:
10/16/19	BID READY	
DATE	DESCRIPTION	

CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

E&SCP PLANS - STA 70+50 - 79+40

DATE: 10/09/2019

SHEET
31 OF 36

EROSION CONTROL NOTES:

1. EROSION CONTROL PRACTICES MUST COMPLY WITH THE MINIMUM BEST MANAGEMENT PRACTICES FOR EROSION CONTROL. AND SHALL COMPLY WITH THE STANDARDS/SPECIFICATIONS IN THE *MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA*.

2. IN CONCENTRATED FLOW AREAS, ALL SLOPES STEEPER THAN 2.5:1 AND WITH A HEIGHT TEN FEET OR GREATER, AND CUTS AND FILLS WITHIN STREAM BUFFERS, SHALL BE STABILIZED WITH THE APPROPRIATE EROSION CONTROL MATTING OR BLANKET.

3. MULCH TEMPORARY VEGETATION ON ALL EXPOSED AREAS WITHIN 7 DAYS AFTER DISTURBANCE

4. DISTURBED AREAS LEFT IDLE FOR 5 DAYS, AND NOT TO FINAL GRADE, WILL BE ESTABLISHED TO TEMPORARY VEGETATION (Ds2). ALL AREAS TO FINAL GRADE WILL BE ESTABLISHED TO PERMANENT VEGETATION (Ds3) IMMEDIATELY UPON COMPLETION.

5. WHEN PLANTING VEGETATION, MULCH (HAY OR STRAW) SHOULD BE UNIFORMLY SPREAD OVER SEEDED AREA WITHIN 24 HOURS OF SEEDING.

6. FORSYTH COUNTY LAND DISTURBANCE PERMIT MUST BE DISPLAYED ON SITE AT ALL TIMES DURING CONSTRUCTION AND IN PLAIN VIEW FROM A COUNTY ROAD OR STREET.

7. EROSION AND SEDIMENT CONTROL DEVICES MUST BE INSTALLED AND INSPECTED PRIOR TO ANY GRADING ON SITE. PLEASE CALL (770) 528-2134 WITH ENOUGH LEAD-TIME FOR AN INSPECTION TO MEET SCHEDULE.

8. SEDIMENT/EROSION CONTROL DEVICES MUST BE CHECKED AFTER EACH STORM EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED ONE HALF THE CAPACITY OF THE DEVICE. ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.

9. THE USE OF POLYMERS (PAMS) IS ACCEPTED AS A BMP AS RECOMMENDED BY THE STATE SOIL & WATER CONSERVATION COMMISSION BMP "GREEN BOOK". THE POLYMERS USED TO STABILIZE CONSTRUCTION SITES MUST BE USED IN CONJUNCTION WITH MULCHING AND/OR HYDRO SEEDING.

10. IF STREAMS ARE ON THE SITE, THE STREAM BUFFERS SHALL BE LEFT UNDISTURBED AND A CONSERVATION EASEMENT OR A RESTRICTIVE COVENANT BE PLACED ON THAT PROPERTY.

11. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND DISTURBING ACTIVITIES.

12. 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.

13. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

14. AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMP'S WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY A DESIGN PROFESSIONAL.

15. NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION.

INSPECTIONS:

PRIMARY PERMITTEE.

1) EACH DAY WHEN ANY TYPE OF CONSTRUCTION ACTIVITY HAS TAKEN PLACE AT A PRIMARY PERMITTEE'S SITE QUALIFIED PERSONNEL PROVIDED BY THE PRIMARY PERMITTEE SHALL INSPECT: (a) ALL AREAS AT THE PRIMARY PERMITTEE'S SITE WHERE PETROLEUM PRODUCTS ARE STORED, USED OR HANDLED FOR SPILLS AND LEAKS FROM VEHICLES AND EQUIPMENT, (b) ALL LOCATIONS AT THE PRIMARY PERMITTEE'S SITE WHERE VEHICLES ENTER OR EXIT THE SITE FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING AND (c) MEASURE RAINFALL ONCE EACH TWENTY-FOUR HOUR PERIOD AT THE SITE. THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.

2) MEASURE RAINFALL ONCE EVERY 24 HOURS EXCEPT ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY AND NON-WORKING FEDERAL HOLIDAY UNTIL A NOTICE OF TERMINATION IS SUBMITTED. MEASUREMENT OF RAINFALL MAY BE SUSPENDED IF ALL AREAS OF THE SIRE HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION.

3) QUALIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCHES OR GREATER THE FOLLOWING: (a) DISTURBED AREAS OF THE PRIMARY PERMITTEE'S CONSTRUCTION SITE THAT HAVE NOT UNDERGONE FINAL STABILIZATION, (b) AREAS USED BY THE PRIMARY PERMITTEE FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION THAT HAVE NOT UNDERGONE FINAL STABILIZATION AND (c) STRUCTURAL CONTROL MEASURES. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN APPLICABLE TO THE PRIMARY PERMITTEE'S SITE SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S). FOR AREAS OF A SITE THAT HAVE UNDERGONE FINAL STABILIZATION, THE PERMITTEE MUST COMPLY WITH PART IV.D.3.a.(3). THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.

4) QUALIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT AT LEAST ONCE PER MONTH DURING THE TERM OF THIS PERMIT (I.E. UNTIL A NOTICE OF TERMINATION IS RECEIVED BY EPD) THE AREAS OF THE SITE THAT HAVE UNDERGONE FINAL STABILIZATION. THESE AREAS SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM AND THE RECEIVING WATER(S). EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S).

5) BASED ON THE RESULTS OF EACH INSPECTION, THE SITE DESCRIPTION AND THE POLLUTION PREVENTION AND CONTROL MEASURES IDENTIFIED IN THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, THE PLAN SHALL BE REVISED AS APPROPRIATE NOT LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION. IMPLEMENTATION OF SUCH CHANGES SHALL BE MADE AS SOON AS PRACTICAL BUT IN NO CASE LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION.

6) A REPORT SUMMARIZING THE SCOPE OF EACH INSPECTION AND THE NAME(S) OF PERSONNEL MAKING EACH INSPECTION, THE DATE(S) OF EACH INSPECTION, MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN AND ACTIONS TAKEN IN ACCORDANCE WITH PART IV.D.3.A.(4) OF THE PERMIT SHALL BE MADE AND RETAINED AT THE SITE OR BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION UNTIL THE ENTIRE SITE OR THAT PORTION OF A CONSTRUCTION PROJECT THAT HAS BEEN PHASED HAS UNDERGONE FINAL STABILIZATION AND A NOTICE OF TERMINATION IS SUBMITTED TO EPD. SUCH REPORTS SHALL IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE. WHERE THE REPORT DOES NOT IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE, THE REPORT SHALL CONTAIN A CERTIFICATION THAT THE FACILITY IS IN COMPLIANCE WITH THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN AND THIS PERMIT. THE REPORT SHALL BE SIGNED IN ACCORDANCE WITH PART V.G. OF THIS PERMIT.

Liang Wang
LIANG WANG, P.E.
GSWCC NO. 0000083427

NO WASTE MATERIALS WILL BE DISPOSED OF INTO STORM WATER INLETS OR WATERS OF THE STATE

WASTE MATERIALS

ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER. THE DUMPSTER WILL MEET ALL SOLID WASTE MANAGEMENT REGULATIONS. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER WILL BE EMPTIED A MINIMUM OF ONCE PER WEEK OR MORE OFTEN IF NECESSARY AND TRASH WILL BE HAULED AS REQUIRED BY LOCAL REGULATIONS. NO CONSTRUCTION WASTE WILL BE BURIED ON SITE.

ALL PERSONNEL WILL BE INSTRUCTED ON PROPER PROCEDURES FOR WASTE DISPOSAL. A NOTICE STATING THESE PRACTICES WILL BE POSTED AT THE JOB SITE AND THE CONTRACTOR WILL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED.

HAZARDOUS WASTES

ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL, STATE AND/OR FEDERAL REGULATIONS AND BY THE MANUFACTURER OF SUCH PRODUCTS. THE JOB SITE SUPERINTENDENT, WHO WILL ALSO BE RESPONSIBLE FOR SEEING THAT THESE PRACTICES ARE FOLLOWED, WILL INSTRUCT SITE PERSONNEL IN THESE PRACTICES. MATERIAL SAFETY DATA SHEETS (MSDS's) FOR EACH SUBSTANCE WITH HAZARDOUS PROPERTIES THAT IS USED ON THE JOB SITE WILL BE OBTAINED AND USED FOR THE PROPER MANAGEMENT OF POTENTIAL WASTES THAT MAY RESULT FROM THESE PRODUCTS. AN MSDS WILL BE POSTED IN THE IMMEDIATE AREA WHERE SUCH PRODUCT IS STORED AND/OR USED AND ANOTHER COPY OF EACH MSDS WILL BE MAINTAINED IN THE ESPCP FILE AT THE JOB SITE CONSTRUCTION TRAILER OFFICE. EACH EMPLOYER WHO MUST HANDLE A SUBSTANCE WITH HAZARDOUS PROPERTIES WILL BE INSTRUCTED ON THE USE OF MSDS SHEETS AND THE SPECIFIC INFORMATION IN THE APPLICABLE MSDS FOR THE PRODUCT HE/SHE IS USING, PARTICULARLY REGARDING SPILL CONTROL TECHNIQUES.

THE CONTRACTOR WILL IMPLEMENT THE SPILL PREVENTION AND COUNTERMEASURES (SPCC) PLAN FOUND WITHIN THIS ESPCP AND WILL TRAIN ALL PERSONNEL IN THE PROPER CLEANUP AND HANDLING OF SPILLED MATERIALS. NO SPILLED HAZARDOUS MATERIALS OR HAZARDOUS WASTES WILL BE ALLOWED TO COME IN CONTACT WITH STORM WATER DISCHARGES. IF SUCH CONTACT OCCURS, THE STORM WATER DISCHARGE WILL BE CONTAINED ON SITE UNTIL APPROPRIATE MEASURES IN COMPLIANCE WITH STATE AND FEDERAL REGULATIONS ARE TAKEN TO DISPOSE OF SUCH CONTAMINATED STORM WATER. IT SHALL BE THE RESPONSIBILITY OF THE JOB SITE SUPERINTENDENT TO PROPERLY TRAIN ALL PERSONNEL IN THE USE OF THE SPCC PLAN.

SANITARY WASTES

A MINIMUM OF ONE PORTABLE SANITARY UNIT WILL BE PROVIDED FOR EVERY TEN (10) WORKERS ON THE SITE. ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONE TIME PER WEEK BY A LICENSED PORTABLE FACILITY PROVIDER IN COMPLETE COMPLIANCE WITH LOCAL AND STATE REGULATIONS.

ALL SANITARY WASTE UNITS WILL BE LOCATED IN AN AREA WHERE THE LIKELIHOOD OF THE UNIT CONTRIBUTING TO STORM WATER DISCHARGE IS NEGLIGIBLE. ADDITIONAL CONTAINMENT BMP's MUST BE IMPLEMENTED, SUCH AS GRAVEL BAGS OR SPECIALLY DESIGNED PLASTIC SKID CONTAINERS AROUND THE BASE, TO PREVENT WASTES FROM CONTRIBUTING TO STORM WATER DISCHARGES. THE LOCATION OF SANITARY WASTE UNITS MUST BE IDENTIFIED ON THE EROSION CONTROL PLANS, SHEET 4, BY THE CONTRACTOR ONCE THE LOCATIONS HAVE BEEN DETERMINED.

SPILL CLEANUP AND CONTROL POLICIES

- LOCAL, STATE AND MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND PROCEDURES WILL BE MADE AVAILABLE TO SITE PERSONNEL.
- MATERIAL AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREAS. TYPICAL MATERIALS AND EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO, BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, CAT LITTER, SAND, SAWDUST AND PROPERLY LABELED PLASTIC AND METAL WASTE CONTAINERS.
- SPILL PREVENTION PRACTICES AND PROCEDURES WILL BE REVIEWED AFTER A SPILL AND ADJUSTED AS NECESSARY TO PREVENT FUTURE SPILLS.
- ALL SPILLS WILL BE CLEANED UP IMMEDIATELY UPON DISCOVERY. ALL SPILLS WILL BE REPORTED AS REQUIRED BY LOCAL, STATE AND FEDERAL REGULATIONS.
- FOR SPILLS THAT IMPACT SURFACE WATER (LEAVE A SHEEN ON SURFACE WATER), THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-800-426-2675.
- FOR SPILLS OF AN UNKNOWN AMOUNT, THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-800-426-2675.
- FOR SPILLS LESS THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE SPILL WILL BE CLEANED UP AND LOCAL AGENCIES WILL BE CONTACTED AS REQUIRED.

THE CONTRACTOR SHALL NOTIFY THE LICENSED PROFESSIONAL WHO PREPARED THIS PLAN IF MORE THAN 1320 GALLONS OF PETROLEUM IS STORED ON SITE (THIS INCLUDES CAPACITIES OF EQUIPMENT) OR IF ANY ONE PIECE OF EQUIPMENT HAS A CAPACITY GREATER THAN 660 GALLONS. THE CONTRACTOR WILL NEED A SPILL PREVENTION CONTAINMENT AND COUNTERMEASURES PLAN PREPARED BY THAT LICENSED PROFESSIONAL.

OFFSITE VEHICLE TRACKING

A STABILIZED CONSTRUCTION EXIT HAS BEEN PROVIDED TO HELP REDUCE VEHICLE TRACKING OF SEDIMENT. THE PAVED STREET ADJACENT TO THE SITE EXIT WILL BE INSPECTED DAILY FOR TRACKING OF MUD, DIRT OR ROCK.

STREAM BUFFERS

NON-EXEMPT ACTIVITIES DOES NOT PROPOSED TO ENCROACH INTO 25' STATE STREAM BUFFERS.

POST-CONSTRUCTION STORM WATER POLLUTANT CONTROL

IN ORDER TO CONTROL POLLUTANTS IN STORM WATER THAT WILL OCCUR AFTER CONSTRUCTION OPERATIONS HAVE BEEN COMPLETED THE FOLLOWING MEAURES SHALL BE INSTALLED:

- PERMANENT GRASSING IN ALL DISTURBED AREAS SHALL BE ACCEPTABLE AS DETERMINED BY THE ENGINEER AND DEFINED AS COVERING 98% OF THE AREA TO BE GRASSED WITH NO BARE AREA GREATER THAN ONE SQUARE FOOT AND THE ENTIRE AREA FULLY STABILIZED AGAINST EROSION.

DESIGN PROFESSIONAL 7-DAY VISIT CERTIFICATION

DATE OF INSPECTION: _____

I CERTIFY THE SITE WAS IN COMPLIANCE WITH ES&PC PLAN ON THE DATE OF INSPECTION.

_____
GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION #

INSPECTION REVEALED THE FOLLOWING DISCREPANCIES FROM THE ES&PC PLAN:

_____

_____

THESE DISCREPANCIES MUST BE ADDRESSED IMMEDIATELY AND A RE-INSPECTION SCHEDULED. WORK SHALL NOT PROCEED ON THE SITE UNTIL DESIGN PROFESSIONAL CERTIFICATION IS OBTAINED.

CERTIFICATION

1. I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL (ES&PC) PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA", 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 THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORM WATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES IS EXPECTED TO MEET THE DESIGN REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NOS. GAR 1000001, GAR 1000002 AND GAR 1000003.

2. I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY DIRECT SUPERVISION.

3. I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

4. THE PROPOSED EROSION AND RUNOFF CONTROL MEASURES ARE IN COMPLIANCE WITH THE FORSYTH COUNTY SEDIMENT CONTROL AND FLOOD PROTECTION REGULATIONS AND WILL NOT INCREASE THE RUNOFF RATE FROM THE SITE FOR RAINSTORMS WITH A RETURN PERIOD OF 2, 5, 10, 25, 50 AND/OR 100 YEARS.

Liang Wang — 03/26/2019
NAME — DATE

AMENDMENTS

ANY AMENDMENT TO THE EROSION CONTROL PLANS WHICH HAS A SIGNIFICANT EFFECT ON BMPs WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.

RETENTION OF RECORDS

- EACH PRIMARY PERMITTEE SHALL RETAIN A COPY OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN AT THE CONSTRUCTION SITE OR THE PLAN SHALL BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION FROM THE DATE OF PROJECT INITIATION TO THE DATE OF FINAL STABILIZATION. PRIMARY PERMITTEES SHOULD POST COPIES OF THE NOI, EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN, SAMPLING RESULTS, INSPECTION REPORTS, ETC. ON OR IN A PERMIT BOARD AT THE BEGINNING OF EACH PHASE TO FACILITATE INSPECTIONS BY EPD.

- COPIES OF ALL NOTICES OF INTENT, NOTICES OF TERMINATION, REPORTS, PLANS, MONITORING REPORTS, MONITORING INFORMATION, INCLUDING ALL CALIBRATION AND MAINTENANCE RECORDS AND ALL ORIGINAL STRIP CHART RECORDINGS FOR CONTINUOUS MONITORING INSTRUMENTATION, EROSION, SEDIMENTATION AND POLLUTION CONTROL PLANS, RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT AND ALL OTHER REQUIRED RECORDS SHALL BE RETAINED BY THE PERMITTEE FOR A PERIOD OF THREE YEARS FROM THE DATE THAT THE SITE IS FINALLY STABILIZED. THESE RECORDS MUST BE MAINTAINED AT THE PERMITTEE'S PRIMARY PLACE OF BUSINESS ONCE THE CONSTRUCTION ACTIVITY HAS CEASED AT THE PERMITTED SITE. THIS PERIOD MAY BE EXTENDED BY THE REQUEST OF THE EPD AT ANY TIME UPON WRITTEN NOTIFICATION TO THE PERMITTEE.

PRODUCT SPECIFIC PRACTICES

PETROLEUM BASED PRODUCTS - CONTAINERS FOR PRODUCTS SUCH AS FUELS, LUBRICANTS AND TARS WILL BE INSPECTED DAILY FOR LEAKS AND SPILLS. THIS INCLUDES ON-SITE VEHICLE AND MACHINERY DAILY INSPECTIONS AND REGULAR PREVENTATIVE MAINTENANCE OF SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS WILL BE LOCATED AWAY FROM STATE WATER, NATURAL DRAINS AND STORM WATER DRAINING INLETS. IN ADDITION, TEMPORARY FUELING TANKS SHALL HAVE A SECONDARY CONTAINMENT LINER TO PREVENT/MINIMIZE SITE CONTAMINATION. DISCHARGE OF OILS, FUELS AND LUBRICANTS IS PROHIBITED. PROPER DISPOSAL METHODS WILL INCLUDE COLLECTION IN A SUITABLE CONTAINER AND DISPOSAL AS REQUIRED BY LOCAL AND STATE REQUIREMENTS.

PAINTS/FINISHES/SOLVENTS - ALL PRODUCTS WILL BE STORED IN TIGHTLY SEALED ORIGINAL CONTAINERS WHEN NOT IN USE. EXCESS PRODUCT WILL NOT BE DISCHARGED TO THE STORM WATER COLLECTION SYSTEM. EXCESS PRODUCT, MATERIALS USED WITH THESE PRODUCTS AND PRODUCT CONTAINERS WILL BE DISPOSED OF ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

CONCRETE TRUCK WASHING - PROVIDE WASHDOWN CONTAINMENT FOR THE WASH-DOWN WATER FROM CONCRETE MIXER CHUTES, HOPPERS, AND OTHER TOOLS AND EQUIPMENT. PREVENT ANY WATER THAT CONTACTS UNCURED OR PARTLY CURED CONCRETE DURING ACTIVITIES LIKE EXPOSED AGGREGATE WASH-OFF, WET CURING, OR EQUIPMENT WASHING FROM DIRECTLY OR INDIRECTLY ENTERING ANY WATERCOURSE OR STORMWATER SYSTEM.

FERTILIZER/HERBICIDES - THESE PRODUCTS WILL BE APPLIED AT RATES THAT DO NOT EXCEED THE MANUFACTURER'S SPECIFICATIONS OR ABOVE THE GUIDELINES SET FORTH IN THE CROP ESTABLISHMENT OR IN THE GSWCC MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. ANY STORAGE OF THESE MATERIALS WILL BE UNDER ROOF IN SEALED CONTAINERS.

BUILDING MATERIALS - NO BUILDING OR CONSTRUCTION MATERIALS WILL BE BURIED OR DISPOSED OF ONSITE. ALL SUCH MATERIAL WILL BE DISPOSED OF IN PROPER WASTE DISPOSAL PROCEDURES.

SAMPLING FREQUENCY

STORM WATER SAMPLES SHALL BE TAKEN FOR THE FOLLOWING STORM EVENTS:

(a) FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING STREAM, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR MONITORING DURING NORMAL BUSINESS HOURS (MONDAY THROUGH FRIDAY, 8:00 AM TO 5:00 PM AND SATURDAY 8:00 AM TO 5:00 PM WHEN CONSTRUCTION ACTIVITY IS BEING CONDUCTED BY THE PRIMARY PERMITTEE) THAT OCCURS AFTER ALL CLEARING AND GRUBBING OPERATIONS HAVE BEEN COMPLETED IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION;
(b) IN ADDITION TO (a) ABOVE, FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING STREAM, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR MONITORING DURING NORMAL BUSINESS HOURS (MONDAY THROUGH FRIDAY, 8:00 AM TO 5:00 PM AND SATURDAY 8:00 AM TO 5:00 PM WHEN CONSTRUCTION ACTIVITY IS BEING CONDUCTED BY THE PRIMARY PERMITTEE) THAT OCCURS EITHER 90 DAYS AFTER THE FIRST SAMPLING EVENT OR AFTER ALL MASS GRADING OPERATIONS HAVE BEEN COMPLETED IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION, WHICHEVER COMES FIRST;
(c) AT THE TIME OF SAMPLING PERFORMED PERSUANT TO (a) AND (b) ABOVE, IF BMPS ARE FOUND TO BE PROPERLY DESIGNED, INSTALLED AND MAINTAINED, NO FURTHER ACTION IS REQUIRED. IF BMPS IN ANY AREA OF THE SITE THAT DISCHARGES TO A RECEVING STREAM ARE NOT PROPERLY DESIGNED, INSTALLED AND MAINTAINED, CORRECTIVE ACTION SHALL BE DEFINED AND IMPLEMENTED WITHIN 2 BUSINESS DAYS, AND TURBIDITY SAMPLES SHALL BE TAKEN FROM DISCHARGES FROM THAT AREA OF THE SITE FOR EACH SUBSEQUENT RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH DURING NORMAL BUSINESS HOURS (MONDAY THROUGH FRIDAY, 8:00 AM TO 5:00 PM AND SATURDAY 8:00 AM TO 5:00 PM WHEN CONSTRUCTION ACTIVITY IS BEING CONDUCTED BY THE PRIMARY PERMITTEE) UNTIL THE SELECTED TURBIDITY STANDARD IS ATTAINED, OR UNTIL POST-STORM EVENT INSPECTIONS DETERMINE THAT BMPS ARE PROPERLY DESIGNED, INSTALLED AND MAINTAINED.

STORM WATER SAMPLING

STORM WATER SAMPLES ARE TO BE ANALYZED IN ACCORDANCE WITH THE METHODOLOGY AND TEST PROCEDURES ESTABLISHED BY 40 CFR PART 136 AND THE GUIDANCE DOCUMENT TITLED "NPDES STORM WATER SAMPLING GUIDANCE DOCUMENT, EPA 833-8-92-001."

STORM WATER IS TO BE SAMPLED FOR NEPHELOMETRIC TURBIDITY UNITS (NTU) AT THE OUTFALL LOCATION. A DISCHARGE OF STORM WATER RUNOFF FROM DISTURBED AREAS WHERE BEST MANAGEMENT PRACTICES HAVE NOT BEEN PROPERLY DESIGNED, INSTALLED AND MAINTAINED SHALL CONSTITUTE A SEPARATE VIOLATION FOR EACH DAY ON WHICH SUCH CONDITION RESULTS IN THE TURBIDITY OF THE DISCHARGE EXCEEDING 75, THE VALUE THAT WAS SELECTED FROM APPENDIX B IN PERMIT GAR 100002. THE NTU IS BASED UPON THE THE DISTURBED ACREAGE OF 2.0 ACRES FOR THE PROJECT SITE, THE SURFACE WATER DRAINAGE AREA OF 0.3 SQUARE MILES, AND RECEIVING WATER WHICH SUPPORTS WARM WATER FISHERIES.

NOTIFY FORSYTH COUNTY INSPECTOR 24 HOURS BEFORE BEGINNING PHASE OF CONSTRUCTION. (770) 781-2165

CUMMING UTILITIES

CEc
CIVIL ENGINEERING CONSULTANTS, INC.
Civil & Environmental Engineering
110 Samaritan Drive, Suite 201
Cumming, GA 30040
(770) 977-5747
www.cecincga.com

GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVEJOY

DESIGNED BY: MY	DRAWN BY: JV	CHECKED BY: GP
10/16/19	BID READY	
DATE	DESCRIPTION	

CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

E&SCP DETAILS I

DATE: 10/09/2019

SHEET 32 OF 36

SPECIFICATIONS

Grading and Shaping

A. Grading and shaping is not normally required where hydraulic seeding and fertilizing equipment is to be used. Vertical banks shall be sloped to enable plant establishments.

B. When conventional seeding and fertilizing are to be done, grade and shape where feasible and practical, so that equipment can be used safely and efficiently during seedbed preparation, seeding, mulching and maintenance of the vegetation.

C. Concentrations of water that will cause excessive soil erosion will be diverted to a safe outlet. Diversions and other treatment practices must conform with the appropriate standards and specifications.

Seedbed Preparation

A. Seedbed preparation is not required where hydraulic seeding and fertilizing equipment is to be used.

B. When conventional seeding is to be used, seedbed preparation will be done as follows:

1. Broadcast plantings.

a. Tillage at a minimum, shall adequately loosen the soil to a depth of 4 to 6 inches; alleviate compaction; incorporate lime and fertilizer; smooth and firm the soil; allow for the proper placement of seed, sprigs, or plants; and allow for the anchoring of straw or hay mulch if a disk is to be used.
b. Tillage may be done with any suitable equipment.
c. Tillage may be done on the contour where feasible.
d. On slopes too steep for the safe operation of tillage equipment, the soil surface will be pitted or trenched across the slope with appropriate hand tools to provide places 6 to 8 inches apart in which seed may lodge and germinate.

2. Individual plants.

a. Where individual plants are to be set, the soil will be well prepared by excavating holes, opening furrows, or dibble planting.
b. For nursery stock plants, holes shall be large enough to accommodate roots without crowding.
c. Where pine seedlings are to be planted, subsoil under the row 36 inches deep on the con tour 4 to 6 months prior to planting. Subsoiling should be done when the soil is dry, preferably in August or September.

Lime and Fertilizer - Rates and Analysis

A. Where permanent vegetation is to be established, agricultural lime shall be applied as indicated by soil test or at the rate of 2 tons per acre. Agricultural lime shall be within the specifications of the Georgia Department of Agriculture.

Lime spread by conventional equipment will be ground limestone." Ground limestone is calcitic or dolomitic limestone ground so that 90 percent of the material will pass through a 1O-mesh sieve, not less than 50 percent will pass through a 50-mesh sieve and not less than 25 percent will pass through a 100-mesh sieve.

Agricultural lime spread by hydraulic seeding equipment will be "finely ground limestone." Finely ground limestone is calcitic or dolomitic limestone ground so that 98 percent of the material will pass through a 20-mesh sieve and not less than 70 percent will pass through a 100-mesh sieve.

It is desirable to use dolomitic limestone in the Sand Hills, Southern Coastal Plain and Atlantic Coast Flatwoods MLRAs.

B. No agricultural lime is required where only temporary seeding is to be done or where only trees are planted.

C. Initial fertilization requirements for each species or combination of species are listed in the adjacent Fertilization Table.

Lime Fertilizer - Application

A. When hydraulic seeding equipment is used:

1. The initial fertilizer will be mixed with seed, inoculant (if needed) and wood cellulose or wood pulp fiber mulch and applied in a slurry. The slurry mixture will be agitated during application to keep the ingredients thoroughly mixed. The mixture will be spread uniformly over the area within one hour after being placed in the hydroseeder.
2. Finely ground limestone will be mixed with water and applied immediately after mulching is completed or in combination with the top dressing.

B. When conventional planting is to be done, lime and fertilizer will be applied uniformly in one of the following ways:

1. Apply before land preparation so that it will be mixed with the soil during seedbed preparation; or,
2. Mix with the soil used to fill the holes, distribute in furrows, or
3. Broadcast after steep surfaces are scarified, pitted or trenched.
4. A fertilizer pellet will be placed at root depth beside each pine tree seedling.

Plant Selection

A. Refer to the adjacent Tables for approved species.

B. Species not listed shall be approved by the State Resource Conservationist of the Natural Resources Conservation Service before they are used.

C. Plants shall be selected on the basis of species characteristics; site and soil conditions; planned use and maintenance of the area; time of year of planting; method of planting; and the needs and desires of the land user.

D. Plant selections may include companion crops to provide quick cover. Care shall be taken in selecting companion crop species and seeding rates to limit competition so that the desired permanent vegetation may become established as soon as possible.

E. The term "pure live seed" is used to express the: quality of seed, even if it is not shown on the label. Pure live seed, PLS, is expressed as a percentage of the seeds that 'are pure and will germinate. PLS is determined by multiplying the percent of pure seed times the percent of germination; i.e., PLS = % germination x % purity.

Inoculants

A. All legume seed shall be inoculated with appropriate nitrogen-fixing bacteria.

B. The inoculant shall be a pure culture prepared specifically for the seed species and used within the dates on the container.

C. A mixing medium recommended by the manufacturer shall be used to bond the inoculant to the seed.

D. For conventional seeding, two times the amount of inoculant recommended by the manufacturer shall be used.

E. For hydraulic seeding, four times the amount of inoculant recommended by the manufacturer shall be used.

F. All inoculated seed shall be protected from the sun and high temperatures and shall be planted the same day inoculated. No inoculated seed shall remain in the hydroseeder longer than one hour.

Planting

A. Hydraulic seeding - Mix the seed, inoculant, fertilizer, and wood cellulose or wood pulp fiber mulch with water and apply in aslurry uniformly over the area to be treated. Apply within one hour after the mixture is made.

B. Conventional seeding - Seeding will be done on a freshly prepared and firmed seedbed. For broadcast planting, use a cultipacker-seeder, drill, rotary seeder, other mechanical seeder, or hand seeding to distribute the seed uniformly over the area to be treated. Cover the seed lightly with a cultipacker or other suitable equipment.

C. No-till seeding is permissible into annual cover crops when planting is done following maturity of the cover crop or if the temporary cover stand is sparse enough to allow adequate growth of the permanent species. No-till seeding must be done with appropriate no-till seeding equipment. The seed must be uniformly distributed and planted at the proper depth.

D. Individual plants - Shrubs, vines and sprigs may be planted with appropriate planters or hand tools. Pine trees will be planted manually in the subsoil furrow. Each plant will be set in a manner that will avoid crowding the roots.

Nursery stock plants shall be planted at the same depth or slightly deeper than they grew at the nursery. The tips of vines and sprigs must be at or slightly above the ground surface.

Where individual holes are dug, place fertilizer in the bottom of the hole, add two inches of soil and set the plant.

Ds3 DISTURBED AREA STABILIZATION (W/ PERM. SEEDING)

Mulching

Use mulch on all slopes steeper than 3 percent; when seedlings are made so late in the fall and winter that germination cannot be expected until spring; in the bottom of spillways; and on roadbanks.

Temporary vegetation seeded alone may be established on good sites without the use of mulch.

Mulching material will consist of:

A. Use dry straw or dry hay of good quality and free of weed seeds. Dry straw will be applied at the rate of 2 tones per acre. Dry hay will be used at a rate of 2 1/2 tons per acre; or,

B. For hydraulic seeding, use wood cellulose mulch or wood pulp fiber at the rate of 500 pounds per acre and dry straw or dry hay at the rate listed in A, above; or,

C. For hydraulic seeding on slopes 3/4:1 or steeper, 1,000 pounds of wood cellulose or wood pulp fiber which includes a tackifier may be substituted for the treatment in B, above; or,

D. Use three tons per acre of Sericea lespedeza hay containing mature seed; or,

E. Apply pine straw or pine bark at a thickness of 3 inches. Other suitable materials in sufficient quantity may be used where ornamentals or other ground covers are planted; or,

F. Soil retention blankets, erosion control netting, other manufactured materials, or block sod may be required in addition to mulch on unstable soils and concentrated flow areas.

Wood cellulose and wood pulp fibers shall not contain germination or growth inhibiting factors. They will have the property to be evenly dispersed when agitated in water. The fibers shall have a contrasting color to the soil to allow visual metering and aid in uniform application during seeding.

Applying Mulch

A. Straw or hay mulch will I be spread uniformly within 24 hours after seeding and/or planting. The mulch may be spread by blower-type spreading equipment, other spreading equipment or by hand. About 75 percent of the soil surface will be covered.

B. Wood cellulose or wood fiber mulch will be applied with hydraulic seeding equipment.

Anchoring Mulch

A. Anchor straw or hay mulch immediately after application by one of the following methods:

1. By emulsified asphalt, (a) sprayed uniformly onto the mulch as it is ejected from the blower onto the mulch as it is ejected from the blower machine, or (b) sprayed on the mulch immediately following mulch application when straw or hay is spread by methods other than special blower equipment.

The combination of asphalt emulsion and water shall consist of a homogeneous mixture satisfactory for spraying. The mixture shall consist of 100 gallons of grade SS-1h or CSS-1h emulsified asphalt and 100 gallons of water per ton of mulch.

Care shall be taken at all times to protect the public, adjacent property, pavements, curbs, sidewalks, and all other structures from asphalt discoloration.

2. Press the mulch into the soil immediately after the mulch is spread. A special "packer disk" or disk harrow with the disks set straight may be used. The disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disks shall be dull enough to press the mulch into the ground without cutting it, leaving much of it in an erect position.

3. Apply synthetic tackifiers or binders applied immediately after the mulch is spread. Synthetic tackifiers will be mixed and applied according to manufacturer's specifications.

4. Fall and winter plantings may include 1/2 bushel of rye or wheat to stabilize the mulch.

5. Plastic mesh or netting with no larger than one inch by one inch mesh may be needed to anchor straw or hay mulch on unstable soils and concentrated flow areas.

B. Where wood cellulose or wood pulp fiber mulch is applied alone, a tackifier will be used.

Irrigation

Irrigation will be applied at a rate that will not cause runoff.

Topdressing

Topdressing will be applied on all temporary grass species and permanent grasses planted alone or in mixtures with other species. Recommended rates of application are listed in Table 6-25.1, p. 6-144.

Second Year and Maintenance Fertilization

Second year fertilizer rates and maintenance fertilizer rates are listed in the adjacent Fertilization Table.

Lime and Maintenance Application

Apply two tons of agricultural lime every 4 to 6 years or as indicated by soil tests.

Use and Management

Bermudagrass, Bahiagrass and Tall fescue may be mowed as desired. Maintain at least 6 inches of top growth under any use and management. Moderate use of top growth is beneficial after establishment.

Exclude livestock until the plants are well established.

Ds1 DISTURBED AREA STABILIZATION (MULCHING ONLY)

Disturbed Area Stabilization (With Temporary Seeding)

SPECIFICATIONS

A. Grading and Shaping

1. Excessive water run-off must be controlled by planned and installed erosion control practices such as closed drains, ditches, dikes, diversions, sediment basins and others.

2. No shaping or grading is required if slopes can be stabilized by hand-seeded vegetation or if hydraulic seeding equipment is to be used.

B. Seedbed Preparation

1. When a hydraulic seeder is used, seedbed preparation is not required.

2. When using conventional or hand-seeding, seedbed preparation is not required if the soil material is loose and not sealed by rainfall.

3. When soil has been sealed by rainfall or consists of smooth undisturbed cut slopes, the soil shall be pitted, trenched or otherwise scarified to provide a place for seed to lodge and germinate.

C. Lime and Fertilizer: Lime Rate 2 tons/acre

1. Agricultural lime is not required.

2. On reasonably fertile soils or soil material, fertilizer is not required.

3. On soils of very low fertility, use 500 to 700 pounds of 10-10-10 fertilizer or the equivalent per acre (12-16 lbs./1,000 sq. ft.). If the site will permit, apply before land preparation and disk, rip or chisel to incorporate.

D. Seeding

1. Select a grass or grass-legume mixture suitable to the area and season of the year (see Table above).

2. Apply seed uniformly by hand, cyclone seeder, drill, cultipacker-seeder, or hydraulic seeder (slurry including seed and fertilizer). Drill or cultipacker seeders should normally place seed one-half to one inch deep.

E. Mulching

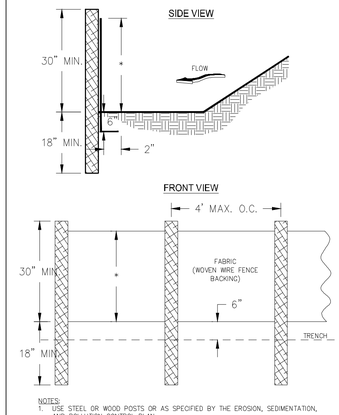
Temporary vegetation can, in most cases, be established without the use of mulch. Mulch without seeding should be considered for short term protection. See Ds1 - Disturbed Area Stabilization, (With Mulching Only).

F. Irrigation

If water is applied, it must be at a rate not causing runoff and erosion. Thoroughly wet the soil to a depth that will insure germination of the seed. Subsequent applications should be made when needed.

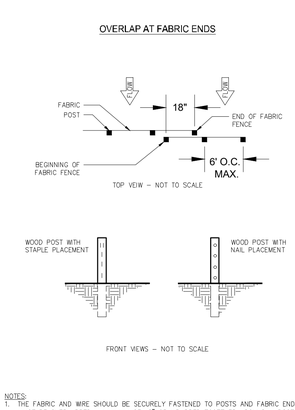
Ds2 DISTURBED AREA STABILIZATION (W/ TEMP. SEEDING)

Sd1: SILT FENCE - SENSITIVE



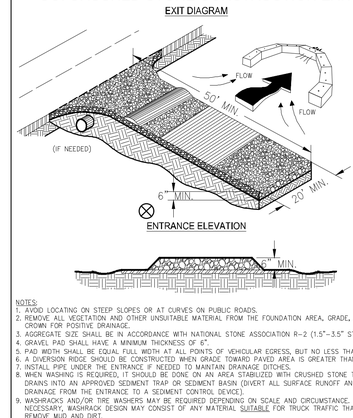
NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
2. HEIGHT (*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

FASTENERS FOR SILT FENCES



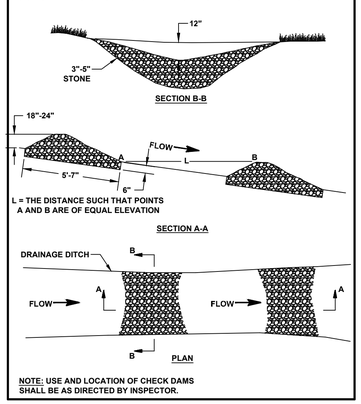
NOTES:
1. THE FABRIC AND WIRE SHOULD BE SECURELY FASTENED TO POSTS AND FABRIC ENDS MUST BE OVERLAPPED A MINIMUM OF 18" OR WRAPPED TOGETHER AROUND A POST TO PROVIDE A CONTINUOUS FABRIC BARRIER AROUND THE INLET.

CO: CRUSHED STONE CONSTRUCTION EXIT



NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R–2 (1.5"–3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS–OF–WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

Cd-S: EROSION CONTROL CHECK DAM STONE



NOTE: USE AND LOCATION OF CHECK DAMS SHALL BE AS DIRECTED BY INSPECTOR.

Table 1. Some Temporary Plant Species, Seeding Rates and Planting Dates (Ds2)

Species	Rates Per 1,000 sq. ft.	Rates per Acre	Planting Dates by Region		
			M-L	P	C
Barley Alone Barley in Mixtures	3.3 lbs. .6 lbs.	3 bu. .5 bu.	9/1-10/31	9/15-11/15	10/1-12/31
Lespedeza, Annual Lespedeza in Mixtures	0.9 lbs. 0.2 lbs.	40 lbs. 10 lbs.	3/1-3/31	3/1-3/31	2/1-2/28
Lovegrass, Weeping Lovegrass in Mixtures	4lbs. .05 lbs.	0.1 lbs. 2 lbs.	4/1-5/31	4/1-5/31	3/1-5/31
Millet, Browntop Millet in Mixtures	.9 lbs. .2 lbs.	40 lbs. 10 lbs.	4/15-6/15	4/15-6/30	4/15- 6/30
Millet, Pearl	1.1 lbs.	50 lbs.	5/15-7/15	5/1-7/31	4/15-8/15
Oats Alone Oats in Mixtures	2.99 lbs. .7 lbs.	4 bu. 1 bu.	9/15 -11/15	9/15-11/15	9/15-11/15
Rye (Grain) Alone Rye in Mixtures	3.9 lbs. .6 lbs.	3 bu. .5 bu.	8/15-10/31	9/15/-11/30	10/1-12/31
Ryegrass	0.9 lbs.	40 lbs.	8/15-11/15	9/1-12/15	9/15-12/31
Sudangrass	1.4 lbs.	60 lbs.	5/1-7/31	5/1-7/31	4/1-7/31
Triticale Alone Triticale in Mixtures	3.3 lbs. .6 lbs	3 bu. .5 bu.	NA	NA	10/15-11/30
Wheat Alone Wheat in Mixtures	4.1 lbs. .7 lbs.	3 bu. .5 bu.	9/15 -11/30	10/1-12/15	10/15-12/31

1. Unusual site conditions may require heavier seeding rates.
2. Seeding dates may need to be altered to fit temperature variations and local conditions.
3. For Major Land Resource Areas (MLRAs), see page 60.
4. Seeding rates are based on pure live seed (PLS).

Table 2. Fertilizer Requirements for Temporary Vegetation (Ds2)

Types of Species	Planting Year	Fertilizer (N-P-K)	Rate (lbs./acre)	N Top Dressing Rate (lbs./acre)
Cool season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 1000 400	50-100 --- 30
Cool seasn grasses & legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 1000 400	0-50 --- ---
Temporary cover crops seeded alone	First	10-10-10	500	30
Warm season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 800 400	50-100 50-100 30

TABLE 6-5.2 PLANTS, PLANTING RATES, AND PLANTING DATES FOR PERMANENT COVER (Ds3)

SPECIES	BROADCAST. RATES 1/ - PLS 2/ PER ACRE	PER 1000 SF 2/	RESOURCE AREA 3/	PLANTING DATES BY RESOURCE AREAS PLANTING DATES J F M A M J J A S O N D	REMARKS
BERMUDA, COMMON (CYNODON DACTYLON) HULLED SEED			P C		1,787,000 SEED PER POUND. QUICK COVER. LOW GROWING AND SOD FORMING. FULL SUN. GOOD FOR ATHLETIC FIELDS.
ALONE	10 LBS.	0.2 LB.			
WITH OTHER PERENNIALS	6 LBS.	0.1 LB.			
BERMUDA, COMMON (CYNODON DACTYLON) HULLED SEED			P C		PLANT WITH WINTER ANNUALS.
WITH TEMPORARY COVER	10 LBS.	0.2 LB.			PLANT WITH TALL FESCUE.
WITH OTHER PERENNIALS	6 LBS.	0.1 LB.			
BERMUDA, COMMON (CYNODON DACTYLON) HULLED SEED COASTAL, COMMON, MIDLAND, OR TIFT 44 TIFT 78	40 CU. FT. OR SOD PLUGS 3' x 3'	0.9 CU. FT.	M-L P C		A CUBIC FOOT CONTAINS APPROXIMATELY 600 SPRIGS. A BUSHEL CONTAINS 1.25 CUBIC FEET AND APPROXIMATELY 800 SPRIGS. SAME AS ABOVE SOUTHERN COASTAL PLAIN
CENTIPEDE (EREMOCHLOA OPHIUROIDES)	BLOCK SOD ONLY		P C		EFFECTIVE ADJACENT TO CONCRETE AND IN CONCENTRATED FLOW AREAS. SPREADS SLOWLY BY STOLONS. FULLY ESTABLISHED. DO NOT PLANT NEAR PASTURES.
FESCUE, TALL (FESTUCA ARUNDINACEA) ALONE WITH OTHER PERENNIALS	50 LBS. 30 LBS.	1.1 LB. 0.7 LB.	M-L P		227,000 SEED PER POUND. USE ALONE ONLY ON BETTER SITES NOT FOR DROUGHTY SOILS. MIX WITH PERENNIAL LESPEDEZAS OR CROWNVETCH. APPLY LIMESTONE IN SPRING. FOLLOWING FALL PLANTINGS NOT FOR HEAVY USE AREAS OR ATHLETIC FIELDS.
LOVEGRASS, WEEDPING (ERAGROSTIS CURVULA) ALONE WITH OTHER PERENNIALS	4 LBS. 2 LBS.	0.1 LB. 0.05 LB.	M-L P C		1,500,000 SEED PER POUND. QUICK COVER. DROUGHT TOLERANT. GROWS WELL WITH SERICEA LESPEDEZA ON ROADBANKS.

FERTILIZER REQUIREMENTS

TYPE OF SPECIES	YEAR	ANALYSIS OF EQUIVALENT N-P-K	RATE	N TOP DRESSING RATE
1. COOL SEASON GRASSES	FIRST SECOND MAINTENANCE	6-12-12 6-12-12 10-10-10	1500 LBS./AC. 1000 LBS./AC. 400 LBS./AC.	50-100 LBS./AS. 1/ 2/ -- 30
2. COOL SEASON GRASSES AND LEGUMES	FIRST SECOND MAINTENANCE	6-12-12 0-10-10 0-10-10	1500 LBS./AC. 1000 LBS./AC. 400 LBS./AC.	0-50 LBS./AS. 1/ -- --
3. GROUND COVER	FIRST SECOND MAINTENANCE	10-10-10 10-10-10 10-10-10	1300 LBS./AC. 3/ 1300 LBS./AC. 3/ 1100 LBS./AC.	-- -- --
4. PINE SEEDLINGS	FIRST	20-10-5	ONE 21-GRAM PELLET PER SEEDLING PLACED IN THE CLOSING HOLE	--
5. SHRUB LESPEDEZA	FIRST MAINTENANCE	0-10-10 0-10-10	700 LBS./AC. 700 LBS./AC. 4/	-- --
6. TEMPORARY COVER CROPS SEEDED ALONE	FIRST	10-10-10	500 LBS./AC.	30 LBS./AS. 5/
7. WARM SEASON GRASSES	FIRST SECOND MAINTENANCE	6-12-12 6-12-12 10-10-10	1500 LBS./AC. 800 LBS./AC. 400 LBS./AC.	50-100 LBS./AS. 2/ 6/ 50-100 LBS./AS. 2/ 30 LBS./AS.
8. WARM SEASON GRASSES AND LEGUMES	FIRST SECOND MAINTENANCE	6-12-12 0-10-10 0-10-10	1500 LBS./AC. 1000 LBS./AC. 400 LBS./AC.	50 LBS./AS. 6/

1/ APPLY IN SPRING FOLLOWING SEEDLING.
2/ APPLY IN SPLIT APPLICATIONS WHEN HIGH RATES ARE USED.
3/ APPLY IN 3 SPLIT APPLICATIONS.
4/ APPLY WHEN PLANTS ARE PRUNED.
5/ ALLAY TO GRASS SPECIES ONLY.
6/ APPLY WHEN PLANTS GROW TO A HEIGHT OF 2 TO 4 INCHES.

SILT FENCE REQUIREMENTS
TABLE 6-13.2

WIDTH OF FABRIC	USE
TYPE A (36")	1) ON DEVELOPMENTS WHERE THE LIFE OF THE PROJECT IS GREATER THAN OR EQUAL TO 6 MONTHS. 2) WHERE THE SLOPE GRADIENT IS STEEPER THAN 3:1.
TYPE B (22")	1) ON PROJECTS, SUCH AS RESIDENTIAL HOME SITES OR SMALL COMMERCIAL DEVELOPMENTS, WHERE THE LIFE OF THE PROJECT IS LESS THAN 6 MONTHS. 2) WHERE THE SLOPE GRADIENT IS LESS THAN OR EQUAL TO 3:1
TYPE C (36") WITH WOVEN WIRE REINFORCEMENT.	1) WHERE FILL SLOPES EXCEED A VERTICAL HEIGHT OF 20 FEET AND THE SLOPE GRADIENT IS STEEPER THAN 3:1.

SILT FENCE REQUIREMENTS
TABLE 6-13.2

	MINIMUM LENGTH	TYPE OF POST	SIZE OF POST
TYPE A	4'	SOFT WOOD OAK STEEL	3" DIA, OR 2x4 1.5" x 1.5" 1.3LB./FT. MIN.
TYPE B	3'	SOFT WOOD OAK STEEL	2" DIA, OR 2X2 1" X 1" .75LB./FT. MIN.
TYPE C	4'	STEEL	1.3LB./FT. MIN.

SILT FENCE REQUIREMENTS
TABLE 6-13.2

	GAUGE	CROWN	LEGS	STAPLES/POST
WIRE STAPLES	17 MIN.	¾" WIDE	¾" LONG	5 MIN.
	GAUGE	CROWN	LEGS	STAPLES/POST
NAILS	14 MIN.	1"	¾"	4 MIN.

NOTE: FILTER FABRIC MAY ALSO BE ATTACHED TO THE POST BY WIRE, CORD, AND ROCKETS

CONSTRUCTION SPECIFICATIONS

Provide a riprap splash pad or other outlet protection device for any point such as natural depressions or swales where flow may top the sediment fence. Ensure that the maximum height of the fence at a protected, reinforced outlet does not exceed 1 ft. and that support post spacing does not exceed 4 ft.

Hay or Straw Bales (if approved by local issuing authority)

Bales will be placed in a single row, lengthwise, on the contour and embedded in the soil to a depth of 4 inches. Bales must be securely anchored in place by stakes or bars driven through the bales or by other acceptable means to prevent displacement. (See Straw Bale Figures).

Silt Fence

A silt fence is specifically designed to allow water to pass through while retaining sediment on site.

Silt Fence Specifications

Two widths of silt fence are available, Type A or C (36" height) and Type B (22" height). In order to determine which to use, the project duration, slope gradient, and slope length must be known (See Table 6-13.1). Approved silt fence fabrics are listed in the Georgia Department of Transportation list #36. The manufacturer shall have either an approved color mark yarn in the fabric or label the fabricated silt fence with both the manufacturer and fabric name every 100 feet.

All silt fence must meet the minimum standards set forth in Section 171 - Temporary Silt Fence, of the Department of Transportation, State of Georgia, Standard Specification, current edition. See Table 6-13.5 for current Georgia DOT silt fence specifications.

Silt Fence Installation

The contractor shall install the temporary silt fence according to this specification, as shown on the plans or as directed by the engineer. For installation of Type A or C and B fabric, see Figures 6-13.3 and 6-13.4 respectively.

Post installation shall start at the center of the low point (if applicable) with remaining posts spaced 6 feet apart. For post size requirements of type A or C and B fabric, see Table 6-13.3. Fasteners for wood posts are listed in Table 6-13.4.

Silt Fence Maintenance and Removal

The contractor shall maintain the silt fence until the project is vegetated or accepted. Filter fabric shall be replaced whenever it has deteriorated to such an extent that it reduces the effectiveness of the fabric.

Maintenance - Construction Exit

The exit shall be maintained in a condition which will prevent tracking or flow of mud onto public rights-of-way/ This may require periodic top dressing with 1.5-3.5 inch stone, as conditions demand, and repair and/or cleanout of any structures used to trap sediment. All materials spiled, dropped, washed, or tracked from vehicles or site onto roadways or into storm drains must be removed immediately.

GEORGIA
UNIFORM CODING SYSTEM
FOR SOIL EROSION AND SEDIMENT CONTROL PRACTICES
GEORGIA SOIL AND WATER CONSERVATION COMMISSION

STRUCTURAL PRACTICES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Cd	CHECKDAM			A SMALL TEMPORARY BARRIER OR DAM CONSTRUCTED ACROSS A SWALE, DRAINAGE DITCH OR AREA OF CONCENTRATED FLOW.
Ch	CHANNEL STABILIZATION			IMPROVING, CONSTRUCTING OR STABILIZING AN OPEN CHANNEL, EXISTING STREAM, OR DITCH.
Co	CONSTRUCTION EXIT		(Co) (LABEL)	A CRUSHED STONE PAD LOCATED AT THE CONSTRUCTION SITE EXIT TO PROVIDE A PLACE FOR REMOVING MUD FROM TIRES THEREBY PROTECTING PUBLIC STREETS.
Dc	STREAM DIVERSION CHANNEL			A TEMPORARY CHANNEL CONSTRUCTED TO CONVEY FLOW AROUND A CONSTRUCTION SITE WHILE A PERMANENT STRUCTURE IS BEING CONSTRUCTED.
Di	DIVERSION			AN EARTH CHANNEL OR DIKE LOCATED ABOVE, BELOW, OR ACROSS A SLOPE TO DIVERT RUNOFF. THIS MAY BE A TEMPORARY OR PERMANENT STRUCTURE.
Sr	TEMPORARY STREAM CROSSING		(Sr) (LABEL)	A TEMPORARY BRIDGE OR CULVERT-TYPE STRUCTURE PROTECTING A STREAM OR WATERCOURSE FROM DAMAGE BY CROSSING CONSTRUCTION EQUIPMENT.
Rd	ROCK FILTER DAM			A PERMANENT OR TEMPORARY STONE FILTER DAM INSTALLED ACROSS SMALL STREAMS OR DRAINAGE WAYS.
Sd1	SEDIMENT BARRIER		(SILT FENCE, TYPE)	A BARRIER TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. IT MAY BE SANDBAGS, BALES OF STRAW OR HAY, BRUSH, LOGS AND POLES, GRAVEL, OR A SILT FENCE.

VEGETATIVE PRACTICES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Bf	BUFFER ZONE		(Bf) (LABEL)	STRIP OF UNDISTURBED ORIGINAL VEGETATION, ENHANCED OR RESTORED EXISTING VEGETATION OR THE REESTABLISHMENT OF VEGETATION SURROUNDING AN AREA OF DISTURBANCE OR BORDERING STREAMS.
Ds1	DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)		Ds1	ESTABLISHING TEMPORARY PROTECTION FOR DISTURBED AREAS WHERE SEEDLINGS MAY NOT HAVE A SUITABLE GROWING SEASON TO PRODUCE AN EROSION RETARDING COVER.
Ds2	DISTURBED AREA STABILIZATION (WITH TEMP SEEDING)		Ds2	ESTABLISHING A TEMPORARY VEGETATIVE COVER WITH FAST GROWING SEEDINGS ON DISTURBED AREAS.
Ds3	DISTURBED AREA STABILIZATION (WITH PERM SEEDING)		Ds3	ESTABLISHING A PERMANENT VEGETATIVE COVER SUCH AS TREES, SHRUBS, VINES, GRASSES, OR LEGUMES ON DISTURBED AREAS.
Ds4	DISTURBED AREA STABILIZATION (SODDING)		Ds4	A PERMANENT VEGETATIVE COVER USING SODS ON HIGHLY ERODABLE OR CRITICALLY ERODED LANDS.
Ss	SLOPE STABILIZATION		Ss	A PROTECTIVE COVERING USED TO PREVENT EROSION AND ESTABLISH TEMPORARY OR PERMANENT VEGETATION ON STEEP SLOPES, SHORE LINES, OR CHANNELS.

Liang Wang
LIANG WANG, P.E.
GSWCC NO. 0000083427

NOTIFY FORSYTH COUNTY INSPECTOR 24 HOURS BEFORE BEGINNING PHASE OF CONSTRUCTION. (770) 781-2165

CUMMING UTILITIES

CEC
CIVIL ENGINEERING CONSULTANTS, INC.
Civil & Environmental Engineering
110 Samaritan Drive, Suite 201
Cumming, GA 30040
(770) 977-5747
www.cecincga.com

GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVEJOY

DESIGNED BY: MY	DRAWN BY: JV	CHECKED BY: GP
10/16/19	BID READY	
DATE	DESCRIPTION	

CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

E&SCP DETAILS II

DATE: 10/09/2019

SHEET 33 OF 36

PROP. 2" HDPE 45° BEND

PROP. 2" HDPE DR 11
FORCE MAIN W/ TRACER WIRE

PROP. 2" HDPE 90° BEND

EX. SSMH # 27
RIM= 1069.65
EX. INV. IN= 1047.78 - 8"
EX. INV. IN= 1047.75 - 8"
EX. INV. IN= 1047.58 - 12"
EX. INV. OUT= 1047.54 - 12"
PROP. INV IN= 1065.65 - 2" HDPE
(SEE CONNECTION DETAIL ON SHEET 36)

Sd1-C

EXIST. R/W

ESA - 25' STREAM BUFFER

STREAM #5

SCALE IN FEET
0 20' 40'
SCALE: 1" = 20'-0"

MATCHLINE - (1)

PLUG

PROP. 2" HDPE TEE

SERVICE CONNECTION
SEE LOW PRESSURE SEWER DETAIL

PLUG

PROP. IN-LINE 2" CLEANOUT

AIR RELEASE VALVE
ASSEMBLY,
FIELD VERIFY LOCATION

NEW 12" DIP WATER
(FORSYTH COUNTY)

PROP. 2" HDPE DR 11
FORCE MAIN W/ TRACER WIRE

DIRECTIONALLY DRILL 100 LF
W/ 6" HDPE CASING DR 11

PROP. 2" HDPE TEE

PLUG

SOIL SERIES
BOUNDARY (TYP.)

SCALE IN FEET
0 20' 40'
SCALE: 1" = 20'-0"

BID READY: 10/16/19

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GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVEJOY

DESIGNED BY: MY	DRAWN BY: JV	CHECKED BY: GP
DATE	REVISION	

CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

CHEATHAM CREEK LPS

PROJECT INCEPTION DATE: 10/09/2019

SHEET
34 OF 36

PROP. 2" HDPE 90° BEND

18" RCP

18" HDPE

PROP. 2" HDPE DR 11
FORCE MAIN W/ TRACER WIRE

DI GRATE = 1180.21
INV. IN = 1175.91
INV. OUT = 1173.51

EX. SSMH
RIM = 1183.48
INV. IN = 1170.04
INV. OUT = 1170.06
PROP. INV. IN = 1179.48 - 2" HDPE
(SEE CONNECTION DETAIL ON SHEET 36)

Sd1-C

CB TOP = 1174.19

PARCEL # 226 090
~N/F~
Poss Gary L & Poss Paula S
DB 1336 PG 0270

PARCEL # 226 005
~N/F~
Poss John Lafayette &
Poss Tommie Ann
DB 628 PG 217

DISTURBED
CONDUIT

5'-0" OUTSIDE R/W
(TYP.)

PROP. 10'-0"
PERMANENT
EASEMENT

PARCEL # 226 406
~N/F~
Forsyth CO Bd Of Education
DB 4330 PG 287

MATCHLINE - (1)

SCALE IN FEET
0 20' 40'
SCALE: 1" = 20'-0"

PARCEL # 200 078
~N/F~
Andrews Floyd D &
Andrews Judy M
DB 701 PG 53

1/2" REBAR

6" HDPE DR 11 CASING
DIRECTIONALLY DRILLED 36 LF

ECHOLS ROAD
~VARIABLE R/W~

PARCEL # 200 077
Corkery Enterprises Inc
DB 8561 PG 615

SERVICE CONNECTION
SEE LOW PRESSURE SEWER DETAIL

5'-0" INSIDE R/W
(TYP.)

PROP. IN-LINE 2" CLEANOUT

PLUG

PARCEL # 200 076
~N/F~
Corkery Enterprises Inc
DB 8561 PG 615

PROP. 2" HDPE TEE

6" HDPE DR 11 CASING
DIRECTIONALLY
DRILLED 38 LF

PROP. 2" HDPE 45° BEND

PROP. 2" HDPE 45° BEND

PROP. 10'-0"
PERMANENT
EASEMENT

5'-0" INSIDE R/W
(TYP.)

PROP. 2" HDPE
LOW PRESSURE SEWER

PARCEL # 200 057
~N/F~
Wood Mary Jo
DB 8252 PG 314

PARCEL # 200 060
~N/F~
F C Haw Creek Park
DB 5871 PG 0278

SCALE IN FEET
0 20' 40'
SCALE: 1" = 20'-0"

BID READY: 10/16/19

CUMMING UTILITIES

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CIVIL ENGINEERING CONSULTANTS, INC.
Civil & Environmental Engineering
4994 LOWER ROSWELL ROAD
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GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVEJOY

DESIGNED BY: MY	DRAWN BY: JV	CHECKED BY: GP
DATE	REVISION	

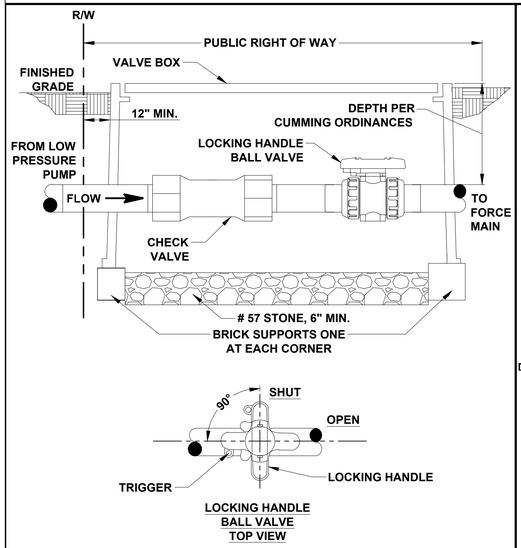
CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

ECHOLS RD LPS

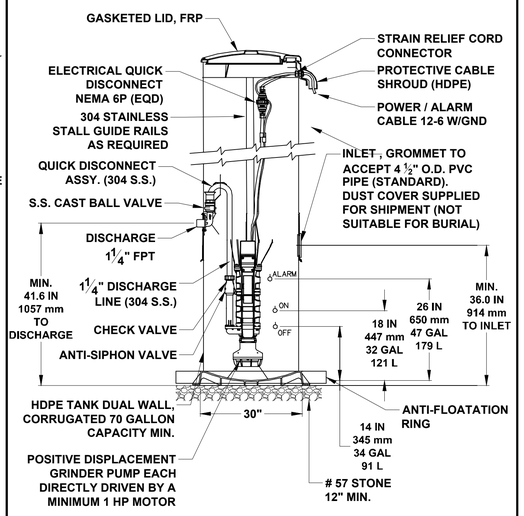
PROJECT INCEPTION DATE: 10/09/2019

SHEET 35 OF 36



NOTE:
VALVE SIZE TO MATCH PUMP, 1.25" - 2".

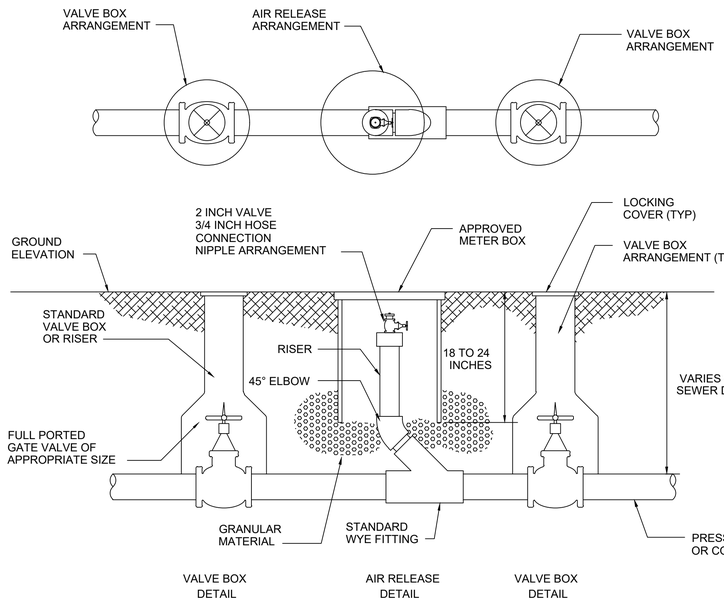
PADLOCK SHAFT DIAMETER	
1-1/4" - 2"	.24"



PUMP SHALL OPERATE AT 11GPM AT 40PSI. SHUT OFF HEAD SHALL BE MINIMUM OF 240'. (CENTRIFUGAL PUMPS SHALL NOT BE ALLOWED)

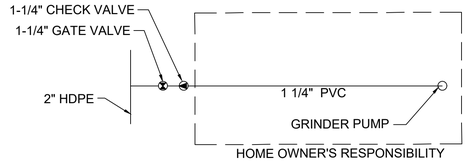
CUMMING UTILITIES	**CITY OF CUMMING** DEPARTMENT OF UTILITIES **LOW PRESSURE CONNECTION**	DETAIL NUMBER: **S-24**	LATEST REVISION 05/24/2018 SCALE: NOT TO SCALE

CUMMING UTILITIES	**CITY OF CUMMING** DEPARTMENT OF UTILITIES **GRINDER PUMP SIMPLEX OPERATION**	DETAIL NUMBER: **S-25**	LATEST REVISION 07/14/2017 SCALE: NOT TO SCALE



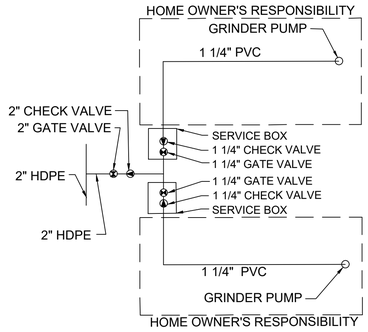
AIR RELEASE ARRANGEMENT
MANUAL AIR RELEASE

N.T.S.



SINGLE SERVICE CONNECTION DETAIL

N.T.S.

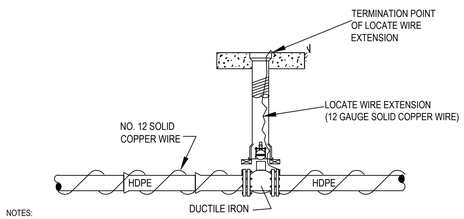


DOUBLE SERVICE CONNECTION DETAIL

N.T.S.

THE LOCATIONS OF ALL UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE. THEREFORE, CIVIL ENGINEERING CONSULTANTS, INC. DOES NOT GUARANTEE THAT CONDITIONS AS SHOWN ARE EXACT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, OR HIS AGENT, TO DETERMINE THE EXACT LOCATIONS OF EXISTING UTILITIES BY NOTIFICATION OF THE OWNERS OF THE SAME BEFORE BEGINNING WORK.

IN-LINE CLEAN-OUT COMPONENT SIZING			
FORCE MAIN DIA.	SCREW CAP DIA.	VALVE & FITTINGS DIA.	ACCESS RISER & LID DIA.
2"	3"	2"	30"
2 ½"	3"	2"	30"
3"	4"	3"	30"
4"	6"	4"	30"



NOTES:

1. USE NO. 12 AWG SOLID PLASTIC COATED COPPER WIRE.

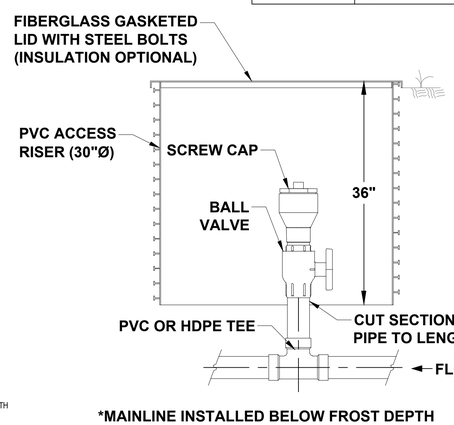
2. STRIP 2 INCHES OF COATING AND WRAP WIRE 2 TURNS UNDER "T" HEAD BOLT ON TOP OF DUCTILE IRON FITTING (VALVE). NEXT, WRAP WIRE 2 TURNS AROUND BELL OF FITTING (VALVE) AND WIND WITH A CONTINUOUS LENGTH WITH AT LEAST 4 WRAPS PER LENGTH OF PVC PIPE TO NEXT DUCTILE IRON FITTING. TERMINATE AT FITTING IN SIMILAR MANNER AS NOTED ABOVE.

3. ALL SPLICES MUST BE MADE USING COPPER WIRE "U" BOLT ASSEMBLES AND THEN WRAPPING WITH ELECTRICAL TAPE.

4. WRAPPING TRACER WIRE AROUND HDPE PIPE IS MANDATORY. WIRE MAY NOT BE STRUNG ALONG TOP OF PIPE AND TAPED TO THE PIPE.

5. LOCATE WIRE EXTENSION MUST BE RUN INSIDE VALVE BOX AND MUST TERMINATE AT VALVE BOX LID. LOCATE WIRE EXTENSION MUST BE CONNECTED TO A TEE-BOLT ON THE VALVE BODY.

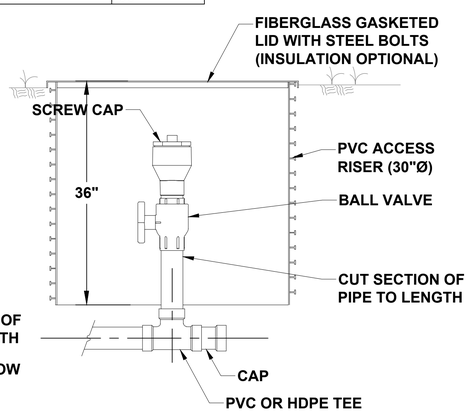
HDPE PIPE DETECTOR WIRE



*MAINLINE INSTALLED BELOW FROST DEPTH

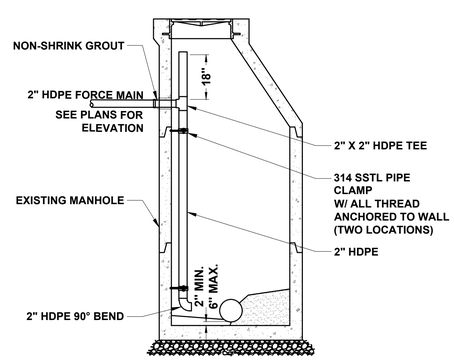
IN-LINE CLEAN-OUT DETAIL

N.T.S.



END CLEAN-OUT DETAIL

N.T.S.



FORCE MAIN CONNECTION DETAIL

N.T.S.

BID READY: 10/16/19

CUMMING UTILITIES

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GEORGIA REGISTERED NO. 27817 PROFESSIONAL ENGINEER ANDREW ERIC LOVEJOY

DESIGNED BY: MY	DRAWN BY: JV	CHECKED BY: GP

DATE	REVISION

CITY OF CUMMING

HAW CREEK ROAD OUTFALL AND FORCE MAIN

LOW PRESSURE SEWER DETAILS

PROJECT INCEPTION DATE: 10/09/2019

SHEET 36 OF 36