

Pender County Planning and Community Development

Planning Division

805 S. Walker Street
PO Box 1519
Burgaw, NC 28425



Phone: 910-259-1202
Fax: 910-259-1295
www.pendercountync.gov

Integrity Building Application Information Master Development Plan

Case Number: MDP 2024-71

Application Type: Major Site Development Plan

Applicant: Integrity Building Companies

Owners: Optimal Land LLC

Location: 1.5 miles south of the intersection of NC HWY 210 and US HWY 17 on the southbound side of US HWY 17

Property ID #(s): 3282-21-6391-0000

Description: Development application for the construction of 5 buildings totaling approximately 180,245 sq ft for commercial and light industrial uses with associated parking and stormwater management.

Current Zoning: GB, General Business, and IT, Industrial Transitional

Technical Review Committee Meeting: August 1, 024

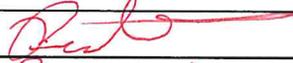
Board of County Commissioners/Planning Board Meeting: N/A

Application Materials

Application Package
Site Plan

APPLICATION PACKAGE

APPLICATION FOR MASTER DEVELOPMENT PLAN

THIS SECTION FOR OFFICE USE			
Application No.	MDP	Date	
Application Fee	\$	Invoice Number:	
Pre-Application Conference		Hearing Date	
SECTION 1: APPLICANT INFORMATION			
Applicant's Name:	Integrity Building Companies	Owner's Name:	Optimal Land, LLC
Applicant's Address:	141 Division Drive, #120	Owner's Address:	2201 Burnette Road
City, State, & Zip	Wilmington, NC 28401	City, State, & Zip	Wilmington, NC 28401
Phone Number:	910-612-9801	Phone Number:	
Email Address:	reed@ibcroofing.com	Email Address:	
Legal relationship of applicant to land owner:			
SECTION 2: PROJECT INFORMATION			
Type of Master Development Plan	<input type="checkbox"/> Residential <i>RP, PD, RM MH District</i>	<input checked="" type="checkbox"/> Commercial <i>GB, OI, IT, GI District</i>	NAICS:
Property Identification Number (PIN):	3282-21-6391-0000	Total property acreage:	7.65
Zoning Classification:	GB/IT	Acreage to be disturbed:	7.50
Project Address :	TBD	Township:	Hampstead
Description of Project Location:	1.5 miles south of intersection of Hwy 210	Water Provider:	PCU
	and US Hwy 17	Sewer Provider:	Pluris Hampstead, LLC
Describe activities to be undertaken on project site:	Development of flex light industrial uses	Road Type:	Public/ Private /Both
	gym facility, and commercial uses including clearing and grading, roadway and parking improvements.		
SECTION 3: SIGNATURES			
Applicant's Signature		Date:	7/16/2024
Applicant's Printed Name	REED WESTKA	Date:	7/16/2024
Owner's Signature	<small>DocuSigned by:</small> Candi Alexander	Date:	7/16/2024
Owner's Printed Name	Candi Alexander	Date:	7/16/2024

SITE PLAN(S)

INTEGRITY BUSINESS PARK

PARCEL: 3282-21-6391-0000
 PENDER COUNTY, NC
 MASTER DEVELOPMENT PLAN
 AUGUST 1, 2024

ENGINEER
 Stormwater Management
 Civil Engineering - Land Development

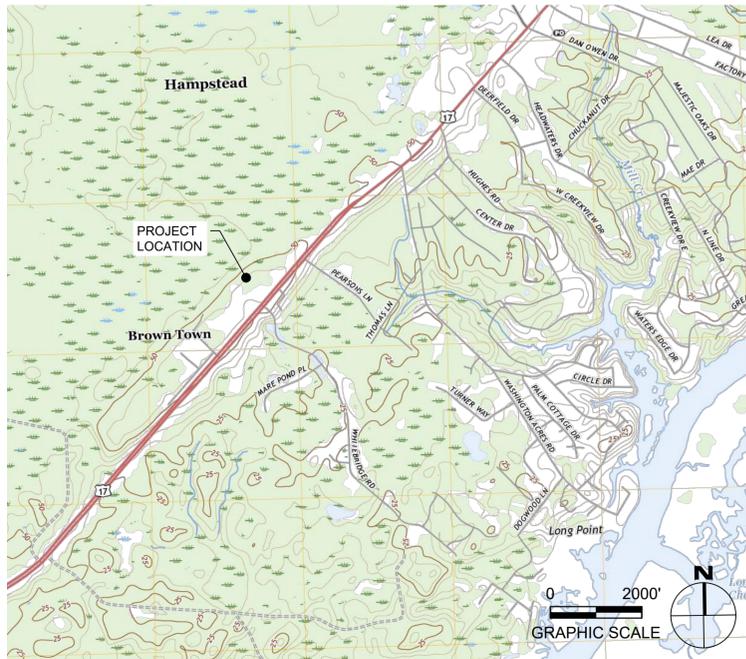


RIVERVIEW
 Engineering

P-1944 910-338-2532

4904 PARK AVENUE
 WILMINGTON, NC 28403
 nlauretta@rivervieweng.com

www.rivervieweng.com



1 LOCATION MAP
 SCALE: 1" = 2000'



2 VICINITY MAP
 SCALE: 1" = 500'

SHEET INDEX

SHEET NUMBER	TITLE	DESCRIPTION
1	C-001	COVER SHEET
2	VX101	EXISTING CONDITIONS & DEMOLITION PLAN
3	VX102	TREE REMOVAL PLAN
4	CE101	EROSION & SEDIMENT CONTROL PLAN - PHASE 1
5	CE102	EROSION & SEDIMENT CONTROL PLAN - PHASE 2
6	CS101	SITE PLAN
7	CS102	DRIVEWAY PLAN
8	CS103	MULTI-USE PATH PLAN
9	L101	LANDSCAPE PLAN
10	CG101	STORM DRAINAGE & GRADING PLAN
11	CU101	UTILITY PLAN
12	CU701	PLAN & PROFILE - ENTRY ROAD
13	CU702	PLAN & PROFILE - SITE DRIVE 1
14	CU703	PLAN & PROFILE - SITE DRIVES
15	CU704	PLAN & PROFILE - SITE DRIVES
16	CE501	EROSION & SEDIMENT CONTROL DETAILS
17	CE502	EROSION & SEDIMENT CONTROL DETAILS
18	CE503	EROSION & SEDIMENT CONTROL DETAILS
19	CE504	EROSION & SEDIMENT CONTROL DETAILS
20	CS501	SITE DETAILS
21	CG501	STORM DRAINAGE DETAILS
22	CG502	STORM DRAINAGE DETAILS
23	CG503	STORM DRAINAGE DETAILS
24	CG504	STORM DRAINAGE DETAILS
25	CU501	UTILITY DETAILS
26	CU502	UTILITY DETAILS

GENERAL NOTES

- ALL MATERIALS AND CONSTRUCTION METHODS PER THE LATEST EDITION OF PENDER COUNTY SPECIFICATIONS AND DETAILS.
- ALL SITE WORK, AT A MINIMUM, SHALL BE PERFORMED IN ACCORDANCE WITH THE 2024 NCDOT ROADWAY STANDARD DRAWINGS AND STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES UNLESS OTHERWISE NOTED OR DIRECTED. ROADS SHALL BE CONSTRUCTED TO NCDOT STANDARDS AND SPECIFICATIONS (LATEST EDITION).
- UNDERGROUND UTILITIES MAY EXIST ON, ALONG OR WITHIN CONFLICT OF THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING NC 811 OR THE APPROPRIATE UTILITY COMPANIES PRIOR TO ANY EXCAVATION.
- THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE DEMOLITION OF ANY EXISTING ON SITE ITEMS AS SHOWN ON THE DEMO PLAN, ABOVE AND BELOW GROUND. THE CONTRACTOR IS ALSO RESPONSIBLE FOR REMOVAL OF ALL WASTE RESULTING FROM DEMOLITION.
- THE CONTRACTOR SHALL OBSERVE ALL REQUIRED SAFETY PRECAUTIONS IN THE PERFORMANCE OF ALL WORK IN ACCORDANCE WITH CURRENT OSHA REGULATIONS.
- THE CONTRACTOR SHALL GRADE, SEED, AND SOD OR OTHERWISE PROVIDE TEMPORARY AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS.
- WORK WITHIN PUBLIC RIGHT-OF-WAYS SHALL BE IN ACCORDANCE WITH ALL STATE AND LOCAL REQUIREMENTS, NOTIFICATIONS, STANDARDS AND POLICIES.
- ANY SUBSTITUTIONS, CHANGES, OR MODIFICATIONS SHALL BE APPROVED BY THE PROJECT ENGINEER, PLANNING DEPARTMENT STAFF, AND OWNER PRIOR TO INSTALLATION/CONSTRUCTION.
- THE GRADE LINES DENOTE THE FINISHED ELEVATIONS OF THE PROPOSED SURFACE. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING, ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO PROVIDE A PROPER TIE-IN. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED INVERTS, FFE'S, AND FINISHED SURFACES TO ENSURE THAT MINIMUM SLOPE AND COVER REQUIREMENTS ARE PROVIDED PRIOR TO INSTALLATION.
- THE EARTHWORK ON THIS PLAN DOES NOT NECESSARILY BALANCE. OFFSITE BORROW OR WASTE MAY BE REQUIRED.
- ALL PIPE INVERTS TO BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTING GRAVITY SYSTEMS AND SHALL BE ADJUSTED BY THE ENGINEER IF NECESSARY. ALL CONCRETE PIPE SHALL BE REINFORCED CLASS III.
- NEW SIGNS REQUIRE ZONING COMPLIANCE AND BUILDING PERMITS PER UDO. A PERMIT IS REQUIRED FOR THE SITE IDENTIFICATION SIGN. SIGN SHALL MEET PENDER COUNTY STANDARDS.
- NO ADDITIONAL OUTDOOR LIGHTING IS PROPOSED. NEW LIGHTING REQUIRES ADDITIONAL PLANS AND PERMITS TO ENSURE COMPLIANCE WITH UDO.

APPROVED BY PENDER COUNTY UNIFIED DEVELOPMENT
 ORDINANCE ADMINISTRATOR

ADMINISTRATOR PRINTED NAME: _____

ADMINISTRATOR SIGNATURE: _____

APPROVAL DATE: _____

*** SITE PLAN VALID FOR TWO (2) YEARS FROM APPROVAL DATE ***



Know what's below.
 Call before you dig.

PROJECT OWNER

INTEGRITY BUILDING COMPANIES
 141 DIVISION DRIVE #120
 WILMINGTON, NC 28401
**INTEGRITY
 BUSINESS PARK**

STAMP



ISSUE FOR
 REVIEW - NOT FOR CONSTRUCTION

ISSUE DATE
 AUGUST 1, 2024

REVISIONS

NO.	DATE	DESCRIPTION

PRINCIPAL IN CHARGE
 N. LAURETTA, PE, LEED AP
 PROJECT MANAGER
 NJL
 DRAWN BY
 NJL
 PROJECT ADDRESS
 13047 US HWY 17
 HAMPSTEAD, NC

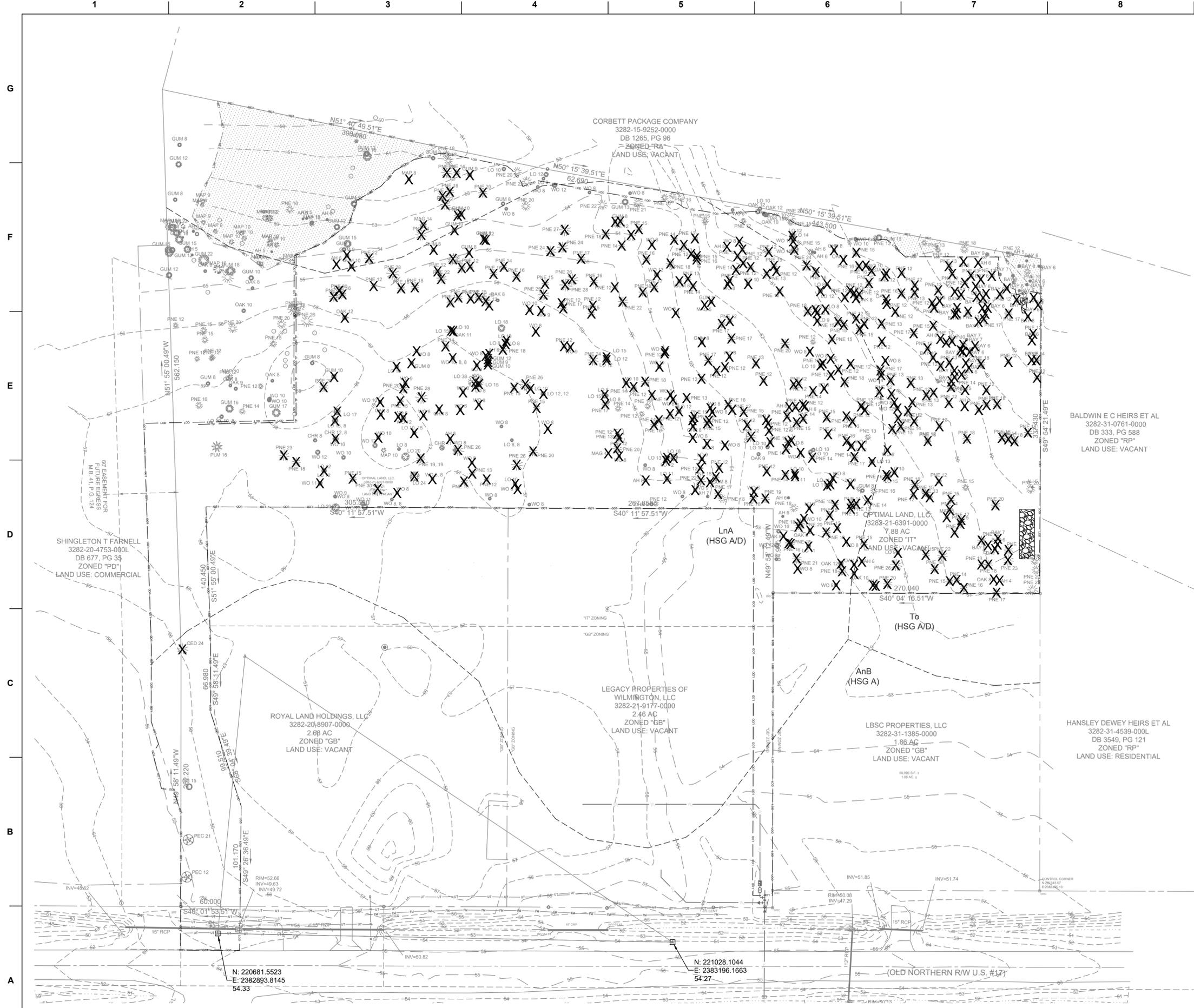
PROJECT NUMBER
 1014.01

SHEET TITLE
COVER SHEET

SHEET 1 OF 26
 SHEET NUMBER

C-001

MASTER DEVELOPMENT PLAN



LEGEND

- EDGE OF ASPHALT
- EDGE OF CONCRETE
- CENTERLINE
- PROPERTY RIGHT OF WAY
- PROPERTY EASEMENT
- PROPERTY LINE
- 55 — MAJOR CONTOUR
- 54 — MINOR CONTOUR
- UNDERGROUND TELECOMMUNICATIONS LINE
- WATER LINE
- FORCEMAIN
- STORMWATER LINE
- LIMITS OF DISTURBANCE
- TREE PROTECTION FENCE
- TREE
- TREE TO BE REMOVED

- DEMOLITION NOTES**
1. THE CONTRACTOR SHALL VISIT THE SITE TO BECOME FAMILIARIZED WITH FIELD DEMOLITION CONDITIONS.
 2. THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER DISPOSAL OF ALL DEMOLISHED DEBRIS ASSOCIATED WITH THE PROJECT IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
 3. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST GENERATED BY THE WORK, INCLUDING BUT NOT LIMITED TO DEMOLITION AND CONSTRUCTION ACTIVITIES, SITE VEHICULAR TRAFFIC AND RELATED OPERATIONS.
 4. THE CONTRACTOR IS RESPONSIBLE FOR HAVING ALL EXISTING UTILITIES LOCATED PRIOR TO BEGINNING ANY DEMOLITION. CONTRACTOR SHALL CONTACT NC ONE CALL AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED.
 5. EXISTING UTILITIES AND STRUCTURES SHOWN, BOTH UNDERGROUND AND ABOVE GROUND, ARE BASED ON FIELD SURVEY AND THE BEST AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS PRIOR TO BEGINNING RELATED CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE AND ENGINEER IMMEDIATELY.
 6. THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF DISCONNECTING AND ABANDONING ALL EXISTING UTILITIES WITH THE OWNER UNLESS OTHERWISE NOTED. ALL EXISTING UTILITIES AND ASSOCIATED PIPING, ETC. NOT IN USE ON THE SITE SHALL BE PROPERLY ABANDONED AND REMOVED AS REQUIRED. COORDINATE WITH THE OWNER.
 7. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ANY EXISTING UTILITIES THAT REMAIN IN SERVICE DURING DEMOLITION.
 8. THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS AND SLOPES ON AND OFF SITE IN ACCORDANCE WITH THE EROSION CONTROL MEASURES SPECIFIED ON THE PLANS AND IN THE SPECIFICATIONS. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER TO DETERMINE WHO IS RESPONSIBLE FOR PROVIDING THE PERMANENT STABILIZATION MEASURES AND THE TYPE OF PERMANENT MEASURES PRIOR TO BEGINNING DEMOLITION AND CONSTRUCTION. THE PERMANENT STABILIZATION MEASURES SHALL BE IN PLACE AND ACCEPTABLE TO THE OWNER'S REPRESENTATIVE AND ENGINEER PRIOR TO PROJECT CLOSEOUT. COORDINATE INSPECTION WITH THE OWNER AND ENGINEER PRIOR TO PROJECT CLOSEOUT.
 9. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND CONTACTING THE ENGINEER FOR THE REQUIRED INSPECTIONS ON THE PROJECT.
 10. WETLANDS EXIST ON SITE. WETLANDS WILL NOT BE DISTURBED DURING CONSTRUCTION OF THIS PROJECT.

- EXCAVATION, GRADING, AND BACKFILLING NOTES**
1. ANY UNDERCUTTING IN GOOD SOIL SHALL BE REPLACED AND THE REPLACEMENT MATERIAL SHALL BE COMPACTED TO NINETY-FIVE (95) PERCENT OF MAXIMUM DENSITY OBTAINED AT OPTIMUM MOISTURE CONTENT, AS DETERMINED BY THE ASTM D 698 STANDARD PROCTOR TEST METHOD. IN THE EVENT THAT MATERIAL ENCOUNTERED AT PIPE GRADE, SUBGRADE OF PARKING OR ROADWAYS AND SUBGRADE OF BUILDING FOUNDATIONS IS FOUND TO BE SOFT, SPONGY, OR IN ANY OTHER WAY UNSUITABLE, THE CONTRACTOR SHALL NOTIFY THE GEOTECHNICAL ENGINEER IMMEDIATELY. SUCH UNSUITABLE MATERIAL SHALL BE REMOVED TO A DEPTH AS SPECIFIED BY THE GEOTECHNICAL ENGINEER AND REPLACED WITH A MINIMUM OF SIX (6) INCHES OF STONE, OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
 2. BEFORE BACKFILLING IS COMMENCED OVER PIPES AND OTHER INSTALLATIONS, EARTH FILL SHALL BE SOLIDLY TAMPED AROUND AND ABOVE THE PIPE TO A DEPTH OF ONE (1) FOOT ABOVE THE TOP OF THE PIPE. CARE SHALL BE TAKEN TO PREVENT ANY DISTURBANCE TO THE PIPE OR DAMAGE TO NEWLY MADE JOINTS. THE FILLING OF THE TRENCH SHALL BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES OF THE PIPES IN SUCH A MANNER THAT INJURIOUS SIDE PRESSURES DO NOT OCCUR.
 3. THE MATERIAL FOR BACKFILLING SHALL BE FREE FROM ALL PERISHABLE AND OBJECTIONABLE MATERIALS. BEFORE PLACING ANY BACKFILL, ALL RUBBISH, FORM, BLOCKS, WIRES OR OTHER UNSUITABLE MATERIAL SHALL BE REMOVED FROM EXCAVATION. THE BACK-FILLING OVER PIPES SHALL BE PLACED IN LAYERS NOT OVER SIX (6) INCHES THICK AND COMPACTED TO A MINIMUM DENSITY OF NINETY-FIVE (95) PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR COMPACTION TEST TO A DEPTH OF 12 INCHES BELOW FINISHED GRADE. THE LAST 12 INCHES OF BACKFILL SHALL BE PLACED IN LAYERS NOT OVER SIX (6) INCHES THICK AND COMPACTED TO A MINIMUM DENSITY OF NINETY-EIGHT (98) PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR COMPACTION TEST.

50' 0 50' 100'

SCALE: 1" = 50'

GRAPHIC SCALE

ENGINEER
Stormwater Management
Civil Engineering - Land Development

RIVERVIEW
Engineering

4904 PARK AVENUE
WILMINGTON, NC 28403
nlauretta@rivervieweng.com

www.rivervieweng.com

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PROJECT OWNER
INTEGRITY BUSINESS PARK
INTEGRITY BUILDING COMPANIES
141 DIVISION DRIVE #120
WILMINGTON, NC 28401

STAMP
NORTH CAROLINA PROFESSIONAL ENGINEER
NOT FOR CONSTRUCTION
NICHOLAS J. LAURETTA

ISSUE FOR
REVIEW - NOT FOR CONSTRUCTION

ISSUE DATE
AUGUST 1, 2024

REVISIONS	VALUE

PRINCIPAL IN CHARGE
N. LAURETTA, PE, LEED AP

PROJECT MANAGER
N/JL

DRAWN BY
N/JL

PROJECT ADDRESS
13047 US HWY 17
HAMPSTEAD, NC

PROJECT NUMBER
1014.01

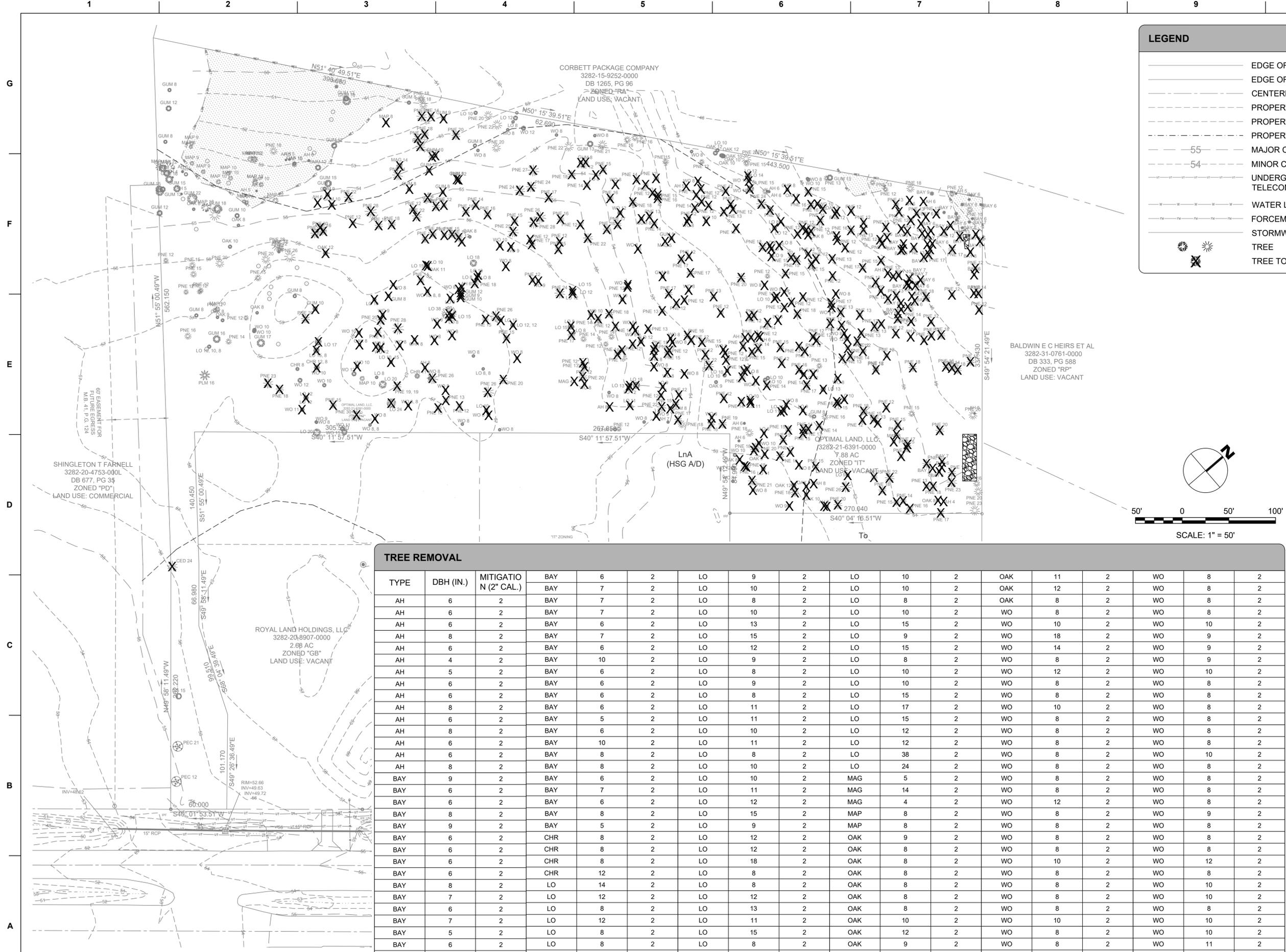
SHEET TITLE
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET 2 OF 26

SHEET NUMBER
VX101

MASTER DEVELOPMENT PLAN

1 EXISTING CONDITIONS & DEMOLITION PLAN
SCALE: 1" = 50'



LEGEND

- EDGE OF ASPHALT
- EDGE OF CONCRETE
- - - CENTERLINE
- - - PROPERTY RIGHT OF WAY
- - - PROPERTY EASEMENT
- - - PROPERTY LINE
- - - 55 - MAJOR CONTOUR
- - - 54 - MINOR CONTOUR
- - - UNDERGROUND TELECOMMUNICATIONS LINE
- - - WATER LINE
- - - FORCEMAIN
- - - STORMWATER LINE
- TREE
- ⊗ TREE TO BE REMOVED

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WILMINGTON, NC 28401

INTEGRITY BUSINESS PARK

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ISSUE DATE
AUGUST 1, 2024

REVISIONS

NO.	VALUE	

PRINCIPAL IN CHARGE
N. LAURETTA, PE, LEED AP

PROJECT MANAGER
N.J.L.

DRAWN BY
N.J.L.

PROJECT ADDRESS
13047 US HWY 17
HAMPSTEAD, NC

PROJECT NUMBER
1014.01

SHEET TITLE
TREE REMOVAL PLAN

SHEET 3 OF 26

SHEET NUMBER
VX102

MASTER DEVELOPMENT PLAN

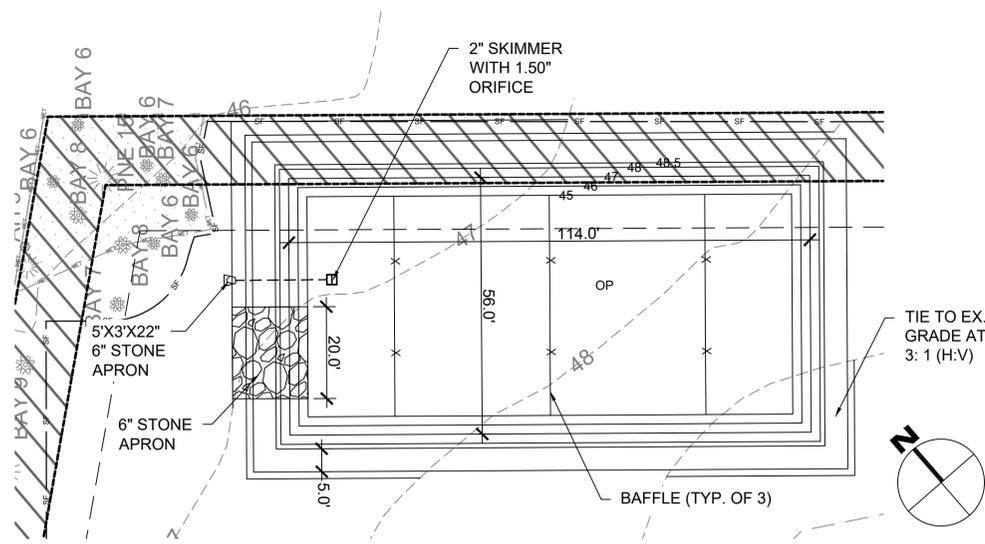
TREE REMOVAL																	
TYPE	DBH (IN.)	MITIGATION (2" CAL.)	BAY	PNE	LO	WO	OAK	CHR	MAP	MAG	PEC	PEC	PEC	PEC	PEC	PEC	
AH	6	2	BAY	6	2	LO	9	2	LO	10	2	OAK	11	2	WO	8	2
AH	6	2	BAY	7	2	LO	10	2	LO	10	2	OAK	12	2	WO	8	2
AH	6	2	BAY	7	2	LO	8	2	LO	8	2	OAK	8	2	WO	8	2
AH	6	2	BAY	6	2	LO	10	2	LO	10	2	WO	8	2	WO	8	2
AH	8	2	BAY	6	2	LO	13	2	LO	15	2	WO	10	2	WO	10	2
AH	4	2	BAY	7	2	LO	15	2	LO	9	2	WO	18	2	WO	9	2
AH	6	2	BAY	6	2	LO	12	2	LO	15	2	WO	14	2	WO	9	2
AH	5	2	BAY	10	2	LO	9	2	LO	8	2	WO	8	2	WO	9	2
AH	6	2	BAY	6	2	LO	8	2	LO	10	2	WO	12	2	WO	10	2
AH	6	2	BAY	6	2	LO	9	2	LO	10	2	WO	8	2	WO	8	2
AH	6	2	BAY	6	2	LO	8	2	LO	15	2	WO	8	2	WO	8	2
AH	8	2	BAY	6	2	LO	11	2	LO	17	2	WO	10	2	WO	8	2
AH	6	2	BAY	5	2	LO	11	2	LO	15	2	WO	8	2	WO	8	2
AH	8	2	BAY	6	2	LO	10	2	LO	12	2	WO	8	2	WO	8	2
AH	6	2	BAY	10	2	LO	11	2	LO	12	2	WO	8	2	WO	8	2
AH	6	2	BAY	8	2	LO	8	2	LO	38	2	WO	8	2	WO	10	2
AH	8	2	BAY	8	2	LO	10	2	LO	24	2	WO	8	2	WO	8	2
BAY	9	2	BAY	6	2	LO	10	2	MAG	5	2	WO	8	2	WO	8	2
BAY	6	2	BAY	7	2	LO	11	2	MAG	14	2	WO	8	2	WO	8	2
BAY	6	2	BAY	6	2	LO	12	2	MAG	4	2	WO	12	2	WO	8	2
BAY	8	2	BAY	8	2	LO	15	2	MAP	8	2	WO	8	2	WO	9	2
BAY	9	2	BAY	5	2	LO	9	2	MAP	8	2	WO	8	2	WO	8	2
BAY	6	2	CHR	8	2	LO	12	2	OAK	9	2	WO	8	2	WO	8	2
BAY	6	2	CHR	8	2	LO	12	2	OAK	8	2	WO	8	2	WO	8	2
BAY	6	2	CHR	8	2	LO	18	2	OAK	8	2	WO	10	2	WO	12	2
BAY	6	2	CHR	12	2	LO	8	2	OAK	8	2	WO	8	2	WO	8	2
BAY	8	2	LO	14	2	LO	8	2	OAK	8	2	WO	8	2	WO	10	2
BAY	7	2	LO	12	2	LO	12	2	OAK	8	2	WO	8	2	WO	10	2
BAY	6	2	LO	8	2	LO	13	2	OAK	8	2	WO	8	2	WO	8	2
BAY	7	2	LO	12	2	LO	11	2	OAK	10	2	WO	10	2	WO	10	2
BAY	5	2	LO	8	2	LO	15	2	OAK	12	2	WO	8	2	WO	10	2
BAY	6	2	LO	8	2	LO	8	2	OAK	9	2	WO	8	2	WO	11	2
BAY	6	2	LO	8	2	LO	12	2	OAK	8	2	WO	9	2	WO	10	2

WHERE ANY SIGNIFICANT TREE SHOWN ON THE SIGNIFICANT TREE SURVEY IS PROPOSED TO BE REMOVED SUCH REMOVAL SHALL BE MITIGATED BY THE PLANTING ON SITE OF TWO (2) TREES OF THE SAME SPECIES WITH A MINIMUM CALIPER OF 2" OR GREATER.

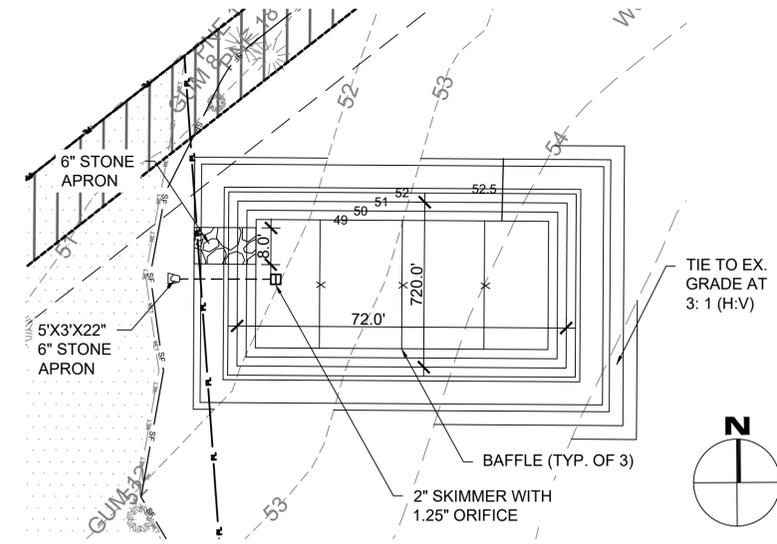
- AMERICAN HOLLY: 15
- BAY: 4
- CHERRY: 38
- LIVE OAK: 57
- MAGNOLIA: 3
- MAPLE: 2
- WILLOW OAK: 14
- WATER OAK: 63

3/4" (2" CALIPER) TREES SHALL BE PLANTED

1 TREE REMOVAL PLAN
SCALE: 1" = 50'



1 SKIMMER BASIN 1
SCALE: 1" = 10'



2 SKIMMER BASIN 1
SCALE: 1" = 10'

SKIMMER BASIN 1 (TSB-1)		SKIMMER BASIN 2 (TSB-2)		10-YEAR INTENSITY		9.71 IN/HR	
3.98	DISTURBED AREA (AC)	1.59	DISTURBED AREA (AC)	TSB-1	AREA (SF)	AREA (AC)	C
19.58	PEAK FLOW FROM 10-YEAR STORM (CFS)	7.72	PEAK FLOW FROM 10-YEAR STORM (CFS)	WOODS	5,847	0.13	0.20
7161	REQUIRED VOLUME (FT3)	2864	REQUIRED VOLUME (FT3)	OPEN SPACE	173,306	3.98	0.50
6362	REQUIRED SURFACE AREA (FT2)	2510	REQUIRED SURFACE AREA (FT2)	IMPERVIOUS	0	0.00	0.95
56	SUGGESTED WIDTH (FT)	35	SUGGESTED WIDTH (FT)	TOTAL		4.11	2.02
113	SUGGESTED LENGTH (FT)	71	SUGGESTED LENGTH (FT)				C = 0.49
							19.58
							3.98
56	TRIAL TOP WIDTH AT SPILLWAY INVERT (FT)	36	TRIAL TOP WIDTH AT SPILLWAY INVERT (FT)	TSB-2	AREA (SF)	AREA (AC)	C
114	TRIAL TOP LENGTH AT SPILLWAY INVERT (FT)	72	TRIAL TOP LENGTH AT SPILLWAY INVERT (FT)	WOODS	0	0.00	0.20
2	TRIAL SIDE SLOPE RATIO Z:1	2	TRIAL SIDE SLOPE RATIO Z:1	OPEN SPACE	69,301	1.59	0.50
2	TRIAL DEPTH (FT)	2	TRIAL DEPTH (FT)	IMPERVIOUS	0	0.00	0.95
48	BOTTOM WIDTH (FT)	28	BOTTOM WIDTH (FT)	TOTAL		1.59	0.92
106	BOTTOM LENGTH (FT)	64	BOTTOM LENGTH (FT)				C = 0.50
5088	BOTTOM AREA (FT2)	1792	BOTTOM AREA (FT2)				7.72
11,451	ACTUAL VOLUME (FT3)	4363	ACTUAL VOLUME (FT3)				1.59
6384	ACTUAL SURFACE AREA (FT2)	2592	ACTUAL SURFACE AREA (FT2)				
20.0	TRIAL WEIR LENGTH (FT)	8	TRIAL WEIR LENGTH (FT)				
0.5	TRIAL DEPTH OF FLOW (FT)	0.5	TRIAL DEPTH OF FLOW (FT)				
21.2	SPILLWAY CAPACITY (CFS)	8.5	SPILLWAY CAPACITY (CFS)				
2.0	SKIMMER SIZE (IN)	2.0	SKIMMER SIZE (IN)				
0.167	HEAD ON SKIMMER (FT)	0.167	HEAD ON SKIMMER (FT)				
	ORIFICE SIZE (1/4 IN INCREMENTS)		ORIFICE SIZE (1/4 IN INCREMENTS)				
5.39	DEWATERING TIME (DAYS)	2.96	DEWATERING TIME (DAYS)				

1 SKIMMER BASIN CALCULATIONS

DESIGN STORM	RAINFALL INTENSITY (i)	10 YEAR	9.59 IN/HR	TEMPORARY C-VALUES				PERMANENT C-VALUES			
				DIST. AREA	IMPERVIOUS	WOODS	OPEN SPACE	DIST. AREA	IMPERVIOUS	WOODS	OPEN SPACE
				0.50	0.90	0.25	0.35	0.50	0.90	0.25	0.35

ID	DRAINAGE AREA				DITCH DATA				ADDITIONAL FLOW				DITCH LINING																	
	DIST. AREA (SF)	IMPERVIOUS (SF)	WOODS (SF)	OPEN SPACE (SF)	A (AC)	C	U/S ELEV.	D/S ELEV.	LENGTH (FT)	MAX. SLOPE (FT/FT)	BTM. WIDTH (FT)	SIDE SLOPE (X:1)	DEPTH D (EST.) (FT)	D (FT)	A (SF)	P (FT)	R=A/P	V (FT/S)	W (FT)	Q10 (EST.) (CFS)	Q10 (CIA) (CFS)	DITCH/PIPES	FLOW (CFS)	LINING TYPE (OR APPROVED EQUAL)	n	SHEAR STRESS (MAX)	V (MAX)	SHEAR STRESS (CHECK) (PSF)	SHEAR OK?	V OK?
TDD1	21,581	0	0	0	0.50	0.50	55	52.5	155	0.016	0	2	0.46	1.5	0.635	2.91	0.22	3.81	9.0	2.42	2.38			CURLEX I	0.030	1.75	7.00	0.46	OK	OK
TDD2	28,928	0	0	0	0.66	0.50	53.5	52.5	190	0.005	0	2	0.63	1.5	1.191	3.98	0.30	2.68	9.0	3.19	3.18			CURLEX I	0.030	1.75	7.00	0.21	OK	OK
TDD3	118,456	0	0	0	2.72	0.50	53.5	45.8	405	0.12	0	2	0.91	1.5	2.484	5.76	0.43	5.25	9.0	13.05	13.04			CURLEX I	0.030	1.75	7.00	0.70	OK	OK

2 DIVERSION DITCH CALCULATIONS

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INTEGRITY BUSINESS PARK

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NICHOLAS J. LAURETTA

ISSUE FOR
REVIEW - NOT FOR CONSTRUCTION

ISSUE DATE
AUGUST 1, 2024

REVISIONS

NO.	DESCRIPTION	DATE

PRINCIPAL IN CHARGE
N. LAURETTA, PE, LEED AP
PROJECT MANAGER
NJL
DRAWN BY
NJL

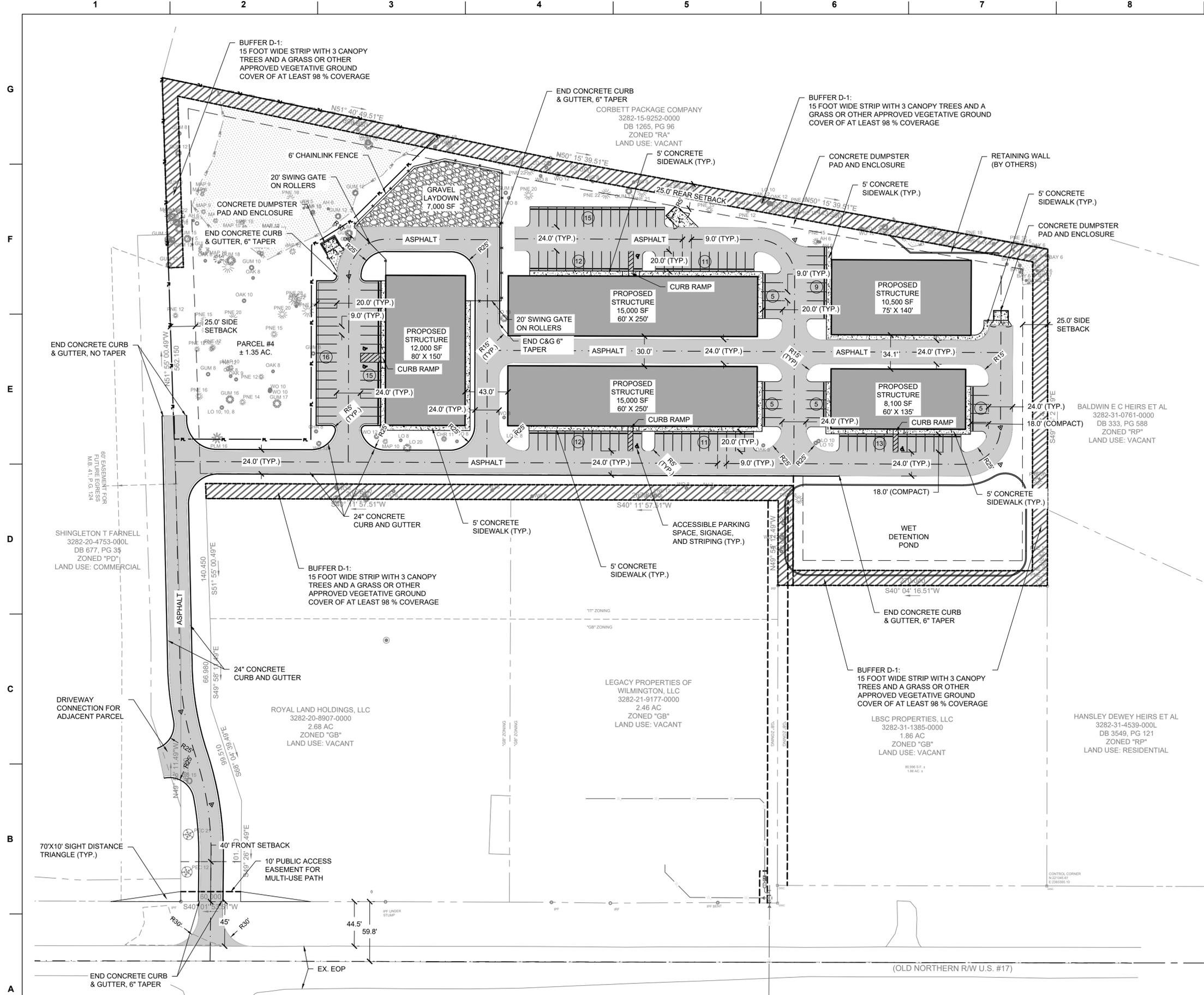
PROJECT ADDRESS
13047 US HWY 17
HAMPSTEAD, NC

PROJECT NUMBER
1014.01

SHEET TITLE
EROSION & SEDIMENT CONTROL PLAN - PHASE 2

SHEET 5 OF 26
SHEET NUMBER

CE102
MASTER DEVELOPMENT PLAN



LEGEND

- BUILDING OUTLINE
- EDGE OF ASPHALT
- CENTERLINE
- SETBACK
- EDGE OF SIDEWALK
- PROPERTY LINE
- PARKING BLOCK
- PARKING SPACE COUNT
- BUFFER
- CONCRETE
- ASPHALT

SITE DATA

PROJECT INFORMATION

PROJECT NAME	INTEGRITY BUILDING
PROJECT ADDRESS	US HWY 17 HAMPSTEAD, NC 28443
PARCEL ID - PARCEL A	3282-21-6106-0000
TOTAL PROPERTY ACREAGE	±7.65 AC
PROPERTY OWNER/APPLICANT/DEVELOPER	INTEGRITY BUILDING COMPANIES 141 DIVISION DRIVE #120 WILMINGTON, NC 28401
ENGINEER	RIVERVIEW ENGINEERING, PLLC NICHOLAS LAURETTA, PE, LEED AP
ZONING	IT (INDUSTRIAL TRANSITION)
CURRENT USE	VACANT LAND
PROPOSED USE	CONSTRUCTION SERVICES
FLOOD HAZARD	N/A
SETBACKS	
FRONT	40
SIDE INTERIOR	25
REAR	25
PROPOSED STRUCTURES	
PROPOSED NUMBER OF BUILDINGS	5
BUILDING SQUARE FOOTAGE	60,600 SF
BUILDING HEIGHT	0'-0"
CONSTRUCTION TYPE	V-B
BUILDING LOT COVERAGE	18.1%
IMPERVIOUS COVERAGE	
EXISTING	0 SF / 0%
PROPOSED	200,703 SF / 60.0%
PROPOSED OFFSITE	0 SF
DISTURBED AREA	7.5 AC

UTILITY PROVIDERS

PENDER COUNTY PLANNING DEPARTMENT TAYLOR DAVIS 805 S. WALKER ST. BURGAW, NC 28425 (910) 259-1734	NCDOT KRISTEN L. SPIRAKIS, PE DISTRICT ENGINEER DIVISION 3 DISTRICT 1 910-467-0500
PENDER COUNTY FIRE MARSHAL 805 RIDGEWOOD AVE. BURGAW, NC 28425 (910) 259-1210	WATER PENDER COUNTY UTILITIES KATIE LEUBNER (910) 663-3776 605 E. FREMONT ST. BURGAW, NC 28425
EROSION CONTROL DIVISION OF ENERGY, MINERAL AND LAND RESOURCES - LAND QUALITY SECTION NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DAN SAMS DAN.SAMS@DEQ.NC.GOV 127 CARDINAL DRIVE EXT. WILMINGTON, NC 28405 (910) 796-7326	SEWER KAARIN WILLIAMS PLURIS HAMPSTEAD, LLC PO BOX 297 HAMPSTEAD, NC 28443 (910) 758-7471
STORMWATER DIVISION OF ENERGY, MINERAL AND LAND RESOURCES - POST CONSTRUCTION STORMWATER PROGRAM NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY CHRISTINE HALL, PE 127 CARDINAL DRIVE EXT. WILMINGTON, NC 28405 (910) 796-7339	

PARKING SUMMARY

	AREA (SF)	REQUIRED	PROVIDED
LIGHT INDUSTRIAL (1 PER 1,000 SF)	24,000	24	27
SERVICE (1 PER 500 SF)	26,100	53	60
RECREATION (1 PER 250 SF)	10,500	42	47
TOTAL (INCLUDING ADA)	60,600	119	134
ADA COMPLIANT		3 (1 VAN)	5 (1 VAN)

TRAFFIC GENERATION

	INTENSITY	ADT	AM PEAK		PM PEAK	
			IN	OUT	IN	OUT
GENERAL LIGHT INDUSTRIAL (110)	24,000 SF	167	19	3	3	20
GENERAL OFFICE (710)	26,100 SF	287	36	5	7	32
HEALTH / FITNESS CLUB (492)	10,500 SF	346	7	8	21	16
TOTAL		800	62	16	31	68

WETLANDS ARE PRESENT ON THE REAR OF PARCEL. NO WETLANDS IMPACTS ARE PROPOSED.

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REVISIONS

NO.	VALUE

PRINCIPAL IN CHARGE
N. LAURETTA, PE, LEED AP

PROJECT MANAGER
N.J.L.

DRAWN BY
N.J.L.

PROJECT ADDRESS

13047 US HWY 17
HAMPSTEAD, NC

PROJECT NUMBER

1014.01

SHEET TITLE

SITE PLAN

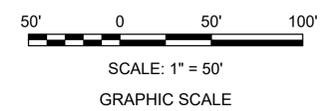
SHEET 6 OF 26

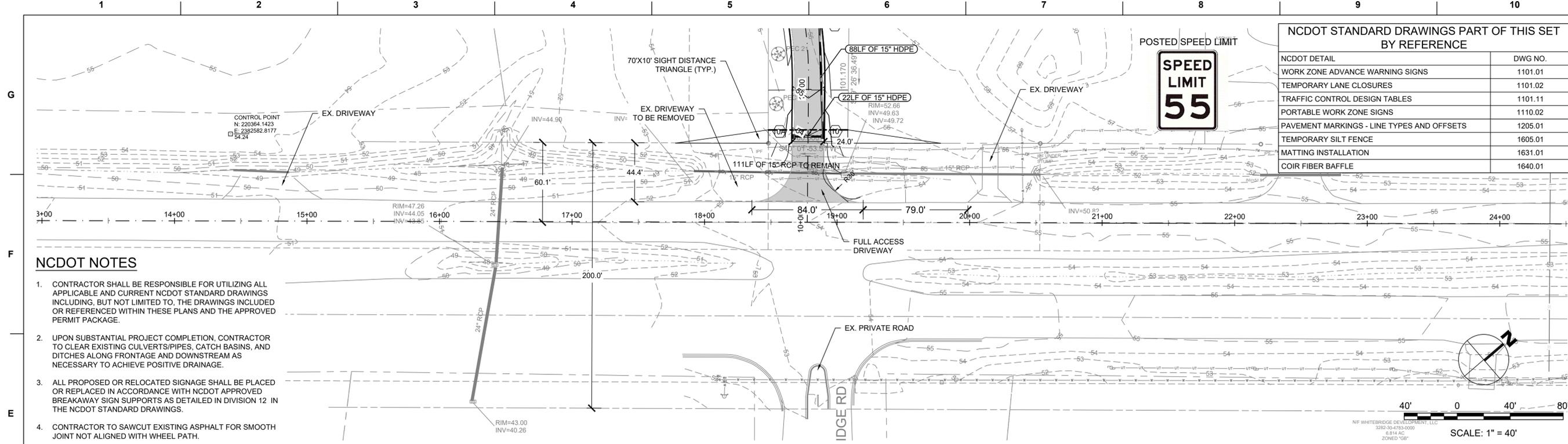
SHEET NUMBER

CS101

MASTER DEVELOPMENT PLAN

1 SITE PLAN
SCALE: 1" = 50'





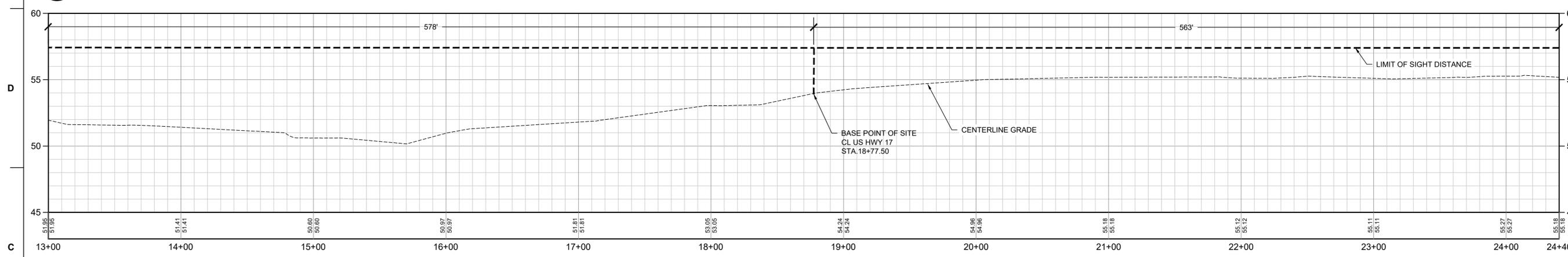
NCDOT STANDARD DRAWINGS PART OF THIS SET BY REFERENCE

NCDOT DETAIL	DWG NO.
WORK ZONE ADVANCE WARNING SIGNS	1101.01
TEMPORARY LANE CLOSURES	1101.02
TRAFFIC CONTROL DESIGN TABLES	1101.11
PORTABLE WORK ZONE SIGNS	1110.02
PAVEMENT MARKINGS - LINE TYPES AND OFFSETS	1205.01
TEMPORARY SILT FENCE	1605.01
MATTING INSTALLATION	1631.01
COIR FIBER BAFFLE	1640.01

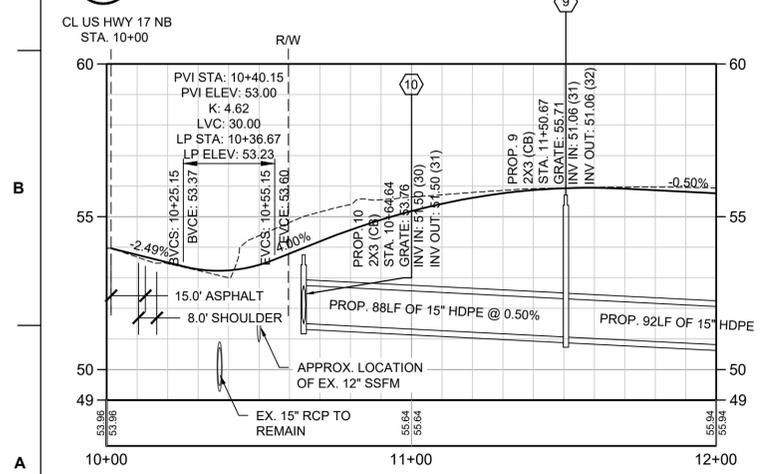
NCDOT NOTES

- CONTRACTOR SHALL BE RESPONSIBLE FOR UTILIZING ALL APPLICABLE AND CURRENT NCDOT STANDARD DRAWINGS INCLUDING, BUT NOT LIMITED TO, THE DRAWINGS INCLUDED OR REFERENCED WITHIN THESE PLANS AND THE APPROVED PERMIT PACKAGE.
- UPON SUBSTANTIAL PROJECT COMPLETION, CONTRACTOR TO CLEAR EXISTING CULVERTS/PIPES, CATCH BASINS, AND DITCHES ALONG FRONTAGE AND DOWNSTREAM AS NECESSARY TO ACHIEVE POSITIVE DRAINAGE.
- ALL PROPOSED OR RELOCATED SIGNAGE SHALL BE PLACED OR REPLACED IN ACCORDANCE WITH NCDOT APPROVED BREAKAWAY SIGN SUPPORTS AS DETAILED IN DIVISION 12 IN THE NCDOT STANDARD DRAWINGS.
- CONTRACTOR TO SAWCUT EXISTING ASPHALT FOR SMOOTH JOINT NOT ALIGNED WITH WHEEL PATH.

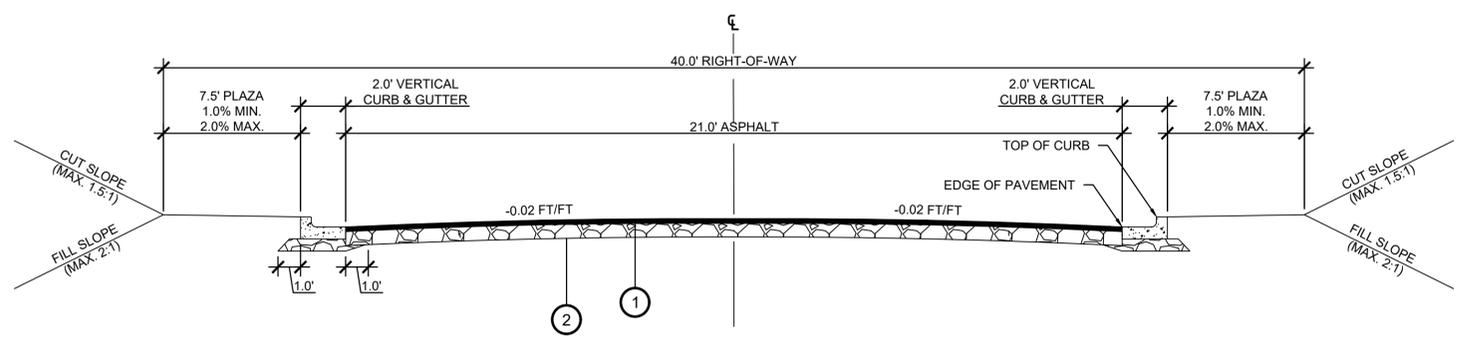
1 PLAN - CL US HWY 17 NB
SCALE: 1" = 40'



2 PROFILE - US HWY 17 NB
SCALE: HOR. 1" = 40', VERT. 1" = 4'

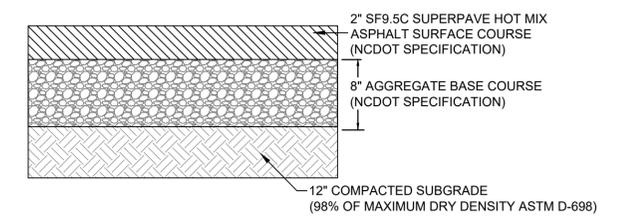


3 DRIVEWAY PROFILE DETAIL
SCALE: HOR. 1" = 30' VER. 1" = 3'



- 1 2" SF9.5C SUPERPAVE HOT MIX ASPHALT SURFACE COURSE (NCDOT SPECIFICATION)
- 2 8" AGGREGATE BASE COURSE (NCDOT SPECIFICATION)

4 ENTRY ROAD SECTION
SCALE: NOT TO SCALE



5 NCDOT DRIVEWAY PAVEMENT SECTION
SCALE: NOT TO SCALE

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DRAWN BY
N.J.L.

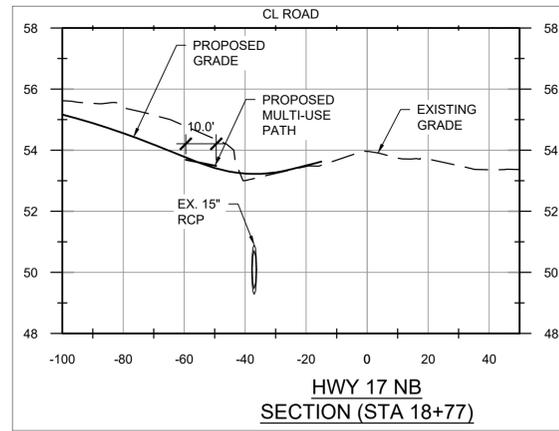
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13047 US HWY 17
HAMPSTEAD, NC

PROJECT NUMBER
1014.01

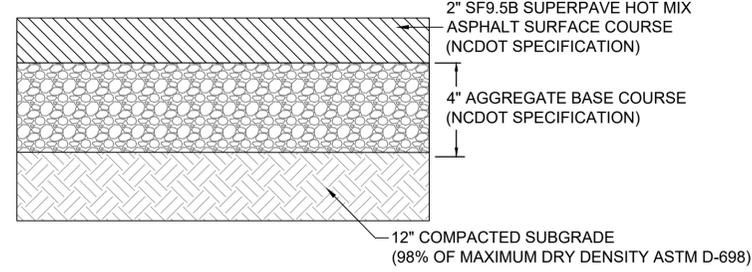
SHEET TITLE
DRIVEWAY PLAN

SHEET 7 OF 26
SHEET NUMBER

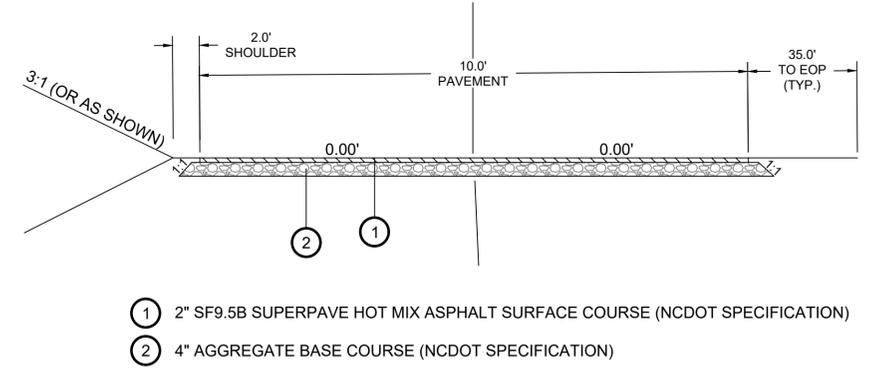
CS102
MASTER DEVELOPMENT PLAN



1 MULTI-USE PATH SECTION
SCALE: NOT TO SCALE



2 NCDOT MULTI-USE PATH PAVEMENT SECTION
SCALE: NOT TO SCALE



3 MULTI-USE PATH SECTION
SCALE: NOT TO SCALE

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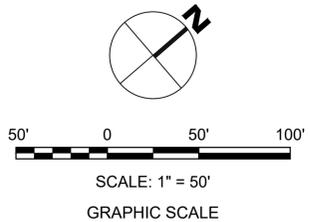
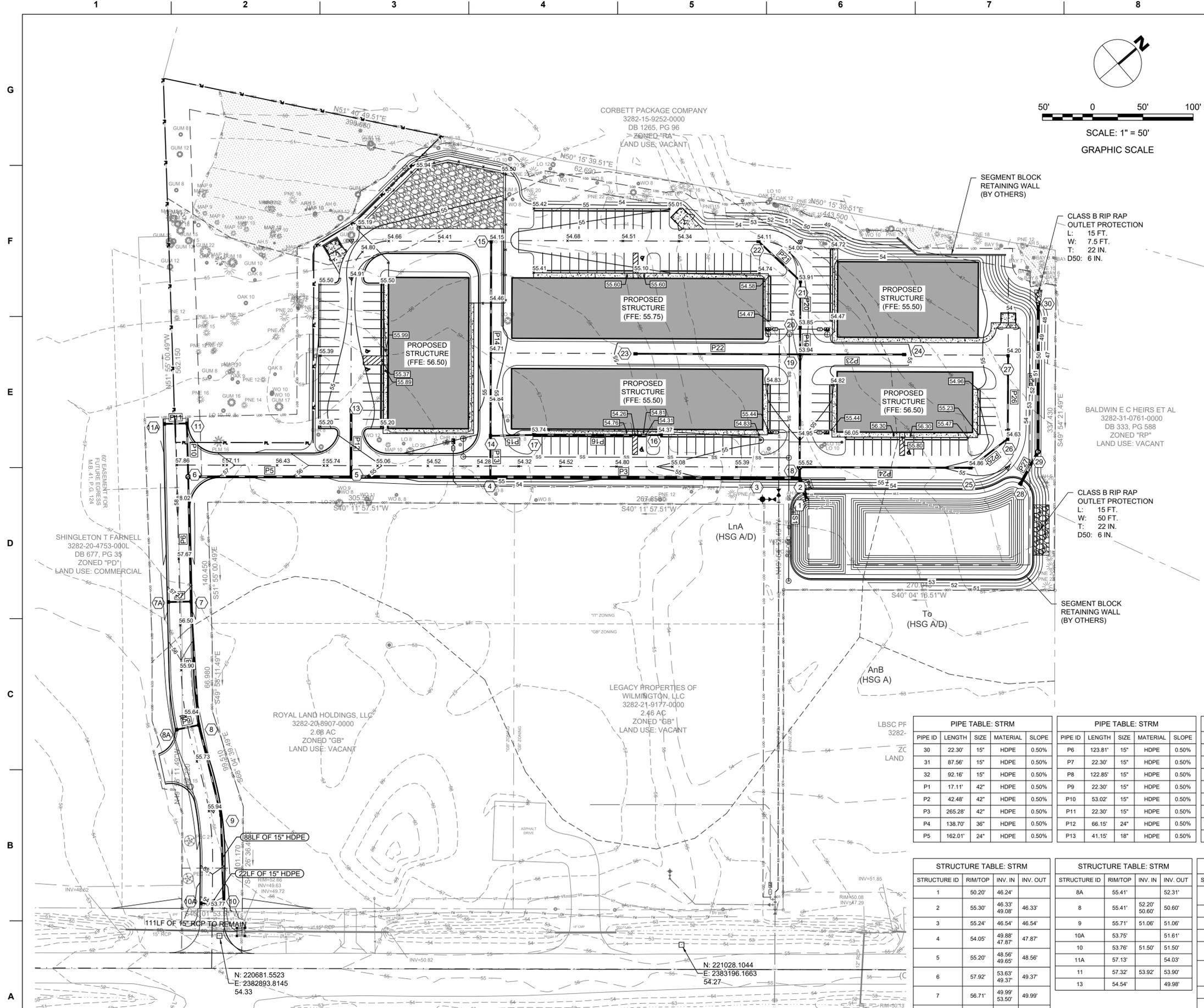
PROJECT ADDRESS
13047 US HWY 17
HAMPSTEAD, NC

PROJECT NUMBER
1014.01

SHEET TITLE
MULTI-USE PATH PLAN

SHEET 8 OF 26
SHEET NUMBER

CS103
MASTER DEVELOPMENT PLAN



LEGEND	
	BUILDING OUTLINE
	EDGE OF ASPHALT
	CENTERLINE
	SETBACK
	EDGE OF SIDEWALK
	PROPERTY LINE
	CONCRETE
	ASPHALT
	EDGE OF ASPHALT
	CENTERLINE
	EX. MAJOR CONTOUR
	EX. MINOR CONTOUR
	PROP. MAJOR CONTOUR
	PROP. MINOR CONTOUR
	STORMWATER LINE
	LIMITS OF DISTURBANCE
	TREE PROTECTION FENCE
	PUBLIC DRAINAGE EASEMENT

- STORM DRAINAGE AND GRADING NOTES**
- IN ACCORDANCE WITH NC GENERAL STATUTES, NPDES REGULATIONS, AND NCDENR REQUIREMENTS, STORMWATER DISCHARGE OUTFALLS SHALL BE INSPECTED BY THE CONTRACTOR. INSPECTIONS SHALL BE PERFORMED BY THE CONTRACTOR AFTER EACH STORM EVENT OF 1/2 INCH OR GREATER, WITH ONE WEEKLY INSPECTION MINIMUM. NCDENR STANDARD INSPECTION REPORTS SHALL BE PREPARED AND SIGNED WITH COPIES PROVIDED TO THE OWNER, ARCHITECT, AND ENGINEER, BY THE CONTRACTOR.
 - INLET PROTECTION SHALL BE INSTALLED AROUND OUTFALL DEVICES SHALL BE CONSTRUCTED TO FINAL PROPOSED CONDITION UPON STABILIZATION OF CONTRIBUTING GROUND SURFACES AND REMOVAL OF SEDIMENT FROM STORM PIPES.
 - ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY CONSTRUCTION MANAGER IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN OR GRADE CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
 - UNLESS OTHERWISE NOTED, GRADES AND SPOT ELEVATIONS NOTED ON PLANS INDICATE FINISHED GRADE OR PAVEMENT SURFACE. ALL DIMENSIONS ARE MEASURED TO THE BACK OF CURB UNLESS OTHERWISE INDICATED.

- MATERIALS AND EASEMENT NOTES:**
- ALL STORM DRAINAGE PIPING TO BE RCP, UNLESS OTHERWISE NOTED
 - ALL STORM DRAINAGE PIPING CONVEYING DISCHARGE FROM THE PUBLIC RIGHT-OF-WAY SHALL BE CONTAINED WITHIN A PUBLIC DRAINAGE EASEMENT WHOSE WIDTH IS DETERMINED BY THE DEPTH OF BURY
 - POTABLE WATER, FIRE PROTECTION WATER SHALL BE PUBLIC AND SANITARY SEWER UTILITIES ARE PRIVATE.

PIPE TABLE: STRM																			
PIPE ID	LENGTH	SIZE	MATERIAL	SLOPE	PIPE ID	LENGTH	SIZE	MATERIAL	SLOPE	PIPE ID	LENGTH	SIZE	MATERIAL	SLOPE	PIPE ID	LENGTH	SIZE	MATERIAL	SLOPE
P6	123.81'	15"	HDPE	0.50%	P7	22.30'	15"	HDPE	0.50%	P14	193.02'	18"	HDPE	0.50%	P22	163.89'	15"	HDPE	2.00%
P31	87.56'	15"	HDPE	0.50%	P8	122.85'	15"	HDPE	0.50%	P15	43.82'	15"	HDPE	0.50%	P23	103.49'	15"	HDPE	2.00%
P32	92.16'	15"	HDPE	0.50%	P9	22.30'	15"	HDPE	0.50%	P16	126.00'	15"	HDPE	0.54%	P24	170.07'	18"	HDPE	0.50%
P1	17.11'	42"	HDPE	0.50%	P10	53.02'	15"	HDPE	0.50%	P17	11.15'	24"	HDPE	0.50%	P25	46.96'	15"	HDPE	0.50%
P2	42.48'	42"	HDPE	0.50%	P11	22.30'	15"	HDPE	0.50%	P18	112.02'	18"	HDPE	0.50%	P26	82.95'	15"	HDPE	0.50%
P3	265.28'	42"	HDPE	0.50%	P12	66.15'	24"	HDPE	0.50%	P19	27.23'	18"	HDPE	0.50%	P27	36.44'	30"	HDPE	0.63%
P4	138.70'	36"	HDPE	0.50%	P13	41.15'	18"	HDPE	0.50%	P20	45.30'	15"	HDPE	0.50%	P28	141.41'	30"	HDPE	0.55%
P5	162.01'	24"	HDPE	0.50%						P21	57.53'	15"	HDPE	0.50%					

STRUCTURE TABLE: STRM				STRUCTURE TABLE: STRM				STRUCTURE TABLE: STRM				STRUCTURE TABLE: STRM			
STRUCTURE ID	RIM/TOP	INV. IN	INV. OUT	STRUCTURE ID	RIM/TOP	INV. IN	INV. OUT	STRUCTURE ID	RIM/TOP	INV. IN	INV. OUT	STRUCTURE ID	RIM/TOP	INV. IN	INV. OUT
1	50.20'	46.24'		8A	55.41'		52.31'	14	54.20'	50.08'	50.08'	22	54.11'		51.32'
2	55.30'	46.33'	46.33'	8	55.41'	52.20'	50.60'	15	54.15'		51.05'	23	56.05'		53.95'
3	55.24'	46.54'	46.54'	9	55.71'	51.06'	51.06'	16	54.40'		51.34'	24	54.66'		52.74'
4	54.05'	49.88'	47.87'	10A	53.75'		51.61'	17	53.77'	50.66'	50.66'	25	54.86'	50.45'	50.45'
5	55.20'	48.56'	48.56'	10	53.76'	51.50'	51.50'	18	55.52'	49.60'	49.14'	26	54.63'	50.69'	50.69'
6	57.92'	49.37'	49.37'	11A	57.13'		54.03'	19	53.94'	50.67'	50.48'	27	54.20'		51.10'
7	56.71'	49.99'	49.99'	11	57.32'	53.92'	53.90'	20	53.85'	50.81'	50.81'	28	51.33'		47.00'
7A	56.71'	53.61'		13	54.54'		49.98'	21	53.91'	51.03'	51.03'	29	51.00'	46.77'	46.77'

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PROJECT MANAGER
N.J.L.
DRAWN BY
N.J.L.

PROJECT ADDRESS
13047 US HWY 17
HAMPSTEAD, NC

PROJECT NUMBER
1014.01

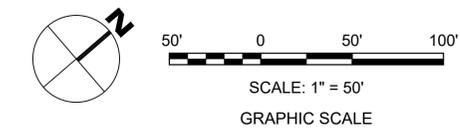
SHEET TITLE
STORM DRAINAGE & GRADING PLAN

SHEET 10 OF 26
SHEET NUMBER
CG101
MASTER DEVELOPMENT PLAN

1 STORM DRAINAGE & GRADING PLAN
SCALE: 1" = 50'

WATER AND SEWER DEMAND

USE	FLOW RATE	DEMAND
FITNESS CENTER (9,975 SF)	50 GAL / 100 SF	4,988 GPD
STORE W/O FOOD SERVICE (35,100 SF)	100 GAL / 1,000 SF	3,510 GPD
GENERAL BUSINESS (10 FTE)	25 GAL / FTE / SHIFT	2,500 GPD
TOTAL		10,998 GPD



LEGEND

- BUILDING OUTLINE
- EDGE OF ASPHALT
- CENTERLINE
- SETBACK
- EDGE OF SIDEWALK
- PROPERTY LINE
- CONCRETE
- ASPHALT
- EDGE OF ASPHALT
- CENTERLINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- PROP. MAJOR CONTOUR
- PROP. MINOR CONTOUR
- STORMWATER LINE
- EX. UNDERGROUND TELECOMMUNICATIONS LINE
- EX. WATER LINE
- EX. FORCEMAIN
- PROP. WATER LINE
- PROP. SANITARY SEWER

STRUCTURE TABLE: SS

STRUCTURE ID	RIM/TOP	INV. IN	INV. OUT
S0	53.17'	43.91'	
S1	55.33'	46.83'	44.40'
S2	54.07'	48.07'	
S3	54.13'	48.13'	

PIPE TABLE: SS

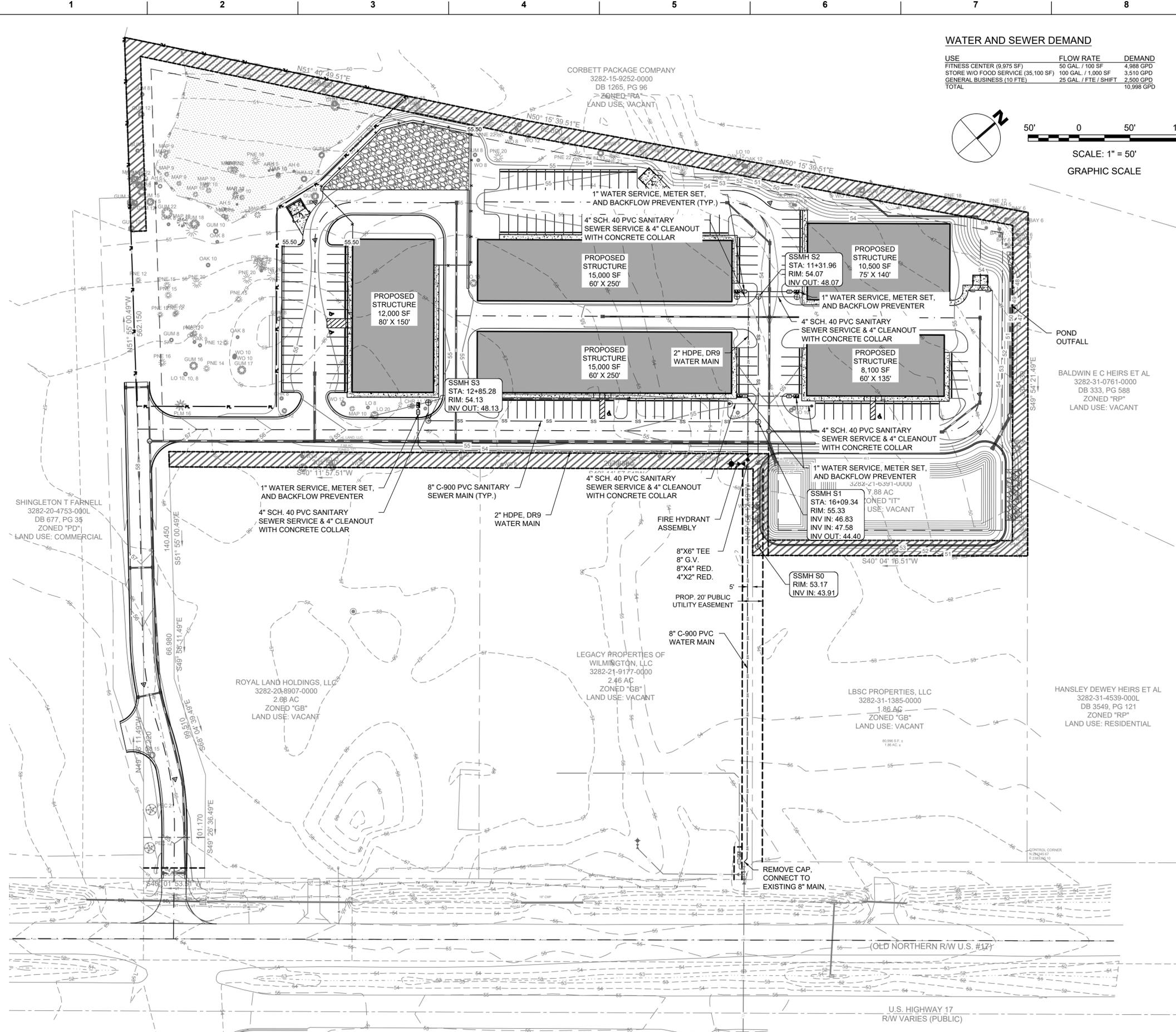
PIPE ID	LENGTH	SIZE	MATERIAL	SLOPE
S1	122.20'	8"	PVC	0.40%
S2	122.70'	8"	PVC	0.40%
S3	324.06'	8"	PVC	0.40%

PCU STANDARD NOTES

- A PRE-CONSTRUCTION MEETING IS REQUIRED BEFORE BEGINNING WORK. THE MEETING MUST BE SCHEDULED WITH PENDER COUNTY UTILITIES (PCU) AT LEAST ONE WEEK IN ADVANCE. ATTENDEES MUST INCLUDE PCU, THE UTILITY CONTRACTOR'S SUPERINTENDENT, THE SUPPLIER, AND THE CONSULTING ENGINEER.
- ALL MATERIALS USED SHALL CONFORM TO PENDER COUNTY UTILITIES REQUIREMENTS. NON-CONFORMING MATERIAL WILL NOT BE ACCEPTED FOR FINAL CERTIFICATION.
- ALL PIPE SHALL BE C900 CR18 PVC, UNLESS OTHERWISE NOTED (SEE PCU STANDARD DETAIL). PCU MUST APPROVE THE USE OF DIP IN THE FIELD BEFORE INSTALLATION. PIPE SHOULD NEVER BE UNDER THE ROADWAY, PARKING LOT, OR SIDEWALKS. PENDER COUNTY UTILITIES DOES NOT ALLOW SIZE-ON-SIZE TAPS.
- PCU STANDARD WATERLINE PIPE RESTRAINING METHOD IS MEGA LUGS. AT A MINIMUM ALL FITTINGS, VALVES, ETC. MUST BE RESTRAINED (SEE PCU STANDARD DETAIL).
- PCU MUST INSPECT CASING INSTALLATIONS PRIOR TO BACKFILL. PCU MUST WITNESS PRESSURE TESTS, AND WITHDRAWAL OF BACTERIOLOGICAL SAMPLES. CONTACT PENDER COUNTY UTILITIES INSPECTOR TO SCHEDULE.
- CLOSE-OUT DOCUMENTS WHICH MUST BE RECEIVED PRIOR TO PCU SIGNING THE NCDEQ PWSS APPLICANT CERTIFICATION INCLUDE: BACTERIOLOGICAL TESTS, PRESSURE TESTS, DEED OF DEDICATION, AFFIDAVIT/RELEASE OF LIENS, WARRANTY, AND RECORDS DRAWINGS (PDF & GEO-REFERENCED CAD).
- AN 18-MONTH WARRANTY PERIOD APPLIES TO ALL WATERLINE CONSTRUCTION. THIS WARRANTY PERIOD DOES NOT BEGIN UNTIL FINAL APPROVAL OF THE SYSTEM HAS BEEN RECEIVED FROM NCDEQ PWSS.

FIRE PROTECTION NOTES

- LANDSCAPING OR PARKING CANNOT BLOCK OR IMPEDE THE FDC OR FIRE HYDRANTS. A 3-FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF THE HYDRANT AND FDC.
- HYDRANTS MUST BE LOCATED WITHIN 8' OF THE CURB.
- COMBUSTIBLE MATERIALS MAY NOT BE STORED OR ERECTED ONSITE WITHOUT CITY FIRE INSPECTOR APPROVAL.
- NEW HYDRANTS MUST BE AVAILABLE FOR USE PRIOR TO CONSTRUCTION OF THE BUILDING(S).
- A MINIMUM OF 5' SHALL SEPARATE UNDERGROUND FIRE LINES OR PRIVATE WATER MAINS FROM UNDERGROUND UTILITIES.
- CONTRACTOR SHALL MAINTAIN AN ALL WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
- ALL WEATHER ACCESS ROAD MUST BE MAINTAINED AROUND CONSTRUCTION SITE AT ALL TIMES.
- FIRE HYDRANTS ARE TO BE INSTALLED PER SPECIFICATIONS.



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ISSUE FOR
REVIEW - NOT FOR CONSTRUCTION

ISSUE DATE
AUGUST 1, 2024

REVISIONS

NO.	VALUE

PRINCIPAL IN CHARGE
N. LAURETTA, PE, LEED AP
PROJECT MANAGER
N/JL
DRAWN BY
N/JL

PROJECT ADDRESS
13047 US HWY 17
HAMPSTEAD, NC

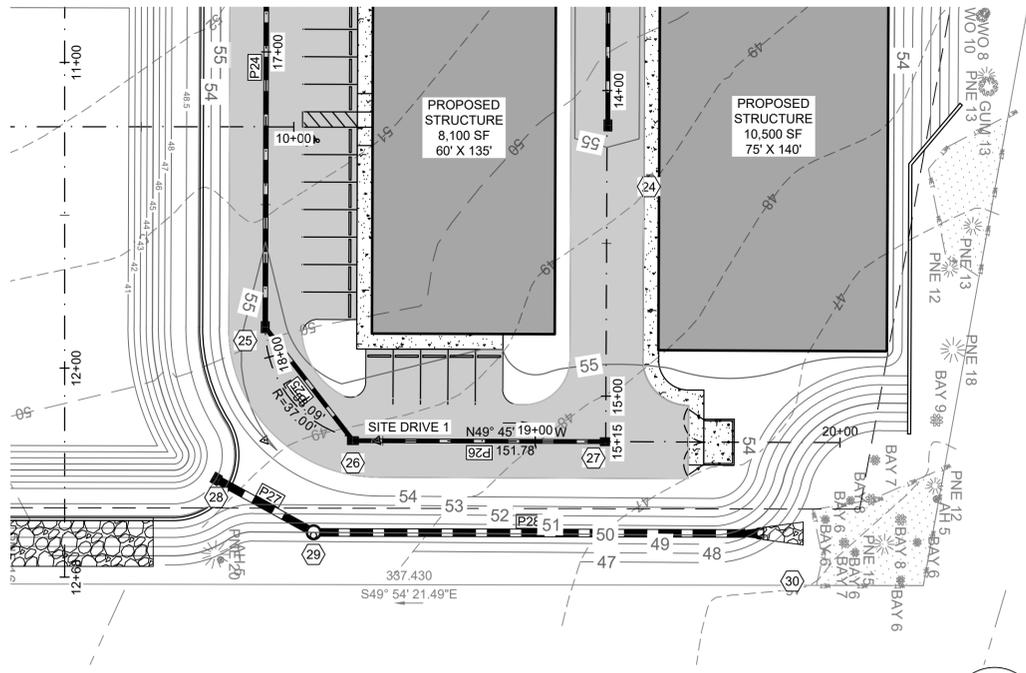
PROJECT NUMBER
1014.01

SHEET TITLE
UTILITY PLAN

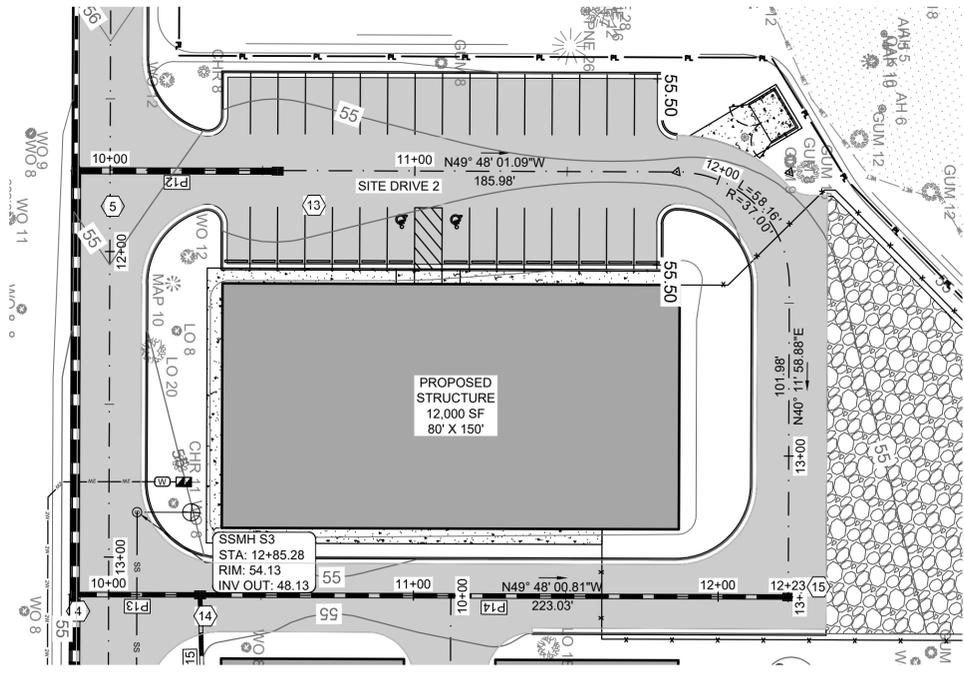
SHEET 11 OF 26
SHEET NUMBER

CU101
MASTER DEVELOPMENT PLAN

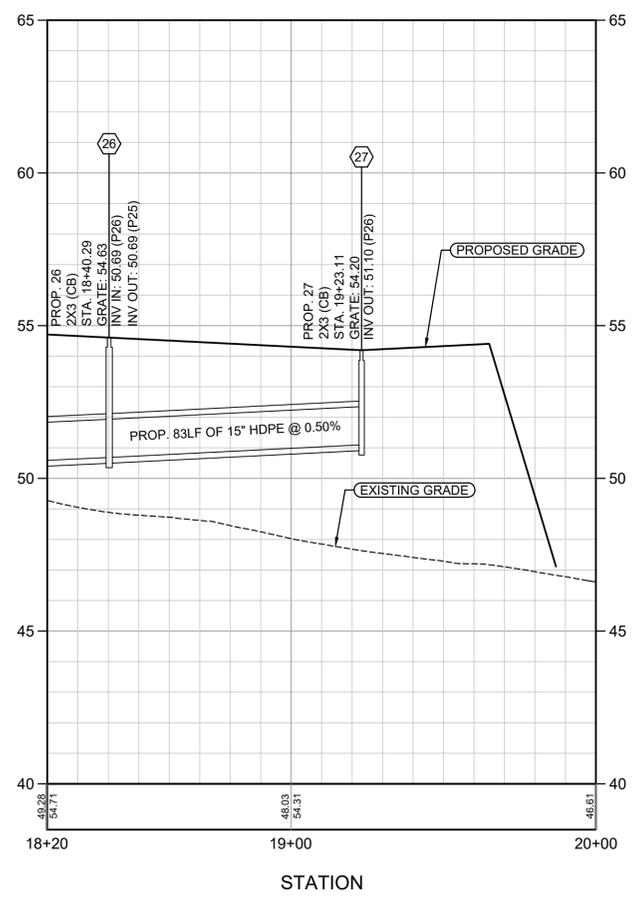
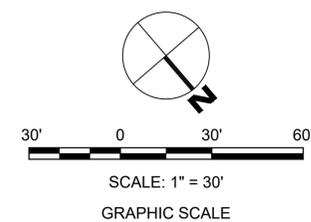
1 UTILITY PLAN
SCALE: 1" = 50'



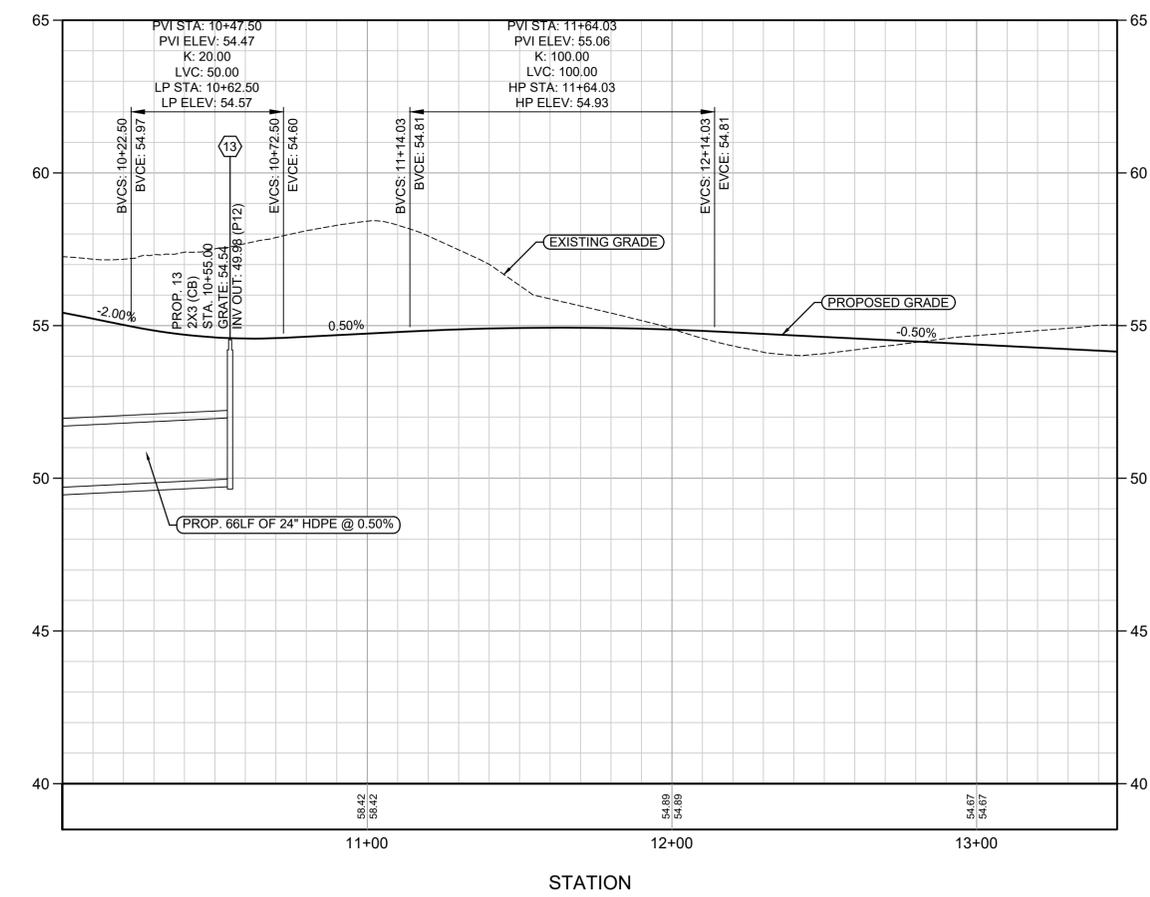
1 PLAN - SITE DRIVE 1 - STA. 18+20 TO 20+00
SCALE: 1" = 30'



3 PLAN - SITE DRIVE 2 - STA. 10+00 TO 13+46
SCALE: 1" = 30'



2 PROFILE - SITE DRIVE 1 - STA. 18+20 TO 20+00
SCALE: HOR. 1" = 30' VERT. 1" = 3'



4 PROFILE - SITE DRIVE 2 - STA. 10+00 TO 13+46
SCALE: HOR. 1" = 30' VERT. 1" = 3'

REVISIONS

NO.	VALUE	DATE

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes		
Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
<ul style="list-style-type: none"> Temporary grass seed covered with straw or other mulches and tackifiers Hydroseeding Rolled erosion control products with or without temporary grass seed Appropriately applied straw or other mulch Plastic sheeting 	<ul style="list-style-type: none"> Permanent grass seed covered with straw or other mulches and tackifiers Geotextile fabrics such as permanent soil reinforcement matting Hydroseeding Shrubs or other permanent plantings covered with mulch Uniform and evenly distributed ground cover sufficient to restrain erosion Structural methods such as concrete, asphalt or retaining walls Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

- Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
- Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
- Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
- Provide BASINing area for containment of treated Stormwater before discharging offsite.
- Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

- Maintain vehicles and equipment to prevent discharge of fluids.
- Provide drip pans under any stored equipment.
- Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
- Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
- Remove leaking vehicles and construction equipment from service until the problem has been corrected.
- Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

- Never bury or burn waste. Place litter and debris in approved waste containers.
- Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
- Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
- Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
- Anchor all lightweight items in waste containers during times of high winds.
- Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
- Dispose waste off-site at an approved disposal facility.
- On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

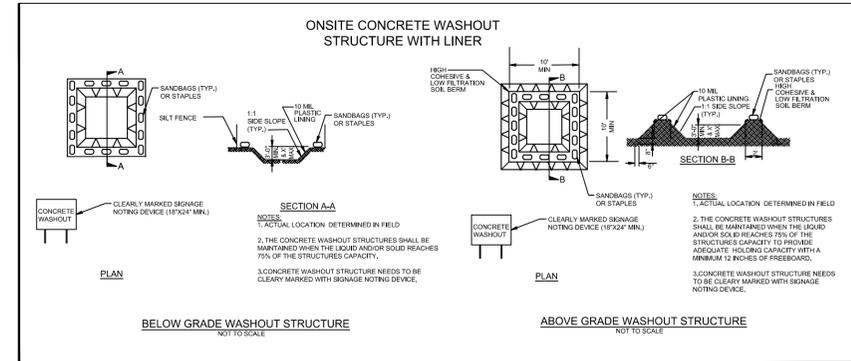
- Do not dump paint and other liquid waste into storm drains, streams or wetlands.
- Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Contain liquid wastes in a controlled area.
- Containment must be labeled, sized and placed appropriately for the needs of site.
- Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

- Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
- Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
- Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

- Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
- Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
- Provide stable stone access point when feasible.
- Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.



CONCRETE WASHOUTS

- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
- Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
- Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
- Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
- Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
- Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
- Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
- At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

- Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
- Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
- Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
- Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

- Create designated hazardous waste collection areas on-site.
- Place hazardous waste containers under cover or in secondary containment.
- Do not store hazardous chemicals, drums or bagged materials directly on the ground.

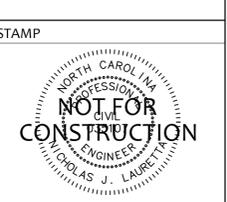


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ISSUE FOR
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ISSUE DATE
AUGUST 1, 2024

REVISIONS	VALUE	

PRINCIPAL IN CHARGE
N. LAURETTA, PE, LEED AP
PROJECT MANAGER
NJL
DRAWN BY
NJL
PROJECT ADDRESS
13047 US HWY 17
HAMPSTEAD, NC

PROJECT NUMBER
1014.01

SHEET TITLE

EROSION & SEDIMENT CONTROL DETAILS

SHEET 18 OF 26
SHEET NUMBER

CE503

MASTER DEVELOPMENT PLAN

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Table with 3 columns: Inspect, Frequency (during normal business hours), Inspection records must include: (1) Rain gauge maintained in good working order, (2) E&SC Measures, (3) Stormwater discharge outfalls (SDOs), (4) Perimeter of site, (5) Streams or wetlands onsite or offsite, (6) Ground stabilization measures.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Table with 2 columns: Item to Document, Documentation Requirements. (a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan. (b) A phase of grading has been completed. (c) Ground cover is located and installed in accordance with the approved E&SC plan. (d) The maintenance and repair requirements for all E&SC measures have been performed. (e) Corrective actions have been taken to E&SC measures.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

- (a) This General Permit as well as the Certificate of Coverage, after it is received.
(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

- (a) Visible sediment deposition in a stream or wetland.
(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).
(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
(d) Anticipated bypasses and unanticipated bypasses.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Table with 2 columns: Occurrence, Reporting Timeframes (After Discovery) and Other Requirements. (a) Visible sediment deposition in a stream or wetland. (b) Oil spills and release of hazardous substances per Item 1(b)-(c) above. (c) Anticipated bypasses [40 CFR 122.41(m)(3)]. (d) Unanticipated bypasses [40 CFR 122.41(m)(3)]. (e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(l)(7)].

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

- (a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19



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ISSUE DATE
AUGUST 1, 2024

Table with 2 columns: REVISIONS, VALUE. Includes a table for tracking revisions.

PRINCIPAL IN CHARGE
N. LAURETTA, PE, LEED AP
PROJECT MANAGER
N/JL
DRAWN BY
N/JL
PROJECT ADDRESS
13047 US HWY 17
HAMPSTEAD, NC

PROJECT NUMBER
1014.01

SHEET TITLE
EROSION &
SEDIMENT
CONTROL DETAILS

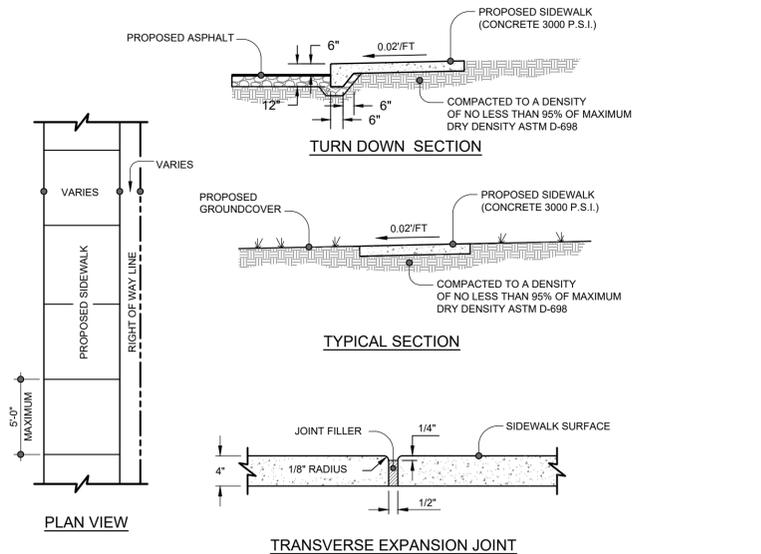
SHEET 19 OF 26
SHEET NUMBER

CE504

MASTER DEVELOPMENT PLAN

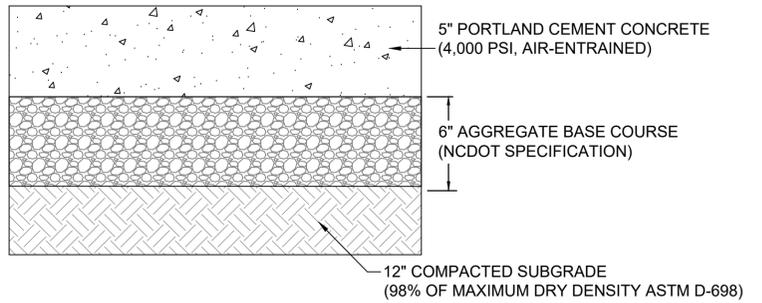
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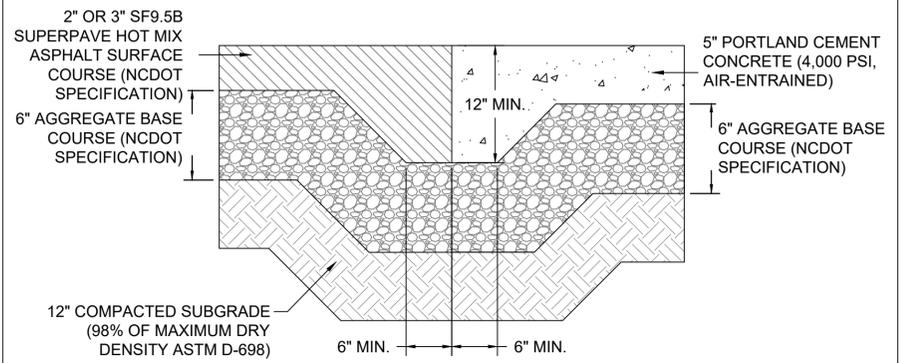


- NOTES:**
1. TRANSVERSE EXPANSION JOINTS TO BE A MAXIMUM OF 50 FEET.
 2. ALL CONCRETE TO BE FINISHED WITH CURING COMPOUND.
 3. A 6 INCH DEPTH IS REQUIRED AT LOCATIONS OF DRIVEWAY CROSSINGS, AT STREET INTERSECTIONS (ALONG THE LENGTH OF RADIUS CURB RETURNS), AND IN THE HANDICAP RAMPS.

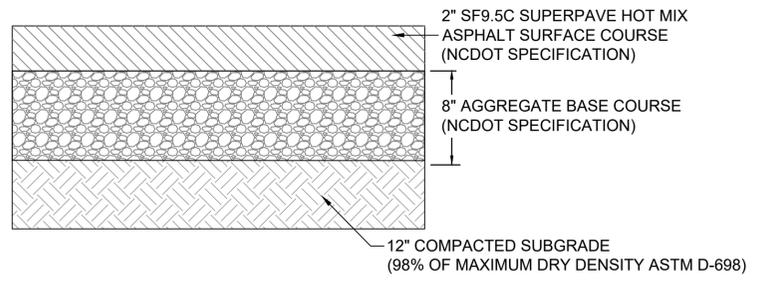
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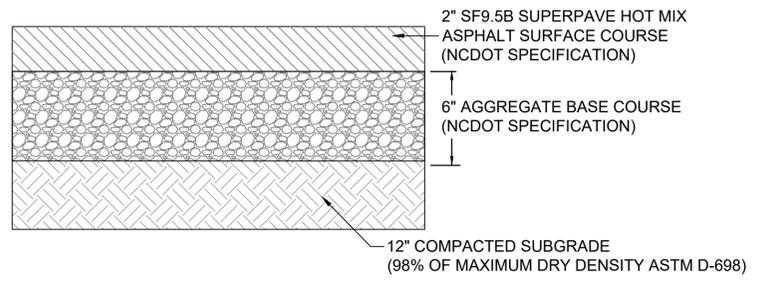
2 CONCRETE PAVEMENT SECTION (HEAVY DUTY)
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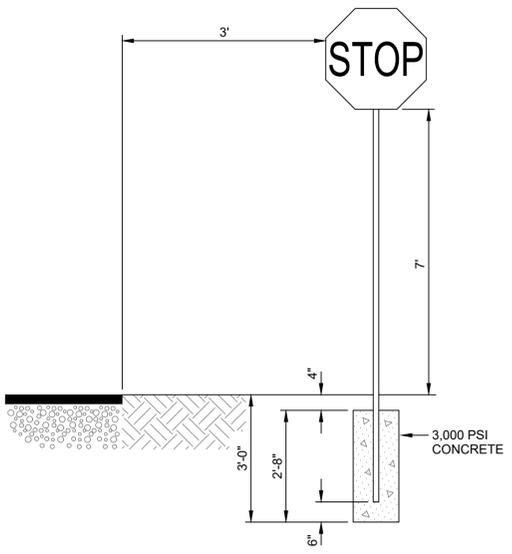
3 ASPHALT TO CONCRETE TRANSITION
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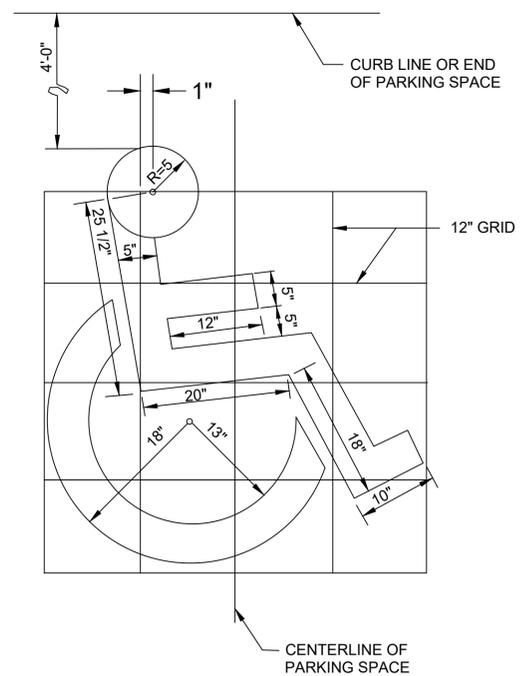
4 NCDOT DRIVEWAY PAVEMENT SECTION
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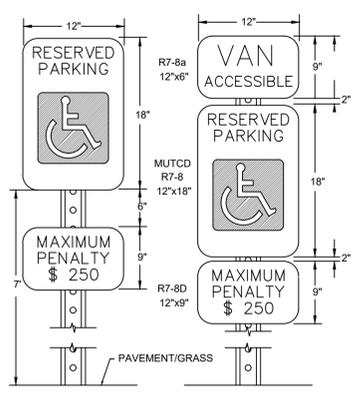
5 ASPHALT PAVEMENT SECTION (LIGHT DUTY)
 SCALE: NOT TO SCALE



6 SIGN INSTALLATION
 SCALE: NOT TO SCALE



7 ADA PARKING SYMBOL
 SCALE: NOT TO SCALE



8 ADA PARKING SYMBOL
 SCALE: NOT TO SCALE

NOTES

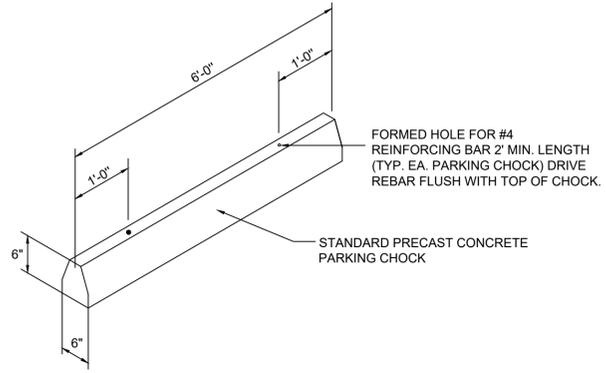
THE SUBBASE SHOULD CLASSIFY AS SW, SP, SW-SM, OR SP-SM ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487) WITH LESS THAN 10% PASSING THE NO. 200 SIEVE.

THE BASE COURSE SHOULD CLASSIFY AS GW, GP, GW-GM, OR GP-GM ACCORDING TO THE UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487) WITH LESS THAN 2% FINES PASSING THE NO. 200 SIEVE.

THE FOLLOWING GRADATION CRITERIA IS RECOMMENDED FOR THE WEARING SURFACE MATERIAL:

SIEVE DESIGNATION	% PASSING
1 IN (25 MM)	100
3/8 IN (10 MM)	5 - 85
NO. 4 (5 MM)	35 - 65
NO. 10 (2 MM)	25 - 50
NO. 40 (0.4 MM)	15 - 30
NO. 200 (0.08 MM)	<15

9



10 PRECAST WHEEL STOP
 SCALE: NOT TO SCALE

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NOT FOR CONSTRUCTION
 NICHOLAS J. LAURETTA
 CIVIL ENGINEER

ISSUE FOR
 REVIEW - NOT FOR CONSTRUCTION

ISSUE DATE
 AUGUST 1, 2024

REVISIONS

NO.	VALUE	DESCRIPTION

PRINCIPAL IN CHARGE
 N. LAURETTA, PE, LEED AP

PROJECT MANAGER
 NJL

DRAWN BY
 NJL

PROJECT ADDRESS
 13047 US HWY 17
 HAMPSTEAD, NC

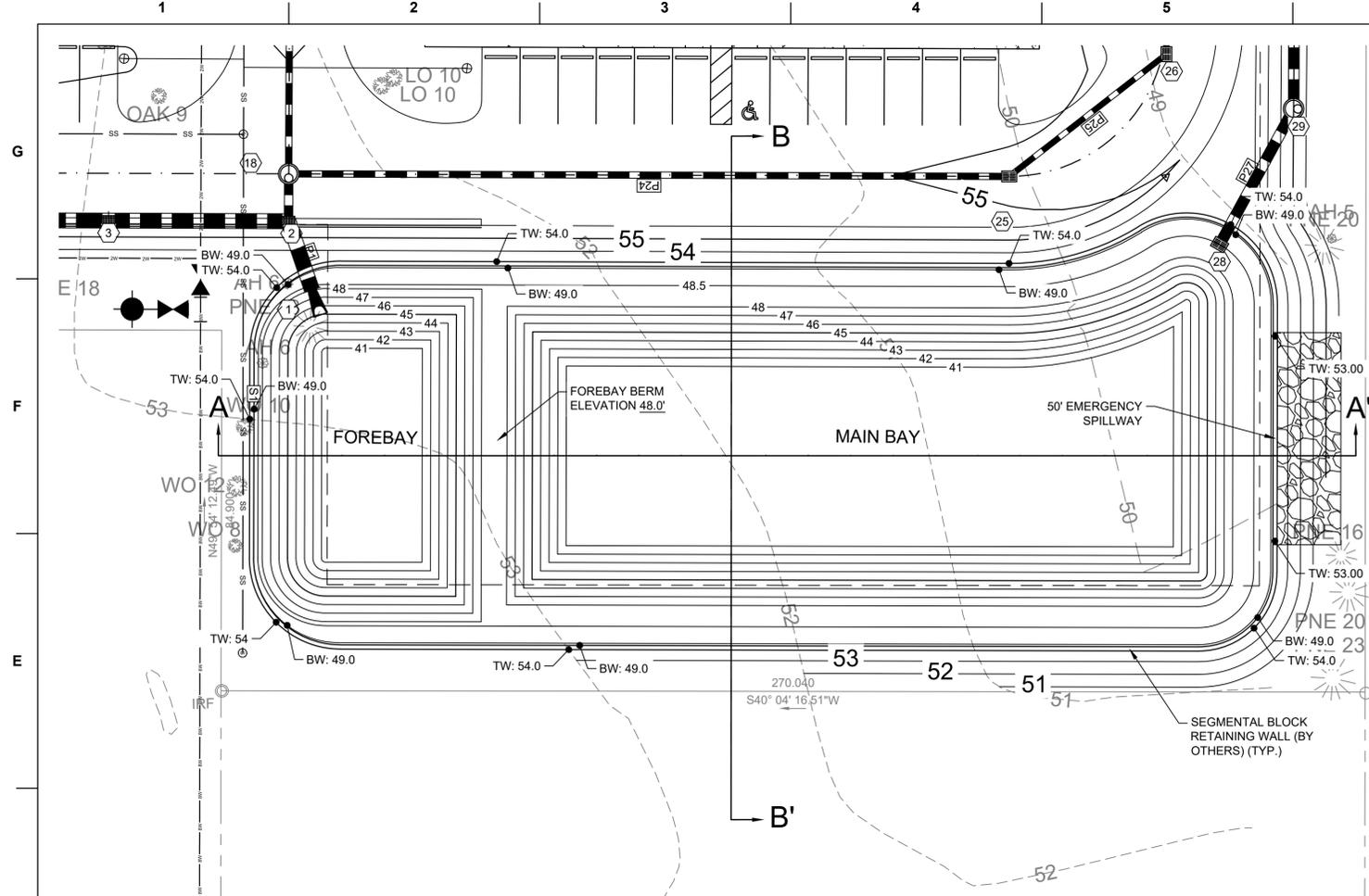
PROJECT NUMBER
 1014.01

SHEET TITLE
SITE DETAILS

SHEET 20 OF 26
 SHEET NUMBER

CS501

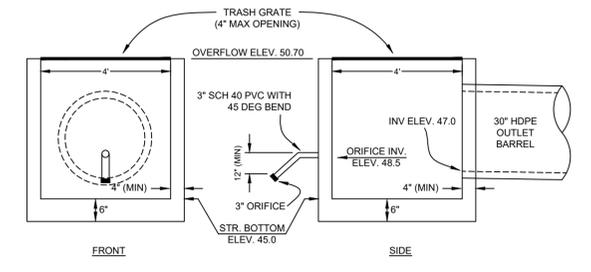
MASTER DEVELOPMENT PLAN



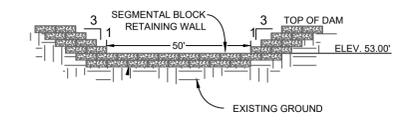
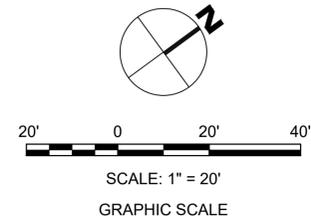
SITE DATA (BASIN 1)		
TOTAL DA	12.63	ACRE
ON-SITE DRAINAGE AREA	238,605	SF
OFF-SITE DRAINAGE AREA	311,402	SF
IMPERVIOUS	8.56	ACRE
ONSITE	200,703	SF
OFFSITE	172,263	SF
IMPERVIOUS COVER	67.8%	
TREATMENT VOLUME		
RUNOFF COEFFICIENT, RV	0.660	IN/IN
REQUIRED 1.5" RUNOFF VOLUME	45,396	CF
PROVIDED TREATMENT VOLUME	47,504	CF
POND DATA		
REQUIRED PERMANENT POOL SURFACE AREA	16,193	SF
PROVIDED PERMANENT POOL SURFACE AREA	19,063	SF
TSS REMOVAL EFFICIENT	90	%
TOTAL REQUIRED FOREBAY VOLUME	16,411	CF
TOTAL PROVIDED FOREBAY VOLUME	17,929	CF

STAGE/STORAGE (ABOVE PERMANENT POOL)				
CONTOUR	CONTOUR AREA (SF)	INCREMENTAL VOLUME (CF)	CUMULATIVE VOLUME, S (CF)	
48.5	19,063	0	0	BOTTOM OF BASIN
49.0	21,917	10,245	10,245	
50.0	21,917	21,917	32,162	TEMPORARY POOL
51.0	21,917	21,917	54,079	
52.0	21,917	21,917	75,996	
53.0	21,917	21,917	97,913	TOP OF BASIN

WATER SURFACE EL.	
RETURN EVENT	ELEVATION (FT)
2-YEAR	51.23
10-YEAR	52.16
25-YEAR	52.97
50-YEAR	53.34



2 POND OVERFLOW STRUCTURE (TYP.)
SCALE: NOT TO SCALE

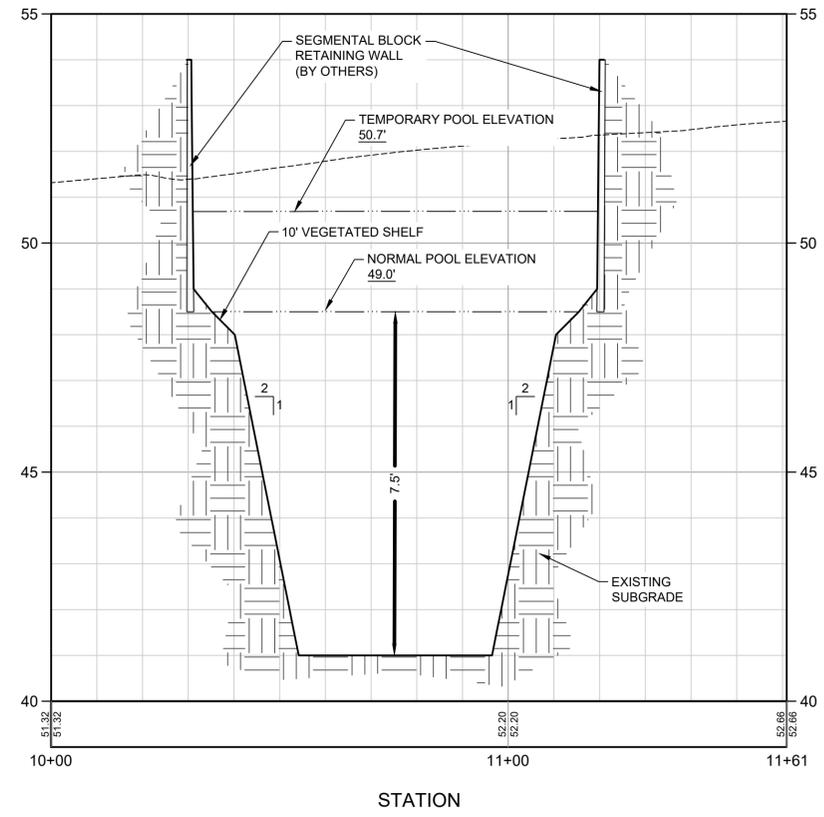
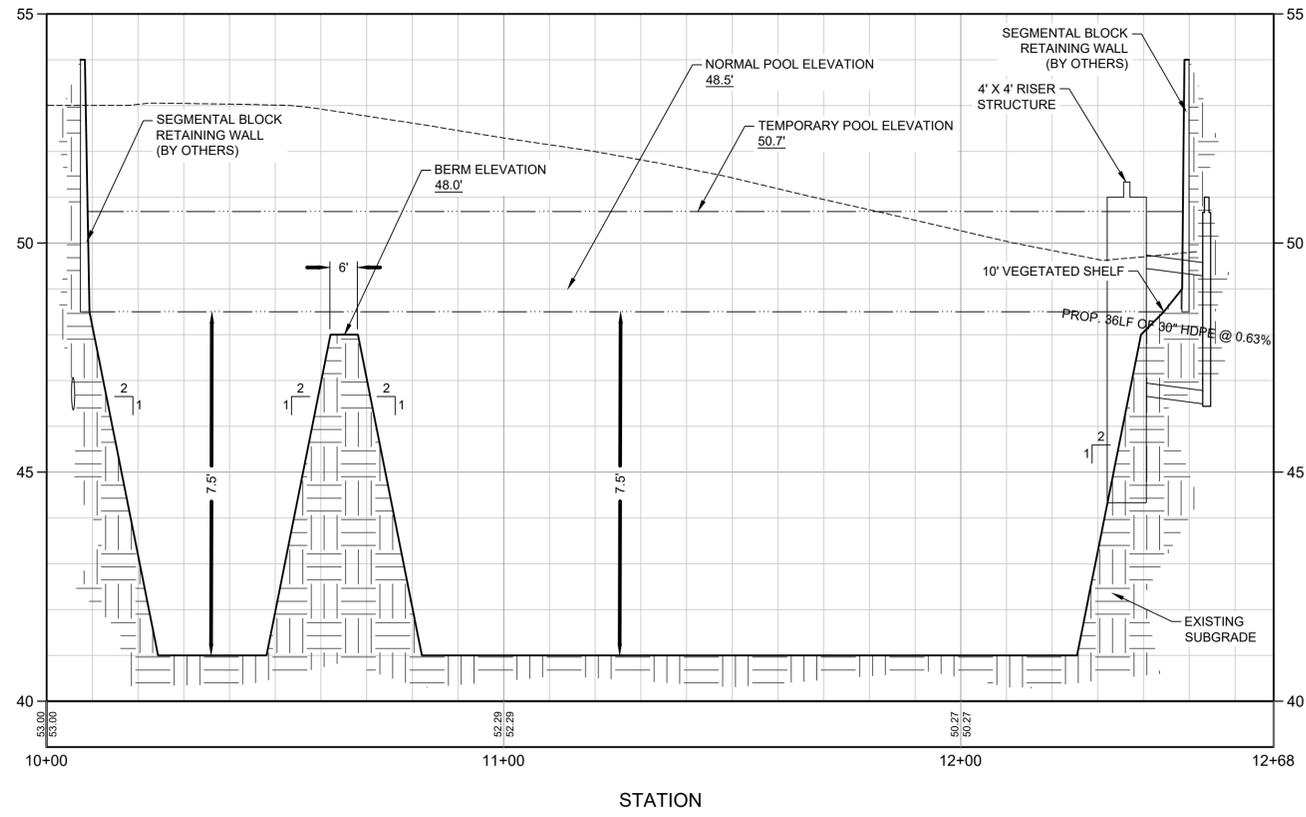


3 EMERGENCY SPILLWAY (TYP.)
SCALE: NOT TO SCALE

1 WET DETENTION POND
SCALE: 1" = 20'

DETENTION POND NOTES

- TEMPORARY PUMP WILL BE PROVIDED TO DRAIN POND / FOREBAY FOR ROUTINE MAINTENANCE OR IN AN EMERGENCY
- VEGETATED SHELF - CONTRACTOR TO INSTALL EQUAL NUMBERS OF THE LISTED SUITABLE SPECIES. GROUP SIMILAR SPECIES OF PLANTS TOGETHER, INSTALL PLANTS 24" O.C. IN A CHECKERBOARD PATTERN. NO PLANTS SHALL BE PLANTED WITHIN 10 FT OF THE OUTLET STRUCTURE
- SUITABLE SPECIES FOR VEGETATED SHELF = ARROW ARUM, BLUE FLAG IRIS, CANA LILY, PICKEREL WEED



ENGINEER
Stormwater Management
Civil Engineering - Land Development

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WILMINGTON, NC 28401
INTEGRITY BUSINESS PARK

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NORTH CAROLINA PROFESSIONAL ENGINEER
NOT FOR CONSTRUCTION
NICHOLAS J. LAURETTA

ISSUE FOR
REVIEW - NOT FOR CONSTRUCTION

ISSUE DATE
AUGUST 1, 2024

REVISIONS

NO.	VALUE	DATE

PRINCIPAL IN CHARGE
N. LAURETTA, PE, LEED AP
PROJECT MANAGER
NJL
DRAWN BY
NJL

PROJECT ADDRESS
13047 US HWY 17
HAMPSTEAD, NC

PROJECT NUMBER
1014.01

SHEET TITLE
STORM DRAINAGE DETAILS

SHEET 21 OF 26
SHEET NUMBER

CG501
MASTER DEVELOPMENT PLAN

G
F
E
D
C
B
A

Restrained Length in Feet Each Side of Fitting Joint									
PIPE DIAMETER (INCHES)	D. I. P.				P. V. C.				
	90°	45°	22 1/2°	11 1/4°	90°	45°	22 1/2°	11 1/4°	
3"	30'	18'	10'	6'	40'	20'	10'	6'	
4"	38'	16'	10'	6'	55'	28'	15'	10'	
6"	50'	25'	10'	6'	80'	38'	20'	10'	
8"	65'	30'	18'	10'	90'	40'	20'	10'	
10"	80'	35'	20'	10'	110'	50'	25'	15'	
12"	95'	40'	22'	10'	130'	55'	30'	15'	
16"	120'	50'	25'	15'	160'	70'	35'	20'	
20"	150'	65'	30'	15'	200'	85'	40'	20'	
24"	180'	70'	35'	20'	210'	90'	45'	25'	
30"	190'	80'	40'	20'	250'	105'	50'	25'	
36"	220'	85'	45'	25'	0	0	0	0	
42"	245'	105'	50'	25'	0	0	0	0	
48"	260'	120'	60'	30'	0	0	0	0	

Restrained lengths for valves, dead ends and branches from tees shall be the same as for 90° (degree) bends

Restrained Length in Feet For Reducer										
PIPE DIAMETER (INCHES)	3"	4"	6"	8"	10"	12"	16"	20"	24"	30"
3"	0	0	0	0	0	0	0	0	0	0
4"	40'	0	0	0	0	0	0	0	0	0
6"	50'	45'	0	0	0	0	0	0	0	0
8"	75'	70'	40'	0	0	0	0	0	0	0
10"	95'	90'	70'	40'	0	0	0	0	0	0
12"	120'	115'	100'	75'	40'	0	0	0	0	0
16"	160'	155'	140'	125'	100'	70'	0	0	0	0
20"	200'	195'	185'	170'	150'	130'	75'	0	0	0
24"	180'	185'	150'	140'	135'	120'	90'	50'	0	0
30"	195'	190'	165'	160'	170'	160'	120'	105'	70'	0
36"	220'	220'	210'	210'	200'	195'	180'	160'	125'	70'
42"	245'	240'	235'	230'	225'	220'	200'	180'	155'	100'
48"	265'	250'	245'	240'	235'	230'	215'	195'	175'	125'

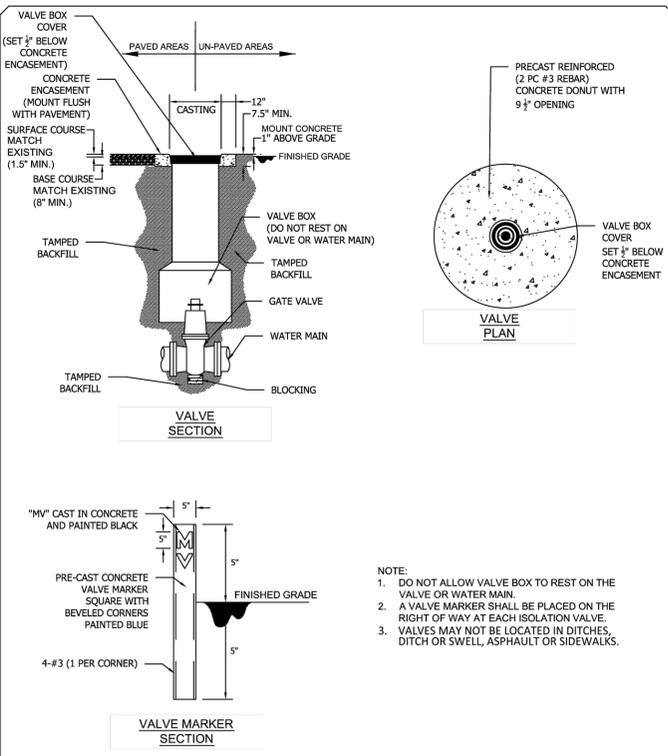
Length of restrained joint for larger diameter pipe

- NOTES:
- PENDER COUNTY STANDARD RESTRAINT METHOD IS MEGA LUGS, UNLESS SPECIFICALLY APPROVED BY PCU IN WRITING.
 - ALL FITTINGS AND JOINTS SHALL BE RESTRAINED JOINT.
 - "L" ABOVE IS GIVEN IN FEET FROM FITTING JOINT.

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PO BOX 995, BURGAW, NC 28425



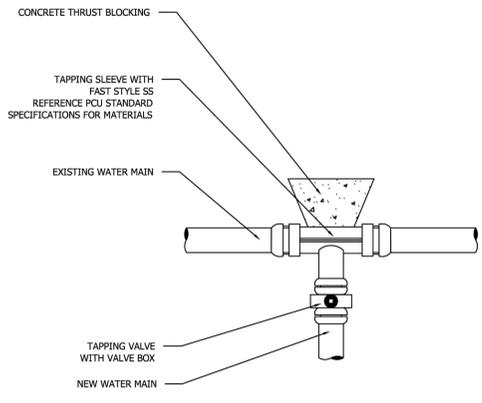
RESTRAINED JOINT TABLE
STANDARD DETAIL
VERSION #2 - OCTOBER 2023



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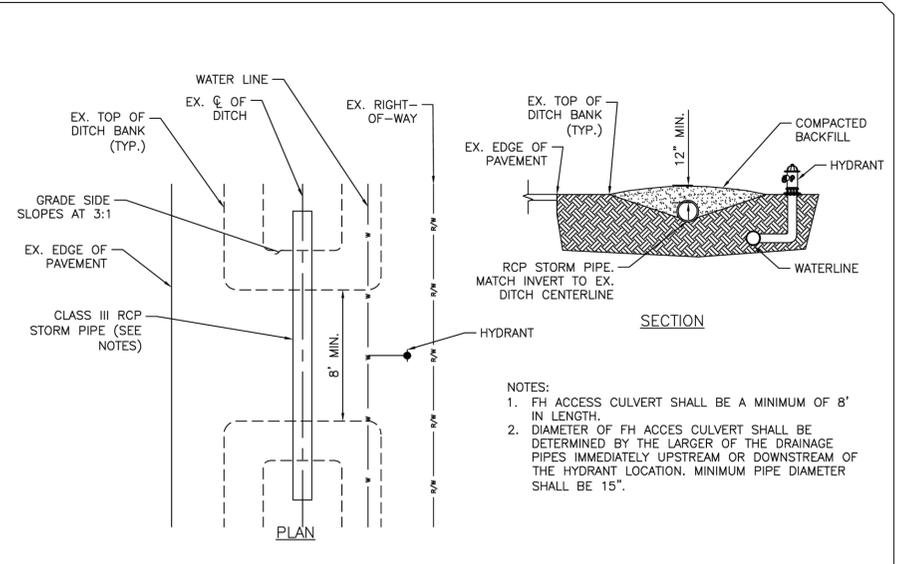
VALVE INSTALLATION
STANDARD DETAIL
VERSION #3 - JUNE 2016



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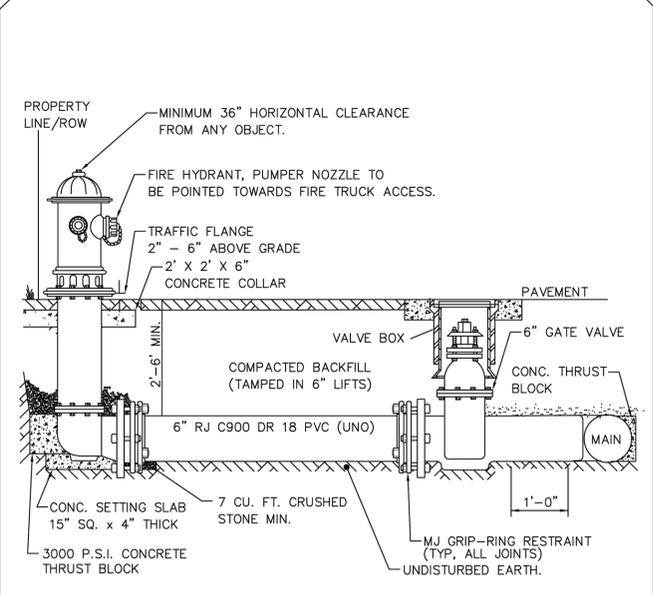
TAPPING SLEEVE AND VALVE ASSEMBLY
STANDARD DETAIL
VERSION #3 - FEB 2016



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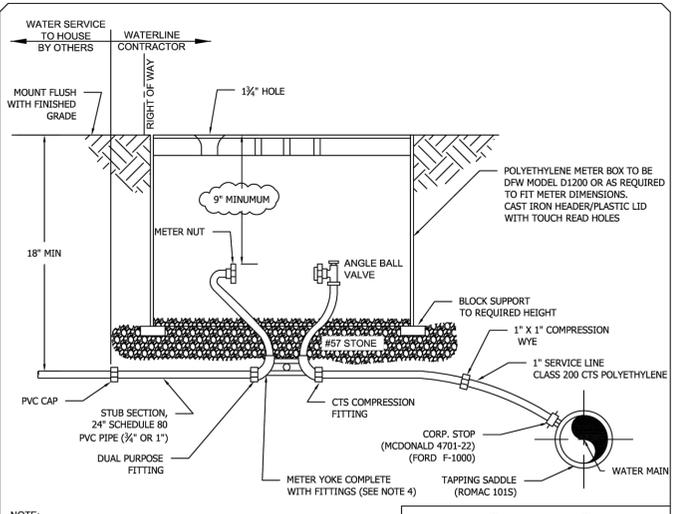
FIRE HYDRANT ACCESS
STANDARD DETAIL
VERSION #1 - SEPTEMBER 2015



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FIRE HYDRANT ASSEMBLY
STANDARD DETAIL
VERSION #2 - APRIL 2016



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WATER SERVICE (3/4" - 1")
STANDARD DETAIL
VERSION #4 - FEB 2016



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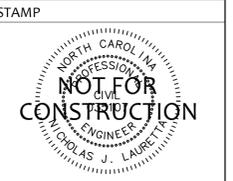
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PROJECT OWNER

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141 DIVISION DRIVE #120
WILMINGTON, NC 28401

INTEGRITY BUSINESS
PARK



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PROJECT MANAGER
N/JL

DRAWN BY
N/JL

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13047 US HWY 17
HAMPSTEAD, NC

PROJECT NUMBER
1014.01

SHEET TITLE
UTILITY DETAILS

SHEET 25 OF 26
SHEET NUMBER

CU501

MASTER DEVELOPMENT PLAN

