

GEOTECHNICAL DESIGN REPORT

i.	Title Sheet.....	1
ii.	Letter of Transmittal.....	1
iii.	Table of Contents.....	2
iv.	List of Figures	2
v.	List of Tables.....	2
1.	Introduction	3
2.	Existing Facilities and Proposed Improvements	3
3.	Pertinent Reports and Investigations	4
4.	Physical Setting.....	4
4.1	Climate	4
4.2	Topography & Drainage.....	4
4.3	Man-made and natural features of engineering and construction significance.....	5
4.4	Regional Geology and Seismicity	5
4.5	Soil Survey Mapping	5
5.	Exploration	5
5.1	Drilling and Sampling.....	6
5.2	Geologic Mapping	6
5.3	Geophysical Studies.....	7
5.4	Instrumentation.....	7
5.5	Exploration Notes	7
6.	Geotechnical Testing.....	8
6.1	In Situ Testing.....	8
6.2	Laboratory Testing.....	8

7. Geotechnical Conditions	8
7.1 Site Geology	8
7.1.1 Lithology	8
7.1.2 Structure	9
7.1.3 Natural Slope Stability	9
7.2 Subsurface Soil Conditions	9
7.3 Water	10
7.3.1 Surface Water	10
7.3.1.1 Scour	10
7.3.1.2 Erosion	10
7.3.2 Ground Water	10
7.4 Project Site Seismicity	11
7.4.1 Ground Motions	11
7.4.2 Ground Rupture	11
8. Geotechnical Analysis and Design	11
8.1 Dynamic Analysis	12
8.1.1 Parameter Selection	12
8.1.2 Analysis	13
8.2 Cuts and Excavations	14
8.2.1 Stability	14
8.2.2 Rippability	14
8.2.3 Grading Factors	14
8.3 Embankments	15
8.4 Earth Retaining Systems	15
8.5 Culvert Foundations	16
8.6 Minor Structure Foundations	17

8.7	Others	17
9.	Material Sources.....	17
10.	Material Disposal.....	18
11.	Construction Considerations	18
11.1	Construction Advisories	18
11.2	Construction Considerations that Influence Design	18
11.3	Construction Considerations that Influence Specifications.....	19
11.4	Construction Monitoring and Instrumentation	19
11.5	Hazardous Waste Considerations.....	19
11.6	Differing Site Conditions.....	20
12.	Recommendations and Specifications.....	20
13.	Appendix	21
13.1	Location of Borings/Geologic Map.....	21
13.2	Geologic Cross-Sections & Soil Profiles	21
13.3	Profile Grade Sheets.....	21
13.4	Boring Legend.....	21
13.5	Boring Logs	21
14.6	Logs of Test Borings	21
13.7	Geophysical Data	21
13.8	Stereonets	21
13.9	In Situ Test Data	21
13.10	Laboratory Test Data	21
13.11	Corrosion Test Reports	21
13.12	References.....	21
13.13	Photographs	21
13.14	Calculations.....	21

13.15 Correspondence.....21