DEC Public Hearing

CFS Building 2

December 15, 2020

Commonwealth Fusion Systems

Introductions – The Project Team

- Applicant/Owner: Commonwealth Fusion Systems
  - Bob Mumgaard – CEO
  - Kristen Cullen
  - Tyler Ellis
- CFS-2 Design Team
  - HDR – Lead Architect, MEP, Landscape, Site Lighting
  - VHB – Site/Civil, Traffic
  - Haley Aldrich – Geotechnical
  - Boston Environmental Corp. – LSP Services
  - *Many others*

Commonwealth Fusion Systems Overview

Commonwealth Fusion Systems

CFS Overview

- Founded in 2018 with mission of commercializing fusion energy to create a new, economically competitive source of carbon-free energy to combat climate change
- Spun out of MIT and working collaboratively with MIT to leverage decades of fusion research combined with speed and flexibility of a private company
- Raised more than $215 million in private investment, proving that fusion is attractive to a large range of investors
- Grown to over 115 employees in 36 months

Fusion Energy Overview

- Fusion has been studied around the world for decades, but we have never proven it can work as an energy source.
- Private companies and world governments are making huge investments into fusion as it's potential would mean a massive disruption for the world's energy market.
- Fusion Benefits:
  - Dispatchable
  - Zero carbon
  - Freely available and inexhaustible fuel supply
  - Flexible generation anywhere
  - Inherently safe

Site Selection

- To support our mission to commercialize fusion energy, CFS is interested in establishing a campus at the 111 Hospital Road site
- CFS conducted a nationwide search for a site and considered dozens of locations around the country.
- Based on a number of criteria, including proximity to Boston, access to talent, and unique permitting structure, CFS is interested in the 111 Hospital Road site at Devens.
- Vision for site to be the birthplace of the commercial fusion industry. This includes corporate headquarters and advanced manufacturing facilities to support the development of fusion power plants all over the world.
- Site will include a research facility with our proof-of-concept fusion device, facilities to support advanced manufacturing, and space for our corporate headquarters.

The CFS path to commercial fusion energy

1 Technology Development

2 Demonstration

3 Commercialization

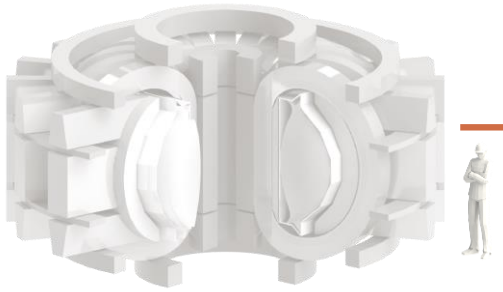
COMPLETED

Alcator C-Mod, $200M

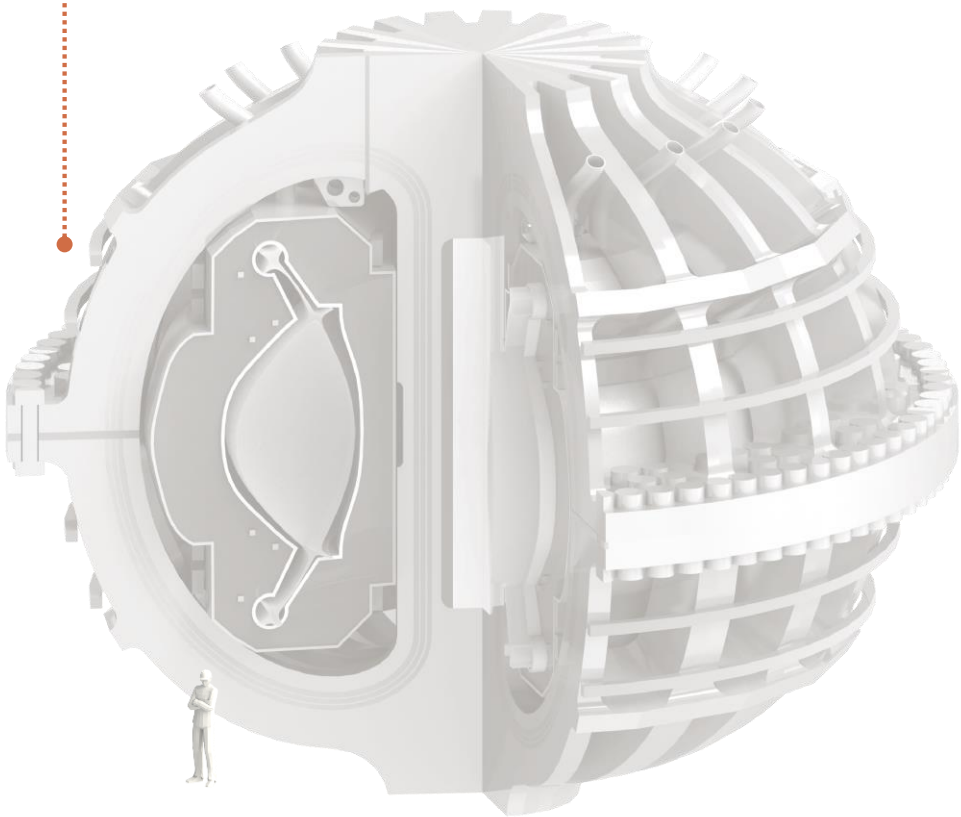
IN PROGRESS

HTS magnets:
Manufacturing
proposed at Devens

Fusion "Kitty Hawk"



Proof of concept:
Proposed at Devens

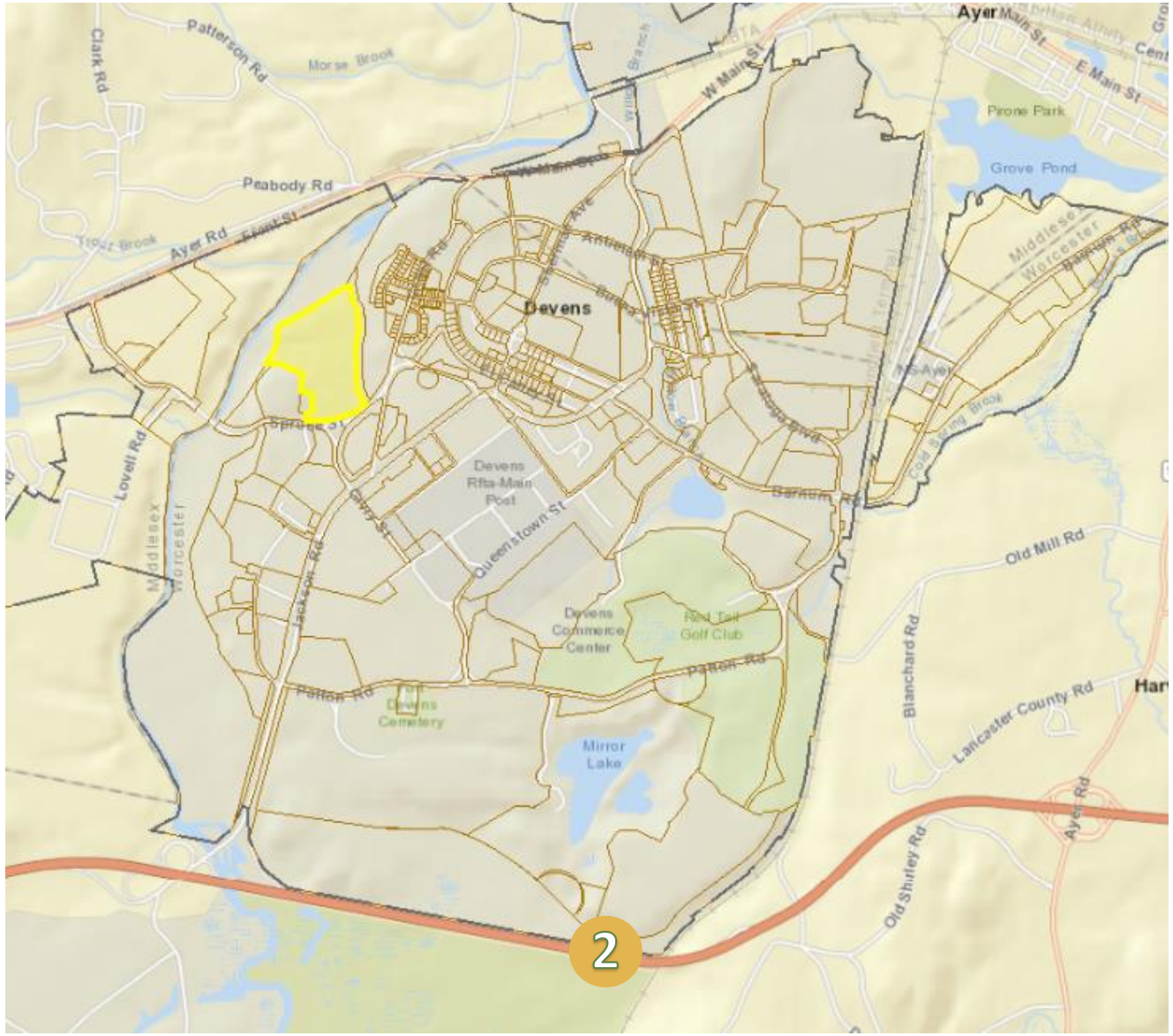


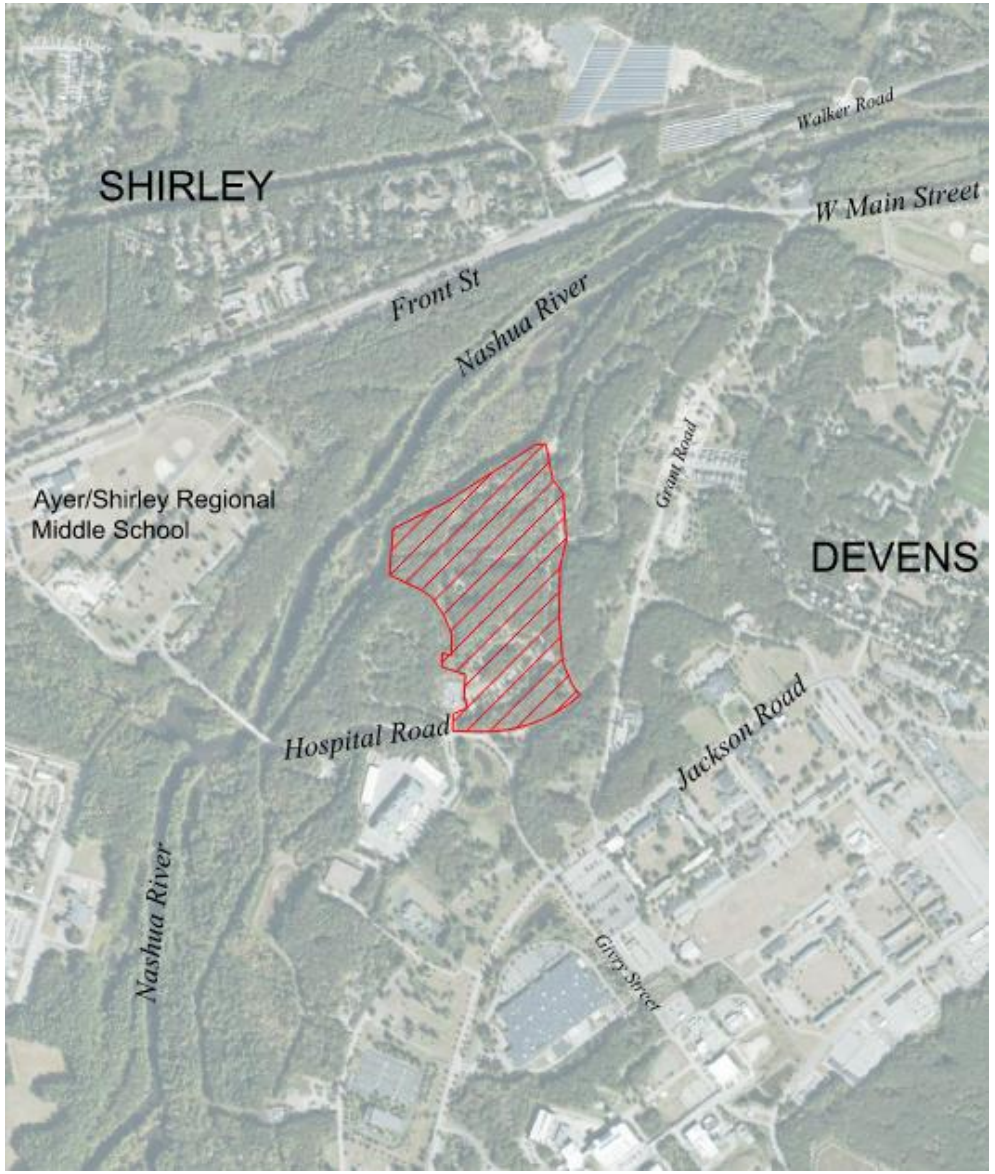
Power Station: ARC, Q>10, $P_{electric}$~200MW

Site Master Plan

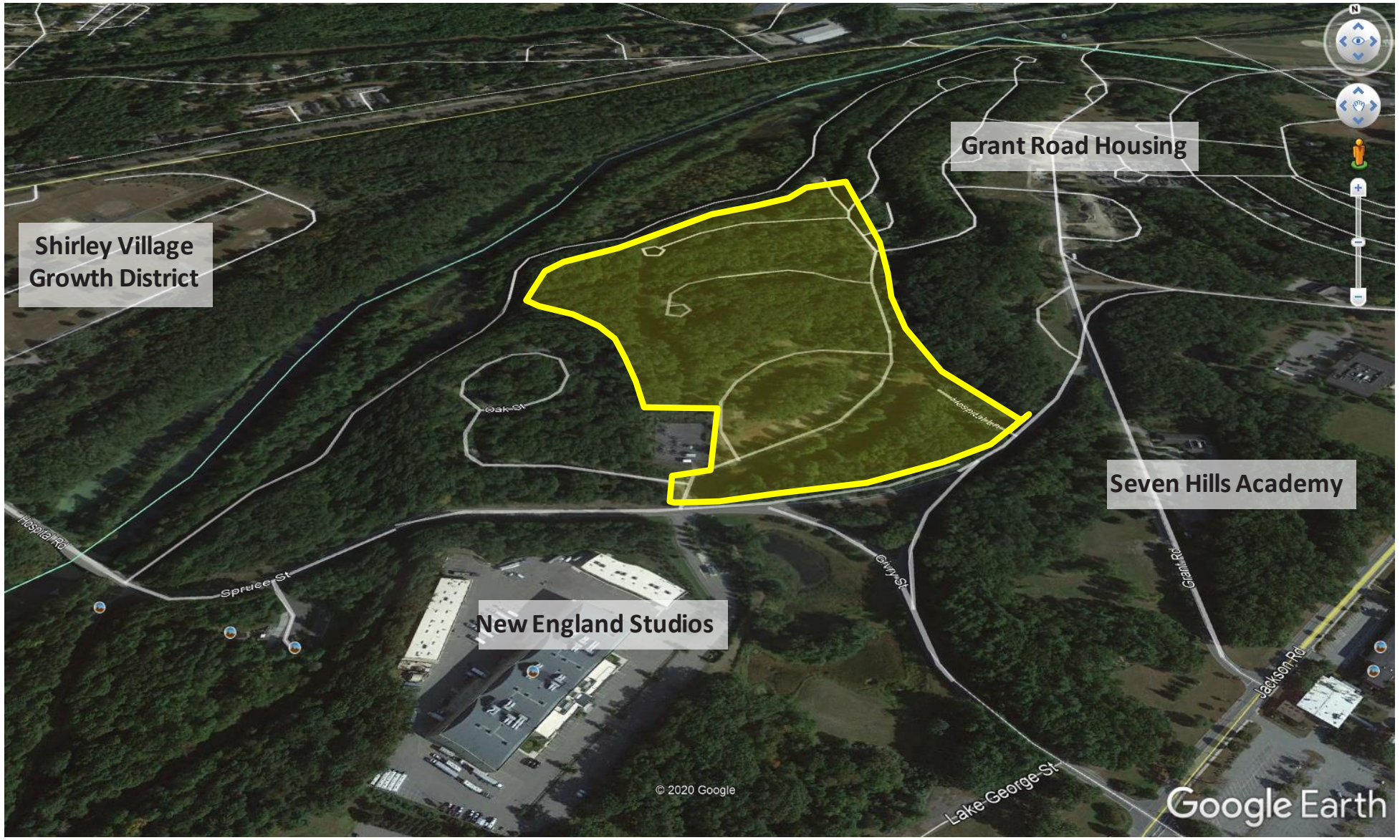
Commonwealth Fusion Systems

Project Locus – 111 Hospital Road



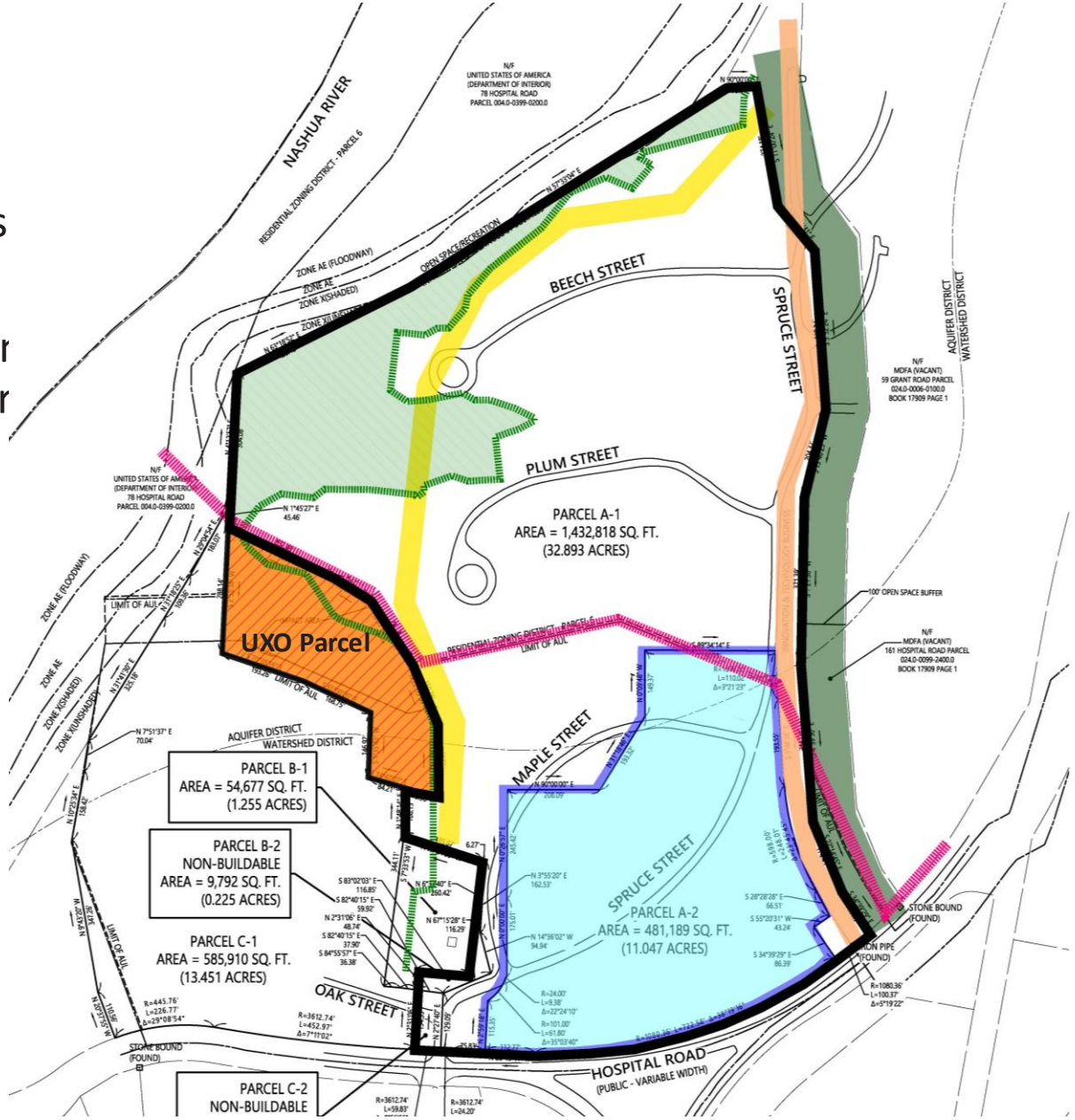


Site Context



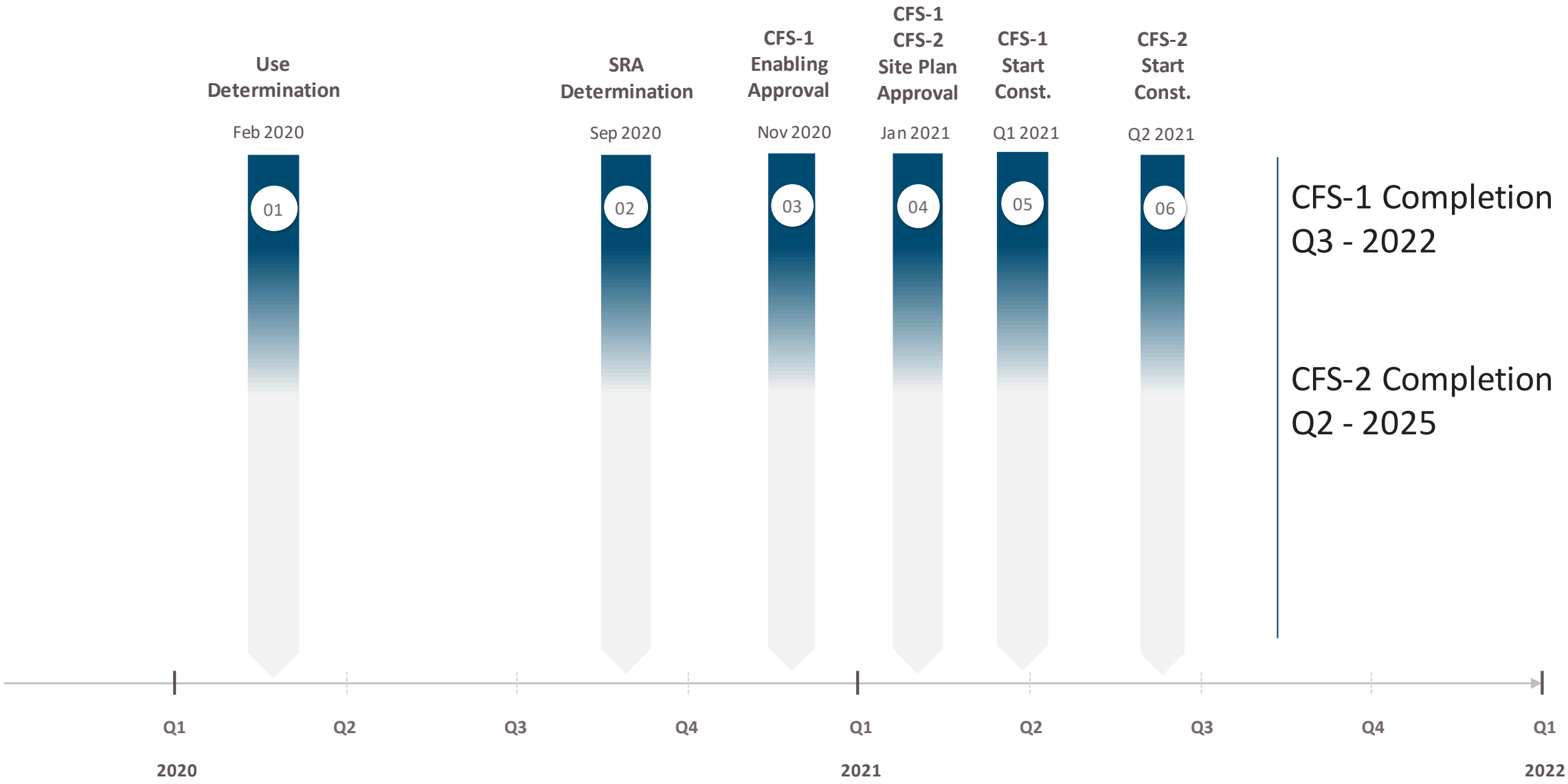
The Parcel

- Parcel area = 47 +/- ac
- Innovation Technology Business District Zoning
- 100’ Open Space and Recreation District Buffer along east proper line
- UXO Impact Area parcel – included in land purchase (*NEW*)
- Existing Utility Easements
- LUCIP and AUL Boundaries
- Slope Resource Areas



North

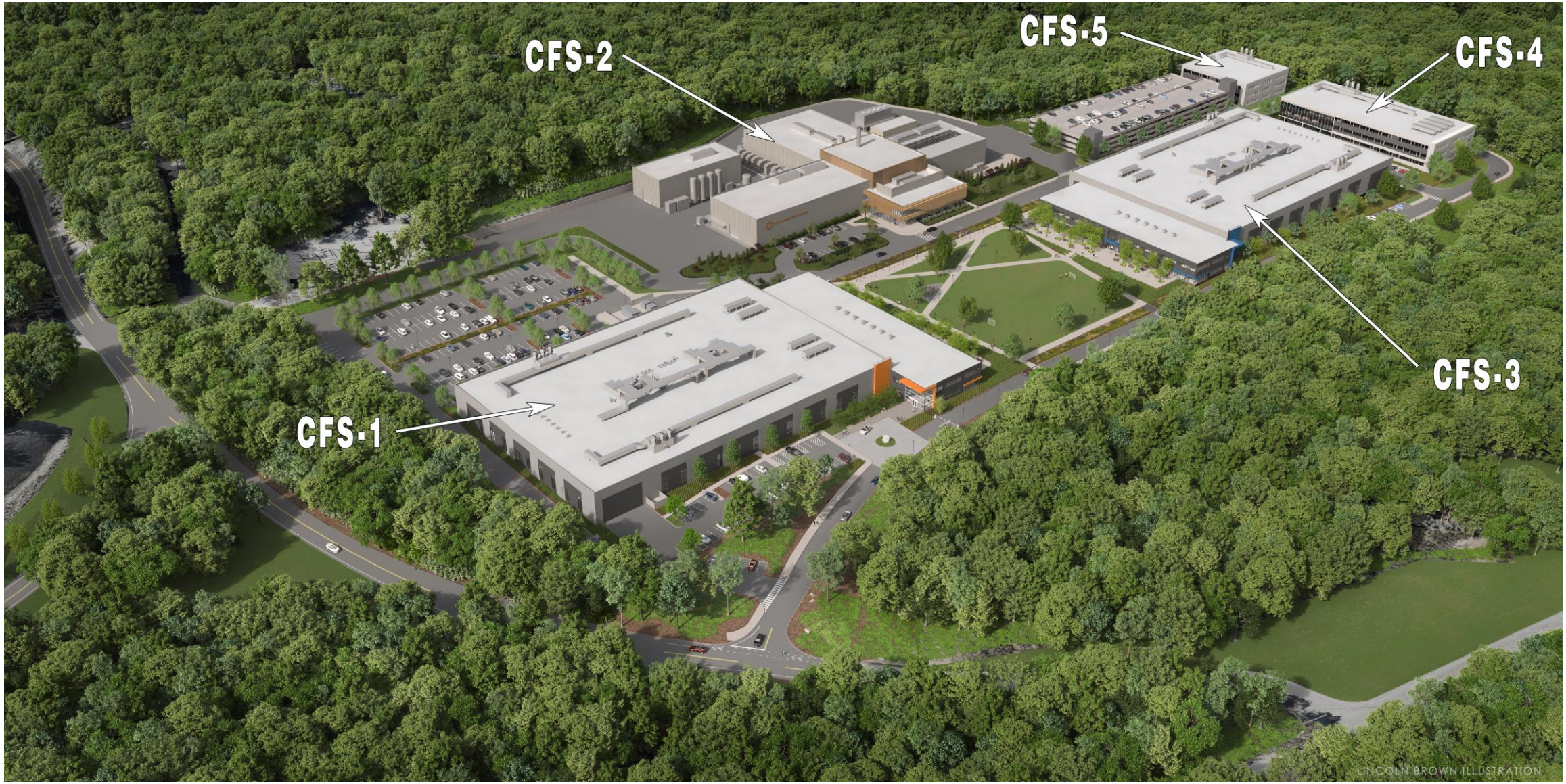
DEC Regulatory Action - Timeline



Campus Master Plan

- 47-ac Parcel
- 5 Buildings and Building Expansion
- Ancillary Buildings for CFS-2
- Surface Parking and Parking Garage
- Pedestrian Focused - Central Campus Green Quadrangle
- 714,000 GSF Campus-wide building program

Commonwealth Fusion Systems – Campus Perspective



Campus Master Plan

111 HOSPITAL ROAD GROSS FLOOR AREA BY USE				
BUILDING DESC.	OFFICE	R&D	INDUSTRIAL	GROSS FLOOR AREA
CFS-1 = MANUFACTURING	55,200 SF	-	108,800 SF	164,000 SF
CFS-2 = RESEARCH	-	147,000 SF	-	147,000 SF
CFS-3 = MANUFACTURING	47,875 SF	-	108,800 SF	156,675 SF
CFS-4 = RESEARCH	-	97,200 SF	-	97,200 SF
CFS-5 = RESEARCH	-	46,800 SF	-	46,800 SF
CFS-2 EXPANSION = RESEARCH	-	68,500 SF	-	68,500 SF
MG = MOTOR GENERATOR - EQUIP	-	-	27,375 SF	27,375 SF
CW = CHILLED WATER - EQUIP	-	-	3,150 SF	3,150 SF
CT = COOLING TOWER - EQUIP	-	-	3,300 SF	3,300 SF
CAMPUS BUILDING TOTAL	103,075 SF	359,500 SF	251,425 SF	714,000 SF

Campus Master Plan – Zoning Conformance

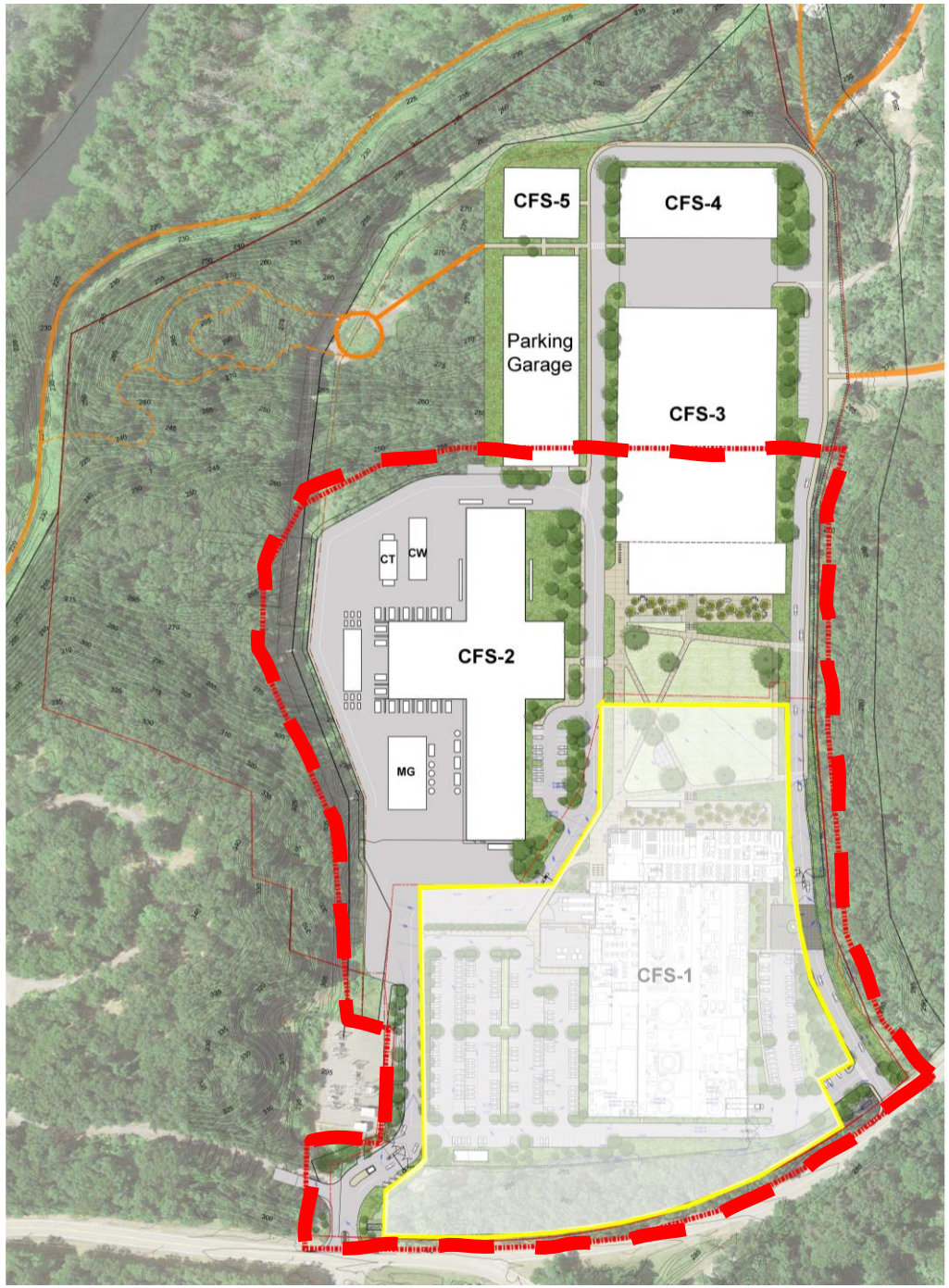
ZONING CONFORMANCE SUMMARY				
PRIMARY ZONING DISTRICT: INNOVATION AND TECHNOLOGY BUSINESS				
OVERLAY DISTRICT: WATER RESOURCE PROTECTION DISTRICT, SLOPE RESOURCE AREA DISTRICT				
USE: INDUSTRIAL/ MANUFACTURING				
BUILDING DIMENSIONAL REQUIREMENTS				
CRITERIA	REQUIRED	111 HOSPITAL ROAD PARCELS		TOTALS
		LOT 1	LOT 2	
LOT AREA (MIN.)	2 AC.	11.0 AC.	33.26 AC.	44.26 AC.
LOT FRONTAGE (MIN.)	75 FT	835 FT	260 FT	-
FRONT YARD SETBACK (MIN.)	25 FT	98FT±	678 FT	-
SIDE YARD SETBACK (MIN.)	10 FT	10 FT±	54 FT	-
REAR YARD SETBACK (MIN.)	25 FT	209 FT±	105 FT	-
BUILDING HEIGHT (MAX.)	75 FT	50 FT	58 FT	-
BUILDING GFA		164,000 SF	550,000 SF	714,000 SF
FAR (MAX.)	0.50	0.34	.38	.37
PARKING SPACES (MIN.)	2 SP/1000 SF	288	24	312
IMPERVIOUS COVER AREA		285,197 SF	673,348 SF	958,545 SF
IMPERVIOUS COVER (MAX.)	75%	59%	46%	50%

NOTE:

1. PARKING COUNT EXCLUDES FUTURE PARKING GARAGE.

Campus Landscape Plan

Implementation Phase 1

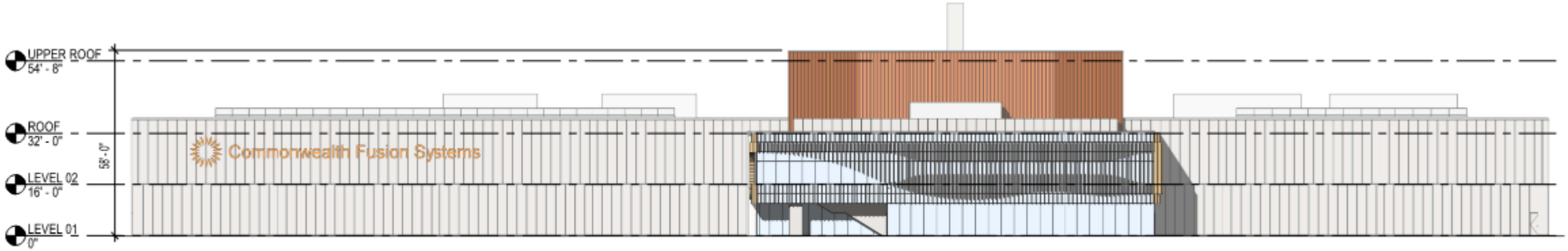


CFS Building 2

Commonwealth Fusion Systems

Building Renderings and Perspectives

Building Renderings and Perspectives



1 OVERALL ELEVATION - EAST - OPTION 6

Building Renderings and Perspectives

Building Renderings and Perspectives

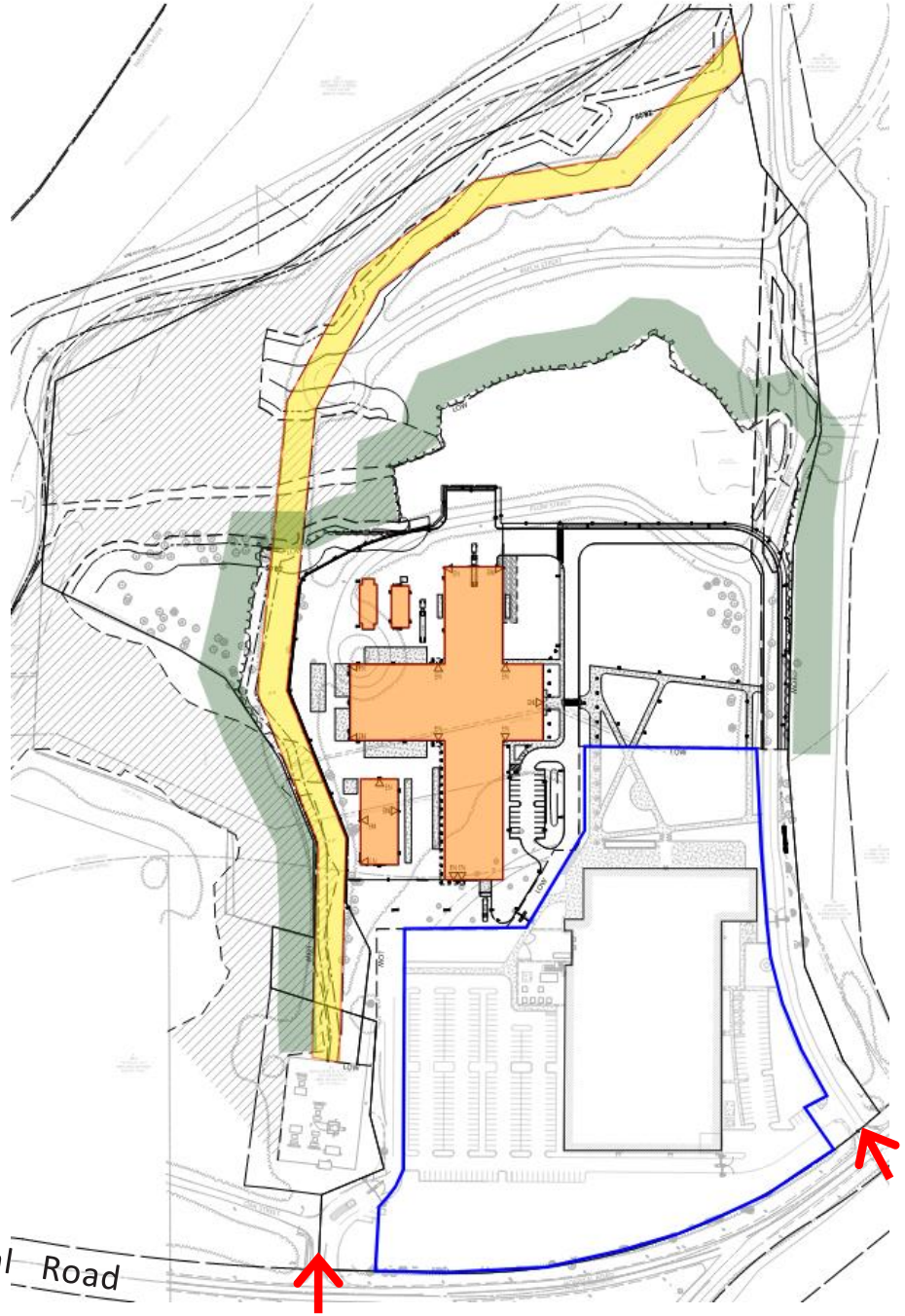
Building Renderings and Perspectives

CFS Building 2 Site Improvements

Commonwealth Fusion Systems

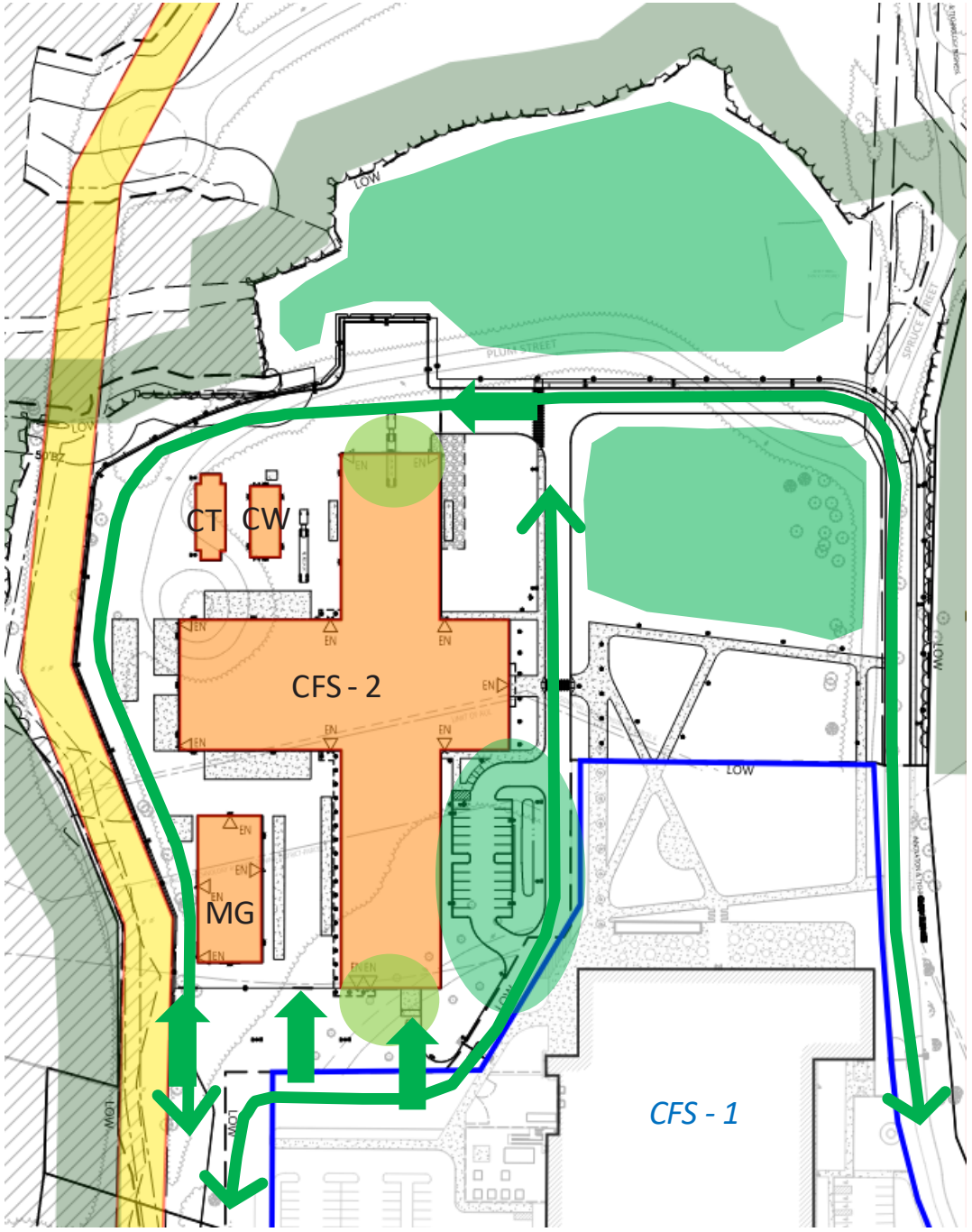
CFS-2 Site Plan

- Slope Resource Area
- Power Line Easement
- Construction Limits
- Access



CFS-2 Site Plan

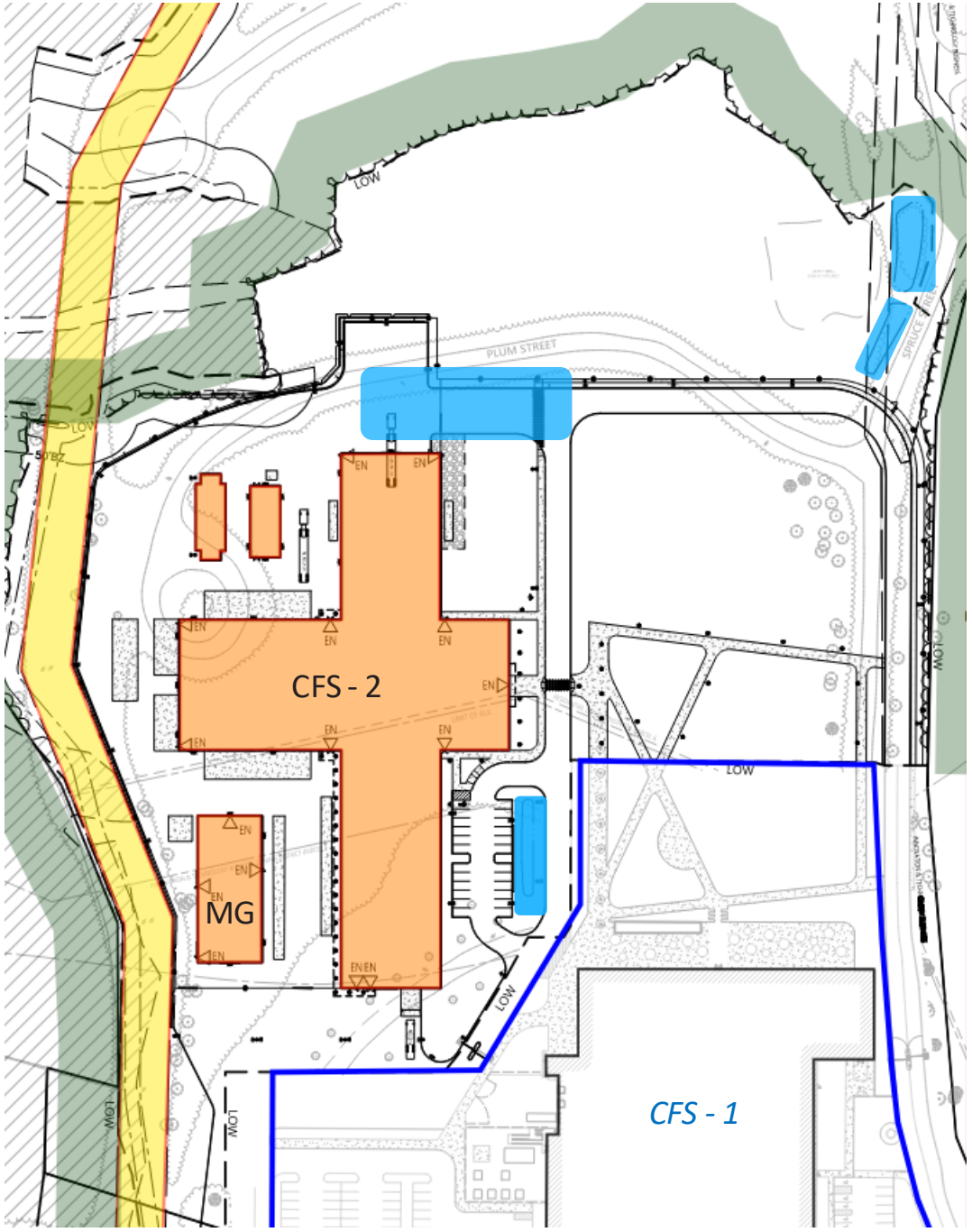
- Parking
- Truck loading
- Truck Access to Secure Service Yard
- Circulation for Trucks and Fire Apparatus
- Trash handling
- Clearing Limits/Soils Management



CFS-2 Site Plan

- STORMWATER MANAGEMENT
  - Infiltration/No Discharges
  - Bio-Filtration “Rain Garden”
  - Underground Retention
  - Surface Infiltration

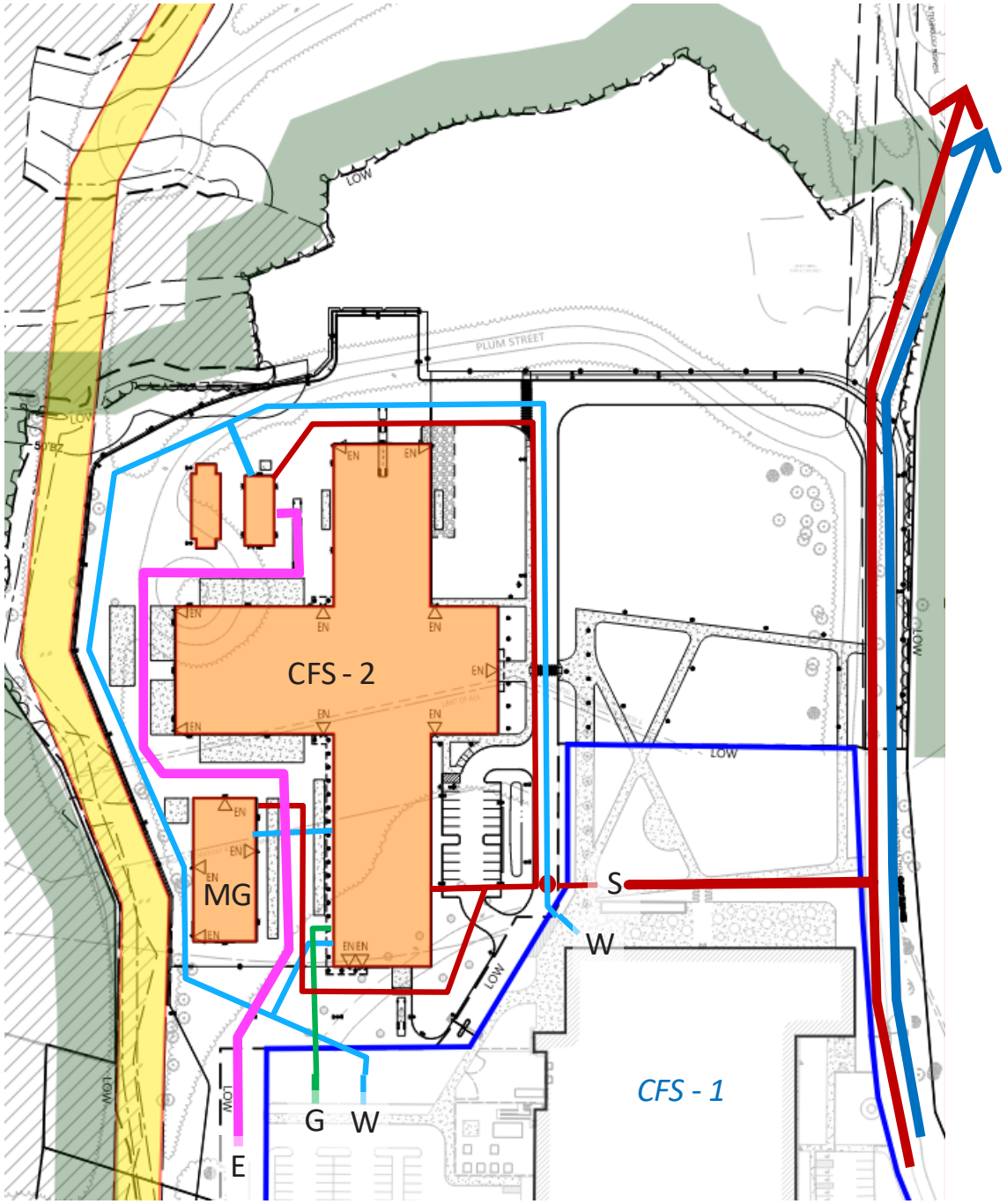
- Meet Devens “Greenfield”
- Meet DEP Regulations



CFS-2 Site Plan

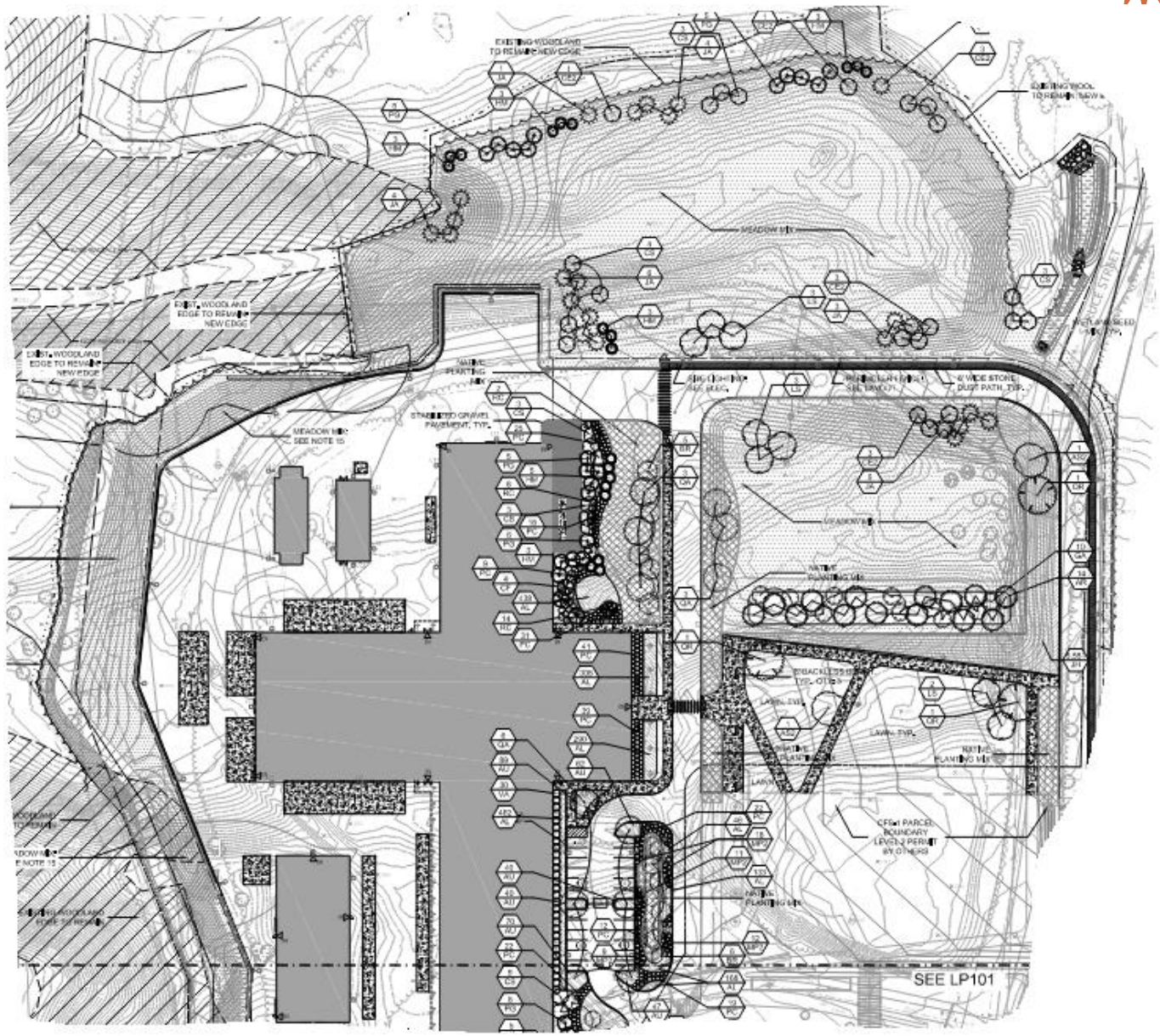
- UTILITIES
  - Services from CFS-1
  - Water
  - Sewer
  - Gas
  - Electric

- Maintain Devens Utilities
  - Drainage
  - Sewer



CFS-2 Site Plan

- LANDSCAPE
  - Consistent with CFS-1 and MP
  - Complete north half of campus green
  - Meets or exceeds Devens regs
  - Plant palette
    - Non-invasive
    - Drought tolerant
  - Restoration of clearing limits and soils management activities for interim conditions



974 CMR 4.0 - Industrial Performance Standards Conformance Summary

- 4.02 – Air Quality, Odor, and Emissions
  - N/A – MassDEP Air Quality Permit threshold not exceeded
  - Project to comply with other provisions of 4.02
- 4.03 – Electromagnetic Interference
  - N/A – No interference generated by proposed use
- 4.04 – Illumination and Astrophysical Capability
  - Project to comply with provisions of 4.03 to extent applicable
- 4.05 – Noise and Vibration
  - Project currently undergoing analysis. Will comply with provisions of 4.05 if mitigation required
- 4.06 – Wetlands Protection
  - N/A – No wetland resource areas on site
- 4.07 – Earth Removal
  - Project will comply with Devens soil management policies and protocols applicable to site land use controls

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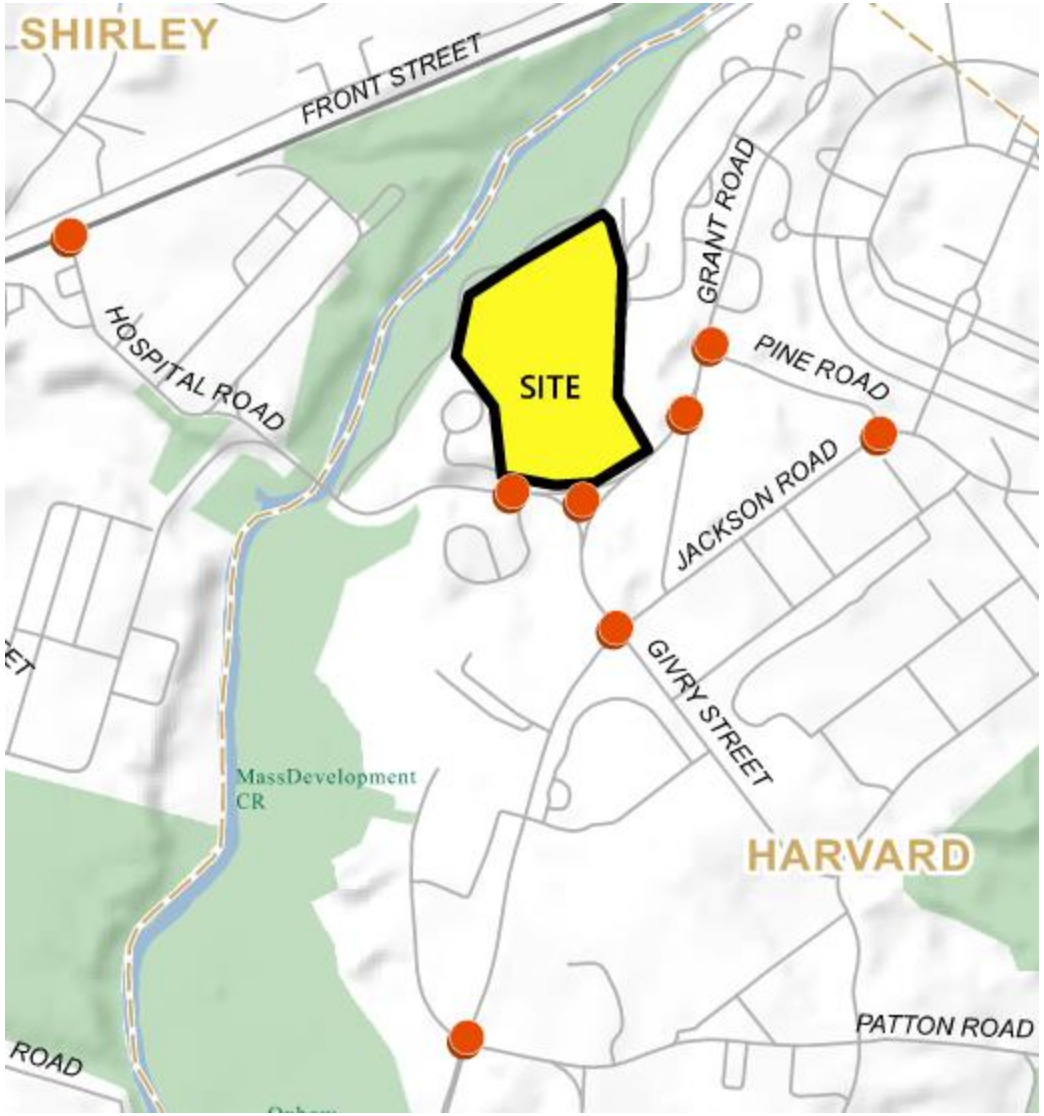
  - Project will comply with Devens soil management policies and protocols applicable to site land use controls

- 4.08 – Stormwater Management
  - Project will comply with 4.08.
  - 100% stormwater recharge on-site.
- 4.09 – Water Resource Protection Overlay District
  - Project will comply with 4.09
- 4.10 – Renewable Energy Facility Requirements
  - N/A – Project is not a renewable energy facility
- 4.11 – Greenhouse Gas Mitigation
  - Project will comply with 4.09
  - Project subject to Energy Stretch Code

Traffic Study Overview

- CFS-1 – 101 AM peak hour trips, 110 PM peak hour trips
- CFS-2 - 24 AM peak hour trips, 24 PM peak hour trips
- No material impact on level of service within the study area
- Traffic study reviewed by peer review consultant and no substantive issues to be resolved
- Proposed TDM program in accordance with DEC Transportation Management Initiative
- Traffic monitoring program six months after full occupancy to validate assumptions



Waiver Requests

Table I-1 List of Waivers

Requirement Citation	Requirement Description	Waiver Request
3.04.3.a.1.h	There shall be bicycle storage facilities provided on site for all developments	There are no full time work stations in CFS Building 2. Employees are stationed in CFS Building 1 and bicycle storage will be provided next to CFS Building 1.

Thank You! QUESTIONS?

DEC Public Hearing

CFS Building 2

December 15, 2020

Commonwealth Fusion Systems