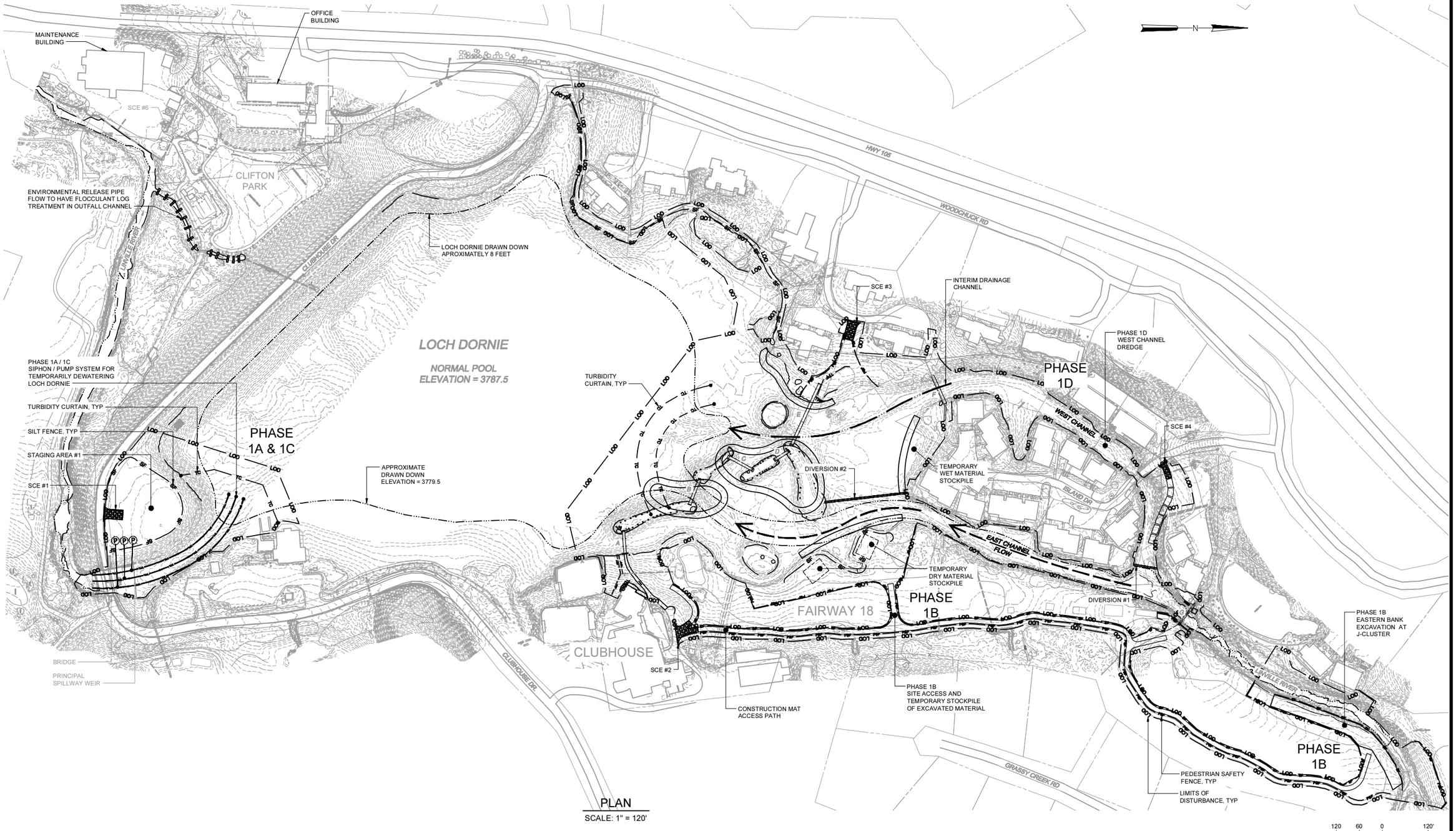

PLAN
SCALE: 1" = 120'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	J. MCSWAIN
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

EROSION & SEDIMENT CONTROL
PHASE 1 OF 2

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	E001

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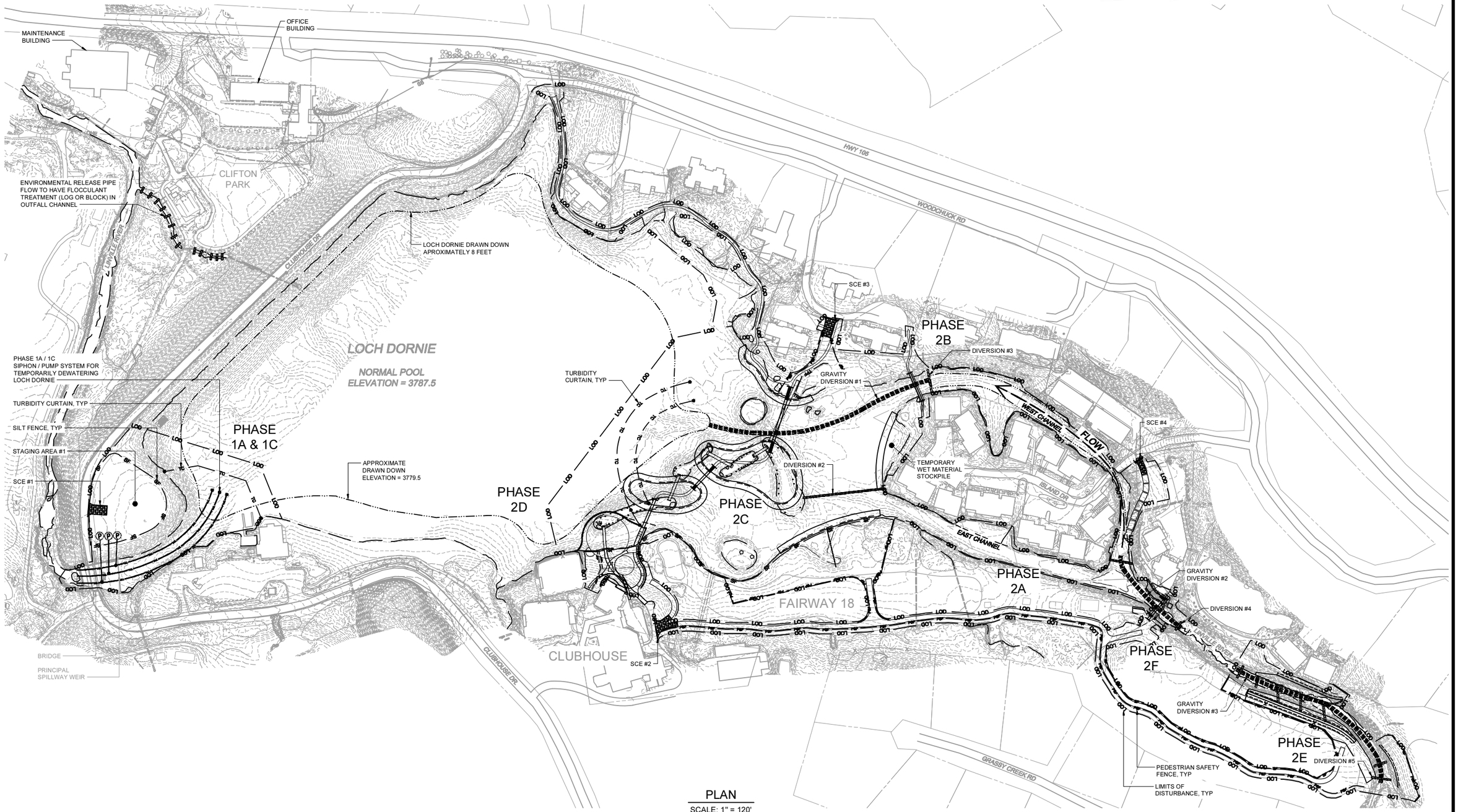

PLAN

SCALE: 1" = 120'

1" = 120'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	J. MCSWAIN
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

EROSION & SEDIMENT CONTROL
PHASE 2 OF 2

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE.

0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	E002

File: O:\32453.A01\13\ES\02\02-00_BIM\ES\ES002 Saved by JSKANE Save date: 8/12/2019 2:43 PM
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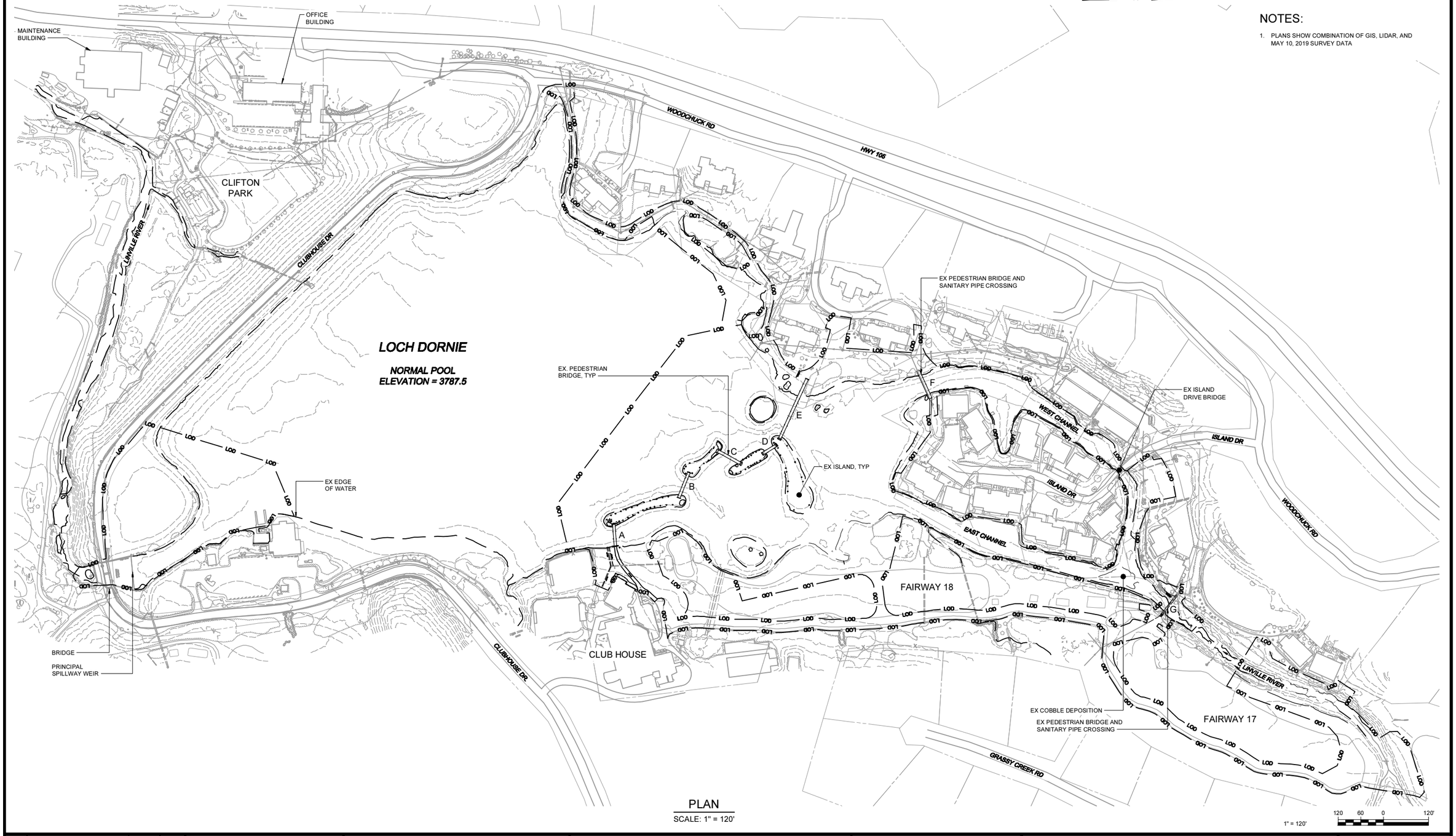

PLAN

SCALE: 1" = 120'

1" = 120'

120 60 0 120'

NOTES:

1. PLANS SHOW COMBINATION OF GIS, LIDAR, AND MAY 10, 2019 SURVEY DATA

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

EXISTING CONDITIONS & DEMO PLAN
OVERALL

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C100

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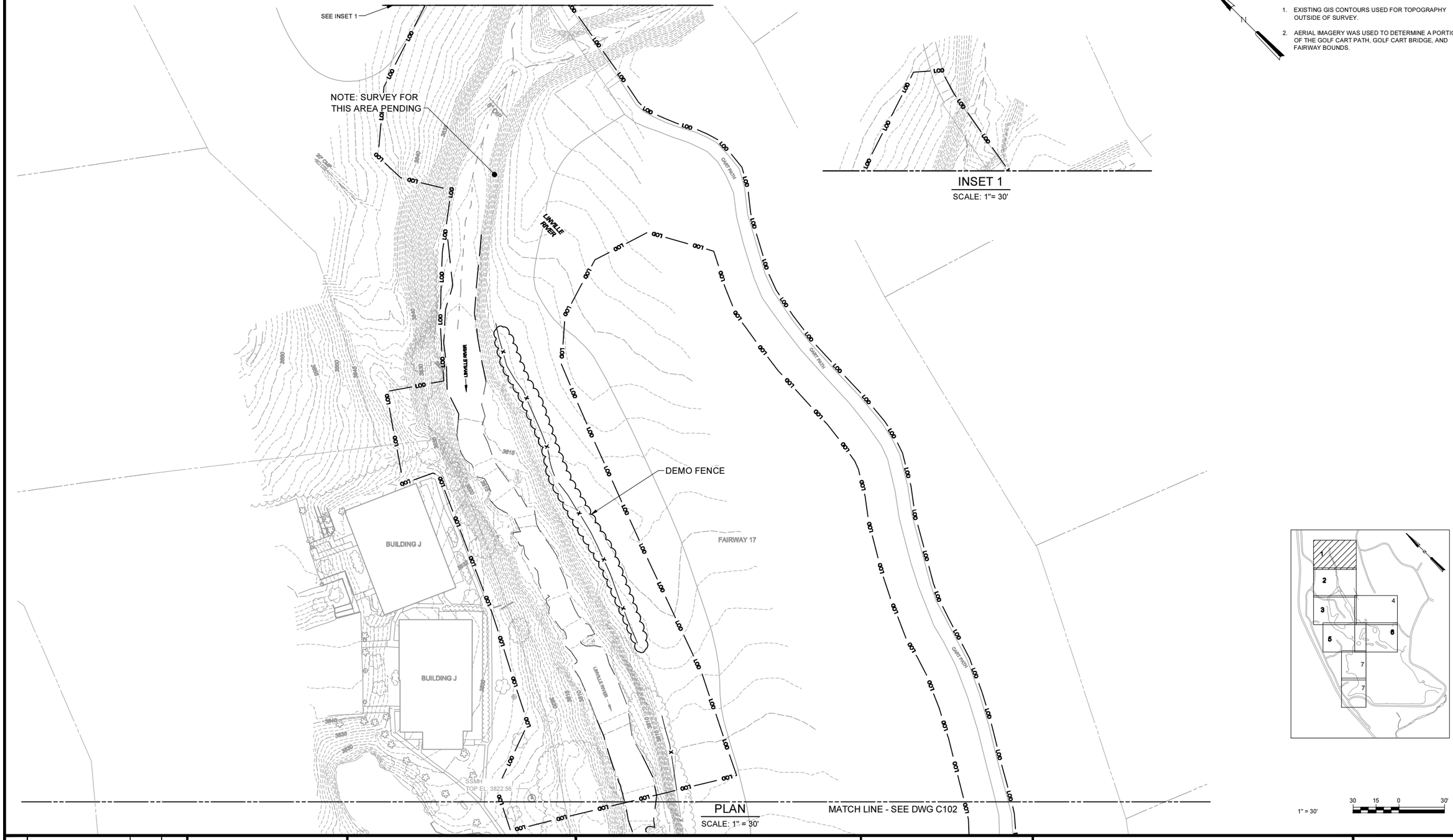
PLOT DATE: 8/14/2019 6:45 PM BY: SKANE

NOTES:

1. EXISTING GIS CONTOURS USED FOR TOPOGRAPHY OUTSIDE OF SURVEY.
2. AERIAL IMAGERY WAS USED TO DETERMINE A PORTION OF THE GOLF CART PATH, GOLF CART BRIDGE, AND FAIRWAY BOUNDS.



INSET 1
SCALE: 1"= 30'

PLAN
SCALE: 1" = 30'

1" = 30'

30 15 0 30'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

EXISTING CONDITIONS & DEMO PLAN
AREA 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C101

File: O:\32453.A01.\32453.009\CAD_BIM\CIVIL\C101 Saved by SKANE Save date: 8/12/2019 3:07 PM
PLOT DATE: 8/14/2019 6:49 PM BY: SKANE

MATCH LINE - SEE DWG C101

DEMO PEDESTRIAN BRIDGE AND
SANITARY PIPE CROSSING
SEE DWG C400 FOR NEW SANITARY DESIGN
SEE DWG B501-B504 FOR NEW BRIDGE DESIGN

DEMO LANDSCAPE
TIMBERS AND
FENCING

LIMITS OF EXISTING DRY STACK ROCK WALL

SSMH
TOP ELEV: 3822.56

SSMH
TOP ELEV: 3821.39

SSMH
TOP ELEV: 3808.32

SSMH
TOP EL: 3810.40
8" TRUSS IN (SE) I.E.: 3805.98
8" TRUSS IN (NW) I.E.: 3805.87

SSMH
TOP ELEV: 3806.21

SSMH
TOP ELEV: 3811.33
8" DIP IN (SW) I.E.: 3808.21
4" HDPE IN (SE) I.E.: 3808.00
8" TRUSS IN (NE) I.E.: 3807.37
8" TRUSS OUT (NW) I.E.: 3801.28

SSMH
TOP ELEV: 3831.00

LINVILLE RIVER

UPPER LOCH DORNIE WEST CHANNEL

UPPER LOCH DORNIE EAST CHANNEL

EX COBBLE DEPOSITION

FAIRWAY 17

TEE 18

BUILDING H

BUILDING C

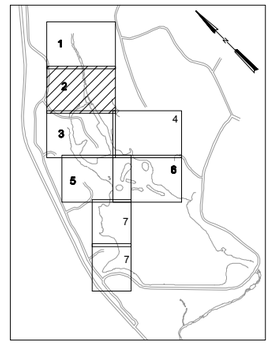
CART PATH

ISLAND DRIVE

MATCH LINE - SEE DWG C103

MATCH LINE - SEE DWG C104

PLAN
SCALE: 1" = 30'



1" = 30'

30 15 0 30'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF &
COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING &
SITE ENHANCEMENTS

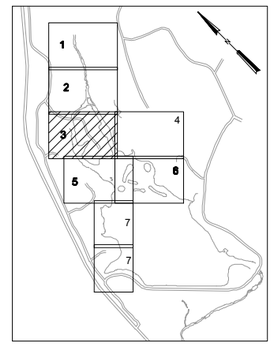
EXISTING CONDITIONS & DEMO PLAN
AREA 2

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C102

File: O:\32453.NT\13\WS\DWG\AD_BIM\CAD_C102 Saved by: JMCSWAIN Save date: 7/9/2019 10:53 PM
PLOT DATE: 8/14/2019 6:41 PM BY: SKANE

PLAN
SCALE: 1" = 30'



1" = 30'

30 15 0 30'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

EXISTING CONDITIONS & DEMO PLAN
AREA 3

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C103

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PLOT DATE: 8/14/2019 6:02 PM BY: SKANE

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

EXISTING CONDITIONS & DEMO PLAN
AREA 4

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C104

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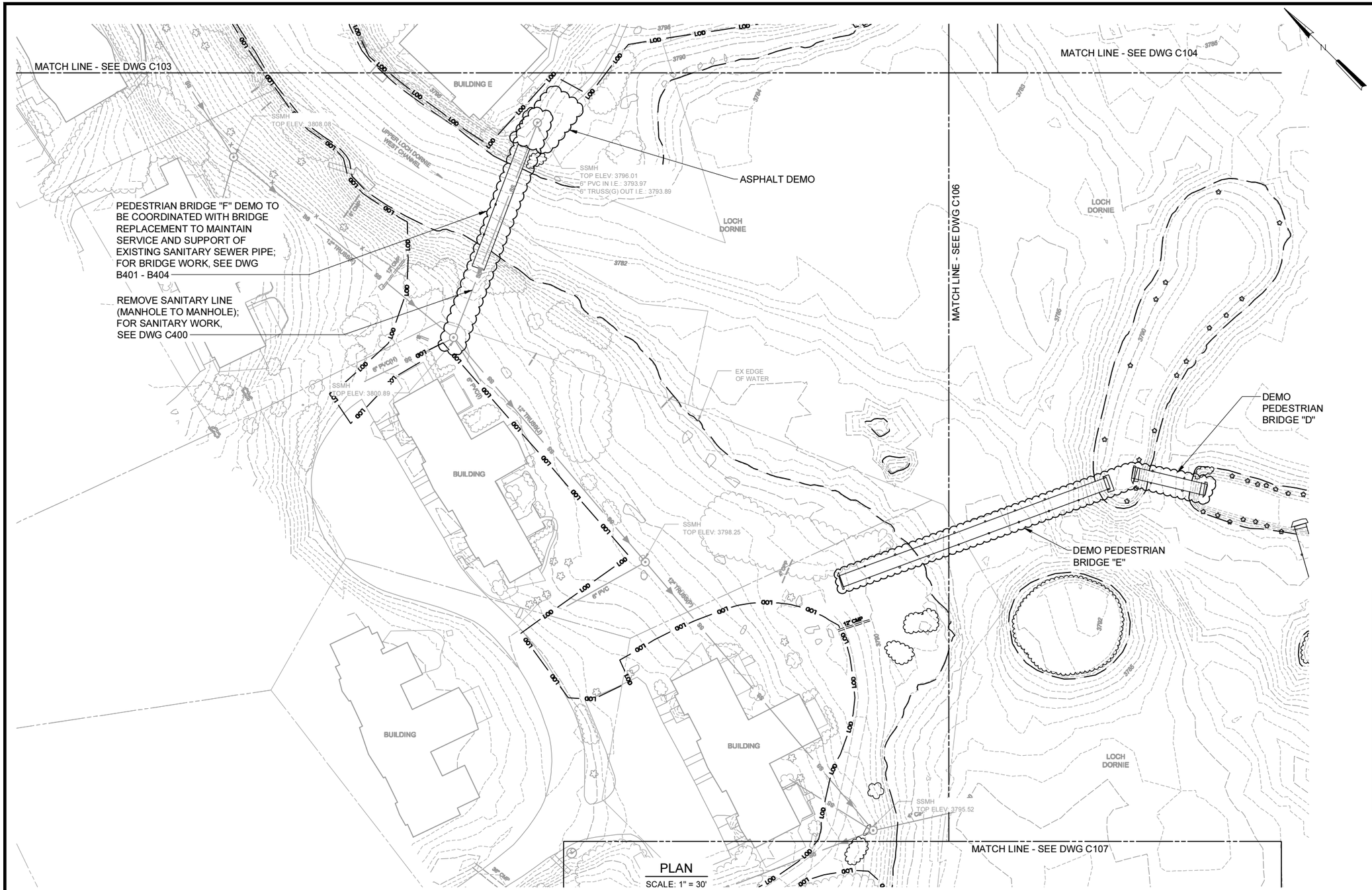
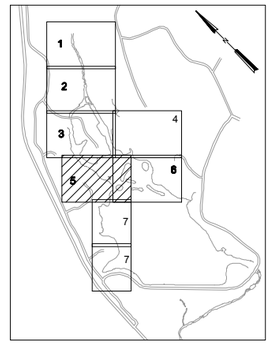


PLAN
SCALE: 1" = 30'



1" = 30'

30 15 0 30'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

EXISTING CONDITIONS & DEMO PLAN
AREA 5

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C105

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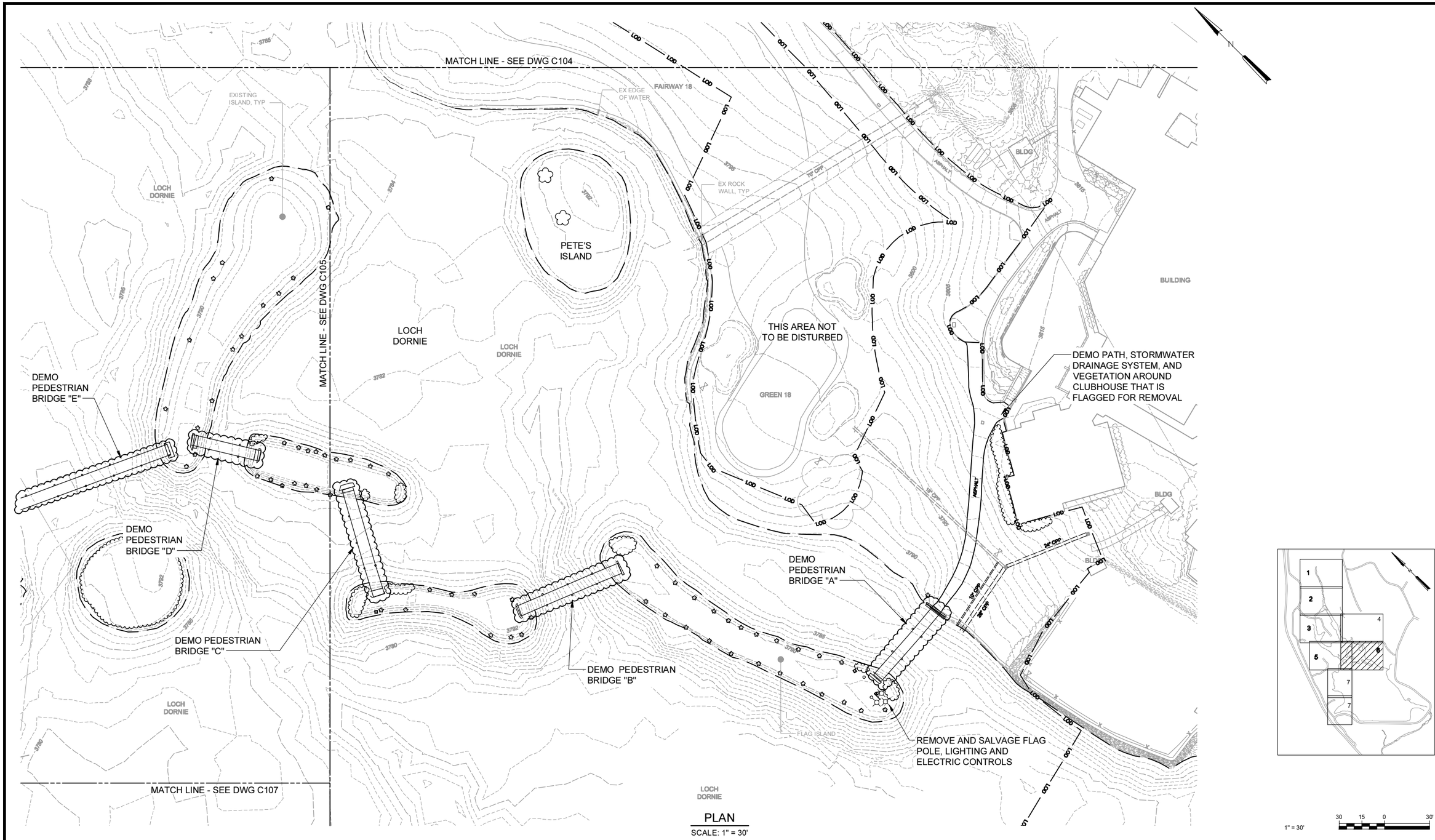
PLOT DATE: 8/14/2019 4:43 PM BY: SKANE



PLAN

SCALE: 1" = 30'

1" = 30'

30 15 0 30'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

EXISTING CONDITIONS & DEMO PLAN
AREA 6

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C106

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PLOT DATE: 8/14/2019 4:41 PM BY: SKANE

MATCH LINE - SEE DWG C105

MATCH LINE - SEE DWG C106

MATCH LINE - SEE THIS SHEET

EX GRASSED UTILITY ACCESS PATH

SSMH TOP ELEV: 3798.84

SSMH TOP ELEV: 3798.49

SSMH TOP ELEV: 3794.35

SSMH TOP ELEV: 3792.97

SSMH TOP ELEV: 3793.89

SSMH TOP ELEV: 3794.33

SSMH TOP ELEV: 3795.20

EX EDGE OF WATER

LOCH DORNIE

BUILDING

WOODCHUCK ROAD

CLUBHOUSE DRIVE

MATCH LINE - SEE THIS SHEET

MATCH LINE - SEE DWG ###

PLAN
SCALE: 1" = 30'

PLAN
SCALE: 1" = 30'

1" = 30'

30 15 0 30'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

EXISTING CONDITIONS & DEMO PLAN
AREA 7

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE.

0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C107

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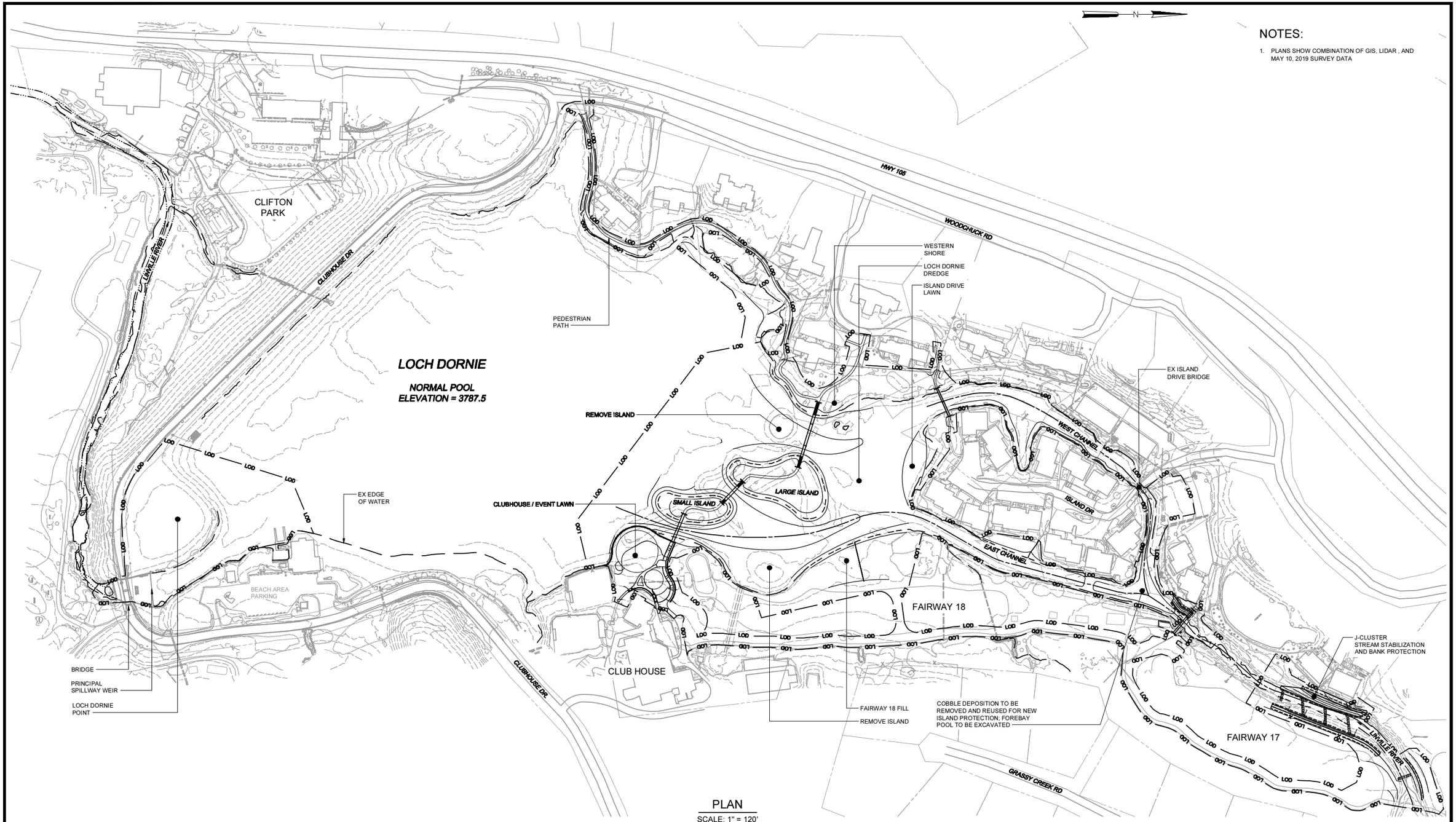


REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

GRADING & DREDGING PLAN
OVERALL

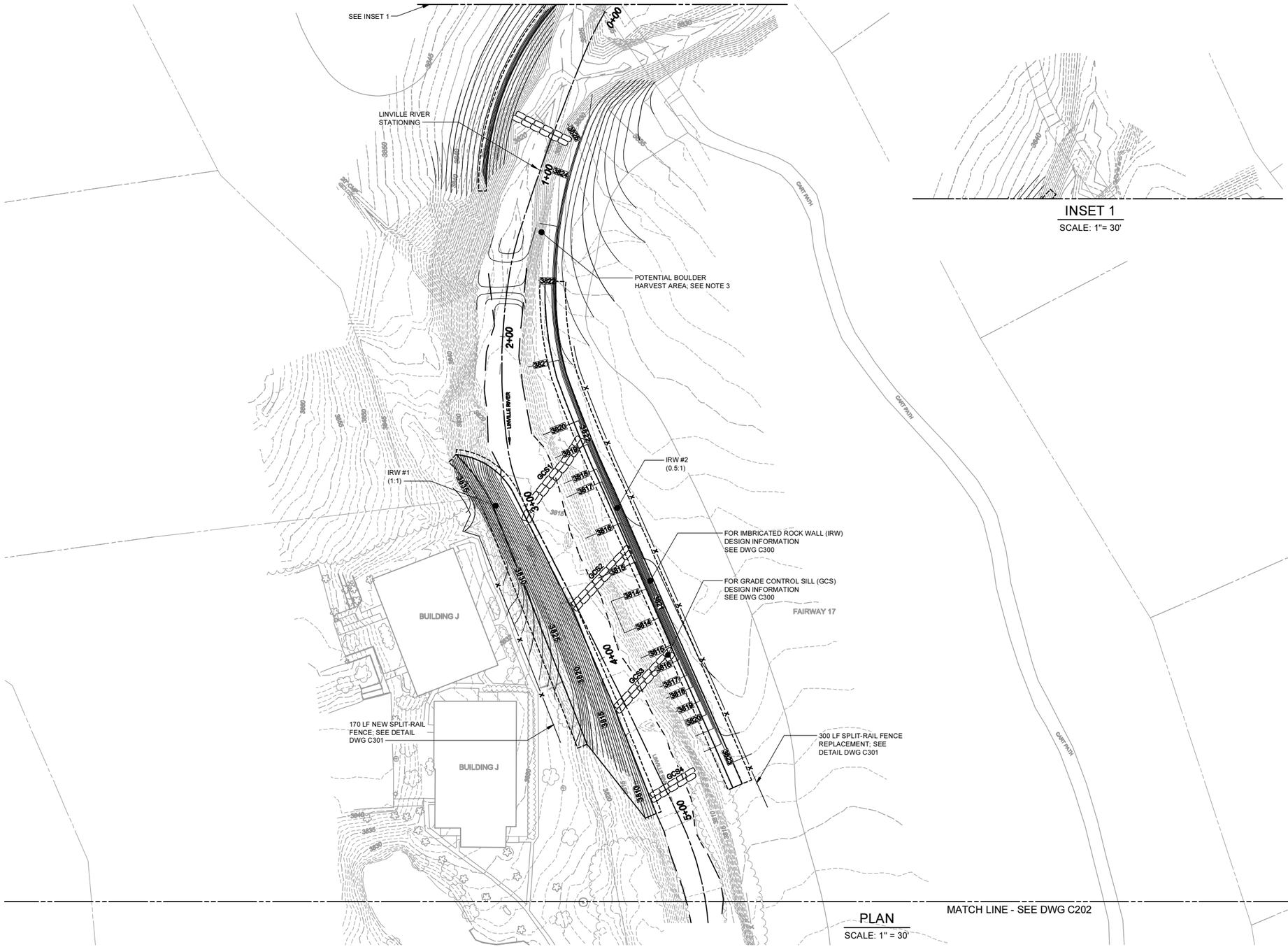
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C200

File: C:\32453-NT\13SWS\02\C4D_BIM\CIVIL\C200 Sweeby.SKANE Save date: 8/12/2019 3:36 PM
PLOT DATE: 8/14/2019 8:45 PM BY: SKANE

NOTES:

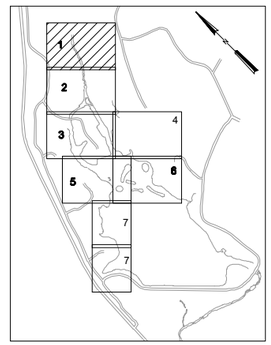
1. EXISTING GIS CONTOURS USED FOR TOPOGRAPHY OUTSIDE OF SURVEY.
2. AERIAL IMAGERY WAS USED TO DETERMINE A PORTION OF THE GOLF CART PATH, GOLF CART BRIDGE, AND FAIRWAY BOUNDS.
3. BUILDER HARVEST AREA (TO BE DEFINED AT NEXT DESIGN STAGE).



PLAN
SCALE: 1" = 30'

MATCH LINE - SEE DWG C202

INSET 1
SCALE: 1"= 30'



1" = 30'

30 15 0 30'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

GRADING & DREDGING PLAN
AREA 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C201

File: O:\32453.A11\32453.002\CAD_BIM\CIVIL\C201 Saved by SKANE Save date: 8/12/2019 1:12 PM
PLOT DATE: 8/14/2019 6:48 PM BY: SKANE

MATCH LINE - SEE DWG C201

MATCH LINE - SEE DWG C203

MATCH LINE - SEE DWG C204

NOTES:

1. CONTRACTOR TO AVOID ALL EXISTING STRUCTURES INCLUDING DOCKS AND DECKING.
2. SEE DWGS E002-E203 FOR DETAILS AND PHASING FOR WATER HANDLING, DREDGING, AND EARTHWORK.

SSMH
TOP ELEV: 3822.56

SSMH
TOP ELEV: 3821.39

SSMH
TOP ELEV: 3808.32

SSMH
TOP ELEV: 3806.21

SSMH
TOP ELEV: 3831.00

SSMH
TOP ELEV: 3811.33
8" DIP IN (SW) I.E.: 3808.21
4" HDPE IN (SE) I.E.: 3808.00
8" TRUSS IN (NE) I.E.: 3807.37
8" TRUSS OUT (NW) I.E.: 3801.28

LINVILLE RIVER
STATIONING

W.E.: 3824.1

FOR PROPOSED BRIDGE 5 WORK,
SEE DWG B501 - B504

FOR PROPOSED SANITARY SEWER WORK,
SEE DWG C400

IRW #3
(0.8:1)

FOR IMBRICATED ROCK WALL (IRW) DESIGN INFORMATION
SEE DWG C300

COBBLE DEPOSITION TO BE
REMOVED AND REUSED FOR
NEW ISLAND PROTECTION;
FOREBAY POOL TO BE
EXCAVATED

DREDGE BOTH UPPER
LOCH DORNIE CHANNELS
(EAST AND WEST)

FAIRWAY 17

GREEN 17

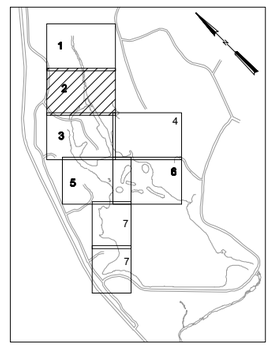
TEE 18

BUILDING H

BUILDING C

ISLAND DRIVE

PLAN
SCALE: 1" = 30'



1" = 30'

30 15 0 30'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF &
COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING &
SITE ENHANCEMENTS

GRADING & DREDGING PLAN
AREA 2

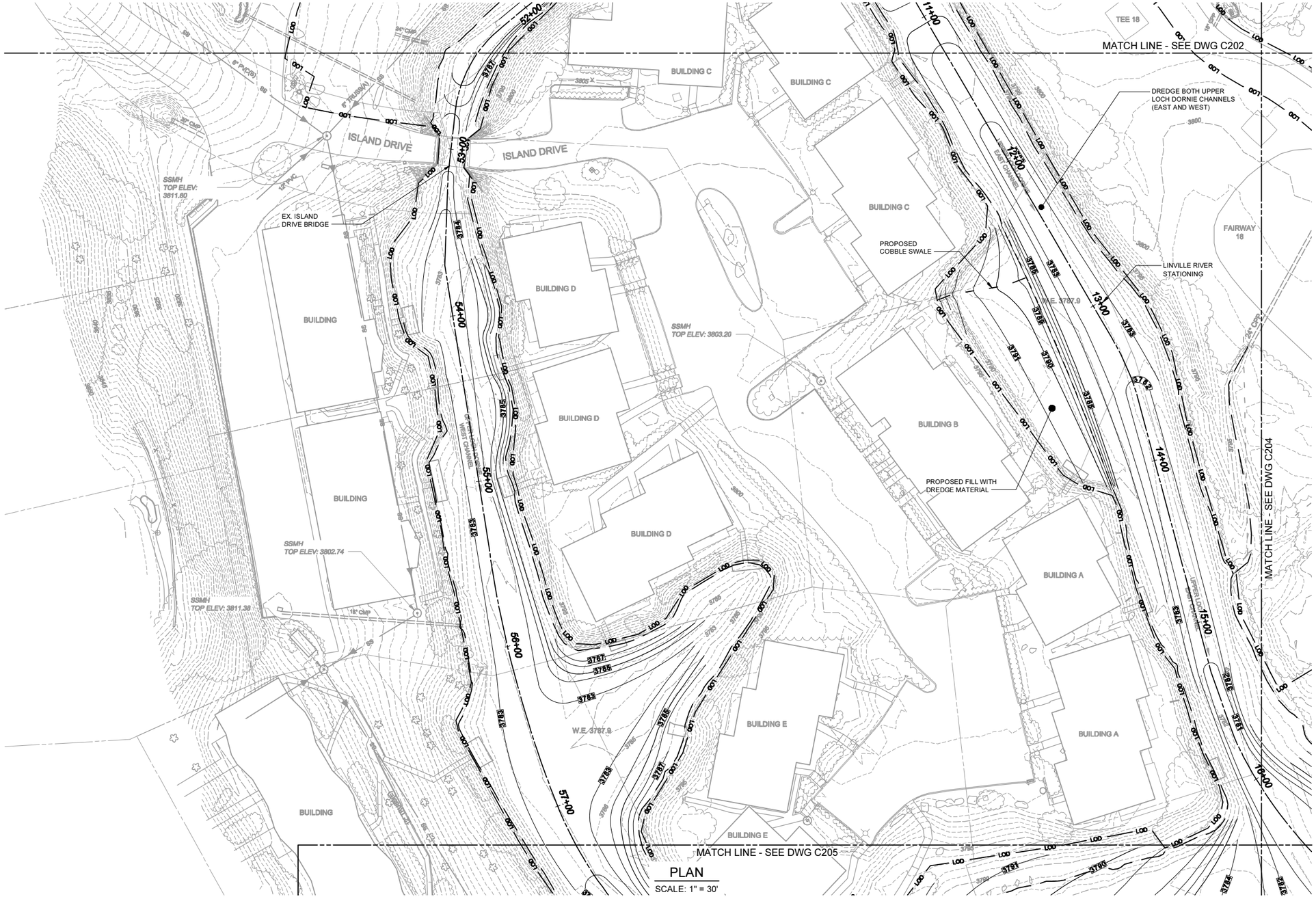
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C202

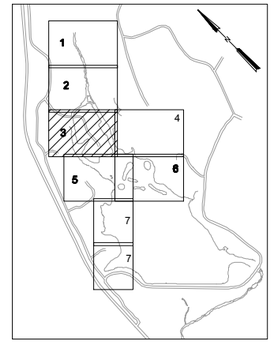
File: O:\32453.NT\1.03\4X\05\CAD_BIM\CIVIL\C202 Saved by: JMCSWAIN Save date: 7/8/2019 9:12 AM
PLOT DATE: 8/14/2019 6:47 PM BY: SKANE

NOTES:

1. CONTRACTOR TO AVOID ALL EXISTING STRUCTURES INCLUDING DOCKS AND DECKING.
2. SEE DWGS E002-E203 FOR DETAILS AND PHASING FOR WATER HANDLING, DREDGING, AND EARTHWORK.



PLAN
SCALE: 1" = 30'



1" = 30'

30 15 0 30'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

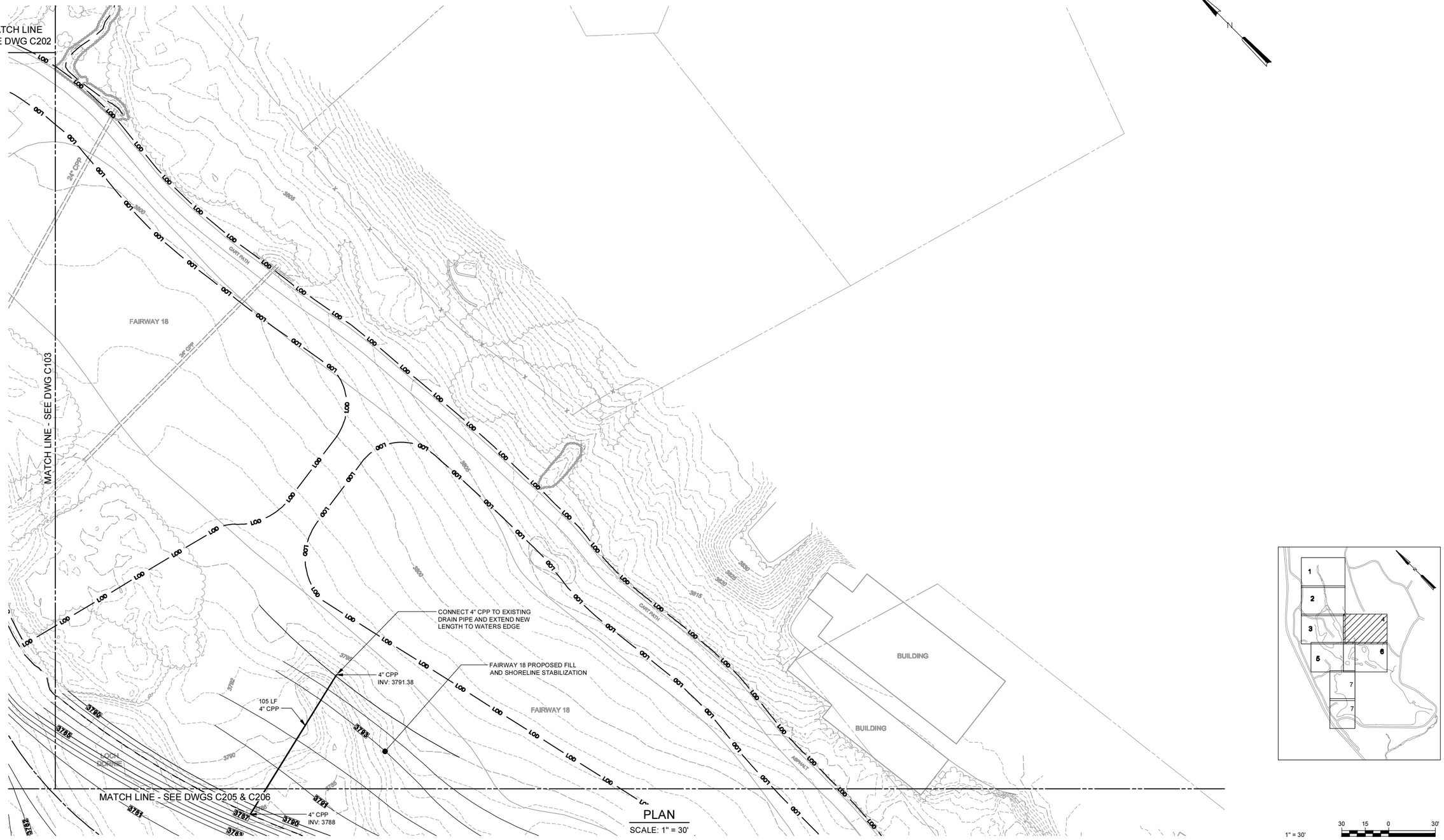
LOCH DORNIE DREDGING & SITE ENHANCEMENTS

GRADING & DREDGING PLAN
AREA 3

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C203

File: C:\32453.471\32453.005\CAD_BIM\CIVIL\C203 drawn by SKANE Save date: 8/12/2019 3:18 PM
PLOT DATE: 8/14/2019 6:48 PM BY: SKANE



PLAN
SCALE: 1" = 30'

1" = 30'

30 15 0 30'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

GRADING & DREDGING PLAN AREA 4

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE.

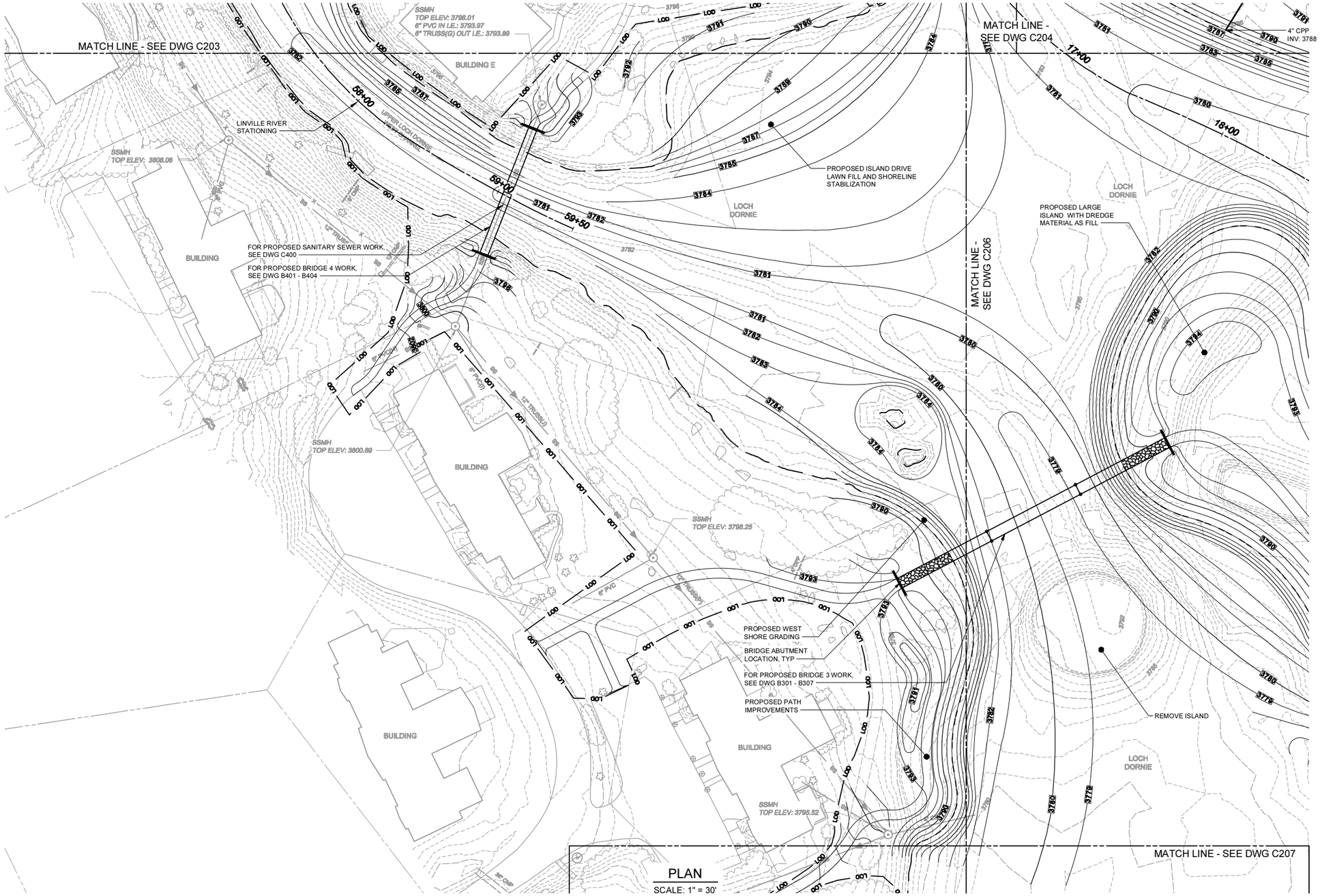
0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C204

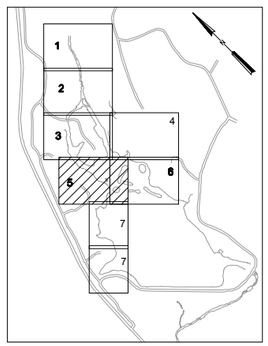
File: O:\32453.A01.\32453.005\CAD_SHMCSW_\C204 Saved by JMCSWAIN Save date: 7/7/2019 12:14 AM
PLOT DATE: 8/14/2019 6:49 PM BY: SKANE

NOTES:

1. CONTRACTOR TO AVOID ALL EXISTING STRUCTURES INCLUDING DOCKS AND DECKING.
2. SEE DWGS E002-E203 FOR DETAILS AND PHASING FOR WATER HANDLING, DREDGING, AND EARTHWORK.



PLAN
SCALE: 1" = 30'



1" = 30'

30 15 0 30'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

GRADING & DREDGING PLAN
AREA 5

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C205

File: O:\32453.A01\15453.002\CAD_BIM\CIVIL\C205 Saved by JMCSWAIN Saved date: 7/7/2019 12:53 AM
PLOT DATE: 8/14/2019 6:51 PM BY: SKANE

NOTES:

1. CONTRACTOR TO AVOID ALL EXISTING STRUCTURES INCLUDING DOCKS AND DECKING.
2. SEE DWGS E002-E203 FOR DETAILS AND PHASING FOR WATER HANDLING, DREDGING, AND EARTHWORK.

MATCH LINE - SEE DWGS C205 & C206

MATCH LINE - SEE DWG C204

MATCH LINE - SEE DWG C207

4" CPP INV: 3788

LINVILLE RIVER STATIONING

18+00

19+00

20+00

21+00

22+00

23+00

24+00

PROPOSED LARGE ISLAND WITH DREDGE MATERIAL AS FILL

ISLAND REVETMENT, TYP SEE DETAIL DWG C300

FOR PROPOSED BRIDGE 3 WORK, SEE DWG B301 - B307

LARGE ISLAND

SMALL ISLAND

REMOVE ISLAND

REMOVE ISLAND

BRIDGE ABUTMENT LOCATION, TYP

FOR PROPOSED BRIDGE 2 WORK, SEE DWG B201 - B204

FOR PROPOSED BRIDGE 1 WORK, SEE DWG B101 - B104

EX ROCK WALL, TYP

ROCK WALL

RETAINING WALL, SEE DETAIL DWG W100 - W101

PROPOSED EVENT LAWN GRADING

FAIRWAY 18

GREEN 18

LOCH DORNIE

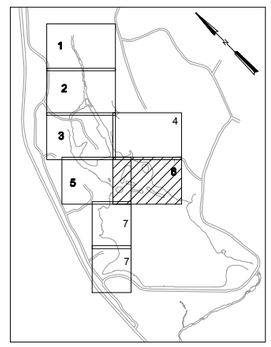
BLDG

BUILDING

CLUBHOUSE

ASPHALT

76" CPP



PLAN

SCALE: 1" = 30'

1" = 30'

30 15 0 30'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

GRADING & DREDGING PLAN
AREA 6

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C206

File: O:\DATA\471\32453\002\CAD_BIM\Civil_LC206 Saved by: JMCSWAIN Save date: 7/2/2019 12:53 AM
PLOT DATE: 8/14/2019 6:51 PM BY: SKANE

MATCH LINE - SEE DWG C205

MATCH LINE - SEE DWG C206

MATCH LINE - SEE THIS SHEET

MATCH LINE - SEE THIS SHEET

PROPOSED FILL WITH DREDGE MATERIAL

PROPOSED FILL WITH DREDGE MATERIAL

PROPOSED FILL WITH DREDGE MATERIAL

PROPOSED PATH

PROPOSED PEDESTRIAN PATH GRADING

PROPOSED PATH

PROPOSED PEDESTRIAN PATH GRADING

LOCH DORNIE

LOCH DORNIE

BUILDING

BUILDING

WOODCHUCK ROAD

CLUBHOUSE DRIVE

SSMH TOP ELEV: 3796.84

SSMH TOP ELEV: 3796.49

SSMH TOP ELEV: 3794.35

SSMH TOP ELEV: 3792.97

SSMH TOP ELEV: 3795.20

SSMH TOP ELEV: 3793.89

SSMH TOP ELEV: 3794.33

EX. WL

12" TRUSS(U)

8" PVC

12" PVC

6" PVC

OHE

UNDERGROUND

3787.5

3787

3786

3785

3784

3783

3795

3800

3805

3810

3815

3775

1 2 3 4 5 6 7

PLAN
SCALE: 1" = 30'

PLAN
SCALE: 1" = 30'

1" = 30'

30 15 0 30'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

GRADING & DREDGING PLAN
AREA 7

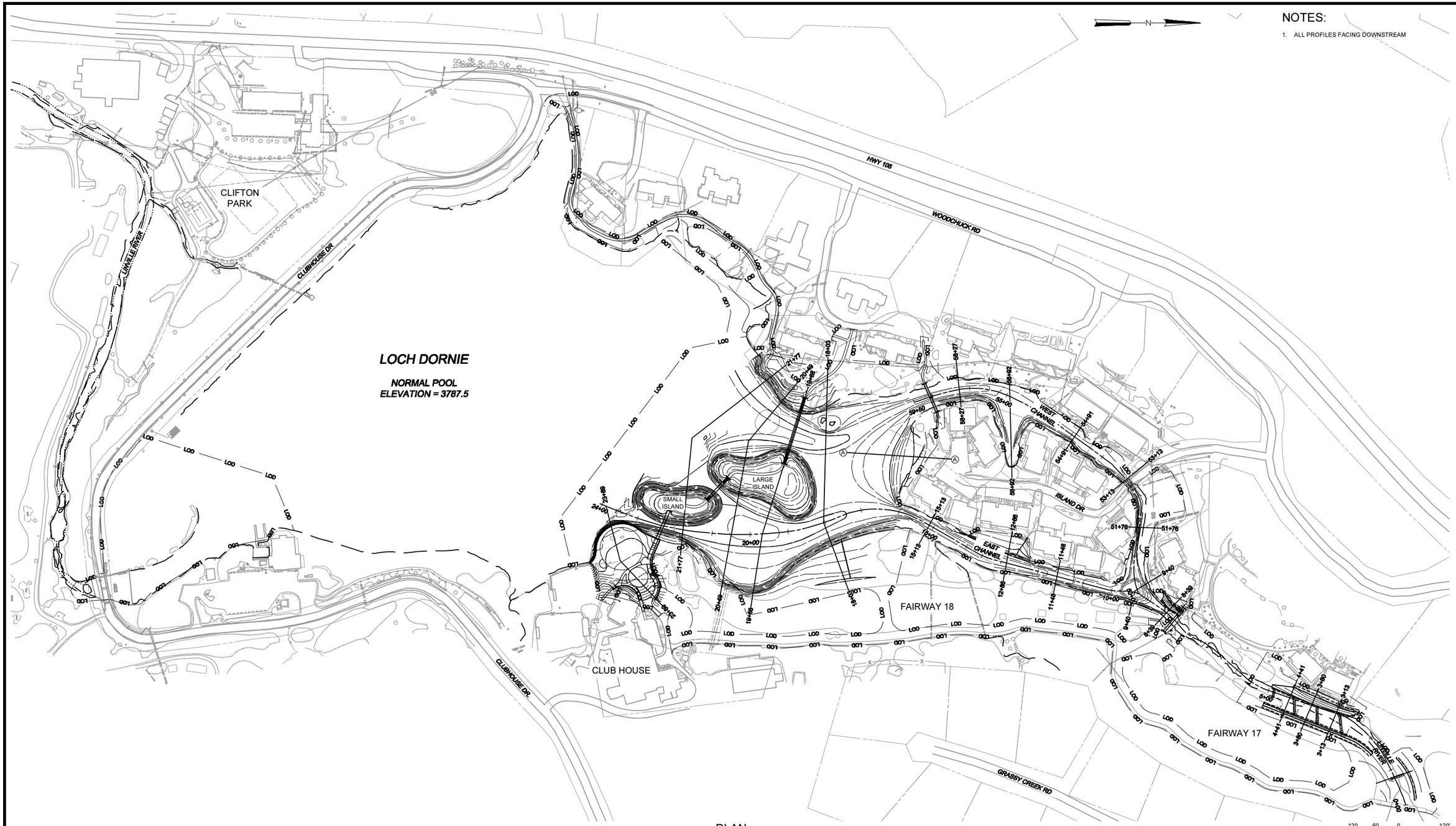
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C207

File: O:\32453.ATI\103453-000\CAD_BIM\CIVIL\C207 Saved by SKANE Save date: 8/12/2019 3:23 PM
PLOT DATE: 8/14/2019 8:52 PM BY: SKANE

NOTES:

1. ALL PROFILES FACING DOWNSTREAM



PLAN

SCALE: 1" = 120'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

GRADING & DREDGING PROFILES OVERALL

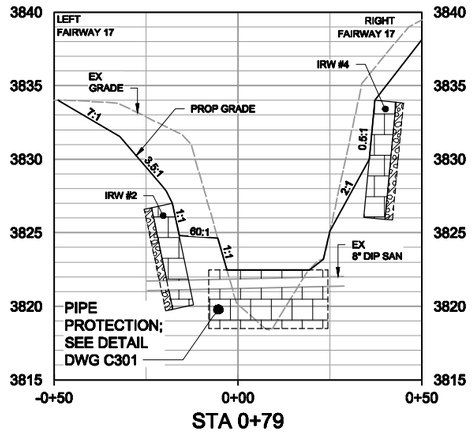
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C220

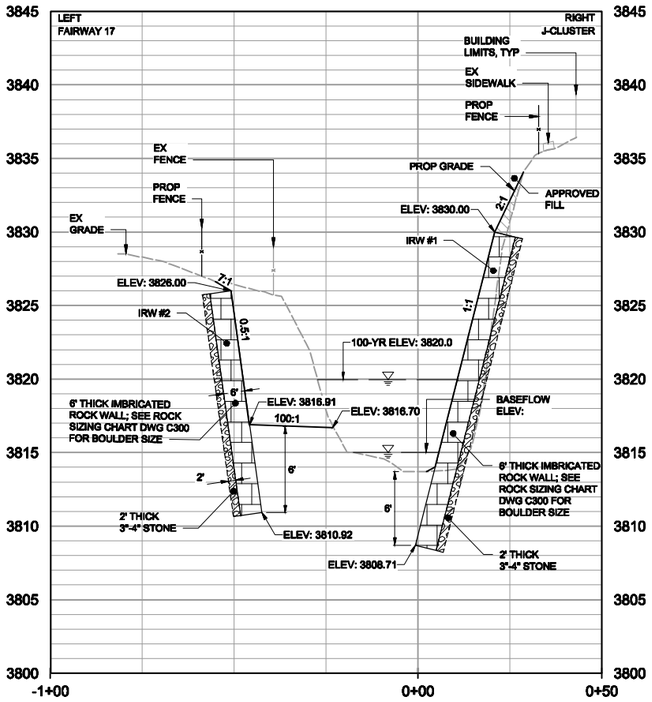
File: O:\32453-ATL\32453-002\CAD_BIM\CIVIL\C220 Saved by SKANE Save date: 8/12/2019 3:38 PM
PLOT DATE: 8/14/2019 6:53 PM BY: SKANE

NOTES:

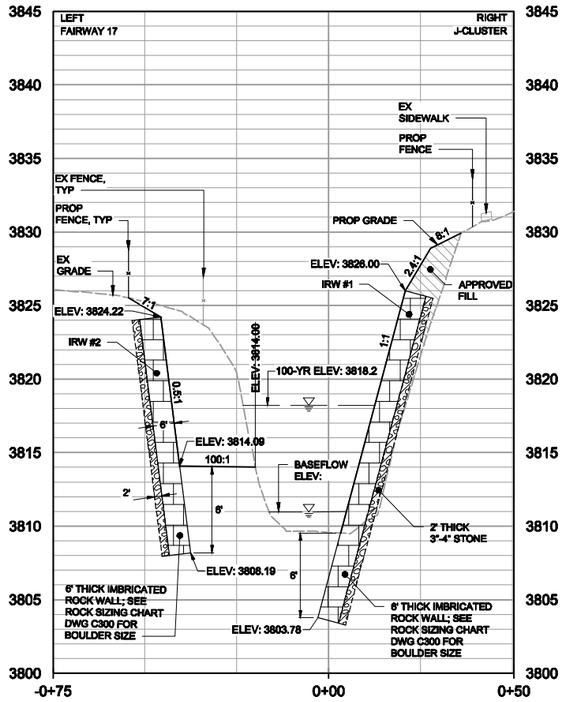
1. ALL PROFILES FACING DOWNSTREAM



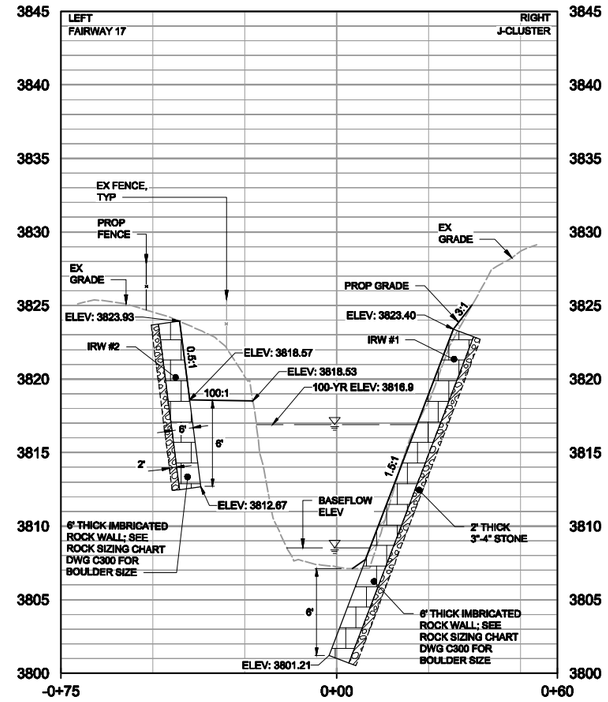
STA 0+79



STA 3+13



STA 3+80



STA 4+41

PROFILE

H: 1" = 20' - V: 1" = 5'

HORIZONTAL SCALE: 1" = 20'

20 10 0 20'

VERTICAL SCALE: 1" = 5'

5 0 5

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

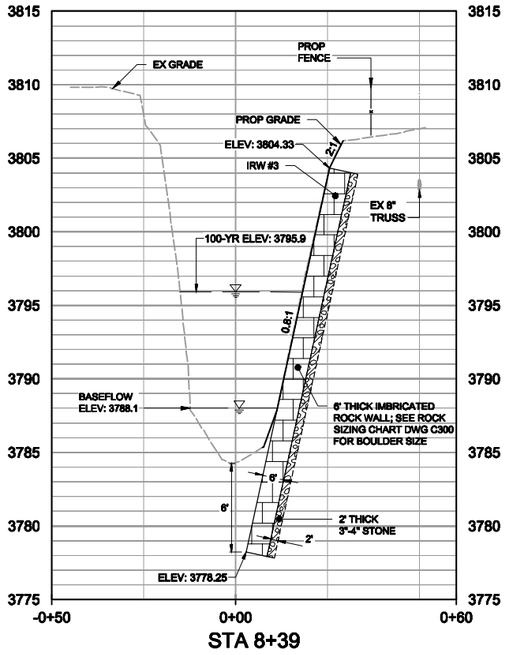
GRADING & DREDGING PROFILES
(J-CLUSTER BANK STABILIZATION)

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE.

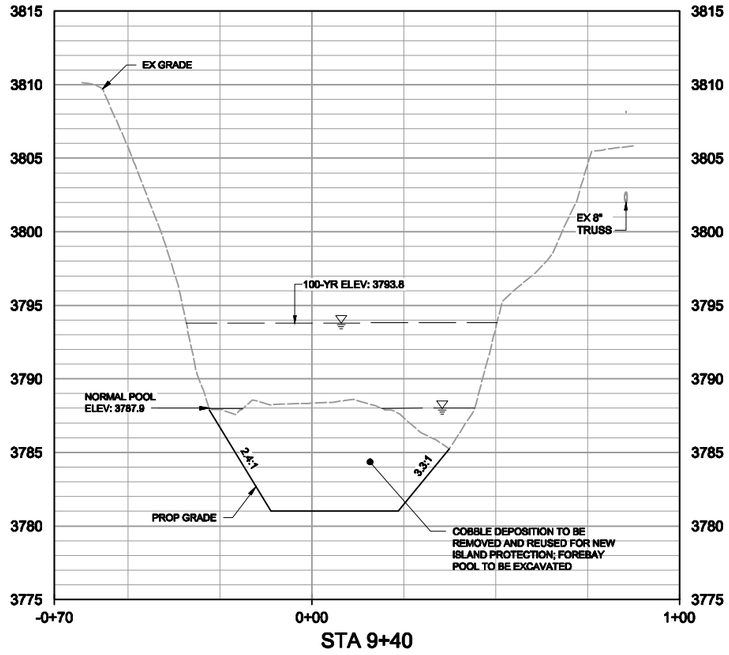
0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C221

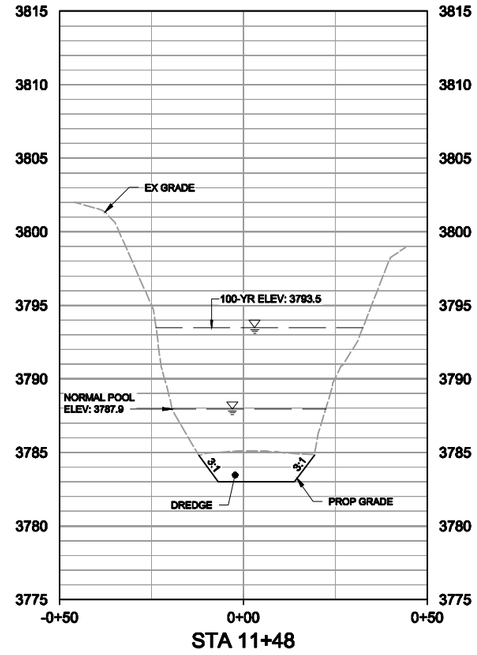
File: O:\32453.A11\3345\02\CAD_BIM\CIVIL\C221 Saved by SKANE Save date: 8/13/2019 9:53 AM
PLOT DATE: 8/14/2019 8:54 PM BY: SKANE



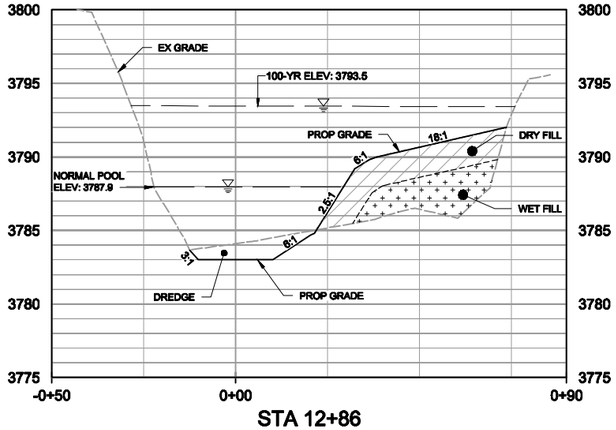
STA 8+39



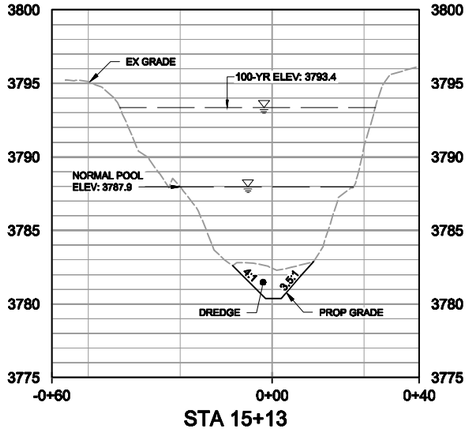
STA 9+40



STA 11+48



STA 12+86



STA 15+13

NOTES:

1. ALL PROFILES FACING DOWNSTREAM

PROFILE

H: 1" = 20' - V: 1" = 5'

HORIZONTAL SCALE: 1" = 20'

20 10 0 20'

VERTICAL SCALE: 1" = 5'

5 0 5

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

GRADING & DREDGING PROFILES
(IRW #3 & EAST CHANNEL)

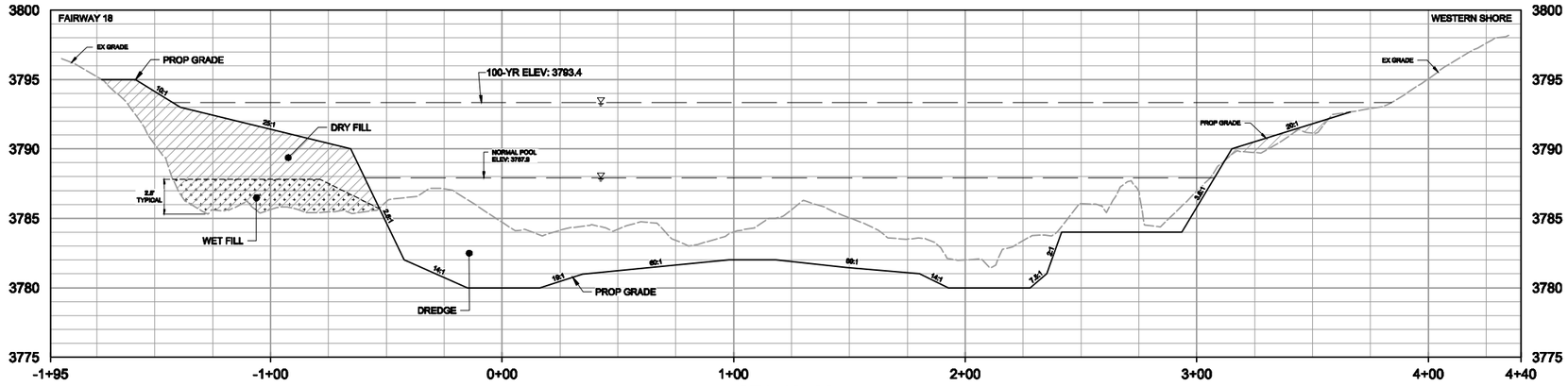
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C222

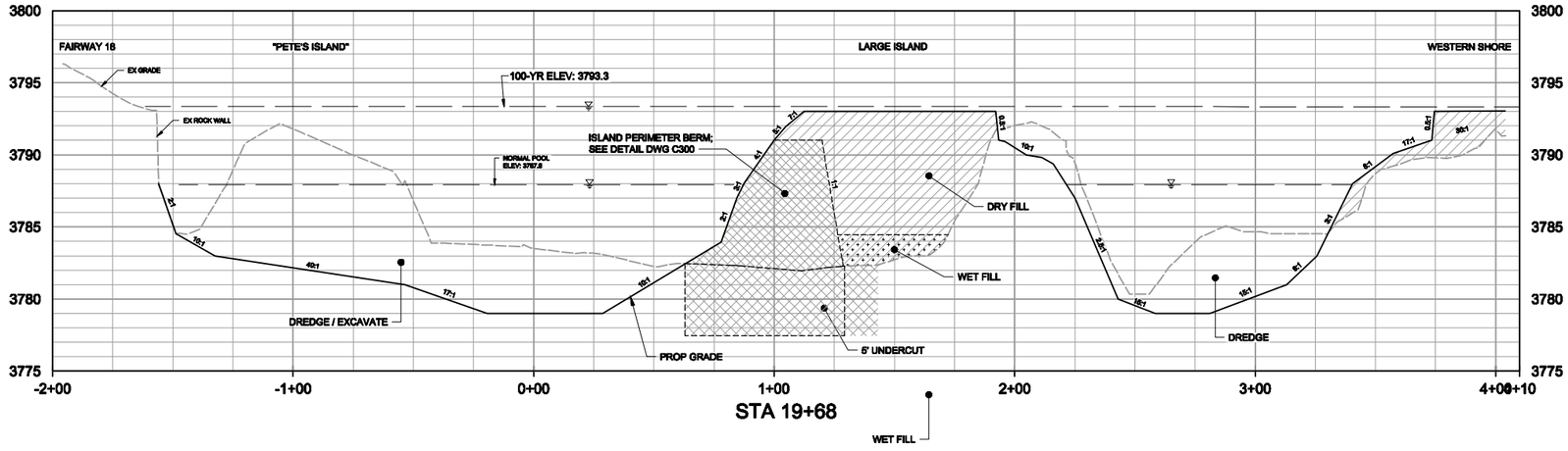
File: O:\DWGS.ATL\32453.002\CAD_BIM\CIVIL\C222 Saved by SKANE Save date: 8/13/2019 9:53 AM
PLOT DATE: 8/14/2019 5:54 PM BY: SKANE

NOTES:

1. ALL PROFILES FACING DOWNSTREAM



STA 18+03



STA 19+68

LEGEND

- DREDGE / EXCAVATE
- DRY FILL
- WET FILL
- ISLAND PERIMETER BERM
- UNDERCUT*

PROFILE

H: 1" = 30' - V: 1" = 5'

HORIZONTAL SCALE: 1" = 30'

30 15 0 30'

VERTICAL SCALE: 1" = 5'

5 0 5

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

GRADING & DREDGING PROFILES
LOCH DORNIE

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE.

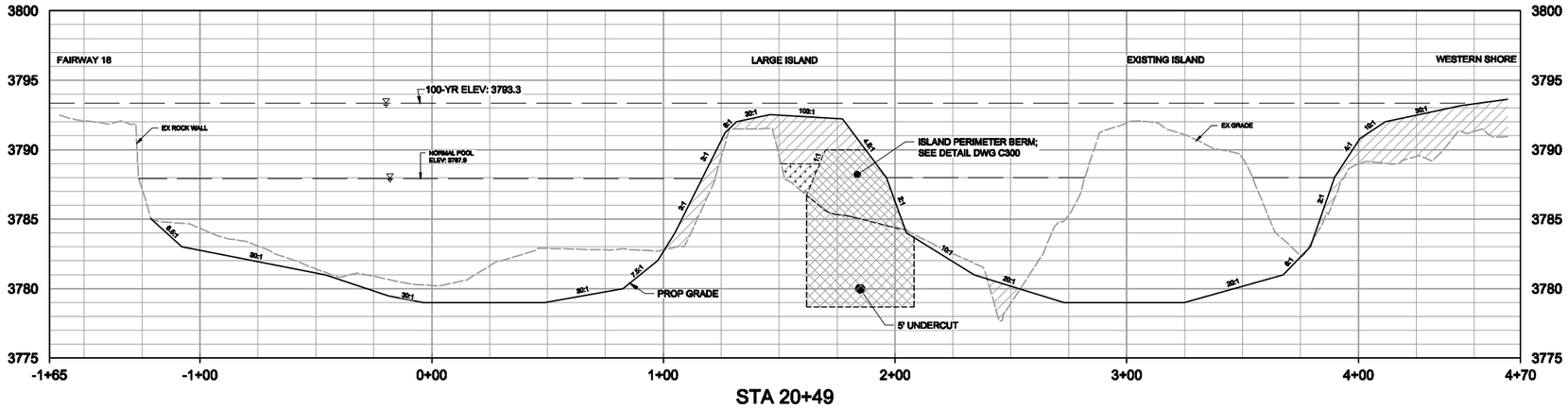
0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C223

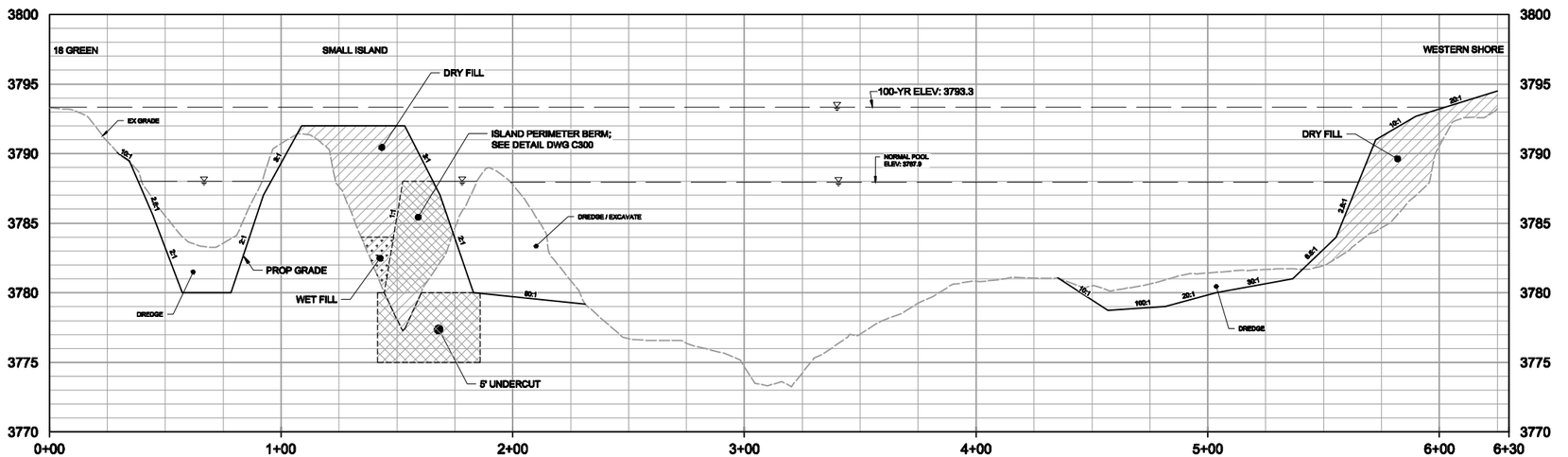
File: O:\32453.ATI.132453.002\CAD_BIM\Civil_C223 Saved by JMCSWAIN Saved date: 7/7/2019 1:51 AM
PLOT DATE: 8/14/2019 5:55 PM BY: SKANE

NOTES:

1. ALL PROFILES FACING DOWNSTREAM



STA 20+49



STA 21+77

LEGEND

- DREDGE / EXCAVATE
- DRY FILL
- WET FILL
- ISLAND PERIMETER BERM
- UNDERCUT*

PROFILE

H: 1" = 30' - V: 1" = 5'

HORIZONTAL SCALE: 1" = 30'

30 15 0 30'

VERTICAL SCALE: 1" = 5'

5 0 5

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

GRADING & DREDGING PROFILES (LOCH DORNIE)

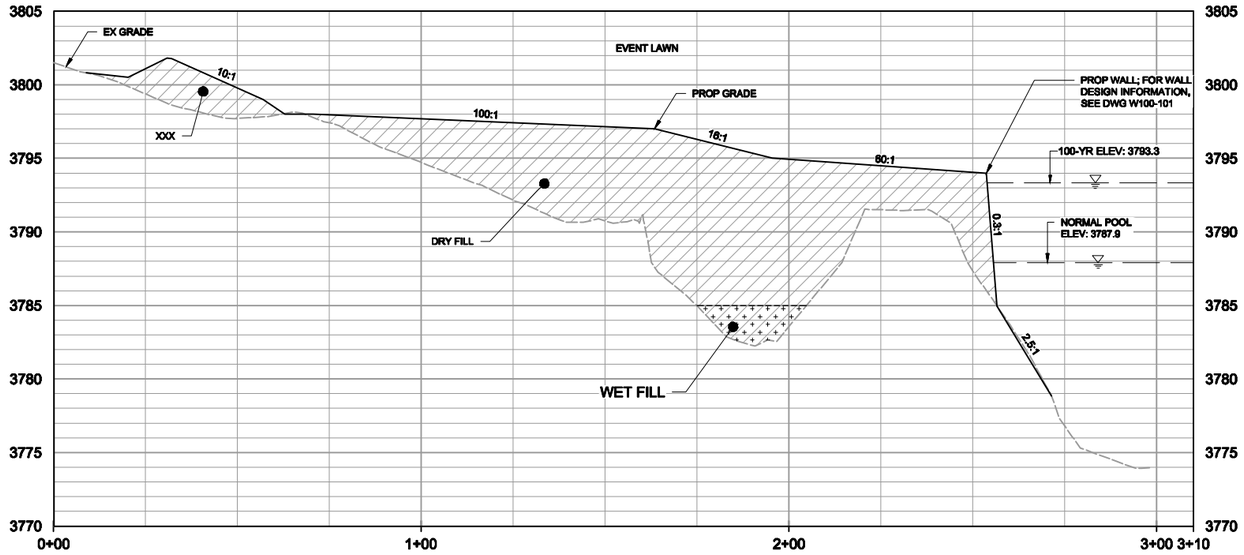
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C224

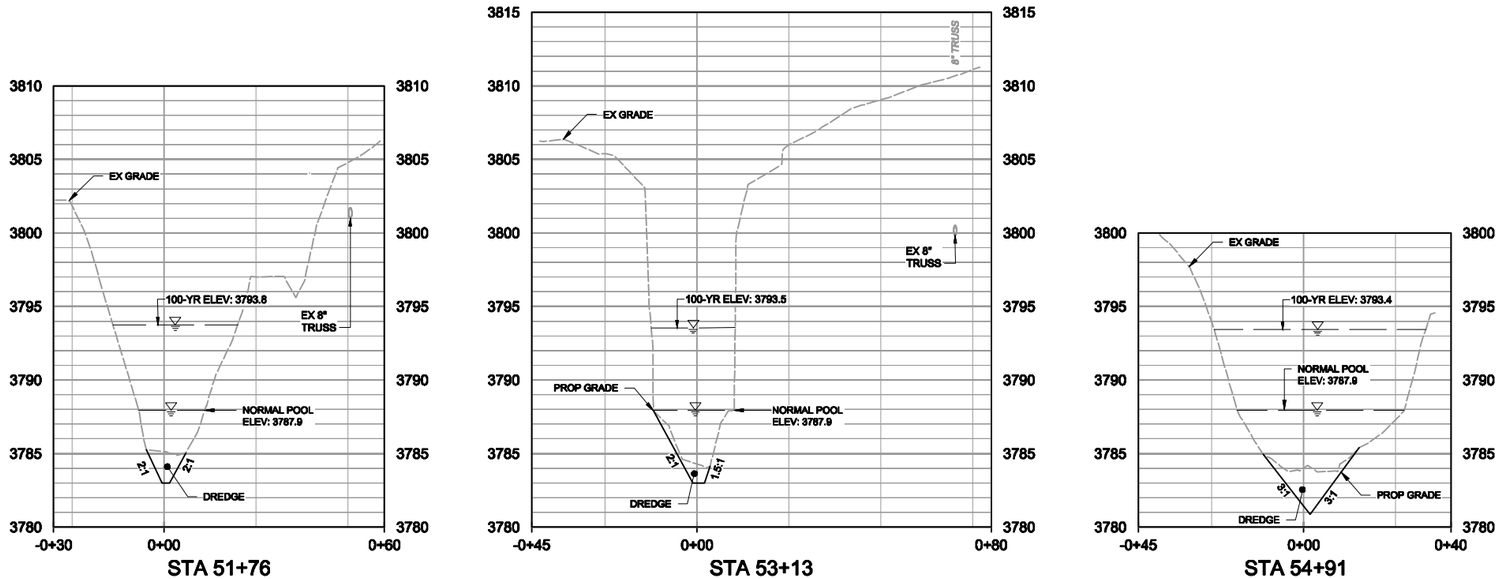
File: O:\32453.ATL\32453.002\CAD_BIM\Civil_C224 Saved by JMCSWAIN Save date: 7/2/2019 1:50 AM
PLOT DATE: 8/14/2019 5:55 PM BY: SKANE

NOTES:

1. ALL PROFILES FACING DOWNSTREAM



STA 23+89



STA 51+76

STA 53+13

STA 54+91

PROFILE

H: 1" = 20' - V: 1" = 5'

HORIZONTAL SCALE: 1" = 20'

20 10 0 20'

VERTICAL SCALE: 1" = 5'

5 0 5

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

GRADING & DREDGING PROFILES
(WESTERN CHANNEL AND EVENT LAWN)

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE.

0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C225

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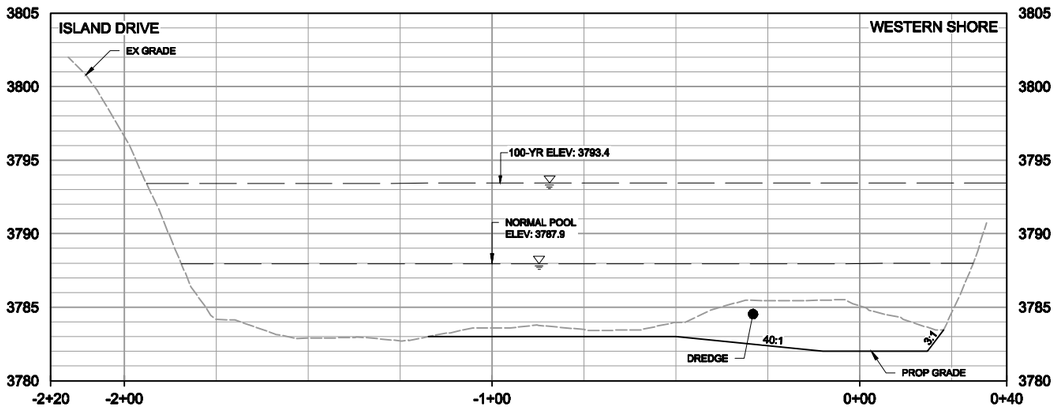
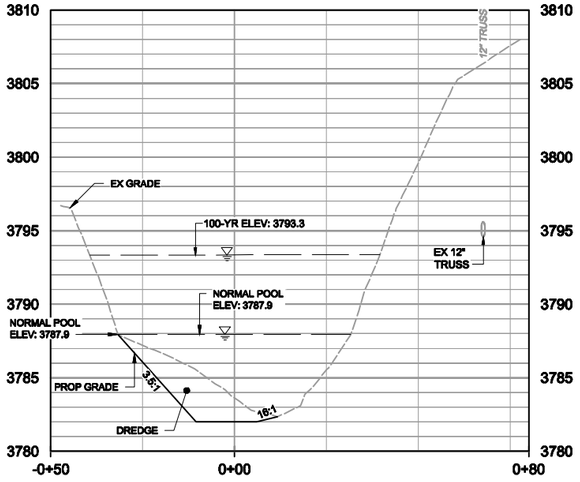
PLOT DATE: 8/14/2019 6:58 PM BY: SKANE

NOTES:

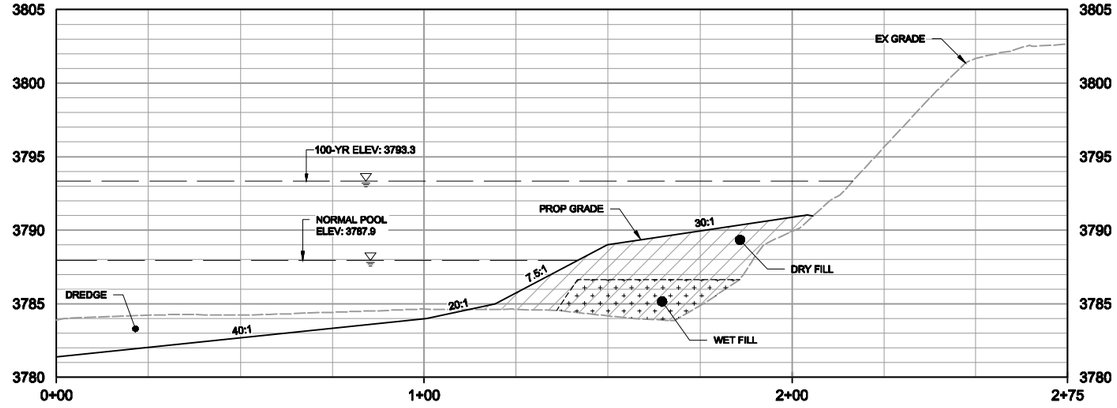
1. ALL PROFILES FACING DOWNSTREAM



STA 56+92


TRUSS
EX GRADE
100-YR ELEV: 3793.3
EX 12" TRUSS
NORMAL POOL ELEV: 3787.9
NORMAL POOL ELEV: 3787.9
PROP GRADE
3.5:1
18:1
DREDGE
3810
3805
3800
3795
3790
3785
3780
-0+50
0+00
0+80

STA 58+27



A-A

PROFILE

H: 1" = 30' - V: 1" = 3'

HORIZONTAL SCALE: 1" = 20'

20 10 0 20'

VERTICAL SCALE: 1" = 5'

5 0 5

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	J. MCSWAIN
DRAWN BY:	S. KANE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

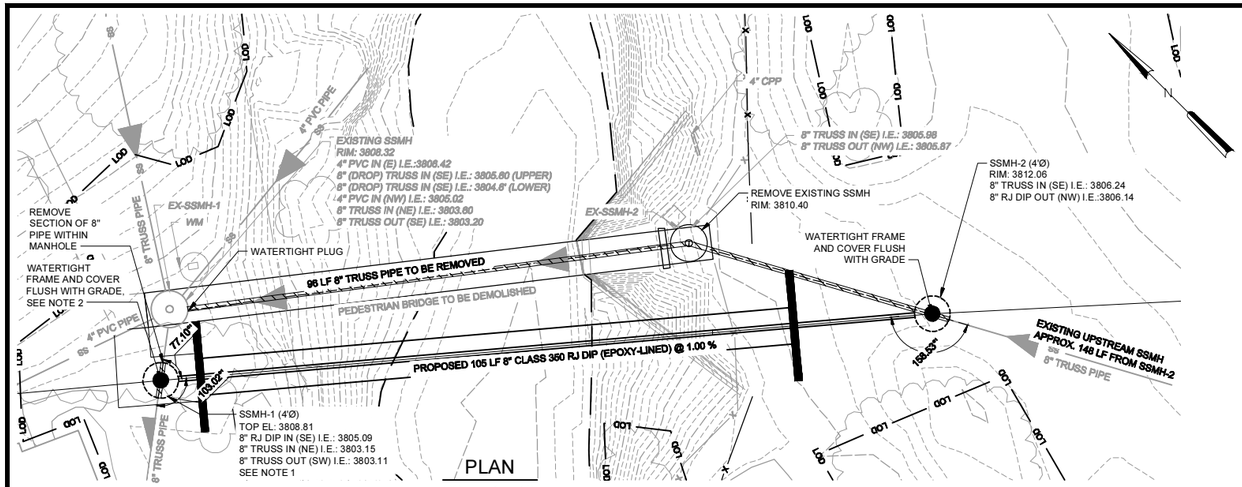
LOCH DORNIE DREDGING & SITE ENHANCEMENTS

GRADING & DREDGING PROFILES

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

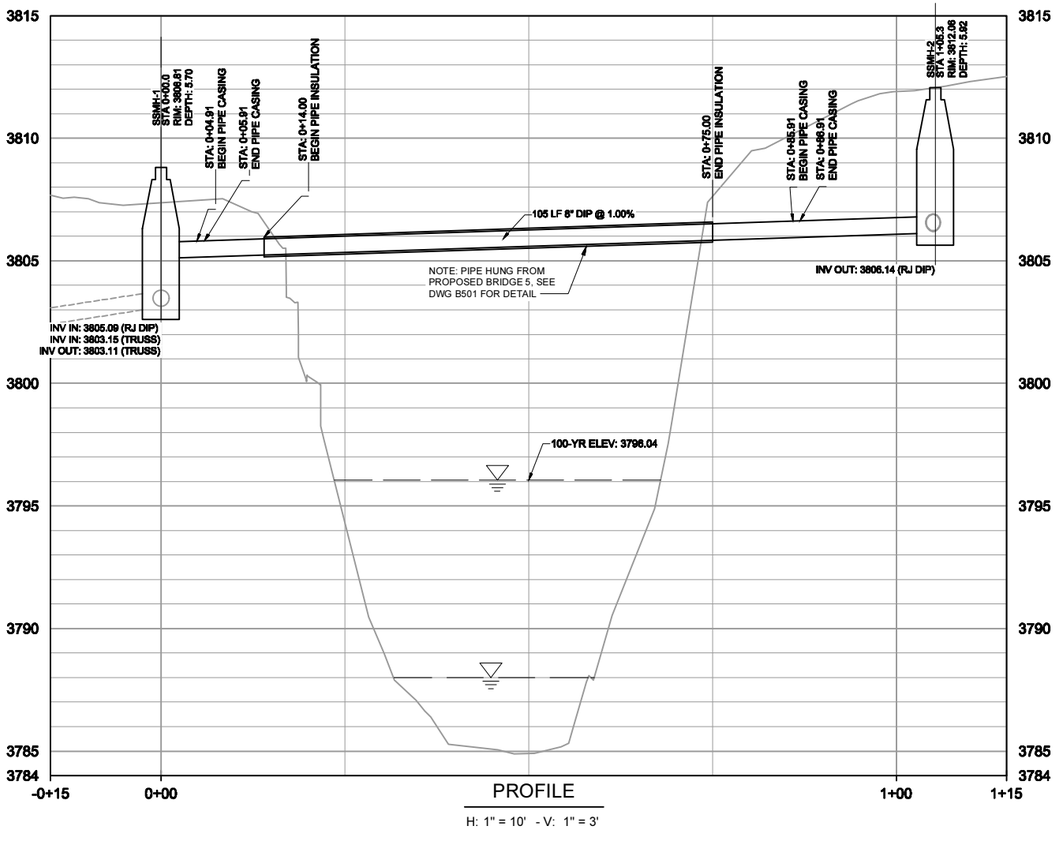
DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C226

File: J:\32453-ATI\32453-002\CAD_BIM\Civil\C226 Saved by JMCSWAIN Save date: 7/10/19 1:50 AM
PLOT DATE: 8/14/2019 6:57 PM BY: SKANE



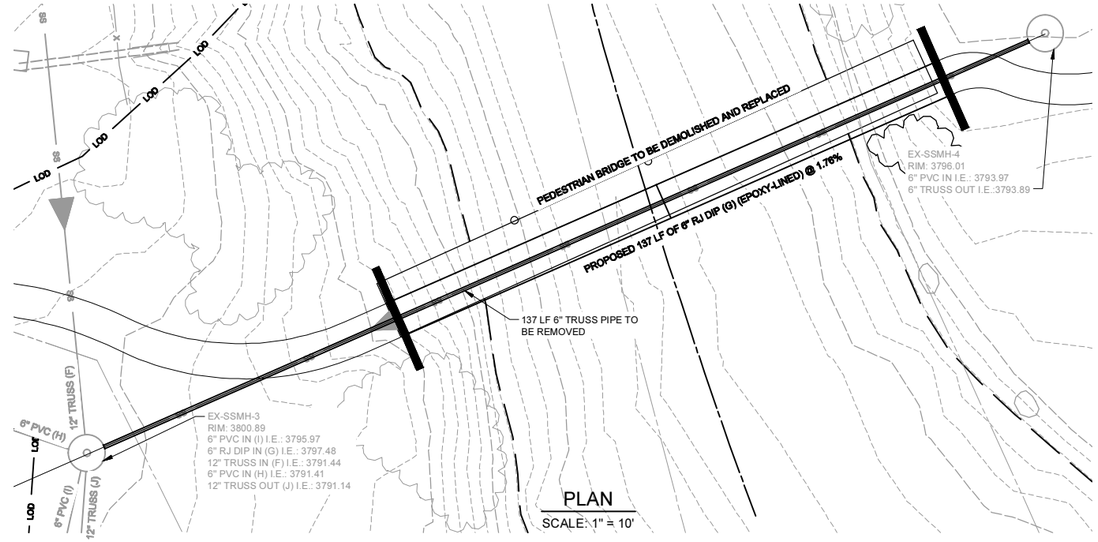
PLAN

SCALE: 1" = 10'



PROFILE

H: 1" = 10' - V: 1" = 3'



PLAN

SCALE: 1" = 10'

NOTES:

1. SSMH-1 SHALL BE A DOGHOUSE MANHOLE. SEE DETAILS C-33-0601 AND C-33-0602 THIS SHEET.
2. SSMH-1 SHALL BE FLUSH WITH PROPOSED GRADING BY STEWART, INC.
3. RJ DIP SHALL BE INSULATED ON AERIAL CROSSING BETWEEN STATIONING AS SHOWN ON PLANS ACCORDING TO INSUL-TEK DUCTILE IRON SYSTEM SPECIFICATIONS OR EQUIVALENT.
4. RJ DIP SHALL BE CASED WITHIN ABUTMENTS WITH STEEL CASING. SEE DETAIL 2 ON B402 AND B502.
5. SEE B401 FOR BRIDGE 4 CONSTRUCTION SEQUENCE.

CONSTRUCTION SEQUENCE BRIDGE 5

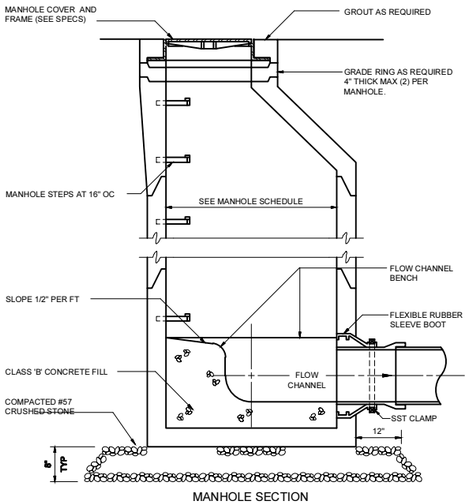
1. INSTALL SCAFFOLDING AS REQUIRED FOR BRIDGE INSTALLATION.
2. CONSTRUCT PROPOSED BRIDGE AND RJ DIP SEWER HANGING FROM BRIDGE.
3. INSTALL DOGHOUSE SSMH-1 AND CONNECT EXISTING 8" TRUSS PIPE. CUT AND REMOVE PIPE WITHIN MANHOLE. CONNECT PROPOSED 8" RJ DIP TO SSMH-1.
4. PLUG 8" TRUSS AT EXISTING SSMH UPSTREAM FROM PROPOSED SSMH-2.
5. INSTALL SSMH-2 AS SHOWN AND REMOVE EXISTING 8" TRUSS PIPE AS NECESSARY FOR INSTALLATION.
6. CONNECT PROPOSED 8" RJ DIP TO SSMH-2. REMOVE WATERTIGHT PLUG AT EXISTING UPSTREAM SSMH.
7. REMOVE EXISTING BRIDGE AND EXISTING 8" TRUSS PIPE BETWEEN EX-SSMH-1 AND SSMH-2. PLUG EX-SSMH-1 AFTER REMOVING EXISTING 8" TRUSS PIPE.

HORIZONTAL SCALE: 1" = 10'

10 5 0 10'

1 0 1'

VERTICAL SCALE: 1" = 1'



MANHOLE SECTION

C-33-0601

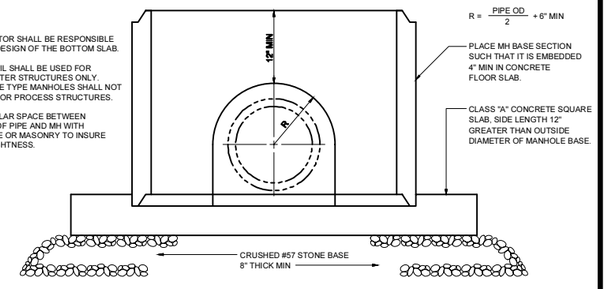
CIVIL STRUCTURES - SANITARY

ID	AREA	TYPE	DIAMETER	STANDARD	STATION	TOP ELEV	LOWEST ELEV OUT
SSMH-1	BRIDGE 5	DOGHOUSE	48 INCH	C-33-0602	0+00.0	3808.8100	3803.1100
SSMH-2	BRIDGE 5	WATERTIGHT	48 INCH	C-33-0601	1+05.3	3812.0600	3806.1400

PIPE SCHEDULE

AREA	USE	FROM	TO	SIZE	TYPE	CLASS	LENGTH
BRIDGE 5	SANITARY	SSMH-2	SSMH-1	8 INCH	DIP	350	105 LF
BRIDGE 4	SANITARY	EX-SSMH-3	EX-SSMH-4	6 INCH	DIP	350	137.3 LF

NOTES:
1. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF THE BOTTOM SLAB.
2. THIS DETAIL SHALL BE USED FOR STORMWATER STRUCTURES ONLY. DOGHOUSE TYPE MANHOLES SHALL NOT BE USED FOR PROCESS STRUCTURES.
3. FILL ANNULAR SPACE BETWEEN OUTSIDE OF PIPE AND MH WITH CONCRETE OR MASONRY TO INSURE WATERTIGHTNESS.



DOGHOUSE PRECAST MANHOLES

C-33-0602

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	T. SCHUELER
SUPPORTING ENGINEER:	-
LANDSCAPE ARCHITECT:	-
DESIGNED BY:	M. BATE
DRAWN BY:	M.BATE
CHECKED BY:	T. SCHUELER

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

SANITARY SEWER PLAN, PROFILE, & DETAIL

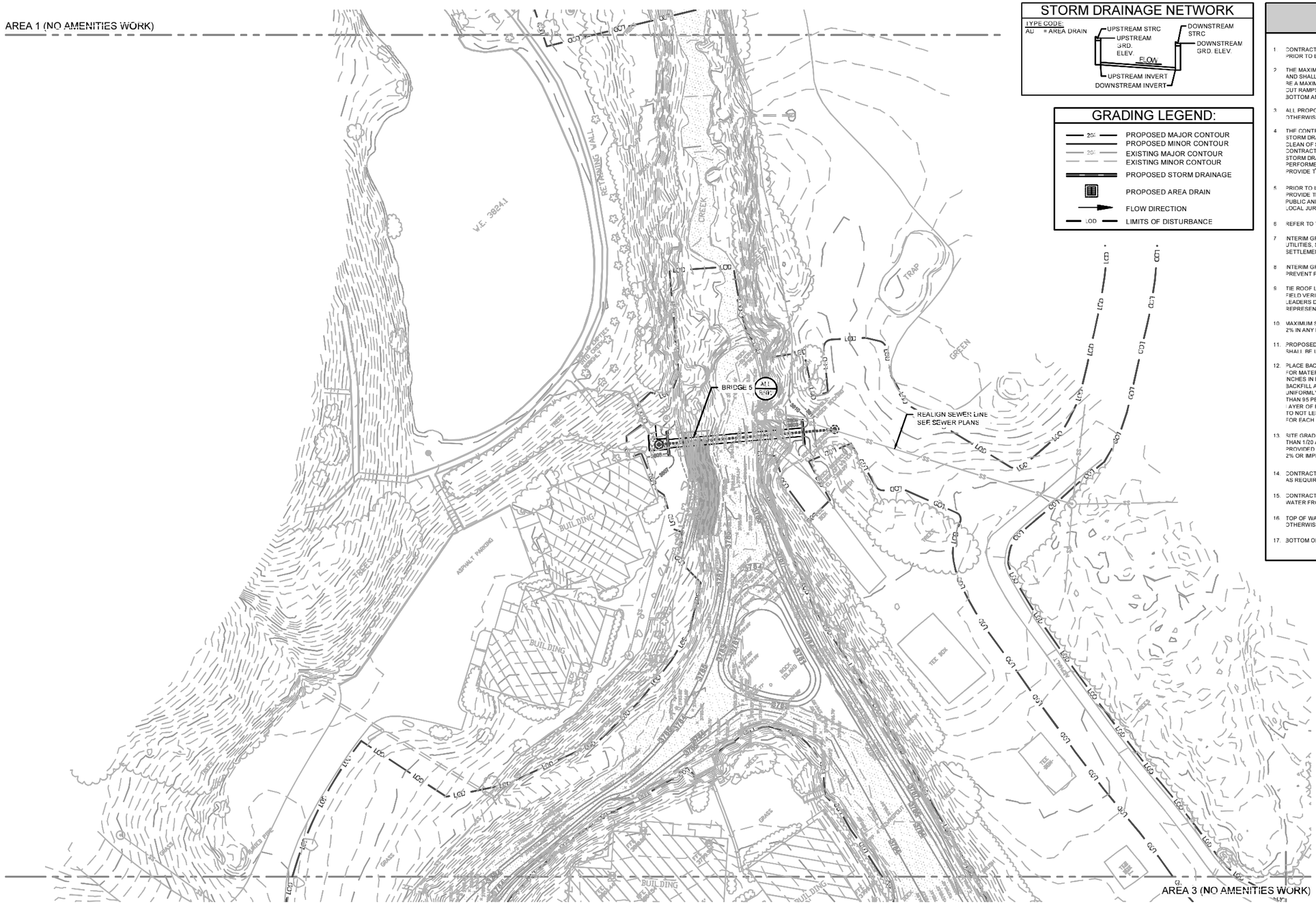
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE.

0 1/2" 1"

DATE:	AUGUST 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	C400

File: O:\32453.A01.US\453.020\CAD_BIM\C06 VC400 Saved by MBATE Saved on: 7/9/2019 5:03 PM
PLOT DATE: 8/14/2019 6:58 PM BY: SKANE

AREA 1 (NO AMENITIES WORK)



AREA 3 (NO AMENITIES WORK)

STORM DRAINAGE NETWORK

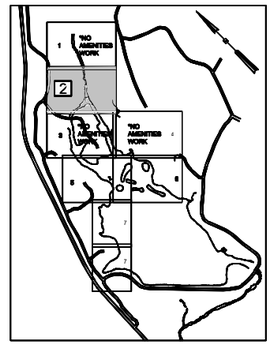
TYPE CODE:
AD = AREA DRAIN

GRADING LEGEND:

- 25' — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- 25' — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED STORM DRAINAGE
- PROPOSED AREA DRAIN
- FLOW DIRECTION
- LOD — LIMITS OF DISTURBANCE

GRADING AND STORM DRAINAGE NOTES: APPLIES TO SHEETS L202-L207

1. CONTRACTOR SHALL REPORT ANY GRADE DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING CONSTRUCTION OPERATIONS.
2. THE MAXIMUM SLOPE ALONG ANY HANDICAP ACCESSIBLE PATHWAY SHALL NOT EXCEED 5.0% AND SHALL NOT EXCEED A 2.0% CROSS SLOPE. HANDICAP RAMPS INDICATED ON PLANS SHALL BE A MAXIMUM OF 1:12 SLOPES WITH A MAXIMUM RISE OF 30" BETWEEN LANDINGS. NON-CURB CUT RAMPS SHALL HAVE HANDRAILS AND GUARDS PER DETAILS WITH 5' LANDINGS AT THE BOTTOM AND TOP OF RAMP.
3. ALL PROPOSED ELEVATIONS SHOWN ARE EDGE OF PAVEMENT ELEVATIONS UNLESS OTHERWISE SPECIFIED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL NEWLY CONSTRUCTED STORM DRAINAGE IMPROVEMENTS AND RECEIVING STORM DRAINAGE SYSTEMS REMAIN CLEAN OF SEDIMENT AND DEBRIS. PRIOR TO OWNER ACCEPTANCE OF SYSTEM, THE CONTRACTOR SHALL COORDINATE AND PROVIDE A VISUAL OBSERVATION VIDEO OF ALL STORM DRAINAGE IMPROVEMENTS 12" AND LARGER. THE VISUAL OBSERVATION SHALL BE PERFORMED IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE TWO (2) DVD COPIES OF THE ENTIRE DRAINAGE VISUAL OBSERVATION.
5. PRIOR TO ISSUANCE OF A BUILDING CERTIFICATE OF OCCUPANCY THE CONTRACTOR SHALL PROVIDE THE OWNER WITH THE VIDEO INSPECTION OF THE STORM SEWER SYSTEM. (BOTH PUBLIC AND PRIVATE). THIS SUBMITTAL MAY NEED TO BE REVIEWED AND ACCEPTED BY THE LOCAL JURISDICTION PRIOR TO THE ISSUANCE OF THE BUILDING CO.
6. REFER TO THE EROSION CONTROL DETAILS SHEET FOR THE SEQUENCE OF CONSTRUCTION
7. INTERIM GRADING SHALL BE PROVIDED THAT ENSURES THE PROTECTION OF STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, AND WASHOUT.
8. INTERIM GRADING SHALL BE PROVIDED TO DIRECT WATER AWAY FROM BUILDINGS AND PREVENT PONDING.
9. TIE ROOF LEADERS WHERE POSSIBLE TO UNDERGROUND STORM SYSTEM. CONTRACTOR TO FIELD VERIFY LOCATE AND INSTALL WHERE POSSIBLE OR AS SHOWN ON PLANS. WHERE ROOF LEADERS DAYLIGHT AT GRADE A SPLASH BLOCK APPROVED BY THE OWNER'S REPRESENTATIVE SHALL BE INSTALLED.
10. MAXIMUM SLOPE ACROSS ANY HANDICAPPED PARKING SPACE AND AISLE SHALL NOT EXCEED 2% IN ANY DIRECTION.
11. PROPOSED CONTOURS ARE APPROXIMATE. SPOT ELEVATIONS AND ROADWAY PROFILES SHALL BE USED IN CASE OF DISCREPANCY.
12. PLACE BACKFILL AND FILL MATERIALS IN LAYER NOT MORE THAN 8 INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT, AND NOT MORE THAN 4 INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HAND-OPERATED TAMPERS. PLACE BACKFILL AND FILL MATERIALS EVENLY ON ALL SIDES TO REQUIRED ELEVATIONS, AND UNIFORMLY ALONG THE FULL LENGTH OF EACH STRUCTURE. COMPACT SOIL TO NOT LESS THAN 95 PERCENT OF MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D 698 FOR EACH LAYER OF BACKFILL OR FILL MATERIAL UP TO TWO FEET OF FINISHED GRADE. COMPACT SOIL TO NOT LESS THAN 98 PERCENT OF MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D 698 FOR EACH LAYER OF BACKFILL OR FILL MATERIAL FOR THE FINAL TWO FEET.
13. SITE GRADING IMMEDIATELY ADJACENT TO FOUNDATION OF BUILDING SHALL SLOPE NOT LESS THAN 1/20 AWAY FOR MINIMUM DISTANCE OF 10 FEET. ALTERNATIVE METHOD SHALL BE PROVIDED TO DIVERT WATER AWAY FROM FOUNDATION VIA SWALES SLOPED AT A MINIMUM OF 2% OR IMPERVIOUS SURFACES SLOPED AWAY A MINIMUM OF 2% AWAY FROM BUILDING.
14. CONTRACTOR SHALL ADJUST RIM ELEVATIONS OF EXISTING MANHOLES, METERS, VALVES, ETC. AS REQUIRED TO MEET NEW FINISHED GRADES.
15. CONTRACTOR SHALL SLOPE GRADES TO ASSURE POSITIVE STORMWATER FLOW TO KEEP WATER FROM POOLING ALONG CURBS AND WALLS.
16. TOP OF WALL ELEVATIONS INDICATE THE ELEVATION AT THE TOP OF THE CAP, UNLESS OTHERWISE NOTED.
17. BOTTOM OF WALL ELEVATIONS INDICATE THE ELEVATION OF THE FINISHED GRADE.



N

1" = 30'

30 15 0 30'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	R. MASSEY
LANDSCAPE ARCHITECT:	N/A
DESIGNED BY:	J. WARNER
DRAWN BY:	J. WARNER
CHECKED BY:	R. MASSEY

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

AMENITIES
GRADING & STORMWATER PLAN
AREA 2

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE.

0 1/2" 1"

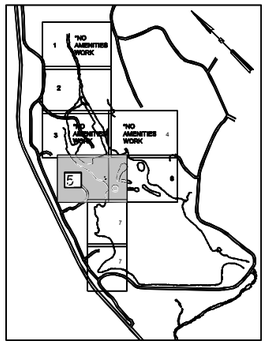
DATE:	JULY 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	L202

FILE: L:\PROJECTS\32453\13813\13 - LINVILLE\14 FINISH MEADOW\14 PLANS\L202-L207 LOCH DORNIE DREDGING & SITE ENHANCEMENTS - AREA 2.DWG
PLOT DATE: 7/4/2019 8:44 AM BY: CLANDOLL

PLAN
SCALE: 1" = 30'

GRADING LEGEND:

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED STORM DRAINAGE
- PROPOSED AREA DRAIN
- FLOW DIRECTION
- LOD — LIMITS OF DISTURBANCE



N

1" = 30'

30 15 0 30'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	R. MASSEY
LANDSCAPE ARCHITECT:	N/A
DESIGNED BY:	C. CROSBY
DRAWN BY:	C. CROSBY
CHECKED BY:	R. MASSEY

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

AMENITIES
GRADING & STORMWATER PLAN
AREA 5

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE.

0 1/2" 1"

DATE:	JULY 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	L205

File: L:\PROJECTS\2019\L19013 - GRANDFATHER MOUNTAIN LAKE MASTER PLAN\DWGS\01 - DESIGN\SHEET\L19013-SD01STORMWATER PLAN.dwg Saved by CLANDOLL Saved date: 7/4/2019 7:48 AM
PLOT DATE: 7/4/2019 8:44 AM BY: CLANDOLL

AREA 4 (NO AMENITIES WORK)

+HP 3794.70

+ 3793.60

+ 3793.30

+ 3793.10

BRIDGE 3

BRIDGE 2

BRIDGE 1

+ 3793.10

+ 3793.50

+ 3793.05

+ 3793.10

Structure - (24)
RIM ELEV = 3792.55
INV IN = 3790.00 (Structure - (25))

INV. OUT = 3790.00

18 LF 12" HDPE @ 1.54%

MATCH LINE - SEE DWG L205

MATCH LINE - SEE DWG L207

GROUND TRAMPAGE

BUILDING

CONCRETE RETAINING WALL

UNDERDRAINS TO CONNECT TO NEAREST STORM STRUCTURE

39 LF 12" HDPE @ 1.67%

108-AD
RIM ELEV = 3798.39
INV OUT = 3794.39

107-AD
RIM ELEV = 3796.50
INV IN = 3793.73 (108-AD)
INV OUT = 3792.50

CONCRETE RETAINING WALL

CONTRACTOR TO FIELD VERIFY PIPE DRAINAGE DIRECTION AND INFORMATION. CONTRACTOR TO CONTACT ENGINEER FOR DESIGN DIRECTION.

111-AD (NDS)
RIM ELEV = 3799.28
INV OUT = 3791.37

68 LF 6" HDPE @ 0.54%

73 LF 12" HDPE @ 1.19%

59 LF 24" HDPE @ 8.71%

106-AD
RIM ELEV = 3792.87
INV IN = 3788.63 (105-AD)
INV IN = 3791.53 (107-AD)
INV IN = 3788.87 ()

101-AD
RIM ELEV = 3797.65
INV IN = 3791.40
INV OUT = 3790.90

13 LF 12" HDPE @ 13.01%

49 LF 12" HDPE @ 3.43%

INV OUT = 3789.61

105-AD
RIM ELEV = 3794.37
INV OUT = 3790.30

72 LF 30" HDPE @ 2.62%

104-AD
RIM ELEV = 3794.40
INV OUT = 3785.45

CONCRETE RETAINING WALL

INV OUT = 3790.14

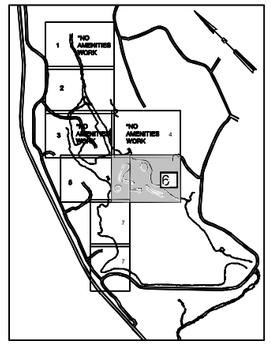
17 LF 12" @ 12.02%

TOP OF WALL ELEVATIONS, SEE ENLARGEMENT, SHEET L206.1

PLAN
SCALE: 1" = 30'

GRADING LEGEND:

- 250 — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- 250 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED STORM DRAINAGE
- PROPOSED AREA DRAIN
- FLOW DIRECTION
- LOD — LIMITS OF DISTURBANCE



N

1" = 30'

30 15 0 30'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	R. MASSEY
LANDSCAPE ARCHITECT:	N/A
DESIGNED BY:	C. CROSBY
DRAWN BY:	C. CROSBY
CHECKED BY:	R. MASSEY

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

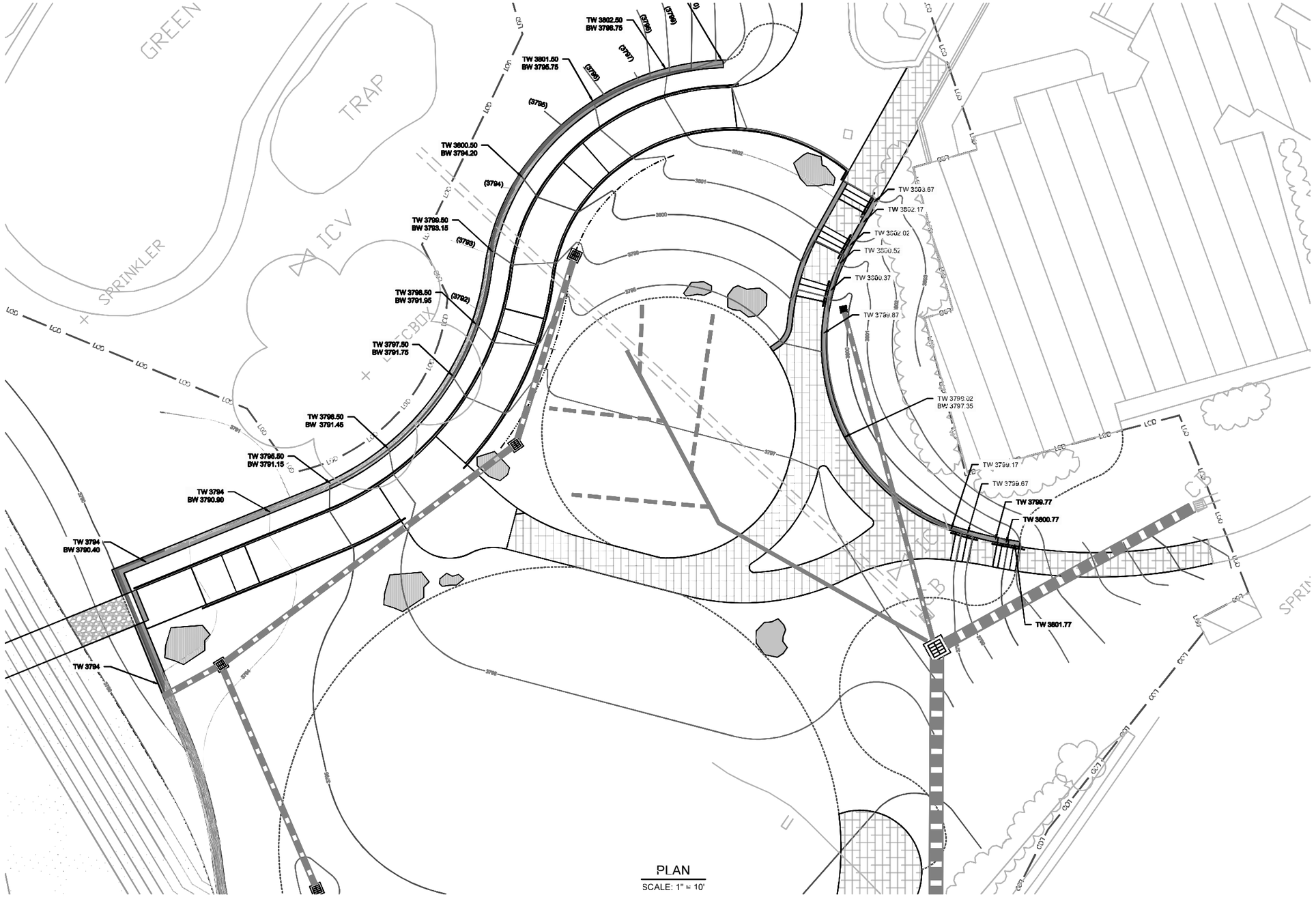
LOCH DORNIE DREDGING & SITE ENHANCEMENTS

AMENITIES
GRADING & STORMWATER PLAN
AREA 6

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	JULY 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	L206

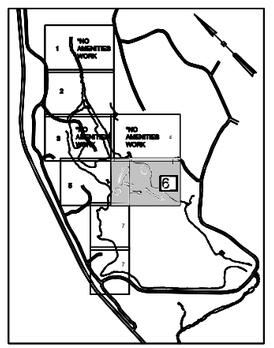
File: L:\PROJECTS\32019\L19013 - GRANDFATHER MOUNTAIN LAKE MASTER PLAN\DWGS\01 - DESIGN\SHEETS\L19013-D200 STORMWATER PLAN Saved by CLANDOLL Save date: 7/4/2019 7:48 AM
PLOT DATE: 7/4/2019 8:44 AM BY: CLANDOLL



PLAN
SCALE: 1" = 10'

GRADING LEGEND:

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED STORM DRAINAGE
- PROPOSED AREA DRAIN
- FLOW DIRECTION
- LIMITS OF DISTURBANCE



1" = 10'

10 5 0 10'

REV	ISSUED FOR	DATE	BY

LEAD ENGINEER:	R. MASSEY
LANDSCAPE ARCHITECT:	N/A
DESIGNED BY:	J. WARNER
DRAWN BY:	J. WARNER
CHECKED BY:	R. MASSEY

75% DESIGN
DO NOT USE FOR CONSTRUCTION

Hazen
HAZEN AND SAWYER
4011 WESTCHASE BOULEVARD, SUITE 500
RALEIGH, NORTH CAROLINA 27607
LICENSE NO.: C-0381

STEWART
STEWART
223 S. WEST STREET, SUITE 1100
RALEIGH, NORTH CAROLINA 27603
LICENSE NO.: C-1051

GRANDFATHER GOLF & COUNTRY CLUB
LINVILLE, NORTH CAROLINA

LOCH DORNIE DREDGING & SITE ENHANCEMENTS

AMENITIES
GRADING & STORMWATER PLAN
AREA 6 ENLARGEMENT

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE. 0 1/2" 1"

DATE:	JULY 2019
HAZEN NO.:	32453-002
STEWART NO.:	L19013
DRAWING NUMBER:	L206.1

I:\HPW\JEC\132019\L19013 - LINVILLE\LA FITNESS AMENITIES\CAD\PLANS\L206 GRADING & STORMWATER PLAN - AREA 6 ENLARGEMENT.DWG
PLOT DATE: 7/4/2019 8:44 AM BY: CLANDOLL