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**ECHO LAKE ACCESS AREA
VT FISH & WILDLIFE DEPARTMENT
30% STORMWATER IMPROVEMENT DESIGNS
ECHO-SEYMOUR LAKES WATERSHED ACTION PLAN**



THE FOLLOWING 30% CONCEPT DESIGNS WERE DEVELOPED BY THE MEMPHREMAGOG WATERSHED ASSOCIATION AS PART OF THE LAKE WATERSHED ACTION PLAN. THESE DESIGNS REPRESENT RECOMMENDED DRAINAGE IMPROVEMENTS AND SEDIMENT & EROSION CONTROL BEST MANAGEMENT PRACTICES FOR ECHO LAKE ACCESS AREA OWNED BY VERMONT FISH & WILDLIFE DEPARTMENT. THEY ARE INTENDED TO REDUCE RUNOFF AND EROSION, PREVENT OVERUSE OF SENSITIVE AREAS, AND IMPROVE POLLINATOR AND RIPARIAN HABITAT.

EXISTING AND PROPOSED IMPROVEMENTS WERE LOCATED IN THE FIELD USING RTK GPS TO DETERMINE HORIZONTAL AND VERTICAL LOCATIONS. FIELD SURVEY DATA WERE USED IN CONJUNCTION WITH 2023 PRELIMINARY LIDAR DATA SOURCED FROM VT CENTER FOR GEOGRAPHIC INFORMATION.

THE WORK NECESSARY TO IMPLEMENT THESE IMPROVEMENTS MAY REQUIRE A LAKE ENCROACHMENT PERMIT, A FLOODPLAIN PERMIT, AND CULTURAL RESOURCES REVIEW. CLEARING AND GRADING ACTIVITIES WITHIN 250 FEET OF A LAKESHORE MAY REQUIRE REVIEW BY DEC LAKES & PONDS PROGRAM.

DATUM: NAD83 (2011) VT STATE PLANE US FEET & NAVD88 US FEET (HEIGHT).

BEACH ACCESS	
\$ 480.00	6X6X TIMBERS
\$ 96.00	4X4X POSTS
\$ 128.00	2X6X8 BOARDS
\$ 200.00	PEA GRAVEL
\$ 200.00	GEOTEXTILE
\$ 400.00	REBAR, LAG BOLTS, SCREWS
\$ 900.00	BUFFER PLANTING
\$ 1,000.00	ROPE FENCING
\$ 3,404.00	SUBTOTAL

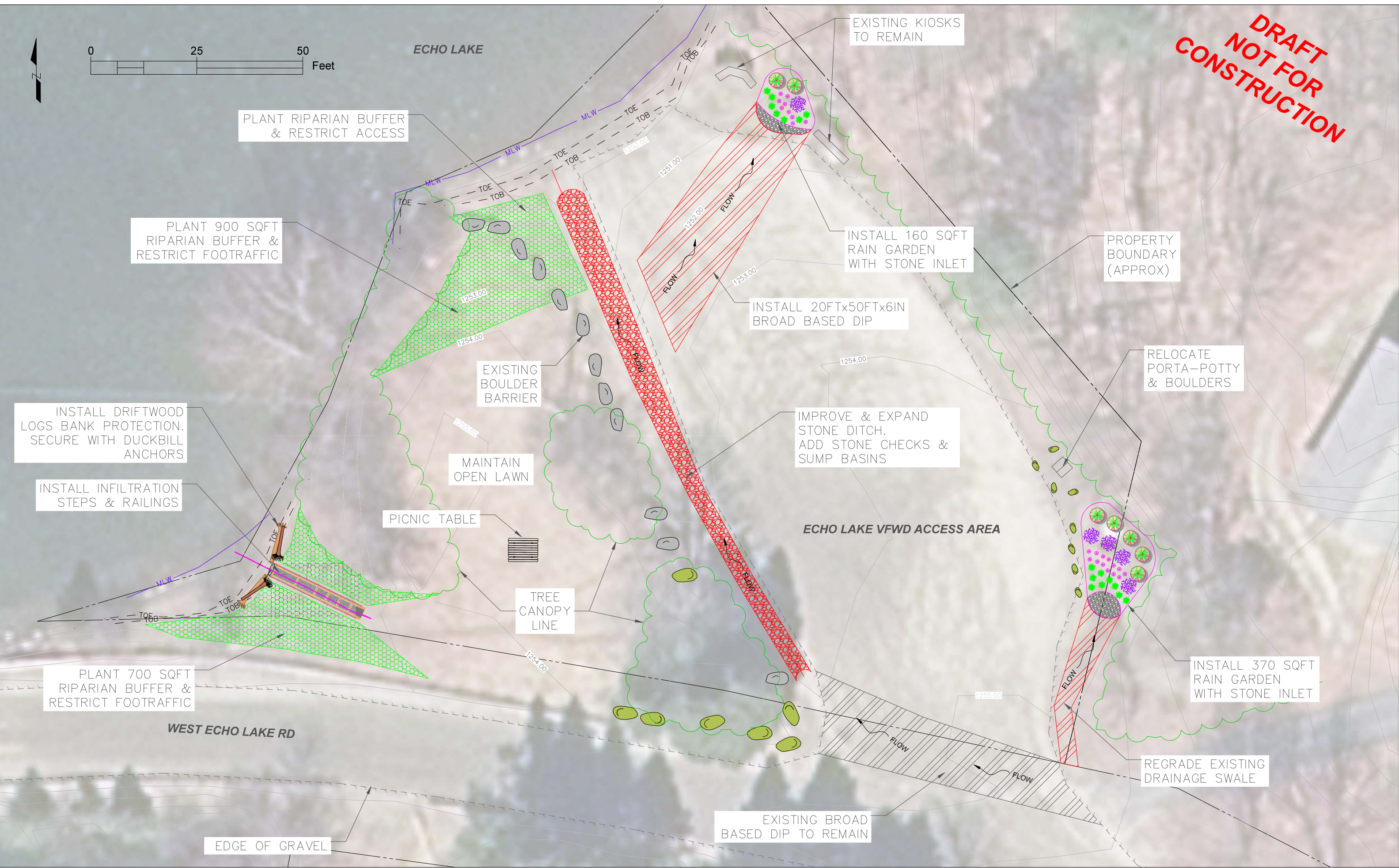
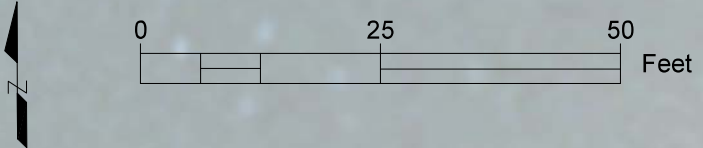
STONE- TYPE I RIPRAP	
900	SQ FT
675	CUBIC FT
25	CUBIC YARDS
40	TONS
\$ 30.00	\$ PER TON
\$ 1,200.00	SUBTOTAL

RAIN GARDEN	
\$ 360.00	SHRUBS
\$ 288.00	EMERGENT
\$ 330.00	FLOWERS
\$ 250.00	MULCH
\$ 1,500.00	BOULDERS
\$ 2,728.00	SUBTOTAL

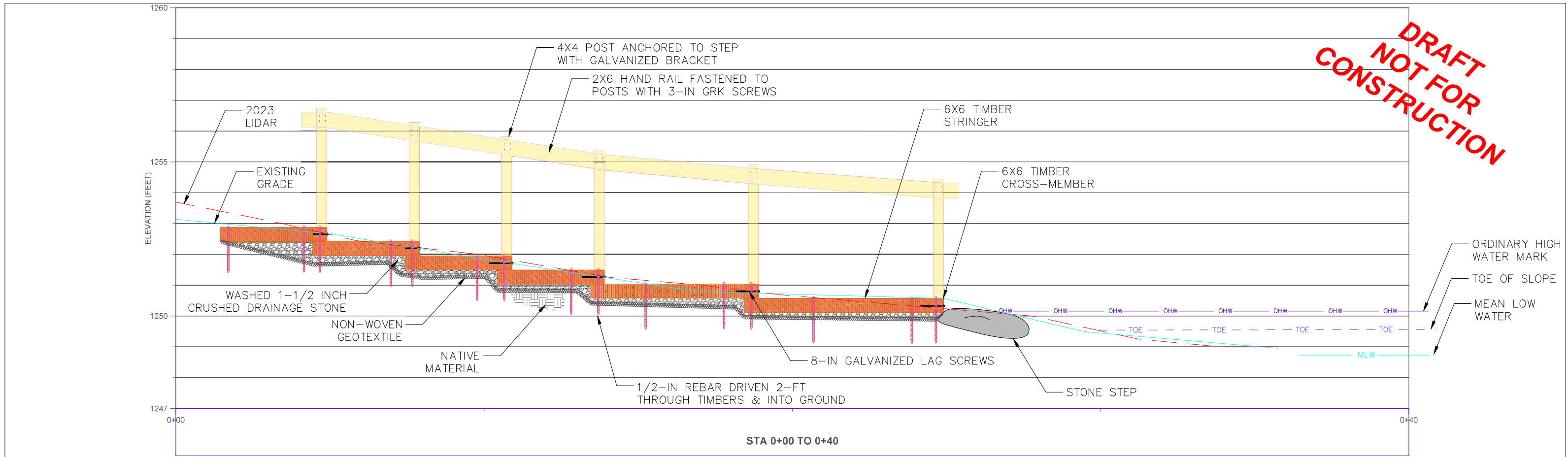
SUMMATION	
FINAL DESIGN & PERMITTING	\$ 8,000.00
CREW LABOR	\$ 10,000.00
MATERIALS	\$ 7,332.00
EXCAVATION CONTRACTOR	\$ 7,500.00
TOTAL	\$ 32,832.00



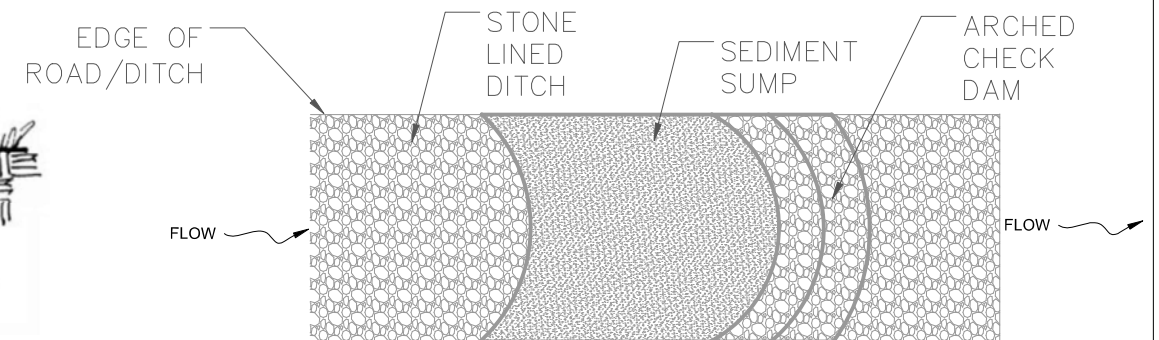
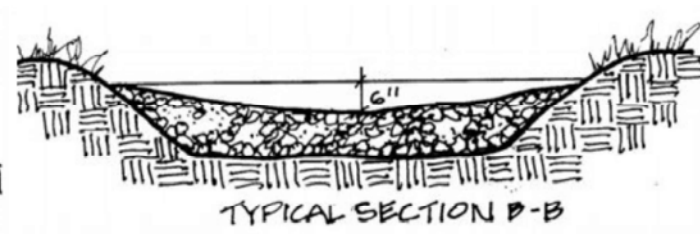
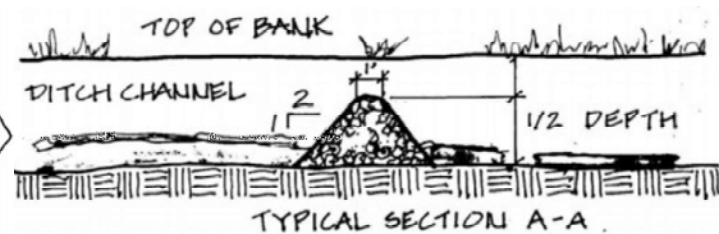
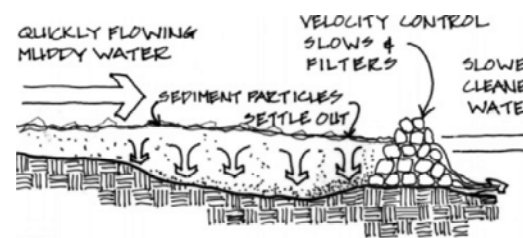
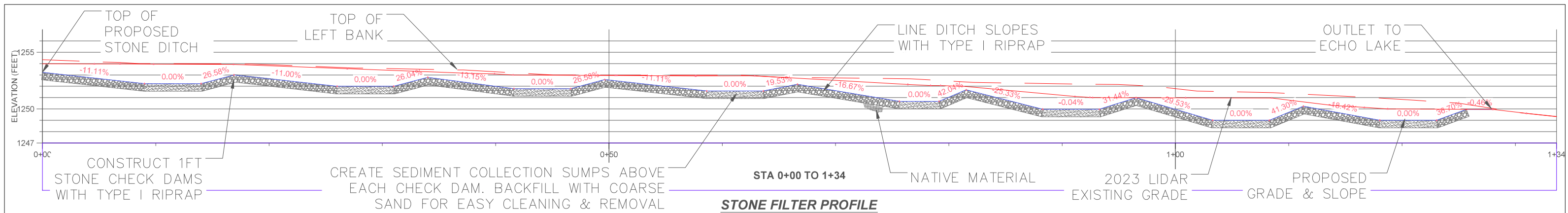
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BEACH ACCESS - PROPOSED INFILTRATION STEPS PROFILE



STONE LINED DITCH & CHECK DAMS PROFILE









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