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MMS 89-0040

3ENTHIC RECONNAISSANCE OF CENTRAL AND NORTHERN CALIFORNIA OCS AREAS

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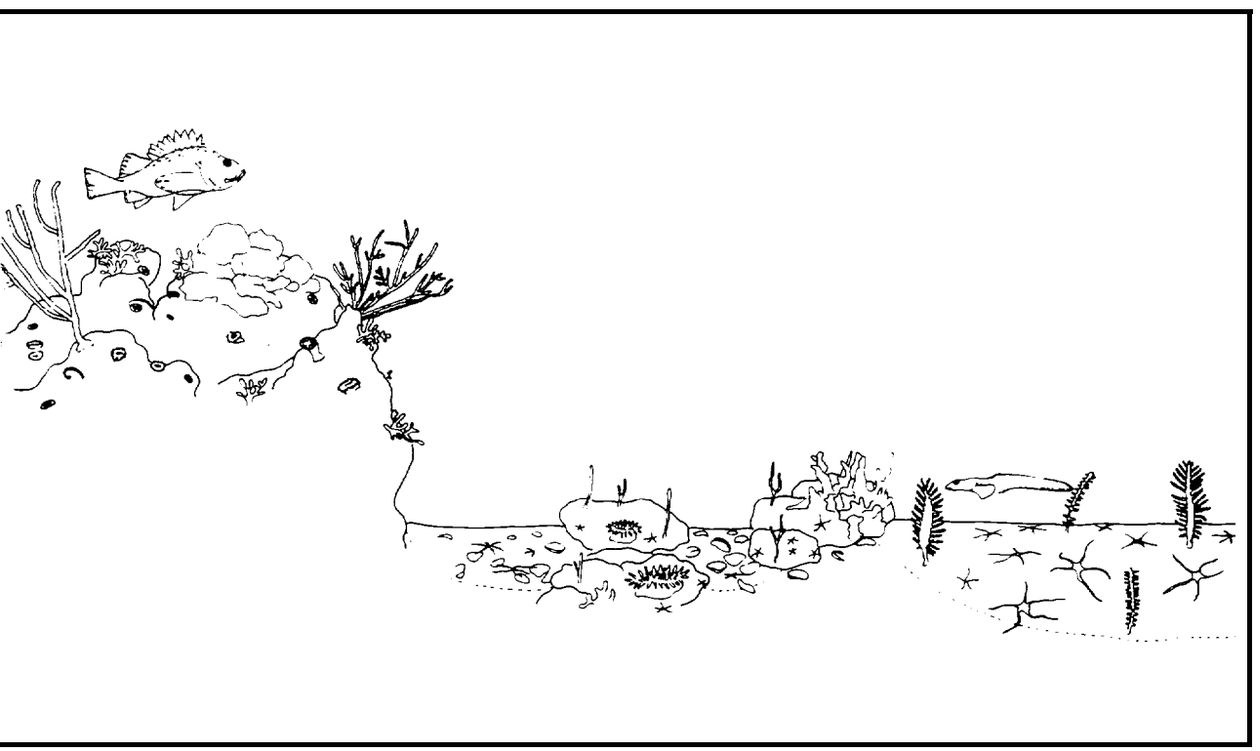

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BENTHIC RECONNAISSANCE OF CENTRAL AND NORTHERN CALIFORNIA OCS AREAS

FINAL REPORT

VOLUME II: TECHNICAL APPENDICES

July 1989

Edited by

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Submitted by

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VOLUME II - TECHNICAL APPENDICES

This volume presents technical appendices for the MMS CARP program based on the field survey conducted in November/December 1987 by SAIC and MEC. These appendices provide supplemental data and information to the results presented in Volume I of this report. In this volume, separate appendices are presented on planned survey locations (Appendix A), navigation shore station locations (Appendix B), hard substrate (ROV transects) navigational coordinates (Appendix C), ROV transect plots (1:2,000 scale) and community summaries (Appendix D), soft substrate (box core stations) LORAN coordinates (Appendix E), hard substrate survey taxonomic list (Appendix F), and soft substrate survey taxonomic list (Appendix G).

VOLUME II - TECHNICAL APPENDICES

TABLE OF CONTENTS

APPENDIX A

PLANNED FIELD SURVEY LOCATIONS

APPENDIX A

PLANNED FIELD SURVEY LOCATIONS

This appendix presents a summary of the hard substrate and soft substrate survey locations (Tables A-1 and A-2, respectively) which originally were planned for the study. These survey locations were based on determinations of bottom types from NOAA navigation charts and USGS open-file and unpublished reports, information on general oil and gas-seep areas associated with hard substrate features, and target geographic and depth regimes, as discussed in Volume I, Section 2.1, This information, particularly for hard substrate sites, is provided for future studies as a cross-reference of target hard substrate features based only on side-scan and bathymetric records. The navigational coordinates represent the region of largest areal extent for each hard substrate feature (typically at least one-quarter of a square nautical mile) ; however, accurate measurements of these areas from the side-scan records were beyond the scope of this project. Actual survey navigation coordinates are presented in Appendices C through E, Volume II.

TABLE A-1. PLANNED HARD SUBSTRATE TRANSECT LOCATIONS.
MMS CARP Field Survey.

	Start Latitude (N)	Start Longitude (w)	End Latitude (N)	End Longitude (w)	Depth (m)	Basin
HB1	41°15.25	124°20.00	41°14.00	124°20.00	117	Eel River
Reference: USGS 80-1080*V; USGS/UW Cruise Side Scan; M. Field, Pers. Comm.						
HB1 opt A	41°12.25	124°18.25	41°10.75	124°18.25	108	Eel River
Reference: USGS 80-1080*V; USGS/UW Cruise Side Scan; M. Field, Pers. Comm.						
HB1 opt B	41°18.00	124°23.75	41°17.25	124°22.75	160	Eel River
Reference: USGS 80-1080*V; USGS/UW Cruise Side Scan; M. Field, Pers. Comm.						
HB2	40°58.43	124°18.53	40°59.50	124°18.53	95	Eel River
Reference: USGS 80-1080*V; NOAA Chart 18620						
HB3	40°55.75	124°25.00	40″55.75	124°27.00	268	Eel River
Reference: USGS 80-1080*V; USGS 81-318*						
HB4	40°52.40	124°25.00	40°52.40	124°27.00	180	Eel River
" Reference: USGS 80-1080*V; USGS 81-318*						
HB5	39″58.50	124°10.00	39°58.50	124°09.50	137	Eel River
Reference: USGS 80-1080*; NOAA Chart 18620						
HB6	39°52.479	124°02.232	39°52.933	124°02.835	90	Eel River
Reference: USGS 80-1080*; NOAA Chart 18620						
HB6 opt A	39°43.50	123°58.80			149	Eel River
Reference: USGS 80-1080*; NOAA Chart 18620						
HB7	39°11.00	123°50.00	39015.1	123°50.00	101	Pt. Arena
Reference: USGS 80-1095*; NOAA Chart 18620						
HB8	39°02.47	123°52.343	39″02.459	123°53.868	115	Pt. Arena
Reference: USGS 80-1095*V; NOAA Chart 18620						
HB8 *opt* A	39′′01.00	123°49.00			106	Pt. Arena
Reference: USGS 80-1095*; NOAA Chart 18620						
HB9	38°56.623	123°53.171	38°51.598	123°53.183	122	Pt. Arena
Reference: USGS 80-1095*; NOAA Chart 18620; USGS/UW Cruise Side Scan Records						
HB9 QDt A	38057.6	123053.5	38058.1	123053.2	122	Pt. Arena
Reference: USGS 80-1095*V; NOAA Chart 18620; USGS/UW Cruise Side Scan Record:						
HB9 opt B	38°50.25	123°50.80			133	Pt. Arena
Reference: USGS 80-1095*; NOAA Chart 18620						

TABLE A-1. (Continued)

	Start Latitude (N)	Start Longitude (w)	End Latitude (N)	End Longitude (w)	Depth (m)	Basin
HB10	38°46.50	123″51.00	38″47.50	123°51.00	171	Bodega
Reference:	USGS 80-1095*; NOAA Chart 18640					
HB11	38″41.15	123°46.80 to 47.00	38′′40.3	123°46.80 to 47.00	270	Bodega
Reference:	USGS 80-1095*; NOAA Chart 18640					
HB12	38°36.50	123°40.80	38″39.00	123°41.90	180-198	Bodega
Reference:	USGS 80-1095*: NOAA Chart 18640					
HB13	38°31.40	123°34.20	38°30.90	123°33.80	148	Bodega
Reference:	USGS 80-1095*V; USGS/UW Cruise Side Scan Records					
HB14	38°26.80	123°32.20	38°25.75	123035.1	191-227	Bodega
Reference:	USGS 80-1095*; USGS/UW Cruise Side Scan Records					
HB15	38°22.00	123°32.00	38°1700	123°31.00	225	Bodega
Reference:	USGS 80-1095*; USGS/UW Cruise Side Scan Records					
HB15 optA	38°19.60	123°29.70			187	Bodega
Reference:	USGS 80-1095*V; USGS/UW Cruise Side Scan Records					
HB16	37°18.113	122″27.03	37°18.119	122°28.452	54	Santa Cruz
Reference:	NOAA Chart 18680					
HB16 optA	37°21.553	122°35.135	37°20.317	122°37.445	63-81	Santa Cruz
Reference:	NOAA Chart 18680					
HB17	33°24.00	118°00.00	33°24.00	117°59.00	1o4-180	So. Plan.
Reference:	NOAA Chart 18740; S. Benech, Pers. Comm.					Area
HB18	33°17.00	117°36.50	33°16.00	117″36.50	180-270	So. Plan.
Reference:	NOAA Chart 18740; S. Benech, Pers. Comm.					Area
HB19	33°05.90	117°52.00			370	So. Plan.
Reference:	NOAA Chart 18740; S. Benech, Pers. Comm.					Area
HB20	33°43.80	119°09.75			412	So. Plan.
Reference:	NOAA Chart 18740; S. Benech, Pers. Comm.					Area

*USGS Open File Report
VNotes general gas or oil and gas seep area

TABLE A-2. PLANNED SOFT SUBSTRATE STATION LOCATIONS, MMS CARP Field Survey.

Transect	Basin	Station	Latitude (N)	Longitude (W)	Depth (m
T1	Eel River	SB1	41°56.63	124″26.97	100
		SB2	41°56.48	124″33.50	200
		SB3	41°06.42	124°35.50	400
		SB4	41°56.33	124°38.00	600
T2	Eel River	SB5	41°30.77	124″21.55	100
		SB6	40°30.53	124″29.33	200
		SB7	41″30.53	124°31.03	400
		SB8	41°30.50	124°32.63	600
T3	Eel River	SB9	41°44.97	124°18.25	100
		SB10	41°42.25	124°24.33	200
		SB11	41°41.22	124°26,53	400
		SB12	41°39.77	124°29.33	600
T4	Eel River	SB13	40°56.80	124°18.50	100
		SB14	40°57.00	124°23.42	200
		SB15	40°57.00	124°26.97	400
		SB16	40°57.20	124°33.20	600
T5	Eel River	SB17	40°43.05	124°27.48	100
		SB18	40°43.05	124°30.33	200
		SB19	40°43.03	124°31.67	400
		SB20	40″43.03	124°33.33	600
T6	Pt. Arena	SB21	39°44.50	123°55.00	100
		SB22	39°45.42	124°03.25	200
		SB23	39°42.27	124°05.25	400
		SB24	39°43.25	124°06.20	600
T7	Pt. Arena	SB25	39°40.70	123°51.50	100
		SB26	39°49.67	123°58.25	200
		SB27	39°40.27	124°01.40	400
		SB28	39°40.27	124°03.25	600
T8	Pt. Arena	SB29	39°27.02	123°53.27	100
		SB30	39°27.52	123°57.83	200
		SB31	39°27.80	124°01.00	400
		sB32	39″28.02	124°01.25	600

TABLE A-2. (Continued)

Transect	Basin	Station	Latitude (N)	Longitude (W)	Depth (m)
T9	Pt. Arena	SB33	39°07.05	123°48.03	100
		SB34	39°18.75	123°57.00	200
		SB35	39°17.67	123°58.97	400
		SB36	39°16.97	124°02.03	600
TIO	Pt. Arena	SB37	38°56.25	123°48.33	100
		SB38	38°56.43	123°55.75	200
		SB39	38″59.17	123°58.50	400
		SB40	39°59.17	124°10.42	600
T11	Bodega	SB41	38°48.75	123°38.08	100
		SB42	38°43.67	123°43.67	200
		SB43	38°41.00	123°46.50	400
		SB44	38°41.00	123°46.97	600
T12	Bodega	SB45	38°34.43	123°22.27	100
		SB46	38″26.20	123°30.75	200
		SB47	38″21.75	123°35.42	400
		SB48	38°19.75	123°36.75	600
T13	Bodega	SB49	38°22.50	123″14.67	100
		SB50	38″15.25	123°24.50	200
		SB51	38″14.70	123°28.00	400
		SB52	38°14.00	123°28.00	600
T14	Santa Cruz	SB53	37°22.50	122″45.25	100
		SB54	37°21.00	122″50.80	200
		SB55	37°19.67	122°54.67	400
		SB56	37°18.50	122°59.00	600
T15	Santa Cruz	SB57	37′′07.50	122°29.98	100
		SB58	37″05.47	122°40.67	200
		SB59	37°05.13	122°42.03	400
		SB60	37°04.67	122°44.02	600

APPENDIX B

MMS CARP SHORE STATION GEODETIC INFORMATION

APPENDIX B

MMS CARP SHORE STATION GEODETIC INFORMATION

USC&GS Survey Mark "Ferrelo"		
NAD-27:	42 06.132'N	124° 21.002'W
Offset:	None	
Corrected position:	42 06.132'N	124" 21.002'W
USC&GS Survey Mark "View"		
NAD-27:	41° 57.082'N	124° 10.876'W
Offset:	None	
Corrected position:	41° 57.082'N	124" 10.876'W
Point St. George Aeronautical Beacon		
NAD-27:	41° 46.563'W	124° 14.072'W
Offset:	1820 M Bearing 295° T	
Corrected position:	41" 46.975'N	124" 15.251'W
USC&GS Survey Mark "MOUND"		
NAD-27:	41" 33.497'N	124" 05.104'W
Offset:	10.2 M Bearing 287° T	
Corrected position:	41" 33.513'N	124° 05.174'W
USC&GS Survey Mark "K-74"		
NAD-27:	41° 16.794'N	124° 05.462'W
Offset:	21.7 M Bearing 339" T	
Corrected position:	41° 16.807'N	124° 05.465'W
USC&GS Survey Mark "MILLER"		
NAD-27:	41° 07.781'N	124° 09.751'W
Offset:	25.6 M Bearing 057" T	
Corrected position:	41° 07.789'N	124° 09.736'W
Trinidad Head Lighthouse		
NAD-27:	41° 03.123'N	124° 09.015'W
Offset:	None	
Corrected position:	41° 03.123'N	124° 09.015'W
Coast Guard Station Humboldt Bay		
NAD-27:	40° 46.014'N	124° 13.019'W
Offset:	None	
Corrected position:	40" 46.014'N	124° 13.019'W
USC&GS Survey Mark "Pt. Delgada 2"		
NAD-27:	40° 01.310'N	124° 04.058
Offset:	None	
Corrected position:	40" 01.310'N	124° 04.058'W
USC&GS Survey Mark "Devil"		
NAD-27:	39° 47.077'N	123° 49.961'W
Offset:	None	
Corrected position:	39" 47.077'N	123° 49.961'W

USC7GS Survey Mark "ABALONE 2"		
NAD-27:	39° 40.036'N	123° 47.448'W
Offset:	None	
Corrected position:	39° 40.036'N	123" 47.448'W
Point Cabrillo Lighthouse		
NAD-27:	39° 20.921'N	123° 49.495'W
Offset:	None	
Corrected position:	39° 20.921'N	123° 49.495'W
USC&GS Survey Mark "NAVARRO 2"		
NAD-27:	39° 11.792'N	123° 45.881'W
Offset:	None	
Corrected position:	39° 11.792'N	123° 45.881'W
Point Arena Lighthouse		
NAD-27:	38' 57.291'N	123" 44.368*W
Offset:	None	
Corrected position:	38° 57.291'N	123" 44.368'W
USC&GS Survey Mark "OLSON"		
NAD-27:	38" 45.161'N	123° 31.425'W
Offset:	None	
Corrected position:	38" 45.161'N	123° 31.425'W
USC&GS Survey Mark "ECKERT 1930"		
NAD-27:	38" 34.254'N	123" 19.740'W
Offset:	None	
Corrected position:	38° 34.254'N	123° 19.740'W
USC&GS Survey Mark "BODEGA HEAD 2"		
NAD-27:	38° 18.471'N	123° 03.737'W
Offset:	None	
Corrected position:	38° 18.471'N	123° 03.737'W
Point Montara Lighthouse		
NAD-27:	37° 32.192'N	12° 31.091'W
Offset:	None	
Corrected position:	37" 32.192'N	12" 31.091'W
Pigeon Point Lighthouse		
NAD-27:	37° 10.908'N	122° 23.574'W
Offset:	None	
Corrected position:	37° 10.908'N	122° 23.574'W
USC&GS Survey Mark "GREY (VABM)"		
NAD-27:	37° 05.251'N	122° 16.345'W
Offset:	None	
Corrected position:	37° 05.251'N	122° 16.345'W

APPENDIX C

HARD SUBSTRATE (ROV Transect) ACTUAL NAVIGATIONAL POSITIONS

(Latitudes/Longitudes and UTM Zone 10)

MMS CARP Project
Hard Substrate Transect HB1

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/20/87	13:45:00 41 14	03.870N	124 19 56.750W	388334.14	4565422.94
11/20/87	13:45:30 41 14	03.589N	124 19 56.449W	388341.02	4565414.18
11/20/87	13:46:00 41 14	03.589N	124 19 56.449W	388341,02	4565414.18
11/20/87	13:46:30 41 14	03.589N	124 19 56.449W	388341.02	4565414.18
11/20/87	13:47:00 41 14	03.585N	124 19 56.447W	388341.06	4565414.05
11/20/87	13:47:30 41 14	03.548N	124 19 56.420W	388341.67	4565412.89
11/20/87	13:48:00 41 14	03.464N	124 19 56.337W	388343.55	4565410.26
11/20/87	13:48:30 41 14	03.362N	124 19 56.210W	388346.48	4565407.09
11/20/87	13:49:00 41 14	03.342N	124 19 56.230W	388345.99	4565406.47
11/20/87	13:49:30 41 14	03.468N	124 19 56.546W	388338.70	4565410.46
11/20/87	13:50:00 41 14	03.651N	124 19 56.923W	388330.00	4565416.25
11/20/87	13:50:30 41 14	03.808N	124 19 57.319W	388320.86	4565421.23
11/20/87	13:51:01 41 14	03.961N	124 19 57.810W	388309.50	4565426.11
11/20/87	13:51:30 41 14	04.260N	124 19 58.375W	388296.48	4565435.54
11/20/87	13:52:00 41 14	04.557N	124 19 58.767W	388287.50	4565444.84
11/20/87	13:52:30 41 14	04.419N	124 19 58.825W	388286.09	4565440.60
11/20/87	13:53:00 41 14	04.033N	124 19 58.827W	388285.86	4565428.70
11/20/87	13:53:30 41 14	04.010N	124 19 58.835W	388285.66	4565428.00
11/20/87	13:54:02 41 14	04.392N	124 19 58.652W	388290.11	4565439.71
11/20/87	13:54:30 41 14	04.707N	124 19 58.326W	388297.85	4565449.32
11/20/87	13:55:00 41 14	04.831N	124 19 57.961W	388306.41	4565453.01
11/20/87	13:55:30 41 14	04.874N	124 19 57.699W	388312.52	4565454.25
11/20/87	13:56:00 41 14	04.990N	124 19 57.517W	388316.80	4565457.75
11/20/87	13:56:30 41 14	05.171N	124 19 57.276W	388322.51	4565463.26
11/20/87	13:57:00 41 14	05.303N	124 19 56.969W	388329.73	4565467.22
11/20/87	13:57:30 41 14	05.308N	124 19 56.870W	388332.03	4565467.31
11/20/87	13:58:01 41 14	05.361N	124 19 57.008W	388328.84	4565469.02
11/20/87	13:58:30 41 14	05.656N	124 19 57.173W	388325.14	4565478.17
11/20/87	13:59:00 41 14	06.114N	124 19 57.231W	388324.01	4565492.31
11/20/87	13:59:30 41 14	06.514N	124 19 57.167W	388325.69	4565504.63
11/20/87	14:00:00 41 14	06.822N	124 19 57.026W	388329.10	4565514.06
11/20/87	14:00:30 41 14	07.065N	124 19 56.991W	388330.03	4565521.55
11/20/87	14:01:00 41 14	07.265N	124 19 57.092W	388327.77	4565527.76
11/20/87	14:01:30 41 14	07.420N	124 19 57.088W	388327.94	4565532.52
11/20/87	14:02:00 41 14	07.601N	124 19 56.948W	388331.29	4565538.07
11/20/87	14:02:31 41 14	07.894N	124 19 56.925W	388331.96	4565547.10
11/20/87	14:03:00 41 14	08.296N	124 19 57.010W	388330.18	4565559.53
11/20/87	14:03:31 41 14	08.663N	124 19 57.018W	388330.16	4565570.86
11/20/87	14:04:00 41 14	08.954N	124 19 56.938W	388332.17	4565579.80
11/20/87	14:04:30 41 14	09.272N	124 19 56.884W	388333.57	4565589.57
11/20/87	14:05:00 41 14	09.524N	124 19 56.884W	388333.69	4565597.33
11/20/87	14:05:30 41 14	09.656N	124 19 56.868W	388334.14	4565601.40
11/20/87	14:06:00 41 14	09.800N	124 19 56.845W	388334.73	4565605.84
11/20/87	14:06:30 41 14	10.116N	124 19 56.863W	388334.45	4565615.58
11/20/87	14:07:00 41 14	10.479N	124 19 56.892W	388333.95	4565626.79
11/20/87	14:07:30 41 14	10.914N	124 19 56.952W	388332.76	4565640.23

MMS CARP Project
Hard Substrate Transect HB1

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/20/87	14:08:00	41 14 11.378N	124 19 57.129W	388328.85	4565654.60
11/20/87	14:08:30	41 14 11.821N	124 19 57.354W	388323.83	4565668.36
11/20/87	14:09:00	41 14 12.197N	124 19 57.521W	388320.12	4565679.99
11/20/87	14:09:30	41 14 12.514N	124 19 57.653W	388317.19	4565689.84
11/20/87	14:10:00	41 14 12.830N	124 19 57.825W	388313.36	4565699.63
11/20/87	14:10:30	41 14 13.183N	124 19 57.975W	388310.02	4565710.56
11/20/87	14:11:00	41 14 13.377N	124 19 57.891W	388312.08	4565716.51
11/20/87	14:11:30	41 14 13.344N	124 19 57.592W	388319.03	4565715.39
11/20/87	14:12:00	41 14 13.309N	124 19 57.323W	388325.25	4565714.21
11/20/87	14:12:30	41 14 13.527N	124 19 57.272W	388326.56	4565720.93
11/20/87	14:13:00	41 14 13.979N	124 19 57.391W	388323.98	4565734.91
11/20/87	14:13:30	41 14 14.396N	124 19 57.598W	388319.38	4565747.83
11/20/87	14:14:00	41 14 14.635N	124 19 58.002W	388310.08	4565755.35
11/20/87	14:14:34	41 14 14.705N	124 19 58.679W	388294.37	4565757.75
11/20/87	14:15:02	41 14 14.765N	124 19 59.273W	388280.56	4565759.81
11/20/87	14:15:34	41 14 14.891N	124 19 59.654W	388271.74	4565763.83
11/20/87	14:16:04	41 14 14.998N	124 19 59.817W	388268.00	4565767.19
11/20/87	14:16:34	41 14 14.988N	124 19 59.869W	388266.79	4565766.89
11/20/87	14:17:03	41 14 14.897N	124 19 59.838W	388267.47	4565764.08
11/20/87	14:17:35	41 14 14.860N	124 19 59.673W	388271.29	4565762.88
11/20/87	14:18:04	41 14 14.988N	124 19 59.388W	388277.98	4565766.72
11/20/87	14:18:30	41 14 15.313N	124 19 59.126W	388284.23	4565776.68
11/20/87	14:19:00	41 14 15.825N	124 19 59.004W	388287.31	4565792.41
11/20/87	14:19:30	41 14 16.464N	124 19 59.056W	388286.41	4565812.15
11/20/87	14:20:00	41 14 16.995N	124 19 59.161W	388284.21	4565828.53
11/20/87	14:20:31	41 14 17.434N	124 19 59.211W	388283.27	4565842.10
11/20/87	14:21:00	41 14 17.950N	124 19 59.186W	388284.09	4565857.99
11/20/87	14:21:30	41 14 18.575N	124 19 59.285W	388282.08	4565877.30
11/20/87	14:22:00	41 14 19.076N	124 19 59.524W	388276.75	4565892.84
11/20/87	14:22:30	41 14 19.398N	124 19 59.634W	388274.35	4565902.80
11/20/87	14:23:00	41 14 19.837N	124 19 59.495W	388277.78	4565916.30
11/20/87	14:23:30	41 14 20.524N	124 19 59.250W	388283.82	4565937.40
11/20/87	14:24:00	41 14 20.938N	124 19 59.033W	388289.06	4565950.10
11/20/87	14:24:30	41 14 21.138N	124 19 58.928W	388291.60	4565956,24
11/20/87	14:25:00	41 14 21.497N	124 19 58.889W	388292.68	4565967.29
11/20/87	14:25:30	41 14 21.759N	124 19 58.730W	388296.50	4565975.31
11/20/87	14:26:00	41 14 21.966N	124 19 58.443W	388303.27	4565981.57
11/20/87	14:26:30	41 14 22.425N	124 19 58.365W	388305.32	4565995.73
11/20/87	14:27:00	41 14 22.799N	124 19 58.569W	388300.74	4566007.31
11/20/87	14:27:30	41 14 22.706N	124 19 58.850W	388294.16	4566004.55
11/20/87	14:28:00	41 14 22.689N	124 19 59.101W	388288.30	4566004,13
11/20/87	14:28:30	41 14 23.075N	124 19 59.440W	388280.61	4566016.15
11/20/87	14:29:01	41 14 23.438N	124 19 59.815W	388272.04	4566027.48
11/20/87	14:29:30	41 14 23.632N	124 20 00.176W	388263.73	4566033.58
11/20/87	14:30:00	41 14 23.937N	124 20 00.622W	388253.50	4566043.16
11/20/87	14:30:30	41 14 24.296N	124 20 01.059W	388243.49	4566054.38

MMS CARP Project
Hard Substrate Transect HB1

DATE	TIME	LATITUDE	LONGITUDE	UTM- X	UTM -Y
11/20/87	14:31:00	41 14 24.540N	124 20 01.331W	388237.27	4566061.98
11/20/87	14:31:30	41 14 24.750N	124 20 01.442W	388234.78	4566068.51
11/20/87	14:32:00	41 14 25.064N	124 20 01.614W	388230.94	4566078.24
11/20/87	14:32:31	41 14 25.402N	124 20 01.865W	388225.24	4566088.76
11/20/87	14:33:00	41 14 25.687N	124 20 02.041W	388221.30	4566097.60
11/20/87	14:33:30	41 14 25.843N	124 20 02.109W	388219,79	4566102.46
11/20/87	14:34:00	41 14 25.872N	124 20 02.133W	388219.22	4566103.36
11/20/87	14:34:30	41 14 25.911N	124 20 02.146W	388218.95	4566104.57
11/20/87	14:35:00	41 14 25.973N	124 20 02.096W	388220.14	4566106.46
11/20/87	14:35:30	41 14 25.870N	124 20 01.952W	388223,45	4566103.23
11/20/87	14:36:00	41 14 25.546N	124 20 01.746W	388228.10	4566093.17
11/20/87	14:36:30	41 14 25.425N	124 20 01.678W	388229.62	4566089.40
11/20/87	14:37:00	41 14 25.864N	124 20 01.793W	388227.14	4566102.98
11/20/87	14:37:30	41 14 26.514N	124 20 01.900W	388224.95	4566123.06
11/20/87	14:38:01	41 14 26.705N	124 20 01.834W	388226.58	4566128.95
11/20/87	14:38:30	41 14 26.532N	124 20 01.700W	388229.62	4566123.56
11/20/87	14:39:00	41 14 26.522N	124 20 01.667W	388230.38	4566123.23
11/20/87	14:39:30	41 14 26.710N	124 20 01.715W	388229.37	4566129.04
11/20/87	14:40:00	41 14 26.804N	124 20 01.775W	388228.02	4566131.98
11/20/87	14:40:30	41 14 26.862N	124 20 01.861W	388226.03	4566133.80
11/20/87	14:41:00	41 14 27.188N	124 20 02.014W	388222.63	4566143.90
11/20/87	14:41:30	41 14 27.617N	124 20 02.082W	388221.25	4566157.15
11/20/87	14:42:00	41 14 27.679N	124 20 01.929W	388224.83	4566159.01
11/20/87	14:42:30	41 14 27.421N	124 20 01.692W	388230.23	4566150.97
11/20/87	14:43:00	41 14 27.302N	124 20 01.665W	388230.80	4566147.27
11/20/87	14:43:30	41 14 27.541N	124 20 01.876W	388226.02	4566154.73
11/20/87	14:44:00	41 14 27.840N	124 20 01.971W	388223.95	4566163.98
11/20/87	14:44:30	41 14 27.943N	124 20 01.865W	388226.45	4566167.13
11/20/87	14:45:00	41 14 27.908N	124 20 01.583W	388233.01	4566165.94
11/20/87	14:45:30	41 14 27.856N	124 20 01.379W	388237.74	4566164.28
11/20/87	14:46:00	41 14 27.951N	124 20 01.379W	388237.78	4566167.21
11/20/87	14:46:30	41 14 28.087N	124 20 01.341W	388238.71	4566171.39
11/20/87	14:47:01	41 14 28.098N	124 20 01.055W	388245.39	4566171.61
11/20/87	14:47:30	41 14 27.910N	124 20 00.721W	388253.08	4566165.70
11/20/87	14:48:02	41 14 27.743N	124 20 00.615W	388255.45	4566160.51
11/20/87	14:48:30	41 14 27.706N	124 20 00.675W	388254.04	4566159.39
11/20/87	14:49:00	41 14 27.803N	124 20 00.758W	388252.16	4566162.41
11/20/87	14:49:30	41 14 27.970N	124 20 00.725W	388253.01	4566167.55
11/20/87	14:50:00	41 14 28.201N	124 20 00.622W	388255.52	4566174.63
11/20/87	14:50:30	41 14 28.453N	124 20 00.568W	388256.89	4566182.37
11/20/87	14:51:00	41 14 28.774N	124 20 00.576W	388256.85	4566192.30
11/20/87	14:51:30	41 14 28.989N	124 20 00.603W	388256.33	4566198.93
11/20/87	14:52:00	41 14 29.102N	124 20 00.632W	388255.71	4566202.43
11/20/87	14:52:30	41 14 29.164N	124 20 00.688W	388254.44	4566204.36
11/20/87	14:53:00	41 14 29.249N	124 20 00.789W	388252.13	4566207,01
11/20/87	14:53:30	41 14 29.350N	124 20 00.912W	388249.29	4566210.17

MMS CARP Project
Hard Substrate Transect HB1

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/20/87	14:54:00	41 14 29.459N	124 20 01.044W	388246.27	4566213,59
11/20/87	14:54:30	41 14 29.612N	124 20 01.228W	388242.07	4566218.36
11/20/87	14:55:01	41 14 29.830N	124 20 01.445W	388237.13	4566225.18
11/20/87	14:55:30	41 14 30.041N	124 20 01.550W	388234.79	4566231.70
11/20/87	14:56:00	41 14 30.187N	124 20 01.496W	388236.10	4566236.20
11/20/87	14:56:30	41 14 30.297N	124 20 01.457W	388237,07	4566239.56
11/20/87	14:57:00	41 14 30.402N	124 20 01.541W	388235.15	4566242.83
11/20/87	14:59:16	41 14 30.507N	124 20 01.643W	388232.85	4566246.11
11/20/87	14:59:30	41 14 30.536N	124 20 01.661W	388232,43	4566247.01
11/20/87	15:00:00	41 14 30.608N	124 20 01.583W	388234.29	4566249.21
11/20/87	15:00:30	41 14 30.662N	124 20 01.356W	388239.59	4566250.78
11/20/87	15:01:01	41 14 30.804N	124 20 01.300W	388240.96	4566255.15
11/20/87	15:01:30	41 14 30.895N	124 20 01.498W	388236.39	4566258.02
11/20/87	15:02:00	41 14 31.109N	124 20 01.828W	388228.81	4566264.75
11/20/87	15:02:30	41 14 31.522N	124 20 02.008W	388224.83	4566277.54
11/20/87	15:03:00	41 14 31.594N	124 20 01.948W	388226.25	4566279.74
11/20/87	15:03:30	41 14 31.245N	124 20 01.754W	388230.60	4566268.92
11/20/87	15:04:00	41 14 31.183N	124 20 01.612W	388233.89	4566266.96
11/20/87	15:04:30	41 14 31.495N	124 20 01.723W	388231.44	4566276.61
11/20/87	15:05:00	41 14 31.586N	124 20 01.900W	388227.35	4566279.47
11/20/87	15:05:30	41 14 31.406N	124 20 01.867W	388228.04	4566273.93
11/20/87	15:06:00	41 14 31.245N	124 20 01.760W	388230.46	4566268.93
11/20/87	15:06:30	41 14 31.060N	124 20 01.760W	388230.37	4566263.20
11/20/87	15:07:00	41 14 30.787N	124 20 01.704W	388231.54	4566254.78
11/20/87	15:07:30	41 14 30.800N	124 20 01.636W	388233.13	4566255.14
11/20/87	15:08:01	41 14 31.196N	124 20 01.847W	388228.42	4566267.43
11/20/87	15:08:30	41 14 31.499N	124 20 02.131W	388221.94	4566276.88
11/20/87	15:09:00	41 14 31.472N	124 20 02.146W	388221.59	4566276.06
11/20/87	15:09:30	41 14 31.561N	124 20 02.119W	388222.25	4566278.79
11/20/87	15:10:00	41 14 32.064N	124 20 02.492W	388213.80	4566294.44
11/20/87	15:10:30	41 14 32.452N	124 20 02.985W	388202.51	4566306.57
11/20/87	15:11:02	41 14 32.415N	124 20 03.084W	388200.19	4566305.46
11/20/87	15:11:31	41 14 32.444N	124 20 03.016W	388201.79	4566306.33
11/20/87	15:12:00	41 14 32.594N	124 20 02.994W	388202.38	4566310.97
11/20/87	15:12:30	41 14 32.431N	124 20 02.926W	388203.89	4566305.92
11/20/87	15:13:00	41 14 32.141N	124 20 02.882W	388204.76	4566296.93
11/20/87	15:13:30	41 14 32.330N	124 20 02.992W	388202.31	4566302.82
11/20/87	15:14:00	41 14 32.650N	124 20 03.031W	388201.55	4566312.70
11/20/87	15:14:30	41 14 32.601N	124 20 02.899W	388204.60	4566311.12
11/20/87	15:15:01	41 14 32.291N	124 20 02.816W	388206.37	4566301.55
11/20/87	15:15:31	41 14 32.204N	124 20 02.882W	388204.79	4566298.90
11/20/87	15:16:00	41 14 32.328N	124 20 02.878W	388204.95	4566302.72
11/20/87	15:16:30	41 14 32.452N	124 20 02.769W	388207.55	4566306.50
11/20/87	15:17:00	41 14 32.621N	124 20 02.647W	388210.46	4566311.67
11/20/87	15:17:31	41 14 32.893N	12d 20 02.437W	388215.49	4566319.99
11/20/87	15:18:00	41 14 33.215N	124 20 02.133W	388222.70	4566329.80

MMS CARP Project
Hard Substrate Transect HB1

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/20/87	15:18:30	41 14 33.642N	124 20 01.913W	388228.04	4566342.89
11/20/87	15:19:03	41 14 34.135N	124 20 01.841W	388229.95	4566358.07
11/20/87	15:19:32	41 14 34.405N	124 20 01.808W	388230.85	4566366.39
11/20/87	15:20:00	41 14 34.467N	124 20 01.773W	388231.69	4566368.29
11/20/87	15:20:30	41 14 34.292N	124 20 01.783W	388231.37	4566362.88
11/20/87	15:21:00	41 14 33.758N	124 20 01.876W	388228.96	4566346.44
11/20/87	15:21:30	41 14 33.267N	124 20 01.964W	388226.66	4566331.33
11/20/87	15:22:00	41 14 33.502N	124 20 01.952W	388227.06	4566338.58
11/20/87	15:22:30	41 14 34.327N	124 20 01.832W	388230.24	4566363.98
11/20/87	15:23:01	41 14 34.799N	124 20 01.711W	388233.29	4566378.50
11/20/87	15:23:30	41 14 34.370N	124 20 01.735W	388232.51	4566365.28
11/20/87	15:24:00	41 14 33.997N	124 20 01.791W	388231.04	4566353.79
11/20/87	15:24:30	41 14 34.343N	124 20 01.638W	388234.76	4566364.42
11/20/87	15:25:00	41 14 35.084N	124 20 01.191W	388245.53	4566387.10
11/20/87	15:25:30	41 14 35.529N	124 20 00.764W	388255.68	4566400.68
11/20/87	15:26:00	41 14 35.466N	124 20 00.842W	388253.82	4566398.74
11/20/87	15:26:30	41 14 35.282N	124 20 01.211W	388245.14	4566393.21
11/20/87	15:27:04	41 14 35.160N	124 20 01.329W	388242.35	4566389.50
11/20/87	15:27:32	41 14 35.022N	124 20 01.125W	388247.03	4566385.16
11/20/87	15:28:02	41 14 34.954N	124 20 00.873W	388252.86	4566382.98
11/20/87	15:28:34	41 14 35.164N	124 20 00.675W	388257.57	4566389.39
11/20/87	15:29:05	41 14 35.511N	124 20 00.448W	388263.01	4566400.00
11/20/87	15:29:33	41 14 35.595N	124 20 00.238W	388267.95	4566402.53
11/20/87	15:30:01	41 14 35.379N	124 20 00.135W	388270.25	4566395.81
11/20/87	15:30:32	41 14 35.251N	124 20 00.094W	388271.15	4566391.86
11/20/87	15:31:04	41 14 35.453N	124 20 00.050W	388272.25	4566398.07
11/20/87	15:31:33	41 14 35.802N	124 20 00.073W	388271.89	4566408.83
11/20/87	15:32:03	41 14 36.076N	124 20 00.176W	388269.62	4566417.33
11/20/87	15:32:32	41 14 36.338N	124 20 00.164W	388270.03	4566425.40
11/20/87	15:33:01	41 14 36.751N	124 19 59.891W	388276.56	4566438.03
11/20/87	15:33:32	41 14 37.223N	124 19 59.559W	388284.52	4566452.47
11/20/87	15:34:00	41 14 37.625N	124 19 59.351W	388289.56	4566464.80
11/20/87	15:34:32	41 14 37.935N	124 19 59.205W	388293.11	4566474.29
11/20/87	15:35:01	41 14 38.211N	124 19 59.058W	388296.65	4566482.76
11/20/87	15:35:38	41 14 38.442N	124 19 59.064W	388296.62	4566489.89
11/20/87	15:36:00	41 14 38.623N	124 19 59.287W	388291.52	4566495.57
11/20/87	15:36:30	41 14 38.914N	124 19 59.718W	388281.62	4566504.69
11/20/87	15:37:00	41 14 39.335N	124 19 59.982W	388275.67	4566517.76
11/20/87	15:37:30	41 14 39.727N	124 20 00.240W	388269.86	4566529.94
11/20/87	15:38:00	41 14 40.080N	124 20 00.741W	388258.36	4566540.99
11/20/87	15:38:31	41 14 40.484N	124 20 01.195W	388247.99	4566553.62
11/20/87	15:39:00	41 14 40.857N	124 20 01.620W	388238.27	4566565.29
11/20/87	15:39:30	41 14 41.012N	124 20 02.346W	388221.45	4566570.32
11/20/87	15:40:00	41 14 41.018N	124 20 03.161W	388202.48	4566570.80
11/20/87	15:40:30	41 14 41.198N	124 20 03.732W	388189.27	4566576.54
11/20/87	15:41:00	41 14 41.521N	124 20 04.122W	388180.35	4566586.66

MMS CARP Project
Hard Substrate Transect HB1

DATE	TIME	LATITUDE	LONGITUDE	UTM - X	UTM - Y
11/20/87	15:41:30	41 14 41.581N	124 20 04.534W	388170.78	4566588.66
11/20/87	15:42:00	41 14 41.315N	124 20 04.737W	388165.94	4566580.52
11/20/87	15:42:30	41 14 41.130N	124 20 04.594W	388169.17	4566574.75
11/20/87	15:43:00	41 14 41.014N	124 20 04.244W	388177.28	4566571.06

MMS CARP Project
Hard Substrate Transect HB2

DATE	TIME	LATITUDE	LONGITUDE	UTM- X	UTM- Y
11/17/87	13:18:48 40 58	36.406N	124 18 32.905W	389856.33	4536792.93
11/17/87	13:19:07 40 58	36.425N	124 18 32.864W	389857.31	4536793.49
11/17/87	13:19:30 40 58	36.629N	124 18 32.769W	389859.62	4536799.76
11/17/87	13:20:00 40 58	36.708N	124 18 32.757W	389859.94	4536802.17
11/17/87	13:20:30 40 58	36.815N	124 18 32.806W	389858.84	4536805.49
11/17/87	13:21:00 40 58	36.782N	124 18 33.000W	389854.29	4536804.54
11/17/87	13:21:30 40 58	36.794N	124 18 32.953W	389855,41	4536804.91
11/17/87	13:22:00 40 58	36.939N	124 18 32.862W	389857.59	4536809.33
11/17/87	13:22:30 40 58	37.097N	124 18 32.685W	389861.81	4536814.16
11/17/87	13:23:00 40 58	37.211N	124 18 32.412W	389868.23	4536817.57
11/17/87	13:23:30 40 58	37.384N	124 18 32.146W	389874.53	4536822.82
11/17/87	13:24:00 40 58	37.477N	124 18 32.175W	389873.89	4536825.69
11/17/87	13:24:30 40 58	37.601N	124 18 32.313W	389870.72	4536829.55
11/17/87	13:25:00 40 58	37.741N	124 18 32.346W	389870.02	4536833.89
11/17/87	13:25:30 40 58	37.856N	124 18 32.324W	389870.60	4536837.44
11/17/87	13:26:00 40 58	37.999N	124 18 32.126W	389875.29	4536841.76
11/17/87	13:26:30 40 58	38.197N	124 18 31.893W	389880.83	4536847.79
11/17/87	13:27:00 40 58	38.333N	124 18 31.556W	389888.75	4536851.87
11/17/87	13:27:30 40 58	38.461N	124 18 31.187W	389897.44	4536855.68
11/17/87	13:28:00 40 58	38.644N	124 18 30.878W	389904.76	4536861.24
11/17/87	13:28:30 40 58	39.030N	124 18 30.971w	389902.76	4536873.16
11/17/87	13:29:00 40 58	39.589N	124 18 31.051W	389901.14	4536890.43
11/17/87	13:29:30 40 58	40.059N	124 18 31.334W	389894.76	4536905.03
11/17/87	13:30:00 40 58	40.294N	124 18 31.525W	389890.38	4536912.35
11/17/87	13:30:30 40 58	40.424N	124 18 31.579W	389889,19	4536916.37
11/17/87	13:31:00 40 58	40.598N	124 18 31.558w	389889.75	4536921.71
11/17/87	13:31:30 40 58	40.781N	124 18 31.457W	389892.20	4536927.33
11/17/87	13:32:00 40 58	40.963N	124 18 31.348W	389894.84	4536932.89
11/17/87	13:32:30 40 58	41.216N	124 18 31.381W	389894.18	4536940.73
11/17/87	13:33:00 40 58	41.483N	124 18 31.736W	389886.01	4536949.06
11/17/87	13:33:30 40 58	41.712N	124 18 32.216W	389874.89	4536956.28
11/17/87	13:34:00 40 58	41.905N	124 18 32.600W	389866.01	4536962.40
11/17/87	13:34:33 40 58	41.988N	124 18 32.633W	389865.28	4536964.95
11/17/87	13:35:00 40 58	42.101N	124 18 32.617W	389865.72	4536968.45
11/17/87	13:35:30 40 58	42.186N	124 18 32.406W	389870.67	4536970.98
11/17/87	13:36:00 40 58	42.306N	124 18 32.212W	389875.26	4536974.60
11/17/87	13:36:30 40 58	42.479N	124 18 31.866W	389883.44	4536979.82
11/17/87	13:37:00 40 58	42.605N	124 18 31.525W	389891.45	4536983.58
11/17/87	13:37:30 40 58	42.528N	124 18 31.501W	389891.99	4536981.22
11/17/87	13:38:00 40 58	42.237N	124 18 31.517W	389891.47	4536972.26
11/17/87	13:38:31 40 58	41.959N	124 18 31.478W	389892.26	4536963.66
11/17/87	13:39:00 40 58	41.907N	124 18 31.311W	389896.14	4536962.01
11/17/87	13:39:30 40 58	42.221N	124 18 30.940W	389904.96	4536971.55
11/17/87	13:40:00 40 58	42.642N	124 18 30.601W	389913.06	4536984.40
11/17/87	13:40:30 40 58	43.083N	124 18 30.245W	389921.61	4536997.89
11/17/87	13:41:00 40 58	43.397N	124 18 29.807W	389931.97	4537007.41

MMS CARP Project
Hard Substrate Transect HB2

DATE	TIME	LATITUDE	LONGITUDE	UTM - X	UTM - Y
11/17/87	13:41:30	40 58 43.440N	124 18 29.395W	389941.63	4537008.60
11/17/87	13:42:00	40 58 43.172N	124 18 29.038W	389949.85	4537000.20
11/17/87	13:42:31	40 58 42.885N	124 18 28.838W	389954.39	4536991.29
11/17/87	13:43:02	40 58 42.784N	124 18 28.634W	389959.12	4536988.10
11/17/87	13:43:30	40 58 42.743N	124 18 28.287W	389967.19	4536986.71
11/17/87	13:44:01	40 58 43.091N	124 18 27.602W	389983.36	4536997.22
11/17/87	13:44:30	40 58 43.611N	124 18 27.068W	389996,08	4537013.06
11/17/87	13:45:00	40 58 44.092N	124 18 26.885W	390000.60	4537027.82
11/17/87	13:45:31	40 58 44.597N	124 18 27.062W	389996.68	4537043.46
11/17/87	13:46:00	40 58 45.235N	124 18 27.359W	389990.04	4537063.22
11/17/87	13:46:30	40 58 45.633N	124 18 27.786W	389980.24	4537075.65
11/17/87	13:47:00	40 58 46.175N	124 18 28.452W	389964.92	4537092.61
11/17/87	13:47:31	40 58 46.350N	124 18 29.135W	389949.05	4537098.25
11/17/87	13:48:00	40 58 46.705N	124 18 29.927W	389930.70	4537109.47
11/17/87	13:48:30	40 58 47.058N	124 18 30.527W	389916.84	4537120.56
11/17/87	13:49:04	40 58 47.128N	124 18 30.898W	389908.19	4537122.85
11/17/87	13:49:34	40 58 47.382N	124 18 31.187W	389901.56	4537130.77
11/17/87	13:50:02	40 58 47.357N	124 18 31.371W	389897.26	4537130.07
11/17/87	13:50:30	40 58 47.448N	124 18 31.525W	389893.69	4537132.93
11/17/87	13:51:00	40 58 47.518N	124 18 31.525W	389893.72	4537135.09
11/17/87	13:51:30	40 58 47.724N	124 18 31.457W	389895.40	4537141.43
11/17/87	13:52:02	40 58 47.658N	124 18 31.476W	389894.94	4537139.40
11/17/87	13:52:30	40 58 47.765N	124 18 31.810W	389887.18	4537142.82
11/17/87	13:53:00	40 58 47.873N	124 18 32.124W	389879.90	4537146.24
11/17/87	13:53:30	40 58 48.046N	124 18 32.324W	389875.31	4537151.65
11/17/87	13:54:54	40 58 48.217N	124 18 32.419W	389873.17	4537156.96
11/17/87	13:55:01	40 58 48.324N	124 18 32.351W	389874.81	4537160.25
11/17/87	13:55:30	40 58 48.520N	124 18 32.126W	389880.15	4537166.21
11/17/87	13:56:00	40 58 48.580N	124 18 31.954W	389884.18	4537168.00
11/17/87	13:56:30	40 58 48.613N	124 18 31.730W	389889,45	4537168.94
11/17/87	13:57:00	40 58 48.646N	124 18 31.447W	389896.07	4537169.85
11/17/87	13:57:30	40 58 49.019N	124 18 31.459W	389895.95	4537181.37
11/17/87	13:58:00	40 58 49.174N	124 18 31.657W	389891.40	4537186.21
11/17/87	13:58:30	40 58 49.607N	124 18 31.911W	389885.67	4537199.66
11/17/87	13:59:00	40 58 49.972N	124 18 32.004W	389883.67	4537210.95
11/17/87	13:59:30	40 58 50.371N	124 18 32.021W	389883.47	4537223.23
11/17/87	14:00:00	40 58 50.723N	124 18 31.921W	389885.94	4537234.07
11/17/87	14:00:30	40 58 51.105N	124 18 31.967W	389885.06	4537245.85
11/17/87	14:01:00	40 58 51.530N	124 18 32.276W	389878.03	4537259.06
11/17/87	14:01:30	40 58 51.880N	124 18 32.557W	389871.63	4537269.98
11/17/87	14:02:00	40 58 52.035N	124 18 32.691W	389868.57	4537274.79
11/17/87	14:02:30	40 58 52.153N	124 18 32.714W	389868.09	4537278.43
11/'17/'87	14:03:00	40 58 52.248N	124 18 32.507W	389872.96	4537281.28
11/17/87	14:03:30	40 58 52.314N	124 18 31.975W	389885.43	4537283.13
11/17/87	14:04:00	40 58 52.439N	124 18 31.468W	389897.34	4537286.83
11/17/87	14:04:30	40 58 52.656N	124 18 31.268W	389902.12	4537293.44

MMS CARP Project
Hard Substrate Transect HB2

DATE	TIME	LATITUDE	LONGITUDE	UTM-X	UTM- Y
11/17/87	14:05:00	40 58 53.114N	124 18 31.105W	389906.14	4537307.50
11/17/87	14:05:30	40 58 53.689N	124 18 30.946W	389910.11	4537325.19
11/17/87	14:06:00	40 58 54.554N	124 18 30.950W	389910.42	4537351.84
11/17/87	14:06:30	40 58 55.181N	124 18 31.241W	389903.91	4537371.28
11/17/87	14:07:00	40 58 55.680N	124 18 31.668W	389894.16	4537386.82
11/17/87	14:07:33	40 58 56.138N	124 18 32.054W	389885.36	4537401.08
11/17/87	14:08:00	40 58 56.352N	124 18 32.336W	389878.86	4537407.79
11/17/87	14:08:30	40 58 56.480N	124 18 32.577W	389873.28	4537411.82
11/17/87	14:09:00	40 58 56.721N	124 18 32.685W	389870.88	4537419.30
11/17/87	14:09:30	40 58 56.744N	124 18 32.714W	389870.22	4537420.01
11/17/87	14:10:00	40 58 56.841N	124 18 32.730W	389869.88	4537423.01
11/17/87	14:10:30	40 58 56.919N	124 18 32.672W	389871.26	4537425.40
11/17/87	14:11:02	40 58 57.066N	124 18 32.513W	389875.04	4537429.86
11/17/87	14:11:30	40 58 57.047N	124 18 32.225W	389881.78	4537429.19
11/17/87	14:12:00	40 58 57.194N	124 18 31.973W	389887.73	4537433.62
11/17/87	14:12:30	40 58 57.280N	124 18 31.674W	389894.76	4537436.18
11/17/87	14:13:01	40 58 57.392N	124 18 31.400W	389901.22	4537439.52
11/17/87	14:13:30	40 58 57.534N	124 18 31.187W	389906.25	4537443.84
11/17/87	14:14:00	40 58 57.767N	124 18 31.309W	389903.52	4537451.07
11/17/87	14:14:30	40 58 58.000N	124 18 31.748W	389893.36	4537458.41
11/17/87	14:15:00	40 58 58.355N	124 18 32.173W	389883.59	4537469.50
11/17/87	14:15:30	40 58 58.704N	124 18 32.363W	389879.32	4537480.31
11/17/87	14:16:00	40 58 59.038N	124 18 32.561W	389874.84	4537490.69
11/17/87	14:16:30	40 58 59.291N	124 18 32.654W	389872.79	4537498.54
11/17/87	14:17:00	40 58 59.576N	124 18 32.553W	389875.29	4537507.28
11/17/87	14:17:34	40 58 59.679N	124 18 32.571W	389874.90	4537510.47
11/17/87	14:18:00	40 58 59.865N	124 18 32.505W	389876.53	4537516.17
11/17/87	14:18:30	40 58 59.980N	124 18 32.394W	389879.18	4537519.69
11/17/87	14:19:00	40 59 00.112N	124 18 32.252W	389882.57	4537523.72
11/17/87	14:19:30	40 59 00.282N	124 18 32.120W	389885.73	4537528.88
11/17/87	14:20:00	40 59 00.246N	124 18 32.023W	389887.98	4537527.77
11/17/87	14:20:30	40 59 00.498N	124 18 32.060W	389887.23	4537535.54
11/17/87	14:21:00	40 59 00.812N	124 18 32.169W	389884.82	4537545.25
11/17/87	14:21:30	40 59 01.082N	124 18 32.313W	389881.57	4537553.63
11/17/87	14:22:04	40 59 01.393N	124 18 32.254W	389883.11	4537563.21
11/17/87	14:22:31	40 59 01.527N	124 18 32.285W	389882.45	4537567.36
11/17/87	14:23:00	40 59 01.684N	124 18 32.229W	389883.83	4537572.17
11/17/87	14:23:30	40 59 01.843N	124 18 32.144W	389885.88	4537577.04
11/17/87	14:24:00	40 59 02.057N	124 18 31.987W	389889.64	4537583.60
11/17/87	14:24:30	40 59 02.159N	124 18 31.779W	389894.55	4537586.65
11/17/87	14:25:00	40 59 02.255N	124 18 31.627W	389898.17	4537589,58
11/17/87	14:25:30	40 59 02.406N	124 18 31.453W	389902.28	4537594.16
11/17/87	14:26:00	40 59 02.588N	124 18 31.241W	389907.33	4537599.69
11/17/87	14:26:30	40 59 02.817N	124 18 31.365W	389904.55	4537606.79
11/17/87	14:27:00	40 59 03.116N	124 18 31.709W	389896.64	4537616,13
11/17/87	14:27:31	40 59 03.475N	124 18 32.056W	389888.70	4537627.32

MMS CARP Project
Hard Substrate Transect HB2

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/17/87	14:28:00	40 59 03.868N	124 18 32.245W	389884.45	4537639.54
11/17/87	14:28:30	40 59 04.182N	124 18 32.412W	389880.69	4537649.26
11/17/87	14:29:01	40 59 04.331N	124 18 32.487W	389879.02	4537653.87
11/17/87	14:29:30	40 59 04.590N	124 18 32.485W	389879.19	4537661.88
11/17/87	14:30:10	40 59 04.786N	124 18 32.472W	389879.57	4537667.92
11/17/87	14:30:31	40 59 04.885N	124 18 32.427W	389880,68	4537670.96
11/17/87	14:31:00	40 59 05.071N	124 18 32.249W	389884.91	4537676.62
11/17/87	14:31:30	40 59 05.081N	124 18 31.618W	389899.66	4537676.72
11/17/87	14:32:00	40 59 04.945N	124 18 30.861W	389917.29	4537672.26
11/17/87	14:32:30	40 59 04.943N	124 18 30.331W	389929.68	4537672.01
11/17/87	14:33:00	40 59 05.191N	124 18 30.152W	389933.99	4537679.58
11/17/'87	14:33:30	40 59 05.721N	124 18 30.162W	389933.99	4537695.93
11/17/87	14:34:01	40 59 06.517N	124 18 30.193W	389933.63	4537720.49
11/17/87	14:34:30	40 59 07.453N	124 18 29.912W	389940.62	4537749.27
11/17/87	14:35:00	40 59 08.396N	124 18 29.704W	389945.93	4537778.26
11/17/87	14:35:30	40 59 09.029N	124 18 29.816W	389943.62	4537797.83
11/17/87	14:36:00	40 59 09.316N	124 18 30.030W	389938.73	4537806.74
11/17/87	14:36:30	40 59 09.599N	124 18 30.220W	389934.43	4537815.52
11/17/87	14:39:44	40 59 09.908N	124 18 31.123W	389913.46	4537825.38
11/17/87	14:40:01	40 59 10.079N	124 18 30.820W	389920.63	4537830.55
11/17/87	14:40:30	40 59 10.234N	124 18 30.587W	389926.14	4537835.24
11/17/87	14:41:00	40 59 10.599N	124 18 30.393W	389930.84	4537846.43
11/17/87	14:41:30	40 59 11.154N	124 18 30.546W	389927.53	4537863.60
11/17/87	14:42:00	40 59 11.500N	124 18 30.768W	389922.49	4537874.36
11/17/87	14:42:30	40 59 11.674N	124 18 30.841W	389920.88	4537879.73
11/17/87	14:43:00	40 59 11.806N	124 18 30.870W	389920.27	4537883.81
11/17/87	14:43:30	40 59 11.921N	124 18 30.870W	389920.32	4537887.37
11/17/87	14:44:00	40 59 12.074N	124 18 31.096W	389915,09	4537892.16
11/17/87	14:44:30	40 59 12.179N	124 18 31.179W	389913.21	4537895,43
11/17/87	14:45:00	40 59 12.290N	124 18 31.253W	389911.53	4537898.89
11/17/87	14:45:30	40 59 12.488N	124 18 31.377W	389908.73	4537905.04
11/17/87	14:46:00	40 59 12.573N	124 18 31.596W	389903.66	4537907.72
11/17/87	14:46:30	40 59 12.682N	124 18 31.701W	389901.25	4537911.13
11/17/87	14:47:01	40 59 12.765N	124 18 31.798W	389899.02	4537913.71
11/17/87	14:47:30	40 59 12.992N	124 18 31.816W	389898.69	4537920.71
11/17/87	14:48:00	40 59 13.204N	124 18 31.777W	389899.71	4537927.25
11/17/87	14:48:30	40 59 13.363N	124 18 31.690W	389901.80	4537932.12
11/17/87	14:49:00	40 59 13.551N	124 18 31.536W	389905.51	4537937.85
11/17/87	14:49:33	40 59 13.767N	124 18 31.373W	389909.41	4537944.47
11/17/87	14:50:00	40 59 13.889N	124 18 31.268W	389911.93	4537948.19
11/17/87	14:50:30	40 59 14.046N	124 18 31.037W	389917.40	4537952.94
11/17/87	14:51:00	40 59 14.184N	124 18 30.843W	389921.99	4537957.14
11/17/87	14:51:30	40 59 14.305N	124 18 30.667W	389926.15	4537960.83
11/17/87	14:52:00	40 59 14.607N	124 18 30.634W	389927.06	4537970,10
11/17/87	14:52:34	40 59 15.058N	124 18 30.768W	389924.13	4537984.08
11/17/87	14:53:00	40 59 15.430N	124 18 30.859W	389922.18	4537995.56

MMS CARP Project
Hard Substrate Transect HB2

DATE	TIME	LATITUDE	LONGITUDE	UTM - X	UTM -Y
11/17/87	14:53:30 40 59	15.834N	124 18 30.977W	389919.62	4538008.07
11/17/87	14:54:00 40 59	16.288N	124 18 31.096W	389917.04	4538022.10
11/17/87	14:54:30 40 59	16.706N	124 18 31.158W	389915.78	4538035,03
11/17/87	14:55:00 40 59	17.012N	124 18 31.251W	389913.76	4538044.48
11/17/87	14:55:30 40 59	17.290N	124 18 31.245W	389914.03	4538053.07
11/17/87	14:56:02 40 59	17.490N	124 18 31.268W	389913.59	4538059,24
11/17/87	14:56:30 40 59	17.678N	124 18 31.162W	389916.14	4538064.99
11/17/87	14:57:00 40 59	17.740N	124 18 31.129W	389916.94	4538066.89
11/17/87	14:57:30 40 59	18.026N	124 18 30.878W	389922.95	4538075.64
11/17/87	14:58:00 40 59	18.161N	124 18 30.748W	389926.05	4538079.73
11/17/87	14:58:30 40 59	18.379N	124 18 30.533W	389931.16	4538086.40
11/17/87	14:59:00 40 59	18.641N	124 18 30.480W	389932.54	4538094.46
11/17/87	14:59:30 40 59	18.938N	124 18 30.531W	389931,47	4538103.64
11/17/87	15:00:00 40 59	19.411N	124 18 30.591W	389930.29	4538118.22
11/17/87	15:00:34 40 59	19.937N	124 18 30.599W	389930.34	4538134.44
11/17/87	15:01:04 40 59	20.413N	124 18 30.628W	389929.88	4538149.15
11/17/87	15:01:30 40 59	20.817N	124 18 30.727W	389927.76	4538161.65
11/17/87	15:02:00 40 59	21.189N	124 18 30.857W	389924.89	4538173.14
11/17/87	15:02:30 40 59	21.450N	124 18 30.882W	389924.43	4538181.23
11/17/87	15:03:00 40 59	21.665N	124 18 30.905W	389924.00	4538187.85
11/17/87	15:03:30 40 59	21.886N	124 18 30.870W	389924.92	4538194.65
11/17/87	15:04:00 40 59	21.987N	124 18 30.744W	389927.91	4538197.72
11/17/87	15:04:30 40 59	22.212N	124 18 30.680W	389929.51	4538204.63
11/17/87	15:05:00 40 59	22.426N	124 18 30.527W	389933.18	4538211.19
11/17/87	15:05:30 40 59	22.678N	124 18 30.513W	389933.63	4538218.95
11/17/87	15:06:00 40 59	22.839N	124 18 30.952W	389923.44	4538224.06
11/17/87	15:06:30 40 59	22.971N	124 18 31.381W	389913.47	4538228.28
11/17/87	15:07:00 40 59	23.053N	124 18 31.620W	389907.92	4538230.91
11/17/87	15:07:30 40 59	23.101N	124 18 31.843W	389902.74	4538232.45
11/17/87	15:08:07 40 59	23.037N	124 18 31.833W	389902.95	4538230.47
11/17/87	15:08:31 40 59	23.235N	124 18 31.913W	389901.16	4538236.61
11/17/87	15:09:00 40 59	23.412N	124 18 31.926W	389900.95	4538242.08
11/17/87	15:09:30 40 59	23.437N	124 18 31.847W	389902.80	4538242.82
11/17/87	15:10:00 40 59	23.579N	124 18 31.750W	389905.13	4538247.17
11/17/87	15:10:30 40 59	23.759N	124 18 31.639W	389907.81	4538252.67
11/17/87	15:11:00 40 59	23.981N	124 18 31.583W	389909.22	4538259.52
11/17/87	15:11:30 40 59	24.295N	124 18 31.515W	389910.95	4538269.16
11/17/87	15:12:00 40 59	24.493N	124 18 31.447W	389912.63	4538275,24
11/17/87	15:12:30 40 59	24.763N	124 18 31.371W	389914.54	4538283,55
11/17/87	15:13:00 40 59	24.936N	124 18 31.334W	389915.49	4538288.88
11/17/87	15:13:30 40 59	25.157N	124 18 31.305W	389916.27	4538295.68
11/17/87	15:14:00 40 59	25.349N	124 18 31.282W	389916.89	4538301.58
11/17/87	15:14:30 40 59	25.576N	124 18 31.319W	389916.12	4538308.59
11/17/87	15:15:00 40 59	25.823N	124 18 31.342W	389915.71	4538316.23
11/17/87	15:15:30 40 59	25.933N	124 18 31.379W	389914.89	4538319,62
11/17/87	15:16:01 40 59	26.091N	124 18 31.367W	389915.25	4538324.51

MMS CARP Project
Hard Substrate Transect HB2

DATE	TIME	LATITUDE	LONGITUDE	UTM - X	UTM -Y
11/17/87	15:16:30	40 59 26.259N	124 18 31.381W	389914.99	4538329.67
11/17/87	15:17:00	40 59 26.496N	124 18 31.233W	389918.57	4538336.93
11/17/87	15:17:30	40 59 26.704N	124 18 31.059W	389922.72	4538343.29
11/17/87	15:18:01	40 59 26.830N	124 18 30.931W	389925.76	4538347.13
11/17/87	15:18:30	40 59 27.018N	124 18 30.810W	389928.69	4538352.87
11/17/87	15:19:00	40 59 27.207N	124 18 30.622W	389933.17	4538358.66
11/17/87	15:19:30	40 59 27.455N	124 18 30.364W	389939.31	4538366.20
11/17/87	15:20:00	40 59 27.663N	124 18 30.133W	389944.80	4538372.55
11/17/87	15:20:30	40 59 27.808N	124 18 29.958W	389948.96	4538376.94
11/17/87	15:21:00	40 59 28.220N	124 18 30.090W	389946.07	4538389.70
11/17/87	15:21:30	40 59 28.705N	124 18 30.486W	389937.04	4538404.79
11/17/87	15:22:00	40 59 29.047N	124 18 30.721W	389931.70	4538415.43
11/17/87	15:22:30	40 59 29.338N	124 18 31.041W	389924.37	4538424.51
11/17/87	15:23:02	40 59 29.621N	124 18 31.336W	389917.61	4538433.33
11/17/87	15:23:30	40 59 29.746N	124 18 31.674W	389909.76	4538437.33

MMS CARP Project
Hard Substrate Transect HB3

DATE	TIME	LATITUDE	LONGITUDE	UTM - X	UTM -Y
11/21/87	13:34:00	40 55 44.361N	124 24 55.062W	380838,91	4531626.88
11/21/87	13:34:30	40 55 44.386N	124 24 55.095W	380838.15	4531627.66
11/21/87	13:35:00	40 55 44.386N	124 24 55.095W	380838.15	4531627.66
11/21/87	13:35:30	40 55 44.532N	124 24 54.856W	380843.82	4531632.08
11/21/87	13:36:00	40 55 44.633N	124 24 54.821W	380844.69	4531635.19
11/21/87	13:36:30	40 55 44.633N	124 24 54.821W	380844.69	4531635.19
11/21/87	13:37:00	40 55 44.633N	124 24 54.821W	380844.69	4531635.19
11/21/87	13:37:30	40 55 44.674N	124 24 54.994W	380840.66	4531636.53
11/21/87	13:38:00	40 55 44.349N	124 24 54.914W	380842.38	4531626.45
11/21/87	13:38:30	40 55 44.309N	124 24 54.796W	380845.11	4531625.19
11/21/87	13:39:00	40 55 44.309N	124 24 54.796W	380845.11	4531625.19
11/21/87	13:39:30	40 55 44.311N	124 24 54.796W	380845.11	4531625.26
11/21/87	13:40:00	40 55 44.316N	124 24 54.792W	380845.21	4531625.38
11/21/87	13:40:30	40 55 44.332N	124 24 54.765W	380845.85	4531625.88
11/21/87	13:41:00	40 55 44.326N	124 24 54.695W	380847.48	4531625.66
11/21/87	13:41:30	40 55 44.233N	124 24 54.582W	380850.09	4531622.76
11/21/87	13:42:00	40 55 44.039N	124 24 54.464W	380852.74	4531616.73
11/21/87	13:42:30	40 55 43.841N	124 24 54.407W	380854.00	4531610.61
11/21/87	13:43:00	40 55 43.711N	124 24 54.444W	380853.06	4531606.61
11/21/87	13:43:30	40 55 43.740N	124 24 54.524W	380851.19	4531607.53
11/21/87	13:44:00	40 55 43.853N	124 24 54.545W	380850.77	4531611.04
11/21/87	13:44:30	40 55 44.027N	124 24 54.425W	380853.65	4531616.34
11/21/87	13:45:01	40 55 44.190N	124 24 54.293W	380856.82	4531621.31
11/21/87	13:45:30	40 55 44.307N	124 24 54.318W	380856.30	4531624.95
11/21/87	13:46:00	40 55 44.346N	124 24 54.514W	380851.74	4531626.23
11/21/87	13:46:30	40 55 44.382N	124 24 54.831W	380844.33	4531627.43
11/21/87	13:47:01	40 55 44.522N	124 24 55.277W	380833.98	4531631.93
11/21/87	13:47:30	40 55 44.639N	124 24 55.692W	380824.34	4531635.71
11/21/87	13:48:00	40 55 44.646N	124 24 55.815W	380821.45	4531635.95
11/21/87	13:48:31	40 55 44.716N	124 24 55.789W	380822.11	4531638.10
11/21/87	13:49:00	40 55 44.903N	124 24 55.931W	380818.87	4531643.94
11/21/87	13:49:31	40 55 44.978N	124 24 56.147W	380813.85	4531646.31
11/21/87	13:50:00	40 55 44.827N	124 24 56.154W	380813.63	4531641.67
11/21/87	13:50:30	40 55 44.697N	124 24 56.067W	380815.59	4531637.63
11/21/87	13:51:00	40 55 44.778N	124 24 56.207W	380812.35	4531640.16
11/21/87	13:51:31	40 55 44.850N	124 24 56.486W	380805.87	4531642.50
11/21/87	13:52:02	40 55 44.726N	124 24 56.576W	380803.69	4531638.71
11/21/87	13:52:31	40 55 44.613N	124 24 56.513W	380805.13	4531635.19
11/21/87	13:53:01	40 55 44.652N	124 24 56.484W	380805.82	4531636.39
11/21/87	13:53:30	40 55 44.753N	124 24 56.572W	380803.80	4531639.54
11/21/87	13:54:00	40 55 44.889N	124 24 56.764W	380799.38	4531643.81
11/21/87	13:54:30	40 55 45.149N	124 24 57.024W	380793.43	4531651.92
11/21/87	13:55:00	40 55 45.433N	124 24 57.300W	380787.11	4531660.81
11/21/87	13:55:30	40 55 45.479N	124 24 57.393W	380784.96	4531662.24
11/21/87	13:56:00	40 55 45.423N	124 24 57.333W	380786,33	4531660.50
11/21/87	13:56:30	40 55 45.506N	124 24 57.199W	380789.51	4531662.99

MMS CARP Project
Hard Substrate Transect HB3

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/21/87	13:57:05	40 55 45.681N	124 24 57.098W	380791.96	4531668.36
11/21/87	13:57:33	40 55 45.803N	124 24 57.296W	380787.39	4531672.19
11/21/87	13:58:00	40 55 45.863N	124 24 57.853W	380774.39	4531674.24
11/21/87	13:58:30	40 55 45.819N	124 24 58.264W	380764.77	4531673.06
11/21/87	13:59:01	40 55 45.636N	124 24 58.099W	380768.54	4531667.34
11/21/87	13:59:31	40 55 45.425N	124 24 57.781W	380775.86	4531660.73
11/21/87	14:00:00	40 55 45.392N	124 24 57.826W	380774.78	4531659.73
11/21/87	14:00:30	40 55 45.475N	124 24 58.111W	380768.17	4531662.38
11/21/87	14:01:00	40 55 45.341N	124 24 58.099W	380768.39	4531658.25
11/21/87	14:01:30	40 55 45.099N	124 24 57.921W	380772.42	4531650.74
11/21/87	14:02:00	40 55 45.023N	124 24 57.874W	380773.49	4531648.36
11/21/87	14:02:30	40 55 45.128N	124 24 57.998W	380770.65	4531651.66
11/21/87	14:03:00	40 55 45.145N	124 24 58.175W	380766,51	4531652.23
11/21/87	14:03:30	40 55 45.114N	124 24 58.462W	380759.79	4531651.39
11/21/87	14:04:00	40 55 45.155N	124 24 58.911W	380749.29	4531652.83
11/21/87	14:04:34	40 55 45.147N	124 24 59.140W	380743.93	4531652.66
11/21/87	14:05:00	40 55 45.009N	124 24 59.144W	380743,77	4531648.40
11/21/87	14:05:35	40 55 44.976N	124 24 59.328W	380739.46	4531647.45
11/21/87	14:06:03	40 55 45.229N	124 24 59.893W	380726.37	4531655.49
11/21/87	14:06:35	40 55 45.541N	124 25 00.526W	380711.71	4531665.33
11/21/87	14:07:01	40 55 45.561N	124 25 00.778W	380705.84	4531666.07
11/21/87	14:07:30	40 55 45.223N	124 25 00.646W	380708.75	4531655.58
11/21/87	14:08:00	40 55 44.621N	124 25 00.498W	380711.93	4531636.96
11/21/87	14:08:30	40 55 44.058N	124 25 00.483W	380711.98	4531619.59
11/21/87	14109:00	40 55 43.781N	124 25 00.388W	380714.06	4531611.03
11/21/87	14:09:30	40 55 43.975N	124 25 00.124W	380720.34	4531616.91
11/21/87	14:10:00	40 55 44.330N	124 24 59.967W	380724.18	4531627,79
11/21/87	14:10:30	40 55 44.495N	124 24 59.994W	380723.63	4531632.89
11/21/87	14:11:00	40 55 44.297N	124 25 00.116W	380720.69	4531626.83
11/21/87	14:11:30	40 55 43.996N	124 25 00.159W	380719.53	4531617.56
11/21/87	14:12:00	40 55 43.728N	124 25 00.174W	380719.05	4531609.29
11/21/87	14:12:33	40 55 43.513N	124 25 00.221W	380717.84	4531602.70
11/21/87	14:13:00	40 55 43.282N	124 25 00.320W	380715.41	4531595.61
11/21/87	14:13:30	40 55 43.047N	124 25 00.485W	380711.43	4531588.42
11/21/87	14:14:00	40 55 42.835N	124 25 00.632W	380707.90	4531581.92
11/21/87	14:14:30	40 55 42.940N	124 25 00.685W	380706.70	4531585.19
11/21/87	14:15:00	40 55 43.752N	124 25 00.797W	380704.50	4531610.29
11/21/87	14:15:30	40 55 44.854N	124 25 01.230W	380694.92	4531644.42
11/21/87	14:16:00	40 55 45.174N	124 25 01.832W	380680.99	4531654.51
11/21/87	14:16:30	40 55 44.819N	124 25 02.201W	380672.18	4531643.71
11/21/87	14:17:00	40 55 44.732N	124 25 02.337W	380668.95	4531641.09
11/21/87	14:17:30	40 55 44.833N	124 25 02.416W	380667.17	4531644.23
11/21/87	14:18:00	40 55 44.728N	124 25 02.451W	380666.30	4531641.00
11/21/87	14:18:30	40 55 44.590N	124 25 02.449W	380666.27	4531636.74
11/21/87	14:19:00	40 55 44.604N	124 25 02.618W	380662.33	4531637.25
11/21/87	14:19:30	40 55 44.536N	124 25 02.989W	380653.61	4531635.29

MMS CARP Project
Hard Substrate Transect HB3

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM-Y
11/21/87	14:20:01	40 55 44.398N	124 25 03.041W	380652.33	4531631.05
11/21/87	14:20:30	40 55 44.369N	124 25 02.744W	380659.27	4531630.05
11/21/87	14:21:00	40 55 44.402N	124 25 02.575W	380663.24	4531631.00
11/21/87	14:21:31	40 55 44.398N	124 25 02.729W	380659.62	4531630.93
11/21/87	14:22:00	40 55 44.386N	124 25 02.808W	380657.78	4531630.58
11/21/87	14:22:30	40 55 44.427N	124 25 02.715W	380659.97	4531631.82
11/21/87	14:23:00	40 55 44.553N	124 25 02.746W	380659.31	4531635.71
11/21/87	14:23:30	40 55 44.672N	124 25 03.094W	380651.22	4531639.53
11/21/87	14:24:01	40 55 44.689N	124 25 03.556W	380640.42	4531640.21
11/21/87	14:24:30	40 55 44.736N	124 25 03.781W	380635.18	4531641.76
11/21/87	14:25:01	40 55 44.978N	124 25 03.697W	380637.28	4531649.17
11/21/87	14:25:30	40 55 45.159N	124 25 03.647W	380638.53	4531654.75
11/21/87	14:26:00	40 55 45.052N	124 25 03.790W	380635.15	4531651.50
11/21/87	14:26:30	40 55 44.881N	124 25 03.847W	380633.71	4531646.24
11/21/87	14:27:02	40 55 44.895N	124 25 03.717W	380636.76	4531646.64
11/21/87	14:27:30	40 55 44.951N	124 25 03.622W	380639.01	4531648.32
11/21/87	14:28:00	40 55 44.897N	124 25 03.678W	380637.68	4531646.68
11/21/87	14:28:30	40 55 44.796N	124 25 03.779W	380635.26	4531643.61
11/21/87	14:29:00	40 55 44.662N	124 25 03.938W	380631.48	4531639.53
11/21/87	14:29:30	40 55 44.534N	124 25 04.140W	380626.69	4531635.66
11/21/87	14:30:00	40 55 44.458N	124 25 04.316W	380622.55	4531633.38
11/21/87	14:30:30	40 55 44.464N	124 25 04.334W	380622.12	4531633.58
11/21/87	14:31:01	40 55 44.483N	124 25 04.270W	380623.62	4531634.12
11/21/87	14:31:30	40 55 44.483N	124 25 04.252W	380624.06	4531634.12
11/21/87	14:32:01	40 55 44.466N	124 25 04.316W	380622.55	4531633.63
11/21/87	14:32:30	40 55 44.437N	124 25 04.483W	380618.63	4531632.81
11/21/87	14:33:00	40 55 44.361N	124 25 04.947W	380607.74	4531630.63
11/21/87	14:33:30	40 55 44.287N	124 25 05.537W	380593.90	4531628.56
11/21/87	14:34:00	40 55 44.299N	124 25 06.081W	380581.18	4531629.15
11/21/87	14:34:30	40 55 44.544N	124 25 06.178W	380579.03	4531636.76
11/21/87	14:35:00	40 55 44.887N	124 25 05.902W	380585.67	4531647.21
11/21/87	14:35:30	40 55 45.106N	124 25 05.679W	380590.99	4531653.87
11/21/87	14:36:00	40 55 45.151N	124 25 05.619W	380592.41	4531655.24
11/21/87	14:36:30	40 55 45.035N	124 25 05.689W	380590.71	4531651.71
11/21/87	14:37:00	40 55 44.866N	124 25 05.737W	380589.52	4531646.51
11/21/87	14:37:30	40 55 44.775N	124 25 05.700W	380590.34	4531643.70
11/21/87	14:38:00	40 55 44.790N	124 25 05.761W	380588.90	4531644.17
11/21/87	14:38:30	40 55 44.877N	124 25 06.048W	380582.24	4531646.95
11/21/87	14:39:00	40 55 44.951N	124 25 06.287W	380576.68	4531649.33
11/21/87	14:39:30	40 55 44.961N	124 25 06.261W	380577.31	4531649.64
11/21/87	14:40:00	40 55 44.918N	124 25 06.108W	380580.86	4531648.24
11/21/87	14:40:30	40 55 44.901N	124 25 06.116W	380580.66	4531647.74
11/21/87	14:41:00	40 55 44.974N	124 25 06.316W	380576.01	4531650.04
11/21/87	14:41:30	40 55 45.077N	124 25 06.485W	380572.11	4531653.28
11/21/87	14:42:00	40 55 45.112N	124 25 06.599W	380569.47	4531654.41
11/21/87	14:42:30	40 55 45.085N	124 25 06.731W	380566.37	4531653.63

MNS -CARP Project
Hard Substrate Transect HB3

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM- Y
11/21/87	14:43:00	40 55 45.031N	124 25 06.846W	380563.64	4531652.02
11/21/87	14:43:30	40 55 44.984N	124 25 06.853W	380563.48	4531650.56
11/21/87	14:44:00	40 55 44.965N	124 25 06.902W	380562.31	4531650.01
11/21/87	14:44:30	40 55 45.009N	124 25 07.121W	380557.22	4531651.42
11/21/87	14:45:00	40 55 45.101N	124 25 07.412W	380550.46	4531654.40
11/21/87	14:45:30	40 55 45.143N	124 25 07.453W	380549.52	4531655.68
11/21/87	14:46:00	40 55 45.068N	124 25 07.335W	380552.23	4531653.35
11/21/87	14:46:30	40 55 44.982N	124 25 07.447W	380549.58	4531650.72
11/21/87	14:47:00	40 55 45.021N	124 25 07.816W	380540.97	4531652.07
11/21/87	14:47:30	40 55 45.165N	124 25 08.154W	380533.13	4531656.65
11/21/87	14:48:00	40 55 45.176N	124 25 08.162W	380532.94	4531656.97
11/21/87	14:48:30	40 55 44.951N	124 25 08.094W	380534.42	4531650.01
11/21/87	14:49:00	40 55 44.679N	124 25 08.340W	380528.54	4531641.71
11/21/87	14:49:41	40 55 44.598N	124 25 08.565W	380523.24	4531639.31
11/21/87	14:50:00	40 55 44.567N	124 25 08.804W	380517.63	4531638.45
11/21/87	14:50:31	40 55 44.829N	124 25 09.573W	380499.77	4531646.82
11/21/87	14:51:00	40 55 45.372N	124 25 09.763W	380495.60	4531663.62
11/21/87	14:51:30	40 55 45.205N	124 25 09.916W	380491.95	4531658.53
11/21/87	14:52:00	40 55 44.320N	124 25 10.755W	380471.87	4531631.56
11/21/87	14:52:30	40 55 44.280N	124 25 11.405W	380456.65	4531630.60
11/21/87	14:53:00	40 55 45.149N	124 25 11.390W	380457.43	4531657.37
11/21/87	14:53:30	40 55 45.551N	124 25 11.378W	380457.92	4531669.77
11/21/87	14:54:00	40 55 45.209N	124 25 11.844W	380446.84	4531659.39
11/21/87	14:54:30	40 55 45.116N	124 25 12.352W	380434.93	4531656.72
11/21/87	14:55:00	40 55 45.413N	124 25 12.527W	380430.98	4531665.94
11/21/87	14:55:30	40 55 45.378N	124 25 12.614W	380428.93	4531664.89
11/21/87	14:56:00	40 55 45.081N	124 25 12.911W	380421.84	4531655.85
11/21/87	14:56:30	40 55 45.139N	124 25 13.298W	380412.80	4531657.78
11/21/87	14:57:00	40 55 45.231N	124 25 13.480W	380408.60	4531660.71
11/21/87	14:57:30	40 55 44.728N	124 25 13.329W	380411.87	4531645.13
11/21/87	14:58:01	40 55 44.023N	124 25 13.104W	380416.77	4531623.29
11/21/87	14:58:30	40 55 43.767N	124 25 13.313W	380411.77	4531615.48
11/21/87	14:59:00	40 55 43.701N	124 25 13.919W	380397.56	4531613.68
11/21/87	14:59:31	40 55 43.701N	124 25 14.097W	380393.41	4531613.75
11/21/87	15:00:00	40 55 44.136N	124 25 13.678W	380403.42	4531627.01
11/21/87	15:00:31	40 55 44.676N	124 25 13.133W	380416.43	4531643.47
11/21/87	15:01:01	40 55 44.804N	124 25 12.632W	380428.21	4531647.22
11/21/87	15:01:31	40 55 44.586N	124 25 12.521W	380430.71	4531640.43
11/21/87	15:02:00	40 55 44.408N	124 25 12.913W	380421.45	4531635.11
11/21/87	15:02:30	40 55 44.283N	124 25 13.010W	380419.12	4531631.27
11/21/87	15:03:01	40 55 44.064N	124 25 12.690W	380426.49	4531624.41
11/21/87	15:03:31	40 55 44.029N	124 25 12.878W	380422.08	4531623.40
11/21/87	15:04:01	40 55 44.260N	124 25 13.538W	380406.76	4531630.77
11/21/87	15:04:30	40 55 44.392N	124 25 13.534W	380406.92	4531634.84
11/21/87	15:05:00	40 55 44.270N	124 25 12.935W	380420.85	4531630.86
11/21/87	15:05:30	40 55 44.217N	124 25 13.049W	380418.17	4531629.25

MMS CARP Project
Hard Substrate Transect HB3

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM- Y
11/21/87	15:06:00	40 55 44.192N	124 25 13.649W	380404.12	4531628.71
11/21/87	15:06:31	40 55 43.820N	124 25 13.435W	380408.95	4531617.18
11/21/87	15:07:00	40 55 43.488N	124 25 12.735W	380425.14	4531606.68
11/21/87	15:07:33	40 55 43.682N	124 25 12.430W	380432.38	4531612.54
11/21/87	15:08:00	40 55 44.066N	124 25 12.391W	380433.49	4531624.36
11/21/87	15:08:30	40 55 44.142N	124 25 12.131W	380439.60	4531626.61
11/21/87	15:09:01	40 55 43.957N	124 25 11.828W	380446.60	4531620.77
11/21/87	15:09:31	40 55 43.839N	124 25 11.877W	380445.39	4531617.17
11/21/87	15:10:00	40 55 43.688N	124 25 12.044W	380441.40	4531612.59
11/21/87	15:10:30	40 55 43.517N	124 25 12.040W	380441.41	4531607.31
11/21/87	15:11:00	40 55 43.583N	124 25 12.055W	380441.11	4531609.35
11/21/87	15:11:31	40 55 43.748N	124 25 12.166W	380438.59	4531614.48
11/21/87	15:12:00	40 55 43.550N	124 25 12.077W	380440.56	4531608.34
11/21/87	15:12:30	40 55 43.204N	124 25 11.817W	380446.47	4531597.55
11/21/87	15:13:00	40 55 43.206N	124 25 11.813W	380446.56	4531597.61
11/21/87	15:13:30	40 55 43.400N	124 25 12.028W	380441.64	4531603.68
11/21/87	15:14:00	40 55 43.548N	124 25 12.230W	380436.99	4531608.33
11/21/87	15:14:30	40 55 43.548N	124 25 12.131W	380439.31	4531608.29
11/21/87	15:15:01	40 55 43.641N	124 25 11.910W	380444.51	4531611.07
11/21/87	15:15:30	40 55 43.872N	124 25 11.912W	380444,58	4531618.20
11/21/87	15:16:00	40 55 43.911N	124 25 12.380W	380433.65	4531619.58
11/21/87	15:16:30	40 55 43.589N	124 25 13.173W	380414.96	4531609.96
11/21/87	15:17:04	40 55 43.280N	124 25 13.958W	380396.43	4531600.72
11/21/87	15:17:30	40 55 43.226N	124 25 14.357W	380387.09	4531599.22
11/21/87	15:18:00	40 55 43.400N	124 25 14.472W	380384.48	4531604.60
11/21/87	15:18:35	40 55 43.728N	124 25 14.519W	380383.53	4531614.73
11/21/87	15:19:05	40 55 44.142N	124 25 14.876W	380375.39	4531627.65
11/21/87	15:19:30	40 55 44.542N	124 25 15.378W	380363.87	4531640.18
11/21/87	15:20:00	40 55 44.639N	124 25 15.658W	380357.36	4531643.28
11/21/87	15:20:30	40 55 44.157N	124 25 15.664W	380356,97	4531628.40
11/21/87	15:21:04	40 55 43.455N	124 25 15.815W	380353.10	4531606.83
11/21/87	15:21:31	40 55 43.365N	124 25 16.295W	380341.81	4531604.21
11/21/87	15:22:00	40 55 43.897N	124 25 16.852W	380329.06	4531620.84
11/21/87	15:22:30	40 55 44.237N	124 25 17.205W	380320.98	4531631.47
11/21/87	15:23:00	40 55 43.845N	124 25 17.512W	380313.59	4531619.50
11/21/87	15:23:33	40 55 43.204N	124 25 17.706W	380308.74	4531599.79
11/21/87	15:24:05	40 55 43.282N	124 25 17.853W	380305.35	4531602.26
11/21/87	15:24:34	40 55 44.002N	124 25 18.150W	380298.76	4531624.57
11/21/87	15:25:03	40 55 44.458N	124 25 18.626W	380287.85	4531638.81
11/21/87	15:25:33	40 55 44.206N	124 25 18.919W	380280.87	4531631.16
11/21/87	15:26:03	40 55 43.849N	124 25 18.756W	380284.50	4531620.10
11/21/87	15:26:33	40 55 44.033N	124 25 18.500W	380290.58	4531625.66
11/21/87	15:27:01	40 55 44.355N	124 25 18.521W	380290.26	4531635.59
11/21/87	15:27:30	40 55 44.969N	124 25 19.084W	380277.40	4531654.76
11/21/87	15:28:00	40 55 45.060N	124 25 19.845W	380259.64	4531657.85
11/21/87	15:28:30	40 55 44.959N	124 25 20.355W	380247.67	4531654.92

MMS CARP Project
Hard Substrate Transect HB3

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/21/87	15:29:00	40 55 45.149N	124 25 20.755W	380238.41	4531660.93
11/21/87	15:29:30	40 55 45.460N	124 25 21.202W	380228.10	4531670.70
11/21/87	15:30:00	40 55 45.378N	124 25 21.990W	380209.63	4531668.46
11/21/87	15:30:30	40 55 44.835N	124 25 22.933W	380187.31	4531652.09
11/21/87	15:31:01	40 55 44.526N	124 25 23.257W	380179.58	4531642.67
11/21/87	15:31:30	40 55 44.976N	124 25 22.974W	380186.41	4531656.43
11/21/87	15:32:00	40 55 45.714N	124 25 22.873W	380189.15	4531679.16
11/21/87	15:32:30	40 55 45.570N	124 25 23.570W	380172.77	4531674.98
11/21/87	15:33:00	40 55 44.782N	124 25 24.321W	380154.82	4531650.96
11/21/87	15:33:30	40 55 44.551N	124 25 24.519W	380150.07	4531643.92
11/21/87	15:34:00	40 55 44.516N	124 25 24.798W	380143,54	4531642.94
11/21/87	15:34:31	40 55 43.519N	124 25 25.732W	380121.18	4531612.57
11/21/87	15:35:01	40 55 42.496N	124 25 26.755W	380096.74	4531581.42
11/21/87	15:35:32	40 55 43.251N	124 25 27.046W	380090.32	4531604.81
11/21/87	15:36:00	40 55 44.738N	124 25 26.831W	380096.08	4531650.58
11/21/87	15:36:31	40 55 44.918N	124 25 26.784W	380097.28	4531656.10
11/21/87	15:37:00	40 55 44.268N	124 25 27.168W	380087.98	4531636.21
11/21/87	15:37:30	40 55 44.520N	124 25 27.650W	380076.82	4531644.15
11/21/87	15:38:01	40 55 45.124N	124 25 27.927W	380070.66	4531662.90
11/21/87	15:38:30	40 55 44.856N	124 25 28.118W	380066.04	4531654.70
11/21/87	15:39:00	40 55 43.909N	124 25 28.494W	380056.78	4531625.65
11/21/87	15:39:30	40 55 43.334N	124 25 28.847W	380048.25	4531608.04
11/21/87	15:40:00	40 55 43.777N	124 25 28.878W	380047.75	4531621,72
11/21/87	15:40:30	40 55 44.594N	124 25 29.016W	380044.92	4531646.96
11/21/87	15:41:00	40 55 44.825N	124 25 29.556W	380032.40	4531654.29
11/21/87	15:41:31	40 55 44.586N	124 25 30.004W	3S0021.81	4531647.09
11/21/87	15:42:00	40 55 44.683N	124 25 30.509W	380010.04	4531650.27
11/21/87	15:42:32	40 55 45.029N	124 25 31.340W	379990.77	4531661.27
11/21/87	15:43:00	40 55 44.965N	124 25 31.798W	379980.03	4531659.47
11/21/87	15:43:31	40 55 44.406N	124 25 31.307W	379991.23	4531642.05
11/21/87	15:44:00	40 55 44.309N	124 25 30.998W	379998,42	4531638.94
11/21/87	15:44:30	40 55 44.728N	124 25 31.749W	379981.07	4531652.14
11/21/87	15:45:00	40 55 44.961N	124 25 32.570W	379961.99	4531659.64
11/21/87	15:45:30	40 55 44.782N	124 25 32.588W	379961.46	4531654.11
11/21/87	15:46:00	40 55 44.679N	124 25 32.729W	379958.13	4531650.99
11/21/87	15:46:30	40 55 44.963N	124 25 33.384W	379942.93	4531660.01
11/21/87	15:47:02	40 55 45.180N	124 25 33.774W	379933.92	4531666.84
11/21/87	15:47:30	40 55 44.808N	124 25 33.828W	379932.48	4531655.41
11/21/87	15:48:00	40 55 44.229N	124 25 34.207W	379923.32	4531637.68
11/21/87	15:48:30	40 55 44.200N	124 25 35.051W	379903.57	4531637.12
11/21/87	15:49:01	40 55 44.476N	124 25 35.583W	379891.26	4531645.84
11/21/87	15:49:30	40 55 44.311N	124 25 35.633W	379890.02	4531640.77
11/21/87	15:50:00	40 55 44.097N	124 25 35.746W	379887.26	4531634.20
11/21/87	15:50:31	40 55 44.524N	124 25 36.365W	379873.00	4531647.60
11/21/87	15:51:01	40 55 44.996N	124 25 37.192W	379853.90	4531662.48
11/21/87	15:51:30	40 55 44.514N	124 25 37.763W	379840.29	4531647.82

MMS CARP Project
Hard Substrate Transect HB3

DATE	TIME	LATITUDE	LONGITUDE	UTM-X	UTM -Y
11/21/87	15:52:00	40 55 43.781N	124 25 37.813W	379838.76	4531625.26
11/21/87	15:52:30	40 55 43.771N	124 25 37.875W	379837.31	4531624.96
11/21/87	15:53:00	40 55 44.307N	124 25 38.182W	379830.39	4531641.62
11/21/87	15:53:30	40 55 44.685N	124 25 38.636W	379819.97	4531653.43
11/21/87	15:54:00	40 55 44.474N	124 25 38.855W	379814.75	4531647.03
11/21/87	15:54:30	40 55 44.516N	124 25 39.084W	379809.42	4531648.39
11/21/87	15:55:00	40 55 45.136N	124 25 39.444W	379801.29	4531667.67
11/21/87	15:55:31	40 55 45.652N	124 25 39.618W	379797.49	4531683.64
11/21/87	15:56:00	40 55 45.386N	124 25 39.399W	379802,47	4531675.35
11/21/87	15:56:33	40 55 44.516N	124 25 39.271W	379805.03	4531648.46
11/21/87	15:57:02	40 55 44.087N	124 25 39.750W	379793.62	4531635.41
11/21/87	15:57:32	40 55 44.448N	124 25 40.554W	379774.99	4531646.85
11/21/87	15:58:02	40 55 44.761N	124 25 41.177W	379760.57	4531656.75
11/21/87	15:58:34	40 55 44.287N	124 25 41.814W	379745.43	4531642.37
11/21/87	15:59:04	40 55 43.627N	124 25 42.497W	379729.13	4531622.28
11/21/87	15:59:34	40 55 43.866N	124 25 42.687W	379724.81	4531629.73
11/21/87	16:00:03	40 55 44.796N	124 25 42.349W	379733.19	4531658.28
11/21/87	16:00:34	40 55 45.252N	124 25 42.287W	379734.87	4531672.32
11/21/87	16:01:02	40 55 44.986N	124 25 42.823W	379722.19	4531664.32
11/21/87	16:01:30	40 55 44.819N	124 25 43.215W	379712.94	4531659.31
11/21/87	16:02:00	40 55 45.106N	124 25 42.850W	379721.62	4531668.02
11/21/87	16:02:32	40 55 45.207N	124 25 42.464W	379730.70	4531670″.98
11/21/87	16:03:05	40 55 44.953N	124 25 43.013W	379717.74	4531663.37
11/21/87	16:03:30	40 55 44.613N	124 25 44.403W	379685.05	4531653.41
11/21/87	16:04:01	40 55 44.289N	124 25 47.417W	379614.41	4531644.57
11/21/87	16:04:30	40 55 44.596N	124 25 47.763W	379606.46	4531654.18
11/21/87	16:05:00	40 55 45.108N	124 25 46.272W	379641.59	4531669.39
11/21/87	16:05:31	40 55 44.916N	124 25 46.798W	379629.19	4531663.67
11/21/87	16:06:01	40 55 44.289N	124 25 48.081W	379598.87	4531644.83
11/21/87	16:06:30	40 55 44.111N	124 25 47.522W	379611.86	4531639.14
11/21/87	16:07:01	40 55 44.122N	124 25 47.214W	379619.05	4531639.34
11/21/87	16:07:30	40 55 43.934N	124 25 48.456W	379589.91	4531634.03

MMS CARP Project
Hard Substrate Transect HB4

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/18/87	11:11:20	40 52 15.611N	124 25 01.735W	380578,59	4525192.32
11/18/87	11:11:30	40 52 15.613N	124 25 01.731W	380578.68	4525192.38
11/18/87	11:12:01	40 52 15.712N	124 25 01.642W	380580.81	4525195.40
11/18/87	11:12:30	40 52 16.425N	124 25 01.034W	380595.41	4525217.18
11/18/87	11:13:00	40 52 19.235N	124 24 58.788W	380649.39	4525302.96
11/18/87	11:13:30	40 52 23.991N	124 24 55.283W	380733.80	4525448.30
11/18/87	11:14:00	40 52 26.394N	124 24 54.025W	380764.45	4525521.93
11/18/87	11:14:30	40 52 24.880N	124 24 56.123W	380714.59	4525476.03
11/18/87	11:15:00	40 52 23.356N	124 24 58.583W	380656.23	4525429.96
11/18/87	11:15:30	40 52 24.360N	124 24 59.706W	380630.46	4525461.36
11/18/87	11:16:02	40 52 25.546N	124 25 00.510W	380612.23	4525498.24
11/18/87	11:16:30	40 52 25.610N	124 25 01.092W	380598.64	4525500.43
11/18/87	11:17:00	40 52 25.474N	124 25 01.112W	380598.09	4525496.24
11/18/87	11:17:30	40 52 25.181N	124 25 01.011W	380600.31	4525487.17
11/18/87	11:18:00	40 52 24.876N	124 25 01.331W	380592.67	4525477.88
11/18/87	11:18:31	40 52 25.008N	124 25 01.591W	380586.66	4525482.05
11/18/87	11:19:00	40 52 25.078N	124 25 01.498W	380588.86	4525484.18
11/18/87	11:19:30	40 52 24.810N	124 25 01.461W	380589.60	4525475.89
11/18/87	11:20:00	40 52 24.940N	124 25 02.078W	380575,23	4525480.13
11/18/87	11:20:30	40 52 25.771N	124 25 02.785W	380559.08	4525506.03
11/18/87	11:21:00	40 52 26.285N	124 25 02.808W	380558.81	4525521.88
11/18/87	11:21:30	40 52 26.229N	124 25 02.692W	380561.48	4525520.12
11/18/87	11:22:00	40 52 26.219N	124 25 03.165W	380550.42	4525519.98
11/18/87	11:22:32	40 52 26.448N	124 25 03.971W	380531.66	4525527.35
11/18/87	11:23:00	40 52 26.499N	124 25 04.336W	380523.14	4525529.07
11/18/87	11:23:30	40 52 26.545N	124 25 04.464W	380520.17	4525530.52
11/18/87	11:24:00	40 52 27.009N	124 25 04.963W	380508.72	4525545.02
11/18/87	11:24:30	40 52 27.543N	124 25 05.648W	380492.95	4525561.76
11/18/87	11:25:00	40 52 27.751N	124 25 06.157W	380481.13	4525568.37
11/18/87	11:25:30	40 52 27.648N	124 25 06.459W	380474.03	4525565.31
11/18/87	11:26:00	40 52 27.619N	124 25 06.731W	380467.64	4525564.52
11/18/87	11:26:32	40 52 27.749N	124 25 07.020W	380460.95	4525568.64
11/18/87	11:27:04	40 52 27.824N	124 25 07.247W	380455.67	4525571.01
11/18/87	11:27:30	40 52 27.745N	124 25 07.449W	380450.90	4525568.67
11/18/87	11:28:00	40 52 27.512N	124 25 07.905W	380440.12	4525561.66
11/18/87	11:28:30	40 52 27.477N	124 25 08.569W	380424.55	4525560.83
11/18/87	11:29:04	40 52 27.912N	124 25 09.171W	380410.67	4525574.48
11/18/87	11:29:31	40 52 28.358N	124 25 09.602W	380400.80	4525588.38
11/18/87	11:30:00	40 52 28.366N	124 25 10.093W	380389.32	4525588.82
11/18/87	11:30:30	40 52 28.098N	124 25 10.759W	380373.59	4525580.80
11/18/87	11:31:00	40 52 28.110N	124 25 11.555W	380354.96	4525581.49
11/18/87	11:31:30	40 52 28.385N	124 25 12.195W	380340.13	4525590.19
11/18/87	11:32:00	40 52 28.591N	124 25 12.719W	380327.97	4525596.75
11/18/87	11:32:30	40 52 28.669N	124 25 13.358W	380313.04	4525599.41
11/18/87	11:33:00	40 52 28.684N	124 25 14.078W	380296.20	4525600.13
11/18/87	11:33:30	40 52 28.706N	124 25 14.740W	380280,71	4525601.08

MMS CARP Project
Hard Substrate Transect HB4

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM- Y
11/18/87	11:34:00	40 52 28.807N	124 25 15.054W	380273.42	4525604.31
11/18/87	11:34:30	40 52 28.906N	124 25 15.182W	380270.48	4525607.42
11/18/87	11:35:05	40 52 28.822N	124 25 15.256W	380268,70	4525604.84
11/18/87	11:35:32	40 52 28.618N	124 25 15.256W	380268.60	4525598.54
11/18/87	11:36:00	40 52 28.521N	124 25 15.248W	380268,74	4525595.55
11/18/87	11:36:30	40 52 28.566N	124 25 15.359W	380266.16	4525596.99
11/18/87	11:37:00	40 52 28.572N	124 25 15.520W	380262.39	4525597.24
11/18/87	11:37:30	40 52 28.465N	124 25 15.483W	380263.21	4525593.92
11/18/87	11:38:00	40 52 28.403N	124 25 15.324W	380266.89	4525591.95
11/18/87	11:38:30	40 52 28.539N	124 25 15.219W	380269.43	4525596.11
11/18/87	11:39:00	40 52 28.721N	124 25 15.163W	380270.82	4525601.68
11/18/87	11:39:30	40 52 28.675N	124 25 15.138W	380271.38	4525600.28
11/18/87	11:40:00	40 52 28.477N	124 25 15.208W	380269.64	4525594.20
11/18/87	11:40:30	40 52 28.378N	124 25 15.367W	380265.87	4525591.20
11/18/87	11:41:01	40 52 28.436N	124 25 15.720W	380257.64	4525593.12
11/18/87	11:41:31	40 52 28.360N	124 25 16.147W	380247.61	4525590.93
11/18/87	11:42:00	40 52 27.912N	124 25 16.145W	380247.43	4525577.12
11/18/87	11:42:30	40 52 27.159N	124 25 15.307W	380266.66	4525553.59
11/18/87	11:43:00	40 52 26.384N	124 25 14.540W	380284.23	4525529.38
11/18/87	11:43:30	40 52 25.936N	124 25 14.984W	380273.63	4525515.75
11/18/87	11:44:00	40 52 25.998N	124 25 16.112W	380247.25	4525518.09
11/18/87	11:44:30	40 52 26.514N	124 25 16.801W	380231.38	4525534.25
11/18/87	11:45:00	40 52 26.774N	124 25 16.795W	380231.65	4525542.26
11/18/87	11:45:30	40 52 26.270N	124 25 16.838W	380230.39	4525526.76
11/18/87	11:46:00	40 52 25.639N	124 25 17.009W	380226.06	4525507.36
11/18/87	11:46:44	40 52 25.536N	124 25 17.028W	380225.58	4525504.19
11/18/87	11:47:00	40 52 25.363N	124 25 17.015W	380225.78	4525498.84
11/18/87	11:47:30	40 52 25.511N	124 25 17.120W	380223.39	4525503.46
11/18/87	11:48:00	40 52 25.802N	124 25 17.921W	380204.81	4525512.73
11/18/87	11:48:31	40 52 26.048N	124 25 18.478W	380191.89	4525520.51
11/18/87	11:49:00	40 52 26.134N	124 25 17.935W	380204.63	4525522.98
11/18/87	11:49:30	40 52 25.909N	124 25 17.257W	380220.41	4525515.79
11/18/87	11:50:00	40 52 25.398N	124 25 17.145W	380222.76	4525499.97
11/18/87	11:50:30	40 52 24.909N	124 25 16.953W	380227.00	4525484.82
11/18/87	11:51:00	40 52 25.088N	124 25 16.704W	380232.93	4525490.26
11/18/87	11:51:30	40 52 25.695N	124 25 16.729W	380232.66	4525508.97
11/18/87	11:52:00	40 52 25.668N	124 25 16.493W	380238.15	4525508.06
11/18/87	11:52:30	40 52 25.187N	124 25 16.149W	380245.97	4525493.10
11/18/87	11:53:00	40 52 25.119N	124 25 16.510W	380237.49	4525491.14
11/18/87	11:53:30	40 52 25.482N	124 25 17.071W	380224.54	4525502.55
11/18/87	11:54:00	40 52 25.761N	124 25 16.813W	380230.71	4525511.04
11/18/87	11:54:30	40 52 25.385N	124 25 16.060W	380248.15	4525499.18
11/18/87	11:55:00	40 52 24.779N	124 25 15.891W	380251.80	4525480.41
11/18/87	11:55:30	40 52 25.033N	124 25 16.017W	380248.98	4525488.28
11/18/87	11:56:02	40 52 25.398N	124 25 16.454W	380238.93	4525499.71
11/18/87	11:56:31	40 52 24.723N	124 25 18.174W	380198.33	4525479.56

MMS CARP Project
Hard Substrate Transect HB4

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM- Y
11/18/87	11:57:00	40 52 23.878N	124 25 20.243W	380149.48	4525454.27
11/18/87	11:57:30	40 52 24.082N	124 25 20.602W	380141.18	4525460.71
11/18/87	11:58:00	40 52 24.249N	124 25 20.080W	380153.48	4525465.66
11/18/87	11:58:30	40 52 24.010N	124 25 19.765W	380160.74	4525458.16
11/18/87	11:59:00	40 52 24.426N	124 25 19.144W	380175.49	4525470.77
11/18/87	11:59:30	40 52 24.862N	124 25 19.150W	380175.56	4525484.20
11/18/87	12:00:00	40 52 24.195N	124 25 20.379W	380146.45	4525464.12
11/18/87	12:00:30	40 52 23.362N	124 25 20.730W	380137.82	4525438.56
11/18/87	12:01:00	40 52 23.160N	124 25 20.087W	380152.79	4525432.08
11/18/87	12:01:34	40 52 23.203N	124 25 20.685W	380138.81	4525433.64
11/18/87	12:02:00	40 52 23.539N	124 25 22.644W	380093.11	4525444.75
11/18/87	12:02:30	40 52 24.127N	124 25 23.434W	380074.91	4525463.18
11/18/87	12:03:00	40 52 24.206N	124 25 22.337W	380100.63	4525465.18
11/18/87	12:03:30	40 52 23.826N	124 25 21.586W	380118.02	4525453.19
11/18/87	12:04:00	40 52 23.977N	124 25 22.382W	380099.46	4525458.14
11/18/87	12:04:30	40 52 24.684N	124 25 22.945W	380086.63	4525480.17
11/18/87	12:05:00	40 52 24.888N	124 25 22.799W	380090.16	4525486.41
11/18/87	12:05:33	40 52 24.470N	124 25 23.020W	380084.79	4525473.58
11/18/87	12:06:01	40 52 24.074N	124 25 23.682W	380069.09	4525461.62
11/18/87	12:06:31	40 52 23.890N	124 25 24.402W	380052.15	4525456.24
11/18/87	12:07:00	40 52 23.964N	124 25 24.814W	380042.53	4525458.68
11/18/87	12:07:30	40 52 24.156N	124 25 25.225W	380033.01	4525464.75
11/18/87	12:08:00	40 52 24.067N	124 25 25.484W	380026.89	4525462.12
11/18/87	12:08:30	40 52 23.752N	124 25 25.592W	380024.22	4525452.43
11/18/87	12:09:00	40 52 23.740N	124 25 25.885W	380017.36	4525452.16
11/18/87	12:09:30	40 52 23.797N	124 25 26.596W	380000.73	4525454.21
11/18/87	12:10:00	40 52 23.317N	124 25 27.370W	379982.38	4525439.68
11/18/87	12:10:30	40 52 22.817N	124 25 27.619W	379976.29	4525424.39
11/18/87	12:11:00	40 52 23.197N	124 25 27.269W	379984.69	4525435.96
11/18/87	12:11:30	40 52 24.292N	124 25 26.757W	379997.21	4525469.54
11/18/87	12:12:04	40 52 24.864N	124 25 26.972W	379992,47	4525487.24
11/18/87	12:12:31	40 52 24.391N	124 25 28.038W	379967.28	4525473.08
11/18/87	12:13:00	40 52 23.678N	124 25 29.016W	379944.03	4525451.44
11/18/87	12:13:30	40 52 23.519N	124 25 28.921W	379946.17	4525446.51
11/18/87	12:14:00	40 52 23.709N	124 25 28.537W	379955.25	4525452.21
11/18/87	12:14:30	40 52 23.851N	124 25 28.750W	379950.35	4525456.68
11/18/87	12:15:00	40 52 24.121N	124 25 29.164W	379940.78	4525465.17
11/18/87	12:15:30	40 52 24.344N	124 25 28.822W	379948.90	4525471.91
11/18/87	12:16:00	40 52 23.975N	124 25 28.162W	379964.17	4525460.28
11/18/87	12:16:30	40 52 23.360N	124 25 28.642W	379952.61	4525441.50
11/18/87	12:17:00	40 52 23.395N	124 25 29.925W	379922.60	4525443.07
11/18/87	12:17:30	40 52 23.942N	124 25 30.730W	379904.04	4525460.24
11/18/87	12:18:00	40 52 24.080N	124 25 31.021W	379897.30	4525464.61
11/18/87	12:18:30	40 52 23.694N	124 25 31.433W	379887.45	4525452.87
11/18/87	12:19:00	40 52 23.591N	124 25 31.908W	379876.30	4525449.87
11/18/87	12:19:30	40 52 23.981N	124 25 32.341W	379866.35	4525462.06

MMS CARP Project
Hard Substrate Transect HB4

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/18/87	12:20:00	40 52 24.051N	124 25 33.240W	379845,34	4525464.56
11/18/87	12:20:30	40 52 23.591N	124 25 34.449W	379816.81	4525450.84
11/18/87	12:21:04	40 52 23.207N	124 25 34.942W	379805.08	4525439.20
11/18/87	12:21:32	40 52 23.304N	124 25 34.212W	379822.22	4525441.91
11/18/87	12:22:00	40 52 23.461N	124 25 33.475W	379839.54	4525446.46
11/18/87	12:24:39	40 52 23.465N	124 25 33.461W	379839.88	4525446.58
11/18/87	12:25:00	40 52 23.463N	124 25 33.461W	379839.88	4525446.52
11/18/87	12:25:30	40 52 23.308N	124 25 34.457W	379816.48	4525442.13
11/18/87	12:26:01	40 52 23.172N	124 25 35.544W	379790.96	4525438.35
11/18/87	12:26:30	40 52 23.127N	124 25 36.206W	379775.44	4525437.20
11/18/87	12:27:00	40 52 23.214N	124 25 36.707W	379763.75	4525440.06
11/18/87	12:27:30	40 52 22.997N	124 25 36.798W	379761.52	4525433.42
11/18/87	12:28:00	40 52 22.533N	124 25 36.714W	379763.27	4525419.08
11/18/87	12:28:30	40 52 22.436N	124 25 37.174W	379752.45	4525416.26
11/18/87	12:29:00	40 52 22.440N	124 25 38.735W	379715.90	4525416.98
11/18/87	12:29:30	40 52 22.300N	124 25 39.735W	379692.42	4525413.04
11/18/87	12:30:00	40 52 22.768N	124 25 38.840W	379713.61	4525427.14
11/18/87	12:30:30	40 52 23.294N	124 25 38.038W	379732.65	4525443.05
11/18/87	12:31:00	40 52 22.902N	124 25 38.795W	379714.74	4525431.25
11/18/87	12:31:30	40 52 22.415N	124 25 39.622W	379695.13	4525416.56
11/18/87	12:32:00	40 52 22.826N	124 25 39.632W	379695.09	4525429.22
11/18/87	12:32:30	40 52 23.160N	124 25 39.824W	379690.77	4525439.60
11/18/87	12:33:00	40 52 22.708N	124 25 40.034W	379685.62	4525425.75
11/18/87	12:33:30	40 52 22.388N	124 25 39.453W	379699.07	4525415.67
11/18/87	12:34:00	40 52 22.846N	124 25 38.968W	379710.65	4525429.60
11/18/87	12:34:30	40 52 23.277N	124 25 39.531W	379697.69	4525443.11
11/18/87	12:35:02	40 52 22.929N	124 25 40.129W	379683.51	4525432.59
11/18/87	12:35:30	40 52 22.434N	124 25 40.218W	379681.18	4525417.36
11/18/87	12:36:00	40 52 22.541N	124 25 40.364W	379677.81	4525420.72
11/18/87	12:36:30	40 52 23.082N	124 25 40.472W	379675.57	4525437.43
11/18/87	12:37:00	40 52 23.222N	124 25 40.476W	379675.55	4525441.75
11/18/87	12:37:30	40 52 22.863N	124 25 40.676W	379670.68	4525430.76
11/18/87	12:38:01	40 52 22.741N	124 25 40.905W	379665.26	4525427.10
11/18/87	12:38:30	40 52 23.117N	124 25 41.055W	379661.93	4525438.73
11/18/87	12:39:00	40 52 23.647N	124 25 41.369W	379654.85	4525455.20
11/18/87	12:39:30	40 52 23.787N	124 25 41.767W	379645.61	4525459.68
11/18/87	12:40:00	40 52 23.310N	124 25 41.825W	379644.01	4525445.00
11/18/87	12:40:30	40 52 22.784N	124 25 41.668W	379647.42	4525428.73
11/18/87	12:41:03	40 52 22.886N	124 25 42.406W	379630.18	4525432.12
11/18/87	12:41:30	40 52 23.100N	124 25 44.323W	379585.44	4525439.47
11/18/87	12:42:00	40 52 22.809N	124 25 45.857W	379549.37	4525431.09
11/18/87	12:42:30	40 52 22.498N	124 25 44.106W	379590.20	4525420.82
11/18/87	12:43:00	40 52 22.799N	124 25 41.429W	379653.03	4525429.08
11/18/87	12:43:30	40 52 23.768N	124 25 42.206W	379635.31	4525459.27
11/18/87	12:44:00	40 52 25.449N	124 25 44.760W	379576,38	4525512.08
11/18/87	12:44:31	40 52 26.390N	124 25 45.137W	379568.02	4525541.22

MMS CARP Project
Hard Substrate Transect HB4

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/18/87	12:45:00	40 52 24.992N	124 25 43.543W	379604.64	4525497.50
11/18/87	12:45:30	40 52 22.578N	124 25 42.866W	379619.26	4525422.82
11/18/87	12:46:00	40 52 22.129N	124 25 43.898W	379594.90	4525409.35
11/18/87	12:46:30	40 52 23.022N	124 25 44.725W	379575.98	4525437.21
11/18/87	12:47:00	40 52 23.162N	124 25 44.444W	379582.62	4525441.43
11/18/87	12:47:30	40 52 22.556N	124 25 44.696W	379576.42	4525422.82
11/18/87	12:48:00	40 52 22.737N	124 25 45.515W	379557.35	4525428.73
11/18/87	12:48:30	40 52 23.253N	124 25 45.051W	379568.47	4525444.46
11/18/87	12:49:00	40 52 23.053N	124 25 44.215W	379587.92	4525437.97
11/18/87	12:49:30	40 52 22.520N	124 25 44.795W	379574.09	4525421.78
11/18/87	12:50:00	40 52 22.316N	124 25 46.391W	379536.62	4525416.09
11/18/87	12:50:30	40 52 22.492N	124 25 47.309W	379515.22	4525421.85
11/18/87	12:51:03	40 52 22.520N	124 25 46.616W	379531.46	4525422.47
11/18/87	12:51:34	40 52 22.314N	124 25 45.418W	379559.40	4525415.66
11/18/87	12:52:03	40 52 22.261N	124 25 44.941W	379570.53	4525413.82
11/18/87	12:52:32	40 52 22.514N	124 25 45.113W	379566.65	4525421.71
11/18/87	12:53:02	40 52 22.723N	124 25 45.181W	379565.16	4525428.16
11/18/87	12:53:32	40 52 22.549N	124 25 45.311W	379562.03	4525422.87
11/18/87	12:54:02	40 52 22.232N	124 25 46.047W	379544.64	4525413.35
11/18/87	12:54:30	40 52 22.296N	124 25 46.744W	379528.35	4525415.59
11/18/87	12:55:00	40 52 22.770N	124 25 46.373W	379537.28	4525430.08
11/18/87	12:55:30	40 52 22.871N	124 25 45.882W	379548.82	4525433:01
11/18/87	12:56:00	40 52 22.465N	124 25 46.466W	379534.95	4525420.70
11/18/87	12:56:31	40 52 22.184N	124 25 47.573W	379508.88	4525412.47
11/18/87	12:57:00	40 52 22.403N	124 25 47.870W	379502.04	4525419.33
11/18/87	12:57:30	40 52 22.681N	124 25 47.679W	379506.67	4525427.84
11/18/87	12:58:00	40 52 22.551N	124 25 47.829W	379503.08	4525423.89
11/18/87	12:58:30	40 52 22.285N	124 25 47.728W	379505.31	4525415.65
11/18/87	12:59:00	40 52 22.236N	124 25 47.085W	379520.35	4525413.88
11/18/87	12:59:30	40 52 22.572N	124 25 46.928W	379524.19	4525424.18
11/18/87	13:00:00	40 52 23.069N	124 25 48.046W	379498.27	4525439.94
11/18/87	13:00:35	40 52 23.304N	124 25 48.947W	379477.29	4525447.54
11/18/87	13:01:00	40 52 23.341N	124 25 49.632W	379461.28	4525448.94
11/18/87	13:01:30	40 52 23.073N	124 25 49.306W	379468.77	4525440.55
11/18/87	13:02:00	40 52 22.921N	124 25 49.143W	379472.51	4525435.78
11/18/87	13:02:30	40 52 22.733N	124 25 49.510W	379463.82	4525430.13
11/18/87	13:03:00	40 52 22.510N	124 25 50.047W	379451.16	4525423.47
11/18/87	13:03:30	40 52 22.454N	124 25 50.311W	379444.95	4525421.85
11/18/87	13:04:00	40 52 22.244N	124 25 50.071W	379450.44	4525415.27
11/18/87	13:04:30	40 52 21.904N	124 25 50.007W	379451.77	4525404.75
11/18/87	13:05:00	40 52 22.178N	124 25 51.214W	379423.66	4525413.67
11/18/87	13:05:30	40 52 22.745N	124 25 52.720W	379388.70	4525431.74
11/18/87	13:06:00	40 52 22.681N	124 25 52.846W	379385.72	4525429.82
11/18/87	13:06:30	40 52 22.384N	124 25 51.449W	379418.26	4525420.12
11/18/87	13:07:00	40 52 23.057N	124 25 50.938W	379430.57	4525440,66
11/18/87	13:07:32	40 52 24.022N	124 25 52.241W	379400.55	4525470.93

MMS CARP Project
Hard Substrate Transect HB4

DATE	TIME	LATITUDE	LONGITUDE	UTM-X	UTM- Y
11/18/87	13:08:01	40 52 23.216N	124 25 53.151W	379378.85	4525446.4?_
11/18/87	13:08:30	40 52 21.489N	124 25 52.709W	379388.31	4525393.00
11/18/87	13:09:00	40 52 20.883N	124 25 52.307W	379397.42	4525374.15
11/18/87	13:09:30	40 52 21.477N	124 25 53.677W	379365.66	4525392.99
11/18/87	13:10:02	40 52 21.920N	124 25 55.488W	379323.49	4525407.36
11/18/87	13:10:31	40 52 22.430N	124 25 55.057W	379333.84	4525422.90
11/18/87	13:11:00	40 52 22.894N	124 25 53.642W	379367.19	4525436.67
11/18/87	13:11:30	40 52 22.595N	124 25 54.657W	379343.29	4525427.84
11/18/87	13:12:00	40 52 22.118N	124 25 56.437W	379301.38	4525413.83
11/18/87	13:12:30	40 52 22.036N	124 25 55.636W	379320.07	4525410.98
11/18/87	13:13:00	40 52 22.112N	124 25 54.137W	379355.21	4525412.76
11/18/87	13:13:30	40 52 22.298N	124 25 55.065W	379333.58	4525418.84
11/18/87	13:14:00	40 52 22.566N	124 25 56.461W	379301.03	4525427.64
11/18/87	13:14:30	40 52 22.595N	124 25 56.197W	379307.22	4525428.43
11/18/87	13:15:00	40 52 22.248N	124 25 55.939W	379313.08	4525417.65
11/18/87	13:15:30	40 52 21.656N	124 25 57.268W	379281.69	4525399.90
11/18/87	13:16:01	40 52 21.351N	124 25 58.458W	379253.68	4525390.94
11/18/87	13:16:30	40 52 21.683N	124 25 58.111W	379261.95	4525401.05
11/18/87	13:17:00	40 52 22.426N	124 25 57.053W	379287.10	4525423.54
11/18/87	13:17:30	40 52 23.088N	124 25 57.781W	379270.39	4525444.24
11/18/87	13:18:00	40 52 23.659N	124 25 59.807W	379223.26	4525462.63
11/18/87	13:18:30	40 52 23.671N	124 26 00.601W	379204.68	4525463.32
11/18/87	13:19:00	40 52 22.859N	124 26 00.106W	379215.86	4525438.07
11/18/87	13:19:33	40 52 21.596N	124 25 59.900W	379220.05	4525399.06
11/18/87	13:20:00	40 52 20.330N	124 26 00.399W	379207.73	4525360.20
11/18/87	13:20:31	40 52 20.051N	124 26 00.661W	379201.45	4525351.72
11/18/87	13:21:00	40 52 21.617N	124 26 00.679W	379201.81	4525400.00
11/18/87	13:21:31	40 52 23.504N	124 26 01.181W	379191.03	4525458.39
11/18/87	13:22:00	40 52 23.323N	124 26 02.521W	379159.55	4525453.30
11/18/87	13:22:30	40 52 21.582N	124 26 04.568W	379110.78	4525400.41
11/18/87	13:23:00	40 52 21.631N	124 26 06.379W	379068.41	4525402.63
11/18/87	13:23:30	40 52 23.242N	124 26 05.978W	379078.59	4525452.15
11/18/87	13:24:00	40 52 23.556N	124 26 03.470W	379137.46	4525460.86
11/18/87	13:24:30	40 52 22.244N	124 26 02.072W	379169.54	4525419.87
11/18/87	13:25:00	40 52 21.844N	124 26 03.610W	379133.31	4525408.12
11/18/87	13:25:35	40 52 22.558N	124 26 04.834W	379105.04	4525430.59
11/18/87	13:26:04	40 52 22.692N	124 26 04.330W	379116.89	4525434.54
11/18/87	13:26:33	40 52 22.485N	124 26 04.054W	379123.26	4525428.07
11/18/87	13:27:02	40 52 22.652N	124 26 04.827W	379105.24	4525433.52
11/18/87	13:27:32	40 52 23.038N	124 26 05.506W	379089.55	4525445.67
11/18/87	13:28:00	40 52 23.049N	124 26 05.306W	379094.23	4525445.91
11/18/87	13:28:30	40 52 22.793N	124 26 05.075W	379099.51	4525437.94
11/18/87	13:29:00	40 52 22.877N	124 26 05.686W	379085.26	4525440.78
11/18/87	13:29:31	40 52 23.230N	124 26 06.405W	379068.59	4525451.93
11/18/87	13:30:00	40 52 23.121N	124 26 06.356W	379069.70	4525448.54
11/18/87	13:30:30	40 52 22.650N	124 26 05.964W	379078.63	4525433,89

MMS CARP Project
Hard Substrate Transect HB4

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM-Y
11/18/87	13:31:00	40 52 22.545N	124 26 05.795W	379082.54	4525430.58
11/18/87	13:31:30	40 52 23.018N	124 26 06.007W	379077.80	4525445.23
11/18/87	13:32:02	40 52 23.447N	124 26 06.608W	379063.97	4525458.69
11/18/87	13:32:30	40 52 23.447N	124 26 07.447W	379044.32	4525459.01
11/18/87	13:33:00	40 52 23.317N	124 26 08.039W	379030.40	4525455.23
11/18/87	13:33:30	40 52 23.438N	124 26 08.066W	379029.83	4525458.99
11/18/87	13:34:00	40 52 23.678N	124 26 08.031W	379030.77	4525466.36
11/18/87	13:34:30	40 52 23.847N	124 26 08.437W	379021.35	4525471.73
11/18/87	13:35:00	40 52 23.900N	124 26 09.151W	379004.67	4525473.66
11/18/87	13:35:30	40 52 23.830N	124 26 09.631W	378993.38	4525471.68
11/18/87	13:36:01	40 52 23.744N	124 26 09.831W	378988.65	4525469.08
11/18/87	13:36:35	40 52 23.742N	124 26 10.011W	378984.45	4525469,09
11/18/87	13:37:00	40 52 23.863N	124 26 10.687W	378968.68	4525473.10
11/18/87	13:37:30	40 52 24.189N	124 26 11.292W	378954.70	4525483.38
11/18/87	13:38:00	40 52 24.600N	124 26 10.766W	378967.22	4525495.84
11/18/87	13:38:30	40 52 24.637N	124 26 10.555W	378972.16	4525496.90
11/18/87	13:39:01	40 52 24.336N	124 26 11.865W	378941.35	4525488.12
11/18/87	13:39:30	40 52 24.331N	124 26 13.035W	378913.97	4525488.44

MMS CARP Project
Hard Substrate Transect HB5

DATE	TIME	LATITUDE	LONGITUDE	UTM-X	UTM -Y
11/24/87	10:17:30	39 58 31.809N	124 10 00.630W	400359.32	4425480.36
11/24/87	10:18:01	39 58 31.809N	124 10 00.630W	400359.32	4425480.36
11/24/87	10:18:30	39 58 31.809N	124 10 00.630W	400359.32	4425480.36
11/24/87	10:19:01	39 58 31.807N	124 10 00.630W	400359.32	4425480.30
11/24/87	10:19:31	39 58 31.795N	124 10 00.628W	400359.37	4425479.92
n/24/87	10:20:01	39 58 31.718N	124 10 00.636W	400359.14	4425477.57
11/24/87	10:20:30	39 58 31.615N	124 10 00.634W	400359.15	4425474.39
11/24/87	10:21:00	39 58 31.403N	124 10 00.566W	400360.68	4425467.82
11/24/87	10:21:30	39 58 31.261N	124 10 00.473W	400362.82	4425463.40
11/24/87	10:22:00	39 58 31.180N	124 10 00.459W	400363.13	4425460.92
11/24/87	10:22:30	39 58 30.953N	124 10 00.306W	400366.66	4425453.87
11/24/87	10:23:00	39 58 30.627N	124 09 59.896W	400376.27	4425443.70
11/24/87	10:23:30	39 58 30.514N	124 09 59.628W	400382.58	4425440.12
11/24/87	10:24:02	39 58 30.555N	124 09 59.543W	400384.60	4425441.36
11/24/87	10:24:30	39 58 30.524N	124 09 59.331W	400389.63	4425440.34
n/24/87	10:25:00	39 58 30.431N	124 09 58.929W	400399.13	4425437.36
11/24/87	10:25:30	39 58 30.417N	124 09 58.636W	400406.08	4425436.82
11/24/87	10:26:00	39 58 30.411N	124 09 58.390W	400411.90	4425436.55
11/24/87	10:26:30	39 58 30.343N	124 09 58.007W	400420.97	4425434.34
11/24/87	10:27:00	39 58 30.339N	124 09 57.656W	400429.29	4425434.10
11/24/87	10:27:31	39 58 30.462N	124 09 57.545W	400431.98	4425437.88
11/24/87	10:28:00	39 58 30.572N	124 09 57.474W	400433.69	4425441.23
n/24/87	10:28:30	39 58 30.561N	124 09 57.229W	400439.50	4425440.83
11/24/87	10:29:01	39 58 30.485N	124 09 56.979W	400445.39	4425438.40
11/24/87	10:29:31	39 58 30.392N	124 09 56.903W	400447.17	4425435.52
11/24/87	10:30:00	39 58 30.287N	124 09 56.884W	400447.56	4425432.27
11/24/87	10:30:30	39 58 30.163N	124 09 56.744W	400450.84	4425428.41
11/24/87	10:31:01	39 58 30.046N	124 09 56.575W	400454.81	4425424.73
11/24/87	10:31:31	39 58 29.901N	124 09 56.416W	400458.52	4425420.23
11/24/87	10:32:00	39 58 29.782N	124 09 56.220W	400463.12	4425416.48
11/24/87	10:32:31	39 58 29.718N	124 09 55.934W	400469.89	4425414.42
n/24/87	10:33:00	39 58 29.619N	124 09 55.599W	400477.78	4425411.27
11/24/87	10:33:30	39 58 29.493N	124 09 55.321W	400484.33	4425407.30
11/24/87	10:34:00	39 58 29.489N	124 09 55.148W	400488.44	4425407.12
11/24/87	10:34:30	39 58 29.652N	124 09 54.993W	400492.18	4425412.10
11/24/87	10:35:00	39 58 29.775N	124 09 54.651W	400500.35	4425415.81
11/24/87	10:35:31	39 58 29.606N	124 09 54.011W	400515.45	4425410.39
11/24/87	10:36:00	39 58 29.398N	124 09 53.456W	400528.53	4425403.80
11/24/87	10:36:30	39 58 29.433N	124 09 53.190W	400534.85	4425404.80
11/24/87	10:37:00	39 58 29.592N	124 09 53.054W	400538.14	4425409.65
11/24/87	10:37:30	39 58 29.569N	124 09 52.732W	400545.77	4425408.85
11/24/87	10:38:04	39 58 29.485N	124 09 52.314W	400555.67	4425406.12
11/24/87	10:38:32	39 58 29.588N	124 09 52.101W	400560.75	4425409.23
11/24/87	10:39:03	39 58 29.829N	124 09 51.971W	400563.93	4425416.63
11/24/87	10:39:33	39 58 30.089N	124 09 51.746W	400569.37	4425424.57
11/24/87	10:40:03	39 58 30.275N	124 09 51.478W	400575.80	4425430.21

MMS CARP Project
Hard Substrate Transect HB5

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/24/87	10:40:32	39 58 30.248N	124 09 51.373W	400578.29	4425429.35
11/24/87	10:41:03	39 58 30.037N	124 09 51.421W	400577.07	4425422.88
11/24/87	10:41:32	39 58 29.912N	124 09 51.359W	400578.49	4425418.98
11/24/87	10:42:01	39 58 30.013N	124 09 51.113W	400584.36	4425422.02
11/24/87	10:42:30	39 58 30.130N	124 09 50.872W	400590.13	4425425.57
11/24/87	10:43:03	39 58 30.068N	124 09 50.750W	400592.99	4425423.63
11/24/87	10:43:34	39 58 29.961N	124 09 50.674W	400594,76	4425420.30
11/24/87	10:44:04	39 58 30.011N	124 09 50.562W	400597.42	4425421.79
11/24/87	10:44:33	39 58 30.161N	124 09 50.453W	400600.07	4425426.40
11/24/87	10:45:03	39 58 30.252N	124 09 50.391W	400601.58	4425429.18
11/24/87	10:45:35	39 58 30.248N	124 09 50.356W	400602.41	4425429.04
11/24/87	10:46:06	39 58 30.169N	124 09 50.276W	400604.28	4425426.60
n/24/87	10:46:30	39 58 30.054N	124 09 50.129W	400607.71	4425422.99
11/24/87	10:47:00	39 58 29.848N	124 09 49.820W	400614.97	4425416.54
11/24/87	10:47:31	39 58 29.633N	124 09 49.455W	400623.54	4425409.81
11/24/87	10:48:01	39 58 29.493N	124 09 49.240W	400628.57	4425405.42
11/24/87	10:48:31	39 58 29.371N	124 09 49.071W	400632.54	4425401.61
11/24/87	10:49:00	39 58 29.258N	124 09 48.725W	400640.71	4425398.01
11/24/87	10:49:30	39 58 29.235N	124 09 48.124W	400654.94	4425397.12
11/24/87	10:50:00	39 58 29.332N	124 09 47.537W	400668.92	4425399.93
11/24/87	10:50:30	39 58 29.495N	124 09 47.060W	400680.29	4425404.81
11/24/87	10:51:00	39 58 29.608N	124 09 46.767W	400687.28	4425408.21
11/24/87	10:51:30	39 58 29.662N	124 09 46.546W	400692.54	4425409.80
11/24/87	10:52:01	39 58 29.732N	124 09 46.254W	400699.52	4425411.87
11/24/87	10:52:30	39 58 29.817N	124 09 45.996W	400705.67	4425414.40
11/24/87	10:53:00	39 58 29.910N	124 09 45.820W	400709.86	4425417.21
11/24/87	10:53:31	39 58 29.943N	124 09 45.818W	400709.93	4425418.22
11/24/87	10:54:02	39 58 29.899N	124 09 45.837W	400709.47	4425416.89
11/24/87	10:54:32	39 58 29.825N	124 09 45.719W	400712.23	4425414.57
11/24/87	10:55:09	39 58 29.745N	124 09 45.416W	400719.39	4425411.99
11/24/87	10:55:30	39 58 29.707N	124 09 45.185W	400724.85	4425410.78
11/24/87	10:56:01	39 58 29.643N	124 09 44.682W	400736,77	4425408.65
11/24/87	10:56:31	39 58 29.555N	124 09 44.123W	400749.99	4425405.74
11/24/87	10:57:00	39 58 29.468N	124 09 43.432W	400766.35	4425402.86
11/24/87	10:57:30	39 58 29.456N	124 09 42.834W	400780.53	4425402.29
11/24/87	10:58:01	39 58 29.448N	124 09 42.233W	400794.77	4425401.85
11/24/87	10:58:30	39 58 29.439N	124 09 41.710W	400807.19	4425401.44
11/24/87	10:59:00	39 58 29.495N	124 09 41.361W	400815.48	4425403.05
11/24/87	10:59:30	39 58 29.505N	124 09 41.299W	400816.95	4425403.34
11/24/87	11:00:00	39 58 29.363N	124 09 41.332W	400816.11	4425398.97
11/24/87	11:00:30	39 58 29.227N	124 09 41.217W	400818.80	4425394.73
11/24/87	11:01:00	39 58 29.132N	124 09 40.979W	400824.39	4425391.74
11/24/87	11:01:31	39 58 28.911N	124 09 40.658W	400831.93	4425384.83
11/24/87	11:02:00	39 58 28.686N	124 09 40.371W	400838.64	4425377.81
11/24/87	11:02:31	39 58 28.666N	124 09 40.144W	400844.02	4425377.11
11/24/87	11:03:02	39 58 28.785N	124 09 39.814W	400851.89	4425380,69

MMS CARP Project
Hard Substrate Transect HB5

DATE	TIME	LATITUDE	LONGITUDE	UTM- X	UTM -Y
11/24/87	11:03:30	39 58 28.835N	124 09 39.280W	400864.58	4425382.05
11/24/87	11:04:00	39 58 28.796N	124 09 38.708W	400878.12	4425380.67
11/24/87	11:04:30	39 58 28.750N	124 09 38.393W	400885.59	4425379.17
11/24/87	11:05:00	39 58 28.715N	124 09 38.116W	400892.13	4425378.01
11/24/87	11:05:30	39 58 28.746N	124 09 37.560W	400905.36	4425378.79
11/24/87	11:06:00	39 58 28.837N	124 09 37.001W	400918.65	4425381.41
11/24/87	11:06:30	39 58 28.876N	124 09 36.574W	400928.80	4425382.49
11/24/87	11:07:00	39 58 28.808N	124 09 36.301W	400935.23	4425380.31
11/24/87	11:07:30	39 58 28.707N	124 09 35.949W	400943.55	4425377.08
11/24/87	11:08:00	39 58 28.544N	124 09 35.517W	400953.71	4425371.93
11/24/87	11:08:30	39 58 28.323N	124 09 35.109W	400963.31	4425364.99
11/24/87	11:09:00	39 58 28.214N	124 09 34.921W	400967.72	4425361.57
11/24/87	11:09:30	39 58 28.262N	124 09 35.031W	400965.15	4425363.06
11/24/87	11:10:00	39 58 28.313N	124 09 35.088W	400963.80	4425364.67
n/24/87	11:10:30	39 58 28.317N	124 09 34.890W	400968.50	4425364.74
11/24/87	11:11:02	39 58 28.340N	124 09 34.701W	400973.01	4425365.38
11/24/87	11:11:31	39 58 28.439N	124 09 34.843W	400969.67	4425368.47
n/24/87	11:12:01	39 58 28.637N	124 09 35.177W	400961.82	4425374.68
11/24/87	11:12:31	39 58 28.957N	124 09 35.359W	400957.65	4425384.59
11/24/87	11:13:01	39 58 29.293N	124 09 35.276W	400959.74	4425394.94
n/24/87	11:13:31	39 58 29.567N	124 09 35.095W	400964.15	4425403.34
n/24/87	11:14:00	39 58 29.817N	124 09 34.930W	400968.17	4425410.98
11/24/87	11:14:30	39 58 30.114N	124 09 34.723W	400973.18	4425420.07
11/24/87	11:15:01	39 58 30.411N	124 09 34.371W	400981.67	4425429.12
11/24/87	11:15:31	39 58 30.528N	124 09 33.888W	400993.16	4425432.60
11/24/87	11:16:00	39 58 30.343N	124 09 33.539W	401001.36	4425426.77
11/24/87	11:16:30	39 58 30.019N	124 09 33.288W	401007.20	4425416.71
11/24/87	11:17:00	39 58 29.864N	124 09 32.987W	401014.28	4425411.84
11/24/87	11:17:30	39 58 29.955N	124 09 32.549W	401024.69	4425414.51
11/24/87	11:18:02	39 58 30.145N	124 09 32,108W	401035.23	4425420.22
11/24/87	11:18:30	39 58 30.235N	124 09 31.796W	401042.66	4425422.92
n/24/87	11:19:00	39 58 30.213N	124 09 31.584W	401047.69	4425422.16
11/24/87	11:19:30	39 58 30.147N	124 09 31.372W	401052.70	4425420.06
11/24/87	11:20:00	39 58 30.110N	124 09 31.145W	401058.07	4425418.84
11/24/87	11:20:30	39 58 30.112N	124 09 30.852W	401065.02	4425418.82
11/24/87	11:21:02	39 58 30.209N	124 09 30.536W	401072.54	4425421.71
11/24/87	11:21:30	39 58 30.376N	124 09 30.256W	401079.26	4425426.77
11/24/87	11:22:00	39 58 30.545N	124 09 29.952W	401086.52	4425431.90
11/24/87	11:22:32	39 58 30.551N	124 09 29.940W	401086.82	4425432.08
11/24/87	11:23:02	39 58 30.557N	124 09 29.926W	401087.17	4425432.27
11/24/87	11:23:34	39 58 30.586N	124 09 29.872W	401088.45	4425433.14
11/24/87	11:24:00	39 58 30.664N	124 09 29.730W	401091.86	4425435.52
11/24/87	11:24:30	39 58 30.761N	124 09 29.604W	401094,88	4425438.47
11/24/87	11:25:05	39 58 30.929N	124 09 29.482W	401097.83	4425443.58
11/24/87	11:25:34	39 58 31.100N	124 09 29.412W	401099.57	4425448.84
11/24/87	11:26:00	39 58 31.298N	124 09 29.356W	401100.97	4425454.92

MMS CARP Project
Hard Substrate Transect HB5

DATE	TIME	LATITUDE	LONGITUDE	UTM - X	UTM -Y
11/24/87	11:26:30	39 58 31.498N	124 09 29.294W	401102.51	4425461.07
11/24/87	11:27:02	39 58 31.710N	124 09 29.189W	401105.10	4425467.59
11/24/87	11:27:30	39 58 31.875N	124 09 29.016W	401109.27	4425472.62
11/24/'87	11:28:00	39 58 32.005N	124 09 28.725W	401116.22	4425476.54
11/24/87	11:28:30	39 58 32.110N	124 09 28.280W	401126.83	4425479.65
11/24/87	11:29:00	39 58 32.176N	124 09 27.797W	401138.31	4425481.53
11/24/87	11:29:33	39 58 32.187N	124 09 27.191W	401152.70	4425481.67
11/24/87	11:30:00	39 58 32.079N	124 09 26.669W	401165.03	4425478.20
11/24/87	11:30:30	39 58 31.853N	124 09 26.283W	401174.09	4425471.08
11/24/87	11:31:00	39 58 31.483N	124 09 25.988W	401180.94	4425459.61
11/24/87	11:31:30	39 58 31.120N	124 09 25.811W	401185.00	4425448.36
11/24/87	11:32:00	39 58 30.848N	124 09 25.658W	401188.51	4425439.92
11/24/87	11:32:30	39 58 30.650N	124 09 25.413W	401194.26	4425433.74
11/24/87	11:33:01	39 58 30.545N	124 09 25.083W	401202.04	4425430.40
11/24/87	11:33130	39 58 30.450N	124 09 24.641W	401212.48	4425427.33
11/24/87	11:34:00	39 58 30.359N	124 09 24.260W	401221.49	4425424.42
n/24/87	11:34:30	39 58 30.248N	124 09 23.828W	401231.67	4425420.85

MMS CARP Project
Hard Substrate Transect HB6

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM- Y
11/25/87	11:36:31	39 52 27.315N	124 02 13.902W	411299.95	4414105.98
11/25/87	11:37:00	39 52 27.362N	124 02 13.851W	411301.20	4414107.43
11/25/87	11:37:30	39 52 27.663N	124 02 13.486W	411309.98	4414116.62
11/25/87	11:38:00	39 52 28.338N	124 02 12.543W	411332.61	4414137.15
11/25/87	11:38:31	39 52 28.866N	124 02 11.615W	411354.85	4414153.18
11/25/87	11:39:00	39 52 28.816N	124 02 11.584W	.411355.57	4414151.64
11/25/87	11:39:30	39 52 28.659N	124 02 12.207W	411340.71	4414146.98
11/25/87	11:40:01	39 52 28.849N	124 02 12.595W	411331.57	4414152.94
11/25/87	11:40:31	39 52 29.045N	124 02 12.898W	411324.44	4414159.06
11/25/87	11:41:00	39 52 29.020N	124 02 13.397W	411312.57	4414158.44
11/25/87	11:41:30	39 52 28.983N	124 02 14.045W	411297.17	4414157.47
11/25/87	11:42:00	39 52 29.008N	124 02 14.424W	411288.16	4414158.34
11/25/87	11:42:30	39 52 28.959N	124 02 14.711W	411281.34	4414156.89
11/25/87	11:43:00	39 52 28.965N	124 02 15.109W	411271.88	4414157.19
11/25/87	11:43:30	39 52 29.179N	124 02 15.441W	411264.07	4414163.90
11/25/87	11:44:00	39 52 29.476N	124 02 15.509W	411262.56	4414173.07
11/25/87	11:44:30	39 52 29.685N	124 02 15.375W	411265.82	4414179.46
11/25/87	11:45:01	39 52 29.862N	124 02 15.258W	411268.67	4414184.89
11/25/87	11:45:30	39 52 30.070N	124 02 15.190W	411270.37	4414191.30
11/25/87	11:46:01	39 52 30.312N	124 02 15.111W	411272.31	4414198.72
11/25/87	11:46:30	39 52 30.516N	124 02 15.130W	411271.95	4414205.02
11/25/87	11:47:00	39 52 30.699N	124 02 15.390W	411265.84	4414210.75
11/25/87	11:47:33	39 52 30.813N	124 02 15.773W	411256.76	4414214.35
11/25/87	11:48:00	39 52 30.842N	124 02 16.097W	411249.08	4414215.33
11/25/87	11:48:30	39 52 30.780N	124 02 16.388W	411242,15	4414213.50
11/25/87	11:49:00	39 52 30.631N	124 02 16.761W	411233.23	4414209.03
11/25/87	11:49:35	39 52 30.549N	124 02 17.155W	411223.84	4414206.59
11/25/87	11:50:00	39 52 30.633N	124 02 17.504W	411215.59	4414209.30
11/25/87	11:50:35	39 52 30.889N	124 02 17.813W	411208.33	4414217.27
11/25/87	11:51:02	39 52 31.188N	124 02 17.949W	411205.20	4414226.53
11/25/87	11:51:30	39 52 31.473N	124 02 17.836W	411208.00	4414235.27
11/25/87	11:52:00	39 52 31.623N	124 02 17.607W	411213.49	4414239.85
11/25/87	11:52:31	39 52 31.720N	124 02 17.227W	411222.55	4414242.73
n/25/87	11:53:04	39 52 31.675N	124 02 16.854W	411231.40	4414241.23
11/25/87	11:53:32	39 52 31.590N	124 02 16.600W	411237.39	4414238.56
11/25/87	11:54:01	39 52 31.640N	124 02 16.456W	411240.84	4414240.04
11/25/87	11:54:30	39 52 31.900N	124 02 16.574W	411238.14	4414248.09
11/25/87	11:55:00	39 52 32.259N	124 02 17.106W	411225,63	4414259.30
11/25/87	11:55:31	39 52 32.416N	124 02 17.846W	411208.09	4414264.34
11/25/87	11:56:00	39 52 32.333N	124 02 18.440W	411193.95	4414261.96
11/25/87	11:56:30	39 52 32.158N	124 02 18.824W	411184.78	4414256.66
11/25/87	11:57:00	39 52 32.065N	124 02 19.121W	411177.69	4414253.88
11/25/87	11:57:30	39 52 32.046N	124 02 19.564W	411167.15	4414253.43
11/25/87	11:58:01	39 52 32.081N	124 02 20.057W	411155.45	4414254.64
11/25/87	11:58:31	39 52 32.215N	124 02 20.348W	411148.59	4414258.86
11/25/87	11:59:01	39 52 32.469N	124 02 20.338W	411148.92	4414266.68

MMS CARP Project
Hard Substrate Transect HB6

DATE	TIME	LATITUDE	LONGITUDE	UTM - X	UTM -Y
11/25/87	11:59:30	39 52 32.816N	124 02 20.185W	411152.67	4414277.32
11/25/87	12:00:00	39 52 33.199N	124 02 20.125W	411154.23	4414289.13
11/25/87	12:00:31	39 52 33.672N	124 02 20.280W	411150.73	4414303.74
11/25/87	12:01:00	39 52 33.993N	124 02 20.540W	411144.67	4414313.73
11/25/87	12:01:30	39 52 34.169N	124 02 20.885W	411136,55	4414319.23
11/25/87	12:02:01	39 52 34.119N	124 02 21.314W	411126.34	4414317.82
11/25/87	12:02:31	39 52 33.915N	124 02 21.633W	411118.67	4414311.61
11/25/87	12:03:00	39 52 33.680N	124 02 21.794W	411114.76	4414304.41
11/25/87	12:03:30	39 52 33.484N	124 02 21.899W	411112.20	4414298.40
11/25/87	12:04:00	39 52 33.302N	124 02 22.141W	411106.40	4414292,87
11/25/87	12:04:30	39 52 33.148N	124 02 22.489W	411098.06	4414288.19
11/25/87	12:05:00	39 52 33.022N	124 02 22.747W	411091.89	4414284.39
11/25/87	12:05:30	39 52 33.055N	124 02 22.774W	411091.27	4414285,41
11/25/87	12:06:01	39 52 33.348N	124 02 22.656W	411094.16	4414294.41
11/25/87	12:06:30	39 52 33.837N	124 02 22.448W	411099.29	4414309.42
11/25/87	12:07:01	39 52 34.317N	124 02 22.126W	411107.10	4414324.15
11/25/87	12:07:30	39 52 34.620N	124 02 21.780W	411115.44	4414333.40
n/25/87	12:08:00	39 52 34.903N	124 02 21.347W	411125.84	4414341.99
11/25/87	12:08:30	39 52 35.124N	124 02 21.006W	411134.00	4414348.70
11/25/87	12:09:01	39 52 35.355N	124 02 20.674W	411141.97	4414355.74
11/25/87	12:09:31	39 52 35.625N	124 02 20.383W	411148,98	4414363.99
11/25/87	12:10:06	39 52 35.982N	124 02 20.311W	411150.82	4414374.97
11/25/87	12:10:30	39 52 36.341N	124 02 20.571W	411144.77	4414386.10
11/25/87	12:11:00	39 52 36.535N	124 02 21.074W	411132.89	4414392.22
11/25/87	12:11:31	39 52 36.386N	124 02 21.565W	411121.17	4414387.78
11/25/87	12:12:00	39 52 36.027N	124 02 21.947W	411111.98	4414376.82
11/25/87	12:12:31	39 52 35.703N	124 02 22.359W	411102.06	4414366.95
11/25/87	12:13:01	39 52 35.569N	124 02 22.718W	411093.49	4414362.91
11/25/87	12:13:32	39 52 35.431N	124 02 23.292W	411079.82	4414358.81
11/25/87	12:14:00	39 52 35.219N	124 02 23.531W	411074.06	4414352.33
11/25/87	12:14:31	39 52 34.977N	124 02 23.731W	411069.22	4414344.94
11/25/87	12:15:00	39 52 35.023N	124 02 24.189W	411058.36	4414346.47
11/25/87	12:15:31	39 52 35.419N	124 02 24.983W	411039.64	4414358.90
11/25/87	12:16:00	39 52 35.870N	124 02 25.606W	411025.00	4414373.00
11/25/87	12:16:30	39 52 36.040N	124 02 26.033W	411014.92	4414378.33
11/25/87	12:17:00	39 52 35.949N	124 02 26.511W	411003.52	4414375.66
11/25/87	12:17:32	39 52 35.821N	124 02 27.116W	410989.12	4414371.89
11/25/87	12:18:00	39 52 35.693N	124 02 27.656W	410976.23	4414368.09
11/25/87	12:18:30	39 52 35.559N	124 02 28.188W	410963.54	4414364.11
11/25/87	12:19:00	39 52 35.534N	124 02 28.541W	410955,16	4414363.44
11/25/87	12:19:30	39 52 35.588N	124 02 29.084W	410942.29	4414365.25
11/25/87	12:20:01	39 52 35.668N	124 02 29.717W	410927.28	4414367.90
11/25/87	12:20:31	39 52 35.633N	124 02 30.117W	410917.76	4414366.93
11/25/87	12:21:00	39 52 35.499N	124 02 30.340W	410912.42	4414362.86
11/25/87	12:21:30	39 52 35.305N	124 02 30.400W	410910.93	4414356.90
11/25/87	12:22:00	39 52 35.111N	124 02 30.342W	410912.23	4414350.91

MMS CARP Project
Hard Substrate Transect HB6

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/25/87	12:22:33	39 52 34.932N	124 02 30.028W	410919.61	4414345.29
11/25/87	12:23:01	39 52 34.849N	124 02 29.432W	410933.74	4414342.58
11/25/87	12:23:30	39 52 34.887N	124 02 28.615W	410953.16	4414343.50
11/25/87	12:24:00	39 52 35.089N	124 02 27.978W	410968.37	4414349.55
11/25/87	12:24:30	39 52 35.528N	124 02 27.572W	410978.18	4414362.98
11/25/87	12:25:01	39 52 36.157N	124 02 27.396W	410982.57	4414382.33
11/25/87	12:25:31	39 52 36.749N	124 02 27.252W	410986.22	4414400.54
11/25/87	12:26:00	39 52 37.143N	124 02 26.976W	410992.92	4414412.61
11/25/87	12:26:31	39 52 37.494N	124 02 26.456W	411005.40	4414423.28
11/25/87	12:27:00	39 52 37.776N	124 02 25.944W	411017.65	4414431.85
11/25/87	12:27:33	39 52 38.055N	124 02 25.437W	411029.80	4414440.29
11/25/87	12:28:00	39 52 38.236N	124 02 25.103W	411037.81	4414445.80
11/25/87	12:28:31	39 52 38.342N	124 02 24.911W	411042.40	4414448,99
11/25/87	12:29:00	39 52 38.387N	124 02 24.849W	411043.89	4414450.37
11/25/87	12:29:30	39 52 38.331N	124 02 24.936W	411041.81	4414448.68
11/25/87	12:30:00	39 52 38.098N	124 02 25.189W	411035.70	4414441.56
11/25/87	12:30:31	39 52 37.721N	124 02 25.641W	411024.83	4414430.05
11/25/87	12:31:00	39 52 37.339N	124 02 26.384W	411007.06	4414418.49
11/25/87	12:31:31	39 52 37.195N	124 02 27.254W	410986.33	4414414.28
11/25/87	12:32:01	39 52 37.281N	124 02 28.075W	410966.86	4414417.18
11/25/87	12:32:30	39 52 37.469N	124 02 28.754W	410950.80	4414423.15
11/25/87	12:33:01	39 52 37.535N	124 02 29.148W	410941.47	4414425.30
11/25/87	12:33:31	39 52 37.417N	124 02 29.323W	410937.26	4414421.72
11/25/87	12:34:00	39 52 37.265N	124 02 29.440W	410934.41	4414417.05
11/25/87	12:34:31	39 52 37.312N	124 02 29.717W	410927.87	4414418.58
11/25/87	12:35:01	39 52 37.673N	124 02 30.232W	410915.75	4414429.86
n/25/87	12:35:31	39 52 38.176N	124 02 30.767W	410903.24	4414445.52
n/25/87	12:36:00	39 52 38.690N	124 02 31.237W	410892.25	4414461.49
11/25/87	12:36:30	39 52 38.938N	124 02 31.507W	410885.92	4414469.19
11/25/87	12:37:01	39 52 39.092N	124 02 31.819W	410878.58	4414474.05
11/25/87	12:37:31	39 52 39.160N	124 02 32.151W	410870.71	4414476.24
n/25/87	12:38:00	39 52 39.154N	124 02 32.396W	410864.88	4414476.11
11/25/87	12:38:31	39 52 39.119N	124 02 32.557W	410861.05	4414475.08
11/25/87	12:39:01	39 52 39.138N	124 02 32.807W	410855.12	4414475.72
11/25/87	12:39:31	39 52 39.261N	124 02 33.281W	410843.90	4414479.67
11/25/87	12:40:00	39 52 39.346N	124 02 33.753W	410832.71	4414482.40
11/25/87	12:40:30	39 52 39.241N	124 02 33.984W	410827.18	4414479.23
11/25/87	12:41:00	39 52 39.026N	124 02 34.013W	410826.42	4414472.62
11/25/87	12:41:30	39 52 38.909N	124 02 34.055W	410825.40	4414469.01
11/25/87	12:42:00	39 52 39.006N	124 02 34.180W	410822.44	4414472.03
11/25/87	12:42:31	39 52 39.311N	124 02 34.226W	410821.48	4414481 45
11/25/87	12:43:01	39 52 39.627N	124 02 34.158W	410823.21	4414491.17
11/25/87	12:43:31	39 52 39.874N	124 02 34.191W	410822.51	4414498.81
11/25/87	12:44:01	39 52 40.212N	124 02 34.477W	410815.82	4414509.31
11/25/87	12:44:30	39 52 40,730N	124 02 34.937W	410805.08	4414525.40
11/25/87	12:45:01	39 52 41.481N	124 02 35.406W	410794.23	4414548.68

MMS CARP Project
Hard Substrate Transect HB6

DATE	TIME	LATITUDE	LONGITUDE	UTM - X	UTM - Y
11/25/87	12:45:31	39 52 42.073N	124 02 35.719W	410787.00	4414567.02
11/25/87	12:46:00	39 52 42.595N	124 02 36.066W	410778.95	4414583.20
11/25/87	12:46:31	39 52 42.832N	124 02 36.260W	410774.43	4414590.57
11/25/87	12:47:00	39 52 42.813N	124 02 36.115W	410777.86	4414589.96
11/25/87	12:47:31	39 52 42.547N	124 02 35.614W	410789.67	4414581.62
11/25/87	12:48:01	39 52 42.131N	124 02 35.053W	410802.84	4414568.61
11/25/87	12:48:30	39 52 41.778N	124 02 34.531W	410815.11	4414557,60
11/25/87	12:49:01	39 52 41.619N	124 02 33.962W	410828.58	4414552.54
11/25/87	12:49:31	39 52 41.693N	124 02 33.399W	410841.98	4414554.67
11/25/87	12:50:00	39 52 41.842N	124 02 32.965W	410852.32	4414559.13
11/25/87	12:50:30	39 52 41.984N	124 02 32.640W	410860.12	4414563.43
11/25/87	12:52:12	39 52 42.172N	124 02 32.406W	410865.72	4414569,15
11/25/87	12:52130	39 52 42.261N	124 02 32.357W	410866.93	4414571.87
11/25/87	12:53:01	39 52 42.727N	124 02 32.439W	410865.14	4414586,27
11/25/87	12:53:30	39 52 43.141N	124 02 32.970W	410852.69	4414599.20
11/25/87	12:54:01	39 52 43.486N	124 02 33.788W	410833.37	4414610.04
11/25/87	12:54:32	39 52 43.647N	124 02 34.405W	410818.77	4414615.18
11/25/87	12:55:01	39 52 43.529N	124 02 34.803W	410809.27	4414611.66
11/25/87	12:55:30	39 52 43.191N	124 02 35.026W	410803.86	4414601.29
11/25/87	12:56:01	39 52 43.261N	124 02 35.358W	410796.00	4414603.55
11/25/87	12:56:30	39 52 44.041N	124 02 35.837W	410784.91	4414627.72
11/25/87	12:57:01	39 52 44.674N	124 02 36.268W	410774.90	4414647.36
11/25/87	12:57:31	39 52 44.781N	124 02 36.713W	410764.35	4414650.79
11/25/87	12:58:00	39 52 44.738N	124 02 37.072W	410755.81	4414649.55
11/25/87	12:58:30	39 52 44.864N	124 02 37.204W	410752.72	4414653.47
11/25/87	12:59:00	39 52 45.060N	124 02 37.239W	410751.96	4414659.52
11/25/87	12:59:31	39 52 45.332N	124 02 37.590W	410743.73	4414668.01
11/25/87	13:00:01	39 52 45.767N	124 02 38.219W	410728.94	4414681.61
11/25/87	13:00:30	39 52 46.219N	124 02 38.718W	410717.25	4414695.67
11/25/87	13:01:03	39 52 46.528N	124 02 39.048W	410709.52	4414705.30
11/25/87	13:01:30	39 52 46.637N	124 02 39.294W	410703.73	4414708.74
11/25/87	13:02:01	39 52 46.664N	124 02 39.529W	410698.15	4414709.63
11/25/87	13:02:31	39 52 46.658N	124 02 39.673W	410694.72	4414709.48
11/25/87	13:03:00	39 52 46.664N	124 02 39.842W	410690.71	4414709.72
11/25/87	13:03:30	39 52 46.677N	124 02 40.179W	410682.72	4414710.19
11/25/87	13:04:00	39 52 46.741N	124 02 40.661W	410671.28	4414712.30
11/25/87	13:04:31	39 52 47.011N	124 02 41.030W	410662.61	4414720.73
11/25/87	13:05:00	39 52 47.555N	124 02 41.222W	410658.25	4414737.57
11/25/87	13:05:30	39 52 48.077N	124 02 41.433W	410653.44	4414753.72
11/25/87	13:06:03	39 52 48.523N	124 02 41.893W	410642.67	4414767.58
11/25/87	13:06:32	39 52 48.785N	124 02 42.326W	410632.48	4414775.78
11/25/87	13:07:00	39 52 48.939N	124 02 42.520W	410627.93	4414780.60
11/25/87	13:07:30	39 52 49.057N	124 02 42.480W	410628.90	4414784.22
11/25/87	13:08:00	39 52 49.199N	124 02 42.431W	410630.13	4414788.59
11/25/87	13:08:30	39 52 49.540N	124 02 42.437W	410630,11	4414799.09
11/25/87	13:09:01	39 52 49.965N	124 02 42.377W	410631.68	4414812,17

MMS CARP Project
Hard Substrate Transect HB6

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM - Y
11/25/87	13:09:30	39 52 50.295N	124 02 42.245W	410634.93	4414822.31
11/25/87	13:10:00	39 52 50.515N	124 02 42.276W	410634.28	4414829.12
11/25/87	13:10:30	39 52 50.734N	124 02 42.652W	410625.44	4414835.97
11/25/87	13:11:00	39 52 50.878N	124 02 43.163W	410613.34	4414840.56
11/25/87	13:11:31	39 52 50.854N	124 02 43.489W	410605.59	4414839.89
11/25/87	13:12:00	39 52 50.662N	124 02 43.576W	410603.46	4414834.00
11/25/87	13:12:31	39 52 50.441N	124 02 43.572W	410603.48	4414827.19
11/25/87	13:13:01	39 52 50.311N	124 02 43.640W	410601.82	4414823.20
11/25/87	13:13:35	39 52 50.377N	124 02 43.895W	410595.77	4414825.31
11/25/87	13:14:00	39 52 50.579N	124 02 44.310W	410585.99	4414831.66
11/25/87	13:14:31	39 52 50.858N	124 02 44.945W	410571.00	4414840.42
11/25/87	13:15:04	39 52 51.097N	124 02 45.742W	410552.18	4414848.02
11/25/87	13:15:30	39 52 51.047N	124 02 46.107W	410543.49	4414846.59
11/25/87	13:16:05	39 52 50.676N	124 02 45.828W	410549.97	4414835.07
11/25/87	13:16:31	39 52 50.313N	124 02 45.183W	410565.17	4414823.70
11/25/87	13:17:01	39 52 50.251N	124 02 44.995W	410569.61	4414821.74
11/25/87	13:17:30	39 52 50.220N	124 02 44.776W	410574.79	4414820.72
11/25/87	13:18:04	39 52 50.509N	124 02 44.473W	410582.10	4414829.54
11/25/87	13:18:31	39 52 51.214N	124 02 44.642W	410578.33	4414851.34

MMS CARP Project
Hard Substrate Transect HB7

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM-Y
11/26/87	09:06:34	39 25 36.675N	123 52 54.902W	424091.65	4364309.21
11/26/87	09:07:00	39 25 36.675N	123 52 54.902W	424091.65	4364309.21
11/26/87	09:07:30	39 25 36.675N	123 52 54.902W	424091.65	4364309.21
11/26/87	09:08:00	39 25 36.675N	123 52 54.902W	424091.65	4364309.21
11/26/87	09:08:31	39 25 36.694N	123 52 54,910W	424091.46	4364309.78
11/26/87	09:09:01	39 25 36.803N	123 52 54.989W	424089.62	4364313.17
n/26/87	09:09:30	39 25 37.082N	123 52 55.242W	424083.64	4364321.82
11/26/87	09:10:00	39 25 37.389N	123 52 55.482W	424078.01	4364331.35
11/26/87	09:10:30	39 25 37.484N	123 52 55.304W	424082.28	4364334.23
11/26/87	09:11:00	39 25 37.449N	123 52 54.863W	424092.82	4364333.05
11/26/87	09:11:30	39 25 37.432N	123 52 54.651W	424097,90	4364332.49
11/26/87	09:12:01	39 25 37.259N	123 52 54.768W	424095.04	4364327.17
11/26/87	09:12:30	39 25 36.749N	123 52 54.962W	424090.25	4364311.51
11/26/87	09:13:00	39 25 35.966N	123 52 55.222W	424083.80	4364287.41
11/26/87	09:13:30	39 25 35.266N	123 52 55.672W	424072.83	4364265.96
11/26/87	09:14:00	39 25 34.538N	123 52 56.379W	424055.70	4364243.68
11/26/87	09:14:30	39 25 33.856N	123 52 57.025W	424040.06	4364222.78
11/26/87	09:15:00	39 25 33.183N	123 52 57.544W	424027.43	4364202.18
11/26/87	09:15:31	39 25 32.620N	123 52 57.806W	424020.99	4364184.88
11/26/87	09:16:00	39 25 32.038N	123 52 57.854W	424019.68	4364166.96
11/26/87	09:16:30	39 25 31.527N	123 52 57.775W	424021.40	4364151.17
11/26/87	09:17:01	39 25 31.036N	123 52 57.654W	424024.17	4364136.01
11/26/87	09:17:30	39 25 30.483N	123 52 57.464W	424028,54	4364118.92
11/26/87	09:18:00	39 25 29.949N	123 52 57.171W	424035.38	4364102.38
11/26/87	09:18:30	39 25 29.666N	123 52 56.897W	424041.85	4364093.61
11/26/87	09:19:00	39 25 29.559N	123 52 56.796W	424044.24	4364090.28
11/26/87	09:19:30	39 25 29.373N	123 52 56.979W	424039.79	4364084.60
11/26/87	09:20:00	39 25 29.085N	123 52 57.404W	424029.54	4364075.80
11/26/87	09:20:30	39 25 28.858N	123 52 57.955W	424016.31	4364068.93
11/26/87	09:21:00	39 25 28.759N	123 52 58.460W	424004.20	4364066.00
11/26/87	09:21:32	39 25 28.635N	123 52 58.817W	423995.63	4364062.26
11/26/87	09:22:00	39 25 28.375N	123 52 59.079W	423989.28	4364054.31
11/26/87	09:22:30	39 25 28.045N	123 52 59.314W	423983,56	4364044.20
11/26/87	09:23:00	39 25 27.909N	123 52 59.407W	423981.30	4364040.02
11/26/87	09:23:31	39 25 27.934N	123 52 59.477W	423979.63	4364040.80
11/26/87	09:24:00	39 25 28.027N	123 52 59.725W	423973.74	4364043.72
11/26/87	09:24:31	39 25 28.039N	123 53 00.071W	423965.46	4364044.18
11/26/87	09:25:00	39 25 27.886N	123 53 00.286W	423960.29	4364039.53
11/26/87	09:25:31	39 25 27.562N	123 53 00.321W	423959.35	4364029.55
11/26/87	09:26:00	39 25 27.098N	123 53 00.317W	423959.31	4364015.24
11/26/87	09:26:31	39 25 26.752N	123 53 00.306W	423959.45	4364004.56
11/26/87	09:27:00	39 25 26.659N	123 53 00.257W	423960.61	4364001.69
11/26/87	09:27:30	39 25 26.789N	123 53 00.265W	423960.45	4364005.69
11/26/87	09:28:00	39 25 27.012N	123 53 00.529W	423954.20	4364012.62
11/26/87	09:28:30	39 25 27.074N	123 53 00.995W	423943,07	4364014.64
11/26/87	09:29:01	39 25 26.954N	123 53 01.461W	423931.89	4364011.06

MMS CARP Project
Hard Substrate Transect HB7

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM-Y
11/26/87	09:29:30	39 25 26.723N	123 53 01.758W	423924.72	4364004.01
11/26/87	09:30:05	39 25 26.350N	123 53 01.934W	423920.42	4363992.54
11/26/87	09:30:34	39 25 25.943N	123 53 02.070W	423917.04	4363980.05
11/26/87	09:31:03	39 25 25.539N	123 53 02.245W	423912.72	4363967.62
11/26/87	09:31:35	39 25 25.306N	123 53 02.379W	423909.45	4363960.47
11/26/87	09:32:04	39 25 25.291N	123 53 02.421W	423908.46	4363960.03
11/26/87	09:32:33	39 25 25.291N	123 53 02.439W	423908,01	4363960.04
11/26/87	09:33:02	39 25 25.091N	123 53 02.491W	423906.72	4363953.88
11/26/87	09:33:34	39 25 24.755N	123 53 02.478W	423906.91	4363943.52
11/26/87	09:34:02	39 25 24.516N	123 53 02.297W	423911.18	4363936.10
11/26/87	09:34:30	39 25 24.466N	123 53 02.057W	423916.89	4363934.51
11/26/87	09:35:00	39 25 24.501N	123 53 01.998W	423918.33	4363935.58
11/26/87	09:35:30	39 25 24.514N	123 53 02.192W	423913.70	4363936.01
11/26/87	09:36:00	39 25 24.489N	123 53 02.493W	423906.49	4363935.32
11/26/87	09:36:30	39 25 24.402N	123 53 02.753W	423900.25	4363932.71
11/26/87	09:37:00	39 25 24.281N	123 53 02.850W	423897.89	4363928.98
11/26/87	09:37:30	39 25 24.223N	123 53 02.798W	423899.11	4363927.19
11/26/87	09:38:02	39 25 24.332N	123 53 02.693W	423901.66	4363930.53
11/26/87	09:38:30	39 25 24.504N	123 53 02.672W	423902.20	4363935.80
11/26/87	09:39:00	39 25 24.541N	123 53 02.800W	423899.16	4363936.98
n/26/87	09:39:30	39 25 24.419N	123 53 03.033W	423893.55	4363933.28
11/26/87	09:40:03	39 25 24.242N	123 53 03.274W	423887.72	4363927.87
n/26/87	09:40:32	39 25 24.068N	123 53 03.409W	423884.46	4363922.56
11/26/87	09:41:00	39 25 23.914N	123 53 03.392W	423884.81	4363917.79
11/26/87	09:41:30	39 25 23.831N	123 53 03.324W	423886.41	4363915.23
11/26/87	09:42:00	39 25 23.852N	123 53 03.373W	423885.24	4363915.87
n/26/87	09:42:53	39 25 23.907N	123 53 03.567W	423880.62	4363917.64
11/26/87	09:43:00	39 25 23.912N	123 53 03.598W	423879.88	4363917.77
11/26/87	09:43:30	39 25 23.827N	123 53 03.829W	423874.33	4363915.22
11/26/87	09:44:00	39 25 23.526N	123 53 03.809W	423874.73	4363905.93
11/26/87	09:44:31	39 25 23.084N	123 53 03.528W	423881.31	4363892.26
11/26/87	09:45:00	39 25 22.736N	123 53 03.211W	423888.80	4363881.44
11/26/87	09:45:30	39 25 22.457N	123 53 03.033W	423892.95	4363872.81
11/26/87	09:46:01	39 25 22.311N	123 53 03.151W	423890.10	4363868.32
11/26/87	09:46:30	39 25 22.435N	123 53 03.384W	423884.56	4363872.19
11/26/87	09:47:01	39 25 22.812N	123 53 03.520W	423881,42	4363883.86
11/26/87	09:47:30	39 25 23.056N	123 53 03.706W	423877.06	4363891.41
11/26/87	09:48:00	39 25 22.971N	123 53 04.112W	423867.31	4363888.90
11/26/87	09:48:30	39 25 22.688N	123 53 04.448W	423859.19	4363880.26
11/26/87	09:49:00	39 25 22.323N	123 53 04.487W	423858.14	4363869.02
11/26/87	09:49:30	39 25 21.936N	123 53 04.479W	423858.22	4363857.06
11/26/87	09:50:00	39 25 21.566N	123 53 04.648W	423854.07	4363845.72
11/26/87	09:50:30	39 25 21.333N	123 53 04.838W	423849.46	4363838.58
11/26/87	09:51:00	39 25 21.123N	123 53 04.945W	423846.83	4363832.12
11/26/87	09:51:31	39 25 20.925N	123 53 04.966W	423846.28	4363826.02
11/26/87	09:52:01	39 25 20.706N	123 53 04.980W	423845.87	4363819.28

MMS CARP Project
Hard Substrate Transect HB7

DATE	TIME	LATITUDE	LONGITUDE	UTM- X	UTM -Y
11/26/87	09:52:31	39 25 20.384N	123 53 05.024W	423844,73	4363809.37
11/26/87	09:53:00	39 25 20.017N	123 53 05.028W	423844.52	4363798.05
11/26/87	09:53:30	39 25 19.596N	123 53 04.908W	423847.26	4363785.05
11/26/87	09:54:00	39 25 19.205N	123 53 04.667W	423852.91	4363772.92
11/26/87	09:54:31	39 25 18.813N	123 53 04.411W	423858.91	4363760.78
11/26/87	09:55:01	39 25 18.497N	123 53 04.211W	423863.60	4363751.00
11/26/87	09:55:30	39 25 18.332N	123 53 04.050W	423867.39	4363745.88
11/26/87	09:56:01	39 25 18.295N	123 53 03.887W	423871.28	4363744.69
11/26/87	09:56:30	39 25 18.382N	123 53 03.854W	423872.09	4363747.36
11/26/87	09:57:00	39 25 18.514N	123 53 04.021W	423868.14	4363751.46
11/26/87	09:57:30	39 25 18.582N	123 53 04.341W	423860.51	4363753.64
11/26/87	09:58:00	39 25 18.493N	123 53 04.710W	423851.66	4363750.99
11/26/87	09:58:31	39 25 18.256N	123 53 05.061W	423843.20	4363743.76
11/26/87	09:59:00	39 25 18.031N	123 53 05.327W	423836.77	4363736.89
11/26/87	09:59:30	39 25 17.851N	123 53 05.502W	423832.53	4363731.40
11/26/87	10:00:00	39 25 17.705N	123 53 05.525W	423831.94	4363726.89
11/26/87	10:00:30	39 25 17.476N	123 53 05.481W	423832.91	4363719.82
11/26/87	10:01:02	39 25 17.222N	123 53 05.442W	423833.77	4363711.99
11/26/87	10:01:30	39 25 17.055N	123 53 05.448W	423833.57	4363706.84
11/26/87	10:02:01	39 25 16.884N	123 53 05.616W	423829.52	4363701.60
11/26/87	10:02:31	39 25 16.643N	123 53 05.972W	423820.92	4363694.25
11/26/87	10:03:01	39 25 16.358N	123 53 06.410W	423810,37	4363685.58
11/26/87	10:03:30	39 25 16.189N	123 53 06.653W	423804.50	4363680.42
11/26/87	10:04:00	39 25 16.088N	123 53 06.703W	423803.29	4363677.31
11/26/87	10:04:31	39 25 15.931N	123 53 06.645W	423804.62	4363672.47
11/26/87	10:05:01	39 25 15.799N	123 53 06.552W	423806.80	4363668.38
11/26/87	10:05:30	39 25 15.758N	123 53 06.472W	423808.71	4363667.09
11/26/87	10:06:01	39 25 15.781N	123 53 06.461W	423808.97	4363667.78
11/26/87	10:06:31	39 25 15.781N	123 53 06.509W	423807.83	4363667.79
11/26/87	10:07:00	39 25 15.731N	123 53 06.564W	423806.48	4363666.28
11/26/87	10:07:30	39 25 15.634N	123 53 06.632W	423804.83	4363663.31
11/26/87	10:08:00	39 25 15.461N	123 53 06.715W	423802.80	4363657.99
11/26/87	10:08:30	39 25 15.230N	123 53 06.777W	423801.25	4363650.88
11/26/87	10:09:00	39 25 14.956N	123 53 06.835W	423799.79	4363642.44
11/26/87	10:09:30	39 25 14.747N	123 53 06.917W	423797.75	4363636.03
11/26/87	10:10:03	39 25 14.634N	123 53 07.033W	423794.96	4363632.56
11/26/87	10:10:35	39 25 14.603N	123 53 07.130W	423792.63	4363631.63
11/26/87	10:11:00	39 25 14.599N	123 53 07.233W	423790.16	4363631.53
11/26/87	10:11:30	39 25 14.582N	123 53 07.377W	423786.70	4363631.05
11/26/87	10:12:01	39 25 14.543N	123 53 07.505W	423783.64	4363629.88
11/26/87	10:12:30	39 25 14.487N	123 53 07.546W	423782.63	4363628.17
11/26/87	10:13:00	39 25 14.401N	123 53 07.517W	423783.30	4363625.49
11/26/87	10:13:30	39 25 14.254N	123 53 07.534W	423782.86	4363620.98
11/26/87	10:14:01	39 25 14.005N	123 53 07.658W	423779.82	4363613.32
11/26/87	10:14:30	39 25 13.679N	123 53 07.744W	423777,65	4363603.29
11/26/87	10:15:04	39 25 13.303N	123 53 07.639W	423780.05	4363591.69

MMS CARP Project
Hard Substrate Transect HB7

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/26/87	10:15:32	39 25 12.938N	123 53 07.416W	423785.27	4363580.39
11/26/87	10:16:03	39 25 12.532N	123 53 07.233W	423789,54	4363567.82
11/26/87	10:16:30	39 25 12.093N	123 53 07.158W	423791.18	4363554.25
11/26/87	10:17:00	39 25 11.711N	123 53 07.136W	423791.61	4363542.49
11/26/87	10:17:30	39 25 11.362N	123,53 07.066W	423793.18	4363531.72
n/26/87	10:18:00	39 25 11.185N	123 53 06.880W	423797.56	4363526.21
11/26/87	10:18:30	39 25 11.199N	123 53 06.705W	423801.76	4363526.62
11/26/87	10:19:00	39 25 11.276N	123 53 06.672W	423802.57	4363528.96
11/26/87	10:19:30	39 25 11.385N	123 53 06.868W	423797.92	4363532.38
11/26/87	10:20:00	39 25 11.509N	123 53 07.233W	423789.23	4363536.28
11/26/87	10:20:30	39 25 11.579N	123 53 07.672W	423778.74	4363538.54
11/26/87	10:21:00	39 25 11.414N	123 53 08.012W	423770.56	4363533.53
11/26/87	10:21:31	39 25 11.125N	123 53 08.179W	423766.47	4363524.67
11/26/87	10:22:00	39 25 11.008N	123 53 08.153W	423767.08	4363521.04
11/26/87	10:22:30	39 25 11.051N	123 53 08.082W	&23768.77	4363522.36
11/26/87	10:23:00	39 25 11.113N	123 53 08.233W	423765.19	4363524.30
11/26/87	10:23:30	39 25 11.131N	123 53 08.623W	423755.87	4363524.97
11/26/87	10:24:01	39 25 11.032N	123 53 09.141W	423743.46	4363522.04
11/26/87	10:24:30	39 25 10.696N	123 53 09.568W	423733.15	4363511.77
11/26/87	10:25:00	39 25 10.249N	123 53 09.854W	423726.16	4363498.04
11/26/87	10:25:32	39 25 09.836N	123 53 09.986W	423722.88	4363485.35
11/26/87	10:26:01	39 25 09.428N	123 53 09.933W	423724.04	4363472.75
11/26/87	10:26:30	39 25 09.096N	123 53 09.766W	423727.93	4363462.48
11/26/87	10:27:00	39 25 08.869N	123 53 09.506W	423734.08	4363455.42
11/26/87	10:27:30	39 25 08.753N	123 53 09.273W	423739.61	4363451.80
11/26/87	10:28:00	39 25 08.553N	123 53 09.083W	423744.09	4363445.59
11/26/87	10:28:30	39 25 08.304N	123 53 08.988W	423746.29	4363437.88
11/26/87	10:29:02	39 25 08.064N	123 53 09.023W	423745.37	4363430.51
11/26/87	10:29:30	39 25 07.827N	123 53 09.116W	423743.08	4363423.22
11/26/87	10:30:01	39 25 07.627N	123 53 09.118W	423742.97	4363417.05
11/26/87	10:30:30	39 25 07.627N	123 53 08.996W	423745.88	4363417.02
n/26/87	10:31:00	39 25 07.804N	123 53 08.899W	423748.25	4363422.47
11/26/87	10:31:30	39 25 07.955N	123 53 09.048W	423744.75	4363427.14
n/26/87	10:32:00	39 25 07.959N	123 53 09.495W	423734.05	4363427.38
11/26/87	10:32:30	39 25 07.782N	123 53 10.003W	423721.86	4363422.03
11/26/87	10:33:00	39 25 07.501N	123 53 10.452W	423711.02	4363413.48
11/26/87	10:33:31	39 25 07.214N	123 53 10.733W	423704.23	4363404.71
11/26/87	10:34:00	39 25 07.004N	123 53 10.807W	423702.39	4363398.24
11/26/87	10:34:31	39 25 06.814N	123 53 10.716W	423704.50	4363392.37
11/26/87	10:35:00	39 25 06.633N	123 53 10.537W	423708.74	4363386.73
11/26/87	10:35:30	39 25 06.437N	123 53 10.386W	423712.28	4363380.66
11/26/87	10:36:00	39 25 06.233N	123 53 10.290W	423714.54	4363374.34
n/26/87	10:36:31	39 25 06.033N	123 53 10.211W	423716.35	4363368.15
11/26/87	10:37:00	39 25 05.907N	123 53 10.271W	423714.88	4363364.29
11/26/87	10:37:30	39 25 05.847N	123 53 10,574W	423707.61	4363362.52
11/26/87	10:38:03	39 25 05.740N	123 53 10.925W	423699.20	4363359.29

MMS CARP Project
Hard Substrate Transect HB7

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/26/87	10:38:30	39 25 05.568N	123 53 11.051W	423696.13	4363354.04
11/26/87	10:39:00	39 25 05.366N	123 53 11.110W	423694.64	4363347.83
11/26/87	10:39:30	39 25 05.210N	123 53 11.372W	423688.33	4363343.06
11/26/87	10:40:01	39 25 05.098N	123 53 11.822W	423677.55	4363339.73
11/26/87	10:40:31	39 25 04.913N	123 53 12.266W	423666.89	4363334.11
11/26/87	10:41:00	39 25 04.644N	123 53 12.565W	423659.65	4363325.91
11/26/87	10:41:30	39 25 04.259N	123 53 12.874W	423652.14	4363314.09
11/26/87	10:42:00	39 25 03.900N	123 53 13.175W	423644.83	4363303.10
11/26/87	10:42:30	39 25 03.557N	123 53 13.433W	423638.56	4363292.61
11/26/87	10:43:00	39 25 03.252N	123 53 13.501W	423636.84	4363283.21
11/26/87	10:43:30	39 25 03.068N	123 53 13.328W	423640.93	4363277.51
11/26/87	10:44:00	39 25 02.996N	123 53 12.977W	423649.29	4363275.20
11/26/87	10:44:30	39 25 02.949N	123 53 12.664W	423656.77	4363273.67
11/26/87	10:45:00	39 25 02.918N	123 53 12.596W	423658.39	4363272.70

MMS CARP Project
Hard Substrate Transect HB8

DATE	TIME	LATITUDE	LONGITUDE	UTM-X	UTM -Y
11/26/87	14:25:21 39 02	31.131N	123 53 54.824W	422235.26	4321611.55
11/26/87	14:25:30 39 02	31.129N	123 53 54.824W	422235.26	4321611.49
11/26/87	14:26:00 39 02	31.104N	123 53 54.775W	422236.44	4321610.71
11/26/87	14:26:30 39 02	31.019N	123 53 54.548W	422241.87	4321608.05
11/26/87	14:27:00 39 02	30.947N	123 53 54.212W	422249.93	4321605.75
11/26/87	14:27:31 39 02	31.005N	123 53 53.993W	422255.20	4321607.48
11/26/87	14:28:00 39 02	31.087N	123 53 53.939W	422256.52	4321610.01
11/26/87	14:28:30 39 02	31.021N	123 53 53.405W	422269.34	4321607.85
11/26/87	14:29:00 39 02	31.001N	123 53 52.264W	422296.76	4321606.94
11/26/87	14:29:30 39 02	31.283N	123 53 50.986W	422327.58	4321615.35
11/26/87	14:30:00 39 02	31.632N	123 53 50.451W	422340.53	4321625.97
n/26/87	14:30:33 39 02	31.696N	123 53 50.268W	422344.97	4321627.89
11/26/87	14:31:00 39 02	31.646N	123 53 49.870W	422354.52	4321626.27
11/26/87	14:31:30 39 02	31.679N	123 53 49.183W	422371.04	4321627.13
11/26/87	14:32:00 39 02	31.760N	123 53 48.684W	422383.07	4321629.49
11/26/87	14:32:30 39 02	31.787N	123 53 48.446W	422388.78	4321630.26
n/26/87	14:33:00 39 02	31.844N	123 53 48.125W	422396.53	4321631.96
11/26/87	14:33:31 39 02	31.995N	123 53 47.727W	422406.15	4321636.51
11/26/87	14:34:00 39 02	32.152N	123 53 47.551W	422410.41	4321641.30
11/26/87	14:34:30 39 02	32.201N	123 53 47.504W	422411.57	4321642.82
11/26/87	14:35:03 39 02	31.978N	123 53 47.190W	422419.04	4321635.88
11/26/87	14:35:31 39 02	31.663N	123 53 46.714W	422430.39	4321626.03
11/26/87	14:36:00 39 02	31.510N	123 53 46.452W	422436.64	4321621.27
11/26/87	14:36:30 39 02	31.599N	123 53 46.592W	422433.30	4321624.03
11/26/87	14:37:00 39 02	31.673N	123 53 46.798W	422428.36	4321626.37
11/26/87	14:37:31 39 02	31.584N	123 53 46.889W	422426.16	4321623.66
11/26/87	14:38:00 39 02	31.423N	123 53 46.912W	422425.56	4321618.71
11/26/87	14:38:30 39 02	31.355N	123 53 46.906W	422425.69	4321616.61
n/26/87	14:39:00 39 02	31.312N	123 53 46.767W	422429.00	4321615.24
11/26/87	14:39:30 39 02	31.166N	123 53 46.411W	422437.53	4321610.64
11/26/87	14:40:00 39 02	30.935N	123 53 45.942W	422448.72	4321603.41
11/26/87	14:40:31 39 02	30.770N	123 53 45.633W	422456.11	4321598.25
11/26/87	14:41:00 39 02	30.753N	123 53 45.491W	422459.52	4321597.70
11/26/87	14:41:30 39 02	30.879N	123 53 45.249W	422465.36	4321601.53
11/26/87	14:42:02 39 02	31.042N	123 53 44.804W	422476.12	4321606.44
11/26/87	14:42:32 39 02	31.118N	123 53 44.397W	422485.91	4321608.70
11/26/87	14:43:02 39 02	31.091N	123 53 44.257W	422489.28	4321607.84
11/26/87	14:43:31 39 02	31.019N	123 53 44.296W	422488.31	4321605.62
11/26/87	14:44:00 39 02	30.984N	123 53 44.237W	422489.74	4321604.53
11/26/87	14:44:30 39 02	31.054N	123 53 44.043W	422494.42	4321606.64
11/26/87	14:45:00 39 02	31.230N	123 53 43.915W	422497.55	4321612.02
11/26/87	14:45:31 39 02	31.376N	123 53 43.871W	422498.64	4321616.52
11/26/87	14:46:00 39 02	31.324N	123 53 43.610W	422504.92	4321614.87
11/26/87	14:46:31 39 02	31.155N	123 53 43.162W	422515.63	4321609.55
n/26/87	14:47:01 39 02	31.063N	123 53 43.007W	422519.32	4321606.65
11/26/87	14:47:30 39 02	31.044N	123 53 43.178W	422515.20	4321606.12

MMS CARP Project
Hard Substrate Transect HB8

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM- Y
11/26/87	14:48:00	39 02 30.974N	123 53 43.226W	422514.04	4321603.97
11/26/87	14:48:30	39 02 30.819N	123 53 42.758W	422525.24	4321599.09
11/26/87	14:49:00	39 02 30.772N	123 53 42.087W	422541.35	4321597.47
11/26/87	14:49:30	39 02 30.862N	123 53 41.671W	422551.39	4321600.17
11/26/87	14:50:00	39 02 30.908N	123 53 41.334W	422559.49	4321601.49
11/26/87	14:50:30	39 02 30.780N	123 53 41.033W	422566.69	4321597.48
11/26/87	14:51:00	39 02 30.605N	123 53 40.796W	422572.34	4321592.02
11/26/87	14:51:30	39 02 30.658N	123 53 40.656W	422575.72	4321593.64
11/26/87	14:52:00	39 02 30.980N	123 53 40.534W	422578.75	4321603.53
11/26/87	14:52:30	39 02 31.199N	123 53 40.474W	422580.25	4321610.25
11/26/87	14:53:00	39 02 31.131N	123 53 40.544W	422578.55	4321608.17
11/26/87	14:53:31	39 02 30.955N	123 53 40.646W	422576.06	4321602.79
11/26/87	14:54:00	39 02 30.858N	123 53 40.656W	422575.79	4321599.80
11/26/87	14:54:30	39 02 30.864N	123 53 40.586W	422577.47	4321599.98
11/26/87	14:55:01	39 02 30.906N	123 53 40.561W	422578.08	4321601.24
11/26/87	14:55:30	39 02 30.986N	123 53 40.497W	422579.64	4321603.71
11/26/87	14:56:00	39 02 31.096N	123 53 40.173W	422587.46	4321607.00
n/26/87	14:56:30	39 02 31.155N	123 53 39.459W	422604.64	4321608.68
11/26/87	14:57:00	39 02 31.046N	123 53 38.876W	422618.64	4321605.17
11/26/87	14:57:30	39 02 30.906N	123 53 38.717W	422622.41	4321600.81
11/26/87	14:58:00	39 02 30.871N	123 53 38.680W	422623.29	4321599.72
11/26/87	14:58:31	39 02 30.891N	123 53 38.583W	422625.63	4321600.33
11/26/87	14:59:00	39 02 30.951N	123 53 38.203W	422634.77	4321602.08
11/26/87	14:59:30	39 02 30.986N	123 53 37.826W	422643.86	4321603.08
11/26/87	15:00:00	39 02 30.990N	123 53 37.702W	422646.83	4321603.17
11/26/87	15:00:30	39 02 30.935N	123 53 37.657W	422647.91	4321601.45
11/26/87	15:01:00	39 02 30.821N	123 53 37.459W	422652.63	4321597.90
11/26/87	15:01:30	39 02 30.685N	123 53 37.343W	422655.37	4321593.68
11/26/87	15:02:00	39 02 30.609N	123 53 37.473W	422652.22	4321591.36
11/26/87	15:02:31	39 02 30.636N	123 53 37.318W	422655,95	4321592.15
11/26/87	15:03:00	39 02 30.788N	123 53 36.702W	422670.82	4321596.71
11/26/87	15:03:30	39 02 31.069N	123 53 36.351W	422679.34	4321605.27
11/26/87	15:04:00	39 02 31.335N	123 53 36.491W	422676.05	4321613.51
11/26/87	15:04:30	39 02 31.395N	123 53 36.759W	422669.62	4321615.41
11/26/87	15:05:00	39 02 31.316N	123 53 36.821W	422668.11	4321613.01
11/26/87	15:05:30	39 02 31.345N	123 53 36.675W	422671.64	4321613.87
11/26/87	15:06:00	39 02 31.456N	123 53 36.184W	422683.47	4321617.19
11/26/87	15:06:30	39 02 31.417N	123 53 35.617W	422697.10	4321615.84
11/26/'87	15:07:00	39 02 31.252N	123 53 35.365W	422703.09	4321610.70
11/26/87	15:07:30	39 02 31.213N	123 53 35.355W	422703.33	4321609.49
11/26/87	15:08:00	39 02 31.296N	123 53 34.959W	422712.88	4321611.94
11/26/87	15:08:30	39 02 31.343N	123 53 34.299W	422728.76	4321613.24
11/26/87	15:09:00	39 02 31.409N	123 53 33.940W	422737.41	4321615.19
11/26/87	15:09:30	39 02 31.553N	123 53 33.699W	422743.25	4321619.59
11/26/87	15:10:01	39 02 31.648N	123 53 33.249W	422754.09	4321622.41
11/26/87	15:10:31	39 02 31.580N	123 53 32.764W	422765.72	4321620.19

MMS CARP Project
Hard Substrate Transect HB8

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/26/87	15:11:00 39 02	31.498N	123 53 32.453W	422773.19	4321617.58
11/26/87	15:11:31 39 02	31.494N	123 53 32.215W	422778.89	4321617.39
11/26/87	15:12:00 39 02	31.483N	123 53 32.007W	422783.89	4321617.03
11/26/87	15:12:32 39 02	31.438N	123 53 31.813W	422788.54	4321615.58
11/26/87	15:13:01 39 02	31.411N	123 53 31.628W	422792.99	4321614.71
11/26/87	15:13:30 39 02	31.d36N	123 53 31.473W	422796.72	4321615.44
11/26/87	15:14:00 39 02	31.558N	123 53 31.296W	422801,02	4321619.15
11/26/87	15:14:30 39 02	31.803N	123 53 31.102W	422805.76	4321626.67
11/26/87	15:15:01 39 02	32.011N	123 53 30.970W	422808.99	4321633.06
11/26/87	15:15:31 39 02	31.997N	123 53 30.996W	422808.34	4321632.62
11/26/87	15:16:00 39 02	31.859N	123 53 30.992W	422808.40	4321628.36
11/26/87	15:16:30 39 02	31.770N	123 53 30.673W	422816.06	4321625.55
11/26/87	15:17:00 39 02	31.741N	123 53 30.171W	422828.10	4321624.54
11/26/87	15:17:30 39 02	31.720N	123 53 29.843W	422835.98	4321623.83
11/26/87	15:18:00 39 02	31.745N	123 53 29.823W	422836.48	4321624.59
11/26/87	15:18:30 39 02	31.820N	123 53 29.614W	422841.51	4321626.83
11/26/87	15:19:03 39 02	31.813N	123 53 29.020W	422855.79	4321626.50
n/26/87	15:19:31 39 02	31.687N	123 53 28.375W	422871.28	4321622.47
11/26/87	15:20:02 39 02	31.543N	123 53 28.016W	422879.86	4321617.93
11/26/87	15:20:30 39 02	31.520N	123 53 28.014W	422879.90	4321617.23
11/26/87	15:21:00 39 02	31.626N	123 53 28.133W	422877.06	4321620.50
11/26/87	15:21:31 39 02	31.696N	123 53 28.043W	422879.26	4321622.64
11/26/87	15:22:01 39 02	31.617N	123 53 27.610W	422889.65	4321620.12
11/26/87	15:22:30 39 02	31.514N	123 53 27.018W	422903.85	4321616.80
11/26/87	15:23:00 39 02	31.574N	123 53 26.537W	422915.42	4321618.54
11/26/87	15:23:30 39 02	31.789N	123 53 26.263W	422922.08	4321625.08
11/26/87	15:24:01 39 02	31.906N	123 53 26.038W	422927.52	4321628.65
11/26/87	15:24:30 39 02	31.842N	123 53 25.854W	422931.92	4321626.64
11/26/87	15:25:00 39 02	31.756N	123 53 25.898W	422930.85	4321623.98
11/26/87	15:25:30 39 02	31.772N	123 53 25.937W	422929.91	4321624.50
11/26/87	15:26:00 39 02	31.774N	123 53 25.493W	422940.57	4321624.46
11/26/87	15:26:30 39 02	31.685N	123 53 24.716W	422959.24	4321621.54
11/26/87	15:27:00 39 02	31.584N	123 53 24.000W	422976.42	4321618.26
11/26/87	15:27:30 39 02	31.607N	123 53 23.616W	422985.65	4321618.87
11/26/87	15:28:00 39 02	31.762N	123 53 23.342W	422992.29	4321623.57
11/26/87	15:28:30 39 02	31.923N	123 53 23.059W	422999.13	4321628.46
11/26/87	15:29:00 39 02	32.005N	123 53 22.958W	423001.58	4321630.98
11/26/87	15:29:30 39 02	31.980N	123 53 23.076W	422998.75	4321630.25
11/26/87	15:30:00 39 02	31.848N	123 53 22.905W	423002.83	4321626.14
11/26/87	15:30:30 39 02	31.648N	123 53 22.036W	423023.64	4321619.77
11/26/87	15:31:00 39 02	31.584N	123 53 21.057W	423047.18	4321617.56
11/26/87	15:31:30 39 02	31.844N	123 53 20.663W	423056.73	4321625.48
11/26/87	15:32:00 39 02	32.341N	123 53 20.710W	423055.74	4321640.82
11/26/87	15:32:30 39 02	32.713N	123 53 20.335W	423064.87	4321652.17
n/26/87	15:33:00 39 02	32.845N	123 53 19.774W	423078.40	4321656.11
11/26/87	15:33:30 39 02	32.863N	123 53 19.485W	423085.35	4321656.62

MMS CARP Project
Hard Substrate Transect HB8

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/26/87	15:34:00 39 02	32.818N	123 53 19.633W	423081.76	4321655.25
11/26/87	15:34:30 39 02	32.711N	123 53 19.749W	423078.95	4321651.97
11/26/87	15:35:00 39 02	32.583N	123 53 19.625W	423081.89	4321648.00
11/26/87	15:35:35 39 02	32.523N	123 53 19.520W	423084.40	4321646.13
11/26/87	15:36:00 39 02	32.449N	123 53 19.334W	423088.84	4321643.80
11/26/87	15:36:30 39 02	32.378N	123 53 18.967W	423097.65	4321641.55
11/26/87	15:37:00 39 02	32.259N	123 53 18.251W	423114,82	4321637.70
11/26/87	15:37:30 39 02	32.129N	123 53 17.412W	423134.96	4321633.49
11/26/87	15:38:00 39 02	31.987N	123 53 16.587W	423154.75	4321628.91
11/26/87	15:38:30 39 02	31.667N	123 53 15.815W	423173.20	4321618.88
11/26/87	15:39:00 39 02	31.370N	123 53 15.461W	423181.64	4321609.64
11/26/87	15:39:31 39 02	31.316N	123 53 15.539W	423179.74	4321608.00
11/26/87	15:40:00 39 02	31.225N	123 53 15.267W	423186.26	4321605,14
11/26/87	15:40:31 39 02	30.957N	123 53 14.695W	423199.91	4321596.74
11/26/87	15:41:00 39 02	30.714N	123 53 14.596W	423202.22	4321589.22
11/26/87	15:41:30 39 02	30.561N	123 53 14.699W	423199.69	4321584.53
11/26/87	15:42:00 39 02	30.485N	123 53 14.268W	423210.04	4321582.08
11/26/87	15:42:30 39 02	30.578N	123 53 13.759W	423222.31	4321584.82
11/26/87	15:43:01 39 02	30.757N	123 53 13.689W	423224.05	4321590.34
11/26/87	15:43:30 39 02	30.796N	123 53 13.790W	423221.63	4321591.57
11/26/87	15:44:01 39 02	30.697N	123 53 13.674W	423224.38	4321588.49
11/26/87	15:44:30 39 02	30.623N	123 53 13.379W	423231.45	4321586.13
11/26/87	15:45:00 39 02	30.623N	123 53 12.942W	423241.96	4321586.03
11/26/87	15:45:30 39 02	30.829N	123 53 12.511W	423252.39	4321592.29
11/26/87	15:46:00 39 02	31.228N	123 53 12.410W	423254.94	4321604.54
11/26/87	15:46:30 39 02	31.566N	123 53 12.435W	423254,44	4321614.97
11/26/87	15:47:00 39 02	31.646N	123 53 12.245W	423259.03	4321617.40
11/26/87	15:47:30 39 02	31.609N	123 53 11.938W	423266.41	4321616.19
11/26/87	15:48:00 39 02	31.560N	123 53 11.820W	423269.22	4321614.63
11/26/87	15:48:32 39 02	31.390N	123 53 11.756W	423270.70	4321609.41
11/26/87	15:49:00 39 02	31.083N	123 53 11.535W	423275.92	4321599.88
11/26/87	15:49:30 39 02	30.823N	123 53 11.300W	423281.49	4321591.81
11/26/87	15:50:00 39 02	30.650N	123 53 11.166W	423284.66	4321586.44
11/26/87	15:50:30 39 02	30.553N	123 53 11.053W	423287.36	4321583.43
11/26/87	15:51:00 39 02	30.497N	123 53 10.778W	423293.94	4321581.64
11/26/87	15:51:30 39 02	30.495N	123 53 10.554W	423299.34	4321581.53
11/26/87	15:52:00 39 02	30.468N	123 53 10.477W	423301.17	4321580.68
11/26/87	15:52:30 39 02	30.425N	123 53 10.232W	423307.06	4321579.29
11/26/87	15:53:00 39 02	30.433N	123 53 09.4S7W	423324.96	4321579.37
11/26/87	15:53:30 39 02	30.545N	123 53 O8.410W	423350.88	4321582.55
11/26/87	15:54:00 39 02	30.761N	123 53 07.466W	423373.66	4321589.01
11/26/87	15:54:30 39 02	30.924N	123 53 07.297W	423377.77	4321593.99
11/26/87	15:55:03 39 02	30.803N	123 53 07.709W	423367,82	4321590.34
11/26/87	15:55:31 39 02	30.539N	123 53 07.814W	423365.21	4321582.22
11/26/87	15:56:00 39 02	30.664N	123 53 07.123W	423381.86	4321585.94
11/26/87	15:56:30 39 02	31.388N	123 53 06.465W	423397.89	4321608.10

MMS CARP Project
Hard Substrate Transect HB8

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM - Y
11/26/87	15:57:00 39 02	32.032N	123 53 06.533W	423396.45	4321627.96
11/26/87	15:57:30 39 02	32.110N	123 53 06.830W	423389.33	4321630.44
11/26/87	15:58:00 39 02	32.003N	123 53 06.868W	423388.41	4321627.14
11/26/87	15:58:30 39 02	32.133N	123 53 06.896W	423387.75	4321631.16
11/26/87	15:59:00 39 02	32.381N	123 53 07.097W	423383.02	4321638.83
11/'26/87	15:59:30 39 02	32.455N	123 53 07.150W	423381.75	4321641.14
11/26/87	16:00:00 39 02	32.378N	123 53 06.975W	423385,94	4321638.74
11/26/87	16:00:30 39 02	32.343N	123 53 06.940W	423386.77	4321637,65
11/26/87	16:01:01 39 02	32.362N	123 53 07.074W	423383.56	4321638.26
11/26/87	16:01:30 39 02	32.339N	123 53 06.981W	423385.78	4321637.54
11/26/87	16:02:00 39 02	32.253N	123 53 06.482W	423397.76	4321634.75
11/26/87	16:02:30 39 02	32.154N	123 53 05.939W	423410.77	4321631.57
11/26/87	16:03:04 39 02	32.075N	123 53 05.545W	423420.21	4321629.06
11/26/87	16:03:33 39 02	32.044N	123 53 05.281W	423426.55	4321628.05
11/26/87	16:04:04 39 02	32.055N	123 53 05.104W	423430.82	4321628.32
11/26/87	16:04:35 39 02	32.063N	123 53 05.040W	423432.36	4321628.56
11/26/87	16:05:04 39 02	32.040N	123 53 05.028W	423432.65	4321627.86
11/26/87	16:05:30 39 02	31.993N	123 53 04.914W	423435.36	4321626.37
11/26/87	16:06:04 39 02	31.923N	123 53 04.502W	423445.26	4321624.11
11/26/87	16:06:34 39 02	31.830N	123 53 03.881W	423460,16	4321621.11
11/26/87	16:07:03 39 02	31.716N	123 53 03.369W	423472.42	4321617.49
11/26/87	16:07:36 39 02	31.609N	123 53 03.227W	423475.81	4321614.15
11/26/87	16:08:04 39 02	31.518N	123 53 03.303W	423473.95	4321611.37
11/26/87	16:08:30 39 02	31.444N	123 53 03.287W	423474.32	4321609.08
11/26/87	16:09:00 39 02	31.362N	123 53 03.048W	423480.05	4321606.48
11/26/87	16:09:30 39 02	31.289N	123 53 02.689W	423488,66	4321604.17
11/26/87	16:10:00 39 02	31.248N	123 53 02.196W	423500.50	4321602.78
11/26/87	16:10:30 39 02	31.285N	123 53 01.624W	423514.24	4321603.79
11/26/87	16:11:00 39 02	31.405N	123 53 01.158W	423525.48	4321607.37
11/26/87	16:11:30 39 02	31.560N	123 53 00.898W	423531.78	4321612.08
11/26/87	16:12:00 39 02	31.687N	123 53 00.713W	423536.28	4321615.98
11/26/87	16:12:31 39 02	31.797N	123 53 00.193W	423548.81	4321619.23
11/26/87	16:13:00 39 02	31.863N	123 52 59.446W	423566.78	4321621.09
11/26/87	16:13:31 39 02	31.894N	123 52 58.293W	423594.51	4321621.77
11/26/87	16:14:00 39 02	31.859N	123 52 58.153W	423597.87	4321620.66
11/26/87	16:14:31 39 02	31.842N	123 52 58.786W	423582.64	4321620.30
11/26/87	16:15:01 39 02	31.782N	123 52 58.891W	423580.09	4321618.48
11/26/87	16:15:30 39 02	31.621N	123 52 58.512W	423589,17	4321613.43
11/26/87	16:16:00 39 02	31.539N	123 52 58.219W	423596.19	4321610.82
11/26/87	16:16:30 39 02	31.619N	123 52 57.992W	423601.66	4321613.24
11/26/87	16:17:00 39 02	31.613N	123 52 57.654W	423609.79	4321612.98
11/26/87	16:17:30 39 02	31.450N	123 52 57.427W	423615.20	4321607.90
n/26/87	16:18:00 39 02	31.258N	123 52 57.231W	423619.85	4321601.94
11/26/87	16:18:31 39 02	31.081N	123 52 56.750W	423631.35	4321596.36
11/26/87	16:19:00 39 02	30.966N	123 52 56.113W	423646.64	4321592.65
11/26/87	16:19:30 39 02	31.087N	123 52 55.480W	423661.90	4321596.25

MMS CARP Project
Hard Substrate Transect HB8

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM - Y
11/26/87	16:20:00	39 02 31.428N	123 52 54.927W	423675.29	4321606.62
11/26/87	16:20:30	39 02 31.648N	123 52 54.665W	423681.66	4321613.36
11/26/87	16:21:00	39 02 31.640N	123 52 54.587W	423683.54	4321613.09
11/26/87	16:21:30	39 02 31.586N	123 52 54.358W	423689.03	4321611.38
11/26/87	16:22:00	39 02 31.549N	123 52 53.982W	423698.04	4321610.15
11/26/87	16:22:30	39 02 31.471N	123 52 53.821W	423701.88	4321607.69
11/26/87	16:23:00	39 02 31.395N	123 52 53.735W	423703.94	4321605.32
11/26/87	16:23:30	39 02 31.353N	123 52 53.376W	423712.56	4321603.97
11/26/87	16:24:00	39 02 31.349N	123 52 52.885W	423724.36	4321603.72
11/26/87	16:24:30	39 02 31.428N	123 52 52.594W	423731.37	4321606.07
11/26/87	16:25:00	39 02 31.636N	123 52 52.196W	423741.01	4321612.40
11/26/87	16:25:30	39 02 31.797N	123 52 51.744W	423751.91	4321617.26
11/26/87	16:26:00	39 02 31.778N	123 52 51.507W	423757.61	4321616.63
11/26/87	16:26:32	39 02 31.574N	123 52 51.470W	423758.44	4321610.33
11/26/87	16:27:00	39 02 31.372N	123 52 51.237W	423763.99	4321604.04
11/26/87	16:27:30	39 02 31.190N	123 52 50.725W	423776.23	4321598.33
11/26/87	16:28:02	39 02 31.036N	123 52 50.255W	423787.49	4321593.45
11/26/87	16:28:30	39 02 30.955N	123 52 49.849W	423797.23	4321590.87
11/26/87	16:29:00	39 02 31.060N	123 52 49.440W	423807.08	4321594.02
11/26/87	16:29:30	39 02 31.333N	123 52 48.989W	423818.02	4321602.31
11/26/87	16:30:00	39 02 31.644N	123 52 48.425W	423831.65	4321611.78
11/26/87	16:30:30	39 02 31.840N	123 52 47.906W	423844.21	4321617.70
11/26/87	16:31:00	39 02 31.925N	123 52 47.303W	423858.71	4321620.17
11/26/87	16:31:30	39 02 31.910N	123 52 46.672W	423873.88	4321619.57
11/26/87	16:32:01	39 02 31.892N	123 52 46.103W	423887.56	4321618.87
11/26/87	16:32:30	39 02 31.873N	123 52 45.754W	423895.94	4321618.22
11/26/87	16:33:00	39 02 31.809N	123 52 45.472W	423902.71	4321616.18
11/26/87	16:33:34	39 02 31.758N	123 52 45.173W	423909.88	4321614.52

MMS CARP Project
Hard Substrate Transect HB9

DATE	TIME	LATITUDE	LONGITUDE	UTM - X	UTM -Y
11/27/87	09:11:34	38 56 44.985N	123 53 11.011W	423184.65	4310931.14
11/27/87	09:12:00	38 56 44.996N	123 53 11.038W	423184.01	4310931.46
11/27/87	09:12:30	38 56 45.078N	123 53 11.220W	423179.66	4310934.05
11/27/87	09:13:00	38 56 45.297N	123 53 11.698W	423168.21	4310940.90
11/27/87	09:13:30	38 56 45.654N	123 53 12.412W	423151.14	4310952.07
11/27/87	09:14:00	38 56 46.021N	123 53 13.010W	423136.85	4310963.52
11/27/87	09:14:30	38 56 46.165N	123 53 13.122W	423134.21	4310968.00
11/27/87	09:15:01	38 56 46.151N	123 53 13.072W	423135.40	4310967.54
11/27/87	09:15:30	38 56 46.281N	123 53 13.138W	423133.85	4310971.56
11/27/87	09:16:00	38 56 46.755N	123 53 13.084W	423135.28	4310986.18
11/27/87	09:16:30	38 56 47.353N	123 53 12.693W	423144.89	4311004.52
11/27/87	09:17:00	38 56 47.646N	123 53 12.301W	423154.41	4311013.46
11/27/87	09:17:30	38 56 47.568N	123 53 12.222W	423156.28	4311011.02
11/27/87	09:18:00	38 56 47.396N	123 53 12.274W	423154.98	4311005.76
11/27/87	09:18:30	38 56 47.370N	123 53 12.063W	423160.04	4311004.88
11/27/87	09:19:00	38 56 47.454N	123 53 11.486W	423173.97	4311007.36
11/27/87	09:19:30	38 56 47.382N	123 53 10.993W	423185.82	4311005.01
11/27/87	09:20:00	38 56 47.093N	123 53 10.737W	423191.89	4310996.05
11/27/87	09:20:30	38 56 46.974N	123 53 10.696W	423192.84	4310992.36
11/27/87	09:21:00	38 56 46.856N	123 53 10.539W	423196.58	4310988.70
11/27/87	09:21:30	38 56 46.953N	123 53 09.999W	423209.62	4310991.56
11/27/87	09:22:00	38 56 47.135N	123 53 09.335W	423225.66	4310997.00
11/27/87	09:22:30	38 56 47.380N	123 53 08.860W	423237.16	4311004.45
11/27/87	09:23:00	38 56 47.925N	123 53 08.771W	423239.45	4311021.22
n/27/87	09:23:31	38 56 48.972N	123 53 09.103W	423231.77	4311053.59
11/27/87	09:24:00	38 56 49.845N	123 53 09.627W	423219.42	4311080.61
11/27/87	09:24:30	38 56 50.216N	123 53 10.112W	423207.87	4311092.17
11/27/87	09:25:00	38 56 50.311N	123 53 10.180W	423206.26	4311095.11
11/27/87	09:25:31	38 56 50.431N	123 53 10.015W	423210.26	4311098.76
11/27/87	09:26:00	38 56 50.787N	123 53 10.108W	423208.14	4311109.78
11/27/87	09:26:30	38 56 51.334N	123 53 10.397W	423201.35	4311126.70
11/27/87	09:27:00	38 56 51.625N	123 53 10.595W	423196.67	4311135.71
11/27/87	09:27:30	38 56 51.551N	123 53 10.712W	423193.82	4311133.45
11/27/87	09:28:01	38 56 51.505N	123 53 10.776W	423192.26	4311132.06
11/27/87	09:28:30	38 56 51.672N	123 53 10.836W	423190.87	4311137.23
11/27/87	09:29:00	38 56 51.802N	123 53 10.962W	423187.88	4311141.26
11/27/87	09:29:30	38 56 51.905N	123 53 11.133W	423183.79	4311144.48
11/27/87	09:30:00	38 56 52.169N	123 53 11.261W	423180.80	4311152.65
11/27/87	09:30:30	38 56 52.357N	123 53 11.284W	423180.31	4311158.44
11/27/87	09:31:00	38 56 52.223N	123 53 11.247W	423181.16	4311154.30
11/27/87	09:31:30	38 56 51.916N	123 53 11.201W	423182.16	4311144.82
11/27/87	09:32:00	38 56 51.782N	123 53 11.102W	423184.50	4311140.66
11/27/87	09:32:30	38 56 51.959N	123 53 10.826W	423191.21	4311146.06
11/27/87	09:33:00	38 56 52.108N	123 53 10.609W	423196.47	4311150.59
11/27/87	09:33:30	38 56 52.192N	123 53 10.471W	423199.82	4311153.16
11/27/87	09:34:00	38 56 52.271N	123 53 10.310W	423203.72	4311155.54

MMS CARP Project
Hard Substrate Transect HB9

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/27/87	09:34:30	38 56 52.141N	123 53 10.506W	423198.96	4311151.58
11/27/87	09:35:00	38 56 52.033N	123 53 10.692W	423194.46	4311148.32
11/27/87	09:35:30	38 56 52.072N	123 53 10.640W	423195.71	4311149.52
11/27/87	09:36:00	38 56 52.225N	123 53 10.426W	423200.92	4311154.17
11/27/87	09:36:30	38 56 52.433N	123 53 10.209W	423206.20	4311160.54
11/27/87	09:37:00	38 56 52.848N	123 53 09.943W	423212.73	4311173.26
11/27/87	09:37:30	38 56 53.384N	123 53 09.770W	423217.06	4311189.75
11/27/87	09:38:00	38 56 53.844N	123 53 09.811W	423216.20	4311203.94
11/27/87	09:38:30	38 56 53.989N	123 53 09.945W	423213.02	4311208.42
11/27/87	09:39:00	38 56 54.049N	123 53 09.821W	423216.02	4311210.24
11/27/87	09:39:30	38 56 54.438N	123 53 09.669W	423219.81	4311222.22
11/27/87	09:40:00	38 56 55.049N	123 53 10.143W	423208.57	4311241.15
11/27/87	09:40:34	38 56 55.410N	123 53 11.115W	423185.29	4311252.50
11/27/87	09:41:00	38 56 55.544N	123 53 11.711W	423170.98	4311256.77
11/27/87	09:41:30	38 56 55.697N	123 53 11.777W	423169.44	4311261.50
11/27/87	09:42:00	38 56 55.878N	123 53 11.669W	423172.08	4311267.07
11/27/87	09:42:30	38 56 55.946N	123 53 11.843W	423167.93	4311269.20
11/27/87	09:43:00	38 56 56.027N	123 53 12.109W	423161.55	4311271.75
11/27/87	09:43:30	38 56 56.332N	123 53 12.080W	423162.33	4311281.15
11/27/87	09:44:00	38 56 56.744N	123 53 11.789W	423169.46	4311293.80
11/27/87	09:44:30	38 56 56.988N	123 53 11.539W	423175.54	4311301,24
11/27/87	09:45:00	38 56 57.118N	123 53 11.399W	423178.95	4311305.21
11/27/87	09:45:30	38 56 57.384N	123 53 11.207W	423183.65	4311313.37
11/27/87	09:46:00	38 56 57.854N	123 53 10.863W	423192.08	4311327.79
11/27/87	09:46:30	38 56 58.283N	123 53 10.551W	423199.71	4311340.94
11/27/87	09:47:00	38 56 58.475N	123 53 10.465W	423201.85	4311346.83
11/27/87	09:47:30	38 56 58.318N	123 53 10.568W	423199.32	4311342.02
11/27/87	09:48:00	38 56 57.957N	123 53 10.634W	423197,62	4311330.91
11/27/87	09:48:30	38 56 57.534N	123 53 10.644W	423197.25	4311317.88
11/27/87	09:49:00	38 56 57.506N	123 53 10.638W	423197.39	4311316.99
11/27/87	09:49:30	38 56 58.042N	123 53 10.395W	423203.41	4311333.46
11/27/87	09:50:03	38 56 58.867N	123 53 09.768W	423218.75	4311358.75
11/27/87	09:50:32	38 56 59.403N	123 53 09.260W	423231.13	4311375.16
11/27/87	09:51:01	38 56 59.496N	123 53 09.219W	423232.15	4311378.01
11/27/87	09:51:32	38 56 59.253N	123 53 09.456W	423226.36	4311370.57
11/27/87	09:52:01	38 56 58.958N	123 53 09.516W	423224.84	4311361.49
11/27/87	09:52:32	38 56 58.753N	123 53 09.438W	423226.66	4311355.18
11/27/87	09:53:01	38 56 58.656N	123 53 09.516W	423224.75	4311352.21
11/27/87	09:53:32	38 56 58.708N	123 53 09.710W	423220.09	4311353.84
11/27/87	09:54:01	38 56 58.976N	123 53 09.648W	423221.66	4311362.09
11/27/87	09:54:32	38 56 59.356N	123 53 09.254W	423231.26	4311373.70
11/27/87	09:55:01	38 56 59.539N	123 53 08.918W	423239.41	4311379.28
n/27/87	09:55:30	38 56 59.405N	123 53 08.897W	423239.86	4311375.14
11/27/87	09:56:00	38 56 59.244N	123 53 08.850W	423240.96	4311370.17
11/27/87	09:56:30	38 56 59.312N	123 53 08.386W	423252,15	4311372.16
11/27/87	09:57:00	38 56 59.430N	123 53 07.488W	423273.78	4311375.57

MMS CARP Project
Hard Substrate Transect HB9

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM-Y
11/27/87	09:57:30	38 56 59.294N	123 53 06.822W	423289.78	4311371.22
11/27/87	09:58:01	38 56 58.993N	123 53 06.787W	423290.53	4311361.93
11/27/87	09:58:30	38 56 58.815N	123 53 07.016W	423284.97	4311356.52
11/27/87	09:59:35	38 56 58.776N	123 53 06.967W	423286.15	4311355.30
11/27/87	10:00:00	38 56 58.753N	123 53 06.492W	423297.56	4311354.49
11/27/87	10:00:30	38 56 58.636N	123 53 05.529W	423320.71	4311350.64
11/27/87	10:01:00	38 56 58.392N	123 53 04.995W	423333.50	4311343.01
11/27/87	10:01:30	38 56 58.009N	123 53 04.772W	423338.75	4311331.13
11/27/87	10:02:00	38 56 57.664N	123 53 04.351W	423348.77	4311320.42
11/27/87	10:02:30	38 56 57.656N	123 53 03.835W	423361.19	4311320.04
11/27/87	10:03:00	38 56 57.899N	123 53 03.409W	423371.54	4311327.44
11/27/87	10:03:30	38 56 58.079N	123 53 03.120W	423378.54	4311332.91
11/27/87	10:04:00	38 56 58.291N	123 53 02.751W	423387.49	4311339.37
11/27/87	10:04:30	38 56 58.440N	123 53 02.548W	423392.40	4311343.90
11/27/87	10:05:00	38 56 59.032N	123 53 01.781W	423411.05	4311361.97
11/27/87	10:05:30	38 56 59.665N	123 53 00.876W	423433.04	4311381.28
11/27/87	10:06:00	38 56 59.950N	123 53 00.282W	423447.42	4311389.91
11/27/87	10:06:30	38 56 59.931N	123 53 00.407W	423444.39	4311389.37
11/27/87	10:07:00	38 57 00.354N	123 53 00.432W	423443.92	4311402.41
11/27/87	10:07:31	38 57 01.070N	123 52 59.869W	423457.68	4311424.34
11/27/87	10:08:00	38 57 01.453N	123 52 59.209W	423473.69	4311436.01
11/27/87	10:08:30	38 57 01.406N	123 52 58.871W	423481.82	4311434.47
11/27/87	10:09:00	38 57 01.239N	123 52 58.807W	423483.31	4311429.31
11/27/87	10:09:30	38 57 01.212N	123 52 58.780W	423483.94	4311428.48
11/27/87	10:10:00	38 57 01.200N	123 52 58.534W	423489.85	4311428.04
11/27/87	10:10:30	38 57 00.989N	123 52 57.870W	423505.77	4311421.40
11/27/87	10:11:00	38 57 00.661N	123 52 57.021W	423526.13	4311411.09
11/27/87	10:11:30	38 57 00.472N	123 52 56.563W	423537.10	4311405.13
11/27/87	10:12:00	38 57 00.412N	123 52 56.439W	423540.06	4311403.26
11/27/87	10:12:30	38 57 00.379N	123 52 56.346W	423542.28	4311402.22
11/27/87	10:13:00	38 57 00.333N	123 52 56.140W	423547.23	4311400.77
11/27/87	10:13:30	38 57 00.311N	123 52 55.907W	423552.84	4311400.02
11/27/87	10:14:00	38 57 00.311N	123 52 55.645W	423559.14	4311399.96
n/27/87	10:14:32	38 57 00.292N	123 52 55.273W	423568.07	4311399.30
11/27/87	10:15:00	38 57 00.236N	123 52 54.828W	423578.78	4311397.48
11/27/87	10:15:30	38 57 00.152N	123 52 54.347W	423590.33	4311394.76
11/27/87	10:16:00	38 57 00.140N	123 52 53.813W	423603.18	4311394.26
11/27/87	10:16:30	38 57 00.408N	123 52 53.390W	423613,44	4311402.42
11/27/87	10:17:00	38 57 00.977N	123 52 53.203W	423618.13	4311419.93

MMS CARP Project
Hard Substrate Transect HB10

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/29/87	07:52:36	38 47 30.884N	123 50 59.736W	426185.80	4293821.01
11/29/87	07:53:01	38 47 30.820N	123 50 59.580W	426189.57	4293819.01
11/29/87	07:53:30	38 47 30.820N	123 50 59.580W	426189.57	4293819.01
11/29/87	07:54:00	38 47 30.820N	123 50 59.580W	426189.57	4293819.01
11/29/87	07:54:37	38 47 30.820N	123 50 59.580W	426189.57	4293819.01
11/29/87	07:55:00	38 47 30.818N	123 50 59.580W	426189.56	4293818.94
11/29/87	07:55:31	38 47 30.793N	123 50 59.577W	426189.61	4293818.18
11/29/87	07:56:00	38 47 30.675N	123 50 59.575W	426189.62	4293814.56
11/29/87	07:56:30	38 47 30.407N	123 50 59.608W	426188.75	4293806.30
11/29/87	07:57:00	38 47 30.075N	123 50 59.714W	426186.12	4293796.09
11/29/87	07:57:30	38 47 29.842N	123 50 59.866W	426182,37	4293788.94
11/29/87	07:58:00	38 47 29.768N	123 50 59.930W	426180.80	4293786.66
11/29/87	07:58:31	38 47 29.809N	123 50 59.773W	426184.60	4293787.90
11/29/87	07:59:00	38 47 29.844N	123 50 59.466W	426192.02	4293788.91
11/29/87	07:59:30	38 47 29.842N	123 50 59.225W	426197.84	4293788.79
11/29/87	08:00:00	38 47 29.890N	123 50 59.076W	426201.44	4293790.22
11/29/87	08:00:30	38 47 30.034N	123 50 59.120W	426200.44	4293794.68
11/29/87	08:01:00	38 47 30.240N	123 50 59.412W	426193.43	4293801.11
11/29/87	08:01:30	38 47 30.391N	123 50 59.858W	426182.72	4293805.85
11/29/87	08:02:00	38 47 30.362N	123 51 00.246W	426173.36	4293805.04
11/29/87	08:02:31	38 47 30.059N	123 51 00.425W	426168.95	4293795.74
11/29/87	08:03:00	38 47 29.475N	123 51 00.466W	426167.78	4293777.75
11/29/87	08:03:30	38 47 28.819N	123 51 00.545W	426165.70	4293757.55
11/29/87	08:04:01	38 47 28.169N	123 51 00.669W	426162.53	4293737.55
11/29/87	08:04:30	38 47 27.827N	123 51 00.648W	426162.93	4293726.99
11/29/87	08:05:00	38 47 27.784N	123 51 00.359W	426169.89	4293725.59
11/29/87	08:05:30	38 47 27.786N	123 50 59.998W	426178.59	4293725.58
11/29/87	08:06:00	38 47 27.722N	123 50 59.619W	426187.73	4293723.52
11/29/87	08:06:33	38 47 27.746N	123 50 59.190W	426198.09	4293724.19
11/29/'87	08:07:01	38 47 27.841N	123 50 58.792W	426207.72	4293727.02
11/29/87	08:07:31	38 47 27.876N	123 50 58.490W	426215,00	4293728.04
11/29/87	08:08:00	38 47 27.823N	123 50 58.536W	426213.89	4293726.39
11/29/87	08:08:30	38 47 27.868N	123 50 58.905W	426204.99	4293727.87
11/29/87	08:09:00	38 47 27.969N	123 50 59.320W	426195.02	4293731.08
11/29/87	08:09:30	38 47 28.031N	123 50 59.794W	426183.59	4293733.10
11/29/87	08:10:00	38 47 28.008N	123 51 00.277W	426171.94	4293732.51
11/29/87	08:10:30	38 47 27.901N	123 51 00.685W	426162.06	4293729.29
11/29/87	08:11:01	38 47 27.691N	123 51 00.829W	426158.51	4293722.84
11/29/87	08:11:30	38 47 27.390N	123 51 00.706W	426161.41	4293713.53
11/29/87	08:12:00	38 47 27.109N	123 51 00.495W	426166.41	4293704.83
11/29/87	08:12:30	38 47 26.890N	123 51 00.361W	426169.58	4293698.06
11/29/87	08:13:00	38 47 26.701N	123 51 00.334W	426170.17	4293692.21
11/29/87	08:13:30	38 47 26.567N	123 51 00.322W	426170.43	4293688.07
11/29/87	08:14:00	38 47 26.560N	123 51 00.231W	426172.62	4293687,86
11/29/87	08:14:30	38 47 26.645N	123 51 00.044W	426177.17	4293690.43
11/29/87	08:15:00	38 47 26.717N	123 50 59.879W	426181.17	4293692.62

MMS CARP Project
Hard Substrate Transect HB10

DATE	TIME	LATITUDE	LONGITUDE	UTM- X	UTM- Y
11/29/87	08:15:35	38 47 26.744N	123 50 59.889W	426180,93	4293693.44
11/29/87	08:16:03	38 47 26.787N	123 51 00.089W	426176.12	4293694.82
11/29/87	08:16:37	38 47 26.853N	123 51 00.431W	426167.88	4293696.94
11/29/87	08:17:04	38 47 26.868N	123 51 00.821W	426158.48	4293697,47
11/29/87	08:17:31	38 47 26.758N	123 51 01.106W	426151.58	4293694.16
11/29/87	08:18:02	38 47 26.546N	123 51 01.133W	426150.87	4293687.62
11/29/87	08:18:31	38 47 26.317N	123 51 00.926W	426155.78	4293680.52
11/29/87	08:19:01	38 47 26.086N	123 51 00.675W	426161.79	4293673.34
11/29/87	08:19:30	38 47 25.890N	123 51 00.514W	426165.61	4293667.26
11/29/87	08:20:01	38 47 25.820N	123 51 00.365W	426169.17	4293665.07
11/29/87	08:20:30	38 47 25.867N	123 51 00.116W	426175.21	4293666.47
11/29/87	08:21:00	38 47 25.935N	123 50 59.839W	426181.90	4293668.51
11/29/87	08:21:30	38 47 25.923N	123 50 59.784W	426183.24	4293668.12
11/29/87	08:22:00	38 47 25.845N	123 51 00.077W	426176.15	4293665.77
11/29/87	08:22:30	38 47 25.729N	123 51 00.584W	426163.87	4293662.32
11/29/87	08:23:00	38 47 25.550N	123 51 01.108W	426151.18	4293656.91
11/29/87	08:23:30	38 47 25.325N	123 51 01.388W	426144.35	4293650.04
11/29/87	08:24:00	38 47 25.125N	123 51 01.368W	426144.79	4293643.87
11/29/87	08:24:30	38 47 25.009N	123 51 01.211W	426148.54	4293640.27
11/29/87	08:25:00	38 47 24.966N	123 51 01.069W	426151.96	4293638.90
11/29/87	08:25:30	38 47 24.985N	.23 51 00.957W	426154.65	4293639.45
11/29/87	08:26:00	38 47 25.024N	123 51 00.790W	426158.69	4293640.62
11/29/87	08:26:30	38 47 25.018N	123 51 00.654W	426161.98	4293640.40
11/29/87	08:27:00	38 47 24.945N	123 51 00.627W	426162.60	4293638.17
11/29/87	08:27:30	38 47 24.844N	123 51 00.743W	426159.79	4293635.08
11/29/87	08:28:00	38 47 24.797N	123 51 00.883W	426156.39	4293633.65
11/29/87	08:28:30	38 47 24.817N	123 51 01.015W	426153.21	4293634.31
11/29/87	08:29:00	38 47 24.848N	123 51 01.232W	426148.00	42936,35.32
11/29/87	08:29:30	38 47 24.850N	123 51 01.347W	426145.21	4293635.41
11/29/87	08:30:00	38 47 24.840N	123 51 01.853W	426133.01	4293635.20
11/29/87	08:30:30	38 47 24.869N	123 51 02.143W	426126.01	4293636.16
11/29/87	08:31:00	38 47 24.954N	123 51 02.090W	426127.32	4293638.75
11/29/87	08:31:31	38 47 25.001N	123 51 02.108W	426126,89	4293640.22
11/29/87	08:32:00	38 47 24.933N	123 51 02.387W	426120.15	4293638.18
11/29/87	08:32:30	38 47 24.751N	123 51 02.731W	426111.79	4293632.66
11/29/87	08:33:00	38 47 24.597N	123 51 02.795W	426110.20	4293627.91
11/29/87	08:33:30	38 47 24.508N	123 51 02.719W	426112.02	4293625.16
11/29/87	08:34:01	38 47 24.366N	123 51 02.711W	426112.18	4293620.77
11/29/87	08:34:31	38 47 24.153N	123 51 02.696W	426112.46	4293614.22
11/29/87	08:35:00	38 47 23.959N	123 51 02.577W	426115.30	4293608.21
11/29/87	08:35:30	38 47 23.821N	123 51 02.447W	426118.39	4293603.93
11/29/87	08:36:00	38 47 23.681N	123 51 02.358W	426120.49	4293599.58
11/29/87	08:36:31	38 47 23.532N	123 51 02.234W	426123.43	4293594.98
11/29/87	08:37:00	38 47 23.330N	123 51 02.018W	426128.60	4293588.70
11/29/87	08:37:30	38 47 23.083N	123 51 01.787W	426134.10	4293581.02
11/29/87	08:38:00	38 47 22.848N	123 51 01.593W	426138.71	4293573.72

MMS CARP Project
Hard Substrate Transect HB10

DATE	TIME	LATITUDE	LONGITUDE	UTM-X	UTM -Y
11/29/87	08:38:30	38 47 22.641N	123 51 01.403W	426143.23	4293567.32
11/29/87	08:39:00	38 47 22.458N	123 51 01.236W	426147.21	4293561.63
11/29/87	08:39:30	38 47 22.198N	123 51 01.102W	426150.37	4293553.59
11/29/87	08:40:00	38 47 21.864N	123 51 01.013W	426152.41	4293543.27
11/29/87	08:40:30	38 47 21.499N	123 51 00.906W	426154,90	4293531.99
11/29/87	08:41:00	38 47 21.134N	123 51 00.735W	426158.92	4293520.70
11/29/87	08:41:30	38 47 20.898N	123 51 00.553W	426163.23	4293513.41
11/29/87	08:42:02	38 47 20.834N	123 51 00.400W	426166.90	4293511.40
11/29/87	08:42:30	38 47 20.853N	123 51 00.240W	426170.79	4293511.94
11/29/87	08:43:00	38 47 20.793N	123 51 00.015W	426176.19	4293510.05
11/29/87	08:43:30	38 47 20.597N	123 50 59.782W	426181.76	4293503.95
11/29/87	08:44:00	38 47 20.430N	123 50 59.641W	426185.10	4293498.77
11/29/87	08:44:30	38 47 20.377N	123 50 59.530W	426187.77	4293497.09
11/29/87	08:45:00	38 47 20.377N	123 50 59.390W	426191.15	4293497.06
11/29/87	08:45:30	38 47 20.317N	123 50 59.320W	426192.83	4293495.20
11/29/87	08:46:03	38 47 20.232N	123 50 59.460W	426189.42	4293492.63
11/29/87	08:46:31	38 47 20.228N	123 50 59.751W	426182.40	4293492.57
11/29/87	08:47:00	38 47 20.342N	123 51 00.093W	426174.17	4293496.14
11/29/87	08:47:30	38 47 20.511N	123 51 00.341W	426168,25	4293501.41
, 11/29/87	08:48:00	38 47 20.616N	123 51 00.504W	426164.35	4293504.69
11/29/87	08:48:30	38 47 20.634N	123 51 00.687W	426159.92	4293505.30
11/29/87	08:49:00	38 47 20.608N	123 51 00.922W	426154.24	4293504.53
11/29/87	08:49:30	38 47 20.552N	123 51 01.085W	426150.30	4293502.85
11/29/87	08:50:00	38 47 20.469N	123 51 01.079W	426150.42	4293500.30
11/29/87	08:50:30	38 47 20.399N	123 51 00.974W	426152.94	4293498.12
11/29/87	08:51:00	38 47 20.319N	123 51 00.838W	426156.20	4293495.61
11/29/87	08:51:31	38 47 20.189N	123 51 00.726W	426158.85	4293491.58
11/29/87	08:52:00	38 47 19.958N	123 51 00.667W	426160.23	4293484.44
11/29/87	08:52:30	38 47 19.673N	123 51 00.664W	426160.20	4293475.67
11/29/87	08:53:00	38 47 19.440N	123 51 00.693W	426159.43	4293468.49
11/29/87	08:53:30	38 47 19.118N	123 51 00.766W	426157.60	4293458.59
11/29/87	08:54:03	38 47 18.945N	123 51 00.805W	426156.60	4293453.25
11/29/87	08:54:33	38 47 18.906N	123 51 00.753W	426157.84	4293452.04
11/29/87	08:55:00	“38 47 18.902N	123 51 00.625W	426160.92	4293451.88
11/29/87	08:55:31	38 47 18.809N	123 51 00.499W	426163.93	4293448.99
11/29/87	08:56:00	38 47 18.677N	123 51 00.497W	426163.94	4293444.92
11/29/87	08:56:31	38 47 18.603N	123 51 00.568W	426162.23	4293442.65
11/29/87	08:57:00	38 47 18.607N	123 51 00.652W	426160.19	4293442.79
11/29/87	08:57:30	38 47 18.603N	123 51 00.813W	426156.31	4293442,70
11/29/87	08:58:00	38 47 18.547N	123 51 01.106W	426149.22	4293441.05
11/29/87	08:58:30	38 47 18.460N	123 51 01.518W	426139.25	4293438.47
11/29/87	08:59:00	38 47 18.353N	123 51 01.848W	426131.25	4293435.24
11/29/87	08:59:30	38 47 18.165N	123 51 02.082W	426125.58	4293429.51
11/29/87	09:00:01	38 47 17.885N	123 51 02.209W	426122.41	4293420.89
11/29/87	09:00:31	38 47 17.501N	123 51 02.282W	426120.56	4293409.08
11/29/87	09:01:00	38 47 17.000N	123 51 02.240W	426121.41	4293393.62

MMS CARP Project
Hard Substrate Transect HB1O

DATE	TIME	LATITUDE	LONGITUDE	UTM-X	UTM -Y
11/29/87	09:01:30	38 47 16.538N	123 51 02.001W	426127.05	4293379.33
11/29/87	09:02:00	38 47 16.330N	123 51 01.630W	426135.95	4293372.82
11/29/87	09:02:30	38 47 16.400N	123 51 01.306W	426143.78	4293374.91
11/29/87	09:03:00	38 47 16.505N	123 51 01.104W	426148.69	4293378.11
11/29/87	09:03:30	38 47 16.482N	123 51 00.865W	426154.46	4293377.35
11/29/87	09:04:00	38 47 16.218N	123 51 00.683W	426158.76	4293369.18
11/29/87	09:04:31	38 47 15.837N	123 51 00.658W	426159.25	4293357.41
11/29/87	09:05:00	38 47 15.579N	123 51 00.782W	426156.19	4293349.49
11/29/87	09:05:30	38 47 15.406N	123 51 00.980W	426151.36	4293344.19
11/29/87	09:06:07	38 47 15.377N	123 51 01.023W	426150.31	4293343.31
11/29/87	09:06:30	38 47 15.311N	123 51 01.124W	426147.85	4293341.30
11/29/87	09:07:00	38 47 15.119N	123 51 01.388W	426141.42	4293335.45
11/29/87	09:07:30	38 47 14.929N	123 51 01.630W	426135.55	4293329.65
11/29/87	09:08:00	38 47 14.795N	123 51 01.776W	426131.98	4293325.55
11/29/87	09:08:30	38 47 14.665N	123 51 01.817W	426130.94	4293321.55
11/29/87	09:09:00	38 47 14.490N	123 51 01.861W	426129.85	4293316.16
11/29/87	09:09:30	38 47 14.446N	123 51 01.828W	426130.63	4293314.82
11/29/87	09:10:00	38 47 14.607N	123 51 01.617W	426135.75	4293319.73
11/29/87	09:10:30	38 47 14.735N	123 51 01.380W	426141.51	4293323.62
11/29/87	09:11:00	38 47 14.677N	123 51 01.228W	426145.18	4293321.80
11/29/87	09:11:30	38 47 14.560N	123 51 01.083W	426148.63	4293318.15
11/29/87	09:12:00	38 47 14.413N	123 51 00.953W	426151.72	4293313.60
11/29/87	09:12:31	38 47 14.191N	123 51 00.941W	426151.96	4293306.73
11/29/87	09:13:00	38 47 13.968N	123 51 00.980W	426150.95	4293299.88
n/29/87	09:13:30	38 47 13.807N	123 51 00.982W	426150.85	&293294.92
n/29/87	09:14:00	38 47 13.656N	123 51 00.974W	426151.01	4293290.27
11/29/87	09:14:30	38 47 13.448N	123 51 01.013W	426150.00	4293283.86
11/29/87	09:15:01	38 47 13.250N	123 51 01.083W	426148.25	4293277.77
11/29/87	09:15:31	38 47 13.077N	123 51 01.170W	426146.11	4293272.45
11/29/87	09:16:00	38 47 12.926N	123 51 01.261W	426143.88	4293267.83
11/29/87	09:16:30	38 47 12.871N	123 51 01.289W	426143.17	4293266.12
11/29/87	09:17:01	38 47 12.947N	123 51 01.203W	426145.28	4293268.45
11/29/87	09:17:30	38 47 13.071N	123 51 01.009W	426149.99	4293272.23
11/29/87	09:18:00	38 47 13.095N	123 51 00.782W	426155.48	4293272.94
11/29/87	09:18:30	38 47 13.036N	123 51 00.590W	426160.09	4293271.05
11/29/87	09:19:00	38 47 12.982N	123 51 00.438W	426163.75	4293269.36
11/29/87	09:19:30	38 47 12.932N	123 51 00.351W	426165.83	4293267.82
11/29/87	09:20:02	38 47 12.856N	123 51 00.306W	426166.90	4293265.46
11/29/87	09:20:30	38 47 12.778N	123 51 00.256W	426168.07	4293263.03
11/29/87	09:21:01	38 47 12.722N	123 51 00.190W	426169.65	4293261.30
11/29/87	09:21:31	38 47 12.648N	123 51 00.132W	426171.02	4293259.00
11/29/87	09:22:00	38 47 12.532N	123 51 00.145W	426170.69	4293255.44
11/29/87	09:22:30	38 47 12.400N	123 51 00.264W	426167.77	4293251.40
11/29/87	09:23:01	38 47 12.268N	123 51 00.535W	426161.21	4293247.39
n/29/87	09:23:30	38 47 12.147N	123 51 00.951W	426151.12	4293243.73
11/29/87	09:24:03	38 47 12.015N	123 51 01.539W	426136.90	4293239.79

MMS CARP Project
Hard Substrate Transect HB10

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/29/87	09:24:31	38 47 11.907N	123 51 02.079W	426123.83	4293236.61
11/29/87	09:25:00	38 47 11.823N	123 51 02.457W	426114.70	4293234.08
11/29/87	09:25:31	38 47 11.784N	123 51 02.498W	426113.70	4293232.89
11/29/87	09:26:00	38 47 11.815N	123 51 02.381W	426116.54	4293233.81
11/29/87	09:26:30	38 47 11.897N	123 51 02.356W	426117.16	4293236.35
11/29/87	09:27:00	38 47 11.959N	123 51 02.430W	426115.39	4293238.28
11/29/87	09:27:30	38 47 11.928N	123 51 02.552W	426112.44	4293237.35
11/29/87	09:28:01	38 47 11.763N	123 51 02.643W	426110.21	4293232.28
11/29/87	09:28:30	38 47 11.518N	123 51 02.700W	426108.74	4293224.73
11/29/87	09:29:00	38 47 11.322N	123 51 02.678W	426109.23	4293218.68
11/29/87	09:29:30	38 47 11.233N	123 51 02.581W	426111.55	4293215.93
11/29/87	09:30:00	38 47 11.171N	123 51 02.368W	426116.65	4293213.97
11/29/87	09:30:30	38 47 11.140N	123 51 02.108W	426122.92	4293212.96
11/29/87	09:31:00	38 47 11.136N	123 51 01.894W	426128.09	4293212.79
11/29/87	09:31:30	38 47 11.138N	123 51 01.760W	426131.33	4293212.82
11/29/87	09:32:00	38 47 11.115N	123 51 01.677W	426133.31	4293212.10
11/29/87	09:32:33	38 47 11.045N	123 51 01.580W	426135.63	4293209.92
11/29/87	09:33:01	38 47 10.938N	123 51 01.442W	426138.93	4293206.58
11/29/87	09:33:31	38 47 10.810N	123 51 01.306W	426142.18	4293202.61
11/29/87	09:34:03	38 47 10.674N	123 51 01.252W	426143.44	4293198.40
11/29/87	09:34:33	38 47 10.540N	123 51 01.302W	426142.20	4293194.28
11/29/87	09:35:01	38 47 10.420N	123 51 01.438W	426138.88	4293190.62
11/29/87	09:35:31	38 47 10.329N	123 51 01.644W	426133.88	4293187.87
11/29/87	09:36:00	38 47 10.276N	123 51 01.883W	426128.09	4293186.27
11/29/87	09:36:30	38 47 10.216N	123 51 02.135W	426122.00	4293184.48
11/29/87	09:37:00	38 47 10.121N	123 51 02.337W	426117.10	4293181.60
11/29/87	09:37:32	38 47 10.008N	123 51 02.428W	426114,88	4293178.13
11/29/87	09:38:00	38 47 09.938N	123 51 02.405W	426115.41	4293175.96
11/29/87	09:38:30	38 47 09.925N	123 51 02.329W	426117.24	4293175.56
11/29/87	09:39:00	38 47 09.971N	123 51 02.290W	426118.20	4293176.95
11/29/87	09:39:31	38 47 10.047N	123 51 02.337W	426117.08	4293179.32
11/29/87	09:40:00	38 47 10.086N	123 51 02.432W	426114.80	4293180.55
11/29/87	09:40:30	38 47 10.032N	123 51 02.544W	426112.10	4293178.92
11/29/87	09:41:00	38 47 09.876N	123 51 02.673W	426108.92	4293174.11
11/29/87	09:41:30	38 47 09.671N	123 51 02.822W	426105.28	4293167.85
11/29/87	09:42:00	38 47 09.498N	123 51 02.962W	426101.84	4293162.54
11/29/87	09:42:41	38 47 09.352N	123 51 03.076W	426099.06	4293158.06
11/29/87	09:43:00	38 47 09.176N	123 51 03.183W	426096.43	4293152.68
11/29/87	09:43:30	38 47 08.884N	123 51 03.296W	426093.60	4293143.67
11/29/87	09:44:00	38 47 08.607N	123 51 03.313W	426093.13	4293135.16
11/29/87	09:44:30	38 47 08.335N	123 51 03.204W	426095.69	4293126.74
11/29/87	09:45:00	38 47 08.025N	123 51 03.006W	426100.38	4293117.16
11/29/87	09:45:30	38 47 07.683N	123 51 02.814W	426104.91	4293106.56
11/29/87	09:46:00	38 47 07.409N	123 51 02.711W	426107.32	4293098.08
11/29/87	09:46:30	38 47 07.248N	123 51 02.692W	426107.72	4293093.12
11/29/87	09:47:00	38 47 07.161N	123 51 02.713W	426107.19	4293090.45

MMS CARP Project
Hard Substrate Transect HB10

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM-Y
11/29/87	09:47:30	38 47 07.081N	123 51 02.735W	426106.62	4293087.98
11/29/87	09:48:00	38 47 07.000N	123 51 02.797W	426105.11	4293085.51
11/29/87	09:48:30	38 47 06.848N	123 51 02.935W	426101.73	4293080.84
11/29/87	09:49:00	38 47 06.631N	123 51 03.070W	426098.43	4293074.19
11/29/87	09:49:30	38 47 06.443N	123 51 03.166W	426096.04	4293068.43
11/29/87	09:50:01	38 47 06.363N	123 51 03.255W	426093,88	4293065.97
11/29/87	09:50:30	38 47 06.394N	123 51 03.329W	426092.09	4293066.94
11/29/87	09:51:00	38 47 06.460N	123 51 03.422W	426089.87	4293068.99
11/29/87	09:51:30	38 47 06.487N	123 51 03.517W	426087.59	4293069.84
11/29/87	09:52:00	38 47 06.472N	123 51 03.631W	426084.85	4293069.42
11/29/87	09:52:30	38 47 06.382N	123 51 03.785W	426081.09	4293066.66
11/29/87	09:53:00	38 47 06.167N	123 51 03.915W	426077.90	4293060.08
11/29/87	09:53:30	38 47 05.911N	123 51 03.959W	426076.78	4293052.20
11/29/87	09:54:00	38 47 05.662N	123 51 03.936W	426077.25	4293044.50
11/29/87	09:54:30	38 47 05.497N	123 51 03.862W	426079.00	4293039.40
11/29/87	09:55:00	38 47 05.418N	123 51 03.754W	426081.56	4293036.96
11/29/87	09:55:30	38 47 05.410N	123 51 03.664W	426083.75	4293036.69
11/29/87	09:56:00	38 47 05.447N	123 51 03.645W	426084.21	4293037.83
11/29/87	09:56:32	38 47 05.528N	123 51 03.705W	426082.79	4293040.32
11/29/87	09:57:00	38 47 05.625N	123 51 03.787W	426080.83	4293043.33
11/29/87	09:57:30	38 47 05.721N	123 51 03.781W	426081.00	4293046.31
11/29/87	09:58:00	38 47 05.820N	123 51 03.556W	426086.46	4293049.31
11/29/87	09:58:30	38 47 05.899N	123 51 03.152W	426096.23	4293051.64
11/29/87	09:59:00	38 47 05.911N	123 51 02.686W	426107.48	4293051.92
n/29/87	09:59:31	38 47 05.810N	123 51 02.298W	426116.81	4293048.71
11/29/87	10:00:00	38 47 05.699N	123 51 02.110W	426121.31	4293045.24
11/29/87	10:00:30	38 47 05.649N	123 51 02.030W	426123.23	4293043.70
11/29/87	10:01:00	38 47 05.695N	123 51 02.051W	426122.75	4293045.10
11/29/87	10:01:30	38 47 05.802N	123 51 02.133W	426120.79	4293048.42
11/29/87	10:02:00	38 47 05.886N	123 51 02.211W	426118.92	4293051.05
11/29/87	10:02:30	38 47 05.899N	123 51 02.271W	426117.48	4293051.44
11/29/87	10:03:00	38 47 05.808N	123 51 02.381W	426114.82	4293048.67
11/29/87	10:03:30	38 47 05.589N	123 51 02.579W	426109.98	4293041.97
11/29/87	10:04:00	38 47 05.235N	123 51 02.871W	426102.81	4293031.10
11/29/87	10:04:30	38 47 04.859N	123 51 03.171W	426095.49	4293019.60
11/29/87	10:05:00	38 47 04.515N	123 51 03.470W	426088.17	4293009.05
11/29/87	10:05:30	38 47 04.342N	123 51 03.680W	d26083.05	4293003.76
11/29/87	10:06:00	38 47 04.249N	123 51 03.829W	426079.44	4293000.93
11/29/87	10:06:30	38 47 04.042N	123 51 03.930W	426076.94	4292994.59
11/29/87	10:07:00	38 47 03.605N	123 51 03.934W	426076.71	4292981.11
11/29/87	10:07:30	38 47 03.164N	123 51 03.798W	426079.87	4292967.48
11/29/87	10:08:00	38 47 02.859N	123 51 03.558W	426085.56	4292958.01
11/29/87	10:08:30	38 47 02.749N	123 51 03.373W	426090.00	4292954.60
11/29/87	10:09:00	38 47 02.683N	123 51 03.210W	426093.92	4292952.53
11/29/87	10:09:34	38 47 02.611N	123 51 03.034W	426098.13	4292950.27
11/29/87	10:10:03	38 47 02.539N	123 51 02.787W	426104.08	4292947.99

MMS CARP Project
Hard Substrate Transect HB10

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM- Y
11/29/87	10:10:31	38 47 02.481N	123 51 02.480W	426111.48	4292946.14
11/29/87	10:11:00	38 47 02.456N	123 51 02.139W	426119.68	4292945.30
11/29/87	10:11:31	38 47 02.475N	123 51 01.789W	426128.15	4292945.79
11/'29/87	10:12:01	38 47 02.547N	123 51 01.434W	426136.73	4292947.94
11/29/87	10:12:30	38 47 02.667N	123 51 01.081W	426145.27	4292951.55
11/29/87	10:13:01	38 47 02.803N	123 51 00.811W	426151.83	4292955.68
11/29/87	10:13:30	38 47 02.918N	123 51 00.646W	426155,84	4292959.21
11/29/87	10:14:00	38 47 03.005N	123 51 00.489W	426159.65	4292961.84
11/29/87	10:14:30	38 47 03.046N	123 51 00.273W	426164.89	4292963.06
11/29/87	10:15:00	38 47 03.042N	123 50 59.955W	426172.55	4292962.87
11/29/87	10:15:30	38 47 02.949N	123 50 59.481W	426183.97	4292959,90
11/29/87	10:16:00	38 47 02.795N	123 50 59.132W	426192.34	4292955.05
11/29/87	10:16:30	38 47 02.681N	123 50 59.078W	426193.60	4292951.54
11/29/87	10:17:00	38 47 02.646N	123 50 59.256W	426189.31	4292950.50
11/29/87	10:17:30	38 47 02.594N	123 50 59.445W	426184.71	4292948.95
11/29/87	10:18:00	38 47 02.421N	123 50 59.555W	426182.03	4292943.64
11/29/87	10:18:30	38 47 02.155N	123 50 59.716W	426178.07	4292935.47
11/29/87	10:19:00	38 47 01.893N	123 50 59.969W	426171,87	4292927.45
11/29/87	10:19:30	38 47 01.670N	123 51 00.221W	426165.74	4292920.64
11/29/87	10:20:00	38 47 01.534N	123 51 00.398W	426161.42	4292916.49
11/29/87	10:20:30	38 47 01.505N	123 51 00.634W	426155.74	4292915.65
11/29/87	10:21:00	38 47 01.505N	123 51 00.951W	426148.07	4292915.72
11/29/87	10:21:30	38 47 01.276N	123 51 01.254W	426140.69	4292908,73
11/29/87	10:22:00	38 47 00.860N	123 51 01.438W	426136.14	4292895.93
11/29/87	10:22:30	38 47 00.550N	123 51 01.572W	426132.82	4292886.42
11/29/87	10:23:00	38 47 00.456N	123 51 01.694W	426129.86	4292883.53
11/29/87	10:23:30	38 47 00.435N	123 51 01.801W	426127.26	4292882.91
11/29/87	10:24:00	38 47 00.394N	123 51 01.865W	426125.71	4292881.66
11/29/87	10:24:30	38 47 00.350N	123 51 01.782W	426127.69	4292880.30
11/29/87	10:25:00	38 47 00.301N	123 51 01.452W	426135.63	4292878.70
11/29/87	10:25:30	38 47 00.229N	123 51 00.951W	426147.71	4292876.37
11/29/87	10:26:00	38 47 00.144N	123 51 00.347W	426162.26	4292873.62
11/29/87	10:26:30	38 47 00.068N	123 50 59.775W	426176.03	4292871.14
11/29/87	10:27:00	38 46 59.983N	123 50 59.165W	426190.74	4292868.40
11/29/87	10:27:32	38 46 59.932N	123 50 58.625W	426203.76	4292866.69
11/29/87	10:28:00	38 46 59.921N	123 50 58.185W	426214.36	4292866.27
11/29/87	10:28:30	38 46 59.917N	123 50 57.880W	426221.72	4292866,08
11/29/87	10:29:00	38 46 59.866N	123 50 57.647W	426227.33	4292864.44
11/29/87	10:29:30	38 46 59.802N	123 50 57.405W	426233.13	4292862.41
11/29/87	10:30:02	38 46 59.758N	123 50 57.152W	426239.24	4292861.02
11/29/87	10:30:33	38 46 59.738N	123 50 57.036W	426242.02	4292860.36
11/29/87	10:31:00	38 46 59.723N	123 50 57.073W	426241.12	4292859.92
11/29/87	10:31:30	38 46 59.670N	123 50 57.181W	426238.52	4292858.29
11/29/87	10:32:00	38 46 59.529N	123 50 57.284W	426235.99	4292853.99
11/29/87	10:32:30	38 46 59.311N	123 50 57.490W	426230.95	4292847.30
11/29/87	10:33:00	38 46 59.129N	123 50 57.814W	426223.09	4292841.77

MMS CARP Project
Hard Substrate Transect HB1O

DATE	TIME	LATITUDE	LONGITUDE	UTM - X	UTM - Y
11/29/87	10:33:32	38 46 59.003N	123 50 58.103W	426216.08	4292837.96
11/29/87	10:34:00	38 46 58.909N	123 50 58.321W	426210.78	4292835,09
11/29/87	10:34:30	38 46 58.855N	123 50 58.567W	426204,84	4292833.49
11/29/87	10:35:00	38 46 58.816N	123 50 58.905W	426196,67	4292832.36
11/29/87	10:35:30	38 46 58.682N	123 50 59.245W	426188.42	4292828.30
11/29/87	10:36:00	38 46 58.414N	123 50 59.538W	426181.28	4292820.10
11/29/87	10:36:30	38 46 58.133N	123 50 59.773W	426175.52	4292811.50
11/29/87	10:37:02	38 46 57.916N	123 50 59.965W	426170.83	4292804.87
11/29/87	10:37:30	38 46 57.708N	123 51 00.112W	426167.24	4292798.48
11/29/87	10:38:00	38 46 57.469N	123 51 00.225W	426164.43	4292791.13
11/29/87	10:38:30	38 46 57.256N	123 51 00.337W	426161.69	4292784.61
11/29/87	10:39:00	38 46 57.128N	123 51 00.456W	426158.76	4292780.69
11/29/87	10:39:30	38 46 57.021N	123 51 00.522W	426157.14	4292777.40
11/29/87	10:40:00	38 46 56.897N	123 51 00.512W	426157.35	4292773.59
11/29/87	10:40:33	38 46 56.817N	123 51 00.493W	426157.78	4292771.10
11/29/87	10:41:00	38 46 56.776N	123 51 00.493W	426157.77	4292769.83
11/29/87	10:41:30	38 46 56.699N	123 51 00.464W	426158.44	4292767.47
11/29/87	10:42:00	38 46 56.545N	123 51 00.392W	426160.14	4292762.69
11/29/87	10:42:30	38 46 56.291N	123 51 00.339W	426161.36	4292754.86
11/29/87	10:43:00	38 46 55.959N	123 51 00.403W	426159.72	4292744.63
11/29/87	10:43:30	38 46 55.559N	123 51 00.592W	426155.03	4292732.34
11/29/87	10:44:00	38 46 55.103N	123 51 00.869W	426148.23	4292718.35
11/29/87	10:44:30	38 46 54.686N	123 51 01.141W	426141.54	4292705.57
11/29/87	10:45:00	38 46 54.362N	123 51 01.327W	426136.97	4292695.63
11/29/87	10:45:30	38 46 54.109N	123 51 01.413W	426134.81	4292687.83
11/29/87	10:46:02	38 46 53.921N	123 51 01.409W	426134.85	4292682.04
11/29/87	10:46:34	38 46 53.791N	123 51 01.329W	426136.76	4292678.02
11/29/87	10:47:02	38 46 53.700N	123 51 01.166W	426140.66	4292675.18
11/29/87	10:47:31	38 46 53.632N	123 51 00.898W	426147.11	4292673.03
11/29/87	10:48:00	38 46 53.564N	123 51 00.495W	426156.80	4292670.84
11/29/87	10:48:32	38 46 53.473N	123 51 00.009W	426168.52	4292667.93
11/29/87	10:49:01	38 46 53.317N	123 50 59.435W	426182.31	4292662.97
11/29/87	10:49:30	38 46 53.084N	123 50 58.876W	426195.73	4292655.66
11/29/87	10:50:00	38 46 52.770N	123 50 58.365W	426207,98	4292645.88
11/29/87	10:50:31	38 46 52.436N	123 50 58.004W	426216.59	4292635.50
11/29/87	10:51:00	38 46 52.127N	123 50 57.806W	426221.28	4292625.92
11/29/87	10:51:30	38 46 51.821N	123 50 57.684W	426224.13	4292616.48
11/29/87	10:52:00	38 46 51.547N	123 50 57.639W	426225.15	4292608.02
11/29/'87	10:52:30	38 46 51.386N	123 50 57.717W	426223.21	4292603.08
11/29/87	10:53:00	38 46 51.328N	123 50 57.915W	426218.42	4292601.34
11/29/87	10:53:30	38 46 51.415N	123 50 58.181W	426212.02	4292604.07
11/29/87	10:54:00	38 46 51.599N	123 50 58.431W	426206.05	4292609.78
11/29/87	10:54:31	38 46 51.706N	123 50 58.730W	426198.87	4292613.16
11/29/87	10:55:00	38 46 51.588N	123 50 59.113W	426189.58	4292609.62
11/29/87	10:55:30	38 46 51.334N	123 50 59.518W	426179.75	4292601.89
11/29/87	10:56:00	38 46 50.990N	123 51 00.025W	426167.41	4292591.39

MMS CARP Project
Hard Substrate Transect HB10

DATE	TIME	LATITUDE	LONGITUDE	UTM - X	UTM - Y
11/29/87	10:56:30	38 46 50.846N	123 51 00.374W	426158.95	4292587.01
11/29/87	10:57:00	38 46 50.712N	123 51 00.716W	426150.65	4292582.96
11/29/87	10:57:30	38 46 50.394N	123 51 01.172W	426139.56	4292573.27
11/29/87	10:58:00	38 46 49.994N	123 51 01.572W	426129,79	4292561.02
11/29/87	10:58:30	38 46 49.643N	123 51 01.857W	426122.83	4292550.28
11/29/87	10:59:01	38 46 49.358N	123 51 02.110W	426116.62	4292541.56
11/29/87	10:59:30	38 46 49.121N	123 51 02.364W	426110.43	4292534.31

MMS CARP Project
Hard Substrate Transect HB13

DATE	TIME	LATITUDE	LONGITUDE	UTM - X	UTM-Y
11/29/87	15:37:38	38 31 11.831N	123 34 25.816W	449974.91	4263456.85
11/29/87	15:38:00	38 31 11.943N	123 34 25.534W	449981.77	4263460.21
11/29/87	15:38:30	38 31 11.943N	123 34 25.534W	449981.77	4263460.24
11/29/87	15:39:00	38 31 11.943N	123 34 25.534W	449981.77	4263460.24
11/29/87	15:39:30	38 31 11.947N	123 34 25.530W	449981.88	4263460.37
11/29/87	15:40:00	38 31 11.980N	123 34 25.476W	449983.18	4263461.38
11/29/87	15:40:30	38 31 12.139N	123 34 25.245W	449988.80	4263466.24
11/29/87	15:41:00	38 31 12.450N	123 34 24.768W	450000.40	4263475.76
11/29/87	15:41:30	38 31 12.751N	123 34 24.218W	450013,80	4263484.96
11/29/87	15:42:00	38 31 12.972N	123 34 23.663W	450027.28	4263491.68
11/29/87	15:42:30	38 31 13.236N	123 34 23.001W	450043.36	4263499.72
11/29/87	15:43:00	38 31 13.603N	123 34 22.283W	450060.81	4263510.93
11/29/87	15:43:31	38 31 13.987N	123 34 21.815W	450072.22	4263522.68
11/29/87	15:44:00	38 31 14.381N	123 34 21.675W	450075.70	4263534.80
11/29/87	15:44:30	38 31 14.816N	123 34 21.757W	450073.78	4263548.23
11/29/87	15:45:00	38 31 15.253N	123 34 21.891W	450070.62	4263561.73
11/29/87	15:45:31	38 31 15.651N	123 34 21.947W	450069.35	4263574.01
11/29/87	15:46:00	38 31 15.924N	123 34 21.873W	450071.20	4263582.39
11/29/87	15:46:30	38 31 16.155N	123 34 21.662W	450076.34	4263589.48
11/29/87	15:47:00	38 31 16.443N	123 34 21.361W	450083.68	4263598.33
11/29/87	15:47:32	38 31 16.775N	123 34 21.080W	450090.54	4263608.53
11/29/87	15:48:00	38 31 17.046N	123 34 20.870W	450095.69	4263616.82
11/29/87	15:48:30	38 31 17.301N	123 34 20.635W	450101.43	4263624.67
11/29/87	15:49:00	38 31 17.502N	123 34 20.441W	450106.16	4263630.81
11/29/87	15:49:30	38 31 17.619N	123 34 20.402W	450107.14	4263634.43
11/29/87	15:50:01	38 31 17.704N	123 34 20.478W	450105.30	4263637.04
11/29/87	15:50:30	38 31 17.829N	123 34 20.540W	450103.83	4263640.93
11/29/87	15:51:00	38 31 18.046N	123 34 20.501W	450104.82	4263647.60
11/29/87	15:51:30	38 31 18.368N	123 34 20.342W	450108.73	4263657.50
11/29/87	15:52:00	38 31 18.739N	123 34 20.088W	450114.94	4263668.90
11/29/87	15:52:31	38 31 19.018N	123 34 19.806W	450121.84	4263677.44
11/29/87	15:53:00	38 31 19.195N	123 34 19.505W	450129.16	4263682.86
11/29/87	15:53:30	38 31 19.379N	123 34 19.160W	450137.54	4263688.47
11/29/87	15:54:00	38 31 19.663N	123 34 18.803W	450146.24	4263697.19
11/29/87	15:54:30	38 31 19.991N	123 34 18.545W	450152.54	4263707.26
11/29/87	15:55:00	38 31 20.296N	123 34 18.374W	450156.75	4263716.64
11/29/87	15:55:30	38 31 20.542N	123 34 18.234W	450160.19	4263724.19
11/29/87	15:56:00	38 31 20.816N	123 34 18.063W	450164.39	4263732.62
11/29/87	15:56:30	38 31 21.051N	123 34 17.898W	450168.43	4263739.84
11/29/87	15:57:00	38 31 21.245N	123 34 17.727W	450172.61	4263745.79
11/29/87	15:57:30	38 31 21.429N	123 34 17.541W	450177.14	4263751.42
11/29/87	15:58:00	38 31 21.592N	123 34 17.395W	450180.72	4263756.42
11/29/87	15:58:30	38 31 21.720N	123 34 17.291W	450183,24	4263760.35
n/29/87	15:59:00	38 31 21.883N	123 34 17.118W	450187.47	4263765.34
11/29/87	15:59:30	38 31 22.052N	123 34 16.889W	450193.04	4263770.52
11/29/87	16:00:00	38 31 22.260N	123 34 16.590W	450200.33	4263776.90

MMS CARP Project
Hard Substrate Transect HB13

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/29/87	16:00:30	38 31 22.462N	123 34 16.301W	450207.36	4263783.09
11/29/87	16:01:00	38 31 22.675N	123 34 15.996W	450214.79	4263789.59
11/29/87	16:01:30	38 31 22.887N	123 34 15.697W	450222,07	4263796.09
11/29/87	16:02:03	38 31 23.071N	123 34 15.476W	450227.45	4263801.72
11/29/87	16:02:30	38 31 23.201N	123 34 15.322W	450231.22	4263805.70
11/29/87	16:03:00	38 31 23.310N	123 34 15.107W	450236.44	4263809.04
11/29/87	16:03:30	38 31 23.390N	123 34 14.857W	450242.50	4263811.48
11/29/87	16:04:00	38 31 23.458N	123 34 14.616W	450248.36	4263813.54
11/29/87	16:04:30	38 31 23.524N	123 34 14.391W	450253.81	4263815.54
11/29/87	16:05:00	38 31 23.578N	123 34 14.228W	450257.77	4263817.17
11/29/87	16:05:30	38 31 23.605N	123 34 14.294W	450256.17	4263818.01
11/29/87	16:06:00	38 31 23.626N	123 34 14.657W	450247.39	4263818.70
11/29/87	16:06:30	38 31 23.640N	123 34 15.115W	450236.30	4263819.21
11/29/87	16:07:04	38 31 23.605N	123 34 15.315W	450231.45	4263818.16
11/29/87	16:07:31	38 31 23.485N	123 34 15.138W	450235.72	4263814.44
11/29/87	16:08:00	38 31 23.213N	123 34 14.672W	450246.96	4263805.98
11/29/87	16:08:30	38 31 22.765N	123 34 14.020W	450262.66	4263792.09
11/29/87	16:09:13	38 31 22.400N	123 34 13.533W	450274.37	4263780.76
11/29/87	16:09:30	38 31 22.173N	123 34 13.234W	450281.57	4263773.72
11/29/87	16:10:00	38 31 21.806N	123 34 12.723W	450293.89	4263762.33
11/29/87	16:10:30	38 31 21.746N	123 34 12.500W	450299.27	4263760.45
11/29/87	16:11:01	38 31 21.755N	123 34 12.122W	450308.42	4263760.65
11/29/87	16:11:30	38 31 21.738N	123 34 11.506W	450323.35	4263760.05
11/29/87	16:12:00	38 31 21.734N	123 34 11.004W	450335.48	4263759.85
11/29/87	16:12:30	38 31 21.687N	123 34 11.027W	450334.92	4263758.39
11/29/87	16:13:00	38 31 21.567N	123 34 11.163W	450331.60	4263754.72
11/29/87	16:13:30	38 31 21.402N	123 34 11.120W	450332.62	4263749.63
11/29/87	16:14:00	38 31 21.276N	123 34 11.027W	450334.85	4263745.74
11/29/87	16:14:32	38 31 21.216N	123 34 10.986W	450335.83	4263743.89
11/29/87	16:15:00	38 31 21.206N	123 34 10.823W	450339.78	4263743.55
11/29/87	16:15:30	38 31 21.239N	123 34 10.437W	450349.12	4263744,50
11/29/87	16:16:00	38 31 21.322N	123 34 09.963W	450360.63	4263746.98
11/29/87	16:16:30	38 31 21.435N	123 34 09.602W	450369.39	4263750.42
11/29/87	16:17:00	38 31 21.592N	123 34 09.515W	450371.52	4263755.24
11/29/87	16:17:30	38 31 21.773N	123 34 09.847W	450363,51	4263760.88
11/29/87	16:18:15	38 31 21.839N	123 34 10.109W	450357.18	4263762.96
11/29/87	16:18:30	38 31 21.804N	123 34 10.120W	450356.92	4263761.88
11/29/87	16:19:00	38 31 21.435N	123 34 09.827W	450363.94	4263750.45
11/29/87	16:19:30	38 31 20.758N	123 34 09.358W	450375.15	4263729.53
11/29/87	16:20:00	38 31 19.933N	123 34 09.090W	450381.49	4263704.06
11/29/87	16:20:30	38 31 19.051N	123 34 09.028W	450382.82	4263676.84
11/29/87	16:21:00	38 31 18.273N	123 34 08.901W	450385.77	4263652.85
11/29/87	16:21:30	38 31 17.761N	123 34 08.577W	450393.51	4263637.04
11/29/87	16:22:00	38 31 17.485N	123 34 08.195W	450402.70	4263628.46
11/29/87	16:22:30	38 31 17.409N	123 34 07.875W	450410.43	4263626.06
11/29/87	16:23:00	38 31 17.588N	123 34 07.510W	450419.30	4263631.54

MMS CARP Project
Hard Substrate Transect HB13

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/29/87	16:23:30	38 31 17.885N	123 34 06.995W	450431.85	4263640.61
11/29/87	16:24:00	38 31 18.087N	123 34 06.687W	450439.33	4263646,80
11/29/87	16:24:30	38 31 18.213N	123 34 06.865W	450435.05	4263650.70
11/29/87	16:25:00	38 31 18.279N	123 34 06.997W	450431.87	4263652.76
11/29/87	16:25:30	38 31 18.122N	123 34 06.658W	450440.03	4263647.88
11/29/87	16:26:00	38 31 17.704N	123 34 06.234W	450450.24	4263634.91
11/29/87	16:26:30	38 31 17.256N	123 34 06.153W	450452.10	4263621.10
11/29/87	16:27:00	38 31 16.868N	123 34 06.293W	450448.63	4263609.17
11/29/87	16:27:30	38 31 16.363N	123 34 06.281W	450448.84	4263593.59
11/29/87	16:28:00	38 31 15.752N	123 34 05.994W	450455.66	4263574.73
11/29/87	16:28:30	38 31 15.290N	123 34 05.642W	450464.12	4263560.43
11/29/87	16:29:00	38 31 15.063N	123 34 05.347W	450471.22	4263553.40
11/29/87	16:29:30	38 31 14.960N	123 34 04.961W	450480.54	4263550.16
11/29/87	16:30:00	38 31 14.865N	123 34 04.410W	450493.86	4263547.15
11/29/87	16:30:30	38 31 14.736N	123 34 03.991W	450503.97	4263543.08
11/29/87	16:31:00	38 31 14.641N	123 34 03.987W	450504.05	4263540.16
11/29/87	16:31:30	38 31 14.637N	123 34 04.220W	450498.41	4263540.07
11/29/87	16:32:00	38 31 14.591N	123 34 04.416W	450493.65	4263538.70
11/29/87	16:32:30	38 31 14.247N	123 34 04.505W	450491.44	4263528.09
11/29/87	16:33:00	38 31 13.653N	123 34 04.460W	450492,43	4263509.78
11/29/87	16:33:30	38 31 13.191N	123 34 04.406W	450493.64	4263495.53
11/29/87	16:34:00	38 31 12.900N	123 34 04.433W	450492.93	4263486.57
11/29/87	16:34:30	38 31 12.586N	123 34 04.429W	450492.97	4263476.90
11/29/87	16:35:00	38 31 12.363N	123 34 04.414W	450493.28	4263470.04
11/29/87	16:35:30	38 31 12.314N	123 34 04.472W	450491.87	4263468.52
11/29/87	16:36:00	38 31 12.250N	123 34 04.474W	450491.81	4263466.55
11/29/87	16:36:30	38 31 12.186N	123 34 04.352W	450494.74	4263464.56
11/29/87	16:37:00	38 31 12.275N	123 34 04.179W	450498.96	4263467.27
11/29/87	16:37:30	38 31 12.446N	123 34 03.944W	450504.68	4263472.51
11/29/87	16:38:00	38 31 12.594N	123 34 03.723W	450510.06	4263477.05
11/29/87	16:38:30	38 31 12.722N	123 34 03.680W	450511.13	4263480.99
11/29/87	16:39:00	38 31 12.830N	123 34 03.696W	450510.75	d263484.30
11/29/87	16:39:30	38 31 12.842N	123 34 03.511W	450515.25	4263484.65
11/29/87	16:40:00	38 31 12.747N	123 34 03.239W	450521.82	4263481.69
11/29/87	16:40:30	38 31 12.650N	123 34 03.232W	450521.95	4263478.70
11/29/87	16:41:00	38 31 12.601N	123 34 03.486W	450515.80	4263477.21
11/29/87	16:41:30	38 31 12.419N	123 34 03.672W	450511.27	4263471.64
11/29/87	16:42:00	38 31 11.823N	123 34 03.525W	450514.70	4263453.25
11/29/87	16:42:30	38 31 10.994N	123 34 03.001W	450527.23	4263427.61
11/29/87	16:43:00	38 31 10.503N	123 34 02.444W	450540.63	4263412.40
11/29/87	16:43:30	38 31 10.449N	123 34 02.339W	450543.16	4263410.73
11/29/87	16:44:00	38 31 10.464N	123 34 02.673W	450535.07	4263411.22
11/29/87	16:44:30	38 31 10.377N	123 34 02.975W	450527.77	4263408.60
11/29/87	16:45:00	38 31 10.103N	123 34 02.890W	450529.76	4263400.13
11/29/87	16:45:30	38 31 09.626N	123 34 02.389W	450541.81	4263385.37
11/29/87	16:46:00	38 31 09.321N	123 34 01.838W	450555.09	4263375.88

MMS CARP Project
Hard Substrate Transect HB13

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
11/29/87	16:46:30	38 31 09.420N	123 34 01.774W	450556.65	4263378.92
11/29/87	16:47:00	38 31 09.579N	123 34 02.003W	450551.14	4263383.85
11/29/87	16:47:31	38 31 09.616N	123 34 01.968W	450552.00	4263384.99
11/29/87	16:48:00	38 31 09.676N	123 34 01.834W	450555,25	4263386.81
11/29/87	16:48:30	38 31 09.775N	123 34 02.024W	450550.68	4263389.89
11/29/87	16:49:00	38 31 09.822N	123 34 02.290W	450544.24	4263391.39
11/29/87	16:49:30	38 31 09.843N	123 34 02.156W	450547.49	4263392.01
11/29/87	16:50:00	38 31 09.911N	123 34 01.601W	450560.94	4263394.02
11/29/87	16:50:30	38 31 10.074N	123 34 00.893W	450578.11	4263398.94
11/29/87	16:51:00	38 31 10.231N	123 34 00.332W	450591.72	4263403.69
11/29/87	16:51:30	38 31 10.161N	123 34 00.332W	450591.71	4263401.53
11/29/87	16:52:00	38 31 09.963N	123 34 00.635W	450584.33	4263395.47
11/29/87	16:52:30	38 31 09.715N	123 34 00.879W	450578.39	4263387.88
11/29/87	16:53:00	38 31 09.418N	123 34 01.048W	450574.24	4263378.75
11/29/87	16:53:30	38 31 09.269N	123 34 01.322W	450567.56	4263374.21
11/29/87	16:54:00	38 31 09.278N	123 34 01.498W	450563.32	4263374.49
11/29/87	16:54:30	38 31 08.954N	123 34 01.077W	450573.45	4263364.45
11/29/87	16:55:00	38 31 08.162N	123 34 00.064W	450597.82	4263339.88
11/29/87	16:55:30	38 31 07.442N	123 33 59.489W	450611.62	4263317.61
11/29/87	16:56:00	38 31 06.900N	123 33 59.701W	450606.37	4263300.92
11/29/87	16:56:30	38 31 06.413N	123 34 00.064W	450597.49	4263285.97
11/29/87	16:57:00	38 31 06.171N	123 34 00.242W	450593.15	4263278.56
11/29/87	16:57:30	38 31 06.310N	123 34 00.629W	450583.79	4263282.88
11/29/87	16:58:00	38 31 06.501N	123 34 00.906W	450577.13	4263288.83
11/29/87	16:58:30	38 31 06.415N	123 34 00.390W	450589.60	4263286.08
11/29/87	16:59:00	38 31 06.272N	123 33 59.691W	450606.51	4263281.59
11/29/87	16:59:30	38 31 06.460N	123 33 59.773W	450604.54	4263287.39
11/29/87	17:00:00	38 31 07.032N	123 34 00.549W	450585.87	4263305.11
11/29/87	17:00:30	38 31 07.359N	123 34 00.737W	450581.39	4263315.25
11/29/87	17:01:00	38 31 06.992N	123 33 59.788W	450604.29	4263303.79
11/29/87	17:01:30	38 31 06.361N	123 33 58.620W	450632.45	4263284.17
11/29/87	17:02:00	38 31 06.252N	123 33 58.431W	450637.02	4263280.77
11/29/87	17:02:30	38 31 06.638N	123 33 58.938W	450624.81	4263292.73
11/29/87	17:03:00	38 31 06.757N	123 33 59.109W	450620.68	4263296.44
11/29/87	17:03:30	38 31 06.291N	123 33 58.864W	450626.54	4263282.04
11/29/87	17:04:00	38 31 05.794N	123 33 58.738W	450629.49	4263266.70
11/29/87	17:04:30	38 31 05.464N	123 33 58.635W	450631.93	4263256.51
11/29/87	17:05:00	38 31 05.091N	123 33 58.373W	450638.20	4263244.97
11/29/87	17:05:30	38 31 04.721N	123 33 58.154W	450643.42	4263233.55
11/29/87	17:06:00	38 31 04.468N	123 33 58.016W	450646.72	4263225.71
11/29/87	17:06:30	38 31 04.278N	123 33 57.869W	450650.23	4263219.84
11/29/87	17:07:00	38 31 04.129N	123 33 57.768W	450652.65	4263215.25
11/29/87	17:07:30	38 31 04.074N	123 33 57.709W	450654.09	4263213.52
11/29/87	17:08:00	38 31 04.082N	123 33 57.577W	450657.29	4263213.76
11/29/87	17:08:30	38 31 04.173N	123 33 57.356W	450662.65	4263216.52
11/29/87	17:09:00	38 31 04.296N	123 33 57.032W	450670.52	4263220.29

MMS CARP Project
Hard Substrate Transect HB13

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM- Y
11/29/87	17:09:30	38 31 04.249N	123 33 56.551W	450682.15	4263218.76
11/29/87	17:10:00	38 31 03.894N	123 33 55.988W	450695.71	4263207.74
11/29/87	17:10:30	38 31 03.403N	123 33 55.508W	450707.26	4263192.53
11/29/87	17:11:00	38 31 02.867N	123 33 55.223W	450714.05	4263175.96
11/29/87	17:11:30	38 31 02.382N	123 33 55.169W	450715.26	4263161.01
11/29/87	17:12:00	38 31 02.007N	123 33 55.073W	450717.54	4263149.43
11/29/87	17:12:31	38 31 01.782N	123 33 54.856W	450722.74	4263142.47
11/29/87	17:13:00	38 31 01.629N	123 33 54.602W	450728.85	4263137.72
11/29/87	17:13:30	38 31 01.539N	123 33 54.311W	450735.88	4263134.88
11/29/87	17:14:00	38 31 01.549N	123 33 53.903W	450745.77	4263135.14
11/29/87	17:14:30	38 31 01.518N	123 33 53.138W	450764.30	4263134.07
11/29/87	17:15:00	38 31 01.176N	123 33 52.067W	450790.16	4263123.36
11/29/87	17:15:30	38 31 00.619N	123 33 51.319W	450808.18	4263106.08
11/29/87	17:16:00	38 31 00.295N	123 33 51.352W	450807.32	4263096.11
11/29/87	17:16:30	38 31 00.283N	123 33 51.785W	450796.83	4263095.79
11/29/87	17:17:00	38 31 00.266N	123 33 52.055W	450790.28	4263095.32
11/29/87	17:17:30	38 31 00.031N	123 33 52.119W	450788.69	4263088.08
11/29/87	17:18:00	38 30 59.736N	123 33 52.053W	450790.23	4263078.98
11/29/87	17:18:30	38 30 59.552N	123 33 51.663W	450799.64	4263073.27
11/29/87	17:19:01	38 30 59.272N	123 33 50.947W	450816.92	4263064.51
11/29/87	17:19:30	38 30 58.837N	123 33 50.382W	450830.52	4263051.01
11/29/87	17:20:00	38 30 58.558N	123 33 50.399W	450830.07	4263042.43
11/29/87	17:20:30	38 30 58.517N	123 33 50.698W	450822.82	4263041.21
11/29/87	17:21:00	38 30 58.385N	123 33 50.832W	450819.55	4263037.16
11/29/87	17:21:30	38 30 58.009N	123 33 50.896W	450817.93	4263025.60
11/29/87	17:22:00	38 30 57.481N	123 33 50.904W	450817.63	4263009.32
n/29/87	17:22:30	38 30 56.813N	123 33 50.630W	450824.15	4262988.68
11/29/87	17:23:00	38 30 55.957N	123 33 50.130W	450836.07	4262962.23
11/29/87	17:23:30	38 30 55.353N	123 33 49.912W	450841.25	4262943.57
11/29/87	17:24:00	38 30 55.274N	123 33 50.141W	450835.70	4262941.18

MMS CARP Project
Hard Substrate Transect HB14

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
12/02/87	08:33:30	38 26 53.864N	123 32 11.455W	453182.24	4255486.09
12/02/87	08:34:00	38 26 53.864N	123 32 11.453W	453182.29	4255486.09
12/02/87	08:34:30	38 26 53.866N	123 32 11.451W	453182.34	4255486.15
12/02/87	08:35:00	38 26 53.866N	123 32 11.447W	453182.44	4255486.15
12/02/87	08:35:30	38 26 53.868N	123 32 11.445W	453182.49	4255486.21
12/02/87	08:36:00	38 26 53.870N	123 32 11.439W	453182.64	4255486.28
12/02/87	08:36:30	38 26 53.872N	123 32 11.433W	453182.79	4255486.34
12/02/87	08:37:00	38 26 53.877N	123 32 11.427W	453182.94	4255486.47
12/02/87	08:37:30	38 26 53.879N	123 32 11.416W	453183.19	4255486.53
12/02/87	08:38:00	38 26 53.883N	123 32 11.404W	453183.49	4255486.65
12/02/87	08:38:30	38 26 53.887N	123 32 11.391W	453183.79	4255486.78
12/02/87	08:39:00	38 26 53.893N	123 32 11.375W	453184.19	4255486.97
12/02/87	08:39:30	38 26 53.897N	123 32 11.354W	453184.69	4255487.09
12/02/87	08:40:00	38 26 53.905N	123 32 11.330W	453185.29	4255487.34
12/02/87	08:40:30	38 26 53.912N	123 32 11.303W	453185.94	4255487.53
12/02/87	08:41:00	38 26 53.922N	123 32 11.268W	453186.80	4255487.84
12/02/87	08:41:30	38 26 53.930N	123 32 11.231W	453187.70	4255488.09
12/02/87	08:42:00	38 26 53.940N	123 32 11.185W	453188.80	4255488.40
12/02/87	08:42:30	38 26 53.953N	123 32 11.132W	453190.10	4255488.78
12/02/87	08:43:00	38 26 53.967N	123 32 11.074W	453191.50	4255489.21
12/02/87	08:43:30	38 26 53.982N	123 32 11.006W	453193.16	4255489.65
12/02/87	08:44:00	38 26 53.996N	123 32 10.927W	453195.06	4255490.08
12/02/'87	08:44:30	38 26 54.013N	123 32 10.841W	453197.16	4255490.58
12/02/87	08:45:00	38 26 54.031N	123 32 10.742W	453199.56	4255491.14
12/02/87	08:45:30	38 26 54.062N	123 32 10.573W	453203.67	4255492.07
12/02/87	08:46:00	38 26 54.085N	123 32 10.445W	453206.77	4255492.75
12/02/87	08:46:30	38 26 54.110N	123 32 10.304W	453210.18	4255493.49
12/02/87	08:47:00	38 26 54.134N	123 32 10.148W	453213.98	4255494.23
12/02/87	08:47:30	38 26 54.161N	123 32 09.979W	453218.09	4255495.04
12/02/87	08:48:00	38 26 54.190N	123 32 09.793W	453222.59	4255495.90
12/02/87	08:48:30	38 26 54.221N	123 32 09.593W	453227.45	4255496.82
12/02/87	08:49:00	38 26 54.254N	123 32 09.376W	453232.70	4255497.81
12/02/87	08:49:30	38 26 54.291N	123 32 09.145W	453238.31	4255498.92
12/02/87	08:50:00	38 26 54.328N	123 32 08.896W	453244.37	4255500.03
12/02/87	08:50:30	38 26 54.367N	123 32 08.632W	453250.77	4255501.20
12/02/87	08:51:00	38 26 54.411N	123 32 08.351W	453257.58	4255502.50
12/02/87	08:51:30	38 26 54.456N	123 32 08.056W	453264.74	4255503.86
12/02/87	08:52:00	38 26 54.504N	123 32 07.745W	453272.30	4255505.27
12/02/87	08:52:30	38 26 54.555N	123 32 07.419W	453280.21	4255506.82
12/02/87	08:53:00	38 26 54.609N	123 32 07.078W	453288.46	4255508.42
12/02/87	08:53:30	38 26 54.669N	123 32 06.726W	453297.02	4255510.22
12/02/87	08:54:00	38 26 54.730N	123 32 06.361W	453305.89	4255512.07
12/02/87	08:54:30	38 26 54.799N	123 32 05.985W	453315.00	4255514.12
12/02/87	08:55:00	38 26 54.871N	123 32 05.602W	453324.31	4255516.29
12/02/87	08:55:30	38 26 54.947N	123 32 05.208W	453333.87	4255518.59
12/02/87	08:56:00	38 26 55.030N	123 32 04.807W	453343.59	4255521.07

MMS CARP Project
Hard Substrate Transect HB14

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM- Y
12/02/87	08:56:30	38 26 55.118N	123 32 04.401W	453353.45	4255523.75
12/02/87	08:57:00	38 26 55.215N	123 32 03.993W	453363.37	4255526.68
12/02/87	08:57:30	38 26 55.316N	123 32 03.582W	453373.34	4255529.74
12/02/87	08:58:00	38 26 55.426N	123 32 03.172W	453383.31	4255533.05
12/02/87	08:58:30	38 26 55.543N	123 32 02.763W	453393.23	4255536.61
12/02/87	08:59:00	38 26 55.667N	123 32 02.357W	453403.10	4255540.37
12/02/87	08:59:30	38 26 55.801N	123 32 01.957W	453412.82	4255544.45
12/02/87	09:00:00	38 26 55.943N	123 32 01.563W	453422.40	4255548.78
12/02/87	09:00:30	38 26 56.094N	123 32 01.177W	453431.77	4255553.37
12/02/87	09:01:00	38 26 56.255N	123 32 00.802W	453440.90	4255558.27
12/02/87	09:01:30	38 26 56.424N	123 32 00.439W	453449.73	4255563.43
12/02/87	09:02:00	38 26 56.605N	123 32 00.088W	453458.26	4255568.98
12/02/87	09:02:30	38 26 56.793N	123 31 59.752W	453466.45	4255574.72
12/02/87	09:03:00	38 26 56.993N	123 31 59.430W	453474.28	4255580.84
12/02/87	09:03:30	38 26 57.202N	123 31 59.127W	453481.67	4255587.22
12/02/87	09:04:00	38 26 57.420N	123 31 58.838W	453488.71	4255593.92
12/02/87	09:04:30	38 26 57.647N	123 31 58.568W	453495.30	4255600.87
12/02/87	09:05:00	38 26 57.882N	123 31 58.318W	453501.39	4255608.08
12/02/87	09:05:30	38 26 58.126N	123 31 58.085W	453507.08	4255615.55
12/02/87	09:06:00	38 26 58.379N	123 31 57.873W	453512.28	4255623.34
12/02/87	09:06:30	38 26 58.637N	123 31 57.679W	453517.02	4255631.26
12/02/87	09:07:00	38 26 58.901N	123 31 57.506W	453521.27	4255639.38
12/02/87	09:07:30	38 26 59.173N	123 31 57.351W	453525.07	4255647.75
12/02/87	09:08:00	38 26 59.448N	123 31 57.215W	453528.42	4255656.18
12/02/87	09:08:30	38 26 59.726N	123 31 57.097W	453531.32	4255664.75
12/02/87	09:09:00	38 27 00.005N	123 31 57.000W	453533.72	4255673.32
12/02/87	09:09:30	38 27 00.287N	123 31 56.920W	453535.72	4255682.02
12/02/87	09:10:00	38 27 00.568N	123 31 56.856W	453537.32	4255690.65
12/02/87	09:10:30	38 27 00.846N	123 31 56.811W	453538.47	4255699.23
12/02/87	09:11:00	38 27 01.123N	123 31 56.780W	453539.26	4255707.75
12/02/87	09:11:30	38 27 01.395N	123 31 56.767W	453539.61	4255716.14
12/02/87	09:12:00	38 27 01.661N	123 31 56.767W	453539.66	4255724.34
12/02/87	09:12:30	38 27 01.919N	123 31 56.782W	453539.36	4255732.29
12/02/87	09:13:00	38 27 02.168N	123 31 56.811W	453538.70	4255739.98
12/02/87	09:13:30	38 27 02.410N	123 31 56.852W	453537,74	4255747.43
12/02/87	09:14:00	38 27 02.639N	123 31 56.908W	453536.44	4255754.49
12/02/87	09:14:30	38 27 02.853N	123 31 56.974W	453534.87	4255761.11
12/02/87	09:15:00	38 27 03.057N	123 31 57.050W	453533.06	4255767.42
12/02/87	09:15:30	38 27 03.332N	123 31 57.186W	453529.81	4255775.89
12/02/87	09:16:00	38 27 03.495N	123 31 57.291W	453527.29	4255780.93
12/02/87	09:16:30	38 27 03.641N	123 31 57.405W	453524.56	4255785.46
12/02/87	09:17:00	38 27 03.769N	123 31 57.526W	453521,64	4255789.42
12/02/87	09:17:30	38 27 03.880N	123 31 57.658W	453518.46	4255792.87
12/02/87	09:18:00	38 27 03.971N	123 31 57.799W	453515.07	4255795.69
12/02/87	09:18:30	38 27 04.045N	123 31 57.947W	453511.49	4255798.00
12/02/87	09:19:00	38 27 04.099N	123 31 58.104W	453507.70	4255799.67

MMS CARP Project
Hard Substrate Transect HB14

DATE	TIME	LATITUDE	LONGITUDE	UTM-X	UTM -Y
12/02/87	09:19:30	38 27 04.134N	123 31 58.269W	453503.70	4255800.77
12/02/87	09:20:00	38 27 04.151N	123 31 58.440W	453499.56	4255801.31
12/02/87	09:20:30	38 27 04.149N	123 31 58.617W	453495.26	4255801.27
12/02/87	09:21:00	38 27 04.130N	123 31 58.803W	453490.75	4255800.72
12/02/87	09:21:30	38 27 04.095N	123 31 58.993W	453486.15	4255799.67
12/02/87	09:22:00	38 27 04.043N	123 31 59.187W	453481.44	4255798.11
12/02/87	09:22:30	38 27 03.977N	123 31 59.387W	453476.58	4255796.10
12/02/87	09:23:00	38 27 03.899N	123 31 59.589W	453471.66	4255793.71
12/02/87	09:23:30	38 27 03.808N	123 31 59.795W	453466.65	4255790.94
12/02/87	09:24:00	38 27 03.707N	123 32 00.004W	453461.58	4255787.86
12/02/87	09:24:30	38 27 03.596N	123 32 00.212W	453456.51	4255784.45
12/02/87	09:25:00	38 27 03.478N	123 32 00.420W	453451.44	4255780.86
12/02/87	09:25:31	38 27 03.354N	123 32 00.629W	453446.37	4255777.07
12/02/87	09:26:01	38 27 03.227N	123 32 00.833W	453441.40	4255773.16
12/02/87	09:26:30	38 27 03.097N	123 32 01.033W	453436.52	4255769.18
12/02/87	09:27:00	38 27 02.967N	123 32 01.229W	,453431.75	4255765.21
12/02/87	09:27:31	38 27 02.839N	123 32 01.416W	453427.18	4255761.29
12/02/87	09:28:00	38 27 02.711N	123 32 01.598W	453422.76	4255757.37
12/02/87	09:28:30	38 27 02.589N	123 32 01.769W	453418.58	4255753.65
12/02/87	09:29:01	38 27 02.474N	123 32 01.930W	453414.66	4255750.11
12/02/87	09:29:30	38 27 02.366N	123 32 02.079W	453411.05	4255746.82
12/02/87	09:30:00	38 27 02.267N	123 32 02.213W	453407.78	4255743.79
12/02/87	09:30:30	38 27 02.179N	123 32 02.332W	453404.86	4255741.08
12/02/87	09:31:00	38 27 02.100N	123 32 02.438W	453402.30	4255738.67
12/02/87	09:31:30	38 27 02.034N	123 32 02.524W	453400,19	4255736.65
12/02/87	09:32:00	38 27 01.981N	123 32 02.592W	453398.53	4255735.01
12/02/87	09:32:30	38 27 01.939N	123 32 02.642W	453397.32	4255733.74
12/02/87	09:33:00	38 27 01.913N	123 32 02.673W	453396.57	4255732.92
12/02/87	09:33:31	38 27 01.900N	123 32 02.683W	453396.31	4255732.54
12/02/87	09:34:00	38 27 01.902N	123 32 02.673W	453396.56	4255732.60
12/02/87	09:34:30	38 27 01.917N	123 32 02.642W	453397.32	4255733.04
12/02/87	09:35:00	38 27 01.946N	123 32 02.590W	453398,57	4255733.93
12/02/87	09:35:31	38 27 01.987N	123 32 02.518W	453400.33	4255735.19
12/02/87	09:36:00	38 27 02.040N	123 32 02.427W	453402.54	4255736.83
12/02/87	09:36:30	38 27 02.104N	123 32 02.316W	453405.25	4255738.78
12/02/87	09:37:00	38 27 02.179N	123 32 02.188W	453408.36	4255741.05
12/02/87	09:37:31	38 27 02.354N	123 32 01.885W	453415.74	4255746.42
12/02/87	09:38:01	38 27 03.546N	123 31 59.418W	453475.75	4255782.82
12/02/87	09:38:30	38 27 02.655N	123 32 00.200W	453456.64	4255755.46
12/02/87	09:39:01	38 26 59.666N	123 32 05.426W	453329.42	4255664.08
12/02/87	09:39:31	38 26 55.735N	123 32 10.793W	453198.62	4255543.66
12/02/87	09:40:00	38 26 51.874N	123 32 12.342W	453160.38	4255424.86
12/02/87	09:40:30	38 26 49.465N	123 32 12.629W	453153.00	4255350.65
12/02/87	09:41:01	38 26 49.429N	123 32 13.535W	453131.04	4255349.70
12/02/87	09:41:30	38 26 49.801N	123 32 13.698W	453127.16	4255361.16
12/02/87	09:42:00	38 26 49.031N	123 32 13.766W	453125.37	4255337.46

MMS CARP Project
Hard Substrate Transect HB14

DATE	TIME	LATITUDE	LONGITUDE	UTM-X	UTM-Y
12/02/87	09:42:31	38 26 48.192N	123 32 14.797W	453100.22	4255311.73
12/02/87	09:43:00	38 26 48.287N	123 32 15.696W	453078.44	4255314.78
12/02/87	09:43:31	38 26 48.380N	123 32 16.129W	453067.95	4255317.70
12/02/87	09:44:00	38 26 47.979N	123 32 16.686W	453054.38	4255305.45
12/02/87	09:44:31	38 26 47.701N	123 32 17.348W	453038.28	4255296.96
12/02/87	09:45:03	38 26 47.590N	123 32 17.520W	453034.11	4255293.55
12/02/87	09:45:30	38 26 47.146N	123 32 17.581W	453032.53	4255279.89
12/02/87	09:46:04	38 26 46.558N	123 32 17.808W	453026.93	4255261.80
12/02/87	09:46:32	38 26 46.451N	123 32 17.796W	453027.21	4255258,50
12/02/87	09:47:00	38 26 46.756N	123 32 17.493W	453034.61	4255267.86
12/02/87	09:47:30	38 26 46.521N	123 32 17.848W	453025.97	4255260.67
12/02/87	09:48:01	38 26 45.638N	123 32 18.945W	452999.21	4255233.61
12/02/87	09:48:30	38 26 45.269N	123 32 19.388W	452988.39	4255222.29
12/02/87	09:49:00	38 26 45.585N	123 32 19.271W	452991.30	4255232.00
12/02/87	09:49:30	38 26 45.680N	123 32 19.628W	452982.67	4255234.98
12/02/87	09:50:01	38 26 45.281N	123 32 20.094W	452971.30	4255222.77
12/02/87	09:50:35	38 26 44.875N	123 32 20.042W	452972.47	4255210.24
12/02/87	09:51:03	38 26 44.617N	123 32 20.071W	452971.73	4255202.30
12/02/87	09:51:31	38 26 44.289N	123 32 20.733W	452955.62	4255192.29
12/02/87	09:52:00	38 26 43.840N	123 32 21.723W	452931.54	4255178.57
12/02/87	09:52:31	38 26 43.518N	123 32 22.194W	452920.08	4255168.72
12/02/87	09:53:00	38 26 43.559N	123 32 22.006W	452924.64	4255169.96
12/02/87	09:53:30	38 26 43.900N	123 32 21.781W	452930.15	42551'80.42
12/02/87	09:54:00	38 26 44.164N	123 32 22.099W	452922.49	4255188.60
12/02/87	09:54:30	38 26 43.805N	123 32 22.682W	452908.28	4255177.62
12/02/87	09:55:00	38 26 43.002N	123 32 23.025W	452899.83	4255152.94
12/02/87	09:55:30	38 26 42.295N	123 32 23.153W	452896.61	4255131.15
12/02/87	09:56:00	38 26 42.111N	123 32 23.179W	452895.92	4255125.50
12/02/87	09:56:30	38 26 42.146N	123 32 23.217W	452895.03	4255126.58
12/02/87	09:57:00	38 26 41.987N	123 32 23.681W	452883.75	4255121.75
12/02/87	09:57:31	38 26 41.725N	123 32 24.823W	452856.00	4255113.84
12/02/87	09:58:00	38 26 41.517N	123 32 25.834W	452831.47	4255107.57
12/02/87	09:58:30	38 26 41.043N	123 32 26.028W	452826.68	4255092.97
12/02/87	09:59:00	38 26 40.298N	123 32 25.737W	452833.60	4255069.98
12/02/87	09:59:30	38 26 39.642N	123 32 25.851W	452830.73	4255049.78
12/02/87	10:00:00	38 26 39.483N	123 32 26.618W	452812.10	4255044.99
12/02/87	10:00:30	38 26 39.688N	123 32 27.598W	452788.38	4255051.43
12/02/87	10:01:01	38 26 39.875N	123 32 28.375W	452769.57	4255057.32
12/02/87	10:01:31	38 26 39.813N	123 32 28.800W	452759.26	4255055.47
12/02/87	10:02:00	38 26 39.459N	123 32 28.757W	452760.24	4255044.53
12/02/87	10:02:34	38 26 39.094N	123 32 28.596W	452764.08	4255033.26
12/02/87	10:03:02	38 26 39.009N	123 32 28.837W	452758.21	4255030.69
12/02/87	10:03:30	38 26 39.063N	123 32 29.710W	452737.07	4255032.46
12/02/87	10:04:00	38 26 38.914N	123 32 31.222W	452700.39	4255028.10
12/02/87	10:04:30	38 26 38.570N	123 32 32.742W	452663.48	4255017.70
12/02/87	10:05:01	38 26 38.238N	123 32 33.860W	452636.32	4255007.62

MMS CARP Project
Hard Substrate Transect HB14

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
12/02/87	10:05:31	38 26 37.862N	123 32 34.553W	452619.45	4254996.15
12/02/87	10:06:26	38 26 37.390N	123 32 34.994W	452608.66	4254981.66
12/02/87	10:06:41	38 26 37.371N	123 32 35.007W	452608.36	4254981.09
12/02/87	10:07:00	38 26 37.243N	123 32 35.095W	452606.19	4254977.16
12/02/87	10:07:30	38 26 37.980N	123 32 34.935W	452610.22	4254999.83
12/02/87	10:08:00	38 26 38.592N	123 32 35.178W	452604.43	4255018.75
12/02/87	10:08:30	38 26 38.007N	123 32 35.762W	452590.18	4255000.78
12/02/87	10:09:01	38 26 37.542N	123 32 35.989W	452584.59	4254986.50
12/02/87	10:09:30	38 26 38.027N	123 32 36.255W	452578.23	4255001.48
12/02/87	10:10:01	38 26 38.242N	123 32 37.024W	452559,62	4255008.20
12/02/87	10:10:30	38 26 37.980N	123 32 37.474W	452548.67	4255000.19
12/02/87	10:11:01	38 26 37.619N	123 32 37.342W	452551.80	4254989.05
12/02/87	10:11:31	38 26 36.986N	123 32 37.257W	452553,74	4254969.52
12/02/87	10:12:00	38 26 36.581N	123 32 37.703W	452542.86	4254957.12
12/02/87	10:12:30	38 26 36.992N	123 32 38.930W	452513.19	4254969.95
12/02/87	10:13:01	38 26 37.287N	123 32 39.947W	452488.59	4254979.19
12/02/87	10:13:30	38 26 37.134N	123 32 39.866W	452490.51	4254974.47
12/02/87	10:14:00	38 26 36.909N	123 32 39.299W	452504.22	4254967.46
12/02/87	10:14:30	38 26 36.511N	123 32 39.157W	452507.60	4254955.17
12/02/87	10:15:00	38 26 36.026N	123 32 39.328W	452503.36	4254940.25
12/02/87	10:15:31	38 26 36.167N	123 32 39.427W	452500.99	4254944.59
12/02/87	10:16:00	38 26 36,724N	123 32 39.718W	452494.04	4254961.80
12/02/87	10:16:30	38 26 37.179N	123 32 40.316W	452479.62	4254975.93
12/02/87	10:17:01	38 26 37.120N	123 32 40.566W	452473.56	4254974.13
12/02/87	10:17:30	38 26 36.808N	123 32 40.522W	452474.55	4254964.52
12/02/87	10:18:00	38 26 36.344N	123 32 40.807W	452467.57	4254950.26
12/02/87	10:18:30	38 26 36.033N	123 32 41.783W	452443.86	4254940.80
12/02/87	10:19:01	38 26 35.975N	123 32 43.330W	452406.35	4254939.24
12/02/87	10:19:30	38 26 35.965N	123 32 44.064W	452388.55	4254939.03
12/02/87	10:20:01	38 26 35.884N	123 32 43.441W	452403.63	4254936.46
12/02/87	10:20:31	38 26 35.971N	123 32 42.471W	452427.15	4254938.99
12/02/87	10:21:03	38 26 36.276N	123 32 42.903W	452416.76	4254948.46
12/02/87	10:21:30	38 26 36.451N	123 32 43.942W	452391.59	4254954.01
12/02/87	10:22:01	38 26 36.226N	123 32 44.210W	452385.05	4254947.12
12/02/87	10:22:30	38 26 35.760N	123 32 43.732W	452396.56	4254932.68
12/02/87	10:23:00	38 26 35.525N	123 32 44.119W	452387.12	4254925.49
12/02/87	10:23:30	38 26 35.472N	123 32 44.947W	452367.06	4254923.96
12/02/87	10:24:00	38 26 35.280N	123 32 45.240W	452359.92	4254918.09
12/02/87	10:24:34	38 26 35.121N	123 32 45.543W	452352.54	4254913.24
12/02/87	10:25:02	38 26 35.168N	123 32 46.306W	452334.05	4254914.81
12/02/87	10:25:30	38 26 35.137N	123 32 47.150W	452313.59	4254913.98
12/02/87	10:26:00	38 26 34.715N	123 32 47.187W	452312.62	4254900.95
12/02/87	10:26:30	38 26 34.234N	123 32 46.657W	452325.38	4254886.06
12/02/87	10:27:00	38 26 34.298N	123 32 46.795W	452322.04	4254888,05
12/02/87	10:27:30	38 26 34.533N	123 32 47.401W	452307.38	4254895.38
12/02/87	10:28:00	38 26 34.397N	123 32 47.762W	452298.61	4254891.24

MMS CARP Project
Hard Substrate Transect HB14

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
12/02/87	10:28:30	38 26 33.906N	123 32 47.663W	452300.92	4254876.09
12/02/87	10:29:00	38 26 33.947N	123 32 48.012W	452292.48	4254877.42
12/02/87	10:29:30	38 26 34.523N	123 32 48.740W	452274.93	4254895.26
12/02/87	10:30:01	38 26 34.933N	123 32 49.210W	452263.60	4254907.98
12/02/87	10:30:33	38 26 34.603N	123 32 49.064W	452267.09	4254897.78
12/02/87	10:31:03	38 26 33.999N	123 32 48.798W	452273.43	4254879.12
12/02/87	10:31:33	38 26 33.828N	123 32 48.901W	452270.90	4254873.86
12/02/87	10:32:01	38 26 34.090N	123 32 49.311W	452261.00	4254881.99
12/02/87	10:32:30	38 26 34.174N	123 32 49.668W	452252.37	4254884.65
12/02/87	10:33:00	38 26 33.799N	123 32 50.002W	452244.20	4254873.13
12/02/87	10:33:30	38 26 33.446N	123 32 50.784W	452225.18	4254862.37
12/02/87	10:34:02	38 26 33.341N	123 32 52.129W	452192.56	4254859.32
12/02/87	10:34:31	38 26 33.163N	123 32 53.212W	452166.28	4254854.01
12/02/87	10:35:00	38 26 32.776N	123 32 53.434W	452160.81	425484a.09
12/02/87	10:35:30	38 26 32.402N	123 32 52.987W	452171.59	4254830.51
12/02/87	10:36:00	38 26 32.254N	123 32 52.595W	452181.06	4254825.88
12/02/87	10:36:30	38 26 32.264N	123 32 52.471W	452184.06	4254826.18
12/02/87	10:37:00	38 26 32.262N	123 32 52.545W	452182.26	4254826.13
12/02/87	10:37:30	38 26 32.041N	123 32 52.760W	452177.02	4254819.36
12/02/87	10:38:01	38 26 31.763N	123 32 53.051W	452169.92	4254810.82
12/02/87	10:38:31	38 26 31.732N	123 32 53.257W	452164.91	4254809.89
12/02/87	10:39:01	38 26 31.897N	123 32 53.391W	452161.69	4254815.00
12/02/87	10:39:30	38 26 31.744N	123 32 53.971W	452147.62	4254810.38
12/02/87	10:40:00	38 26 31.022N	123 32 55.237W	452116.78	4254788.31
12/02/87	10:40:30	38 26 30.416N	123 32 56.172W	452094.02	4254769.75
12/02/87	10:41:01	38 26 30.298N	123 32 56.396W	452088.55	4254766.16
12/02/87	10:41:30	38 26 30.457N	123 32 56.349W	452089.73	4254771.05
12/02/87	10:42:00	38 26 30.377N	123 32 56.879W	452076.86	4254768.65
12/02/87	10:42:30	38 26 30.255N	123 32 57.605W	452059.24	4254765.00
12/02/87	10:44:30	38 26 30.263N	123 32 57.671W	452057.64	4254765.26
12/02/87	10:45:00	38 26 30.416N	123 32 57.572W	452060.07	4254769.95
12/02/87	10:45:30	38 26 30.480N	123 32 56.852W	452077.53	4254771.82
12/02/87	10:46:01	38 26 29.888N	123 32 57.881W	452052.47	4254753.72
12/02/87	10:46:30	38 26 29.711N	123 33 00.497W	451989.03	4254748.63
12/02/87	10:47:01	38 26 30.280N	123 33 01.361W	451968.19	4254766.31
12/02/87	10:47:30	38 26 30.201N	123 32 59.911W	452003.33	4254763.68
12/02/87	10:48:00	38 26 29.535N	123 33 00.091W	451998.85	4254743.17
12/02/87	10:48:30	38 26 29.420N	123 33 02.362W	451943.78	4254739.94
12/02/87	10:49:00	38 26 29.564N	123 33 02.760W	451934.15	4254744.45
12/02/87	10:49:32	38 26 29.642N	123 33 01.928W	451954.32	4254746.74
12/02/87	10:50:00	38 26 29.807N	123 33 02.545W	451939.40	4254751.92
12/02/87	10:50:31	38 26 29.494N	123 33 04.191W	451899.44	4254742.49
12/02/87	10:51:00	38 26 28.865N	123 33 04.164W	451899.97	4254723.10
12/02/87	10:51:31	38 26 28.993N	123 33 03.632W	451912.90	4254726.96
12/02/87	10:52:00	38 26 29.403N	123 33 04.393W	451894.52	4254739.73
12/02/87	10:52:30	38 26 29.129N	123 33 05.911W	451857.67	4254731.49

MMS CARP Project
Hard Substrate Transect HB14

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTP1 -Y
12/02/87	10:53:00	38 26 28.624N	123 33 06.658W	451839.47	4254716.02
12/02/87	10:53:31	38 26 28.632N	123 33 05.944W	451856,78	4254716,17
12/02/87	10:54:00	38 26 28.520N	123 33 04.746W	451885,81	4254712.57
12/02/87	10:54:30	38 26 27.945N	123 33 04.765W	451885.25	4254694.83
12/02/87	10:55:00	38 26 27.652N	123 33 05.781W	451860.55	4254685.95
12/02/87	10:55:30	38 26 27.774N	123 33 06.347W	451846.87	4254689.79
12/02/87	10:56:00	38 26 28.042N	123 33 05.961W	451856.27	4254697,99
12/02/87	10:56:30	38 26 27.848N	123 33 06.287W	451848.33	4254692.07
12/02/87	10:57:00	38 26 27.433N	123 33 07.607W	451816.25	4254679.48
12/02/87	10:57:30	38 26 27.427N	123 33 07.817W	451811.15	4254679.32
12/02/87	10:58:00	38 26 27.650N	123 33 06.924W	451832.84	4254686.05
12/02/87	10:58:30	38 26 27.576N	123 33 06.916W	451833.03	4254683.76
12/02/87	10:59:00	38 26 27.398N	123 33 08.436W	451796.15	4254678.52
12/02/87	10:59:30	38 26 27.504N	123 33 09.748W	451764.36	4254681.95
12/02/87	11:00:00	38 26 27.580N	123 33 10.542W	451745.13	4254684.42
12/02/87	11:00:31	38 26 27.339N	123 33 10.523W	451745.53	4254676.98
12/02/87	11:01:00	38 26 27.380N	123 33 09.971W	451758.94	4254678.17
12/02/87	11:01:30	38 26 27.755N	123 33 09.387W	451773.16	4254689.65
12/02/87	11:02:00	38 26 27.776N	123 33 09.053W	451781.26	4254690.24
12/02/87	11:02:30	38 26 26.942N	123 33 09.515W	451769.91	4254664.62
12/02/87	11:03:02	38 26 26.262N	123 33 10.536W	451745.03	4254643.79
12/02/87	11:03:30	38 26 26.439N	123 33 11.386W	451724.46	4254649.38
12/02/87	11:04:00	38 26 27.002N	123 33 11.788W	451714.82	4254666.80
12/02/87	11:04:30	38 26 26.947N	123 33 11.907W	451711.91	4254665.10
12/02/87	11:05:00	38 26 26.297N	123 33 12.174W	451705.34	4254645.11
12/02/87	11:05:30	38 26 25.748N	123 33 12.825W	451689.43	4254628.30
12/02/87	11:06:00	38 26 25.917N	123 33 13.904W	451663.31	4254633.67
12/02/87	11:06:30	38 26 26.540N	123 33 14.667W	451644.93	4254652.98
12/02/87	11:07:00	38 26 26.831N	123 33 14.682W	451644.63	4254661.94
12/02/87	11:07:30	38 26 26.528N	123 33 14.055W	451659.78	4254652.51
12/02/87	11:08:00	38 26 26.202N	123 33 13.570W	451671.47	4254642.39
12/02/87	11:08:30	38 26 26.266N	123 33 13.937W	d51662.58	4254644.42
12/02/87	11:09:03	38 26 26.289N	123 33 15.012W	451636.53	4254645.27
12/02/87	11:09:33	38 26 25.779N	123 33 15.614W	451621.83	4254629.66
12/02/87	11:10:00	38 26 25.220N	123 33 15.138W	451633.28	4254612.36
12/02/87	11:10:30	38 26 25.406N	123 33 14.308W	451653.42	4254617.96
12/02/87	11:11:00	38 26 25.870N	123 33 14.626W	451645.80	4254632.31
12/02/87	11:11:31	38 26 25.501N	123 33 16.055W	451611.08	4254621.14
12/02/87	11:12:01	38 26 24.999N	123 33 17.233W	451582.44	4254605.86
12/02/87	11:12:31	38 26 25.144N	123 33 17.569W	451574.31	4254610.36
12/02/87	11:13:00	38 26 25.565N	123 33 17.142W	451584.74	4254623.27
12/02/87	11:13:30	38 26 25.327N	123 33 17.008W	451587.95	4254615.94
12/02/87	11:14:00	38 26 24.694N	123 33 17.586W	451573.83	4254596.50
12/02/87	11:14:31	38 26 24.430N	123 33 18.110W	451561.08	4254588.44
12/02/87	11:15:01	38 26 24.535N	123 33 17.714W	451570.70	4254591.63
12/02/87	11:15:30	38 26 24.511N	123 33 17.285W	451581.10	4254590.80

MMS CARP Project
Hard Substrate Transect HB14

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
12/02/87	11:16:00	38 26 24.430N	123 33 17.827W	451567.93	4254588.40
12/02/87	11:16:30	38 26 24.253N	123 33 19.139W	451536.09	4254583.13
12/02/87	11:17:00	38 26 23.529N	123 33 20.051W	451513.86	4254560.94
12/02/87	11:17:30	38 26 22.423N	123 33 20.232W	451509.25	4254526.89
12/02/87	11:18:00	38 26 21.881N	123 33 20.426W	451504.45	4254510.20
12/02/87	11:18:30	38 26 22.015N	123 33 20.717W	451497.43	4254514.38
12/02/87	11:19:00	38 26 22.355N	123 33 20.822W	451494.94	4254524.88
12/02/87	11:19:30	38 26 22.207N	123 33 20.936W	451492.16	4254520.32
12/02/87	11:20:02	38 26 21.600N	123 33 21.940W	451467.70	4254501.78
12/02/87	11:20:30	38 26 21.291N	123 33 22.868W	451445.14	4254492.38
12/02/87	11:21:28	38 26 21.266N	123 33 23.033W	451441.13	4254491.64
12/02/87	11:21:34	38 26 21.268N	123 33 23.038W	451441.03	4254491.70
12/02/87	11:22:00	38 26 21.613N	123 33 22.243W	451460.35	4254502.20
12/02/87	11:22:30	38 26 22.417N	123 33 21.356W	451482.00	4254526.87
12/02/87	11:23:01	38 26 22.450N	123 33 24.127W	451414.85	4254528.29
12/02/87	11:23:33	38 26 20.383N	123 33 27.619W	451329.81	4254465.10
12/02/87	11:24:00	38 26 18.096N	123 33 27.171W	451340.23	4254394.53
12/02/87	11:24:30	38 26 17.353N	123 33 24.444W	451406.20	4254371.24
12/02/87	11:25:01	38 26 18.983N	123 33 25.494W	451381.05	4254421.62
12/02/87	11:25:30	38 26 19.800N	123 33 28.252W	451314.35	4254447.20
12/02/87	11:26:01	38 26 18.847N	123 33 27.138W	451341.17	4254417,67
12/02/87	11:26:30	38 26 18.184N	123 33 26.175W	451364.40	4254397.12
12/02/87	11:27:00	38 26 18.690N	123 33 29.395W	451286.44	4254413.17
12/02/87	11:27:30	38 26 18.880N	123 33 31.055W	451246.22	4254419.26
12/02/87	11:28:00	38 26 18.236N	123 33 28.215W	451314.96	4254399.01
12/02/87	11:28:30	38 26 18.180N	123 33 26.183W	451364.20	4254396.99
12/02/87	11:29:00	38 26 18.865N	123 33 27.410W	451334.57	4254418.28
12/02/87	11:29:30	38 26 19.053N	123 33 29.613W	451281.20	4254424.39

MMS CARP Project
Hard Substrate Transect HB16

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
12/05/87	09:27:17 37 21	37.021N	122 35 08.817W	536681.81	4134717.65
12/05/87	09:27:30 37 21	37.019N	122 35 08.823W	536681.66	4134717.58
12/05/87	09:28:00 37 21	36.918N	122 35 08.947W	536678.63	4134714.46
12/05/87	09:28:30 37 21	36.367N	122 35 09.438W	536666.63	4134697.43
12/05/87	09:29:00 37 21	34.928N	122 35 09.964W	536653.89	4134653.01
12/05/87	09:29:30 37 21	33.573N	122 35 09.388W	536668.23	4134611.31
12/05/87	09:30:00 37 21	33.379N	122 35 08.334W	536694.18	4134605.45
12/05/87	09:30:30 37 21	33.942N	122 35 08.567W	536688.37	4134622.78
12/05/87	09:31:00 37 21	33.975N	122 35 09.564W	536663.86	4134623.69
12/05/87	09:31:30 37 21	33.612N	122 35 10.042W	536652.14	4134612.45
12/05/87	09:32:00 37 21	33.504N	122 35 10,285W	536646.16	4134609.12
12/05/87	09:32:30 37 21	33.663N	122 35 10.684W	536636.35	4134613.97
12/05/87	09:33:00 37 21	33.750N	122 35 10.770W	536634.21	4134616.63
12/05/87	09:33:30 37 21	33.663N	122 35 10.791W	536633.71	4134613.96
12/05/87	09:34:00 37 21	33.424N	122 35 11.504W	536616.19	4134606.50
12/05/87	09:34:30 37 21	33.290N	122 35 12.476W	536592.31	4134602.27
12/05/87	09:35:00 37 21	33.434N	122 35 12.767W	536585.13	4134606.69
12/05/87	09:35:30 37 21	33.624N	122 35 12.816W	536583.89	4134612.53
12/05/87	09:36:00 37 21	33.764N	122 35 13.078W	536577.43	4134616.82
12/05/87	09:36:30 37 21	33.981N	122 35 13.169W	536575.16	4134623.49
12/05/87	09:37:01 37 21	34.169N	122 35 13.115W	536576.46	4134629.28
12/05/87	09:37:30 37 21	34.158N	122 35 13.353W	536570.62	4134628.93
12/05/87	09:38:00 37 21	34.026N	122 35 13.829W	536558.92	4134624.81
12/05/87	09:38:30 37 21	33.954N	122 35 14.237W	536548.88	4134622.55
12/05/87	09:39:00 37 21	33.987N	122 35 14.563W	536540.86	4134623.53
12/05/87	09:39:31 37 21	34.152N	122 35 14.842W	536533.99	4134628.58
12/05/87	09:40:00 37 21	34.476N	122 35 14.970W	536530.80	4134638.55
12/05/87	09:40:30 37 21	34.938N	122 35 14.953W	536531.14	4134652.79
12/05/87	09:41:00 37 21	35.148N	122 35 14.920W	536531.93	4134659.28
12/05/87	09:41:30 37 21	35.016N	122 35 14.924W	536531.84	4134655.21
12/05/87	09:42:00 37 21	34.691N	122 35 14.959W	536531.03	4134645.16
12/05/87	09:42:30 37 21	34.424N	122 35 15.054W	536528.73	4134636.95
12/05/87	09:43:03 37 21	34.303N	122 35 15.234W	536524.33	4134633.18
12/05/87	09:43:30 37 21	34.365N	122 35 15.401W	536520.21	4134635.07
12/05/87	09:44:00 37 21	34.594N	122 35 15.479W	536518.25	4134642.12
12/05/87	09:44:30 37 21	34.891N	122 35 15.448W	536518.97	4134651.27
12/05/87	09:45:00 37 21	35.130N	122 35 15.446W	536518.99	4134658.65
12/05/87	09:45:30 37 21	35.252N	122 35 15.533W	536516.84	4134662.39
12/05/87	09:46:00 37 21	35.398N	122 35 15.525W	536517.03	4134666.90
12/05/87	09:46:30 37 21	35.757N	122 35 15.388W	536520.33	4134677.98
12/05/87	09:47:00 37 21	36.112N	122 35 15.368W	536520.79	4134688.91
12/05/87	09:47:30 37 21	36.108N	122 35 15.640W	536514.09	4134688.76
12/05/87	09:48:00 37 21	35.701N	122 35 16.172W	536501.05	4134676.18
12/05/87	09:48:30 37 21	35.311N	122 35 16.706W	536487.97	4134664.11

MMS CARP Project
Hard Substrate Transect HB16

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM- Y
12/05/87	10:11:31	37 21 35.136N	122 35 24.487W	536296.60	4134657.87
12/05/87	10:12:00	37 21 35.278N	122 35 24.670W	536292.06	4134662.24
12/05/87	10:12:30	37 21 35.241N	122 35 24,677W	536291.92	4134661.09
12/05/87	10:13:01	37 21 35.181N	122 35 24.701W	536291.32	4134659.25
12/05/87	10:13:30	37 21 35.247N	122 35 24.788W	536289.18	4134661.27
12/05/87	10:14:00	37 21 35.214N	122 35 24.839W	536287.91	4134660.25
12/05/87	10:14:30	37 21 34.926N	122 35 24.833W	536288.10	4134651.35
12/05/87	10:15:00	37 21 34.639N	122 35 24.800W	536288.95	4134642.52
12/05/87	10:15:30	37 21 34.600N	122 35 24.790W	536289.21	4134641.31
12/05/87	10:16:00	37 21 34.515N	122 35 24.872W	536287.19	4134638.70
12/05/87	10:16:30	37 21 34.445N	122 35 25.066W	536282.43	4134636.51
12/05/87	10:17:00	37 21 34.711N	122 35 25.250W	536277.88	4134644.69
12/05/87	10:17:30	37 21 35.074N	122 35 25.258W	536277.63	4134655.88
12/05/87	10:18:00	37 21 35.016N	122 35 25.083W	536281.95	4134654.12
12/05/87	10:18:33	37 21 34.530N	122 35 24.837W	536288.05	4134639.14
12/05/87	10:19:01	37 21 34.150N	122 35 24.637W	536293.03	4134627.47
12/05/87	10:19:30	37 21 34.107N	122 35 24.538W	536295.47	4134626.15
12/05/87	10:20:00	37 21 34.030N	122 35 24.716W	536291,11	4134623.78
12/05/87	10:20:30	37 21 33.639N	122 35 25.159W	536280.26	4134611.65
12/05/87	10:21:00	37 21 33.288N	122 35 25.611W	536269.19	4134600.80
12/05/87	10:21:30	37 21 33.007N	122 35 26.021W	536259.13	4134592.11
12/05/87	10:22:00	37 21 32.436N	122 35 26.442W	536248.86	4134574.46
12/05/87	10:22:30	37 21 31.495N	122 35 26.780W	536240.66	4134545.44
12/05/87	10:23:01	37 21 31.040N	122 35 26.861W	536238.74	4134531.38
12/05/87	10:23:30	37 21 31.178N	122 35 27.127W	536232.18	4134535.61
12/05/87	10:24:00	37 21 31.737N	122 35 28.134W	536207.34	4134552.73
12/05/87	10:24:30	37 21 31.966N	122 35 29.194W	536181.23	4134559.67
12/05/87	10:25:01	37 21 31.778N	122 35 29.441W	536175.17	4134553.86
12/05/87	10:25:30	37 21 31.444N	122 35 29.041W	536185.06	4134543.61
12/05/87	10:26:00	37 21 30.974N	122 35 28.610W	536195.72	4134529.16
12/05/87	10:26:30	37 21 30.299N	122 35 28.695W	536193.73	4134508.37
12/05/87	10:27:00	37 21 29.381N	122 35 28.835W	536190.41	4134480.07
12/05/87	10:27:30	37 21 28.597N	122 35 28.459W	536199.75	4134455.95
12/05/87	10:28:00	37 21 28.595N	122 35 28.138W	536207.66	4134455.92
12/05/87	10:28:30	37 21 29.286N	122 35 28.744W	536192.65	4134477.15
12/05/87	10:29:00	37 21 29.674N	122 35 29.687W	536169.41	4134489.00
12/05/87	10:29:30	37 21 29.278N	122 35 29.817W	536166.27	4134476.78
12/05/87	10:30:00	37 21 28.630N	122 35 29.309W	536178.84	4134456.88
12/05/87	10:30:31	37 21 28.352N	122 35 29.020W	536185.98	4134448.33
12/05/87	10:31:00	37 21 28.443N	122 35 29.243W	536180.48	4134451.10
12/05/87	10:31:30	37 21 28.558N	122 35 29.670W	536169.97	4134454.62
12/05/87	10:32:00	37 21 28.241N	122 35 29.557W	536172.80	4134444.84
12/05/87	10:32:30	37 21 27.583N	122 35 28.973W	536187.25	4134424.62
12/05/87	10:33:00	37 21 27.331N	122 35 28.814W	536191.19	4134416.89
12/05/87	10:33:30	37 21 27.513N	122 35 29.303W	536179.14	4134422.43

MMS CARP Project
Hard Substrate Transect HB16

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
12/05/87	10:34:02	37 21 27,482N	122 35 30.011W	536161,74	4134421.40
12/05/87	10:34:30	37 21 26.964N	122 35 30.887W	536140.24	4134405.35
12/05/87	10:35:00	37 21 26.106N	122 35 32.612W	536097,93	4134378.73
12/05/87	10:35:30	37 21 25.675N	122 35 33.713W	536070,90	4134365.32
12/05/87	10:36:01	37 21 25.569N	122 35 33.259W	536082.07	4134362.13
12/05/87	10:36:30	37 21 25.695N	122 35 31.477W	536125.90	4134366.20
12/05/87	10:37:00	37 21 25.827N	122 35 30.561W	536148.41	4134370,36
12/05/87	10:37:30	37 21 25.879N	122 35 31.921W	536114.96	4134371.81
12/05/87	10:38:00	37 21 25.904N	122 35 33.346W	536079.90	4134372.42
12/05/87	10:38:31	37 21 25.840N	122 35 32.902W	536090.82	4134370,50
12/05/87	10:39:00	37 21 25.592N	122 35 32.020W	536112.57	4134362.96
12/05/87	10:39:30	37 21 25.186N	122 35 32.232W	536107.39	4134350.42
12/05/87	10:40:00	37 21 24.808N	122 35 32.874W	536091.66	4134338.72
12/05/87	10:40:30	37 21 24.342N	122 35 33.024W	536088.02	4134324.34
12/05/87	10:41:11	37 21 23.841N	122 35 32.979W	536089.20	4134308.90
12/05/87	10:41:30	37 21 23.235N	122 35 33.113W	536085.99	4134290.19
12/05/87	10:42:00	37 21 22.368N	122 35 33.441W	536078.03	4134263.46
12/05/87	10:42:30	37 21 22.539N	122 35 32.913W	536091.00	4134268.79
12/05/87	10:43:00	37 21 23.014N	122 35 32.378W	536104.08	4134283.47
12/05/87	10:43:30	37 21 22.575N	122 35 32.799W	536093.79	4134269.89
12/05/87	10:44:00	37 21 21.566N	122 35 33.115W	536086.16	4134238.77
12/05/87	10:44:30	37 21 20.962N	122 35 32.808W	536093.80	4134220.18
12/05/87	10:45:00	37 21 21.065N	122 35 32.692W	536096.63	4134223.37
12/05/87	10:45:31	37 21 21.238N	122 35 33.100W	536086.56	4134228.67
12/05/87	10:46:00	37 21 20.982N	122 35 33.775W	536070.00	4134220.71
12/05/87	10:46:30	37 21 20.865N	122 35 34.342W	536056.06	4134217.03
12/05/87	10:47:01	37 21 21.343N	122 35 34.565W	536050.52	4134231.75
12/05/87	10:47:31	37 21 21.485N	122 35 34.563W	536050.55	4134236.14
12/05/87	10:48:00	37 21 20.924N	122 35 34.701W	536047.22	4134218.83
12/05/87	10:48:30	37 21 20.512N	122 35 35.029W	536039.21	4134206.09
12/05/87	10:49:00	37 21 20.460N	122 35 35.202W	536034.95	4134204.48
12/05/87	10:49:30	37 21 20.108N	122 35 35.074W	536038.15	4134193.62
12/05/87	10:50:00	37 21 19.613N	122 35 35.136W	536036.69	4134178.36
12/05/87	10:50:31	37 21 19.557N	122 35 35.578W	536025.84	4134176.60
12/05/87	10:51:00	37 21 20.000N	122 35 36.182W	536010.91	4134190.20
12/05/87	10:51:31	37 21 20.493N	122 35 36.407W	536005.31	4134205.37
12/05/87	10:52:00	37 21 20.592N	122 35 36.506W	536002.87	4134208.41
12/05/87	10:52:30	37 21 20.376N	122 35 36.908W	535993.00	4134201.69
12/05/87	10:53:00	37 21 20.083N	122 35 37.385W	535981.32	4134192.62
12/05/87	10:53:31	37 21 19.819N	122 35 37.694W	535973.74	4134184.45
12/05/87	10:54:00	37 21 19.493N	122 35 38.109W	535963.58	4134174.36
12/05/87	10:54:30	37 21 19.262N	122 35 38.647W	535950.37	4134167.18
12/05/87	10:55:01	37 21 19.497N	122 35 39.057W	535940.24	4134174.39
12/05/87	10:55:30	37 21 20.132N	122 35 39.336W	535933.31	4134193.94
12/05/87	10:56:01	37 21 20.654N	122 35 39.662W	535925,22	4134209.98

MMS CARP Project
Hard Substrate Transect HB16

DATE	TIME	LATITUDE	LONGITUDE	UTM-X	UTM-Y
12/05/87	10:56:30	37 21 20.623N	122 35 39.969W	535917.67	4134209.00
12/05/87	10:57:00	37 21 20.400N	122 35 40.192W	535912.21	4134202.11
12/05/87	10:57:30	37 21 20.452N	122 35 40.334W	535908.71	4134203.68
12/05/87	10:58:03	37 21 20.533N	122 35 40.592W	535902.35	4134206.13
12/05/87	10:58:31	37 21 20.260N	122 35 40.941W	535893.81	4134197.71
12/05/87	10:59:00	37 21 19.658N	122 35 41.386W	535882.93	4134179.10
12/05/87	10:59:31	37 21 18.924N	122 35 41.708W	535875.11	4134156.44
12/05/87	11:00:00	37 21 18.014N	122 35 41.726W	535874.78	4134128.40
12/05/87	11:00:31	37 21 17.084N	122 35 41.685W	535875.92	4134099.74
12/05/87	11:01:00	37 21 17.127N	122 35 42.110W	535865.46	4134101.03
12/05/87	11:01:30	37 21 18.686N	122 35 43.092W	535841.10	4134148.98
12/05/87	11:02:00	37 21 20.186N	122 35 43.834W	535822.63	4134195.11
12/05/87	11:02:30	37 21 20.163N	122 35 43.888W	535821.31	4134194.41
12/05/87	11:03:00	37 21 19.625N	122 35 43.843W	535822.50	4134177.82
12/05/87	11:03:30	37 21 19.615N	122 35 44.024W	535818.04	4134177.49
12/05/87	11:04:01	37 21 19.926N	122 35 44.195W	535813.79	4134187.07
12/05/87	11:04:30	37 21 19.734N	122 35 43.981W	535819.09	4134181.18
12/05/87	11:05:00	37 21 19.417N	122 35 43.756W	535824.66	4134171.41
12/05/87	11:05:30	37 21 19.437N	122 35 43.820W	535823.09	4134172.04
12/05/87	11:06:00	37 21 19.571N	122 35 44.121W	535815.66	4134176.14
12/05/87	11:06:30	37 21 19.326N	122 35 44.385W	535809.20	4134168.55
12/05/87	11:07:02	37 21 18.862N	122 35 44.775W	535799.67	4134154.21
12/05/87	11:07:30	37 21 18.552N	122 35 45.447W	535783.17	4134144.60
12/05/87	11:08:00	37 21 18.317N	122 35 46.211W	535764.42	4134137.28
12/05/87	11:08:30	37 21 18.022N	122 35 46.805W	535749.85	4134128.12
12/05/87	11:09:00	37 21 17.878N	122 35 47.260W	535738.65	4134123.63
12/05/87	11:09:30	37 21 17.865N	122 35 47.968W	535721.25	4134123.17

MMS CARP Project
Hard Substrate Transect HB17

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
12/05/87	15:17:47	37 07 36.649N	122 29 58.753W	544446.02	4108857.95
12/05/87	15:18:00	37 07 36.647N	122 29 58.751W	544446.07	4108857.89
12/05/87	15:18:30	37 07 36.616N	122 29 58.712W	544447.05	4108856.94
12/05/87	15:19:00	37 07 36.486N	122 29 58.535W	544451.44	4108852.96
12/05/87	15:19:30	37 07 36.282N	122 29 58.157W	544460.79	4108846.71
12/05/87	15:20:00	37 07 36.243N	122 29 57.757W	544470.67	4108845.56
12/05/87	15:20:30	37 07 36.509N	122 29 57.720W	544471.54	4108853.76
12/05/87	15:21:00	37 07 36.851N	122 29 58.120W	544461.62	4108864.26
12/05/87	15:21:30	37 07 37.123N	122 29 58.603W	544449.66	4108872.59
12/05/87	15:22:00	37 07 37.416N	122 29 58.914W	544441.93	4108881.57
12/05/87	15:22:30	37 07 37.672N	122 29 58.995W	544439.90	4108889.45
12/05/87	15:23:00	37 07 37.788N	122 29 59.009W	544439.53	4108893.00
12/05/87	15:23:30	37 07 37.804N	122 29 59.009W	544439.52	4108893.51
12/05/87	15:24:00	37 07 37.821N	122 29 59.011W	544439.47	4108894.02
12/05/87	15:24:30	37 07 37.837N	122 29 59.011W	544439,47	4108894.53
12/05/87	15:25:00	37 07 37.854N	122 29 59.011W	544439.47	4108895.04
12/05/87	15:25:30	37 07 37.870N	122 29 59.011W	544439.46	4108895.55
12/05/87	15:26:00	37 07 37.887N	122 29 59.011W	544439.46	4108896.05
12/05/87	15:26:30	37 07 37.905N	122 29 59.011W	544439,46	4108896.63
12/05/87	15:27:00	37 07 37.924N	122 29 59.009W	544439.50	4108897.20
12/05/87	15:27:30	37 07 37.942N	122 29 59.007W	544439.55	4108897.77
12/05/87	15:28:00	37 07 37.961N	122 29 59.003W	544439.65	4108898.34
12/05/87	15:28:30	37 07 37.981N	122 29 58.999W	544439.75	4108898.98
12/05/87	15:29:00	37 07 38.002N	122 29 58.995W	544439.85	4108899.62
12/05/87	15:29:30	37 07 38.025N	122 29 58.991W	544439.95	4108900.31
12/05/87	15:30:00	37 07 38.047N	122 29 58.984W	544440.10	4108901.01
12/05/87	15:30:30	37 07 38.070N	122 29 58.976W	544440.30	4108901.72
12/05/87	15:31:00	37 07 38.093N	122 29 58.968W	544440.50	4108902.42
12/05/87	15:31:30	37 07 38.118N	122 29 58.960W	544440.69	4108903.18
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12/05/87	15:32:30	37 07 38.169N	122 29 58.939W	544441,20	4108904.77
12/05/87	15:33:00	37 07 38.196N	122 29 58.927W	544d41.50	4108905.60
12/05/87	15:33:30	37 07 38.223N	122 29 58.914W	544441.80	4108906.43
12/05/87	15:34:00	37 07 38.252N	122 29 58.902W	544442.10	4108907.32
12/05/87	15:34:30	37 07 38.474N	122 29 58.788W	544444.86	4108914.20
12/05/87	15:35:00	37 07 38.873N	122 29 58.650W	544448.21	4108926.48
12/05/87	15:35:30	37 07 39.611N	122 29 58.745W	544445.75	4108949.22
12/05/87	15:36:00	37 07 41.766N	122 29 59.314W	544431.35	4109015.57
12/05/87	15:36:30	37 07 45.419N	122 30 00.616W	544398.64	4109127.97
12/05/87	15:37:00	37 07 51.312N	122 30 03.524W	544325.92	4109309.18
12/05/87	15:37:30	37 07 55.126N	122 30 06.459W	544252.89	4109426.33
12/05/87	15:38:00	37 07 55.007N	122 30 07.386W	544230.05	4109422.52
12/05/87	15:38:30	37 07 54.105N	122 30 07.171W	544235.49	4109394.77
12/05/87	15:39:00	37 07 55.077N	122 30 07.371W	544230.40	4109424.68
12/05/87	15:39:30	37 07 56.182N	122 30 07.934W	544216.33	4109458.68

MMS CARP Project
Hard Substrate Transect HB17

DATE	TIME	LATITUDE	LONGITUDE	UTM - X	UTM-Y
12/05/87	15:40:00	37 07 56.589N	122 30 08.440W	544203.79	4109471.14
12/05/87	15:40:30	37 07 56.570N	122 30 08.510W	544202.06	4109470.55
12/05/87	15:41:00	37 07 57.269N	122 30 08.592W	544199.92	4109492.09
12/05/87	15:41:32	37 07 58.179N	122 30 08.976W	544190.30	4109520.07
12/05/87	15:42:00	37 07 58.375N	122 30 09.393W	544179.99	4109526.06
12/05/87	15:42:31	37 07 58.344N	122 30 09.440W	544178.83	4109525.10
12/05/87	15:43:00	37 07 58.810N	122 30 09.071W	544187.86	4109539.51
12/05/87	15:43:30	37 07 59.435N	122 30 08.510W	544201.60	4109558.84
12/05/87	15:44:00	37 07 59.571N	122 30 08.235W	544208.35	4109563.07
12/05/87	15:44:30	37 07 59.627N	122 30 08.301W	544206.71	4109564.78
12/05/87	15:45:00	37 08 00.070N	122 30 08.405W	544204.09	4109578.43
12/05/87	15:45:30	37 08 00.607N	122 30 08.112W	544211.23	4109594.99
12/05/87	15:46:00	37 08 00.809N	122 30 07.650W	544222.60	4109601.28
12/05/87	15:46:30	37 08 00.933N	122 30 07.555W	544224.92	4109605.11
12/05/87	15:47:00	37 08 01.277N	122 30 07.751W	544220.03	4109615.70
12/05/87	15:47:30	37 08 01.766N	122 30 07.831W	544217.97	4109630.75
12/05/87	15:48:00	37 08 02.065N	122 30 07.623W	544223.06	4109639.99
12/05/87	15:48:30	37 08 02.191N	122 30 07.388W	544228.84	4109643.90
12/05/87	15:49:00	37 08 02.345N	122 30 07.386W	544228.87	4109648.67
12/05/87	15:49:32	37 08 02.622N	122 30 07.619W	544223.07	4109657.16
12/05/87	15:50:00	37 08 02.812N	122 30 07.769W	544219.33	4109662.98
12/05/87	15:50:30	37 08 03.183N	122 30 07.955W	54h214.69	4109674.40
12/05/87	15:51:01	37 08 03.531N	122 30 07.889W	544216.26	4109685.15
12/05/87	15:51:31	37 08 03.736N	122 30 07.619W	544222.89	4109691.48
12/05/87	15:52:00	37 08 03.876N	122 30 07.227W	544232.54	4109695.85
12/05/87	15:52:30	37 08 04.082N	122 30 06.666W	544246.35	4109702,28
12/05/87	15:53:00	37 08 04.387N	122 30 05.995W	544262,84	4109711.77
12/05/87	15:53:30	37 08 04.850N	122 30 05.333W	544279.10	4109726.10
12/05/87	15:54:00	37 08 05.367N	122 30 05.044W	544286.14	4109742.09
12/05/87	15:54:30	37 08 06.009N	122 30 05.086W	544285.02	4109761.85
12/05/87	15:55:00	37 08 06.603N	122 30 05.374W	544277.80	4109780.12
12/05/87	15:55:30	37 08 07.092N	122 30 05.731W	544268.91	4109795.14
12/05/87	15:56:00	37 08 07.618N	122 30 05.956W	544263.28	4109811.32
12/05/87	15:56:30	37 08 08.261N	122 30 05.985W	544262.47	4109831.14
12/05/87	15:57:00	37 08 09.068N	122 30 06.022W	544261.42	4109855.99
12/05/87	15:57:30	37 08 09.567N	122 30 06.288W	544254.77	4109871.34
12/05/87	15:58:00	37 08 09.783N	122 30 06.641W	544246.04	4109877.97
12/05/87	15:58:30	37 08 09.950N	122 30 06.787W	544242.40	4109883.10
12/05/87	15:59:00	37 08 10.264N	122 30 06.703W	544244.43	4109892.77
12/05/87	15:59:30	37 08 10.450N	122 30 06.513W	544249.08	4109898.51
12/05/87	16:00:00	37 08 10.388N	122 30 06.334W	544253.52	4109896.63
12/05/87	16:00:30	37 08 10.303N	122 30 06.212W	544256.54	4109894.04
12/05/87	16:01:00	37 08 10.390N	122 30 06.115W	544258.91	4109896.72
12/05/87	16:01:30	37 08 10.528N	122 30 06.202W	544256.75	4109900.97
12/05/87	16:02:01	37 08 10.441N	122 30 06.517W	544248.98	4109898.26

MMS CARP Project
Hard Substrate Transect HB17

DATE	TIME	LATITUDE	LONGITUDE	UTM -X	UTM -Y
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12/05/87	16:03:19	37 08 10.163N	122 30 07.018W	544236.66	4109889.61
12/05/87	16:03:30	37 08 10.163N	122 30 07.016W	544236.71	4109889.61
12/05/87	16:04:00	37 08 10.157N	122 30 06.754W	544243.18	4109889.46
12/05/87	16:04:30	37 08 09.971N	122 30 06.552W	544248.19	4109883.76
12/05/87	16:05:00	37 08 09.785N	122 30 06.668W	544245.37	4109878.03
12/05/87	16:05:30	37 08 09.835N	122 30 06.410W	544251.73	4109879.58
12/05/87	16:06:00	37 08 09.932N	122 30 05.372W	544277.31	4109882.71
12/05/87	16:06:30	37 08 10.014N	122 30 04.356W	544302.38	4109885.38
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12/05/87	16:07:30	37 08 10.219N	122 30 04.199W	544306.22	4109891.69
12/05/87	16:08:00	37 08 10.299N	122 30 04.178W	544306.72	4109894.18
12/05/87	16:08:30	37 08 10.394N	122 30 04.203W	544306.09	4109897.10
12/05/87	16:09:00	37 08 10.452N	122 30 04.426W	544300.58	4109898.85
12/05/87	16:09:30	37 08 10.363N	122 30 04.527W	544298.10	4109896.10
12/05/87	16:10:00	37 08 10.062N	122 30 04.298W	544303.80	4109886.85
12/05/87	16:10:30	37 08 09.752N	122 30 04.023W	544310.62	4109877.35
12/05/87	16:11:00	37 08 09.577N	122 30 03.757W	544317.21	4109871.98
12/05/87	16:11:30	37 08 09.457N	122 30 03.431W	544325.27	4109868.34
12/05/87	16:12:03	37 08 09.249N	122 30 03.188W	544331.31	4109861.95
12/05/87	16:12:30	37 08 09.136N	122 30 03.273W	544329.24	4109858.44
12/05/87	16:13:00	37 08 09.154N	122 30 03.295W	544328.68	4109859.01
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12/05/87	16:15:30	37 08 08.637N	122 30 01.059W	544383.93	4109843.35
12/05/87	16:16:00	37 08 08.383N	122 30 01.066W	544383.82	4109835.53
12/05/87	16:16:30	37 08 08.135N	122 30 01.286W	544378.41	4109827.88
12/05/87	16:17:00	37 08 07.861N	122 30 01.156W	544381.67	4109819.44
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12/05/87	16:19:01	37 08 07.319N	122 30 00.546W	544396.82	4109802,80
12/05/87	16:19:30	37 08 07.339N	122 30 00.286W	544403.23	4109803.47
12/05/87	16:20:00	37 08 07.529N	122 29 59.758W	544416.22	4109809.39
12/05/87	16:20:30	37 08 07.694N	122 29 59.118W	544431.97	4109814.55
12/05/87	16:21:00	37 08 07.626N	122 29 58.473W	544447.91	4109812.54
12/05/87	16:21:30	37 08 07.337N	122 29 57.920W	544461.60	4109803.71
12/05/87	16:22:00	37 08 07.174N	122 29 57.563W	544470.43	4109798.74
12/05/87	16:22:30	37 08 07.442N	122 29 57.217W	544478.93	4109807.05
12/05/87	16:23:00	37 08 07.826N	122 29 56.742W	544490.58	4109818.93
12/05/87	16:23:30	37 08 07.875N	122 29 56.526W	544495.91	4109820.49
12/05/87	16:24:00	37 08 07.560N	122 29 56.301W	544501.51	4109810.79
12/05/87	16:24:30	37 08 07.009N	122 29 56.293W	544501.80	4109793.82

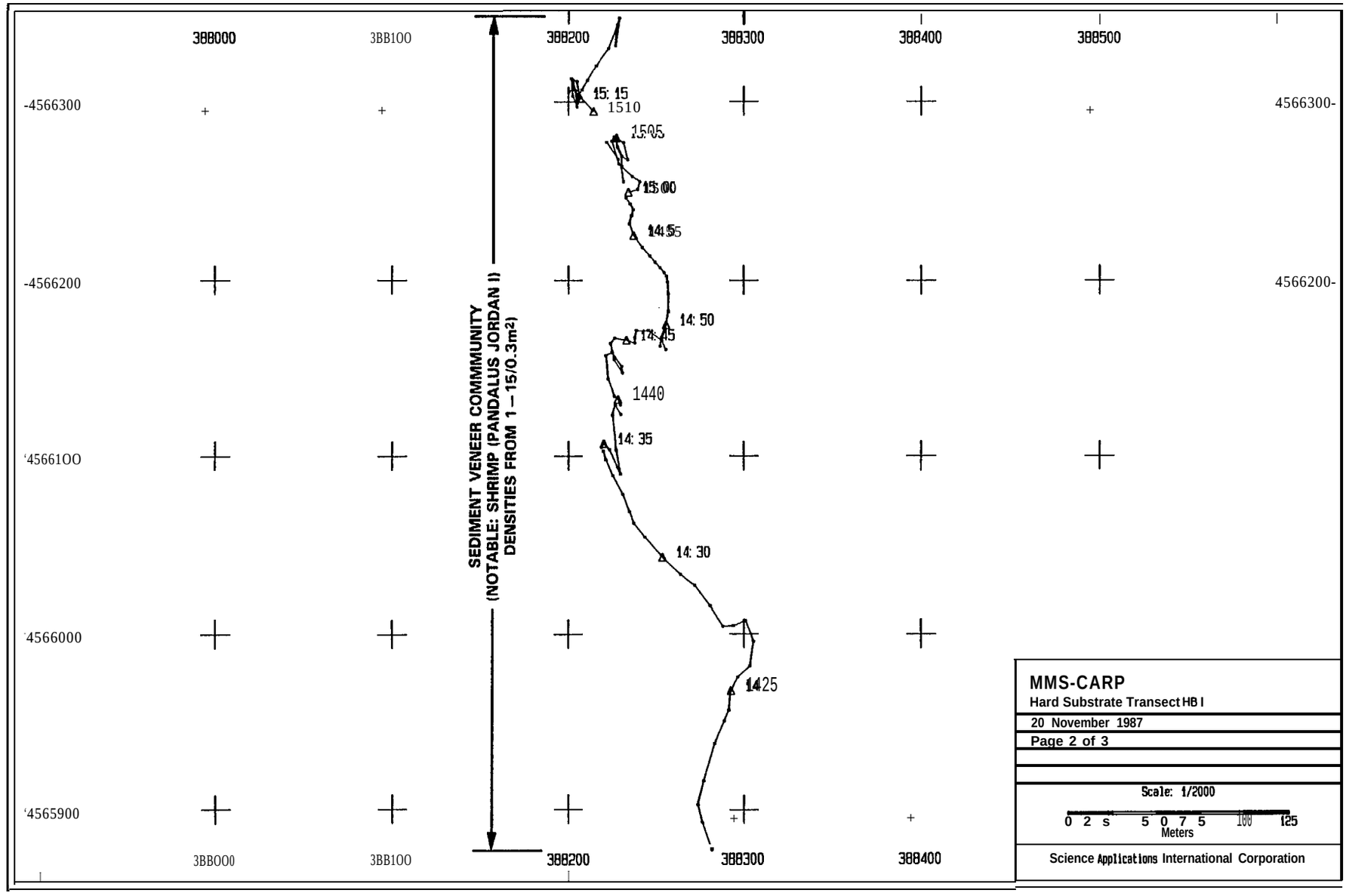
APPENDIX D

ROV TRANSECT PLOTS AND BIOLOGICAL COMMUNITY SUMMARY

This appendix presents 1:2,000 scale navigational plots of the ROV transects from the hard substrate survey. The navigational positions are plotted in UTM Zone 10 X-Y coordinates. Navigational positions by One-minute intervals are indicated by small, black square symbols; five-minute reference positions showing time (24 hour clock) and navigational positions are indicated by open triangle symbols and the time (e.g., 1405).

In addition to the navigational positions, biological community notes are included with each plot. This information is similar to that summarized in Table 3-1, Volume I. For example, Transect HB1 is characterized as a sediment veneer community with notable densities of the pandalid shrimp Pandalus jordani. Species comprising these communities are listed in Table 3-1 and Section 3.1, Volume I.

386000
388100
3133200
388300
388400
388500
1420
4565800
4565700
4565600
4565500
14: 15
14: 10
14: 05
14: 00
13: 55
13: 45
13: 50
SEDIMENT VENEER COMMUNITY
(NOTABLE: SHRIMP (PANDALUS JORDAN I)
DENSITIES FROM 1-25/0.3m²)
388000
388100
388200
388300
388400
MMS-CARP
Hard Substrate Transect HBI
20 November 1987
Page 1 of 3
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation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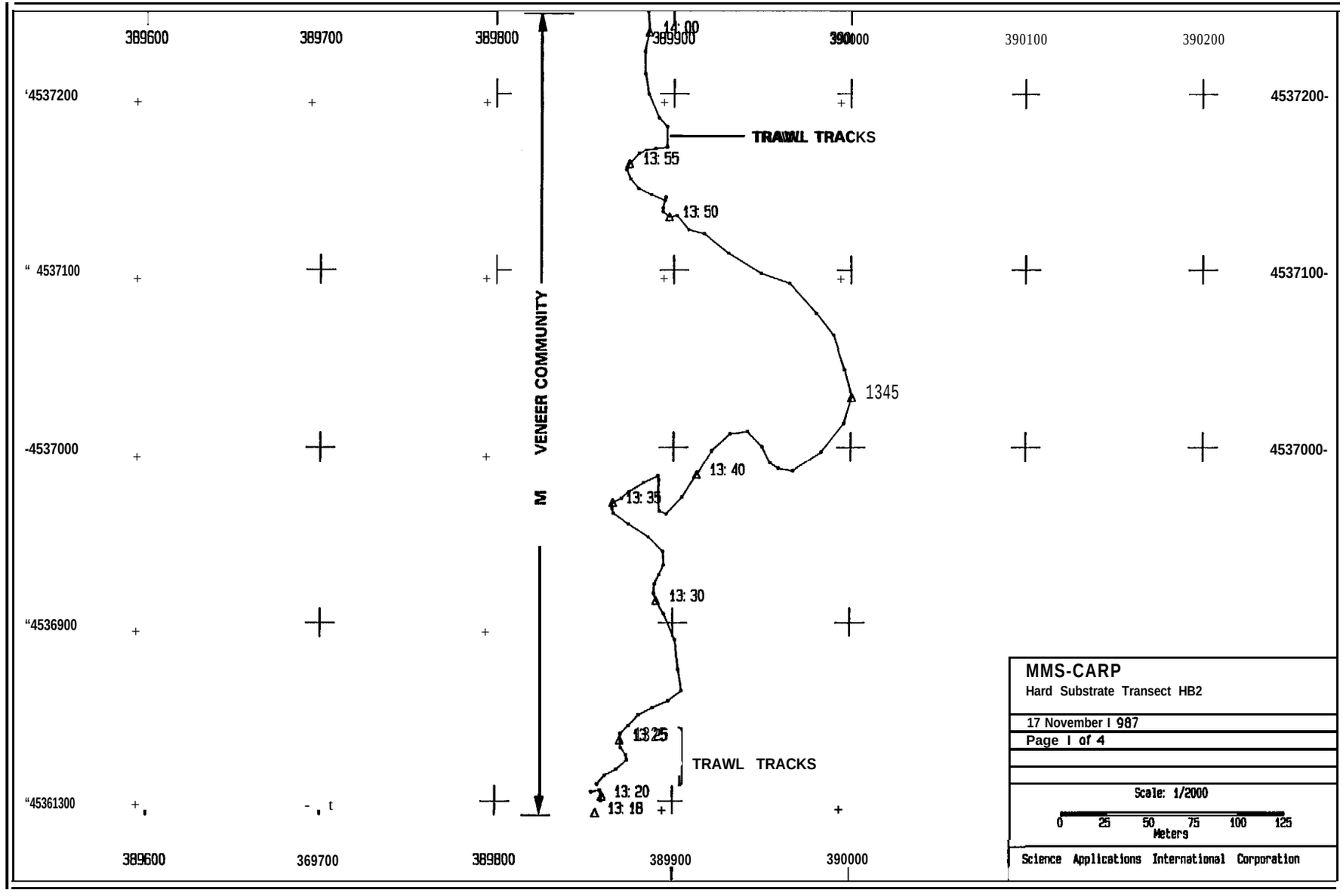
'4565900
3BB000
3BB100
388200
388300
388400
15: 15
1510
1505
1500
1455
14: 50
1445
1440
14: 35
14: 30
1425
SEDIMENT VENEER COMMMUNITY
(NOTABLE: SHRIMP (PANDALUS JORDAN I)
DENSITIES FROM 1 – 15/0.3m²)
MMS-CARP
Hard Substrate Transect HB I
20 November 1987
Page 2 of 3
Scale: 1/2000
0 2 5 5 0 7 5 100 125
Meters
Science Applications International Corporation

MMS-CARP
Hard Substrate Transect HBI
20 November 1987
Page 3 of 3
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation
388500
388400
388300
388200
388100
388000
4566700
4566400
15:35
15:40
15:30
15:20
SEDIMENT VENEER COMMUNITY
(NOTABLE:SHRIMP (PANDALUS JORDAN II
DENSITIES FROM 1 - 14/0.3m2)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390000
390100
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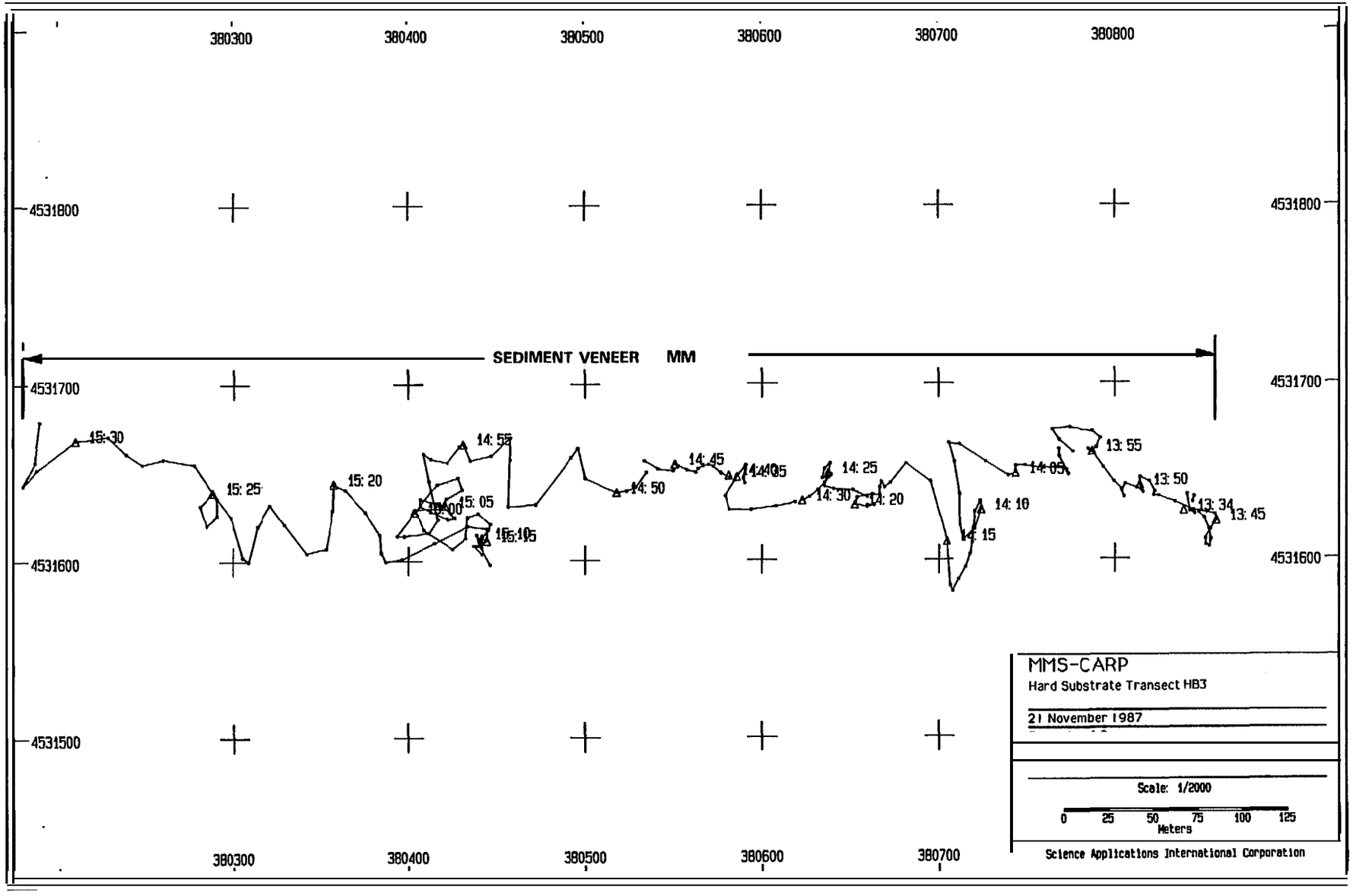
4537100-
4537000-
4536900
45361300
VENEER COMMUNITY
TRAWL TRACKS
14: 00
13: 55
13: 50
1345
13: 40
13: 35
13: 30
13: 25
13: 20
13: 18
TRAWL TRACKS
MMS-CARP
Hard Substrate Transect HB2
17 November I 987
Page I of 4
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation

389600
389700
389800
389900
390000
390100
390200
4537600
4537500
"4537400
-4537300
4537600-
4537500-
4537400-
14:30
14:25
14:20
14:15
14:10
14:05
SEDIMENT VENEER COMMUNITY
MMS-CARP
Hard Substrate Transect HB2
17 November 1987
Page 2 of 4
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation

389600
389700
389800
389900
390000
390100
390200
4538100
4538000
4537900
4537800
SEDIMENT VENEER COMMUNITY
15:05
15:00
14:55
14:50
14:45
14:40
14:35
MMS-CARP
Hard Substrate Transect HB2
17 November 1987
Page 3 of 4
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation

389600
389700
389800
369900
390000
390100
390200
- 4 5 m
4538600
"4536500
53850
-4538400
4538400
.45343330
SEDIMENT VENEER COMMUNITY
15: 20
15: 15
15: 10
389600
389700
389800
389900
390000
MMS-CARP
Hard Substrate Transect HB2
17 November 1987
Page 4014
Scale: 1/2000
0 2 5 50 75 100 125
Meters
Science Applications International Corporation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SEDIMENT VENEER MM
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15: 20
14: 55
15: 05
14: 50
14: 45
14: 25
14: 30
14: 20
14: 10
14: 15
14: 05
13: 55
13: 50
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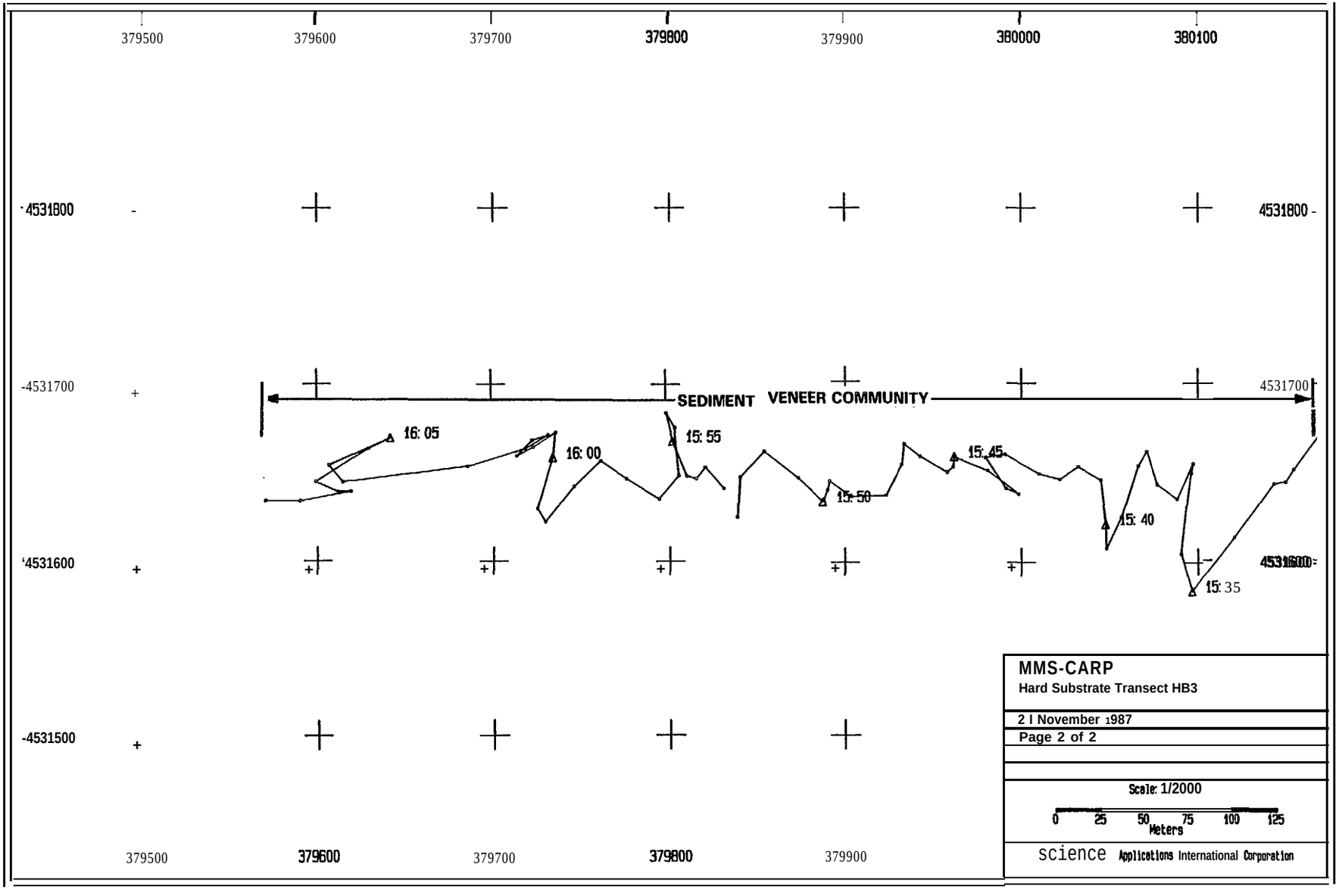
13: 45
MMS-CARP
Hard Substrate Transect HB3
21 November 1987
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation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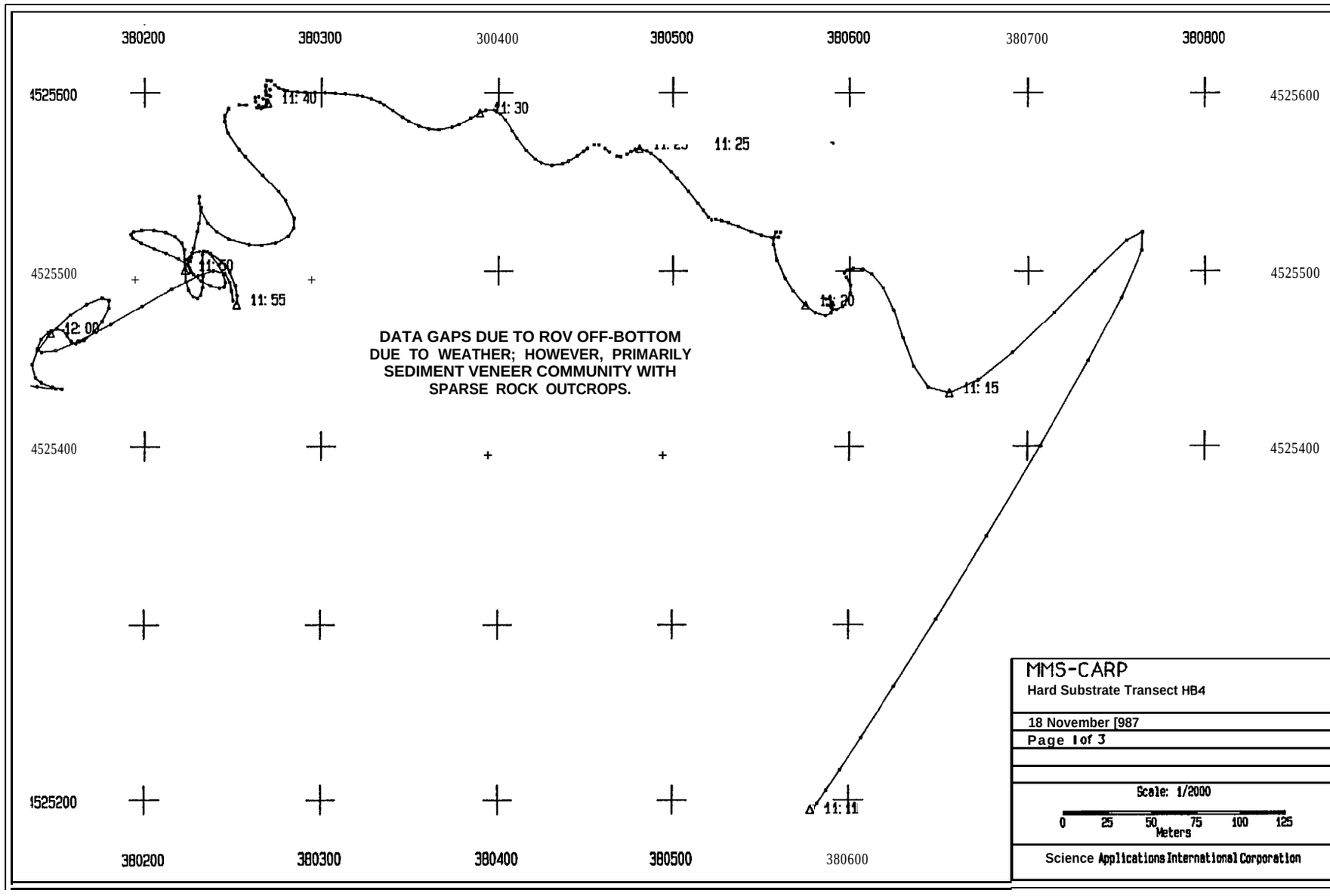
4531500
SEDIMENT
VENEER COMMUNITY
16: 05
16: 00
15: 55
15: 50
15: 45
15: 40
15: 35
MMS-CARP
Hard Substrate Transect HB3
2 l November 1987
Page 2 of 2
Scale: 1/2000
0 25 50 75 100 125
Meters
science Applications International Corporation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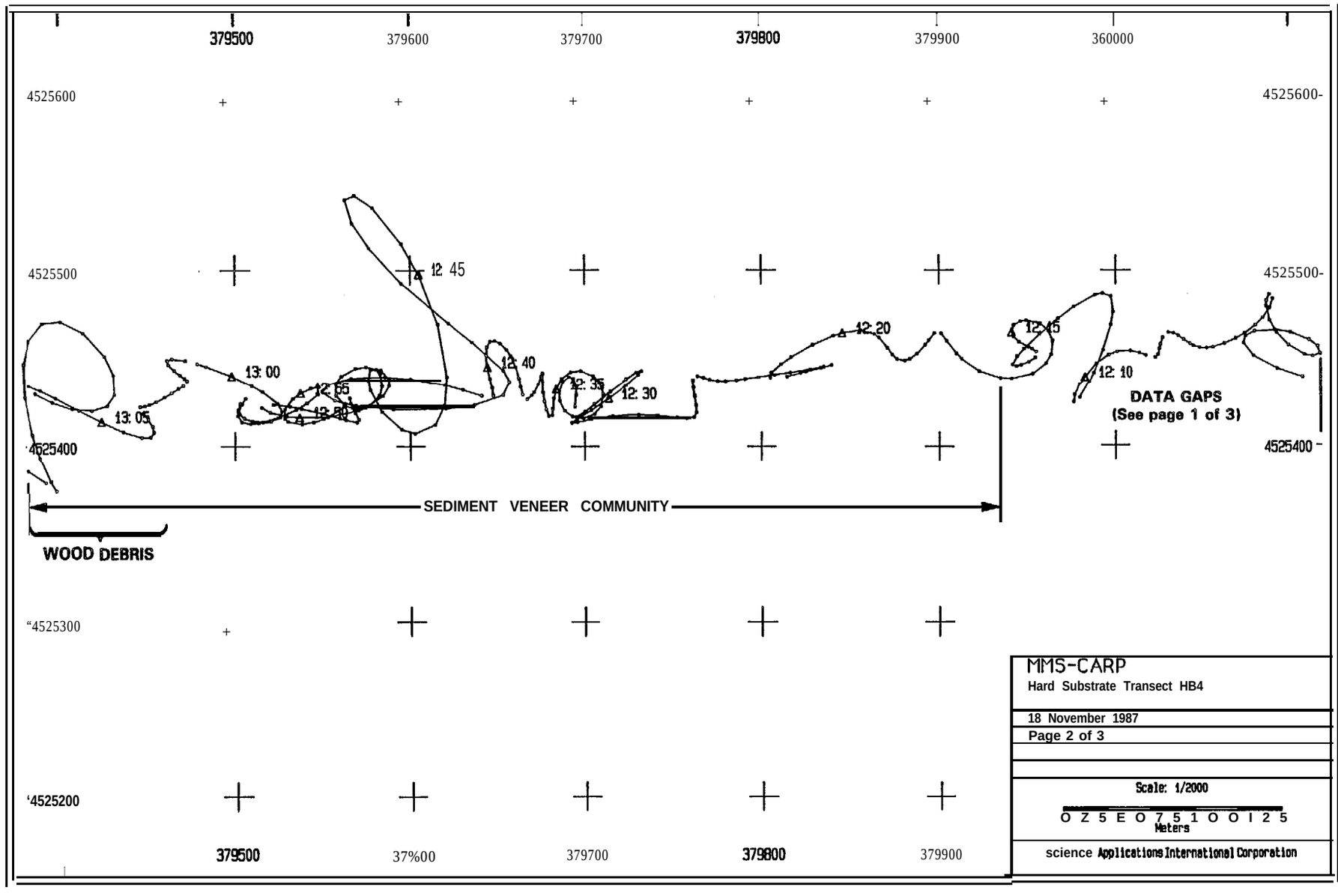
11: 15
11: 11
DATA GAPS DUE TO ROV OFF-BOTTOM DUE TO WEATHER; HOWEVER, PRIMARILY SEDIMENT VENEER COMMUNITY WITH SPARSE ROCK OUTCROPS.
MMS-CARP
Hard Substrate Transect HB4
18 November [987
Page 1 of 3
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation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379600
379700
379800
379900
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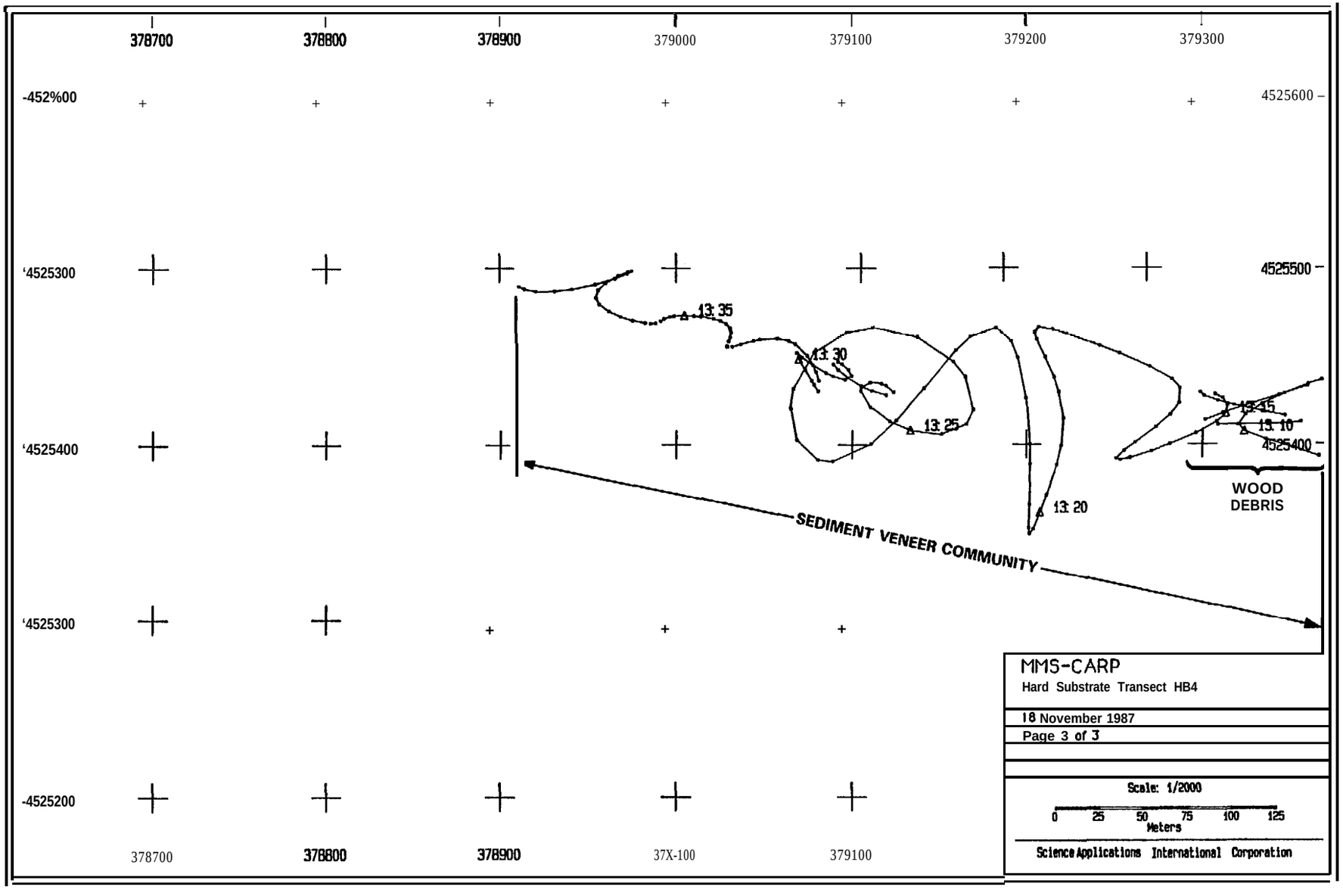
4525500
4525400
4525300
4525200
4525600-
4525500-
4525400 -
12: 45
13: 00
12: 55
13: 05
12: 40
12: 35
12: 30
12: 20
12: 15
12: 10
DATA GAPS
(See page 1 of 3)
SEDIMENT VENEER COMMUNITY
WOOD DEBRIS
379500
37%00
379700
379800
379900
MMS-CARP
Hard Substrate Transect HB4
18 November 1987
Page 2 of 3
Scale: 1/2000
O Z 5 E O 7 5 1 O O I 2 5
Meters
science Applications International Corporation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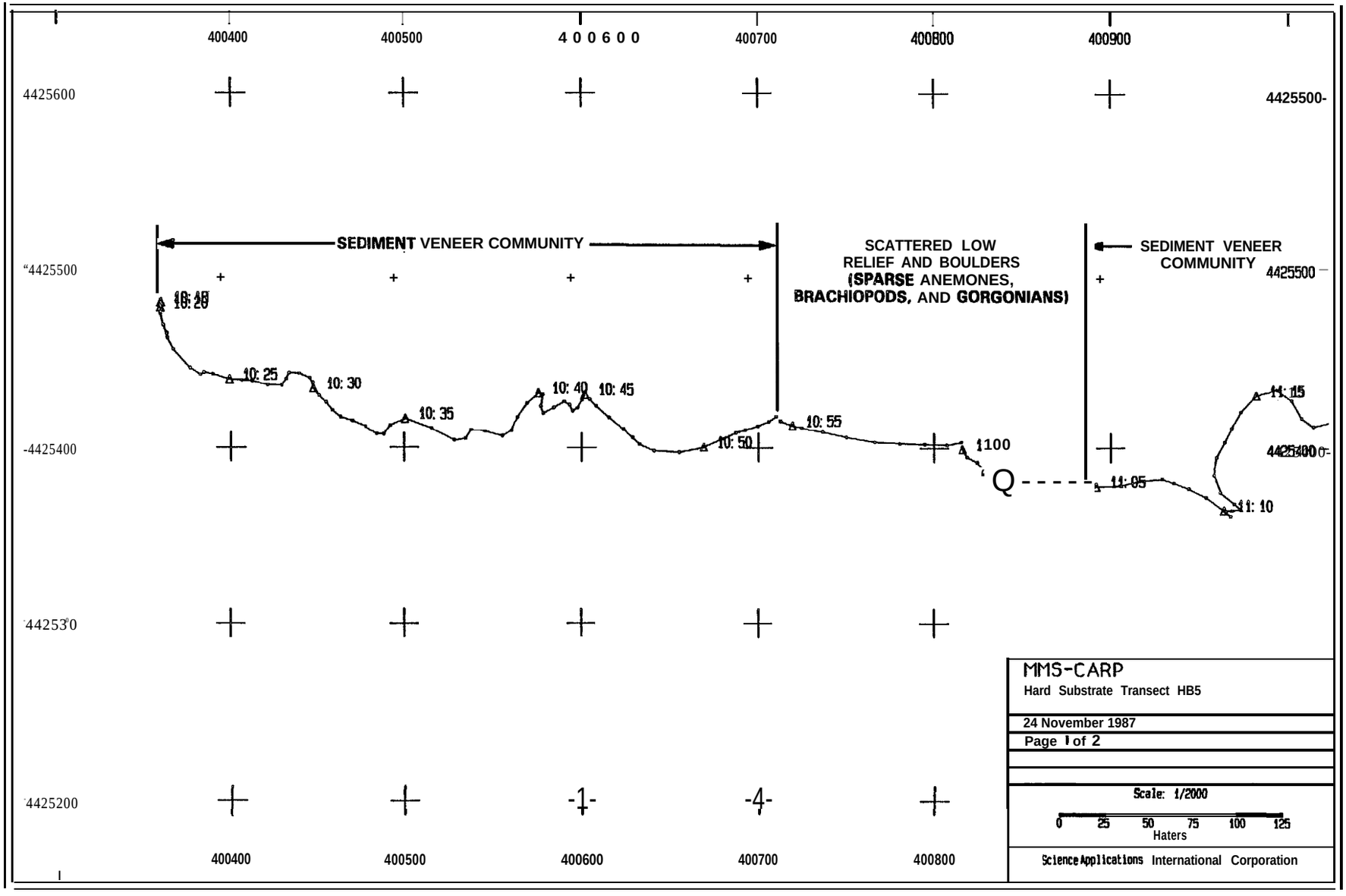
378800
378900
379000
379100
379200
379300
-452%00
'4525300
'4525400
'4525300
-4525200
4525600 –
4525500 –
4525400 –
13:35
13:30
13:25
13:20
13:45
13:10
WOOD DEBRIS
SEDIMENT VENEER COMMUNITY
MMS-CARP
Hard Substrate Transect HB4
18 November 1987
Page 3 of 3
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation
378700
378800
378900
37X-100
379100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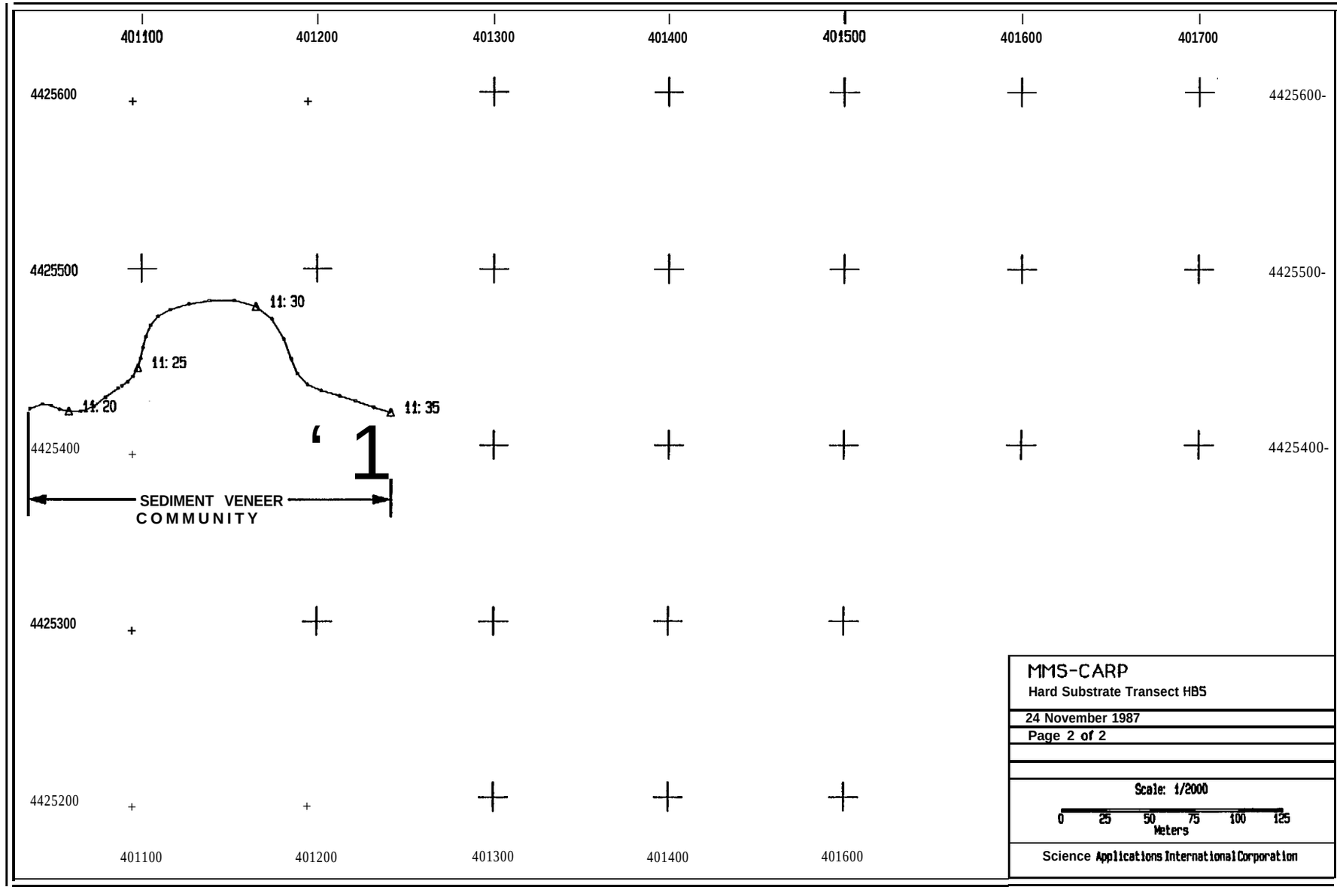
400500
400600
400700
400800
400900
4425600
4425500
4425400
4425300
4425200
SEDIMENT VENEER COMMUNITY
SCATTERED LOW RELIEF AND BOULDERS (SPARSE ANEMONES, BRACHIOPODS, AND GORGONIANS)
SEDIMENT VENEER COMMUNITY
10:25
10:30
10:35
10:40
10:45
10:50
10:55
1100
11:05
11:10
11:15
MMS-CARP
Hard Substrate Transect HB5
24 November 1987
Page 1 of 2
Scale: 1/2000
0 25 50 75 100 125
Haters
Science Applications International Corporation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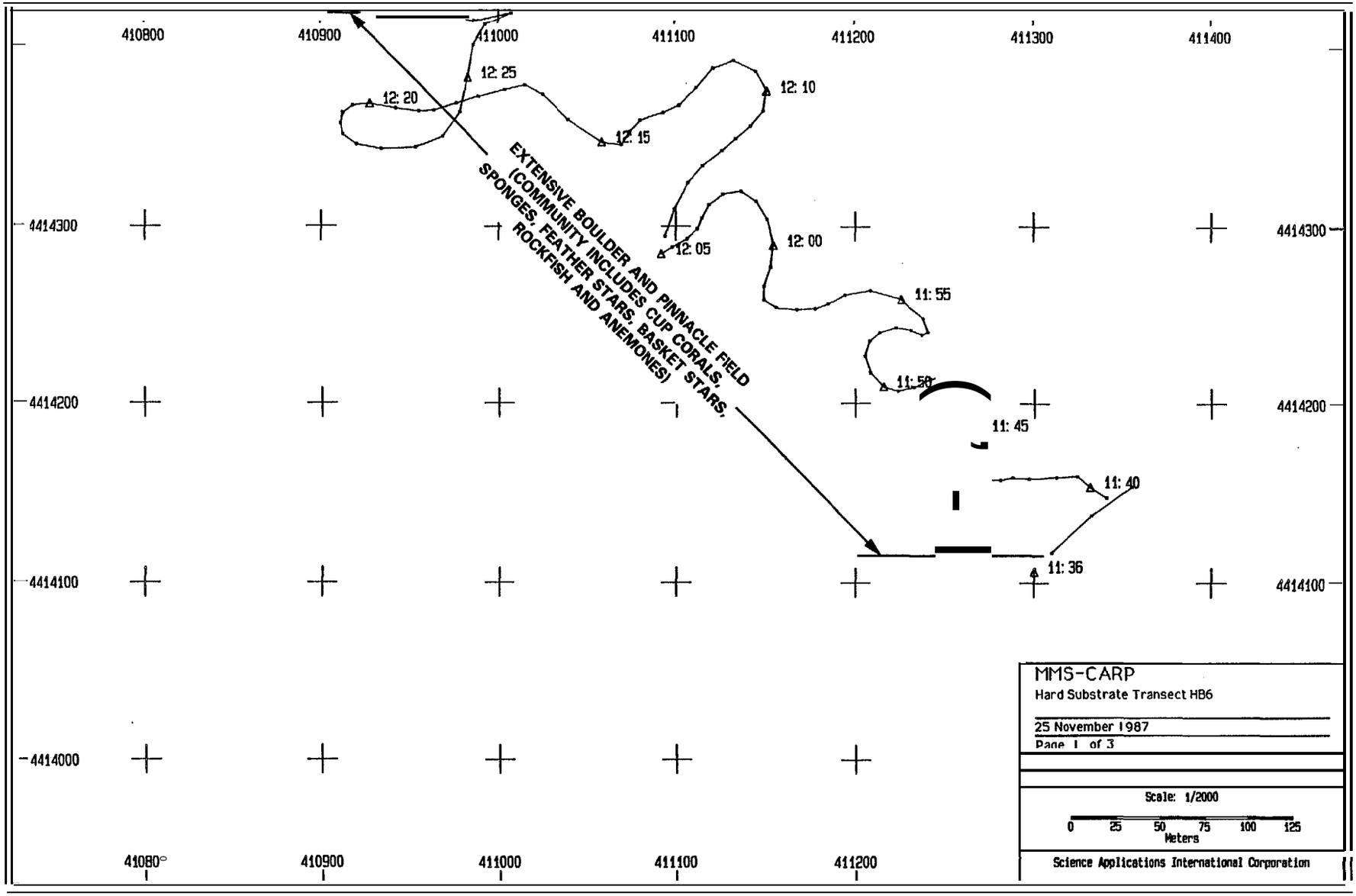
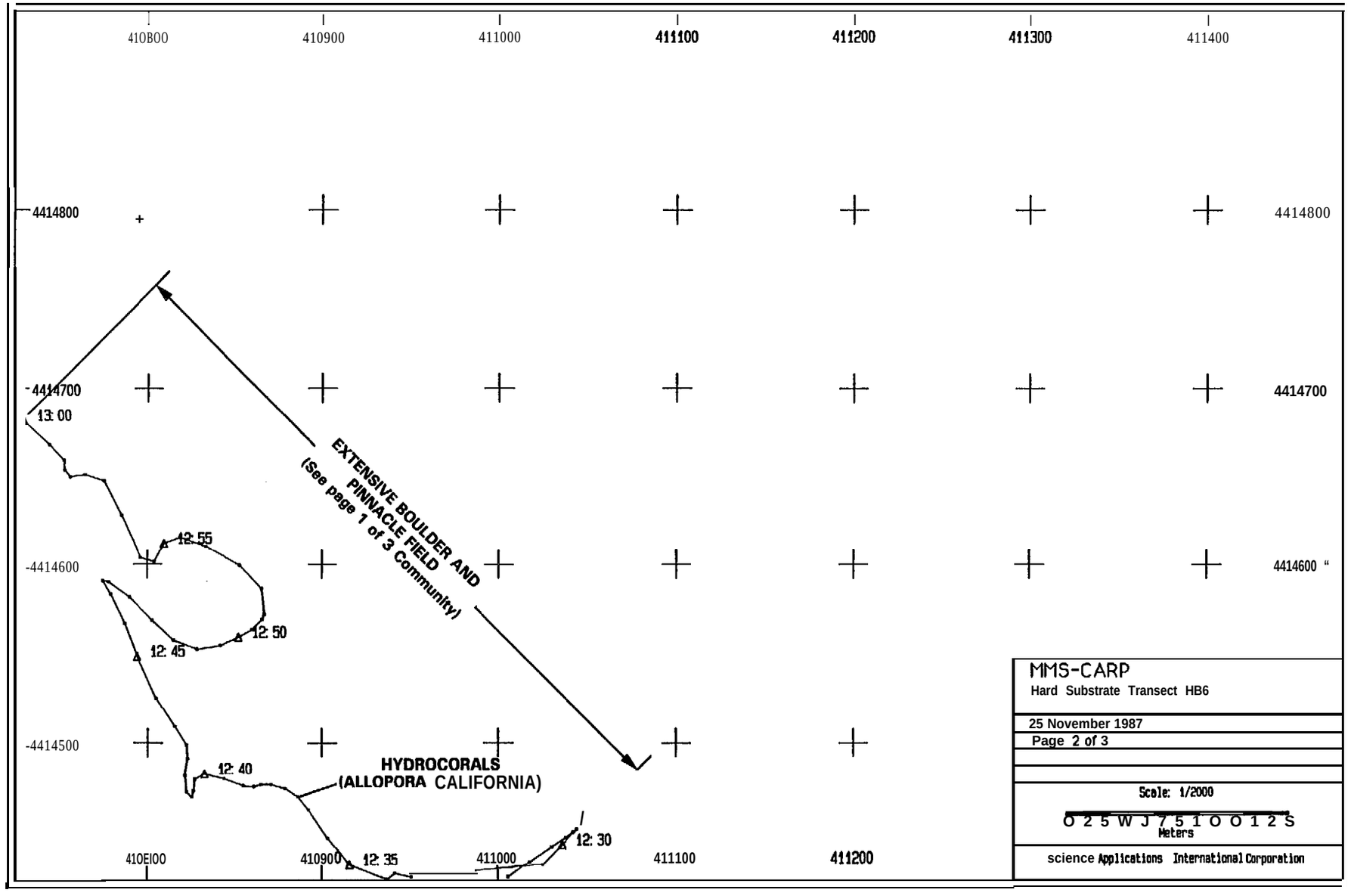
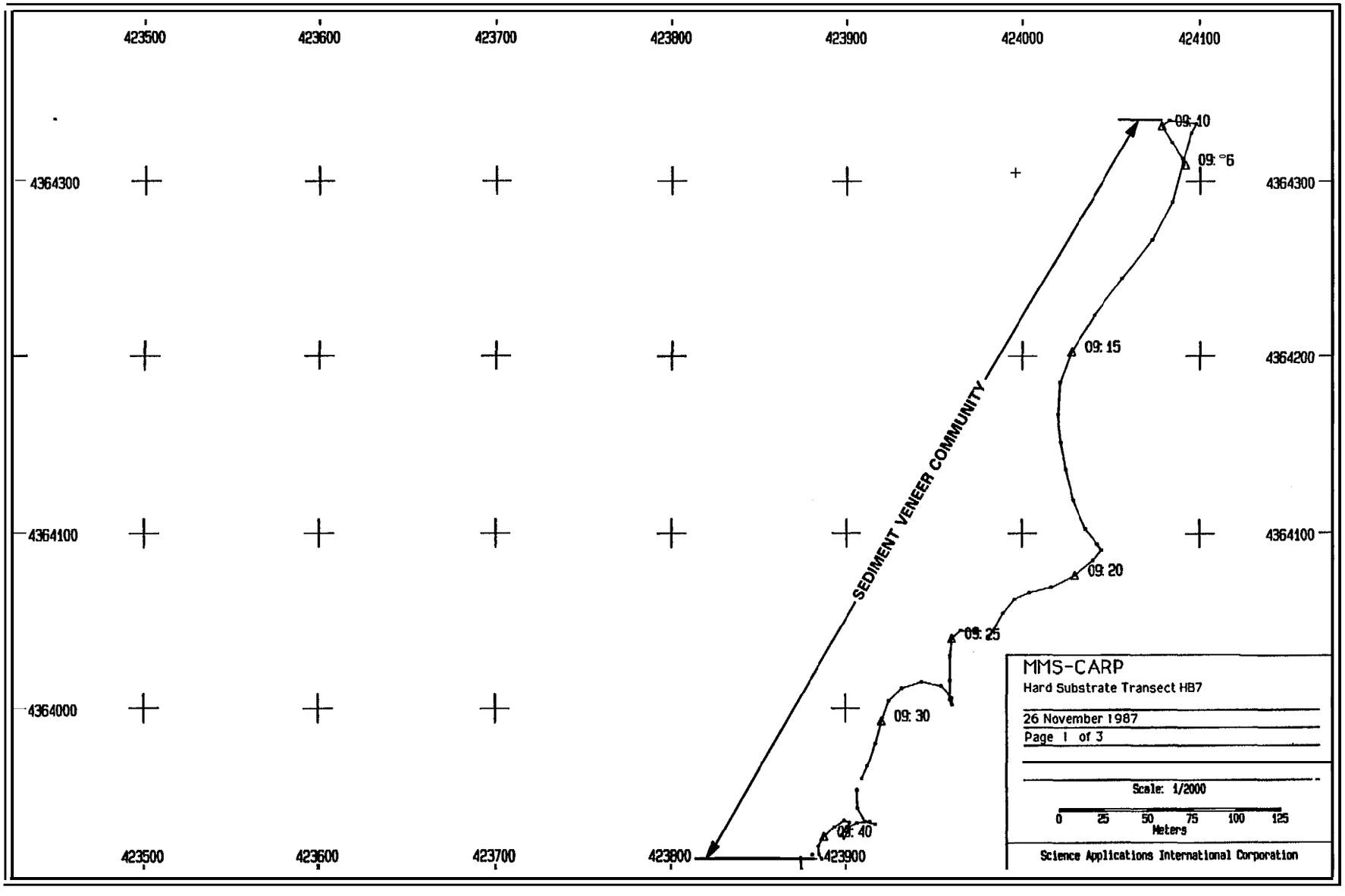
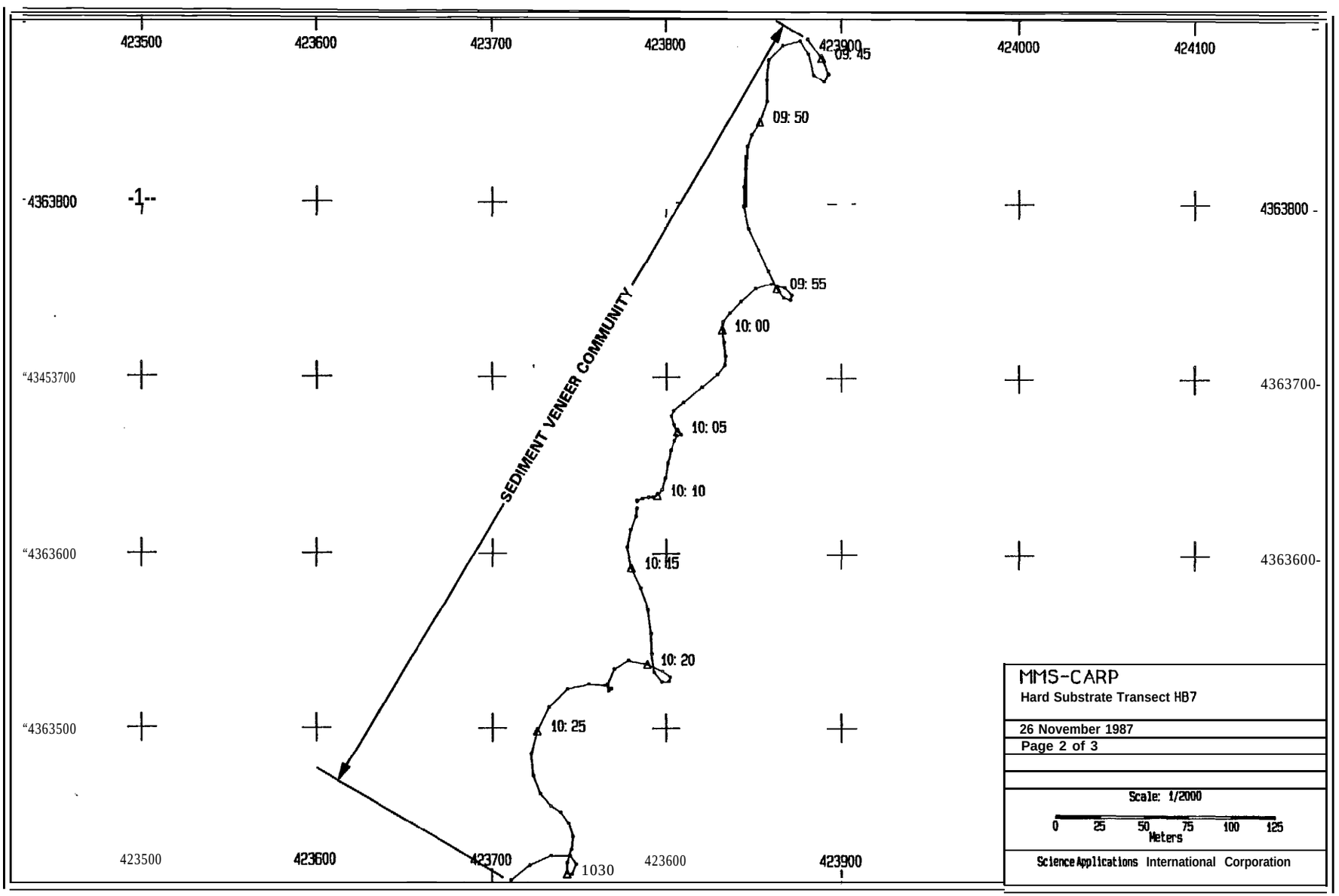
401200
401300
401400
401500
401600
401700
4425600
4425500
4425400
4425300
4425200
4425600-
4425500-
4425400-
11: 30
11: 25
11: 20
11: 35
1
SEDIMENT VENEER
COMMUNITY
MMS-CARP
Hard Substrate Transect HB5
24 November 1987
Page 2 of 2
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation

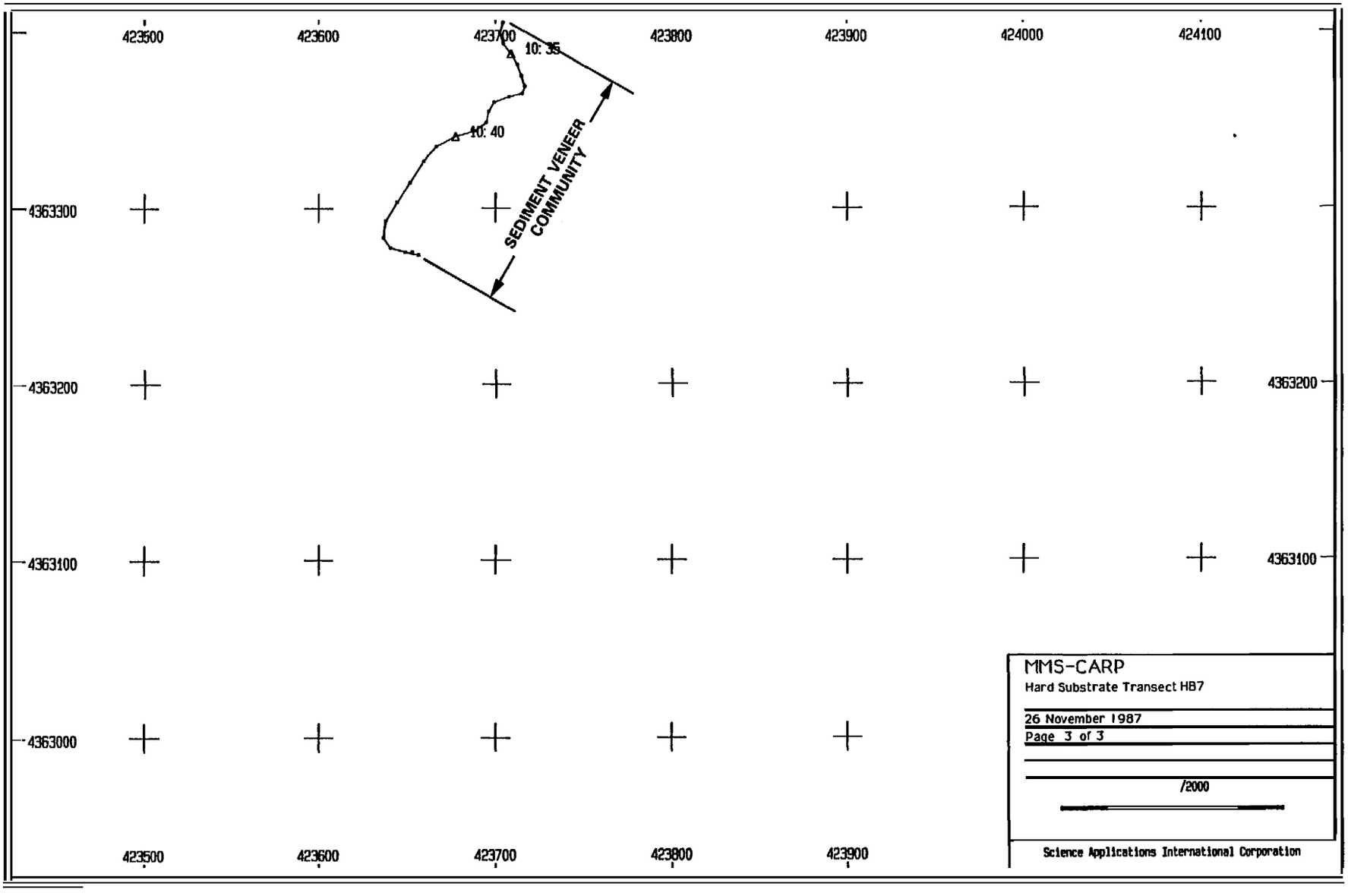

410800
410900
411000
411100
411200
411300
411400
4414300
4414200
4414100
4414000
12: 25
12: 20
12: 15
12: 10
12: 05
12: 00
11: 55
11: 50
11: 45
11: 40
11: 36
EXTENSIVE BOULDER AND PINNACLE FIELD (COMMUNITY INCLUDES CUP CORALS, SPONGES, FEATHER STARS, BASKET STARS, ROCKFISH AND ANEMONES)
MMS-CARP
Hard Substrate Transect HB6
25 November 1987
Page 1 of 3
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation

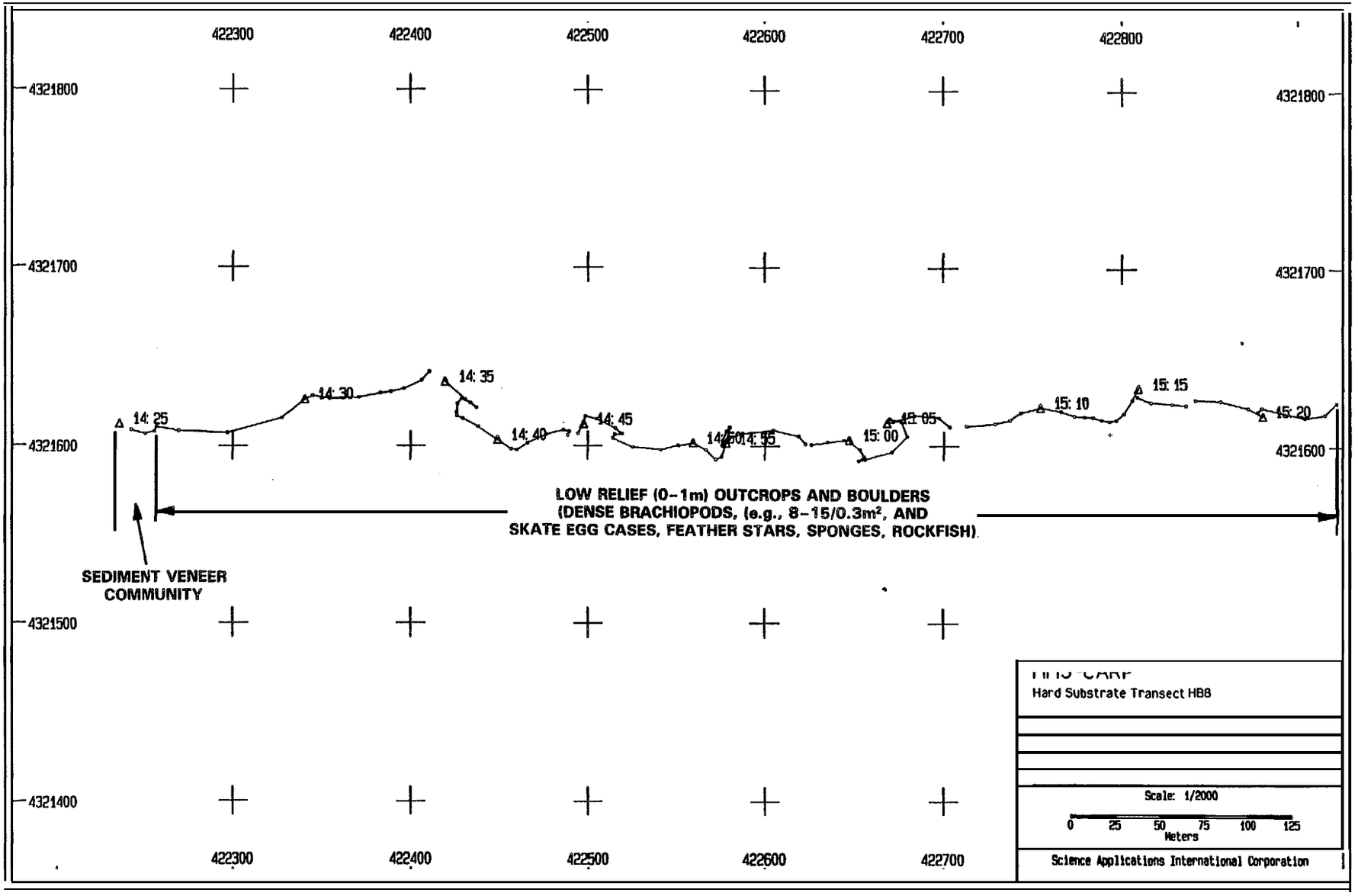

410800
410900
411000
411100
411200
411300
411400
4414800
4414700
4414600
4414500
13:00
12:55
12:50
12:45
12:40
12:35
12:30
EXTENSIVE BOULDER AND PINNACLE FIELD
(See page 1 of 3 Community)
HYDROCORALS
(ALLOPORA CALIFORNIA)
MMS-CARP
Hard Substrate Transect HB6
25 November 1987
Page 2 of 3
Scale: 1/2000
0 25 W J 75 100 125
Meters
science Applications International Corporation

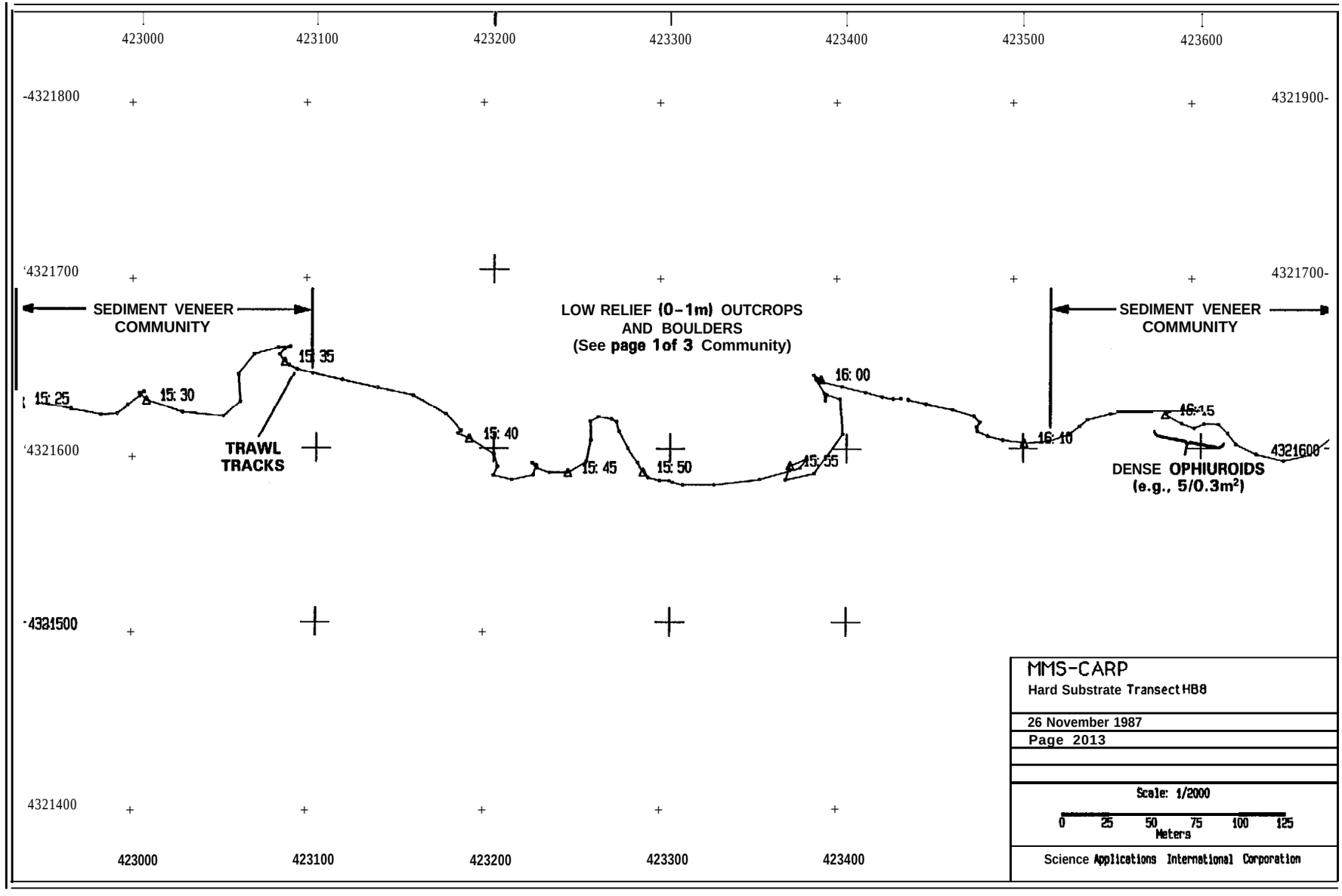
410100
410200
410300
410400
410500
410600
4414800
4414700
4414600
4414500
13:15
13:10
13:05
EXTENSIVE BOULDER AND
PINNACLE FIELD
(See page 1 of 3 Community)
Hard Substrate Transect HB6
Scale: 1/2000
0 25 50 75 100 125
Meters

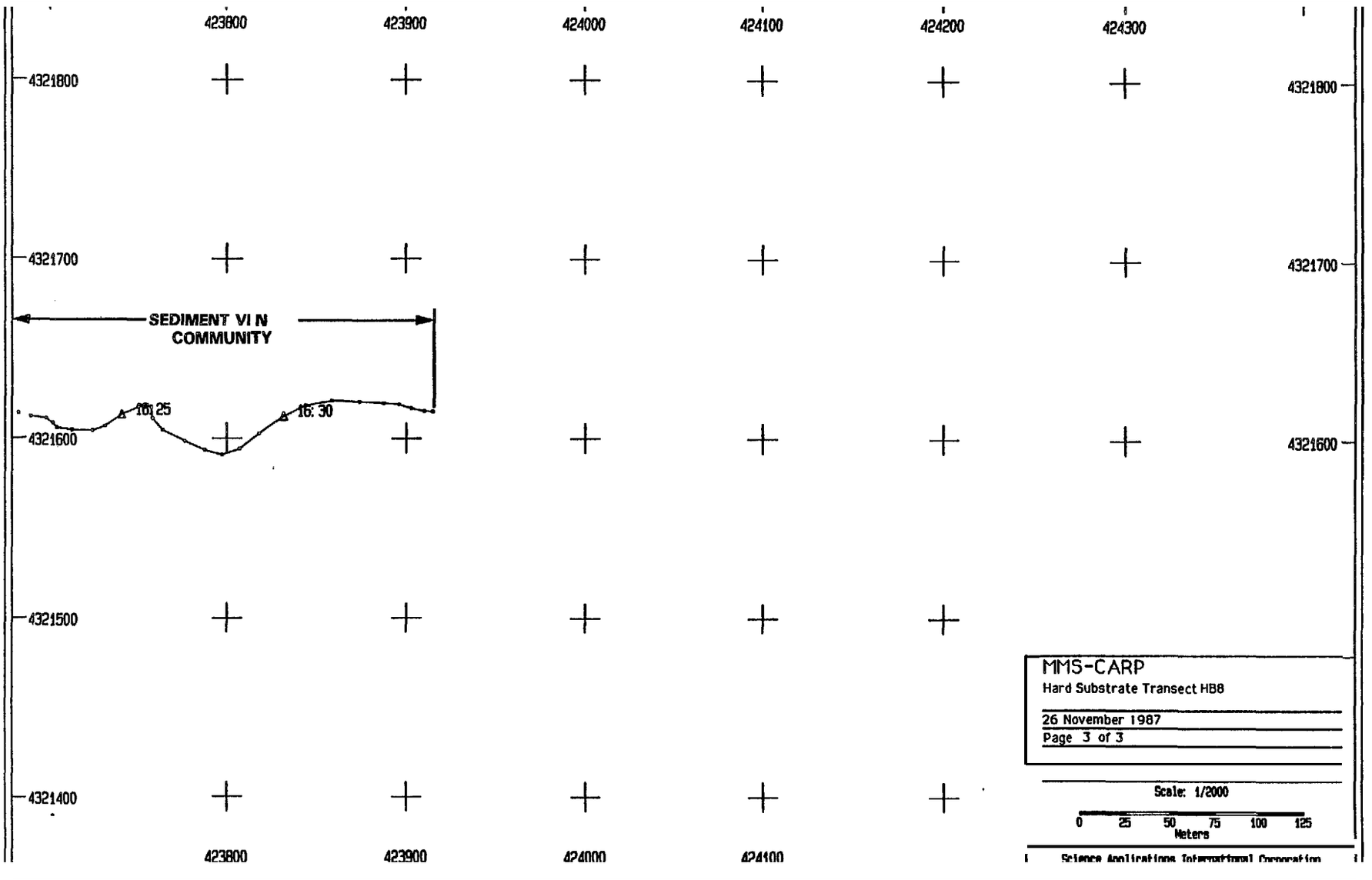

423500
423600
423700
423800
423900
424000
424100
4364300
4364200
4364100
4364000
09:10
09:06
09:15
09:20
09:25
09:30
09:40
SEDIMENT VENEER COMMUNITY
MMS-CARP
Hard Substrate Transect HB7
26 November 1987
Page 1 of 3
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation

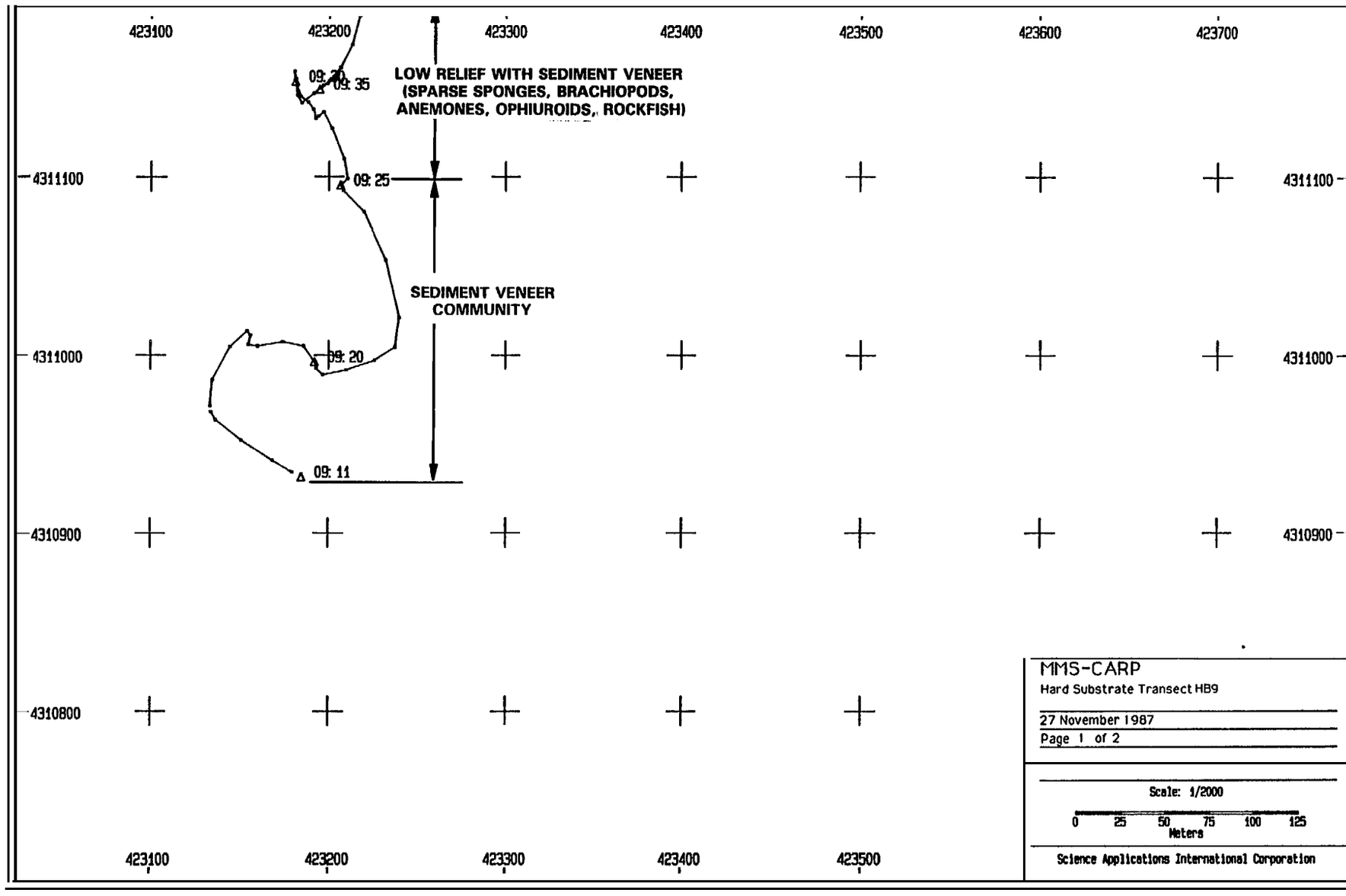

423500
423600
423700
423800
423900
424000
424100
4363800
4363700
4363600
4363500
09: 45
09: 50
09: 55
10: 00
10: 05
10: 10
10: 15
10: 20
10: 25
SEDIMENT VENEER COMMUNITY
1030
MMS-CARP
Hard Substrate Transect HB7
26 November 1987
Page 2 of 3
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation

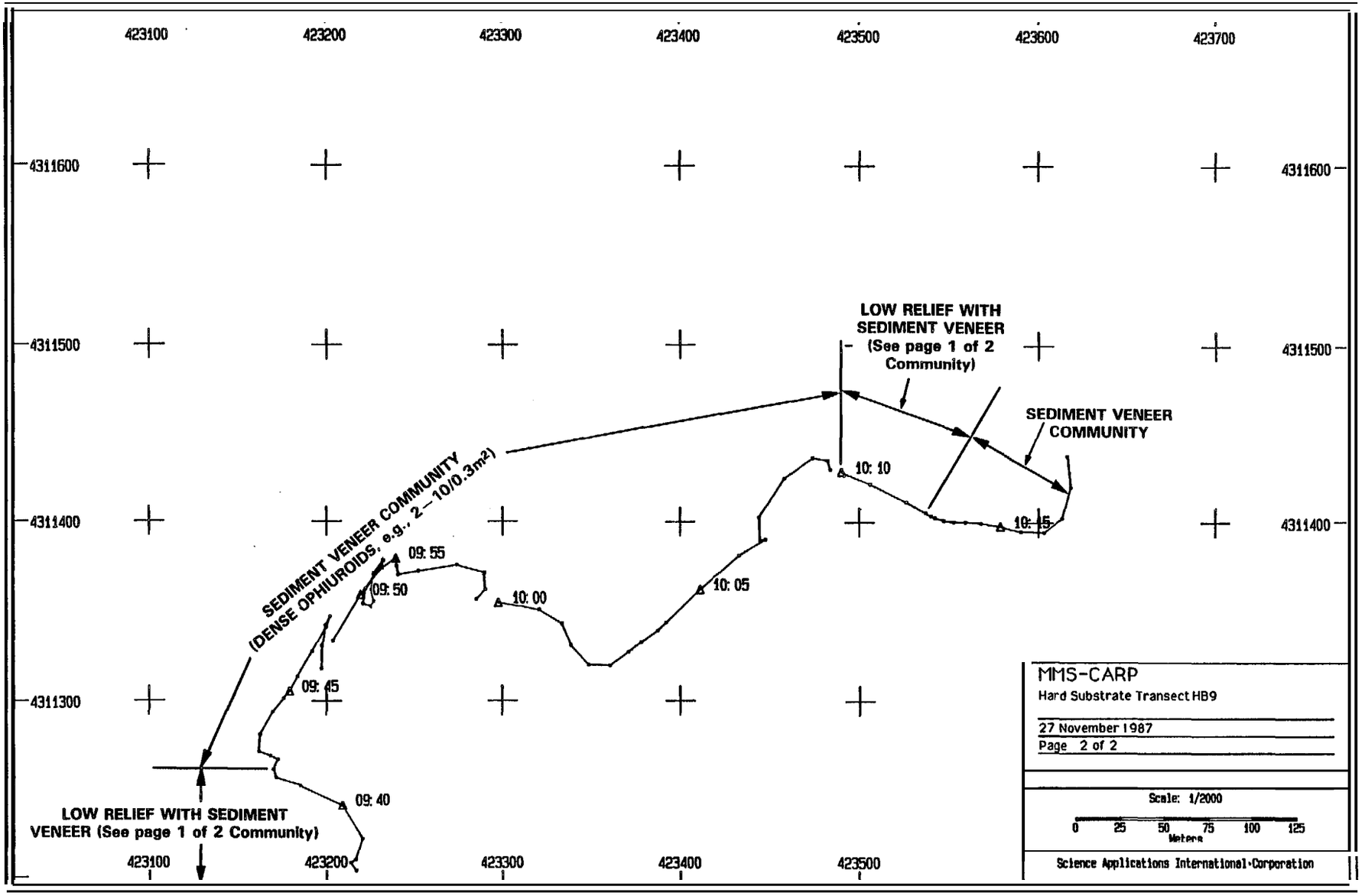

423500
423600
423700
423800
423900
424000
424100
10: 35
10: 40
SEDIMENT VENEER COMMUNITY
4363300
4363200
4363100
4363000
MMS-CARP
Hard Substrate Transect HB7
26 November 1987
Page 3 of 3
/2000
Science Applications International Corporation

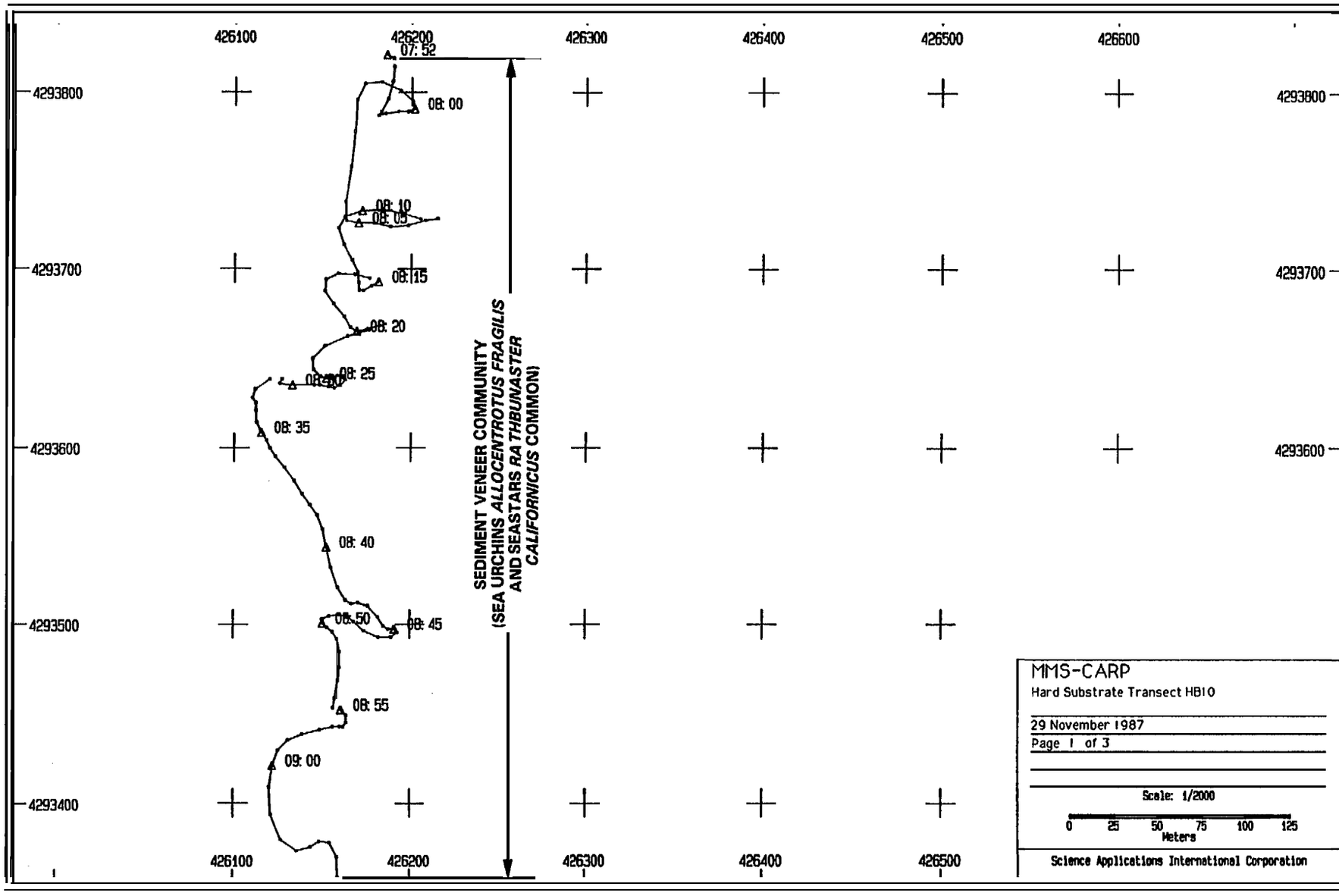

422300
422400
422500
422600
422700
422800
4321800
4321700
4321600
4321500
4321400
14: 25
14: 30
14: 35
14: 40
14: 45
14: 55
15: 00
15: 05
15: 10
15: 15
15: 20
LOW RELIEF (0-1m) OUTCROPS AND BOULDERS
(DENSE BRACHIOPODS, (e.g., 8-15/0.3m², AND
SKATE EGG CASES, FEATHER STARS, SPONGES, ROCKFISH)
SEDIMENT VENEER
COMMUNITY
Hard Substrate Transect HB8
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation


423000
423100
423200
423300
423400
423500
423600
4321800
4321900
4321700
4321700
SEDIMENT VENEER COMMUNITY
LOW RELIEF (0-1m) OUTCROPS AND BOULDERS
(See page 1of 3 Community)
SEDIMENT VENEER COMMUNITY
15:25
15:30
15:35
15:40
15:45
15:50
15:55
16:00
16:10
16:15
TRAWL TRACKS
4321600
4321600
DENSE OPHIUROIDS
(e.g., 5/0.3m²)
4321500
4321400
423000
423100
423200
423300
423400
MMS-CARP
Hard Substrate Transect HB8
26 November 1987
Page 2013
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation

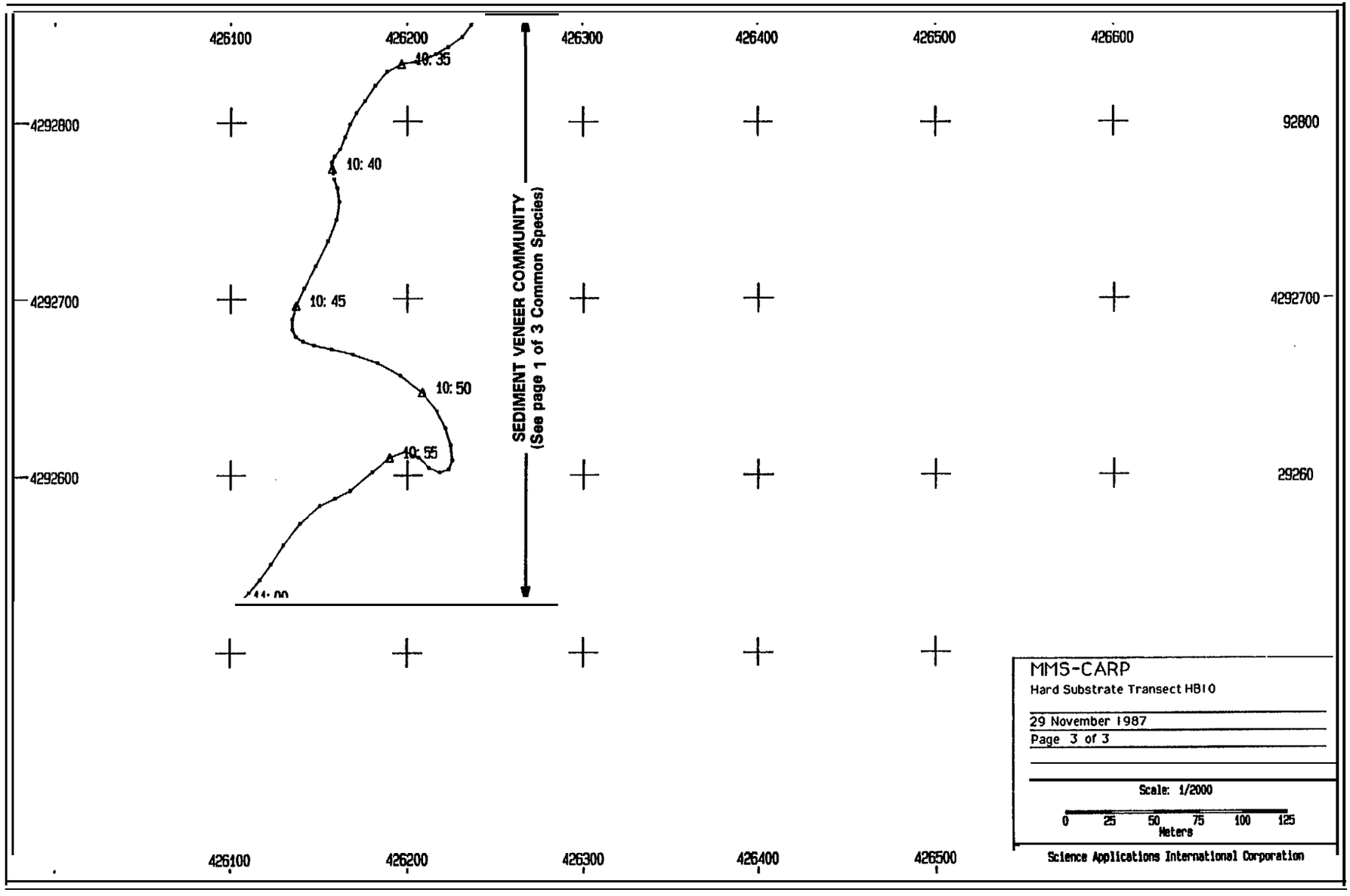

423800
423900
424000
424100
424200
424300
4321800
4321700
4321600
4321500
4321400
SEDIMENT VI N
COMMUNITY
16:25
16:30
MMS-CARP
Hard Substrate Transect HB8
26 November 1987
Page 3 of 3
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation

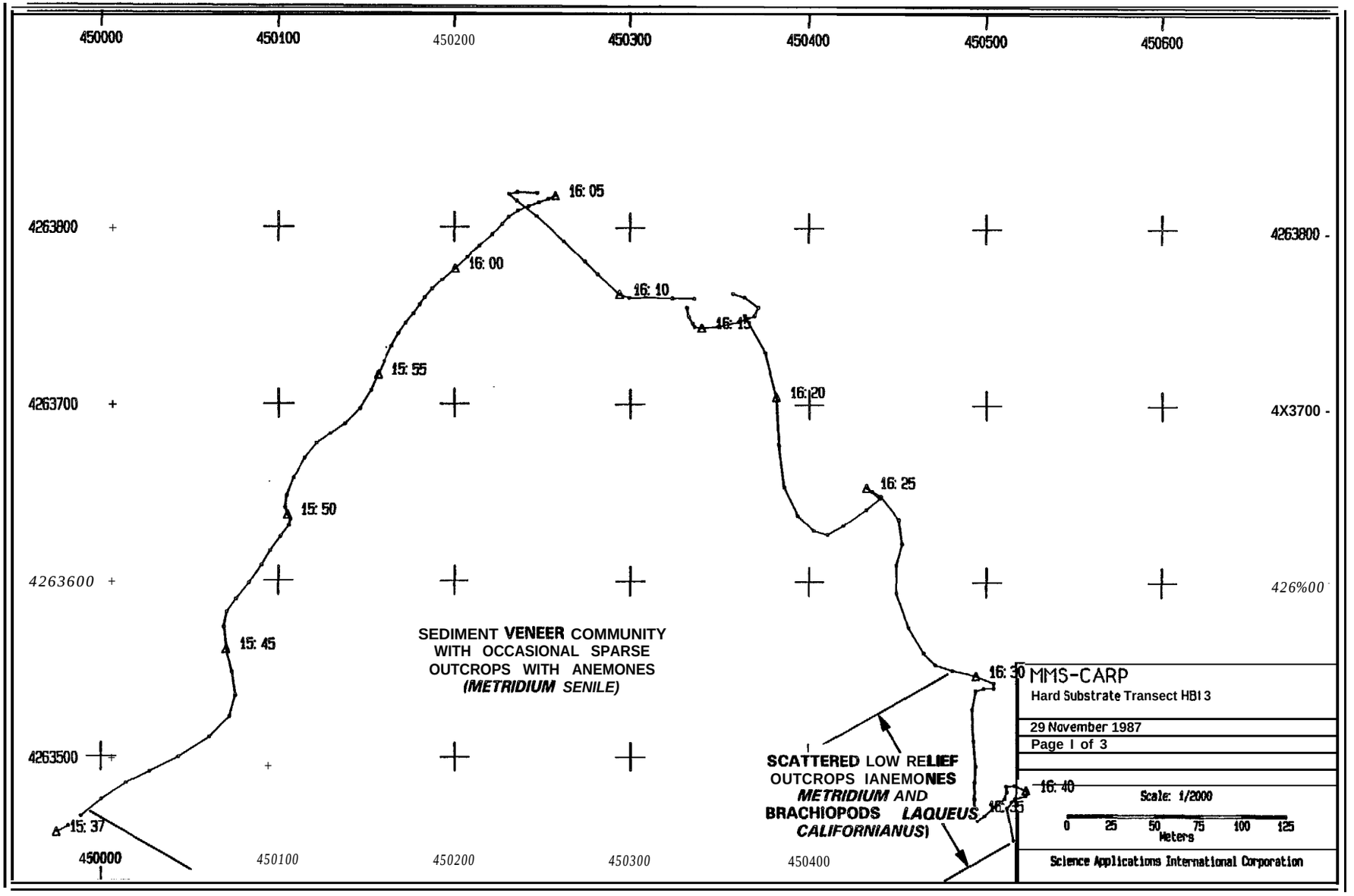

423100
423200
423300
423400
423500
423600
423700
4311100
4311000
4310900
4310800
09: 30
09: 35
09: 25
09: 20
09: 11
LOW RELIEF WITH SEDIMENT VENEER
(SPARSE SPONGES, BRACHIOPODS,
ANEMONES, OPHIUROIDS, ROCKFISH)
SEDIMENT VENEER
COMMUNITY
MMS-CARP
Hard Substrate Transect HB9
27 November 1987
Page 1 of 2
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation

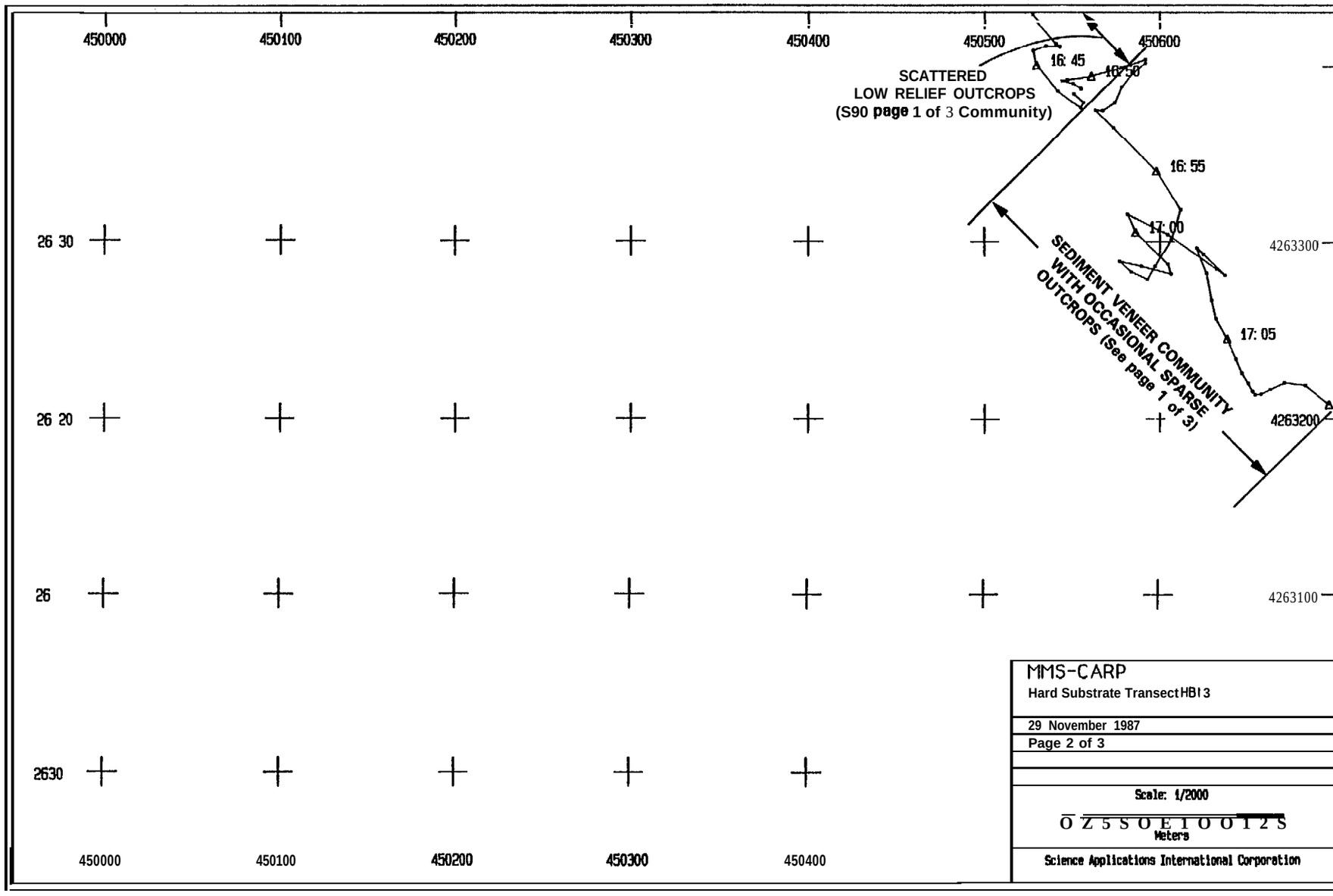

423100
423200
423300
423400
423500
423600
423700
4311600
4311500
4311400
4311300
LOW RELIEF WITH SEDIMENT VENEER (See page 1 of 2 Community)
SEDIMENT VENEER COMMUNITY
SEDIMENT VENEER COMMUNITY (DENSE OPHIUROIDS, e.g., 2–10/0.3m²)
LOW RELIEF WITH SEDIMENT VENEER (See page 1 of 2 Community)
09: 40
09: 45
09: 50
09: 55
10: 00
10: 05
10: 10
10: 15
MMS-CARP
Hard Substrate Transect HB9
27 November 1987
Page 2 of 2
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation


426100
426200
426300
426400
426500
426600
4293800
4293700
4293600
4293500
4293400
07: 52
08: 00
08: 10
08: 05
08: 15
08: 20
08: 25
08: 35
08: 40
08: 50
08: 45
08: 55
09: 00
SEDIMENT VENEER COMMUNITY
(SEA URCHINS ALLOCENTROTUS FRAGILIS
AND SEASTARS RATHBUNASTER
CALIFORNICUS COMMON)
MMS-CARP
Hard Substrate Transect HB10
29 November 1987
Page 1 of 3
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation

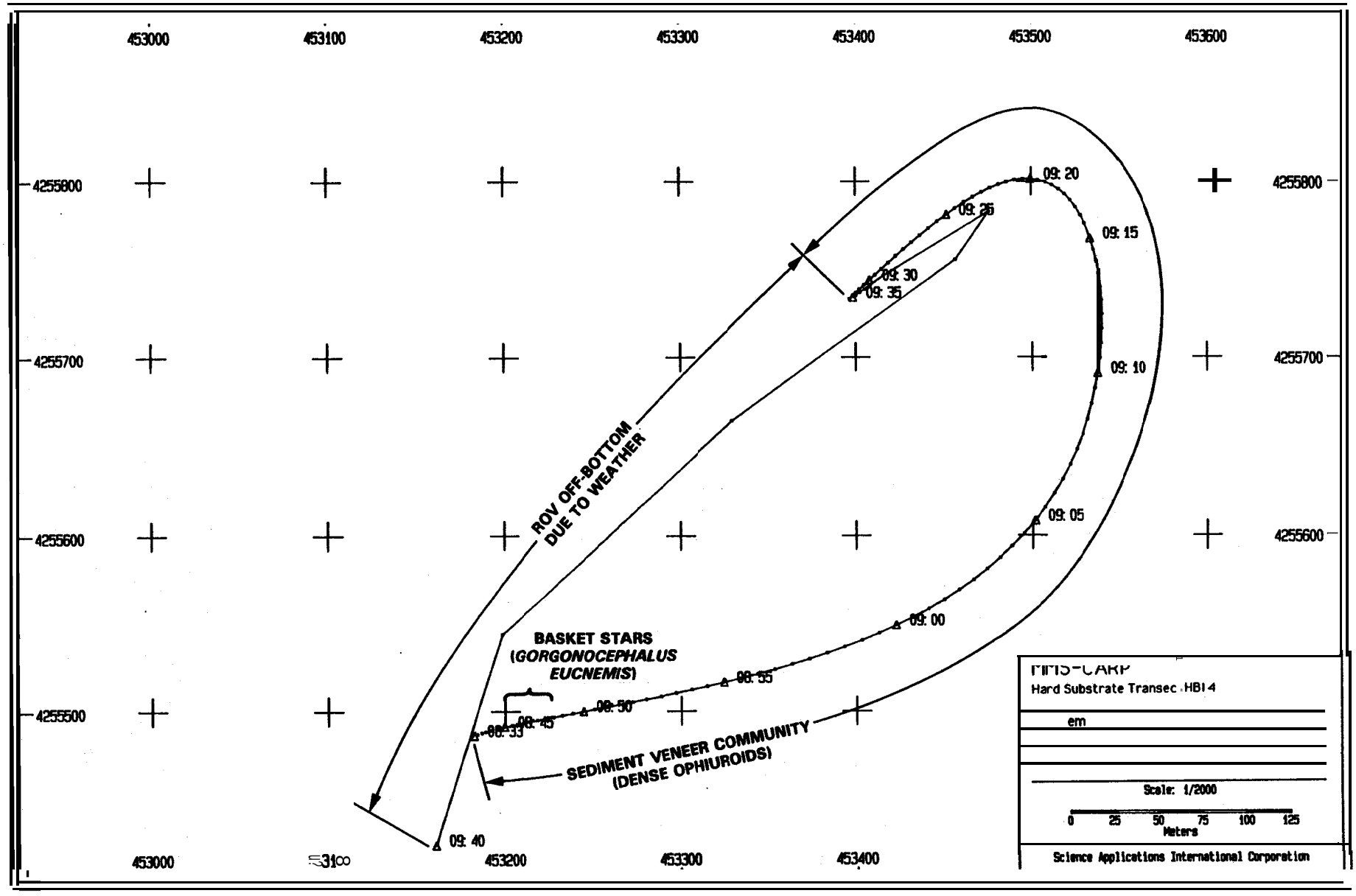
MMS-CARP
Hard Substrate Transect HB10
29 November 1987
Page 2 of 3
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation
SEDIMENT VENEER COMMUNITY
(See page 1 of 3 Common Species)
4293300
4293200
4293100
4293000
426600
426500
426400
426300
426200
426100
09:10
09:15
09:20
09:25
09:30
09:35
09:40
09:45
09:50
09:55
10:00
10:05
10:10
10:15
10:20
10:25

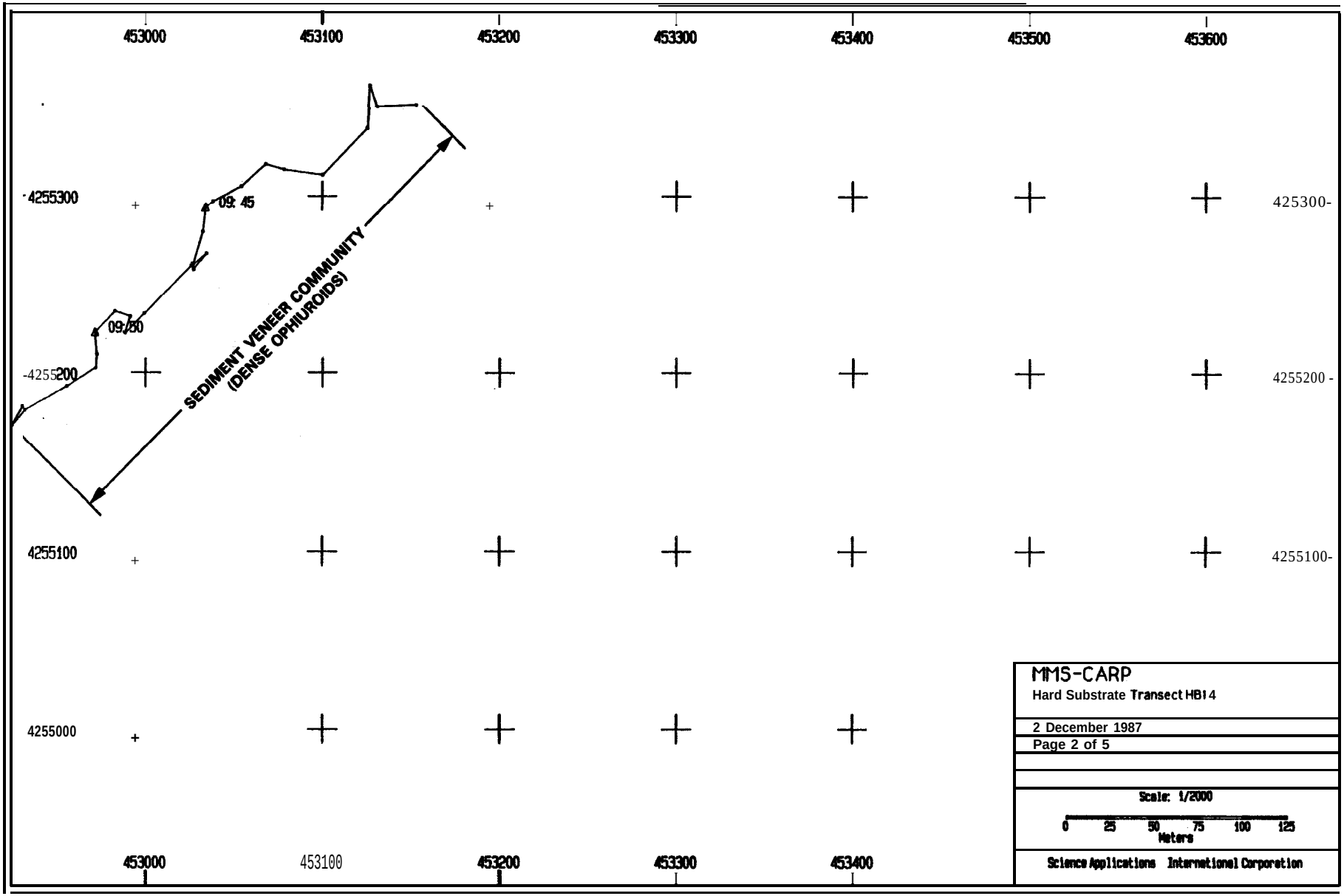

426100
426200
426300
426400
426500
426600
4292800
4292700
4292600
92800
4292700
29260
10: 35
10: 40
10: 45
10: 50
10: 55
SEDIMENT VENEER COMMUNITY
(See page 1 of 3 Common Species)
MMS-CARP
Hard Substrate Transect HB10
29 November 1987
Page 3 of 3
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation

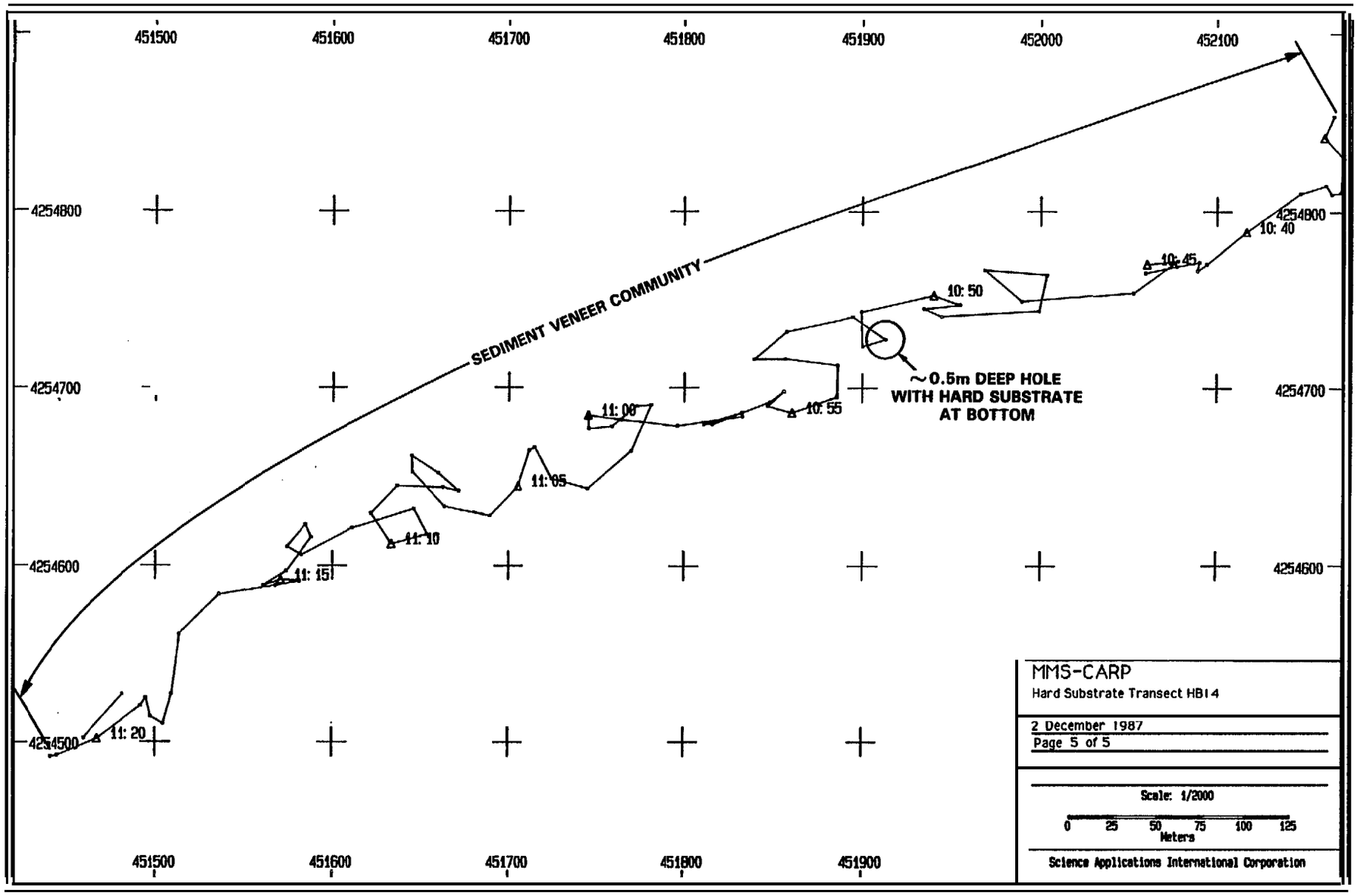

450000
450100
450200
450300
450400
450500
450600
4263800
4263700
4263600
4263500
4263800 -
4X3700 -
426%00
16: 05
16: 00
16: 10
16: 15
15: 55
16: 20
16: 25
15: 50
15: 45
16: 30
16: 40
16: 35
15: 37
SEDIMENT VENEER COMMUNITY
WITH OCCASIONAL SPARSE
OUTCROPS WITH ANEMONES
(METRIDIUM SENILE)
SCATTERED LOW RELIEF
OUTCROPS IANEMONES
METRIDIUM AND
BRACHIOPODS LAQUEUS
CALIFORNIANUS)
MMS-CARP
Hard Substrate Transect HBI 3
29 November 1987
Page I of 3
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation

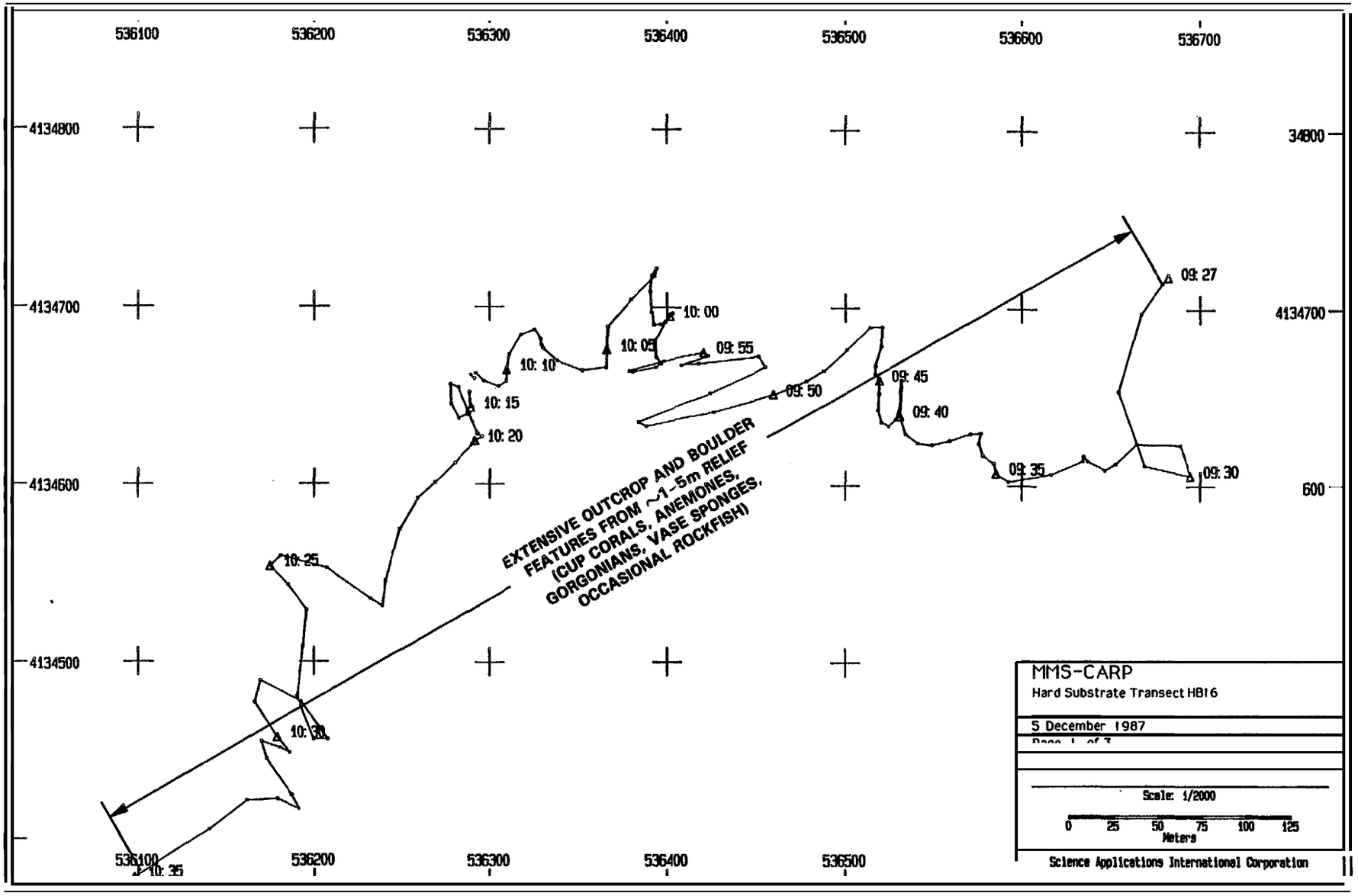

450000
450100
450200
450300
450400
450500
450600
16: 45
16: 50
16: 55
17: 00
17: 05
SCATTERED
LOW RELIEF OUTCROPS
(S90 page 1 of 3 Community)
SEDIMENT VENEER COMMUNITY
WITH OCCASIONAL SPARSE
OUTCROPS (See page 1 of 3)
26 30
26 20
26
2630
4263300
4263200
4263100
MMS-CARP
Hard Substrate Transect HB13
29 November 1987
Page 2 of 3
Scale: 1/2000
0 25 50 100 125
Meters
Science Applications International Corporation

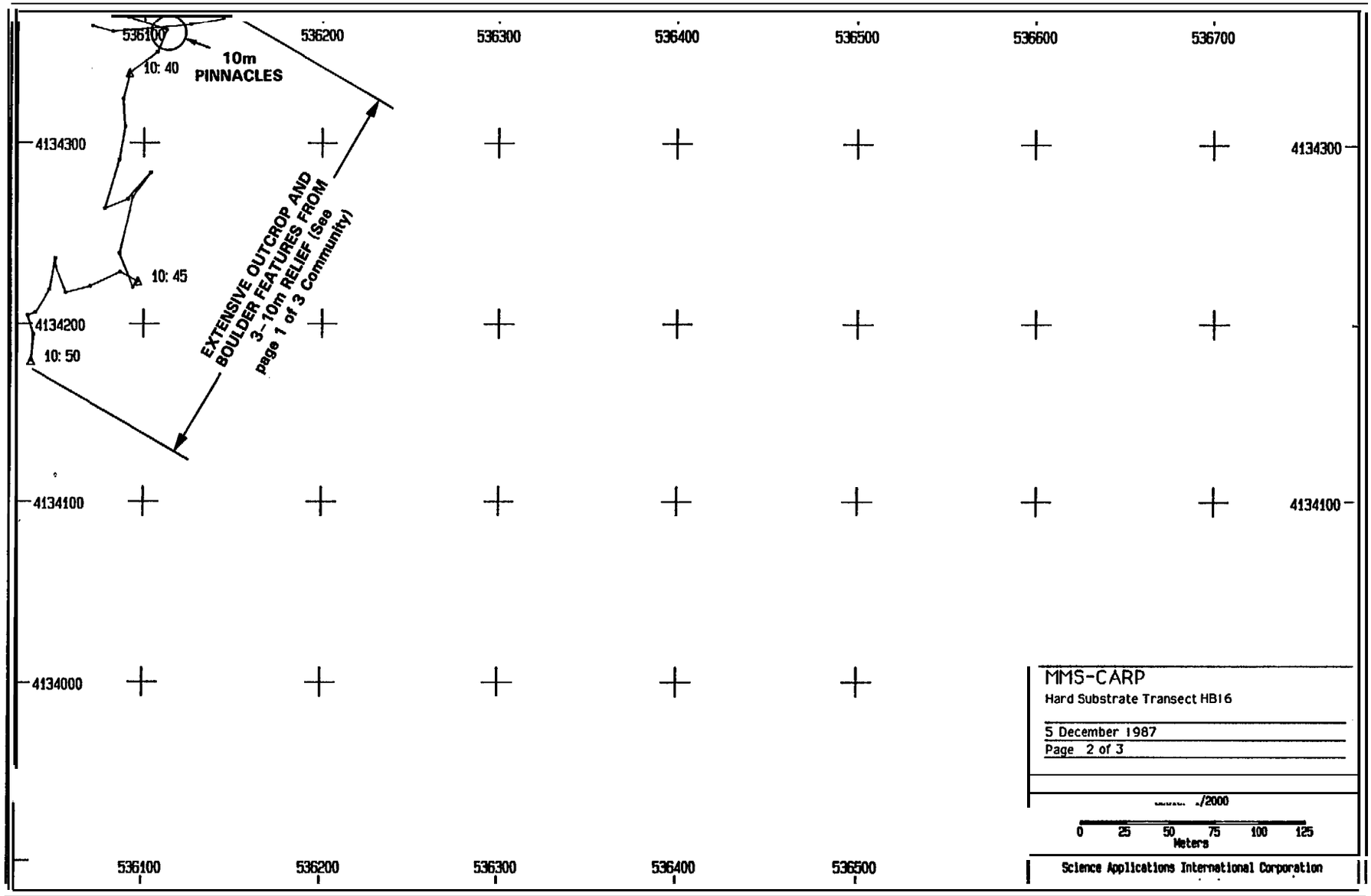
MMS-CARP
Hard Substrate Transect HB13
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation
Newport
647-
451400
451300
451200
451100
451000
450900
450800
63300
4263200
4263100
4263300
4263100
26300
17:15
17:20
SEDIMENT VENEER COMMUNITY
WITH OCCASIONAL SPARSE
OUTCROPS (See page 1 of 3)


453000
453100
453200
453300
453400
453500
453600
4255800
4255700
4255600
4255500
09: 20
09: 25
09: 15
09: 30
09: 35
09: 10
09: 05
09: 00
08: 55
08: 50
08: 45
08: 33
09: 40
ROV OFF-BOTTOM
DUE TO WEATHER
BASKET STARS
(GORGONOCEPHALUS
EUCNEMIS)
SEDIMENT VENEER COMMUNITY
(DENSE OPHIUROIDS)
Hard Substrate Transec HBI 4
em
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation


453000
453100
453200
453300
453400
453500
453600
4255300
4255200
4255100
4255000
425300-
4255200 -
4255100-
09:45
09:30
SEDIMENT VENEER COMMUNITY
(DENSE OPHIUROIDS)
MMS-CARP
Hard Substrate Transect HB14
2 December 1987
Page 2 of 5
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation


451500
451600
451700
451800
451900
452000
452100
4254800
4254700
4254600
4254500
SEDIMENT VENEER COMMUNITY
~0.5m DEEP HOLE
WITH HARD SUBSTRATE
AT BOTTOM
10: 40
10: 45
10: 50
10: 55
11: 00
11: 05
11: 10
11: 15
11: 20
MMS-CARP
Hard Substrate Transect HB14
2 December 1987
Page 5 of 5
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation


536100
536200
536300
536400
536500
536600
536700
4134800
4134700
4134600
4134500
34800
4134700
600
09: 27
09: 30
09: 35
09: 40
09: 45
09: 50
09: 55
10: 00
10: 05
10: 10
10: 15
10: 20
10: 25
10: 30
10: 35
EXTENSIVE OUTCROP AND BOULDER FEATURES FROM ~1-5m RELIEF (CUP CORALS, ANEMONES, GORGONIANS, VASE SPONGES, OCCASIONAL ROCKFISH)
MMS-CARP
Hard Substrate Transect HB16
5 December 1987
Scale: 1/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation


536100
536200
536300
536400
536500
536600
536700
10m
PINNACLES
10: 40
10: 45
10: 50
4134300
4134200
4134100
4134000
EXTENSIVE OUTCROP AND
BOULDER FEATURES FROM
3-10m RELIEF (See
page 1 of 3 Community)
MMS-CARP
Hard Substrate Transect HB16
5 December 1987
Page 2 of 3
/2000
0 25 50 75 100 125
Meters
Science Applications International Corporation

MMS-CARP
Hard Substrate Transect HB16
5 December 1987
Page 3 of 3
Science Applications International Corporation
Meters
0 25 50 75 100 125
535400
535500
535600
535700
535800
535900
4134300
4134200
4134100
4134000
10:55
11:00
11:05
11:40
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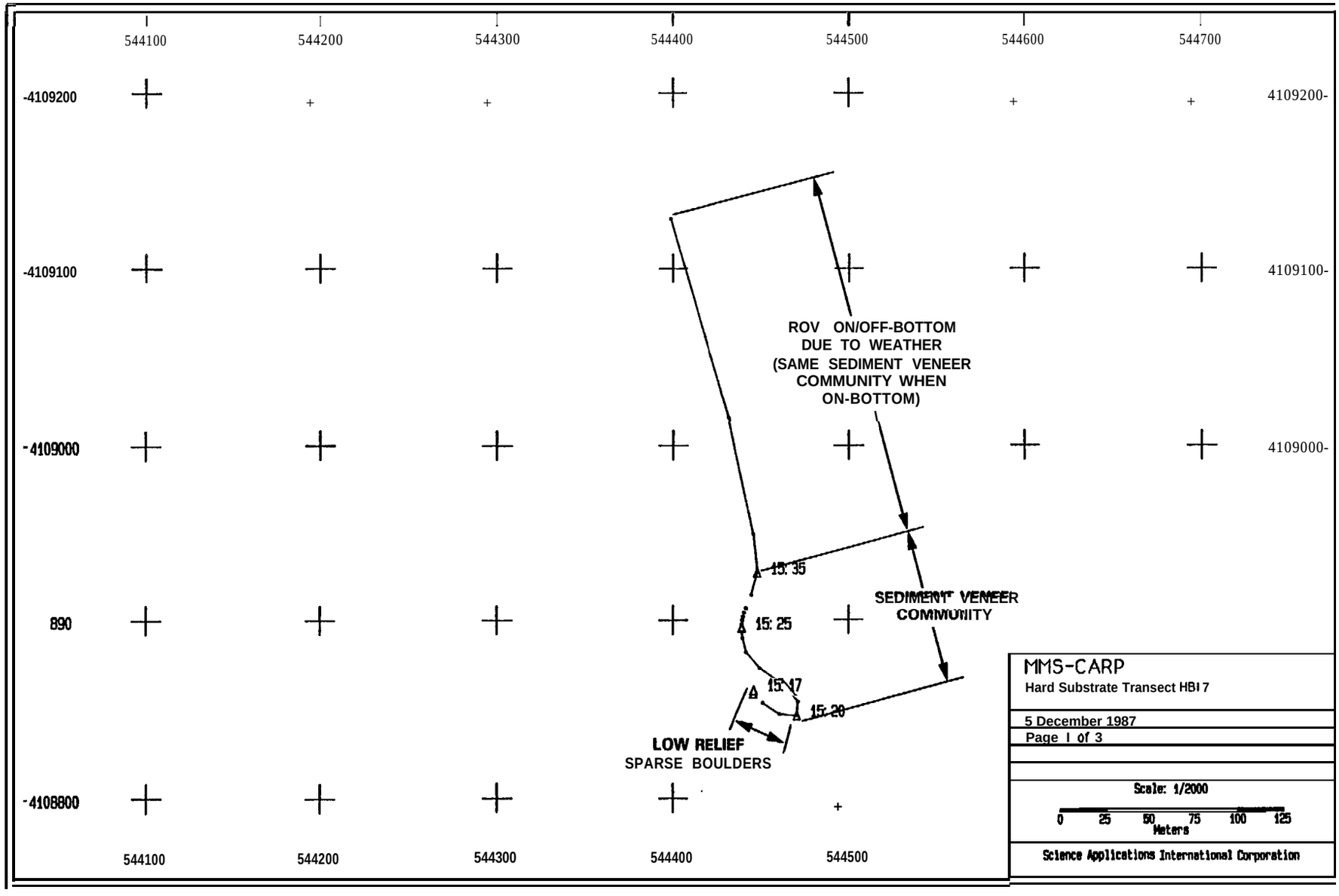
(ALLOPORA CALIFORNICA)
EXTENSIVE OUTCROP AND BOULDER
FEATURES FROM 3-5m Community
(See page 1 of 3)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ROV ON/OFF-BOTTOM
DUE TO WEATHER
(SAME SEDIMENT VENEER
COMMUNITY WHEN
ON-BOTTOM)
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SEDIMENT VENEER
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LOW RELIEF
SPARSE BOULDERS
MMS-CARP
Hard Substrate Transect HB17
5 December 1987
Page 1 of 3
Scale: 1/2000
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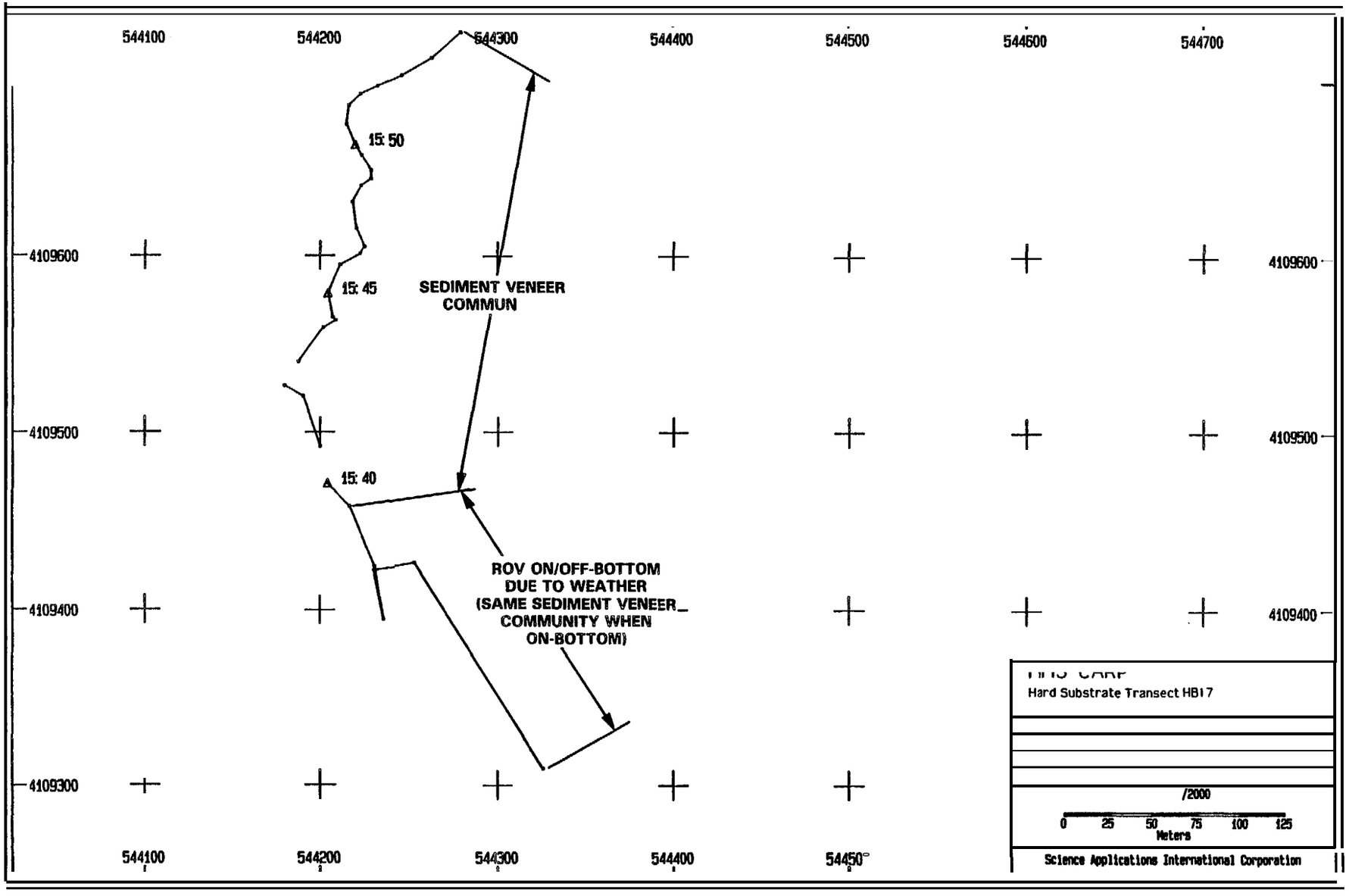
Meters
Science Applications International Corporation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DUE TO WEATHER
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Hard Substrate Transect HB17
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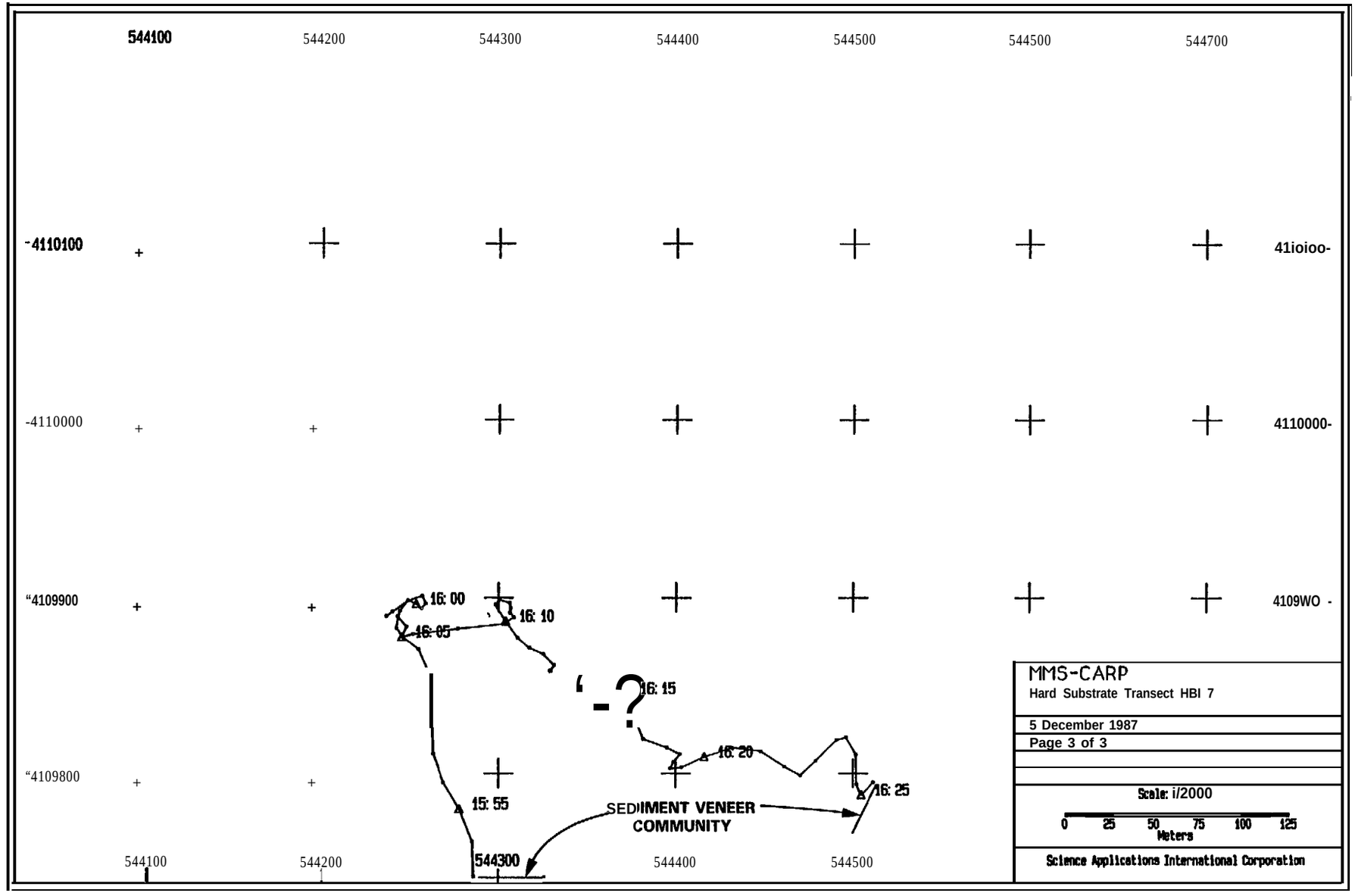
Science Applications International Corporation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Hard Substrate Transect HBI 7
5 December 1987
Page 3 of 3
Scale: i/2000
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Meters
Science Applications International Corporation

APPENDIX E

SOFT SUBSTRATE ACTUAL STATION LOCATIONS

(LORAN-C; latitudes and longitudes
are listed in Volume I, Section 2)

APPENDIX E

SOFT SUBSTRATE STATION LOCATIONS.
MMS CARP Survey (November/December 1987).

Station Basin	Rep	LORAN-C GRI 9940 Whiskey	Yankee
Transect T1 Eel River			
SB1	A	14254.7	43876.8
SB2	A	14244.4	43873.3
SB3	A	14241.8	43872.0
SB4	A	14238.4	43871.2
Transect T2 Eel River			
SB5	A	14469.0	43850.3
SB6	A	14455.9	43845.8
SB7	A	14453.2	43844.8
SB8	A	14449.7	43844.3
Transect T3 Eel River			
SB9	A	14554.1	43839.0
SB9	B	14553.8	43839.4
SB10	A	14536.6	43834.7
SB10	B	14536.8	43834.5
SB11	A	14532.2	43834.1
SB11	B	14532.0	43833.9
SB12	A	14529.9	43833.3
SB12	B	14528.7	43833.0
Transect T4 Eel River			
SB13	A	LORAN not operational	
SB14	A	14720.2**	43800.1**
SB15	A	14711.8**	43798.1**
SB16	A	14695.4	43794.9**

Station Basin	Rep	LORAN-C GRI 9940 Whiskey	Yankee
Transect T5 Eel River			
SB17	A	14809.7	43772.9
SB18	A	14802.5	43771.2
SB19	A	14799.6	43770.6
SB20	A	14796.1	43769.7
Transect T6 Eel River			
SB21	A	15259.7	43666.5
SB22	A	15232.6	43661.0
SB23	A	15226.8	43659.8
SB24	A	15225.0	43659.2
Transect T7 Pt. Arena			
SB25	A	**15317.0**	43645.5
SB25	B	**15317.2**	43645.3
SB26	A	**15295.2**	43641.4
SB26	B	**15295.3**	43641.4
SB27	A	**15285.8**	43639.7
SB27	B	**15286.3**	43639.6
SB28	A	**15280.7**	43638.4
SB28	B	**15280.7**	43638.5
Transect T8 Pt. Arena			
SB29	A	15382.7	43605.1
SB30	A	15365.6	43604.7
SB31	A	15360.8	43604.1
SB32	A	15352.8	43604.1

Station Basin	Rep	LORAN-C GRI 9940 Whiskey	Yankee
Transect T9 Pt. Arena			
SB33	A	15504.8	43541.5
SB34	A	15472.7	43540.6
SB35	A	15465.7	43539.8
SB36	A	15454.3**	43539.8**
Transect TIO Pt. Arena			
SB37	A	15555.9	43502.9
SB38	A	15531.9	43500,4
SB39	A	15523.0	43498.7
SB40	A	15514.3	43498.4
Transect T11 Bodega			
SB41	A	15639.9	43463.8
SB42	A	15604.8	43445.0
SB44	A	15640.9	43435.4
Transect T12 Bodega			
SB45	A	15737.9*	43401.8*
SB46	A	15738.8*	43372.8*
SB48	A	15739.9*	43351.3*
Transect T13 Bodega			
SB49	A	15809.5	43374.8
SB49	B	15809.7	43374.6
SB50	A	15802.4	43346.0
SB50	B	15802.3	43346.1
SB51	A	15800.9	43337.8
SB51	B	15801.0	43338,5

Station Basin	Rep	LORAN-C GRI 9940 Whiskey	Yankee
Transect T14			
Santa Cruz			
No samples collected			
Transect T15			
Santa Cruz			
SB57	A	16173.8	42959.2
SB57	B	16173.8	42959.1

* Poor LORAN-C data
**Calculated LORAN-C data

APPENDIX F

HARD SUBSTRATE TAXONOMIC LIST

(Photoquadrat, Video, and Rock Samples)

APPENDIX F

TABLE F-1. TAXONOMIC LIST ARRANGED IN ALPHABETIC ORDER BY PHYLUM FROM PHOTOQUADRAT DATA RECORD.
MMS CARP Hard Substrate Survey (November/December 1987).

Foraminifera

Komokoiacea

Porifera

Gray encrusting sponge
Gray-brown spiny globose sponge
Leucetta ? sp.
Lime encrusting sponge
Orange encrusting sponge
Orange globose sponge
Purple encrusting sponge
Red encrusting sponge
Sepia encrusting sponge
Shelf sponge (cf. Pachastrellidae)
Sulphur encrusting sponge
Tan encrusting sponge
Tan foliose sponge
Tan small branched sponge
Tan spherical sponge
White amorphous sponge
White encrusting sponge
White foliose sponge
White globose sponge
White ribbon node sponge
White tubular sponge
Yellow globose sponge
Yellow-brown encrusting sponge

Cnidaria (Coelenterata)

Abietinaria sp.
Actiniaria (sepia tentacled)
Actiniaria (transparent white base)
Actiniaria (white ringed)
Aglaophenia spp.
Allopora californica
Amphianthus californicus
Anemone # 12
Astrangia sp.
Astrangia sp. (solitary, white)
Balanophyllia elegans
Campanularia ?
Caryophyllia (pink)
Caryophyllia (white)
Caryophyllia spp.
Cnidaria
Corynactis californica
Desmophyllum crista-galli
Gorgonacea (pink)
Gorgonacea (red branching fan)
Lophogorgia ? (red fan)
Metridium senile
Nemertesia ? (tan telephone pole)
Obelia spp.
Paracyathus stearnsii
Plumularia spp.
Sertularella spp.
Tubularia sp.
Virgularia spp.
Zoanthiniaria (small blue)
Zoanthiniaria (tan)

TABLE F-1. (Continued)

Polychaeta

- Eudistylia (white feather duster)
- Laonice sp.
- Polychaeta
- Protula sp.
- Protus sp.
- Sabellidae
- Serpulidae (white calcareous worm tube)
- Terebellidae

Mollusca Gastropoda

- Black siphon
- Buccinidae (egg cases)
- Cadlina luteomarginata
- Calliostoma annulatum
- Gastropoda
- Pteropurpura sp.
- Simnia (Neosimnia) vidleri
- Simnia sp.
- Siphonaria ?

Mollusca Amphineura

- Chiton, unid.

Mollusca Bivalvia

- Bivalvia (orange)
- Hinnites giganteus

Arthropoda Crustacea

- Acantholithodes cf. hispidus
- Amphipoda (tubes)
- Cirripedia (bluefoot barnacle)
- Crangonidae
- Decapoda (crab)
- Decapoda (shrimp)
- Galatheidae
- Microjassa ? sp.
- Paguridae
- Pandalidae (small pink)

Ectoprocta (Bryozoa)

- Astraia sp. (white "cup coral" bryozoan)
- Bugula ?
- Crisis sp. (small white)
- Dendrobeania sp. (white fan)
- Diaperoecia sp.
- Diaperoecia? (long stemmed)
- Diaperoecia? (white sparsely branched)
- Ectoprocta (orange encrusting)
- Ectoprocta (tan erect branching)
- Microporina ?
- Phidolopora pacifica
- Rhynchozoon sp.
- Thalamoporella sp.

Brachiopoda

- Laqueus californianus
- Terebratalia transversal
- Terebratulina spp. ?

Echinodermata

- Amphiodia sp. ?
- Amphipholis sp.
- Florometra serratissima
- Gorgonocephalus eucnemis
- Mediaster aequalis
- Ophionereis sp.
- Ophiopholis sp.
- Ophiothrix/Ophiocantha ? (robust)
- Ophiura sarsi
- Ophurioidea (robust orange armed)
- Parastichopus californicus
- Peridontaster crassus
- Rathbunaster californicus

TABLE F-1. (Continued)

Urochordata

Amaroucium sp. (purple)
Ascidiacea (orange encrusting)
Ascidiacea (orange globose)
Ascidiacea (pink colonial)
Ascidiacea (tan erect)
Ascidiacea (white globose colonial)
Ascidiacea (white translucent)
Boltenia sp.
Ciona ?
Clavelina (tan)
Corella sp.
Didemnum (white translucent)
Halocynthia hilgendorfi i gaboj a
Pyura ? (cryptic)

Chordata Chondrichthys

Raja sp. (egg case)

Chordata Osteichthys

Coryphopterus nicholsii
Fish, unid.
Oligocottus sp.
Sebastes elongatus
Sebastes sp.
Sebastes zacentrus

Miscellaneous

Encrusting coralline alga (purple)
Orange encruster
Purple encruster
Tan encruster
Translucent encuster
Unid. white branched encruster
White encruster
Yellow volcano encruster

TABLE F-2. TAXONOMIC LIST ARRANGED IN ALPHABETIC ORDER BY PHYLUM FROM VIDEO DATA RECORD.
MMS CARP Hard Substrate Survey (November/December 1987).

Porifera

- Encrusting sponge
- Small tan vase sponge
- "Spheciospongia confoederata"
- "Tethya aurantia"
- White amorphous sponge
- White bowl sponge
- White encrusting sponge
- White foliose sponge
- White tubular sponge
- White vase sponge

Cnidaria (Coelenterata)

- Acanthoptilum gracile
- Allopora californica
- Balanophyllia elegans
- Caryophyllia spp.
- Ceriantharia
- Corynactis californica
- "Eugorgia sp."
- Gorgonacea
- Gorgonacea (pink; Lophogorgia-like)
- Gorgonacea (white; Lophogorgia-like)
- Hydrozoa
- Metridium senile
- Paracyathus stearnsii
- Pavonaria spp.
- Pennatulacea
- Pennatulacea (sea pen #10)
- Ptilosarcus gurneyi
- Stomphia spp.
- Stylatula elongata
- Swiftia kofoidi
- Urticina piscivora
- Urticina spp.
- Virgularia spp.
- Zoanthiniaria (tan)

Polychaeta

- Protula superba
- Serpulidae (white calcareous worm tube)

Mollusca

- Antiplanes (Rectiplanes) sp.
- Buccinidae (egg cases)
- Calliostoma sp.
- Conualevia alba
- Fusitriton oregonensis
- Neptunea tabulata
- octopus "dofleini"
- Octopus rubescens
- octopus Sp.
- Pleurobranchaea californica
- Rossia pacifica
- Simnia sp.
- Corolla spectabilis

Arthropoda Crustacea

- Amphipoda (tubes)
- Cancer sp.
- Galatheidae
- Loxorhynchus spp.
- Munida quadrispina
- Mysidae
- Paguridae
- Pandalidae (small pink)
- Pandalus jordani

Ectoprocta (Bryozoa)

- Diaperoecia sp.
- Heteropora magna
- Thalamoporella sp.

Brachiopoda

- Laqueus californianus
- Terebratalia transversal

TABLE F-2. (Continued)

Echinodermata

Allocentrotus fragilis
Asteroidea
Astropecten sp.
Brisaster latifrons (heart urchin)
Crossaster papossus
Cucumariidae/Sclerodactylidae
Florometra serratissima
Gorgonocephalus eucnemis
Hippasterias sp.
Luidia foliolata
Luidia sp.
Mediaster aequalis
Ophionereis sp.
Ophiothrix/Ophiocantha ? (robust)
Ophiura sp.
Orthasterias koehleri
Parastichopus californicus
Peridontaster crassus
Poraniopsis inflata
Rathbunaster californicus
Solaster dawsoni
Solaster sp.
Stylasterias forreri
Stylasterias sp.

Urochordata

Boltenia villosa
Cnemidocarpa finmarkiensis
Halocynthia hilgendorfi igaboja
Salpidae ("Salpa sp.")

Chordata Agnatha

Eptatretus stoutii

Chordata Chondrichthys

Hydrolagus collei
Raja binoculata
Raja sp. (egg case)
Raja spp.
Raja stellulata
Squalus acanthias

Chordata Osteichthys

Agonidae
Agonus acipenserinus
Aprodon cortezianus
Chilara taylori
Clinidae
Dasyatis violacea
Eelpout, unid.
Flatfish, unid.
Fish, unid.
Glyptocephalus zachirus
Gobiidae
Hexagrammos cf. decagrammus
Hippoglossus stenolepis
Icelinus filamentosus
Lyconema barbatum
Merluccius productus
Ophiodon elongatus
Osmeridae
Pleuronectidae
Sebastes chlorostictus
Sebaste s diploproa
Sebastes elongatus
Sebastes eos
Sebastes flavidus/serranoides
Sebastes levis
Sebastes melanops
Sebastes mystinus
Sebastes rosaceus
Sebastes ruberrimus
Sebastes saxicola
Sebastes semicinctus
Sebastes sp.
Sebastes zacentrus
Sebastolobus alascanus
Zalembius rosaceus
Zaniolepis latipinnis

Miscellaneous

Rods

TABLE F-3. TAXONOMIC LIST ARRANGED IN ALPHABETIC ORDER BY PHYLUM FROM ROCK SAMPLES.
MMS CARP Hard Substrate Survey (November/December 1987).

Porifera

Calcarea unid.
Clathrina blanca
Coelosphaera sp. A
Demospongia unid.
Hadromerida (=Hadromerina)
Hymedesmia sp.
Microciona sp.
Poecilosclerina sp. A
Tetilla arb

Cnidaria (Coelenterata)

Abietinaria pacifica
Abietinaria sp.
Anemone #118
Anemone sp. 49
Anemone,unid. frag.
Campanularia sp.
Clavidae
Eudendrium tenellum
Hydrallmania distans
Lafoea dumosa
Lafoea fruticosa
Thuiaria sp.
Tubularia nr. indivisa

Platyhelminthes

Eurylepta Sp. A,

Nemertea

Amphiporidae
Amphiporus nr. cruentatus
Carinoma mutabilis
Cerebratulus sp.
Nemertea
Paranemertes spp.
Tetrastemma sp.
Tetrastemma sp. A

Kinorhyncha

Pycnophyes sp. A

Nematoda

Nematoda

Polychaeta

? Proclea sp.
Acmira lopezi rubra
Allis ramosa
Ampharete arctica
Amphicteis mucronata
Anobothrus gracilis
Apistobranchus ornatus
Arabellidae
Asclerocheilus beringianus
Autolytus sp.
Axiothella nr. sp. 1
Chaetozone sp.
Chloeia pinnata
Chone sp. B (SCAMIT)
Cirratulidae
Cirratulus cirratus
Cossura spp.
Decamastus sp.
Dorvilleidae
Driloneris sp. 1
Ehlersia heterochaeta
Ehlersia hyperione
Euchone sp. A
Euclymene sp.
Euclymeninae
Eumida tubiformis
Eunice cf. caeca
Eupolymenia sp.
Eusyllis habei
Eusyllis sp.
Exogone lourei
Exogone molests
Glycera capitata
Glycera tesselata
Goniada maculata
Goniada sp.
Harmothoe (Tenonia) sp.
Harmothoe fragilis
Hauchiella nr. sp. 1
Jasmineira sp. B
Lanassa venusta venusta
Lepidonotus squamata

TABLE F-3. (Continued)

Polychaeta (continued)

Levinsenia gracilis
Lumbrineris cf. tetraura
Lumbrineris sp.
Maldane sarsi
Maldanella robusta
Mediomastus spp.
Mooreonuphis nr. sp. 1
Myriochele cf. fragilis
Myriochele gracilis
Nephtys cornuta franciscana
Nicolea cf. zostericola
Nicomache lumbricalis
Notomastus sp.
Notoproctus pacificus
Odontosyllis phosphorea
Onuphis geophiliformis
Ophelina acuminata
Paradiopatra parva
Petaloproctus ? neoborealis
Petaloproctus ornatus
Pholoe sp.
Pholoides aspera
Phyllodoce groenlandica
Phyllodoce medipapillata
Pionosyllis gigantea
Pista brevibranchiata
Pista disjuncta
Pista sp.
Polycirrus spp.
Polydora spp. juv. damaged
Polynoidae
Prionospio sp.
Procela graffi
Proceraea sp.
Protodorvillea gracilis
Protolaeospira eximia
Pseudopotamilla sp.
Sabellaria cementarium
Sphaerodoropsis sp.
Sphaerodorum papillifer
Sphaerosyllis californiensis
Spionidae unid. juv.
Spiophanes berkeleyorum
Spiophanes missionensis
Subadyte nr. sp. 1
Terebellidae
Tharyx spp. unid.
Thelepus hamatus

Mollusca Gastropoda

"Aldisa" sp.
Acmaea sp.
Dendronotus nr. subramosus
Mollusca Gastropoda
Nudibranch Genus A sp. A
Odostomia spp.

Mollusca Polyplacophora

Chaetopleura nr. gemma
Chaetopleura sp.
Leptochiton rugatus

Mollusca Aplacophora

Aplacophora

Mollusca Bivalvia

Hiatella arctica
Lepidozona sp.
Megacrenella columbiana
Pectenidae

Arthropoda Pycnogonida

c f. Achelia chelata

Arthropoda Crustacea

Ampelisca lobata
Arcoscalpellum californicum
Byblis bathyalis
Byblis veleronis
Caprella spp juv. and frags.
Ericthonius hunteri
Gammaropsis ociosa
Gitanopsis vilordes
Gnathia sanctaecrucis
Harpacticoid copepod
Heterophoxus oculatus
Leptochelia sp. A
Leptognathia sp. E
Leptognathia sp. G
Loxorhynchus crispatus
Melp hidippa amorita
Metaphoxus frequens
Microjassa litotes

TABLE F-3. (Continued)

Arthropoda Crustacea (continued)

- Typosyllis sp. (Type 1, 2, 3)
- Munnogonium tillerae
- Neastacilla cf. californica
- Paraphoxus oculatus
- Perotripus brevis
- Photis bifurcata
- Photis nr. macrotica
- Stenothoe sp.
- Tanaidacea unid.
- Tritella tenuissima
- Typhlotanais sp. A
- cf. Metopa dawsoni
- cf. Pachychelium sp. A
- cf. Parametopella ninis

Sipuncula

- Nephasoma sp.
- Sipuncula

Ectoprocta (Bryozoa)

- Bugula sp.
- Cauloramphus sp. nr. echinus
- Cellaria diffusa
- Chapperia patula
- Chapperia sp.
- Clavopora occidentals
- Costazia cf. procumbent
- Emballotheca cf. obscura
- Fenestrulina malusi
- Hincksina alba
- Lagenipora punctulata
- Lichenopora sp.
- Reginella furcata
- Smittina nr. landsborovi
- Smittina spathulifera
- Stephanosella biaperta
- Stephanosella nr. bolini
- cf. Hippomonavella longirostrata

Brachiopoda

- Laqueus californianus
- Terebratulina unguicola

Echinodermata

- Amphipholis squamata
- Ophiopholis bakeri
- Ophiura lutkeni
- Psolidae unid.

Urochordata

- Chelyosoma products
- Styela coriacea
- Tunicate

APPENDIX G

SOFT SUBSTRATE TAXONOMIC LIST

APPENDIX G

TAXONOMIC LIST ARRANGED IN ALPHABETIC ORDER BY PHYLUM FROM BENTHIC CORE SAMPLES.
MMS CARP Soft Substrate Survey (November/December 1987).

Cnidaria (Coelenterata)

- Abietinaria pacifica
- Aglaophenia sp.
- Anemone #112
- Anemone #114
- Anemone #115
- Anemone #116
- Anemone #117
- Anemone #120
- Anemone #8
- Anemone,unid. frag.
- Athenaria,unid.
- Campanulariidae
- Campanulina sp.
- Campanulinidae Genus A Sp. A
- Ceriantharia sp. I
- Ceriantharia sp. K
- Ceriantharia sp. S
- Ceriantharia spp.
- Cnidaria
- Diadumene sp.
- Edwardsia sp.
- Edwardsiidae
- Eudendrium sp.
- Euphysa sp. A
- Flosmaris grandis
- Halecium flexile
- Hydractinia sp.
- Monobrachium parasitum
- Perigonimus serpens
- Perigonimus sp.
- Perigonimus yoldia-arcticae
- Scolanthus sp. A
- Stachyptilum quadridentatum
- Stegopoma plicatile
- Stylactis sp. A
- Tubiclava sp.
- Virgularia sp.
- Virgulariidae

Platyhelminthes

- Acoela
- Leptoplanidae
- Notoplana rupicola
- Notoplana sp.
- Plehnia caeca
- Plehnia caeca var. oculifera
- Pseudoceros sp. A
- Spinicirrus sp. A
- Stylochidae sp. A
- Stylochidae sp. B
- Stylochidae sp. C
- Stylochus sp.

Nemertea

- Amphiporidae
- Amphiporus spp.
- Carinoma mutabilis
- Cerebratulus californiensis
- Cerebratulus sp.
- Drepanophorus sp. A
- Lineidae juv.
- Lineus bilineatus
- Micrura alaskensis
- Micrura pardalis
- Micrura sp.
- Nemertea
- Paleonemertea
- Paranemertes sp. A
- Paranemertes spp.
- Polystylifera
- Prosorhochmus albidus
- Tubulanidae
- Tubulanus nothus
- Tubulanus pellucidus
- Tubulanus polymorphous
- Tubulanus sp.
- Zygonemertes virescens

Kinorhyncha

- Pycnophyes sp. A

Nematoda

- Nematoda

Polychaeta

- ? Maldanella sp.
- Acmira catherinae
- Acmira lopezi lopezi
- Acmira simplex
- Acmira sp.
- Aedicira sp.
- Aglaophamus dicirris

Aglaophamus erectans
Aglaophamus paucilamellata
Allis antennata
Allis cf. nolani
Allis ramosa
Amaeana occidentals
Amage anops
Ampharete acutifrons
Ampharete arctica
Ampharete labrops
Ampharete spp.
Amparetidae
Amphicteis mucronata
Amphicteis scaphobranchiata
Amphicteis sp.
Ancistaryis hamata
Ancistaryis sp.
Anobothrus gracilis
Anobothrus sp. A
Aphrodita sp.
Apistobranchidae
Arcteobia spinelytris
Aricidea wassi
Armandia brevis
Artacama conferi
Artacamella hancocki
Asychis biceps
Asychis disparidentata
Asychis similis
Asychis sp.
Boccardiella hamata
Boccardiella sp.
Brada pluribranchiata
Brada sp.
Brada villosa
Capitella capitata
Capitellidae
Chaetozone cf. setosa
Chaetozone sp.
Chloeia pinnata
Chone albocincta
Chone magna
Chone minuta
Chone mollis
Chone sp. B (SCAMIT)
Chone spp.
Cirratulus cirratus
Cirrophorus branchiatus
Cirrophorus furcatus
Cirrophorus lyra
Clymenella complanata
Clymenella sp.
Clymenura gracilis
Cossura spp.
Ctenodrilidae
Decamastus gracilis
Diopatra sp.
Dodecaceria concharum
Dorvilleidae
Drilonereis falcata
Drilonereis sp.
Eclysippe (Anobothrus) trilobatus
Ehlersia heterochaeta
Eteone spp.
Euchone hancocki
Euchone incolor
Euchone nr. arenae
Euchone sp. A
Euchone spp. unid. dmgd and juvs.
Euclymeninae
Euclymeninae sp. A
Euclymeninae sp. D
Eucranta nr. anoculata
Eulalia levicornuta
Eulalia sigeformis
Eumida ? longicornata
Eumida cf. bifoliata
Eumida sp.
Eumida sp. B
Exogone lourei
Exogone molests
Exogone sp.
Exogone sp. A
Exogone sp. B
Fauveliopsis glabra
Genetyllis castanea
Glycera americana
Glycera capitata
Glycera sp.
Glycera tesselata
Glyceride
Glycinde armigera
Glycinde sp.
Goniada annulata
Goniada brunnea
Goniada littorea
Goniada maculata
Goniada sp.
Goniadidae unid. juv.
Gymnonereis crosslandi

Harmothoe (Tenonia) sp.
Harmothoe cf. lunulata
Hesionidae
Heteromastus filibranchus
Heteromastus sp.
Jasmineira sp. B
Lanassa gracilis
Lanassa sp.
Lanassa sp. D
Lanassa venusta venusta
Laonice appeloefi
Laonice cirrata
Laonice sp.
Leitoscoloplos panamensis
Leitoscoloplos pugettensis
Leitoscoloplos sp.
Lepidasthenia interrupta
Lepidonotus squamatus
Levinsenia gracilis
Levinsenia oculata
Levinsenia sp.
Loimia medusa
Lumbriclymene lineus
Lumbrinereis latrelli
Lumbrinereis longensis
Lumbrineridae
Lumbrineris bicirrata
Lumbrineris cf. tetraura
Lumbrineris cruzensis
Lumbrineris japonica
Lumbrineris lagunae
Lumbrineris sp.
Lysippe sp.
Lysippe sp. A
Magelona ? pitelkai
Magelona berkeleyi
Magelona sp.
Maldane sarsi
Maldane sp.
Mediomastus spp.
Megalomma splendida
Melinna heterodonta
Melinna oculata
Melinna sp.
Microspio sp. A
Minuspio lighti
Minuspio sp. A
Moorenuphis sp. B
Myriochele gracilis
Myriochele oculata
Myriochele pygidialis
Myriochele sp. M
Myriochele spp.
Myxicola infundibulum
Naineris quadricuspida
Nephtyidae
Nephtys caecoides
Nephtys cornuta franciscana
Nephtys ferruginea
Nephtys punctata
Nephtys sp.
Nephtys assignis
Nephtys schmitti
Nereidae unid. juv.
Nereis ? sp. B
Nereis procera
Nereis sp. unid. damaged
Nicomache sp.
Ninoe sp.
Ninoe sp. A
Notomastus sp.
Notomastus tenuis
Notoproctus pacificus
Oligochaeta
Onuphidae
Onuphis iridescent
Onuphis sp.
Ophelina acuminata
Ophelina breviata
Ophelina sp.
Owenia collaris
Paradiopatra parva
Paramage scutata
Paranaitis polynoides
Paraonidae
Paraprionospio pinnata
Pectinaria californiensis
Perinereis nr. monterea
Petaloproctus sp.
Pherusa neopapillata
Pherusa sp.
Pholoe minuta
Pholoides aspera
Phyllochaetopterus limicolus
Phyllochaetopterus prolifica
Phyllochaetopterus sp.
Phyllodoce groenlandica
Phyllodoce hartmanae
Phyllodoce longipes
Phyllodoce medipapillata

Phyllodoce sp.
Phyllodocidae
Phylo nr. nudus
Pilargiidae
Pilargis berkeleyae
Pionosyllis sp. unid. damaged
Pista brevibranchiata
Pista disjuncta
Pista moorei
Pista sp.
Pista sp. B
Podarkeopsis glabrus
Podarkeopsis sp.
Podarkeopsis sp. B
Podarkeopsis sp. C
Poecilochaetus johnsoni
Polychaeta
Polycirrus californicus
Polycirrus spp.
Polydora convexa
Polydora socialis
Polydora spp. juv. damaged
Polynoidae
Praxillella gracilis
Praxillella pacifica
Prionospio cf. lobulata
Prionospio sp.
Prionospio sp. A
Prionospio sp. B
Protodorvillea gracilis
Rhodine bitorquata
Sabellidae
Samytha californiensis
Scalibregma inflatum
Schistomeringos caeca
Schistomeringos longicornis
Scionella japonica
Scolelepis sp.
Scoloplos acmeceps profundus
Scoloplos armiger
Scoloplos sp. unid. juv.
Sigambra tentaculata
Sphaerodoropsis biserialis
Sphaerodoropsis minuta
Sphaerodoropsis sphaerulifer
Sphaerosyllis ? branhorsti
Sphaerosyllis californiensis
Spiochaetopterus costarum
Spionidae unid. juv.
Spiophanes berkeleyorum
Spiophanes bombyx
Spiophanes fimbriata
Spiophanes missionensis
Spiophanes sp.
Sternaspis fossor
Sthenelais sp.
Sthenelais tertiaglabra
Sthenelais verruculosa
Streblosoma crassibranchia
Streblosoma sp. B
Streblosoma spp.
Subadyte sp.
Syllides japonica
Tenonia priops
Terebellidae
Terebellides californica
Terebellides reishi
Terebellides sp. C
Terebellides spp.
Thalenessa spinosa
Tharyx spp. unid.
Tharyx tesselata
Travisia brevis
Travisia forbesi
Travisia sp.
Trochochaeta multisetosa
Typosyllis armillaris
Typosyllis sp. (Type 1, 2, 3)

Mollusca Gastropoda

Acanthodoris brunnea
Acteocina sp.
Acteon sp.
Acteon traski
Aeolidacea
Aglaja sp.
Alabina sp.
Alvinia rosana
Alvinia sp.
Amphissa sp.
Anatoma crispata
Antiplanes perversa
Armina californica
Atlantidae
Balcis oldroydi
Balcis rutila
Bittium attenuatum
Bittium quadrifilatum
Bittium sp.

Buccinidae
Bullomorpha (Order)
Cephalaspidea sp. A
Cerberilla mosslandica
Choristes sp. A
Chrysodomidae
Colus trombinus
Corolla spectabilis
Crepidula aculeata
Cyclostremella californica
Cylichna diegensis
Cylichna sp.
Cylichnella eximia
Cylichnella sp.
Dendrodorididae unid.
Diaphana californica
Doto kya
Epitonium sawinae
Epitonium sp.
Epitonium sp. A
Fusiturricula sp. A
Gastropteron pacificum
Haminoea olgae
Haminoea sp.
Kurtzia arteaga
Kurtziella beta
Kurtziella sp.
Margaritas sp. A
Margaritas spp.
Microglyphis sp. A
Mitrella aurantiaca
Mitrella casciana
Mitrella permodesta
Mitrella sp.
Mollusca Gastropoda
Nassarius perpinquis
Nassarius sp.
Naticidae, unid. juv.
Nipponotrophon lasius
Odostomia cassandra
Odostomia pharcida
Odostomia profundicola
Odostomia spp.
Odostomia tenuisculpta
Oenopota nr. scalaris
Onchidorididae, unid.
Ophiodermella sp.
Philine nr. quadrata
Philine sp.
Plicifusus sp.
Polynices sp.
Pseudo-''Corambe" sensu Cadien
Rictaxis punctocaelatus
Rissoina sp. A
Sabinell a bakeri
Sabinella sp. A
Skeneopsis alaskana
Solariella sp. A
Turbonilla barkleyensis
Turbonilla cortezi
Turbonilla lyalli
Turbonilla santosana
Turbonilla sp. 1
Turbonilla sp. 2
Turbonilla spp.
Velutina sp.
Volvulella californica
Volvulella panamensis
Volvulella sp. juv.

Mollusca Polyplacophora

Polyplacophora

Mollusca Aplacophora

Aplacophora
Neomeniomorpha sp. B

Mollusca Bivalvia

Acila castrensis
Adontorhina cyclia
Adontorhina sphaericosa
Amygdalum pallidulum
Axinopsida serricata
Bornia sp.
Cardiomya balboae
Cardiomya californica
Cardiomya sp.
Compsomyax subdiaphana
Crenella decussata
Crenella sp.
Cuspidaria glacialis
Cuspidaria parapodema
Cuspidaria sp.
Cuspidaria sp. A
Cuspidaria sp. B
Cyclocardia sp.
Cyclocardia ventricosa

Galeomatidae Genus A sp. A
Galeomatidae sp. A
Huxleyia munita
Liocyma sp. A
Lyonsia californica
Macoma carlottensis
Macoma moesta alaskana
Macoma sp.
Malletia cf. pacifica
Megacrenella columbiana
Modiolus sp.
Mollusca Bivalvia
Musculussp. A
Musculus vernicosus
Mya sp. A
Mysella cf. aleutica
Mysella compressa
Mysella grippi
Mysella sp.
Mysella sp. D
Mysella sp. E
Mysella tumida
Mytilidae
Nemocardium centifilosum
Nucula tenuis
Nucula tenuis expansa
Nuculana conceptions
Nuculana hamata
Nuculana sp.
Nuculana sp. A
Nuculana sp. juv.
Nuculana taphria
Pandora bilirata
Pandora sp.
Pandora sp. A
Paramya sp. A
Parvilucina sp.
Parvilucina tenuisculpta
Psephidia sp. A
Tellina carpenter
Tellina modesta
Tellina sp.
Tellinidae
Thyasira sp.
Thyasira flexuosa
Thyasiridae sp. A
Thyasiridae sp. B
Thyasiridae sp. B
Tomburchus sp.
Tomburchus sp. A
Yoldia scissurata
Yoldia sp.
Yoldia sp. A

Mollusca Scaphopoda

Cadulus californicus
Cadulus cf. stearnsii
Cadulus fusiformis
Cadulus quadrifissatus
Cadulus sp.
Dentalium dalli
Dentalium rectius
Dentalium sp.
Dentalium sp. A
Scaphopoda

Arthropoda Pycnogonida

Nymphon pixellae

Arthropoda Crustacea

Acanthomysis californica
Acidostoma hancocki
Ampelisca agassizi
Ampelisca brevisimulata
Ampelisca careyi
Ampelisca cristata
Ampelisca nr. hancocki
Ampelisca nr. macrocephala
Ampelisca pacifica
Ampelisca pugetica
Ampelisca unsocalae
Amphideutopus oculatus
Amphipoda
Amphipoda Gammaridea
Anonyx carinatus
Anonyx liljeborgii
Anonyx spp.
Aoridae
Aoroides cf. inermis
Aoroides columbiae
Aoroides sp.
Araphura sp. A
Araphura sp. B
Araphura sp. C
Argissa hamatipes
Arthropoda Crustacea
Baeonectes cf. muticus

Bathyleberis californica
Bathyleberis garthi
Bathyleberis hancocki
Bathymedon nr. longimanus
Bathymedon covilhani
Bathymedon nr. vulpeculus
Bathymedon pumilis
Bathymedon sp.
Bruzelia tuberculata
Byblis bathyalis
Byblis millsi
Byblis nr. barbarensis
Byblis sp.
Byblis tannerensis
Byblis veleronis
Caecianiropsis sp. A
Calastacus quinqueseriatus
Callianassa nr. californiensis
Callianassa spp. juv. and frags.
Campylaspis canaliculata
Campylaspis hartae
Campylaspis nr. crisps
Campylaspis nr. sp. N
Campylaspis rubromaculata
Campylaspis rufa
Campylaspis sp. D
Campylaspis sp. E
Caprella californica
Caprella mendax
Caprella spp juv. and frags.
Cativella
Cativella cf. semitranslucent
Corophiidae
Crab larva
Crangon nigricauda
Crangon zacae
Cryptocope sp. A
Cryptocope sp. B
Cryptocope sp. C
Cryptocope sp. E
Cryptocope sp. F
Cumella sp. C
Cyclopoid copepod
Diastylis californica
Diastylis nr. pellucida
Diastylis sp. A
Diastylis sp. B
Diastylis sp. D
Diastylis sp. E
Diastylis spp. juv.
Diastylopsis dawsoni
Dikonophora unid.
Dulichia rhabdoplastis
Dulichia spp.
Dyopedos arcticus
Dyopedos nr. bispinis
Dyopedos spp.
Eriopisa elongata
Erythiopinid spp.
Eualus macrophthalmus
Eudorella pacifica
Eudorella sp.
Eudorella sp. B
Eudorellopsis longirostris
Euphilomedes products
Eurycopidae n.g. nr. Munnopsurus sp. A
Finoculodes omnifera
Foxiphalus obtusidens
Foxiphalus similis
Foxiphalus spp. juv.
Gammaropsis ociosa
Gitana calitemplado
Gnathia crenulatifrons
Gnathia sanctaecrucis
Gnathia sp. A
Gnathia sp. B
Gnathia spp.
Guernea reduncans
Halite synopia
Harbansus sp. C
Harpacticoid copepod
Harpiniopsis emeryi
Harpiniopsis epistomata
Harpiniopsis fulgens
Harpiniopsis nr. galera
Hemilamprops californica
Hemilamprops nr. sp. B
Heptacarpus taylori
Heterophoxus oculatus
Hippomedon cf. tenax
Hippomedon spp.
Hippomedon subrobustus
Idunella ? sp.
Jassa falcata
Lamprops sp.
Lepidepecreum garthi
Lepidepecreum kasatka
Lepidepecreum pacifica
Lepidepecreum sp. A
Leptochelia sp. A

Leptognathia sp. B
Leptognathia sp. C
Leptognathia sp. E
Leptognathia sp. G
Leptostylis sp.
Leptostylis sp. A
Leptostylis villosa
Leucon magnadentata
Leucon nr. sp. H
Leucon sp. A
Leucon sp. G
Leucon sp. Q
Leucon spp.
Leucon subnasica
Liljeborgia nr. brevicornis
Liljeborgia cots
Listriella albina
Listriella goleta
Listriella spp. juv.
Lysianassa dissimilis
Lysianassa oculata
Mayerella banksia
Melita desdichada
Melphidippa amorita
Melphidippa sp. A
Melphisana bola
Mesolamprops bispinosa
Mesometopa neglects roya
Mesometopa sp.
Metaphoxus frequens
Metopa nr. pusilla
Metopa sp.
Metopa sp. A
Microjassa litotes
Monoculodes emarginatus
Monoculodes glyconica
Monoculodes latissimanus
Monoculodes norvegicus
Monoculodes nr. packardi
Monoculodes recandesco
Monoculodes sp.
Monoculodes sp. A
Munida quadrispina
Munna sp. A
Munna stephenseni
Munnogonium cf. erratum
Munnogonium tillerae
Mysida unid.
Mysidella americana
Mysidella sp. A
Nicippe tumida
Oedicerotidae
Opisa cf. tridentata
Orchomene decipiens
Pachynus nr. barnardi
Paguristes spp. juv.
Paguristes turgidus
Pagurus tanneri
Paradaliscella yaquina
Paramunna quadratifrons
Parasterope sp.
Parasterope sp. A
Pardaliscella symmetric
Philomedes dentata
Phippsiella sp. A
Photis bifurcata
Photis brevipes
Photis californica
Photis lacia
Photis nr. macrotica
Photis sp. D (no eye)
Photis spp. juv.
Phoxocephalus homilis
Pinnixa occidentals
Pleurogonium californiense
Pleurogonium sp. nr. rubicundum
Pleusymtes coquina
Pleusymtes sp.
Podocopid
Podocopid sp. A
Podocopid sp. B
Prachynella lodo
Procampylaspis sp. A
Protomedeia articulate
Protomedeia prudens
Protomedeia sp.
Pseudharpinia nr. excavata
Pseudomma sp. A
Pseudomma sp. nr. truncatum
Rhachotropis sp.
Rhepoxynius bicuspidatus
Rhepoxynius daboius
Rhepoxynius sp. A
Rhepoxynius spp. juv.
Rhepoxynius variatus
Rocinela angustata
Rutiderma lomae
Rutiderma sp. A
Schisturella pulchra
Schisturella spp.

Scleroconcha trituberculata
Silophasma geminata
Stenopleustes monocuspis
Stenothoidae
Stenothoides bicoma
Synchelidium nr. rectipalmum
Synchelidium shoemaker
Synchelidium sp.
Synidotea media
Synidotea spp,
Tanaidae
Tiron biocellata
Tritella pilimana
Tritella tenuissima
Typhlotanais sp. A
Vaunthompsonia sp. C
Westwoodilla caecula
cf. Ampelisca milleri
cf. Baeonectes sp. A
cf. Bathymeden roquedo
cf. Belonectes sp. A
cf. Cirolanidae unid.
cf. Melitoides sp.
cf. Metopa dawsoni
cf. Munneurycope sp. A
cf. Neohela monstrosa
cf. Orchomene spp.
cf. Parametopella ninis
cf. Pleusymtes unicigera
cf. Prochelator sp. A
cf. Syrrhoe longifrons

Sipuncula

Golfingia sp.
Nephasoma diaphanes
Nephasoma nr. confusa
Nephasoma sp. A
Nephasoma sp. B
Nephasoma sp. C
Phascolosoma sp.
Onchnesoma sp. A
Sipuncula sp. A
Thysanocardia nigra

Echiura

Arhynchite californica
Arhynchite hiscocki
Arhynchite sp.
Echiura
Echiura juv. unid.
Listriolobus pelodes

Phoronida

Phoronida

Ectoprocta (Bryozoa)

Aetea truncata
Bowerbankia gracilis
Caulibugula californica
Stephanosella nr. bolini

Brachiopoda

Brachiopod larva
Laqueus californianus

Echinodermata

Amphichondrius granulosus
Amphiodia digitata
Amphiodia spp. juv.
Amphiodia urtica
Amphioplus hexacanthus
Amphioplus sp. A
Amphioplus spp. juv.
Amphipholis squamata
Amphiura acrystata
Apodida
Asteroid juv.
Brisaster latifrons
Dougaloplus amphacantha
Echinodermata
Echinoidea
Holothuroidea, unid.
Luidia foliolata
Luidia sp.
Molpadida
Molpadia intermedia
Ophiomusium jolliensis
Ophioscolex corynetes
Ophiura leptoctenia
Ophiura lutkeni
Ophiura sarsi
Ophiura sp. juv.
Ophiuroconis bispinosa
Ophiuroidea

Ophiuroidea
Pentamera populifera
Pentamera pseudocalcigera
Pentamera pseudopopulifera
Pentamera sp.

Enteropneusta

Enteropneusta
Enteropneusta #1
Enteropneusta #2
Saccoglossus sp.
Saccoglossus sp. A

Chaetognatha

Chaetognatha

Urochordata

Ascidia sp.
Molgula sp.