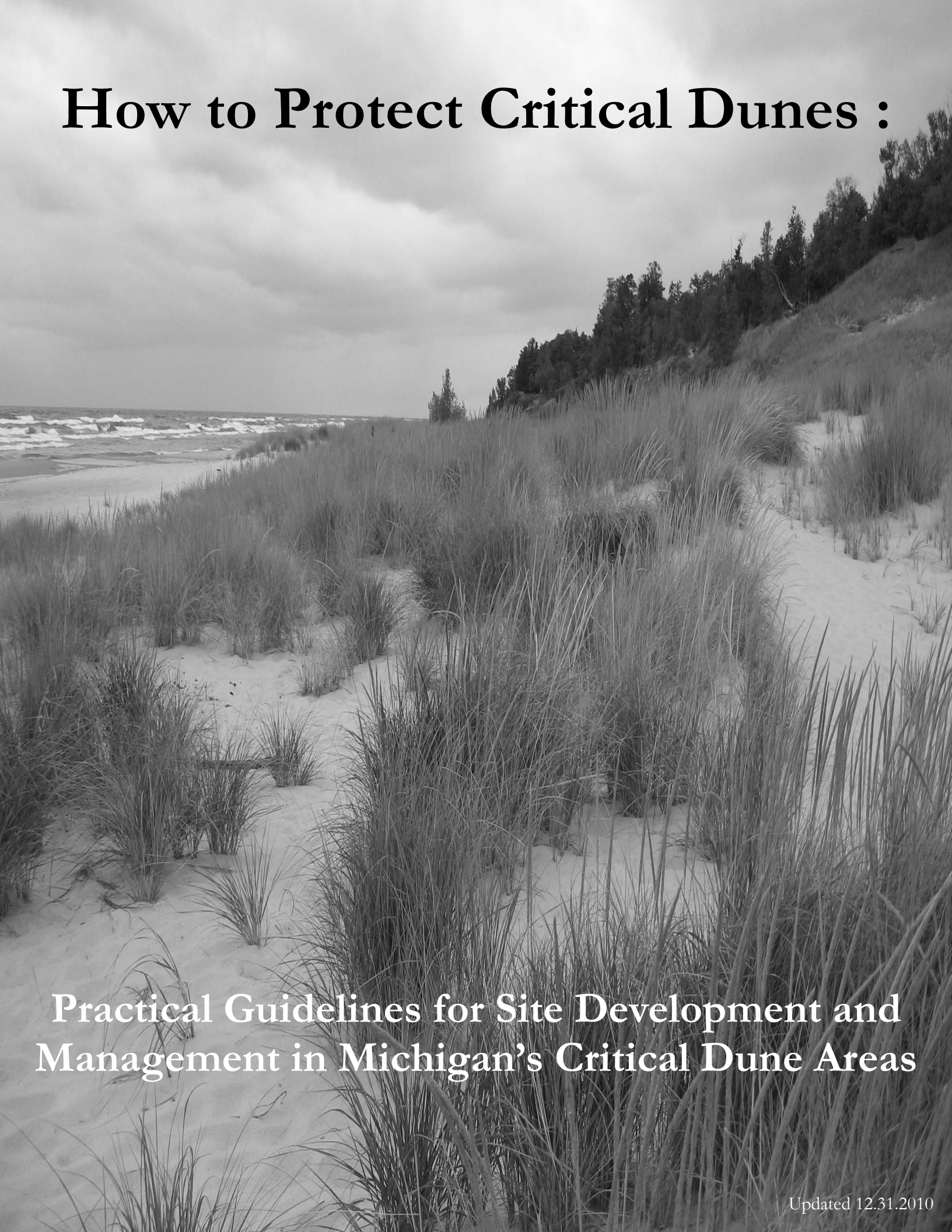
How to Protect Critical Dunes :



Practical Guidelines for Site Development and Management in Michigan's Critical Dune Areas

Updated 12.31.2010

How to Protect Critical Dunes : Practical Guidelines for Site Development and Management in Michigan's Critical Dune Areas was prepared through the efforts of numerous partners, individuals, and the contributions of many agencies and organizations. The lead writers and editors for this guide were the Muskegon Conservation District and Great Lakes Consulting, from published and unpublished sources with assistance from staff at the Michigan Department of Natural Resources and Environment and through a project advisory committee.

This guide was developed to help homeowners, developers, contractors, local governmental officials, and planners limit impacts and conserve critical dunes in the State of Michigan. In order to provide assistance to the regulated community, the manual contains detailed information about development guidelines, conceptual designs, recommendations, reference materials and permitting forms.* For questions or comments, please contact Jeff Auch at the Muskegon Conservation District via email at jeff.auch@macd.org or by phone at (231)773-0008. Additional information is also available through the Michigan Association of Conservation Districts at http://www.macd.org/critical-dunes.html.

Many thanks to all of those who graciously provided comments and content for this publication, including: John Allegretti of Allegretti Architects, Dr. Alan Arborgast of Michigan State University, Elizabeth Brockwell-Tillman of PJ Hoffmaster State Park (Michigan Department of Natural Resources and Environment), Tanya Cabala of Great Lakes Consulting, Nancy Cuncannan of the Michigan Department of Natural Resources and Environment, Charles Davis of Preserve the Dunes, Jan Deur of Alliance for the Great Lakes, Dr. Suzanne Devries-Zimmerman of Hope College, Brad Garmon of Michigan Environmental Council, Dr. Ed Hansen of Hope College, Mike Hayes of JFNew and Associates, John Legge of The Nature Conservancy (Michigan Office), Lee Schwartz of the Michigan Association of Home Builders, and Dr. Deanna Van Dijk of Calvin College.

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*Activities within Critical Dune Areas may be regulated by the State of Michigan and be subject to additional local ordinances at the township, village, city, or county level. Implementation of practices or recommendations from *How to Protect Critical Dunes: Practical Guidelines for Site Development and Management in Michigan's Critical Dune Areas* does not alleviate the need to comply with regulated activities.

TABLE OF CONTENTS

CRITICAL DUNE AREAS IN MICHIGAN

Critical Dune Areas include barrier dunes, dunes exhibiting specific geomorphologic features, dune areas supporting exemplary plant communities, and all areas designated within Michigan's Critical Dune Atlas. The individual map pages of the Atlas of Critical Dune Areas are available in digital PDF format at:

http://michigan.gov/dnresanddunes OR **http://macd.org/critical-dunes.html**

Each map page shows a political township and the boundaries of the Critical Dune Area in that township. Contact the DNRE Land and Water Management Division at (517) 241-1515 for verification (property's tax identification number, county, township, section, subdivision and lot number may be needed).

Michigan's Townships Containing Designated Critical Dune Areas (in black). Associated Counties include:

1. Berrien
2. Van Buren
3. Allegan
4. Ottawa
5. Muskegon
6. Oceana
7. Mason
8. Manistee
9. Benzie
10. Leelanau
11. Antrim
12. Charlevoix
13. Emmet
14. Mackinac
15. Schoolcraft
16. Keweenaw
17. Alger
18. Luce
19. Chippewa

Map prepared by the Michigan DNRE representing the general distribution of Critical Dune Areas.

INTRODUCTION

The State of Michigan is defined by its natural resources that are some of the most scenic and rare on the planet. One glimpse at a map establishes that Michigan is like no other state in our nation. With over 3,200 miles of shoreline along the Great Lakes, it is this thin strip of land that truly magnifies the depth of Michigan's unrivaled outdoor attributes. Within this zone a rare combination of glacial history, wind, water, and vegetation came together to create the largest accumulation of freshwater coastal dunes in the world. These extraordinary dune features set the stage for a distinctive mix of ecological communities that support rare and endangered species, irreplaceable habitats and dynamic biological interactions.

The sand dunes are valued by many for their aesthetically pleasing backdrop to the lakeshore, for the ecological communities which they support, and for the recreational potential they provide. No one knows this better than those that live and vacation within the coastal dune communities on the west coast of Michigan. Yet it is this desire to live, work and play in the sand dunes that have slowly degraded natural communities, altered topography and even destroyed these unique features. The complex series of events that created the largest of these sand dunes do not exist today, and once lost, these dunes may never be replaced.

With this in mind, the Michigan Legislature in 1976 passed the Sand Dune Protection and Management Act (Act 222). This act gave authority to local units of government and the State of Michigan to undertake specific steps to ensure the wise use and protection of Michigan's sand dunes. Of the 275,000 acres of sand dunes in Michigan, 70,000 acres were designated as "critical dunes" (PA 146 & 147 in 1989; Part 353 of Act 451 in 1994). These Critical Dune Areas (CDAs) were recognized as a "unique, irreplaceable and fragile resource that provide significant recreational, economic, scientific, geological, scenic, botanical, educational, agricultural, and ecological benefits to the people of this state and to people from other states and countries who visit this resource."

With over 70,000 acres of critical dunes along the lakeshore, the idea that an individual action could determine the future and quality of the landscape is almost unimaginable. Yet it is the individual lot and single management activity that will truly determine protection of these rare and fragile ecological systems.

In order to support local communities and individual landowners in creating sustainable development, the Michigan Department of Natural Resources and Environment (DNRE) utilizes a permit process to regulate activities in Critical Dune Areas and assure the protection of these irreplaceable natural resources for present and future generations. As part of this permit process, the DNRE identified three measures to increase observance of the Sand Dune Protection and Management Act. These measures may require associated fees, and include:

1. A soil and erosion control permit (when applicable). http://www.deq.state.mi.us/sesca
2. A proposed on-site sewage treatment permit (when applicable).
3. A written assurance that the cutting and removal of trees and other vegetation will be according to the instructions of the local Conservation District. http://macd.org/critical-dunes.html

SITE PLANNING

BACKGROUND

Critical dunes are valued for their aesthetically pleasing backdrop to the Great Lakes, for the ecological communities they support, and their recreational potential. Ideally, development and building within the dunes should enhance individual enjoyment of these areas while simultaneously protecting the natural resource assets for future generations. An organized and well thought out plan for new construction, additions, and small projects can help to reduce ecological impacts within the dunes.

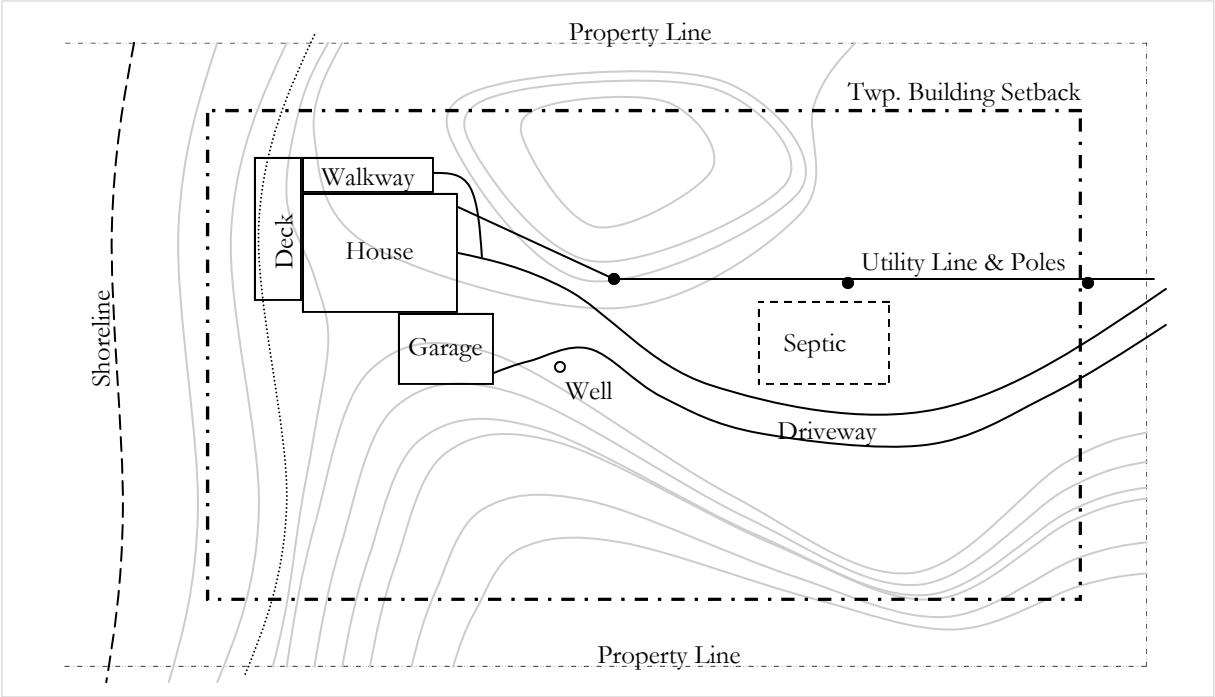


Figure 1. Traditional site plan based on setbacks and maximizing shoreline view.

Site planning in Critical Dune Areas should incorporate an evaluation of key topographical and natural resource features to minimize disturbance to areas and reduce impacts to ecological communities.

MINIMIZING DISTURBED AREAS:

1. Limit the percentage of the lot that is disturbed and the area of impervious surfaces.
2. Avoid areas with slopes greater than 33% (1:3 / rise:run).
3. Utilize areas previously cleared or graded for construction.
4. Establish a minimum construction setback from the foredune crest (bluff line).
5. Limit the length and width of the driveway and any turn-a-round.
6. Locate residential structures as close to the access as possible (minimizing driveway).

MINIMIZING IMPACTS TO ECOLOGICAL COMMUNITIES:

1. Avoid impacts to threatened and endangered species (survey prior to construction) and areas of ecological significance (interdunal pond/wetland, sand barren, open dunes).
2. Maintain continuity of vegetation (minimizing edge effect).
3. Provide buffer for adjacent natural areas and other contiguous landscapes.

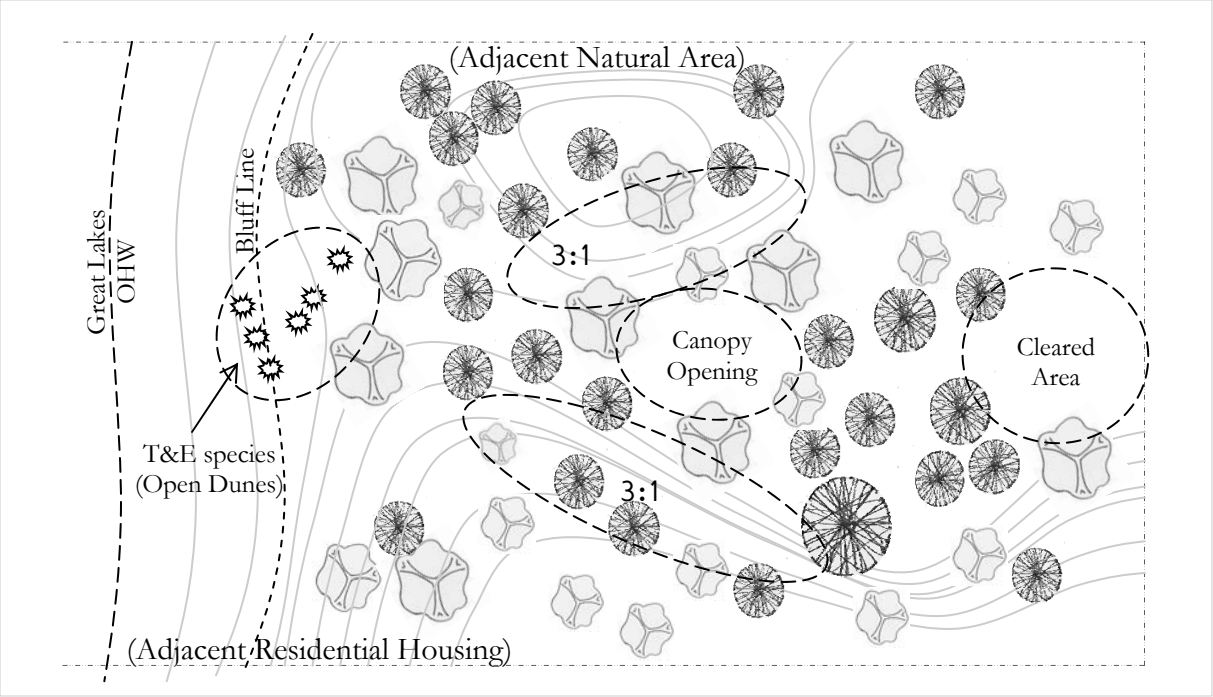


Figure 2. Natural resource characteristic site map for planning purposes, including defining areas previously impacted, steep slopes, presence of threatened and endangered species (T & E species), bluff line, areas requiring limited tree removal, and adjacent land uses.

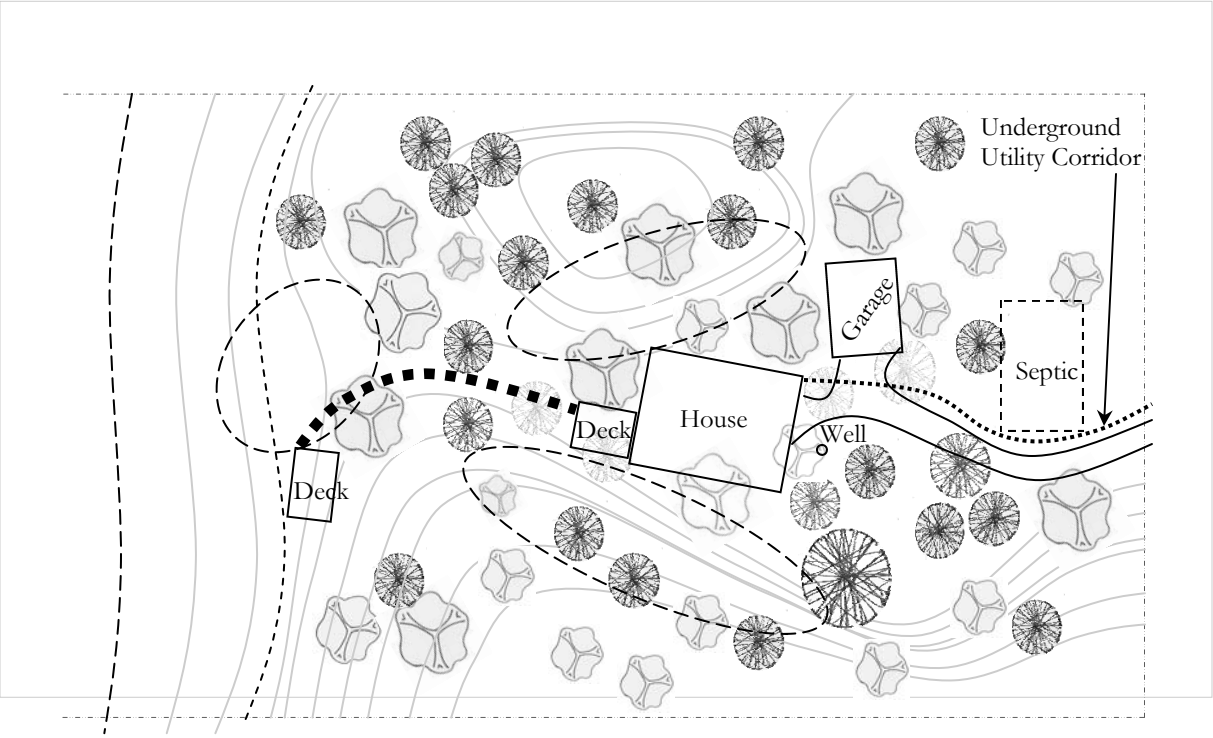


Figure 3. Site plan minimizing impacts to critical dunes by avoiding 3:1 slopes, moving main structures away from bluff line and closer to access road, avoiding areas with threatened and endangered species, utilizing areas already cleared, minimizing tree removal for structures (trimming of branches to maintain view), reducing driveways distance and width, planning for a low impact footpath to access shoreline, and separating structures from adjacent natural areas while maintaining habitat corridors along shoreline.

IMPACTS TO SLOPES

BACKGROUND

An undulating landscape and steep slopes are defining characteristics in critical dunes and minimizing the impacts to the topography preserves the integrity and natural features of the dunes. Excavation volumes and impacts to steep slopes are a direct measure of the extent of disturbance and can change the essential character of the dunes. Sand that is not contained and is disturbed is subject to wind and rain erosion, which can lead to creation of a dune blowout and spreading damage.

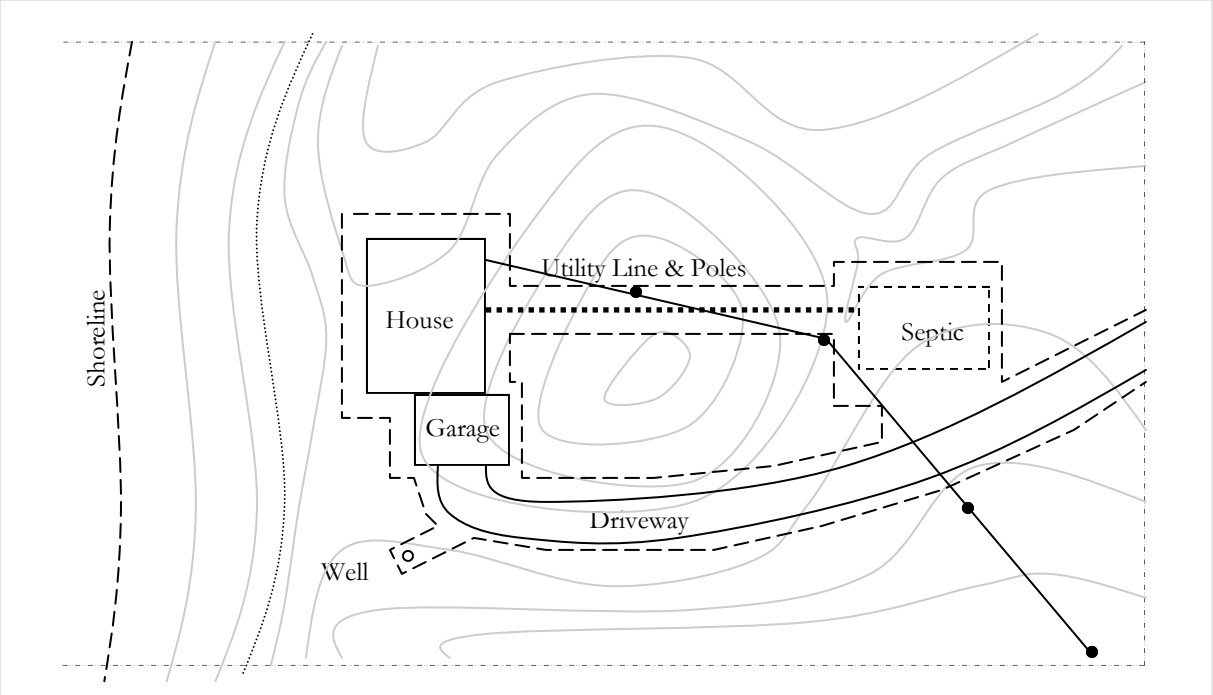


Figure 4. Site plan in dune slope areas with excavation impact area delineated.

Construction in areas with slopes greater than 1:4 should incorporate management practices that minimize the amount and disturbance of soils as part of planning, construction, and long term stabilization of the site.

MINIMIZING SOIL MOVEMENT:

1. Limit the difference between cut and fill volumes, balancing volumes on site. Do not bring new fill on the site as it may bring invasive, exotic (non-native) seeds or damaging fungus. Removing soils removes seeds of native plants and any topsoil and organic material from the site.
2. Limit impacts that facilitate slope failure and erosion, including control of stormwater and impacts to slopes offsite. Utilize erosion control measures at both the bottom of the slope (to protect uphill from construction) and at the top of the slope (to protect areas downhill from construction occurring along the crest of a slope).
3. Demarcate limits of clearing, grading, and vegetation removal to avoid accidental damage to slopes and vegetative roots that support slopes. Demarcation discourages materials and equipment from being stored, used, or driven outside the impact area.

MINIMIZING IMPACTS FROM UTILITIES

1. Utilize underground utility corridors in new construction projects (adjacent to access roadways) and impact slopes 1:4 or less.
2. Utilize hand trenching for utilities in projects covering relatively short distances and impact slopes 1:3 or less. Ensure soils from trenching can be safely staged adjacent to trenching without impacting slopes or vegetation.
3. Utilize directional boring for utilities in projects covering long distances and impact slopes greater than 1:3, or are in areas where trenching/excavating may disturb unstable soils.

MINIMIZING TREE AND VEGETATION REMOVAL

1. Avoid clearing and grubbing on steep slopes and outside construction buffer areas.
2. Leave all stumps and roots in place to stabilize soils and slopes.

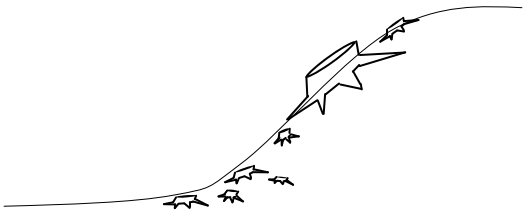


Figure 5. Tree removal on slopes with stumps and roots remaining.

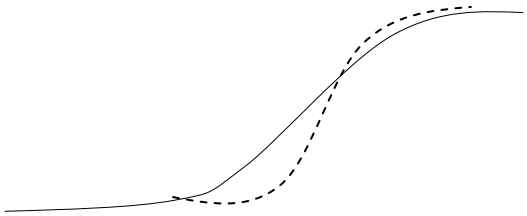


Figure 6. Stable versus erodible slope. Minimize impacts to erodible slopes and avoid creating these slopes through excavation or filling.

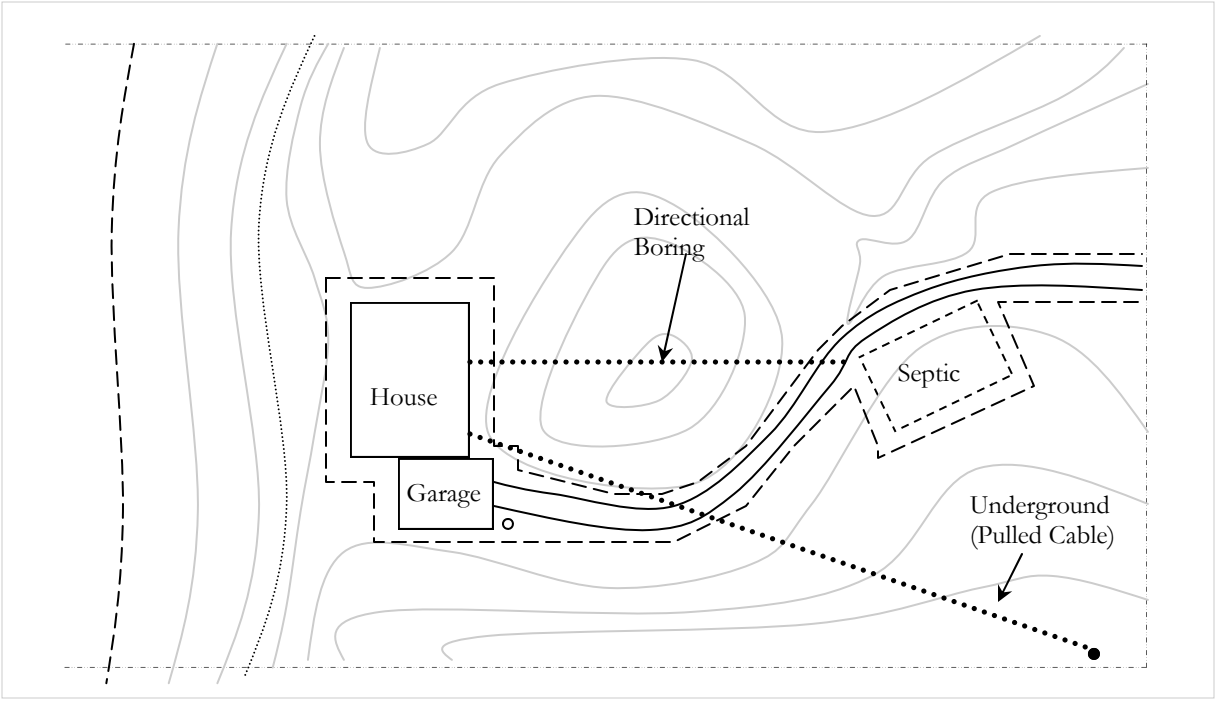


Figure 7. Site plan that minimizes impacts to all slopes including moving structures to reduce need for excavation (and facilitating ability to balance volumes on site), reduces total area of impact, utilizes directional boring to connect septic, pulling cable instead of trenching, and moves well to location within reduced impact area to eliminate future disturbance to slopes.

STABILIZATION OF SLOPES

BACKGROUND

Construction activities within the dune landscape will likely impact slopes regardless of location and despite careful planning. To ensure conservation of dune features, projects should seek to eliminate impacts to steepest slopes, minimize the effects of construction on less erodible slopes, protect and mitigate all impacts to slopes during construction, and stabilize slopes following completion of all activities.

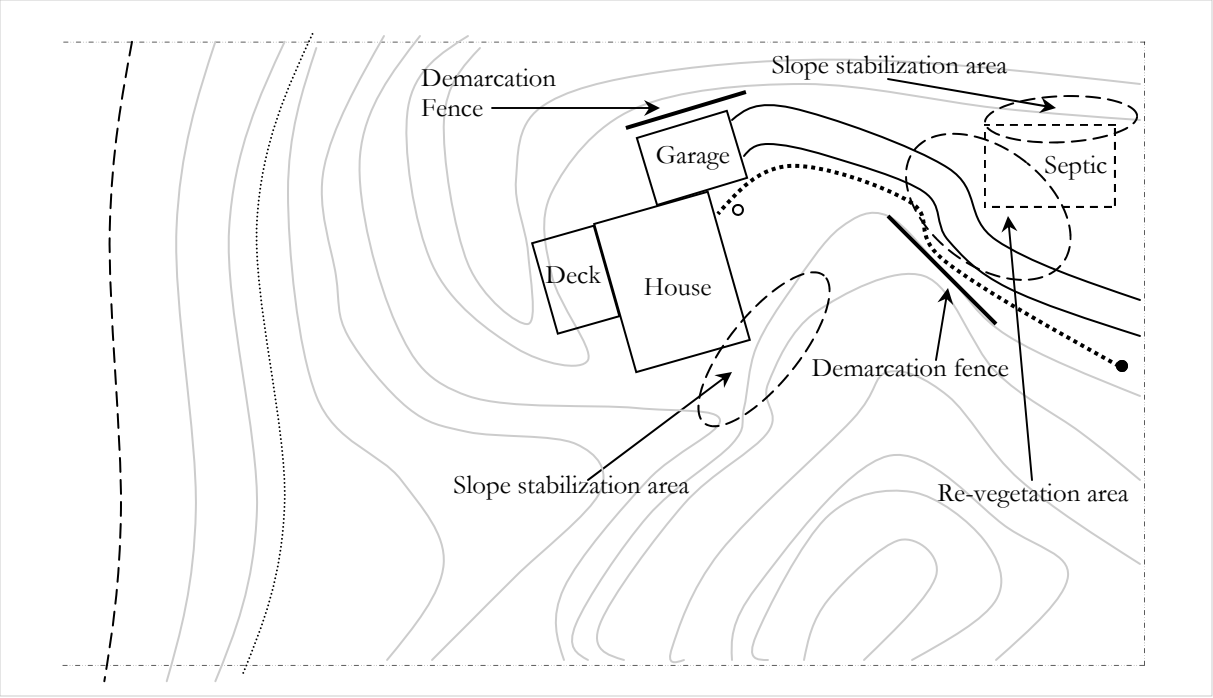


Figure 8. Appropriately sited structures with identified areas for slope stabilization and plant re-establishment areas (septic location used as staging area for construction).

Soil stabilization and soil erosion techniques are utilized to minimize soil movement at the source and limit sedimentation issues. Appropriately designed and installed techniques can eliminate soil erosion, reduce sediment pollution, minimize future impacts to slopes, and reduce overall costs.

TEMPORARY SLOPE STABILIZATION

1. Install geotextile fabric fence (silt fence) parallel to contours in areas with 1:4 slopes and ensure appropriate installation distance (at least 2 ft. from the toe of a 1:4 rise).
2. Install plywood sheeting parallel to contours in areas with 1:3 slopes and ensure or minimum installation distance (less than 3 ft. from toe of a 1:3 rise).

PERMANENT SLOPE STABILIZATION

1. Utilize soft engineering techniques for stabilization of areas with minimal slopes or areas where only the toe needs to be permanently stabilized.
2. Utilize appropriate retaining wall structure with tiebacks to inhibit wall failure, slumping, and soil seepage.
3. Install all permanent slope stabilization structures prior to beginning other construction activities onsite to protect slopes from incidental damage.

RE-VEGETATION AND STABILIZATION OF DISTURBED AREAS

1. Utilize native tree, shrub, grass, and wildflower species that represent those species which were removed (or reflect the ecological community in the immediate area). Chosen species should be adapted for local soil and climate (temperature, rainfall, hardiness zone).
2. Demarcate limits of clearing, grading, and vegetation removal to avoid accidental damage to slopes and vegetative roots that support slopes. Demarcation discourages materials and equipment from being stored, used, or driven outside the impact area.
3. Stockpile topsoil from excavation areas and utilize for redistribution on the site. This provides a local seed source of native species.
3. Replace native trees that were removed with appropriate native trees species, with 50% of the trees having a minimum of a 2" caliper.
4. Vegetation should be planted with the following spacing / density:
Hardwoods: 10' X 10' Conifers: 8' X 8' Shrubs: 6' X 6'
5. Re-vegetate in stages as portions of the site are complete. Re-vegetate all areas as soon as possible following completion of construction, not to exceed 2 weeks following completion.
6. Maintain vegetation for a minimum of 5 years. Vegetation that dies through natural or man-made causes should be replaced.

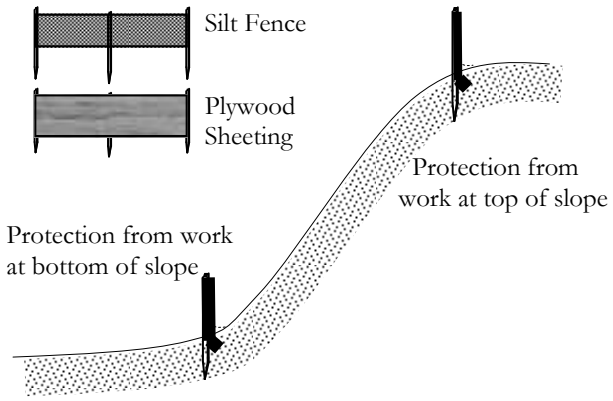


Figure 9. Temporary slope stabilization fencing placement at bottom and/or top of slope to demarcate slope protection areas.

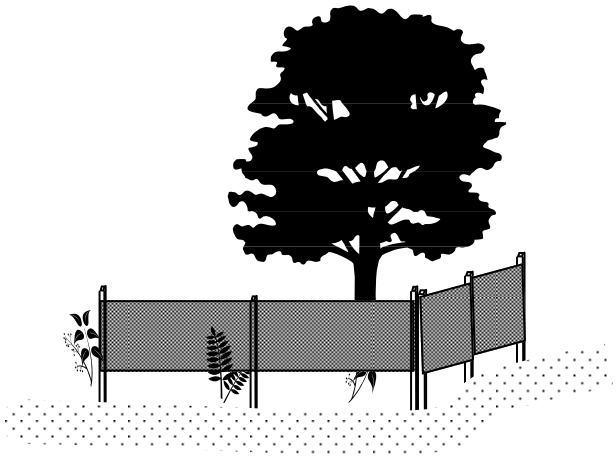


Figure 10. Demarcation of area to protect vegetation and other critical areas from clearing, grading, traffic, and material stock piles.

OTHER CONSIDERATIONS

1. Utilize demarcation fencing to isolate critical areas (wetlands, watercourses, endangered species, vegetation protection).
2. Utilize cantilevers in areas of steep slopes that meet or exceed the 1 to 1 isolation ratio.
3. Utilize a park-and-walk scenario with a boardwalk, stairway, or tram for access if constructing a driveway that would impact slopes with a gradient of greater than 1:3.
4. Install stairs and boardwalks prior to construction to allow for construction access. Boardwalks should be installed high enough to provide appropriate light conditions for plant growth.

SITE MANAGEMENT AND MAINTENANCE

BACKGROUND

Long term management of critical dune areas can have as large an impact on the dune landscape as a single construction event. The maintenance of existing structures, as well as the use and alteration of the landscape, will determine the quality of natural communities, disruption to topography, and protection of unique features for future generations. Appropriate land management techniques not only protect the dune landscape, but also reduce overall maintenance costs and allow landowners to minimize the need for permits.

RE-GRADING EXISTING DRIVEWAYS

1. Re-grade driveway within the existing driveway footprint/corridor (no expansion of width or length).
2. Utilize materials that provide maximum porosity and drainage to mitigate erosion caused by stormwater (surface water flow).
3. Utilize existing driveway elevations and do not fill or scrape more than 6 inches.

REMOVAL OF BLOW SAND

1. Do not remove sand from areas landward of the dune crest (bluff line).
2. Only remove sand deposited on decks, walkways, driveways, etc. and allow blow sand to remain in other vegetated areas.
3. Remove no more than 1 cubic yard of sand during a year (using hand tools). Removal of additional sand on an annual basis requires a DNRE permit and suggests the need for a long-term sand management plan (vegetative plantings).
4. Utilize snow fencing / sand fencing to establish temporary windbreaks (especially when vegetation is dormant) to "capture" sand and avoid the need for continued removal of blow sand.

VEGETATIVE MAINTENANCE

1. Avoid all introductions of invasive and exotic species to the landscape.
2. Implement an exotic/invasive species control program, including annual monitoring and eradication as necessary.
3. Minimize the width of maintained buffers around buildings (10 ft.) and associated driveways (5 ft.) so that a greater area is vegetated with native species.
4. Utilize native species as much as possible within building and driveway buffers to facilitate maintain and preserve the ecological diversity of the area.

SEPTIC MAINTENANCE

1. Maintain appropriate septic pump-out schedule to ensure proper functioning and avoid unnecessary replacement and disturbance of site.

FENCE / POLE INSTALLATION

1. Only install fencing landward of the crest and follow existing grades.
2. Utilize open fence surface designs (split rail fence or chain link fence).
3. Use handheld tools for digging fence posts and all other single pole items (flag pole, mailbox, sign, utility pole, birdhouse, birdfeeder, basketball hoop, and yard art).

TREE REMOVAL

1. Do not remove trees (or vegetation) more than 10 ft. from proposed buildings; and no more than 5 ft. from decks, along driveways, septic systems, and water wells (does not apply to exotic species or hazard trees). *Removal of 3 or more trees over 3" in diameter at breast height requires a permit).*
2. Avoid removal of trees and shrubs that may impact unique natural features in the area, including: ponds, streams, seeps, springs, parabolic dunes (blowouts), foredunes, or dune ridges.
3. Avoid removal of trees and shrubs in areas that contain endangered or threatened species.
4. Retain large diameter trees (greater than 16 inches diameter at breast height).
5. Retain mature trees (seed/mast producing), especially cedar and hemlock
6. Retain trees and shrubs that improve diversity of the site.
7. Minimize the amount of edge created from tree removal.
8. Maintain tree communities that provide necessary habitat within the larger landscape.
9. Remove unwanted trees during the dormant season. Tree removal in full leaf can cause "sunburn", shock, or other problems to adjacent trees.
10. Remove trees using shortwood harvesting methods; where tree is felled and cut into usable/portable lengths at the stump. Caution should be taken in cutting and falling trees to avoid damage to other trees in the immediate area.
11. Cut tree stumps to ground level and leave in place unless the stump would immediately interfere (within 5 ft.) with the excavation and placement of a foundation.
12. Chip small branch debris onsite and utilize on location (may be utilized to amend soil and add coarse organic wood material to extremely sandy soils).
13. Avoid excessive piling of debris, unless piling is temporary (less than 2 weeks).

TRIMMING BRANCHES AND PHYSICAL WOUNDS

A healthy tree is capable of sealing off small wounds and localizing injury. However, large wounds (bark scrapes and broken branches) and those on stressed trees will not seal off, allowing decay. Improper pruning to create clearance for structures or construction equipment serves as entry points for diseases.

1. Make clean cuts with a sharp saw just inside the swollen branch collar.
2. Seal all cuts immediately to prevent disease on all oaks during the growing season. Do not seal cuts for other species when trimming in the dormant season.
3. Clearly delineate areas and trees to be protected (to avoid indirect damage).
4. Don't prune/trim trees from April 15th through July 15th.

HAZARD TREE IDENTIFICATION AND TREATMENT

A tree failure occurs when a tree or large part of a tree breaks and falls. Age, species, site, and condition all influence the relative hazard of a tree. A high probability of failure does not make a tree a hazard; there must be a "target" (structure, vehicle, person) that would be struck by a falling tree or its parts.

1. Evaluate trunk for decay. In some cases, cracks, cankers, seams, butt swell, dead branch stubs and large older wounds may suggest internal decay from an opening in the tree bark.
2. Inspect the crown, vigor and form, as indicators of general health (dieback, V-shaped forks with cracks or rot). Branches in the crown often die top down in response to stress.
3. Evaluate root integrity. Damaged roots impact tree health and the ability to avoid other stressors. The probability of failure increases as the amount of root damage increases.

BEST MANAGEMENT DESIGN & IMPLEMENTATION

WASTEWATER TREATMENT

Wastewater in many undeveloped areas will require onsite treatment. The impact of wastewater treatment systems to slopes and vegetation can be minimized with the use of non-traditional systems that allow for decreased sizes of the infiltration area. Prior to installation, ensure system meets local health department requirements.

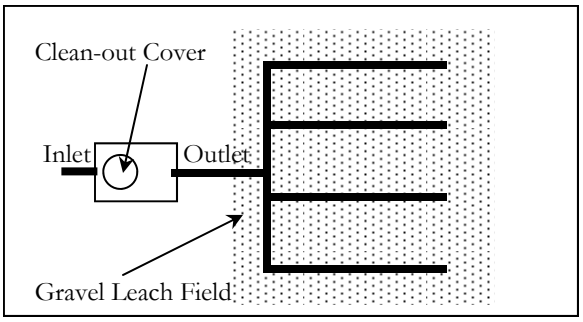


Figure 11A. (Overhead View) Traditional Septic Tank and Leach/Absorption Field.

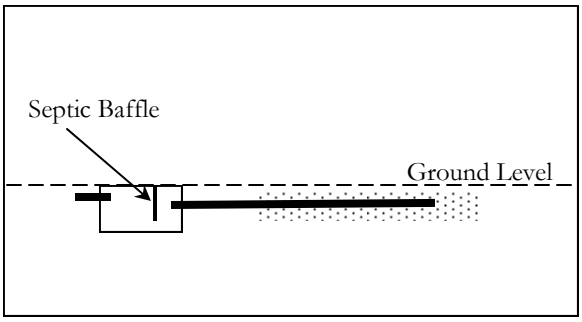


Figure 11B. (Side View) Septic Tank and Precast Concrete Block-Trench System.

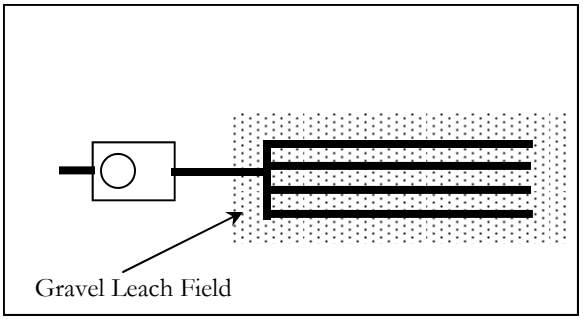


Figure 12A. (Overhead View) Septic Tank and Leach/Absorption Trench. Appropriate for well drained soils significantly above water table. Lateral absorption minimized, but area of impact elongated.

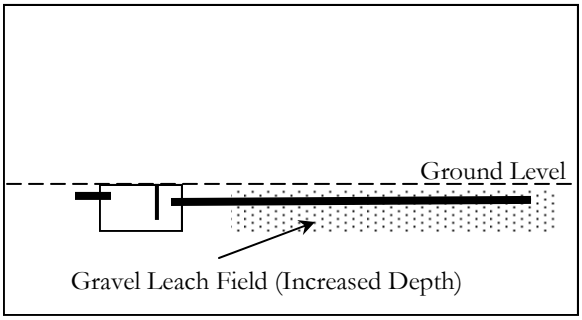


Figure 12B. (Side View) Septic Tank and Leach/ Absorption Trench. Loss of lateral absorption may require increased depth of gravel infiltration bed to ensure appropriate wastewater volume transport.

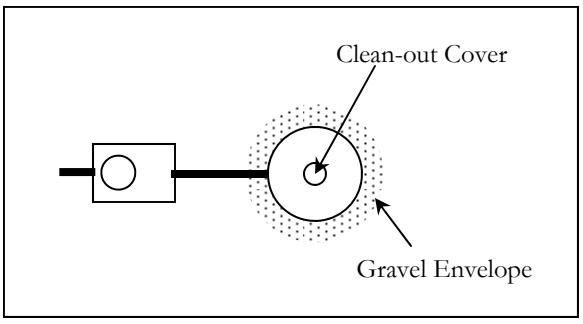


Figure 13A. (Overhead View) Septic Tank and Dry Well. Appropriate for well drained soils significantly above water table. Multiple wells may be linked together side-by-side, depending on capacity and absorption needs.

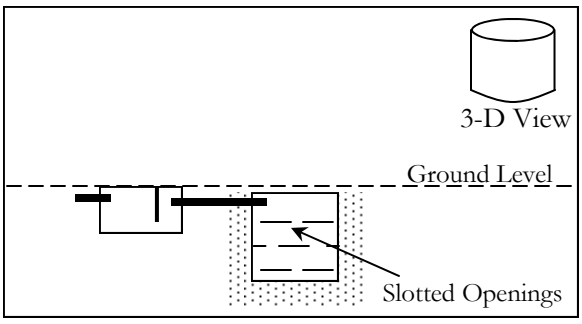


Figure 13B. (Side View) Septic Tank and Precast Concrete Block-Trench System. Slotted openings in precast walls allow for wastewater release. Sized according to maximum septic tank release, infiltration rates, and soil conditions.

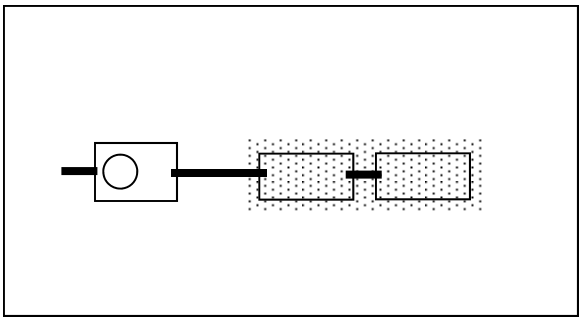


Figure 14A. (Overhead View) Septic Tank and Precast Concrete Block-Trench System. Multiple blocks may be linked together either side-to-side and/or end-to-end depending on capacity and absorption needs. Commonly used to decrease excavation area in well drained soils and/or installation of linear system.

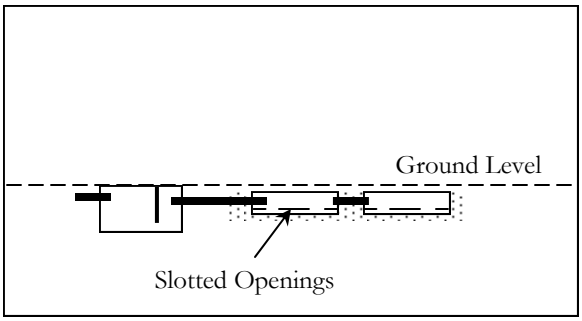


Figure 14B. (Side View) Septic Tank and Precast Concrete Block-Trench System. Slotted openings along bottom of each side allow for appropriate lateral absorption. Precast blocks provide structural system stability in unstable soils and are more easily repaired/replaced than traditional leaching systems.

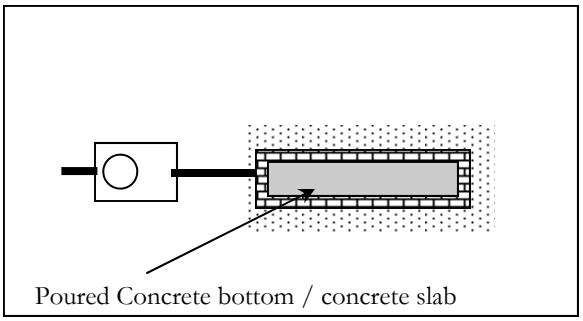


Figure 15A. (Overhead View) Septic Tank and Brick-Trench System. Trench System constructed onsite with masonry brick/block and mortar. System size, shape and capacity determined according to absorption needs. System utilized for smaller capacity systems in remote areas where excavation and/or heavy equipment cannot be used to install traditional leach areas.

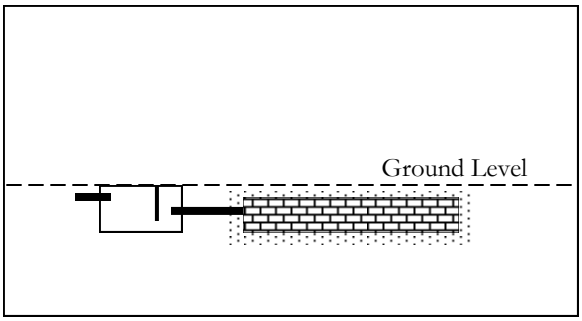


Figure 15B. (Side View) Septic Tank and Brick-Trench System. Slotted openings in walls and long bottom of each side allow for appropriate lateral absorption. Brick-Trench systems require a stable gravel base and footing for construction to ensure structural integrity. Depending on materials and soil conditions waterproofing of concrete materials may be necessary to protect mortar and joints.

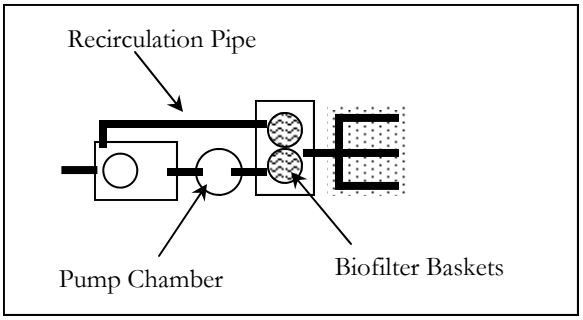


Figure 16A. (Overhead View) Septic Tank and Biofiltration System. Appropriate for poorly drained soils and high water tables, or in areas that require increased nitrogen removal. Water recycles throughout system so sizing may be minimized. The system requires a shallow leach field for final release of treated water.

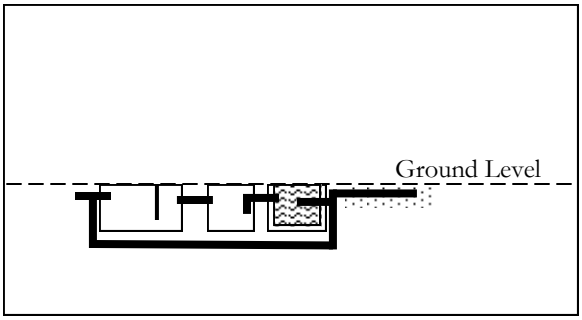


Figure 16B. (Side View) Septic Tank and Biofiltration System. Secondary treatment within system provided by an organic biofilter that requires annual inspection and/or replacement. Most Biofiltration systems are (including septic) available in molded plastic to allow for easy transport and installation in remote areas.

BEST MANAGEMENT DESIGN & IMPLEMENTATION

SLOPE STABILIZATION

Development in critical dune areas often requires slope stabilization to minimize impacts and avoid creation of erodible soils. The use of retaining walls for slope stability allows for increased elevations within a short distance; however the design and use must provide resistance to the lateral pressure of the soil. Additional wall support may be achieved through use of mechanical anchors.

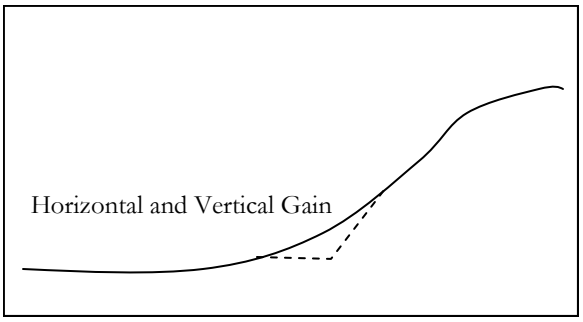


Figure 17A. Dry block. A mortarless stacking of blocks that utilize gravity to maintain vertical stacking and horizontal soil pressure. Stacking provides stabilization for low profiles and stable soils.

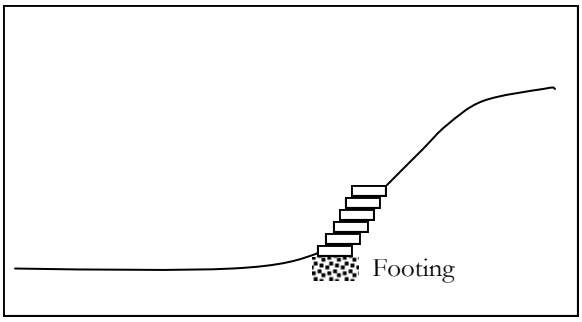


Figure 17B. Stacking of dry blocks requires successive stair stepping into the hillside to maintain integrity. Method allows for minimal slope cutting and is best utilized for stabilizing the "toe" of a slope.

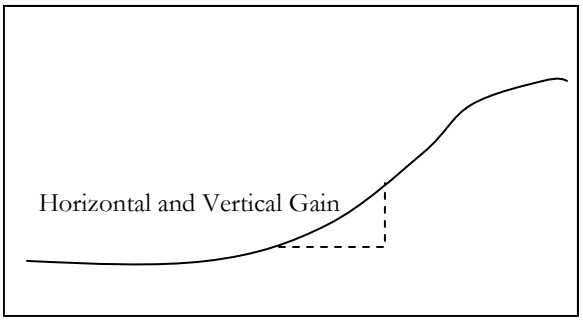


Figure 18A. Mortared Wall. A vertical construction of block, brick, or stone, utilizing mortar to bond materials together vertically and horizontally. Wall provides greater slope stability and increased height.

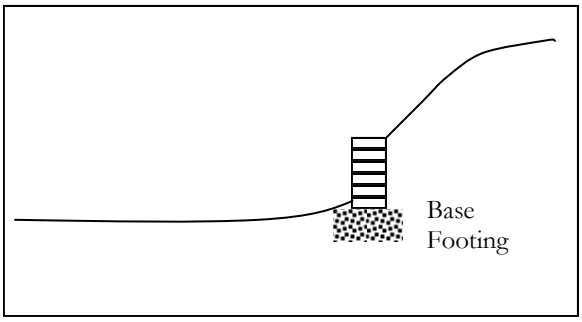


Figure 18B. Mortared walls require significant footings below grade to maintain vertical position. Additional support provided by anchoring into slope for increased height and use in unstable soils.

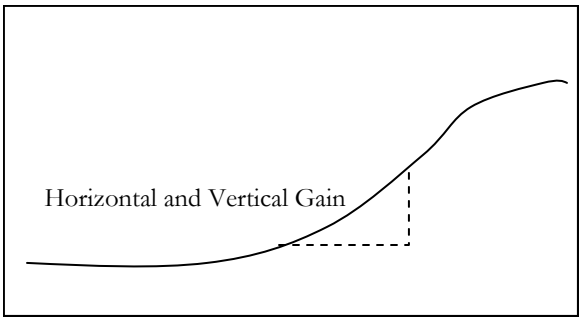


Figure 19A. Timber Wall. A vertical construction of wood lumber supported by vertical posting that acts as a cantilever to counteract horizontal soil pressure. Appropriate designs and soil stability may allow for increased height and slope removal

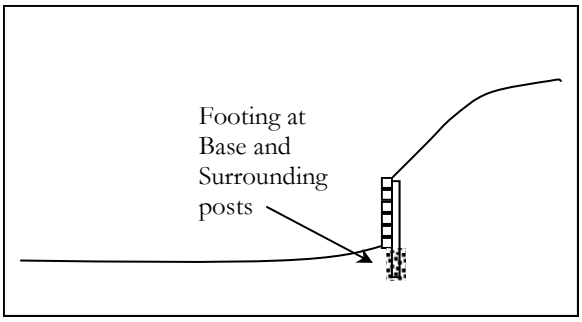


Figure 19B. Timber walls often constructed in board lumber can also utilize horizontal staking of posts (e.g., 6"X6" stock) and bound using timber spikes. Post staking utilizes slope anchors exclusively, whereas timber walls may include vertical posts and slope anchors for sufficient stability.

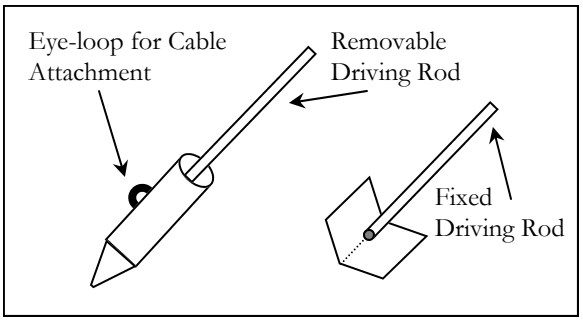


Figure 20A. Earth Anchor. A metal plate or cylindrical tube that pivots on an attached anchoring rod or cable. The loaded anchor planes sideways against undisturbed soil to provide holding strength.

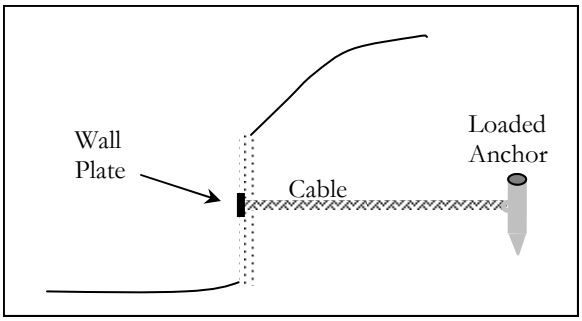


Figure 20B. An earth anchor is driven into the soil and once the driving rod is removed the anchoring rod/cable is pulled to pivot the anchor into a load-lock position.

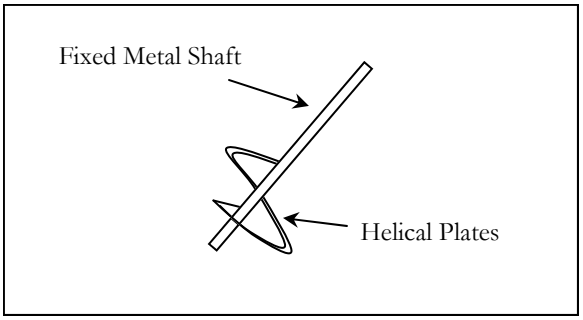


Figure 21A. Helical Anchor. A metal helical plate(s) attached to a metal shaft . Helical plates cut through soil sublayers with minimal surface disturbance.

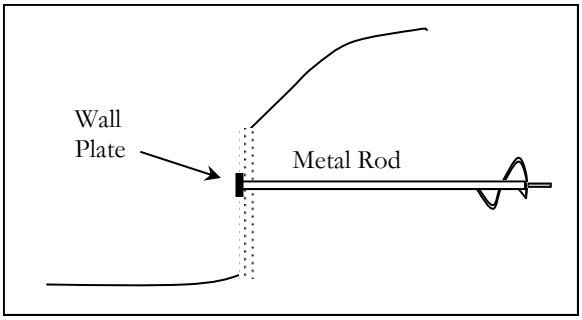


Figure 21B. A helical anchor is screwed into the soil to the appropriate depth and reverse tension is applied to set anchoring position.

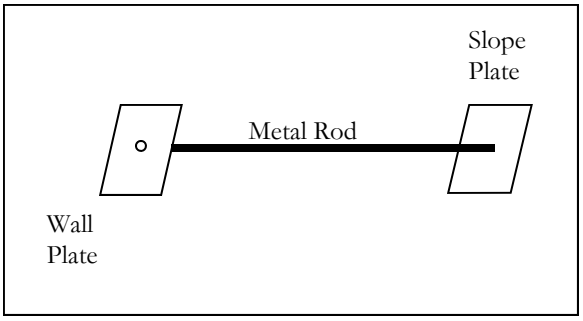


Figure 22A. Cross Plate Anchor. A double plate anchoring system connected by a metal rod. Rod is driven through undisturbed soils to connect plates.

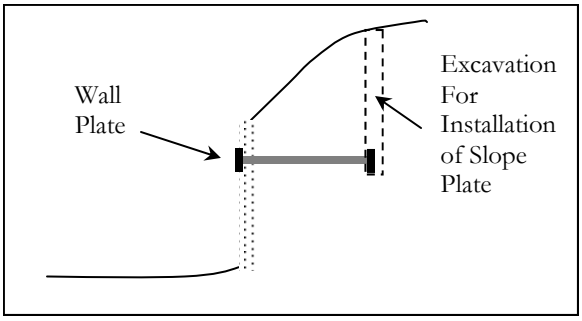


Figure 22B. Plate anchors require excavation of a vertical hole to connect soil plate to metal rod. Plate surface area proportional to holding strength.

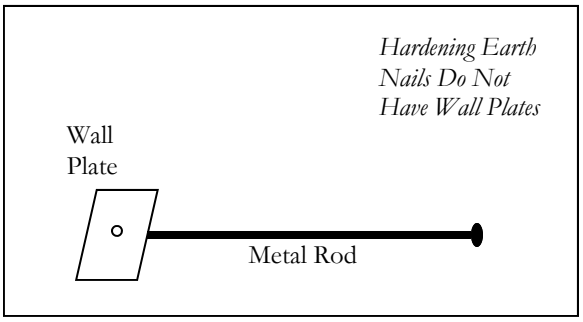


Figure 23A. Earth Nails. A series of metal pins or drilled holes filled with a hardening material to utilize soil resistance in stable undisturbed soils.

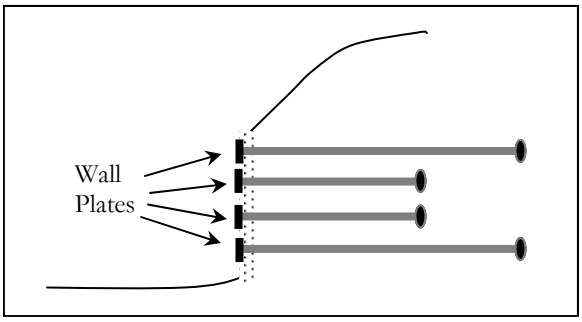


Figure 23B. Nails utilized in stable soils with sufficient soil resistance. Hardening materials may assist in bonding to soils.

GENERAL GUIDANCE FOR DNRE REGULATED ACTIVITIES IN CRITICAL DUNE AREAS.

Note: There may be additional DNRE permits (High Risk Erosion) required, as well as local ordinances and regulations at the township, village, city, or county level.

ACTIVITY	REGULATED?
Contour Change	Yes
New Buildings	Yes
Additions (1st Floor)	Yes
Second Story Addition on Existing House	No, if no contour changes.
Major Restoration of Home with No Additions	No, if no contour changes
Major Restoration of Home with Additions	Yes, because of additions.
Change in Pitch of Roof	No
Routine Home Maintenance	No, if no contour changes.
New Detached / Attached Garage	Yes
Swimming Pool	Yes
Appurtenant Structures (storage sheds, gazebos)	Yes
Convert Garage to Living Space	No
Utility Lines	Yes
Subdivision / Site Condominium	Yes
Seawall / Revetment	Yes
Demolition	Yes
Deck / Porch Extension	Yes
Enclose Existing Porch	No, if no contour changes.
New Deck / Porch	Yes, except for in-kind replacement of existing deck, using hand tools and same footprint.
Driveway	Yes, unless for maintenance or re-grading with no change in size or contours outside existing driveway footprint (includes adding material such as gravel, concrete, asphalt, or crushed rock).

ACTIVITY	REGULATED?
Well / Septic Tank or Field	Yes, unless for clean-out.
Installation of a Single Pole	No, when installed using hand tools (flag pole, light pole, birdhouse, etc.)
Retaining Walls	Yes, including construction of small landscape walls for flower / vegetable gardens, rock walls and placement of large boulders for landscaping purposes.
Temporary Snow / Sand Fence	No
Fence (Permanent)	Yes, unless it is installed using hand tools, is located landward of the crest, follows the existing grade, and fence surface is open (e.g., split rail or chain link fence).
Sand Removal	Yes, unless 1 cubic yard or less in areas landward of the crest and removed using hand tools to clear an existing structure or walkway.
Native Tree / Vegetation Planting	No, when using hand tools and without changing existing grades or contours.
Tree Branch Trimming	No, if branches only.
Vegetation / Tree Removal	Yes, when 3 or more trees over 3 inches in diameter at breast height are to be removed.
Removal of a "Hazard" Tree	No, when a tree is located on a slope with a gradient less than 25%, is threatening a structure, utility line, or human safety, and when it does not significantly alter the physical characteristic or stability of the dune feature (stump and root system must remain in place).
New Stairway / Boardwalk / Tram	No, when constructed using hand tools, services a single-family home, is elevated above grade, five feet wide or less, has no roof or walls, involves no tree removal, and disturbs vegetation only within the footprint.

Construction of any structure, without a special exception, is prohibited on, or in front of the first lakeward facing slope. Structures must be constructed behind the crest of the first landward ridge that is not a foredune, in order to minimize development in areas of moving sand and maintain processes of dune formation.

Activities on slopes greater than 1:3 (33%) are regulated as special exceptions in order to minimize development on steep slopes that would compromise stability of critical dunes. Special exceptions are reviewed by a DNRE panel and determinations made on whether a practical difficulty exists and compliance would unreasonably prevent use of the property or render conformity unnecessarily burdensome.

PERMIT PROCESS FOR REGULATED ACTIVITES

BACKGROUND

In order to support local communities and individual landowners in creating sustainable development, the Michigan Department of Natural Resources and Environment (DNRE) utilizes a permit process to regulate activities in Critical Dune Areas and assures the protection of these unique natural resources for present and future generations. As part of the permit process, the DNRE has identified measures to increase observance of the Sand Dune Protection and Management Act. These measures may require associated fees, and include:

1. A soil erosion control permit (when applicable). Visit **http://www.deq.state.mi.us/sesca** to determine contact information for the local soil erosion enforcement agency for a Part 91 permit.
2. A proposed on-site sewage treatment permit (when applicable). Contact your local County Health Department for Septic System Permits.
3. A written assurance that the cutting and removal of trees and other vegetation will be according to the instruction of the local Conservation District. Visit **http://macd.org/critical-dunes.html** to determine current participating Conservation Districts and find contact information for applicable areas. A Vegetation Removal Assurance (VRA) will be issued for all projects.
4. Any applicable materials outlined above as part of DNRE permit application.

VEGETATION REMOVAL PROCESS

1. Obtain a copy of Endangered Species Assessment (ESA) preliminary letter from DNRE.
2. Obtain a copy of Critical Dune map for project area and identify site on the map. Maps are available at **http://macd.org/criticaldunes** or **http://michigan.gov/dnresanddunes**
3. Obtain a Vegetation Removal Assurance application packet from participating Conservation District (**http://macd.org/critical-dunes.html**). Review application sheets and fill out pg. 5.
4. File a VRA application with appropriate Conservation District, including;
    - Page 5 of application
    - $250 (base fee)
    - Critical Dune map, with site identified
    - Vicinity map and directions
    - Preliminary ESA letter
    - Site plan - no larger than 11" X 17", including;
        - physical footprint of structures (buildings/walkways/driveways/stairs/septics)
        - setbacks
        - extent of disruption
        - location of trees > 3 inches in diameter at breast height
5. Ensure site is staked (property boundaries, proposed structure corners, septic, well, driveway centerlines and other areas of proposed impact). *The Conservation District will schedule a site visit within 5 business days of receiving completed VRA application packet.*
6. The Conservation District will complete VRA recommendations and return within 5 business days of site visit. *Landowner MUST sign the VRA to validate for DNRE permit use.*
7. Submit a VRA (with all signatures) and other applicable materials to DNRE as part of the DNRE/USACE Joint Permit Application process. Copy and return a duplicate of the VRA (with all signatures) to the Conservation District.
8. Notify the Conservation District when project is completed for a follow up site visit.

ENDANGERED SPECIES ASSESSMENT (AS PART OF VRA PROCESS)

For construction projects that break new ground and/or disturb natural vegetation, a preliminary evaluation of the parcel for threatened or endangered species is required.

1. Go to **http://www.mcgi.state.mi.us/esa/**.
2. Click "Find a Location" on the left.
3. Select a method to search, preferably by address or intersection.
4. Enter search criteria and click "Map It!"
5. Once your site is located on the map, select the identify tool and click on the property location on the map.
6. You can print, save or email the map. *Please submit a copy of the map to the Conservation District.*
7. Search results will appear beneath the map. Click "Request Review" for a formal review.
8. Fill out the required information and click "Submit." Select "Dune" as the habitat.
9. You will receive a tracking ID for your request and receive a confirmation email within one business day. *Please submit a copy of the letter you receive in this email to the Conservation District.*
10. If it was determined that endangered species are **not known to occur** at your location, no further action is needed and you will not receive additional reports from the DNRE. Submit a copy of the letter from your confirmation email with your DNRE permit application. If it was determined that endangered species **are known to occur** at your location, then you will receive a follow-up report later from the DNRE. A copy of the final Endangered Species Assessment report should be submitted to the DNRE with your permit application.

DNRE PRE-APPLICATION MEETING REQUEST PROCESS

The Department of Natural Resources and Environment (DNRE) has established a voluntary process for meeting with staff prior to submitting a permit application under Part 353, Sand Dune Protection and Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. If you would like to request a pre-application meeting with DNRE staff, submit the Pre-application Meeting Request form and applicable information to the local DNRE District office (form available on page # of this document or via **http://michigan.gov/dnresanddunes**).

LOCAL MUNICIPALITIES WITH CDA PERMIT AUTHORITY

The following local units of government have DNRE approved ordinances and are responsible for permit issuance under the Sand Dune Protection and Management Act:

- City of Bridgman (Berrien County)
- James Township (Charlevoix County)
- Peaine Township (Charlevoix County)
- Pere Marquette Township (Mason County)
- Emmet County

Prior to beginning construction, excavation/filling, or installation of any structure, be sure to check for local ordinances and regulations at the township, village, city, and county level to ensure activity is lawful. Certain activities within Critical Dune Areas may also require additional zoning/planning review (e.g., waterfront overlay zoning).

PERMIT PROCESS FOR REGULATED ACTIVITES (continued)

DNRE/USACE JOINT PERMIT APPLICATION PROCESS

1. Obtain a copy of the Joint Application permit, available digitally at **http://michigan.gov/jointpermit** or **http://macd.org/critical-dunes.html**.
2. Complete ALL items in Sections 1 through 9 of the application. Make sure to:
    - Provide Township, Range, Section, and Property Tax ID numbers (Section 1).
    - Provide information for all adjacent and impacted property owners (Section 8).
    - Print your name, sign, and date your application. If applicant is a corporation, include title of authorized representative (Section 9).
3. Complete Section 20 (and Sections 10A, 10B, 10C, 10D, 12, and 21 if applicable to your project).
4. Provide a *plan view* and *cross-section* site-specific drawings adequate for detailed review, including;
    - Overall site plan showing existing lakes, streams, wetlands, *floodplains*, and other water features.
    - Name of waterbodies, location of water well, and property boundaries.
    - Identify areas where slopes are between 25 and 33 percent and greater than 33 percent.
    - Dimensions for all existing and proposed buildings, septic systems, and driveways.
    - Minimum distance (ft.) from crest of dune to proposed or existing buildings or construction activity (ft.).
    - Location and dimensions of areas where trees and other vegetation will be removed.
    - Location and dimensions of proposed grading.
    - Required information if your proposed activities will impact a wetland.
    - Elevation data, including description of reference point or benchmark and corresponding elevation (IGLD for Section 10 waters / NAVD88, NGVD 29 for inland sites).
    - Soil erosion and sedimentation control measures.
5. Provide a vicinity map with the proposed project location, all streets, roads, intersections, highways, or crossroads to the project. Include written directions from a well-known landmark or major intersection.
6. Provide photographs to assist staff in processing application more quickly (labeled with name, date of photograph, description of what they show, and reference to site plan area). Provide aerial photographs (1:400) or larger for major projects.
7. Obtain an authorization letter from the property owner (if someone other than the property owner is signing the application).
8. Ensure site has been staked (property boundaries, proposed structure corners, septic, well, driveway centerlines and other areas of proposed impact).
9. Submit appropriate application pages and all applicable associated documents (vicinity map, site plans, section views, photographs, reproducible versions of maps, elevation data, soil erosion control permit, septic system permit, signed Conservation District VRA, and Endangered Species Assessment report, if applicable).
10. Submit all materials to the local DNRE District office with a Credit Card Transaction Authorization form or Electronic Funds Transfer Authorization form for the appropriate fee. DNRE District office locations can be found at **http://michigan.gov/dnresanddunes**.

For additional application information see DNRE/USACE Joint Application.

DNRE PERMIT APPLICATION FEES UNDER THE AUTHORITY OF PART 353

The Michigan DNRE establishes the permit application fees under the authority of Part 353, Sand Dune Protection and Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. The following fees apply for all permit applications for projects proposed within designated Critical Dune Areas:

$150 - Decks with a cumulative area of 225 square feet or smaller.

$250 - Removal of blow sand to maintain an existing use (5 year permit).
- Installation of retaining walls or other erosion protection devices up to 100 feet in cumulative length.
- Removal of more than 2, but less than 10 trees, not related to a commercial logging activity.
- Decks greater than a cumulative area of 225 square feet.
- Request to modify an existing permit that has not expired.

$600 - Additions, garages, gazebos, and storage buildings.
- Retaining walls and erosion protection devices larger than 100 feet in cumulative length.
- Parking areas not associated with a special use project.
- New, replacement, or maintenance of utilities for a single-family home, including a septic system.
- Removal of 10 or more trees, not related to a commercial logging activity.
- Expansion of any road or driveway.
- Demolition or removal of a building.

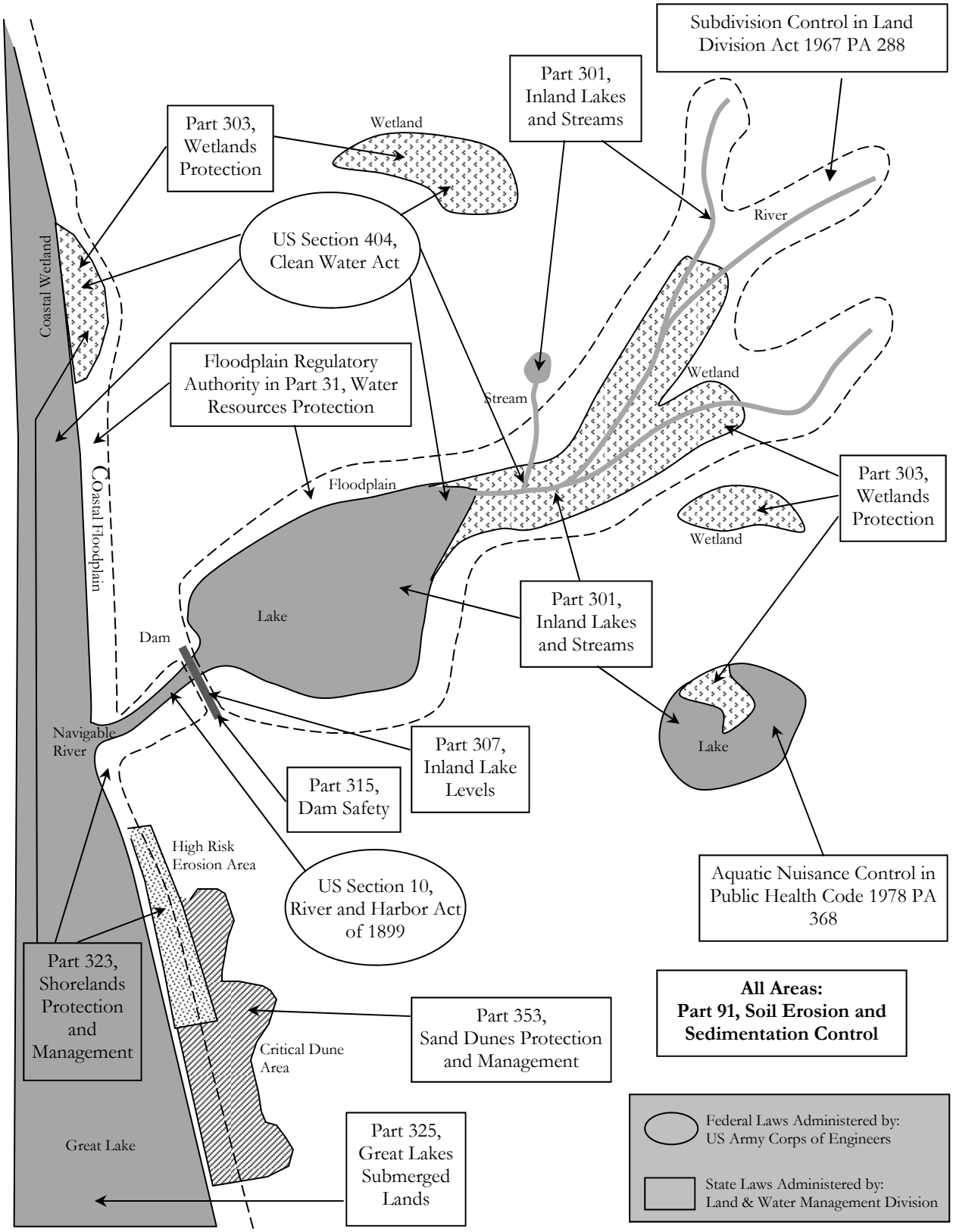
$1300 - All other uses not listed, including:
- Construction of a single family home and associated infrastructure.
- Construction of each additional home, cottage, or guest dwelling on one property.
- Relocation of a single family home and associated infrastructure.
- Construction of a driveway serving one single family home.

$2000 - An industrial or commercial use where the area of impact will be no larger than 1/3 of an acre.

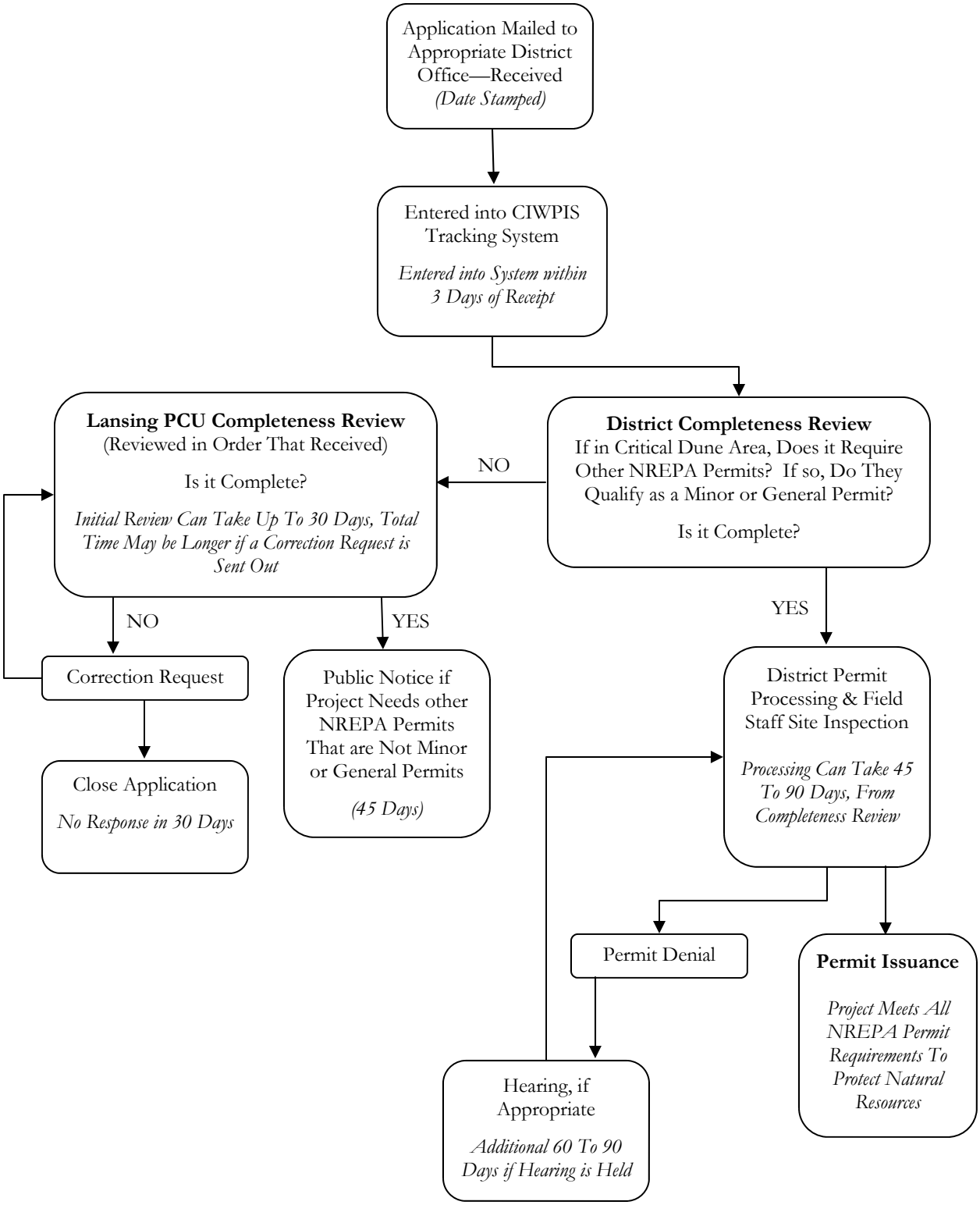
$4000 - Construction of a road or driveway if the road or driveway has the potential to serve a multi-family development of more than two homes or to serve a special use project.
- An industrial or commercial use where the area of impact will be larger than 1/3 of an acre.
- A multifamily use of more than 3 acres.
- A multifamily use of 3 acres or less if the density of use is greater than 4 individual residences per acre.
- A project that would damage or destroy features of archaeological or historical significance.

$2000 - Application for Special Exception (in addition to the above applicable fees).

LAND AND WATER RELATED LAWS IN MICHIGAN



MDNRE CRITICAL DUNE AREA PERMIT PROCESSING FLOW CHART



Vegetation Removal Assurance in Designated Critical Dune Areas

The Critical Dune Areas (CDA) program is administered under the authority of Part 353, Sand Dune Protection and Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. The CDA program protects the extremely fragile areas of Michigan's dunes by promoting the use of design and construction techniques to minimize impacts of uses on the dunes. As defined in part 353, "use" means "*a developmental, silvicultural, or recreational activity done or caused to be done by a person that significantly alters the physical characteristic of a critical dune area or a contour change done or caused to be done by a person.*"

A Michigan Department of Natural Resources and Environment (MDNRE) permit is required for any use within a CDA. Regulated activities include construction of buildings, septic systems, water wells, driveways, all excavation and filling, and vegetation removal within the CDAs. These areas are identified in the "Atlas of Critical Dune Areas" dated February 1989, and adopted by the Michigan Legislature under Part 353.Section 35313(c) requires that all applications for permits for the use of a CDA include in writing: "*assurances that the cutting and removing of trees and other vegetation will be performed according to the instructions or plans of the local soil conservation district. These instructions or plans may include all applicable silvicultural practices as described in the "voluntary forestry management guidelines for Michigan" prepared by the Society of American Foresters in 1987. The instructions or plans may include a program to provide mitigation for the removal of trees or vegetation by providing assurances that the applicant will plant on the site more trees and other vegetation than were removed by the proposed use.*"

As such, the Conservation District must be assured that the cutting and removing of trees and other vegetation will be performed according to these instructions and that no more trees or vegetation are removed from a site than necessary, to be determined by a site review performed by the District. The Conservation District assigns a fee of not less than $250.00 (two hundred and fifty dollars) and $40 per hour after four hours for a site review of a CDA, including one follow-up visit at project completion. The District may reduce the fee if no vegetation is being removed. Refunds will not be issued for projects that are modified or denied by the MDNRE. Modifications that require an additional site visit and new report from the Conservation District will be assessed additional fees. Sites requiring reforestation of native trees and grasses, permit enforcement, and follow-up visits for a period of three years will be assessed additional fees based on a rate of $40.00 per hour.

Prior to site review the District office must receive:

- $250 fee made payable to the _____ **Conservation District.** VRA's requiring time exceeding four hours will be billed at a rate of $40 per hour in addition to the base $250 fee.
- Critical Dune Areas map identifying site
- Vicinity map and directions to site
- For construction projects that ***break new ground and/or disturb natural vegetation***, please request an Endangered Species Assessment from the Michigan Department of Natural Resources and Environment and submit a copy of the preliminary letter that is immediately generated from the website (available at http://www.mcgi.state.mi.us/esa/)
- Site plan (no larger than 11" X 17" please) including:
    - Physical footprint of the development (structural envelope)
    - Setbacks (as required by local zoning ordinances)
    - Extent of disruption of the site (area needed for construction activities, staging, *etc.*)
    - Location of trees greater than 3" dbh
- Site must be staked upon site visit including:
    - Property boundaries
    - Proposed structure corners
    - Septic field
    - Water well
    - Driveway location and other land alterations (pools, decks, *etc.*)

The District will schedule a site review within 5 business days of receiving your completed form, the previously described maps, site plan, and the $250 base fee. By scheduling a site review, Conservation District staff will be allowed full access to the property. District staff will only visit the site after confirming the date and time with the property owner / agent.

During the site review the property owner / agent is encouraged to be present to discuss options and assurance criteria. Upon completion of the site review the Conservation District will provide the property owner / agent with an Assurance, and if necessary, a site plan map with proposed revisions. All assurance materials will be mailed to the property owner / agent within 5 business days after completing the site review.

Assurances are considered complete and valid only after a site review has been completed and the owner / agent have signed the recommendation agreement. A District staff member must sign and date the agreement to validate an assurance and the associated site review. Assurances must be included with submittal of a permit application to the MDNRE. Permits not having an assurance will be assumed to be in "non-compliance" and a letter stating such will be issued from the MDNRE. A letter of non-compliance will also be issued should the property owner remove more trees and/or vegetation than agreed upon within the signed recommendation agreement.

***The property owner / agent must notify the Conservation District upon completion of the proposed construction activities.**

The Conservation District suggests the following general recommendations which the property owner / agent should take into account prior to the site visit. The Conservation District will base site review comments and suggestions on the following recommendations.

REMOVAL

- No removal of vegetation more than 10 feet from proposed building; and no more than 5 feet from proposed decks, along driveways, septic systems, water wells. (This does not apply for exotic species)
- Shortwood harvesting methods should be used (conversion of trees into desired length products at the stump, either by hand with chain saws or by using a mechanized processor which fells, delimbs, and bucks the tree into saw logs, pulpwood sticks, or other products).
- Maintain large diameter trees (greater than 16" dbh)
- Maintain mature trees (seed / mast producing), especially cedar and hemlock
- Maintain trees and shrubs that would improve diversity of the site
- Minimize the amount of edge created
- Maintain tree communities that provide necessary niches within bigger landscape
- Avoid removal of trees / shrubs that may impact unique natural features in the area including: ponds, streams, seeps, springs, parabolic dunes (blow-outs), foredunes, dune ridges, or areas with high densities of wildflowers
- Avoid removal of trees / shrubs in areas that contain endangered or threatened plants (*i.e.*, pitchers thistle); http://web4.msue.msu.edu/mnfi/
- Trees which are removed should be cut off at ground level and stumps left in place

..recommendations continued on next page

PLANTING / STABILIZING

- All areas cleared of vegetation and not impacted by structure (building, driveway, etc.) must be replanted with native vegetation. Species should reflect dune zone (*i.e.*, foredune, secondary / transition dune, stable dune / backdune).

Foredune

Ammophila breviligulata	Marram grass
Calamovilfa longifolia	Sand reed grass
Populus deltoids	Cottonwood
Prunus pumila	Sand cherry
Salix glaucophylloides	Blue willow
Salix myricoides	Blueleaf willow
Vitis aestivalis	Summer grape
Vitis riparia	Riverbank grape

Backdune

Abies balsamea	Balsam fir
Acer rubrum	Red maple
Acer saccharum	Sugar maple
Amelanchier interior	Inland serviceberry
Amelanchier laevis	Smooth serviceberry
Amelanchier sanguinea	Red serviceberry
Amelanchier spicata	Serviceberry
Fagus grandifolia	American beech
Pinus banksiana	Jack pine
Pinus resinosa	Red pine
Pinus strobus	Eastern white pine
Lithospermum croceum	Hairy puccoon
Qurecus velutina	Black oak
Monarda punctata	Horsemint, spotted bee-balm
Thuja occidentalis	Northern white cedar
Tilia americana	American basswood
Tsuga canadensis	Eastern hemlock

Transition Dune

Andropogon scoparius	Little bluestem
Arabis lyrata	Sand cress
Arctostaphylos uva-ursi	Bearberry
Artemisia campestris	Wormwood
Asclepias syriaca	Common milkweed
Cakile edentula	American sea-rocket
Campanula rotundifolia	Harebell, Scottish bellflower
Cirsium pitcheri	Pitcher's thistle
Corispermum hyssopifolium	Bug-seed, tick-seed
Cornus stolonifera (sericea)	Red-osier dogwood
Elymus canadensis	Canada wild rye
Euphorbia corollata	Flowering spurge
Euphorbia polygonifolia	Seaside spurge
Hudsonia tomentosa	False heather
Hypericum kalmianum	St. John's wort
Juniperus communis	Ground juniper
Juniperus horizontalis	Creeping juniper
Juniperus virginiana	Easter red cedar
Lathyrus maritimus	Beach pea
Lathyrus japonicus	Beach peavine
Quercus rubra	Northern red oak
Lithospermum caroliniense	Plains puccoon
Taxus canadensis	American yew
Oenothera biennis	Common evening primrose

- Species should be suited for local soil and climate (temperature, rainfall, hardiness zone)
- Vegetation should be planted with the following spacing / density:
  - Hardwoods: 10' X 10'
  - Conifers: 8' X 8'
  - Shrubs: 6' X 6'
  - Grass plugs: 1' X 1'
- Replacement of a native tree species with the same native tree species (hemlock for hemlock)
- 50% of replacement trees must have a 2" caliper. Other 50% may be seedlings.
- Open areas should be stabilized at the very minimum with the following native grasses: marram grass, little bluestem, sand reed grass, and switch grass (*Panicum virgatum*). Other native grasses and wildflowers should be added to maintain diversity previously present. "Turf grass" is not an appropriate substitute. Species unacceptable for slope stabilization include periwinkle (*Vinca* spp.), myrtle (*Myrtus sommunis*), bugleweed (*Ajuga reptans*), English ivy (*Hedera helix*), sedum (*Sedum* spp.), pachysandra (*Pachysandra* spp.), and other ornamental groundcovers or vines.
- Forested areas should have forest litter (organic debris) continually added to soil surface and wetted to diminish soil movement during construction.
- Replacement vegetation should be maintained for minimum of 5 (five) years. Vegetation that dies through natural or man-made causes should be replaced.

Individuals are encouraged to contact the Conservation District for assistance and species recommendations if species are not identified within the assurance agreement.

GLOSSARY OF TERMS

Backdune: behind the transition dune, usually forested, provides shade, cool temperatures and moist soil for its inhabitants

Caliper: diameter of the stem 6 inches above the nursery planting line

Contour: an imaginary line on the land surface that connects points of equal elevation

Corridor: a connection between two patches of habitat that allows for the safe travel of individuals between the patches.

Critical dune area (CDA): dunes composed of wind deposited sand that are at least 20 feet in height, contain dune -associated plant communities, extend no farther than 2 miles inland of a Great Lake

DBH: diameter at breast height; diameter of the trunk at 4.5 feet off the ground

Edge effect: a condition in which otherwise suitable habitat becomes less suitable for a species because it is adjacent to non-habitat land. This degradation of habitat may occur due to predation from species that live outside of the patch, or increased competition with species that live outside the habitat patch.

Endangered species: a species that is in danger of extinction throughout all or a significant portion of its range

Foredune: area directly behind the beach, stabilized by grasses such as marram grass and sand reed grass, sand is subjected to shifting by water and wind

Fragmentation: the process whereby a large patch of habitat is broken down into many smaller patches of habitat, resulting in a loss in the amount and quality of habitat.

Hardiness zone: a geographic area, established by the U.S. Department of Agriculture, that contains a range of average minimum winter temperatures

MDNRE: Michigan Department of Natural Resources and Environment; state agency that administers the Michigan Critical Dune Law (Part 353) and has the authority to issue permits under this law

Mitigation: measures taken to reduce adverse effects on the environment

Niche: a unique ecological role of an organism in a community

Pulpwood sticks: wood suitable for use in paper manufacturing, typically 4-10” DBH, usually cut into 8 foot sections

Saw logs: a log large enough to be cut into lumber, typically at least 10-12” DBH, usually cut into 8 or 16 foot sections

Silviculture: the art and science of controlling the establishment, composition and growth of vegetation in a forest

Threatened species: a species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range

Transition dune: also called the trough, a depression formed between the foredune and backdune by the action of wind, often fills with groundwater forming interdunal ponds

For Office Use Only:

District Office:	
Application Rec'd:	
Site Visit:	
Mailed:	
Follow Up:	

Vegetation Removal Assurance in Designated Critical Dune Areas

Project Location:

Address:	County:	Subdivision/Plot:	Lot Number:
Township:	Town/Range:	Section:	

Applicant Information:

Applicant or Agent:	Company Name:	
Mailing Address:		
City:	State:	Zip Code:
Daytime Phone Number:	Fax Number:	E-mail Address:

Property Owner (if different from Applicant)		
Mailing Address:		
City:	State:	Zip Code:
Daytime Phone Number:	Fax Number:	E-mail Address:

Contractor:	Address:	
City:	State: Zip:	Phone:
Excavator:	Address:	
City:	State: Zip:	Phone:

Project Description

Please provide a brief description of proposed activities including impacts to vegetation:	**Estimated Project Time Frame**
	Start Date:
	End Date:

Driving directions from District office:

Assurance: *(section to be completed by the Conservation District staff)*

The Conservation District must have assurances that the cutting and removal of trees and other vegetation, as well as planting/stabilizing, will be performed according to District recommendations and site plan modifications listed below.	
☐ **Vegetation Removal Assurance Waiver**	☐ **Vegetation Removal Assurance with Recommendations**

Assurance Agreement: DO NOT SIGN PRIOR TO CONSERVATION DISTRICT SITE REVIEW
Your signature indicates that you have reviewed and understand the assurance guidelines provided and agree to follow the best management practices and any additional recommendations provided by the Conservation District.

Property Owner / Agent Signature:	Printed Name:
Title:	Date:

Conservation District:	
Conservation District Representative Signature:	Printed Name:
Title:	Date:

JOINT PERMIT APPLICATION

U.S. ARMY CORPS OF ENGINEERS (USACE)
Detroit District Office
Phone: 313-226-2218, Fax: 313-226-6763
Website: www.lre.usace.army.mil

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY (MDEQ)
Land and Water Management Division (LWMD)
Phone: 517-373-9244, Fax: 517-241-9003
Website: www.michigan.gov/deq

The MDEQ, LWMD, regulates activities under the following Parts of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. The regulated activities are summarized in Appendix D. The complete statutes and rules can be downloaded from our website at www.michigan.gov/jointpermit.

- Part 301, Inland Lakes and Streams
- Part 303, Wetlands Protection
- Part 325, Great Lakes Submerged Lands
- Floodplain Regulatory Authority found in Part 31, Water Resources Protection
- Part 353, Sand Dunes Protection and Management
- Part 323, Shorelands Protection and Management
- Part 315, Dam Safety

The USACE has the authority to regulate activities within the waters of the United States under the following statutes:

- Section 10, Rivers and Harbors Act of 1899 (33 U.S.C. 403)
- Section 404, Clean Water Act of 1977 (33 U.S.C. 1344)

Before you apply, consider an Optional LWMD Pre-application Meeting for files regulated under Parts 301 and 303 available for a fee or in some cases free. For more information go to our website at www.michigan.gov/jointpermit

DIRECTIONS for completing the Joint Permit Application

For additional guidance go to the "Joint Permit Application Training Manual" link or EZ Guides for small projects designed for the average home owner on our website at www.michigan.gov/jointpermit.

Complete all items in Sections 1 through 9 on pages 1 and 2 of the application:

Make sure you:

- ❑ Provide the Township, Range, Section, and Property Tax Identification Numbers required in Section 1.
- ❑ Provide the requested information for all adjacent and impacted property owners in Section 8.
- ❑ Print your name and sign and date your application in Section 9. If applicant is a corporation, include title of authorized representative.
- ❑ Provide a letter of authorization if the legal property owner is not the individual who signs the application. A letter of authorization is a letter from the legal landowner(s) authorizing the applicant or agent to apply for the project. The letter should include the signature from the landowner, the project site address, and a brief project description.

Complete project-specific information:

- ❑ Complete items in Sections 10 through 21 on pages 3 through 7 that apply to your project. Follow the instructions at the beginning of each section. The instructions for each sample drawing in Appendix B indicate the application sections you will most likely need to complete. Utilize the application form as much as possible before adding attachments to save on paper resources and to make the review more efficient.

Provide maps and drawings with adequate detail for review. Refer to Appendix B of the application and/or www.michigan.gov/jointpermit for sample drawings.

- ❑ Vicinity Map:
  - A map to the proposed project location that includes ALL streets, roads, intersections, highways, or cross-roads to the project. Include written directions from a well-known landmark or major intersection. Do not assume field staff knows where your project is.
- ❑ Project Site Plan:
  - Overhead drawings to scale or including dimensions, length and width, of the proposed project are required.

- ❑ Section Views (cross and profile to scale or including dimensions, length, width, and height):
  - Cross sectional drawings of the proposed projects are required.
- ❑ Provide descriptive photographs of the proposed work site showing vegetation if wetlands are involved or the shoreline for shore protection projects. All photographs must be labeled with your name and the date of the photograph, indicate what they show, and be referenced to the site plan. Proposed activities or structure(s) may be indicated directly on the photographs using indelible markers or ink pens. Provide aerial photographs 1:400 or larger for major proj*ects.*
- ❑ Provide a reproducible version of maps and drawings if the originals are supplied in color.
- ❑ Elevation data must include a description of the reference point or benchmark used and its corresponding elevation. For projects on the Great Lakes or Section 10 Waters, elevations must be provided in IGLD 85. For observed Great Lake water elevations in IGLD, visit the USACE website under "water levels". If elevations are from still water, provide the observation date and water elevation. On inland sites, elevations can use NAVD 88, NGVD 29, a local datum or an assumed bench mark. The state building code requires an Elevation Certificate for any building construction or addition in the floodplain. A sample form can be found at www.fema.gov/nfip/elvinst.shtm

Flagging/staking project sites and project impacts:

- ❑ Flag the area for site inspection including the property corners, proposed road or driveway centerlines, and areas of proposed impacts. Site must be flagged at the time the application is submitted. A site visit will not be completed or action taken if the project is not flagged.

To prevent processing delays, make sure all the following items are mailed to the LWMD at the address below, label each attachment with applicant's name and date:

- ❑ Pages 1 and 2 of the application.
- ❑ Pages 3 through 7, as applicable, of the application. Do not submit blank application pages. Submit only those pages where you have provided information.
- ❑ The Site Location Map, Overall Site Plan, Plan View and Cross-Section Drawings, Photographs, and additional information sheets on 8.5" x 11", 8.5" x 14", or 11" x 17" paper suitable for photocopying for public notice purposes. Aerial photographs do not substitute for site plans. If larger drawings or blueprints are required to show adequate detail for review, you may also submit 2 full size copies. The USACE requires one set of drawings on 8.5" x 11" paper, with all notations clearly legible. Larger supplemental drawings may be submitted, as well.
- ❑ An authorization letter from the property owner if someone other than the property owner is signing the application.
- ❑ A check made payable to the **State of Michigan**. Fees typically range from $50.00 to $4,000.00 depending on the type of project. Refer to Appendix C of the application and/or visit our website at http://www.michigan.gov/jointpermit to determine the appropriate fee for your project and to download a form for credit card or electronic transfer payment.

- ❑ Mail to:

  MDEQ
  LWMD-PCU
  P.O. BOX 30204
  LANSING, MI 48909-7704

  DEQ-LWM-PCU@michigan.gov

- ❑ Public Agencies eligible to receive federal and/or state transportation funding for a project involving public roadways, non-motorized paths, airports, or related facilities, do not require an application fee and should submit applications to:

  MDEQ
  LWMD-TFHU
  P.O. Box 30458
  Lansing, MI 48909-7958

APPENDICES

Application status can be viewed on the MDEQ website at www.deq.state.mi.us/CIWPIS. During the application period, if any information is missing from the application or if any clarification is needed regarding materials provided, the application is incomplete and MDEQ staff will request the information from the applicant/agent by letter, email, fax or phone call. Once the MDEQ/LWMD has received the information necessary for review of the project, including a thoroughly completed application, consistent drawings that have adequate detail for review and the full application fee, the file will be reviewed for final processing. A mailed postcard or a public notice will provide the file number and the telephone number of the office where the application is being processed. The review time to determine if an application is complete for processing ranges from 15 to 30 days. Technical processing times, after the application is administratively complete, may range from 60 to 90 days. Processing times will be longer if a public hearing is held. A LWMD staff person from your local District/Field Office may visit the project site and may request additional information prior to a decision on the permit. Application fees are not refundable or transferable.

If a federal permit will also be required, a copy of the permit application will be sent to the Detroit District Office, USACE, for processing at the federal level. Additional copies of this application form can be downloaded from the MDEQ website at www.michigan.gov/jointpermit or can be photocopied from the original. If you have any questions about the permitting process or if you need to modify your application, you can contact the LWMD by phone, fax, at the addresses on the previous page, or email at DEQ-LWM-PCU@michigan.gov.

AGENCY USE				AGENCY USE
	Previous USACE Permit or File Number	Date Received	Land and Water Management Division, MDEQ File Number	
	USACE File Number		Pre-application Number or Marina Operating Permit Number	
	District Office		Fee received $	

Read Instructions pages i - iii. All of the following boxes below must be checked and information provided for the application to be processed:

- ☐ **All items in Sections 1 through 9 are completed**
- ☐ **Items in Sections 10 through 21 that apply to the project are completed**
- ☐ **Dimensions, volumes and calculations are provided**
- ☐ **Date project was staked**
- ☐ **Application fee is attached**
- ☐ **All requested supplementary attachments (➡) are included**
- ☐ **Reproducible location map, site plan(s), cross sections and photographs are provided, one set must be black and white on 8 ½ by 11 inch paper.**
- ☐ **List any additional attachments, tables, etc.:**

1 PROJECT LOCATION INFORMATION

- Refer to your property's legal description for the Township, Range, and Section information, and your property tax bill for your Property Tax Identification Number(s).

Site location Address (road, if no street address)	Zip Code	Township Name(s)	Township(s)	Range(s)	Section(s)

City/Village	County(ies)	Property Tax Identification Number(s)	

Name of Waterbody	Project Name or Job Number	Subdivision/Plat	Lot Number	Private Claim

Project types (check all that apply)
☐ private ☐ public/government ☐ industrial ☐ commercial ☐ multi-family
☐ building addition ☐ new building or structure ☐ building renovation or restoration ☐ river restoration ☐ single-family
☐ project is receiving federal transportation funds ☐ other (explain)

The proposed project is on, within, or involves (check all that apply)
☐ a legally established County Drain (date established) (M/D/Y) / /

☐ a stream	☐ a pond (less than 5 acres)	☐ a Great Lake or Section 10 Waters	☐ a natural river	☐ a new marina
☐ a river	☐ a channel/canal	☐ a designated high risk erosion area	☐ a dam	☐ a structure removal
☐ a ditch or drain	☐ an inland lake (5 acres or more)	☐ a designated critical dune area	☐ a wetland	☐ a utility crossing
☐ a floodway area	☐ a 100-year floodplain	☐ a designated environmental area	☐ 500 feet of an existing waterbody	

2 DESCRIBE PROPOSED PROJECT AND ASSOCIATED ACTIVITIES, AND THE CONSTRUCTION SEQUENCE AND METHODS (attached additional sheets)

Written Summary of All Proposed Activities.

Construction Sequence and Methods.

3 APPLICANT, AGENT/CONTRACTOR, AND PROPERTY OWNER INFORMATION

Owner/Applicant (individual or corporate name)	Agent/Contractor (firm name and contact person)
Mailing Address	Address
City State Zip Code	City State Zip Code
Daytime Phone Number with Area Code Cell Phone Number - - - -	Daytime Phone Number with Area Code Cell Phone Number - - - -
Fax - - E-mail	Fax - - E-mail

☐ No ☐ Yes Is the applicant the sole owner of all property on which this project is to be constructed and all property involved or impacted by this project?
➡ If no, attach letter(s) of authorization from all owners. A letter signed by each property owner authorizing the agent/contractor/other owner to act on his or her behalf or a copy of easements or right-of-ways must be provided. If multiple property owners, also attach a list of all owners along with their names, mailing addresses, and telephone numbers. If the applicant is a corporation, a corporate officer must provide written document authorizing any agent/contractor listed above to act on its behalf.
A letter of authorization must be provided from an owner receiving dredge spoils on their property, or where access through their property is required..

Property Owner's Name (If different from applicant)	Mailing Address
Daytime Phone Number with Area Code Cell Phone Number - - - -	City State Zip Code

☐ No ☐ Yes Is there a MDEQ conservation easement or other easement, deed restriction, lease, or other encumbrance upon the property in the project area?
➡ If yes, attach a copy.

4 PROPOSED PROJECT PURPOSE, INTENDED USE, AND ALTERNATIVES CONSIDERED (Attach additional sheets if necessary)

Purpose/Intended Use: The purpose must include any new development or expansion of an existed land use.

Alternatives: Include a description of alternatives considered to avoid or minimize resource impacts. Include factors such as, but not limited to, alternative construction technologies; alternative project layout and design; and alternative locations. For utility crossings, include both alternative routes and alternative construction methods.

5 LOCATING YOUR PROJECT SITE

➡Attach a black and white, legible copy of a map that clearly shows the site location and road from the nearest major intersection, and includes a north arrow.

Is there an access road to the project? ☐ No ☐ Yes (If Yes, type of road, check all that apply) ☐ private ☐ public ☐ improved ☐ unimproved

Name of roads at closest main intersection and

Directions from main intersection

Style of house or other building on site ☐ ranch ☐ 2-story ☐ cape cod ☐ bi-level ☐ cottage/cabin ☐ pole barn ☐ none ☐ other (describe)

Color Color of adjacent property house and/or buildings House number Street name

Fire lane number Lot number Address is visible on ☐ house ☐ garage ☐ mailbox ☐ sign ☐ other (describe)

How can your site be identified if there is no visible address?

Provide directions to the project site, with distances from the best and nearest visible landmark and waterbody

Does the project cross the boundaries of two or more political jurisdictions? (City/Township, Township/Township, County/County, etc.)

☐ No ☐ Yes ➡ If Yes, list jurisdictions:

6 List all other federal, interstate, state, or local agency authorizations required for the proposed activity, including all approvals or denials received.

Agency	Type approval	Identification number	Date applied	Date approved / denied	If denied, reason for denial

7 COMPLIANCE

If a permit is issued, date activity will commence (M/D/Y) / /

Proposed completion date (M/D/Y) / /

Has any construction activity commenced or been completed in a regulated area? ☐ No ☐ Yes

➡If Yes, identify the portion(s) underway or completed on drawings or attach project specifications and give completion date(s) (M/D/Y) / /

Were the regulated activities conducted under a MDEQ permit? ☐ No ☐ Yes

If Yes, list the MDEQ permit number

Are you aware of any unresolved violations of environmental law or litigation involving the property? ☐ No ☐ Yes (If Yes, explain)

8 ADJACENT/RIPARIAN AND IMPACTED OWNERS (Attach additional sheets if necessary)

- Complete information for all adjacent and impacted property owners and the lake association or established lake board, including the contact person's name.
- If you own the adjacent lot, provide the requested information for the first adjacent parcel that is not owned by you.

Property Owner's Name	Mailing Address	City	State	Zip Code

Name of ☐ Established Lake Board ☐ or Lake Association and the Contact Person's name, phone number, and mailing address

9 APPLICANT'S CERTIFICATION READ CAREFULLY BEFORE SIGNING

I am applying for a permit(s) to authorize the activities described herein. I certify that I am familiar with the information contained in this application; that it is true and accurate; and, to the best of my knowledge, that it is in compliance with the State Coastal Zone Management Program. I understand that there are penalties for submitting false information and that any permit issued pursuant to this application may be revoked if information on this application is untrue. I certify that I have the authority to undertake the activities proposed in this application. By signing this application, I agree to allow representatives of the MDEQ, USACE, and/or their agents or contractors to enter upon said property in order to inspect the proposed activity site and the completed project. I understand that I must obtain all other necessary local, county, state, or federal permits and that the granting of other permits by local, county, state, or federal agencies does not release me from the requirements of obtaining the permit requested herein before commencing the activity. I understand that the payment of the application fee does not guarantee the issuance of a permit.

☐ Property Owner ☐ Agent/Contractor ☐ Corporation/Public Agency – Title	Printed Name	Signature	Date (M/D/Y) / /

10 PROJECTS IMPACTING WETLANDS OR FLOODPLAINS OR LOCATED ON AN INLAND LAKE OR STREAM OR A GREAT LAKE

- Check boxes A through M that may be applicable to your project and provide all the requested information.
- If your project may affect wetlands, also complete Section 12. If your project may impact regulated floodplains, also complete Section 13.
- To calculate volume in cubic yards (cu yd), multiply the average length in feet (ft) times the average width (ft) times the average depth (ft) and divide by 27.
- Some projects on the Great Lakes require an application for conveyance prior to Joint Permit Application completeness.

➡Provide a cross-section and overall site plan showing existing lakes, streams, wetlands, and other water features; existing structures; and the location of all proposed structures, land change activities and soil erosion and sedimentation control measures. Review Appendix B and EZ Guides for completing site-specific drawings.

➡Provide tables for multiple impact areas or multiple activities and provide fill and excavation/dredge calculations.

Water Level Elevation

On a Great Lake use IGLD 85 ☐ surveyed ☐ converted from observed still water elevation. On inland waters, ☐ NGVD 29 ☐ NAVD 88 ☐ other

Observed water elevation (ft) date of observation (M/D/Y)

☐ A. PROJECTS REQUIRING FILL (See All Sample Drawings)

- Attach both overall site plan and cross-section views to scale showing maximum and average fill dimensions.

(Check all that apply) ☐ floodplain fill ☐ wetland fill ☐ riprap ☐ seawall, bulkhead, or revetment ☐ bridge or culvert
☐ boat launch ☐ off-shore swim area ☐ beach sanding ☐ boatwell ☐ crib dock ☐ other

Fill dimensions (ft) length width maximum depth	Total fill volume (cu yd)	Maximum water depth in fill area (ft)

Type of clean fill ☐ pea stone ☐ sand ☐ gravel ☐ wood chips ☐ other

Will filter fabric be used under proposed fill? ☐ No ☐ Yes (If Yes, type)

Source of clean fill ☐ on-site, ➡If on-site, show location on site plan. ☐ commercial ☐ other, ➡If other, attach description of location.

Fill will extend feet into the water from the shoreline and upland feet out of the water. | Fill volume below OHWM (cu yd)

☐ B. PROJECTS REQUIRING DREDGING OR EXCAVATION (For dredging projects see Sample Drawing 7, for excavation see other applicable Sample Drawings)

- Attach both overall site plan and cross-section views to scale showing maximum and average dredge or excavation dimensions and dredge disposal location.
- Refer to www.michigan.gov/jointpermit for disposal requirements and authorization.

(Check all that apply) ☐ floodplain excavation ☐ wetland dredge or draining ☐ seawall, bulkhead, or revetment
☐ navigation ☐ boat well ☐ boat launch ☐ other

Total dredge/excavation volume (cu yd)	Dimensions length width depth	Dredge/excavation volume below OHWM (cu yd)	Method and equipment for dredging

Has proposed dredge material been tested for contaminants? ☐ No ☐ Yes
➡If Yes, provide test results with a map of sampling locations.

Dredged or excavated spoils will be placed ☐ on-site ☐ off-site.
➡Provide detailed disposal area site plan and location map.
➡Provide letter of authorization from owner, if disposing of spoils off site.

Has this same area been previously dredged? ☐ No ☐ Yes If Yes, date and permit number: / / /
If Yes, are you proposing to enlarge the previously dredged area? ☐ No ☐ Yes

Is long-term maintenance dredging planned? ☐ No ☐ Yes If Yes, when and how much?

☐ C. PROJECTS REQUIRING RIPRAP (See Sample Drawings 2, 3, 8, 12, 14, 17, 22, and 23. Others may apply)

Riprap waterward of the ☐ shoreline OR ☐ ordinary high water mark	Dimensions (ft) length width depth	Volume(cu yd)
Riprap landward of the ☐ shoreline OR ☐ ordinary high water mark	Dimensions (ft) length width depth	Volume(cu yd)

Type of riprap ☐ field stone ☐ angular rock ☐ other

Will filter fabric be used under proposed riprap? ☐ No ☐ Yes (If Yes, type)

☐ D. SHORE PROTECTION PROJECTS (See Sample Drawings 2, 3, and 17) Complete Sections 10A, B, and/or C above, as applicable.

(check all that apply) ☐ riprap – length (ft) ☐ seawall/bulkhead – length (ft) ☐ revetment – length (ft) | Distances of project from both property lines (ft)

☐ E. DOCK - PIER – MOORING PILINGS – ROOFS (See Sample Drawing 10)

Dock Type ☐ open pile ☐ filled ☐ crib
Seasonal support structure? ☐ No ☐ Yes

Permanent Roof? ☐ No ☐ Yes Mounted on
Maximum Dimensions: length width height

Proposed structure dimensions (ft) length width

Dimensions of nearest adjacent structures (ft) length width

☐ F. BOAT WELL (See EZ Guides)

Type of sidewall stabilization ☐ wood ☐ steel ☐ concrete ☐ vinyl ☐ riprap ☐ other

Boat well dimensions (ft) length width depth	Number of boats
Volume of backfill behind sidewall stabilization (cu yd)	Distances of boat well from adjacent property lines (ft)

☐ G. BOAT LAUNCH (See EZ Guide) (check all that apply) ☐ new ☐ existing ☐ public ☐ private ☐ commercial ☐ replacement

Proposed overall boat launch dimensions (ft) length width depth	Type of material ☐ concrete ☐ wood ☐ stone ☐ other	
Existing overall boat launch dimensions (ft) length width depth	Boat launch dimensions (ft) below ordinary high water mark length width depth	
Distances of launch from both property lines (ft)	Number of adjacent Skid piers	Skid pier dimensions (ft) length width

☐ H. BOAT HOIST (See EZ Guide)

(Check all that apply) ☐ *seasonal* ☐ permanent ☐ cradle ☐ side lifter ☐ other | located on ☐ *seawall* ☐ *dock* ☐ bottomlands

10 Continued - PROJECTS IMPACTING WETLANDS OR FLOODPLAINS OR LOCATED ON AN INLAND LAKE OR STREAM OR A GREAT LAKE

I. BOARDWALKS AND DECKS IN ☐ WETLANDS - OR - ☐ FLOODPLAINS (See Sample Drawings 5 and 6. Provide table if necessary)

Boardwalk ☐ on pilings ☐ on fill	Dimensions (ft) length width	Deck ☐ on pilings ☐ on fill	Dimensions (ft) length width

☐ **J. INTAKE PIPES** (See Sample Drawing 16) ☐ **OUTLET PIPES** (See Sample Drawing 22)

Type ☐ headwall ☐ end section ☐ pipe ☐ other	If outlet pipe, discharge is to ☐ wetland ☐ inland lake ☐ stream, drain, or river ☐ Great Lake ☐ other	
Dimensions of headwall OR end section (ft) length width depth	Number of pipes	Pipe diameters and invert elevations

☐ **K. MOORING AND NAVIGATION BUOYS** (See EZ Guide for Sample Drawing)

➡ Provide an overall site plan showing the distances between each buoy, distances from the shore to each buoy, and depth of water at each buoy in feet.

➡ Provide cross-section drawing(s) showing anchoring system(s) and dimensions.

Number of buoys	Boat Lengths	Type of anchor system	Purpose of buoy ☐ mooring ☐ navigation ☐ swimming
Dimensions of buoys (ft) width height swing radius chain length		Do you own the property along the shoreline? ☐ No ☐ Yes ➡ Attach Authorization Letter from the property owner(s), if No above.	

☐ **L. FENCES IN WETLANDS, STREAMS, OR FLOODPLAINS** (No Sample Drawing available)

- Provide an overall site plan showing the proposed fencing through wetlands, streams, or floodplains.
- Provide drawing of fence profile showing the design, dimension, post spacing, board spacing, and distance from ground to bottom of fence.

(check all that apply) ☐ wetlands ☐ streams ☐ floodplains	Total length (ft) of fence through wetlands streams floodplains	Fence height (ft)	Fence type and material

☐ **M. OTHER** - e.g., structure removal or construction, breakwater, aerator, fish shelter, and structural foundations in wetlands or floodplains

11 EXPANSION OF AN EXISTING OR CONSTRUCTION OF A NEW LAKE OR POND (See Sample Drawings 4 and 15)

Which best describes your proposed waterbody use (check all that apply)
☐ wildlife ☐ stormwater retention basin ☐ recreation ☐ wastewater basin ☐ other

Water source for lake/pond
☐ groundwater ☐ natural springs ☐ Inland Lake or Stream ☐ stormwater runoff ☐ pump ☐ sewage ☐ other

Location of the lake/basin/pond ☐ floodplain ☐ wetland ☐ upland

Maximum dimensions (ft) length width depth Maximum Area: ☐ acres ☐ sq ft	Spoils will be placed ☐ onsite ☐ offsite outside of wetland and floodplain ☐ other ➡ Provide a Detailed Disposal Area Site Plan with location map, address and disposal dimensions ➡ Provide a Letter of Authorization from off site disposal site owner ➡ Provide elevations and cross sections for outlets and/or emergency. Complete Section 10J,

Will project involve construction of a dam, dike, outlet control structure, or spillway? ☐ No ☐ Yes (If Yes, complete Section 17)

12 ACTIVITIES THAT MAY IMPACT WETLANDS (See Sample Drawings 8 & 9, and complete sections 10 A and 10 B for dredge or excavation as applicable)

- For information on the MDEQ's Wetland Identification Program (WIP) visit www.michigan.gov/deqwetlands or call 517-373-1170.
- Complete the wetland dredge and wetland fill dimension information below for each impacted wetland area. ➡ Attach tables for multiple impact areas or activities
- Label the impacted wetland areas on a site plan, drawn to scale or with dimensions. ➡ Attach at least one cross-section for each wetland dredge and/or fill area.
- If dredge/excavation material will be disposed of on site, show the location on site plan and include soil erosion and sedimentation control measures.

(check all that apply) ☐ fill (Section 10A) ☐ dredge or excavation (Section 10B) ☐ boardwalk or deck (Section 10I) ☐ dewatering ☐ fences (Section 10L) ☐ bridges and culverts (Section 14) ☐ draining surface water ☐ stormwater discharge ☐ restoration ☐ other

wetland dredge/excavation dimensions	maximum length (ft)	maximum width (ft)	dredge/excavation area ☐ acres ☐ sq ft	average depth (ft)	dredge volume (cu yd)
wetland fill dimensions	maximum length (ft)	maximum width (ft)	fill area ☐ acres ☐ sq ft	average depth (ft)	fill volume (cu yd)

Total wetland dredge/excavation area ☐ acres ☐ sq ft	Total wetland dredge/excavation volume (cu yd)	Total wetland fill area ☐ acres ☐ sq ft	Total wetland fill volume (cu yd)

The proposed project will be serviced by: ☐ public sewer ☐ private septic system ➡ Show system on plans	If septic system, has an application for a permit been made to the County Health Department? ☐ No ☐ Yes	If Yes, has a permit been issued? ☐ No ☐ Yes ➡ Provide a copy.
Has a professional wetland delineation been conducted for this parcel? ☐ No ☐ Yes ➡ Provide a copy of the delineation. ➡ Supply data sheets.		Applicant purchased property ☐ before OR ☐ after October 1, 1980.

Is there a recorded MDEQ easement on the property? ☐ No ☐ Yes If Yes, provide the easement number)

Has the MDEQ conducted a wetland assessment for this parcel? ☐ No ☐ Yes ➡ If Yes, provide a copy of assessment or WIP number:

Describe the wetland impacts, the proposed use or development, and any alternatives considered:

Does the project impact more than 1/3 acre of wetland? ☐ No ☐ Yes
➡ If Yes, submit a Mitigation Plan that includes the type and amount of mitigation proposed. For more information go to www.michigan.gov/deqwetlands

Describe how impacts to waters of the United States will be avoided and minimized:

Describe how impact to waters of the United States will be compensated. OR Explain why compensatory mitigation should not be required for the proposed impacts.

Is any grading or mechanized land clearing proposed? ☐ No ☐ Yes ➡ Show locations on submitted site plan.	Has any of the proposed grading or mechanized land clearing been completed? ☐ No ☐ Yes ➡ Show labeled locations on site plan.

13 FLOODPLAIN ACTIVITIES (See Sample Drawing 5. Others may apply.) For more information go to www.michigan.gov/deqfloodplainmanagement

- Complete Sections 10 A and 10 B and other Sections, as applicable.
- A hydraulic analysis or hydrologic analysis may be required to fully assess floodplain impacts. ➡ Attach hydraulic calculations.

➡ Attach additional sheets or tables with the requested information when multiple floodplain activities are included in this application.

(check all that apply) ☐ fill ☐ excavation ☐ other

Site is feet above ☐ ordinary high water mark (OHWM) OR ☐ observed water level. Date of observation (M/D/Y) / /

Fill volume below the 100-year floodplain elevation (cu yd)	Compensating cut volume below the 100-year floodplain elevation (cu yd)

14 BRIDGES AND CULVERTS (Including Foot and Cart Bridges) (See Sample Drawings 5, 14A, 14B, 14C, 14D, and EZ Guides)

- Provide detailed site-specific drawings of existing and proposed Plan and Elevation View, (Sample Drawing 14A), Elevation View (Sample Drawing 14B), Stream and Floodplain Cross-Section (Sample Drawing 14C), Stream Profile (Sample Drawing 14D) and Floodplain Fill (Sample Drawing 5) at a scale adequate for detailed review.
- Provide the requested information that applies to your project. If there is not an existing structure, leave the "Existing" column blank.
- If you choose to have a Licensed Professional Engineer "certify" that your project will not cause a "harmful interference" for a range of flood discharges up to and including the 100-year flood discharge, then you must use the "Required Certification Language." You may request a copy by phone, email, or mail. A hydraulic report supporting this certification may also be required. Is Certification Language attached? ☐ No ☐ Yes

➡ Attach additional sheets and table with the requested information for multiple crossings. Include hydraulic calculations.

		Existing	Proposed			Existing	Proposed
Culvert type (box, circular, arch) and material (corrugated metal, timber, concrete, etc.)				Bridge span (length perpendicular to stream) OR culvert ☐ width ☐ diameter (ft)			
Bridge type (concrete box beam, timber, concrete I-beam, etc.)				Bridge width (parallel to stream) OR culvert length (ft)			
Entrance design (projecting, mitered, wingwalls, etc.)				Bridge rise (from bottom of beam to streambed) OR Culvert rise (fill from top of culvert to streambed) (ft)			
Total structure waterway opening above streambed (sq ft)				Approach slope fill from existing grade to culvert or bridge			
☐ elevation of culvert crown	Upstream			Higher elevation of ☐ culvert invert OR	Upstream		
☐ bottom of bridge beam (ft)	Downstream			☐ streambed within culvert (ft)	Downstream		
Elevation of road grade at structure (ft)				Distance from low point of road to mid-point of bridge crossing (ft)			
Elevation of low point in road (ft)							

Cross-sectional area of primary channel (sq ft) (See Sample Drawing 14C)	Average stream width at OHWM outside the influence of the structure (ft)	Upstream Downstream

Reference datum used (show on plans with description) ☐ NGVD 29 ☐ NAVD 88 ☐ IGLD 85 (Great Lakes coastal areas) ☐ other

High water elevation – describe reference point and highest known water level above or below reference point and date of observation.

15 STREAM, RIVER, OR DRAIN CONSTRUCTION ACTIVITIES (No sample drawing available)

- Complete Section 10A for fill, Section 10B for dredge or excavation, and Section10C for riprap activities.
- If side casting or other proposed activities will impact wetlands or floodplains, complete Sections 12 and 13, respectively.

➡ Provide an overall site plan showing existing lakes, streams, wetlands, and other water features; existing structures; and the location of all proposed structures and land change activities.

➡ Provide cross-section (elevation) drawings necessary to clearly show existing and proposed conditions. Be sure to indicate drawing scales.

➡ For activities on legally established county drains, provide original design and proposed dimensions and elevations.

(check all that apply) ☐ maintenance ☐ improvement ☐ relocation ☐ enclosure ☐ new drain ☐ wetlands ☐ other

Dimensions (ft) of existing stream/drain channel to be worked on. length width depth

Dimensions (ft) of new, relocated, or enclosed stream/drain channel. length width depth	Volume of dredge/ excavation (cu yds)
Existing channel average water depth in a normal year (ft)	Proposed side slopes (vertical / horizontal)

How will slopes and bottom be stabilized?

Will old/enclosed stream channel be backfilled to top of bank grade? ☐ No ☐ Yes	Length of channel to be abandoned (ft)	Volume of fill (cu yds)

If an enclosed structure is proposed, check type ☐ concrete ☐ corrugated metal ☐ plastic ☐ other
Dimensions of the structure: diameter length volume of fill

Will spoils be disposed of on site? ☐ No ☐ Yes ➡ Show location of spoils on site plan if spoils disposed of on an upland area.)

Water elevation Reference datum used ☐ NGVD 29 ☐ NAVD 88 ☐ IGLD 85 (Great Lakes coastal areas) ☐ other
➡ Show elevation on plans with description.

16 DRAWDOWN OF AN IMPOUNDMENT

- If wetlands will be impacted, also complete Section 12.

Type of drawdown ☐ over winter ☐ temporary ☐ one-time event ☐ annual event ☐ permanent (dam removal) ☐ other

Reason for drawdown

Has there been a previous drawdown? ☐ No ☐ Yes (If Yes, provide date (M/D/Y) / /)

Previous MDEQ permit number, if known

Does waterbody have established legal lake level? ☐ No ☐ Yes ☐ Not Sure

Dam ID Number, if known

Extent of vertical drawdown (ft)	Impoundment design head (ft)	Number of adjacent or impacted property owners
Date drawdown would start (M/D/Y) / /	Date drawdown would stop (M/D/Y) / /	Rate of drawdown (ft/day)
Date refilling would start (M/D/Y) / /	Date refill would end (M/D/Y) / /	Rate of refill (ft/day)
Type of outlet discharge structure to be used ☐ surface ☐ bottom ☐ mid-depth	Impoundment area at normal water level (acres)	Sediment depth behind impoundment discharge structure (ft)

17 DAM, EMBANKMENT, DIKE, SPILLWAY, OR CONTROL STRUCTURE ACTIVITIES (See Sample Drawing 15)

- For more information go to www.michigan.gov/deqdamsafety
- If wetlands will be impacted, also complete Section 12.
- ➡Attach site-specific conceptual plans for construction of a new dam, reconstruction of a failed dam, or enlargement of an existing dam for resource impact review.
- Detailed engineering plans are required once the activity has been determined to be permitable from an environmental standpoint.
- ➡Attach detailed engineering plans for a dam repair, dam alteration, dam abandonment, or dam removal.

Which one best describes your project? ☐ new dam construction ☐ reconstruction of a failed dam ☐ enlargement of an existing dam ☐ dam repair ☐ dam alteration ☐ dam abandonment ☐ dam removal ☐ other

Dam ID Number If known	Type of outlet discharge structure ☐ surface ☐ bottom ☐ mid depth	Will proposed activities require a drawdown of the waterbody to complete the work? ☐ No ☐ Yes (If Yes, also complete Section 16)	
Riprap Volume (cu yd)	Dredging/excavation Volume (cu yd)	Fill volume (cu yd)	Does structure allow complete drainage of waterbody? ☐ No ☐ Yes
Benchmark elevation (ft)	Datum used ☐ Local ☐ NGVD 29 ☐ other	Describe benchmark and show on plans	

Have you engaged the services of a Licensed Professional Engineer? ☐ No ☐ Yes If Yes, provide name, registration number, and mailing address.
Name Registration Number Mailing Address

Will a water diversion during construction be required? ☐ No ☐ Yes If Yes, describe how the stream flow will be controlled through the dam construction area during the proposed project activities:

COMPLETE THE FOLLOWING FOR A NEW DAM, RECONSTRUCTION OF A FAILED DAM, OR ENLARGEMENT OF AN EXISTING DAM

Describe the type of dam and how you will design the dam and embankment to control seepage through and underneath the dam.

Embankment top elevation (ft)	Streambed elevation at downstream embankment toe (ft)	Structural height (difference between embankment top elevation and streambed elevation at downstream embankment toe) (ft)		
Embankment length (ft)	Embankment top width (ft)	Embankment bottom width (ft)	Embankment slopes (vertical / horizontal)	Upstream Downstream
Proposed normal pool elevation (ft)	Impoundment flood elevation (ft)	Maximum vertical drawdown capability (ft) (Attach operational procedure of the proposed structure, if available)		
Have soil borings been taken at dam location? ☐ No ☐ Yes ➡ If Yes, attach results.	Will a cold water underspill be provided? ☐ No ☐ Yes If Yes, invert elevation (ft)	Do you have flowage rights to all proposed flooded property at the design flood elevation? ☐ No ☐ Yes		

18 UTILITY CROSSINGS (See Sample Drawings 12 and 13, and EZ Guide)

- If side casting is required, complete Sections 10A and 10B. If spoils will be placed in wetlands or wetlands may be impacted, complete Section 12.
- ➡Attach additional sheets or tables with the requested information as needed for multiple crossings.

What method will be used to construct the crossings? ☐ flume ☐ plow ☐ open trench ☐ jack and bore ☐ directional drilling

Crossing of ☐ Inland Lake or Stream ☐ floodplain ☐ international waters ☐ wetlands (also complete Section 12)

Type	Number of wetland crossings	Number of inland lake or stream crossings	Pipe diameter (in)	Pipe length per crossing (ft)	Distance below streambed or wetland (in)	Trench width (ft)
☐ sanitary sewer						
☐ storm sewer						
☐ watermain						
☐ cable						
☐ oil/gas pipeline						

19 MARINA CONSTRUCTION AND OPERATING PERMIT INFORMATION (See Sample Drawing 21)

- For more information go to www.michigan.gov/deqmarinas
- Marinas located on the Great Lakes, including Lake St. Clair, may be required to secure leases or conveyances from the state of Michigan to place structures on the bottomlands. If a conveyance is necessary, an application must be submitted before the Joint Permit Application can be determined complete.

➡ Enclose a copy on any current pump-out agreement with another marina facility.

➡ Attach a copy of the property legal description or a property boundary survey report to your application.

Marina owner			Marina name		
Mailing address			Location street address		
City	State	Zip Code	City	State	Zip Code
Marina owner's daytime telephone number with area code - -			Marina's daytime telephone number with area code - -		
Check the reasons for submitting this application ☐ Owner's name change/transfer ☐ Construction of a new marina ☐ Issuance of a new Marina Operating Permit ☐ Expansion/modification of an existing marina ☐ Renewal of a Marina Operating Permit			Current Marina Operating Permit Number (M/D/Y) / /		Expiration Date

	Existing	Proposed		Existing	Proposed
Number of boat slips/wells (do not include broadside)			Are sanitary pump-out facilities available?	☐ No ☐ Yes	☐ No ☐ Yes
Lineal feet of broadside dockage			Number of launch ramps/lanes		
Number of mooring buoys			Maximum number of boats at broadside		

20 HIGH RISK EROSION AND CRITICAL DUNE AREAS (See Sample Drawings 19 and 20, also Sample Drawing 9 if wetlands are impacted)

- For more information go to www.michigan.gov/deqsanddunes
- Construction in critical dune areas on slopes greater than a 1-foot vertical rise in a 3-foot horizontal plane (33 percent) is prohibited without a special exception.
- Construction in critical dune areas on slopes that measure from a 1-foot vertical rise in a 4-foot horizontal plane (25 percent) to less than a 1-foot vertical rise in a 3-foot horizontal plane (33 percent) requires plans prepared by a registered architect or licensed professional engineer.
- All property boundaries and proposed structure corners, septic system, water well, and driveway locations must be staked before the MDEQ site inspection.
- Scaled overhead and cross-section plans that include all property boundaries, and the location and dimensions of all structures and terrain alterations must be included.
- Additional information, including the building construction plans, may be required to complete the application review.

➡ Construction in critical dune areas requires inclusion of the following written assurances:

1) permit or letter from county enforcing agent stating project complies with Part 91 (Soil Erosion and Sedimentation Control),
2) permit or letter from County Health Department for work on a septic system, and
3) letter from applicant stating any proposed tree or vegetation removal complies with instructions of the local Soil Conservation District.

Parcel dimensions (ft) width depth	Property is a ☐ platted lot ☐ unplatted parcel	Year current property boundaries created	Date project staked (M/D/Y) / /
Type of construction activities ☐ home ☐ garage ☐ driveway ☐ septic ☐ addition ☐ renovation ☐ other			
The proposed project will be serviced by ☐ public sewer ☐ private septic system ➡ If septic system, show septic system on plans.	If septic system, has application been made to the County Health Department for a permit? ☐ No ☐ Yes If Yes, has a permit been issued? ☐ No ☐ Yes	If Yes, critical dune projects require County Health Department approval submitted with application. ➡ Attach Written Assurance(s).	Number of individual living-units in proposed building

Existing construction is on ☐ pilings ☐ basement ☐ concrete slab ☐ crawl space	Proposed new construction will be on ☐ pilings ☐ basement ☐ concrete slab ☐ crawl space
Existing construction material above foundation wall ☐ stud frame ☐ log ☐ block ☐ other	Proposed new construction material above foundation wall ☐ stud frame ☐ log ☐ block ☐ other
Existing siding material ☐ wood ☐ vinyl ☐ block ☐ other	Proposed new siding material ☐ wood ☐ vinyl ☐ block ☐ other
Area of the existing foundation, excluding attached garage (sq ft)	Area of the proposed foundation, excluding attached garage (sq ft)
Area of the existing garage foundation (sq ft)	Area of the proposed garage foundation (sq ft)

If renovating or restoring existing structure, renovation or restoration cost $	Current structure replacement value $	Tax assessed value of existing structure excluding land value $	Assessment Year

21 ACTIVITIES IN DESIGNATED ENVIRONMENTAL AREAS (No Sample Drawings Available)

- Many designated environmental areas are completely or partially wetlands. Be sure to complete Section 12 if your proposed activities will also occur in wetlands.

➡ Attach a detailed site plan for any alteration in a designated environmental area.

(Check all that apply) ☐ placement of structures ☐ grading or other soil alteration ☐ alteration of natural drainage ☐ alteration of vegetation ☐ other

CRITICAL DUNE AREA PRE-APPLICATION MEETING REQUEST

The Department of Environmental Quality's (DEQ) Land and Water Management Division (LWMD) has established a voluntary process for meeting with staff prior to submitting a permit application under Part 353, Sand Dune Protection and Management, of the Natural resources and Environmental Protection Act, 1994 PA 451, as amended. If you would like to request a pre-application meeting with LWMD staff, please submit the following information to your local LWMD District Office:

1. The Pre-application Meeting Request Form. You must provide all requested information to allow us to process your request.
2. A map indicating the location of your project site (a county map or one obtained from an internet mapping system, is acceptable). This map should include all streets, roads, intersections, highways, and a north arrow.
3. If the applicant is not the property owner, a letter from the landowner authorizing the DEQ to meet with the applicant and/or agent and enter the property described on this form for the purposes of the pre-application meeting.
4. The type of meeting desired: Level I is a meeting in the district office, Level II is a general on site meeting and evaluation, and Level III is a project specific on site meeting.
5. The appropriate fee (as shown below).
6. The property tax number, site address, labeled photographs (date, locations, and direction of view) of the property, and, if available, a property survey with the request for the Level I review. Two copies of a preliminary site plant or property boundary survey for a Level II. For Level III, a topographical survey depicting where slopes greater than 1 on 4 and greater than 1 on 3 exist related to proposed uses must be provided by a registered land surveyor using LWMD methodology. The Level III proposal must have the corners of the proposed project staked prior to the meeting and the stakes labeled as to what they represent (for example-north corner of house). The stake locations must appear on the preliminary survey.

Other information that may be helpful in LWMD's review includes, but is not limited to, photographs of the site, aerial photos, more detailed site plants, etc.

Please submit the application and appropriate fee to the local District Office. The district contact information link is found at the bottom of the application form.

Staff of the LWMD will contact you to schedule a meeting at a mutually convenient time. Meetings will be scheduled as soon as staff time and/or weather conditions allow. A meeting may be rescheduled if you provide at least 24 hours advance notice. If you need to cancel a pre-application meeting, you may do so up to 24 hours (not including weekends or holidays) prior to the scheduled meeting with a full refund. **No refund will be given if the meeting is canceled by you with less than 24 hours notice.**

TYPE OF PRE-APPLICATION MEETING	FEE
Meeting in district office (Level I)	No Charge
Meeting on project site (Level II) First acre or portion of acre Each additional acre or portion of acre Maximum Example: 4.7 acres = $400 + (4 x $50) = $600.	 $400.00 $50.00 $1,000.00
Meeting on project site (Level III) First acre of portion of acre Each additional acre or portion of acre Maximum	 $500.00 $50.00 $1,100.00
Second meeting on project site (due to applicant or consultant revising plans, revising the staked area, or providing inaccurate information)	One-half the initial application fee

Methodology to Provide a Level III Topographical Survey Suitable for Pre-application Meetings

A surveyor must accurately depict slopes greater than 1 on 4 (25 percent slope) and greater than 1 on 3 (33.3 percent slope) in proximity to proposed buildings, drives, septic systems and other uses within a critical dune area. The slopes must not be identified using the interpolation of elevation data taken from a grid or random pattern on the property. Locations where each slope breaks to more or less that 1 on 4 and more or less than 1 on 3 within an area of proposed impact, including where construction equipment and materials may cause impacts, should be measured and mapped. Measurements must be taken along the fall line of each slope segment. The horizontal distance between parallel slope segments along a slope face will vary with site conditions. All slope segments defining an area greater than 1 on 3 should be identified on the survey and all slope segments defining an area greater than 1 on 4 should also be separately identified. However, there must be enough measurements to define the aerial extent of each slope class (1 on 4 or 1 on 3).

DEQ FILE NO.-FOR OFFICIAL USE

DEPARTMENT OF ENVIRONMENTAL QUALITY
LAND AND WATER MANAGEMENT DIVISION
PRE-APPLICATION MEETING REQUEST
CRITICAL DUNE AREA (CDA) AND/OR HIGH RISK EROSION AREA (HREA)

Applicant

Applicant:		
Address:		
City:	State:	Zip:
Phone:	Fax:	
Email:		

Property Owner		
Address		
City:	State:	Zip
Phone:	Fax:	
Email:		

Agent (if applicable

Agent:	Company:	
Address:		
City:	State:	Zip:
Phone:	Fax:	Email:

Site Location

Address:		Township/City:	Zip:
County:	Town:	Range:	Section:
Tax Number		Size of property in acres	
A map and directions to the site (nearest major intersection and directions from major intersection): Please attach.			

PRE-APPLICATION MEETING REQUEST

1. The meeting is requested at the ☐ DEQ District Office (Level I), ☐ on site basic review (Level II), or ☐ on site specific project review
2. DEQ staff should contact ☐ the Applicant ☐ Agent
3. Enclose property survey or project plan with topographical survey of slopes, as appropriate

GENERAL INFORMATION

Project description (use additional sheets if necessary):_____

_____

Estimated total area of disturbance (acres or square feet)_____

Is a High Risk Erosion Area involved?

SIGNATURE

I hereby certify that I am familiar with the information contained in this request and that it is true and accurate. I understand that there are penalties for submitting false information and that any finding pursuant to this request may be revoked if information on this request is untrue. I understand that if I cancel the meeting less than 24 hours prior to the meeting or fail to appear the fee shall be forfeited.

☐ Property Owner ☐ Agent/Contractor (see #3 above)	Printed Name	Signature	Date (M/D/Y)

FEE

Applications fees should be paid by electronic fund transfer (EFT) or credit card. Downloadable forms for credit card or electronic fund transfer payment can be obtained at Credit Card and Electronic Fund Transfer (EFT) Payments. Please mail the application and fee to the appropriate District Office. The addresses can be found at www.michigan .gov/deqlwmd, click on District Offices.

CRITICAL DUNE AREA PRE-APPLICATION MEETINGS
REPORT SUMMARY

Following a pre-application meeting, Land and Water Management Division (LWMD) staff will provide a written response for Level I reviews on each of the following:

Whether or not the site is within a Critical Dune Area (CDA) or High-Risk Erosion Area (HREA).
General CDA and/or HREA requirements.
30-year and 60-year setback distances, if a HREA.
An explanation of HREA multipliers, if the bluff height is greater than 25 feet.
An explanation of the HREA "elevation contour."
Definition of the HREA "erosion hazard line."
Definition of the HREA "readily moveable structures."
Slope protection requirements for excavation adjacent to dune slopes.
Potential for Threatened or Endangered Species on the site based on a database review.

For a Level II review the written response will include the information from Level I and also identify many of the Level I conditions on site, as applicable. In addition, the written response will provide the following if they apply to the property:

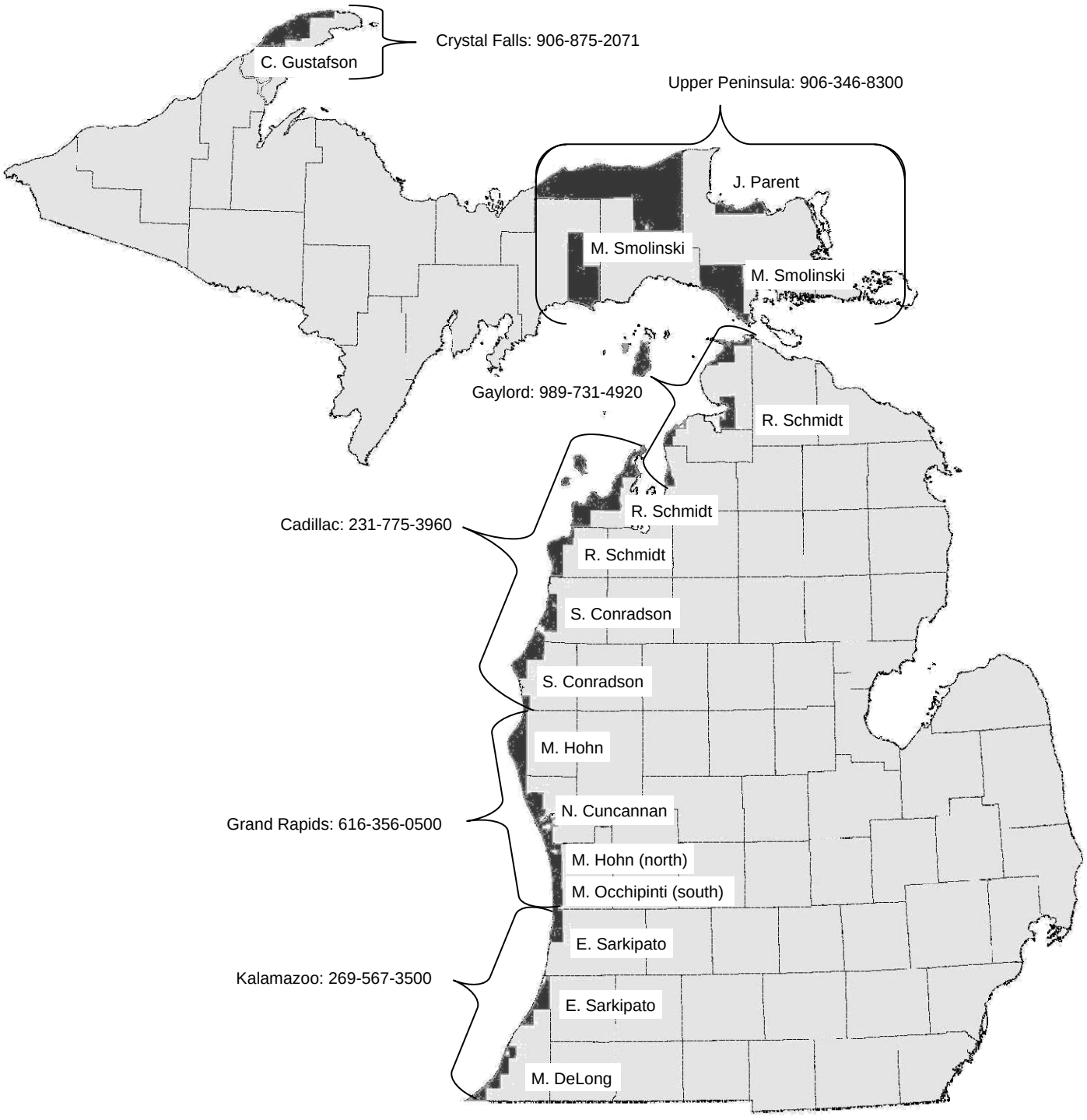
The crest location on the property.
The locations of the elevation contour and erosion hazard line, and which one would be used for measuring the HREA setback requirements.
The height of the bluff.
Identify potential building sites or other potential uses.
Potential vehicle access.
Potential staging area for equipment/materials.
Areas of property outside the critical dune boundary.

For a Level III review the written response will include the information from Levels I and II, as applicable. In addition, the written response will provide the following if they apply to the property:

LWMD staff will measure or verify the slopes within the staked area and immediately adjacent to the proposed use.
A general written description of the slope location outside the proposed use.
Whether proposed permanent structures meet the appropriate setback distance in a HREA.

ALL THREE LEVELS OF SERVICE WILL PROVIDE THE APPLICANT THE OPPORTUNITY TO ASK QUESTIONS OF LWMD STAFF.

Critical Dune Area (CDA)
Michigan DNRE Permitting Staff Map



www.michigan.gov/dnresanddunes

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY • LAND AND WATER MANAGEMENT DIVISION

CREDIT CARD TRANSACTION AUTHORIZATION FOR ONE-TIME TRANSACTIONS

INSTRUCTIONS: Print or type entries clearly. Carefully read and complete the entire authorization form. Mail the completed form to the appropriate Land and Water Management Division office that you are authorizing to charge your account. For security purposes, do not e-mail or fax this form. If you have questions about completing this form, call the phone number provided by the Land and Water Management Division office you are authorizing to charge your account.

TYPE OF CREDIT CARD	☐ MASTERCARD ☐ VISA ☐ DISCOVER
CREDIT CARD HOLDER NAME (as it appears on the card)	
STREET ADDRESS	
CITY, STATE, ZIP	
TELEPHONE NUMBER	( ) ext
E-MAIL ADDRESS (optional)	
CARD HOLDER SIGNATURE	
TOTAL AMOUNT TO BE CHARGED	
CREDIT CARD NUMBER	| | | | | | | | | | | | | | | |
CVV2 (this is a 3 digit number on the back of the credit card)	| | |
EXPIRATION DATE	

RETAIN A COPY FOR YOUR RECORDS

STATE OF MICHIGAN USE ONLY

PERMIT FILE NUMBER (S)		AOBJ
PERMIT FILE NUMBER (S)		AOBJ
PERMIT FILE NUMBER (S)		AOBJ
RECEIVED BY		
DATE RECEIVED		
RESUBMISSION OF PAYMENT	☐ YES ☐ NO	

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY • LAND AND WATER MANAGEMENT DIVISION

ELECTRONIC FUND TRANSFER (EFT) DEBIT AUTHORIZATION FOR ONE-TIME TRANSACTIONS

INSTRUCTIONS: Print or type entries clearly. Carefully read and complete the entire authorization form. Mail the completed form to the appropriate Land and Water Management Division office you are authorizing to debit your account. For security purposes, do not email or fax this form. If you have questions about completing this form, call the phone number provided by the Land and Water Management Division office you are authorizing to debit your account.

1. Name		
2. Street Address	3. City, State, ZIP Code	
4. Telephone Number ext	5. E-mail Address	
6. Payment Amount	7. Payment Date	8. Payment Reference Number (Agency Use)
9. Account Number (at Financial Institution)	10. Routing Transit Number *	
11. Name of Financial Institution		
12. Account Type ☐ Checking ☐ Savings	13. Account Ownership ☐ Consumer ☐ Corporate	
14. Business Name on the Account (If business)		

*Contact your financial institution for the routing transit number, if unknown.

AUTHORIZATION

I authorize the State of Michigan to make a withdrawal by electronic transfer from the designated financial institution and account identified above. If the Payment Date is a State holiday or weekend the withdrawal will take place on the next business day.

I authorize the State of Michigan to return money that was withdrawn from my account if error by electronically adjusting my account. I understand I will be notified by the State of Michigan if adjustments are made.

I agree to comply with National Automated Clearing House Rules and regulations about electronic transfers as they exist on the date of my signature on this form or as subsequently adopted, amended, or repealed. Michigan law governs electronic fund transactions authorized by this agreement in all respects except as otherwise superseded by federal law.

If multiple account holders are required to authorize withdrawal of funds, then all must sign this authorization form.

Printed Name	Signature	Date
Printed Name of Joint Account Holder (if applicable)	Signature of Joint Account Holder (if applicable)	Date

RETAIN A COPY FOR YOUR RECORDS

STATE OF MICHIGAN USE ONLY

PERMIT FILE NUMBER(S)		
PERMIT FILE NUMBER(S)		
PERMIT FILE NUMBER(S)		
RECEIVED BY		AOBJ
DATE RECEIVED		
RESUBMISSION OF PAYMENT	☐ YES ☐ NO	

How to Protect Critical Dunes:

Practical Guidelines for Site Development and Management in Michigan's Critical Dune Areas