SECTION 9.0

Wetland Functions & Values

WETLAND FUNCTIONS & VALUES

GRANITE STATE LANDFILL
DALTON, NEW HAMPSHIRE

PREPARED FOR:

GRANITE STATE LANDFILL, LLC
1855 VERMONT ROUTE 100
HYDE PARK, VERMONT 05655

PREPARED BY:

B.H. KEITH ASSOCIATES
P.O. BOX 326
FREEDOM, NEW HAMPSHIRE 03836

NOVEMBER 2023

WETLAND FUNCTIONS AND VALUES

In accordance with the U.S. Army Corps of Engineers "The Highway Methodology Workbook" and "The Highway Methodology Workbook Supplement" (2015), a functions and values assessment was conducted for the respective wetland resources in and adjacent to the proposed project area. This wetland assessment method is consistent with Env-Wt 803.02(a)(1)a.

The existing wetland resources are depicted on the 1"=50' "Existing Wetland Plans" dated November 2023 prepared by Horizons Engineering, Inc., as described in Section 8. Section 8.2 describes overall wetland project impacts, which are depicted on the 1"=50' "Wetland Impact Plans, dated November 2023. The impact plans consist of 36 sheets which depict impacts as permanent, temporary and after-the-fact. An impact summary table is provided on the respective wetland impact sheet. Table 8.2.1 provides a further impact summary by sheet number and outlines impacts by wetland cover types and by town. Assessing wetland impacts by cover types for various project alternatives serves to highlight the location and extent of loss of the primary wetland classes affected by the respective alternative.

Section 9.1a is the required NHDES Functional Assessment Form. Section 9.1b includes the U.S. Army Corps (USACE) Workbook Supplement Wetland Function-Value Evaluation Forms. USACE evaluation forms were prepared for individual wetlands and wetland complexes within the maximum proposed limit of disturbance and adjoining wetlands within the project area as depicted on Figures 1-11. The Evaluation Forms are referenced by the primary impact plan sheet numbers as referenced by the index sheet. The forms are further referenced by the representative wetland flag ID code (eg. Sht. 12 Wetland C-280) and area location as depicted on the 1"=50' detail wetland impact sheets.

Consistent with the USACE Workbook, using the detailed wetland plans, the wetland classification codes, the primary wetland cover types (PFO, PSS, PEM/SS, PEM, streams and vernal pools) were determined within the overall proposed limit of disturbance. Discrete cover type mapping units are depicted in Figures 1-9. Acreage of each cover type mapping unit was

determined (rounded to the nearest 0.1 acre) in order to assess direct impacts for each design alternative concepts[1]. Seven (7) concepts (Concepts 1-4 and 5.1, 5.2, and 5.3) and two (2) access road design concepts were evaluated. These access road concepts included proposed road improvements from Concepts 1-4 (Figure 8) to Douglas Drive and the Route 116 intersection and proposed improvements (Figure 9) to provide access to concepts 5.1-5.3. A summary table of wetland cover type impacts for each Concept is found on Figures 1-8. Table 1 Wetland Impacts by Cover Type for Different Landfill Alternatives provides a summary of acres of impact for each cover type based on the proposed concept.

The "Highway Method" is a comparative approach designed to provide state and federal regulatory agencies with information:

- *Describing Existing Wetland Site Characteristics*
- *Comparing Project Alternatives*
- *Discussing Avoidance and Minimization of Project Impacts*
- *Determining the Nature and Significance of Impacts*
- *Weighing Environmental Impacts against Project Benefits/Need*
- *Providing guidance in Determining the Applicability and Type of Compensatory Mitigation Required*

The "Highway Method" is a descriptive approach to evaluate which specific functions and values are present and which functions and values are principal within the respective wetland resource. This method assesses thirteen (13) wetland functions and values that include eight (8) functions and five (5) values.

Functions are specific properties of a wetland ecosystem. The Corps Workbook states "functions relate to the ecologic significance of wetland properties without regard to subjective human values." These functions include:

[1] After-the-Fact wetland impacts were not included in the comparison between alternatives.

- *Groundwater Recharge/Discharge* – The wetlands potential to provide groundwater recharge to an aquifer and/or serve as a discharge source to surface waters.

- *Floodflow Alteration* – The ability of the wetland to store and/or attenuate flood waters for extended periods following precipitation events.

- *Fish and Shellfish Habitat* – The ability/effectiveness of the wetland and associated waterbodies to provide fish and shellfish habitat.

- *Sediment/Toxicant Retention* – The effectiveness of the wetland to retain sediments/toxicants.

- *Nutrient Removal* – The effectiveness of the wetland to retain and/or attenuate excess nutrients.

- *Product Export* – This function centers on the wetlands effectiveness to produce and export food sources.

- *Sediment/Shoreline Stabilization* – The effectiveness of the wetland to stabilize banks and prevent against erosion.

- *Wildlife Habitat* – The habitat characteristics of the wetland to provide habitat for various wildlife species and populations.

Values refer to the benefits a wetland function, or a combination of functions, provide or may provide to society. These values include:

- *Recreation* – The effectiveness of the wetland to provide recreational opportunities.

- *Educational/Scientific Value* – This value considers the effectiveness of the wetland as a site for an outdoor classroom or for scientific research.

- *Uniqueness/Heritage* – Special or unique values may include unique geologic features, significant plant or animal habitats, and historic or archeological sites.

- *Visual Quality/Aesthetics* – This value centers on the aesthetic quality of the wetland and surrounding environs.

- *Endangered Species* – This value relates to a wetlands ability to support known or potential rare, threatened, and/or endangered species.

- *Other Characteristics/Noteworthiness* – Other characteristics or noteworthiness values may include intrinsic values specific to the wetland resource.

The USACE Evaluation Forms serve to highlight the Suitability and Principal Functions and Values of the respective wetland areas within and adjacent to the maximum proposed limits of disturbance as depicted on Concept 1 (Figure 10). Table 2 serves to summarize acres of wetland impact by Principal and Suitable Functions and Values for different landfill alternatives. The upper bar graph on Table 2 shows acres of impact to Principal Functions and Values. The lower bar graph on Table 2 serves to summarize impacts to Suitable Functions and Values. Table 3 serves to summarize the Evaluation Forms by sheet number, wetland ID code, primary cover type, impacted acres for all concepts and the Principal and Suitability of the respective wetland function and value categories.

WETLAND FUNCTIONS – EXISTING CONDITIONS

Groundwater Recharge/Discharge

The wetland resources within the project area consist of naturally occurring and man-induced/altered wetlands positioned in glacial till soils. In general, all of the site's wetlands provide a groundwater discharge function. Groundwater observations indicate that groundwater movement is in a west to southwesterly direction largely paralleling surface water drainage patterns. As highlighted in Table 3, this function is considered a principal function within 22 wetlands (10 within the proposed concept[2]). See (Section 9.3) surface and groundwater summary.

Floodflow Alteration

Due to their limited size and floodflow storage capacity, the floodflow alteration function is considered minimal to non-existent within the smaller isolated naturally occurring wetlands and man-induced/altered wetlands associated with Douglas Drive. The headwater wetlands at the base of slope east of Douglas Drive serve to collect and dissipate floodflow from the nearby interconnected wetlands positioned within the eastern slope. Correspondingly, these wetlands slowly discharge floodflow to the broader, more expansive wetland complex areas located west

[2] Includes the landfill footprint, roadway, and infrastructure areas.

of Douglas Drive. This function is considered a principal function within 15 wetlands (7 within the proposed concept).

Fish and Shellfish Habitat

The headwater wetlands located east of Douglas Drive do not exhibit any perennial streams and are not considered viable fish or shellfish habitat. A fishery survey confirmed that no fish or shellfish habitat exists within the intermittent stream located in this portion of the project area. The series of perennial no-name tributaries often associated with the larger wetland complex/s positioned lower (primarily west of Douglas Drive) in the Alder Brook catchment serve to support fish habitat. This function is considered a principal function within 4 wetlands (1 within the proposed concept). See Section 401 Water Quality Certification application.

Sediment/Toxicant Retention

Sediment/toxicant retention function (also referred to as Sediment/Shoreline Stabilization in Table 3) was not considered a suitable function within the man-made roadside wetlands and smaller isolated wetlands. These roadside wetlands or small isolated wetlands are limited in their ability to perform this function due to their relatively small size and inability to detain significant stormwater runoff. While, in some cases, surface water drainage has been altered, wetlands which are generally sufficiently large, consisting of dense vegetation exhibit the ability to sustain this function. The headwater forested wetlands are positioned within a largely undeveloped watershed which is not contaminated with sediments or toxic substance. The diverse vegetation and expansive nature of the wetland complex/s associated with the large interconnected wetland system west of Douglas Drive provide for significant opportunity for (Principal) sediment/toxicant retention. This is considered a principal function within 10 wetlands (2 within the proposed concept).

Nutrient Removal

The nutrient removal function is somewhat similar to sediment/toxicant functions and are often found in association with one another within a respective wetland system. Wetland processes

that effectively slow and filter surface waters generally decrease turbidity, and retain excess sediments and nutrients. Nutrients are trapped within the sediment and wetland soils and are attenuated and transformed by wetland vegetation. The wetlands listed in Table 3 for sediment/toxicant retention also generally serve to provide this function. This is considered a principal function within 11 wetlands (3 within the proposed concept).

Product Export

Product export is not considered suitable or a principal function within the smaller and/or isolated wetland areas. As previously described, the production export function is associated with the wetland's ability and effectiveness to transport food sources. The smaller man-induced/altered, isolated or wetlands bisected by the main access road are restricted to perform this function. The headwater wetlands are larger and interconnected with the diverse larger wetland complex to the west allowing for un-restricted opportunity for product export. This is considered a principal function within 8 wetlands (3 within the proposed concept).

Sediment/Shoreline Stabilization

No streams or shoreline exist within the smaller and/or isolated wetland areas. While an intermittent stream (R4UBJ) exists within the northeast portion of the headwater wetlands east of Douglas Drive, it is positioned within a stable well forested watershed. The larger wetland complex/s are associated with various no name perennial tributaries to Alder Brook. The diverse vegetation and broad low lying topographic setting intermixed with a chain of active and former beaver colonies provides opportunity to slow surface water runoff correspondingly providing for sediment/shoreline stabilization. This is considered a principal function within 3 wetlands (0 within the proposed concept).

Wildlife Habitat

Based on the relatively undeveloped and somewhat remote landscape of the site's wetland resources and surrounding environs, nearly all of the wetlands were considered to provide some level of wildlife habitat. While the man-induced/altered, isolated and previously affected

wetlands adjacent to roads, the former asphalt plant, or mining operations do affect the connectivity of habitats and habitat utilization, their landscape level location contribute to their wildlife habitat function. Some of the smaller isolated wetlands provide for vernal pool (Section 10.3) habitat. The non-fragmented naturally occurring headwater wetlands connected with the large wetland complex associated with the tributaries to Alder Brook provide significant wildlife habitat for a variety of species. This is considered a principal function within 38 wetlands (18 within the proposed concept).

WETLAND VALUES – EXISTING CONDITONS

Recreation

The property is privately-owned and restricted to the general public. This is not considered to be a principal value at any wetland in the proposed concept or environs.

Educational/Scientific Value

The property is privately-owned and restricted to the general public. This is not considered to be a principal value at any wetland in the proposed concept or environs.

Uniqueness/Heritage

The project area and surrounding environs are not considered to be unique or exhibit heritage values. This is considered a principal value within 2 wetlands outside of the proposed concept.

Visual Quality/Aesthetics

The project area is positioned within an active sand and gravel mining operation and quarry adjacent to a former asphalt plant. The land is privately-owned and restricted to the general public. This is not considered to be a principal value at any wetland in the proposed concept or environs.

Endangered Species Habitat

The wetland resources are not known as endangered plant or animal species habitat. This is not considered to be a principal value at any wetland in the proposed concept or environs. See Section 10 – Rare, Threatened, & Endangered Species Review.

WETLAND FUNCTIONS – PROPOSED IMPACTS

The cumulative direct wetland impacts to cover types (Table 1) range from approximately 43 acres of wetland impact for Concept 1 to approximately 10.7 acres for Concept 5.3[3] (preferred concept). Concepts 1-4 were dismissed since they impacted 43.3, 32.2, 18.6, and 18.0 acres of wetland, respectively. Furthermore, these alternatives would directly impact 7 vernal pools. The positioning of these landfill footprints adjacent to the higher functioning wetlands further affected the viability of these concepts. The table and bar graph on Table 1 illustrate that the majority of impacted cover types consists primarily of forested wetland, the principal cover type. Additionally, these concepts impacted scrub-shrub and emergent/scrub-shrub wetlands with a lesser degree of impact to emergent wetlands which are the least represented wetland cover type. While the roadway concept for Concepts 1-4 impacted less wetland, the design for Concepts 1-4 did not take into considerations improvements to the Route 116/Douglas Drive intersection that were later required by NHDOT. Further, Concepts 1-4 required a new crossing of a no name perennial stream.

As described in the Siting, Evaluation and Minimization Report (Section 7.3), the shift of the project from multiple phases to a smaller one-phase project centered on a smaller landfill footprint. Concepts 5.1-5.3 were assessed to further avoid and minimize wetland impact.

The Concept 5.1 alternative impacts 12.0 acres of wetland, of which 8.7 acres are forested. This 72 acre landfill footprint extended west of Douglas Drive directly and indirectly impacting high functioning wetlands. To further minimize wetland impacts, Concepts 5.2 and 5.3 were assessed. Both landfill footprints are approximately 70 acres and are positioned east of Douglas Drive. Upland areas west of Douglas Drive, as depicted on Figures 6 and 7 were reserved for future stormwater management areas. Both of these concepts are similar in that they each directly impact approximately 10 acres of wetland (does not include the roadway/infrastructure area, which is considered to be the same between Concepts 5.2 and 5.3).

[3] Does not include approximately 0.9 acres of after-the-fact impacts. Area includes the roadway/infrastructure area. Refer to wetland impact plans for additional information.

Concept 5.2 required filling all (1618 linear feet) of the intermittent stream, provided less natural buffer to down gradient wetlands and would likely have adverse indirect impacts to wetland areas which would become isolated by project development. This concept would directly impact one vernal pool.

Concept 5.3 (Preferred Concept) required filling approximately 932 linear feet of the intermittent stream. Forested wetland impacts are further reduced from 7.7 acres (Concept 5.2) to 6.6 acres. Scrub-shrub impact increases from 1.9 to 3.0 acres and emergent/scrub-shrub impacts remain at 0.2 acres. Five vernal pools would be directly impacted. Concept 5.3 is located further from wetlands with higher functions and values compared to Concept 5.2.

Roadway improvements (Figure 9) for Concepts 5.1-5.3 entail 0.9 acres. Much of this impact is associated with widening of Roue 116 and improving the existing access road, Douglas Drive. Two (2) box concrete culverts are proposed to improve/re-establish aquatic passage under the access road. No new stream crossings are required. See Section 9.2 SVAP2 Stream Assessment.

Table 2 summarizes the acres of impact by Principal and Suitable Functions and Values for the various design concepts. Concepts 1 and 2 would affect 7 principal functions including groundwater, floodflow alteration, fishery, sediment attenuation, nutrient removal, product export and wildlife habitat. Concepts 3-5.1 impact similar functions as Concepts 1 and 2, except fish habitat, which is not impacted in Concepts 3-5.1. Concepts 5.2 and 5.3 affect 3 principal functions (groundwater, floodflow attenuation, and wildlife habitat. Table 3 serves to summarize impacts by design concept and principal functions and values. Figures 10 and 11 demonstrate wetland impacts to functions and values for Concepts 1-4 and Concepts 5.1-5.3 and their associated roadway impacts.

SUMMARY

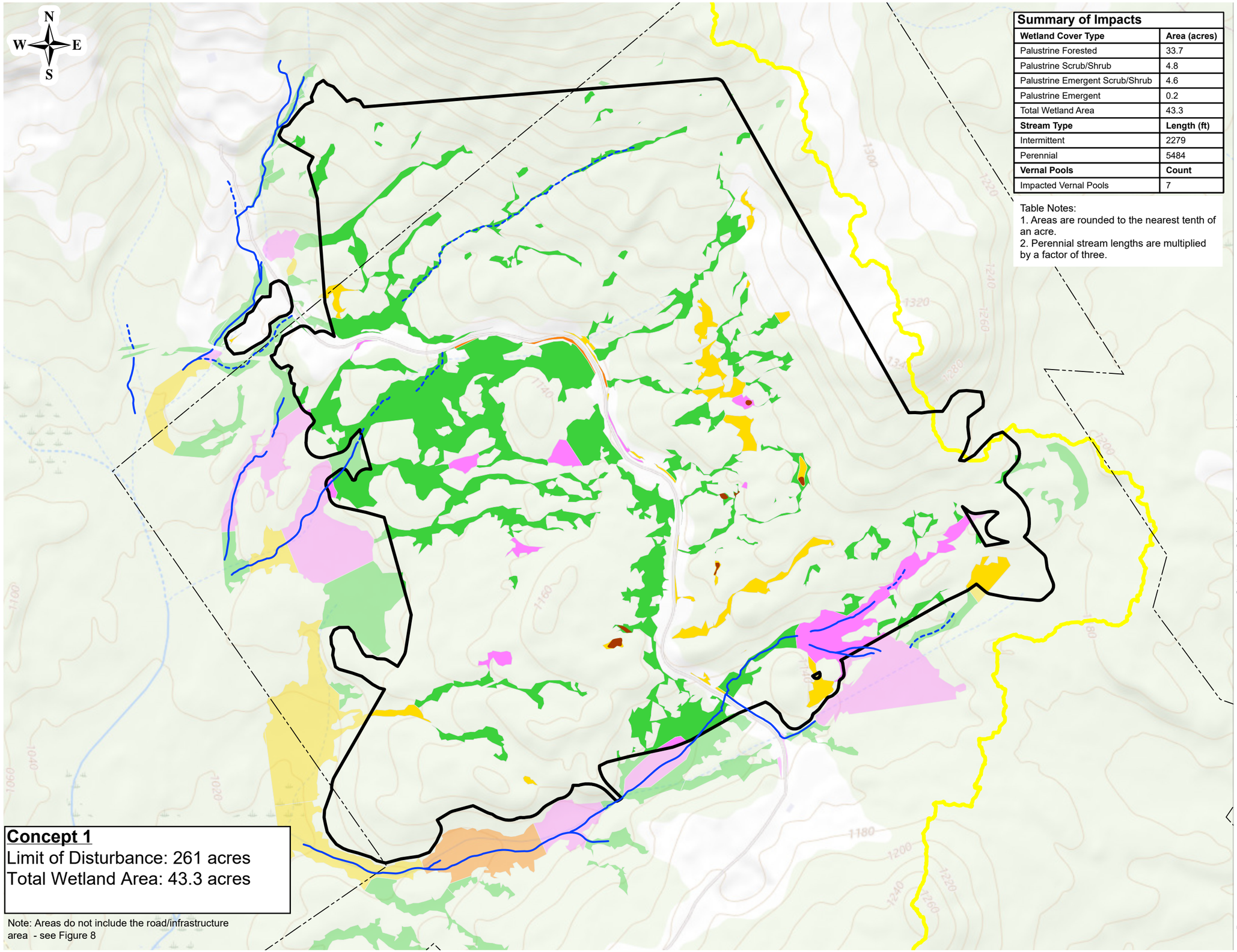
The functions and values evaluation shows that the preferred concept (Concept 5.3) demonstrates avoidance and minimization of direct impacts to wetland cover types and

functions and values with groundwater discharge, floodflow alteration, and wildlife habitat the principal functions being affected by the proposed project.

Figures

Tables

Attachments



Concept 1
Limit of Disturbance: 261 acres
Total Wetland Area: 43.3 acres

Note: Areas do not include the road/infrastructure area - see Figure 8

Summary of Impacts	
Wetland Cover Type	**Area (acres)**
Palustrine Forested	33.7
Palustrine Scrub/Shrub	4.8
Palustrine Emergent Scrub/Shrub	4.6
Palustrine Emergent	0.2
Total Wetland Area	43.3
Stream Type	**Length (ft)**
Intermittent	2279
Perennial	5484
Vernal Pools	**Count**
Impacted Vernal Pools	7

Table Notes:
1. Areas are rounded to the nearest tenth of an acre.
2. Perennial stream lengths are multiplied by a factor of three.

Figure 1

Wetland Impact Plan: Concept 1 (Cover Types)

Wetland Permit Application

Granite State Landfill, LLC

Dalton, New Hampshire

Drawn By:	D. Heacock / E. Wright
Designed By:	L. Corenthal / A. Matthews
Reviewed By:	T. White
Project No:	1003.24
Date:	November 2023

Figure Narrative

This figure depicts wetland cover types in the vicinity of the proposed Granite State Landfill project site and summarizes impacts within the limits of disturbance for the above-referenced concept. Refer to Figures 8 and 9 for roadway and infrastructure area impacts applicable to Concepts 1 to 4, and Concepts 5.1 to 5.3, respectively.

Notes

1. USGS Topo Map provided by ESRI through ArcGIS Online.

2. Existing delineated wetlands, streams, and vernal pools features were provided by Horizons Engineering of Littleton, NH on October 30, 2023. Cover types were digitized by Sanborn Head from information provided by B.H. Keith Associates of Freedom, NH in October 2023. Transitions between cover types may be gradual and vary over time based on a variety of factors and are depicted as lines for the purposes of tabulating areas. Refer to information included elsewhere in this package for additional information regarding delineation, survey, and description of wetlands.

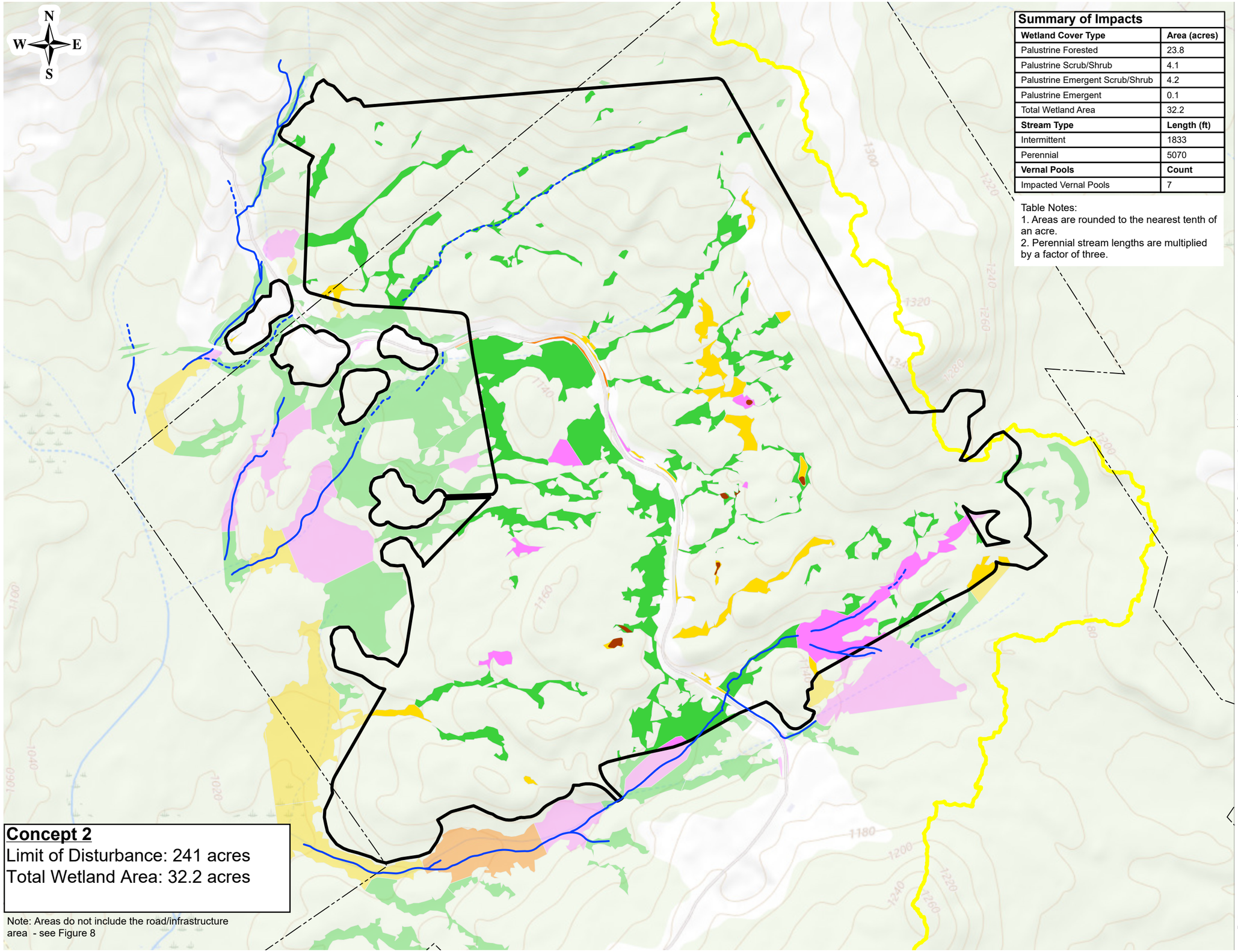
3. Limits of disturbance for Concepts 1 through 4, 5.1, 5.2, and 5.3 were provided by CMA Engineers of Portsmouth, NH on October 23 and 25, 2023.

Legend

Wetland Cover Type
- Palustrine Forested
- Palustrine Scrub/Shrub
- Palustrine Emergent Scrub/Shrub
- Palustrine Emergent
- Vernal Pool
- Intermittent Stream
- Perennial Stream
- Subject Property Line
- Alder Brook / Hatch Brook Catchment
- Limit of Disturbance

250 125 0 250 500 Feet

SANBORN HEAD



Concept 2
Limit of Disturbance: 241 acres
Total Wetland Area: 32.2 acres

Note: Areas do not include the road/infrastructure area - see Figure 8

Summary of Impacts	
Wetland Cover Type	**Area (acres)**
Palustrine Forested	23.8
Palustrine Scrub/Shrub	4.1
Palustrine Emergent Scrub/Shrub	4.2
Palustrine Emergent	0.1
Total Wetland Area	32.2
Stream Type	**Length (ft)**
Intermittent	1833
Perennial	5070
Vernal Pools	**Count**
Impacted Vernal Pools	7

Table Notes:
1. Areas are rounded to the nearest tenth of an acre.
2. Perennial stream lengths are multiplied by a factor of three.

Figure 2

Wetland Impact Plan: Concept 2 (Cover Types)

Wetland Permit Application

Granite State Landfill, LLC

Dalton, New Hampshire

Drawn By:	D. Heacock / E. Wright
Designed By:	L. Corenthal / A. Matthews
Reviewed By:	T. White
Project No:	1003.24
Date:	November 2023

Figure Narrative

This figure depicts wetland cover types in the vicinity of the proposed Granite State Landfill project site and summarizes impacts within the limits of disturbance for the above-referenced concept. Refer to Figures 8 and 9 for roadway and infrastructure area impacts applicable to Concepts 1 to 4, and Concepts 5.1 to 5.3, respectively.

Notes

1. USGS Topo Map provided by ESRI through ArcGIS Online.

2. Existing delineated wetlands, streams, and vernal pools features were provided by Horizons Engineering of Littleton, NH on October 30, 2023. Cover types were digitized by Sanborn Head from information provided by B.H. Keith Associates of Freedom, NH in October 2023. Transitions between cover types may be gradual and vary over time based on a variety of factors and are depicted as lines for the purposes of tabulating areas. Refer to information included elsewhere in this package for additional information regarding delineation, survey, and description of wetlands.

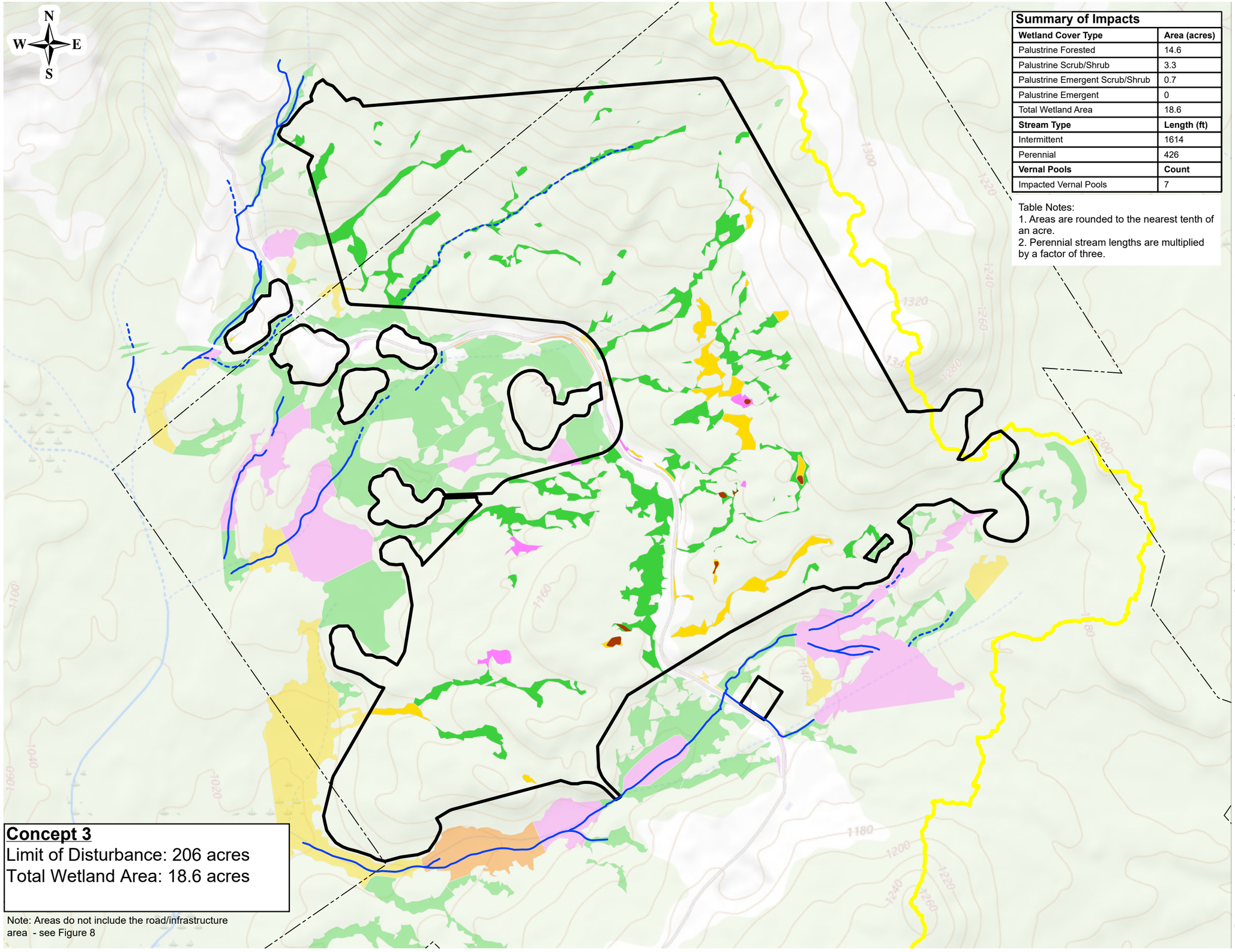
3. Limits of disturbance for Concepts 1 through 4, 5.1, 5.2, and 5.3 were provided by CMA Engineers of Portsmouth, NH on October 23 and 25, 2023.

Legend

Wetland Cover Type
- Palustrine Forested
- Palustrine Scrub/Shrub
- Palustrine Emergent Scrub/Shrub
- Palustrine Emergent
- Vernal Pool
- Intermittent Stream
- Perennial Stream
- Subject Property Line
- Alder Brook / Hatch Brook Catchment
- Limit of Disturbance

250 125 0 250 500 Feet

SANBORN HEAD



Concept 3
Limit of Disturbance: 206 acres
Total Wetland Area: 18.6 acres

Note: Areas do not include the road/infrastructure area - see Figure 8

Summary of Impacts	
Wetland Cover Type	**Area (acres)**
Palustrine Forested	14.6
Palustrine Scrub/Shrub	3.3
Palustrine Emergent Scrub/Shrub	0.7
Palustrine Emergent	0
Total Wetland Area	18.6
Stream Type	**Length (ft)**
Intermittent	1614
Perennial	426
Vernal Pools	**Count**
Impacted Vernal Pools	7

Table Notes:
1. Areas are rounded to the nearest tenth of an acre.
2. Perennial stream lengths are multiplied by a factor of three.

Figure 3

Wetland Impact Plan: Concept 3 (Cover Types)

Wetland Permit Application

Granite State Landfill, LLC

Dalton, New Hampshire

Drawn By:	D. Heacock / E. Wright
Designed By:	L. Corenthal / A. Matthews
Reviewed By:	T. White
Project No:	1003.24
Date:	November 2023

Figure Narrative

This figure depicts wetland cover types in the vicinity of the proposed Granite State Landfill project site and summarizes impacts within the limits of disturbance for the above-referenced concept. Refer to Figures 8 and 9 for roadway and infrastructure area impacts applicable to Concepts 1 to 4, and Concepts 5.1 to 5.3, respectively.

Notes

1. USGS Topo Map provided by ESRI through ArcGIS Online.

2. Existing delineated wetlands, streams, and vernal pools features were provided by Horizons Engineering of Littleton, NH on October 30, 2023. Cover types were digitized by Sanborn Head from information provided by B.H. Keith Associates of Freedom, NH in October 2023. Transitions between cover types may be gradual and vary over time based on a variety of factors and are depicted as lines for the purposes of tabulating areas. Refer to information included elsewhere in this package for additional information regarding delineation, survey, and description of wetlands.

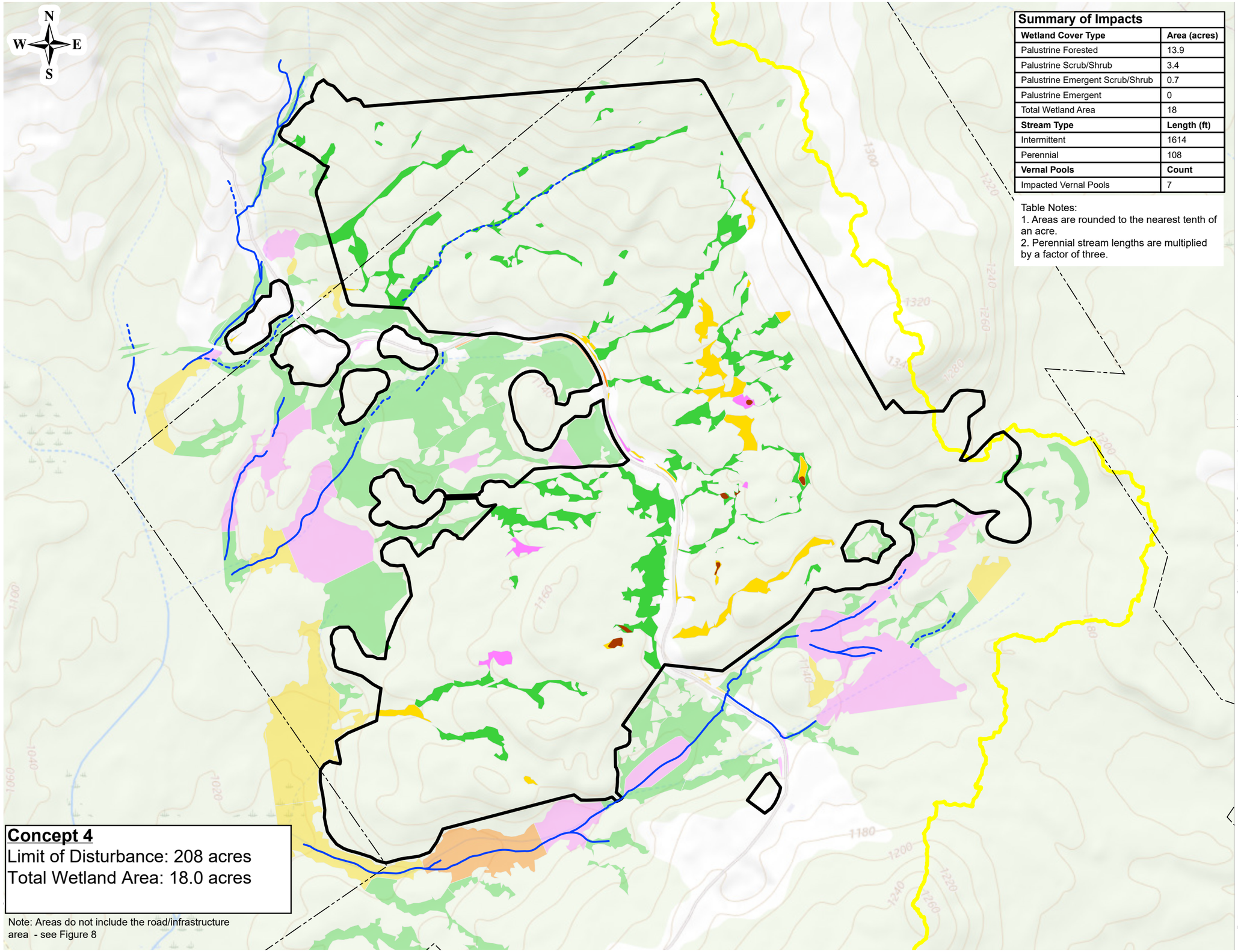
3. Limits of disturbance for Concepts 1 through 4, 5.1, 5.2, and 5.3 were provided by CMA Engineers of Portsmouth, NH on October 23 and 25, 2023.

Legend

Wetland Cover Type
- Palustrine Forested
- Palustrine Scrub/Shrub
- Palustrine Emergent Scrub/Shrub
- Palustrine Emergent
- Vernal Pool
- Intermittent Stream
- Perennial Stream
- Subject Property Line
- Alder Brook / Hatch Brook Catchment
- Limit of Disturbance

250 125 0 250 500 Feet

SANBORN HEAD



Summary of Impacts	
Wetland Cover Type	**Area (acres)**
Palustrine Forested	13.9
Palustrine Scrub/Shrub	3.4
Palustrine Emergent Scrub/Shrub	0.7
Palustrine Emergent	0
Total Wetland Area	18
Stream Type	**Length (ft)**
Intermittent	1614
Perennial	108
Vernal Pools	**Count**
Impacted Vernal Pools	7

Table Notes:
1. Areas are rounded to the nearest tenth of an acre.
2. Perennial stream lengths are multiplied by a factor of three.

Figure 4

Wetland Impact Plan: Concept 4 (Cover Types)

Wetland Permit Application

Granite State Landfill, LLC

Dalton, New Hampshire

Drawn By:	D. Heacock / E. Wright
Designed By:	L. Corenthal / A. Matthews
Reviewed By:	T. White
Project No:	1003.24
Date:	November 2023

Figure Narrative

This figure depicts wetland cover types in the vicinity of the proposed Granite State Landfill project site and summarizes impacts within the limits of disturbance for the above-referenced concept. Refer to Figures 8 and 9 for roadway and infrastructure area impacts applicable to Concepts 1 to 4, and Concepts 5.1 to 5.3, respectively.

Notes

1. USGS Topo Map provided by ESRI through ArcGIS Online.

2. Existing delineated wetlands, streams, and vernal pools features were provided by Horizons Engineering of Littleton, NH on October 30, 2023. Cover types were digitized by Sanborn Head from information provided by B.H. Keith Associates of Freedom, NH in October 2023. Transitions between cover types may be gradual and vary over time based on a variety of factors and are depicted as lines for the purposes of tabulating areas. Refer to information included elsewhere in this package for additional information regarding delineation, survey, and description of wetlands.

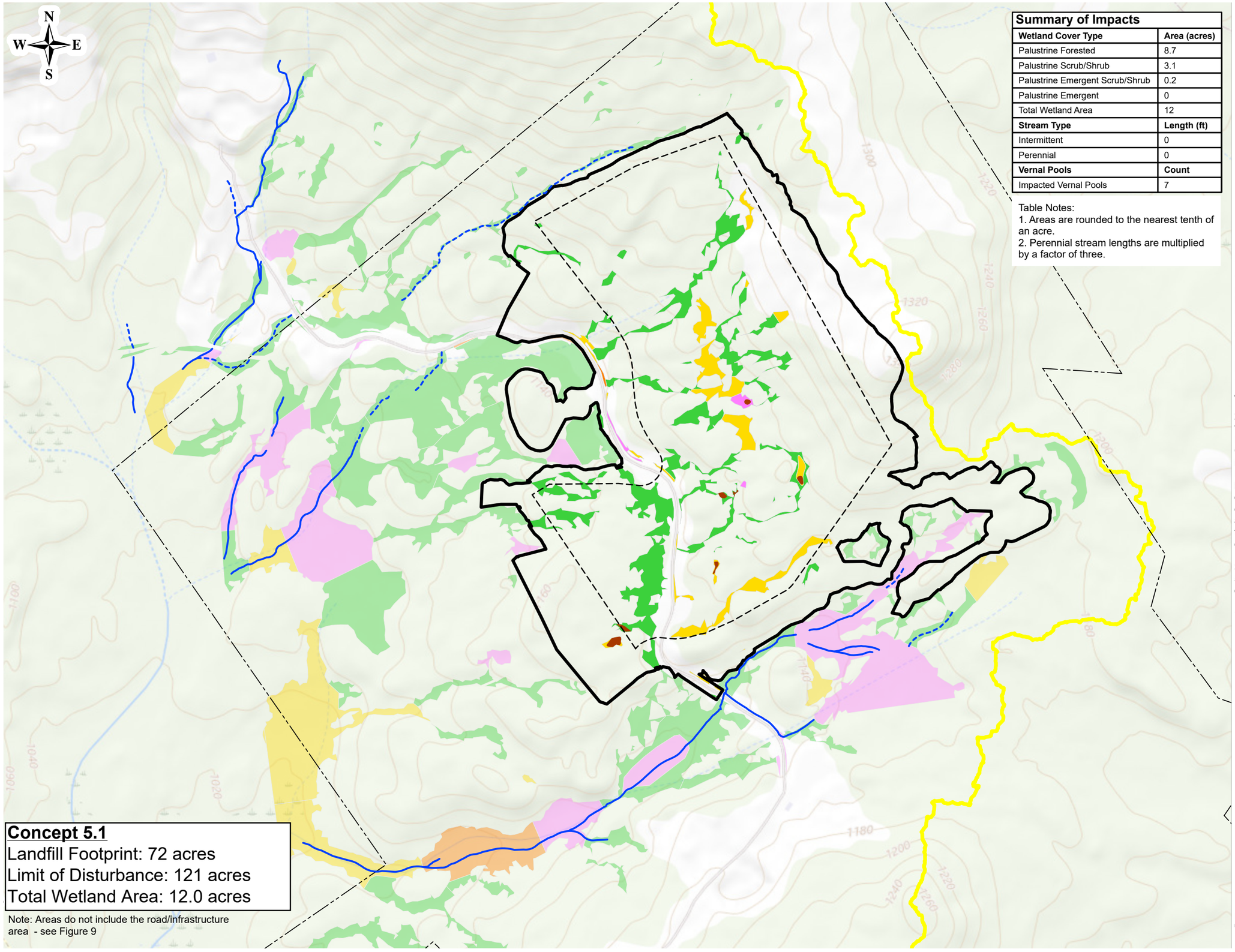
3. Limits of disturbance for Concepts 1 through 4, 5.1, 5.2, and 5.3 were provided by CMA Engineers of Portsmouth, NH on October 23 and 25, 2023.

Legend

Wetland Cover Type
- Palustrine Forested
- Palustrine Scrub/Shrub
- Palustrine Emergent Scrub/Shrub
- Palustrine Emergent
- Vernal Pool
- Intermittent Stream
- Perennial Stream
- Subject Property Line
- Alder Brook / Hatch Brook Catchment
- Limit of Disturbance

250 125 0 250 500 Feet

SANBORN HEAD



Concept 5.1
Landfill Footprint: 72 acres
Limit of Disturbance: 121 acres
Total Wetland Area: 12.0 acres

Note: Areas do not include the road/infrastructure area - see Figure 9

Summary of Impacts

Wetland Cover Type	Area (acres)
Palustrine Forested	8.7
Palustrine Scrub/Shrub	3.1
Palustrine Emergent Scrub/Shrub	0.2
Palustrine Emergent	0
Total Wetland Area	12
Stream Type	**Length (ft)**
Intermittent	0
Perennial	0
Vernal Pools	**Count**
Impacted Vernal Pools	7

Table Notes:
1. Areas are rounded to the nearest tenth of an acre.
2. Perennial stream lengths are multiplied by a factor of three.

Figure 5

Wetland Impact Plan: Concept 5.1 (Cover Types)

Wetland Permit Application

Granite State Landfill, LLC

Dalton, New Hampshire

Drawn By:	D. Heacock / E. Wright
Designed By:	L. Corenthal / A. Matthews
Reviewed By:	T. White
Project No:	1003.24
Date:	November 2023

Figure Narrative

This figure depicts wetland cover types in the vicinity of the proposed Granite State Landfill project site and summarizes impacts within the limits of disturbance for the above-referenced concept. Refer to Figures 8 and 9 for roadway and infrastructure area impacts applicable to Concepts 1 to 4, and Concepts 5.1 to 5.3, respectively.

Notes

1. USGS Topo Map provided by ESRI through ArcGIS Online.

2. Existing delineated wetlands, streams, and vernal pools features were provided by Horizons Engineering of Littleton, NH on October 30, 2023. Cover types were digitized by Sanborn Head from information provided by B.H. Keith Associates of Freedom, NH in October 2023. Transitions between cover types may be gradual and vary over time based on a variety of factors and are depicted as lines for the purposes of tabulating areas. Refer to information included elsewhere in this package for additional information regarding delineation, survey, and description of wetlands.

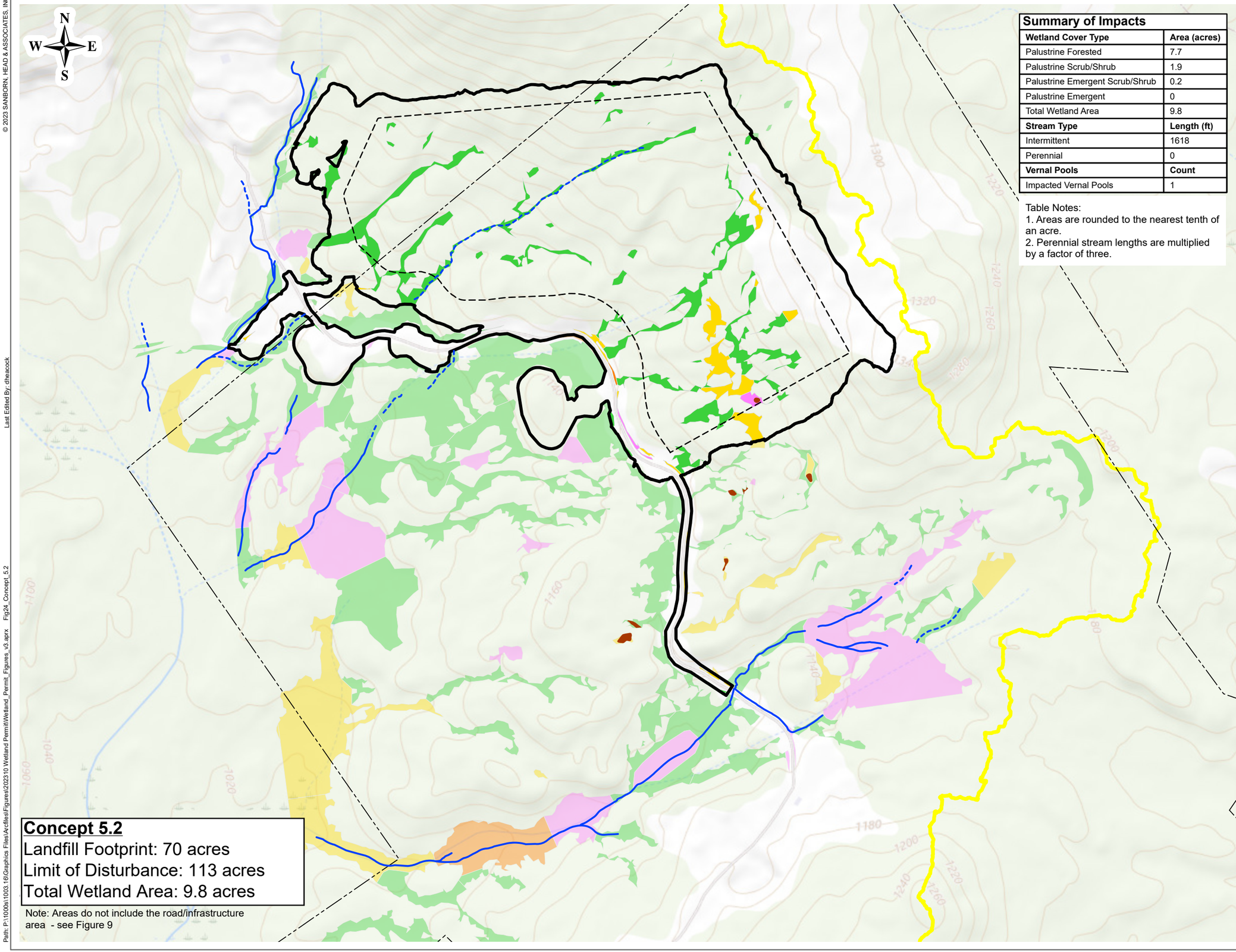
3. Limits of disturbance for Concepts 1 through 4, 5.1, 5.2, and 5.3 were provided by CMA Engineers of Portsmouth, NH on October 23 and 25, 2023.

Legend

Wetland Cover Type
- Palustrine Forested
- Palustrine Scrub/Shrub
- Palustrine Emergent Scrub/Shrub
- Palustrine Emergent
- Vernal Pool
- Intermittent Stream
- Perennial Stream
- Subject Property Line
- Alder Brook / Hatch Brook Catchment
- Limit of Disturbance
- Anchor Trench

250 125 0 250 500 Feet

SANBORN HEAD



Concept 5.2
Landfill Footprint: 70 acres
Limit of Disturbance: 113 acres
Total Wetland Area: 9.8 acres

Note: Areas do not include the road/infrastructure area - see Figure 9

Summary of Impacts	
Wetland Cover Type	**Area (acres)**
Palustrine Forested	7.7
Palustrine Scrub/Shrub	1.9
Palustrine Emergent Scrub/Shrub	0.2
Palustrine Emergent	0
Total Wetland Area	9.8
Stream Type	**Length (ft)**
Intermittent	1618
Perennial	0
Vernal Pools	**Count**
Impacted Vernal Pools	1

Table Notes:
1. Areas are rounded to the nearest tenth of an acre.
2. Perennial stream lengths are multiplied by a factor of three.

Figure 6

Wetland Impact Plan: Concept 5.2 (Cover Types)

Wetland Permit Application

Granite State Landfill, LLC

Dalton, New Hampshire

Drawn By:	D. Heacock / E. Wright
Designed By:	L. Corenthal / A. Matthews
Reviewed By:	T. White
Project No:	1003.24
Date:	November 2023

Figure Narrative

This figure depicts wetland cover types in the vicinity of the proposed Granite State Landfill project site and summarizes impacts within the limits of disturbance for the above-referenced concept. Refer to Figures 8 and 9 for roadway and infrastructure area impacts applicable to Concepts 1 to 4, and Concepts 5.1 to 5.3, respectively.

Notes

1. USGS Topo Map provided by ESRI through ArcGIS Online.

2. Existing delineated wetlands, streams, and vernal pools features were provided by Horizons Engineering of Littleton, NH on October 30, 2023. Cover types were digitized by Sanborn Head from information provided by B.H. Keith Associates of Freedom, NH in October 2023. Transitions between cover types may be gradual and vary over time based on a variety of factors and are depicted as lines for the purposes of tabulating areas. Refer to information included elsewhere in this package for additional information regarding delineation, survey, and description of wetlands.

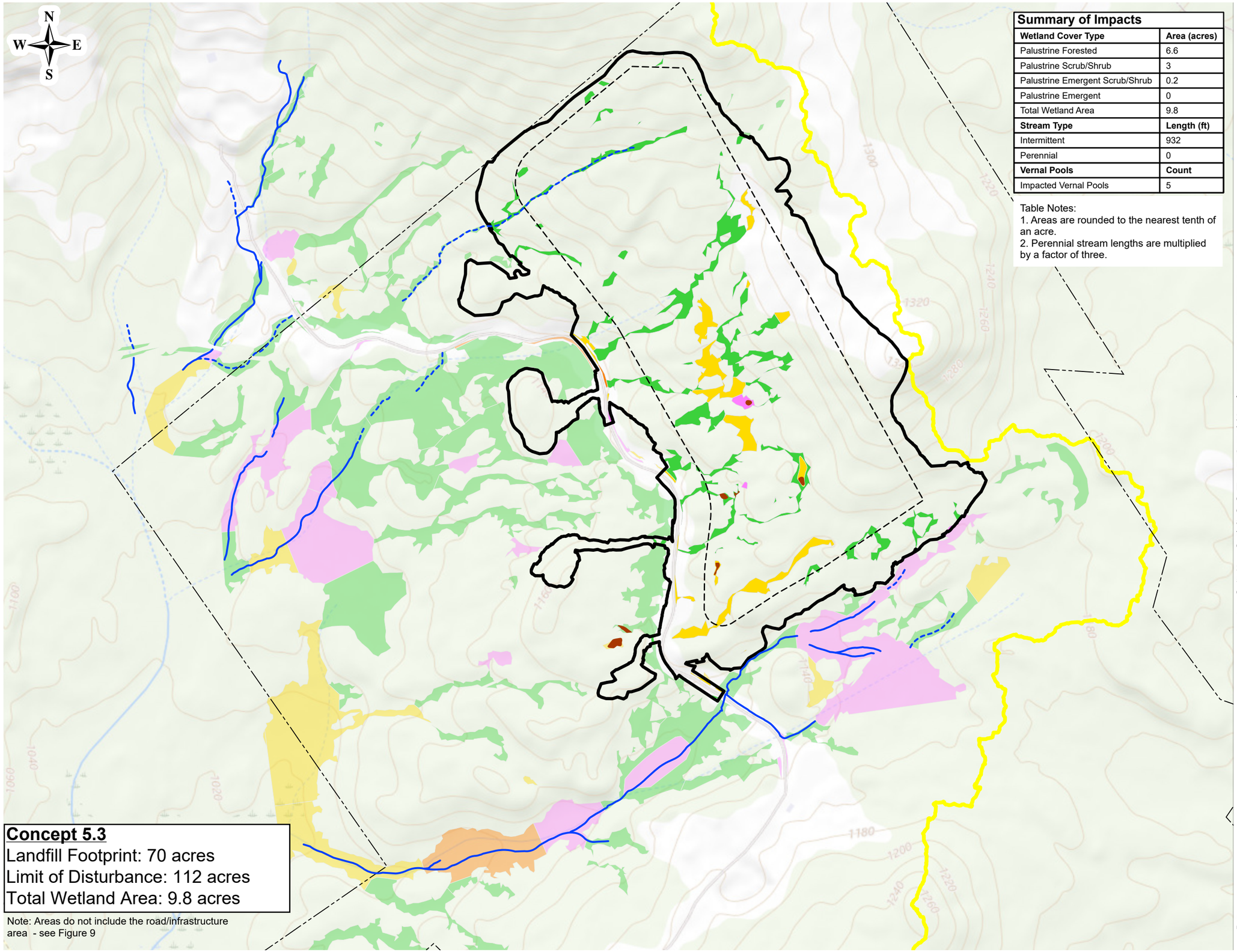
3. Limits of disturbance for Concepts 1 through 4, 5.1, 5.2, and 5.3 were provided by CMA Engineers of Portsmouth, NH on October 23 and 25, 2023.

Legend

Wetland Cover Type
- Palustrine Forested
- Palustrine Scrub/Shrub
- Palustrine Emergent Scrub/Shrub
- Palustrine Emergent
- Vernal Pool
- Intermittent Stream
- Perennial Stream
- Subject Property Line
- Alder Brook / Hatch Brook Catchment
- Limit of Disturbance
- Anchor Trench

250 125 0 250 500 Feet

SANBORN HEAD



Summary of Impacts	
Wetland Cover Type	**Area (acres)**
Palustrine Forested	6.6
Palustrine Scrub/Shrub	3
Palustrine Emergent Scrub/Shrub	0.2
Palustrine Emergent	0
Total Wetland Area	9.8
Stream Type	**Length (ft)**
Intermittent	932
Perennial	0
Vernal Pools	**Count**
Impacted Vernal Pools	5

Table Notes:
1. Areas are rounded to the nearest tenth of an acre.
2. Perennial stream lengths are multiplied by a factor of three.

Concept 5.3
Landfill Footprint: 70 acres
Limit of Disturbance: 112 acres
Total Wetland Area: 9.8 acres

Note: Areas do not include the road/infrastructure area - see Figure 9

Figure 7

Wetland Impact Plan: Concept 5.3 (Cover Types)

Wetland Permit Application

Granite State Landfill, LLC

Dalton, New Hampshire

Drawn By:	D. Heacock / E. Wright
Designed By:	L. Corenthal / A. Matthews
Reviewed By:	T. White
Project No:	1003.24
Date:	November 2023

Figure Narrative

This figure depicts wetland cover types in the vicinity of the proposed Granite State Landfill project site and summarizes impacts within the limits of disturbance for the above-referenced concept. Refer to Figures 8 and 9 for roadway and infrastructure area impacts applicable to Concepts 1 to 4, and Concepts 5.1 to 5.3, respectively.

Notes

1. USGS Topo Map provided by ESRI through ArcGIS Online.

2. Existing delineated wetlands, streams, and vernal pools features were provided by Horizons Engineering of Littleton, NH on October 30, 2023. Cover types were digitized by Sanborn Head from information provided by B.H. Keith Associates of Freedom, NH in October 2023. Transitions between cover types may be gradual and vary over time based on a variety of factors and are depicted as lines for the purposes of tabulating areas. Refer to information included elsewhere in this package for additional information regarding delineation, survey, and description of wetlands.

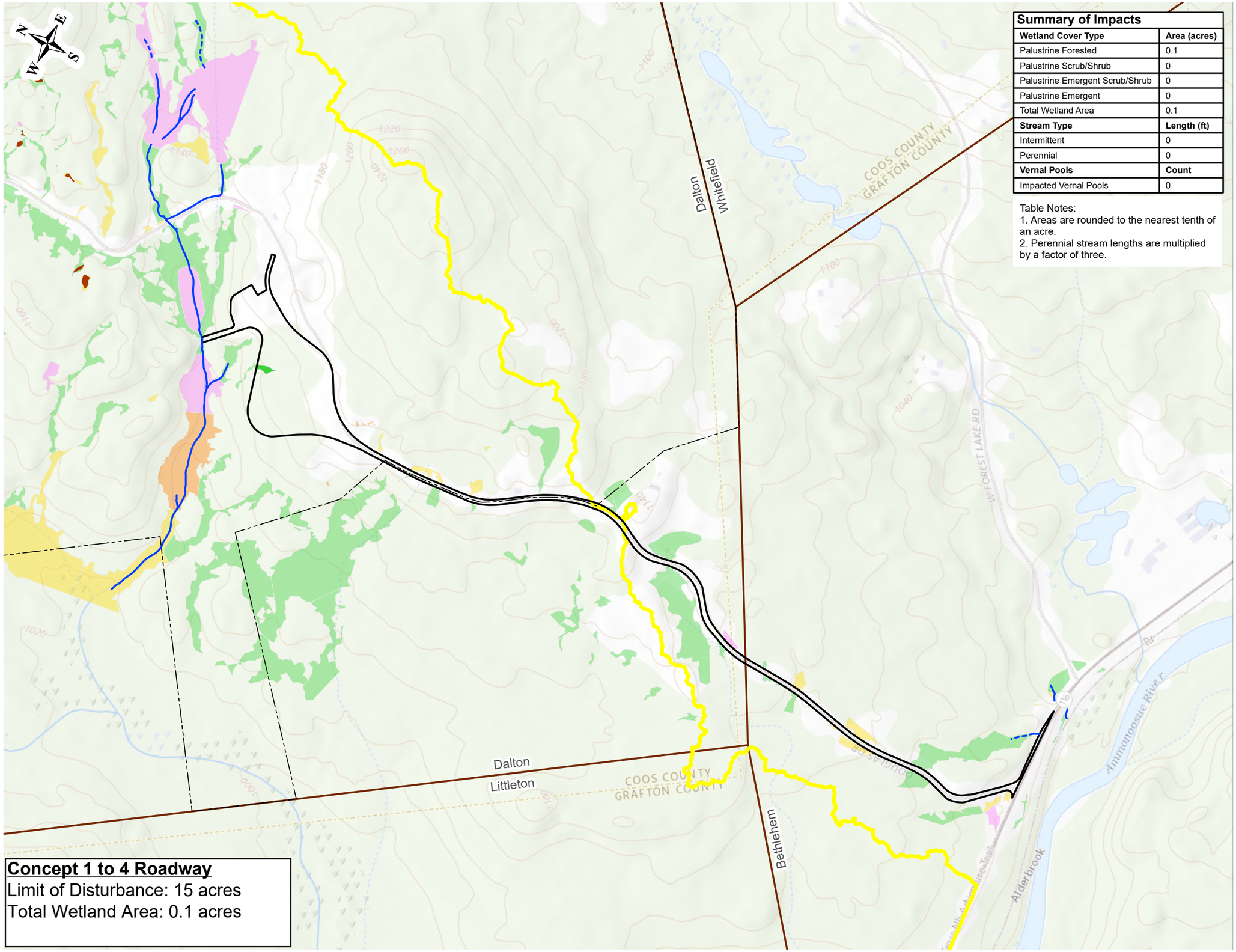
3. Limits of disturbance for Concepts 1 through 4, 5.1, 5.2, and 5.3 were provided by CMA Engineers of Portsmouth, NH on October 23 and 25, 2023.

Legend

Wetland Cover Type
- Palustrine Forested
- Palustrine Scrub/Shrub
- Palustrine Emergent Scrub/Shrub
- Palustrine Emergent
- Vernal Pool
- Intermittent Stream
- Perennial Stream
- Subject Property Line
- Alder Brook / Hatch Brook Catchment
- Limit of Disturbance
- Anchor Trench

250 125 0 250 500 Feet

SANBORN HEAD



Concept 1 to 4 Roadway
Limit of Disturbance: 15 acres
Total Wetland Area: 0.1 acres

Summary of Impacts	
Wetland Cover Type	**Area (acres)**
Palustrine Forested	0.1
Palustrine Scrub/Shrub	0
Palustrine Emergent Scrub/Shrub	0
Palustrine Emergent	0
Total Wetland Area	0.1
Stream Type	**Length (ft)**
Intermittent	0
Perennial	0
Vernal Pools	**Count**
Impacted Vernal Pools	0

Table Notes:
1. Areas are rounded to the nearest tenth of an acre.
2. Perennial stream lengths are multiplied by a factor of three.

Figure 8

Wetland Impact Plan: Concept 4 Roadway (Cover Types)

Wetland Permit Application

Granite State Landfill, LLC

Dalton, New Hampshire

Drawn By:	D. Heacock / E. Wright
Designed By:	L. Corenthal / A. Matthews
Reviewed By:	T. White
Project No:	1003.24
Date:	November 2023

Figure Narrative

This figure depicts wetland cover types in the vicinity of the proposed Granite State Landfill project site and summarizes impacts within the limits of disturbance for the above-referenced concept. Refer to Figures 1 through 4 and Figures 5 through 7 for landfill footprint impact areas applicable to Concepts 1 to 4 and Concepts 5.1 to 5.3, respectively.

Notes

1. USGS Topo Map provided by ESRI through ArcGIS Online.

2. Existing delineated wetlands, streams, and vernal pools features were provided by Horizons Engineering of Littleton, NH on October 30, 2023. Cover types were digitized by Sanborn Head from information provided by B.H. Keith Associates of Freedom, NH in October 2023. Transitions between cover types may be gradual and vary over time based on a variety of factors and are depicted as lines for the purposes of tabulating areas. Refer to information included elsewhere in this package for additional information regarding delineation, survey, and description of wetlands.

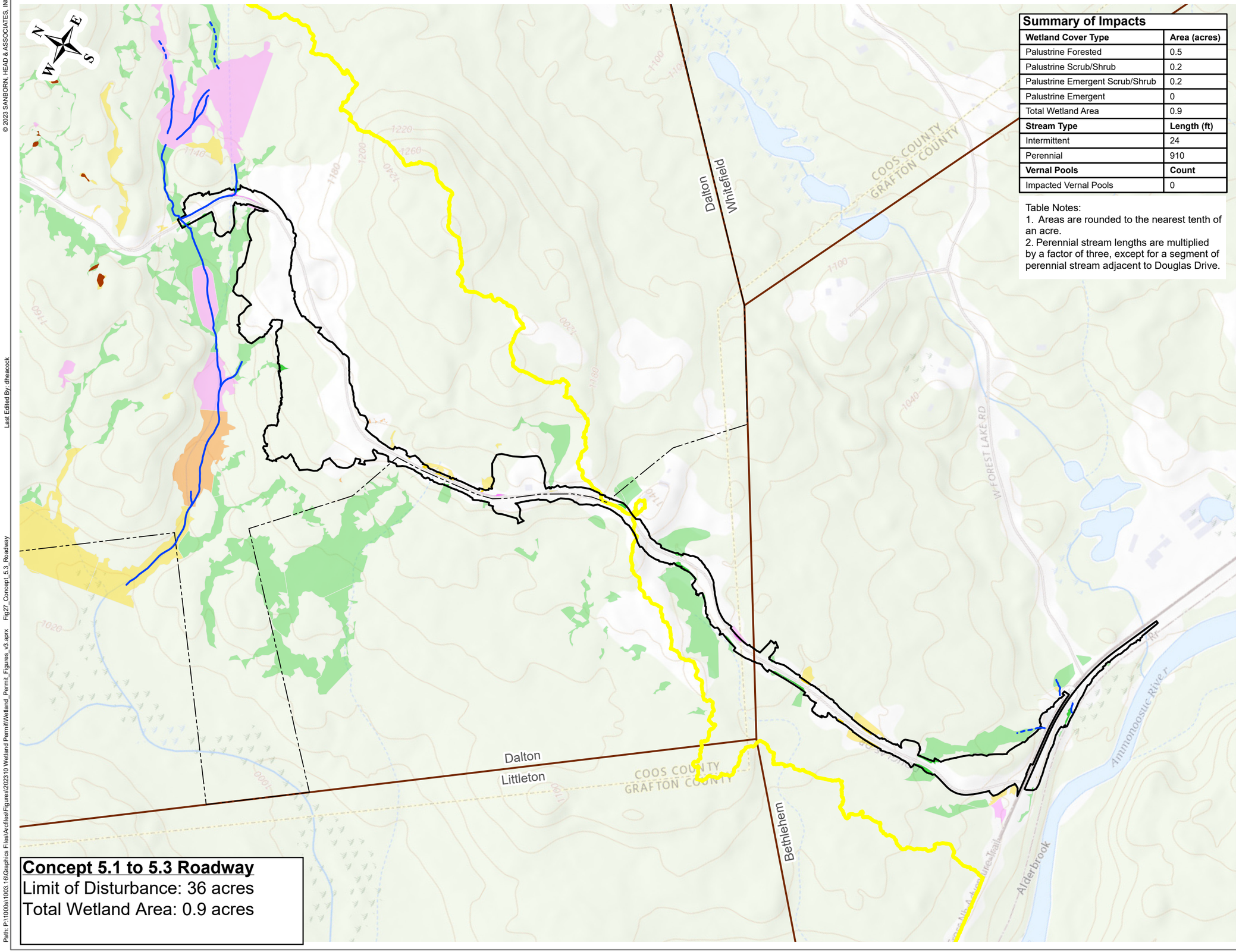
3. Limits of disturbance for Concepts 1 through 4, 5.1, 5.2, and 5.3 were provided by CMA Engineers of Portsmouth, NH on October 23 and 25, 2023.

Legend

Wetland Cover Type
- Palustrine Forested
- Palustrine Scrub/Shrub
- Palustrine Emergent Scrub/Shrub
- Palustrine Emergent
- Vernal Pool
- Intermittent Stream
- Perennial Stream
- Subject Property Line
- Alder Brook / Hatch Brook Catchment
- Limit of Disturbance

300 150 0 300 600 Feet

SANBORN HEAD



Concept 5.1 to 5.3 Roadway
Limit of Disturbance: 36 acres
Total Wetland Area: 0.9 acres

Summary of Impacts	
Wetland Cover Type	**Area (acres)**
Palustrine Forested	0.5
Palustrine Scrub/Shrub	0.2
Palustrine Emergent Scrub/Shrub	0.2
Palustrine Emergent	0
Total Wetland Area	0.9
Stream Type	**Length (ft)**
Intermittent	24
Perennial	910
Vernal Pools	**Count**
Impacted Vernal Pools	0

Table Notes:
1. Areas are rounded to the nearest tenth of an acre.
2. Perennial stream lengths are multiplied by a factor of three, except for a segment of perennial stream adjacent to Douglas Drive.

Figure 9

Wetland Impact Plan: Concept 5.3 Roadway (Cover Types)

Wetland Permit Application

Granite State Landfill, LLC

Dalton, New Hampshire

Drawn By:	D. Heacock / E. Wright
Designed By:	L. Corenthal / A. Matthews
Reviewed By:	T. White
Project No:	1003.24
Date:	November 2023

Figure Narrative

This figure depicts wetland cover types in the vicinity of the proposed Granite State Landfill project site and summarizes impacts within the limits of disturbance for the above-referenced concept. Refer to Figures 1 through 4 and Figures 5 through 7 for landfill footprint impact areas applicable to Concepts 1 to 4 and Concepts 5.1 to 5.3, respectively.

Notes

1. USGS Topo Map provided by ESRI through ArcGIS Online.

2. Existing delineated wetlands, streams, and vernal pools features were provided by Horizons Engineering of Littleton, NH on October 30, 2023. Cover types were digitized by Sanborn Head from information provided by B.H. Keith Associates of Freedom, NH in October 2023. Transitions between cover types may be gradual and vary over time based on a variety of factors and are depicted as lines for the purposes of tabulating areas. Refer to information included elsewhere in this package for additional information regarding delineation, survey, and description of wetlands.

3. Limits of disturbance for Concepts 1 through 4, 5.1, 5.2, and 5.3 were provided by CMA Engineers of Portsmouth, NH on October 23 and 25, 2023.

Legend

Wetland Cover Type
- Palustrine Forested
- Palustrine Scrub/Shrub
- Palustrine Emergent Scrub/Shrub
- Palustrine Emergent
- Vernal Pool
- Intermittent Stream
- Perennial Stream
- Subject Property Line
- Alder Brook / Hatch Brook Catchment
- Limit of Disturbance

300 150 0 300 600 Feet

SANBORN HEAD

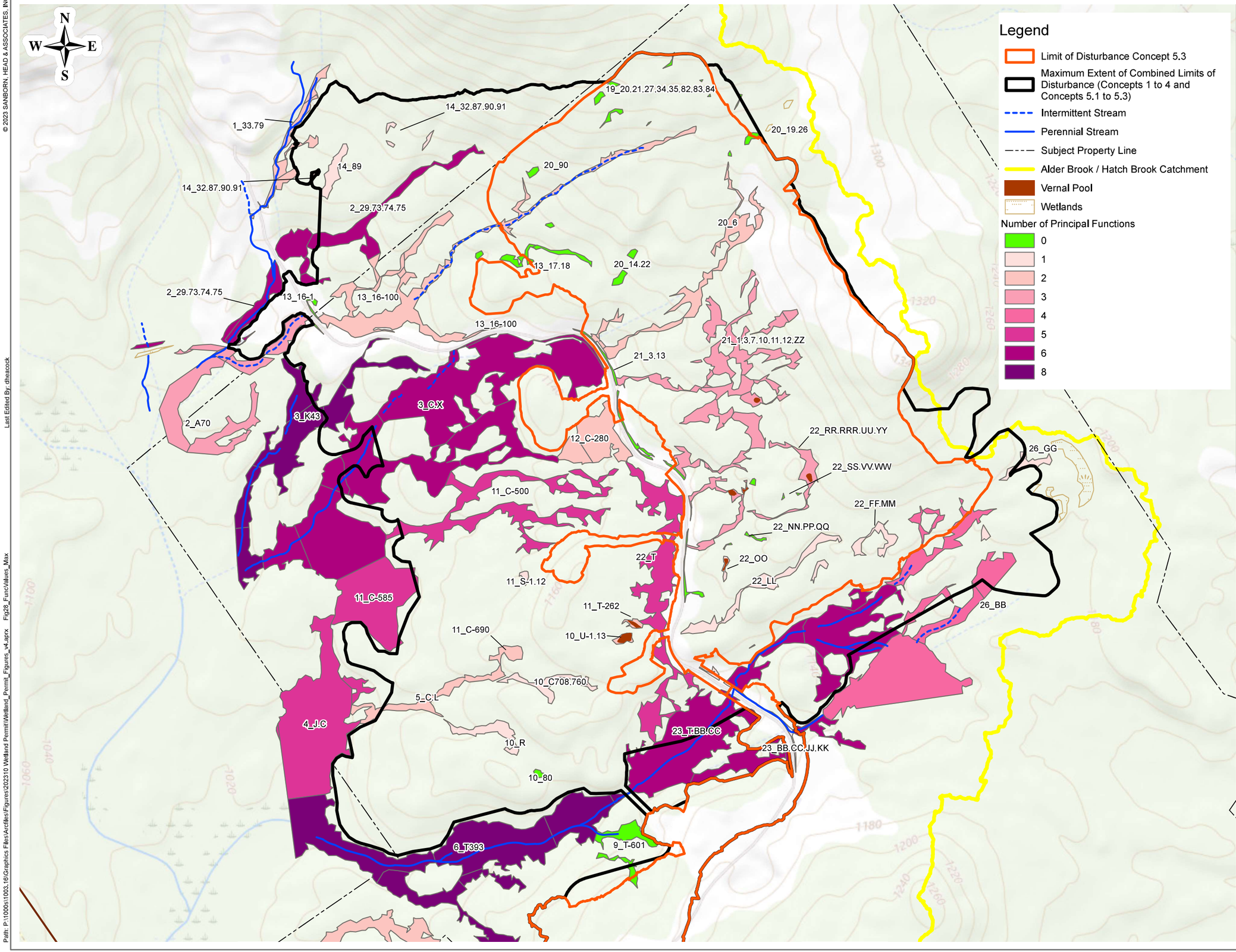


Figure 10

Wetland Impact Plan: Concept 1 to 4 and 5.1 to 5.3 (Principal Functions & Values)

Wetland Permit Application

Granite State Landfill, LLC

Dalton, New Hampshire

Drawn By:	D. Heacock / E. Wright
Designed By:	L. Corenthal / A. Matthews
Reviewed By:	T. White
Project No:	1003.24
Date:	November 2023

Figure Narrative

This figure summarizes the number of principal functions and values for wetlands within the maximum extent of the limits of disturbance for Concepts 1 to 4 and 5.1 to 5.3. Refer to the accompanying table for additional information regarding the functions and comparison of impacted areas between concepts. Refer to Figure 11 for a depiction of the roadway and infrastructure area.

Notes

1. Existing delineated wetlands, streams, and vernal pools features were provided by Horizons Engineering of Littleton, NH on October 30, 2023. The number of principal functions and IDs for each wetland feature were summarized from information provided by B.H. Keith Associates (BHK) of Freedom, NH in October and November 2023. Refer to information included elsewhere in this package for additional information regarding delineation, survey, and description of wetlands.

2. Wetland IDs were designated by BHK based on the primary sheet number followed by representative flagging ID(s). Refer to existing condition plans prepared by Horizons for additional detail.

3. Limits of disturbance for Concepts 1 through 4, 5.1, 5.2, and 5.3 were provided by CMA Engineers of Portsmouth, NH on October 23 and 25, 2023.

4. Refer to previous figures for additional notes and legend.

SANBORN HEAD

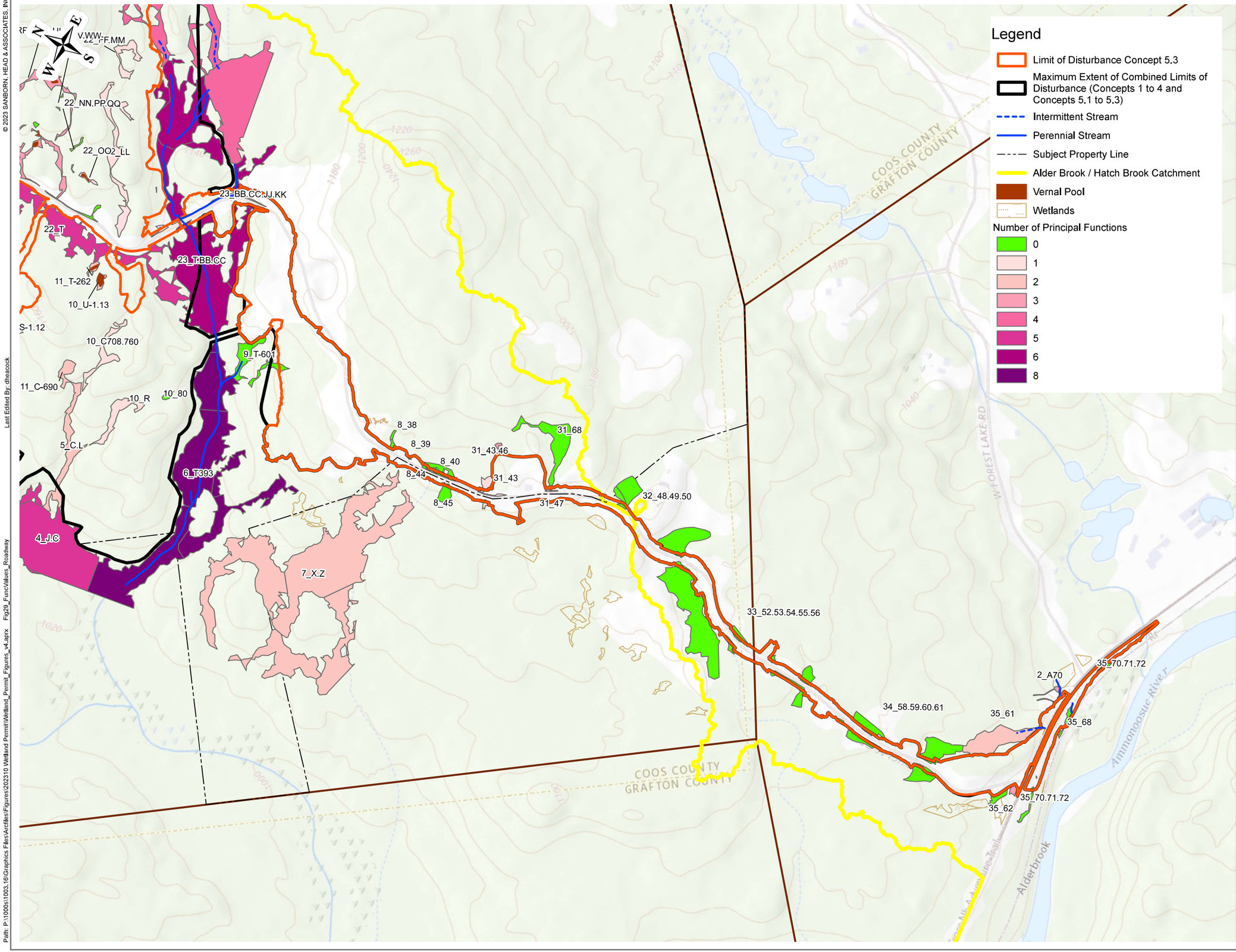


Figure 11

Wetland Impact Plan: Concept 1 to 4 and 5.1 to 5.3 (Principal Functions & Values)

Wetland Permit Application

Granite State Landfill, LLC

Dalton, New Hampshire

Drawn By:	D. Heacock / E. Wright
Designed By:	L. Corenthal / A. Matthews
Reviewed By:	T. White
Project No:	1003.24
Date:	November 2023

Figure Narrative

This figure summarizes the number of principal functions and values for wetlands within the maximum extent of the limits of disturbance for Concepts 1 to 4 and 5.1 to 5.3. Refer to the accompanying table for additional information regarding the functions and comparison of impacted areas between concepts. Refer to Figure 10 for a depiction of the landfill area.

Notes

1. Existing delineated wetlands, streams, and vernal pools features were provided by Horizons Engineering of Littleton, NH on October 30, 2023. The number of principal functions and IDs for each wetland feature were summarized from information provided by B.H. Keith Associates (BHK) of Freedom, NH in October and November 2023. Refer to information included elsewhere in this package for additional information regarding delineation, survey, and description of wetlands.

2. Wetland IDs were designated by BHK based on the primary sheet number followed by representative flagging ID(s). Refer to existing condition plans prepared by Horizons for additional detail.

3. Limits of disturbance for Concepts 1 through 4, 5.1, 5.2, and 5.3 were provided by CMA Engineers of Portsmouth, NH on October 23 and 25, 2023.

4. Refer to previous figures for additional notes and legend.

SANBORN HEAD

Table 1 - Wetland Impacts by Cover Type for Different Landfill Alternatives
Granite State Landfill
Dalton, NH

Concept	Wetland Cover Type (Acres)					Stream Type (Feet)		Number of Vernal Pools
	PFO	PSS	PE/SS	PEM	Total	Intermittent	Perennial	
Concept 1	33.7	4.8	4.6	0.2	43.3	2279	5484	7
Concept 2	23.8	4.1	4.2	0.1	32.2	1833	5070	7
Concept 3	14.6	3.3	0.7	0	18.6	1614	426	7
Concept 4	13.9	3.4	0.7	0	18.0	1614	108	7
Concept 1 to 4 Roadway	0.1	0	0	0	0.1	0	0	0
Concept 5.1	8.7	3.1	0.2	0	12.0	0	0	7
Concept 5.2	7.7	1.9	0.2	0	9.8	1618	0	1
Concept 5.3	6.6	3.0	0.2	0	9.8	932	0	5
Concept 5.1 to 5.3 Roadway	0.5	0.2	0.2	0	0.9	24	910	0

Notes:
1. Refer to Figures 1 to 9 for additional information and notes regarding data sources and area/length calculations.
2. Areas were rounded to the nearest tenth of an acre. After-the-Fact Impacts are not included.
3. Perennial stream lengths were multiplied by a factor of three, except for a segment of perennial stream adjacent to Douglas Drive (refer to Wetland Impact Plans prepared by Horizons Engineering for additional information).
4. Abbreviations: PFO = Palustrine Forested; PSS = Palustrine Scrub-Shrub; PEM/SS = Palustrine Emergent/Scrub-Shrub; PEM = Palustrine Emergent

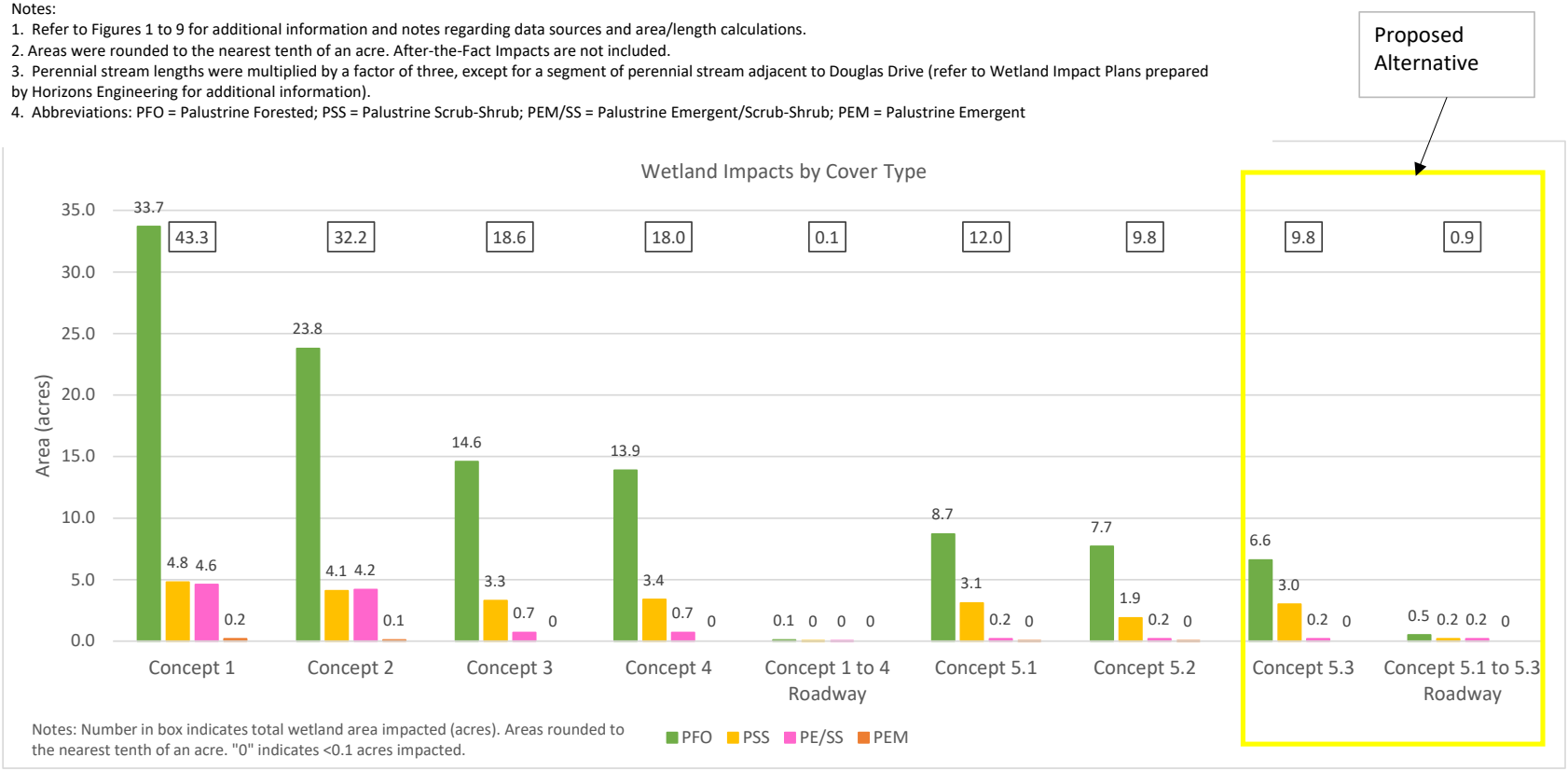


Table 2 - Wetland Impacts by Principal and Suitable Functions and Values for Different Landfill Alternatives
Granite State Landfill
Dalton, NH

Concept	Ground-water	Floodflow Alteration	Fish & Shellfish Habitat	Sediment/ Shoreline Stabilization	Nutrient Removal	Product Export	Sediment Shoreline	Wildlife Habitat	Recreation	Education, Scientific Value	Unique Heritage	Visual Quality, Aesthetics
Principal Function/Value (Acres)												
Concept 1	39.1	33.2	6.5	21.1	26.3	22.0	1.2	42.1	0.0	0.0	0.2	0.0
Concept 2	28.0	23.4	4.9	11.9	16.8	13.3	0.0	31.1	0.0	0.0	0.2	0.0
Concept 3	14.8	10.4	0.0	5.6	5.6	1.2	0.0	17.6	0.0	0.0	0.2	0.0
Concept 4	14.5	10.1	0.0	5.2	5.2	1.0	0.0	16.9	0.0	0.0	0.2	0.0
Road/Infrastructure - Concept 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Concept 5.1	10.1	8.5	0.0	3.5	3.6	0.1	0.0	11.4	0.0	0.0	0.2	0.0
Concept 5.2	8.5	4.9	0.0	1.2	1.3	1.2	0.0	8.9	0.0	0.0	0.0	0.0
Concept 5.3	7.6	5.2	0.0	0.0	0.1	0.3	0.0	9.0	0.0	0.0	0.0	0.0
Road/Infrastructure - Concept 5.3	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.3	0.0	0.0	0.0	0.0
Suitable Function/Value (Acres)												
Concept 1	1.6	0.9	11.9	11.0	6.2	14.6	17.7	1.1	0.0	0.0	0.0	16.7
Concept 2	1.9	1.0	0.0	6.0	6.3	5.7	0.1	1.4	0.0	0.0	0.0	0.0
Concept 3	1.5	0.9	1.0	5.7	6.0	11.1	0.2	1.0	0.0	0.0	0.0	2.0
Concept 4	1.2	0.9	1.0	5.8	5.8	10.9	0.0	1.0	0.0	0.0	0.0	1.6
Roadway - Concept 4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Concept 5.1	1.1	0.9	0.0	5.8	5.8	8.4	0.1	0.7	0.0	0.0	0.0	1.0
Concept 5.2	0.3	0.0	1.2	3.7	3.7	5.6	0.1	1.0	0.0	0.0	0.0	0.1
Concept 5.3	1.6	0.9	0.0	5.8	6.2	5.6	0.0	0.8	0.0	0.0	0.0	0.0
Roadway - Concept 5.3	0.4	0.1	0.0	0.2	0.1	0.1	0.1	0.6	0.0	0.0	0.0	0.0

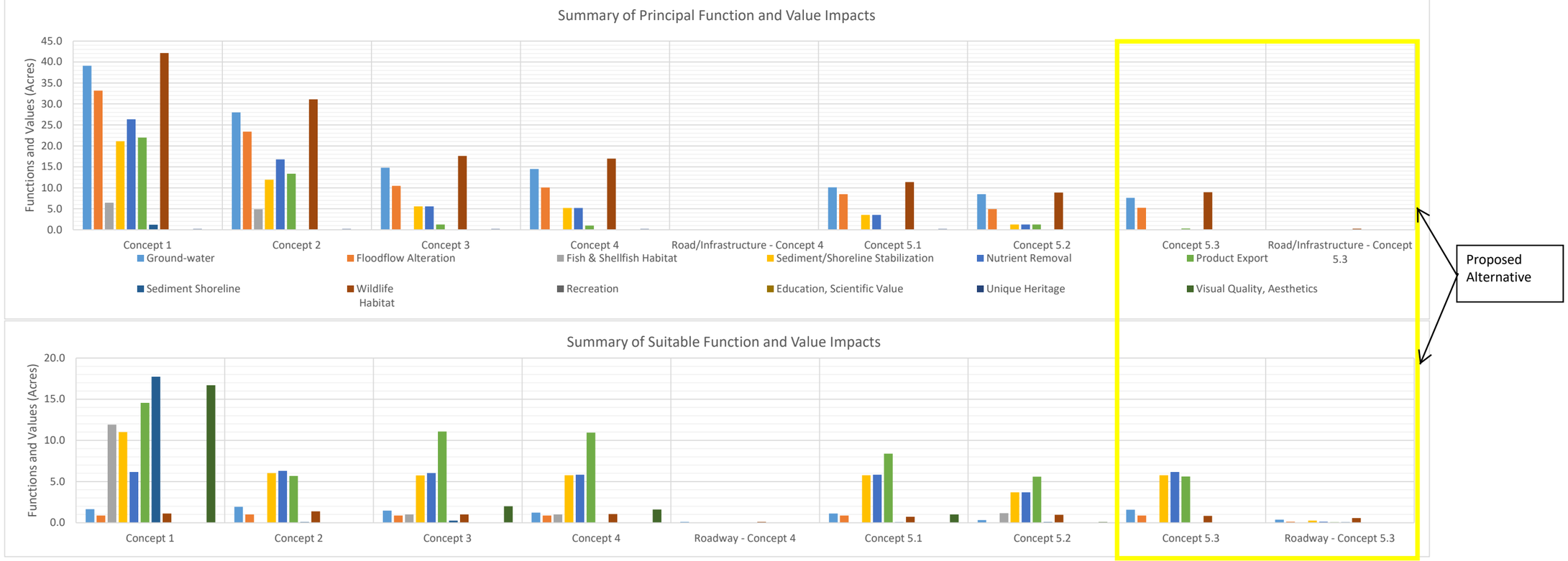


Table 3 - Wetland Functions and Values and Impacted Areas
Granite State Landfill
Dalton, New Hampshire

Primary Sheet	Representative Flagging ID	GIS/CAD ID	Wetland Cover Type	Latitude	Longitude	Total Area (Acres)	Impacted Area (Acres)										Number of Principal Functions	Number of Suitable Functions
							Concept 1	Concept 2	Concept 3	Concept 4	Roadway Concept 1 to 4	Concept 5.1	Concept 5.2	Concept 5.3	Roadway Concept 5.1 to 5.3	Total - Concept 5.3 + Roadway		
Within Concept 5.3																		
2	A70	2_A70	PSS/FO1	44.3511	-71.7030	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	3
8	38	8_38	PSS/FO	44.3407	-71.6938	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	1
8	39	8_39	PSS1EX	44.3403	-71.6939	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	1
8	40	8_40	PSS1Ex, PFO	44.3397	-71.6938	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0	1
8	44	8_44	PFO1	44.3400	-71.6942	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	1
8	45	8_45	PFO1	44.3394	-71.6943	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	1
9	T-601	9_T-601	PSS/FO1	44.3433	-71.6936	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0	2
12	C-280	12_C-280	PSS/FO	44.3496	-71.6947	1.6	1.6	1.6	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	6	2
13	16-100	13_16-100	R4UBJ, PFO1	44.3520	-71.6995	3.4	3.3	2.0	1.8	1.8	0.0	0.0	1.8	0.7	0.0	0.7	2	1
13	17.18	13_17.18	PFO1	44.3526	-71.6967	0.3	0.3	0.3	0.3	0.3	0.0	0.2	0.3	0.2	0.0	0.2	0	1
19	20.21.27.34.35.82.83.84	19_20.21.27.34.35.82.83.84	PFO1	44.3556	-71.6926	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.2	0	2
20	14.22	20_14.22	PFO1	44.3526	-71.6935	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0	2
20	19.26	20_19.26	PFO1	44.3541	-71.6914	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	1
20	6	20_6	PSS/FO	44.3523	-71.6920	1.7	1.7	1.7	1.6	1.7	0.0	1.7	1.7	1.7	0.0	1.7	2	0
20	90	20_90	PFO1E	44.3539	-71.6956	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0	1
21	1.3.7.10.11.12.ZZ	21_1.3.7.10.11.12.ZZ	PSS/FO	44.3507	-71.6930	3.9	3.9	3.9	3.9	3.9	0.0	3.9	3.7	3.9	0.0	3.9	3	4
21	3.13	21_3.13	PEM/SS1EXd	44.3493	-71.6926	0.2	0.2	0.2	0.1	0.2	0.0	0.2	0.2	0.1	0.0	0.1	0	1
22	FF.MM	22_FF.MM	PSS/FO	44.3483	-71.6883	0.4	0.4	0.4	0.3	0.1	0.0	0.1	0.0	0.4	0.0	0.4	1	2
22	LL	22_LL	PSS	44.3475	-71.6908	0.9	0.9	0.9	0.9	0.9	0.0	0.9	0.0	0.9	0.0	0.9	1	4
22	NN.PP.QQ	22_NN.PP.QQ	PFO/SS	44.3482	-71.6915	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0	1
22	OO	22_OO	PSS	44.3479	-71.6915	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	1	1
22	RR.RRR.UU.YY	22_RR.RRR.UU.YY	PFO1	44.3494	-71.6898	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	3	4
22	SS.VV.WW	22_SS.VV.WW	PFO1	44.3492	-71.6909	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	1
22	T	22_T	PSS/FO1	44.3469	-71.6929	3.3	3.3	3.3	2.6	2.6	0.0	2.6	0.0	0.0	0.0	0.0	5	1
23	BB.CC.JJ.KK	23_BB.CC.JJ.KK	PEM/SS1Edx	44.3460	-71.6912	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1	1
23	T.BB.CC	23_T.BB.CC	R3UBH, PSS/FO	44.3452	-71.6923	9.7	5.2	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	6	2
26	BB	26_BB	PSS/FO1E R4UBJ	44.3486	-71.6872	6.8	1.9	1.7	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	4	0
31	43	31_43	PEM/SS1Edx	44.3386	-71.6937	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	1
31	43.46	31_43.46	PSS/FO	44.3387	-71.6941	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	1
31	47	31_47	PEM/SS1Edx	44.3377	-71.6930	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	1
31	68	31_68	PSS1Edx	44.3381	-71.6918	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	3
32	48.49.50	32_48.49.50	PSS/FO4/1	44.3343	-71.6941	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0	5
33	52.53.54.55.56	33_52.53.54.55.56	PSS/FO	44.3334	-71.6940	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0	1
34	57	34_57	PSS1E	44.3311	-71.6947	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
34	58.59.60.61	34_58.59.60.61	PSS/FO	44.3292	-71.6942	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0	1
35	61	35_61	PFO, R4UBJ, PEM1Edx	44.3284	-71.6933	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	3
35	68	35_68	PSS/FO. R3UBH	44.3274	-71.6919	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0	2
35	70.71.72	35_70.71.72	PSS/FO, R3UBH	44.3273	-71.6944	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Within Alternative Concept																		
1	33.79	1_33.79	PFO, R3UBH	44.3537	-71.7009	0.9	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	2	1
2	29.73.74.75	2_29.73.74.75	PSS/FO, R3UBH, R4UBJ	44.3513	-71.7017	2.9	1.1	1.2	1.0	1.0	0.0	0.0	1.2	0.0	0.0	0.0	6	1
3	C.X	3_C.X	R3UBH, PEM/SS	44.3507	-71.6966	16.3	10.9	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	4
3	K43	3_K43	PSS/FO1/4Eb	44.3480	-71.7017	4.5	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	1
5	C.L	5_C.L	PSS, PFO	44.3461	-71.6970	0.9	0.7	0.7	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	2	0
10	80	10_80	PSS	44.3447	-71.6954	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	2
10	C708.760	10_C708.760	PFO1E	44.3461	-71.6952	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1	0
10	R	10_R	PSSFO1/4E	44.3453	-71.6965	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	1	0
10	U-1.13	10_U-1.13	PSS1	44.3468	-71.6937	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	2	0
11	C-500	11_C-500	PFO, PEM/SS	44.3488	-71.6961	3.0	3.0	1.8	1.8	1.6	0.0	0.9	0.0	0.0	0.0	0.0	5	3
11	C-585	11_C-585	PFO, PEM/SS	44.3474	-71.6989	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5	3
11	C-690	11_C-690	PEM/SS	44.3465	-71.6961	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	2	0
11	S-1.12	11_S-1.12	PFO	44.3477	-71.6958	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	0
11	T-262	11_T-262	PSS/FO VP-2	44.3470	-71.6934	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	2	0
13	16-1	13_16-1	PEM1Ex	44.3518	-71.7003	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	2
14	32.87.90.91	14_32.87.90.91	PFO1	44.3538	-71.7002	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	1	0
14	89	14_89	PFO1	44.3539	-71.6998	0.3	0.3	0.3	0.3	0.1	0.0	0.0	0.3	0.0	0.0	0.0	1	0
26	GG	26_GG	PFO1/4E	44.3484	-71.6860	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1	0
Outside Alternatives (included for reference only)																		
4	J.C	4_J.C	PEM, PSS, PFO	44.3455	-71.7002	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5	3
6	T393	6_T393	PSS/FO, R3UBH	44.3427	-71.6975	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	2
7	X.Z	7_X.Z	PSS/FO	44.3406	-71.6970	13.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	4
35	62	35_62	PSS	44.3279	-71.6945	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	1
36	Ammonoosuc River	36_AR	R2UBH	44.3267	-71.6947	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	4

Table 3 - Wetland Functions and Values and Impacted Areas
Granite State Landfill
Dalton, New Hampshire

Primary Sheet	Representative Flagging ID	GIS/CAD ID	Function and Values												
			Ground-water	Floodflow Alteration	Fish & Shellfish Habitat	Sediment/Shoreline Stabilization	Nutrient Removal	Product Export	Sediment Shoreline	Wildlife Habitat	Recreation	Education, Scientific Value	Unique Heritage	Visual Quality, Aesthetics	Endangered Species Habitat
Within Concept 5.3															
2	A70	2_A70	P	P	-	X	X	X	-	P	-	-	-	-	-
8	38	8_38	-	-	-	-	-	-	-	X	-	-	-	-	-
8	39	8_39	-	-	-	-	-	-	-	X	-	-	-	-	-
8	40	8_40	-	-	-	-	-	-	-	X	-	-	-	-	-
8	44	8_44	-	-	-	-	-	-	-	X	-	-	-	-	-
8	45	8_45	X	-	-	-	-	-	-	P	-	-	-	-	-
9	T-601	9_T-601	X	-	-	-	-	-	-	X	-	-	-	-	-
12	C-280	12_C-280	P	P	-	P	P	P	X	P	-	-	-	X	-
13	16-100	13_16-100	P	-	-	-	-	X	-	P	-	-	-	-	-
13	17.18	13_17.18	-	-	-	-	-	-	-	X	-	-	-	-	-
19	20.21.27.34.35.82.83.84	19_20.21.27.34.35.82.83.84	X	-	-	-	-	-	-	X	-	-	-	-	-
20	14.22	20_14.22	X	-	-	-	-	-	-	X	-	-	-	-	-
20	19.26	20_19.26	-	-	-	-	-	-	-	X	-	-	-	-	-
20	6	20_6	P	-	-	-	-	-	-	P	-	-	-	-	-
20	90	20_90	-	-	-	-	-	-	-	X	-	-	-	-	-
21	1.3.7.10.11.12.ZZ	21_1.3.7.10.11.12.ZZ	P	P	-	X	X	X	-	P (VP-7)	-	-	X	-	-
21	3.13	21_3.13	-	-	-	-	-	-	-	X	-	-	-	-	-
22	FF.MM	22_FF.MM	X	-	-	-	X	-	-	P	-	-	-	-	-
22	LL	22_LL	X	X	-	X	X	-	-	P	-	-	-	-	-
22	NN.PP.QQ	22_NN.PP.QQ	-	-	-	-	-	-	-	X	-	-	-	-	-
22	OO	22_OO	-	-	-	-	-	-	-	P (VP-3)	-	-	X	-	-
22	RR.RRR.UU.YY	22_RR.RRR.UU.YY	P	P	-	X	X	X	-	P (VP-4,5,6)	-	-	X	-	-
22	SS.VV.WW	22_SS.VV.WW	-	-	-	-	-	-	-	X	-	-	-	-	-
22	T	22_T	P	P	-	P	P	X	-	P	-	-	-	-	-
23	BB.CC.JJ.KK	23_BB.CC.JJ.KK	X	-	-	-	-	-	-	P	-	-	-	-	-
23	T.BB.CC	23_T.BB.CC	P	P	P	X	P	P	X	P	-	-	-	-	-
26	BB	26_BB	P	P	-	-	-	P	-	P	-	-	-	-	-
31	43	31_43	X	-	-	-	-	-	-	P	-	-	-	-	-
31	43.46	31_43.46	X	-	-	-	-	-	-	P	-	-	-	-	-
31	47	31_47	X	-	-	-	-	-	-	P	-	-	-	-	-
31	68	31_68	X	-	-	X	-	-	-	X	-	-	-	-	-
32	48.49.50	32_48.49.50	X	X	-	X	X	-	-	X	-	-	-	-	-
33	52.53.54.55.56	33_52.53.54.55.56	-	-	-	-	-	-	-	X	-	-	-	-	-
34	57	34_57	-	-	-	-	-	-	-	-	-	-	-	-	-
34	58.59.60.61	34_58.59.60.61	-	-	-	-	-	-	-	X	-	-	-	-	-
35	61	35_61	P	X	-	X	X	-	-	P	-	-	-	-	-
35	68	35_68	-	-	-	X	-	X	-	-	-	-	-	-	-
35	70.71.72	35_70.71.72	-	-	-	-	-	-	-	-	-	-	-	-	-
Within Alternative Concept															
1	33.79	1_33.79	P	-	-	-	-	X	-	P	-	-	-	-	-
2	29.73.74.75	2_29.73.74.75	P	P	X	P	P	P	-	P	-	-	-	-	-
3	C.X	3_C.X	P	P	X	P	P	P	X	P	-	-	X	X	-
3	K43	3_K43	P	P	P	P	P	P	P	P	-	-	-	X	-
5	C.L	5_C.L	P	-	-	-	-	-	-	P	-	-	-	-	-
10	80	10_80	X	-	-	-	-	-	-	X	-	-	-	-	-
10	C708.760	10_C708.760	-	-	-	-	-	-	-	P	-	-	-	-	-
10	R	10_R	-	-	-	-	-	-	-	P	-	-	-	-	-
10	U-1.13	10_U-1.13	-	-	-	-	-	-	-	P (VP-1)	-	-	P	-	-
11	C-500	11_C-500	P	P	-	P	P	X	-	P	-	-	X	X	-
11	C-585	11_C-585	P	P	-	P	P	X	-	P	-	-	X	X	-
11	C-690	11_C-690	P	-	-	-	-	-	-	P	-	-	-	-	-
11	S-1.12	11_S-1.12	-	-	-	-	-	-	-	P	-	-	-	-	-
11	T-262	11_T-262	-	-	-	-	-	-	-	P (VP-2)	-	-	P	-	-
13	16-1	13_16-1	X	-	-	-	-	-	-	X	-	-	-	-	-
14	32.87.90.91	14_32.87.90.91	-	-	-	-	-	-	-	P	-	-	-	-	-
14	89	14_89	-	-	-	-	-	-	-	P	-	-	-	-	-
26	GG	26_GG	-	-	-	-	-	-	-	P	-	-	-	-	-
Outside Alternatives (included for reference only)															
4	J.C	4_J.C	P	P	-	P	P	X	-	P	-	-	X	X	-
6	T393	6_T393	P	P	P	P	P	P	P	P	-	-	X	X	-
7	X.Z	7_X.Z	P	X	-	X	X	X	-	P	-	-	-	-	-
35	62	35_62	X	-	-	-	-	-	-	-	-	-	-	-	-
36	Ammonoosuc River	36_AR	P	P	P	P	P	P	P	P	X	X	X	X	-

Table 3 - Wetland Functions and Values and Impacted Areas
Granite State Landfill
Dalton, New Hampshire

Notes:

1. Primary sheet, flagging IDs, cover types, and function and values were provided by B.H. Keith Associates of Freedom, New Hampshire in November 2023. Sheet numbers reference the Existing Conditions Wetland Plans prepared by Horizons Engineers of Littleton, New Hampshire. Limits of disturbance for Concepts 1 through 4, 5.1, 5.2, and 5.3 were provided by CMA Engineers of Portsmouth, NH on October 23 and 25, 2023. Impacted wetland areas refers to the acreage of permanent and temporary wetland impcats within the proposed limits of disturbance for each concept. Areas were rounded to the nearest tenth of an acre. Latitudes and longitudes refer to the centroid of the corresponding wetland features.

2. Refer to Figures 1 through 11 for additional information. Refer to information included elsewhere in this application package for additional information regarding delineation, survey, and description of wetlands.

3. Abbreviations:

Wetland Cover Type Class:

PSS1E = Palustrine Scrub-Shrub, Broad-leaved Deciduous, Seasonally Flooded/Saturated
PFO1E = Palustrine Forested, Broad-leaved Deciduous, Seasonally Flooded/Saturated
PFO4E = Palustrine Forested, Needle-leaved Evergreen, Seasonally Flooded/Saturated
PME1E = Palustrine Emergent, Persistent, Seasonally Flooded/Saturated
R4UBJ = Riverine, Intermittent, Unconsolidated Bottom, Intermittently Flooded
R3UBH = Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded
R2UBB = Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded
VP = Vernal Pool

Function/Value:

X = Sustainable Function/Value
P= Principal Function/Value

Section 9.1a

DES Functional Assessment Form

WETLANDS FUNCTIONAL ASSESSMENT WORKSHEET

Water Division/Land Resource Management
Wetlands Bureau

Check the Status of your Application

RSA/Rule: RSA 482-A / Env-Wt 311.03(b)(10); Env-Wt 311.10

APPLICANT LAST NAME, FIRST NAME, M.I.: Granite State Landfill, LLC

As required by Env-Wt 311.03(b)(10), an application for a standard permit for minor and major projects must include a functional assessment of all wetlands on the project site as specified in Env-Wt 311.10. This worksheet will help you compile data for the functional assessment needed to meet federal (US Army Corps of Engineers (USACE); if applicable) and NHDES requirements. Additional requirements are needed for projects in tidal area; please refer to the Coastal Area Worksheet (NHDES-W-06-079) for more information.

Both a desktop review and a field examination are needed to accurately determine surrounding land use, hydrology, hydroperiod, hydric soils, vegetation, structural complexity of wetland classes, hydrologic connections between wetlands or stream systems or wetland complex, position in the landscape, and physical characteristics of wetlands and associated surface waters. The results of the evaluation are to be used to select the location of the proposed project having the least impact to wetland functions and values (Env-Wt 311.10). This worksheet can be used in conjunction with the Avoidance and Minimization Written Narrative (NHDES-W-06-089) and the Avoidance and Minimization Checklist (NHDES-W-06-050) to address Env-Wt 313.03 (Avoidance and Minimization). If more than one wetland/ stream resource is identified, multiple worksheets can be attached to the application. All wetland, vernal pools, and stream identification (ID) numbers are to be displayed and located on the wetlands delineation of the subject property.

SECTION 1 - LOCATION (USACE HIGHWAY METHODOLOGY)	
ADJACENT LAND USE: Sand & gravel and rock quarry mining operations, asphalt plant, access road and forestland.	
CONTIGUOUS UNDEVELOPED BUFFER ZONE PRESENT? ☐ Yes ☒ No	
DISTANCE TO NEAREST ROADWAY OR OTHER DEVELOPMENT (in feet): 100	
SECTION 2 - DELINEATION (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)	
CERTIFIED WETLAND SCIENTIST (if in a non-tidal area) or QUALIFIED COASTAL PROFESSIONAL (if in a tidal area) who prepared this assessment: Barry H. Keith	
DATE(S) OF SITE VISIT(S): 2018-2023	DELINEATION PER ENV-WT 406 COMPLETED? ☒ Yes ☐ No
CONFIRM THAT THE EVALUATION IS BASED ON: ☒ Office and ☒ Field examination.	
METHOD USED FOR FUNCTIONAL ASSESSMENT (check one and fill in blank if “other”): ☒ USACE Highway Methodology. ☐ Other scientifically supported method (enter name/ title):	

SECTION 3 - WETLAND RESOURCE SUMMARY (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)	
WETLAND ID: See respective USACE forms	LOCATION: (LAT/ LONG) /
WETLAND AREA: See USACE Forms	DOMINANT WETLAND SYSTEMS PRESENT: Palustrine and riverine
HOW MANY TRIBUTARIES CONTRIBUTE TO THE WETLAND? See Assessment Report	COWARDIN CLASS: PSS/FO1/4E, PEM/SS1Edx, PEM/SS1Eb, R3UBH, R4UBJ
IS THE WETLAND A SEPARATE HYDRAULIC SYSTEM? ☒ Yes ☒ No if not, where does the wetland lie in the drainage basin? Both isolated and headwater wetlands are present - See Assessment Report.	IS THE WETLAND PART OF: ☒ A wildlife corridor or ☐ A habitat island? IS THE WETLAND HUMAN-MADE? ☒ Yes ☒ No
IS THE WETLAND IN A 100-YEAR FLOODPLAIN? ☐ Yes ☒ No	ARE VERNAL POOLS PRESENT? ☒ Yes ☐ No (If yes, complete the Vernal Pool Table)
ARE ANY WETLANDS PART OF A STREAM OR OPEN-WATER SYSTEM? ☒ Yes ☐ No	ARE ANY PUBLIC OR PRIVATE WELLS DOWNSTREAM/ DOWNGRADIENT? ☐ Yes ☒ No
PROPOSED WETLAND IMPACT TYPE: Fill	PROPOSED WETLAND IMPACT AREA: 11.5 acres, +/- 956 linear feet of R4UBJ and 910 linear feet of R3UBH

SECTION 4 - WETLANDS FUNCTIONS AND VALUES (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)

The following table can be used to compile data on wetlands functions and values. The reference numbers indicated in the "Functions/ Values" column refer to the following functions and values:

1. Ecological Integrity (from RSA 482-A:2, XI)
2. Educational Potential (from USACE Highway Methodology: Educational/Scientific Value)
3. Fish & Aquatic Life Habitat (from USACE Highway Methodology: Fish & Shellfish Habitat)
4. Flood Storage (from USACE Highway Methodology: Floodflow Alteration)
5. Groundwater Recharge (from USACE Highway Methodology: Groundwater Recharge/Discharge)
6. Noteworthiness (from USACE Highway Methodology: Threatened or Endangered Species Habitat)
7. Nutrient Trapping/Retention & Transformation (from USACE Highway Methodology: Nutrient Removal)
8. Production Export (Nutrient) (from USACE Highway Methodology)
9. Scenic Quality (from USACE Highway Methodology: Visual Quality/Aesthetics)
10. Sediment Trapping (from USACE Highway Methodology: Sediment /Toxicant Retention)
11. Shoreline Anchoring (from USACE Highway Methodology: Sediment/Shoreline Stabilization)
12. Uniqueness/Heritage (from USACE Highway Methodology)
13. Wetland-based Recreation (from USACE Highway Methodology: Recreation)
14. Wetland-dependent Wildlife Habitat (from USACE Highway Methodology: Wildlife Habitat)

First, determine if a wetland is suitable for a particular function and value ("Suitability" column) and indicate the rationale behind your determination ("Rationale" column). Please use the rationale reference numbers listed in Appendix A of USACE *The Highway Methodology Workbook Supplement*. Second, indicate which functions and values are principal ("Principal Function/value?" column). As described in *The Highway Methodology Workbook Supplement*, "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".

"Important Notes" are to include characteristics the evaluator used to determine the principal function and value of the wetland.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE (Reference #)	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	☐ Yes ☐ No	See Functional Assessment Report	☐ Yes ☐ No	
2	☐ Yes ☐ No		☐ Yes ☐ No	
3	☐ Yes ☐ No		☐ Yes ☐ No	
4	☐ Yes ☐ No		☐ Yes ☐ No	
5	☐ Yes ☐ No		☐ Yes ☐ No	
6	☐ Yes ☐ No		☐ Yes ☐ No	
7	☐ Yes ☐ No		☐ Yes ☐ No	
8	☐ Yes ☐ No		☐ Yes ☐ No	
9	☐ Yes ☐ No		☐ Yes ☐ No	
10	☐ Yes ☐ No		☐ Yes ☐ No	
11	☐ Yes ☐ No		☐ Yes ☐ No	
12	☐ Yes ☐ No		☐ Yes ☐ No	
13	☐ Yes ☐ No		☐ Yes ☐ No	

14	☐ Yes ☐ No		☐ Yes ☐ No	

SECTION 5 - VERNAL POOL SUMMARY (Env-Wt 311.10)

Delineations of vernal pools shall be based on the characteristics listed in the definition of "vernal pool" in Env-Wt 104.44. To assist in the delineation, individuals may use either of the following references:

- *Identifying and Documenting Vernal Pools in New Hampshire 3rd Ed.*, 2016, published by the New Hampshire Fish and Game Department; or
- The USACE *Vernal Pool Assessment* draft guidance dated 9-10-2013 and form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

All vernal pool ID numbers are to be displayed and located on the wetland delineation of the subject property.

"Important Notes" are to include documented reproductive and wildlife values, landscape context, and relationship to other vernal pools/wetlands.

Note: For projects seeking federal approval from the USACE, please attach a completed copy of The USACE "Vernal Pool Assessment" form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

VERNAL POOL ID NUMBER	DATE(S) OBSERVED	PRIMARY INDICATORS PRESENT (LIST)	SECONDARY INDICATORS PRESENT (LIST)	LENGTH OF HYDROPERIOD	IMPORTANT NOTES
1					Seven (7) vernal pools were documented - See Vernal Pool Assessment Report.
2					
3					
4					
5					

SECTION 6 - STREAM RESOURCES SUMMARY

DESCRIPTION OF STREAM: R3UBH	STREAM TYPE (ROSGEN): D
HAVE FISHERIES BEEN DOCUMENTED? ☒ Yes ☐ No	DOES THE STREAM SYSTEM APPEAR STABLE? ☒ Yes ☐ No
OTHER KEY ON-SITE FUNCTIONS OF NOTE: See Stream Visual Assessment Protocol Report	

The following table can be used to compile data on stream resources. "Important Notes" are to include characteristics the evaluator used to determine principal function and value of each stream. The functions and values reference number are defined in Section 4.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	☐ Yes ☐ No		☐ Yes ☐ No	
2	☐ Yes ☐ No		☐ Yes ☐ No	
3	☐ Yes ☐ No		☐ Yes ☐ No	
4	☐ Yes ☐ No		☐ Yes ☐ No	
5	☐ Yes ☐ No		☐ Yes ☐ No	
6	☐ Yes ☐ No		☐ Yes ☐ No	
7	☐ Yes ☐ No		☐ Yes ☐ No	
8	☐ Yes ☐ No		☐ Yes ☐ No	
9	☐ Yes ☐ No		☐ Yes ☐ No	
10	☐ Yes ☐ No		☐ Yes ☐ No	
11	☐ Yes ☐ No		☐ Yes ☐ No	
12	☐ Yes ☐ No		☐ Yes ☐ No	
13	☐ Yes ☐ No		☐ Yes ☐ No	
14	☐ Yes ☐ No		☐ Yes ☐ No	

SECTION 7 - ATTACHMENTS (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)

☒ Wildlife and vegetation diversity/abundance list.

☒ Photograph of wetland.

☒ Wetland delineation plans showing wetlands, vernal pools, and streams in relation to the impact area and surrounding landscape. Wetland IDs, vernal pool IDs, and stream IDs must be indicated on the plans.

☐ For projects in tidal areas only: additional information required by Env-Wt 603.03/603.04. Please refer to the Coastal Area Worksheet (NHDES-W-06-079) for more information.