Planning Division

PLANNING COMMISSION
STAFF REPORT

TO: Planning Commission

FROM: Christopher Williamson, AICP, Senior Planner

DATE: March 20, 2008

SUBJECT: Planning and Zoning Permit Nos. 07-500-13, (Special Use Permit) and 08-620-01 (General Plan Amendment) for the Advanced Water Purification Facility Located on the Northeast Corner of Perkins Road and Magellan Road.

1) **Recommendation:** That the Planning Commission:
   a) Recommend that the City Council approve General Plan Amendment No. 08-620-01; and
   b) Approve Special Use Permit No. 07-500-13, subject to certain findings and conditions.

2) **Project Description and Applicant:** a Special Use Permit to develop the Groundwater Recovery Enhancement and Treatment (GREAT) Program Advanced Water Purification Facility (AWPF) project on the 4.65 acre vacant project site at the northeast corner of Perkins Road and Magellan Road (APN 231-009-225) consisting of a visitor center, process building, chemical building, parking, service areas, perimeter fencing, and 1.5-acre demonstration wetlands that will allow horizontal flow treatment of up to 10 gallons per minute of reverse osmosis (RO) concentrate through a variety of vegetation selected for their ability to further clean water; and a General Plan Amendment changing the land use designation from Residential Medium to Light Industrial. Filed by City of Oxnard Public Works Department, Water Resources Division, 305 West Third Street, Oxnard, CA 93030.

3) **Existing & Surrounding Land Uses:** The City-owned 4.65 acre parcel is vacant.

LOCATION	ZONING	GENERAL PLAN	EXISTING LAND USE
Project Site	M1-PD	Residential Medium	vacant
North	M1-PD	Residential Medium	vacant
South	Coastal Dependent Industry	Public Utility and Industry Coastal Dependent	railroad Weyerheuser Company
East	M1-PD	Residential Medium	vacant, periodic wetland
West	Coastal Dependent Industry	Public Utility and Industry Coastal Dependent	railroad Oxnard Water Treatment Headworks Facility

4.) **General Plan Policies and Land Use Designation Conformance:** The proposed development is a major component of the GREAT Program. The GREAT Program fulfills the 2020 General Plan Public Facilities Element goal of "public facilities and services adequate to serve existing and future development..." (pg. VII-17). The AWPF will provide advanced tertiary wastewater treatment to existing secondary effluent that will then be made available for groundwater injection that stems seawater intrusion and creates pumping credits, non-potable uses such as landscape irrigation, and possibly to supply the Ormond Beach wetlands. The AWPF directly fulfills Public Facilities Element Policy 20 which calls for investigating the feasibility of utilizing reclaimed water for public open space and recreation area irrigation. The AWPF also fulfills Open Space/Conservation Element Policy 12 that requires the City to support policies of the local groundwater management agency to protect, enhance, and replenish the aquifers underlying the City.

The project site's current 2020 General Plan designation of Residential Medium is inconsistent with the zone designation of M1-PD (Light Industrial-Planned Development). The proposed General Plan Amendment would change the land use designation to Light Industrial (ILGT), the most appropriate designation for the current zoning and the proposed use. The ILGT designation requires a maximum floor area ratio of 0.4:1, that the principal activity be conducted within structures, and that only incidental activity may occur outdoors. The project meets these criteria. With approval of the requested general plan amendment, the project would be consistent with the 2020 General Plan and with the 2020 General Plan Update.

The project site is just outside the Oxnard Coastal Zone, and therefore does not involve the Oxnard Local Coastal Program or the Coastal Commission.

5.) **Environmental Determination:** The AWPF is a component of the GREAT Program and was included in the Final Program Environmental Impact Report (SCH #2003011045) that was certified by the Planning Commission on May 20, 2004 (Resolution 2004-33). Mitigation measure LU-1 required that the General Plan designation be changed to Light Industrial, which would be accomplished as part of the present project. The demonstration wetland concept was included in the GREAT EIR, is a continuation of research into the feasibility of discharging RO concentrate into a restored Ormond Beach wetlands, and is a ground-sealed self-contained approximately one-acre facility that does not allow its water to leave the site other than by pipes. A GREAT EIR Addendum has been prepared and is attached that documents that the demonstration wetlands would not create a significant adverse impact on visitors, animals, vegetation, or adjoining wetlands or groundwater.

6.) **Analysis:**

a) ***General Discussion:*** The AWPF is a 60,000 -square foot, state-of-the art, advanced tertiary water treatment facility that takes secondary effluent from the City's Perkins Road wastewater treatment plant and passes it through membrane filtration processes, RO

processes, and ultraviolet (UV) advanced oxidation. The AWPF facility is in the center of the project site in a series of six-structures that house the lift/pump stations, filtration systems, MF/UF membranes, RO membranes, and the UV oxidation equipment. The north side of the project site consists of a two-story 13,575 square foot visitor's center, conference room, 18-space parking lot, bus loading areas on Perkins Road, and 1.5-acre demonstration wetland that extends under and around the visitor center. The southern portion of the project site consists of a chemical storage building, employee parking, and areas for future expansion. The site is fenced on the north, east, and south perimeters.

The AWPF has a Phase I treatment capacity to produce up to 6.25 mgd of finished water suitable for recycled uses. Treated water will initially be used for municipal (Title 22) purposes such as golf course irrigation. Excess water (existing secondary effluent) would be discharged into the Pacific Ocean via the existing ocean outfall pipeline. Future plans are to inject the excess advanced treated water into the lower aquifer system in the Oxnard plain for eventual agricultural use, allowing the City to earn groundwater pumping credits which would be used to increase pumping from inland City wells, while at the same time stemming saltwater contamination caused by seawater intrusion. AWPF concentrate water could also be utilized in the proposed Ormond Beach wetlands.

b) ***Relevant Project and Property History, Related Permits:*** The AWPF is a key component of the GREAT Program. Other components include surrounding blending stations and the main desalter (brackish water treatment) facility located at Blending Station No. 1, at 251 South Hayes Avenue. The AWPF site was once part of the vacant "35-acre" Hueneme Road parcel that was the site of several proposed projects.

c) ***Zoning Compliance:*** The proposed development is located in the M1 (Light Industrial) zone district. In accordance with the City Code, the proposed use and development may be permitted with a special use permit. Applicable development standards of the M1 zone have been compared with the proposed project, as follows:

M1 Zone	Standard	Proposed	Complies?
Lot Area	Minimum 15,000 sf 100 X 150 feet	450 ft X 450 ft. 202,500 square feet (existing parcel)	yes
Height	55 feet	42.5 feet maximum	yes
Front setback	10 feet	30 feet	yes
Side Setback	None	34 feet	yes
Rear setback	30 feet minimum or height of building	38 feet	yes
Coverage	Not to exceed 70%	62 %	yes
Landscaping	Entire front setback area	Entire front setback area and wetlands	yes

d) ***Site Design Analysis:*** The AWPF principal public building and visual focus is the two-story visitor's center. The visitor center is accessed over a bridge from the parking lot and is oriented northward and appears to span a shallow lagoon. The lagoon connects by a second bridge to the wetlands that occupy the northeast corner of the project site. Behind and south of the visitor center are the five AWPF buildings, a small conference center, and an interior secure non-public parking and service area.

e) ***Circulation and Parking Analysis:*** The visitor center parking lot is entered from Perkins Road in the northwest corner of the project site. South of that entrance is a bus loading zone intended primarily for visiting students. The service entrance is at the south end of the site and provides access to a service drive along the south and east sides of the project.

f) ***Building Design Analysis:*** The project's highly technical and functional purposes as a tertiary treatment facility is supplemented by educational goals focused on the demonstration wetlands that surround the visitor's center. Set at an angle to Perkins Road, the visitor's center presents its façade to the public through blue tinted glass and red cedar horizontal planking. It is punctuated by a tall entry element sheathed in COR-TEN "weathering steel" panels. The eastern end of the complex is anchored by the second floor conference center which is clad in a curved blue tinted curtain wall overlooking the wetland. The process buildings are constructed of concrete block with a mix of colors, finishes, and textures to provide visual interest.

g) ***Signs***: Signage will be regulated by City Code. A visitor and interpretive sign program will be prepared for the wetlands and approved prior to issuance of building permits.

h) ***Landscaping & Open Space Compliance:*** There is no significant vegetation currently on the project site. Vegetation for the wetlands was carefully selected for their cleansing properties and compatibility to the surrounding area. The following plants are proposed:

Purple Needlegrass	Deergrass	Purple Stipa
Western Sycamore	Coastal Bush & Golden Lupine	Fremont Cottonwood
Coastal Dune Buckwheat	California Poppy	Whitesage

Hardscape materials include stabilized decomposed granite, wood and concrete boardwalk, light value pebbles, and dune sand. Landscaping along Perkins Road will complement the wetlands theme by using a casual design and similar plant materials.

4) **Development Advisory Committee (DAC) Consideration:** The Development Advisory Committee (DAC) reviewed this project on October 24th and December 5, 2007. Conditions recommended by the DAC are included in the attached resolution.

5) **Community Input:** The project site is not located in or near a residential area. The Public Works Department did meet with numerous community groups, neighborhood councils, professional associations, water agencies, and concerned stakeholders as part of its extensive public outreach and education campaign.

6) **Community Input:** The Public Works Department has involved the Saviers Road Design Team and Ormond Beach Task Force in the design of the demonstration wetlands.

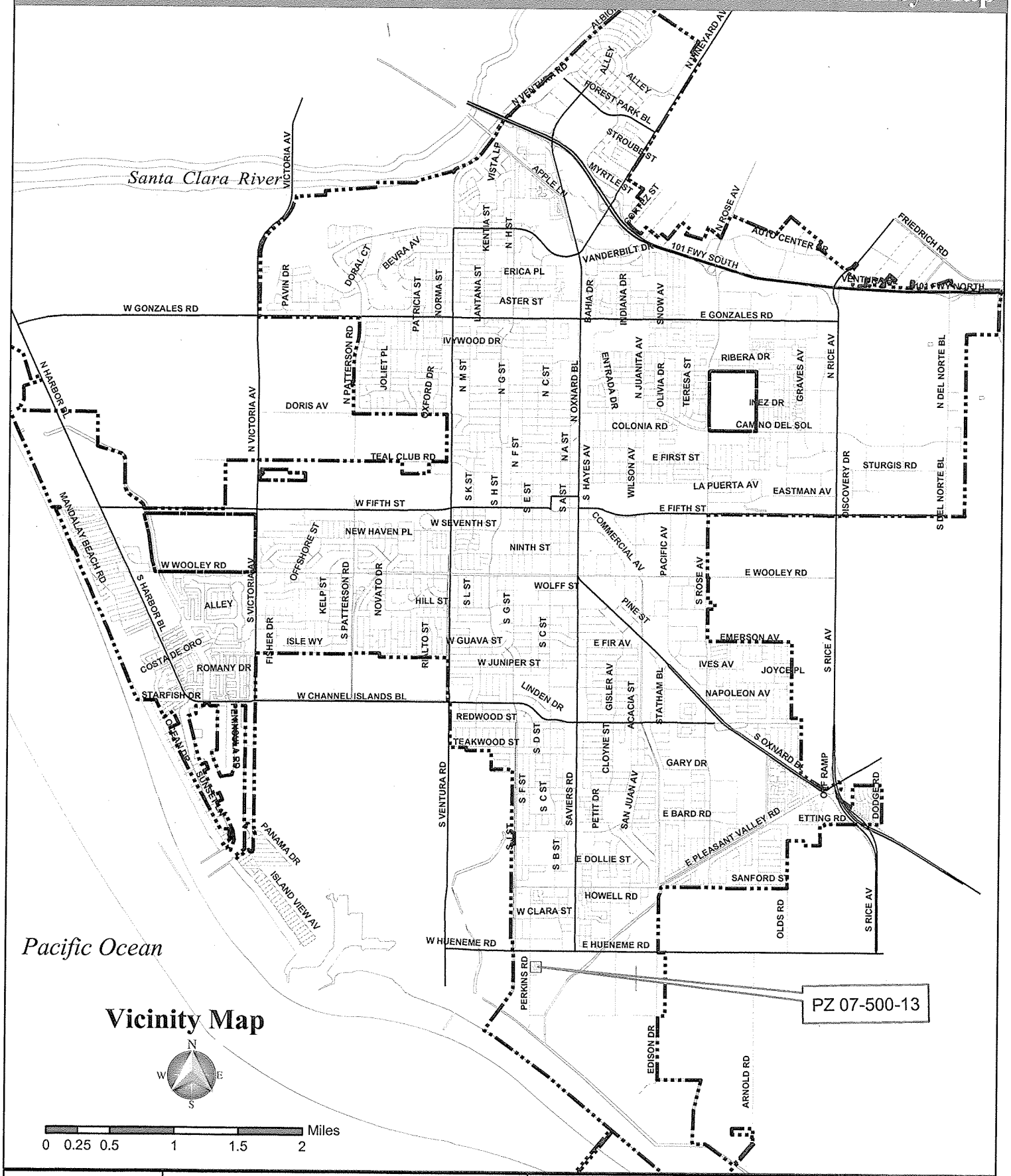
7) **Attachments:**
   A. Maps (Vicinity, General Plan, Zoning)
   B. Reduced Project Plans
   C. GREAT Program EIR Wetland Addendum
   D. Special Use Permit Resolution
   E. General Plan Amendment Resolution

Prepared by: CW

Approved by: SM

A. Vicinity Map, General Plan Map, Zoning Map, Aerial Photo

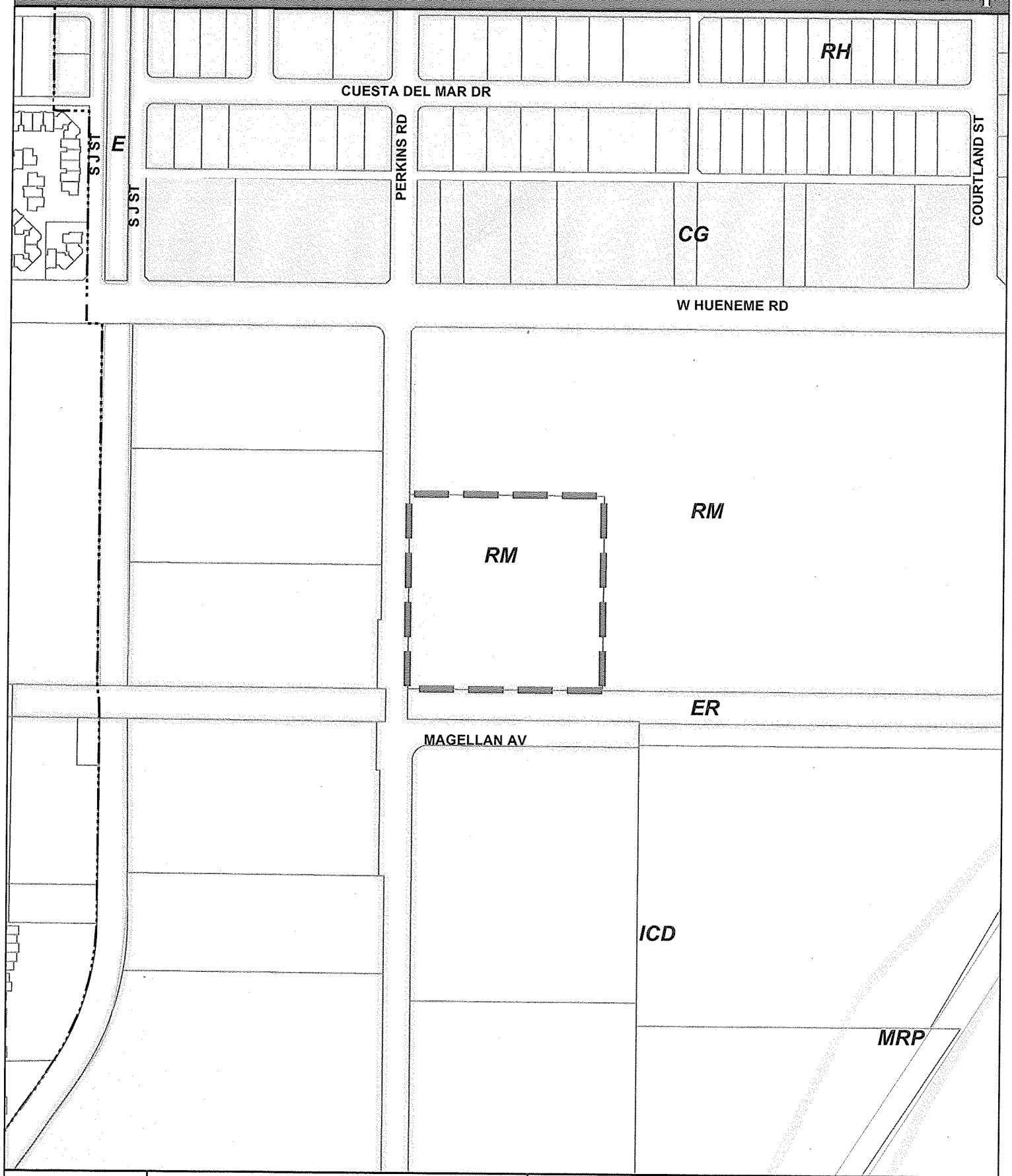
Vicinity Map



Oxnard Planning
August 21, 2007

PZ 07-500-13
Location: NEC Perkins & Magellan Av
APN: 231009225
City of Oxnard

General Plan Map



Oxnard Planning
August 21, 2007

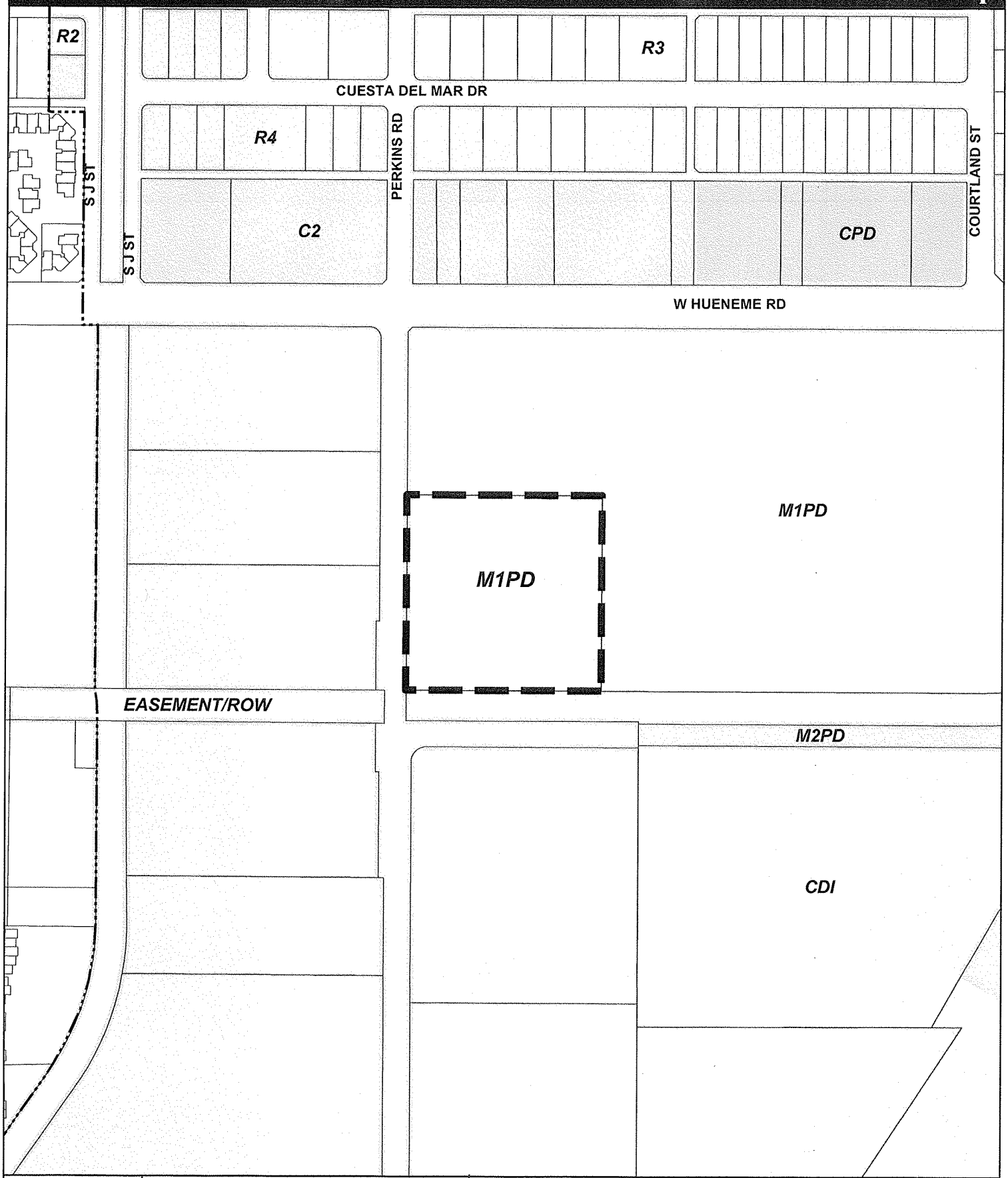
PZ 07-500-13
Location: NEC Perkins & Magellan Av
APN: 231009225
City of Oxnard

0 62.5 125 250 375 500 Feet

General Plan Map

N W E S

Zone Map



Oxnard Planning
August 21, 2007

PZ 07-500-13
Location: NEC Perkins & Magellan Av
APN: 231009225
City of Oxnard

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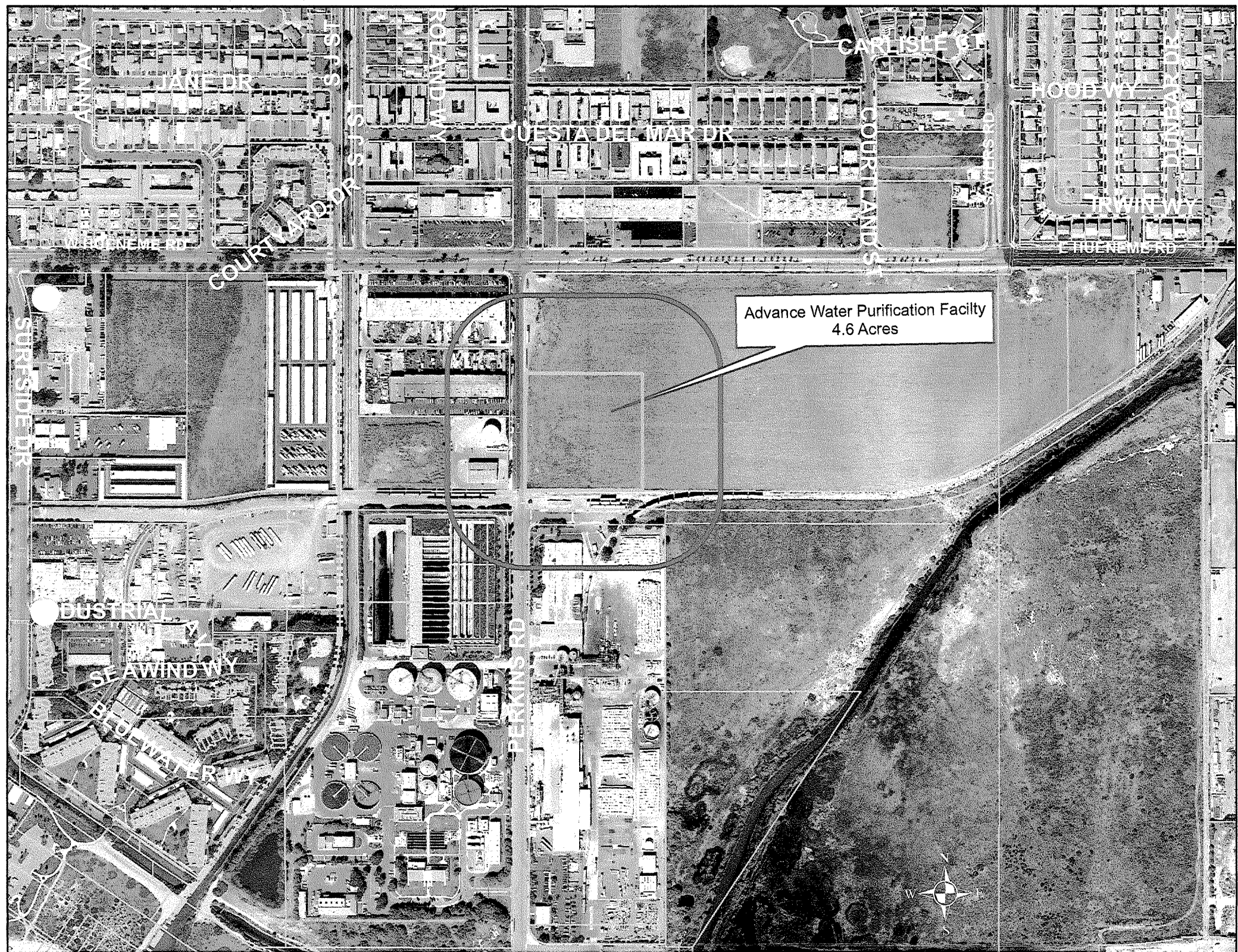
Zone Map

N W E S



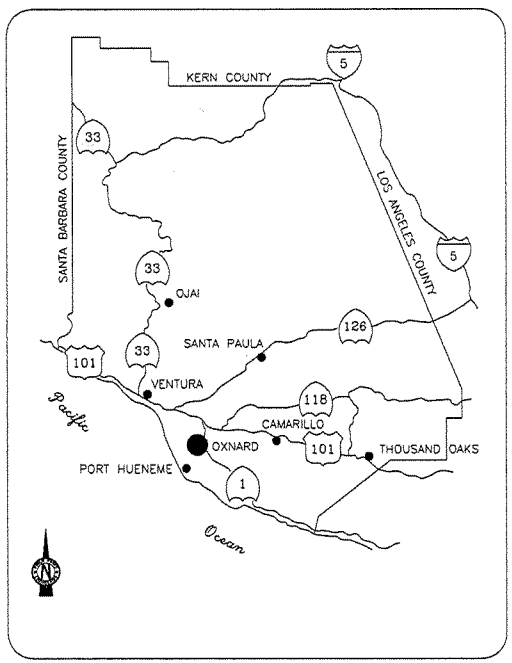
Advance Water Purification Facilty
4.6 Acres
CARLISLE
HOOD WY
TRWIN WY
LINEAR DR
CUESTA DEL MAR DR
COURTLANDS ST
SAWHILLS RD
ROLAND WY
JANE DR
ANN AV
COURTYARD DR
SURFSIDE DR
PERKINS RD
SEAWIND WY
BLUEWATER WY
N
W
E
S

B. Reduced Project Plans

CITY OF OXNARD

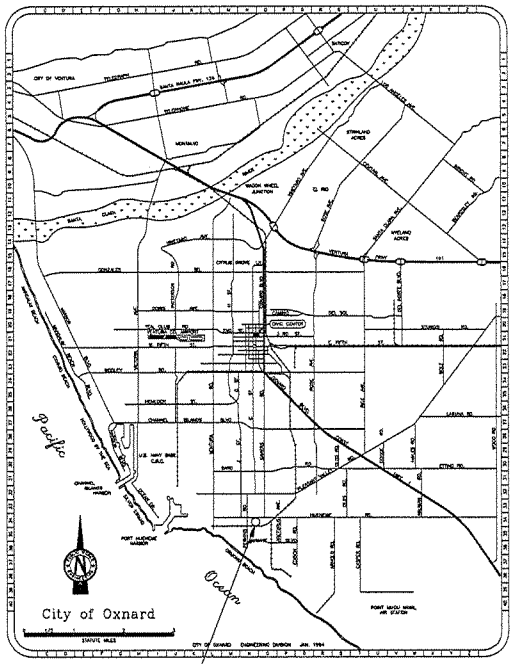
GREAT PROGRAM
ADVANCED WATER PURIFICATION FACILITY

PROJECT NUMBER: PW07-21



VICINITY MAP
NTS

DAC SUBMITTAL
DRAWINGS
JANUARY 2008



CITY OF OXNARD
ADVANCED WATER PURIFICATION FACILITY

LOCATION MAP
NTS

REVIEWED BY:				
DEVELOPMENT SERVICES	PARKS & FACILITIES	WASTEWATER DIVISION	TRANSPORTATION	WATER DIVISION

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mainstreetarchitects.com

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REVISIONS			
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PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

GENERAL
TITLE, VICINITY AND LOCATION MAPS

REVIEWED BY: City Engineer, Leslie Bellavance, P.C.E. #17143 Exp. 3-31-08 DATE

REVIEWED BY: APPROVED-BY DATE
CHECKED-BY DATE

SCALE: HORIZ: VERT:
DRAWN BY: BD ROUSH
DESIGNED BY: BD ROUSH
SHEET No: SHEET-NO TOTAL
DRAWING NUMBER: 01-G-1

PROJ NO.: 358064.DN
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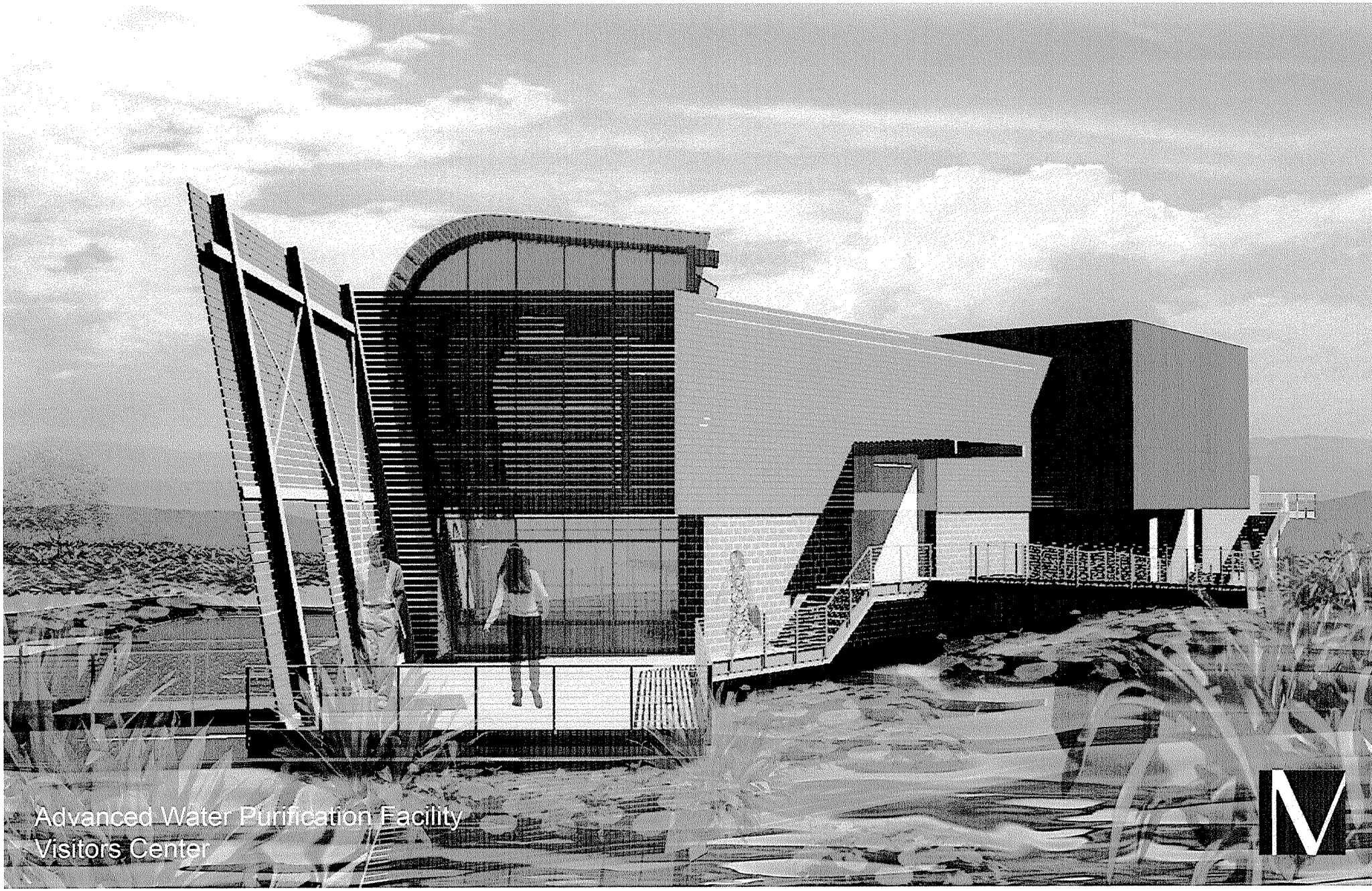
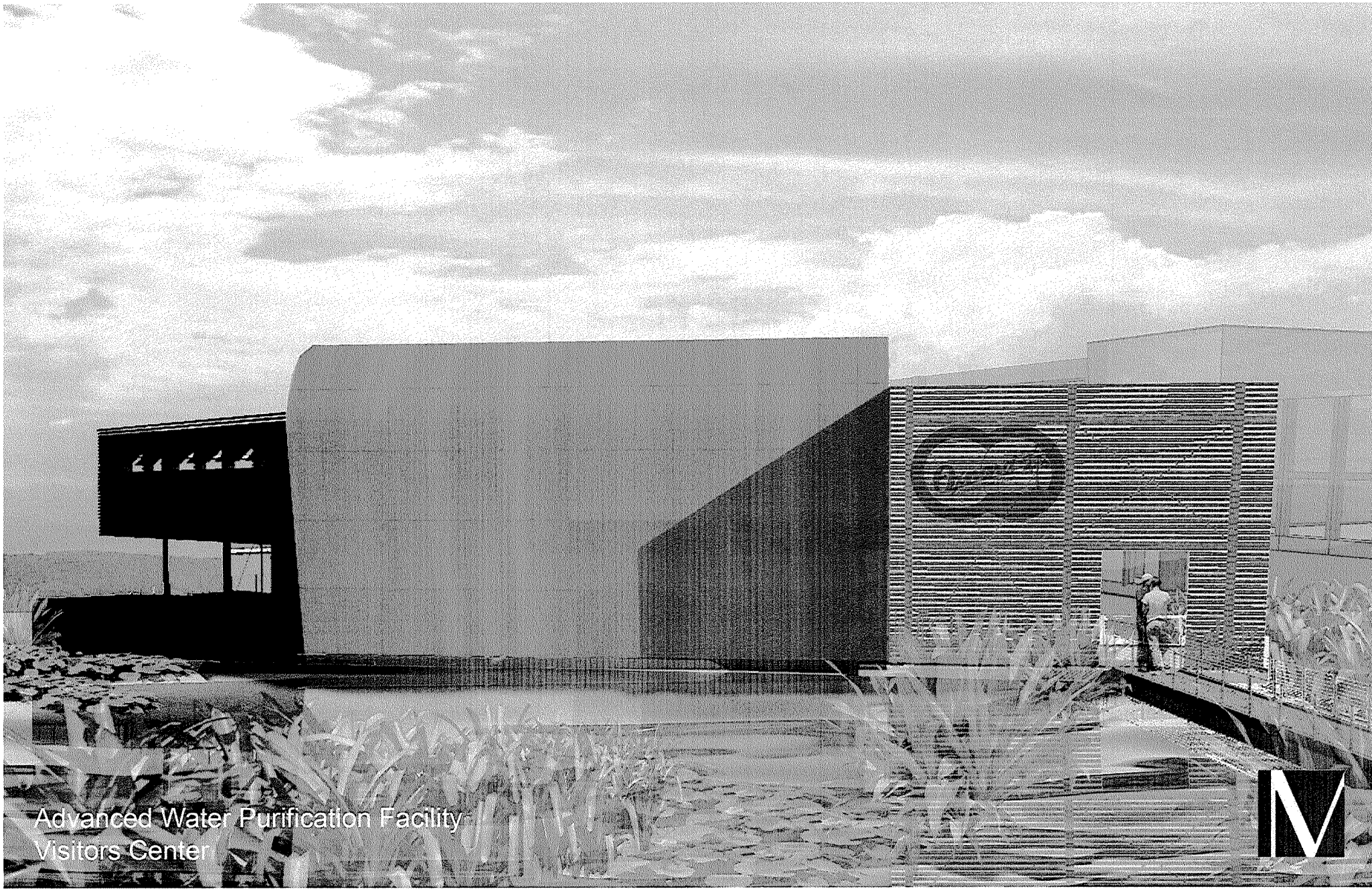
PRELIMINARY - ISSUED FOR 90% REVIEW

Advanced Water Purification Facility
Visitors Center

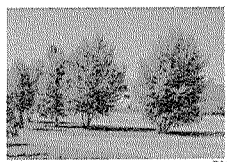


Advanced Water Purification Facility
Visitors Center

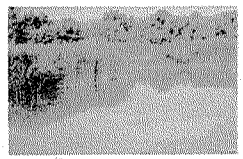


Advanced Water Purification Facility
Visitors Center

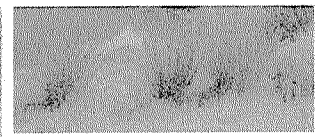
Advanced Water Purification Facility
Visitors Center

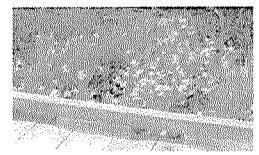


FREMONT COTTONWOOD (TYP)

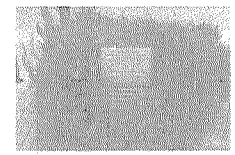


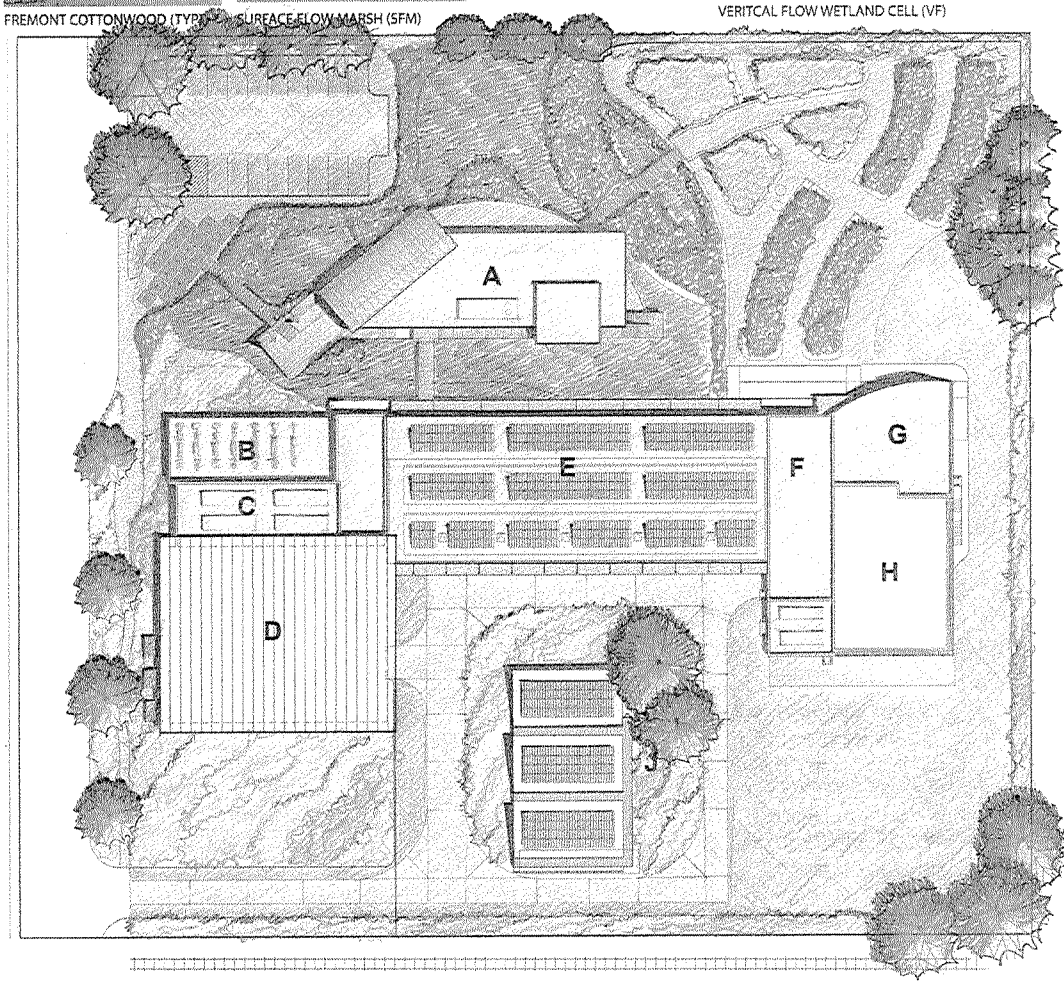
SURFACE FLOW MARSH (SFM)





VERITCAL FLOW WETLAND CELL (VF)





WESTERN SYCAMORE (TYP)

BUILDING KEY

A - VISITORS CENTER

B - LIFT PUMP STATION

C - ELECTRICAL ROOM #1

D - MF/UF BUILDING

E - R.O. BUILDING

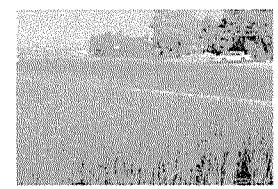
F - UV FACILITY

G - CONFERENCE ROOM

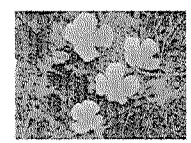
H - DECARBONATORS AND FINISHED WATER PUMPS

I - WAREHOUSE

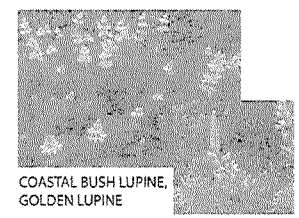
J - CHEMICAL BUILDING



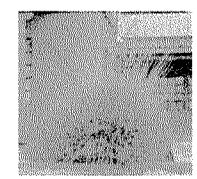
HORIZONTAL FLOW WETLAND CELL (HF)



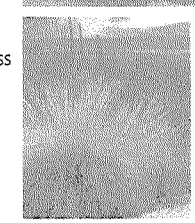
CALIFORNIA POPPY

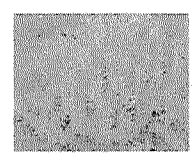


COASTAL BUSH LUPINE, GOLDEN LUPINE



DEERGRASS

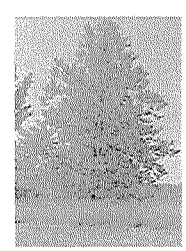




WHITESAGE

COASTAL DUNE BUCKWHEAT

PURPLE NEEDLEGRASS



NORTH

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REVISIONS

NO	DATE	DESCRIPTION	APVD

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

GENERAL ARCHITECTURAL SITE PLAN

APPROVED BY: CITY ENGINEER, CITY MANAGER, CITY ATTORNEY — DATE

PRELIMINARY

SCALE: HORIZ. — VERT.

APPROVED BY — DATE

CHECKED BY — DATE

DRAWN BY: DRAWN BY — ENGINEER: ENGINEER

SHEET NUMBER: 11 TOTAL

DRAWING NUMBER: 01-G-11

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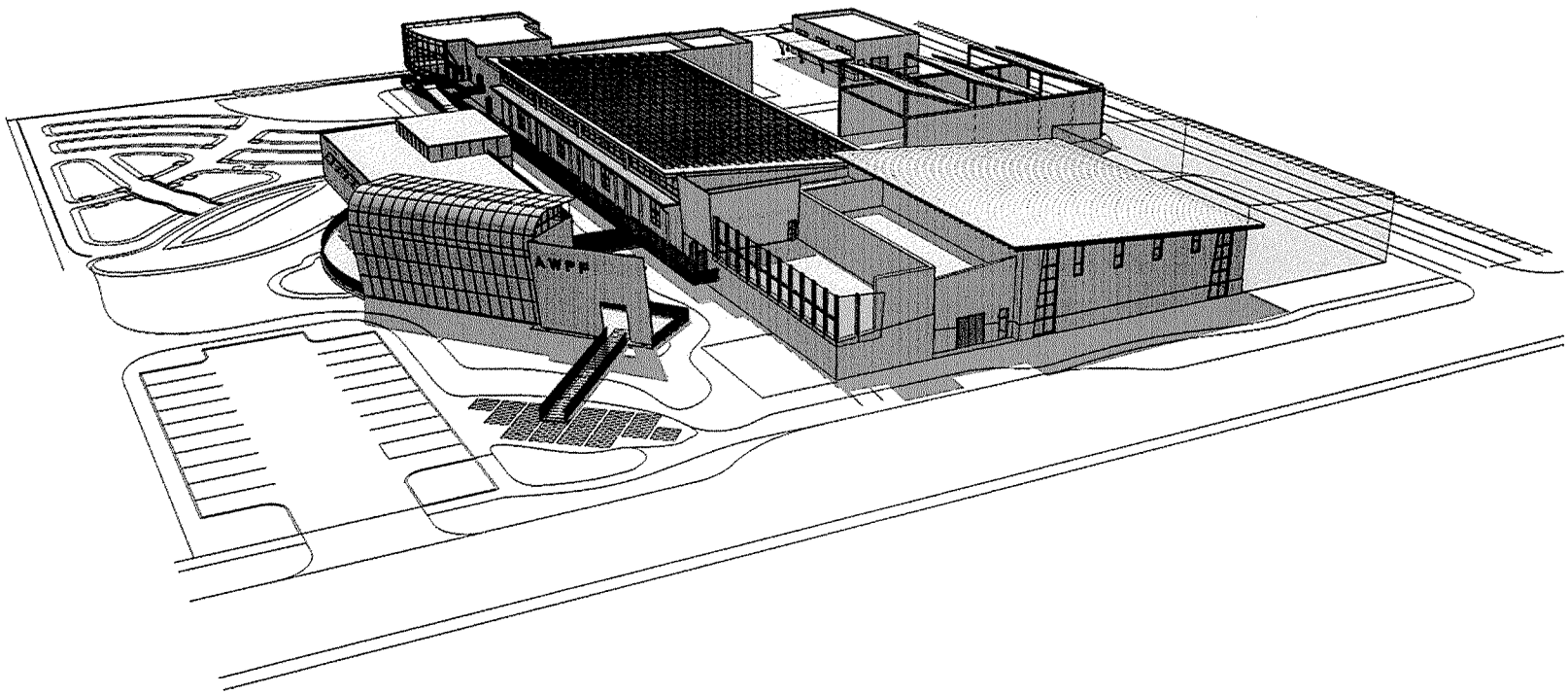
PLOT TIME: $PLOTTIME



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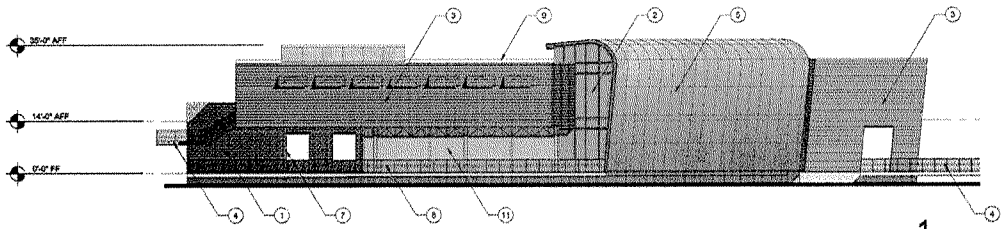
Advanced Water Purification Facility



NORTH ELEVATION 1
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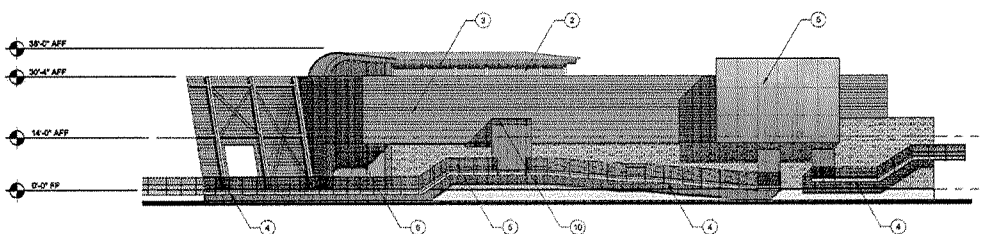


SOUTH ELEVATION 2
SCALE: 1/16"=1'-0"

GENERAL NOTES

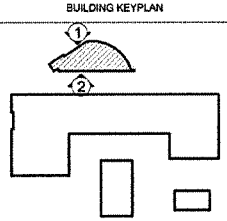
1. —

MATERIAL NOTES

1. STEEL FRAME WALL W/ CMU VENEER
2. ANODIZED ALUMINUM WINDOW FRAME W/ BLUE-TINTED GLAZING
3. WOOD SCREEN SIDING
4. CANTILEVERED CONCRETE WALKWAY/STAIR/RAMP W/ STAINLESS STEEL GUARDRAIL
5. METAL PANEL CLADDING
6. KALWALL AND GLAZING SYSTEM W/ STEEL FRAME
7. STEEL COLUMNS W/ CONCRETE BASE
8. STAINLESS STEEL GUARDRAIL W/ GLASS
9. SARNAFIL ROOFING SYSTEM
10. CANOPY W/ WOOD SCREEN SIDING

WALL LEGEND

BUILDING KEYPLAN



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PRELIMINARY - ISSUED FOR 60% REVIEW

REVISIONS

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NO	DATE	DESCRIPTION	APVR

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APPROVED-BY DATE
CHECKED-BY DATE

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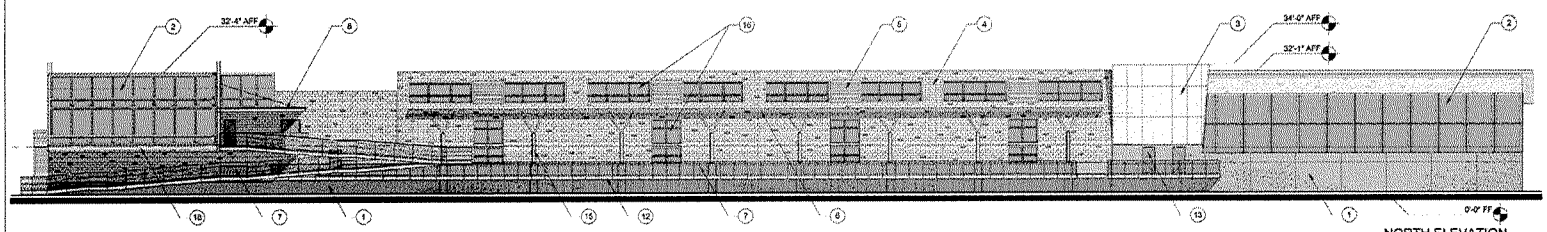
PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

VISITOR'S CENTER
ARCHITECTURAL
BUILDING ELEVATIONS

REVIEWED BY: City Engineer, Lucas Schierstedt R.C.E. 41742 Exp. 3-31-06 DATE
SCALE: HORIZ. VERT.
CHECKED BY: 287 OF TOTAL
DRAWN BY: DRAWN-BY
DRAWING NUMBER: 70-A-201
ENGINEER

PROJ NO.: 358064.DN

FILENAME: $FILENAME PLOT DATE: $PLOTDATE PLOT TIME: $PLOTTIME



NORTH ELEVATION
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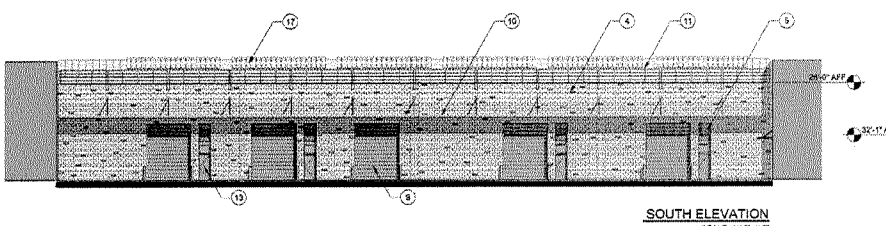
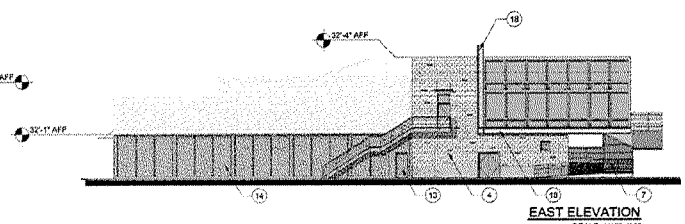


SOUTH ELEVATION
SCALE: 1/16"=1'-0"



EAST ELEVATION
SCALE: 1/16"=1'-0"

GENERAL NOTES

MATERIAL NOTES

1. CONCRETE BULKHEAD
2. ANODIZED ALUMINUM CURTAIN WALL SYSTEM WITH BLUE-TINTED GLAZING
3. KALWALL SYSTEM
4. CONCRETE MASONRY UNIT WITH RANDOM PATTERN — 10% BURNISHED, 20% BURNISHED, 70% SPLIT-FACE
5. ANODIZED ALUMINUM MECHANICAL LOUVER
6. STEEL-FRAMED AWNING W/ STAINLESS STEEL MESH PANELS
7. STAINLESS STEEL GUARDRAIL W/ GLASS
8. CONFERENCE CENTER STAINLESS STEEL ENTRY CANOPY
9. ROLL-UP DOOR
10. STEEL CANOPY
11. ROOFTOP GUARDRAIL
12. CONTILEVERED CONCRETE WALKWAY/ RAMP
13. STEEL SERVICE MAN-DOOR
14. "GREEN SCREEN" PANEL SYSTEM
15. STEEL PILASTER W/ AWNING SUPPORTS
16. ANODIZED ALUMINUM WINDOW FRAME W/ BLUE-TINTED GLAZING
17. PHOTOVOLTAIC PANELS
18. STEEL WIDE-FLANGE MEMBER

REVISIONS

NO	DATE	DESCRIPTION	APVR

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

RO BUILDING
EXTERIOR ELEVATIONS

MAINSTREET ARCHITECTS + PLANNERS INC.
422 East Main Street
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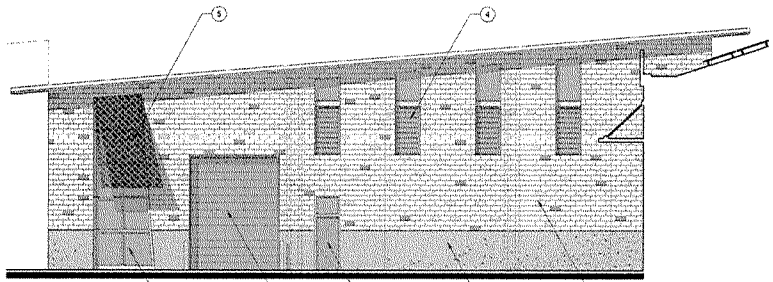
mail@mainstreetarchitects.com

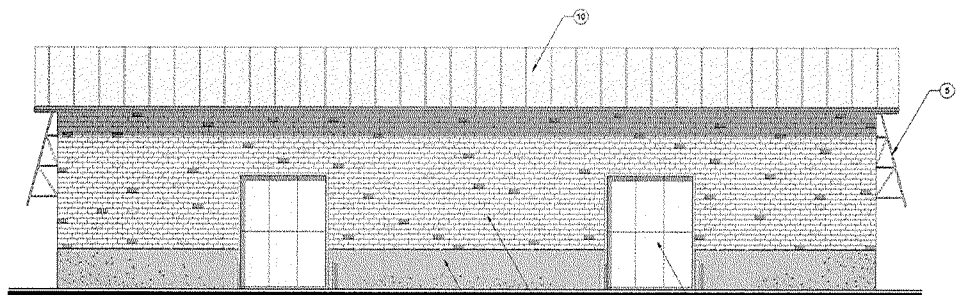
CH2MHILL
325 E. HILLCREST DR. SUITE #125
THOUSAND OAKS, CALIFORNIA 91360
(805) 371-7817

REVIEWED BY: CITY OF THOUSAND OAKS, DATE
APPROVED BY: DATE
CHECKED BY: DATE
DRAWN BY: DRAWN BY
ENGINEER: ENGINEER
SCALE: NONE
VERT.
CHECKED BY: TOTAL
DRAWING NUMBER: 10-A-201

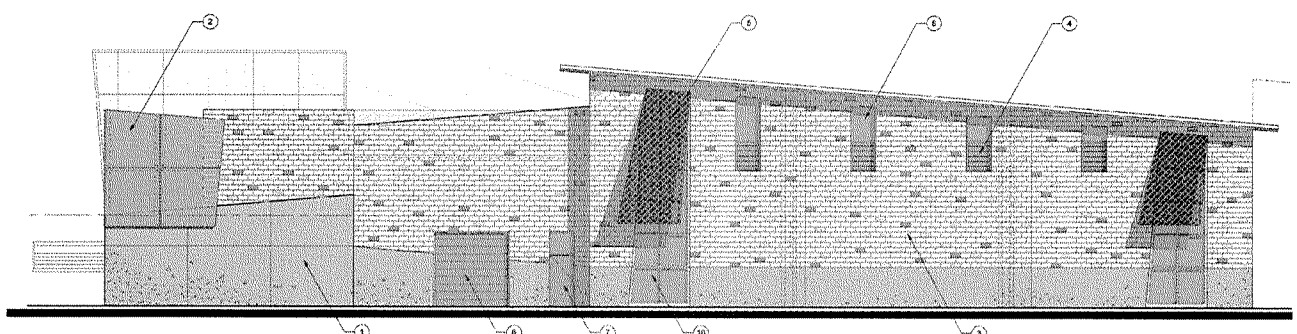
PROJ NO.: 358064.DN
FILENAME: $FILENAME
PLOT DATE: $PLOTDATE
PLOT TIME: $PLOTTIME



EAST ELEVATION
SCALE: 1/8"=1'-0"



SOUTH ELEVATION
SCALE: 1/8"=1'-0"



WEST ELEVATION
SCALE: 1/8"=1'-0"

GENERAL NOTES

MATERIAL NOTES

1. CONCRETE BULKHEAD
2. ANODIZED ALUMINUM CURTAIN WALL SYSTEM WITH BLUE-TINTED GLAZING
3. CONCRETE MASONRY UNIT WITH RANDOM PATTERN — 10% BURNISHED, 20% BURNISHED, 70% SPLIT-FACE
4. ANODIZED ALUMINUM MECHANICAL LOUVER
5. STEEL-FRAMED AWNING W/ STAINLESS STEEL MESH PANELS
6. ROLL-UP DOOR
7. STEEL SERVICE MAN-DOOR
8. ANODIZED ALUMINUM WINDOW FRAM W/ BLUE-TINTED GLAZING
9. KALLWALL SYSTEM
10. SARNAFIL ROOF SYSTEM

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REVISIONS

MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVR

REVIEWED BY
APPROVED BY — DATE
CHECKED BY — DATE

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

MF / UF BUILDING
BUILDING ELEVATIONS

REVIEWED BY — City Engineer, Capital Improvement Project Mgmt. Div. 3-27-06 — DATE
SCALE: HORZ. — VERT.
DRAWN BY — DRAWN-BY
ENGINEER BY — ENGINEER
CHECKED BY — 131 — TOTAL
DRAWING NUMBER 20-A-201

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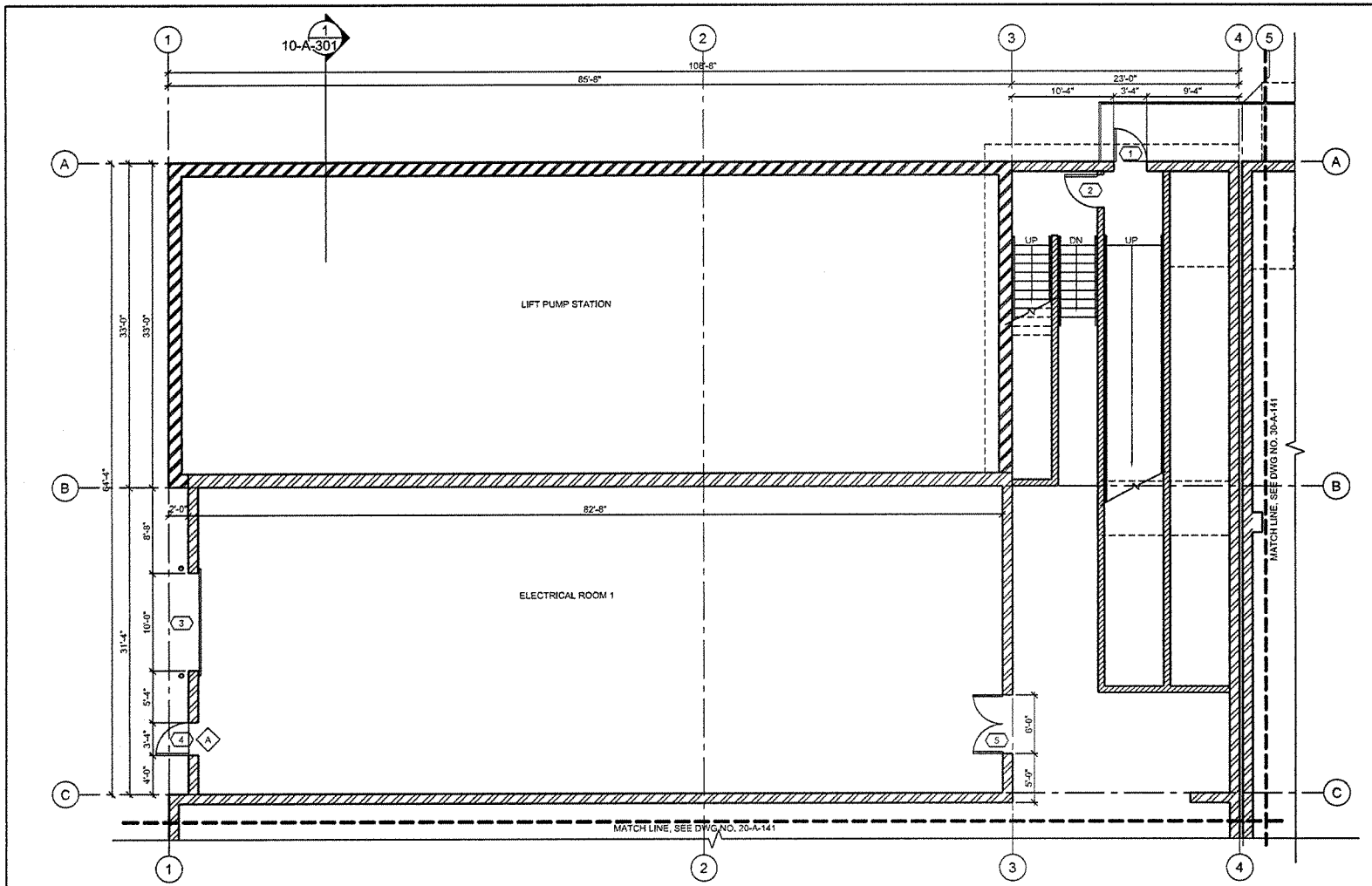
(805) 371-7817

PROJ NO.: 358064.DN
FILENAME: $FILENAME
PLOT DATE: $PLOTDATE
PLOT TIME: $PLOTTIME



GENERAL NOTES

1. —

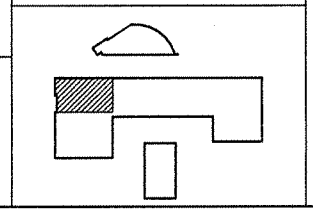
MATERIAL NOTES

1 ——

WALL LEGEND

- 16" THICK CONC. WALL, SEE DETAIL X/A0X
- 12" CMU WALL, SEE DETAIL X/A0X
- 8" CMU WALL, SEE DETAIL X/A0X
- PARTITION WALL, SEE DETAIL X/A0X
- PLUMBING WALL, SEE DETAIL X/A0X

BUILDING KEY PLAN



FIRST FLOOR PLAN

SCALE: 3/16"=1'-0"

NORTH

MAINSTREET ARCHITECTS + PLANNERS INC.
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REVISIONS			
NO	DATE	DESCRIPTION	APVD

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

LIFT PUMP STATION
ARCHITECTURAL
FIRST FLOOR PLAN

APPROVED-BY
CHECKED-BY
DRAWN-BY ADG/ NCM/ KAM
CHECKED-BY DMD/ DN
SHEET 99 TOTAL
DRAWING NUMBER 10-A-141

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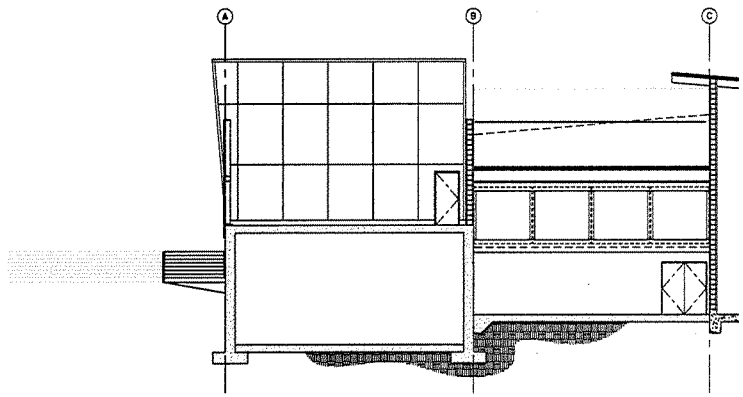

BUILDING SECTION
SCALE: 1/8"=1'-0"

GENERAL NOTES

1. —

MATERIAL NOTES

1 ——

WALL LEGEND

REVISIONS			
MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVR

REVIEWED BY
APPROVED-BY DATE
CHECKED-BY DATE

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

LIFT PUMP STATION
BUILDING SECTION

REVIEWED BY
DATE

SCALE: HORIZ. VERT.
DRAWN BY: DRAWN-BY
CHECKED BY: ENGINEER
CHECKED BY: 99 TOTAL
DRAWING NUMBER: 10-A-300

MAINSTREET
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PROJ NO.: 356064.DN
FILENAME: $FILENAME
PLOT DATE: $PLOTDATE
PLOT TIME: $PLOTTIME

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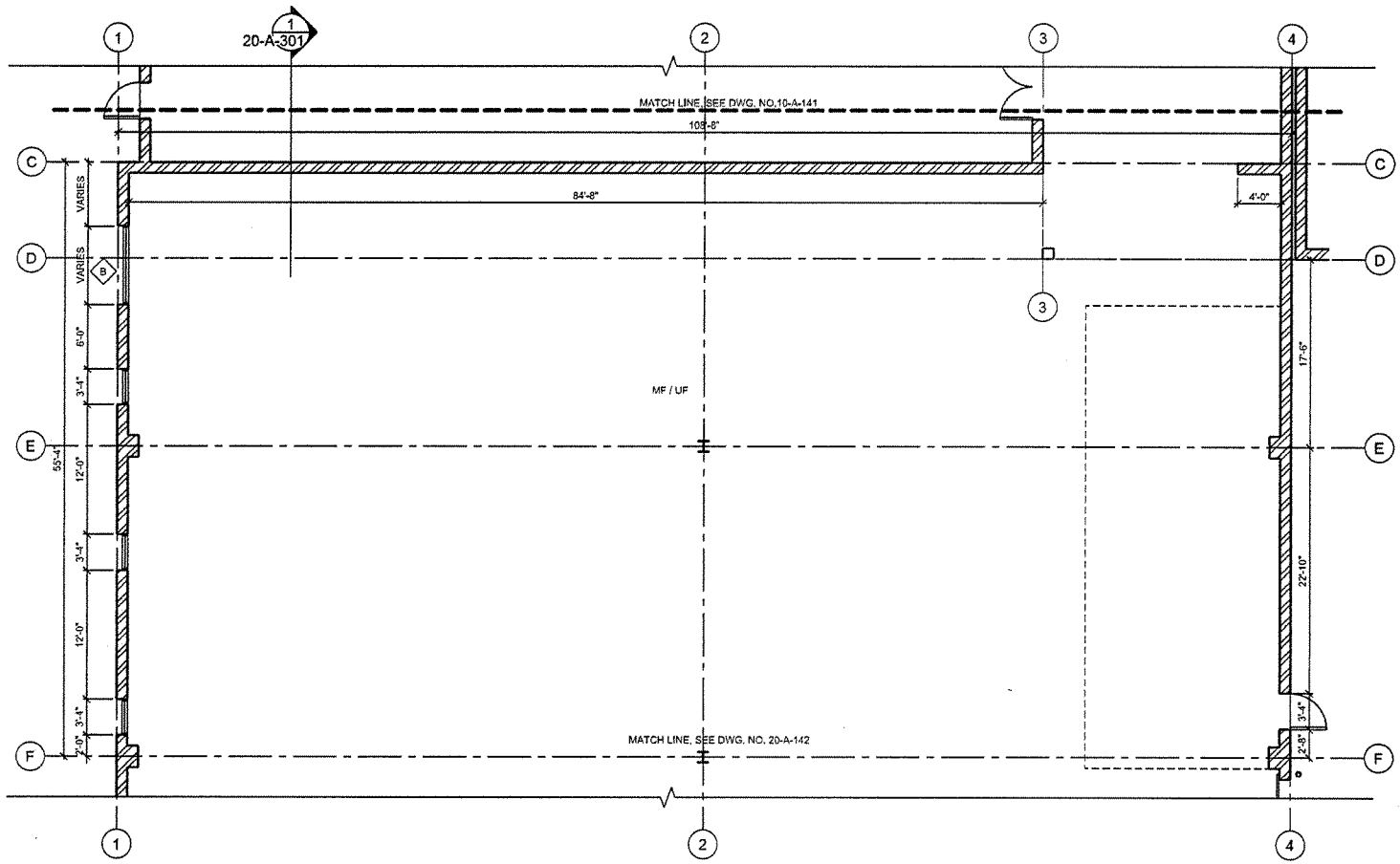


GENERAL NOTES

1. —

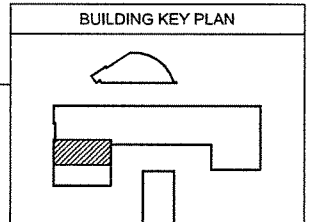
MATERIAL NOTES

1 ——

WALL LEGEND

- 16" THICK CONC. WALL, SEE DETAIL X/ADX
- 12" CMU WALL, SEE DETAIL X/ADX
- 8" CMU WALL, SEE DETAIL X/ADX
- PARTITION WALL, SEE DETAIL X/ADX
- PLUMBING WALL, SEE DETAIL X/ADX

BUILDING KEY PLAN



FIRST FLOOR PLAN-AREA A

SCALE: 3/16"=1'-0"

NORTH

MAINSTREET ARCHITECTS + PLANNERS INC.
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mainstreetarchitects.com

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(805) 371-7817

REVISIONS

MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVR

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

MF / UF BUILDING
ARCHITECTURAL
FIRST FLOOR PLAN - AREA A

REVIEWED BY: Department Construction Manager, P.E. Bldg. Inc. Section — DATE

DESIGNED BY: ADG/NCM/KAM — CHECKED BY: DMD/DN — DRAWING NUMBER: 20-A-141 — CHECKED BY: 131 TOTAL

PROJ NO.: 358064.DN

FILENAME: AWPF-20A141.DWG PLOT DATE: 11/19/2007 PLOT TIME: 12:02:47 PM

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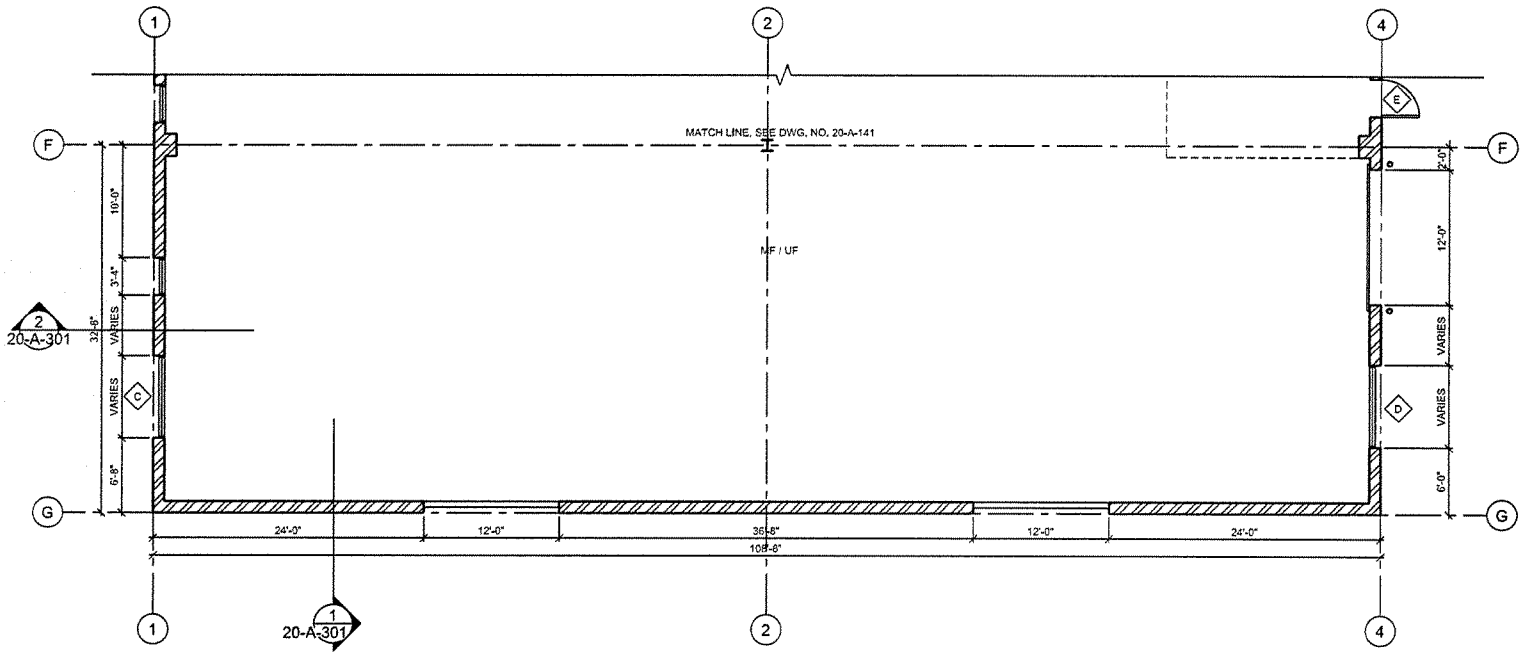


GENERAL NOTES

1. —

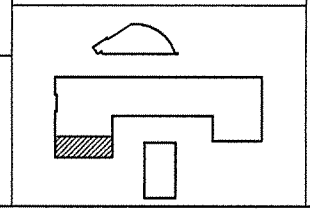
MATERIAL NOTES

1 ———

WALL LEGEND

- 16" THICK CONC. WALL, SEE DETAIL X/ADX
- 12" CMU WALL, SEE DETAIL X/ADX
- 8" CMU WALL, SEE DETAIL X/ADX
- PARTITION WALL, SEE DETAIL X/ADX
- PLUMBING WALL, SEE DETAIL X/ADX

BUILDING KEY PLAN



FIRST FLOOR PLAN-AREA B

SCALE: 3/16"=1'-0"

NORTH

MAINSTREET ARCHITECTS + PLANNERS INC.
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Ventura California 93001
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REVISIONS

MARK	DATE	DESCRIPTION	BY	APVR
NO	DATE	DESCRIPTION		

REVIEWED BY
APPROVED BY — DATE
CHECKED BY — DATE

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

MF / UF BUILDING
ARCHITECTURAL
FIRST FLOOR PLAN - AREA B

REVIEWED BY: Mr. Bill Cornell, Capital Projects Manager; Mr. Ed Zuber, Bldg. Inspector — DATE

SCALE: — HORIZ. — VERT.
DRAWN BY: ADG/ NCM/ KAM
CHECKED BY: DMD/ DN
SHEET NUMBER: 131 TOTAL
DRAWING NUMBER: 20-A-142

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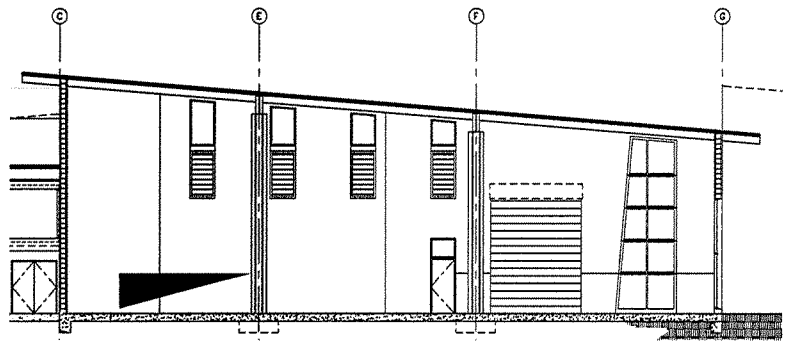
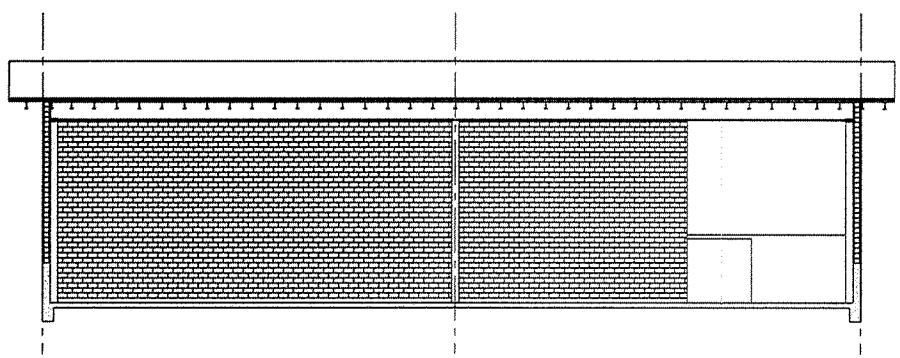
PROJ NO.: 358064.DN

FILENAME: AWPF-20A142.DWG PLOT DATE: 11/19/2007 PLOT TIME: 1:17:40 PM



MF / UF BUILDING AREA-B
SCALE: 1/8"=1'-0"



MF / UF BUILDING AREA-B
SCALE: 1/8"=1'-0"

GENERAL NOTES

1. —

MATERIAL NOTES

① ———

WALL LEGEND

REVISIONS			
MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVR

REVIEWED BY:
APPROVED-BY DATE
CHECKED-BY DATE

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

MF / UF BUILDING
BUILDING SECTION

REVIEWED BY: DATE
SCALE: HORIZ: VERT:
DRAWN BY: DRAWN-BY
CHECKED BY: ENGINEER
CHECKED BY: 131 TOTAL
DRAWING NUMBER: 20-A-301

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Ventura California 93001
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CH2MHILL
325 E. HILLCREST DR. SUITE #125
THOUSAND OAKS, CALIFORNIA 91360
(805) 371-7817

PROJ NO.: 358064.DN

FILENAME: SFILENAME PLOT DATE: SPLOTDATE PLOT TIME: SPLOTTIME

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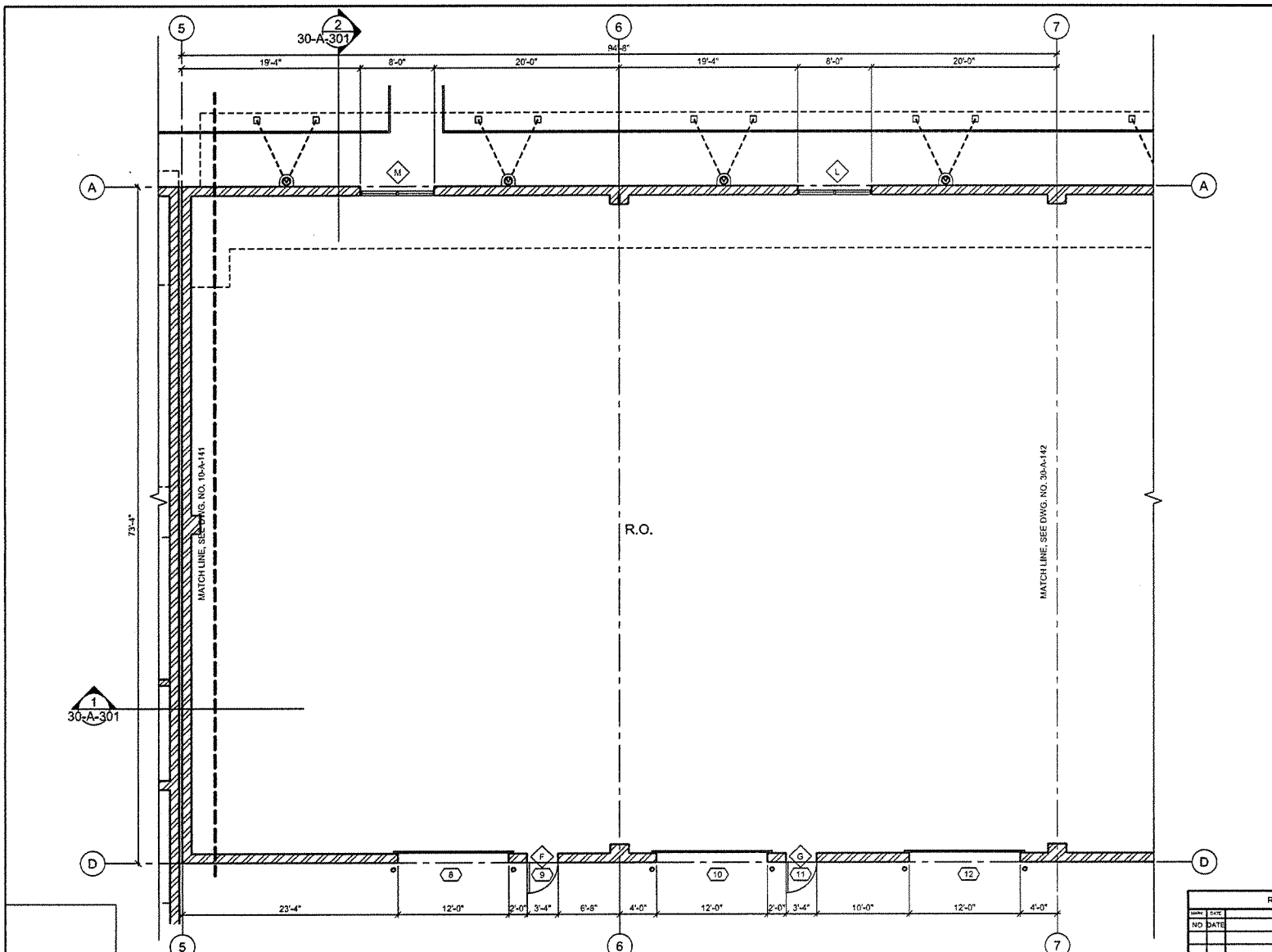


FIRST FLOOR PLAN-AREA A

SCALE: 3/16"=1'-0"

NORTH

GENERAL NOTES

1. —

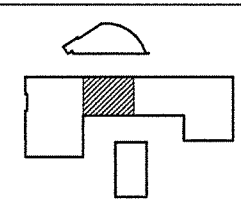
MATERIAL NOTES

1 ———

WALL LEGEND

- 16" THICK CONC. WALL, SEE DETAIL X/A0X
- 12" CMU WALL, SEE DETAIL X/A0X
- 8" CMU WALL, SEE DETAIL X/A0X
- PARTITION WALL, SEE DETAIL X/A0X
- PLUMBING WALL, SEE DETAIL X/A0X

BUILDING KEYPLAN



REVISIONS			
NO	DATE	DESCRIPTION	APVR

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APPROVED-BY
CHECKED-BY

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

R.O. BUILDING
ARCHITECTURAL
FIRST LEVEL - AREA A

ADG/ NCM/ KAM
DMD/ DN

162 TOTAL

30-A-141

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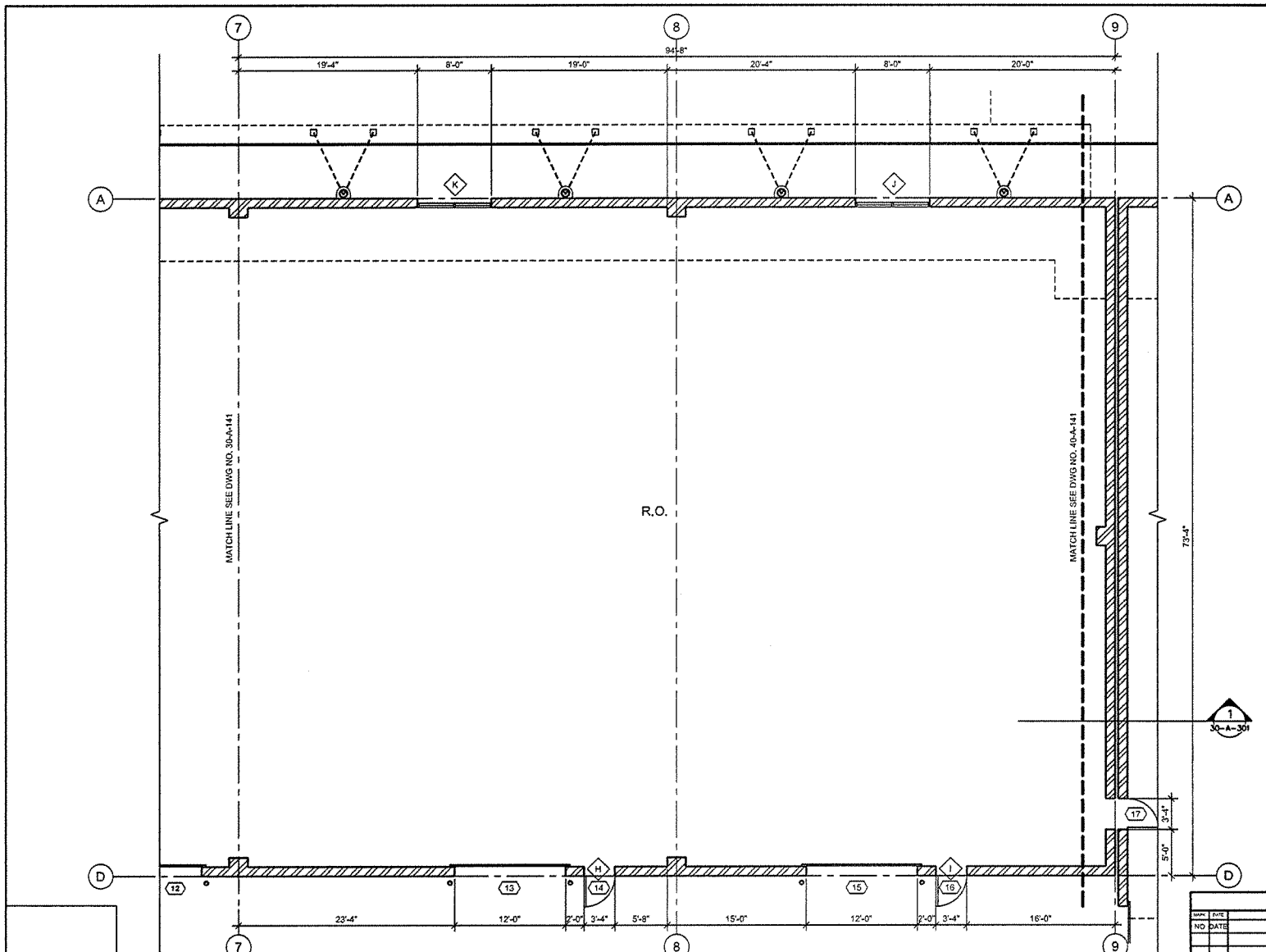

FIRST FLOOR PLAN-AREA B

SCALE: 3/16"=1'-0"

NORTH

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Ventura, California 93001
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mainstreetarchitects.com

CH2MHILL
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THOUSAND OAKS, CALIFORNIA 91360
(805) 371-7817

GENERAL NOTES

1. —

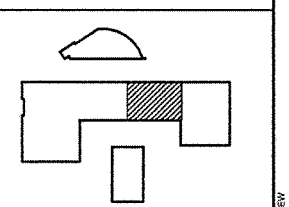
MATERIAL NOTES

1 ———

WALL LEGEND

- 16" THICK CONC. WALL, SEE DETAIL X/A0X
- 12" CMU WALL, SEE DETAIL X/A0X
- 8" CMU WALL, SEE DETAIL X/A0X
- PARTITION WALL, SEE DETAIL X/A0X
- PLUMBING WALL, SEE DETAIL X/A0X

BUILDING KEY PLAN



REVISIONS			
MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVR

REVIEWED BY
APPROVED BY DATE
CHECKED BY DATE

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

R.O. BUILDING
ARCHITECTURAL
FIRST LEVEL - AREA B

REVIEWED BY: Registered Engineer or C.E. (if req.) Seal, Signature DATE
APPROVED BY: DATE
DRAWN BY: ADG/ NCM/ KAM
CHECKED BY: DMD/ DN
SHEET NO. 163 TOTAL
DRAWING NUMBER 30-A-142

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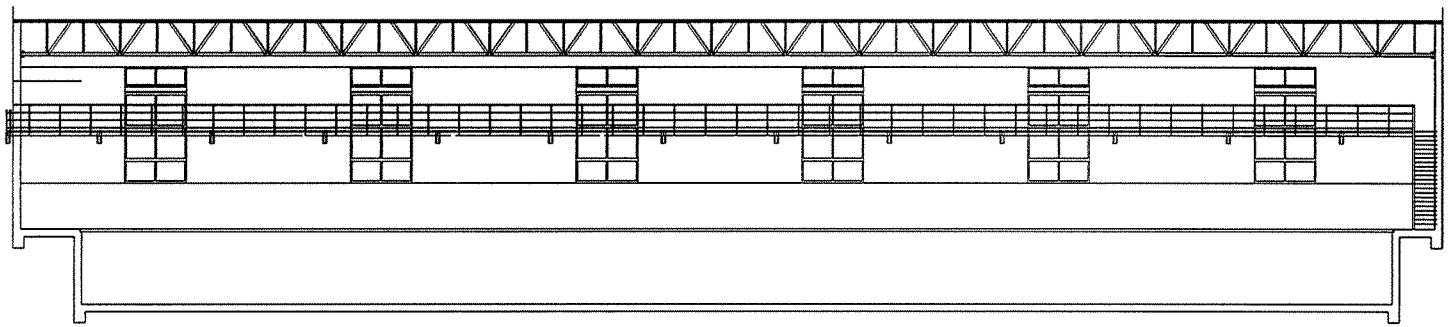
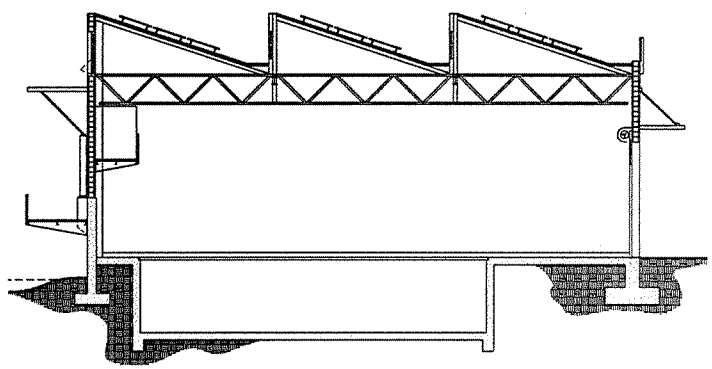


RO BUILDING SECTION
SCALE: 1/8"=1'-0"



RO BUILDING SECTION
SCALE: 1/8"=1'-0"

GENERAL NOTES

1. —

MATERIAL NOTES

1 ———

WALL LEGEND

REVISIONS			
MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVR

REVIEWED BY:
APPROVED-BY DATE
CHECKED-BY DATE

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

RO BUILDING
BUILDING SECTION

REVIEWED BY: DATE
SCALE: HORIZ. VERT.
DRAWN BY: DRAWN-BY
CHECKED BY: ENGINEER
CHECKED BY: 163 TOTAL
DRAWING NUMBER: 30-A-301

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(805) 371-7817

PROJ NO.: 358064.DN

FILENAME: SFILENAME PLOT DATE: SPLOTDATE PLOT TIME: SPLOTTIME

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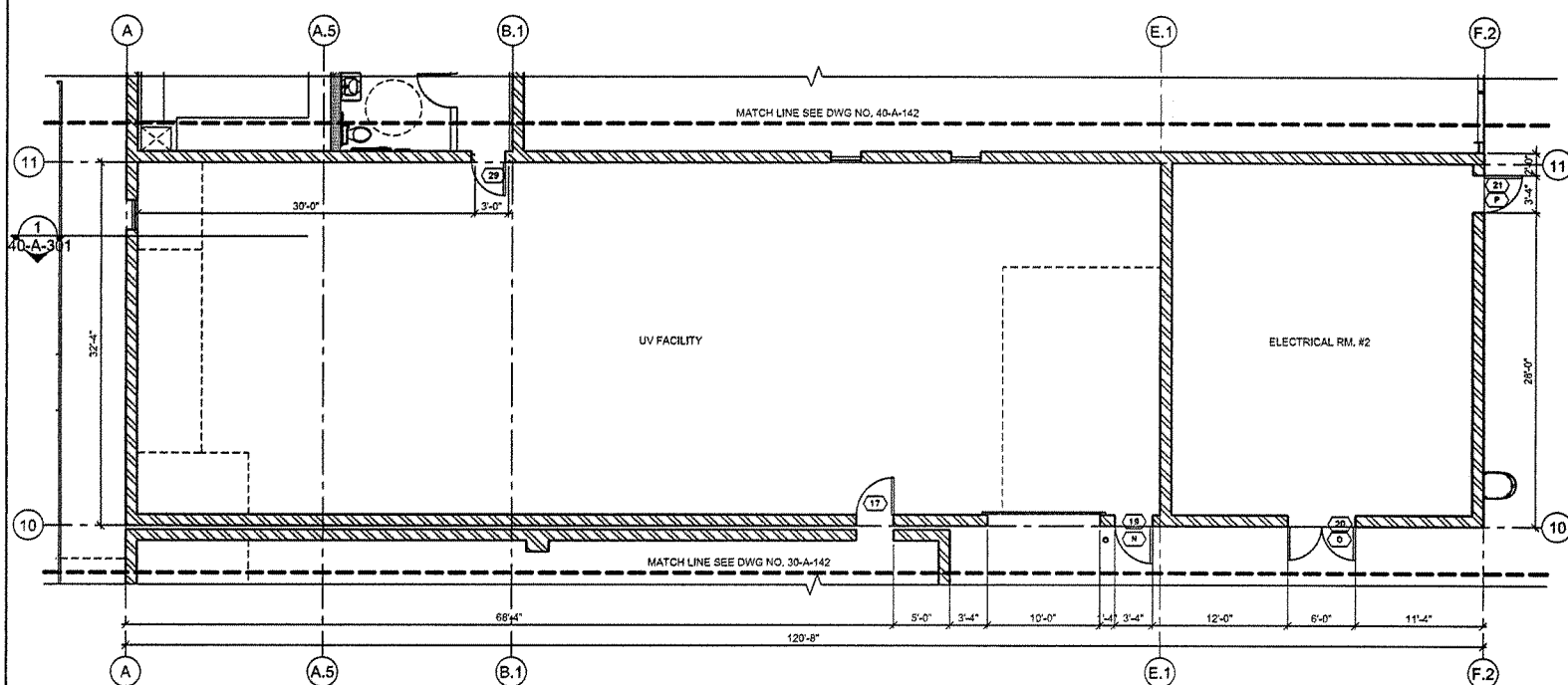


GENERAL NOTES

1. —

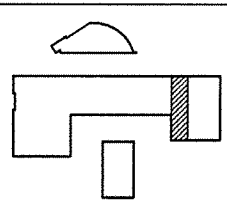
MATERIAL NOTES

1 ——

WALL LEGEND

- 16" THICK CONC. WALL, SEE DETAIL X/ADX
- 12" CMU WALL, SEE DETAIL X/ADX
- 8" CMU WALL, SEE DETAIL X/ADX
- PARTITION WALL, SEE DETAIL X/ADX
- PLUMBING WALL, SEE DETAIL X/ADX

BUILDING KEY PLAN



FIRST FLOOR PLAN - AREA A

SCALE: 3/16"=1'-0"

NORTH

MAINSTREET ARCHITECTS + PLANNERS INC.
422 East Main Street
Ventura, California 93001
phn: (805) 653-2118 fax: (805) 653-1532
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CH2MHILL
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THOUSAND OAKS, CALIFORNIA 91360
(805) 371-7817

REVISIONS

NO	DATE	DESCRIPTION	APVR

REVIEWED BY: APPROVED-BY DATE
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PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

UV FACILITY
ARCHITECTURAL
FIRST FLOOR PLAN - AREA A

REVIEWED BY: DATE
DRAFT: HOME: DATE:
DRAWN BY: ADG/ NCM/ KAM
CHECKED BY: DMD/ DN
CHECKED BY: 204 TOTAL
DRAWING NUMBER: 40-A-141

PROJ NO.: 358064.DN

FILENAME: AWPF-40A141.DWG PLOT DATE: 11/19/2007 PLOT TIME: 1:47:02 PM

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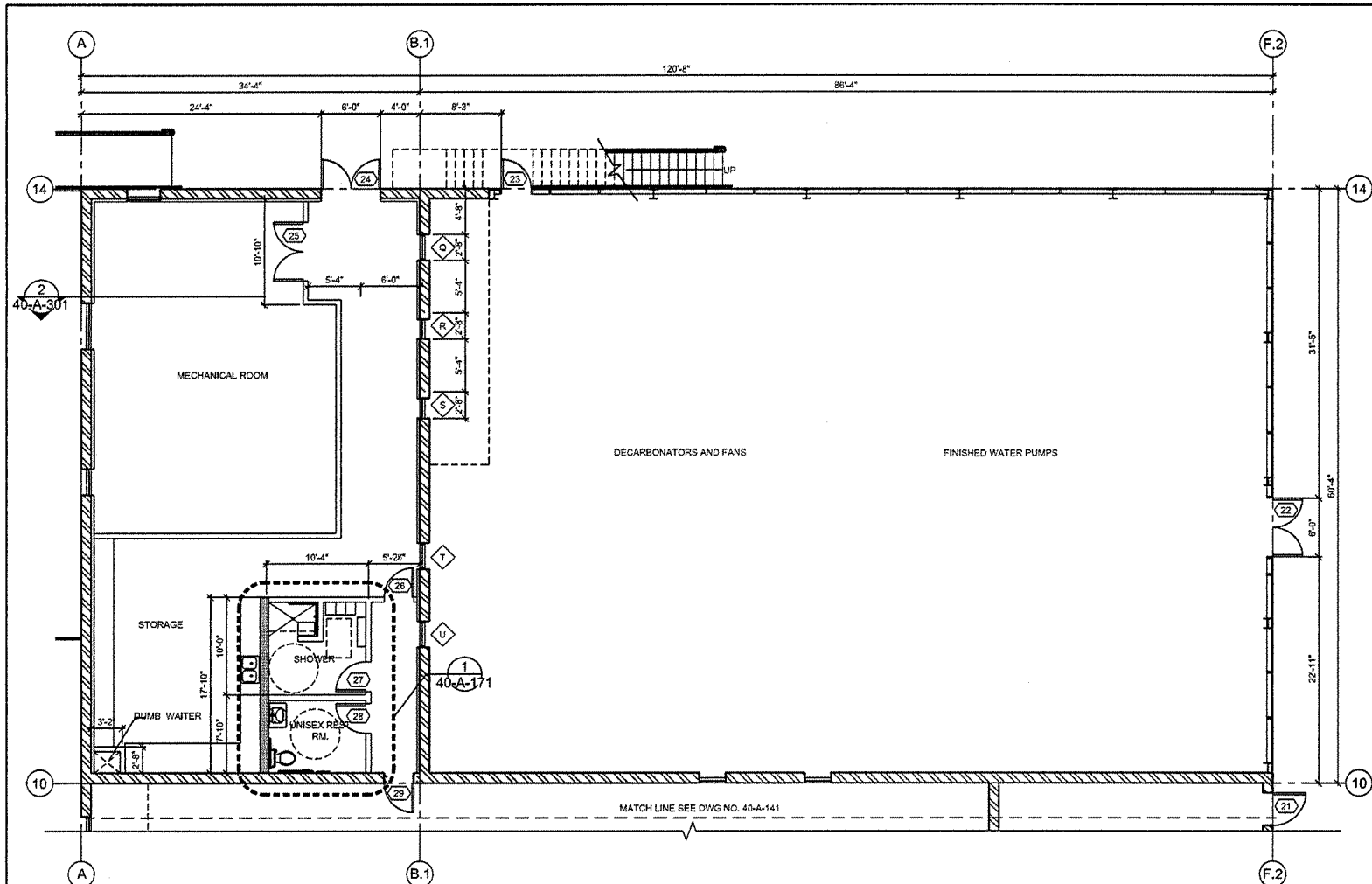

GENERAL NOTES

1. —

MATERIAL NOTES

1 ———

WALL LEGEND

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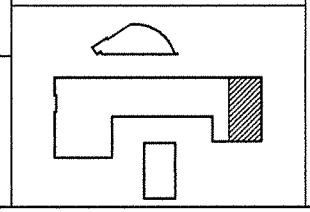
- 12" CMU WALL, SEE DETAIL X/ADX
- 8" CMU WALL, SEE DETAIL X/ADX
- PARTITION WALL, SEE DETAIL X/ADX
- PLUMBING WALL, SEE DETAIL X/ADX

BUILDING KEY PLAN



FIRST FLOOR PLAN - AREA B

SCALE: 3/16"=1'-0"

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UV FACILITY
ARCHITECTURAL
FIRST FLOOR PLAN - AREA B

REVIEWED BY — DATE

SCALE: 3/16" | DATE: | DRAWN BY: ADG/ NOM/ KAM | CHECKED BY: DMD/ DN | DRAWING NUMBER: 40-A-142 | SHEET 205 TOTAL

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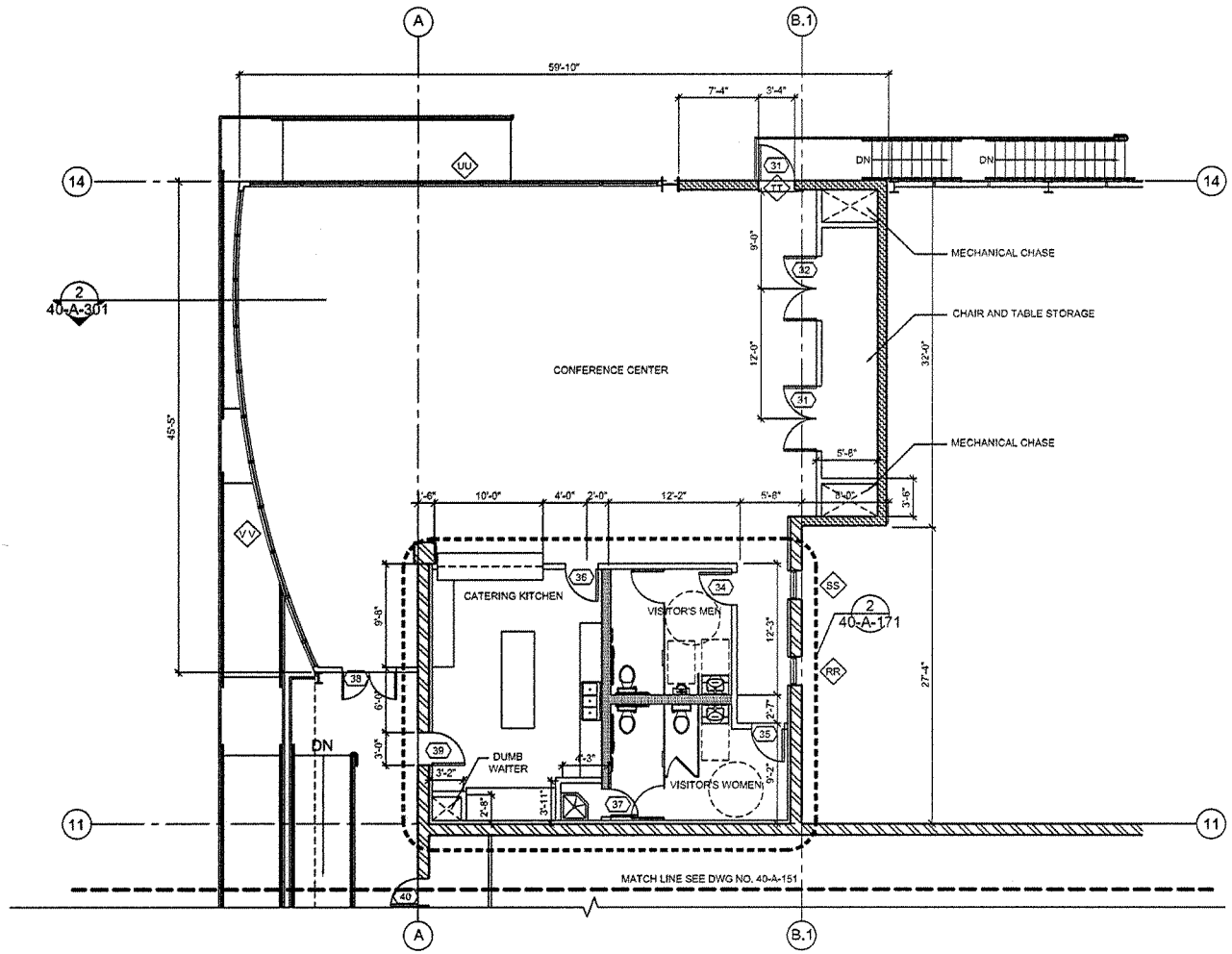

GENERAL NOTES

1. —

MATERIAL NOTES

1 ——

WALL LEGEND

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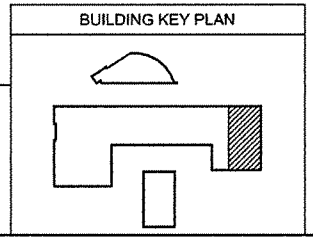
- 12" CMU WALL, SEE DETAIL X/ADX
- 6" CMU WALL, SEE DETAIL X/ADX
- PARTITION WALL, SEE DETAIL X/ADX
- PLUMBING WALL, SEE DETAIL X/ADX

BUILDING KEY PLAN



SECOND FLOOR PLAN - AREA B

SCALE: 3/16"=1'-0"

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UV FACILITY
ARCHITECTURAL
SECOND FLOOR PLAN - AREA B

SCALE: HORIZ. VERT.
DRAWN BY: ADG/ NCM/ KAM
CHECKED BY: DMD/ DN
CHECKED BY: 205 TOTAL
DRAWING NUMBER: 40-A-152

PROJ NO.: 358064.DN
FILENAME: AWPF-40A152.DWG
PLOT DATE: 11/19/2007
PLOT TIME: 1:36:31 PM

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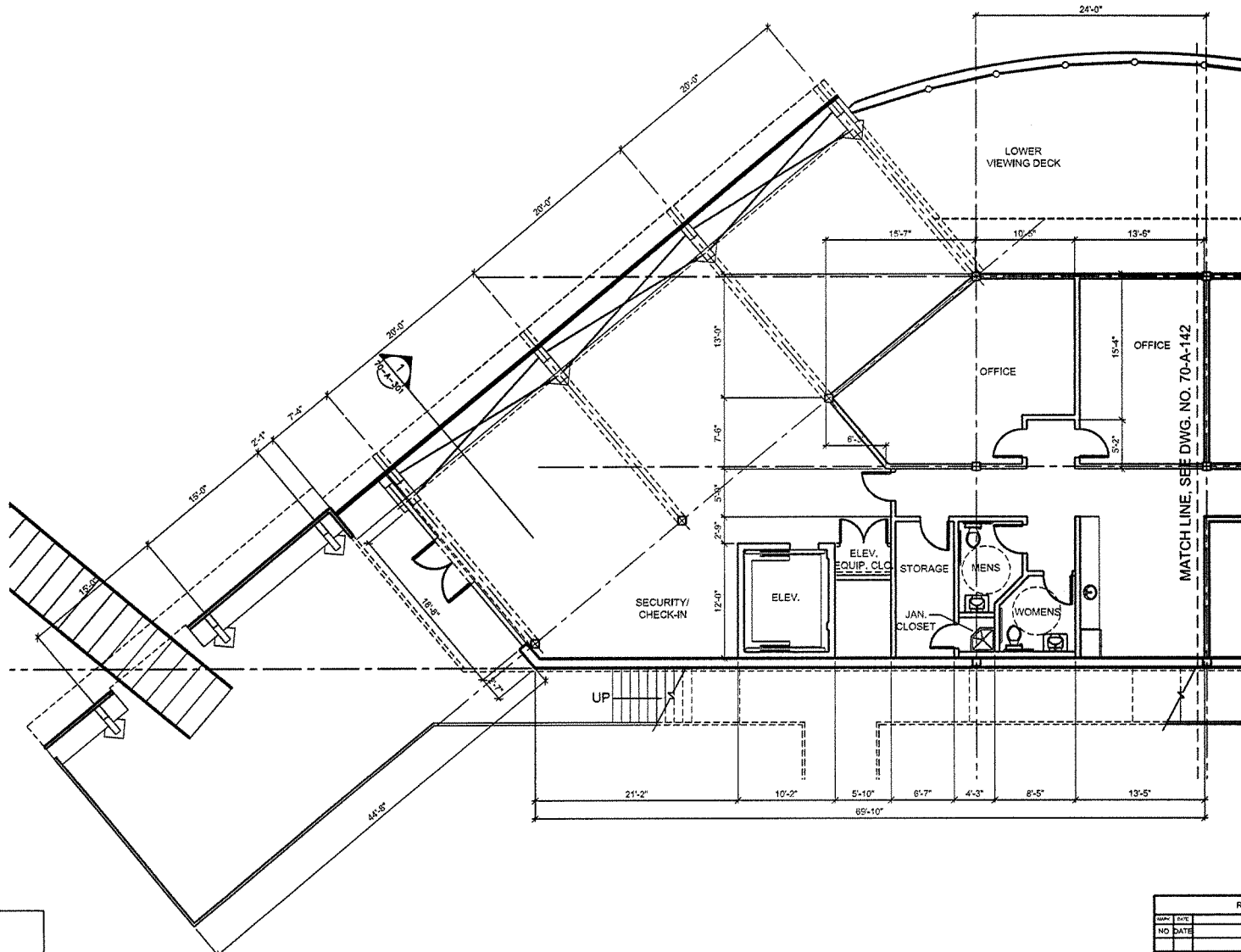

VISITORS CENTER BUILDING
SCALE: 3/16"=1'-0"

NORTH

GENERAL NOTES

1. —

MATERIAL NOTES

1 ——

WALL LEGEND

REVISIONS			
MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVR

REVIEWED BY: APPROVED-BY DATE
CHECKED-BY DATE

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CAPITAL PROJECTS MANAGEMENT DIVISION

VISITOR'S CENTER
ARCHITECTURAL
FIRST FLOOR PLAN - AREA A

DRAWN BY: DRAWN-BY
CHECKED BY: ENGINEER
DRAWING NUMBER: 287 TOTAL
70-A-141

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PROJ NO.: 358064.DN

FILENAME: $FILENAME PLOT DATE: $PLOTDATE PLOT TIME: $PLOTTIME

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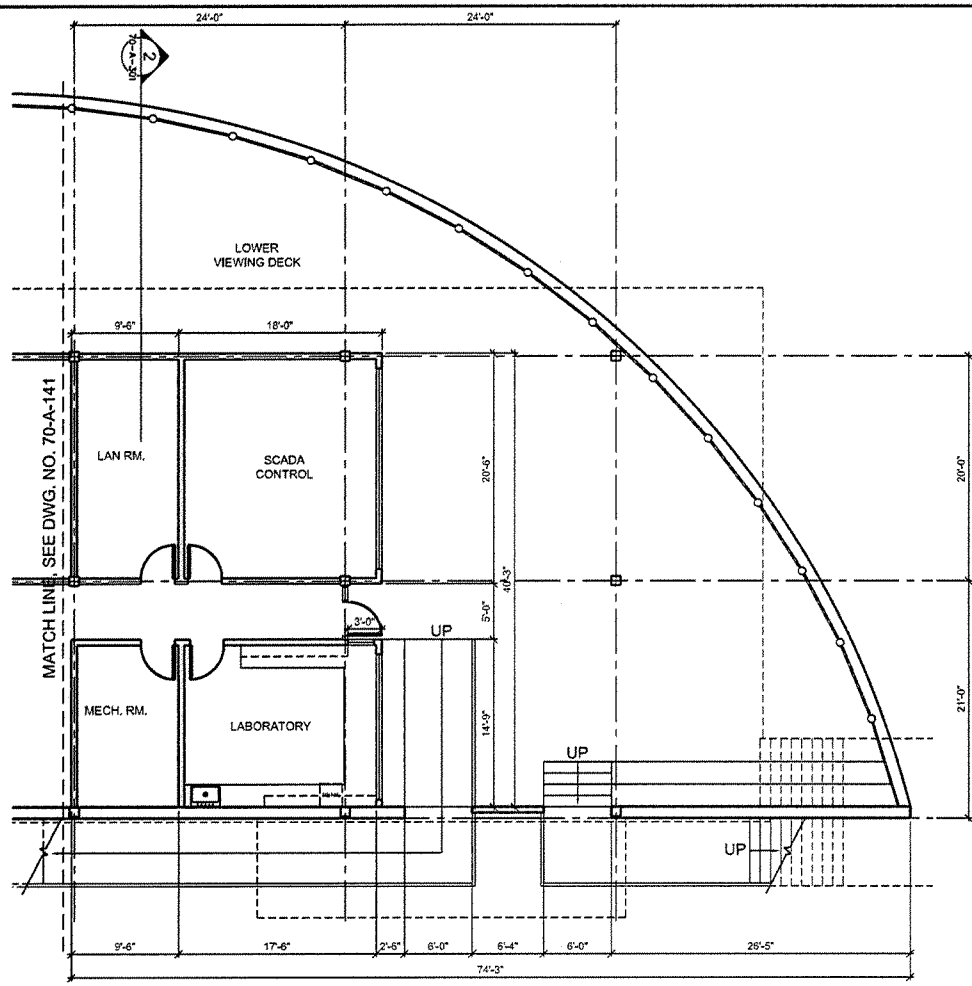

GENERAL NOTES

1. —

MATERIAL NOTES

1 ———

WALL LEGEND

VISITORS CENTER BUILDING
SCALE: 3/16"=1'-0"

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REVISIONS			
MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVR

REVIEWED BY
APPROVED-BY DATE
CHECKED-BY DATE

PUBLIC WORKS
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VISITOR'S CENTER
ARCHITECTURAL
FIRST FLOOR PLAN - AREA B

REVIEWED BY: Ventura County Public Works, Ventura, Ventura County — DATE
SCALE: AS NOTED — DATE
DRAWN BY: DRAWN-BY
CHECKED BY: ENGINEER
DRAWING NUMBER: 287 TOTAL
70-A-142

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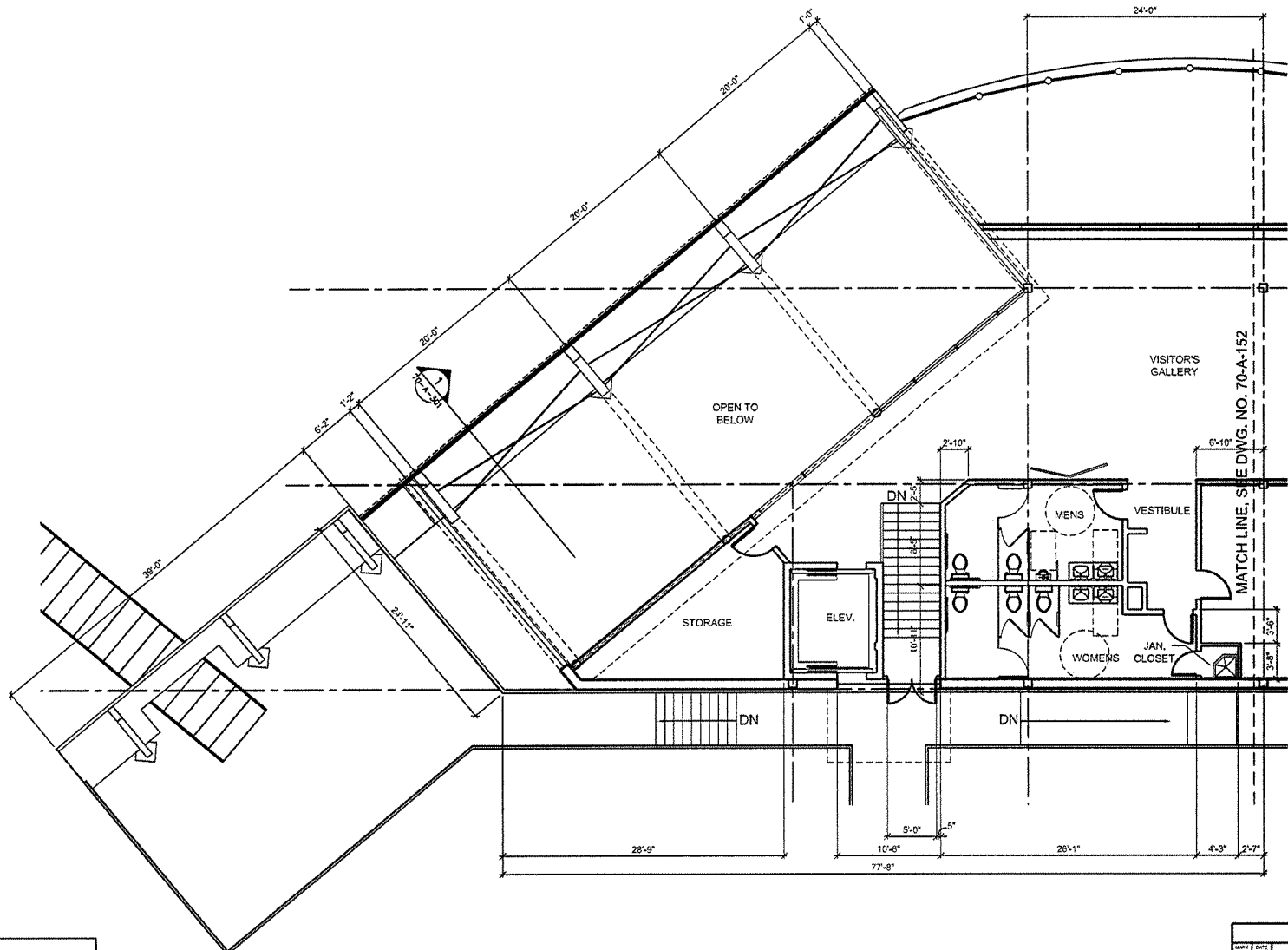
FILENAME: $FILENAME
PLOT DATE: $PLOTDATE
PLOT TIME: $PLOTTIME



GENERAL NOTES

1. —

MATERIAL NOTES

① ———

WALL LEGEND

VISITORS CENTER BUILDING

SCALE: 3/16"=1'-0"

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MARK	DATE	DESCRIPTION	BY
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ARCHITECTURAL
SECOND FLOOR PLAN - AREA A

APPROVED-BY
CHECKED-BY
DRAWN-BY
ENGINEER

DRAWING NUMBER 287 TOTAL
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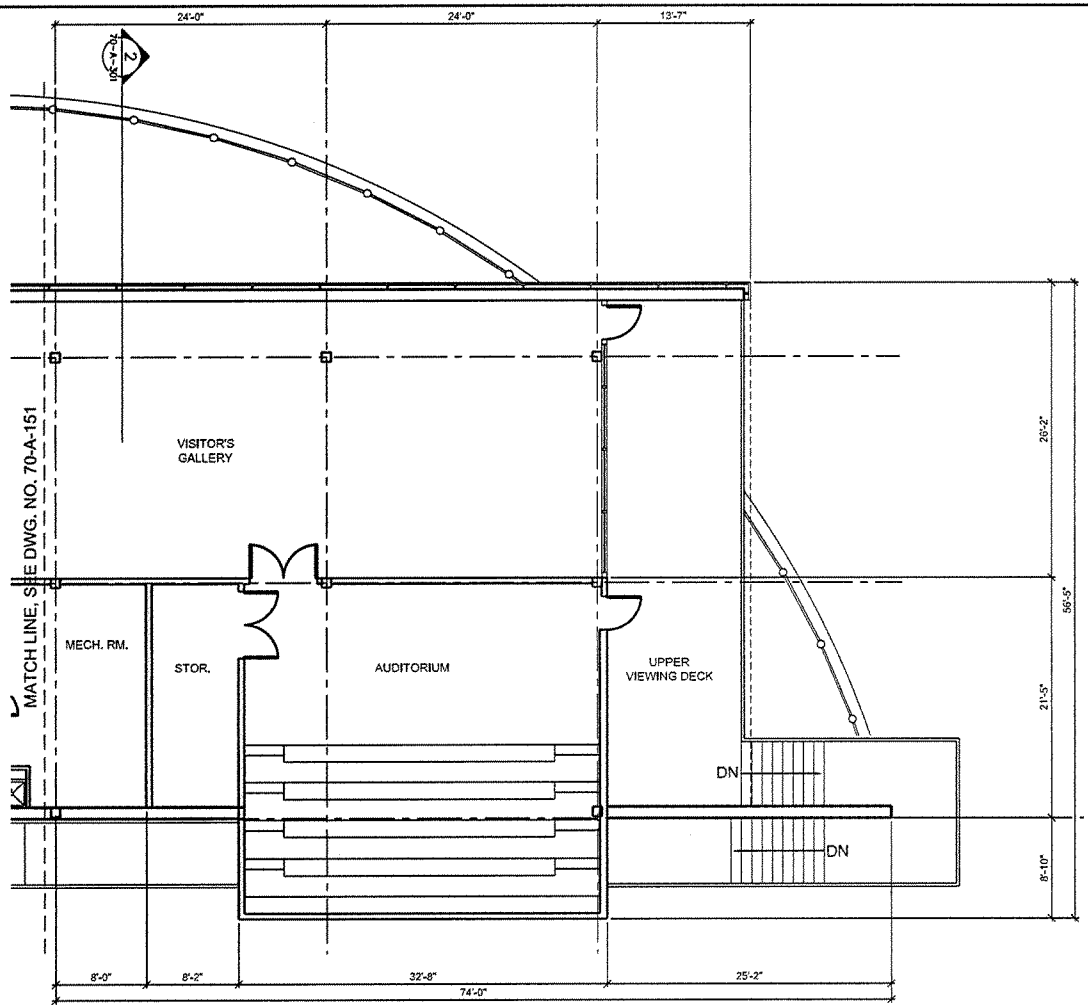

GENERAL NOTES

1. —

MATERIAL NOTES

① ———

WALL LEGEND

VISITORS CENTER BUILDING
SCALE: 3/16"=1'-0"

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REVISIONS			
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VISITOR'S CENTER
ARCHITECTURAL
SECOND FLOOR PLAN - AREA B

DRAWN-BY
ENGINEER

CHECKED BY: 287 TOTAL
DRAWING NUMBER: 70-A-152

PROJ NO.: 358064.DN

FILENAME: $FILENAME PLOT DATE: $PLOTDATE PLOT TIME: $PLOTTIME

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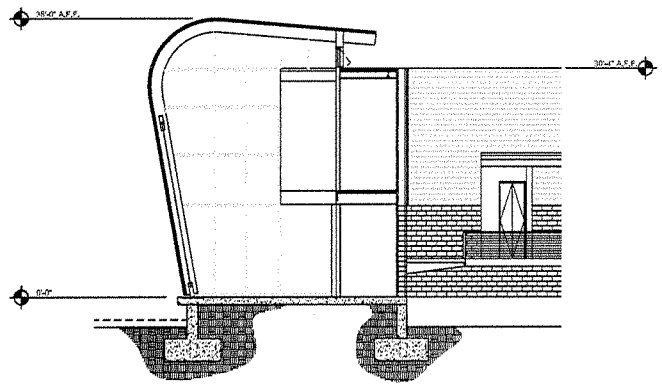
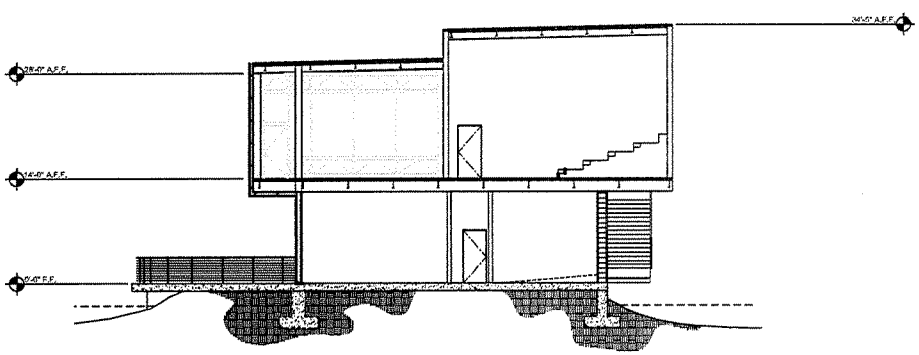
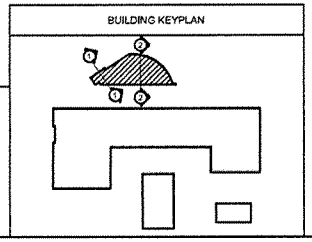


BUILDING SECTION 1
SCALE: 1/8"=1'-0"



BUILDING SECTION 2
SCALE: 1/8"=1'-0"

BUILDING KEYPLAN



GENERAL NOTES

1. ---

MATERIAL NOTES

① ---

WALL LEGEND

REVISIONS			
MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVR

REVIEWED BY
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PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

VISITOR'S CENTER
ARCHITECTURAL
BUILDING SECTIONS

DRAWN BY: DRAWN-BY
CHECKED BY: ENGINEER
DRAWING NUMBER: 70-A-301
CHECKED BY: 287 TOTAL

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PROJ NO.: 358064.DN
FILENAME: SFILENAME
PLOT DATE: SPLOTDATE
PLOT TIME: SPLOTTIME

VALVE SYMBOLS

- GATE
- KNIFE GATE
- BUTTERFLY
- GLOBE
- BALL
- VEE-BALL
- PLUG
- SEAT PORT ECCENTRIC PLUG
- DIAPHRAGM
- PINCH
- NEEDLE
- SWING CHECK
- BALL CHECK
- BACKFLOW PREVENTER
- ROTARY
- TELESCOPE
- SAMPLE
- MUD
- PRESSURE RELIEF
- AIR AND/OR VACUUM RELEASE
- REGULATED SIDE PRESSURE CONTROL
- PRESSURE REGULATION (CLAY-TYPE)
- MULTI-PORT VALVE (GATE VALVE SHOWN. FOR OTHER VALVE TYPES, APPROPRIATE VALVE SYMBOL SHOWN.) SEAT PORTS ARE IMPLIED BY INDICATED FLOW PATTERN.
- ANGLE GATE

GATE SYMBOLS

- SLUICE
- BUTTERFLY
- FABRICATED SLIDE
- FLAP
- STOP LOG

ACTUATOR SYMBOLS

- PNEUMATIC DIAPHRAGM SPRING-OPPOSED, SINGLE OR DOUBLE ACTING
- PNEUMATIC CYLINDER SINGLE OR DOUBLE ACTING ACTUATED BY ONE INPUT
- ELECTRIC MOTOR
- SOLENOID
- VALVE POSITIONER
- HYDRAULIC
- DIAPHRAGM, DIFFERENTIAL PRESSURE
- ELECTROHYDRAULIC
- MANUAL

NOTE:
ON LOSS OF PRIMARY POWER (PNEUMATIC, ELECTRICAL, OR HYDRAULIC)

XX: FO FAIL OPEN
FC FAIL CLOSED
FLP FAIL TO LAST POSITION

PRIMARY ELEMENT SYMBOLS

- PARSHALL FLUME
- WEIR
- ORFICE PLATE
- FLOW TUBE
- PITOT-STATIC
- VORTEX METER
- ULTRASONIC FLOWMETER
- ELECTROMAGNETIC FLOWMETER
- PROPELLER OR TURBINE METER
- THERMAL FLOWMETER
- LEVEL (BUBBLER TUBE)
- LS — LEVEL (FLOAT)
- FI — ROTAMETER
- DE — DENSITY METER
- XX — GENERIC
- LE — LEVEL

MISCELLANEOUS SYMBOLS

- VENT TO ATMOSPHERE
- AIR GAP
- DRIP TRAP
- PIG INSERT POINT
- PIG CATCH POINT
- SELF CONTAINED AIR SUPPLY
- AIR PURGE SET
- FLUSHING CONNECTION
- SEAL WATER SET
- WATER PURGE SET
- FLEXIBLE CONNECTION
- AERATOR
- DIAPHRAGM SEAL
- ANNULAR DIAPHRAGM SEAL
- COMPOSITE SAMPLER
- FLAME TRAP
- CALIBRATION COLUMN
- INLINE SILENCER
- BLIND FLANGE
- PIPE CAP
- STRAINER
- BASKET STRAINER
- FILTER
- PULSATION DAMPENER
- EXPANSION CHAMBER
- FFLCPLLLX — PANEL CONTINUED ON SAME OR OTHER DRAWING
- PANEL OUTLINE
- PANEL NAME
- 120V — 120 VOLT, 60 HZ POWER
- 480V — 480 VOLT, 60 HZ POWER
- XX — AIR SET XX = SUPPLY PRESSURE IN PSIG.
- PLUG
- RECEPTACLE
- RUPTURE DISK (VACUUM)
- RUPTURE DISK (PRESSURE)
- TV — TV MONITOR
- TV — TV CAMERA
- AND — LOGIC ELEMENT: IF A AND NOT B THEN C
- OR — LOGIC ELEMENT: IF A OR B THEN C
- RADIO ANTENNA
- OR — INTERLOCK, SEE CONTROL DIAGRAMS
- HORN
- SKIMMING MECHANISM
- SCREW
- SCREW CONVEYOR
- MIXER
- ELECTRIC MOTOR

LINE SIZE IDENTIFICATION

(FOR REFERENCE ONLY. SEE SITE AND MECHANICAL DRAWINGS)

PIPING CHANGE DATABASE SYMBOL — 18 — PIPE DIAMETER IN INCHES

PUMP AND COMPRESSOR SYMBOLS

- CENTRIFUGAL PUMP (DRY PIT)
- CENTRIFUGAL WET PIT PUMP OR TURBINE PUMP
- RECIPROCATING OR METERING PUMP (POSITIVE DISPLACEMENT)
- DIAPHRAGM PUMP
- GEAR PUMP OR BLOWER (POSITIVE DISPLACEMENT)
- PROGRESSING CAVITY PUMP
- COMPRESSOR (CENTRIFUGAL)
- COMPRESSOR (PISTON)
- BLOWER OR FAN (CENTRIFUGAL)
- PISTON PUMP
- SUBMERSIBLE SUMP PUMP
- ROTARY PUMP
- ROTARY HOSE PUMP
- EJECTOR
- ELECTRIC MOTOR
- SCREW PUMP

XX: AS ADJUSTABLE SPEED
CS-1 CONSTANT SPEED (SINGLE SPEED)
CS-2 CONSTANT SPEED (TWO SPEED)

FLOW STREAM IDENTIFICATION

AHP	AIR HIGH PRESSURE
ALP	AIR LOW PRESSURE
ARD	ACID RESISTANT DRAIN
ARV	ACID RESISTANT VENT
BA	BRINE ACID
BAS	BACK WASH AIR SCOUR
BR	BRINE
BRF	BRINE FEED
BRR	BRINE RECYCLE
BTP	BRINE TREATMENT PRODUCT
BWA	BACK WASH AIR
BWS	BACK WASH SUPPLY
BWW	BACK WASH WASTE
BYB	DECARBONATOR BYPASS
CA	CITRIC ACID
CCL	CALCIUM CHLORIDE
CCR	CLEANING CONCENTRATE RETURN
CCS	CLEANING CONCENTRATE SUPPLY
CE	CLARIFIER EFFLUENT
CF	CLEANING FLUSH
CHS	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
CIPS	CLEAN-IN-PLACE SUPPLY
CIPR	CLEAN-IN-PLACE RETURN
CIPW	CLEAN-IN-PLACE WASTE
CLS	CLARIFIED LIME SOLIDS
CND	CONDENSATE DRAIN
COS2	CLEANING FLUID PERMEATE RETURN
COV	CARBON DIOXIDE VAPOR
COS	CARBON DIOXIDE SOLUTION
CPR	CLEANING PERMEATE RETURN
CRD	CHEMICAL RESISTANT DRAIN
CRV	CHEMICAL RESISTANT VENT
CS	CAUSTIC SODA
DCE	DECARBONATED EFFLUENT
DHW	HOT WATER, DOMESTIC
DR	DRAIN
DS	DRAIN (SANITARY)
ECIP	ELECTRODE CLEAN-IN-PLACE SOLUTION
EDRC	EDR CONCENTRATE
EDRF	EDR FEED
EDRP	EDR PRODUCT
EDRW	EDR WASTE
EE	ENGINE EXHAUST
EF	ELECTRODE FEED
EPF	EVAPORATOR POND FEED
EW	ELECTRODE WASTE
FE	FILTER EFFLUENT
FF	RO FLUSH
FP	FIRE PROTECTION
FS	FIRE SPRINKLER SERVICE
HCL	HYDROCHLORIC ACID
HP	HYDROGEN PEROXIDE
IRR	IRRIGATION
LL	LIQUID LIME
MFF	MICROFILTRATION FILTRATE
NG	NATURAL GAS
OD	OVERFLOW ROOF DRAIN
OF	OVERFLOW
OSP	OFF-SPEC PRODUCT
PD	PLANT DRAIN
PW	POTABLE WATER
PHW	POTABLE HOT WATER
PHWC	POTABLE HOT WATER CIRCULATED
RD	ROOF DRAIN
RHW	HOT WATER, RECIRCULATED, DOMESTIC
ROC	RO CONCENTRATE
ROF	RO FEED
ROP	RO PERMEATE
S	SAMPLE
SA	SULFURIC ACID
SBS	SODIUM BISULFITE
SD	STORM DRAIN
SE	SECONDARY EFFLUENT
SH	SODIUM HYDROXIDE
SHC	SODIUM HYPOCHLORITE
SIEDR	SCALE INHIBITOR EDR
SIME	SCALE INHIBITOR MECH EVAPORATOR
SIRO	SCALE INHIBITOR RO
SS	SANITARY SEWER
STM	STEAM
SV	SANITARY SEWER VENT
SW	SETTLED WATER
SWR	SETTLED WATER RETURN
TI	THRESHOLD INHIBITOR
TKF	THICKENER FEED
TLS	THICKENED LIME SLUDGE
TP	TRAP PRIMER
TW	TREATED WATER
TW1	TEMPERED WATER, POTABLE
UD	UNDERDRAIN
UTW	UNTREATED WATER
UTWB	UNTREATED WATER BLEND
UVE	UV EFFLUENT
UW	UTILITY WATER (NON-POTABLE)
VCS	VAPOR COMPRESSOR SUCTION
VCD	VAPOR COMPRESSOR DISCHARGE
VS	VENT (SANITARY)
WS	WATER SOFTENED
WTW	WETLANDS TREATED WATER
W1	POTABLE WATER
W2	NON-POTABLE WATER

REVISIONS

MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVR

CH2MHILL
325 EAST HILLCREST DRIVE, SUITE 125
THOUSAND OAKS, CA 91360-5828
(805) 371-7617

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

GENERAL
INSTRUMENTATION AND CONTROL
LEGEND - 2 / FLOW STREAM IDENTIFICATIONS

REVIEWED BY: Eric Eriksson, Lynn Bakkerman, R.C.E. 41747, Exp. 3-31-09 — DATE
APPROVED-BY — DATE
CHECKED-BY — DATE
SCALE: HORIZ. VERT.
DRAWN BY: DS PARKER
DESIGNED BY: KD BIALEK
SHEET No: X OF TOTAL
DRAWING NUMBER: 01-G-9

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PROJ NO.: 358064.DN

FILENAME: dn01g009_358064.dgn PLOT DATE: 1/30/2008 PLOT TIME: 11:40:34 AM

GENERAL SITE NOTES:

1. SOURCE OF TOPOGRAPHY SHOWN ON THE CIVIL PLANS ARE BASE MAPS PROVIDED BY PEAK SURVEYS. ADDITIONAL MAPPING HAS BEEN ADDED FROM AS-BUILT DATA AND SUPPLEMENT SURVEY FROM OXNARD WASTEWATER TREATMENT PLANT HEADWORKS PROJECT. EXISTING CONDITIONS MAY VARY FROM THOSE SHOWN ON THESE PLANS. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND ADJUST WORK PLAN ACCORDINGLY PRIOR TO BEGINNING CONSTRUCTION.
2. EXISTING TOPOGRAPHY, STRUCTURES, AND SITE FEATURES ARE SHOWN SCREENED AND/OR LIGHT-LINED. NEW FINISH GRADE, STRUCTURES, AND SITE FEATURES ARE SHOWN HEAVY-LINED.
3. HORIZONTAL DATUM: CALIFORNIA STATE PLANE, ZONE 5.
4. VERTICAL DATUM: NGVD 29.
5. MAINTAIN, RELOCATE, OR REPLACE EXISTING SURVEY MONUMENTS, CONTROL POINTS, AND STAKES WHICH ARE DISTURBED OR DESTROYED. PERFORM THE WORK TO PRODUCE THE SAME LEVEL OF ACCURACY AS THE ORIGINAL MONUMENT(S) IN A TIMELY MANNER, AND AT THE CONTRACTOR'S EXPENSE.
6. FOR LOCATION OF CONTROL POINT ON STRUCTURES, SEE STRUCTURAL DRAWINGS.
7. COORDINATES AND DIMENSIONS SHOWN FOR ROADWAY IMPROVEMENTS ARE TO FACE OF CURB OR EDGE OF PAVEMENT.
8. STAGING AREA SHALL BE FOR CONTRACTOR'S EMPLOYEE PARKING, CONTRACTOR'S TRAILERS AND ON-SITE STORAGE OF MATERIALS.
9. PROVIDE TEMPORARY FENCING AS NECESSARY TO MAINTAIN SECURITY AT ALL TIMES.
10. ELEVATIONS GIVEN ARE TO FINISH GRADE UNLESS OTHERWISE SHOWN.
11. SLOPE UNIFORMLY BETWEEN CONTOURS AND SPOT ELEVATIONS SHOWN.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING EROSION CONTROL DEVICES DURING CONSTRUCTION. EROSION CONTROL DEVICES (X), (X) AND (X) ARE THE MINIMUM REQUIRED.
13. CONTRACTOR SHALL TAKE ALL OTHER MEASURES TO POSITIVELY PRECLUDE EROSION MATERIALS FROM LEAVING THE SITE. CONTRACTOR TO SUBMIT EROSION CONTROL PLAN.

GENERAL YARD PIPING AND UTILITIES NOTES:

1. EXISTING UNDERGROUND UTILITIES OBTAINED FROM AS-BUILTS AND FROM FIELD SURVEY. CONTRACTOR SHALL FIELD VERIFY DEPTH AND LOCATION PRIOR TO EXCAVATION. PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION.
2. FOR PIPING FLOW STREAM IDENTIFICATION, SEE DRAWING _____.
3. EXISTING PIPING AND EQUIPMENT ARE SHOWN SCREENED AND/OR LIGHT-LINED. NEW PIPING AND EQUIPMENT ARE SHOWN HEAVY-LINED.
4. UNLESS OTHERWISE SHOWN ALL PIPING SHALL HAVE A MINIMUM OF ____ COVER.
5. ALL PIPES SHALL HAVE A CONSTANT SLOPE BETWEEN INVERT ELEVATIONS UNLESS A FITTING IS SHOWN.
6. ALL NEW WATER PIPES MUST BE PROPERLY FLUSHED, PRESSURE TESTED, CHLORINATED AND BACTERIOLOGICALLY TESTED, AS SPECIFIED.
7. FOR TRENCHING AND BACKFILL, SEE (X).
8. FOR SURFACE RESTORATION OF ASPHALT CONCRETE, SEE (X), FOR GRAVEL ROADS, SEE (X), AND FOR GRASS, SEE SPECIFICATION_____.
9. MINIMUM ALLOWABLE CLEARANCE BETWEEN PIPES AT CROSSINGS SHALL BE 3". CONTROLLED DENSITY FILL SUPPORT IS REQUIRED AS SHOWN ON (X).

GENERAL NOTE:

1. THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL OF THE INFORMATION SHOWN MAY BE USED ON THIS PROJECT.

CIVIL LEGEND

EXISTING	THIS CONTRACT	
x 157.2	⊗ 155.5	SPOT ELEVATION
155	155	CONTOUR LINE
	3:1	EMBANKMENT AND SLOPE
		DRAINAGEWAY OR DITCH
	CB OR CB	CATCH BASIN OR INLET
		TRENCH DRAIN
	OR	SIGN
	Ⓔ OR Ⓢ	MANHOLE
	E	ELECTRICAL MANHOLE
	H	ELECTRIC HANDHOLE
		POST OR GUARD POST
		GUY ANCHOR
		FIRE HYDRANT
		UTILITY POLE
		LIGHT POLE
	BM	BENCH MARK
	△	SURVEY CONTROL POINT OR POINT OF INTERSECTION
		BRUSH/TREE LINE
		TREE
		PROPERTY LINE
		CENTER LINE, BUILDING, ROAD, ETC.
		STAGING OR WORK AREA LIMITS
	N 1000.00 E 1000.00	STRUCTURE, BUILDING OR FACILITY LOCATION POINT - COORDINATES
	B-1	BORING LOCATION AND NUMBER
	TP-2	TEST PIT LOCATION AND NUMBER
	P-3	PIEZOMETER LOCATION AND NUMBER
OR	OR	DEMOLITION
OR	OR	STRUCTURE, BUILDING OR FACILITY
		ASPHALT CONCRETE PAVEMENT
		GRAVEL SURFACING
		CONCRETE PAVEMENT
		CURB
		CURB AND GUTTER
		SINGLE SWING GATE
		DOUBLE SWING GATE
		SLIDING GATE
		GUARD RAIL
		CHAIN LINK FENCE
		ARCHITECTURAL FENCE
		WIRE FENCE
		CULVERT
		RETAINING WALL

YARD PIPING LEGEND

EXISTING	THIS CONTRACT	
	8" PE	NOMINAL PIPE DIAMETER / PIPE USE IDENTIFICATION
		PIPING < 30" DIAMETER
		PIPING ≥ 30" DIAMETER
		EXISTING PIPE TO BE ABANDONED
		EXISTING PIPE TO BE REMOVED
		NON-FREEZE HOSE VALVE (V-X) X = NO. IN SPECIFICATIONS
		NON-FREEZE HOSE VALVE WITH HOSE RACK (V-X) X = NO. IN SPECIFICATIONS
		INDICATOR POST VALVE
		GATE VALVE AND VALVE BOX
		BUTTERFLY VALVE AND VALVE BOX
		PLUG VALVE AND VALVE BOX
		FLEXIBLE COUPLING
		90° ELBOW UP
		90° ELBOW DOWN
		BEND < 90° UP
		BEND < 90° DOWN
		CONCENTRIC REDUCER
		CAP OR PLUG
		CLEANOUT
		FIRE HYDRANT

EROSION CONTROL LEGEND

COVER PRACTICES	SYMBOL
TEMPORARY SEEDING	TS
MULCHING AND MATTING	MU
CLEAR PLASTIC COVERING	CPC
BUFFER ZONES	BZ
PERMANENT SEEDING AND PLANTING	PS
CONSTRUCTION ENTRANCE	
INTERCEPTOR DIKE	ID
INTERCEPTOR SWALE	IS
CHECK DAMS	
OUTLET PROTECTION / RIPRAP	
FILTER FENCE	
STRAW BALE BARRIER (BIOFILTER)	
SEDIMENT TRAP (OR SUMP)	
SEDIMENT POND OR BASIN	

CH2MHILL
325 EAST HILLCREST DRIVE, SUITE 125
THOUSAND OAKS, CA 91360-5828
(805) 371-7917

REVISIONS

MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVR

REVIEWED BY: City Engineer, Lead Engineer, RCE, RTM, Dep. DIR/HOE — DATE

APPROVED-BY — DATE

CHECKED-BY — DATE

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

GENERAL
CIVIL LEGEND

SCALE: HORIZ. ____ VERT. ____

DRAWN BY: LG McCALL
DESIGNED BY: JA BOOTH

SHEET No. SHEET-NO TOTAL
DRAWING NUMBER 01-G-10

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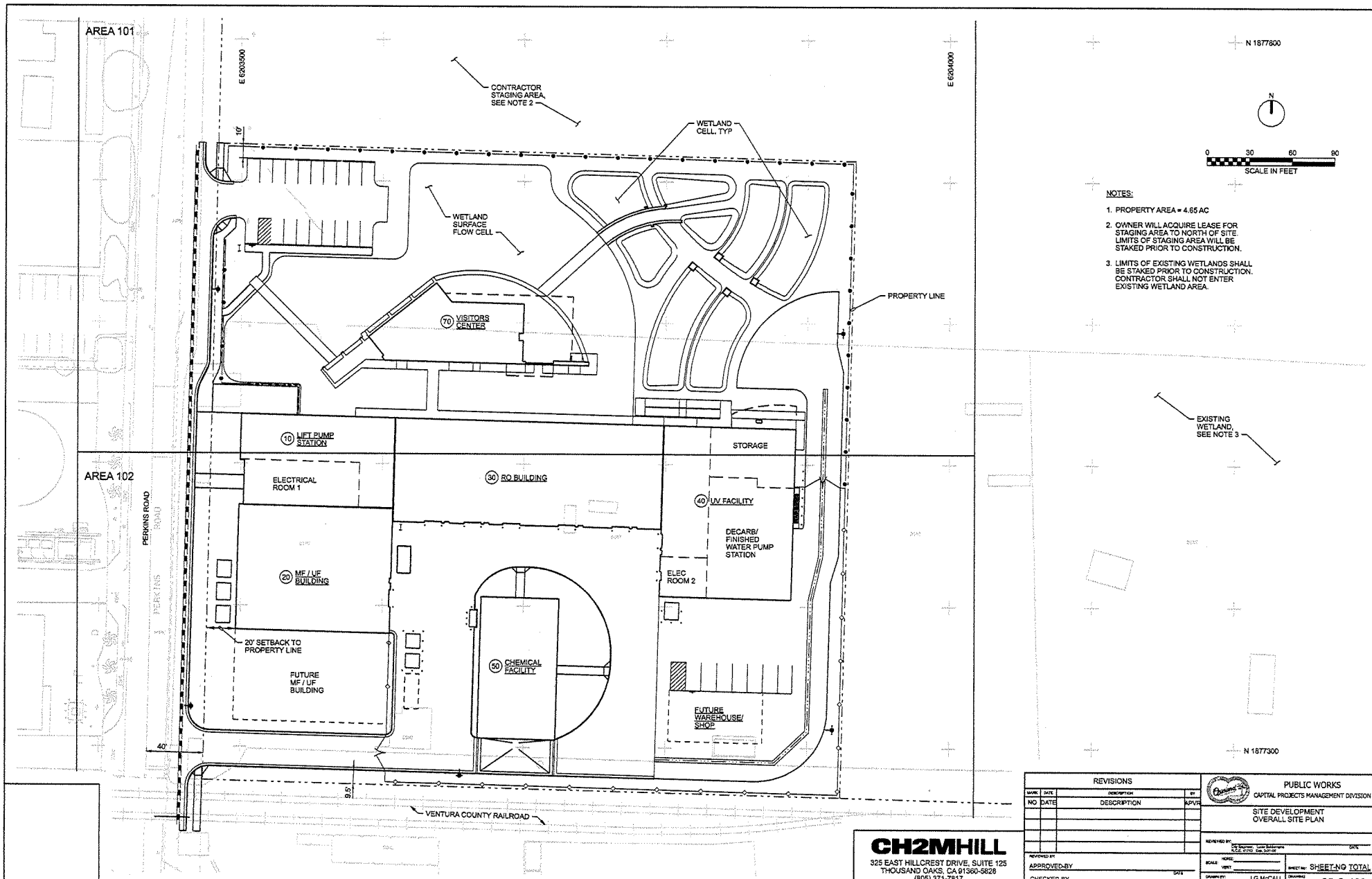
PROJ NO.: 358064.DN

FILENAME: dn01g010_358064.dgn PLOT DATE: 1/30/2008 PLOT TIME: 11:41:03 AM



NOTES:

1. PROPERTY AREA = 4.65 AC
2. OWNER WILL ACQUIRE LEASE FOR STAGING AREA TO NORTH OF SITE. LIMITS OF STAGING AREA WILL BE STAKED PRIOR TO CONSTRUCTION.
3. LIMITS OF EXISTING WETLANDS SHALL BE STAKED PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOT ENTER EXISTING WETLAND AREA.

REVISIONS

MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVR

REVIEWED BY
APPROVED-BY DATE
CHECKED-BY DATE

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325 EAST HILLCREST DRIVE, SUITE 125
THOUSAND OAKS, CA 91360-5828
(805) 371-7817

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

SITE DEVELOPMENT
OVERALL SITE PLAN

REVIEWED BY: Civil Engineer: Lucas Schlumpke R.C.E. 41743 Exp. 3-31-06 DATE

SCALE: HORIZ. VERT.

DRAWN BY: LG McCALL
DESIGNED BY: JA BOOTH

SHEET NO: SHEET-NO TOTAL
DRAWING NUMBER: 05-C-100

PROJ NO.: 358064.DN

FILENAME: dn05C100_358064.dgn PLOT DATE: 1/30/2006 PLOT TIME: 2:25:31 PM

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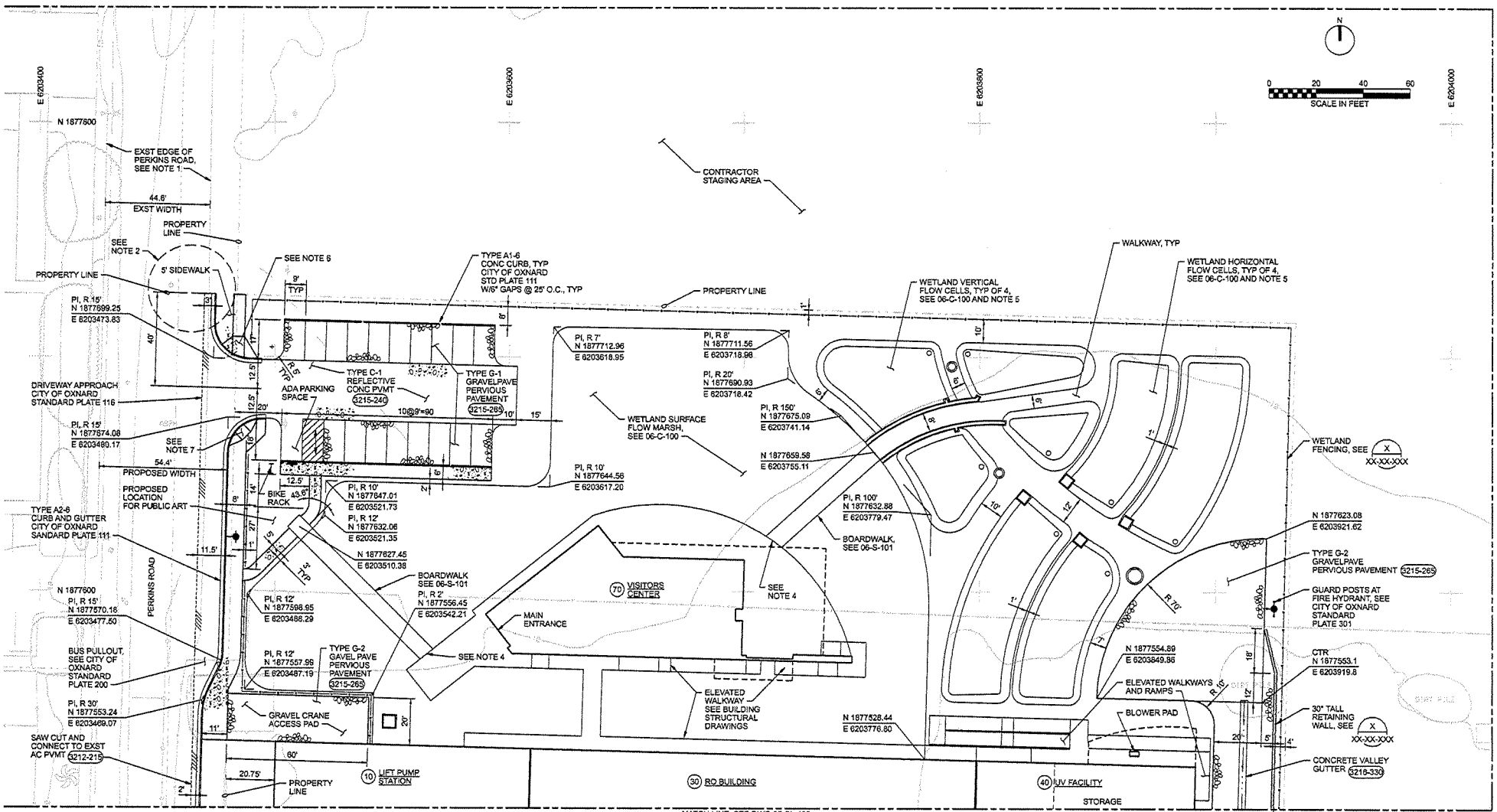

NOTES:

1. EXST EDGES OF PERKINS ROAD ARE APPROXIMATE. FINAL LOCATIONS MUST BE VERIFIED AND COORDINATED WITH THE HEADWORKS AND PERKINS ROAD PROJECTS.
2. EXTENTS OF SIDEWALK AND CURB AND GUTTER TO BE COORDINATED WITH PERKINS ROAD PROJECT, FINAL TIE-IN LOCATION TO BE DETERMINED.
3. INSTALL HANDICAPPED PARKING SIGN. MEET CITY OF OXNARD REQUIREMNTS.
4. FOR LOCATION OF BOARDWALK CONNECTION TO VISITORS CENTER WALKWAYS, SEE DRAWINGS 70-S-XXX AND 70-S-XXX.
5. FOR DETAILED WETLAND INFORMATION AND LAYOUT CONTROL, SEE DWG 06-C-100.
6. ADA SIDEWALK RAMP, TYP, CITY OF OXNARD STD PLATE 110 CASE C.
7. ADA SIDEWALK RAMP, TYP, CITY OF OXNARD STD PLATE 110 CASE X.

REVISIONS

MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVR

REVIEWED BY:
APPROVED-BY DATE
CHECKED-BY DATE

CH2MHILL
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THOUSAND OAKS, CA 91360-5628
(805) 371-7817

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

SITE DEVELOPMENT
LOCATION PLAN
AREA 1

REVIEWED BY: DATE
SCALE: HORIZ: VERT:
DRAWN BY: LG McCALL
DESIGNED BY: JA BOOTH
DRAWING MANAGER
SHEET NO: SHEET-NO TOTAL
05-CL-101

PROJ NO.: 358064.DN
FILENAME: dn05CL101_358064.dgn
PLOT DATE: 1/31/2008
PLOT TIME: 9:48:05 AM

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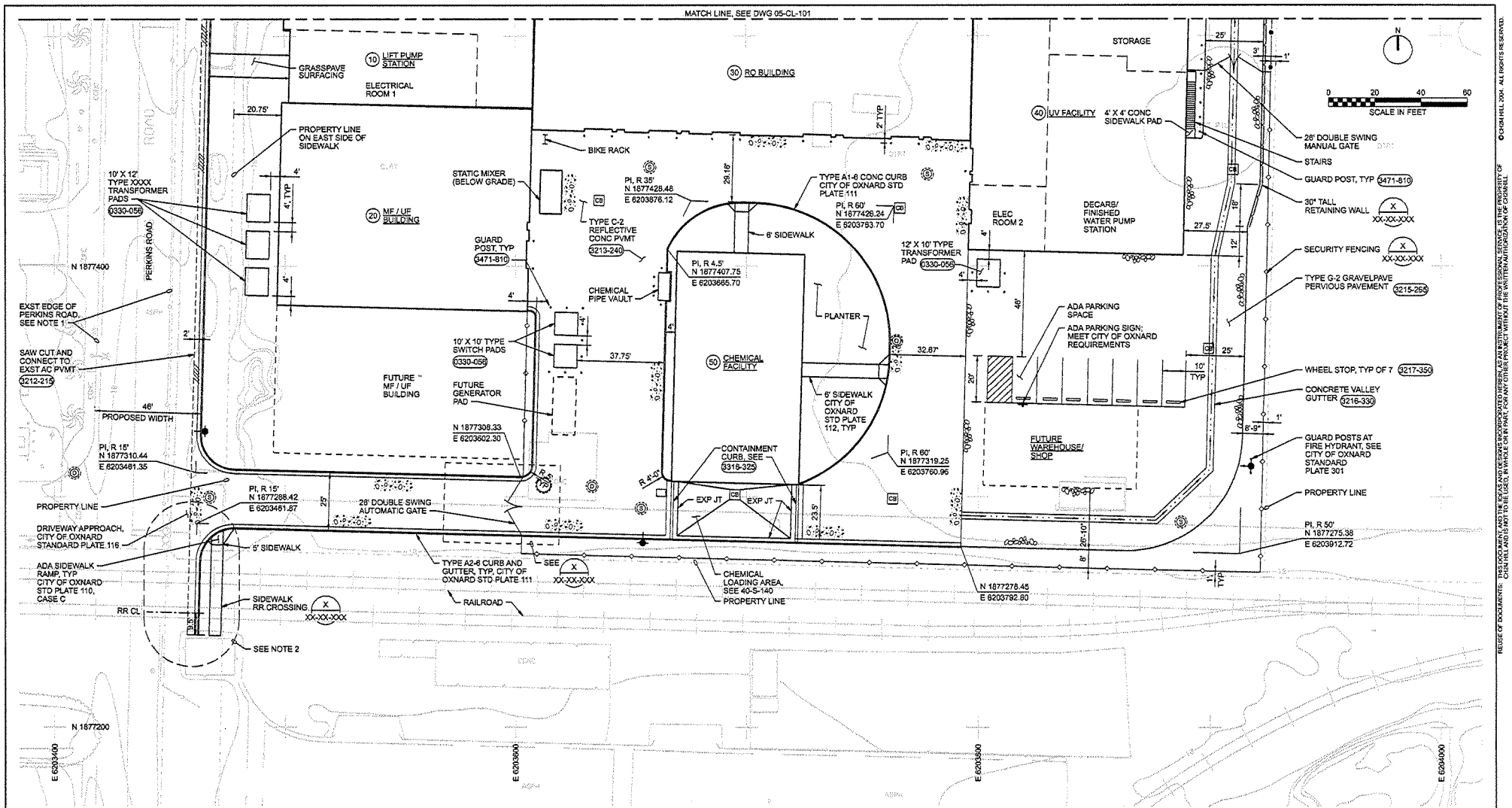

NOTES:

1. EXST EDGES OF PERKINS ROAD ARE APPROXIMATE. FINAL LOCATIONS MUST BE VERIFIED AND COORDINATED WITH THE HEADWORKS AND PERKINS ROAD PROJECTS.
2. EXTENTS OF SIDEWALK AND CURB AND GUTTER TO BE COORDINATED WITH PERKINS ROAD PROJECT, FINAL TIE-IN LOCATION TO BE DETERMINED.
3. FOR CATCH BASIN INFORMATION, SEE DWG 05-CG-102.

REVISIONS

MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVD

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THOUSAND OAKS, CA 91360-5828
(805) 371-7817

APPROVED-BY
CHECKED-BY

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

SITE DEVELOPMENT
LOCATION PLAN
AREA 2

SCALE: HORIZ. VERT.
DRAWN BY: LG McCALL
DESIGNED BY: JA BOOTH
SHEET NO: SHEET-NO TOTAL
DRAWING NUMBER: 05-CL-102

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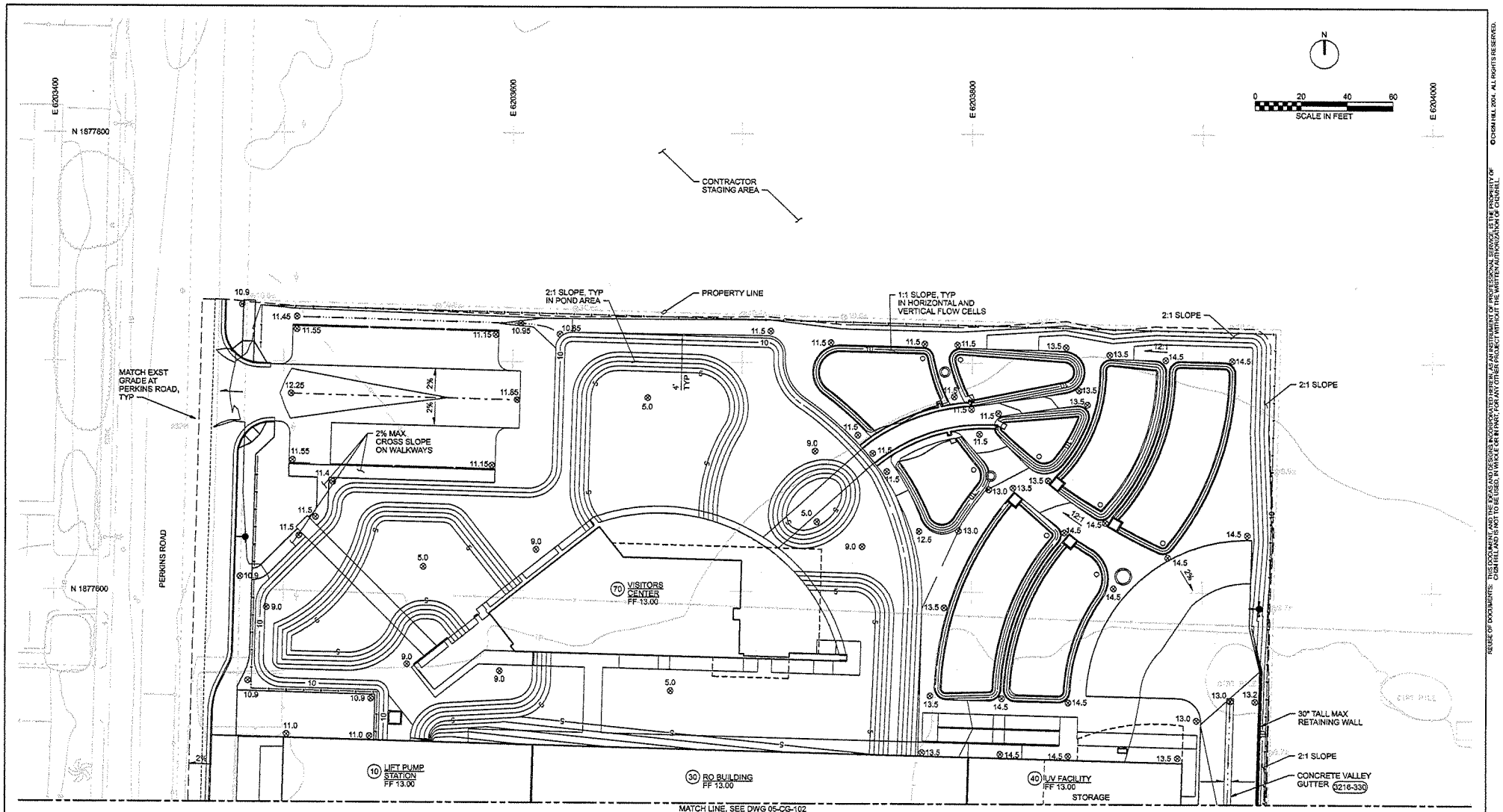
PLOT DATE: 1/30/2008
PLOT TIME: 2:22:57 PM



REVISIONS			
MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVR

REVIEWED BY:
APPROVED-BY DATE
CHECKED-BY DATE

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THOUSAND OAKS, CA 91360-5828
(805) 371-7817

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

SITE DEVELOPMENT
GRADING AND DRAINAGE PLAN
AREA 1

REVIEWED BY: CIVIL Engineer: Lucas Gerdemann R.C.E. 47748 Exp. 3-31-08 DATE
SCALE: HORIZ. VERT.
SHEET No: SHEET-NO TOTAL
DRAWN BY: LG McCALL
DESIGNED BY: JA BOOTH
DRAWING NUMBER: 05-CG-101

PROJ NO.: 358064.DN
FILENAME: dn05CG101_358064.dgn
PLOT DATE: 1/30/2008
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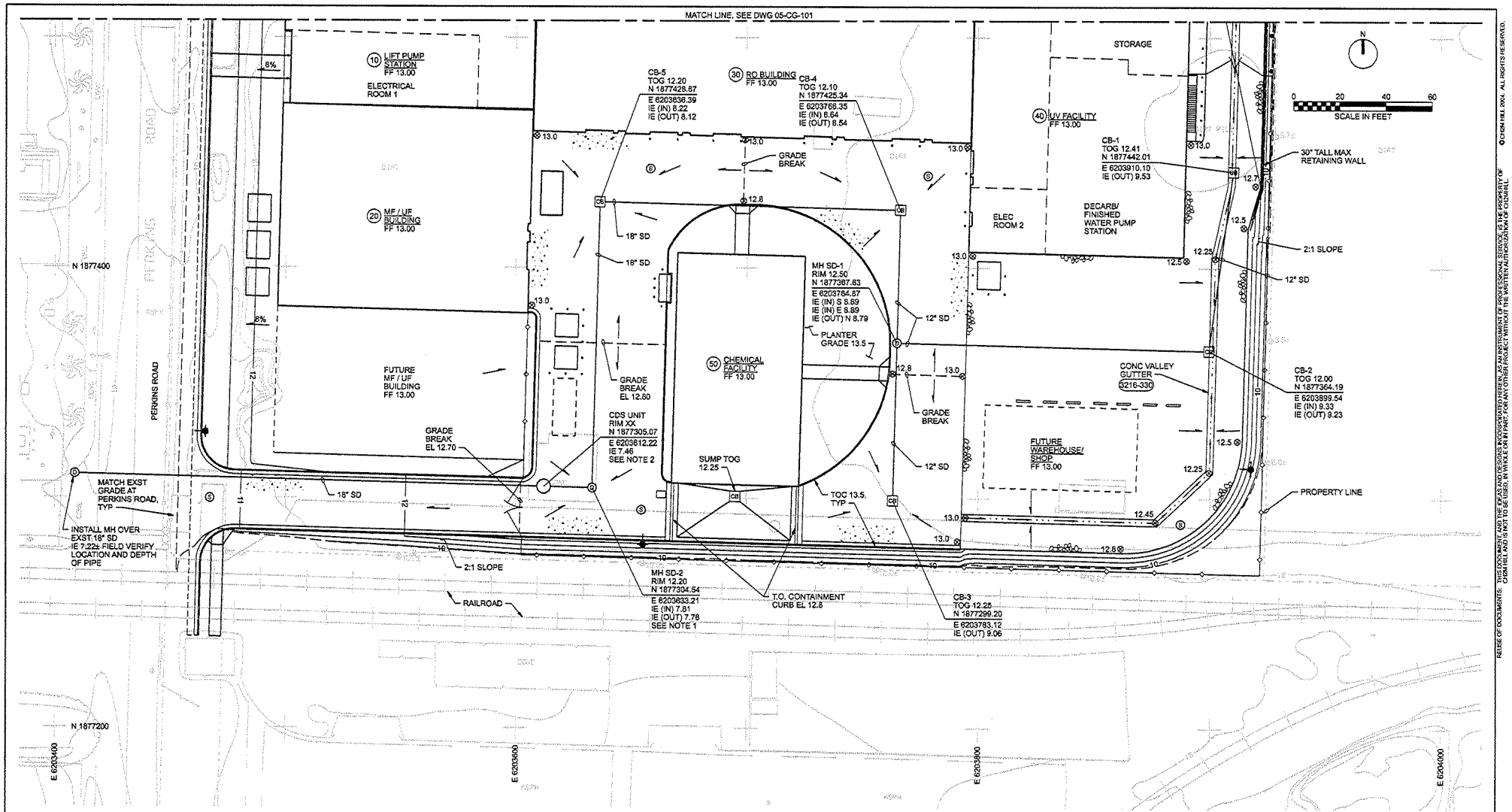

NOTES:

1. MH SD-2 SHALL HAVE A GRATED LID. LID SHALL BE ALHAMBRA FOUNDRY A-1492 OR APPROVED EQUAL.
2. CDS UNIT SHALL BE CONTECH MODEL PMSU30,30 STORM WATER TREATMENT UNIT OR APPROVED EQUAL.
3. MANHOLES SHALL BE PROVIDED AS PER CITY OF OXNARD STD PLATE 400.

REVISIONS

MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVD

CH2MHILL
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THOUSAND OAKS, CA 91360-5828
(805) 371-7817

REVIEWED BY
APPROVED-BY DATE
CHECKED-BY DATE

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

SITE DEVELOPMENT
GRADING AND DRAINAGE PLAN
AREA 2

REVIEWED BY: DATE
SCALE: HORIZ. VERT.
DRAWN BY: LG McCALL
DESIGNED BY: JA BOOTH
SHEET NO: SHEET-NO TOTAL
DRAWING NUMBER: 05-CG-102

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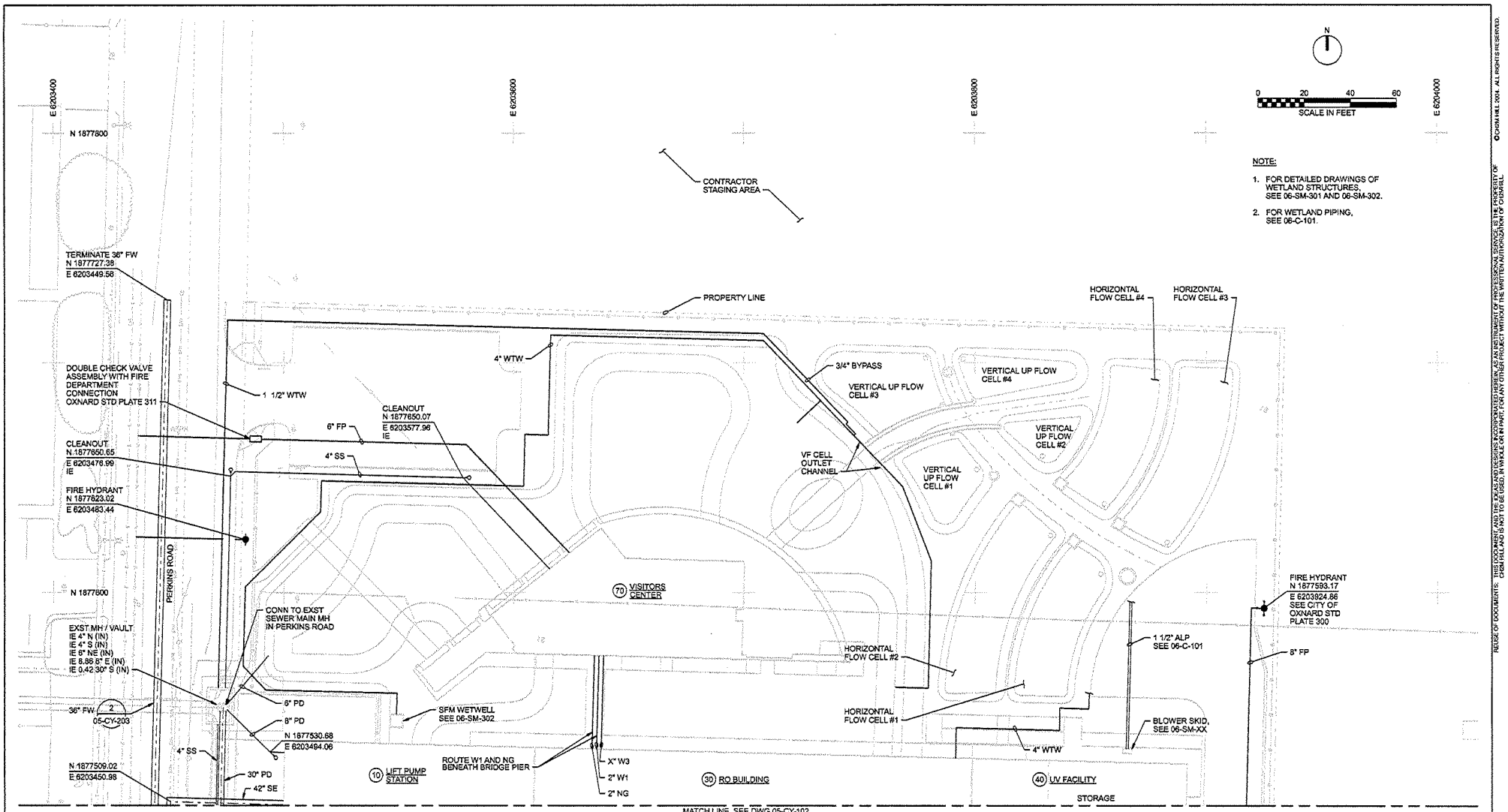

NOTE:

1. FOR DETAILED DRAWINGS OF WETLAND STRUCTURES, SEE 06-SM-301 AND 06-SM-302.
2. FOR WETLAND PIPING, SEE 06-C-101.

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THOUSAND OAKS, CA 91360-5828
(805) 371-7817

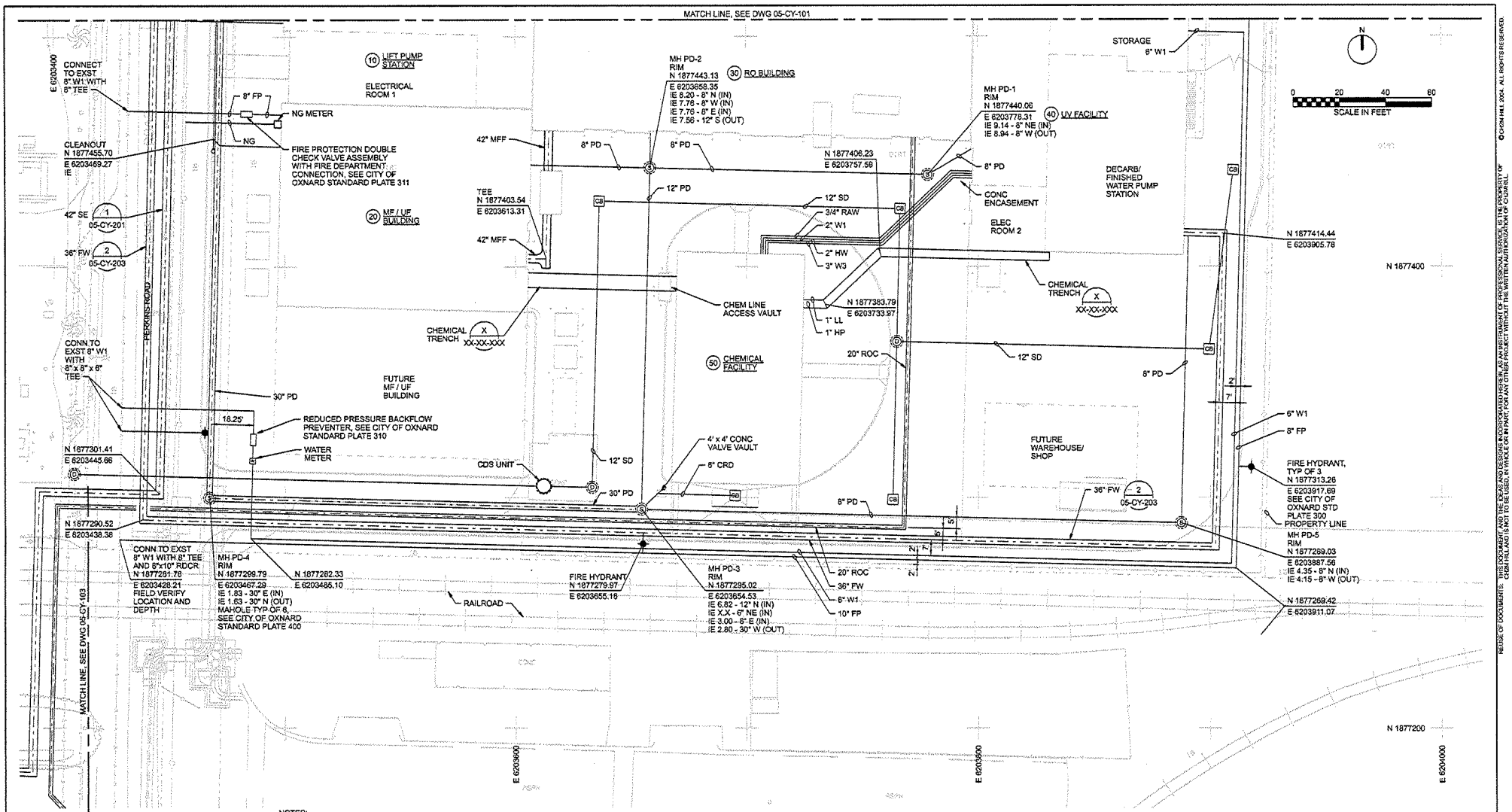
PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

SITE DEVELOPMENT
YARD PIPING PLAN
AREA 1

REVIEWED BY: DATE
City Engineer: Lynn Salvemini
R.C.E. 41765 Exp. 3-31-08

SCALE: HORIZ. VERT.
DRAWN BY: LG McCALL
DESIGNED BY: JA BOOTH
SHEET NO: SHEET-NO TOTAL
DRAWING NUMBER: 05-CY-101

PROJ NO.: 358064.DN
FILENAME: dn05CY101_358064.dgn
PLOT DATE: 1/30/2008
PLOT TIME: 2:23:23 PM



NOTES:

1. REFER TO GRADING PLANS FOR LOCATION AND INVERT INFORMATION OF STORM DRAIN SYSTEM.

REVISIONS			
MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVR

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325 EAST HILLCREST DRIVE, SUITE 125
THOUSAND OAKS, CA 91360-5828
(805) 371-7817

REVIEWED BY
APPROVED-BY DATE
CHECKED-BY DATE

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

SITE DEVELOPMENT
YARD PIPING PLAN
AREA 2

REVIEWED BY: City Engineer: Lucio Sanchez P.E. DATE
SCALE: HORIZ. VERT.
SHEET NO: SHEET-NO TOTAL
DRAWN BY: LG McCALL
DESIGNED BY: JA BOOTH
DRAWING NUMBER: 05-CY-102

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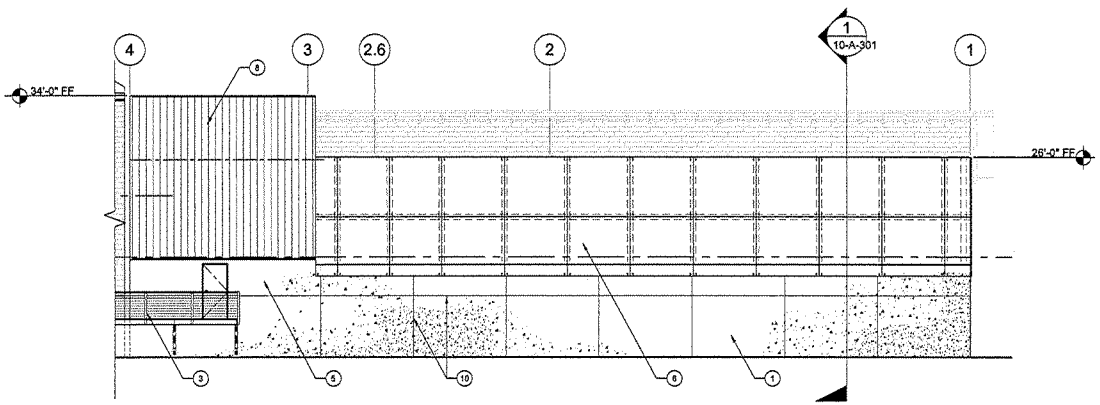
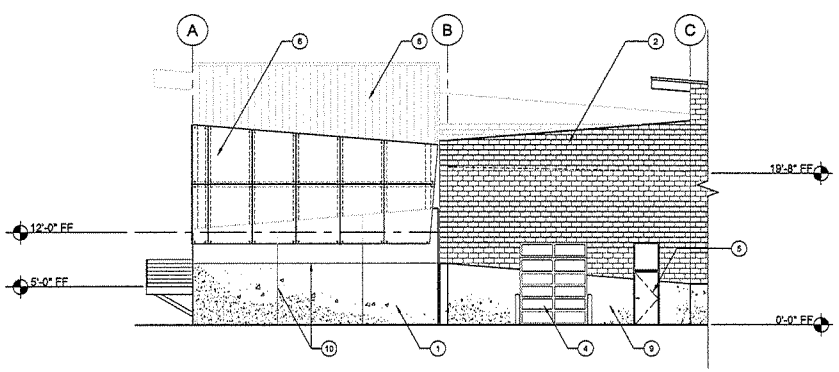
PROJ NO.: 358064.DN FILENAME: dm05CY102_358064.dgn PLOT DATE: 1/30/2008 PLOT TIME: 1:24:34 PM



NORTH ELEVATION 1

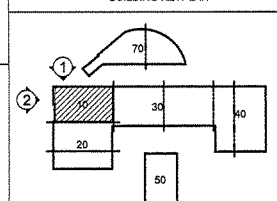
SCALE: 1/8"=1'-0"



WEST ELEVATION 2

SCALE: 1/8"=1'-0"

BUILDING KEYPLAN



GENERAL NOTES

MATERIAL NOTES

1. CONCRETE BULKHEAD
2. CONCRETE MASONRY UNIT WITH RANDOM PATTERN — 10% BURNISHED, 20% BURNISHED, 70% SPLIT-FACE
3. STAINLESS STEEL GUARDRAIL W/ GLASS
4. TRANSLUCENT GLASS OVERHEAD DOOR WITH TRANSOM
5. STEEL SERVICE MAN-DOOR
6. ANODIZED ALUMINUM CURTAIN WALL SYSTEM WITH BLUE-TINTED GLAZING
7. ANODIZED ALUMINUM WINDOW FRAME W/ BLUE-TINTED GLAZING
8. PROFILIT SYSTEM
9. STEEL BOLLARDS
10. CONTROL JOINTS

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REVISIONS

MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVR

REVIEWED BY: APPROVED-BY DATE

CHECKED-BY DATE

MAINSTREET ARCHITECTS + PLANNERS INC.
422 East Main Street
Ventura California 93001
phn: (805) 652-2118 fax: (805) 652-1532
mainst@stardhitects.com

CH2MHILL
325 E. HILLCREST DR. SUITE #125
THOUSAND OAKS, CALIFORNIA 91360
(805) 371-7817

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

LIFT PUMP STATION
ARCHITECTURAL
EXTERIOR ELEVATIONS

REVIEWED BY: City Engineer Lucas Sabatierra R.C.E. 51742 Exp. 3-31-08 DATE

SCALE: HORIZ. ____ VERT. ____

DRAWN BY: ADG/ NCM/ KAM

CHECKED BY: DMD/ DN

CHECKED BY: 108 OF TOTAL

DRAWING NUMBER: 10-A-201

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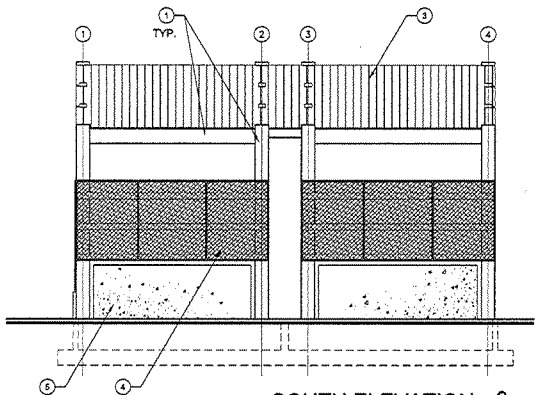

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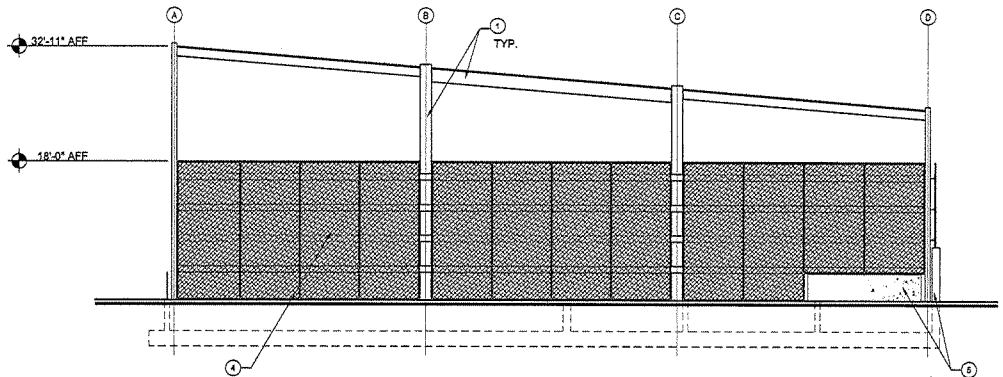

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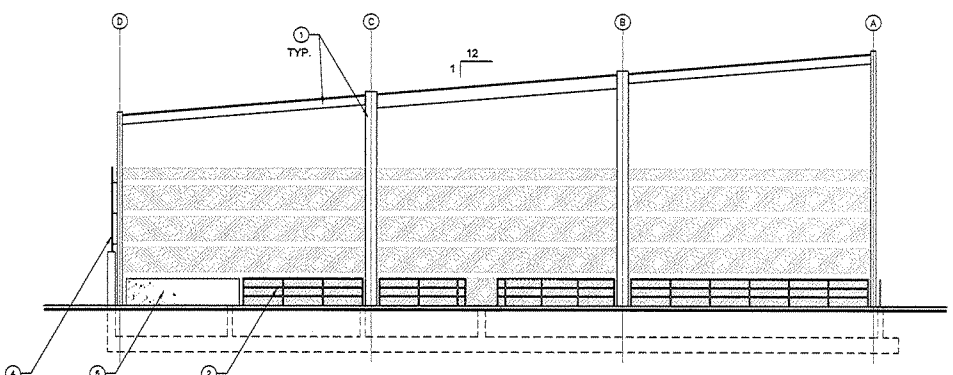

EAST ELEVATION 2
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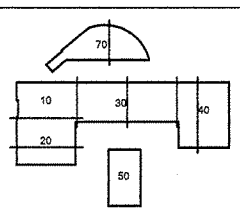
GENERAL NOTES

1. —

MATERIAL NOTES

1. STEEL STRUCTURE, PAINT BLACK
2. FRP GUARDRAIL
3. METAL DECKING
4. PERFORATED STAINLESS STEEL PANELS
5. CONCRETE BULKHEAD

BUILDING KEYPLAN



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MARK	DATE	DESCRIPTION	BY
NO	DATE	DESCRIPTION	APVR

REVIEWED BY:
APPROVED-BY DATE
CHECKED-BY DATE

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PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

CHEMICAL FACILITY
ARCHITECTURAL
EXTERIOR ELEVATION

REVIEWED BY: City Engineer Lynda Bissonnette R.C.E. 57742 Exp. 3-31-08 DATE

SCALE HORZ: VERT: CHECKED BY: 299 OF TOTAL

DRAWN BY: ADG/ NCM/ KAM DRAWING NUMBER: 50-A-201

CHECKED BY: DMD/ DN

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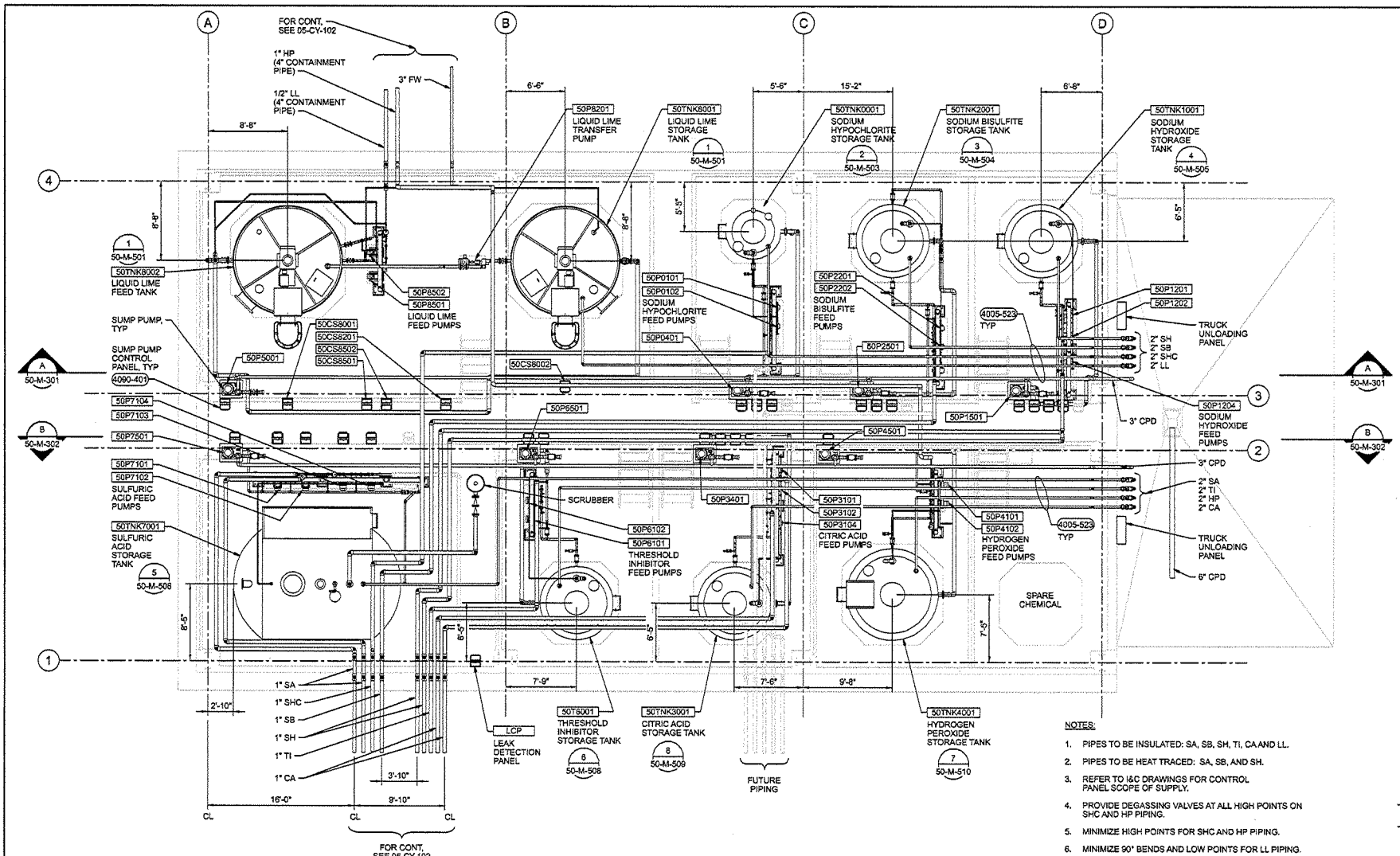
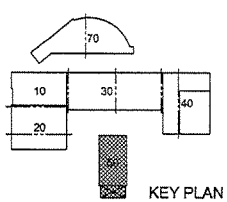


GROUND FLOOR PLAN

3/16"=1'-0"

NOTES:

1. PIPES TO BE INSULATED: SA, SB, SH, TI, CA AND LL.
2. PIPES TO BE HEAT TRACED: SA, SB, AND SH.
3. REFER TO I&C DRAWINGS FOR CONTROL PANEL SCOPE OF SUPPLY.
4. PROVIDE DEGASSING VALVES AT ALL HIGH POINTS ON SHC AND HP PIPING.
5. MINIMIZE HIGH POINTS FOR SHC AND HP PIPING.
6. MINIMIZE 90° BENDS AND LOW POINTS FOR LL PIPING.



KEY PLAN

REVISIONS			
NO	DATE	DESCRIPTION	APVD

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THOUSAND OAKS, CA 91360-5828
(805) 371-7617

PUBLIC WORKS
CAPITAL PROJECTS MANAGEMENT DIVISION

CHEMICAL FACILITY
MECHANICAL
GROUND FLOOR PLAN

APPROVED-BY
CHECKED-BY
DRAWN BY: KL McCOY
DESIGNED BY: R. CAMPBELL
SHEET No. X OF TOTAL
DRAWING NUMBER 50-M-140

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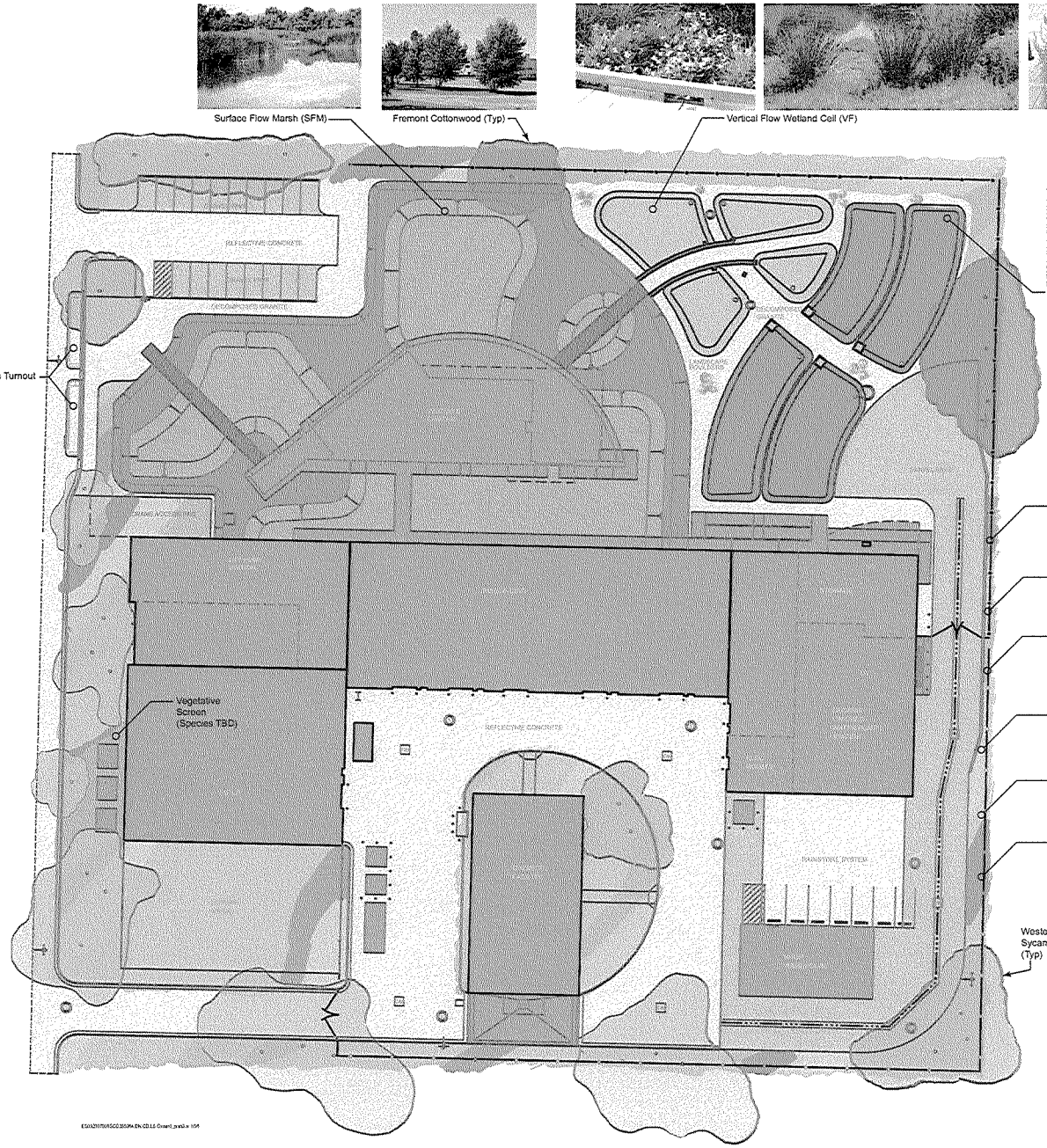


Landscape Plants:

Plant Palette and Quantities

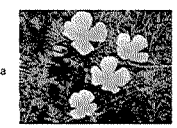
Latin Names	Common name	Qty	/	Size	Planting Center
Eschscholzia californica	California Poppy	270	/	6"	3'
Lupinus chamissonis	Coastal Bush Lupine	1100	/	1 gal	2'
Lupinus densiflorus	Golden Lupine	1100	/	1 gal	2'
Muhlenbergia rigens	Deergrass	320	/	1 gal	4'
Salvia apiana	White Sage	470	/	5 gal	4'
Eriogonum parvifolium	Coastal Dune Buckwheat	300	/	5 gal	5'
Stipa pulchra	Purple Needlegrass	1300	/	1 gal	2'
Platanus racemosa	Western Sycamore	21	/	10' Clean Trunk	Per Plan
Populus fremontii	Fremont Cottonwood	6	/	10' Clean Trunk	Per Plan
Eleocharis macrostachya	Common Spike Rush	20	/	1 gal	Per Plan

Wetland Plants:

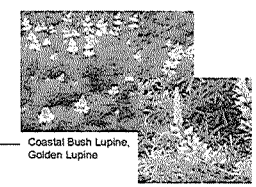
Plant Palette and Quantities

Wetland Cell	Latin Names	Common name	Qty	/	Size	Planting Center
VF / SFM	*Anemopsis californica*	Yerba Mansa	489	/	6" pot	1.5'
VF / SFM	*Carex parsa*	Creeping Sedge	1193	/	1 gal	1.5'
VF	*Distichlis spicata*	Saltgrass	866	/	1 gal	1'
VF / SFM	*Eleocharis atropurpurea*	Purple Spike Rush	731	/	1 gal	1.5'
SFM	*Eleocharis macrostachya*	Common spikerush	543	/	1 gal	1.5'
HF / SFM	*Scirpus americana*	Three-square Bulrush	1022	/	5 gal (split)	2'
HF	*Scirpus californicus*	California Bulrush	1022	/	5 gal (split)	2'

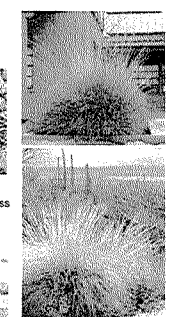
Note:
HF = Horizontal Flow
VF = Vertical Flow
SFM = Surface Flow Marsh



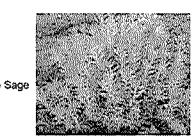
California Poppy



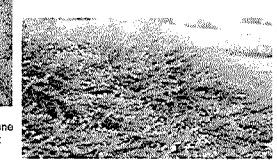
Coastal Bush Lupine, Golden Lupine



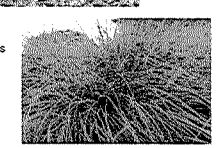
Deergrass



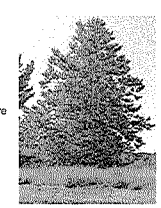
White Sage



Coastal Dune Buckwheat



Purple Needlegrass



Western Sycamore (Typ)

0 50 100
Approximate scale in feet

OXNARD AWPF
CONCEPTUAL LANDSCAPE PLAN
Oxnard, California

CH2MHILL

C. GREAT Program EIR Wetland Addendum

Ground Water Recharge Enhancement and Treatment Program (GREAT)

Program EIR No. 04-01

Final Environmental Impact Report Addendum No. 1

Advanced Water Purification Facility Wetland Demonstration Project

Prepared by:

City of Oxnard
Planning and Environmental Services
214 South C Street
Oxnard, California 93030

This document is an addendum to the Ground Water Recharge Enhancement and Treatment Program Final EIR No. 04-01. The addendum concludes that there are no additional possible environmental effects associated with the proposed wetlands demonstration component included in Planning and Zoning Permit No. 07-550-13 (Special Use Permit) in comparison to the project that was the subject of the GREAT EIR.

According to Section 15164 of the State California Environmental Quality Act (CEQA) Guidelines, an addendum to a previously adopted EIR is the appropriate environmental document in instances when no conditions exist that would trigger a subsequent EIR. There are three tests that determine if a subsequent EIR is required (Section 15162(a)). They are:

1. Substantial changes to the project lead to a substantial increase in the severity of previously identified environmental effects;
2. Substantial changes have occurred with respect to the circumstances under which the project is undertaken;
3. New information of substantial importance that was not known or could not have been known at the time of the MND adoption shows any of the following:
    a. The project will have effects not previously discussed,
    b. Significant effects previously examined will be substantially more severe than previously estimated,
    c. Mitigation measures previously found infeasible would now be feasible and would substantially reduce effects of the project, and/or
    d. Different mitigation measures from those included in the MND would substantially reduce effects.

In the first test, the proposed demonstration wetlands project is considered consistent with the GREAT Program project description and was conceptually described in section 5.1.2.2.2 of the GREAT Program Draft EIR as an alternative concentrate wetland disposal. The section concludes that, "Alternative concentration disposal...will be further defined and analyzed in future environmental documentation, as appropriate." Therefore, the proposed demonstration wetland is not a substantial change to the project and previously identified environmental impacts have been found to not increase in their severity by the consulting engineers, as documented in their final report "Results of Final Plant Tissue and Sediment Testing for the Membrane Concentrate Pilot Wetlands Project" (June, 2007).

In the second test, staff determine that circumstances have not substantially changed with regard to water demand, supply, and treatment technology in the four years since the GREAT EIR was certified. The project site has not changed, nor have the environs adjacent to the project site. All is as it was.

In the third test, staff determine that no new information of substantial importance that was not known or could not have been known at the time of the GREAT EIR certification shows that the project will have effects not previously discussed, that significant effects previously examined will be substantially more severe than previously estimated, that mitigation measures previously found infeasible would now be feasible and would substantially reduce effects of the project, and /or that different mitigation measures would substantially reduce effects.

Therefore, this Addendum to the certified GREAT Program EIR satisfies CEQA as to the wetlands demonstration project.

"Results of Final Plant Tissue and Sediment Testing for the Membrane Concentrate Pilot Wetlands Project" (June, 2007) is incorporated by reference and attached.

Results of Final Plant Tissue and Sediment Testing for the Membrane Concentrate Pilot Wetlands Project

Prepared for

City of Oxnard

June 2007

CH2MHILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

Printed on Recycled and Recyclable Paper

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Acronyms and Abbreviations

EPA	Environmental Protection Agency
GREAT	Groundwater Recovery Enhancement and Treatment
NPP	net primary production
RO	reverse osmosis
SAV	submerged aquatic vegetation
SE	saltgrass evaporation
SFHM	surface flow high marsh
SFLM	surface flow low marsh
VF	vertical flow
WWTP	Wastewater Treatment Plant

SECTION 1

Introduction

This report provides the results of the final plant tissue and sediment testing for the Membrane Concentrate Pilot Wetlands Project performed for the City of Oxnard Water Resources Department, formerly the Water Division, (City). The final testing consisted of sampling and analyzing plant tissue and sediment samples collected while dismantling the pilot wetland test bins or mesocosms following the conclusion of the two phases of pilot testing conducted from 2003 through May 2006. These test results supplement two earlier rounds of plant tissue and sediment sampling and analysis conducted (1) prior to construction of the pilot wetland systems in 2003 and (2) in 2005 after the two pilot study phases were initially complete. This third and final phase of testing was conducted in July 2006 after additional brackish test water continued to flow through the pilot wetland system following the plant tissue and sediment sampling conducted in 2005.

The dismantling of the mesocosms, or bins, for sampling in July 2006 consisted of completely taking apart the one cubic yard bins used to hold the mesocosms. This provided a unique look at the health and status of the wetland mesocosms after the pilot testing was completed. This could not be accomplished at any other point in the project because water was actively flowing through them during pilot testing.

The two phases of pilot testing for the Membrane Concentrate Pilot Wetlands Project were performed in accordance with the Membrane-Concentrate Pilot Wetlands Research Plan (CH2M HILL, 2003) prepared and documented in the Membrane Concentrate Pilot Wetlands Project report (CH2M HILL, 2004). The two phases are documented in the following reports.

- *Membrane Concentrate Pilot Wetlands Project* (CH2M HILL, August 2004)
- *Additional Testing for the Membrane Concentrate Pilot Wetlands Project* (CH2M HILL, July 2005).

The Membrane Concentrate Pilot Wetlands Project was conducted to support the City's Groundwater Resources Enhancement and Treatment (GREAT) Program.

1.1 Background

1.1.1 GREAT Program

The GREAT Program is being implemented by the City to develop additional sources of alternative water supply to continue meeting the City's goal of providing current and future residents and businesses with a reliable and affordable source of high-quality water. This program combines wastewater recycling and reuse; groundwater injection, storage, and

recovery; and groundwater desalination to provide regional water supply solutions to the Oxnard Plain (CH2M HILL, 2004b).

The GREAT Program includes construction of two treatment plants:

- The "Desalter" will remove salts and minerals from brackish groundwater for potable use.
- The "Advanced Water Purification Facility", or AWPF, will remove nutrients, salts, minerals, and other contaminants from secondary effluent from the City's wastewater treatment plant (WWTP) for reuse, including agricultural irrigation, groundwater recharge, and other municipal and industrial (M&I) uses.

Membrane concentrate to be generated by these treatment plants could be disposed through the Oxnard WWTP deep ocean outfall. A conceptual alternative to ocean disposal could be the use of membrane concentrate as a water source to create or restore brackish or salt marsh wetlands, if found to be compatible with the local environment. If feasible, membrane concentrate could be used for regional benefit, potentially including assisting with the restoration of the Ormond Beach wetlands system.

1.1.2 Two Phases of the Pilot Wetlands Project

The two phases of pilot testing conducted from 2003 through May 2006 consisted of running brackish water at a flow rate ranging from approximately 25 to 75 gallons per day through a series of the following mesocosms:

- Surface flow (SF)
- High marsh (SFHM)
- SF low marsh (SFLM)
- Horizontal subsurface flow (SSF)
- Peat-based vertical upflow (VF)
- Submerged aquatic vegetation (SAV) systems.

The two phases of pilot testing were conducted as follows:

- Initial testing was conducted that included construction, operation, and testing of pilot wetland mesocosms from June 2003 through May 2004. The goal of this testing was to demonstrated the safety and potential beneficial use of membrane concentrate for wetlands restoration. (CH2M HILL, 2004). The layout of the mesocosms for this initial testing is provided in Appendix A.
- Additional testing was conducted by re-configuring the initial pilot wetland mesocosms over a 6-month period from September 2004 through March 2005. The goal of this testing was to assess the treatment effectiveness of an optimized series of pilot wetlands mesocosms (CH2M HILL, 2005). The layout of the mesocosms for this additional testing is provided in Appendix B.

The conclusions from these two phases of pilot testing were as follows:

- *Concentrate can sustain viable native plant communities*

- *Removal of nonconservative elements will occur through natural biological and chemical transformation processes and will vary among wetland types*
- *Some removal of conservative elements can occur through physical/chemical processes, and removal will vary among wetland types*
- *Discharge is ecologically safe to wetland biota*

The additional testing provided information to (1) optimize the effectiveness of the pilot wetlands system in terms of improving the quality of membrane concentrate and (2) further increase the understanding of the physical, chemical, and biological processes that affect the improvement of the quality of membrane concentrate. The results of the two phases of pilot testing conducted from 2003 through May 2006, in addition to the results of the final sediment and plant tissue testing documented in this report, will be useful during design of future demonstration wetlands systems intended to accept membrane concentrate from the GREAT Program.

1.2 Purpose

The purpose of the final testing was to address one of the key issues surrounding the use of treatment wetlands for beneficial reuse of membrane treatment concentrate, which is the question of how long the system will last until accumulation of salts or other pollutants reach levels toxic to the system. This can be addressed by quantifying the concentration and distribution of various elements throughout the soil and plant components and comparing these results with the samples collected and analyzed at various times during the pilot wetlands project: (1) prior to construction of the pilot wetland systems in 2003, (2) in 2005 after the two pilot study phases were completed, and (3) at the decommissioning of the pilot system in July 2006 (this report).

1.3 Scope of Work

CH2M HILL performed detailed sampling and laboratory analysis sediment and plant tissues in July 2006 to evaluate concentrations of key pollutants and salts after three years of operation. Destruction of the test mesocosms was performed to access the bin soil column and plant roots and shoots. This effort provides a final look at salt and pollutant storage in the pilot system, which can help determine if or when toxic constituent concentrations could be attained during wetland operation.

1.4 Report Organization

This report is organized into the following sections:

- Section 1 – Introduction
- Section 2 – Methods
- Section 3 – Results
- Section 4 – Preliminary Results and Conclusions
- Section 5 – References

The layouts for the initial and additional phases of pilot testing performed from 2003 through 2005 are provided in Appendices A and B, respectively. The laboratory data for the final testing of the sediment and plant tissue samples, the subject of this report, are provided in Appendix C.

SECTION 2

Methods

This section describes the dismantling of the mesocosms, final plant tissue and sediment sample collection and analysis, and visual observations made during final sample collection. Further information on the mesocosms and the earlier plant tissue/sediment sampling events can be found in the work plan (CH2M HILL, 2003), initial testing report (CH2M HILL, 2004), and additional testing report (CH2M HILL, 2005).

2.1 Dismantling of Bins

Beginning the week of July 24 2006, the bins were allowed to dry down, and on July 27 2006, the bins were dismantled by CH2M HILL project staff with the assistance and cooperation of the City of Oxnard Water Division. One replicate of each of the six wetland mesocosms (i.e., bins) was chosen randomly for sampling:

- Surface flow (SF)
- High marsh (SFHM)
- SF low marsh (SFLM)
- Horizontal subsurface flow (SSF)
- Peat-based vertical upflow (VF)
- Submerged aquatic vegetation (SAV) systems.

The layouts of these mesocosms during the initial and additional phases of pilot testing performed from 2003 through 2005 are provided in Appendices A and B, respectively. Two opposing faces of each bin were cut off, exposing the profile of the wetland system. This enabled easy access to the soil horizon and plant root zones, which in the past had been difficult or impossible to sample due to the dense growth of vegetation in the bins.

2.2 Plant Tissue Sample Collection and Analysis

Plant tissue samples were collected from one random replicate of each bin type. Two replicate samples each were collected from plant root zones within the sediment and from plant shoots above the sediment within the bins. Samples were a composite of the species found in the particular system being sampled. They were collected from a known surface area so that estimates of total plant biomass in each system could be calculated. The samples were analyzed by Applied Sciences Laboratory in accordance with published EPA methods for a variety of chemical constituents (Table 1).

2.3 Sediment Sample Collection and Analysis

Sediment samples were collected from one replicate of each type of bin except the gravel-based subsurface flow (SSF) system. Five total samples were collected from each of these bins -- two replicate samples from the lower soil horizon, two replicate samples from the

upper soil horizon, and one composite sample of the entire soil column. The samples were analyzed by TestAmerica in accordance with published EPA methods for a variety of chemical constituents as shown in Table 2.

2.4 Visual Observations

The following measurements and observations were recorded during sampling of the pilot system bins:

- Plant species coverage and total coverage estimates were recorded by systematically recording plant species occurrence on two random transects across each bin.
- Surface areas and depths (or heights) were measured for soil columns, plant root zones, and plant shoots.
- Photographs were taken of the top view of each bin and of the profiles of each wetland system that were exposed when bin faces were removed.
- Distribution and collection piping was cut open to assess the presence and extent of salt precipitate formation on the inside of pipe walls.

SECTION 3

Results

This section provides the following:

- Results of the laboratory chemistry analyses and observations made in the field during dismantling and sampling of the mesocosms in July 2006
- Comparisons of the chemistry data to results from the two earlier rounds of plant tissue and sediment sampling and analysis conducted (1) prior to construction of the pilot wetland systems in 2003 and (2) in 2005 after the two pilot study phases were complete.

Brackish test water was allowed to flow for an additional 13 months through the pilot wetland system following the two phases of pilot testing conducted from 2003 through May 2005. The analytical results from the plant tissue and sediment samples collected in 2003 (pre-pilot testing), 2005 (immediately following pilot testing), and 2006 (an additional year following pilot-testing) allow an assessment of the accumulation of salts or other pollutants over time.

3.1 Chemical Analysis

3.1.1 Tissue Samples

Appendix C provides tissue sample data presented in tabular and summary graph form. In general, metals such as aluminum, calcium, and copper accumulated to higher levels in roots than in shoots during the pilot testing performed from 2003 through 2005. Potassium, chloride, and sodium accumulated to higher levels in shoots than roots. Calcium, magnesium, and silver generally accumulated to a greater degree in a submerged aquatic vegetation (SAV) system than other systems. Silver accumulated in roots in the surface flow low marsh (SFLM) to a similar degree as in plant tissue from the SAV system. Both of these cases were greater than all other plant samples (see Figure 1). Selenium exhibited a similar trend, with SFLM root samples and SAV samples exhibiting greater levels than all other samples, as shown in Figure 2.

3.1.2 Plant Biomass

In addition to chemical analysis of plant tissues, plant samples were weighed and analyzed for percent moisture so that dry biomass per unit area could be estimated. Figure 3 displays biomass of roots and shoots for each wetland system. For the SAV system, total plant biomass was grouped together. Figure 4 displays estimates of maximum standing crop of roots and shoots and net primary production (NPP) for several wetland plant species and communities similar to those used in this study.

3.1.3 Sediment Samples

Appendix C provides sediment and peat sample data presented in both tabular and summary graph form. With the exception of the vertical flow (VF) system, little variability between wetland systems was noted in the chemical concentrations accumulated during the pilot testing performed from 2003 through 2005. However, substantial differences between VF systems and the other systems were observed over this time. For example, aluminum, phosphorus, potassium, and copper were lower in the VF system than in all other systems, which exhibited similar concentrations (see Figure 5 for copper concentration in sediment and peat samples). Conversely, calcium, fluoride, magnesium, specific conductivity, organic nitrogen, sodium, sulfate, salinity, chloride, and TKN were higher in the VF system (see Figure 6 for specific conductivity in sediment and peat samples). Little variability was observed for mercury and pH between systems.

3.2 Observations

3.2.1 Plant Coverage

Plant coverage estimates are presented in Table 3. Coverage estimates were performed for each bin and were averaged by wetland type. Cover estimates described the relative proportion of plants in the uppermost strata of vegetation in the system. For comparison, plant coverage estimates from the initial Membrane Concentrate Pilot report (CH2M HILL, 2004) are included in Table 4. The relative dominance of the different plant species observed is consistent with previous reports, but the number of species is reduced. Some of this difference may be attributed to a slight difference in sampling methodology, because estimates of plant cover collected initially were for all layers of plant growth, whereas the final sampling focused on the uppermost, dominant layer, given the sheer density of plant growth. Part of this difference, though, is attributed to ecological competitive interactions between plant species, and shading of lower or slower growing plant species by the dominant plant species.

3.2.2 Photography

Dismantling the pilot wetlands enabled a unique opportunity to photograph the different types of treatment wetland systems from a perspective rarely seen. This section summarizes observations of the bins while being dismantled along with cross-section and top-view photographs.

3.2.2.1 Subsurface Flow Wetland

Cross-section and top-view photographs of the SSF system sampled are shown in Figures 7 and 8, respectively. The observed layers included a 22-inch layer of gravel under a layer comprised of a solid 17-inch layer of plant mass. In addition, a dense root zone penetrated approximately 17 inches below the top of the gravel. All plants appeared healthy and exhibited dense growth. Visible in Figure 7 is a green colored algal coating of the top several inches of gravel. This was only noted at the interface between the gravel in the plastic wall of the bin, which has been removed in the figure. A low level of light filtering through the white opaque walls was probably sufficient to support low levels of algal growth.

3.2.2.2 Surface Flow Low Marsh Wetland

A cross-section photograph of the SFLM system sampled is shown in Figure 9. A top-view photograph could not be taken due to the height (~7 feet) of the vegetation. An approximately 7-inch layer of soil covered the bottom of the bin and the dense rhizome layer was 18 inches thick. All plants appeared healthy and exhibited dense growth. It should be noted that during construction, a 12-inch layer of soil had been placed in the bin.

3.2.2.3 Vertical Flow Wetland

Cross-section and top view photographs of the VF system sampled are shown in Figures 10 and 11, respectively. A 12-inch layer of gravel was overlain with a 10-inch layer of peat. Plant heights averaged 20 to 25 inches. Note that during construction, an 18-inch layer of peat had been installed. A dense root zone penetrated through both the peat and gravel to near the bottom of the bin. As shown in Figure 11, full, healthy growth of wetland plants is visible in the top view.

3.2.2.4 Surface Flow High Marsh Wetland

Cross-section and top view photographs of the SFHM system sampled are shown in Figures 12 and 13, respectively. A 13-inch soil layer was overlain with a solid mass of plants 20 to 28 inches tall. The root zone penetrated through the soil layer to the bottom of the bin.

3.2.2.5 Saltgrass Evaporation

Cross-section and top view photographs of the SE system sampled are shown in Figures 14 And 15, respectively. An approximately 14-inch soil layer contained a very dense root system that ranged from 7 to 10 inches thick. Plant cover was dominated by saltgrass (*Distichlis spicata)* 18 inches tall.

3.2.3 Scale in Pipes

A visual survey of the extent of scale (salt precipitate build-up) on interior walls of the pilot system piping was performed. Some piping walls exhibited orange-brown or green-brown precipitate in a thin film (see Figures 16 and 17), while some were free of significant precipitate (Figure 18).

SECTION 4

Summary of Results and Conclusions

This section summarizes the test results and provides conclusions regarding the plant tissue and sediment samples collected from the mesocosms in 2003 (pre-pilot testing), 2005 (immediately following pilot testing), and 2006 (an additional XX months following pilot-testing).

4.1 Summary of Results

4.1.1 Plant Biomass

A comparison of the biomass of plant roots and shoots in Exhibits 3 and 4 shows that the ranges of plant biomass measurements for the pilot wetlands study were consistent with reported biomass of other commonly studied marsh plants. The shoot biomass for the pilot wetlands study ranged from <1 kg/m^2 to ~7 kg/m^2, which brackets the range of observed primary production in brackish and freshwater tidal marshes. Similarly, the range of root biomass standing crop ranged from 2 to 14 kg/m^2, which generally exceeded the observed range of literature values. These results indicate that the concentrate supported normal plant growth.

4.1.2 Trends in Plant Tissue Concentrations

Tissue concentration data collected at the beginning and end of the pilot testing conducted from 2003 through 2005 were compared to assess salt accumulation trends. Calcium, magnesium, and sodium all tended to increase throughout the study. Calcium showed the most apparent trend, averaging approximately 5,000, 33,000, and 65,000 mg per kg in plant tissue samples collected in July 2003 (pre-pilot testing), September 2004 (immediately following the first phase of pilot testing), and July 2006 (this study), respectively. Fluoride and phosphorus decreased over the course of the study. Other constituents, including metals, were not detected at a frequency sufficient to support conclusions on trends. Appendix C provides summaries of these data.

4.1.3 Trends in Sediment Concentrations

Sediment concentrations did not exhibit marked differences between the three sampling events in July 2003 (pre-pilot testing), September 2004 (immediately following the first phase of pilot testing), and July 2006 (this study). Magnesium and sulfate concentrations increased 20-25 percent over the course of the study. Chloride concentrations generally decreased, most notably in the SAV, SFLM, and SFHM systems. Copper concentrations generally remained unchanged, while silver, selenium, and mercury were not observed above detection levels.

Concentrations of constituents generally increased in the peat samples. Calcium, chloride, fluoride, magnesium, sodium, and sulfate increased over the course of the experiment.

Copper and potassium were elevated in 2004 relative to the beginning and end of the experiment. Silver, selenium, and mercury were not observed above detection levels.

Data summaries are provided in Appendix C.

4.1.4 Toxicity Potential of Sediment Salt Concentrations

Literature values for wetland plants with naturally elevated concentrations of salts were compared to the results of the sediment and plant tissue concentrations from the pilot wetlands project. Table 5 compares reported upper concentrations for healthy wetland plant species populations with results of the pilot system. Note that values are provided for comparison with healthy natural systems and are not "threshold" levels or levels at which toxic effects are expected.

Concentrations in the VF system peat showed the greatest increase over the course of the pilot study. Because salinity threshold values were not available for the species planted in the VF system only indirect comparisons with values reported for other wetland species can be made. SE system sediments also exhibited an increase in salts over the course of the pilot study, but salinity levels were below the upper thresholds listed for *D. spicata.*

With the exception of sulfate, SFLM system sediments generally exhibited characteristics below the upper tolerance ranges for the two *Scirpus* species. SAV system sediments were below upper tolerance ranges for *P. pectinatus* except for magnesium and calcium. The vigorous growth exhibited by these plants in their respective bins indicates clearly that the plants were not significantly affected by these concentrations. The peat moss substrate used in the VF systems showed a notable capacity to retain many inorganic chemical constituents with no deleterious effect on the plant communities.

Where comparisons can be made between pilot system soil chemical properties and reported upper values for healthy natural ecosystems, the Oxnard pilot wetland systems' soil chemical concentrations were substantially lower than those for the healthy natural ecosystems, except for magnesium and sulfate. After three years of operating the pilot wetlands from 2003 through 2006, plant tissue and soil concentrations provided little if any indication that a full scale system would not have a lifespan similar to other wastewater treatment wetlands, which have been suggested to be on the order of decades or longer (Kadlec and Knight, 1996). Some chemical species, notably chloride, showed a decreasing trend, indicating that chloride was flushed or exchanged from the soils used in the study.

4.2 Conclusions

The Oxnard Membrane Concentrate Pilot Wetlands Project, operated between 2003 and 2006, was a unique study that investigated the use of the following six natural treatment system technologies to dispose of reverse osmosis concentrate while providing healthy wetland ecosystems:

- Surface flow (SF)
- High marsh (SFHM)
- SF low marsh (SFLM)
- Horizontal subsurface flow (SSF)

- Peat-based vertical upflow (VF)
- Submerged aquatic vegetation (SAV) systems.

At the conclusion of the study, it was observed that the systems did not accumulate salts or metals to a degree that showed an adverse effect on the health of the plant communities. The results of this additional pilot-scale work will be useful during design of field-based wetlands systems intended to accept membrane concentrate from the GREAT Program.

SECTION 5

References

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Tables

TABLE 1
ANALYSIS METHODS OF PLANT TISSUE SAMPLES

Constituent	Method	Plant Root	Plant Shoot
Aluminum	SW6000/7000	X	X
Ammonia-N	EPA350.1		One replicate only
Calcium	SW6000/7000	X	X
Chloride	EPA300.0	X	X
Copper	SW6000/7000	X	X
Fluoride	SW6000/7000	X	X
Magnesium	SW6000/7000	X	X
Mercury	SW6000/7000	One replicate only	One replicate only
Nitrate-N	EPA353.2		One replicate only
Percent Moisture	EPA160.0	X	X
Phosphorus	EPA365.1	One replicate only	One replicate only
Potassium	SW6000/7000	X	X
Selenium	SW6000/7000	X	X
Silver	SW6000/7000	X	X
Sodium	SW6000/7000	X	X
Sulfate	EPA300.0	X	X
Total Kjeldahl Nitrogen	EPA351.2	One replicate only	One replicate only

TABLE 2
ANALYSIS METHODS OF SEDIMENT SAMPLES

Constituent	Method	Upper Soil	Lower Soil	Composite
Aluminum	EPA6010B	X	X	X
Ammonia-N	EPA350.3 MOD			X
Calcium	EPA6010B	X	X	X
Chloride	EPA300.0	X	X	X
Copper	EPA6010B	X	X	X
Fluoride	EPA300.0	X	X	X
Inorganic Nitrogen - N	Calculation			X
Magnesium	EPA6010B	X	X	X
Mercury	EPA7471A	X	X	X
Nitrate-N	EPA300.0			X

TABLE 2
ANALYSIS METHODS OF SEDIMENT SAMPLES

Constituent	Method	Upper Soil	Lower Soil	Composite
Nitrite-N	EPA300.0			X
Organic Nitrogen - N	Calculation			X
Percent Moisture	EPA160.3	X	X	X
pH	EPA9045C	X	X	X
Phosphorus	EPA365.3 MOD			X
Potassium	EPA6010B	X	X	X
Salinity	EPA120.1	X	X	X
Selenium	EPA6010B	X	X	X
Silver	EPA6010B	X	X	X
Sodium	EPA6010B	X	X	X
Specific Conductance	SM2510B MOD	X	X	X
Sulfate	EPA300.0	One replicate only	One replicate only	X
Total Kjeldahl Nitrogen	SM4500-N ORG MOD			X

TABLE 3
2006 PERCENT PLANT COVER (AVERAGE OF 2 REPLICATES FROM EACH WETLAND TYPE)

	SSF	SE	SFHM	SFLM	VF	SAV
Anemopsis californica	41%		51%		47%	
Distichlis spicata	22%	55%	36%		37%	
Frankenia salina	13%				6%	
Juncus balticus	24%	35%	12%		1%	
Jaumea carnosa					9%	
Muhlenbergia asperifolia						75%
Potamogeton natans				7%		
Scirpus americanus				80%		
Scirpus californicus		10%	1%	13%		

TABLE 4
2003 PERCENT PLANT COVER (CH2M HILL 2003)

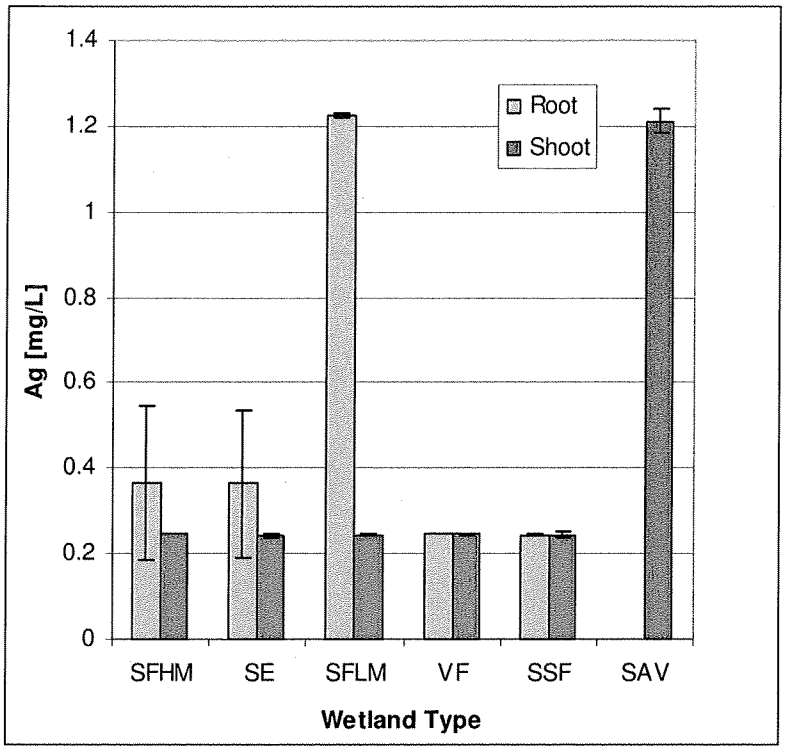
	SSF	SE	SFHM	SFLM	VF	SAV
Anemopsis californica	26%	6%	32%		23%	
Distichlis spicata	8%	84%	49%		28%	
Frankenia salina	1%		1%			
Juncus balticus	3%				12.5%	
Jaumea carnosa	42%	6%	8%		16%	
Muhlenbergia asperifolia		1%				
Monanthochloe littoralis	9%				12.5%	
Potamogeton natans						100%
Scirpus acutus				3%		
Sporobolus airoides	1%				0.5%	
Scirpus americanus				68%		
Scirpus californicus				22%		
Scirpus maritimus				3.5%		
Salicornia virginica	10%	3%	4%		2.5%	
Typha latifolia			6%	3.5%	5%	

TABLE 5
COMPARISON OF PILOT SEDIMENT CONCENTRATIONS TO UPPER CONCENTRATIONS IN SOILS ASSOCIATED WITH HEALTHY PLANTS

	Conductivity	**Salinity**	**Na**	**Cl**	**Mg**	**SO4**	**Ca**
	mS/cm	**g/L**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
Species							
Scirpus robustus	100	28					
Scirpus maritimus	120		7000	10000	6000	6000	30000
Potamogeton pectinatus	27	19	7100	3600	3000	20000	12400
Distichlis spicata		35					
Pilot System Soils							
Soil	Not Analyzed	Not Analyzed	1610	1650	4000	5520	8910
Peat	Not Analyzed	Not Analyzed	86	3.5	2394	479	18310
SFLM	8.9	5.2	2040	828	5380	12667	12800
SFHM	6.3	3.5	1076	402	4320	8950	11120
SAV	3.7	1.8	660	210	4280	4750	15000
SE	10	5.8	2400	1200	5100	14500	11400
VF Peat	40.1	10.4	9000	4600	8200	38500	49500

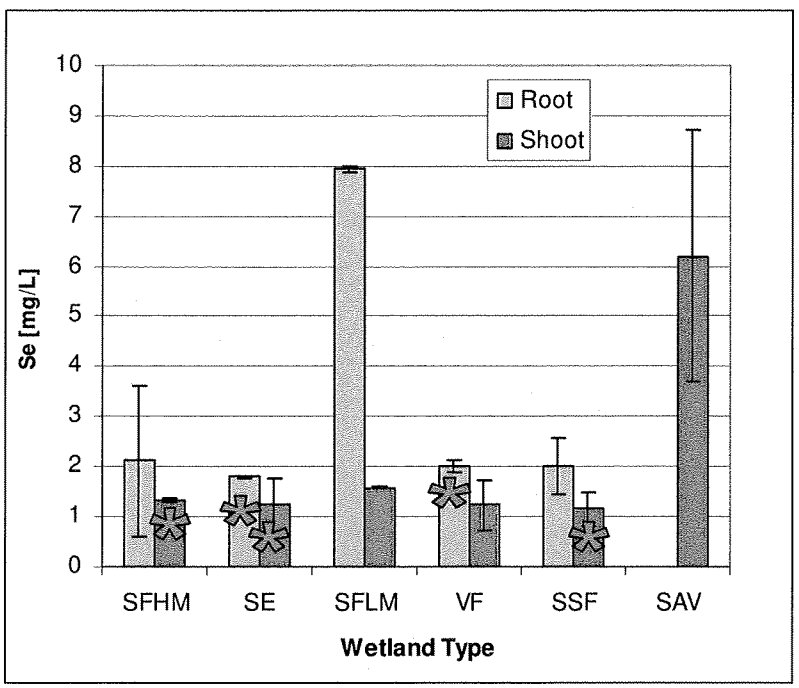
Note: *S. robustus* and *S. maritimus* data from Kantrud 1996. *P. pectinatus* from Kantrud 1990. *D. spicata* data from Richards 1994.

Figures



Note: Plant samples from the SAV system include all portions of the plants.

FIGURE 1
Silver Concentrations in Plant Tissues



Note: Red asterisks indicate results below detection limits.

FIGURE 2
Selenium Concentration in Plant Tissues

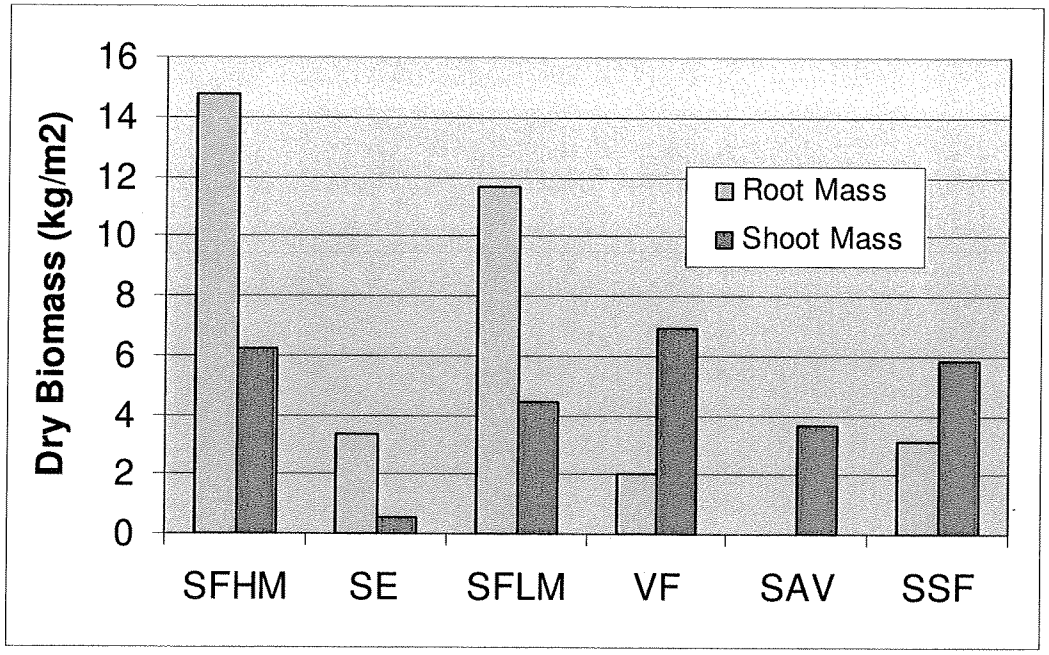
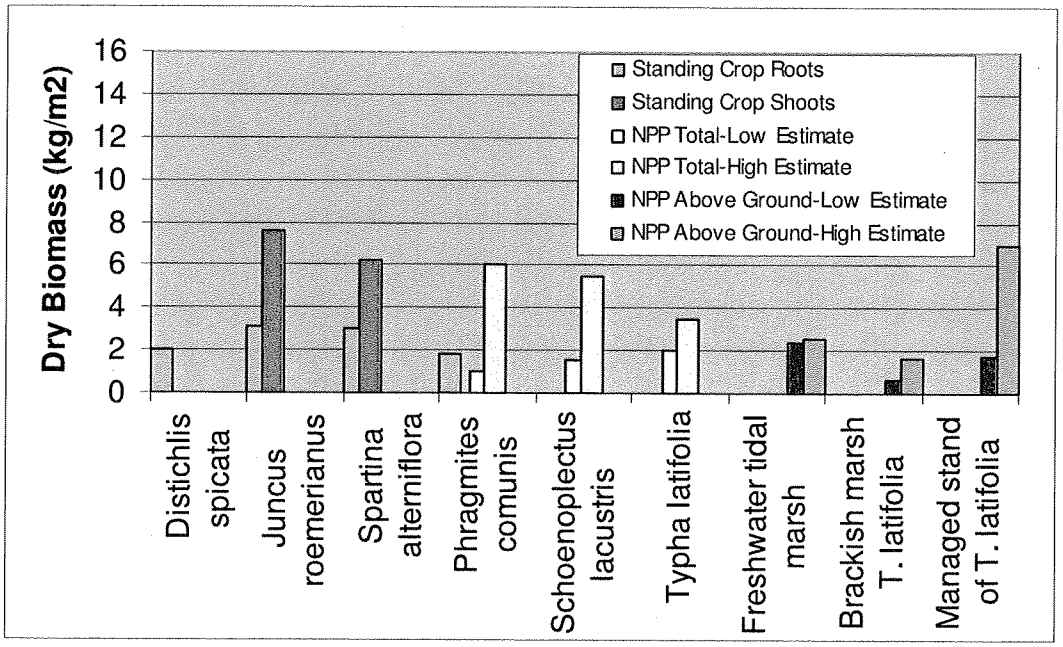


FIGURE 3
Root and Shoot Biomass in each Wetland System Sampled



Note: Data adapted from Mitsch and Gosselink (2000) and Kadlec and Knight (1996).

FIGURE 4
Comparison of Several Wetland Plant Species and Communities Maximum Standing Crop and Net Primary Productivity (NPP).

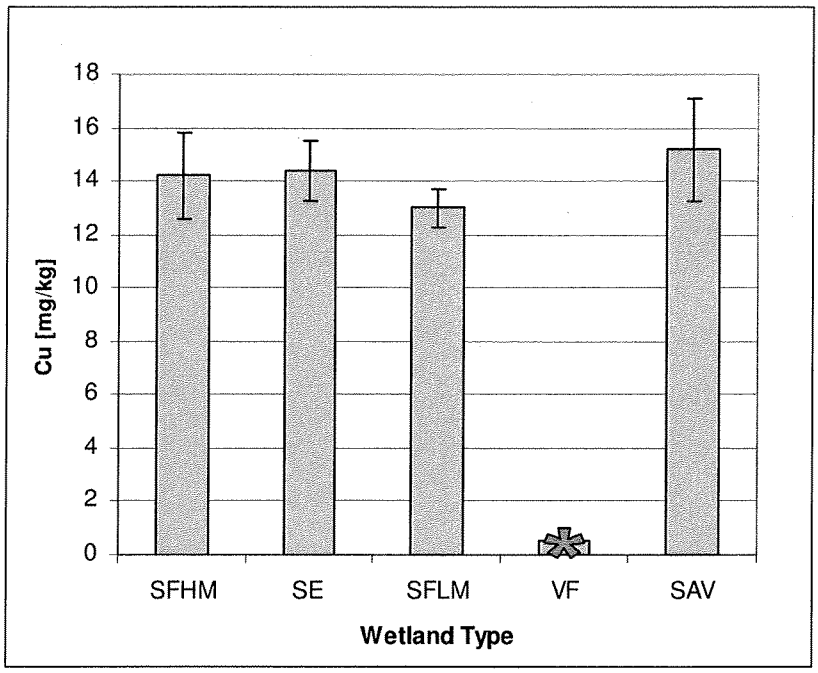
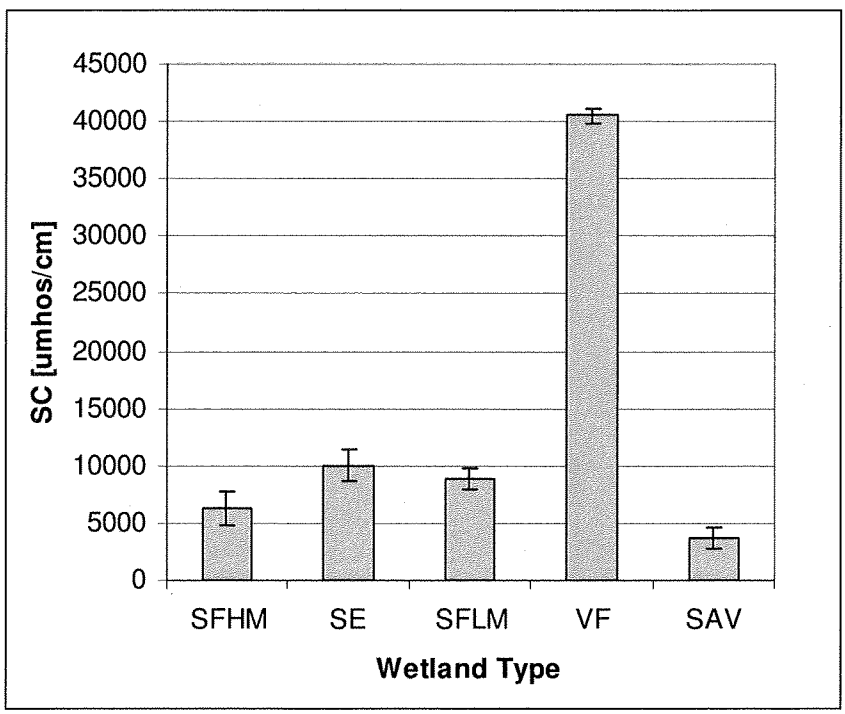


FIGURE 5
Copper Concentrations in Sediment and Peat Samples



Note: All anion and nitrogen analyses displayed similar results.

FIGURE 6
Specific Conductivity in Sediment and Peat Samples

FIGURE 7
Cross-section View of SSF System

FIGURE 8
Top View of SSF System

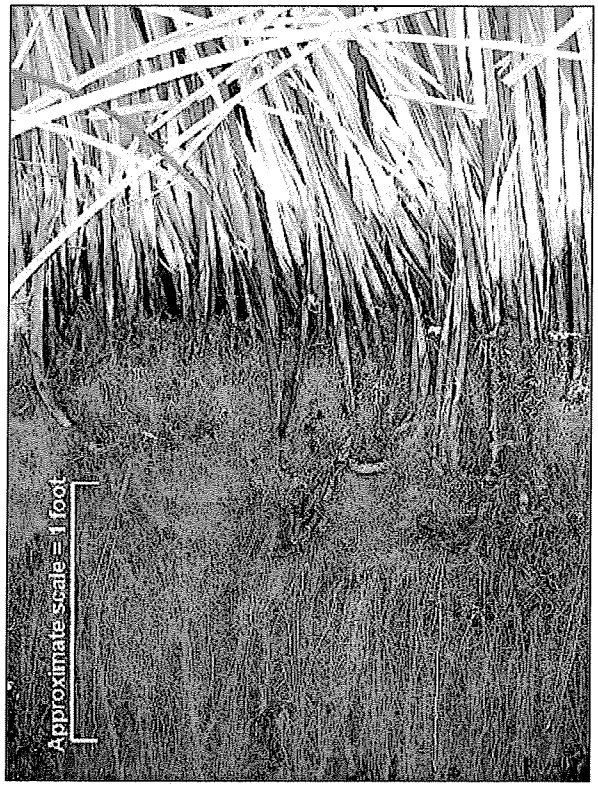


FIGURE 9
Cross-section View of SFLM System.

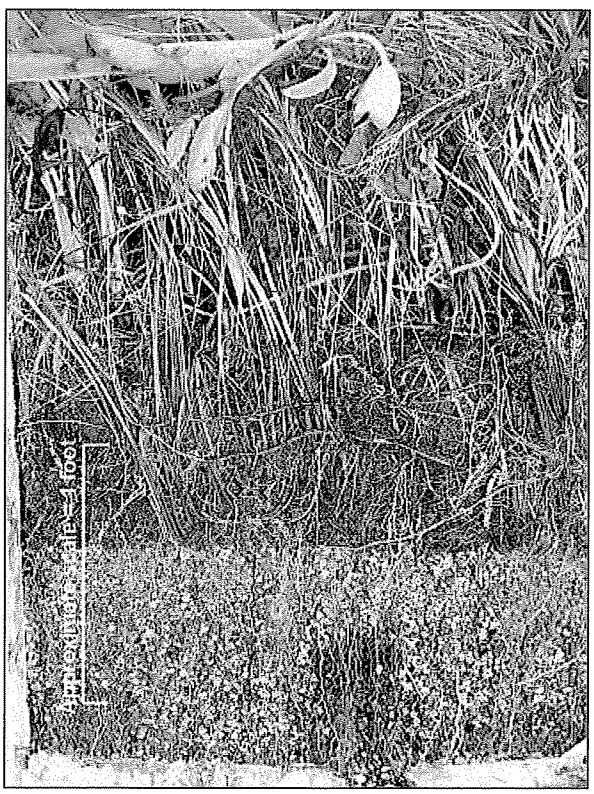


FIGURE 10
Cross-section View of VF System

FIGURE 11
Top View of VF System

FIGURE 12
Cross-section View of SFHM System

FIGURE 13
Top View of SFHM System

FIGURE 14
Cross-Section View of SE System

FIGURE 15
Top View of SE System

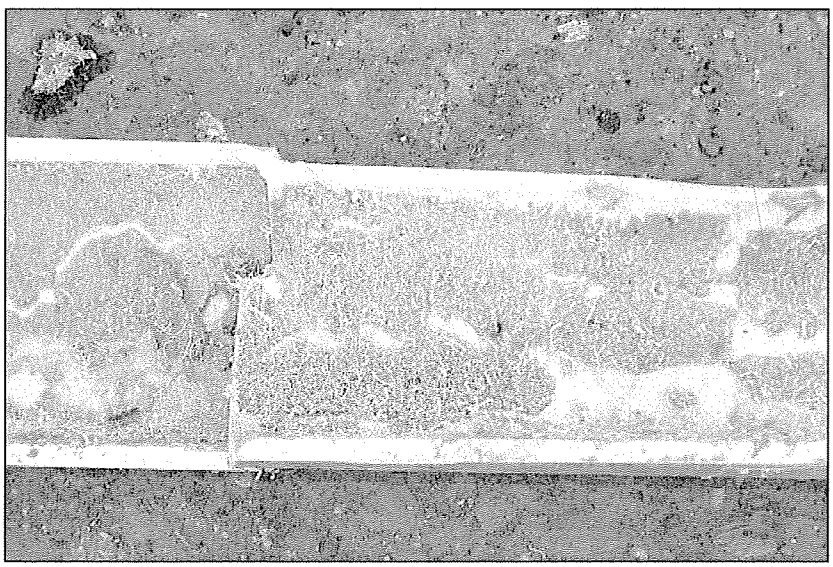


FIGURE 16
Orange-brown Precipitate Forming on the Interior Wall of the Main Central Distribution Piping

FIGURE 17
Pile of Brown Precipitate Shaken Loose from Piping Network

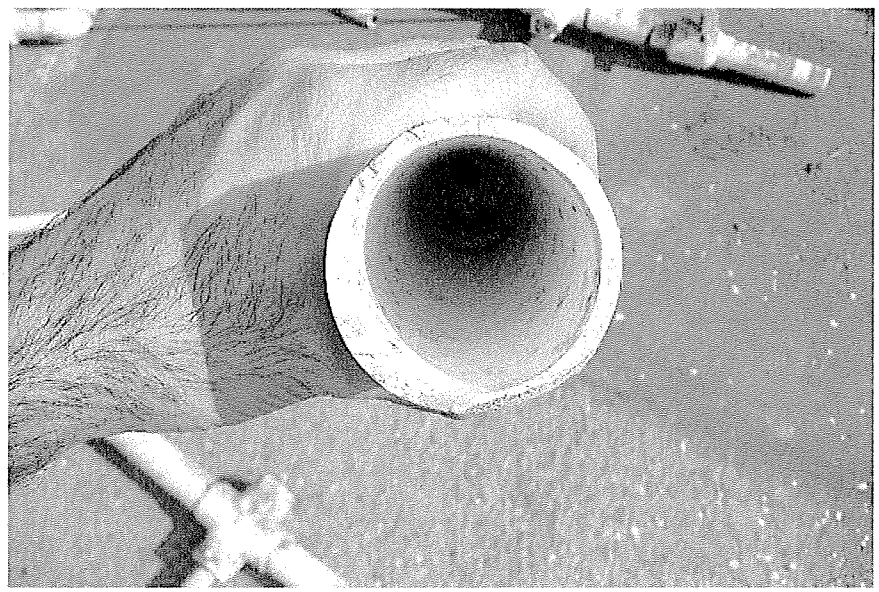


FIGURE 18
Interior View of Pipe with No Significant Precipitate Formation

Appendix A

Site Layout for the Membrane Concentrate Pilot Wetlands

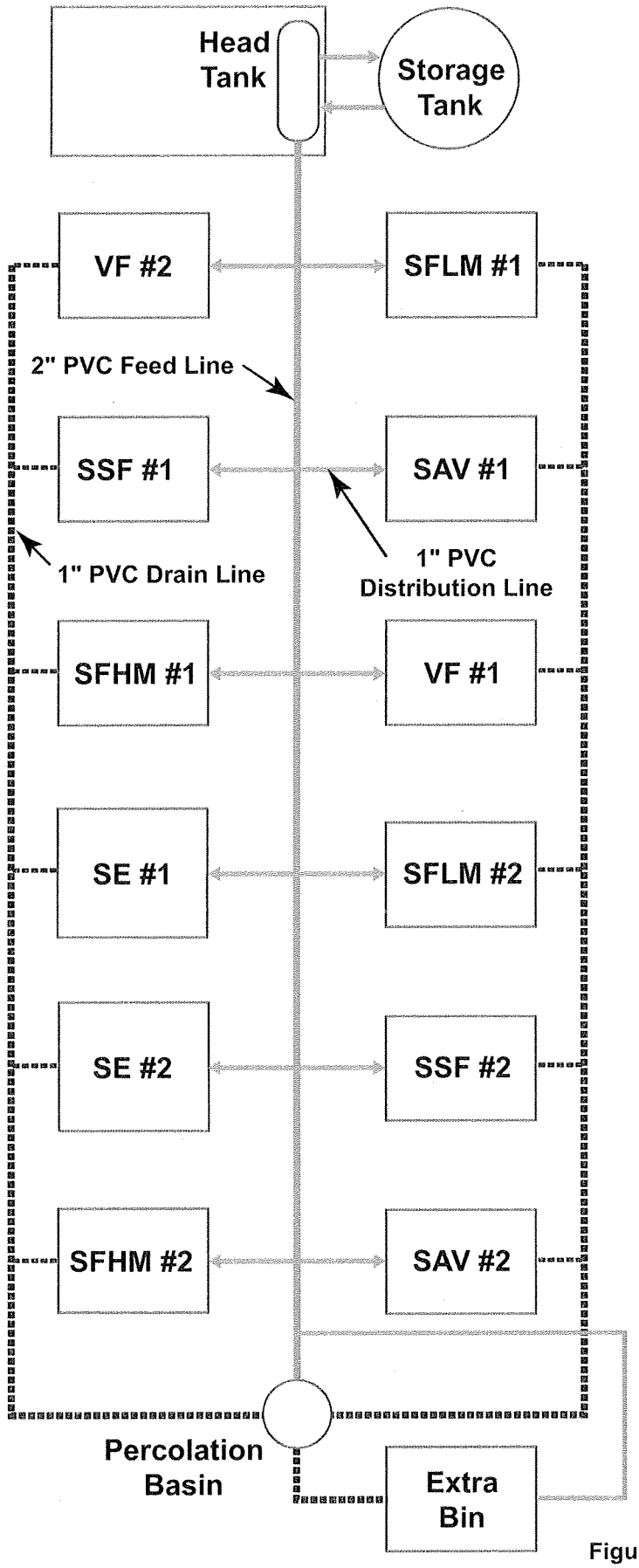


Figure 2-1
Site Layout for the Membrane Concentrate Pilot Wetlands

CH2MHILL

W072004003SCO179974.C1.01 diagram1.ai 7/04

Appendix B

Site Layout for Additional Testing at the Membrane Concentrate Pilot Wetlands

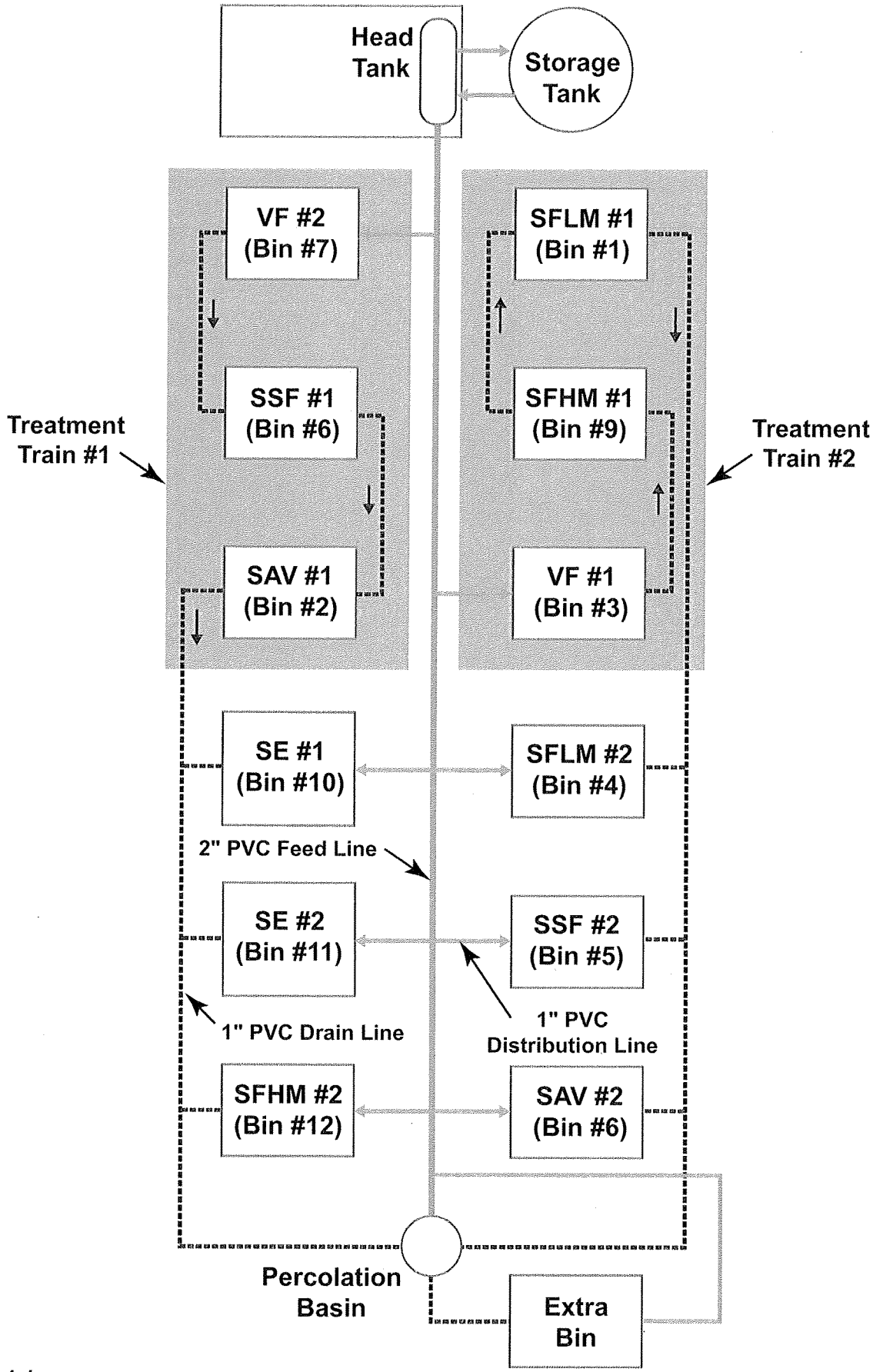


Figure 1-1
Site Layout for Additional Testing at the Membrane Concentrate Pilot Wetlands

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Appendix C

Analytical Results for Sediment and Plant Tissue Sampling (July 2006)

APPENDIX C

ANALYTICAL RESULTS FOR SEDIMENT AND PLANT TISSHUE SAMPLING (JULY 2006)

		SFHM					SE					SFLM			
Constituent	**Unit**	**Plant Root**		**Plant Shoot**			**Plant Root**		**Plant Shoot**			**Plant Root**		**Plant Shoot**	
		A	**B**	**A**	**B**		**A**	**B**	**A**	**B**		**A**	**B**	**A**	**B**
Aluminum	mg/kg dry	4480	5170	263	656		2030	2870	585			277	605	123	175
Ammonia-N	mg/kg dry			248					245	462				22.9	
Calcium	mg/kg dry	72500	34900	22100	24000		59000	32200	18100	11000		98500	99400	7440	9210
Chloride	mg/kg dry	2250	1310	18400	12200		7370	10800	25500	21800		9140	8100	13700	12700
Copper	mg/kg dry	12.6	13.8	7.06	7.05		11.6	12.5	6.64	5.3		2.98	5.41	2.11	2.5
Fluoride	mg/kg dry	159	95.4	1480	990		230	202	459	313		336	517	313	176
Inorganic Nitrogen - N	mg/kg dry														
Magnesium	mg/kg dry	6750	5650	7080	5430		14500	9560	10700	7010		7440	7790	3690	5030
Mercury	mg/kg dry	0.00945		0.0123			0.0117		0.0123			0.0123		0.0123	
Nitrate-N	mg/kg dry			6.57					11.3					24.9	
Nitrite-N	mg/kg dry														
Organic Nitrogen - N	mg/kg dry														
Percent Moisture	%	50.3	40	70.9	62.6		71.6	58.5	59.6	56.9		62.9	65.3	46.7	40.9
pH	pH Units														
Phosphorus	mg/kg dry	15.6		425			297		324			158		325	
Potassium	mg/kg dry	2490	2110	10900	9050		4310	2790	6070	5130		6390	4570	9920	6850
Salinity	g/l dry														
Selenium	mg/kg dry	3.19	2.1	2.71	2.62		3.6	3.55	1.71	3.21		7.9	7.98	1.6	1.56
Silver	mg/kg dry	0.491	0.236	0.246	0.248		0.486	0.243	0.246	0.238		1.22	1.23	0.246	0.241
Sodium	mg/kg dry	5570	3370	15800	9750		24000	15600	25500	18400		12800	13800	7200	8550
Specific Conductance	umhos/cm dry														
Sulfate	mg/kg dry	14200	15900	35400	28700		38700	34500	60000	47700		47000	29700	24500	38500
Total Kjeldahl Nitrogen	mg/kg dry	204		387			304		342			123		232	

Values in BLUE are estimated quantities of constituent in sample
Values in PURPLE are non-detect values in soil samples
Values in RED are detections below reporting limit

APPENDIX C

ANALYTICAL RESULTS FOR SEDIMENT AND PLANT TISSHUE SAMPLING (JULY 2006)

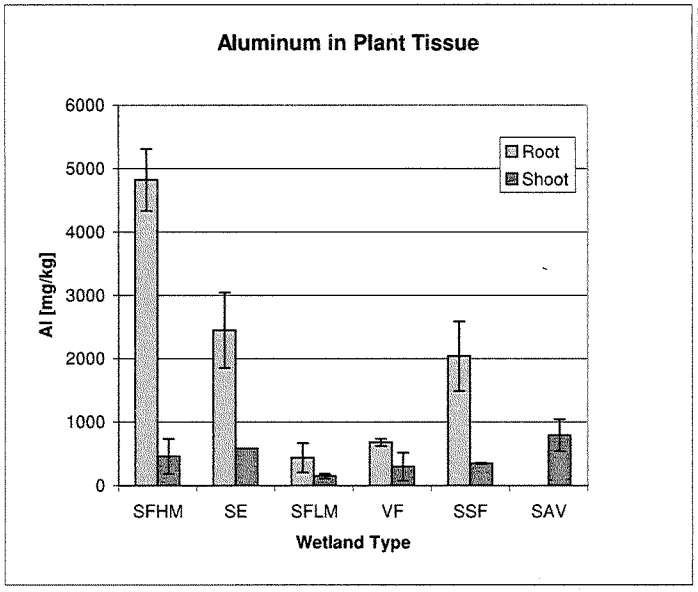
		VF					SAV	
Constituent	**Unit**	**Plant Root**		**Plant Shoot**			**Plant Shoot**	
		A	**B**	**A**	**B**		**A**	**B**
Aluminum	mg/kg dry	641	722	139	453		614	969
Ammonia-N	mg/kg dry			344			32.1	
Calcium	mg/kg dry	34600	29900	15900	25400		217000	233000
Chloride	mg/kg dry	4440	5190	18900	17100		4570	3260
Copper	mg/kg dry	7.56	9.52	4.58	7.04		5.05	6.46
Fluoride	mg/kg dry	296	174	759	1090		40.2	0.769
Inorganic Nitrogen - N	mg/kg dry							
Magnesium	mg/kg dry	5590	6890	5600	10800		28100	22900
Mercury	mg/kg dry	0.0123		0.0123			0.0117	
Nitrate-N	mg/kg dry			12.9			0.384	
Nitrite-N	mg/kg dry							
Organic Nitrogen - N	mg/kg dry							
Percent Moisture	%	74.5	75.7	66.3	53.9		80.4	80.6
pH	pH Units							
Phosphorus	mg/kg dry	23.5		251			0.676	
Potassium	mg/kg dry	7570	4960	14700	14200		4000	2560
Salinity	g/l dry							
Selenium	mg/kg dry	3.81	4.16	1.58	1.74		8.83	7.98
Silver	mg/kg dry	0.246	0.248	0.243	0.246		1.19	1.23
Sodium	mg/kg dry	7050	9530	12400	17400		7990	6030
Specific Conductance	umhos/cm dry							
Sulfate	mg/kg dry	28600	31100	28600	60500		11000	7180
Total Kjeldahl Nitrogen	mg/kg dry	411		291			772	

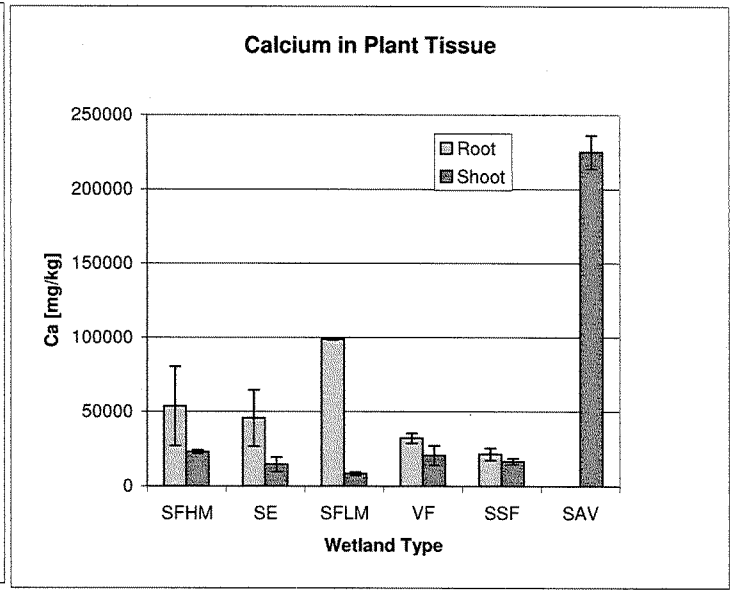
	SSF			
	Plant Root		**Plant Shoot**	
	A	**B**	**A**	**B**
	1650	2430	341	357
			352	
	18700	24400	15300	18100
	3090	3120	19600	10100
	8.39	15	6.02	7.68
	500	207	679	135
	3070	3780	3980	4070
	0.0123		0.0117	
			45.2	
	51.4	52.4	62.5	45.3
	0.848		505	
	6130	4250	14800	7850
	1.6	4.81	1.8	2.8
	0.246	0.241	0.248	0.238
	3200	3480	8170	6510
	13800	18500	23700	25700
	114		534	

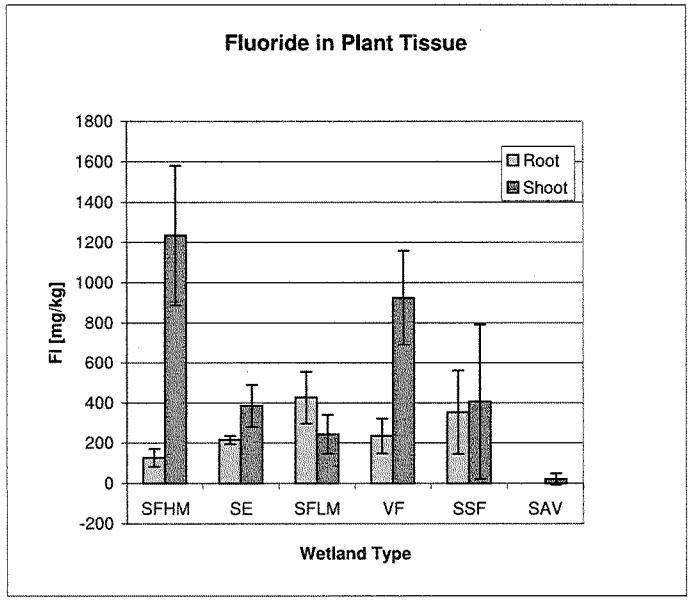
Values in BLUE are estimated quantities of constituent in sample
Values in PURPLE are non-detect values in soil samples
Values in RED are detections below reporting limit

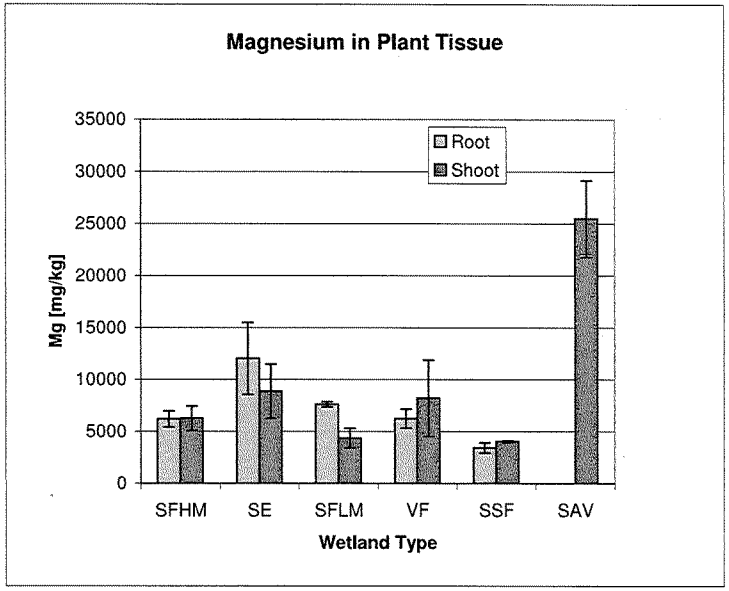
APPENDIX C

ANALYTICAL RESULTS FOR SEDIMENT AND PLANT TISSHUE SAMPLING (JULY 2006)



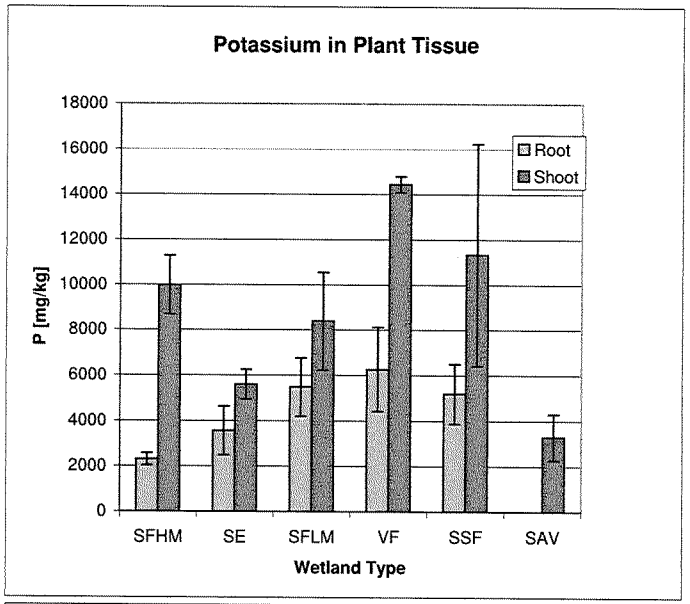


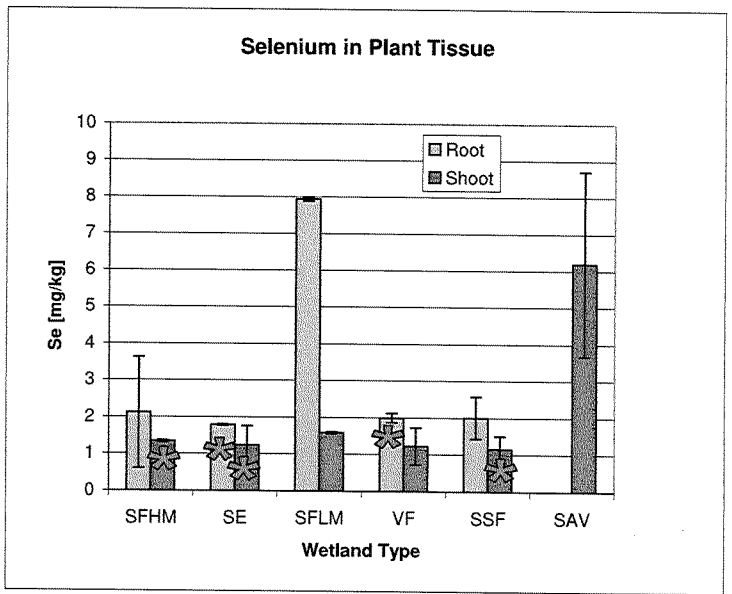


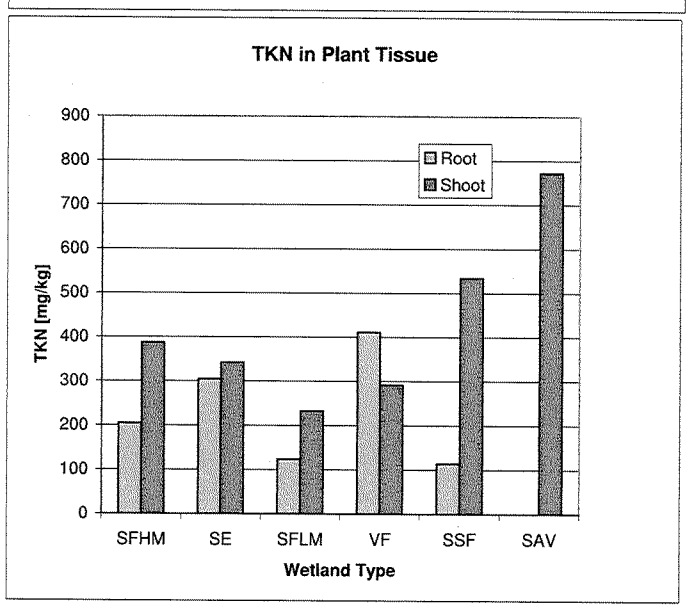


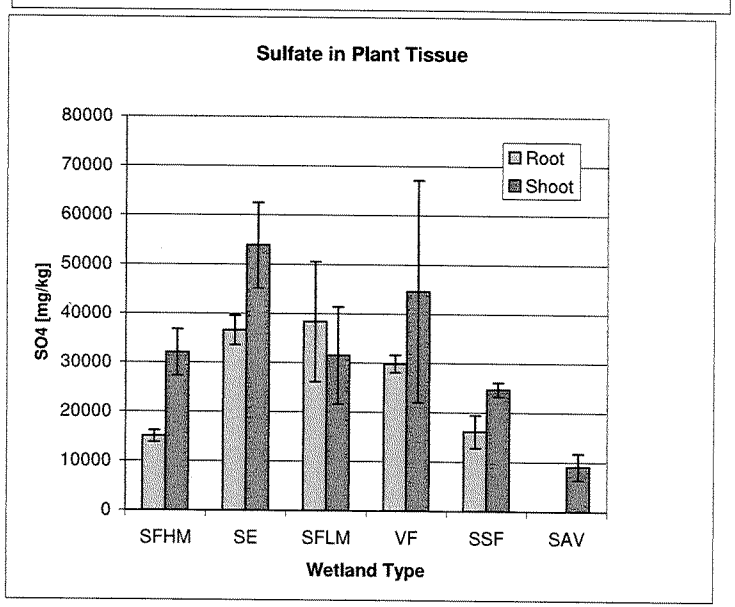
APPENDIX C

ANALYTICAL RESULTS FOR SEDIMENT AND PLANT TISSHUE SAMPLING (JULY 2006)





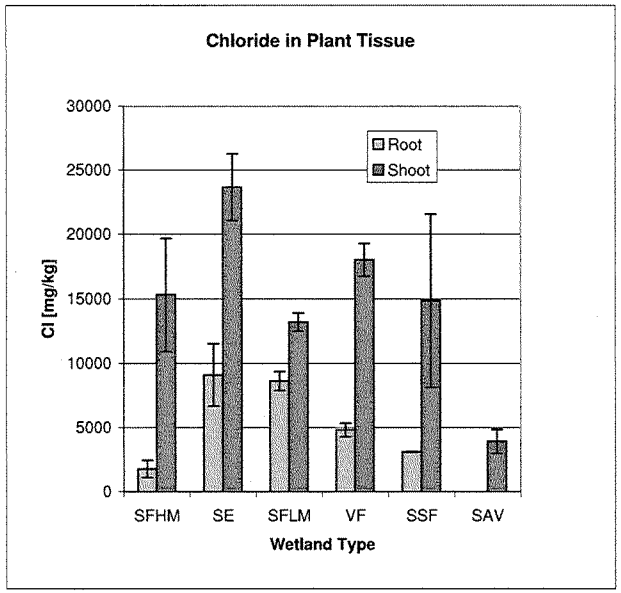


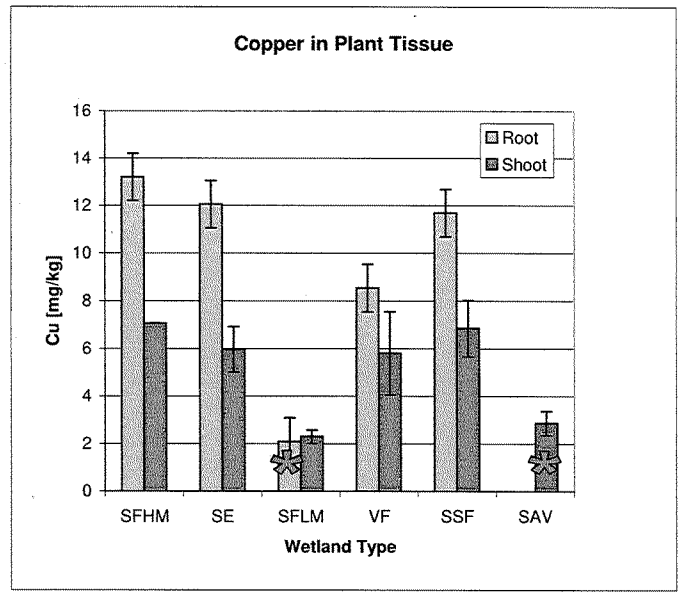


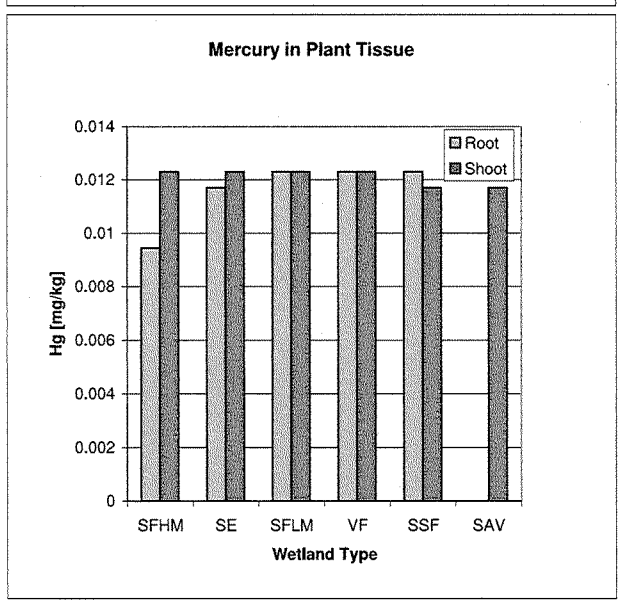
This Symbol indicates that the constituent was not detected above the detection limit in any samples from the given wetland type, and 0.5 * the detection limit has been used for calculations

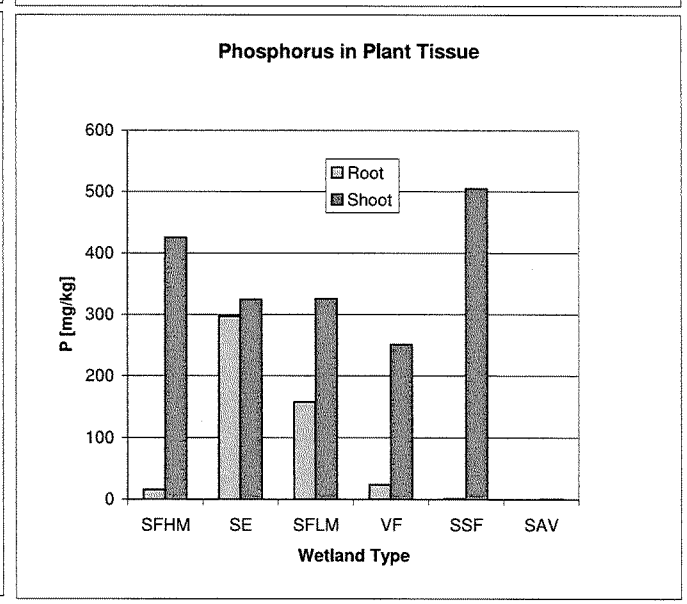
APPENDIX C

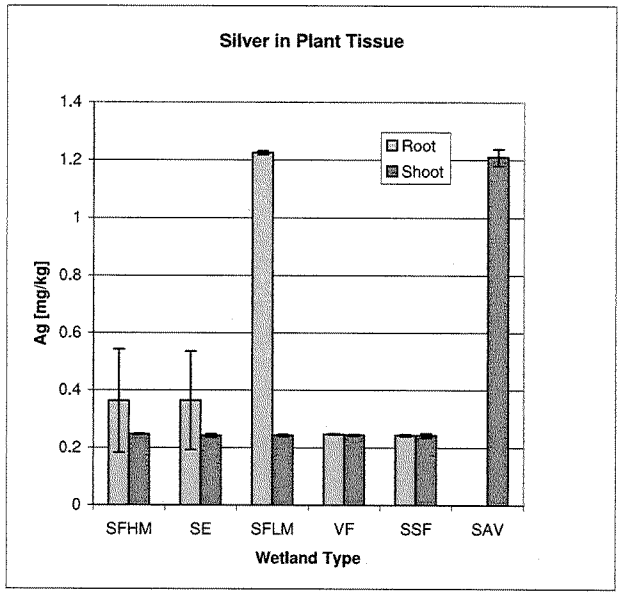
ANALYTICAL RESULTS FOR SEDIMENT AND PLANT TISSHUE SAMPLING (JULY 2006)

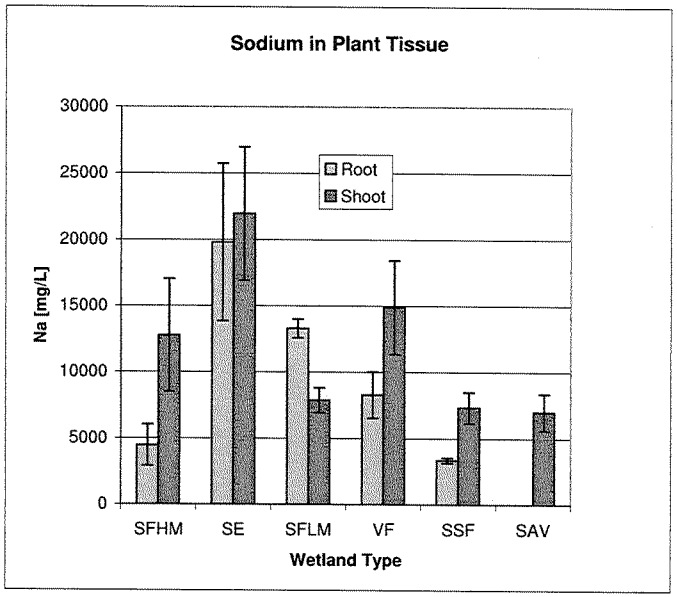









Silver in Plant Tissue
Ag [mg/kg]
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Root
Shoot
SFHM
SE
SFLM
VF
SSF
SAV
Wetland Type


Sodium in Plant Tissue
Na [mg/L]
30000
25000
20000
15000
10000
5000
0
Root
Shoot
SFHM
SE
SFLM
VF
SSF
SAV
Wetland Type

APPENDIX C

ANALYTICAL RESULTS FOR SEDIMENT AND PLANT TISSHUE SAMPLING (JULY 2006)

		SFHM					SFHM		SE						SE
Constituent	Unit	Comp Soil	Upper Soil		Lower Soil		Average Soil		Comp Soil	Upper Soil		Lower Soil			Average Soil
			A	B	A	B				A	B	A	B	Field Dup B	
Aluminum	mg/kg dry	6100	7600	6300	6900	6200	6620		7600	5800	6800	6700	7100	7800	6966.666667
Ammonia-N	mg/kg dry	ND					ND		ND						ND
Calcium	mg/kg dry	11000	12000	12000	11000	9600	11120		13000	12000	11000	10000	11000	12000	11500
Chloride	mg/kg dry	450	420	330	440	370	402		1100	1000	1100	1300	1500	1700	1283.333333
Copper	mg/kg dry	14	17	13	14	13	14.2		15	14	13	14	16	16	14.66666667
Fluoride	mg/kg dry	1	1	9.4	1	1	2.68		1	1	1	1	1	1	1
Inorganic Nitrogen - N	mg/kg dry	ND					ND		ND						ND
Magnesium	mg/kg dry	4400	4900	4000	4300	4000	4320		5600	4700	4800	5000	5400	5900	5233.333333
Mercury	mg/kg dry	ND	ND	ND	0.026	ND	0.026		ND	ND	ND	ND	ND	ND	ND
Nitrate-N	mg/kg dry	ND					ND		ND						ND
Nitrite-N	mg/kg dry	ND					ND		ND						ND
Organic Nitrogen - N	mg/kg dry	360					360		390						390
Percent Moisture	%	20	22	23	19	20	20.8		23	22	20	23	23	25	22.66666667
pH	pH Units	7.83	7.54	7.53	7.66	7.67	7.646		7.67	7.8	7.77	7.65	7.74	7.93	7.76
Phosphorus	mg/kg dry	1700					1700		1800					1700	1750
Potassium	mg/kg dry	2600	3000	2400	2700	2500	2640		3000	2500	2600	2700	2900	3100	2800
Salinity	g/l dry	3.8	3.5	4.2	3.4	2.5	3.48		6.5	5.4	6.5	4.3	6.3	7.3	6.05
Selenium	mg/kg dry	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND
Silver	mg/kg dry	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND
Sodium	mg/kg dry	1200	1200	780	1200	1000	1076		2400	1800	2200	2700	2900	3200	2533.333333
Specific Conductance	umhos/cm dry	5700	8900	6400	5100	5400	6300		9600	8900	8700	11000	12000	12000	10366.66667
Sulfate	mg/kg dry		11000			6900	8950			15000			14000	15000	14666.66667
Total Kjeldahl Nitrogen	mg/kg dry	370					370		390						390

Values in BLUE are estimated quantities of constituent in sample
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Values in RED are detections below reporting limit

APPENDIX C

ANALYTICAL RESULTS FOR SEDIMENT AND PLANT TISSHUE SAMPLING (JULY 2006)

Constituent	Unit	SFLM					SFLM		VF		VF
		Comp Soil	Upper Soil		Lower Soil		Average Soil		Peat/Soil		Peat Avg
			A	B	A	B			A	B	
Aluminum	mg/kg dry	7100	7400	7500	7700	7700	7480		300	650	475
Ammonia-N	mg/kg dry	ND					ND		ND	ND	ND
Calcium	mg/kg dry	11000	15000	13000	13000	12000	12800		29000	70000	49500
Chloride	mg/kg dry	750	790	980	720	900	828		5000	4200	4600
Copper	mg/kg dry	12	13	14	13	13	13		ND	ND	ND
Fluoride	mg/kg dry	1	10	11	1	1	4.8		80	72	76
Inorganic Nitrogen - N	mg/kg dry	ND					ND		ND	ND	ND
Magnesium	mg/kg dry	5000	5600	5600	5400	5300	5380		7400	9000	8200
Mercury	mg/kg dry	ND	ND	ND.	ND	ND	ND		ND	ND	ND
Nitrate-N	mg/kg dry	ND					ND		ND	ND	ND
Nitrite-N	mg/kg dry	ND					ND		ND	ND	ND
Organic Nitrogen - N	mg/kg dry	590					590		5500	2400	3950
Percent Moisture	%	20	21	23	20	24	21.6		82	80	81
pH	pH Units	7.75	7.86	7.65	7.88	7.54	7.736		7.82	7.84	7.83
Phosphorus	mg/kg dry	1700					1700		830	820	825
Potassium	mg/kg dry	2700	2700	2600	3000	2800	2760		ND	450	450
Salinity	g/l dry	4.6	4.5	6.2	5.9	4.6	5.16		11	9.7	10.35
Selenium	mg/kg dry	ND	ND	ND	ND	ND	ND		ND	ND	ND
Silver	mg/kg dry	ND	ND	ND	ND	ND	ND		ND	ND	ND
Sodium	mg/kg dry	1900	2100	2200	2000	2000	2040		8500	9500	9000
Specific Conductance	umhos/cm dry		9300	10000	7900	8500	8925		41000	40000	40500
Sulfate	mg/kg dry	8000	16000			14000	12666.6667		42000	35000	38500
Total Kjeldahl Nitrogen	mg/kg dry	590					590		5600	2400	4000

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APPENDIX C

ANALYTICAL RESULTS FOR SEDIMENT AND PLANT TISSHUE SAMPLING (JULY 2006)

Constituent	Unit	SAV					SAV
		Comp Soil	Upper Soil		Lower Soil		Average Soil
			A	B	A	B	
Aluminum	mg/kg dry	7800	7500	5700	6500	7300	6960
Ammonia-N	mg/kg dry	ND					ND
Calcium	mg/kg dry	12000	14000	25000	13000	11000	15000
Chloride	mg/kg dry	190	180	270	200	210	210
Copper	mg/kg dry	16	15	12	17	16	15.2
Fluoride	mg/kg dry	1	1	1	1	1	1
Inorganic Nitrogen - N	mg/kg dry	ND					ND
Magnesium	mg/kg dry	4500	4300	3800	4500	4300	4280
Mercury	mg/kg dry	ND	0.028	ND	ND	ND	0.028
Nitrate-N	mg/kg dry	ND					ND
Nitrite-N	mg/kg dry	ND					ND
Organic Nitrogen - N	mg/kg dry	370					370
Percent Moisture	%	25	25	27	25	21	24.6
pH	pH Units	7.63	7.41	7.72	7.57	7.56	7.578
Phosphorus	mg/kg dry	1600					1600
Potassium	mg/kg dry	3100	3000	2300	2900	3000	2860
Salinity	g/l dry	1.4	2.3	1.8	1.6	1.7	1.76
Selenium	mg/kg dry	ND	ND	ND	ND	ND	ND
Silver	mg/kg dry	ND	ND	ND	ND	ND	ND
Sodium	mg/kg dry	680	570	580	750	720	660
Specific Conductance	umhos/cm dry	3500	3200	2800	3900	5000	3680
Sulfate	mg/kg dry		4400			5100	4750
Total Kjeldahl Nitrogen	mg/kg dry	370					370

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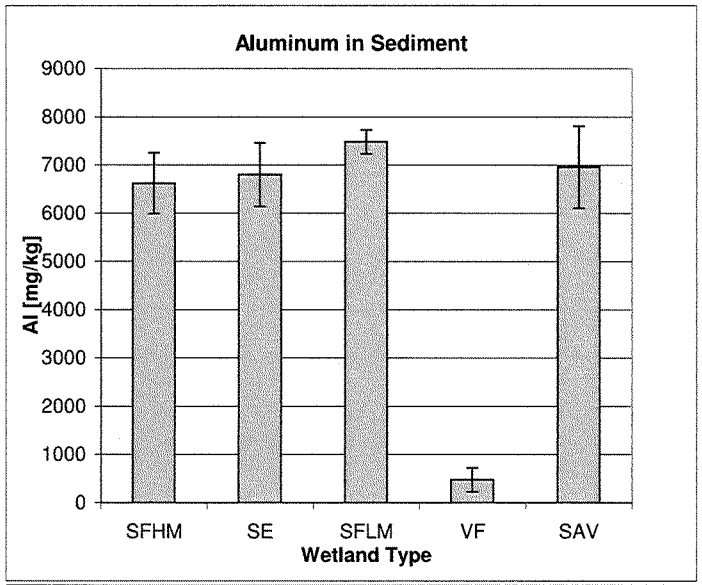
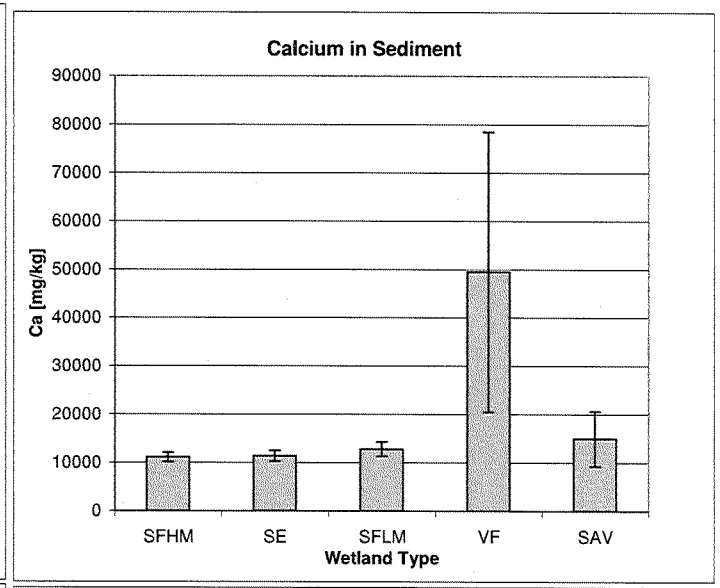
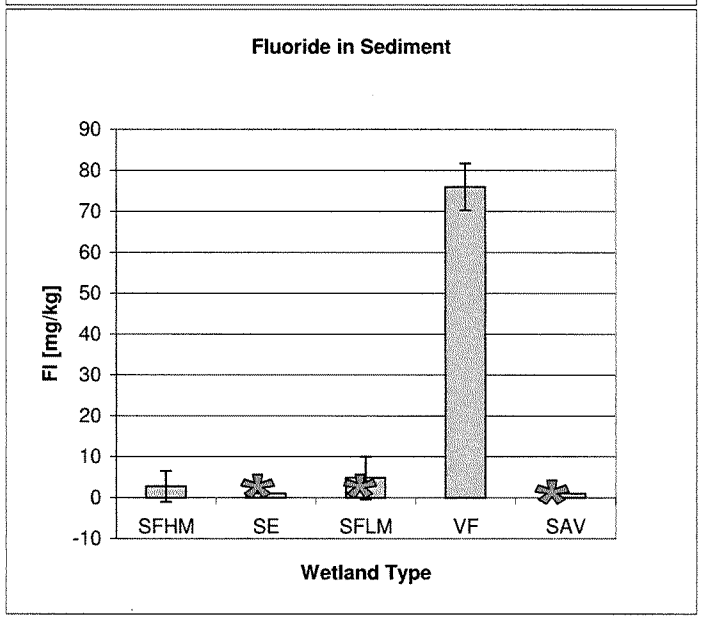
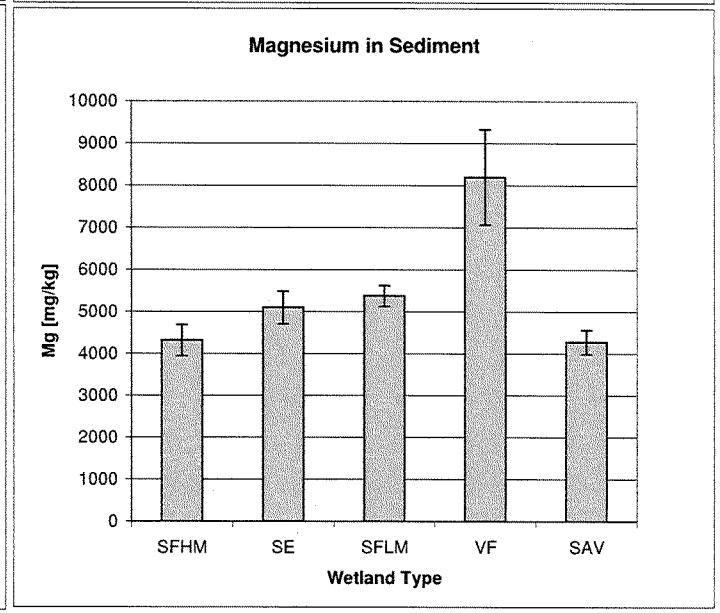
APPENDIX C

ANALYTICAL RESULTS FOR SEDIMENT AND PLANT TISSHUE SAMPLING (JULY 2006)



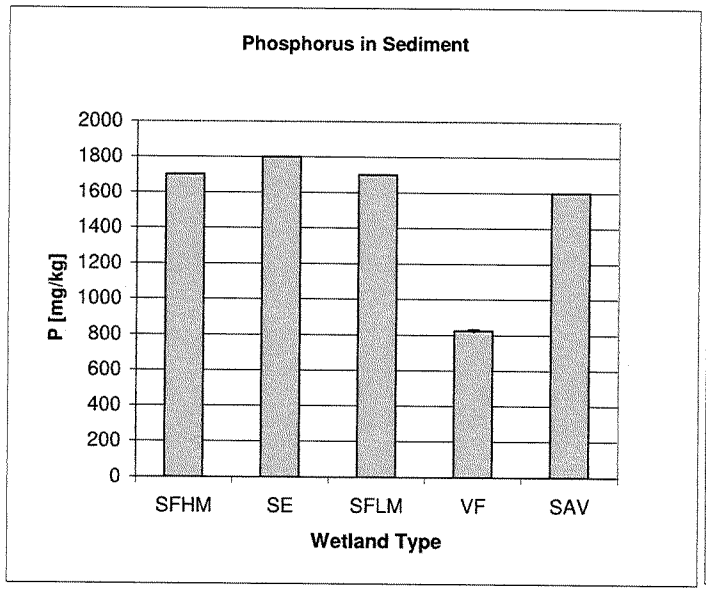


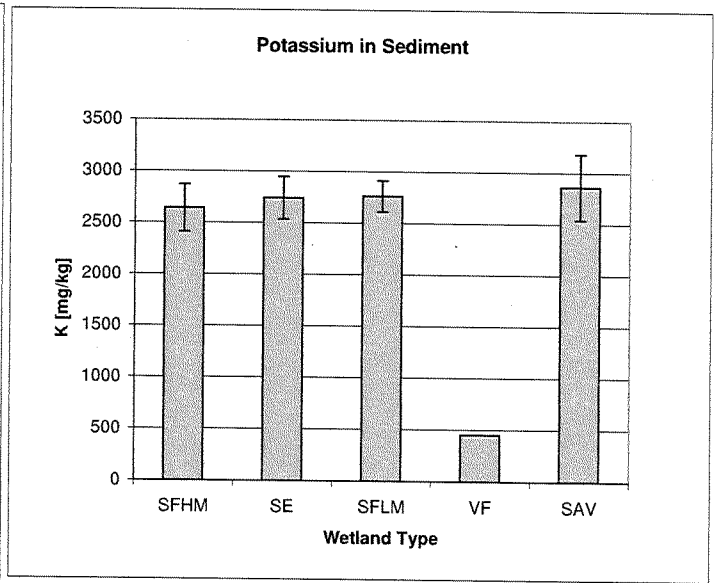


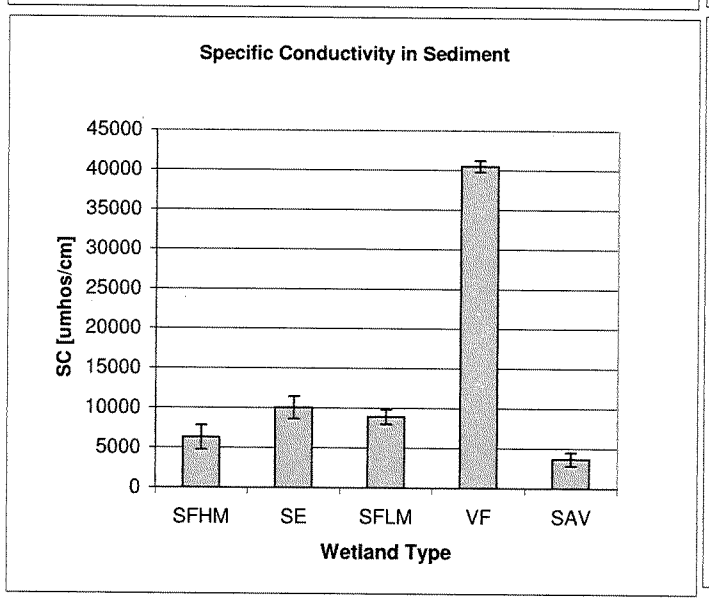


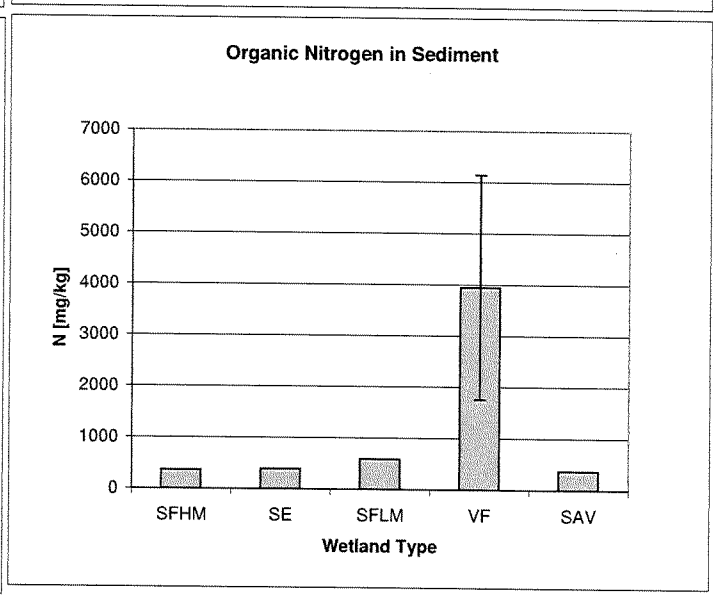
APPENDIX C

ANALYTICAL RESULTS FOR SEDIMENT AND PLANT TISSHUE SAMPLING (JULY 2006)





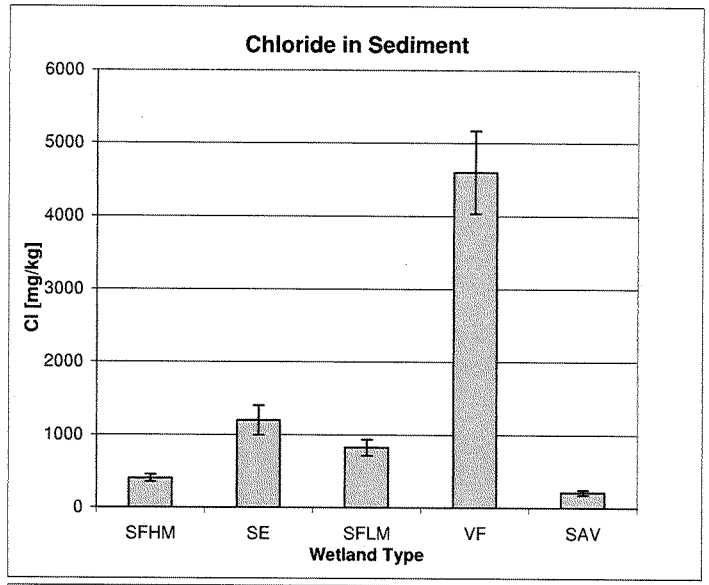


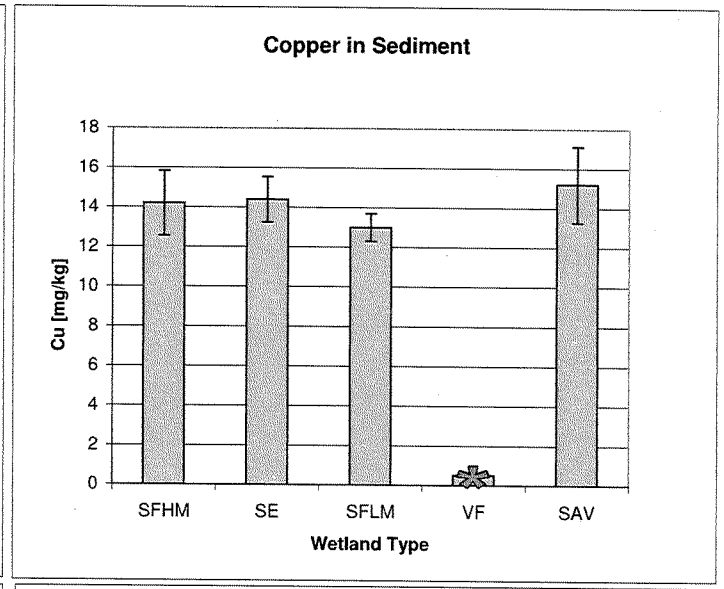


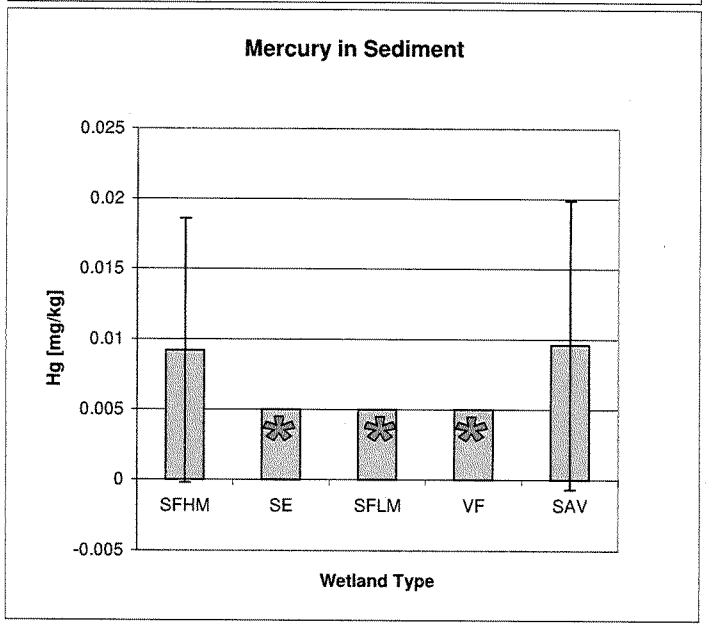
This Symbol indicates that the constituent was not detected above the detection limit in any samples from the given wetland type, and 0.5 * the detection limit has been used for calculations

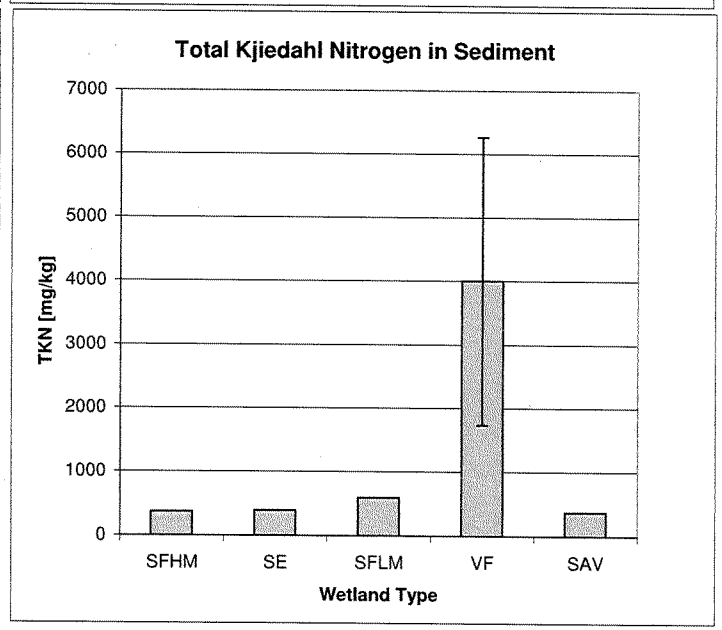
APPENDIX C

ANALYTICAL RESULTS FOR SEDIMENT AND PLANT TISSHUE SAMPLING (JULY 2006)



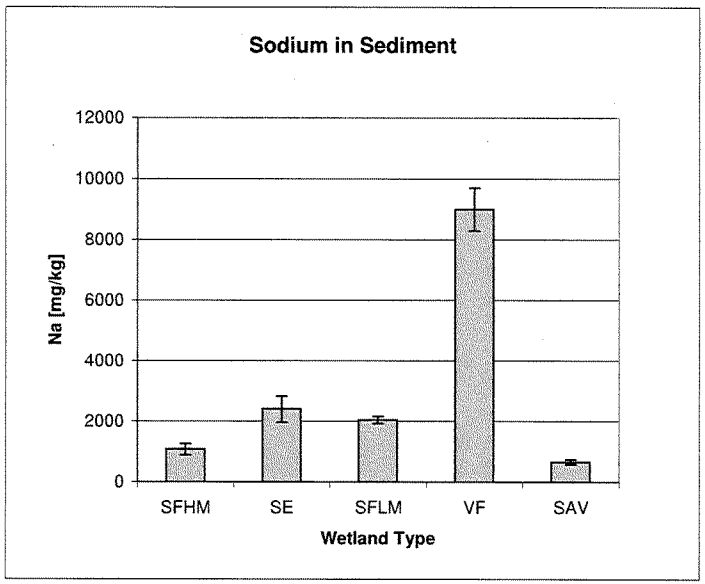


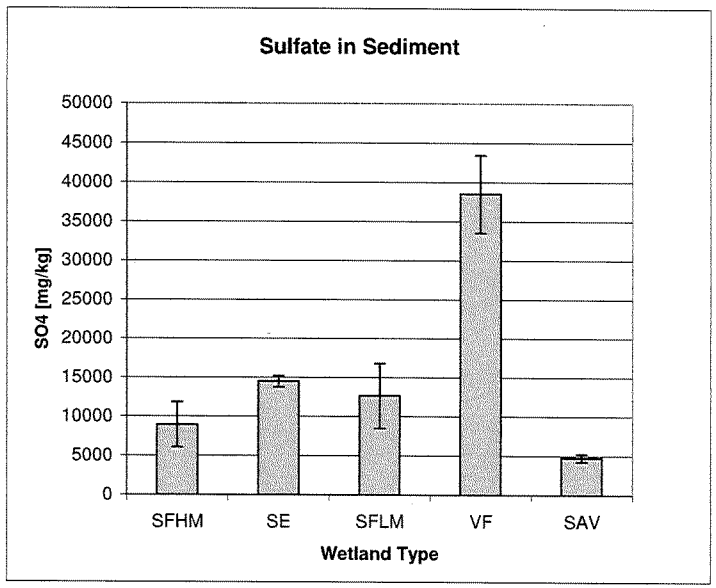


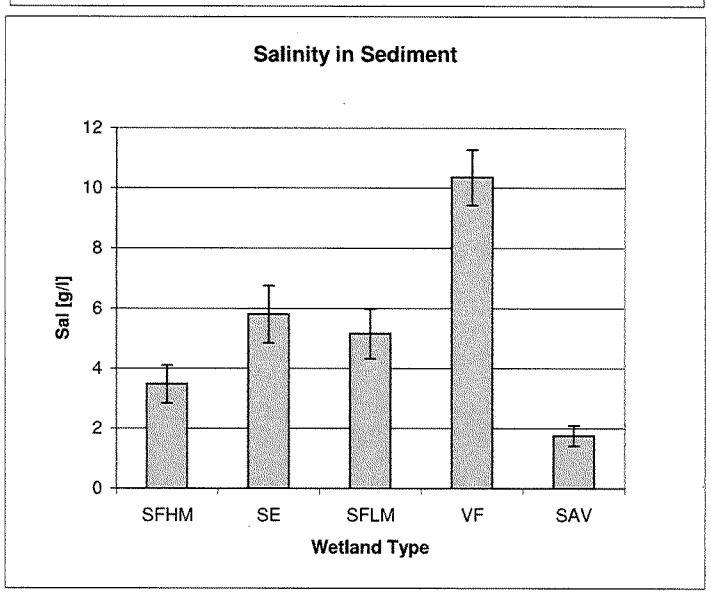


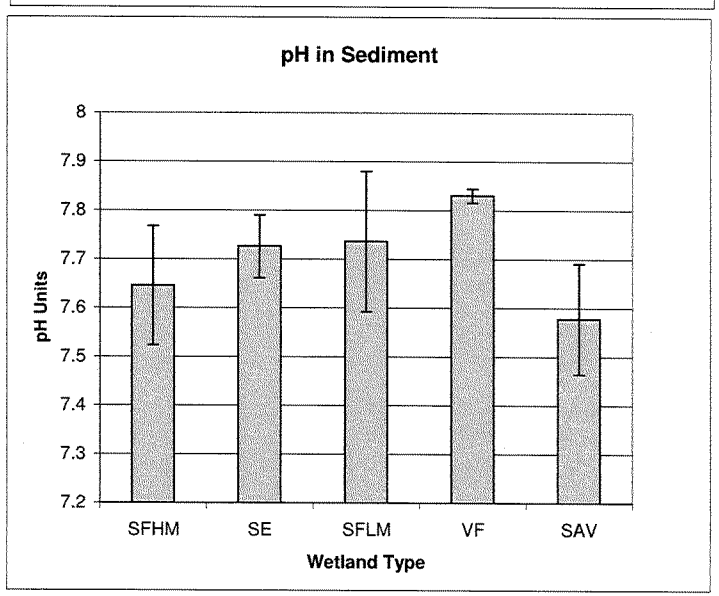
APPENDIX C

ANALYTICAL RESULTS FOR SEDIMENT AND PLANT TISSHUE SAMPLING (JULY 2006)









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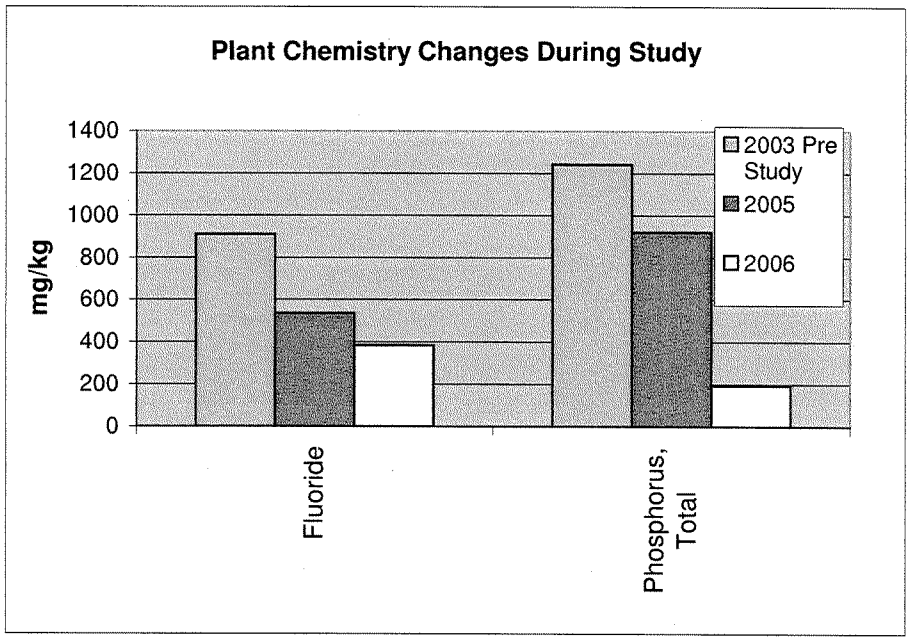
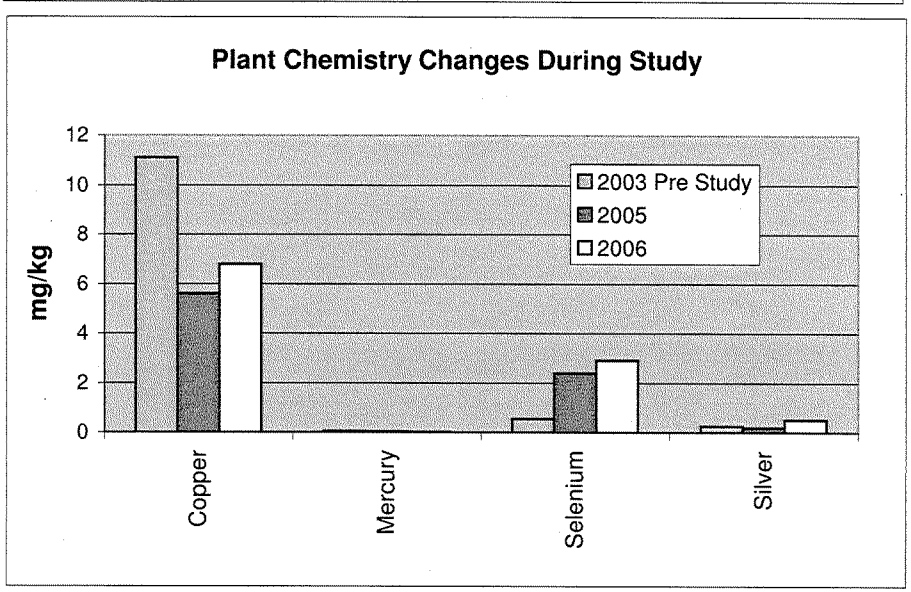
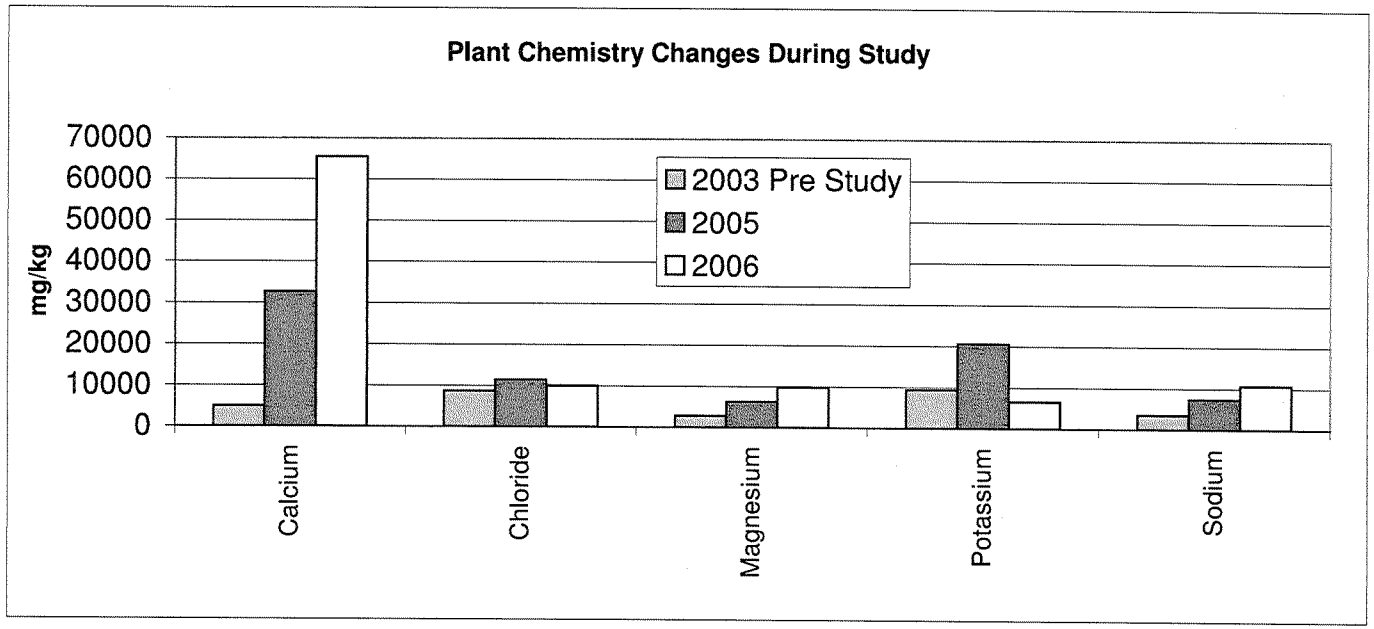
ANALYTICAL RESULTS FOR SEDIMENT AND PLANT TISSHUE SAMPLING (JULY 2006)





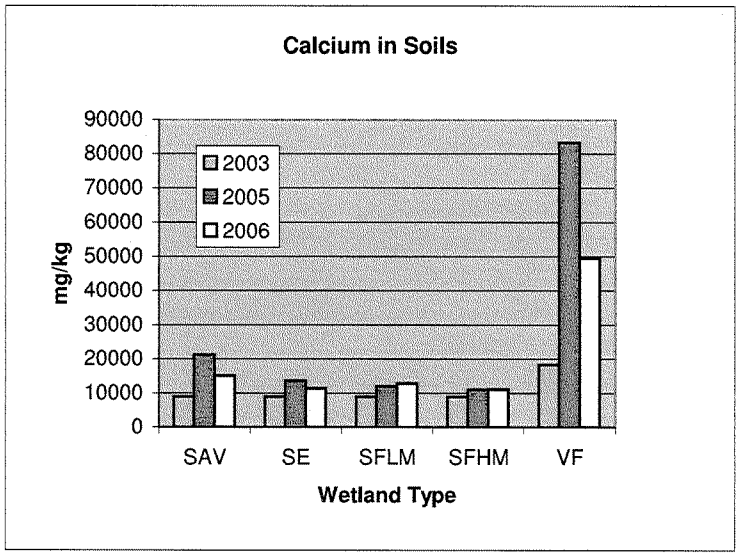
APPENDIX C

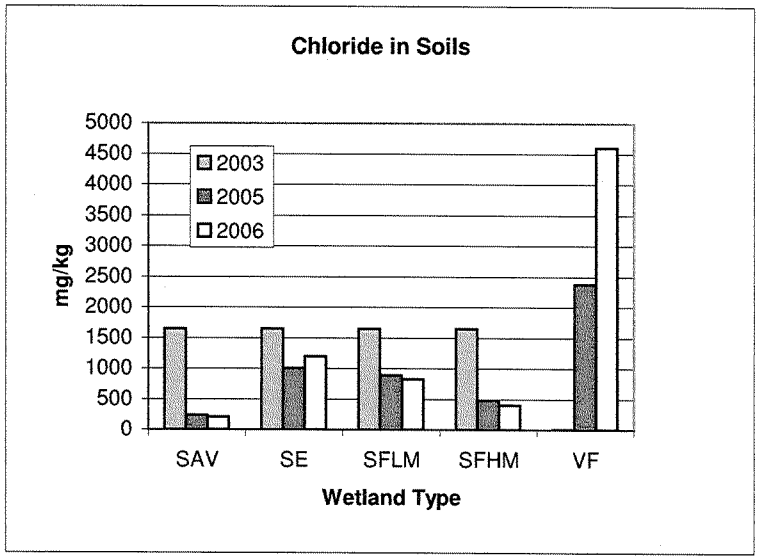
ANALYTICAL RESULTS FOR SEDIMENT AND PLANT TISSHUE SAMPLING (JULY 2006)

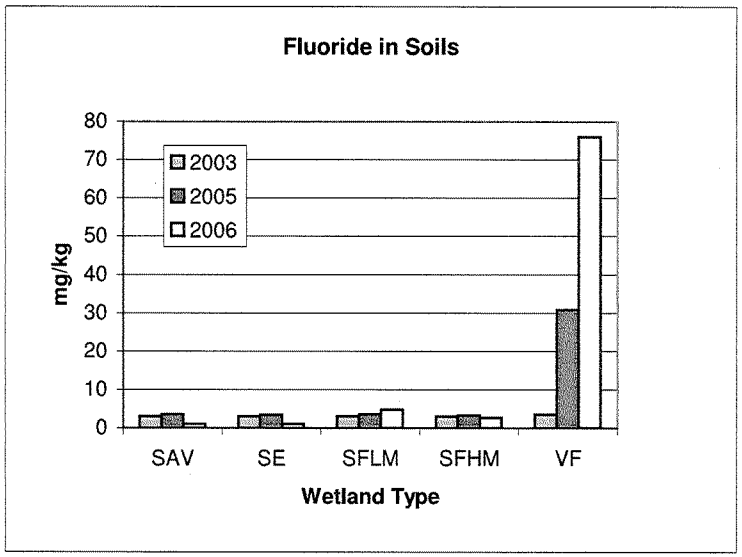


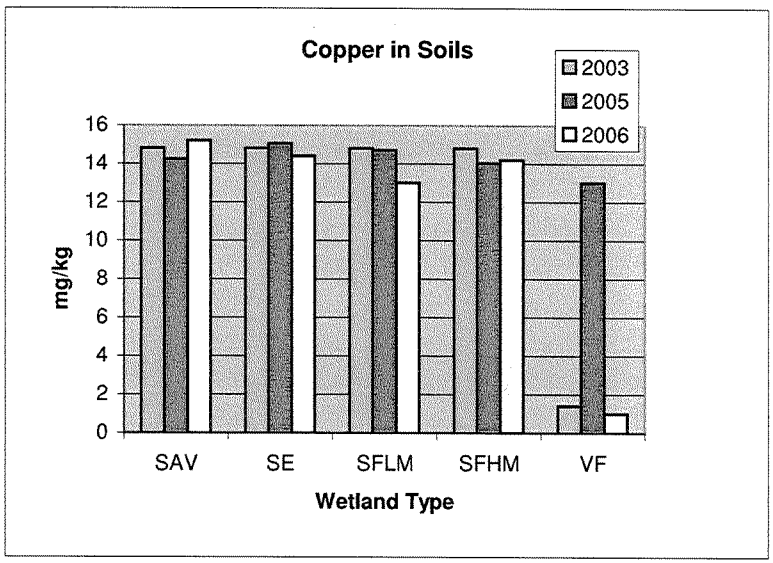
APPENDIX C

ANALYTICAL RESULTS FOR SEDIMENT AND PLANT TISSHUE SAMPLING (JULY 2006)



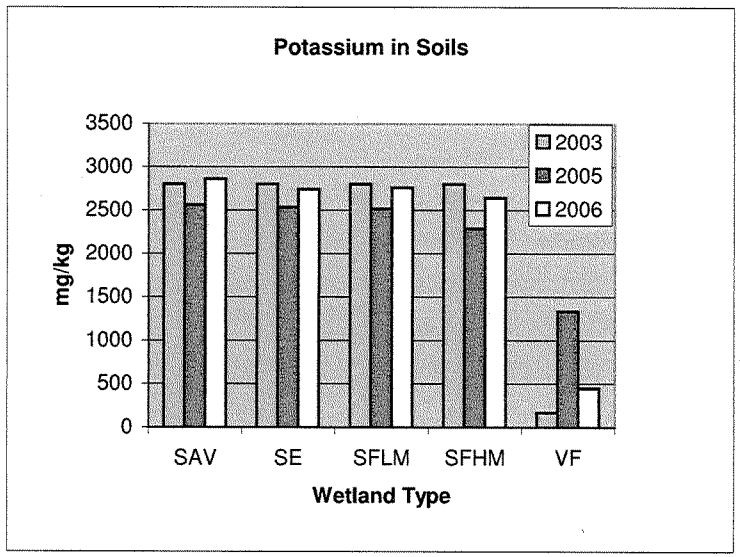


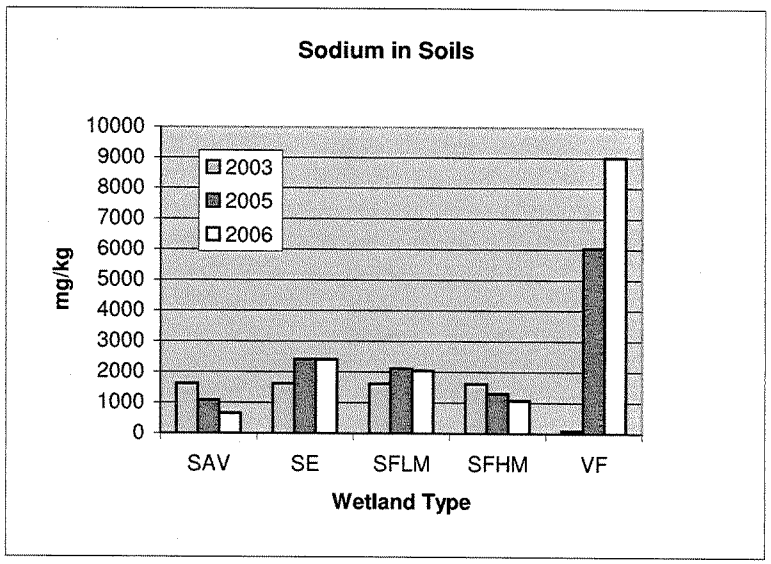


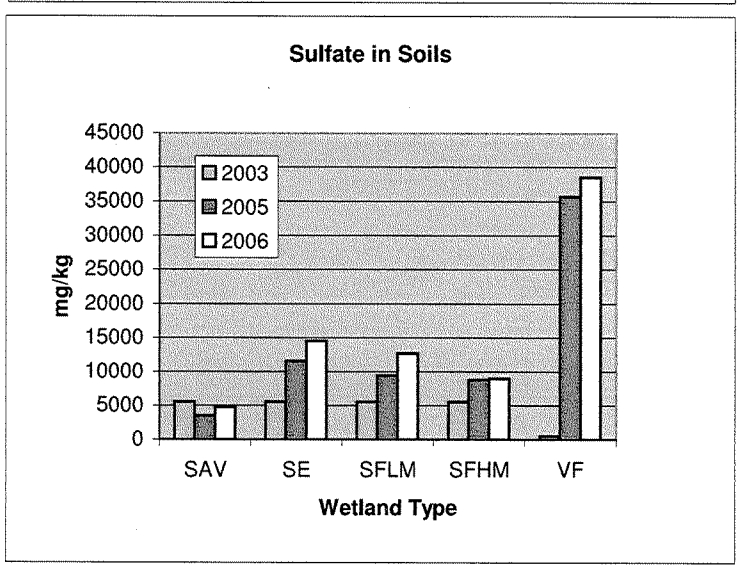


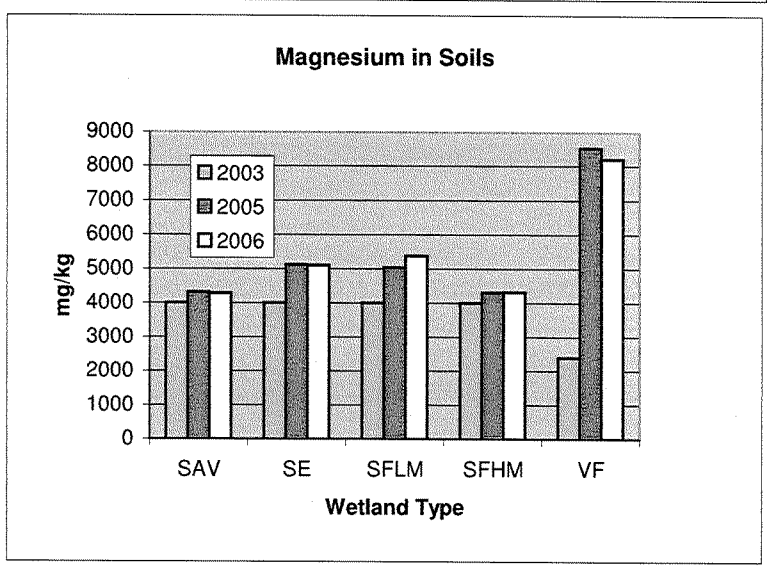
APPENDIX C

ANALYTICAL RESULTS FOR SEDIMENT AND PLANT TISSHUE SAMPLING (JULY 2006)









D. Special Use Permit Resolution

RESOLUTION NO. [PZ 07-500-13]

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF OXNARD APPROVING SPECIAL USE PERMIT NO. PZ 07-500-13, FOR PROPERTY LOCATED AT THE NORTHEAST CORNER OF PERKINS ROAD AND MAGELLAN ROAD (APN 231-009-225). FILED BY CITY OF OXNARD PUBLIC WORKS DEPARTMENT, 305 WEST THIRD STREET, OXNARD, CA 93030.

WHEREAS, the Planning Commission of the City of Oxnard has considered an application for a special use permit to allow the development of the Advance Water Purification Facility consisting of a visitor center, process building, chemical building, parking, service areas, perimeter fencing, and demonstration wetland located at the northeast corner of Perkins Road and Magellan Road, filed by the City of Oxnard Public Works Department, in accordance with sections 16-530 through 16-561 of the Oxnard City Code; and

WHEREAS, the Groundwater Recovery Enhancement and Treatment (GREAT) Program Final Environmental Impact Report (EIR No. 04-01) has been certified for this project, and the Planning Commission has considered said final environmental impact report before making its recommendation herein; and

WHEREAS, in accordance with the California Environmental Quality Act Section 15164, GREAT Program Final EIR Addendum No. 1 was prepared, the Planning Commission considered Addendum No. 1; and the Planning Commission finds on the basis of the whole record before it there is no substantial evidence that the project will have a significant effect on the environment and that the GREAT Program Final EIR Addendum No. 1 reflects the independent judgment of the City; and

WHEREAS, the Planning Commission finds, after due study, deliberation and public hearing, that the following circumstances exist:

1. That the proposed use is in conformance with the 2020 General Plan and other adopted policies of the City of Oxnard.

2. That the proposed project will not adversely affect or be materially detrimental to adjacent uses, buildings, or structures nor the public health, safety, or general welfare.

3. The project site is adequate is size and shape to accommodate requirements for yards, walls, fences, parking, loading facilities, and landscaping.

4. The project site is served by adequate roadway, sewer, water, fire, and storm drain facilities.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission of the City of Oxnard hereby approves this permit, subject to the following conditions. The decision of the Planning Commission is final unless appealed in accordance with the provisions of Section 16-545 of the City Code.

PROJECT CONDITIONS

Note: The abbreviations below identify the City department or division responsible for determining compliance with these standard conditions. The first department or division listed has responsibility for compliance at plan check, the second during inspection and the third at final inspection, prior to issuance of a certificate of occupancy, or at a later date, as specified in the condition. If more than one department or division is listed, the first will check the plans or inspect the project before the second confirms compliance with the condition. The italicized code at the end of each condition provides internal information on the source of each condition: Some are standard permit conditions (e.g. *G-1*) while some are taken from environmental documents (e.g. *MND-S2*).

DEPARTMENTS AND DIVISIONS			
CA	City Attorney	PL	Planning
DS	Dev Services/Eng Dev/Inspectors	TR	Traffic
PD	Police	B	Building Plan Checker
SC	Source Control	FD	Fire
PK	Parks	CE	Code Enforcement

GENERAL CONDITIONS

1. This permit is granted for the property described in the application on file with the Planning and Environmental Services Division ("Planning Division"), and may not be transferred from one property to another. (PL, *G-1*).

2. This permit is granted for the plans dated January 12, 2008, ("the plans") on file with the Planning Division. The project shall conform to the plans, except as otherwise specified in these conditions, or unless a minor modification to the plans is approved by the Planning and Environmental Services Manager ("Planning Manager") or a major modification to the plans is approved by the Planning Commission. A minor modification may be granted for minimal changes or increases in the extent of use or size of structures or of the design, materials or colors of structures or masonry walls. A major modification shall be required for substantial changes or increases in such items. (PL, *G-2*)

3. This permit shall automatically become null and void 36 months from the date of its issuance, unless Developer has diligently developed the proposed project, as shown by the issuance of a grading, foundation, or building permit and the construction of substantial improvements, or the beginning of the proposed use. (PL, *G-3*)

4. All required off-site and on-site improvements for the project, including structures, paving, and landscaping, shall be completed prior to occupancy unless the Development Services Manager allows Developer to provide security or an executed agreement approved by the City Attorney to ensure completion of such improvements. (DS, *G-4*)

5. Before placing or constructing any signs on the project property, Developer shall obtain a sign permit from the City. Except as provided in the sign permit, Developer may not change any signs on the project property. (PL/B, *G-10*)

6. Developer shall obtain a building permit for any new construction or modifications to structures, including interior modifications, authorized by this permit. (B, *G-11*)

7. Developer shall not permit any materials classified as flammable, combustible, radioactive, carcinogenic or otherwise potentially hazardous to human health to be handled, stored or used on the project property, except as provided in a permit issued by the Fire Chief. (FD, *G-13*)

8. All mitigations and the Mitigation Monitoring and Reporting Plan of the GREAT Program Final Environmental Impact Report (SCH #2003011045) and the Demonstration Wetlands Addendum are incorporated by reference as conditions of approval, as applicable.

LANDSCAPE STANDARD CONDITIONS

9. Before the City issues building permits or the proposed use is initiated, Developer shall submit two copies of landscape and irrigation plans, along with the appropriate permit application and fees, to the Development Services Division and obtain approval of such plans. (PK/DS, *PK-2*)

10. Before the City issues a certificate of occupancy, Developer shall install landscape and automatic irrigation systems that have been approved by Parks and Facilities Superintendent. (PK, *PK-3*)

11. Developer shall maintain landscape planting and all irrigation systems as required by the City Code and as specified by this permit. Failure of Developer to do so will result in the revocation of this permit and initiation of legal proceedings against Developer. (PK, *PK-4*)

12. Before the City issues a certificate of occupancy, Developer shall provide a watering schedule to the building owner or manager and to the Parks and Facilities Superintendent. The irrigation system shall include automatic rain shut-off devices, or instructions on how to override the irrigation system during rainy periods. (PK, *PK-5*)

13. All trees planted or placed on the project property by Developer shall be at least 24-inch-box size. All shrubs and vines shall be at least five-gallon size, except as otherwise specified by this permit. (PK, PK-6)

14. Developer shall install an irrigation system that includes a water sensor shut off device as a water conservation measure. (PK, PK-22)

FIRE DEPARTMENT STANDARD CONDITIONS

15. Developer shall construct all vehicle access driveways on the project property to be at least 25 feet wide. Developer shall mark curbs adjacent to designated fire lanes in parking lots to prohibit stopping and parking in the fire lanes. Developer shall mark all designated fire lanes in accordance with the California Vehicle Code. (FD/B, F-1)

16. All roof covering materials on the project property shall be of non-combustible or fire retardant materials approved by the Fire Chief and in compliance with the City Code. (FD, F-2)

17. Before the City issues building permits, Developer shall obtain the Fire Chief's approval of a plan to ensure fire equipment access and the availability of water for fire combat operations to all areas of the project property. The Fire Chief shall determine whether or not the plan provides adequate fire protection. (FD/DS, F-3)

18. At Developer's expense, Developer shall obtain two certified fire flow tests for the project property. The first test shall be completed before City approval of building plans and the second shall be completed after construction and prior to the issuance of a certificate of occupancy. A mechanical, civil, or fire protection engineer must certify the tests. Developer shall obtain permits for the tests from the Engineering Division. Developer shall send the results of the tests to the Fire Chief and the City Engineer. (FD/DS, F-4)

19. All structures on the project property shall conform to the minimum standards prescribed in Title 19 of the California Code of Regulations. (FD, F-5)

20. The project shall meet the minimum requirements of the "Fire Protection Planning Guide" published by the Fire Department. (FD, F-6)

21. At all times during construction, developer shall maintain paved surfaces capable of handling loads of 46,000 pounds which will provide access for fire fighting apparatus to all parts of the project property. (FD/DS, F-7)

22. Developer shall identify all hydrants, standpipes and other fire protection equipment on the project property as required by the Fire Chief. (FD, F-8)

23. Developer shall install security devices and measures, including walkway and vehicle control gates, entrance telephones, intercoms and similar features, subject to approval of the Police Chief and the Fire Chief. Vehicle control gates shall be operable by City approved radio equipment. (FD/PD, F-9)

24. Developer shall provide central station monitoring of the fire sprinkler system and all control valves. (FD, F-10)

25. The turning radius of all project property driveways and turnaround areas used for emergency access shall be a minimum of 48 feet outside diameter for a semi-trailer. (FD, F-11)

26. Developer shall provide automatic fire sprinklers as required by the City Code and shall contact the Fire Chief to ascertain the location of all connections. (FD, F-12)

27. Developer shall comply with Certified Unified Program Agency (CUPA) requirements regarding the storage, handling and generation of hazardous materials or waste. Prior to the issuance of building permits, Developer shall contact the CUPA division of the Fire Department to ensure that such requirements are followed. (FD, F-16)

28. Before the City issues a certificate of occupancy, the Developer shall install a Knox Box key vault at a location on the building to be determined by the Fire Department.

POLICE DEPARTMENT CONDITIONS

29. Metal halide lamps or those that provide quality color rendition are required.

30. Any electronic security system must comply with Oxnard City Ordinance No. 2601 (available online at http://oxnardpd.org/documents/alarm-ordinance-2002.pdf) and must be properly permitted by the City of Oxnard (available online at http://oxnardpd.org/documents/alarm-permit.pdf).

31. Video surveillance is required in the parking area, visitor's center, other public areas and any sensitive areas. comply with "Oxnard Police Department Proposed Standards, Guidelines & Recommendations Closed-Circuit Television (CCTV) Surveillance Systems," available online at http://www.oxnardpd.org/documents/opdcctv.pdf.

32. Exterior lighting shall be on photocells and shall be on during all hours of darkness.
OUTDOOR LIGHTING CODE & GUIDELINE
    (a) Outdoor lighting shall comply with Title 24, Part 6, of the California Code of Regulations: California's Energy Efficiency Standards for Residential and Nonresidential Buildings.
    (b) Unless approved as a specific exception to this guideline, all outdoor lighting shall be flat lens, full cut-off fixtures with the light source fully shielded with the following exceptions:
        - ☐ Luminaires with a maximum output of 260 lumens per fixture, regardless of number of bulbs (equal to one 20-watt incandescent light), may be left unshielded provided the fixture has an opaque top to keep light from shining directly up.
        - ☐ Luminaires that have a maximum output of 1,000 lumens per fixture, regardless of number of bulbs (equal to one 60-watt incandescent light) may be partially shielded provided the bulb is not visible, and the fixture has an opaque top to keep light from shining directly up.

(c) Lighting within physical limits of the area required to be lighted shall not exceed seven foot-candles, nor be less than one foot-candle at any point. A light source shall not shine upon, or illuminate directly any surface other than the area required to be lighted. No lighting shall be of a type or in a location that constitutes a hazard to vehicular traffic, either on private property or on abutting streets. The height of light standards shall not exceed 26 feet. To prevent damage from automobiles, standards in parking areas shall be mounted on reinforced concrete pedestals or otherwise protected.

PLANNING DIVISION CONDITIONS

33. This Special Use Permit shall not be effective unless and until General Plan Amendment PZ 08-620-01 has been adopted by the City Council.

34. All mitigations measures in the GREAT Program EIR are included by reference, as are requirements for mitigation monitoring.

35. The final building plans submitted by Developer with the building permit application shall depict on the building elevation sheets all building materials and colors to be used in construction. (PL/B, *PL-1*)

36. Any application for a minor modification to the project shall be accompanied by four copies of plans reflecting the requested modification, together with applicable processing fees. (PL, *PL-2*)

37. Before the City issues building permits, Developer shall include a reproduction of all conditions of this permit as adopted by resolution of the Planning Commission and/or the City Council in all sets of construction documents and specifications for the project. (PL, *PL-3*)

38. Before the City issues building permits, Developer shall provide to the Planning Division Manager color photographic reductions (8 1\2" by 11") of full-size colored elevations and any other colored exhibit approved by the Planning Commission. Developer may retain the full-size colored elevations after the reductions are so provided. (PL, *PL-4*)

39. During the plan check review process, the Developer shall provide a lighting plan that provides design details (light standards, bollards, wall mounted packs, etc.) and illumination site information within alleyways, pathways, streetscapes, and open spaces proposed throughout the development. An electrical engineer shall prepare the site lighting plan demonstrating that adequate lighting ranges will be provided throughout the development without creating light spillover, light pollution, or conflicts with surrounding factors such as tree locations, off-site or adjacent lighting. (PL)

40. Prior to issuance of building permits, Developer shall demonstrate that light standards illustrated on conceptual lighting plan do not conflict with tree locations. Developer shall submit a plan showing both the lighting and landscape on the same sheet.

41. In order to minimize light and glare on the project property, all parking lot and exterior structure light fixtures shall be high cut-off type that divert lighting downward onto the property and shall not cast light on any adjacent property or roadway. (PL, *PL-9*)

42. Before the City issues building permits, Developer shall provide to the Planning Division Manager a disk in DWG format of a 100-foot scale site plan of the project as approved. (PL, *PL-50*)

43. Developer shall install toilets that have automatic flush sensors in all public restrooms. Such toilets shall be included on the plans submitted for a building permit and shall be maintained and in working order at all times. (PL, *PL-44*)

44. Developer shall install individual mirrors above each sink in a public restroom to the satisfaction of the Planning Division Manager. The details of such mirrors shall be approved prior to issuance of a building permit. Developer shall remove graffiti from the mirrors or replace the mirrors within 24 hours of graffiti appearance. (PL, *PL-45*)

45. Developer shall limit outdoor storage of materials to the locations shown on the project plans. Developer shall screen storage areas from adjacent properties and streets by a wall or similar screening. All fence and wall materials shall match the predominant design and materials of the main structure on the project property. (PL/B, *PL-48*)

DEVELOPMENT SERVICES DIVISION STANDARD CONDITIONS

46. Developer shall pay plan check and processing fees in effect at the time of construction plan submittal and shall pay development fees, encroachment permit fees, and other applicable fees in effect at the time the City issues building permits. (DS-1)

47. Developer's Engineer shall design parking lot structural sections based on an analysis of the soils R-value and a traffic index (T.I.) approved by the City Engineer. The minimum structural section for parking lots is two inches of asphalt on four inches of base material. Developer shall show the proposed structural section on the site improvement plans. (DS-2)

48. Developer shall have the site improvement plans prepared on standard Development Services Division mylars by a civil engineer licensed in the State of California. The plans shall incorporate recommendations from soil engineering and geology reports. Prior to issuance of a grading permit, improvement plans must be approved by the City Engineer and the original ink-on-mylar plans filed with the Development Services Division. (DS-3)

49. Developer shall submit improvement plans and drainage calculations that demonstrate that storm drainage from the project property and all upstream areas will be safely conveyed to an

approved drainage facility. The design and conveyance route shall be compatible with the City's Master Plan of Drainage and shall be approved by the City Engineer prior to approval of improvement plans. (DS-4)

50. Developer shall protect building pads from inundation during a 100-year storm. (DS-5)

51. Developer shall remove and replace all improvements that are damaged during construction. (DS-6)

52. Before connecting the project to existing sewer and water service laterals, Developer shall arrange for City staff to inspect such facilities. Developer shall make such repairs to such facilities as City staff determines to be necessary. Developer shall bring all existing water services into compliance with City standards. (DS-7)

53. Curb cut widths and design shall conform to City ordinances, standards, and policies in effect at the time City issues an encroachment permit. (DS-9)

54. If the existing sewer lateral is larger than four inches in diameter, Developer's site improvement plans shall include an on-site sewer plan. (DS-10)

55. Where a separate loop or terminal line is required for water mains, fire hydrants or fire sprinkler systems, Developer's site improvement plans shall include an on-site water plan. (DS-11)

56. Developer shall remove graffiti from the project, including graffiti on offsite public infrastructure under construction by Developer, within 24 hours of its appearance. If Developer fails to remove graffiti in accordance with this condition, the City may at the discretion of the Development Services Manager issue a stop work order until such time as the graffiti is removed. (DS-20)

57. The conditions of this resolution shall prevail over all omissions, conflicting notations, specifications, dimensions, typical sections, and the like, that may or may not be shown on the improvement plans. (DS-21)

58. Developer shall pay the cost of all inspections of on-site and off-site improvements. (DS-22)

59. "Standard Specifications for Public Works Construction," latest edition, and any modifications thereto by City, and City of Oxnard Standard Land Development Specifications and all applicable City Standard Plans, shall be the project specifications, except as noted otherwise on the approved improvement plans. City reserves the right to upgrade, add to, or revise these specifications and plans and all other City ordinances, policies, and standards. If the improvements required of this project are not completed within 12 months from the date of City's approval of the improvement plans, Developer shall comply with and conform to any

and all upgraded, additional or revised specifications, plans, ordinances, policies and standards. (DS-27)

60. Developer shall retain a Civil Engineer licensed in the State of California to ensure that the construction work conforms to the approved improvement plans and specifications and to provide certified "as-built" plans after project completion. Developer's submittal of the certified "as-built" plans is a condition of City's final acceptance of the project. (DS-29)

61. All grading shall conform to City's grading ordinance and any recommendations of Developer's soils engineer that have been approved by the City Engineer. Developer shall conform to all applicable notes specified on the site improvement/grading plan cover sheet and grading permit. (DS-30)

62. In order to mitigate any potential flooding or erosion affecting adjacent properties and public rights-of-way, Developer shall construct required drainage facilities concurrently with the rough grading operations, or with prior approval of the City Engineer, provide interim drainage improvements on a temporary basis. (DS-31)

63. Storm drain, sewer and water facilities shall conform to applicable City Master Plans. Developer shall prepare plans for these facilities in accordance with City's engineering design criteria in effect at the time of improvement plan submittal. Developer shall submit plans with pertinent engineering analyses and design calculations for review and approval by the City Engineer prior to issuance of a site improvement permit. (DS-34)

64. Prior to issuance of a site improvement permit, Developer shall provide to the City Engineer easements or written consents from all affected landowners for any diversion of historical flows or change in drainage conditions caused by the project, as evidence that such landowners accept any additional water flowing over their property. (DS-36)

65. Developer shall dispose of sewage and solid waste from the project by City's wastewater and solid waste systems in a manner approved by the City Engineer. (DS-38)

66. Developer shall install water mains, fire hydrants and water services in conformance with City Standard Plans and specifications as directed by the City Engineer. (DS-41)

67. Prior to issuance of building permits, Developer shall present to the City Engineer a "Proof of Payment - Authorization for Building Permits" form issued by the Calleguas Municipal Water District. (DS-44)

68. Developer shall install City approved backflow prevention devices for water connections if so ordered by the City Engineer. (DS-45)

69. Developer shall improve all streets, alleys, sidewalks, curbs, and gutters adjacent to the project in accordance with City standards, as necessary to provide safe vertical and horizontal transitions. (DS-52)

70. Developer shall install all water, gas, sewer, storm drain, electrical, cable television, and telephone lines before any paving is placed. (DS-54)

71. Developer shall submit a landscape irrigation plan prepared by a licensed professional, showing proper water meter size, backflow prevention devices, and cross-connection control. (DS-59)

72. Developer shall be responsible for and bear the cost of replacement of all existing survey monumentation (e.g., property corners) disturbed or destroyed during construction, and shall file appropriate records with the Ventura County Surveyor's Office. (DS-64)

73. Developer shall provide adequate vehicle sight distance as specified by CalTrans specifications at all driveways and intersections. (TR-71)

74. Developer shall install bike racks in accordance with City standards at locations approved by City Traffic Engineer. (TR-73)

75. Prior to issuance of a building permit, all traffic signal, pavement marking and sign plans shall be prepared by a registered California traffic engineer and approved by the City Engineer prior to issuance of a grading, site improvement or a building permit. (TR-74)

76. Prior to issuance of an encroachment permit, Developer's shall obtain City's approval of a contractor qualified to install traffic signals, pavement markings and signs. (TR-76)

STORMWATER QUALITY CONDITIONS

77. Developer shall comply with all National Pollutant Discharge Elimination System (NPDES) permit Best Management Practice (BMP) requirements in effect at the time of grading or building permit issuance. Requirements shall include, but not be limited to, compliance with the Ventura Countywide Stormwater Quality Urban Impact Mitigation Plan (SQUIMP). (DS-78)

78. Developer shall design parking lot and other drive areas to minimize degradation of stormwater quality. Using Best Management Practices (BMPs), such as oil and water separators, sand filters, landscaped areas for infiltration, basins or approved equals, Developer shall intercept and effectively prevent pollutants from discharging to the storm drain system. The stormwater quality system design shall be approved by the City Engineer prior to the issuance of a site improvement permit. (DS-81)

79. Developer shall clean on-site storm drains at least twice a year; once immediately before the first of October (the beginning of the rainy season) and once in January. The City Engineer may require additional cleaning. (DS-83)

80. Developer shall maintain parking lots free of litter and debris. Developer shall sweep sidewalks, drive aisles, and parking lots regularly to prevent the accumulation of litter and debris. When swept or cleaned, debris must be trapped and collected to prevent entry into the storm drain system. Developer may not discharge any cleaning agent into the storm drain system. (DS-84)

81. Prior to issuance of a certificate of occupancy, on-site storm drain inlets shall be labeled "Don't Dump - Drains to Ocean" in accordance with City standards. Before City issues a site improvement permit, the requirement to label storm drain inlets shall be shown on the civil engineering plans. (DS-85)

82. Prior to issuance of a grading permit or commencement of any clearing, grading or excavation, Developer shall provide the City Engineer with a copy of a letter from the California State Water Resources Control Board, Storm Water Permit Unit assigning a permit identification number to the Notice of Intent (NOI) submitted by Developer in accordance with the NPDES Construction General Permit. Developer shall comply with all additional requirements of the General Permit, including preparation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP shall identify potential pollutant sources that may affect the quality of discharges to stormwater and shall include the design and placement of recommended Best Management Practices (BMPs) to effectively prohibit pollutants from the construction site entering the storm drain system. Developer shall keep the SWPPP updated to reflect current site conditions at all times and shall keep a copy of the SWPPP and the NOI on the site and make them available for City or designated representative to review upon request. (DS-86)

83. Prior to issuance of a site improvement permit, Developer shall provide to the Development Services Division a compact Disc (CD) containing digital copies of the final subdivision map, address map, and civil improvements drawings in DWG format. Prior to improvement bond release, Developer shall provide an updated CD containing all changes that occur during construction. (DS-101)

84. Developer shall design and construct/reconstruct the Perkins Road crossing of the railroad tracks adjacent to this project. Design shall include the full width of pavement, curb, gutter and sidewalks (both sides). Developer shall obtain appropriate permits from the Railroad. (DS)

85. Prior to issuance of a site improvement permit, Developer shall provide hydraulic calculations based on recent nearby flow tests demonstrating that fire flow requirements are met by proposed onsite hydrant system. Developer to design onsite fire hydrant system in accordance with City standards. (DS)

86. Developer shall design project to minimize degradation of stormwater quality. Using Best Management Practices (BMPs), such as oil and water separators, sand filters, landscaped areas for infiltration, basins or approved equals, Developer shall intercept and effectively prevent pollutants from discharging to the storm drain system. The stormwater quality system design shall be approved by the City Engineer prior to issuance of a site improvement permit. (DS)

87. Developer shall provide documentation that proposed proprietary Best Management Practice Device meets City requirements for removal efficiency and ease of maintenance. Final determination shall be at the discretion of the City Engineer. (DS)

88. Developer shall construct a public sidewalk along the full frontage of the project. Sidewalk shall be a minimum of 5 feet wide with a 7 foot landscaped parkway except at the bus pull-out where the sidewalk shall be a minimum of 7 feet wide with no parkway. (DS)

89. Developer shall provide a drainage report demonstrating that the existing storm drain system in Perkins Road is capable of conveying site stormwater to a safe point of discharge. Developer shall upgrade any downstream infrastructure determined to be unable to safely convey the proposed runoff. (DS)

90. Developer's Engineer shall include within the project drainage report an evaluation of the drainage pattern of the property to the north. Any diversion of historical offsite drainage flows or change in drainage conditions caused by the project shall be mitigated to the property owner's satisfaction. (DS)

91. Developer shall design perimeter join slopes such that drainage does not cross property lines unless Developer obtains an appropriate easement from the adjacent property owner. (DS)

PASSED AND ADOPTED by the Planning Commission of the City of Oxnard on this 20th day of March, 2008 by the following vote:

AYES: Commissioners:

NOES: Commissioners:

ABSENT: Commissioners:

ABSTAIN: Commissioners:

_____
Michael Sanchez, Chairman

ATTEST: _____
Susan L. Martin, Secretary

E. General Plan Amendment Resolution

RESOLUTION NO. [PZ 08-620-1]

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF OXNARD RECOMMENDING TO THE CITY COUNCIL ADOPTION OF PLANNING AND ZONING PERMIT NO. 08-620-1 FOR A GENERAL PLAN AMENDMENT TO AMEND THE LAND USE MAP FOR PROPERTY LOCATED AT THE NORTHEAST CORNER OF PERKINS ROAD AND MAGELLAN ROAD. FILED BY CITY OF OXNARD PUBLIC WORKS DEPARTMENT, 305 WEST THIRD STREET, OXNARD, CA 93030.

WHEREAS, the Planning Commission of the City of Oxnard has considered an application for Planning and Zoning Permit No. 08-620-1, a General Plan Amendment for one property known as APN 231-009-225), applied for by the City of Oxnard Public Works Department; and

WHEREAS, the Planning Commission has held public hearings and received and reviewed written and oral comments related to proposed Planning and Zoning Permit No. 08-620-1; and

WHEREAS, the Planning Commission finds after due study and deliberation that the public interest and general welfare require the adoption of Planning and Zoning Permit No. 08-620-1; and

WHEREAS, the Groundwater Recovery Enhancement and Treatment (GREAT) Program Final Environmental Impact Report (EIR No. 04-01) has been certified for this project, and the Planning Commission has considered said final environmental impact report before making its recommendation herein; and

WHEREAS, the GREAT Program Final EIR included mitigation measure Land Use 1 that requires the subject general plan amendment as shown in Exhibit "A" attached hereto.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission of the City of Oxnard hereby recommends to the City Council adoption of Planning and Zoning Permit No. 08-620-1 amending the 2020 General Plan Land Use Map (Figure V-5) land use designation as shown in Exhibit "A" attached hereto and incorporated herein by reference.

PASSED AND ADOPTED by the Planning Commission of the City of Oxnard on this 20th day of March, 2008, by the following vote:

AYES: Commissioners:

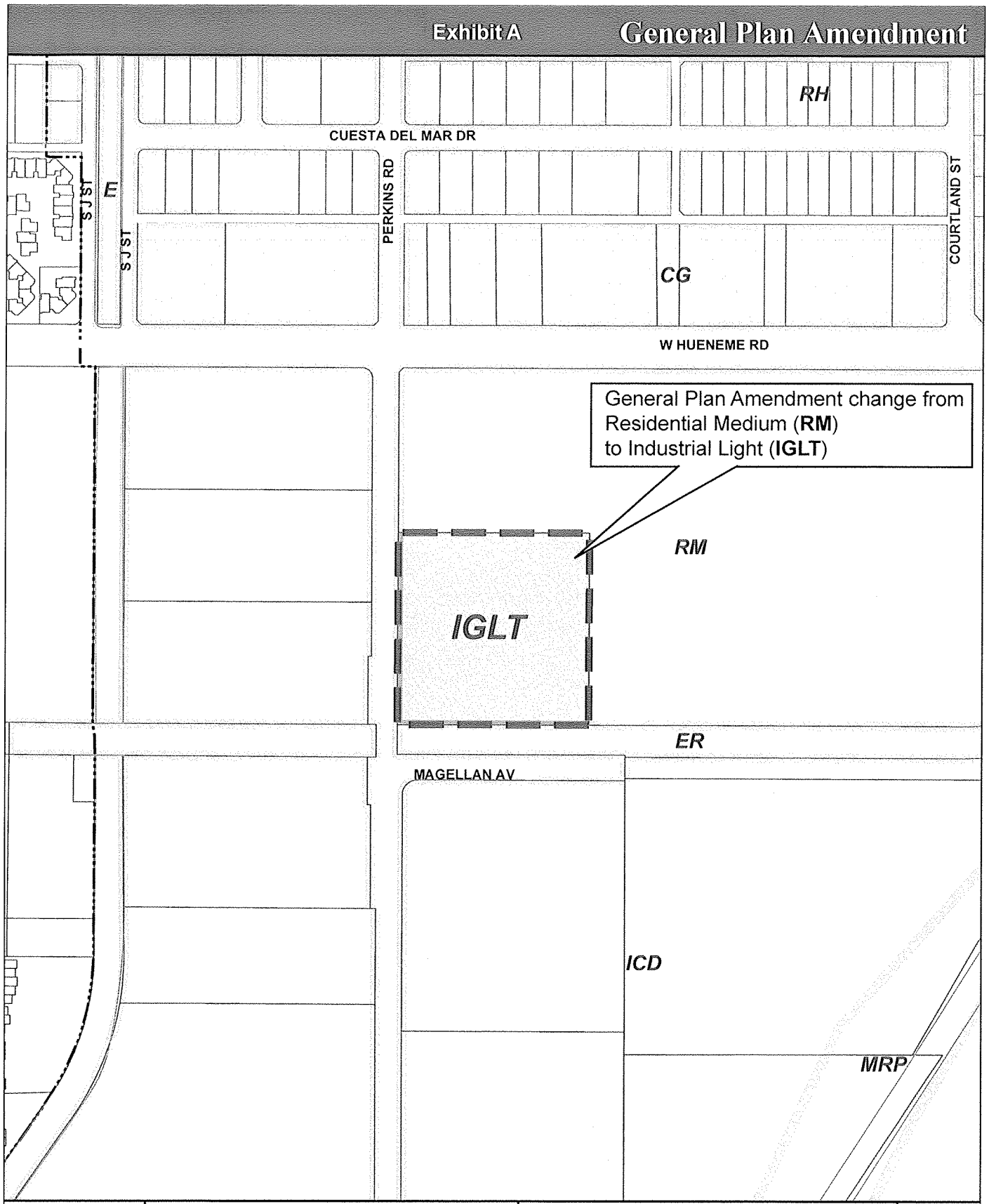
NOES: Commissioners:

ABSENT: Commissioners:

_____
Michael Sanchez, Chairman

ATTEST: _____
Susan L. Martin, Secretary

Exhibit A **General Plan Amendment**



Oxnard Planning
March 10, 2008

PZ 08-625-01
Location: NEC Perkins & Magellan Av
APN: 231009225
City of Oxnard

0 62.5 125 250 375 500 Feet

General Plan Amendment
Exhibit A

N W E S