NOTES

1. CURRENT ZONING IS SINGLE FAMILY "A" (SRA) ZONING DISTRICT.

	REQUIRED	PROVIDED
MIN. LOT SIZE:	1.0 ACRE	1.0 ACRE
MIN. LOT FRONTAGE:	150'	150'
MIN. BUILDING SETBACKS:		
FRONT	30'	TBD
SIDE	20'	TBD
REAR	40'	TBD
MIN. LOT DEPTH:	200'	200'
MAX. LOT COVERAGE:	50%	TBD

CONCEPTUAL S/D PLAN

TAX MAP 256 LOT 2

THE VILLAGE AT BANFIELD WOODS

PORTSMOUTH, NH

OWNED BY

WALTER D HETT TRUST

PREPARED FOR

GREEN & COMPANY REAL ESTATE

1"=200' (11"X17")

SCALE: 1"=100' (22"X34") **AUGUST 25, 2020**

REV.	DATE	DESCRIPTION	DR	CK

TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

48 Constitution Drive
Bedford, NH 03110
Phone (603) 472-4488
Fax (603) 472-9747
www.tfmoran.com

FILE	47361.00	DR	MSK	FB	
		CK	JAH	CADFILE	

Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

Memorandum

To:	Portsmouth Planning Board
From:	Corey Colwell, TFMoran, Inc
Date:	September 8, 2020
Subject:	The Village at Banfield Woods Article 7, Section 10.727.30 of the Portsmouth Zoning Ordinance Planning Board findings relative to a Planned Unit Development

In accordance with the above reference section, prior to granting a conditional use permit for a Planned Unit Development (PUD), the planning board shall make the following findings:

10.727.311 The site is appropriate for an Open Space - Planned Unit Development (OS-PUD) and 10.727.312 The anticipated impacts of the proposed PUD on traffic, market values, stormwater runoff, or environmental factors will not be more detrimental to the surrounding area than the impacts of a conventional residential development of the site.

10.727.311 - This site is appropriate for an OS-PUD. The site is 44.89 acres in size, completely vegetated, and contains 1,730' of frontage along Banfield Road. The site is bounded on the east by the Temple of Israel Cemetery, on the northeast by conservation land, on the north by a large undeveloped wooded parcel, and on the west by the Swiftwater Girl Scout Council which is mostly undeveloped and vegetated. There are 25.5 acres of upland on the site and 19.3 acres of wetland. Three wildlife studies completed on this property indicate some presence of wildlife, however, most signs of wildlife appear on the property to the north.

An OS-PUD allows us to cluster the residential dwelling units to preserve the sites natural features and to create open space to be protected by a conservation easement. This OS-PUD, when compared to a conventional subdivision, will reduce wetland and buffer impact, reduce impervious area, minimize impacts to wildlife, reduce roadway impact and stormwater runoff, and reduce traffic. For these reasons, the site is well suited and appropriate for an OS-PUD.

10.727.312 - The anticipated impacts of this OS-PUD on traffic, market values, stormwater runoff, and environmental factors are less than the impacts of a conventional subdivision. Each factor listed above and their impact by both an OS-PUD and conventional subdivision is further described as follows:

Traffic

A traffic memorandum has been prepared by Stephen G Pernaw, P.E. and is attached here for reference. The memorandum shows that a condominium unit, which are proposed within this PUD, have 15%-43% fewer vehicle trips than a single-family home, depending upon the day of week and hour of day. According to the Institute of Transportation Engineers, “Single family detached units had the highest trip generation rate per dwelling units of all residential uses because they were the largest units in size and had more residents and more vehicles per unit than any other residential land uses.” Condominium units tend to generate fewer trips than conventional single-family homes as these are typically smaller in gross floor area and family size. In similar developments completed by the applicant, these condominium units typically attract the empty nester market and have 1-2 residents per unit where a conventional single-family home averages 3.5 residents per unit. A conventional subdivision would generate more traffic than an OS-PUD.

Market Values

The property containing this proposed OS-PUD is zoned Single Residence A, however, there are few residentially owned properties in the area. The property to the east is the Temple of Israel Cemetery and conservation land, property to the north is undeveloped, property to the west is the Swiftwater Girl Scout Council, and the property across the street is zoned and utilized as industrial land. The new homes proposed within this OS-PUD will be of equal or greater value than the existing older homes to the west and across Banfield road. These new homes will have no impact on the value of the industrial property across the street, or the abutting undeveloped lots. This OS-PUD will not diminish any surrounding property values. The anticipated difference in market value for the condominium units within this OS-PUD versus the market values of a conventional residential development are negligible.

Stormwater Runoff

A conventional subdivision on this property would generate considerably more stormwater runoff than an OS-PUD.

A conventional subdivision would require a 32’ paved roadway, approximately 1800’ in length with individual driveways. Since an OS-PUD allows us to utilize a private roadway, the width can be reduced to 20’ and clustering the homes allows us to reduce the length to 900’. A conventional subdivision would require individual lots owned in fee by several different owners; therefore, each lot would have its own driveway. The OS-PUD remains as one lot allowing common driveways serving more than one unit. The reduction in driveways also reduces impervious area which reduces stormwater runoff.

Tree clearing for a conventional subdivision would require clearing 26% of the lot. An OS-PUD allows us to reduce tree clearing to 16% of the lot. This 10% decrease in the tree clearing for an OS-PUD amounts to 5 acres. The increase in road width, road length, number of driveways, and area to be cleared for a conventional subdivision generates much more stormwater runoff than the OS-PUD proposed on this property.

Environmental Factors

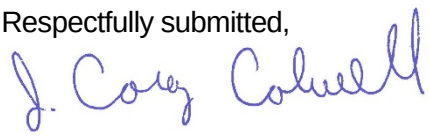
By clustering the homes, reducing roadway width and length, and implementing common driveways, we are able to reduce wetland and buffer impact, stormwater runoff, tree clearing, and traffic and wildlife impact. The OS-PUD also allows us to preserve 37 of the 45 acres of this property in the form of a conservation easement. Below is a table that compares the impacts of an OS-PUD and a conventional subdivision.

	OS-PUD	Conventional
Buffer Impact	14,400 sq. ft.	30,200 sq. ft.
Wetland Impact	3,828 sq. ft.	18,200 sq. ft.
Roadway Length	900’	1,880
Roadway Width	20’	32’
Open Space	37 acres	32 acres
Traffic	7.2 trips/day/unit	9.2 trips per day/unit

The wetlands on this property are 19.3 acres in size. With a conventional subdivision, these wetlands and adjacent buffers would be owned by many different owners. The OS-PUD allows the condominium form of ownership; therefore, the wetlands and adjacent buffers would be owned by the Condominium Association or one owner. One owner of all the undeveloped land allows us to preserve it in the form of a conservation easement.

In summary, and for the reasons stated above, it is our professional opinion, that the anticipated impacts of this proposed PUD on traffic, market values, stormwater runoff, or environmental factors will be less detrimental to the surrounding area than the impacts of a conventional residential development of this site.

Respectfully submitted,



Corey Colwell
Division Manager / Principal

TFMoran, Inc.

JCC/alb

Stephen G. Pernaw & Company, Inc.

P.O. Box 1721 • Concord, NH 03302
tel: (603) 731-8500 • fax: (866) 929-6094 • sgp@ pernaw.com

Transportation: Engineering • Planning • Design

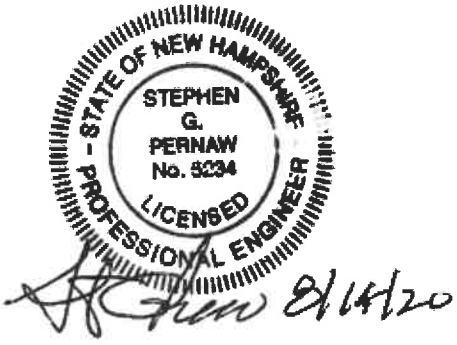
MEMORANDUM

Ref: 1939A

To: Michael Green
Green & Company

From: Stephen G. Pernaw, P.E., PTOE

Subject: Proposed Residential Development
Portsmouth, New Hampshire



Date: August 14, 2020

Thank you for your recent inquiry regarding residential trip generation rates. The purpose of this memorandum is to compare the trip generating characteristics of a single-family home vs. a residential condominium unit. The following table summarizes the trip rates contained in the latest edition of the *"Trip Generation Manual"* published by the Institute of Transportation Engineers[1] (ITE). Land Use Code 210 covers single-family homes and Land Use Code 220 includes apartments, townhouses and condominiums.

	Trips per Dwelling Unit		
	Single-Family Home	Condominium Unit	Conclusion
Weekday (24 hours)	9.44	7.32	-22% less traffic with condominium
AM Peak Hour	0.74	0.46	-38% less traffic with condominium
PM Peak Hour	0.99	0.56	**-43% less traffic with condominium**
Saturday (24 hours)	9.54	8.14	**-15% less traffic with condominium**
Sat. Peak Hour	0.93	0.70	-25% less traffic with condominium
Sunday (24 hours)	8.55	6.28	-27% less traffic with condominium
Sun. Peak Hour	0.85	0.67	-21% less traffic with condominium

[1] ITE Land Use Code 210 - Single-Family Detached Housing (average trip rate)
[2] ITE Land Use Code 220 - Multifamily Housing (Low-Rise) (average trip rate)

The above numbers demonstrate that a condominium unit generates -15% to -43% fewer vehicle-trips than a single-family home, depending upon day of week and hour of day. Condominium units tend to generate fewer trips than single-family homes as they are smaller in size (gross floor area) and family size. According to ITE, *"Single-family detached units had the highest trip generation rate per dwelling unit of all residential uses because they were largest units in size and had more residents and more vehicles per unit than other residential land uses."* As an aside, analysis of the ITE data suggests that single-family homes average approximately 3.5 residents per unit, whereas condominiums average 2.7 residents per unit. It is our understanding that Green & Company experience averages 1-2 persons per condominium unit here in New Hampshire.

[1] Institute of Transportation Engineers, *Trip Generation*, 10th Edition (Washington, D.C., 2017)

Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

Memorandum

To:	Portsmouth Planning Board
From:	Corey Colwell, TFMoran, Inc
Date:	September 8, 2020
Subject:	The Village at Banfield Woods Article 7, Section 10.725.40 of the Portsmouth Zoning Ordinance Planning Board findings relative to a Planned Unit Development

In accordance with the above referenced section of the Portsmouth Zoning Ordinance, below is a summary of calculations demonstrating compliance with this section.

10.725.41 A minimum of 25 percent of the total site area shall be permanently dedicated for common open space.

Total Site Area	1,955,150 sq. ft.	44.884 acres
Open Space Area	490,718 sq. ft.	11.265 acres

$$\frac{490{,}718 \text{ sq. ft.}}{1{,}955{,}150 \text{ sq. ft.}} = 25\%$$

10.725.42 The percentage of the minimum required open space that is developable area shall not be less than the percentage of developable area in the OS-PUD as a whole.

The developable area of open space is total area less open water bodies, wetlands, 100 year flood plains, slopes exceeding 15% and areas subject to existing valid open space restrictions. (There are no open water bodies, 100-year flood plains, slopes exceeding 15% or open space restrictions within the common open space.)

Total Area		**Wetlands**		**Developable Area**
490,718 sq. ft	less	167,834 sq. ft.	=	322,884 sq. ft.

$$\frac{322{,}884 \text{ sq. ft.}}{490{,}718 \text{ sq. ft.}} = 65.8\%$$

65.8% of the permanently dedicated open space area is developable.

TFMoran, Inc.
48 Constitution Drive, Bedford, NH 03110
T(603) 472-4488 www.tfmoran.com

TFMoran, Inc. Seacoast Division
170 Commerce Way–Suite 102, Portsmouth, NH 03801
T(603) 431-2222

The percentage of developable area in the OS-PUD is calculated as follows:

OSPUD total area	1,955,150 sq. ft.
Less wetlands	826,432 sq. ft.
Less steep slopes	95,964 sq. ft.
Developable Area	1,032,754 sq. ft.

% of Developable Area $\frac{\text{1,032,754 sq. ft.}}{\text{1,955,150 sq. ft.}} = 52.8\%$

52.8% of the OS-PUD is developable.

Summary

The percentage of the minimum required permanently dedicated open space that is developable is 65.8%.

The percentage of the developable area in the OS-PUD as a whole is 52.8%.

The above number demonstrates that the open space set aside by the developer exceeds the required developable percentage for compliance with **Section 10.725.42** of the **Portsmouth Zoning Ordinance**.

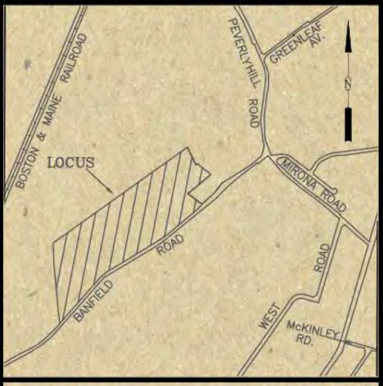
CITY OF PORTSMOUTH PLANNING BOARD

CHAIRPERSON DATE

LIMITED COMMON AREA:

LCA 1	8,233 S.F.
LCA 2	7,546 S.F.
LCA 3	10,802 S.F.
LCA 4	12,396 S.F.
LCA 5	12,587 S.F.
LCA 6	7,108 S.F.
LCA 7	13,804 S.F.
LCA 8	11,038 S.F.
LCA 9	13,443 S.F.
LCA 10	11,519 S.F.
LCA 11	15,355 S.F.
LCA 12	12,627 S.F.
LCA 13	10,714 S.F.
LCA 14	14,387 S.F.
LCA 15	18,120 S.F.
LCA 16	12,304 S.F.
LCA 17	15,553 S.F.
LCA 18	11,591 S.F.
LCA 19	7,470 S.F.
LCA 20	9,772 S.F.
LCA 21	15,200 S.F.
LCA 22	13,160 S.F.

LINE	BEARING	DISTANCE
L1	N 14°03'49" W	163.61'
L2	N 62°46'56" E	140.17'
L3	N 60°47'10" E	74.31'
L4	N 61°20'44" E	105.56'
L5	N 60°58'42" E	115.75'
L6	S 40°08'01" E	22.98'
L7	S 48°30'23" E	159.80'
L8	S 45°44'06" E	110.28'
L9	S 58°19'16" W	135.27'
L10	S 53°23'55" W	154.49'
L11	S 51°04'17" W	145.81'
L12	S 46°41'16" W	83.08'
L13	S 48°05'39" W	99.00'
L14	S 52°42'36" W	173.00'
L15	S 57°03'44" W	173.81'
L16	S 60°20'11" W	108.27'
L17	S 57°50'14" W	143.89'
L18	S 59°00'53" W	162.66'
L19	S 60°14'59" W	117.96'
L20	S 59°39'51" W	113.08'
L21	S 58°23'21" W	76.30'



LOCATION PLAN

NOTES:

1. THE PARCEL IS LOCATED IN THE SINGLE RESIDENCE A (SRA) ZONING DISTRICT.
2. THE PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 256 AS LOT 2.
3. THE PARCEL IS LOCATED IN ZONE X AS SHOWN ON NATIONAL FLOOD INSURANCE PROGRAM (NFIP), FLOOD INSURANCE RATE MAP (FIRM) ROCKINGHAM COUNTY, NEW HAMPSHIRE, PANEL 270 OF 681, MAP NUMBER 33015C0270E, WITH AN EFFECTIVE DATE OF MAY 17, 2005.
4.

DIMENSIONAL REQUIREMENTS:	REQUIRED:	PROPOSED:
MINIMUM LOT SIZE:	1 ACRE	44.884 ACRES
LOT AREA PER DWELLING UNIT:	1 ACRE	N/A
CONTINUOUS STREET FRONTAGE:	150'	1,730'
LOT DEPTH:	200'	876'
MINIMUM YARD DIMENSIONS:		
FRONT:	30'	254'
SIDE:	20'	53'
REAR:	40'	89.9'
MAXIMUM STRUCTURE DIMENSIONS:		
STRUCTURE HEIGHT:	35'(SLOPED ROOF) 30'(FLAT ROOF)	
BUILDING COVERAGE:	10%	2.12%
MINIMUM OPEN SPACE:	50%	94.67%

PER THE CITY OF PORTSMOUTH ZONING ORDINANCE SECTION 10.520.

OPEN SPACE RESIDENTIAL PUD (OS-PUD)	REQUIRED:	PROPOSED:
MINIMUM LOT AREA:	10 ACRES	44.884 ACRES
MINIMUM STREET FRONTAGE:	100'	1,730'
MINIMUM EXTERNAL YARDS:		
FRONT:	100'	254'
SIDE & REAR:	50'	53.0'; 89.9'
MINIMUM INTERNAL YARDS:		
FRONT:	20'	20.9'
SIDE & REAR:	25'	53.0'; 89.9'
MINIMUM SEPARATION BETWEEN STRUCTURES:	30'	31.0'
MINIMUM OPEN SPACE:	25%	94.67%

PER THE CITY OF PORTSMOUTH ZONING ORDINANCE SECTION 10.725

5. OWNER OF RECORD:
MAP 256 LOT 2:
THE WALTER D. HETT TRUST
WALTER D. HETT, TRUSTEE
334 HUDSON ROAD
STOW, MA 01775
RCRD BK.#4553 PG.#432
6.

TOTAL PARCEL AREA: MAP 256 LOT 2:	SUBMITTED AREA:	COMMON AREA:
1,955,150 S.F. (44.884 ACRES)	1,955,150 S.F. (44.884 ACRES)	1,955,150 S.F. (44.884 ACRES)

7. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH THE CURRENT LEGAL DESCRIPTIONS. IT IS NOT AN ATTEMPT TO DEFINE THE EXTENT OF OWNERSHIP OR DEFINE THE LIMITS OF TITLE.
8. THE PURPOSE OF THIS PLAN IS TO DEPICT THE COMMON AREAS AND LIMITED COMMON AREAS ASSOCIATED WITH THE OPEN SPACE PLANNED UNIT DEVELOPMENT OF MAP 256 LOT 2. CONSTRUCTION OF UNITS NOT YET BEGUN. THE FINAL METES AND BOUNDS OF THE UNITS AND THEIR ASSIGNED LIMITED COMMON AREAS SHALL BE DETERMINED BY AS-BUILT PLANS WITH AN AMENDED CONDOMINIUM SITE PLAN TO BE RECORDED UPON COMPLETION OF EACH UNIT.
9. THESE UNITS ARE FOR RESIDENTIAL USE ONLY.
10. FIELD SURVEY COMPLETED BY TCE AND EJS IN MAY & JUNE 2019 USING A TOPCON DS103 AND A TOPCON FC-5000 DATA COLLECTOR.
11. HORIZONTAL DATUM IS NAD83 (2011) PER STATIC GPS OBSERVATIONS.
12. EASEMENTS, RIGHTS, AND RESTRICTIONS SHOWN OR IDENTIFIED ARE THOSE WHICH WERE FOUND DURING RESEARCH PERFORMED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS. OTHER RIGHTS, EASEMENTS, OR RESTRICTIONS MAY EXIST WHICH A TITLE EXAMINATION OF SUBJECT PARCEL(S) WOULD DETERMINE.
13. WETLAND DELINEATION WAS COMPLETED BY GOVE ENVIRONMENTAL SERVICES IN MAY, 2019 IN ACCORDANCE WITH THE 1987 ARMY CORP OF ENGINEERS WETLAND MANUAL AND THE 2012 REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION. FIELD LOCATED BY TFMORAN, INC.
14. THE LOCATION OF ANY UNDERGROUND UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. TFMORAN, INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UNDERGROUND UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR SHALL CONTACT DIG SAFE.
15. THE UNITS SHOWN HEREON ARE TO BE SERVED BY THE CITY OF PORTSMOUTH PUBLIC WATER SUPPLY. AN EASEMENT SHALL BE GRANTED TO THE CITY OF PORTSMOUTH TO ALLOW WATER DEPARTMENT PERSONNEL ACCESS TO VALVES, HYDRANTS AND METERS FOR LEAK DETECTION, METERING AND MAINTENANCE.

PLAN REFERENCES:

1. "SUBDIVISION PLAN FOR WALTER D. HETT & THE TEMPLE OF ISRAEL BANFIELD ROAD COUNTY OF ROCKINGHAM PORTSMOUTH, NH", BY MILLETTE, SPRAGUE, AND COLWELL, INC. DATED JUNE 25, 1999 WITH REVISION 3 DATED 12/02/99. RCRD PLAN D-27695.
2. "PROPERTY OF SWIFTWATER GIRL SCOUT COUNCIL, CITY OF PORTSMOUTH" BY JON MOORE DATED AUGUST 1972. RCRD PLAN D-3206

I HEREBY CERTIFY THAT THIS PLAN IS ACCURATE AND COMPLIES WITH NHRSA 356-B:20(I). ALL UNITS OR PORTIONS THEREOF DEPICTED ON ANY PORTION OF THE SUBMITTED LAND OTHER THAN WITHIN THE BOUNDARIES OF ANY CONVERTIBLE LAND HAVE NOT YET BEGUN.

I CERTIFY THAT THIS SURVEY AND PLAN WERE PREPARED BY ME OR BY THOSE UNDER MY DIRECT SUPERVISION. THIS SURVEY IS AN URBAN SURVEY AS CLASSIFIED IN THE NH CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS. I CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THE TRAVERSE WAS COMPLETED BY TOTAL STATION, WITH A PRECISION GREATER THAN 1:15,000.

LICENSED LAND SURVEYOR DATE

LEGEND:

MAP 254 LOT 1	ASSESOR'S MAP NUMBER/ LOT NUMBER
AG	ABOVE GRADE
BG	BELOW GRADE
BK./PG.	BOOK/PAGE
NRP	NATURAL RESOURCE PROTECTION
I	INDUSTRIAL
LCA	LIMITED COMMON AREA
MONTBS	MONUMENT TO BE SET
N/F	NOW OR FORMERLY
PSF	PROPOSED SEPTIC FIELD
PUD	PLANNED UNIT DEVELOPMENT
R	RURAL
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
SRA	SINGLE RESIDENCE A
S.F.	SQUARE FEET
	BOULDER
	PROPERTY LINE
	CHAINLINK FENCE
	STONEWALL
	WETLAND SETBACK
	EDGE OF WETLAND
	PAVEMENT
	100' WIDE ELECTRIC EASEMENT
	WETLANDS
	12' RIGHT OF WAY
	COMMON OPEN SPACE
	PROPOSED SEPTIC FIELD

100 50 0 100
Graphic Scale in Feet

REV.	DATE	DESCRIPTION	DR	CK
2	5/5/2020	REVISED LCA BOUNDARIES	BMK	JCC
1	3/23/2020	REVISED LCA BOUNDARIES, ADDED NOTE 15	IID	BMK

DIG SAFE
MA ME NH RI VT
CALL 811 TOLL FREE
UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

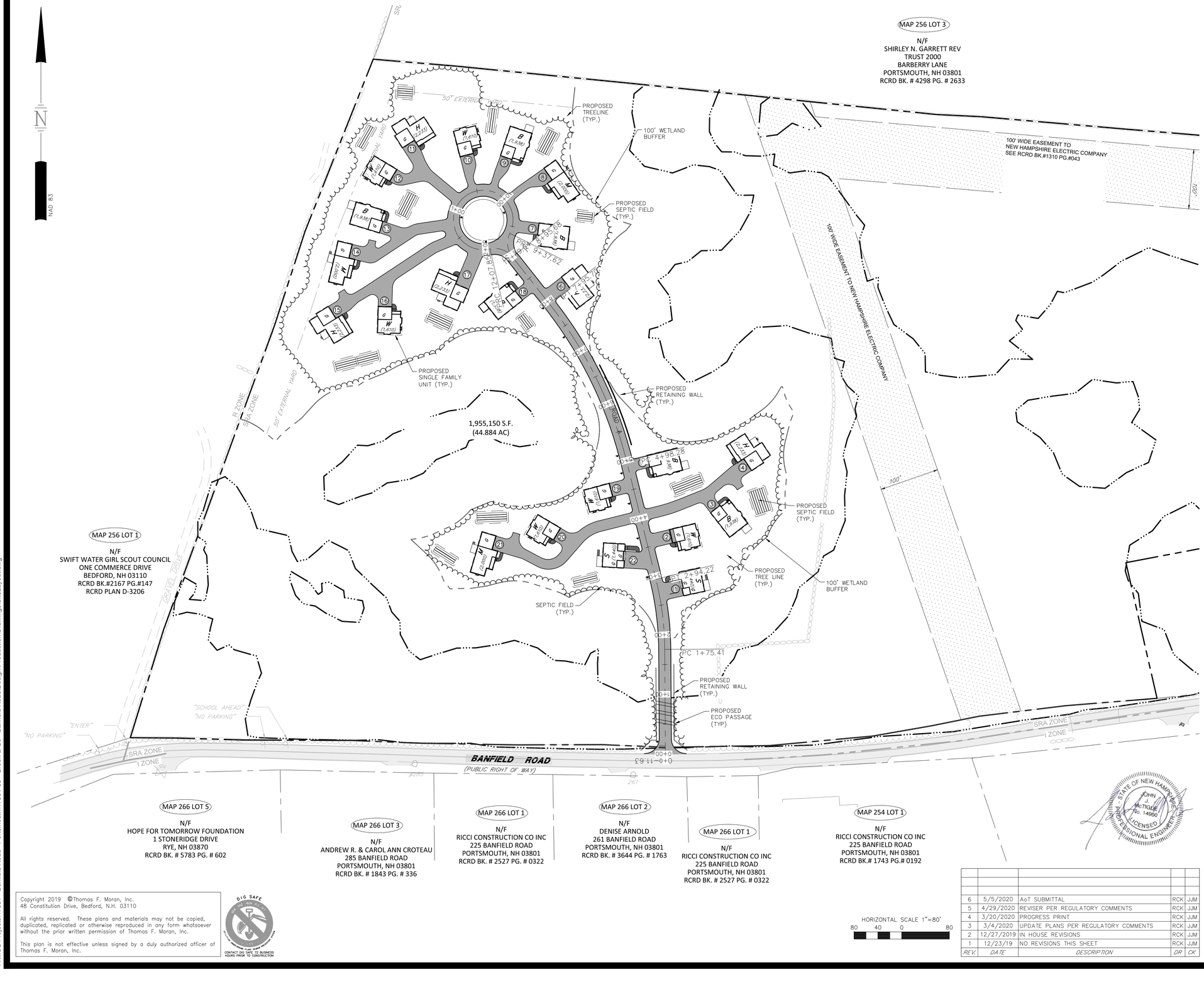
TFM MSC
A division of TFMoran, Inc.
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431-2222
Fax (603) 431-0910
www.tfmoran.com

FILE	DR	EJS	FB	559	
47361-00	CK	BMK	CADFILE		S-03

TAX MAP 256 LOT 2
CONDOMINIUM SITE PLAN
BANFIELD ROAD
PORTSMOUTH, NEW HAMPSHIRE
COUNTY OF ROCKINGHAM
OWNED BY
THE WALTER D. HETT TRUST
PREPARED FOR
GREEN & COMPANY REAL ESTATE

SCALE: 1" = 100' (22x34) 1" = 200' (11x17) **DECEMBER 23, 2019**

Jul 10, 2020 - 9:12am
F:\MSC Projects\47361 - Banfield Road - Portsmouth\47361-00 - Green & Co - Banfield Road\Carlson Survey\Dwgs\47361-00 Survey for Color.dwg



SITE DATA

OWNER OF RECORD OF MAP 256 LOT 02: HETT MAUD REVOCABLE TRUST,
334 HUDSON ROAD, STOW, MA 01775
DEED REFERNCE TO PARCEL IS BK 4553 PG 0432
AREA OF PARCEL = 1,955,150± SF OR 44.88± ACRES

ZONED: SINGLE RESIDENCE A (SRA)
EXISTING USE: N/A
PROPOSED USE: SINGLE FAMILY CONDOMINIUM UNITS

THE PURPOSE OF THIS PLAN IS TO DEPICT A DEVELOPMENT OF 22 SINGLE FAMILY CONDOMINIUM UNITS WITH ASSOCIATED ROADWAY, UTILITIES, AND SITE IMPROVEMENTS.

DENSITY CALCULATIONS:
TOTAL LOT AREA: 44.88 ACRES
WETLAND AREA: 18.97 ACRES
STEEP SLOPES OVER 15%: 2.20 ACRES
TOTAL DEVELOPABLE AREA: 23.71 ACRES (REMAINING LAND IS WETLANDS AND STEEP SLOPES OVER 15%)
MAXIMUM UNITS FOR DEVELOPMENT: 23 SINGLE FAMILY HOUSES
PROPOSED UNITS FOR OPEN SPACE PLANNED UNIT DEVELOPMENT: 22 THREE (3) BEDROOM UNITS

PARKING CALCULATIONS:
REQUIRED: 1.3 SPACES/UNIT PLUS ONE (1) VISITOR SPACE FOR EVERY 5 DWELLING UNITS.
TOTAL REQUIRED = 33 SPACES

PROPOSED: 88 SPACES (2 GARAGED SPACES PER UNIT, PLUS 44 SPACES ON PRIVATE DRIVEWAYS)

EFFECTIVE IMPERVIOUS SURFACE CALCULATIONS:
IMPERVIOUS AREA/TOTAL LOT AREA = 101,920 SF/1,955,150 SF = 0.0521
TOTAL EFFECTIVE IMPERVIOUS SURFACE = 5.21%

NOTES

1. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS NOTED OTHERWISE.
2. SEE GENERAL NOTES ON NOTES & LEGEND SHEET (C-01).
3. LIGHTING, SIGNAGE, LANDSCAPING, AND SCREENING SHALL MEET THE REQUIREMENTS OF THE CITY ZONING ORDINANCE AND SITE PLAN REGULATIONS.
4. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
5. THE THREE FOOT PANEL ALONG THE EDGE OF THE ROADWAY TO BE USED FOR SNOW STORAGE.
6. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
7. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGED SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.

SIGN LEGEND

ID	SIGN	SIZE (INCHES) WIDTH	SIZE (INCHES) HEIGHT	DESIGN (COLORING, TEXT SIZE, SPACING, SHAPE, RETROFLECTIVITY, ETC.)	NO. OF SIGNS
R1-1	STOP	30	30	REFER TO THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS	1
R713	NO PARKING THIS SIDE OF STREET	12	18	REFER TO THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS	17

SITE DEVELOPMENT PLANS

TAX MAP 256 LOT 2

OVERALL SITE LAYOUT PLAN

THE VILLAGE AT BANFIELD WOODS

PORTSMOUTH, NH

OWNED BY

WALTER D HETT TRUST

PREPARED FOR

GREEN & COMPANY REAL ESTATE

1"=160' (11"X17")

SCALE: 1"=80' (22"X34") **SEPTEMBER 25, 2019**

STATE OF NEW HAMPSHIRE — JOHN J. McTIGUE No. 14960 — LICENSED PROFESSIONAL ENGINEER

HORIZONTAL SCALE 1"=80'
80 40 0 80

REV.	DATE	DESCRIPTION	DR	CK
6	5/5/2020	AoT SUBMITTAL	RCK	JJM
5	4/29/2020	REVISER PER REGULATORY COMMENTS	RCK	JJM
4	3/20/2020	PROGRESS PRINT	RCK	JJM
3	3/4/2020	UPDATE PLANS PER REGULATORY COMMENTS	RCK	JJM
2	12/27/2019	IN HOUSE REVISIONS	RCK	JJM
1	12/23/19	NO REVISIONS THIS SHEET	RCK	JJM

DIG SAFE — CALL NH DIG SAFE 811 — CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
48 Constitution Drive
Bedford, NH 03110
Phone (603) 472-4488
Fax (603) 472-9747
www.tfmoran.com

FILE	DR	CK	FB	CADFILE	–	SITELAYOUT	C-04
47361.00	RCK	JJM					

May 26, 2020 - 11:55am
F:\MSC Projects\47361 - Banfield Road - Portsmouth\47361-00 - Green & Co - Banfield Road\Design\Production Drawings\SiteLayout.dwg

DOCUMENT # 18

The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

May 18, 2020

MAUD HETT REVOCABLE TRUST
WALTER D HETT TTEE
334 HUDSON RD
STOW MA 01775

Re: Wetlands Permit Approval (RSA 482-A)
NHDES File Number: 2020-00344
Subject Property: Banfield Rd, Portsmouth, Tax Map #256, Lot #2

Dear Mr. Hett:

Attached please find Wetlands Permit # 2020-00344 to dredge and fill 2,693 square feet of palustrine forested wetland for access to a buildable upland for a multi-unit residential development. In addition, temporarily impact 1,135 square feet of palustrine wetland for construction and installation.

The decision to approve this project was based on the following findings:

1. This is classified as a minor impact project per Rule Env-Wt 524.06(c)(4), as no component of the residential development project meets the requirements for major impact classification specified in Env-Wt 407, Env-Wt 903, or Chapter 500 Administrative Rules.
2. Per Rule Env-Wt 306.05, the applicant has addressed all of the required planning items that are used to determine the appropriate impact classification of a project and the type of approval required.
3. Per Rule Env-Wt 313.03(a), the applicant has demonstrated that potential impacts to jurisdictional areas have been avoided to the maximum extent practicable and that any unavoidable impacts have been minimized.
4. The applicant has demonstrated specifically that each factor listed in Env-Wt 313.03(b) has been considered in the design of the proposed minor project.
5. The residential development project meets the all of the approval criteria established in Env-Wt 524.02.
6. The project includes uniquely designed wildlife passage to protect and maintain hydrologic connection and existing wildlife-dependent habitat and associated migratory pathways, per Rule Env-Wt 313.03(b) and 524.04(f).
7. Per Rule Env-Wt 313.01(a)(5), and as required by RSA 482-A:11, II, this permit for work to dredge or fill will not 'infringe on the property rights or unreasonably affect the value or enjoyment of property of abutting owners' based on documentation that the proposed dredge and fill activity will be located entirely within the boundary of the applicant's property interest and will not result in any observable change in off-site surface water levels or flows.
8. Per Rule Env-Wt 311.06(h), the municipal conservation commission recommended denial of the proposed project on March 13, 2020. The applicant has addressed all concerns raised relative to the jurisdiction of this review.

9. In correspondence dated March 05, 2020, comments of concern were received by NHDES from the abutting property owner. However, the concerns raised are beyond the scope of jurisdiction of this review.
10. Per Rule Env-Wt 313.01(a)(2), all applicable conditions specified in Env-Wt 307 have been met.
11. Per Rule Env-Wt 313.01(a)(1)(a), the applicant has met the requirements of Env-Wt 311.10 regarding functional assessments.
12. Per Rule Env-Wt 311.01(b), the applicant coordinated with the NH Fish and Game Department (NHF&G) and the Natural Heritage Bureau (NHB) to determine how to avoid and minimize project-related impacts on rare or protected animal species and habitat, and on protected plants or exemplary natural communities.

Any person aggrieved by this decision may appeal to the NH Wetlands Council (the Council) by filing an appeal that meets the requirements specified in RSA 482-A:10, RSA 21-O:14, and the rules adopted by the Council, Env-WtC 100-200. The appeal must be filed **directly with the Council within 30 days** of the date of this decision and must set forth fully **every ground** upon which it is claimed that the decision complained of is unlawful or unreasonable. Only those grounds set forth in the notice of appeal can be considered by the Council.

Information about the Council, including a link to the Council's rules, is available at <http://nhec.nh.gov/> (or more directly at <http://nhec.nh.gov/wetlands/index.htm>.) Copies of the rules also are available from the NHDES Public Information Center at (603) 271-2975.

If you have any questions, please contact the NHDES Wetlands Bureau at (603) 271-2147.

Sincerely,

Stefanie M. Giallongo

Stefanie M. Giallongo
Wetlands Specialist
Land Resources Management, Water Division

cc: Portsmouth Municipal Clerk/Conservation Commission
Brenden Walden, Gove Environmental Services

ec: Ridge Mauck, NHDES Alteration of Terrain Bureau

The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

==========

WETLANDS AND NON-SITE SPECIFIC PERMIT 2020-00344

NOTE CONDITIONS

PERMITTEE: **MAUD HETT REVOCABLE TRUST**
WALTER D HETT TRUSTEE
334 HUDSON RD
STOW MA 01775

PROJECT LOCATION: **BANFIELD RD, PORTSMOUTH**
TAX MAP #256, LOT #2

WATERBODY: **UNNAMED WETLAND**

APPROVAL DATE: **MAY 18, 2020** **EXPIRATION DATE:** **MAY 18, 2025**

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Based upon review of the above referenced application, in accordance with RSA 482-A and RSA 485-A:17, a Wetlands Permit and Non-Site Specific Permit was issued by the New Hampshire Department of Environmental Services (NHDES). This permit shall not be considered valid unless signed as specified below.

PERMIT DESCRIPTION: Dredge and fill 2,693 square feet of palustrine forested wetland for access to a buildable upland for a multi-unit residential development. In addition, temporarily impact 1,135 square feet of palustrine wetland for construction and installation.

THIS APPROVAL IS SUBJECT TO THE FOLLOWING PROJECT SPECIFIC CONDITIONS:

1. All work shall be done in accordance with the approved plans dated September 25, 2019, revised through February 10, 2020 by TFM, Inc., as received by the NH Department of Environmental Services (NHDES) on February 26, 2020, in accordance with Env-Wt 307.16.
2. The permittee shall submit a construction notice with the department at least 48 hours prior to commencing work, in accordance with Env-Wt 524.05(a).
3. Water quality control measures shall be comprised of wildlife-friendly erosion control materials, not to be composed of welded plastic, if erosion control blankets are utilized, in accordance with Env-Wt 307.03(c)(2).
4. Fill shall be clean sand, gravel, rock, or other material that meets the project's specifications for its use; and does not contain any material that could contaminate surface or groundwater or otherwise adversely affect the ecosystem in which it is used, in accordance with Env-Wt 307.11(a).
5. Slopes shall be immediately stabilized by a method specified in Env-Wq 1506 or Env-Wq 1508, as applicable, to prevent erosion into adjacent wetlands or surface waters, in accordance with Env-Wt 307.11(c).
6. Prior to construction, any heavy machinery shall be inspected for and cleaned of all vegetative matter by a method and in a location that prevents the spread of the vegetative matter to jurisdictional areas, in accordance with Env-Wt 307.05(a).
7. To prevent the use of soil or seed stock containing nuisance or invasive species, the contractor responsible for work shall follow Best Management Practices for the Control of Invasive and Noxious Plant Species (Invasive Plant BMPs), in accordance with Env-Wt 307.05(e).
8. Mulch used within an area being restored shall be natural straw or equivalent non-toxic, non-seed-bearing organic material, in accordance with Env-Wt 307.12(d).

9. All work, including management of soil stockpiles, shall be conducted so as to minimize erosion, minimize sediment transfer to surface waters or wetlands, and minimize turbidity in surface waters and wetlands using the techniques described in Env-Wq 1505.02, Env-Wq 1505.04, Env-Wq 1506, and Env-Wq 1508; the applicable BMP manual; or a combination thereof, if the BMP manual provides less protection to jurisdictional areas than the provisions of Env-Wq 1500, in accordance with Env-Wt 307.03(b).
10. Mobile heavy equipment working in wetlands shall not be stored, maintained, or repaired in wetlands, except that repairing or refueling in a wetland is allowed if equipment cannot practicably be removed and secondary containment is provided, in accordance with Env-Wt 307.15(b).
11. The person in charge of construction equipment shall inspect such equipment for leaking fuel, oil, and hydraulic fluid each day prior to entering surface waters or wetlands or operating in an area where such fluids could reach groundwater, surface waters, or wetlands, in accordance with Env-Wt 307.03(g)(1).
12. The person in charge of construction equipment shall maintain oil spill kits and diesel fuel spill kits, as applicable to the type(s) and amount(s) of oil and diesel fuel used, on site so as to be readily accessible at all times during construction; and train each equipment operator in the use of the spill kits, in accordance with Env-Wt 307.03(g)(3) and (4).
13. Wetland areas where permanent impacts are not authorized shall be restored to their pre-impact conditions and elevation by replacing the removed soil and vegetation in their pre-construction location and elevation such that post-construction soil layering and vegetation schemes are as close as practicable to pre-construction conditions, in accordance with Env-Wt 307.12(i).
14. If any temporary impact area that is stabilized with seeding or plantings does not have at least 75% successful establishment of wetlands vegetation after 2 growing seasons, the area shall be replanted or reseeded, as applicable, in accordance with Env-Wt 307.12(f). Restored areas shall not be deemed successful if invaded by nuisance species during the first full growing season following the completion of construction.

GENERAL CONDITIONS THAT APPLY TO ALL NHDES WETLANDS PERMITS:

1. Pursuant to RSA 482-A:12, a copy of the permit shall be posted in a secure manner in a prominent place at the site of the approved project.
2. In accordance with Env-Wt 313.01(a)(5), and as required by RSA 482-A:11, II, work shall not infringe on the property rights or unreasonably affect the value or enjoyment of property of abutting owners.
3. In accordance with Env-Wt 314.01, a standard permit shall be signed by the permittee and the principal contractor who will build or install the project prior to start of construction; and will not be valid until signed.
4. In accordance with Env-Wt 314.03(a), the permittee shall notify the department in writing at least one week prior to commencing any work under the permit.
5. In accordance with Env-Wt 314.08(a), the permittee shall file a completed notice of completion of work and certificate of compliance with the department within 10 working days of completing the work authorized by the permit.
6. In accordance with Env-Wt 314.06, transfer of this permit to a new owner shall require notification to and approval by NHDES.
7. In accordance with Env-Wt 307.02, in order to be in compliance with federal requirements, all work in areas under the jurisdiction of the U.S. Army Corps of Engineers (US ACE) shall comply with all conditions of the applicable state general permit (see attached notice).
8. In accordance with Env-Wt 307.06(a) through (c), no activity shall jeopardize the continued existence of a threatened or endangered species, a species proposed for listing as threatened or endangered, or designated or proposed critical habitat under the Federal Endangered Species Act, 16 U.S.C. §1531 et seq.; State Endangered Species Conservation Act, RSA 212-A; or New Hampshire Native Plant Protection Act, RSA 217-A.A copy of this permit shall be posted on site during construction in a prominent location visible to inspecting personnel.

APPROVED:

Stefanie M. Giallongo
Land Resources Management, Water Division

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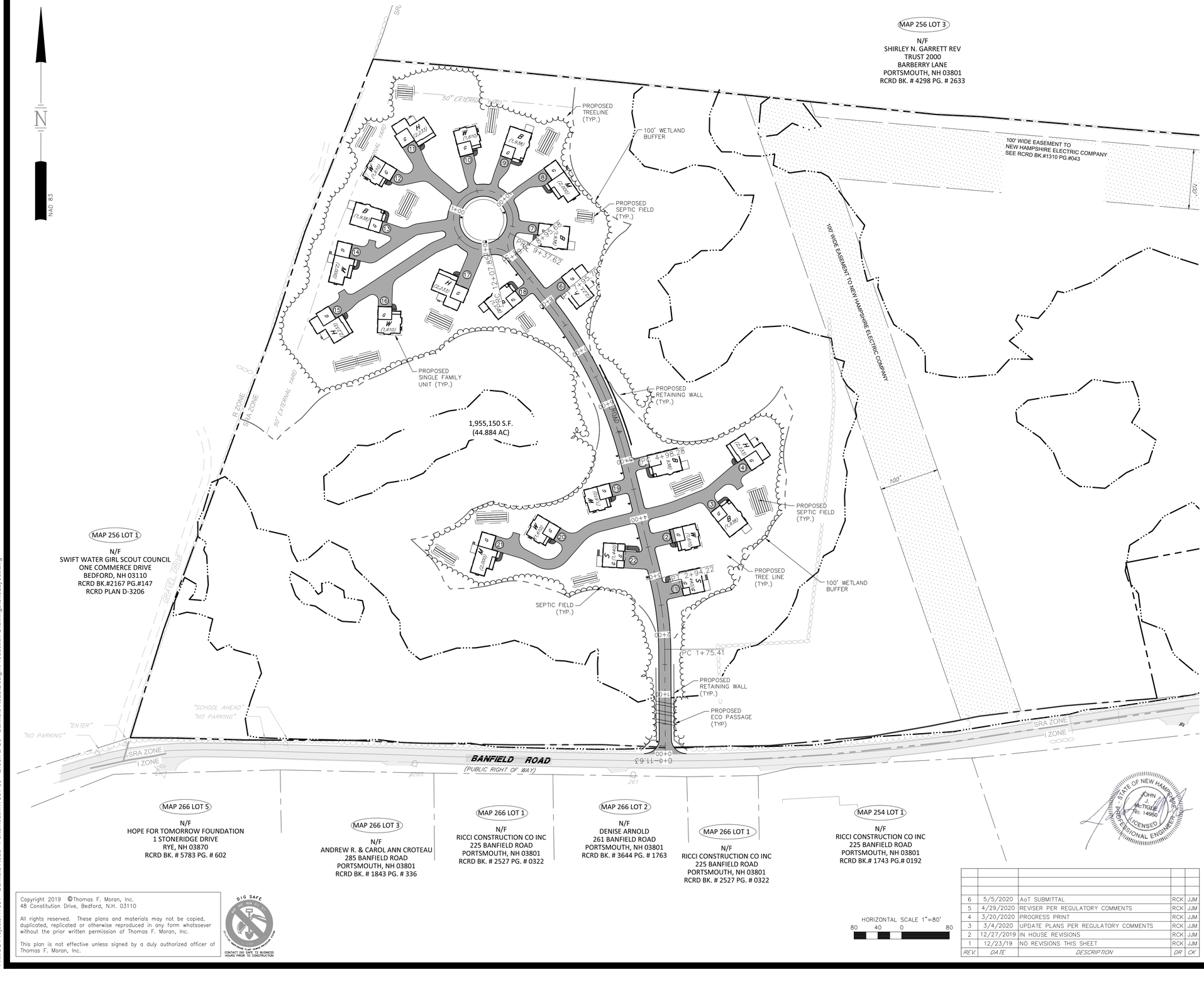
BY SIGNING BELOW, I HEREBY CERTIFY THAT I HAVE FULLY READ THIS PERMIT AND AGREE TO ABIDE BY ALL PERMIT CONDITIONS.

_____ _____

OWNER'S SIGNATURE (required) CONTRACTOR'S SIGNATURE (required)

Rendering of Ecopassage at The Village at Banfield Woods

DOCUMENT #22



SITE DATA

OWNER OF RECORD OF MAP 256 LOT 02: HETT MAUD REVOCABLE TRUST,
334 HUDSON ROAD, STOW, MA 01775
DEED REFERNCE TO PARCEL IS BK 4553 PG 0432
AREA OF PARCEL = 1,955,150± SF OR 44.88± ACRES

ZONED: SINGLE RESIDENCE A (SRA)
EXISTING USE: N/A
PROPOSED USE: SINGLE FAMILY CONDOMINIUM UNITS

THE PURPOSE OF THIS PLAN IS TO DEPICT A DEVELOPMENT OF 22 SINGLE FAMILY CONDOMINIUM UNITS WITH ASSOCIATED ROADWAY, UTILITIES, AND SITE IMPROVEMENTS.

DENSITY CALCULATIONS:
TOTAL LOT AREA: 44.88 ACRES
WETLAND AREA: 18.97 ACRES
STEEP SLOPES OVER 15%: 2.20 ACRES
TOTAL DEVELOPABLE AREA: 23.71 ACRES (REMAINING LAND IS WETLANDS AND STEEP SLOPES OVER 15%)
MAXIMUM UNITS FOR DEVELOPMENT: 23 SINGLE FAMILY HOUSES
PROPOSED UNITS FOR OPEN SPACE PLANNED UNIT DEVELOPMENT: 22 THREE (3) BEDROOM UNITS

PARKING CALCULATIONS:
REQUIRED: 1.3 SPACES/UNIT PLUS ONE (1) VISITOR SPACE FOR EVERY 5 DWELLING UNITS.
TOTAL REQUIRED = 33 SPACES

PROPOSED: 88 SPACES (2 GARAGED SPACES PER UNIT, PLUS 44 SPACES ON PRIVATE DRIVEWAYS)

EFFECTIVE IMPERVIOUS SURFACE CALCULATIONS:
IMPERVIOUS AREA/TOTAL LOT AREA = 101,920 SF/1,955,150 SF = 0.0521
TOTAL EFFECTIVE IMPERVIOUS SURFACE = 5.21%

NOTES

1. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS NOTED OTHERWISE.
2. SEE GENERAL NOTES ON NOTES & LEGEND SHEET (C-01).
3. LIGHTING, SIGNAGE, LANDSCAPING, AND SCREENING SHALL MEET THE REQUIREMENTS OF THE CITY ZONING ORDINANCE AND SITE PLAN REGULATIONS.
4. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
5. THE THREE FOOT PANEL ALONG THE EDGE OF THE ROADWAY TO BE USED FOR SNOW STORAGE.
6. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
7. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGED SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.

SIGN LEGEND

ID	SIGN	SIZE (INCHES) WIDTH	SIZE (INCHES) HEIGHT	DESIGN (COLORING, TEXT SIZE, SPACING, SHAPE, RETROFLECTIVITY, ETC.)	NO. OF SIGNS
R1-1	STOP	30	30	REFER TO THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS	1
R713	NO PARKING THIS SIDE OF STREET	12	18	REFER TO THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS	17

SITE DEVELOPMENT PLANS

TAX MAP 256 LOT 2

OVERALL SITE LAYOUT PLAN

THE VILLAGE AT BANFIELD WOODS

PORTSMOUTH, NH

OWNED BY

WALTER D HETT TRUST

PREPARED FOR

GREEN & COMPANY REAL ESTATE

1"=160' (11"X17")

SCALE: 1"=80' (22"X34") **SEPTEMBER 25, 2019**

STATE OF NEW HAMPSHIRE — JOHN J. McTIGUE No. 14960 — LICENSED PROFESSIONAL ENGINEER

HORIZONTAL SCALE 1"=80'
80 40 0 80

REV.	DATE	DESCRIPTION	DR	CK
6	5/5/2020	AoT SUBMITTAL	RCK	JJM
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DIG SAFE — CALL NH DIG SAFE 811 — CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

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FILE	DR	CK	FB	CADFILE	–	SITELAYOUT	C-04
47361.00	RCK	JJM					

May 26, 2020 - 11:55am
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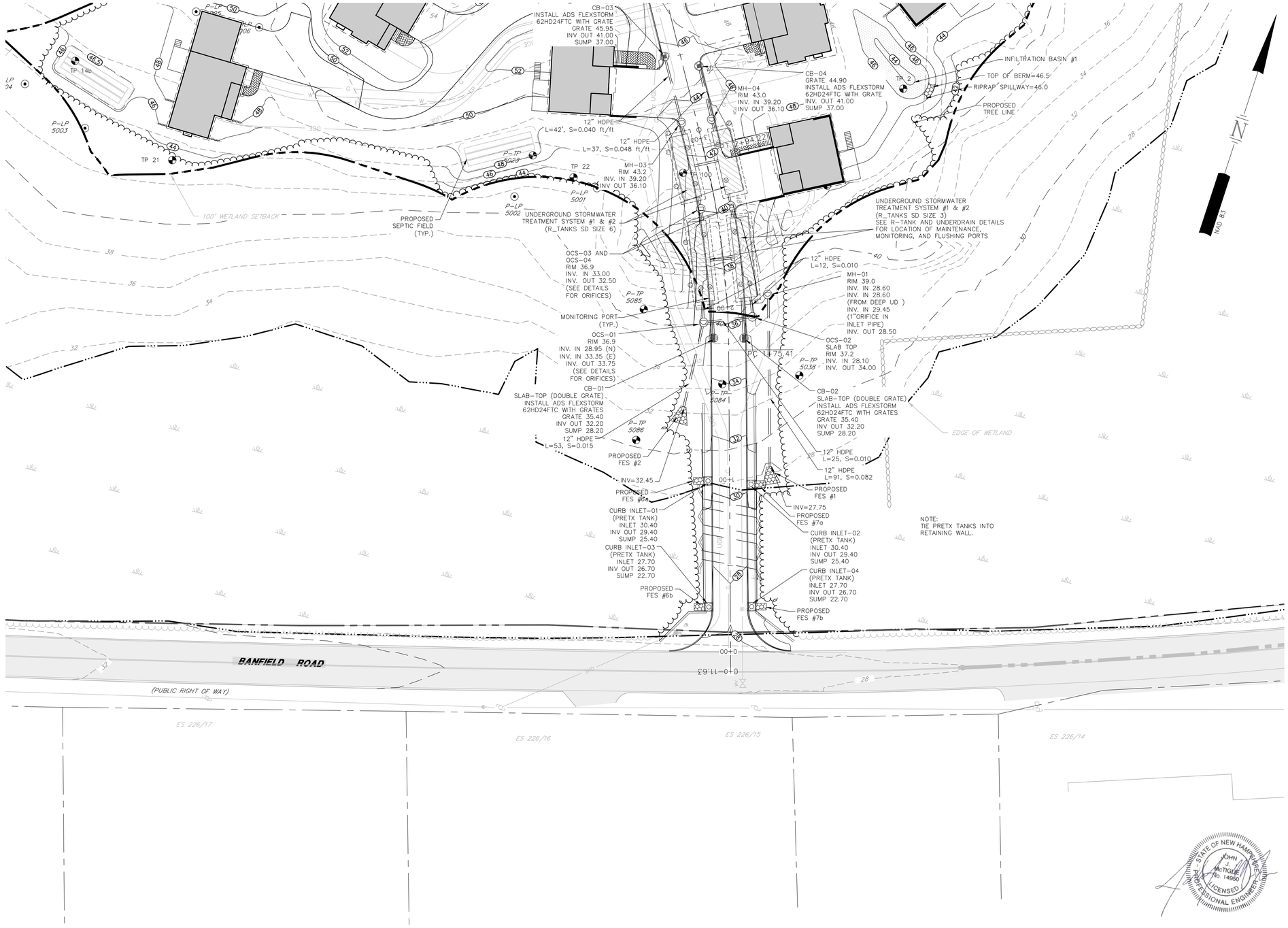

SITE DEVELOPMENT PLANS

TAX MAP 256 LOT 2

GRADING & DRAINAGE PLAN

THE VILLAGE AT BANFIELD WOODS

PORTSMOUTH, NH

OWNED BY

WALTER D HETT TRUST

PREPARED FOR

GREEN & COMPANY REAL ESTATE

1"=60' (11"X17")

SCALE: 1"=30' (22"X34") **SEPTEMBER 25, 2019**

STATE OF NEW HAMPSHIRE
JOHN J. McTIGUE No. 14960 LICENSED PROFESSIONAL ENGINEER

HORIZONTAL SCALE 1"=30'
30 15 0 30

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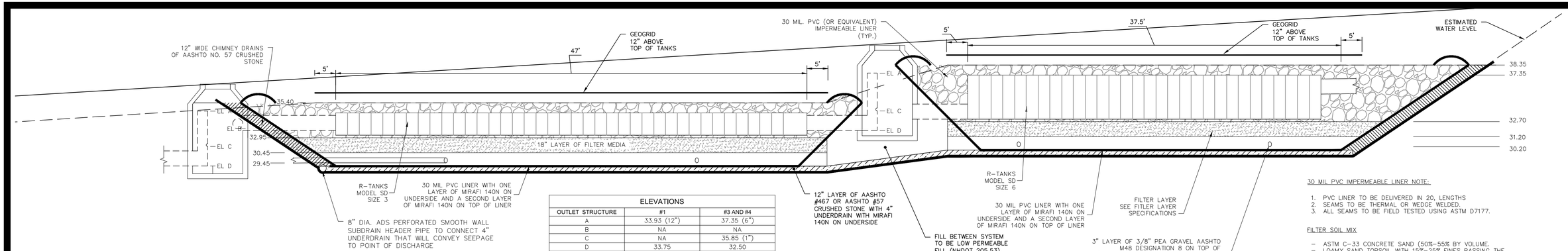
FILE		DR	RCK	FB	–	
	47361.00	CK	JJM	CADFILE	GRADINGDRAINAGE	C-09

May 28, 2020 - 5:29pm
F:\M&C Projects\47361 - Banfield Road - Portsmouth\47361-00 - Green & Co - Banfield Road\Design\Production Drawings\Grading\GradingDrainage.dwg



ELEVATIONS		
OUTLET STRUCTURE	#1	#3 AND #4
A	33.93 (12")	37.35 (6")
B	NA	NA
C	NA	35.85 (1")
D	33.75	32.50
NOTE: SEE GRADING AND DRAINAGE PLAN FOR RIM ELEVATIONS, INVERTS IN AND INVERTS OUT.		

30 MIL PVC IMPERMEABLE LINER NOTE:

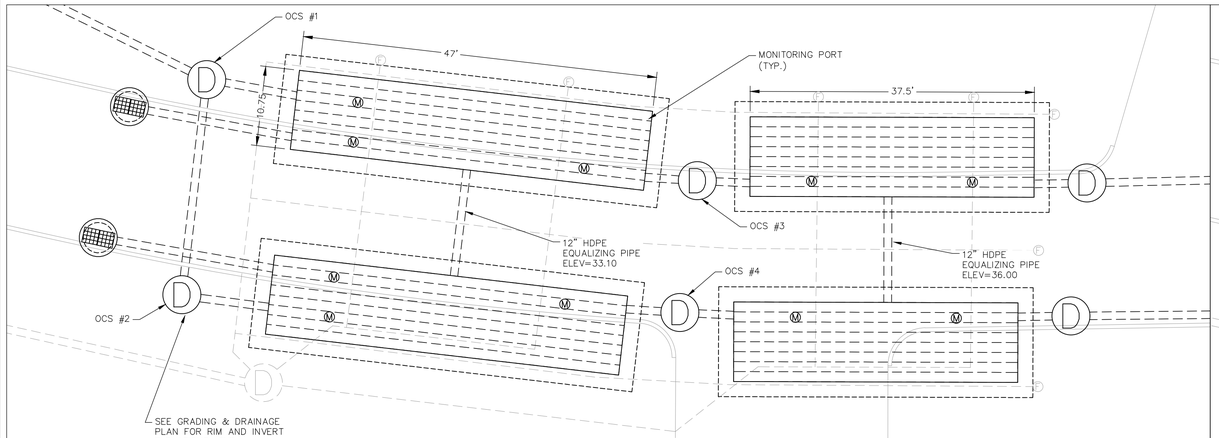
1. PVC LINER TO BE DELIVERED IN 20' LENGTHS
2. SEAMS TO BE THERMAL OR WEDGE WELDED.
3. ALL SEAMS TO BE FIELD TESTED USING ASTM D7177.

FILTER SOIL MIX

- ASTM C-33 CONCRETE SAND (50%-55% BY VOLUME.
- LOAMY SAND TOPSOIL WITH 15%-25% FINES PASSING THE NUMBER 200 SIEVE (20%-30% BY VOLUME).
- MODERATELY FINE SHREDDED BARK OR WOOK FIBER MULCH WITH LESS THAN 5% PASSING THE NO. 200 SIEVE (20-30% BY VOLUME).

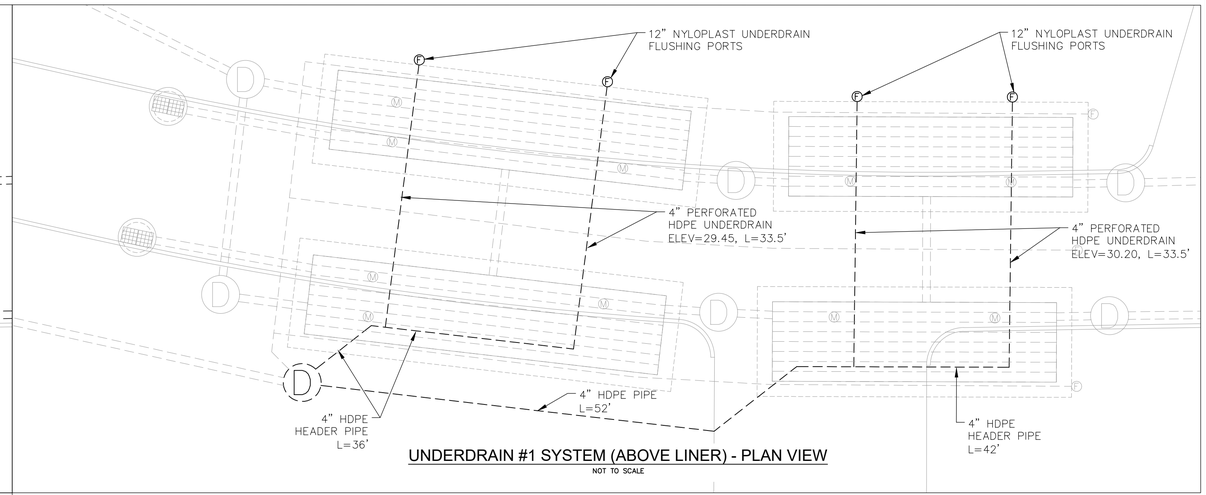
R-TANKS - PROFILE VIEW

NOT TO SCALE



R-TANK LAYOUT - PLAN VIEW

NOT TO SCALE

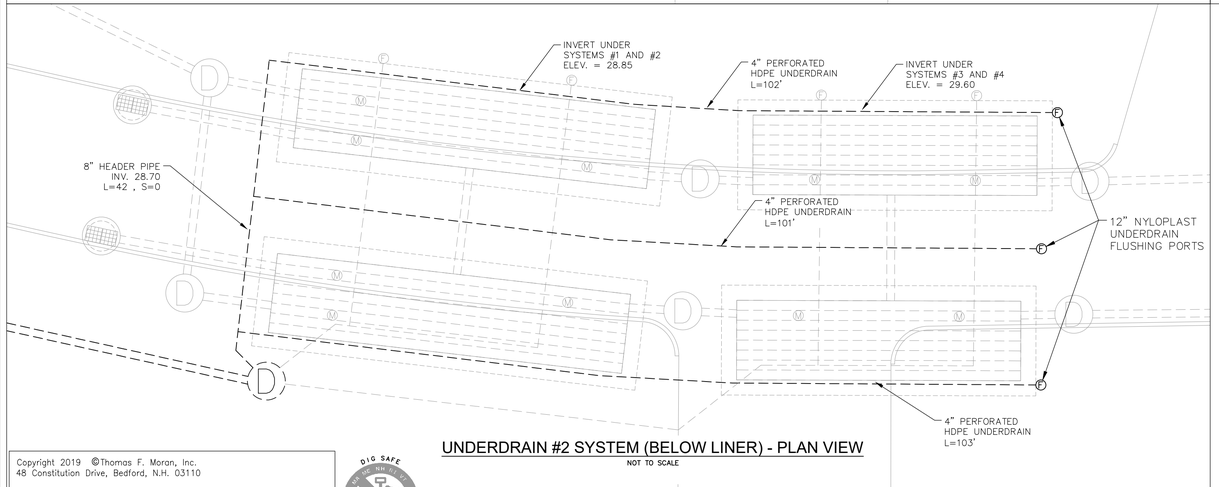


UNDERDRAIN #1 SYSTEM (ABOVE LINER) - PLAN VIEW

NOT TO SCALE

NOTE:

1. ALL UNDERDRAIN TO BE INSTALLED WITH ONE HOLE FACING UPWARD AND TWO HOLE FACING DOWNWARD.



UNDERDRAIN #2 SYSTEM (BELOW LINER) - PLAN VIEW

NOT TO SCALE

SITE DEVELOPMENT PLANS

TAX MAP 256 LOT 2

DETAILS

THE VILLAGE AT BANFIELD WOODS

PORTSMOUTH, NH

OWNED BY

WALTER D HETT TRUST

PREPARED FOR

GREEN & COMPANY REAL ESTATE

SCALE: **SEPTEMBER 25, 2019**

JOHN J. MCTIGUE No. 14950 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

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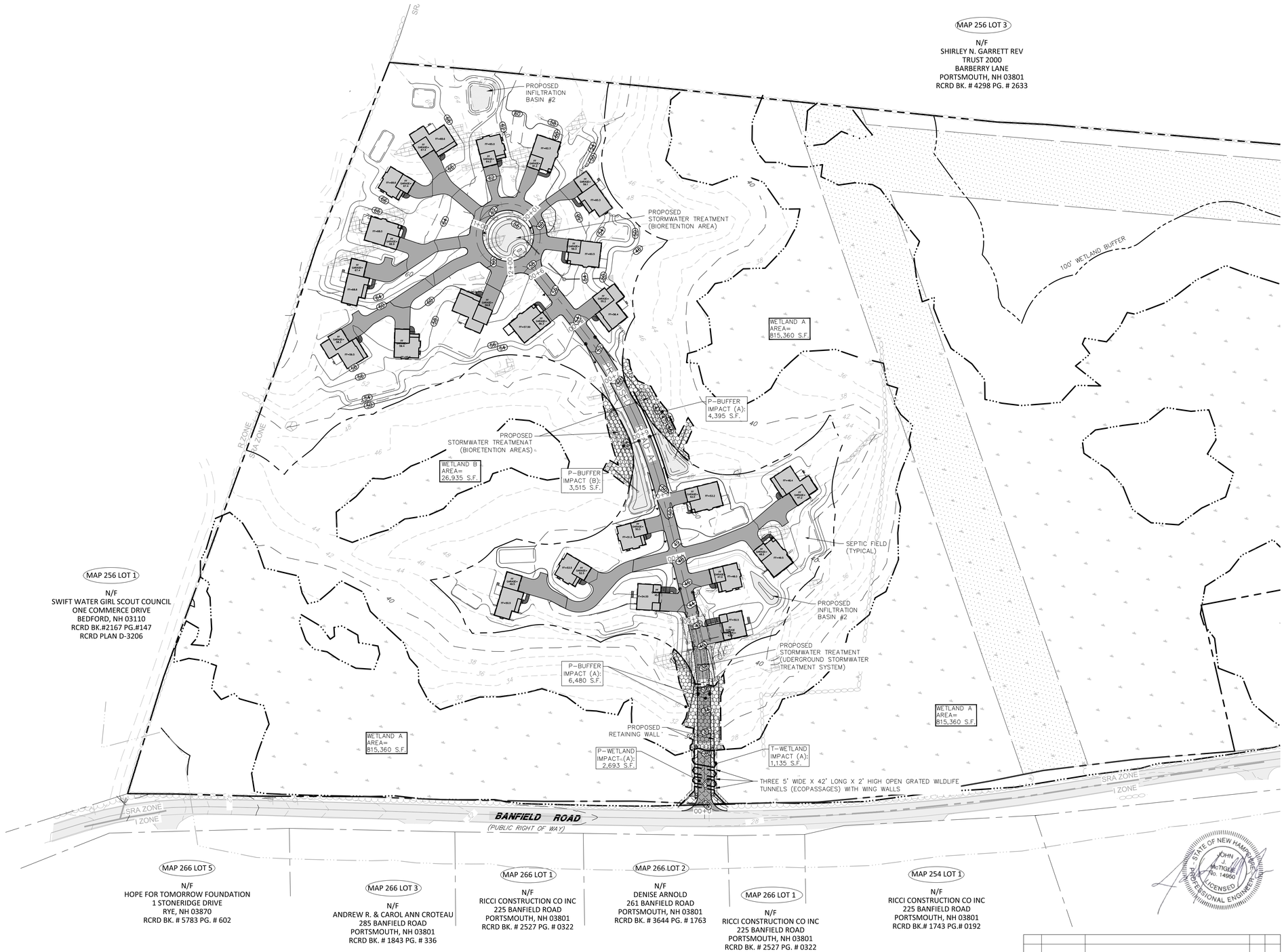
FILE	DR	RCK	FB	–	
47361.00	CK	JJM	CADFILE	DETAILS	C-39

DIG SAFE DIG SAFE NH, LLC 811 CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

ACF R-TANKS - SD MODEL - SIZE 3 & 6

May 28, 2020 - 5:14pm
F:\MSC Projects\47361 - Banfield Road - Portsmouth\47361.00 - Green & Co - Banfield Road\Design\Production Drawings\Details.dwg



NOTES:

1. THE PURPOSE OF THIS PLAN IS TO SHOW THE WETLAND IMPACTS AND WETLAND BUFFER IMPACTS ASSOCIATED WITH THE CONDOMINIUM DEVELOPMENT OF TAX MAP 256 LOT 2.
2. FIELD SURVEY WAS COMPLETED BY TCE AMD EJS IN MAY & JUNE 2019 USING A TOPCON DS103 AND A TOPCON FC-5000 DATA COLLECTOR.
3. THE PURPOSE OF THE BUILDING FOOTPRINTS SHOWN ON THE PLAN ARE FOR ILLUSTRATIVE PURPOSES ONLY. FOOTPRINTS MAY CHANGE DURING CONSTRUCTION, BUT WILL REMAIN WITHIN REQUIRED SETBACKS. INDIVIDUAL GRADING PLAN ARE REQUIRED FOR EACH AREA OF HOMES TO BE DEVELOPED (PRIOR TO BUILDING PERMIT).
4. DENSITY CALCULATIONS:
   TOTAL LOT AREA: 44.88 ACRES
   WETLAND AREA: 18.97 ACRES
   STEEP SLOPES OVER 15%: 2.20 ACRES
   TOTAL DEVELOPABLE AREA: 23.71 ACRES (REMAINING LAND IS WETLANDS AND STEEP SLOPES OVER 15%)
   MAXIMUM UNITS FOR DEVELOPMENT: 23 SINGLE FAMILY HOUSES
   PROPOSED UNITS FOR OPEN SPACE PLANNED UNIT DEVELOPMENT: 22 UNITS
5. PARKING CALCULATIONS:
   REQUIRED: 1.3 SPACES/UNIT PLUS ONE (1) VISITOR SPACE FOR EVERY 5 DWELLING UNITS.
   TOTAL REQUIRED = 33 SPACES
   PROPOSED: 88 SPACES (2 GARAGED SPACES PER UNIT, PLUS 44 SPACES ON PRIVATE DRIVEWAYS)
6. WETLANDS DELINEATION WAS COMPLETED BY GOVE ENVIRONMENTAL SERVICES IN MAY 2019 AND FIELD LOCATED BY MSC A DIVISION OF TFMORAN, INC.
7. STEEP SLOPE AREAS ARE APPROXIMATE. TOWN REGULATIONS DEFINE SLOPES OF 15% AND GREATER TO BE NON-BUILDABLE.
8. EXAMINATION OF THE FLOOD INSURANCE RATE MAP FOR THE TOWN OF PORTSMOUTH, NEW HAMPSHIRE, ROCKINGHAM COUNTY, COMMUNITY PANEL NUMBER 0270, EFFECTIVE DATE: MAY 17, 2005, INDICATES THAT THE SUBJECT PARCEL IS NOT LOCATED WITHIN A FLOOD HAZARD AREA.
9. WETLAND IMPACTS WILL REQUIRE AN APPLICATION TO NHDES WETLANDS BUREAU AND A CONDITIONAL USE PERMIT FROM THE CITY OF PORTSMOUTH. OBTAINING THESE PERMITS WILL DEPEND ON THE WETLAND FUNCTION AND VALUES, AND SENSITIVITY OF THE PROJECT.
10. SITE DEVELOPMENT MAY REQUIRE RETAINING WALLS FOR GRADE CHANGES.
11. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR SHALL CONTACT DIG SAFE AT 811.

WETLAND IMPACTS TABLE

WETLAND	WETLAND AREA	TEMPORARY WETLAND IMPACT	PERMANENT WETLAND IMPACT	BUFFER IMPACT
A	815,360 S.F.	1,135 S.F.	2,693 S.F.	10,875 S.F.
B	26,935 S.F.	0 S.F.	0 S.F.	3,515 S.F.
TOTALS	842,295 S.F.	3,828 S.F.		14,390 S.F.

LEGEND

- PERMANENT WETLAND IMPACT
- TEMPORARY WETLAND IMPACT
- PERMANENT WETLAND BUFFER IMPACT
- P- PERMANENT
- T- TEMPORARY

HORIZONTAL SCALE 1"=20'
80 40 0 80

REV.	DATE	DESCRIPTION	DR	CK
6	5/5/2020	AoT SUBMITTAL	RCK	JJM
5	4/29/2020	REVISER PER REGULATORY COMMENTS	RCK	JJM
4	3/20/2020	PROGRESS PRINT	RCK	JJM
3	3/4/2020	UPDATE PLANS PER REGULATORY COMMENTS	RCK	JJM
2	12/27/2019	IN HOUSE REVISIONS	RCK	JJM
1	12/03/19	Revised Alignnment Per Regulatory Comments	RCK	JJM

TAX MAP 256 LOT 2

WETLAND IMPACT PLAN

THE VILLAGE AT BANFIELD WOODS

PORTSMOUTH, NH

OWNED BY

WALTER D HETT TRUST

PREPARED FOR

GREEN & COMPANY REAL ESTATE

1"=160' (11"X17")

SCALE: 1"=80' (22"X34") **SEPTEMBER 25, 2019**

STATE OF NEW HAMPSHIRE - JOHN J. MCTIGUE No. 14950 - LICENSED PROFESSIONAL ENGINEER

TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
48 Constitution Drive
Bedford, NH 03110
Phone (603) 472-4488
Fax (603) 472-9747
www.tfmoran.com

FILE	DR	RCK	FB	–	
47361.00	CK	JJM	CADFILE	WETLAND IMPACT	C-02

DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

May 28, 2020 - 11:54am
P:\MSC Projects\47361 - Banfield Road - Portsmouth\47361-00 - Green & Co - Banfield Road\Design\Production Drawings\Wetland Impact.dwg

DIG SAFE
CALL 811 OR 1-888-DIG-SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

HORIZONTAL SCALE 1"=30'
30 15 0 30

REV.	DATE	DESCRIPTION	DR	CK
6	5/5/2020	AoT SUBMITTAL	RCK	JJM
5	4/29/2020	REVISER PER REGULATORY COMMENTS	RCK	JJM
4	3/20/2020	PROGRESS PRINT	RCK	JJM
3	3/4/2020	UPDATE PLANS PER REGULATORY COMMENTS	RCK	JJM
2	12/27/2019	IN HOUSE REVISIONS	RCK	JJM
1	12/23/19	REVISED PER REGULATORY COMMENTS	RCK	JJM

STATE OF NEW HAMPSHIRE
JOHN J. McTIGUE
No. 14950
LICENSED PROFESSIONAL ENGINEER

SITE DEVELOPMENT PLANS

TAX MAP 256 LOT 2

GRADING & DRAINAGE PLAN

THE VILLAGE AT BANFIELD WOODS

PORTSMOUTH, NH

OWNED BY

WALTER D HETT TRUST

PREPARED FOR

GREEN & COMPANY REAL ESTATE

1"=60' (11"X17")

SCALE: 1"=30' (22"X34") **SEPTEMBER 25, 2019**

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FILE		DR	RCK	FB	–	
	47361.00	CK	JJM	CADFILE	GRADINGDRAINAGE	C-11

May 28, 2020 - 11:57am
P:\MSC Projects\47361 - Banfield Road - Portsmouth\47361-00 - Green & Co - Banfield Road\Design\Production Drawings\Grading\Drainage.dwg

BEST MANAGEMENT PRACTICES FOR BLASTING

1. PURPOSE. THE PURPOSE OF THIS PART IS TO ESTABLISH BEST MANAGEMENT PRACTICES FOR BLASTING TO MINIMIZE THE POTENTIAL FOR GROUNDWATER CONTAMINATION, TO ENSURE THAT THE GROUNDWATER CAN BE USED FOR EXISTING AND FUTURE DRINKING WATER SUPPLY SOURCES. (SEE RN3 AT P. V) #12342, EFF 8-15-17

2. LOADING PRACTICES. THE FOLLOWING BLAST HOLE LOADING PRACTICES SHALL BE IMPLEMENTED:
   - A. THE DRILLER SHALL MAINTAIN DRILLING LOGS TO DOCUMENT:
     - I. THE DEPTHS AND LENGTHS OF VOIDS, CAVITIES, AND FAULT ZONES OR OTHER WEAK ZONES ENCOUNTERED; AND
     - II. GROUNDWATER CONDITIONS;
   - B. THE DRILLER SHALL COMMUNICATE THE CONTENTS OF THE DRILLING LOGS DIRECTLY TO THE BLASTER;
   - C. EXPLOSIVE PRODUCTS SHALL BE MANAGED ON SITE SUCH THAT THEY ARE:
     - I. USED IN THE BOREHOLE;
     - II. RETURNED TO THE DELIVERY VEHICLE; OR
     - III. PLACED IN SECURE CONTAINERS FOR OFF-SITE DISPOSAL;
   - D. SPILLAGE AROUND THE BOREHOLE SHALL BE:
     - I. PLACED IN THE BOREHOLE; OR
     - II. CLEANED UP AND RETURNED TO AN APPROPRIATE VEHICLE FOR HANDLING OR PLACEMENT IN SECURED CONTAINERS FOR OFF-SITE DISPOSAL;
   - E. LOADED EXPLOSIVES SHALL BE DETONATED AS SOON AS POSSIBLE AND NOT LEFT IN THE BLAST HOLES OVERNIGHT, UNLESS WEATHER OR OTHER SAFETY CONCERNS REASONABLY DICTATE THAT DETONATION SHOULD BE POSTPONED;
   - F. LOADING EQUIPMENT SHALL BE CLEANED IN AN AREA WHERE WASTEWATER CAN BE PROPERLY CONTAINED AND HANDLED IN A MANNER THAT PREVENTS RELEASE OF CONTAMINANTS TO THE ENVIRONMENT; AND
   - G. EXPLOSIVES SHALL BE LOADED IN ACCORDANCE WITH INDUSTRY STANDARD PRACTICES FOR PRIMING, STEMMING, DECKING AND COLUMN RISE TO MAINTAIN GOOD CONTINUITY IN THE COLUMN LOAD TO PROMOTE COMPLETE DETONATION. SOURCE. (SEE RN3 AT P. V) #12342, EFF 8-15-17

3. EXPLOSIVE SELECTION. EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT ARE:
   - A. APPROPRIATE FOR SITE CONDITIONS AND SAFE BLAST EXECUTION; AND
   - B. HAVE THE APPROPRIATE WATER RESISTANCE FOR THE SITE CONDITIONS PRESENT.

4. PREVENTION OF MISFIRES. INDUSTRY-STANDARD PRACTICES SHALL BE IMPLEMENTED TO PREVENT MISFIRES.

5. MUCK AND ROCK MANAGEMENT.
   - A. FOR PURPOSES OF THIS PART, THE FOLLOWING DEFINITIONS APPLY:
     - I. "BLASTED MATERIAL" MEANS ALL OF THE EARTH MATERIAL LOOSENED AS A RESULT OF THE BLASTING;
     - II. "MUCK" MEANS THE BLASTED MATERIAL REMAINING AFTER THE ROCKS HAVE BEEN REMOVED; AND
     - III. "ROCKS" MEANS THE LARGER PIECES OF BLASTED MATERIAL THAT ARE SEPARATED FROM THE MUCK FOR USE ELSEWHERE, INCLUDING FOR FEEDSTOCK OF A ROCK CRUSHING OPERATION.
   - B. MUCK SHALL BE REMOVED FROM THE BLAST AREA AS SOON AS REASONABLY POSSIBLE.
   - C. ROCKS SHALL BE MANAGED SO AS TO PREVENT WATER SUPPLY WELLS OR SURFACE WATERS FROM BEING CONTAMINATED BY RUNOFF.

6. SPILL PREVENTION MEASURES AND SPILL MITIGATION.
   - A. FUEL AND OTHER REGULATED SUBSTANCES SHALL BE MANAGED AS REQUIRED BY ENV-WQ 401.04.
   - B. PERSONNEL WORKING AT THE BLAST SITE SHALL BE TRAINED IN HOW TO RESPOND TO A SPILL OF THE REGULATED SUBSTANCES BEING USED AT THE SITE.

7. FUELING AND MAINTENANCE OF CONSTRUCTION EQUIPMENT.
   - A. IF ANY CONSTRUCTION EQUIPMENT, INCLUDING BUT NOT LIMITED TO EARTHMOVING, EXCAVATION, AND BORING EQUIPMENT, WILL BE FUELED FROM A TANK TRUCK OR OTHER CONTAINER THAT IS MOVED AROUND THE SITE, THE FOLLOWING SHALL APPLY:
     - I. PORTABLE CONTAINMENT EQUIPMENT THAT IS SIZED TO CONTAIN THE MOST LIKELY VOLUME OF FUEL TO BE SPILLED DURING A FUEL TRANSFER SHALL BE USED, WHERE THE MOST LIKELY VOLUME TO BE SPILLED IS DETERMINED BASED ON THE FUEL TRANSFER RATE, THE AMOUNT OF FUEL BEING TRANSFERRED, THE DISTANCE BETWEEN THE HOSE NOZZLE AND PUMP SHUT OFF SWITCH, AND THE RESPONSE TIME OF PERSONNEL AND EQUIPMENT AVAILABLE AT THE FACILITY;
     - II. THE CONTAINMENT EQUIPMENT SHALL BE POSITIONED TO CATCH ANY FUEL SPILLS DUE TO OVERFILLING THE EQUIPMENT AND ANY OTHER SPILLS THAT MIGHT OCCUR AT OR NEAR THE FUEL FILLER PORT TO THAT EQUIPMENT;
     - III. THE TYPE OF CONTAINMENT EQUIPMENT USED AND ITS POSITIONING AND USE SHALL ACCOUNT FOR ALL OF THE DRIP POINTS ASSOCIATED WITH THE FUEL FILLING PORT AND THE HOSE FROM THE FUEL DELIVERY TRUCK; AND
     - IV. PERSONNEL SHALL NOT LEAVE THE IMMEDIATE AREA WHILE FUEL IS BEING TRANSFERRED, TO ENSURE THAT ANY SPILLS WILL BE OF LIMITED VOLUME.
   - B. IF THE SITE WILL HAVE A FIXED LOCATION FOR FUELING CONSTRUCTION EQUIPMENT, THE FOLLOWING SHALL APPLY:
     - I. ALL FUEL CONTAINERS, INCLUDING BUT NOT LIMITED TO SKID-MOUNTED TANKS, DRUMS, AND FIVE GALLON CANS, SHALL HAVE SECONDARY CONTAINMENT THAT:
       1. IS CAPABLE OF CONTAINING 110% OF THE VOLUME OF THE LARGEST FUEL STORAGE CONTAINER; AND
       2. HAS AN IMPERVIOUS FLOOR;
     - II. SECONDARY CONTAINMENT FOR TANKS MAY COMPRISE A METAL, PLASTIC, POLYMER OR PRECAST CONCRETE VAULT PROVIDING 110 PERCENT OF THE VOLUME OF THE LARGEST FUEL STORAGE CONTAINER;
     - III. FOR FUEL CONTAINERS, SECONDARY CONTAINMENT MAY COMPRISE CONTAINMENT PALLETS;
     - IV. THE AREA WHERE FUEL IS TRANSFERRED SHALL BE A FLAT, IMPERVIOUS AREA THAT:
       1. IS ADJACENT TO THE FUEL CONTAINER(S); AND
       2. EXTENDS BEYOND THE FULL REACH, OR LENGTH, OF THE FUEL HOSE; AND
     - V. SECONDARY CONTAINMENT AREAS MAY BE IN THE FORM OF A BASIN THAT IS:
       1. SLOPED DOWN TO A CENTRAL LOW POINT OR BERMED ALONG THE PERIMETER;
       2. LINED WITH A CONTINUOUS SHEET OF 20 MIL OR THICKER POLYMER MATERIAL OR APPROPRIATE GEOMEMBRANE LINER; AND
       3. BACKFILLED WITH AT LEAST 6 INCHES OF SAND.

NOTES:

1. A THIRD PARTY SHALL INSPECTOR SHALL BE ON SITE TO INSPECT THE INSTALLATION OF THE STORM DRAINAGE SYSTEMS.
2. SEE GRADING NOTES ON NOTES & LEGEND SHEET (C-01).

SITE DEVELOPMENT PLANS

TAX MAP 256 LOT 2

OVERALL GRADING & DRAINAGE PLAN

THE VILLAGE AT BANFIELD WOODS

PORTSMOUTH, NH

OWNED BY

WALTER D HETT TRUST

PREPARED FOR

GREEN & COMPANY REAL ESTATE

1"=160' (11"X17")

SCALE: 1"=80' (22"X34") **SEPTEMBER 25, 2019**

STATE OF NEW HAMPSHIRE — JOHN J. McTIGUE No. 14950 — LICENSED PROFESSIONAL ENGINEER

HORIZONTAL SCALE 1"=80'
80 40 0 80

REV.	DATE	DESCRIPTION	DR	CK
6	5/5/2020	AoT SUBMITTAL	RCK	JJM
5	4/29/2020	REVISER PER REGULATORY COMMENTS	RCK	JJM
4	3/20/2020	PROGRESS PRINT	RCK	JJM
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FILE	DR	RCK	FB	–	
47361.00	CK	JJM	CADFILE	GRADINGDRAINAGE	C-08

DIG SAFE — CALL DIG SAFE NH, P.A. — CONTACT DIG SAFE TO BUSINESS HOURS PRIOR TO CONSTRUCTION

TECHNICAL MEMORANDUM

DOCUMENT # 29

TO:	William Straub, PE CMA Engineers 35 Bow St Portsmouth, NH, 03801 (603) 431-6196 wstraub@cmaengineers.com
FROM:	Robert Roseen, PHD, D.WRE, PE,
DATE:	May 6, 2020
RE:	Peer Review #2 of R-Tank Design for The Village at Banfield Woods, Banfield Road, Portsmouth, NH by TF Moran for Green and Company Real Estate, Revised April 29, 2020.

SCOPE

Upon request of Green and Company I have conducted two peer reviews of the R-Tank Design for The Village at Banfield Woods, Banfield Road, Portsmouth, NH by TF Moran revised April 29, 2020. This review #2 serves as a final review and confirmation that concerns identified in Review #1 have been addressed.

The review included an examination of the development application of the R-Tank SD stormwater system within the roadway. The review includes the following items:

- Site Development Plans for The Village at Banfield Woods, Banfield Road, Portsmouth, NH by TF Moran for Green and Company Real Estate, Revised April 29, 2020.
- Site Development Plans for The Village at Banfield Woods, Banfield Road, Portsmouth, NH by TF Moran for Green and Company Real Estate, Revised March 20, 2020.
- R-Tank and HS-20 Loads Manufacturers Recommendations, ACF Environmental, March 2018.

SUMMARY

In my prior review (dated 4/9/2020) I had identified 4 recommended design changes to ensure the R-Tank SD design would satisfy its intended purpose of providing subsurface stormwater management. Those recommendations have all been addressed successfully and revisions are listed below.

It is my professional opinion that the R-Tank SD design will be an excellent solution for providing subsurface stormwater management filtration and detention and enables avoiding buffer disturbance. With the latest design improvements, I believe the R-Tanks will function successfully long term for water quality and operations and maintenance. It is my expectation that this system will meet AOT requirements for new development stormwater management. Filtration systems such as R-Tanks are the top performers for water quality treatment as they successfully remove a wide class of pollutants. Subsurface treatment is an often used and excellent design solution to minimize disturbed areas, such as this instance, to avoid buffer disturbance that would occur from surface treatments (e.g. bioretention, gravel wetlands, and detention ponds).

R-Tank systems have been demonstrated to work well in similar applications under roadways with modest traffic. With proper engineering oversight during construction, quality design, and sufficient pretreatment considerations, these subsurface stormwater management systems can function successfully long-term. R-Tanks functionally are similar to the use of crushed stone, perforated pipe, and chambers. System voids approximate 40% for crushed

stone, perforated pipe with stone ranges from 40-60% voids, subsurface chambers around 75%, and R-Tank about 95% voids. R-Tanks are a sensible option for space constrained locations where the 95% voids can be maximized to limit the amount of excavation and/or subsurface area required for management.

The R-Tank SD used in this application for HS-20 loads require a minimum of 18" of cover and a maximum of 108" to maintain a maximum load bearing capacity 42.9 PSI with a factor of safety ranging from 2.1 to 3.75 respectively. Sheet C-35 appears to detail more than sufficient cover to maintain load bearing capacity.

1. **Pretreatment should be improved.** *Pretreatment should be located in each of the upstream catch basin structures at CB1, 2, 3, and 4. Trash and debris screens and grates, pre-filtration with catch basin inserts, and others will focus maintenance activities within the pretreatment structure and reduce the maintenance demand and extend the functional life of the R-Tank system.*
   Revision: The current design now includes ADS-FLEXSTORM Perforated Stainless Steel Full Trash Capture Inserts. These systems are excellent and I have seen them used successfully in similar applications.

2. **Filter course specifications needed.** *Sheet C-35 lists a filter layer at the base of the R-Tanks. I do not see a specification for the filter layer for the subsurface detention and filtration.*
   Revision: The filter course is an ASTM C33 sand with less than 2% passing the #200 sieve and is in accord with other designs I have worked with in the past.

3. **Maintenance ports.** *Sheet C-35 provides a detail for a maintenance port however the locations and number of ports are not detailed in the long-section or on the grading and drainage sheet C-10.*
   Revision: The locations and number of ports are now detailed in the long-section on C-39 and on the grading and drainage sheet C-10. There are 2 maintenance ports shown on each R-Tank system with the specific location identified. This allows for proper monitoring of the system.

4. **Construction phasing.** *A construction phasing plan will need to be developed to plan for the possibility of HS25 loading that would exceed design loads during construction.*
   Revision: I have reviewed the construction sequencing and phasing plan and it carefully addresses the details of system construction and phasing to provide for necessary construction activities and protection of the R-Tank system. The phasing plan should provide sufficient protection from the anticipated heavy trucking during construction.

I am satisfied that the current design has addressed my concerns and will function as intended, is constructable, and will provide excellent water quality protection through the use of the innovative R-Tank systems. I would be happy to discuss these items in more detail if helpful.

Regards,

Robert M. Roseen, Ph.D., P.E., D.WRE.
9 Gretas Way | Stratham, NH 03885
(603)686-2488(c) | rroseen@waterstone-eng.com

KNA KEACH-NORDSTROM ASSOCIATES, INC.

May 06, 2020

Mr. Michael Green
Green and Company
11 Lafayette Road
North Hampton, New Hampshire 03862

Subject: **The Village at Banfield Woods**
Banfield Road (Map 256 – Lot 2); Portsmouth, New Hampshire
KNA Project No. 20-0410-2

Dear Mr. Green:

At your request we have completed an independent third party review of design plans and supporting information prepared in support of a certain innovative stormwater treatment system planned near the site entrance to the subject residential development. Specifically, the scope of our review was limited to consideration of design accommodations for a proposed underground stormwater treatment system, to be generally situated beneath Stations 2+00± and 3+00± of a future private roadway intended to provide exclusive access to twenty-two currently planned detached residential dwellings. In keeping with your instructions our review of this planned construction principally focused on assessment of anticipated system performance and constructability. Further, at your request we also contemplated the possible existence of alternate solutions given your site contractor's anticipation of high construction cost associated with furnishing and installing the system as currently proposed. Specific documents considered and reviewed by this office to date include:

- A Site Plan (40 drawings); dated September 25, 2019 and last revised on March 20, 2020; prepared by TF Moran, Inc.;
- A letter (geotechnical) report entitled "Proposed Stormwater Treatment System Assessment", dated February 28, 2020; prepared by Milone & MacBroom;
- A "Drainage Analysis", dated December 27, 2019 and last revised on March 23, 2020; prepared by TF Moran, Inc.;
- A Work Area/Construction Sequence Plan (one drawing); prepared by Severino Trucking in concert with TF Moran, Inc.; and
- Copies of miscellaneous correspondence by and between members of your project team related to elements of proposed design and construction.

At the outset of our engagement we sought to understand the genesis of the innovative, or low impact design (LID) approach to stormwater management currently planned. Based upon input from your civil/site engineers (TF Moran, Inc.) we understand the project's initial design

contemplated installation of a gravel wetland constructed to the east of Stations 1+00± to 2+00± of the planned private roadway. We understand this solution was ultimately rejected by City Officials due to its proposed placement within and encroachment upon a wetland buffer required under applicable provisions of the City's Zoning Ordinance. Although we had neither opportunity nor need to evaluate the previous design solution, based upon review of Sheet C-09 of the current Site Plan, it appears the current solution serves to both avoid and minimize impact to land situated within the specified wetland buffer situated immediately west and east of the future private roadway. Nevertheless, based upon our consideration and review of the currently proposed stormwater management solution we offer the following remarks:

System Concept and Performance:

In addition to need for compliance with applicable local land use ordinances and regulations (City Code) governing stormwater management, this project invokes jurisdiction of the New Hampshire Department of Environmental Services (NHDES) Alteration of Terrain Bureau and CHAPTER Env-Wq 1500 of the New Hampshire Code of Administrative Rules (NHDES Rules). Both NHDES Rules and City Code mandate quantitative mitigation and qualitative treatment of site-generated post-development stormwater volumes.

As shown on various site plan drawings, the planned Underground Stormwater Treatment System (USTS) is intended to receive untreated stormwater runoff from paved street and driveway surfaces, roofs and future lawn captured by four stormwater catch basins. As shown on the project plans, each proposed catch basin will be equipped with both deep (48") sumps and hooded outlets. These improvements collectively provide a level of stormwater pre-treatment sufficient to satisfy applicable NHDES Rules prior to arrival at the planned USTS. Specifically, it is anticipated these pre-treatment methods will effectively capture and remove both floatable and non-floatable solids from the stormwater stream prior to introduction to the planned USTS. The design engineer has estimated specific volumes of stormwater tributary to the USTS for the 2, 10, 25 and 50 year return frequency design storm events. As best illustrated on Sheets C-09 & C-39 of the site plan, stormwater captured by catch basins is introduced to each of four separate subsurface bio-retention systems which collectively comprise the USTS.

As designed, the USTS is intended to serve two separate mitigative functions. One function is quantitative attenuation of post-development stormwater discharge volumes prior to release to the surrounding environment. Specifically, as shown on the project plans the USTS has been designed to provide subsurface stormwater storage of a volume sufficient to accommodate the required detention function by use of multi-module configurations of R-Tank chambers. Much like any stormwater detention system designed in accordance with applicable NHDES Rules, the USTS has been designed to provide storage volume sufficient to receive calculated in-flow volumes for all design storm events up to and including the 50-year return frequency event. In the current instance, mitigation of peak stormwater discharge from the USTS will be achieved by limiting discharge of accumulated stormwater volumes exiting the system during the 25 and 50 year return frequency design storm events by use of four separate outlet control structures (OCS). Site specific details of OCS construction are provided on Sheet C-39 of the site plan. Attenuation of post development stormwater volumes and the required stormwater treatment (qualitative) functions are to be provided through construction of subsurface bio-retention

capabilities situated directly beneath each proposed R-Tank installation. As shown on Sheet C-39 of the site plan, stormwater tributary to the planned R-Tank installations is to be "filtered" through an 18 inch thickness of "filter soil mix" comprised of ASTM C-33 concrete sand, sandy loam and organic matter in a manner identical to a typical bio-retention system or rain-garden installation exposed to atmospheric conditions. Typical of most bio-retention systems, "filtered" stormwater then accumulates in successive 3 inch and 9 inch thicknesses of pea stone and crushed stone respectively, situated directly beneath the planned filter soil mix and atop an impermeable membrane, prior to discharge via a network of 4 inch diameter perforated pipes located at the base of the USTS.

As shown on Sheet C09, treated stormwater captured by this interior network of perforated pipe will exit the USTS and ultimately discharge to the ground surface at a downstream flared end-section. Although USTS system configuration planned by the design engineer may be properly viewed as "innovative" given the "stacking" of individual detention and bio-retention best management practices, in reality the overall USTS may be properly viewed as nothing more than a "train" comprised of typical subsurface stormwater detention and bio-retention practices which have been commonly used in land development applications in New Hampshire over the past two decades. It should be noted the bio-retention practice contemplated by the current USTS design is fundamentally identical to that described and endorsed by the NHDES in the New Hampshire Stormwater Manual – Volume 2; initially published in 2008. According to data published by the NHDES, the currently planned bio-retention system would be expected to enjoy removal efficiencies of 90%, 65% and 65% respectively for total suspended solids, total nitrogen and total phosphorus on an annual basis.

As acknowledged above, the project plans specify USTS construction is to be isolated from adjoining soil and groundwater conditions by installation of a sealed 30 mil PVC membrane liner. Fundamentally, the underlying purposes of the specified liner are two-fold. One purpose is to prevent groundwater intrusion into the planned USTS. A second purpose is to form an interior "container" from which treated stormwater may be captured, absent mixing with ambient groundwater, prior to discharge. Based upon recognition that the planned membrane liner has the potential to be situated below groundwater elevation, the design engineer has made precautionary accommodations for groundwater relief in order to mitigate risks associated with uplifting buoyant force. Specifically, as recommended in the referenced Milone and MacBroom report, TF Moran has included specific provisions for exterior groundwater relief via installation of a 12 inch thickness of crushed stone and 4 inch diameter perforated pipe located directly beneath the USTS liner. As shown on the project plans, this planned groundwater relief system is intended to discharge to the ground surface at an elevation lower than the base elevation of the USTS. Given uncertainties implicit in attempting to predict groundwater behavior, we believe the design engineer's planned accommodation for groundwater relief is both warranted and properly conceived.

Structural Considerations:

Upon initial review of the project plans we quickly noticed the planned USTS is to be situated directly beneath a future private street. For a variety of reasons, including logistics associated with maintaining site access during USTS installation and corresponding incremental construction cost, we sought to identify an alternate system location. Specifically, we endeavored to identify an alternate location for USTS construction which would not require system placement directly beneath a proposed street. Based upon our attempts to identify such a location it quickly became obvious why the design engineer has proposed the USTS location as currently shown on the project plans. In addition to being substantially positioned outside of the required wetland buffer (again, we understand genesis of the current USTS concept to be based on City Officials prior rejection of gravel wetland construction within the required wetland buffer), current USTS location affords site grading opportunities necessary for proper system configuration, operation and discharge. Specifically, as shown on Sheet C-21 of the project plans, the planned USTS is to be situated beneath a roadway segment having a vertical slope of six percent. Incremental soil cover accumulated over the length of the system not only accommodates the full height of stacked R-Tank and bio-retention system construction but also enables the overall USTS system to be constructed to an elevation which affords direct and convenient storm drain and groundwater relief system discharge at desirable outfall locations absent the need for incremental impact to the protected wetland buffer. All in all, our endeavor to identify an alternate USTS location ultimately served to demonstrate current system location is both appropriate and possibly without viable alternative.

Construction of underground stormwater systems beneath paved site driveway and parking surfaces is not unusual. In fact, given convergence of an increasing demand for developable land, advances in innovative stormwater system technologies, and continued adoption of increasingly rigorous regulatory design and performance standards applicable to stormwater treatment works, construction of subsurface stormwater management systems has become increasingly common. That said each time a subsurface system is contemplated it is important to verify that workmanship and materials to be incorporated into the proposed construction may be expected to yield an improvement that will remain structurally sound over the long term. In the current instance it is necessary to confirm the proposed R-Tank system and its foundation system will remain capable of accommodating vertical design loading imposed by vehicular traffic over the long term.

Product data provided by the manufacturer of R-Tank system components (ACF Environmental) suggests all system components are HS-20 load rated. Since this is the same load rating most often used in the design and construction of highway bridge systems, parking structures and the like, we are satisfied the R-Tank system will prove structurally adequate for this planned application. Likewise, we understand the contributing geotechnical engineers anticipate, based on depth of excavation, the USTS system will be constructed over competent subgrade. If so, we have little to no consternation over this planned construction provided installation is performed in a manner fully consistent with R-Tank manufacturer's published specifications and recommendations.

Constructability:

For reasons noted at the outset of remarks offered in regard to structural considerations, our initial reaction to the proposed design included a concern that USTS placement could serve to frustrate site construction scheduling since system installation will require significant excavation immediately followed by a variety of sustained construction activities directly within the "footprint" of the main site access corridor. This concern was further exacerbated by need to avoid additional wetland buffer impacts which would result from construction of a temporary work road by-passing the planned USTS installation. Given our understanding this project currently remains in the planning, design and permitting stage we were surprised to learn your project team, which includes Severino Trucking, had already devised a seven phase work area plan addressing this very point. Based upon our review of the construction sequence contemplated by this work plan we are confident USTS installation can be efficiently accomplished despite our initial concerns related to construction site access.

As acknowledged by the Work Plan, initial phases of USTS installation will necessitate bulk excavation of native soil material in the immediate vicinity of proposed construction. We would find it remarkable if the extent of excavation required does not ultimately require at least a modest amount of dewatering. If your project team has not yet identified a site specific plan for dewatering, we recommend this be coordinated in advance of construction as part of Storm Water Pollution Prevention Plan (SWPPP) preparation for the project. We recommend specific care be taken not only to properly dewater the work area but also to avoid discharge of evacuated groundwater to land areas situated within the adjacent wetland buffer. Given our anticipation that City Officials will continue to be vigilant in their administrative duty to ensure construction activities respect the integrity of adjacent wetland buffers, we also recommend temporary construction fencing be erected at approved work area limits in the immediate vicinity of USTS and entrance roadway construction.

Conclusions:

Based upon our consideration and review of design accommodations for construction of an underground stormwater treatment system planned in the vicinity of roadway Stations 2+00± to 3+00± we offer the following series of concluding remarks:

1. We understand City Officials previously rejected the design engineer's initial proposal to satisfy certain regulatory requirements governing treatment of site generated stormwater via construction of a gravel wetland practice within an area of wetland buffer situated immediately east of the southerly 200 feet of the planned private street. Subsequent to this rejection, we understand the design engineer identified the alternate solution involving construction of the underground stormwater treatment system (USTS) specified on the current site plan. The current USTS design, which incorporates R-Tank storage chambers as well as bio-retention, makes accommodations for quantitative mitigation of post-development stormwater discharge volumes as well as qualitative accommodations for stormwater treatment, which in identical fashion to the previously specified gravel wetland, satisfies NHDES Rule requirements for stormwater treatment without necessity of additional impact to adjoining wetland buffer City Officials sought to avoid.

2. Given prevailing topography, wetland boundary and corresponding wetland buffer geometries our attempt to identify alternate location(s) for construction of improvements necessary to satisfy applicable regulatory requirements governing stormwater management proved unsuccessful. Despite anticipated incremental cost and unavoidable influence on critical path of construction, it appears our unsuccessful attempt at identifying a viable alternative inadvertently demonstrates necessity of continued pursuit of the currently proposed LID solution. In our view this solution is both appropriate and possibly without viable alternative.

3. Installation of the USTS as currently proposed eliminates wetland buffer impacts previously proposed in order to accommodate construction of gravel wetlands. It should be recognized that both construction of initial (gravel wetland) and current (bio-retention) best management practices equally satisfy applicable NHDES Rules governing stormwater treatment.

4. Our review of detailed design plans of proposed USTS construction revealed no significant concerns or departures from common industry standards applicable to the design and construction of the proposed innovative or low impact design (LID) solution.

5. Based upon recognition that USTS installation will temporarily occupy much of the "footprint" area available for temporary construction site access, members of your project team, including TF Moran and Severino Trucking, collaborated on preparation of a seven phase work area plan intended to address the same. Based upon our review of the proposed work area plan we are satisfied the specified approach will prove workable.

6. We recommend the Stormwater Pollution Prevention Plan (SWPPP) prepared prior to commencement of construction include site specific accommodations for dewatering of the USTS installation area, as well as installation of temporary construction fencing at the limit of approved work area immediately adjacent to wetland buffers.

We trust you will find the content of this brief letter report responsive to your recent request. In the event you should have specific questions or seek clarification relative to our remarks, please contact this writer at your convenience.

Sincerely:

Steven B. Keach, P.E.
President
Keach-Nordstrom Associates, Inc.

AUGUST CONSULTING, PLLC

Strategic Resource | Proven Results

One Willow Lane, Rye NH 03870

June 23, 2020

Dear Juliet and Portsmouth Planning Board Members,

Green & Company has retained August Consulting, PLLC to complete a Peer Review of the response to TAC comments and the Planning Board submission package prepared by T.F. Moran for the proposed Village at Banfield Woods. I have reviewed the complete submission package prepared by TF Moran including the multiple consultant independent reviews. In addition, I have viewed the TAC and Conservation Commission meeting videos and reviewed staff and CMA comments.

Executive Summary

I am familiar with the various projects that Green & Company has developed around the Seacoast over the past 30+ years, but this is the first opportunity I have had to work with them. I am impressed with the level of thought and detail that has gone into the project layout and plan development. In addition, the peer review consultants they have retained have prepared thorough plan reviews.

I note the following project highlights:

- Avoidance and minimization to wetland impacts and wetland buffers
- Thoughtfully designed roadway and community layout
- Extensive proposed landscaping
- Appropriate and effective low-impact stormwater design
- Preservation of open space
- Wildlife measures incorporated into the design

Landscaping and Density: The landscaping plan, sheet C-17 details the installation of 237 trees and 550 shrubs and bushes. The landscaping narrative explains how the variety of plants and bushes were chosen to provide seasonal colors and screening, and how the houses were situated to maximize the privacy between residences. The landscape architect has done a nice job creating attractive tree lined roadways and driveways and providing a variety of vegetation that will provide privacy screening between the neighborhoods. The design team has done a notable job of minimizing buffer impacts.

According to the Site Data summary provided by TF Moran on sheet S-04, 22 units are proposed where 23 are allowed. In addition, the dimensional requirements on sheet S-03 state that 95% open space is provided, far exceeding the 25% requirement. Only 2% building coverage is proposed where up to 10% is allowed. The combination of the large amount of open space and enhanced landscaping translates into less stormwater runoff.

Stormwater Management: I have reviewed the Staff and Peer review comments on the stormwater management system effectiveness, installation process, operation and maintenance. I have reviewed the installation procedures prepared by Professional Engineers at TF Moran with input from Severino Trucking, as well as the manufacturer's information on installation, reliability and treatment results.

Furthermore, Green & Company has retained Dr. Rob Roseen, Waterstone Engineering, a respected stormwater expert to perform a peer review. Also, Keach-Nordstrom prepared a second peer review of the system. In addition to the 3 professional engineering reviews by Green & Company consultants, I have read the CMA correspondence. Additionally, the system is being-reviewed by the New Hampshire Department of Environmental Services as part of the Alteration of Terrain permit process.

The design review of the stormwater system by 5 different consultants/engineers should give the City confidence that the system has been properly reviewed. In my opinion the stormwater design, installation and operation has been properly vetted and the design team has come up with a solution that minimizes site disturbance, eliminates buffer impacts, provides the most comprehensive treatment of stormwater, is easy to maintain, has a reliability record and is not creating a potential safety hazard for residents.

Wildlife and Wetlands: I understand from reading the TAC and Conservation Commission comments and watching videos of prior meetings, there has been discussion on wildlife impacts. I reviewed the 3 wildlife studies, that in my opinion, thoroughly address the issue. Design revisions, as suggested and endorsed by the wildlife consultants, have been made to the plans, to accommodate different sizes of wildlife that may traverse the site. The preservation of 11 acres of land into permanent open space is an added benefit mentioned by the wildlife consultants. It is also my understanding that Green & Company is considering increasing the open space to 16.3 acres, by adding all the land east of the electric easement into permanent open space.

In closing, after careful review of all the information submitted, in my opinion the submission package by TF Moran is complete, addresses staff and peer review comments and incorporates the multiple recommendations provided by the design teams' wildlife, stormwater and engineering consultants.

Having designed and permitted projects in Portsmouth since 1985, I am pleased to have had the opportunity to provide an independent review of the project and am confident this project will be an attractive and popular housing opportunity for Portsmouth residents.

Regards,

Gregg M. Mikolaities, PE
President, August Consulting, PLLC

Cc w/ Encl: Corey Colwell, TF Moran
Green & Company

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DOCUMENT # 33

May 22, 2020

Phil A. Corbett
CMA Engineers, Inc.
35 Bow Street
Portsmouth, NH 03801-3819

Re: Response to Comments on
Review of Stormwater and Drainage for the "The Village at Banfield Woods"
Developer: Green & Company
CMA #1134.30

Dear Phil:

On behalf of our client, Green & Company, Severino Trucking Co., Inc. respectfully submits the following in response to the comments on the Review of Stormwater and Drainage for "The Village at Banfield Woods".

Our response is related to comment #4 on page 2 of the letter as copied below.

4. The R-Tanks, as proposed, are constructed in ledge (20'+ cut) below the groundwater (likely perched on ledge), and partially under the subdivision access roadway. With input from our reviews, other engineers, and contractors, the applicant has revised the design to better accommodate these conditions. The engineering analysis concludes the system can manage groundwater and provide the intended stormwater flow attenuation and water quality treatment. We concur with that engineering analysis; and the proposed construction sequencing appears reasonable.

   However, as with any subsurface stormwater system, the proposed R-Tanks are more difficult to monitor for maintenance issues and failures, and repairs are difficult, particularly because they are partially under the subdivision access road. A conventional surface water quality treatment Best Management Practice (BMP), such as gravel wetlands, bioretention area or similar, would be easier to construct and maintain. A surface BMP could be constructed outside the wetlands buffer and capture a similar area of runoff from developed areas but would likely displace a residential unit (station 2+50 right).

The 20′ cut is referenced from existing ground surface. To construct to road box section alone at this station is 15 of the 20-foot cut. The R-Tanks are only 7.5 feet below centerline finish grade of the road at this station.

The "Groundwater Table" by definition is "the upper surface of the saturated zone of saturation beneath the ground". If there is any perched water on this pinnacle of ledge it is not "Groundwater".

The groundwater is somewhere in that ledge cut, more then likely just slightly up gradient of the down gradient wetland. Regardless of the exact elevation, through the design process with the assistance of the geotechnical engineer, the ground water has been addressed with the proposed under-drains beneath the system.

Regarding the ***"failures"***. In our 45 years of business we have installed thousands of square feet of underground detention systems. To date we have never had to repair or replace one underground system. Nor have we had a complaint or concern about an underground system.

Second, regarding the ***"gravel wetlands, bioretention area or other"***. We have also built numerous rain gardens, bioretention basins, wet basins, and gravel wetlands. Unlike the underground systems, we are consistently either cleaning, repairing and in some cases replacing the above grade systems.

Speaking from my 36 years of hands on experience in this industry, there is no comparison to the systems. The only part of that paragraph that I would agree with is that the surface BMP is ***"easier"*** to construct, but the maintenance and operation of the surface systems are horrible. This is for one simple reason; it is exposed to the elements.

Even if the basin is maintained on one day, a windy fall storm with heavy rains the next day will mask and plug the infiltration surface and many times plug the small orifice in the outlet structure. It is a common occurrence to get complaints about surface treatment BMP's after the project is completed and residents are moved in.

The complaints are typically about the standing water. They fear the areas that do not drain quickly enough are a mosquito breeding ground. So typically, our visit reveals that leaves have plugged the small orifice in the outlet structure. In some cases, the leaves mask the surface and slow the infiltration rate to a point of making the area unsightly to the residents, regardless of how many times we explain that the water will eventually recede, they still dislike the periods of un-slightly standing water.

Ultimately as you know the residents have a powerful voice with the community. In one case in Rye we had to completely replace the surface water quality basin due to complaints about long standing static water. It was $80,000 to replace the rain garden with a system that kept the water below grade to infiltrate.

In some situations where rainstorms have a long duration, we have seen the outlet structure so plugged with debris that water breached the overflow and compromised the berm to a point that it eroded soils into the adjacent wetland.

It is the same as porous pavement, it looks great on paper, but very difficult to maintain properly in New England. Every job that we encounter porous pavement, we try to push to re-design the job using catch basins to capture the water, then get the water into an underground perforated pipe bedded in stone. You accomplish the same thing by infiltrating the water into the ground, but you take the sand and other elements out of play by keeping the treatment underground.

The simplest analogy I can relate it to is overhead powerlines versus underground power. For the past few decades, we have been pushing to keep all utilities underground. Why, for one it is more aesthetically pleasing, but the bigger reason is to remove the overhead lines from the elements to prevent power outages. No one would ever suggest running overhead power through a new subdivision because it is ***"easier to construct"***, or because the conduits are ***"partially under the subdivision access road"*** and the repairs would be difficult. That concern is a function of proper installation to promote long term reliability.

The materials that are used today for underground construction have a life that far exceeds the longevity of the physical road itself. The thought of replacing that drainage system should be no different than replacing a watermain or a sewer main.

Having installed both systems for many years, but only repaired and replaced the above ground systems, it is my professional opinion that the R-Tank system is the best design for this project.

Sincerely,

Thomas Severino
Vice President
Severino Trucking Co., Inc.

DOCUMENT # 26

Job #47361.00

DRAINAGE ANALYSIS

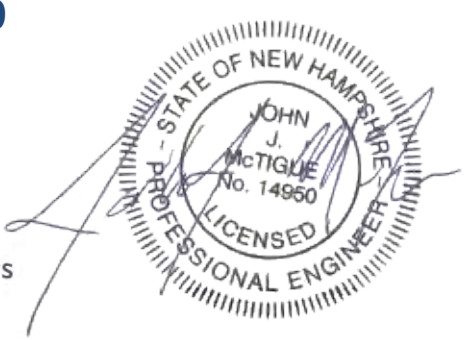
F O R

The Village at Banfield Woods

County of Rockingham
Portsmouth, New Hampshire

Tax Map 256, Lot 2

December 27, 2019
Last Revised May 5, 2020



Prepared By:

TFM® Since 1968

Civil Engineers
Structural Engineers
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Land Surveyors
Landscape Architects
Scientists

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1.0 – SUMMARY AND PROJECT DESCRIPTION

The existing lot is 44.884 acres. The proposed site consists of a multi-family condominium comprising of 22 single-family dwelling units. The stormwater management system has gone through several iterations to minimize impacts to the 100' wetland buffer and provide a usable and sustainable drainage system.

The disturbance on the lot is limited to the western section of the lot. This is the area of focus for the drainage report. The proposed development will only effect 17% of the lot with a 5% impervious cover.

This drainage study was completed to assess the pre- and post-development runoff rates for the 2-year, 10-year, 25-year, and the 50-year storm events on the proposed site. The post development drainage flows remain the same or are less than the pre-development drainage flows.

In addition, Best Management Practices were developed to formulate a plan that assures stormwater quality both during and after construction. The following summarizes the findings from the study.

1.1 - Pre- and Post-Development Flow Comparison

The pre- and post-development watershed areas have been analyzed for the property. Table 1 compares pre- and post-development peak runoff rates during all storm events analyzed for each Point of Interest.

The drainage flows in post development remain the same or show a slight decrease for the pre-development Flows.

Area Number	2-Year (Flow - cfs)		2-Year (Volume - cf)		10-Year (Flow - cfs)		25-Year (Flow - cfs)		50-Year (Flow - cfs)	
	Pre-Dev.	Post Dev.	Pre-Dev.	Post Dev.	Pre-Dev.	Post Dev.	Pre-Dev.	Post Dev.	Pre-Dev.	Post Dev.
POI-1	11.5	10.0	176,319	181,603	21.8	21.6	42.7	41.2	70.4	68.3
POI-2	0.3	0.3	3,189	3,189	1.1	1.1	1.8	1.8	2.5	2.5
Total Volume			179,508	184,729						

Table 1 - Pre and Post Flows

1.2 – Best Management Practices

Best Management Practices have been incorporated into the drainage design to provide for temporary erosion control measures during the construction process and permanent erosion control measures after construction is complete. Temporary measures include construction sequencing, silt barriers and provisions for stabilization of inactive areas. Permanent erosion control measures include turf establishment on all disturbed areas that have not been paved, one bioretention area, two hybrid bioretention areas, two infiltration basins and one underground stormwater treatment system (USTS).

2.0 - CALCULATION METHODS

The design storms analyzed in this study are the 2-year, 10-year, 25-year and the 50-year, 24-hour storm events. The software program, HydroCAD version 10.00[1] was utilized to calculate the peak runoff rates from these storm events. The program estimates the peak rates using the TR-20 method. A Type III storm pattern was used in the model. Rainfall frequencies for the analyzed region were also incorporated into the model. Rainfall frequencies from the Northeast Regional Climate Center (NRCC) were used to determine the storm-event intensities, see Appendix A. The project lies in the Great Bay region. To account for this, a 15% increase was added to the storm-event intensities (see Table 2). Design standards were taken from the New Hampshire Stormwater Manual, December 2008[2].

	PRECIPITATION ESTIMATES	
Storm-Event (yr)	NRCC Rainfall (in)	115% Rainfall (in)
2	3.24	3.73
10	4.91	5.65
25	6.23	7.16
50	7.46	8.58

Table 2 - Precipitation Estimates

Time of Concentration is the time it takes for water to flow from the most hydraulically remote point to the watershed outlet following the route that takes the longest watercourse length. This time is determined by calculating the time it takes runoff to travel this route under one of three hydrologic conditions: sheet flow, shallow concentrated flow or channel flow. Because the Intensity-Duration-Frequency (IDF) curve is steep with short T_C's, estimating the actual intensity is subject to error and overestimates actual runoff. Due to this, the T_C's are adjusted to a minimum of 5 minutes.

[1] HydroCAD version 10.00, HydroCAD Software Solutions LLC, Chocorua, NH, 2013.
[2] New Hampshire Stormwater Manual: Volume One - Stormwater and Antidegradation, December 2008; Volume Two - Post-Construction Best Management Practices Selection and Design, December 2008; Volume Three - Erosion and Sediment Controls During Construction, December 2008.

Calculation Warnings

During the 10-year, 24-hour storm event, 5 warnings occurred:

[80] Warning: Pond PP03a Exceeded Pond CB01 by 1.37' @ 20.10 hrs (3.0 cfs 18,345 cf)
[80] Warning: Pond PP03a Exceeded Pond CB02 by 0.03' @ 23.58 hrs (0.6 cfs 3,162 cf)

- Both of these warnings are in reference to water being held in the catchbasins during the storm. The flows are contained in the Catch Basin, even in the 50-year storm.

[87] Warning: Pond CB01 Oscillations may require smaller dt or Finer Routing (severity=52)
[87] Warning: Pond CB02 Oscillations may require smaller dt or Finer Routing (severity=54)
[87] Warning: Pond PP04A Oscillations may require smaller dt or Finer Routing (severity=48)

- Two of these warnings are from the same catchbasins. The other is from the second set of R-Tank chambers. Changing the finer routing had little effect the oscillations. Decreasing the time increment (dt) only increased the oscillation. The oscillations happen at the beginning and end of the storms and do not affect peak runoff. The oscillation never exceeds 100 and are considered minor oscillations.

3.0 – Existing Soils

The National Resources Conservation Service (NRCS) Web Soil shows that approximately half the soil in the area to be (140) Chatfield-Hollis-Canton complex, 0 to 15 percent slopes and rocky. Chatfield soil is well drained soil with high runoff potential. It is grouped as a Hydrologic Soil Group B soil. Hollis soil is somewhat-excessively-drained with a very high runoff potential and grouped as a Hydrologic Soil Group D soil. Canton soil is a well-drained soil with a low runoff potential. It is grouped as a Hydrologic Soil Group B soil.

The next major soil group in the study area is (538) Squamscott fine sandy loam, 0 to 5 % slopes. It is a poorly drained soil with a medium runoff potential and grouped as a Hydrologic Soil Group C/D soil.

The remainder of the soil is classed as (134) Maybid silt loam, 0 to 5 % slopes, and (38) Eldridge fine sandy loam, 3 to 8 % slopes. Neither of these are in the area being developed, both are grouped as a Hydrologic Soil Group C/D soil. See Section 8 for more detail.

The Site Specific Soil Survey was performed in the western section of the lot, wher the proposed development occurs. Four groups of soil were defined in the report. (135) Chatfield Variant-Newfield Complex is the most prevalent soil in this area. The most predominant soil within this group is the Woodbridge soils, which are moderately well drained soils on dense glacial till. Newfield soils are moderately well drained loose glacial soils. These were classified as having a Hydrologic Soil Group C.

(41) Chatfield-Hollis-Rock Outcrop Complex is the other predominant upland soil. Chatfield is the largest component of the complex at 50%, Hollis is the next largest component at 30%. Lastly is the Rock Outcrop at 20%. These were classified as having a Hydrologic Soil Group B.

The largest wetland soil was classified as (538) Squamscott fine sandy loam. It is a poorly drained sand over marine silt soils. These were classified as having a Hydrologic Soil Group C.

(656) Ridgebury fine sandy loam makes up the last wetland soil and it is a poorly drained loamy soil which develops on dense glacial till. These were classified as having a Hydrologic Soil Group C. (See Section 15 for more detail.)

Curve numbers are based on the soil's hydrologic properties, ranging from 30 to 100. The lower numbers indicate that the soils have less runoff potential (amount of rainwater that is not retained) and higher curve numbers indicate the soils have a high runoff potential. Several curve numbers were used in the analysis of this property. (See Table 3 Below.) For areas in the buffer that are proposed to be mowed, once a year, a woods grass combo was used. This classification has a higher curve number than the undisturbed woods and smaller curve number than well maintained lawns.

Cover Types	B Soils	C Soils
Existing Woods - Woods Good	55	70
Powerlines – Powerlines - Brush, Good	48	65
Wetlands – Brush, Good	48	65
Lawns - >75% Grass Cover, Good	61	74
Restored Buffer Areas – Woods Grass Combo, Good (Areas that would be mowed one or less times a year)	58	72
Roads and Driveways – Paved Parking	98	98
Houses – Roofs	98	98

Table 3 - Project Curve Numbers

4.0 – PRE-DEVELOPMENT CONDITION

There are nine watershed areas that have been used to identify the pre-development conditions. The pre-development watersheds are depicted on the attached plan entitled "Pre-Development Drainage Plan Overall," Section 20 - Sheet D-1.

Except for a small portion in the northeast corner of the lot (PPoI-02), stormwater from offsite and onsite drain to two 'valleys' in the property. The first of these areas is orientated in a north/south direction near the middle of the property. The second area is orientated in the east/west direction, just north of Banfield Road. Wetlands exists in both of these areas.

The two low areas direct the water to two culverts near the middle of the property (PPoI-1) that flow under Banfield road to the property to the south of Banfield Road. Stormwater flows from these culverts through swales and minor waterways to Sagamore Creek.

See Table 1 for Pre-development Stormwater Flows Offsite. Appendix A in this Drainage Study documents the peak runoff rates. Appendix B and C in this Drainage Study documents the computations for these peak stormwater flows.

5.0 – POST-DEVELOPMENT CONDITION

There are 24 drainage areas that have been used to define identify the post development condition. Post-development watershed areas are depicted on the attached plan entitled “Post-Development Drainage Plan Overall,” Section 20 - Sheet D-2 through D-4.

Table 1 summarizes the Post-Development Stormwater Flows Offsite for the 2-year, 10-year, 25-year and 50-year Type III storm events for the watershed areas. Appendix D and E in this Drainage Study documents the computations for these peak stormwater flows.

The small portion in the northeast corner of the lot (PPoI-02) is not being developed and there is no change in rainfall flows or volumes.

Four Pretx units are used at the entrance to the site to capture water and provide pretreatment. Because of the topography and the locations of the wetlands and buffers, additional stormwater treatment is not feasible, without additional wetland and wetland buffer impact.

One underground stormwater treatment system (USTS) is used to capture runoff from the roadway, drives, and buildings from approximately 175’ to 500’ into the site. The USTS captures the water through four deep-sump catch basins, providing the pretreatment to the stormwater before it enters the system. Four sets of R-Tanks hold and detain the stormwater as it filters through a layer of engineered soil, removing most of the contaminants. Outlet structures meter the release during larger storms.

Two Hybrid bioretention areas treat the stormwater from 500’ to the cul-de-sac, including some of the houses and drives along the outer edge of the cul-de-sac. The stormwater enters through four deep-sump catch basins for pretreatment prior to entering the ponding areas. Stormwater is held in the pond area as it filters through an engineered soil, filtering out contaminants. This hybrid design offers and anaerobic area (absence of free oxygen) that further aids in the denitrification process.

One conventional bioretention area is used to treat the stormwater for a portion of the cul-de-sac and the grassed area in the center of the cul-de-sac. A forebay near the front of the island in the cul-de-sac provides pretreatment prior to the water entering the Bioretention Area 1. Engineered soil will filter the stormwater before being captured by underdrains and flowing back into the undisturbed woods. An outlet control structure is used to meter the flow of the water to keep storm flows to minimum.

Two more infiltration basins capture some roof runoff and yard runoff, infiltrating stormwater runoff back into the ground. The stormwater runoff entering the infiltration basins are from roof runoff and lawns, therefore, not requiring pretreatment. The required groundwater recharge volume (GRV) based upon the additional impervious area is 1,190 cf. The two infiltration basins provide 1,695 cf of infiltration during a 2-year storm event which meets the threshold GRV for this site. (See BMP worksheets for more detail.)

The remainder of the roof runoff not captured by these systems will be treated by overland flow through the 100' wetland buffers.

The various stormwater treatment areas drain through the wetland to the two existing culverts that go under Banfield Road.

For channel protection, NHDES requires the post development 2-year volume not exceed the 0.1 acre-ft of the pre-development volume. This site meets this criterion.

For all storm events analyzed, the post development runoff from this site remains the same or slightly lower that the pre-development runoff. The proposed storm flows will have no adverse effects on the abutting properties or adjacent wetlands.

6.0 – BMP EFFICIENCIES

Appendix B of Volume 2 of the New Hampshire Stormwater Manual[3] list the pollutant removal efficiencies of various BMP's.

The bioretention area and filtration practices are listed as having a 90% efficiency for removing Total Suspended Solids (TSS) and 65% efficiencies in removing Total Nitrogen (TN) and Total Phosphorous (TP). Based on UNHSC data, the Hybrid bioretention systems offer further denitrification of the stormwater, showing approximately a 30% increase in removal of TP and an additional 20% removal for TN.

Infiltration practices are listed as having a 90% efficiency for removing Total Suspended Solids (TSS), 60% efficiencies in removing Total Nitrogen (TN) and 65% efficiencies in removing Total Phosphorous (TP).

7.0 – LOW IMPACT DESIGN

Low Impact Design (LID) features are utilized in the design and implementation of this project. This site is laid out to provide the maximum greenspace for the proposed development. The total area of the lot is 44.884 acre (1,955,150 sf). The disturbed lot area is 7.613 acres (331,617 sf)[4], leaving 32.271 acres (1,623,533) of undisturbed area. The percent undisturbed cover (%UDC) is 83%. The majority of this lot will be left in its natural state (83%).

The impervious cover on this lot, including roofs, is 2.279 acres (99,283 sf)[5]. The percent effective impervious area cover (%EIC) is only 5% of the lot. 5% impervious cover is a small amount for a development of this size.

[3] New Hampshire Stormwater Manual: Volume One - Stormwater and Antidegradation, December 2008; Volume Two - Post-Construction Best Management Practices Selection and Design, December 2008; Volume Three - Erosion and Sediment Controls During Construction, December 2008.
[4] Disturbed Lot Area (7.613 acres (331,617 sf)) = Total Disturbed Area (7.633 acres (332,478 sf)) – Disturbed Area Outside Lot (0.020 acres (861 sf))
[5] Impervious Cover on this Lot = Total Additional Impervious Cover (2.290 acres (99,745 sf)) - the Additional Impervious Cover Outside the Right-of-way (0.011 acres (462 sf))

The initial impervious cover was reduced by implementing a narrower roadway, 20' wide, in place of the standard 28' wide roadway (two 12' lanes and a 4' shoulders/walkway). Additionally, a reduced radius was used on the cul-de-sac. This amounted to a 16,400 sf (35%) reduction in impervious roadway cover.

The impervious roadway in the cul-de-sac is being captured and treated using the Bioretention Area #1 which is using soil and plant-based media to filter and treat the stormwater. More of the impervious roadway is captured by Hybrid Bioretention Areas #2 and #3. These add an anaerobic zone on top of the filtration that the conventional bioretention area offers. The underground stormwater treatment system uses engineered soil to treat and attenuate stormwater flows, similar to the bioretention system. Refer to BMP Efficiencies for the pollutant efficiency removal rates.

In the April 2009 EPA article entitled "Managing Stormwater with Low Impact Development Practices: Addressing Barriers to LID" it speaks of LID's as "practices that manage stormwater by minimizing impervious cover and by using natural or man-made systems to filter and recharge stormwater into the ground. Roads, parking lots, and other types of impervious cover are the most significant contributors to stormwater runoff".

This project has minimized the impervious cover and provided treatment in several disperse filtration systems and provides more than the required groundwater recharge volume. It is a Low Impact Design.

8.0 – BEST MANAGEMENT PRACTICES

All soil erosion and sediment control measures shall be in accordance with regulations and principles as outlined in the *New Hampshire Stormwater Manual, Volumes Two and Three, December 2008*. The intent of the outlined measures is to minimize erosion and sedimentation during construction, stabilize and protect the site from erosion after construction is complete and mitigate any adverse impacts to stormwater quality resulting from development. Best Management Practices for this project include:

- Temporary practices to be implemented during construction.

- Permanent practices to be implemented after construction.

8.1 – Temporary Practices:

1. Erosion, sediment, and stormwater detention measures must be installed as shown on the plan.

2. All disturbed areas, as well as loam stockpiles, shall be seeded and contained by a silt barrier.

3. Silt barriers must be installed prior to any construction. All erosion control devices including silt barriers and storm drain inlet filters shall be inspected at least once per week and following any rainfall. All necessary maintenance shall be completed within twenty-four (24) hours.

4. Any silt barriers found to be failing must be replaced immediately. Sediment is to be removed from behind the silt fence if found to be one-third the height of the silt barrier or greater.

5. Any area of the site, which has been disturbed and where construction activity will not occur for more than twenty-one (21) days, shall be temporarily stabilized by mulching and seeding.

6. No construction materials shall be buried on-site.

7. After all areas have been stabilized, temporary practices are to be removed, and the area they are removed from must be smoothed and revegetated.

8. Areas must be temporarily stabilized within 14 days of disturbance or seeded and mulched within 3 days of final stabilization.

9. After November 15th, incomplete driveways or parking areas must be protected with a minimum of 3" of crushed gravel, meeting the standards of NHDOT item 304.3.

10. An area is considered stabilized if it has met one of the following:

    a) A minimum of 85% vegetative growth has been established,
    b) Base course gravel has been installed in areas to be paved,
    c) Stone, rip rap, or any other non-erosive material has been installed with a minimum thickness of 3",
    d) Erosion control blankets have been installed.

8.2 – Permanent Practices:

The objectives for developing permanent Best Management Practices for this site include the following:

1. Maintain existing runoff flow characteristics.
    a) Drainage is structured to minimize any offsite increase in runoff,

2. Treatment BMP's are established to ensure the water quality,

3. Maintenance schedules are set to safeguard the long term working of the stormwater BMP's.

8.0 – CONCLUSION

The development of this lot, once construction is completed, will have a slight decrease in stormwater flows for the storm events analyzed and will have no adverse effects on surrounding properties or adjacent wetlands. There will be little to no change in the stormwater runoff characteristics for the lot. Appropriate erosion and sediment control practices will be implemented to reduce possible erosion and siltation. Best Management Practices will be developed in accordance with the *New Hampshire Stormwater Manual, Volumes Two and Three, December 2008* to formulate a plan that assures stormwater quality both during and after construction.

Submitted by,

TFMoran, Inc.

Jack McTigue, PE

Project Manager

SITE DEVELOPMENT PLANS

TAX MAP 256 LOT 2

PRELIMINARY LANDSCAPE PLAN

THE VILLAGE AT BANFIELD WOODS

PORTSMOUTH, NH

OWNED BY

WALTER D HETT TRUST

PREPARED FOR

GREEN & COMPANY REAL ESTATE

SCALE: 1"=50' **APRIL 30, 2020**

TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
48 Constitution Drive
Bedford, NH 03110
Phone (603) 472-4488
Fax (603) 472-9747
www.tfmoran.com

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P-01

DOCUMENT # 11

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NEW HAMPSHIRE 200

LANDSCAPE SUMMARY

Project: The Village at Banfield Woods

Date: 01 May 2020

The proposed open space planned unit development of 22 residential units was designed with the goals of creating a quaint residential community that is in harmony with its surroundings. The tree lined road layout gently bends through the site and creates two distinct living communities. The houses were carefully placed with the garages facing the neighbors living areas, limiting inside to inside interaction, while also staying outside of the wetland buffers. The layout of homes maintains the 100' wetland buffer to the adjacent wetlands. The landscaping chosen for these homes, and the entire site, will enhance this buffer and provide vegetation beyond the natural 100' buffer.

Eighty six percent of the plant materials selected for the site are native or improved native species. The remaining fourteen percent have been selected for their hardiness to the area, to add vibrant differing colors, textures and hues of green, as most all native plant materials only have white flowers. The native shade trees have varying shaped silhouettes, branching structures, and will provide four season interest. The fall colors range from multiple shades of yellows, to orange, and vibrant reds. Smaller flowering understory trees will also provide a transitioning flower schedule and attract wildlife to feed in their berries. The shrubs are a mixture of low, medium, large flowering deciduous, and evergreens to provide a layering effect from low to high. The mixture of different sized, evergreen and deciduous plant materials has been utilized as plant massing between homes to create an aesthetically pleasing screening effect, adding additional privacy to the front and rear yards for the residents to enjoy.

A typical Conservation subdivision landscape budget is $4,000 to $5,000 per home. Our discussions with the applicant regarding landscaping for this site were about exceeding the typical amount to enhance aesthetic quality. The applicant gave us flexibility to add as many plantings as we felt the site would sustain. With this freedom, we have put extra thought into designing the entire site as-a-whole to create a common sense of place, with bloom times to be offset from one another to add multiple periods of color throughout the year. Each homes' foundation plantings were designed on an individual level to take into account the grading for each site, and how it reflects to the neighboring homes in lieu of providing a typical house landscape, with one tree and many shrubs. Because of this freedom to increase the amount of landscaping above the typical average, each homes' landscape installation cost will range from $17,000 to $20,000.

Summary by:
TFMoran, Inc.

Michael Krzeminski, PLA

TFM Project 47361.00

TFMoran, Inc.
48 Constitution Drive, Bedford, NH 03110
T(603) 472-4488 www.tfmoran.com

BEST OF BUSINESS 2020 BOB AWARDS

TFMoran, Inc. Seacoast Division
170 Commerce Way–Suite 102, Portsmouth, NH 03801
T(603) 431-2222

N

NAD 83

LEGEND	
PROPOSED	
	LARGE DECIDUOUS SHRUBS
	SMALL DECIDUOUS SHRUBS
	LARGE EVERGREEN SHRUBS
	SMALL EVERGREEN SHRUBS
	EVERGREEN TREE
	ORNAMENTAL DECIDUOUS TREE
	MAJOR DECIDUOUS TREE

NOTE:
SELECTED LANDSCAPE PLANT SPECIES TO BE NATIVE OR IMPROVED NATIVE TO NEW ENGLAND.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

ROAD A

SEPTIC FIELD (TYPICAL)

BANFIELD ROAD

HORIZONTAL SCALE 1"=30'
30 15 0 30

SITE DEVELOPMENT PLANS

TAX MAP 256 LOT 2

PRELIMINARY LANDSCAPE PLAN

THE VILLAGE AT BANFIELD WOODS

PORTSMOUTH, NH

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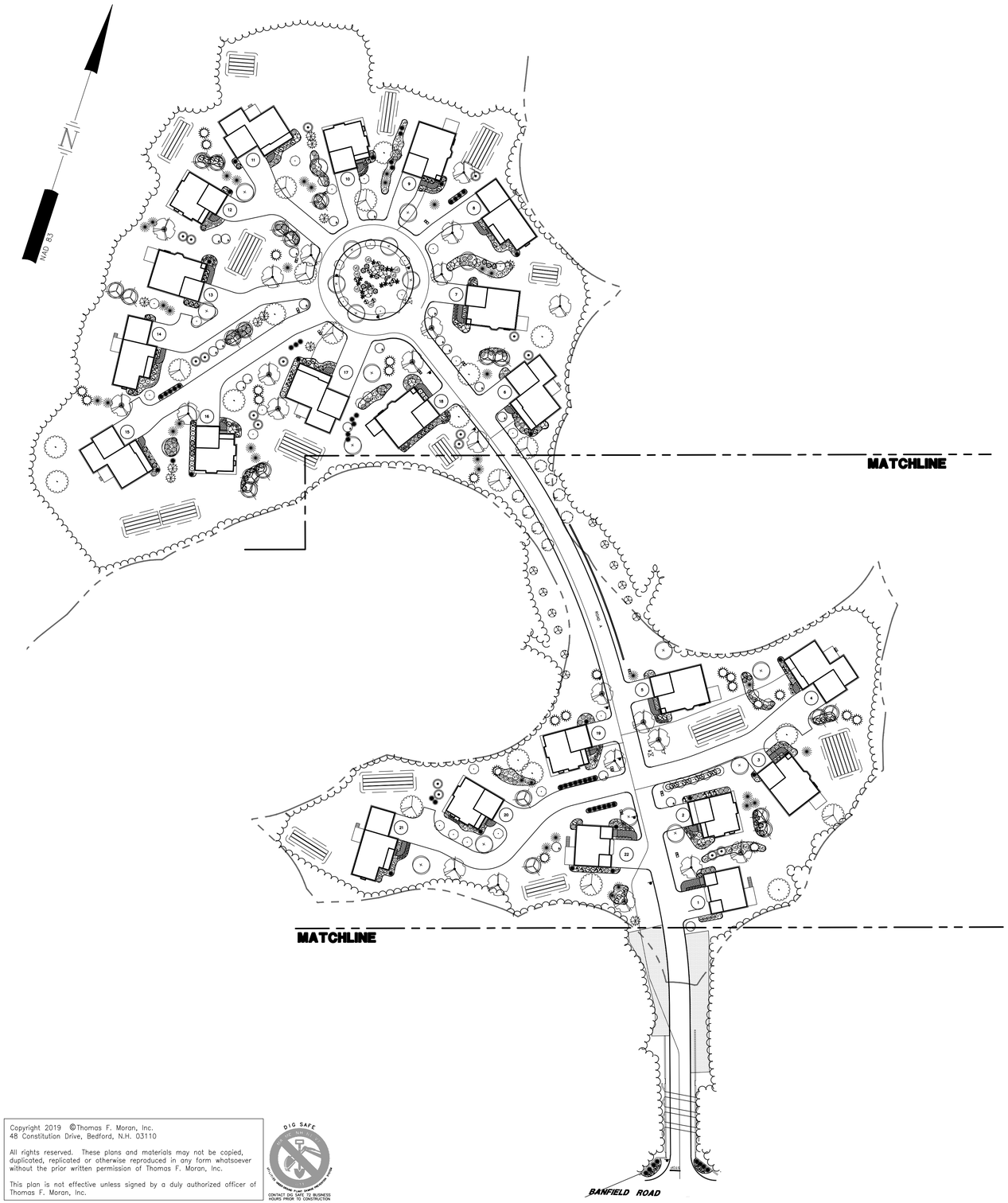

LANDSCAPE NOTES

1. CONTRACTOR WILL LOCATE, VERIFY AND MARK ALL EXISTING AND NEWLY INSTALLED UNDERGROUND UTILITIES PRIOR TO ANY LAWNWORK OR PLANTING. ANY CONFLICTS WHICH MIGHT OCCUR BETWEEN PLANTING AND UTILITIES WILL IMMEDIATELY BE REPORTED TO THE LANDSCAPE ARCHITECT OR OWNERS' REPRESENTATIVE, SO THAT ALTERNATE PLANTING LOCATIONS CAN BE DETERMINED.
2. CONTRACTOR WILL FURNISH AND PLANT ALL PLANTS IN QUANTITIES AS SHOWN ON THIS PLAN. IN CASES OF DISCREPANCY BETWEEN PLAN AND LIST CLARIFY WITH LANDSCAPE ARCHITECT PRIOR TO PLACING PURCHASE ORDER AND AGAIN PRIOR TO PLANTING.
3. SEE PLANTING DETAILS AND IF INCLUDED, SPECIFICATIONS FOR ADDITIONAL INFORMATION.
4. PLANT TYPES MAY VARY BASED ON AVAILABILITY AND SUPPLY. THIS LAYOUT REPRESENTS THE INTENT OF THE PLANTING AND APPROXIMATE NUMBERS OF PLANTS TO BE PROVIDED.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE THE APPROPRIATE ARRANGEMENTS TO PROVIDE ALL PLANTS AND MATERIALS TO ACCOMMODATE PLANTING WITHIN THE TIME ALLOWED BY THE CONSTRUCTION SCHEDULE.
6. PLANTING SHALL BE COMPLETED FROM APRIL 15TH THROUGH OCTOBER 15TH UNLESS OTHERWISE NOTED IN SPECIFICATIONS. THERE WILL BE NO PLANTING DURING JULY AND AUGUST UNLESS SPECIAL PROVISIONS ARE MADE FOR DROUGHT BY PROVIDING ADDITIONAL WATERING.
7. ALL PLANTS WILL BE NURSERY GROWN.
8. PLANTS WILL BE IN ACCORDANCE, AT A MINIMUM, WITH CURRENT EDITION OF "AMERICAN STANDARDS FOR NURSERY STOCK" AS PUBLISHED BY THE AMERICAN HORTICULTURE INDUSTRY ASSOCIATION.
9. TREES WILL BE PRUNED IN ACCORDANCE WITH THE LATEST EDITION OF ANSI A300 PART 1, "TREE, SHRUB AND OTHER WOODY PLANT MAINTENANCE STANDARD PRACTICES".
10. PLANTS MATERIAL IS SUBJECT TO APPROVAL / REJECTION BY THE LANDSCAPE ARCHITECT AT THE SITE AND AT THE NURSERY.
11. ALL PLANTS WILL BE MOVED WITH ROOT SYSTEMS AS SOLID UNITS AND WITH BALLS OF EARTH FIRMLY WRAPPED WITH BURLAP. NO PLANT WILL BE ACCEPTED WHEN BALL OF EARTH SURROUNDING ITS ROOTS HAS BEEN BADLY CRACKED OR BROKEN BEFORE PLANTING. ALL PLANTS THAT CANNOT BE PLANTED AT ONCE WILL BE HEELED–IN BY SETTING IN THE GROUND AND COVERING THE BALLS WITH SOIL AND THEN WATERING. DURING TRANSPORT, ALL PLANT MATERIALS WILL BE WRAPPED WITH WIND PROOF COVERING.
12. NEWLY PLANTED MATERIAL WILL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS TO THE ORIGINAL GRADE OF THE PLANT PRIOR TO DIGGING.
13. PROPOSED TREES OVERHANGING SIDEWALKS, ROADS OR PARKING WILL BEGIN BRANCHING NATURALLY (NOT PRUNED) AT 6' HEIGHT.
14. MULCH FOR PLANTED AREAS (NOT INCLUDING RAIN GARDENS) WILL BE AGED SHREDDED PINE BARK, PARTIALLY DECOMPOSED, DARK BROWN IN COLOR AND FREE OF WOOD CHIPS UNLESS OTHERWISE SHOWN.
15. PLANT MATERIAL WILL BE LOCATED OUTSIDE BUILDING DRIPLINES AND ROOF VALLEY POINTS OF CONCENTRATION TO PREVENT DAMAGE TO PLANTS. CLARIFY DISCREPANCIES WITH LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
16. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED, WILL RECEIVE SIX (6) INCH LOAM AND SEED AT THE DIRECTION OF THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE.
17. TREE STAKES AND WRAP WILL REMAIN IN PLACE FOR NO LESS THAN 6 MONTHS AND NO MORE THAN 1 YEAR. CONTRACTOR WILL REMOVE.
18. ALL PLANT GROUPINGS WILL BE IN MULCH BEDS UNLESS OTHERWISE SPECIFIED OR NOTED ON PLANS. WHERE MULCHED PLANT BED ABUTS LAWN, PROVIDE TURF CUT EDGE.
19. ALL PLANT BEDS WILL INTERSECT WITH PAVEMENT AT 90 DEGREES UNLESS OTHERWISE NOTED ON PLANS.

LANDSCAPE GUARANTEE AND MAINTENANCE NOTES

1. CONTRACTOR WILL BE RESPONSIBLE FOR ALL MEANS, METHODS AND TECHNIQUES OF WATERING.
2. CONTRACTOR WILL BEGIN WATERING IMMEDIATELY AFTER PLANTING. ALL PLANTS WILL BE THOROUGHLY WATERED TWICE DURING THE FIRST 24 HOUR PERIOD AFTER PLANTING. ALL PLANTS WILL BE WATERED WEEKLY, OR MORE OFTEN, IF NECESSARY DURING THE FIRST GROWING SEASON BUT NOT LESS THAN ONE YEAR.
3. WATER ALL LAWNS AS REQUIRED. DO NOT LET NEWLY PLANTED LAWNS DRY OUT DURING THE FIRST FOUR WEEKS MINIMUM.
4. ALL NEW LAWNS WILL BE MAINTAINED AND MOWED A MINIMUM THREE (3) TIMES BEFORE REQUESTING REVIEW BY LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE FOR ACCEPTANCE. MAINTENANCE AND MOWING WILL CONTINUE UNTIL ACCEPTED BY LANDSCAPE ARCHITECT OR OWNERS' REPRESENTATIVE IS ISSUED IN WRITING.
5. THE CONTRACTOR WILL MAINTAIN AND GUARANTEE ALL PLANTINGS TO BE IN GOOD HEALTHY, FLOURISHING AND ACCEPTABLE CONDITION FOR A PERIOD OF ONE (1) YEAR BEGINNING AT THE DATE OF ACCEPTANCE BY THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE. ALL GRASSES, TREES AND SHRUBS THAT, IN THE OPINION OF THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE SHOWING LESS THAN 80% HEALTHY GROWTH AT THE END OF ONE (1) YEAR PERIOD WILL BE IMMEDIATELY REPLACED BY THE CONTRACTOR.
6. DECIDUOUS PLANT MATERIAL INSTALLED AFTER SEPTEMBER 30 AND BEFORE APRIL 15 WILL NOT BE REVIEWED THAT SEASON FOR ACCEPTANCE DUE TO STAGE OF LEAF PHYSIOLOGY. THIS PLANT MATERIAL WILL NOT BE REVIEWED UNTIL FOLLOWING GROWING SEASON. GUARANTEE PERIOD WILL BEGIN ONLY AFTER ACCEPTANCE BY LANDSCAPE ARCHITECT OR OWNERS' REPRESENTATIVE.
7. EVERGREEN PLANT MATERIAL INSTALLED AFTER OCTOBER 30 AND BEFORE APRIL 15 WILL NOT BE REVIEWED THAT SEASON FOR ACCEPTANCE DUE TO END OF GROWTH SEASON. THIS PLANT MATERIAL WILL NOT BE REVIEWED UNTIL FOLLOWING GROWING SEASON. GUARANTEE PERIOD WILL BEGIN ONLY AFTER ACCEPTANCE BY LANDSCAPE ARCHITECT OR OWNERS' REPRESENTATIVE.

HYDROSEEDING NOTES

1. HYDROSEEDING MAY BE USED AS AN ALTERNATE METHOD OF SEEDING. THE APPLICATION OF LIMESTONE AS NECESSARY, FERTILIZER AND GRASS SEED MAY BE ACCOMPLISHED IN ONE OPERATION BY THE USE OF A SPRAYING MACHINE APPROVED BY THE LANDSCAPE ARCHITECT OR CIVIL ENGINEER. THE MATERIALS SHALL BE MIXED WITH WATER IN THE MACHINE AND SHALL CONFORM TO RELATIVE REQUIREMENTS OF SECTION 644 OF NH. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
2. (FOR MASSACHUSETTS PROJECTS PLUG IN – SECTION 765.65 OF MASS. DPW CURRENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES).

INVASIVE PLANT NOTES

1. EXISTING NON–NATIVE, INVASIVE PLANT SPECIES WILL BE IDENTIFIED, REMOVED, DESTROYED AND LEGALLY DISPOSED OF OFF–SITE IN ACCORDANCE WITH THE LATEST UNIVERSITY OF NEW HAMPSHIRE COOPERATIVE EXTENSION METHODS OF DISPOSING NON–NATIVE INVASIVE PLANTS. SEE "MANAGE AND CONTROL INVASIVES" AND PROPERLY DISPOSE OF INVASIVE PLANTS".

PRICING & CONSTRUCTION DOCUMENT NOTES

1. CONTRACTOR WILL PRICE PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE PLANTINGS GRAPHICALLY SHOWN ON THESE DRAWINGS OR IN PLANT LIST, WHICHEVER IS GREATER. IN CASES OF DISCREPANCY BETWEEN PLAN AND LIST CLARIFY WITH LANDSCAPE ARCHITECT PRIOR TO PLACING PURCHASE ORDER AND AGAIN PRIOR TO PLANTING.
2. CONTRACTOR WILL VERIFY PRIOR TO PRICING IF SITE SOILS ARE VERY POORLY DRAINING OR IF LEDGE IS PRESENT. IF CONTRACTOR ENCOUNTERS VERY POORLY DRAINING SOILS (BATH TUB EFFECT) OR LEDGE THAT IMPACTS PROPOSED PLANTING PLAN, NOTIFY LANDSCAPE ARCHITECT OR OWNERS' REPRESENTATIVE FOR DIRECTION PRIOR TO PRICING AND AGAIN PRIOR TO PERFORMING ANY WORK.
3. CONTRACTOR WILL STAKE OR PLACE ON GROUND ALL PROPOSED PLANT MATERIALS PER PLAN. CONTACT LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
4. COORDINATE WITH LANDSCAPE ARCHITECT'S CONTRACTED NUMBER OF SITE VISITS WHEN PLANNING FOR INSPECTION. NOTIFY LANDSCAPE ARCHITECT 72 HOURS MINIMUM IN ADVANCE OF REQUESTED SITE VISIT.
5. CONTRACTOR WILL DEVELOP A WRITTEN WATERING SCHEDULE AND WILL SUBMIT WATERING SCHEDULE TO OWNERS' REPRESENTATIVE. CONTRACTOR WILL WATER ALL NEW PLANTS INCLUDING LAWNS THAT ARE NOT "IRRIGATED" VIA A PERMANENT IRRIGATION SYSTEM FOR THE FIRST 12 MONTHS.

PORTSMOUTH NOTES

1. THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNER'S WILL BE RESPONSIBLE FOR THE MAINTENANCE AND OF ALL REQUIRED SCREENING AND LANDSCAPE MATERIALS INDICATED ON THESE PLANS.
2.
3. ALL REQUIRED PLANT MATERIAL WILL BE TENDED TO AND KEPT FREE OF REFUSE AND DEBRIS.
4. ALL REQUIRED FENCES AND WALLS WILL BE MAINTAINED IN GOOD REPAIR.
5. THE PROPERTY OWNER WILL BE RESPONSIBLE TO REMOVE AND REPLACE DEAD OR DISEASED PLANT MATERIALS IMMEDIATELY WITH THE SAME TYPE, SIZE AND QUANTITY OF PLANT MATERIALS AS ORIGINALLY INSTALLED, UNLESS ALTERNATIVE PLANTINGS ARE REQUESTED, JUSTIFIED AND APPROVED BY THE PLANNING BOARD OR PLANNING DIRECTOR.
6. ALL IMPROVEMENTS SHOWN ON THIS PLAN WILL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THIS PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES WILL BE MADE TO THIS PLAN WITHOUT THE WRITTEN APPROVAL OF THE PORTSMOUTH PLANNING BOARD OR PLANNING DIRECTOR.
7. THE LANDSCAPE PLAN WILL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

SEEDING NOTES

1. SLOPES UP TO AND INCLUDING 3:1 GRADE, SEED WILL BE NEW ENGLAND EROSION CONTROL & RESTORATION MIX PER NEW ENGLAND WETLANDS PLANTS INC., AMHERST, MA.
2. SLOPES STEEPER THAN 3:1 GRADE, SEED WILL BE NEW ENGLAND EROSION CONTROL & RESTORATION MIX PER NEW ENGLAND WETLANDS PLANTS INC., AMHERST, MA. SEE CIVIL FOR ADDITIONAL EROSION CONTROL MEASURES.
3. GENERAL SEED WILL BE NHDOT SPECIFICATION SECTION 644, TABLE 644–1–PARK SEED TYPE 15, INCLUDING NOTES TO TABLE 1, 2 & 3.

SITE DEVELOPMENT PLANS

TAX MAP 256 LOT 2

OVERALL LANDSCAPE PLAN

THE VILLAGE AT BANFIELD WOODS

PORTSMOUTH, NH

OWNED BY

WALTER D HETT TRUST

PREPARED FOR

GREEN & COMPANY REAL ESTATE

1"=120' (11"X17")

SCALE: 1"=60' (22"X34") **SEPTEMBER 25, 2019**

HORIZONTAL SCALE 1"=60'

60 30 0 60

REV.	DATE	DESCRIPTION	DR	CK
6	5/5/2020	REVISE NOTE PER CLIENT REQUEST	MSK	JJM
1	12/23/19	NO REVISIONS THIS SHEET	RCK	JJM

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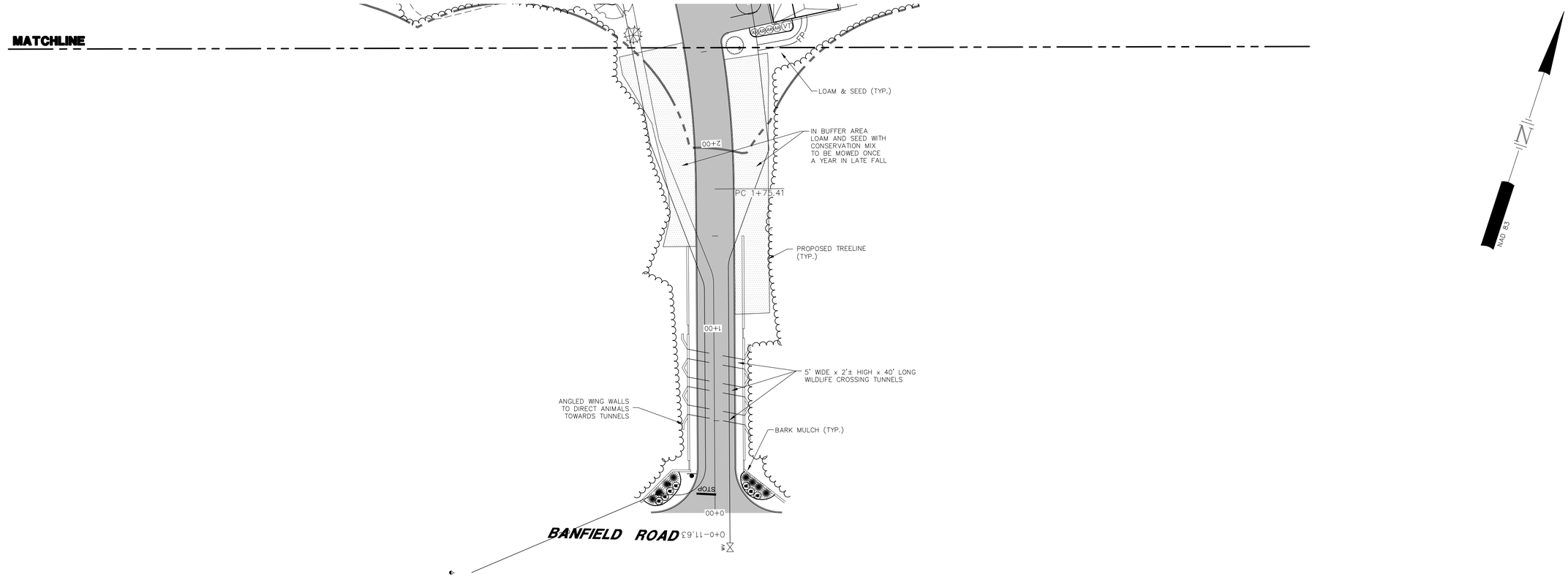

LANDSCAPE LEGEND

SYMBOL	QTY	BOTANICAL NAME COMMON NAME	SIZE	REMARKS
SHADE TREES				
	12	ACER RUBRUM 'OCTOBER GLORY' **OCTOBER GLORY RED MAPLE	3" TO 3 1/2" CAL.	B&B
	10	ACER SACCHARUM 'COMMEMORATION' **COMMEMORATION SUGAR MAPLE	3" TO 3 1/2" CAL.	B&B
	20	BETULA N. 'HERITAGE' *RIVER BIRCH	12' TO 14' CLUMP	B&B
	20	NYSSA SYLVATICA *BLACK GUM	2 1/2 TO 3" CAL.	B&B
	12	QUERCUS ALBA *WHITE OAK	3" TO 3 1/2" CAL.	B&B
	11	QUERCUS RUBRA *RED OAK	3" TO 3 1/2" CAL.	B&B

LANDSCAPE LEGEND

SYMBOL	QTY	BOTANICAL NAME COMMON NAME	SIZE	REMARKS
SMALL/FLOWERING TREES				
	8	CARPINUS CAROLINIANA *AMERICAN HORNBEAM	2" TO 2 1/2" CAL.	B&B
	36	CRATAEGUS CRUSGALLI INERMIS **THORNLESS COCKSPUR HAWTHORN	2 1/2" TO 3" CAL.	B&B
	22	PRUNUS VIRGINIANA 'SCHUBERT' *CANADA RED CHERRY	2 1/2" TO 3" CAL.	B&B
EVERGREEN TREES				
	17	ABIES BALSAMAE *BALSAM FIR	6' TO 7'	B&B
	11	JUNIPERUS VIRGINIANA *EASTERN RED CEDAR	6' TO 7'	B&B
	35	PICEA GLAUCA *WHITE SPRUCE	7' TO 8'	B&B
	23	PINUS STROBUS *WHITE PINE	6' TO 7'	B&B

LANDSCAPE LEGEND

SYMBOL	QTY	BOTANICAL NAME COMMON NAME	SIZE	REMARKS
DECIDUOUS SHRUB				
	24	AMELANCHEIR CANADENSIS *SHADBLOW SERVICEBERRY	5' TO 6' CLUMP	B&B
	33	CLETHRA ALNIFOLIA 'COMPACTA' **COMPACT SUMMERSWEET	7 GAL.	CONT.
	51	CORNUS SERICEA 'ALLEMAN'S COMPACTA' **ALLEMAN'S COMPACT RED-OSIER DOGWOOD	3' TO 4'	CONT.
	48	PHYSOCARPUS O. 'BURGUNDY CANDY' **BURGUNDY CANDY NINEBARK	2 GAL.	CONT.
VD	14	VIBURNUM DENTATUM *ARROWWOOD VIBURNUM	4' TO 5'	B&B
VT	17	VIBURNUM TRILOBUM *AMERIVAN CRANBERRY VIBURNUM	4' TO 5'	B&B
VP	3	VIBURNUM PRUNIFOLIUM *BLACKHAW VIBURNUM	4' TO 5'	B&B

LANDSCAPE LEGEND

SYMBOL	QTY	BOTANICAL NAME COMMON NAME	SIZE	REMARKS
EVERGREEN SHRUB				
	23	ARCTOSTAPHYLOS UVA-URSI *BEARBERRY	1 GAL.	CONT.
AC	26	AZALEA 'GIRARD'S CRIMSON' GIRARD'S CRIMSON AZALEA	3 GAL.	CONT.
AR	26	AZALEA 'GIRARD'S RENEE MICHELE' GIRARD'S RENEE MICHELE AZALEA	3 GAL.	CONT.
	30	RHODODENDRON 'ROSEUM PINK' **ROSEUM PINK CATAWBA RHODODENDRON	7 GAL.	CONT.
	20	ILEX GLABRA 'COMPACTA' **COMPACT INKBERRY	3 GAL.	CONT.
	25	JUNIPERUS H. 'BAR HARBOR' *BAR HARBOR JUNIPER	3 GAL.	CONT.
	121	JUNIPERUS C. 'ANGELICA BLUE' ANGELICA BLUE JUNIPER	5 GAL.	CONT.
	14	PINUS M. 'MOPS' MOPS MUGO PINE	3 GAL.	CONT.
	65	THUJA O. NIGRA *DARK AMERICAN ARBORVITAE	5' TO 6'	B&B

*NATIVE
** IMPROVED NATIVE

NOTE:
PLANT TYPES MAY VARY BASED ON AVAILABILITY AND SUPPLY. THIS LAYOUT REPRESENTS THE INTENT OF THE PLANTINGS AND APPROXIMATE NUMBERS OF PLANTS TO BE PROVIDED.

SYMBOL	QTY	BOTANICAL NAME COMMON NAME	SIZE	REMARKS
GRASSES AND GRASS MIXES				
	11	PANICUM VIRGATUM 'CLOUD NINE' CLOUD NINE SWITCH GRASS	3 GAL.	CONT.
	3 LBS	NEW ENGLAND CONSERVATION WILDLIFE MIX	25 LBS/ACRE	BULK LBS

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HORIZONTAL SCALE 1"=30'
30 15 0 30

SITE DEVELOPMENT PLANS

TAX MAP 256 LOT 2

LANDSCAPE PLAN

THE VILLAGE AT BANFIELD WOODS

PORTSMOUTH, NH

OWNED BY

WALTER D HETT TRUST

PREPARED FOR

GREEN & COMPANY REAL ESTATE

1"=60' (11"X17")

SCALE: 1"=30' (22"X34") **SEPTEMBER 25, 2019**

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SITE DEVELOPMENT PLANS

TAX MAP 256 LOT 2

LANDSCAPE PLAN

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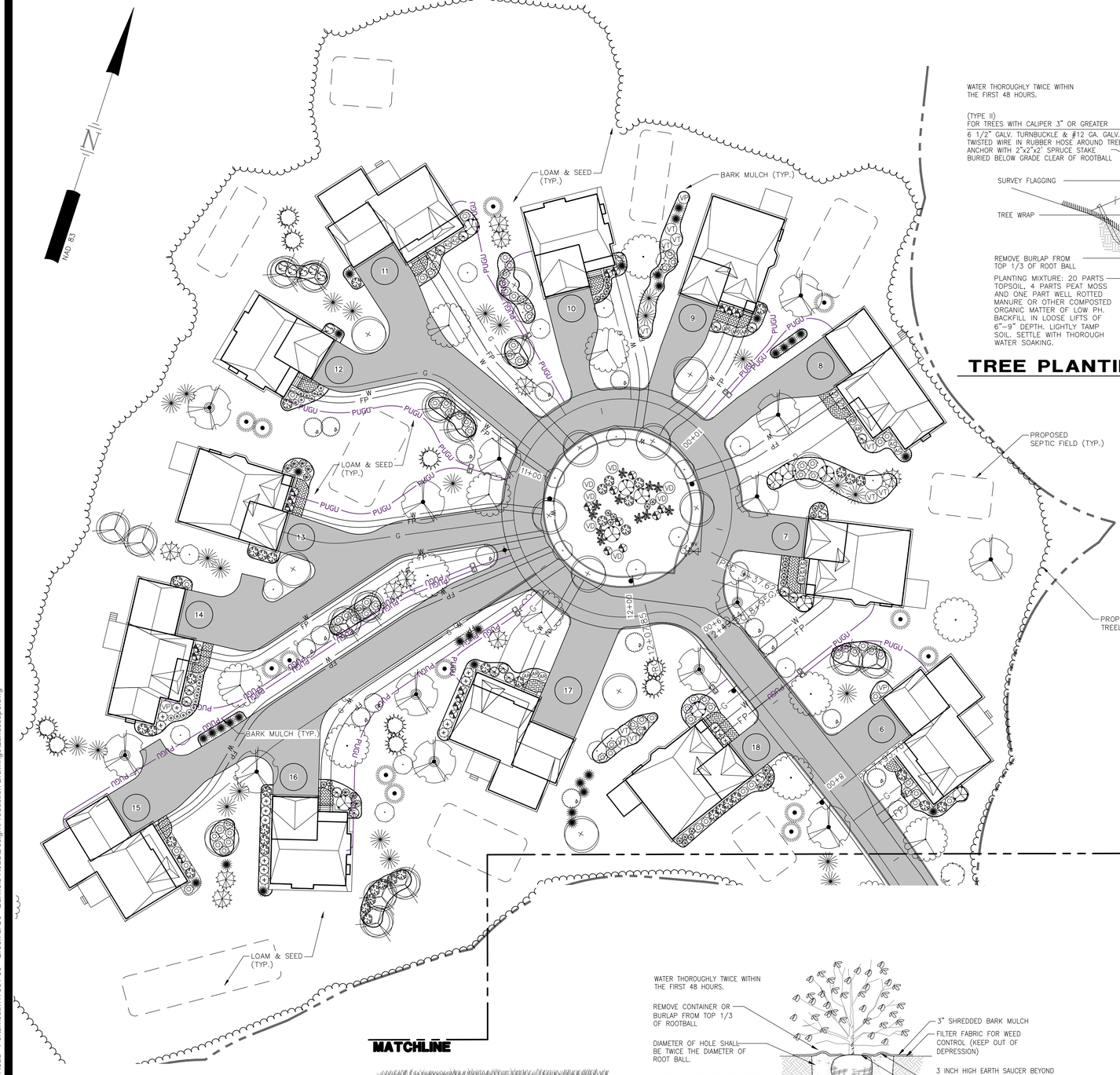
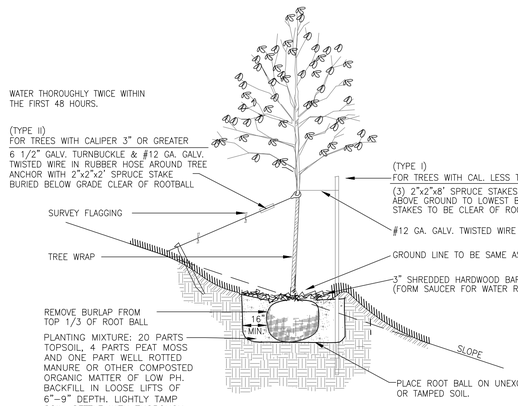
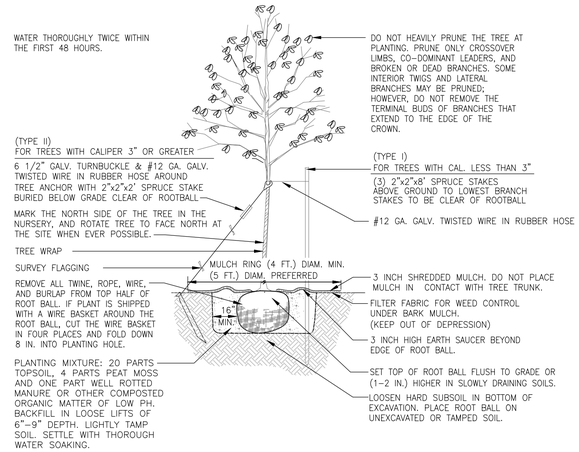
47361.00	CK	JJM	CADFILE	LANDSCAPE	C-18





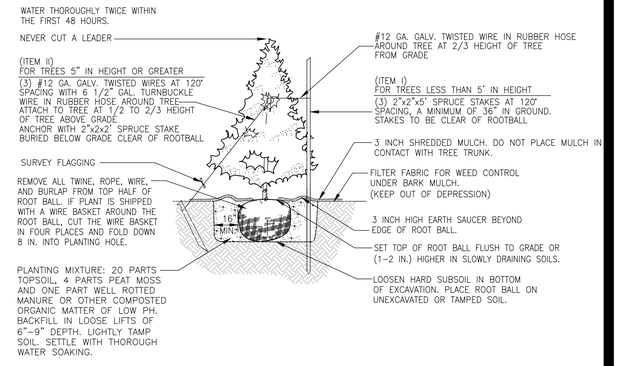
TREE PLANTING ON SLOPE DETAIL

NOT TO SCALE



DECIDUOUS TREE PLANTING

NOT TO SCALE



EVERGREEN PLANTING

NOT TO SCALE

LOAM & SEED

NOT TO SCALE

SHRUB PLANTING

NOT TO SCALE

HORIZONTAL SCALE 1"=30'

30 15 0 30

SITE DEVELOPMENT PLANS

TAX MAP 256 LOT 2

LANDSCAPE PLAN

THE VILLAGE AT BANFIELD WOODS

PORTSMOUTH, NH

OWNED BY

WALTER D HETT TRUST

PREPARED FOR

GREEN & COMPANY REAL ESTATE

1"=60' (11"X17")

SCALE: 1"=30' (22"X34") **SEPTEMBER 25, 2019**

REV.	DATE	DESCRIPTION	DR	CK
6	5/5/2020	REVISE NOTE PER CLIENT REQUEST	MSK	JJM
3	3/4/2020	UPDATE PLANS PER REGULATORY COMMENTS	RCK	JJM
2	12/27/2019	IN HOUSE REVISIONS	RCK	JJM
1	12/23/19	NO REVISIONS THIS SHEET	RCK	JJM

TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
48 Constitution Drive
Bedford, NH 03110
Phone (603) 472-4488
Fax (603) 472-9747
www.tfmoran.com

FILE	DR	MSK	FB	–	C-19
47361.00	CK	JJM	CADFILE	LANDSCAPE	

May 06, 2020 - 11:13am
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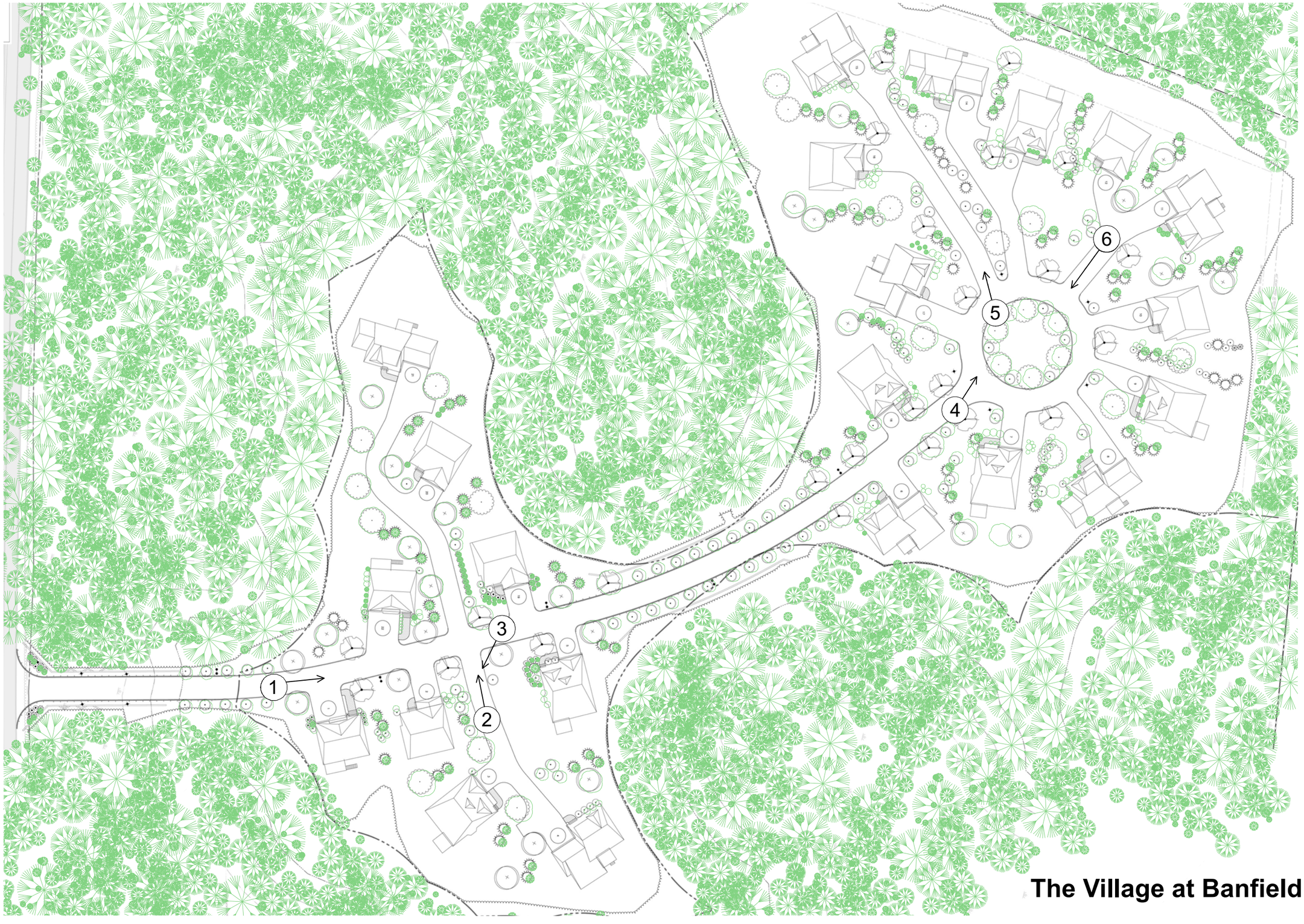


The Village at Banfield Woods

The Village at Banfield Woods

The Village at Banfield Woods

The Village at Banfield Woods

The Village at Banfield Woods

The Village at Banfield Woods

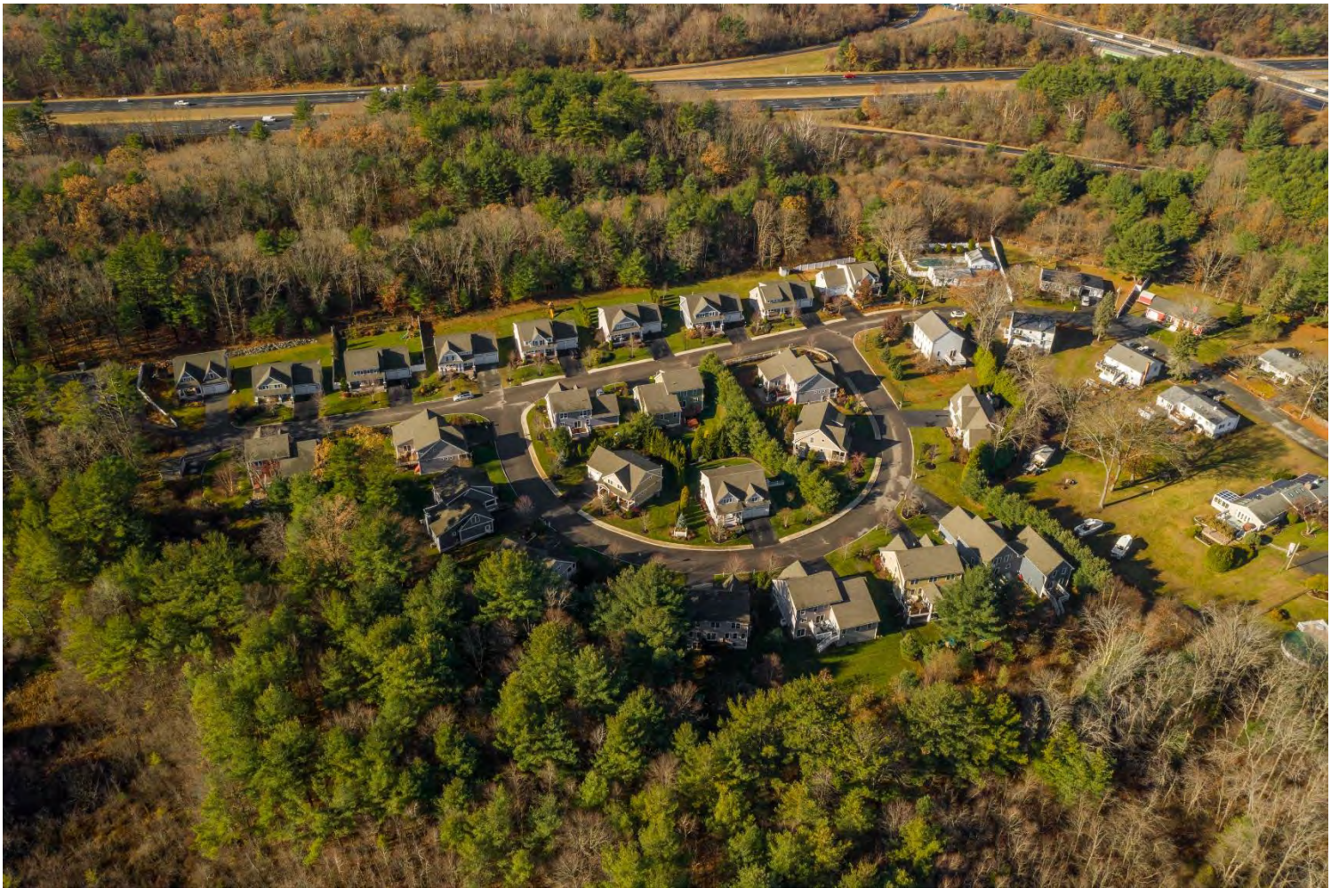
The Village at Banfield Woods

Photography: Oleo Woods, Newburyport

Green & Company Subdivision

26 Units on 6.3 Acres

39.7 Acres Left in Open Space



Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

Tree Count in Wetland Buffer Impact Areas for New Design (over 6" DBH)

12/2/2019

Project # 47361.00 - Map 256 Lot 2
0 Banfield Road Portsmouth, NH

Trees within 0'-25' of Wetland Buffer

Tree	Count
6" Oak	1
6" Maple	1
8" Maple	1
26" White Pine	1
Total Trees	**4**

Trees within 25'-100' of Wetland Buffer

Tree	Count
6" Oak	1
7" Oak	3
8" Oak	4
12" Oak	6
13" Oak	1
14" Oak	1
16" Oak	2
18" Oak	1
8" White Pine	1
9" White Pine	2
7" White Pine	1
10" White Pine	2
12" White Pine	3
8" Beech	4
Total Trees	**32**

Total Trees within Wetland Buffer	**36**

This total reduced from 91 (see back page)

Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

TFM Since 1968

Tree Count in Wetland Buffer Impact Areas for Previous Design (over 6" DBH)

Project # 47361.00 - Map 256 Lot 2
0 Banfield Road Portsmouth, NH

Trees within 0'-25' of Wetland Buffer

Tree	Count
14" Oak	1
18" Oak	1
9" Maple	1
11" Poplar	1
Total Trees	**4**

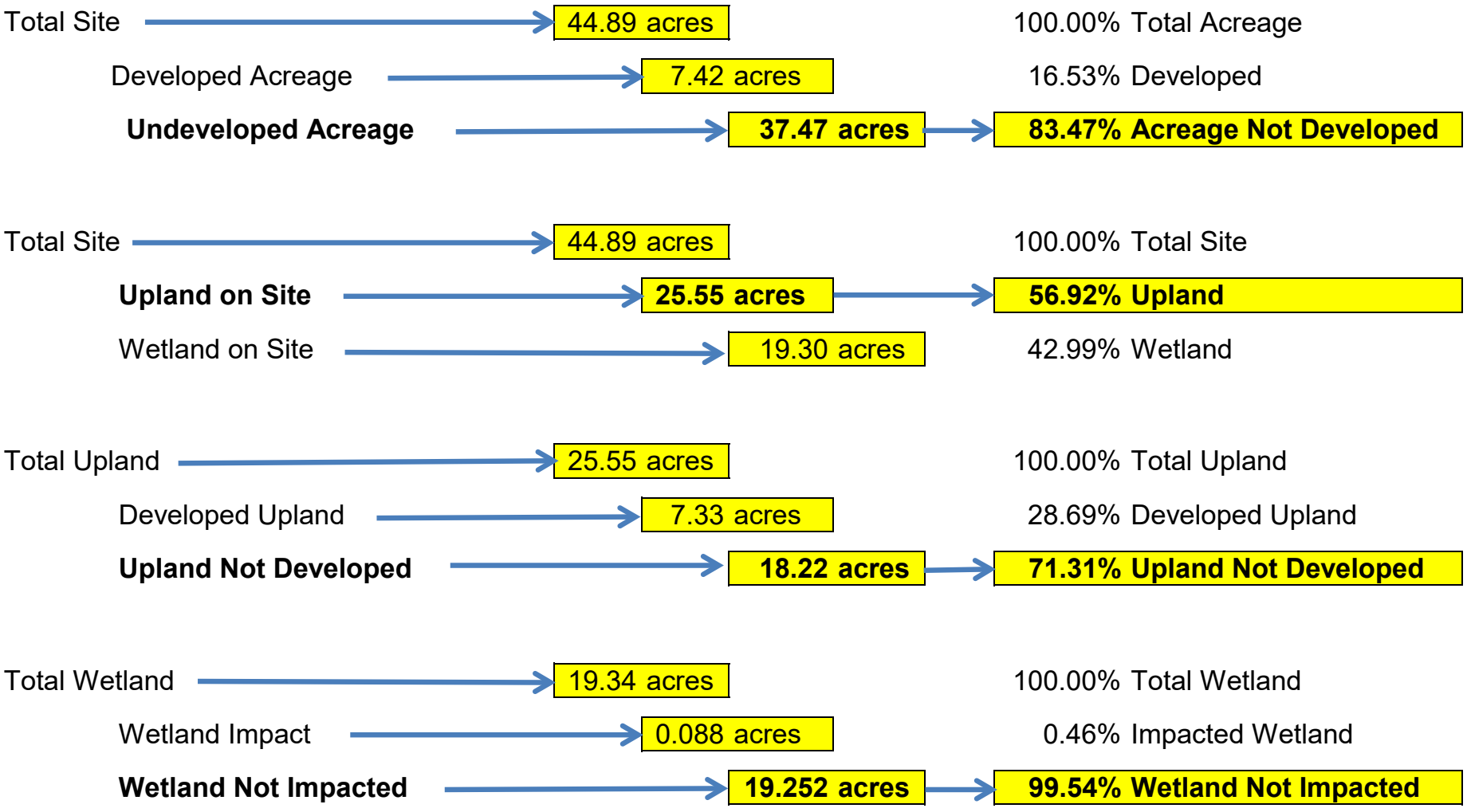
Trees within 25'-100' of Wetland Buffer

Tree	Count
6" Oak	1
7" Oak	3
8" Oak	5
9" Oak	5
10" Oak	2
11" Oak	4
12" Oak	7
13" Oak	4
14" Oak	7
15" Oak	6
16" Oak	4
18" Oak	2
23" Oak	1
6" Maple	2
7" Maple	4
8" Maple	4
9" Maple	1
10" Maple	1
6" Beech	1
8" Beech	2
12" Poplar	1
15" Poplar	1
6" White Pine	2
7" White Pine	4
8" White Pine	1
9" White Pine	1
10" White Pine	4
11" White Pine	2
12" White Pine	1
13" White Pine	1
15" White Pine	1
19" White Pine	1
22" White Pine	1
Total Trees	**87**

Total Trees within Wetland Buffer	**91**

The Village at Banfield Woods

Site Development Intensity Chart



DOCUMENT # 13

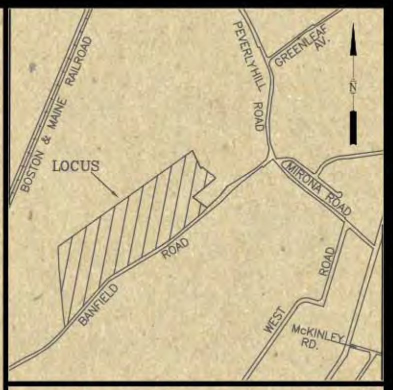
CITY OF PORTSMOUTH PLANNING BOARD

CHAIRPERSON DATE

LIMITED COMMON AREA:

LCA 1	8,233 S.F.
LCA 2	7,546 S.F.
LCA 3	10,802 S.F.
LCA 4	12,396 S.F.
LCA 5	12,587 S.F.
LCA 6	7,108 S.F.
LCA 7	13,804 S.F.
LCA 8	11,038 S.F.
LCA 9	13,443 S.F.
LCA 10	11,519 S.F.
LCA 11	15,355 S.F.
LCA 12	12,627 S.F.
LCA 13	10,714 S.F.
LCA 14	14,387 S.F.
LCA 15	18,120 S.F.
LCA 16	12,304 S.F.
LCA 17	15,553 S.F.
LCA 18	11,591 S.F.
LCA 19	7,470 S.F.
LCA 20	9,772 S.F.
LCA 21	15,200 S.F.
LCA 22	13,160 S.F.

LINE	BEARING	DISTANCE
L1	N 14°03'49" W	163.61'
L2	N 62°46'56" E	140.17'
L3	N 60°47'10" E	74.31'
L4	N 61°20'44" E	105.56'
L5	N 60°58'42" E	115.75'
L6	S 40°08'01" E	22.98'
L7	S 48°30'23" E	159.80'
L8	S 45°44'06" E	110.28'
L9	S 58°19'16" W	135.27'
L10	S 53°23'55" W	154.49'
L11	S 51°04'17" W	145.81'
L12	S 46°41'16" W	83.08'
L13	S 48°05'39" W	99.00'
L14	S 52°42'36" W	173.00'
L15	S 57°03'44" W	173.81'
L16	S 60°20'11" W	108.27'
L17	S 57°50'14" W	143.89'
L18	S 59°00'53" W	162.66'
L19	S 60°14'59" W	117.96'
L20	S 59°39'51" W	113.08'
L21	S 58°23'21" W	76.30'



LOCATION PLAN

NOTES:

1. THE PARCEL IS LOCATED IN THE SINGLE RESIDENCE A (SRA) ZONING DISTRICT.
2. THE PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 256 AS LOT 2.
3. THE PARCEL IS LOCATED IN ZONE X AS SHOWN ON NATIONAL FLOOD INSURANCE PROGRAM (NFIP), FLOOD INSURANCE RATE MAP (FIRM) ROCKINGHAM COUNTY, NEW HAMPSHIRE, PANEL 270 OF 681, MAP NUMBER 33015C0270E, WITH AN EFFECTIVE DATE OF MAY 17, 2005.
4.

DIMENSIONAL REQUIREMENTS:	REQUIRED:	PROPOSED:
MINIMUM LOT SIZE:	1 ACRE	44.884 ACRES
LOT AREA PER DWELLING UNIT:	1 ACRE	N/A
CONTINUOUS STREET FRONTAGE:	150'	1,730'
LOT DEPTH:	200'	876'
MINIMUM YARD DIMENSIONS:		
FRONT:	30'	254'
SIDE:	20'	53'
REAR:	40'	89.9'
MAXIMUM STRUCTURE DIMENSIONS:		
STRUCTURE HEIGHT:	35'(SLOPED ROOF) 30'(FLAT ROOF)	
BUILDING COVERAGE:	10%	2.12%
MINIMUM OPEN SPACE:	50%	94.67%

PER THE CITY OF PORTSMOUTH ZONING ORDINANCE SECTION 10.520.

OPEN SPACE RESIDENTIAL PUD (OS-PUD)	REQUIRED:	PROPOSED:
MINIMUM LOT AREA:	10 ACRES	44.884 ACRES
MINIMUM STREET FRONTAGE:	100'	1,730'
MINIMUM EXTERNAL YARDS:		
FRONT:	100'	254'
SIDE & REAR:	50'	53.0'; 89.9'
MINIMUM INTERNAL YARDS:		
FRONT:	20'	20.9'
SIDE & REAR:	25'	53.0'; 89.9'
MINIMUM SEPARATION BETWEEN STRUCTURES:	30'	31.0'
MINIMUM OPEN SPACE:	25%	94.67%

PER THE CITY OF PORTSMOUTH ZONING ORDINANCE SECTION 10.725

5. OWNER OF RECORD:
MAP 256 LOT 2:
THE WALTER D. HETT TRUST
WALTER D. HETT, TRUSTEE
334 HUDSON ROAD
STOW, MA 01775
RCRD BK.#4553 PG.#432
6.

TOTAL PARCEL AREA: MAP 256 LOT 2:	SUBMITTED AREA:	COMMON AREA:
1,955,150 S.F. (44.884 ACRES)	1,955,150 S.F. (44.884 ACRES)	1,955,150 S.F. (44.884 ACRES)

7. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH THE CURRENT LEGAL DESCRIPTIONS. IT IS NOT AN ATTEMPT TO DEFINE THE EXTENT OF OWNERSHIP OR DEFINE THE LIMITS OF TITLE.
8. THE PURPOSE OF THIS PLAN IS TO DEPICT THE COMMON AREAS AND LIMITED COMMON AREAS ASSOCIATED WITH THE OPEN SPACE PLANNED UNIT DEVELOPMENT OF MAP 256 LOT 2. CONSTRUCTION OF UNITS NOT YET BEGUN. THE FINAL METES AND BOUNDS OF THE UNITS AND THEIR ASSIGNED LIMITED COMMON AREAS SHALL BE DETERMINED BY AS-BUILT PLANS WITH AN AMENDED CONDOMINIUM SITE PLAN TO BE RECORDED UPON COMPLETION OF EACH UNIT.
9. THESE UNITS ARE FOR RESIDENTIAL USE ONLY.
10. FIELD SURVEY COMPLETED BY TCE AND EJS IN MAY & JUNE 2019 USING A TOPCON DS103 AND A TOPCON FC-5000 DATA COLLECTOR.
11. HORIZONTAL DATUM IS NAD83 (2011) PER STATIC GPS OBSERVATIONS.
12. EASEMENTS, RIGHTS, AND RESTRICTIONS SHOWN OR IDENTIFIED ARE THOSE WHICH WERE FOUND DURING RESEARCH PERFORMED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS. OTHER RIGHTS, EASEMENTS, OR RESTRICTIONS MAY EXIST WHICH A TITLE EXAMINATION OF SUBJECT PARCEL(S) WOULD DETERMINE.
13. WETLAND DELINEATION WAS COMPLETED BY GOVE ENVIRONMENTAL SERVICES IN MAY, 2019 IN ACCORDANCE WITH THE 1987 ARMY CORP OF ENGINEERS WETLAND MANUAL AND THE 2012 REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION. FIELD LOCATED BY TFMORAN, INC.
14. THE LOCATION OF ANY UNDERGROUND UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. TFMORAN, INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UNDERGROUND UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR SHALL CONTACT DIG SAFE.
15. THE UNITS SHOWN HEREON ARE TO BE SERVED BY THE CITY OF PORTSMOUTH PUBLIC WATER SUPPLY. AN EASEMENT SHALL BE GRANTED TO THE CITY OF PORTSMOUTH TO ALLOW WATER DEPARTMENT PERSONNEL ACCESS TO VALVES, HYDRANTS AND METERS FOR LEAK DETECTION, METERING AND MAINTENANCE.

PLAN REFERENCES:

1. "SUBDIVISION PLAN FOR WALTER D. HETT & THE TEMPLE OF ISRAEL BANFIELD ROAD COUNTY OF ROCKINGHAM PORTSMOUTH, NH", BY MILLETTE, SPRAGUE, AND COLWELL, INC. DATED JUNE 25, 1999 WITH REVISION 3 DATED 12/02/99. RCRD PLAN D-27695.
2. "PROPERTY OF SWIFTWATER GIRL SCOUT COUNCIL, CITY OF PORTSMOUTH" BY JON MOORE DATED AUGUST 1972. RCRD PLAN D-3206

I HEREBY CERTIFY THAT THIS PLAN IS ACCURATE AND COMPLIES WITH NHRSA 356-B:20(I). ALL UNITS OR PORTIONS THEREOF DEPICTED ON ANY PORTION OF THE SUBMITTED LAND OTHER THAN WITHIN THE BOUNDARIES OF ANY CONVERTIBLE LAND HAVE NOT YET BEGUN.

I CERTIFY THAT THIS SURVEY AND PLAN WERE PREPARED BY ME OR BY THOSE UNDER MY DIRECT SUPERVISION. THIS SURVEY IS AN URBAN SURVEY AS CLASSIFIED IN THE NH CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS. I CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THE TRAVERSE WAS COMPLETED BY TOTAL STATION, WITH A PRECISION GREATER THAN 1:15,000.

LICENSED LAND SURVEYOR DATE

LEGEND:

MAP 254 LOT 1	ASSESOR'S MAP NUMBER/ LOT NUMBER
AG	ABOVE GRADE
BG	BELOW GRADE
BK./PG.	BOOK/PAGE
NRP	NATURAL RESOURCE PROTECTION
I	INDUSTRIAL
LCA	LIMITED COMMON AREA
MONTBS	MONUMENT TO BE SET
N/F	NOW OR FORMERLY
PSF	PROPOSED SEPTIC FIELD
PUD	PLANNED UNIT DEVELOPMENT
R	RURAL
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
SRA	SINGLE RESIDENCE A
S.F.	SQUARE FEET
	BOULDER
	PROPERTY LINE
	CHAINLINK FENCE
	STONEWALL
	WETLAND SETBACK
	EDGE OF WETLAND
	PAVEMENT
	100' WIDE ELECTRIC EASEMENT
	WETLANDS
	12' RIGHT OF WAY
	COMMON OPEN SPACE
	PROPOSED SEPTIC FIELD

100 50 0 100
Graphic Scale in Feet

REV.	DATE	DESCRIPTION	DR	CK
2	5/5/2020	REVISED LCA BOUNDARIES	BMK	JCC
1	3/23/2020	REVISED LCA BOUNDARIES, ADDED NOTE 15	IID	BMK

DIG SAFE
MA ME NH RI VT
CALL 811 TOLL FREE
UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

TFM MSC
A division of TFMoran, Inc.
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431-2222
Fax (603) 431-0910
www.tfmoran.com

FILE	DR	EJS	FB	559	
47361-00	CK	BMK	CADFILE		S-03

TAX MAP 256 LOT 2
CONDOMINIUM SITE PLAN
BANFIELD ROAD
PORTSMOUTH, NEW HAMPSHIRE
COUNTY OF ROCKINGHAM
OWNED BY
THE WALTER D. HETT TRUST
PREPARED FOR
GREEN & COMPANY REAL ESTATE

SCALE: 1" = 100' (22x34) 1" = 200' (11x17) **DECEMBER 23, 2019**

Jul 10, 2020 - 9:12am
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