

Attachment F4

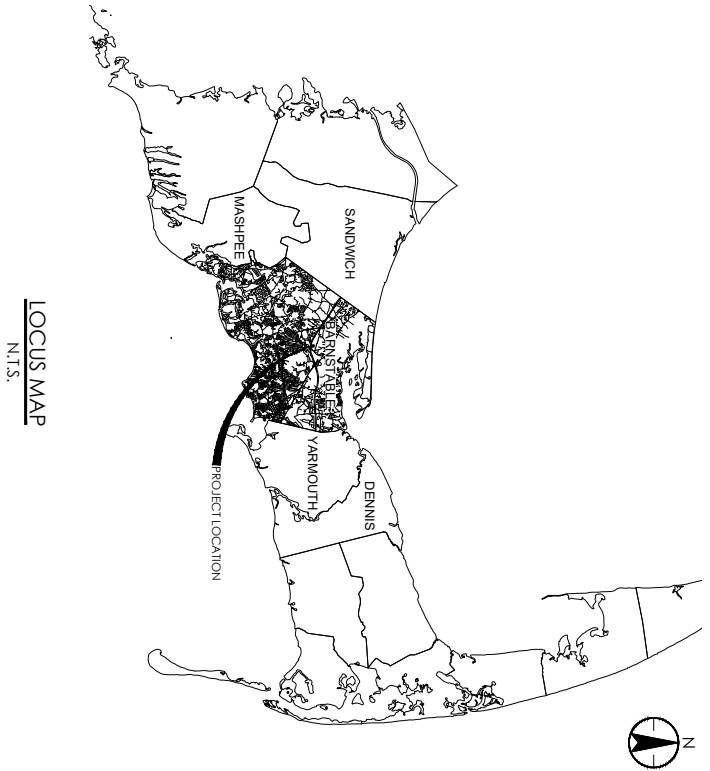
275/345 kV GIS Substation



NEW ENGLAND WIND 2 CONNECTOR 275/345 KV GIS SUBSTATION

INDEX OF SHEETS

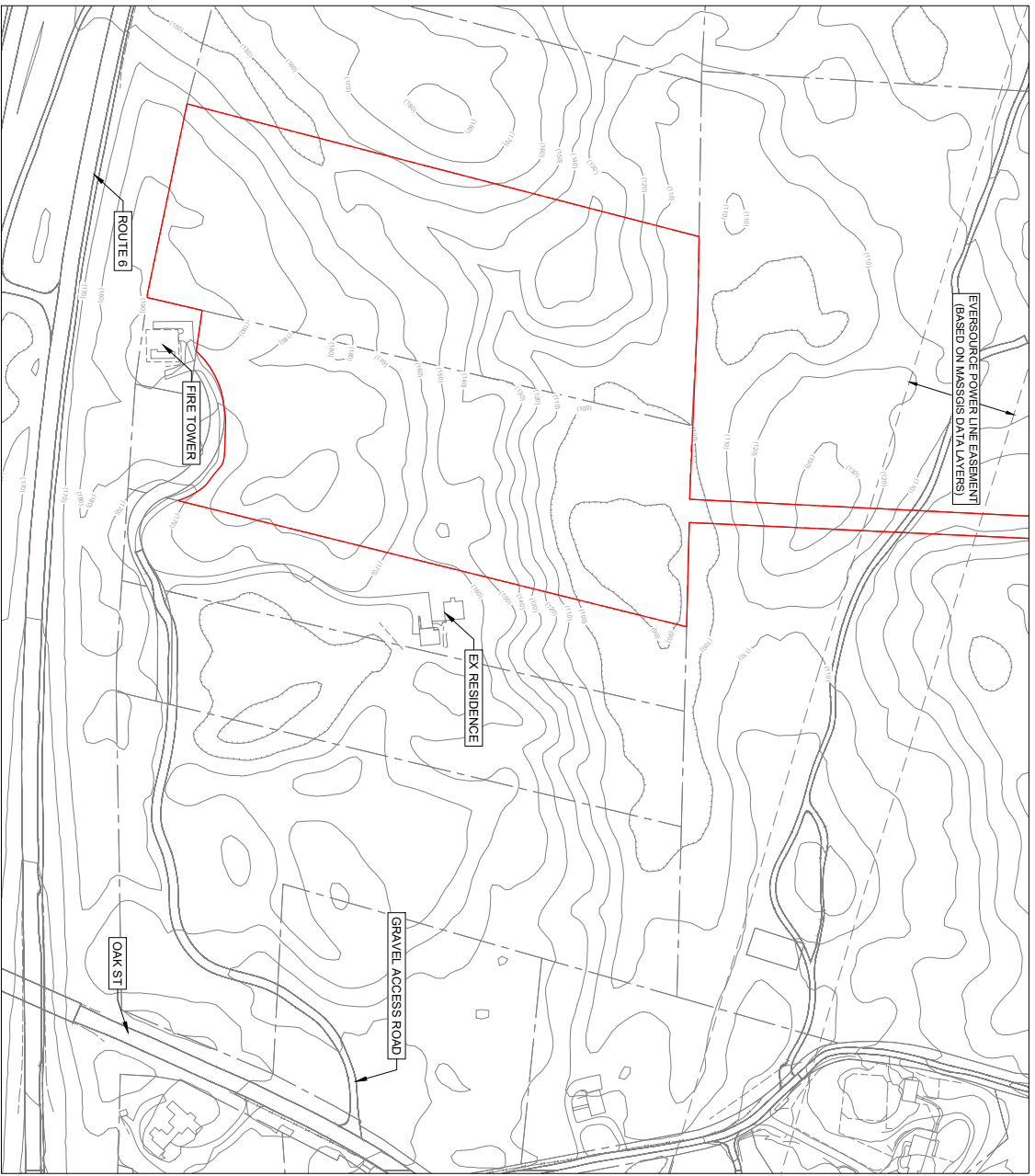
SHEET NO.	TITLE
1	COVER SHEET
2	GENERAL NOTES
3	EXISTING CONDITIONS PLAN
4	EXISTING SUBCATCHMENT AREAS
5	PROPOSED EQUIPMENT LAYOUT
6	PROPOSED GRADING AND DRAINAGE PLAN
7	PROPOSED SUBCATCHMENT AREAS
8	TYPICAL DETAIL SHEET



ALL UNITS SHOWN ARE ENGLISH UNITS (FEET AND INCHES)

THIS PLAN SET IS PRELIMINARY AND HAS BEEN ISSUED FOR PERMITTING PURPOSES ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES.

Stantec 400 Commonwealth Blvd, Suite 200 Boston, MA 02115	
PROJECT: NEW ENGLAND WIND 2 CONNECTOR TITLE: 275/345 KV GIS SUBSTATION COVER SHEET SHEET: CWW-CSP-275-CV-W-0003 SHEET 1 OF 8 SHEET 1 OF 8 SHOWN	



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NOTES:

1. THE EXTENTS OF THE SITE ARE NOT WITHIN AN INTERMEDIATE PROTECTION AREA (MPA).
2. ACCORDING TO THE FLOOD RATE INSURANCE MAP FOR BARNSTABLE COUNTY MASSACHUSETTS PANEL 922 MAP NUMBER 2807(000) WITH THE EFFECTIVE DATE OF JAN. 18, 2014 THE ENTIRE SITE IS WITHIN FLOOD ZONE X (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOOD PLAN).
3. PROPERTY LINES ARE FROM GIS DATA.
4. EXISTING TOPOGRAPHY IS TAKEN FROM 2010 USGS COASTAL NATIONAL ELEVATION DATA (CNED) LEAD DATA. TOPOGRAPHY TO BE CONFORMED WITH A FIELD SURVEY.
5. ACCORDING TO MASSGIS THE SITE IS NOT WITHIN THE NATURAL HERITAGE AND ENHANCED SPECIES PROGRAM (NHESP) PRIORITY HABITATS OF RARE WILDLIFE OR THE NHESP ESTIMATED HABITATS OF RARE WILDLIFE.
6. ACCORDING TO MASSGIS THERE ARE NO CERTIFIED VERNAL POOLS OR POTENTIAL VERNAL POOLS LOCATED ON THE PROJECT SITE.
7. ACCORDING TO MASSGIS THERE ARE NO WETLANDS LOCATED WITHIN THE SITE OR WITHIN 100FT OF THE AREA TO BE RECEIVED OPENED.
8. ACCORDING TO MASSGIS THE SITE IS NOT LOCATED WITHIN AN AREA OF CRITICAL ENVIRONMENTAL CONCERN.
9. SOILS IN THE SITE AREA (PER NATURAL RESOURCES CONSERVATION SERVICES ARE 48D PLUMCUT-HANSHURSTAL, EVANTONNET COMPLEX AND 48C PLUMCUT-HANSHURSTAL COMPLEX, BOTH WITHIN HYDROLOGIC SOIL GROUP "A".
10. THE SITE COVERS THE FOLLOWING PROPERTIES FROM THE TOWN OF BARNSTABLE ASSESORS MAP BOOK:
 - OWNER DIRCO FRANK
 - BOOKPAGE 42100157
 - ASSESORS MAP 195
 - PARCEL 008
 - OWNER DIRCO FRANK
 - BOOKPAGE 10270048
 - ASSESORS MAP 195
 - PARCEL 008



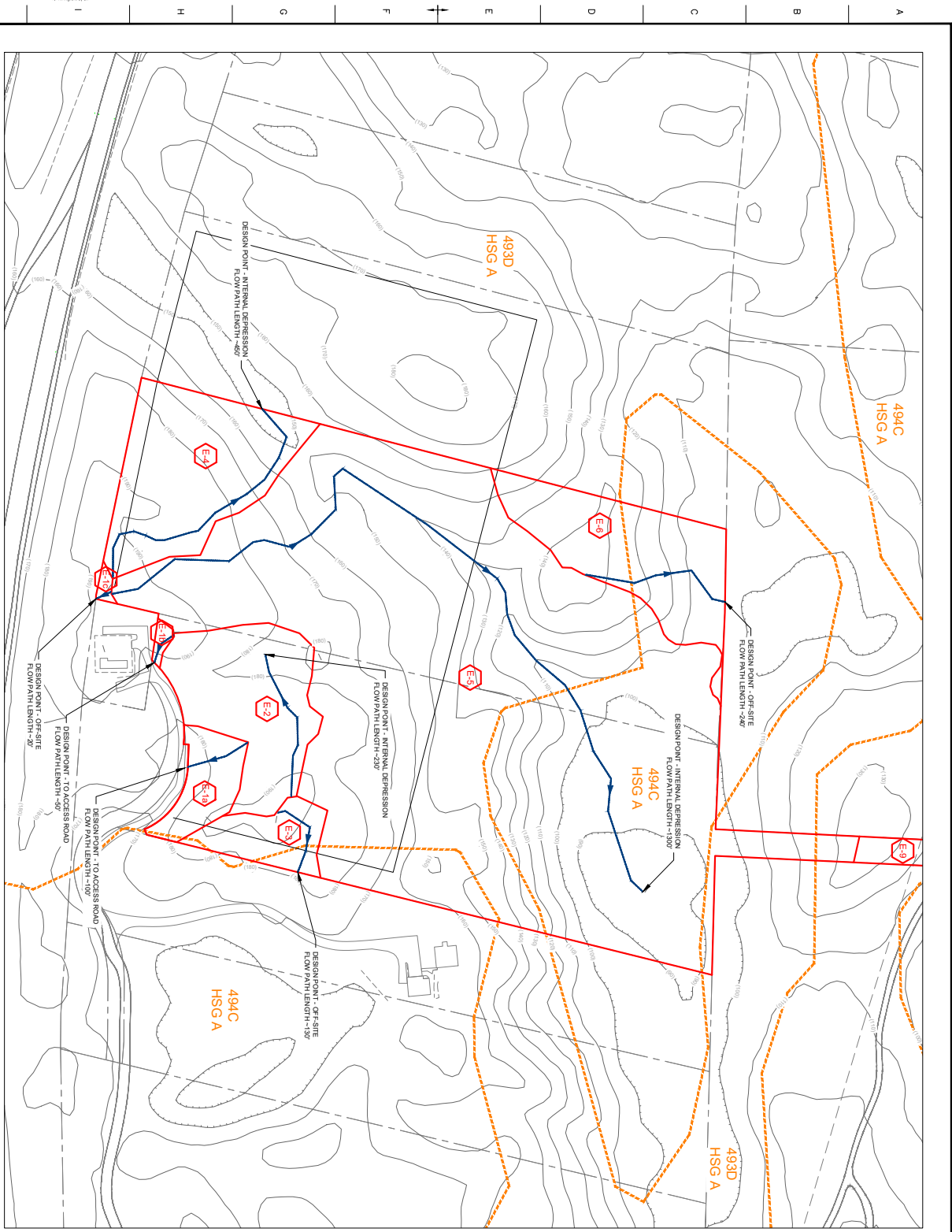
NO.	REVISION	DATE	BY	CHKD.
1	ISSUED FOR PERMITTING	11/11/2010	AM	AM
2	REVISED FOR PERMITTING	11/11/2010	AM	AM
3	REVISED FOR PERMITTING	11/11/2010	AM	AM

Stantec
 400 Central Expressway, Suite 200
 Amesbury, MA 01810, USA
 TEL: 978.235.8000
 WWW.STANTEC.COM

AMANGRID
 100 N. Main St.
 Amesbury, MA 01810

Windpro
 100 N. Main St.
 Amesbury, MA 01810

PROJECT	NEW ENGLAND WIND 2 CONNECTOR
TITLE	275345 KV GAS SUBSTATION EXISTING CONDITIONS PLAN
DATE	11/11/2010
SCALE	AS SHOWN
SHEET NO.	3
TOTAL SHEETS	3
DATE	11/11/2010
SCALE	AS SHOWN
SHEET NO.	3
TOTAL SHEETS	3

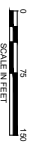


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LEGEND	
	WOODS/BUSH
	LINE OF CONCENTRATION LINE
	SUBCATCHMENT AREA BOUNDARY
	INLET SOIL BOUNDARY



NO.	DESCRIPTION	DATE	BY	CHKD
1	ISSUED FOR PERMITTING	11/20/2024	AM	AM
2	REVISION			
3	REVISION			
4	REVISION			

Stantec
 400 Capital Square, Suite 2000
 Chicago, IL 60611
 312.261.2000

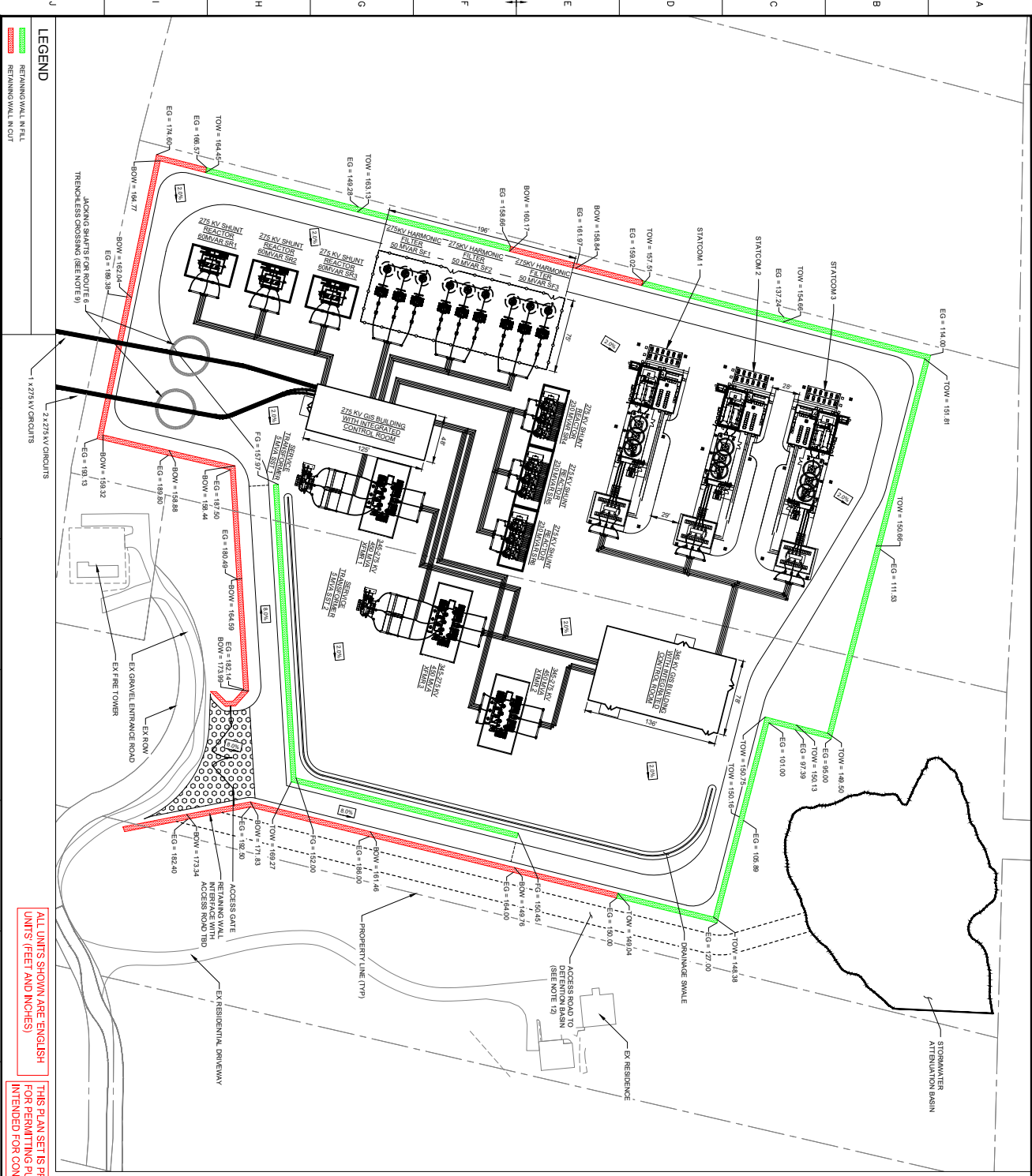
AMANGRID
 100 N. State Street
 Chicago, IL 60610

gintipoe
 100 N. State Street
 Chicago, IL 60610

PROJECT	NEW ENGLAND WIND 2 CONNECTOR
TITLE	273245 R1 GAS SUBSTATION
DESCRIPTION	EXISTING SUBCATCHMENT AREAS
DATE	11/20/2024
DRAWN BY	AM
CHECKED BY	AM
SCALE	AS SHOWN
SHEET NO.	4
TOTAL SHEETS	8

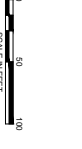
LEGEND

- REMAINING WALL IN SET
- REMAINING WALL IN C/D



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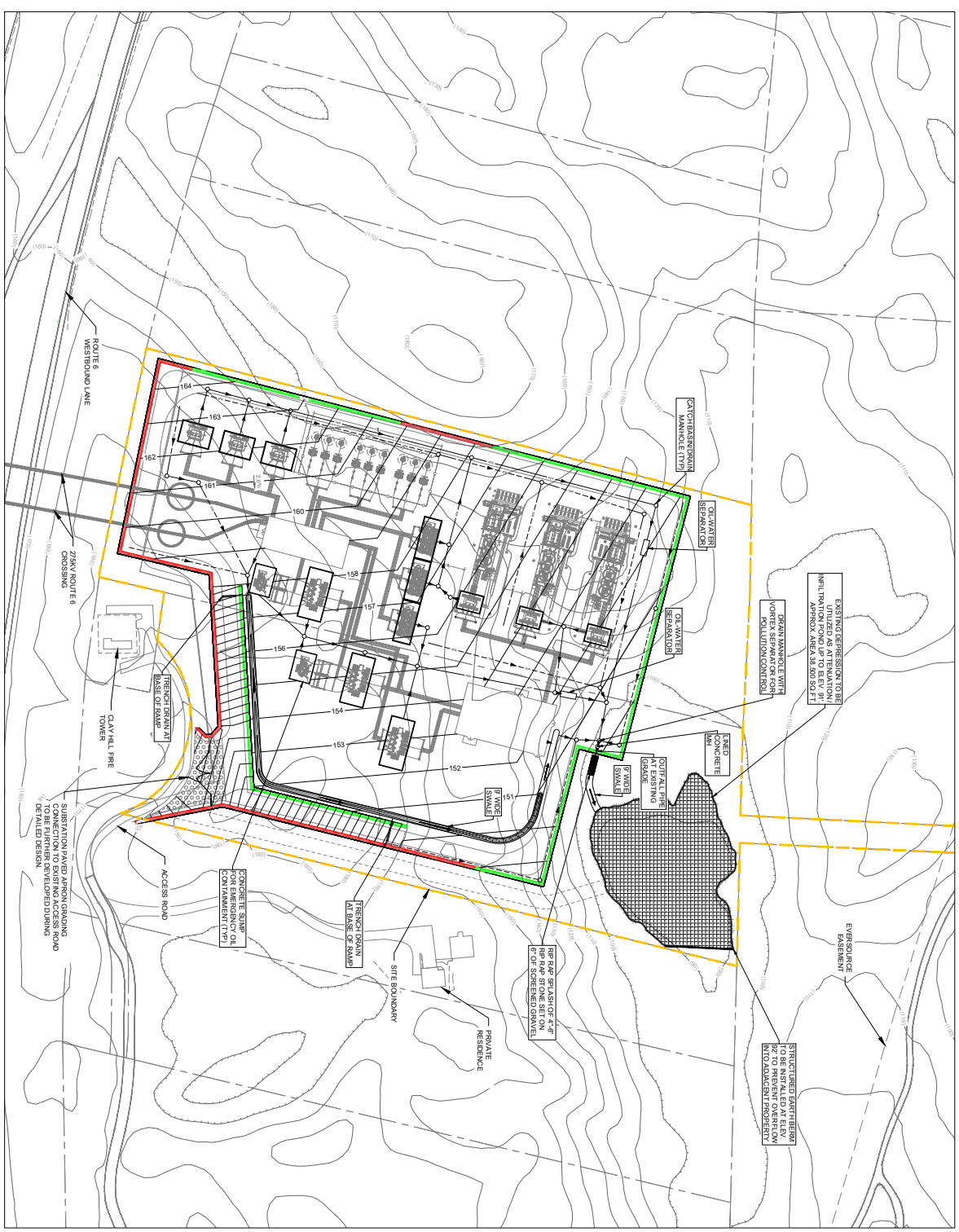
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- NOTES:
1. THE SITE AREA IS APPROXIMATELY 15.6 ACRES.
 2. PROPERTY LINES ARE FROM GIS DATA.
 3. INTERIOR GRADING IS INDICATIVE ONLY AND MAY BE FURTHER OPTIMIZED AROUND BUILDINGS AND EQUIPMENT.
 4. EQUIPMENT SIZES ARE PRELIMINARY AND SUBJECT TO CHANGE.
 5. GAS INSULATION BUS (GIB) IS ONLY SHOWN FOR PRELIMINARY ROUTES. AIR BUSINGS ARE NOT SHOWN FOR CLARITY.
 6. GIB TO DESIGN BUILDING TO MAXIMIZE W/ HEIGHT AND FOOTPRINT OR AS NEEDED.
 7. EQUIPMENT CONTAINING DIELECTRIC FLUIDS SHALL BE FITTED WITH A CONTAINMENT SYSTEM SPECIFIC FOR THE DIELECTRIC FLUID TO ALLOW FLOODING FROM A FAILURE TO BE CLEANED UP WITHOUT HAZARD TO PERSONNEL AND ENVIRONMENT.
 8. OVERHEAD STAKE WIRES NOT SHOWN FOR CLARITY.
 9. JOINTING SHAPETS FOR ROUTES THROUGH TRENCHES CROSSING TO BE REMOVED TO BE, ON FINISHED GRADE AND BACKFILLED FOLLOWING CONSTRUCTION. REFER TO DRAWING CIV-201-301-300 FOR DETAILS.
 10. SUBSTATION RING ROAD TO BE CONSTRUCTED OF GRAVEL (UNPAVED).
 11. GRADING OF ACCESS ROAD TO DETENTION BASIN TO BE COMPLETED DURING FUTURE DESIGN PHASES.
 12. THE 345 KV INTERCONNECTION ROUTE IS TO BE DETERMINED.

PROJECT	NEW ENGLAND WIND 2 CONNECTOR
TITLE	275 KV GAS SUBSTATION PROPOSED EQUIPMENT LAYOUT
DATE	CW-WOSP-ST-C-DW-0003
SHEET #	SHEET - 5
SCALE	AS SHOWN
DATE	ANS D

<p>2100 Franklin Drive, Suite 200 Columbia, MD 21046, USA</p>	<p>AECOM</p>	<p>Eaton</p>	<p>MWH</p>
			<p>2100 Franklin Drive, Suite 200 Columbia, MD 21046, USA</p>



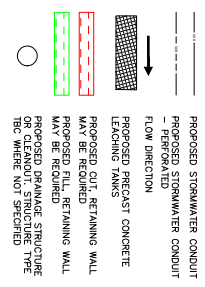
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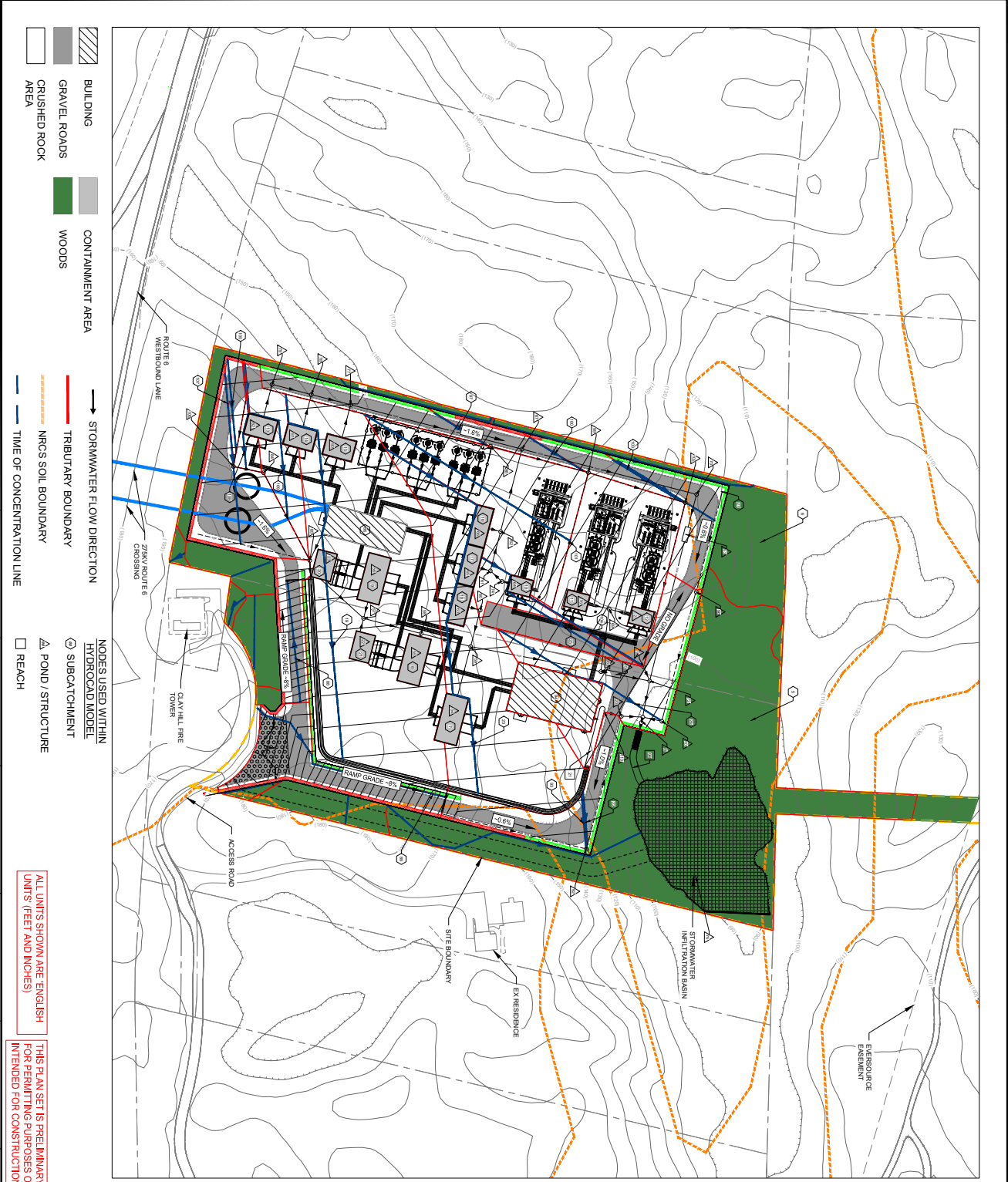


- NOTES:
1. PROPOSED GRADING, PAVEMENT AND MAY BE FURTHER OPTIMIZED AROUND BUILDINGS AND EQUIPMENT
 2. PRELIMINARY PIPE ELEVATIONS HAVE BEEN ASSUMED FOR USE IN DRAINAGE CALCULATIONS. POTENTIAL CONFLICTS WILL BE FURTHER EVALUATED DURING DETAILED DESIGN.
 3. CLOSED DRAINAGE CONDUITS TO BE 12" DIAMETER OR GREATER. REFERENCED MANHOLES SHALL BE 6" DIAMETER.

LEGEND:



400 Commonwealth Blvd, Suite 200 Cambridge, MA 02142 Tel: 617.552.7000 Fax: 617.552.7001 Email: info@stantec.com	
120 N. Hill Street Boston, MA 02110	
PROJECT:	NEW ENGLAND WIND 2 CONNECTOR
TITLE:	275/245 KV GAS SUBSTATION
DATE:	PROPOSED GRADING AND DRAINAGE PLAN
SCALE:	AS SHOWN
SHEET #:	6
TOTAL SHEETS:	9
DATE:	10/20/2016
DESIGNER:	ANS D
CHECKER:	ANS D
DATE:	10/20/2016



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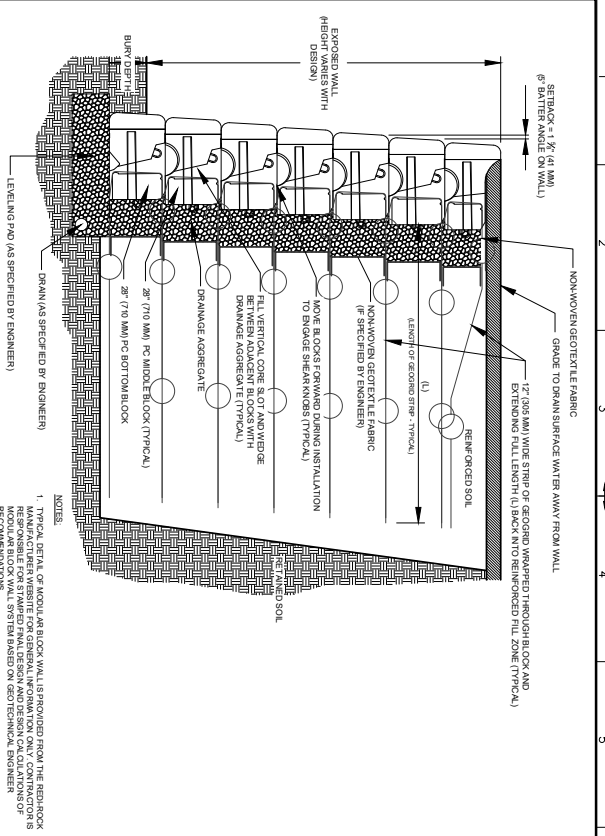
PROJECT	NEW ENGLAND WIND 2 CONNECTOR
TITLE	275345 KV GAS SUBSTATION
PROPOSED SUBCATCHMENT AREAS	
PROJECT NO.	01W-OSP-ST-C-01W-0003
SHEET #	7
SHEET - 7	AS SHOWN
ANSI 9	ANSI 8

Scale: 0 75 150
SCALE IN FEET

Stantec
 400 Commonwealth Blvd, Suite 200
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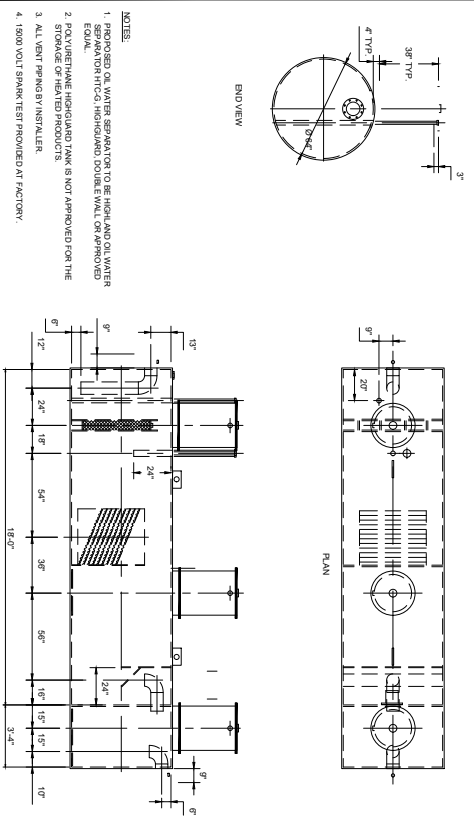
AMANGRID
 100 N. Main Street
 Boston, MA 02110

WSPRO
 100 N. Main Street
 Boston, MA 02110



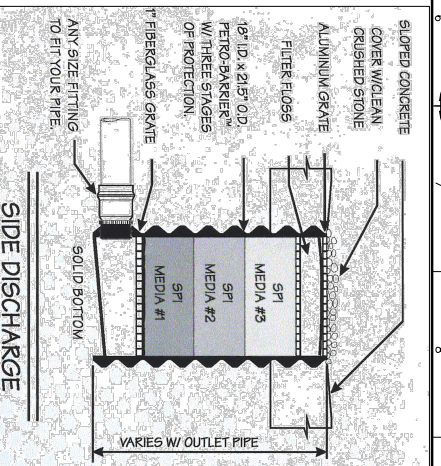
1 REINFORCED CONCRETE MODULAR RETAINING WALL
NOT TO SCALE

- NOTES:
1. TYPICAL DETAIL OF MODULAR BLOCK WALL TO BE PREPARED FROM THE REBAR AND REINFORCING BARS SPECIFIED BY ENGINEER.
 2. PERFORM CALCULATIONS FOR GENERAL INFORMATION ONLY. CONSULTATIONS WITH MANUFACTURER WEBSITE FOR GENERAL INFORMATION ONLY. CONSULTATIONS FOR SPECIFIC INFORMATION FOR GENERAL INFORMATION ONLY.
 3. PERFORM CALCULATIONS FOR GENERAL INFORMATION ONLY. CONSULTATIONS WITH MANUFACTURER WEBSITE FOR GENERAL INFORMATION ONLY.



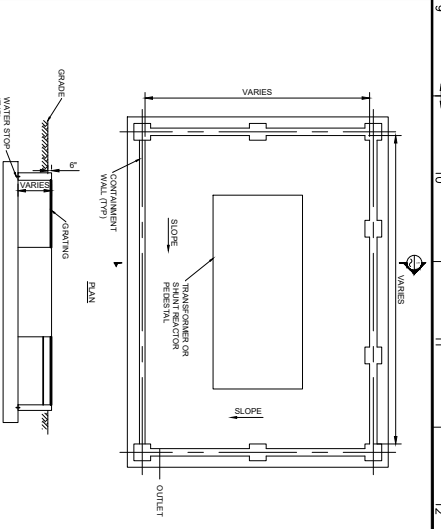
4 OIL WATER SEPARATOR
NOT TO SCALE

- NOTES:
1. PREPARED OIL WATER SEPARATOR TO BE HIGH AND OIL WATER EQUAL.
 2. PREPARED OIL WATER SEPARATOR TO BE HIGH AND OIL WATER EQUAL.
 3. ALL VENT SPARGERS SHALL BE APPROVED FOR THE STORAGE OF HEAVY PRODUCTS.
 4. 1000 GPM SPARGERS PROVIDED AT FACTORY.



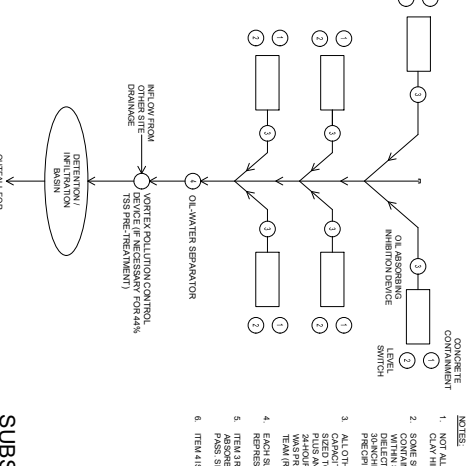
2 CONTAINMENT AREA PETRO-BARRIER (TYP.)
NOT TO SCALE

- NOTES:
1. PETRO-BARRIER TO BE MANUFACTURED BY SOLIDIFICATION PRODUCTS INTERNATIONAL, INC.
 2. CONTAINMENT AREA MUST BE SLOPED UPWARD TO THE PETRO-BARRIER TO PREVENT THE PETRO-BARRIER FROM BEING OVERFLOWED DURING THE FIRST PRECIPITATION EVENT.
 3. PERFORM CALCULATIONS FOR GENERAL INFORMATION ONLY. CONSULTATIONS WITH MANUFACTURER WEBSITE FOR GENERAL INFORMATION ONLY.



3 TYPICAL ELECTRICAL EQUIPMENT CONTAINMENT
NOT TO SCALE

- NOTES:
1. SEE DETAIL 3 FOR CONTAINMENT SIZING CRITERIA.



5 SUBSTATION CONTAINMENT AREA DRAINAGE SCHEMATIC
NOT TO SCALE

- NOTES:
1. NOT ALL CONTAINMENT AREAS ARE DEPICTED. THERE ARE 14 TOTAL FOR THE CLAY HILL SUBSTATION SITE.
 2. SOME SUBSTATION EQUIPMENT TRANSFORMERS AND OIL FIELD REACTORS WILL BE LOCATED WITHIN THE CONTAINMENT AREA. THE EQUIPMENT SHALL BE LOCATED WITHIN THE CONTAINMENT AREA. THE EQUIPMENT SHALL BE LOCATED WITHIN THE CONTAINMENT AREA. THE EQUIPMENT SHALL BE LOCATED WITHIN THE CONTAINMENT AREA.
 3. ALL OTHER SUBSTATION EQUIPMENT CONTAINING DIELECTRIC FLUID (E.G. CAPACITORS) WILL BE PLACED WITHIN SECONDARY CONTAINMENT STRUCTURES. PLUS AN ADDITIONAL 2 INCHES OF EQUIPMENT STORAGE FOR THE 500 KVAR TRANSFORMER. THE EQUIPMENT SHALL BE LOCATED WITHIN THE CONTAINMENT AREA. THE EQUIPMENT SHALL BE LOCATED WITHIN THE CONTAINMENT AREA.
 4. EACH SUMP (ITEM 2) SHALL HAVE A LEVEL SWITCH TO INDICATE HIGH LEVEL IN SUMP REPRESENTING OIL SPILL ON REACTOR OIL IMBIBITION DEVICE (ITEM 3).
 5. ITEM 3 REPRESENTS OIL SPILLING ANTI-SHOCK DEVICE CONSISTS OF OIL PASS. SEE RETROFIT DETAIL ON SHEET 8.
 6. ITEM 4 IS TYPICAL OIL WATER SEPARATOR TO REMOVE OIL SHEEN IF ANY.

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400 Capital Centre Drive, Suite 200 Houston, TX 77002 Tel: 281.416.2100 Fax: 281.416.2101 Email: info@stantec.com	
PROJECT: NEW ENGLAND WIND 2 CONNECTOR TITLE: 275346 KV GAS SUBSTATION SHEET: TYPICAL DETAIL SHEET DRAWING NO: CWW-CSP-ST/C-DW-0003 SCALE: AS SHOWN SHEET: 8 OF 8 DATE: 08/11/2010	
PROJECT: NEW ENGLAND WIND 2 CONNECTOR TITLE: 275346 KV GAS SUBSTATION SHEET: TYPICAL DETAIL SHEET DRAWING NO: CWW-CSP-ST/C-DW-0003 SCALE: AS SHOWN SHEET: 8 OF 8 DATE: 08/11/2010	PROJECT: NEW ENGLAND WIND 2 CONNECTOR TITLE: 275346 KV GAS SUBSTATION SHEET: TYPICAL DETAIL SHEET DRAWING NO: CWW-CSP-ST/C-DW-0003 SCALE: AS SHOWN SHEET: 8 OF 8 DATE: 08/11/2010