



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION



Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

January 16, 2019

Mr. Chris Lynch, Airport Manager
Boire Field
93 Perimeter Road
Nashua, NH 03063

RE: Boire Field
Airport Layout Plan Conditional Approval
SBG 12-16-2016

Dear Mr. Lynch:

The Boire Field Airport Layout Plan (ALP), prepared by Gale Associates, Inc., and bearing Mr. Farrell Wood's and your signatures dated January 15, 2019, is conditionally approved. A signed copy of the approved ALP is enclosed.

An aeronautical study (2018-ANE-1413-NRA) was conducted on the proposed development. This determination does not constitute FAA or NHDOT approval or disapproval of the physical development involved in the proposal. It is a determination with respect to the safe and efficient use of navigable airspace by aircraft and with respect to the safety of persons and property on the ground. Comments included in the aeronautical study pertain to the conditions associated with the additional Runway 32 hold line, ensuring proposed buildings do not impact airspace or the airport's visual aids from the air traffic control tower or from any other controlling point, ensuring the proposed perimeter fence will not impair the use of the MALSR, and ensure that the proposed location of the AWOS weather station will not be impaired by the location of parked aircraft. These changes are not indicated on the ALP but have been addressed in the Airport Master Plan Update narrative report. This determination is to be referenced and incorporated into future project planning and scoping whenever appropriate.

In making this determination, the FAA and NHDOT has considered matters such as the effects the proposal would have on existing or planned traffic patterns of neighboring airports, the effects it would have on the existing airspace structure and projected programs of the FAA, the effects it would have on the safety of persons and property on the ground, and the effects that existing or proposed manmade objects (on file with the FAA), and known natural objects within the affected area would have on the airport proposal.

Mr. Chris Lynch
January 16, 2019
Page 2 of 2

The FAA and NHDOT have only limited means to prevent the construction of structures near an airport. The airport sponsor has the primary responsibility to protect the airport environs through such means as local zoning ordinances, property acquisition, aviation easements, letters of agreement or other means.

This ALP approval is conditioned on acknowledgement that any development on airport property requiring federal environmental approval must receive such written approval from FAA and/or NHDOT (as appropriate) prior to commencement of the subject development. This ALP approval is also conditioned on acceptance of the plan under local land use laws. We encourage appropriate agencies to adopt land use and height restrictive zoning based on this ALP.

Approval of this ALP does not indicate that the United States or State of New Hampshire will participate in the cost of any development proposed. Airport Improvement Program (AIP) funding requires evidence of eligibility and justification at the time a funding request is ready for consideration. When construction of any proposed structure or development indicated on the plan is undertaken, such construction normally requires 45-day advance notification to FAA for review in accordance with applicable Federal Aviation Regulations (i.e., Parts 77, 157, 152, etc.). More notice is generally beneficial to ensure that all statutory, regulatory, technical and operational issues can be addressed in a timely manner.

Please attach this letter to the ALP and retain it at the airport. We wish you great success in your plans for the development of your airport.

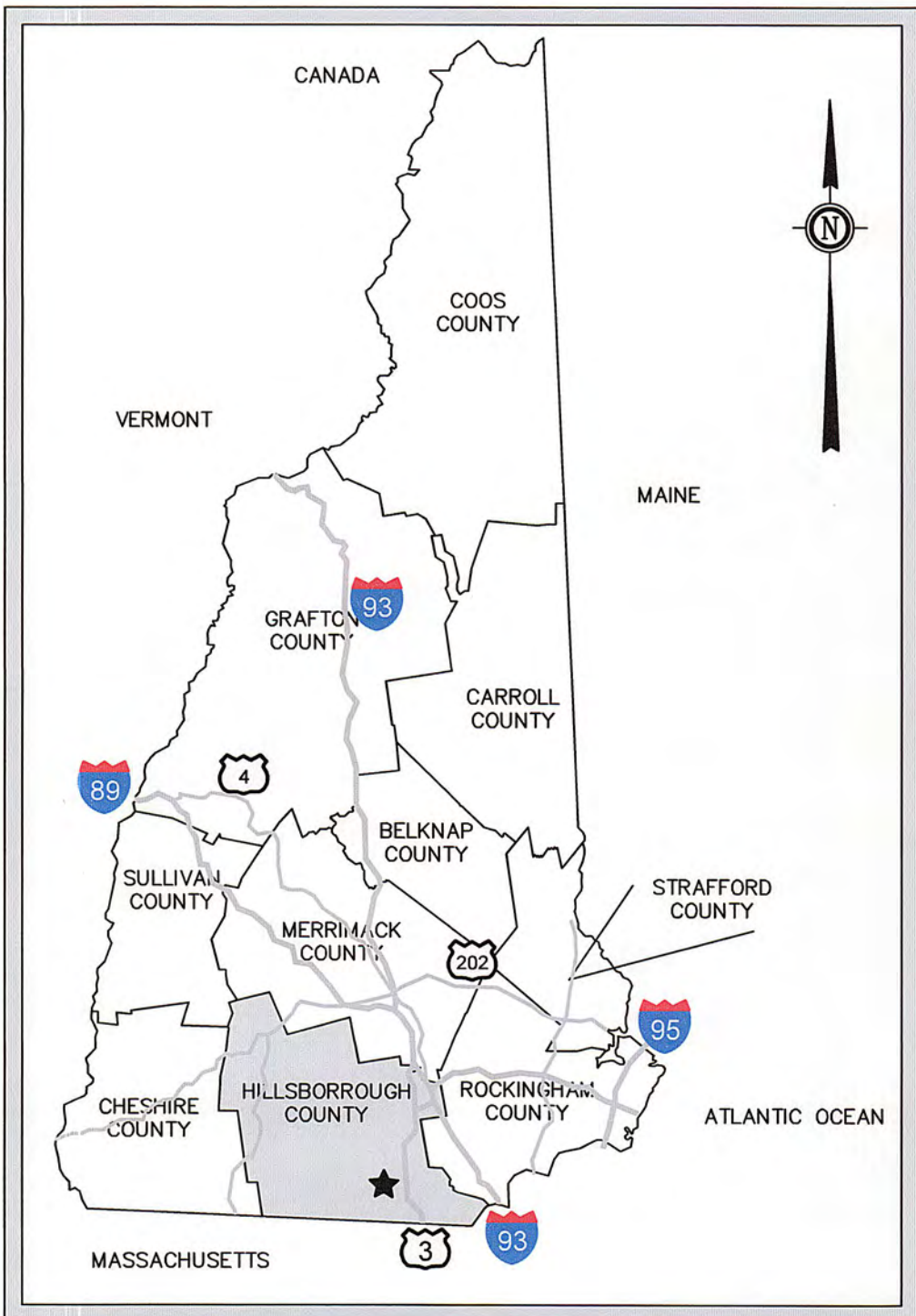
Sincerely,



Patrick C. Herlihy
Director
Division of Aeronautics, Rail & Transit

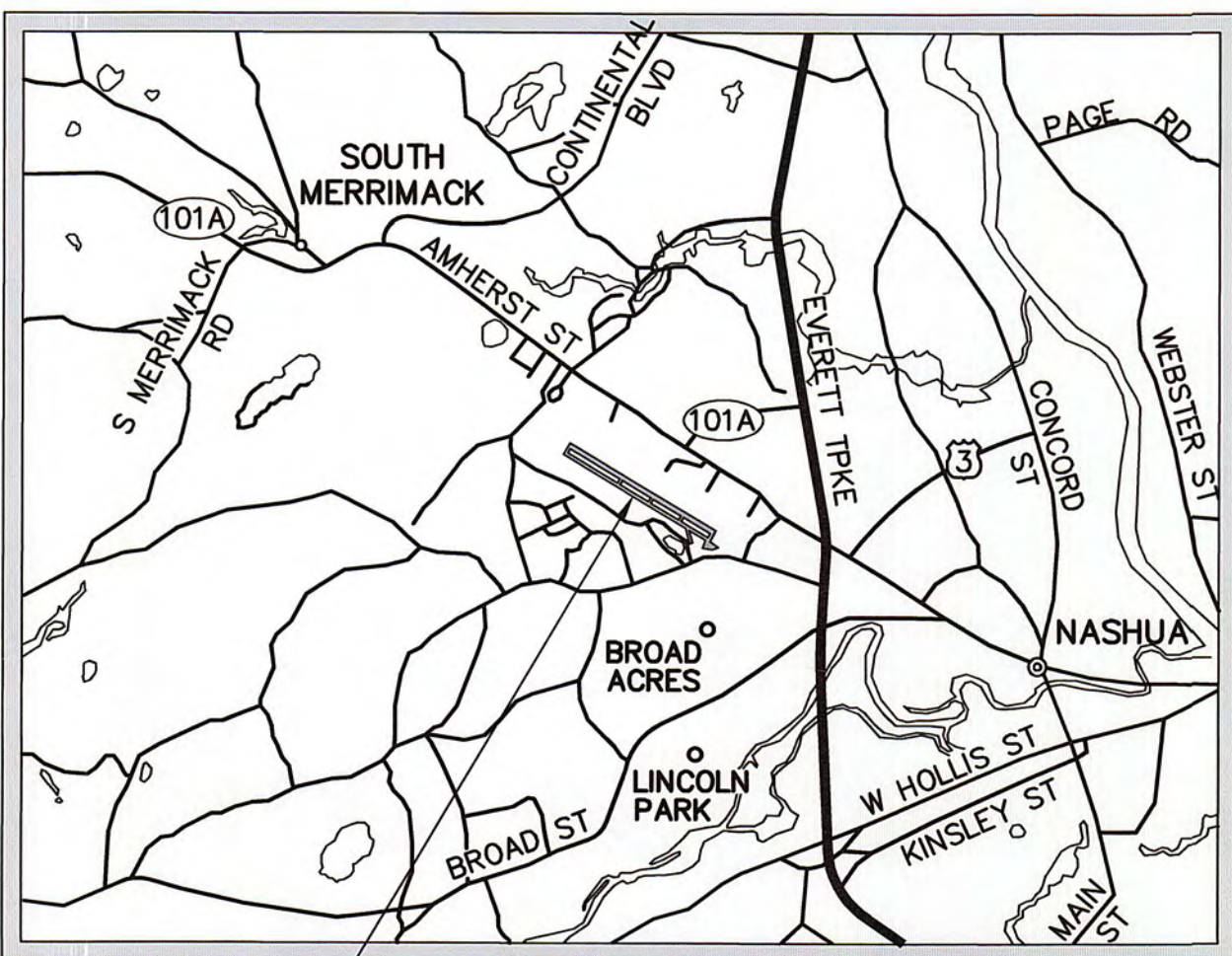
cc: Tracey McInnis, FAA
Matt Caron, Gale Associates

AIRPORT LAYOUT PLAN UPDATE



LOCATION MAP

30 0 30 60
SCALE IN MILES



BOIRE FIELD

VICINITY MAP

N.T.S.

NHDOT AERONAUTICS APPROVAL

APPROVED IN ACCORDANCE
WITH LETTER DATED 1-16-2019

APPROVED _____

DATE _____

SPONSOR'S APPROVAL

APPROVED *Farrell Woods*
MR. FARRELL WOODS
NASHUA AIRPORT AUTHORITY

DATE Jan. 15, 2019

APPROVED *Chris Lynch*
MR. CHRIS LYNCH, AIRPORT MANAGER

DATE Jan. 15, 2019



NHDOT NO. SBG-12-16-2016
JUNE 13, 2018

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Gale Associates, Inc.
Engineers - Planners

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Boston Baltimore Orlando

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PREPARED FOR:



PROJECT
AIRPORT MASTER PLAN UPDATE
NHDOT NO. SBG-12-16-2016

OWNER
CITY OF NASHUA, NEW HAMPSHIRE
AIRPORT AUTHORITY

NO.	DATE	DESCRIPTION	BY
PROJECT NO.		777042	
DESIGNED BY		DCQ	
DRAWN BY		DCQ	
CHECKED BY		MPC	
DATE		JUNE, 2018	

GRAPHIC SCALE

NO SCALE

SHEET TITLE

COVER SHEET

DRAWING NO.

1

1 OF 20

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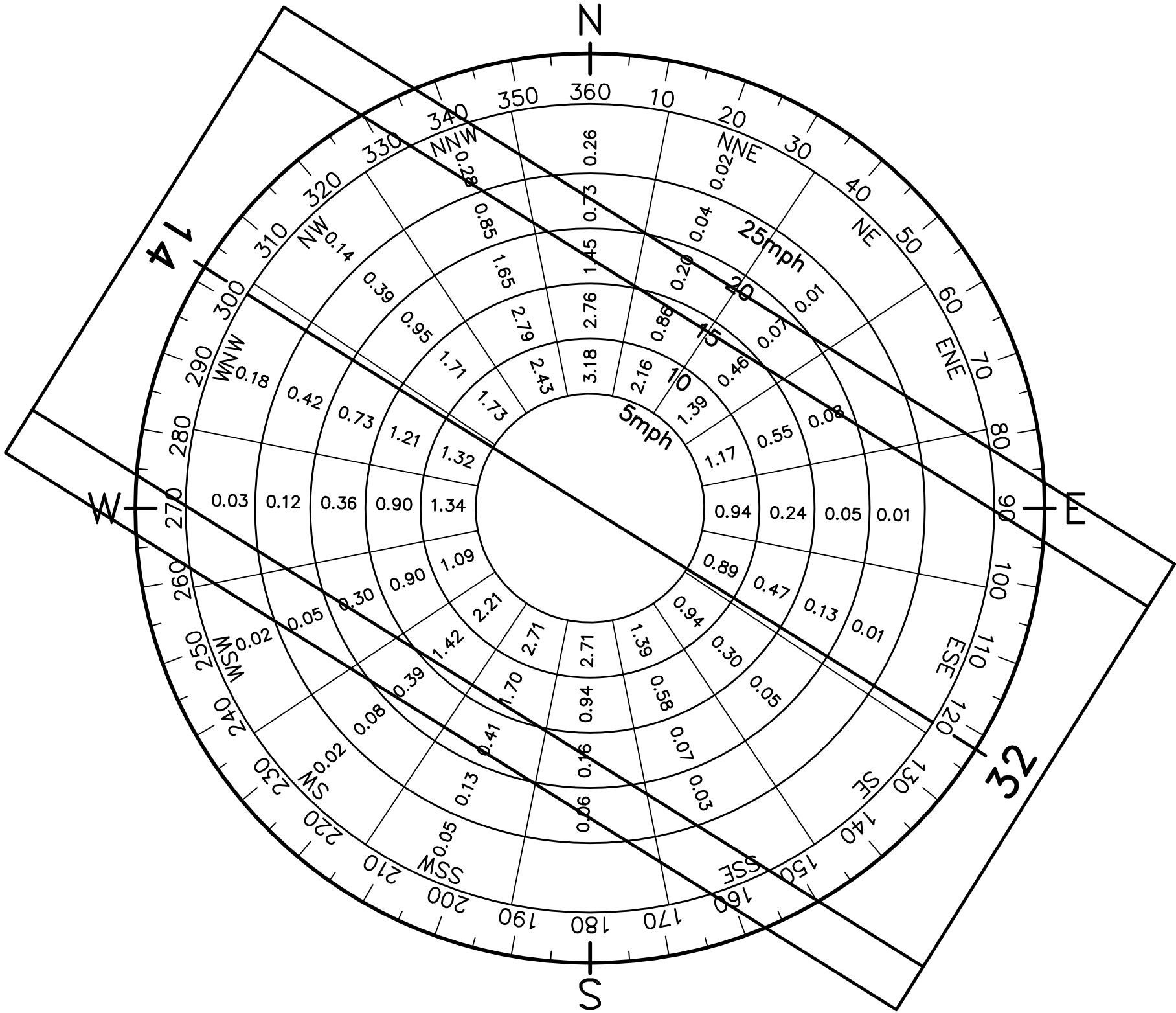
AIRPORT DATA		EXISTING	ULTIMATE
AIRPORT ELEVATION (NAVD 88, MSL)		200.38'	200.38'
AIRPORT REFERENCE POINT (ARP)	LATITUDE:	N042° 46' 56.69"	N042° 46' 56.69"
	LONGITUDE:	W071° 30' 50.74"	W071° 30' 50.74"
AIRPORT REFERENCE CODE (ARC)		D-II	D-II
DESIGN AIRCRAFT		GULFSTREAM IV	GULFSTREAM IV
AIRPORT IDENTIFIER		KASH	
MEAN MAX. TEMPERATURE OF HOTTEST MONTH		83° F (JULY)	
MAGNETIC DECLINATION		16° W (1995)	14°37'W (MARCH 2017)
TERMINAL AREA NAVAIDS		NDB, BEACON, VOR-A	NDB, BEACON, VOR-A
MISC. NAVAIDS		AWOS, WINDCONE, SUPP. WINDCONE, MITLS	AWOS, WINDCONE, SUPP. WINDCONE, MITLS
NPIAS SERVICE LEVEL		GA	GA
NHDOT BUREAU OF AERONAUTICS		NATIONAL	NATIONAL

RUNWAY DATA		EXISTING		ULTIMATE	
		RUNWAY 14	RUNWAY 32	RUNWAY 14	RUNWAY 32
RUNWAY PAVEMENT STRENGTH		62,000 LBS (SW)		62,000 LBS (SW)	
		80,000 LBS (DW)		80,000 LBS (DW)	
		133,000 LBS (DT)		133,000 LBS (DT)	
RUNWAY DESIGN CODE		D-II-2400	D-II-5000	D-II-2400	D-II-5000
PAVEMENT CLASSIFICATION NUMBER (PCN)		25.5/F/D/X/T		25.5/F/D/X/T	
SURFACE TYPE & TREATMENT		ASPHALT GROOVED, SEALED		ASPHALT GROOVED, SEALED	
EFFECTIVE RUNWAY GRADIENT		0.20%	0.20%	0.20%	0.20%
MAX. RUNWAY GRADE CHANGE		0.48%	0.48%	0.48%	0.48%
WIND COVERAGE (ALL WEATHER/IFR)		92.3%/93.8%		92.3%/93.8%	
RUNWAY DIMENSIONS (LENGTH X WIDTH)		6,000 LF X 100 FT		6,000 LF X 100 FT	
DISPLACED THRESHOLD		NONE	350'	NONE	350'
USABLE RUNWAY LENGTH		6,000 LF	5,650 LF	6,000 LF	5,650 LF
APPROACH SURFACE SLOPE		50:1 (PRECISION)	34:1 (NON-PRECISION)	50:1 (PRECISION)	34:1 (NON-PRECISION)
APPROACH MINIMUMS		400'-1/2 MILE	481'-1 MILE	400'-1/2 MILE	481'-1 MILE
FAR PART 77 APPROACH CATEGORY		PRECISION INSTRUMENT	NON-PRECISION	PRECISION INSTRUMENT	NON-PRECISION
RUNWAY SAFETY AREA	LENGTH BEYOND RW THRESHOLD:	1,000 LF	1,000 LF	1,000 LF	1,000 LF
	WIDTH:	500 FT	500 FT	500 FT	500 FT
RUNWAY OBJECT FREE AREA	LENGTH BEYOND RW THRESHOLD:	1,000 LF	1,000 LF	1,000 LF	1,000 LF
	WIDTH:	800 FT	800 FT	800 FT	800 FT
RUNWAY OBSTACLE FREE ZONE	LENGTH BEYOND RW END:	200 LF	200 LF	200 LF	200 LF
	WIDTH:	400 FT	400 FT	400 FT	400 FT
RUNWAY APROACH RPZ	LENGTH	2,500 LF	1,700 LF	2,500 LF	1,700 LF
	INNER WIDTH:	1,000 FT	500 FT	1,000 FT	500 FT
	OUTER WIDTH	1,750 FT	1,010 FT	1,750 FT	1,010 FT
RUNWAY END COORDINATES	LATITUDE:	N42°47'12.6981"	N42°46'40.6791"	N42°47'12.6981"	N42°46'40.6791"
	LONGITUDE:	W071°31'24.5998"	W071°30'16.8912'	W071°31'24.5998"	W071°30'16.8912'
	ELEVATION:	200.38' MSL	191.98' MSL	200.38' MSL	191.98' MSL
DISP. THRESHOLD COORDINATES	LATITUDE:	N/A	N42°46'42.5472"	N/A	N42°46'42.5472"
	LONGITUDE:	N/A	W071°30'20.8402'	N/A	W071°30'20.8402'
	ELEVATION:	N/A	191.11' MSL	N/A	191.11' MSL
RUNWAY LIGHTING		HIRLS		HIRLS	
NAVIGATIONAL AIDS		ILS, GPS (RNAV), PAPI, MALSR	VOR, GPS (RNAV), PAPI, REILS	ILS, GPS (RNAV), PAPI, MALSR	VOR, GPS (RNAV), PAPI, REILS
RUNWAY MARKINGS		PRECISION	NON-PRECISION	PRECISION	NON-PRECISION
AERONAUTICAL SURVEY REQUIRED		VGS	NVGS	VGS	NVGS
RUNWAY DEPARTURE OCS APPLICABILITY		YES	N/A	YES	N/A
TOUCHDOWN ZONE ELEVATION		200.38'	192.48'	200.38'	192.48'

*ALL INFORMATION USED IN THIS DATA TABLE IS BASED ON THE NAD83 HORIZONTAL DATUM AND NAVD-88 VERTICAL DATUM.

TAXIWAY DATA		EXISTING	ULTIMATE
TAXIWAY/TAXILANE WIDTH		40 FT	40 FT
TAXIWAY/TAXILANE SAFETY AREA WIDTH		79 FT	79 FT
TAXIWAY OBJECT FREE AREA		131 FT	131 FT
TAXILANE OBJECT FREE AREA		115 FT	115 FT
TAXIWAY/TAXILANE CENTERLINE TO CENTERLINE SEPARATION		105 FT	105 FT
TAXIWAY/TAXILANE CENTERLINE TO FIXED OR MOVABLE OBJECT		65.5 FT	65.5 FT
TAXIWAY LIGHTING		MITLS	MITLS

DECLARED DISTANCES	EXISTING		ULTIMATE	
	RUNWAY 14	RUNWAY 32	RUNWAY 14	RUNWAY 32
TAKEOFF RUN AVAILABLE (TORA)	6,000 LF	6,000 LF	6,000 LF	6,000 LF
TAKEOFF DISTANCE AVAILABLE (TODA)	6,000 LF	6,000 LF	6,000 LF	6,000 LF
ACCELERATE-STOP DISTANCE AVAILABLE (ASDA)	5,650 LF	6,000 LF	5,650 LF	6,000 LF
LANDING DISTANCE AVAILABLE (LDA)	5,650 LF	5,650 LF	5,650 LF	5,650 LF



ALL WEATHER WIND ROSE

SEE AIRPORT LAYOUT PLAN, DATED OCT. 1979 BY HOYLE, TANNER & ASSOCIATES, INC., FOR IFR WIND ROSE.

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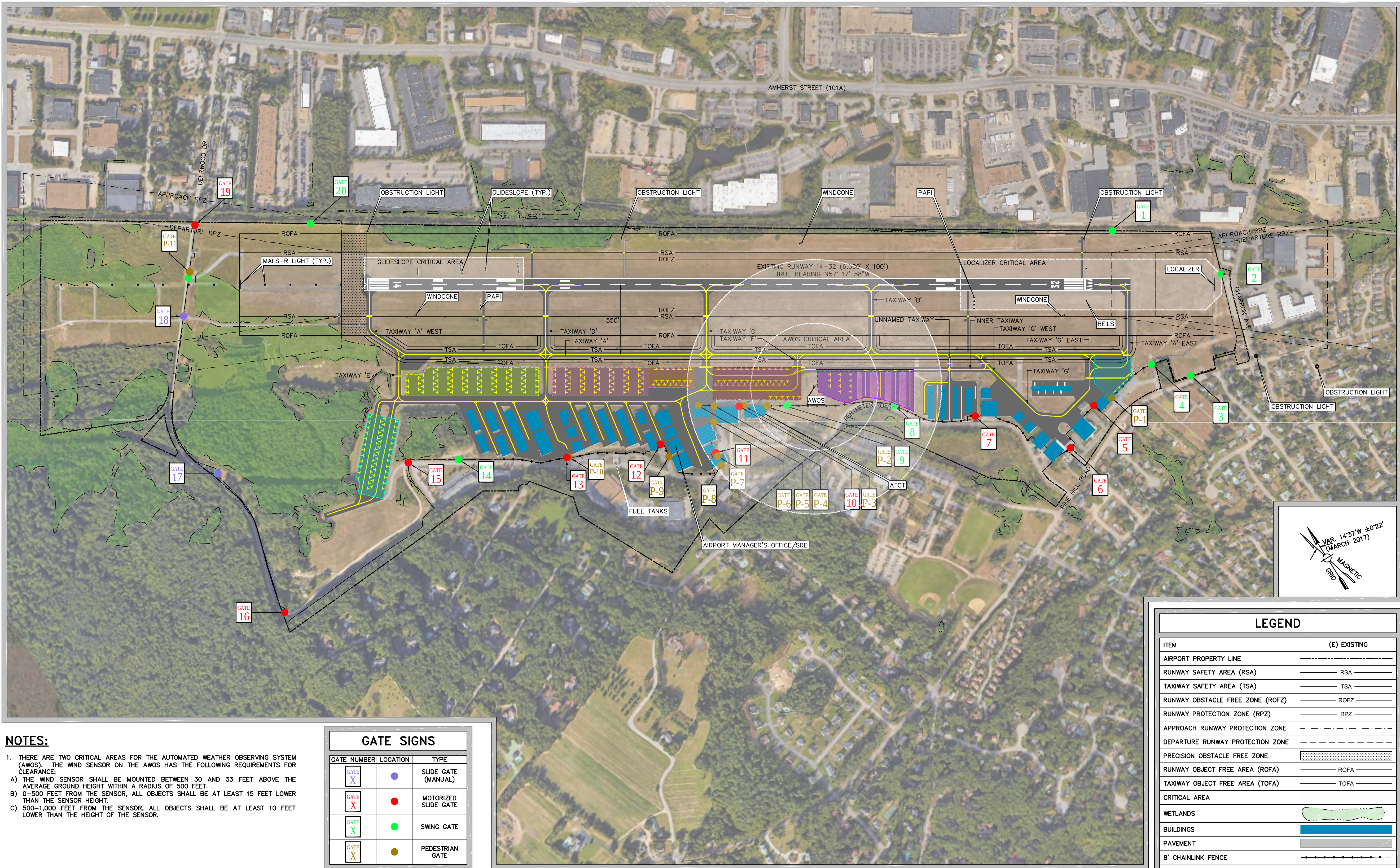
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NO.	DATE	DESCRIPTION	BY
PROJECT NO.		777042	
DESIGNED BY		DCQ	
DRAWN BY		DCQ	
CHECKED BY		MPC	
DATE		JUNE, 2018	

GRAPHIC SCALE
0 50 100 200
SCALE: 1" = 100'

SHEET TITLE	
AIRPORT DATA SHEET	
DRAWING NO.	
2	
2	OF 20

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NOTES:

1. THERE ARE TWO CRITICAL AREAS FOR THE AUTOMATED WEATHER OBSERVING SYSTEM (AWOS). THE WIND SENSOR ON THE AWOS HAS THE FOLLOWING REQUIREMENTS FOR CLEARANCE:
 - A) THE WIND SENSOR SHALL BE MOUNTED BETWEEN 30 AND 33 FEET ABOVE THE AVERAGE GROUND HEIGHT WITHIN A RADIUS OF 500 FEET.
 - B) 0-500 FEET FROM THE SENSOR, ALL OBJECTS SHALL BE AT LEAST 15 FEET LOWER THAN THE SENSOR HEIGHT.
 - C) 500-1,000 FEET FROM THE SENSOR, ALL OBJECTS SHALL BE AT LEAST 10 FEET LOWER THAN THE HEIGHT OF THE SENSOR.

GATE SIGNS		
GATE NUMBER	LOCATION	TYPE
GATE X	●	SLIDE GATE (MANUAL)
GATE X	●	MOTORIZED SLIDE GATE
GATE X	●	SWING GATE
GATE X	●	PEDESTRIAN GATE

EXISTING FACILITIES PLAN
SCALE: 1" = 400'

LEGEND	
ITEM	(E) EXISTING
AIRPORT PROPERTY LINE	-----
RUNWAY SAFETY AREA (RSA)	----- RSA -----
TAXIWAY SAFETY AREA (TSA)	----- TSA -----
RUNWAY OBSTACLE FREE ZONE (ROFZ)	----- ROFZ -----
RUNWAY PROTECTION ZONE (RPZ)	----- RPZ -----
APPROACH RUNWAY PROTECTION ZONE	-----
DEPARTURE RUNWAY PROTECTION ZONE	-----
PRECISION OBSTACLE FREE ZONE	-----
RUNWAY OBJECT FREE AREA (ROFA)	----- ROFA -----
TAXIWAY OBJECT FREE AREA (TOFA)	----- TOFA -----
CRITICAL AREA	-----
WETLANDS	-----
BUILDINGS	-----
PAVEMENT	-----
8' CHAINLINK FENCE	-----
8' CHAINLINK FENCE WITH BARBWIRE	-----
ALPHA RAMP	-----
DELTA RAMP	-----
ECHO RAMP	-----
FOXTROT RAMP	-----
GOLF RAMP	-----
HOTEL RAMP	-----
INDIA RAMP	-----

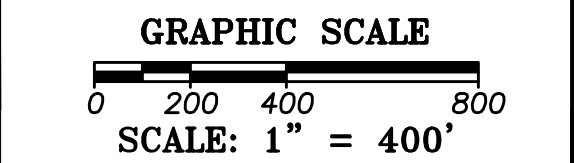
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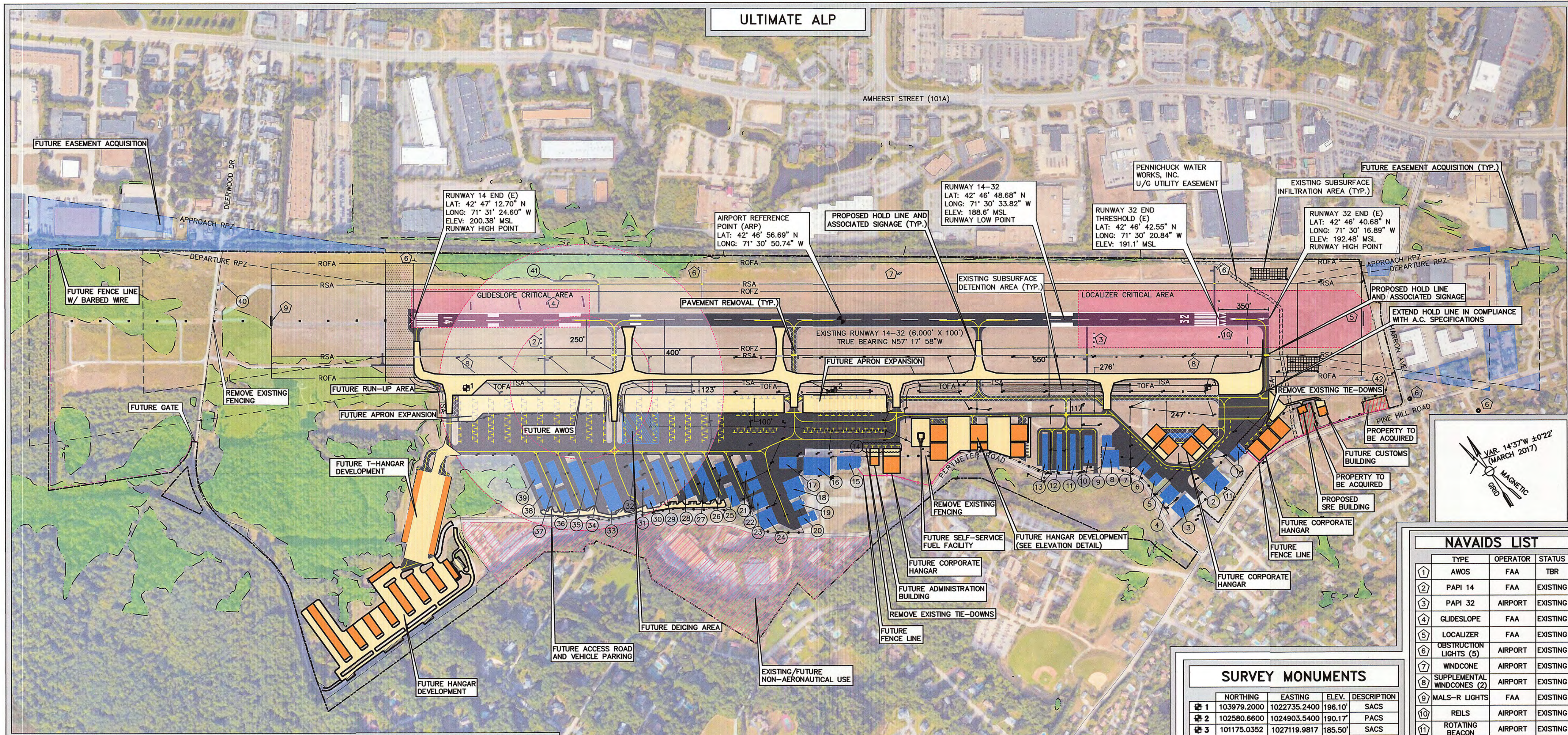
PROJECT	AIRPORT MASTER PLAN UPDATE NHDOT NO. SBG-12-16-2016	
	CITY OF NASHUA, NEW HAMPSHIRE AIRPORT AUTHORITY	
OWNER		

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777042		
DESIGNED BY	DCQ		
DRAWN BY	DCQ		
CHECKED BY	MPC		
DATE	JUNE, 2018		



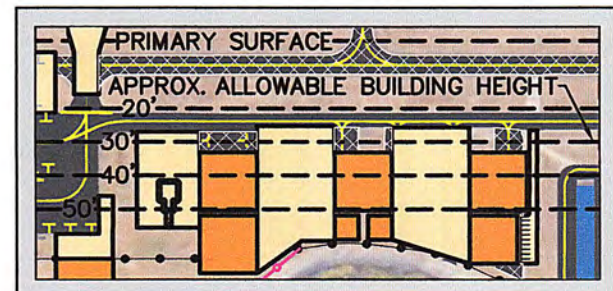
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3	OF 20

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FACILITIES LIST							
(E) EXISTING				(F) FUTURE (R) TO BE REMOVED			
	TYPE	OPERATOR	STATUS		TYPE	OPERATOR	STATUS
1	HANGAR	NASHUA AIRPORT AUTHORITY	(E)	(22)	HANGAR	1450 ASSOC., LLC	(E)
2	HANGAR	BERKSHIRE AVIATION, LLC	(E)	(23)	ADMIN. BUILDING	NASHUA AIRPORT AUTHORITY	(E)
3	HANGAR	LJ 60 HANGAR, LLC	(E)	(24)	HANGAR	1450 ASSOC., LLC	(E)
4	HANGAR	OIA REAL ESTATE, LLC	(E)	(25)	HANGAR	STEIN REALTY, LLC	(E)
5	HANGAR	FREDRIC R. BOSWELL	(E)	(26)	HANGAR	STEIN REALTY, LLC	(E)
6	HANGAR	GEORGE GEORGES TRUST	(E)	(27)	HANGAR	BOIRE FLD CONDO III	(E)
7	HANGAR	JAMES TAMPOSI	(E)(R)	(28)	HANGAR	BOIRE FLD CONDO I	(E)
8	HANGAR	MDL CONSULTING ASSOC., LLC	(E)	(29)	HANGAR	BOIRE FLD CONDO II	(E)
9	HANGAR	DIAMOND M. INVESTMENT PROP., LLC	(E)	(30)	HANGAR	MACAIR	(E)
10	HANGAR	NASHUA AVIATION ASSOC. II	(E)	(31)	HANGAR	MACAIR	(E)
11	HANGAR	NASHUA AVIATION ASSOC. III	(E)	(32)	HANGAR	BOIRE PROPERTIES, LLC	(E)
12	HANGAR	1439 ASSOCIATES	(E)	(33)	HANGAR	BOIRE PROPERTIES, LLC	(E)
13	HANGAR	MACAIR	(E)	(34)	HANGAR	BOIRE PROPERTIES, LLC	(E)
14	ELECTRICAL VAULT	NASHUA AIRPORT	(E)	(35)	HANGAR	121 CONDO ASSOC.	(E)
15	ATCT BUILDING	SNHU	(E)	(36)	HANGAR	MACAIR	(E)
16	HANGAR	MACAIR	(E)	(37)	HANGAR	MACAIR	(E)
17	HANGAR	NASHUA JET AVIATION	(E)	(38)	HANGAR	127-129 HANGAR ASSOC.	(E)
18	BUILDING	SNHU	(E)	(39)	HANGAR	127-129 HANGAR ASSOC.	(E)
19	BUILDING	MACAIR	(E)	(40)	MALSR SHED	FAA	(E)
20	BUILDING	MACAIR	(E)	(41)	GLIDESLOPE SHED	FAA	(E)
21	HANGAR	1450 ASSOC., LLC	(E)	(42)	LOCALIZER SHED	FAA	(E)

ULTIMATE AIRPORT LAYOUT PLAN
SCALE: 1" = 400'



ELEVATION DETAIL
SCALE: 1" = 400'

NOTES:

1. THERE ARE TWO CRITICAL AREAS FOR THE AUTOMATED WEATHER OBSERVING SYSTEM (AWOS). THE WIND SENSOR ON THE AWOS HAS THE FOLLOWING REQUIREMENTS FOR CLEARANCE:
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 - C) 500-1,000 FEET FROM THE SENSOR, ALL OBJECTS SHALL BE AT LEAST 10 FEET LOWER THAN THE HEIGHT OF THE SENSOR.

NHDOT AERONAUTICS APPROVAL

APPROVED IN ACCORDANCE
WITH LETTER DATED 1-16-2019

APPROVED _____

DATE _____

SPONSOR'S APPROVAL

APPROVED _____

MR. FARRELL WOODS
NASHUA AIRPORT AUTHORITY

DATE Jan. 15, 2019

APPROVED _____

MR. CHRIS LYNCH, AIRPORT MANAGER

DATE Jan. 15, 2019

NAVAIDS LIST

NO.	TYPE	OPERATOR	STATUS
1	AWOS	FAA	TBR
2	PAPI 14	FAA	EXISTING
3	PAPI 32	AIRPORT	EXISTING
4	GLIDESLOPE	FAA	EXISTING
5	LOCALIZER	FAA	EXISTING
6	OBSTRUCTION LIGHTS (5)	AIRPORT	EXISTING
7	WINDCONE	AIRPORT	EXISTING
8	SUPPLEMENTAL WINDCONES (2)	AIRPORT	EXISTING
9	MALS-R LIGHTS	FAA	EXISTING
10	REILS	AIRPORT	EXISTING
11	ROTATING BEACON	AIRPORT	EXISTING

SURVEY MONUMENTS

NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
1	103979.2000	1022735.2400	196.10'	SACS
2	102580.6600	1024903.5400	190.17'	PACS
3	101175.0352	1027119.9817	185.50'	SACS

LEGEND

ITEM	(E) EXISTING	(F) FUTURE
AIRPORT PROPERTY LINE	---	---
RUNWAY SAFETY AREA (RSA)	---	---
TAXIWAY SAFETY AREA (TSA)	---	---
RUNWAY OBSTACLE FREE ZONE (ROFZ)	---	---
RUNWAY PROTECTION ZONE (RPZ)	---	---
APPROACH RUNWAY PROTECTION ZONE	---	---
DEPARTURE RUNWAY PROTECTION ZONE	---	---
PRECISION OBSTACLE FREE ZONE	---	---
RUNWAY OBJECT FREE AREA (ROFA)	---	---
TAXIWAY OBJECT FREE AREA (TOFA)	---	---
CRITICAL AREA	---	---
WETLANDS	---	---
BUILDINGS	---	---
PAVEMENT	---	---
8' CHAINLINK FENCE	---	---
8' CHAINLINK FENCE WITH BARBWIRE	---	---
DEICING AREA	---	---
EXISTING PAVEMENT TO BE REMOVED	---	---
RESERVED FOR FUTURE NON-AERONAUTICAL USE	---	---

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PROJECT
AIRPORT MASTER PLAN UPDATE
NHDOT NO. SBG-12-16-2016

OWNER
CITY OF NASHUA, NEW HAMPSHIRE
AIRPORT AUTHORITY

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PROJECT NO.	777042		
DESIGNED BY	DCQ		
DRAWN BY	DCQ		
CHECKED BY	MPC		
DATE	JUNE, 2018		

GRAPHIC SCALE
0 200 400 800
SCALE: 1" = 400'

SHEET TITLE

ULTIMATE AIRPORT
LAYOUT PLAN

DRAWING NO.

4

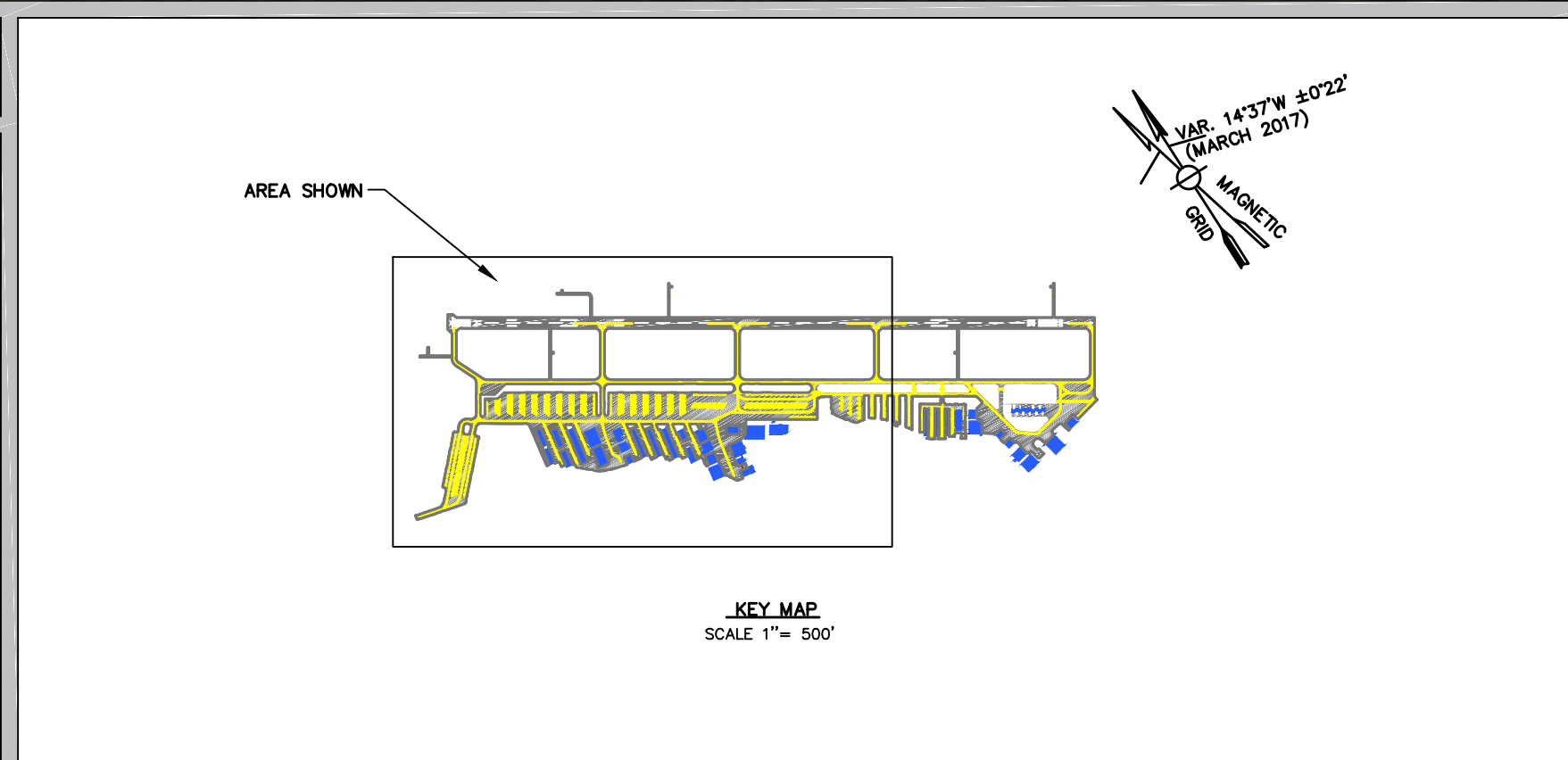
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FACILITIES LIST							
(E) EXISTING				(F) FUTURE (R) TO BE REMOVED			
NO.	TYPE	OPERATOR	STATUS	TOP OF STRUCTURE (MLS)*	NO.	TYPE	OPERATOR
14	ELECTRICAL VAULT	NASHUA AIRPORT	(E)	196'	28	HANGAR	BOIRE FLD CONDO I
15	ATCT BUILDING	SNHU	(E)	238'	29	HANGAR	BOIRE FLD CONDO II
16	HANGAR	MACAIR	(E)	227'	30	HANGAR	MACAIR
17	HANGAR	NASHUA JET AVIATION	(E)	215'	31	HANGAR	MACAIR
18	BUILDING	SNHU	(E)	221'	32	HANGAR	BOIRE PROPERTIES, LLC
19	BUILDING	MACAIR	(E)	214'	33	HANGAR	BOIRE PROPERTIES, LLC
20	BUILDING	MACAIR	(E)	215'	34	HANGAR	BOIRE PROPERTIES, LLC
21	HANGAR	1450 ASSOC., LLC	(E)	230'	35	HANGAR	121 CONDO ASSOC.
22	HANGAR	1450 ASSOC., LLC	(E)	212'	36	HANGAR	MACAIR
23	ADMIN. BUILDING	NASHUA AIRPORT AUTHORITY	(E)	213'	37	HANGAR	MACAIR
24	HANGAR	1450 ASSOC., LLC	(E)	228'	38	HANGAR	127-129 HANGAR ASSOC.
25	HANGAR	STEIN REALTY, LLC	(E)	215'	39	HANGAR	127-129 HANGAR ASSOC.
26	HANGAR	STEIN REALTY, LLC	(E)	217'			
27	HANGAR	BOIRE FLD CONDO III	(E)	211'			

*A COMPREHENSIVE OBSTRUCTION SURVEY WAS NOT PERFORMED IN PRODUCING THIS PLAN. APPROXIMATE STRUCTURE HEIGHTS WERE OBTAINED FROM AN OBSTRUCTION SURVEY PERFORMED AS PART OF AIP NO. 3-33-0012-26



LEGEND		
ITEM	(E) EXISTING	(F) FUTURE
AIRPORT PROPERTY LINE	---	---
RUNWAY SAFETY AREA (RSA)	---	---
TAXIWAY SAFETY AREA (TSA)	---	---
RUNWAY OBSTACLE FREE ZONE (ROFZ)	---	---
RUNWAY PROTECTION ZONE (RPZ)	---	---
APPROACH RUNWAY PROTECTION ZONE	---	---
DEPARTURE RUNWAY PROTECTION ZONE	---	---
TAXIWAY OBJECT FREE AREA (TOFA)	---	---
RUNWAY OBJECT FREE AREA (ROFA)	---	---
PRECISION OBSTACLE FREE ZONE	---	---
CRITICAL AREA	---	---
WETLANDS	---	---
BUILDINGS	---	---
PAVEMENT	---	---
8' CHAINLINK FENCE	---	---
8' CHAINLINK FENCE WITH BARBWIRE	---	---
DEICING AREA	---	---
EXISTING PAVEMENT TO BE REMOVED	---	---
RESERVED FOR FUTURE NON-AERONAUTICAL USE	---	---



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PREPARED FOR:



BOIRE FIELD

AIRPORT MASTER PLAN UPDATE
NHDOT NO. SBG-12-16-2016

CITY OF NASHUA, NEW HAMPSHIRE
AIRPORT AUTHORITY

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777042		
DESIGNED BY	DCQ		
DRAWN BY	DCQ		
CHECKED BY	MPC		
DATE	JUNE, 2018		

GRAPHIC SCALE
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SCALE: 1" = 200'

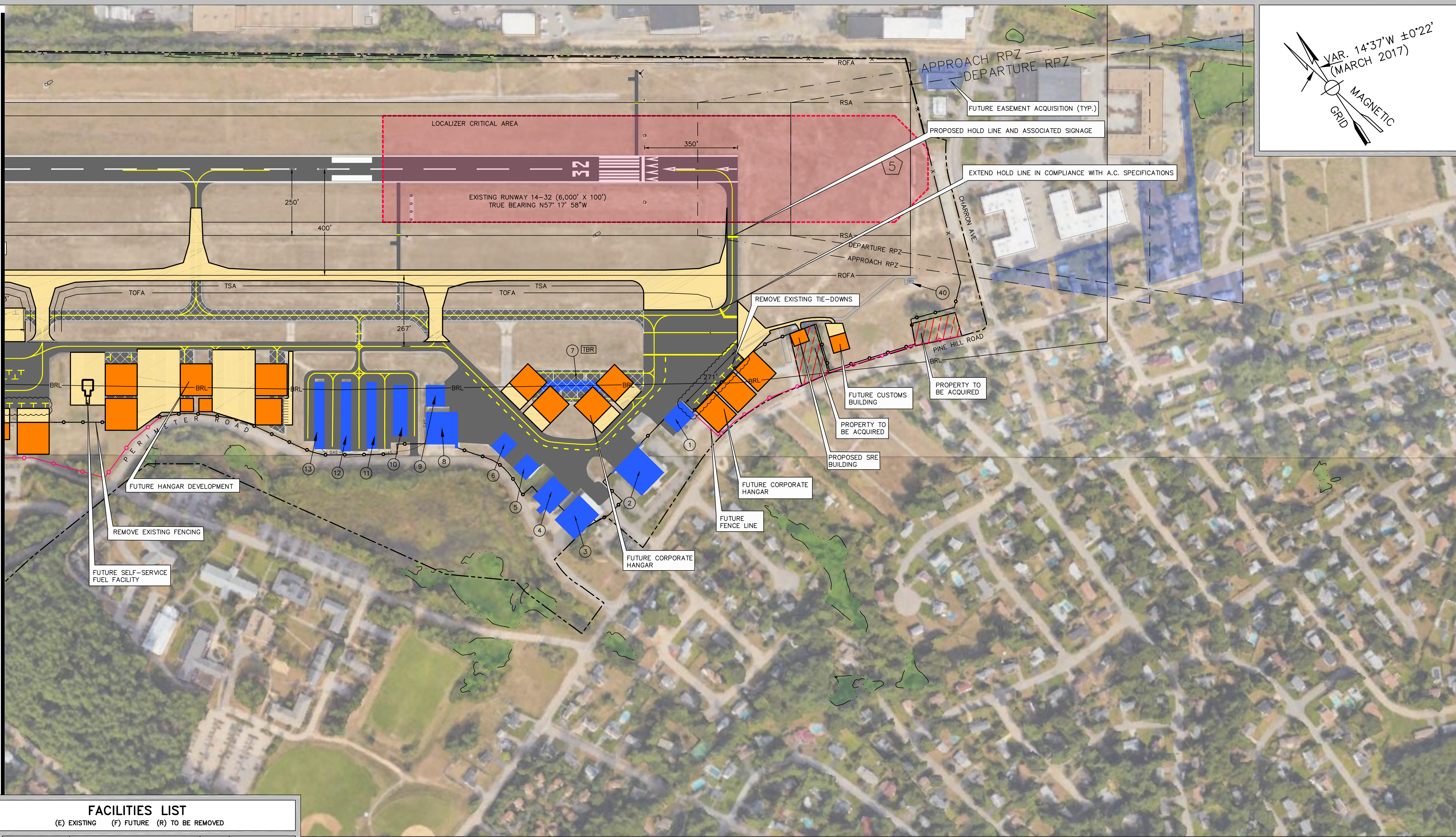
SHEET TITLE
TERMINAL AREA
PLAN
(SHEET 1 OF 2)

DRAWING NO.
5

5 OF 20

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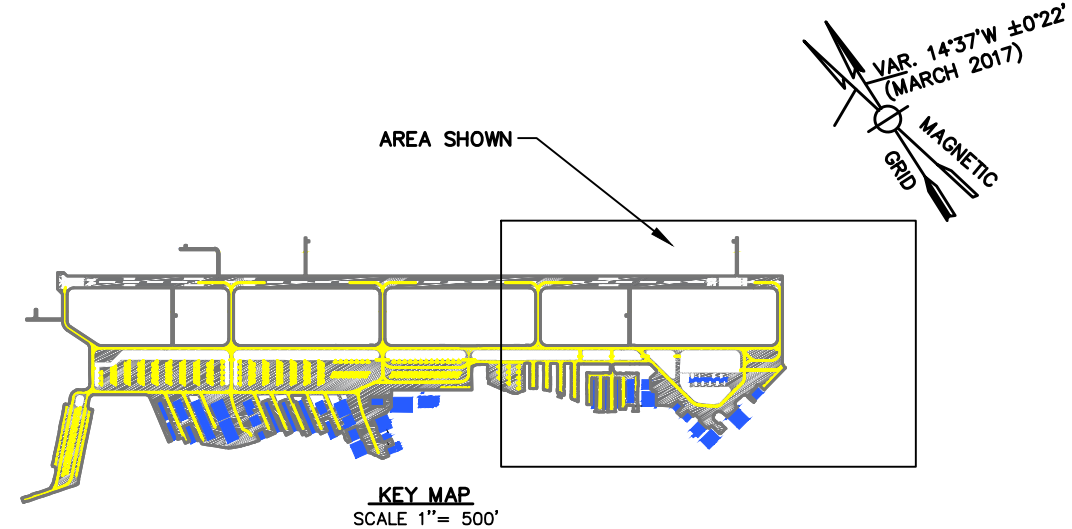
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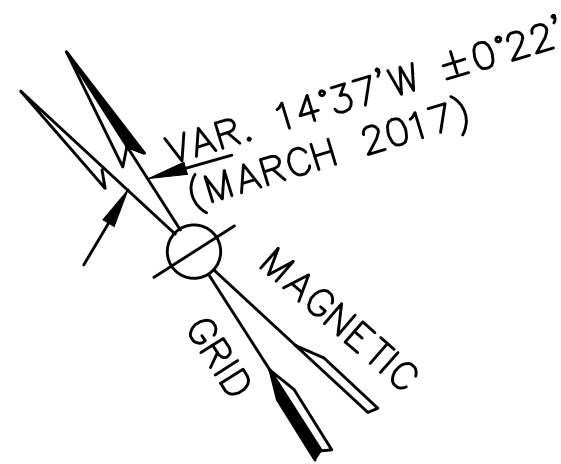
(E) EXISTING (F) FUTURE (R) TO BE REMOVED

	TYPE	OPERATOR	STATUS	TOP OF STRUCTURE (MLS)*
1	HANGAR	NASHUA AIRPORT AUTHORITY	(E)	218'
2	HANGAR	BERKSHIRE AVIATION, LLC	(E)	225'
3	HANGAR	LJ 60 HANGAR, LLC	(E)	223'
4	HANGAR	OIA REAL ESTATE, LLC	(E)	212'
5	HANGAR	FREDRIC R. BOSWELL	(E)	213'
6	HANGAR	GEORGE GEORGES TRUST	(E)	214'
7	HANGAR	JAMES TAMPOSI	(E)(R)	201'
8	HANGAR	MDL CONSULTING ASSOC., LLC	(E)	221'
9	HANGAR	DIAMOND M. INVESTMENT PROP., LLC	(E)	210'
10	HANGAR	NASHUA AVIATION ASSOC. II	(E)	204'
11	HANGAR	NASHUA AVIATION ASSOC. III	(E)	202'
12	HANGAR	1439 ASSOCIATES	(E)	202'
13	HANGAR	MACAIR	(E)	201'
40	MALSR SHED	FAA	(E)	190'



LEGEND

ITEM	(E) EXISTING	(F) FUTURE	ITEM	(E) EXISTING	(F) FUTURE
AIRPORT PROPERTY LINE	---	---	PRECISION OBSTACLE FREE ZONE	[Pattern]	
RUNWAY SAFETY AREA (RSA)	---		CRITICAL AREA	[Pattern]	
TAXIWAY SAFETY AREA (TSA)	---	---	WETLANDS	[Pattern]	
RUNWAY OBSTACLE FREE ZONE (ROFZ)	---		BUILDINGS	[Pattern]	[Pattern]
RUNWAY PROTECTION ZONE (RPZ)	---		PAVEMENT	[Pattern]	[Pattern]
APPROACH RUNWAY PROTECTION ZONE	---		8' CHAINLINK FENCE	[Pattern]	[Pattern]
DEPARTURE RUNWAY PROTECTION ZONE	---		8' CHAINLINK FENCE WITH BARBWIRE	[Pattern]	[Pattern]
TAXIWAY OBJECT FREE AREA (TOFA)	---	---	DEICING AREA		[Pattern]
RUNWAY OBJECT FREE AREA (ROFA)	---		EXISTING PAVEMENT TO BE REMOVED	[Pattern]	
			BUILDING RESTRICTION LINE (BRL)	---	---



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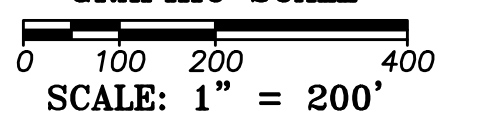


PROJECT
AIRPORT MASTER PLAN UPDATE
NHDOT NO. SBG-12-16-2016

OWNER
CITY OF NASHUA, NEW HAMPSHIRE
AIRPORT AUTHORITY

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777042		
DESIGNED BY	DCQ		
DRAWN BY	DCQ		
CHECKED BY	MPC		
DATE	JUNE, 2018		

GRAPHIC SCALE



SHEET TITLE

TERMINAL AREA
PLAN
(SHEET 2 OF 2)

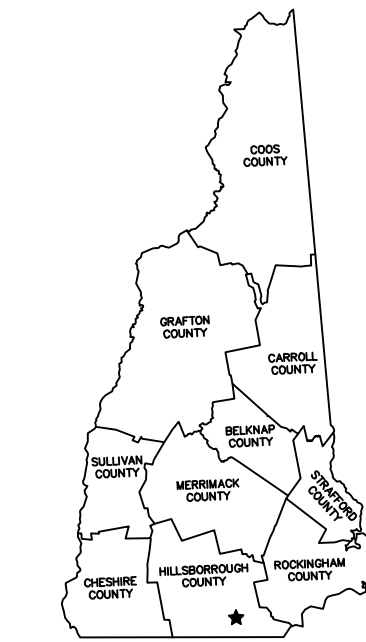
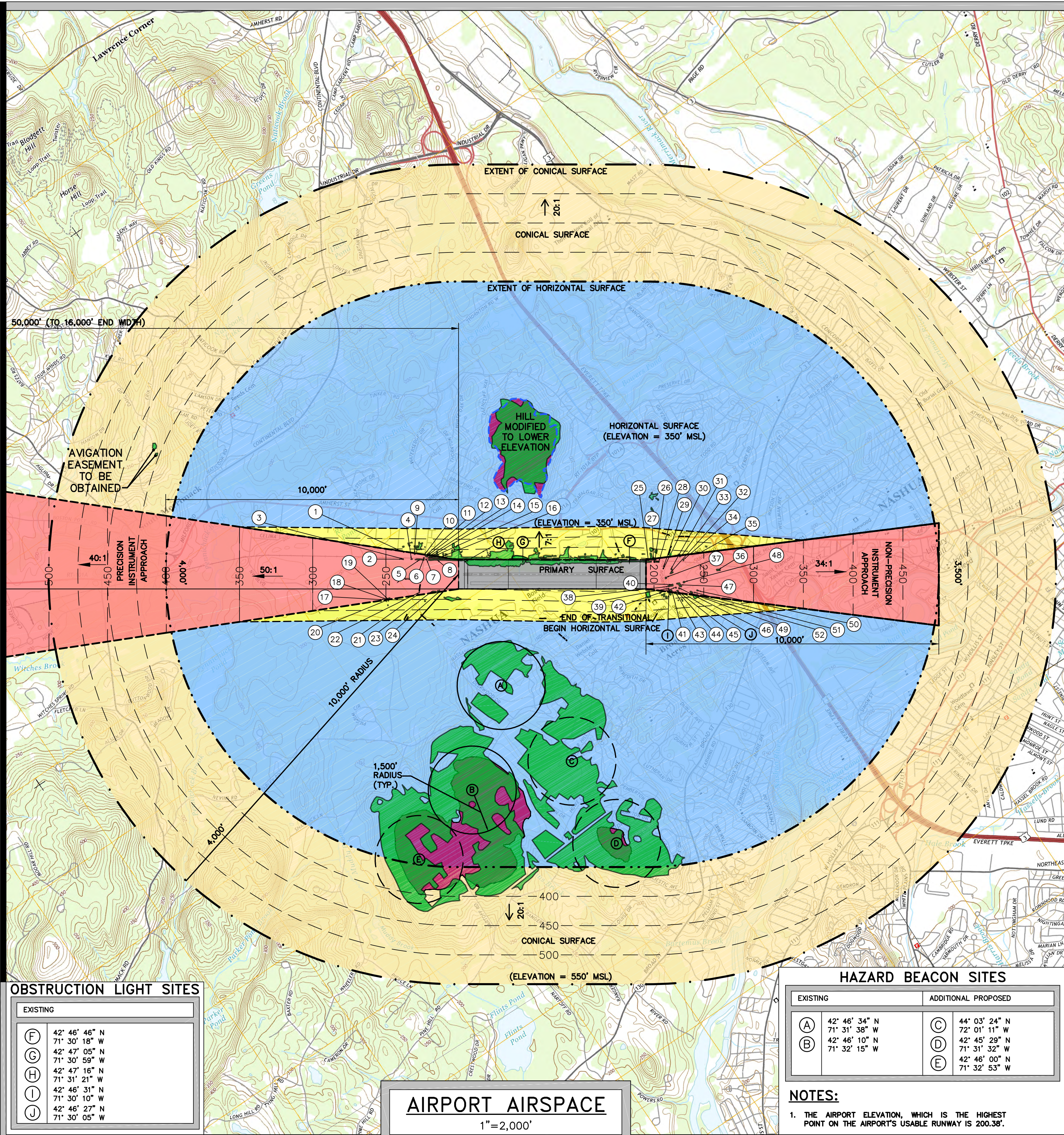
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6

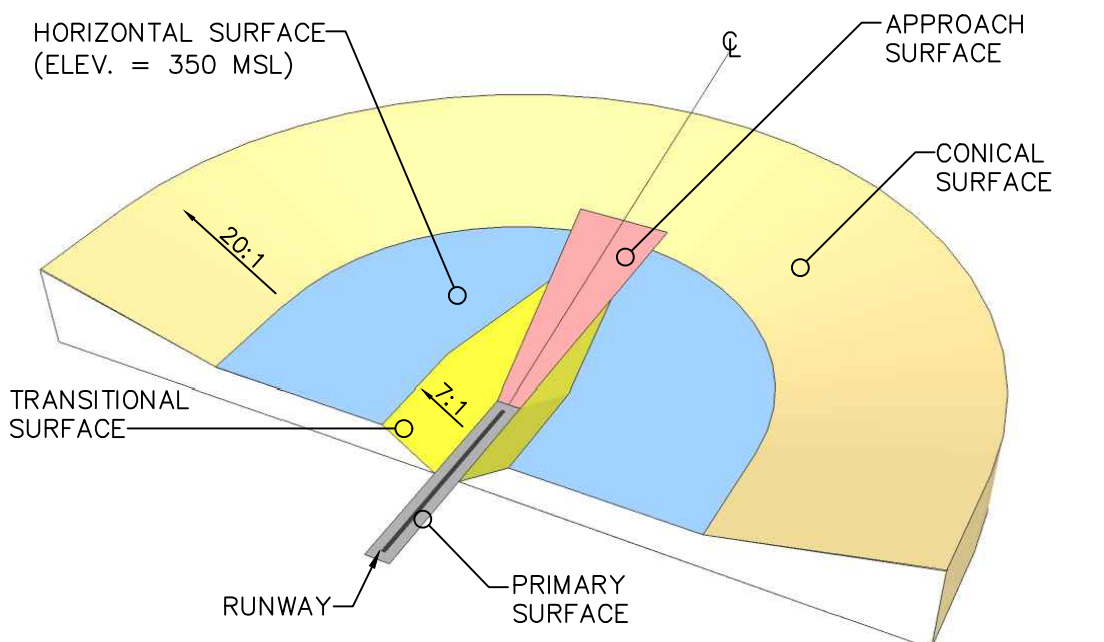
6 OF 20

1/9/2019 9:51:27 AM U:\777042-ASH-ALP-5A-Port 77 Plan-rev1_L1_5002.DWG (DCQ)

MATCHLINE - CONT. ON DWG. NO. 8



SOURCE: USGS "THE NATIONAL MAP" US TOPO QUADRANGLES 7.5 MINUTE SERIES



14 CFR-PART 77 SURFACES
N.T.S.

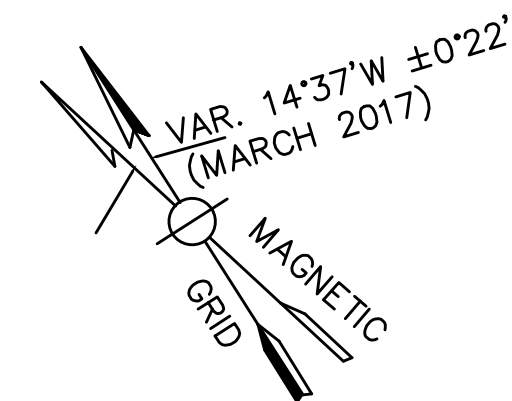
OBSTRUCTION DATA

OBJECT ID	DESCRIPTION	ELEVATION (FT. MSL)		PENETRATION (FT)	PART 77 SURFACE(S)	PROPOSED ACTION
		GROUND	OBJECT			
1	TREES	199'	247'	9'	APPROACH SURFACE	REMOVE
2	TREES	199'	250'	11'	APPROACH SURFACE	REMOVE
3	TREES	199'	252'	14'	APPROACH SURFACE	REMOVE
4	TREES	199'	242'	10'	APPROACH SURFACE	REMOVE
5	TREES	198'	239'	9'-15'	APPROACH SURFACE	REMOVE
6	TREES	198'	241'	17'	APPROACH SURFACE	REMOVE
7	TREES	198'	233'	11'	APPROACH SURFACE	REMOVE
8	TREES	193'-198'	257'	36'-57'	APPROACH SURFACE	REMOVE
9	TREES	199'	271'	41'	APPROACH SURFACE	REMOVE
10	TREES	199'	242'	19'	APPROACH SURFACE	REMOVE
11	TREES	198'	253'	31'	APPROACH SURFACE	REMOVE
12	TREES	198'	237'	16'	APPROACH SURFACE	REMOVE
13	TREES	198'	236'	16'	APPROACH SURFACE	REMOVE
14	TREES	198'	236'	17'	APPROACH SURFACE	REMOVE
15	TREES	198'	235'	18'	APPROACH SURFACE	REMOVE
16	TREES	196'-198'	246'	25'-40'	APPROACH SURFACE	REMOVE
17	TREES	199'	267'	15'	APPROACH SURFACE	REMOVE
18	TREES	199'	266'	16'	APPROACH SURFACE	REMOVE
19	TREES	199'	262'	13'	APPROACH SURFACE	REMOVE
20	TREES	199'	269'	21'	APPROACH SURFACE	REMOVE
21	TREES	199'	235'	7'	APPROACH SURFACE	REMOVE
22	TREES	199'	235'	8'	APPROACH SURFACE	REMOVE
23	TREES	198'	225'	6'-10'	APPROACH SURFACE	REMOVE
24	TREES	198'	230'	16'	APPROACH SURFACE	REMOVE
25	TREES	188'	211'	14'-19'	APPROACH SURFACE	REMOVE
26	TREES	188'	210'	10'	APPROACH SURFACE	REMOVE
27	BUILDING AND TREES	187'	203'	1'-7'	APPROACH SURFACE	REMOVE
28	TREES	188'	210'	6'	APPROACH SURFACE	REMOVE
29	TREE	182'	211'	1'	APPROACH SURFACE	REMOVE
30	TREE	188'	210'	1'	APPROACH SURFACE	REMOVE
31	TREES	188'	219'	1'	APPROACH SURFACE	REMOVE
32	TREES	182'	219'	1'	APPROACH SURFACE	REMOVE
33	TREES	169'	240'	14'	APPROACH SURFACE	REMOVE
34	TREES	170'	233'	3'	APPROACH SURFACE	REMOVE
35	TREES	175'	243'	1'	APPROACH SURFACE	REMOVE
36	TREES	195'	289'	4'	APPROACH SURFACE	REMOVE
37	TREE	183'	220'	8'	APPROACH SURFACE	REMOVE
38	TREES	180'	232'	17'	APPROACH SURFACE	REMOVE
39	TREES	183'	219'	5'	APPROACH SURFACE	REMOVE
40	TREES	179'	230'	12'	APPROACH SURFACE	REMOVE
41	TREES	183'	226'	9'	APPROACH SURFACE	REMOVE
42	TREE	181'	225'	3'	APPROACH SURFACE	REMOVE
43	TREES	182'	235'	14'	APPROACH SURFACE	REMOVE
44	TREES	182'	244'	20'	APPROACH SURFACE	REMOVE
45	TREES	181'	242'	18'	APPROACH SURFACE	REMOVE
46	TREE	181'	230'	5'	APPROACH SURFACE	REMOVE
47	TREES	180'	240'	12'-17'	APPROACH SURFACE	REMOVE
48	TREES	180'	240'	10'	APPROACH SURFACE	REMOVE
49	TREES	182'	244'	6'	APPROACH SURFACE	REMOVE
50	TREE	183'	242'	1'	APPROACH SURFACE	REMOVE
51	TREE	182'	240'	1'	APPROACH SURFACE	REMOVE
52	TREES	180'	263'	20'	APPROACH SURFACE	REMOVE

*OBSTRUCTIONS NOTE:

A COMPREHENSIVE OBSTRUCTION SURVEY WAS NOT PERFORMED IN PRODUCING THIS PLAN. OBSTRUCTIONS WITHIN THE APPROACH SURFACE WERE OBTAINED FROM AN OBSTRUCTION SURVEY PERFORMED AS PART OF AIP NO. 3-33-0012-26. THE REMAINING OBSTRUCTIONS WERE APPROXIMATED USING GOOGLE EARTH.

FROM CITY OF NASHUA CHAPTER 19-21 AIRPORT APPROACH ZONE, "HEIGHT LIMITS. NO STRUCTURE OR TREE SHALL BE ERRECTED, ALTERED OR ALLOWED TO GROW WITHIN AN AIRPORT APPROACH ZONE AND ADJACENT AREA ABOVE A HEIGHT OF 30 FEET ABOVE THE GROUND ON WHICH IT IS LOCATED UNLESS THE INCLINED PLANE IS MORE THAN 30 FEET ABOVE THE GROUND, IN WHICH CASE A STRUCTURE OR TREE MAY BE ERRECTED, ALTERED OR ALLOWED TO GROW UP TO THE LEVEL OF THE PLANE OR THE HEIGHT LIMITATION OF § 190-16, WHICHEVER IS LESS."



LEGEND

PENETRATION PREVIOUSLY ALTERED BY DEVELOPMENT	---
GROUND PENETRATING PART 77 SURFACES	[Pink Box]
VEGETATION PENETRATING PART 77 SURFACES (ASSUMED 80' TREE HEIGHT)	[Green Box]
OBSTRUCTION ID	#

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PROJECT
AIRPORT MASTER PLAN UPDATE
NHDOT NO. SBG-12-16-2016
OWNER
CITY OF NASHUA, NEW HAMPSHIRE
AIRPORT AUTHORITY

NO.	DATE	DESCRIPTION	BY
PROJECT NO.		777042	
DESIGNED BY		DCQ	
DRAWN BY		DCQ	
CHECKED BY		NAI	
DATE		JUNE, 2018	

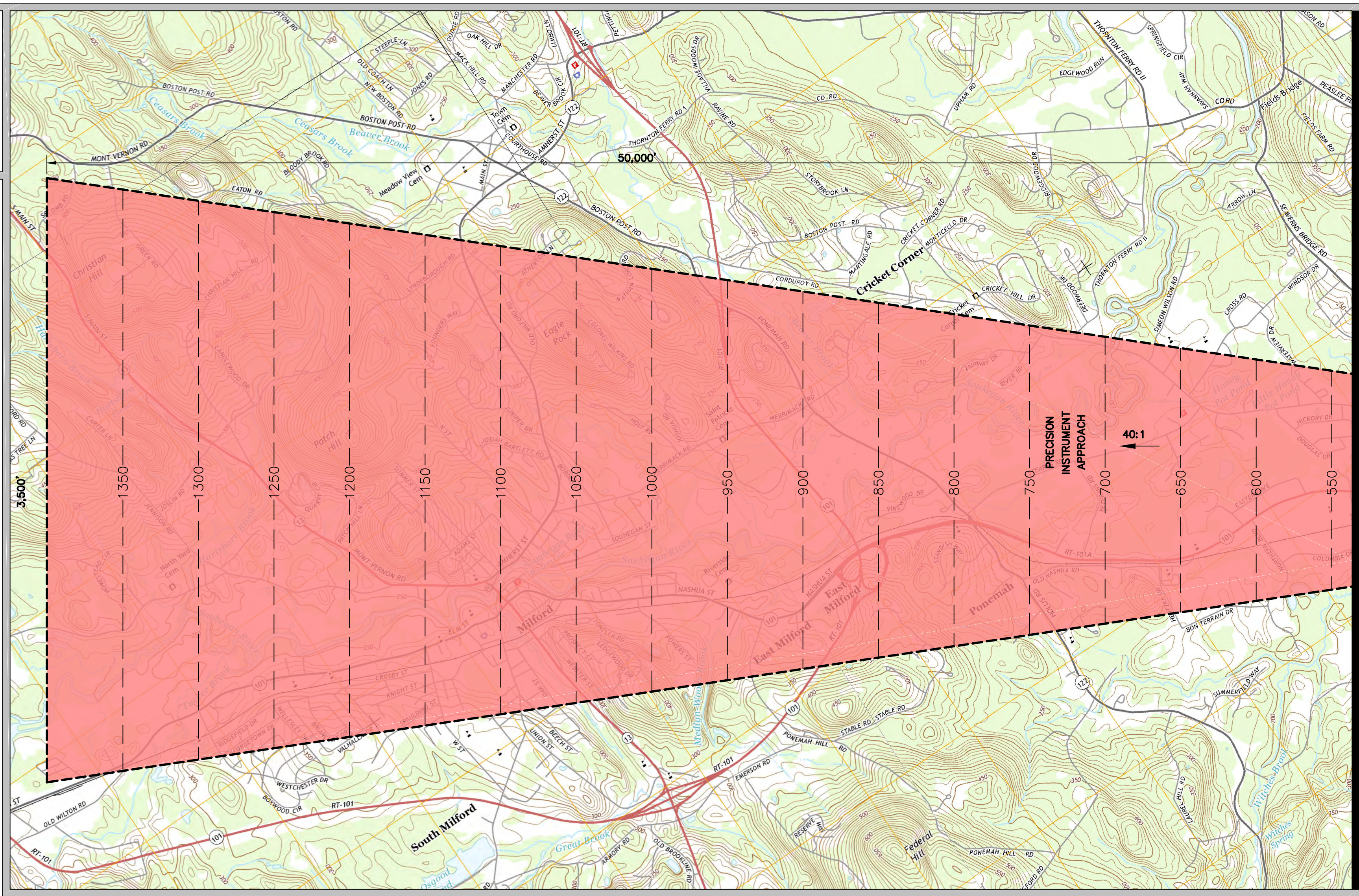
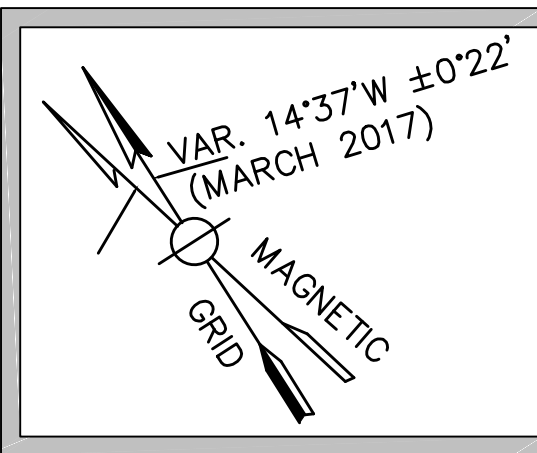
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SCALE: 1" = 2,000'

SHEET TITLE

AIRPORT AIRSPACE
(SHEET 1 OF 4)

DRAWING NO.
7
7 OF 20

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AIRPORT AIRSPACE
SCALE: 1" = 2,000'

LEGEND	
ITEM	(E) EXISTING
EXTENT OF APPROACH SURFACE	-----
EXTENT OF HORIZONTAL SURFACE	— . . —
EXTENT OF CONICAL SURFACE	— . —
APPROXIMATE AREA OF VEGETATIVE OR STRUCTURE PENETRATIONS	
APPROXIMATE AREA OF GROUND PENETRATION	
PENETRATION PREVIOUSLY ALTERED BY DEVELOPMENT	----

MATCHLINE – CONT. ON DWG. NO. 7



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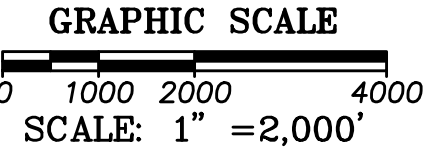
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PREPARED FOR:



PROJECT	AIRPORT MASTER PLAN UPDATE NHDOT NO. SBG-12-16-2016
OWNER	CITY OF NASHUA, NEW HAMPSHIRE AIRPORT AUTHORITY

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777042		
DESIGNED BY	DCQ		
DRAWN BY	DCQ		
CHECKED BY	MPC		
DATE	JUNE, 2018		



SHEET TITLE

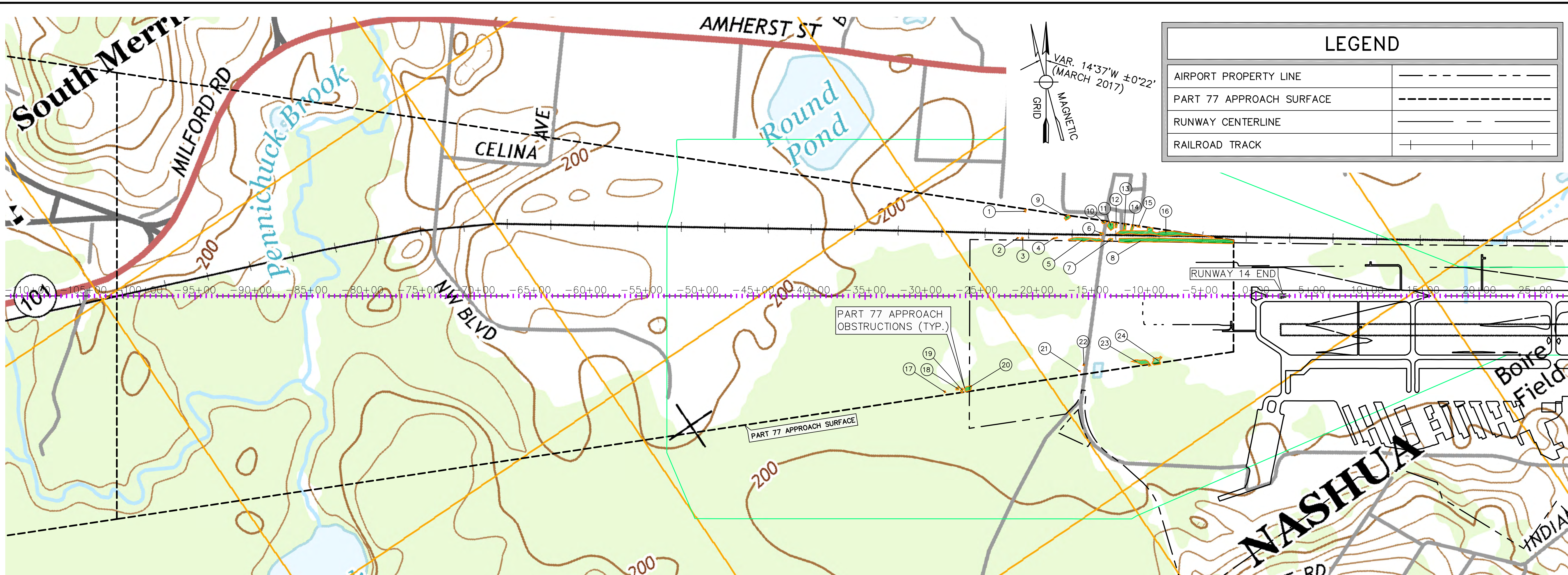
AIRPORT AIRSPACE
(SHEET 2 OF 4)

DRAWING NO.

8

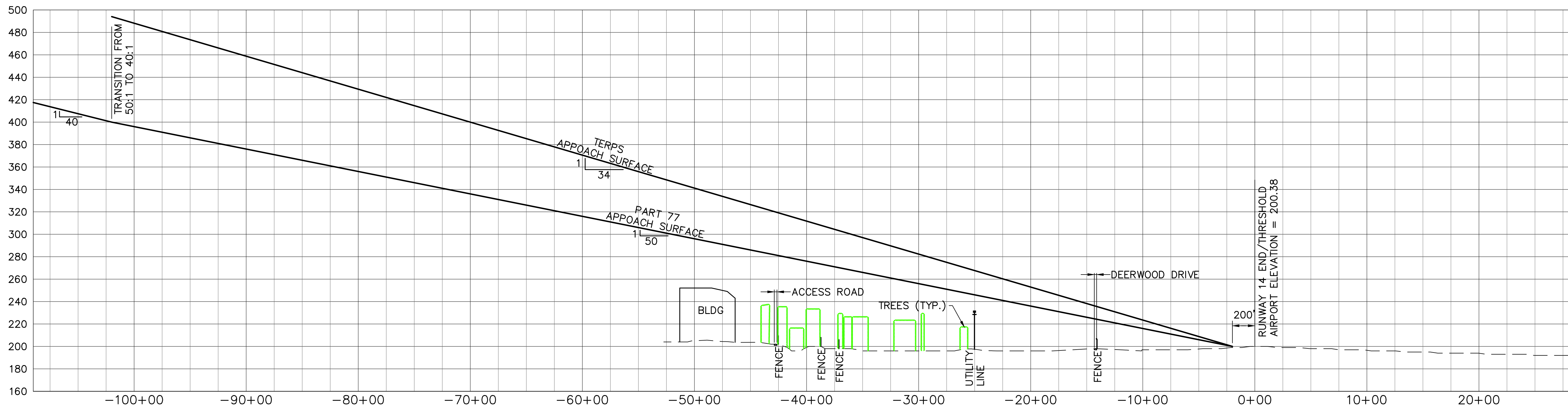
8 OF 20

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RUNWAY 14 APPROACH – PLAN VIEW

SCALE: 1" = 500'



RUNWAY 14 APPROACH – PROFILE

SCALE: 1" = 500' HORIZONTAL
1" = 50' VERTICAL

***OBSTRUCTIONS NOTE:**
A COMPREHENSIVE OBSTRUCTION SURVEY WAS NOT PERFORMED IN PRODUCING THIS PLAN.
TREE AND BUILDING HEIGHTS WERE OBTAINED FROM AN OBSTRUCTION SURVEY PERFORMED
AS PART OF AIP NO. 3-33-0012-26

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PREPARED FOR:

Nashua Airport
BOIRE FIELD

PROJECT	AIRPORT MASTER PLAN UPDATE NHDOT NO. SBG-12-16-2016
OWNER	CITY OF NASHUA, NEW HAMPSHIRE AIRPORT AUTHORITY

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777042		
DESIGNED BY	DCQ		
DRAWN BY	DCQ		
CHECKED BY	MPC		
DATE	JUNE, 2018		

GRAPHIC SCALE

SHEET TITLE

AIRPORT AIRSPACE
(SHEET 3 OF 4)

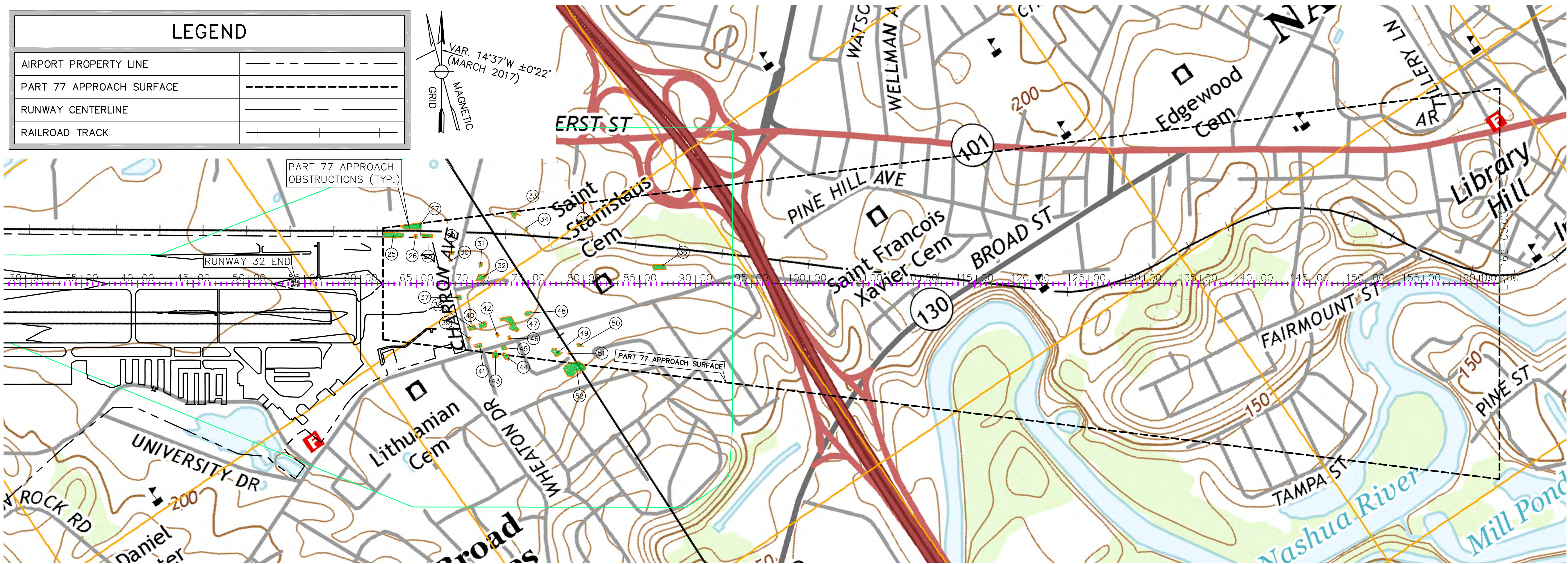
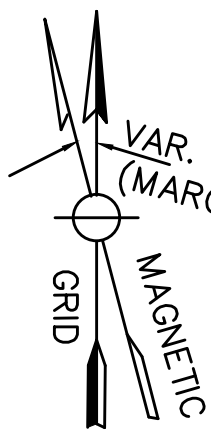
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9

9 OF 20

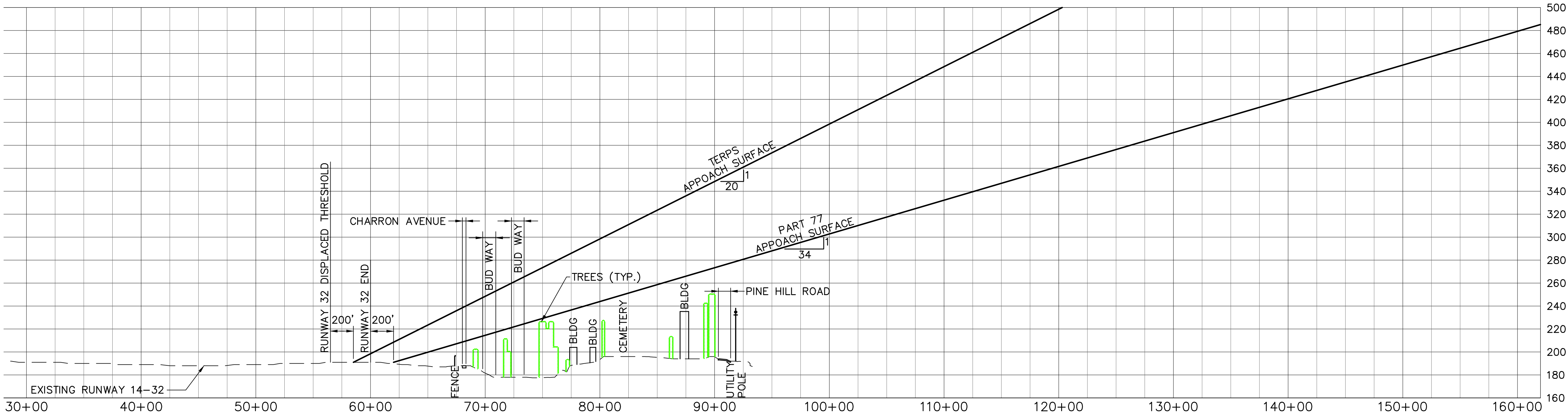
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LEGEND	
AIRPORT PROPERTY LINE	---
PART 77 APPROACH SURFACE	- - - -
RUNWAY CENTERLINE	---
RAILROAD TRACK	+ + + +



RUNWAY 32 APPROACH – PLAN VIEW

SCALE: 1" = 500'



RUNWAY 32 APPROACH – PROFILE

SCALE: 1" = 500' HORIZONTAL
1" = 50' VERTICAL

***OBSTRUCTIONS NOTE:**
A COMPREHENSIVE OBSTRUCTION SURVEY WAS NOT PERFORMED IN PRODUCING THIS PLAN.
TREE AND BUILDING HEIGHTS WERE OBTAINED FROM AN OBSTRUCTION SURVEY PERFORMED
AS PART OF AIP NO. 3-33-0012-26

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AIRPORT MASTER PLAN UPDATE
NHDOT NO. SBG-12-16-2016

CITY OF NASHUA, NEW HAMPSHIRE
AIRPORT AUTHORITY

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777042		
DESIGNED BY	DCQ		
DRAWN BY	DCQ		
CHECKED BY	MPC		
DATE	JUNE, 2018		

GRAPHIC SCALE

SHEET TITLE

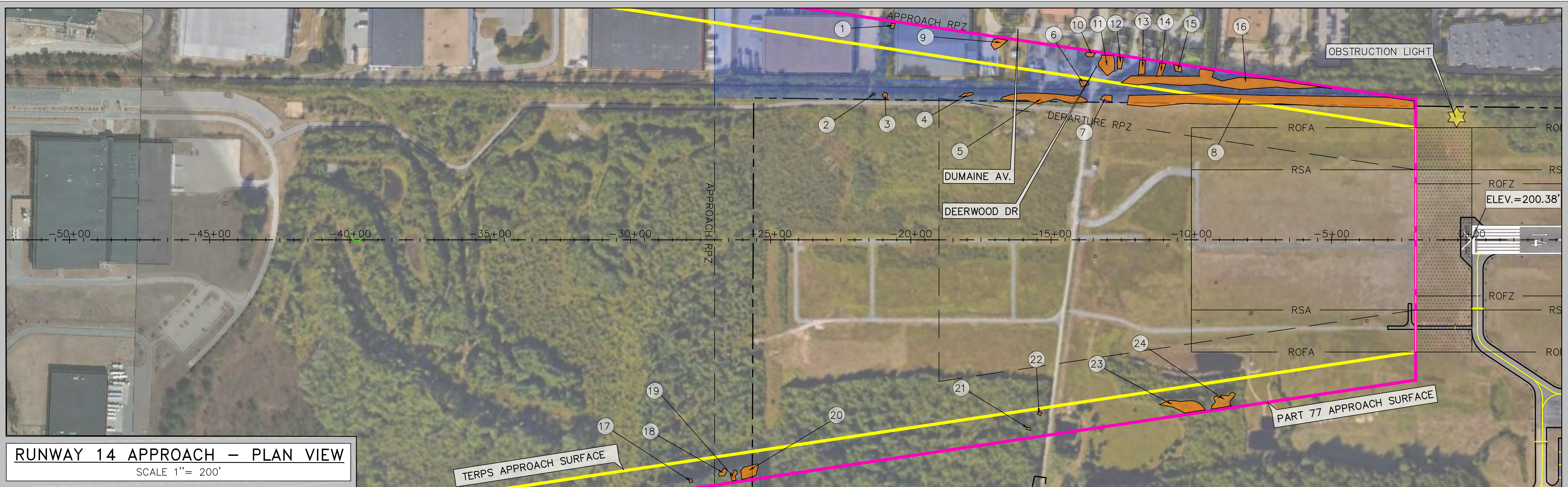
AIRPORT AIRSPACE
(SHEET 4 OF 4)

DRAWING NO.

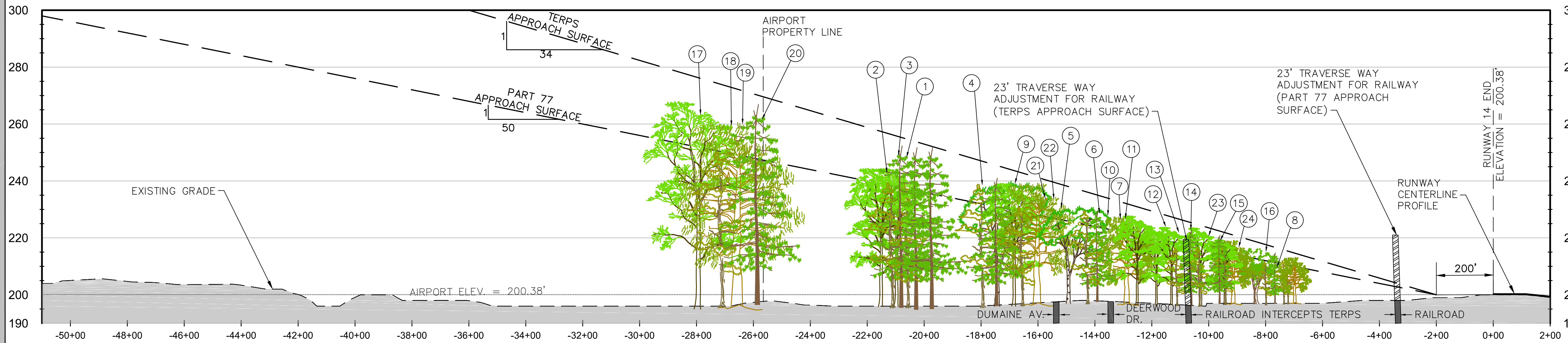
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10 OF 20

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RUNWAY 14 APPROACH - PLAN VIEW
SCALE 1" = 200'

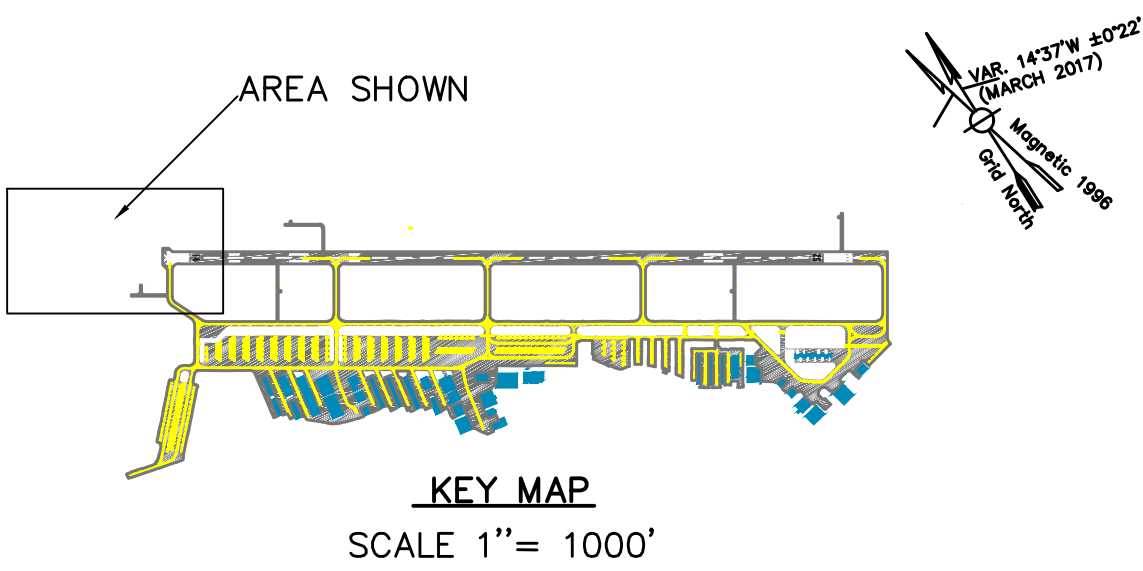


RUNWAY 14 APPROACH PROFILE

AIRPORT PART 77 OBSTRUCTIONS

DESCRIPTION	TOP OF OBJECT (MLS)*	DESCRIPTION	TOP OF OBJECT (MLS)*	DESCRIPTION	TOP OF OBJECT (MLS)*
(1) TREES	247'	(11) TREES	253'	(21) TREES	235'
(2) TREES	250'	(12) TREES	237'	(22) TREES	235'
(3) TREES	252'	(13) TREES	236'	(23) TREES	225'
(4) TREES	242'	(14) TREES	236'	(24) TREES	230'
(5) TREES	239'	(15) TREES	235'		
(6) TREES	241'	(16) TREES	246'		
(7) TREES	233'	(17) TREES	267'		
(8) TREES	257'	(18) TREES	266'		
(9) TREES	271'	(19) TREES	262'		
(10) TREES	242'	(20) TREES	269'		

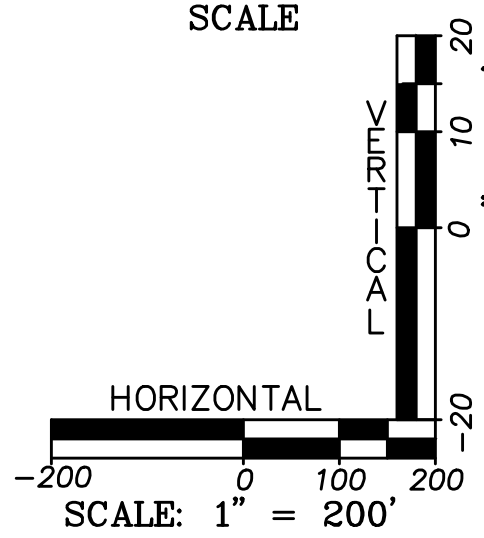
*OBSTRUCTIONS NOTE:
A COMPREHENSIVE OBSTRUCTION SURVEY WAS NOT PERFORMED IN PRODUCING THIS PLAN.
TREE AND BUILDING HEIGHTS WERE OBTAINED FROM AN OBSTRUCTION SURVEY PERFORMED AS PART OF AIP NO. 3-33-0012-26



LEGEND

AIRPORT PROPERTY LINE	---
RUNWAY SAFETY AREA (RSA)	---
RUNWAY OBSTACLE FREE ZONE (ROFZ)	---
RUNWAY PROTECTION ZONE (RPZ)	---
RUNWAY OBJECT FREE AREA (ROFA)	---
DEPARTURE RUNWAY PROTECTION ZONE	---
PART 77 APPROACH SURFACE	---
SELECTIVE UPLAND CLEARING	---
OBSTRUCTION LIGHT	★
VEGETATION PENETRATING PART 77 SURFACES	---
FUTURE ACQUISITION EASEMENT	---

APPROACH PROFILE SCALE



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PROJECT
AIRPORT MASTER PLAN UPDATE
NHDOT NO. SBG-12-16-2016

OWNER
CITY OF NASHUA, NEW HAMPSHIRE
AIRPORT AUTHORITY

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777042		
DESIGNED BY	ID		
DRAWN BY	ID		
CHECKED BY	MPC		
DATE	JUNE, 2018		

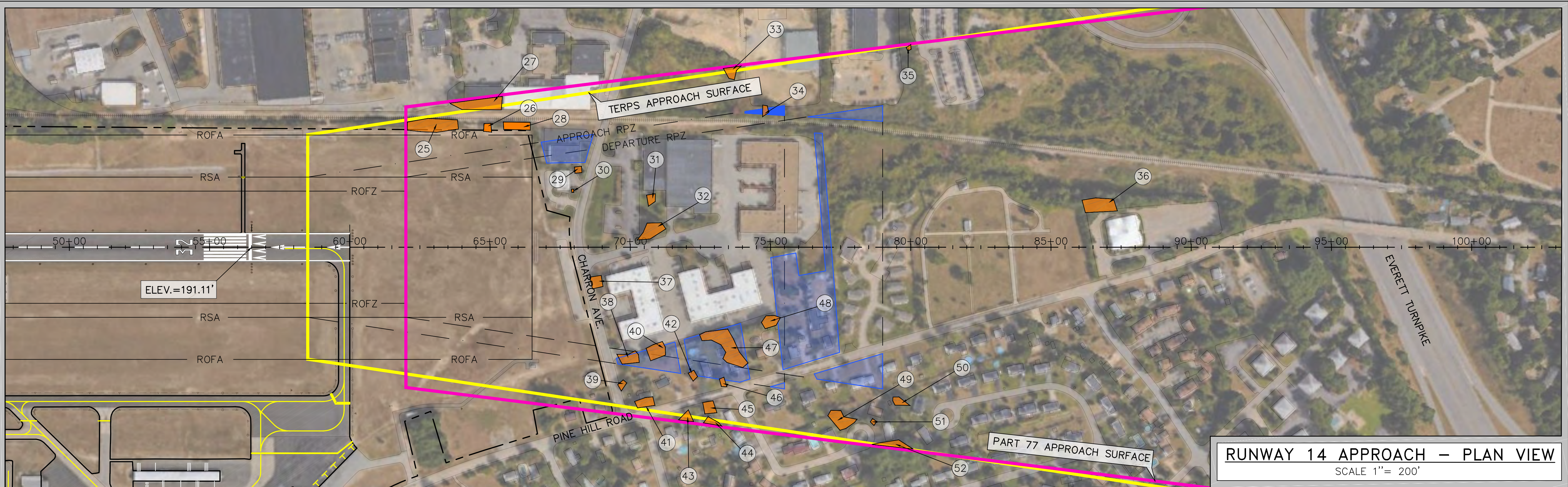
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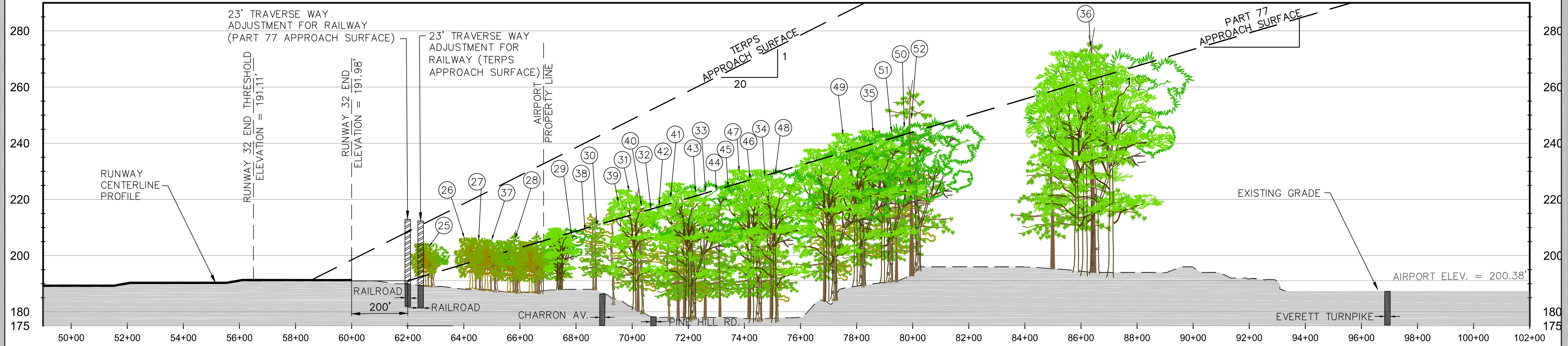
INNER PORTION OF THE APPROACH PLAN AND PROFILE RUNWAY 14 END

DRAWING NO.
11

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RUNWAY 14 APPROACH – PLAN VIEW
SCALE 1" = 200'

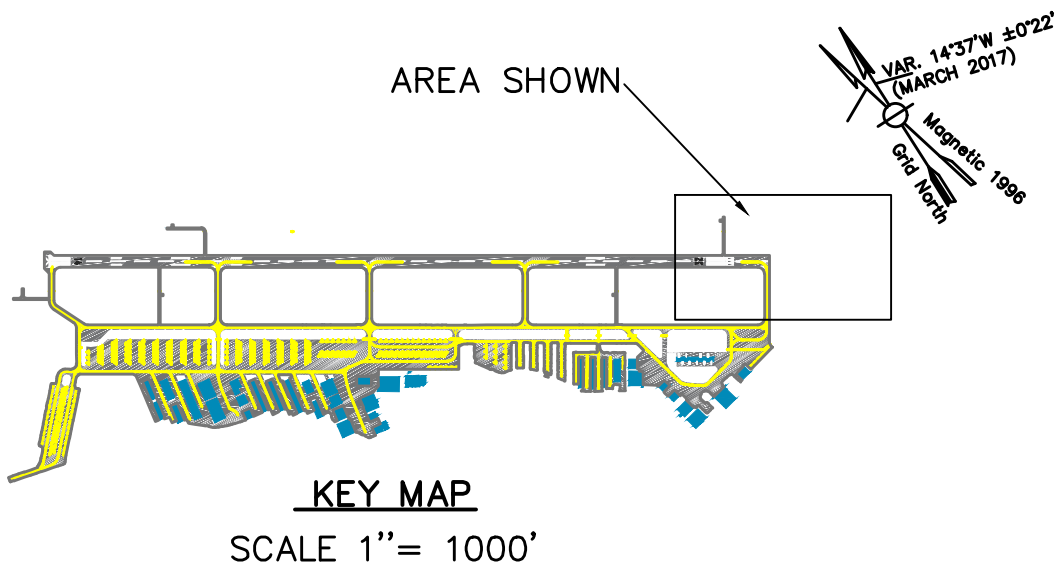


RUNWAY 32 APPROACH PROFILE

AIRPORT PART 77 OBSTRUCTIONS

DESCRIPTION	TOP OF OBJECT (MLS)*	DESCRIPTION	TOP OF OBJECT (MLS)*	DESCRIPTION	TOP OF OBJECT (MLS)*
(25) TREES	211'	(35) TREES	243'	(45) TREES	242'
(26) TREES	210'	(36) TREES	269'	(46) TREES	230'
(27) BUILDING AND TREES	203'	(37) TREE	220'	(47) TREES	240'
(28) TREES	210'	(38) TREES	232'	(48) TREES	240'
(29) TREE	211'	(39) TREES	219'	(49) TREES	244'
(30) TREE	210'	(40) TREES	230'	(50) TREES	242'
(31) TREES	219'	(41) TREES	226'	(51) TREES	240'
(32) TREES	219'	(42) TREES	225'	(52) TREES	263'
(33) TREES	240'	(43) TREES	235'		
(34) TREES	233'	(44) TREES	244'		

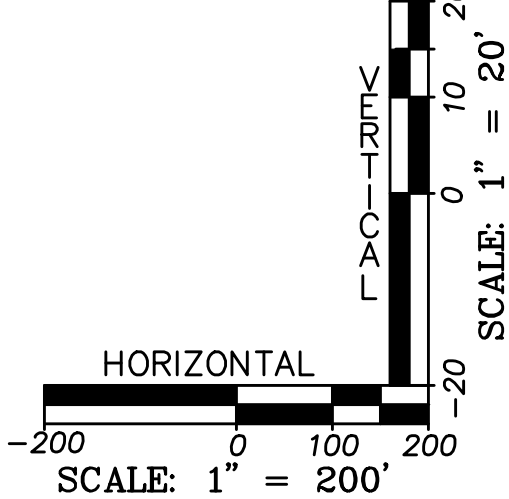
*OBSTRUCTIONS NOTE:
A COMPREHENSIVE OBSTRUCTION SURVEY WAS NOT PERFORMED IN PRODUCING THIS PLAN.
TREE AND BUILDING HEIGHTS WERE OBTAINED FROM AN OBSTRUCTION SURVEY PERFORMED AS PART OF AIP NO. 3-33-0012-26



LEGEND

AIRPORT PROPERTY LINE	---
RUNWAY SAFETY AREA (RSA)	---
RUNWAY OBSTACLE FREE ZONE (ROFZ)	---
RUNWAY PROTECTION ZONE (RPZ)	---
RUNWAY OBJECT FREE AREA (ROFA)	---
DEPARTURE RUNWAY PROTECTION ZONE	---
PART 77 APPROACH SURFACE	---
TERPS APPROACH SURFACE	---
PAVEMENT	---
VEGETATION PENETRATING PART 77 SURFACES	---
FUTURE ACQUISITION EASEMENT	---

APPROACH PROFILE SCALE



HORIZONTAL SCALE: 1" = 200'

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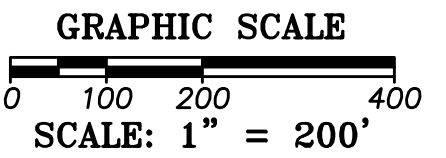
PREPARED FOR:



PROJECT
AIRPORT MASTER PLAN UPDATE
NHDOT NO. SBG-12-16-2016

OWNER
CITY OF NASHUA, NEW HAMPSHIRE
AIRPORT AUTHORITY

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777042		
DESIGNED BY	ID		
DRAWN BY	ID		
CHECKED BY	MPC		
DATE	JUNE, 2018		



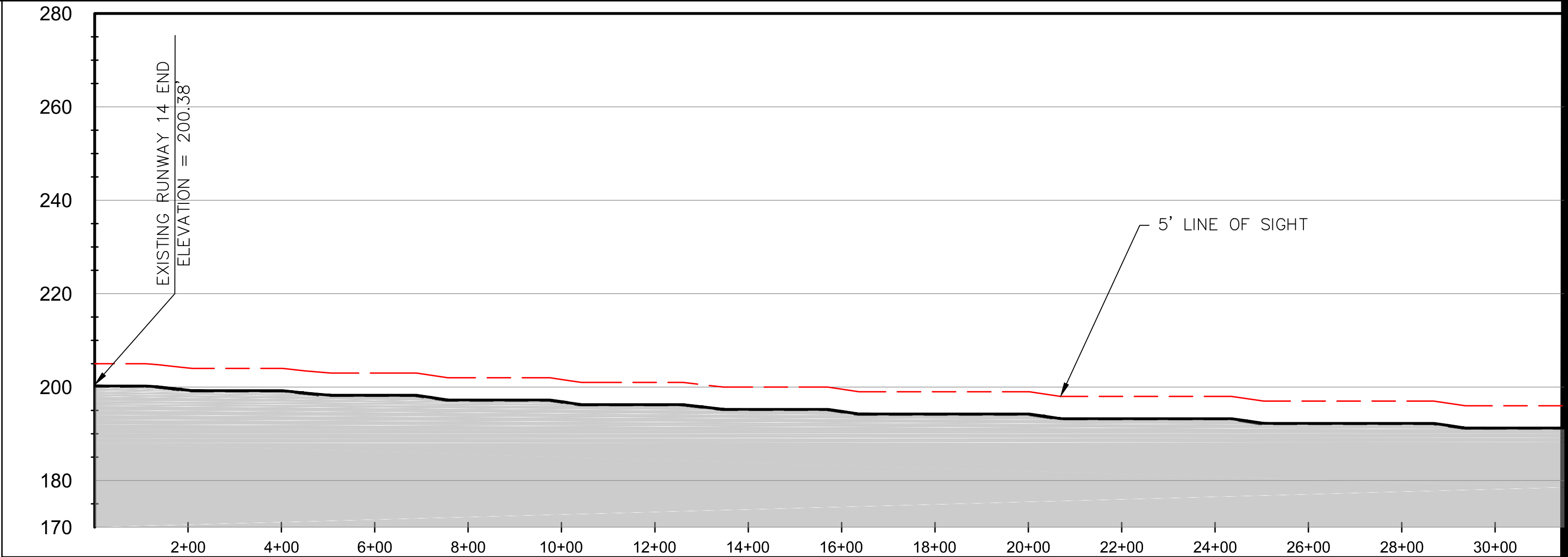
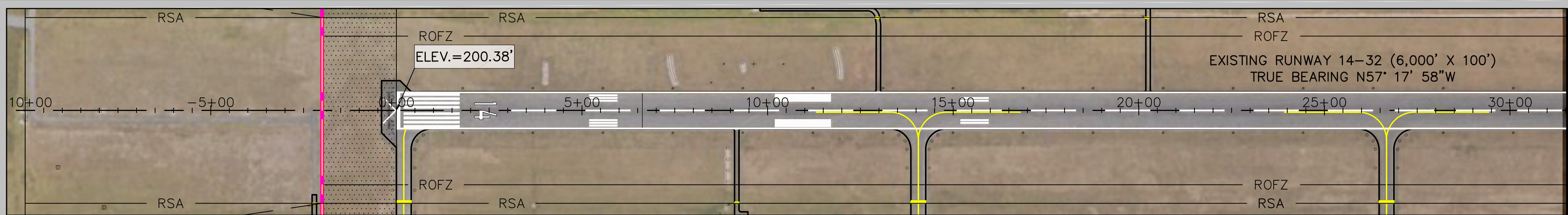
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INNER PORTION OF THE APPROACH PLAN AND PROFILE RUNWAY 32 END

DRAWING NO.

12

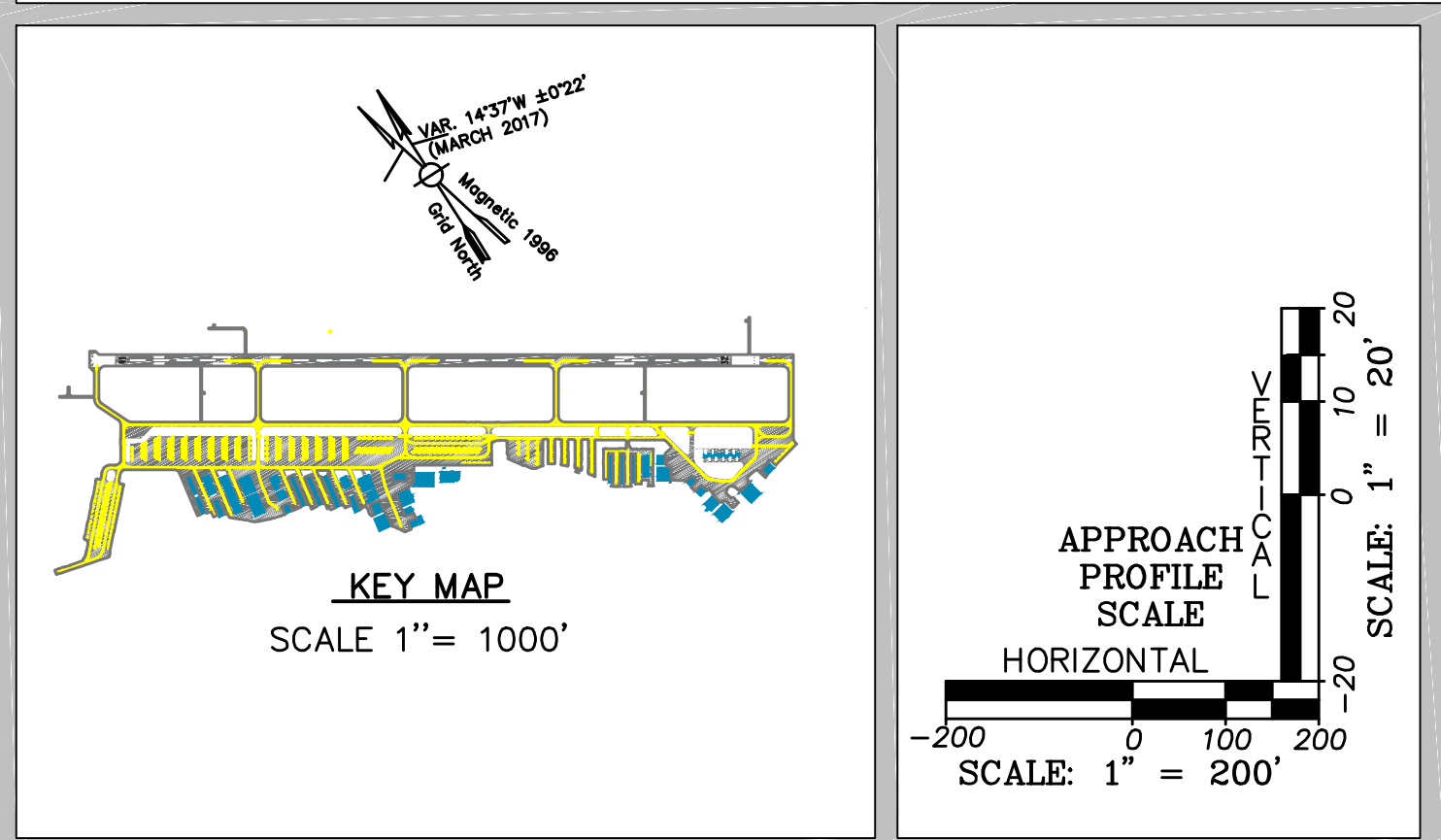
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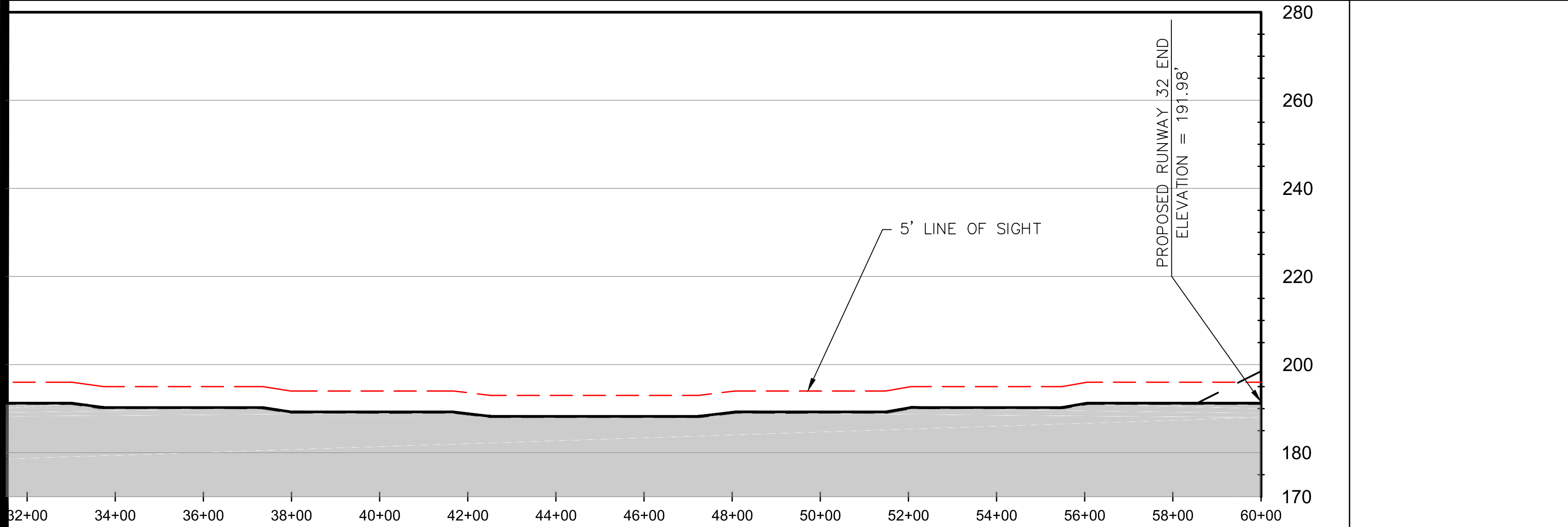
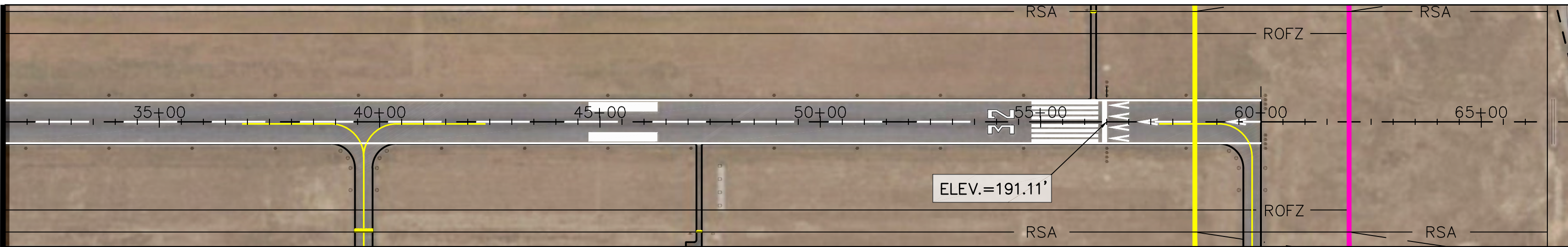
RUNWAY 14-32 APPROACH PLAN & PROFILE
SCALE 1"= 200'

MATCHLINE - CONT. BELOW
RUNWAY 14-32 STA. 31+50

LEGEND	
AIRPORT PROPERTY LINE	---
RUNWAY SAFETY AREA (RSA)	--- RSA ---
RUNWAY OBSTACLE FREE ZONE (ROFZ)	--- ROFZ ---
RUNWAY PROTECTION ZONE (RPZ)	--- RPZ ---
APPROACH RUNWAY PROTECTION ZONE	---
RUNWAY OBJECT FREE AREA (ROFA)	--- ROFA ---
DEPARTURE RUNWAY PROTECTION ZONE	---
PART 77 APPROACH SURFACE	---
TERPS APPROACH SURFACE	---
PAVEMENT	---
VEGETATION PENETRATING PART 77 SURFACES	---



MATCHLINE - CONT.
RUNWAY 14-32 STA. 31+50



RUNWAY 14-32 APPROACH PLAN & PROFILE
SCALE 1"= 200'

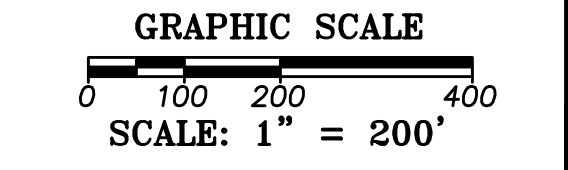
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PROJECT	AIRPORT MASTER PLAN UPDATE NHDOT NO. SBG-12-16-2016	
	CITY OF NASHUA, NEW HAMPSHIRE AIRPORT AUTHORITY	

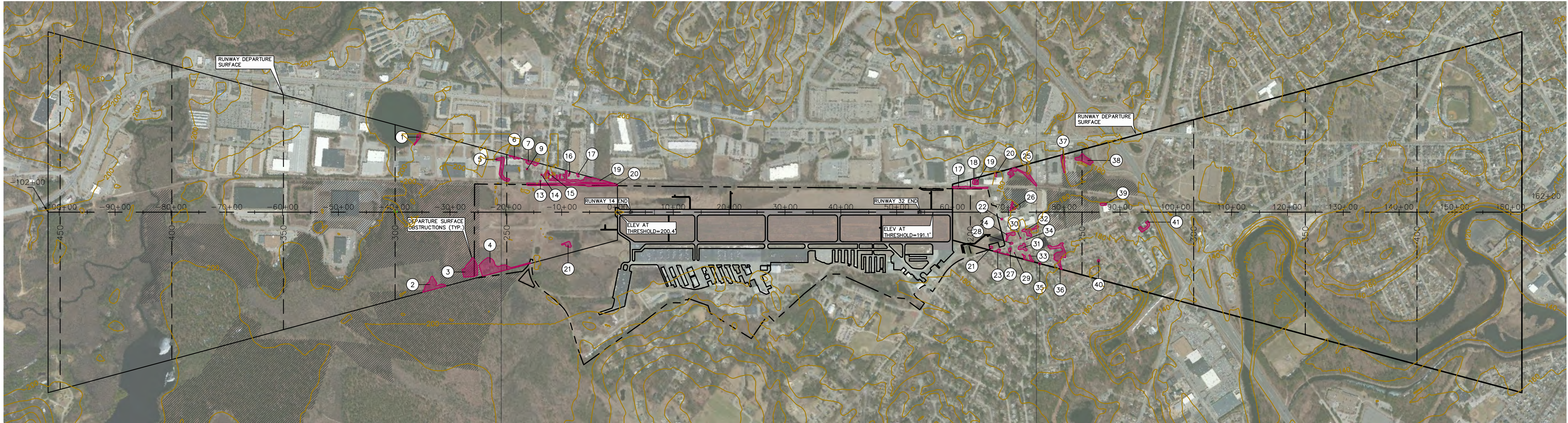
NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777042		
DESIGNED BY	ID		
DRAWN BY	ID		
CHECKED BY	MPC		
DATE	JUNE, 2018		



SHEET TITLE
INNER PORTION OF THE
APPROACH PLAN
AND PROFILE -
RUNWAY 14-32
CENTERLINE

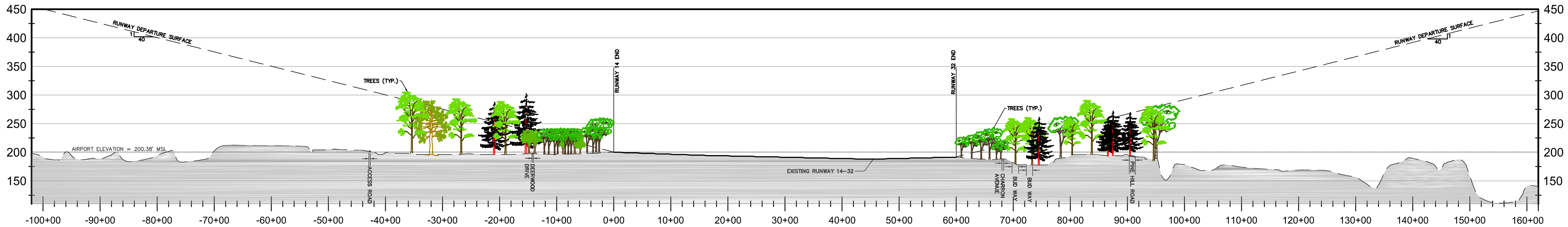
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13 OF 20

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RUNWAY DEPARTURE SURFACES – PLAN VIEW

SCALE: 1" = 1,000'



RUNWAY DEPARTURE SURFACES – PROFILE

SCALE: 1" = 1,000' HORIZONTAL
1" = 100' VERTICAL

40:1 DEPARTURE SURFACE OBSTRUCTIONS: RUNWAY 14 END

OBJECT ID	DESCRIPTION	ELEVATION (FT. MSL)		OBJECT HEIGHT (FT)*	PENETRATION (FT)	PROPOSED ACTION
		GROUND	TOP OF OBJECT			
1	GROUP OF TREES	203	309	106	19	NONE
2	GROUP OF TREES	221	299	78	12	NONE
3	GROUP OF TREES	211	291	80	24	NONE
4	GROUP OF TREES	201	280	79	20	NONE
5	GROUP OF TREES	199	289	90	37	NONE
6	GROUP OF TREES	200	289	89	42	NONE
7	GROUP OF TREES	201	301	100	62	NONE
8	TREE	201	244	43	3	NONE
9	TREE	199	241	42	6	NONE
10	TREE	200	245	45	11	NONE
11	GROUP OF TREES	200	253	53	20	NONE
12	GROUP OF TREES	199	228	29	6	NONE
13	GROUP OF TREES	197	238	41	20	NONE
14	GROUP OF TREES	200	259	59	48	NONE
15	GROUP OF TREES	200	260	60	47	NONE
16	GROUP OF TREES	200	230	30	8	NONE

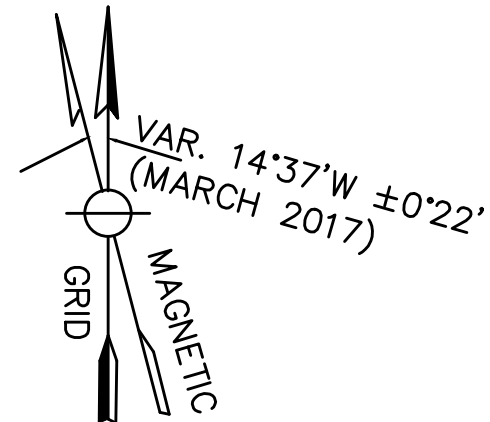
***OBSTRUCTIONS NOTE:**
A COMPREHENSIVE OBSTRUCTION SURVEY WAS NOT PERFORMED IN PRODUCING THIS PLAN. TREE AND BUILDING HEIGHTS WERE OBTAINED FROM AN OBSTRUCTION SURVEY PERFORMED AS PART OF AIP NO. 3-33-0012-26

LEGEND

AIRPORT PROPERTY LINE	---
40:1 DEPARTURE SURFACE CONTOUR (50' INTERVALS)	--- 150 ---
EXISTING GROUND CONTOUR (20' INTERVALS)	--- 750 ---
OBSTRUCTION I.D.	⊕
VEGETATION PENETRATING PART 77 SURFACES	[Pink shaded box]
AVIGATION EASEMENT	[Hatched box]

GENERAL NOTES:

- TERRAIN DATA OFF AIRPORT PROPERTY DERIVED FROM USGS 10 METER DIGITAL ELVATION MODELS (DEMS) FROM THE NATIONAL ELEVATION DATASET (NED).
- TREES SHOWN IN PROFILE VIEW ARE AN APPROXIMATE REPRESENTATION OF THE OBSTRUCTION HEIGHTS IDENTIFIED IN THE TABLES FOR EACH RUNWAY END (40:1 DEPARTURE SURFACE OBSTRUCTIONS: RUNWAY 14 END, 40:1 DEPARTURE SURFACE OBSTRUCTIONS: RUNWAY 32 END). CONSULT THE TABLES FOR A FULL LIST OF IDENTIFIED OBSTRUCTIONS.



40:1 DEPARTURE SURFACE OBSTRUCTIONS: RUNWAY 32 END

OBJECT ID	DESCRIPTION	ELEVATION (FT. MSL)		OBJECT HEIGHT (FT)*	PENETRATION (FT)	PROPOSED ACTION
		GROUND	TOP OF OBJECT			
17	GROUP OF TREES	187	221	34	28	NONE
18	GROUP OF TREES	180	229	49	28	NONE
19	BUILDING	181	203	22	1	NONE
20	GROUP OF TREES	178	225	47	14	NONE
21	GROUP OF TREES	184	220	36	11	NONE
22	TREE	184	220	36	6	NONE
23	GROUP OF TREES	185	242	57	26	NONE
24	GROUP OF TREES	181	232	51	13	NONE
25	GROUP OF TREES	180	251	71	33	NONE
26	GROUP OF TREES	183	220	37	2	NONE
27	GROUP OF TREES	182	253	71	36	NONE
28	GROUP OF TREES	184	232	48	14	NONE
29	TREE	184	224	40	4	NONE
30	TREE	182	225	43	2	NONE
31	GROUP OF TREES	184	248	64	23	NONE
32	GROUP OF TREES	181	242	61	12	NONE
33	GROUP OF TREES	185	260	75	32	NONE
34	TREE	184	231	47	6	NONE
35	GROUP OF TREES	182	260	78	29	NONE
36	GROUP OF TREES	182	270	88	31	NONE
37	GROUP OF TREES	181	264	83	22	NONE
38	GROUP OF TREES	192	288	96	40	NONE
39	GROUP OF TREES	187	272	85	13	NONE
40	TREE	162	260	98	3	NONE
41	GROUP OF TREES	193	280	87	3	NONE

***OBSTRUCTIONS NOTE:**
A COMPREHENSIVE OBSTRUCTION SURVEY WAS NOT PERFORMED IN PRODUCING THIS PLAN. TREE AND BUILDING HEIGHTS WERE OBTAINED FROM AN OBSTRUCTION SURVEY PERFORMED AS PART OF AIP NO. 3-33-0012-26

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PROJECT
AIRPORT MASTER PLAN UPDATE
NHDOT NO. SBG-12-16-2016

OWNER
CITY OF NASHUA, NEW HAMPSHIRE
AIRPORT AUTHORITY

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777042		
DESIGNED BY	CAR		
DRAWN BY	CAR		
CHECKED BY	MPC		
DATE	JUNE, 2018		

GRAPHIC SCALE
0 500 1000 2000
SCALE: 1" = 1,000'

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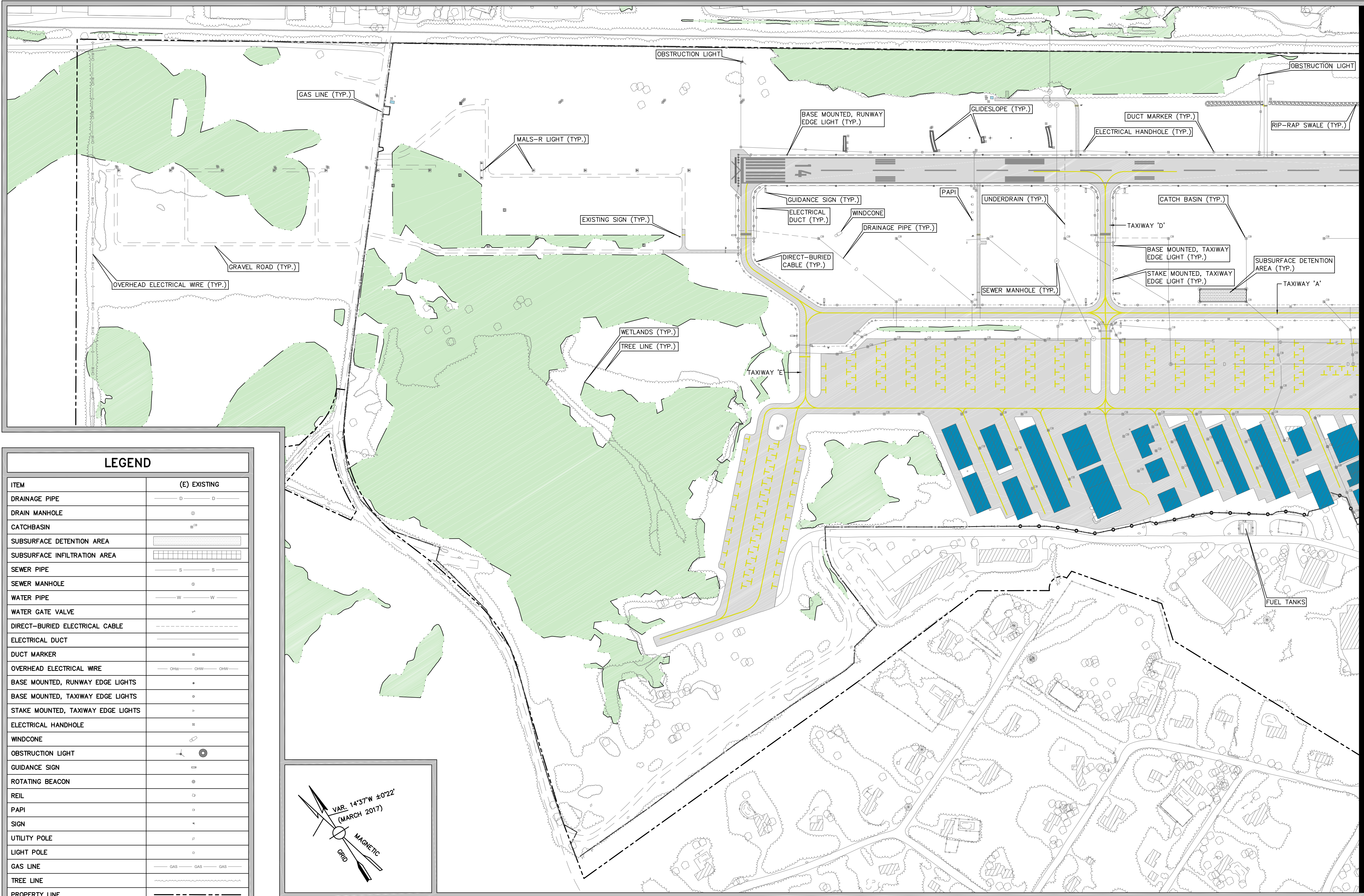
RUNWAY
DEPARTURE
SURFACES

DRAWING NO.

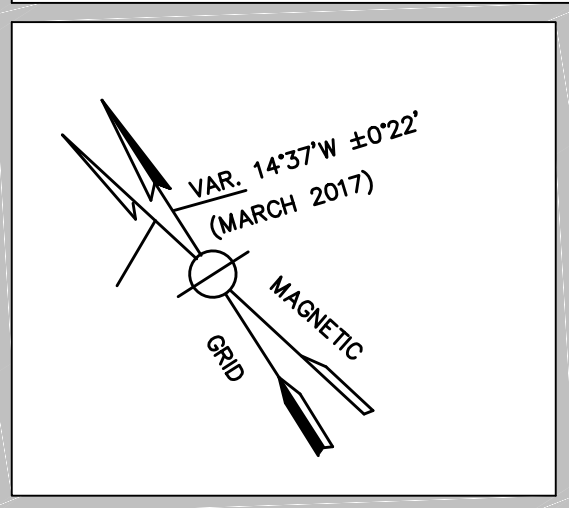
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14 OF 20

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LEGEND	
ITEM	(E) EXISTING
DRAINAGE PIPE	— D — D —
DRAIN MANHOLE	⊙
CATCHBASIN	⊞
SUBSURFACE DETENTION AREA	▨
SUBSURFACE INFILTRATION AREA	▩
SEWER PIPE	— S — S —
SEWER MANHOLE	⊙
WATER PIPE	— W — W —
WATER GATE VALVE	⊙
DIRECT-BURIED ELECTRICAL CABLE	— — — — —
ELECTRICAL DUCT	— — — — —
DUCT MARKER	⊞
OVERHEAD ELECTRICAL WIRE	— OHW — OHW — OHW —
BASE MOUNTED, RUNWAY EDGE LIGHTS	•
BASE MOUNTED, TAXIWAY EDGE LIGHTS	⊙
STAKE MOUNTED, TAXIWAY EDGE LIGHTS	⊙
ELECTRICAL HANDHOLE	⊞
WINDCONE	⊙
OBSTRUCTION LIGHT	⊙
GUIDANCE SIGN	⊙
ROTATING BEACON	⊙
REIL	⊙
PAPI	⊙
SIGN	⊙
UTILITY POLE	⊙
LIGHT POLE	⊙
GAS LINE	— GAS — GAS — GAS —
TREE LINE	— — — — —
PROPERTY LINE	— — — — —
PAVEMENT MARKINGS	— — — — —
BUILDINGS	▨
PAVEMENT	▨
8' CHAINLINK FENCE	— — — — —
8' CHAINLINK FENCE WITH BARBWIRE	— — — — —
WETLANDS	▨



NOTES:
1. THIS PLAN ILLUSTRATES ONLY THOSE KNOWN OR CONFIRMED UTILITIES.

EXISTING UTILITIES PLAN
SCALE: 1" = 200'

MATCHLINE - CONT. ON DWG. NO. 16



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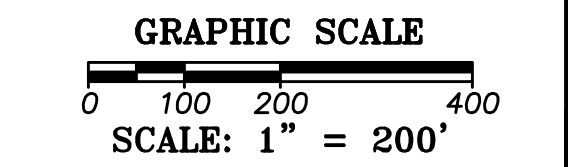
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PROJECT	AIRPORT MASTER PLAN UPDATE NHDOT NO. SBG-12-16-2016	
	CITY OF NASHUA, NEW HAMPSHIRE AIRPORT AUTHORITY	
OWNER		

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777042		
DESIGNED BY	DCQ		
DRAWN BY	DCQ		
CHECKED BY	MPC		
DATE	JUNE, 2018		

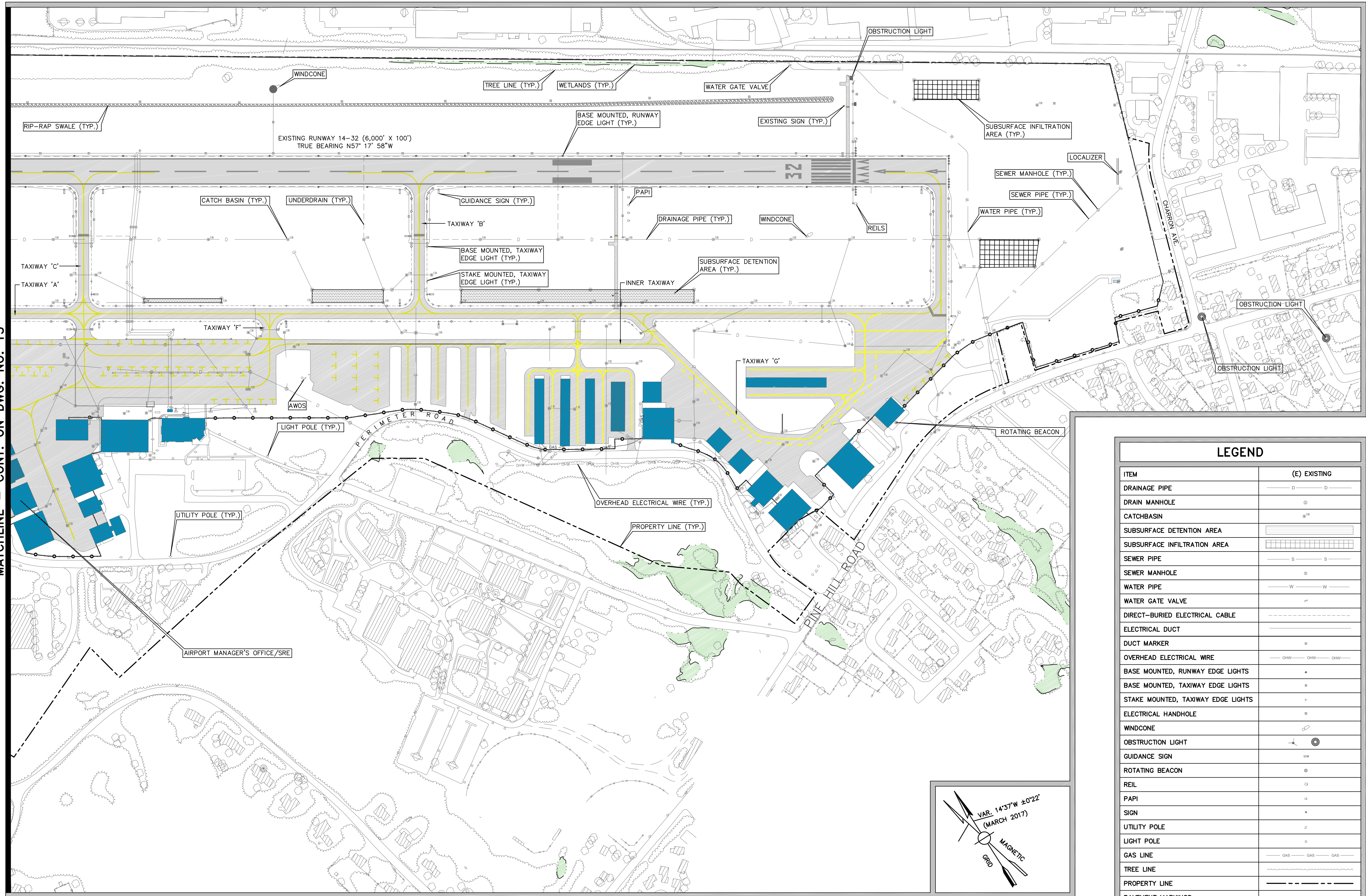


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EXISTING UTILITIES PLAN (SHEET 1 OF 2)	
DRAWING NO.	

15	
15	OF 20

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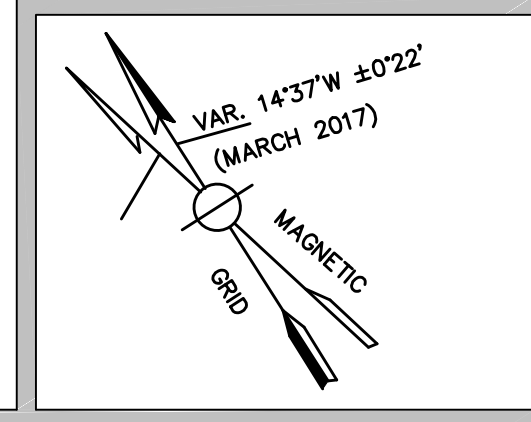


NOTES:

1. THIS PLAN ILLUSTRATES ONLY THOSE KNOWN OR CONFIRMED UTILITIES.

EXISTING UTILITIES PLAN

SCALE: 1" = 200'



LEGEND	
ITEM	(E) EXISTING
DRAINAGE PIPE	— D — D —
DRAIN MANHOLE	⊙
CATCHBASIN	⊞
SUBSURFACE DETENTION AREA	▨
SUBSURFACE INFILTRATION AREA	▩
SEWER PIPE	— S — S —
SEWER MANHOLE	⊙
WATER PIPE	— W — W —
WATER GATE VALVE	⊞
DIRECT-BURIED ELECTRICAL CABLE	— — — — —
ELECTRICAL DUCT	— — — — —
DUCT MARKER	⊞
OVERHEAD ELECTRICAL WIRE	— CHW — CHW — CHW —
BASE MOUNTED, RUNWAY EDGE LIGHTS	*
BASE MOUNTED, TAXIWAY EDGE LIGHTS	⊙
STAKE MOUNTED, TAXIWAY EDGE LIGHTS	⊞
ELECTRICAL HANDHOLE	⊞
WINDCONE	⊙
OBSTRUCTION LIGHT	⊙
GUIDANCE SIGN	⊞
ROTATING BEACON	⊙
REIL	⊙
PAPI	⊞
SIGN	*
UTILITY POLE	⊞
LIGHT POLE	⊞
GAS LINE	— GAS — GAS — GAS —
TREE LINE	— — — — —
PROPERTY LINE	— — — — —
PAVEMENT MARKINGS	— — — — —
BUILDINGS	▨
PAVEMENT	▩
8" CHAINLINK FENCE	— — — — —
8" CHAINLINK FENCE WITH BARBWIRE	— — — — —
WETLANDS	▨

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PROJECT
AIRPORT MASTER PLAN UPDATE
NHDOT NO. SBG-12-16-2016

OWNER
CITY OF NASHUA, NEW HAMPSHIRE
AIRPORT AUTHORITY

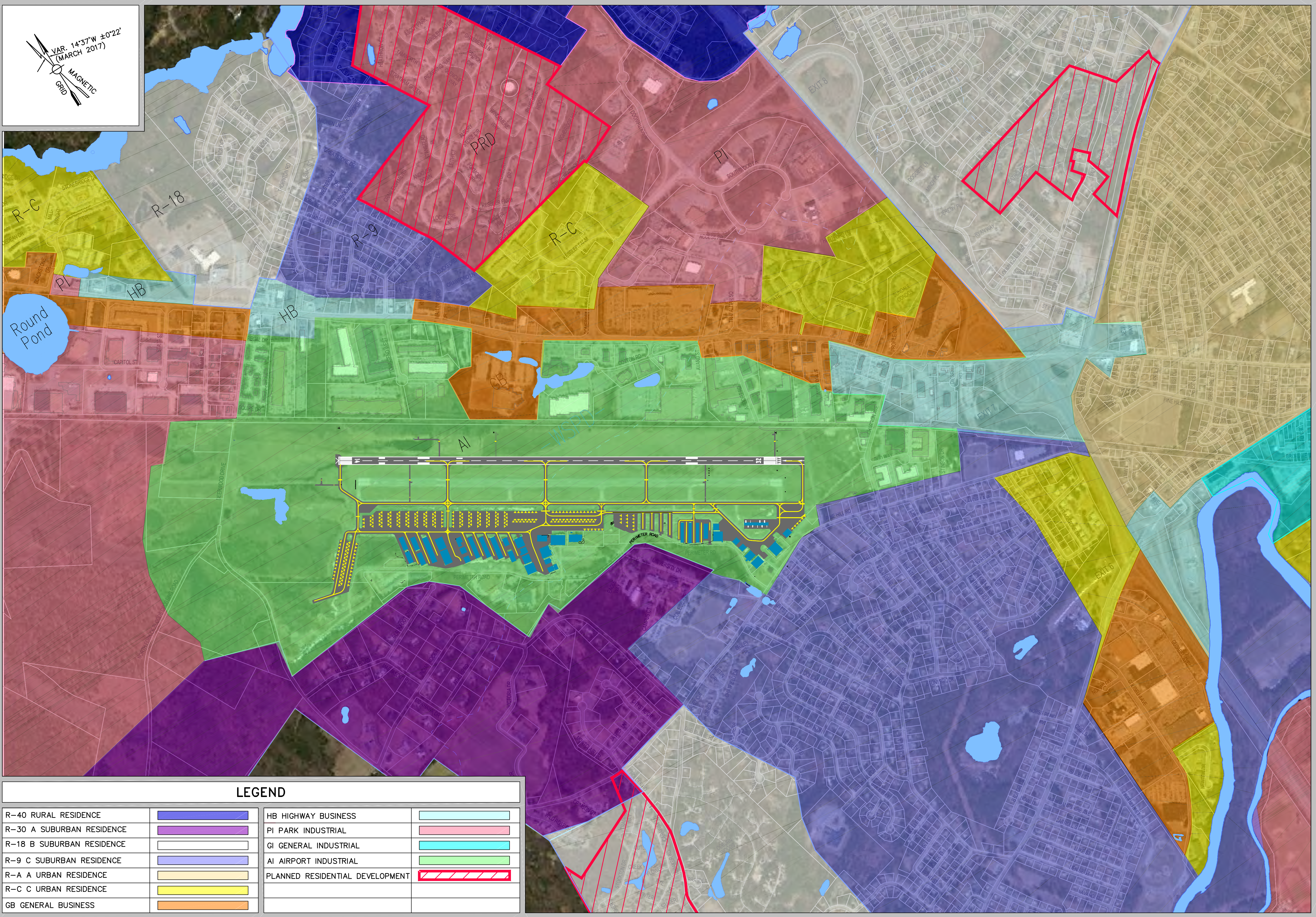
NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777042		
DESIGNED BY	DCQ		
DRAWN BY	DCQ		
CHECKED BY	MPC		
DATE	JUNE, 2018		

GRAPHIC SCALE
0 100 200 400
SCALE: 1" = 200'

SHEET TITLE
EXISTING UTILITIES PLAN
(SHEET 2 OF 2)

DRAWING NO.
16
16 OF 20

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LEGEND			
R-40 RURAL RESIDENCE		HB HIGHWAY BUSINESS	
R-30 A SUBURBAN RESIDENCE		PI PARK INDUSTRIAL	
R-18 B SUBURBAN RESIDENCE		GI GENERAL INDUSTRIAL	
R-9 C SUBURBAN RESIDENCE		AI AIRPORT INDUSTRIAL	
R-A A URBAN RESIDENCE		PLANNED RESIDENTIAL DEVELOPMENT	
R-C C URBAN RESIDENCE			
GB GENERAL BUSINESS			



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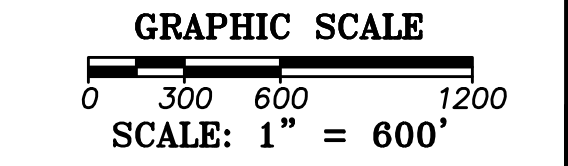
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	CITY OF NASHUA, NEW HAMPSHIRE AIRPORT AUTHORITY	
OWNER		

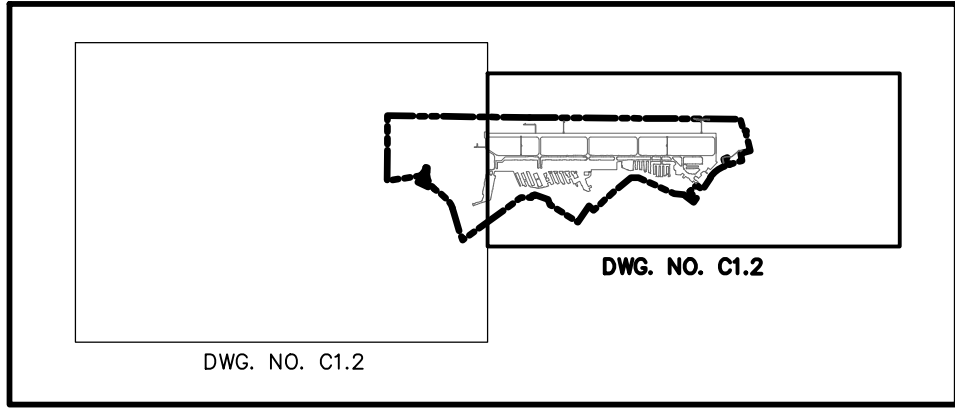
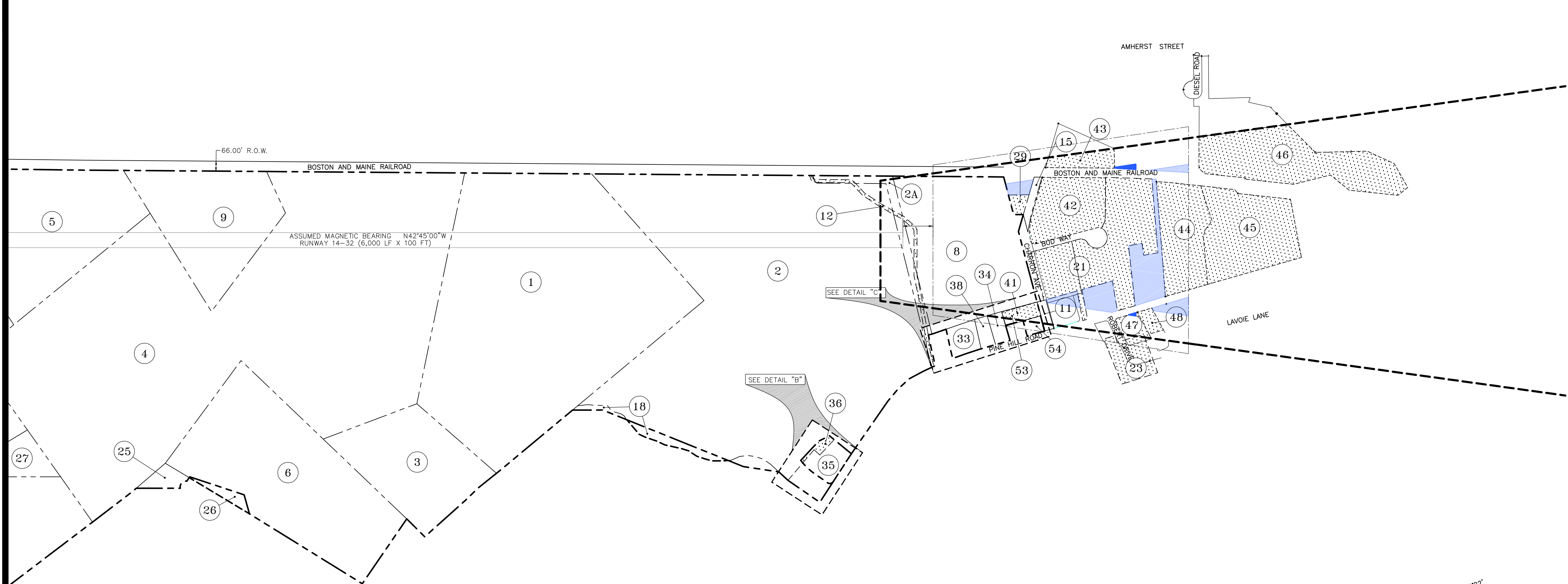
NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777042		
DESIGNED BY	ID		
DRAWN BY	ID		
CHECKED BY	MPC		
DATE	JUNE, 2018		



SHEET TITLE
EXISTING OFF AIRPORT LAND USE
DRAWING NO.

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MATCHLINE - CONT. ON DWG. NO. 18



KEY
SCALE: 1"=5,000'

LEGEND

- OUTSALE PARCEL LINE
- AIRPORT PARCEL LINES
- AIRPORT BOUNDARY
- RUNWAY PROTECTION ZONE
- (51) PARCEL, OUTSALE NUMBER
- [Patterned Box] AVIGATION EASEMENT
- [Blue Box] FUTURE ACQUISITION EASEMENT



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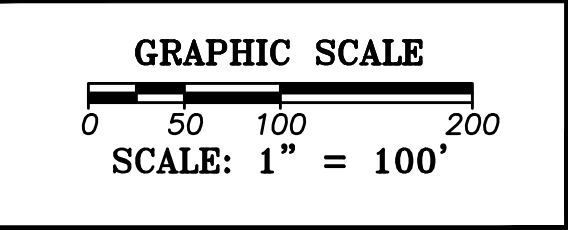
PREPARED FOR:



Nashua Airport
BOIRE FIELD

PROJECT	AIRPORT MASTER PLAN UPDATE NHDOT NO. SBG-12-16-2016		
	CITY OF NASHUA, NEW HAMPSHIRE AIRPORT AUTHORITY		
OWNER			

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777042		
DESIGNED BY	DCQ		
DRAWN BY	DCQ		
CHECKED BY	MPC		
DATE	JUNE, 2018		



SHEET TITLE
AIRPORT PROPERTY PLAN (SHEET 2 OF 3)

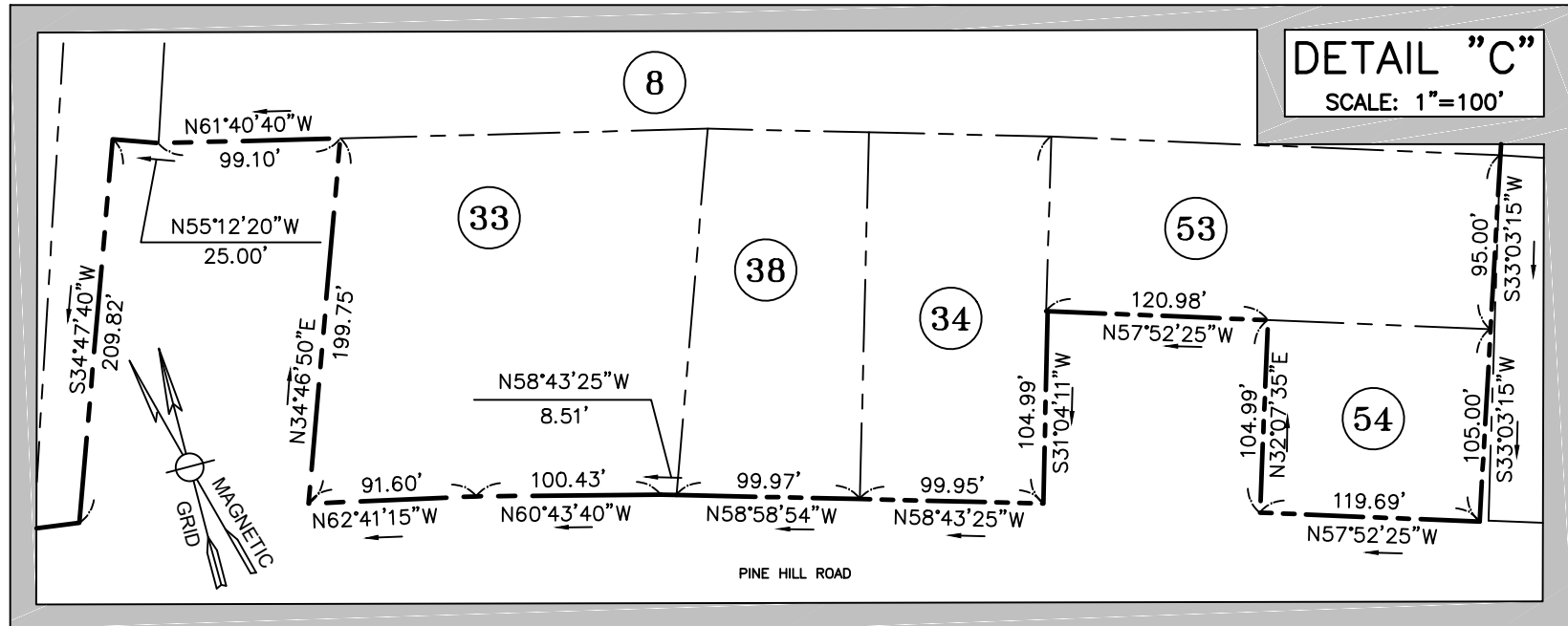
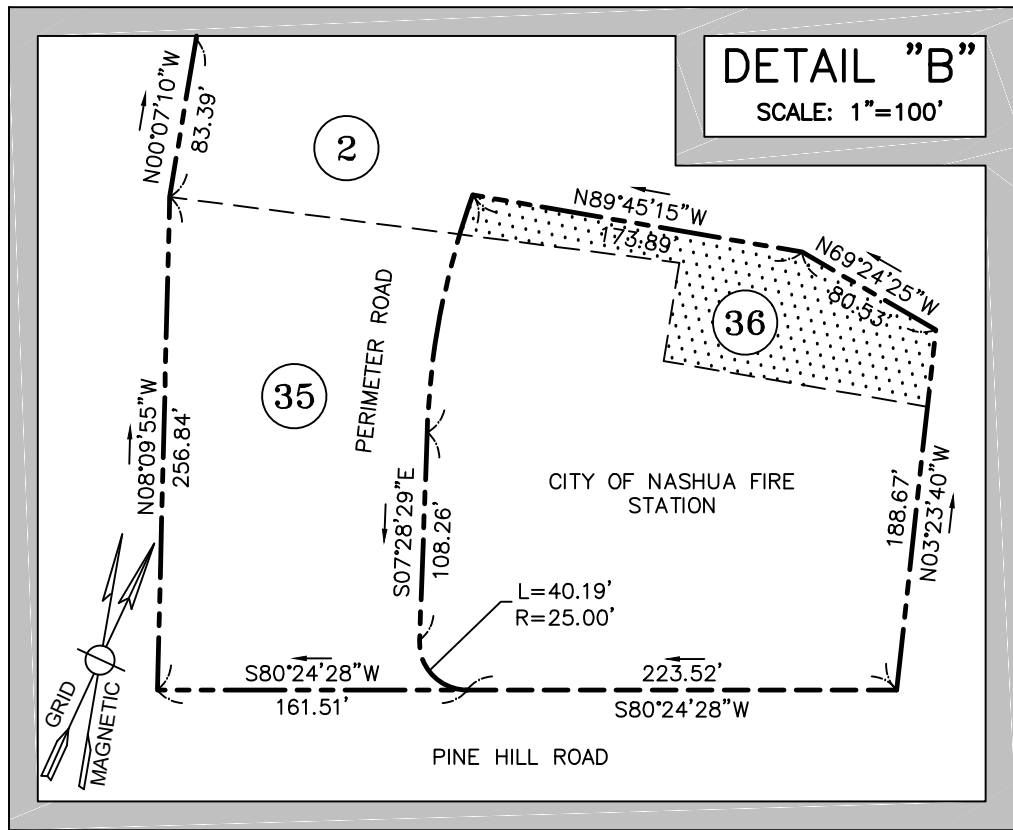
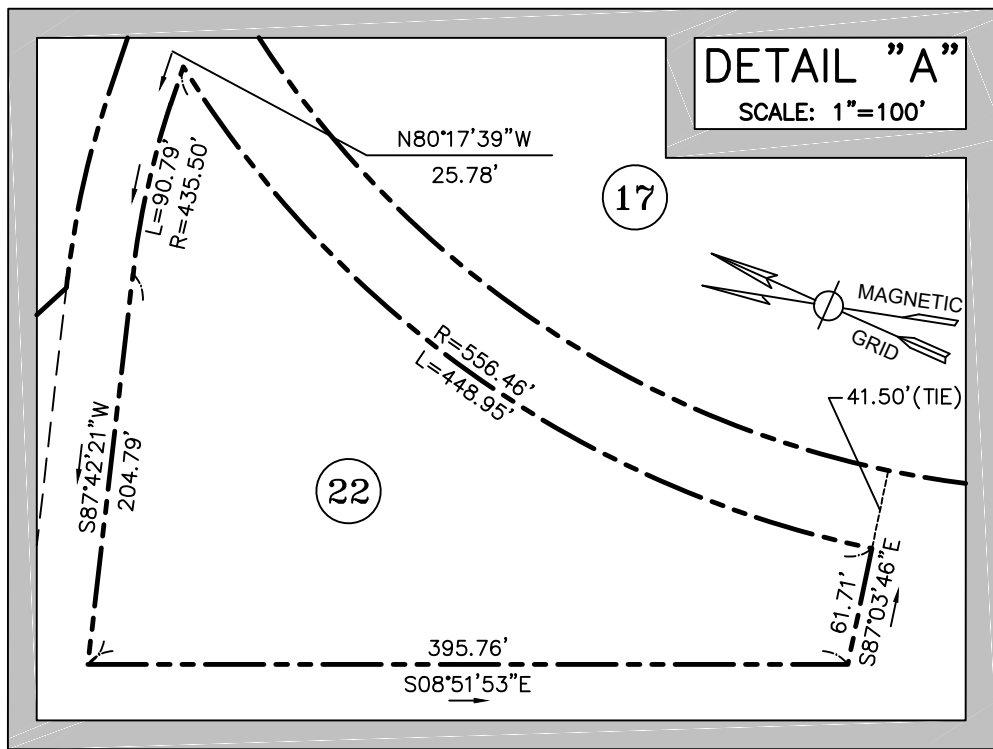
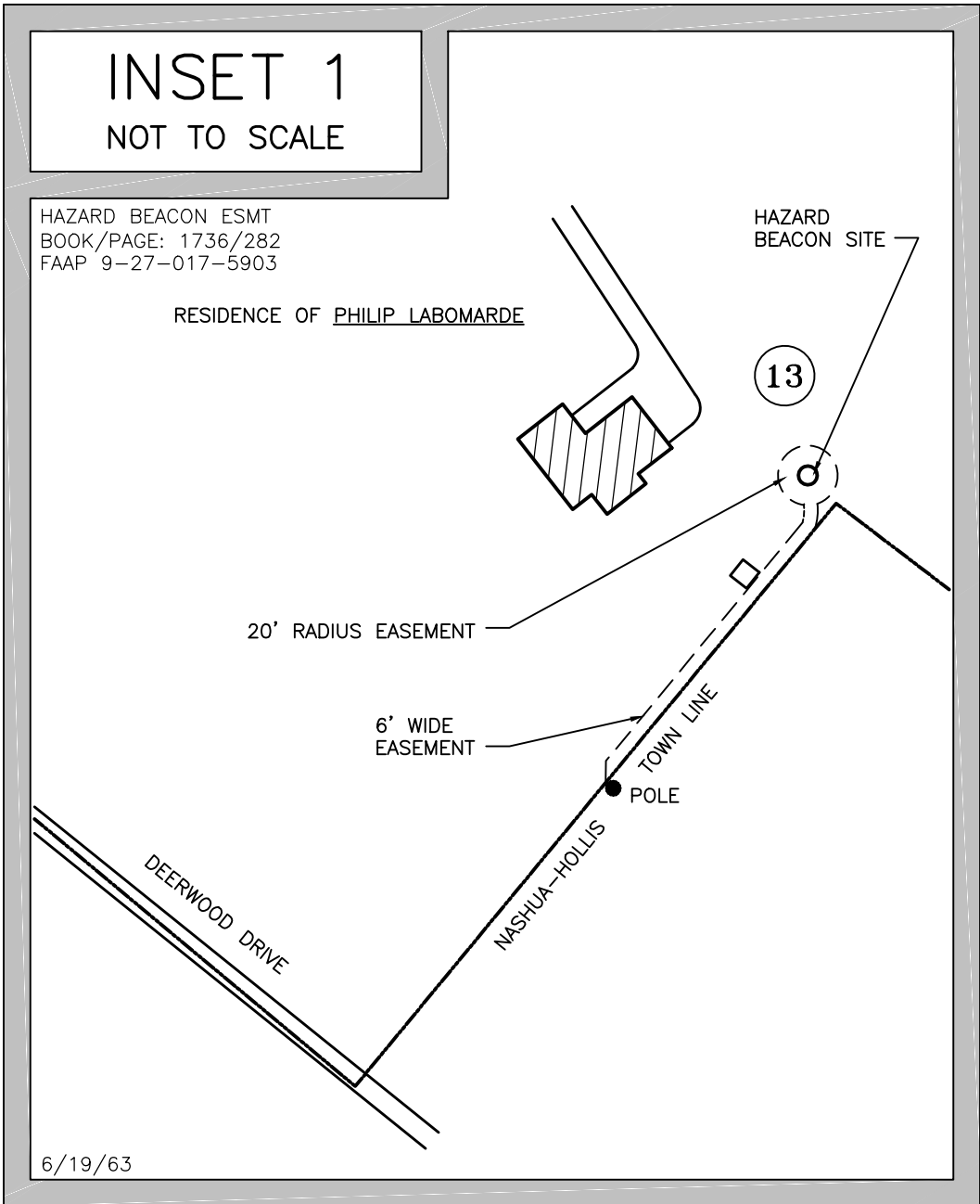
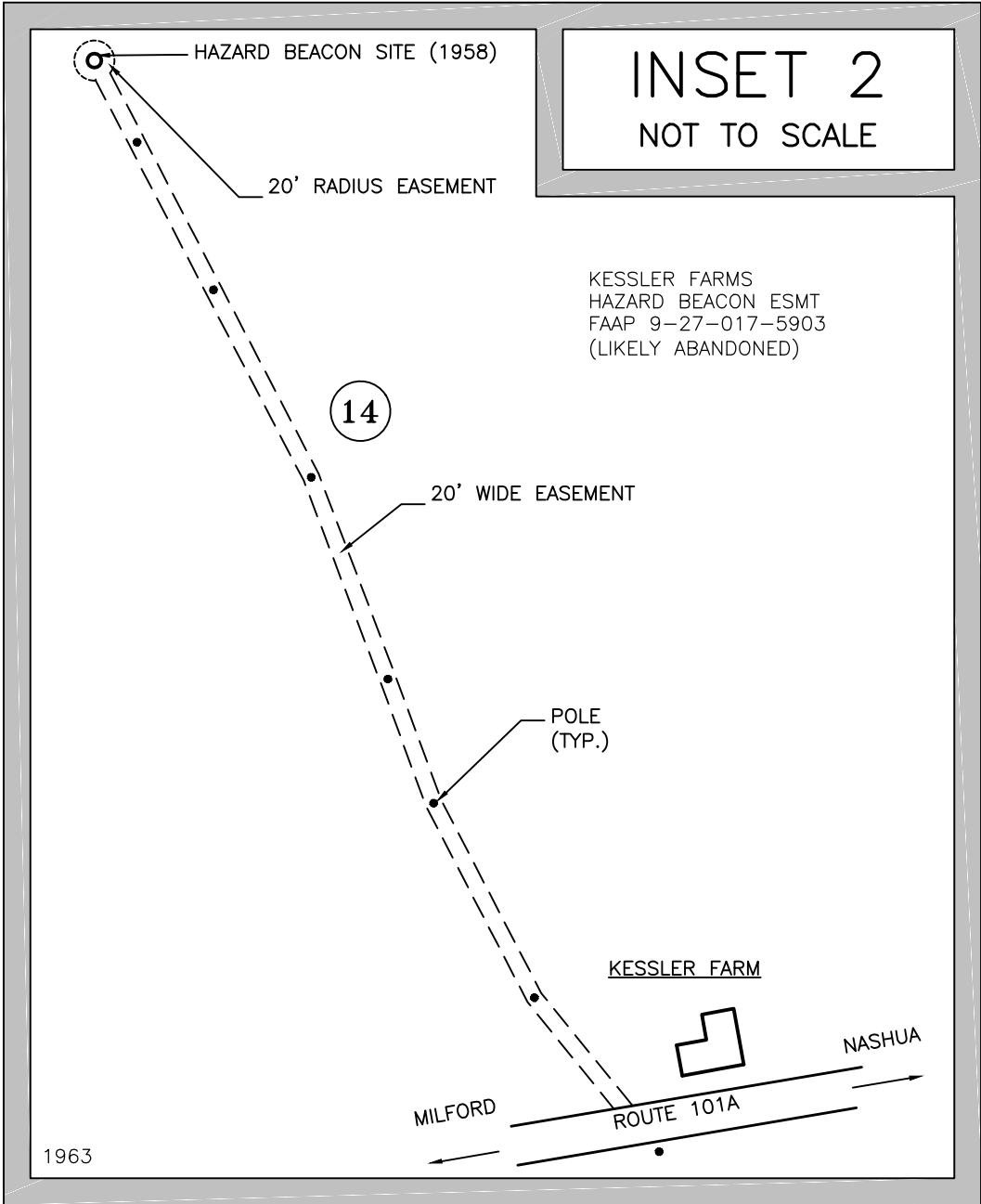
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19
19 OF 20

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AIRPORT PROPERTY DATA

PARCEL	GRANTOR	GRANTEE	INST.	DATE	BOOK/PAGE	REMARKS
1	ALICE T. CHARLES L. & ARTHUR H. COITEN	CITY OF NASHUA, NH	FEE	5/19/34	932/182	
2	JOSEPH THERRIEN	CITY OF NASHUA, NH	FEE	5/19/34	932/199	
2A	JOSEPH THERRIEN	CITY OF NASHUA, NH	FEE	5/19/34	932/199	FORMER AIRPORT ROAD DISCONTINUED BY BOARD OF ALDERMAN, OCT. 13, 1964 (ORIGINALLY PART OF PARCEL 2)
3	JASON T. BUCKFORD & HELEN B. HUBER	CITY OF NASHUA, NH	FEE	6/14/43	1049/334	
4	HARRY G. SPEAR	CITY OF NASHUA, NH	FEE	11/17/43	1056/222	
5	JOSEPH CERIER	CITY OF NASHUA, NH	FEE	12/7/43	1056/244	
6	JOSEPH A. LAMPRON	CITY OF NASHUA, NH	FEE	12/31/43	1056/358	
7	WILLIAM H. HALL	CITY OF NASHUA, NH	FEE	12/20/44	1075/21	
8	CLARA B. PARKER	CITY OF NASHUA, NH	FEE	11/26/49	1241/149	FAAP 9-27-017-901
9	J. BERNARD & DOROTHY DEPUNTE	CITY OF NASHUA, NH	FEE	1/24/50	1246/8	FAAP 9-27-017-901
10	DENNETT F. HOWE & NORMAN E. HOWE	CITY OF NASHUA, NH	FEE	1/19/51	1280/212 & 214	FAAP 9-27-017-901
11	AMY L. CALFEE	NASHUA AIRPORT AUTHORITY	FEE	4/5/63	1732/162	ACCESS ROAD CONSTRUCTION (NOW PART OF CHARRON AVENUE)
12	NASHUA AIRPORT AUTHORITY	PENNICHUCK WATER WORKS, INC.	ESMT	10/12/12	8482/0287	U/G UTILITY EASEMENT
13	SEE INSET 1 ON THIS SHEET					
14	SEE INSET 2 ON THIS SHEET					
15	SAMUEL A. TAMPOSI	NASHUA AIRPORT AUTHORITY	FEE	7/20/63	1742/119	ACCESS ROAD CONSTRUCTION (NOW PART OF CHARRON AVENUE)
16	JOSEPH E. A. LEVESQUE	CITY OF NASHUA, NH	FEE	12/16/66	1910/333	FAAP 9-27-017-C807
17	JOSEPH E. A. LEVESQUE	CITY OF NASHUA, NH	FEE	4/2/71	2125/388	FAA AIP 3-33-0012-01
18	AIRPORT PROPERTIES, INC.	CITY OF NASHUA, NH	AGRT	11/16/77	2580/241	BOUNDARY LINE AGREEMENT
19	FRANK L. HARVEY	CITY OF NASHUA, NH	FEE	12/15/77	2578/670	FAA ADAP 7-33-0012-02
20	FRANK L. HARVEY	CITY OF NASHUA, NH	FEE	12/14/78	2661/24	FAA ADAP 5-33-0012-03
21	WILLIAM P. KORSACK & DAVID M. HOLDEN	CITY OF NASHUA, NH	ESMT	4/24/80	2767/142	AVIGATION EASEMENT
22	JOHN P. HOWE & SALLY HOWE BIXBY	CITY OF NASHUA, NH	FEE	12/30/83	2980/176	FAA AIP 3-33-0012-01
23	NORMAN E. WRENN	CITY OF NASHUA, NH	ESMT	4/7/83	3009/484	AVIGATION EASEMENT
24	RAYMOND G. & LILLIAN M. BARBOUR	CITY OF NASHUA, NH	ESMT	2/11/88	4620/23	AVIGATION EASEMENT
25	SAMUEL A. & BARBARA S. TAMPOSI	CITY OF NASHUA, NH	FEE	1/16/84	3122/397	LAND SWAP WITH PARCEL 26 FAA APPROVED NOV. 1983
26	CITY OF NASHUA, NH	S.A. & B.S. TAMPOSI	FEE	1/16/84	3135/3	LAND SWAP WITH PARCEL 25 FAA APPROVED NOV. 1983 (ORIGINALLY PART OF PARCEL 6)

PARCEL	GRANTOR	GRANTEE	INST.	DATE	BOOK/PAGE	REMARKS
27	FRANCES R. HOLDEN	CITY OF NASHUA, NH	FEE	8/30/93	5467/524	LAND SWAP WITH PARCEL 28 FAA APPROVED NOV. 1983
28	CITY OF NASHUA, NH	FRANCES R. HOLDEN	FEE	8/30/93	5467/526	LAND SWAP WITH PARCEL 27 FAA APPROVED NOV. 1983 (ORIGINALLY PART OF PARCELS 7 & 17)
29	PETER CAMPISI	CITY OF NASHUA, NH	ESMT	8/15/85	3375/757	AVIGATION EASEMENT
30	CITY OF NASHUA, NH	CITY OF NASHUA	-	12/10/85	-	STREET DISCONTINUANCE
31	PENNICHUCK CORP.	CITY OF NASHUA, NH	FEE	12/13/85	3431/62	FAA ADAP 5-33-0012-05
32	CITY OF NASHUA, NH	PENNICHUCK CORP.	ESMT	12/13/85	3432/89	U/G UTILITY EASEMENT
33	WILLIAM SHUBELKA	CITY OF NASHUA, NH	FEE	1/8/88	4580/281	FAA AIP 3-33-0012-08
34	MARGARET L. BROWN	CITY OF NASHUA, NH	FEE	9/24/91	5284/1074	FAA AIP 3-33-0012-1191
35	CITY OF NASHUA (NASHUA FIRE DEPARTMENT)	NASHUA AIRPORT AUTHORITY	-	6/18/92	-	LEASE AMENDMENT / LAND SWAP FAA APPROVED 5/28/92 (ORIGINALLY PART OF PARCEL 2)
36	NASHUA AIRPORT AUTHORITY	CITY OF NASHUA (NASHUA FIRE DEPARTMENT)	ESMT	6/18/92	-	AVIGATION EASEMENT RETAINED FAA APPROVED 5/28/92 (ORIGINALLY PART OF PARCEL 2)
37	FRANCES R. HOLDEN	CITY OF NASHUA	FEE	11/22/93	5494/1852	FAA AIP 3-33-0012-15 REFERENCE INCLUDES PREVIOUSLY DEEDED PARCEL 27 DOES NOT INCLUDE PARCEL 28 (SEE PARCEL 40)
38	HAZEL A. UPHAM	NASHUA AIRPORT AUTHORITY	FEE	11/12/99	6179/1550	FAA AIP 3-33-0012-19
39	CITY OF NASHUA	NASHUA AIRPORT AUTHORITY	ESMT	8/11/05 8/26/05	7521/1571 7533/1292	AVIGATION EASEMENT CORRECTIVE DEED TO ADD EXHIBIT 1
40	HEIRS AT LAW OF FRANCES R. HOLDEN	NASHUA AIRPORT AUTHORITY	FEE	4/16/12	8416/1911	CORRECTIVE DEED TO INCLUDE PREVIOUSLY OMITTED PARCEL 28 (SEE PARCEL 37)
41	KLUSS, THOMAS S. AND RITA T.	NASHUA AIRPORT AUTHORITY	ESMT	8/16/11	8341/2162	AVIGATION EASEMENT
42	ATASANTE, LLC	NASHUA AIRPORT AUTHORITY	ESMT	8/25/11	8344/0754	AVIGATION EASEMENT
43	CITY OF NASHUA	NASHUA AIRPORT AUTHORITY	ESMT	9/30/11	8354/1555	AVIGATION EASEMENT
44	ROMAN CATHOLIC BISHOP OF MANCH.	NASHUA AIRPORT AUTHORITY	ESMT	8/25/11	8344/0749	AVIGATION EASEMENT
45	ROMAN CATHOLIC BISHOP OF MANCH.	NASHUA AIRPORT AUTHORITY	ESMT	8/25/11	8344/0744	AVIGATION EASEMENT
46	NEW NASHUA PROPERTIES LIMITED PARTNERSHIP	NASHUA AIRPORT AUTHORITY	ESMT	8/25/11	8344/0782	AVIGATION EASEMENT
47	DESRIUSSEAU, ROBERT AND JUDITH	NASHUA AIRPORT AUTHORITY	ESMT	8/16/11	8341/2166	AVIGATION EASEMENT
48	ALUT, CAROLYN A.	NASHUA AIRPORT AUTHORITY	ESMT	8/16/11	8366/1576	AVIGATION EASEMENT
49	FAT BOYS REALTY, LLC	NASHUA AIRPORT AUTHORITY	ESMT	10/21/11	8361/0009	AVIGATION EASEMENT
50	BARBOUR, LILLIAN	NASHUA AIRPORT AUTHORITY	ESMT	10/31/11	8363/2025	AVIGATION EASEMENT
51	PENNICHUCK WATER WORKS, INC.	NASHUA AIRPORT AUTHORITY	ESMT	9/30/11	8354/1548	AVIGATION EASEMENT
52	TWO C PACK SYSTEMS CORP.	NASHUA AIRPORT AUTHORITY	ESMT	11/7/11	8366/1576	AVIGATION EASEMENT
53	JOLEEN T. KLUSS	NASHUA AIRPORT AUTHORITY	FEE	5/20/14	8660/2858	NHDOT NO. SBG-12-13-2014
54	LORRAINE F. ALCORN, TRUSTEE OF THE LORRAINE F. ALCORN REVOC. TRUST	NASHUA AIRPORT AUTHORITY	FEE	9/18/14	8692/1462	NHDOT NO. SBG-12-15-2015



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Boston Baltimore Orlando

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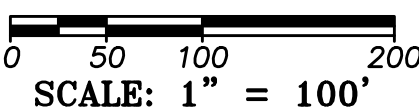
PREPARED FOR:



PROJECT	AIRPORT MASTER PLAN UPDATE NHDOT NO. SBG-12-16-2016		
	CITY OF NASHUA, NEW HAMPSHIRE AIRPORT AUTHORITY		
OWNER			

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777042		
DESIGNED BY	DCQ		
DRAWN BY	DCQ		
CHECKED BY	MPC		
DATE	JUNE, 2018		

GRAPHIC SCALE



SHEET TITLE

AIRPORT PROPERTY
PLAN
(SHEET 3 OF 3)

DRAWING NO.

20

20 OF 20

Appendix A

Pavement Maintenance Plan

Pavement Maintenance Plan

Boire Field - Nashua Airport
Nashua, New Hampshire

August, 2017



GALE ASSOCIATES, INC.

15 Constitution Drive

Bedford, NH 03110-6042

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Appendices

Appendix A – Pavement Area Plan

Appendix B – Blank Inspection Forms

Appendix C – Completed Inspection Forms

1.0 Introduction:

The purpose of this Pavement Maintenance Plan is to establish a set of policies and procedures for the Nashua Airport, herein called the Airport, to be in compliance with the Airport Improvement Program (AIP) assurances for pavements that have been constructed, reconstructed, or repaired with federal financial assistance.

2.0 Pavement Inventory:

The Airport, also known as Boire Field has one runway (14-32), a full parallel taxiway (“A”), several stub taxiways (“B”, “C”, “D”, “E”, “F”, and “G”), and aprons. There are three newly constructed porous pavement sections which are subject to special maintenance measures, see Section 5.0 for maintenance information. Table 1 below outlines the location of pavements (runways, taxiways, and aprons), dimensions, types of pavement, and year of construction or most recent major rehabilitation:

Table 1 – List of Airport Pavements

Paved Area	Location	Dimensions	Type of Pavement	Year of Construction or most recent Major Rehab.
Runway 14-32	<i>See Figure No. 1 in Appendix A for locations of all paved areas</i>	6,000’x100’	Flexible	2012
Taxiway “A”		5,206’x40’ Parallel to RW 14-32	Flexible	Overlay Pavement East of T/W “C” - 2012 West of T/W “C” - 2013
Taxiway “A” West		690’x40’	Flexible	2012
Taxiway “A” East		895’x40’	Flexible	2012
Taxiway “B”		480’x40’	Flexible	2012
Taxiway “C”		480’x40’ 80’x50’	Flexible	2012 1991
Taxiway “D”		480’x40’ 295’x35’	Flexible	2012 Overlay Pavement 2013
Taxiway “E”		306’x40’	Flexible	1985/1991/1996
Taxiway “F”		80’x50’	Flexible	1991
Taxiway “G”		1,075’ x Varying widths	Flexible	Overlay Pavement 2017
Taxiway “G” West		215’ x Varying widths	Flexible	1991
Taxiway “G” East		100’x80’	Flexible	2012
Inner Taxiway (Taxiway 5)		1470’x30’-35’ (varies)	Flexible	1991
Echo Ramp		290,500 SF	Flexible	2009

Foxtrot Ramp		97,300 SF	Flexible	1983
Golf Ramp		245,850 SF	Flexible	1986
Hotel Ramp		289,490 SF	Flexible	1985/1996
India Ramp		187,600 SF	Flexible	2003
Perimeter Rd		2,500' Long	Flexible	1992
Alpha Ramp		205,315 SF	Flexible	2017
Alpha Ramp (East)		270'x100'	Flexible	2012
Hangar Taxilanes		90,500 SF	Flexible	2017
Porous Pavement		8'x225' 8'x260' 8'x240'	Flexible	2017

3.0 Inspection Schedule

In order to maintain traversable and safe conditions for aircrafts and users, the Airport must inspect the paved areas (runway, taxiways, taxilanes, and aprons). Inspections fall into two (2) types: (1) Detailed Inspection and (2) Drive-By Inspection.

3.1 Detailed Inspections

A detailed inspection is an inspection in which the Airport thoroughly surveys the paved areas of the Airport for signs of distress (i.e. cracks, sealant failure, heaving, loose fragments, etc...) that could potentially cause a hazard to aircrafts and users of the facilities. Each detailed inspection should be performed by authorized Airport personnel at least once per year or as warranted. It may be necessary to perform additional detailed inspections in the course of one (1) calendar year, should adverse weather conditions (i.e. flooding, high wind storm, thunderstorms, etc...) deem them. If, during a detailed inspection, an area(s) is found to be potentially hazardous, then the Airport shall take the necessary corrective measures to remedy the condition.

A record of each detailed inspection shall be kept on file. See Section 6.0, *Record Keeping*, for further information. A blank *Detailed Inspection Form* can be found in Appendix B of this plan. Once the form has been filled out and completed, it shall be filed in Appendix C of this plan.

3.2 Drive-By Inspections

A drive-by inspection is an inspection in which the Airport visually inspects the paved areas for unexpected changes in pavement conditions. Drive-by inspections shall be performed once a month at a minimum.

A record of each drive-by inspection shall be kept on file. See Section 6.0, *Record Keeping*, for further information. A blank *Drive-By Inspection Form* can be found in Appendix B of this plan. Once the form has been filled out and completed it shall be filed in Appendix C of this plan.

4.0 Maintenance Priority List

Due to the large area of pavement present at the Airport and the cost associated with maintaining these pavements, it is critical that a Maintenance Priority List be established. The purpose of The Maintenance Priority List is to establish a pecking order in which Airport pavements will be maintained. The Maintenance Priority List shall be utilized to budget and schedule pavement maintenance and/or to identify possible projects for funding coverage under the Airport Improvement Program (AIP).

The most important section of pavement is the runway, followed by Taxiway ‘A’ and Stub Taxiways, Taxilanes and Aprons, and finally, Access Roads. With this simple principal, the Maintenance Priority List is as follows:

Maintenance Priority List

1. Runway 14-32
2. Taxiways (“A”, “B”, “C”, “D”, “E”, “F”, “G”, and the inner taxiway)
3. Aprons and Taxilanes
4. Access Roads

The Airport may deviate from this Maintenance Priority List should an emergency arise or more critical pavement maintenance be warranted.

5.0 Maintenance Tips

Due to the large area of pavement present at the Airport and the cost associated with maintaining these pavements, the Airport may consider the following:

1. Carefully inspect your pavement on a regular basis for cracks, fading pavement markings, and other signs of failure or liability issues.
2. Seal coating helps to slow pavement deterioration; for maximum benefit, asphalt should be sealed every 24-36 months. Seal coating should only be performed under the proper weather conditions (50°F during sealer application and for 8 hours afterward).
3. Proper attention to cracks will prevent problems from spreading and greatly extend the life of pavement.

- Singular cracks that are between ¼-inch wide and 1-inch are good candidates for crack sealing.
 - Crack widening or “routing” has become the new standard and greatly improves the effectiveness of the repair, however cracks that have been previously sealed cannot be routed but can be resealed with hot rubber.
4. Fixing “birdbaths” as soon as they appear will lessen the chance of water seeping through to the base and becoming a pothole.
 5. Catch basin installation can be a possible solution for improper drainage.
 6. All pre-existing problems such as cracking, low spots, poor drainage, and base or sub-base damage should be resolved before resurfacing pavement.
 7. For porous pavement sections, broom or sweeper type snow removal equipment is required. Plows may cause damage to porous pavement.
 8. Periodic vacuum sweeping is recommended on porous pavement sections. Frequency should be as needed to maintain porosity.

6.0 Record Keeping

A record of each detailed inspection shall be kept on file and contain the following information at a minimum:

- Date
- Person(s) conducting inspection
- Paved areas inspected
- Notes and photos of paved areas found to be unsafe or hazardous
- Recommendation of corrective actions to take to remedy hazardous paved areas
- Corrective action performed and date of its completion
- Signature of person(s) conducting inspection

A copy of each detailed inspection shall be kept on file at the Airport for a minimum of five (5) years.

A record of each drive-by inspection shall be kept on file and contain the following information at a minimum:

- Date
- Person(s) conducting inspection
- Paved Areas Inspected
- Notes and photos of paved areas found to be unsafe or hazardous
- Corrective action performed and date of its completion

A copy of each drive-by inspection shall be kept on file at the Airport for a minimum of three (3) years.

7.0 Information Retrieval

The Airport shall keep copies of all inspections, maintenance performed, and other relevant information with this Pavement Maintenance Plan. The Airport shall provide the Federal Aviation Administration (FAA) and/or the New Hampshire Department of Transportation Bureau of Aeronautics (NHDOT/BA) with any information that is requested.

8.0 Reference

For further information pertaining to pavement maintenance, refer to FAA Advisory Circular (AC) 150/5380-6C Guidelines and Procedures for Maintenance of Airport Pavements, dated October 10, 2014, or the latest edition as posted on the FAA website (http://www.faa.gov/airports/resources/advisory_circulars).

Appendix A

Pavement Area Plan

Appendix B

Blank Inspection Forms

DETAILED INSPECTION FORM	
Date of Inspection:	
Person(s) Performing Inspection:	
Paved Areas Inspected:	
Inspection Notes: <i>(Include photos as needed)</i>	
Corrective Actions/Recommendations:	
Corrective Actions/Recommendations Performed <i>(include date)</i>:	
Signature(s):	 _____. _____ _____. _____

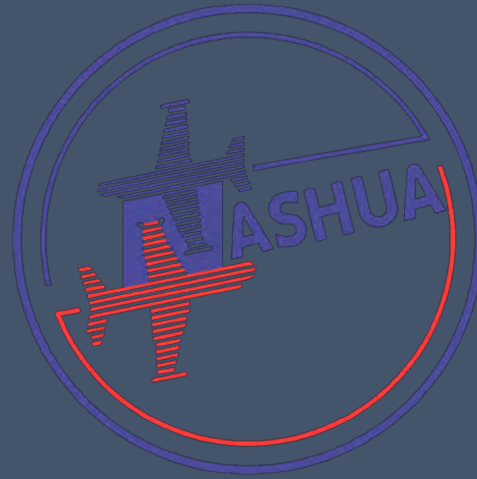
DRIVE-BY INSPECTION FORM	
Date of Inspection:	
Person(s) Performing Inspection:	
Paved Areas Inspected:	
Inspection Notes: <i>(Include photos as needed)</i>	
Corrective Actions/Recommendations Performed <i>(include date)</i>:	

Appendix C

Completed Inspection Forms

Appendix B

Snow and Ice Control Plan



NASHUA AIRPORT AUTHORITY
SNOW AND ICE
CONTROL PLAN

2016

Scope and Purpose	Page 1
Section 1 – Definitions	Page 2
Section 2 – Administrative	Page 2
Section 3 – Snow Removal Operations	Page 3
Section 4 – Snow Clearing Principles	Page 7
Section 5 – Runway Incursion/Surface Incident Mitigation Procedures	Page 9
Section 6 – Runway Surface Assessment Reporting	Page 9
Section 7 – Post Season Activities	Page 10
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Scope and Purpose

The safety of the airport employees and users is the highest priority of the Nashua Airport Authority (NAA). This Snow and Ice Control Plan (SICP) has been created to document how Boire Field will work toward mitigating the hazards associated with the regular annual occurrence of snow and ice accumulation. Winter snow conditions reduce traffic volumes and can impair the safety of airport operations. Severe storm conditions can force airport closures. This plan is an effort to minimize these undesirable effects on the airport and ensure as safe an operating environment as possible. The goal of the NAA is to maintain the airport surfaces in a, “no worse than wet” condition. Secondly, this plan attempts to inform the operating public at Boire Field so they might better understand how snow removal functions are carried out. The Nashua Airport Authority recognizes and understands the need and desire of our stakeholders to be part of the processes that affect them, and this Plan is an attempt to promote communication. Questions or comments on this plan or snow removal operations can be directed to the airport management office at (603) 882-0661 or info@nashuaairport.com.

Section 1 – Definitions

- a) Contaminant. Any substance on a runway or taxiway, for the purpose of this Snow and Ice Control Plan (SICP) would be snow, slush, ice or standing water.
- b) Dry Snow. Snow that insufficient free water to cause cohesion between individual particles. If when making a snowball, it falls apart, the snow is considered dry.
- c) Wet Snow. Snow that has grains coated with liquid water, which bonds the mass together, but that has no excess water in the pore spaces. A well-compacted, solid snowball can be made, but water will not squeeze out.
- d) Compacted Snow. Snow that has been compressed into a solid mass that resists further compression and will hold together or break up into lumps if picked up.
- e) Slush. Snow that has water content exceeding its freely drained condition, such that it takes on a fluid property (e.g. flowing and splashing). Water will drain from slush when a handful is picked up.
- f) Patchy Conditions. Contaminate conditions that cover 25% or less of the cleared/treated/usable surface shall be classified as "Patchy." Conditions covering more than 25% should be considered as covering the total surface area for surface condition reporting purposes.
- g) Approved Chemicals. A chemical, either solid or liquid, that meets a generic SAE or MIL specification. (Note, Boire Field does not use any airside approved chemicals at the time of this publication)
- h) Fluid Deicer/Anti-Icers. The approved specification is SAE AMS 1435, Fluid, Generic Deicing/Anti-icing, Runways and Taxiways. (Note, Boire Field does not use any airside fluid deicer/anti-icers at the time of this publication)
- i) Generic Solids. The approved specification is SAE AMS 1431, Compound, Solid Runway and Taxiway Deicing/Anti-Icing. (Note, Boire Field does not use any airside generic solids at the time of this publication)

Section 2 - Administrative

- a) Airport Management Pre-Season Meeting. The meeting should determine if the post season objectives were met, and effective. The maintenance supervisor will typically initiate a meeting in October to discuss equipment and material inventory, repair needs, staffing, budget, training, previous years' issues, and any other topics associated with snow and ice control and this plan. Additionally, the following topics may be discussed in the Pre-Season Meeting:

- o Areas Designated as Priority 1 and any new airfield infrastructure
 - o Clearing operations and follow-up airfield assessments
 - o Potentials for pilot or vehicular runway incursions or incidents
 - o Staff requirements and qualifications (training)
 - o Response time to keep runways, taxiways and apron areas operational
 - o Radio Communications
 - o Communication, terminology, frequencies, and procedures
 - o Monitoring and updating of runway surface conditions
 - o Issuance of NOTAMS and dissemination to ensure timely notification
 - o Equipment inventory
 - o Snow hauling/disposing, snow dumps
- b) Pre-event Meetings.** Before each snow event, airport management and all available snow removal personnel will conduct a meeting to discuss any issues that have arisen from the last snow event, and any outstanding issues or items that have been resolved. In addition, NAA will ensure that sufficient and qualified staffing, materials, and equipment are available for a snow or ice event.
- c) Post Event Meetings.** After each snow event airport management will host a meeting within three days to discuss any issues that have arisen from the event.
- d) Equipment Preparation.** Airfield snow removal equipment shall be inspected prior to utilization for safety and proper operation. At a minimum, the oil level and other pertinent fluids of equipment to be utilized during that snow event will be checked. Also, equipment will be inspected for obvious deficiencies or safety issues.

Typically, in mid-October or earlier, the maintenance supervisor shall inspect and prepare each piece of snow removal equipment. Required fluids, replacement parts, and snow removal equipment components will be inventoried and stockpiled. Worn items will be replaced as needed.

Section 3 – Snow Removal Operations

- a)** The maintenance supervisor is responsible for making the decision to commence snow removal operations upon contamination of airport surfaces. In some situations, it may be prudent to wait to begin snow removal operations. In some cases, it may be necessary to close the Airport, or portions thereof to aircraft use if they are deemed to be unsafe for aircraft use. If any airport surfaces are closed, the maintenance supervisor will immediately notify the airport manager. The maintenance supervisor should physically inspect the airport to make the determination as to when to begin snow removal operations.
- b) Weather Forecasting.**
- The maintenance supervisor is responsible for monitoring the current and/or forecast weather conditions.

- The maintenance supervisor is the person delegated the authority to call-in personnel/snow-team members.
 - Conditions are monitored before the storm and periodically throughout the weather event by the maintenance supervisor.
 - Sources for weather forecasts and current conditions include TV news, newspapers, online weather resources such as NWS, the air traffic control tower and the on field AWOS (Automated Weather Observation System)
- c) Typical shift coverage will provide for each piece of snow removal equipment to be deployed at the beginning of the snow event. The goal in shift coverage is to ensure the Priority 1 areas are cleared of contaminants in the shortest amount of time, thereby restoring the Airport to safe, usable condition. The maintenance supervisor will make determinations throughout the storm event to release snow crew members as the airfield returns to normal conditions and areas are cleared.
- d) According to the FAA, the recommended clearance time for Priority 1 areas is two hours. The snow removal team will work toward this goal as safely as possible.

Table 1-2. Clearance Times for Non-Commercial Service Airports

<i>Annual Airplane Operations (includes cargo operations)</i>	<i>Clearance Time¹ (hour)</i>
<i>40,000 or more</i>	<i>2</i>
<i>10,000 – but less than 40,000</i>	<i>3</i>
<i>6,000 – but less than 10,000</i>	<i>4</i>
<i>Less than 6,000</i>	<i>6</i>
<i>General: Although not specifically defined, Non-Commercial Service Airports are airports that are not classified as Commercial Service Airports [see Table 1-1, general note].</i>	
<i>Footnote 1: These airports may wish to have sufficient equipment to clear 1 inch (2.54 cm) of falling snow weighing up to 25 lb/ft³ (400 kg/m³) from Priority 1 areas within the recommended clearance times.</i>	

- e) **Airfield Clearing Priorities.** Boire Field is segmented for snow clearing purposes into four areas. These areas are listed as Priority 1 through Priority 4. Priority 1 areas are those vital to the takeoff, landing and moving of aircraft to and from the runway. Priority 2 areas are those areas that support Priority 1 areas as well as areas used by on airport businesses. Priority 3 areas are those areas that are not used every day, nor are critical to the takeoff and landing of aircraft or on airport businesses. Priority 4 areas are those that can wait until all other areas are cleared and in some circumstances might be taken care of on subsequent days after the storm. The NAA makes every effort to keep the entire airfield and supporting parking areas cleared of snow and ready for use, but some factors may delay the clearing of an area. These factors include, but are not limited to staffing, particular weather events such as impending freezing rain or blowing snow, equipment failures, etc. The priority areas are as follows and can be seen on the attached map in Appendix A:

Priority 1

Priority 1 areas are primary areas that must be cleared as soon as practicable. These areas include the most critical portions of the aircraft movement area and supporting facilities. This will normally include the runway and associated turnoffs, access taxiways leading to the FBO(s) and other airport businesses and designated emergency response roads, NAVAIDs and Mutual Aid access/gates/locks. The entire airport would not be a Priority 1 (Figure A-1).

Priority 2

Priority 2 areas are secondary in importance and include the Inner Taxilane and the ramps associated with the on-airport businesses as well as the Airport Maintenance Facility. Typically, Priority 2 areas are cleared simultaneously with the Priority 1 areas. Taxiway B can be considered a Priority 2 area, so long as the remainder of the stub taxiways are cleared (Figure A-1).

Priority 3

Priority 3 areas are tertiary areas that should be cleared after the Priority 1 and Priority 2 areas are cleared and open for use. These areas include the tie-down ramps and in between T-hangars that do not house businesses. Typically, Priority 3 areas are cleared simultaneously or immediately following the clearing of Priority 1 and Priority 2 areas (Figure A-1).

Priority 4

Priority 4 areas include service roads and access roads to airfield equipment. In some cases, Priority 4 areas might be left for the following days after the storm, however the maintenance supervisor should coordinate closely with FAA Tech-Ops to ensure they have adequate access to FAA owned equipment.

- f) Snow Removal Operations Triggers.** Typically, snow removal operations will commence when contaminants hamper operation or decrease braking action. In circumstances where snow will be followed by freezing rain or freezing conditions, it may be prudent to delay the start of snow removal operations to create an insulating layer between the freezing condition and the paved surface, thereby preventing bonding.
- g) Closing of Airport Surfaces.** Airport surfaces will be initially closed as snow removal begins. On the runway, snow removal involves plowing windrows and gradually forcing all of the snow to the edge of a surface where it can be blown or thrown over the edge lights. While the windrow is being pulled to the side, it presents a significant hazard to aircraft operations. Surfaces will also be closed when any of the parameters are met in the following table.

Precipitation	Depth in Inches
Slush	<i>1 inch</i>
Wet Snow	<i>2 inches</i>
Dry Snow	<i>3 inches</i>
Ice or Freezing Rain	<i>100% coverage</i>

Boire Field serves such a diverse array of aircraft types and operator experience that it would be difficult or impossible to try and accommodate everyone's operational limitations. The maintenance supervisor will err on the side of caution if he or she thinks a surface might not be safe for use and should be closed to aircraft use.

As soon as conditions allow. The maintenance supervisor will change the closed condition of a surface to a PPR (Prior Permission Required) with sufficient time to allow for men and equipment to vacate the surface for arriving or departing aircraft. A PPR will only be used in cases where the surface is rendered as safe as possible by the removal of contaminants. A typical PPR will be issued for 15 or 30 minutes on both ground and tower frequencies.

In all circumstances where surfaces are impacted by contamination, snow removal operations or closures, an appropriate NOTAM will be issued notifying the public about the circumstance.

Additionally, the NAA has a Letter of Agreement with the Nashua FAA Contract Tower that states:

Nashua Tower shall cease landing and takeoff operations and immediately notify Nashua Airport Authority upon receipt of a PIREP [Pilot Report] of NIL braking action on the runway. Resume landings and takeoffs operations only after notification by Nashua Airport Authority that the runway is safe for use.

- h) Snow Equipment List.** The maintenance supervisor will work toward having every piece of available snow removal equipment in operation with an operator to clear snow. The current inventory includes (vehicle callsigns are in parenthesis):
- a. 2007 624J John Deere Loader, 30,000 lbs. (SNOW 50)
 - b. 1985 FG-85 Fiat Grader, 35,000 lbs. (SNOW 30)
 - c. 1985 FR-15 Fiat Loader, 30,000 lbs.
 - d. 1996 SL-150 Samsung Loader, 30,000 lbs. (SNOW 11)
 - e. 1979 SMI Rotary Plow, 28,000 lbs. (SNOW 40)
 - f. 1985 MP-3D Sno-Go Rotary Plow, Loader Mount, 7,500 lbs.
 - g. 1988 75-C Michigan Loader, 32,000 lbs. (SNOW 12)
 - h. 2011 MP-3D Sno-Go Rotary Plow, Loader Mount, 8,400 lbs.
 - i. 2014 764HSD John Deere High Speed Dozer, 34,000 lbs. (SNOW 60)

- j. 1988 1954 International Dump Truck, 48,000 lbs. (SNOW 23)
 - k. 2007 MB Pavement Broom, Loader Mount.
 - l. 2009 F350 Ford with Plow and Caster Spreader, 10,600 lbs.
 - m. 2002 K-2500 Chevrolet Pickup with plow, 8,600 lbs.
- i) **Storage of Snow and Ice Control Equipment.** Snow removal equipment is stored and maintained inside the Snow Removal Equipment building at 93 Perimeter Rd. This building includes several heated bays.
 - j) **FAA-Approved Chemicals.** At the time of this publication, the NAA does not utilize any FAA-Approved chemicals for anti-ice or de-ice. The Ford Pickup does have a material spreader which is typically filled with road salt and sand and is reserved for the landside parking lots. This vehicle is rarely taken out onto the airport when filled as these are not FAA approved materials and they are never deployed airside.

Section 4 – Snow Clearing Principles

- a) **Runway and Taxiways.** Runways and taxiways are typically plowed into windrows by the grader and or a loader capable of receiving the articulating hydraulic plow. The direction of the plowing is dependent on the current and forecast winds. Ideally, all the snow is pushed toward the infield where it is blown over the lights with a rotary plow. In some circumstances, the winds will favor pushing snow to the east side of the runway. In either case, the section of the runway between Taxiway D and Taxiway A-North, the snow is ALWAYS plowed toward the infield. This section of the runway is adjacent to the Watts Endfire Glide Slope array which cannot support snow being blown toward it. If snow is pushed to the edge of the runway in this area, we have no way of removing it. In cases where winds are out of the west, it is sometimes prudent to have a smaller loader with an adjustable plow that is much more agile than the grader to care for that loop of the runway/taxiway circuit. This invariably takes a loader away from their task of clearing snow from hangars and ramps but the tradeoff is worth it.

Once all the snow is windrowed, a blower or rotary plow casts the snow over and beyond the lights.

Simultaneously or after the plowing/blowing operation is complete, the MB Pavement Broom is usually deployed to attempt to get the pavement down to, “no worse than wet” conditions. At this point, solar radiation is extremely helpful in remediating any remaining contaminants.

In some circumstances, it is acceptable to clear the runway at less than the 100’ full width to accommodate operations of smaller piston and helicopter operations. In these cases, the pilots and Tower will be made fully aware of the existing conditions.

- b) **Snow Bank Height Profiles – See Figure 4-1**

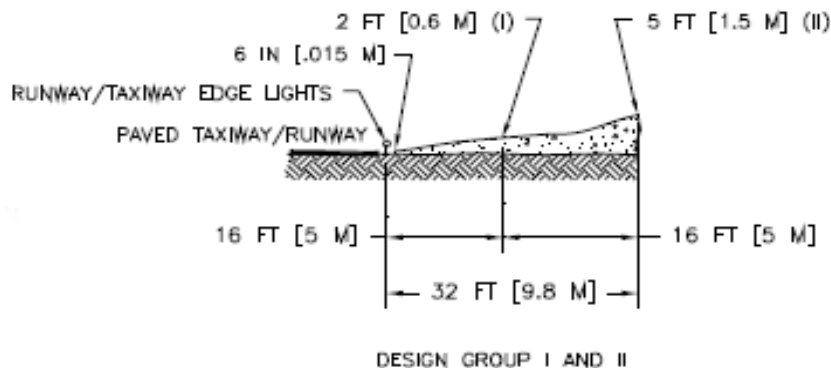


Figure 4-1. Snow Bank Profile Limits Along Edges of Runways and Taxiways with the Airplane Wheels On Full Strength Pavement

- c) Tenants are responsible for snow clearing in their lease area, however the NAA performs snow removal for a nominal fee. Tenants may contract their own snow removal, however contractors must provide proof of insurance naming the City of Nashua and the Nashua Airport Authority as additional insureds and must undergo driver training to operate on the airport.
- d) After all priority areas are cleared, care should be taken to ensure all lights and signs are dug out and are visible to pilots.
- e) Care should always be taken to ensure snow is not stockpiled in taxiway or taxilane safety areas or object free areas unless it meets the criteria in Figure 4-1 above. Snow should never be stockpiled in the Runway Safety Areas or Object Free Areas.
- f) If snow needs to be hauled away, there are at least two areas where it can be dumped. Typically, snow is stored at the old grass tie-downs or out of the way on India Ramp.
- g) NAVAIDs/Weather Observation Equipment:
 - a. Snow should never be stored or dumped in the critical areas of the localizer or glide slope. Also, when blowing snow from the runway, ejected snow should never be directed at PAPI's or any other NAVAIDs.
 - b. No snow may be piled within 50 feet of the AWOS system and there should be no piles of snow over 7 feet high within 200 feet of the AWOS.
- h) Controlling/Mitigating Snow Drifts is accomplished by utilizing snow trenches or snow fences where applicable. Each year, a snow fence is deployed in the field adjacent to the air traffic control tower to mitigate the hazards of snow drifting across Perimeter Rd.

Wind ditches are typically cut along all east-west taxiways such as TWY B, TWY C, TWY D etc. A minimum of two wind ditches has been found to be useful in mitigating snow drifting across the stub taxiways. Deeper the ditches and steep the sidewalls make this technique most effective.

- i) In years of heavy snowfall, it is advantageous to run a snow blower along both sides of the lights on the runway and along the taxiways to make room for additional snowfall. This technique prevents lights from becoming buried in snow.
- j) At the time of the writing of this document, the NAA does not use any FAA approved anti or deice chemicals or applications. There are no approved locations on the airport for the chemical deicing of aircraft.

Section 5 - Runway Incursion/Surface Incident Mitigation Procedures

Each year at the pre-season snow meeting, any incidents in the past will be discussed to ensure they do not occur again. Also, any ideas for preventing accidents or incidents during snow removal are encouraged to be shared.

Vehicles will be marked and lighted in accordance with AC 150/2510-5, *Painting, Marking and Lighting of Vehicles Used on an Airport*.

- a) Radio Communications. NAA vehicle operators identify themselves to the air traffic control tower by the number of the vehicle they are operating. Requests for access to the Airport Movement Area (AMA) should be made on Ground frequency at 121.8 Mhz. Operators should continually monitor this frequency while they are operating on the taxiways.

Requests for access to the runway should be made on Tower frequency at 133.2 MHz and operators should continually monitor the frequency while operating on the runway surface.

- b) In the event of failed radio communication with ATC, operators should exit the Airport Movement Area and contact the air traffic control tower by phone. If an operator finds themselves in a situation where they cannot communicate with the air traffic control tower via radio and they need to access the Airport Movement Area or the runway to get back to the shop (i.e. on the northeast side of the runway) to have radio equipment inspected, they should call the air traffic control tower via phone at (603) 595-2104 in order to get clearance to cross the runway or to access the AMA. If a piece of equipment is unable to communicate with the air traffic control tower via radio, either it should be parked until the radio can be serviced, or a handheld radio should be taken to ensure two way communications is maintained.

- d) In the event of low visibility and/or whiteout conditions the maintenance supervisor may suspend snow removal operations until they can be conducted safely.

Section 6 – Surface Condition Reporting

- a) Condition reporting will be provided whenever the pavement condition is worse than bare and wet and when conditions change. NOTAMS will be issued to inform pilots and the public about surface conditions.

In general, conditions will be reported as:

- Surface conditions by contaminants types and depths.
- Friction reporting if applicable (i.e. braking action good, medium, poor or nil)
- When the cleared runway width is less than full width, and if there are uncleared runway edges with a different condition from cleared width on runway.

Generally, during winter conditions, the airfield will be inspected more regularly to assess any changing conditions. Days with higher winds should trigger more frequent inspections and care should be taken during freeze/thaw cycles as snow typically blows onto paved surfaces, melts and then refreezes causing ice. NOTAMS should be continually adjusted to reflect the actual conditions on the airport. Conditions to be aware of that may prompt changes to surface conditions might include:

- Active snow event
- Plowing/brooming/deicing
- Rapidly rising or falling temperatures
- Rapidly changing conditions

Typically, conditions are assessed in an operations vehicle, however any vehicle could serve to assess airfield conditions. At the time of the writing of this document, no mechanical devices are being utilized to measure friction conditions on paved surfaces. As of October 1, 2016, vehicle braking action reports will no longer be an acceptable means of conveying runway information to pilots.

It is the maintenance supervisor's responsibility to ensure the NOTAMS issued accurately reflect the current conditions on the airport.

- b) In December, 2005 a Boeing 737 overran a snow-covered runway at BWI, killing a 5-year-old boy in a vehicle the aircraft collided with. The FAA responded by developing the TALPA ARC (Takeoff and Landing Performance Assessment Aviation Rulemaking Committee) which was a consortium of aircraft operators, airports and alphabet groups tasked with addressing requirements for aircraft and airport operators. The committee developed the Runway Condition Assessment Matrix (RCAM) which was designed to convey standardized information to pilots about contamination on runways in an objective format. The RCAM chart is shown

below. The RCAM divides the runway into thirds with a 6 being dry pavement and a 0 being braking action NIL.

Assessment Criteria		Downgrade Assessment Criteria		
Runway Condition Description	Code	Mu (μ) ¹	Vehicle Deceleration or Directional Control Observation	Pilot Reported Braking Action
• Dry	6	40 or Higher	---	---
• Frost • Wet (Includes Damp and 1/8 inch depth or less of water) 1/8 inch (3mm) depth or less of: • Slush • Dry Snow • Wet Snow	5		Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	Good
5° F (-15°C) and Colder outside air temperature: • Compacted Snow	4	39 to 30	Braking deceleration OR directional control is between Good and Medium.	Good to Medium
• Slippery When Wet (wet runway) • Dry Snow or Wet Snow (Any depth) over Compacted Snow Greater than 1/8 inch (3mm) depth of: • Dry Snow • Wet Snow Warmer than 5° F (-15°C) outside air temperature: • Compacted Snow	3	29 to 21	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	Medium
Greater than 1/8 (3mm) inch depth of: • Water • Slush	2	20 or Lower	Braking deceleration OR directional control is between Medium and Poor.	Medium to Poor
• Ice ²	1		Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	Poor
• Wet Ice ² • Slush over Ice • Water over Compacted Snow ² • Dry Snow or Wet Snow over Ice ²	0		Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	Nil

¹ The correlation of the Mu (μ) values with runway conditions and condition codes in the Matrix are only approximate ranges for a generic friction measuring device and are intended to be used only to downgrade a runway condition code; with the exception of circumstances identified in Note 2. Airport operators should use their best judgment when using friction measuring devices for downgrade assessments, including their experience with the specific measuring devices used.

² In some circumstances, these runway surface conditions may not be as slippery as the runway condition code assigned by the Matrix. The airport operator may issue a higher runway condition code (but no higher than code 3) for each third of the runway if the Mu value for that third of the runway is 40 or greater obtained by a properly operated and calibrated friction measuring device, and all other observations, judgment, and vehicle braking action support the higher runway condition code. The decision to issue a higher runway condition code than would be called for by the Matrix cannot be based on Mu values alone; all available means of assessing runway slipperiness must be used and must support the higher runway condition code. This ability to raise the reported runway condition code to a code 1, 2, or 3 can only be applied to those runway conditions listed under codes 0 and 1 in the Matrix.

The airport operator must also continually monitor the runway surface as long as the higher code is in effect to ensure that the runway surface condition does not deteriorate below the assigned code. The extent of monitoring must consider all variables that may affect the runway surface condition, including any precipitation conditions, changing temperatures, effects of wind, frequency of runway use, and type of aircraft using the runway. If sand or other approved runway treatments are used to satisfy the requirements for issuing this higher runway condition code, the continued monitoring program must confirm continued effectiveness of the treatment.

Caution: Temperatures near and above freezing (e.g., at 26.6° F (-3°C) and warmer) may cause contaminants to behave more slippery than indicated by the runway condition code given in the Matrix. At these temperatures, airport operators should exercise a heightened level of runway assessment, and should downgrade the runway condition code if appropriate.

- c) NOTAMS will be issued conveying the Runway Condition Code (RCC) as well as a description of the surface contaminants through the NOTAM system by calling 1-

877-487-6867. The caller will convey the surface contaminants of the runway in thirds and the briefer will calculate the RCC to be placed in the NOTAM.

Section 7 – Post Season Activities

- a) Post Season Snow Meeting. After each snow season, a Post Season Snow Meeting will be held, typically in April to review the snow season issues and recommend any changes to this plan for subsequent years. The same topics as the Pre-Season Snow Meeting will be reviewed.
- b) The Airport Maintenance Department will assess all snow removal equipment and initiate any repairs or changes of wear parts, etc.
- c) The Airport Manager will update this SICP if necessary based on the Post Season Snow Meeting recommendations

Section 8 – Appendix A-1 Snow Clearing Priority Areas

Figure A-1 – Snow Clearing Priority Areas

Appendix A-1 Snow Clearing Priority Areas

