



U.S. Department
of Transportation
**Federal Highway
Administration**

400 Seventh St., S.W.
Washington, D.C. 20590

In Reply Refer To:
HSA-10/CC-26I/CC-87A

March 10, 2006

Mr. Barry D. Stephens, P.E.
Senior Vice President of Engineering
Energy Absorption Systems, Incorporated
3617 Cincinnati Avenue
Rocklin, CA 95765

Dear Mr. Stephens:

On November 1, 2004, I accepted your Drivable Pile Anchor (DPA) system with the QuadGuard on a steel plate for use in work zones with acceptance letter CC-35G. In late January of this year, you hand-carried a letter dated January 5, 2006, to staff members at the Transportation Research Board annual meeting. In that letter, you requested formal Federal Highway Administration acceptance to use the same anchoring system on your **REACT-350** (CC-26) and **QUEST** (CC-87) crash cushions when installed temporarily on soil.

The DPA System consists of 152 mm x 152 mm x 6.35 mm square steel tubes driven 1848 mm deep into a strong soil through square holes in wing plates. These steel tubes are then capped with a 254 mm x 254 mm x 19 mm steel plates using four 19-mm long Grade 8 bolts. The REACT-350 requires front, middle and rear wing plates measuring 1930-mm long x 432-mm wide x 9.5-mm thick, 1849-mm long x 582-mm wide x 9.5-mm thick, and 1849-mm long x 908-mm wide x 9.5-mm thick, respectively. These plates are bolted underneath the REACT's front cable anchor plates, the basetrack connection point, and the backup using sixteen, ten, and twenty-four 19-mm long Grade 5 bolts, respectively. The QUEST requires wing plates in the front and back measuring 1629-mm long x 457-mm wide x 9.5-mm thick and 1778-mm long x 749-mm wide x 9.5-mm thick, respectively. These plates are bolted underneath the QUEST's front anchor and backup using sixteen and twenty-two 19-mm long Grade 5 bolts, respectively. Enclosures 1 and 2 show these details.

Based on the high-speed testing you conducted on the QuadGuard with the DPA system, I agree that additional testing is not needed when the DPA anchor designs/layouts described above are used with the QUEST and REACT-350. Both designs may be considered to meet



the National Cooperative Highway Research Program Report 350 evaluation criteria at test level 3 and used on the National Highway System when such use is acceptable to the contracting authority.

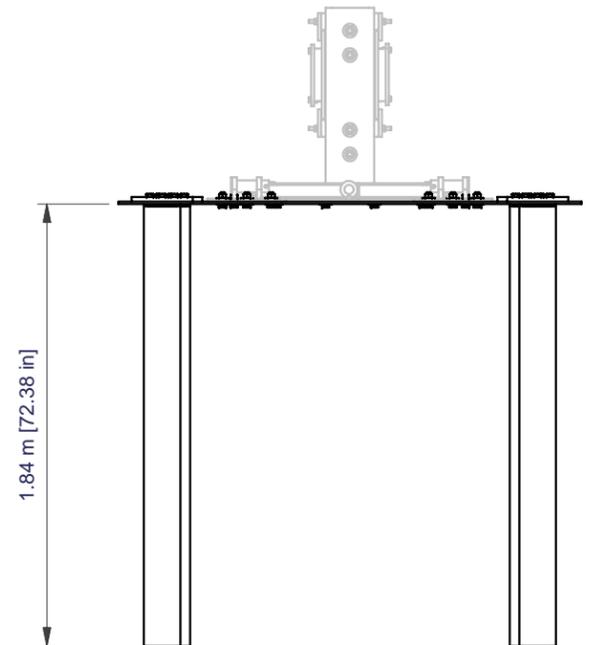
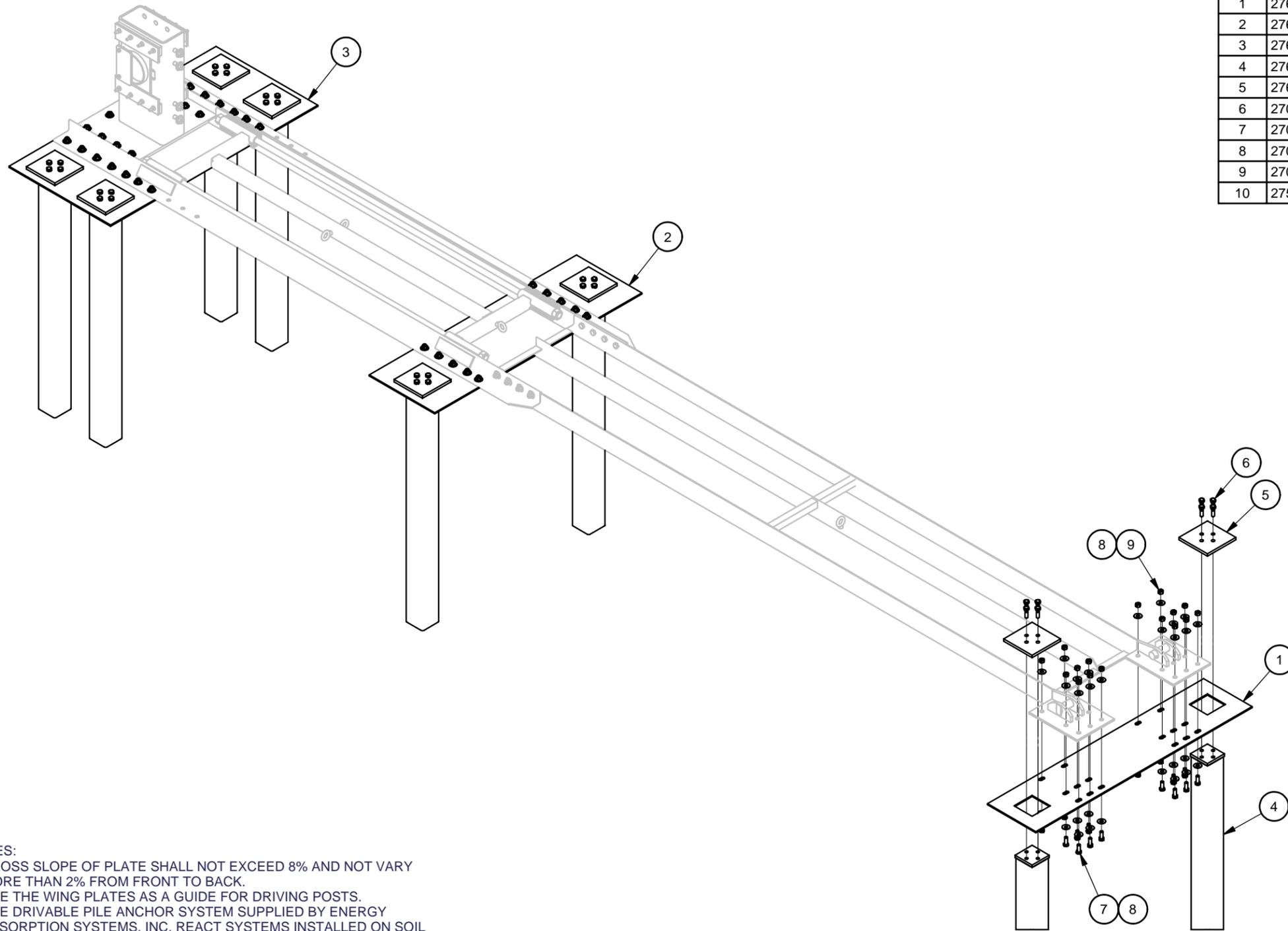
Sincerely yours,

/original signed by/

John R. Baxter, P.E.
Director, Office of Safety Design
Office of Safety

2 Enclosures

PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	QTY.
1	2765Front	WING PLATE,FRONT,REACT,DPA	1
2	2765Mid	WING PLATE,MID,REACT,DPA	1
3	2765Backup	WING PLATE,REAR,REACT,DPA	1
4	2760125-0000	DRIVABLE POST,QG,CZ,DPA	8
5	2760124-0000	POST CAP,QG,CZ,DPA	8
6	2701012-0000	BOLT,HX,3/4X2 1/2,G8,G	32
7	2700011-0000	BOLT,HX,3/4X2,G5,G	50
8	2708081-0000	WASHER,FLAT,3/4X2,HVY,G	100
9	2704091-0000	NUT,HX,3/4,G	50
10	2750101-0000	INSTALLATION INSTRUCTION,DPA	1



- NOTES:
- CROSS SLOPE OF PLATE SHALL NOT EXCEED 8% AND NOT VARY MORE THAN 2% FROM FRONT TO BACK.
 - USE THE WING PLATES AS A GUIDE FOR DRIVING POSTS.
 - USE DRIVABLE PILE ANCHOR SYSTEM SUPPLIED BY ENERGY ABSORPTION SYSTEMS, INC. REACT SYSTEMS INSTALLED ON SOIL MUST BE INSPECTED TO ENSURE THE ANCHORS ARE STILL PROPERLY SET FOLLOWING EACH IMPACT. RE-ANCHOR AS NECESSARY.
 - EVERY HOLE IN THE WING PLATES MUST HAVE A DRIVABLE POST ANCHORING IT.
 - REFER TO QUADGUARD SYSTEM DRIVABLE PILE ANCHOR INSTALLATION ADDENDUM INSTRUCTIONS FOR FURTHER INFORMATION.

Revision	Date	Rev	By	Chk.	App.

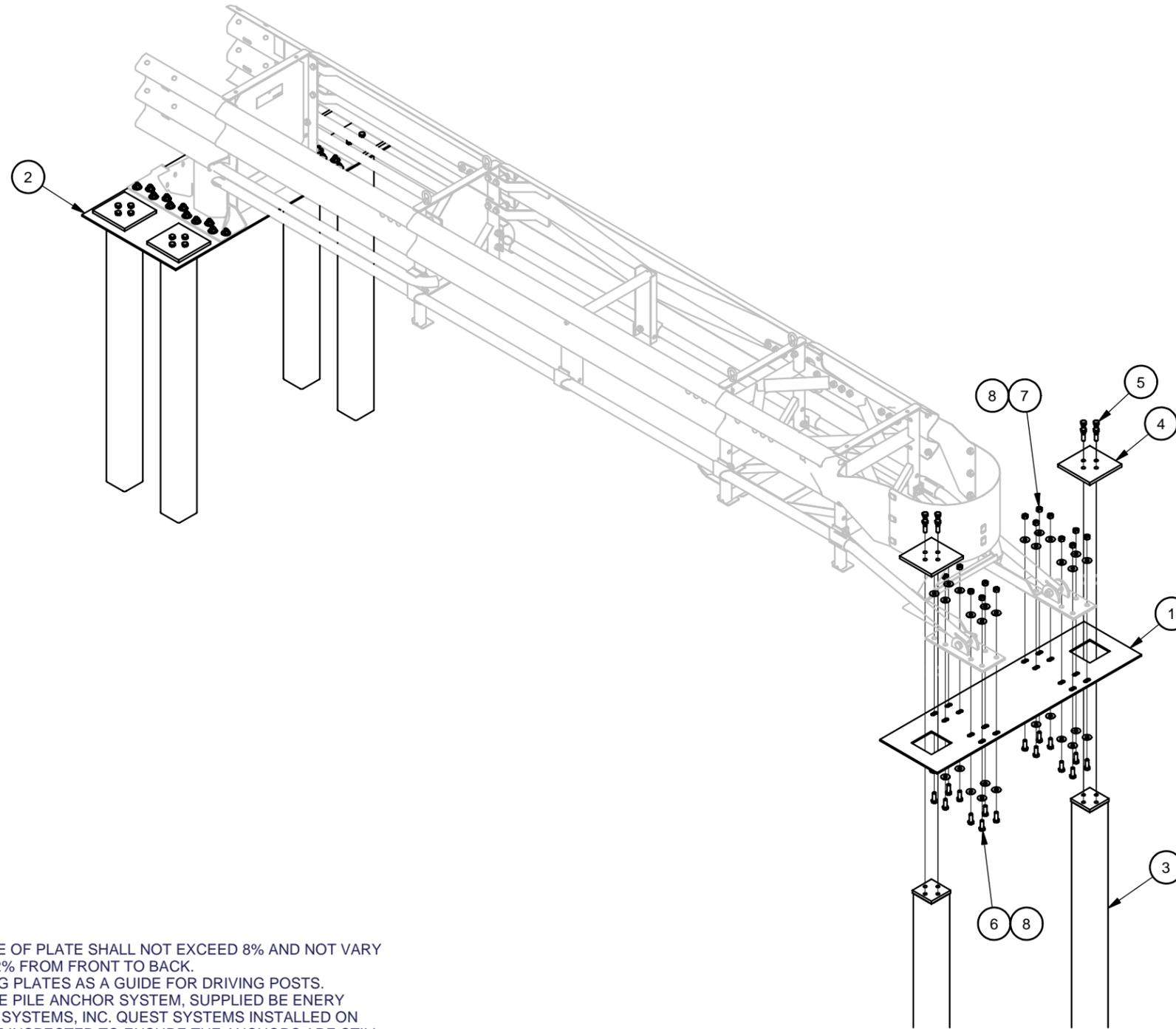
DRAWN: D. Hayes Jr	DATE: 1/12/2006
DESIGNED: A. Franklin	DATE: 9/22/2005
CHECKED:	DATE:
APPROVED:	DATE:
FILE: REACT DPA.idw	
NEXT ASSEMBLY:	

ASSEMBLY NO. REACT DPA

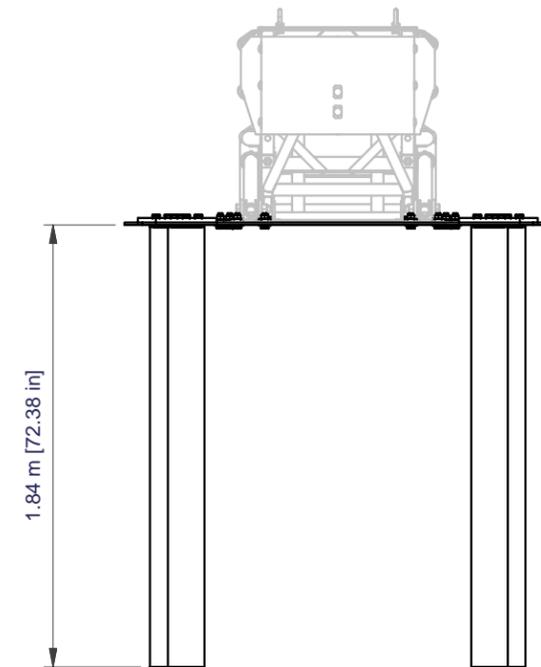

ENERGY ABSORPTION SYSTEMS, INC.
 ENGINEERING AND RESEARCH DEPARTMENT

REACT DRIVABLE PILE ANCHOR (DPA) ASSEMBLY

SCALE: 1:30	DRAWING: REACT DPA	SHEET: 1 of 1	REV: -
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PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	QTY.
1	2762Front	WING PLATE,FRONT,QUEST,DPA	1
2	2762Rear	WING PLATE,REAR,QUEST,DPA	1
3	2760125-0000	DRIVABLE POST,QG,CZ,DPA	6
4	2760124-0000	POST CAP,QG,CZ,DPA	6
5	2701012-0000	BOLT,HX,3/4X2 1/2,G8,G	24
6	2700011-0000	BOLT,HX,3/4X2,G5,G	38
7	2704091-0000	NUT,HX,3/4,G	38
8	2708081-0000	WASHER,FLAT,3/4X2,HVY,G	76
9	2750101-0000	INSTALLATION INSTRUCTIONS,DPA	1



NOTES:

- CROSS SLOPE OF PLATE SHALL NOT EXCEED 8% AND NOT VARY MORE THAN 2% FROM FRONT TO BACK.
- USE THE WING PLATES AS A GUIDE FOR DRIVING POSTS.
- USE DRIVABLE PILE ANCHOR SYSTEM, SUPPLIED BY ENERY ABSORPTION SYSTEMS, INC. QUEST SYSTEMS INSTALLED ON SOIL MUST BE INSPECTED TO ENSURE THE ANCHORS ARE STILL PROPERLY SET FOLLOWING EACH IMPACT. RE-ANCHOR AS NECESSARY.
- EVERY HOLE IN THE WING PLATES MUST HAVE A DRIVABLE POST ANCHORING IT.
- REFER TO QUADGUARD SYSTEM DRIVABLE PILE ANCHOR INSTALLATION ADDENDUM INSTRUCTIONS FOR FUTHER INFORMATION.

Revision	Date	Rev	By	Chk.	App.

DRAWN: D. Hayes Jr	DATE: 1/12/2006
DESIGNED: A. Franklin	DATE: 12/14/2005
CHECKED:	DATE:
APPROVED:	DATE:
FILE: Quest DPA.idw	
NEXT ASSEMBLY:	

ASSEMBLY NO. QUEST DPA



QUEST DRIVABLE PILE ANCHOR (DPA)
ASSEMBLY

SCALE: 1:30	DRAWING: Quest DPA	SHEET: 1 of 1	REV: -
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