CA 94-05 White, William
Bldg. Permit

MSA-S-1829-4837

CA94-05

Robert L. Ehrlich, Jr.
Governor

Michael S. Steele
Lt. Governor

Martin G. Madden
Chairman

Ren Serey
Executive Director

STATE OF MARYLAND
CRITICAL AREA COMMISSION
CHESAPEAKE AND ATLANTIC COASTAL BAYS
1804 West Street, Suite 100, Annapolis, Maryland 21401
(410) 260-3460 Fax: (410) 974-5338
www.dnr.state.md.us/criticalarea/

February 9, 2005

Mr. Dave Brownlee
Calvert County Department of Planning and Zoning
150 Main Street
Prince Frederick, Maryland 20678

Re: Modification to Building and Grading Permit-White Property

Dear Mr. Brownlee:

Thank you for providing information on the above referenced revisions to the building and grading permit for the White property. It is my understanding that the existing building and grading permits for the property are being modified to address recommendations made by County staff to control an on-going roof runoff problem and to install a revetment and cement retaining wall on the cliff portion of the property. The property lies within a Limited Development Area (LDA) and is currently developed.

Based on the information provided, a recent site visit to the property, and our ongoing conversations regarding the need to stabilize the cliff face, we do not oppose the proposed revisions to the grading and building permits. As we have discussed, the need for modifications to the original permits arose as a result of a recent slump that has occurred to the cliff face on the property. The failure of the applicant to comply with the storm water management measures included within the original order from the Board of Appeals is a likely contributor to the cause of the cliff slump, as rooftop runoff has been directed into the soils at the top of the cliff via the use of downspouts. This saturation of the soil further exacerbates the instability of the soil on the property and has resulted in seepage throughout the cliff face and an ultimate cliff slump.

In order to stabilize the face of the cliff and to provide for effective stormwater management on the property, it is my understanding that the applicant intends to remove the current connection to the downspouts located at the rear of the house. These downspouts will be reconnected to a PVC pipe that directs rooftop runoff to rainwater trenches located on either side of the house, and ultimately outfalls to a series of rain gardens located on the front or street side of the property. In addition, a retaining wall and section of revetment will be installed to stabilize the eroding cliff face.

Per the conditions included within the County's approval of the revised building and grading permit, I understand that proposed modifications on the property will be conducted in phases and that the downspout connections and stormwater management measures will be completed and inspected by the County prior to beginning work on the retaining wall. In addition, we note that the restored area above the retaining wall is to be planted in vegetative cover as a condition of approval.

Thank you for the opportunity to provide comments on this revised building and grading permit. Please call if you have any questions at 410-260-3482.

Sincerely,

Kerrie Gallo

Kerrie L. Gallo
Natural Resource Planner
CA 02-2814

Building Permit #30407
Grading Permit #30653

SEARIDER INC.

Tech Development

Searider Inc
10399 Adel Rd
Oakton, Va.
22124

December 18, 2004

Property located at:
601 Beech Dr.
Lusby, Md. 20657

Attachments: a. Downspouts and Backyard Drainage Control Plan 1 rev E of 18 Dec 2004
b. Low Impact Rain Runoff Control Analysis 18 Dec 2004

Refs:
a. "Low-Impact Development Hydrologic Analysis". Prince George's County, Maryland, Department of Environmental Resources Programs and Planning Division, July 1999
b. "California Stormwater BMP Handbook". January 2003. New Development and Redevelopment, www.cabmphandbook.com
c. Improve Stormwater Management in Your Yard About Your House Canada Mortgage and Housing (CMHC). 2004. CE 53
d. Maryland Department of the Environment MDE Model Standard Stormwater Management Plan for Single Lot Residential Construction. Instructions V7.0-Draft

During recent 2004 Hurricane related heavy rains, the cliff face at the rear North East corner of the house at 601 Beech Dr. Lusby, Md. slumped down dangerously close to the house foundation. To correct the problem the homeowner has applied to modify permit number 30653 (which installed a stone revetment along the bottom half of the cliff face) to add more stability to the cliff face for it's entire height. In consort with those endeavors, the Calvert County Department personnel reviewing the site recommended that the homeowner also take action to minimize the impact of rain water runoff impact on the cliff area.

This letter provides details of our analysis of the water runoff mitagation approach developed for the property identified as 601 Beech Dr., Lusby Md. in Calvert County on the Chesapeake Bay. At the owners request we have developed an approach to control the roof runoff from the eight (8) downspouts currently on the house as shown on the attached drawing (attach a).

Three of four downspouts on the street side of the house discharge onto plastic splash blocks and run from there onto the lawn and then down-slope toward the street. The fourth front downspout (south west corner) has been connected into a buried 6 inch PVC pipe that discharges into a stone filled infiltration trench along the house side. Three of four downspouts at the rear of the house (bayside) discharge into buried 6 inch OD PVC pipe. It is suspected that those three pipes end in the soil at the rear of the house and may contribute to soil saturation in that area near the cliff situated approximately 24 feet from the rear of the house. The fourth rear downspout (North East corner) discharges above ground to the house side.
The house is situated on essentially flat property with a 24 ft elevation from the cliff face 25 ft to the rear of the house to 30 feet in front of the house toward the street. There are small side

slopes (approx 6 in elev) from the house extending about 15 ft on the north side and 6 ft on the south side forming natural swales from rear to the front yards.
The 25x80 ft rear yard between the house and the cliff is flat grass covered except where storm damage has occurred. During normal rain, the sandy soil and vegetation easily absorb the direct rainfall. However, during extreme rainfalls as associated with tropical storms, the owner has witnessed rainwater flowing over the cliff before the soil can absorb it. Note that this is separate from roof rain runoff which is discharged underground at the houses side areas.

Therefore there are three objectives to this control plan.

1. Regulate all Roof rain runoff underground and away from the cliff area of the property.
2. Divert all surface rain runoff away from the Cliff face area to minimize soil saturation.
3. Minimize disturbance of areas of the property that were not disturbed during original house construction.

Analysis: Infiltration solutions are designed to capture stormwater runoff and allow it to infiltrate the soil. Dispersion and storage practices can be used alone or in conjunction with infiltration practices to increase the on-site effectiveness of stormwater management. Enhanced infiltration solutions help preserve a site's natural hydrologic features such as groundwater recharge and runoff volumes and peak discharges.

Dry wells along the house sides were considered first. Roof downspouts can be directed to dry wells. A dry well is constructed by excavating a hole in the ground and filling it with an open graded aggregate, and then allowing the water to fill the dry well and infiltrate after the storm event. An underground connection from the downspout conveys water into the dry well, allowing it to be stored in the well voids. To minimize sedimentation from lateral soil movement, the sides and top of the stone storage matrix can be wrapped in a permeable filter fabric, though the bottom may remain open. A perforated observation pipe can be inserted vertically into the dry well to allow for inspection and maintenance.
In practice, dry wells receiving runoff from single roof downspouts have been successful over long periods because they contain very little sediment. They must be sized according to the amount of rooftop runoff received, but are typically 4 to 5 feet square, and 2 to 3 feet deep, with a minimum of 1-foot soil cover over the top (maximum depth of 10 feet). To protect the foundation, dry wells must be set away from the building at least 10 feet. They must be installed in solids that accommodate infiltration.
Dry wells were rejected because they did not address the cliff face surface runoff problem and required excessive piping lengths from downspouts to the pits.

Infiltration trenches were considered next. Infiltration trenches are used in areas where the open spaces available for stormwater management consist primarily of narrow strips of land. Infiltration trenches are linear structures, usually a minimum of 2 feet wide, consisting of washed rock wrapped in filter fabric with no outlet that receives stormwater runoff. An optional berm around the perimeter allows some flow control. Also an infiltration trench can be used to feed a raingarden to permit dual evaporation and filtration processes to occur. Infiltration trenches are particularly effective for larger roof areas. Runoff is stored in the void space between the stones and infiltrates through the bottom and into the soil matrix. Infiltration trenches perform well for removal of fine sediment and associated pollutants. Infiltration trenches eliminate the discharge of the water quality volume to surface receiving waters and consequently can be considered to

have 100% removal of all pollutants within this volume. Transport of some of these constituents to groundwater is likely, although the attenuation in the soil and subsurface layers will be substantial for many constituents. The stone aggregate should be washed to remove dirt and fines before placement in the trench. The addition of organic material and loam to the trench subsoil may enhance metals removal through adsorption. The trench depression will need to be shallow enough to ensure that water will not stand for more than two days, but deep enough to hold the anticipated amount of water. A general guideline for depth is from 15 cm (6 in.) in soils with high infiltration rates (for example, sandy or gravelly soils). For maximum effectiveness, the infiltration trench feeds into a raingarden that serves as a final water surge collection buffer within the pit as well as a shallow surface depression with plantings and soil collection area that permits final runoff filtering.

Based on this, it appeared that infiltration trenches feeding Raingardens would solve all three problems.

Design

Attachment a. shows the layout of the two infiltration trenches that were designed to lead surface rain water away from the cliff face and collect piped downspout rain outputs initially to the sides of the house and then toward the street and into two raingardens. To control the water flow direction within each trench, the bottom of the trench is dug deeper as it moves from the rear of the house to the street side at a rate of 1 inch per 10 feet of run (>0.5%). For the 50 ft run alongside the house to the raindarden, the trench depth increases from 6 inches to 14 inches. For the rest of the trench toward the street the natural slope of the property is sufficient.

On the northern side of the house the trench runs a path along a natural swale located 15-20 feet from the house side. This also misses the low pressure dose Septic tanks and Oil storage tank on the northern part of the property. On the southern side of the house, the other trench follows a similar swale located 4-6 feet from the house side and 10-5 feet from the property line. Finally, both trenches on the street side are outside of the septic field area to minimize potential cross communication.

On the street side, both trenches feed raingardens that are designed in accordance to Ref d., The MDE Model Standard Stormwater Management Plan for Single Lot Residential Construction.

To determine the size of the infiltration trenches, we followed these three steps as detailed on attachment b.

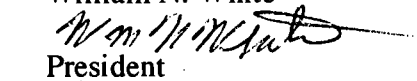
1. Determine inflow.
    i. Calculate the area in square feet of the section of the roof that will drain into each infiltration trench, in this case 924 ft2. Next, estimate the area of lawn that will drain into the trench and multiply the figure by 20 per cent. The lawn area per trench is 20x30ft rear + 20x60ft side. The 20% is for the effectiveness of grass lawn to absorb runoff. The resulting 1284 ft2 is the total effective drainage area per trench.
    ii. Determine the amount of precipitation that will flow into the infiltration trench over a 24-hour period. Reference a. shows that 3 inches per 24 hour storm occurs once every two years and five inches once every ten years. We based the analysis on 2 year

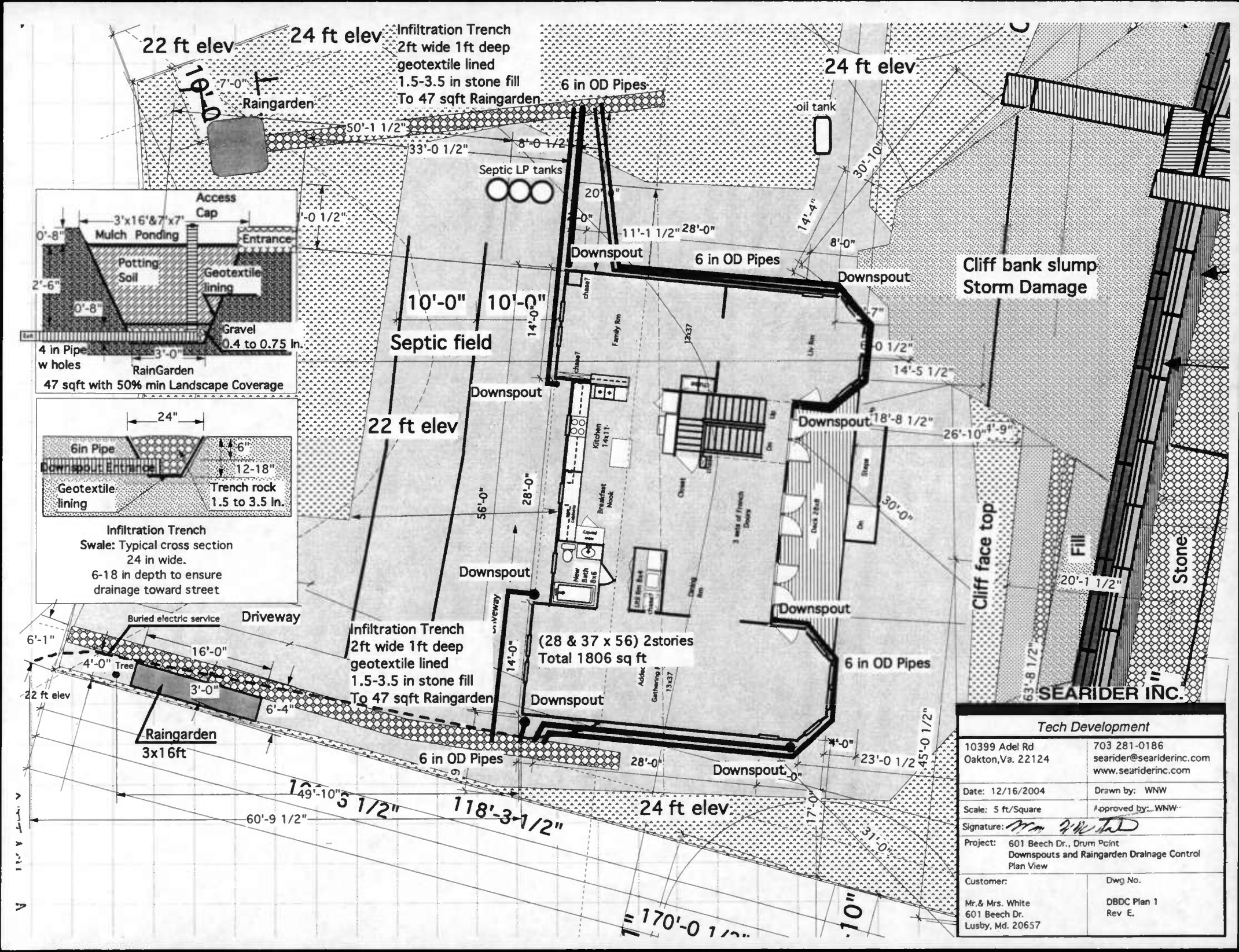
maximum precipitation data. The maximum rainfall rate of 0.75 in/hr was taken from reference b. This led to a calculated required capture volume of 321 ft3 in a minimum of 4 hours.

2. Determine the infiltration rate of the soil (see "Soil Infiltration Rates").
For this location, a 4/19/92 Calvert County Perc Test was available with a 2 minutes per inch infiltration rate. Divide the estimated inflow (Step 1) by the infiltration rate (Step 2). Using the example above, the infiltration trench would need an area of 321ft3/120in/2hrs=64 ft2 with a time factor of safety of two.

3. **Infiltration trenches** were designed to exceed the above capture volume and trench infiltration rate for once every two year storm precipitation levels. With these requirements, each infiltration trench was designed to be a minimum of 50 ft long by 2 ft wide by an average of 10 inches deep. This results in a trench area of 100 ft2 and volume of 83 ft3. The effective volume when filled with stone is 30 ft 3. The minimum time to fill trench without infiltration is 22 min at a 0.75 in/hr rainfall rate. With infiltration present, the trenches should never overfill, since they have a large infiltration factor of safety of over 6. Occasionally, there will be a heavy rainfall, and less often – once every 10-100 years – an extremely heavy rainfall rate. Even for this case, say 5 inches of rain at 1.5 in/hr the factor of safety is over 3.

Raingardens were sized according to Tables 4A and 4B and Example 4C of Reference d. The northern Raingarden is a simple square 7ft by 7ft. with an 8 inch depression, 2 inches of mulch, 30 inches of potting soil over 8 inches of gravel. The southern Raingarden's layout was constrained by the neighbors's property boundary, buried electrical service cable, the driveway and existing Trees and telephone/utility pole as shown on the attachment a. drawing. A 3ft by 16 ft Raingarden adjacent to the property line was found to be suitable while leaving the existing tree undisturbed. It has the same 8 inch depression 2 inches of mulch, 30 inches of potting soil and 8 inches of gravel. Both raingardens will have landscape plantings covering more than 50% of the depression.

Sincerely,
William N. White

President



Tech Development	
10399 Adel Rd Oakton,Va. 22124	703 281-0186 searider@searideinc.com www.searideinc.com
Date: 12/16/2004	Drawn by: WNW
Scale: 5 ft/Square	Approved by: WNW
Signature:	
Project: 601 Beech Dr., Drum Point Downspouts and Raingarden Drainage Control Plan View	
Customer: Mr.& Mrs. White 601 Beech Dr. Lusby, Md. 20657	Dwg No. DBDC Plan 1 Rev E.

Low Impact Rain Runoff Control Analysis							
Performed by:	Searider Inc.						
Checked by:	William White, Pres						
Date	18-Dec-04						
Location	601 Beech Drive						
	Lusby, Md. 20657						
Objective	Minimise interaction of house and property rain runoff with Cliff face at rear of property to maximise cliff stability						
	by reducing soil water saturation and surface runoff in that area of the property.						
ITEM	**Value**	**Units**	**Details**				**References**
House sq ft	1848	ft2	28x38+28x28	Tot Roof area			
1/2 roof Hard Surf	924	ft2					House Plans
1 Side Soft Ground area	1800	ft2	20X40+60x20	1/2 grass area			Site Survey 6 Nov 2004
Effective Grass Area	360	ft2	20	%			USDA NRCS: Percent from CMHC-SCHL Stormwater Mgt.Dec 2003
Slope from house	1.20	inches/10ft	Min ground slope from house				USDA NRCS Stds
Total effective drainage area	1284.00	ft2					
Max design 24hr rainfall	2.00	Design Max for 24 hours	>1.5" ~ 4% of Time	3	Once every two years. Max for NAS Pax River		"Low-Impact Development Hydrologic Analysis", July 1999, Prince George's County, Maryland and PAX River NAS Historic Metrology Data
Rainfall rate max	0.75	in/hr					Fig 5-12 California Stormwater BMP Handbook, Jan 2003
Total rainfall vol/day	321.00	ft3					Based on worst case 3in per 24 hour data
Min Time for 3 in Rain	4	Hrs					Based on 3in at 0.75 in/hr
Perk Test Soil Infiltration Rates	2.00	Min/INCH	60	Inch/HOUR	5	Inch/10min	Sand with Clay Per 4/1/92 Calvert Cty Perc Test on Property
Reqd rainfall swale area per day	64.20	ft2/day	2.675	ft2/hr			ASSUMED WORST CASE OF ALL IN TWO HOURS
							California Stormwater BMP Handbook of Jan 2003
Swale Dimensions (Infiltration Trench) Design	50.00	ft length	2	ft width	0.8	ft depth	Infiltration trenches function in a similar manner to Pads and would be particularly effective for larger roof areas. An infiltration trench is a long, narrow, rock-filled trench with no outlet that receives stormwater runoff.
							dry wells must be set away from the building at least 10 feet.
Swale Area (Design)	100.00	FT2					
Swale Volume (Design)	83.33	ft3					
Swale Infiltration rate based on Perk	500.00	ft3/hr					
Swale buffer capacity (volume)	83.33	ft3	Stone density	0.35	29.2	FT3 effect volume	Trench rock that is 1.5 to 3.5 inches in diameter.
Min Time to fill w/o infiltration	0.36	hrs Buffer	Rainfall rate max = 0.75 in/hr				Fig 5-12 California Stormwater BMP Handbook of Jan 2004
Min Time to fill with infiltration	Never						
Factor of Safety	6.23						Based on 3 inches of rain at 0.75 in/hr
Raingardens							
Size per garden	47	sq ft					Based on Table 4A MDE Stormwater MP Single lot Construction
Materials & Landscaping							Per Table 4B MDE Stormwater MP Single lot Construction
Depression	8	Inches					Per Example 4C MDE Stormwater MP Single lot Construction
Mulch	2	Inches					Per Example 4C MDE Stormwater MP Single lot Construction
Potting Soil Depth	30	Inches					Per Example 4C MDE Stormwater MP Single lot Construction
Gravel base	8	inches					Per Example 4CB MDE Stormwater MP Single lot Construction

ATTACH B

Building Permit # 30407
Grading Permit # 30653

SEARIDER INC.

Tech Development

Searider Inc
10399 Adel Rd
Oakton, VA.
22124

January 7, 2005

Property located at:
601 Beech Dr.
Lusby, Md. 20657

Attachments:
a. Pictures of Storm Damage Cliff Slope Area Erosion taken December 2004
b. Storm Damage Plan of Storm Damage to Property, dwg No. DPSS Plan 1 rev F of 1 Jan 2005 (overview)
c. Storm Damage Elev of Slope typical for 48 ft Elev Dets AA dwg No. DPSS Elev Det AA rev E of 18 December 2004
d. Storm Damage Elev of Slope typical for 80 ft Elev Dets BB dwg No. DPSS Elev Det BB rev E of 18 Dec 2004
e. Slope Stabilization typical for 60 ft Elev Dets CC dwg No. DPSS Elev Det CC rev E of 18 Dec 2004
f. Plan of Stabilization Repair. Plan View of Added Retaining Wall and Fill, dwg No. DPSS Plan 2 rev G of 7 Jan 2005.
g. Elev Slope Stabilization typical for 48 ft Dets AA. dwg No. DPSS Elev Det AA rev F of 3 Jan 2005
h. Elev Slope Stabilization typical for 88 ft Dets BB. dwg No. DPSS Elev Det BB rev E of 18 Dec 2004
i. Elev Slope Stabilization typical for Neighbors Property Dets DD. dwg No. DPSS Elev Det DD rev F of 1 Jan 2005
j. Seament Shoreline Systems Inc. Precast Concrete L-Wall Retaining Wall PE Calculations, drawings and photos

Refs: a. "Grading Permit No. 30653" dated 21 Nov 2002 issued by Calvert County Division of Inspections and Permits.

The 186 ft Stone revetment installed under permit no. 30653, see ref a. has experienced significant cliff material slumping over the stone as a result of severe recent 2004 hurricane related heavy rains, and continues to erode with each heavy rain.

The southern third of the cliff slumped first (in the Spring of 2004) cutting away the upper cliff edge approximately four feet back at the boundary with the neighbor's property. The resulting cliff face of slump covers over the stone revetment to approximately one-foot depth over the upper stone and the cliff is also severely undercut along 60 feet at the top cliff edge. Some of this slump has washed into the Bay due to the 80-degree steepness of the cliff face slope in this area. This steep slope continues to erode and during the Thanksgiving weekend (Nov. 24, 2004) a holly tree at the cliff edge toppled over with additional slumping also occurring. This additional damage is shown

in the four photographs included as attachment a. and indicated on the Plan of attachment b. by shading and is highlighted by Elevation, AA, on attachment c.

The middle section of the cliff face at the rear North East corner of the house at 601 Beech Dr. Lusby, Md. has also severely slumped. The damage has come dangerously close to the house foundation during the July-August 2004 storms. The storms moved the cliff edge approximately 15 - 20 feet back and it is now past the rear house line and currently is within four feet of the house foundation. The resulting slump covered approximately 80 ft length of the recently installed stone revetment and was close to five feet deep over most of it. This is indicated on Plan 1 of attachment b. by shading and is highlighted by Elevation BB see attachment d.

The northernmost third section of the revetment and cliff has not experienced significant damage and no repairs are contemplated in this area as indicated on the plan of attachment b. by shading and highlighted by Elevation, CC, see attachments e.

The stabilization and repair of the area between the neighbor's property and the recent storm damage of the southern and middle cliff sections is the purpose of this request to the Calvert County Department of Planning and Zoning.

To correct this most pressing problem and to prevent immediate house damage, the homeowner starting in July 2004 and six revisions later on Jan 10 2005 is applying to modify permit number 30653 (which originally installed a stone revetment along the bottom half of the cliff face) to add more stability to the cliff face by restraining the potential of the upper cliff to slide toward the bay. The homeowner will accomplish this by increasing the rear edge of the revetment height by incorporating a retaining wall consisting of Seament Shoreline Inc. L-Wall/JB precast concrete sections installed with fill dirt along the southern and middle sections of the stone revetment from the neighbor's property line through the big slump in accordance with attachments f-i.

The Detail AA Elevation of Attachment g, shows the L-wall/JB installation with Filter Cloth and backfill of the south-most section. This will prevent continued cliff face slumping into the Bay as has been occurring with each severe storm this past fall of 2004. Detail DD of Attachment i, shows the neighbor's property and his existing Stone Revetment that abuts the applicant's Stone Revetment. It shows that approximately five feet of additional light (6-10in) stone fill will be installed at the property line on the applicants side to seamlessly tie the neighbors upper level stone into the new extended retaining wall and it's backfill. The Elevation of Det BB attachment h shows the middle section with the L-wall/JB installation with Filter Cloth and recovered slump and backfill.

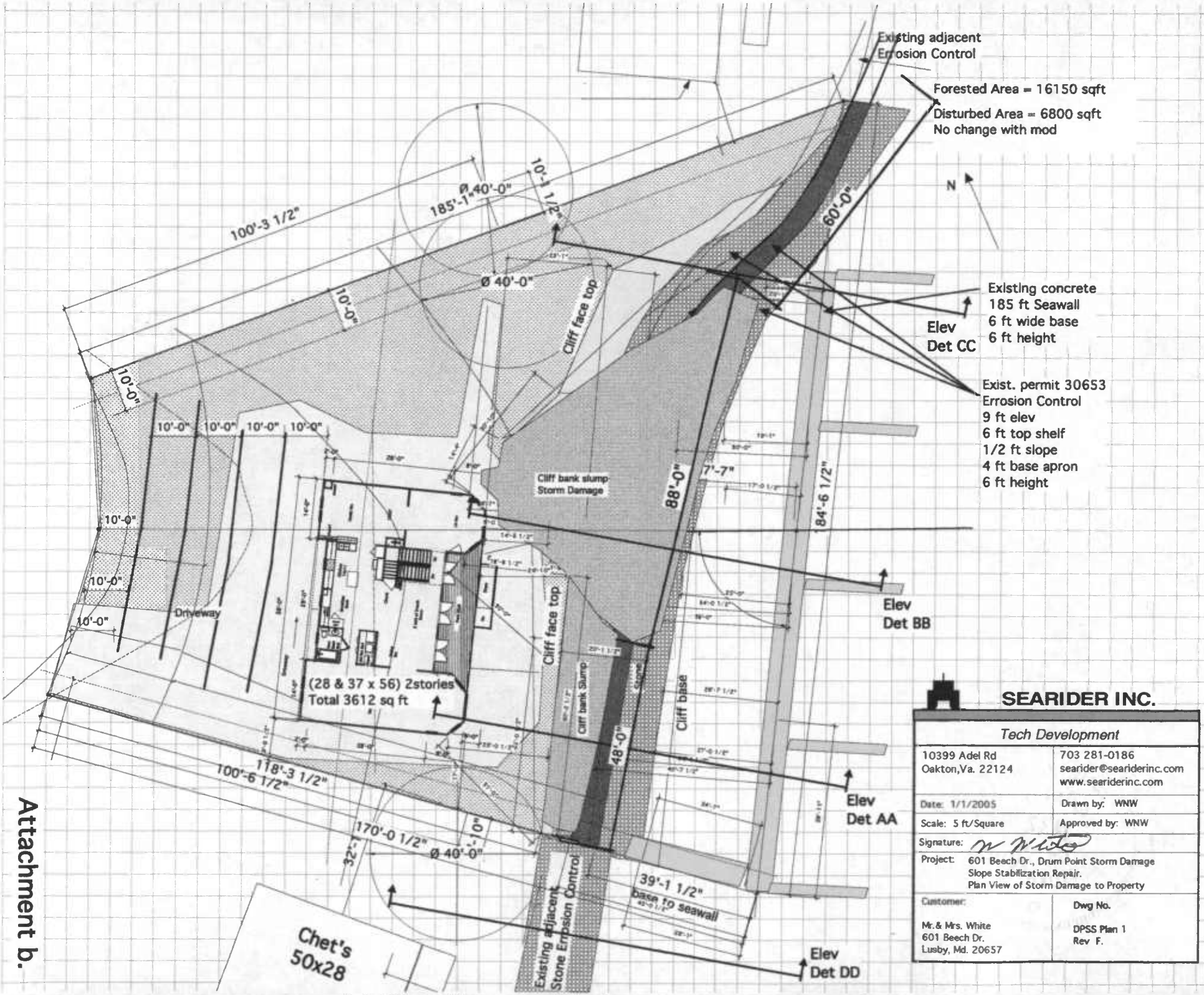
All backfill will be seeded and covered with biodegradable protection in accordance with approved procedures. See attachment j. for engineering details on the precast concrete sections and their unique backfill self-stabilization characteristics and integral vertical base anchor key that facilitate their integration and interlock with the existing stone revetment as shown in the elevations of attachments g-h.

Bob Tabisz of the MDE was provided these planned modifications, and on Nov 1 2004 he informed the property owner and John Swartz of Calvert County Planning Dept that there was no requirement for further review by his department of associated State Permit MDE 03GL-0433.

Submitted at the Counties request on 22 December 2004 under separate cover, was a rainwater runoff mitigation plan for the property, designed to minimize the potential of rainwater saturating the cliff face. In summary, that plan conducts all downspout and surface rainwater away from the cliff area via a set of underground pipes and infiltration trenches leading to raingardens in the front yard.

Your prompt response is appreciated as the damage continues to expand with each severe storm and rainfall.

Sincerely,
W. N. White

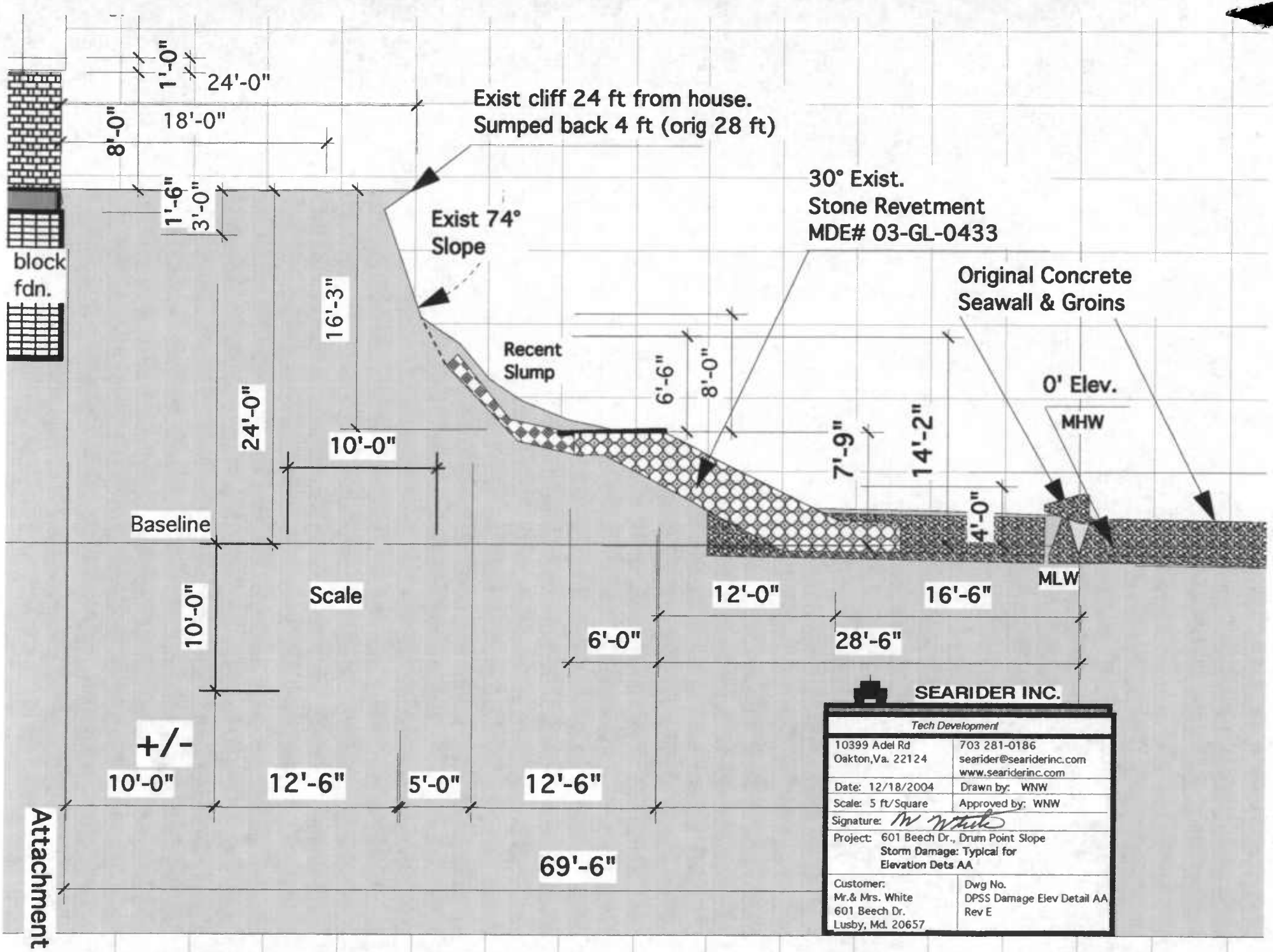


SEARIDER INC.

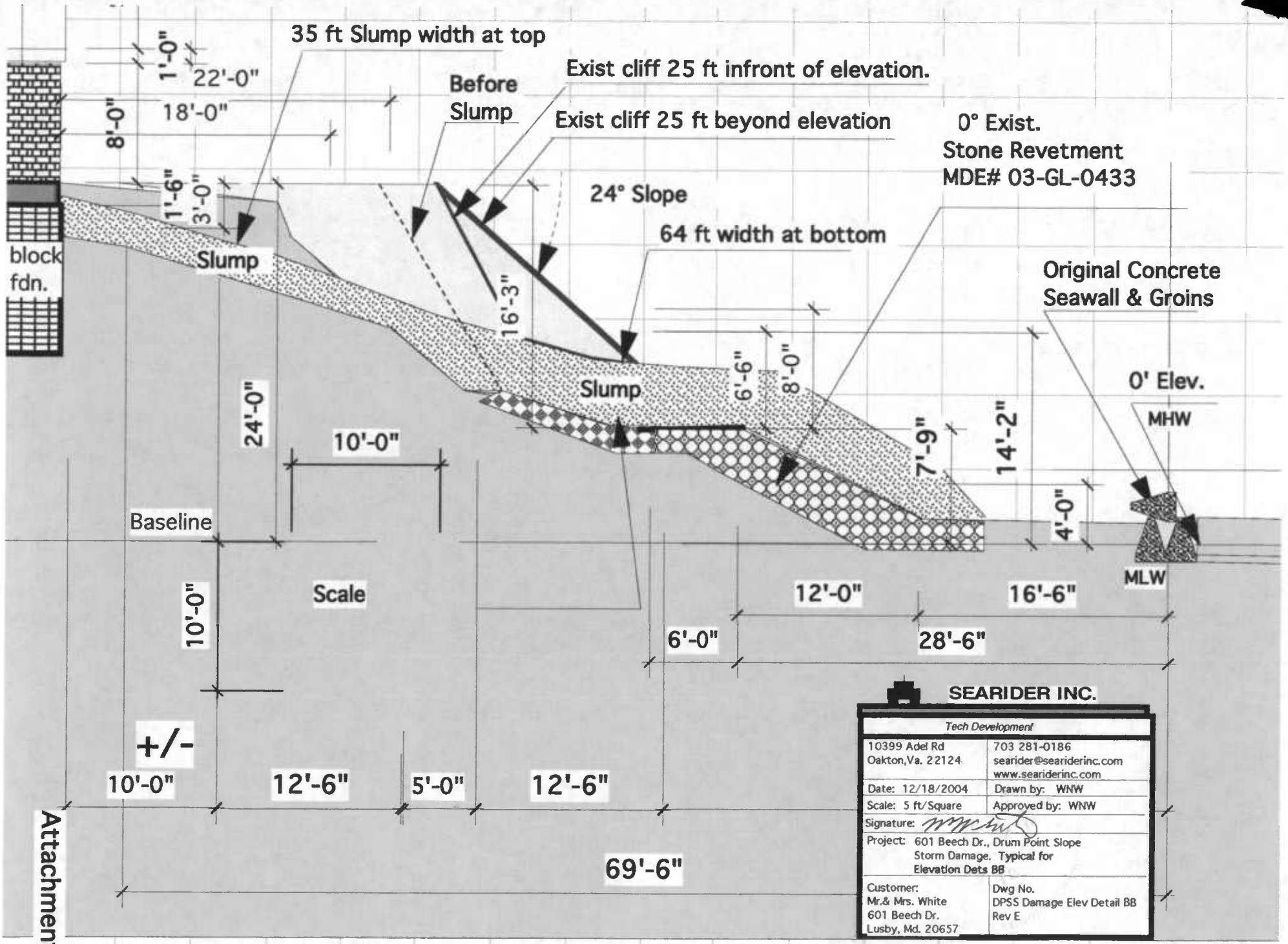
Tech Development

10399 Adel Rd Oakton,Va. 22124	703 281-0186 searider@seariderinc.com www.seariderinc.com
Date: 1/1/2005	Drawn by: WNW
Scale: 5 ft/Square	Approved by: WNW
Signature: W White	
Project: 601 Beech Dr., Drum Point Storm Damage Slope Stabilization Repair. Plan View of Storm Damage to Property	
Customer: Mr.& Mrs. White 601 Beech Dr. Lusby, Md. 20657	Dwg No. DPSS Plan 1 Rev F.

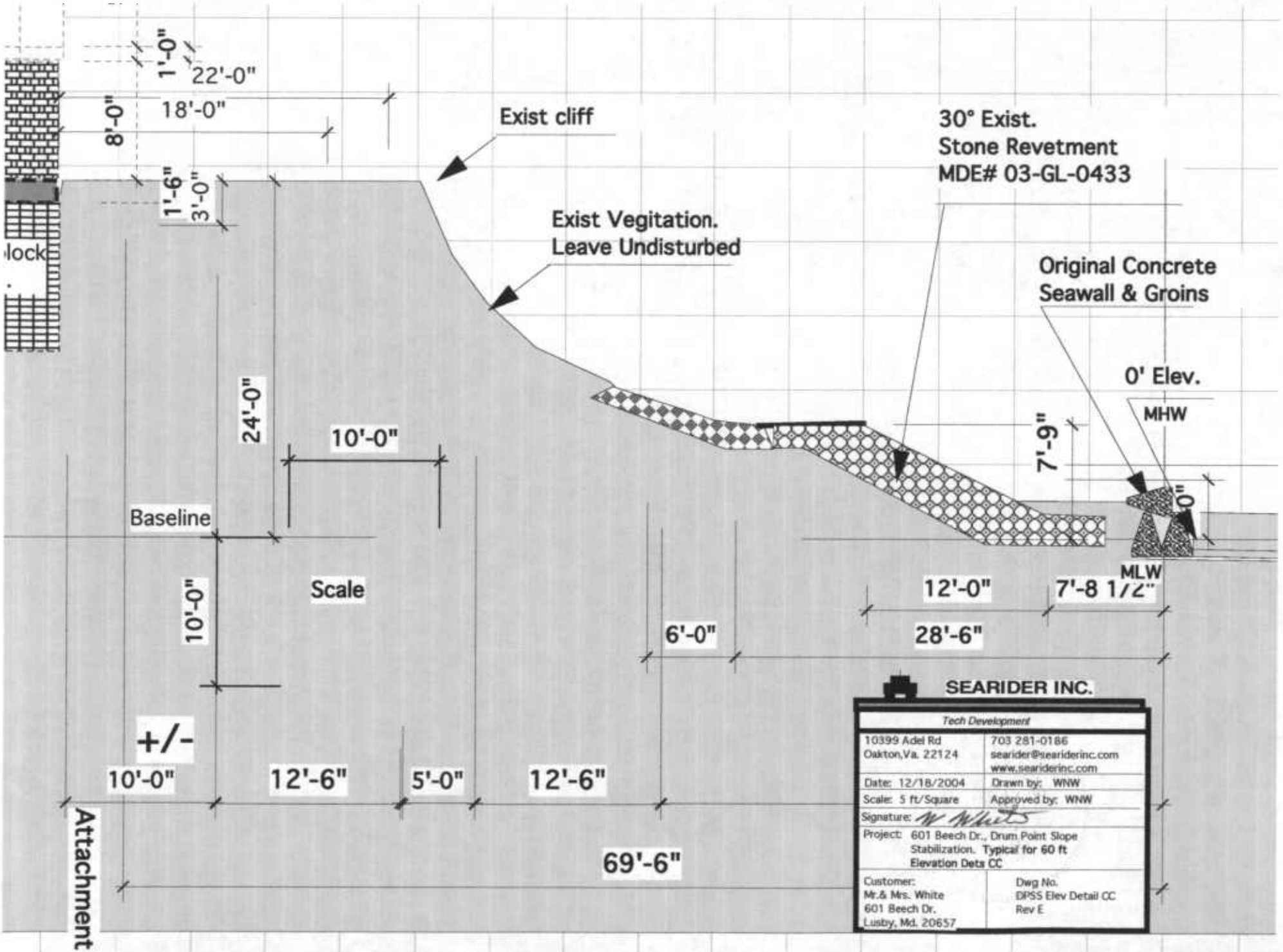
Attachment b.

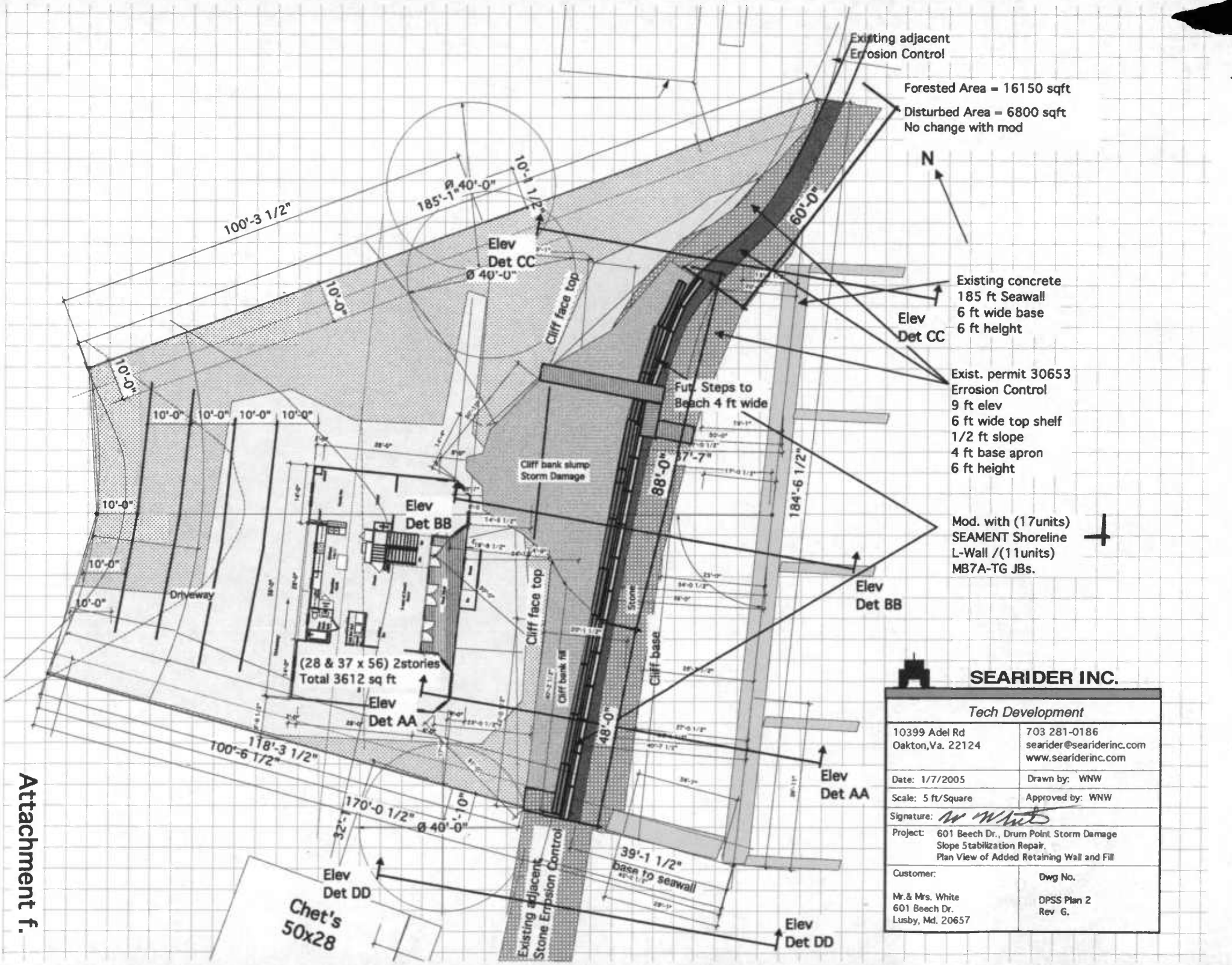


Attachment c.



Attachment d.


1'-0"
22'-0"
18'-0"
8'-0"
1'-6"
3'-0"
Exist cliff
30° Exist.
Stone Revetment
MDE# 03-GL-0433
Exist Vegitation.
Leave Undisturbed
Original Concrete
Seawall & Groins
0' Elev.
MHW
7'-9"
24'-0"
10'-0"
Baseline
Scale
10'-0"
MLW
12'-0"
7'-8 1/2"
6'-0"
28'-6"
+/-
10'-0"
12'-6"
5'-0"
12'-6"
69'-6"
SEARIDER INC.
Tech Development
10399 Adel Rd
Oakton,Va. 22124
703 281-0186
searider@seariderinc.com
www.seariderinc.com
Date: 12/18/2004
Drawn by: WNW
Scale: 5 ft/Square
Approved by: WNW
Signature:
Project: 601 Beech Dr., Drum Point Slope Stabilization. Typical for 60 ft Elevation Dets CC
Customer:
Mr.& Mrs. White
601 Beech Dr.
Lusby, Md. 20657
Dwg No.
DPSS Elev Detail CC
Rev E

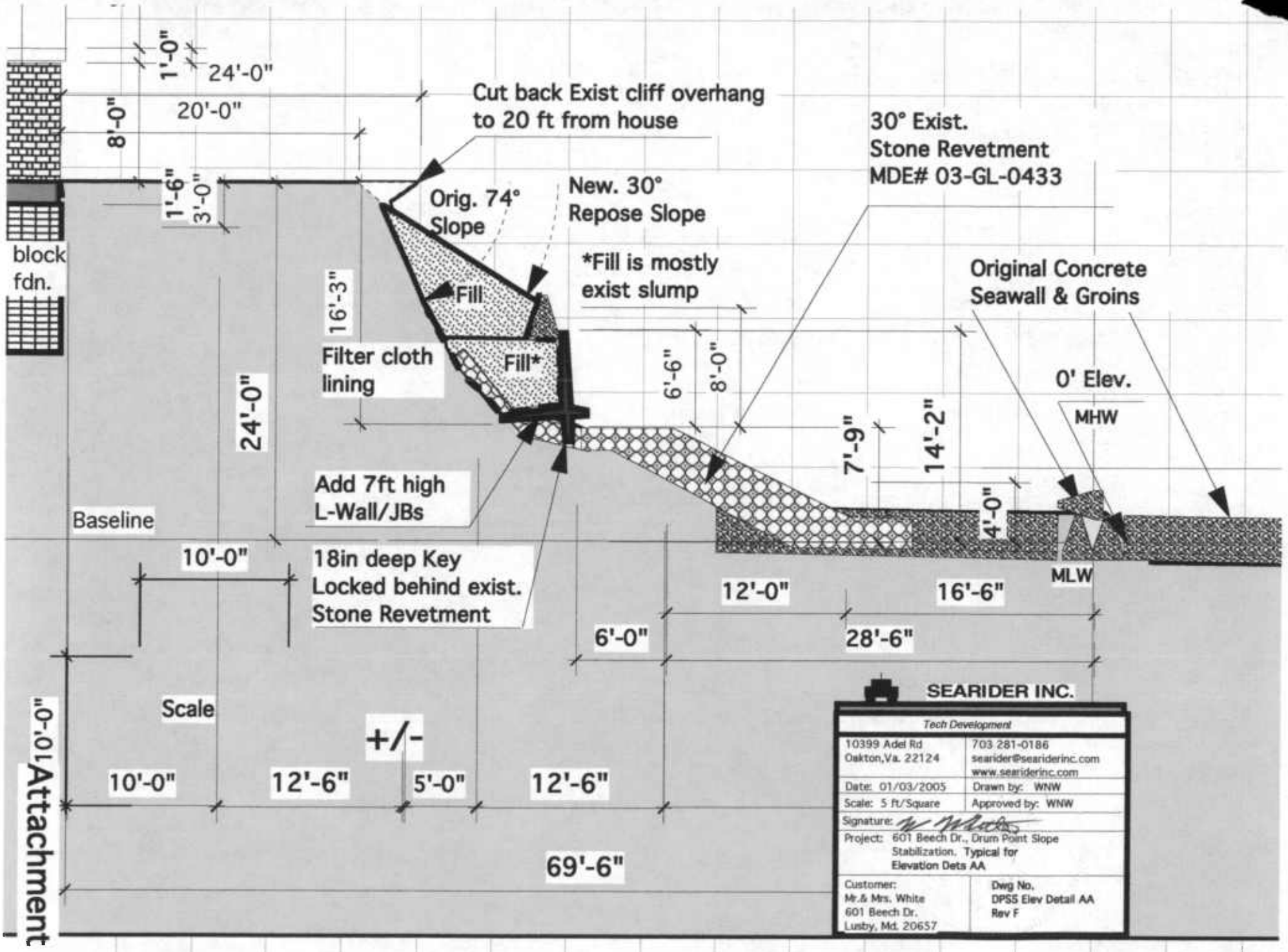


SEARIDER INC.

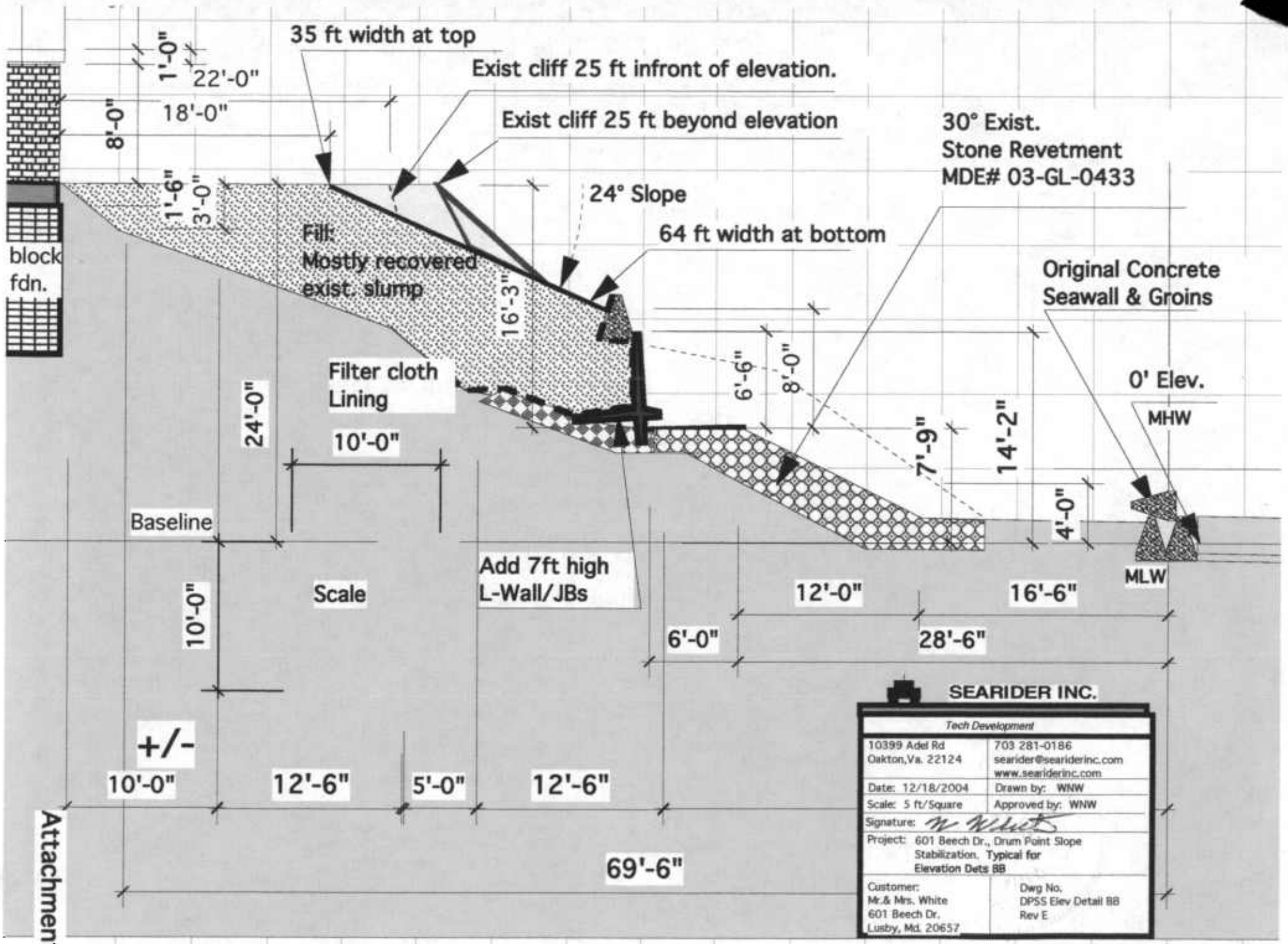
Tech Development

10399 Adel Rd Oakton,Va. 22124	703 281-0186 searider@seariderinc.com www.seariderinc.com
Date: 1/7/2005	Drawn by: WNW
Scale: 5 ft/Square	Approved by: WNW
Signature:	
Project: 601 Beech Dr., Drum Point Storm Damage Slope Stabilization Repair, Plan View of Added Retaining Wall and Fill	
Customer: Mr.& Mrs. White 601 Beech Dr. Lusby, Md. 20657	Dwg No. DPSS Plan 2 Rev G.

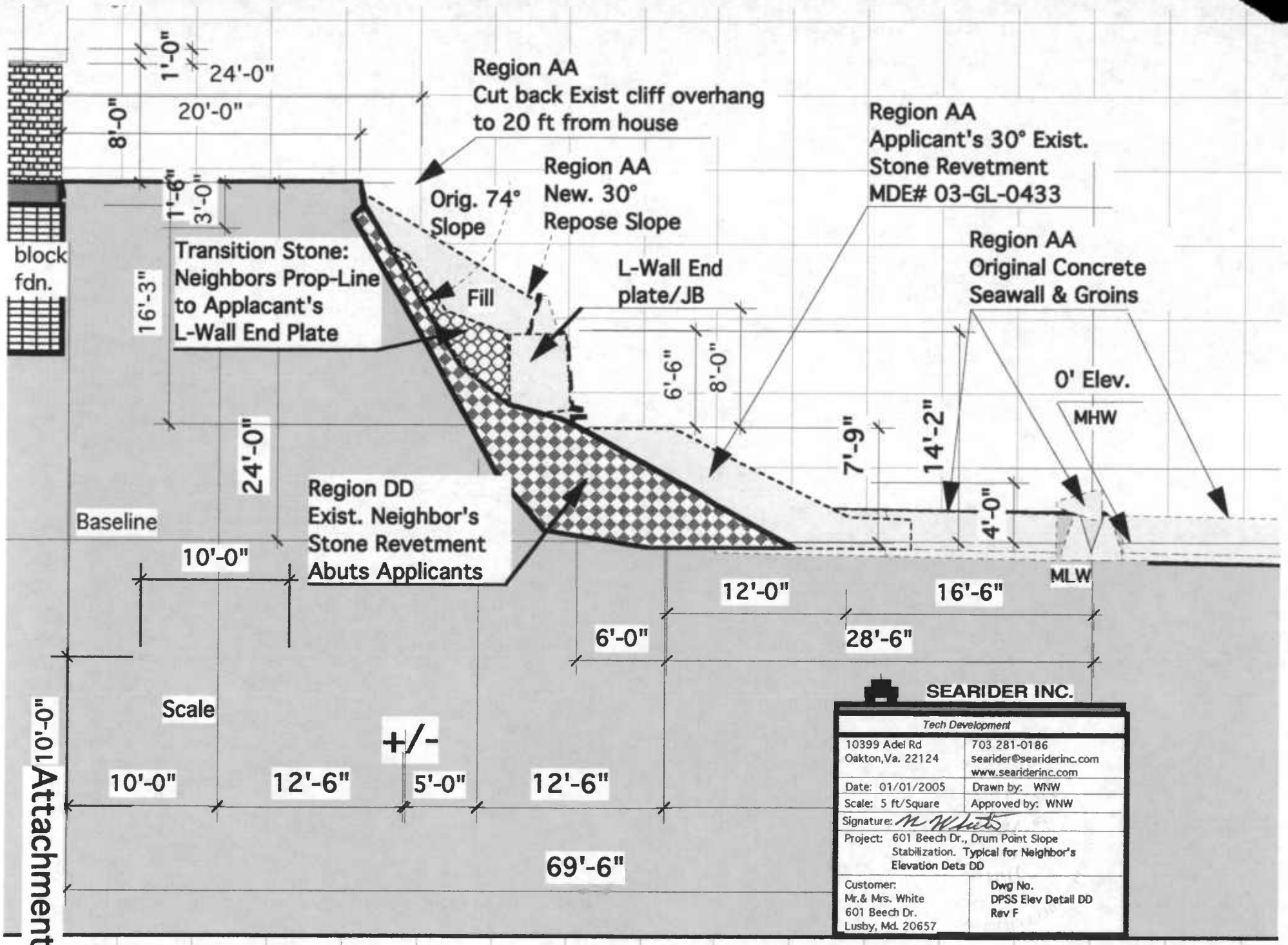
Attachment f.



Attachment 9.



Attachment h.


1'-0"
24'-0"
20'-0"
8'-0"
Region AA
Cut back Exist cliff overhang
to 20 ft from house
Region AA
Applicant's 30° Exist.
Stone Revetment
MDE# 03-GL-0433
1'-6"
3'-0"
Orig. 74°
Slope
Region AA
New. 30°
Repose Slope
block
fdn.
Transition Stone:
Neighbors Prop-Line
to Applacant's
L-Wall End Plate
16'-3"
Fill
L-Wall End
plate/JB
Region AA
Original Concrete
Seawall & Groins
6'-6"
8'-0"
0' Elev.
MHW
7'-9"
14'-2"
24'-0"
Region DD
Exist. Neighbor's
Stone Revetment
Abuts Applicants
Baseline
4'-0"
MLW
10'-0"
12'-0"
16'-6"
6'-0"
28'-6"
Scale
10'-0"
+/-
10'-0"
12'-6"
5'-0"
12'-6"
69'-6"
Attachment i.
SEARIDER INC.
Tech Development
10399 Adel Rd
Oakton,Va. 22124
703 281-0186
searider@seariderinc.com
www.seariderinc.com
Date: 01/01/2005
Drawn by: WNW
Scale: 5 ft/Square
Approved by: WNW
Signature:
Project: 601 Beech Dr., Drum Point Slope
Stabilization. Typical for Neighbor's
Elevation Dets DD
Customer:
Mr.& Mrs. White
601 Beech Dr.
Lusby, Md. 20657
Dwg No.
DPSS Elev Detail DD
Rev F

White Property-Cliff Collapse 1/3/05

White Property-Cliff Collapse 1/3/05