Wetland Assessment Report

Project Highlands

210 Shunpike Road
Cromwell, Connecticut

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Wetland Assessment

This document is submitted in accordance with the Connecticut Inland Wetlands and Watercourses Act (Section 22a-36 through 22a-45 of the Connecticut General Statutes) and in accordance with the Inland Wetlands and Watercourses Regulations of the Town of Cromwell, Connecticut.

Introduction

The Applicant, Scannell Properties #576, LLC ("Scannell"; the "Applicant") respectfully seeks approval from the Town of Cromwell Inland Wetlands and Watercourses Agency for a warehouse facility ("Facility") proposed on a ±250.1 acre site located at 210 Shunpike Road in Cromwell, Connecticut ("Site" or the "Project Highlands"). The Site is bound by Shunpike Road to the west, industrial and commercial properties to the northwest and southwest, residential properties and Geer Street to the south, and the Cromwell Middle School parcel to the east.

The following 12 parcels have been assembled to form Project Highlands.

- Map No. 25 – Lot No. 3, 4, and 72 (partial)
- Map No. 35 – Lot No. 9 (partial), 53, 54, 55, 58, 61, 63, and 69
- Map No. 36, Lot No. 10

With the exception of Map No. 25 – Lots 3 and 4, which are zoned Industrial, all of the remaining parcels that make up Project Highlands are zoned Business Industrial Park.

Historically the majority of the Site has been subject to agricultural use at one time or another that resulted in anthropogenic (influenced by man-made activities) changes to both upland and wetland areas. One of the better examples of anthropogenic changes to the Site was the creation of an irrigation pond within a historically upland cultivated field in the late 1940s/early 1950s in the central-eastern portion of the Site. Also, in the central portion of the Site on Map No. 36 – Lot 10, an existing contractor material storage yard resulted in clearing of a ±3-acre previously forested area in close proximity to wetland resources and an access road crossing of two wetland areas. That project was approved by the Agency in 1996.

Wetlands occupy significant areas across the Site with two main corridors and then smaller discontinuous/isolate wetlands generally proximate to one of the main corridors. Wetlands along the northern side of the Site are associated with principally forested wetland swamp that is associated with an unnamed perennial watercourse that flows to the west. This northern wetland corridor is bisected by an existing cleared Algonquin Gas right-of-way ("ROW"). The unnamed watercourse flows into a culvert located along the western Site boundary in the

northwest corner of the Site. A second principally forested wetland swamp corridor starts in the central-south portions of the Site associated with an unnamed perennial watercourse that flows north-northwest, conveying flows from both Site wetlands and wetlands located off Site across Geer Road to the southeast. This unnamed watercourse flows into an old washed out culvert (the site of a former wetland and watercourse crossing) on Site in the northwestern portion of the Site before entering a culvert and flowing under Shunpike Road to the west. The two watercourses converge west of Shunpike Road to form a perennial watercourse corridor located between Coles Road and Interstate 91 that is tributary to the Mattabesset River.

In order to accommodate the proposed building program, various layouts were considered to avoid and minimize impacts to wetland resources. With the wide distribution of wetlands across the Site, extensive developable areas suitable for a large development such as Project Highlands without any wetland resources just do not exist. As a result, outright avoidance of wetland impacts is not possible, so the design team focused on minimizing wetland impacts to the greatest degree possible. Through this iterative minimization design process, attention was weighted heavier to avoidance of wetland resources with minimal anthropogenic changes that supported higher levels of wetland functions and values. The largest developable area that could support the proposed Facility on the Site is located in the central-east portion of the Site associated with a large, cultivated field. Although the irrigation pond is centrally located in this field and therefore avoidance of impacting this man-made feature is not possible, positioning the Facility in this location allows for avoidance of naturally occurring wetlands to the north, east and west which support higher functions and values than the irrigation pond.

In a similar manner, alternative access to the proposed Facility was analyzed. For a Facility of this nature, access onto Geer Street which the Site has frontage on (a road that accommodates access to residences and schools) would not be suitable. The Site also has frontage on Shunpike Road, State Route 3, which is more suitable for the proposed development. Alternative access routes onto Shunpike Road were evaluated. During the initial design phase of the Site, options were considered on property along the northwest corner of the Site to access Shunpike Road. This would have required an extensive wetland and perennial watercourse crossing resulting in a significant area of wetland impact. The Applicant went through considerable effort to acquire frontage along Shunpike Road further to the south to secure property that historically had a crossing of wetlands and perennial stream in the western portion of the Site. This effort successfully resulted in a significant reduction of wetland impacts by proposing an upgrade to a former wetland and watercourse crossing. A 16-foot wide open bottom box culvert will completely span the watercourse channel avoiding any direct impacts to the perennial watercourse.

To compensate for unavoidable wetland impacts, a comprehensive wetland mitigation plan is proposed consisting of the following:

- Wetland and vernal pool creation that provides a 4:1 mitigation to impact ratio along with enhancement to adjacent buffer and terrestrial areas in the northeast portion of the Site within an existing cultivated field proximate to a large wetland system.
- Forested floodplain creation area adjacent to proposed wetland and perennial stream crossing near Shunpike Road.
- Terrestrial habitat enhancement areas in proximity to existing vernal pools will improve existing suboptimal terrestrial habitat for vernal pool indicator species.
- A large nearly 100 acre conservation easement that protects high functioning wetlands, five (5) existing vernal pools, upland and terrestrial habitat and wetland, vernal pool creation areas and adjacent buffer enhancement area.

The totality of this extensive and significant mitigation plan will more than compensate for the project's unavoidable wetland areas lost. In addition to preserving extensive areas of wetlands, vernal pools and upland review area, important terrestrial habitat will be protected that serve multiple wildlife habitat functions including those important to vernal pool indicator species as well as other wildlife.

This Wetland Assessment Report has been updated from an earlier October 2021 version that was submitted as part of the previously filed and later withdrawn Town of Cromwell Inland Wetlands and Watercourses Agency ("IWWA") Application #21-06. Scannell Properties #576, LLC voluntarily withdrew that application to allow for additional field surveys to be performed and associated analysis to be conducted. The additional information contained in this report addresses comments provided in a December 14, 2022 LandTech letter.

Specifically, comments provided on pages 5 through 7 of LandTech's letter from their review of APT's October 2021 Wetland Assessment Report, are addressed herein. A response to each of LandTech comments is also provided in an APT letter dated May 5, 2022, provided under separate cover.

Please note that additional information relating to these comments is also depicted in updated Project Site Plans prepared by Langan, provided under separate cover.

Location Description

The ±250.1-acre industrial Site is located off Shunpike Road (State Route 3), Court Street, and Geer Street in Cromwell, Connecticut.

The following 12 parcels have been assembled to form the Site.

- Map No. 25 – Lot No. 3, 4, and 72 (partial)

- Map No. 35 – Lot No. 9 (partial), 53, 54, 55, 58, 61, 63, and 69
- Map No. 36, Lot No. 10

With the exception of Map No. 25 – Lots 3 and 4, which are zoned Industrial, all of the remaining parcels that make up Project Highlands are zoned Business Industrial Park.

The property primarily consists of relatively flat rolling agricultural fields along with early successional upland forest (historically cultivated fields), old field, a gas line ROW, and a contractor yard. Wetlands occupy significant areas across the Site with two main corridors and then smaller discontinuous/isolate wetlands generally proximate to one of the main corridors.

Access to the Site is provided by gravel and farm roads located off Geer Street and Court Street. A former farm road that crosses over wetlands and an unnamed perennial stream provided access to the Site from Shunpike Road; the culvert crossing of the stream has been partially washed out and currently does not support vehicular access.

A Site Location Map and Aerial Map (depicting existing conditions) are provided in the Figures Attachment. Representative photographs of the proposed Facility area and nearby wetlands are provided in Attachment A.

Site Vicinity

The Site is located along the west side of Shunpike Road and the north side of Court Street and Geer Street.

The following is a summary of properties, and their observed uses, which abut the Site.

North – Industrial properties, Algonquin gas line ROW and compressor/regulator station, industrial development, undeveloped wetlands, and Town of Rocky Hill municipal boundary.

East – Town of Cromwell Middle School and Watrous Park.

South – Residential developments, Cromwell Fire Department, and Town of Cromwell Woodside Intermediate School.

West – Industrial, commercial, and residential developments.

Mapped Soil Types

Digitally available updated soil survey information was reviewed from the Natural Resources Conservation Service ("NRCS"). Soil classifications present on the Site have developed primarily in sandy glaciofluvial (outwash) parent material and were field verified and classified as follows:

Wetland Soils (Soil Unit #):

- Scarboro muck (15)
- Timakwa and Natchaug soils (17)
- Walpole sandy loam (13)

Upland soils (Soil Unit #):

- Branford silt loam (30)
- Ellington silt loam (20)
- Hartford sandy loam (33)
- Ludlow silt loam (40)
- Manchester gravelly sandy loam (37)
- Penwood loamy sand (35)
- Sudbury sandy loam (23)
- Udorthents-Urban land complex (306)

These soil types were generally confirmed during wetland investigations performed during the spring, summer and fall 2021.

Rare Species Habitat

A Connecticut Department of Energy & Environmental Protection ("DEEP") Natural Diversity Data Base ("NDDB") preliminary assessment revealed the potential for extant populations of State Listed Endangered, Threatened, or Special Concern species occurring in the vicinity of the Site. As a result, the Applicant is currently in the process of consulting with NDDB and will adhere to any rare species protection measures, as necessary. Based on experience with similar species on other development projects, the proposed protection program will likely consist of several components, including: education of all contractors and sub-contractors prior to initiation of work on the Site; installation of protective isolation measures (i.e., temporary silt fence and permanent isolation barriers); periodic inspection of the construction project by a third-party environmental monitor; reporting, and almost 100 acres of wetland, vernal pool , terrestrial habitat, and mitigation areas being placed in conservation easement, will be found to adequately protect any State-listed rare species.

Flood Hazard Areas

United States Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Maps ("FIRM") were reviewed for the Site. The site is located within Flood Zone X (unshaded) and Flood Zone A per FEMA Flood Insurance Rate Maps 09007C0018G and 09007C0106G, both effective August 28, 2008. Based on review of the FIRMs, northern (north of the gas line ROW) and western portions of the Site are located in an area designated as Zone A which is defined as an area within a known 100-year flood zone (1% chance of annual chance of flooding). The majority of the Site is located within an unshaded Zone X, areas beyond the 100-year and 500-year flood hazard zones. An Existing Wetland Resources Map provided in the Figures Attachment depicts the 100-year Flood Zone.

With the exception of the proposed access road near Shunpike Road, the majority of the access road and the entire Facility is located outside of the 100-year and 500-year flood zones. A flood zone impact analysis has been performed by Langan to calculate the flood storage loss and design a compensatory flood storage area of equal volume to properly mitigate for the volumetric flood loss. The area proposed for compensatory flood storage will be located adjacent to the proposed wetland and watercourse crossing near Shunpike Road and will generally consist of the excavation of areas previously disturbed by the historic wetland/watercourse crossing. Since the compensatory flood storage area will be adjacent to the existing wetland/watercourse corridor, a portion of it will be planted with native wetland shrubs and herbaceous plants to both function as a compensatory storage area and a natural floodplain forested wetland system. Since the compensatory flood storage area more than adequately replaces displacement associated with the proposed access road, the proposed development will not adversely affect flood hazard zones or downstream resources.

Wetland and Vernal Pool Description and Evaluation

Wetlands occupy significant areas across the Site with two main corridors and then smaller discontinuous/isolate wetlands generally proximate to one of the main corridors. Wetlands along the northern side of the Site are associated with principally forested wetland swamp that is associated with an unnamed perennial watercourse that flows to the west. This northern wetland corridor is bisected by an existing cleared Algonquin Gas right-of-way ("ROW"). The unnamed watercourse flows into a culvert located along the western Site boundary in the northwest corner of the Site. A second principally forested wetland swamp corridor starts in the central-south portions of the Site associated with an unnamed perennial watercourse that flows north-northwest, conveying flows from both Site wetlands and wetlands located off Site across Geer Road to the southeast. This unnamed watercourse flows into an old washed out culvert on Site in the northwestern portion of the Site before entering a culvert and flowing under Shunpike Road to the west. The two watercourses converge west of Shunpike Road to form a perennial watercourse corridor located between Coles Road and Interstate 91 that is tributary to the Mattabesset River.

Wetland Resource Area Delineation

Connecticut registered Soil Scientists conducted field investigations during the spring, summer, and fall of 2021 to perform wetland delineations throughout the Site. The wetland boundaries were delineated in accordance with both the Connecticut Inland Wetlands and Watercourses Act (the "Act") regulations and the *Corps of Engineers Wetland Delineation Manual* (1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, Version 2.0 (January 2012; "Corps Manual"). The results of this wetland investigation are summarized in the discussions below.

Federal and State Wetlands

The Corps Manual defines wetlands as "[t]hose areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

The Act defines wetlands as areas of poorly drained, very poorly drained, floodplain, and alluvial soils, as delineated by a soil scientist. Watercourses are defined as bogs, swamps, or marshes, as well as lakes, ponds, rivers, streams, etc., whether natural or man-made, permanent or intermittent. Intermittent watercourse determinations are based on the presence of a defined permanent channel and bank, and two of the following characteristics: (1) evidence of scour or deposits of recent alluvium or detritus; (2) the presence of standing or flowing water for a duration longer than a particular storm incident; and (3) the presence of hydrophytic vegetation.

For descriptive purposes, a total of 13 wetlands and were identified on Site along with six (6) confirmed vernal pools (Vernal Pools 1, 2, 4, 6, 7, and 9). The Existing Wetland Resources map provided in the Figures Attachment depicts the various delineated wetland and vernal pool resources. The Project Site Plans, provided under separate cover, also show these delineated resources along with the associated Upland Review Areas.

Irrigation Pond – Wetland 1 and Vernal Pool 7

A man-made dug irrigation pond, identified as Wetland 1 and Vernal Pool 7, is located in the east-central area of the Site. The isolated pond consists of steep cut embankments with a poorly to very poorly drained silted/organic filled bottom which experiences semi-permanent flooding. During low points in the pond's hydroperiod and drought conditions, it appears this feature drains down with emergent vegetation dominating the saturated soil surface. There is no visible inlet or outlet to or from this pond; it is entirely isolated hydraulically from any surrounding wetland or watercourse features via surface connection with hydrology apparently tied to the seasonal fluctuations of the local groundwater table. The nearest wetland feature is located ±635 feet to the southwest consisting of a forested wetland (Wetland 3). Vernal Pool 7/Wetland 1 is likely connected via groundwater to nearby Wetlands 7/3/8 via the western groundwater flow direction.

Soils surrounding the irrigation pond were field classified and identified as an upland soil unit consisting primarily of somewhat excessively drained glaciofluvial (outwash) Hartford loamy sand and excessively drained Manchester gravelly sandy loam. Field classification of soils surrounding the irrigation pond are consistent with digitally available soil survey information obtained from the Natural Resources Conservation Service. Some anthropogenic disturbance to soil profiles surrounding the irrigation pond was observed along with soil mounds indicative of the historic excavation activities in upland soils that resulted in creation of this feature. Photographs of the pond are provided in Attachment A.

Provided below is a summary of historical resources that were reviewed and relied upon to determine when the irrigation pond was created and what conditions existed prior to the pond's excavation.

- 1949 Aerial Photograph – depicts disturbed open upland field surrounded by cultivated agricultural fields; disturbance appears to be associated within intial excavation into the upland sandy outwash soils for the future creation of the irrigation pond.

- 1952 USGS Topographic Map – no irrigation pond shown; USGS map developed topography from surveys in circa 1942, revised in 1952 based on 1951 aerial photography.

- 1952 Aerial Photograph – depicts the irrigation pond excavation complete and the pond filled with water; open cultivated fields surround the newly create pond with no vegeation surrounds the banks of the pond. The rectangular form of the pond bears out the anthropogenic nature of the pond's creation.

- 1962 Aerial Photograph – depicts the extent of the irrigation pond with minimal vegetation/bare soil in the banks surrounding the pond; the water level appears to be well below the banks of the pond, indicative of the pond's creation within the surrounding upland sandy soils.

- 1972 USGS Topographic Map – depicts the irrigation pond surrounded by open fields.

These historic aerial photographs and topographic USGS maps reveal construction of the irrigation pond was initiated circa 1949 and completed circa 1952. These historical aerials and maps also reveal the pond was located in an upland field with no evidence that wetlands existed in this location prior to excavation of the pond. This determination is further supported by recent observations of the water level in the pond being dry in November 2020, containing ±2 of feet of inundation in December 2020, ±3 feet of inundation in January 2021, fluctuation of ±2-3 feet of inundation generally throughout the spring and summer of 2021, and ±4 feet of inundation in spring 2022. Inundation levels in the pond during these periods of observation were 5 to 6 feet below the elevation of the surrounding cultivated fields which occur within somewhat excessively and excessively drained glacial outwash soils.

Based on the pond's isolated anthropogenic morphology and exclusive association with the surrounding agricultural fields to provide irrigation water, this pond would not be classified as Waters of the United States under the Federal Clean Water Act ("CWA") regulations and its preamble. However, the irrigation pond is regulated under the Agency's regulations and the Act.

The preamble to the Corps regulations at CFR Section 328.3, Definitions, states that the Corps does not generally consider the following waters to be Waters of the United States ("WOTUS"), although they reserve the right to regulate the following waters on a case-by-case basis.

Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.

As documented herein, the irrigation pond was created by excavating in upland soils for the exclusive purpose of providing irrigation to cultivated agricultural fields that surround the pond.

The Applicant petitioned the Army Corps of Engineers, New England District ("Corps") requesting a jurisdictional determination ("JD") under the CWA regulations for a determination on the irrigation pond. The Corps agreed that the irrigation pond is exempt from the CWA regulations and would not be classified as WOTUS. A copy of the Corps' correspondence and the JD request, which includes the referenced historic aerial photographs, is provided in Attachment B.

Wetland Evaluation

There are many methods of evaluating wetlands, all incorporating different parameters to assess these resources. This study uses methodology recommended by the Corps, *The Highway Methodology Workbook Supplement, Wetland Functions and Values: A Descriptive Approach* issued by the Corps, dated September 1999. This evaluation provides a qualitative approach in which wetland functions can be considered Principal, Secondary, or unlikely to be provided at a significant level. Functions and values can be Principal if they are an important physical component of a wetland ecosystem (function only), and/or are considered of special value to society, from a local, regional, and/or national perspective. The Corps recommends that wetland values and functions be determined through "best professional judgment" based on a qualitative description of the physical attributes of wetlands and the functions and values exhibited.

The basis for determination of this qualitative approach relies on over 30 years of field experience and extensive knowledge of other scientific methods used for wetland evaluation purposes.

These functions and values can be grouped into four basic categories as follows:

Biological Functions

Fish and Shellfish Habitat — This function considers the effectiveness of seasonal or permanent waterbodies associated with the wetland in question for fish and shellfish habitat.

Wildlife Habitat — This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered. Species lists of observed and potential animals should be included in the wetland assessment report.

Production Export (Nutrient) — This function relates to the effectiveness of the wetland to produce food or usable products for humans or other living organisms

Hydrologic Functions

Floodflow Alteration (Storage & Desynchronization) — This function considers the effectiveness of the wetland in reducing flood damage by attenuation of floodwaters for prolonged periods following precipitation events.

Groundwater Recharge/Discharge — This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. Recharge should relate to the potential for the wetland to contribute water to an aquifer. Discharge should relate to the potential for the wetland to serve as an area where groundwater can be discharged to the surface.

Water Quality Functions

Sediment/Toxicant/Pathogen Retention — This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens.

Nutrient Removal/Retention/Transformation — This function relates to the effectiveness of the wetland to prevent adverse effects of excess nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.

Sediment/Shoreline Stabilization — This function relates to the effectiveness of a wetland to stabilize streambanks and shorelines against erosion.

Societal Values

Recreation (Consumptive and Non-Consumptive) — This value considers the effectiveness of the wetland and associated watercourses to provide recreational opportunities such as canoeing, boating, fishing, hunting, and other active or passive recreational activities. Consumptive activities consume or diminish the plants, animals, or other resources that are intrinsic to the wetland, whereas non-consumptive activities do not.

Educational/Scientific Value — This value considers the effectiveness of the wetland as a site for an “outdoor classroom” or as a location for scientific study or research.

Uniqueness/Heritage — This value relates to the effectiveness of the wetland or its associated waterbodies to produce certain special values. Special values may include such things as archaeological sites, unusual aesthetic quality, historical events, or unique plants, animals, or geologic features.

Visual Quality/Aesthetics — This value relates to the visual and aesthetic qualities of the wetland.

Threatened or Endangered Species Habitat — This value relates to the effectiveness of the wetland or associated waterbodies to support threatened or endangered species.

The degree to which a wetland provides each of these functions is determined by one or more of the following factors: landscape position, substrate, hydrology, vegetation, history of disturbance, and size. Each wetland may provide one or more of the listed functions at Principal levels.

The determining factors that affect the level of function provided by a wetland can often be broken into two categories. The effectiveness of a wetland to provide a specified function is generally dependent on factors within the wetland whereas the opportunity to provide a function is often influenced by the wetland's position in the landscape and adjacent land uses. For example, a depressed wetland with a restricted outlet may be considered highly effective in trapping sediment due to the long residence time of runoff water passing through the system. If this wetland is located in gently sloping woodland, however, there is no significant source of sediment in the runoff therefore the wetland is considered to have a small opportunity of providing this function.

Table 1 provides a summary of functions and values supported by wetlands identified on the Site.

Table 1- Wetlands Functions and Values Summary

Wetland I.D. Number	Groundwater Recharge/ Discharge	Floodflow Alteration	Fish & Shellfish Habitat	Sediment/Toxicant/ Pathogen Retention	Nutrient Removal/Retention/ Transformation	Production Export	Sediment/Shoreline Stabilization	Wildlife Habitat	Recreation	Educational/Scientific Value	Uniqueness/Heritage	Visual Quality/Aesthetics	Endangered Species Habitat
1	S	-	-	-	-	-	-	P	-	S	-	-	-
2	S	-	-	-	-	-	-	P	-	S	-	-	-
3	S	S	-	S	S	S	-	S	-	-	-	-	-
4	P	P	S	P	P	S	P	P	-	S	-	S	S
5	P	P	S	P	P	S	P	P	-	S	-	-	S
6	S	-	-	S	S	S	-	P	-	S	-	-	S
7	P	S	-	S	S	S	-	P	-	S	-	-	S
8	S	S	-	-	-	-	S	S	-	-	-	-	-
9	S	-	-	S	S	-	-	P	-	P	-	-	S
10	S	-	-	S	S	-	-	P	-	P	-	-	S
11	S	-	-	-	-	-	-	S	-	-	-	-	-
12	P	P	S	P	P	S	P	P	-	S	-	P	P
13	-	-	-		-	-	-	-	-	-	-	-	-
P = Principal Function/Value													
S = Secondary Function/Value													
- = Not a Significant Function/Value													

Vernal Pools Surveys

Vernal pool physical characteristics can vary widely while still providing habitat for indicator species. "Classic" vernal pools are natural depressions in a wooded upland with no hydrologic connection to other wetland systems. Often, vernal pools are depressions or impoundments within larger wetland systems. These vernal pool habitats are commonly referred to as "cryptic" vernal pools. Also, some man-made basins can unintentionally result in creation of productive vernal pools. Vernal Pool 7 is an example of this phenomena having been intentionally

dug in upland soils to create an irrigation pond and due to relatively recent lack of maintenance it has unintentionally created a vernal pool habitat. Several species of amphibians depend on vernal pools for reproduction and development. These species are referred to as indicator, or obligate, vernal pool species and their presence in a wetland during the breeding season helps to identify that area as a vernal pool.

Several of the wetlands located on Site were found to contain vernal pool physical characteristics (either 'classic' or 'cryptic' styles). Several surveys were performed during the spring 2021 and 2022 vernal pool breeding seasons to verify use of the suspected vernal pool habitat areas by breeding vernal pool indicator species (i.e., wood frog, spotted salamander, fairy shrimp, etc.). During each inspection, a survey of all inundated areas within the identified wetlands was performed including both auditory and visual survey techniques, extensive dip netting throughout the inundated area and cover searches in the surrounding uplands.

The surveys confirmed six (6) vernal pools (Vernal Pools 1, 2, 4, 6, 7, and 9). Potential vernal pools 5 and 8, identified originally in 2021, were determined not to support any breeding by vernal pool indicator species and therefore determined not to be classified as a vernal pool. Vernal Pool 3, which contained low breeding activity by vernal pool indicator species in 2021 due to runoff from the adjacent contractor yard, has now been impacted to such a degree that it no longer supports breeding and therefore is no longer classified as a vernal pool. The following sections provide a description of both the physical and biological characteristics of these vernal pools.

Vernal Pool Physical Characteristics

Vernal Pool 1

Pool 1 is a small cryptic pool. The maximum observed depth of inundation was 8 inches. The pool occupies the small area of seasonal flooding located in the southwest portion of Wetland 5. The overall wetland is gently sloping and has predominately a saturated hydrology, with no seasonal flooding. The pool has a small overflow that carries peak flows out of the pool to the northern portions of the wetland. The pool interior contains a few vegetated hummocks.

Vernal Pool 2

Pool 2 is a classic style vernal pool. The hydrology is seasonally flooded, and the maximum observed depth of inundation was 18 inches. This is a typical classic vernal pool found in oak-dominated forests, with tea colored water (resulting from oak tannins) and no interior vegetation.

Former Vernal Pool 3

Pool 3 is a very small cryptic pool occupying the southernmost lobe of Wetland 6. The maximum observed depth of inundation was 8 inches. Shrub-covered hummocks occur throughout the pool. This pool is located immediately downslope of the existing contractor yard that includes a large soil stockpile that is not protected with an erosion control barrier. As a result, the has been a

significantly impacted by sediment discharge to the wetland and pool. Breeding activity was found to be significantly suppressed during the 2021 inspection and found to be non-existent in 2022 as a result of this activity. Based on the level of impact observed to the pool in 2022 and the lack of any breeding activity this feature is no longer considered to be classified as a vernal pool.

In 2021, Vernal Pool 3 had only one spotted salamander egg mass, with no other activity from vernal pool indicator species. Chorusing spring peeper were also observed along the perimeter of the pool. At that time, sediment discharge from the adjacent stockpile had impacted the wetland, resulting in silt-covered pool bottom and shallow waters. During this year's survey, no egg masses were observed, and a significant amount of sediment has discharged into this wetland since the previous visit. The result is a further shallowing of the water depth, and a thorough intrusion of sediment onto the pool bottom.

Vernal Pool 4

Pool 4 is a very large cryptic pool that occupies most of Wetland 7. The maximum observed depth of inundation was 26 inches. Wetland 7 forms the headwaters to Wetlands 4 and 8 located downstream (west of an existing access road that leads to the contractor yard). The pool has a long hydroperiod, with interior portions having a semi-permanently flooded hydrology. The central portions of the pool have an open canopy with dense shrub cover providing numerous attachment sites for egg masses.

Potential Vernal Pool 5

Potential Vernal Pool 5 was identified during November of 2020, based on the presence of hydrologic indicators that suggested there was potential for shallow seasonal flooding just upslope of the culvert inlet where Wetland 3 drains under the existing access road into Wetland 8. The area was revisited on April 4, 2021 and again on April 4, 2022. The area has a gentle slope that directs sheet flow to the culvert and lacks sufficient concavity for deeper water to develop. The maximum observed depth of inundation was 1-2 inches, far too shallow to be able to support amphibian breeding. Therefore, this area was determined not to contain sufficient physical or biological characteristics to be classified as a vernal pool.

Vernal Pool 6

Pool 6 is a classic vernal pool located along the northeast corner of the Site, with the easterly half of the pool occurring offsite on the adjoining Town of Cromwell Watrous Park property. The maximum observed depth of inundation was 20 inches. The pool has a long hydroperiod, and the interior portions may be semi-permanently flooded. Most of the pool has an open canopy due to the adjacent agricultural land use located along the north, west and south sides of the pool; the area in the adjacent Watrous Park is forested. The central portions of the pool contain dense shrub cover, while the northeasterly portions of the pool are forested.

Vernal Pool 7

Pool 7 is a constructed irrigation farm pond located within the eastern agricultural field. It has a seasonally flooded hydrology, with a maximum observed depth of inundation of 50 inches. The pool is roughly kidney-beaned shaped, with the water depth in the northern portion of the pool being roughly twice as deep as the southern portion. The pool contains steeply sloping banks with no interior emergent vegetation present. The pool contains submergent and floating aquatic beds along with dense filamentous algae growth.

Potential Vernal Pool 8

Potential Vernal Pool 8 was first identified in the fall of 2021 during wetland delineation work east of Shunpike Road. The potential pool consisted of a very small pocket of deeper water generally 6 inches deep, roughly 15 feet by 15 feet in size, embedded within the upper (northern) extension of Wetland 4 which otherwise had a saturated hydrology. The pool was revisited on March 30, 2022. The ponded area was approximately 10 feet by 10 feet in size with a maximum depth of 5 inches. It contained no egg masses or other evidence of amphibian breeding. Therefore, this area was determined not to contain sufficient hydrologic or biological characteristics to be classified as a vernal pool.

Vernal Pool 9

Vernal Pool 9 was not surveyed in 2021 but was confirmed as a breeding pool this year. It is a small classic pool that slopes gently to the north, with a small overflow channel that discharges to north, maintaining a maximum depth of inundation at approximately 8 inches during spring high water. The pool has little to no interior vegetation except for several small hummocks vegetated with cinnamon fern (*Osmunda cinnamomea*) and skunk cabbage (*Symplocarpus foetidus*). The perimeter vegetation red maple (*Acer rubrum*), swamp white oak

Vernal Pool Biological Characteristics

Overall, good productivity of vernal pool indicator species was observed in many of the identified vernal pools. A summary of the vernal pool surveys identifying species and egg masses observed in both 2021 and 2022 is provided in Table 2.

Table 2 - 2021 & 2022 Vernal Pool Survey Results

2022				
ID	Spotted Salamander (egg masses)	Wood Frog (egg masses)	Fairy Shrimp (presence)	Additional Species
1	27	12	-	-
2	64	10	Yes	-
3	0	0	-	-
4	49	~100	-	wood duck, spring peeper
6	12	~94	-	spring peeper, green frog tadpole
7	29	1	-	green frog tadpole, painted turtle, spring peeper
9	18	5	-	-
*Species in red are new species not observed during the 2021 surveys				
2021				
Vernal Pool	Spotted Salamander (egg masses)	Wood Frog (egg masses)	Fairy Shrimp (presence)	Additional Species
1	10	-	-	-
2	44	37	Yes	-
3	1	-	-	spring peeper
4	55	~100	-	spring peeper, wood duck
5	-	-	-	
6	2	~150	-	spring peeper, wood duck
7	51	4	-	spring peeper

Habitat fragmentation (both aquatic and terrestrial) adjacent to Vernal Pools 3 and 4 has resulted from industrial development on Map No. 36 – Lot 10 (existing contractor material storage yard). This development in combination with the agricultural use of the Site (and associated historic alterations) to the east of these two vernal pools has limited the value of the terrestrial habitat (200-foot vernal pool Upland Review Area) to support vernal pool indicator species trying to use these pools. The degree of disturbance to Vernal Pool 3 has escalated to a degree that it no longer supports breeding activity by vernal pool indicator species and is no longer classified as a vernal pool as a result.

Current agricultural use and associated historic alterations to the 200-foot vernal pool Upland Review Area has also resulted in suboptimal terrestrial habitat surrounding Vernal Pools 6 and 7 (irrigation pond/Wetland 1). The cultivated open fields that entirely surround Vernal Pool 7 and surround the western side of Vernal Pool 6 (half of which is located on the adjacent town-owned property) are considered to support suboptimal terrestrial habitat due to the lack of vegetative cover, the agricultural disturbances that can result in direct mortality from farm equipment and implements and the higher level of predation that can occur due to a general lack of cover as adult amphibians migrate to and from the pool to breed and juveniles disperse. A more detailed discussion of the terrestrial habitat, or lack thereof, surrounding Vernal Pool 7 is provide in the following section. Vernal pool indicator species such as wood frogs and spotted

salamander rely on suitable forested terrestrial habitat (e.g., forested uplands and wetlands) for the majority of their life cycle.

The Existing Wetland Resources map provided in the Figures Attachment depicts the various delineated vernal pool resources and character of the 200-foot vernal pool Upland Review Area. The Project Site Plans, provided under separate cover, also show these delineated resources along with the associated Upland Review Areas.

2022 Vernal Pools Survey

The 2022 breeding season for vernal pool indicator species began later this year than what has been typical for the last five years. The recent trend had breeding migration beginning earlier in the season, with the last week of February to first week of March becoming common in recent years. This is particularly true for the early breeding mole salamanders such as the blue-spotted salamander complex (*Ambystoma laterale*) or Jefferson salamander complex (*Ambystoma jeffersonianum*). This year, the breeding migration began towards mid-March across much of Connecticut and was protracted due to refreeze conditions after an early March warm-up. This resulted in a protracted breeding season at many pools, as evidenced by egg masses in varying stages of development within the same region or the same breeding pool. At many pools, embryo mortality from the mid-March refreeze was observed, particularly in wood frog.

Egg mass surveys were conducted on March 31, April 4 and 13, with the work being conducted under partly to mostly sunny skies to aid in egg mass detection. During the March 31st survey, ice covered many of the pools, hampering observations at some locations that were revisited on the following visit on April 4th.

Vernal Pool 7 (Irrigation Pond)

With the Project's only direct vernal pool impact occurring to Vernal Pool 7, a more detailed discussion of surveys performed within the pool and in the surrounding terrestrial habitat are provided below.

Search Effort/Conditions

Egg mass surveys were conducted initially on April 4th and again on April 13th, 2022. On both days, despite the clear sunny skies, search conditions were considered poor due to deep water (the maximum depth was deeper than in 2021, at 4 feet), turbid/tannic water, and a greater presence of duckweed (*Lemna minor*) covering portions of the pond. These conditions, coupled with the fact that the pool is so large, may have contributed to the lower egg mass totals when compared to the 2021 survey results. However, it is unlikely that the lower egg mass counts observed this year (22 less spotted salamander egg masses and three less wood frog egg mass) is wholly attributable to these search conditions given the significant reduction in breeding productivity of spotted salamander from the 2021 observations.

Vernal Pool Envelope Habitat Assessment

The Vernal Pool Envelope ("VPE"; the area 0-100' around the vernal pool edge) habitat quality was evaluated for its suitability as terrestrial habitat for indicator species. The average width of the VPE that contains tree and shrub cover was estimated at 50 feet. This VPE vegetation consists of closed canopy tree cover with tree species including small to large sawtimber hardwoods ranging in size generally from 14 inches to 30 inches d.b.h. The dominant tree species are cottonwood (*Populus deltoides*), red oak (*Quercus rubra*), black oak (*Quercus velutina*), hickories (*Carya sp.*) and red maple (*Acer rubrum*). There is a broad (sun-leaning) dripline on the outer trees bordering the adjacent cornfield. The shrub and midstory vegetation within the dripline is dominated by a dense growth of autumn olive (*Elaeagnus umbellata*) and multiflora rose (*Rosa multiflora*) and bush honeysuckle (*Lonicera morrowii*).

The terrestrial habitat quality of the VPE for mole salamanders and wood frog is low because the microhabitat conditions lack sufficient/sustained moisture content necessary to support long-term inhabitation by vernal pool amphibians. This is the result of several factors: (1) the narrow width of the vegetated buffer (avg. 50 feet) increases high sun exposure; (2) the topsoil layer is thin and has low organic matter content; (3) there is little to no duff layer present; (4) fine root masses interspersed with organic material is lacking; (5) abundant cover objects are lacking, including and most importantly, cover objects embedded within both the topsoil and duff layer. All of these factors result in a conclusion that the population of adults and dispersing juvenile vernal pool herpetofauna utilizing Vernal Pool 7 are unlikely to use this low quality and narrow VPE and most likely use the relative high quality forested terrestrial habitat nearby to the west.

Based on the low quality habitat present within the VPE, the likely terrestrial forest habitat supporting this population lies 400 feet to the southwest of the pool. The directional location of this forest coincides with the location of most of the spotted salamander egg masses observed in the pool. 25 of 29 spotted salamander egg masses were located along the west-southwest shore, suggesting this western shoreline was the point of entry for breeding females. While deposition location is not always directly correlated with the point of entry, in this case, with the presence of homogenous habitat with uniform bathymetry (and corresponding water depths), egg mass location likely indicates the point of entry.

Road Alignment Terrestrial Habitat Evaluation

An evaluation of the amphibian terrestrial habitat within the vicinity of the proposed access road alignment was conducted. This includes habitat located in proximity to Vernal Pools 1, 2, 4 and 9. These habitats are illustrated on Vernal Pool & Terrestrial Habitat Map provided in the Figures Attachment. Identified habitats include: (1) fallow tree farm/meadow; (2) woodland/immature forest; and (3) mature second growth mixed hardwood forest.

The fallow tree farm consists of row planted coniferous trees, with the areas between the planted rows succeeding to "old field" vegetation that is currently

dominated by meadow species (grasses, forbs, wildflowers). The dominant herbaceous species in the invasive non-native mugwort (*Artemesia vulgaris*). This area offers transitory habitat for vernal pool indicator species migrating to and from breeding pools, but due to the lack of cover (and ground conditions that limit moisture as noted around the farm pond described above), long-term use as terrestrial habitat is not anticipated.

Between Shunpike Road and the tree farm, there was former agricultural field that went fallow sometime between 1992 and 2004[1]. This area primarily occupies the terrestrial habitat in proximity to Vernal Pools 2 and 9. Portions of this former field now consist of immature hardwood forest, with the tree species consisting of cottonwood, cherry (*Prunus serotina*), oaks (*Quercus sp.*) and maple (*Acer sp.*). Within these hardwood tree dominated areas, forest succession and canopy closure occurred more quickly when compared to other portions of this former field that became dominated by autumn olive (interspersed with native hardwoods) which slowed canopy closure.

This former field area offers lower quality terrestrial habitat then the surrounding mature second growth forest. This is due to the following factors which limited the moisture holding capacity of the terrestrial cover, like the condition noted around the farm pond. Contributing factors include: (1) the topsoil layer is thin and has low organic matter content; (3) the leaf litter and duff layers are thin (<3 inches thick); (4) fine root masses interspersed with organic material is lacking; (5) abundant cover objects are lacking. However, it should be noted that the sub-optimal habitat conditions observed are temporal in nature; over time (on the order of decades) the habitat quality will improve as canopy closure increases, resulting in deeper shading and more well-developed topsoil and duff layers.

Siting new roads within terrestrial habitat proximate to productive vernal pools is not advisable, particularly when the traffic volumes exceed 10 vehicles per hour. However, since it is not possible to site the access road in areas that would completely avoid terrestrial habitat given the extent and distribution of vernal pools on the Site, situating the access road within sub-optimal habitats identified as part of this evaluation reduces loss to the highest quality terrestrial habitat. This measure coupled with locating the access road to the outer limits of the vernal pool terrestrial habitat zone (furthest to the south in proximity to Vernal Pools 1, 2, and 9 and furthest to the north in proximity to Vernal Pool 4, as is feasible) where amphibian densities are expected to be lower than areas closer to the pool will minimizes potential impacts to herpetofauna.

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[1] Based on available aerial photographs (via CT ECO or Google Earth), the field is visible as a maintained agricultural field in 1992, and is revegetating in the next available photograph in 2004.

Proposed Regulated Activities and Impact Analysis

The proposed project consists of a warehouse building with a footprint of approximately 1,042,840 SF, as well as 163 loading docks, 518 trailer parking spaces, 369 associate parking spaces, and associated site improvements including drainage, utilities, and landscaping. Existing grades will be modified to accommodate the proposed development and the operational needs of the facility.

The following section summarizes development activities classified as "regulated activities" as defined by the IWWA's regulations and for which a permit application has been submitted to the IWWA. All proposed activities in and around wetlands and vernal pools, including the 100-foot Upland Review Area to wetlands and the 200-foot Upland Review Area to vernal pools, are depicted on the Regulated Activities Map provided in the Figures Attachment. Details of the proposed regulated activities are also shown on the Project Site Plans, submitted under separate cover.

For purposes of clarity, activities within the upland review areas have been segregated into two main categories. Those associated with the proposed development activities (i.e., building, parking, access, stormwater management, etc.) are the principal focus from a regulated activity standpoint. The second is associated with mitigation measures proposed to create and enhance various wetland, vernal pool, upland review areas and terrestrial habitats. This second category by its very nature often requires these enhancement areas to be located in close proximity to wetland resources areas to afford the greatest benefit. Although these types of regulated activities result in a significant benefit to wetland resources, they are technically still considered a regulated activity under the IWWA regulations since they involve activities within regulated upland review areas.

The fundamental concept of wetland impact analysis is based on the precept that wetland impacts should first be avoided where possible. Secondly, if practicable alternatives do not exist to avoid wetland impacts, then impacts should be minimized. Thirdly, unavoidable wetland impacts should be mitigated.

The proposed Facility development has been designed to the extent possible to avoid impact to wetland and vernal pool resource areas and minimize development in the 100-foot and 200-foot Upland Review Areas while satisfying the building program needs of Project Highlands. Despite the design team's best efforts, the Project will result in unavoidable direct wetland impacts associated with improvements to an existing wetland/watercourse crossing (Wetland 4) for the proposed access road and to the irrigation pond (Wetland 1/Vernal Pool 7) for the proposed warehouse building.

However, as part of the 2021 wetland permit application submission and associated receipt of comments from the IWWA, staff, members of the public and the peer reviewer, certain aspects of the 2021 proposed project have been improved with this application. In order to highlight some of that progress, the

following discussion of regulated activities also references the 2021 Project to emphasize those changes.

Direct Wetland Impacts

A summary of the Project's unavoidable direct wetland impacts is provided in Table 3 below.

Table 3- Direct Wetland Impacts

Wetland ID Association	Area of Permanent Impact (SF)	Area of Temporary Impact (SF)	Description
1	18,007	0	Associated with warehouse impact to Wetland 1/Vernal Pool 7; all work within former man-made irrigation pond feature
4	1,387	891	Associated with access road crossing at former farm road crossing location; temporary impacts will be restored to original wetland condition; also includes ±50 ln. ft. of man-made drainage swale associated with sewer main
Total	19,394	891	

Warehouse – Irrigation Pond (Wetland 1/Vernal Pool 7)

The largest developable area that is capable of supporting the proposed Facility on the Site is located in the central-east portion of the property associated with a large, cultivated field. Although the irrigation pond is centrally located in this field and therefore avoidance of impacting this man-made feature is not possible, positioning the Facility in this location allows for avoidance of naturally occurring wetlands to the north, east and west which support higher functions and values than the irrigation pond. As a result, ±18,007 SF of wetlands and vernal pool (Wetland 1/Vernal Pool 7) will be directly impacted by the proposed development, which is unchanged from the 2021 Project.

Access Road Culvert – Wetland 4/Perennial Watercourse

The proposed access road to Shunpike Road requires crossing of Wetland 4, which includes an unnamed perennial watercourse. Wetland 4 is located across the Site's entire frontage along Shunpike Road, so any access out to Shunpike Road requires crossing of this resource. The possible use of Geer Street, a local street used by residences and bus traffic for two of Cromwell's public schools, which would avoid the need to cross Wetland 4, was not deemed an appropriate access for the proposed Project. The location of the access road on Shunpike Road was selected to be aligned with a former farm road crossing of Wetland 4 and its perennial watercourse (a washed out culvert still remains along with gravel roadbed approaches to either side) to minimize impacts to both resource areas.

Based on the data obtained, geometery of the culvert area, and design requirements, the ideal culvert cross-section is a three sided box culvert with an opening of 5-feet tall by 16-feet wide. The proposed culvert length will be 60 feet at a slope of 0.5%. A 16-foot wide open bottom box culvert (expanded from

a 12-foot wide structure proposed in the 2021 Project) will completely span the watercourse channel avoiding any direct impacts to the watercourse. In addition, the culvert shall have an openness ratio greater than 0.82-feet, to provide for adequate passage of wildlife. Culvert openness is identified as the cross-sectional area of the culvert divided by its length. Retaining walls to either side of the proposed wetland crossing reduces the area of wetland impacts by minimizing the spread of filled side slopes. As a result, only ±1,387 SF of wetlands will be directly impacted by this activity (reduced from ±3,047 SF in the 2021 submission). Temporary wetland impacts of ±891 SF associated with installation of erosion control measures will be restored back to existing conditions. A disturbed man-made drainage swale created when the sewer main was installed along Shunpike Road would also be impacted. Approximately 50 linear feet of this drainage swale, regulated as an intermittent watercourse, would be impacted by the curb cut area of the proposed access road onto Shunpike Road.

The proposed three sided open culvert design complies with natural stream crossing design standards and in particular, Appendix G – Stream Crossing Best Management Practices (BMPs) contained in the Department of the Army Regional General Permits for the State of Connecticut, effective date: December 15, 2021, expiration date: December 15, 2026.

100-foot Wetland Upland Review Area Activities

In total, the Project will result in ±195,252 SF (reduced from ±214,005 SF associated with the 2021 Project) of activities within the 100-foot wetland Upland Review Area. More than half of the 100-foot Upland Review Area activity is associated with direct impacts to the irrigation pond (Wetland 1), accounting for ±100,599 SF. The majority of this upland review area consists of cultivated agricultural field, providing limited benefits typically associated with wetland buffers. Table 4 summarizes the upland review area activities organized by wetland ID.

Table 4 - 100-foot Wetland Upland Review Area – Development Activities

Wetland ID Association	Activity within URA (SF)	Description
1	100,599	Associated with warehouse impact to Wetland 1/Vernal Pool 7/ man-made irrigation pond; all work within narrow wooded area with majority of area in existing cultivated field
2	4,672	Associated with infiltration basin E-2, level spreader and grading; all work within or at edge of existing cultivated field/cleared area
3/8	14,023	Associated with a level spreader outfall from extended dry detention basins B4 & B-5 and associated grading
4	53,832	Associated with access road crossing of Wetland 4; area west of crossing was previously disturbed by Shunpike Road, sewer main and former farm road crossing; area east of crossing was partially disturbed by former farm road crossing and a third of the area associated with flood compensatory storage/forested floodplain mitigation area
6	22,126	Associated with infiltration basin E-2, level spreader and grading; all work within existing disturbed contractor yard
Total	195,252	

With the exception of the Wetland 4 crossing and irrigation pond (Wetland 1) regulated activities, all of the remaining activities in the 100-foot wetland Upland Review Area do not include impervious surfaces.

Mitigation activities that will enhance nearby wetland resources will result in ±214,065 SF of activity in the 100-foot Upland Review Area as summarized below in Table 5.

Table 5 - 100-foot Wetland Upland Review Area – Mitigation Activities

Wetland ID Association	Activity within URA (SF)	Description
2	39,470	Associated with Vernal Pool 6 terrestrial enhancements
4	6,507	Associated with floodplain compensatory storage floodplain creation area
4/8	31,045	Associated with terrestrial enhancements in fallow nursery meadow
7	43,072	Associated with Vernal Pool 4 terrestrial enhancements within existing cultivated field and disturbed contractor yard
9	1,454	Associated with Vernal Pool 2 terrestrial enhancements within fallow nursery meadow
12	92,517	Associated with wetland and vernal pool creation areas and upland review area enhancements within existing agricultural field
Total	214,065	

200-foot Vernal Pool Upland Review Area Activities

In total, the Project will result in ±273,445 SF of activities within the 200-foot vernal pool Upland Review Area. This represents a ±76,220 SF reduction in activity in the 200-foot vernal pool Upland Review Area when compared to the 2021 Project. The great majority (96%) of the currently proposed 200-foot Upland Review Area activity is associated with direct impacts to the irrigation pond (Wetland 1/Vernal Pool 7). The majority of this upland review area consists of cultivated agricultural field, providing limited benefits typically associated with vernal pool buffers as discussed previously. Table 6 summarizes development activities proposed in the 200-foot vernal pool Upland Review Area.

Table 6 - 200-foot Vernal Pool Upland Review Area – Development Activities

Vernal Pool ID Association	Area of Activity within URA (SF)	Description
6	9,700	Associated with infiltration basin E-2, level spreader and grading and parking area retaining wall; all work within or at edge of existing cultivated field/cleared area
7	263,745	Associated with warehouse impact to Wetland 1; work mostly occurs within existing cultivated field with small portion in narrow wooded area
Total	273,445	

Please note that a portion of these regulated activities include restoration of terrestrial habitats in proximity to several vernal pools, as summarized in Table 7 below.

Table 7 - 200-foot Vernal Pool Upland Review Area – Mitigation Activities

Vernal Pool ID Association	Activity within URA (SF)	Description
2	20,554	Associated with terrestrial enhancements within existing fallow nursery meadow
4	109,173	Associated with terrestrial enhancements within existing cultivated field and disturbed contractor yard
6	66,008	Associated with terrestrial enhancements within edge of existing cultivated field/cleared area
Total	195,735	

Floodplain Impacts

With the exception of the proposed access road near Shunpike Road, the majority of the access road and the entire Facility is located outside of the 100-year and 500-year flood zones. A flood zone impact analysis has been prepared by Langan and provided under separate cover to calculate the flood storage loss and design a compensatory flood storage area of equal volume to properly mitigate for the volumetric flood loss. The area proposed for compensatory flood storage will be located adjacent to the proposed wetland and watercourse crossing near Shunpike Road and will generally consist of the excavation of areas

previously disturbed by the historic wetland/watercourse crossing. Since the compensatory flood storage area will be adjacent to the existing wetland/watercourse corridor, it will be planted with native wetland shrubs and herbaceous plants to both function as a compensatory storage area and a natural floodplain wetland system. Since the compensatory flood storage area more than adequately replaces displacement associated with the proposed access road, the proposed development will not adversely affect flood hazard zones or downstream resources.

Stormwater Runoff Impacts

The proposed stormwater management system has been designed in general accordance with the Town of Cromwell requirements, the 2004 CTDEEP Stormwater Quality Manual ("SQM"), and the 2000 CTDOT Drainage Manual. The system incorporates stormwater quality measures to promote groundwater recharge and minimize passage of pollutants to downstream receiving waters. It has also been designed to provide peak runoff rate attenuation to significantly reduce the peak rate and volume of stormwater runoff leaving the site under proposed conditions.

A primary goal of the SQM is to provide a comprehensive framework for the long-term protection of natural resources in and around the Site from degradation as a result of stormwater discharges. Another goal of the SQM is to ensure that long-term post-development stormwater quality is protected and that there will be no erosion caused by the development. Details of this analysis are provided in the Stormwater Management Report, prepared by Langan, submitted under separate cover and summarized below.

This project incorporates a vast array of stormwater quality measures, including primary treatment practices, secondary treatment practices, and innovative/emerging technologies as defined by the SQM. Source control will include regular sweeping of parking areas. In addition to attenuating peak runoff rates for the various design storms to less than pre-construction conditions for all storms up to and including the 100 year event, the proposed system has been designed to treat the Water Quality Volume ("WQV").

The proposed conditions drainage patterns maintain the same discharge locations as under the existing conditions for the various sub-watersheds that are associated with wetland locations to ensure the hydrology of the surrounding wetlands are not adversely affected. The proposed drainage systems have been designed to accommodate the Groundwater Recharge Volume ("GRV") and to temporarily store and infiltrate the WQV for the areas being directed toward them.

The proposed treatment measures include sediment forebays, extended detention basin, underground detention systems, wet pond, infiltration basins, landscaped areas, and deep-sump catch basins. All stormwater BMPs have been designed to hold, at a minimum, the WQV for each respective drainage area, with additional storage provided to attenuate peak runoff rates to less than pre-construction conditions for all storms up to and including the 100 year event. Treatment measures include landscaped areas, four-foot deep-sump catch

basins, sediment forebays, infiltration basins, and preformed scour holes. The combination of the aforementioned treatment facilities have been designed with the objective of removing a minimum of 80% of total suspended solids (TSS).

Alternatives Analysis

The purpose for an analysis of impacts to wetland and watercourse resources is to determine if there are any feasible and prudent alternatives to the proposed action.

Feasible is defined as able to be constructed consistent with sound engineering principles and *prudent* is defined as economically and otherwise reasonable in light of the social benefits to be derived from the proposed activity. Cost may be considered, however, a mere showing of expense will not necessarily mean an alternative is imprudent.

The following section provides a discussion of the alternatives that were considered during the design process and the final preferred alternative that seeks to reduce impacts to wetlands to comply with the IWWA's Regulations while satisfying the development goals of the proposed Facility.

No Build Alternative

One alternative is a "no build" alternative. The Site is adjacent to State Route 3 (Shunpike Road) with direct access to Interstate 91 and State Route 9 that avoids using any local roads, making the Site highly desirable from a warehouse use standpoint. In analysis of this "no build" alternative at the Site, the facility could conceivably be located in another location in Cromwell. However, this could result in placing the proposed Facility in a less desirable site which could require traffic to flow along local road systems and potentially conflict with surround land uses. The current Site is zoned industrial and is appropriate for the proposed warehouse use. An alternative location could also potentially result in greater overall impact to ecological resources, possibly including greater wetland and watercourse impacts and to higher functioning valuable wetland and watercourse areas. Therefore, the "no build" alternative is not considered to be a prudent alternative.

Alternative Layouts

The Applicant considered several alternative layouts for the Site. Alternatives were considered if they satisfied the principal goals of the distribution facility while avoiding and minimizing impacts to wetlands and watercourses. Effective development of this Site for any financially feasible purpose is not possible without impacting some wetlands and upland review areas since they encompass a significant portion of the developable upland area due to the extent of wetland resources on the Site. Therefore, the principal goals with respect to activities regulated by the Agency were to avoid and minimize direct impact to high quality wetland resources and avoid and minimize development within the upland review areas to the extent practicable.

Several alternative site designs were evaluated, starting with layouts that were rated as having higher preference since they provided for a facility size and layout more closely resembling the typical warehouse facility prototype and resulted in a shorter access road, then a progression of alternatives that minimized/avoided direct wetland impacts then minimized activities within the upland review areas. Alternative layouts included different building layouts, parking fields, number of parking spaces, width of travel lanes and orientations. The 2021 Project is also provided in this alternatives analysis. For the purposes of this discussion, a total of three alternative concept plans are provided in Attachment C. A summary of the regulated activities associated with each alternative are provided below in Table 8, including the preferred alternative for comparison.

Table 8 - Regulated Activities Associated with Alternative Layouts

Alternative	Area of Regulated Activity			
Layout #	Direct Wetland Impacts (SF)	Direct Vernal Pool Impacts (SF)	100' Wetland URA Impacts (SF)	200' Vernal Pool URA Impacts (SF)
Plan # 1	±61,403	±45,734	±287,177	±441,148
Plan #2	±174,190	±62,700	±600,838	±554,218
Plan #3 (2021 Plan)	±21,054	±18,007	±214,006	±349,665
Preferred Alternative	±19,394	±18,007	±195,253	±273,445

In order to accommodate the proposed building program, various layouts were considered to avoid and minimize impacts to wetland resources. With the wide distribution of wetlands across the Site, extensive areas suitable for a large development such as Project Highlands without any wetland resources just do not exist. As a result, outright avoidance of wetland impacts is not possible, so the design team focused on minimizing wetland impacts to the greatest degree possible. Through this iterative minimization design process, attention was weighted heavier to avoidance of wetland resources with minimal anthropogenic changes that supported higher levels of wetland functions and values. The largest developable area that could support the proposed Facility on the Site is located in the central-east portion of the Site associated with a large, cultivated

field. Although the irrigation pond is centrally located in this field and therefore avoidance of impacting this man-made feature is not possible, positioning the Facility in this location allows for avoidance of naturally occurring wetlands to the north, east and west which support higher functions and values than the irrigation pond.

In a similar manner, alternative access to the proposed Facility was analyzed. For a Facility of this nature, access onto Geer Street which the Site has frontage on (a road that accommodates access to residences and schools) would not be suitable. The Site also has access onto Shunpike Road, State Route 3, which is more suitable for the proposed development. Alternative access routes onto Shunpike Road were evaluated. During the initial design phase of the Site, options were considered on property along the northwest corner of the Site to access Shunpike Road. This would have required an extensive wetland and perennial watercourse crossing resulting in a significant area of wetland impacts. The Applicant went through considerable effort to acquire frontage along Shunpike Road to secure property that historically had a crossing of wetlands and perennial stream in the northwestern portion of the Site. This effort successfully resulted in a significant reduction of wetland impacts by proposing an upgrade to a former wetland and watercourse crossing. Originally proposed with the 2021 Project as a 12-foot wide open bottom box culvert, it has now been expanded to a 16-foot wide open bottom box culvert to not only completely span the existing watercourse channel avoiding any direct impacts but also preserve adjacent areas for additional wildlife movement.

As a result of comments on the 2021 Project received from the IWWA and the peer reviewer, additional refinement in some of the design elements resulted in further reductions of impact to wetland and vernal pool resources areas including their associated upland review areas.

With these design modifications, what is presented in this application is the preferred alternative. This meets the Project purpose and maintains a financially viable project while providing for the minimum building size and minimum number of parking spaces required for the Facility while also minimizing wetland resources impacts to the extent feasible. Any reduction of building or parking field areas would not result in a functionally or financially viable project. Therefore, the preferred alternative is considered the most prudent and feasible alternative.

Mitigation Measures

To compensate for unavoidable impacts to Wetland 1/Vernal Pool 7, Wetland 4, the 100-foot wetland Upland Review Area, and the 200-foot vernal pool Upland Review Area, a comprehensive and extensive mitigation plan has been designed to compensate for these unavoidable impacts. The principal elements of this mitigation plan include the following:

- Wetland and vernal pool creation that provides a 4:1 mitigation to impact ratio along with enhancement to adjacent buffer and terrestrial areas in the northeast portion of the Site within an existing cultivated field proximate to a large wetland system.
- Forested floodplain creation area adjacent to proposed wetland and perennial stream crossing near Shunpike Road.
- Terrestrial habitat enhancement areas in proximity to existing vernal pools will improve existing suboptimal terrestrial habitat for vernal pool indicator species.
- A large nearly 100 acre conservation easement that protects high functioning wetlands, five (5) existing vernal pools, upland and terrestrial habitat and wetland, vernal pool creation areas and adjacent buffer enhancement area.

The totality of this extensive and significant mitigation plan will more than compensate for the project's unavoidable wetland areas lost. In addition to preserving extensive areas of wetlands, vernal pools and upland review area, important terrestrial habitat will be protected that serve multiple wildlife habitat functions including those important to vernal pool indicator species as well as other wildlife.

As a result of the comprehensive mitigation plan, the Project's proposed regulated activities will be properly balanced with the creation of wetland, vernal pool and buffer habitats that provide higher function and value services than those being lost. As a result, the Project will not diminish the wetland resources within the Town of Cromwell either on Site or downstream of the Site.

A suite of mitigation measures is proposed to prevent short- and long-term indirect impacts to wetland resource areas and compensate for unavoidable activities associated with the Project. Details of proposed mitigation measures are provided in the following sections.

Wetland, Vernal Pool and Upland Review Area Mitigation Plan

To compensate for the Project's unavoidable regulated activities, a comprehensive wetland and upland review area mitigation plan is proposed in order to compensate for activities proposed within Wetland 1/Vernal Pool 7, Wetland 4, the 100-foot wetland Upland Review Area, and the 200-foot vernal pool Upland Review Area. Careful consideration has been given to devising a mitigation plan that enhances various wetland functions and values, particularly

wildlife habitat benefits, through creating new wetlands. A summary of the mitigation plan is provided below.

The proposed wetland mitigation plan is depicted on the following graphics provided in the Figures Attachment.

- Wetland and Vernal Pool Creation Area Map
- Forested Floodplain Creation Area Map
- Terrestrial Habitat Enhancement Map

Complete details of this comprehensive mitigation plan are also provided in the Project Site Plans provided under separate cover, including planting schedules, construction sequencing notes, and construction and long-term post construction monitoring of the mitigation areas. A summary of those mitigation activities is provided in Table 9 below.

Table 9 - Wetland Mitigation Creation Areas

Wetland ID Association	Wetland Area (SF)	Vernal Pool Area (SF)	Buffer Enhancement Area (SF)	Description
4	6,514	0	0	Mitigates for 1,387 SF of wetland impact associated with proposed Wetland 4 crossing by creating new forested floodplain wetland habitat
12	71,014	50,485	280,500	Mitigates for 18,007 SF of wetland and vernal pool impact associated with man-made irrigation pond with creation of forested swamp habitat with interior vernal pool habitat; buffer enhancement area mitigates for 273,445 SF of activity within the 200' vernal pool URA, of which 195,252 SF occurs within the 100' URA
Total	77,528	50,485	280,500	Results in a wetland creation/impact ratio of 4:1 and a vernal pool creation/impact ratio of 2.8:1 (doesn't take into account preservation of five (5) vernal pools with conservation easement)

Wetland/Vernal Pool Creation Area

A wetland creation area totaling ±71,014 SF is proposed in close proximity to Wetland 12 within an existing cultivated field. This will provide for a 4:1 mitigation to impact ratio (the 2021 Project provided a 1.2:1 ratio), increasing the area of new wetlands that compensates for the ±19,394 SF of total wetlands impacted. This wetland creation area is designed to support a ±50,485 SF vernal pool that provides a 2.8:1 mitigation to impact ratio for vernal pool habitat. Overall, these creation areas provide a wide variety of important functions and values including biological functions (focus on wildlife habitat), hydrologic functions (focus on groundwater recharge), water quality functions, and societal values (focus on rare species habitat, aesthetics, and education). The new

wetland area will be constructed to a depth that will match and be deeper than the adjacent Wetland 12 wetland elevation through excavation of moderately well drained soils to encounter the locally shallow groundwater table. The wetland creation area will be planted with a variety of native wetland trees, shrubs and herbaceous species to provide a greater diversity (both structurally and species) to what currently is supported within Wetland 1.

Wetland/Vernal Pool Buffer Enhancements

Uplands surrounding the north, east and west sides of the proposed wetland/vernal pool creation area, encompassing a ±286,682 SF area, will be enhanced through the planting of native trees, shrubs and herbaceous vegetation. Considering this buffer area currently consists of a cultivated agricultural field, this buffer area will significantly enhance the wetland/vernal pool creation area and nearby Wetland 12 with a particular focus on improving wildlife habitat function and visual quality/aesthetics value.

Forested Floodplain Creation Area

In addition to the wetland and vernal pool creation areas noted above, ±6,514 SF of the flood compensatory storage area associated with the Wetland 4 crossing will also consist of creation of a forested floodplain wetland. This wetland creation area is located within Wetland 4 and close to the proposed impact area and more than compensates for the ±1,387 SF of wetlands lost.

Terrestrial Habitat Enhancement Areas

Significant portions of the Site, include areas immediately adjacent to productive vernal pools, consist of suboptimal terrestrial habitat. Vernal pool amphibians such as spotted salamander and wood frog rely on mature forested habitat for the majority of their life cycle and only use vernal pools for a short duration during breeding events. Existing terrestrial areas that currently provide suboptimal terrestrial habitat for vernal pool indicator species will be enhanced to create high quality forested habitat that will improve over time the current population of herpetofauna on the Site. A summary of the proposed terrestrial habitat enhancement areas is provided below in Table 10.

Table 10 - Terrestrial Habitat Enhancement Areas

Vernal Pool/Enhancement Area ID	Area of Enhancement (SF)	Description
VP 2 – Area 1	134,648	Associated with terrestrial enhancements within existing fallow nursery meadow
VP 2/4 – Area 2	286,873	Associated with floodplain compensatory storage floodplain creation area
VP 4 – Area 1	186,309	Associated with terrestrial enhancements within existing disturbed contractor yard
VP 4 – Area 2	136,046	Associated with terrestrial enhancements within existing cultivated field
VP 6	80,734	Associated with terrestrial enhancements within edge of existing cultivated field/cleared area
Total	824,610	(18.9 acres)

Access Road, Stormwater & Warehouse Structural Mitigation Measures

Shunpike Road is the only reasonable option for access to the proposed warehouse. With Wetland 4 running parallel to Shunpike Road for the entire Site's frontage, crossing of Wetland 4 is necessary and unavoidable. Using the former farm road crossing of Wetland 4 and its associated perennial stream is the most prudent and feasible option that minimizes wetland impacts to the greatest degree possible. This crossing point drives the western end of the proposed access design and as the access moves eastward there is greater flexibility in changes to the orientation of the road.

As discussed in further detail below, the access road alignment has been adjusted to maximize buffers to Vernal Pools 1, 2, and 9 to the north and Vernal Pool 4 to the south. This adjustment of the access road now places it in the outer limits of the associated vernal pool terrestrial habitat zone where amphibian densities are expected to be lower than areas closer to the pool. By adjusting the road in this fashion, it reduces the impact to vernal pool indicator species.

In addition, the following structural mitigation measures have been incorporated into the access road design to facilitate movement of amphibians across the road and minimize impact and chances for incidental mortality:

- Road width has been minimized to the maximum extent possible.
- Full cutoff Dark Sky Compliant lighting with minimal light intensity fixtures will avoid light spillage beyond the limits of the access road.
- The access road will use low profile Cape Cod style curbing to minimize impediments to migrating herpetofauna.
- The access road's stormwater management will rely on 'soft' green infrastructure elements with sheet flow into stormwater quality swales and bioinfiltration basins and will avoid use of catch basins that could entrap migrating herpetofauna.
- Bioinfiltration basins will be fitted with permanent isolation barriers to avoid creation of decoy pools.
- Tree clearing along the road shoulders are minimize to the greatest extent possible.
- Access road shoulders are designed with gentle grades made of earthen fill (as opposed to stone) to avoid impediments to migrating herpetofauna.
- Erosion control fabric made with plastic netting for stabilization will be avoided to prevent wildlife entanglement.
- Traffic volumes are anticipated to be lower after dark when most amphibian overland movement would occur, further lessening incidental adult mortality to vernal pool indicator species.

The stormwater management features, particularly those located in proximity to vernal pools, can at times create decoy breeding pools and have an impact on populations of breeding vernal pool herpetofauna. To address this concern, all stormwater management features will be surrounded by a permanent restrictive barrier to prevent access by vernal pool indicator species (as well as other wildlife). Animex® wildlife isolation fencing AMX 40 will be used in these areas. Please refer to the Project Site Plans provided under separate cover for specific areas where the Animex® fencing will be installed along with a detail of AMX 40.

Similarly, the proposed warehouse's parking areas, drive isles, and a portion of the access road immediately adjacent to the warehouse will be surrounded by the Animex® wildlife isolation fencing to form a permanent restrictive barrier to prevent access by vernal pool herpetofauna.

Conservation Easement

A nearly ±100 acre portion of the Site is proposed to be placed in a conservation easement. This significant portion of the Site will protect in perpetuity both large expanses of the highest functioning wetlands which includes five (5) vernal pools, among them the Site's most productive vernal pool in Vernal Pool 4. This conservation easement area also encumbers some of the Site's optimal terrestrial habitat that support these vernal pools, providing long-term protection to the existing breeding population of herpetofauna that utilize both the vernal pools and the surrounding terrestrial habitat. In addition, the easement encompasses all of the mitigation areas (wetland creation, vernal pool creation, upland review area enhancements and terrestrial habitat enhancement areas) and preserves habitats used by rare species.

A Conservation Easement Map depicting the location of four conservation areas, summarized in Table 11 below, is provided in the Figures Attachment. As the reader will note when viewing this map, with the exception of nearby Watrous Park, there is little conservation land/open space in this section of Cromwell (or Rocky Hill for that matter). Collectively, the various habitats that will be preserved by this conservation easement have significant ecological value from both a local and regional standpoint and considering the general lack of such conservation land in the surrounding area, the value of this conservation easement is only further heightened.

Table 11 - Conservation Easement Areas

Conservation Easement Area ID	Area of Conservation Easement (SF)	Description
Area 1	1,375,400	Preserves the following habitats: Wetlands 5, 6, 9, 10 & 13; Vernal Pools 1, 2 & 9 and adjacent terrestrial habitat
Area 2	1,115,700	Preserves the following habitats: Wetlands 3, 7, & 8; Vernal Pool 4 and adjacent terrestrial habitat
Area 3	1,690,700	Preserves the following habitats: Wetland 12; Wetland Creation Area; Vernal Pool Creation Area; and Wetland Buffer Enhancement Area
Area 4	135,900	Preserves the following habitats: Wetland 2; Vernal Pool 6; and adjacent terrestrial habitat
Total	4,317,700	(99.12 acres)

The dedication of ±100 acres that includes special wetland and terrestrial habitats adds significantly to the Project's overall mitigation plan and more than compensates for the proposed regulated activities particularly when taken in totality with the over mitigation elements being proposed.

Wetland and Vernal Pool Protection Plan

As a result of the proposed development's location in the vicinity of wetlands and vernal pool habitat, the following BMPs are provided to avoid unintentional impact to wetland habitats or mortality to vernal pool herpetofauna (i.e., spotted salamander, wood frog, turtles, etc.) during construction activities. This plan includes elements that will protect transient herpetofauna should construction activities occur during peak amphibian movement periods (early spring breeding [March 1st to May 15th] and late summer dispersal [July 15th to September 15th]) as well as wetlands regardless of the time of year. The plan also includes accommodations for protection of sedentary vernal pool herpetofauna, depending upon if the project initiates construction activities either during or outside of the breeding season. Complete details of the recommended BMPs are summarized below and provided in full detail in Attachment D, which would be incorporated into the construction drawings upon permit approval to ensure the Contractor is fully aware of the project's environmentally sensitive setting.

A wetland scientist from APT experienced in compliance monitoring of construction activities will serve as the Environmental Monitor for this project to ensure that the following BMPs are implemented properly. The proposed wetland and vernal pool protection program consists of several components including: isolation of the development perimeter; periodic inspection and maintenance of erosion controls and isolation structures; herpetofauna sweeps; education of all contractors and sub-contractors prior to initiation of work on the site; protective measures; and, reporting.

The potential exists for possible short-term impact to herpetofauna (i.e., wood frog, salamanders, turtles, etc.) associated with the nearby vernal pool habitat due to possible encounters with migrating and basking individuals that may

intercept the proposed development footprint should construction occur during their active season. Short-term impacts associated with the proposed development within the terrestrial habitat proximate to the vernal pools would be minimized by the proper installation and maintenance of erosion and sedimentation controls in accordance with 2002 Connecticut Guidelines For Soil Erosion and Sediment Control. Best Management Practices ("BMPs") are proposed during construction in a subsequent section to further avoid/minimize the potential for short-term impact to herpetofauna.

BMPs were developed to avoid unintentional impact or mortality to vernal pool herpetofauna during construction activities. APT recommends establishing a vernal pool protection program consisting of contractor awareness training prior to initiation of construction activities. This plan would identify the potentially sensitive nature of the project, what amphibians and reptiles might be encountered and what to do if they are present. In addition, the vernal pool protection program should include an initial inspection of the silt fence erosion and sedimentation controls that will serve double duty as a restrictive barrier to possible migrating herpetofauna into the construction site.

Specific to Vernal Pool 7, the following measures would be employed to avoid and minimize incidental mortality to vernal pool herpetofauna during construction.

Provided various agency authorizations are secured, it is anticipated that construction would begin in fall 2022. This would avoid disturbance to Vernal Pool 7 during the breeding and metamorphosis periods. This construction schedule would limit impact to the amphibian population, since any resident population residing in the VPE would make up a small percent of the population which primarily resides in the forested habitat to the southwest. Should start of construction of the project be delayed until early spring 2023, an isolation barrier would be installed around the perimeter of Vernal Pool 7 as well as around the project's limits of disturbance to prevent vernal pool species from entering into the proposed work zone and Vernal Pool 7. Should a small resident population be found to still breed within Vernal Pool 7, egg masses (following completion of the egg mass deposition period) along with any adults found would be translocated into nearby Vernal Pool 4.

Provided the wetland and vernal pool protection program is properly implemented during construction, it is APT's opinion the proposed development will not result in a likely adverse impact to nearby wetland vernal pool resources. Details of the proposed BMPs are outlined in the Wetland and Vernal Pool Protection Program provided in Attachment D.

Invasive Species Protection Plan

The Site contains invasive plant species, particularly within and proximate to current and former agricultural areas. As such, certain precautions are recommended during construction in order to minimize the further spread of invasive plant seeds/material that could colonize other parts of the Site. Proposed soil disturbances during construction provide an opportunity for invasive plants to gain a foothold and spread into new habitats. This can occur

through the relocation of Site soils as well as through the importation of soil that contains invasive plant seed stock or carried by construction equipment that has picked up soil with invasive seed stock. The invasive species plan includes the following:

- The contractor shall attend a pre-construction meeting to review the requirements of the Invasive Species Control Plan prior to mobilization of equipment, vehicles, materials, etc. onto the Site.
- Prior to entry onto the Site, all equipment and vehicles shall be pressure washed by the contractor at its storage yard in order to remove any loose soil that may be carrying invasive plant seeds.
- If possible, no topsoil should be imported onto the Site.
- Any clean fill material imported onto the Property shall be free of weed seeds.
- Use of haybales is prohibited on this project. Natural erosion control materials shall be either straw bales or straw- or compost-filled socks/wattles.
- Topsoil removed from the proposed construction areas shall be retained and temporarily stockpiled on Site for use in various mitigation areas. Temporarily stockpiled topsoil shall be immediately seeded with either annual rye or winter rye if it will not be used within one (1) week.
- All mitigation areas will be inspected during the growing season for five (5) years following completion of plantings to monitor for possible colonization by invasive plants species. Invasive plants are those listed as non-native invasive woody plants by the Connecticut Invasive Plant Working Group.
- If invasive woody plants are identified to have more than 20% aerial coverage in the mitigation areas, a control plan for removal of the invasive woody plants will be implemented.

Erosion and Sedimentation Controls

An Erosion & Sediment Control Plan has been designed in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*. A variety of erosion and sedimentation controls will be employed to minimize erosion and transport of sediment to wetland resource areas during the earthwork and construction phases of the Project. These controls were developed to avoid temporary impacts to wetland resource areas and represent an important element of the Project to avoid and minimize wetland impacts. Details of the erosion and sedimentation controls are provided in the Project Site Plans provided under separate cover. A general summary of the erosion and sedimentation control plan is provided below.

The Erosion & Sediment Control Plan calls for the use of the latest erosion and sediment control measures in order to minimize and control disturbance during construction and provide a stable site under finished conditions.

These measures may include, but are not limited to the following, depending on site conditions experienced during construction:

- Stabilized construction entrance
- Temporary sediment traps/basins
- Geotextile silt fence
- Staked straw wattles/compost filter socks
- Temporary soil stockpile areas
- Temporary water diversion swales
- Temporary seeding of exposed soils
- Stone check dams
- Water bars with straw wattles/compost filter sock traps
- Erosion control blankets

The BMPs identified in this plan and discussed below include, but are not limited to, providing measures to minimize exposed soil areas through sequencing and temporary stabilization; placement of sediment and erosion controls suitable for the type of work and environment and appropriate Site restoration and rehabilitation techniques as soon as practicable.

The following general measures will be employed to minimize impacts to the jurisdictional resource areas:

- ▶ The Contractor will be required to maintain a reserve supply of erosion control BMPs on-site for use as required;
- ▶ Protective measures will be inspected regularly and after significant precipitation events and repaired, as necessary;
- ▶ Erosion control measures shall remain in place until soils are clearly stabilized – either by erosion control blankets, or by robust, growing vegetation. Once soils are stable, erosion controls shall be removed and properly disposed; and
- ▶ Erosion controls shall be removed and properly disposed following plant colonization of disturbed soils.

Summary

The Applicant, Scannell Properties #576, LLC, proposes to construct a warehouse facility consisting of a warehouse building, parking areas, landscaping, and stormwater treatment facilities to be installed on properties located east of Shunpike Road in Cromwell, Connecticut. The proposed Facility has been thoughtfully designed to minimize direct wetland and vernal pool impacts while also minimizing encroachment into the 100-foot wetland and 200-foot vernal pool upland review areas while satisfying the proposed building program needs.

As a result of design considerations and various mitigation strategies, the proposed Project represents the most prudent and feasible alternative and will not result in a likely adverse impact to nearby wetland resources.

To compensate for unavoidable resource impacts, a comprehensive and extensive mitigation plan has been designed to compensate for these unavoidable impacts. The totality of this extensive and significant mitigation plan will more than compensate for the project's unavoidable wetland areas lost. In addition to preserving extensive areas of wetlands, vernal pools and upland review area, important terrestrial habitat will be protected that serve multiple wildlife habitat functions including those important to vernal pool indicator species as well as other wildlife.

As a result of the comprehensive mitigation plan, the Project's proposed regulated activities will be properly balanced with the creation of wetland, vernal pool and buffer habitats that provide higher function and value services than those being lost. As a result, the Project will not diminish the wetland resources within the Town of Cromwell either on Site or downstream of the Site.

The Applicant respectfully requests that the Town of Cromwell Inland Wetlands and Watercourses Agency find these measures adequately protective of the interests contained in the Act and its regulations and issue a wetland permit approving the Project.

Figures

- Site Location Map
- Aerial Map
- Existing Wetland Resources Map
- Vernal Pool & Terrestrial Habitat Map
- Regulated Activities Map
- Wetland and Vernal Pool Creation Map
- Forested Floodplain Creation Area Map
- Terrestrial Habitat Enhancement Map
- Conservation Easement Map

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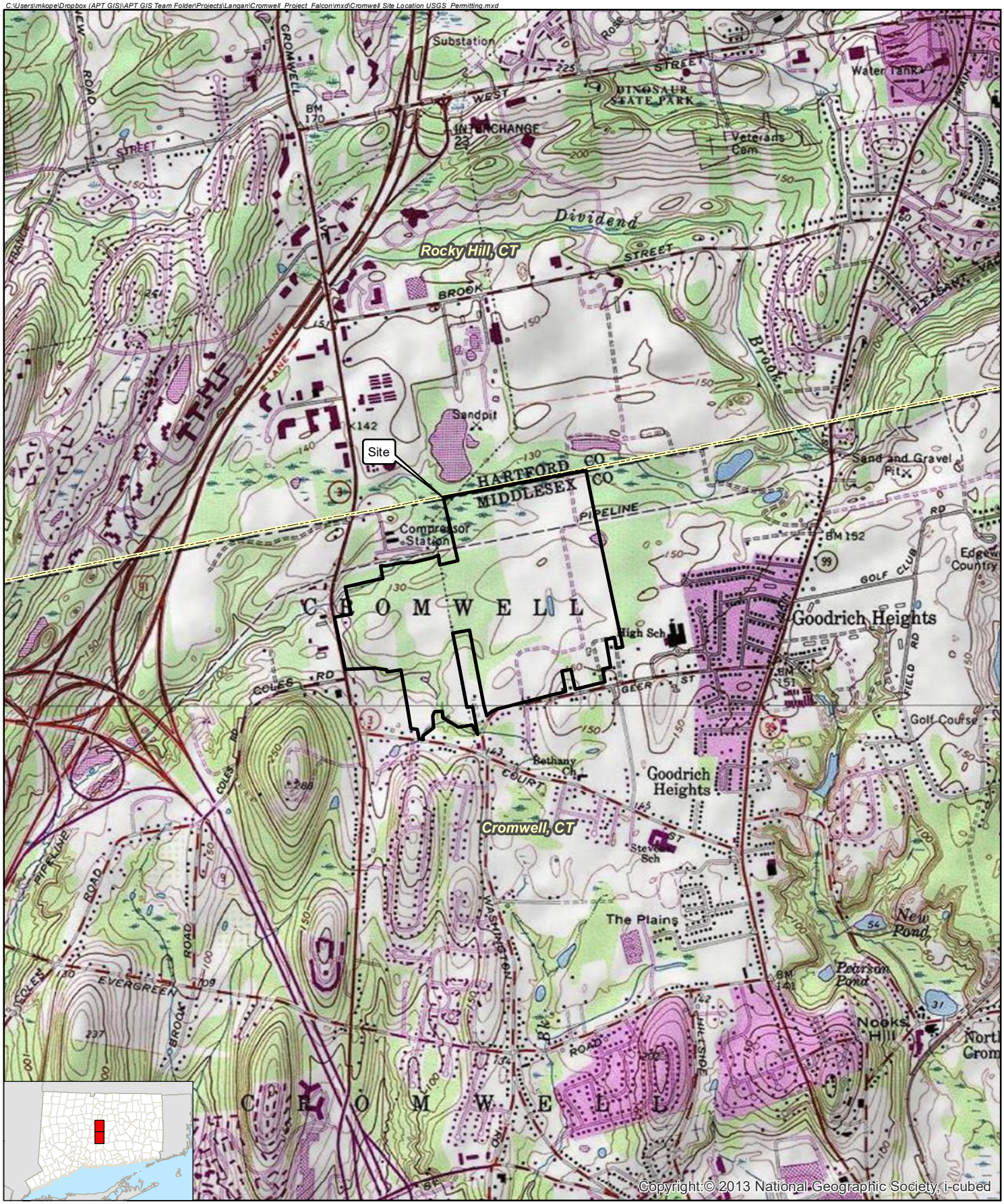

Legend

- Site
- Municipal Boundary

Site Location Map

Project Highlands
210 Shunpike Road
Cromwell, Connecticut

N

1,000 500 0 1,000 Feet

Map Notes:
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Map, Hartford South, CT (1992) and Middletown, CT (1992)
Map Scale: 1:24,000
Map Date: May 2022

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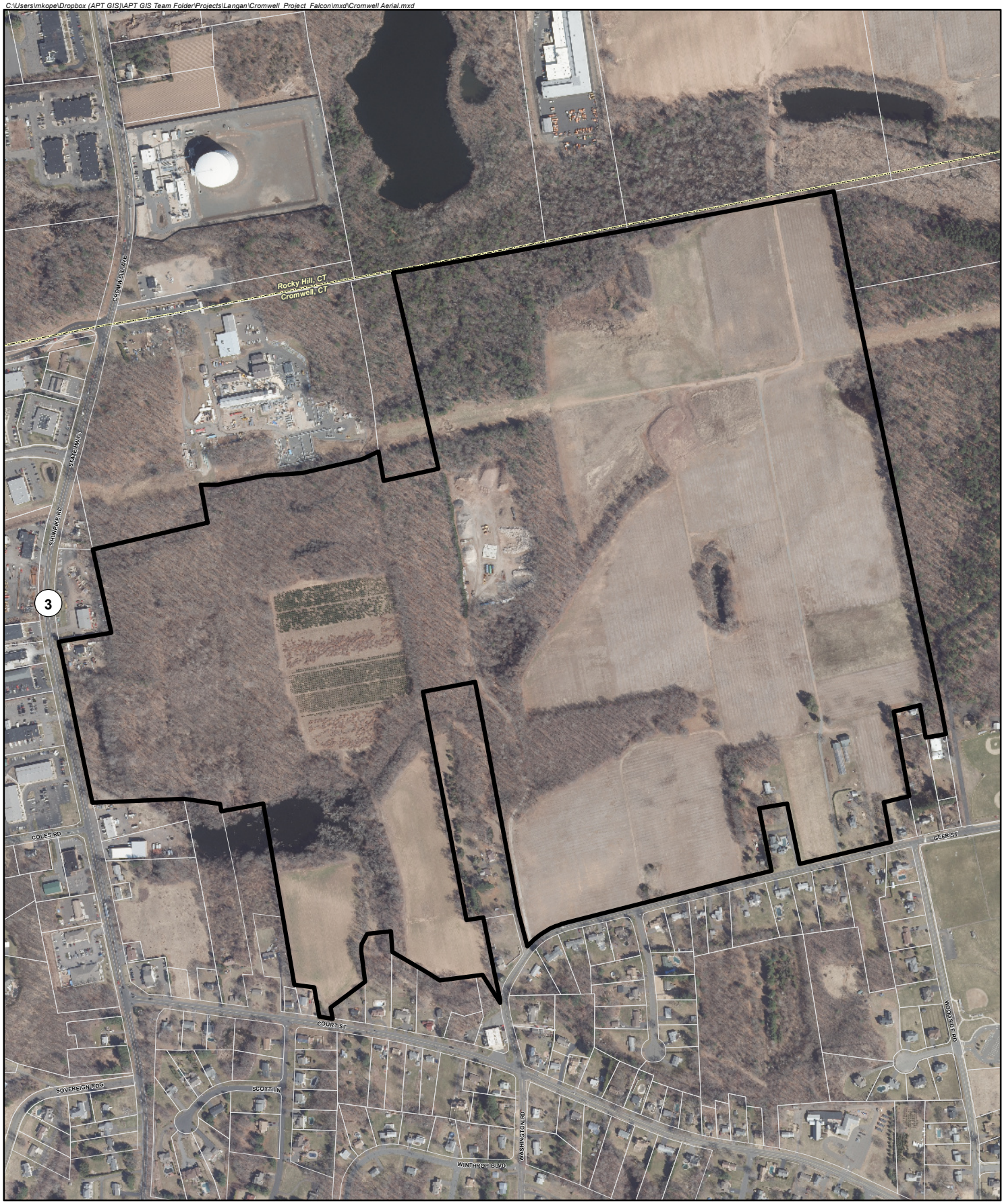

Legend

- Site
- Approximate Parcel Boundary
- Municipal Boundary

Aerial Photograph

Project Highlands
210 Shunpike Road
Cromwell, Connecticut

N

650 325 0 650 Feet

Map Notes:
Base Map Source: 2019 Aerial Photograph (CTECO)
Map Scale: 1 inch = 650 feet
Map Date: October 2021

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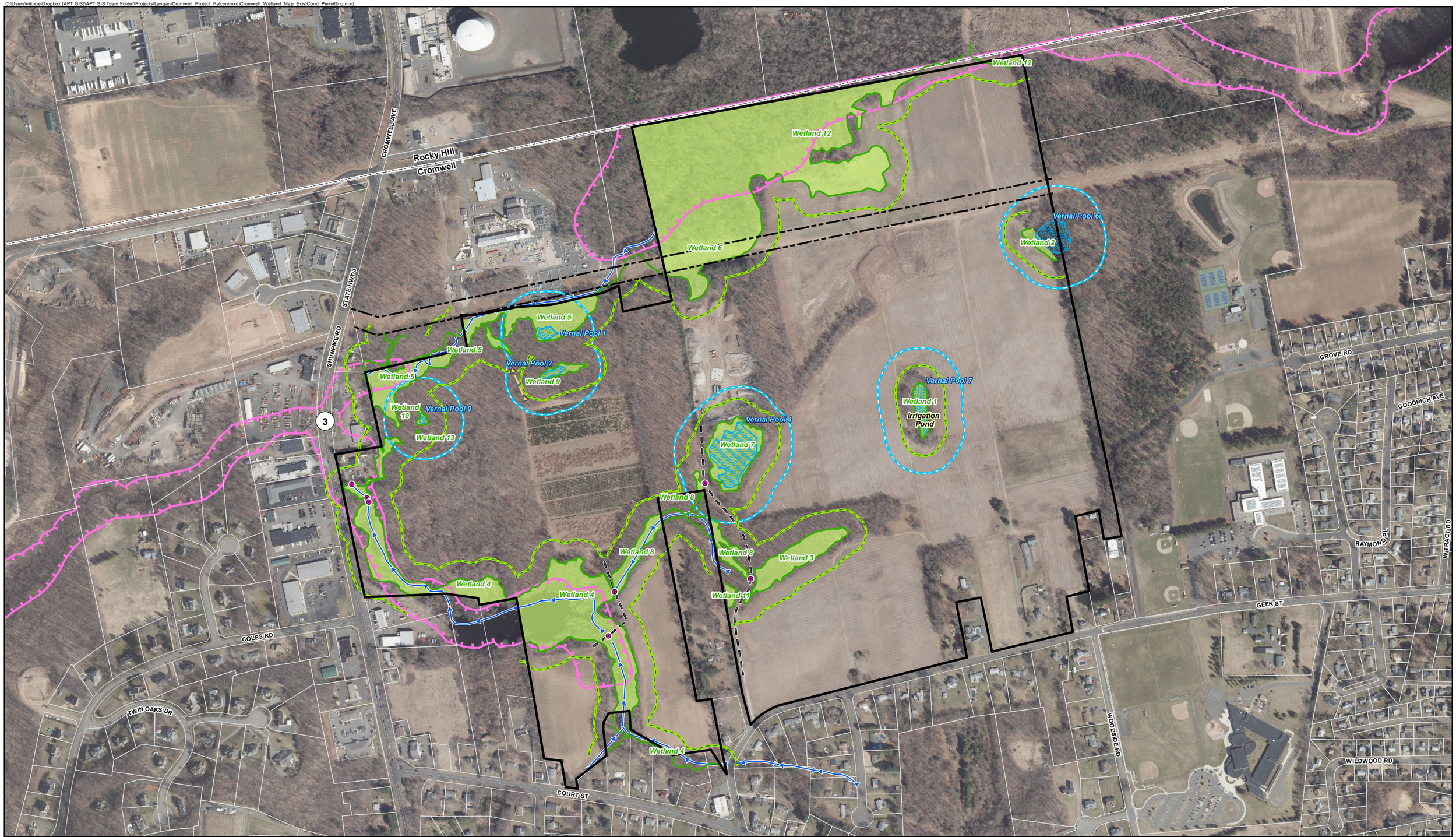
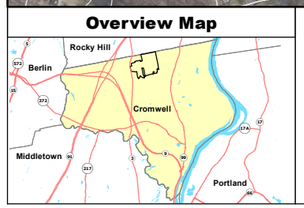


Overview Map



Legend

- Site
- Algonquin Gas Line ROW
- Existing Drainage Swale
- Existing Farm Road
- Perennial Stream (Approximate)
- Existing Culvert
- 100' Upland Review
- Delineated Wetland Boundary
- Approximate Wetland
- Potential Vernal Pool
- Vernal Pool
- 200' Vernal Pool Buffer
- 100-Year Flood Zone
- Municipal Boundary

N

500 250 0 500 Feet

1 inch = 500 feet

Map Sources
On-Site Naturall Resouces compiled by All Points Technology Corporation
Off-Site Natural Resources obtained from CTDEEP's data library
(http://www.ct.gov/deep)
Ortho Base Map: State of Connecticut 2019 aerial imagery (CTECO Map Service)
Parcel boundaries are approximate, obtained by LightBox
Site boundary information provided by Langan CT, Inc.

Map Date: May 02, 2022

Existing Wetland Resources
Project Highlands
210 Shunpike Road
Cromwell, Connecticut

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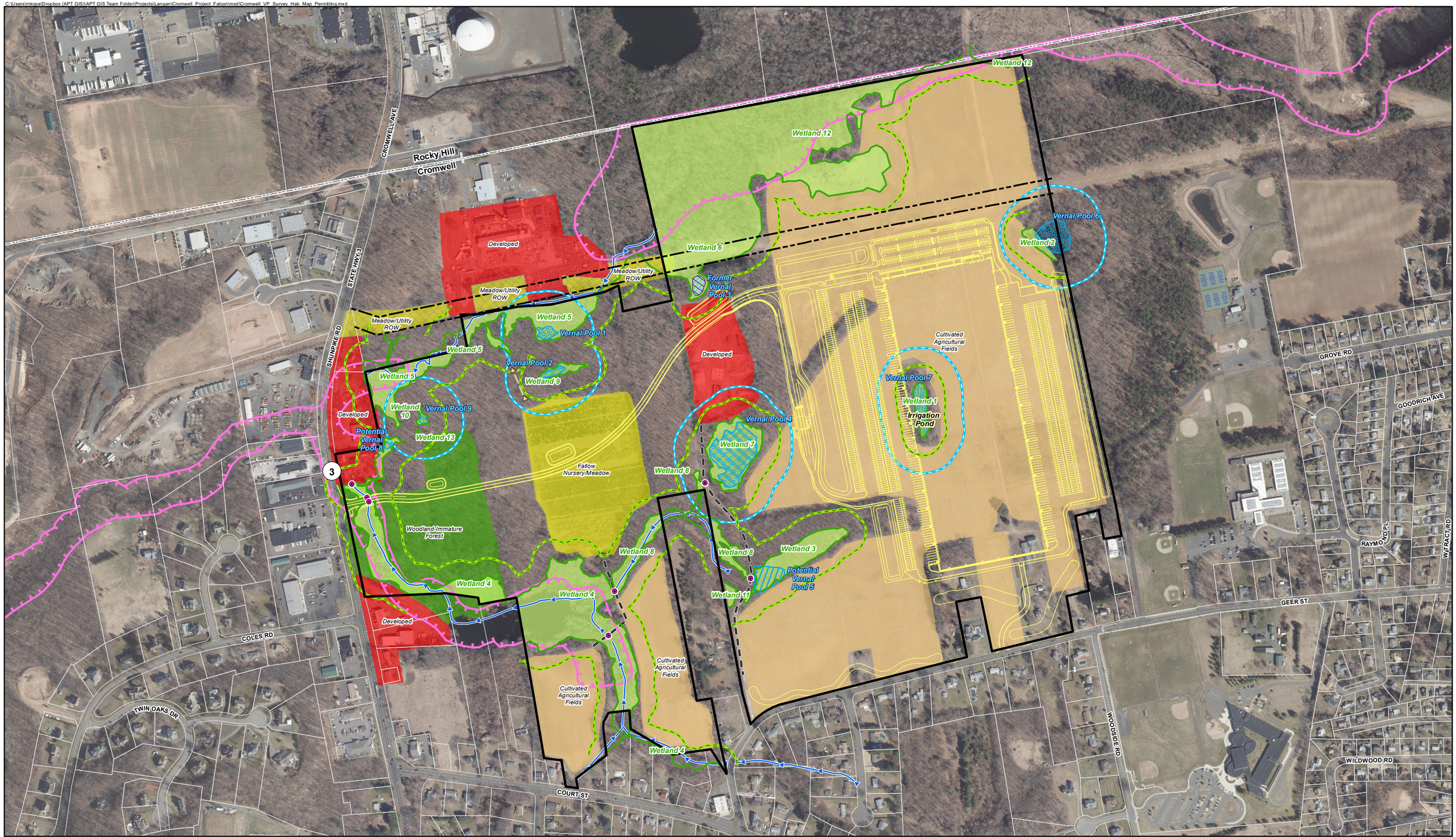
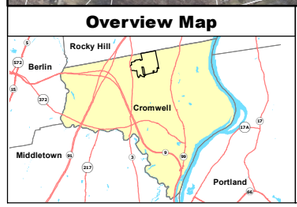


Overview Map



Legend

- Site
- Parcel Boundary
- Municipal Boundary
- Algonquin Gas Line ROW
- Existing Drainage Swale
- Existing Farm Road
- Perennial Stream (Approximate)
- Existing Culvert
- 100' Upland Review Area
- Delineated Wetland Boundary
- Approximate Wetland Area
- Former Vernal Pool
- Potential Vernal Pool
- Vernal Pool
- 200' Vernal Pool Buffer
- 100-Year Flood Zone

Habitat Type

- Cultivated Agricultural Fields
- Developed
- Fallow Nursery/Meadow
- Meadow/Utility ROW
- Woodland-Immature Forest

N

500 250 0 500 Feet

1 inch = 500 feet

Map Sources
On-Site Naturall Resouces compiled by All Points Technology Corporation
Off-Site Natural Resources obtained from CTDEEP's data library
(http://www.ct.gov/deep)
Ortho Base Map: State of Connecticut 2019 aerial imagery (CTECO Map Service)
Parcel boundaries are approximate, obtained by LightBox
Site boundary information provided by Langan CT, Inc.

Map Date: May 02, 2022

Vernal Pool Survey & Terrestrial Habitat Map
Project Highlands
210 Shunpike Road
Cromwell, Connecticut

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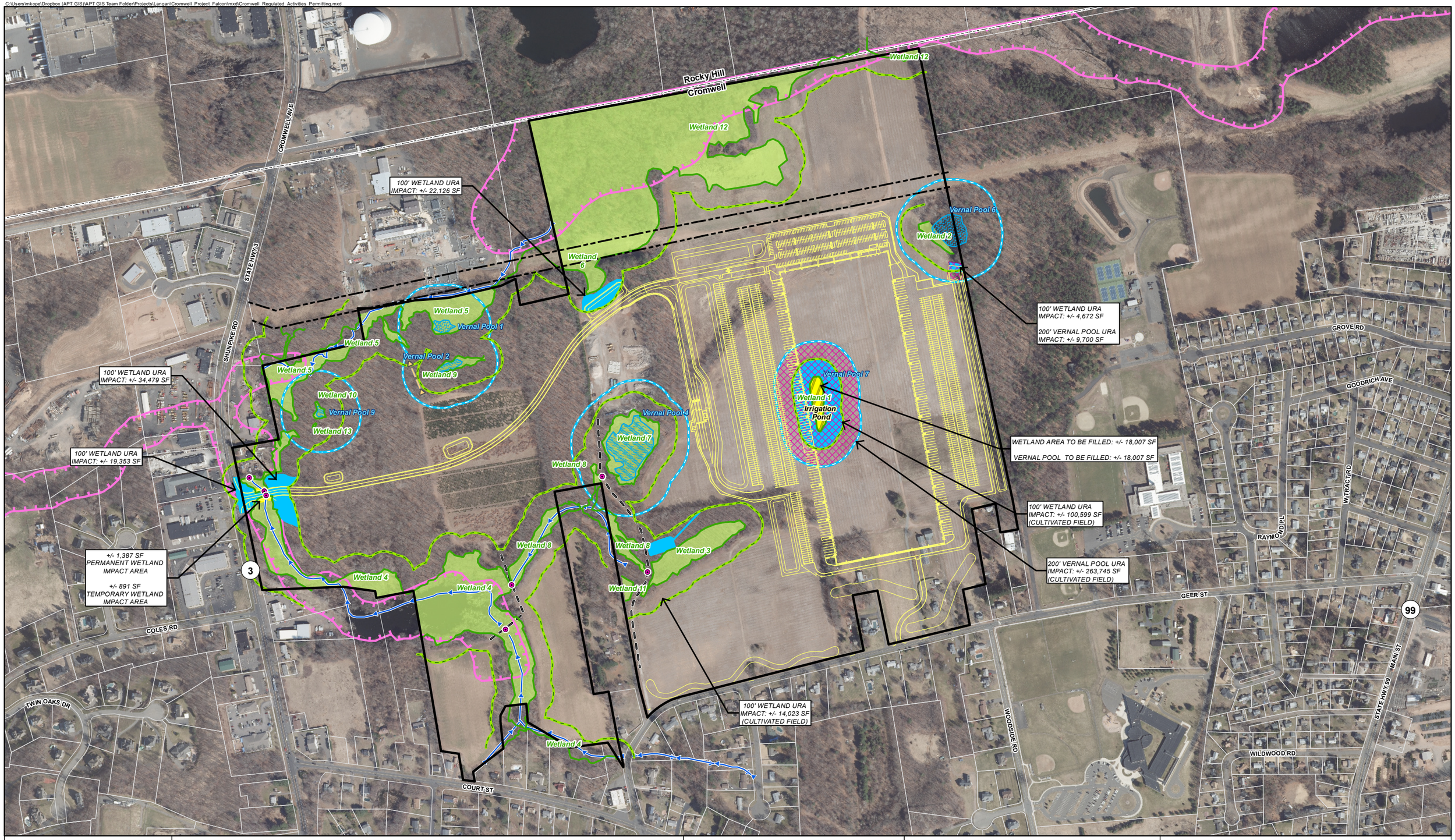
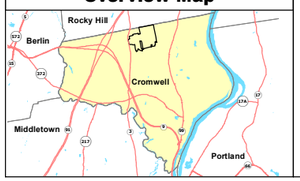


Overview Map



Legend

- Site
- Parcel Boundary
- Proposed Development Footprint
- Algonquin Gas Line ROW
- Existing Drainage Swale
- Existing Farm Road
- Perennial Stream (Approximate)
- Existing Culvert
- 100' Upland Review Area
- Delineated Wetland Boundary
- Approximate Wetland Area
- Vernal Pool
- 200' Vernal Pool Buffer
- 100-Year Flood Zone
- Municipal Boundary

Impact Area

- Wetland Impact Area (+/- 19,394 SF)
- 100' Wetland URA Impact(+/- 195,253 SF)
- Vernal Pool Impact Area (+/- 18,007 SF)
- 200' Vernal Pool URA Impact (+/- 273,445 SF)

N

500 250 0 500 Feet

1 inch = 500 feet

Notes

The site layout depicted herein is schematic and isintended as a graphical representation only. For detailed site information refer to Overall Site Plan prepared by Langan CT, Inc. dated October 20, 2021

Map Sources

On-Site Natural Resouces compiled by All Points Technology Corporation
Off-Site Natural Resources obtained from CTDEEP's data library (http://www.ct.gov/deep)
Ortho Base Map: State of Connecticut 2019 aerial imagery (CTECO Map Service)
Parcel boundaries are approximate. obtained by LightBox
Site boundary information provided by Langan CT, Inc.

Map Date: May 02, 2022

Regulated Activities Map
Project Highlands
210 Shunpike Road
Cromwell, Connecticut

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Legend

- Site
- Proposed Development Footprint
- Algonquin Gas Line ROW
- Proposed Contour
- Compost Filter and Silt Fence
- Vernal Pool Creation Area
- Wetland Creation Area
- Wetland Buffer Enhancement Area
- Wetland Mitigation Staging Area
- Parcel Boundary

N

150 75 0 150 Feet

Map Notes:
The site layout depicted herein is schematic and isintended as a graphical representation only. For detailed site information refer to Overall Site Plan prepared by Langan CT, Inc. dated October 20, 2021
Base Map Source: 2019 CT Aerial Imagery (CTECO)
Map Scale: 1 inch = 150 feet
Map Date: May 2022

Wetland and Vernal Pool Creation Area

Proposed Development
Project Highlands
210 Shunpike Road
Cromwell, Connecticut

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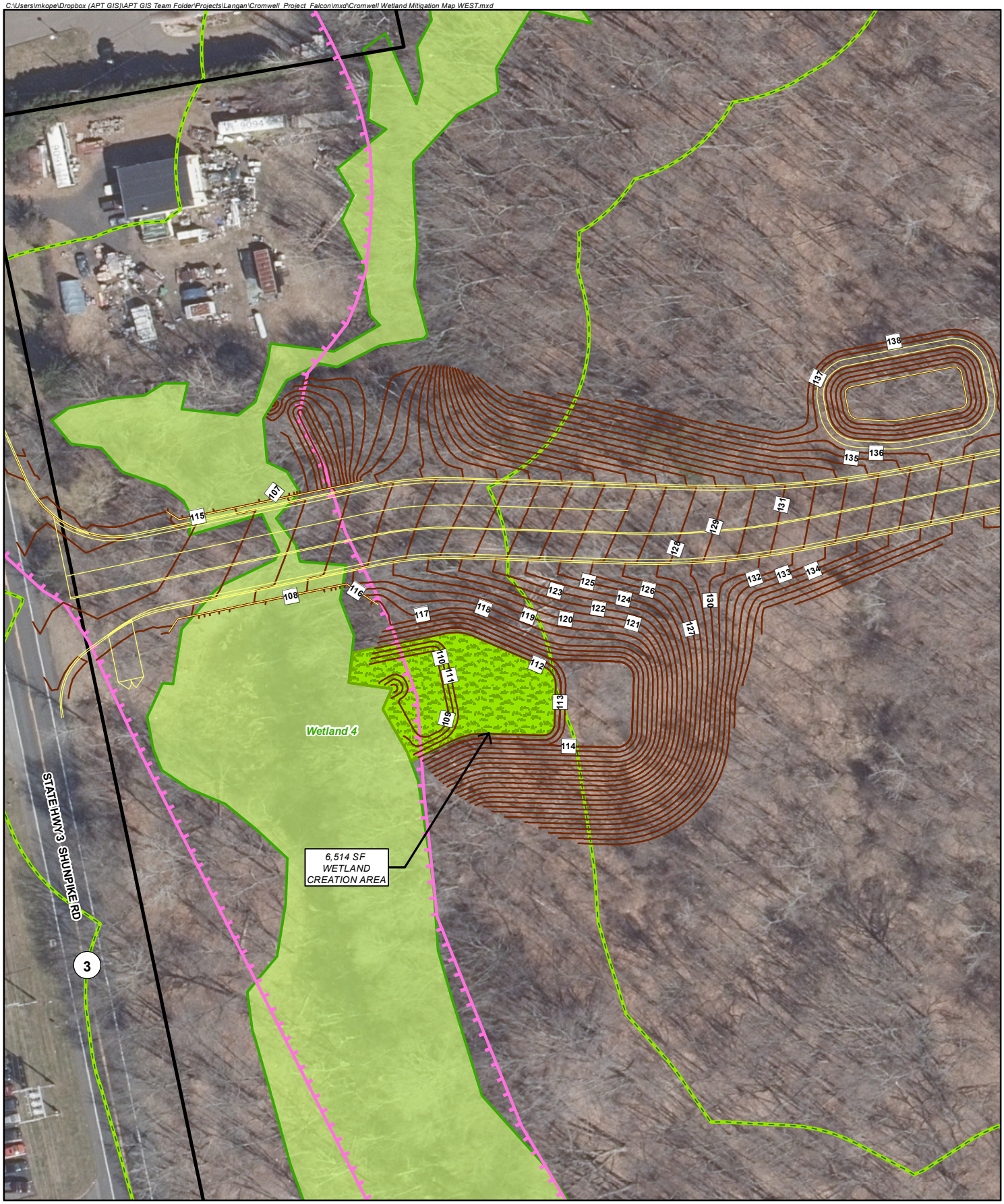

Legend

- Site
- Proposed Development Footprint
- Proposed Contour
- Compost Filter and Silt Fence
- Vernal Pool Creation Area
- Wetland Creation Area
- Wetland Buffer Enhancement Area
- 100-Year Flood Zone

N

80 40 0 80 Feet

Forested Floodplain Creation Area

Proposed Development
Project Highlands
210 Shunpike Road
Cromwell, Connecticut

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Map Notes:
The site layout depicted herein is schematic and isintended as a graphical representation only. For detailed site information refer to Overall Site Plan prepared by Langan CT, Inc. dated October 20, 2021
Base Map Source: 2019 CT Aerial Imagery (CTECO)
Map Scale: 1 inch = 80 feet
Map Date: May 2022

- TERRESTRIAL/FALLOW NURSERY ENHANCEMENT AREA
- RESTORATION AREA WITHIN WETLAND 100' UPLAND REVIEW AREA
- RESTORATION AREA WITHIN VERNAL POOL 200' UPLAND REVIEW AREA
- WETLAND CREATION AREA WITHIN EXISTING WETLAND 100' UPLAND REVIEW AREA
- WETLAND BUFFER ENHANCEMENT AREA WITHIN EXISTING WETLAND 100' UPLAND REVIEW AREA

FOR PERMITTING ONLY, NOT FOR CONSTRUCTION

Date	Description	No.
Revisions		

Signature Date

LANGAN

Langan CT, Inc.
555 Long Wharf Drive
New Haven, CT 06511
T: 203.562.5771 F: 203.789.6142 www.langan.com

Project
PROJECT HIGHLANDS
210 SHUNPIKE ROAD
CROMWELL CONNECTICUT

Drawing Title
TERRESTRIAL HABITAT ENHANCEMENT MAP

Project No. 140225401
Date 05/03/2022
Drawn By JMGM
Checked By DTG
Figure CG202

LANGAN
Project No. 140225401

© 2021 Langan

Date: 5/2/2022 Time: 11:52 User: afedus Style Table: Langan.stb Layout: CG202 Document Code: FG01-140225401-0201-CG101-0102

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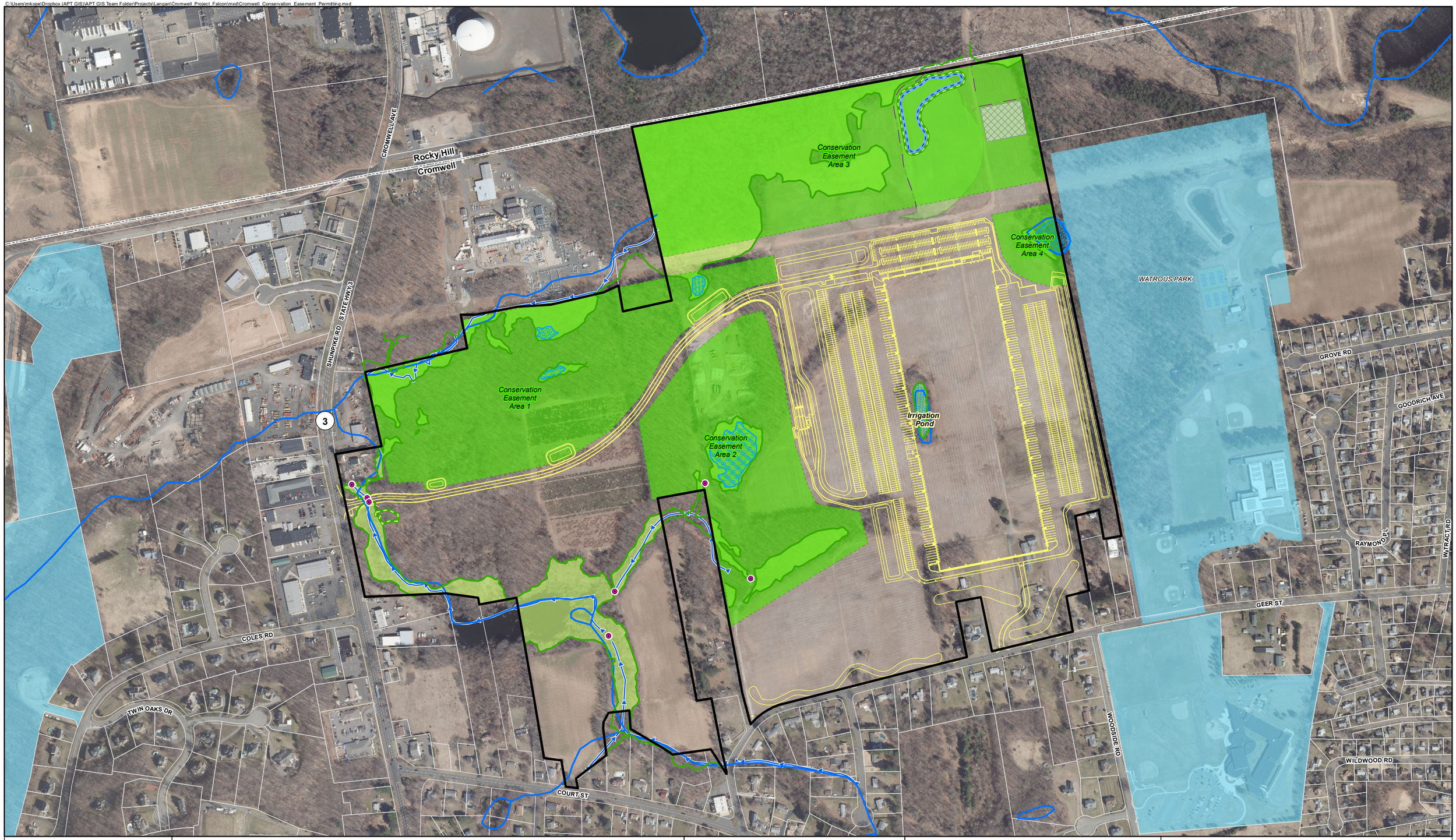
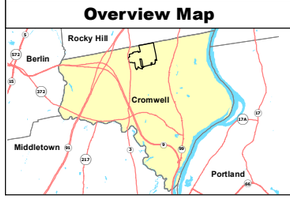


Overview Map



Legend

- Site
- Parcel Boundary
- Municipal Boundary
- Delineated Wetland Boundary
- Perennial Stream (Approximate)
- Existing Culvert
- Watercourse (CTDEEP)
- Open Water (CTDEEP)
- Proposed Contour
- Compost Filter and Silt Fence
- Conservation Easement Area
- Vernal Pool Creation Area
- Wetland Creation Area
- Wetland Buffer Enhancement Area
- Wetland Mitigation Staging Area
- Approximate Wetland Area
- Protected Open Space Property

N

500 250 0 500 Feet

1 inch = 500 feet

Map Sources
On-Site Naturall Resouces compiled by All Points Technology Corporation
Off-Site Natural Resources obtained from CTDEEP's data library
(http://www.ct.gov/deep)
Ortho Base Map: State of Connecticut 2019 aerial imagery (CTECO Map Service)
Parcel boundaries are approximate, obtained by LightBox
Site boundary information provided by Langan CT, Inc.

Map Date: May 02, 2022

Conservation Easement Map
Project Highlands
210 Shunpike Road
Cromwell, Connecticut

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ALL-POINTS TECHNOLOGY CORPORATION

Attachment A

Photographic Documentation

Photo 1: View of dry irrigation pond (Wetland 1/Vernal Pool 7).
Photo taken on November 2, 2020.

Photo 2: View of irrigation pond with approximately 2 feet of inundation.
Photo taken on December 10, 2020.

Photo 3: View of irrigation pond with approximately 3 feet of inundation.
Photo taken on January 11, 2021.

Photo 4: View of typical upland cultivated fields adjacent to irrigation pond.
Photo taken on October 15, 2020.

Photo 5: View of Wetland 4 existing crossing and old roadbed looking east from Shunpike Road side.

Photo 6: View of Wetland 4 existing crossing looking southwest with Shunpike Road in background. Note washout by unnamed perennial stream and exposed culvert.

Photo 7: View of old roadbed leading to existing Wetland 4 crossing looking west with Shunpike Road in background.

Photo 8: View of beaver pond flooded area in Wetland 4 looking west.

Photo 9: View of Wetland 5 and associated perennial watercourse looking northeast.

Photo 10: Overview of large cultivated field proposed for warehouse development looking south.

Photo 11: Overview of large cultivated field proposed for warehouse development looking southwest.

Photo 12: Typical view of classic vernal pool habitat on site (Vernal Pool 1).

Attachment B

Army Corps of Engineers Jurisdictional Determination Irrigation Pond

Dean Gustafson

From: Wierbonics, Michael S CIV USARMY CENAE (USA) <Michael.S.Wierbonics@usace.army.mil>
Sent: Tuesday, March 23, 2021 11:47 AM
To: Dean Gustafson
Subject: FW: Irrigation Pond Jurisdictional Determination Request - Geer Street, Cromwell, CT
Attachments: nwpr_fact_sheet_-_overview.pdf

This pond is non-jurisdictional under NWPR. See page 3 of attached pdf.
Dean,
This irrigation pond is non-jurisdictional under NWPR. See page 3 of attached pdf.

Mike

From: Dean Gustafson <dgustafson@allpointstech.com>
Sent: Friday, March 12, 2021 9:52 AM
To: Kotelly, Kevin R CIV USARMY CENAE (USA) <Kevin.R.Kotelly@usace.army.mil>; Wierbonics, Michael S CIV USARMY CENAE (USA) <Michael.S.Wierbonics@usace.army.mil>
Cc: Daniel Madrigal <danielm@scannellproperties.com>; Leo Leighton <leo@scannellproperties.com>; Timothy Onderko <tonderko@Langan.com>; Deb Leonardo <DLeonardo@allpointstech.com>
Subject: [Non-DoD Source] Irrigation Pond Jurisdictional Determination Request - Geer Street, Cromwell, CT

Good morning Kevin and Mike,

On behalf of Scannell Properties, LLC, please find enclosed a Jurisdictional Determination request for an isolated irrigation pond on agricultural property located on the north side of Geer Street in Cromwell, CT.

Please feel free to contact me with any questions or if you require any additional information.

Thank you,
Dean

DEAN GUSTAFSON
Professional Soil Scientist & Senior Wetland Scientist
D | 860.552.2033 · **M** | 860.984.9515 · **W** | www.allpointstech.com
567 Vauxhall Street Extension – Suite 311, Waterford, CT 06385

FACT SHEET

Navigable Waters Protection Rule

Overview of the Navigable Waters Protection Rule

On January 23, 2020, the U.S. Environmental Protection Agency (EPA) and the Department of the Army (Army) fulfilled yet another promise of President Trump by finalizing the Navigable Waters Protection Rule to define "waters of the United States" (WOTUS). For the first time, the agencies are streamlining the definition so that it includes four simple categories of jurisdictional waters, provides clear exclusions for many water features that traditionally have not been regulated, and defines terms in the regulatory text that have never been defined before. Congress, in the Clean Water Act, explicitly directed the Agencies to protect "navigable waters." The Navigable Waters Protection Rule regulates these waters and the core tributary systems that provide perennial or intermittent flow into them. The final rule fulfills Executive Order 13788 and reflects legal precedent set by key Supreme Court cases as well as robust public outreach and engagement, including pre-proposal input and comments received on the proposed rule.

The Navigable Waters Protection Rule protects the environment while respecting states, localities, tribes, and private property owners. It clearly delineates where federal regulations apply and gives state and local authorities more flexibility to determine how best to manage waters within their borders. Assertions have been made that the new rule will reduce jurisdiction over thousands of stream miles and millions of acres of wetlands. These assertions are incorrect because they are based on data that is too inaccurate and speculative to be meaningful for regulatory purposes. The final rule along with state, local, and tribal regulations and programs provide a network of protective coverage for the nation's water resources.

THE FINAL REVISED DEFINITION

The Navigable Waters Protection Rule outlines four clear categories of waters that are considered "waters of the United States." These four categories protect the nation's navigable waters and the core perennial and intermittent tributary systems that flow into those waters.

Territorial seas and traditional navigable waters (TNWs)

- Under the final rule, the territorial seas and traditional navigable waters include large rivers and lakes—such as the Mississippi River, the Great Lakes, Chesapeake Bay, and the Erie Canal—and tidally-influenced waterbodies used in interstate or foreign commerce.

Tributaries

- Under the final rule, tributaries include perennial and intermittent rivers and streams that contribute surface flow to traditional navigable waters in a typical year—such as College Creek, which flows into the James River near Williamsburg, Virginia.
- These naturally occurring surface water channels must flow more often than just after a single precipitation event—that is, tributaries must be perennial or intermittent.

- Tributaries can connect to a traditional navigable water or territorial sea in a typical year either directly or through other "waters of the United States," through channelized non-jurisdictional surface waters, through artificial features (including culverts and spillways), or through natural features (including debris piles and boulder fields).
- Ditches are to be considered tributaries only where they satisfy the flow conditions of the perennial and intermittent tributary definition and either were constructed in or relocate a tributary or were constructed in an adjacent wetland and contribute perennial or intermittent flow to a traditional navigable water in a typical year.

<u>Lakes, ponds, and impoundments of jurisdictional waters</u>

- Lakes, ponds, and impoundments of jurisdictional waters, such as Lake Pepin in Minnesota and Lake Travis in Texas, are jurisdictional where they contribute surface water flow to a traditional navigable water or territorial sea in a typical year either directly or through other "waters of the United States," through channelized non-jurisdictional surface waters, through artificial features (including culverts and spillways), or through natural features (including debris piles and boulder fields).
- Lakes, ponds, and impoundments of jurisdictional waters are also jurisdictional where they are flooded by a "water of the United States" in a typical year, such as certain oxbow lakes that lie along the Mississippi River.

<u>Adjacent wetlands</u>

- Wetlands that physically touch other jurisdictional waters are "adjacent wetlands," such as Horicon Marsh along the Rock River in Wisconsin.
- Wetlands separated from a "water of the United States" by only a natural berm, bank or dune are also "adjacent."
- Wetlands inundated by flooding from a "water of the United States" in a typical year are "adjacent."
- Wetlands that are physically separated from a jurisdictional water by an artificial dike, barrier, or similar artificial structure are "adjacent" so long as that structure allows for a direct hydrologic surface connection between the wetlands and the jurisdictional water in a typical year, such as through a culvert, flood or tide gate, pump, or similar artificial feature.
- An adjacent wetland is jurisdictional in its entirety when a road or similar artificial structure divides the wetland, as long as the structure allows for a direct hydrologic surface connection through or over that structure in a typical year.

The final rule also outlines what are not "waters of the United States." The following waters/features are not jurisdictional under the rule:

- Waterbodies that are not included in the four categories of "waters of the United States" listed above—this distinction will provide clarity that where a water or feature is not identified as jurisdictional in the final rule, it is not a jurisdictional water under the Clean Water Act.
- Groundwater, including groundwater drained through subsurface drainage systems, such as drains in agricultural lands.
- Ephemeral features, including ephemeral streams, swales, gullies, rills, and pools.

- Diffuse stormwater run-off and directional sheet flow over upland.
- Many farm and roadside ditches.
- Prior converted cropland retains its longstanding exclusion, but is defined for the first time in the final rule. The agencies are clarifying that this exclusion will cease to apply when cropland is abandoned (*i.e.,* not used for, or in support of, agricultural purposes in the immediately preceding five years) and has reverted to wetlands.
- Artificially irrigated areas, including fields flooded for agricultural production, that would revert to upland should application of irrigation water to that area cease.
- Artificial lakes and ponds, including water storage reservoirs and farm, irrigation, stock watering, and log cleaning ponds, constructed or excavated in upland or in non-jurisdictional waters.
- Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non-jurisdictional waters for the purpose of obtaining fill, sand, or gravel.
- Stormwater control features excavated or constructed in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater run-off.
- Groundwater recharge, water reuse, and wastewater recycling structures, including detention, retention and infiltration basins and ponds, that are constructed in upland or in non-jurisdictional waters.
- Waste treatment systems have been excluded from the definition of "waters of the United States" since 1979 and will continue to be excluded under the final rule. Waste treatment systems are defined for the first time in this rule.
    - A waste treatment system includes all components, including lagoons and treatment ponds (such as settling or cooling ponds), designed to either convey or retain, concentrate, settle, reduce, or remove pollutants, either actively or passively, from wastewater or stormwater prior to discharge (or eliminating any such discharge).

FEDERAL-STATE RELATIONSHIP

- With this final rule, there is a clear distinction between federal waters and waters subject to the sole control of the states, their governmental subdivisions, and tribes.
- The Clean Water Act envisions an approach whereby states, localities, tribes, and the federal government work in partnership to protect the nation's waters from pollution.
- The final rule is in line with that intent and appropriately identifies waters that should be subject to federal regulation under the Clean Water Act.
- Many states, localities, and tribes have existing regulations and programs that apply to waters within their borders, whether or not they are considered "waters of the United States." The federal government remains committed to helping all states and tribes enhance their capacity to regulate, protect, and restore their waters.
- Together, the final revised definition and existing state, local, and tribal regulations and programs will provide a network of protective coverage for the nation's water resources.

EFFECTS OF THE FINAL RULE

- The Navigable Waters Protection Rule provides clarity, predictability, and consistency so that regulators and the public can understand where the Clean Water Act applies and where it does not. Such straightforward regulations will continue to protect the nation's navigable waters, help sustain economic growth, and provide greater regulatory certainty.
- The role of federal government under the Clean Water Act ultimately derives from Congress' commerce power over navigation. The Clean Water Act explicitly directs the agencies to protect "navigable waters." The Navigable Waters Protection Rule regulates these waters and the core tributary systems that provide perennial or intermittent flow into them.
- The agencies developed an illustrative economic analysis for the final rule that looks at the potential costs, benefits, and economic impacts of the revised definition of "waters of the United States" relative to the October 2019 "Definition of 'Waters of the United States'—Recodification of Pre-Existing Rules" final rule baseline practice.
- The agencies have identified, where possible, how the final rule may affect categories of water resources across the country and potential effects on Clean Water Act programs. The agencies have also highlighted longstanding and continuing data limitations that prevents them from developing quantitative national estimates of impacts for most Clean Water Act programs.
- The final rule becomes effective 60 days from publication in the Federal Register.

KEY CHANGES FROM PROPOSAL IN RESPONSE TO COMMENTS

- Ditches and impoundments are no longer separate categories of jurisdictional waters.
- The preamble to the final rule provides additional useful clarification on traditional navigable waters.
- In the final rule, the agencies have clarified and simplified the types of connections to the perennial and intermittent tributary network that can make lakes, ponds, and impoundments jurisdictional.
- Perennial and intermittent tributaries upstream of ephemeral reaches are jurisdictional when they have a surface water connection to a downstream jurisdictional water in a typical year. Under the proposal, ephemeral reaches would have severed jurisdiction for upstream waters.
- The final rule expands and clarifies the factors that determine whether wetlands are considered adjacent, and thus covered by the Clean Water Act. Under the proposal, wetlands physically seperated by a natural or artificial barrier from another jurisdictional water would not have been subject to Clean Water Act jurisdiction. Many of these wetlands will be covered by the final rule.

FOR MORE INFORMATION

- See the photo appendix to this Overview Factsheet for illustrative examples of applying the Navigable Waters Protection Rule: https://www.epa.gov/nwpr/navigable-waters-protection-rule-factsheets
- Additional fact sheets along with copies of the final rule and supporting analyses are available on EPA's website at https://www.epa.gov/nwpr.

ALL-POINTS TECHNOLOGY CORPORATION

JURISDICTIONAL DETERMINATION

March 12, 2021

Mr. Kevin Kotelly
Regulatory Division
Army Corps of Engineers New England District
696 Virginia Road
Concord, Massachusetts 01742-2751

Re: CWA Jurisdictional Determination - Irrigation Pond
Geer Street, Cromwell, Connecticut
APT Project No. CT361780

State: Connecticut
County: Middlesex
Pond Latitude/Longitude Coordinates: 41.629333°, -72.664583°
Size of Property: ±130 acres
Watershed: Mattabesset River

Dear Mr. Kotelly:

On behalf of Scannell Properties, LLC, ("Scannell"), All-Points Technology Corporation, P.C. (APT) is pleased to submit this letter to the Army Corps of Engineers, New England District ("Corps") requesting a jurisdictional determination ("JD") under the Federal Clean Water Act ("CWA") regulations for an irrigation pond located on an existing agricultural property located along Geer Street in Cromwell, Connecticut (herein after referred to as the "Site"). A USGS Site Location Map depicting the Site location is attached. This request is being submitted to determine if an irrigation pond located in the central portion of the Site is subject to classification as Waters of the United States under the CWA.

The Site is a compilation of adjoining parcels held under common ownership by Gardners Nurseries Inc. with the parcel containing the irrigation pond that is the subject of this JD request identified as 76 Geer Street and noted by the Town of Cromwell Assessors Office as Map 35 Lot 55. This parcel consists of ±130 acres of predominately active agricultural land in north-central Cromwell located along the southern municipal boundary with Rocky Hill. Scannell is evaluating the potential for development of the Site. The vicinity of the Site consists of commercial development along Shunpike Road (State Route 3) to the west, residential development to the south, a town park (Watrous Park) is to the east and an Algonquin Gas transmission station and gas line Right-of Way ("ROW") and undeveloped land to the north. Details of the Site are provided below.

The predominately historical agricultural use of the Site has resulted in landscape-wide anthropogenic changes and associated vegetative communities, including: cultivated agricultural fields, associated barns and outbuildings, residency, dug irrigation pond, Algonquin gas ROW scrub/shrub, contractor material storage yard, old field, forest, wetland resources and unnamed perennial and intermittent streams.

The following documents are enclosed to assist in making the requested JD:

- USGS Site Location Map
- Wetland Resources Map
- NRCS Soils Map
- 1949 Aerial Photograph
- 1952 USGS Topography Map
- 1952 Aerial Photograph
- 1962 Aerial Photograph
- 1972 USGS Topography Map
- Photodocumentation

Wetland Resources

Several wetland areas were identified on or nearby the Site including an isolated irrigation pond located centrally on the Site. Additional wetland systems, including complexes of forested seep systems draining to an unnamed perennial watercourse system located in the northern and western portion of the Site, were delineated. Please refer to the enclosed Wetland Resources Map.

The primary focus of the JD request, the isolated irrigation pond, consists of steep cut embankments with a silted/organic filled bottom which experiences semi-permanent flooding. During low points in the pond's hydroperiod and drought conditions, it appears this feature drains down with emergent vegetation dominating the saturated soil surface. There is no visible inlet or outlet to or from this pond; it is entirely isolated hydraulically from any surrounding wetland or watercourse features with hydrology apparently tied to the seasonal fluctuations of the local groundwater table. The nearest wetland feature is located ±635 feet to the southwest consisting of a forested wetland.

Soils surrounding the irrigation pond were field classified and identified as an upland soil unit consisting primarily of somewhat excessively drained glaciofluvial (outwash) Hartford loamy sand and excessively drained Manchester gravelly sandy loam. Field classification of soils surrounding the irrigation pond are consistent with digitally available soil survey information obtained from the Natural Resources Conservation Service. Please refer to the attached NRCS Soil Map. Some anthropogenic disturbance to soil profiles surrounding the irrigation pond was observed along with soil mounds indicative of the historic excavation activities in upland soils that resulted in creation of this feature. Recent photographs of the pond are attached.

In order to accommodate the building program needs of the proposed development, the irrigation pond will require to be filled due to its central location within the largest developable area on the Site. Situating the development within this large developable area will allow the building program needs to be attained while avoiding/minimizing impact to more valuable wetland resources. An application will be submitted in the future to the Town of Cromwell Inland Wetlands and Watercourses Agency ("Agency") as this pond feature would be regulated under the State of Connecticut Inland Wetlands and Watercourses Act and the Agency's regulations.

Provided below is a summary of historical resources that were reviewed and relied upon to determine when the irrigation pond was created and what conditions existed prior to the pond's excavation.

- 1949 Aerial Photograph – depicts disturbed open upland field surrounded by cultivated agricultural fields; disturbance appears to be associated within intial excavation into the upland sandy outwash soils for the future creation of the irrigation pond.

- 1952 USGS Topographic Map – no irrigation pond shown; USGS map developed topography from surveys in circa 1942, revised in 1952 based on 1951 aerial photography.

- 1952 Aerial Photograph – depicts the irrigation pond excavation complete and the pond filled with water; open cultivated fields surround the newly create pond with no vegeation surrounds the banks of the pond. The rectangular form of the pond bears out the anthropogenic nature of the pond's creation.

- 1962 Aerial Photograph – depicts the extent of the irrigation pond with minimal vegetation/bare soil in the banks surrounding the pond; the water level appears to be well below the banks of the pond, indicative of the pond's creation within the surrounding upland sandy soils.

- 1972 USGS Topographic Map – depicts the irrigation pond surrounded by open fields.

As you will note from the enclosed series of historic aerial photographs and topographic USGS maps, construction of the irrigation pond was initiated circa 1949 and completed circa 1952. These historical aerials and maps also reveal the pond was located in an upland field with no evidence that wetlands existed in this location prior to excavation of the pond. This determination is further supported by recent observations of the water level in the pond being dry in November 2020, containing ±2 of feet of inundation in December 2020, and ±3 feet of inundation in January 2021. Inundation levels in the pond during this period of observation were 5 to 6 feet below the elevation of the surrounding cultivated fields which occur within somewhat excessively and excessively drained glacial outwash soils.

Jurisdictional Exemption

It appears that based on the pond's isolated anthropogenic morphology and exclusive association with the surrounding agricultural fields to provide irrigation water, this pond would not be classified as Waters of the United States under the CWA regulations and its preamble.

The preamble to the Corps regulations at CFR Section 328.3, Definitions, states that the Corps does not generally consider the following waters to be Waters of the United States, although they reserve the right to regulate the following waters on a case-by-case basis.

- *Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.*

As documented herein, the irrigation pond was created by excavating in upland soils for the exclusive purpose of providing irrigation to cultivated agricultural fields that surround the pond.

Since the irrigation pond satisfies the criteria under the preamble, we respectfully request that the Corps make a determination of non-jurisdiction.

Thank you for your prompt consideration of this request and feel free to contact me at (860) 552-2033 or dgustafson@allpointstech.com with any questions or if you require additional documentation to make this JD.

Sincerely,

Dean Gustafson
Senior Wetland Scientist

Enclosures

cc: Mike Wierbonics, USACE NED
Daniel Madrigal, Scannell Properties, LLC
Leo Leighton, Scannell Properties, LLC
Tim Onderko, Langan

Attachments
Figures & Photographs

- USGS Site Location Map
- Wetland Resources Map
- NRCS Soils Map
- 1949 Aerial Photograph
- 1952 USGS Topography Map
- 1952 Aerial Photograph
- 1962 Aerial Photograph
- 1972 USGS Topography Map
- Photodocumentation

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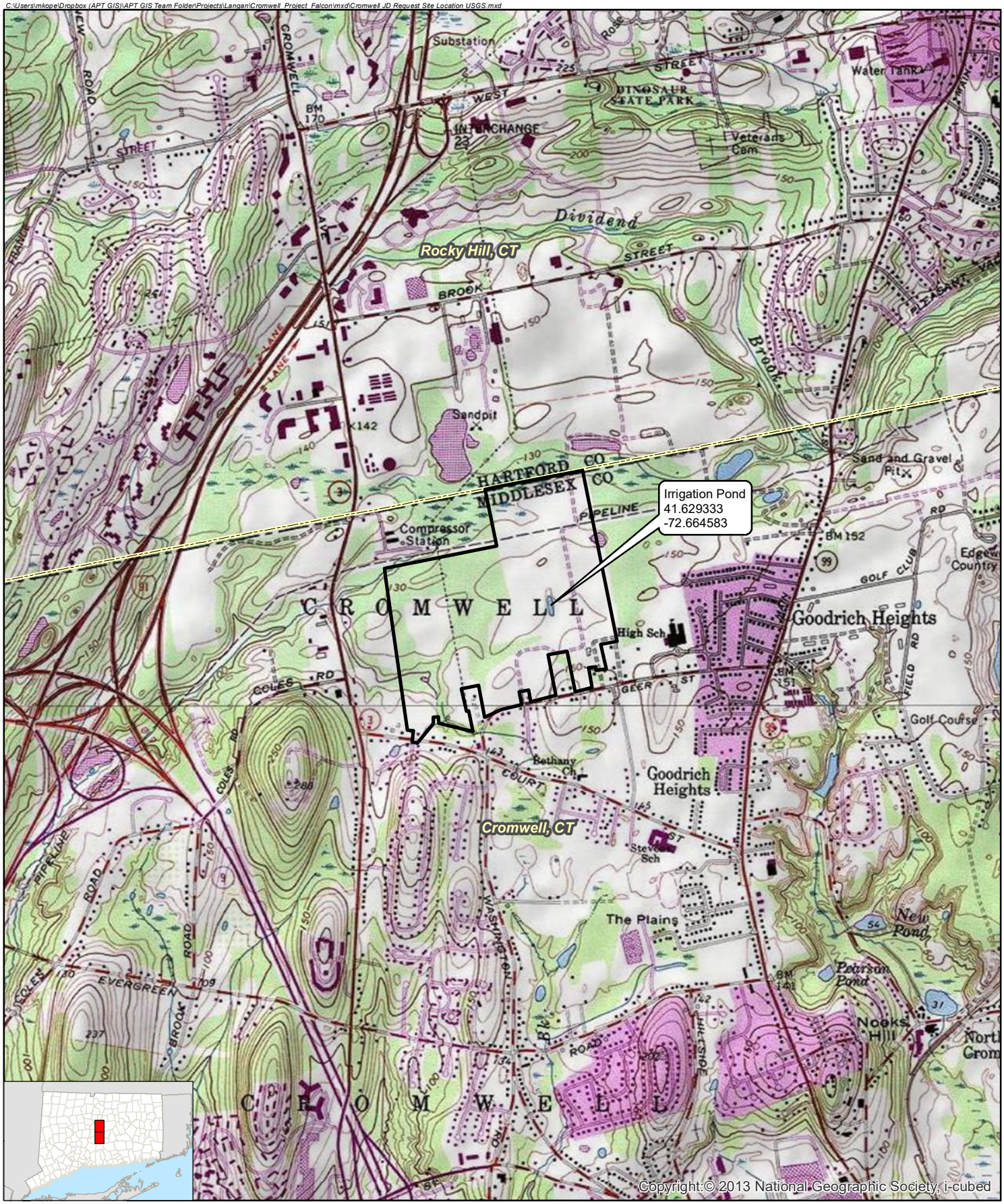

USGS Site Location Map

Irrigation Pond
Geer Street
Cromwell, Connecticut

Legend

- Site
- Municipal Boundary

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Map Notes:
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Map, Hartford South, CT (1992) and Middletown, CT (1992)
Map Scale: 1:24,000
Map Date: February 2021

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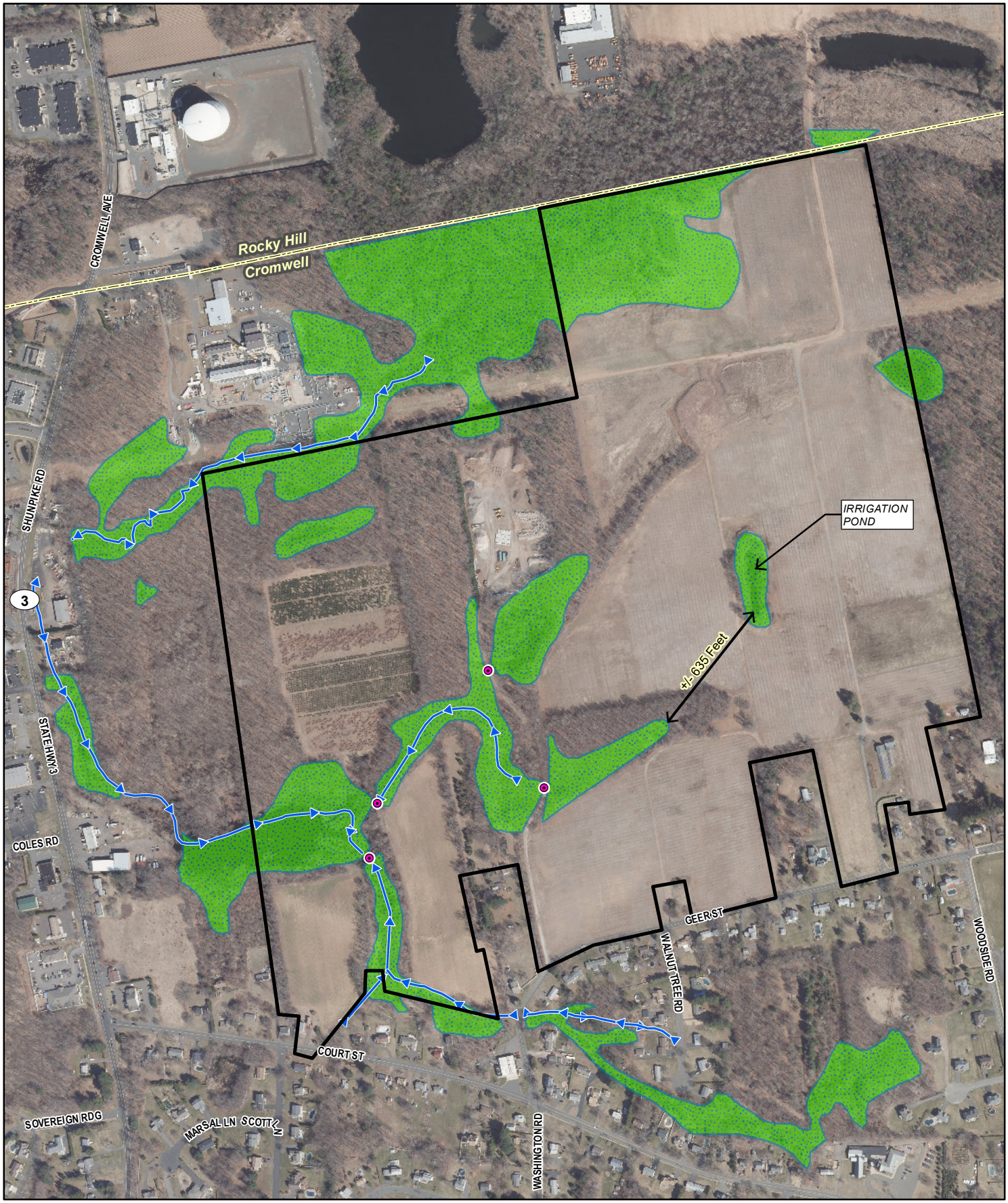
ALL-POINTS TECHNOLOGY CORPORATION



Legend

- Site
- Approximate Wetland Area
- Perennial Stream
- Existing Culvert
- Municipal Boundary

Wetland Resource Map

Irrigation Pond
Geer Street
Cromwell, Connecticut

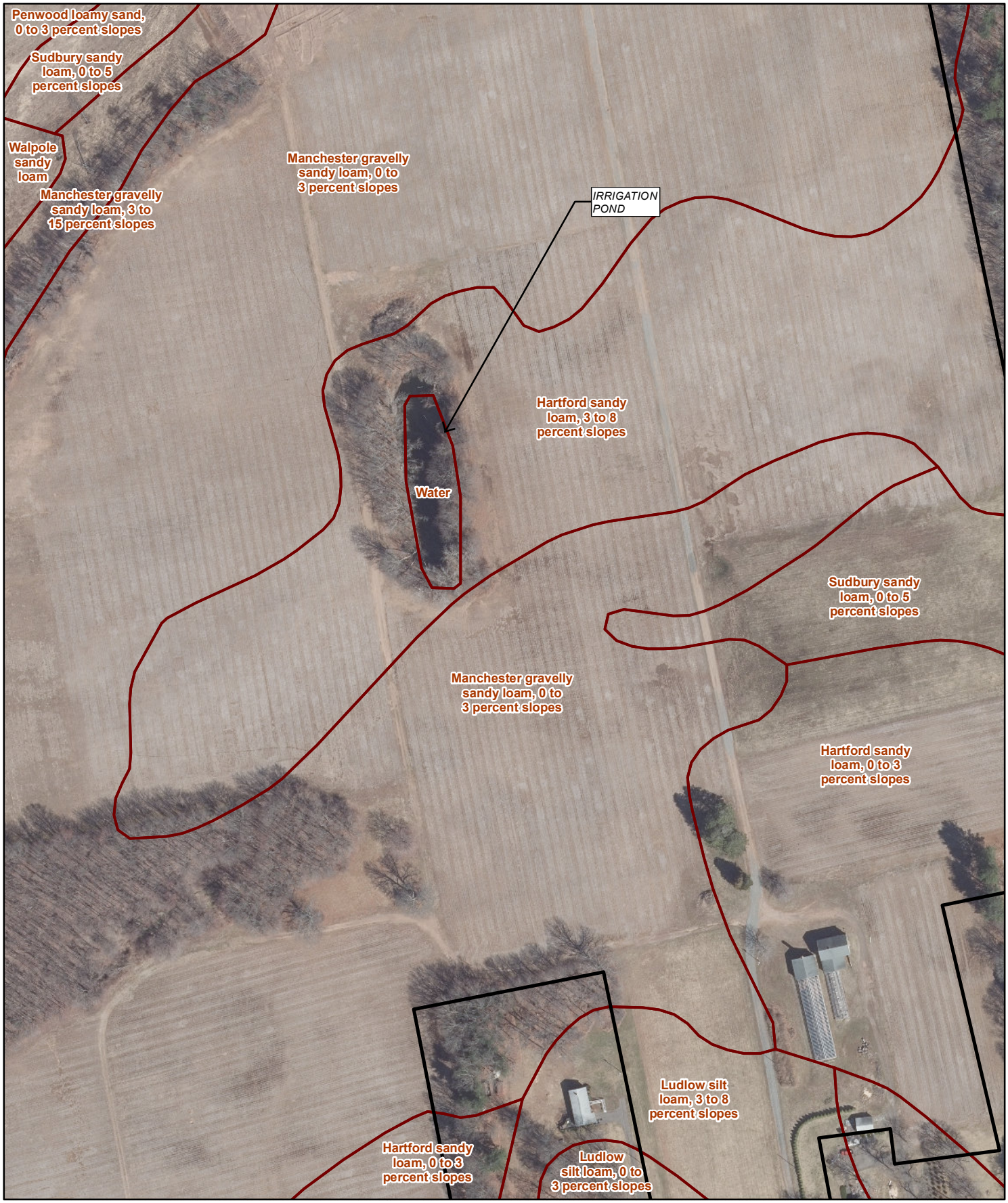
Map Notes:
Base Map Source: CT ECO 2019 Imagery
Map Scale: 1 inch = 600 feet
Map Date: February 2021

N W E S

600 300 0 600 Feet

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

ALL-POINTS TECHNOLOGY CORPORATION



Legend

- Site
- NRCS Soils

NRCS Soils Map

Irrigation Pond
Geer Street
Cromwell, Connecticut

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200 100 0 200 Feet

Map Notes:
Base Map Source:1952 Aerial Photograph
Map Scale:1 inch = 200 feet
Map Date: February 2021

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES
ALL-POINTS TECHNOLOGY CORPORATION

Legend

Site

1949 Aerial Photograph

Irrigation Pond
Geer Street
Cromwell, Connecticut

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250 125 0 250
Feet

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ALL-POINTS
TECHNOLOGY CORPORATION

Map Notes:
Base Map Source:1949 Aerial Photograph
Map Scale:1 inch = 250 feet
Map Date: February 2021

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Legend

- Site
- Municipal Boundary

1952 Topography Map

Irrigation Pond
Geer Street
Cromwell, Connecticut

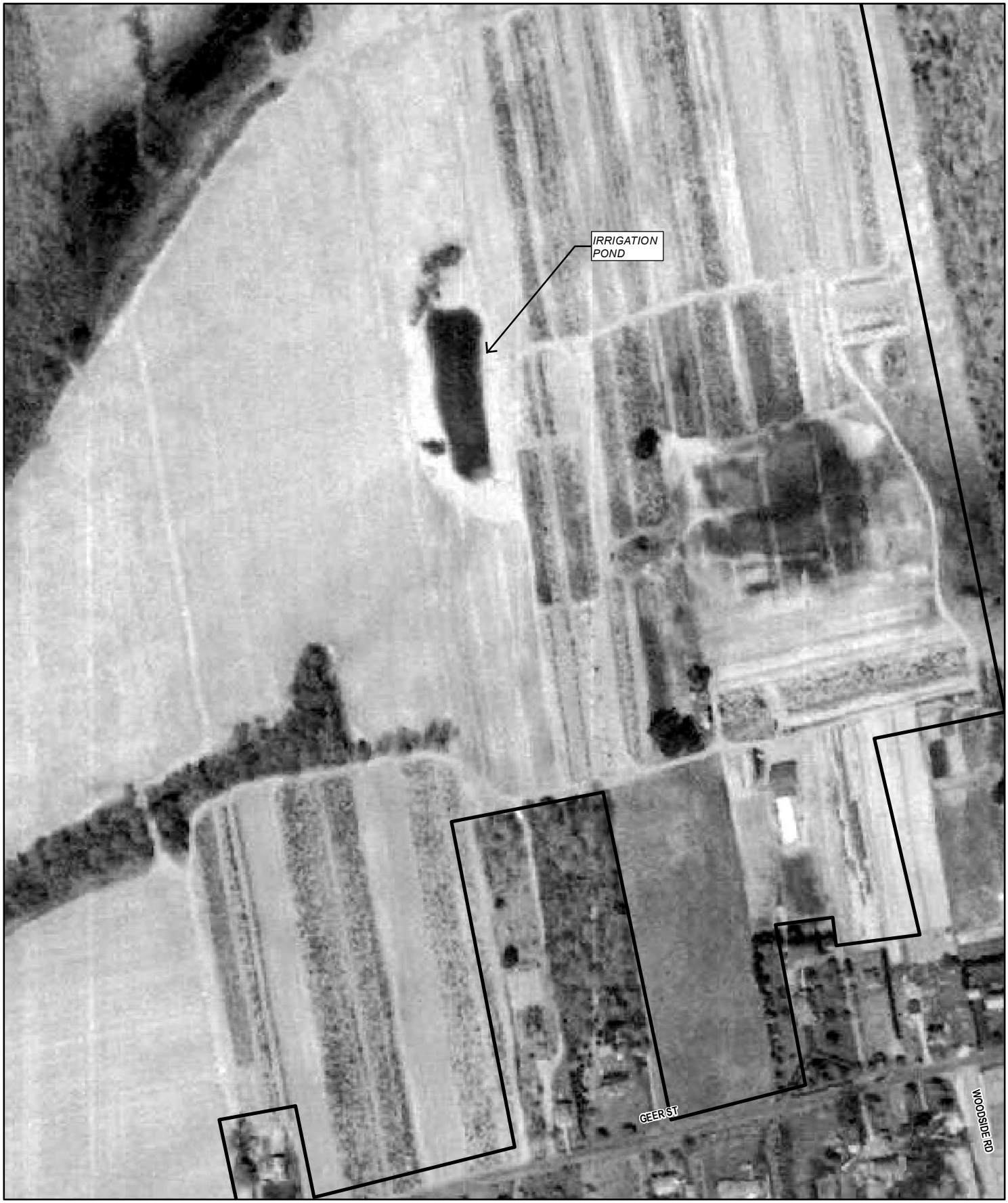
LANGAN

Map Notes:
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Maps, Hartford South, CT (1952) and Middletown, CT (1952)
Map Scale: 1 inch = 1,000 feet
Map Date: February 2021

N W E S

1,000 500 0 1,000 Feet

ALL-POINTS TECHNOLOGY CORPORATION



Legend

Site

1952 Aerial Photograph

Irrigation Pond
Geer Street
Cromwell, Connecticut

N
W E
S

250 125 0 250 Feet

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

ALL-POINTS TECHNOLOGY CORPORATION

Map Notes:
Base Map Source:1952 Aerial Photograph
Map Scale:1 inch = 250 feet
Map Date: February 2021

Legend

Site

1962 Aerial Photograph

Irrigation Pond
Geer Street
Cromwell, Connecticut

N
W E
S

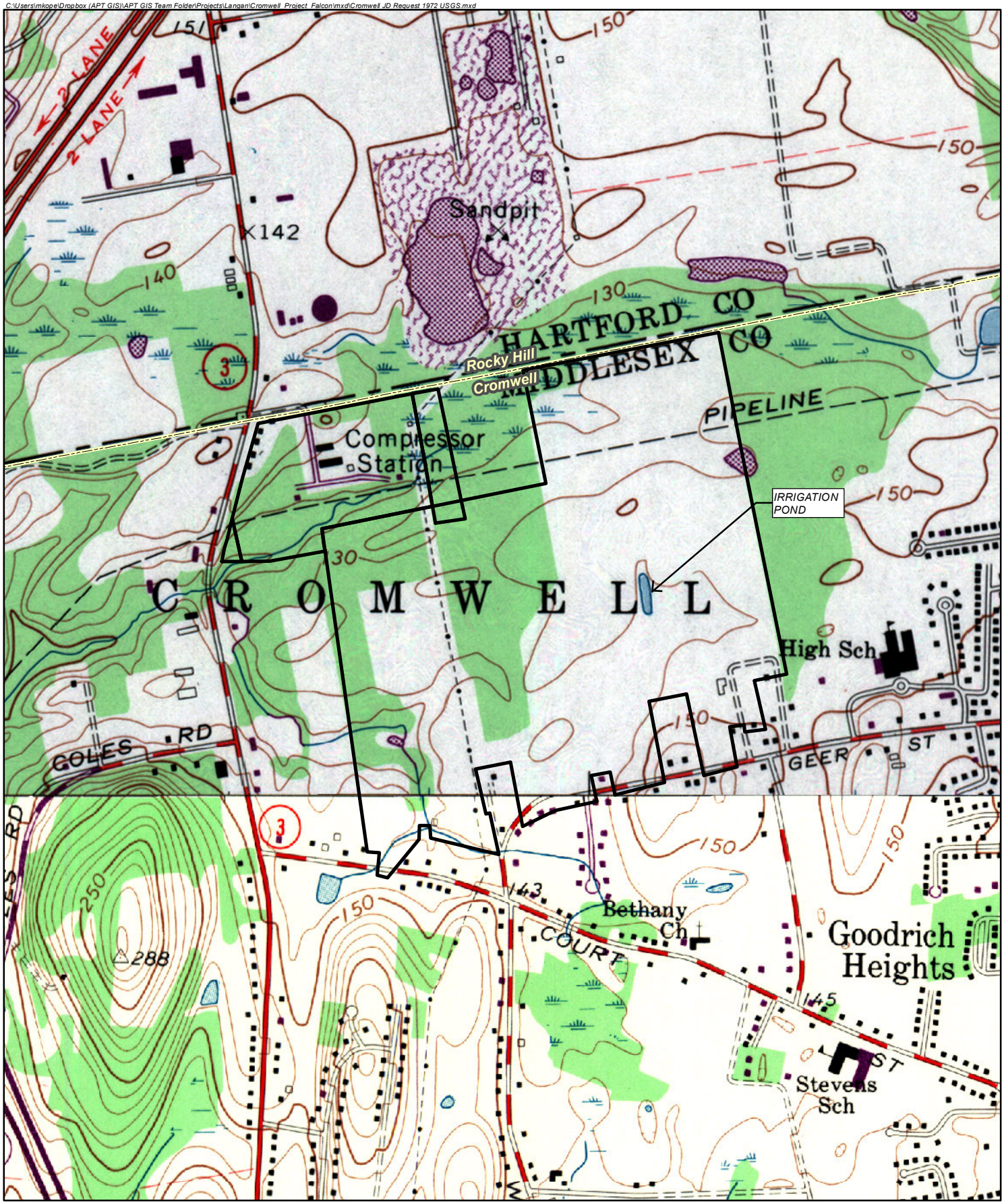
250 125 0 250
Feet

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

ALL-POINTS TECHNOLOGY CORPORATION

Map Notes:
Base Map Source:1952 Aerial Photograph
Map Scale:1 inch = 250 feet
Map Date: February 2021

C:\Users\mkope\Dropbox (APT GIS)\APT GIS Team Folder\Projects\Langan\Cromwell_Project_Falcon\mxd\Cromwell JD Request 1972 USGS.mxd



Legend

- Site
- Municipal Boundary

1972 Topography Map

Irrigation Pond
Geer Street
Cromwell, Connecticut

LANGAN

Map Notes:
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Maps, Hartford South, CT (1972) and Middletown, CT (1972)
Map Scale: 1 inch = 1,000 feet
Map Date: February 2021

N W E S

1,000 500 0 1,000 Feet

ALL-POINTS TECHNOLOGY CORPORATION

Photo 1: View of dry irrigation pond. Photo taken on November 2, 2020.

Photo 2: View of irrigation pond with approximately 2 feet of inundation.
Photo taken on December 10, 2020.

Photo 3: View of irrigation pond with approximately 3 feet of inundation.
Photo taken on January 11, 2021.

Photo 4: View of typical upland cultivated fields adjacent to irrigation pond.
Photo taken on October 15, 2020.

Attachment C

Alternative Site Plans

	WETLAND IMPACT	±61,403 SF
	100' WETLAND UPLAND REVIEW AREA (URA) IMPACT	±287,177 SF
	VERNAL POOL IMPACT	±45,734 SF
	200' VERNAL POOL UPLAND REVIEW AREA (URA) IMPACT	±441,148 SF

TOWN LINE
TOWN OF ROCKY HILL
TOWN OF CROMWELL
25' REAR YARD SETBACK
FLOOD ZONE LINE (TYP)
WETLAND LIMITS (TYP)
INTERNAL PROPERTY LINE (TYP)
ZONE A
FLOOD ZONE AE
FLOOD ZONE X
100' WETLAND UPLAND REVIEW AREA (TYP)
25' SIDE YARD SETBACK (TYP)
INDUSTRIAL DISTRICT
BUSINESS INDUSTRIAL PARK DISTRICT
STREAM (TYP)
ASSOCIATE ENTRANCE
WELCOMING CENTER
100 TRAILER PARKING SPACES
EXISTING 105' WIDE GAS EASEMENT
96' (TYP)
VERNAL POOL (TYP)
200' VERNAL POOL UPLAND REVIEW AREA (TYP)
PROPERTY LINE (TYP)
SHUNPIKE ROAD (A.K.A. ROUTE 3) CSHD LAYOUT NO. 356
SHUNPIKE ROAD
365 ASSOCIATE SPACES
9' x 19' STANDARD SPACES
24' WIDE DRIVE AISLE
60' (TYP)
65' (TYP)
1682'
28 LOADING DOCKS
51 LOADING DOCKS
PROPOSED WAREHOUSE
±1,042,840 SF FOOTPRINT
±369 ASSOCIATE PARKING SPACES
±518 TRAILER PARKING SPACES
±163 LOADING DOCKS
620'
48 LOADING DOCKS
36 LOADING DOCKS
INDUSTRIAL DISTRICT
LOCAL BUSINESS DISTRICT
25' LANDSCAPED BUFFER ADJACENT TO RESIDENTIAL USE (TYP)
BUSINESS INDUSTRIAL PARK DISTRICT
RESIDENTIAL-15 DISTRICT
ZONE LINE (TYP)
35' FRONT YARD SETBACK (TYP)
60' (TYP)
50' LANDSCAPED BUFFER ADJACENT TO RESIDENTIAL DISTRICT (TYP)
POTENTIAL STORMWATER MANAGEMENT FEATURE (TYP)
418 TRAILER PARKING SPACES
WATROUS PARK ROAD
BUSINESS INDUSTRIAL PARK DISTRICT
RESIDENTIAL-25 DISTRICT
BUSINESS INDUSTRIAL PARK DISTRICT
RESIDENTIAL-25 DISTRICT
GEER STREET
GEER STREET (PUBLIC - 50' ROW) TOWN LAYOUT NO. 61064
WALNUT TREE ROAD
COURT STREET (PUBLIC - 66' ROW) CSHD LAYOUT NO. 357
COURT STREET
35' FRONT YARD SETBACK (TYP)
50' LANDSCAPED BUFFER ADJACENT TO RESIDENTIAL DISTRICT (TYP)
RESIDENTIAL-25 DISTRICT
RESIDENTIAL-15 DISTRICT

200 0 100 200
SCALE: 1 INCH = 200 FEET

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Date	Description	No.
Revisions		

Signature Date

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Project

PROJECT HIGHLANDS

210 SHUNPIKE ROAD
CROMWELL CONNECTICUT

Drawing Title

ALTERNATIVE SITE PLAN #1

Project No. 140225401
Date 05/03/2022
Drawn By ALF
Checked By TSO
Figure FG01

LANGAN
Project No. 140225401

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Date: 5/2/2022 Time: 16:19 User: afedus Style Table: Langan.stb Layout: FG01 Document Code: FG01-140225401-0201-CS101-0106

	WETLAND IMPACT	±174,190 SF
	100' WETLAND UPLAND REVIEW AREA (URA) IMPACT	±600,838 SF
	VERNAL POOL IMPACT	±62,700 SF
	200' VERNAL POOL UPLAND REVIEW AREA (URA) IMPACT	±554,218 SF

TOWN LINE
TOWN OF ROCKY HILL
TOWN OF CROMWELL
25' REAR YARD SETBACK
FLOOD ZONE LINE (TYP)
WETLAND LIMITS (TYP)
INTERNAL PROPERTY LINE (TYP)
ZONE A
FLOOD ZONE A
FLOOD ZONE X
100' WETLAND UPLAND REVIEW AREA (TYP)
25' SIDE YARD SETBACK (TYP)
INDUSTRIAL DISTRICT
BUSINESS INDUSTRIAL PARK DISTRICT
STREAM (TYP)
ASSOCIATE ENTRANCE
WELCOMING CENTER
96' (TYP)
EXISTING 105' WIDE GAS EASEMENT
103 TRAILER PARKING SPACES
VERNAL POOL (TYP)
200' VERNAL POOL UPLAND REVIEW AREA (TYP)
PROPERTY LINE (TYP)
SHUNPIKE ROAD (A.K.A. ROUTE 3) CSHD LAYOUT 33-03
SHUNPIKE ROAD
60' (TYP)
65' (TYP)
1682'
28 LOADING DOCKS
51 LOADING DOCKS
PROPOSED WAREHOUSE
±1,042,840 SF FOOTPRINT
±369 ASSOCIATE PARKING SPACES
±518 TRAILER PARKING SPACES
±163 LOADING DOCKS
620'
365 ASSOCIATE SPACES
9' x 19' STANDARD SPACES
24' WIDE DRIVE AISLE
48 LOADING DOCKS
36 LOADING DOCKS
60' (TYP)
418 TRAILER PARKING SPACES
POTENTIAL STORMWATER MANAGEMENT FEATURE (TYP)
INDUSTRIAL DISTRICT
LOCAL BUSINESS DISTRICT
35' FRONT YARD SETBACK (TYP)
BUSINESS INDUSTRIAL PARK DISTRICT
RESIDENTIAL-15 DISTRICT
ZONE LINE (TYP)
50' LANDSCAPED BUFFER ADJACENT TO RESIDENTIAL DISTRICT (TYP)
25' LANDSCAPED BUFFER ADJACENT TO RESIDENTIAL USE (TYP)
WATROUS PARK ROAD
BUSINESS INDUSTRIAL PARK DISTRICT
RESIDENTIAL-25 DISTRICT
COURT STREET (PUBLIC - 66' ROW) CSHD LAYOUT NO. 357
COURT STREET
BUSINESS INDUSTRIAL PARK DISTRICT
RESIDENTIAL-25 DISTRICT
GEER STREET
GEER STREET (PUBLIC - 50' ROW) TOWN LAYOUT NO. 61064
WALNUT TREE ROAD
35' FRONT YARD SETBACK (TYP)
50' LANDSCAPED BUFFER ADJACENT TO RESIDENTIAL DISTRICT (TYP)
BUSINESS INDUSTRIAL PARK DISTRICT
RESIDENTIAL-15 DISTRICT
RESIDENTIAL-25 DISTRICT
RESIDENTIAL-15 DISTRICT

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200 0 100 200
SCALE: 1 INCH = 200 FEET

Date	Description	No.
Revisions		

Signature Date

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Project
PROJECT HIGHLANDS
210 SHUNPIKE ROAD
CROMWELL CONNECTICUT

Drawing Title
ALTERNATIVE SITE PLAN #2

Project No. 140225401
Date 05/03/2022
Drawn By ALF
Checked By TSO
Figure FG02

LANGAN
Project No. 140225401

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Date: 5/2/2022 Time: 16:57 User: afedus Style Table: Langan.stb Layout: FG02 Document Code: FG02-140225401-0201-CS101-0101

	WETLAND IMPACT	±21,054 SF
	100' WETLAND UPLAND REVIEW AREA (URA) IMPACT	±214,006 SF
	200' VERNAL POOL UPLAND REVIEW AREA (URA) IMPACT	±349,665 SF

TOWN LINE
TOWN OF ROCKY HILL
TOWN OF CROMWELL
TOWN OF ROCKY HILL
TOWN OF CROMWELL
FLOOD ZONE LINE (TYP)
WETLAND LIMITS (TYP)
100' WETLAND UPLAND REVIEW AREA (TYP)
ZONE A
ZONE A
FLOOD ZONE IA
FLOOD ZONE X
WETLAND/VERNAL POOL CREATION AREA
PROPERTY LINE (TYP)
STREAM (TYP)
100' WETLAND URA IMPACT: ±17,004 SF
200' VERNAL POOL URA IMPACT: ±43,026 SF
LIMITS OF DISTURBANCE (TYP)
200' VERNAL POOL URA IMPACT: ±1,694 SF
VERNAL POOL (TYP)
200' VERNAL POOL UPLAND REVIEW AREA (TYP)
SHUNPIKE ROAD (A.K.A. ROUTE 3) CSHD LAYOUT 33-03
SHUNPIKE ROAD
ZONE A
ZONE A
200' VERNAL POOL URA IMPACT: ±6,570 SF
100' WETLAND URA IMPACT: ±4,672 SF
200' VERNAL POOL URA IMPACT: ±9,700 SF
100' WETLAND URA IMPACT: ±39,295 SF
200' VERNAL POOL URA IMPACT: ±3,399 SF
200' VERNAL POOL URA IMPACT: ±5,273 SF
200' VERNAL POOL URA IMPACT: ±16,258 SF
100' WETLAND URA IMPACT: ±18,924 SF
±3,047 SF WETLAND IMPACT AREA
WETLAND AREA TO BE FILLED: ±18,007 SF
VERNAL POOL TO BE FILLED: ±18,007 SF
100' WETLAND URA IMPACT: ±100,599 SF
200' VERNAL POOL URA IMPACT: ±263,745 SF
STREAM (TYP)
ZONE A
ZONE A
FLOOD ZONE A
FLOOD ZONE A
ZONE A
100' WETLAND URA IMPACT: ±12,465 SF
100' WETLAND URA IMPACT: ±21,046 SF
GEER STREET
GEER STREET (PUBLIC - 50' ROW) TOWN LAYOUT NO. 61064
WALNUT TREE ROAD
COURT STREET (PUBLIC - 66' ROW) CSHD LAYOUT NO. 357
SCOTT LANE
COURT STREET

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200 0 100 200
SCALE: 1 INCH = 200 FEET

Date	Description	No.
Revisions		

Signature Date

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Project
PROJECT HIGHLANDS
210 SHUNPIKE ROAD
CROMWELL CONNECTICUT

Drawing Title
ALTERNATIVE SITE PLAN #3

Project No. 140225401
Date 10/20/2021
Drawn By ALF
Checked By DTG
Figure FG03

LANGAN
Project No. 140225401

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Attachment D

Wetland and Vernal Pool Protection Program

WETLAND AND VERNAL POOL PROTECTION PROGRAM

As a result of the proposed development's location in the vicinity of wetlands and vernal pool habitat, the following Best Management Practices ("BMPs") are recommended to avoid unintentional impact to wetland habitats or mortality to vernal pool herpetofauna (i.e., spotted salamander, wood frog, turtles, etc.) during construction activities. This plan includes elements that will protect herpetofauna should construction activities occur during peak amphibian movement periods (early spring breeding [March 1st to May 15th] and late summer dispersal [July 15th to September 15th]) as well as wetlands regardless of the time of year. Complete details of the recommended BMPs are provided below, which will be incorporated into the construction drawings to ensure the Contractor is fully aware of the project's environmentally sensitive setting.

A wetland scientist from All-Points Technology Corp. ("APT") experienced in compliance monitoring of construction activities will serve as the Environmental Monitor for this project to ensure that the following BMPs are implemented properly. The proposed wetland and vernal pool protection program consists of several components including: isolation of the project's limit of disturbance perimeter; periodic inspection and maintenance of erosion controls and isolation structures; herpetofauna sweeps; education of all contractors and sub-contractors prior to initiation of work on the site; protective measures; and, reporting.

1. **Erosion and Sedimentation Controls**

    a. Plastic netting with large mesh openings (> ¼") used in a variety of erosion control products (i.e., erosion control blankets, fiber rolls [wattles], reinforced silt fence) has been found to entangle wildlife, including reptiles, amphibians, birds and small mammals. No permanent erosion control products or reinforced silt fence will be used on the project. Temporary erosion control products that will be exposed at the ground surface represent a potential for wildlife entanglement will use either erosion control blankets and fiber rolls composed of processed fibers mechanically bound together to form a continuous matrix (netless) or netting with a mesh size <¼" such as that typically used in compost filter socks to avoid/minimize wildlife entanglement.

    b. Installation of erosion and sedimentation controls, required for erosion control compliance and creation of a barrier to possible migrating/dispersing herpetofauna, shall be performed by the Contractor following clearing activities and prior to any earthwork. The Environmental Monitor will inspect the work zone area prior to and following erosion control barrier installation to ensure the area is free of herpetofauna and satisfactorily installed. The intent of the barrier is to segregate the majority of the work zone from migrating/dispersing herpetofauna. Oftentimes complete isolation of a work zone is not feasible due to accessibility needs and locations of staging/material storage areas, etc. In those circumstances, the barriers will be positioned to deflect migrating/dispersal routes away from the work zone to minimize potential encounters with herpetofauna.

    c. If a staging area for equipment, vehicles or construction materials is required for this project, such area(s) shall be located outside of any wetland resource Buffer Zone and surrounded by silt fence to isolate the area from possible migrating herpetofauna.

    d. All erosion control measures shall be removed within 30 days of completion of work and permanent stabilization of site soils so that herpetofauna movements between uplands and wetlands are not restricted.

2. Contractor Education:

a. Prior to work on site and initial deployment/mobilization of equipment and materials, the Contractor shall attend an educational session at the pre-construction meeting with the Environmental Monitor. This orientation and educational session will consist of information such as, but not limited to: representative photographs of typical herpetofauna that may be encountered, rare that could be encountered (if possible), typical species behavior, and proper procedures to protect such species if they are encountered. The meeting will further emphasize the non-aggressive nature of these species, the absence of need to destroy such animals and the need to follow Protective Measures as described in Section 4 below. The Contractor will designate one of its workers as the "Project Monitor", who will receive more intense training on the identification and proper handling of herpetofauna.

b. The Contractor will designate a member of its crew as the Project Monitor to be responsible for the daily "sweeps" for herpetofauna within the work zone each morning, during any and all transportation of vehicles along the access drive, and for any ground disturbance work. This individual will receive more intense training from the Environmental Monitor on the identification and protection of herpetofauna in order to perform sweeps. Any herpetofauna discovered will be reported to the Environmental Monitor, photographed if possible, and relocated outside the work zone in the general direction the animal was oriented.

c. The Environmental Monitor will also post caution signs throughout the project site and maintain them for the duration of construction to provide notice of the environmentally sensitive nature of the work area, the potential for encountering various amphibians and reptiles and precautions to be taken to avoid injury to or mortality of these animals.

d. The Contractor will be provided with the Environmental Monitor's cell phone and email contact information to immediately report any encounters with herpetofauna.

3. Petroleum Materials Storage and Spill Prevention

a. Certain precautions are necessary to store petroleum materials, refuel and contain and properly clean up any inadvertent fuel or petroleum (i.e., oil, hydraulic fluid, etc.) spill due to the project's location in proximity to sensitive wetland resources.

b. A spill containment kit consisting of a sufficient supply of absorbent pads and absorbent material will be maintained by the Contractor at the construction site throughout the duration of the project. In addition, a waste drum will be kept on site to contain any used absorbent pads/material for proper and timely disposal off site in accordance with applicable local, state and federal laws.

c. The following petroleum and hazardous materials storage and refueling restrictions and spill response procedures will be adhered to by the Contractor.
    i. Petroleum and Hazardous Materials Storage and Refueling
        1. Refueling of vehicles or machinery shall take place on an impervious pad with secondary containment designed to contain fuels.
        2. Any refueling drums/tanks or hazardous materials that must be kept on site shall be stored on an impervious surface utilizing secondary containment a minimum of 100 feet from wetlands or watercourses.

    ii. Initial Spill Response Procedures
        1. Stop operations and shut off equipment.

2. Remove any sources of spark or flame.
3. Contain the source of the spill.
4. Determine the approximate volume of the spill.
5. Identify the location of natural flow paths to prevent the release of the spill to sensitive nearby waterways or wetlands.
6. Ensure that fellow workers are notified of the spill.

iii. Spill Clean Up & Containment

1. Obtain spill response materials from the on-site spill response kit. Place absorbent materials directly on the release area.
2. Limit the spread of the spill by placing absorbent materials around the perimeter of the spill.
3. Isolate and eliminate the spill source.
4. Contact the appropriate local, state and/or federal agencies, as necessary.
5. Contact a disposal company to properly dispose of contaminated materials.

iv. Reporting

1. Complete an incident report.
2. Submit a completed incident report to the Connecticut Siting Council.

4. Protective Measures

a. A thorough cover search of the construction area will be performed by the Environmental Monitor for herpetofauna prior to and following installation of erosion control measures/silt fencing barriers to remove any species from the work zone prior to the initiation of construction activities. Any herpetofauna discovered would be relocated outside the work zone in the general direction the animal was oriented. Periodic inspections will be performed by the Environmental Monitor throughout the duration of construction.

b. The Contractor's Project Monitor will inspect the work area each morning and escort initial vehicle access into the site each morning along the access drive to visually inspect for any herpetofauna. Any herpetofauna discovered would be relocated outside the work zone in the general direction the animal was oriented.

c. Any herpetofauna requiring relocation out of the work zone will be captured with the use of a net or clean plastic bag that has been moistened with clean water for careful handling and placement out of the work zone in the general direction it was observed heading.

d. Any stormwater management features, ruts or artificial depressions that could hold water created intentionally or unintentionally by site clearing/construction activities will be properly filled in and permanently stabilized with vegetation to avoid the creation of vernal pool "decoy pools" that could intercept amphibians moving toward the vernal pools. Stormwater management features such as level spreaders will be carefully reviewed in the field to ensure that standing water does not endure for more than a 24 hour period to avoid creation of decoy pools and may be subject to field design changes. Any such proposed design changes will be reviewed by the design engineer to ensure stormwater management functions are maintained.

5. Reporting

a. Daily inspection reports (brief narrative and applicable photos) will be prepared by the

Environmental Monitor documenting each inspection and submitted to the Applicant for compliance verification. Any non-compliance observations of erosion control measures or evidence of erosion or sediment release will be immediately reported to the Contractor and the Applicant's Construction Manager and included in the reports.

b. Any incidents of sediment release into the wetland resource areas shall will be reported within 24 hours to the Town of Cromwell Wetland Enforcement Officer.

c. Any observations of rare species will be reported to the Connecticut Department of Energy & Environmental Protection Natural Diversity Data Base program.

d. Following completion of the project, a summary report will be prepared by the Environmental Monitor documenting compliance with the Wetland and Vernal Pool Protection Plan and submitted to the Applicant, who will submit a copy to the Town of Cromwell Wetland Enforcement Officer.