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June 2, 2022

Via Email

Durham Planning Board
Michael Behrendt, Town Planner
Town Planner
8 Newmarket Road
Durham, NH 03824-2898

Re: Toomerfs, LLC
Site Plan and Conditional Use Applications
19-21 Main Street, Tax Map 5; Lots 1-9, 1-10, 1-15 and 1-16

Dear Mr. Behrendt, Vice Chair Grant, and Planning Board Members:

In reference to your email dated May 13, 2022, stating, "...the board requested please prepare a view from Chesley Drive and from the Urso residence". We engaged Tangram 3DS, a professional graphic art studio specializing in architectural renderings. Enclosed please find a statement from Tangram explaining their methodology for the renderings, which are also attached as Exhibits A-G.

Exhibit A is a "bird's eye" view of the lots with their tax map boundaries outlined in yellow. The 10-acre adjacent existing shopping center lot at Mill Plaza is outlined in red. Exhibit B is existing conditions seen from the middle of Chesley Drive, between the Meyrowitz and Andersen houses at 7 and 8 Chesley Drive, respectively. Exhibit C is the rendering of the parking lot from the same vantage point, as done by Tangram. Since the parking lot is substantially screened and barely visible in the rendering, Tangram provided Exhibit D, which is a "moonscape" view with all surface structures removed except the proposed parking lot and the Andersen house. This is not a realistic view of the appearance of the parking lot post-construction, but should be used only for size, scale, topography, and location. Exhibit E is the existing condition as seen from the back of the Urso house at 5 Smith Park Lane. Exhibit F is the rendering of the proposed parking lot. Since the parking lot is obscured by foliage, Exhibit G is another "moonscape" view that isolates the parking lot, stripping away all other surface structures.

We trust the renderings and the explanation above will assist the Board in its review.

Very truly yours,



R. Timothy Phoenix
Monica F. Kieser

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STATEMENT

June 2nd, 2022

Jared Foley
Creative Director

Tangram 3DS
21 Rogers Road, Suite One
Kittery, Maine 03904

-To whom it may concern,

The following is a description of the step-by-step process used to create the 3D renderings and screenshots of the proposed project at **19** and **21** Main Street, Durham, NH.

1 - Photography

On-site photography was taken to survey the area and capture photos from the desired locations on Chesley Dr. and the backyard of the Urso property. The perspectives taken from Chesley Dr. are captured at eye level. The perspectives taken from Urso's backyard are elevated to approximately 9' to show the view from the rear picture window.

2 - Modeling the Existing Conditions

The existing conditions in the 3D model were created using the provided LiDAR scan data, provided CAD data for neighboring property footprints, Google Maps aerial imagery to locate existing trees, and our own photography for reference. This allowed for the creation of accurate topography and locations of abutting properties.

3 - Camera-Match

To accurately render the proposed project into the selected photos, the 3D model must be accurately matched to the photos. To do so, the 3D camera settings were adjusted to match the real-world camera settings. Then the 3D camera was placed within the 3D environment at the same locations where the photos were taken. Then fine adjustments were made to the 3D camera's location and rotation so that the 3D models of existing elements (rock walls, trees, property footprints) could be matched with the same elements within the photos. The 3D environment was accurately matched to the photographs once the 3D elements were aligned to the same elements in the photos.

4 - Modeling the Proposed Conditions

A detailed 3D model of the proposed project was created using the information from the CAD drawings and plans. This model was then placed accurately within the existing conditions 3D model.

5 - Rendering and Post-Production

The proposed conditions model was rendered using accurate sunlight angles and shadows. It was then overlaid over the photo perspectives. Then, using our eye and knowledge of the project, the proposed conditions were masked into the photos. Attention was taken to mask over the trees which would be removed and avoid the trees which would remain.

- Statement of Accuracy

The 3D models produced for the renderings as topographical views are derived from highly accurate information and are felt to be representative of topography, size, scale, and location. However, the process for masking the models into the photos to create the renderings is challenging because of the number of trees and heavy screening by foliage in the native pictures and is therefore subjective. Our artists used their best judgement to overlay the vegetation as accurately as possible. Ultimately these renderings are part scientific and part artistic representations and are our best impression of what the proposed conditions will look like based on the data available.

EXHIBIT A: Aerial view

Prepared by: Toomerfs, LLC

Date issued: 2022-06-02



EXHIBIT B: Chesley Drive, Existing

Prepared by: Tangram 3DS

Date issued: 2022-06-02



EXHIBIT C: Chesley Drive, Proposed

Prepared by: Tangram 3DS

Date issued: 2022-06-02



EXHIBIT D: Chesley Drive, Proposed moonscape

Prepared by: Tangram 3DS

Date issued: 2022-06-02

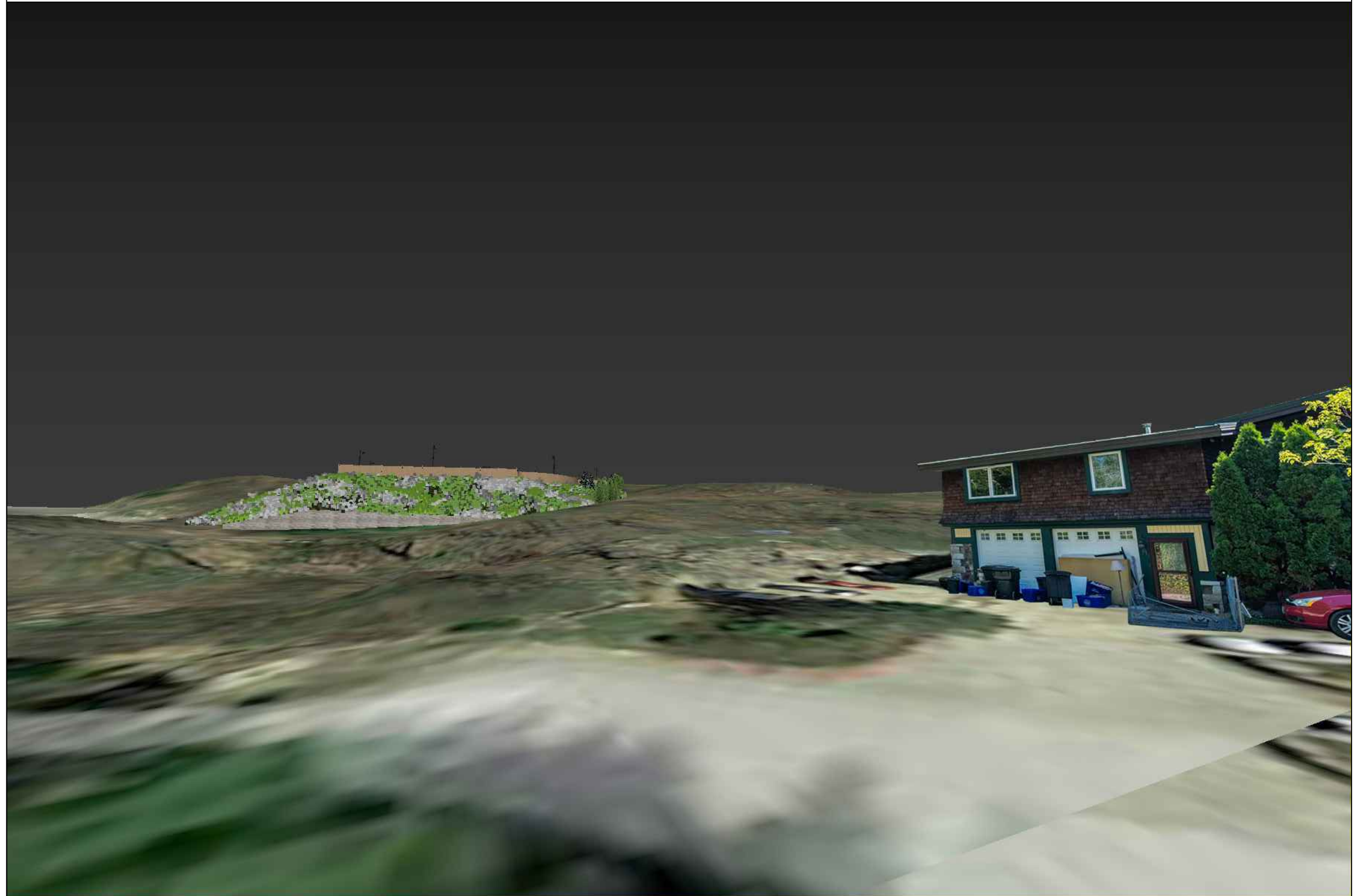


EXHIBIT E: Urso Residence, Existing

Prepared by: Tangram 3DS

Date issued: 2022-06-02



EXHIBIT F: Urso Residence, Proposed

Prepared by: Tangram 3DS

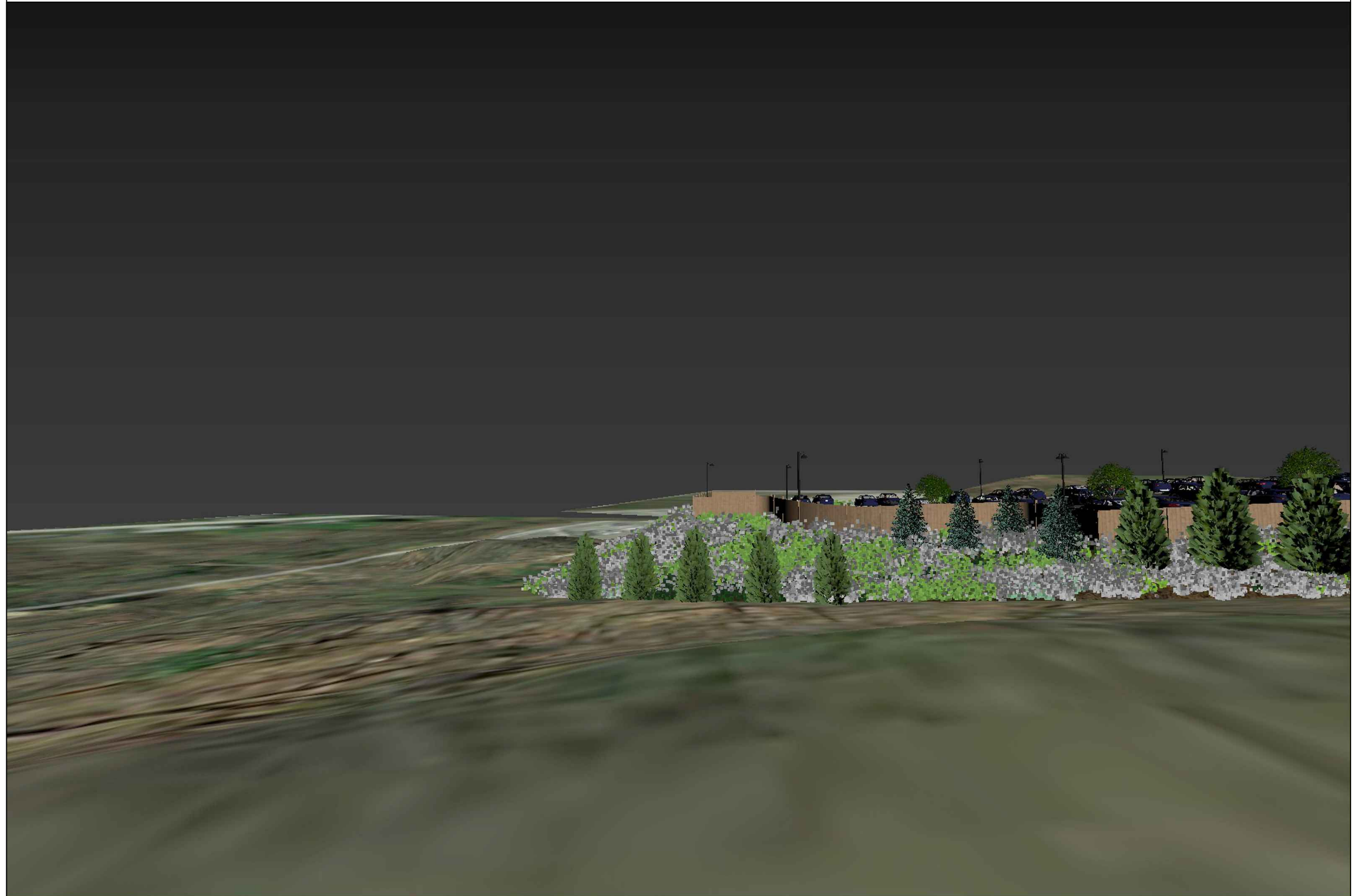
Date issued: 2022-06-02



EXHIBIT G: Urso Residence, Proposed moonscape

Prepared by: Tangram 3DS

Date issued: 2022-06-02



May 26, 2022

Mr. Paul Rasmussen
Chair
Durham Planning Board
8 Newmarket Road
Durham, NH 03824

RE: 19 Main Street Parking – Planting questions

Chair Rasmussen and Planning Board Members:

I had hoped to join you all at the June 8th planning board meeting to discuss the intended planting for the 19 Main Street Parking Lot project. Unfortunately, I have a long-planned trip out of the country so, cannot be with you.

This letter should address the questions you had for Mike Sievert in your previous meeting and my associate, Vicky Martel will attend the next meeting to discuss our plan and answer any additional questions.

When we started this project, we discussed various planting and screening approaches. After many meetings and with input from the public and the board we have developed the plan before you. The plan illustrates the use of fencing and planting of a robust, mixed evergreen screen on the east side, (Urso and Hall side), of the property. The southern side, (toward Chesley Drive) is buffered by a six-foot-high fence at the top of the 2:1 slope. Additionally, the existing woodland between the bottom of the slope and the stone wall on the southerly property line will not be altered (50' wide at its slimmest point). There is another sixty feet of woodland after the stone wall on the adjacent property to the south as well. Prior to this meeting the slope was proposed to be seeded with an erosion control mix consisting of mixed fescue grasses. The western side of the property abuts a wooded area and the rear of the shopping plaza, so no additional buffering is planned.

The parking lot and entry drive are planted with disease resistant Elms, Red Maples and Japanese Zelkova.

In the last meeting, the treatment of the 2:1 slope was of concern to members of the board. We've discussed the input and have adjusted the plan to reflect this. We have changed the seed mix for sloped areas to be comprised of 30% New England Erosion Control/Restoration Mix for Dry Sites, 20% New England Roadside Upland Mix (with Shrubs), 25% New England Conservation and Wildlife Mix and 25% New England Semi-Shade Grass and Forbs Mix. The slopes will be

stabilized with erosion control matting (see page C501) and seeded. This mix will allow for immediate erosion control while having a broad spectrum of shrubs (Gray Dogwood, Silky Dogwood and Staghorn Sumac), grasses and pollinators (Rudbeckia, Solidago, Aster, Asclepias, Eupatorium, and Liatris). We anticipate that overtime, additional woody volunteers such as Birch, Sumac and Juniper will emerge along with native shade trees in later stages. The intention is that this slope will start out as a grassy slope with pollinators that will evolve over time to a typical woodland.

The owners will monitor the slope yearly for incursions of invasive species and will remove them appropriately and as needed.

The public also asked for additional renderings. This process was undertaken and illustrated the need for five additional evergreens on the east side of the lot for additional screening for the Urso property.

The plans have been updated with this new information.

I hope this letter addresses the concerns of the public and members of the board.

Sincerely,



Roberta Woodburn, RLA, ASLA
Principal

CONSTRUCTION SEQUENCING AND EROSION CONTROL NOTES:

AREA OF DISTURBANCE/STABILIZATION

- A. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL THE AREA OF UNSTABILIZED SOIL EXCEED 5 ACRES AT ANY ONE TIME BEFORE THE AREA IS STABILIZED.
- B. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
- IN AREAS TO BE PAVED, BASE COURSE GRAVELS MEETING THE GRADATION REQUIREMENTS OF NHDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM NO. 304.1 OR 304.2 HAVE BEEN INSTALLED;
 - IN AREAS NOT TO BE PAVED:
 - A MINIMUM OF 85% VEGETATED MATERIAL HAS BEEN ESTABLISHED;
 - A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED;
 - EROSION CONTROL BLANKETS HAVE BEEN INSTALLED IN ACCORDANCE WITH ENV-WQ 1506.03.
- C. DISTURBED AREAS SHALL BE TEMPORARILY STABILIZED WITHIN 45 DAYS AND PERMANENTLY STABILIZED NO LATER THAN 3 DAYS AFTER FINAL GRADING.

EROSION CONTROL PRACTICES:

- A. INSTALLATION:
- INSTALL ALL EROSION CONTROLS AS SHOWN ON THE GRADING PLAN, TYPICAL DETAILS, AND IN CONFORMANCE WITH THE EROSION AND SEDIMENT CONTROL NOTES ON THIS PAGE. MANUFACTURER'S SPECIFICATIONS SHALL BE FOLLOWED.
- B. INSPECTION:
- INSPECT ALL EROSION CONTROLS WEEKLY AND AFTER EVERY RAIN EVENT OF 0.5 INCHES OR GREATER UNLESS OTHERWISE NOTED.
 - TEMPORARY STABILIZATION PRACTICES SHALL BE INSPECTED ONCE PER WEEK DURING CONSTRUCTION UNTIL EXPOSED SURFACES ARE STABILIZED.
 - ANY SIGNS OF RILL OR GULLY EROSION SHALL BE IMMEDIATELY REPAIRED.
- C. MAINTENANCE:
- MAINTAIN EROSION CONTROLS PER THE TYPICAL DETAILS AND IN CONFORMANCE WITH THE EROSION AND SEDIMENT CONTROL NOTES ON THIS PAGE.
- D. REMOVAL:
- ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE 85% VEGETATIVE COVER HAS BEEN ESTABLISHED.
 - AFTER REMOVAL, ALL DISTURBED AREAS SHALL BE REGRADED, FERTILIZED, AND RESEEDED. MONITOR TO ENSURE VEGETATIVE GROWTH IS ESTABLISHED AND REPAIR AS NEEDED UNTIL MINIMUM OF 85% VEGETATIVE COVER IS ESTABLISHED.

COLD WEATHER SITE STABILIZATION

- A. TO ADEQUATELY PROTECT WATER QUALITY DURING COLD WEATHER AND DURING SPRING RUNOFF, THE ADDITIONAL STABILIZATION TECHNIQUES SPECIFIED IN THIS SECTION SHALL BE EMPLOYED DURING THE PERIOD FROM OCTOBER 15 THROUGH MAY 1.
- B. SUBJECT TO (C), BELOW, THE AREA OF EXPOSED, UNSTABILIZED SOIL SHALL BE:
- LIMITED TO ONE ACRE; AND
 - PROTECTED AGAINST EROSION BY THE METHODS DESCRIBED IN THIS SECTION PRIOR TO ANY THAW OR SPRING MELT EVENT.
- C. THE ALLOWABLE AREA OF EXPOSED SOIL MAY BE INCREASED IF A WINTER CONSTRUCTION PLAN IS DEVELOPED BY A LICENSED ENGINEER OR A GEOSPECIALIST AND SUBMITTED TO THE DEPARTMENT FOR APPROVAL AS A REQUEST TO WAIVE THE ONE-ACRE LIMIT.
- D. SUBJECT TO (F) AND (G), BELOW, ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF LESS THAN 15% THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR THAT ARE DISTURBED AFTER OCTOBER 15, SHALL BE SEEDED AND COVERED WITH 3 TO 4 TONS OF HAY OR STRAW MULCH PER ACRE SECURED WITH ANCHORED NETTING OR TACKIFIER OR WITH AT LEAST 2 INCHES OF EROSION CONTROL MIX MEETING THE CRITERIA OF ENV-WQ 1506.05(B).
- E. SUBJECT TO (F) AND (G), BELOW, ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF 15% OR GREATER THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR THAT ARE DISTURBED AFTER OCTOBER 15, SHALL BE SEEDED AND COVERED WITH A PROPERLY INSTALLED AND ANCHORED EROSION CONTROL BLANKET OR WITH AT LEAST 4 INCHES OF EROSION CONTROL MIX MEETING THE CRITERIA OF ENV-WQ 1506.05(B).
- F. ANCHORED HAY MULCH OR EROSION CONTROL MIX THAT MEETS THE CRITERIA OF ENV-WQ 1506.05(B) SHALL NOT BE INSTALLED OVER SNOW GREATER THAN ONE INCH IN DEPTH.
- G. EROSION CONTROL BLANKETS SHALL NOT BE INSTALLED OVER SNOW GREATER THAN ONE INCH IN DEPTH OR ON FROZEN GROUND.
- H. ALL PROPOSED STABILIZATION IN ACCORDANCE WITH (D) OR (E), ABOVE, SHALL BE COMPLETED WITHIN A DAY OF ESTABLISHING THE GRADE THAT IS FINAL OR THAT OTHERWISE WILL EXIST FOR MORE THAN 5 DAYS.
- I. ALL DITCHES OR SWALES THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR THAT ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITION AND PERMANENTLY WITH THE OWNER'S ENGINEERING CONSULTANT.
- J. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING AREAS WHERE ACTIVE CONSTRUCTION OF THE ROAD OR PARKING AREA HAS STOPPED FOR THE WINTER SEASON SHALL BE PROTECTED WITH A MINIMUM 3-INCH LAYER OF BASE COURSE GRAVELS MEETING THE GRADATION REQUIREMENTS OF NHDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, 2016, TABLE 304-1, ITEM NO. 304.1, 304.2, OR 304.3, AVAILABLE AS NOTED IN APPENDIX B.

TEMPORARY VEGETATION

- A. SITE PREPARATION
- INSTALL EROSION AND SEDIMENT CONTROL MEASURES AS SPECIFIED ABOVE.
 - ENSURE RUNOFF IS DIVERTED FROM SEEDING AREA.
 - ON SLOPES OF 4:1 OR STEEPER, CREATE HORIZONTAL GROOVES PERPENDICULAR TO THE DIRECTION OF THE SLOPE TO CATCH SEED AND REDUCE RUNOFF.
- B. SEED BED PREPARATION
- REMOVE STONES AND TRASH FROM AREA TO BE SEEDED.
 - COMPACTED SOIL SHALL BE LOOSENED TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME, AND SEED.
 - APPLY FERTILIZER AT A RATE OF 600 LBS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE.
- C. SEEDING
- SEED PER THE FOLLOWING RECOMMENDATIONS
- | SEASON | APPLICATION DATE | MIXTURE TYPE | QUANTITY (lb./Ac.) |
|-----------------------|----------------------------|---------------|--------------------|
| EARLY SPRING | NO LATER THAN 5/15 | OATS | 80 |
| LATE SPRING/
FALL | 4/1 TO 6/1 & 8/15 TO 9/15 | PERENNIAL RYE | 30 |
| EARLY SPRING/
FALL | 4/1 TO 5/15 & 8/15 TO 9/15 | ANNUAL RYE | 40 |
| FALL | 8/15 TO 9/15 | WINTER RYE | 112 |
- APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTPACKER TYPE SEEDER OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). NORMAL SEEDING DEPTH IS FROM 1/4 TO 1/2 INCH. HYDROSEEDING THAT INCLUDES MULCH MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING.
 - TEMPORARY SEEDING SHALL OCCUR PRIOR TO SEPTEMBER 15TH IN THE YEAR IN WHICH THE AREA BEING SEEDED WAS DISTURBED.
 - AREAS SEEDED BETWEEN MAY 15TH AND AUGUST 15TH SHALL BE COVERED WITH HAY OR STRAW MULCH MEETING THE FOLLOWING CRITERIA:
 - HAY AND STRAW MULCHES SHALL BE ANCHORED WITH MULCH NETTING OR TACKIFIER SO THAT THEY ARE NOT BLOWN AWAY BY WIND OR WASHED AWAY BY FLOWING WATER;
 - MULCH MATERIALS SHALL BE SELECTED BASED UPON SOILS, SLOPE, FLOW CONDITIONS, AND TIME OF YEAR;
 - HAY OR STRAW MULCH SHALL BE APPLIED AT A RATE OF 1.5 TO 2 TONS PER ACRE, EQUIVALENT TO 70 TO 90 POUNDS PER 1,000 SQUARE FEET;
 - IF VEGETATED GROWTH COVERING AT LEAST 85% OF THE DISTURBED AREA IS NOT ACHIEVED PRIOR TO OCTOBER 15TH, ONE OR MORE ADDITIONAL EROSION CONTROL METHODS SHALL BE IMPLEMENTED.
 - MAINTENANCE
 - TEMPORARY SEEDING SHOULD BE INSPECTED WEEKLY AND AFTER ANY RAINFALL EXCEEDING 1/2 INCH IN 24 HOURS ON ACTIVE CONSTRUCTION SITES. TEMPORARY SEEDING SHOULD ALSO BE INSPECTED JUST PRIOR TO SEPTEMBER 15, TO ASCERTAIN WHETHER ADDITIONAL SEEDING IS REQUIRED TO PROVIDE STABILIZATION OVER THE WINTER PERIOD.
 - BASED ON INSPECTION, AREAS SHOULD BE RESEEDED TO ACHIEVE FULL STABILIZATION OF EXPOSED SOILS. IF IT IS TOO LATE IN THE PLANTING SEASON TO APPLY ADDITIONAL SEED, THEN OTHER TEMPORARY STABILIZATION MEASURES SHOULD BE IMPLEMENTED.
 - AT A MINIMUM, 85% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION.
 - IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHOULD BE MADE AND AREAS SHOULD BE RESEEDED, WITH OTHER TEMPORARY MEASURES (E.G., MULCH) USED TO PROVIDE EROSION PROTECTION DURING THE PERIOD OF VEGETATION ESTABLISHMENT.

PERMANENT VEGETATION

- A. SITE PREPARATION
- REFER TO SITE PREPARATION FOR TEMPORARY SEEDING.
- B. SEED BED PREPARATION
- REFER TO SEED BED PREPARATION FOR TEMPORARY SEEDING IN CONJUNCTION WITH THESE NOTES.
 - LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM, FINE SEEDBED IS PREPARED. ALL BUT CLAY OR SILTY SOILS AND COARSE SANDS SHOULD BE ROLLED TO FIRM THE SEEDBED WHEREVER FEASIBLE.
 - REMOVE FROM THE SURFACE ALL STONES 2 INCHES OR LARGER IN ANY DIMENSION. REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, CONCRETE, CLODS, LUMPS, TRASH OR OTHER UNSUITABLE MATERIAL.
 - INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED; THE AREA MUST BE TILLED AND FIRMED AS ABOVE.
 - WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED.
 - APPLY FERTILIZER AT A RATE OF 600 LBS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE.
- C. SEEDING
- UNLESS OTHERWISE NOTED, GRASS SEED MIXTURE 'C' SHALL BE APPLIED AT THE SPECIFIED RATE AS NOTED IN THE "SEED MIXTURES FOR PERMANENT VEGETATION" TABLE.
 - APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTPACKER TYPE SEEDER OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). NORMAL SEEDING DEPTH IS FROM 1/4 TO 1/2 INCH. HYDROSEEDING THAT INCLUDES MULCH MAY BE LEFT ON SOIL SURFACE. SEEDING OPERATIONS SHOULD BE ON THE CONTOUR.
 - WHERE FEASIBLE, EXCEPT WHERE EITHER A CULTPACKER TYPE SEEDER OR HYDROSEEDER IS USED, THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A ROLLER, OR LIGHT DRAG.
 - WHEN HYDROSEEDING (HYDRAULIC APPLICATION), PREPARE THE SEEDBED AS SPECIFIED ABOVE OR BY HAND RAWDING TO LOOSEN AND SMOOTH THE SOIL AND TO REMOVE SURFACE STONES LARGER THAN 2 INCHES IN DIAMETER.
 - SLOPES MUST BE NO STEEPER THAN 2 TO 1.
 - LIME AND FERTILIZER MAY BE APPLIED SIMULTANEOUSLY WITH THE SEED. THE USE OF FIBER MULCH ON CRITICAL AREAS IS NOT RECOMMENDED UNLESS IT IS USED TO HOLD STRAW OR HAY. BETTER PROTECTION IS GAINED BY USING STRAW MULCH AND HOLDING IT WITH ADHESIVE MATERIALS OR 500 POUNDS PER ACRE OF WOOD FIBER MULCH.
 - SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING.
 - TEMPORARY SEEDING SHALL OCCUR PRIOR TO SEPTEMBER 15TH IN THE YEAR IN WHICH THE AREA BEING SEEDED WAS DISTURBED.
 - AREAS SEEDED BETWEEN MAY 15TH AND AUGUST 15TH SHALL BE COVERED WITH HAY OR STRAW MULCH MEETING THE FOLLOWING CRITERIA:
 - HAY AND STRAW MULCHES SHALL BE ANCHORED WITH MULCH NETTING OR TACKIFIER SO THAT THEY ARE NOT BLOWN AWAY BY WIND OR WASHED AWAY BY FLOWING WATER;
 - MULCH MATERIALS SHALL BE SELECTED BASED UPON SOILS, SLOPE, FLOW CONDITIONS, AND TIME OF YEAR;
 - HAY OR STRAW MULCH SHALL BE APPLIED AT A RATE OF 1.5 TO 2 TONS PER ACRE, EQUIVALENT TO 70 TO 90 POUNDS PER 1,000 SQUARE FEET;
 - IF VEGETATED GROWTH COVERING AT LEAST 85% OF THE DISTURBED AREA IS NOT ACHIEVED PRIOR TO OCTOBER 15TH, ONE OR MORE ADDITIONAL EROSION CONTROL METHODS SHALL BE IMPLEMENTED.
 - MAINTENANCE
 - PERMANENTLY SEEDED AREAS SHOULD BE INSPECTED MONTHLY.
 - MOW SEEDED AREAS AS NECESSARY.
 - BASED ON INSPECTION, AREAS SHOULD BE REPAIRED AND/OR RESEEDED TO ENSURE 85% OF THE SOIL SURFACE IS COVERED BY VEGETATION.

MULCHING & EROSION CONTROL MATTING

- A. GENERAL
- APPLY PRIOR TO A STORM EVENT. CLOSELY MONITOR THE WEATHER TO HAVE ADEQUATE WARNING OF SIGNIFICANT STORMS.
 - MULCHING WITHIN A SPECIFIED TIME PERIOD FROM ORIGINAL SOIL EXPOSURE
 - WITHIN 100 FEET OF WETLANDS THE TIME PERIOD SHOULD BE NO GREATER THAN 7 DAYS.
 - IN OTHER AREAS IT SHALL BE NO GREATER THAN 14 DAYS.
 - MULCH MATERIALS SHALL BE SELECTED BASED UPON SOILS, FLOW CONDITIONS, AND TIME OF YEAR.
- B. TEMPORARY MULCHING
- HAY OR STRAW MULCHES
 - ORGANIC MULCHES INCLUDING HAY AND STRAW SHALL BE AIR-DRIED, FREE OF UNDESIRABLE SEEDS AND COARSE MATERIALS.
 - APPLICATION RATE SHALL BE 2 BALES/1,000 SF (70-90 POUNDS) OR 1.5-2.0 TONS/ACRE TO COVER 75-90% OF THE GROUND.
 - ANCHORING SHALL BE ONE OF THE FOLLOWING:
 - NETTING SHALL BE JUTE, WOOD FIBER, OR BIODEGRADABLE PLASTIC NETTING INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
 - TACKIFIER: APPLY POLYMER OR ORGANIC TACKIFIER TO ANCHOR HAY OR STRAW MULCH. APPLY PER MANUFACTURER'S SPECIFICATIONS. TYPICAL APPLICATION RATES ARE 40-60 LBS/ACRE FOR POLYMER MATERIAL AND 80-120 LBS/ACRE FOR ORGANIC LIQUID.
 - WINTER APPLICATION: APPLY TO A DEPTH OF 4 INCHES OR DOUBLE THE ABOVE LISTED APPLICATION RATE. NOTE THAT IF SEEDING IS NECESSARY, MULCH WILL NEED TO BE REMOVED AND THE AREA SEEDED AND MULCHED IN THE SPRING.
 - MAINTENANCE
 - INSPECT PERIODICALLY AND AFTER RAIN STORMS FOR RILLS OR DISPLACEMENT OF MULCH. REPAIR AS NECESSARY. CONTINUE INSPECTIONS UNTIL 85% VEGETATIVE COVER IS ESTABLISHED.
- EROSION CONTROL BLANKET OR MATTING
 - REFER TO PLANS FOR TYPICAL EROSION CONTROL MATTING DETAIL. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
 - APPLICATION AND TIMING
 - DURING THE GROWING SEASON (APRIL 15 - SEPTEMBER 15) USE ON THE BASE OF GRASSED WATERWAYS, STEEP SLOPES (15% OR GREATER), ANY DISTURBED SOIL WITHIN 100 FEET OF LAKES, STREAMS, AND WETLANDS.
 - DURING THE LATE FALL AND WINTER (SEPTEMBER 15 - APRIL 15) IN ADDITION TO THOSE LISTED ABOVE USE ON SIDE SLOPES OF GRASSED WATERWAYS AND MODERATE SLOPES (GREATER THAN 8%).
- MAINTENANCE
 - INSPECT PERIODICALLY AND BEFORE AND AFTER STORM EVENTS TO ENSURE CONTACT WITH THE SOIL UNTIL 85% VEGETATIVE COVER IS ESTABLISHED. REPAIR AND RESTAPLE AS NECESSARY.
- C. PERMANENT MULCHING
- WOOD CHIPS OR GROUND BARK
 - APPLY TO A THICKNESS OF 2 TO 6 INCHES. APPLICATION RATES ARE 10-20 TONS/ACRE OR 460-920 POUNDS/1,000 SF.
 - MAINTENANCE: INSPECT ANNUALLY AND AFTER RAIN EVENTS OF 2.5 INCHES OR MORE IN A 24 HOUR PERIOD. REPAIR/REPLACE AS NECESSARY.
 - EROSION CONTROL MIX
 - SHALL BE PLACED AT A THICKNESS OF 2 INCHES OR MORE FOR MULCHING.
 - COMPOSITION OF THE MIX SHALL BE AS FOLLOWS:
 - ORGANIC MATTER CONTENT SHALL BE BETWEEN 25-65% DRY WEIGHT BASIS.
 - PARTICLE SIZE BY WEIGHT SHOULD BE 100% PASSING THE 3" SCREEN, 90-100% PASSING THE 1" SCREEN, 70-100% PASSING THE 0.75 INCH SCREEN, AND 30-75% PASSING THE 0.25 INCH SCREEN.
 - THE ORGANIC PORTION SHALL BE ELONGATED AND FIBROUS SUCH AS FROM SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR EQUIVALENT MANUFACTURED PRODUCTS. IT SHALL NOT CONTAIN WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS, OR REPROCESSED WOOD PRODUCTS.
 - THE MIX SHALL NOT CONTAIN SILTS, CLAYS, OR FINE SANDS.
 - SOLUBLE SALT CONTENT SHALL BE < 4.0MGHOS/CM AND A PH OF 5.0-8.0.
 - PLACEMENT OF MIX
 - PLACE BERM ALONG A LEVEL CONTOUR. BERM MUST BE A MINIMUM OF 12" HIGH ON THE UPSHILL SIDE AND 2 FEET WIDE. UPSLOPE AREA MUST HAVE A SLOPE OF LESS THAN 5%.
 - MAINTENANCE: INSPECT PERIODICALLY AND AUGMENT AS NEEDED TO MAINTAIN INITIAL THICKNESS. REPLACE IF NO LONGER FUNCTIONING AS INTENDED.

SOIL STOCKPILES

- A. GENERAL
- STOCKPILES MUST BE LOCATED 50 FEET FROM DITCHES AND CULVERT INLETS.
 - PROTECTION OF STOCKPILES
 - PROTECT SOIL AND AGGREGATE STOCKPILES WITH TEMPORARY PERIMETER SEDIMENT BARRIER SUCH AS SILT FENCE OR SILT SOCK.
 - COVER ACTIVE STOCKPILES WITH ANCHORED PROTECTIVE COVERING PRIOR TO EXPECTED STORM EVENTS.
 - INACTIVE STOCKPILES SHALL BE COVERED WITH ANCHORED TARPS OR TEMPORARILY SEEDED AND MULCHED PER THE TEMPORARY VEGETATION AND MULCHING NOTES ON THIS PAGE.
 - STOCKPILES THAT ARE A SOURCE OF DUST SHALL BE COVERED.
- DUST CONTROL
- DUST SHALL BE CONTROLLED ON SITE DURING CONSTRUCTION BY IMPLEMENTING THE FOLLOWING DUST CONTROL MEASURES
 - MULCHING AND VEGETATIVE COVER TO REDUCE DUST.
 - MECHANICAL SWEEPERS AND FINE WATER SPRAY.
 - COVER SURFACES WITH CRUSHED STONE OR COARSE GRAVEL.

SEED MIXTURE SELECTION BASED ON SOIL TYPE

USE	SEEDING MIXTURE	SOIL DRAINAGE			
		DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	GOOD
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	GOOD
	B	POOR	GOOD	EXCELLENT	EXCELLENT
	C	POOR	GOOD	EXCELLENT	EXCELLENT
	D	FAIR	EXCELLENT	EXCELLENT	EXCELLENT
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A	GOOD	GOOD	GOOD	GOOD
	B	GOOD	EXCELLENT	EXCELLENT	EXCELLENT
	C	GOOD	EXCELLENT	EXCELLENT	EXCELLENT
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A	GOOD	GOOD	GOOD	GOOD
	B	GOOD	EXCELLENT	EXCELLENT	EXCELLENT
	C	GOOD	EXCELLENT	EXCELLENT	EXCELLENT
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	E	FAIR	EXCELLENT	EXCELLENT	EXCELLENT
	F	FAIR	EXCELLENT	EXCELLENT	EXCELLENT
	F	FAIR	EXCELLENT	EXCELLENT	EXCELLENT

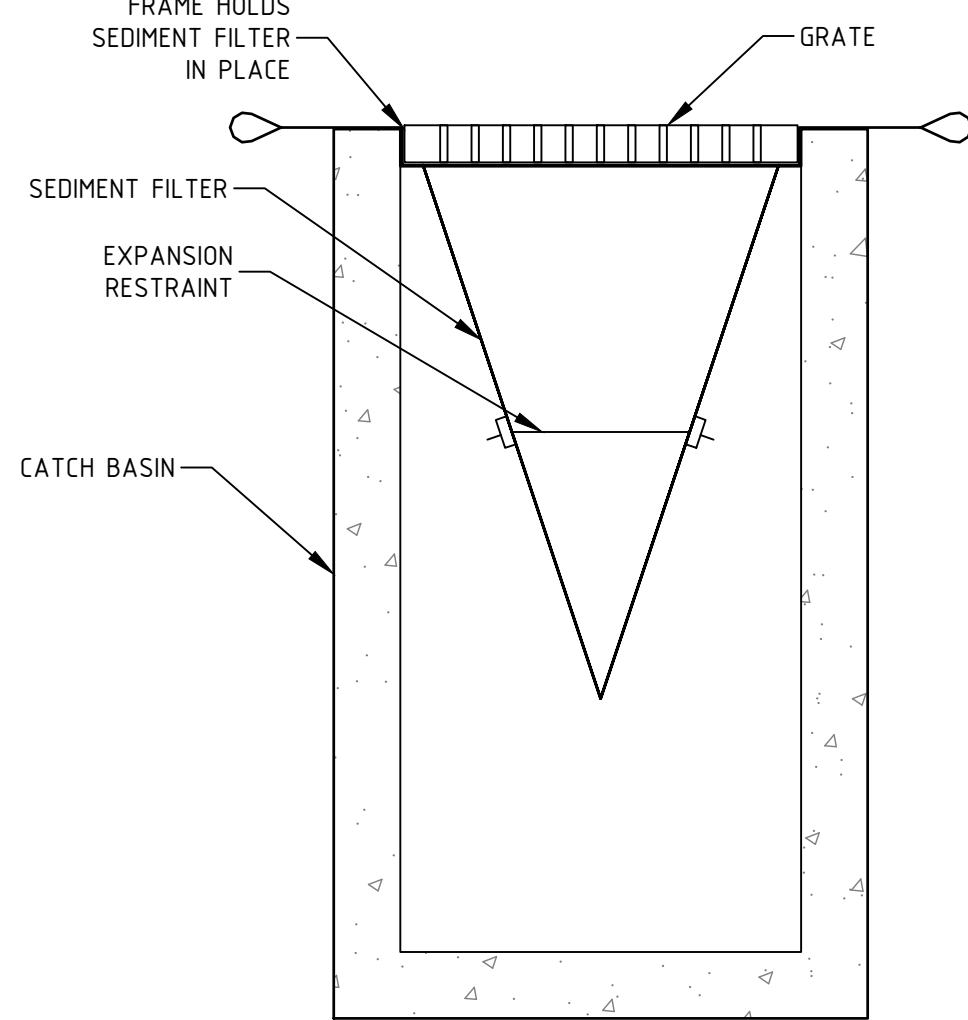
NOTE: POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREAS AND ATHLETIC FIELDS.

SEED MIXTURES FOR PERMANENT VEGETATION

MIXTURE	SPECIES	POUNDS PER ACRE	POUNDS PER 1,000 SF
A	TALL FESCUE	20	0.45
	CREeping RED FESCUE	20	0.45
	REDTOP	2	0.05
	TOTAL	42	0.95
B	TALL FESCUE	15	0.35
	CREeping RED FESCUE	10	0.25
	CROWN VETCH	15	0.35
	OR ELATIPSA	-	-
TOTAL	40 OR 55	0.95 OR 1.35	
C	TALL FESCUE	20	0.45
	CREeping RED FESCUE	20	0.45
	BIRDFOOT TREFOIL	8	0.20
	TOTAL	48	1.10
D	TALL FESCUE	20	0.45
	TOTAL	50	1.20
E	CREeping RED FESCUE	50	1.15
	KENTUCKY BLUEGRASS	50	1.15
TOTAL	100	2.30	
F	TALL FESCUE	150	3.60

SEED MIX FOR STEEP SLOPES

- ON STEEP SLOPES AT SOUTH END OF LOT, REFER TO THE LANDSCAPING PLAN FOR SEED MIX.



NOTES:

- SEDIMENT FILTER TRAP SHALL BE ACF REGULAR FLOW SILTSACK OR APPROVED EQUAL.
- FILTERS SHALL BE INSPECTED AFTER EVERY RAIN EVENT OF 0.25" OR GREATER AND SEDIMENTS SHALL BE REMOVED FROM TRAP WHEN SEDIMENT HAS REACHED TWO THIRDS OF THE DEPTH OF THE TRAP, OR IF PONDING OF WATER AT SURFACE BEGINS TO OCCUR. DO NOT PUNCTURE FILTER TRAP TO MITIGATE PONDING.

CATCH BASIN SEDIMENT FILTER DETAIL

FINAL APPROVAL BY DURHAM PLANNING BOARD.
 CERTIFIED BY MICHAEL BEHRENDT, TOWN PLANNER
 CERTIFIED _____
 DATE _____

CONSTRUCTION SEQUENCING:

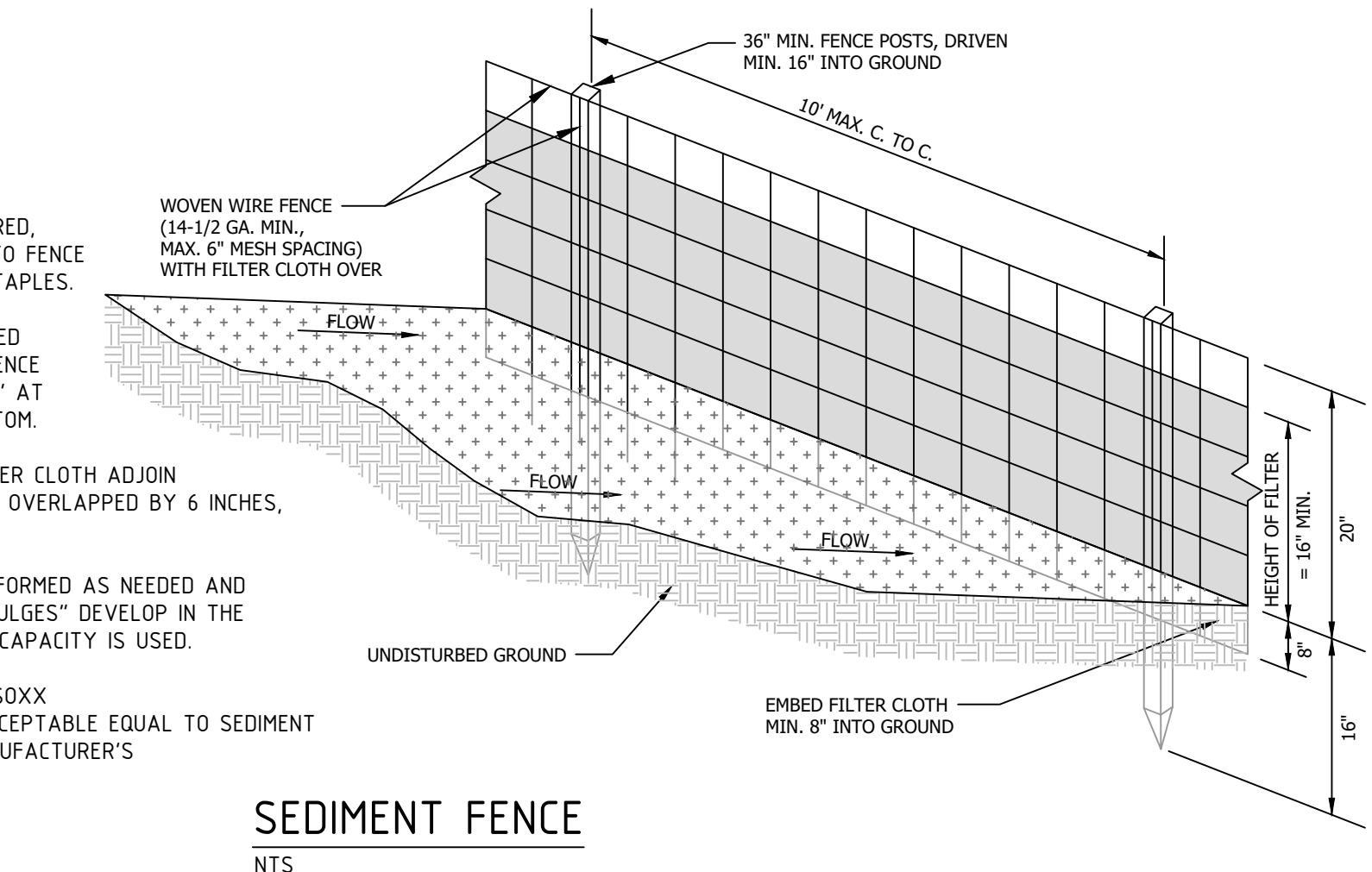
- SCHEDULE A PRE-CONSTRUCTION MEETING WITH TOWN OFFICIALS, OWNER, AND CONTRACTORS IF REQUIRED BY THE CONDITIONS OF APPROVAL PRIOR TO BEGINNING CONSTRUCTION.
- CONTACT DIG-SAFE, INDIVIDUAL UTILITIES, AND CITY DEPARTMENTS TO GET ALL UTILITIES MARKED PRIOR TO START OF CONSTRUCTION.
- INSTALL PERIMETER CONTROLS PRIOR TO ALL EARTHMOVING WORK.
- CLEAR/GRUB ONLY WITHIN THE LIMITS OF GRADING AS SHOWN ON THE PLANS. REMOVE ORGANICS ONLY FROM THOSE AREAS THAT CAN BE WORKED AND STABILIZED WITHIN 45 DAYS OF REMOVAL.
- THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
- CLEAR/GRUB
- A. STUMPS MAY BE DISPOSED ON-SITE IN ACCORDANCE WITH LOCAL AND STATE REGULATIONS.
- STOCKPILES
- A. STOCKPILE LOAM FOR RE-USE AS NEEDED.
- B. TEMPORARILY STABILIZE LOAM STOCKPILES WITH:
 - WINTER RYE GRASS - PRIOR TO SEPTEMBER 15TH
 - MULCH - FROM SEPTEMBER 15TH TO MAY 1ST
- CONSTRUCT AND STABILIZE ALL TEMPORARY AND PERMANENT SEDIMENT, EROSION, AND STORMWATER CONTROL FACILITIES AS LISTED ABOVE.
- THESE SHALL BE INSTALLED BEFORE ANY MAJOR EARTH MOVING OPERATIONS.
- RUNOFF MUST BE DIRECTED TO TEMPORARY PRACTICES UNTIL STORMWATER BMPs ARE STABILIZED. REFER TO SEDIMENT TRAP DETAIL.
- STORMWATER PONDS, INFILTRATION BASINS, AND SWALES MUST BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
- REFER TO INDIVIDUAL DETAILS FOR CONSTRUCTION REQUIREMENTS.
- PARKING LOT CONSTRUCTION
 - CUTS AND FILLS:
 - CONSTRUCT IN LOCATIONS AND TO GRADES AS SHOWN ON THE PLANS.
 - FILLS:
 - PLACE MAXIMUM 12" LIFTS AND COMPACT TO 95% MAXIMUM DRY DENSITY.
 - ALL MATERIAL BASED ON PROCTOR TEST SHALL BE FREE OF DEleterious MATERIALS SUCH AS LOAM, STUMPS, BRUSH, AND ROCKS LARGER THAN 3/4" THE DEPTH OF THE LIFT BEING PLACED.
 - LOAM AND SEED SLOPES WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
 - DRAINAGE AND UTILITY STRUCTURES
 - INSTALL AS SHOWN IN ACCORDANCE WITH DETAILS AND DRY STABILIZE.
 - BASE MATERIALS: BANK RUN AND CRUSHED GRAVEL SHALL BE PLACED IN 6" LIFTS AND COMPACTED TO 95% MAXIMUM DRY DENSITY TO THE DEPTHS SPECIFIED IN THE PARKING LOTS CROSS-SECTION DETAILS.
 - STABILIZE ALL PARKING AREAS WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
 - INSPECT, MAINTAIN, AND IF NECESSARY, REPAIR ALL EROSION AND SEDIMENT CONTROL MEASURES AS STATED IN EROSION CONTROL NOTES ON THIS SHEET.
 - REMOVE ALL TEMPORARY EROSION CONTROL MEASURES ONCE INITIAL GROWTH IS ESTABLISHED.

ADDITIONAL NOTES:

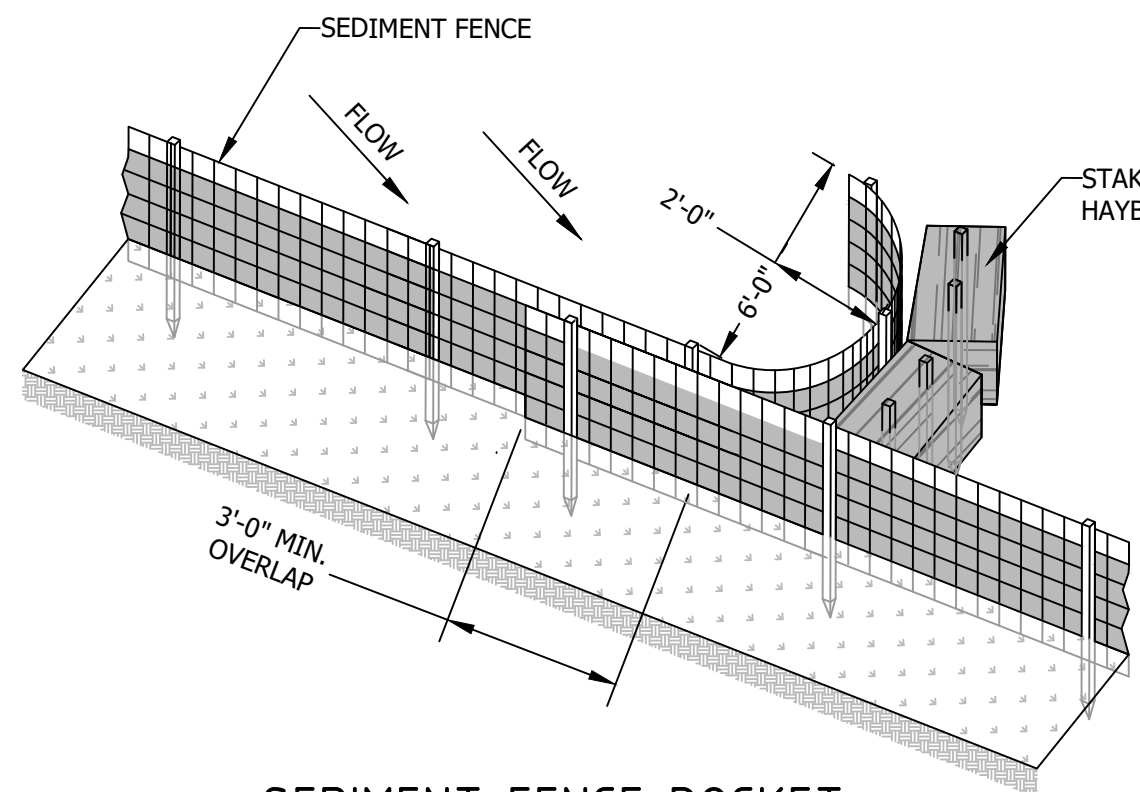
- NO FUEL SHALL BE STORED ON SITE DURING CONSTRUCTION.
- DURING CONSTRUCTION DUST SHALL BE PREVENTED FROM BECOMING A SAFETY OR HEALTH HAZARD BY THE IMPLEMENTATION OF ACCEPTED CONTROL METHODS SUCH AS WATERING.
- ALL CONSTRUCTION MATERIALS THAT ARE SPILLED OR DEPOSITED ON THE PUBLIC ROADWAYS SHALL BE REMOVED BY THE CONTRACTOR.
- DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE, AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.
- THE GENERAL CONTRACTOR IS RESPONSIBLE TO VERIFY ALL DIMENSIONS, ELEVATIONS AND CONDITIONS AT THE SITE. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGN ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PART OF THE WORK.

CONSTRUCTION NOTES FOR SEDIMENT FENCE

- WOVEN WIRE FENCE, IF REQUIRED, TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
- FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP, MID SECTION, AND BOTTOM.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES, FOLDED AND STAPLED.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SEDIMENT FENCE, OR 50% OF CAPACITY IS USED.
- 12" DIAMETER FILTrex SILTSOXX SHALL BE CONSIDERED AN ACCEPTABLE EQUAL TO SEDIMENT FENCE IF INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.



SEDIMENT FENCE
NTS



SEDIMENT FENCE POCKET
NTS

ENG	DWG	

REVISION DESCRIPTION	
NO.	DATE
18-041	11/30/2021
AS SHOWN	
ENGINEERED BY: AWS	
DRAWN BY: AWS	
CHECKED BY: MJS	
REVISED SEED MIX NOTE	06/02/22
REVISED SUBMISSION PER TRC COMMENTS	02/02/22
INITIAL SUBMISSION FOR 2 ROW PARKING LAYOUT	11/30/21

horizons Engineering
 Civil and Structural Engineering
 Land Surveying and Environmental Consulting
 MAINE • NEW HAMPSHIRE • VERMONT
 www.horizonsengineering.com

CONSTRUCTION DETAILS
 PREPARED FOR
 TOOMERES, LLC
 TAX MAP 5, LOTS 1-9, 1-10, 1-11, 1-15, 1-16
 19 MAIN ST AND 21 MAIN ST, DURHAM, NH 03824

C501