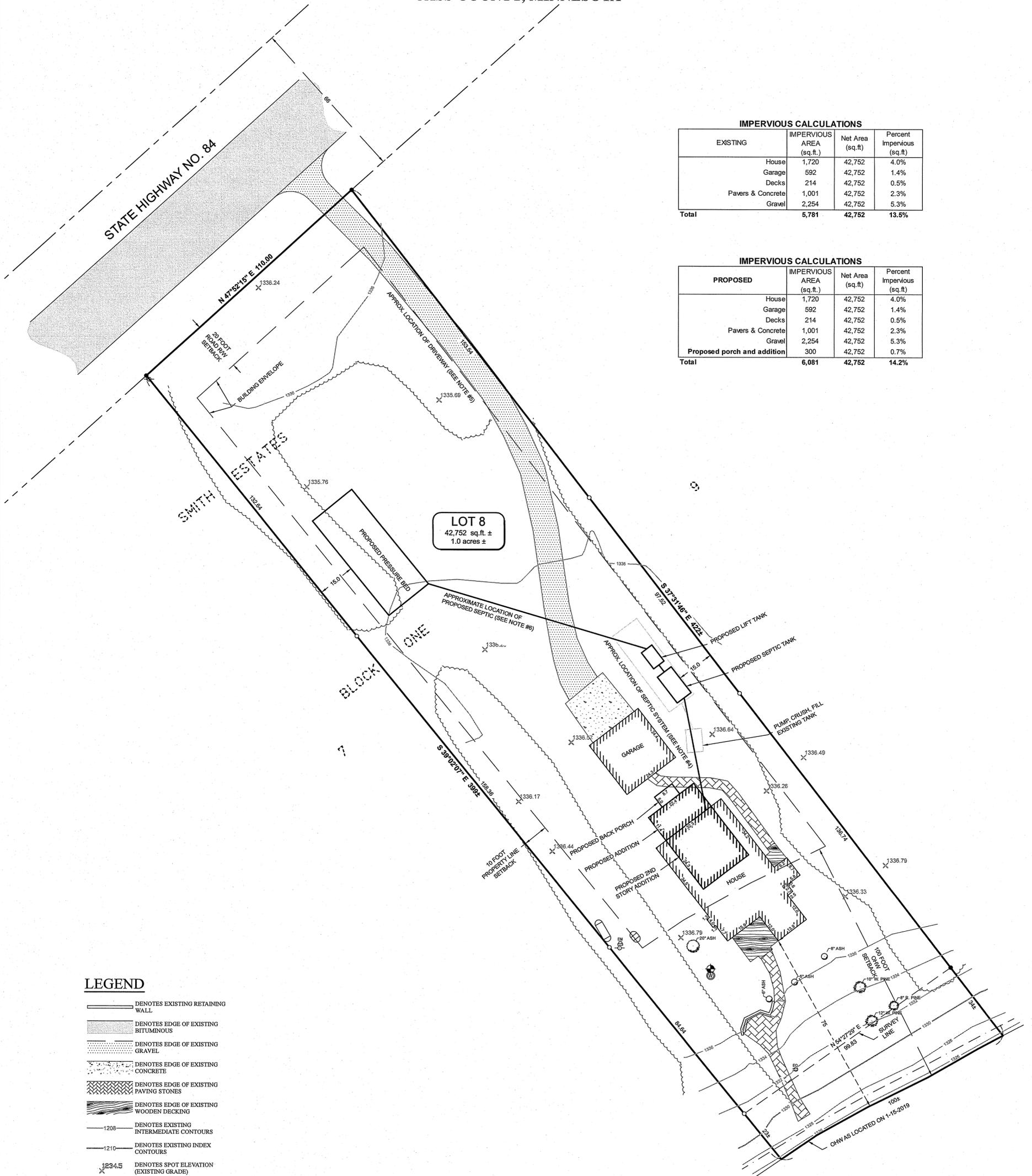


# CERTIFICATE OF SURVEY

LOT 8, BLOCK ONE, SMITH ESTATES,  
SECTION 21, TOWNSHIP 139 NORTH, RANGE 29 WEST,  
CASS COUNTY, MINNESOTA



**IMPERVIOUS CALCULATIONS**

EXISTING	IMPERVIOUS AREA (sq.ft.)	Net Area (sq.ft)	Percent Impervious (sq.ft)
House	1,720	42,752	4.0%
Garage	592	42,752	1.4%
Decks	214	42,752	0.5%
Pavers & Concrete	1,001	42,752	2.3%
Gravel	2,254	42,752	5.3%
<b>Total</b>	<b>5,781</b>	<b>42,752</b>	<b>13.5%</b>

**IMPERVIOUS CALCULATIONS**

PROPOSED	IMPERVIOUS AREA (sq.ft.)	Net Area (sq.ft)	Percent Impervious (sq.ft)
House	1,720	42,752	4.0%
Garage	592	42,752	1.4%
Decks	214	42,752	0.5%
Pavers & Concrete	1,001	42,752	2.3%
Gravel	2,254	42,752	5.3%
Proposed porch and addition	300	42,752	0.7%
<b>Total</b>	<b>6,081</b>	<b>42,752</b>	<b>14.2%</b>

**LOT 8**  
42,752 sq.ft. ±  
1.0 acres ±

**LEGEND**

- DENOTES EXISTING RETAINING WALL
- DENOTES EDGE OF EXISTING BITUMINOUS
- DENOTES EDGE OF EXISTING GRAVEL
- DENOTES EDGE OF EXISTING CONCRETE
- DENOTES EDGE OF EXISTING PAVING STONES
- DENOTES EDGE OF EXISTING WOODEN DECKING
- DENOTES EXISTING INTERMEDIATE CONTOURS
- DENOTES EXISTING INDEX CONTOURS
- DENOTES SPOT ELEVATION (EXISTING GRADE)
- DENOTES EDGE OF TREELINE
- DENOTES EXISTING CONIFEROUS TREE, TYPE & SIZE
- DENOTES EXISTING DECIDUOUS TREE, TYPE, & SIZE
- DENOTES EXISTING UTILITY POLE
- DENOTES EXISTING ELECTRIC OUTLET
- DENOTES EXISTING LP TANK
- BENCHMARK:**  
HIGH POINT OF WELL  
ELEV. = 1338.07
- DENOTES MONUMENT FOUND
- DENOTES IRON MONUMENT SET MARKED BY LICENSE No. 44881

ORIENTATION OF THIS BEARING SYSTEM IS BASED ON THE RECORDED PLAT OF SMITH ESTATES.

**NOTES:**

1. Zoning for subject tract = "Shoreland Residential".
2. Parcel ID of subject parcel: 32-427-0116.
3. The property address of subject parcel: 856 State 84 NW.
4. Approximate location of existing septic system per sketch prepared by John Fank, Fank's Site Evaluating.
5. Approximate location of driveway as digitized from Cass County GIS Site.
6. Approximate location of proposed septic system per sketch prepared by Martin Joyce, Martin Joyce Septic Service, LLC.
7. For survey reference information see Certificate of Survey drawing signed by Cynthia M. Hidde on January 15, 2019 - Stonemark Land Surveying, Inc. file #18418.

**LAKE ADA**

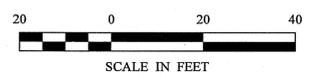
RECREATIONAL DEVELOPMENT CLASSIFICATION

LAKE ELEVATION = 1325.05 ON 1-15-2019

ORDINARY HIGH WATER ELEVATION = 1325.3

**BENCHMARK:** Vertical 3/8" x 8" spk in notched north root of a 1.6' red pine, 22' from water edge, 60' east of boat ramp, at public access off Spring Beach Dr. NW, on NE bay of lake. Elev. = 1328.56

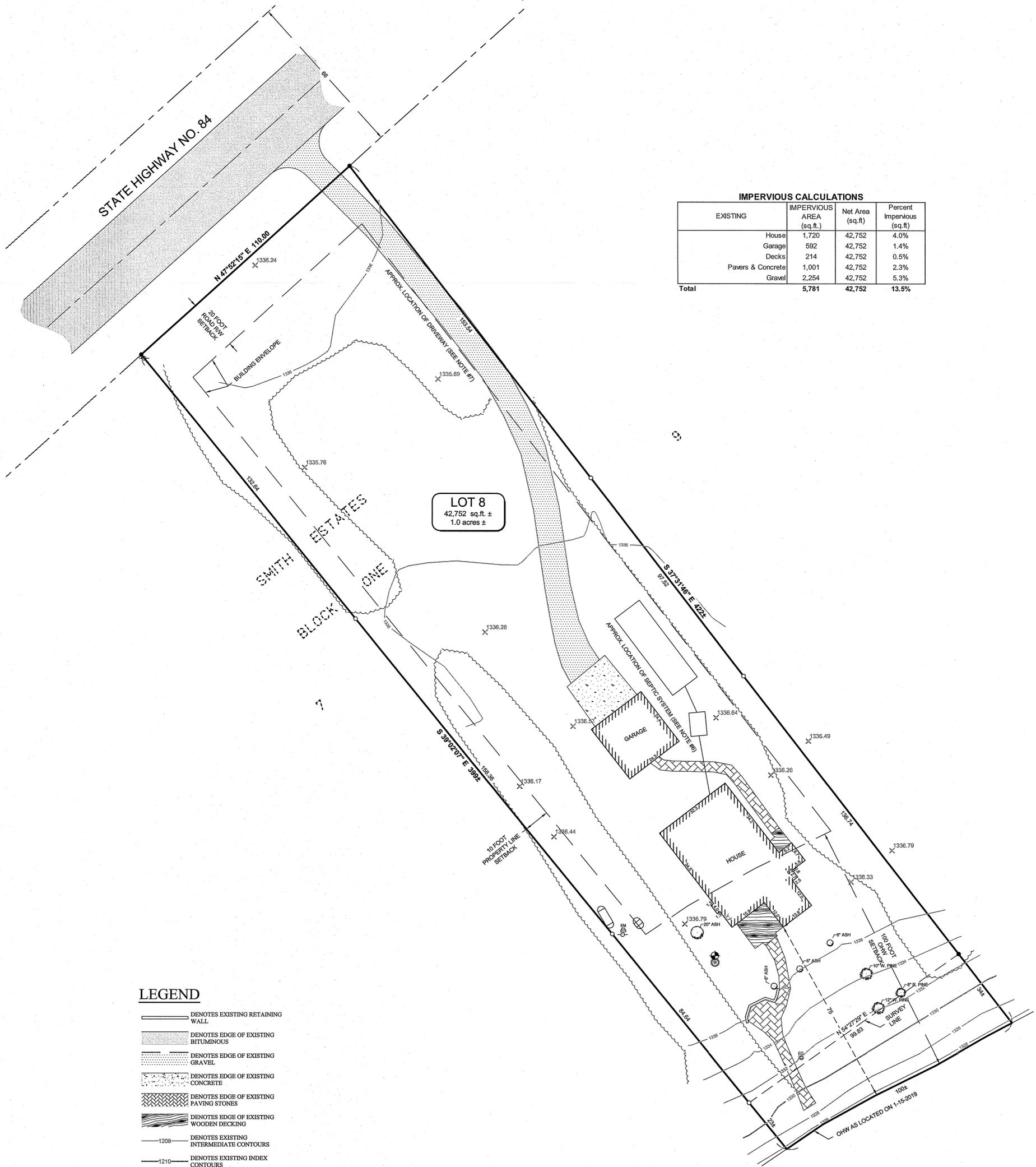
BASED ON NGVD DATUM  
INFORMATION OBTAINED FROM MNDNR



1 1	<b>CERTIFICATE OF SURVEY</b>	PROJECT MANAGER: CMH	PROJECT No.: 19167	DATE: 6-27-2019		I HEREBY CERTIFY THAT THIS SURVEY, PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.  <i>Cynthia M. Hidde</i> CYNTHIA M. HIDDE PLS#44881 DATE 6/27/19 LIC. NO. 44881
	Darin Ward Northward Homes 5122 Driftwood Lane Pine River, MN 56474	CHECKED BY: CMH	FILE NAME: C19167.dwg	SCALE: HORIZ. 1"=20'	REVISIONS DATE DESCRIPTION BY	
		DRAWN BY: RJF	FIELD BOOK: BOOK 452 PG. 44	VERT. NONE		30206 Rasmussen Road Suite 1 P. O. Box 874 Pequot Lakes, MN 56472 218-568-4940 www.stonemarksurvey.com

# CERTIFICATE OF SURVEY

LOT 8, BLOCK ONE, SMITH ESTATES,  
SECTION 21, TOWNSHIP 139 NORTH, RANGE 29 WEST,  
CASS COUNTY, MINNESOTA



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### LEGEND

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- DENOTES EDGE OF EXISTING BITUMINOUS
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- DENOTES EXISTING ELECTRIC OUTLET
- DENOTES EXISTING LP TANK
- BENCHMARK: HIGH POINT OF WELL  
ELEV. = 1338.07
- DENOTES MONUMENT FOUND
- DENOTES IRON MONUMENT SET MARKED BY LICENSE No. 44881

ORIENTATION OF THIS BEARING SYSTEM IS BASED ON THE RECORDED PLAT OF SMITH ESTATES.

### NOTES:

1. Contour interval as shown = 2 foot. Based on NGVD 29 datum. Contours shown have been obtained using standard survey topographic methodologies. Field located on 1-15-2019.
2. Zoning for subject tract = "Shoreland Residential".
3. There are no bluffs or wet lands within surveyed property.
4. Parcel ID of subject parcel: 32-427-0116.
5. The property address of subject parcel: 856 State 84 NW.
6. Approximate location of septic system per sketch prepared by John Fank, Fank's Site Evaluating.
7. Approximate location of driveway as digitized from Cass County GIS Site.
8. There was a snow depth of 12"± when survey crew collected topographic data. Therefore, some physical features covered by snow may not have been identified. Only visible topographic features, improvements, and utilities were located. Site verification in spring when the snow cover is gone is recommended.

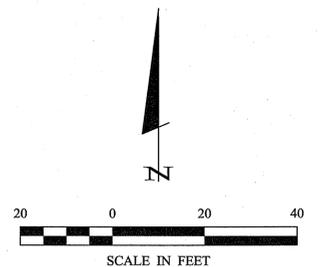
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BASED ON NGVD 29 DATUM  
INFORMATION OBTAINED FROM MNDNR



1 OF 1	CERTIFICATE OF SURVEY	PROJECT MANAGER: CMH	PROJECT No.: 18418	DATE: 1-15-2019	REVISIONS DESCRIPTION	BY	I HEREBY CERTIFY THAT THIS SURVEY, PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.
	Thomas Martin 10 N Mallard Road North Oak, MN 55127	CHECKED BY: CMH	FILE NAME: C18418.dwg	SCALE: HORZ. 1"=20'	DATE		
	DRAWN BY: RJF	FIELD BOOK: BOOK 452 PG. 44	VERT. NONE				 30206 Rasmussen Road Suite 1 P. O. Box 874 Pequot Lakes, MN 56472 218-568-4940 www.stonemarksurvey.com