

NOTE:
404 WETLANDS DO NOT EXIST ON SITE PER U.S. CORPS OF ENGINEERS DETERMINATION. SEE ACTION SAW-2012-01938. DETERMINATION EXPIRATION DATE 01-18-2018.

NOTE WELL:
1. EQUIPMENT CLEARANCE MINIMUM 16' FROM TRANSMISSION LINES TO BE MAINTAINED AT ALL TIMES. (REFERENCE: OSHA 1910.269)

NOTE WELL:
CONTRACTOR TO COORDINATE MATERIALS AND CONSTRUCTION METHODOLOGIES WITH THE CAPE FEAR PUBLIC UTILITY AUTHORITY PRIOR TO COMMENCING. PLEASE CONTACT C.F.P.U.A. AT (910) 332-6550 DEVELOPER'S INSPECTOR TO BE NOTIFIED PRIOR TO INSTALLATION AND TESTING.

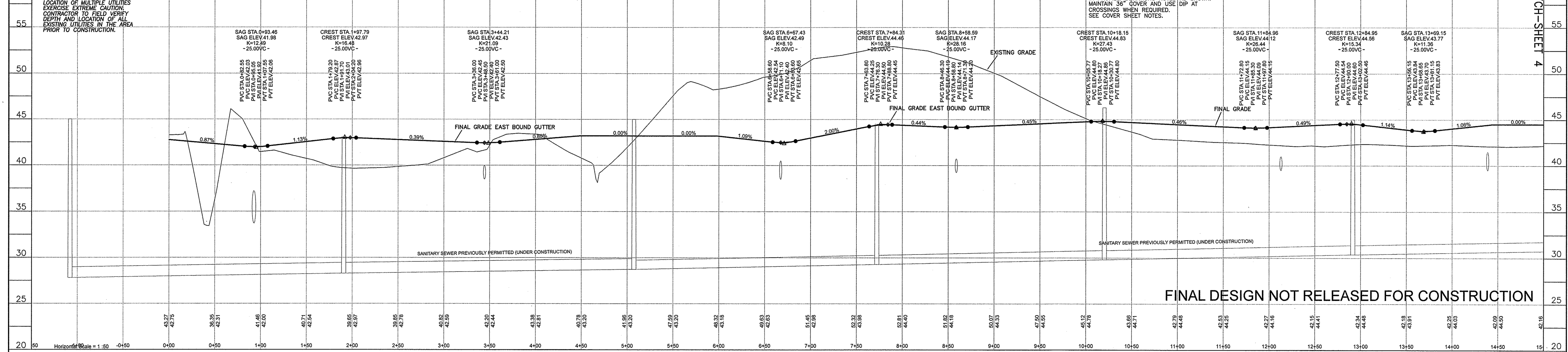
PROPERTY OWNER
CAMERON PROPERTIES

GALLERY PARK BLVD.

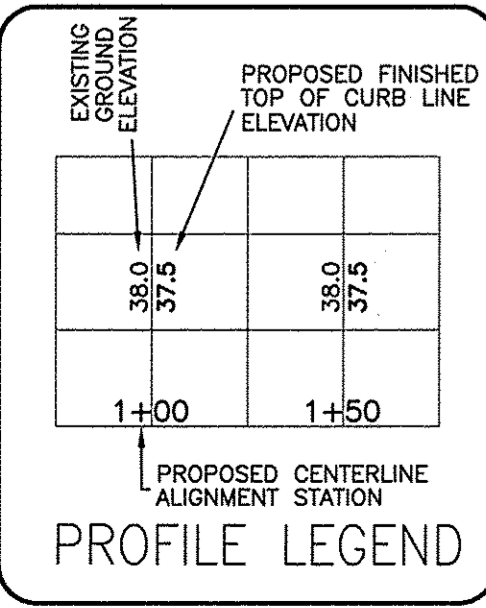
PROPERTY OWNER
CAMERON PROPERTIES



GALLERY PARK BLVD. EAST BOUND GUTTER PROFILE



FINAL DESIGN NOT RELEASED FOR CONSTRUCTION

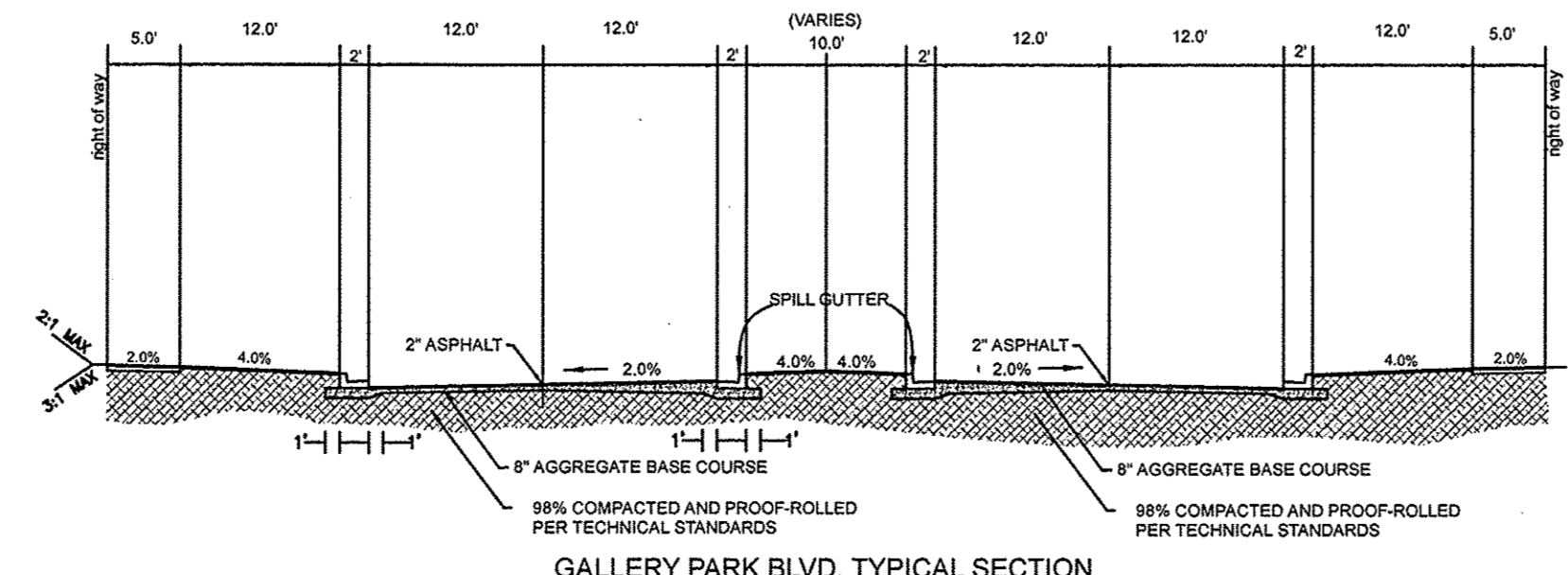


For each open utility cut out of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____
PERMIT # _____
SIGNED _____

Approved Construction Plan

Name	Date
Planning	_____
Traffic	_____
Fire	_____



STATION 0+00 THROUGH 16+50
GALLERY PARK BLVD.

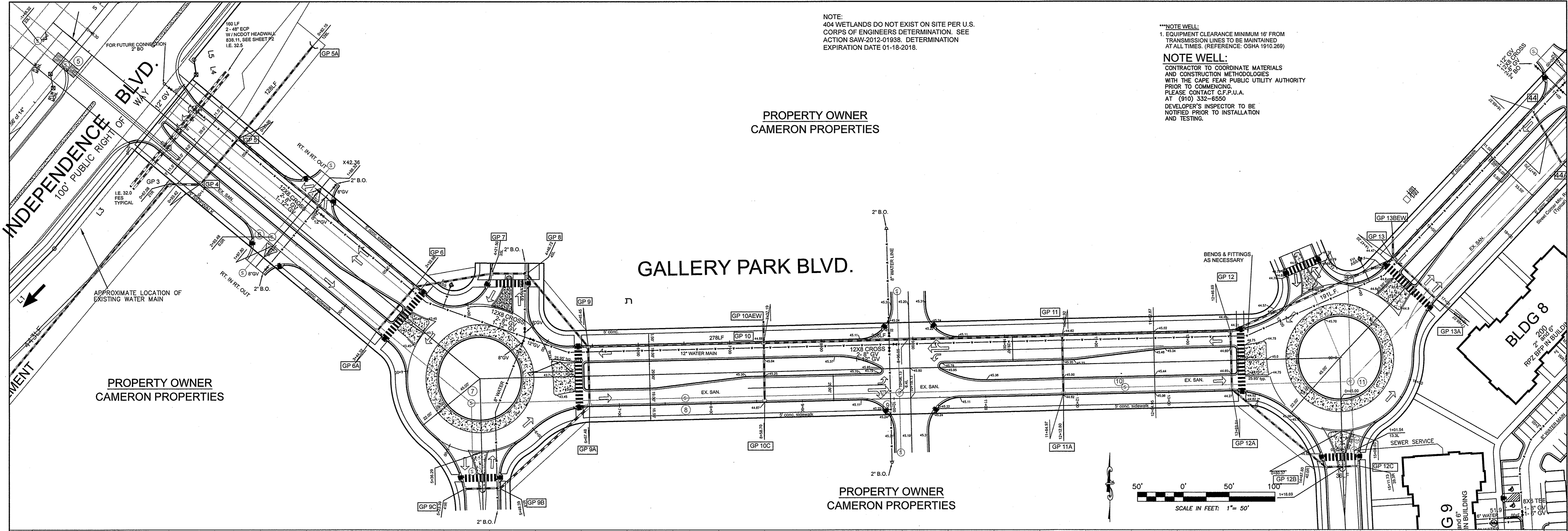
REV. NO.	REVISIONS	DATE
1	Major Revision	1-30-15

PLANS & PROFILES
BARCLAY WEST
PHASE 1 INFRASTRUCTURE
LOCATED IN THE CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA

OWNER: CAMERON PROPERTIES LAND COMPANY, LLC
P.O. BOX 3649
WILMINGTON, N.C. 28406 PH 910-762-2676

HANOVER DESIGN SERVICES, P.A.
LAND SURVEYORS, ENGINEERS & LAND PLANNERS
1133 FLORAL PARKWAY
WILMINGTON, N.C. 28403
PHONE: (910) 343-8002
License # C-0597

Date: 10-3-14
Scale: HORIZ: 1"=50'
VERT: 1"=2'
Drawn: GW
Checked: DH
Project No: 12498
Sheet No: 2
of: 10



NOTE:
404 WETLANDS DO NOT EXIST ON SITE PER U.S. CORPS OF ENGINEERS DETERMINATION. SEE ACTION SAW-2012-01938. DETERMINATION EXPIRATION DATE 01-18-2018.

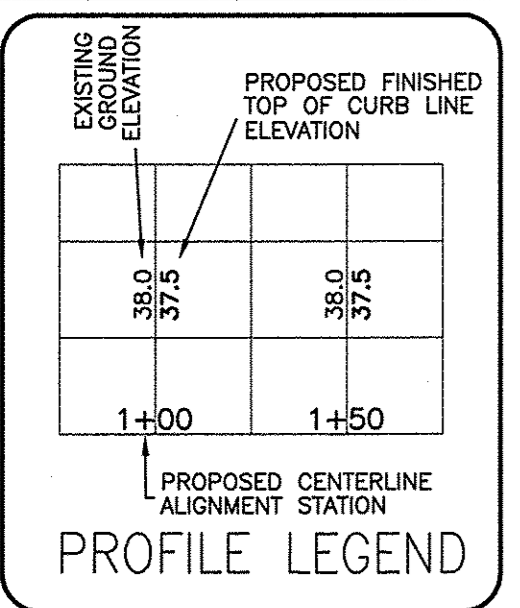
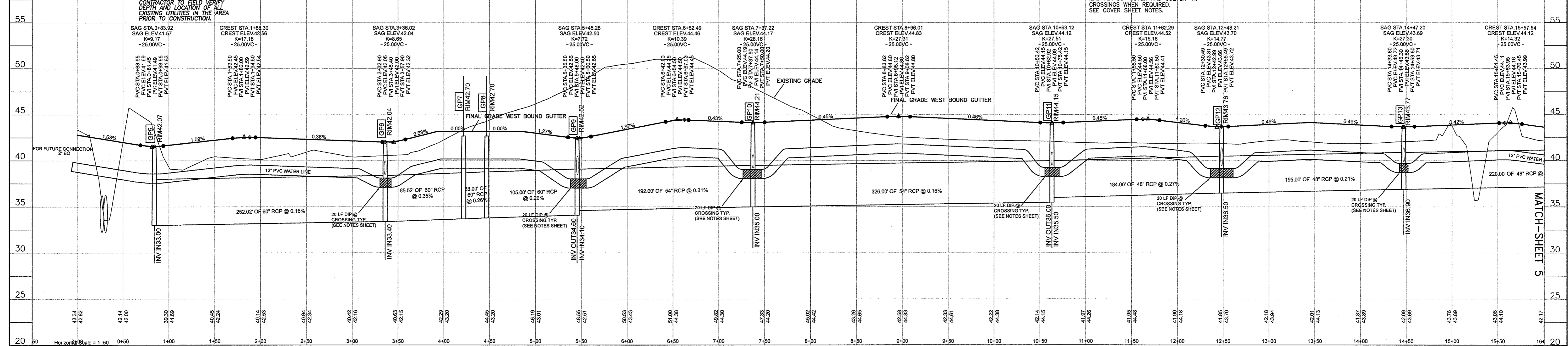
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NOTE WELL:
LOCATION OF MULTIPLE UTILITIES EXERCISE EXTREME CAUTION. CONTRACTOR TO FIELD VERIFY DEPTH AND LOCATION OF ALL EXISTING UTILITIES IN THE AREA PRIOR TO CONSTRUCTION.

NOTE WELL:
MULTIPLE UTILITIES SHOWN GRAPHICALLY IN PROFILE. DEVIATIONS NOTED AS SHOWN. MAINTAIN 36\"/>

GALLERY PARK BLVD. WEST BOUND GUTTER PROFILE



For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

STORMWATER MANAGEMENT PLAN APPROVED CITY OF WILMINGTON ENGINEERING DEPARTMENT DATE PERMIT # SIGNED

Approved Construction Plan

Name	Date
Planning	
Traffic	
Fire	

STATION 0+00 THROUGH 16+50
GALLERY PARK BLVD.

REV. NO.	REVISIONS	DATE
1	Major Revision	1-30-15

PLANS & PROFILES
BARCLAY WEST
PHASE 1 INFRASTRUCTURE
LOCATED IN THE CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA

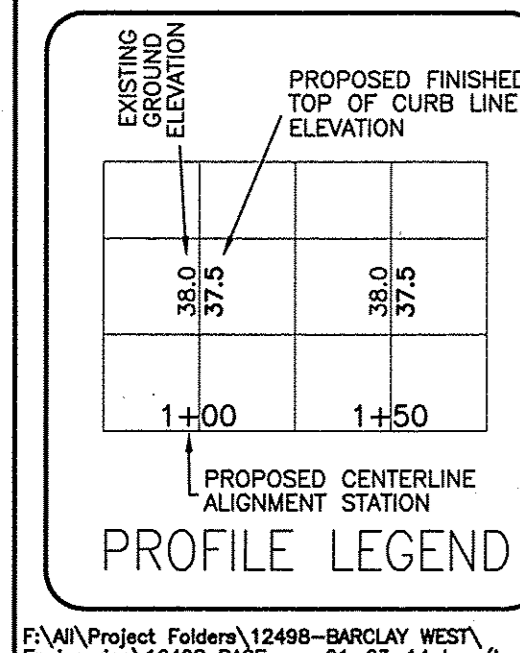
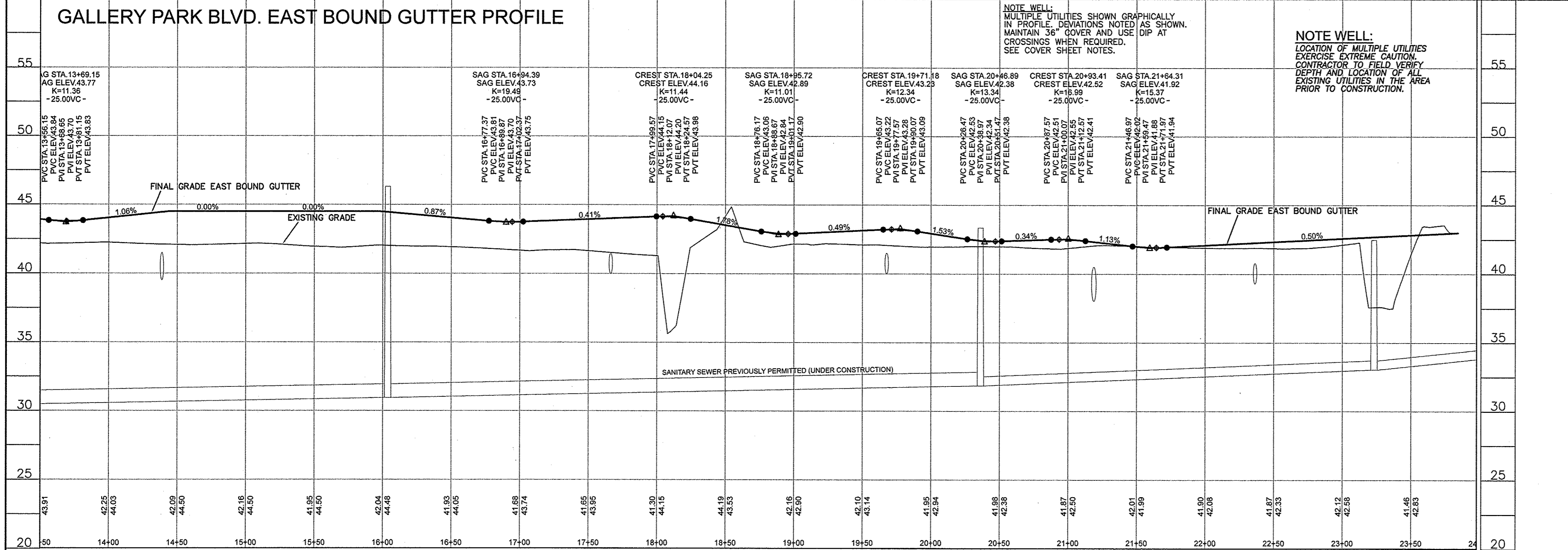
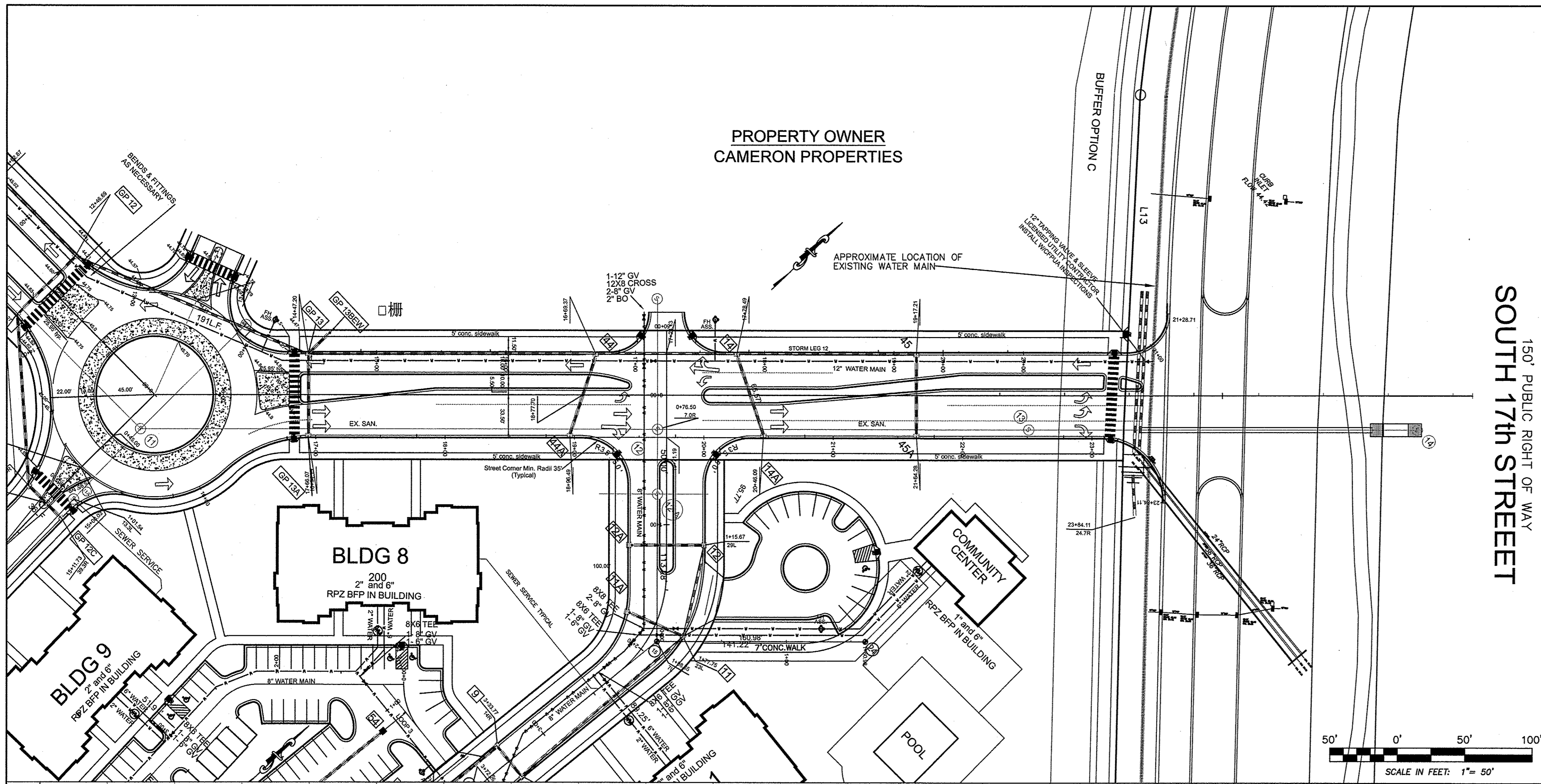
OWNER: CAMERON PROPERTIES LAND COMPANY, LLC
P.O. BOX 3649
WILMINGTON, N.C. 28406 PH 910-762-2676

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PHONE: (910) 343-8002
License # C-0597

Date: 10-3-14
Scale: HORIZ: 1"=50'
VERT: 1"=2'
Drawn: GW
Checked: DH
Project No: 12498
Sheet No: 3
Of: 10

FINAL DESIGN NOT RELEASED FOR CONSTRUCTION

E:\V\Projects\Folder\12498-BARCLAY WEST\Engineering\12498_BSE_eng_01-23-14.dwg (Layout PP-3)



NOTE WELL:
1. EQUIPMENT CLEARANCE MINIMUM 10' FROM TRANSMISSION LINES TO BE MAINTAINED AT ALL TIMES. (REFERENCE: OSHA 1910.269)

NOTE WELL:
CONTRACTOR TO COORDINATE MATERIALS AND CONSTRUCTION METHODOLOGIES WITH THE CAPE FEAR PUBLIC UTILITY AUTHORITY PRIOR TO COMMENCING.
PLEASE CONTACT C.F.P.U.A. AT (910) 332-6550
DEVELOPER'S INSPECTOR TO BE NOTIFIED PRIOR TO INSTALLATION AND TESTING.

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STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____
PERMIT # _____
SIGNED _____

Approved Construction Plan

Name	Date
Planning _____	
Traffic _____	
Fire _____	

NOTE:
404 WETLANDS DO NOT EXIST ON SITE PER U.S. CORPS OF ENGINEERS DETERMINATION. SEE ACTION SAW-2012-01938. DETERMINATION EXPIRATION DATE 01-18-2018.

STATION 15+00 THROUGH 26+00
GALLERY PARK BLVD.

REV. NO.	REVISIONS	DATE
2	Major Revision	1-30-15
1	REVISED AS PER CITY COMMENTS	12-3-14

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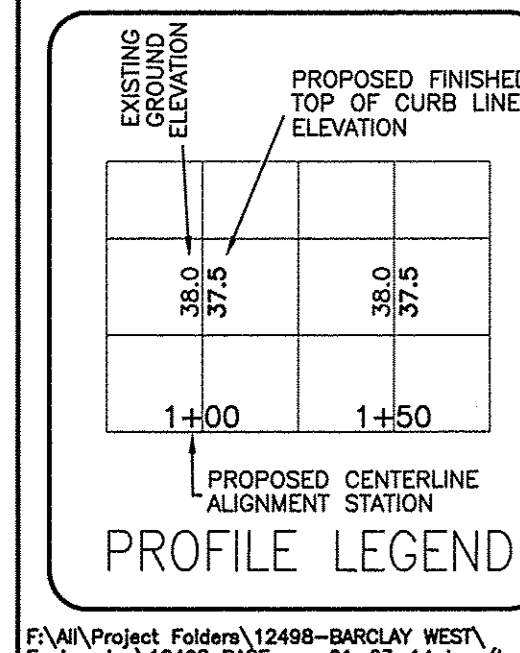
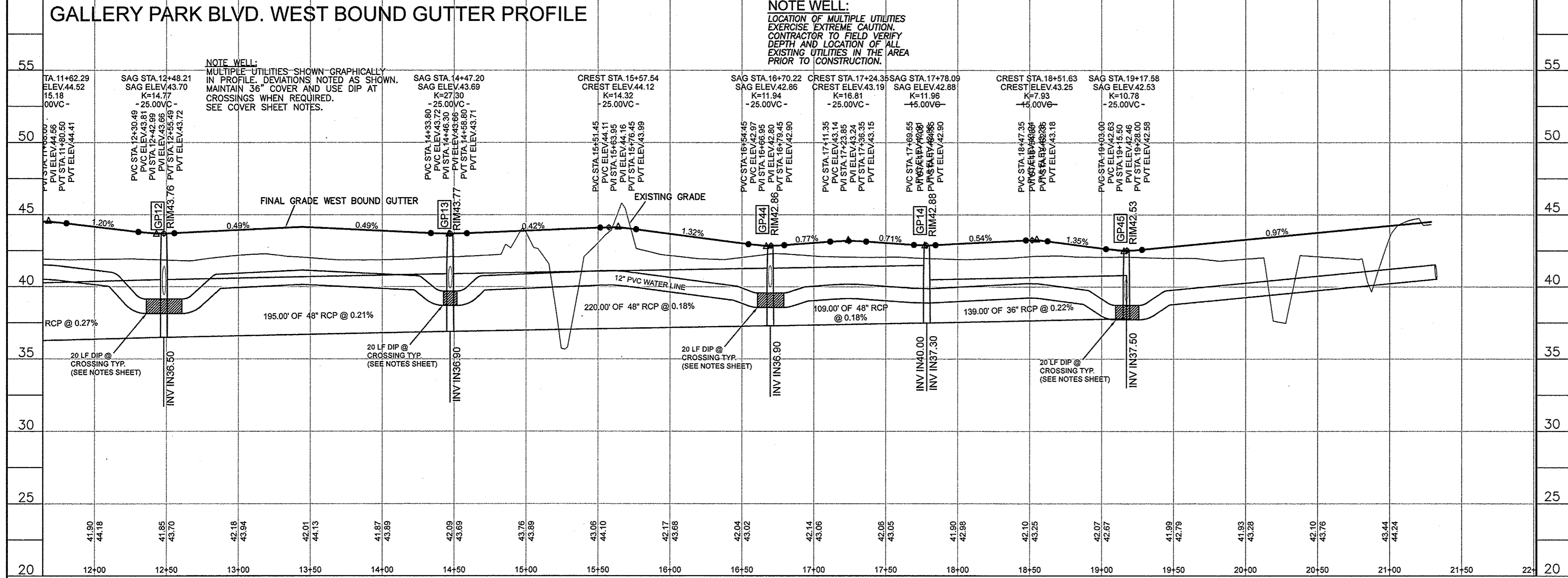
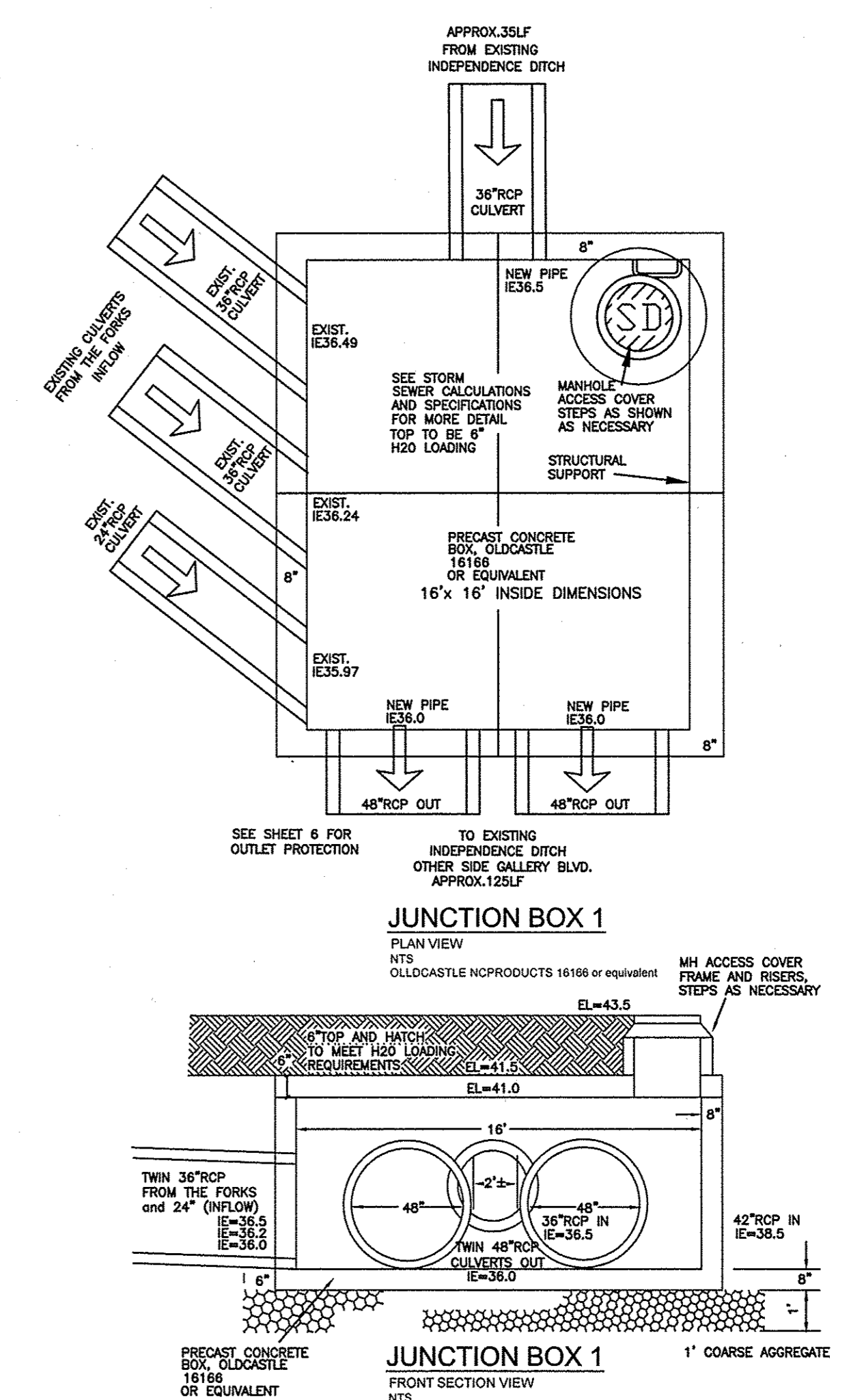
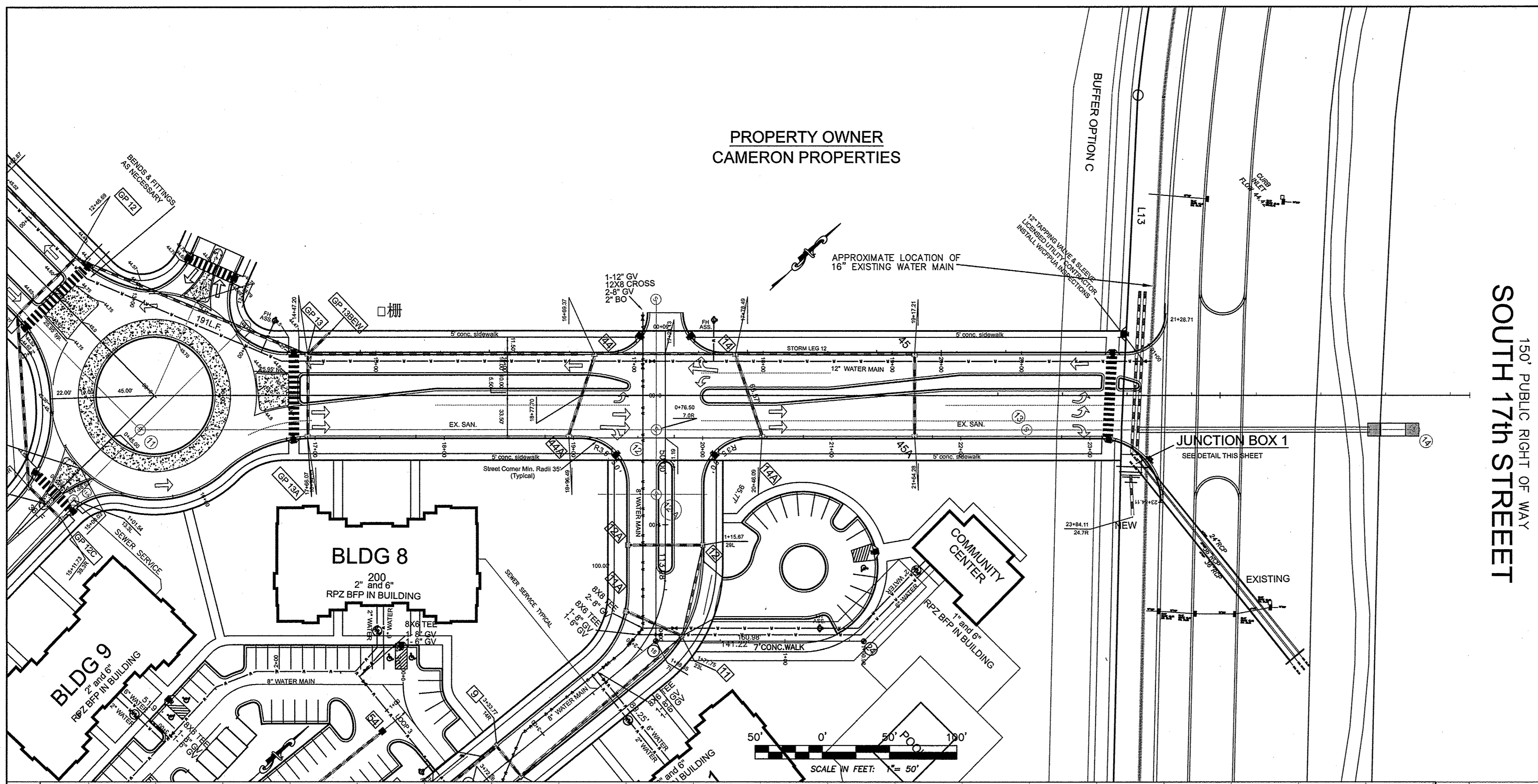
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PLANS & PROFILES
BARCLAY WEST
PHASE 1 INFRASTRUCTURE
LOCATED IN THE CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA

OWNER: CAMERON PROPERTIES LAND COMPANY, LLC
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PHONE: (910) 343-0002
License # C-0597

Date: 10-3-14
Scale: HORZ: 1"=50'
VERT: 1"=5'
Drawn: GW
Checked: DH
Project No: 12498
Sheet No: 4
10



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For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

STORMWATER MANAGEMENT PLAN APPROVED CITY OF WILMINGTON ENGINEERING DEPARTMENT DATE PERMIT # SIGNED

Approved Construction Plan

Name	Date
Planning	
Traffic	
Fire	

NOTE:
404 WETLANDS DO NOT EXIST ON SITE PER U.S. CORPS OF ENGINEERS DETERMINATION. SEE ACTION SAW-2012-01938. DETERMINATION EXPIRATION DATE 01-18-2018.

STATION 12+50 THROUGH 22+00
GALLERY PARK BLVD.

REV. NO.	REVISIONS	DATE
2	Major Revision	1-30-15
1	REVISED AS PER CITY COMMENTS	12-3-14

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FINAL DESIGN NOT RELEASED FOR CONSTRUCTION

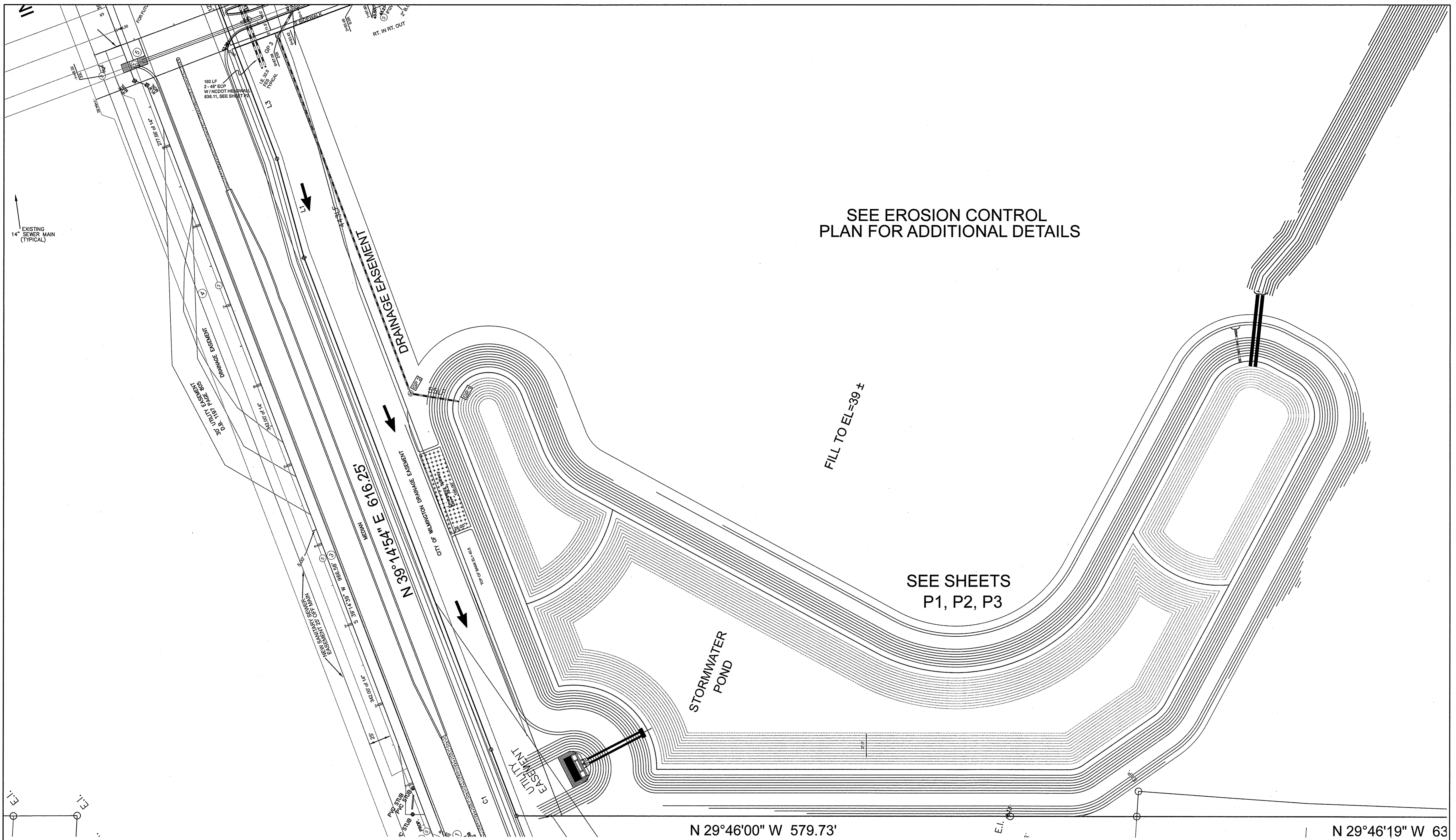
PLANS & PROFILES
BARCLAY WEST
PHASE 1 INFRASTRUCTURE
LOCATED IN THE CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA

OWNER: CAMERON PROPERTIES LAND COMPANY, LLC
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PHONE: (910) 343-8002
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North Carolina Professional Engineer Seal 20007

Date: 10-3-14
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10



14" EXISTING SEWER MAIN (TYPICAL)

SEE EROSION CONTROL PLAN FOR ADDITIONAL DETAILS

FILL TO EL=39 ±

SEE SHEETS P1, P2, P3

STORMWATER POND

N 29°46'00" W 579.73'

N 29°46'19" W 63'

FINAL DESIGN NOT RELEASED FOR CONSTRUCTION

PROFILE LEGEND

EXISTING GROUND ELEVATION	PROPOSED FINISHED TOP OF CURB LINE ELEVATION
38.0	37.5
38.0	37.5
1+00	1+50

PROPOSED CENTERLINE ALIGNMENT STATION

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 CITY OF WILMINGTON
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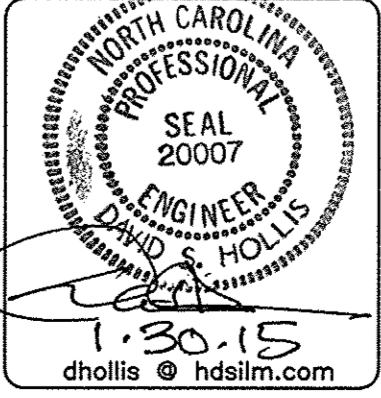
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Planning _____	_____
Traffic _____	_____
Fire _____	_____

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WATER QUALITY FACILITY
 SEE SHEETS P1 - P3 FOR ADDITIONAL DETAILS

REV. NO.	REVISIONS	DATE
1	Major Revision	1-30-15

PLAN
BARCLAY WEST
 PHASE 1 INFRASTRUCTURE
 LOCATED IN THE CITY OF WILMINGTON
 NEW HANOVER COUNTY, NORTH CAROLINA

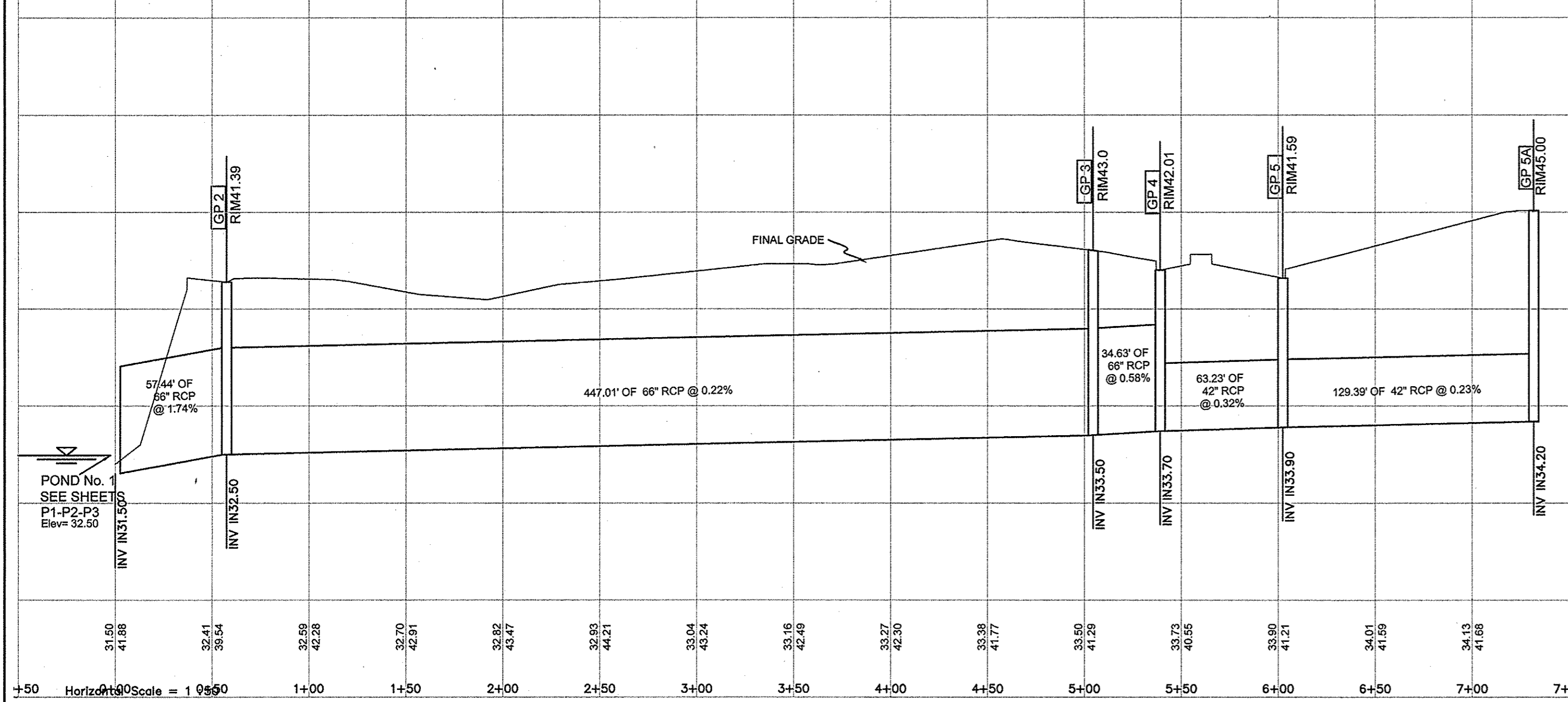


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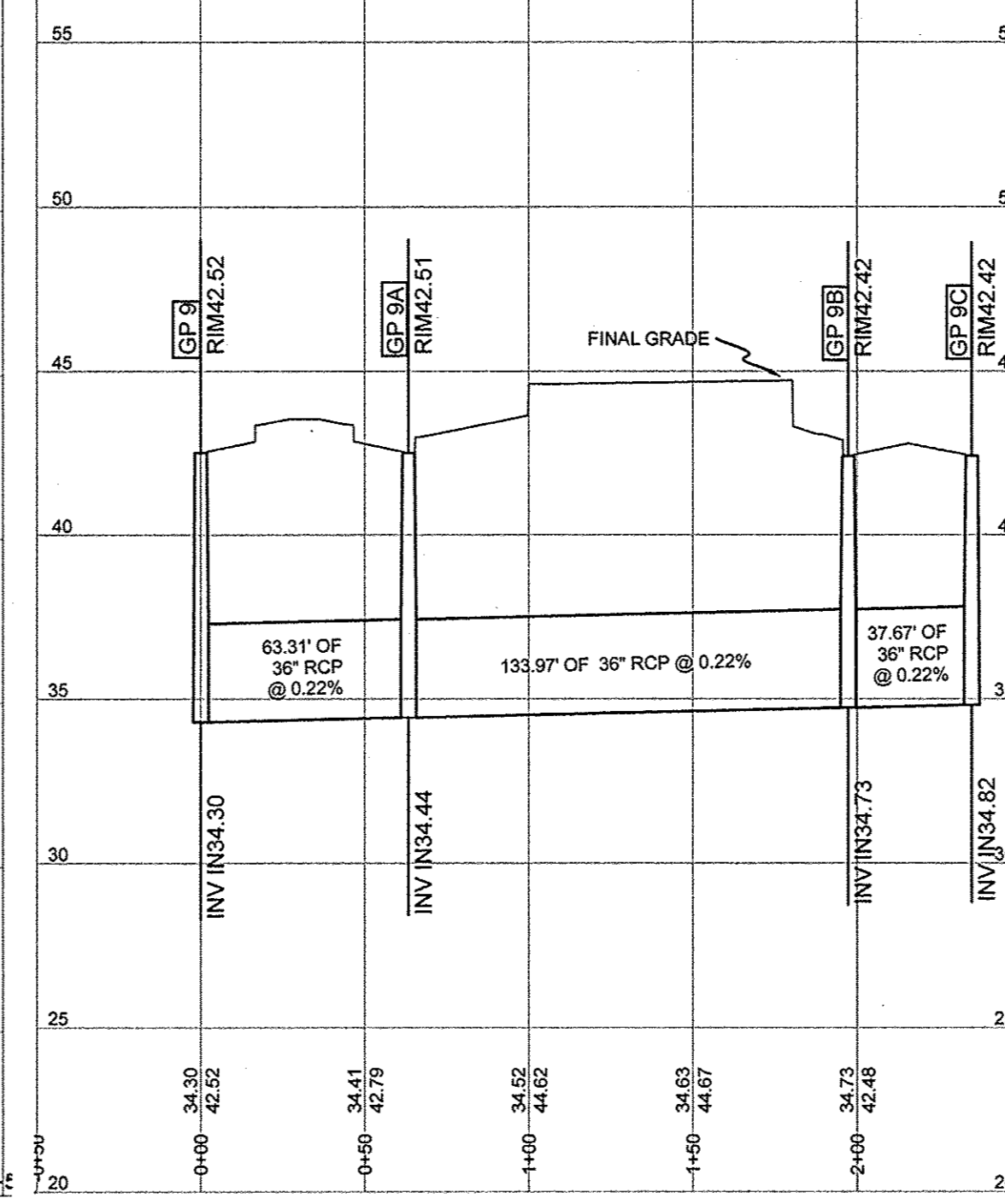
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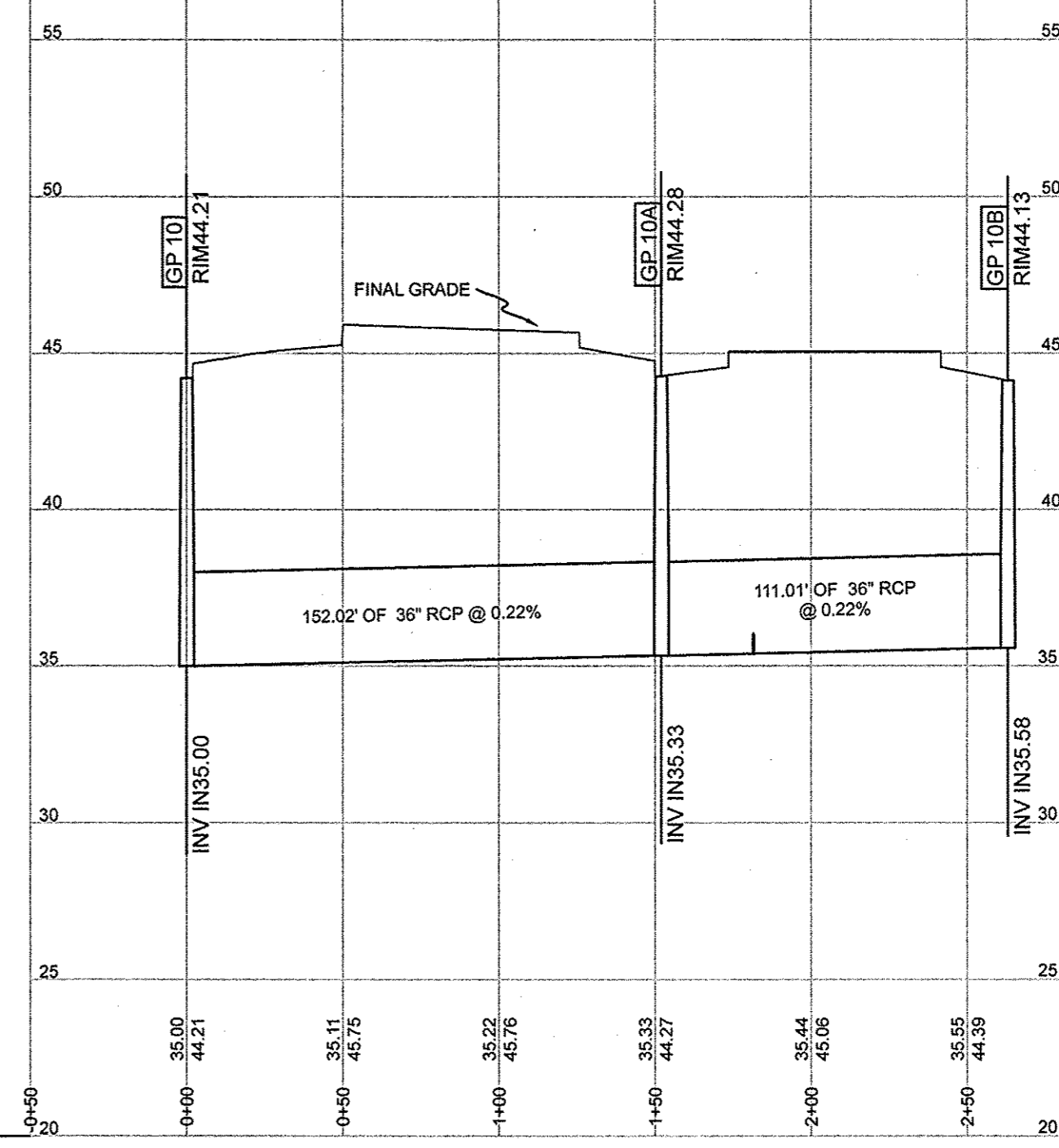
GP STORM LEG 1 (OUTFALL PIPE 1)



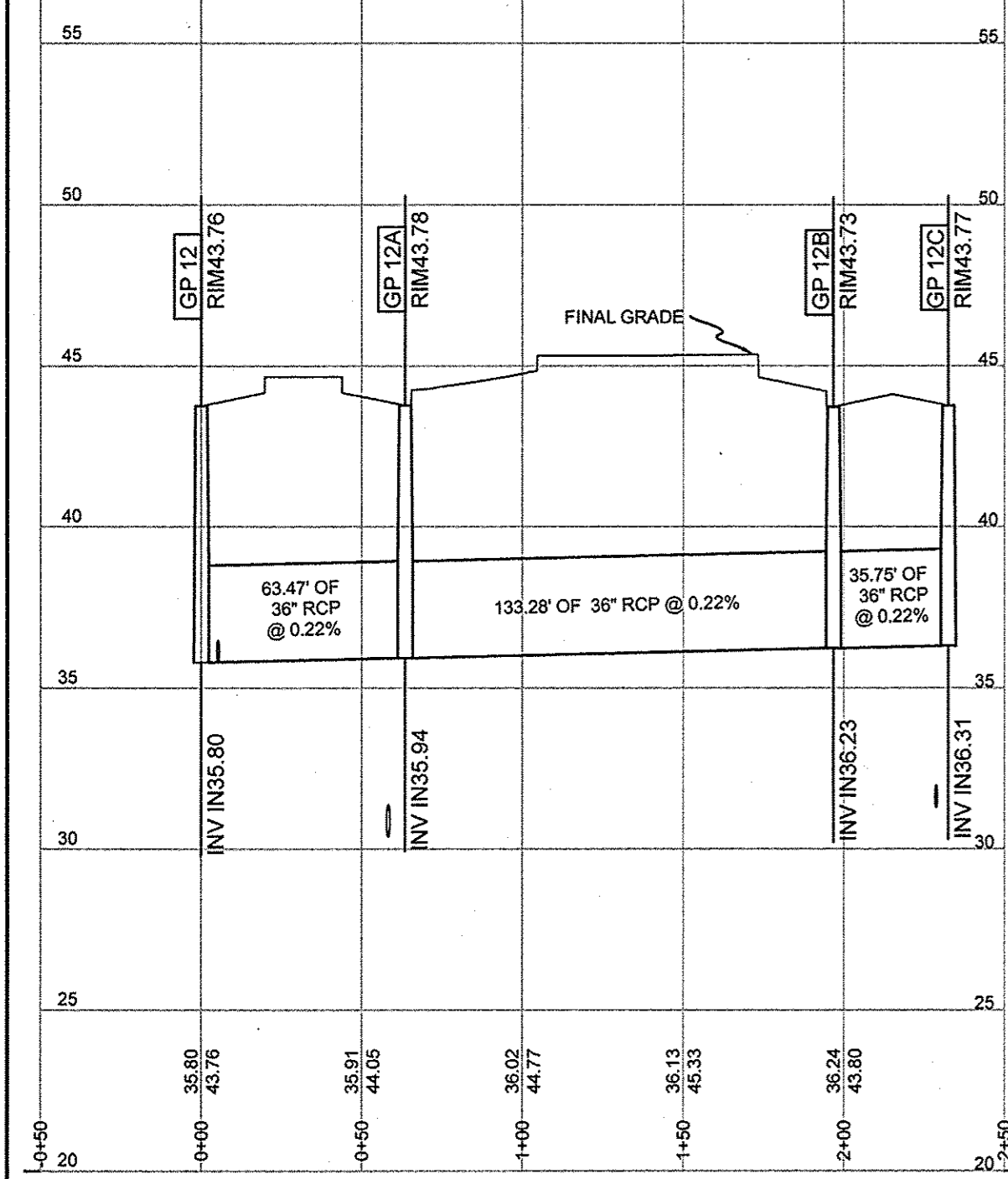
GP STORM LEG 3



GP STORM LEG 4



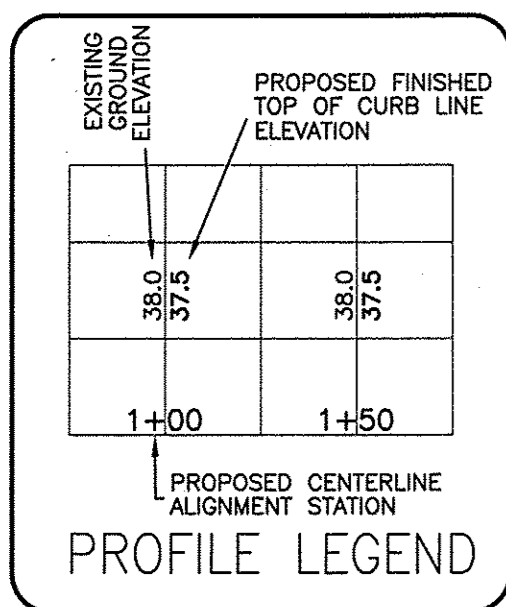
GP STORM LEG 5



STORM SEWER SUMMARY
Forebay No.1

Line No.	To Line	Length (ft)	Incr Area (ac)	Total Area (ac)	Incr CxA (C)	Total CxA (CxA)	Inlet Time (min)	Rain Syst (min)	Total Runoff (in/hr)	Total Flow (cfs)	Capac. Full (cfs)	Velocity (fps)	Pipe Size (in)	Pipe Slope (%)	Inv Dn (ft)	Inv Up (ft)	HGL Up (ft)	HGL Dn (ft)	Gr/Rim (ft)	Gr/Rim (ft)	Line ID		
1	End	57.0	0.00	42.46	0.60	0.00	33.97	0.0	41.5	3.6	122.57	180.10	340.77	7.73	66	0.88	32.00	31.50	37.06	37.00	41.39	38.00	1 TO 2
2	1	447.0	0.00	42.46	0.60	0.00	33.97	0.0	39.0	3.7	126.66	180.10	121.69	7.58	66	0.11	32.50	32.00	38.60	37.50	45.21	41.39	2 TO 3
3	2	35.0	0.60	42.46	0.80	0.48	33.97	5.0	38.8	3.7	127.00	180.10	275.04	7.58	66	0.57	32.70	32.50	38.77	38.69	42.01	45.21	3 TO 4
4	3	63.0	0.68	41.86	0.80	0.54	33.49	5.0	38.4	3.8	125.80	176.63	194.72	9.00	60	0.48	33.00	32.70	39.11	38.86	41.59	42.01	4 TO 5
5	4	252.0	0.57	24.99	0.80	0.46	19.99	5.0	37.0	3.8	76.56	117.66	112.42	5.99	60	0.16	33.40	33.00	39.67	39.23	42.04	41.59	5 TO 6
6	5	85.0	0.22	23.43	0.80	0.18	18.74	5.0	36.6	3.9	72.26	108.64	167.64	5.53	60	0.35	33.70	33.40	39.85	39.73	42.70	42.04	6 TO 7
7	6	38.0	0.28	23.21	0.80	0.22	18.57	5.0	36.3	3.9	71.79	107.36	144.75	5.47	60	0.26	33.80	33.70	39.96	39.90	42.70	42.70	7 TO 8
8	7	105.0	0.49	22.93	0.80	0.39	18.34	5.0	35.8	3.9	71.52	105.74	150.83	5.39	60	0.29	34.10	33.80	40.15	40.00	42.52	42.70	8 TO 9
9	8	192.0	0.52	21.18	0.80	0.42	16.94	5.0	34.7	4.0	67.08	95.63	97.24	6.01	54	0.21	35.00	34.60	40.58	40.20	44.17	42.52	9 TO 10
10	9	326.0	0.58	19.15	0.80	0.46	15.32	5.0	32.9	4.1	62.29	84.78	83.44	5.33	54	0.15	35.50	35.00	41.18	40.66	44.12	44.17	10 TO 11
11	10	184.0	0.66	17.36	0.80	0.53	13.89	5.0	31.9	4.1	57.34	75.32	81.12	5.99	48	0.27	36.50	36.00	41.65	41.22	43.75	44.12	11 TO 12
12	11	195.0	0.72	14.83	0.80	0.58	11.86	5.0	30.8	4.2	49.81	60.69	70.48	4.83	48	0.21	36.90	36.50	42.01	41.71	43.75	43.75	12 TO 13
13	4	129.0	16.19	16.19	0.80	12.95	12.95	30.0	30.0	4.3	55.05	55.05	52.56	5.72	42	0.23	34.20	33.90	39.56	39.23	44.00	41.59	5 TO 5A
14	5	63.0	0.99	0.99	0.80	0.79	0.79	5.0	5.0	7.2	5.72	5.72	10.13	3.32	18	0.79	38.50	38.00	39.86	39.73	42.04	42.04	6 TO 6A
15	8	63.0	0.52	1.26	0.80	0.42	1.01	5.0	6.0	7.0	7.09	7.29	21.83	2.42	24	0.79	38.50	38.00	40.24	40.20	42.51	42.52	9 TO 9A
16	15	134.0	0.40	0.74	0.80	0.32	0.59	5.0	5.2	7.2	4.25	4.28	5.38	2.47	18	0.22	39.30	39.00	40.67	40.50	42.42	42.42	9A TO 9B
17	16	38.0	0.34	0.34	0.80	0.27	0.27	5.0	5.0	7.2	1.97	1.97	5.84	1.13	18	0.26	39.40	39.30	40.81	40.80	42.42	42.42	9B TO 9C
18	9	24.0	0.69	0.69	0.80	0.55	0.55	15.0	15.0	5.6	3.10	3.10	12.72	1.76	18	1.25	39.30	39.00	40.68	40.66	44.28	44.17	10 TO 10AEW
19	9	63.0	0.82	0.82	0.80	0.66	0.66	5.0	5.0	7.2	4.74	4.74	10.13	3.15	18	0.79	40.00	39.50	41.04	41.00	44.17	44.17	10 TO 10C
20	10	63.0	1.21	1.21	0.80	0.97	0.97	10.0	10.0	6.3	6.10	6.10	10.13	3.52	18	0.79	40.00	39.50	41.38	41.22	44.12	44.12	11 TO 11A
21	11	63.0	0.53	1.87	0.80	0.42	1.50	5.0	5.9	7.0	10.52	10.81	21.83	3.44	24	0.79	39.50	39.00	41.83	41.71	43.78	43.75	12 TO 12A
22	21	133.0	0.76	1.34	0.80	0.61	1.07	5.0	5.2	7.2	7.70	7.75	11.64	2.47	24	0.23	39.80	39.50	41.98	41.85	43.73	43.78	12A TO 12B
23	22	36.0	0.58	0.58	0.80	0.46	0.46	5.0	5.0	7.2	3.35	3.35	8.48	1.90	18	0.56	40.50	40.30	42.00	41.99	43.77	43.73	12B TO 12C
24	12	63.0	0.77	0.77	0.80	0.62	0.62	5.0	5.0	7.2	4.45	4.45	10.13	2.52	18	0.79	40.50	40.00	42.14	42.04	43.73	43.73	13 TO 13A
25	12	24.0	10.06	10.06	0.80	8.05	8.05	30.0	30.0	4.3	34.20	34.20	104.3	4.84	36	2.08	37.50	37.00	42.10	42.04	44.00	43.73	13 TO 13BEW
26	12	220.0	0.58	3.28	0.80	0.46	2.62	10.0	11.4	6.1	16.00	17.87	66.36	1.42	48	0.18	37.30	36.90	42.07	42.04	43.38	43.73	13 TO 44
27	26	109.0	0.43	2.54	0.80	0.34	2.03	5.0	10.8	6.2	12.57	14.02	66.66	1.12	48	0.18	37.50	37.30	42.08	42.08	42.95	43.38	44 TO 14
28	27	139.0	0.90	1.39	0.80	0.72	1.11	10.0	10.0	6.3	7.01	7.37	33.57	1.04	36	0.22	37.80	37.50	42.10	42.09	42.33	42.95	14 TO 45
29	28	63.0	0.49	0.49	0.80	0.39	0.39	5.0	5.0	7.2	2.83	2.83	7.85	1.60	18	0.48	38.70	38.40	42.14	42.10	42.33	42.33	45 TO 45A
30	27	67.0	0.72	0.72	0.80	0.58	0.58	5.0	5.0	7.2	4.16	4.16	9.83	2.36	18	0.75	40.00	39.50	42.18	42.09	42.95	42.95	14 TO 14A
31	26	66.0	0.16	0.16	0.80	0.13	0.13	5.0	5.0	7.2	0.93	0.93	9.90	0.52	18	0.76	40.00	39.50	42.08	42.08	43.38	43.38	44 TO 44A

Return period = 10 Yrs.



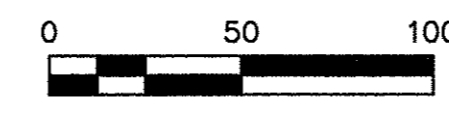
NOTE WELL:
 1. EQUIPMENT CLEARANCE MINIMUM 16' FROM TRANSMISSION LINES TO BE MAINTAINED AT ALL TIMES. (REFERENCE: OSHA 1910.269)

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

STORMWATER MANAGEMENT PLAN
 APPROVED
 CITY OF WILMINGTON
 ENGINEERING DEPARTMENT
 DATE _____
 PERMIT # _____
 SIGNED _____

Approved Construction Plan
 Name _____ Date _____
 Planning _____
 Traffic _____
 Fire _____

NOTE:
 404 WETLANDS DO NOT EXIST ON SITE PER U.S. CORPS OF ENGINEERS DETERMINATION. SEE ACTION SAW-2012-01938. DETERMINATION EXPIRATION DATE 01-18-2018.



FINAL DESIGN NOT RELEASED FOR CONSTRUCTION

ADDITIONAL PROFILES

REV. NO.	REVISIONS	DATE
1	Major Revision	1-30-15

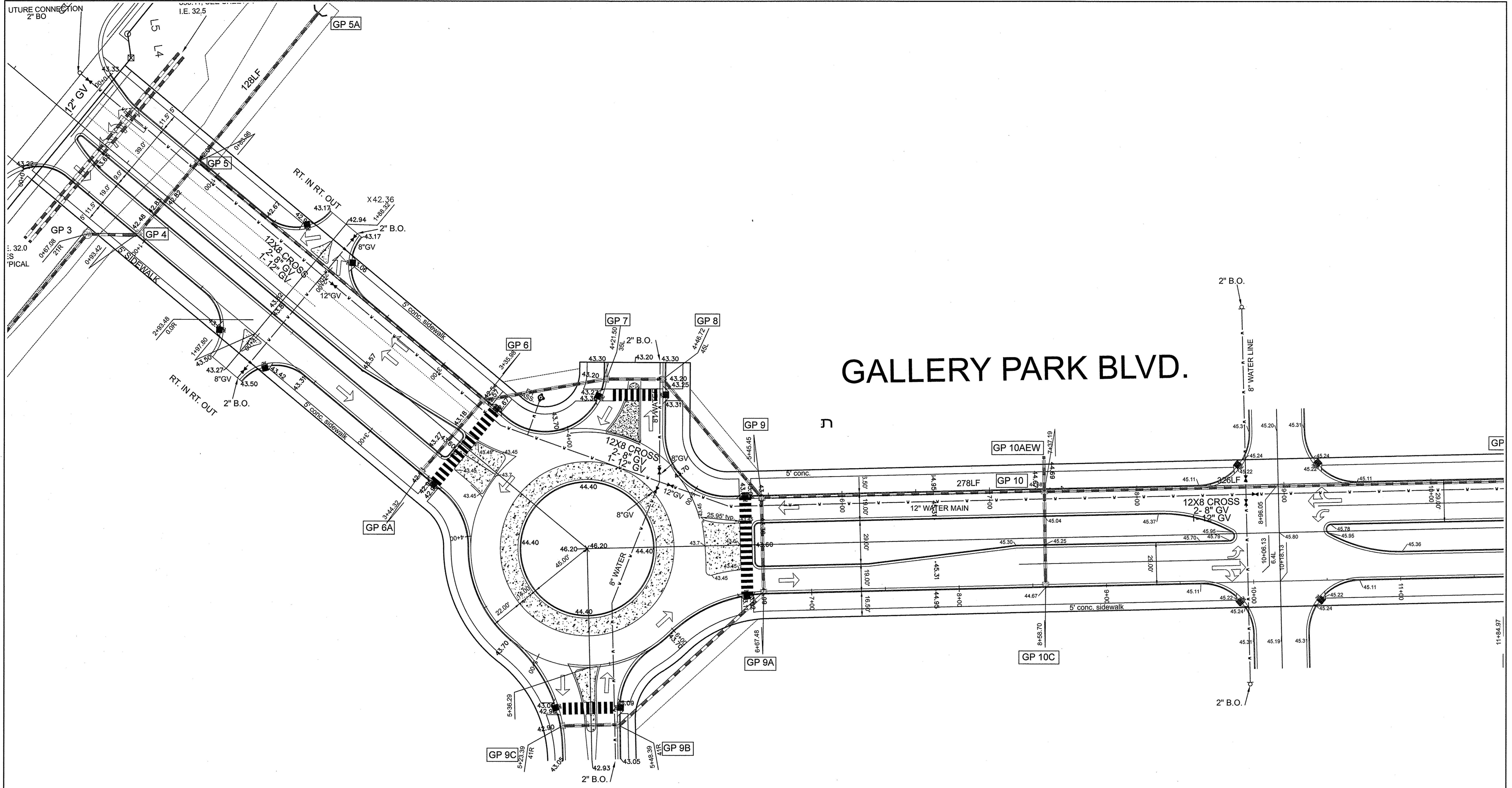
PLAN
BARCLAY WEST
 PHASE 1 INFRASTRUCTURE
 LOCATED IN THE CITY OF WILMINGTON
 NEW HANOVER COUNTY, NORTH CAROLINA

OWNER: CAMERON PROPERTIES LAND COMPANY, LLC
 P.O. BOX 3649
 WILMINGTON, N.C. 28406 PH 910-762-2676

HANOVER DESIGN SERVICES, P.A.
 LAND SURVEYORS, ENGINEERS & LAND PLANNERS
 1123 FLORAL PARKWAY
 WILMINGTON, N.C. 28403
 PHONE: (910) 543-8002
 License # C-0597

Professional Engineer Seal: 20007, dhollis @ hdsim.com

Date: 10-3-14
 Scale: HORIZ: 1"=50'
 VERT: 1"=5'
 Drawn: GW
 Checked: DH
 Project No: 12498
 Sheet No: 7
 of: 10



GALLERY PARK BLVD.

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

NOTE WELL: ALL SPOT ELEVATIONS AS SHOWN ARE PROPOSED BACK OF CURB.



STORMWATER MANAGEMENT PLAN
 APPROVED
 CITY OF WILMINGTON
 ENGINEERING DEPARTMENT
 DATE _____
 PERMIT # _____
 SIGNED _____

Approved Construction Plan

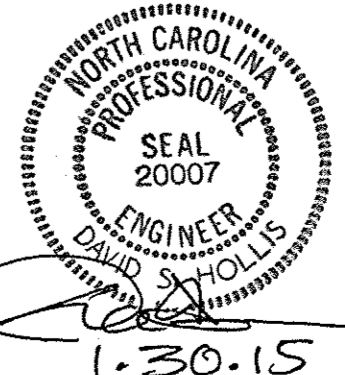
Name	Date
Planning _____	_____
Traffic _____	_____
Fire _____	_____

LAY-OUT SHEET

BARCLAY WEST
 PHASE 1 INFRASTRUCTURE
 LOCATED IN THE CITY OF WILMINGTON NEW HANOVER COUNTY, NORTH CAROLINA

Date: 10-3-14
 Scale: HORZ.: 1"= 30'
 Drawn: GW
 Checked: DH
 Project No: 1249B

OWNER: CAMERON PROPERTIES LAND COMPANY, LLC
 P.O. BOX 3649
 WILMINGTON, N.C. 28406 PH 910-762-2676



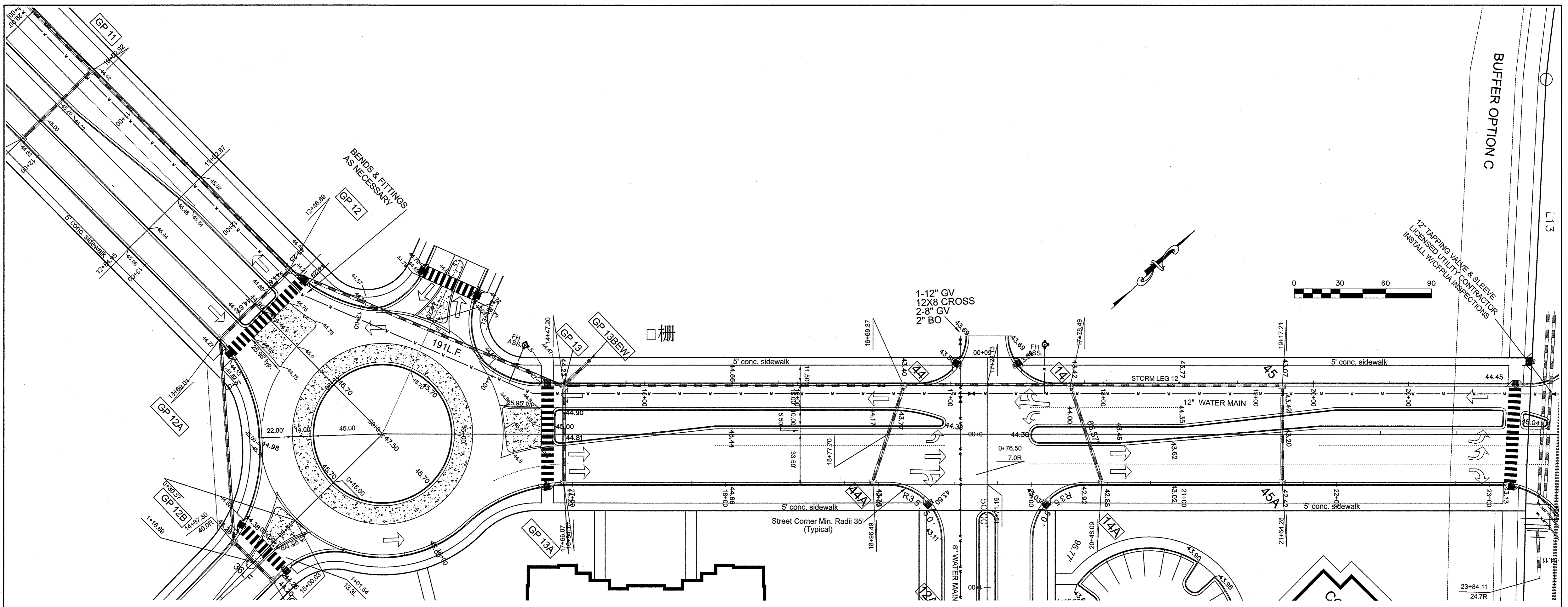
HANOVER DESIGN SERVICES, P.A.
 LAND SURVEYORS, ENGINEERS & LAND PLANNERS
 1123 FLORAL PARKWAY
 WILMINGTON, N.C. 28403
 PHONE: (910) 343-8002
 License # C-0597

Sheet No: 8
 of 10

REV. NO.	REVISIONS	DATE
1	Major Revision	1-30-15

FINAL DESIGN NOT RELEASED FOR CONSTRUCTION

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For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

STORMWATER MANAGEMENT PLAN
 APPROVED
 CITY OF WILMINGTON
 ENGINEERING DEPARTMENT
 DATE _____
 PERMIT # _____
 SIGNED _____

Approved Construction Plan
 Name _____ Date _____
 Planning _____
 Traffic _____
 Fire _____

NOTE WELL: ALL SPOT ELEVATIONS AS SHOWN ARE PROPOSED BACK OF CURB.



LAY-OUT SHEET

REV. NO.	REVISIONS	DATE
2	Major Revision	1-30-15
1	REVISED AS PER CITY COMMENTS	12-3-14

BARCLAY WEST
 PHASE 1 INFRASTRUCTURE
 LOCATED IN THE CITY OF WILMINGTON
 NEW HANOVER COUNTY, NORTH CAROLINA

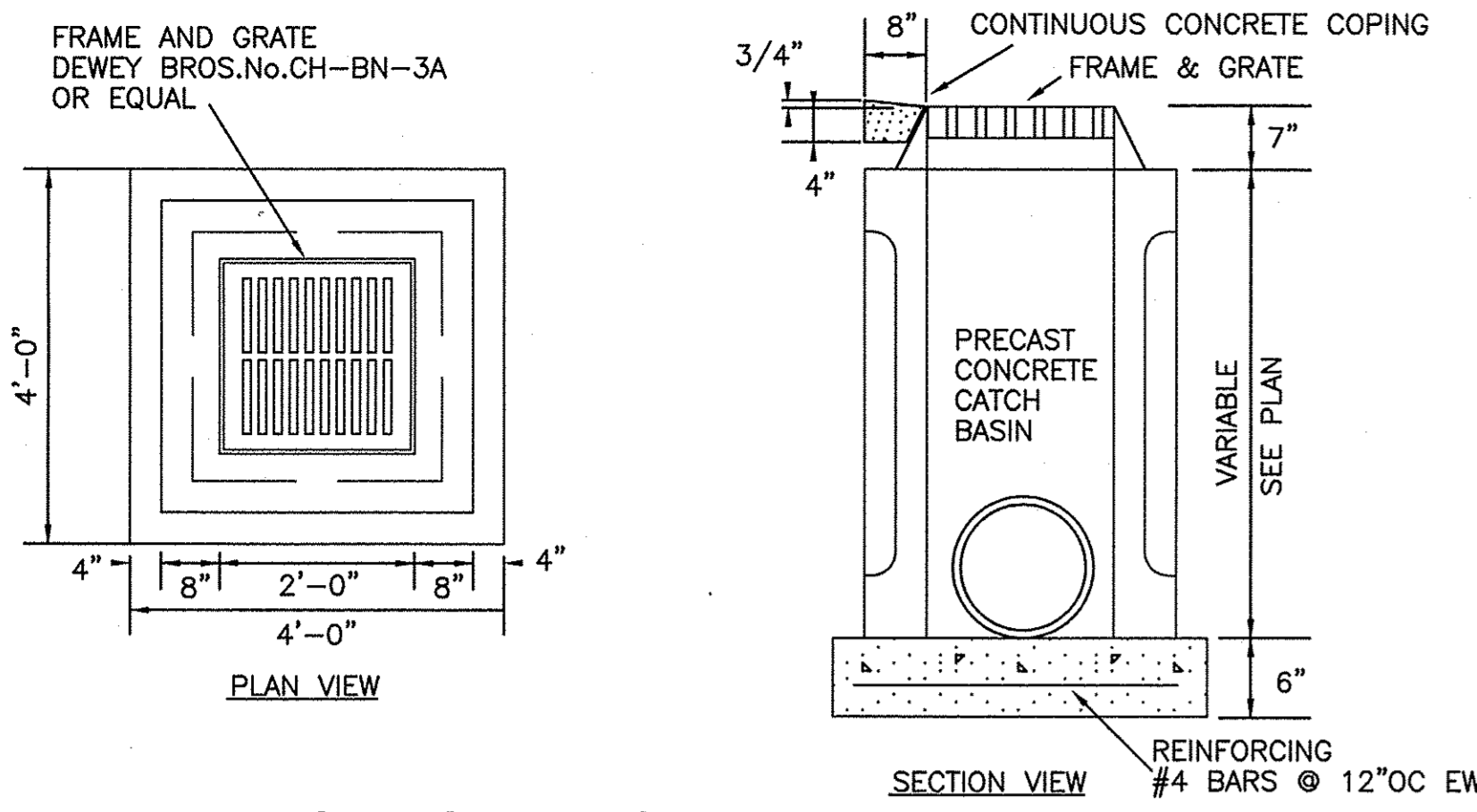


OWNER: CAMERON PROPERTIES LAND COMPANY, LLC
 P.O. BOX 3649
 WILMINGTON, N.C. 28406 PH 910-762-2676

HANOVER DESIGN SERVICES, P.A.
 LAND SURVEYORS, ENGINEERS & LAND PLANNERS
 1123 FLORAL PARKWAY
 WILMINGTON, N.C. 28403
 PHONE: (910) 343-8002
 License # C-0597

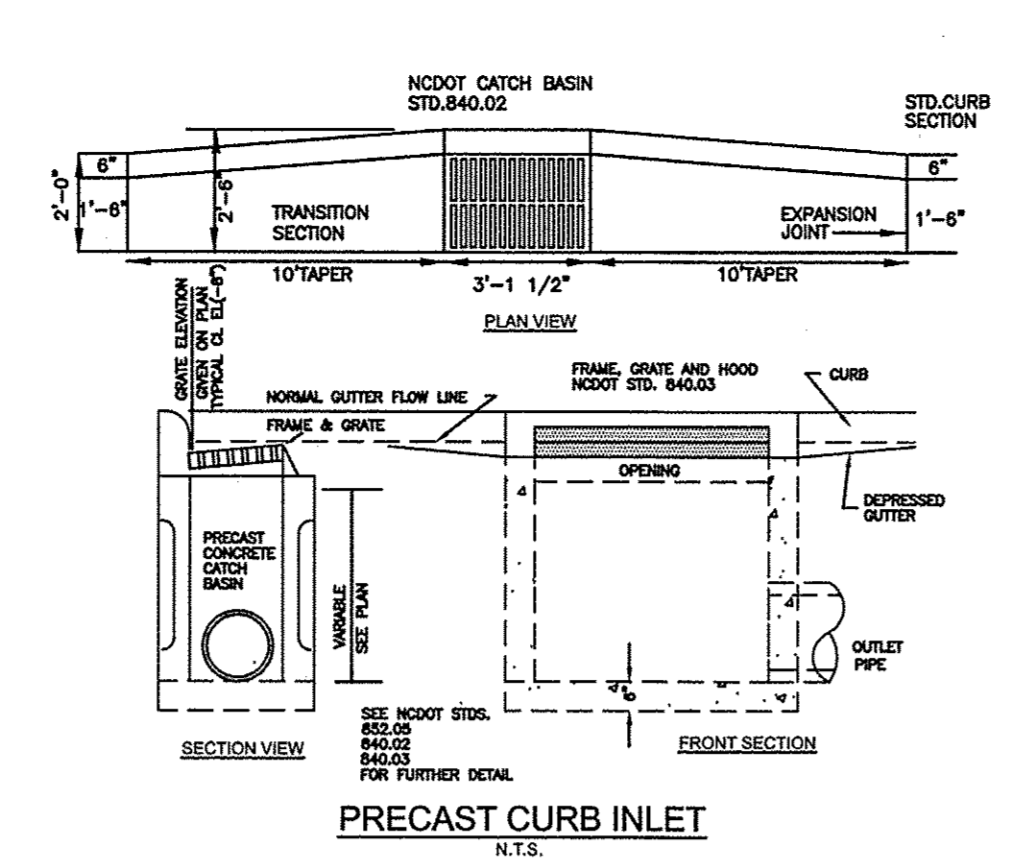
Date: 10-3-14
 Scale: HORIZ.: 1" = 30'
 Drawn: GW
 Checked: DH
 Project No: 12498
 Sheet No: 9
 of: 10

FINAL DESIGN NOT RELEASED FOR CONSTRUCTION

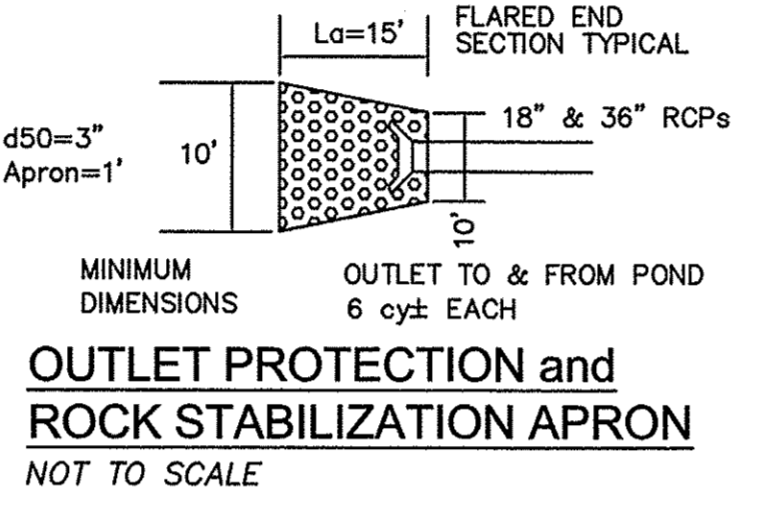


CATCH BASIN DETAIL

NOTE:
 PRECAST CONCRETE CATCH BASIN TO BE SIZED AS NECESSARY,
 OR MAY BE CONSTRUCTED OF BLOCK OR BRICK



NOTE WELL:
 1) OUTLET PROTECTION & ROCK STABILIZATION APRONS REQUIRED AS SHOWN ON PLAN.
 2) SLOPE IS FLAT (0%) FOR A MINIMUM OF 2LF 2' MIN. BOTTOM WIDTH.

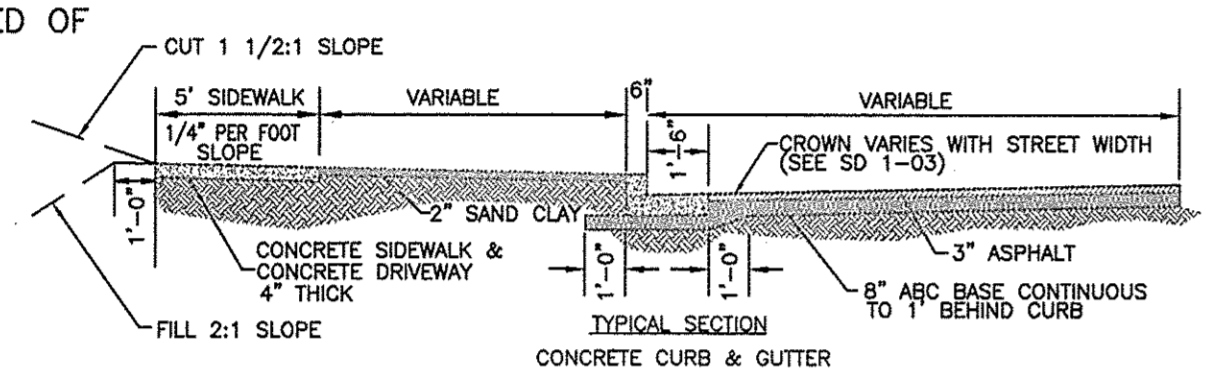
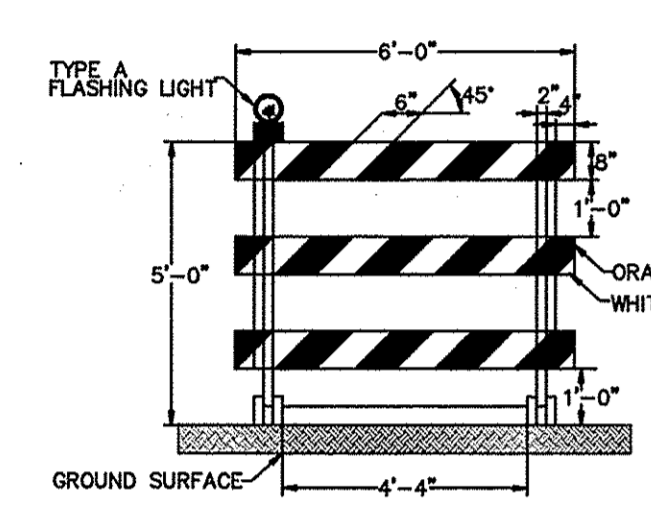
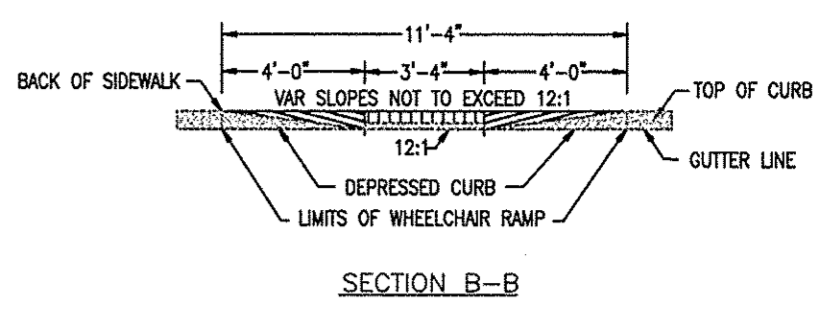


SEE SHEET P2 FOR OUTLET PROTECTION

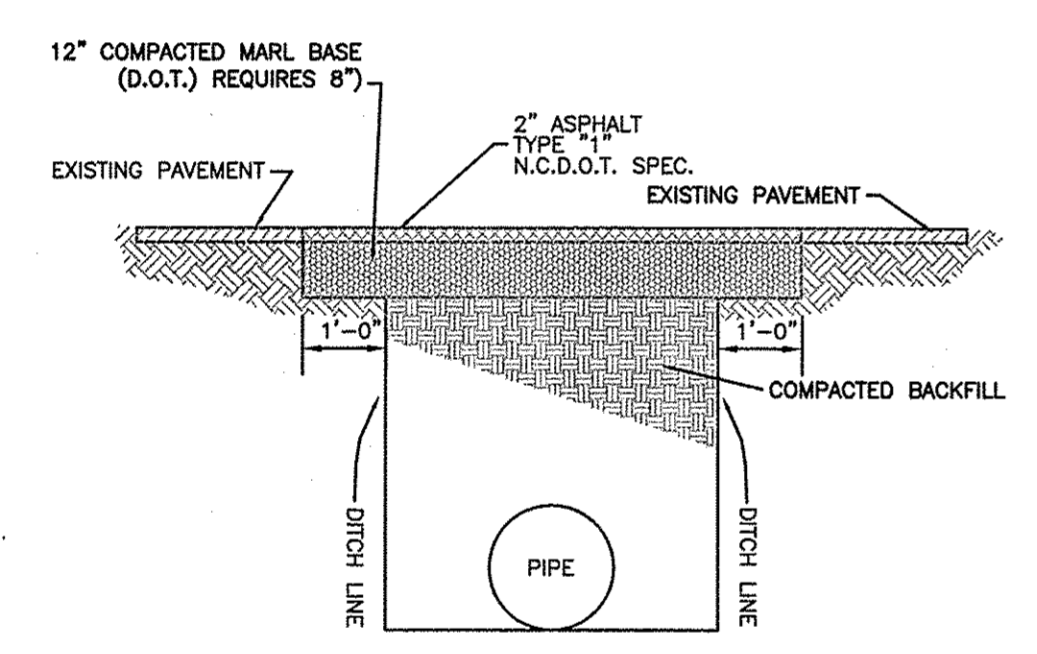
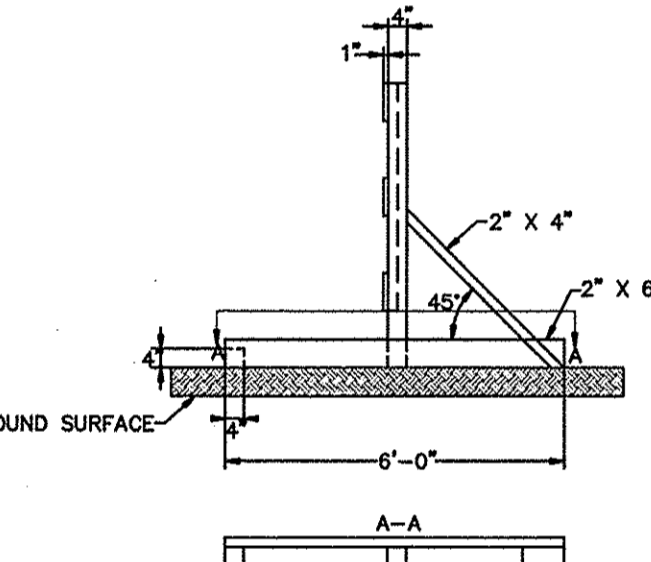
NOTE:
 1. STRUCTURAL DESIGN OF END SECTION SHALL CONFORM WITH THAT OF STANDARD REINFORCED CONCRETE.

PIPE DIAMETER	WALL THICKNESS	SLOPE	B	C	D	E	UNIT WEIGHT
12	2 1/4	3:1	24	49	73	24	730
15	2 1/4	3:1	27	46	73	30	910
18	2 1/2	3:1	27	46	73	36	1190
21	2 3/4	3:1	36	37	73	42	1370
24	3	3:1	42	31	73	48	1770
27	3 1/4	3:1	48	25	73	54	2130
30	3 1/2	3:1	54	19	73	60	2380
33	3 3/4	3:1	60	36	96	66	3670
36	4	3:1	63	34	97	72	5320
42	4 1/2	3:1	63	35	98	78	5920
48	5	3:1	72	26	98	84	7470
54	5 1/2	2.4:1	66	34	100	90	8810
60	6	2:1	60	39	99	96	11160
72	7	2:1	78	21	99	108	13960

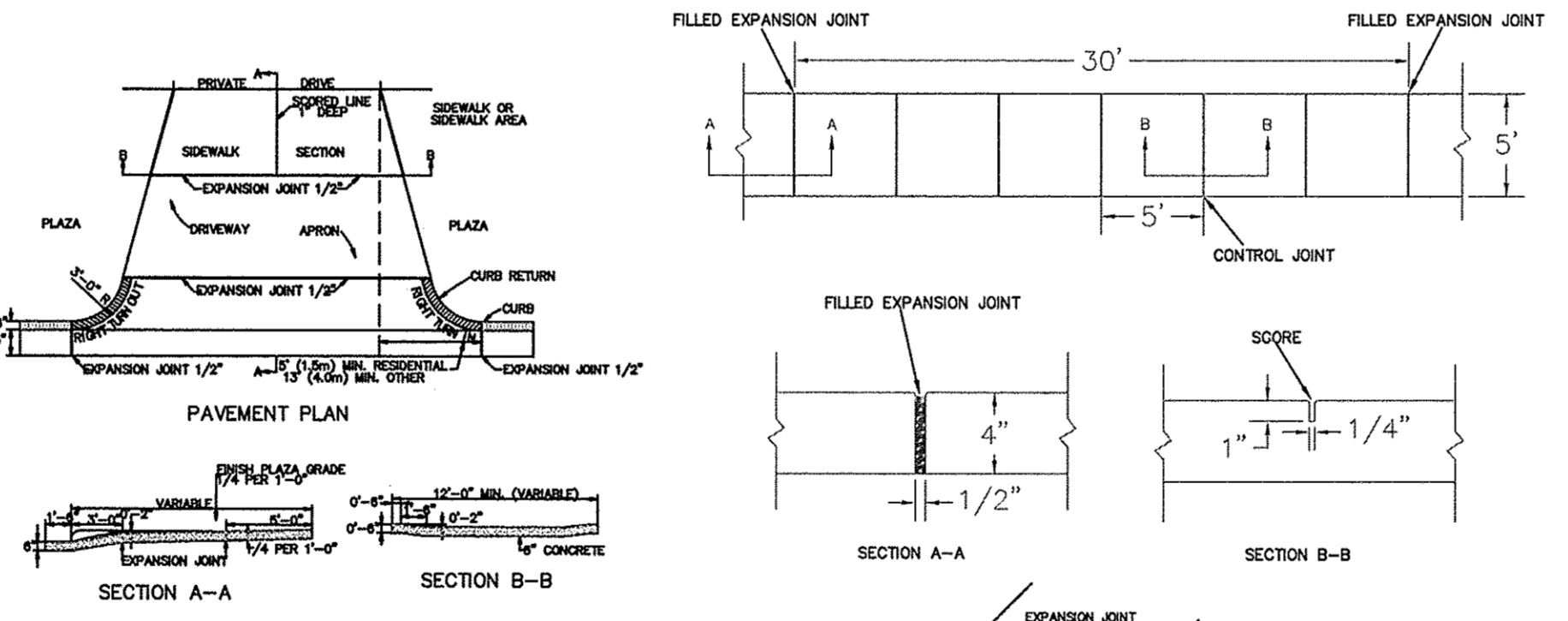
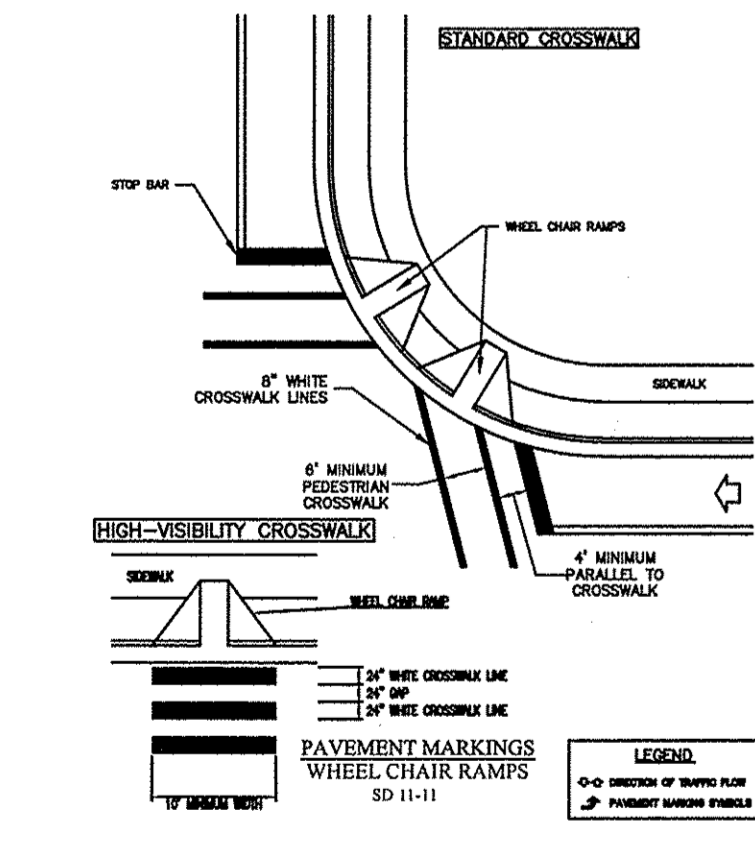
DIMENSIONS IN INCHES WEIGHTS IN POUNDS



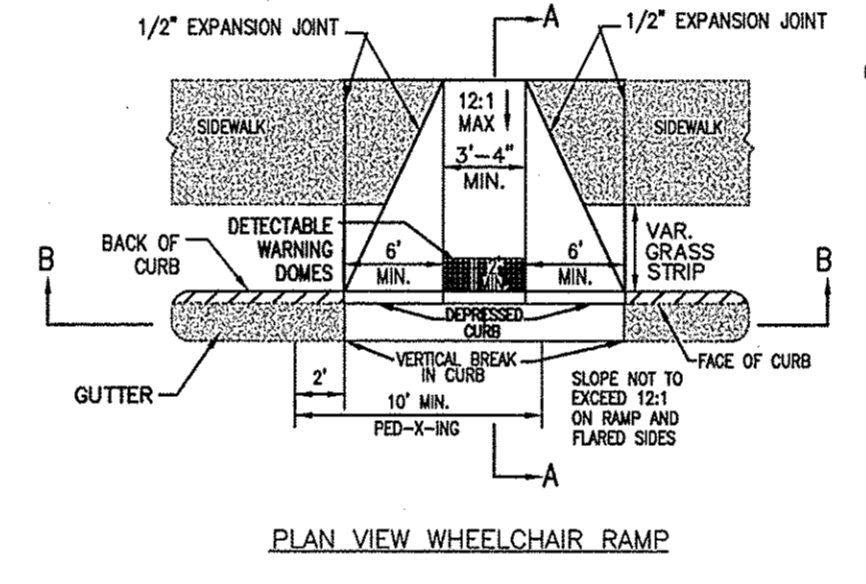
NOTES:
 * COMBINED CONCRETE CURB & GUTTER, CONCRETE SIDEWALK AND DRIVEWAYS TO BE 3000 POUNDS STRENGTH CONCRETE.
 * SCORE JOINTS TO BE PLACED EVERY 5' ACROSS SIDEWALK, IN SIDEWALK AREA OF DRIVEWAYS.
 * EXPANSION JOINTS TO BE PLACED ACROSS SIDEWALK EVERY 30'.
 * EXPANSION JOINTS TO BE PLACED BETWEEN SIDEWALK AND CURB, SIDEWALK AND DRIVEWAY, AND DRIVEWAY AND CURB RETURN WHERE THEY ADJOIN.



NOTES:
 * BACKFILL TO BE INSTALLED IN 6" LIFTS (MAXIMUM) AND COMPACTED TO A MINIMUM DENSITY OF 95% AS DETERMINED BY THE MODIFIED A.A.S.H.T.O. STANDARD METHOD T-99.
 * CUT - BACK TO BE PREPARED AFTER TRENCH BACKFILLING AND COMPACTION.



GUIDELINES FOR WHEELCHAIR RAMPS & DEPRESSED CURBS



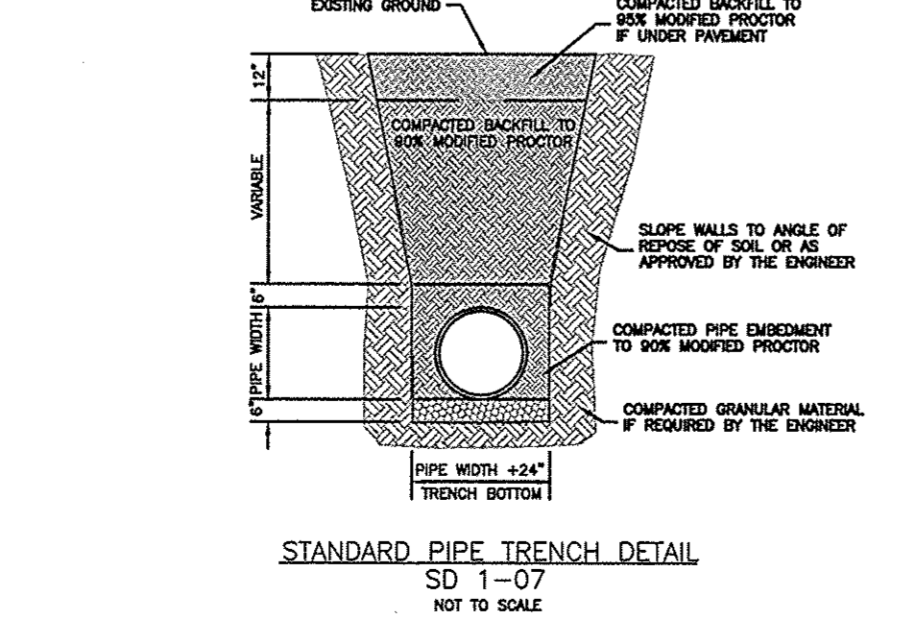
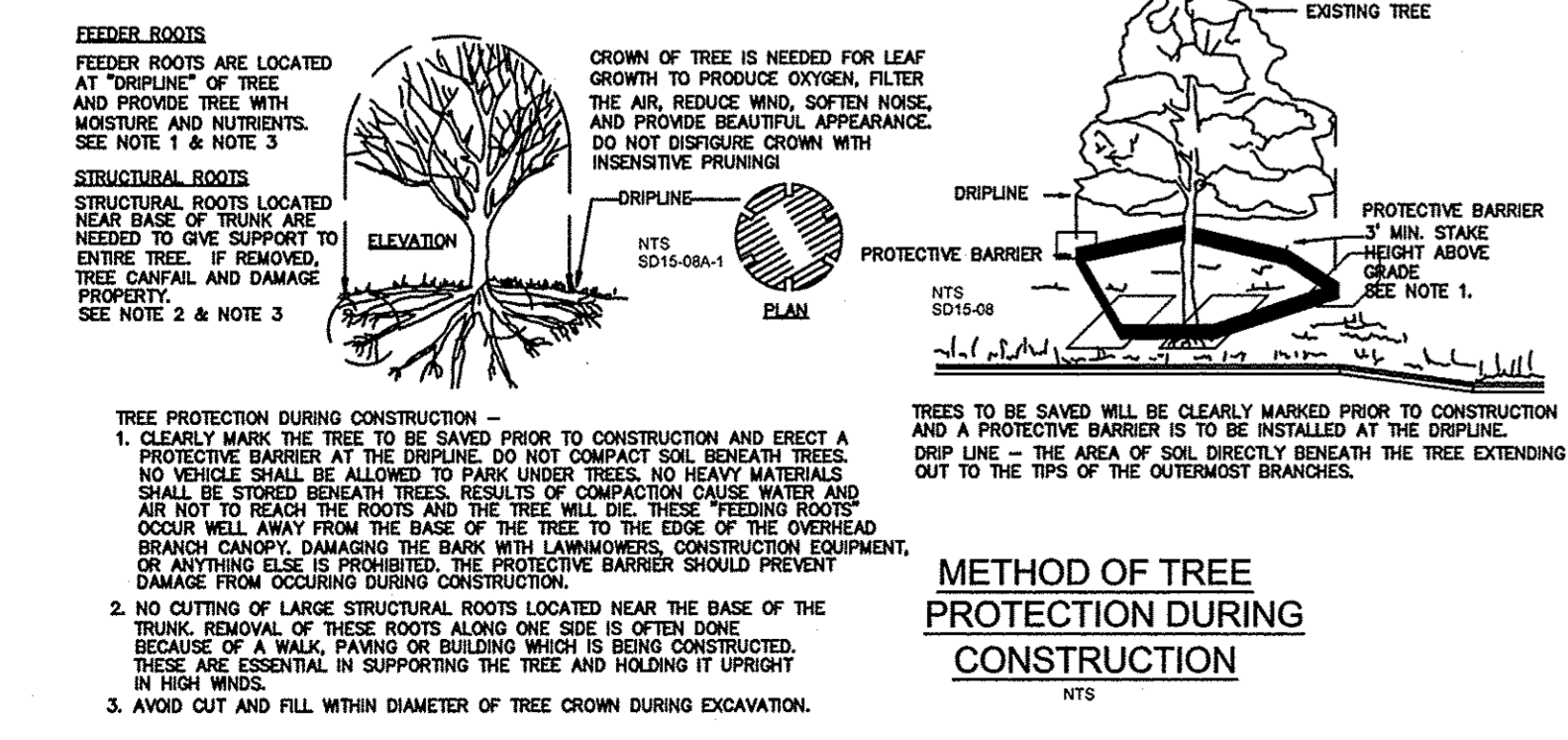
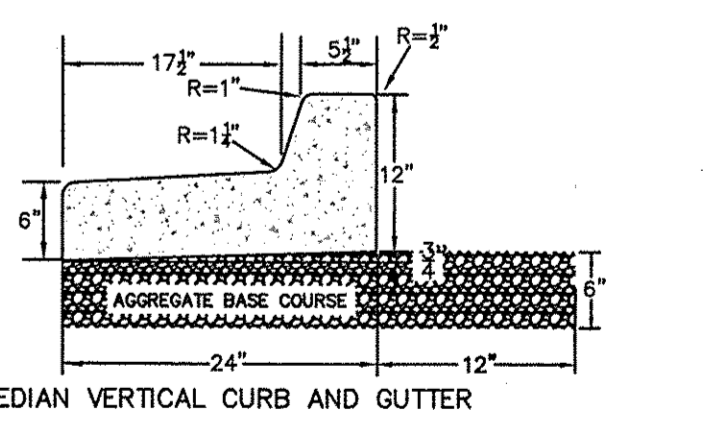
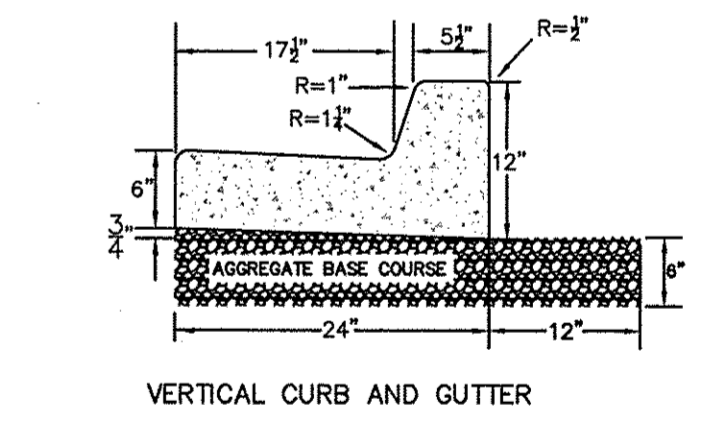
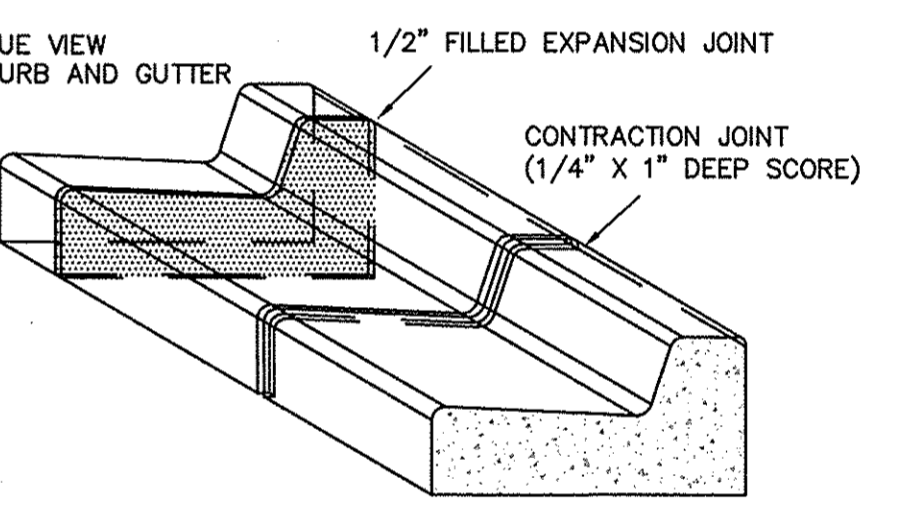
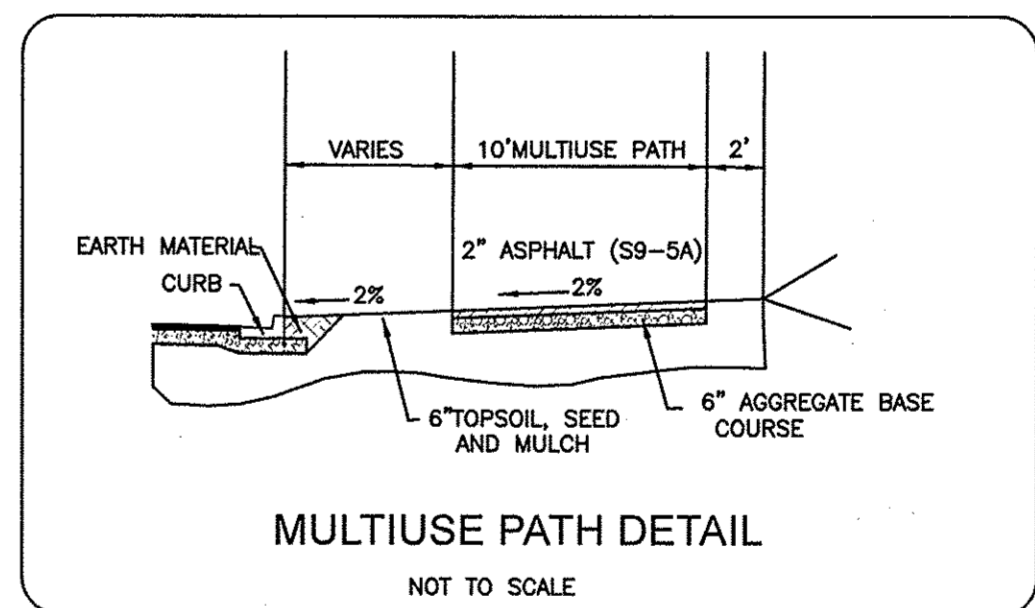
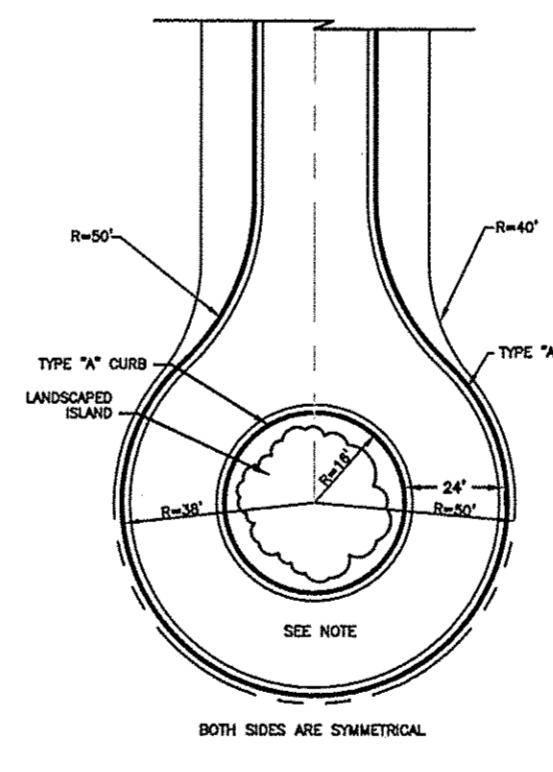
GENERAL NOTES:
 1. LOCATION OF WHEELCHAIR RAMPS:
 a. IN ACCORDANCE WITH THE RAISED WHEEL RAMP 1294, ALL STREET CURBS IN NORTH CAROLINA BEING CONSTRUCTED OR RECONSTRUCTED FOR MAINTENANCE PROCEDURES, TRAFFIC OPERATIONS, REPAIRS, CORRECTION OF UTILITIES OR ALTERED FOR ANY REASON AFTER SEPTEMBER 1975 SHALL PROVIDE WHEELCHAIR RAMPS FOR THE PHYSICALLY HANDICAPPED AT ALL INTERSECTIONS WHERE BOTH CURB AND GUTTER AND SIDEWALKS ARE PROVIDED AND AT OTHER MAJOR POINTS OF PEDESTRIAN FLOW.
 b. WHEELCHAIR RAMPS SHOULD BE LOCATED AS INDICATED IN DETAIL DRAWINGS, HOWEVER EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. MAY AFFECT PLACEMENT.
 2. CONSTRUCTION NOTES:
 a. NO SLOPE SHALL EXCEED 1/4" (2:1) ON THE RAMP OR SIDEWALK.
 b. IN NO CASE SHALL THE WIDTH OF WHEELCHAIR RAMPS BE LESS THAN 4' (3'-4"). WIDTHS MAY EXCEED 4' IF NECESSARY.
 c. USE CLASS "A" CONCRETE WITH THE SURFACE HAVING A ROUGH, NON-SLIP TYPE FINISH.
 d. 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE CONCRETE WHEELCHAIR RAMP JOINS ANY ROAD PAVEMENT OR STRUCTURE.
 e. CONSTRUCTION METHODS SHALL CONFORM WITH THOSE OF THE GOVERNING BODY WHICH HAS JURISDICTION OF THE PARTICULAR STREET.
 3. ADDITIONAL NOTES:
 a. THE INSIDE PEDESTRIAN CROSSWALK LINES SHALL BE ESTABLISHED BY BISECTING THE INTERSECTION RAMP WIDTH MARKED (SEE NOTE 4).
 b. THE WHEELCHAIR RAMP SHALL BE LOCATED SO THAT THE BEGINNING OF THE WHEEL CHAIR RAMP WILL BE TWO FEET FROM THE INSIDE PEDESTRIAN CROSSWALK LINE.
 c. THE WIDTH OF THE PEDESTRIAN CROSSWALK SHALL BE 10 FEET UNLESS A GREATER WIDTH IS REQUIRED TO ACCOMMODATE THE PEDESTRIAN TRAFFIC.
 d. STOP SIGNS SHALL BE USED WHERE IT IS IMPORTANT TO INDICATE THE POINT BEHIND WHICH VEHICLES ARE REQUIRED TO STOP IN COMPLIANCE WITH A TRAFFIC SIGNAL, STOP SIGN, OR OTHER LEGAL REQUIREMENTS.
 e. PARKING SHALL BE ELIMINATED A MINIMUM OF 20 FEET BACK OF PEDESTRIAN CROSSWALK.
 f. ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION. THIS IS AVAILABLE FROM THE SUPERINTENDENT OF DOCUMENTS, U.S. GOVERNMENT.

GUIDELINES FOR WHEELCHAIR RAMPS

SD 8-10

GUIDELINES FOR WHEELCHAIR RAMPS & DEPRESSED CURBS

SD 8-10 NOT TO SCALE



GUIDELINES FOR Sidewalks SD 3-10
 1. JOINT MATERIAL TO COMPLY WITH CURRENT NCDOT STANDARDS.
 2. SANITARY SEWER CLEAN-OUTS, WATER METERS, MANHOLES, AND VALVE LIDS TO BE LOCATED OUTSIDE SIDEWALK WHERE FEASIBLE.
 3. MINIMUM SIDEWALK WIDTH TO BE 6' MINIMUM IF PLACED AT BACK OF CURB.
 4. CONCRETE FOR ALL SIDEWALKS (EXCEPT ANY PORTION CONTAIN WITHIN A DRIVEWAY APRON) SHALL BE CLASS "A" - 3,000 PSI.
 5. MINIMUM REPLACEMENT FOR REPAIRS IS A 5' X 5' PANEL.
 6. 4" STONE BASE MAY BE REQUIRED FOR POOR SOIL CONDITIONS.
 7. MINIMUM DEPTH FOR TUNNELING BELOW SIDEWALK IS 12".
 8. MAX ADJACENT GROUND SLOPE WITHOUT RAILING IS 2:1.
 9. MIN GRADE FOR PROPER DRAINAGE IS 1% IN AT LEAST 1 DIRECTION. MAX CROSS SLOPE IS 2%. MAX LONGITUDINAL SLOPE IS 6.3% 10% IF LIMITED BY EXISTING CONDITIONS OR NO GREATER THAN THE SLOPE OF THE EXISTING ADJACENT ROAD.

TYPICAL DETAILS

REV. NO.	DESCRIPTION	DATE
2	Major Revision	1-30-15
1	REVISED AS PER CITY COMMENTS	12-3-14
1	REVISIONS	DATE

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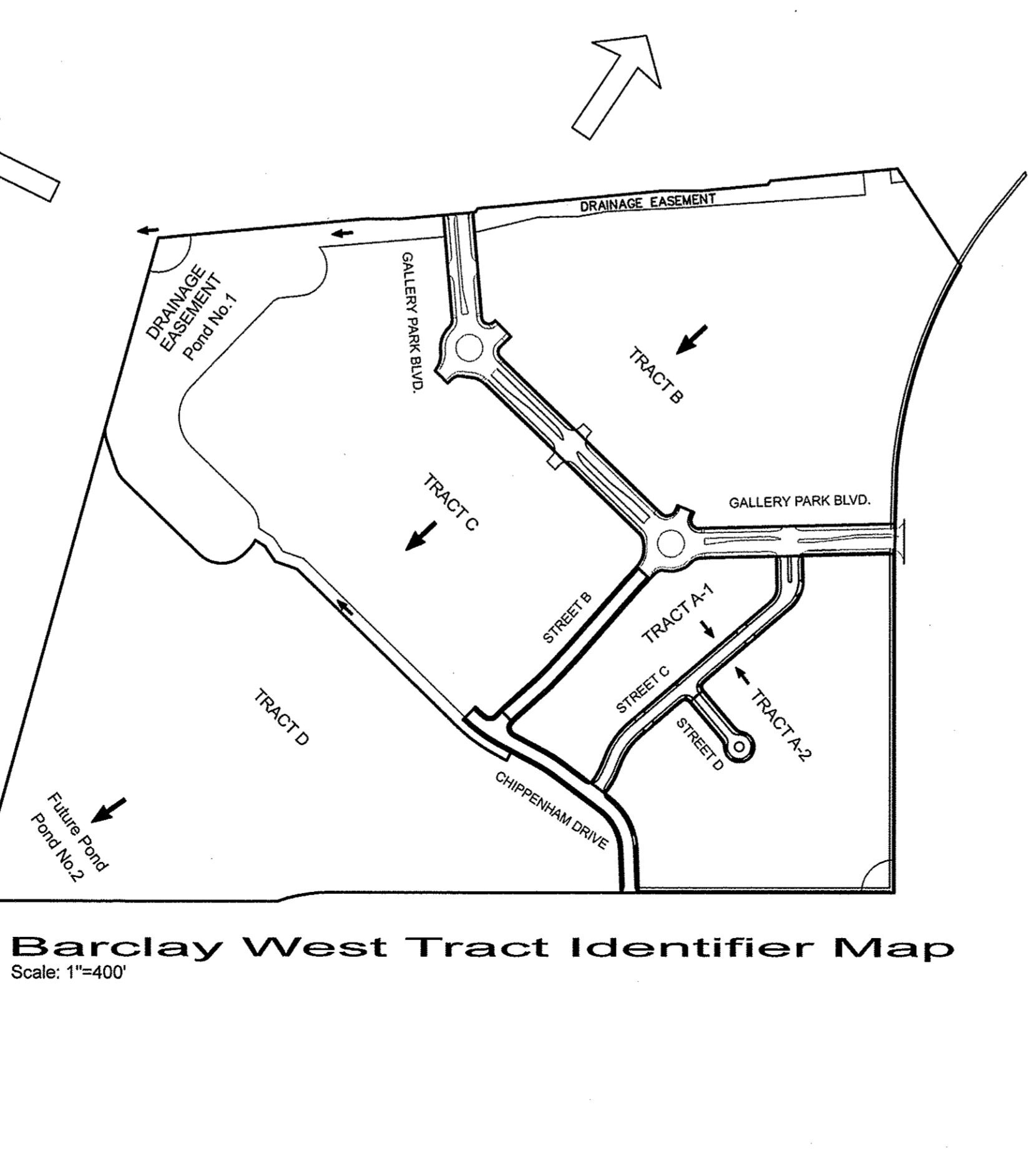
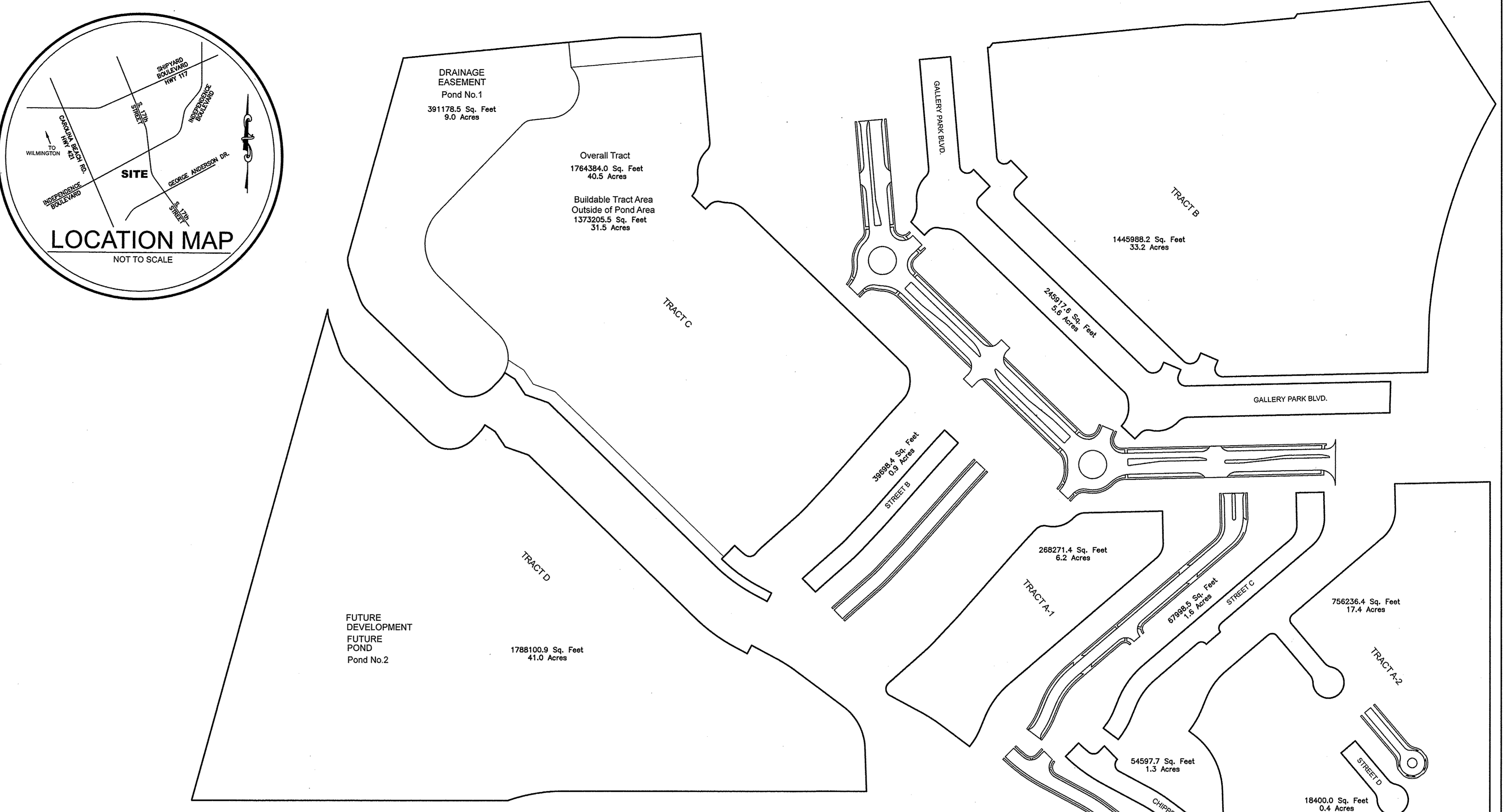
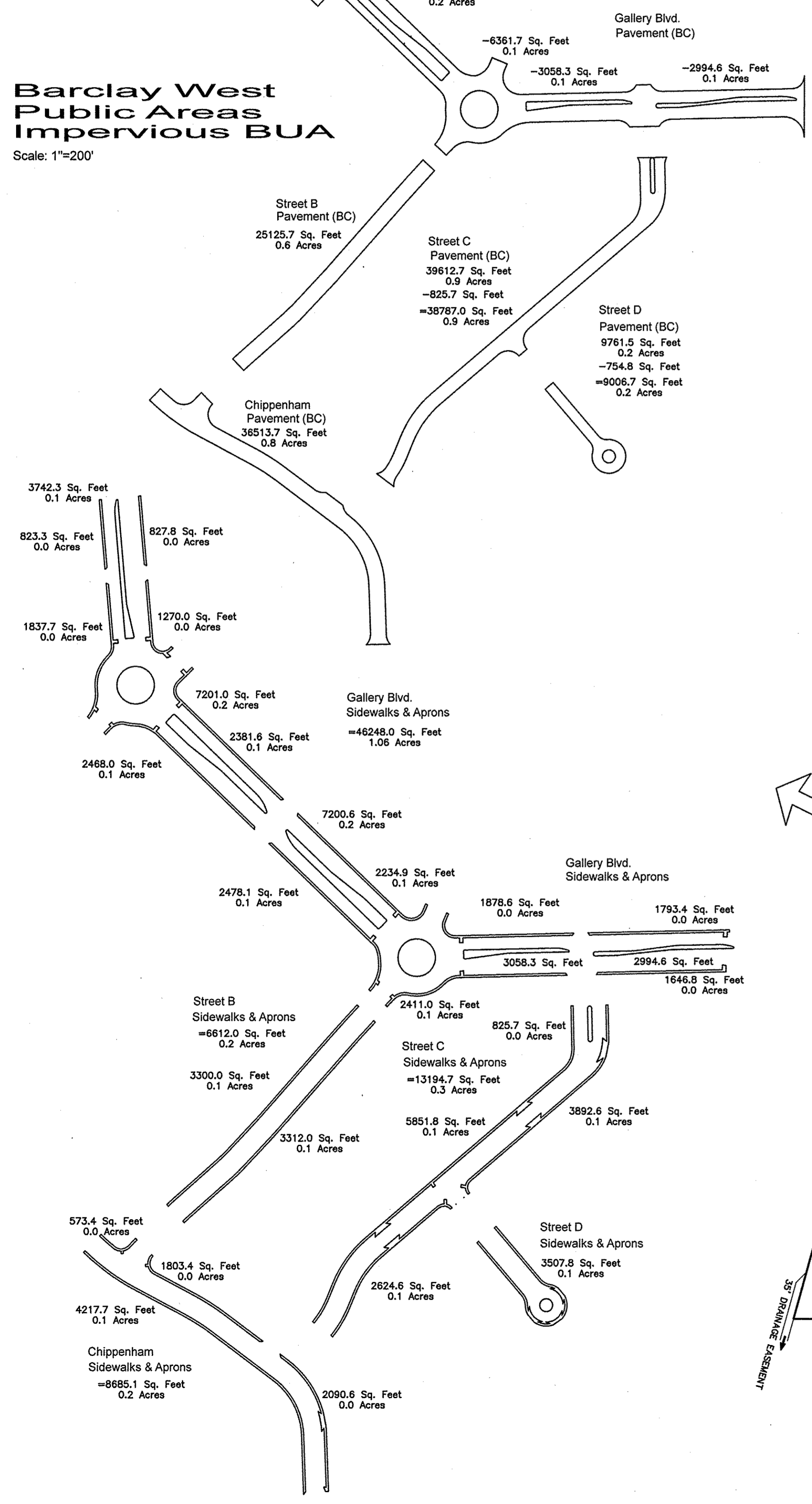
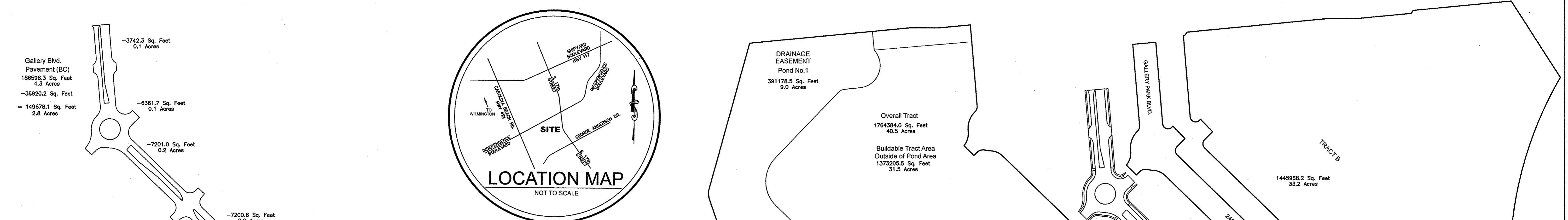
BARCLAY WEST
 LOCATED IN THE CITY OF WILMINGTON NEW HANOVER COUNTY, NORTH CAROLINA

OWNER: BARCLAY WEST APARTMENTS, LLC
 P.O. BOX 2562
 MOUNT PLEASANT, SC 29465 PH 843-324-5424

HANOVER DESIGN SERVICES, P.A.
 LAND SURVEYORS, ENGINEERS & LAND PLANNERS
 1123 FLORAL PARKWAY
 WILMINGTON, N.C. 28403
 PHONE: (910) 343-6002

10-3-14
 N/A
 Project No:
 Sheet No: 10
 Of: 10

FINAL DESIGN NOT RELEASED FOR CONSTRUCTION



Barclay West - Pond No.1 Areas

Tract	Area	Impervious (BUA)	Forebay	Street	Area	Pvmt (BC)	SW, Islands	Street BUA	Forebay
	sf	sf (@75%)	No.		sf	sf	sf	sf	No.
A-1	268,271	201,203	2						
A-2	756,236	567,177	2	Gallery Blvd	245,918	149,678	46,248	195,926	1
B	1,445,988	1,084,491	1	Street B	39,698	25,126	6,612	31,738	2
overall C	1,764,384	NA	NA	Street C	67,999	38,787	13,195	51,982	2
(-) DE	391,179	NA	NA	Street D	18,400	9,007	3,506	12,515	2
net C	1,373,205	1,029,904	2	Chippenham	54,598	36,514	8,685	45,199	2
D	1,785,101								
FUTURE POND									
Totals Tracts	3,843,700	2,882,775		Total Streets	426,613	259,112	78,248	337,360	
Total DA	4,661,482			Total Impervious	3,220,135			Total BUA %	69%
	107.01	acres							
Area into Forebay 1		1,691,906	40%						
Area into Forebay 2		2,578,407	60%						
Stormwater Management:									
Pre-developed CN		55		4,661,482					
Post-developed CN grass		61		1,441,357					
Post-developed CN BUA		98		3,220,135					
Composite Post-developed CN		86		4,661,482					

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

STORMWATER MANAGEMENT PLAN APPROVED CITY OF WILMINGTON ENGINEERING DEPARTMENT DATE PERMIT # SIGNED

Approved Construction Plan Name Date Planning Traffic Fire

Barclay West Tract Areas Summary Spreadsheet

Scale: NTS

REV. NO.	REVISIONS	DATE
1	MAJOR REVISION TO GALLERY PARK BOULEVARD	1-30-15

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Water Quality Pond Plans - Drainage and BUA Areas

Barclay West
Regional Pond No.1 Plans & Profiles and Details
CITY OF WILMINGTON NEW HANOVER COUNTY, NORTH CAROLINA

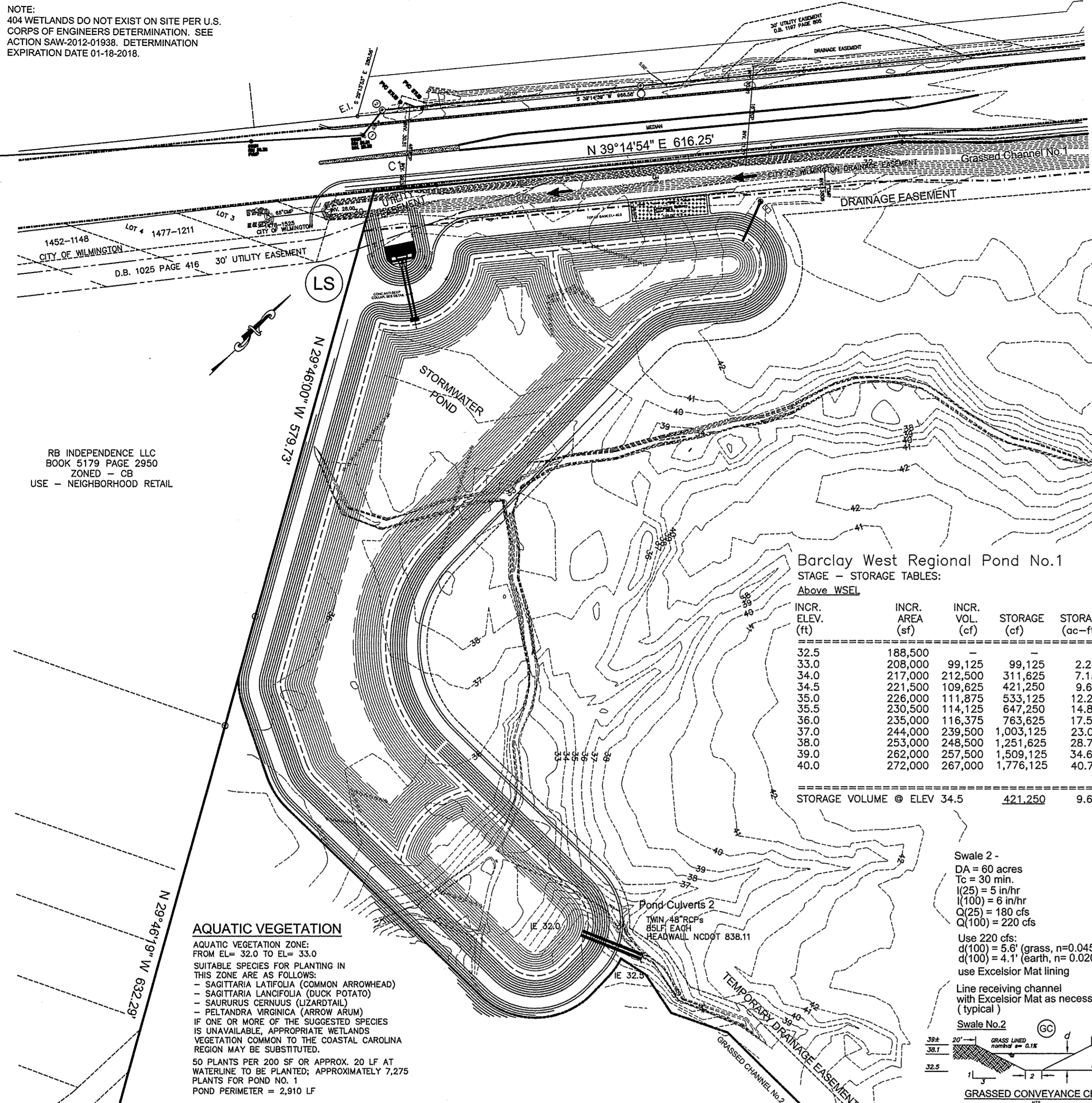
OWNER: CAMERON PROPERTIES LAND COMPANY, LLC
1201 GLEN MEADE ROAD
WILMINGTON, NC 28403
910-762-2676

HANOVER DESIGN SERVICES, P.A.
LAND SURVEYORS, ENGINEERS & LAND PLANNERS
1125 FLORAL PARKWAY
WILMINGTON, N.C. 28403
PHONE: (910) 343-8002 LICENSE No. :C-0582

Date: 10-6-14
Scale: AS SHOWN
Drawn: DSH
Checked: GAW
Project No: 12498
Sheet No: P1
3

NOTE:
404 WETLANDS DO NOT EXIST ON SITE PER U.S. CORPS OF ENGINEERS DETERMINATION. SEE ACTION GAW-2012-01938. DETERMINATION EXPIRATION DATE 01-18-2016.

RB INDEPENDENCE LLC
BOOK 5179 PAGE 2950
ZONED CB
USE - NEIGHBORHOOD RETAIL



Barclay West Regional Pond No. 1
STAGE - STORAGE TABLES:

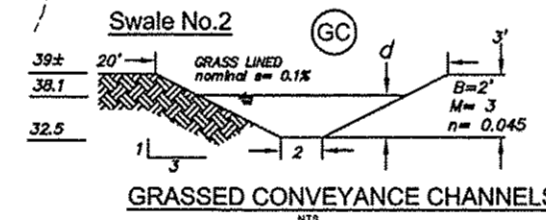
Above WSEL				
INCR. ELEV. (ft)	INCR. AREA (sq ft)	INCR. VOL. (cf)	STORAGE (cf)	STORAGE (ac-ft)
32.5	188,500	-	-	-
33.0	208,000	99,125	99,125	2.28
34.0	217,000	212,500	311,625	7.15
34.5	221,500	109,825	421,250	9.67
35.0	226,000	111,875	533,125	12.24
35.5	230,500	114,125	647,250	14.86
36.0	235,000	116,375	763,625	17.53
37.0	244,000	239,500	1,003,125	23.03
38.0	253,000	248,500	1,251,625	28.73
39.0	262,000	257,500	1,509,125	34.64
40.0	272,000	267,000	1,776,125	40.77

STORAGE VOLUME @ ELEV 34.5 421,250 9.67

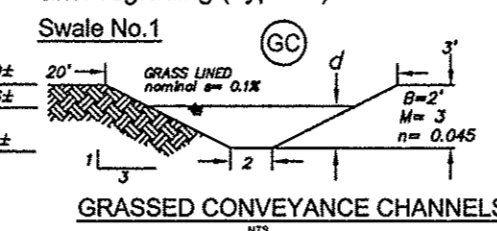
AQUATIC VEGETATION

AQUATIC VEGETATION ZONE:
FROM EL= 32.0 TO EL= 33.0
SUITABLE SPECIES FOR PLANTING IN THIS ZONE ARE AS FOLLOWS:
- SAGITTARIA LATIFOLIA (COMMON ARROWHEAD)
- SAGITTARIA LANIFOLIA (BUCK POTATO)
- SAURURUS CERNUUS (LIZARDTAIL)
- PELTANDRA VIRGINICA (ARROW ARUM)
IF ONE OR MORE OF THE SUGGESTED SPECIES IS UNAVAILABLE, APPROPRIATE WETLANDS VEGETATION COMMON TO THE COASTAL CAROLINA REGION MAY BE SUBSTITUTED.
50 PLANTS PER 200 SF OR APPROX. 20 LF AT WATERLINE TO BE PLANTED; APPROXIMATELY 7,275 PLANTS FOR POND NO. 1
POND PERIMETER = 2,910 LF

Swale 2 -
DA = 60 acres
Tc = 30 min.
V(25) = 5 in/hr
Q(100) = 6 in/hr
Q(25) = 180 cfs
Q(100) = 220 cfs
Use 220 cfs.
d(100) = 5.6' (grass, n=0.045) v= 2.1 fps
d(100) = 4.1' (earth, n= 0.020) v= 3.8 fps
use Excelsior Mat lining
Line receiving channel with Excelsior Mat as necessary (typical)



Swale 1 -
d(100) = 6.0' (grass, n=0.045) v= 2.2 fps
d(100) = 6.0' (earth, n= 0.020) v= 4.9 fps
use Excelsior Mat lining
Channel capacity is 260+ cfs:
Line receiving channel with Excelsior Mat as necessary after regrading (typical)

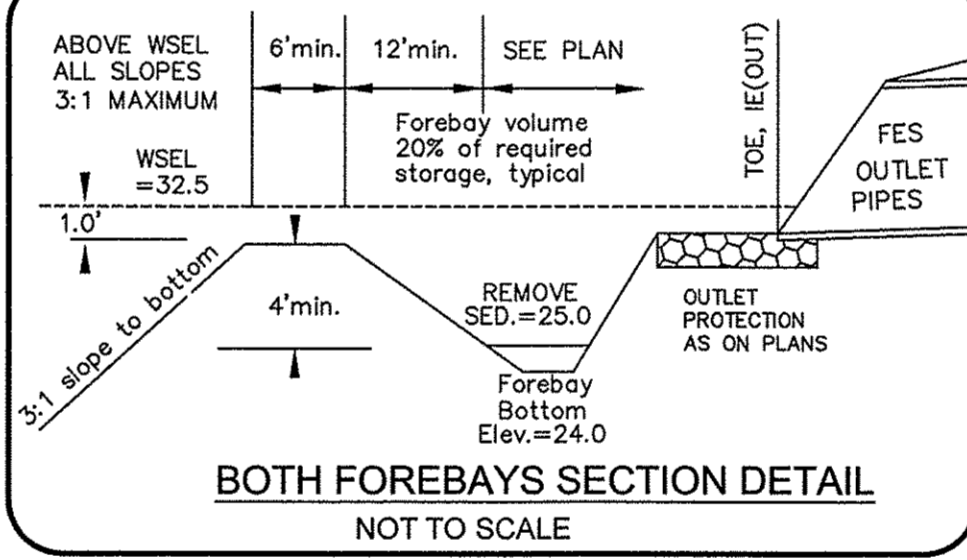


SB
Sediment Basin

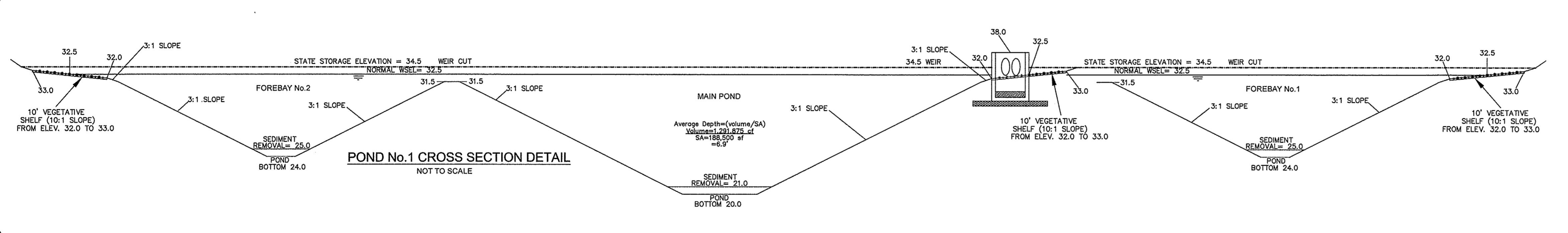
Specifications # 6.61 - Construction Specifications
1. Site preparations - Clear, grub and strip topsoil from areas under the embankment to remove trees, vegetation, roots and other objectionable material. Delay clearing the pool area until the dam is complete and then remove brush, trees and other objectionable materials to facilitate sediment cleanout. Stockpile all topsoil or soil containing organic matter for use on the outer shell of the embankment to facilitate vegetative establishment. Place temporary sediment control measures below the basin as needed.
2. Cut-off trench - Excavate a cut-off trench along the centerline of the earth fill embankment. Cut the trench to stable soil material, but in no case make it less than 2 ft. deep. The cut-off trench must extend into both abutments to at least the elevation of the riser crest. Make the minimum bottom width wide enough to permit operation of excavation and compaction equipment but in no case less than 2 ft. Make side slopes of the trench no steeper than 1:1. Compaction requirements are the same as those for the embankment. Keep the trench dry during backfilling and compaction operations.
3. Embankment - Take fill material from the approved areas shown on the plans. It should be clean mineral soil, free of roots, woody vegetation, rocks and other objectionable material. Scarify areas on which fill is to be placed before placing fill. The fill material must contain sufficient moisture so it can be formed by hand into a ball without crumbling. If water can be squeezed out of the ball, it is too wet for proper compaction. Place fill material in 6 to 8-inch continuous layers over the entire length of the fill area and then compact it. Compaction may be obtained by routing the construction hauling equipment over the fill so that the entire surface of each layer is traversed by at least one wheel or tread track of the heavy equipment, or a compactor may be used. Conduct the embankment to an elevation 10% higher than the design height to allow for settling.
4. Conduit spillways - Securely attach the riser to the barrel or barrel stub to make a watertight structural connection. Secure all connections between barrel sections by approved watertight assemblies. Place the barrel and riser on a firm, smooth foundation of impervious soil. Do not use pervious material such as sand, gravel, or crushed stone as backfill around the pipe or anti-seep collars. Place the fill material around the pipe spillway in 4-inch layers and compact it under and around the pipe to at least the same density as the adjacent embankment. Care must be taken not to rotate the pipe from firm contact with its foundation when compacting under the pipe haunches. The achievement of planned elevations, grade, design width, and entrance and exit channel slopes are critical to the successful operation of emergency spillway.
5. Inlets - Discharge water into the basin in a manner to prevent erosion. Use dividers with outlet protection to divert sediment-laden water to the upper end of the pool area to improve basin top efficiency. (References: Runoff Control Measures and Outlet Protection).
6. Erosion control - Construct the structure so that the disturbed area is minimized. Divert surface water away from bare areas. Complete the embankment before the area is cleared. Stabilize the emergency spillway embankment and all other disturbed areas above the crest of the principal spillway immediately after construction. (References: Surface Stabilization).
7. Safety - Sediment basins may attract children and can be dangerous. Avoid steep side slopes, and fence and mark basins with warning signs if trespassing is likely. Follow all state and local requirements.
Maintenance
Check sediment basins after periods of significant runoff. Remove sediment and restore the basin to its original dimensions when sediment accumulates to one-half the design depth.
Check the embankment, spillways, and outlet for erosion damage, and inspect the embankment for piping and settlement. Make all necessary repairs immediately. Remove all trash and other debris from the riser and pool area.

OP
Outlet Stabilization Structure

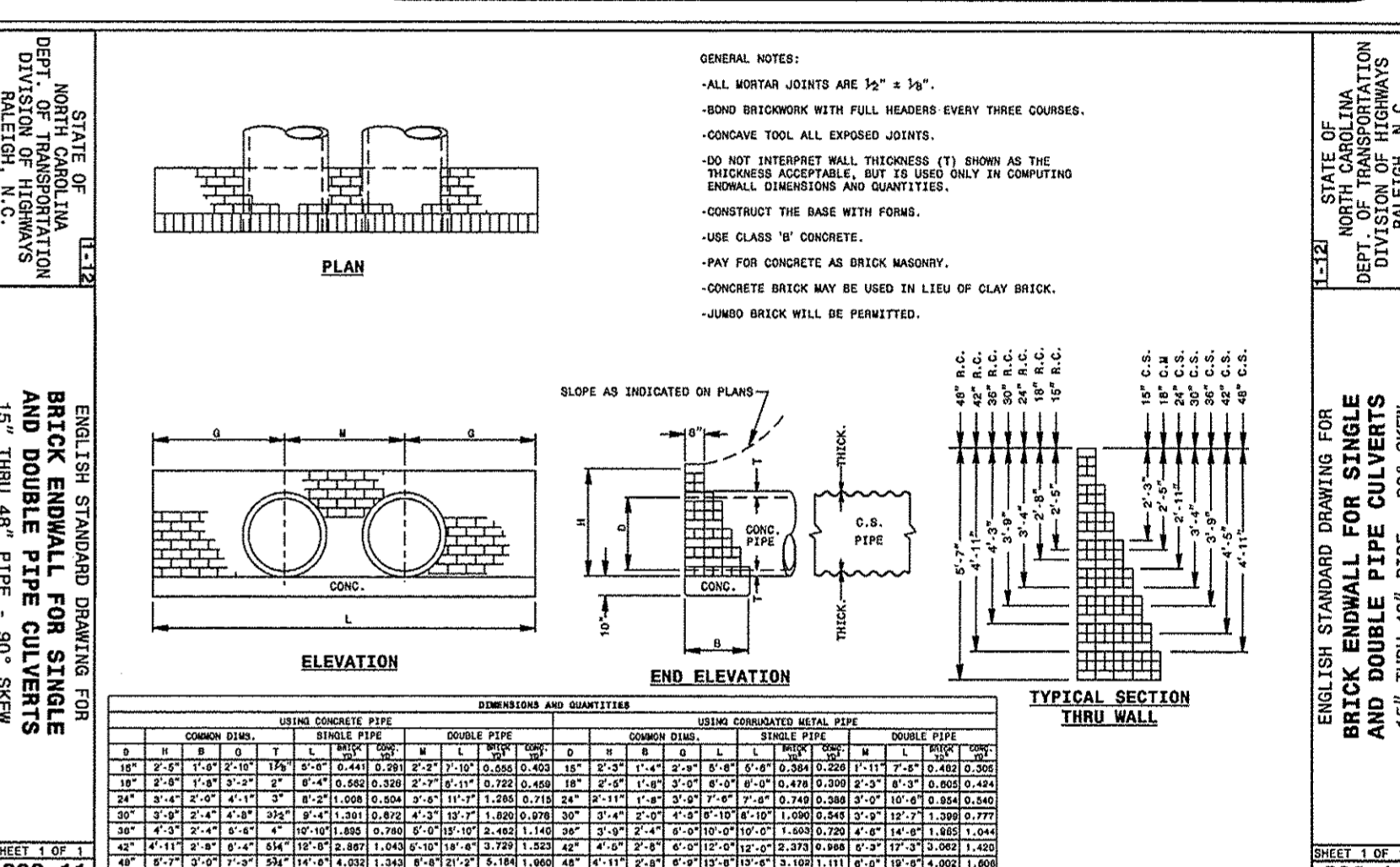
Specifications # 5.41 - Construction Specifications
1. Ensure that the subgrade for the filter and riprap follows the required lines and grades shown in the plan. Compact any fill required in the subgrade to the density of the surrounding undisturbed material. Low areas in the subgrade on undisturbed soil may also be filled by increasing the riprap thickness.
2. The riprap and gravel filter must conform to the specified grading limits shown on the plans.
3. Filter cloth, when used, must meet design requirements and be properly protected from punching or tearing during installation. Repair any damage by removing the riprap and placing another piece of filter cloth over the damaged area. All connecting joints should overlap a minimum of 1 ft. If the damage is extensive, replace the entire filter cloth.
4. Riprap may be placed by equipment, but take care to avoid damaging the filter.
5. The minimum thickness of the riprap should be 1.5 times the maximum stone diameter.
6. Riprap may be field stone or rough quarry stone. It should be hard, angular, highly weather-resistant and well graded.
7. Construct the apron on zero grade with no overfall at the end. Make the top of the riprap at the downstream end level with the receiving area or slightly below it.
8. Ensure that the apron is properly aligned with the receiving stream and preferably straight throughout its length. If a curve is needed to fit site conditions, place it in the upper section of the apron.
9. Immediately after construction, stabilize all disturbed areas with vegetation (Practice 6.10, Temporary Seeding, and 6.11, Permanent Seeding).
Maintenance
Inspect riprap outlet structures after heavy rains to see if any erosion around or below the riprap has taken place or if stones have been dislodged. Immediately make all needed repairs to prevent further damage.



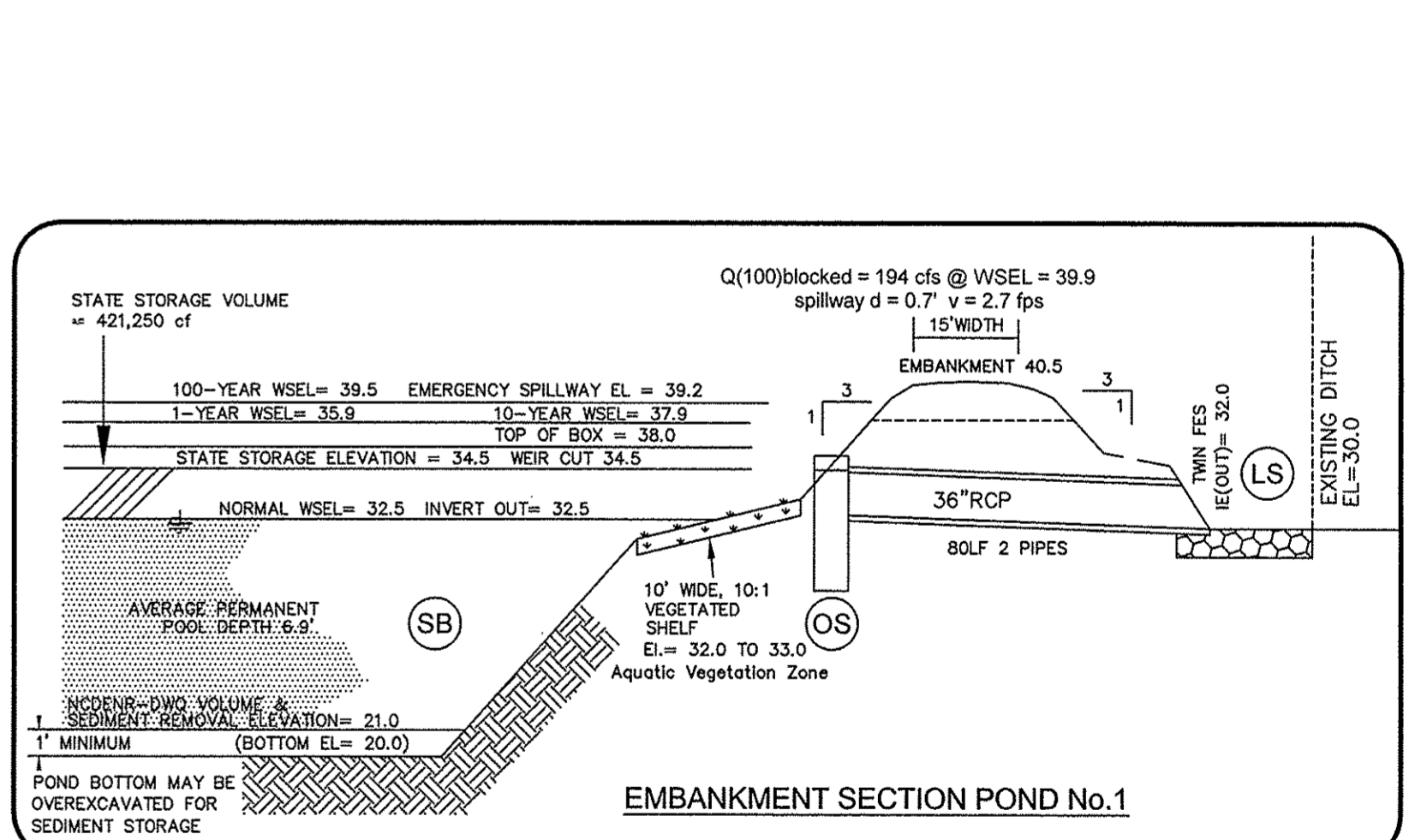
BOTH FOREBAYS SECTION DETAIL
NOT TO SCALE



POND No. 1 CROSS SECTION DETAIL
NOT TO SCALE



LEVEL SPREADER & ENERGY DISSIPATER
PLAN
N.T.S.



BANKMENT SECTION POND No. 1

RCP DIAMETER	La	W	d50	dMAX	APRON	REQ. STONE
ALL 18"	15'	15'	3"	6"	1'	approx. 7cy
ALL 24"	15'	15'	3"	6"	1'	approx. 7cy
ALL 30"	15'	15'	3"	6"	1'	approx. 7cy
ALL 36"	30'	15'	3"	6"	1'	approx. 14cy
ALL 48"	20'	20'	3"	6"	1'	approx. 13cy
ALL 54"	20'	20'	3"	6"	1'	approx. 13cy
ALL 60"-66"	20'	20'	3"	6"	1'	approx. 13cy
ROCK STABILIZING APRON	La	W	d50	dMAX	APRON	REQ. STONE
TWIN 48"	20'	20'	3"	6"	1'	approx. 13cy
TWIN 36"	10'	15'	3"	6"	1'	approx. 6cy
TWIN 24"	10'	15'	3"	6"	1'	approx. 6cy
TWIN 18"	10'	15'	3"	6"	1'	approx. 6cy

NOTE: FILTER FABRIC IS TO BE PLACED UNDER ALL STONE INLET AND OUTLET PROTECTION. USE NICOLON MIRAFL 600X POLYPROPYLENE, OR EQUIVALENT

PEAK DISCHARGE SUMMARY -
Q(1) pre-developed = 11.2 cfs
Q(10) pre-developed = 54.0 cfs
Q(25) pre-developed = 81.1 cfs
Q(50) pre-developed = 104.2 cfs
Q(1) post-developed = 8.7 cfs @ WSEL = 35.9
Q(10) post-developed = 43.3 cfs @ WSEL = 37.9
Q(25) post-developed = 81.5 cfs @ WSEL = 38.7
Q(50) post-developed = 117.8 cfs @ WSEL = 39.2
Q(100) post-developed = 185.3 cfs @ WSEL = 39.5
Q(100) post-BLOCKED = 194.2 cfs @ WSEL = 39.9
STATE WATER QUALITY POND CONSIDERATIONS -
Surface Area required = 158,500 sf
Surface Area provided = 188,500 sf @ WSEL 32.5
Storage Volume required = 389,600 cf
Storage Volume provided = 421,250 cf @ WSEL 34.5
Storage Volume Drawdown Time = 3.5 days
SEDIMENTATION POND CONSIDERATIONS -
Storage required = 107.1 X 3600 = 385,500 cf
Storage provided = 1,713,000 cf ±
FOREBAY CALCULATION:
Forebay Volume = 264,750 cf (20%)

Barclay West Regional Pond No. 1
Wet detention/retention pond
Additional Calculation Summary for NCDENR / DWO:
WATER QUALITY CONSIDERATIONS -
Impervious area calculations: See Project Data Sheet
TOTAL IMPERVIOUS = 3,204,085 sf
TOTAL AREA DRAINING TO POND = 4,661,492 sf (107.01 acres)
SA REQUIRED: 3204085 / 4661492 = 0.69, or 69%
At 6.5' average depth, 90% TSS removal, from chart - SA/DA factor = 3.4
54,861,492 x 0.01 x 3.4 = 188,500 sf SA REQUIRED
At Elev. = 347.5 = 188,500 sf SA PROVIDED

REV. NO.	REVISIONS	DATE
1	REVISED AS PER CITY COMMENTS	12-02-14

Approved Construction Plan

Name _____ Date _____

Planning _____
Traffic _____
Fire _____

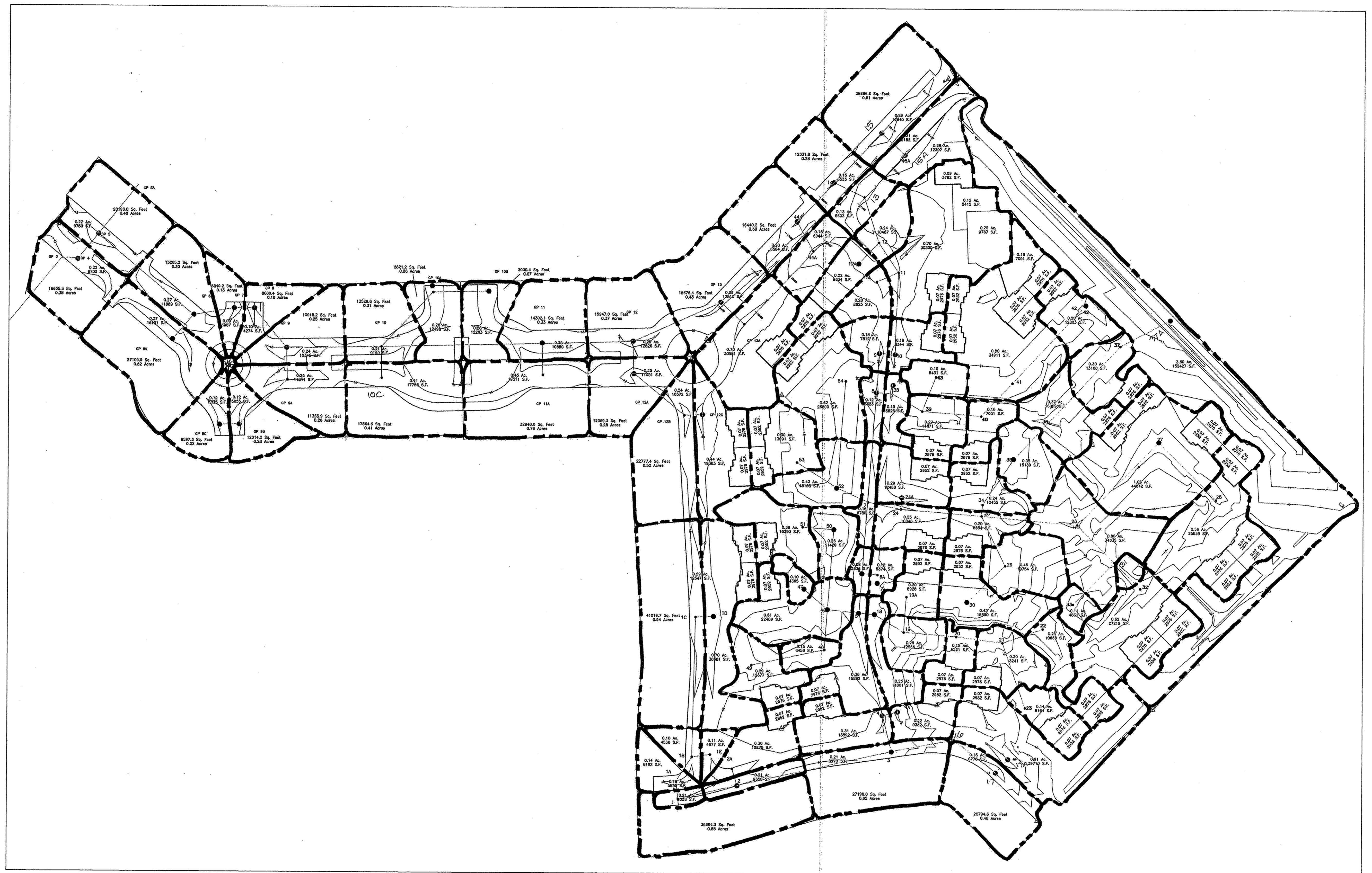
STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____
PERMIT # _____
SIGNED _____

Erosion & Sediment Control and Water Quality Pond Plans
Barclay West
Regional Pond No. 1 Plans & Profiles and Details
CITY OF WILMINGTON NEW HANOVER COUNTY, NORTH CAROLINA

OWNER: CAMERON PROPERTIES LAND COMPANY, LLC
1201 GLEN MEAD ROAD
WILMINGTON, NC 28403
910-762-2676

HANOVER DESIGN SERVICES, P.A.
LAND SURVEYORS, ENGINEERS & LAND PLANNERS
1123 FLORAL PARKWAY
WILMINGTON, N.C. 28403
PHONE: (910) 343-8002 LICENSE No.: Q-0882

Date: 10-6-14
Scale: 1" = 100'
Drawn: DSH
Checked: GAW
Project No: 12498
Sheet No: P2
Of: 3



For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

STORMWATER MANAGEMENT PLAN
 APPROVED
 CITY OF WILMINGTON
 ENGINEERING DEPARTMENT
 DATE _____
 PERMIT # _____
 SIGNED _____

Approved Construction Plan

	Name	Date
Planning	_____	_____
Traffic	_____	_____
Fire	_____	_____

Barclay West - Drainage Areas Forebay 1			
Inlet	Area	Inlet	Area
4	0.60	9B	0.40
5	0.68	9C	0.34
5A(future)	16.19	10	0.52
6A	0.57	10A	0.34
7	0.59	10B	0.35
8	0.22	10C	0.82
9	0.28	11	0.58
9A	0.52	11A	1.21

Barclay West - Drainage Areas Forebay 2							
Inlet	Area	Inlet	Area	Inlet	Area	Inlet	Area
1	0.01	8	0.12	19	0.29	32	0.80
1A	0.14	9	0.18	19A	0.27	33	0.11
1B	0.10	10	0.26	20	0.19	34	0.31
1C	1.23	11	1.20	21	0.37	35	0.35
1D	0.83	11A	0.20	22	0.38	36	0.44
1E	0.11	12	0.24	23	0.28	37	0.37
2	0.21	12A	0.29	24	0.32	37A	3.50
2A	0.37	24A	0.36	38	0.15	53	0.49
3	0.83	25	0.27	39	0.34	54	0.76
4	0.38	26	0.80	40	0.23		
4A	0.29	27	1.51	41	1.17		
5	0.43	16MH	0	28	1.01	42	0.36
6	0.08	17	0.64	29	0.45	43	0.16
6A	0.12	17A	0.98	30	0.50		
7	0.16	18	0.25	31	0.10		

Barclay West & Gallery Park Apartments Storm Sewer Drainage Areas Map

Scale: 1" = 100'

REV. NO.	REVISIONS	DATE
1	MAJOR REVISION TO GALLERY PARK BOULEVARD	1-30-15

Water Quality Pond Plans - Drainage and BUA Areas

Barclay West

Regional Pond No.1 Plans & Profiles and Details

CITY OF WILMINGTON NEW HANOVER COUNTY, NORTH CAROLINA

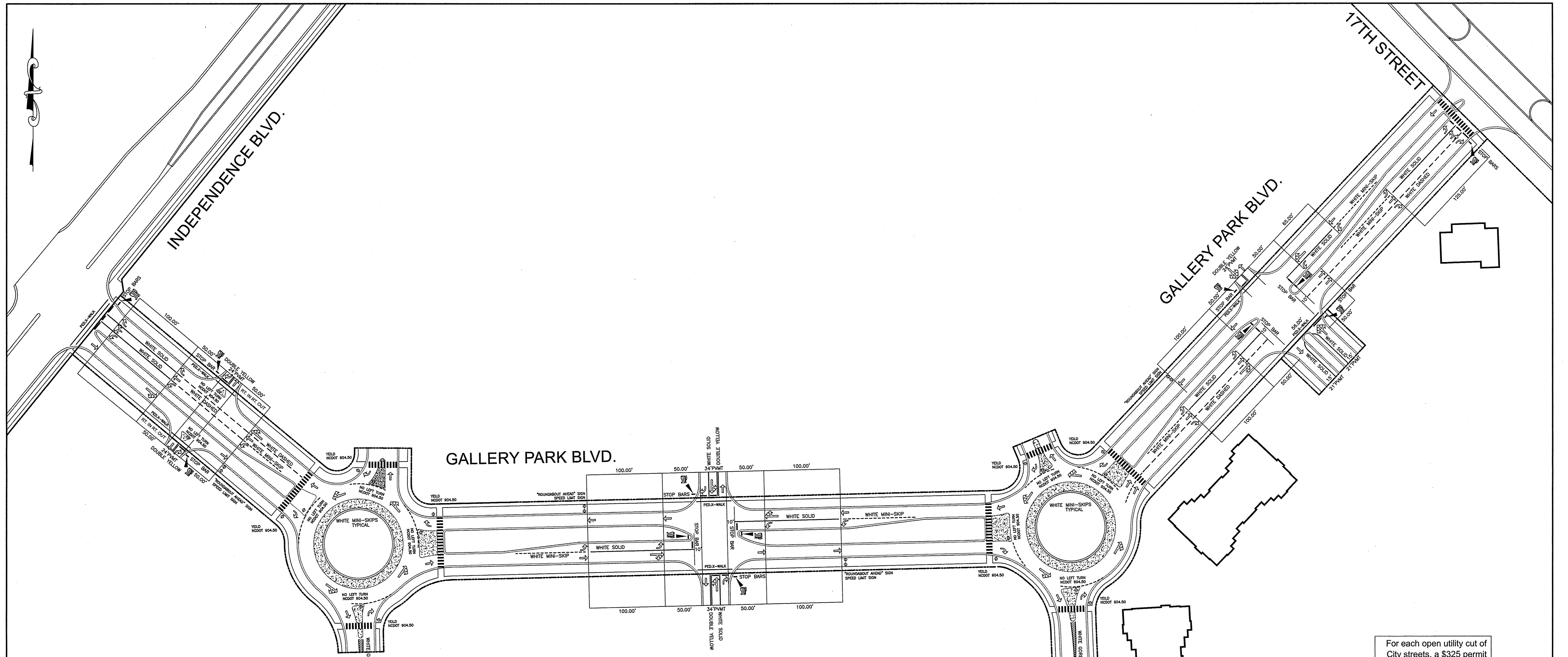
OWNER: CAMERON PROPERTIES LAND COMPANY, LLC
 1201 GLEN MEADE ROAD
 WILMINGTON, NC 28403
 910-762-2676

HANOVER DESIGN SERVICES, P.A.
 LAND SURVEYORS, ENGINEERS & LAND PLANNERS
 1123 FLORAL PARKWAY
 WILMINGTON, N.C. 28403
 PHONE: (910) 343-8002 LICENSE No.: C-0582

12015
 dhalls@hdsllm.com

Date: 10-6-14
 Scale: 1" = 100'
 Drawn: DSH
 Checked: GAW
 Project No: 12498
 Sheet No: 1 of 1

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GALLERY PARK BLVD.

Barclay West Gallery Park Boulevard

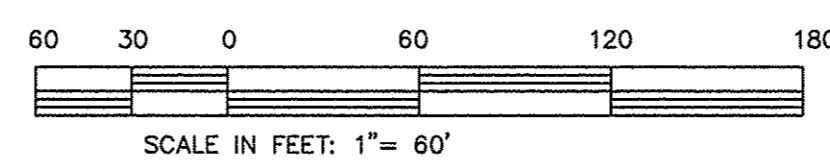
Striping Plan

SCALE: 1"= 60'

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

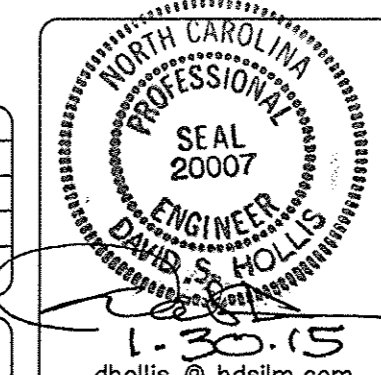
STORMWATER MANAGEMENT PLAN APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____
PERMIT # _____
SIGNED _____

Approved Construction Plan
Name _____ Date _____
Planning _____
Traffic _____
Fire _____



REV. NO.	REVISIONS	DATE

Striping Plan
Barclay West
Gallery Park Boulevard
CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA



OWNER: CAMERON PROPERTIES LAND COMPANY, LLC
1201 GLEN MEADE ROAD
WILMINGTON, NC 28403
910-752-2676

HANOVER DESIGN SERVICES, P.A.
LAND SURVEYORS, ENGINEERS & LAND PLANNERS
1123 FLORAL PARKWAY
WILMINGTON, N.C. 28403
PHONE: (910) 343-8002 LICENSE No.: C-0587

Date: 1-30-15
Scale: AS SHOWN
Drawn: DSH
Checked: GAW
Project No: 12498
Sheet No: 1
of: 1

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BARCLAY WEST GALLERY PARK BOULEVARD

Modification to Erosion & Sediment Control and Water Quality Plan

LOCATED IN THE CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA
DATE: October 2014
SCALE: 1"=200'

OWNER / DEVELOPER:
CAMERON PROPERTIES
P.O. BOX 3649
Wilmington, NC 28406
910-762-2676

LIMITS OF DISTURBANCE:
CAMERON PROPERTIES LAND COMPANY, LLC
68.07 Acres

SITE DATA TABLE:

PARCEL IDENTIFICATION:
R06500-003-004-000
DB 5427 PG 622

STANDARD NOTES:

1. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXACT ELEVATIONS AND LOCATIONS OF ALL EXISTING UTILITIES AT ALL CROSSINGS PRIOR TO COMMENCING TRENCH EXCAVATION. IF ACTUAL CLEARANCES ARE LESS THAN INDICATED ON PLAN, THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION. ANY CONDITION DISCOVERED OR EXISTING THAT WOULD NECESSITATE A MODIFICATION OF THESE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGN ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION.
2. NO CONSTRUCTION IS TO BEGIN BEFORE LOCATION OF EXISTING UTILITIES HAS BEEN DETERMINED. CALL "NO ONE-CALL" AT LEAST 48 HOURS BEFORE COMMENCING CONSTRUCTION.
3. ALL TREES WHICH ARE NOT REQUIRED TO BE CLEARED FOR CONSTRUCTION SHALL BE PRESERVED WHEREVER POSSIBLE UNLESS OTHERWISE DIRECTED.
4. CONTRACTOR SHALL ADJUST ALL MANHOLES, VALVE AND CURB BOXES TO THE FINAL GRADE UPON COMPLETION OF ALL CONSTRUCTION. ANY BOXES DAMAGED OR OTHERWISE DISTURBED BY THE CONTRACTOR SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR.
5. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST AND EROSION DURING CONSTRUCTION AT HIS EXPENSE. ROADS SHALL BE WATERED TO CONTROL DUST WHEN ORDERED BY THE ENGINEER.
6. NO GEOTECHNICAL TESTING HAS BEEN PERFORMED ON SITE. NO WARRANTY IS MADE FOR SUITABILITY OF SUBGRADE, AND UNDERCUT AND ANY REQUIRED REPLACEMENT WITH SUITABLE MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
7. EXTREME CARE SHALL BE TAKEN TO ENSURE MINIMUM SEPARATIONS AT ALL UTILITY CROSSINGS.
8. CONTRACTOR TO ENSURE THAT PAVEMENT IS PLACED SO AS TO DRAIN POSITIVELY TO THE CURB OUTLETS AND CATCH BASINS. ALL ROOF DRAIN DOWNSPOUTS TO BE DIRECTED TO THE STORM SEWER SYSTEM.
9. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS.
10. THIS PLAN IS FOR SITE GRADING, ROADWORK & SEWER INSTALLATION ONLY.
11. NO ENCUMBRANCES IN RW EXCEPT AS SHOWN.
12. AFFECTED NON-MUNICIPAL UTILITIES SHALL BE CONTACTED AND PROVIDED WITH PLANS AND OTHER PERTINENT INFORMATION, WHEN FEASIBLE, TO COORDINATE APPROPRIATE SCHEDULING AND PLACEMENT AT THE MINIMUM. THIS SHOULD INCLUDE BELLSOUTH AND DUKE ENERGY.
13. PROJECT AREA = XXX.XX ACRES.
14. THIS PROPERTY IS ZONED RB, MF-M & O&I-1.
15. SEWER AND WATER TO BE PROVIDED BY CFPWA.
16. SITE WILL MEET ALL ZONING REQUIREMENTS.
17. ANY REGULATED TREES ON SITE TO BE PRESERVED AS SHOWN.
18. STRIPING AND LANES TO CITY STANDARDS (THERMOPLASTIC).
19. NO VEHICULAR ACCESS TO SITE EXCEPT AS SHOWN.
20. ALL UTILITIES UNDERGROUND.
21. LANDSCAPING PLAN BY OTHERS.

VEGETATIVE PLAN -

1. Permanent vegetation to be established in accordance with "North Carolina Erosion and Sediment Control Planning and Design Manual", Section 6.11, latest version. See next sheet.

LEGEND

- IRON IN EXIST. CONC. MON.
- EXISTING SANITARY SEWER & MANHOLE
- EXISTING WATERLINE
- E.I.P. = EXISTING IRON PIPE
- E.I.R. = EXISTING IRON REBAR
- E.C.M. = EXISTING CONCRETE MONUMENT
- I.S. = IRON SET
- W/V = WATER VALVE
- W/M = WATER METER
- F.H. = FIRE HYDRANT
- P/P = POWER POLE
- C.P. = COMPUTED POINT
- X 49.0 INDICATES SPOT ELEVATION
- WETLANDS
- CONSTRUCTION ENTRANCE (TYPICAL)
- SILT FENCE (NEW) (TYPICAL)
- INLET PROTECTION (TYPICAL)
- OUTLET PROTECTION (TYPICAL)
- LIMITS OF DISTURBANCE (PROPOSED)
- PERMANENT STREAM CROSSING
- SEDIMENT BASIN

*****NOTE WELL:**
1. EQUIPMENT CLEARANCE MINIMUM 16' FROM TRANSMISSION LINES TO BE MAINTAINED AT ALL TIMES. (REFERENCE: OSHA 1910.269)

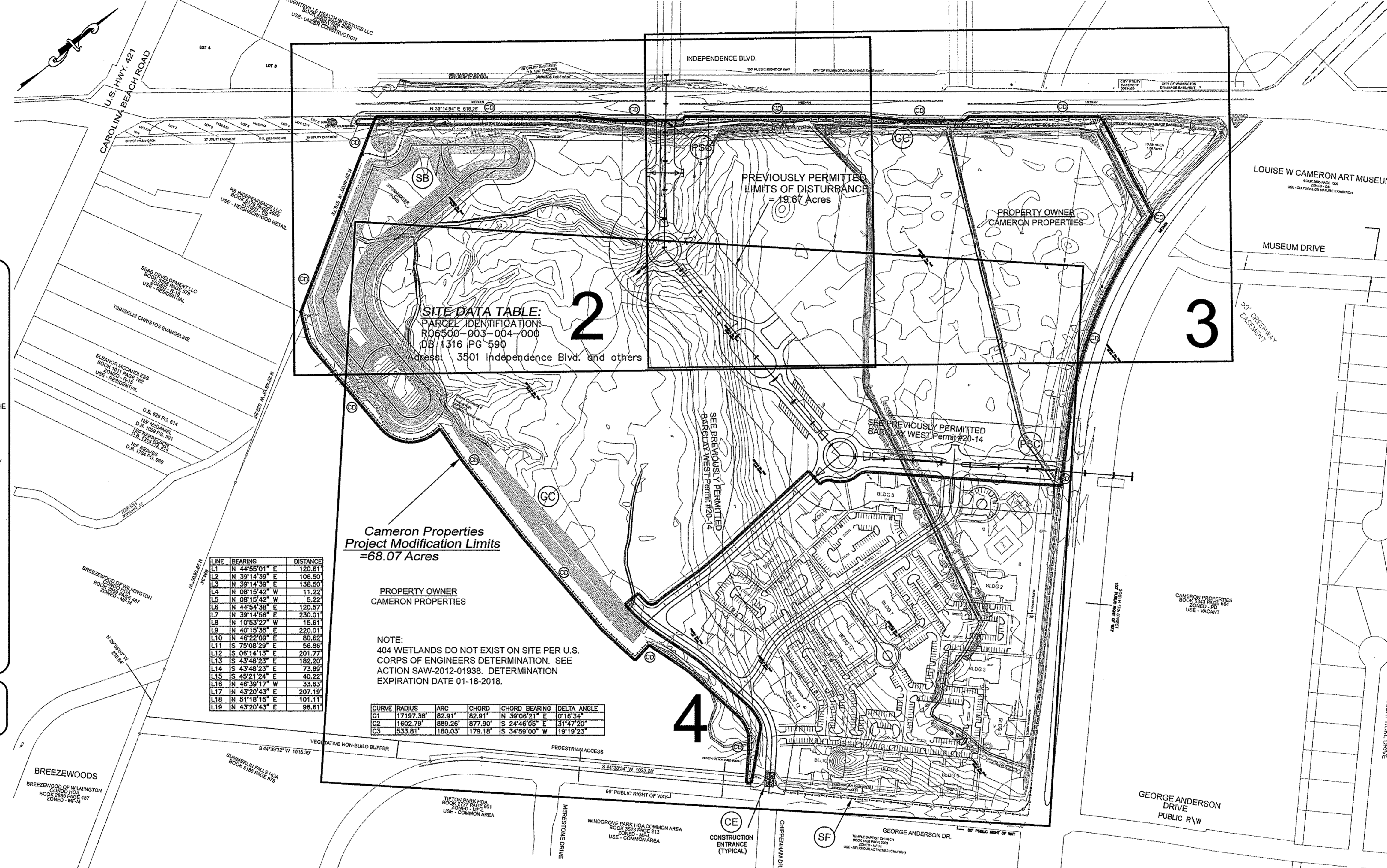
SURVEY NOTES:

1. AREA COMPUTED BY COORDINATE METHOD.
2. ALL DISTANCES ARE HORIZONTAL DISTANCE.
3. PROPERTY SUBJECT TO ALL EASEMENTS OF RECORD.
4. THE UNDERGROUND UTILITIES SHOWN ON THIS SURVEY ARE LOCATED FROM FIELD SURVEY INFORMATION, AND EXISTING AS-BUILT DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THE UTILITIES ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.
5. THIS MAP IS NOT FOR CONVEYANCE, RECORDATION, OR SALES.
6. PORTIONS OF THIS PROPERTY ARE LOCATED WITHIN A 100 YEAR FLOOD HAZARD AREA ACCORDING TO FLOOD INSURANCE RATE MAP COMMUNITY ID#9320312001, DATED APRIL 5, 2006, PANEL 0125-I.
7. THIS PROPERTY IS ZONED RB, MF-M & O&I-1.
8. SURVEYED IN 2013, and 2014.
9. COMBINED GRID FACTOR = 1.00000.

SEE POND PLANS FOR ADDITIONAL MEASURES

NOTE:
THIS PLAN TO BE UTILIZED AND REVIEWED ONLY IN CONJUNCTION WITH THE WRITTEN NARRATIVE, WHICH IS AN INTEGRAL PART OF THIS EROSION AND SEDIMENT CONTROL PLAN.

STABILIZATION TIME FRAMES:	
SITE AREA DESCRIPTION	STABILIZATION
Perimeter dikes, swales, ditches and slopes	7 DAYS
High Quality Water (HQW) Zones	7 DAYS
Slopes steeper than 3:1	7 DAYS
Slopes 3:1 or flatter	14 DAYS
All other areas with slopes flatter than 4:1	14 DAYS



LINE	BEARING	DISTANCE
L1	N 44°55'01" E	120.61
L2	N 39°14'39" E	106.50
L3	N 59°14'39" E	138.50
L4	N 08°15'42" W	11.22
L5	N 08°15'42" W	5.22
L6	N 44°54'36" E	120.57
L7	N 39°14'36" E	230.01
L8	N 10°53'27" W	15.61
L9	N 46°15'55" E	220.01
L10	N 46°22'09" E	80.62
L11	S 75°09'28" E	56.86
L12	S 08°14'13" E	201.77
L13	S 43°48'23" E	182.20
L14	S 43°48'23" E	73.89
L15	S 49°21'52" E	40.22
L16	N 46°39'17" W	33.63
L17	N 43°20'43" E	207.19
L18	N 51°16'15" E	101.11
L19	N 43°20'43" E	98.61

CURVE	RADIUS	ARC	CHORD	CHORD BEARING	DELTA ANGLE
C1	17197.38'	82.91'	82.91'	N 36°06'21" E	0°16'34"
C2	18602.79'	889.26'	877.50'	S 24°46'05" E	31°47'20"
C3	5333.81'	180.03'	179.18'	S 34°59'00" W	19°19'23"

NOTE:
404 WETLANDS DO NOT EXIST ON SITE PER U.S. CORPS OF ENGINEERS DETERMINATION. SEE ACTION SAW-2012-01938. DETERMINATION EXPIRATION DATE 01-18-2018.

STABILIZATION TIME FRAMES:

SITE AREA DESCRIPTION	STABILIZATION
Perimeter dikes, swales, ditches and slopes	7 DAYS
High Quality Water (HQW) Zones	7 DAYS
Slopes steeper than 3:1	7 DAYS
Slopes 3:1 or flatter	14 DAYS
All other areas with slopes flatter than 4:1	14 DAYS

NOTE WELL:

ANY AREAS ON-SITE WITHOUT ACTIVITY SHALL BE STABILIZED WITHIN 15 WORKING DAYS AND AS ABOVE, ALL SLOPES MUST BE STABILIZED WITHIN 21 CALENDAR DAYS OF CEASE OF ANY ACTIVITY.
DETAILS SHOWN ARE TYPICAL OF INSTALLATIONS REQUIRED BY CITY AND COUNTY. THIS SHEET DOES NOT PURPORT TO SHOW ALL REQUIRED CONSTRUCTION DETAILS, BUT RATHER SERVES AS A GUIDE. THE CONTRACTOR IS RESPONSIBLE FOR ADHERING TO ALL CITY, COUNTY AND STATE CODES AND CONSTRUCTION STANDARDS.
No geotechnical testing has been performed on site. No warranty is made for suitability of subgrade, and undercut and any required replacement with suitable material shall be the responsibility of the contractor.

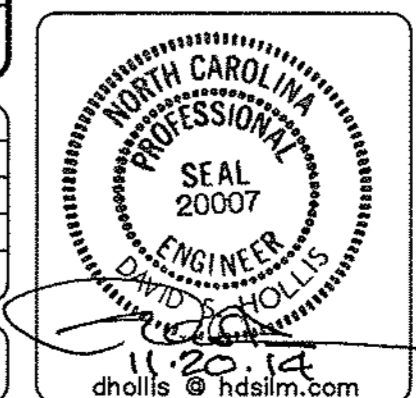
BENCHMARK LOCATIONS AND ELEVATIONS	
LOCATION:	ELEVATION
1 EX. CONCRETE MONUMENT AT INTERSECTION OF S. 17th STREET & MUSEUM DRIVE.	42.58

INDEX TO DRAWINGS		
SHEET No.	DESCRIPTION	DRAWING No.
1 OF 5	COVER SHEET AND GENERAL NOTES	12498-SHT
2 OF 5	Erosion Control Plans	12498-SHT2
3 OF 5	Erosion Control Plans	12498-SHT3
4 OF 5	Erosion Control Plans	12498-SHT4
5 OF 5	Erosion Control Notes & Additional Details	12498-SHT5

REV. NO.	REVISIONS	DATE
1	REVISED NEW HANOVER COUNTY COMMENTS	11/19/14

GP# 20-14

Modified Erosion Control Plan Cover Sheet and General Notes
BARCLAY WEST GALLERY PARK BOULEVARD
LOCATED IN THE CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA



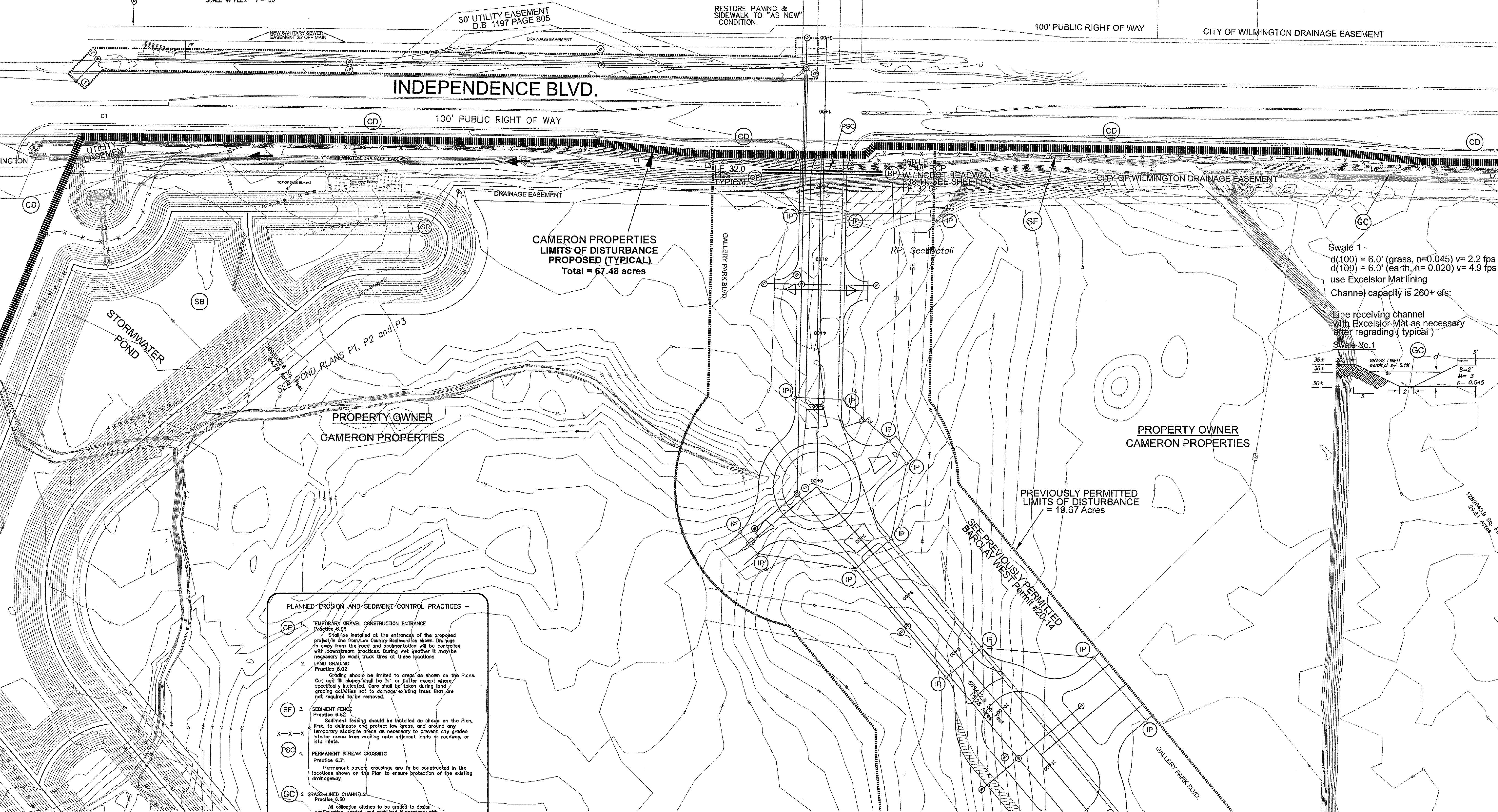
OWNER: CAMERON PROPERTIES
P.O. BOX 3649
WILMINGTON, N.C. 28406 PH 910-762-2676

HANOVER DESIGN SERVICES, P.A.
LAND SURVEYORS, ENGINEERS & LAND PLANNERS
1123 FLORAL PARKWAY
WILMINGTON, N.C. 28403
PHONE: (910) 343-8002
License # C-0297

Date: 10-6-14
Scale: 1"=200'
Drawn: WNP
Checked: DSH
Project No: 12498 P1
Sheet No: 1
Of: 5



INDEPENDENCE BLVD.



Swale 1 -
 $d(100) = 6.0'$ (grass, $n=0.045$) $v = 2.2$ fps
 $d(100) = 6.0'$ (earth, $n=0.020$) $v = 4.9$ fps
 use Excelsior Mat lining
 Channel capacity is 260+ cfs:
 Line receiving channel with Excelsior Mat as necessary after regrading (typical)
 Swale No. 1

- PLANNED EROSION AND SEDIMENT CONTROL PRACTICES -**
- CE** 1. TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
 Practice 6.06
 Shall be installed at the entrances of the proposed project in and from Low Country Boulevard as shown. Drainage is away from the road and sedimentation will be controlled with downstream practices. During wet weather it may be necessary to wash truck tires at these locations.
 - 2.** LAND GRADING
 Practice 6.02
 Grading should be limited to areas as shown on the Plans. Cut and fill slopes shall be 3:1 or flatter except where specifically indicated. Care shall be taken during land grading activities not to damage existing trees that are not required to be removed.
 - SF** 3. SEDIMENT FENCE
 Practice 6.82
 Sediment fencing should be installed as shown on the Plan, first, to delineate and protect low areas, and second any temporary stockpile areas as necessary to prevent any graded interior areas from eroding onto adjacent lands or roadway, or into inlets.
 - PSC** 4. PERMANENT STREAM CROSSING
 Practice 6.71
 Permanent stream crossings are to be constructed in the locations shown on the Plan to ensure protection of the existing drainageway.
 - GC** 5. GRASS-LINED CHANNELS
 Practice 6.30
 All collection ditches to be graded to design configuration, seeded, and stabilized if necessary with temporary straw-net liners to collect and convey site water as shown on Plan. After final project stabilization, ditches to be re-graded and cleaned of siltation as needed to establish original contours for stormwater conveyance.
 - CD** 6. CHECK-DAM
 Practice 6.83
 Check dams are to be installed as indicated on plan (approximately every 500 feet) to reduce flow in an open channel, serving as a temporary measure to limit erosion.
 - SB** 7. SEDIMENT BASIN
 Practice 6.61
 The Sediment Basins are to be constructed (see Construction Schedule) as the primary Practice to prevent sediment from leaving the site. Detailed design and spillway configurations are specified in the details as shown on this Plan and the Narrative. The PFO outlet is to be equipped to skimmer during the sedimentation function until entire waterbody is permanently stabilized and pond is converted to permanent stormwater management detention / retention function. The Contractor will then install the control structure to specifications as shown on Sheet 5 and in the calculations.

NOTE:
 THIS PLAN TO BE UTILIZED AND REVIEWED ONLY IN CONJUNCTION WITH THE WRITTEN NARRATIVE, WHICH IS AN INTEGRAL PART OF THIS EROSION AND SEDIMENT CONTROL PLAN.

NOTE:
 404 WETLANDS DO NOT EXIST ON SITE PER U.S. CORPS OF ENGINEERS DETERMINATION. SEE ACTION SAW-2012-01938. DETERMINATION EXPIRATION DATE 01-18-2018.

*****NOTE WELL:**
 1. EQUIPMENT CLEARANCE MINIMUM 16' FROM TRANSMISSION LINES TO BE MAINTAINED AT ALL TIMES. (REFERENCE: OSHA 1910.269)

NOTE WELL:
 THESE PLANS ARE FOR THE CONSTRUCTION & INSTALLATION OF THE SEWER MAINS & STUB-OUTS ONLY. NO IMPERVIOUS SURFACES TO BE CONSTRUCTED AT THIS TIME. PROPOSED ROADS & RIGHTS OF WAY LINEWORK ARE FOR GEOGRAPHICAL REPRESENTATION ONLY.

STATION 0+00 THROUGH 10+50
 INDEPENDENCE BLVD.

REV. NO.	REVISIONS	DATE
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GPH# 20-14
 Modification to Erosion & Sediment Control and Water Quality Plan
BARCLAY WEST
 GALLERY PARK BOULEVARD
 LOCATED IN THE CITY OF WILMINGTON
 NEW HANOVER COUNTY, NORTH CAROLINA

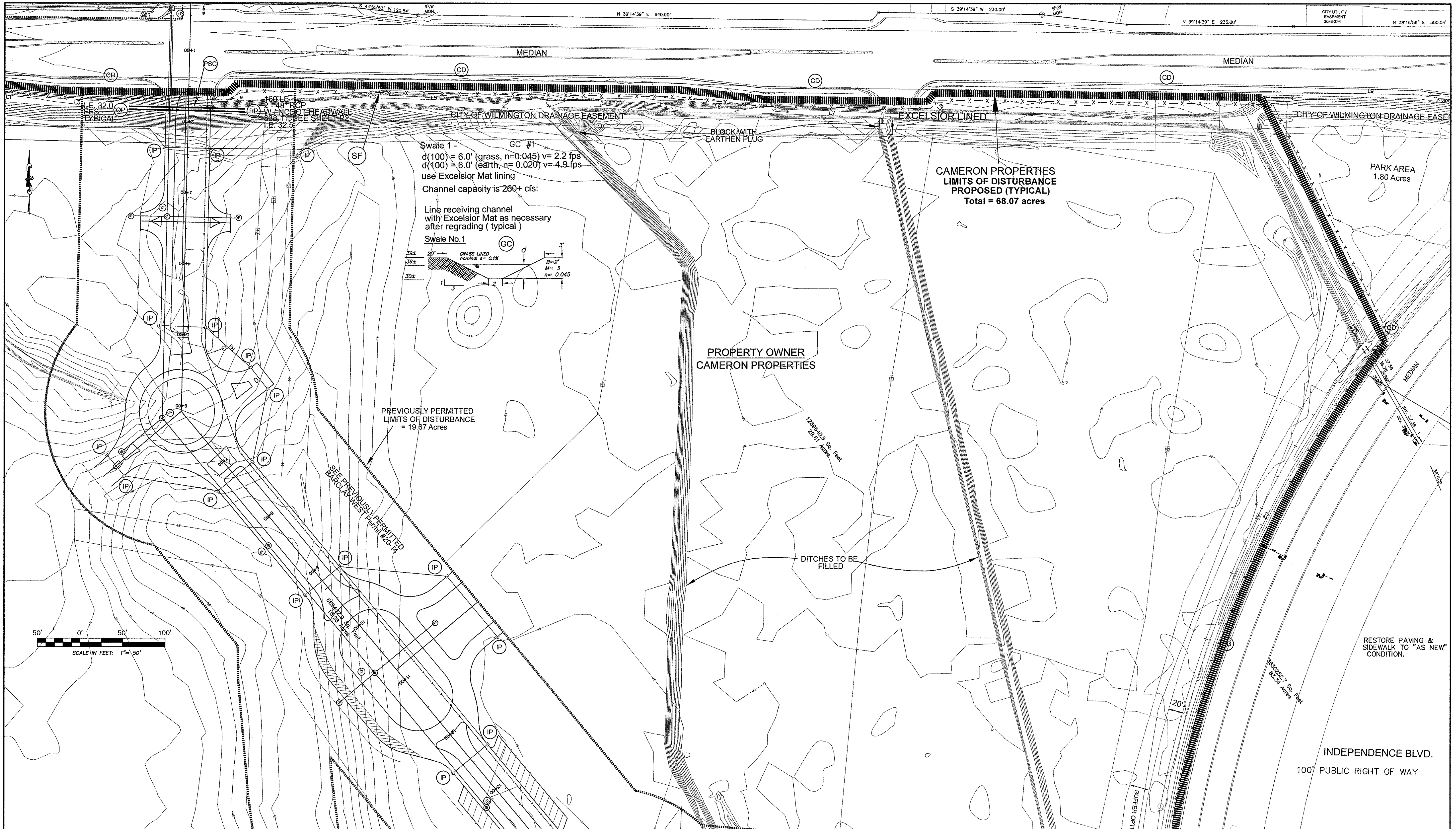
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 Scale: HORIZ. 1" = 60'
 Drawn: WNP
 Checked: DSH
 Project No: 12498 P2

OWNER: CAMERON PROPERTIES
 P.O. BOX 3649
 WILMINGTON, N.C. 28406 PH 910-762-2676

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 WILMINGTON, N.C. 28403
 PHONE: (910) 343-8002
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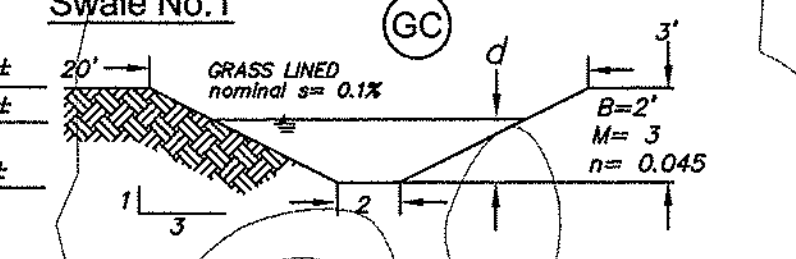
Professional Engineer Seal: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20007
 Date: 11.20.14
 dhollis @ hdsllm.com

Sheet No: 2 of 5



Swale 1 - GC #1
 $d(100) = 6.0'$ (grass, $n=0.045$) $v= 2.2$ fps
 $d(100) = 6.0'$ (earth, $n= 0.020$) $v= 4.9$ fps
 use Excelisior Mat lining
 Channel capacity is 260+ cfs:

Line receiving channel with Excelisior Mat as necessary after regrading (typical)
 Swale No.1



PROPERTY OWNER
 CAMERON PROPERTIES

CAMERON PROPERTIES
 LIMITS OF DISTURBANCE
 PROPOSED (TYPICAL)
 Total = 68.07 acres

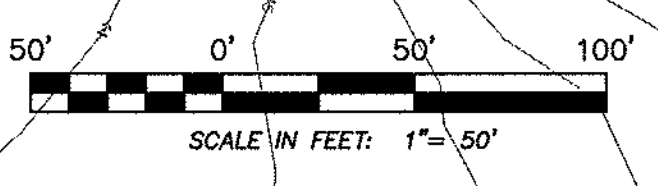
PREVIOUSLY PERMITTED
 LIMITS OF DISTURBANCE
 = 19.87 Acres

DITCHES TO BE
 FILLED

PARK AREA
 1.80 Acres

RESTORE PAVING &
 SIDEWALK TO "AS NEW"
 CONDITION.

INDEPENDENCE BLVD.
 100' PUBLIC RIGHT OF WAY



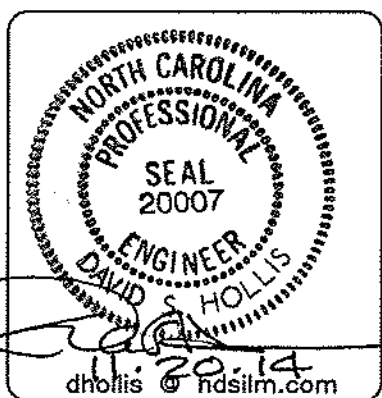
NOTE WELL:
 1. EQUIPMENT CLEARANCE MINIMUM 16' FROM TRANSMISSION LINES TO BE MAINTAINED AT ALL TIMES. (REFERENCE: OSHA 1910.269)

NOTE:
 404 WETLANDS DO NOT EXIST ON SITE PER U.S. CORPS OF ENGINEERS DETERMINATION. SEE ACTION SAW-2012-01938. DETERMINATION EXPIRATION DATE 01-18-2016.

STATION 0+00 THROUGH 10+50
 INDEPENDENCE BLVD.

REV. NO.	REVISIONS	DATE
1	REVISED NEW HANOVER COUNTY COMMENTS	11/19/14

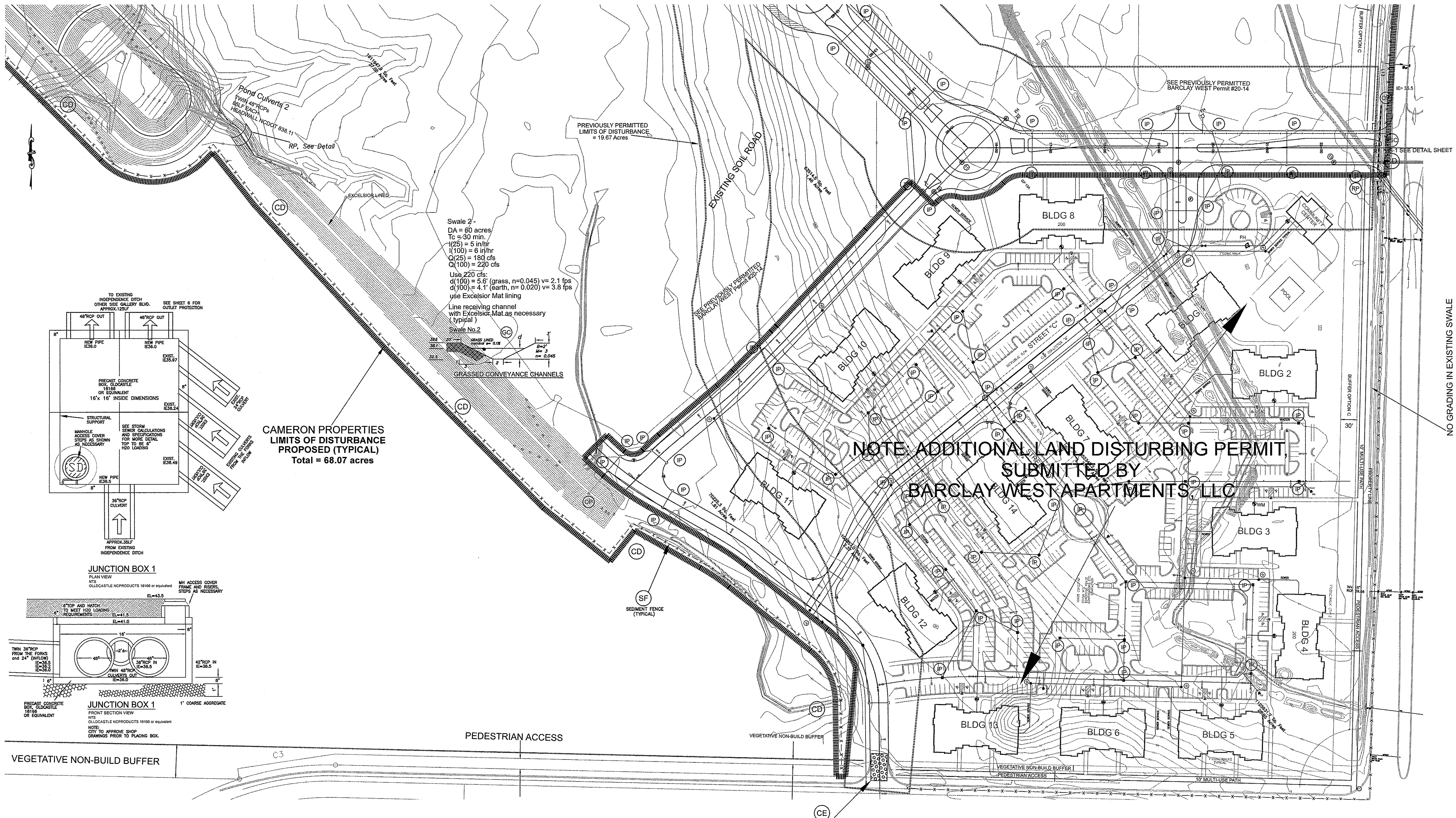
Modification to Erosion & Sediment Control and Water Quality Plan
BARCLAY WEST
 GALLERY PARK BOULEVARD
 LOCATED IN THE CITY OF WILMINGTON, NORTH CAROLINA



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 1153 FLORAL PARKWAY
 WILMINGTON, N.C. 28403
 PHONE: (910) 343-8002
 License # C-5057

Date: 10-6-14
 Scale: HORIZ: 1"=50'
 Drawn: WNP
 Checked: DSH
 Project No: 12498 P3
 Sheet No: 3
 Of: 5



CAMERON PROPERTIES
LIMITS OF DISTURBANCE
PROPOSED (TYPICAL)
Total = 68.07 acres

NOTE: ADDITIONAL LAND DISTURBING PERMIT,
SUBMITTED BY
BARCLAY WEST APARTMENTS, LLC

NO GRADING IN EXISTING SWALE

VEGETATIVE NON-BUILD BUFFER

PEDESTRIAN ACCESS

VEGETATIVE NON-BUILD BUFFER

VEGETATIVE NON-BUILD BUFFER

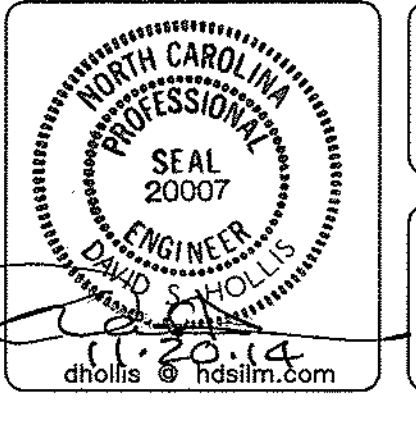
PEDESTRIAN ACCESS

STATION 0+00 THROUGH 10+50
INDEPENDENCE BLVD.

GPH# 20-14
Modification to Erosion & Sediment Control and Water Quality Plan
BARCLAY WEST
GALLERY PARK BOULEVARD
LOCATED IN THE CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA

Date: 10-6-14
Scale: HORIZ: 1"=80'
Drawn: WNP
Checked: DSH
Project No: 12498 P4

REV. NO.	REVISIONS	DATE
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PHONE: (910) 343-9002
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Sheet No: 4
5



