Project Overview:

Black's Nook Restoration Plan

Resource Inventory

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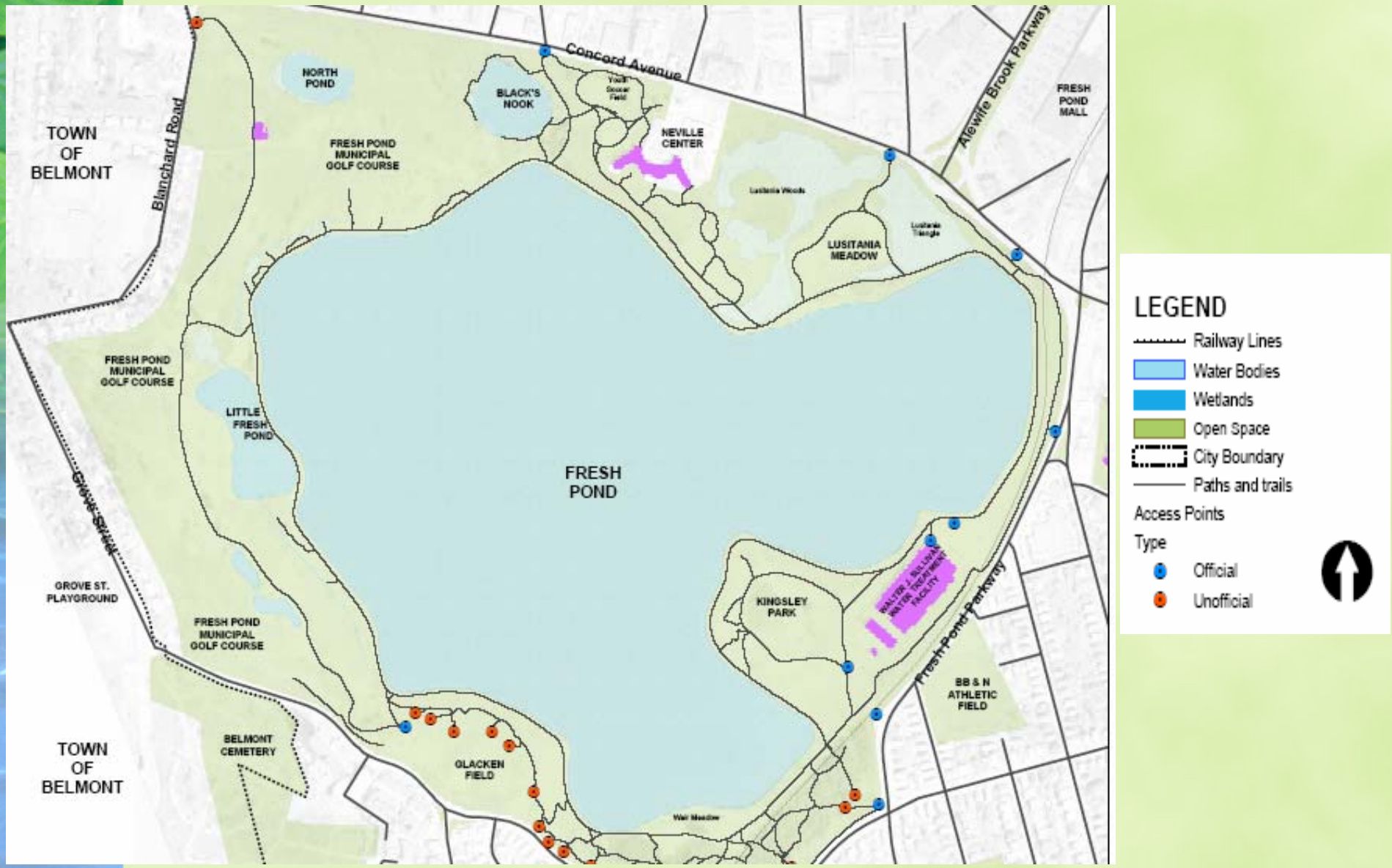
Goals of Restoration Plan

- Improve water quality within Black's Nook
- Restore and develop strategies to maintain degraded and fragmented landscapes
- Improve circulation and provide for appropriate site amenities

Goal of my task

- Natural/Cultural resource inventory database for Black's Nook Pond, showing cultural and ecological components

Project Location



Black's Nook


Concord Avenue
BLACK'S NOOK
FRESH POND MUNICIPAL
GOLF COURSE
FRESH POND
LEGEND
Railway Lines
Limit of Work
Paths and Trails

Products/Output

1. Database of landscape/ecological components

   A. Feature datasets of landscape/ecological components.
2. Database of cultural components

   A. Feature datasets of cultural components
3. Documentation of the methodology for database development
4. Maps showing natural/cultural resources in the Black's Nook area

   A. Natural resources

   B Cultural resources

Tasks:

- List names, feature types and attributes of datasets to be created
- Database characteristics
- Review field data/Import CAD data to GIS
- Create feature datasets and associated feature classes
- Input remaining field data into feature classes
- Create Maps

List names, feature types and attributes of datasets to be created

A. Natural Resources

1.A Vegetation feature dataset

1.a Trees-Specimen

1.b Trees-Stands

1.c Shrub masses

1.d Ground Cover

1.e Canopy

1.f Invasives

1.B Soils

1.C Slope

1.D Litter

Continue…

B. Cultural Resources

2.A Trails

2.B Overlooks

2.C Pond Access areas

2.E Facilities

Database Characteristics

A. Coordinate system and datum

- NAD_1983_Stateplane_Massachusettes_Mainland_FIPS_2001
- Projection: Lambert_Conformal Conic

B. Base Information

- Cambridge boundary, Fresh pond reservation, roads, water bodies

C. File structure/Directory structure

- Relative path

Review Data field

How data were generated for this project?

A. Field survey for Natural Resources
- Using aerial photo, and locate information manually, not using GPS
- Import MRSid in CAD, draw whatever information from the field survey
- Information stored in Excel File

B. Cultural Resources from City of Cambridge Water Department

Problems Encountered

CAD file when exported to GIS

- NO spatial Information (Coordinate system, projection)
- Georeferencing is possible but still the polygon and points are made in CAD, and it is a small scale project which is hard to match with roads and buildings for Georeferencing
- Manual inputs in aerial photo were not all match with excel information

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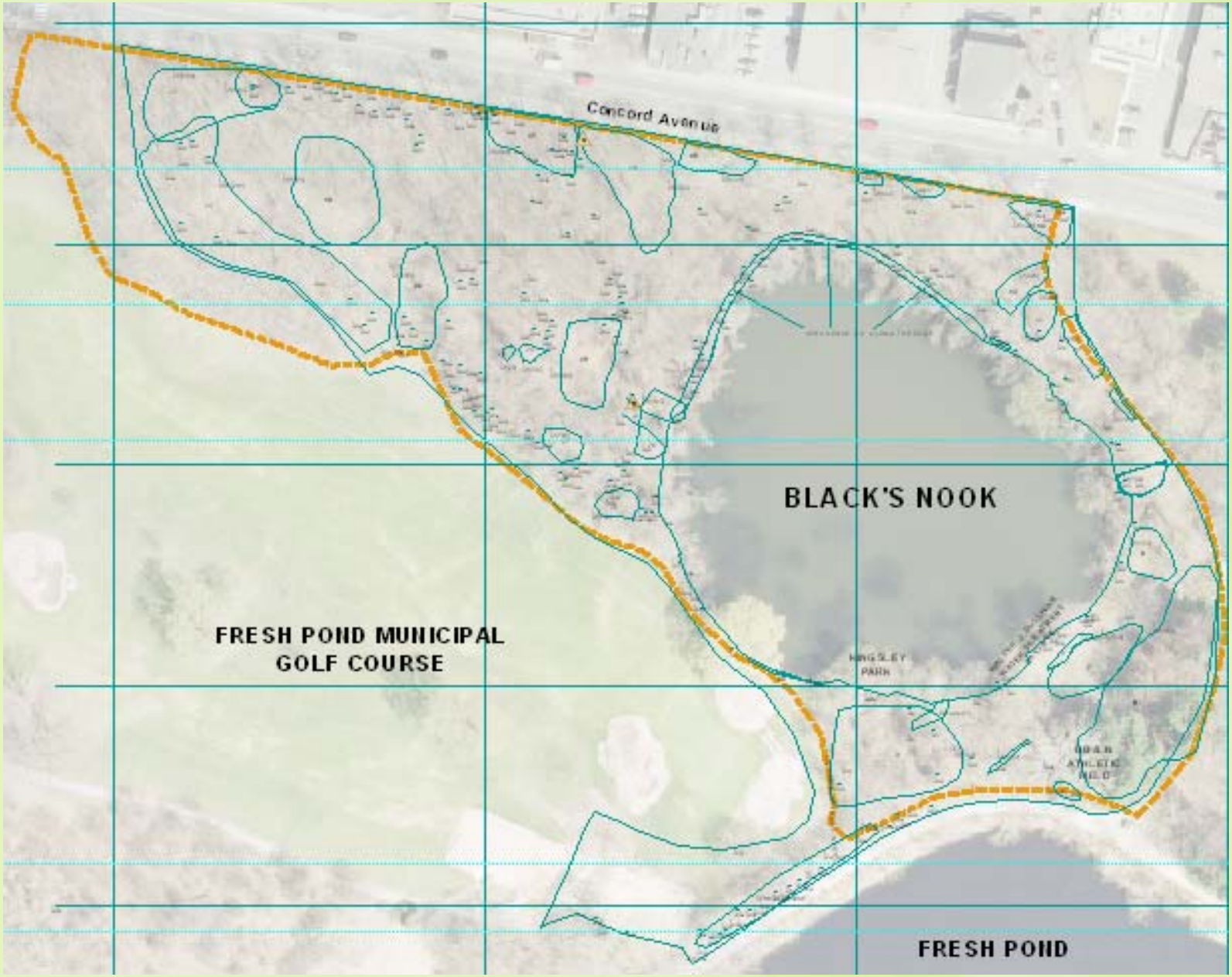
When CAD exported to GIS polygons and points fall on the right location

Why? I don’t know.

CAD to GIS


Concord Avenue
BLACK'S NOOK
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GOLF COURSE
FRESH POND

Solution:

- Create feature classes for all information, and trace the points and polygons from the CAD file
- Edit tables with the excel information, discrepancies were audited detail to detail approach

Create Data Dictionaries and Input Data

Tree Specimen

Attributes of TR_Speci2

FID	Shape*	FID_1	ID	GENUS	SPECIES	DBH	ORIGIN	HABIT	CONDITION	COMMENT
0	Point	0	252	Quercus	rubra	10.5	N	NI	1	
1	Point	1	251	Quercus	rubra	9.5	N	NI	1	
2	Point	2	250	Quercus	rubra	30	N	NI	1	
3	Point	3	248	Quercus	rubra	18	N	NI	1	
4	Point	4	249	Quercus	rubra	9	N	NI	1	
5	Point	5	247	Quercus	palustris	40	N	NI	1	
6	Point	6	245	Prunus	serotina	9.6	N	NI	1	
7	Point	7	246	Prunus	serotina	5	N	NI	1	

Problem:

Discrepancy on data (311 Big Trees, endangered species)

Solution:

Match one by one

Geometry: Points

Tree Stands

Attributes of TR_Stand

FID	Shape*	ID	GENUS	SPECIES	DBH
0	Polygon	4			0
1	Polygon	5		Large stand of white pine with Alliatia in the gro	0
2	Polygon	21		Very open understory. Canopy 65% mostly oaks	0
3	Polygon	20		Vast stand of Robinia (about 9") on the outer edge	0

Trees (group of trees)
Geometry: Polygons

Shrub Masses

Attributes of Shrub_ma

FID	Shape*	ID	GENUS	SPECIES	DBH
0	Polygon	2	Cluster of buckthorn saplings		0
1	Polygon	3	Very dense Celastrus with a few buckthorn and ash		0
2	Polygon	4	Celastrus well established throughout row of trees		0
3	Polygon	6	A stand of small dogwod shrubs.		0
4	Polygon	11	Japanese knotweed		0
5	Polygon	14			0
6	Polygon	15	Alliaria, elm saplings, buckthorn		0
7	Polygon	17	Alliaria on ground, elm, norway maple, and oak sap		0
8	Polygon	25	Open canopy area, staghorn sumac have established		0

Geometry: Polygons