From: Jeff Amos <jeff@terradynconsultants.com>
Sent: Monday, August 21, 2017 8:56 PM
To: Jonathan R. Earle; Amanda L. Lessard
Subject: RE: Highland Views Manufactured Housing Park & Mixed Use Development - Subdivision & Site Plan Review
Attachments: MHPO Zone Standards.pdf; C-7.2 Details & Notes.pdf; C-3.0 Grading Plan.pdf; C-8.3 Untreated Existing Impervious Area Worksheet.pdf; Highland Views PBR Form.pdf

Hi Jon,

I've answered your comments below. Let me know if you have any questions.

Jeff Amos, P.E.

From: Jonathan R. Earle [mailto:jrearle@windhammaine.us]
Sent: Monday, August 14, 2017 3:06 PM
To: Amanda L. Lessard <allessard@windhammaine.us>; Jeff Amos <jeff@terradynconsultants.com>
Subject: Highland Views Manufactured Housing Park & Mixed Use Development - Subdivision & Site Plan Review

Jeff & Amanda,

I have reviewed the following information submitted by Terradyn Consultants, LLC as part of the Subdivision & Site Plan applications for this project and offer the following comments:

- Subdivision & Site Plan Application dated August 7, 2017.
- Plan Set with 15 sheets, prepared by Terradyn Consultants, LLC, July 3, 2017.
- Stormwater Management Plan – Revised July 3, 2017.
- Plan Sheets C-8.1 & 8.2 – Submitted with Stormwater Management Plan dated July 3, 2017.

Site Plan Application

- Members of the Highland Lake Watershed group have expressed concern about who is responsible for the long term maintenance of the subsurface wastewater systems. It appears that the wastewater components for the association are addressed in Section 5.1.b (Systems & Utilities). This section addresses sewer pump stations and sanitary sewer to each unit but does not address the septic tanks themselves and the responsibility for pumping. Are the tanks themselves not considers a common element of the association? The maintenance documents were put together before this latest revision. The septic tanks will be maintained as a common element of the association.

- Are the 5 disposal fields considered a common element of the entire project or only common to the users directly discharging to the respective fields? The septic fields will be common elements of the entire project.

- The hydrogeologic assessment report and nitrate plumes show on Sheet C-4.0 indicate that ordinance requirement of 10 mg/L at the property line has been met for the project. I have no further comments regarding the analysis.

Plans

- Sheet 1.0 – The total wetland impact for the project based on the revised design and delineation is 9,483 SF and falls within the Tier 1 NRPA permitting threshold. Was this permit application included as part of the stormwater permit application submitted to DEP? It was not specifically mentioned in the cover letter. See attached Tier 1 Wetland Alteration Permit application. (I'll send in a separate email because its pretty big)

- Based on the new stream definition for the project, there are now two stream crossings that will need a Permit-By-Rule from DEP. This was not specifically mentioned in the cover letter and presumably was included as part of the stormwater permit application. Also, it would be helpful to callout the total stream impact area on the plans resulting from the two crossings on McDermott's Way and Bailey's Trail, respectively. Question: are you looking for simple call outs of "stream crossing area" or are you looking for some type of square footage number?

- Provide a construction detail the 10' wide stabilized pond access from the cul-de-sac to the existing path. We've added the detail to Sheet C-7.2. See attached.

- Two road section details are provided on Sheet 7.2. I'm unclear as to which detail the interior road network is being built to. It's my understanding that the entire road network would need to be built to the major private road standard (with the 2' shoulders). The plan views seem to scale to a 20' wide pavement section curb to curb within the development. Please clarify. The manufactured housing overlay zone stipulates that the roads may be 20' wide. See 5.c.vii.a.2 of the attached overlay zone language.

Stormwater Report & Plans

- My review of the report and plan agrees with the submission in that the quantity and phosphorus standards are being met. One minor question regarding phosphorus credit being take for the existing roads and buildings. It would be helpful (possibly on Sheet 7.0 Demolition Plan) to show the areas of the existing buildings and roads for where the credit is utilized. Considering the post development export is so close to the budget, this information would be helpful in addressing any concerns the Board or lake association might have. MDEP requested that I prepare a similar figure for their files. I think it addresses your question. The figure shows the area where credit is taken. The areas hatched don't receive any sort of legitimate treatment. The roads drain in ruts in the road to one of the drainage channels. The house & area closest to Route 302 drains to the ditch before receiving treatment. WE also only took credit for 50% of this area. This figure also doesn't take credit for the landscaped areas along the road that aren't treated nor does it take credit for the camp sites that are underlain with impervious surface.

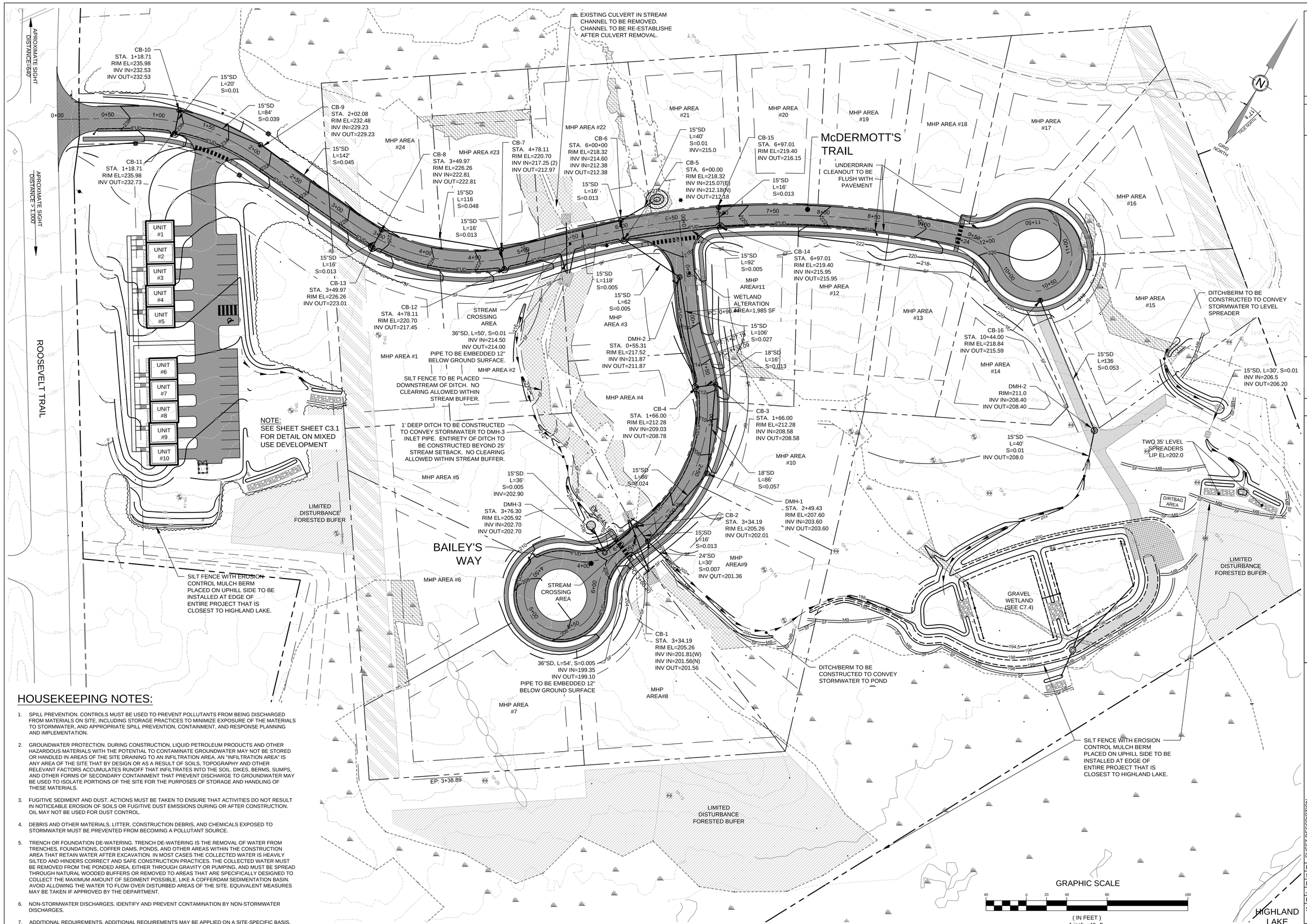
Please do not hesitate to contact me with any questions.

Jon

_____

Jon Earle, PE
Town Engineer
Town of Windham

Office: (207) 894-5900, ext. 6124
Cell: (207) 212-1802
www.windhammaine.us



HOUSEKEEPING NOTES:

1. SPILL PREVENTION. CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM BEING DISCHARGED FROM MATERIALS ON SITE, INCLUDING STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER, AND APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING AND IMPLEMENTATION.
2. GROUNDWATER PROTECTION. DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS.
3. FUGITIVE SEDIMENT AND DUST. ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL.
4. DEBRIS AND OTHER MATERIALS. LITTER, CONSTRUCTION DEBRIS, AND CHEMICALS EXPOSED TO STORMWATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.
5. TRENCH OR FOUNDATION DE-WATERING. TRENCH DE-WATERING IS THE REMOVAL OF WATER FROM TRENCHES, FOUNDATIONS, COFFER DAMS, PONDS, AND OTHER AREAS WITHIN THE CONSTRUCTION AREA THAT RETAIN WATER AFTER EXCAVATION. IN MOST CASES THE COLLECTED WATER IS HEAVILY SILTED AND HINDERS CORRECT AND SAFE CONSTRUCTION PRACTICES. THE COLLECTED WATER MUST BE REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, AND MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN. AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE. EQUIVALENT MEASURES MAY BE TAKEN IF APPROVED BY THE DEPARTMENT.
6. NON-STORMWATER DISCHARGES. IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES.
7. ADDITIONAL REQUIREMENTS. ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.

STATE OF MAINE JEFFREY D. JAMES No. 10167 LICENSED PROFESSIONAL ENGINEER

SIGNATURE DATE: 8/15/2017

NO.	DATE	REVISIONS	APP'D BY
7	8/15/2017	REVISED PER MDEP COMMENTS, GRADED PERIMETER SWALE, REVISED UD	
6	7/3/2017	SUBMITTED TO MDEP & TOWN FOR FINAL APPROVAL	

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Fax: (207) 221-1317
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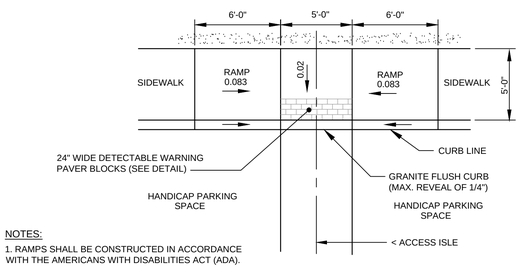
Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting

SHEET DESCRIPTION
HIGHLAND VIEWS
19 ROOSEVELT TRAIL, WINDHAM, ME
GRADING & EROSION CONTROL PLAN

PREPARED FOR
CHASE CUSTOM HOMES & FINANCE
230 BRIDGTON ROAD
WESTBROOK, MAINE,04092

DATE:	7/3/2017
SCALE:	1"=40'
DESIGNED:	JDA
JOB NO:	1636
FILE: 1636 S	
SHEET	C-3.0

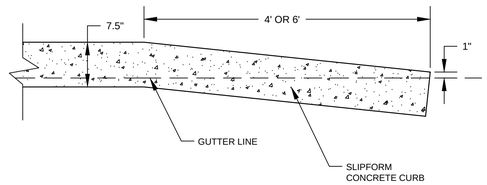


NOTES:

1. RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA).
2. ALL RAMPS SHALL HAVE DETECTABLE WARNINGS THE FULL DEPTH AND WIDTH OF THE RAMP PER SECTION 4.29 OF THE ADA.
3. A TACTILE WARNING STRIP IS REQUIRED WHERE RAMP ABUTS AN AREA USED BY VEHICLES.

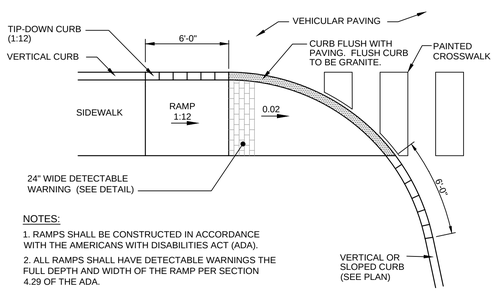
HANDICAP RAMP

NOT TO SCALE



SLIPFORM CURB TIPDOWN DETAIL

NOT TO SCALE



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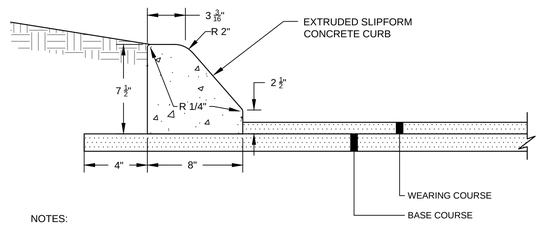
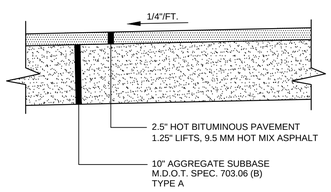


NOTES:

1. APPLY EPOXY BETWEEN BINDER PAVEMENT AND CURB
2. 1" TO 2" SLUMP
3. 5% TO 7% AIR ENTRAINMENT
4. 4,000 PSI CONCRETE WITH FIBER REINFORCEMENT

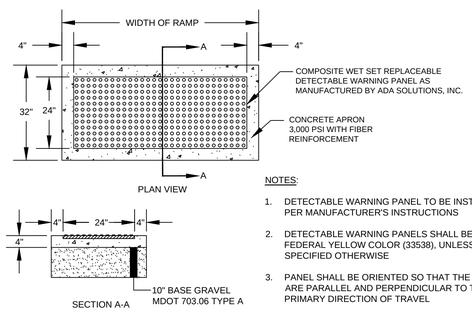
SLOPED SLIPFORM CONCRETE CURB DETAIL

NOT TO SCALE



BITUMINOUS SIDEWALK

NOT TO SCALE

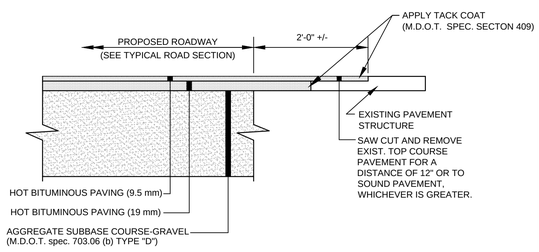


NOTES:

1. DETECTABLE WARNING PANEL TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS
2. DETECTABLE WARNING PANELS SHALL BE FEDERAL YELLOW COLOR (33538), UNLESS SPECIFIED OTHERWISE
3. PANEL SHALL BE ORIENTED SO THAT THE DOMES ARE PARALLEL AND PERPENDICULAR TO THE PRIMARY DIRECTION OF TRAVEL

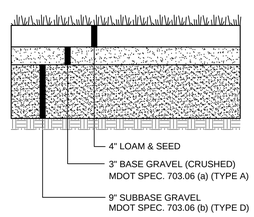
COMPOSITE DETECTABLE WARNING PANEL DETAIL

NOT TO SCALE



TYPICAL PAVEMENT JOINT

NOT TO SCALE



TYPICAL DETENTION BASIN ACCESS CROSS-SECTION

NOT TO SCALE

CONSTRUCTION NOTES

1. All work shall conform to the applicable codes and ordinances.

2. Contractor shall visit the site and familiarize him or herself with all conditions affecting the proposed work and shall make provisions as to the cost thereof. Contractor shall be responsible for familiarizing him or herself with all contract documents, field conditions and dimensions and confirming that the work may be accomplished as shown prior to proceeding with construction. Any discrepancies shall be brought to the attention of the engineer prior to the commencement of work.

3. Contractor shall notify engineer of all products or items noted as "existing" which are not found in the field.

4. Install all equipment and materials in accordance with manufacturer's recommendations and owner's requirements unless specifically otherwise indicated or where local codes or regulations take precedence.

5. Contractor shall verify all dimensions and conditions in the field prior to fabrication and erection of any material. Any unusual conditions shall be reported to the attention of the engineer.

6. Contractor shall clean and remove debris and sediment deposited on public streets, sidewalks, adjacent areas, or other public ways due to construction.

7. Contractor shall incorporate provisions as necessary in construction to protect existing structures, physical features, and maintain site stability during construction. Contractor shall restore all areas to original condition and as directed by design drawings.

8. Site contractor shall obtain all required permits prior to construction.

9. All erosion and sediment control measures shall be installed in accordance with "Maine Erosion and Sedimentation Control BMPs" published by the Maine DEP in 2003.. A copy of the manual can be found at http://maine.gov/dep/blwq/docstand/escbmps/index.htm. It shall be the responsibility of the contractor to possess a copy of the erosion control plan at all times.

10. The contractor is hereby cautioned that all site features shown hereon are based on field observations by the surveyor and by information provided by utility companies. The information is not to be relied on as being exact or complete. The contractor shall contact dig safe (1-888-digsafe) at least three (3) but not more than thirty (30) days prior to commencement of excavation or demolition to verify horizontal and vertical location of all utilities. Contractor shall be aware that dig safe only notifies its "member" utilities about the dig. When notified, dig safe will advise contractor of member utilities in the area. Contractor is responsible for identifying and contacting non-member utilities directly. Non-member utilities may include town or city water and sewer districts and small local utilities, as well as usg public works systems.

11. Contractors shall be responsible for compliance with the requirements of 23 mrsa 3360-a. It shall be the responsibility of the contractor to coordinate with the appropriate utilities to obtain authorization prior to relocation of any existing utilities which conflict with the proposed improvements shown on these plans. If a utility conflict arises, the contractor shall immediately notify the owner, the municipality and appropriate utility company prior to proceeding with any relocation.

12. All pavement markings and directional signage shown on the plan shall conform to the manual of uniform traffic control devices (mutcd) standards.

13. All pavement joints shall be sawcut prior to paving to provide a durable and uniform joint.

14. No holes, trenches or structures shall be left open overnight in any excavation accessible to the public or in public rights-of-way.

15. All work within the public right-of-way shall require a M.D.O.T. Permit as well as permits from the town as applicable.

16. The proposed limits of clearing shown hereon are approximate based upon the proposed limits of site grading. The applicant reserves the right to perform normal forest management activities outside of the clearing limit as shown. Tree removal outside of the limits of clearing may be necessary to remove dead or dying trees or tree limbs. This removal is due to potential safety hazards and to promote proper forest growth.

17. Immediately upon completion of cuts/fills, the contractor shall stabilize disturbed areas in accordance with erosion control notes and as specified on plans.

18. The contractor shall be fully and solely responsible for the removal, replacement and rectification of all damaged and defective material and workmanship in connection with the contract work. The contractor shall replace or repair as directed by the owner all such damaged or defective materials which appear within a period of one year from the date of substantial completion.

19. All work performed by the general contractor and/or trade subcontractor shall conform to the requirements of local, state or federal laws, as well as any other governing requirements, whether or not specified on the drawings.

21. Where the terms "approved equal", "other approved", "equal to", "acceptable" or other general qualifying terms are used in these notes, it shall be understood that reference is made to the ruling and judgment of Terradyn Consultants, LLC.

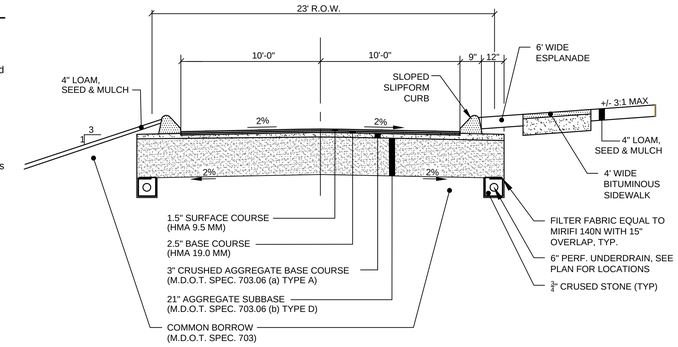
22. The general contractor shall provide all necessary protection for the work until turned over to the owner. Before the final acceptance of the project, the contractor shall remove all equipment and materials, repair or replace private or public property which may have been damaged or destroyed during construction, clean the areas within and adjacent to the project which have been obstructed by his/her operations, and leave the project area neat and presentable.

23. The general contractor shall maintain a current and complete set of construction drawings on site during all phases of construction for use of all trades.

24. The contractor shall take full responsibility for any changes and deviation of approved plans not authorized by the architect/engineer and/or client/owner.

25. Details are intended to show end result of design. Any modification to suit field dimension and condition shall be submitted to the engineer for review and approval prior to any work.

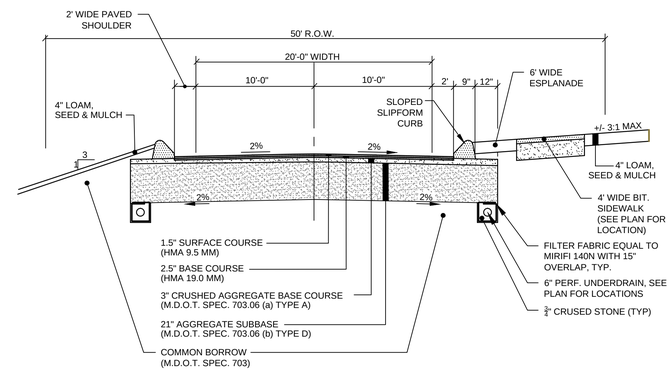
26. The applicant will retain the services of a professional engineer to inspect the construction and stabilization of all stormwater management structures. If necessary, the inspecting engineer will interpret the pond's construction plan for the contractor. Once all stormwater management structures are constructed and stabilized, the inspecting engineer will notify the department in writing within 30 days to state that the pond has been completed. Accompanying the engineer's notification must be a log of the engineer's inspections giving the date of each inspection, the time of each inspection, and the items inspected on each visit, and include any testing data or sieve analysis data of every mineral soil and soil media specified in the plans and used on site.



NOTE: FILL AREAS BENEATH DRIVING SURFACE SHALL BE GRANULAR BORROW. ALL OTHER FILL AREAS SHALL BE A COMMON BORROW MATERIAL SUITABLE FOR EMBANKMENT CONSTRUCTION, FREE FROM FROZEN MATERIAL, PERISHABLE RUBBLE, PEAT, ORGANICS, ROCKS LARGER THAN 12" IN DIAMETER, VEGETATION AND OTHER MATERIAL UNSUITABLE FOR ROADWAY AND SUB-GRADE CONSTRUCTION. EXCAVATED ONSITE MATERIALS MAY BE USED FOR FILL PROVIDED THE MATERIAL IS FREE FROM UNSUITABLE MATERIAL DESCRIBED IN THIS NOTE AND UPON APPROVAL OF THE ENGINEER. GRANULAR BORROW AND COMMON BORROW SHALL ADHERE TO MDOT SPECIFICATIONS 703.19 AND 703.18 RESPECTIVELY. ROCKS LARGER THAN 8" IN DIAMETER WILL NOT BE USED FOR EMBANKMENT CONSTRUCTION WITHIN A DEPTH OF 2 FEET BENEATH THE FINISHED ROADWAY SUBGRADE (PER MDOT SPECIFICATIONS 203.10)

TYPICAL M.H.P. STREET SECTION

NOT TO SCALE



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TYPICAL MAJOR PRIVATE ROAD SECTION

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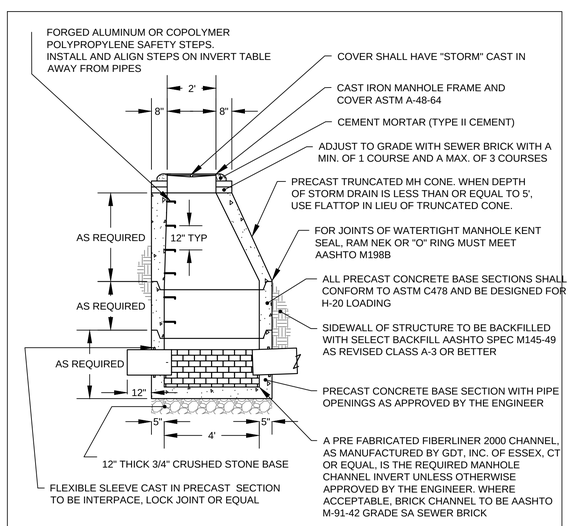

4' DIAMETER PRECAST STORM DRAIN MANHOLE

NOT TO SCALE

STATE OF MAINE JEFFREY D. JAMES No. 10167 LICENSED PROFESSIONAL ENGINEER

SIGNATURE DATE: 8/21/2017

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Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting

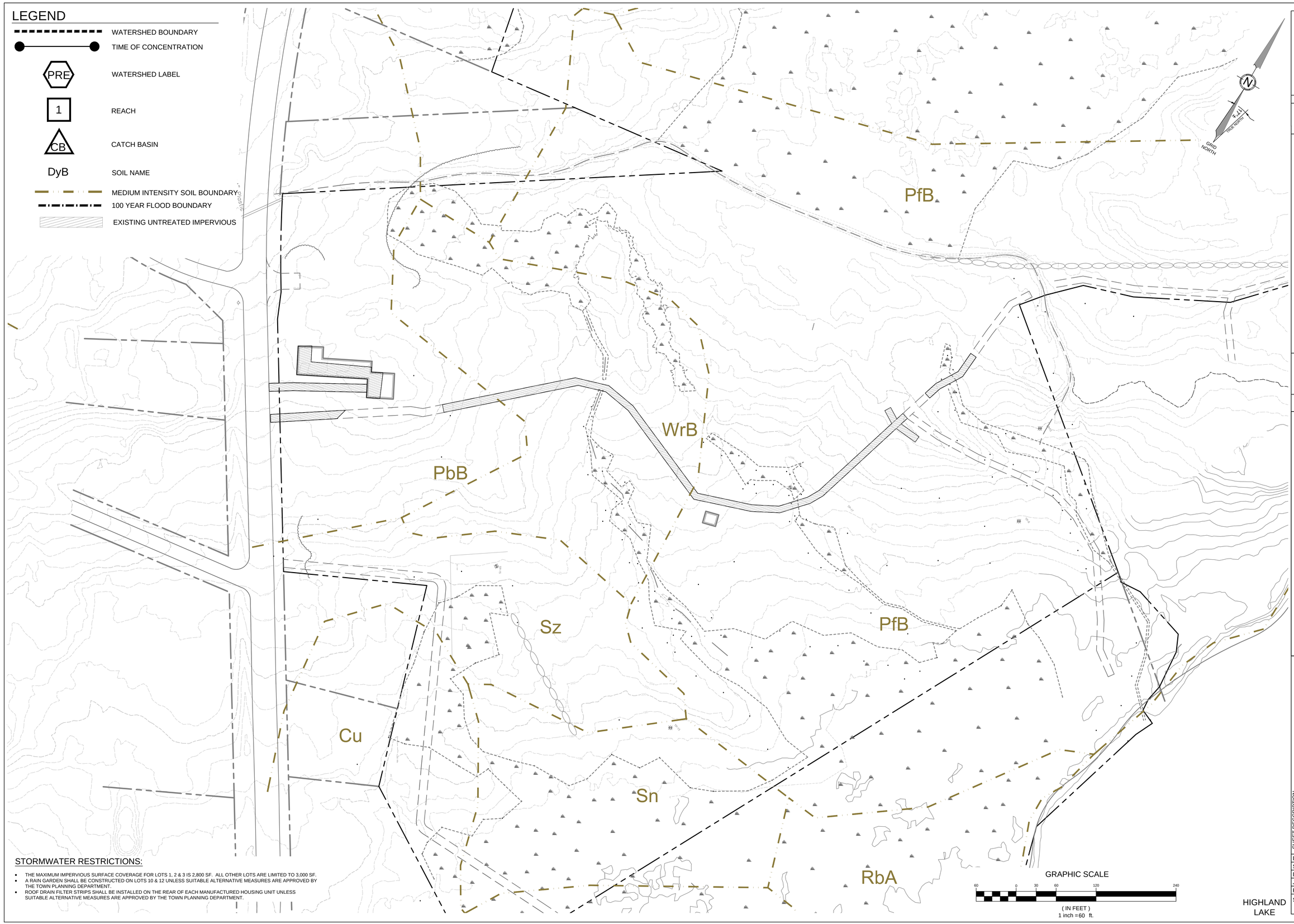
SHEET DESCRIPTION
HIGHLAND VIEWS
19 ROOSEVELT TRAIL, WINDHAM, ME
DETAILS & NOTES

PREPARED FOR
CHASE CUSTOM HOMES & FINANCE
230 BRIDGTON ROAD
WESTBROOK, MAINE 04092

DATE:	7/3/2017
SCALE:	AS SHOWN
DESIGNED:	JDA
JOB NO:	1636
FILE: 1636 D	
SHEET	C-7.2

LEGEND

- WATERSHED BOUNDARY
- TIME OF CONCENTRATION
- PRE — WATERSHED LABEL
- 1 — REACH
- CB — CATCH BASIN
- DyB — SOIL NAME
- MEDIUM INTENSITY SOIL BOUNDARY
- 100 YEAR FLOOD BOUNDARY
- EXISTING UNTREATED IMPERVIOUS



STORMWATER RESTRICTIONS:

- THE MAXIMUM IMPERVIOUS SURFACE COVERAGE FOR LOTS 1, 2 & 3 IS 2,800 SF. ALL OTHER LOTS ARE LIMITED TO 3,000 SF.
- A RAIN GARDEN SHALL BE CONSTRUCTED ON LOTS 10 & 12 UNLESS SUITABLE ALTERNATIVE MEASURES ARE APPROVED BY THE TOWN PLANNING DEPARTMENT.
- ROOF DRAIN FILTER STRIPS SHALL BE INSTALLED ON THE REAR OF EACH MANUFACTURED HOUSING UNIT UNLESS SUITABLE ALTERNATIVE MEASURES ARE APPROVED BY THE TOWN PLANNING DEPARTMENT.

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

STATE OF MAINE
JEFFREY D. JAMES
No. 10167
LICENSED
PROFESSIONAL ENGINEER

SIGNATURE DATE: 7/3/2017

NO.	DATE	REVISIONS	APP'D BY

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SHEET	C-8.3