

**LOCATION MAP**



**VICINITY MAP**

**HDR**  
 HDR Engineering, Inc.  
 Texas P.E. Firm  
 Registration No. F-754

ACTIVITY: BOLIVAR PENINSULA BEACH  
 AND DUNE RESTORATION

APPLICANT: GALVESTON COUNTY

DATE: 05/2020

HDR PROJECT NO: 10140053

DATUM: NAD 83

REV. DATE:

SHEET 01 OF 41

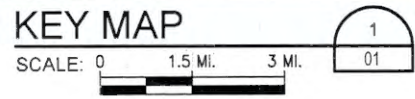
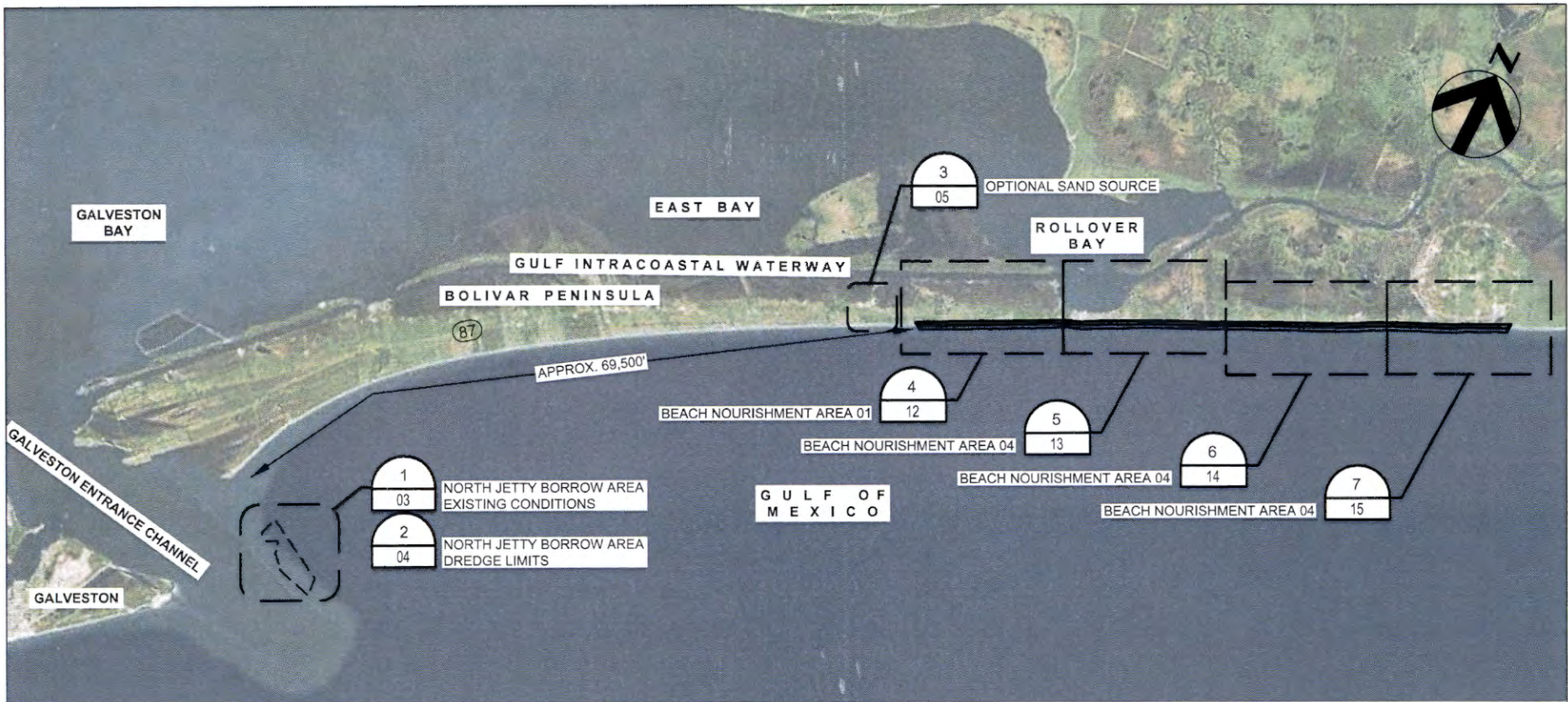
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**GENERAL NOTES:**

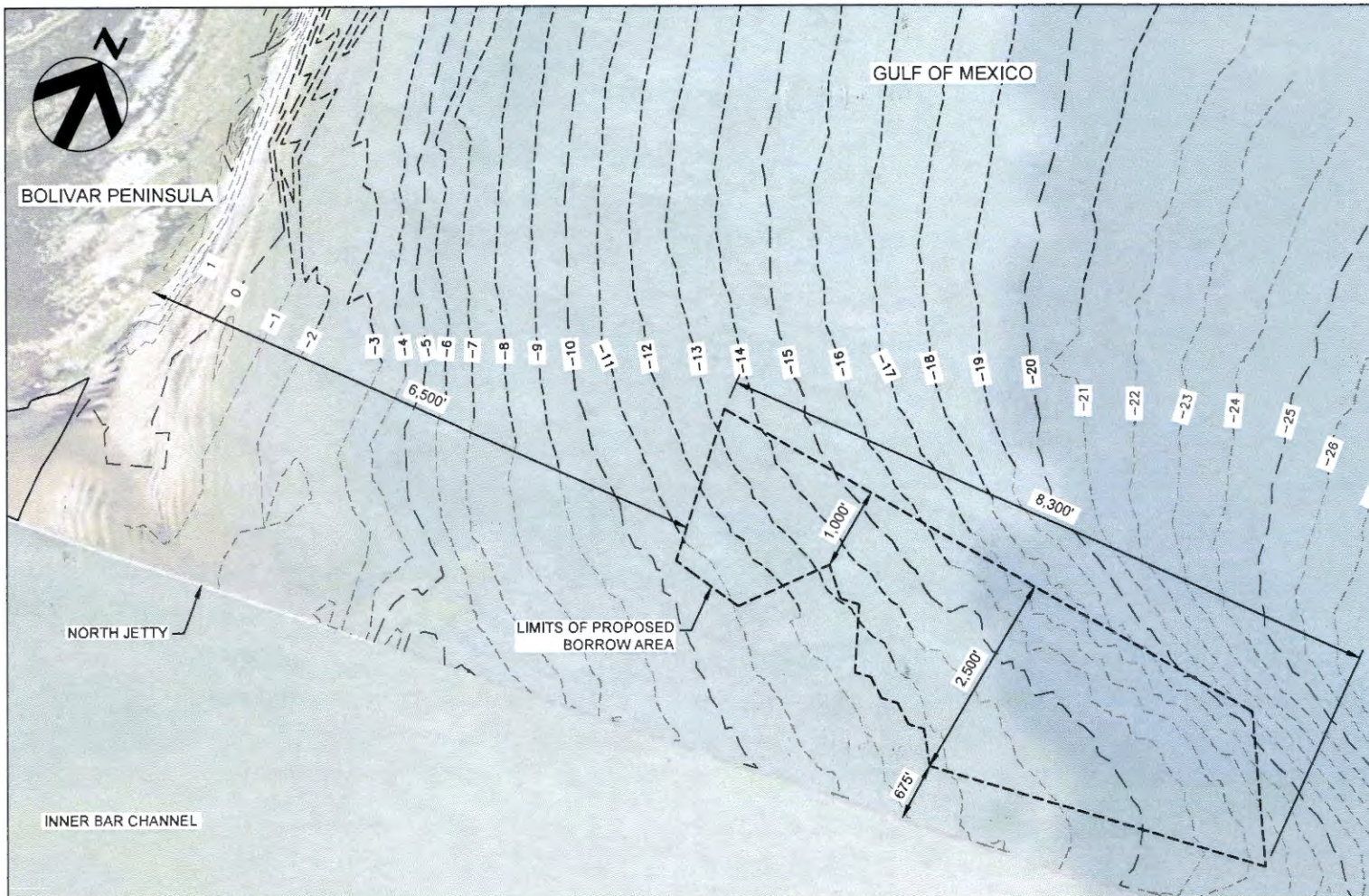
1. COORDINATES ARE SHOWN IN FEET AND REFERENCED TO THE TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83 UNLESS OTHERWISE NOTED.
2. ELEVATIONS ARE IN FEET AND ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88) UNLESS OTHERWISE NOTED.
3. BEACH NOURISHMENT AREA FOOTPRINT TOTAL = 1113 ACRES.

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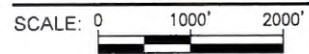
**NOTES**

1. CONTOURS ARE IN FEET AND REFERENCED TO NAVD '88.
2. AERIAL PHOTOGRAPH OBTAINED BY FGDC CONTENT STANDARDS FOR DIGITAL GEOSPATIAL METADATA VERSION FGDC-STD-001-1998 ON 01/03/2018 AND 01/06/2018.
3. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY NAISMITH MARINE SERVICES AND REPRESENT THE CONDITIONS THAT EXISTED ON FEBRUARY 5, 2015 AND APRIL 26, 2019.

**LEGEND**

- — -10 — — MAJOR CONTOUR 2019
- -9 ----- MINOR CONTOUR 2019
- — -10 — — MAJOR CONTOUR 2015
- -9 ----- MINOR CONTOUR 2015
- BORROW AREA BOUNDARY

**NORTH JETTY BORROW AREA - EXISTING CONDITIONS**



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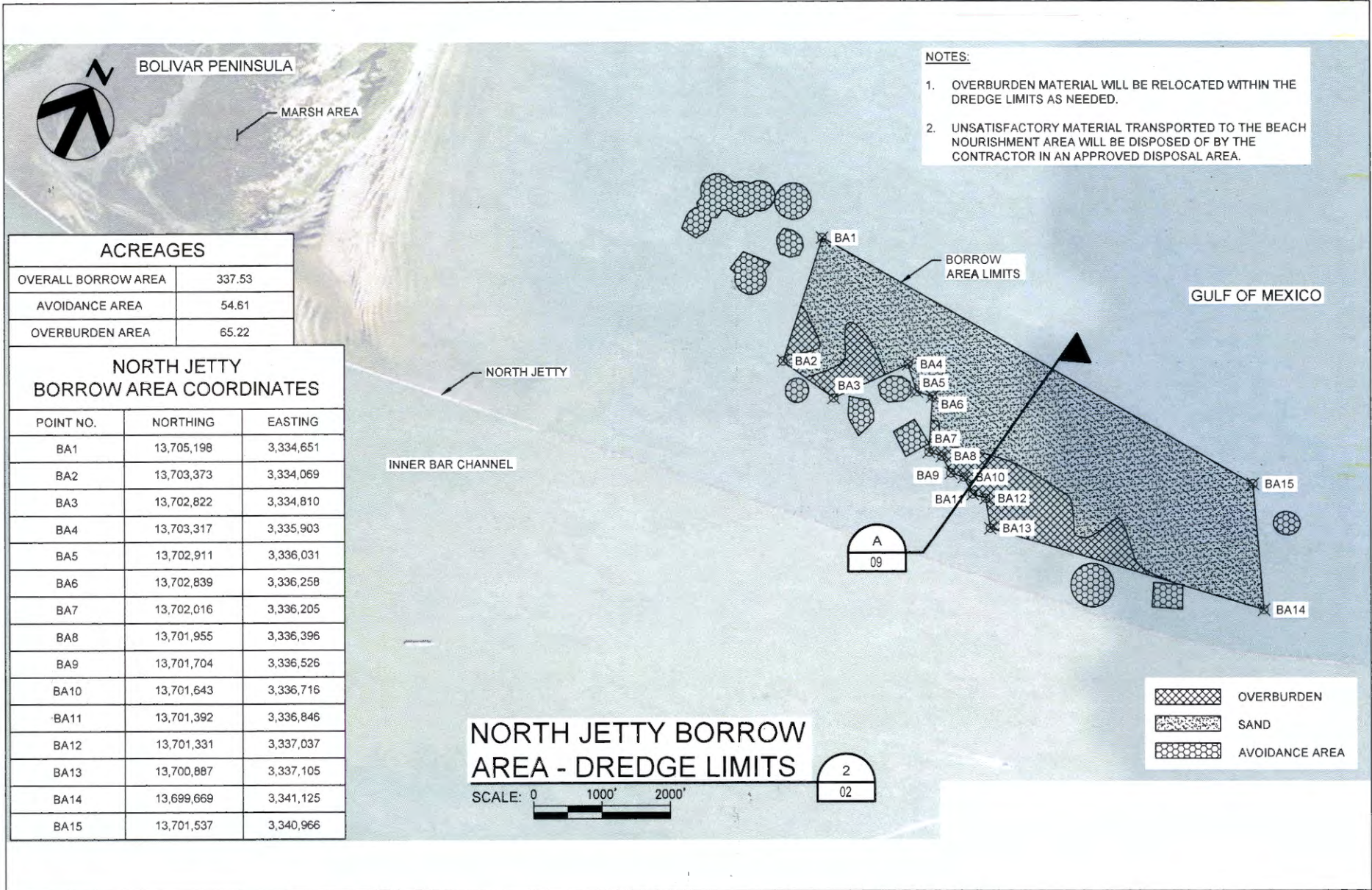
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**NOTES:**

1. OVERBURDEN MATERIAL WILL BE RELOCATED WITHIN THE DREDGE LIMITS AS NEEDED.
2. UNSATISFACTORY MATERIAL TRANSPORTED TO THE BEACH NOURISHMENT AREA WILL BE DISPOSED OF BY THE CONTRACTOR IN AN APPROVED DISPOSAL AREA.

| ACREAGES            |        |
|---------------------|--------|
| OVERALL BORROW AREA | 337.53 |
| AVOIDANCE AREA      | 54.61  |
| OVERBURDEN AREA     | 65.22  |

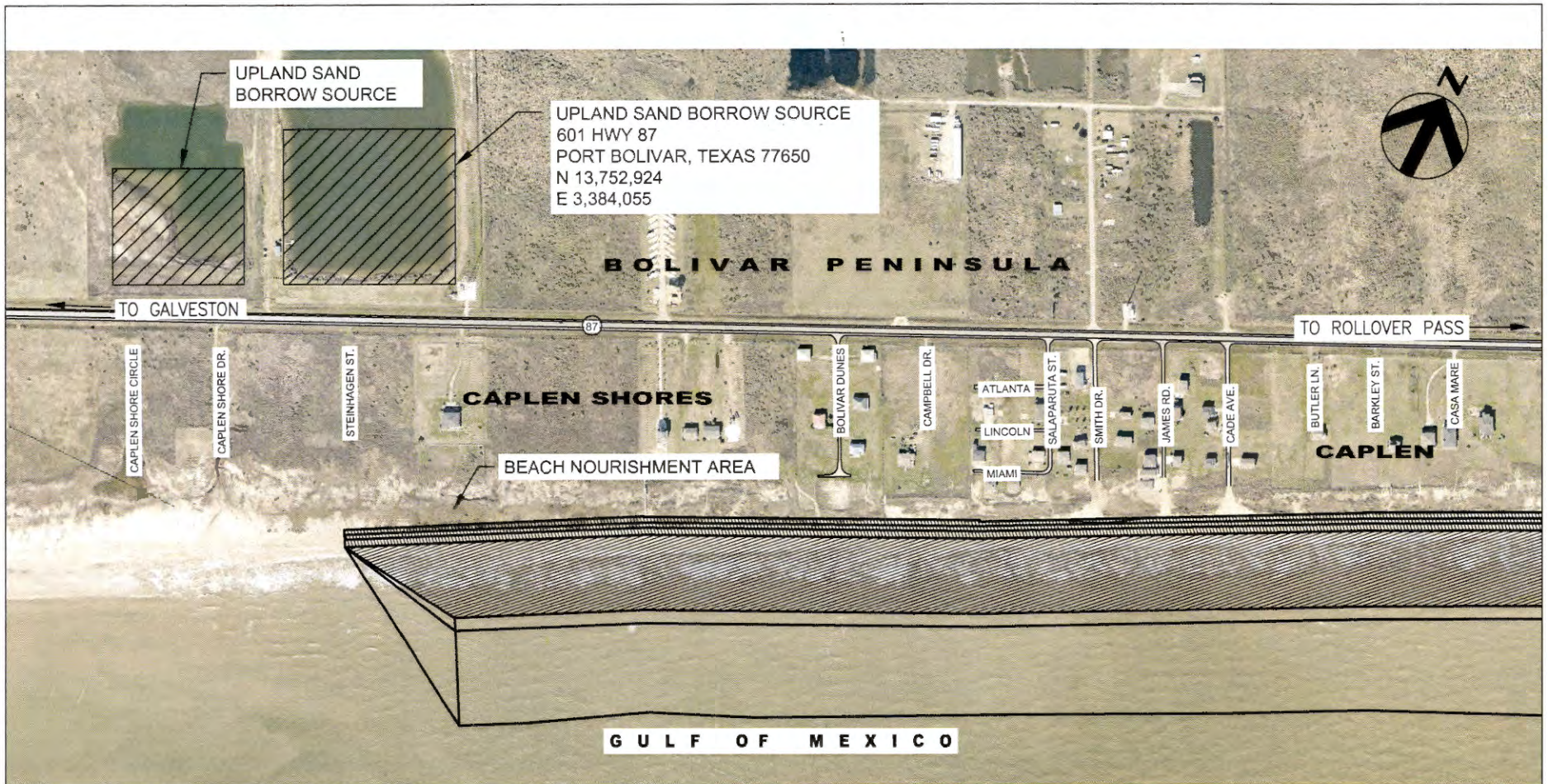
| NORTH JETTY BORROW AREA COORDINATES |            |           |
|-------------------------------------|------------|-----------|
| POINT NO.                           | NORTHING   | EASTING   |
| BA1                                 | 13,705,198 | 3,334,651 |
| BA2                                 | 13,703,373 | 3,334,069 |
| BA3                                 | 13,702,822 | 3,334,810 |
| BA4                                 | 13,703,317 | 3,335,903 |
| BA5                                 | 13,702,911 | 3,336,031 |
| BA6                                 | 13,702,839 | 3,336,258 |
| BA7                                 | 13,702,016 | 3,336,205 |
| BA8                                 | 13,701,955 | 3,336,396 |
| BA9                                 | 13,701,704 | 3,336,526 |
| BA10                                | 13,701,643 | 3,336,716 |
| BA11                                | 13,701,392 | 3,336,846 |
| BA12                                | 13,701,331 | 3,337,037 |
| BA13                                | 13,700,887 | 3,337,105 |
| BA14                                | 13,699,669 | 3,341,125 |
| BA15                                | 13,701,537 | 3,340,966 |

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**OPTIONAL SAND SOURCE AREA**

SCALE: N.T.S.



**NOTE:**

1. IN ORDER TO WARN OF TRUCKS HAULING SAND FOR THIS PROJECT, THE PERMITTEE WILL INSTALL AND MAINTAIN WARNING SIGNS ON STATE HIGHWAY 87 AT THE SAND PIT ENTRANCE AND AT THE BEACH ACCESS POINTS BEING USED TO TRANSPORT SAND TO THE BEACH.

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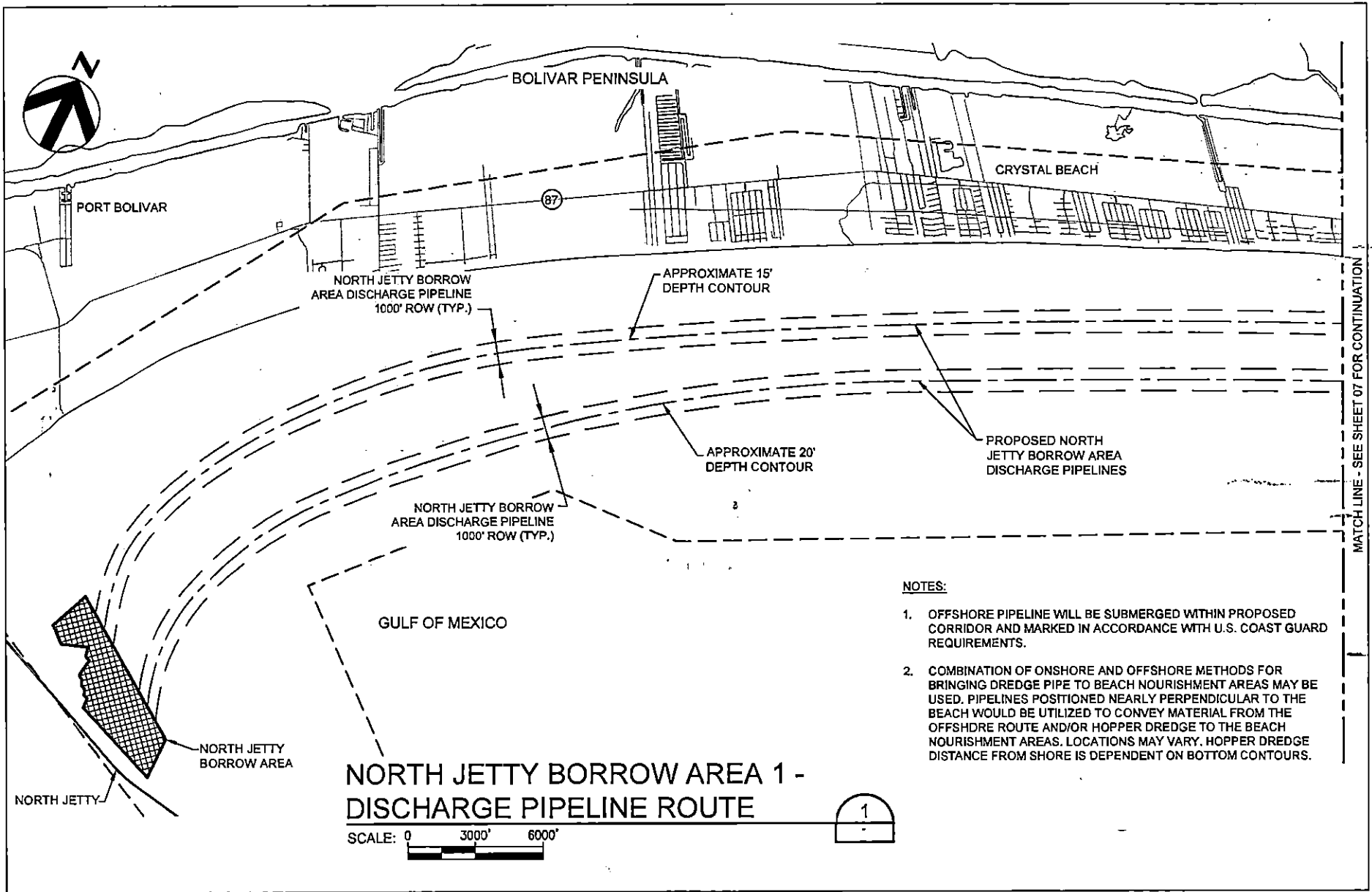
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**NOTES:**

1. OFFSHORE PIPELINE WILL BE SUBMERGED WITHIN PROPOSED CORRIDOR AND MARKED IN ACCORDANCE WITH U.S. COAST GUARD REQUIREMENTS.
2. COMBINATION OF ONSHORE AND OFFSHORE METHODS FOR BRINGING DREDGE PIPE TO BEACH NOURISHMENT AREAS MAY BE USED. PIPELINES POSITIONED NEARLY PERPENDICULAR TO THE BEACH WOULD BE UTILIZED TO CONVEY MATERIAL FROM THE OFFSHORE ROUTE AND/OR HOPPER DREDGE TO THE BEACH NOURISHMENT AREAS. LOCATIONS MAY VARY. HOPPER DREDGE DISTANCE FROM SHORE IS DEPENDENT ON BOTTOM CONTOURS.

**NORTH JETTY BORROW AREA 1 -  
DISCHARGE PIPELINE ROUTE**

SCALE: 0 3000' 6000'



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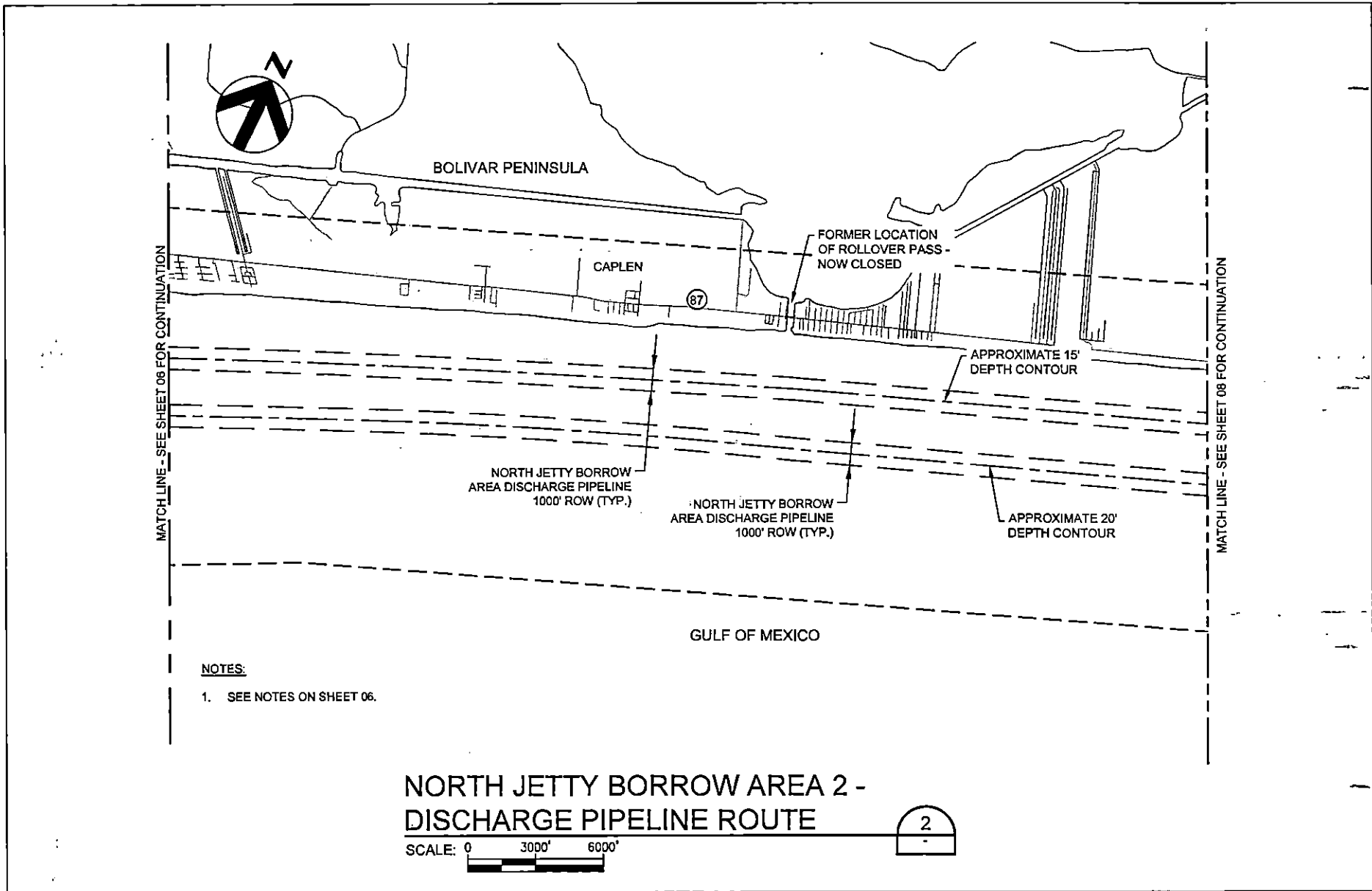
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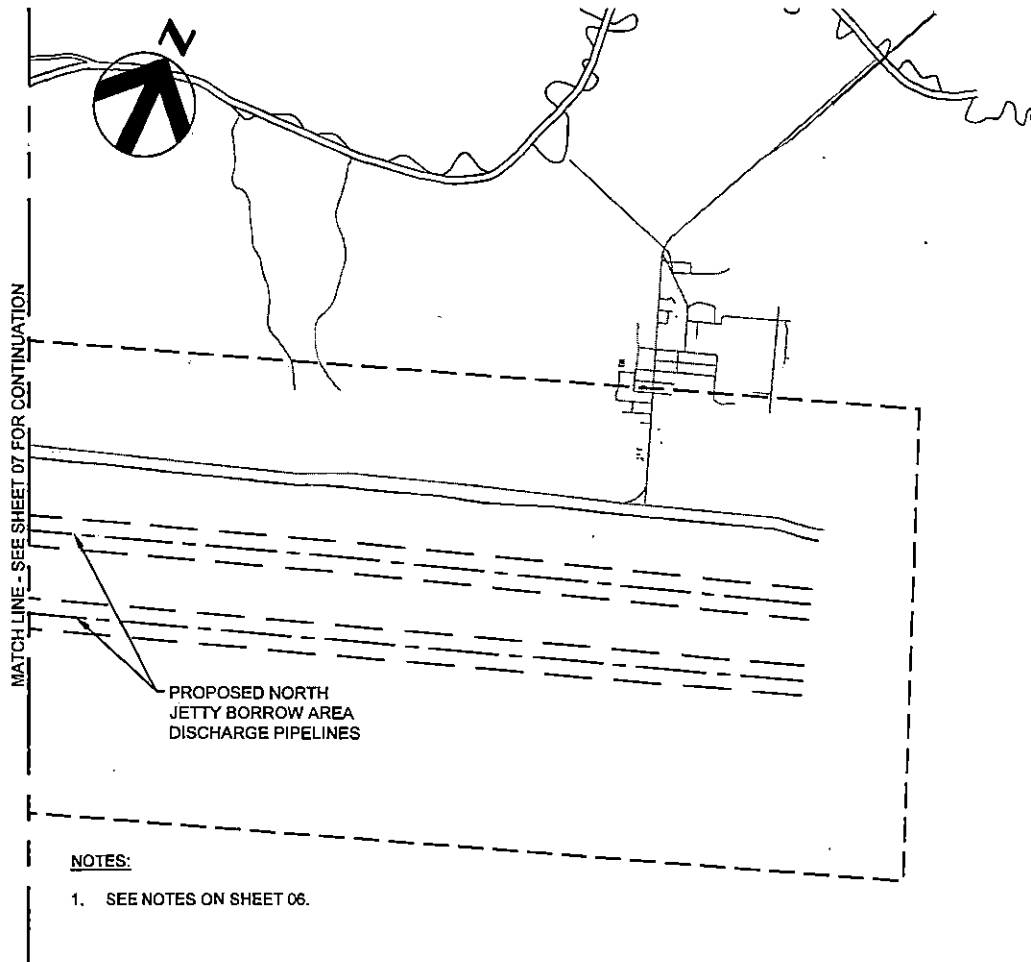
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**NOTES:**

- 1. SEE NOTES ON SHEET 06.

**NORTH JETTY BORROW AREA 3 -  
DISCHARGE PIPELINE ROUTE**



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REV. DATE:

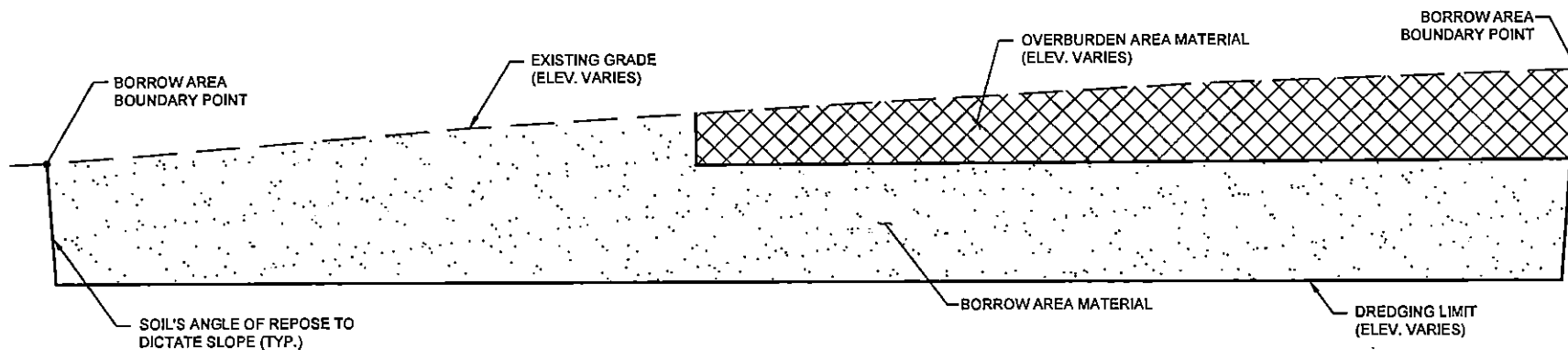
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## NORTH JETTY BORROW AREA - TYPICAL SECTION

SCALE: N.T.S.



### NOTES:

1. TOTAL VOLUME TO BE DREDGED FOR BEACH NOURISHMENT = 2,703,000 CY.
2. TOTAL VOLUME OF OVERBURDEN TO BE PLACED BACK INTO BORROW AREA = 254,000 CY.
3. TOTAL VOLUME OF SUITABLE SAND FOR BEACH NOURISHMENT = 2,449,000 CY.



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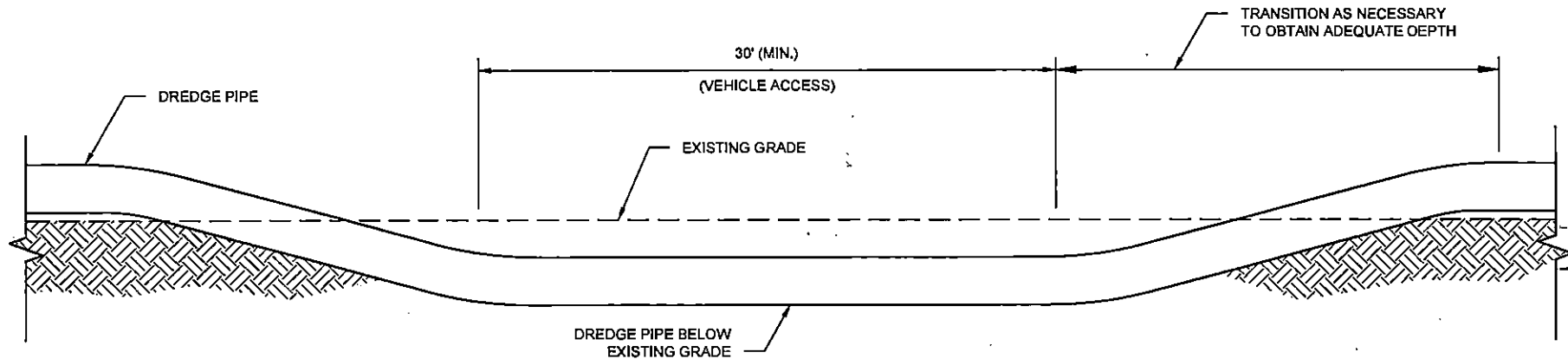
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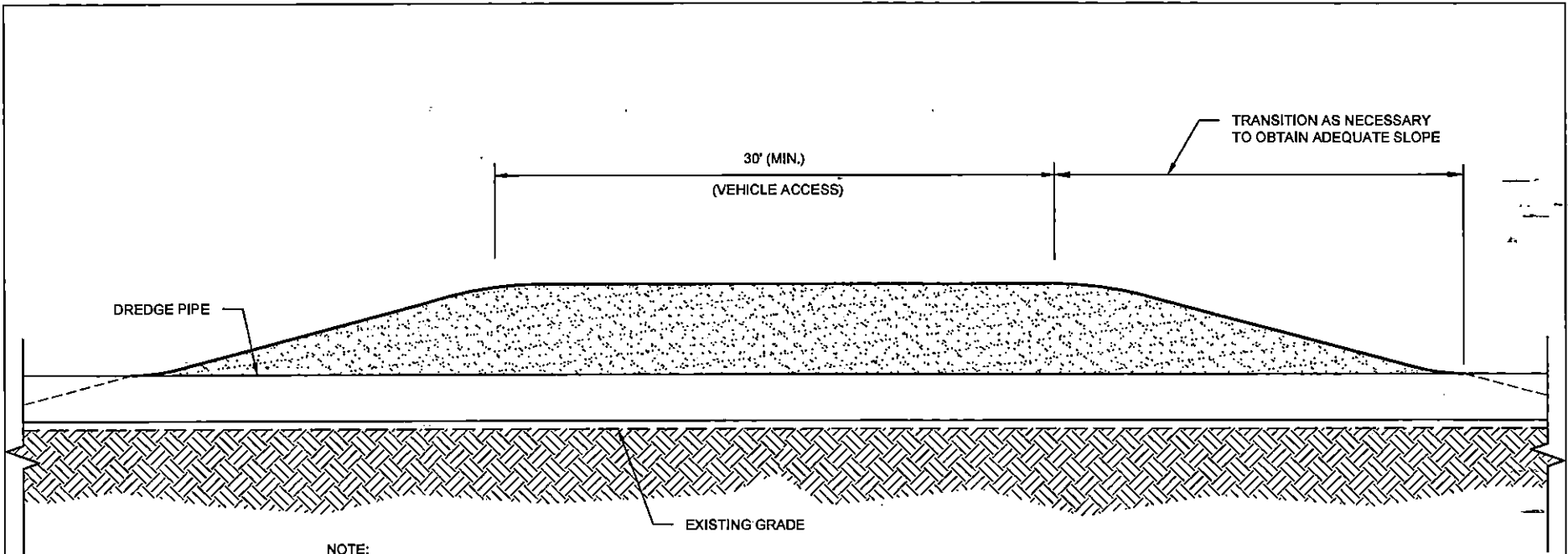
**NOTE:**

1. DREDGE PIPELINE SHALL BE PLACED BELOW EXISTING GRADE TO ALLOW VEHICULAR CROSSOVER. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE COVER AND BACKFILL FOR SUPPORT AND STABILIZATION OF DREDGE PIPELINE.
2. UPON REMOVAL OF DREDGE PIPE, ALL DISTURBED AREAS SHALL BE FILLED, GRADED, AND COMPACTED AS TO ALLOW VEHICULAR ACCESS.

**TYPICAL DETAIL - DREDGE PIPELINE  
CROSSOVER BELOW EXISTING GRADE**

SCALE: N.T.S.





**NOTE:**

1. DREDGE PIPELINE SHALL BE PLACED ABOVE EXISTING GRADE AND COVERED PROVIDING ENOUGH SLOPE TO ALLOW VEHICULAR AND PEDESTRIANS CROSSOVER. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE COVER AND BACKFILL FOR SUPPORT AND STABILIZATION OF DREDGE PIPELINE.
2. UPON REMOVAL OF DREDGE PIPE, ALL DISTURBED AREAS SHALL BE FILLED, GRADED, AND COMPACTED AS TO ALLOW VEHICULAR ACCESS.

**TYPICAL DETAIL - DREDGE PIPELINE  
CROSSOVER ABOVE EXISTING GRADE**

SCALE: N.T.S.



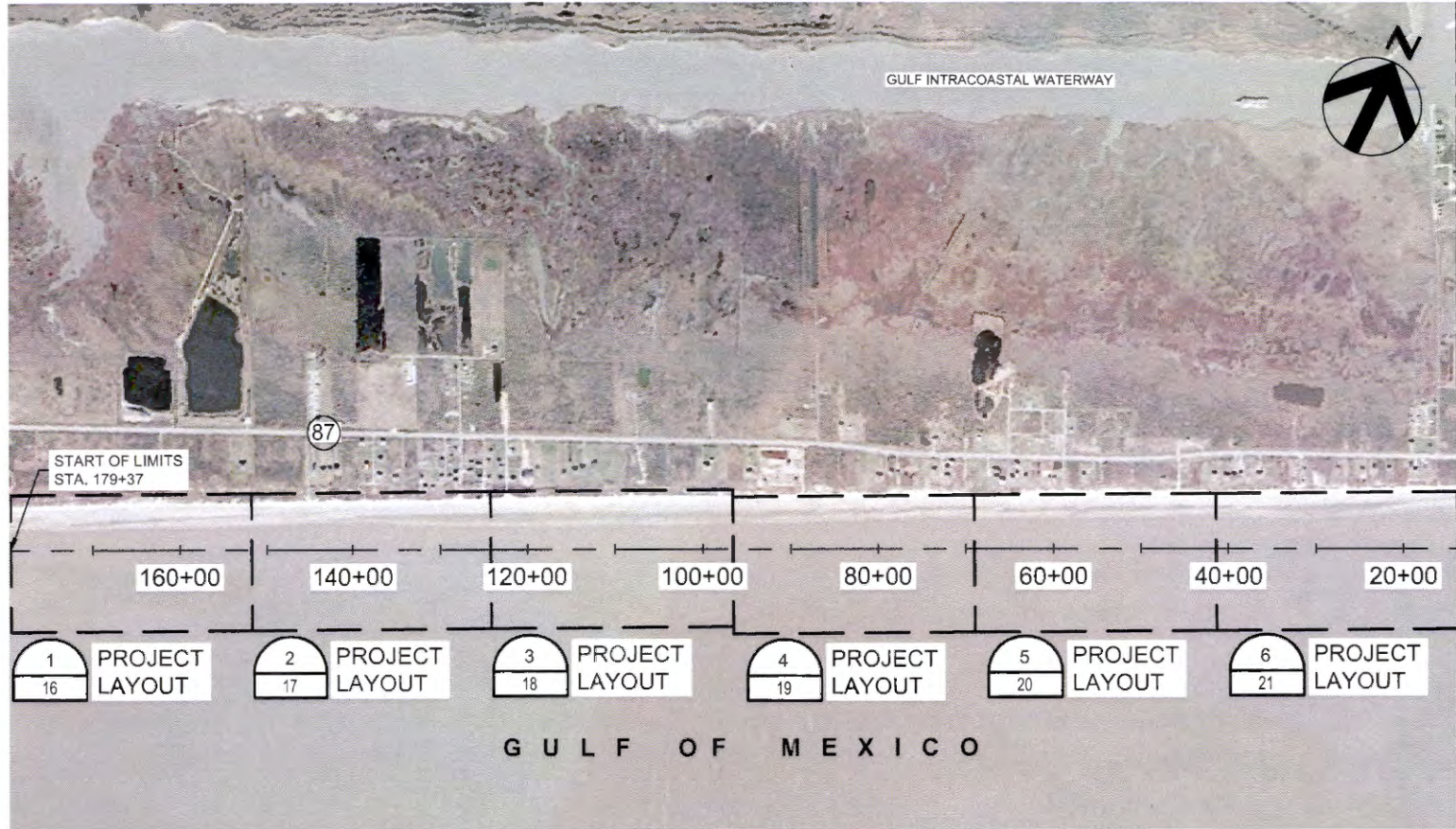
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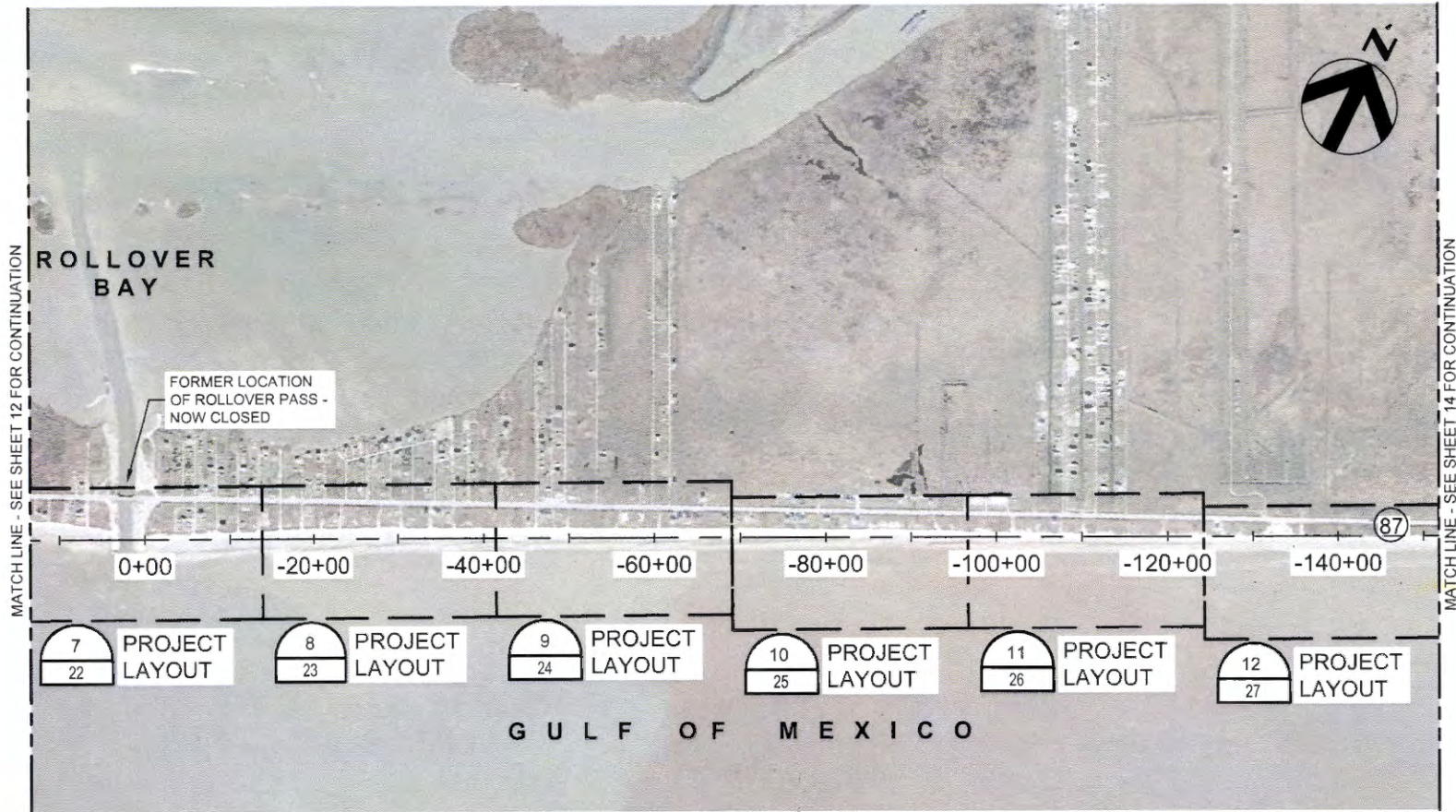
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**BEACH NOURISHMENT 01 - ENLARGED KEY MAP**

SCALE: 0 1000' 2000'

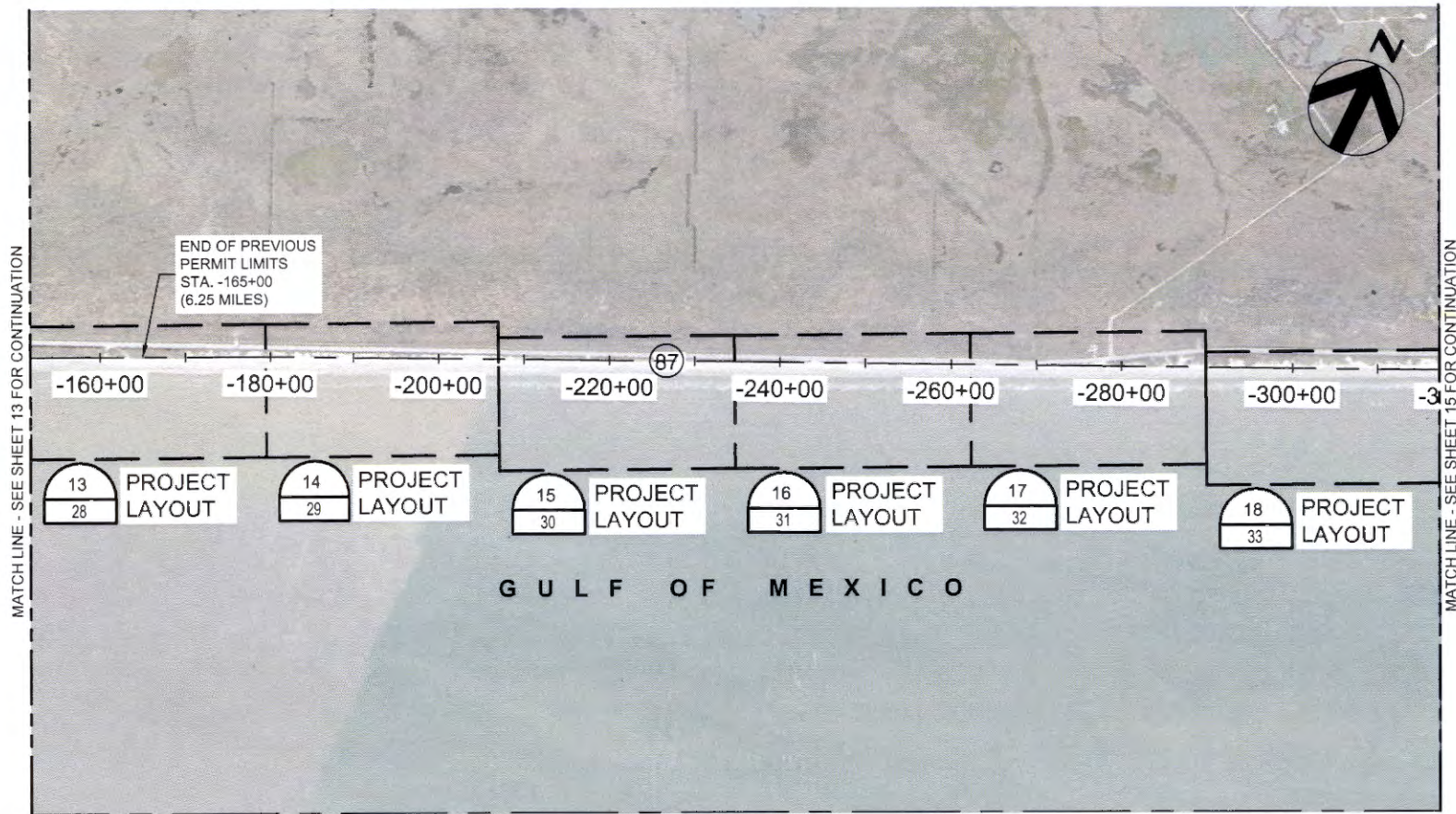
4  
02



BEACH NOURISHMENT 02 - ENLARGED KEY MAP

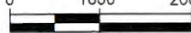
SCALE: 0 1000' 2000'





**BEACH NOURISHMENT 03 - ENLARGED KEY MAP**

SCALE: 0 1000' 2000'



6  
02

**NOTES:**

- 5.3 MILES OF BEACH NOURISHMENT ADDED TO THIS PROJECT.



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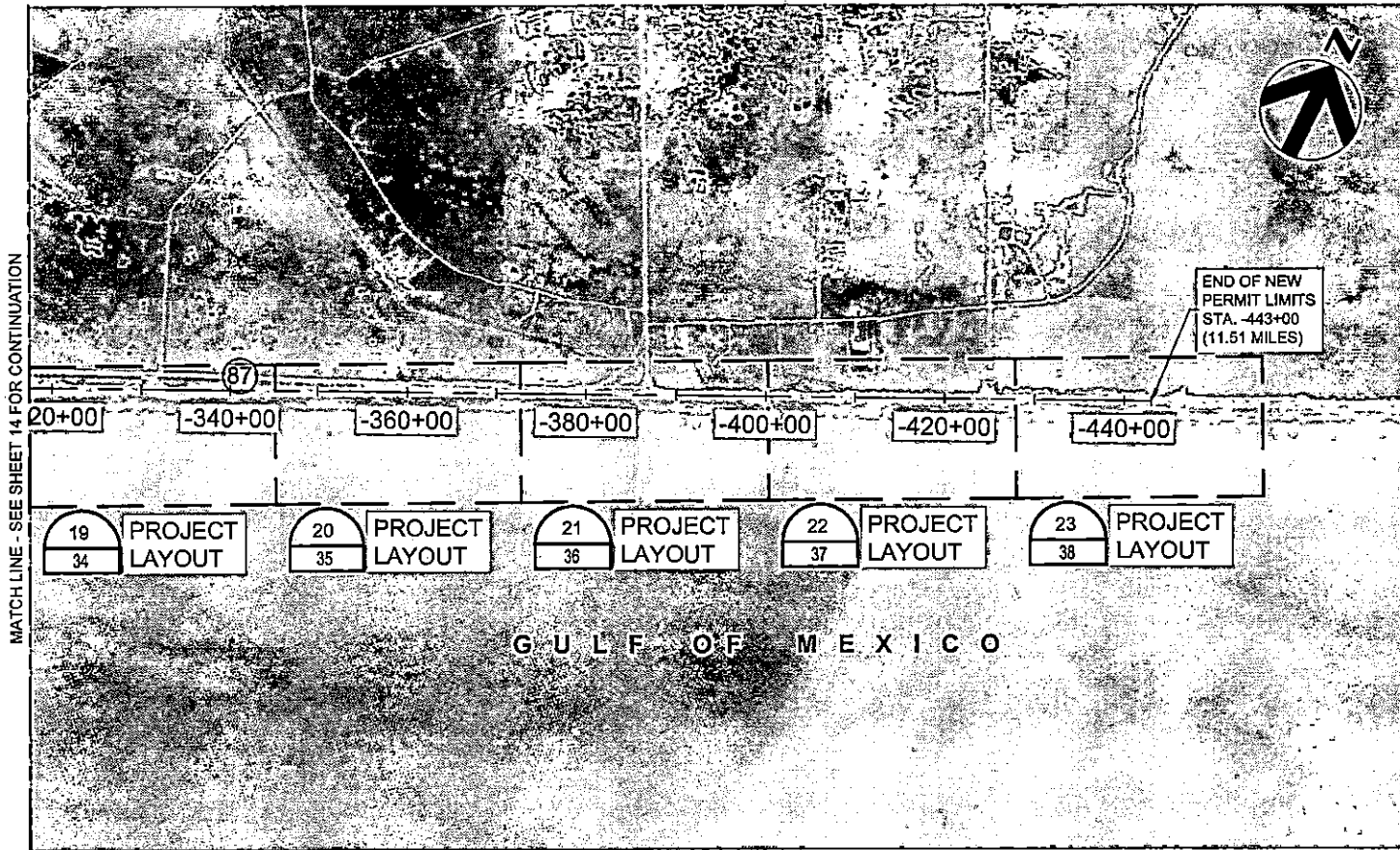
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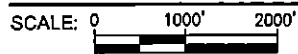
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**BEACH NOURISHMENT 04 - ENLARGED KEY MAP**



7  
02

**NOTES:**

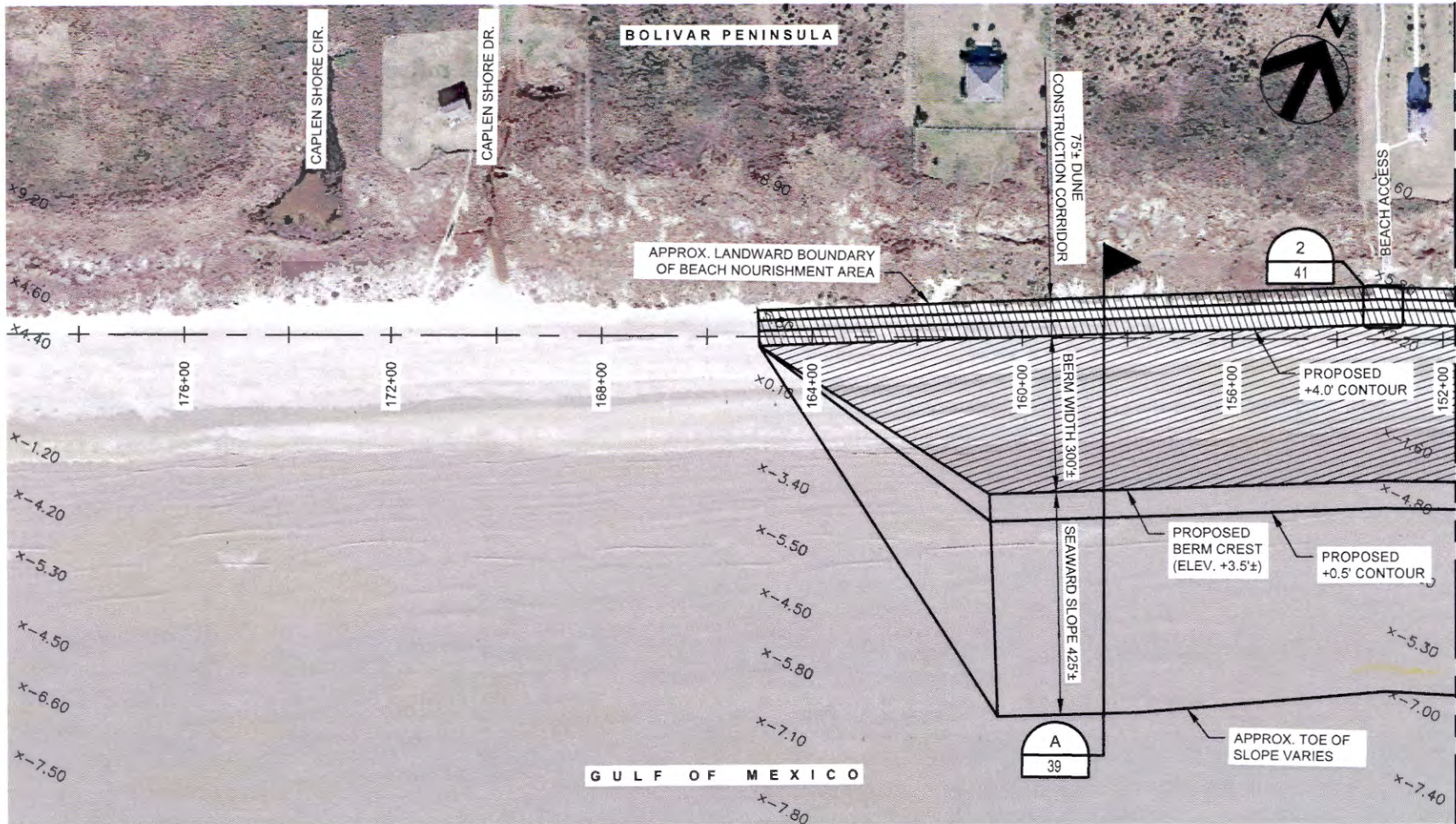
- 1. BEACH NOURISHMENT AREA FOOTPRINT TOTAL = 1113 ACRES.



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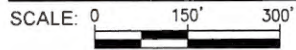
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MATCHLINE - SEE SHEET 17 FOR CONTINUATION

**PROJECT LAYOUT 01 - WEST OF ROLLOVER PASS**



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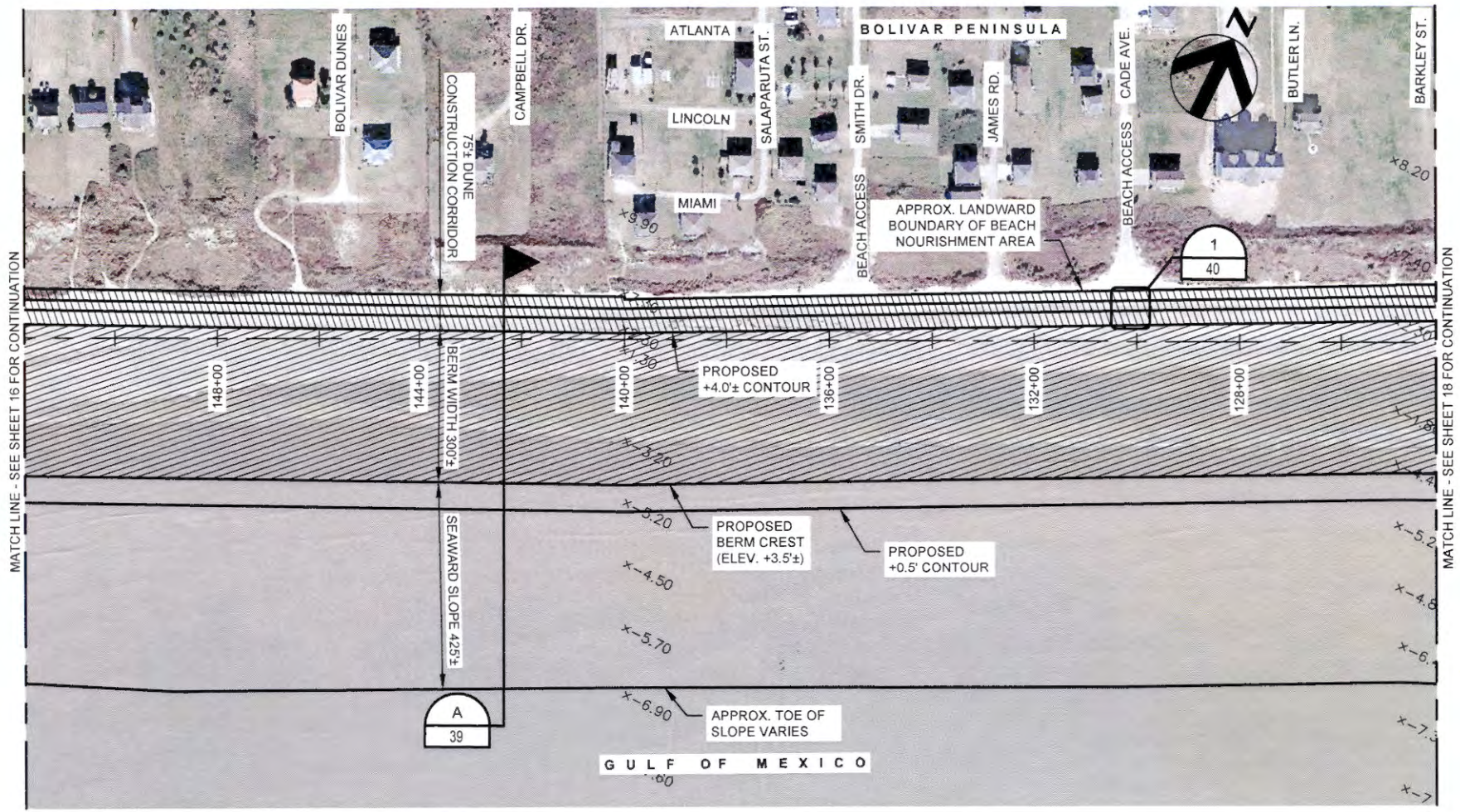
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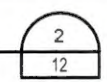
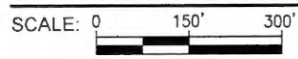




MATCH LINE - SEE SHEET 16 FOR CONTINUATION

MATCH LINE - SEE SHEET 18 FOR CONTINUATION

**PROJECT LAYOUT 02 - WEST OF ROLLOVER PASS**



ACTIVITY: BOLIVAR PENINSULA BEACH AND DUNE RESTORATION

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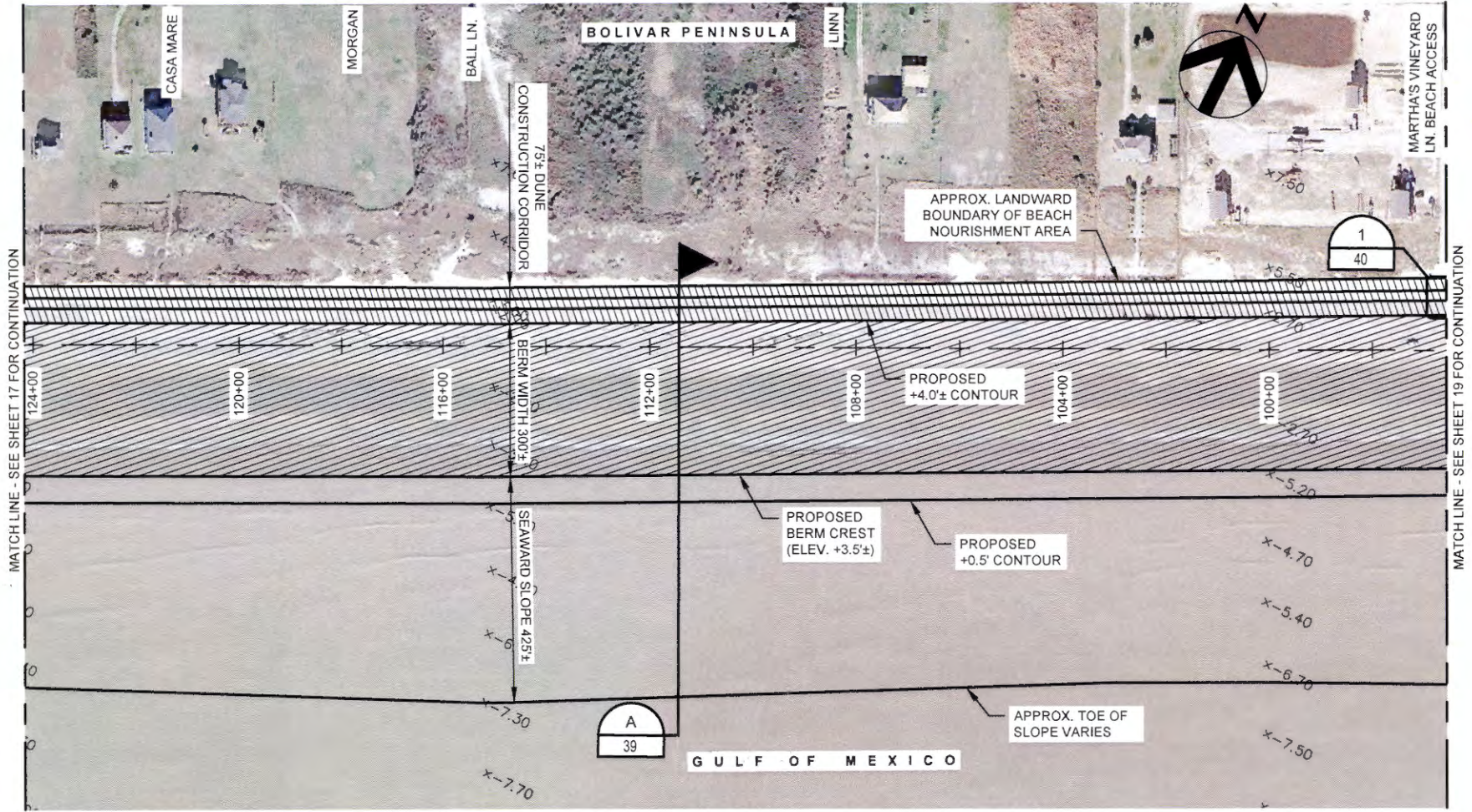
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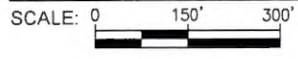
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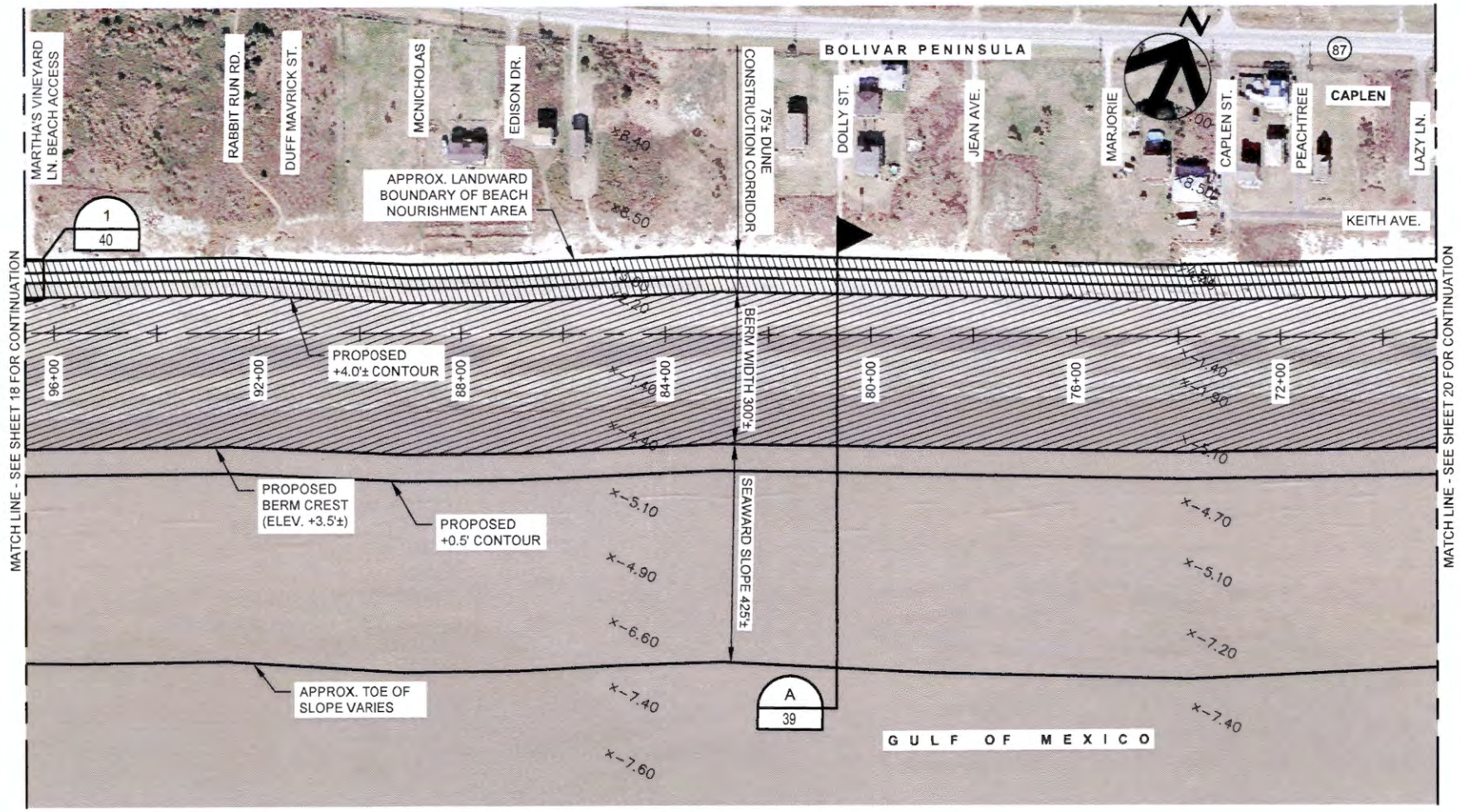
**PROJECT LAYOUT 03 - WEST OF ROLLOVER PASS**



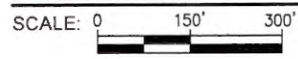
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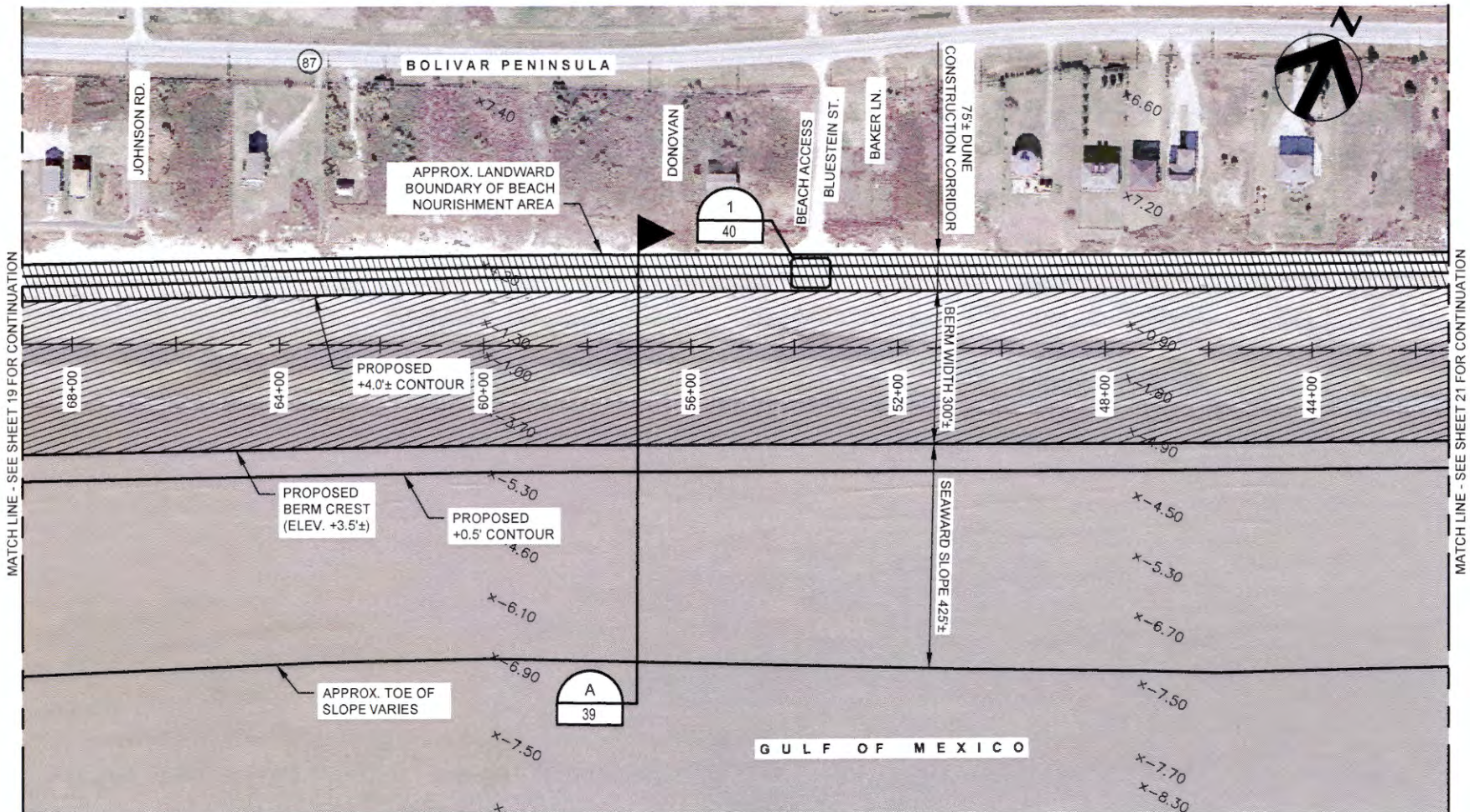
**PROJECT LAYOUT 04 - WEST OF ROLLOVER PASS**



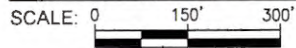
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**PROJECT LAYOUT 05 - WEST OF ROLLOVER PASS**



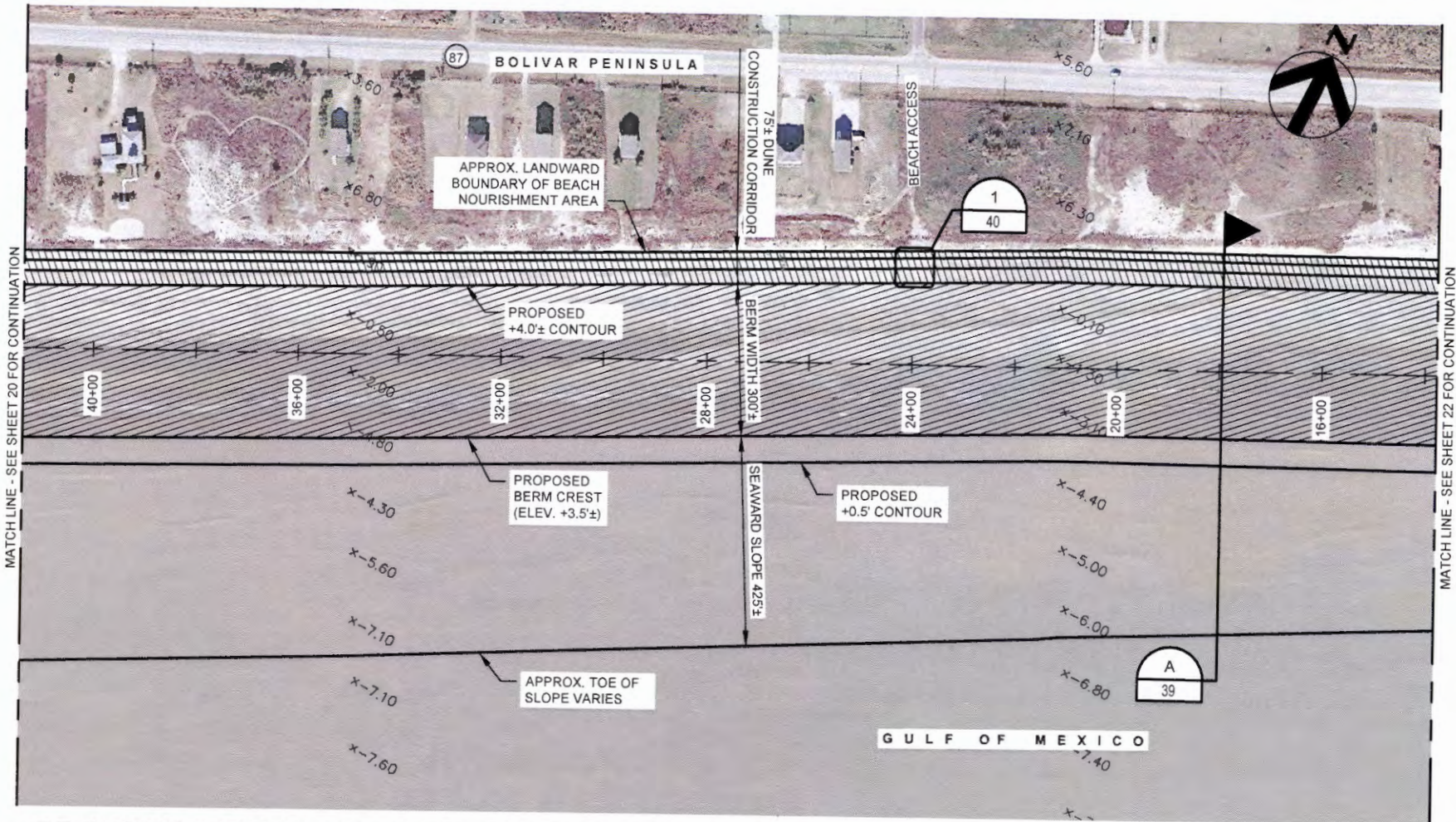
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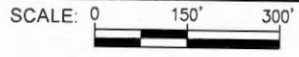
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**PROJECT LAYOUT 06 - WEST OF ROLLOVER PASS**

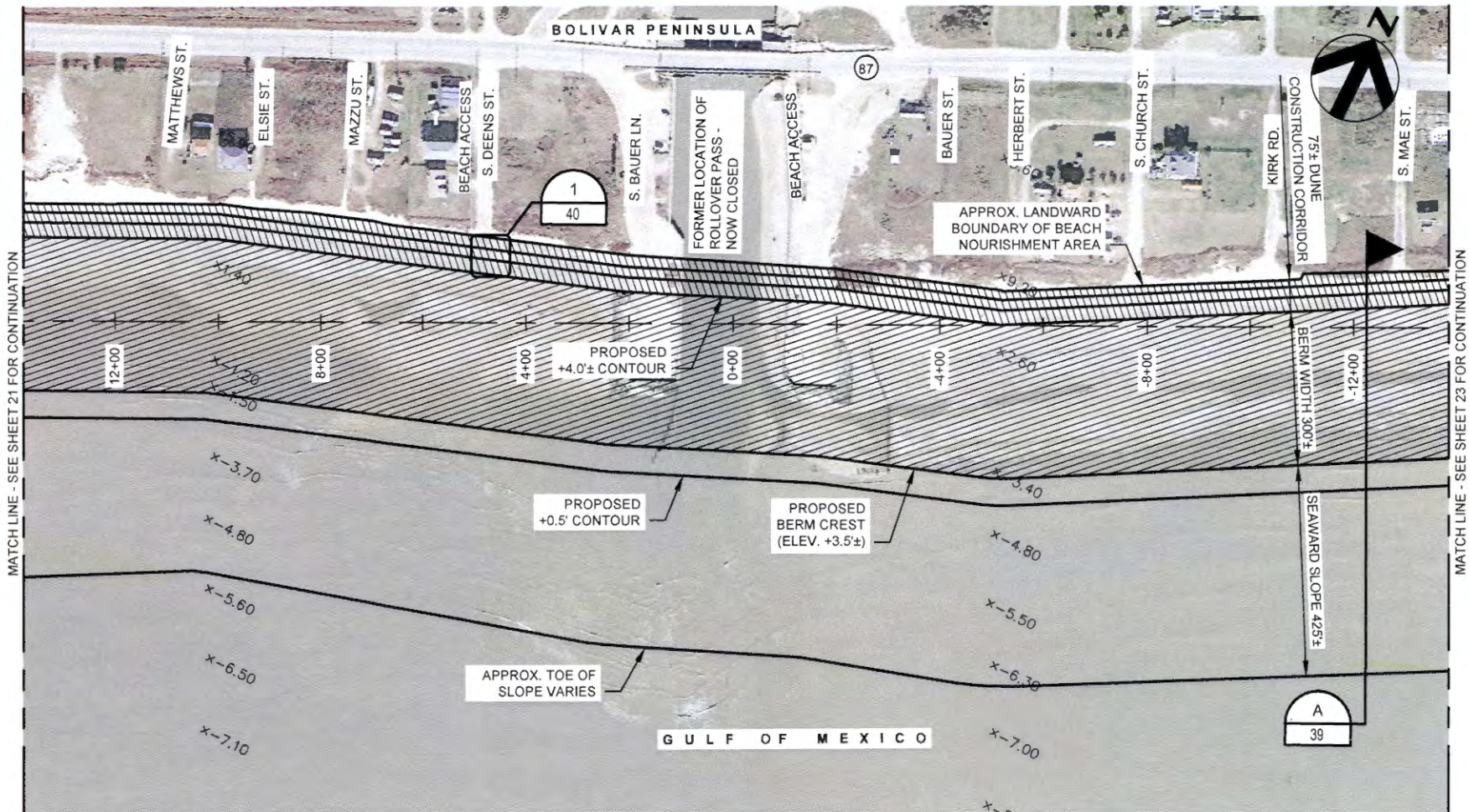


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**PROJECT LAYOUT 07 - ROLLOVER PASS**

SCALE: 0 150' 300'



ACTIVITY: BOLIVAR PENINSULA BEACH AND DUNE RESTORATION

APPLICANT: GALVESTON COUNTY

DATE: 05/2020

HDR PROJECT NO: 10140053

DATUM: NAD 83

REV. DATE:

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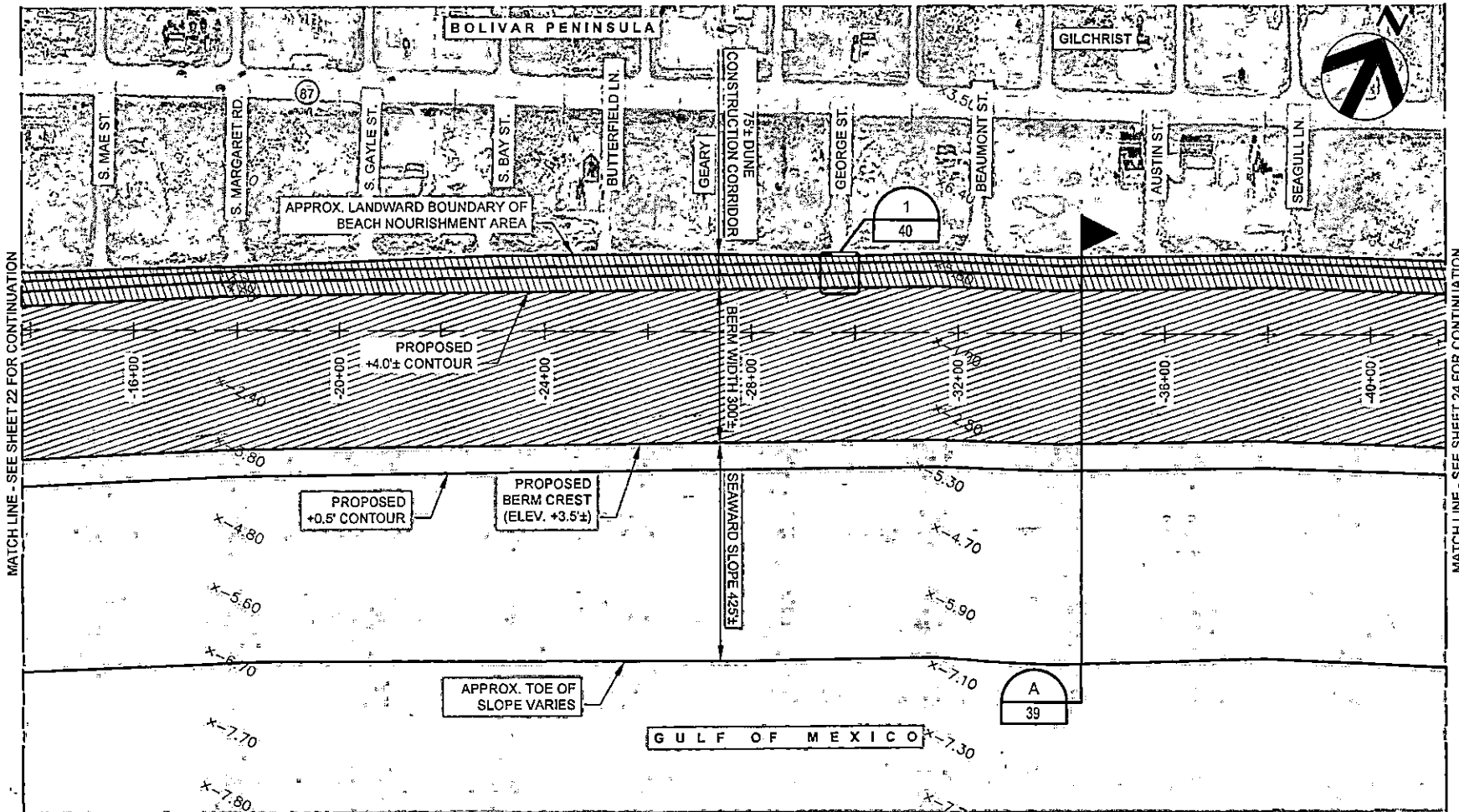
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**PROJECT LAYOUT 08 - EAST OF ROLLOVER PASS**



8  
13



ACTIVITY: BOLIVAR PENINSULA BEACH AND DUNE RESTORATION

APPLICANT: GALVESTON COUNTY

DATE: 05/2020

HDR PROJECT NO: 10140053

DATUM: NAD 83

REV. DATE:

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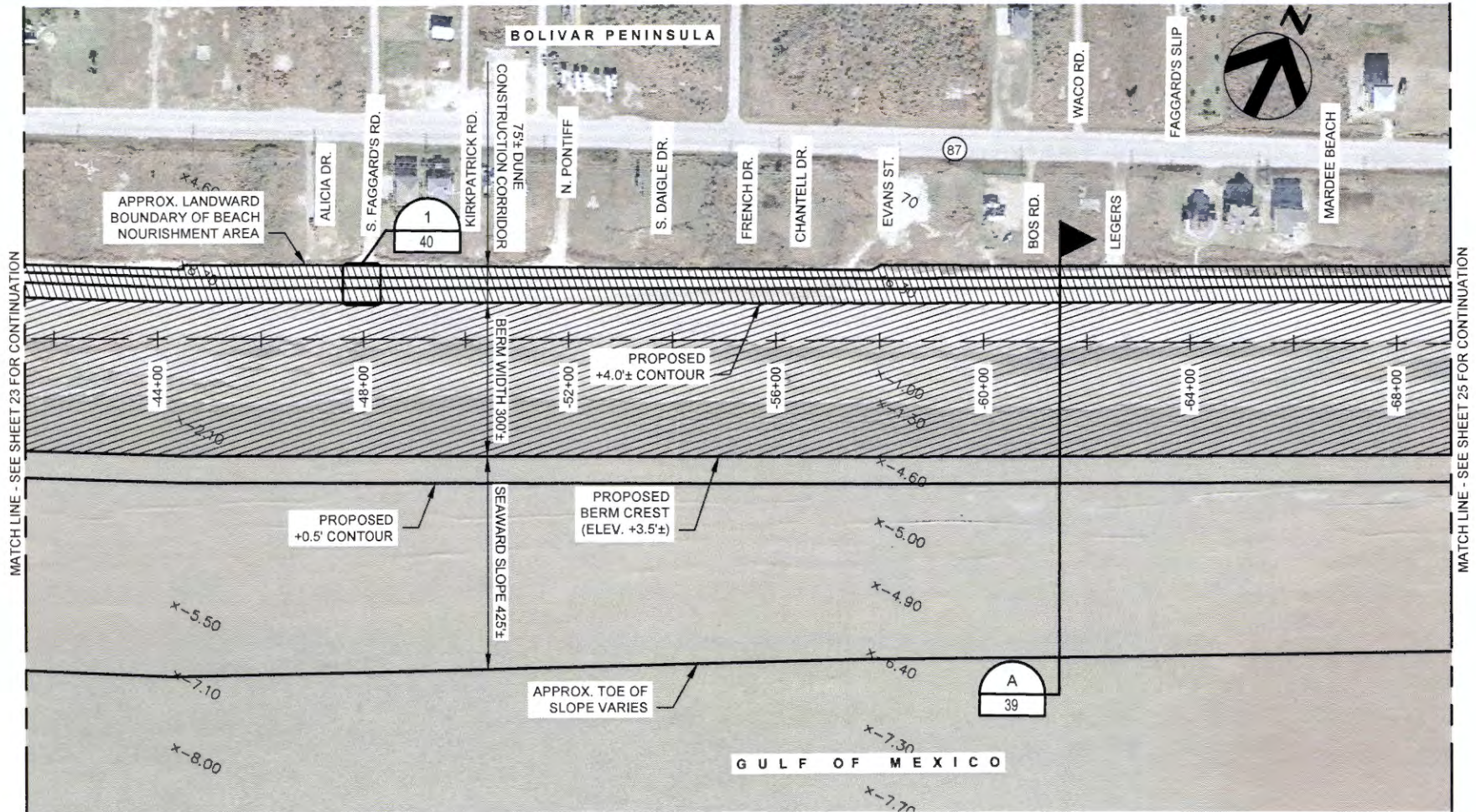
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PERMIT APPLICATION NO.: \_\_\_\_\_

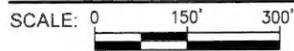
APPLICANT NAME: \_\_\_\_\_

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**PROJECT LAYOUT 09 - EAST OF ROLLOVER PASS**



**HDR**  
 HDR Engineering, Inc.  
 Texas P.E. Firm  
 Registration No. F-754

ACTIVITY: BOLIVAR PENINSULA BEACH  
 AND DUNE RESTORATION

APPLICANT: GALVESTON COUNTY

DATE: 05/2020

HDR PROJECT NO: 10140053

DATUM: NAD 83

REV. DATE:

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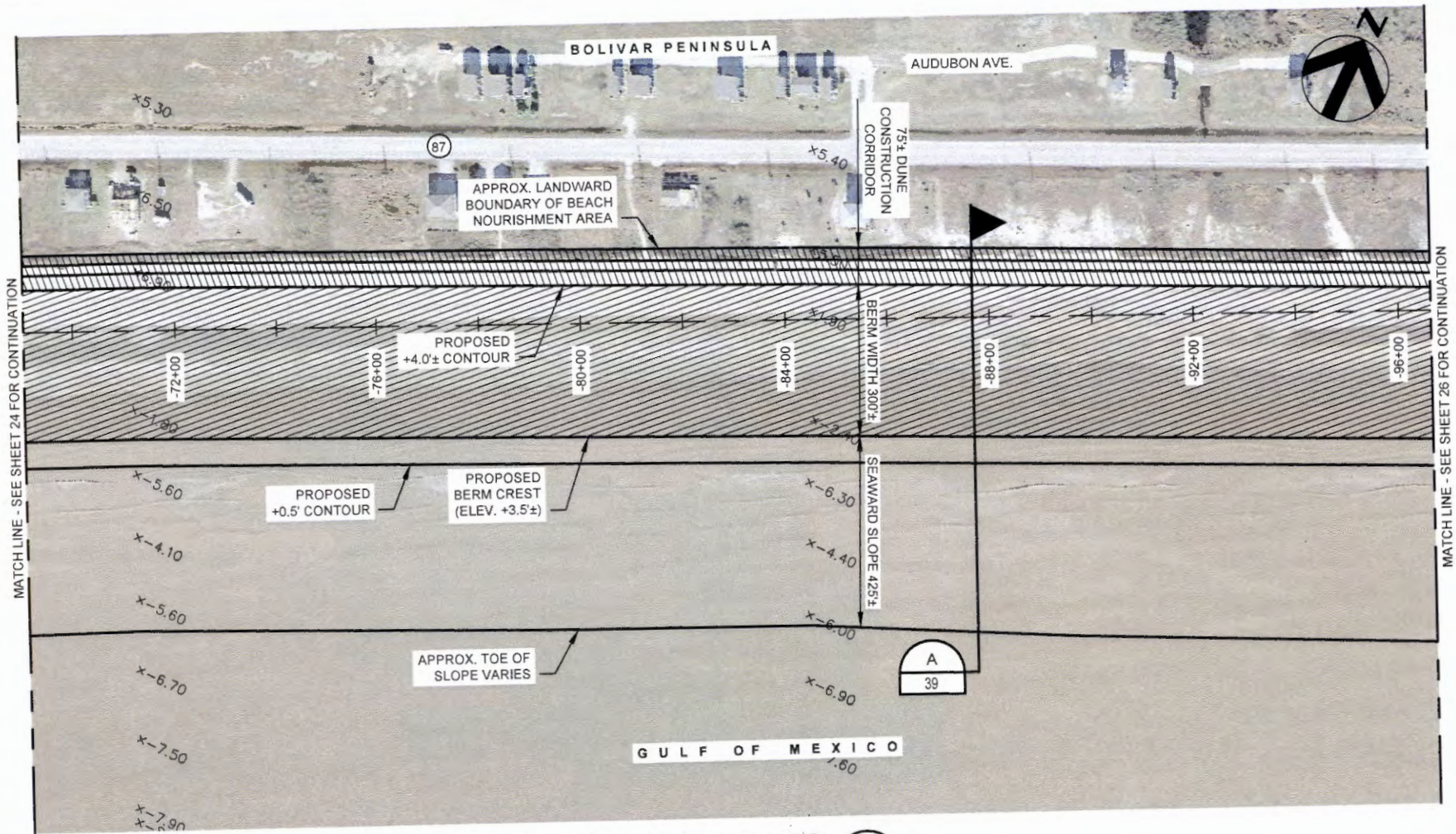
PERMIT APPLICATION NO.: \_\_\_\_\_

APPLICANT NAME: \_\_\_\_\_

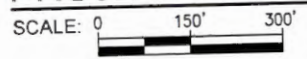
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**PROJECT LAYOUT 10 - EAST OF ROLLOVER PASS**

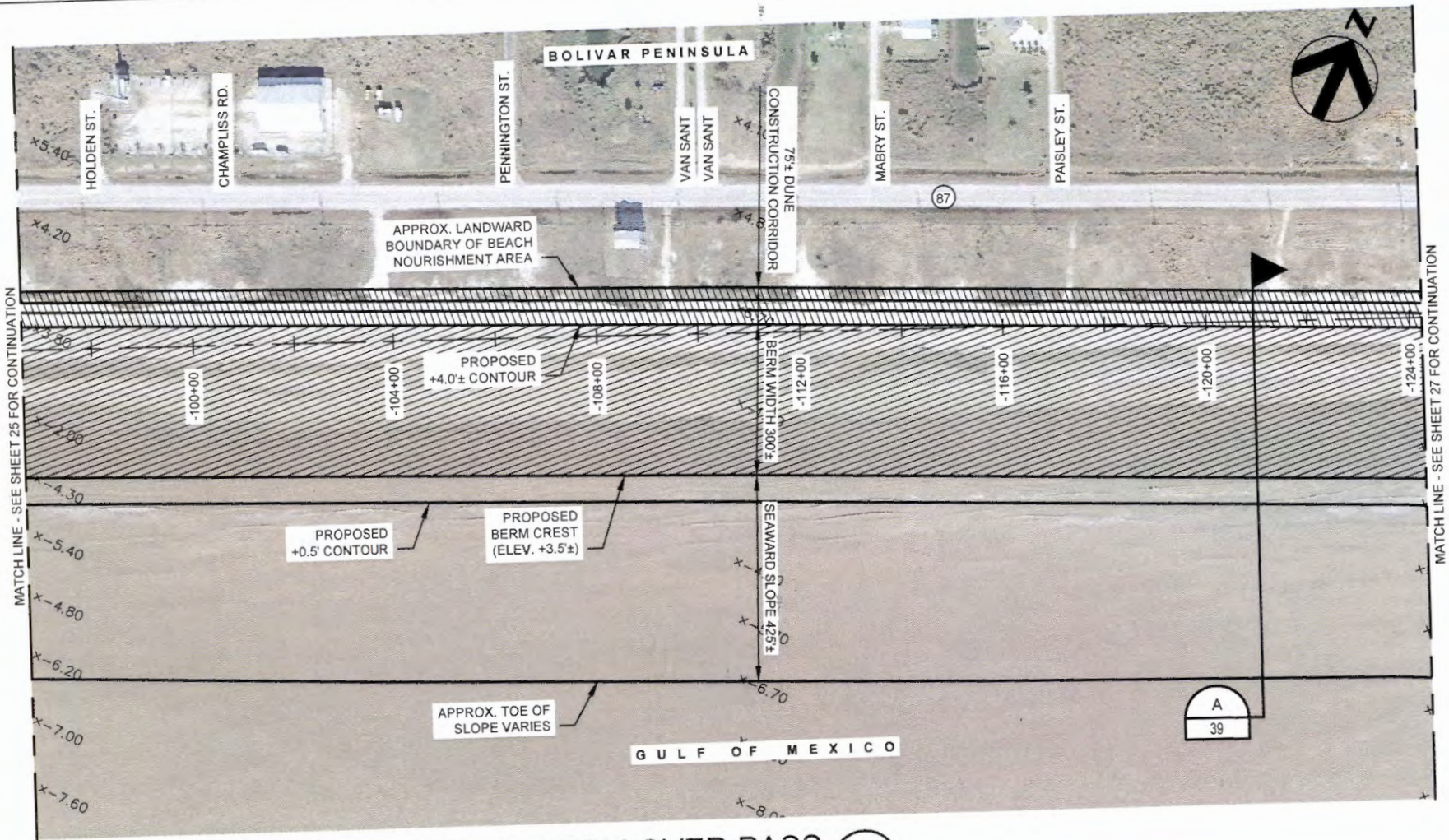


**HDR**  
 HDR Engineering, Inc.  
 Texas P.E. Firm  
 Registration No. F-754

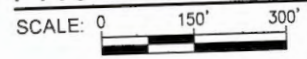
ACTIVITY: BOLIVAR PENINSULA BEACH  
 AND DUNE RESTORATION  
 APPLICANT: GALVESTON COUNTY  
 DATE: 05/2020

HDR PROJECT NO: 10140053  
 DATUM: NAD 83  
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**PROJECT LAYOUT 11 - EAST OF ROLLOVER PASS**



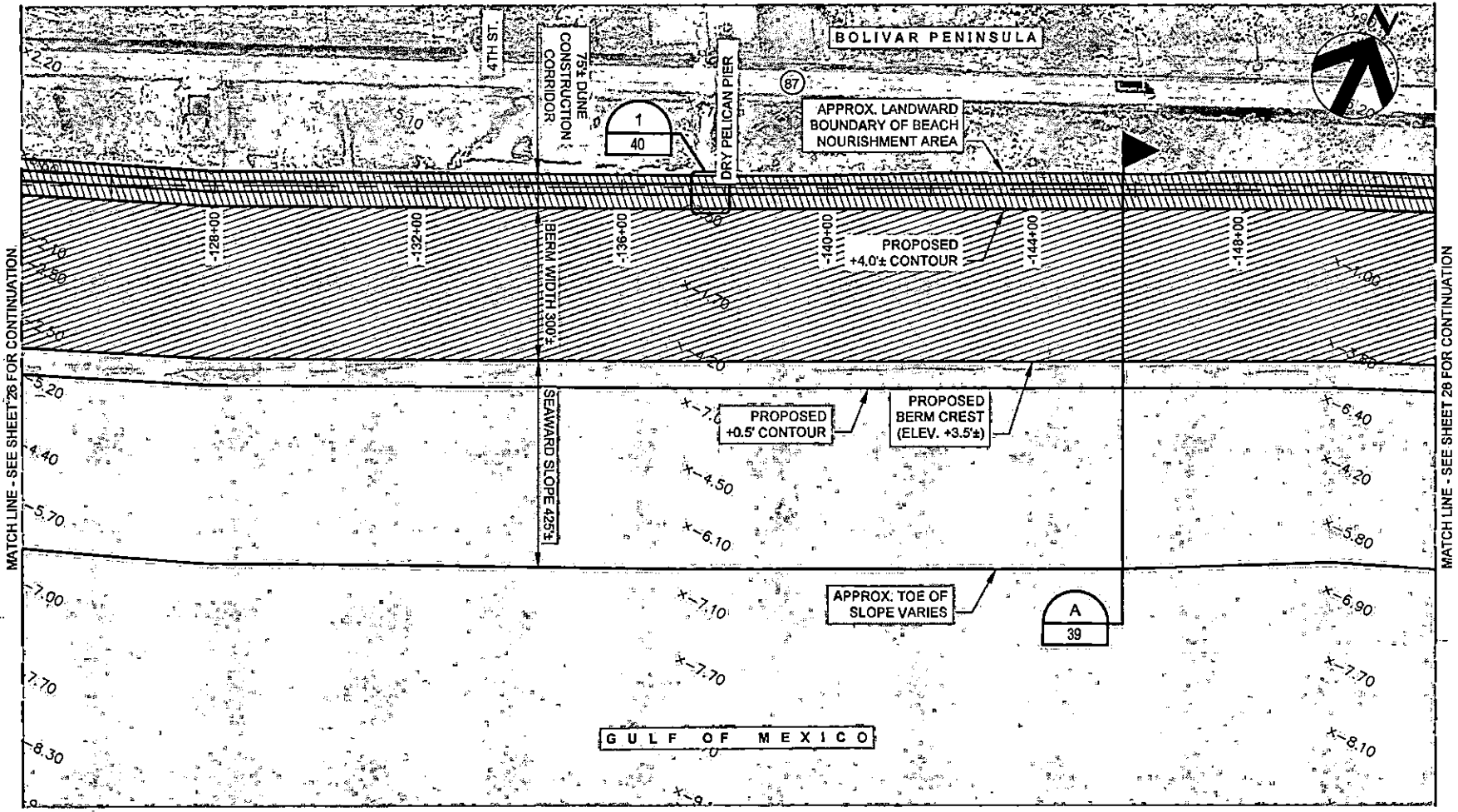
11  
13



ACTIVITY: BOLIVAR PENINSULA BEACH AND DUNE RESTORATION  
 APPLICANT: GALVESTON COUNTY  
 DATE: 05/2020

HDR PROJECT NO: 10140053  
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**PROJECT LAYOUT 12 - EAST OF ROLLOVER PASS**

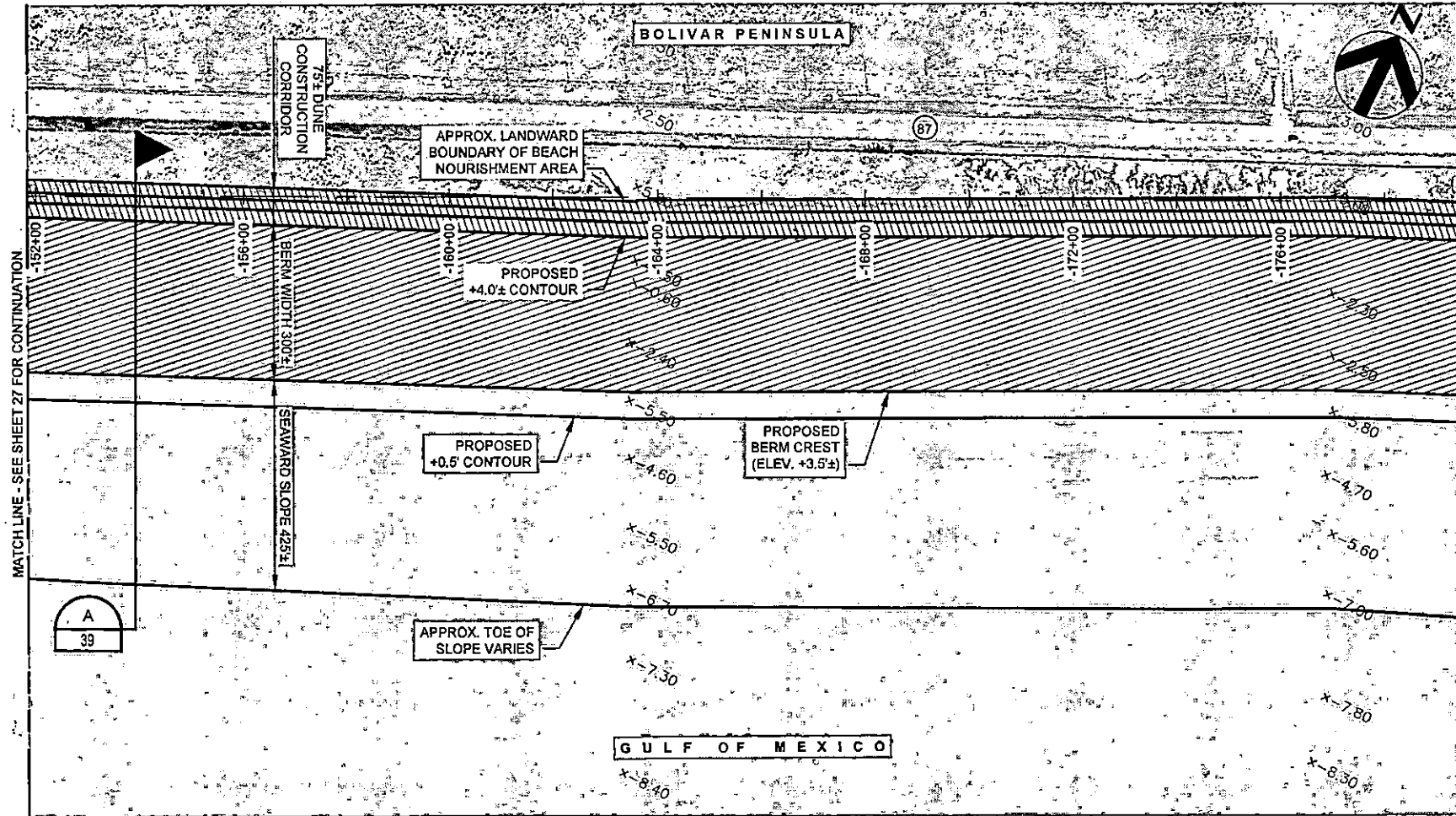
SCALE: 0 150' 300'



ACTIVITY: BOLIVAR PENINSULA BEACH AND DUNE RESTORATION  
 APPLICANT: GALVESTON COUNTY  
 DATE: 05/2020

HDR PROJECT NO: 10140053  
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**PROJECT LAYOUT 13 - EAST OF ROLLOVER PASS**

SCALE: 0 150' 300'

13  
14



ACTIVITY: BOLIVAR PENINSULA BEACH AND DUNE RESTORATION

APPLICANT: GALVESTON COUNTY

DATE: 05/2020

HDR PROJECT NO: 10140053

DATUM: NAD 83

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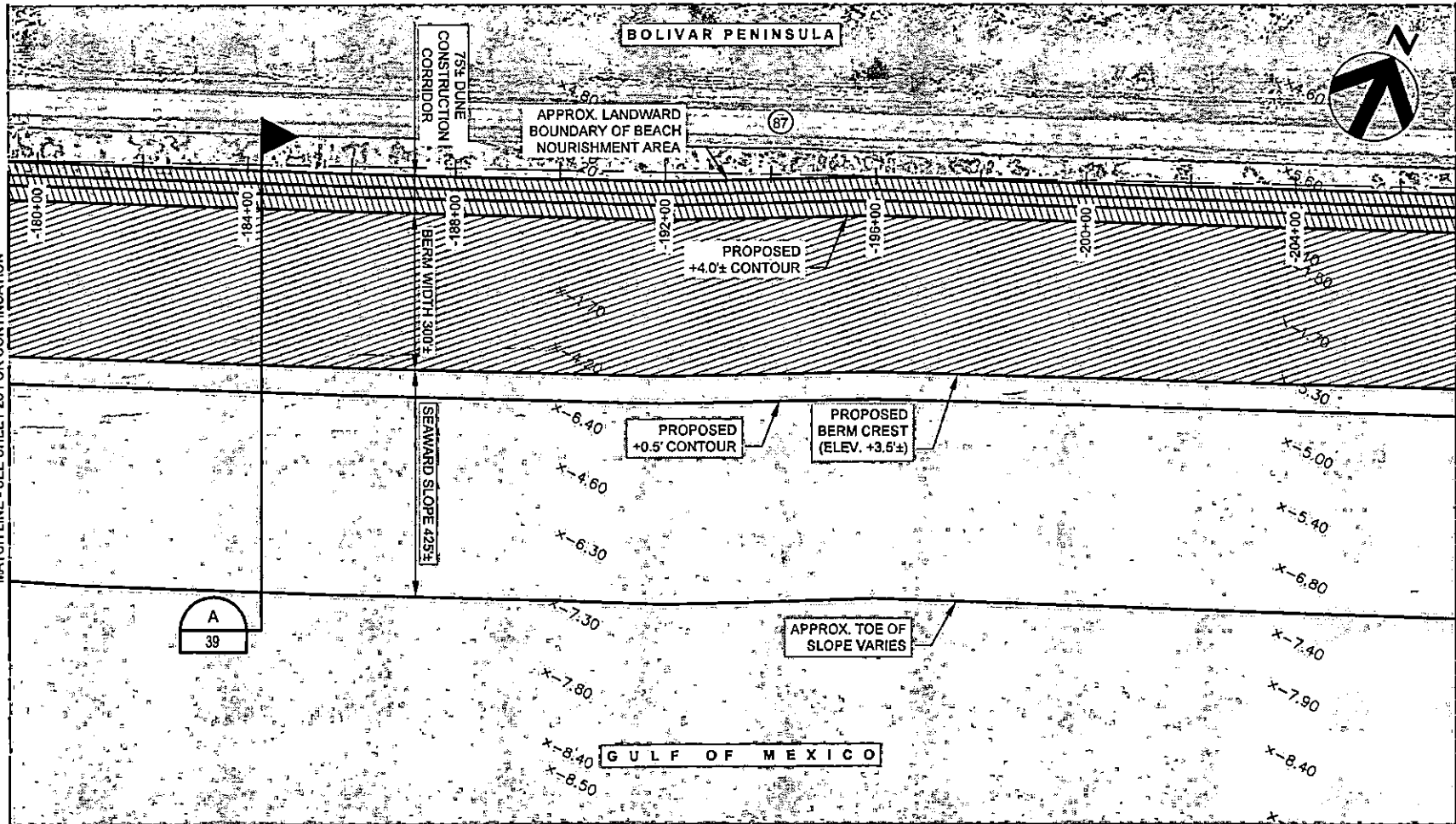
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APPLICANT NAME: \_\_\_\_\_

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**PROJECT LAYOUT 14 - EAST OF ROLLOVER PASS**

SCALE: 0 150' 300'

14  
14



ACTIVITY: BOLIVAR PENINSULA BEACH  
AND DUNE RESTORATION

APPLICANT: GALVESTON COUNTY

DATE: 05/2020

HDR PROJECT NO: 10140053

DATUM: NAD 83

REV. DATE:

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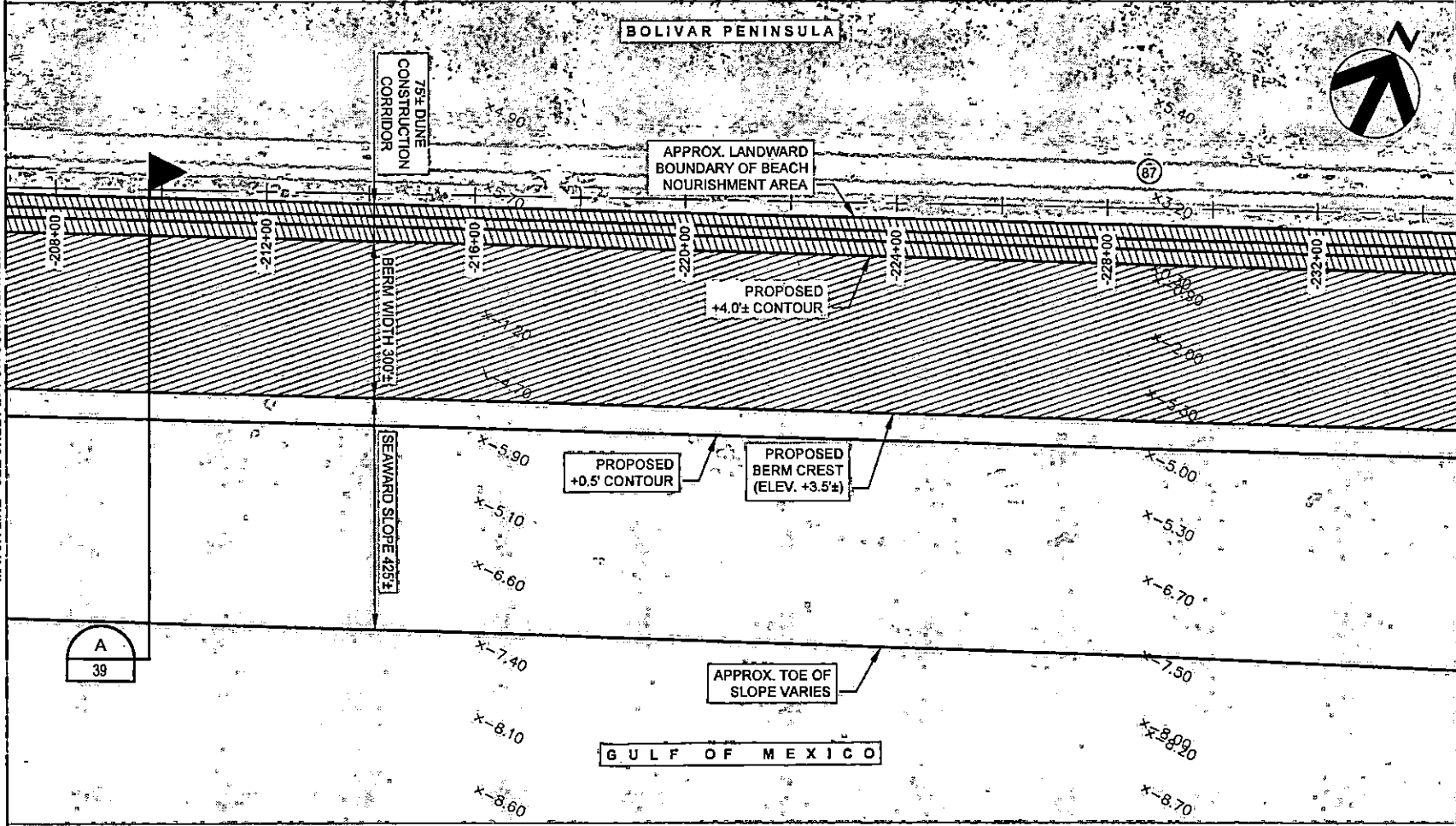
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APPLICANT  
NAME: \_\_\_\_\_

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**PROJECT LAYOUT 15 - EAST OF ROLLOVER PASS**

SCALE: 0 150' 300'

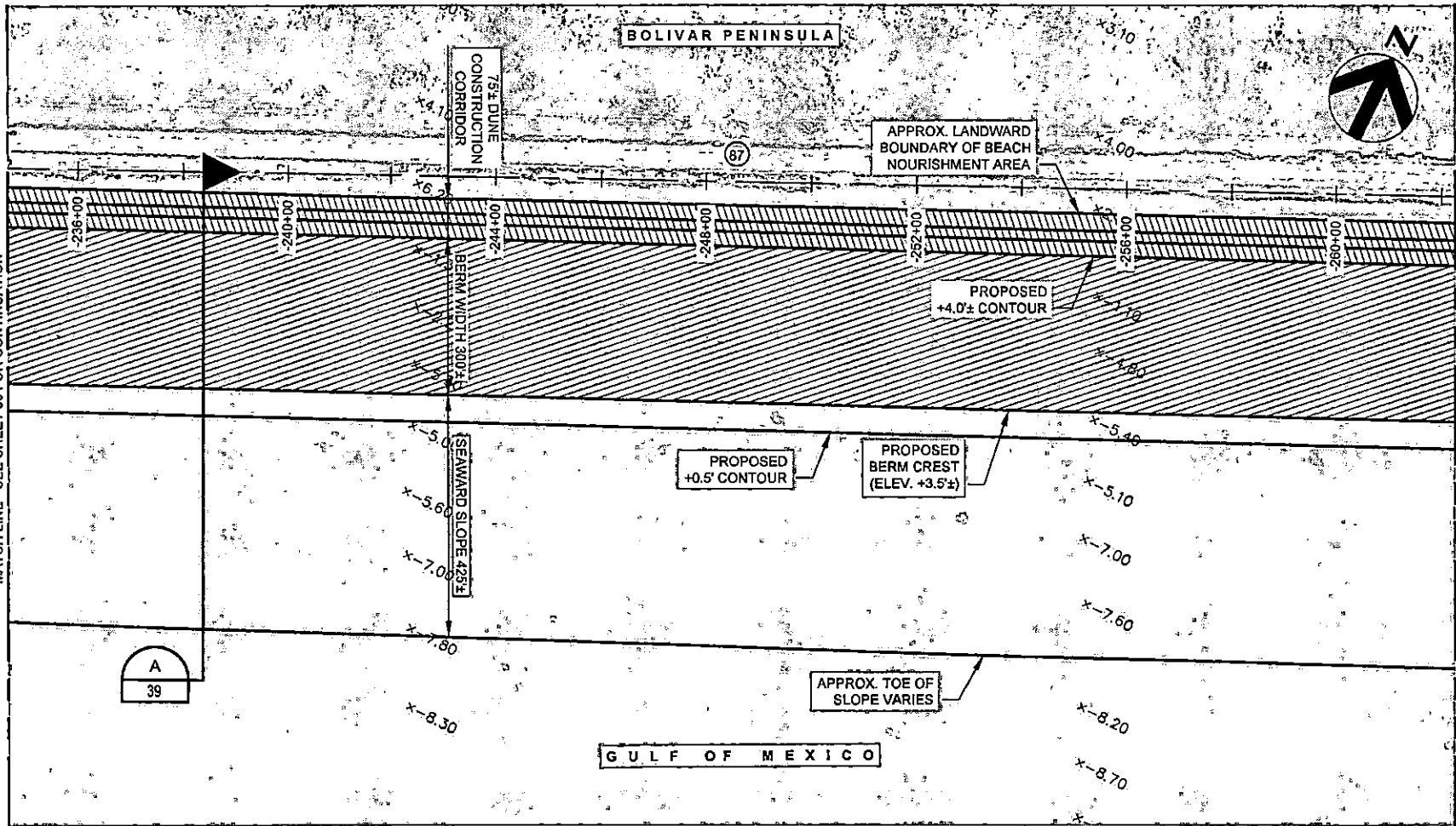
15  
14



ACTIVITY: BOLIVAR PENINSULA BEACH AND DUNE RESTORATION  
 APPLICANT: GALVESTON COUNTY  
 DATE: 05/2020

HDR PROJECT NO: 10140053  
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PROJECT LAYOUT 16 - EAST OF ROLLOVER PASS

SCALE: 0 150' 300'

16  
14



ACTIVITY: BOLIVAR PENINSULA BEACH AND DUNE RESTORATION

APPLICANT: GALVESTON COUNTY

DATE: 05/2020

HDR PROJECT NO: 10140053

DATUM: NAD 83

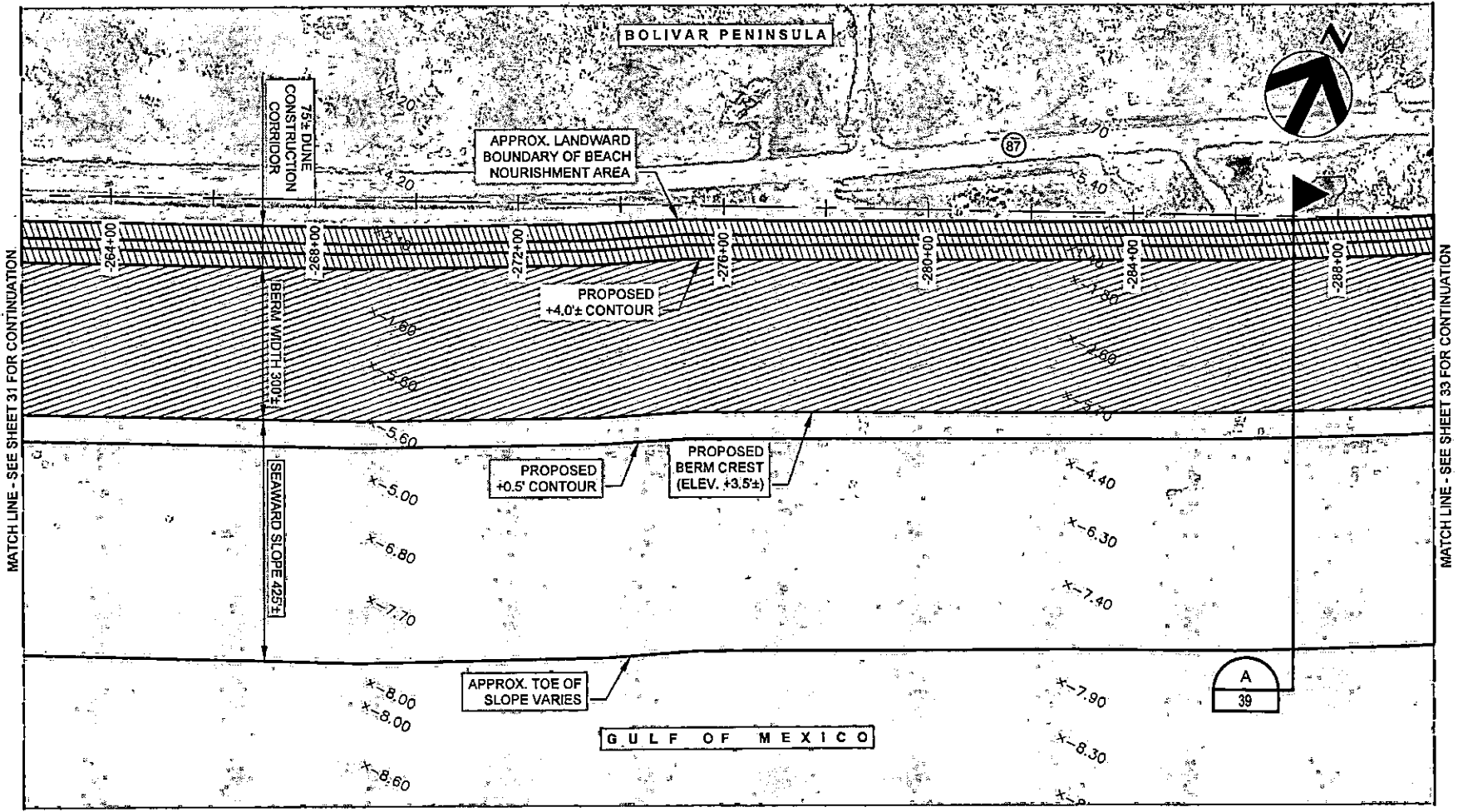
REV. DATE:

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**PROJECT LAYOUT 17 - EAST OF ROLLOVER PASS**

SCALE: 0 150' 300'

17  
14

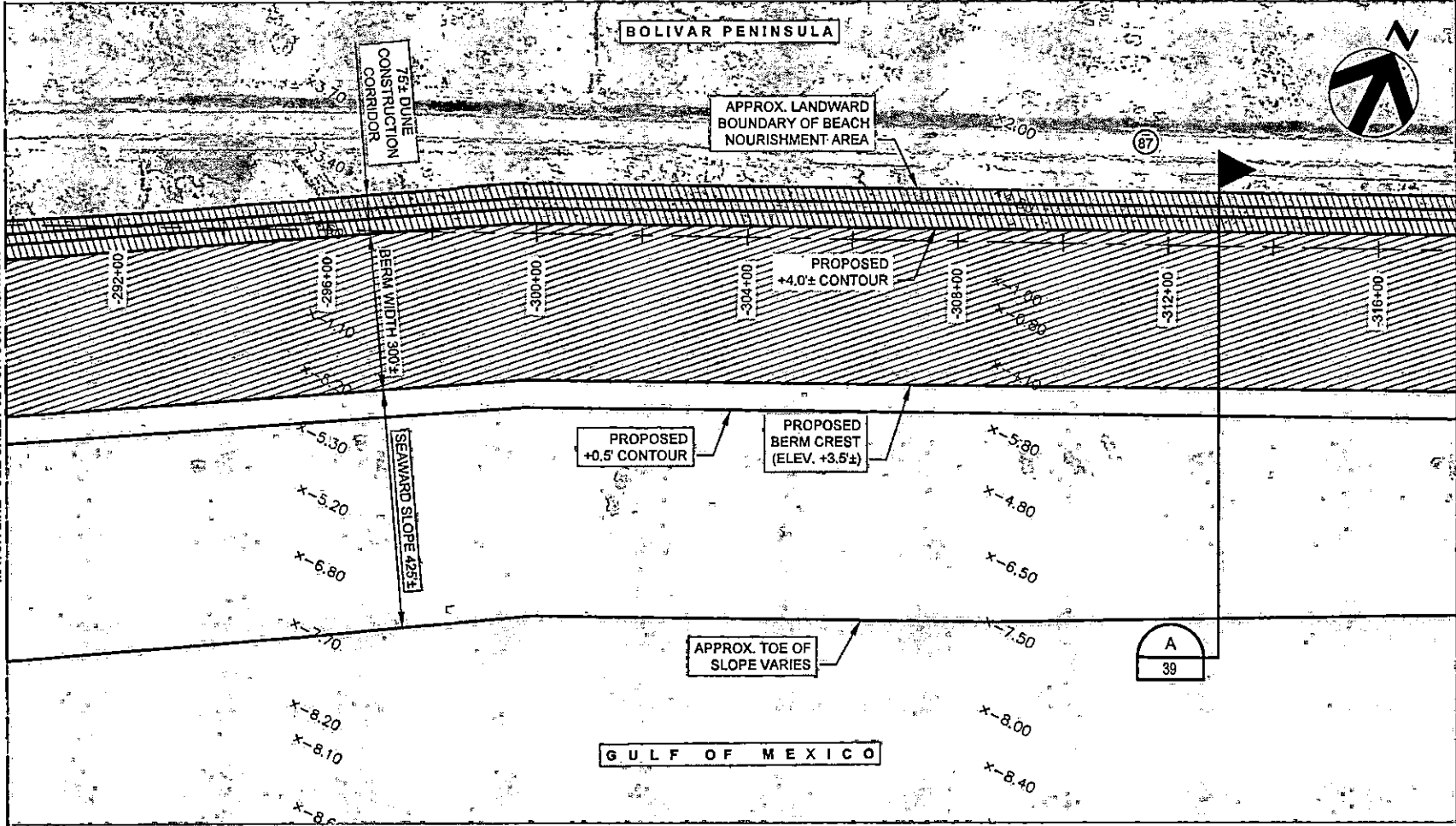


ACTIVITY: BOLIVAR PENINSULA BEACH AND DUNE RESTORATION  
 APPLICANT: GALVESTON COUNTY  
 DATE: 05/2020

HDR PROJECT NO: 10140053  
 DATUM: NAD 83  
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**PROJECT LAYOUT 18 - EAST OF ROLLOVER PASS**

SCALE: 0 150' 300'

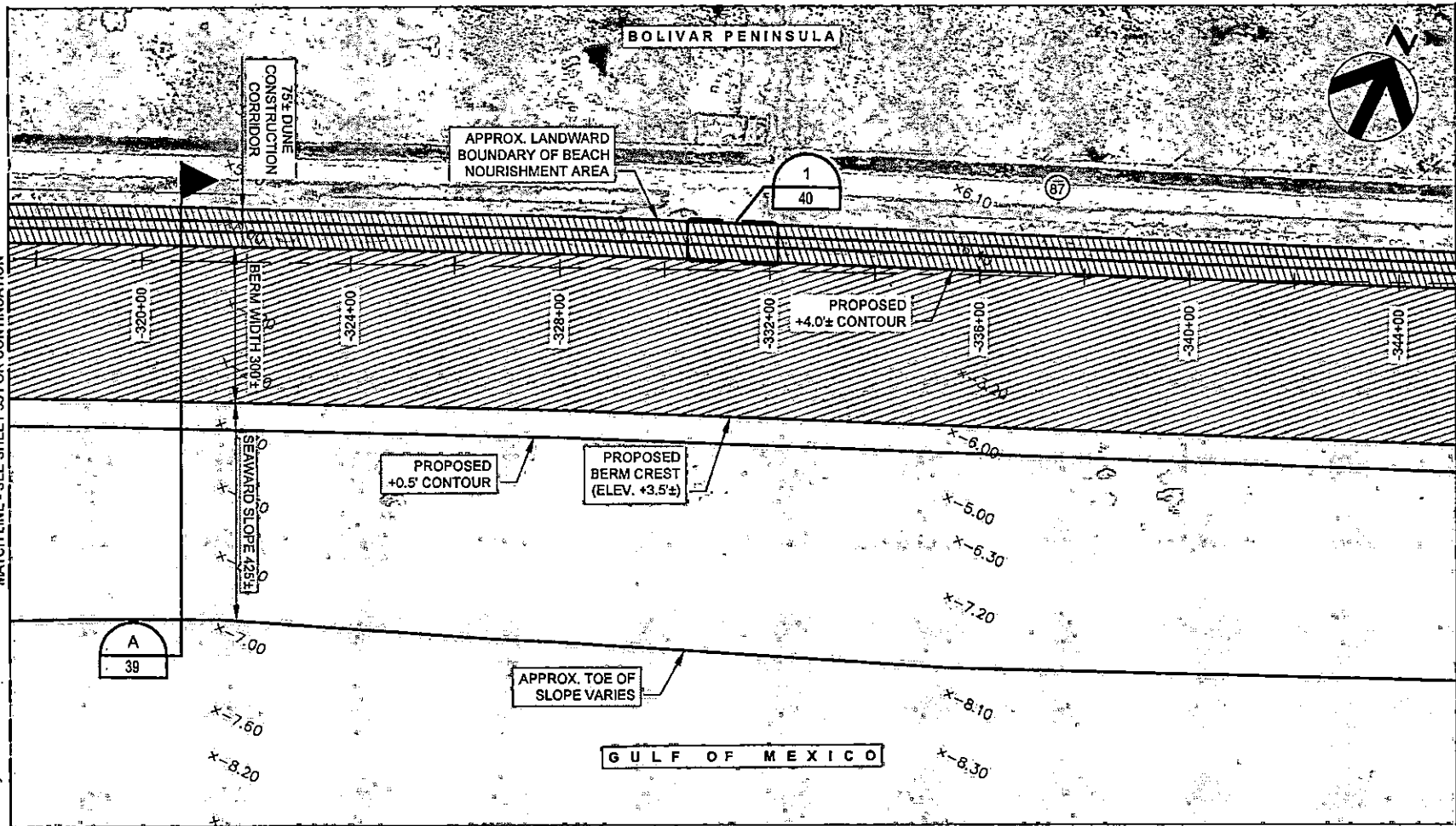
18  
14



ACTIVITY: BOLIVAR PENINSULA BEACH AND DUNE RESTORATION  
 APPLICANT: GALVESTON COUNTY  
 DATE: 05/2020

HDR PROJECT NO: 10140053  
 DATUM: NAD 83  
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PROJECT LAYOUT 19 - EAST OF ROLLOVER PASS

SCALE: 0 150' 300'

19  
15



ACTIVITY: BOLIVAR PENINSULA BEACH AND DUNE RESTORATION

APPLICANT: GALVESTON COUNTY

DATE: 05/2020

HDR PROJECT NO: 10140053

DATUM: NAD 83

REV. DATE:

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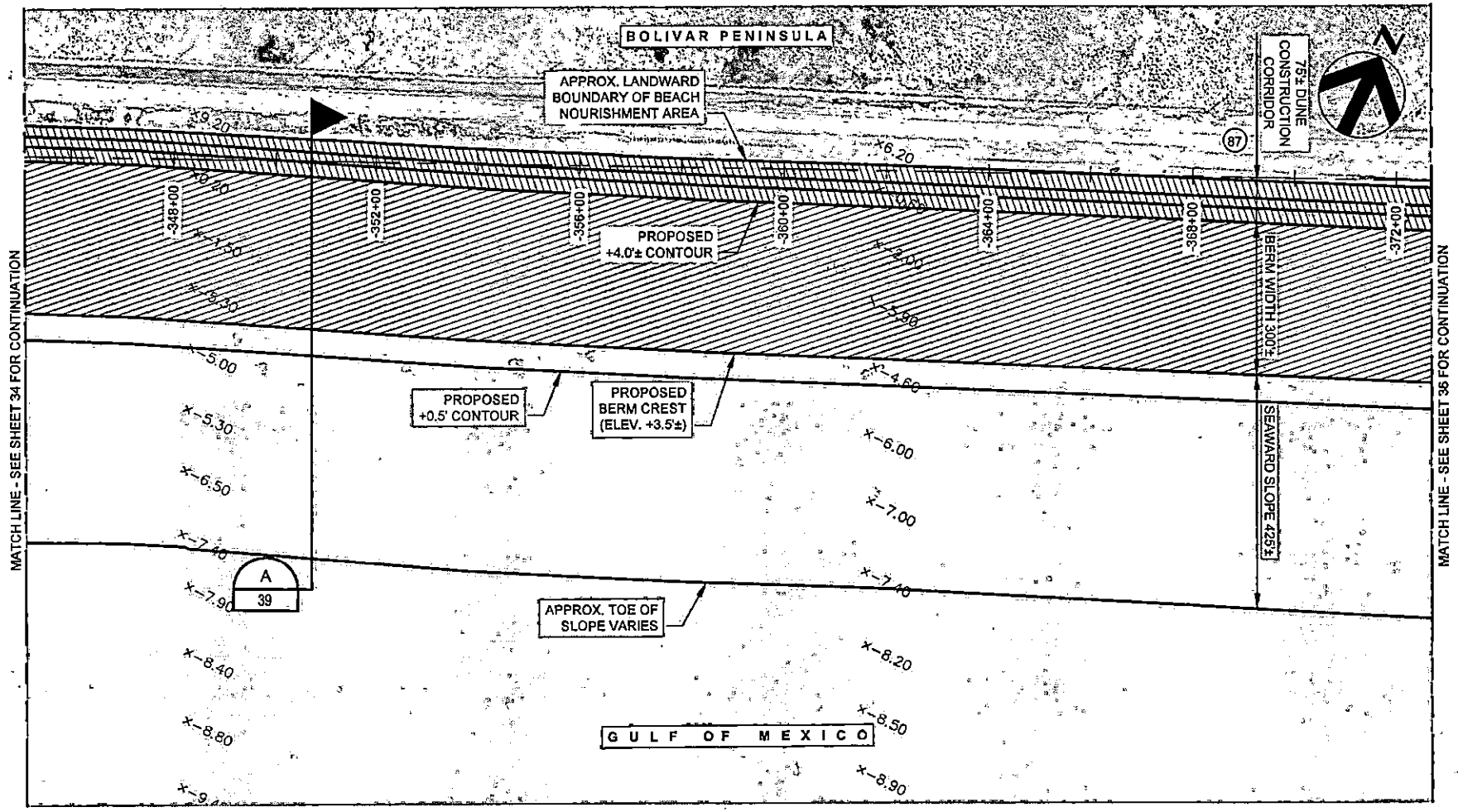
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**PROJECT LAYOUT 20 - EAST OF ROLLOVER PASS**

SCALE: 0 150' 300'

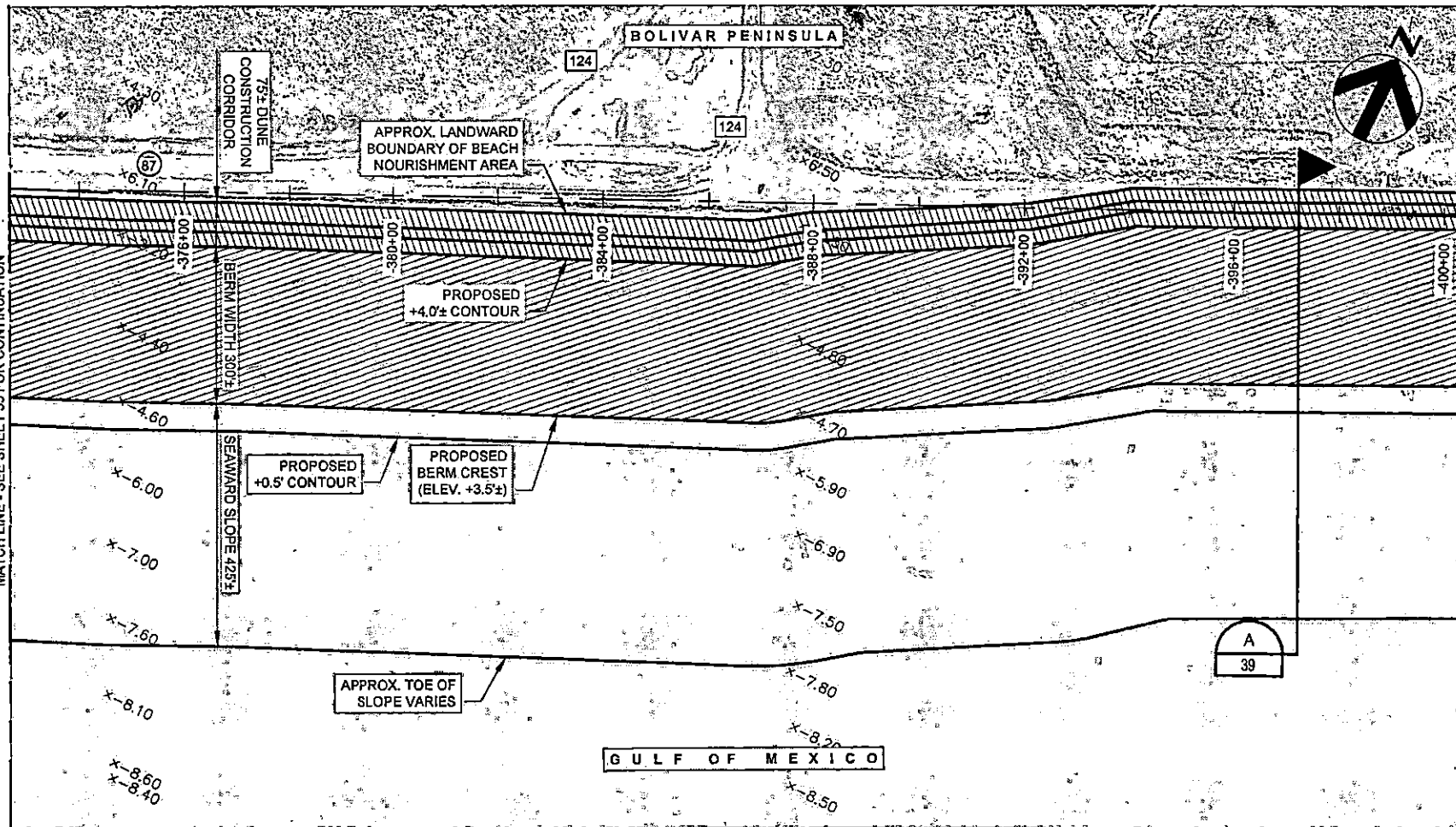
20  
15



ACTIVITY: BOLIVAR PENINSULA BEACH AND DUNE RESTORATION  
 APPLICANT: GALVESTON COUNTY  
 DATE: 05/2020

HDR PROJECT NO: 10140053  
 DATUM: NAD 83  
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**PROJECT LAYOUT 21 - EAST OF ROLLOVER PASS**



21  
15



ACTIVITY: BOLIVAR PENINSULA BEACH AND DUNE RESTORATION

APPLICANT: GALVESTON COUNTY

DATE: 05/2020

HDR PROJECT NO: 10140053

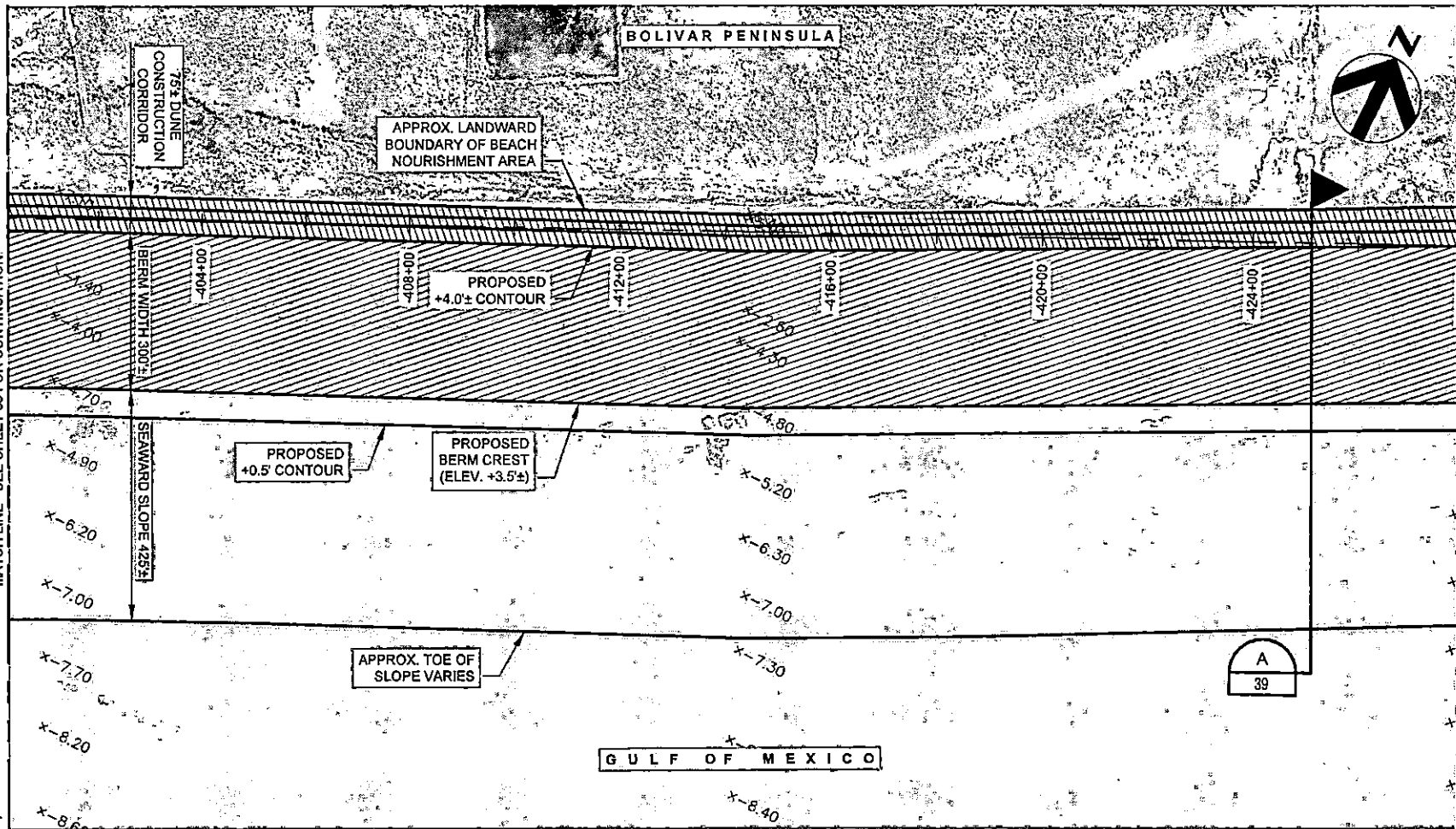
DATUM: NAD 83

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**PROJECT LAYOUT 22 - EAST OF ROLLOVER PASS**

SCALE: 0 150' 300'

22  
15

**HDR**  
HDR Engineering, Inc.  
Texas P.E. Firm  
Registration No. F-754

ACTIVITY: BOLIVAR PENINSULA BEACH AND DUNE RESTORATION

APPLICANT: GALVESTON COUNTY

DATE: 05/2020

HDR PROJECT NO: 10140053

DATUM: NAD 83

REV. DATE:

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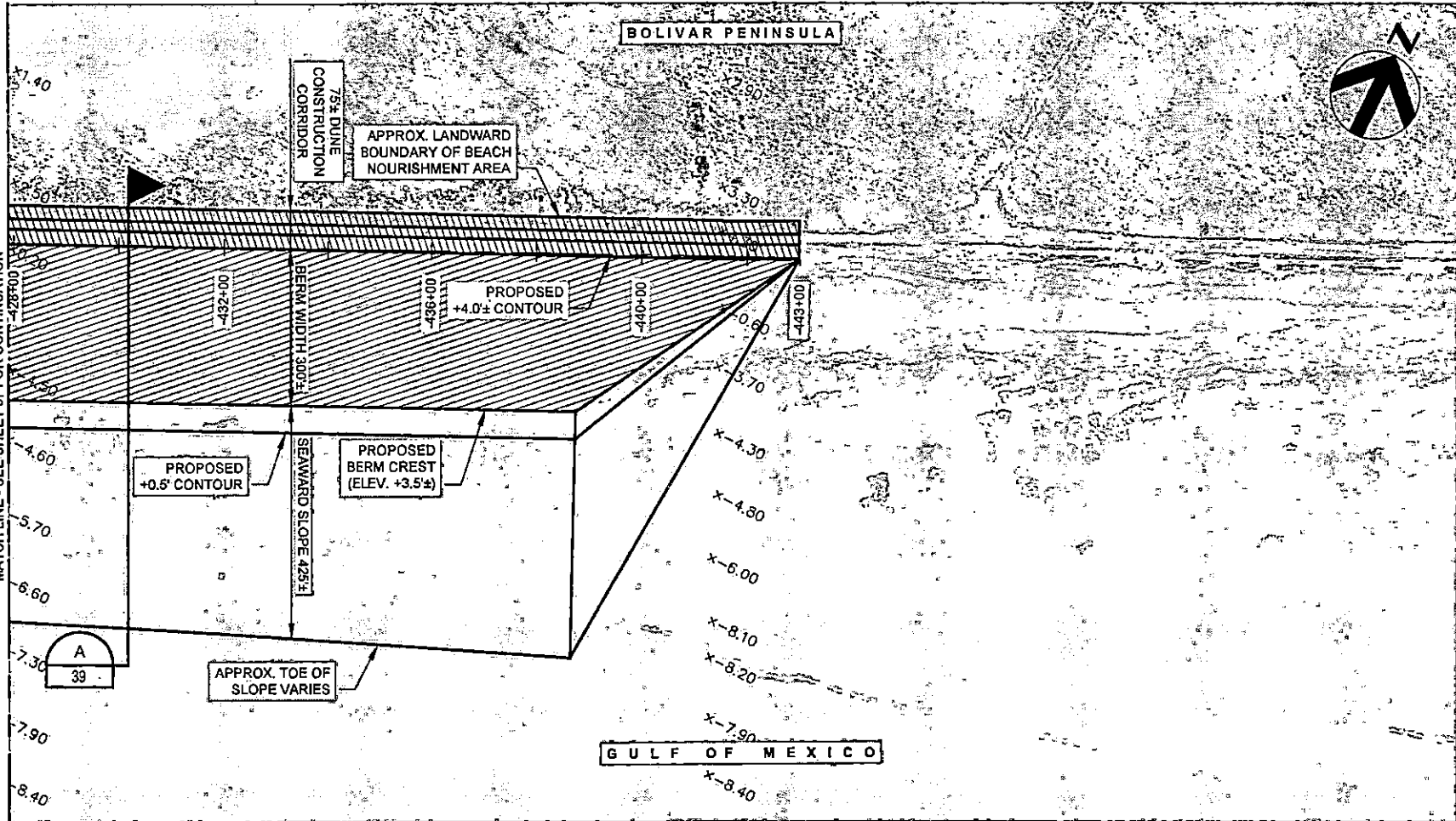
FOR COE USE ONLY

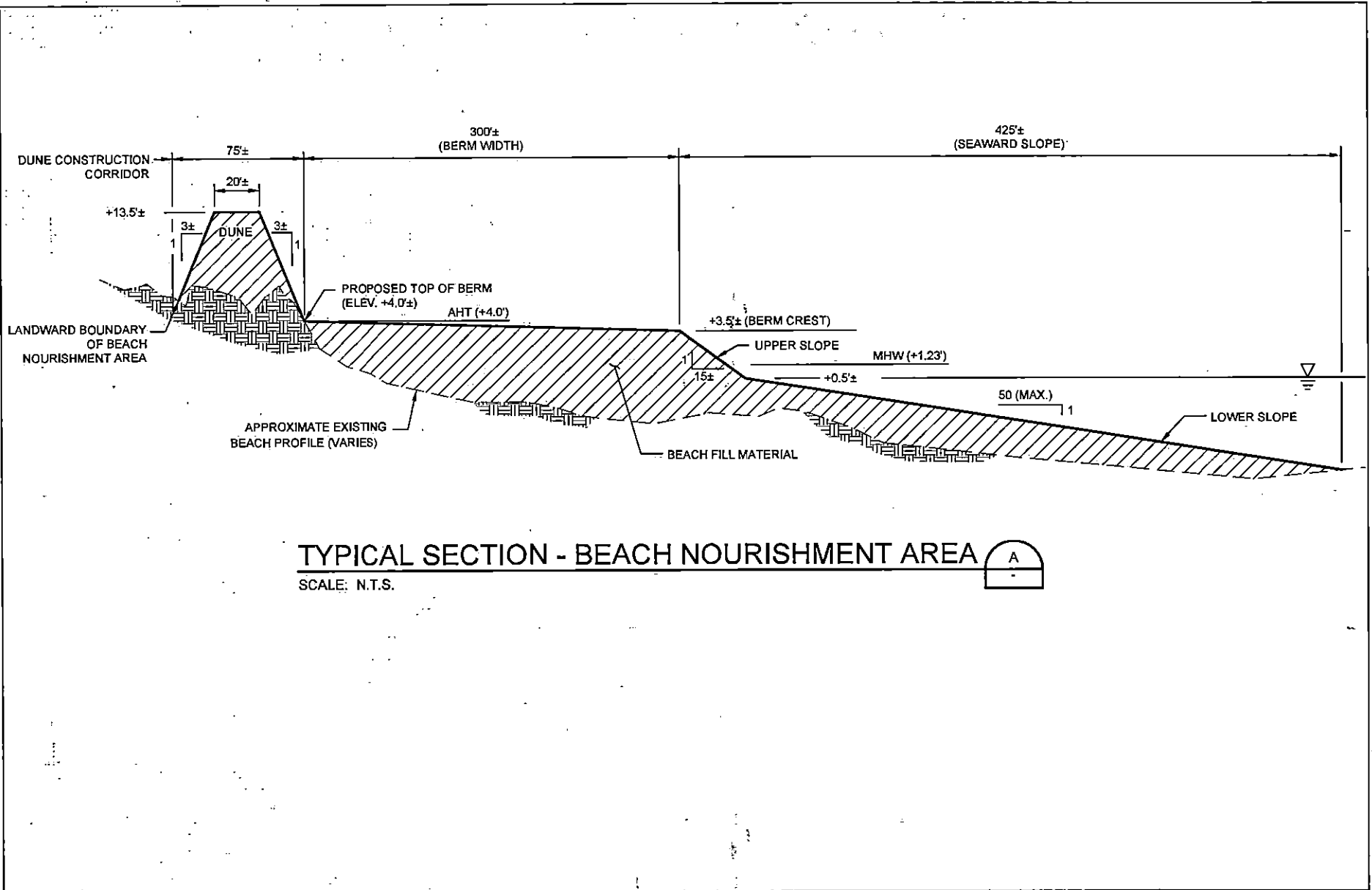
PERMIT APPLICATION NO.: \_\_\_\_\_

APPLICANT NAME: \_\_\_\_\_

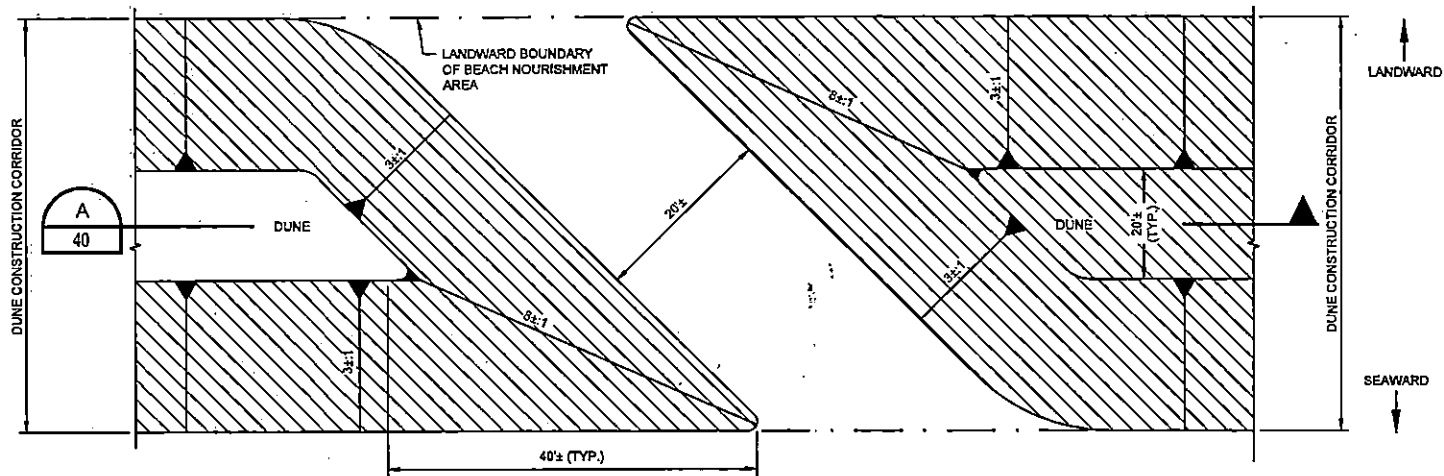
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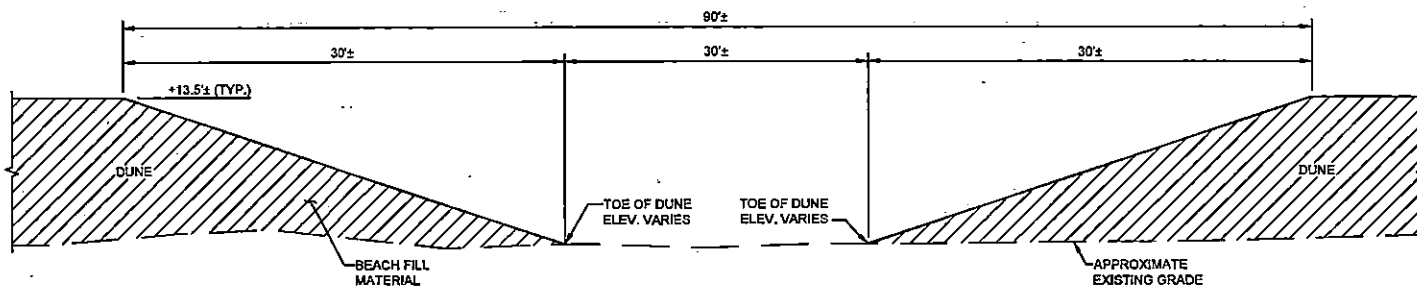


**TYPICAL SECTION - BEACH NOURISHMENT AREA** A  
 SCALE: N.T.S.



**TYPICAL PLAN - VEHICLE ACCESS POINT**

SCALE: N.T.S.

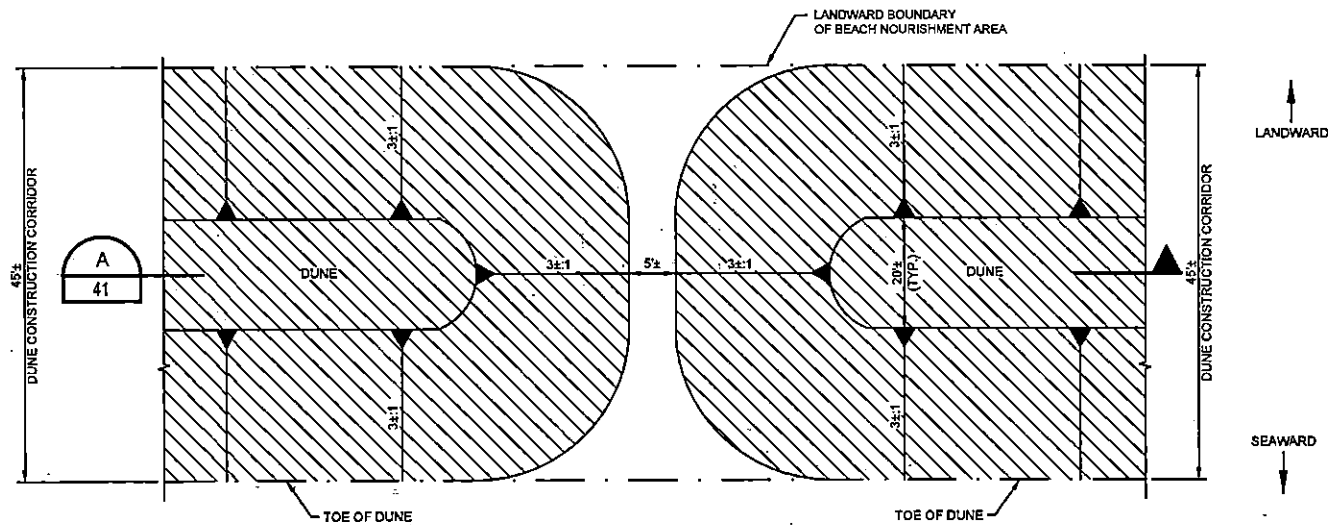


**TYPICAL SECTION - VEHICLE ACCESS POINT**

SCALE: N.T.S.

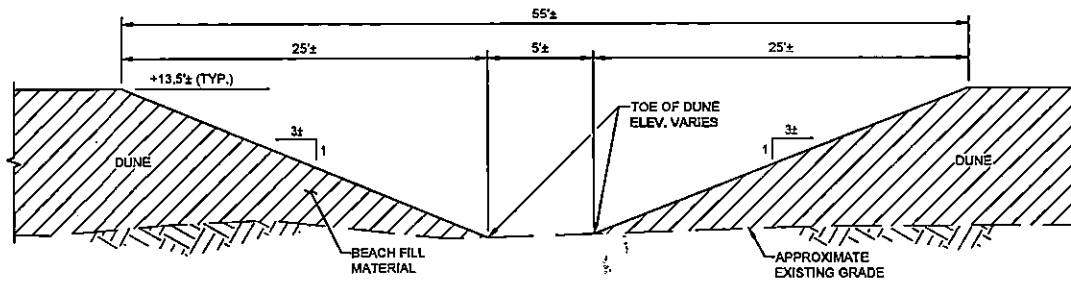






**TYPICAL PLAN - PEDESTRIAN PATHWAY**

SCALE: N.T.S.



**TYPICAL SECTION - PEDESTRIAN PATHWAY**

SCALE: N.T.S.