SITE: RACER TRUST-Buick City

Flint, MI 43.054003° -83.679428°

Date: Friday Oct 11 2019

DRAFT FINAL

sUAS Mission Planning Template

EGLE-MMD

Version 4 2019_10_010 AO

SIGMA Account Code: C300
Total estimated charge time/staff: 16hrs AO

MMD management approval to process with Mission Planning : ABT 2019/09/27
MMD management approval to proceed with Mission Flight : ABT 2019/09/27

DEQ sUAS Mission Planning Template
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This Mission Planning Template is a guide to the safe, legal, and ethical operations of DEQ sUAS Drones.
Its intent is to give the DEQ Drone Pilot in Command (DEQ Drone-PIC) and DEQ staff and Management a knowledgeable reference to the proposed Drone flight, objectives, contacts, prefight checklists, post processing timelines, and pilots log submittal.
It may be customized and adapted to individual Missions as required.

A. *Private Landowner Aerial Authorization/Consent – OK 10/03/2019 Grant Trigger*

RE: Aerial Consent Request RACER Buick City Flint_ Flight Lines & Forecast Oct 11, 2019

GT

Grant Trigger <gtrigger@racertrust.org>
Thu 10/3/2019 8:34 AM
Ostaszewski, Arthur (EGLE); Lund, Kevin (EGLE); Taylor, Al (EGLE)

Aerial photo plan.pdf
197 KB

Arthur

All good If this goes as planned the Director will be on site about 1 pm and our tour and meeting will be done by 2:15 I leave it to you and Al if you want to do one flyover during the tour to demonstrate the features/capabilities for the Director For example we plan to pass thru Block B and stop for short time at the border of B and C. If you were stationed at that location and flew over C while we were there – that is possible your (and Al's call) My guess is we would be there about 1:10 (using large bus) Tour is planned to end about 1:30

As things that could be useful to record I have attached a rough markup of your "block" plan

1 Anything along the west bank of the river - note that gets close to and crosses under 475 – notably any of the large storm water outfalls
2 The Spiral weld plant at the north end (we do not own that parcel – (do we need their ok for ANY views even from off property?) or can you shoot that from off-site?
3 Lear's plant on south end – same issues can we take photo of that site from off property without their consent? That is drone is over our property but takes shots of their site?
4 Soil stockpile on our property .....

Let me know about timing with director and we can insert that demonstration into the itinerary

Thanks

Grant Trigger
Cleanup Manager – Michigan

RACER Trust
500 Woodward Avenue, Suite 2650
Detroit, MI 48226
gtrigger@racertrust.org
(734) 879-9524 (office)
(313) 670-6226 (cell)
www.racertrust.org

FW: EGLE site review

GT

Grant Trigger <gtrigger@racertrust.org>
Mon 10/7/2019 1:07 PM
Ostaszewski, Arthur (EGLE); Taylor, Al (EGLE); Lund, Kevin (EGLE)

Arthur Lear is ok they ask for copies of photos no word from ASW yet

Al /Kevin I just spoke to Mary Beth we can use Lear if Director et al are ok with that

Thanks

Grant Trigger
Cleanup Manager – Michigan

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500 Woodward Avenue, Suite 2650
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www.racertrust.org

A. *WRD Management Authorization - ABT: 2019_09_27*

ABT Verbal OK to AO

Buick City - Flint

B. Mission Clients/Contacts/Objectives: Buick City - Flint

Requestor: AO MMD-HWS 517-936-7991
Kevin Lund RRD Jackson – 517 513 1846 (Cell

Landowner: RACER TRUST – Grant Trigger (Cell
David Favero (Cell

Objective: Basemap of select areas, Pics, Panos of site, video

Preplanning:

Remote Pilot In Charge: Art Ostaszewski EQA-HWS 517.936.7991 ostaszewskia@michigan.gov
FAA 107 Cert #3968165 02/10/2017

Visual Observers: TBD

Site Airspace:

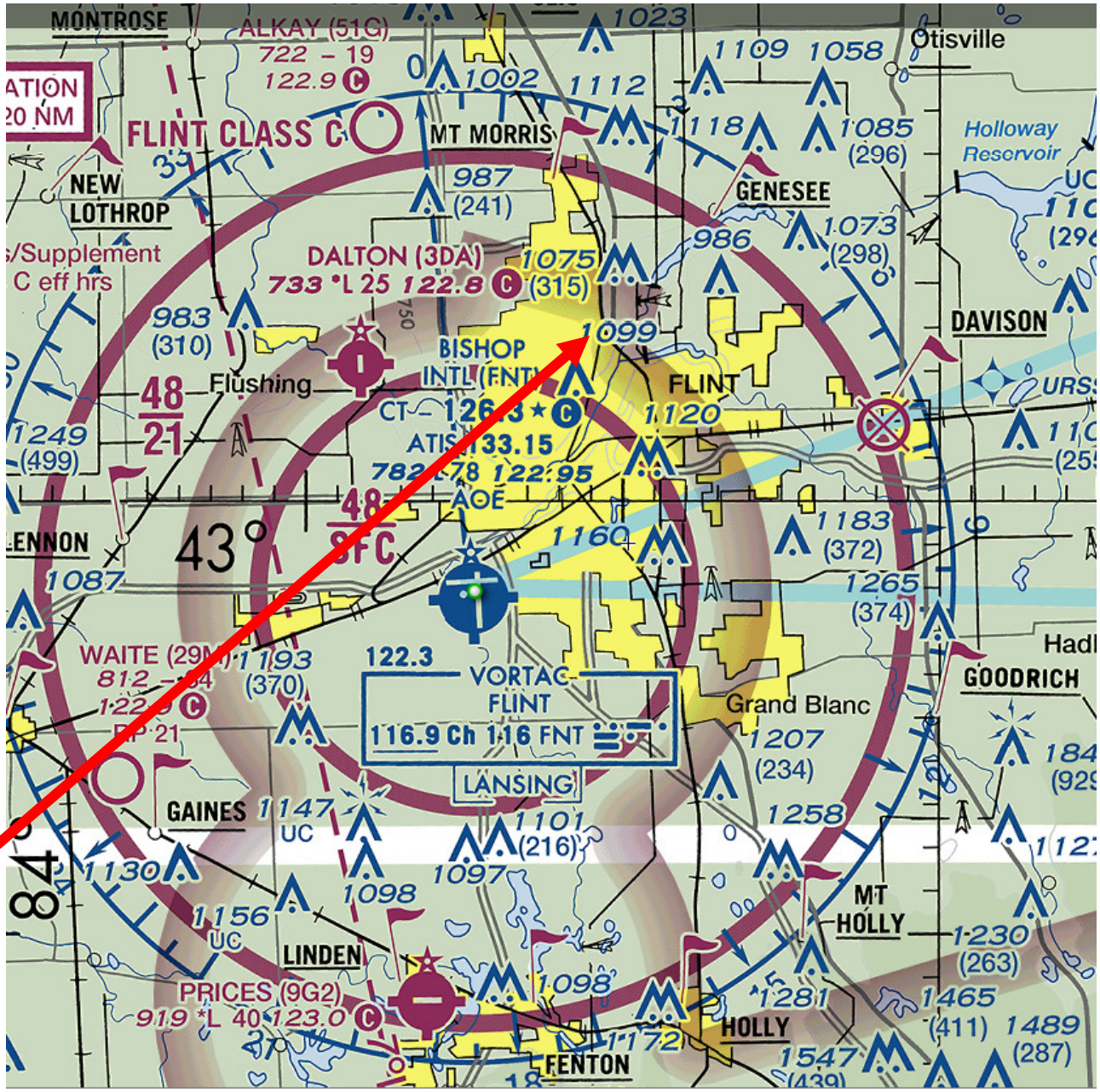
North part of site G: Surface to 700 ft
South part of site: Restricted Class C Laanc authorization required (400ft)

Comments:

Buick City - Flint

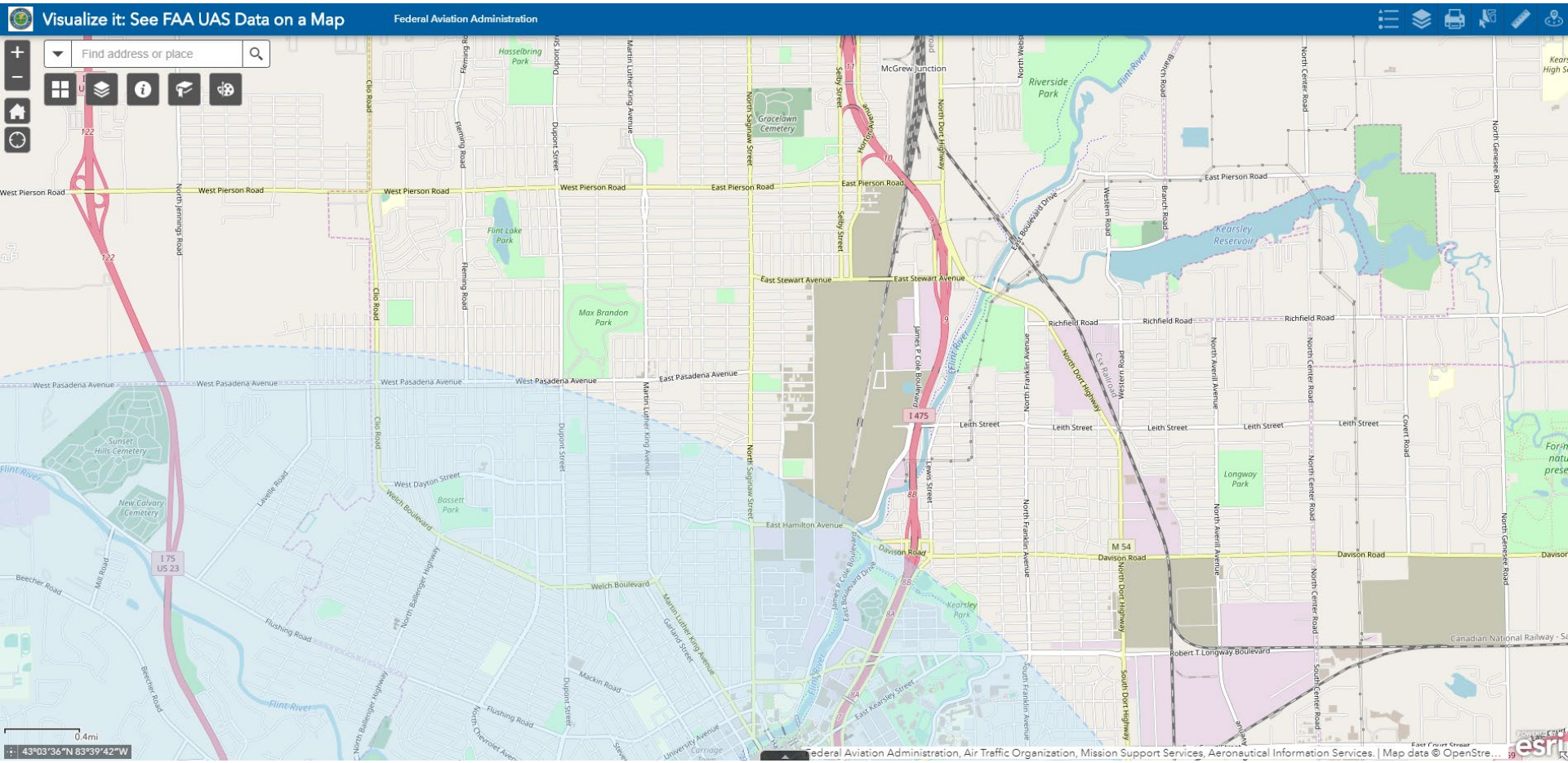
I. Site FAA Airspace Determination – Sectional

https://skyvector.com/



Buick City - Flint

I. Site FAA Airspace Determination – FAA Visualize It

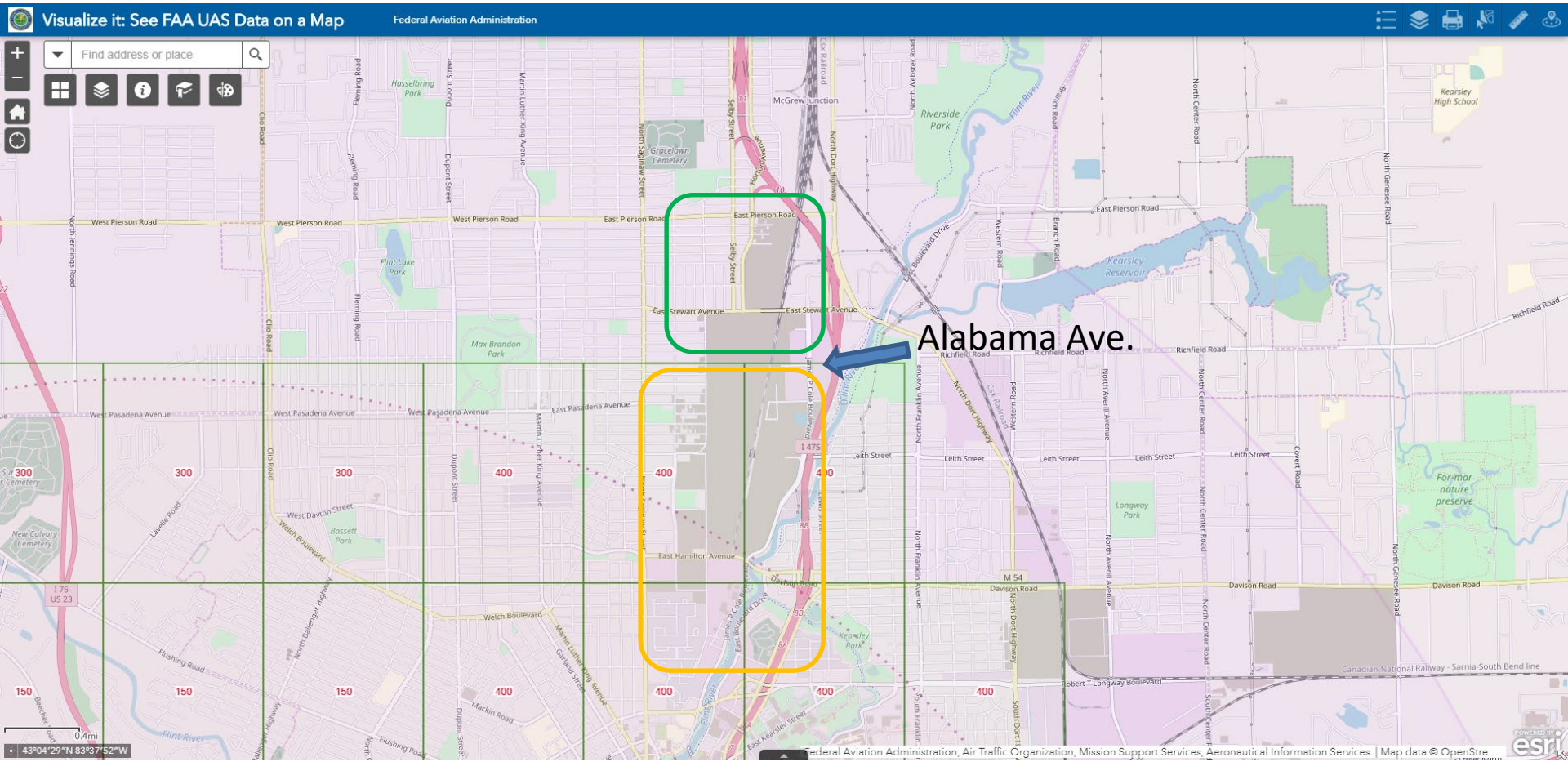


Most of Site is North of the 5 mile Class C airspace radius
LAANC Authorization Required 0 to 400 ft below East Hamilton Ave.

Buick City - Flint

https://faa.maps.arcgis.com/apps/webappviewer/index.html?id=9c2e4406710048e19806ebf6a06754ad

I. Site FAA Airspace Determination – FAA Visualize It



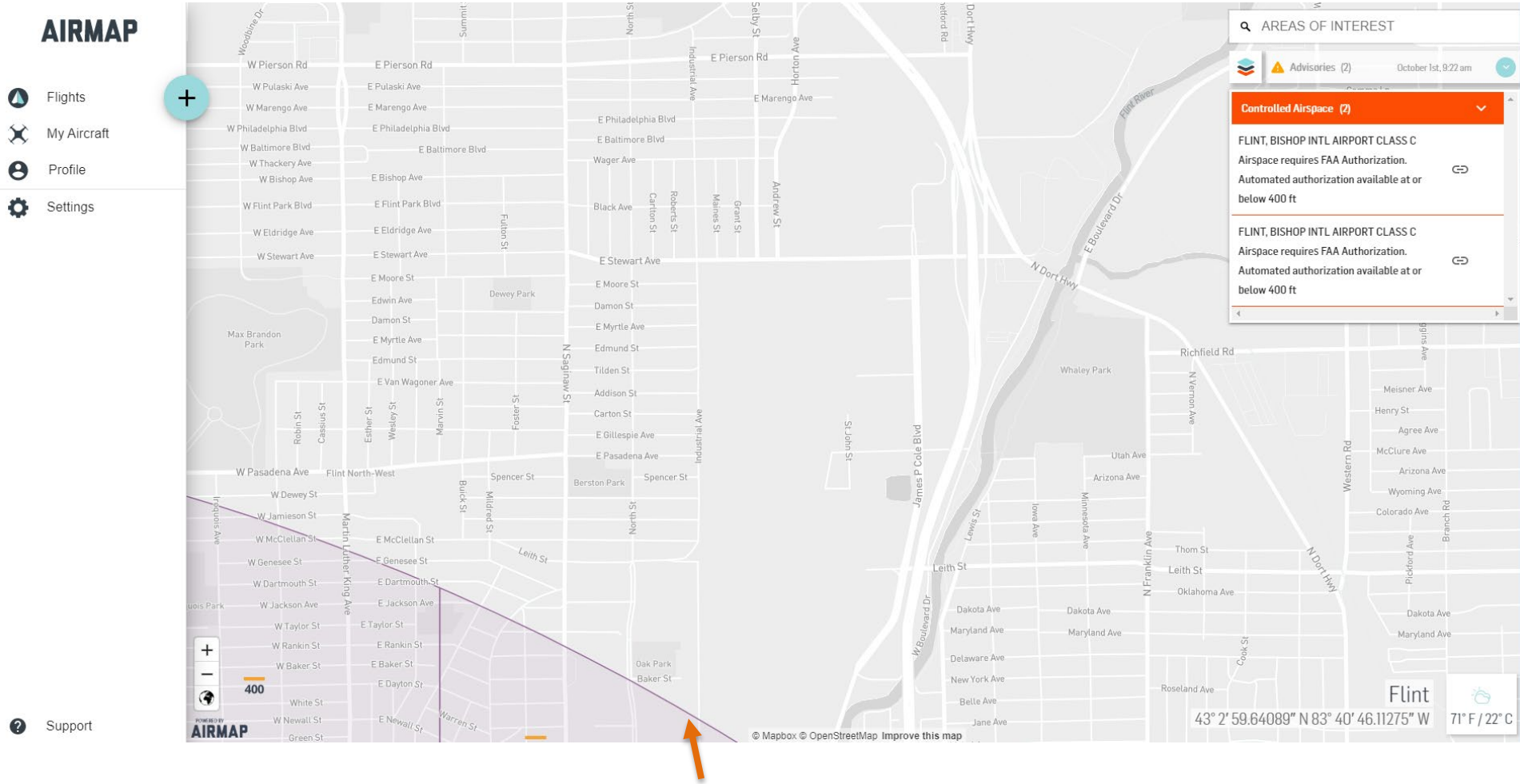
North (of Alabama Ave.) Class G airspace – 0 to 700 ft

South (of Alabama Ave.) Class C airspace – LAANC Authorization Required 0 to 400 ft

Buick City - Flint

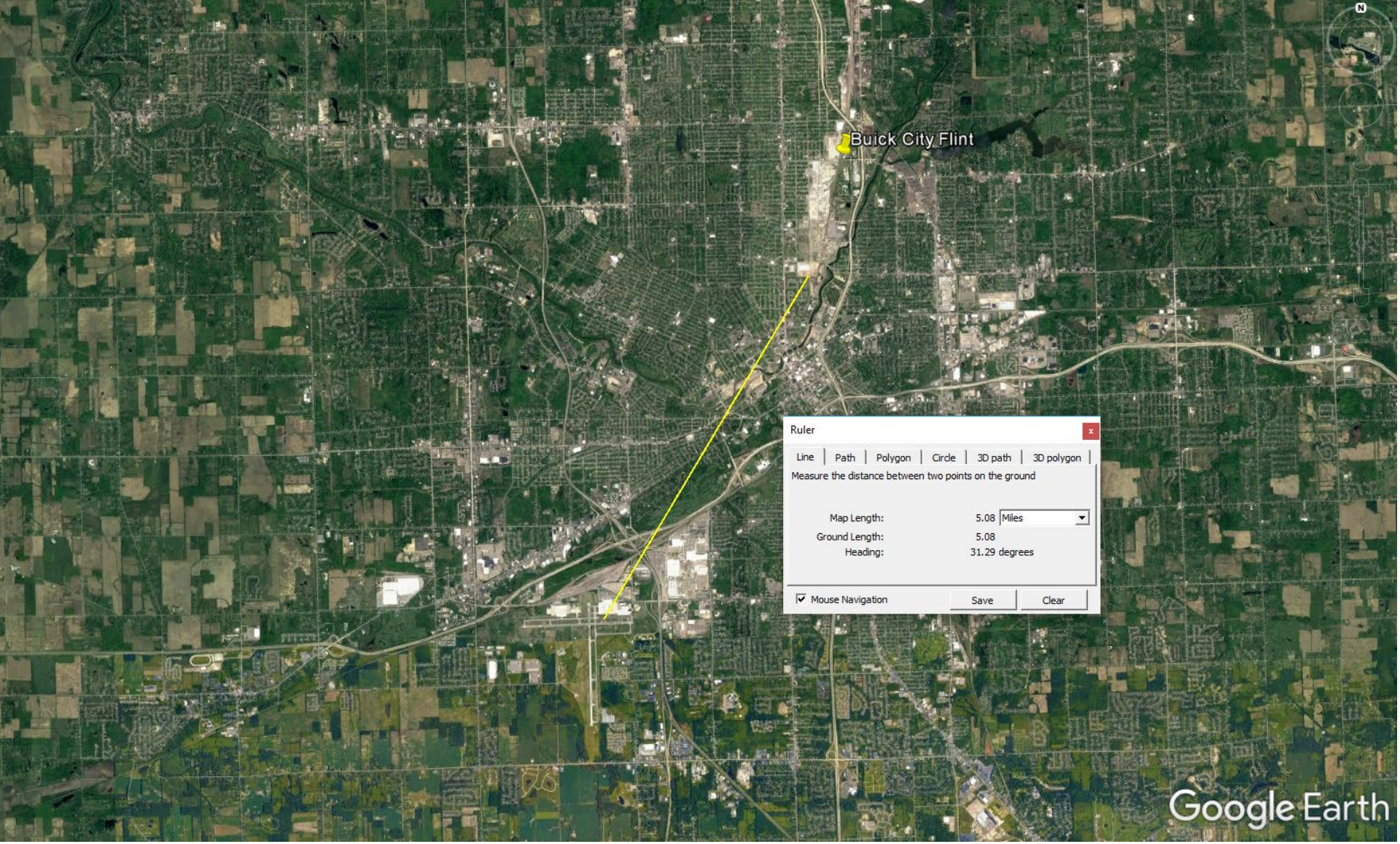
https://faa.maps.arcgis.com/apps/webappviewer/index.html?id=9c2e4406710048e19806ebf6a06754ad

II. Site Airspace confirmation: AirMap



FAA Part 107 Class C – LAANC Authorization Required

<u>Buick City - Flint</u>



Nearest Airport – Flint Bishop KFNT 5.08 miles @ 31.29 degrees

Buick City - Flint

III. Site Overview

Buick City - Flint

III. Site Overview

Buick City - Flint

III. Site Overview

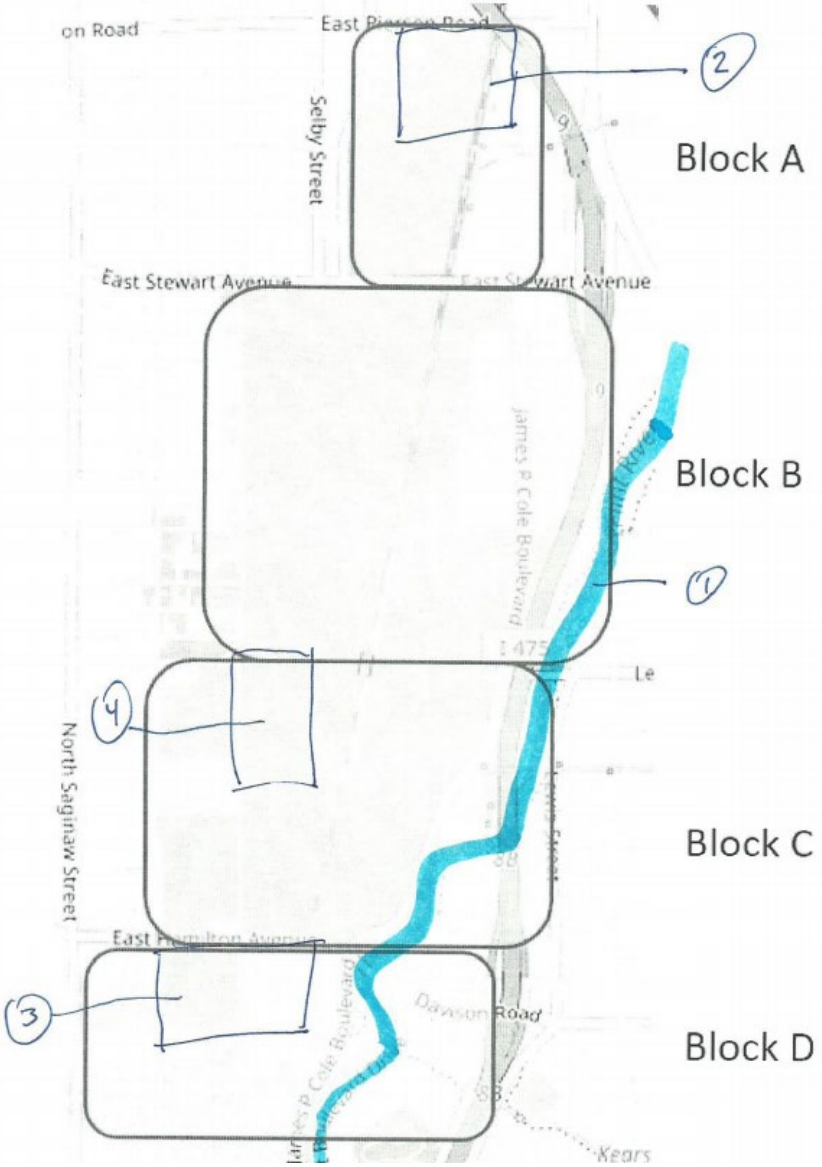
Block A

Block B

Block C

Block D

Buick City - Flint



Grant Trigger – RACER TRUST
input on target areas 10/03/2019

As things that could be useful to record I have attached a rough markup of your "block" plan

1 Anything along the west bank of the river - note that gets close to and crosses under 475 – notably any of the large storm water outfalls

2 The Spiral weld plant at the north end (we do not own that parcel – (do we need their ok for ANY views even from off property?) or can you shoot that from off-site?

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4 Soil stockpile on our property .....

III. Site Overview

Block A

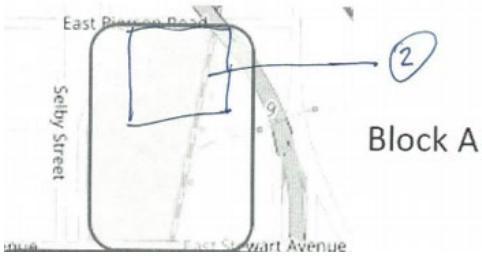
Block B

Block C

Block D

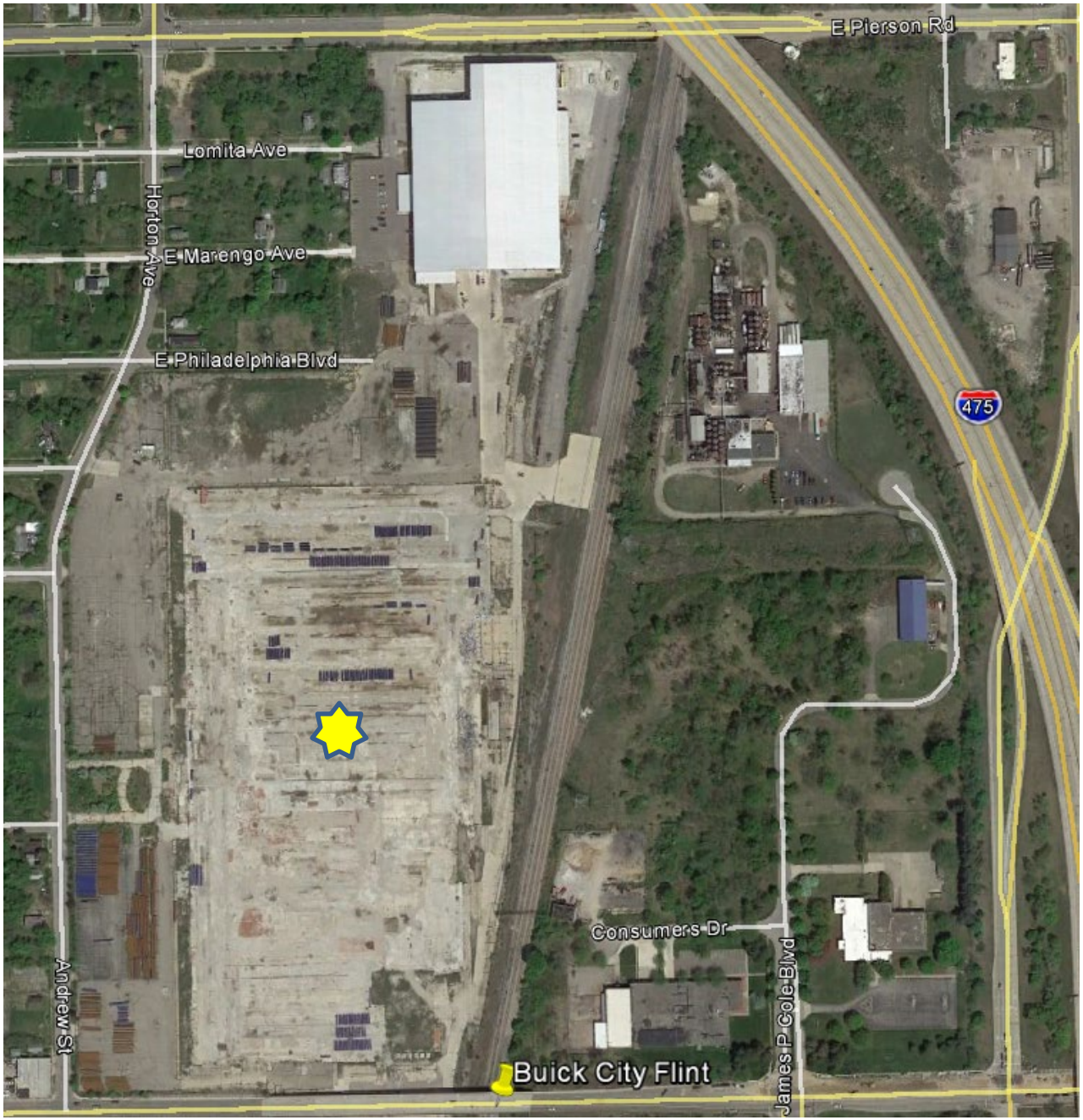
Buick City - Flint

III. Site Overview



The Spiral weld plant at the north end (we do not own that parcel – (do we need their ok for ANY views even from off property?) or can you shoot that from off-site?

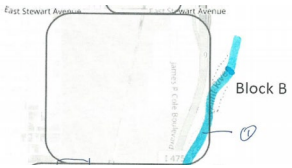
Pano - 360



Buick City - Flint

Block A- Pierson to Stewart

III. Site Overview

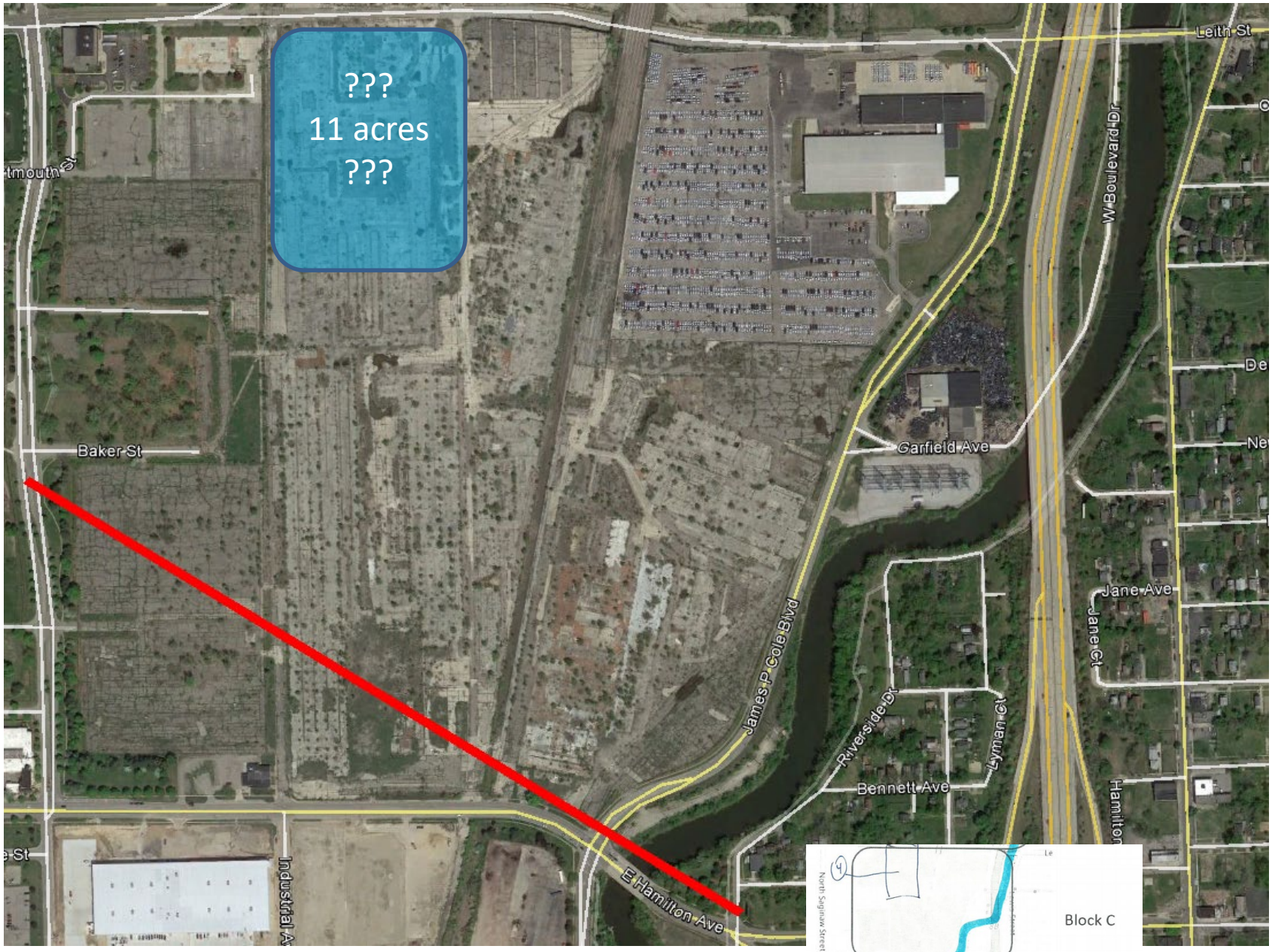


Anything along the west bank of the river - note that gets close to and crosses under 475 – notably any of the large storm water outfalls

Video and Stills of West Shoreline

Buick City - Flint Block B- Stewart to Leith

III. Site Overview



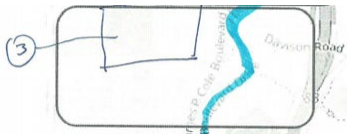
pix4D Double Grid Ortho Las Volume

Buick City - Flint

Block C- Leith to Hamilton

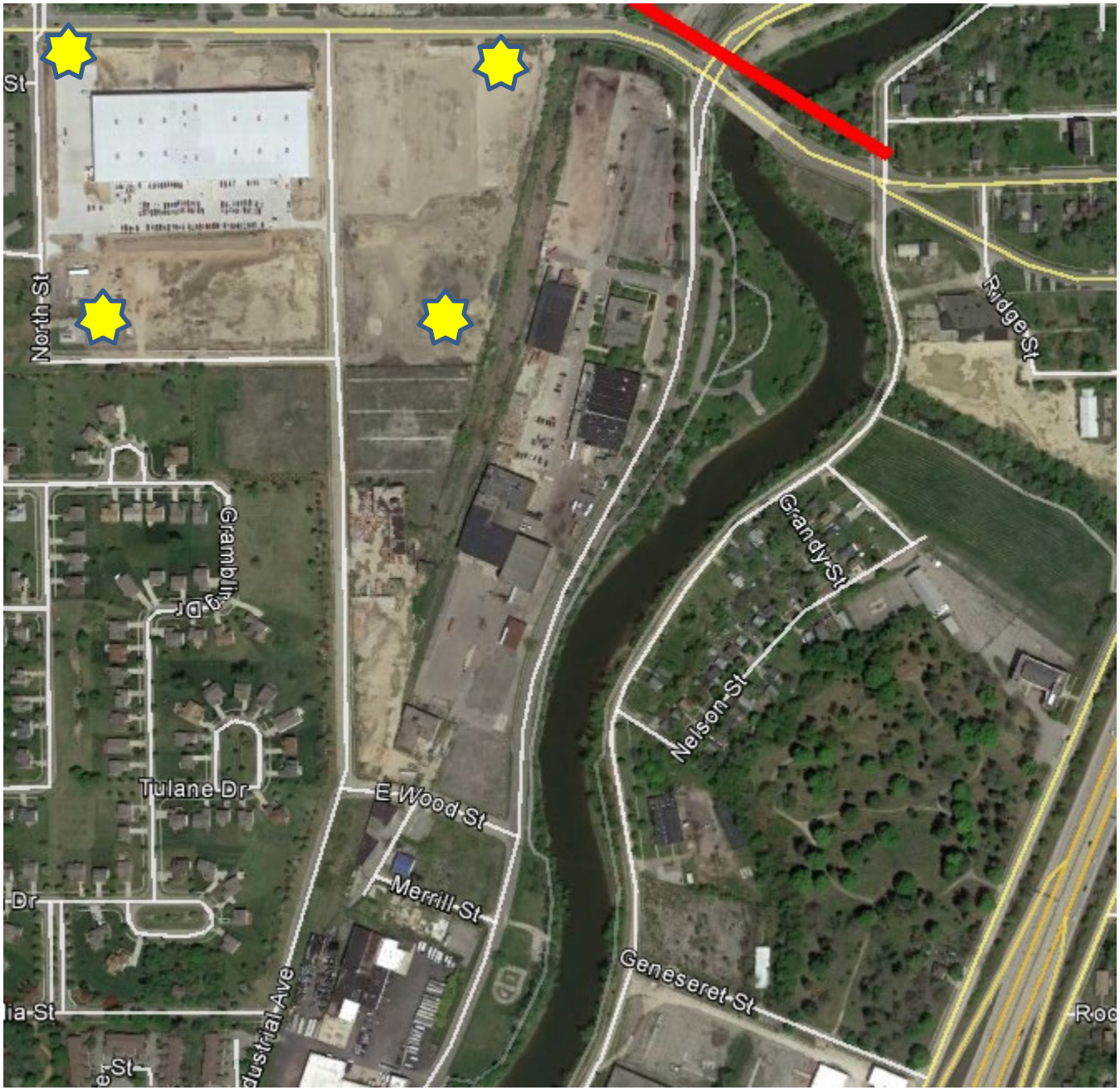
Soil stockpile on our property

III. Site Overview



Lear's plant on south end – same issues can we take photo of that site from off property without their consent? That is drone is over our property but takes shots of their site?

Pano - 360



Buick City - Flint

Block D: Hamilton to Wood

Skyward®
A Verizon company

An authorized intermediary for the Federal Aviation Administration USS program

Notice of Authorization

Operation Date
Friday, October 11th 2019

Pilot In Command
Art Ostaszewski
inetcarp@gmail.com
517-936-7991

Beginning Time
08:00 EDT (1200 UTC)

Ending Time
16:00 EDT (2000 UTC)

Conditions Of Authorization

- Maintain visual line of sight
- Aircraft speed not to exceed 100 mph
- Do not fly over non-participants
- Do not exceed maximum altitude
- Ensure there are no TFRs before flying
- The weather ceiling must be above 1,000 feet AGL when flying in Class E airspace

Airspace and maximum altitudes

1. **FNT 400^{ft} - FAA Ref#:** SKDAT2NNG

In accordance with Title 14 CFR Part 107.41, your operation is authorized within the designated airspace and timeframe constraints. Altitude limits are absolute values above ground level which shall not be added to the height of any structures. This Authorization is subject to cancellation at any time upon notice by the FAA Administrator or his/her authorized representative. This Authorization does not constitute a waiver of any State law or local ordinance. Art Ostaszewski is the person designated as responsible for the overall safety of UAS operations under this Authorization. During UAS operations for on-site communication/recall, Art Ostaszewski shall be continuously available for direct contact at 517-936-7991 by ATC or designated representative. Remote pilots are responsible to check the airspace they are operating in and comply with all restrictions that may be present in accordance with 14 CFR 107.45 and 107.49 (a)(2), such as restricted and Prohibited Airspace, Temporary Flight Restrictions, etc. Operations are not authorized in Class E airspace when there is a weather ceiling less than 1,000 feet AGL. If the UAS loses communications or loses its GPS signal, it must return to a predetermined location within the operating area and land. The pilot in command must abort the flight in the event of unpredicted obstacles or emergencies.

Issue Date:
Friday, October 11th 2019 00:12 UTC

Submitted By:
Art Ostaszewski
through Skyward.io

Print Close

VI. Forecast: 2019_09_11

Flight Window: 9am-4pm

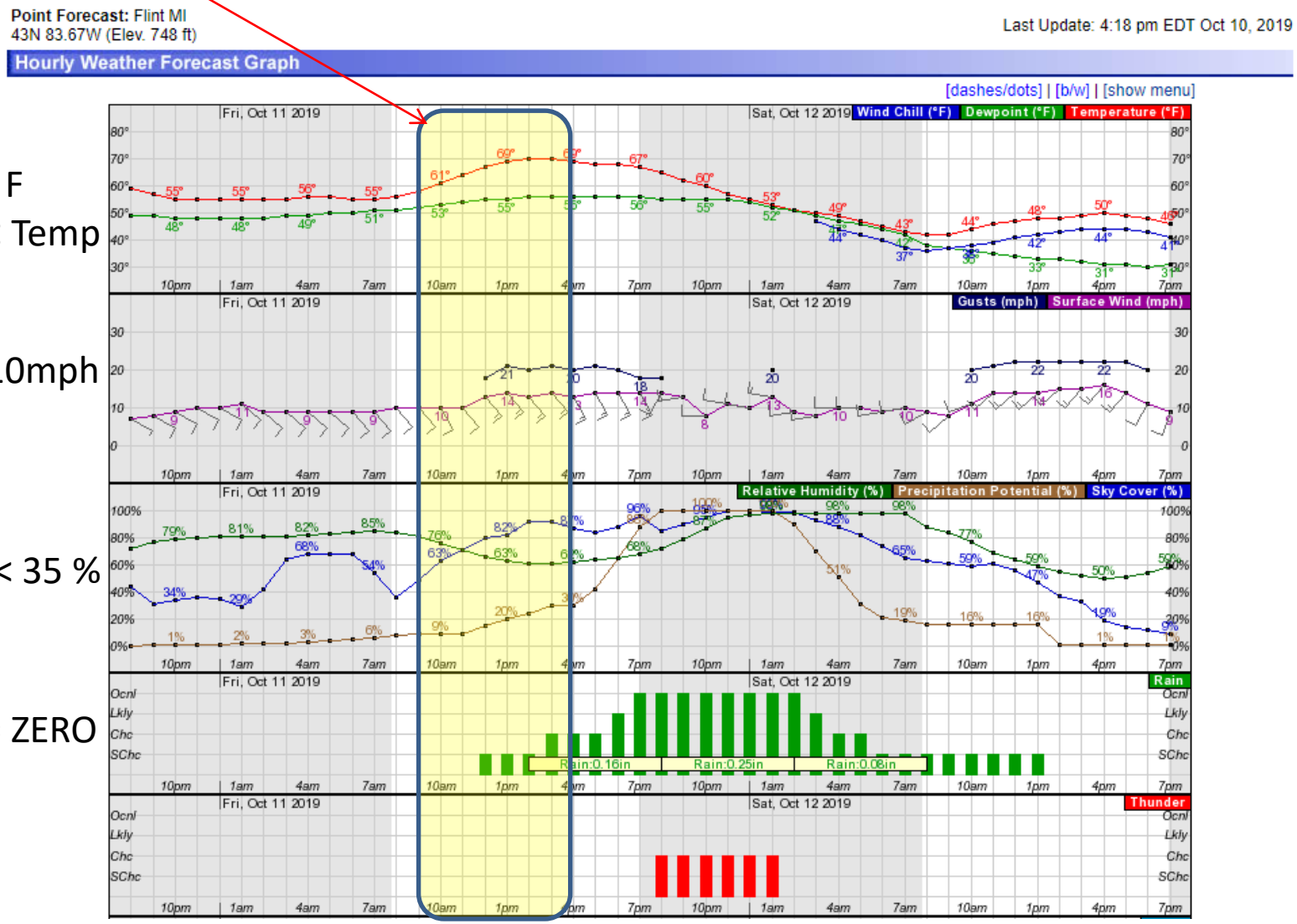
Ideal conditions

Temp > 50° F
Dewpoint < Temp

Surface Winds < 10mph
Gusts < 15 mph

Precip Potential < 35 %

Rain = ZERO



Buick City - Flint

VII. 7d-3d-1d All Clear Pilot-In-Command Signoff :

Weather Checklist: GO/NOGO
1 week out – **GO**
3 days out –**GO**
Day before –
Day of -

Clear

ATC & Facility Permission:
1 week out – **GO**
3 days out – **GO**
Day of –

Clear

Mission/Equipment/Pretest :
1 week out- **GO**
3 days out- **GO**
Day before- **GO**
Day of -

Clear

Clear

_____
Remote Pilot in Command Initials

VIII. PreMission Checklist – Day before (check/circle when complete)

~~sUAS 1: DJI M600P~~ ~~Reg #FA3PAPWMTE~~ sUAS 5: M2PED Reg # FA3P4MPAEH
~~sUAS 2: DJI P4P~~ ~~Reg #FA3PLR4LRF~~
sUAS 3: DJI MAir Reg # FA3AA99KxN
sUAS 4: Parrot Anafi Reg # FA3MFF449X

Firmware upgrade – DJI Go4

Camera Settings –

a) Video in MP4 30fps 1080p
b) Photos in hi res 4x3 jpg
c) Mapping App– coverage overlap settings (70% minimum, <1.0 cm/pixel)

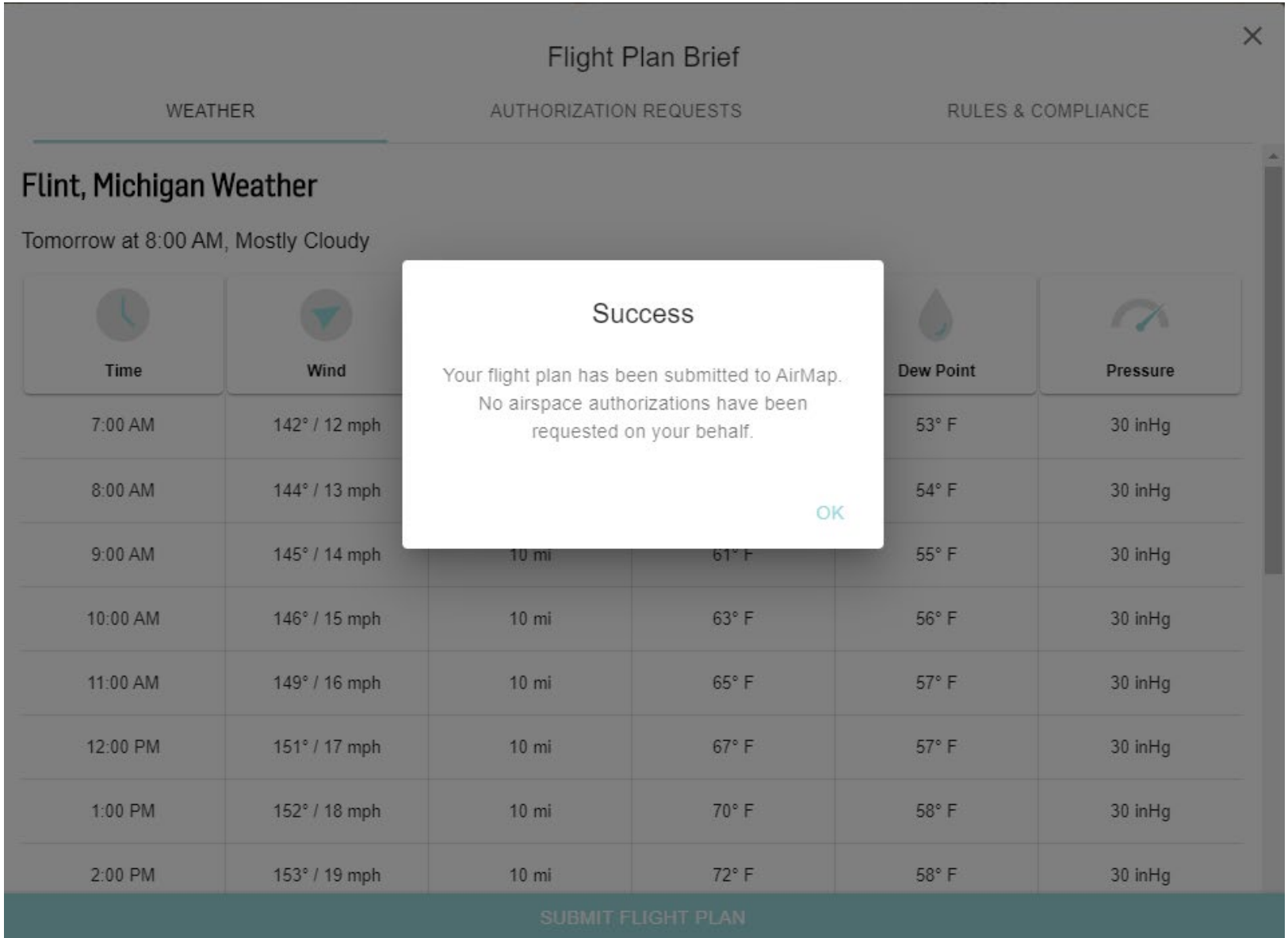
Return to Home HEIGHT setting ___ (**must sign off as checked**)

sUAS Batteries – charged sUAS Controllers-charged
Display Phones charged – Apple i6, Moto E Ipad/Tablet charged –

Field Conditions : CURRENT (date) Ideal

a) Temperature	> 50 degrees F (Cold Weather Conditions/fly to 50% Battery)
b) Dew Point / Chance of Rain	Low dewpoint (no chance of frost), low relative humidity (below 60%), Rain < 35%
c) Cloud ceiling	> 1000ft (FAA Required LAANC)
d) Visibility	> 3 miles (FAA Required)
e) Wind speed and direction	<15mph (P3, P4, Air) < 10mph (Spark)
g) Flight hours:	Sunrise-Sunset 735am – 722pm Lansing, MI Sept 30 2019
h) Flight comments:	

Airmap Flight Plan Submitted



IX. On Site Checklist – Remote Pilot in Charge/Date :_____

Review

Area is clear of flight hazards, weather is suitable (vis > 3 miles, cloud ceiling > 900 ft) ____
Mission is clear ____
Permission and ATC clearance is secured ___
Conduct Briefing with Vos ___
Unpack Drone – (**REMOVE GIMBAL MOUNTS-2 in DJI): Check here ___ , Check maintenance (arms, props)____**
Set up drone for Power On (not in tall grass)

BEFORE POWERING ON

Check NOTAMS TFR_____ Skyvector.com 1800wxbrief.com
Check METAR KFNT Ceiling____ Vis_____
Determine definitively the tallest obstacle in Mission Area = (_____ft)
Set Geofence limit_____ Altitude limit_____ RTH____
Turn on Controller BEFORE Drone
Turn on Drone Battery – **power up**
Confirm Compass Settings – recalibrate if new area_____
Reformat SD card

START DRONE Propellers

1) Hover on Ground – assess Drone
2) Hover in Air (4ft) Drone is Stable
3) Hover at Altitude (100ft - 200 ft) Drone is Stable
4) Program flight path waypoints at altitude above obstacle (RTH is above tallest obstacle___)
Conduct flight mission under control

Post Flight

Confirm flight data, Backup to PC
Pack up – check maint of props, arms_____
Log Flight

X. Post Processing – Staff in Charge / Delivery Date _____

Insure Client has VLC, Google Earth, Chrome Browser

Archive Mission Data (Pic, Video) Archive Mission Flight (Flight Log)

Mission Software Tasks:

1. GeoSetter
   GeoSetter all photos – send KML to client
2. Movie
   Stitch all videos together in **Movie Maker**– save as mp4
   Hyperlapse complete video to 4x – save as mp4
3. Orthomosaic – NVDI – Contours – DEM- Volume
   Run Ortho images Pix4D – (las, obj, contours, NVDI, Volumes, KML)
4. Panorama
   MarzioPano- Save
5. Thermal

Pilot Reports:

Staff Report –
WDS Entry –
DVD Flight Files Backup
Pilots Log >> Send to A.R.T. TAPS TEAM

Client Deliverables:

All Pictures All Video, Panoramas, DEM, OBJ Models, Volume Estimates, Maps and Figures

X. MMD Drone Post Processing Workflow

Mission: Due Date:

Workflow ID	Software	Product	Staff Assigned	Date Done	Minutes Spent	Shared w Client Date	Files	File Location Root	Comments
A.	Archive/Save Field Photos	jpg							
B.	Archive/Save Field Video	mp4							
1	Geosetter	KML							
2	Movie Maker	MP4							
3	Pix4d DroneMapper Drone2Map vSFM	DEM tif Ortho kml NVDI kml Volume kml OBJ LAS PLY							
4	Panoramas	.jpg Kuula Okolo Marzipano							
5									
6									
7									
8									
9									
10									
11									

XI. A.R.T. DRONE TAPS TEAM Pilots Log – Flight Record Submittal

for every significant flight/mission send the following email information to the TAPS TEAM Coordinator for recordkeeping. (ostaszewskia@michigan.gov)

Mission Name:
DEQ-PIC:
Airspace:
Date:
Start Time of flight:
Total Duration:
Aircraft:
Notes:

Incidents- **All incidents** must be reported to the TAPS TEAM Coordinator regardless of level (Minor, Major, Catastrophic)

XII. DEQ-PIC *Incident Response Decision Sheet-DRAFT* (ver 2018_11_19 AO)

Personal Injury - Are stitches needed?

Yes - apply direct pressure with clean bandage
seek medical attention (use phone GPS for nearest hospital or clinic if non-threatening)
if serious Call 911 and give location address from MPT.

No – clean wound, apply direct pressure if bleeding, bandage when bleeding stops

Report incident to DEQ Emergency Manager, DEQ EM will file appropriate reports with FAA and NTSB

Equipment – Drone Loss w no video signal

Is drone potentially still in the air?

YES: 1) Trigger P-S-A switch to disable app override of RTH
2) Initiate RTH from Controller by holding for 5 seconds…wait for RTH beeps… if no response
3) Turn RC off completely – then restart – Drone may start RTH on RC loss
4) Wait for battery to deplete – Drone may RTH on low battery warning
WAIT at least 15 minutes (based on remaining battery) before leaving HOME.

NO: There is no hope of Auto RTH (after 15+ minutes)
Check flight route in Go4app, determine last known location
The drone WILL descend under control and land itself with <10% battery
Attempt to get near potential landing location and reconnect with controller

Report incident to DEQ Emergency Manager, DEQ EM will file appropriate reports with FAA and NTSB

Personal Property Damage -

FAA / EGLE Inspection Checklist – EGLE PIC sign off_____

1. Your Part 107 certificate. Be prepared to show your certificate number to any FAA official who asks.

2. Your driver's license. The Part 107 rules state that your driver's license can be used in lieu of a medical certificate.

3. An insurance verification form. While the FAA doesn't require liability insurance, it's a must-have for any commercial sUAS operation. Check out our drone insurance guide for more information.

4. Your aircraft registration number. If you haven't yet registered your sUAS or need to pull up your number, you can access the FAA's Drone Zone portal here.

5. A summary of the FAA's Part 107 Rules. A copy of the summary document for you to save and print can be found in this PDF provided by the FAA.

6. A flight operations manual. See this example from aerial services company Piper Mountain Aerial for a good starting place on what your manual should include.

7. A communications sheet. This sheet should include the phone numbers and frequencies of local authorities.

8. A maintenance log. Your maintenance log should include:
How often/when do you change your rotor blades for each UAV you're operating? Is this noted?

- Have you experienced any battery abnormalities? Are those abnormalities logged?
- A record of preflight inspection for that day. This could be a written log, or you could have a printed preflight inspection checklist on hand.

9. Knowledge of your aircraft's weight. For example, an Inspire with a camera weighs 8.5 lbs.

10. Your LAANC authorization confirmation number. This only applies if you're using LAANC for airspace authorization.

11. The proximity/distance and direction of nearby airports.

12. knowledge of TFRs (Temporary Flight Restrictions) in the area. This does not need to be a formal document, but, to the best of our knowledge, could simply be a mental record of where there are TFRs nearby. To find active TFRs use this webpage provided by the FAA. Alternately, you can call the FAA's Flight Services for up-to-date TFR information at 1-800-WX-BRIEF (1–800–992–7433).

EGLE Drone Policy - Incident Response Plan

DEQ Pilot in Command Incident Planning v3 12/20/2018
Levels: Green-Minor, Yellow-Major, Red-Catastrophic
Definitions:
MPT = Mission Planning Template TTC= TAPS TEAM Coordinator (AO)
TTDR = TAPS TEAM Division Representative (varies) EM = Emergency Manager (JE)

Level: Green - Minor

Minor –
I. Reported in >> Pilot Log Notes,
brought to TTC and TTDR attn.
II. Corrective Actions taken >>
update preflight checklist

Minor Incident Examples:
Prop damage on takeoff or landing
Minor equipment damage - scuffing
Undetermined flying errors that results in Safe Recovery and Landing
Public or Law Enforcement Inquiry on Mission site with DEQ-PIC

Level: Yellow-Major

Major
I. Reported in >> Pilot Log Notes and brought to attention of TTC, TTDR, and MPT supervisor (signed off) attention within 24 hours, (e.g. email description). EM and Executive Office will be notified of the incident through the TTC of any costs to repair equipment. EM will be notified if the TTC feels the situation warrants.

II. Corrective Actions Taken >> DEQ Drone specific Flights Halted until Investigation and Diagnosis resolves issue to DEQ-PIC, TTC, MPT supervisor (signed off). Checklist update and Retesting must be done before any new DEQ drone specific flights are made (email and note to TTC, TTDR, MPT Supervisor (signed off))

Major Incident Examples Are:
Equipment damage needing servicing (motors, IMU)
Undetermined flying errors that results in Crash and Recovery
Public/Law Enforcement Drone inquiry to DEQ Front Office (Notify EM of this issue)
Any type of Injury to personnel below FAA/NTSB Thresholds to PIC (Notify division safety liaison)

Level: Red-Catastrophic

Catastrophic – EXE/FAA/NTSB Needs Notification
I. Reported ASAP >> TTC, TTDR, MPT Supervisor, DEQ I.C.
Reported in Pilots Log and meeting held with DEQ I.C.
DEQ I.C. submits FAA and NTSB reports within timeframe (10d)

II. Corrective Actions Taken:
ALL DEQ Pilots grounded until Investigation and Diagnosis resolves issues to FAA, NTSB, and DEQ I.C. satisfaction.

Catastrophic Incident Examples:
Drone is Lost – unrecovered (need to sticker/label all DEQ Drones)
Drone is crashed – extensive damage to equipment/ total loss.
Drone causes Injury to PIC or property above FAA/NTSB thresholds, or any injury to any bystander.
Public /Law Enforcement makes legal inquiry against DEQ Mission

FAA News

Federal Aviation Administration, Washington, DC 20591

June 21, 2016

SUMMARY OF SMALL UNMANNED AIRCRAFT RULE (PART 107)

Operational Limitations	• Unmanned aircraft must weigh less than 55 lbs. (25 kg). • Visual line-of-sight (VLOS) only; the unmanned aircraft must remain within VLOS of the remote pilot in command and the person manipulating the flight controls of the small UAS. Alternatively, the unmanned aircraft must remain within VLOS of the visual observer. • At all times the small unmanned aircraft must remain close enough to the remote pilot in command and the person manipulating the flight controls of the small UAS for those people to be capable of seeing the aircraft with vision unaided by any device other than corrective lenses. • Small unmanned aircraft may not operate over any persons not directly participating in the operation, not under a covered structure, and not inside a covered stationary vehicle. • Daylight-only operations, or civil twilight (30 minutes before official sunrise to 30 minutes after official sunset, local time) with appropriate anti-collision lighting. • Must yield right of way to other aircraft. • May use visual observer (VO) but not required. • First-person view camera cannot satisfy "see-and-avoid" requirement but can be used as long as requirement is satisfied in other ways. • Maximum groundspeed of 100 mph (87 knots). • Maximum altitude of 400 feet above ground level (AGL) or, if higher than 400 feet AGL, remain within 400 feet of a structure. • Minimum weather visibility of 3 miles from control station. • Operations in Class B, C, D and E airspace are allowed with the required ATC permission. • Operations in Class G airspace are allowed without ATC permission. • No person may act as a remote pilot in command or VO for more than one unmanned aircraft operation at one time. • No operations from a moving aircraft. • No operations from a moving vehicle unless the operation is over a sparsely populated area. • No careless or reckless operations. • No carriage of hazardous materials.

	• Requires preflight inspection by the remote pilot in command.
	• A person may not operate a small unmanned aircraft if he or she knows or has reason to know of any physical or mental condition that would interfere with the safe operation of a small UAS.
	• Foreign-registered small unmanned aircraft are allowed to operate under part 107 if they satisfy the requirements of part 375.
	• External load operations are allowed if the object being carried by the unmanned aircraft is securely attached and does not adversely affect the flight characteristics or controllability of the aircraft.
	• Transportation of property for compensation or hire allowed provided that-
	  ○ The aircraft, including its attached systems, payload and cargo weigh less than 55 pounds total;
	  ○ The flight is conducted within visual line of sight and not from a moving vehicle or aircraft; and
	  ○ The flight occurs wholly within the bounds of a State and does not involve transport between (1) Hawaii and another place in Hawaii through airspace outside Hawaii; (2) the District of Columbia and another place in the District of Columbia; or (3) a territory or possession of the United States and another place in the same territory or possession.
	• Most of the restrictions discussed above are waivable if the applicant demonstrates that his or her operation can safely be conducted under the terms of a certificate of waiver.

Remote Pilot in Command Certification and Responsibilities	• Establishes a remote pilot in command position.
	• A person operating a small UAS must either hold a remote pilot airman certificate with a small UAS rating or be under the direct supervision of a person who does hold a remote pilot certificate (remote pilot in command).
	• To qualify for a remote pilot certificate, a person must:
	  ○ Demonstrate aeronautical knowledge by either:
	  ▪ Passing an initial aeronautical knowledge test at an FAA-approved knowledge testing center; or
	  ▪ Hold a part 61 pilot certificate other than student pilot, complete a flight review within the previous 24 months, and complete a small UAS online training course provided by the FAA.
	  ○ Be vetted by the Transportation Security Administration.
	  ○ Be at least 16 years old.
	• Part 61 pilot certificate holders may obtain a temporary remote pilot certificate immediately upon submission of their application for a permanent certificate. Other applicants will obtain a temporary remote pilot certificate upon successful completion of TSA security vetting. The FAA anticipates that it will be able to issue a temporary remote pilot certificate within 10 business days after receiving a completed remote pilot certificate application.
	• Until international standards are developed, foreign-certificated UAS pilots will be required to obtain an FAA-issued remote pilot certificate with a small UAS rating.
	
	A remote pilot in command must:
	• Make available to the FAA, upon request, the small UAS for inspection or testing, and any associated documents/records required to be kept under the rule.
	• Report to the FAA within 10 days of any operation that results in at least serious injury, loss of consciousness, or property damage of at least $500.
	• Conduct a preflight inspection, to include specific aircraft and control station systems checks, to ensure the small UAS is in a condition for safe operation.
	• Ensure that the small unmanned aircraft complies with the existing registration requirements specified in § 91.203(a)(2).
	A remote pilot in command may deviate from the requirements of this rule in response to an in-flight emergency.

Aircraft Requirements	• FAA airworthiness certification is not required. However, the remote pilot in command must conduct a preflight check of the small UAS to ensure that it is in a condition for safe operation.
Model Aircraft	• Part 107 does not apply to model aircraft that satisfy all of the criteria specified in section 336 of Public Law 112-95. • The rule codifies the FAA's enforcement authority in part 101 by prohibiting model aircraft operators from endangering the safety of the NAS.

FAA / EGLE Inspection Checklist UAV Weights

DEQ Drones					
FAA Registered	weight				
1	3.06 lbs	dji	phantom	4	pro
2	0.66 lbs	dji	spark-red		
3	0.66 lbs	dji	spark-blue		
4	0.66 lbs	dji	spark-green		
5	0.95 lbs	dji	mavic	Air	
6	0.95 lbs	dji	mavic	Air	
7	3.06 lbs	dji	phantom	4	advanced
8	4.31 lbs	Yuneec	Typhoon	H	Pro
9	10.43 lbs	dji	Matrice	210	"A"
10	4.85	Swellpro	Splashdrone 3		
11	1.62 lbs	dji	Mavic Pro Enterprise Dual		Thermal
12	21.2 lbs	dji	Matrice	600	pro
13	10.43 lbs	dji	Matrice	210	"B"
14	0.95 lbs	dji	Mavic	Air	1
15	0.95 lbs	dji	Mavic	Air	2
16	0.95 lbs	dji	Mavic	Air	3
17	0.95 lbs	dji	Mavic	Air	4
18	2 lbs	dji	Mavic	2	Pro
19	3.06 lbs	dji	phantom	4	advanced
20	3.06 lbs	dji	phantom	4	advanced
21	3.06 lbs	dji	phantom	4	advanced
22	0.66 lbs	dji	spark-white2		
23	0.75 lbs	parrot	Anafi	Thermal	
24	1.62 lbs	dji	Mavic Pro Enterprise Dual		Thermal
25	0.75 lbs	parrot	Anafi	Thermal	