



STAFF REPORT

Town of Nags Head

Planning & Development Department

To: Board of Commissioners

From: Michael Zehner, Director of Planning & Development

Kelly Wyatt, Deputy Director of Planning & Development

Date: December 23, 2019

Subject: Preliminary Plat for a Major Subdivision, known as Coastal Villas, for an approximately 9.86 acre property, zoned R-2 - Medium Density Residential, owned by Nags Head Construction (applicant), located on the west side of US 158, approximately 300 feet south of the intersection of W. Soundside Road and US 158 (Parcel # 006749004; PIN# 989108886987); the Preliminary Plat proposes to create 17 lots, along with an associated street and other required improvements.

OVERVIEW

The subject application is a Preliminary Plat for a Major Subdivision¹ of an approximately 9.86-acre property located on the west side of US 158, approximately 300 feet south of the intersection of W. Soundside Road and US 158 (“the Proposed Subdivision”). The Proposed Subdivision would create seventeen (17) lots, located along a new street (Coastal Breeze Way), to connect through to an existing street, Sea Bass



¹ A Subdivision is defined in the UDO as “all divisions of a tract or parcel of land into two or more lots, building sites or other divisions for the purpose of sale or building development (whether immediate or future) and shall include all divisions of land involving the dedication of a new street or a change in existing streets,” with certain exemptions; a Major Subdivision is defined as “any subdivision not classified as a minor subdivision [(i.e. not more than four lots fronting on an existing street)] including, but not limited to, subdivisions of five or more lots, or any size subdivision requiring any new street or extension of municipal facilities.”

Court, with the improvement of an existing public paper/unimproved right-of-way, Mariners Way. No waivers from the subdivision requirements are being sought. As noted, the property is zoned R-2, Medium Density Residential; all proposed lots are conforming, meeting the minimum required lot size of 20,000 square feet and demonstrating compliance with required minimum yard depths (i.e. setbacks; Front: 30 feet, Side: 10 feet, Rear: 20% of lot depth, not to exceed 30).

The Planning Board reviewed the Preliminary Plat at their meeting on December 17, 2019. The Board voted 5-0 to recommend approval of the Plat to the Board of Commissioners, with conditions. The Board's recommendation is detailed below under *Planning Board Recommendation*.

PROCEDURAL REQUIREMENTS/CONSIDERATIONS

The procedural requirements applicable to subdivisions are provided in Article 4, *Development Review Process, Part IV, Subdivision Procedures*, of the UDO; requirements or considerations of note are as follows:

- Pursuant to Section 4.22, *Initial Conference; Preliminary Sketch*, the applicant was first required to submit a preliminary sketch of the proposed subdivision and confer with the UDO Administrator. These requirements were completed, with authorization granted to the subdivider on October 3, 2019 to prepare a preliminary plat to be submitted to the Planning Board (a copy of an email from Michael Zehner to Cathleen Saunders, project engineer, is attached). Please note, the preliminary sketch plan for the subdivision provided for a street connection to US 158, with no connection through to Sea Bass Court; the applicant elected to redesign this aspect of the subdivision as part of the preliminary plat submission.
- The following subsections, or parts thereof, to Section 4.24, *Review Procedure for Major Subdivisions*, 4.24.1, *Preliminary Plat*, are applicable to the Proposed Subdivision:
 - 4.24.1.2., in part, "...the UDO Administrator who shall evaluate the plan to determine whether or not it meets the requirements of this Ordinance. The UDO Administrator will solicit and receive comments from other persons or agencies before making final recommendations. If the application is complete, the UDO Administrator will submit it to the Planning Board..."

In general, it was determined by the UDO Administrator that the plan for the Proposed Development meets the requirements of the UDO, to be discussed further below under **REGULATORY & DESIGN REQUIREMENTS/CONSIDERATIONS**. Additionally, comments were solicited and received from Town Staff; the attached letter from Cathleen Saunders, P.E., Quible & Associates, P.C., dated December 10, 2019, is an accurate representation of these comments.

- 4.24.1.3., in part, "The Planning Board shall forward its recommendation to the Board of Commissioners within thirty (30) days after first

consideration by the Planning Board. If the Planning Board fails to act within the 30-day period, the subdivision will be placed on the next available Board of Commissioners agenda. The Board of Commissioners shall consider the preliminary plat and approve, approve with conditions acceptable to the applicant, or disapprove the plan.”

- 4.24.1.4., in part, “The Planning Board shall determine whether the preliminary plat meets the policy, purposes, and standards established by this Part and shall study its practicability, taking into consideration the requirements of the community and the best use of the land being subdivided. Particular attention shall be given to the arrangement, location and width of streets, their relation to the topography of the land, water supply, sewage disposal, drainage, lot sizes and arrangement, the future development of adjoining lands, construction plans, erosion control plans, and the requirements of the master plan and the official map, if such exist, the zoning requirements and this UDO. The Planning Board shall submit its findings and recommendations to the Board of Commissioners at their next regularly scheduled meeting. The Board of Commissioners may approve, reject or grant conditional approval of the preliminary plat. The Planning Board or the Board of Commissioners, in its discretion, if it deems that health and sanitary conditions in the area, the subdivision plans and planned population density warrant, may require percolation tests of the soil by the subdivider and the installation of appropriate sanitary and waste disposal facilities as a condition of approval.”
- 4.24.1.5., Conditional Approval, “When recommending conditional approval of a preliminary plat, the Planning Board shall state in writing the conditions of such approval, if any, with respect to:
 - 4.24.1.5.1. The specific changes which it will require in the preliminary plat;
 - 4.24.1.5.2. The character and extent of these required changes; and
 - 4.24.1.5.3. The amount of all bonds which will be required as a prerequisite to the approval of the preliminary plat.

Conditional approval of a preliminary plat shall not constitute approval of the final subdivision plat, but rather it shall be deemed an expression of approval of the design submitted on the preliminary plat as a guide to the preparation of the final plat, which will be submitted for approval by the UDO Administrator, and for recording upon fulfillment of the requirements of this Part and the conditions of the conditional approval, if any. The Planning Board or the Board of Commissioners may require additional changes as a result of further study of the subdivision plans or as a result of new information obtained subsequent to the time of conditional approval. The fulfillment of these conditions and the incorporation of these conditions into the preliminary plat shall be determined by the UDO Administrator in accordance with the instructions of the Board of Commissioners. At such time, the Board of Commissioners' approval

shall become final, as to the preliminary plat, and the UDO Administrator shall so signify on the plat.”

REGULATORY & DESIGN REQUIREMENTS/CONSIDERATIONS

The regulatory and design requirements applicable to subdivisions are provided in Article 10, *Performance Standards*, Part V., *Subdivision Regulations*, Division II., *Approval and Platting Requirements*, and Division III., *Improvements*, of the UDO; requirements or considerations of note are as follows:

- Section 10.51.4., *Covenants and Deed Restrictions*, requires the submission of “proposed covenants, deed restrictions and a hold harmless agreement, in duplicate, which are intended to cover all or part of the tract...For any proposed subdivision amenities including, but not limited to, tennis courts, swimming pools, streets, and vehicular and pedestrian accessways for the benefit of the property owners, the developer shall establish a property owners association having the responsibility and authority for the upkeep, maintenance, repair, and reconstruction of such amenities and the authority to assess and collect dues and fees from the property owners within the subdivision for this purpose.” The applicant has submitted a draft Declaration of Restrictive Covenants for review, with a final version required to be approved in conjunction with approval of the Final Plat.
- Section 10.62, *Required Improvements Enumerated*, indicates the improvements required to be provided by the subdivider, as follows:
 - Street rights-of-way and paved streets;
 - Water lines, mains, fire hydrants and services;
 - Electric and telephone lines and conduit;
 - Streetlights and supports and related electric wires and conduit;
 - Easements of right-of-way for utilities, where such are not within the street right-of-way;
- Section 10.63, *Dedications*, indicates the improvements and easements required to be offered to the Town or utility authorities for dedication:
 - Streets and street rights-of-way;
 - Water lines, mains, fire hydrants and services;
 - Easements of right-of-way for construction, operation and maintenance of utilities and cable television lines;
 - Streetlights and supports and related electric wiring and conduit;
- Section 10.66, *Streets*, establishes the standards for required streets, and specifically *local access streets*, as the proposed street is classified. Design standards for streets are contained in Chapter 36, *Streets, Sidewalks and Other Public Places*, of the Town Code.
- Section 10.68, *Lots*, reiterates zoning requirements for frontage and lot area, but also provides that for “lots fronting on a cul-de-sac or street curve, the frontage

may be reduced to not less than thirty (30) feet upon approval of the Planning Board.” This reduced frontage applied to lots 1, 2, 10, and 11 in the Proposed Subdivision. The Planning Board’s recommended approval of the Proposed Subdivision as presented.

- Section 10.72, *Stormwater Runoff, Storm Drains, and Sewer Lines and Mains*, indicates that “stormwater runoff from lots shall be managed in accordance with Article 11 of this UDO pertaining to Stormwater Management (Part I) and Soil Erosion and Sedimentation Control (Part II).” However, development of the Proposed Subdivision will trigger and require North Carolina Department of Environmental Quality stormwater permitting.

POLICY CONSIDERATIONS

Policy specific to subdivisions is established in Article 10, *Performance Standards*, Part V., *Subdivision Regulations*, Division I., In General, Section 10.41, Jurisdiction; Policy, Section 10.41.2., of the UDO, as follows:

10.41.2. It is declared to be the policy of the Board of Commissioners and the Planning Board of the Town to consider land subdivision plats as part of a plan for the orderly, efficient and economical development of the Town. This means, among other things, that land to be subdivided shall be of such character that it can be used safely for building purposes without danger to health, or peril from fire, flood erosion or other menace; that proper provisions shall be made for drainage, water supply, sewerage and other needed improvements; that all proposed lots shall be so laid out and of such size as to be in harmony with the development pattern of the neighboring properties; that the proposed streets shall compose a convenient system conforming to the official map, if such exists and shall be properly related to the proposals shown on the master plan, if such exists and shall be of such width, grade and location as to accommodate the prospective traffic, to facilitate fire protection and to provide access of firefighting equipment to buildings, and to conform with existing or planned streets and with other public facilities; that a dedication of streets and rights-of-way or easements for pedestrian and utility purposes shall be made; that proper provisions shall be made for the distribution of population and traffic which shall avoid congestion and overcrowding and which shall create conditions essential to public health, safety and general welfare; and that proper provisions shall be made for open spaces for parks, playgrounds and public beaches.

With regard to the area of the Proposed Subdivision and applicable policies of the *Comprehensive Plan*, this is considered to be within the *Neighborhoods Character Area*, described as “areas of primarily low-density single-family development that have limited to no commercial influence,” and further, “The majority of the development in these areas is single-family residential. Lot sizes range from 6,000 square feet to greater than 25,000 square feet. Most newer subdivisions (post 1982) include lots that are 15,000 square feet or greater. It is the town’s desire to keep these areas intact and protect them from incompatible land uses.”

Additionally, given the location of the Proposed Subdivision and the extension of the multi-use path along US 158, policies and recommendations contained in the Town's *Pedestrian Plan* are applicable; consistent with those policies and recommendations, the applicant has proposed to provide an extension of the multi-use path through the Proposed Subdivision, to connect to the to-be-constructed path along US 158.

PLANNING BOARD RECOMMENDATION

At their meeting on December 17, 2019, the Planning Board voted 5-0 to recommend approval of the Preliminary Plat to the Board of Commissions, with conditions, as follows; in their recommendation, the Planning Board acknowledged that the Preliminary Plat satisfied the determinations contained in Section 4.24.1.4. of the UDO concerning applicable policies, purposes, and standards:

1. Prior to the commencement of land disturbance activities and/or construction of improvements, the applicant/developer shall submit construction drawings/plans for all improvements within the subdivision for approval by the UDO Administrator, who may seek input and comments from Town Staff in the review and approval of the construction drawings. In addition to providing details for all improvements, these drawings/plans shall also provide, and not be limited to, information on erosion and sedimentation control, culvert designs, and take into account any intended or required phasing/sequence of construction for the subdivision.
2. The clearing and grading of any lot or portions thereof shall be prohibited prior to the issuance of a building permit for any such lot, except as determined by the UDO Administrator to be necessary for the installation of stormwater measures. The developer/applicant is encouraged to address any necessary phasing and limits of disturbance on submitted construction drawings/plans.
3. Prior to or in conjunction with approval of the Final Plat for the subdivision, drainage easements, to be the responsibility of the applicant/developer and/or their successors (i.e. Property Owners Association), shall be properly conveyed by recordation with the Dare County Register of Deeds; such easements shall be reviewed and approved by the UDO Administrator prior to recordation, and the UDO Administrator may refer the easements to the Town Attorney for review and comment.

STAFF RECOMMENDATION

Staff is of the opinion that the submitted Preliminary Plat complies with all applicable requirements and that the applicant has addressed all issued comments. Additionally, Staff is of the opinion that the Proposed Subdivision is consistent with applicable policy considerations. Therefore, Staff recommends approval of the Preliminary Plat, with conditions. Staff supports those conditions recommended by the Planning Board; however, it is important to note that following the Planning Board meeting the applicant requested consideration of a change to condition #2, as follows:

2. The clearing and grading of any lot or portions thereof shall be prohibited prior to the issuance of a building permit for any such lot, except as determined by the

UDO Administrator **(a)** to be necessary for the installation of stormwater measures **or (b) to accommodate the stockpiling of soil from lots within the subdivision which are subject to an issued building permit**. The developer/applicant is encouraged to address any necessary phasing and limits of disturbance on submitted construction drawings/plans.

Staff does not object to the requested change and believes it provides a reasonable accommodation while limiting the amount of clearing on lots not subject to immediate development. It is also important to note that pursuant to Section 4.24.1.3. of the UDO, action to approve with conditions is qualified that “conditions [be] acceptable to the applicant.”

Attachments:

1. Draft Preliminary Plat, Sheets 1 thru 3, with an Issue Date of December 10, 2019, prepared by Quible & Associates, P.C.;
2. Email from Michael Zehner to Cathleen Saunders, dated October 3, 2019, providing Preliminary Sketch Review authorization;
3. Memo from David Ryan, P.E., Town Engineer, dated December 13, 2019, provided plan review comments; and
4. Preliminary Plat Application Package under cover letter from Cathleen Saunders, P.E., dated December 10, 2019



VICINITY MAP (NTS)

- LEGEND:**
- - EXISTING CONCRETE
 - - EXISTING IRON PIPE EIP
 - - EXISTING IRON ROD, EIR
 - - SET IRON ROD, SIR
 - - CALCULATED POINT
 - - WATER METER
 - - TELEPHONE PED
 - - MONITORING HELL
 - - SIGN
 - - WATER VALVE
 - - FIRE HYDRANT
 - - UTILITY POLE
 - (T) - TOTAL DISTANCE
 - AG - ABOVE GRADE
 - BG - BELOW GRADE

- NOTES:**
- CURRENT OWNER: NAGS HEAD CONSTRUCTION AND DEVELOPMENT, INC
PO BOX 2130
VIRGINIA BEACH, VA 23450
 - PIN: 4841-0888-6187
 - PID: 006744004
 - PROPERTY ADDRESS: 5 GROATAN HWY
 - ZONING: R2
 - LOT AREA = 429,600.04 sqft / 9.86 acres
 - (AREAS BY COORDINATE METHOD)
 - SUBJECT REFERENCES: DB 1266, PG 271; PG E, SL 360
 - ADDITIONAL REFERENCES: DB 1534, PG 103, DB, PG 1834, PG 446; PG E, SL 107; PG E, SL 107; PG F, SL 61; PG G, SL 368; PG I, SL 343
 - FIELD SURVEY DATE: OCTOBER 2018
 - PROPERTY IS LOCATED IN NFIP FLOOD ZONES AS SHOWN AND SUBJECT TO CHANGES, BASED ON COMMUNITY CID NO. 375236, PANEL 1841, SUFFIX J (MAP NUMBER 372084100J) EFFECTIVE DATE: 04/20/2006
 - THIS SURVEY SUBJECT TO ANY FACTS, INCLUDING BUILDING SETBACK RESTRICTIONS, EASEMENTS, COVENANTS, ETC., THAT MAY BE REVEALED BY A FULL AND ACCURATE TITLE SEARCH.
 - ALL DISTANCES ARE US SURVEY FEET AND HORIZONTAL GROUND.
 - APPROVAL OF THIS SUBDIVISION DOES NOT GUARANTEE SEPTIC APPROVAL ON ANY INDIVIDUAL LOT.
 - MINIMUM BUILDING SETBACKS MAY BE SUBJECT TO CHANGE AND SHOULD BE VERIFIED WITH A ZONING OFFICIAL.
 - SETBACKS:
*FRONT = 30'
*SIDE = 10'
*REAR = 30'
*LOTS 1 & 2 HAVE A 52' FRONT MBSL AT THE REQUIRED MINIMUM LOT WIDTH.
*LOT 11 HAS A 44' FRONT MBSL AT THE REQUIRED MINIMUM LOT WIDTH.
 - A STATE HIGH DENSITY STORMWATER PERMIT AND EROSION & SEDIMENT CONTROL PERMIT MUST BE OBTAINED PRIOR TO DISTURBANCE ON SITE. ALL IMPERVIOUS COVERAGE MUST BE DIRECTED TO INFILTRATION BASINS VIA SHEET FLOW OR ROOF DRAINS.
 - A RIGHT-OF-WAY ENCROACHMENT AGREEMENT IS REQUIRED FROM NCDOT PRIOR TO ANY DISTURBANCE WITHIN THE STATE RIGHT-OF-WAY.
 - BUILDING CONSTRUCTION SHALL COMPLY WITH ALL ASPECTS OF THE NORTH CAROLINA BUILDING AND FIRE CODE.

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FLOOD HAZARD AREA CERTIFICATE

THIS PROPERTY, OR PORTIONS OF THIS PROPERTY, ARE LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA AS DESIGNATED ON FLOOD INSURANCE RATE MAPS FOR DARE COUNTY. LOCATION IN A SPECIAL FLOOD HAZARD AREA REPRESENTS A ONE PERCENT (1%) OR GREATER CHANCE OF BEING FLOODED IN ANY GIVEN YEAR. FLOOD INSURANCE MAY BE REQUIRED BY LENDING INSTITUTIONS FOR STRUCTURES CONSTRUCTED ON PROPERTY LOCATED IN SPECIAL FLOOD HAZARD AREAS.

CERTIFICATE OF TOWN CLERK, TOWN OF NAGS HEAD

I, _____, THE TOWN CLERK OF NAGS HEAD, NORTH CAROLINA DO CERTIFY THAT ON THE _____ DAY OF _____, 20____, THE TOWN OF NAGS HEAD APPROVED THIS PLAT FOR RECORDING IN THE OFFICE OF THE REGISTER OF DEEDS AND ACCEPTED THE DEDICATION OF IMPROVEMENTS LISTED BY RESOLUTION OF THE BOARD OF COMMISSIONERS BUT ASSUME NO RESPONSIBILITY TO OPEN OR MAINTAIN THE SAME UNTIL, IN THE OPINION OF THE BOARD OF COMMISSIONERS OF NAGS HEAD, IT IS IN THE PUBLIC INTEREST TO DO SO.

TOWN CLERK, TOWN OF NAGS HEAD _____ DATE _____

CERTIFICATE OF APPROVAL

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE SUBDIVISION ORDINANCE OF THE TOWN OF NAGS HEAD AND THAT THIS PLAT HAS BEEN APPROVED BY THE TOWN OF NAGS HEAD PLANNING BOARD FOR RECORDING IN THE OFFICE OF THE REGISTER OF DEEDS OF DARE COUNTY.

TOWN OF NAGS HEAD UDO ADMINISTRATOR _____ DATE _____

OWNER'S CERTIFICATE

I HEREBY CERTIFY THAT I AM THE OWNER OF THE PROPERTY SHOWN AND DESCRIBED HEREON, WHICH IS LOCATED IN THE SUBDIVISION JURISDICTION OF THE TOWN OF NAGS HEAD AND THAT I HEREBY ADOPT THIS PLAT OF SUBDIVISION WITH MY FREE CONSENT, ESTABLISH MINIMUM BUILDING SETBACK LINES AND DEDICATE ALL STREETS, ALLEYS, WALKS, PARKS AND OTHER SITES AND EASEMENTS TO PUBLIC OR PRIVATE USE AS NOTED. FURTHERMORE, I HEREBY DEDICATE ALL ROADWAY STORM SEWER AND WATER LINES TO THE TOWN OF NAGS HEAD.

NAME (PRINTED/SIGNED) _____ DATE _____

***NOTARY CERTIFICATE**

STATE OF NORTH CAROLINA, COUNTY OF _____
I, _____, A NOTARY PUBLIC OF THE ABOVE REFERENCED COUNTY AND STATE, DO HEREBY CERTIFY THAT _____ PERSONALLY APPEARED BEFORE ME THIS DAY AND ACKNOWLEDGED THE EXECUTION OF THE FOREGOING INSTRUMENT.
WITNESS MY HAND AND OFFICIAL SEAL, THIS THE _____ DAY OF _____, 20____.

NOTARY PUBLIC _____
MY COMMISSION EXPIRES: _____

SURVEYOR'S CERTIFICATE

I, JOHN M. HURDLE, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (SEE NOTES), THAT THE BOUNDARIES NOT SURVEYED ARE SHOWN AS DASHED LINES AND ARE CLEARLY INDICATED AS DRAWN FROM INFORMATION FOUND IN (SEE ADDITIONAL REFERENCES IN NOTES); THAT THE RATIO OF PRECISION OR POSITIONAL ACCURACY AS CALCULATED IS 1:10,000; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 41-30 AS AMENDED.

THAT THE SURVEY CREATES A SUBDIVISION OF LAND WITHIN THE AREA OF A COUNTY OR MUNICIPALITY THAT HAS AN ORDINANCE THAT REGULATES PARCELS OF LAND.

WITNESS MY ORIGINAL SIGNATURE, LICENSE NUMBER AND SEAL THIS _____ DAY OF _____, A.D.

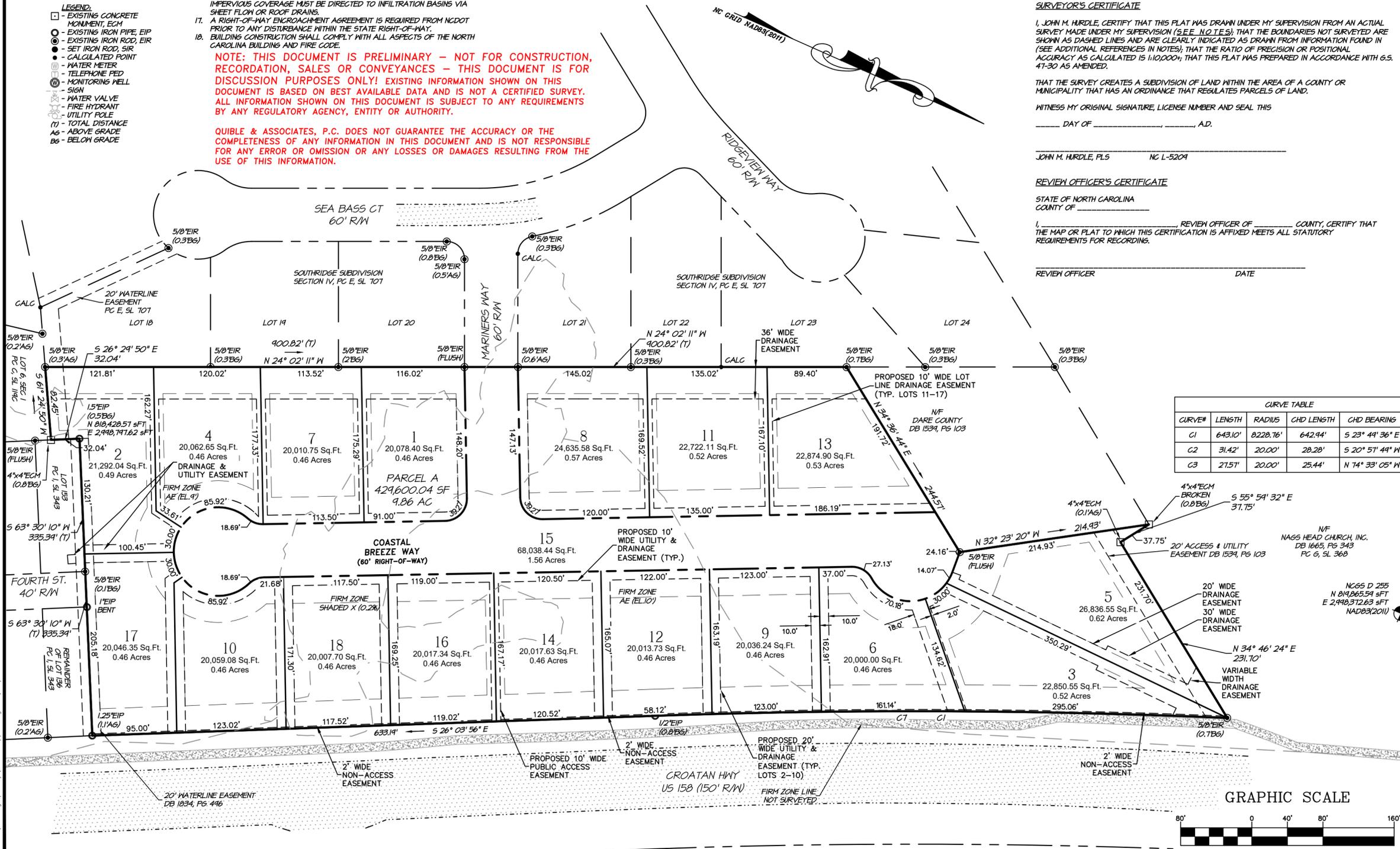
JOHN M. HURDLE, PLS _____ NC L-5204

REVIEW OFFICER'S CERTIFICATE

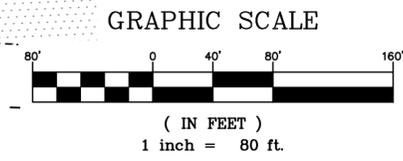
STATE OF NORTH CAROLINA, COUNTY OF _____

I, _____, REVIEW OFFICER OF _____ COUNTY, CERTIFY THAT THE MAP OR PLAT TO WHICH THIS CERTIFICATION IS AFFIXED MEETS ALL STATUTORY REQUIREMENTS FOR RECORDING.

REVIEW OFFICER _____ DATE _____



CURVE#	LENGTH	RADIUS	CHD LENGTH	CHD BEARING
C1	643.10'	8228.76'	642.94'	S 23° 49' 36" E
C2	31.42'	20.00'	28.28'	S 20° 51' 44" W
C3	27.51'	20.00'	25.44'	N 74° 33' 05" W



NC License# C-0208
SINCE 1959
Quible & Associates, P.C.
ENGINEERING** * CONSULTING * PLANNING
ENVIRONMENTAL SCIENCES * SURVEYING**
ENGINEERING/SURVEYING NOT OFFERED AT BLACK MTN. OFFICE**
8466 CAROLINE HWY. 90 CHURCH STREET, SUITE B
POWELL'S POINT, NC 27817 BLACK MOUNTAIN, NC 28711
Phone: (252) 491-8147 Fax: (252) 491-8146
administrator@quible.com



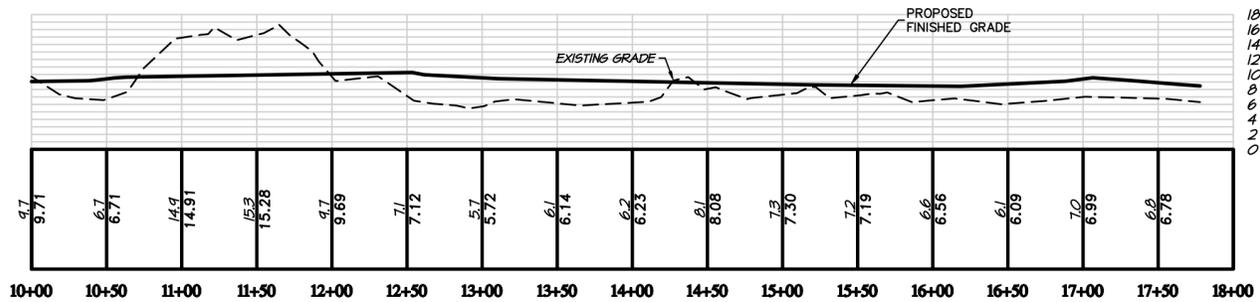
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DRAFT PRELIMINARY PLAT 1 OF 3

PARCEL A
COASTAL VILLAS

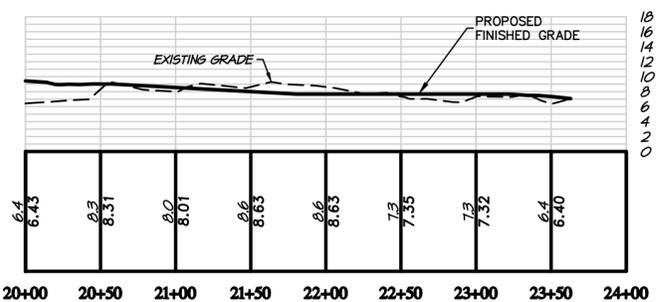
TOWN OF NAGS HEAD
DARE COUNTY
NORTH CAROLINA

COMMISSION NO.	P18085
DESIGNED BY	JMH
DRAWN BY	JMH/CMS
CHECKED BY	MWS/JMH
ISSUE DATE	12/10/19



COASTAL BREEZE WAY

HORIZONTAL: 1"=80'
 VERTICAL: 1"=16'
 (EXAGGERATED 5 TIMES)



MARINER'S WAY (EXTENSION)

HORIZONTAL: 1"=80'
 VERTICAL: 1"=16'
 (EXAGGERATED 5 TIMES)

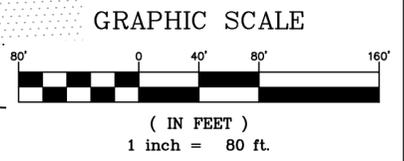
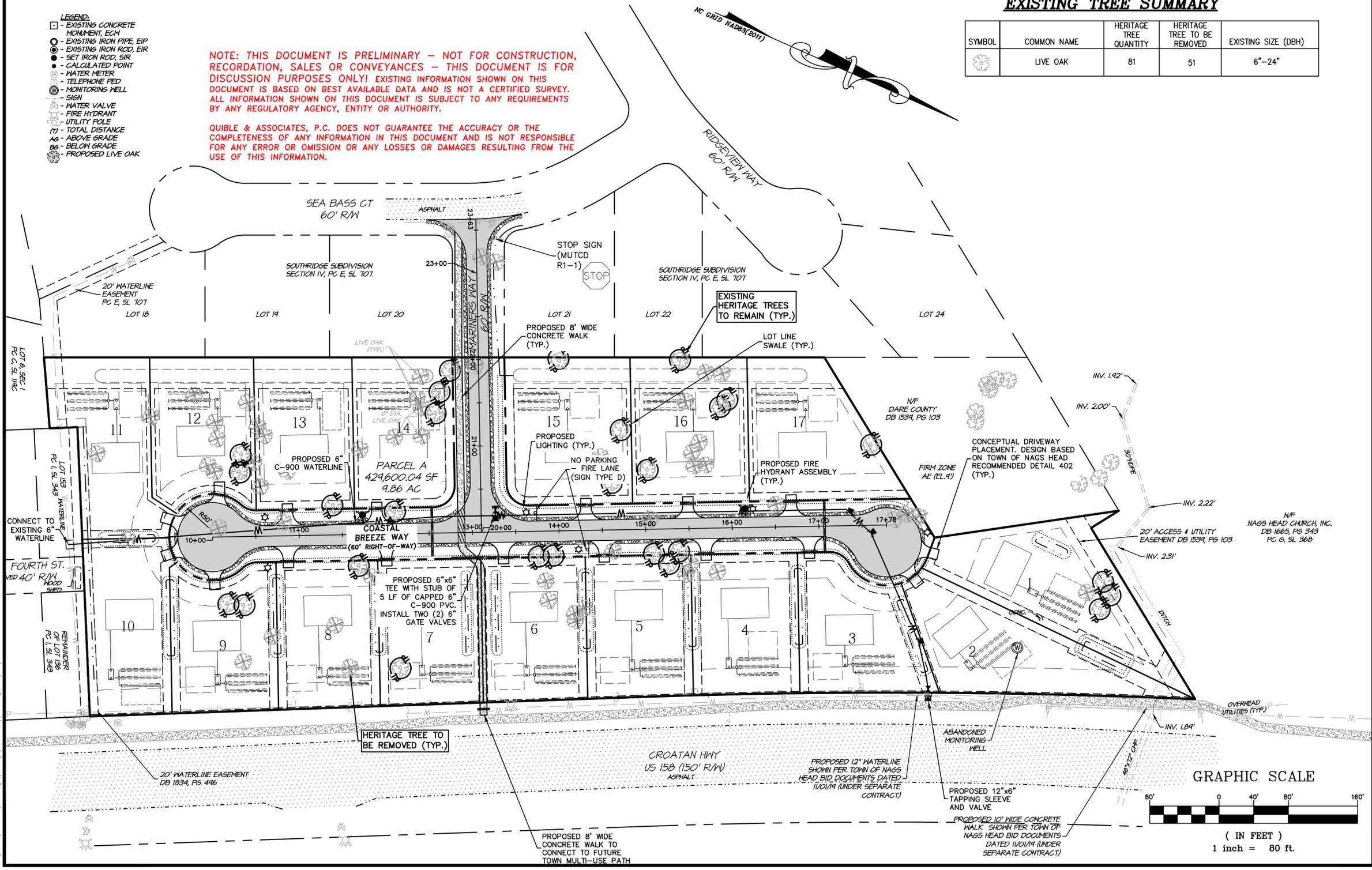
EXISTING TREE SUMMARY

SYMBOL	COMMON NAME	HERITAGE TREE QUANTITY	HERITAGE TREE TO BE REMOVED	EXISTING SIZE (DBH)
	LIVE OAK	81	51	6"-24"

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 - EXISTING IRON PIPE, EIP
 - EXISTING IRON ROD, EIR
 - SET IRON ROD, SIR
 - CALCULATED POINT
 - WATER METER
 - TELEPHONE PED
 - MONITORING WELL SIGN
 - WATER VALVE
 - FIRE HYDRANT
 - UTILITY POLE
 - TOTAL DISTANCE
 - AG - ABOVE GRADE
 - BG - BELOW GRADE
 - PROPOSED LIVE OAK



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DRAFT PRELIMINARY PLAT 2 OF 3

PARCEL A
COASTAL VILLAS

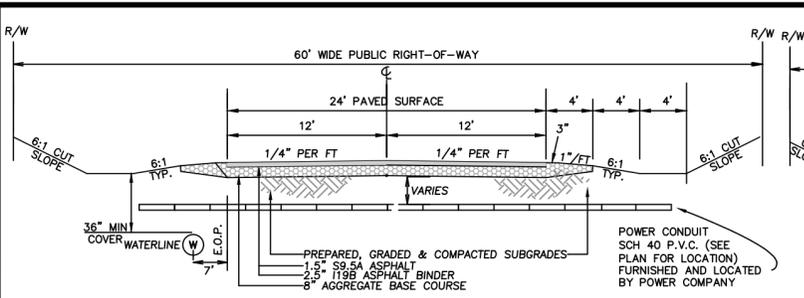
TOWN OF NAGS HEAD
 DARE COUNTY
 NORTH CAROLINA

COMMISSION NO.	P18085
DESIGNED BY	JMH
DRAWN BY	JMH/CMS
CHECKED BY	MWS/JMH
ISSUE DATE	12/10/19

G:\2018\18085\Drawings\Survey\18085-pplat.dwg 12/30/2019 1:25 PM Casounders

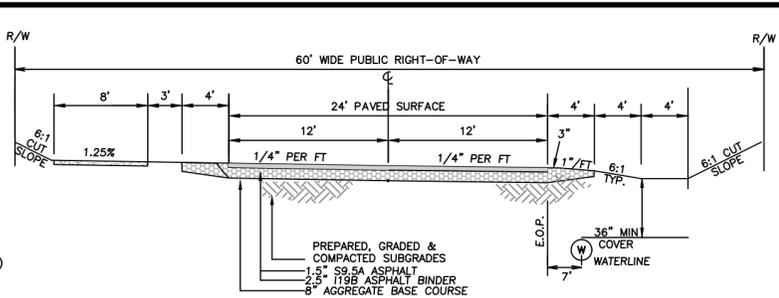


VICINITY MAP
(N.T.S.)



COASTAL BREEZE WAY CROSS SECTION (60' R/W)
N.T.S.

- CONTRACTOR TO INSURE THAT WATERMAIN IS INSTALLED SO AS TO MAINTAIN LEAST 36" COVER FROM FINISH GRADE OF SIDE SLOPES & SWALES.
- PAVEMENT DESIGN, INCLUDING THICKNESS, TO BE DETERMINED BY GEOTECHNICAL ENGINEERING.

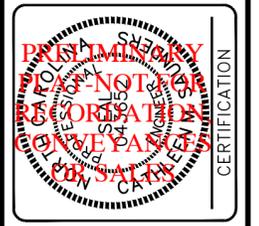


MARINER'S WAY CROSS SECTION (60' R/W)
N.T.S.

- CONTRACTOR TO INSURE THAT WATERMAIN IS INSTALLED SO AS TO MAINTAIN LEAST 36" COVER FROM FINISH GRADE OF SIDE SLOPES & SWALES.
- PAVEMENT DESIGN, INCLUDING THICKNESS, TO BE DETERMINED BY GEOTECHNICAL ENGINEERING.

INFILTRATION BASIN	BOTTOM EL.	TOP EL.	LENGTH	SIDE SLOPES	BOTTOM WIDTH
BASIN 1	5.0'	6.0'	390'	4:1	7.0'
BASIN 2	5.0'	6.0'	340'	4:1	7.0'
BASIN 3	VARIABLE	7.5'	9,319'	4:1 MAX.	5.0'
BASIN 4	6.0'	7.0'	70'	4:1	8.5'
BASIN 5	6.0'	7.0'	96'	4:1	8.5'
BASIN 6	6.0'	7.0'	96'	4:1	8.0'
BASIN 7	6.0'	7.0'	88'	4:1	8.0'
BASIN 8	6.0'	7.0'	98'	4:1	3.0'
BASIN 9	6.0'	7.0'	98'	4:1	3.0'
BASIN 10	6.0'	7.0'	96'	4:1	8.0'
BASIN 11	6.0'	7.0'	96'	4:1	8.0'
BASIN 12	6.0'	7.0'	96'	4:1	8.0'
BASIN 13	6.0'	7.0'	96'	4:1	8.0'
BASIN 14	4.0'	6.0'	60'	4:1	12.0'
BASIN 15	5.0'	6.0'	47'	4:1	8.0'

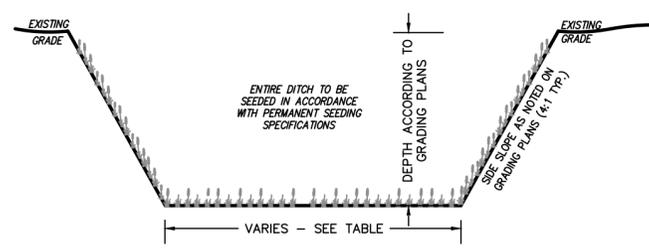
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Quible & Associates, P.C.
ENGINEERING** * CONSULTING * PLANNING
ENVIRONMENTAL SCIENCES * SURVEYING**
ENGINEERING/SURVEYING NOT OFFERED AT BLACK MTN. OFFICE**
8466 CAROLINE HWY. 90 CHURCH STREET, SUITE B
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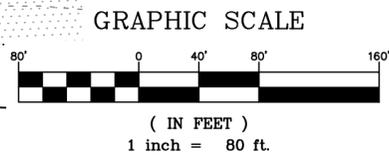
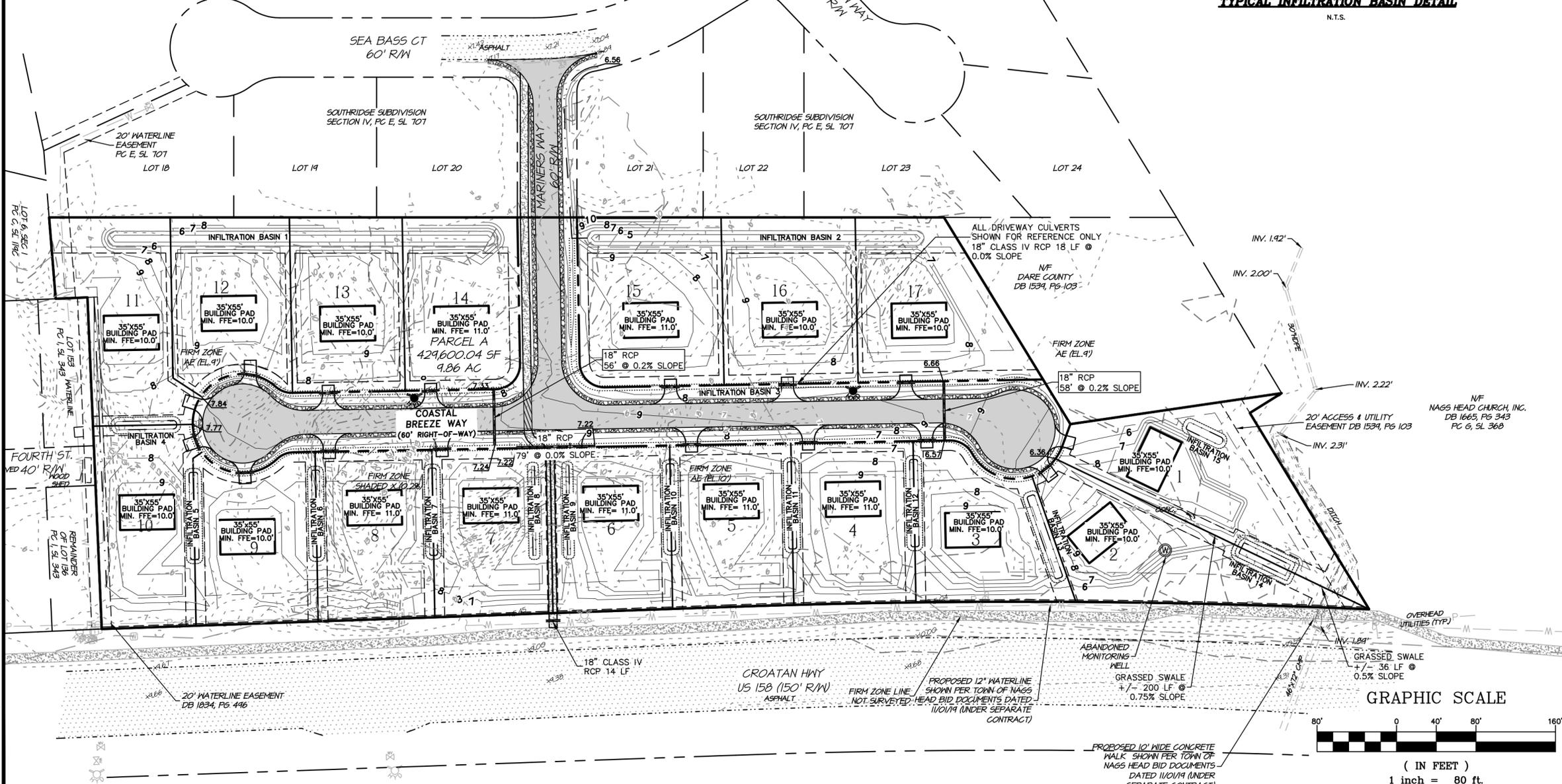
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TYPICAL INFILTRATION BASIN DETAIL
N.T.S.

- LEGEND:**
- EXISTING CONCRETE MONUMENT, E.C.M.
 - EXISTING IRON PIPE, E.I.P.
 - EXISTING IRON ROD, E.I.R.
 - SET IRON ROD, S.I.R.
 - CALCULATED POINT
 - WATER METER
 - TELEPHONE PED
 - MONITORING WELL
 - SIGN
 - WATER VALVE
 - FIRE HYDRANT
 - UTILITY POLE
 - (T) - TOTAL DISTANCE
 - AG - ABOVE GRADE
 - BG - BELOW GRADE



DRAFT PRELIMINARY PLAT 3 OF 3

PARCEL A
COASTAL VILLAS

TOWN OF NAGS HEAD
DARE COUNTY
NORTH CAROLINA

COMMISSION NO.	P18085
DESIGNED BY	JMH
DRAWN BY	JMH/CMS
CHECKED BY	MWS/JMH
ISSUE DATE	12/10/19

G:\2018\Drawings\Survey\18085-pp\plat.dwg 12/30/2019 1:25 PM Casunders

From: [Michael Zehner](#)
To: [Cathleen Saunders](#)
Cc: [Kelly Wyatt](#)
Subject: Southridge, Phase VI Preliminary Sketch Review
Date: Thursday, October 3, 2019 5:09:00 PM
Importance: High

Cathleen,

Pursuant to Section 38-61, Initial conference; preliminary sketch, of Chapter 38, Subdivisions, of the Town Code, I am writing to advise you that the preliminary sketch for the subject major subdivision generally conforms to the policy and standards of the regulations contained in Chapter 38, with the following issued comments, and to authorize the preparation and submittal of a preliminary plat to the Planning Board for consideration, with applicable comments addressed therein.

1. Water flow calculation will determine fire hydrant spacing however at a minimum, the maximum distance from any point on a street to a hydrant should be no more than 250'. This may decrease if the required fire flow is greater than 2000 gpm.
2. Final approval of this subdivision from a building code and fire code perspective requires the developer to provide engineered calculations that document compliance with the minimum fire-flow requirements set forth in Appendix B (Section B105) of the NC Fire Prevention Code. Section B105.1 specifically states that "the minimum fire-flow and flow duration requirements for one- and two-family dwellings having a fire-flow calculation area that does not exceed 3600 square feet shall be 1,000 gallons per minute for 1 hour. Fire-flow and flow duration for dwellings having a fire-flow calculation area in excess of 3600 square feet shall not be less than that specified in Tables B105.1(1) and B105.1(2) .
3. A vehicle pathing plan will be required to determine sufficiency of emergency vehicle access to include turnaround for the cul-de-sac. If access is not sufficient, accommodations in the design of the proposed street and/or appropriate No Parking signs may be necessary.
4. As part of Preliminary Plat submission, please provide supporting documentation that the appropriate NCDOT district office has issued or been provided an opportunity to issue preliminary comments.
5. The Preliminary Plat shall allow confirmation that lateral separation between the proposed wastewater systems and infiltration basins is a minimum of 10' pursuant to the Towns BMP manual
6. Consider reduction of number of septic systems by using shared systems, or consider use of innovative systems.
7. Consider whether there are opportunities for the use of underground infiltration systems.
8. Anticipate that NCDEQ state permit approvals will be required prior to the commencement of development/improvements.
9. Pursuant to Sec 34-7 and Sec 34-9, please address requirements for operation and maintenance of stormwater management facilities.
10. A property owners association will need to be established to be responsible for commonly owned amenities, including but not limited to the maintenance of proposed infiltration measures.
11. The Preliminary Plat will need to comply with requirements of Sec. 34-7, 34-9, Sec. 36-4 through 36-6, Sec 38.65, Sec 38-125, Sec 38-151 through 38-157
12. The proposed multi-use path crossing of the proposed street should be at 90 degrees. Please

also plan to extend the path along the right-of-way of Mariners Way, accommodate a connection of the path along 158, and a crossing at the intersection with 158.

13. Provide specifications for proposed street lights.
14. Confirm trash collection method (carts or dumpster) and ensure that there is sufficient turn around for trash collection.
15. Please review the applicability of Section 26-9, Official town tree, with respect to the removal or destruction of any live oak with a minimum height of three feet or one inch in diameter measured at one-half foot above the grade.
16. This site is directly adjacent to a wellhead protection area. See link (<https://nc.maps.arcgis.com/apps/webappviewer/index.html?id=5fee819063f241d685d569ef1be357cf>), turn on “wellhead protection areas” layer. Should follow up with Pat Irwin, to determine if there are any concerns from the County.
17. Consider interconnectivity with existing internal street network.
18. Significant grading will be required for the development of the subdivision. An over lot grading plan will be required to determine compliance in conjunction with a driveway culvert plan for connectivity of drainage improvements within the proposed right-of-way.
19. The entire State Building Code, including appendices, are adopted by reference in Chapter 10 Article 2 Section 10-41 in the Nags Head Town Code. I mention this now so that it does not come as a surprise to the developer at the end of the process.

If you have questions as to whether certain comments are advisory recommendations for consideration, as opposed to requirements, or must be addressed with the submission of the preliminary plat, as opposed to some later date, please do not hesitate to contact me. As you are aware, a Technical Review meeting will be held on Tuesday, October 8 at 2:00p, to which you are invited. Subsequently, consideration of the preliminary plat will be on the agenda for the October 15 Planning Board meeting; as it is likely that staff will require additional time to review the plan and materials submitted, two meetings before the Planning Board should be anticipated.

Thanks,
Michael

Michael Zehner, AICP
Director of Planning & Development
Town of Nags Head, NC

Physical Address: 5401 South Croatan Highway, Nags Head, NC 27959
Mailing Address: P.O. Box 99, Nags Head, NC 27959
Phone: 252-449-6044
Email: michael.zehner@nagsheadnc.gov

Ben Cahoon
Mayor

Susie Walters
Mayor Pro Tem

Cliff Ogburn
Town Manager



Town of Nags Head

Post Office Box 99
Nags Head, NC 27959
Telephone 252-441-5508
Fax 252-441-0776
www.nagsheadnc.gov

M. Renée Cahoon
Commissioner

J. Webb Fuller
Commissioner

Michael Siers
Commissioner

Date: December 13, 2019

To: Kelly Wyatt, Deputy Planning Director

From: David Ryan, P.E.

**RE: Southridge Subdivision- Section VI – Coastal Villas-Town Engineer Plan Review
Comments**

Internal Traffic Circulation Review

1. An NCDOT right-of-way encroachment shall be obtained for the proposed improvements in the S. Croatan Hwy. right-of-way. This shall be required prior to any land-disturbing activities taking place.
2. Vehicle pathing exhibits have been provided which depict the routing of emergency and sanitation vehicles. The internal traffic circulation approval is contingent on the Public Works/Fire Department approval for access of sanitation and emergency vehicle access. It should be noted that the overhang path for both the sanitation truck and emergency vehicles may limit the placement of mailboxes for Lots 1-3, 9,12 and 13.

Stormwater Management Review

1. A NCDEQ high-density stormwater management permit shall be acquired for this application and submitted to the Town upon issuance. **This shall be a condition of approval.**
2. Prior to the commencement of construction, request that the applicant submit a driveway culvert construction plan which depicts the individual driveway culvert invert elevations to ensure future storm pipes are installed at the correct design elevations.
3. The project shall be designed, constructed, operated and maintained in accordance with Article 11. Environmental Regulations of the Town of Nags Head Unified Development Ordinance. **This shall be a condition of approval.**
4. The submitted subdivision plat has been determined to be in accordance with Article 11. Environmental Regulations of the Unified Development Ordinance.

December 10, 2019

Mr. Michael Zehner
Town of Nags Head
P.O. Box 99
Nags Head, NC 27959

Re: Preliminary Plat Application package
Coastal Villas (formerly Southridge, Phase VI Subdivision)
Town of Nags Head, Dare County, NC

Mr. Zehner,

On behalf of Nags Head Construction and Development, Inc., Quible & Associates, P.C. hereby submits a revised Preliminary Plat Application for the subject referenced project located on Croatan Highway in Nags Head, Dare County. Per our TRC Meeting with the Town of Nags Head on 12/3/2019, Quible and Associates, P.C. has revised the preliminary plat to address comments raised. Please accept this documentation and this transmittal as our agreement of moving forward under the current Town of Nags Head UDO.

Please find enclosed the following items for the above referenced project:

- Five (5) copies of the Revised Narrative;
- Five (5) copy of the Fire Routing Exhibit;
- Five (5) copies of the Refuse Routing Exhibit;
- Five (5) copies of the Revised Preliminary Plat;
- Five (5) copies of the DRAFT O&M Agreement;
- One (1) digital copy of the complete package.

Please acknowledge the following comment summary and response provided in reference to the comments received. We have provided our response in red for ease of review:

Planning & Zoning comments (Kelly/Michael):

1. All easements will need to be conveyed by deed. *Acknowledged.*
2. Provide a statement in writing that the proposed plat is to be reviewed under the latest approved UDO. *Acknowledged.*
3. Update the lot 10 MBSL – the lot line closest to the basin to be a side setback and the front to be set at a minimum lot width of 70'. *Acknowledged. This has been updated.*
4. Address responsibility for infiltration basins and lot line swales throughout. *It is acknowledged that a State High Density Stormwater Permit will be required prior to any disturbance onsite. With this permit application the developer will assume all responsibility for maintenance of the proposed infiltration basins through permitting paperwork. This permit and the associated Town & State operations and maintenance agreement will be transferred to the HOA once the subdivision is built out. A copy of the*

previously submitted Town operations and maintenance agreement has been provided for review.

5. Planning Board Meeting will take place 12/17/19. *Acknowledged.*
6. All updates to the plans/narrative need to be resubmitted by 12/10/19. *Acknowledged.*

Fire (Chief Wells):

1. Minimum fire department access must be 20' wide exclusive of shoulders. *Acknowledged. The proposed roadway width is 24' wide.*

Building Inspections (Corey Tate):

1. Confirm ADA access has the appropriate handicap panels. *Acknowledged. Construction plans will provide details for the installation of sidewalks, handicap ramps, detectable truncated domes, and construction items throughout. It is understood that review and approval of construction drawings through the Town of Nags Head will be a condition of approval.*

Public Works (Ralph Barile):

1. Provide a 6"x6" tee and stub out at the intersection with Mariner's Way. The Town will install this extension. *Acknowledged. A 6"x6" tee, valves, and an associated stub is proposed.*

Town Engineer (David Ryan)

1. How will construction be sequenced and the "lots balanced" as part of the sequencing?
The developer proposes the following with respect to the sequence of construction:
 - a. *Clear and grade roadway and associated roadway infiltration basins;*
 - b. *Clear and grade all infiltration basins and associated lot line swales;*
 - c. *Clear and grade 3-4 lots at a time allowing for soil stockpiling and/or balancing of lots throughout as clearing takes place.**A more detailed sequence of construction will be prepared and placed on the construction plans. It is understood that Town review and approval of the Subdivision construction plans will be a condition of approval.*
2. How will stormwater control measures construction be sequenced? *See response to item 1. Stormwater control measures must be installed as a first step in construction as they will be used as erosion and sediment control measures throughout the site.*
3. What is the FFE for lots 2 and 3? *The labels for lots 2 and 3 have been shifted on Sheet 3 of 3 so that the FFE is clearly shown.*
4. What type of foundation construction is proposed? *A combination of slab and low piles will be used based on house design to meet the minimum FFE.*
5. Lot 1 shows grading to the 9' contour elevation, How will the grading transition be made to the 10' FFE? *Slab, low piles, or standard piles will be used as required to meet the required FFE.*
6. Is topographic information based upon physical survey data? *Yes. The site was surveyed in October of 2018 as stated within note 9 on Sheet 1.*

7. Some of the text on Preliminary Plat Sheet 3 of 3 masks out proposed improvements. Suggest turning off some of the text annotation for clarity. *Acknowledged. The annotation has been shifted to provide as much clarity as possible.*
8. An NCDOT right-of-way encroachment shall be obtained for the proposed improvements in the S. Croatan Highway right-of-way. This shall be required prior to any land disturbing activities take place. *Acknowledged. It is understood that State permits will be a condition of approval.*
9. A stop sign shall be installed at the point of vehicular egress to Sea Bass Court. *The proposed stop sign is now shown on Sheet 2 of 3.*
10. No vehicular pathing exhibits were included with this submission. Please provide to determine sufficiency. *Pathing exhibits for fire and refuse vehicles are included with this resubmission for review.*
11. Preliminary Plat 3 of 3: Roadway cross section detail: Pursuant to 36-4 utility locations (b) Roadway Cross Section Detail: Watermains are typically 7' offset from EOP. Please revise. *Acknowledged. The waterline has been shifted.*
12. Preliminary Plat 3 of 3: Roadway cross section detail: the roadway swale backslope indicates a 3:1 cut slope. The typical cross section for a Local Access Street describes a 6:1 backslope. Please revise. *Acknowledged. The cross section has been updated to match the grading as shown (6:1 slope).*
13. Preliminary Plat 3 of 3: Roadway cross section detail: the detail does not describe the pavement section depths. Please provide. *Preliminary pavement section depths have been provided. Please note pavement section depths will need to be analyzed by a geotechnical engineer to determine required thickness based on existing underlying soil.*
14. Preliminary Plat: Roadway cross section detail: A S9.5C asphalt surface mix is not appropriate for this application. Recommend S9.5A asphalt surface mix. Please revise. *Acknowledged and revised on Sheet 3 of 3.*
15. Preliminary Plat 3 of 3: Roadway cross section indicates a S9.5C asphalt surface course to be applied at a later date. Please provide additional information. *The intent was to apply the surface course after a majority of construction was complete to avoid damage to the final surface mix from construction traffic. The note has been removed and the surface mix will be placed after completion of the subdivision grading.*
16. The internal traffic circulation approval is contingent on the Public Works/Fire Department approval for access of sanitation and emergency vehicle access. *Acknowledged. These routing exhibits have been provided for review.*
17. All runoff from the subdivision's built upon area, including proposed streets, must be directed into an approved stormwater management system designed to accommodate the runoff generated by a 1.5" design storm. The submitted narrative provides a table of storage volume provided by infiltration basin designation but does not provide a breakdown of individual lot generated runoff or account for the runoff generated from the right-of-way improvements and the 1.5" design storm runoff volume is accommodated. Please provide calculations. *Acknowledged. These calculations have been included within the narrative for this resubmittal.*
18. Overflow shall not be conveyed off-site to private property or public rights-of-way for disposal except upon the establishment of appropriate easements and maintenance

agreements among all impacted parties upon Town approval. Has downstream analysis been conducted to determine whether the downstream infrastructure is capable of handling the excess runoff overflow from this development? Suggest a pre to post development analysis for a minimum 10-yr storm. *A pre- to post- analysis has been performed and has been included within the updated narrative. Conservative calculations expect an offsite release volume of 34,308 cf, which is less than the 10-yr pre-development runoff volume of 39,685 cf.*

19. Preliminary Plat 3 of 3 indicates both existing grade contours and proposed contours. Existing grade contours do not appear to be annotated. Please provide sufficient detail for review. *The existing contour labels are shown on Sheet 3 of 3.*
20. How will operation and maintenance of the individual stormwater control measures be addressed pursuant to Section 34-7 and Section 34-9 of the Town Code or Article 11 of the UDO? *It is proposed that infiltration basins 1-2 and 4-15 will be maintained by the HOA. The roadside infiltration basin (#3) is proposed to be maintained by Town personnel.*
21. Drainage for Local access Streets are based upon infiltration into the sandy soils. This proposal appears to convey stormwater to the common property line between lots 1 & 2 via a swale/infiltration basin which is counter to Town requirements. Who is responsible entity for the O&M of this section of the system? *This section of the system is proposed to be maintained by the HOA.*
22. The grassed swale from Infiltration Basin 14 has a 8.9% longitudinal slope which will place the invert at the flowline of the adjoining ditch. What is the reasoning behind the design of this section of swale? *As discussed during the TRC Meeting, this ditch will be shortened to tie into the side of the existing ditch in lieu of tying into the existing flowline.*
23. The Town is currently in the design development phase of the next section of the W. Side multi-use path. Grassed drainage swales shall accompany this design. A min. 18" dia. cross street drainage culvert pipe is recommended to provide connectivity. Plans will be provided to the design engineer. *Acknowledged. AutoCAD information was received 12/9/19 and has been incorporated into the preliminary plat on Sheets 2 and 3 of 3.*
24. How will runoff from the south side of Mariner's Way be managed? *Mariner's Way is proposed to be superelevated to redirect stormwater towards infiltration basin #2 and the associated roadside swales. A cross section of Mariner's Way has been provided on Sheet 3 of 3.*
25. How will runoff from the proposed impervious surfaces on the individual lots be directed to the stormwater control measures? *The proposed building footprints are elevated to direct runoff towards the lower infiltration basins via sheet flow. A note has been added to the plans indicating that all runoff must be routed towards the infiltration basins through sheet flow and/or roof drains based on the building design (Note 16, Sheet 1 of 3).*
26. Page 3 of the stormwater management calculations: Basin 6 provided bottom dimension is incorrect. Please revise. *The bottom basin width within the table has been revised. Calculations for this basin remain unchanged.*
27. Page 3 of the stormwater management calculations: Basin 3 storage calculations appear to be incorrect when referencing the typical roadway section. Please address. *The*

roadway storage calculations are based on a length of 9,319', 6:1 side slopes, a bottom width of 5' and a storage depth of 0.5'. Calculations are provided with this resubmittal.

28. A NCDEQ high-density stormwater permit shall be required for this application and submitted to the Town upon issuance. *Acknowledged.*
29. The design engineer shall review and certify the installed drainage infrastructure improvements and provide record of this certification for the Town prior to Board consideration or acceptance of the proposed right-of-way improvements. *Acknowledged.*
30. Documentation describing the as-built conditions shall be submitted to the Town prior to the board acceptance of the proposed right-of-way improvements. *Acknowledged.*
31. Any alterations to the submitted grading and drainage plan shall be submitted for review and approval by the Town Engineer or authorized designee. *Acknowledged.*
32. Please revise and resubmit for compliance with the provisions of Chapter 34, Stormwater, Fill, and Runoff Management of the Town Code of Ordinances OR Article 11 of the Unified Development Ordinance. *Acknowledged.*

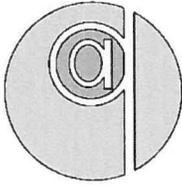
Please review the enclosed revised documentation and place us on the December 17th Planning Board agenda, if appropriate. Please do not hesitate to contact me at 252.491.8147 if you have any questions, comments or requests for additional information.

Sincerely;
Quible & Associates, P.C.



Cathleen M. Saunders, P.E.
Project Manager

encl: As stated
cc: Alfred Norman, Nags Head Construction, LLC



SITE NARRATIVE
Coastal Villas
(formerly Southridge Subdivision – Phase VI)
Town of Nags Head, Dare County, North Carolina

Prepared for:
Nags Head Construction
and Development, Inc.
P.O. Box 16472
Chesapeake, VA 23328

Prepared by:
Quible & Associates, P.C.
PO Drawer 870
Kitty Hawk, NC 27949

December 10, 2019
P18085

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Proposed Zoning Conditions/Dimensional Standards 5

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Appendix A – On-site Soils Evaluation and NRCS Web Soil Survey Data

Appendix B – On-site Wastewater Evaluation and Well Documentation

Appendix C – Stormwater Calculations

Overview

Nags Head Construction and Development, Inc. (Owner) is proposing to subdivide an existing parcel located on S. Croatan Highway (PIN 9891-0888-6987). The proposed subdivision parent parcel is approximately 9.86 acres. The location is approximately 300 feet south of the intersection of W. Soundside Road and US 158. The existing land is vacant and consists of vegetation throughout. There is an existing drainage ditch that currently runs along the northern boundary and runoff from this site is believed to make its way offsite through this existing drainage ditch or through infiltration in low lying areas.

The Developer is proposing an 17-lot subdivision with associated improvements such as streets, sidewalks, stormwater management control measures, domestic water supply, and other associated utilities. The runoff from impervious surfaces in this subdivision will be conveyed via overland flow and lot line swales to proposed infiltration basins. The roadside swales will also provide storage prior to discharge into the northern ditch.

The following narrative sections will detail the parameters of the proposed Subdivision and its compliance with Town requirements.

Existing Site

As stated above, the subject parcel is vacant and consists of vegetated open space. There is an existing drainage ditch that runs along the northern property line. Runoff from the existing site currently infiltrates within existing low spots or discharges offsite onto adjacent properties. The site appears to fall within the SoundsideW Drainage Basin as defined within the Town of Nags Head Comprehensive Plan. The parcel currently has no existing impervious surfaces or improvements.

Within the Town of Nags Head Comprehensive Plan, the parcel is zoned as R2 and does not appear to fall within a Historic Character Area or scenic area. Within the Future Land Use Map our subject parcel is within a residential designation, which is consistent with the proposed subdivision.

Proposed Development

Access

The proposed subdivision will connect into an existing paperstreet, Mariner's Way. Access to the highway will be through existing adjacent subdivision roads. The provided roadway is 24' wide with a 4' wide gravel shoulder capable of withstanding 75,000 lbs, which allows for fire access to the site. A cul-de-sac is available with a 40' radius for fire department and vehicular turn around. AutoTurn exhibits of site access have been provided for review with this package.

A future sidewalk plan is proposed along Croatan Highway between Deering and Soundside Road based on the Town of Nags Head Comprehensive Plan. Pedestrian access is proposed through the subdivision to connect residents with this future multiuse path.

Stormwater Management Plan

Stormwater to serve the proposed subdivision will include infiltration basins throughout. The proposed stormwater management facilities have been designed to provide the following storage:

<i>Infiltration Basin</i>	<i>Required Storage</i>	<i>Provided Storage</i>
Basin 1	2,041 cf	4,290 cf
Basin 2	3,461 cf	3,740 cf
Basin 3	8,254 cf	37,276 cf
Basin 4	737 cf	875 cf
Basin 5	823 cf	1,200 cf
Basin 6	883 cf	1,152 cf
Basin 7	865 cf	1,056 cf
Basin 8	485 cf	686 cf
Basin 9	485 cf	686 cf
Basin 10	855 cf	1,152 cf
Basin 11	849 cf	1,152 cf
Basin 12	846 cf	1,152 cf
Basin 13	863 cf	1,152 cf
Basin 14	2,122 cf	2,400 cf
Basin 15	268 cf	564 cf

Basin dimensions and storage were calculated based on the following information:

<i>Infiltration Basin</i>	<i>Bottom Elevation</i>	<i>Top Elevation</i>	<i>Length</i>	<i>Side Slopes</i>	<i>Bottom Width</i>
Basin 1	5.0'	6.0'	390.0'	4:1	7.0'
Basin 2	5.0'	6.0'	340.0'	4:1	7.0'
Basin 3	VARIABLES	7.5' (Overtops)	9319.0'	4:1 Max.	5.0'
Basin 4	6.0'	7.0'	70.0'	4:1	8.5'
Basin 5	6.0'	7.0'	96.0'	4:1	8.5'
Basin 6	6.0'	7.0'	96.0'	4:1	8.0'
Basin 7	6.0'	7.0'	88.0'	4:1	8.0'
Basin 8	6.0'	7.0'	98.0'	4:1	3.0'
Basin 9	6.0'	7.0'	98.0'	4:1	3.0'
Basin 10	6.0'	7.0'	96.0'	4:1	8.0'
Basin 11	6.0'	7.0'	96.0'	4:1	8.0'
Basin 12	6.0'	7.0'	96.0'	4:1	8.0'
Basin 13	6.0'	7.0'	96.0'	4:1	8.0'
Basin 14	4.0'	6.0'	60.0'	4:1	12.0'
Basin 15	5.0'	6.0'	47.0'	4:1	8.0'

Soils

The USDA NRCS Soil Survey lists the soil in the vicinity of the stormwater infiltration basin as described below.

- DtA – Duckston fine sand

This soil typically has 0 to 2 percent slopes. Duckston fine sand typically has a very high runoff rate and is typically well drained. This soil is categorized in Hydrologic Soil Group: A/D

- DuE – Dune Land
This soil typically has 2 to 40 percent slopes. Dune Land is typically made up of fine sand and sand.
- DwE – Dune Land Newhan Complex
This soil typically has 2 to 40 percent slopes. Dune Land-Newhan complex typically has a very low runoff rate and is typically excessively drained. This soil is categorized in Hydrologic Soil Group: A
- NhC – Newhan-Corolla complex
This soil typically has 0 to 10 percent slopes. Newhan-Corolla complex typically has a very low runoff rate and is typically excessively drained. This soil is categorized in Hydrologic Soil Group: A
- NuC—Newhan-Urban land complex
This soil typically has 0 to 10 percent slope. Newhan-Urban land complex typically has a very low runoff class and is excessively drained. This soil is categorized in Hydrologic Soil Group: A.

Soils infiltration testing has been performed at the site which confirms the anticipated soils based on the NRCS Websoil survey data. An infiltration rate of 6.58 in/hr was calculated and a seasonal high-water table of 3.28'-3.81' was observed depending on the boring location within the site. See attached soil memorandum in **Appendix A** for additional information. These stormwater management facilities will provide an adequate system to meet State and local requirements for stormwater storage. A high-density stormwater permit is required by NC DEQ along with deed restrictions for each individual lot. Stormwater calculations have been included within **Appendix C**.

Downstream Analysis

The pre to post development 10-yr storm has been analyzed to determine adequacy of the downstream channel. The pre-development runoff volume during the 10-yr storm is approximately 39,685 cf. The post-development runoff (prior to routing or infiltration) is approximately 104,247 cf. Routing the post-development runoff through the proposed infiltration basins (accounting for above grade and below grade storage) approximately 34,308 cf of stormwater would be routed offsite. This volume of stormwater is less than that the pre-development amount. This volume is conservative as it does not account for infiltration within the basins or lateral movement of stormwater within the ground.

Utilities

The Town has an existing 6" water line that runs along the southern property line and connects into Sea Bass Court via easements. In addition, the Town proposes to install a 12" waterline along Croatan Highway. It is our understanding that this project is on schedule to be completed prior to subdivision construction. The proposed waterline extension will tap into the existing 6" waterline, run down the center of the proposed right-of-way, and loop to connect into the proposed 12" waterline at Croatan Highway with a tapping sleeve and valve. Repairs to the existing 6" line will need to take place prior to use and a permit to construct from NC DEQ Public

Water Supply is required. A willingness to serve from the Town of Nags Head Public Works Department has been requested.

The proposed wastewater effluent from the proposed single-family homes will be treated onsite. Preliminary onsite evaluations have been conducted to determine suitability and the health department's LTAR rating. An LTAR rating for a conventional system is anticipated at 1.2 gpd/sf, however, the health department will re-evaluate this rating per site once the subdivision project area has been regraded due to the varying topography throughout. See supporting documentation within **Appendix B**. Onsite wastewater setbacks will be required on each individual single-family home and will need to be handled with individual site plans. The monitoring well on Lot 2 has been abandoned and documentation provided within **Appendix B**. Lots 1 and 17 will be able to maintain a 100' minimum setback from the anticipated well placement. A preliminary sketch plan of well placement has been obtained and available within **Appendix B** for reference.

Proposed Zoning Conditions/Dimensional Standards

Proposed lot dimensions are designed to meet Development Standards within Section 8.2 of the Town of Nags Head UDO effective October 7th, 2019 (DRAFT 12/18/17). Lots are designed to R-2 Medium Density residential standards:

	Minimum Lot Area	Minimum Lot Width	Minimum Front Yard Depth	Minimum Side Yard Depth	Minimum Rear Yard Depth	Lot Coverage
Single Family	20,000 sf	70'	30'	10'	30'	33%

Landscape buffers are not anticipated as the proposed development design is for Single Family and not large residential. The provided HOA covenants will require the square footage to remain below 5,000 square feet per the Town's large residential definition (UDO Section 7.4.4.1).

Appendix A – On-site Soils Evaluation and NRCS Web Soil Survey Data

MEMORANDUM



Quible SINCE 1959
& Associates, P.C.

ENGINEERING * CONSULTING * PLANNING
ENVIRONMENTAL SCIENCES * SURVEYING

Phone: (252) 261-3300

Fax: (252) 261-1260

Web: www.quible.com

To: Cathleen Saunders, P.E.

From: Brian D. Rubino, P.G.

Date: July 24, 2019

**Re: P18085 Soils Evaluation and Testing
Dare County PIN: 9891-0888-6987**

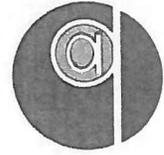
Cathleen,

On July 22, 2019, we visited the approximately 9.86 acre Site of the proposed residential subdivision in Nags Head, NC (Dare County PIN: 9891-0888-6987). We performed soil borings in several locations around the Site for the purpose of a soils and hydrologic analysis for a future stormwater collection system design (SB-1 through SB-4). The property is undeveloped and consists of undulating topographic conditions, dominantly covered with native vegetation and bare sand areas. Refer to the attached boring logs. Each of the boring locations includes sand substrata that is devoid of any restrictive horizons to the bottom of the borings. The depth to the season high water table (SHWT) and associated actual water table (on 7/22/2019) was observed to be closely related to elevation in this area.

A summary of boring data collected or observed is as follows:

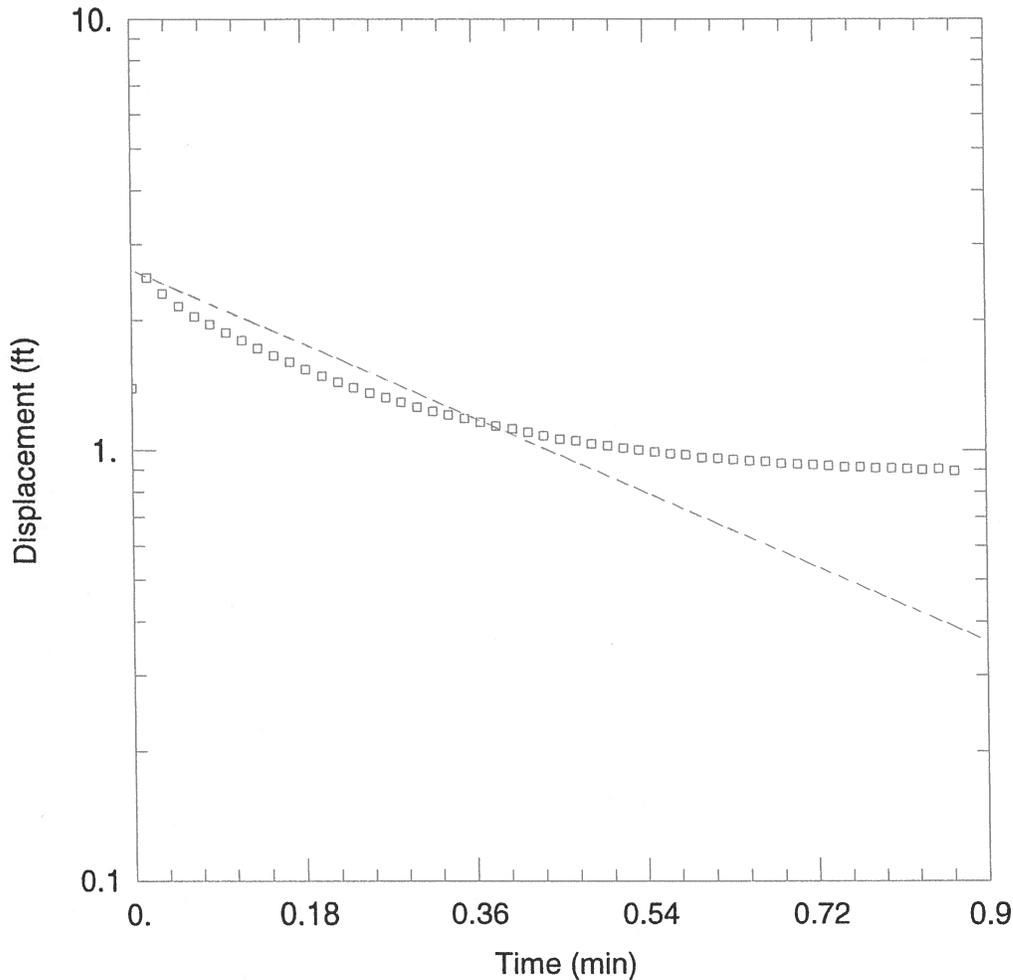
Soil Boring	Ground Elevation (ft)	Groundwater Elevation (ft)	Approx. Elevation of SHWT (ft)	Mapped USDA Soil Type
SB-1	5.61	3.11	3.28	Newhan-Corolla complex (NhC)
SB-2	4.65	3.40	3.65	Newhan-Corolla complex (NhC)
SB-3	7.98	3.43	3.81	Newhan-Corolla complex (NhC)
SB-4	6.16	3.16	3.49	Newhan-Corolla complex (NhC)

At the location of SB-1 and SB-3, we installed piezometers and conducted falling head slug tests to determine the approximate saturated hydraulic conductivity of the proposed infiltration areas. An Onset HOBO transducer was inserted down into the bottom of the piezometer and a volume of water (approximately 1.5 gallons) was added through the top of the piezometer. Return rates of the water were measured in preset intervals (1 second). A second transducer was used to measure atmospheric pressure which allows the raw data to be converted to feet of water above the transducer during the test. The Onset pressure transducer data was used in the AQTESOLV Software Program to solve for Hydraulic Conductivity (K) using the Bouwer-Rice Solution for unconfined aquifers. Based on the input data and using the Bouwer-Rice Method for unconfined



aquifers, the saturated K value of the infiltration zone for SB-1 was 0.009148 ft/min (6.58 in/hr) and SB-3 was 0.009155 ft/min (6.59 in/hr). Slug test tare sheets are attached.

Based on our findings, the areas evaluated would provide adequate infiltration above the SHWT to support a stormwater collection and treatment system for the proposed development.



WELL TEST ANALYSIS

Data Set: Q:\2018\P18085\Documents\Stormwater\SB-1.aqt
 Date: 07/24/19 Time: 13:36:45

PROJECT INFORMATION

Company: Quible & Associates, P.C.
 Client: Parcel A Sec VI Southridge
 Project: P18085
 Location: Nags Head
 Test Well: SB-1
 Test Date: 7/22/19

AQUIFER DATA

Saturated Thickness: 60. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 1.39 ft Static Water Column Height: 0.895 ft
 Total Well Penetration Depth: 4. ft Screen Length: 4. ft
 Casing Radius: 0.167 ft Well Radius: 0.333 ft
 Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.009148 ft/min *0.50 in/hr.* y0 = 2.624 ft

Data Set: Q:\2018\P18085\Documents\Stormwater\SB-1.aqt
 Date: 07/24/19
 Time: 13:37:01

PROJECT INFORMATION

Company: Quible & Associates, P.C.
 Client: Parcel A Sec VI Southridge
 Project: P18085
 Location: Nags Head
 Test Date: 7/22/19
 Test Well: SB-1

AQUIFER DATA

Saturated Thickness: 60. ft
 Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: New Well

X Location: 0. ft
 Y Location: 0. ft

Initial Displacement: 1.39 ft
 Static Water Column Height: 0.895 ft
 Casing Radius: 0.167 ft
 Well Radius: 0.333 ft
 Well Skin Radius: 0.333 ft
 Screen Length: 4. ft
 Total Well Penetration Depth: 4. ft
 Corrected Casing Radius (Bouwer-Rice Method): 0.1549 ft
 Gravel Pack Porosity: 0.

No. of Observations: 52

Time (min)	Observation Data		Displacement (ft)
	Displacement (ft)	Time (min)	
0.01667	2.512	0.45	1.061
0.03333	2.309	0.4667	1.051
0.05	2.155	0.4833	1.034
0.06667	2.039	0.5	1.024
0.08333	1.956	0.5167	1.011
0.1	1.872	0.5333	1.001
0.1167	1.796	0.55	0.991
0.1333	1.722	0.5667	0.981
0.15	1.656	0.5833	0.975
0.1667	1.599	0.6	0.961
0.1833	1.539	0.6167	0.958
0.2	1.483	0.6333	0.951
0.2167	1.436	0.65	0.945
0.2333	1.396	0.6667	0.941
0.25	1.356	0.6833	0.931
0.2667	1.323	0.7	0.928
0.2833	1.29	0.7167	0.925
0.3	1.257	0.7333	0.921
0.3167	1.23	0.75	0.915
0.3333	1.207	0.7667	0.915
0.35	1.184	0.7833	0.908
0.3667	1.161	0.8	0.908
0.3833	1.137	0.8167	0.905
0.4	1.121	0.8333	0.901
0.4167	1.101	0.85	0.905
0.4333	1.081	0.8667	0.895

SOLUTION

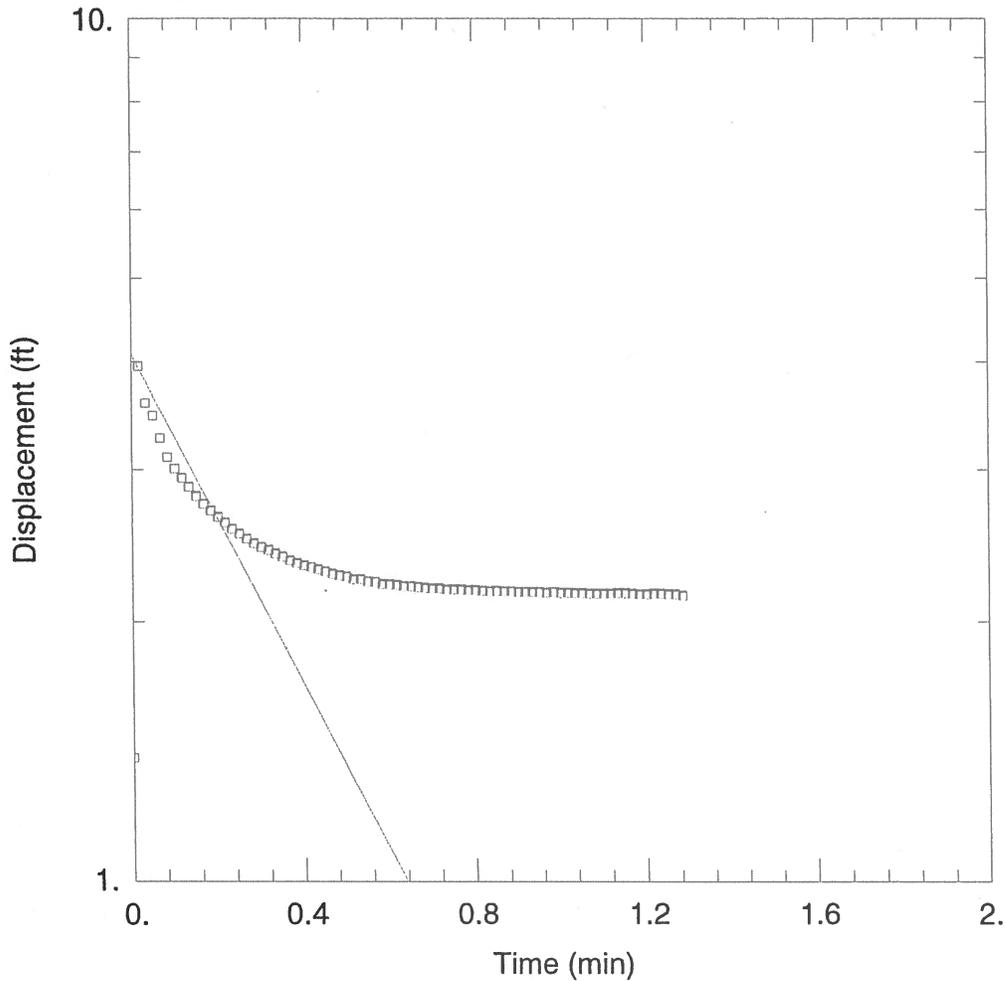
Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 1.383

VISUAL ESTIMATION RESULTS

Estimated Parameters

<u>Parameter</u>	<u>Estimate</u>	
K	0.009148	ft/min
y0	2.624	ft

K = 0.004647 cm/sec
T = K*b = 0.5489 ft²/min (8.499 sq. cm/sec)



WELL TEST ANALYSIS

Data Set: Q:\2018\P18085\Documents\Stormwater\SB-3.Test 1.aqt
 Date: 07/24/19 Time: 13:52:38

PROJECT INFORMATION

Company: Quible & Associates, P.C.
 Client: Parcel A Sec VI Southridge
 Project: P18085
 Location: Nags Head
 Test Well: SB-3
 Test Date: 7/22/19

AQUIFER DATA

Saturated Thickness: 60. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 1.39 ft Static Water Column Height: 0.895 ft
 Total Well Penetration Depth: 4. ft Screen Length: 4. ft
 Casing Radius: 0.167 ft Well Radius: 0.333 ft
 Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Unconfined Solution Method: Bowyer-Rice

K = 0.009155 ft/min *6.59 in/hr.* y0 = 4.078 ft

Data Set: Q:\2018\P18085\Documents\Stormwater\SB-3.Test 1.aqt
 Date: 07/24/19
 Time: 13:52:59

PROJECT INFORMATION

Company: Quible & Associates, P.C.
 Client: Parcel A Sec VI Southridge
 Project: P18085
 Location: Nags Head
 Test Date: 7/22/19
 Test Well: SB-3

AQUIFER DATA

Saturated Thickness: 60. ft
 Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: New Well

X Location: 0. ft
 Y Location: 0. ft

Initial Displacement: 1.39 ft
 Static Water Column Height: 0.895 ft
 Casing Radius: 0.167 ft
 Well Radius: 0.333 ft
 Well Skin Radius: 0.333 ft
 Screen Length: 4. ft
 Total Well Penetration Depth: 4. ft
 Corrected Casing Radius (Bouwer-Rice Method): 0.1549 ft
 Gravel Pack Porosity: 0.

No. of Observations: 77

Time (min)	Observation Data		Displacement (ft)
	Displacement (ft)	Time (min)	
0.01667	3.954	0.6667	2.189
0.03333	3.584	0.6833	2.185
0.05	3.467	0.7	2.182
0.06667	3.264	0.7167	2.182
0.08333	3.101	0.7333	2.175
0.1	3.004	0.75	2.175
0.1167	2.931	0.7667	2.175
0.1333	2.861	0.7833	2.172
0.15	2.791	0.8	2.172
0.1667	2.735	0.8167	2.168
0.1833	2.685	0.8333	2.165
0.2	2.641	0.85	2.168
0.2167	2.602	0.8667	2.165
0.2333	2.558	0.8833	2.165
0.25	2.525	0.9	2.161
0.2667	2.492	0.9167	2.161
0.2833	2.462	0.9333	2.161
0.3	2.438	0.95	2.161
0.3167	2.418	0.9667	2.158
0.3333	2.395	0.9833	2.161
0.35	2.375	1.	2.158
0.3667	2.352	1.017	2.158
0.3833	2.335	1.033	2.155
0.4	2.322	1.05	2.155
0.4167	2.309	1.067	2.151
0.4333	2.295	1.083	2.151
0.45	2.282	1.1	2.151
0.4667	2.269	1.117	2.151
0.4833	2.259	1.133	2.155

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
0.5	2.252	1.15	2.155
0.5167	2.235	1.167	2.151
0.5333	2.235	1.183	2.148
0.55	2.222	1.2	2.148
0.5667	2.218	1.217	2.151
0.5833	2.208	1.233	2.151
0.6	2.205	1.25	2.148
0.6167	2.202	1.267	2.148
0.6333	2.195	1.283	2.141
0.65	2.195		

SOLUTION

Slug Test
 Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 ln(Re/rw): 1.383

VISUAL ESTIMATION RESULTS

Estimated Parameters

<u>Parameter</u>	<u>Estimate</u>	
K	0.009155	ft/min
y0	4.078	ft

K = 0.004651 cm/sec
 T = K*b = 0.5493 ft²/min (8.505 sq. cm/sec)



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Dare County, North Carolina

Coastal Villas formerly

Southridge Subdivision, Section VI



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:2,910 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

	Area of Interest (AOI)		Spoil Area
	Area of Interest (AOI)		Stony Spot
	Soils		Very Stony Spot
	Soil Map Unit Polygons		Wet Spot
	Soil Map Unit Lines		Other
	Soil Map Unit Points		Special Line Features
	Special Point Features		Water Features
	Blowout		Streams and Canals
	Borrow Pit		Transportation
	Clay Spot		Rails
	Closed Depression		Interstate Highways
	Gravel Pit		US Routes
	Gravelly Spot		Major Roads
	Landfill		Local Roads
	Lava Flow		Aerial Photography
	Marsh or swamp		Background
	Mine or Quarry		
	Miscellaneous Water		
	Perennial Water		
	Rock Outcrop		
	Saline Spot		
	Sandy Spot		
	Severely Eroded Spot		
	Sinkhole		
	Slide or Slip		
	Sodic Spot		

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dare County, North Carolina
 Survey Area Data: Version 18, Sep 10, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Oct 19, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DtA	Duckston fine sand, 0 to 2 percent slopes, occasionally flooded	1.6	9.4%
DuE	Dune land, 2 to 40 percent slopes	1.4	8.0%
DwE	Dune land-Newhan complex, 2 to 40 percent slopes	2.2	12.9%
NhC	Newhan-Corolla complex, 0 to 10 percent slopes	12.1	69.6%
NuC	Newhan-Urban land complex, 0 to 10 percent slopes	0.0	0.0%
Totals for Area of Interest		17.4	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

Custom Soil Resource Report

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Dare County, North Carolina

DtA—Duckston fine sand, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 3qgw
Elevation: 0 to 10 feet
Mean annual precipitation: 42 to 58 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 190 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Duckston and similar soils: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Duckston

Setting

Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Eolian sands and/or beach sand

Typical profile

A - 0 to 8 inches: fine sand
Cg - 8 to 13 inches: sand
Ab - 13 to 17 inches: sand
C'g - 17 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 39.96 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Salinity, maximum in profile: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 20.0
Available water storage in profile: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

DuE—Dune land, 2 to 40 percent slopes

Map Unit Composition

Dune land: 95 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dune Land

Setting

Landform: Dunes

Landform position (two-dimensional): Backslope, shoulder

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Eolian sands

Typical profile

A - 0 to 6 inches: fine sand

C - 6 to 80 inches: sand

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydric soil rating: No

DwE—Dune land-Newhan complex, 2 to 40 percent slopes

Map Unit Setting

National map unit symbol: 3qgy

Elevation: 0 to 20 feet

Mean annual precipitation: 42 to 58 inches

Mean annual air temperature: 61 to 64 degrees F

Frost-free period: 190 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Dune land: 45 percent

Newhan and similar soils: 45 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dune Land

Setting

Landform: Dunes

Landform position (two-dimensional): Backslope, shoulder

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

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Across-slope shape: Convex
Parent material: Eolian sands

Typical profile

A - 0 to 6 inches: fine sand
C - 6 to 80 inches: sand

Properties and qualities

Slope: 2 to 40 percent
Natural drainage class: Excessively drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 39.96 in/hr)
Frequency of flooding: Very rare
Salinity, maximum in profile: Slightly saline to strongly saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 20.0
Available water storage in profile: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Description of Newhan

Setting

Landform: Dunes
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Eolian sands and/or beach sand

Typical profile

A - 0 to 2 inches: fine sand
C1 - 2 to 50 inches: fine sand
C2 - 50 to 80 inches: sand

Properties and qualities

Slope: 0 to 30 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 39.96 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Very rare
Frequency of ponding: None
Salinity, maximum in profile: Slightly saline to strongly saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 20.0
Available water storage in profile: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: A

Custom Soil Resource Report

Hydric soil rating: No

Minor Components

Duckston

Percent of map unit: 5 percent

Landform: Depressions

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

NhC—Newhan-Corolla complex, 0 to 10 percent slopes

Map Unit Setting

National map unit symbol: 3qh6

Elevation: 0 to 20 feet

Mean annual precipitation: 42 to 58 inches

Mean annual air temperature: 61 to 64 degrees F

Frost-free period: 190 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Newhan and similar soils: 50 percent

Corolla and similar soils: 40 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Newhan

Setting

Landform: Dunes

Landform position (two-dimensional): Backslope, shoulder

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Eolian sands and/or beach sand

Typical profile

A - 0 to 2 inches: fine sand

C1 - 2 to 50 inches: fine sand

C2 - 50 to 80 inches: sand

Properties and qualities

Slope: 0 to 10 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Excessively drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 39.96 in/hr)

Depth to water table: More than 80 inches

Custom Soil Resource Report

Frequency of flooding: Rare
Frequency of ponding: None
Salinity, maximum in profile: Slightly saline to strongly saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 20.0
Available water storage in profile: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: A
Hydric soil rating: No

Description of Corolla

Setting

Landform: Troughs on barrier islands
Landform position (two-dimensional): Backslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Eolian sands and/or beach sand

Typical profile

A - 0 to 3 inches: fine sand
C - 3 to 26 inches: fine sand
Ab - 26 to 32 inches: sand
Cg - 32 to 60 inches: sand

Properties and qualities

Slope: 0 to 6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: Rare
Frequency of ponding: None
Salinity, maximum in profile: Slightly saline to strongly saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 20.0
Available water storage in profile: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Duckston

Percent of map unit: 5 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

NuC—Newhan-Urban land complex, 0 to 10 percent slopes

Map Unit Setting

National map unit symbol: 3qh7
Elevation: 0 to 20 feet
Mean annual precipitation: 42 to 58 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 190 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Newhan and similar soils: 50 percent
Urban land: 40 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Newhan

Setting

Landform: Dunes
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Eolian sands and/or beach sand

Typical profile

A - 0 to 2 inches: fine sand
C1 - 2 to 50 inches: fine sand
C2 - 50 to 72 inches: sand

Properties and qualities

Slope: 0 to 10 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 39.96 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Very rare
Frequency of ponding: None
Salinity, maximum in profile: Slightly saline to strongly saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 20.0
Available water storage in profile: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s

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Hydrologic Soil Group: A
Hydric soil rating: No

Description of Urban Land

Properties and qualities

Slope: 0 to 2 percent
Frequency of flooding: Very rare

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Duckston

Percent of map unit: 5 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

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Appendix B – On-site Wastewater Evaluation and Well Documentation



County of Dare

Department of Health & Human Services

P.O. Box 669 | Manteo, North Carolina 27954

Health 252.475.5003 | Social Services 252.475.5500

MEMO
AUGUST 13, 2019

TO; QUIBLE & ASSOCIATES
% CATHLEEN SAUNDERS
PO BOX 870
KITTY HAWK NC

FROM: M.F.PARKER RHS *mfparker*
DARE COUNTY HEALTH

REF; 18 LOT SUBDIVISIONS
NAGS HEAD NC

THERE IS A 20' EASEMENT ON THE SOUTH WEST CORNER OF LOT (I) THAT THE SEPTIC SYSTEM WILL NEED TO STAY OUT OF.

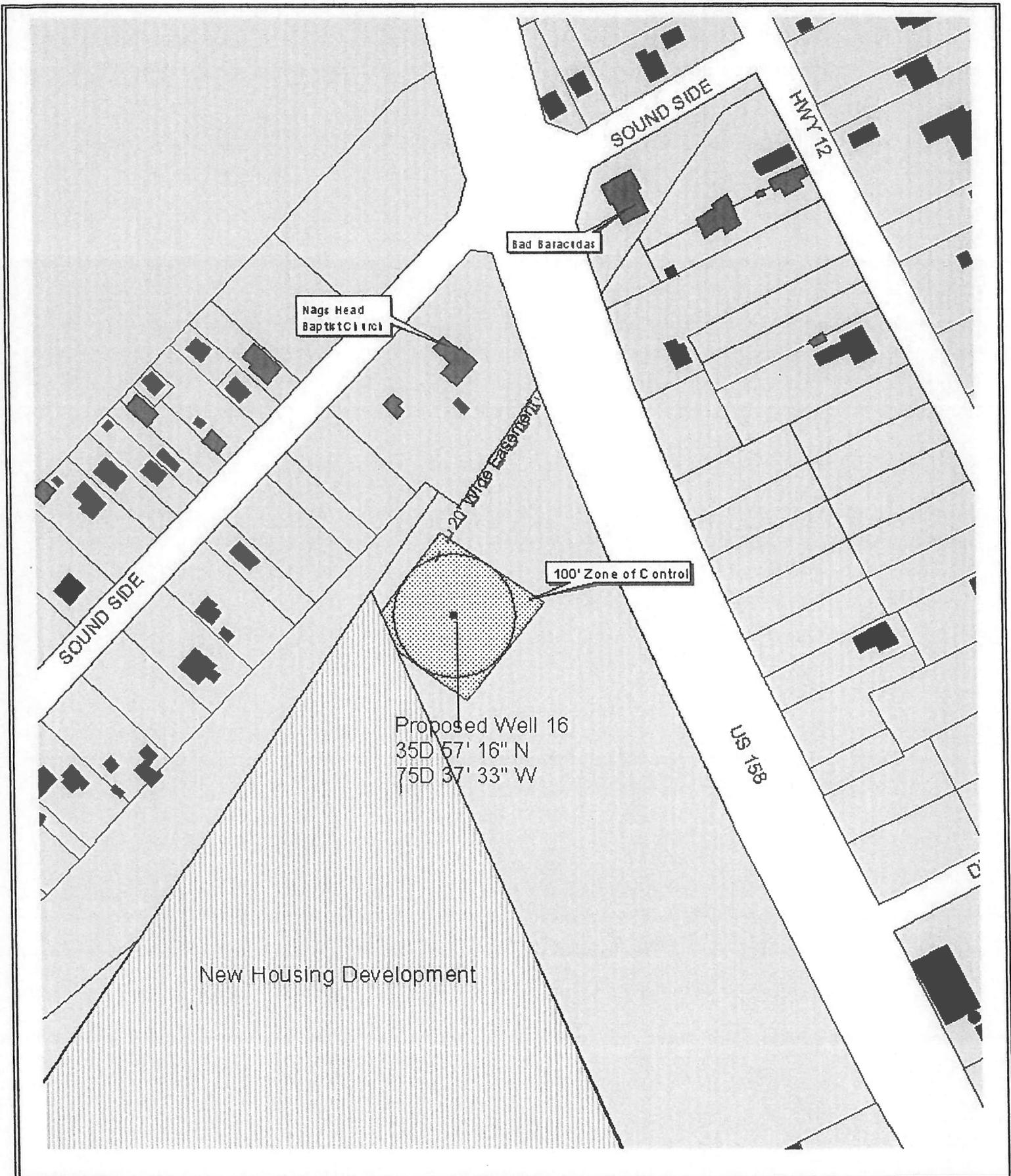
LOT (P) AND (Q) WE FEEL, CANNOT BE USED DUE TO THE PROPERTY OWN BY DARE COUNTY TO BE USED AS A WELL SITE, REQUIRES 100' SEPERATION.

LOT (R) HAS AN EXISTING WELL ON IT ALSO THERE IS A DRAINAGE DITCH TIED INTO A CULVET ON THE NORTH EAST PART OF THE PROPERTY THAT REQUIRES SET BACKS.

ALL THE OTHER LOTS WILL NEED TO BE LOOK AT ONCE THE ROAD IS IN AND THE PROPERTY CORNERS ARE LOCATED. THERE IS SEVERAL HIGH RIDGES AND THERE ARE SOME LOW SPOTS, DON'T KNOW WHERE THE DIVIDING LINE BETWEEN LOTS WOULD BE, OR IF THE PROPERTY IS TO BE LEVEL FOR PUTTING IN THE ROAD?

THE DARE COUNTY ENVIRONMENTAL HEALTH DEPARTMENT RECOMMENDS THAT THE SEPTIC SYSTEM FOR LOTS A THROUGH H BE INSTALL ON THE EAST SIDE OF THE PROPERTY, LOTS I THROUGH O BE INSTALL ON THE WEST PART OF THE PROPERTY. BOTH ACTIVE AND A 100% REPAIR AREA WOULD BE REQUIRED. THE LONG TERM ACCEPTANCE RATE WOULD BE 1.2, COULD CHANGE AFTER REVIŠTING PROPERTY WHEN PROPERTY LINES ARE ESTABLISHED.

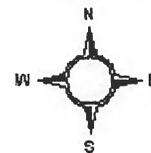
- Per phone call w/ DCHD 8/27/19 the 100' well setback proposed by DCW is acceptable and lots P & Q can provide onsite septic.
- The well on lot R has been abandoned. The appropriate paperwork has been filed by DCW.



DARE COUNTY WATER
GIS
MATTHEW HIBLER
APRIL 16, 2003

**Proposed Well 16
Nags Head, NC**

60 0 60 120 180 Feet



LEGEND

- Proposed Well 16

WELL ABANDONMENT RECORD

For Internal Use ONLY:

1. Well Contractor Information:

Jimmy Morris

Well Contractor Name (or well owner personally abandoning well on his/her property)

4193-A

NC Well Contractor Certification Number

Magette Well & Pump Co., Inc

Company Name

2. Well Construction Permit #:

List all applicable well construction permits (i.e. UIC, County, State, Variance, etc.) if known

3. Well use (check well use):

Water Supply Well:	
<input type="checkbox"/> Agricultural	<input type="checkbox"/> Municipal/Public
<input type="checkbox"/> Geothermal (Heating/Cooling Supply)	<input type="checkbox"/> Residential Water Supply (single)
<input type="checkbox"/> Industrial/Commercial	<input type="checkbox"/> Residential Water Supply (shared)
<input type="checkbox"/> Irrigation	
Non-Water Supply Well:	
<input checked="" type="checkbox"/> Monitoring	<input type="checkbox"/> Recovery
Injection Well:	
<input type="checkbox"/> Aquifer Recharge	<input type="checkbox"/> Groundwater Remediation
<input type="checkbox"/> Aquifer Storage and Recovery	<input type="checkbox"/> Salinity Barrier
<input type="checkbox"/> Aquifer Test	<input type="checkbox"/> Stormwater Drainage
<input type="checkbox"/> Experimental Technology	<input type="checkbox"/> Subsidence Control
<input type="checkbox"/> Geothermal (Closed Loop)	<input type="checkbox"/> Tracer
<input type="checkbox"/> Geothermal (Heating/Cooling Return)	<input type="checkbox"/> Other (explain under 7g)

4. Date well(s) abandoned: 08/21/2019

5a. Well location:

Dare County

Facility/Owner Name

Facility ID# (if applicable)

600 Mustian St, Kill Devil Hills, NC 27948

Physical Address, City, and Zip

Dare

County

Parcel Identification No. (PIN)

5b. Latitude and longitude in degrees/minutes/seconds or decimal degrees:
(if well field, one lat/long is sufficient)

35.955079 N -75.625303 W

CONSTRUCTION DETAILS OF WELL(S) BEING ABANDONED

Attach well construction record(s) if available. For multiple injection or non-water supply wells ONLY with the same construction/abandonment, you can submit one form.

6a. Well ID#: _____

6b. Total well depth: 390 (ft.)

6c. Borehole diameter: _____ (in.)

6d. Water level below ground surface: 35 (ft.)

6e. Outer casing length (if known): _____ (ft.)

6f. Inner casing/tubing length (if known): 290 (ft.)

6g. Screen length (if known): 100 (ft.)

WELL ABANDONMENT DETAILS

7a. For Geoprobe/DPT or Closed-Loop Geothermal Wells having the same well construction/depth, only 1 GW-30 is needed. Indicate TOTAL NUMBER of wells abandoned: _____

7b. Approximate volume of water remaining in well(s): 230 (gal.)

FOR WATER SUPPLY WELLS ONLY:

7c. Type of disinfectant used: Sodium Hypochlorite 10%

7d. Amount of disinfectant used: 2 Gallons

7e. Sealing materials used (check all that apply):

- | | |
|---|---|
| <input checked="" type="checkbox"/> Neat Cement Grout | <input type="checkbox"/> Bentonite Chips or Pellets |
| <input checked="" type="checkbox"/> Sand Cement Grout | <input type="checkbox"/> Dry Clay |
| <input type="checkbox"/> Concrete Grout | <input type="checkbox"/> Drill Cuttings |
| <input type="checkbox"/> Specialty Grout | <input type="checkbox"/> Gravel |
| <input type="checkbox"/> Bentonite Slurry | <input type="checkbox"/> Other (explain under 7g) |

7f. For each material selected above, provide amount of materials used:

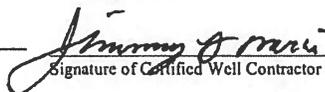
180 Gallons Sand Cement Grout

140 Gallons Neat Cement Grout

7g. Provide a brief description of the abandonment procedure:

Disinfected Well with sodium hypochlorite solution, pumped sand cement grout to fill screen interval through tremie pipe.
pumped neat cement through tremie pipe to fill remaining casing.

8. Certification:


Signature of Certified Well Contractor or Well Owner

8/23/19
Date

By signing this form, I hereby certify that the well(s) was (were) abandoned in accordance with 15A NCAC 02C .0100 or 2C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

9. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well abandonment details. You may also attach additional pages if necessary.

SUBMITTAL INSTRUCTIONS

10a. **For All Wells:** Submit this form within 30 days of completion of well abandonment to the following:

Division of Water Resources, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617

10b. **For Injection Wells:** In addition to sending the form to the address in 10a above, also submit one copy of this form within 30 days of completion of well abandonment to the following:

Division of Water Resources, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636

10c. **For Water Supply & Injection Wells:** In addition to sending the form to the address(es) above, also submit one copy of this form within 30 days of completion of well abandonment to the county health department of the county where abandoned.

Appendix C – Stormwater Calculations

Project Name: Coastal Villas
 Lot Coverage
 Quible Project Number: P18085
 Date: 12/10/2019

	Total Sq. Ft	33%	30% plus 300 sf	Onsite Storm Coverage	
Roadway				48,230 SF	1.11 ACRE
Concrete Sidewalks				4,013 SF	0.09 ACRE
Lot 1	26,836.55	8,856 SF	8,351 SF	8,856 SF	0.20 ACRE
Lot 2	22,850.55	7,541 SF	7,155 SF	7,541 SF	0.17 ACRE
Lot 3	20,000.00	6,600 SF	6,300 SF	6,600 SF	0.15 ACRE
Lot 4	20,036.24	6,612 SF	6,311 SF	6,612 SF	0.15 ACRE
Lot 5	20,017.63	6,606 SF	6,305 SF	6,606 SF	0.15 ACRE
Lot 6	20,017.34	6,606 SF	6,305 SF	6,606 SF	0.15 ACRE
Lot 7	20,007.70	6,603 SF	6,302 SF	6,603 SF	0.15 ACRE
Lot 8	20,007.70	6,603 SF	6,302 SF	6,603 SF	0.15 ACRE
Lot 9	20,059.08	6,619 SF	6,318 SF	6,619 SF	0.15 ACRE
Lot 10	20,046.35	6,615 SF	6,314 SF	6,615 SF	0.15 ACRE
Lot 11	21,292.04	7,026 SF	6,688 SF	7,026 SF	0.16 ACRE
Lot 12	20,062.65	6,621 SF	6,319 SF	6,621 SF	0.15 ACRE
Lot 13	20,010.75	6,604 SF	6,303 SF	6,604 SF	0.15 ACRE
Lot 14	20,075.40	6,625 SF	6,323 SF	6,625 SF	0.15 ACRE
Lot 15	24,635.58	8,130 SF	7,691 SF	8,130 SF	0.19 ACRE
Lot 16	22,722.11	7,498 SF	7,117 SF	7,498 SF	0.17 ACRE
Lot 17	22,874.90	7,549 SF	7,162 SF	7,549 SF	0.17 ACRE
Total	361,552.57			171,555 SF	3.94 ACRE

Project Name: Coastal Villas
Proposed Basin Summary
 Quible Project Number: P18085
 Date: 12/10/2019

Swale #	Drainage Area (ac)	Sidewalk	Lot Coverage (33%)**	Roadway	BUA (ac)	Pervious area (ac)	C	Tc	I	la	Rv	Rd	V	Total Storage Req'd	Provided Storage	
DA-1	1.08	0.00	15524.78	0.00	0.36	0.72	0.46	5.00	6.67	0.33	0.35	1.50	2,041	2,041	4,290	
DA-2	1.30	2272.00	14299.56	11024.00	0.63	0.67	0.58	5.00	6.67	0.49	0.49	1.50	3,461	3,461	3,740	
DA-3a	0.92	256.00	10587.79	7735.00	0.43	0.49	0.56	5.00	6.67	0.46	0.47	1.50	2,339			
DA-3b	1.14	368.00	12378.76	11779.00	0.56	0.58	0.59	5.00	6.67	0.49	0.50	1.50	3,073	8,254	37,276	
DA-3c	0.75	146.00	4543.44	18756.00	0.54	0.21	0.76	5.00	6.67	0.72	0.70	1.50	2,842			
DA-4	0.39	0.00	5606.17	0.00	0.13	0.26	0.46	5.00	6.67	0.33	0.35	1.50	737	737	875	
DA-5	0.29	0.00	6617.40	0.00	0.15	0.14	0.61	5.00	6.67	0.52	0.52	1.50	823	823	1,200	
DA-6	0.51	0.00	6611.02	0.00	0.15	0.36	0.43	5.00	6.67	0.30	0.32	1.50	883	883	1,152	
DA-7	0.45	0.00	6604.13	0.00	0.15	0.30	0.46	5.00	6.67	0.34	0.35	1.50	865	865	1,056	
DA-8	0.23	660.00	3088.40	0.00	0.09	0.14	0.49	5.00	6.67	0.37	0.39	1.50	485	485	686	
DA-9	0.23	660.00	3088.40	0.00	0.09	0.14	0.49	5.00	6.67	0.37	0.39	1.50	485	485	686	
DA-10	0.41	0.00	6605.17	0.00	0.15	0.26	0.49	5.00	6.67	0.37	0.38	1.50	855	855	1,152	
DA-11	0.39	0.00	6608.25	0.00	0.15	0.24	0.50	5.00	6.67	0.39	0.40	1.50	849	849	1,152	
DA-12	0.38	0.00	6605.98	0.00	0.15	0.23	0.51	5.00	6.67	0.40	0.41	1.50	846	846	1,152	
DA-13	0.25	0.00	7070.34	0.00	0.16	0.09	0.71	5.00	6.67	0.65	0.63	1.50	863	863	1,152	
DA-14	0.33	0.00	18067.32	0.00	0.41	(0.08)	1.18	5.00	6.67	1.26	1.18	1.50	2,122	2,122	2,400	
DA-15	0.07	0.00	2213.97	0.00	0.05	0.02	0.77	5.00	6.67	0.73	0.70	1.50	268	268	564	
Total	9.12				4.36	4.76										58,533.00

** Coverage Calculated as percentage of DA not road/sidewalk OR total potential lot coverage

TOC (min)	5-yr	10-yr	25-yr
5	7.37	8.35	9.42
10	5.9	6.67	7.51
15	4.97	5.63	6.34

la = Impervious Percentage = Impervious Area/Drainage Area
 Rv= Runoff Coefficient, 0.05+0.9la
 Rd= Rain fall depth
 V= Runoff Volume, 3630*Rd*Rv*A

Project Name: Coastal Villas
 Basin Storage Calculations
 Quible Project Number: P18085
 Date: 12/10/2019

Hydrologic Soil Group A with high infiltration rate assumed (Assumed SHWT = +/-3.81)

STORAGE AVAILABLE IN SWALE DA-1

*Basin Bottom Elevation = 5 ft
 BOTTOM WIDTH (W) = 7 ft
 STORAGE DEPTH (D)* = 1 ft
 SIDE SLOPE (S) = 4 :1
 LENGTH (L)* = 390.00 ft
 Top Storage Area = $L*(W+D*2S)$ = 5850.00 sf
 Bottom Storage Area = $L*W$ = 2730.00 sf
VOLUME (V) = $L*(D*W+D*(D*S))$ = 4,290.00 cf

DA-1- Below Grade Storage	
Storage Area (A) =	5850.00 sf
Storage Elev. (E) =	6.00 ft
Season High Water Table (Wt) =	3.81 ft
Soil Depth Above SWHT (Ds) = B-Wt	2.19 ft
Soil Volume (Sv) = $A*D_s-V_g$ =	8522 cf
Void Ratio (Vr)=	20%
Subsurface Void Vol. (Vss) = $A*D_s*V_r$ =	1704 cf
Below Grade (Voids) Storage Provided =	1704 cf

STORAGE AVAILABLE IN SWALE DA-2

*Basin Bottom Elevation = 5 ft
 BOTTOM WIDTH (W) = 7 ft
 STORAGE DEPTH (D)* = 1 ft
 SIDE SLOPE (S) = 4 :1
 LENGTH (L)* = 340.00 ft
 Top Storage Area = $L*(W+D*2S)$ = 5100.00 sf
 Bottom Storage Area = $L*W$ = 2380.00 sf
VOLUME (V) = $L*(D*W+D*(D*S))$ = 3,740.00 cf

DA-2- Below Grade Storage	
Storage Area (A) =	5100.00 sf
Storage Elev. (E) =	6.00 ft
Season High Water Table (Wt) =	3.81 ft
Soil Depth Above SWHT (Ds) = B-Wt	2.19 ft
Soil Volume (Sv) = $A*D_s-V_g$ =	7429 cf
Void Ratio (Vr)=	20%
Subsurface Void Vol. (Vss) = $A*D_s*V_r$ =	1486 cf
Below Grade (Voids) Storage Provided =	1486 cf

STORAGE AVAILABLE IN SWALE DA-3

*Basin Bottom Elevation = 6.36 ft
 BOTTOM WIDTH (W) = 5 ft
 STORAGE DEPTH (D)* = 0.5 ft
 SIDE SLOPE (S) = 6 :1
 LENGTH (L)* = 9319.00 ft
 Top Storage Area = $L*(W+D*2S)$ = 102509.00 sf
 Bottom Storage Area = $L*W$ = 46595.00 sf
VOLUME (V) = $L*(D*W+D*(D*S))$ = 37,276.00 cf

STORAGE AVAILABLE IN SWALE DA-4

*Basin Bottom Elevation = 6 ft
 BOTTOM WIDTH (W) = 8.5 ft
 STORAGE DEPTH (D)* = 1 ft
 SIDE SLOPE (S) = 4 :1
 LENGTH (L)* = 70.00 ft
 Top Storage Area = $L*(W+D*2S)$ = 1155.00 sf
 Bottom Storage Area = $L*W$ = 595.00 sf
VOLUME (V) = $L*(D*W+D*(D*S))$ = 875.00 cf

DA-4- Below Grade Storage	
Storage Area (A) =	1155.00 sf
Storage Elev. (E) =	7.00 ft
Season High Water Table (Wt) =	3.81 ft
Soil Depth Above SWHT (Ds) = B-Wt	3.19 ft
Soil Volume (Sv) = $A*D_s-V_g$ =	2809 cf
Void Ratio (Vr)=	20%
Subsurface Void Vol. (Vss) = $A*D_s*V_r$ =	562 cf
Below Grade (Voids) Storage Provided =	562 cf

STORAGE AVAILABLE IN SWALE DA-5

*Basin Bottom Elevation = 6 ft
 BOTTOM WIDTH (W) = 8.5 ft
 STORAGE DEPTH (D)* = 1 ft
 SIDE SLOPE (S) = 4 :1
 LENGTH (L)* = 96.00 ft
 Top Storage Area = $L*(W+D*2S)$ = 1584.00 sf
 Bottom Storage Area = $L*W$ = 816.00 sf
VOLUME (V) = $L*(D*W+D*(D*S))$ = 1,200.00 cf

DA-5- Below Grade Storage	
Storage Area (A) =	1584.00 sf
Storage Elev. (E) =	7.00 ft
Season High Water Table (Wt) =	3.81 ft
Soil Depth Above SWHT (Ds) = B-Wt	3.19 ft
Soil Volume (Sv) = $A*D_s-V_g$ =	3853 cf
Void Ratio (Vr)=	20%
Subsurface Void Vol. (Vss) = $A*D_s*V_r$ =	771 cf
Below Grade (Voids) Storage Provided =	771 cf

STORAGE AVAILABLE IN SWALE DA-6

*Basin Bottom Elevation =	6 ft
BOTTOM WIDTH (W) =	8 ft
STORAGE DEPTH (D)* =	1 ft
SIDE SLOPE (S) =	4 :1
LENGTH (L)*=	96.00 ft
Top Storage Area = $L*(W+D*2S)$ =	1536.00 sf
Bottom Storage Area = $L*W$ =	768.00 sf
VOLUME (V)= $L*(D*W+D*(D*S))$ =	1,152.00 cf

STORAGE AVAILABLE IN SWALE DA-7

*Basin Bottom Elevation =	6 ft
BOTTOM WIDTH (W) =	8 ft
STORAGE DEPTH (D)* =	1 ft
SIDE SLOPE (S) =	4 :1
LENGTH (L)*=	88.00 ft
Top Storage Area = $L*(W+D*2S)$ =	1408.00 sf
Bottom Storage Area = $L*W$ =	704.00 sf
VOLUME (V)= $L*(D*W+D*(D*S))$ =	1,056.00 cf

STORAGE AVAILABLE IN SWALE DA-8

*Basin Bottom Elevation =	6 ft
BOTTOM WIDTH (W) =	3 ft
STORAGE DEPTH (D)* =	1 ft
SIDE SLOPE (S) =	4 :1
LENGTH (L)*=	98.00 ft
Top Storage Area = $L*(W+D*2S)$ =	1078.00 sf
Bottom Storage Area = $L*W$ =	294.00 sf
VOLUME (V)= $L*(D*W+D*(D*S))$ =	686.00 cf

STORAGE AVAILABLE IN SWALE DA-9

*Basin Bottom Elevation =	6 ft
BOTTOM WIDTH (W) =	3 ft
STORAGE DEPTH (D)* =	1 ft
SIDE SLOPE (S) =	4 :1
LENGTH (L)*=	98.00 ft
Top Storage Area = $L*(W+D*2S)$ =	1078.00 sf
Bottom Storage Area = $L*W$ =	294.00 sf
VOLUME (V)= $L*(D*W+D*(D*S))$ =	686.00 cf

DA-6- Below Grade Storage	
Storage Area (A) =	1536.00 sf
Storage Elev. (E) =	7.00 ft
Season High Water Table (Wt) =	3.81 ft
Soil Depth Above SWHT (Ds) = B-Wt	3.19 ft
Soil Volume (Sv) = $A*Ds-Vg$ =	3748 cf
Void Ratio (Vr)=	20%
Subsurface Void Vol. (Vss) = $A*Ds*Vr$ =	750 cf
Below Grade (Voids) Storage Provided =	750 cf

DA-7- Below Grade Storage	
Storage Area (A) =	1408.00 sf
Storage Elev. (E) =	7.00 ft
Season High Water Table (Wt) =	3.81 ft
Soil Depth Above SWHT (Ds) = B-Wt	3.19 ft
Soil Volume (Sv) = $A*Ds-Vg$ =	3436 cf
Void Ratio (Vr)=	20%
Subsurface Void Vol. (Vss) = $A*Ds*Vr$ =	687 cf
Below Grade (Voids) Storage Provided =	687 cf

DA-8- Below Grade Storage	
Storage Area (A) =	1078.00 sf
Storage Elev. (E) =	7.00 ft
Season High Water Table (Wt) =	3.81 ft
Soil Depth Above SWHT (Ds) = B-Wt	3.19 ft
Soil Volume (Sv) = $A*Ds-Vg$ =	2753 cf
Void Ratio (Vr)=	20%
Subsurface Void Vol. (Vss) = $A*Ds*Vr$ =	551 cf
Below Grade (Voids) Storage Provided =	551 cf

DA-9- Below Grade Storage	
Storage Area (A) =	1078.00 sf
Storage Elev. (E) =	7.00 ft
Season High Water Table (Wt) =	3.81 ft
Soil Depth Above SWHT (Ds) = B-Wt	3.19 ft
Soil Volume (Sv) = $A*Ds-Vg$ =	2753 cf
Void Ratio (Vr)=	20%
Subsurface Void Vol. (Vss) = $A*Ds*Vr$ =	551 cf
Below Grade (Voids) Storage Provided =	551 cf

STORAGE AVAILABLE IN SWALE DA-10

*Basin Bottom Elevation =	6 ft
BOTTOM WIDTH (W) =	8 ft
STORAGE DEPTH (D)* =	1 ft
SIDE SLOPE (S) =	4 :1
LENGTH (L)*=	96.00 ft
Top Storage Area = L*(W+D*2S) =	1536.00 sf
Bottom Storage Area = L*W =	768.00 sf
VOLUME (V)= L*(D*W+D*(D*S)) =	1,152.00 cf

DA-10- Below Grade Storage	
Storage Area (A) =	1536.00 sf
Storage Elev. (E) =	7.00 ft
Season High Water Table (Wt) =	3.81 ft
Soil Depth Above SWHT (Ds) = B-Wt	3.19 ft
Soil Volume (Sv) = A*D _s -V _g =	3748 cf
Void Ratio (Vr)=	20%
Subsurface Void Vol. (V _{ss}) = A*D _s *Vr=	750 cf
Below Grade (Voids) Storage Provided =	750 cf

STORAGE AVAILABLE IN SWALE DA-11

*Basin Bottom Elevation =	6 ft
BOTTOM WIDTH (W) =	8 ft
STORAGE DEPTH (D)* =	1 ft
SIDE SLOPE (S) =	4 :1
LENGTH (L)*=	96.00 ft
Top Storage Area = L*(W+D*2S) =	1536.00 sf
Bottom Storage Area = L*W =	768.00 sf
VOLUME (V)= L*(D*W+D*(D*S)) =	1,152.00 cf

DA-11- Below Grade Storage	
Storage Area (A) =	1536.00 sf
Storage Elev. (E) =	7.00 ft
Season High Water Table (Wt) =	3.81 ft
Soil Depth Above SWHT (Ds) = B-Wt	3.19 ft
Soil Volume (Sv) = A*D _s -V _g =	3748 cf
Void Ratio (Vr)=	20%
Subsurface Void Vol. (V _{ss}) = A*D _s *Vr=	750 cf
Below Grade (Voids) Storage Provided =	750 cf

STORAGE AVAILABLE IN SWALE DA-12

*Basin Bottom Elevation =	6 ft
BOTTOM WIDTH (W) =	8 ft
STORAGE DEPTH (D)* =	1 ft
SIDE SLOPE (S) =	4 :1
LENGTH (L)*=	96.00 ft
Top Storage Area = L*(W+D*2S) =	1536.00 sf
Bottom Storage Area = L*W =	768.00 sf
VOLUME (V)= L*(D*W+D*(D*S)) =	1,152.00 cf

DA-12- Below Grade Storage	
Storage Area (A) =	1536.00 sf
Storage Elev. (E) =	7.00 ft
Season High Water Table (Wt) =	3.81 ft
Soil Depth Above SWHT (Ds) = B-Wt	3.19 ft
Soil Volume (Sv) = A*D _s -V _g =	3748 cf
Void Ratio (Vr)=	20%
Subsurface Void Vol. (V _{ss}) = A*D _s *Vr=	750 cf
Below Grade (Voids) Storage Provided =	750 cf

STORAGE AVAILABLE IN SWALE DA-13

*Basin Bottom Elevation =	6 ft
BOTTOM WIDTH (W) =	8 ft
STORAGE DEPTH (D)* =	1 ft
SIDE SLOPE (S) =	4 :1
LENGTH (L)*=	96.00 ft
Top Storage Area = L*(W+D*2S) =	1536.00 sf
Bottom Storage Area = L*W =	768.00 sf
VOLUME (V)= L*(D*W+D*(D*S)) =	1,152.00 cf

*average

DA-13- Below Grade Storage	
Storage Area (A) =	1536.00 sf
Storage Elev. (E) =	7.00 ft
Season High Water Table (Wt) =	3.81 ft
Soil Depth Above SWHT (Ds) = B-Wt	3.19 ft
Soil Volume (Sv) = A*D _s -V _g =	3748 cf
Void Ratio (Vr)=	20%
Subsurface Void Vol. (V _{ss}) = A*D _s *Vr=	750 cf
Below Grade (Voids) Storage Provided =	750 cf

STORAGE AVAILABLE IN SWALE DA-14

*Basin Bottom Elevation =	4 ft
BOTTOM WIDTH (W) =	12 ft
STORAGE DEPTH (D)* =	2 ft
SIDE SLOPE (S) =	4 :1
LENGTH (L)*=	60.00 ft
Top Storage Area = $L*(W+D*2S)$ =	1680.00 sf
Bottom Storage Area = $L*W$ =	720.00 sf
VOLUME (V)= $L*(D*W+D*(D*S))$ =	2,400.00 cf

STORAGE AVAILABLE IN SWALE DA-15

*Basin Bottom Elevation =	5 ft
BOTTOM WIDTH (W) =	8 ft
STORAGE DEPTH (D)* =	1 ft
SIDE SLOPE (S) =	4 :1
LENGTH (L)*=	47.00 ft
Top Storage Area = $L*(W+D*2S)$ =	752.00 sf
Bottom Storage Area = $L*W$ =	376.00 sf
VOLUME (V)= $L*(D*W+D*(D*S))$ =	564.00 cf

Bottom area =	59344.00
Total Above Grade Storage =	59408 cf

DA-14- Below Grade Storage	
Storage Area (A) =	1680.00 sf
Storage Elev. (E)	6.00 ft
Season High Water Table (Wt) =	3.81 ft
Soil Depth Above SWHT (Ds) = B-Wt	2.19 ft
Soil Volume (Sv) = $A*Ds-Vg$ =	1279 cf
Void Ratio (Vr)=	20%
Subsurface Void Vol. (Vss) = $A*Ds*Vr$ =	256 cf
Below Grade (Voids) Storage Provided =	256 cf

DA-15- Below Grade Storage	
Storage Area (A) =	752.00 sf
Storage Elev. (E)	6.00 ft
Season High Water Table (Wt) =	3.81 ft
Soil Depth Above SWHT (Ds) = B-Wt	2.19 ft
Soil Volume (Sv) = $A*Ds-Vg$ =	1083 cf
Void Ratio (Vr)=	20%
Subsurface Void Vol. (Vss) = $A*Ds*Vr$ =	217 cf
Below Grade (Voids) Storage Provided =	217 cf

Total Below Grade Storage = 10531 cf



NOAA Atlas 14, Volume 2, Version 3
Location name: Moyock, North Carolina, USA*
Latitude: 36.5201°, Longitude: -76.173°
Elevation: 9.17 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

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PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	5.26 (4.78-5.80)	6.12 (5.54-6.78)	6.88 (6.23-7.62)	7.93 (7.14-8.77)	8.92 (8.00-9.86)	9.84 (8.81-10.9)	10.7 (9.50-11.8)	11.5 (10.2-12.7)	12.4 (10.9-13.8)	13.4 (11.7-14.9)
10-min	4.19 (3.81-4.63)	4.90 (4.43-5.42)	5.51 (4.99-6.10)	6.34 (5.71-7.01)	7.11 (6.38-7.86)	7.84 (7.02-8.66)	8.48 (7.55-9.36)	9.10 (8.06-10.1)	9.83 (8.64-10.9)	10.6 (9.20-11.7)
15-min	3.50 (3.18-3.85)	4.10 (3.72-4.54)	4.65 (4.21-5.14)	5.34 (4.82-5.91)	6.01 (5.39-6.64)	6.62 (5.92-7.31)	7.14 (6.36-7.89)	7.65 (6.78-8.46)	8.25 (7.25-9.14)	8.83 (7.70-9.80)
30-min	2.40 (2.18-2.64)	2.83 (2.57-3.14)	3.30 (2.99-3.66)	3.87 (3.49-4.28)	4.45 (3.99-4.92)	4.98 (4.46-5.50)	5.47 (4.87-6.04)	5.95 (5.27-6.58)	6.57 (5.77-7.27)	7.15 (6.23-7.93)
60-min	1.49 (1.36-1.65)	1.78 (1.61-1.97)	2.12 (1.92-2.34)	2.52 (2.27-2.79)	2.96 (2.66-3.27)	3.38 (3.02-3.73)	3.77 (3.36-4.16)	4.18 (3.70-4.62)	4.71 (4.14-5.22)	5.22 (4.55-5.79)
2-hr	0.876 (0.790-0.973)	1.05 (0.940-1.16)	1.27 (1.14-1.41)	1.54 (1.38-1.71)	1.84 (1.64-2.04)	2.14 (1.90-2.37)	2.42 (2.14-2.69)	2.73 (2.39-3.03)	3.14 (2.73-3.48)	3.53 (3.05-3.92)
3-hr	0.626 (0.563-0.700)	0.747 (0.670-0.837)	0.908 (0.814-1.02)	1.11 (0.990-1.24)	1.34 (1.19-1.50)	1.57 (1.39-1.75)	1.80 (1.58-2.01)	2.05 (1.79-2.28)	2.40 (2.07-2.66)	2.73 (2.33-3.04)
6-hr	0.375 (0.338-0.419)	0.447 (0.401-0.501)	0.544 (0.488-0.610)	0.665 (0.593-0.744)	0.808 (0.718-0.902)	0.951 (0.840-1.06)	1.09 (0.959-1.22)	1.25 (1.09-1.39)	1.47 (1.26-1.63)	1.68 (1.43-1.87)
12-hr	0.219 (0.197-0.246)	0.261 (0.233-0.294)	0.319 (0.285-0.359)	0.392 (0.348-0.440)	0.480 (0.424-0.537)	0.570 (0.499-0.636)	0.660 (0.573-0.736)	0.761 (0.654-0.847)	0.901 (0.763-1.00)	1.04 (0.870-1.16)
24-hr	0.127 (0.117-0.139)	0.155 (0.142-0.170)	0.200 (0.183-0.219)	0.238 (0.217-0.260)	0.294 (0.267-0.321)	0.342 (0.308-0.373)	0.395 (0.352-0.430)	0.454 (0.400-0.494)	0.541 (0.469-0.591)	0.615 (0.526-0.675)
2-day	0.074 (0.068-0.081)	0.089 (0.082-0.098)	0.115 (0.106-0.126)	0.137 (0.125-0.149)	0.169 (0.154-0.184)	0.198 (0.178-0.215)	0.229 (0.204-0.249)	0.264 (0.232-0.288)	0.318 (0.274-0.348)	0.363 (0.308-0.400)
3-day	0.052 (0.048-0.057)	0.063 (0.059-0.069)	0.081 (0.075-0.088)	0.096 (0.088-0.104)	0.118 (0.108-0.128)	0.137 (0.124-0.148)	0.157 (0.141-0.171)	0.180 (0.159-0.196)	0.214 (0.186-0.234)	0.245 (0.209-0.269)
4-day	0.042 (0.039-0.045)	0.050 (0.047-0.055)	0.064 (0.059-0.069)	0.076 (0.070-0.082)	0.092 (0.084-0.100)	0.106 (0.097-0.115)	0.121 (0.109-0.131)	0.138 (0.123-0.149)	0.162 (0.142-0.177)	0.185 (0.160-0.203)
7-day	0.028 (0.026-0.030)	0.034 (0.031-0.036)	0.042 (0.039-0.045)	0.049 (0.046-0.053)	0.059 (0.055-0.064)	0.068 (0.062-0.073)	0.077 (0.070-0.083)	0.087 (0.078-0.094)	0.101 (0.090-0.110)	0.113 (0.099-0.124)
10-day	0.022 (0.021-0.024)	0.026 (0.025-0.028)	0.033 (0.031-0.035)	0.038 (0.035-0.041)	0.045 (0.042-0.049)	0.052 (0.048-0.055)	0.058 (0.053-0.062)	0.065 (0.059-0.070)	0.076 (0.067-0.082)	0.084 (0.074-0.091)
20-day	0.015 (0.014-0.016)	0.018 (0.017-0.019)	0.022 (0.020-0.023)	0.025 (0.023-0.026)	0.029 (0.027-0.031)	0.033 (0.031-0.035)	0.037 (0.034-0.039)	0.041 (0.037-0.044)	0.047 (0.042-0.050)	0.051 (0.045-0.055)
30-day	0.012 (0.012-0.013)	0.015 (0.014-0.016)	0.018 (0.017-0.019)	0.020 (0.019-0.021)	0.023 (0.022-0.025)	0.026 (0.024-0.027)	0.028 (0.026-0.030)	0.031 (0.029-0.033)	0.035 (0.032-0.038)	0.038 (0.034-0.041)
45-day	0.010 (0.010-0.011)	0.012 (0.011-0.013)	0.014 (0.014-0.015)	0.016 (0.015-0.017)	0.019 (0.018-0.020)	0.021 (0.020-0.023)	0.024 (0.022-0.025)	0.026 (0.024-0.028)	0.029 (0.027-0.031)	0.032 (0.029-0.034)
60-day	0.009 (0.009-0.010)	0.011 (0.010-0.011)	0.013 (0.012-0.014)	0.014 (0.014-0.015)	0.016 (0.015-0.017)	0.018 (0.017-0.019)	0.020 (0.019-0.021)	0.022 (0.020-0.023)	0.024 (0.022-0.026)	0.026 (0.023-0.028)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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PF graphical



NOAA Atlas 14, Volume 2, Version 3
Location name: Nags Head, North Carolina, USA*
Latitude: 35.9533°, Longitude: -75.625°
Elevation: 6.05 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps & aeriels](#)

PF tabular

AMS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹									
Duration	Annual exceedance probability (1/years)								
	1/2	1/5	1/10	1/25	1/50	1/100	1/200	1/500	1/1000
5-min	0.491 (0.449-0.538)	0.600 (0.549-0.656)	0.689 (0.627-0.752)	0.781 (0.709-0.851)	0.856 (0.771-0.932)	0.927 (0.833-1.01)	0.996 (0.890-1.08)	1.08 (0.960-1.18)	1.16 (1.02-1.27)
10-min	0.786 (0.718-0.860)	0.960 (0.879-1.05)	1.10 (1.00-1.20)	1.25 (1.13-1.36)	1.36 (1.23-1.49)	1.47 (1.33-1.60)	1.58 (1.41-1.72)	1.71 (1.52-1.87)	1.83 (1.61-2.00)
15-min	0.988 (0.903-1.08)	1.22 (1.11-1.33)	1.39 (1.27-1.52)	1.58 (1.43-1.72)	1.73 (1.56-1.88)	1.86 (1.68-2.03)	1.99 (1.78-2.17)	2.16 (1.91-2.35)	2.30 (2.02-2.51)
30-min	1.37 (1.25-1.49)	1.73 (1.58-1.89)	2.02 (1.84-2.20)	2.34 (2.12-2.55)	2.60 (2.35-2.83)	2.85 (2.57-3.11)	3.10 (2.77-3.37)	3.43 (3.04-3.74)	3.72 (3.27-4.06)
60-min	1.71 (1.57-1.88)	2.22 (2.03-2.42)	2.63 (2.39-2.87)	3.11 (2.82-3.39)	3.52 (3.18-3.84)	3.93 (3.53-4.28)	4.35 (3.89-4.73)	4.93 (4.37-5.37)	5.43 (4.78-5.93)
2-hr	1.96 (1.78-2.15)	2.58 (2.35-2.84)	3.13 (2.83-3.42)	3.79 (3.41-4.14)	4.36 (3.92-4.76)	4.95 (4.42-5.39)	5.57 (4.95-6.07)	6.43 (5.66-7.02)	7.19 (6.28-7.85)
3-hr	2.15 (1.96-2.37)	2.86 (2.59-3.14)	3.48 (3.15-3.82)	4.27 (3.83-4.67)	4.97 (4.44-5.42)	5.69 (5.07-6.21)	6.49 (5.72-7.07)	7.61 (6.64-8.29)	8.63 (7.46-9.39)
6-hr	2.63 (2.39-2.91)	3.51 (3.18-3.87)	4.27 (3.86-4.70)	5.25 (4.72-5.77)	6.14 (5.48-6.71)	7.06 (6.26-7.71)	8.07 (7.10-8.81)	9.52 (8.27-10.4)	10.8 (9.32-11.8)
12-hr	3.14 (2.83-3.50)	4.18 (3.77-4.66)	5.12 (4.60-5.69)	6.35 (5.67-7.03)	7.46 (6.62-8.23)	8.64 (7.59-9.53)	9.95 (8.66-11.0)	11.8 (10.1-13.0)	13.6 (11.5-15.0)
24-hr	3.78 (3.50-4.10)	5.19 (4.79-5.61)	6.25 (5.76-6.75)	7.78 (7.10-8.37)	9.05 (8.19-9.76)	10.5 (9.38-11.3)	12.0 (10.7-13.0)	14.3 (12.5-15.5)	16.3 (14.0-17.8)
2-day	4.39 (4.03-4.80)	5.98 (5.49-6.53)	7.21 (6.60-7.86)	8.99 (8.17-9.78)	10.5 (9.45-11.4)	12.2 (10.9-13.3)	14.1 (12.4-15.4)	16.9 (14.6-18.6)	19.4 (16.4-21.4)
3-day	4.65 (4.28-5.09)	6.31 (5.80-6.90)	7.57 (6.93-8.25)	9.36 (8.50-10.2)	10.8 (9.77-11.8)	12.5 (11.1-13.6)	14.3 (12.6-15.6)	17.1 (14.8-18.7)	19.5 (16.7-21.5)
4-day	4.92 (4.53-5.39)	6.65 (6.11-7.26)	7.93 (7.26-8.64)	9.72 (8.82-10.6)	11.2 (10.1-12.2)	12.8 (11.4-13.9)	14.5 (12.8-15.8)	17.3 (15.0-18.9)	19.7 (16.9-21.7)
7-day	5.64 (5.18-6.17)	7.51 (6.89-8.22)	8.88 (8.12-9.70)	10.8 (9.80-11.8)	12.3 (11.1-13.4)	14.0 (12.5-15.2)	15.8 (13.9-17.2)	18.3 (16.0-20.1)	20.5 (17.6-22.5)
10-day	6.34 (5.87-6.87)	8.33 (7.71-9.02)	9.78 (9.02-10.6)	11.8 (10.8-12.7)	13.4 (12.2-14.4)	15.1 (13.6-16.3)	16.9 (15.1-18.3)	19.5 (17.3-21.3)	21.7 (18.9-23.8)
20-day	8.38 (7.84-9.00)	10.8 (10.1-11.6)	12.6 (11.7-13.5)	14.9 (13.8-16.0)	16.8 (15.5-18.0)	18.7 (17.2-20.1)	20.8 (18.9-22.3)	23.7 (21.2-25.6)	26.0 (23.0-28.2)
30-day	10.3 (9.67-11.0)	13.2 (12.3-14.0)	15.1 (14.2-16.1)	17.7 (16.5-18.9)	19.7 (18.3-21.0)	21.7 (20.0-23.2)	23.8 (21.8-25.5)	26.7 (24.2-28.8)	28.9 (26.0-31.3)
45-day	12.6 (11.9-13.4)	16.0 (15.0-17.1)	18.4 (17.2-19.6)	21.6 (20.1-23.0)	24.1 (22.3-25.7)	26.7 (24.6-28.5)	29.4 (26.9-31.5)	33.2 (30.1-35.7)	36.3 (32.5-39.1)
60-day	15.1 (14.2-16.0)	18.9 (17.8-20.0)	21.5 (20.3-22.7)	24.9 (23.3-26.3)	27.4 (25.6-29.0)	30.0 (27.9-31.8)	32.6 (30.1-34.7)	36.2 (33.1-38.7)	39.0 (35.3-41.8)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of annual maxima series (AMS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and annual exceedance probability) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.
 Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

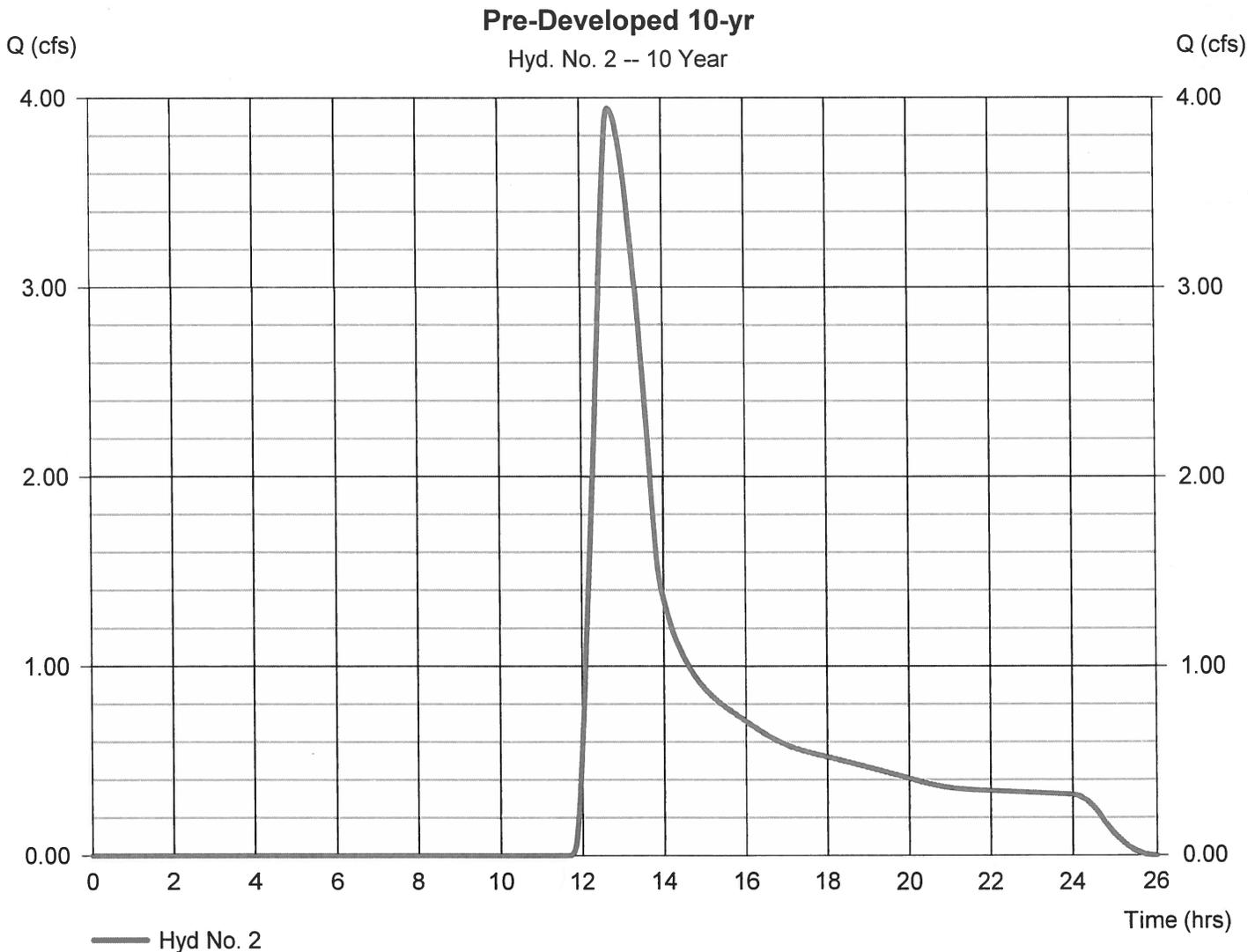
PF graphical

Hydrograph Report

Hyd. No. 2

Pre-Developed 10-yr

Hydrograph type	= SCS Runoff	Peak discharge	= 3.945 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.70 hrs
Time interval	= 2 min	Hyd. volume	= 39,685 cuft
Drainage area	= 9.120 ac	Curve number	= 49
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 72.90 min
Total precip.	= 6.25 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



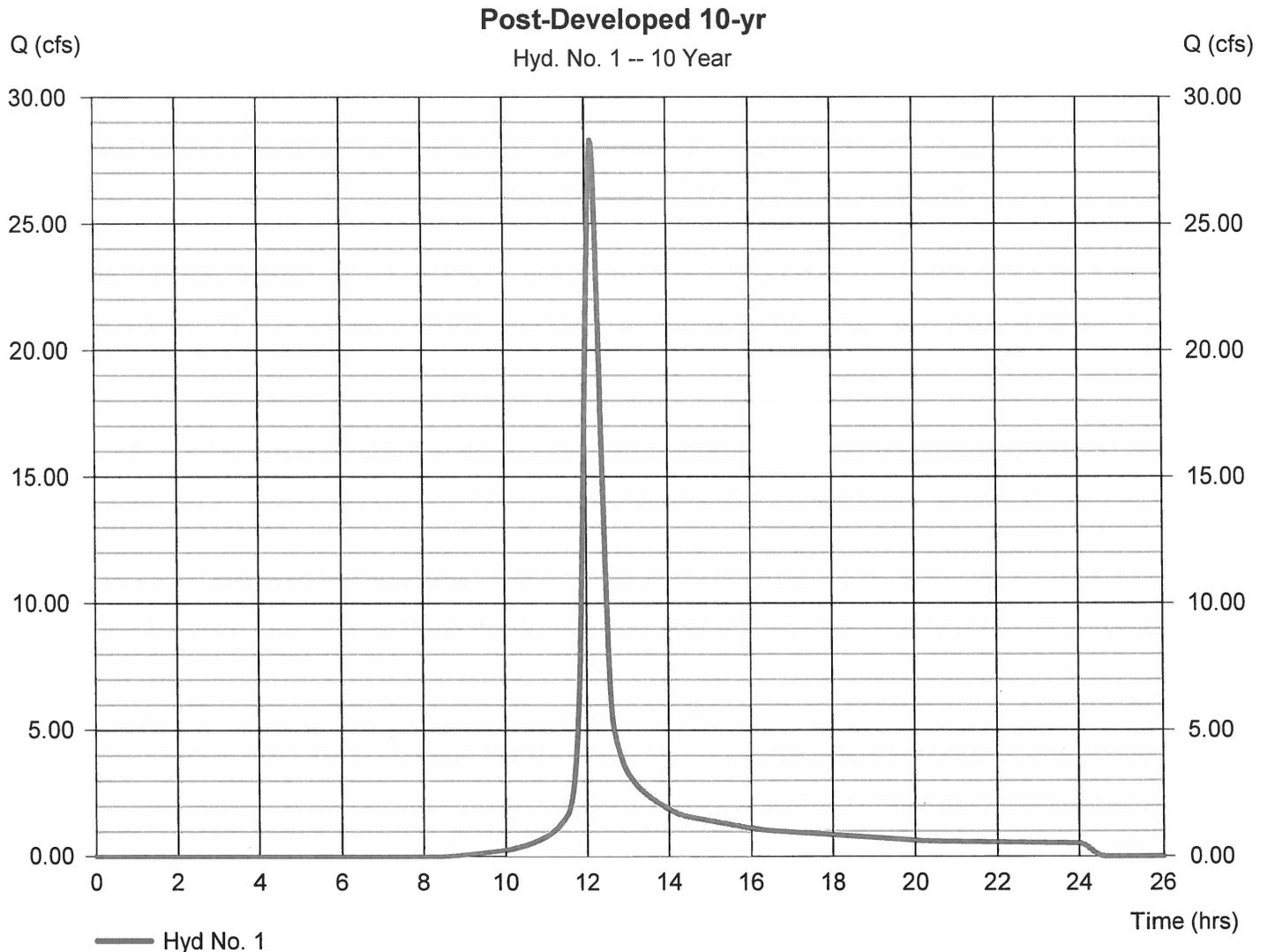
Hydrograph Report

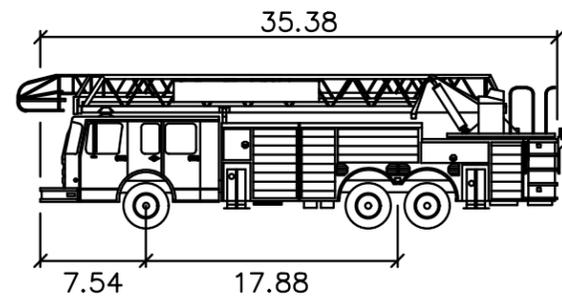
Hyd. No. 1

Post-Developed 10-yr

Hydrograph type	= SCS Runoff	Peak discharge	= 28.30 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 104,247 cuft
Drainage area	= 9.120 ac	Curve number	= 72*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 23.60 min
Total precip.	= 6.25 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = $[(4.360 \times 98) + (4.760 \times 49)] / 9.120$





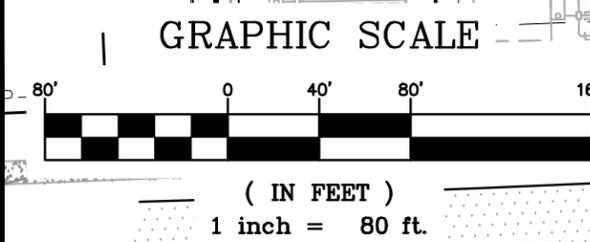
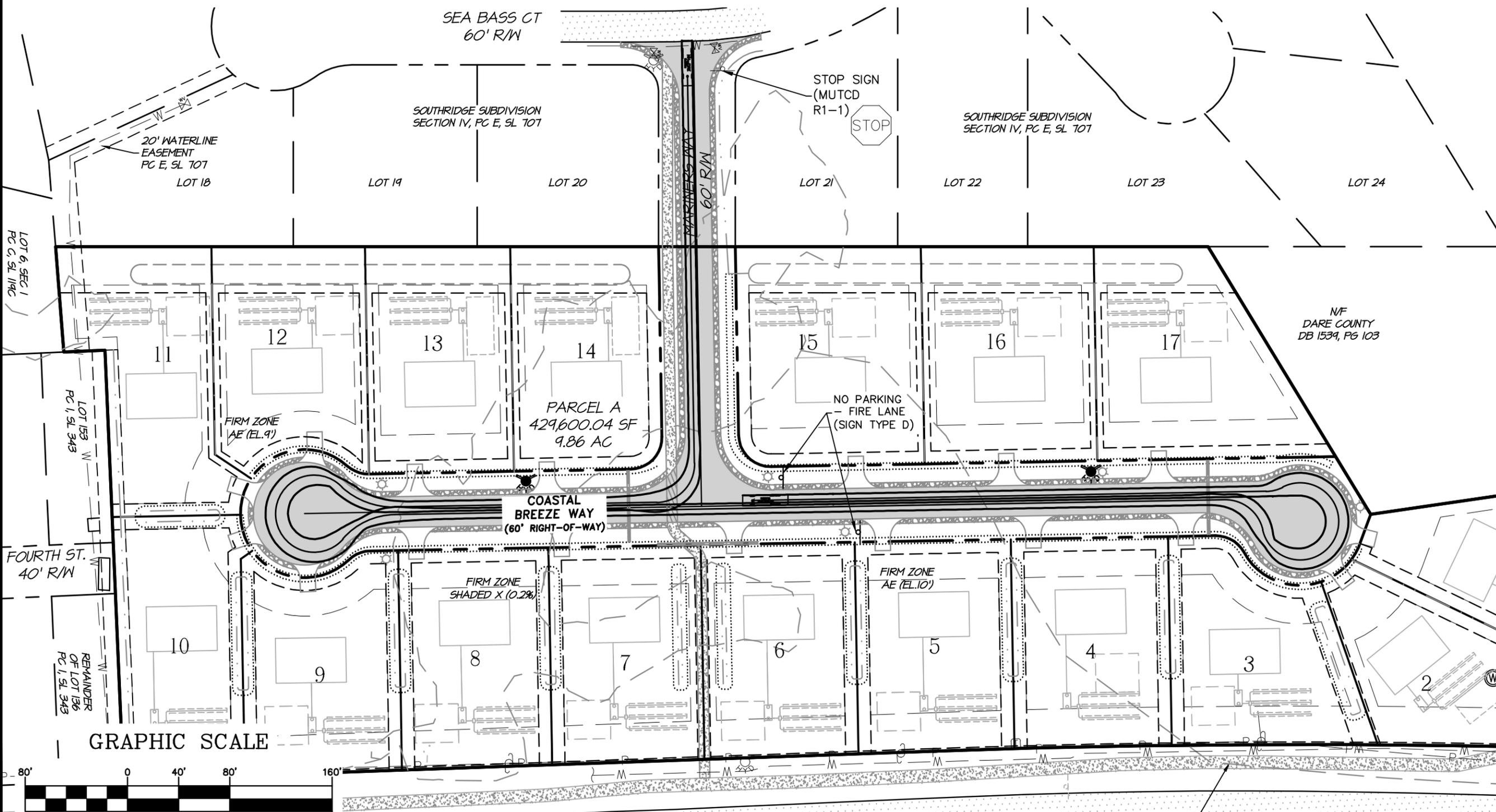
FIRE TRUCK feet

Width : 8.00

Track : 8.00

Lock to Lock Time : 6.00

Steering Angle : 40.00



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Quible SINCE 1959

& Associates, P.C.

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8466 Carotake Hwy, Powells Point, NC 27966
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90 Church St., Ste. B, Black Mountain, NC 28711
Phone: (828) 793-0398 Fax: (252) 491-8146
administrator@quible.com

FIRE ROUTING EXHIBIT

PARCEL A

COASTAL VILLAS

TOWN OF NAGS HEAD NORTH CAROLINA

DARE COUNTY

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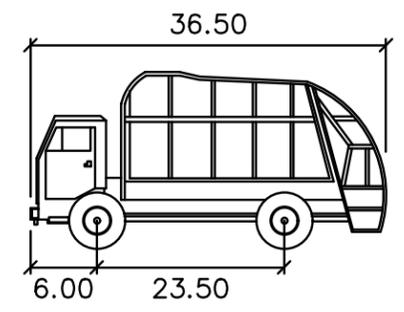
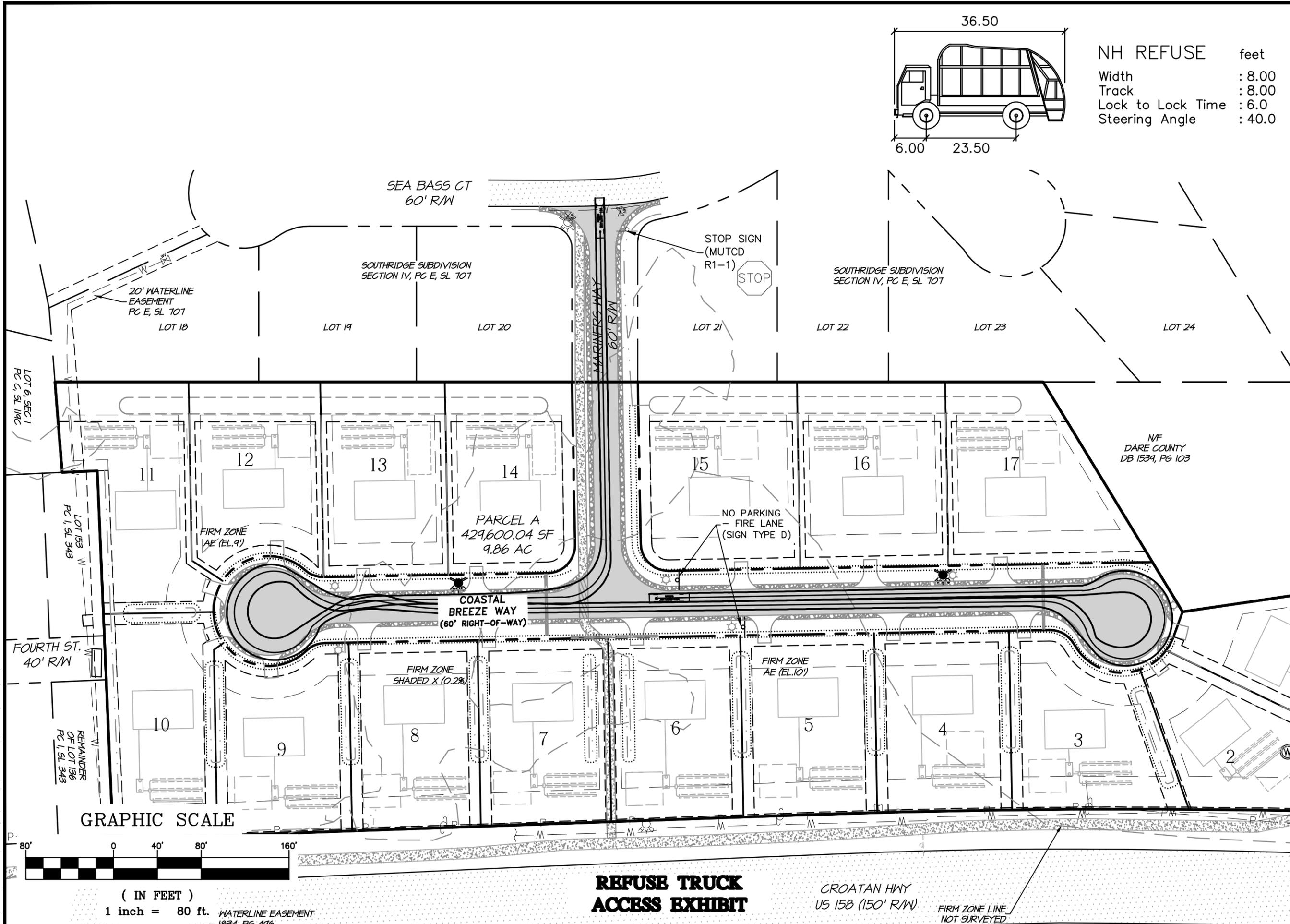
PROJECT	P18085
DRAWN BY	CMS
CHECKED BY	CMS
DATE	12/10/19

FIRE ACCESS EXHIBIT

GROATAN HWY
US 158 (150' R/W)

C:\2018\Drawings\Survey\P18085-pplat.dwg 12/10/2019 1:16 PM Cscoublers

G:\2018\18085\Drawings\Survey\P18085-plat.dwg 12/10/2019 1:17 PM Csaunders



NH REFUSE feet
 Width : 8.00
 Track : 8.00
 Lock to Lock Time : 6.0
 Steering Angle : 40.0

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 administrator@quible.com

**PRELIMINARY
 NOT FOR
 CONSTRUCTION**

REFUSE ROUTING EXHIBIT
PARCEL A
COASTAL VILLAS
 DARE COUNTY
 TOWN OF NAGS HEAD
 NORTH CAROLINA

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PROJECT
P18085
 DRAWN BY
CMS
 CHECKED BY
CMS
 DATE
12/10/2019

Town of Nags Head Infiltration Basin Operation and Maintenance Agreement

I will keep a maintenance record on this BMP. This maintenance record will be kept in a log in a known set location. Any deficient BMP elements noted in the inspection will be corrected, repaired or replaced immediately. These deficiencies can affect the integrity of structures, safety of the public, and the removal efficiency of the BMP.

Important operation and maintenance procedures:

- The drainage area will be carefully managed to reduce the sediment load to the Infiltration Basin.
- Immediately after the infiltration basin is established, the vegetation will be watered twice weekly if needed until the plants become established (commonly six weeks).
- No portion of the infiltration basin will be fertilized after the initial fertilization that is required to establish the vegetation.
- The vegetation in and around the basin will be maintained at a height of approximately 6-inches.

The infiltration basins shall be inspected once every two years by a licensed engineer. Records of inspections, operation and maintenance shall be provided to the Town of Nags Head Planning and Development Department within two weeks of performance.

Inspection activities shall be performed as follows. Any problems found shall be repaired immediately.

BMP element:	Potential problem:	How to remediate the problem:
The entire BMP	Trash/debris is present.	Remove the trash/debris.
The perimeter of the infiltration basin	Areas of bare soil and/or erosive gullies have formed.	Regrade the soil if necessary, to remove the gully, and then plant a ground cover and water until it is established. Provide lime and a one-time fertilizer application.
The inlet device: pipe or swale	The pipe is clogged (if applicable).	Unclog the pipe. Dispose of the sediment off-site.
	The pipe is cracked or otherwise damaged (if applicable).	Replace the pipe.
	Erosion is occurring in the swale (if applicable).	Regrade the swale if necessary, to smooth it over and provide erosion control devices such as reinforced turf matting or riprap to avoid future problems with erosion.

The forebay	Sediment has accumulated and reduced the depth to 75% of the original design depth.	Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the BMP.
	Erosion has occurred or riprap is displaced.	Provide additional erosion protection such as reinforced turf matting or riprap if needed to prevent future erosion problems.
	Weeds are present.	Remove the weeds, preferably by hand. If pesticides are used, wipe them on the plants rather than spraying.
The main treatment area	A visible layer of sediment has accumulated.	Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the BMP. Replace any media that was removed in the process. Revegetate disturbed areas immediately.
	Water is standing more than 5 days after a storm event.	Replace the top few inches of filter media and see if this corrects the standing water problem. If so, revegetate immediately. If not, consult an appropriate professional for a more extensive repair.
	Weeds and noxious plants are growing in the main treatment area.	Remove the plants by hand or by wiping them with pesticide (do not spray).
The embankment	Shrubs or trees have started to grow on the embankment.	Remove shrubs or trees immediately.
	An annual inspection by an appropriate professional shows that the embankment needs repair.	Make all needed repairs.
The outlet device	Clogging has occurred.	Clean out the outlet device. Dispose of the sediment off-site.
	The outlet device is damaged	Repair or replace the outlet device.
The receiving water	Erosion or other signs of damage have occurred at the outlet.	Contact the local NC Department of Environment and Natural Resources Regional Office.

I acknowledge and agree by my signature below that I am responsible for the performance of the maintenance procedures listed above. I agree to notify the Town of Nags Head of any problems with the system or prior to any changes to the system or responsible party.

Property Address: _____

Print Name: Alfred Norman

Title: President - Nags Head Construction and Development, Inc.

Address: P.O. BOX 16472 Chesapeake, VA 23328

Phone: (757)652 - 5012

Signature: _____

Date: _____

I, _____, a Notary Public for the State of _____, County of _____, do hereby certify that _____ personally appeared before me this _____ day of _____, _____, and acknowledge the due execution of the forgoing permeable pavement maintenance requirements. Witness my hand and official seal,

My commission expires _____



VICINITY MAP
(NTS)

- LEGEND:**
- - EXISTING CONCRETE
 - - EXISTING IRON PIPE EIP
 - - EXISTING IRON ROD, EIR
 - - SET IRON ROD, SIR
 - - CALCULATED POINT
 - - WATER METER
 - - TELEPHONE PED
 - - MONITORING HELL
 - - SIGN
 - - WATER VALVE
 - - FIRE HYDRANT
 - - UTILITY POLE
 - (T) - TOTAL DISTANCE
 - AG - ABOVE GRADE
 - BG - BELOW GRADE

- NOTES:**
- CURRENT OWNER: NAGS HEAD CONSTRUCTION AND DEVELOPMENT, INC
PO BOX 2130
VIRGINIA BEACH, VA 23450
 - PIN: 4841-0888-6187
 - PID: 006144004
 - PROPERTY ADDRESS: 5 GROATAN HWY
 - ZONING: R2
 - LOT AREA = 429,600.04 sqft / 9.86 acres
 - (AREAS BY COORDINATE METHOD)
 - SUBJECT REFERENCES: DB 1266, PG 271; PG E, SL 360
 - ADDITIONAL REFERENCES: DB 1534, PG 103, DB, PG 1034, PG 446; PG E, SL 107; PG E, SL 107; PG F, SL 61; PG G, SL 368; PG I, SL 343
 - FIELD SURVEY DATE: OCTOBER 2018
 - PROPERTY IS LOCATED IN NFIP FLOOD ZONES AS SHOWN AND SUBJECT TO CHANGES, BASED ON COMMUNITY CID NO. 375236, PANEL 1894; SUFFIX J (MAP NUMBER 372084100J) EFFECTIVE DATE: 04/20/2006
 - THIS SURVEY SUBJECT TO ANY FACTS, INCLUDING BUILDING SETBACK RESTRICTIONS, EASEMENTS, COVENANTS, ETC., THAT MAY BE REVEALED BY A FULL AND ACCURATE TITLE SEARCH.
 - ALL DISTANCES ARE US SURVEY FEET AND HORIZONTAL GROUND.
 - APPROVAL OF THIS SUBDIVISION DOES NOT GUARANTEE SEPTIC APPROVAL ON ANY INDIVIDUAL LOT.
 - MINIMUM BUILDING SETBACKS MAY BE SUBJECT TO CHANGE AND SHOULD BE VERIFIED WITH A ZONING OFFICIAL.
 - SETBACKS:
*FRONT = 30'
*SIDE = 10'
*REAR = 30'
*LOTS 1 & 2 HAVE A 52' FRONT MBSL AT THE REQUIRED MINIMUM LOT WIDTH.
*LOT 11 HAS A 44' FRONT MBSL AT THE REQUIRED MINIMUM LOT WIDTH.
 - A STATE HIGH DENSITY STORMWATER PERMIT AND EROSION & SEDIMENT CONTROL PERMIT MUST BE OBTAINED PRIOR TO DISTURBANCE ON SITE. ALL IMPERVIOUS COVERAGE MUST BE DIRECTED TO INFILTRATION BASINS VIA SHEET FLOW OR ROOF DRAINS.
 - A RIGHT-OF-WAY ENCROACHMENT AGREEMENT IS REQUIRED FROM MCDOT PRIOR TO ANY DISTURBANCE WITHIN THE STATE RIGHT-OF-WAY.
 - BUILDING CONSTRUCTION SHALL COMPLY WITH ALL ASPECTS OF THE NORTH CAROLINA BUILDING AND FIRE CODE.

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FLOOD HAZARD AREA CERTIFICATE

THIS PROPERTY, OR PORTIONS OF THIS PROPERTY, ARE LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA AS DESIGNATED ON FLOOD INSURANCE RATE MAPS FOR DARE COUNTY. LOCATION IN A SPECIAL FLOOD HAZARD AREA REPRESENTS A ONE PERCENT (1%) OR GREATER CHANCE OF BEING FLOODED IN ANY GIVEN YEAR. FLOOD INSURANCE MAY BE REQUIRED BY LENDING INSTITUTIONS FOR STRUCTURES CONSTRUCTED ON PROPERTY LOCATED IN SPECIAL FLOOD HAZARD AREAS.

CERTIFICATE OF TOWN CLERK, TOWN OF NAGS HEAD

I, _____, THE TOWN CLERK OF NAGS HEAD, NORTH CAROLINA DO CERTIFY THAT ON THE _____ DAY OF _____, 20____, THE TOWN OF NAGS HEAD APPROVED THIS PLAT FOR RECORDING IN THE OFFICE OF THE REGISTER OF DEEDS AND ACCEPTED THE DEDICATION OF IMPROVEMENTS LISTED BY RESOLUTION OF THE BOARD OF COMMISSIONERS BUT ASSUME NO RESPONSIBILITY TO OPEN OR MAINTAIN THE SAME UNTIL, IN THE OPINION OF THE BOARD OF COMMISSIONERS OF NAGS HEAD, IT IS IN THE PUBLIC INTEREST TO DO SO.

TOWN CLERK, TOWN OF NAGS HEAD _____ DATE _____

CERTIFICATE OF APPROVAL

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE SUBDIVISION ORDINANCE OF THE TOWN OF NAGS HEAD AND THAT THIS PLAT HAS BEEN APPROVED BY THE TOWN OF NAGS HEAD PLANNING BOARD FOR RECORDING IN THE OFFICE OF THE REGISTER OF DEEDS OF DARE COUNTY.

TOWN OF NAGS HEAD UDO ADMINISTRATOR _____ DATE _____

OWNER'S CERTIFICATE

I HEREBY CERTIFY THAT I AM THE OWNER OF THE PROPERTY SHOWN AND DESCRIBED HEREON, WHICH IS LOCATED IN THE SUBDIVISION JURISDICTION OF THE TOWN OF NAGS HEAD AND THAT I HEREBY ADOPT THIS PLAT OF SUBDIVISION WITH MY FREE CONSENT, ESTABLISH MINIMUM BUILDING SETBACK LINES AND DEDICATE ALL STREETS, ALLEYS, WALKS, PARKS AND OTHER SITES AND EASEMENTS TO PUBLIC OR PRIVATE USE AS NOTED. FURTHERMORE, I HEREBY DEDICATE ALL ROADWAY STORM SEWER AND WATER LINES TO THE TOWN OF NAGS HEAD.

NAME (PRINTED/SIGNED) _____ DATE _____

***NOTARY CERTIFICATE**

STATE OF NORTH CAROLINA, COUNTY OF _____
I, _____, A NOTARY PUBLIC OF THE ABOVE REFERENCED COUNTY AND STATE, DO HEREBY CERTIFY THAT _____ PERSONALLY APPEARED BEFORE ME THIS DAY AND ACKNOWLEDGED THE EXECUTION OF THE FOREGOING INSTRUMENT.
WITNESS MY HAND AND OFFICIAL SEAL, THIS THE _____ DAY OF _____, 20____.

NOTARY PUBLIC _____
MY COMMISSION EXPIRES: _____

SURVEYOR'S CERTIFICATE

I, JOHN M. HURDLE, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (SEE NOTES), THAT THE BOUNDARIES NOT SURVEYED ARE SHOWN AS DASHED LINES AND ARE CLEARLY INDICATED AS DRAWN FROM INFORMATION FOUND IN (SEE ADDITIONAL REFERENCES IN NOTES); THAT THE RATIO OF PRECISION OR POSITIONAL ACCURACY AS CALCULATED IS 1:10,000; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 41-30 AS AMENDED.

THAT THE SURVEY CREATES A SUBDIVISION OF LAND WITHIN THE AREA OF A COUNTY OR MUNICIPALITY THAT HAS AN ORDINANCE THAT REGULATES PARCELS OF LAND.

WITNESS MY ORIGINAL SIGNATURE, LICENSE NUMBER AND SEAL THIS _____ DAY OF _____, A.D.

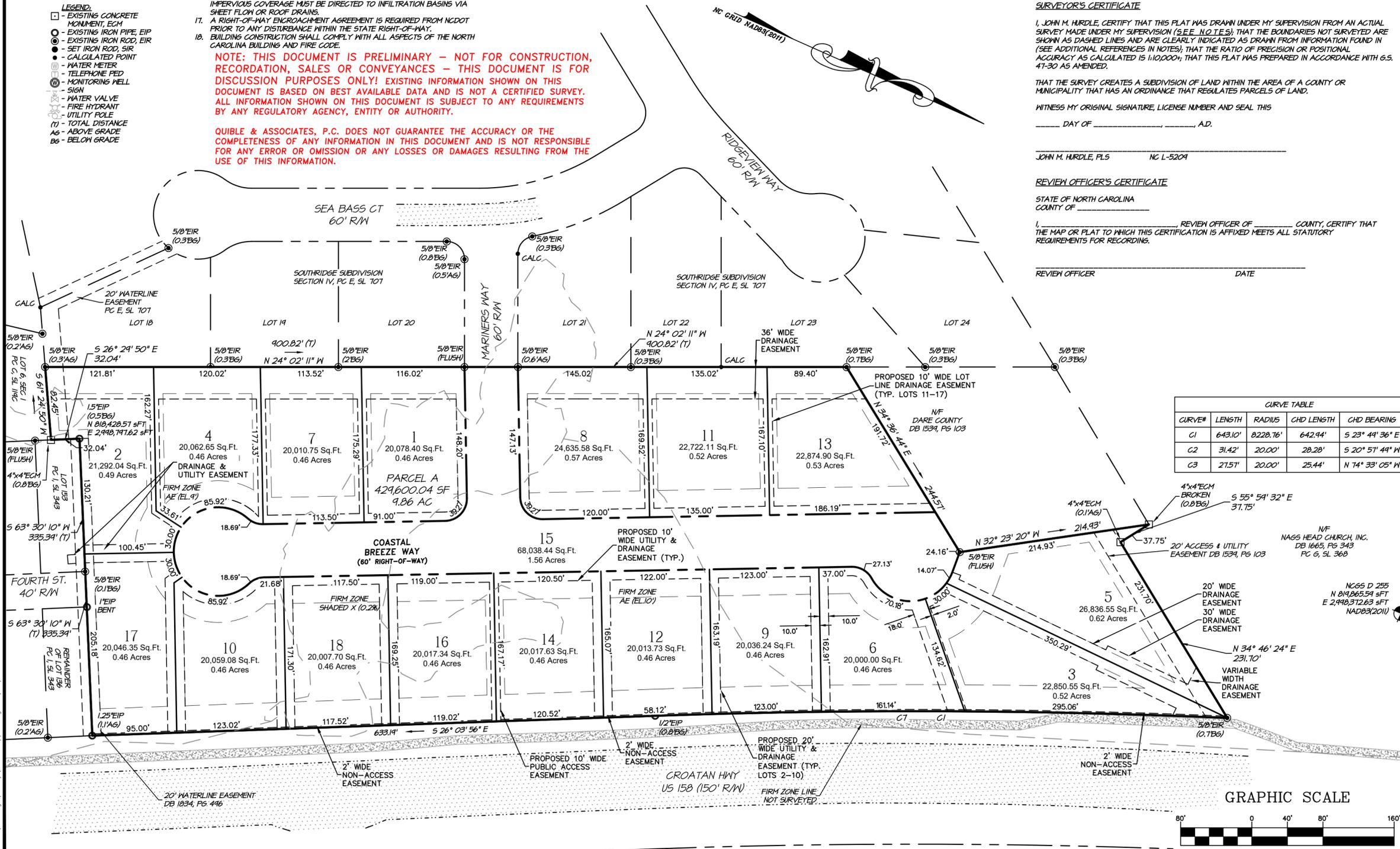
JOHN M. HURDLE, PLS _____ NC L-5204

REVIEW OFFICER'S CERTIFICATE

STATE OF NORTH CAROLINA, COUNTY OF _____

I, _____, REVIEW OFFICER OF _____ COUNTY, CERTIFY THAT THE MAP OR PLAT TO WHICH THIS CERTIFICATION IS AFFIXED MEETS ALL STATUTORY REQUIREMENTS FOR RECORDING.

REVIEW OFFICER _____ DATE _____



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8466 CAROLINE HWY. 90 CHURCH STREET, SUITE B
POWELL POINT, NC 27811 BLACK MOUNTAIN, NC 28711
Phone: (252) 491-8147 Fax: (252) 491-8146
administrator@quible.com



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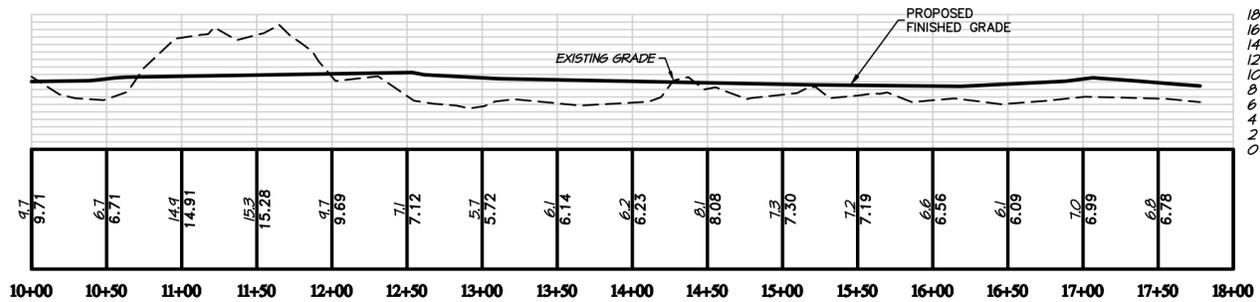
DRAFT PRELIMINARY PLAT 1 OF 3

PARCEL A

COASTAL VILLAS

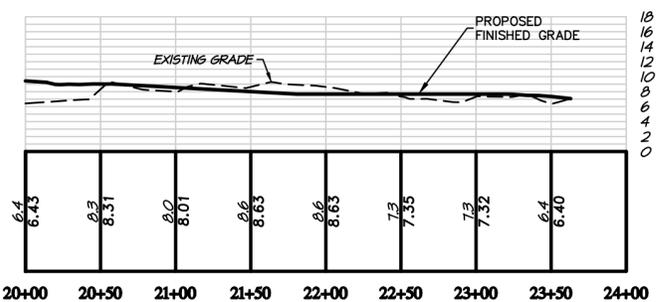
TOWN OF NAGS HEAD
DARE COUNTY
NORTH CAROLINA

COMMISSION NO.	P18085
DESIGNED BY	JMH
DRAWN BY	JMH/CMS
CHECKED BY	MWS/JMH
ISSUE DATE	12/10/19



COASTAL BREEZE WAY

HORIZONTAL: 1"=80'
VERTICAL: 1"=16'
(EXAGGERATED 5 TIMES)



MARINER'S WAY (EXTENSION)

HORIZONTAL: 1"=80'
VERTICAL: 1"=16'
(EXAGGERATED 5 TIMES)

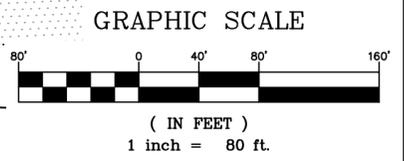
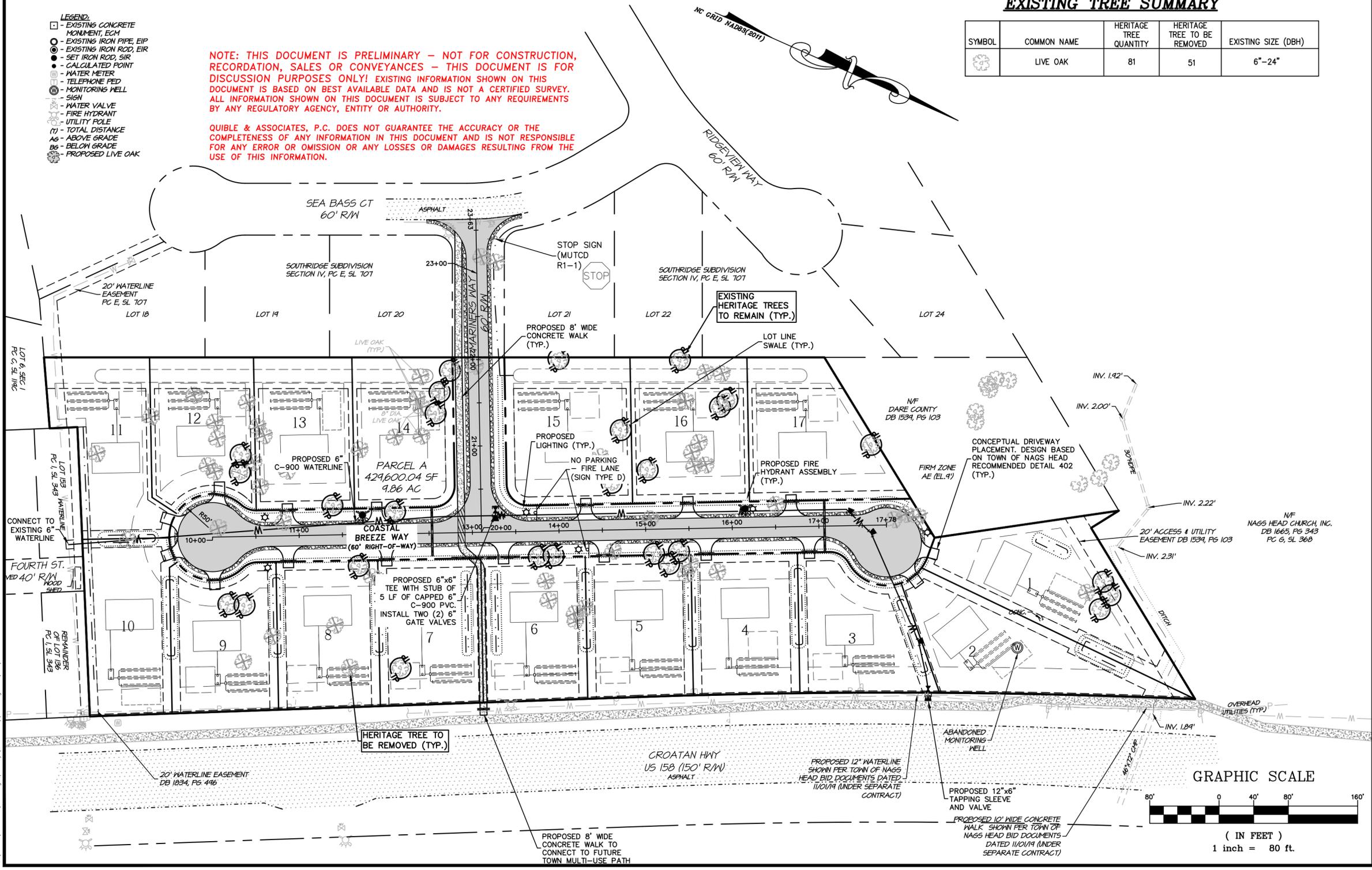
EXISTING TREE SUMMARY

SYMBOL	COMMON NAME	HERITAGE TREE QUANTITY	HERITAGE TREE TO BE REMOVED	EXISTING SIZE (DBH)
	LIVE OAK	81	51	6"-24"

- LEGEND:**
- EXISTING CONCRETE MONUMENT, ECH
 - EXISTING IRON PIPE, EIP
 - EXISTING IRON ROD, EIR
 - SET IRON ROD, SIR
 - CALCULATED POINT
 - WATER METER
 - TELEPHONE PED
 - MONITORING WELL SIGN
 - WATER VALVE
 - FIRE HYDRANT
 - UTILITY POLE
 - (T) TOTAL DISTANCE
 - AG ABOVE GRADE
 - BG BELOW GRADE
 - PROPOSED LIVE OAK

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DRAFT PRELIMINARY PLAT 2 OF 3

PARCEL A
COASTAL VILLAS

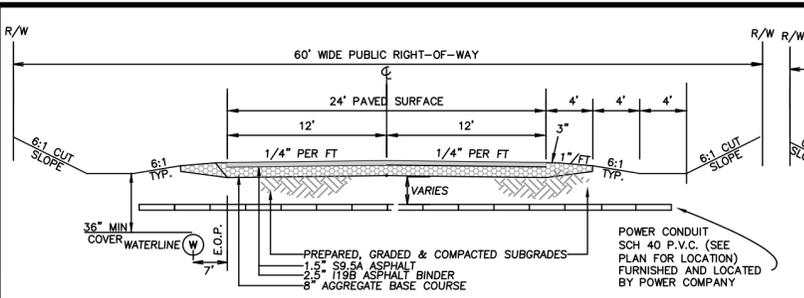
TOWN OF NAGS HEAD
DARE COUNTY
NORTH CAROLINA

COMMISSION NO.	P18085
DESIGNED BY	JMH
DRAWN BY	JMH/CMS
CHECKED BY	MWS/JMH
ISSUE DATE	12/10/19

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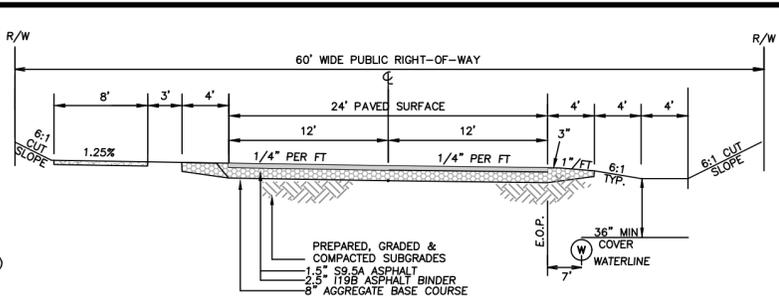


VICINITY MAP
(N.T.S.)



COASTAL BREEZE WAY CROSS SECTION (60' R/W)
N.T.S.

- CONTRACTOR TO INSURE THAT WATERMAIN IS INSTALLED SO AS TO MAINTAIN LEAST 36\"/>

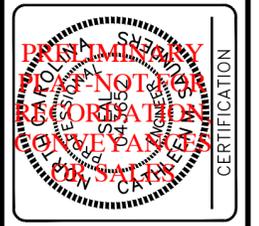


MARINER'S WAY CROSS SECTION (80' R/W)
N.T.S.

- CONTRACTOR TO INSURE THAT WATERMAIN IS INSTALLED SO AS TO MAINTAIN LEAST 36\"/>

INFILTRATION BASIN	BOTTOM EL.	TOP EL.	LENGTH	SIDE SLOPES	BOTTOM WIDTH
BASIN 1	5.0'	6.0'	390'	4:1	7.0'
BASIN 2	5.0'	6.0'	340'	4:1	7.0'
BASIN 3	VARIABLE	7.5'	9,319'	4:1 MAX.	5.0'
BASIN 4	6.0'	7.0'	70'	4:1	8.5'
BASIN 5	6.0'	7.0'	96'	4:1	8.5'
BASIN 6	6.0'	7.0'	96'	4:1	8.0'
BASIN 7	6.0'	7.0'	88'	4:1	8.0'
BASIN 8	6.0'	7.0'	98'	4:1	3.0'
BASIN 9	6.0'	7.0'	98'	4:1	3.0'
BASIN 10	6.0'	7.0'	96'	4:1	8.0'
BASIN 11	6.0'	7.0'	96'	4:1	8.0'
BASIN 12	6.0'	7.0'	96'	4:1	8.0'
BASIN 13	6.0'	7.0'	96'	4:1	8.0'
BASIN 14	4.0'	6.0'	60'	4:1	12.0'
BASIN 15	5.0'	6.0'	47'	4:1	8.0'

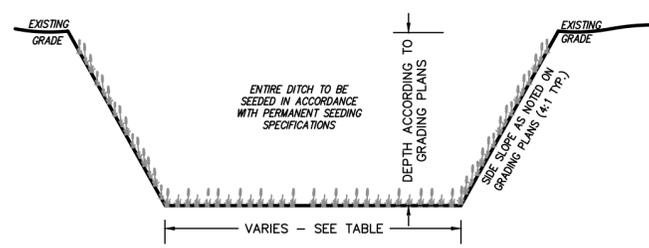
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CERTIFICATION
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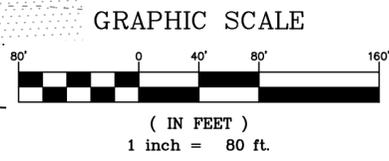
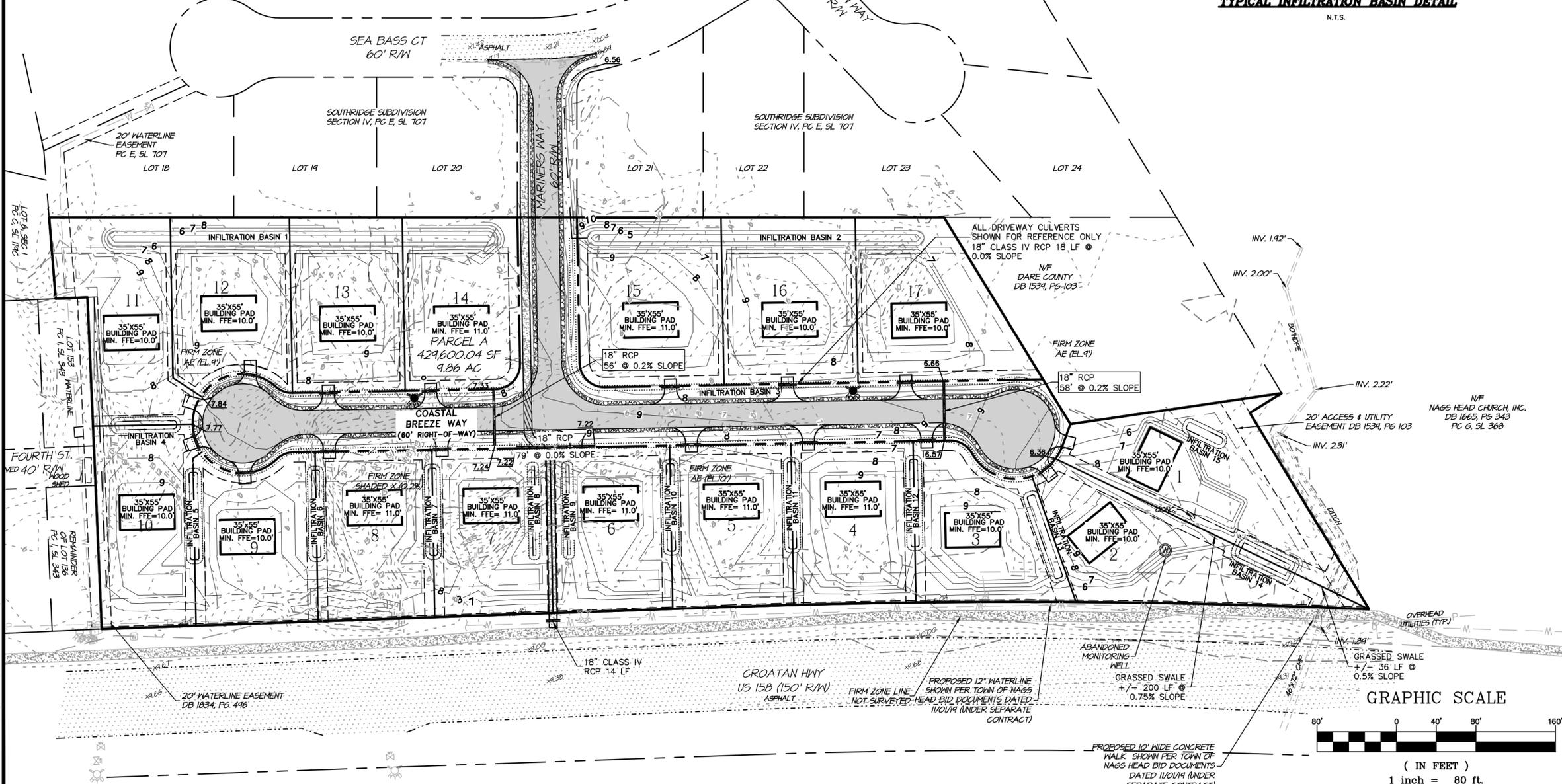
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TYPICAL INFILTRATION BASIN DETAIL
N.T.S.

- LEGEND:**
- EXISTING CONCRETE MONUMENT, E.C.M.
 - EXISTING IRON PIPE, E.I.P.
 - EXISTING IRON ROD, E.I.R.
 - SET IRON ROD, S.I.R.
 - CALCULATED POINT
 - WATER METER
 - TELEPHONE PED
 - MONITORING WELL
 - SIGN
 - WATER VALVE
 - FIRE HYDRANT
 - UTILITY POLE
 - (T) - TOTAL DISTANCE
 - AG - ABOVE GRADE
 - BG - BELOW GRADE



DRAFT PRELIMINARY PLAT 3 OF 3

PARCEL A
COASTAL VILLAS

TOWN OF NAGS HEAD
DARE COUNTY
NORTH CAROLINA

COMMISSION NO.	P18085
DESIGNED BY	JMH
DRAWN BY	JMH/CMS
CHECKED BY	MWS/JMH
ISSUE DATE	12/10/19

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TOWN OF NAGS HEAD
SUBDIVISION PLAT REVIEW CHECKLIST

DATE RECEIVED _____
Amount Due _____

1. NAME OF PROPOSED SUBDIVISION Southridge Subdivision
PHASE SECTION NO: VI MAJOR MINOR ZONING DISTRICT R2 Medium Density
LOCATION OF PARCEL 300' South of the intersection of Croatan Highway and Soundside Road
MAP BOOK/CABINET DB 1266 PG 271 PAGE.SLIDE NUMBER PC E SL 360
DISTANCE TO NEAREST STREET ADJACENT NAME OF STREET CROATAN HIGHWAY (US 158)
PLAT PREPARER'S NAME QUIBLE & ASSOCIATES, P.C.
ADDRESS 8466 CARATOKE HIGHWAY POWELLS POINT, NC 27966
PHONE # (252) 491-8147

2. NAME OF OWNER NAGS HEAD CONSTRUCTION AND DEVELOPMENT, INC.
ADDRESS P.O. BOX 16472 CHESAPEAKE, VA 23328
PHONE # (757) 652-5012 AL NORMAN
CONTACT OWNER C/O VIKING MANAGEMENT, INC.
ADDRESS P.O. BOX 16472 CHESAPEAKE, VA 23328
PHONE # (757)306-9620

APPLICANT CERTIFICATION AND STANDING

As applicant of standing of the above-mentioned subdivision, I certify that the information on this checklist and the subdivision plat is complete and accurate.

Alfred L. Norman
SIGNATURE OF OWNER

THIS SUBDIVISION COVERS ONLY PART OF TRACT, THEREFORE, I ATTACH A MAP OF THE WHOLE TRACT SHOWING CONTEXT OF PRESENT SUBDIVISION SECTION. YES NO

3. CONTACT PERSON ALFRED L. NORMAN
ADDRESS P.O. BOX 16472 CHESAPEAKE, VA 23328
PHONE # (757) 652-5012

4. INDICATE BY CHECK (✓) ATTACHMENTS SUBMITTED AS SUPPORTING DOCUMENTS.

	PREPARER	PHONE #
a. <input checked="" type="checkbox"/> STORM MANAGEMENT PLAN	<u>QUIBLE & ASSOCIATES, P.C.</u>	<u>(252) 491-8147</u>
b. <input checked="" type="checkbox"/> SOIL EROSION AND SEDIMENTATION CONTROL	<u>*QUIBLE & ASSOCIATES, P.C.</u>	<u>(252) 491-8147</u>
c. <input checked="" type="checkbox"/> WATER LINE PLAN	<u>QUIBLE & ASSOCIATES, P.C.</u>	<u>(252) 491-8147</u>
d. <input checked="" type="checkbox"/> STREET PLAN	<u>QUIBLE & ASSOCIATES, P.C.</u>	<u>(252) 491-8147</u>
e. <input checked="" type="checkbox"/> STREET LIGHTING PLAN	<u>QUIBLE & ASSOCIATES, P.C.</u>	<u>(252) 491-8147</u>
f. <input checked="" type="checkbox"/> COVENANTS/DEED RESTRICTIONS	<u>JAMES GILREATH JR</u>	<u>(252) 480-1414</u>
g. <input type="checkbox"/> MAP OF WHOLE TRACT (IF LARGER THAN SUBDIVISION SUBMITTED)	<u>N/A</u>	

FIVE (5) COPIES TO BE SUBMITTED FOR STAFF REVIEW; TWELVE (12) COPIES FOR FORMAL REVIEW.

*PROPOSED INFILTRATION BASINS TO ACT AS EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.

	YES	COMMENTS
5. MISCELLANEOUS REQUIREMENTS TO BE SHOWN ON PRELIMINARY PLAT.		
a. Required signature indicating approval by Dare County Environmental Health Department for water and sewer facility proposals.	X	Preliminary onsite soils evaluations provided.
b. Vicinity map showing reference to nearest street.	X	Sheet 1
c. Subdivision name and section, name of town, township and county, zoning district (including exact boundary lines if in more than one district).	X	Sheet 1
d. Names of adjacent landowners and lot, block, and subdivision designations.	X	Sheet 1
e. Preparation date and revision date(s), if any.	X	Sheet 1 & 2
6. TECHNICAL REQUIREMENTS FOR PRELIMINARY PLAT, IF NOT SHOWN ON ATTACHMENT(S).		
a. Plat prepared between 100' = 1" and 50' = 1".	X	1"=80' Provided
b. North arrow accurately positioned and showing whether index is true, magnetic or grid.	X	Sheet 1&2
c. The azimuth or courses and distances of every line, with dimensions expressed in feet and decimals.	X	Sheet 1
d. All map lines by level measurements and platted to scale shown.	X	Sheet 1&2
e. For all curved lines, actual survey data from the point of curvature to the point of tangent shown as standard curve data.	X	Sheet 1
f. All streets and lots carefully platted with dimension lines, indicating widths and all other pertinent information necessary to reestablish lines in the field.	X	Sheet 1
g. Minimum building setback line, lot area, lot numbers or letters and street addresses.	X	Sheet 1
h. As to control corners, the location and pertinent information required by state law. All other corners which are marked by monuments or natural objects identified, and all corners of adjacent owners in the boundary lines of the subject tract which are marked by monuments or natural objects shown with a distance from one or more of the subject tract corners.	X	Sheet 1
7. EXISTING FEATURES TO BE SHOWN ON PLAT		
a. Topographic data in spot elevations or contour lines drawn at sufficiently close intervals to show drainage flow patterns and existing and finished elevations. Elevations of existing streets that abut the subdivision and of any streets proposed as part of the subdivision.	X	Sheet 1
b. Location, width, and names of any streets, alleys, or public rights-of-way within the subdivision as shown on the official map or master plan, if such exists.	X	Sheet 2
c. Location of width of existing walkways, rights-of-way, easements for cable TV, and easements, including but not limited to those provided for waterlines, water mains, sewer lines, drainage facilities, telephone and surface and subsurface electric lines.	X	Sheet 2
d. Location of any natural or man-made features, such as drainageways, flood hazard areas, wetlands, and drainage ditches, along with notations indicating the date of determination and that the boundaries are subject to change.	X	Sheet 2
e. Each AEC with appropriate language giving notice of CAMA requirements.		n/a
	YES	COMMENTS
8. PROPOSED IMPROVEMETNS TO BE SHOWN ON PLAT.		
a. Storm Management Plan, including location and size of proposed lines, pipes, culverts, and bridges.	X	Sheet 2

b. Water, fire hydrants, and sewer proposals and a copy of approval from appropriate authority.	X	Sheet 2
c. Width, location, grade, and name of each street or public right-of-way.	X	Sheet 1&2
d. All proposed streets and lots with dimension lines indicating widths and all other pertinent information necessary to reestablish lines in the field.	X	Sheet 1
e. Location and dimensions of all proposed improvements including those existing improvements which are to be incorporated into the subdivision.	X	Sheet 1&2
f. All parcels of land proposed to be dedicated to public use and the conditions of such dedication.		n/a

FOR OFFICE USE ONLY:

Preliminary plat approved by Planning Board on _____.

Preliminary plat approved by Board of Commissioners on _____.

Final plat approved by Planning Board on _____.

Following improvements were completed on:

Waterlines	_____	Inspected by	_____
Streets	_____	Inspected by	_____
Drainage	_____	Inspected by	_____
Street lights	_____	Inspected by	_____

If improvements are not to be completed prior to final approval and are to be bonded attached engineering take-off of required improvements received on _____ by _____.

Total engineering take-off cost \$

Required bond \$

CASH BOND IRREVOCABLE LETTER OF CREDIT IN AMOUNT OF \$ _____.

RECEIVED ON _____ BY PLANNING AND DEVELOPMENT DEPARTMENT.

SUBMITTED BY _____



Cobra

The Cobra style fixture is an Enclosed Flat Lens luminaire that provides a full cut-off distribution for lighting residential roadways and smaller parking areas.

Comparable HID Wattage	Finish Color	Initial Lamp Lumens	Lighting Pattern	Correlated Color Temperature (CCT)	Input Wattage	Billing Tier	Basic / Premium	Recommended Mounting Height (ft.)	BUG Rating	Luminaire Stock #	WMIS CU Code
70	Black	3300	Type II	3000K	28	1	Basic	25	1-0-1	42323677	LEDCOXX0323BXXX
70	Black	3300	Type III	3000K	28	1	Basic	25	1-0-1	42323678	LEDCOXX0333BXXX
70	Gray	3300	Type II	3000K	28	1	Basic	25	1-0-1	42323675	LEDCOXX0323GXXX
70	Gray	3300	Type III	3000K	28	1	Basic	25	1-0-1	42323676	LEDCOXX0333GXXX
70	Black	3300	Type II	4000K	26	1	Basic	25	1-0-1	42315803	LEDCOXX0324BXXX
70	Black	3300	Type III	4000K	26	1	Basic	25	1-0-1	42315806	LEDCOXX0334BXXX
70	Gray	3300	Type II	4000K	26	1	Basic	25	1-0-1	42315902	LEDCOXX0324GXXX
70	Gray	3300	Type III	4000K	26	1	Basic	25	1-0-1	42315903	LEDCOXX0334GXXX
100	Black	5000	Type II	3000K	45	2	Basic	25 - 30	1-0-2	42323681	LEDCOXX0523BXXX
100	Black	5000	Type III	3000K	45	2	Basic	25 - 30	1-0-2	42323682	LEDCOXX0533BXXX
100	Gray	5000	Type II	3000K	45	2	Basic	25 - 30	1-0-2	42323679	LEDCOXX0523GXXX
100	Gray	5000	Type III	3000K	45	2	Basic	25 - 30	1-0-2	42323680	LEDCOXX0533GXXX
100	Black	5000	Type II	4000K	41	2	Basic	25 - 30	1-0-2	42315804	LEDCOXX0524BXXX
100	Black	5000	Type III	4000K	41	2	Basic	25 - 30	1-0-2	42315807	LEDCOXX0534BXXX
100	Gray	5000	Type II	4000K	41	2	Basic	25 - 30	1-0-2	42315896	LEDCOXX0524GXXX
100	Gray	5000	Type III	4000K	41	2	Basic	25 - 30	1-0-2	42315897	LEDCOXX0534GXXX
150	Black	9125	Type II	3000K	83	3	Basic	25 - 30	2-0-2	42323685	LEDCOXX0823BXXX
150	Black	9125	Type III	3000K	83	3	Basic	25 - 30	2-0-2	42323686	LEDCOXX0833BXXX
150	Gray	9125	Type II	3000K	83	3	Basic	25 - 30	2-0-2	42323683	LEDCOXX0823GXXX
150	Gray	9125	Type III	3000K	83	3	Basic	25 - 30	2-0-2	42323684	LEDCOXX0833GXXX
150	Black	9125	Type II	4000K	76	3	Basic	25 - 30	2-0-2	42315805	LEDCOXX0824BXXX
150	Black	9125	Type III	4000K	76	3	Basic	25 - 30	2-0-2	42315808	LEDCOXX0834BXXX
150	Gray	9125	Type II	4000K	76	3	Basic	25 - 30	2-0-2	42315898	LEDCOXX0824GXXX
150	Gray	9125	Type III	4000K	76	3	Basic	25 - 30	2-0-2	42315899	LEDCOXX0834GXXX
250	Gray	14575	Type III	3000K	136	5	Basic	30 - 35	3-0-3	42329814	LEDCOXX1533GXXX
250	Gray	14575	Type III	4000K	125	5	Basic	30 - 35	3-0-3	42315900	LEDCOXX1534GXXX
400	Gray	23800	Type III	3000K	223	8	Basic	30 - 40	3-0-5	42329816	LEDCOXX2233GXXX
400	Gray	23800	Type III	4000K	201	7	Basic	30 - 40	3-0-5	42315901	LEDCOXX2234GXXX
1000	Gray	28800	Type III	3000K	244	9	Basic	35 - 40	3-0-5	42330027	LEDCOXX3033GXXX
1000	Gray	31100	Type III	4000K	244	9	Basic	35 - 40	3-0-5	42315895	LEDCOXX3034GXXX
250 (480V)	Gray	14575	Type III	4000K	136	5	Basic	30 - 35	3-0-3	42330028	LEDCOXX1534G4XX
400 (480V)	Gray	23800	Type III	4000K	223	8	Basic	30 - 40	3-0-5	42330029	LEDCOXX2234G4XX

NORTH CAROLINA

SOUTHRIDGE SUBDIVISION

DARE COUNTY

SECTION VI

This Declaration of Restrictive Covenants made and declared this the 16th day of August, 2019, by Nags Head Construction & Development, Inc. a North Carolina corporation, hereinafter referred to as Declarant;

WITNESSETH:

WHEREAS, the subdivision known as Southridge has been developed pursuant to a common development plan known as Sections VI.

1. Permitted Uses: Commercial Uses Prohibited. No lot shall be used except for residential purposes. No business or business activity may be conducted on the property at anytime; provided however that nothing herein shall preclude the Declarant, its successors in interest, agents and employees from using all or part of the dwellings owned by them for the purpose of carrying on business directly related but not limited to the development and/or management of the subdivision.

2. Permitted Structures: Building Standards and Specifications. No building shall be built, erected, altered, placed, or permitted to remain on any lot other than one single-family residence (expressly excluding duplexes, double or multiple-unit houses) and an attached garage approved by the Architectural Review Committee (hereinafter "ARC"), or its successors in interest or assigns. The ARC shall consist of the Declarant, its successors and assigns. The approval of the plans and specifications shall be noted in writing on the plans. In the event the ARC fails or refuses to either approve or disapprove the plans within 30 days after submission to the ARC, its successors or assigns, then the requirement of this covenant shall be deemed waived and its enforcement against the lot owner, and the heirs and assigns of said lot owner, shall be barred by reason of the ARC's failure to approve or disapprove the covenants

within 30 days of the date of submission to the ARC.

No building shall be built, erected, placed, or altered on any lot in the subdivision until the building plans, specifications, (including exterior colors), and plat or map showing the location of every such building, have been approved in writing as to conformity and harmony of external design with existing structures in the development and in accordance with schedule exterior colors, materials, and design elements and guidelines for building and development approved and published by the ARC. A copy of the current building standards and regulations adopted by the ARC pursuant to this provision shall be available at the of the ARC. The ARC shall approve the location of the building or buildings with respect to topography and finished ground elevation.

Subsequent to the transfer of title by the developer to the first owner of each lot, any exterior modifications, additions, or renovations to the buildings on the owner's lot must be approved by the ARC and conforms to the building standards and regulations then in effect as published by the ARC. The initial landscaping of each lot must be approved by the ARC.

The ARC shall develop and maintain in the office of the ARC a current set of approved guidelines for building and development within Southridge together with an approved schedule of exterior colors, building materials, fence standards and regulations, swimming pool and driveway regulations, and such other building and development standards as the ARC shall adopt from time to time. The initial set of guidelines for building and development have been designated as Exhibit A and attached hereto and incorporated herein and recorded with these covenants and restrictions. Subsequent amendments to the guidelines for building and development, as adopted from time to time by the ARC, shall be effective upon the adoption and filing of such amendments by the ARC in the Office of the Register of Deeds of Dare County.

3. Subdivision or Re-subdivision of Lots. No lot shall be subdivided or re-subdivided to create an additional lot or lots. There may be added to or combined with any lot, however, as shown on the recorded plat, all or a portion of another lot or lots to produce a larger building site and in such event, any boundary lines (as well as any boundary line changes within the subdivision for any reason) shall require the written consent of the Declarant or its successors in interest. When one owner acquires two or more adjoining lots or a portion of a lot contiguous with a whole platted lot, then in that event, the adjoining one or more lots or a portion thereof may be used as one building site, which event the side line easements and set backs referred to herein shall apply to the outside perimeter of the property line of the combined lots acquired by said property owner.

4. Setbacks and Building Lines. The front, rear and side set backs of each lot, and the maximum height of any structure built or placed upon any lot, shall be the same as the front, rear, side set back and height standards of the town of Nags Head, North Carolina in effect at the time the plans and specifications are submitted to the ARC for approval. However, uncovered porches, decks and stairways,

and upper level overhangs may extend a distance of not more than 3 feet the side and front setbacks as established by the town.

5. Completion of Building. All construction shall be completed within 14 months from the start thereof, provided that the Declarant, its successor in interest or assigns, may extend such time when, in its opinion, the conditions warrant such extension.

6. Utilities and Cable TV. All utilities and cable TV connections and lines must be installed underground when and as underground service is available and at the expense of each individual property owner. The erection of any exposed antennas shall be done only with the approval of the Declarant. As long as cable service is available, no exposed antenna shall be erected on or used on any of the subdivision lots.

7. Temporary Structures. No temporary structures, such as a trailer, mobile home, tent or shack, shall be constructed or placed upon any lot before, during, or after completion of construction of any buildings and structures except for such structures as are normally used by construction contractors during the period of construction. Such temporary structures shall be promptly removed after completion of construction and may not be used as residences while on the property.

8. Occupancy. No single family residence erected upon any lot shall be occupied in any manner prior to its completion of construction.

9. Signs. Except as herein provided, no signs except "For Sale", "For Rent", and signs giving the name of the house or owner, shall be erected on any lot. The Declarant shall not be prevented from erecting such signs as may be deemed necessary to the operation of the subdivision or the normal conduct of its business, and signs of general contractors and construction lenders may be erected during construction and must be removed prior to obtaining an occupancy permit. The Declarant, its successors or assigns, may enter upon the lot of any owner and remove any sign violating these covenants and such entry shall not be deemed a trespass. The sign so removed may be left on the lot to be removed from the premises or destroyed by either the lot owner or the sign owner.

10. Pets. No animals of any kind shall be kept, raised or bred on any lot, except a reasonable number of the usual household domestic pets such as dogs or cats, provided that such pets shall not be kept, raised or bred for commercial purposes and provided that all pets are under the control of their owner.

11. Nuisances. It shall be the responsibility of each lot owner to maintain the exterior of their residence and the surrounding grounds of his lot in a clean, tidy and safe manner and shall prevent waste from occurring to any structure on his lot. In the event of destruction or other casualty to the building or structure, the premises shall be cleared and debris removed therefrom by the owner of the lot within 90 days from the date of such casualty.

(a) No lot shall be used, in whole or in part, for the storage of anything which might cause such

lot to appear cluttered, unclean or obnoxious to the eye; nor shall substance, thing or material be kept on any lot that might emit foul or obnoxious odor, noises or other conditions that will or may disturb the serenity, safety or comfort of the occupants of surrounding property. No noxious or offensive activity shall be carried on upon any lot, nor shall anything be done thereon tending to create a nuisance to the neighborhood.

(b) After construction has commenced, the property owner and his builder shall keep the lot clean and neat in appearance. A trash and rubbish container at least 8 feet wide and 8 feet long shall be maintained during construction. All construction trash and debris shall be placed in the trash container and removed from the premises by the owner or the contractor. The burning of trash and rubbish is expressly prohibited. No structure, including the residential building, shall be occupied until all construction trash, rubbish, debris and the trash container have been removed from the premises.

(c) No junk, wrecks or inoperative automobiles, trucks, buses or boats shall be permitted to remain on the property unless, otherwise permitted by this declaration nor shall unsightly material be stored thereon. Owners of unoccupied lots shall at all times keep and maintain their property in an orderly manner and prevent the accumulation of rubbish and debris upon the premises. Lot owners shall prune overgrown shrubs and prevent grass or weeds from exceeding a height of 12 inches above the ground surface.

12. Basements for Utilities, Drainage and Cablevision. The Declarant, on behalf of itself and/or such utility companies that may service the subdivision from time to time, and the cablevision companies, reserve a perpetual right, privilege and easement ten (10) feet wide along the front and five (5) feet along the rear and side lot lines of each lot to construct, maintain, and operate in, upon, across and through such easement in a proper and workmanlike manner, electric, cablevision, telephone, gas, sewer, water, drainage and other conveniences and utilities and appurtenances necessary or convenient thereto together with the right at all times to enter upon the said easement with men and equipment for the purpose of inspecting, altering and repairing the same. The Declarant reserves the right to maintain or otherwise keep clear any obstructions that may adversely affect the proper maintenance and operation of the various utility systems and further reserves a perpetual right to enter upon any lot for the purpose of constructing or maintaining emergency drainage ways for the benefit, health and safety of the neighboring residents. These reservations, however, shall not be considered an obligation of the Declarant to provide or maintain any such utilities, services or easements. It is further provided that where any two or more lots are in common ownership and used as one building site, the easements reserved herein shall be located upon the outside perimeter of the lots only.

13. Duration of Covenants. These restrictions shall be binding on the land and all parties

owning same or in possession thereof for a period of twenty (20) years from the date hereof and shall be extended for successive periods of ten (10) years thereafter, unless, prior to the expiration of the initial twenty year period or any such ten year period thereafter, an instrument signed by the owners of record of the majority in interest of the lots in the subdivision and any subsequent phases subject thereto has been recorded revoking or modifying said restrictive covenants. Any subsequent land subjected to this declaration by an amendment hereto shall continue subject thereto for the remainder of the current term of these covenants and shall be extended on the same date as provided herein unless modified or rescinded one of the majority in interest of all owners in any subsequent phase or lands upon which these covenants (and as the same may be amended) have been imposed.

14. **Modification of Covenants.** As long as the Declarant owns two or more of the lots shown on the aforesaid plats or amendments thereto, the Declarant, its successors or assigns, reserves the right to alter, amend, modify, change or eliminate any or all of the covenants contained herein.

15. **Enforcement of Covenants.** If the owner of such lots or any of them, or their heirs or assigns, shall violate any of the covenants hereinbefore set out, it shall be lawful for any other lot owner to institute legal proceedings against the owner or owners violating any of such covenants, either to prevent him from so doing or to recover damages for such violation or both. Except as herein set forth in paragraph 2, the failure to enforce any right, reservation, restriction, or condition contained, shall not be deemed a waiver of the right to do so hereafter, as to the same breach or as to a breach occurring prior to subsequent thereto and shall not bar or affect its enforcement.

In the event Declarant, its successors or assigns, employs counsel to enforce any of the foregoing covenants by reason of violation of said covenants, all costs incurred in such enforcement, including reasonable attorney's fees, shall be paid by the owner of such lot or lots and the Declarant, its successors or assigns, shall have a lien upon such lot or lots to secure the payment of all such accounts, which lien may be enforced by civil action in the nature of a suit to foreclose a lien of a deed of trust.

Invalidation of any of these covenants by judicial decree shall in no way affect any of the other provisions, which shall remain in full force and effect.

IN WITNESS WHEREOF, Nags Head Construction & Development, Inc. a North Carolina corporation, Declarant, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

NAGS HEAD CONSTRUCTION & DEVELOPMENT, INC.

William H. Norman, President

I, _____, a Notary Public of the County and State aforesaid, do hereby

certify that William H. Norman personally came before me this day and acknowledged that he is President of Nags Head Construction and Development, Inc. a North Carolina corporation, and acknowledged on behalf of Nags Head Construction and Development, Inc., the due execution of the foregoing instrument. Witnessed by my hand and seal, this _____ day of _____, 2019.

My Commission Expires: _____

DRAFT



TOWN OF NAGS HEAD
SUBDIVISION PLAT REVIEW CHECKLIST

DATE RECEIVED _____
Amount Due _____

1. NAME OF PROPOSED SUBDIVISION Southridge Subdivision
PHASE SECTION NO: VI MAJOR MINOR ZONING DISTRICT R2 Medium Density
LOCATION OF PARCEL 300' South of the intersection of Croatan Highway and Soundside Road
MAP BOOK/CABINET DB 1266 PG 271 PAGE.SLIDE NUMBER PC E SL 360
DISTANCE TO NEAREST STREET ADJACENT NAME OF STREET CROATAN HIGHWAY (US 158)
PLAT PREPARER'S NAME QUIBLE & ASSOCIATES, P.C.
ADDRESS 8466 CARATOKE HIGHWAY POWELLS POINT, NC 27966
PHONE # (252) 491-8147

2. NAME OF OWNER NAGS HEAD CONSTRUCTION AND DEVELOPMENT, INC.
ADDRESS P.O. BOX 16472 CHESAPEAKE, VA 23328
PHONE # (757) 652-5012 AL NORMAN
CONTACT OWNER C/O VIKING MANAGEMENT, INC.
ADDRESS P.O. BOX 16472 CHESAPEAKE, VA 23328
PHONE # (757)306-9620

APPLICANT CERTIFICATION AND STANDING
As applicant of standing of the above-mentioned subdivision, I certify that the information on this checklist and the subdivision plat is complete and accurate.

Alfred L. Norman
SIGNATURE OF OWNER

THIS SUBDIVISION COVERS ONLY PART OF TRACT, THEREFORE, I ATTACH A MAP OF THE WHOLE TRACT SHOWING CONTEXT OF PRESENT SUBDIVISION SECTION. YES NO

3. CONTACT PERSON ALFRED L. NORMAN
ADDRESS P.O. BOX 16472 CHESAPEAKE, VA 23328
PHONE # (757) 652-5012

4. INDICATE BY CHECK (✓) ATTACHMENTS SUBMITTED AS SUPPORTING DOCUMENTS.		PREPARER	PHONE #
a.	<input checked="" type="checkbox"/> STORM MANAGEMENT PLAN	<u>QUIBLE & ASSOCIATES, P.C.</u>	<u>(252) 491-8147</u>
b.	<input checked="" type="checkbox"/> SOIL EROSION AND SEDIMENTATION CONTROL	<u>*QUIBLE & ASSOCIATES, P.C.</u>	<u>(252) 491-8147</u>
c.	<input checked="" type="checkbox"/> WATER LINE PLAN	<u>QUIBLE & ASSOCIATES, P.C.</u>	<u>(252) 491-8147</u>
d.	<input checked="" type="checkbox"/> STREET PLAN	<u>QUIBLE & ASSOCIATES, P.C.</u>	<u>(252) 491-8147</u>
e.	<input checked="" type="checkbox"/> STREET LIGHTING PLAN	<u>QUIBLE & ASSOCIATES, P.C.</u>	<u>(252) 491-8147</u>
f.	<input checked="" type="checkbox"/> COVENANTS/DEED RESTRICTIONS	<u>JAMES GILREATH JR</u>	<u>(252) 480-1414</u>
g.	<input type="checkbox"/> MAP OF WHOLE TRACT (IF LARGER THAN SUBDIVISION SUBMITTED)	<u>N/A</u>	

FIVE (5) COPIES TO BE SUBMITTED FOR STAFF REVIEW; TWELVE (12) COPIES FOR FORMAL REVIEW.
*PROPOSED INFILTRATION BASINS TO ACT AS EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.