Harborside at Hidden Harbour

Pompano Beach, Florida

prepared for:

AMP IV – Hidden Harbour, LLC

valet analysis

TrafTech Engineering, Inc.

January 16, 2020

Mr. Andrew Sturner
AMP IV Hidden Harbour, LLC
2890 NE 187th Street
Aventura, FL 33180

January 16, 2020

Re: Valet Analysis for Harbourside at Hidden Harbour - Pompano Beach

Dear Andy:

Pursuant to the City of Pompano Beach's request, Traf Tech Engineering, Inc. has prepared a valet analysis specific to the east residential building located within the proposed Harbourside at Hidden Harbour mixed-use project. The subject project is located on the east side of North Federal Highway between NE 16th Street on the north and approximately 300 feet north of NE 14th Street, as illustrated in Figure 1. This report estimates the number of valet runners required in order to prevent valet vehicles from spilling onto (backing up) NE 16th Street. The following is a summary of our findings.

Trip Generation

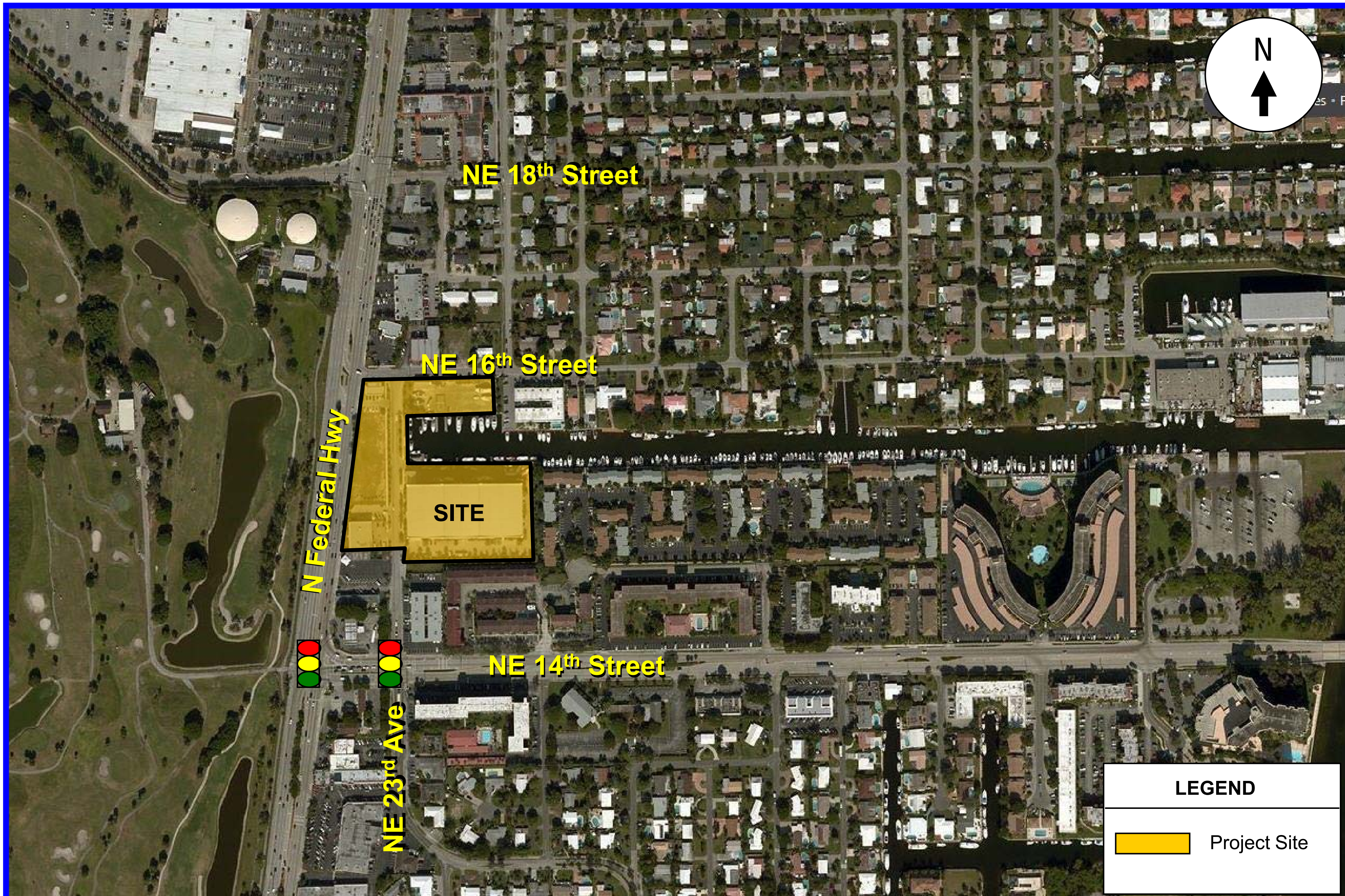
A trip generation analysis was performed for the east residential building using the trip generation rates published in the Institute of Transportation Engineer's (ITE) report *Trip Generation Manual* (10th Edition). The trip generation analysis was undertaken for the PM peak hour of the adjacent street which is the most critical peak hour, especially in the inbound direction. According to ITE's *Trip Generation Manual* (10th Edition), trip generation rate during the PM peak is:

<u>MULTIFAMILY HOUSING (Mid-Rise) (ITE Land Use 221)</u>

Peak Hour of the Adjacent Street
T = 0.44 (X) (61% inbound and 39% outbound)
Where T = number of peak hour trips, X = number of units

<u>Harbourside at Hidden Harbour (East Building)</u>

<u>Trip Generation</u>
Using the above-listed equations from the ITE document, a trip generation analysis was undertaken for the east building. The proposed valet drop-off/pick-up area is for the exclusive use of the east residential building. The results of the trip generation effort are documented in Table 1 on Page 3.



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PROJECT LOCATION MAP

FIGURE 1
Harborside at Hidden Harbour,
Pompano Beach, Florida

TABLE 1 Trip Generation Analysis Harbourside at Hidden Harbour				
		PM Peak Hour		
Land Use	East Bldg Size	In	Out	Total
Mid Rise	up to 170 units	46	29	75

Source: ITE Trip Generation Manual (10th Edition)

Valet Operation

The east residential building of Harbourside at Hidden Harbour will provide valet parking off of NE 16th Street. A dedicated on-site valet drop-off/pick-up drive aisle is proposed as depicted in the site plan contained in Attachment A. The width of the valet drive aisle is 18 feet in order to allow vehicles to pass a stopped vehicle in order to expedite the valet operation. Additionally, at least five (5) vehicles can be accommodated within the valet drive aisle between the valet station and the south right-of-way line of NE 16th Street (112 feet at 22 feet per vehicle). Between the valet station and the south edge of pavement of NE 16th Street (approximately 128 feet at 21-22 feet per vehicle), up to six (6) passenger vehicles can be accommodated without encroaching into NE 16th Street. The entrance to the valet parking garage is located approximately 900 feet from the valet station.

To determine the number of valet runners associated with the valet operation, a queuing analysis was undertaken. The length of queue anticipated at the drop-off/pick-up area was established using information contained in ITE's *Transportation and Land Development*, Chapter 8 – Drive-In Facilities[1]. For this analysis, the following input variables were used:

- Service Rate: The distance between the valet station and the valet parking garage located on the west side of NE 23rd Avenue is approximately 900. An additional 500 feet (for a total of 1,400 feet) of travel distance was added to account for driving inside the parking garage to the location of the future valet parking area (as of the date of this letter, the valet parking area has not been determined within the parking structure). As documented in Attachment B, the service rate for valet purposes is approximately eight (8) vehicles per hour per valet runner.

[1] By Vergil G. Stover and Frank J. Koepke.

- Demand Rate: As indicated in Table 1, a maximum of 75 inbound/outbound vehicles will arrive/depart during the highest hour. For valet purposes, 50% (38 valet customers) were assumed to use the valet service during the peak hour of the east residential building (future users of the east building will have the option to self-park or use the valet service).

Using equation 8-9b and Table 8-11 of ITE's *Transportation and Land Development*, the maximum length of queue anticipated at the valet station, at the 95% confidence level, is four (4) vehicles. However, the on-site valet station should provide dimension for at least five (5) vehicles and have up to 8 valet runners during peak times. Moreover, it is recommended that the future valet station of the east residential building be managed by a valet operator at all times. The results of the ITE queuing procedure is contained in Attachment B.

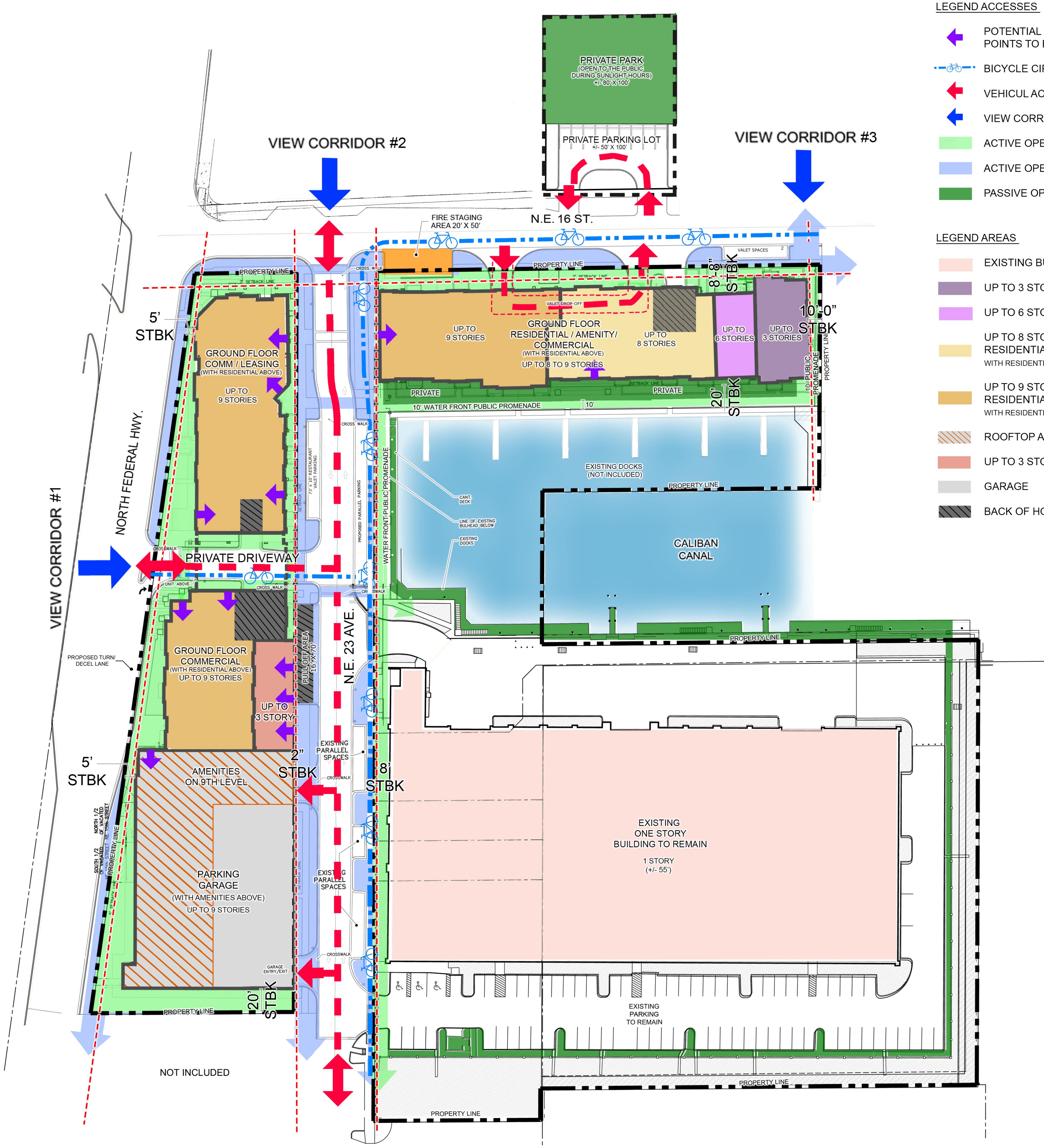
Please give me a call if you have any questions.

TRAF TECH ENGINEERING, INC.

Joaquin E. Vargas, P.E.
Senior Transportation Engineer

ATTACHMENT A

Site Plan,
Valet Drop-off/Pick-up Location with Dimensions plus AutoTURN Analysis



PD I MASTER PLAN

SCALE: 1"=40'

NORTH

LEGEND ACCESSES

- POTENTIAL PEDESTRIAN ACCESS POINTS TO BUILDINGS
- BICYCLE CIRCULATION
- VEHICUAL ACCESS TO SITE & GARAGE
- VIEW CORRIDORS
- ACTIVE OPEN SPACE (PRIVATE)
- ACTIVE OPEN SPACE(PUBLIC)
- PASSIVE OPEN SPACE (PRIVATE)

LEGEND AREAS

- EXISTING BUILDING (BOAT STORAGE FACILITY)
- UP TO 3 STORIES - ALL RESIDENTIAL
- UP TO 6 STORIES - ALL RESIDENTIAL
- UP TO 8 STORIES - GROUND FLOOR RESIDENTIAL/ AMENITY & COMMERCIAL WITH RESIDENTIAL ABOVE
- UP TO 9 STORIES - GROUND FLOOR RESIDENTIAL/COMMERCIAL / LEASING WITH RESIDENTIAL ABOVE
- ROOFTOP AMENITIES ON 9TH LEVEL
- UP TO 3 STORY - GROUND FLOOR COMMERCIAL
- GARAGE
- BACK OF HOUSE / MEP/ SERVICE AREAS

TABLE III

CONSOLIDATED USE TABLE

P = PERMITTED PRINCIPAL USE
S = USE ALLOWED AS A SPECIAL EXCEPTION
A = PERMITTED ACCESSORY USE
T = PERMITTED TEMPORARY USE

Use Category	Use Type	Permitted	Use-Specific Standards
Household Living Uses	Dwelling, live/work	P	155.4202.A
	Dwelling, multifamily	P	155.4202.C
	Dwelling, mixed-use	P	155. 4202. G
Communication Uses	Telecommunications facility, collocated on existing structure other than telecommunications tower	P	155. 4204. C 155. 4204. D
Day Care Uses	Child Care Facility	P/A	155. 4206. B
Health Care Uses	Medical office	P	155. 4209. A
	Specialty medical facility	P	155. 4209. B
	Urgent care facility 24 hours	P	155. 4209. C
Open Space Uses	Park or plaza	P/A	155. 4210. D
Animal Care Uses	Animal grooming	P	155. 4214. A
	Pet shop	P	155. 4214. E
Boat and Marine Sales and Service Uses	Boat dry storage facility	P/A	155. 4215. B
	Boat or marine parts sales without installation	P/A	155. 4215. C
	Boat or marine parts sales with installation	P/A	155. 4215. D
	Boat or marine repair and servicing	P/A	155. 4215. E
	Boat sales or rental	P/A	155. 4215. F
	Boat towing service	P/A	155. 4215. G
	Docking facility, barge	P/A	155. 4215. H
	Docking facility, commercial fishing boat	P/A	155. 4215. I
	Docking facility, recreational boat	P/A	155. 4215. J
	Marina	P/A	155. 4215. K
	Yacht Club	P	155. 4215. L
Commercial or Membership Recreation/ Entertainment Uses	Other indoor commercial or membership recreation/ entertainment use	P/A	155. 4217. M
Eating and Drinking Establishments	Bar or lounge	P/A	155. 4218. A
	Brewpub	P/A	155. 4218. B
	Restaurant	P/A	155. 4218. E
	Specialty eating or drinking establishment	P/A	155. 4218. F
Office Uses	Professional office	P	155. 4220. B
Retail Sales and Service Uses - Personal Services	Bank or financial institution	P	155. 4221. C
	Personal services establishment	P	155. 4221. K
	Book or media shop	P	155. 4222. D
	Grocery or convenience store	P/A	155. 4222. F
	Drug store or pharmacy	P	155. 4222. G
	Farmers' market	P	155. 4222. H
	Beer or wine store	P	155. 4222. M
	Retail sales establishment, large	P	155. 4222. P
	Other retail sales establishment	P	155. 4222. R
Visitor Accommodation Uses	Condo hotel	P	155. 4225. A
	Bed and breakfast inn	P	155. 4225. B
	Hotel or motel	P	155. 4225. C
Typical Accessory Uses and Structures	Dock	A	155. 4303. H
	Drop-in child care	A	155. 4303. J
	Electric vehicle (EV) level 1, 2, or 3 charging station	A	155. 4303. K / 155. 4303. L
	Fence or wall	A	155. 4303. O
	Green roof	A	155. 4303. R
	Home based business	A	155. 4303. S
	Outdoor display of merchandise	A	155. 4303. U
	Outdoor seating, including sidewalk cafes (as accessory to eating and drinking establishments)	A	155. 4303. V
	Parking or storage of motor vehicles, recreational vehicles, boats, airboats, or trailers	A	155. 4303. X
	Rainwater cistern or barrel	A	155. 4303. Z
	Retail sales (as accessory uses)	A	155. 4303. BB
	Small wind energy system	A	155. 4303. DD
	Solar energy collection system	A	155. 4303. EE
	Swimming pool or spa or hot tub	A	155.4303. GG
	Mechanical Equipment and similar features	A	155. 4303. JJ
	Uncovered porches, decks, patios, terraces, or walkways	A	155.4303. KK
	Lighting fixtures, projecting or freestanding	A	155.4303. MM
	Eating and drinking establishments (as an accessory use)	A	155.4303.PP
	Farmer's market (as a temporary use)	T	155. 4403. A

ARCHITECT'S BUILDING CODE STATEMENT: TO THE BEST OF THE ARCHITECT'S KNOWLEDGE THE PLANS AND SPECIFICATIONS COMPLY WITH THE FLORIDA BUILDING CODE SIXTH EDITION (2017) AND THE APPLICABLE FIRE SAFETY STANDARDS AS DETERMINED BY THE LOCAL AUTHORITY AND CHAPTER 633 FLORIDA STATUTES.

HARBORSIDE AT HIDDEN HARBOUR

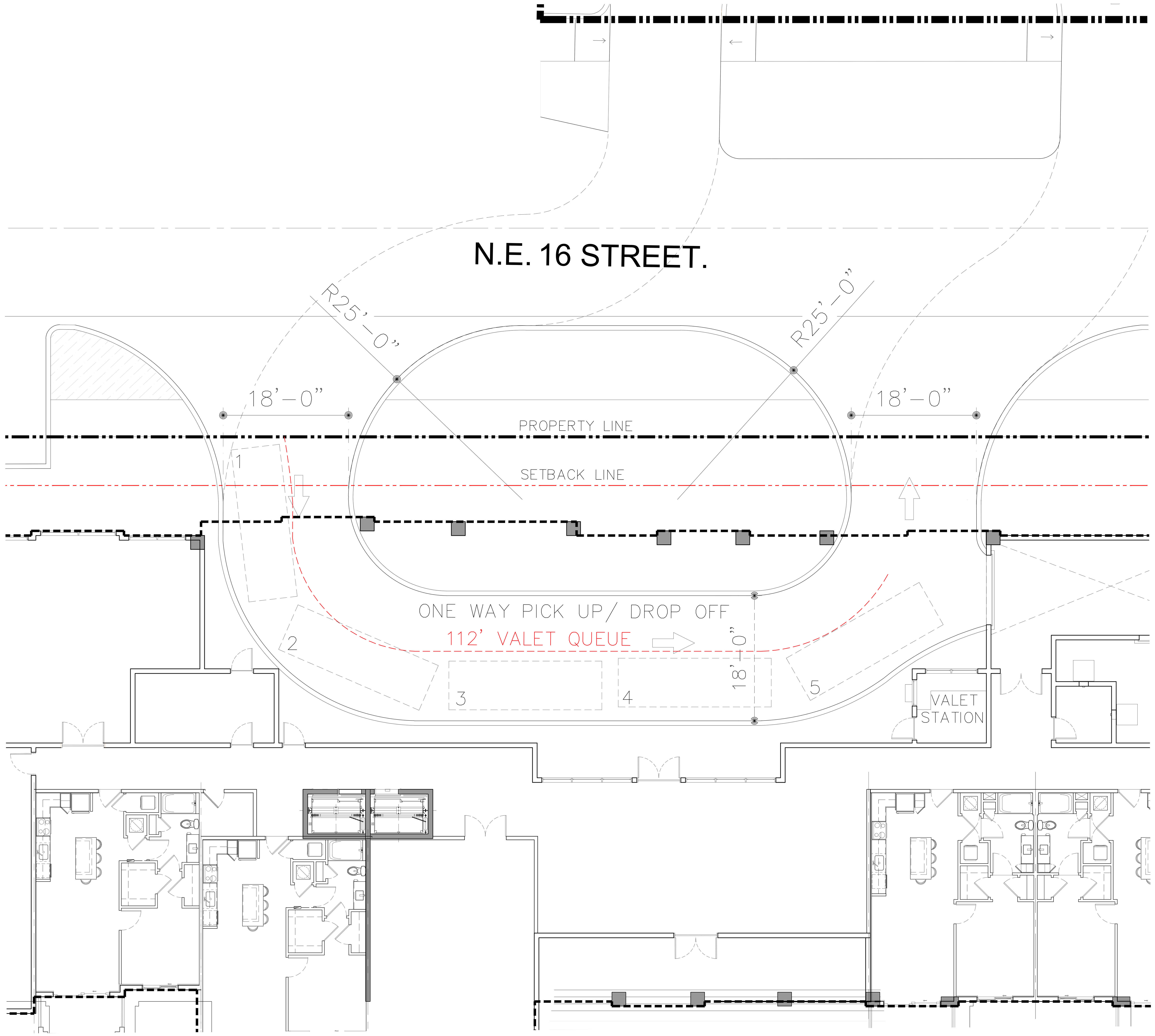
FOR: AMP IV-HIDDEN HARBOUR, LLC
LOCATED AT: POMPANO BEACH, FLORIDA

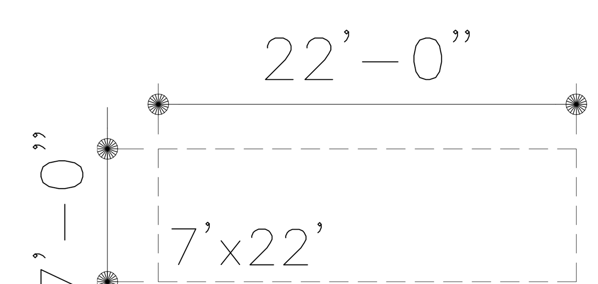
BEATRIZ M. HERNANDEZ
AR0094576

MSA ARCHITECTS, INC.
AAC000895
8950 SW 74th COURT
SUITE 1513
MIAMI, FLORIDA 33156
(305) 273-9911

MSA ARCHITECTS
ARCHITECTURE & PLANNING

DRAWN	
DATE	-/-/-
SCALE	AS SHOWN
JOB NO.	1828
SHEET TITLE:	MASTER SITE PLAN
SHEET NUMBER:	EX - E1





VALET DROP OFF

NORTH

SCALE: 1"=20'-0"

MAJOR SITE PLAN RESUBMITTAL #1 11/12/2019	BY

HARBORSIDE AT HIDDEN HARBOUR

FOR:
AMP IV–HIDDEN HARBOUR, LLC

LOCATED AT:
POMPANO BEACH, FLORIDA

BEATRIZ M. HERNANDEZ
AR0094576

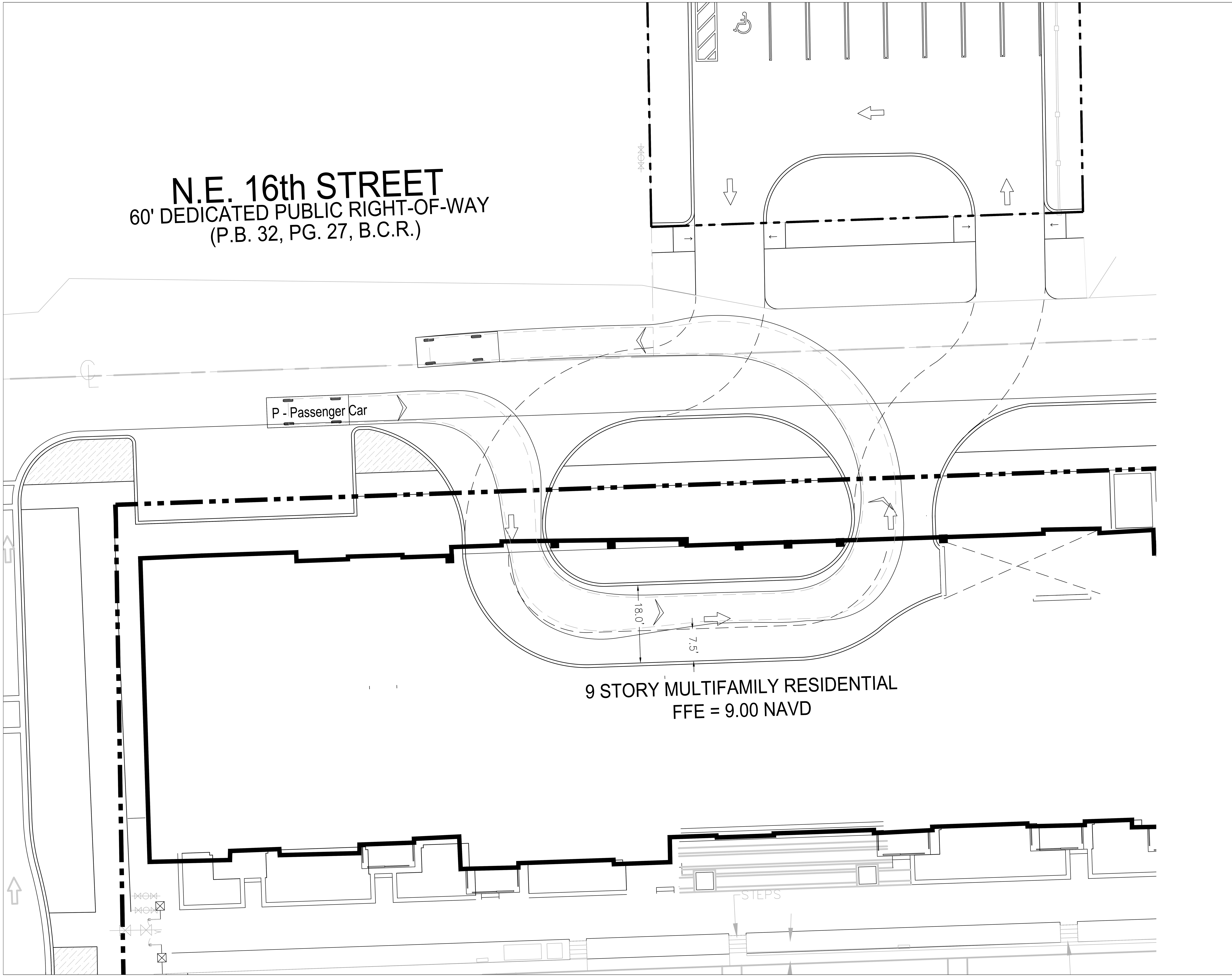
MSA ARCHITECTS, INC.
AAC000895
8950 SW 74th COURT
SUITE 1513
MIAMI, FLORIDA 33156
(305) 273-9911

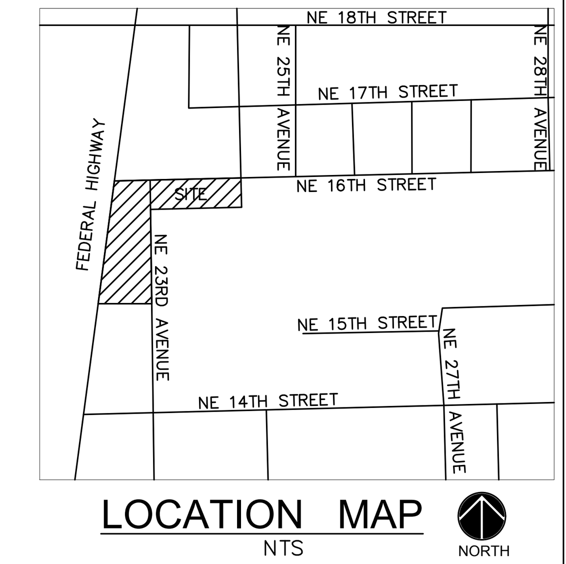
MSA ARCHITECTS
ARCHITECTURE & PLANNING

DRAWN	
DATE	-/-/-
SCALE	AS SHOWN
JOB NO.	1828

SHEET TITLE:
DIAGRAM

SHEET NUMBER:
EX-1





LOCATION MAP
NTS

FLYNN ENGINEERING
241 COMMERCIAL BLVD., LAUDERDALE-BY-THE-SEA, FL 33308
PHONE:(954) 522-1004 | WWW.FLYNNENGINEERING.COM
EB# 6578

Sheet Title
VALET DROP OFF EXHIBIT

Job Title
HIDDEN HARBOR
POMPANO BEACH, FLORIDA 33062

NORTH

Revisions

Phase:
DRC DOCUMENTS

SEAL

Scale: 1"=10'	Date 01/16/20
Job No. 05-0606.06	Plot Date 01/16/20
Drawn by MDI	Sheet No. TX-1
Proj. Mgr. DTR	
Appr. by	of

ATTACHMENT B

Valet Analyses for
Harborside at Hidden Harbour

Queuing Analysis based on ITE Procedures
Harborside at Hidden Harbour

q = 38 veh/hr (demand rate)

Q = 8 veh/hr (service rate*)

$$p = \frac{q}{NQ} = 0.5938 \text{ (N = 8 valet runner)}$$

Q_M = 0.5938

Using Acceptable Probability of 5% (95% Confidence Level)

$$M = \left(\frac{\text{Ln}(x > M) - \text{Ln}(Q_M)}{\text{Ln}(p)} \right) - 1$$

$$M = \left(\frac{\text{Ln}(0.05) - \text{Ln}(0.5938)}{\text{Ln}(5938)} \right) - 1$$

$$M = \left(\frac{-2.9957 - (-0.5212)}{-0.5212} \right) - 1$$

M = 4. 7 – 1 = 3. 7, say 4 vehicles

- Ticket processing time = **60 sec**. + vehicle travel time at 15 mph (1,400 feet) = **64 sec.** + parking time = **30 sec**. + walking/running time at 5 ft/sec for 1,400 feet = **280 sec.** + 12 second delay at gate system = **12 sec** for a total time of 446 sec, say **450 sec (8 veh per hour).**

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location, a 5% probability of back-up onto the adjacent street is judged to be acceptable. Demand on the system for design is expected to be 110 vehicles in a 45-minute period. Average service time was expected to be 2.2 minutes. Is the queue storage adequate?

Such problems can be quickly solved using Equation (8–9b) given in Table 8-10 and repeated below for convenience.

$$M = \left[\frac{\ln P(x > M) - \ln Q_M}{\ln \rho}\right] - 1$$

where:

M = queue length which is exceeded p percent of the time

N = number of service channels (drive-in positions)

Q = service rate per channel (vehicles per hour)

$\rho = \dfrac{\text{demand rate}}{\text{service rate}} = \dfrac{q}{NQ}$ = utilization factor

q = demand rate on the system (vehicles per hour)

Q_M = tabled values of the relationship between queue length, number of channels, and utilization factor (see Table 8.11)

TABLE 8-11

Table of Q_M Values

	$N = 1$	2	3	4	6	8	10
0.0	0.0000	0.0000	0.0000	0.0000			
0.1	.1000	.0182	.0037	.0008	.0000	0.0000	0.0000
.2	.2000	.0666	.0247	.0096	.0015	.0002	.0000
.3	.3000	.1385	.0700	.0370	.0111	.0036	.0011
.4	.4000	.2286	.1411	.0907	.0400	.0185	.0088
.5	.5000	.3333	.2368	.1739	.0991	.0591	.0360
.6	.6000	.4501	.3548	.2870	.1965	.1395	.1013
.7	.7000	.5766	.4923	.4286	.3359	.2706	.2218
.8	.8000	.7111	.6472	.5964	.5178	.4576	.4093
.9	.9000	.8526	.8172	.7878	.7401	.7014	.6687
1.0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

$\rho = \dfrac{q}{NQ} = \dfrac{\text{arrival rate, total}}{\text{(number of channels) (service rate per channel)}}$

N = number of channels (service positions)

Solution

Step 1: $Q = \dfrac{60 \text{ min/hr}}{2.2 \text{ min/service}} = 27.3$ services per hour

Step 2: $q = (110 \text{ veh}/45 \text{ min}) \times (60 \text{ min/hr}) = 146.7$ vehicles per hour

Step 3: $\rho = \dfrac{q}{NQ} = \dfrac{146.7}{(6)(27.3)} = 0.8956$

Step 4: $Q_M = 0.7303$ by interpolation between 0.8 and 0.9 for $N = 6$ from the table of Q_M values (see Table 8-11).

Step 5: The acceptable probability of the queue, M, being longer than the storage, 18 spaces in this example, was stated to be 5%. $P(x > M) = 0.05$, and:

$$M = \left[\frac{\ln 0.05 - \ln 0.7303}{\ln 0.8956}\right] - 1 = \left[\frac{-2.996 - (-0.314)}{-0.110}\right] - 1$$

$$= 24.38 - 1 = 23.38, \text{ say } 23 \text{ vehicles.}$$