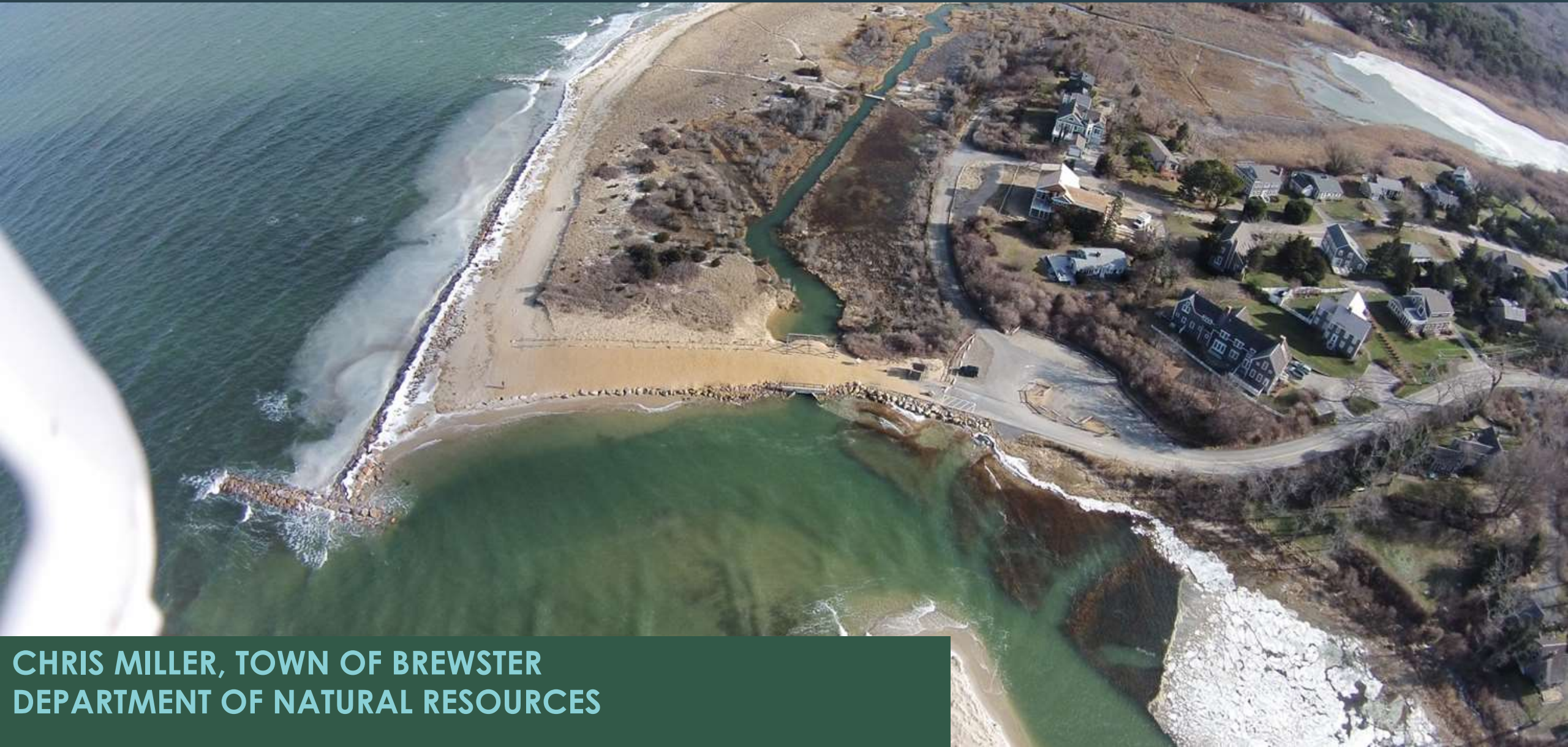
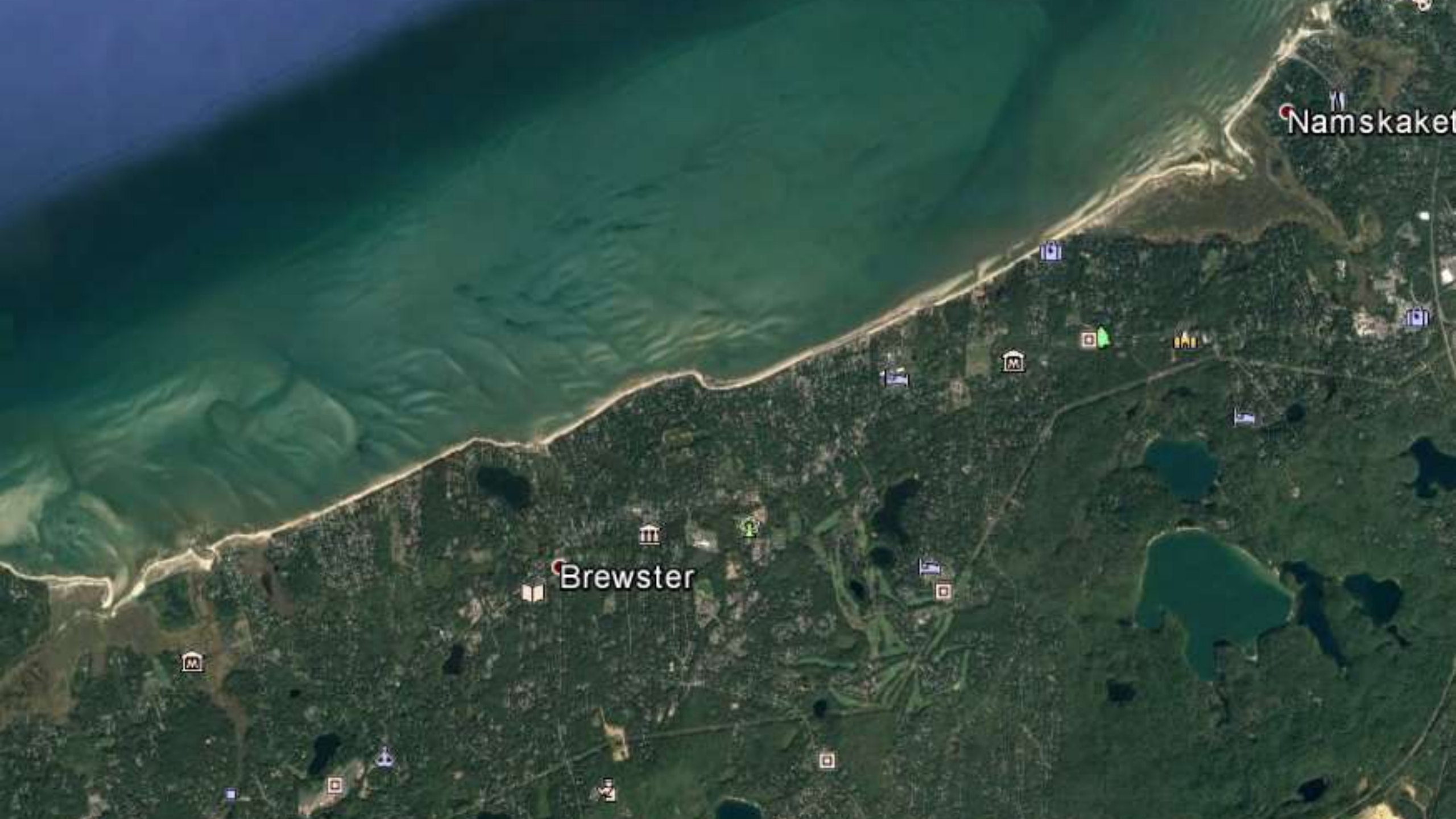


Coastal Retreat in Brewster, MA

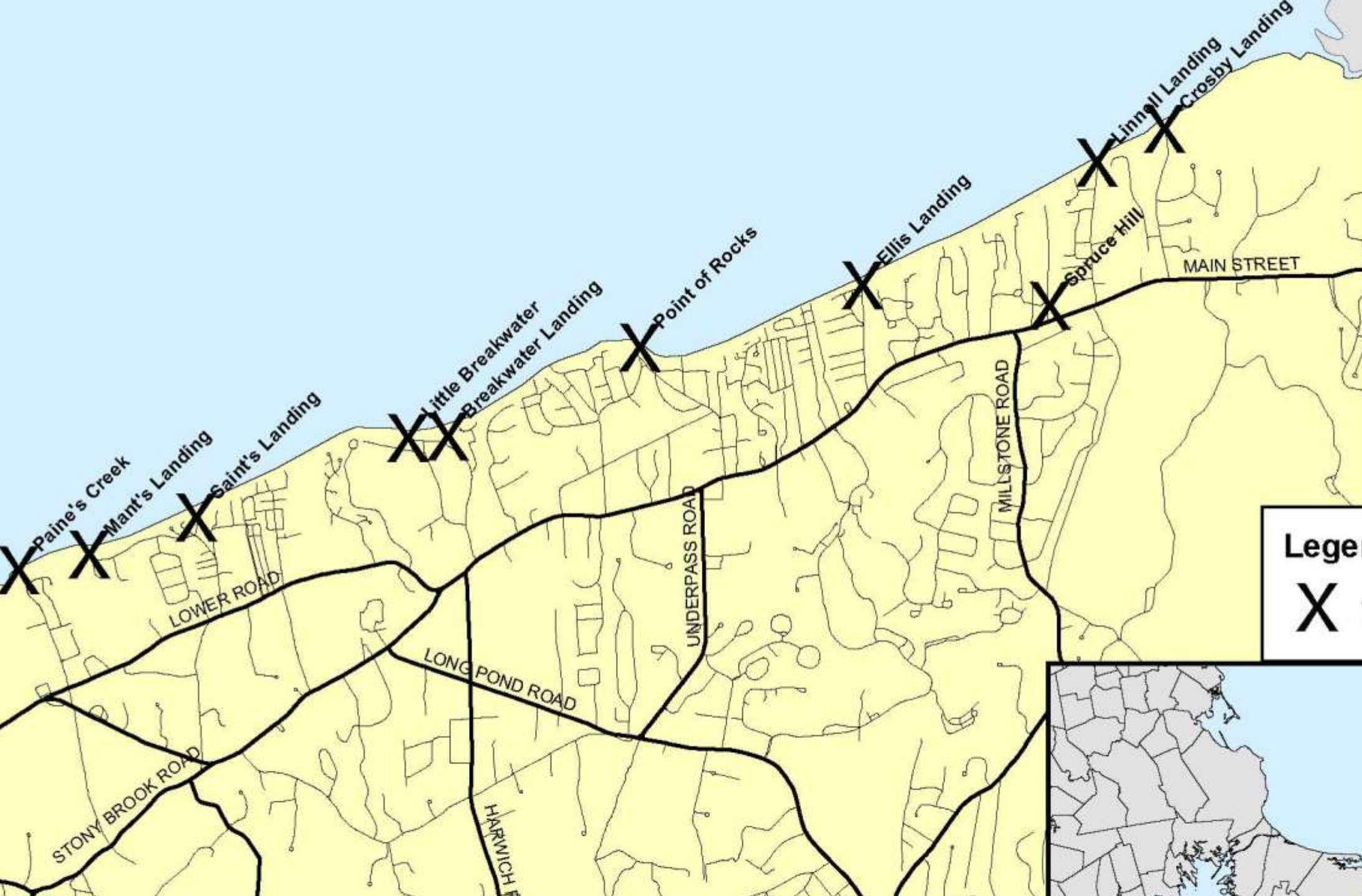


CHRIS MILLER, TOWN OF BREWSTER
DEPARTMENT OF NATURAL RESOURCES



Namskaket

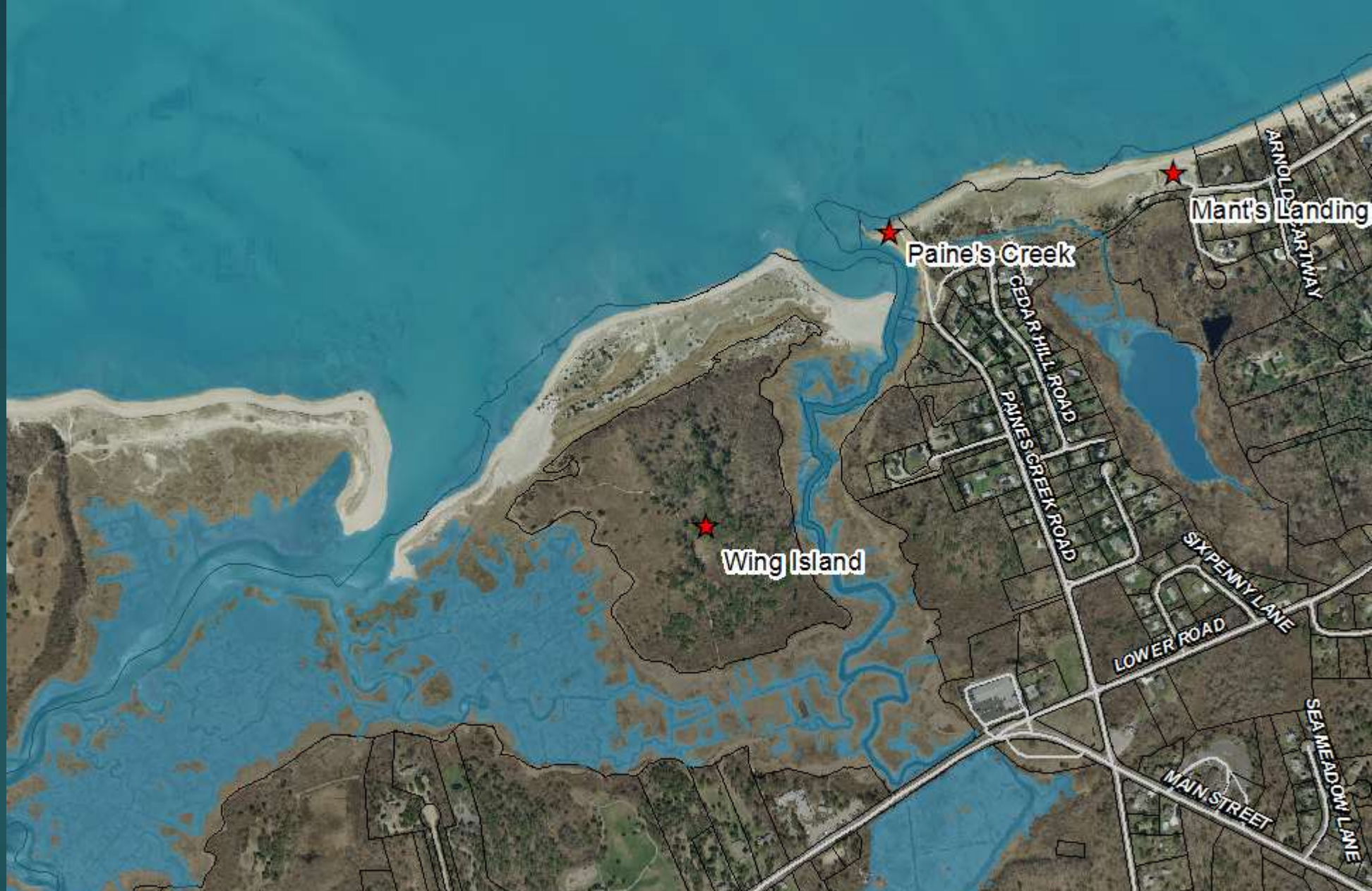
Brewster



Legend

X Town Landings





**Paine's Creek, Mant's Landing, and Wing Island
Mean High Water**

Paines Creek Landing: 2007



Paines Creek Landing: 2009





Paines: January 2, 2010





March 2010

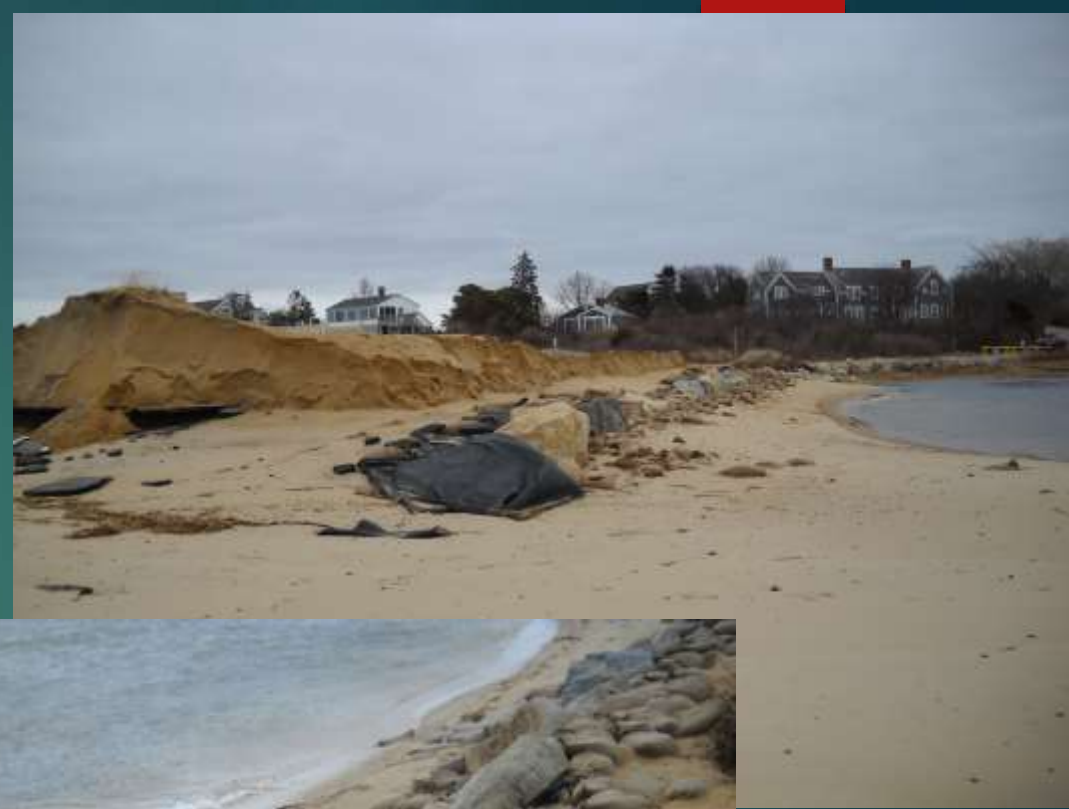


Table 8. Alternatives analysis for shoreline protection at Paines Creek Beach

| ALTERNATIVE | Overall Effectiveness | Shoreline Stabilization | Structural Lifetime * | Permeability | Permitting / Engineering Cost | Construction Cost * | Construction Feasibility | Maintenance Requirements |
|--|-----------------------|-------------------------|-----------------------|--------------|-------------------------------|---------------------|--------------------------|--------------------------|
| 1. Do Nothing | ○ | ○ | N/A | N/A | N/A | N/A | N/A | ○ |
| 2. Stone Revetment | ● | ● | ● | ○ | ○ | ○ | ● | ● |
| 3. Vertical Wall/bulkhead (timber/steel/composite) | ● | ● | ● | ○ | ○ | ○ | ○ | ● |
| 4. Rock-filled Gabion Baskets | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 5. Coir Logs | ○ | ○ | ○ | ● | ● | ● | ○ | ○ |
| 6. Cobble Berm | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ |

* = Relative to other alternatives, varies depending on alternative items and local costs

● = Good

○ = Medium

○ = Poor

N/A = Not Applicable

Local Planning for Retreat

- ▶ Several years of substantial investment in repairs
 - ▶ Selectmen meetings, town meeting expenditures
 - ▶ Selectmen presentation on alternatives
 - ▶ Grant opportunity NRCS Stormwater
 - ▶ Can we promise to maintain infrastructure for 75 years?
- ▶ Rethink investments, use grant, improve stormwater conditions
 - ▶ Removal of pavement = less stormwater
 - ▶ Resilient lot able to withstand inundation
 - ▶ Culvert replacement

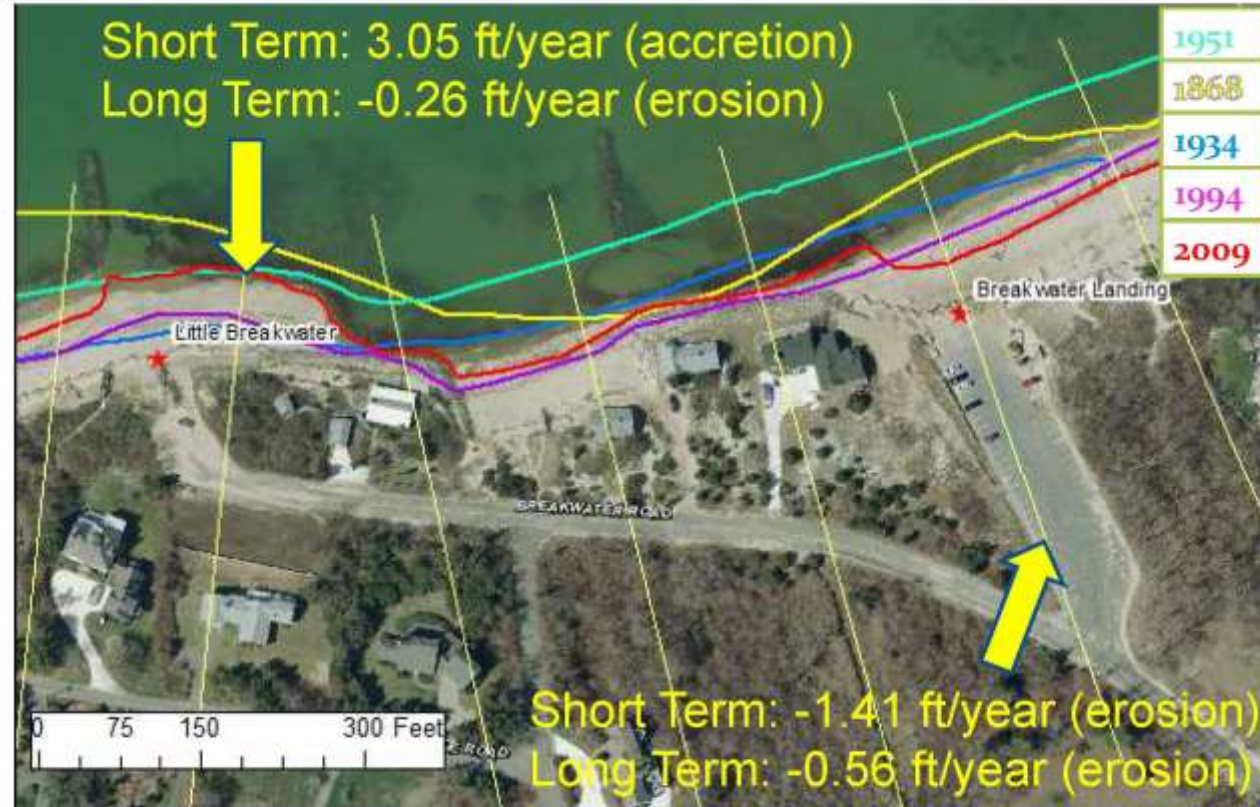
Paine's Creek





Breakwater Beach

Long term erosion trends



**Breakwater and Little Breakwater Landings
Historic Shorelines, Erosion Rates and Variability**

Recurring storm damage







Planting beach grass



- ▶ Alternative spring break, Brandeis University



Breakwater spring 2012



⤴ Tour Guide

1995

Imagery Date: 3/11/2012 41°46'06.02" N 70°05'02.47" W elev 11 ft

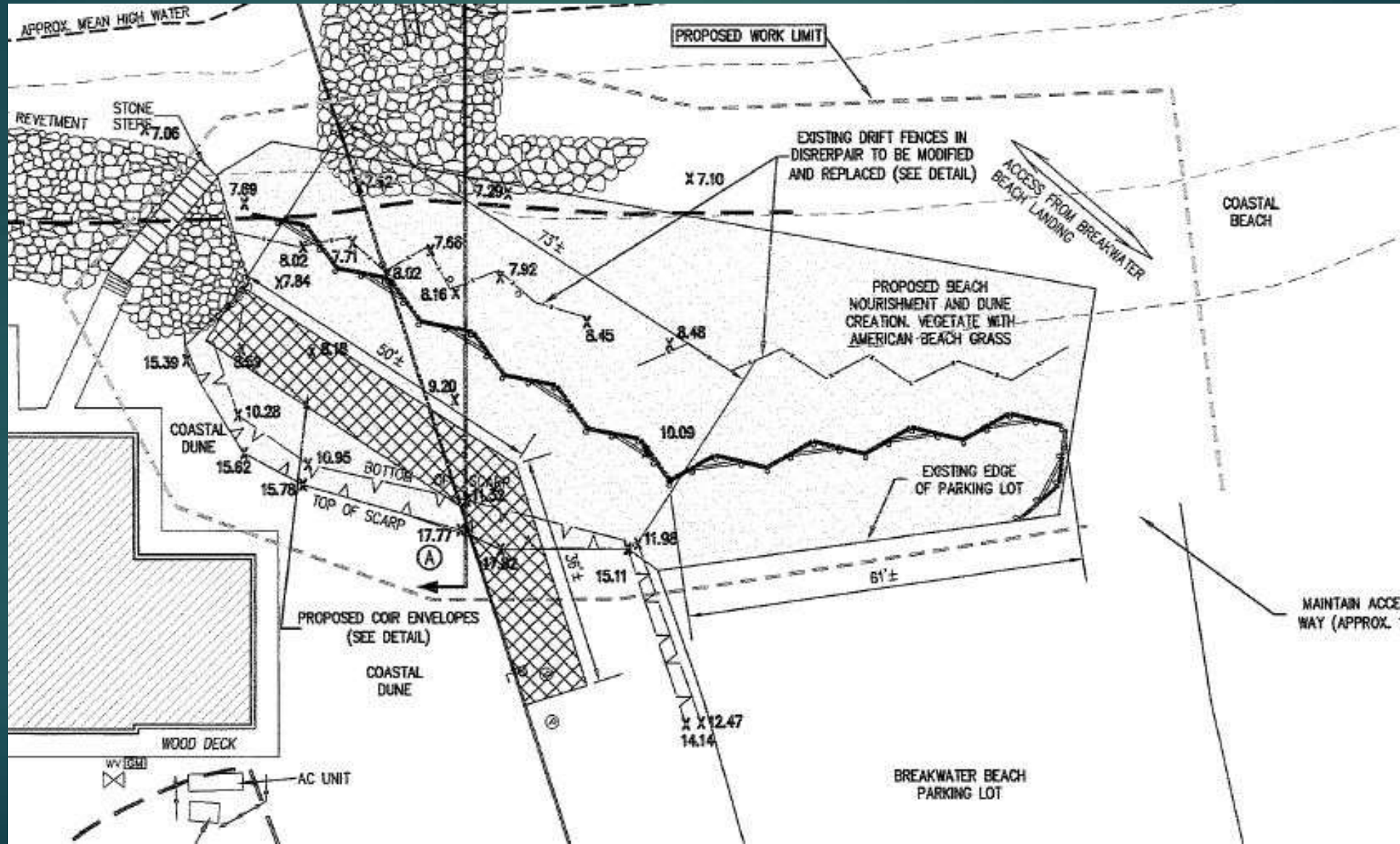
Breakwater February 2013



Breakwater February 2013



End scour from revetment to west



Sturdy sand fence in sacrificial dune at Breakwater



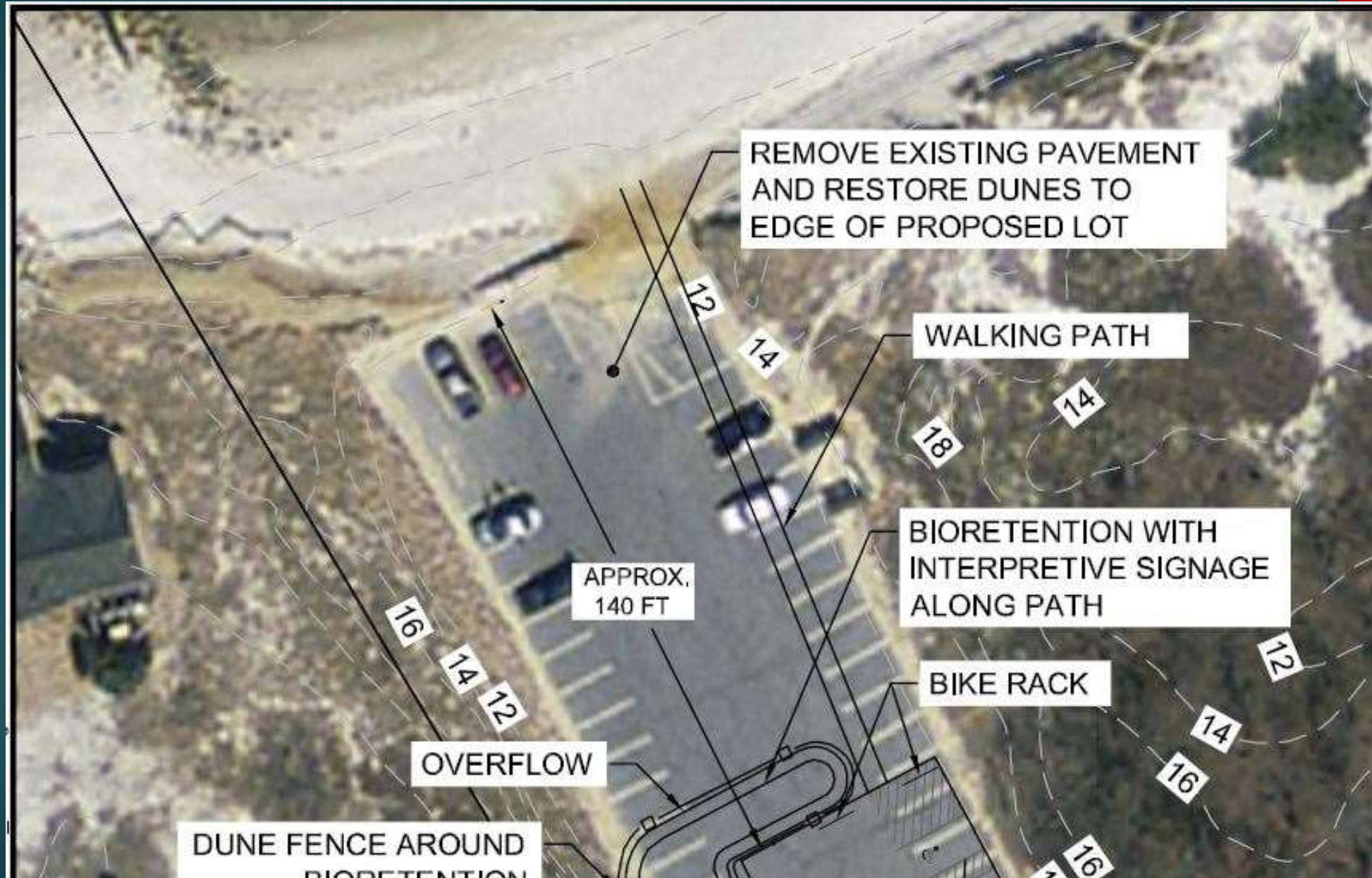


Sturdy fence buried under new dune located slightly further from active beach.



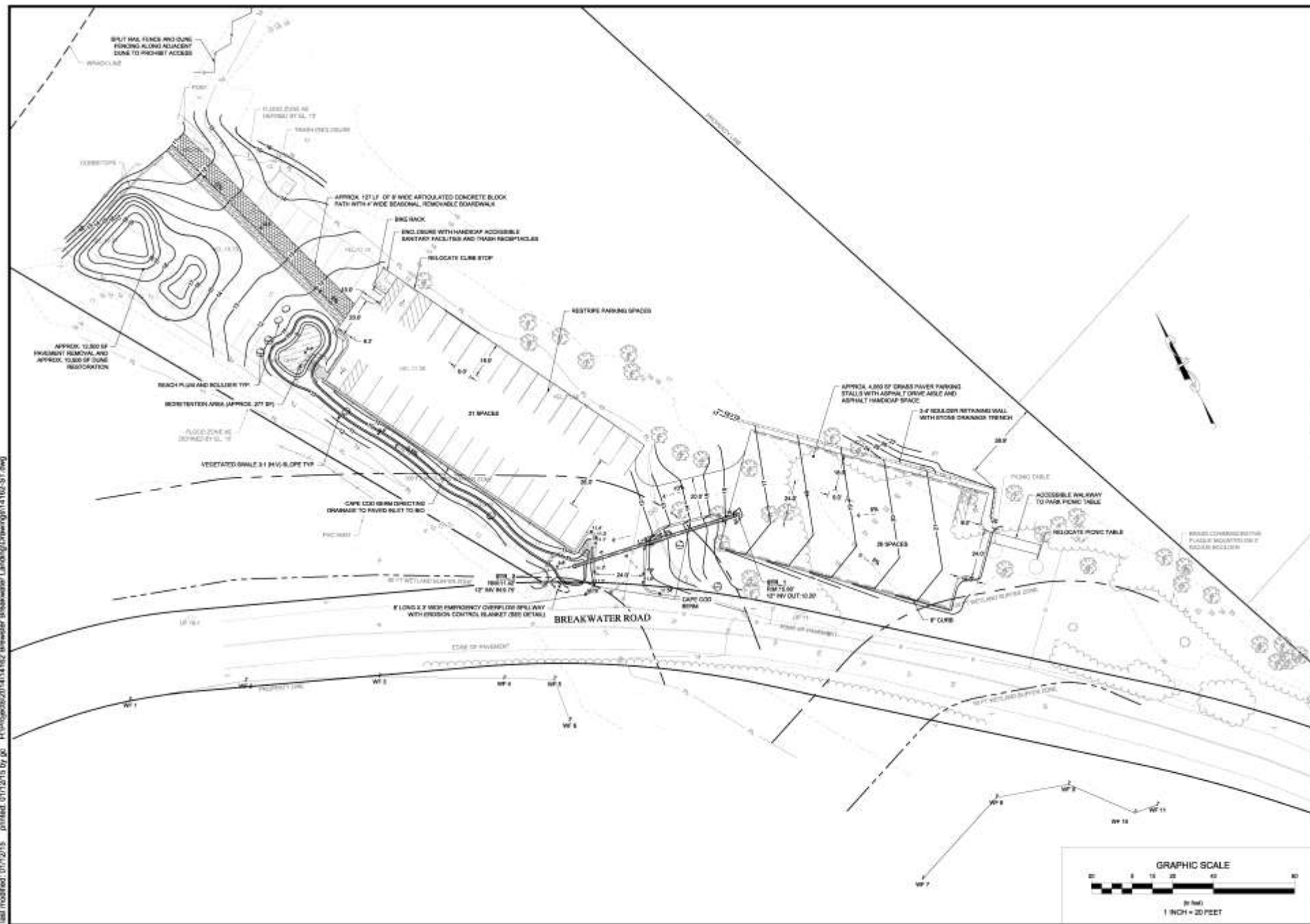
[illegible]

Concept: Retreat and rebuild



New replacement lot





last modified: 01/12/15 printed: 01/12/15 by go H:\Projects\2014\14162 Brewster Freshwater Landfill\Drawings\14162-5T.dwg

Deutsche



Harsley Witten Group, Inc.
Sustainable Environmental Solutions
www.harsleywitten.com
100 Acute St
Burlington, MA 01803
508-232-8000 voice
508-232-2150 fax

**BREAKWATER LANDING
BREWSTER GREEN INFRASTRUCTURE
PROJECT
BREWSTER, MASSACHUSETTS**

SITE PLAN

10

Town of Brewster

Service provided by:
Harsley-Wilson Group, Inc.
 90 Route 66
 Basking, NJ 07001
 Phone: (908) 853-0000
 Fax: (908) 853-3150
 Email: OW@HWS-USA.com

DRAFT
NOT FOR
CONSTRUCTION

141

4 of 44

C-4

Public Outreach

- ▶ Televised beach tours and discussions of alternatives
- ▶ Town meeting articles for funding (twice)
- ▶ Two state CZM grants (design and for construction)
- ▶ Postcards to neighborhood
- ▶ Multiple televised selectmen meetings
- ▶ Articles in newspaper
- ▶ Multiple Brewster Coastal Committee meetings
- ▶ MEPA site visit
- ▶ Historic, Conservation, Planning Board meetings (multiple)

Results?

- ▶ Strong support from Selectmen and boards
- ▶ Many neighbors liked the retreat, if we didn't replace the parking that was lost
- ▶ Some neighbors supporting, but a group formed to oppose the project (and others)
- ▶ Lawsuit, petitions, different designs, confused boards
- ▶ Lots more press and editorials
- ▶ town meeting articles to oppose this and other projects
- ▶ Concurrently, town applied for a CZM Coastal Resiliency Grant to develop community support and understanding of coastal issues.
- ▶ Outcome: Selectment sponsored specific yes/no votes at town meeting; and the project was approved and constructed.



Sept. 2015



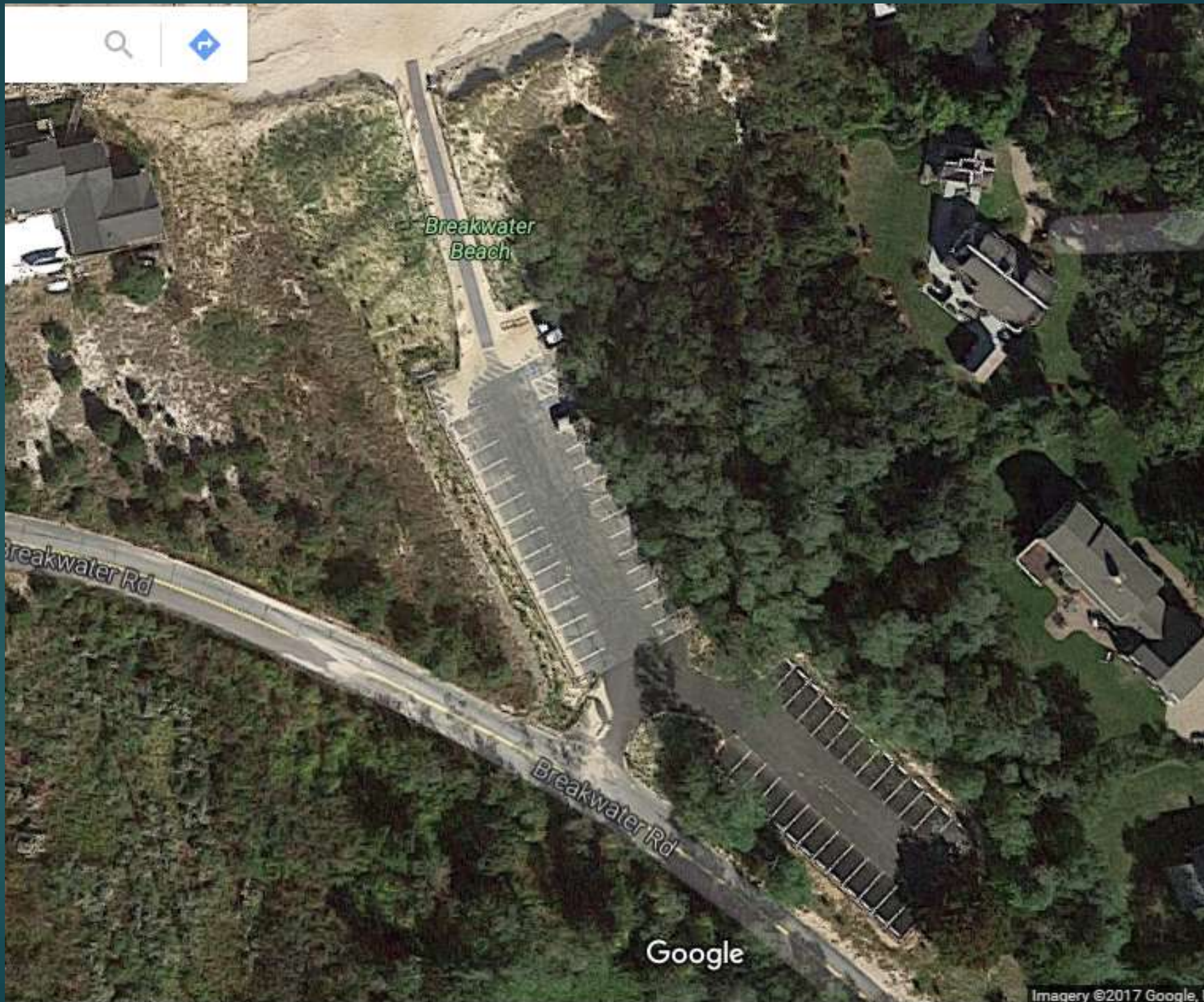
Jan. 2016

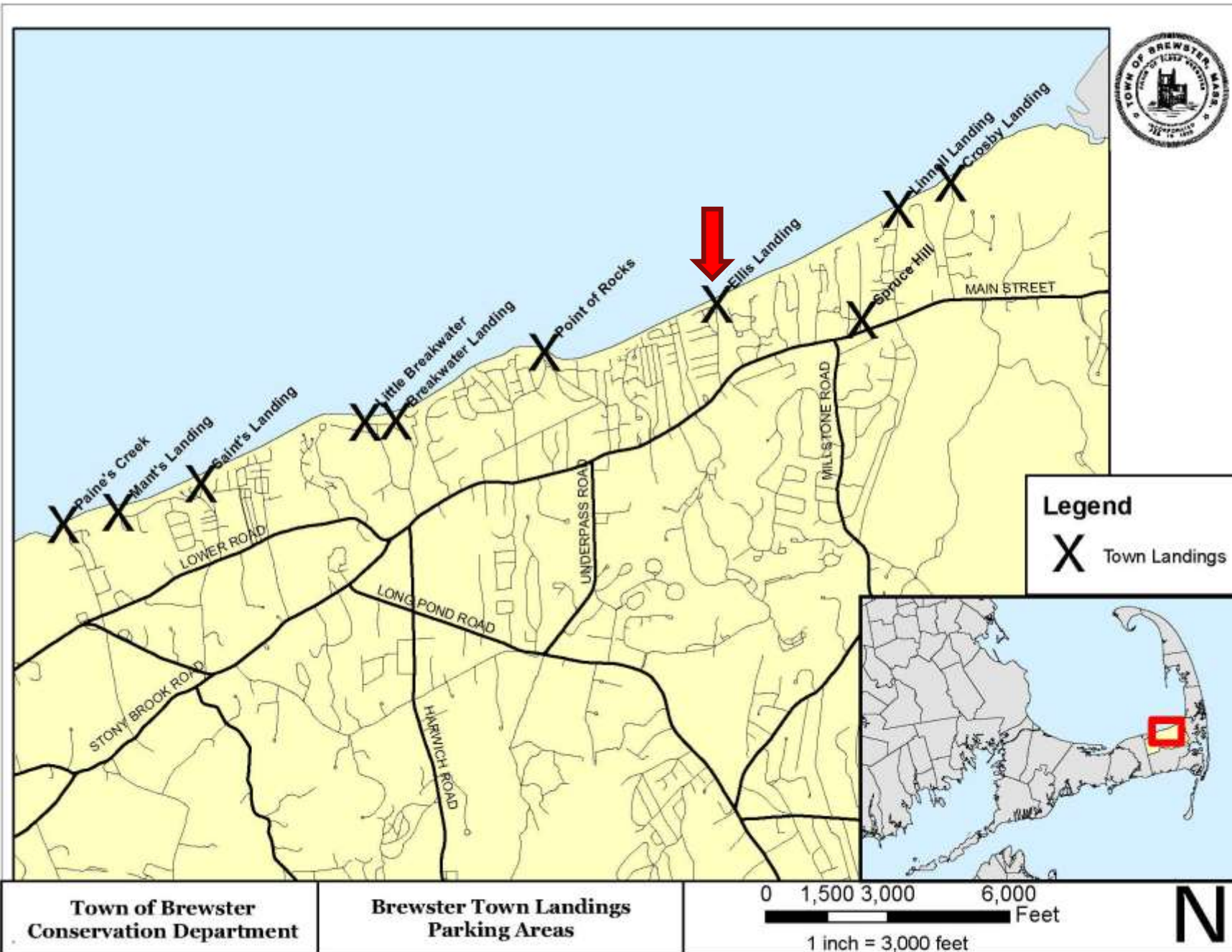


The-Channel-Way

Breakwater Rd

The-Cl
ides-Cl







Town of Brewster
Department of Natural Resources

Ellis Landing Parking Area

0 25 50 100 150 200 Feet
1 inch = 100 feet



Ellis Landing March 2010



Ellis February 2011



Ellis May 2012 stormwater



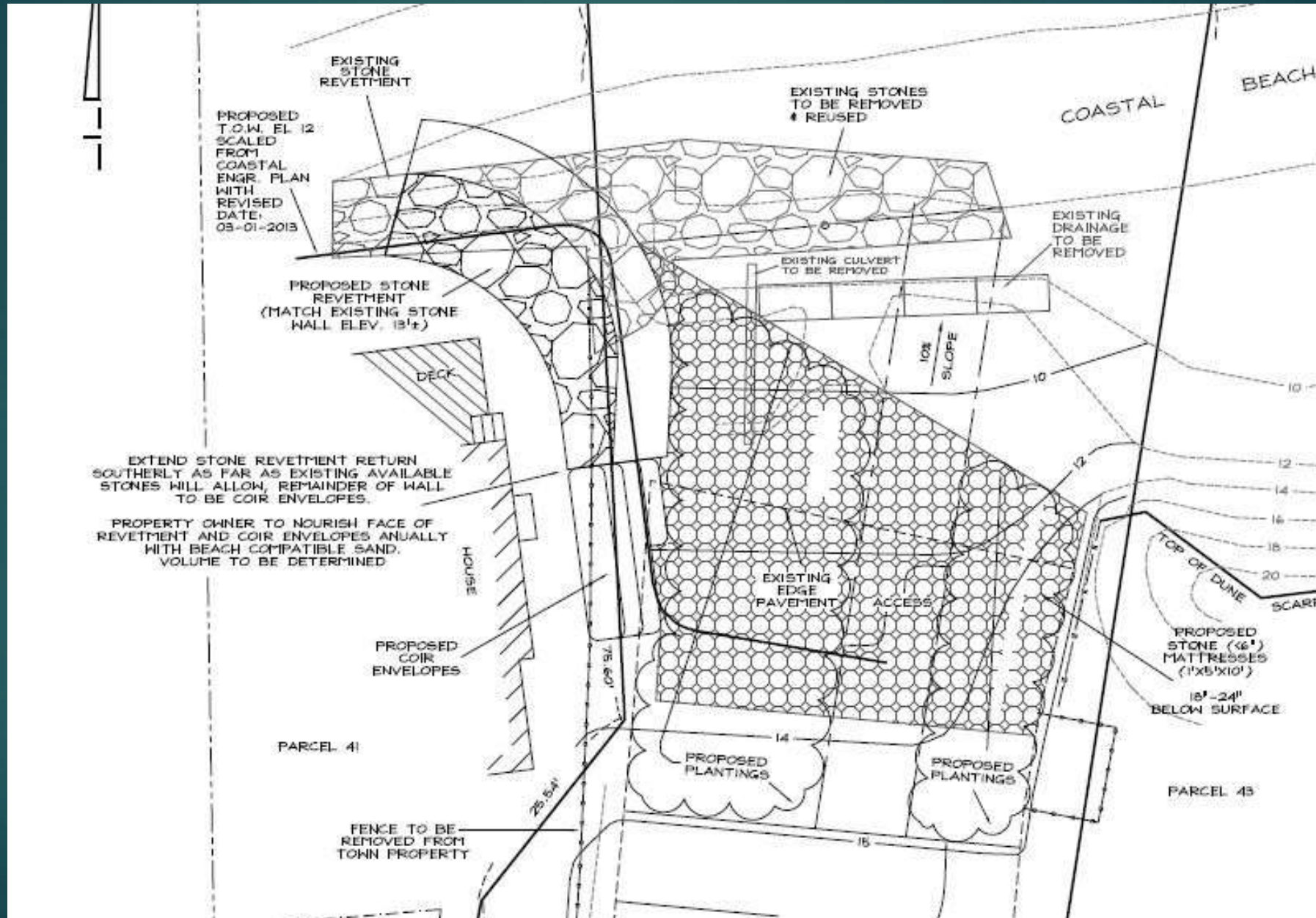
February 2013

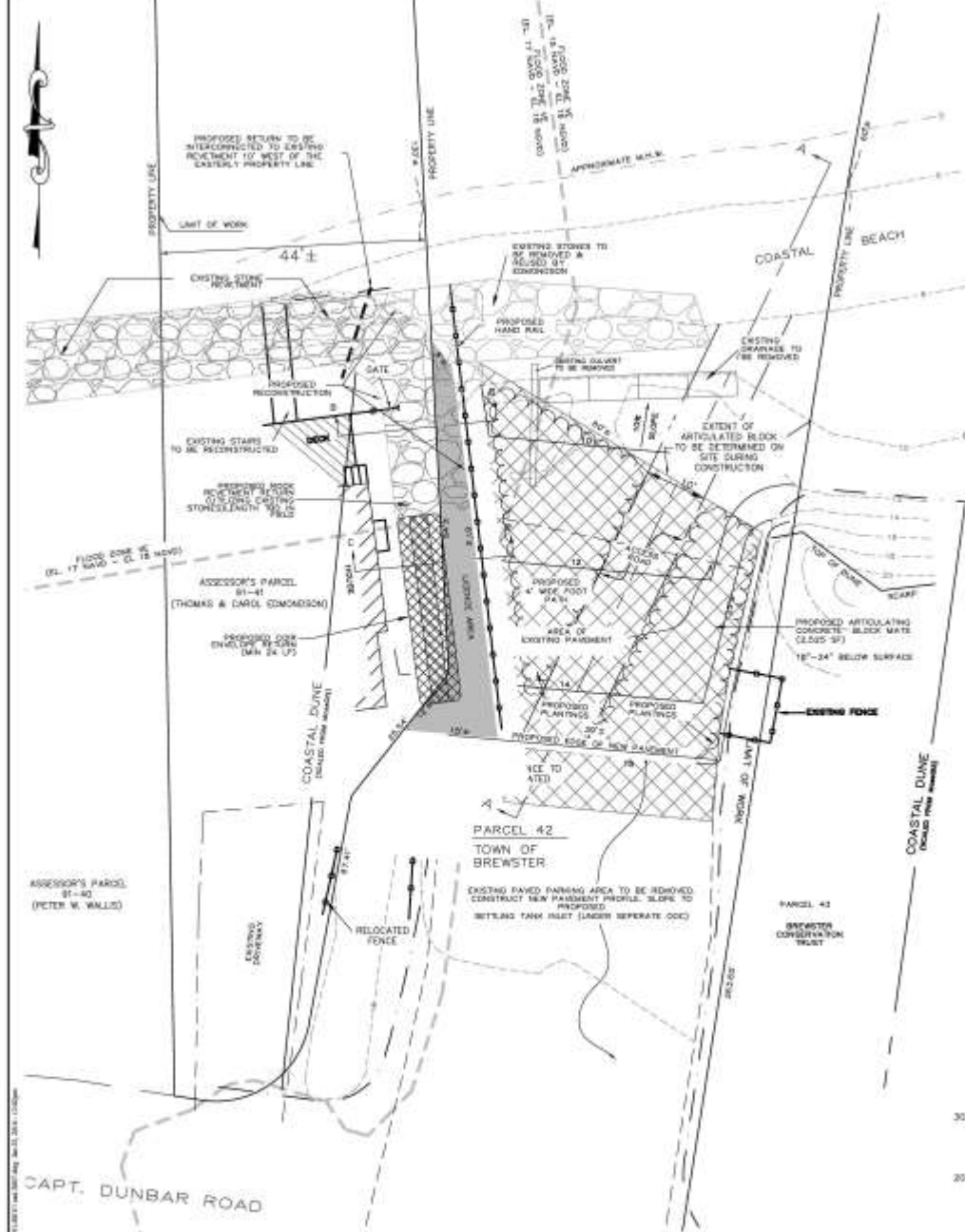


Ellis March 2014

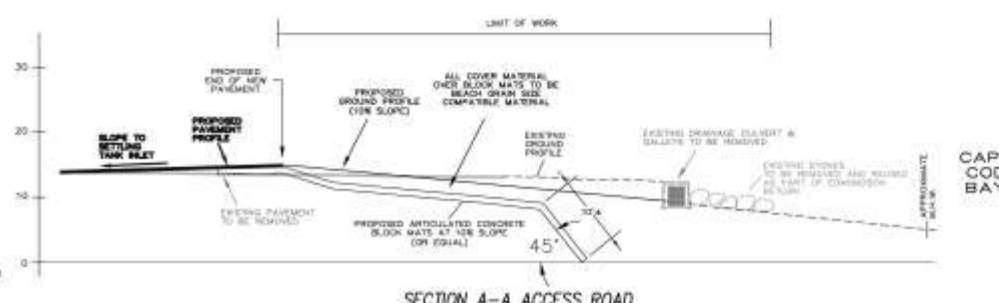
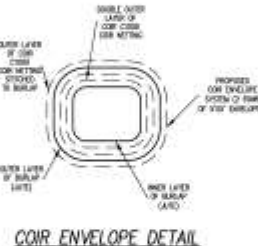
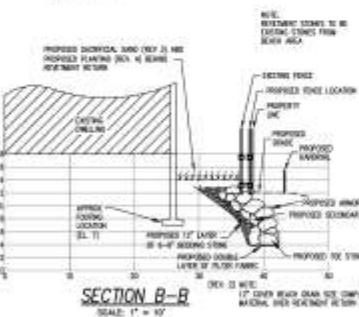
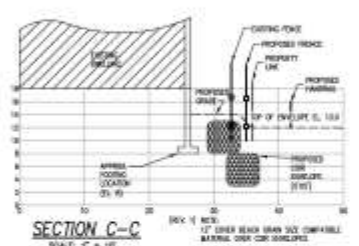


Ellis concept





- GENERAL NOTES:**
1. THE PURPOSE OF THIS PROJECT IS TO RELOCATE EXISTING ROAD AND INSTALL COIR ENVELOPE AT 51 CAPTAIN DUNBAR ROAD IN CONJUNCTION WITH RECONSTRUCTING CLAY LANDING, SUPPLY ALL MATERIAL, EQUIPMENT AND LABOR FOR CONSTRUCTION OF THIS PROJECT ALONG THE ACCESS AS NOTED AND SHOWN ON THE PLAN AND DETAILS.
 2. PERFORMANCE OF THE WORK SHALL BE IN COMPLIANCE WITH THE PLAN AND DETAILS, AND CHECK OF CONDITIONS ISSUED BY THE BREWSTER CONSERVATION COMMISSION FOR THE RECONSTRUCTED PROJECT AND AS NOTED HEREIN.
 3. ACCESS TO BE MAINTAINED TO THE ADJACENT PROPERTY AS SHOWN ON THE PLAN. APPLICANT IS RESPONSIBLE FOR OBTAINING PERMISSION FOR ANY ACCESS PROPOSED THAT IS NOT ON THEIR PROPERTY FROM THAT PROPERTY OWNER. UPON COMPLETION, ALL DISTURBED AREAS TO BE RE-GRASSED TO MATCH PRE-CONSTRUCTION CONDITIONS.
 4. ALL FILL MATERIAL REQUIRED SHALL BE CLEAN COMPACTED COARSE SAND BRUSHED INTO SITE BY COMPACTOR.
 5. FILLER CLOTH SHALL BE OF WHITE PLYWOOD OR EQUAL, AS APPROVED BY THE ENGINEER.
 6. THE FILLER CLOTH SHALL BE PLACED IN TWO LAYERS ON TOP OF THE GRADED SLOPE, AND OVERLAP THE MATERIAL. THE JOINTS OF THE FILLER CLOTH SHALL BE STITCHED AT LEAST 18 INCHES APART. THE FILLER CLOTH SHALL BE COVERED AT LEAST THREE FEET IN EACH DIRECTION DAILY BY FILLER CLOTH SHALL NOT BE LEFT EXPOSED.
 7. THE SAND COVER SHALL BE PLACED BY EQUIPMENT OVER THE SLOPE. SAND COVER SHALL BE COVERED AND PLACED INTO POSITION BY EQUIPMENT IN ORDER TO INTERLOCK WITH EXISTING STONES. EACH STONE SHALL BE ADJACENTLY "TAPPED" AND "FILLED" WITH PROPER GRAVITY TO UNIFORM FILL. BEFORE ANOTHER STONE IS ADDED, STONES NOT PROPERLY TAPPED OR NOT TO BE ADJACENTLY INTERLOCKED, UPON THE ENGINEER'S JUDGMENT, SHALL BE REMOVED AND REPLACED TO THE ENGINEER'S SATISFACTION.
 8. THE CONTRACTOR SHALL PROVIDE SAND COVER OVER THE TOP OF WALL. THE SAND COVER SHALL BE COMPATIBLE TO THE GRAIN ORIENTATION OF THE EXISTING LANDING.
 9. UPON COMPLETION OF THE ROAD RECONSTRUCTION, THE CONTRACTOR SHALL RELOCATE THE FENCE. A LIMIT OF WORK FENCE SHALL BE INSTALLED TO CLEARLY DELINEATE THE WORK AREA. NO WORK CONSTRUCTION SHALL OCCUR BEYOND THE LIMIT OF WORK.
 10. THE RELOCATION AND REPAIR SHALL BE APPROVED BY THE BREWSTER CONSERVATION COMMISSION. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL NECESSARY CONSTRUCTION STONES FROM THE BEACH. ANY LOCAL CONSTRUCTION STONES ON THE BEACH SHALL BE REMOVED BY THE CONTRACTOR.
 11. DISTURBED AREAS ABOVE THE RELOCATION TO BE PLANTED WITH AMERICAN BEACH GRASS.
 12. ROCK STOCKPILING LOCATION SHALL BE LOCATED AT THE TOWN LANDING. ALL ROCKS SHALL BE HEAVY ON THE BEACH OR MARSH. CONSTRUCTION SHALL BE COMPLETED IN 60 DAYS TO PREPARE FOR THE BEACH WITH A MINIMUM OF 30 DAYS OF COMPLETION MATERIAL.
 13. THE EXISTING RETAINMENT WALL SHALL BE REMOVED AND REPLACED WITH A NEW 8'-0" HIGH WITH ADJACENTLY PLANTED SAND AT 3'-0" HAD. THE CURRENT DRAIN OF CONDITIONS HAS A TYPICAL CONCRETE TO SUPPLEMENT THE BEACH WITH A MINIMUM OF 30 DAYS OF COMPLETION MATERIAL.
 14. REMOVE EXISTING FENCE AND SERVICE OFFICE.
 15. EXCAVATE TO BOTTOM OF INTERLOCKED CONCRETE BLOCK MATS AND SET CONCRETE MATS AS SHOWN, COVER WITH 1/2"-0" OF BEACH COMPATIBLE SAND.
 16. INSTALL PLANTING PER COASTAL DUNE RESTORATION/ENHANCEMENT PLANTING PLAN.
 17. SEE WORK IS WITHIN BUFFER ZONES OF COASTAL DUNE, COASTAL DUNE AND THE YEAR FLOOD ZONE.
 18. LICENSE REQUIRED FROM TOWN OF BREWSTER TO ALLOW RELOCATION AND COIR ENVELOPE SHALL BE IN TOWN PROPERTY.
 19. SEE 10 TO 12' SAND COVER TO BE MAINTAINED OVER RELOCATION AND COIR ENVELOPE SHALL BE IN TOWN PROPERTY.



east cape engineering, inc.
Civil Engineering & Land Surveying

PLAN REFERENCES:
ASSESSOR'S MAP 81, PARCEL 41
ASSESSOR'S MAP 81, PARCEL 42
EAST CAPE ENGINEERING PLAN "SHOWING
ELLIS LANDING MAINTAINED VICTORY
RECONSTRUCTION PROJECT" REPRODUCED FOR
TOWN OF BREWSTER DATED 9-27-14
FLOOD NOTE:
FLOOD ZONE VE (17' HAD) AND
FLOOD ZONE VE (12' HAD) AND
AT SHOWN ON FEMA FIRM PANEL 810001014
EFFECTIVE: JULY 18, 2014
DATUM NOTE:
ELEVATIONS SHOWN HEREON ARE BASED
ON THE NATIONAL GEODETIC VERTICAL
DATUM 1983 (NGVD 1983)



RESPONSIBLE FOR THE PROPOSED SITE WORK
DEPICTED ON THIS PLAN FOR LOT 42
BEING O ELLIS LANDING ONLY.

DATE: _____

P.E.: _____

RESPONSIBLE FOR THE PROPOSED SITE WORK
DEPICTED ON THIS PLAN FOR LOT 41
BEING 51 CAPTAIN DUNBAR ROAD ONLY.

DATE: _____

P.E.: _____

COASTAL ENGINEERING COMPANY, INC.
301 Cushing Blvd., Orono, ME 04469
TEL: 207.461.1111 Fax: 207.233.0790

EDMONDSON AND TOWN OF BREWSTER
51 CAPTAIN DUNBAR ROAD AND ELLIS LANDING
BREWSTER, MA

PLAN SHOWING LICENCE AREA

C3.1.1

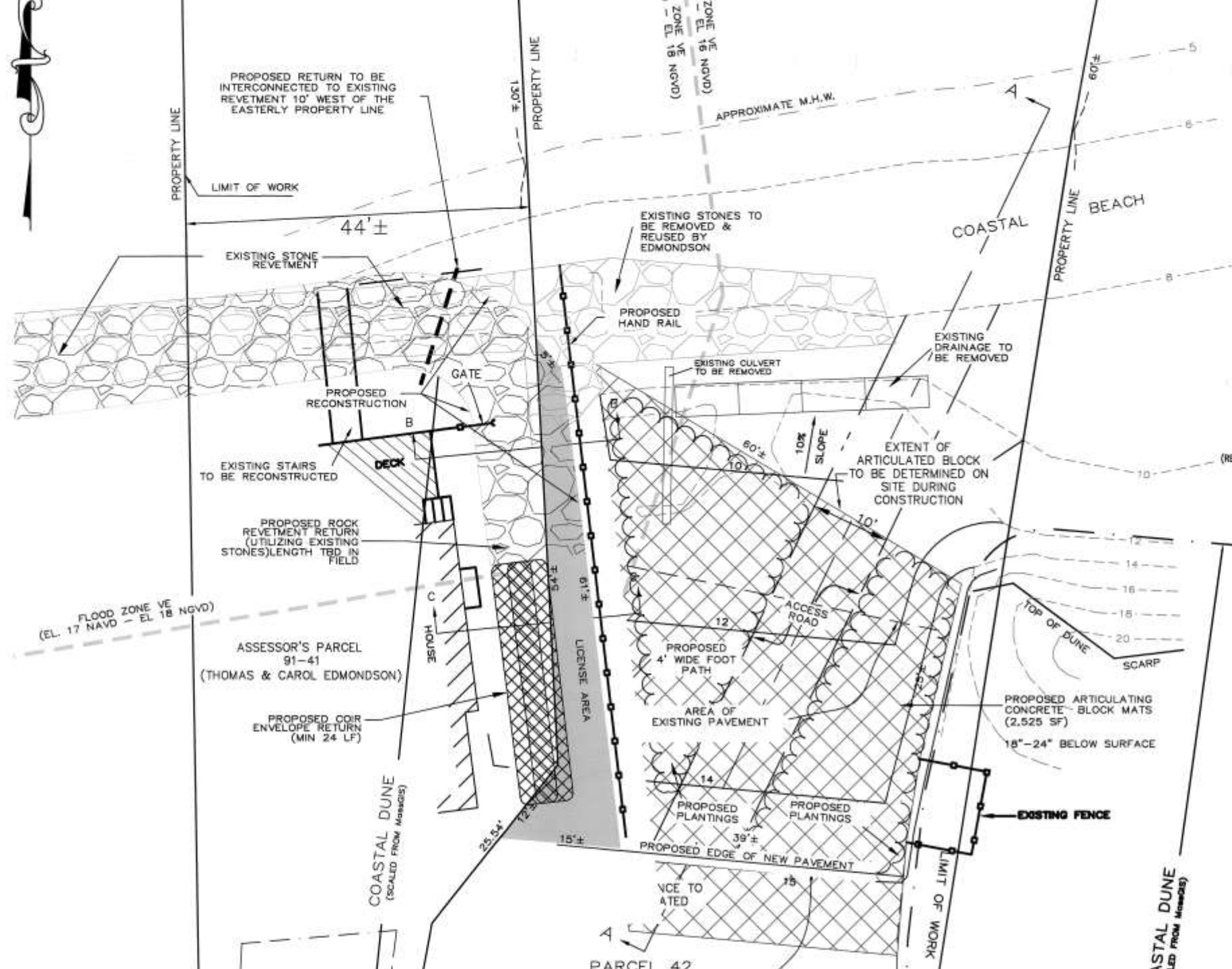
AS NOTED

03-22-16

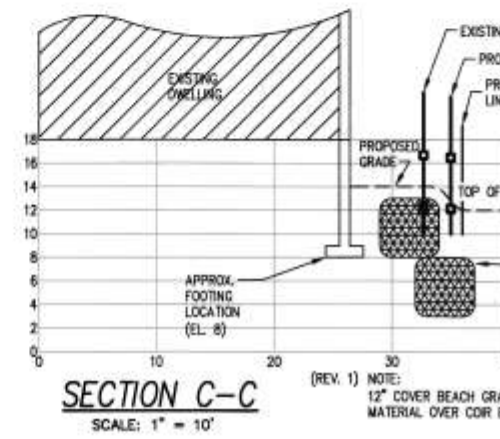
NOV

DMJ

THIS DRAWING IS PREPARED FOR PERMITTING PURPOSES ONLY AND SHALL NOT BE USED FOR CONSTRUCTION. CONTRACTOR SHALL OBTAIN FINAL CONSTRUCTION DETAILS FROM THE ENGINEER PRIOR TO PREPARATION OF CONSTRUCTION BID AND BEFORE BEGINNING ANY WORK.

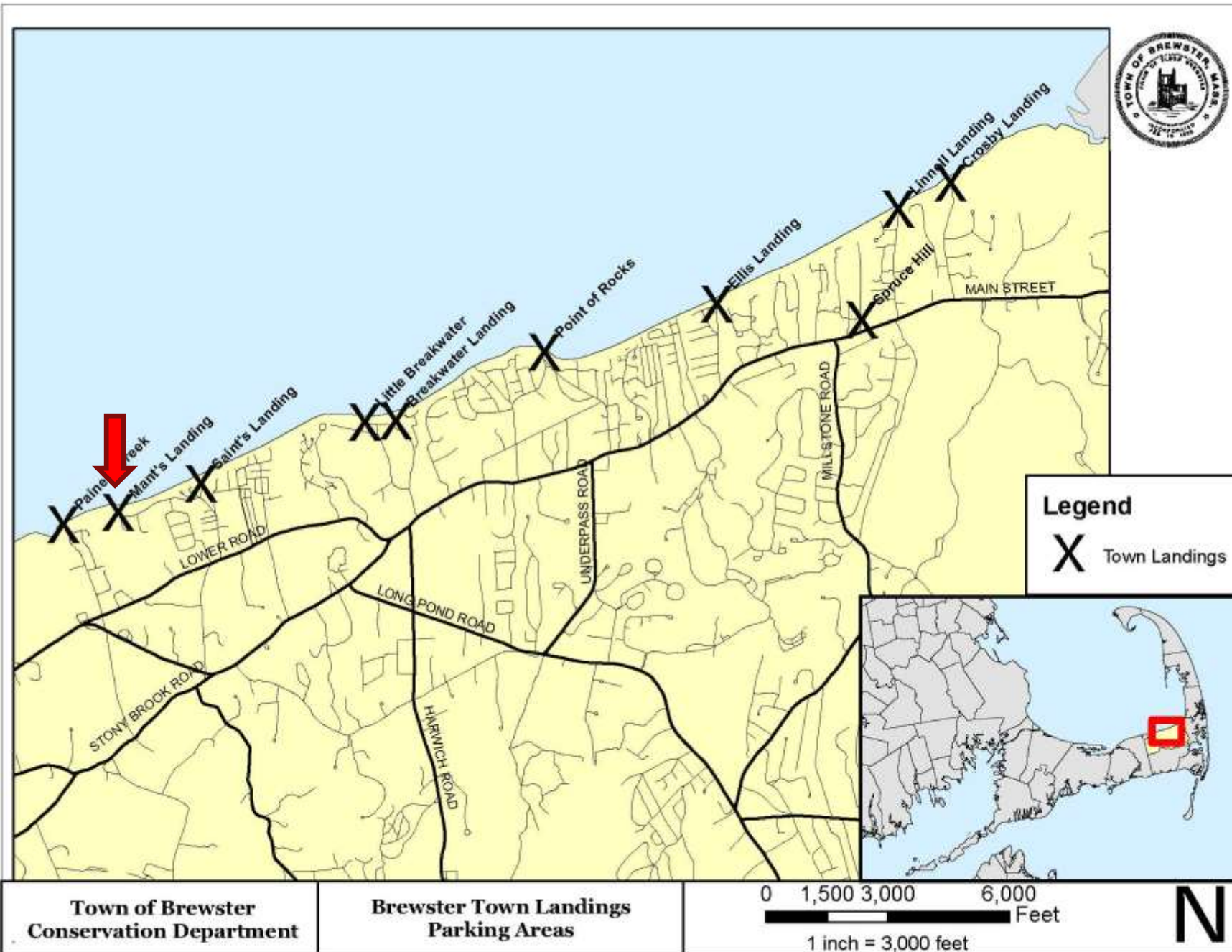


4. ANY FILL MATERIAL REQUIRED SHALL BE CLEAN COMPACTED COARSE SAND BROUGHT ONTO SITE BY CONTRACTOR.
5. FILTER CLOTH SHALL BE OF MIRAFI FW400, OR EQUAL, AS APPROVED BY THE ENGINEER.
6. THE FILTER CLOTH SHALL BE PLACED IN TWO LAYERS ON TOP OF THE GRADED SLOPE, AND BENEATH STAGGERED AT LEAST SIX FEET APART. THE FILTER CLOTH SHALL BE OVERLAPPED AT LEAST THREE FEET.
7. THE ARMOR STONE SHALL BE PLACED BY EQUIPMENT ONTO THE SLOPE. EACH STONE SHALL BE CHOS INTERLOCK WITH ADJOINING STONES. EACH STONE SHALL BE ADEQUATELY "TAPPED" AND "KEYED" INTO PL ADDED. STONES NOT PROPERLY STACKED SO AS TO SECURELY INTERLOCK, UPON THE ENGINEER'S JUDGM SATISFACTION.
8. THE CONTRACTOR SHALL PROVIDE SAND COVER OVER THE TOP OF WALL. THE SAND COVER SHALL BE LANDFORM.
9. UPON COMPLETION OF THE ROCK REVETMENT, THE CONTRACTOR SHALL RESTORE THE UPLAND. A LIM WORK LINE. NO WORK CONSTRUCTION SHALL OCCUR BEYOND THE LIMIT OF WORK.
10. THE REVETMENT AND BEACH SHALL BE INSPECTED BY THE ENGINEER APPROXIMATELY 28 DAYS (ONE CONSTRUCTION STONES REMAIN ON THE BEACH. ANY LOOSE CONSTRUCTION STONES ON THE BEACH SHALL
11. DISTURBED AREAS ABOVE THE REVETMENT TO BE PLANTED WITH AMERICAN BEACH GRASS.
12. ROCK STOCKPILING LOCATION WILL BE LOCATED AT THE TOWN LANDING. NO ROCKS SHALL BE PILED IN A BOX TO ENSURE NO LOSS OF ROCKS ON THE BEACH DURING STORM EVENTS.
13. THE EXISTING REVETMENT WAS PERMITTED UNDER SE 9-1278 WITH RENOVATIONS PERMITTED UNDER CONDITION TO SUPPLEMENT THE BEACH WITH A MINIMUM OF 10 CY OF COMPATIBLE MATERIAL.
14. REMOVE EXISTING PAVEMENT AND DISPOSE OFFSITE.
15. EXCAVATE TO BOTTOM OF ARTICULATED CONCRETE BLOCK MATS AND SET CONCRETE MATS AS SHOWN
16. INSTALL PLANTINGS PER COASTAL DUNE MITIGATION/ENHANCEMENTS PLANTING PLAN.
17. SITE WORK IS WITHIN BUFFER ZONES OF COASTAL BEACH, COASTAL DUNE AND 100 YEAR FLOOD ZONE
18. LICENSE REQUIRED FROM TOWN OF BREWSTER TO ALLOW REVETMENT AND COIR ENVELOPES TO BE ON
- (REV. 5) 19. 12" SAND COVER TO BE MAINTAINED OVER REVETMENT AND COIR ENVELOPES. SAND TO BE BEACH GR



PROPOSED SACRIFICIAL SAND (REV. 3) AND PROPOSED PLANTING (REV. 4) BEHIND REVETMENT RETURN





Mants May 2010



Imagery Date: 5/20/2010 41°45'44.00" N 70°06'33.14" W elev 9 ft

Mants March 2010



January 2013 Mants



Winter storm removed sacrificial dunes. Rebuilt in early February 2013.

Mants February 2013



Nor'easter Nemo. Dunes destroyed, parking lot asphalt lifted and damaged.





LEGEND

- Mean High Water (MHW)
- MHW + 2' Sea Level Rise
- MHW + 4' Sea Level Rise
- MHW + 2' SLR + 6' Storm Surge
- MHW + 4' SLR + 6' Storm Surge

Mant's Landing

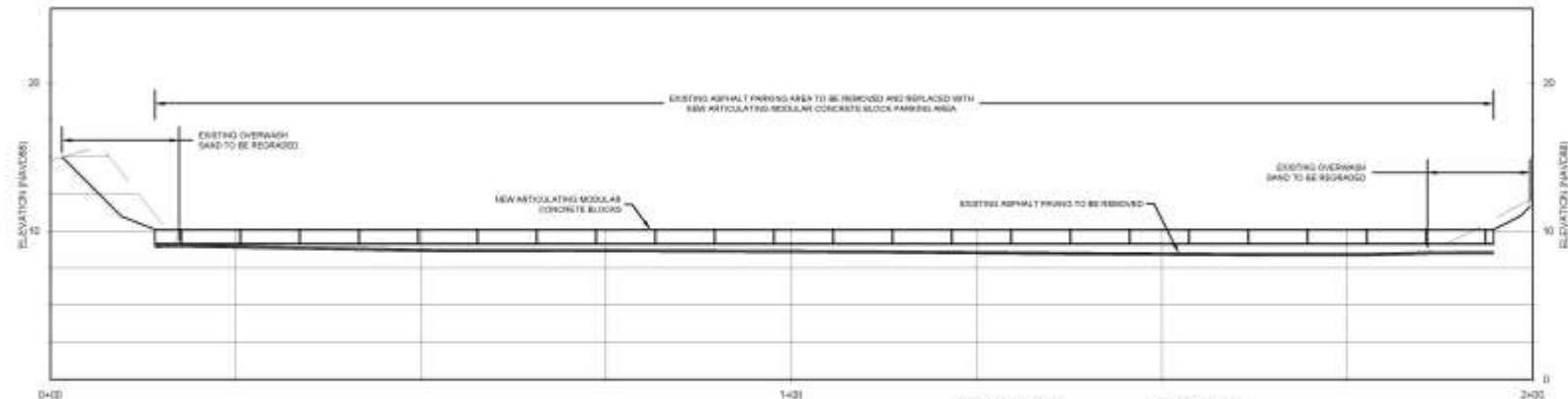


| <u>DATE</u> | <u>COUNTDOWN</u> |
|-------------|------------------|
| 12.07 | -6.41 |
| 0.81 | -4.27 |
| 5.50 | -3.90 |
| 0.00 | -5.58 |
| -0.27 | -6.98 |

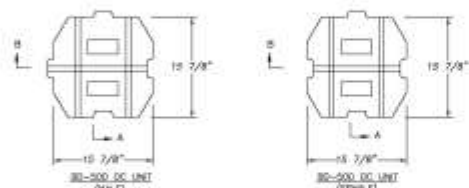
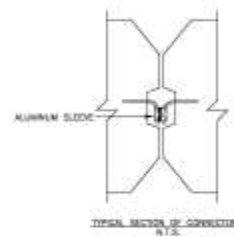
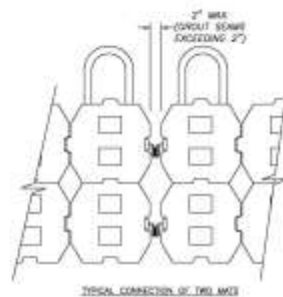
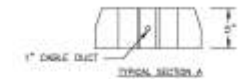
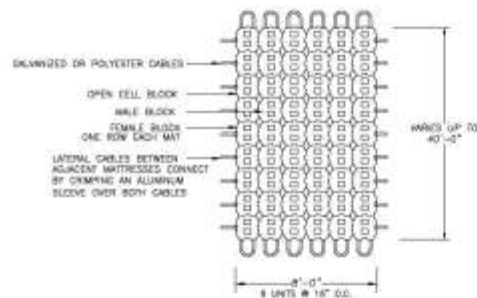
RESULTS OF TOPOGRAPHIC SURVEY BY G.E. ENGINEERS, INC. JULY 10, 1974.
 5. EXISTING ARE LINES AND TIEHLS, AND REFER TO THE MAPS EXHIBIT 10-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100-101-102-103-104-105-106-107-108-109-110-111-112-113-114-115-116-117-118-119-120-121-122-123-124-125-126-127-128-129-130-131-132-133-134-135-136-137-138-139-140-141-142-143-144-145-146-147-148-149-150-151-152-153-154-155-156-157-158-159-160-161-162-163-164-165-166-167-168-169-170-171-172-173-174-175-176-177-178-179-180-181-182-183-184-185-186-187-188-189-190-191-192-193-194-195-196-197-198-199-200-201-202-203-204-205-206-207-208-209-210-211-212-213-214-215-216-217-218-219-220-221-222-223-224-225-226-227-228-229-230-231-232-233-234-235-236-237-238-239-240-241-242-243-244-245-246-247-248-249-250-251-252-253-254-255-256-257-258-259-260-261-262-263-264-265-266-267-268-269-270-271-272-273-274-275-276-277-278-279-280-281-282-283-284-285-286-287-288-289-290-291-292-293-294-295-296-297-298-299-300-301-302-303-304-305-306-307-308-309-310-311-312-313-314-315-316-317-318-319-320-321-322-323-324-325-326-327-328-329-330-331-332-333-334-335-336-337-338-339-340-341-342-343-344-345-346-347-348-349-350-351-352-353-354-355-356-357-358-359-360-361-362-363-364-365-366-367-368-369-370-371-372-373-374-375-376-377-378-379-380-381-382-383-384-385-386-387-388-389-390-391-392-393-394-395-396-397-398-399-400-401-402-403-404-405-406-407-408-409-410-411-412-413-414-415-416-417-418-419-420-421-422-423-424-425-426-427-428-429-430-431-432-433-434-435-436-437-438-439-440-441-442-443-444-445-446-447-448-449-450-451-452-453-454-455-456-457-458-459-460-461-462-463-464-465-466-467-468-469-470-471-472-473-474-475-476-477-478-479-480-481-482-483-484-485-486-487-488-489-490-491-492-493-494-495-496-497-498-499-500-501-502-503-504-505-506-507-508-509-510-511-512-513-514-515-516-517-518-519-520-521-522-523-524-525-526-527-528-529-530-531-532-533-534-535-536-537-538-539-540-541-542-543-544-545-546-547-548-549-550-551-552-553-554-555-556-557-558-559-560-561-562-563-564-565-566-567-568-569-570-571-572-573-574-575-576-577-578-579-580-581-582-583-584-585-586-587-588-589-590-591-592-593-594-595-596-597-598-599-600-601-602-603-604-605-606-607-608-609-610-611-612-613-614-615-616-617-618-619-620-621-622-623-624-625-626-627-628-629-630-631-632-633-634-635-636-637-638-639-640-641-642-643-644-645-646-647-648-649-650-651-652-653-654-655-656-657-658-659-660-661-662-663-664-665-666-667-668-669-670-671-672-673-674-675-676-677-678-679-680-681-682-683-684-685-686-687-688-689-690-691-692-693-694-695-696-697-698-699-700-701-702-703-704-705-706-707-708-709-710-711-712-713-714-715-716-717-718-719-720-721-722-723-724-725-726-727-728-729-730-731-732-733-734-735-736-737-738-739-740-741-742-743-744-745-746-747-748-749-750-751-752-753-754-755-756-757-758-759-760-761-762-763-764-765-766-767-768-769-770-771-772-773-774-775-776-777-778-779-780-781-782-783-784-785-786-787-788-789-790-791-792-793-794-795-796-797-798-799-800-801-802-803-804-805-806-807-808-809-810-811-812-813-814-815-816-817-818-819-820-821-822-823-824-825-826-827-828-829-830-831-832-833-834-835-836-837-838-839-840-841-842-843-844-845-846-847-848-849-850-851-852-853-854-855-856-857-858-859-860-861-862-863-864-865-866-867-868-869-870-871-872-873-874-875-876-877-878-879-880-881-882-883-884-885-886-887-888-889-890-891-892-893-894-895-896-897-898-899-900-901-902-903-904-905-906-907-908-909-910-911-912-913-914-915-916-917-918-919-920-921-922-923-924-925-926-927-928-929-930-931-932-933-934-935-936-937-938-939-940-941-942-943-944-945-946-947-948-949-950-951-952-953-954-955-956-957-958-959-960-961-962-963-964-965-966-967-968-969-970-971-972-973-974-975-976-977-978-979-980-981-982-983-984-985-986-987-988-989-990-991-992-993-994-995-996-997-998-999-1000-1001-1002-1003-1004-1005-1006-1007-1008-1009-1010-1011-1012-1013-1014-1015-1016-1017-1018-1019-1020-1021-1022-1023-1024-1025-1026-1027-1028-1029-1030-1031-1032-1033-1034-1

| | |
|----------|---|
| PROPERTY | MANT'S LANDING BREWSTER, MASSACHUSETTS |
| CITY | TOWN OF BREWSTER 2198 MAIN STREET, BREWSTER MA 02631 |

cleengineering



TYPICAL SECTION A-A
HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=5'



TOLERANCE SPECIFICATIONS

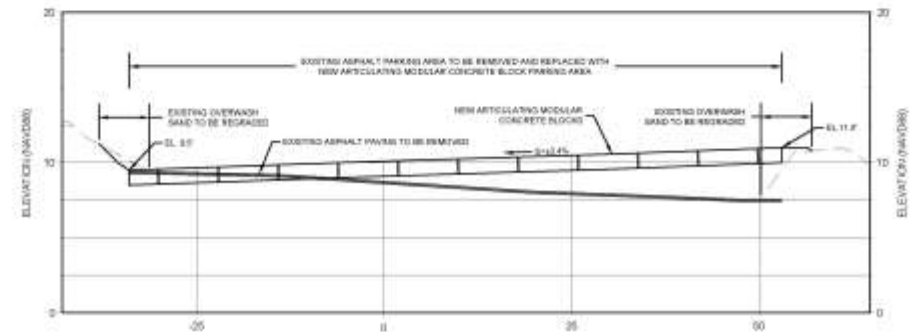
- SHORELOCK® UNITS ARE MANUFACTURED IN ACCORDANCE WITH ASTM C95 AND C1463 AND THE FOLLOWING CRITERIA:
 - CONCRETE UNIT WEIGHT: 120 - 140 LB/CY
 - MINIMUM COMPRESSIVE STRENGTH: 4,000 PSI
 - MOISTURE ABSORPTION: - 5 %
 - DIMENSIONAL TOLERANCE: + 1/8"
- GALVANIZED OR POLYESTER CABLEING

NOTES

| UNIT | WEIGHT (LB) | CONCRETE (CU/YD) | OPEN AREA |
|-----------|-------------|------------------|-----------|
| 30-500 DC | 71 - 78 | 46 - 44 | 20% |

ASSEMBLY SPECIFICATIONS

- SHORELOCK® UNITS ARE SHIP ASSEMBLED IN A CABLED MATTERESS AS SHOWN ABOVE.
- SHORELOCK® MATS ARE PLACED BY THE CONTRACTOR IN THE FIELD.



TYPICAL SECTION B-B
HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=5'

NOTES
SEE SHEET FOR NOTES

PROJECT MANT'S LANDING
BREWSTER, MASSACHUSETTS
CITY TOWN OF BREWSTER
2198 MAIN STREET, BREWSTER MA 02831

cleaneengineering

Articulating concrete mat



Blocks connected with flexible cable



Developing a Coastal Adaptation Strategy for Brewster

- ▶ CZM Coastal Community Resiliency Grant 2016
 - ▶ \$222,000 (\$160,000 grant, \$62,000 local match)
- ▶ Develop a consensus-based Coastal Adaptation Strategy.
 - ▶ A measured and detailed public engagement process is the next step in adapting to Brewster's future coastal change and erosion issues.

Climate Adaptation

- ▶ Brewster's entire coast is currently in the FEMA VE flood zone and most or all of its tidal marsh and creek system are mapped as AE.
- ▶ There are 1,138 land parcels within these zones.
- ▶ In the past five years, extensive parts of coastal Brewster have been exposed to storm surge impacts, including dune washover, flooding and significant erosion. In some areas, up to 20 feet of dune/coastal bank have been lost in a single storm event.

Public Beach Access Issues

2014:

- ▶ 6,411 resident beach stickers
- ▶ 4,355 seasonal and visitor stickers
- ▶ Approximately 300 total spaces
- ▶ Stickers required 9am to 3pm daily June 15 through labor day.

20, 40 and 60 Years

- ▶ Brewster BCAG chose the following timeframes and future scenarios for the mapping and analyses of sea level rise and storm surge impacts on Brewster's coast:
 - ▶ Time horizons of 20 years and a one foot rise in sea level, 40 years (~ two feet), and 60 years (~ four ft) to provide for both short- and long- term impacts, and
 - ▶ Storm surge levels of two, four, and eight feet.

Final Report: Coastal Adaptation Strategy

